



# LUBRICATION ORDER

25 MARCH 1991

# LO 10-3930-641-12

## TRUCK, CONTAINER HANDLER: ROUGH TERRAIN 50,000 LBS CAPACITY, DED, (NSN 3930-01-082-3758) WITH TOPHANDLER(S)

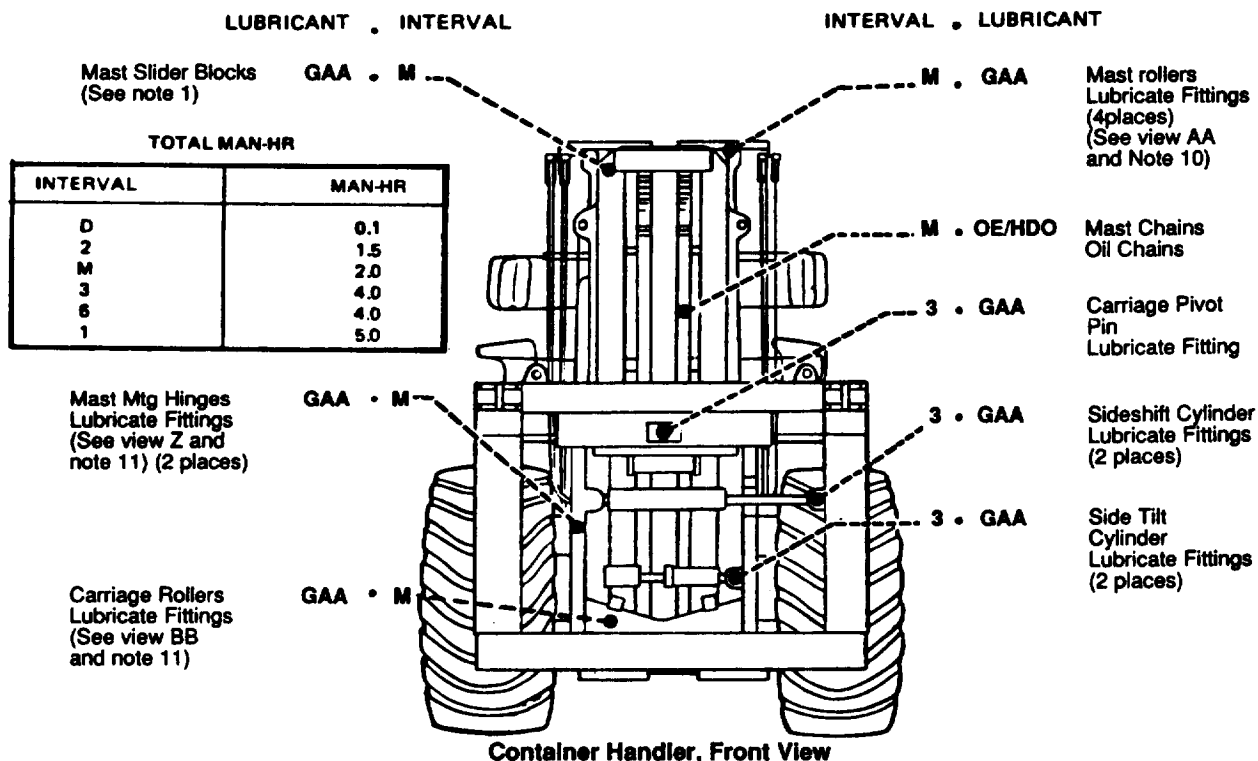
Reference: TM10-3930-641-10

Engine/Transmission oil and Hydraulic fluid must be sampled at the appropriate intervals as prescribed in TB 43-0210. 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 level activity. If extended, adequate preservation precautions

must be taken. Hard time intervals will be applied in the event AOAP laboratory support is not available. Clean fittings before lubricating. Clean parts with dry cleaning solvent, (SD) type II or equivalent. Dry before lubricating. Dotted errors indicate required lubrications 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: Operator/Crew (C); and Organizational Maintenance (O).

Relubricate after fording.



Approved for public release: distribution is unlimited.

\* This LO supersedes the lubrication instructions contained in LO 10-3930-841-12 dated 30 September 1980.

### REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

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

# LUBRICATION ORDER

25 MARCH 1991

L 0 1 0 - 3 9 3 0 - 6 4 1 - 1 2

Tilt Cylinders  
Lubricate Fittings  
(4 places)  
(See view Y)

Front Differential and  
Final Drive  
(See view F and  
Note 8)

Drive Shaft  
Front Spline  
Lubricate Fitting  
(See view C)

\*\*REMOTE LUBE POINTS

\*\*REMOTE LUBE POINTS

Rear Differential and  
Final Drive  
(See view G and Note 8)

SEE DETAIL A, CARD 3

Secondary Fuel Filter  
(See view S and  
Note 12)

Fan Drive, Belt  
Tightener and Pulleys  
Lubricate Fittings  
(2 places)  
(See view T)

Pintle Hook  
Lubricate Fittings  
(3 places)

GAA . 3

GO . 1

GAA . 1

GO . 1

GAA . M

GAA . M

1 . GAA

6 . GAA

6 . GAA

M . GAA

2 . OE/HDO

M . GAA

M . OE/HDO

M . GAA

6 .

Drive Shaft  
Universal Joints  
Lubricate Fittings  
(5 places)  
(See views C, D  
and E)

Drive Shaft Support  
Bearing  
Lubricate Fitting  
(See view A)

Steering Pivot  
Lubricate Fittings  
(2 places)  
(See view W)

Drive Shaft Spline  
(See view B and  
Note 2)

Hydraulic Tank  
(See views P and Q  
and Note 9)

Steering Cylinder Bearings  
Lubricate Fitting  
\*\* (4 places)  
(See views U and V)

Engine Crankcase  
(See view J and  
Note 7)

Rear Axle Trunion  
Bearings  
Lubricate Fittings  
\*(2 places)  
(See view V)

Engine Crankcase  
Breather  
Remove and Replace  
(See view K)

Container Handler  
Overhead View

TA 098479

# LUBRICATION ORDER

25 MARCH 1991

# LO 10-3930-641-12

LUBRICANT . INTERVAL

INTERVAL . LUBRICANT

Transmission Oil Filter  
(See view I and Note 4)

Engine Oil Filters (two places)  
(See view I and Note 6)

Engine Oil Dipstick and Fill  
(See view I and Note 7)

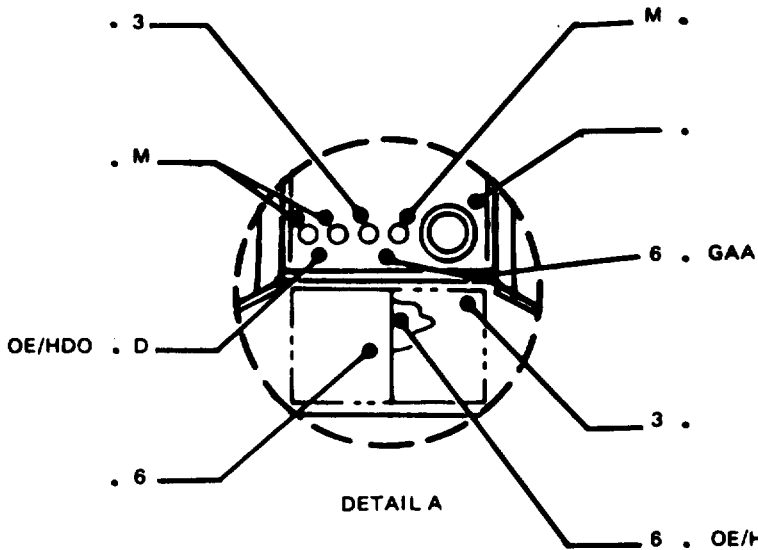
Transmission Breather  
Remove and Replace  
(See view M)

