

# LUBRICATION ORDER

# LO 5-3805-254-12

25 February 1993

(Supersedes LO 5-3805-254-12,  
dated 20 January 1988)

## TRUCK, DUMP: 20-TON, 6 X 4, ON-OFF HIGHWAY, 71,000 GVW (NSN 3805-00-192-7249)

IHC MODEL F-5070 (CCE)

Reference: TM 5-3805-254-10, TM 5-3805-254-20, and 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 solvent, P-D-680, is toxic and flammable. Always wear protective goggles**

**and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. The solvent's flash point is 100°F-138°F (38°C-59°C). If you become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts eyes, immediately wash your eyes and get medical aid.**

Clean fittings before lubricating. Clean parts with dry cleaning solvent P-D-880, Type II or equivalent. Dry before lubricating.

Broken arrow shafts (- - -) indicate lubrication points on both sides of the equipment.

The lowest level of maintenance authorized to lubricate a point is indicated by one of the following: (C) for Crew/Operator, or (O) Organizational Maintenance.

### REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

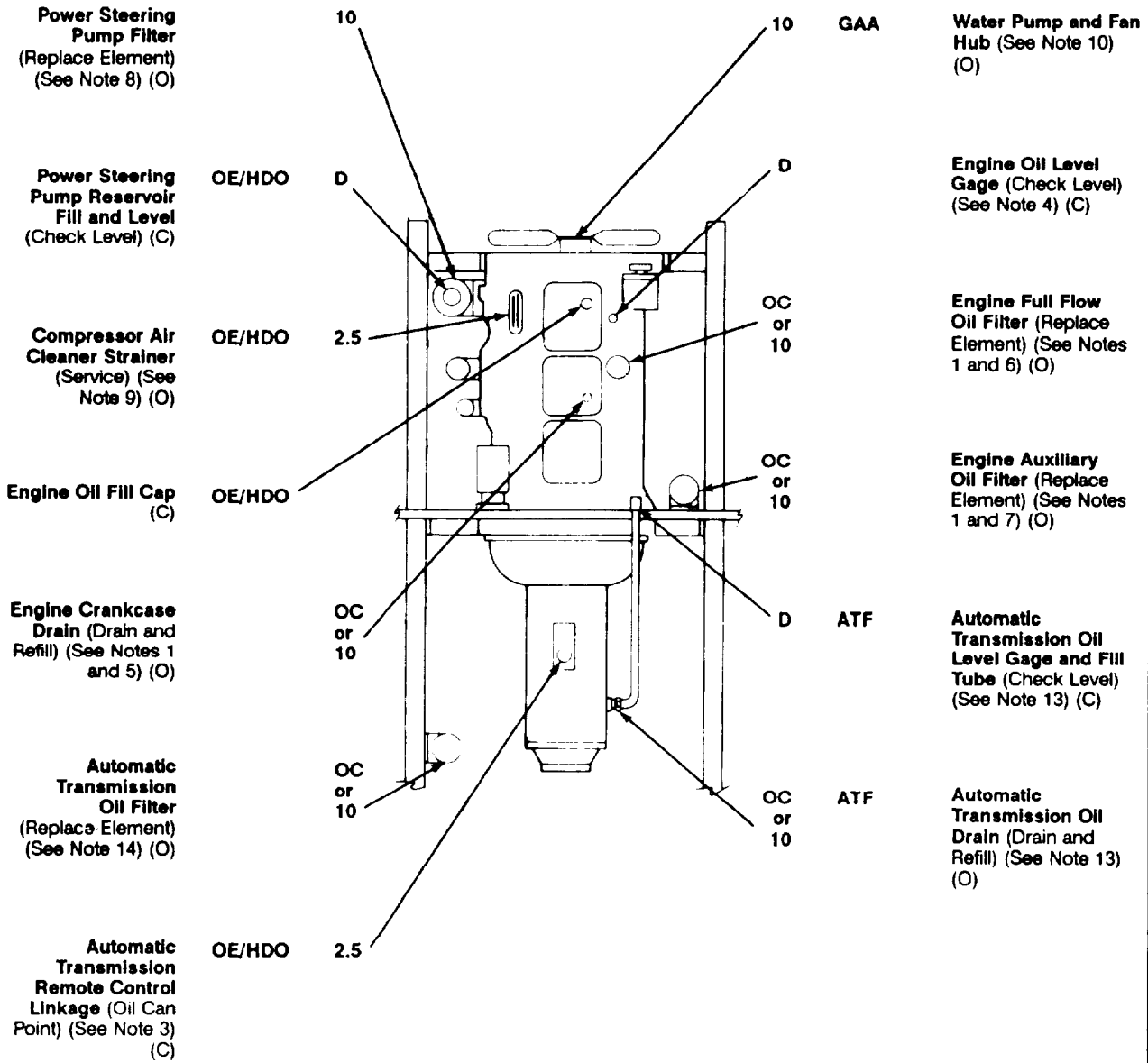
You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank forms) direct to: Commander, U.S. Army Tank-Automotive Command, ATTN: AMSTA-MB, Warren, MI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

