LUBRICATION ORDER

8 JULY 1994

LO 9-2350-247-12

(Supersedes LO 9-2350-247-12, March 1982)

CARRIER, CARGO TRACKED, 6-TON: M548A1-2350-01-096-9356
CARRIER, CARGO, TRACKED, 6-TON: M548A3-2350-01-369-6081
CARRIER, ELECTRONIC WARFARE SYSTEMS, TRACKED, 6-TON: M1015A1-2350-01-136-8745

Reference: TM 9-2350-247-10, TM 9-2350-247-20, IL 91OOSL, TB 43-0106, TM 9-2300-422-23 & P, FM 9-207

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 Command, ATTN: AMSTA-MB, Warren, MI 48397-5000. A reply will be furnished directly to you.

Lubrication intervals, other than the AOAP On-Condition (OC) symbol, will be indicated by one of the following symbols: Before operation (B), Daily (D), After (AF), Weekly (W), Monthly (M), 1,500 miles (2400 km), Semi-annually (S), or Annually (AN). Additionally, the “either-or” clause may be utilized to reflect hard time intervals where AOAP is not required or not available (i.e., “1,500 miles or semi-annually”, “6000 miles or annually”, etc).

On-condition (OC) AOAP Laboratory determined 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.

The lowest level of maintenance authorized to lubricate a point is indicated by one of the following symbols as appropriate: Operator/Crew (C) or Unit Maintenance (O).

Oil filled components such as engine, transmission, final drives, and fan gear box on the M548A1/M1015A1 and M548A3 carriers use approved OE/HDO type oil (see Temperature Key Charts for required oils). For specific data, see applicable pages in this Lubrication Order.

On drawings, arrows indicate lubrication points on equipment.

WARNING

Dry cleaning solvent PD-680 is toxic and flammable. Death or injury may result. Always use in an open area with good air flow, away from sparks, heat, or flames. Wear protective goggles and gloves. Do not breathe vapors. Avoid contact with skin, eyes, and clothes. If you get dizzy while using solvent, breathe fresh air and get medical help. If solvent gets on hands, wash them. If solvent gets in eyes, flush eyes with fresh water and get medical help immediately. Keep fire extinguisher nearby.

NOTE

Park carrier on level ground to check oil levels. Clean fittings with dry cleaning solvent (PD-680, Type III, or equivalent). Dry before lubricating. Check/lubricate all oil and grease fitting points after washing or fording.

Approved for public release: distribution is unlimited.

ARMY OIL ANALYSIS PROGRAM (AOAP)

AOAP is an effective maintenance diagnostic tool and not a maintenance substitute. TB 43-0106 and TM 9-2300-422-23&P must not be interpreted to mean that AOAP minimizes in any way the need to employ good maintenance practices and strong maintenance discipline.

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 these requisites apply to both routine and special sampling. Several hours of operation are needed to completely mix old and new oils.

SAMPLING PROCEDURES

1. Perfrom AFTER operation checks and services.

NOTE

DO NOT ADD OIL immediately prior to taking oil samples. When AFTER operation checks and services indicate the need to replenish oil levels, WAIT until after taking samples. New oil added immediately prior to taking samples will adversely effect oil analysis results.

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

3. Start engine (TM 9-2350-247-10). If required (see Sampling Requirements), drive carrier to bring engine and transmission up to normal operating temperatures.

4. Stop carrier and set the brakes (TM 9-2350-247-10).

5. Place range selector in the N (Neutral) position and keep engine running. On M548A3, lock the steering wheel (TM 9-2350-247-10).

6. Raise crew seat and center floor plate (TM 9-2350-247-10).

7. With engine operating, remove dust caps from the 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 sampling 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 9-2350-247-10).

