

# LUBRICATION ORDER

**LO 5-3810-287 12**

(Supersedes LO 5-3810-287-12-1, -3, and -4, 1 MARCH 1968  
and LO 5-3810-287-12-2, and -5, 13 FEBRUARY 1970)

6 February 84

**CRANE-SHOVEL, CRAWLER MTD., DIESEL ENGINE  
DRIVEN; 12 112-TON CAPACITY RATED, 3/4 CU YD  
(THEW-LORAIN MODEL L-36M) (NSN 3810-00-937-3939)**

Reference: TM 5-3810-287-15 and FEDERAL SUPPLY CATALOG C9100-IL.

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 (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.

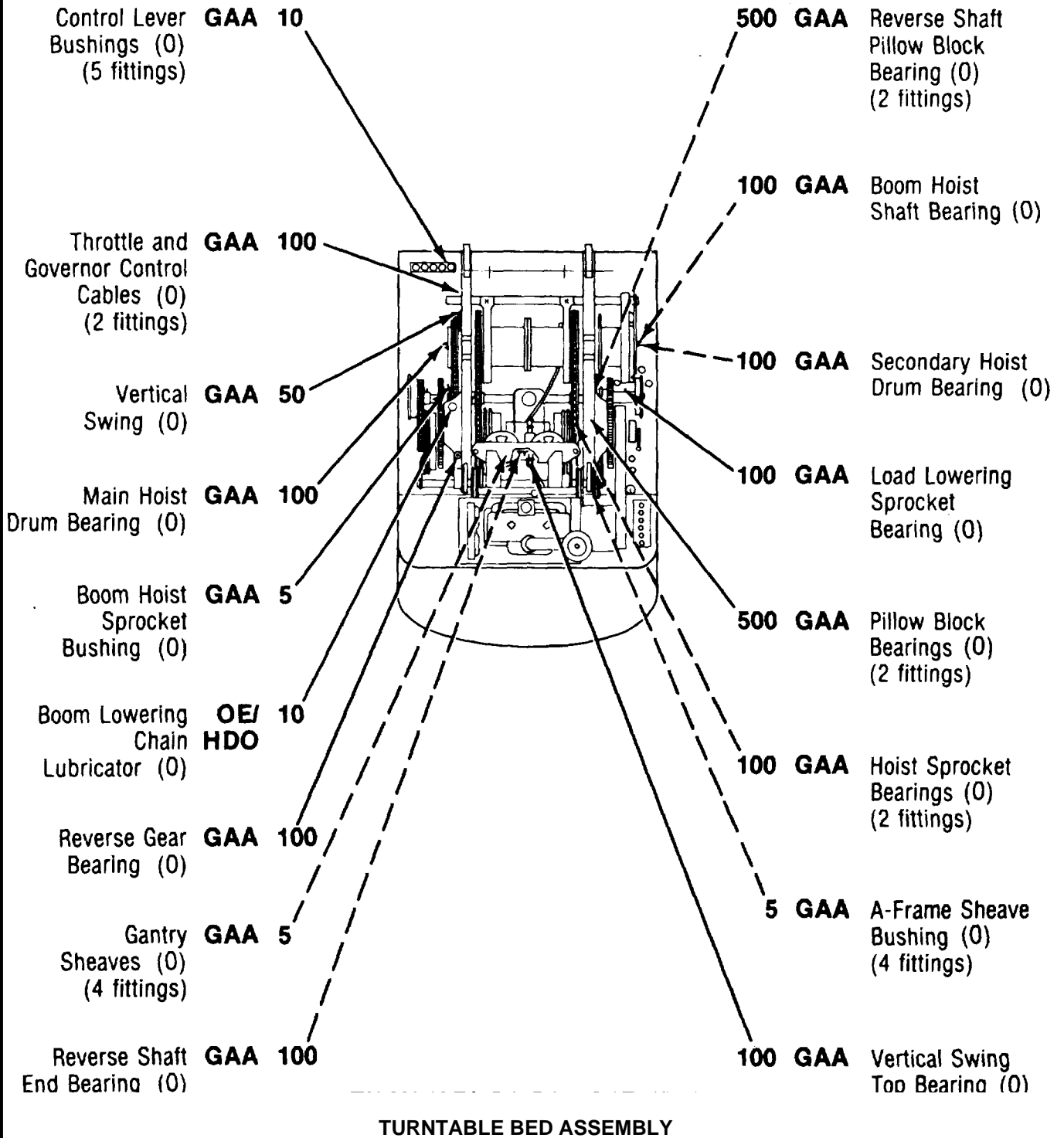
\*The time specified is the time required to perform all services at the particular interval (on-condition or hard times).

