LO 5-3810-290-12

LUBRICATION ORDER (Supercedes LO 5-3810-290-12-1, -2, -3 dated 30 March 1976

4 November 1983

CRANE, WHEEL MOUNTED: 5 TON AT 10 FOOT RADIUS, 3/8 CU YD, 1 ENGINE DIESEL DRIVEN, 4 X 4 ROUGH TERRAIN, AIR TRANS- PORTABLE, W/BULLDOZER AND EARTHMOVING BLADE (HANSON MACHINERY CO. MODEL H-446A) W/ENGINE DETROIT DIESEL MODEL 5067-5240

Reference: C9100-1L TM 5-3810-290-12

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. 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

Dry cleaning fluid is flammable. Do not use near a flame or excessive heat. Use only with adequate ventilation. Avoid prolonged breathing of vapors and minimize skin contact.

Clean parts or fittings with dry cleaning solvent Type II, (SD-2) or equivalent. Dry before lubricating. Dotted arrow shafts indicate lubrication on both sides of equipment. A dotted circle indicates a drain below. Relubricate all items found contaminated after fording or washing.

The lowest level of maintenance authorized to lubricate a point is indicated by one of the following symbols as appropriate:

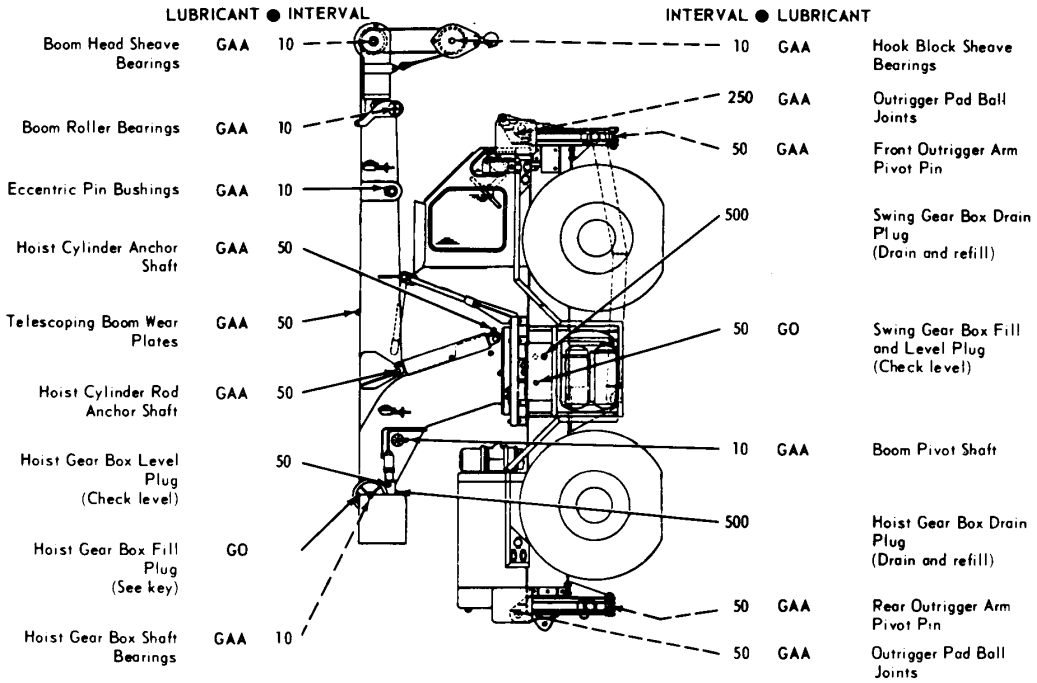
Operator/Crew (C) ; and Organizational Maintenance (O).