12. Lower crew seat and center floor plate (TM 9-2350-247-10).

13. Deliver sample bottles to the unit AOAP monitor.

NOTE

For location of nearest AOAP Laboratory and complete information about AOAP, refer to TB 43-0106. "Oil filters shall be serviced/cleaned/changed as applicable, when:

- **a. They are known to be contaminated, or clogged;**
- **b. Service is recommended by AOAP Laboratory analysis, or**
- **c. At prescribed hard time intervals."**

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LUBRICANT • INTERVAL

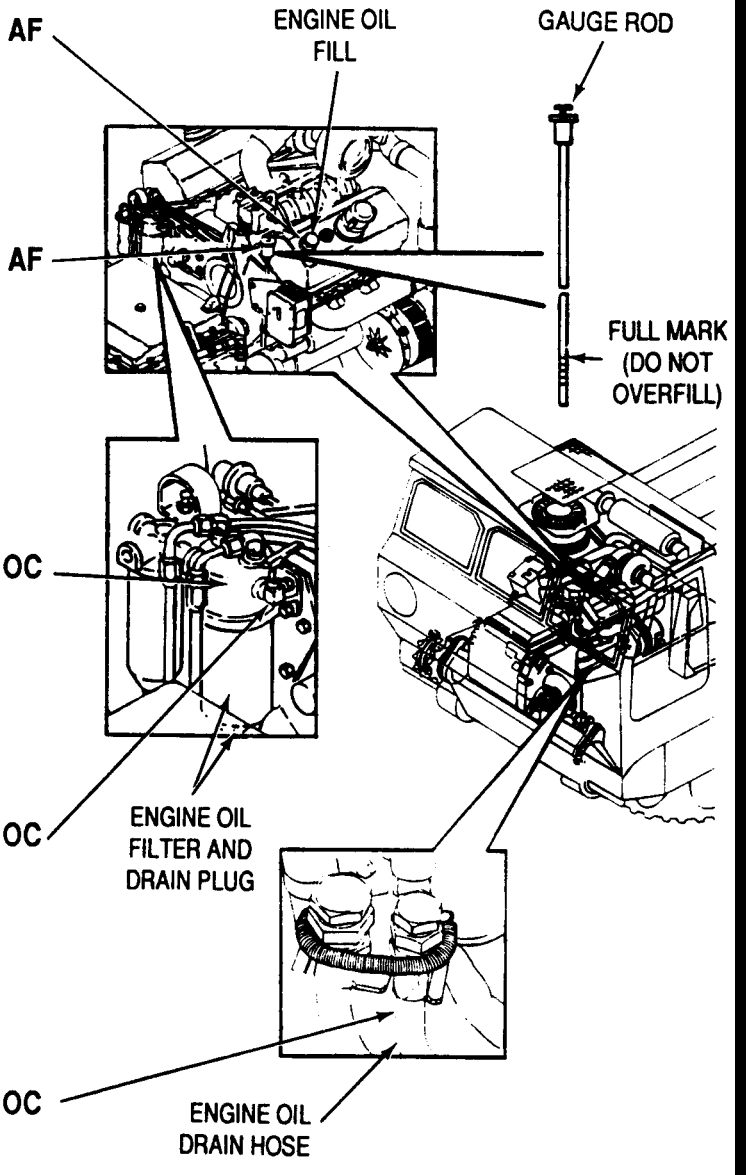
Engine Oil Fill OE/HDO (M548A3) (see notes 1 and 2) (C) — AF

Engine Oil Level Check OE/HDO (M548A3) (see note 3) (C) — AF

Engine Oil Filter and Drain Plug (M548A3) (see notes 6 and 7) (O) — OC

Engine AOAP Sample Valve (M548A3) (see note 4)(C) — OC

Engine Oil Drain (M548A3) (see notes 5, 7 and 8) (O) — OC



TOTAL MAN-HOURS	
INTERVAL	MAN-HR
AF	0.3
AF	0.1
OC	0.5
OC	0.2
OC	0.5

KEY

LUBRICANTS/COMPONENTS		REFILL CAPACITY (APPROX)	EXPECTED TEMPERATURES*		INTERVALS
			+5°F to +120°F	+40°F to -60°F	
OE/HDO (MIL-L-2104D) OR OEA (MIL-L-46167)	LUBRICATING OIL, INTERNAL COMBUSTION ENGINE	18 qt.	OE/HDO-15/40	OEA	AF - After
(MIL-L-21260)	Engine PRESERVAIION OIL		PE 30-1		OC - On Condition

*I For Arctic Operation Refer to FM 9-207

NOTES

1. ENGINE OIL FILL. OE/HDO 15/40 MUST NOT be mixed with single grade lubricants.

2. A complete oil and filter change is required when converting to a different grade of oil in accordance with Temperature Key Chart.

