LUBRICATION ORDER

28 JULY 1993

LO 5-2420-224-12

TRACTOR, WHEELED, 4 X 4 DED SMALL EMPLACEMENT EXCAVATOR (SEE) (NSN 2420-01-160-2754) (EIC:EDL) AND TRACTOR, WHEELED, 4 X 4 DED HIGH MOBILITY MATERIAL HANDLER (HMMH) (NSN 2420-01-205-8636)

Reference: TM 5-2420-224-10 and **TM 5-2420-224-20**

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 the services prescribed for a particular interval. 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 your lubricants are contaminated or if you are operating the equipment under adverse operating conditions, including longer-than-usual operating hours. The hard time interval may be extended during periods of low activity. If extended, adequate preservation precautions must be taken. Hard time intervals will be applied in the event AOAP laboratory support is not available.

WARNING

Death or serious injury could result from repeated or prolonged breathing or skin contact of drycleaning solvent SD, type II, P-D-680, Use in well-ventilated area. Do not use near open flame or in excessive heat.

Clean fittings before lubricating. Clean parts with drycleaning solvent (SD), type II or equivalent. Dry before lubricating

NOTE

Dotted arrow points indicate lubrication on both sides of the equipment.

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 (0).

Reporting errors and recommending improvements. You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) direct to: Commander, US Army Tank-Automotive Command, ATTN: AMSTA-MB, Warren, MI 48397-5000. A reply will be furnished to you.

TOTAL MAN-HOURS

INTERVAL	MAN-HOURS
D	0.4
M	3.5
Q	4.0
S	4.5
A	5.0

KEY

LUBRICANTS		CAPACITIES	EXPECTED TEMPERATURES			INTERVALS
			Above +32°F (Above 0°C)	+40° to -10°F (+4° to -26°C)	0° to -65°F (-17° to -53°C)	
OE/HDO (MIL-L-2104)	LUBRICATING OIL, Internal Combustion Engine, Tactical Service	As Required	OE/HDO 15W40	OE/HDO-10	OEA	D – Daily/ 10 hours M – Monthly/ 50 hours Q – Quarterly/ 250 hours S – Semiannually/ 500 hours A – Annually/ 1000 hours OC – On-condition
OEA (MIL-L-46167)	LUBRICATING OIL, Internal Combustion Engine, Arctic	As Required				
	Engine Crankcase	Max 11.6 qt (11.0 l) Min 8.4 qt (8.0 l)				
	Engine Oil Filter	1.05 qt (1.0 l)				
	Hydraulic System	Front 44 qt (41.6 l) Rear 84 qt (79.4 l)	OE/HDO-10	OE/HDO-10	OEA	
	Power Steering Reservoir	3 qt (2.8 l)				
	Front Suspension Lockout System (HMMH)	1 qt (0.94 l)				
GO (MIL-L-2105)	Transmission	7 qt (6.6 l)	GO-80/90	GO-80/90	GO-75	
	Front and Rear Axle Hub Drives	0.25 qt ea (0.23 l)				
	Front and Rear Differentials	2.4 qt (2.25 l)				
(MIL-B-46176)	Hydraulic Brake System	0.8 qt (0.75 l)	ALL TEMPERATURES			
	Hydraulic Clutch System	0.2 qt (0.19 l)				
PL (Medium MIL-L-3150) (Special VV-L-800)	LUBRICATING OIL, General Purpose	As Required	PL-M (Medium)	PL-S (Special)	PL-S (Special)	
GAA (MIL-G-10924)	GREASE, Automotive and Artillery	As Required	ALL TEMPERATURES			
SD-Type II (P-D-680)	SOLVENT, Drycleaning	As Required	ALL TEMPERATURES			
Inhibited Heavy Duty (MIL-A-46153)	Radiator System Coolant Antifreeze	24 qt (23 l)			Above -40°F (Above -40°C)	
Arctic Type (MIL-A-11755)	Radiator System Antifreeze	24 qt (23 l)			-40° to -85°F (-40° to -65°C)	
Alcohol – Ethyl, Methanol, or Denatured	Brake Compressed Air Antifreeze Unit	0.2 qt (0.19 l)	ALL TEMPERATURES			

