

**LUBRICATION ORDER**

16 February 84

(Supersedes LO 10-3950-206-12-1, and -2, 20 APRIL 1972)

**CRANE, TRUCK, WAREHOUSE: 10,000 LB CAPACITY,  
GED, PT (PETTIBONE-MULLIKEN MODEL 10FM)  
(ARMY MODEL MHE-216) (NSN 3950-00-197-4935)**

Reference: TM 10-3950-206-12 and FEDERAL SUPPLY CATALOG C9100-IL.

Hard time intervals 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. 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.

Clean parts or fittings with dry cleaning solvent (SD), Type II 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).

**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.**

**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: DRSTA-MB, Warren, MI 48090. A reply will be furnished to you.

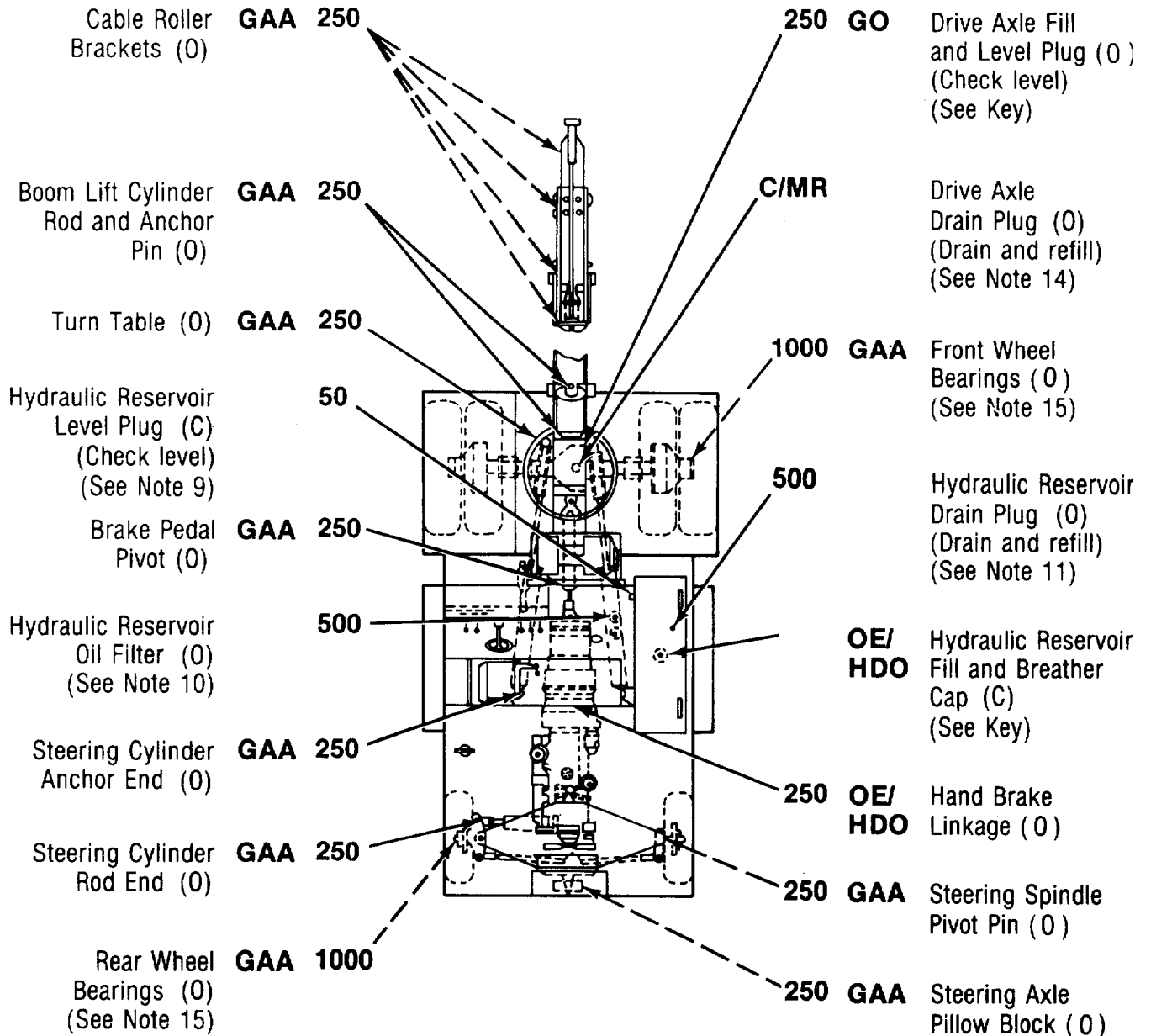
\*The time specified is the time required to perform all services at the particular interval.