CAUTION

Engine can be damaged if engine is filled above FULL mark. Do not fill engine above FULL mark.

3. ENGINE OIL LEVEL. After operation, check for oil level between F and L marks on gauge rod. Add oil as necessary. Oil level should not be above F (full) mark.

4. FREQUENCY OF AOAP SAMPLE. Every 30 days, obtain a sample of engine oil. Samples should be taken as near the prescribed interval as possible. If sampling at the prescribed interval is not possible, a 10 percent variance is permissible.

5. HARD TIME INTERVAL. If AOAP Laboratory support is not available, then every 1,500 miles, or annually, drain oil and change filter. Hard time interval may be shortened if you are operating the equipment under adverse conditions.

6. ENGINE OIL FILTER. See TM 9-2350-247-20 for engine oil filter removal/installation instructions.

7. ENGINE OIL DRAIN. See TM 9-2350-247-20 for instructions.

NOTE

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

8. PRESERVATION OIL. If engine has preservation engine oil leave this oil in engine until first scheduled oil change. Maintain operating oil level by adding required quantity of same grade oil.

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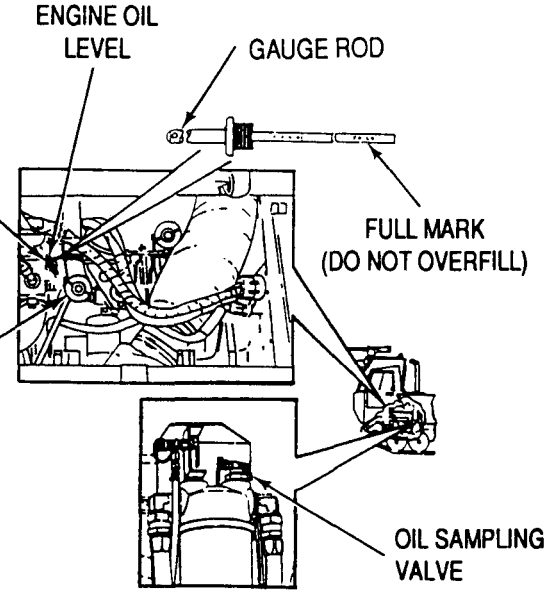
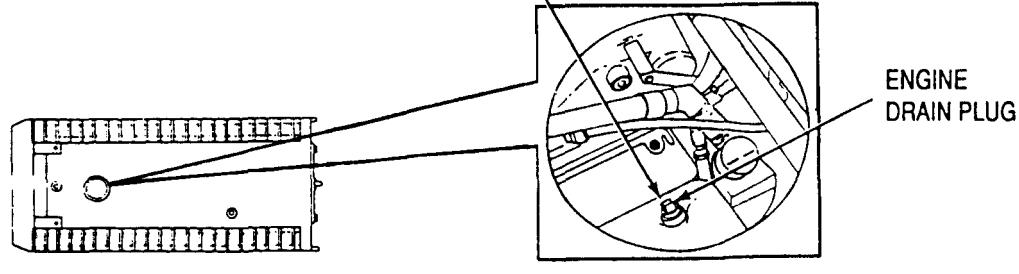
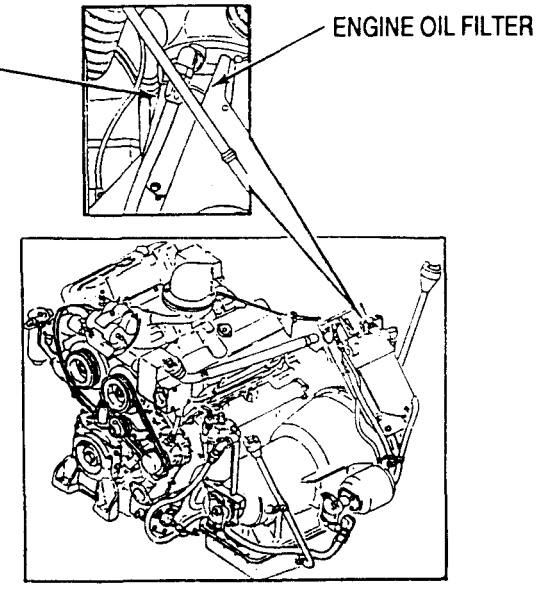
	LUBRICANT	• INTERVAL
Engine Oil Level (M548A1/M1015A1) (Check Level) (see note 1) (C)	OE/HDO	D
Engine Oil Fill (M548A1/M1015A1) (see note 1) (C)	OE/HDO	D
Engine Oil Drain (M548A1/M1015A1) (see notes 2, 4 and 5)(O)	-	OC
Engine Oil Filter (M548A1/M1015A1) (see note 3) (O)	-	OC