For Arctic operation refer to TM 9-207

OIL ANALYSIS PROGRAM SAMPLING PROCEDURES

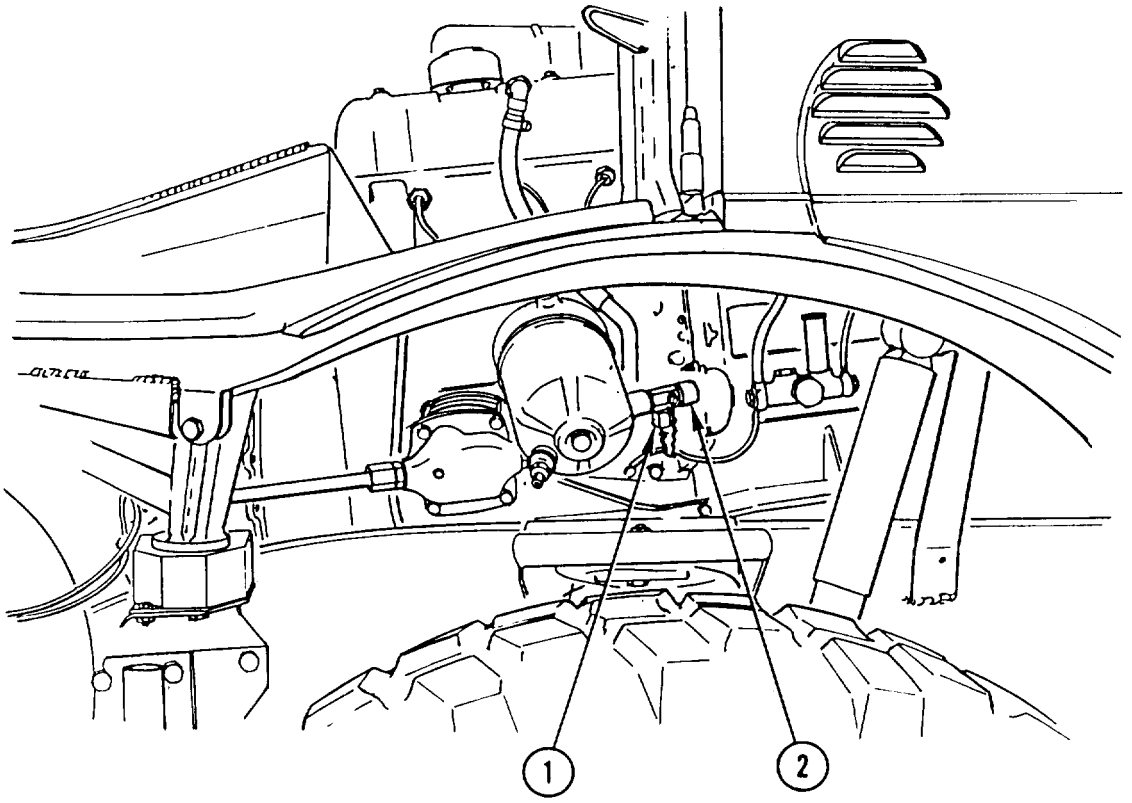
The engine oil sampling valve is located on the end of the oil filter located on the right side of the engine. When a lubrication note specifies that an oil sample must be taken, use the following procedures:

A Ensure that oil to be sampled is at its normal operating temperature (TM 5-2420-224-10).

B Open valve (1) and pump approximately two ounces of oil into suitable container, by pumping plunger (2). Discard this oil. This will remove waste impurities from oil filter.

C Place sample bottle (TB 43-0210) under valve (1) and fill sample bottle to approximately 1/2 in. (1.3 cm) below neck of bottle. Close valve (1) and check for leaks.

D Send oil sample to AOAP laboratory.



DAILY NOTES:
This page shows what to check or lubricate each day the SEE is operated or driven.

	LUBRICANT	INTERVAL
Engine Crankcase Oil (SEE/HMMH) (See Note 1)(C)	OE/HDO	D
Hydraulic Tanks, Front and Rear (SEE/HMMH) (See Note 2)(C)	OE/HDO	D
Backhoe (SEE) (See Note 3)(C)	GAA	D