*TOTAL MAN-HOURS		*TOTAL MAN-HOURS	
INTERVAL	MAN-HOURS	INTERVAL	MAN-HOURS
10	0.2	500	4.9
50	0.5	1000	6.5
250	4.0		

TA 220151

**LUBRICANT • INTERVAL**

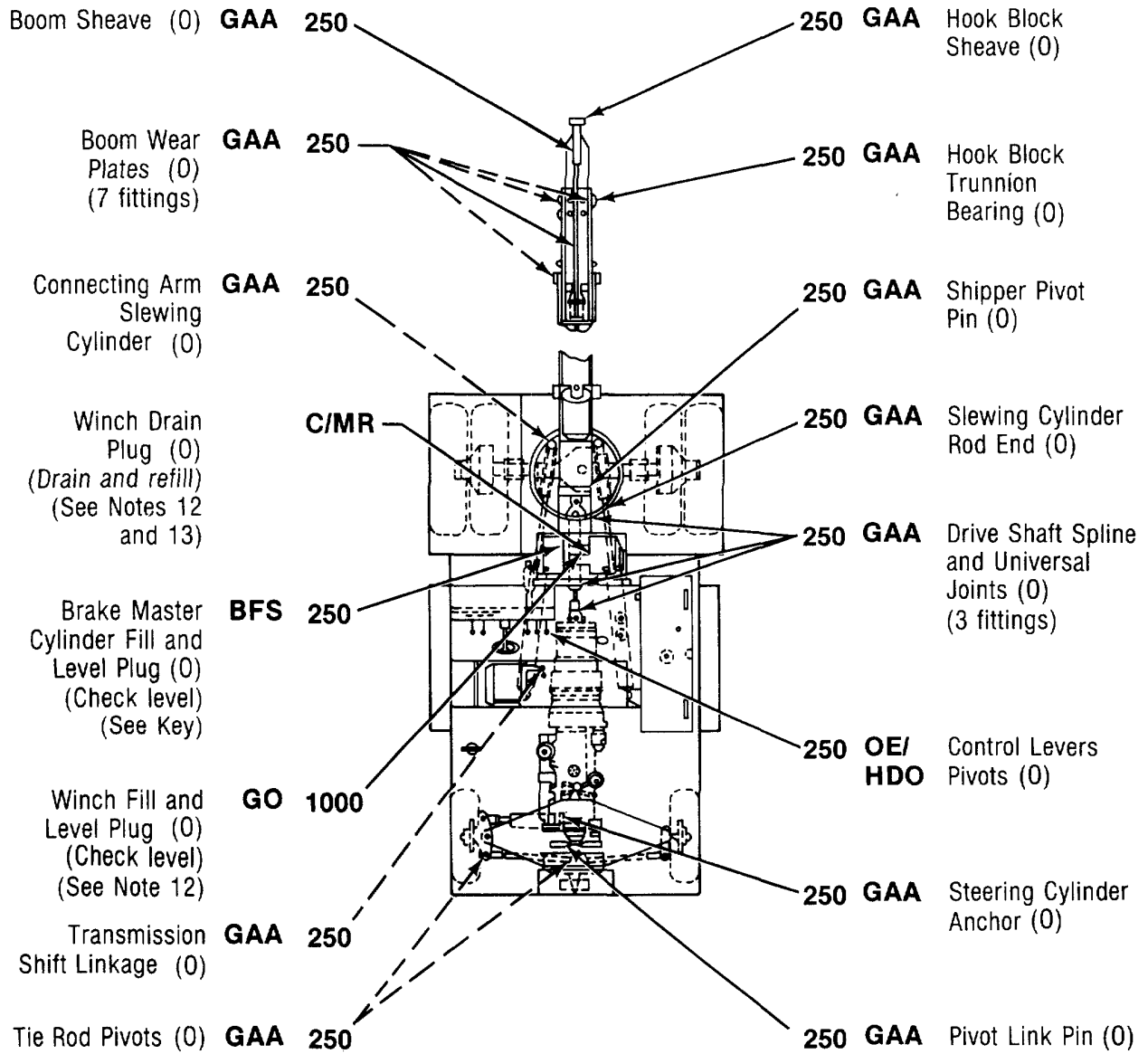
**INTERVAL • LUBRICANT**



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LUBRICANT • INTERVAL

INTERVAL • LUBRICANT



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**LUBRICANT • INTERVAL**

**INTERVAL • LUBRICANT**

Crankcase Fill Cap (C)  
**OE/HDO**  
(See Key)