TOTAL MAN-HOURS	
INTERVAL	MAN-HR
D	0.1
D	0.3
OC	0.5
OC	0.5

KEY

LUBRICANTS		REFILL CAPACITY (APPROX)	EXPECTED TEMPERATURES*			INTERVALS
			Above 32°F	+40°F to -10°F	0°F to -65°F	
OE/HDO (MIL-L-2104C) OR OEA (MIL-L-46167D)	LUBRICATING OIL INTERNAL Combustion ENGINE Engine		HDO-30	HDO-10		D - Daily S - 150 Hours, 1,500 Miles or Semiannually OC - On Condition

For Arctic Operation Refer to FM 9-207

NOTES

1. ENGINE. Daily, after the mission, check oil for level between F and L marks on gauge rod. Add oil (OE/HDO) as required to bring level between F and L marks on gauge rod.

CAUTION
DO NOT overfill.

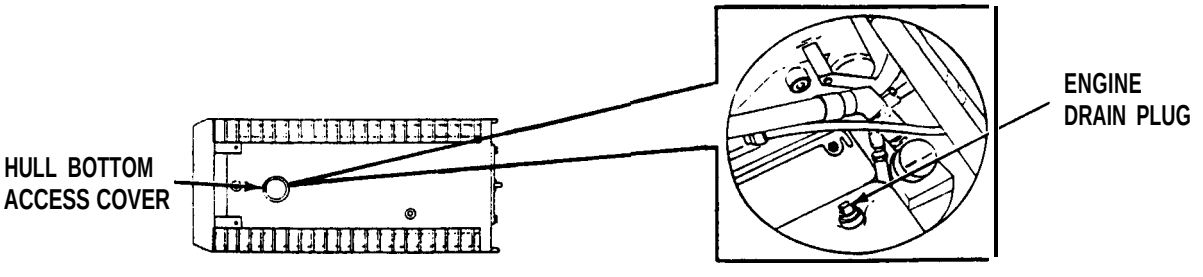
2. Every 25 hours of operation or 30 days (whichever comes first), obtain a sample of engine oil. Send this sample to the nearest AOAP Laboratory. To obtain oil samples from AOAP valves:

(1) Unlatch and raise grille behind cab on left side of carrier.
(2) Take oil sample of engine oil, using procedures given in TB 43-0106.

WARNING
Do not access AOAP valves from the power plant rear access panel opening as serious injury could result from air brake compressor belts.

NOTE
When using On Condition for engine oil, the engine oil filter should be changed at hard time intervals.

3. ENGINE OIL FILTER. On Condition during AOAP oil change, filter is to be replaced each time an engine oil change is indicated by AOAP Laboratory. When AOAP Laboratory is not available, change engine oil filter during engine oil hard time intervals every 150 hours, 1,500 miles, or semi-annually. See TM 9-2350-247-20 for engine oil filter removal and installation instructions.

4. When or if AOAP Laboratory support is unavailable, drain and refill crankcase and replace engine oil filter every 150 hours, 1,500 miles, or semi-annually. Drain only when hot after operation.

5. If engine has been filled with (PE) oil (preservative engine oil) leave this oil in engine until first scheduled oil change. Maintain operating oil level by adding applicable grade of oil (OE/HDO).