*TOTAL MAN-HOURS		*TOTAL MAN-HOURS	
INTERVAL	MAN-HOURS	INTERVAL	MAN-HOURS
5	1.4	100	2.5
10	2.6	250	0.4
50	0.6	500	0.5
		1000	1.0

TA 220413

LUBRICANT INTERVAL

INTERVALS LUBRICANT



TA 220414

**LUBRICANT INTERVAL**

**INTERVALS LUBRICANT**

Roller Bearings (0)  
(2 fittings) (Use 8  
oz grease in each  
fitting)

**BR 100**

**500 GAA**

Retract Cable  
Sheave (0)

Power Boom  
Lowering  
Chain (0)

**OE/  
HDO 10**

**50 GO**

Gear Case Fill and  
Level Cap (0)  
(Check level)  
(See Key)

Boom Lowering  
Sprocket  
Bearing (0)

**GAA 100**

**C/MR**

Gear Case Drain  
Plug (0)  
(Drain and refill)  
(See Note 11)

Cone Collar Shifter  
Shoes (0)  
(5 points)

**OE/  
HDO 10**

**5 OE/  
HDO**

Morin Trip  
Togmaster (0)  
(See Note 9)

Cone Rollers (0)  
(5 Points)

**OE/  
HDO 10**

**10 OHT**

Hydraulic Reservoir  
Fill and Level  
Cap (0)  
(Check level)  
(See Key)

Exposed Gears (0)

**CW 10**

Hydraulic Control  
Reservoir Fill and  
Level Plug (0)  
(Check level)  
(See Key)

**BFS 10**

**1000**

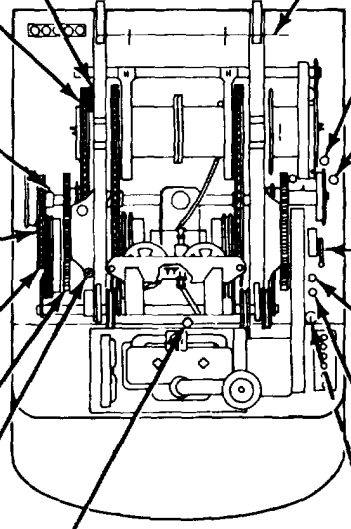
Hydraulic Reservoir  
Drain Plug (0)  
(Drain and refill)  
(See Note 8)

Hydraulic Oil  
Filter (0)  
(See Note 8)