Twist Lock Housing  
Lubricate Fittings  
(4 places)  
(See view X)

Force Limiter Guide Rods  
Coat Sliding Surfaces with  
Light Coat of Grease  
(6 places)  
(See view X)

Operating Shaft Bearings  
Lubricate Bearings  
(2 places)  
(See view X)

Force Limiter Guide Rods  
Coat Sliding Surfaces with  
Light Coat of Grease  
(3 places)  
(See view X)



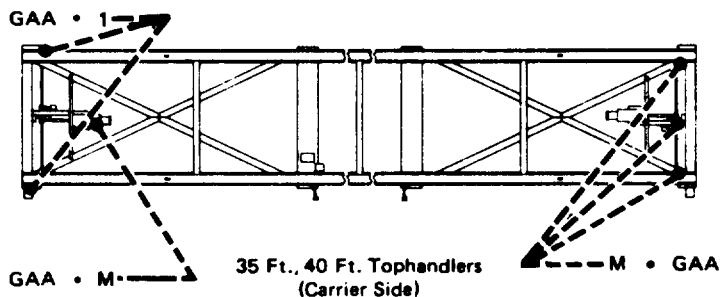
Brake System Oil Filter  
(See view I)

Primary Fuel Filter  
(See view R and Note 12)

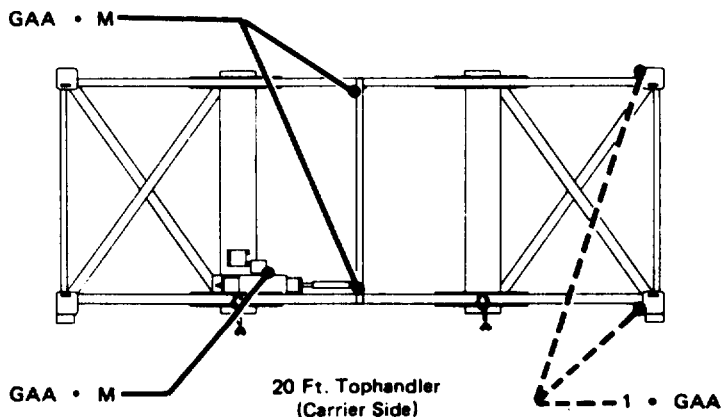
Transmission Drive Shaft Universal Joint  
Lubricate Fitting  
(2 places)  
(See view H)

Transmission Strainer  
Remove, Clean, Replace  
(See view N)

Transmission  
(See view L and O and Note 5)



Operating Shaft Bearings  
Lubricate Bearings  
(6 places)  
(See view X)



Twist Lock Housing  
Lubricate Fittings  
(4 places)  
(See view X)

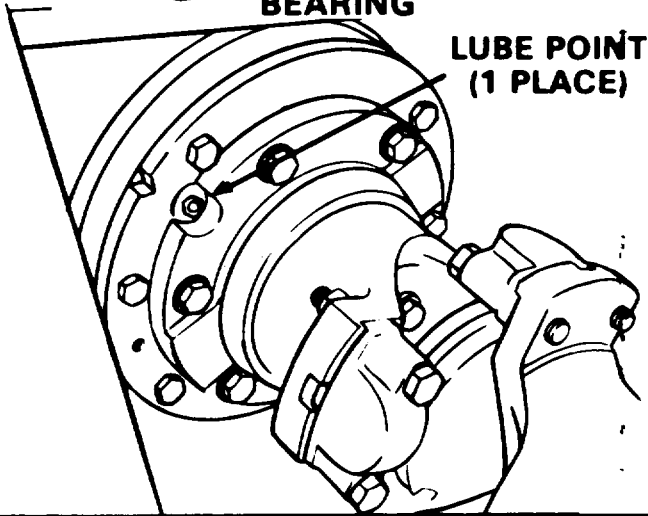
TA 098480

**LUBRICATION ORDER**

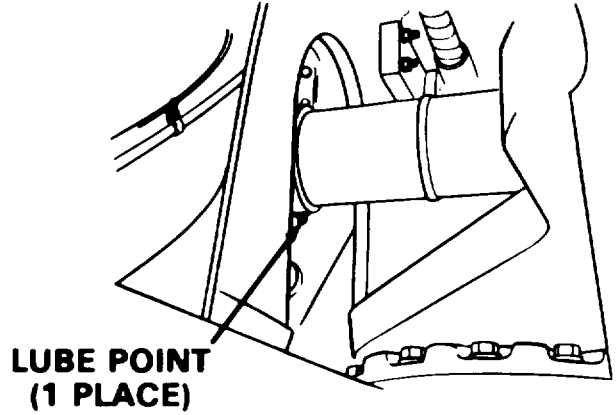
25 MARCH 1991

**L O 10-3930-641-12**

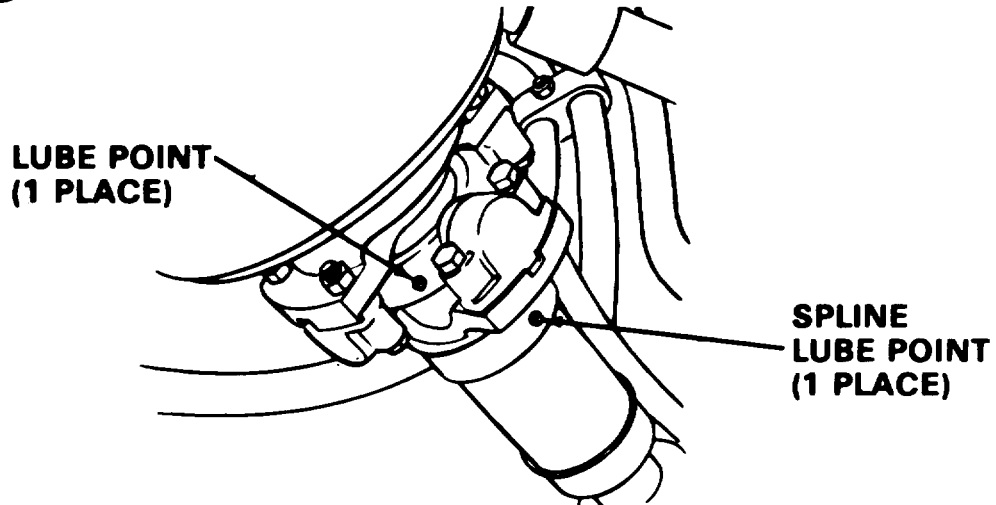
**VIEW (A) DRIVE SHAFT SUPPORT BEARING**