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LUBRICANT • INTERVAL

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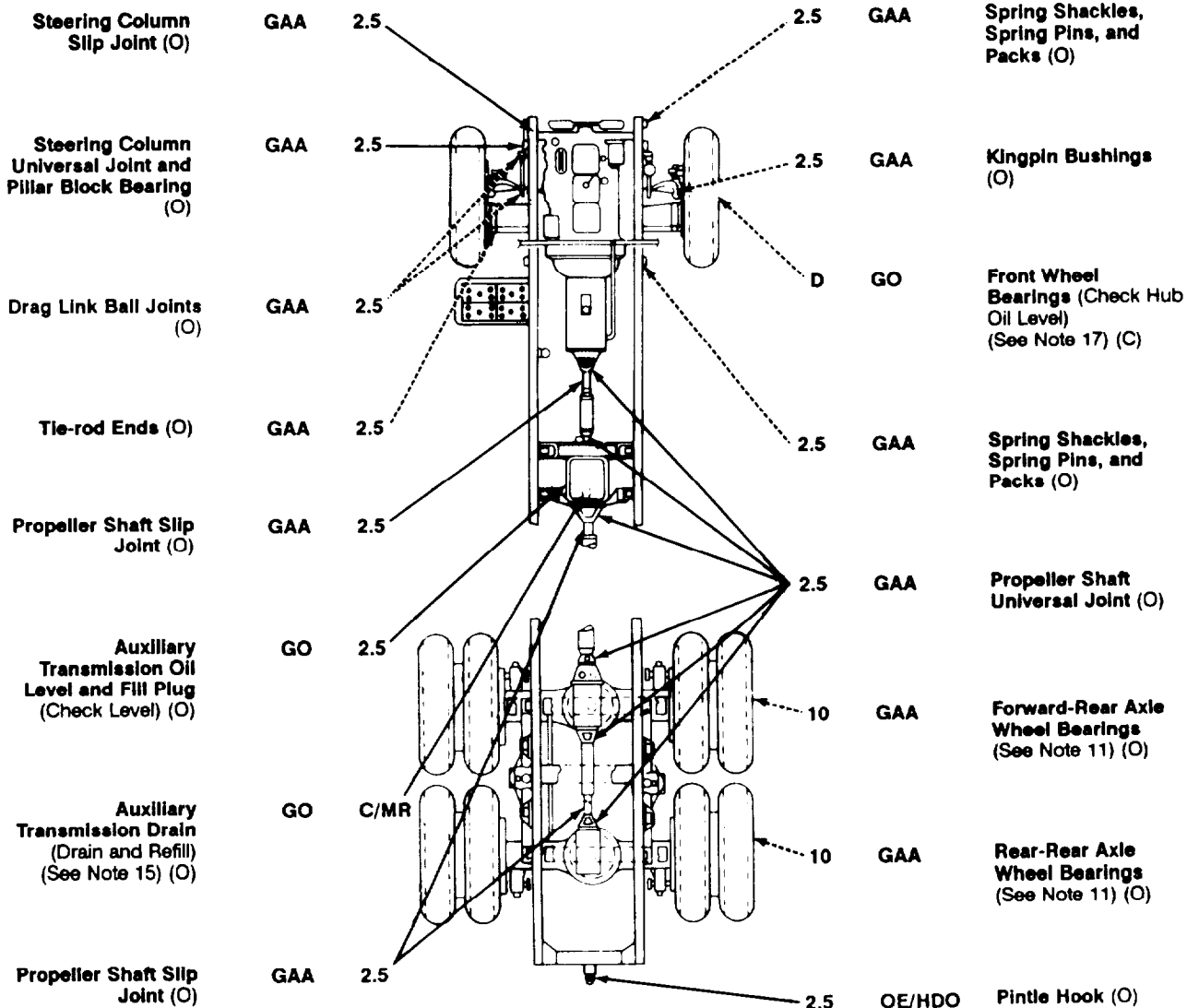
TOTAL MAN-HOURS*		TOTAL MAN-HOURS*	
INTERVAL	MAN-HOUR	INTERVAL	MAN-HOUR
D	0.2	10	1.7
2.5	3.0		