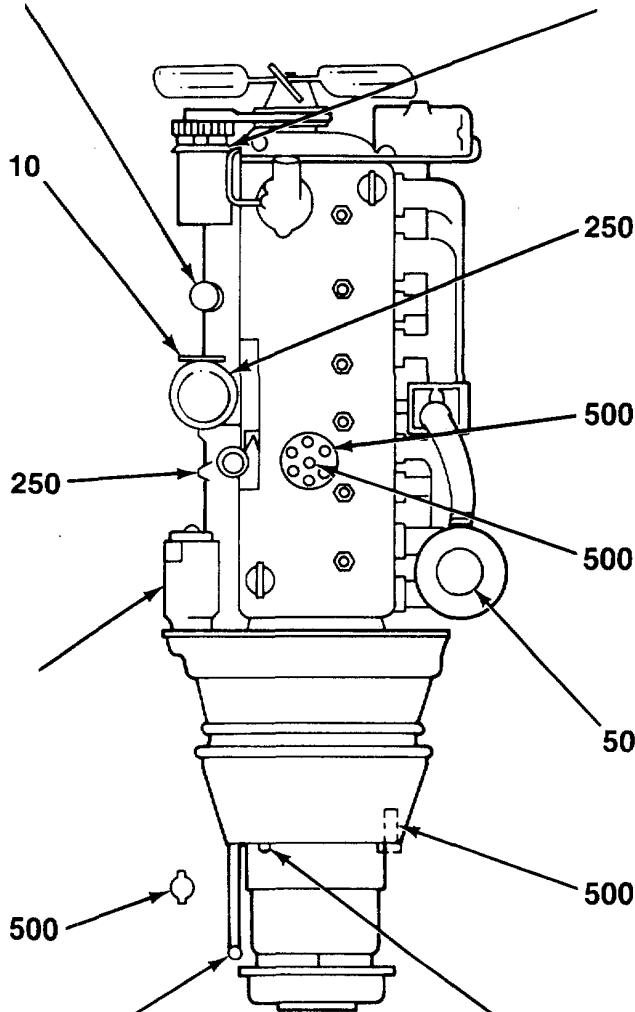
Crankcase Level Gage (C)  
(Check level)  
(See Note 3)

Crankcase Drain Plug (O)  
(Drain and refill)  
(See Note 4)

Starter  
(Sealed bearings, no lubrication required)

Transmission Oil Filter (O)  
(See Note 8)

Transmission, Converter Fill and Level Cap (C)  
(Check level)  
(See Key)  
(See Note 7)



Engine Accessory Alternator  
(Sealed bearings, no lubrication required)

Engine Oil Filter (O)  
(See Note 5)  
(Replace element)