**1000**

**10 OE/  
HDO**

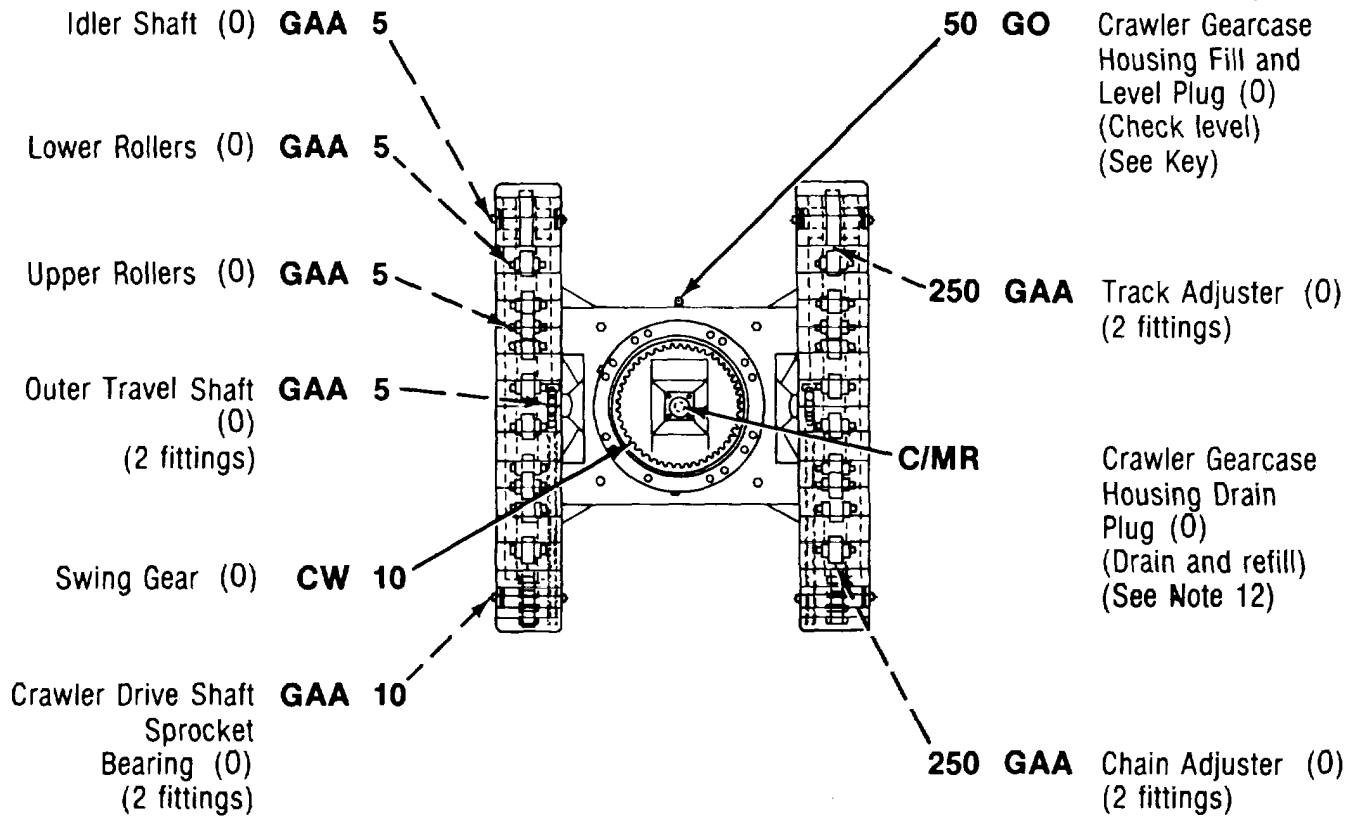
Power Take-off  
Chain  
Lubricator (0)