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

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TOTAL MAN-HOURS*		TOTAL MAN-HOURS*	
INTERVAL	MAN-HOUR	INTERVAL	MAN-HOUR
D	0.2	10	1.7
2.5	3.0		

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

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Interaxle Differential Drain (Drain and Refill) (See Note 16) (O)

GO C/MR

C/MR GO

Forward-Rear Axle Differential Drain (Drain and Refill) (See Note 16) (O)

Interaxle Differential Fill and Level Plug (Check Level) (O)

GO 2.5

2.5 GO

Forward-Rear Axle Differential Fill and Level Plug (Check Level) (See Note 16) (O)

Forward-Rear Axle Spring Shackles, Spring Pins, and Packs (O)

GAA 2.5

5 OE/HDO

Forward-Rear Axle Brake Chamber (See Note 12) (O)

2.5 GAA Brake Camshaft (O)

Torque Rods (O)

GAA 2.5

C/MR GO

Rear-Rear Axle Differential Drain (Drain and Refill) (See Note 16) (O)

Rear-Rear Axle Spring Shackles, Spring Pins, and Packs (O)

GAA 2.5

2.5 GO

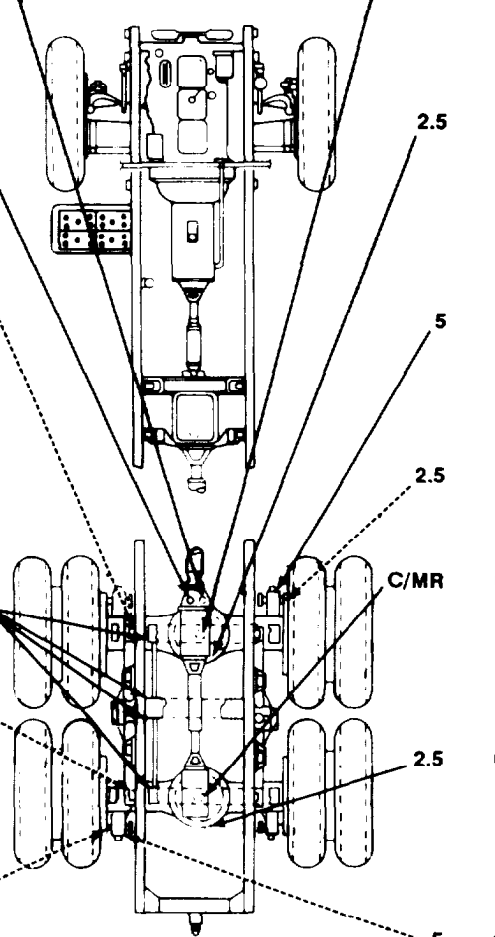
Rear-Rear Axle Differential Fill and Level Plug (Check Level) (O)