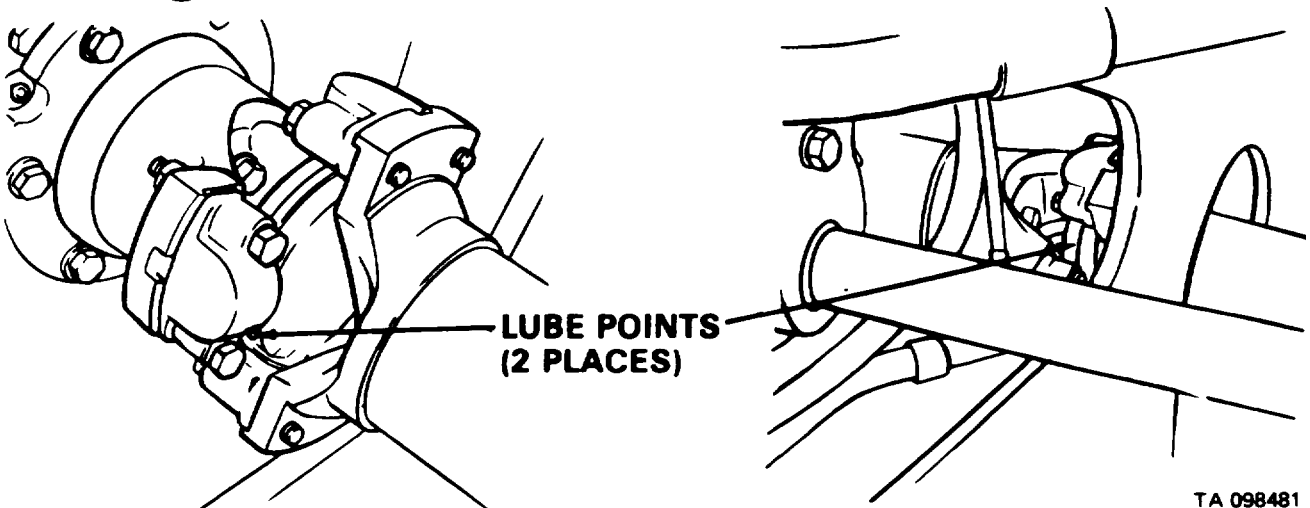
**VIEW (B) DRIVE SHAFT SPLINE**



**VIEW (C) FRONT DRIVE SHAFT UNIVERSAL JOINT AND SPLINE**



**VIEW (D) CENTER DRIVE UNIVERSAL JOINTS**



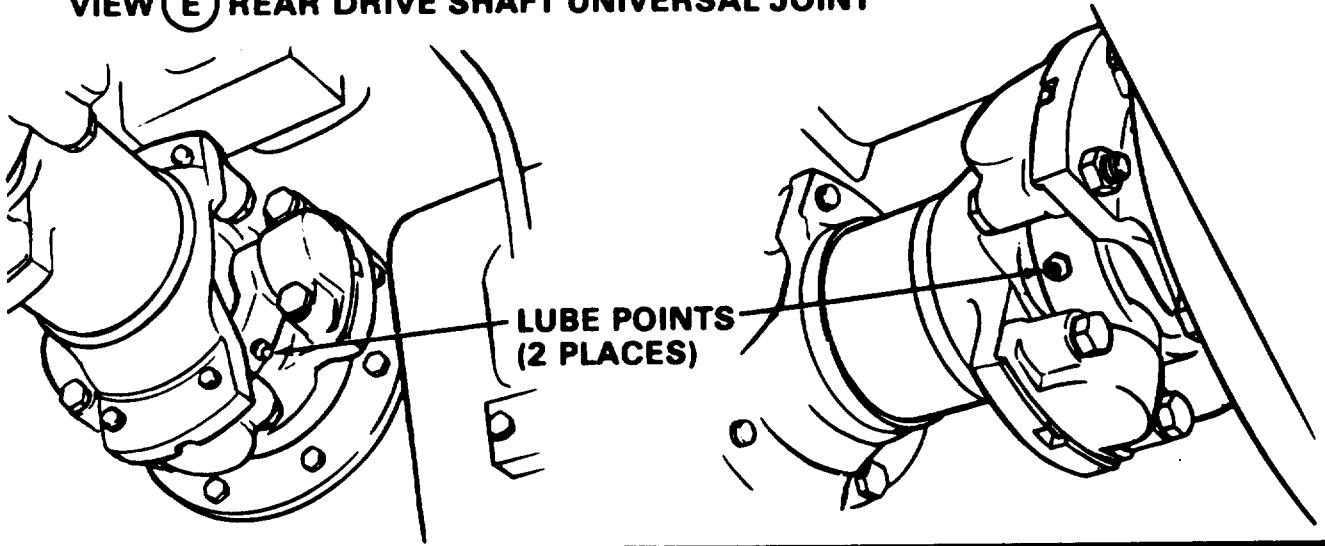
TA 098481

**LUBRICATION ORDER**

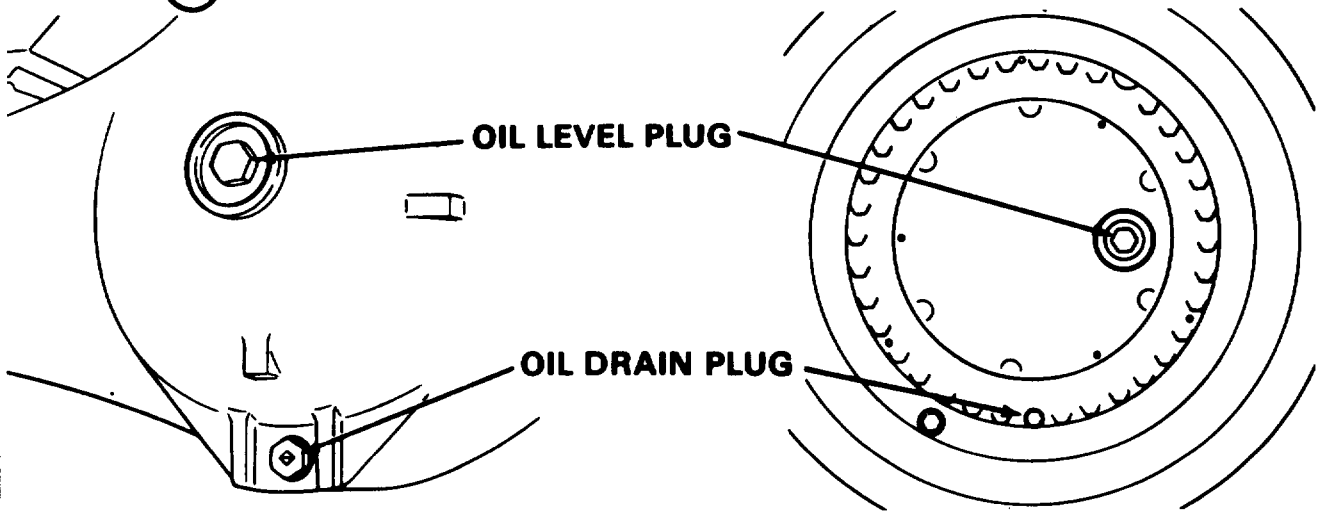
25 MARCH 1991

**LO 10-3930-641-12**

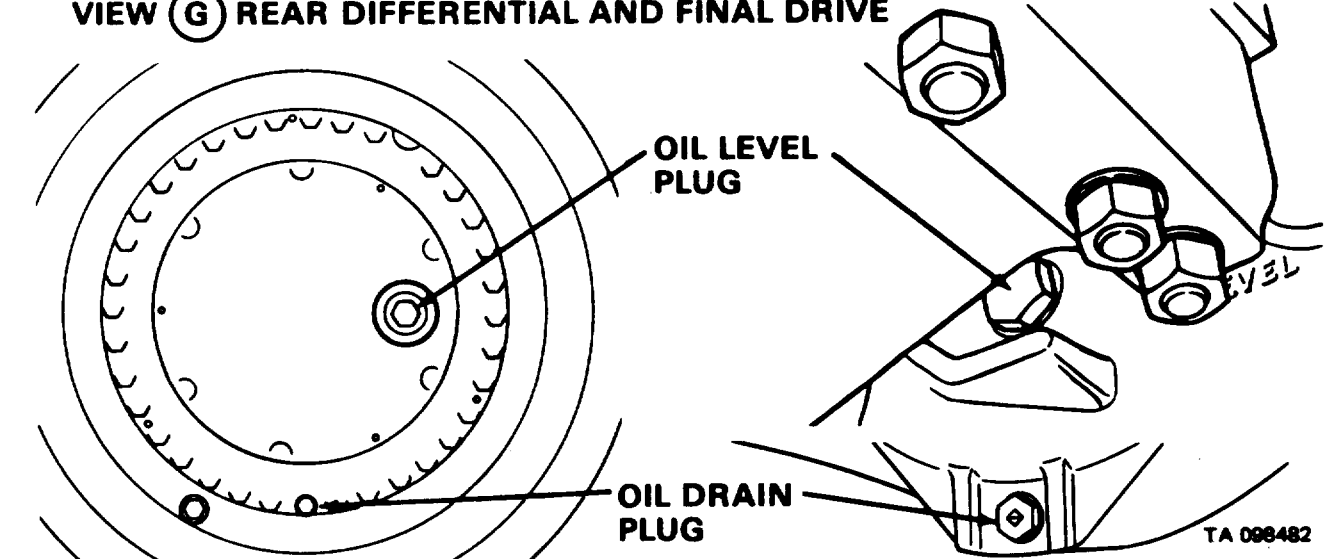
**VIEW (E) REAR DRIVE SHAFT UNIVERSAL JOINT**