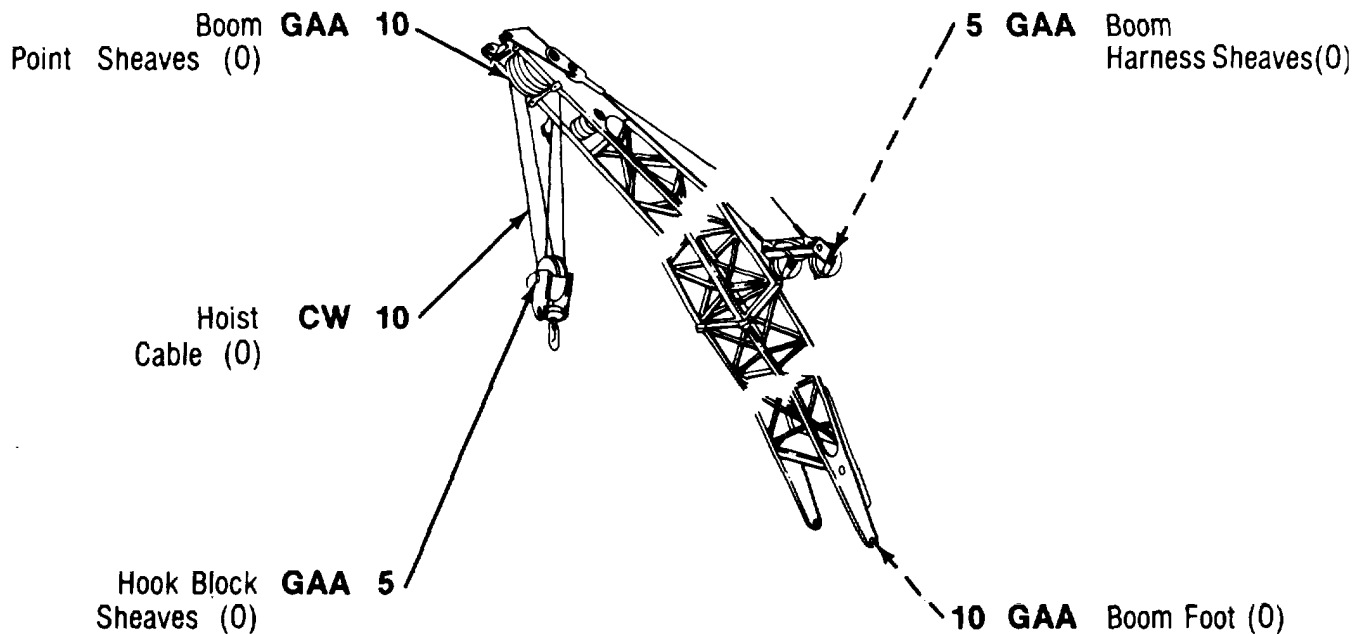
TA 220415

**LUBRICANT INTERVAL**

**INTERVALS LUBRICANT**



**CRAWLER ASSEMBLY**



**CRANE BOOM, HOOK BLOCK AND BOOM HARNESS ASSEMBLY**

TA 220416

**LUBRICANT INTERVAL**

**INTERVALS LUBRICANT**

Oil Filters (0)  
(See Notes 1  
and 6)

Crankcase Level  
Gage (C)  
(Check level)  
(See Note 4)

**CAUTION:** When  
OEA Oil is used  
the level will be  
checked  
more often.

Crankcase Oil  
Fill Cap (0)  
(See Key)

Air Cleaner (0)  
(See Key)  
(See Note 10)

Clutch Throwout  
Bearing (0)

Transmission Fill  
and Level  
Plug (0)  
(Check level)  
(See Key)

**OC  
or  
100**

**10**

**OE/  
HDO**

**OE/  
HDO**

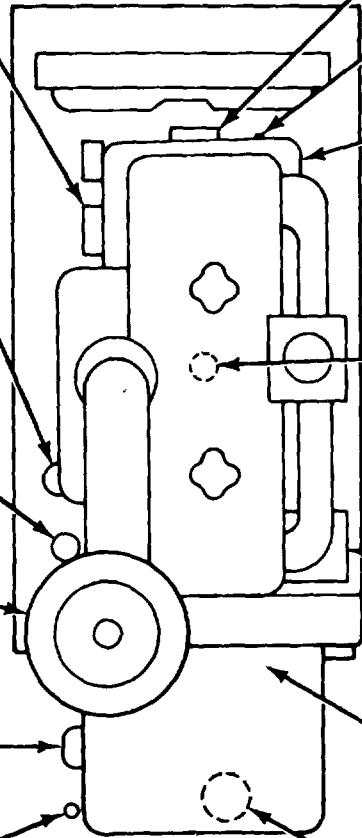
**GAA**

**GO**

**10**

**10**

**50**



**100**

**100**

**OC  
or  
100**

**100**

**C/MR**

**GAA** Fan Bearing (0)

**GAA** Governor  
Control (0)

Battery Charging  
Alternator  
(Sealed bearings,  
no lubrication  
required)

Crankcase  
Drain (0)  
(Drain and refill)  
(See Notes 1  
and 5)

Starter (Sealed  
bearings, no  
lubrication  
required)

**GAA** Throttle  
Control (0)

Transmission  
Drain (0)  
(Drain and refill)  
(See Note 7)