Brake Camshaft (O)

GAA 2.5

5 OE/HDO

Rear-Rear Axle Brake Chamber (See Note 12) (O)

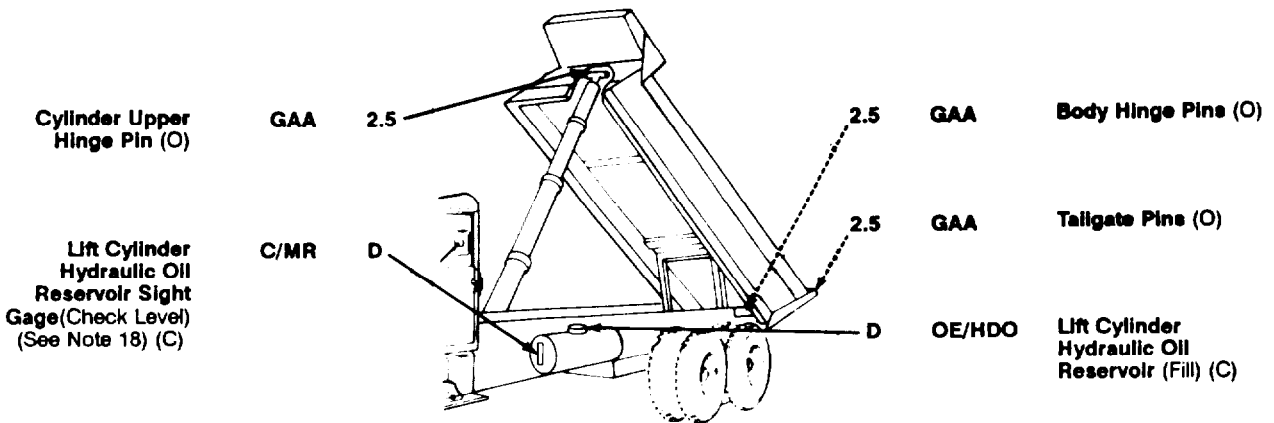


TOTAL MAN-HOURS*		TOTAL MAN-HOURS*	
INTERVAL	MAN-HOUR	INTERVAL	MAN-HOUR
2.5	3.0	5	0.6

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

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TOTAL MAN-HOURS*		TOTAL MAN-HOURS*	
INTERVAL	MAN-HOUR	INTERVAL	MAN-HOUR
D	0.2	2.5	3.0

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

— KEY —

LUBRICANTS	CAPACITIES	EXPECTED TEMPERATURES			INTERVALS
		ABOVE +32°F (ABOVE +0°C)	+40°F to -10°F (+4°C to -23°C)	0°F to -65°F (-18°C to -64°C)	
OE/HDO (MIL-L-2104) Lubricating Oil, ICE, Tactical		OE/HDO-30	OE/HDO-10	—	<b>FOR ARCTIC OPERATIONS, REFER TO FM 9-207</b>  C/MR: Condi- tion Monitor  OC: On Con- dition AOAP  D: Daily 2.5: 2,500 Miles 5: 5,000 Miles 10: 10,000 Miles
Lift Cylinder Hydraulic Oil Reservoir	40 gal (151.4 l)				
OE (MIL-L-46167) Lubricating Oil, ICE, Arctic		OE/HDO-30	OE/HDO-10	OE (See Note 2)	
Engine Crankcase with Filters	23 qt (21.7 l)				
Engine Crankcase with Auxiliary Filter Change Only	14 qt (13.2 l)				
Oil Can Points (See Note 3)		—			
Power Steering System and Reservoir	15 qt (14.2 l)	OE/HDO-30	—		