**VIEW (F) FRONT DIFFERENTIAL AND FINAL DRIVE**



**VIEW (G) REAR DIFFERENTIAL AND FINAL DRIVE**



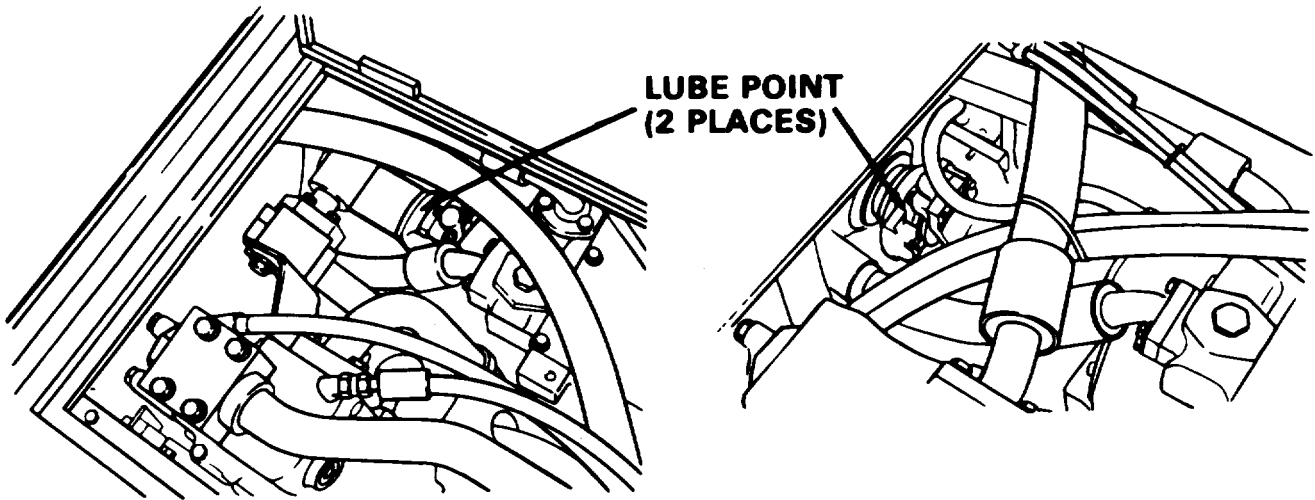
TA 098482

**LUBRICATION ORDER**

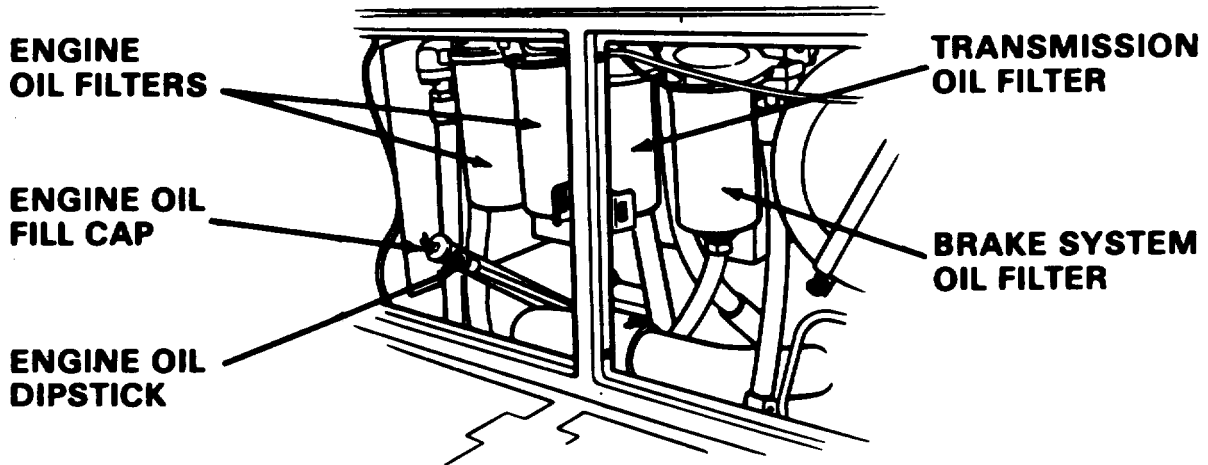
25 MARCH 1991

**LO 10-3930-641-12**

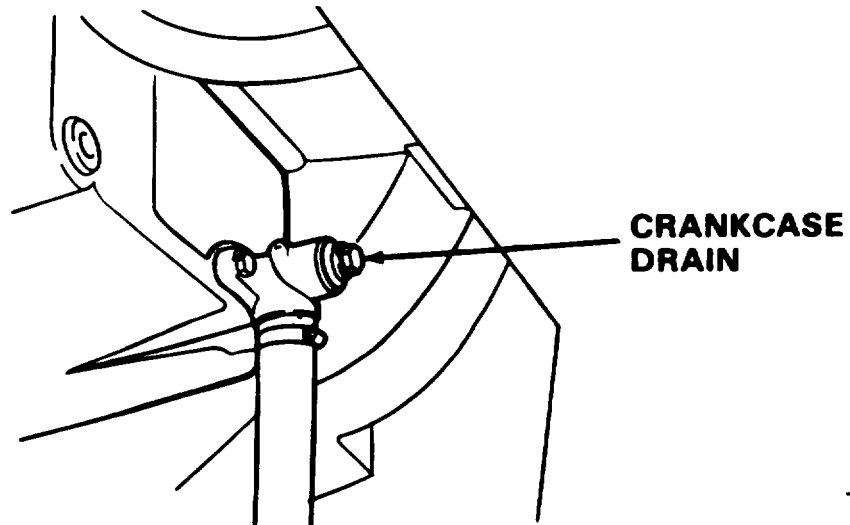
**VIEW (H) TRANSMISSION DRIVE SHAFT UNIVERSAL JOINT**