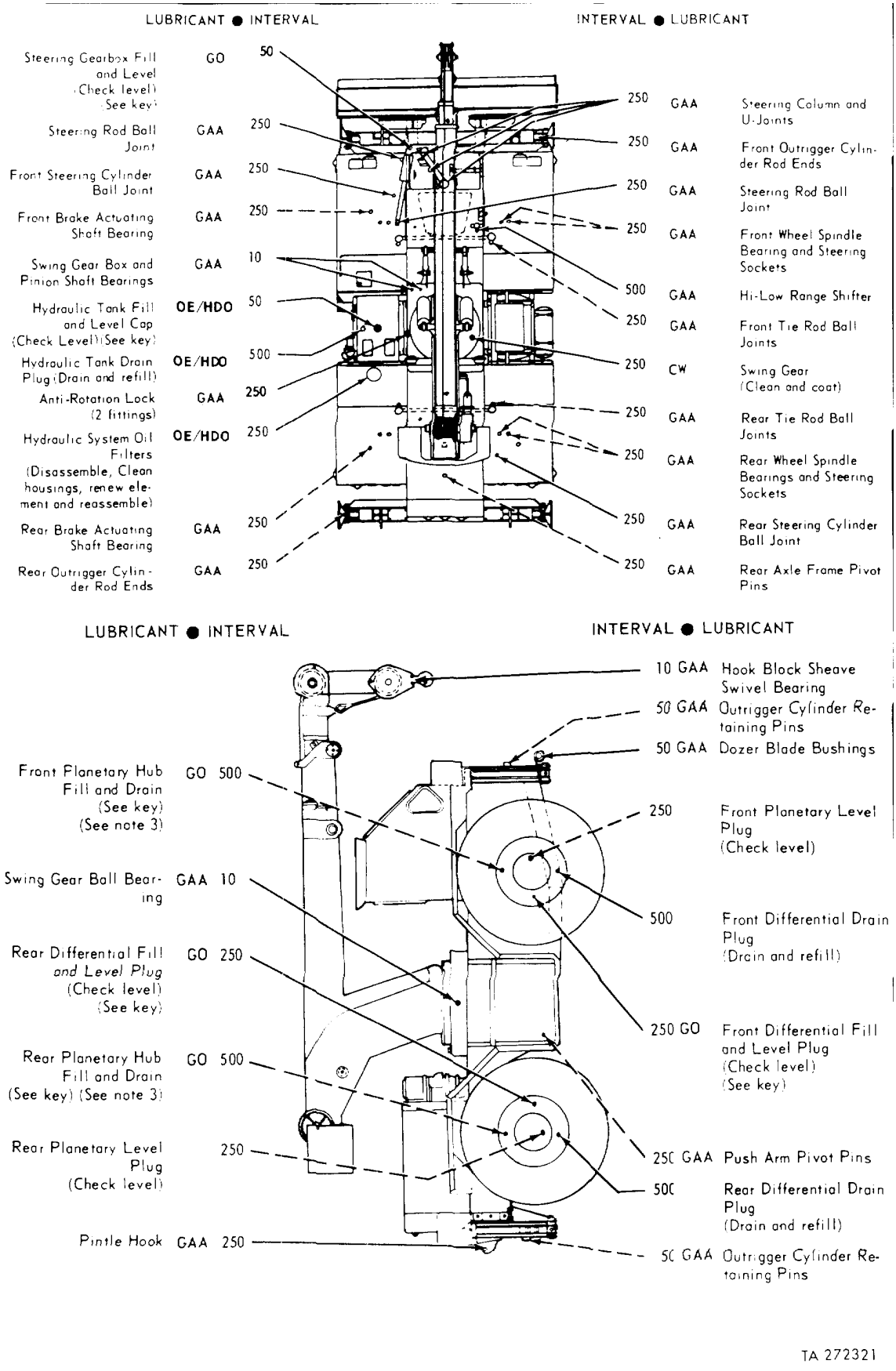
Lubricate points indicated by dotted arrow shafts on both sides of equipment.

A dotted circle indicates a drain below.

Drain gearcase when hot. Fill and check level.

Reporting errors and recommending improvements You can help us improve this manual. If you find any mistakes or if you know of 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: DRSTA-MBP, Warren, MI 48090.A reply will be furnished to you.