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- KEY -

LUBRICANTS	CAPACITIES	EXPECTED TEMPERATURES			INTERVALS
		ABOVE +32°F (ABOVE +0°C)	+40°F to -10°F (+4°C to -23°C)	0°F to -65°F (-18°C to -54°C)	
GO (MIL-L-2105) Lubricating Oil, Gear, Multipurpose		GO 80W/90	GO 80W/90	GO 75W	C/MR: Condi- tion Monitor  OC: On Con- dition ACAP  D: Daily 2.5: 2,500 Miles 5: 5,000 Miles 10: 10,000 Miles
Auxiliary Transmission	6 qt (5.7 l)				
Forward-Rear Differential	15 qt (14.2 l)				
Rear-Rear Differential	14 qt (13.2 l)				
Interaxle Differential	2 pt (0.87 l)				
Front Wheel Hubs	1-1/2 pt ea (0.65 l ea)				
OAI (MIL-L-6085) Lubricating Oil, Instrument		ALL TEMPERATURES			FOR ARCTIC OPERATIONS, REFER TO FM 9-207
Speedometer and Tachometer Head	(See Notes 19 and 20)				
ATF A-A Service Protection Fluid, Automatic Transmission		ALL TEMPERATURES			
Automatic Transmission	32 qt (30.27 l)				
GGP (MIL-G-23549) Grease, General Purpose		ALL TEMPERATURES			
Speedometer and Tachometer Cable					
GAA (MIL-G-10924) Grease, Automotive, and Artillery		ALL TEMPERATURES			

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## NOTES:

### 1. **ARMY OIL ANALYSIS PROGRAM (AOAP).**

For Active Army units, obtain samples from engine and automatic transmission every 500 miles (805 km) of operation or 60 days (whichever comes first). Reserve and National Guard activities will use 500 miles (805 km) 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 item of equipment will be submitted for each units' two week active training period. 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 ON 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 -10°F (-23%).**

Remove lubricants prescribed in Key for temperatures above -10°F (-23%). Relubricate with lubricants specified in Key for temperatures below -10°F (-23%). 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 2500 miles (4023 km), lubricate transmission remote control linkage, pivot pins, sliding surfaces, accelerator linkage, door hinge pins, cab latch, pedal-to-brake valve linkage, butterfly-type hood hinge, and all exposed adjusting threads with OE/HDO-10.

#### NOTE

**When OEA oil is used, oil level should be checked more often.**

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

5. **ENGINE CRANKCASE.** 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 every 1000 miles (1609 km). Drain when lubricant is warm.

6. **ENGINE FULL FLOW OIL FILTER.** Filter element is to be replaced each time an engine oil change is directed by AOAP laboratory. After installing new filter element, fill crankcase, operate engine for five minutes, check housing for leaks, check crankcase oil level, and bring to "H" (high) mark on dipstick. When AOAP support is not available, install new filter element each 1000 miles (1609 km).

7. **ENGINE AUXILIARY OIL FILTER.** Filter element is to be replaced each time an engine oil change is directed by AOAP laboratory. After installing new filter element, fill crankcase, start engine, and loosen vent plug in cover. Tighten vent plug when oil appears at plug. Operate engine for five minutes, check housing for leaks, check crankcase oil level, and bring to "H" (high) mark on dipstick. When AOAP laboratory support is not available, install new filter element each 1000 miles (1609 km).

8. **POWER STEERING PUMP FILTER.** Each 10,000 miles (16,090 km), drain power steering reservoir, remove cover plate, filter element, and clean inside of reservoir with lint-free cloth. Install new filter element and replace cover. Fill reservoir to indicated level or 1½ in. (3.8 cm) below top of filler neck on reservoir. With engine running, turn wheels from left to right and continue filling until the proper level is maintained. When operating in dusty areas, replace filter element more often.

9. **AIR CLEANER STRAINER (AIR COMPRESSOR).** Each 2500 miles (4023 km), remove strainer from air cleaner. Clean strainer, oil lightly with OE/HDO-30, and install in air cleaner. When operating under extreme dusty conditions, service strainer more often.

10. **WATER PUMP AND FAN HUB.** Each 10,000 miles (16,090 km), remove pipe plugs, install fittings, lubricate with a shot (tablespoon full) of GAA, and install pipe plugs.