**ENGINE ASSEMBLY**

TA 220417

**LUBRICANT • INTERVAL**

**INTERVAL • LUBRICANT**

Boom Hoist Cable Sheaver (0) **GAA 10**

**10 GAA** Crowd Sheave (0)

Boom Point Sheaves (0) (2 Points) **GAA 10**

**10 CW** Dipper Stick (0)

Padlock Sheave (0) **GAA 10**

**10 GAA** Shipper Shaft (0)

Retract Sheave (0) **GAA 10**

**10 GAA** Crowd Cable Sheave (0)

**10 GAA** Retract Cable Sheave (0)

**10 OE/HDO** Dipper Trip Cable Sheave (0)

**SHOVEL FRONT ASSEMBLY**

Gantry Sheaves(0) **GAA 10**

**10 GAA** Dipper Handle Sheave (0)

Rollers (0) **GAA 10**

**10 GAA** Dipper Handle Sheave Hinge Pin (0)

Hoist Cable Sheaves (0) (2 Points) **GAA 10**

**10 GAA** Dipper Handle Hinge Pin (0)

**10 GAA** Padlock Sheave(0)

**BACK HOE BOOM ASSEMBLY**

**- KEY -**

LUBRICANTS	CAPACITY	EXPECTED TEMPERATURES			INTERVALS
		Above +15°F (Above -90C)	+40°to 15eF (+4°to -26'C)	+40'to-65°F (+4°to -54"C)	
OE/ - Lubricating Oil, Internal Combustion Engine, Tactical Service  OEA - Lubricating Oil, Internal Combustion, Arctic - Crankcase  - Oil Can Points (See Note 3) - Air Cleaner	13 qts. (12.30 L)	OE/HDO 30	OE/IHDO 10	OEA (See Note 2)	C/MR - Condition Monitor  OC - On Condition (AOAP)  Intervals given are in hours operation.
GO - Lubricating Oil, Gear, Multipurpose - Crawler Gear Case - Gear Case - Transmission	30 qts. (28.4 L) 24 qts. (22.70 L) U. 1-1/2 qts. (1.42 L)	GO 80W/90 d of normal	GO 80W/90	GO 75W	
CW - Lubricating Oil, Chain, Wire Rope, Exposed Gear		CWII-B	CWII-A	CWII-A	
BR - Grease, Roller Bearing		<b>ALL TEMPERATURES</b>			
OHT - Hydraulic Fluid, Petroleum Base, Preservative - Hydraulic Reservoir, Main	40 qts. (31.8 L)	<b>ALL TEMPERATURES</b>			
*See Note 13 for lubricant specification number.					

TA 220419

LO 5-3810-287-12

**- KEY -**

LUBRICANTS	CAPACITY	EXPECTED TEMPERATURES			INTERVALS
		Above +15°F (Above -90C)	+40°to 15eF (+4°to -26'C)	+40'to-65°F (+4°to -54"C)	
<b>BFS</b> - Brake Fluid, Silicone, Automotive  - Hydraulic Control Reservoir.°	112 qt. (0.473 L)	,ALL TEMPERATURES			
<b>GAA</b> - Grease,' Automotive and Artillery		ALL TEMPERATURES,			

\*See Note 13 for lubricant specification number

**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 training period will adhere to the schedule for Active Army units. As a minimum, one sample from each unit's 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.

**NOTE**

\* Do not hold oil samples. Submit oil samples as soon as they have been taken.

\* Seasonal oil changes will be made due to expected temperatures. (See Key.)

2. FOR OPERATION OF EQUIPMENT IN PROTRACTED COLD TEMPERATURES BELOW -150F (-260C). Remove lubricants prescribed in Key for temperatures above -150F (-26 C). Relubricate with lubricants specified in Key for temperatures below -150F (-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/HDO1 0 lubricant for all temperature ranges where OE/HDO-10 is specified in the Key.

3. OIL CAN POINTS. Each 50 hours lubricate yoke pins, pivot pins, door hinges and fasteners, control linkages and all exposed adjusting threads with OE/H DO.

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 on 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, 100 hours. Drain when lubricant is warm.

TA 220420

LO 5-3810-287-12



**NOTES - CONTINUED:**

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 100 hours.

7. TRANSMISSION. Check level each 50 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 fill and level plug opening.

8. HYDRAULIC RESERVOIR AND HYDRAULIC OIL FILTER. Each 1000 hours, drain hydraulic system, remove filter element, clean filter housing and fill cap, install new filter element. Fill hydraulic reservoir, operate hydraulic system for 5 minutes, check for leaks, check level and bring to "FULL" mark.

9. MORIN TRIP TOGMASTER. Each 5 hours soak thrust washers and between cams with OE/HDO. Each 100 hours remove screw plug and fill drum oil-tube with OE/HDO.

10. AIR CLEANER. Each 10 hours refill oil reservoir to level mark. Each 50 hours disassemble entire unit, clean, re-oil and assemble.

11. GEARCASE. Check level each 50 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 to "FULL" mark.

12. CRAWLER GEARCASE HOUSING.

Check level each 50 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 fill and level plug opening.

13. 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
BR	MIL-G-18709
CW	FED-VV-L-751
OHT	MIL-H-6083

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 Crane-Shovel, Crawler Mounted.

*\*U.S. GOVERNMENT PRINTING OFFICE: 1984-420-903/217*

TA 220421

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS



THEN... JOT DOWN THE DOPE ABOUT IT ON THIS FORM, CAREFULLY TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL!

**SOMETHING WRONG WITH THIS PUBLICATION?**

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)

DATE SENT

PUBLICATION NUMBER

PUBLICATION DATE

PUBLICATION TITLE

BE EXACT... PIN-POINT WHERE IT IS

PAGE NO.

PARA-GRAPH

FIGURE NO.

TABLE NO.

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

TEAR ALONG PERFORATED LINE

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER

SIGN HERE:

DA FORM 2028-2 JUL 79

PREVIOUS EDITIONS ARE OBSOLETE.

P.S.—IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