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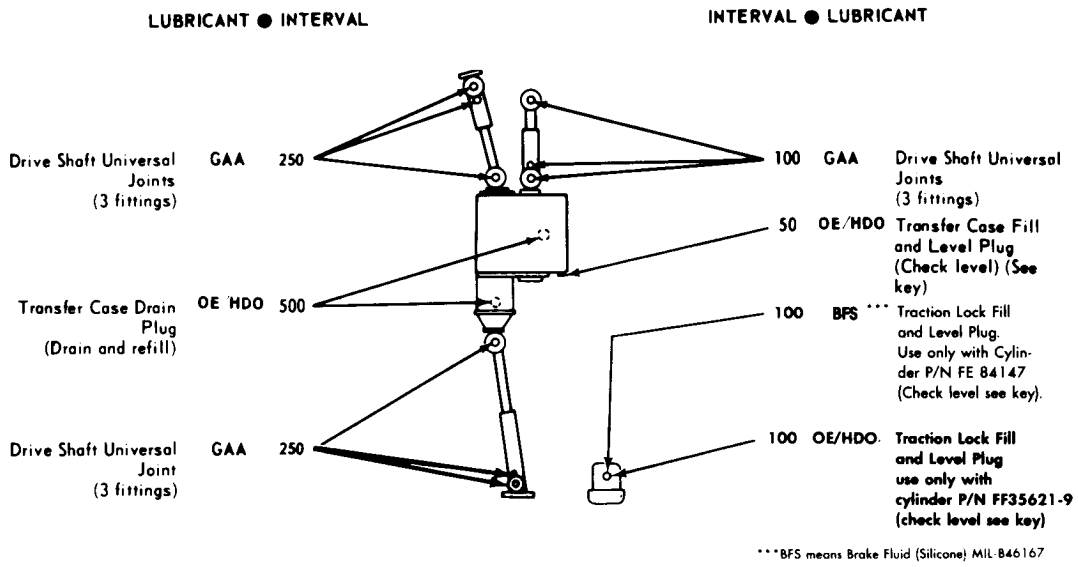
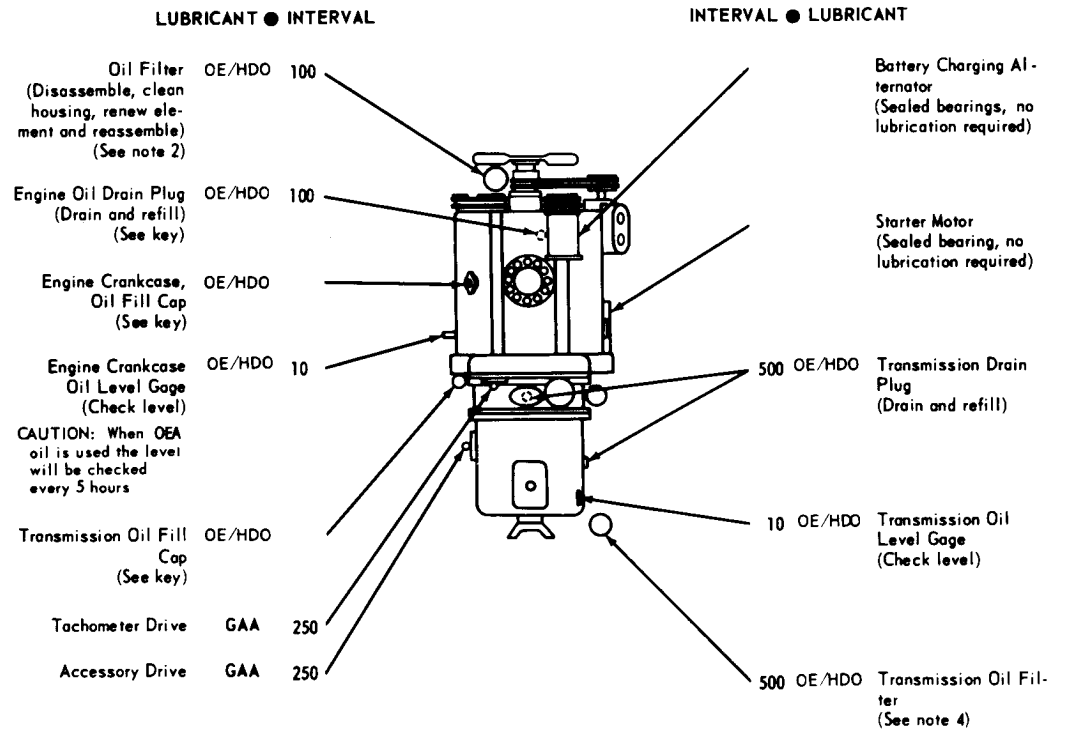

LUBRICANT ● INTERVAL
INTERVAL ● LUBRICANT
Drive Shaft Universal Joints (3 fittings) GAA 250
Transfer Case Drain Plug (Drain and refill) OE/HDO 500
Drive Shaft Universal Joint (3 fittings) GAA 250
100 GAA Drive Shaft Universal Joints (3 fittings)
50 OE/HDO Transfer Case Fill and Level Plug (Check level) (See key)
100 BFS *** Traction Lock Fill and Level Plug. Use only with Cylinder P/N FE 84147 (Check level see key).
100 OE/HDO Traction Lock Fill and Level Plug use only with cylinder P/N FF35621-9 (check level see key)
***BFS means Brake Fluid (Silicone) MIL-B46167


