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.

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 (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.

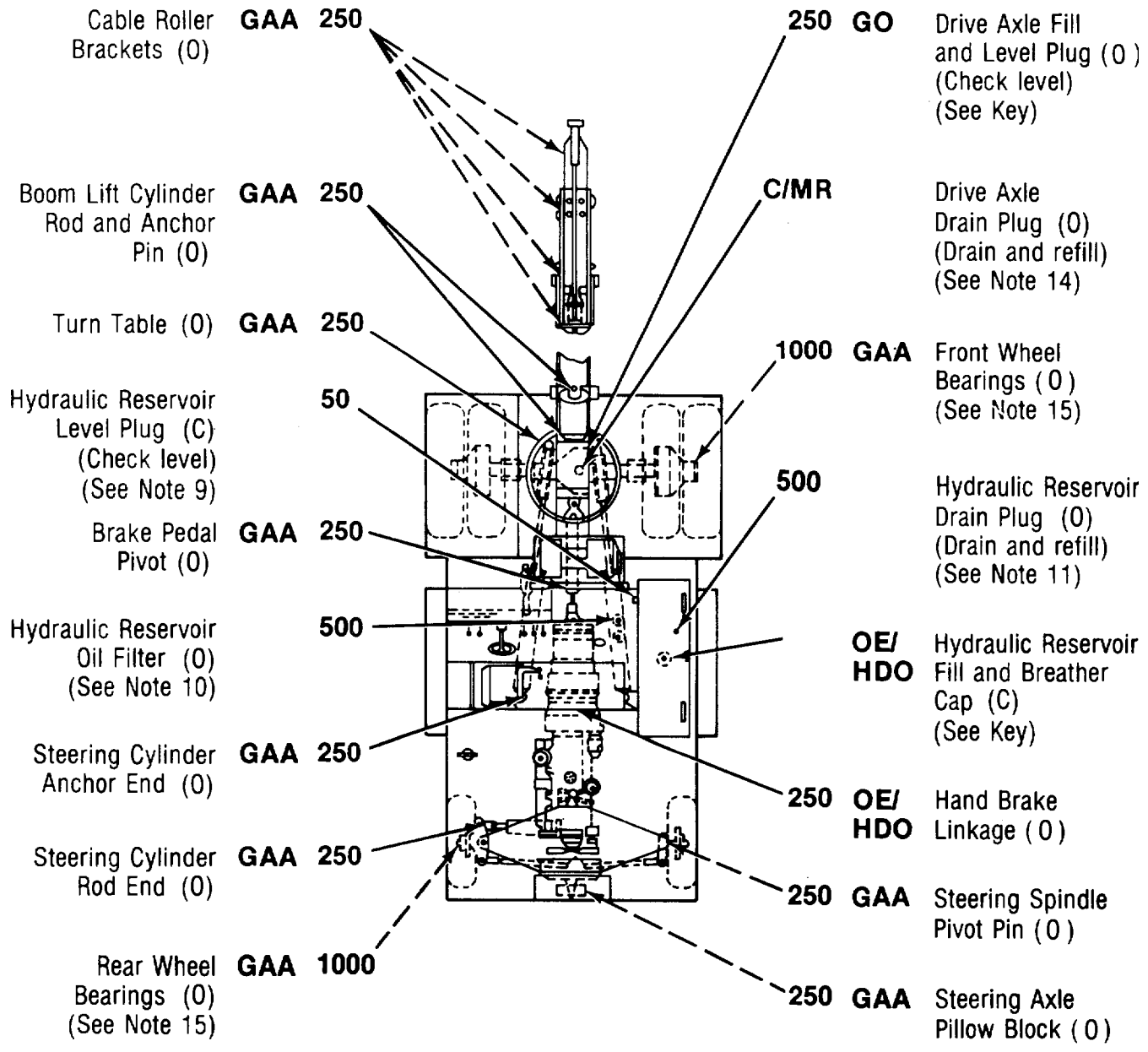
The lowest level of maintenance authorized to lubricate a point is indicated by one of the following symbols as appropriate: Operator/Crew (C); and Organizational Maintenance (O).

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.

