LUBRICATION ORDER

LO 5-3805-239-12

15 DECEMBER 83

(Supersedes LO 5-3805-239-12-1, and -2,26 April 1968)

LOADER, SCOOP TYPE, PNEUMATIC TIRED WHEELS, DIESEL ENGINE DRIVEN, HINGED FRAME STEER WITH 2 1/2 CU YD MULTIPURPOSE BUCKET (ALLIS CHALMERS MODEL 645M) (NSN 3805-00-051-9359)

Reference: TM 5-3805-239-12 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 (0).

Reporting errors and recommending improvements. You can help us 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, Ml 48090. A reply will be furnished to you.

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

● TOTAL MAN-HOURS		● TOTAL MAN-HOURS	
INTERVAL	MAN-HOURS	INTERVAL	MAN-HOURS
10	0.7	500	0.2
100	1.3	1000	2.6
250	0.6		

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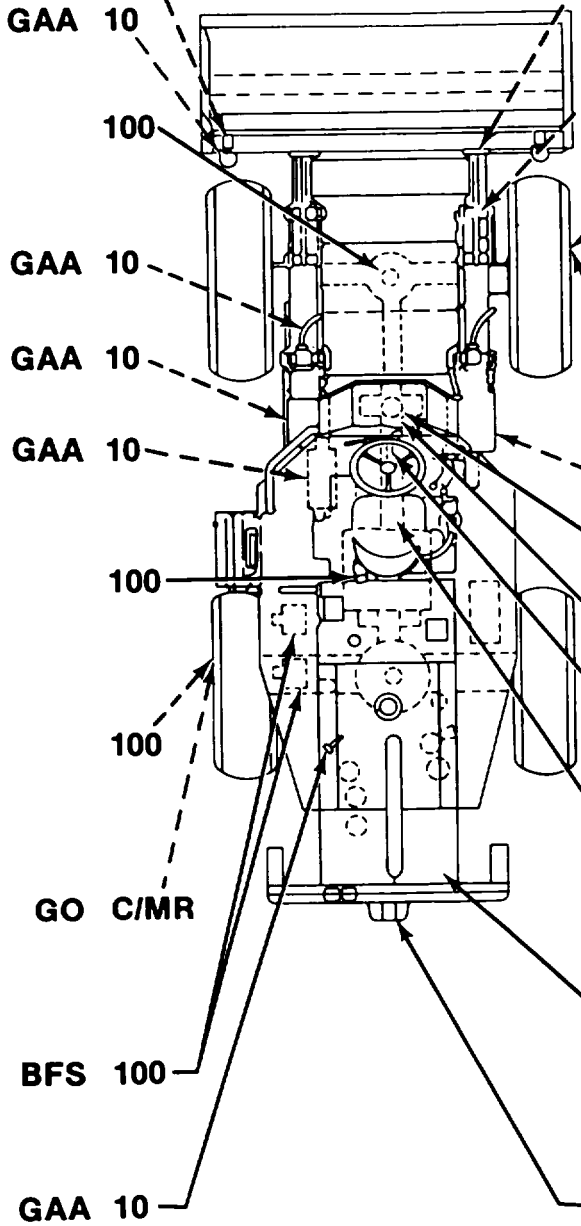

Clam Pivot Pins (C) (2 Fittings) — GAA 10

Clam Cylinders (C) (2 Fittings) — GAA 10

Differential Breathers (C) (Check for foreign material) — 100

Dump Cylinders (C) (4 Fittings) — GAA 10

Lift Cylinders (C) (6 Fittings) — GAA 10

Steering Cylinders (C) (4 Fittings) — GAA 10

Transmission Breather (C) (Check for foreign material) — 100

Rear Planetary Level Plug (0) (Check level) (See note 10) — 100

Rear Planetary Fill and Drain Plug (0) (See key) (See note 1O) — GO C/MR

Brake Master Cylinders (C) (Check level) — BFS 100

Rear Axle Pivot Pins (C) (2 Fittings) — GAA 10

10 GAA — Dump Links (C) (2 Fittings)

10 GAA — Cross Links (C) (6 Fittings)

100 — Front Planetary Level Plug (0) (Check level) (See note 10)

C/MR GO — Front Planetary Fill and Drain Plug (0) (See Key) (See note 10)

10 GAA — Boom (C) (4 Fittings)

100 GAA — Drive Shaft Bearing (C) (1 Fitting)

10 GAA — Frame Pivots (C) (2 Fittings)

100 OE/HDO — Neutral Start Switch (0)

100 GAA — Drive Shaft Universal Joints (C) (Front and rear) (5 Fittings)

100 — Fuel Tank Drain (0) (Open and drain water and sediment. Remove and clean screen in filter neck.)