**VIEW (I) OIL FILTERS AND ENGINE DIPSTICK AND FILL**



**VIEW (J) ENGINE CRANKCASE DRAIN**



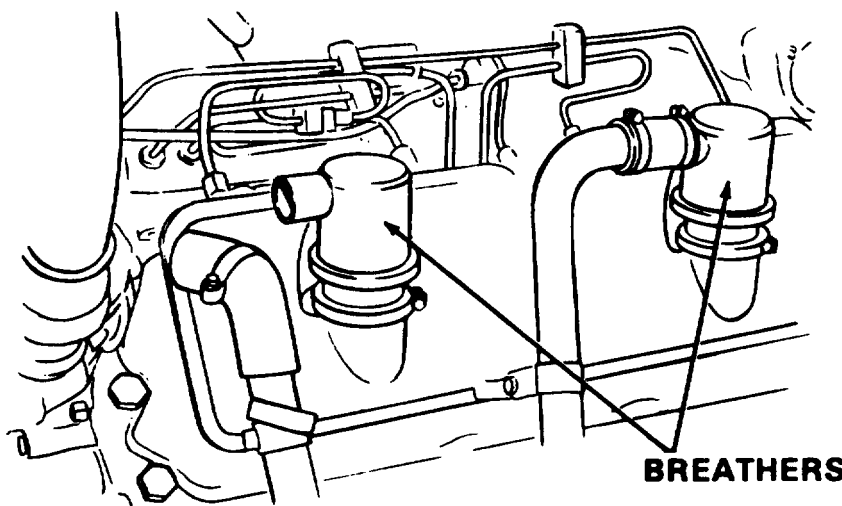
TA 098483

LUBRICATION ORDER

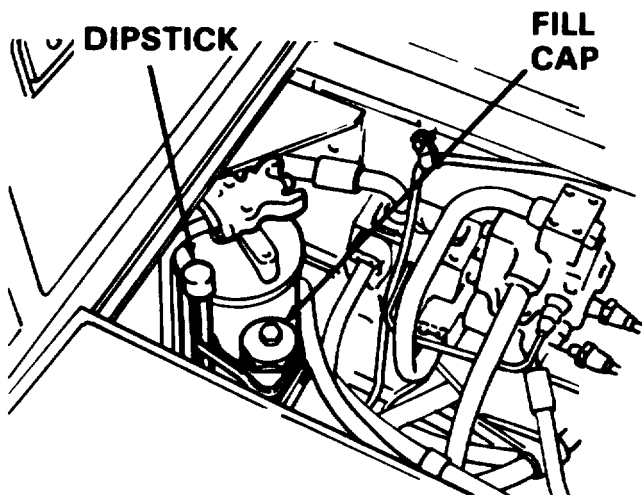
25 MARCH 1991

LO 10-3930-641-12

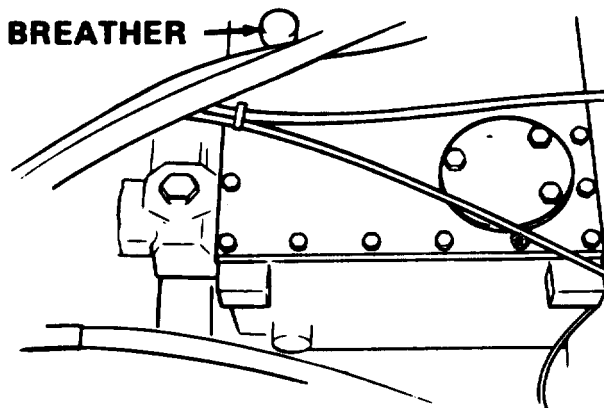
VIEW (K) ENGINE CRANKCASE BREATHER



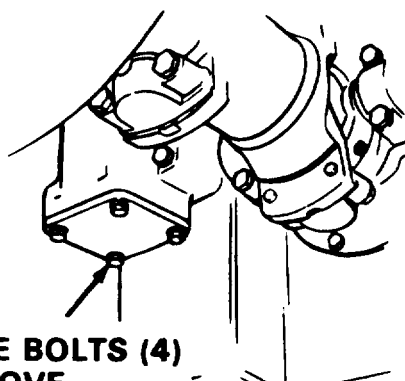
VIEW (L) TRANSMISSION



VIEW (M) TRANSMISSION BREATHER

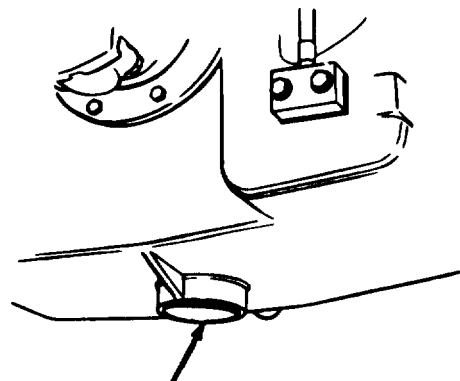


VIEW (N) TRANSMISSION MAGNETIC STRAINER



REMOVE BOLTS (4)  
TO REMOVE  
STRAINER

VIEW (O) TRANSMISSION DRAIN



DRAIN PLUG

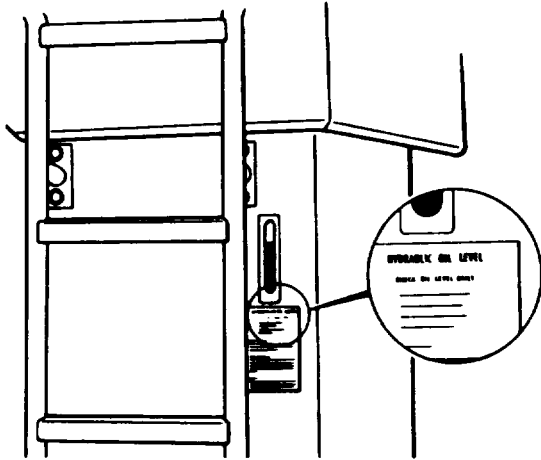
TA 098485

# LUBRICATION ORDER

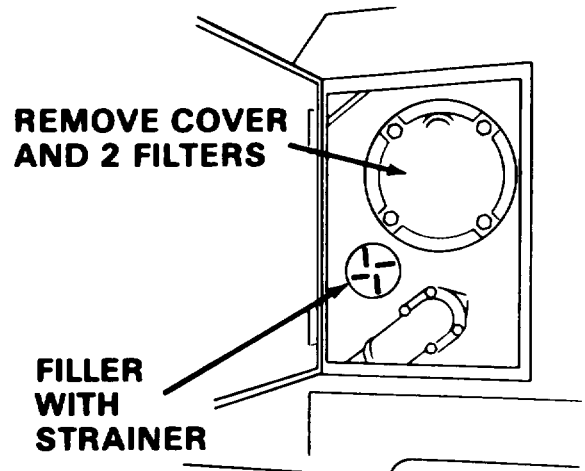
25 MARCH 1991

# LO 10-3930-641-12

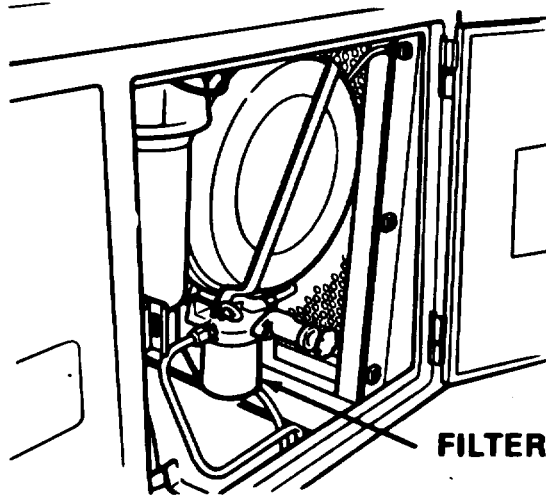
VIEW (P) HYDRAULIC TANK LEVEL



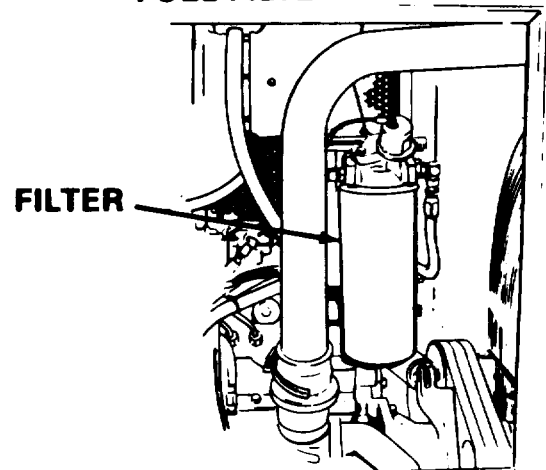
VIEW (Q) HYDRAULIC TANK



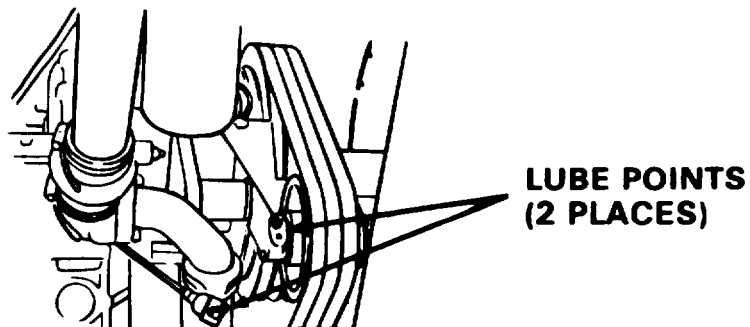
VIEW (R) PRIMARY FUEL FILTER



VIEW (S) SECONDARY FUEL FILTER



VIEW (T) FAN DRIVE AND BELT TIGHTENER PULLEY



TA 098486

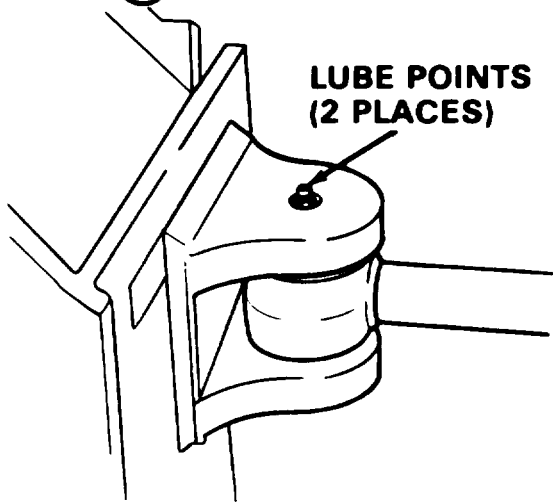


**LUBRICATION ORDER**

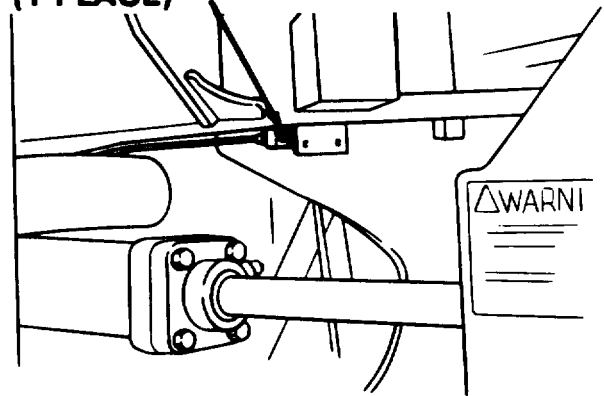
25 MARCH 1991

**LO 10-3930-641-12**

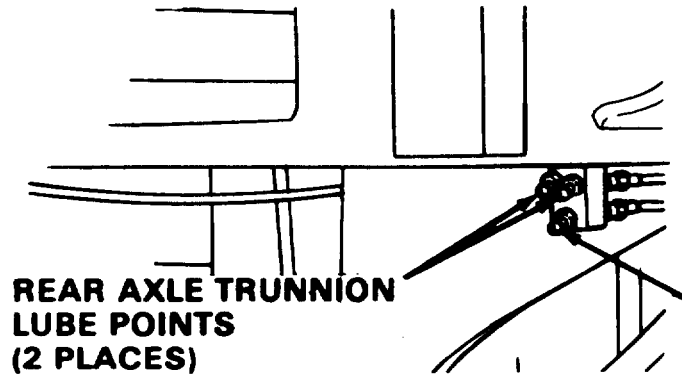
**VIEW (U) FRONT AND REAR STEERING CYLINDER BEARINGS**