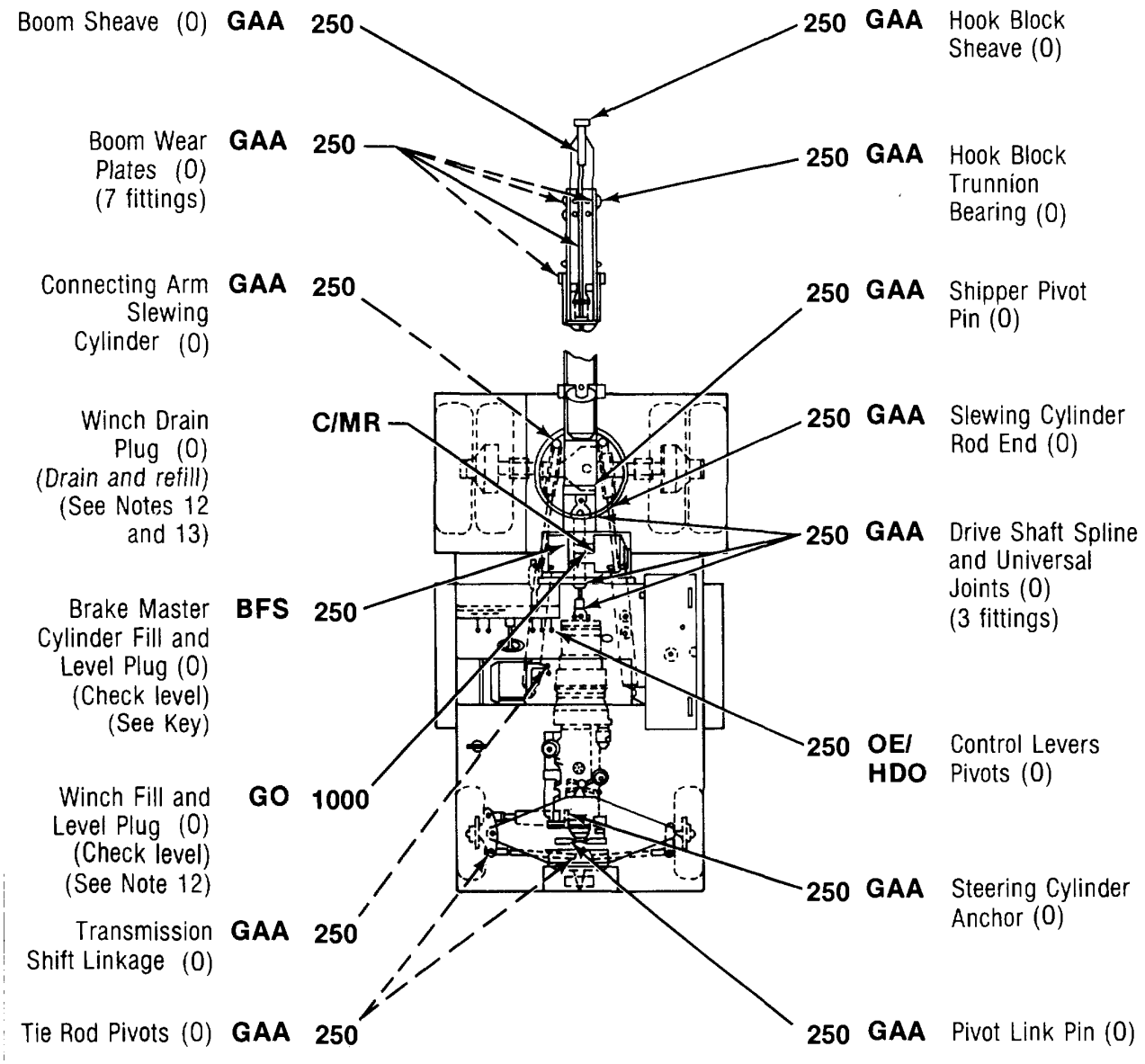
*TOTAL MAN-HOURS		*TOTAL MAN-HOURS	
INTERVAL	**MAN-HOURS**	**INTERVAL**	**MAN-HOURS**
10	0.2	500	4.9
50	0.5	1000	6.5
250	4.0		

TA 220151


LUBRICANT • INTERVAL
INTERVAL • LUBRICANT
Cable Roller Brackets (O) GAA 250
Boom Lift Cylinder Rod and Anchor Pin (O) GAA 250
Turn Table (O) GAA 250
Hydraulic Reservoir Level Plug (C) (Check level) (See Note 9) 50
Brake Pedal Pivot (O) GAA 250
Hydraulic Reservoir Oil Filter (O) (See Note 10) 500
Steering Cylinder Anchor End (O) GAA 250
Steering Cylinder Rod End (O) GAA 250
Rear Wheel Bearings (O) (See Note 15) GAA 1000
250 GO Drive Axle Fill and Level Plug (O) (Check level) (See Key)
C/MR Drive Axle Drain Plug (O) (Drain and refill) (See Note 14)
1000 GAA Front Wheel Bearings (O) (See Note 15)
500 Hydraulic Reservoir Drain Plug (O) (Drain and refill) (See Note 11)
OE/HDO Hydraulic Reservoir Fill and Breather Cap (C) (See Key)
250 OE/HDO Hand Brake Linkage (O)
250 GAA Steering Spindle Pivot Pin (O)
250 GAA Steering Axle Pillow Block (O)