LUBRICANT ● INTERVAL
INTERVAL ● LUBRICANT
Oil Filter (Disassemble, clean housing, renew element and reassemble) (See note 2) OE/HDO 100
Engine Oil Drain Plug (Drain and refill) (See key) OE/HDO 100
Engine Crankcase, Oil Fill Cap (See key) OE/HDO
Engine Crankcase Oil Level Gage (Check level) OE/HDO 10
CAUTION: When OEA oil is used the level will be checked every 5 hours
Transmission Oil Fill Cap (See key) OE/HDO
Tachometer Drive GAA 250
Accessory Drive GAA 250
Battery Charging Alternator (Sealed bearings, no lubrication required)
Starter Motor (Sealed bearing, no lubrication required)
500 OE/HDO Transmission Drain Plug (Drain and refill)
10 OE/HDO Transmission Oil Level Gage (Check level)
500 OE/HDO Transmission Oil Filter (See note 4)

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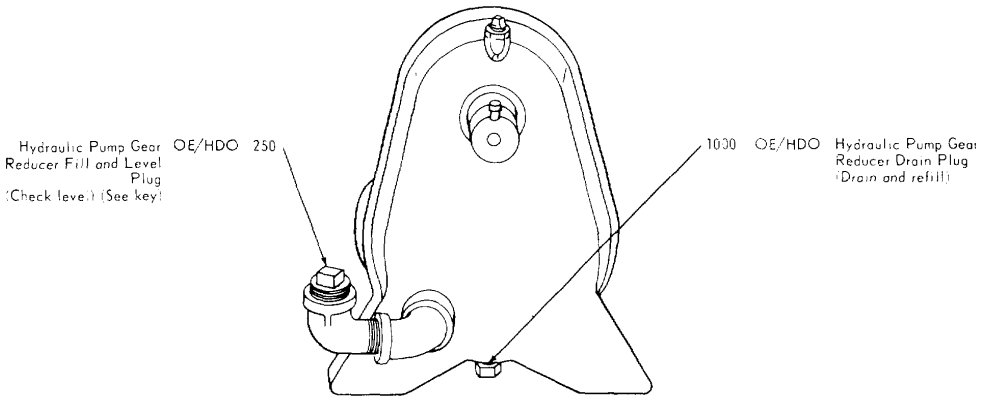
LUBRICANT ● INTERVAL

INTERVAL ● LUBRICANT



* The time specified is the time required t o perform all services at the particular interval (on-condition or hard times).

*TOTAL MAN-HOURS		*TOTAL MAN-HOURS	
INTERVAL	**MAN-HOURS**	**INTERVAL**	**MAN-HOURS**
10	1.6	250	3.5
50	1.0	500	1.0
		1000	1.3

KEY

LUBRICANTS - COMPONENTS	CAPACITY	EXPECTED TEMPERATURES			FOR ARTIC OPERATION REFER TO FM 9-207	INTERVALS
		Above +15° F (Above -9°)	+ 40° F to -15° F (+ 4° to -26°)	+40° F to -65° F (+4° to -54°)		
LUBRICATING OIL (ICE*) MIL-L-2104 (Tactical)		OE/HDO 30	OE/HDO 10	OEA **		
LUBRICATING OIL (ICE*) MIL-L-46167 (Artic)						
CRANKCASE	18 QT					
OIL CAN POINTS						
HYDRAULIC TANK	200 QT	OE/HDO 10	OE/HDO10	OEA * *		
TRANSMISSION	32 QT					
TRACTION LOCK (Use w/ Cyl. P/N FF-35621/9 only)	1 Qt.	OE/HDO 10	OE/HDO 10	OEA * *		
(Use w/ Cyl. P/N FE-84147 only)	1 Qt.	BFS * * *	BFS * * *	BFS * * *		
TRANSFER CASE	4 qt	OE/HDO 15/40	OE/HDO 10	OEA * *		
LUBRICATING OIL, GEAR, Sub-Zero, MIL-L-2105		GO85W90	GO-85W-90	GO-75W		
HOIST GEAR BOX	1 QT.					
SWING GEAR BOX	3-1/2 QT.					
STEERING GEAR BOX	1/2 QT.					
FRONT DIFFERENTIAL	11 1/2 qt					
REAR DIFFERENTIAL	11 1/2 qt					
WHEEL PLANETARIES	2 qt ea					
HYDRAULIC PUMP GEAR REDUCER	1/2 qt					
LUBRICATING OIL, EXPOSED GEAR VVL-751		CW-11C	CW-11B	CW-11A		
GREASE, Automotive and Artillery MIL-G-10924		GAA ALL TEMPERATURES				

NOTE: If OEA lubricant is required to meet the temperature ranges prescribed in the key, OEA lubricant is to be used in place of OE/HDO-10 lubricant for all temperature ranges where OF/HDO is specified in the key.