**RIGHT REAR STEERING CYLINDER  
LUBE POINT  
(1 PLACE)**

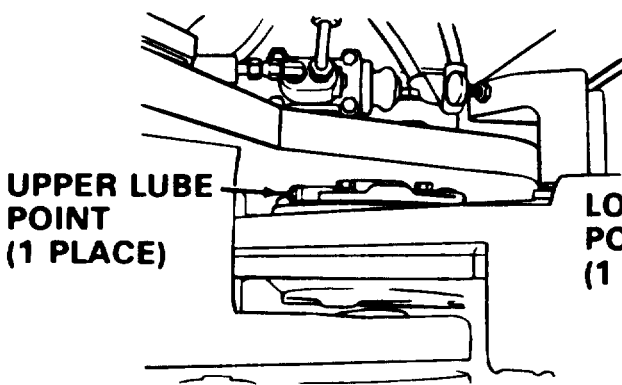


**VIEW (V) REAR AXLE TRUNNION AND LEFT REAR  
STEERING CYLINDER BEARINGS**

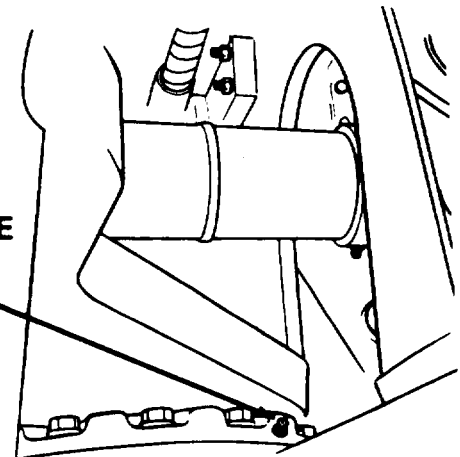


**LEFT REAR  
STEERING  
CYLINDER  
LUBE POINT  
(1 PLACE)**

**VIEW (W) UPPER AND LOWER STEERING PIVOT**



**LOWER LUBE  
POINT  
(1 PLACE)**



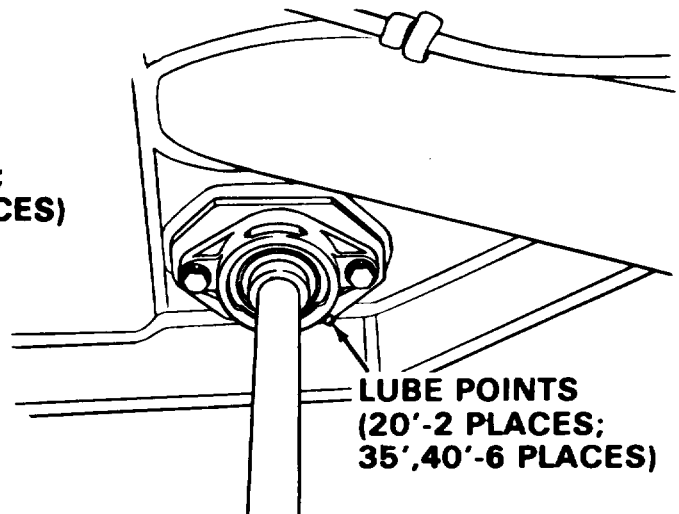
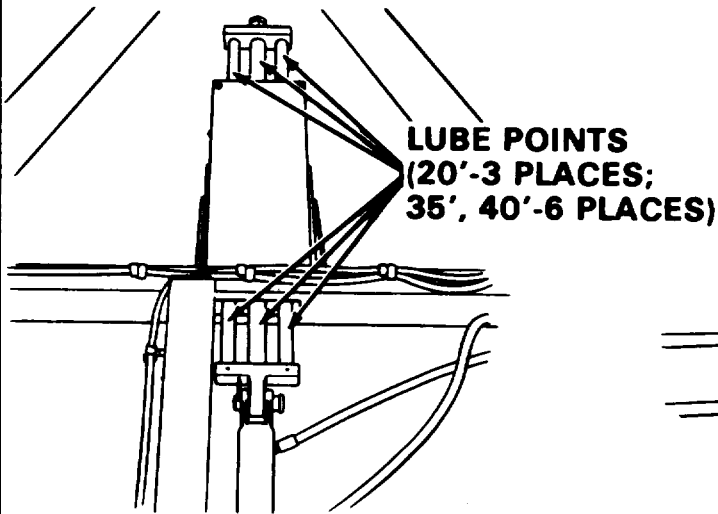
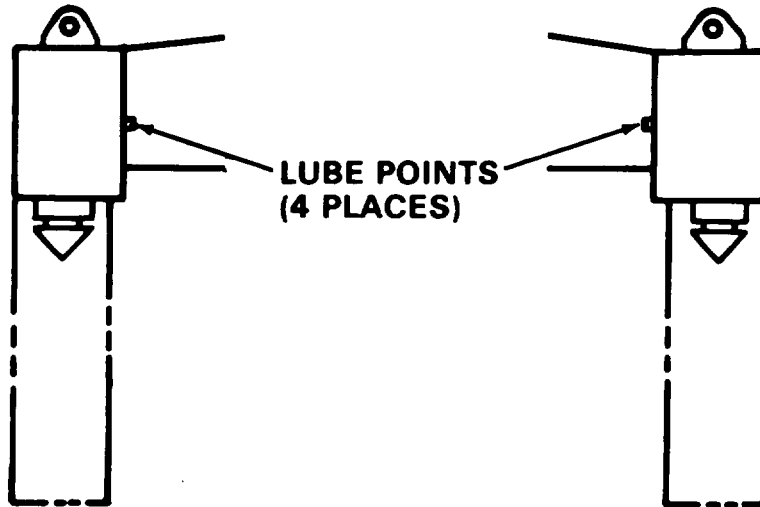
TA 098487