**500 GAA** Distributor Shaft and Cam (O)  
(Springly)

**500 OE/HDO** Distributor (O)  
(Apply lubricant to camwick springly)

**50 OE/HDO** Air Cleaner (C)  
(See Key)  
(See Note 6)

**500** Transmission Oil Strainer (O)  
(Clean and replace)

**1000** Transmission, Converter Drain Plug (O)  
(Drain and refill)  
(See Note 7)

TA 220154

- \*KEY -

LUBRICANTS	CAPACITY	EXPECTED TEMPERATURES			INTERVALS	
		Above +15°F (Above -9°)	+ 40°F to -15° F (+ 4° to -26°)	+40°F to -65°F (+4° to -54°)		
<b>OE/HDO</b> - Lubricating Oil, Internal Combustion Engine, Tactical Service <b>OEA</b> - Lubricating Oil, Internal Combustion, Arctic - Crankcase W/Oil Filter - Oil Can Points (See Note 2) - Transmission and Converter - Hydraulic Oil Reservoir - Air Cleaner	8 qts. (7.56 L)  18 qts. (17 L)  248 qts. (234.60 L) 1-3/8 qt. (1.3 L)	<b>OE/HDO 30</b>	<b>OE/HDO 10</b>	<b>OEA</b> (See Note 1)	C/MR - Condition Monitor  Intervals given are in hours of normal operation.	
<b>GO</b> - Lubricating Oil, Gear, Multipurpose - Drive Axle - Winch	14 qts. (13.24 L) 3-1/2 qts. (3.31 L)	<b>GO 85W/140</b>	<b>GO 80W/90</b>			<b>GO 75W</b>
<b>BFS</b> - Brake Fluid, Silicone, Automotive - Brake Master Cylinder	1 pt. (0.473 L)	ALL TEMPERATURES				
<b>GAA</b> - Grease, Automotive and Artillery		ALL TEMPERATURES				
For Arctic operation refer to FM 9-207						

\*See Note 16 for lubricant specification number.

**NOTES:**

1. 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.

2. OIL CAN POINTS. Each 250 hours, lubricate controls, door hinges, linkage, pins, springs, latches, and all exposed adjusting threads with OE/HDO.

3. 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 on dipstick (allow to set 5 minutes before checking).

4. ENGINE. Oil is to be changed each 250 hours. Drain when lubricant is warm.

5. ENGINE OIL FILTER. Each 250 hours, remove filter element, clean housing and install new filter element. After installing new filter element, fill crankcase, operate engine for 5 minutes, check housing for leaks, check crankcase oil level and bring to "FULL" mark.

6. AIR CLEANER. Each 50 hours, refill reservoir to level mark. Each 250 hours disassemble entire unit, clean, re-oil and assemble.

7. TRANSMISSION AND CONVERTER. Check oil level each 50 hours with engine running at idle speed, oil at operating temperature and transmission in neutral. Maintain oil level to "FULL" mark. Change oil each 1000 hours. Fill transmission to low mark. Run engine at idle speed to fill converter and lines. With engine running at idle speed, oil at operating temperature and transmission

in neutral, add oil to bring oil level to "FULL" mark. Operate for 5 minutes and check for leaks.

8. TRANSMISSION OIL FILTER. Each 500 hours, remove filter element, clean filter housing, install new filter element and seal. After replacement with engine running at idle speed, oil at operating temperature and transmission in neutral, add oil to bring oil level to "FULL" mark. Operate for 5 minutes and check filter housing for leaks.

9. HYDRAULIC RESERVOIR LEVEL PLUG. To check level, raise floor board and remove plug, oil should appear at plug opening.

10. HYDRAULIC RESERVOIR OIL FILTER. Each 500 hours, remove filter element, clean filter shell and install new filter element. After replacement, operate hydraulic system for 5 minutes, check for leaks, check oil level and bring to "FULL" mark.

11. HYDRAULIC RESERVOIR. Each 500 hours, drain reservoir, remove, clean and install strainer. Fill reservoir, operate hydraulic controls, check for leaks, check oil level and bring to "FULL" mark.

12. WINCH. It is necessary to unreeve the hoist cable to expose the winch drain and fill plugs located on face of drum.

13. WINCH. Check level each 1000 hours. Change gear lubricant only when required by maintenance repair action, contamination by water, or other foreign material. After refill, operate for five minutes, check for leaks and bring oil level to level plug opening.

14. DRIVE AXLE. Check level each 250 hours. Change gear lubricant only when required by maintenance repair action, contamination by water, or other foreign material. After refill, operate for 5 minutes, check for leaks and bring oil to level of fill and level plug opening.

TA 220156

**NOTES - CONTINUED:**

15. WHEEL BEARINGS. Each 1000 hours, remove wheels, clean and inspect all parts, replace damaged or worn parts, repack bearings, and assemble.

16. LUBRICANTS. The following is a list of lubricants with military symbols and applicable specification numbers.

OE/HDO	MIL-L-2104
GO	MIL-L-2105
GAA	MIL-G-10924
OEA	MIL-L-46167
BFS	MIL-B-46176
(SD), Type II	P-D-680

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

DISTRIBUTION:

To be distributed in accordance with DA Form 12-25B, Operator and Organizational maintenance requirements for Cranes.