* * OEA is Lubricating Oil(Artic) MIL-L-46167; OD/HDO is Lubricating Oil(Tactical) MIL-L-2104 grades 10,30,40, & 15/40. (Grade 50 has been deleted). * * *BFS means Hydraulic Brake Fluid (Silicone) MIL-B-46167 *(ICE) means Internal Combustion Engine.

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NOTES:

1. ARMY OIL ANALYSIS PROGRAM (AOAP). For Active Army units, obtain samples from engine and automatic transmission every 50 hours of operation or 60 days (whichever comes first). Reserve and National Guard activities will use 50 hours or 120 days as the prescribed sample intervals. Reserve and National Guard equipment in frequent use during active draining period will adhere to the schedule for Active Army units As a minimum, one sample from each units' two week active training period will be submitted for each item of equipment. Send these samples to the nearest AOAP laboratory. Refer to TB 43-0210 for sampling instructions When or if AOAP laboratory support is unavailable, hard time intervals will apply.

2. FOR OPERATION OF EQUIPMENT in PROTRACTED COLD TEMPERATURES BELOW 15°F (-26°C). Remove lubricants prescribed in Key for temperatures above -15°F (-26°C). Relubricate with lubricants specified in Key for temperatures below 15°F (-26°C) If OEA lubricant is required to meet the temperature ranges prescribed in the Key, OEA lubricant is to be used in place of OE/HDO-10 lubricant for all temperature ranges where OE/HDO-10 is specified in the Key.

3. OIL CAN POINTS Each 50 hours lubricate control linkage, pins and devises, and all exposed adjusting threads with OE/HDO.

4. ENGINE OIL LEVEL HOT OR COLD CHECK. Cold engine, oil level should be at high mark on dipstick Hot engine, oil level must be between high and low marks an dipstick (allow to set 5 minutes before checking).

5. ENGINE Oil is to be changed each time an engine oil change is directed by AOAP laboratory When AOAP Laboratory support is not available, change oil each 250 hours.

6. ENGINE OIL FILTER. Filter is to be replaced each time an engine oil change is directed by AOAP laboratory. After installing new filter element fill crankcase, operate engine 5 minutes, check housing for leaks, check crankcase oil level and bring to full mark. When AOAP laboratory support is not available, install new filter element each 250 hours.

7. TRANSMISSION Check oil level each ten hours with engine running at 500-600 RPM and oil temperature at 180°F (82°C) to 200°F (93°C) with transmission in neutral. Maintain oil level to full mark. Oil is to be changed each time a transmission oil change is directed by AOAP laboratory. Remove oil strainer, clean and replace using new gasket Refill transmission. Run engine at 500-600 RPM to fill converter and lines With engine running at 500-600 RPM, oil temperature at 180°F (82°C) to 200° F (93°C) and transmission in neutral, add oil to bring oil level to full mark Operate for five minutes and check for leaks. When AOAP laboratory support is not available, change transmission oil each 500 hours

8. TRANSMISSION OIL FILTER. Filter Is to be replaced each time a transmission oil change is directed by AOAP laboratory Remove element, clean filter housing, install new element and seal. After replacement, with engine running at 500-600 RPM, oil temperature at 180°F (82°C) to 20°F (93°C) and transmission in neutral fill transmission to full mark. Operate for five minutes and check for leaks. When AOAP laboratory support is not available, install new filter element each 250 hours

9. HYDRAULIC OIL FILTER Each 250 hours, remove element, clean filter shell and install new element After replacement, operate hydraulic system for 5 minutes, check for leaks, check level and bring to "FULL" mark.

10. WHEEL PLANETARIES Every 250 hours rotate wheel until plug is horizontal with center line of axle Remove plug, check level and reinstall Every 500 hours. rotate wheel until plug is at bottom center, remove plug and drain. Rotate wheel back to level point, fill, reinstall plug.

11. LUBRICANT. The following is a list of lubricants with the Military Symbols and applicable specification numbers:

OE/HDO	MIL-L-2104	OEA	MIL-L-46167
GO	MIL-L 2105	GOS	MIL-L-10324
GAA	MIL G-10924	HBA	MIL-H-13910
CW-11	VV-L-751	BFS	MIL-B-46176

MIL-H-13910 and MIL-L 10324 are cancelled specs

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:

JOHN A. WICKHAM, JR.
General, United States Army
Chief of Staff

Official

ROBERT M. JOYCE
Major General, United States Army
The Adjutant General

LO 5-3810-290-12 Distribution: To be distributed in accordance with DA Form 1 2-25B, Operator Maintenance Requirements for Crone: Wheel mounted.

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