**LUBRICATION ORDER**

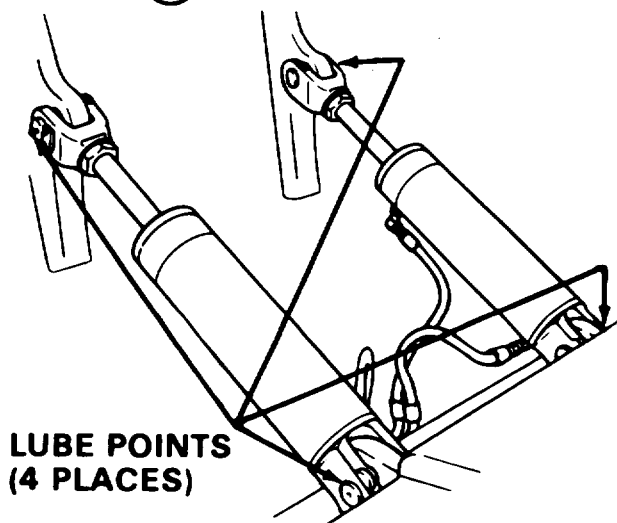
25 MARCH 1991

**LO 10-3930-641-12**

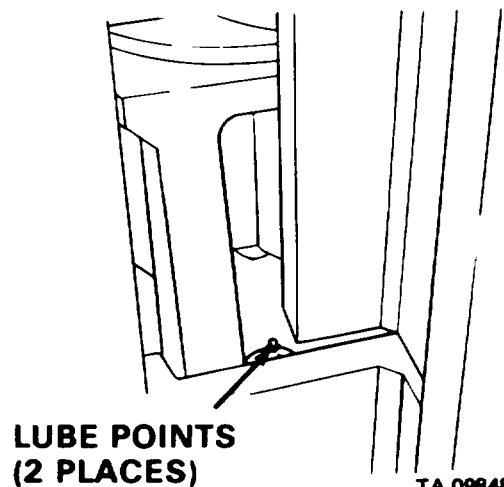
**VIEW (X) TOPHANDLER TWIST LOCKS, GUIDE RODS AND OPERATING SHAFT BEARINGS**



**VIEW (Y) TILT CYLINDERS**



**VIEW (Z) MAST MTG HINGES**



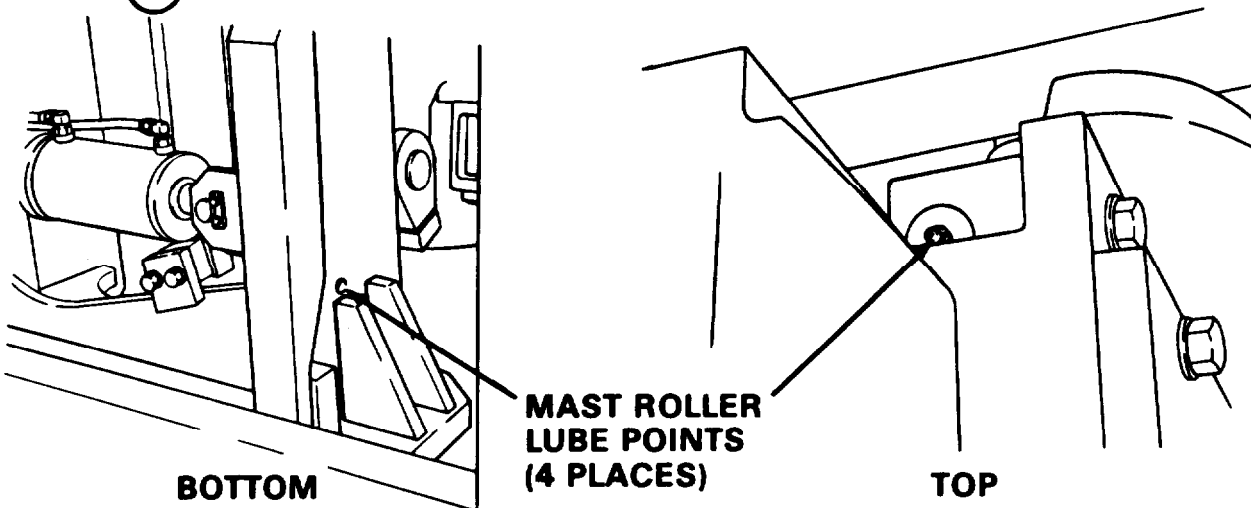
TA 098488

# LUBRICATION ORDER

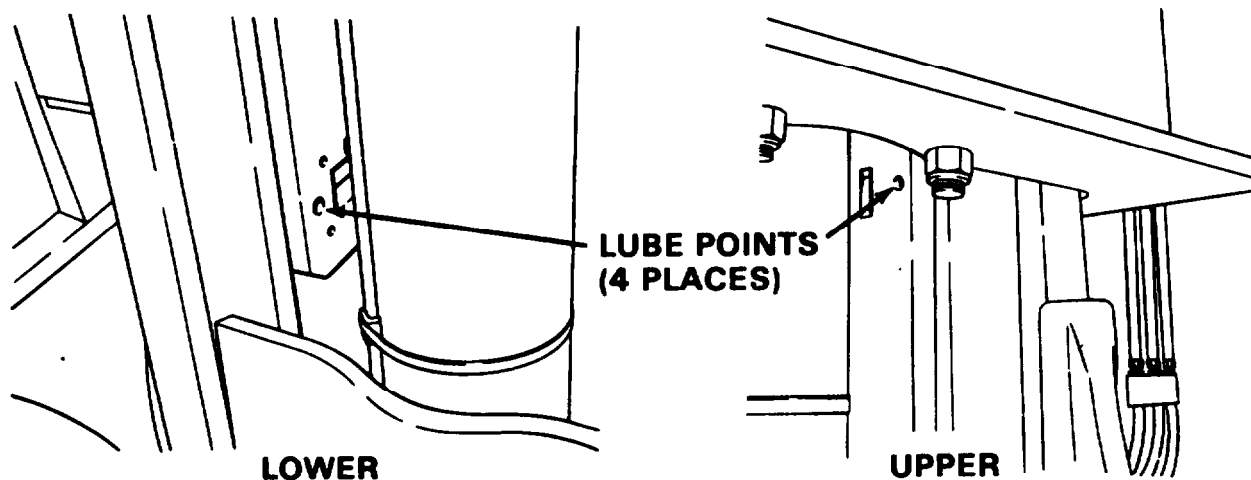
25 MARCH 1991

LO 10-3930-641-12

## VIEW (AA) MAST ROLLERS



## VIEW (BB) CARRIAGE ROLLERS



### NOTES

1. MAST SLIDER BLOCKS. Raise inner channel 2 feet (60 cm). Apply lubricant to the mast sliders. Lower and raise channel a few times to spread lubricant.
  2. DRIVE SHAFT SPLINE. Steer machine to full tight or full left and stop engine. Lubricate spline.
  3. BRAKE SYSTEM FILTER. Drain filter housing and remove. Remove and discard pilot filter element. Clean filter housing and base. Install housing with new filter element. Run engine and inspect filter for leaks.
  4. TRANSMISSION OIL FILTER. Change filter element anytime AMBER filter indicator light comes ON with engine running and oil at operating temperature. Drain filter housing and remove. Remove and discard filter element. Clean filter housing and base. Install housing with new filter element. Run engine and inspect filter for leaks. Check oil level.
  5. TRANSMISSION. Machine must be level, carriage lowered, parking brake applied, power off. Check oil level every 10 service hours. Change oil every 1000 service hours. Remove drain plug and drain oil. Remove magnetic strainer cover. Remove magnetic strainer, wash in solvent, and clean with stiff brush. Install magnetic strainer, cover and seal. Clean and install drain plug. Change filter elements (see note 4). Fill transmission compartment. Start and run engine at low idle. Recheck oil level. Stop engine.
- ENGINE OIL FILTERS. Remove filters. Clean mounting base. Apply film of engine oil to new filter gaskets. Install new filters until gaskets contact base then turn additional 3/4 turn.
- ENGINE OIL LEVEL AND CRANKCASE. Check oil level every 10 service hours. Change engine crankcase oil every 250 operating hours when fuel sulphur content is 0.4% or less. Change oil every 126 hours when fuel sulphur content is 0.4 to 1.0%. Change oil every 60 hours when fuel sulphur content is above 1.0%. Position crankcase drain hoses outside of crankcase guard. Open drain valve and allow oil to drain. Replace oil filters (Note 6). Fill crankcase. Run engine at low idle for 5 minutes and recheck oil level. Stop engine.

TA 098489

# LUBRICATION ORDER

25 MARCH 1991

# LO 10-3930-641-12

## NOTES (Continued)

8. DIFFERENTIALS AND FINAL DRIVES. Park on level surface, lower carriage, apply parking brake, stop engine. Position each wheel, in turn, with final drive drain plug down. Remove plugs, drain oil. Remove front and rear differential drain plugs, drain oil. Clean and install drain plugs. Remove front differential fill plug. Fill slowly to bottom of opening. Clean and install plug. Rotate each front wheel, in turn, so final drive fill plug is own with center of wheel. Fill to bottom of opening. Clean and install plug. Remove rear differential oil level plug. Fill slowly to bottom of opening. Clean and install plug. Rotate each rear wheel, in turn, so final drive fill plug is even with center of wheel. Fill to bottom of opening. Clean and install plug.