11. **FORWARD-REAR AND REAR-REAR AXLE WHEEL BEARINGS.** Each 10,000 miles (16,090 km), remove wheels, clean and inspect all parts, and replace damaged or worn parts. Repack bearings, assemble, and adjust bearings.

12. **FORWARD-REAR AND REAR-REAR AXLE BRAKE CHAMBER.** Each 5000 miles (8045 km), add 2 oz (59 cc) of OE/HDO-10 through air inlet port at each brake chamber to lubricate seal.

**NOTES (CONT):**

**13. AUTOMATIC TRANSMISSION.** Check level every day with engine running at idle speed, oil temperature at 160°F-200°F (71°C-93°), and transmission in neutral. Maintain oil level at "FULL" mark. Oil is to be changed each time a transmission oil change is directed by AOAP laboratory. Replace suction screen in oil pan using new gaskets. Fill transmission to "LOW" mark. With engine running at idle speed, oil temperature at 160°F-200°F (71°C-93°C), move shift lever through all drive ranges (to fill lines and converter), place shift lever in neutral, and add oil to bring to "FULL" mark. Operate for five minutes and check for leaks. When AOAP laboratory support is not available, change transmission oil each 10,000 miles (18,090 km).

**14. AUTOMATIC TRANSMISSION OIL FILTER.** Filter element is to be replaced after the first 2500 miles (4623 km) of operation and thereafter each time a transmission oil change is directed by AOAP laboratory. Remove filter element, clean filter housing, and install new filter element and gasket. After replacement, fill transmission to "LOW" mark. With engine running at idle speed, oil temperature at 160°F-200°F (71°C-93°C), move shift lever through all drive ranges (to fill lines and converter), place shift lever in neutral, and add oil to bring to "FULL" mark. Operate for five minutes and check filter housing for leaks. When AOAP laboratory support is not available, change transmission filter element each 10,000 miles (16,090 km).

**15. AUXILIARY TRANSMISSION.** Each 2500 miles (4923 km), check level. Change gear lubricant only when required by maintenance repair action, or contamination by water or foreign material. After refill, operate for five minutes, check for leaks, and bring oil to level plug opening.

**16. FORWARD-REAR AXLE, REAR-REAR AXLE AND INTERAXLE DIFFERENTIALS.** Each 2500 miles (4023 km), check level. Operate truck, then let stand for five minutes before checking lubricant level in forward-rear axle differential. Change gear lubricant at first 1000 miles (1609 km) of operation and thereafter only when required by maintenance repair action, or contamination by water or other foreign material. For traction equalizer axles, add 2/3 oz (20 cc) of 1H-LS additive for each 1 pt (0.43 l) of lubricant used. After refill, operate for five minutes, check for leaks, and bring oil level to level plug opening. Fill interaxle differential housing with an additional 2 pt (0.87 l) of lubricant specified in Key.

**17. FRONT WHEEL BEARINGS.** Every day, check oil level through axle sight window. To fill, rotate wheel so that Allen head pipe plug is at 12 o'clock. Remove pipe plug and add oil through pipe plug hole until oil is up to level mark in sight window.

**CAUTION**

**Install props into sockets to support body in raised position.**

**18. HYDRAULIC RESERVOIR (BODY LIFT CYLINDER).** Check level every day. Oil level should show full on sight gage at reservoir with the body in fully lowered position.

**19. SPEEDOMETER AND TACHOMETER HEAD OIL WICK.** Each 5000 miles (8945 km), place one to two drops of OAI oil in the oil wick cup at rear of head.

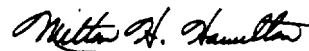
**20. SPEEDOMETER AND TACHOMETER FLEXIBLE CABLE.** Each 10,000 miles (18,090 km), apply a thin coat of GGP to cable only. Lubricate only ¾ of me way up the cable (starting at the lower end) and leaving me top ¼ free of grease to eliminate any possibility of grease getting into instrument head.

**A 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:

GORDON R. SULLIVAN  
General, United States Army  
Chief of Staff

Official:



MILTON H. HAMILTON  
Administrative Assistant to the  
Secretary of the Army

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Distribution:

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