250 GAA — Towing Pintle (C) (2 Fittings)

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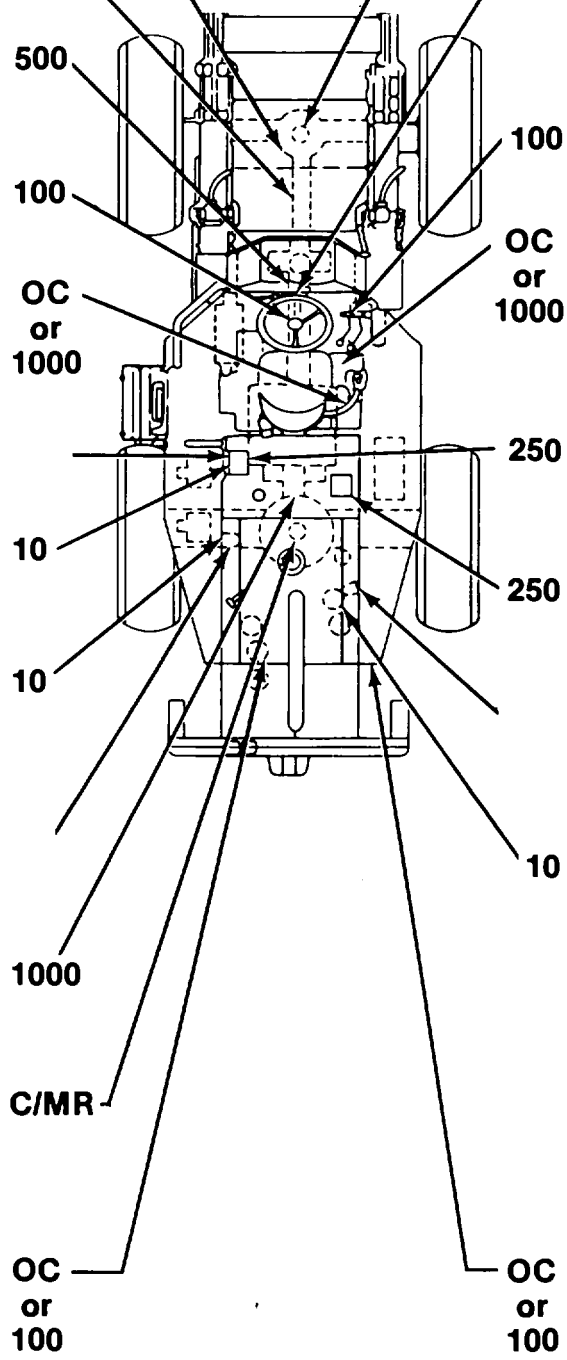

Front Differential **GO** Fill and Level Plug (0) (Check level) (See Key) — 100

Front Drive Shaft **GAA** Slip Joint (C) — 500

Transmission to Bear- **GAA** ing Drive Shaft Slip Joint (C) — 500

Transmission Control **OE** Linkage (C) **HDO** — 100

Transmission and Torque Converter Oil Strainer (0) (See Notes 1 and 7) — OC or 1000

Hydraulic Reservoir **OE/** Fill (0) (See key) **HDO**

Hydraulic Reservoir Level Gage (C) (Check level) — 10

Transmission Oil Level Gage (0) (Check Level) (See note 7) — 10

Transmission and **OE** Torque Converter **HDO** Fill Cap (0) (See key)

Hydraulic Reservoir Drain (0) (Drain and refill) — 1000

Rear Differential Drain Plug (0) (Drain and refill) (See note 11) — C/MR

Engine Oil Filter (0) (See Notes 1 and 6) — OC or 100

C/MR — Front Differential Drain Plug (0) (Drain and Refill) (See note 11)

500 **GAA** — Steering Gear Housing Fill and Level Plug (0) (Check level) (See key)

100 **OE/ HDO** — Control Valve Linkage (C)

OC or 1000 — Transmission and Torque Converter Drain Plug (0) (Drain and refill) (See Notes 1 and 7)

250 — Hydraulic Oil Strainer and Magnet (O) (Clean)

250 — Hydraulic Oil Filter (0) (Change element) (See note 9)

OE/ HDO — Crankcase Oil Fill Cap (0) (See key)

10 — Engine Crankcase Oil Level Gage (0) (Check level) See Note 4)
CAUTION: When OEA oil is used the level will be checked more often.