9. HYDRAULIC TANK. Lower carriage and check hydraulic oil level every 100 service hours. Level must be above ADD COLD mark. Change hydraulic oil every 2,000 service hours. Unlock and raise floor plate. Remove filter cap to relieve tank pressure. Remove retaining ring and filler screen. Wash filler screen in clean solvent. Remove drain plug and clean. Install 1-inch pipe nipple in drain opening to open internal drain valve. Allow oil to drain. Remove pipe nipple and re-install plug. Install new brake system filter (note 3). Remove hydraulic tank filter cover and replace two filter elements. Fill hydraulic tank. Start engine, raise carriage and tilt mast back and forth several times. Return carriage to ground. Check oil level. Install filler cap.
10. MAST ROLLERS. Lower carriage to bottom. Lubricate lower roller fittings through hole in outer mast.
11. CARRIAGE ROLLERS AND MAST MOUNTING HINGES. With carriage lowered, lubricate 2 upper fittings through holes in carriage. Raise carriage 4 feet (135 cm) and block securely to prevent lowering. Lubricate 2 lower fittings through holes in carriage and lubricate two fittings in mast mounting hinges.
12. PRIMARY AND SECONDARY FUEL FILTERS. Wash primary filter and replace secondary filter elements when FUEL PRESS gauge is in RED range with engine running at high idle (2320 rpm).
13. REPORTING OF ERRORS. You can improve this publication by calling attention to errors and by recommending improvements and by stating your reasons for the recommendations. Your letter or DA Form 2028, Recommended changes to Publications and Forms, should be mailed directly to Commander, US Army Tank-Automotive Material Readiness Command. ATTN: DRSTA-MBS, Warren, MI 48090. A reply will be furnished directly to you.

## KEY

LUBRICANTS		CAPACITIES (APP.)	EXPECTED TEMPERATURES			INTERVALS
			Above +32°F	+40°F to -10°F	0°F to -65°F	
OE/HDO (MIL-L-2104) or OEA (MIL-L-46167)	Lubricating oil Internal combustion					For Arctic Operation, refer to TM 9-207
	Engine crankcase	11 gal.	OE/HDO 30	OE/HDO 10	OEA	
	Mast chains	As req'd.				
	Transmission	24 gal.				
GO (MIL-L-2106)	Front & rear differential & final drives	27 gal. ea.	GO 80/90	GO 80/90	GO 75	
OE/HDO (MIL-L-2104) or OEA (MIL-L-46167)	Hydraulic tank	78 gal.	OE/HDO 10	OE/HDO 10	OEA	
GAA (MIL-G-10924)	Grease, Automotive and artillery	As req'd.	ALL TEMPERATURES			

DISTRIBUTION: To be distributed in accordance with DA Form 12-25-E, Block 2792, Operator and Unit maintenance requirements for LO 10-3930-641-12.

Copy of this Lubrication Order will remain with the vehicle at all times; instructions contained herein are mandatory.

BY ORDER OF THE SECRETARY OF THE ARMY:  
 CARL E. VUONO  
 General, United States Army  
 Chief of Staff  
 OFFICIAL:  
 PATRICIA P. HICKERSON  
 Colonel, United States Army  
 The Adjutant General

PIN: 047467-000 TA 098490