TA 220152

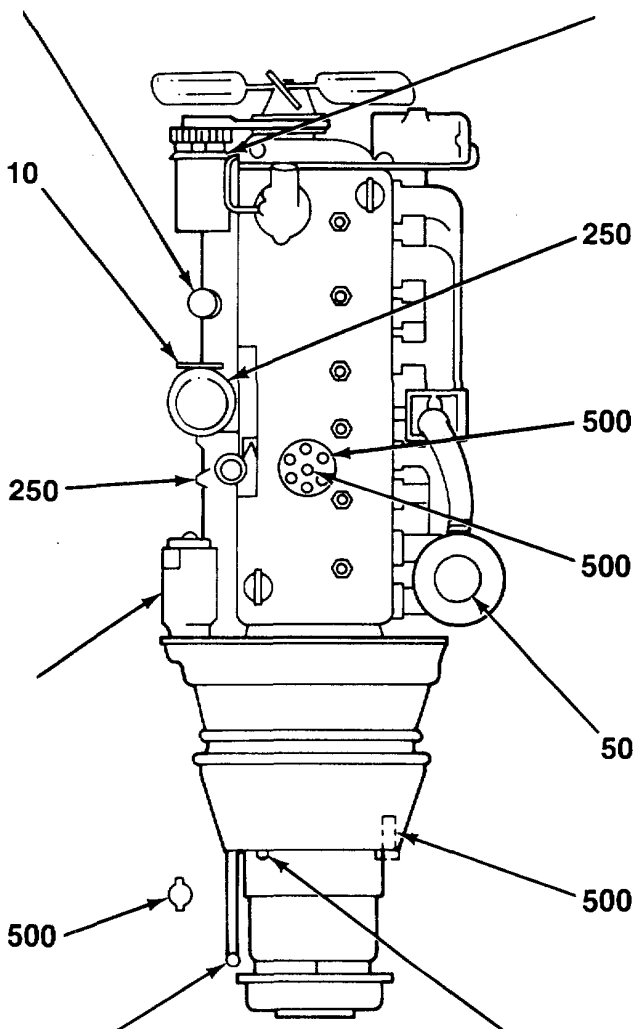
LUBRICANT • INTERVAL **INTERVAL • LUBRICANT**



TA 220153

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT



LUBRICANT • INTERVAL		INTERVAL • LUBRICANT		
Crankcase Fill Cap (C) (See Key)	OE/ HDO	10		Engine Accessory Alternator (Sealed bearings, no lubrication required)
Crankcase Level Gage (C) (Check level) (See Note 3)		250		Engine Oil Filter (O) (See Note 5) (Replace element)
		500	GAA	Distributor Shaft and Cam (O) (Sparingly)
Crankcase Drain Plug (O) (Drain and refill) (See Note 4)		250		
		500	OE/ HDO	Distributor (O) (Apply lubricant to camwick sparingly)
Starter (Sealed bearings, no lubrication required)		50	OE/ HDO	Air Cleaner (C) (See Key) (See Note 6)
		500		Transmission Oil Strainer (O) (Clean and replace)
Transmission Oil Filter (O) (See Note 8)		500		
Transmission, Converter Fill and Level Cap (C) (Check level) (See Key) (See Note 7)	OE/ HDO	50		
		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°)	For Arctic operation refer to FM 9-207	
OE/HDO - Lubricating Oil, Internal Combustion Engine, Tactical Service		**OE/HDO** 30	**OE/HDO** 10			C/MR - Condition Monitor
OEA - Lubricating Oil, Internal Combustion, Arctic				**OEA** (See Note 1)		
- Crankcase W/Oil Filter	8 qts. (7.56 L)					Intervals given are in hours of normal operation.
- Oil Can Points (See Note 2)						
- Transmission and Converter	18 qts. (17 L)					
- Hydraulic Oil Reservoir	248 qts. (234.60 L)					
- Air Cleaner	1-3/8 qt. (1.3 L)					
GO - Lubricating Oil, Gear, Multipurpose		**GO 85W/140**	**GO** 80W/90	**GO** 75W		
- Drive Axle	14 qts. (13.24 L)					
- Winch	3-1/2 qts. (3.31 L)					
BFS - Brake Fluid, Silicone, Automotive		ALL TEMPERATURES				
- Brake Master Cylinder	1 pt. (0.473 L)					
GAA - Grease, Automotive and Artillery		ALL TEMPERATURES				

*See Note 16 for lubricant specification number.

TA 220155

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.

★ **U.S. GOVERNMENT PRINTING OFFICE: 1984-420-903/224** **TA 220157**

This fine document...

Was brought to you by me:

Liberated Manuals -- free army and government manuals

Why do I do it? I am tired of sleazy CD-ROM sellers, who take publicly available information, slap “watermarks” and other junk on it, and sell it. Those masters of search engine manipulation make sure that their sites that sell free information, come up first in search engines. They did not create it... They did not even scan it... Why should they get your money? Why are not letting you give those free manuals to your friends?

I am setting this document FREE. This document was made by the US Government and is NOT protected by Copyright. Feel free to share, republish, sell and so on.

I am not asking you for donations, fees or handouts. If you can, please provide a link to liberatedmanuals.com, so that free manuals come up first in search engines:

<A HREF=http://www.liberatedmanuals.com/>Free Military and Government Manuals</A>

- Sincerely
  Igor Chudov
  http://igor.chudov.com/
- Chicago Machinery Movers