OC or 100 — Engine Crankcase Drain Plugs (0) (Drain and refill) (See Notes 1 and 5)

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- KEY -

LUBRICANTS	CAPACITY	EXPECTED TEMPERATURES				INTERVALS
		Above +15°F (Above - 9°C)	+40°to - 15°F (+ 4° to -26°C)	+40° to -65°F (+4° to -54°C)		
OE/HDO - Lubricating Oil, internal Combustion Engine, Tactical Service **OEA** - Lubricating Oil Internal Combustion Arctic - Engine Crankcase -Control Linkage - Neutral Start Switch -Oil Can Points (See note 3)	24 qts. (22.70 L)	**OE/HDO** 30	**OE/HDO** 10	**OEA** (See note 2)	**For Arctic operation refer to FM 9-207**	C/MR - Condition Monitor OC - On Condition (AOAP) Intervals given are in hours of normal operation.
- Torque Converter and Transmission	31 qts. (29.32 L)					
- Hydraulic System	54 gal. (204.33 L)					
GO - Lubricating Oil, Gear Multipurpose - Front Differential - Rear Differential - Front Planetary - Rear Planetary	27 qts. (25.54 L) 3 qts. (2.84 L) 3 qts. (2.84 L)	**GO** 80W/90		**GO** 75W		
BFS - Brake, Fluid Silicone, Automotive - Brake, Master Cylinders	2 pts. ea (0.946 L)	ALL TEMPERATURES				
GAA - Grease, Automotive and Artillery		ALL TEMPERATURES				

See Note 12 for lubricant specification number.

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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 -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.

3. OIL CAN POINTS. Each 50 hours lubricate control linkage, pins and clevises, and all exposed adjusting , threads with OE/HDO.

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.

6. ENGINE 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 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 AND TORQUE CONVERTER. Check level each 10 hours with engine running at idle speed, oil at operating temperature and transmission in neutral. Maintain oil level to "FULL" mark. Oil is to be changed each time a transmission oil change is directed by AOAP laboratory. Remove oil strainers, clean and replace using new gaskets. Fill transmission to low mark. Run engine at idle speed to fill converter and lines. Add oil to bring level to low mark. 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. When AOAP laboratory support is not available, change transmission oil each 1000 hours.

8. TRANSMISSION OIL FILTER, Filter element is to be replaced each time a transmission oil change is directed by AOAP laboratory. Remove filter element, clean filter housing, install new filter element and seal. After replacement, fill transmission to low mark. With engine running, oil at operating temperature and transmission in neutral, add oil to bring oil level to "FULL" mark. Operate for 5 minutes, check filter housing for leaks.

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NOTES - CONTINUED:

When AOAP laboratory support is not available, install new filter element each 1000 hours.

9. HYDRAULIC OIL FILTER. Each 250 hours, remove element, clean filter housing and install new element. After replacement, operate hydraulic system for 5 minutes, check for leaks, check level and bring to “FULL” mark.

10. FRONT PLANETARY/REAR PLANETARY. Each 100 hours rotate wheels to bring level plug horizontal with center line of axle. Remove plug, check level, fill and install plug. Change gear lubricant only when required by maintenance repair action, contamination by water, or other foreign material. To drain, rotate wheels to bring plug to bottom center, remove plug and drain. Rotate wheels back to level point, fill and install plug. After refill, operate for 5 minutes, check for leaks, and bring oil level to fill plug opening.

11. FRONT DIFFERENTIAL/REAR DIFFERENTIAL. Check level each 100 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 level to fill plug opening.

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

OE/HDO	MIL-L-2104
GO	MIL-L-2105
OEA	MIL-L-46167
GAA	MIL-G-10924
(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

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To be distributed in accordance with DA Form 12-256, Operator and Organizational maintenance requirements for Scoop-Type Loader.

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