

2 MAY 1984

(Supersedes LO 10-3930-408-20, 10 AUGUST 1964)

**TRACTOR, WHEELED, WAREHOUSE; GASOLINE,
PNEUMATIC TIRED WHEELS; 4,000 LB DBP
(CLARK MODEL CTA-40-1615160-RS) (ARMY MODEL
MHE-180)
(NSN 3930-00-953-4890)**

Reference: TM 10-3930-408-10, -20, and FEDERAL SUPPLY CATALOG C9100-IL.

Hard time intervals and the related manhour 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).

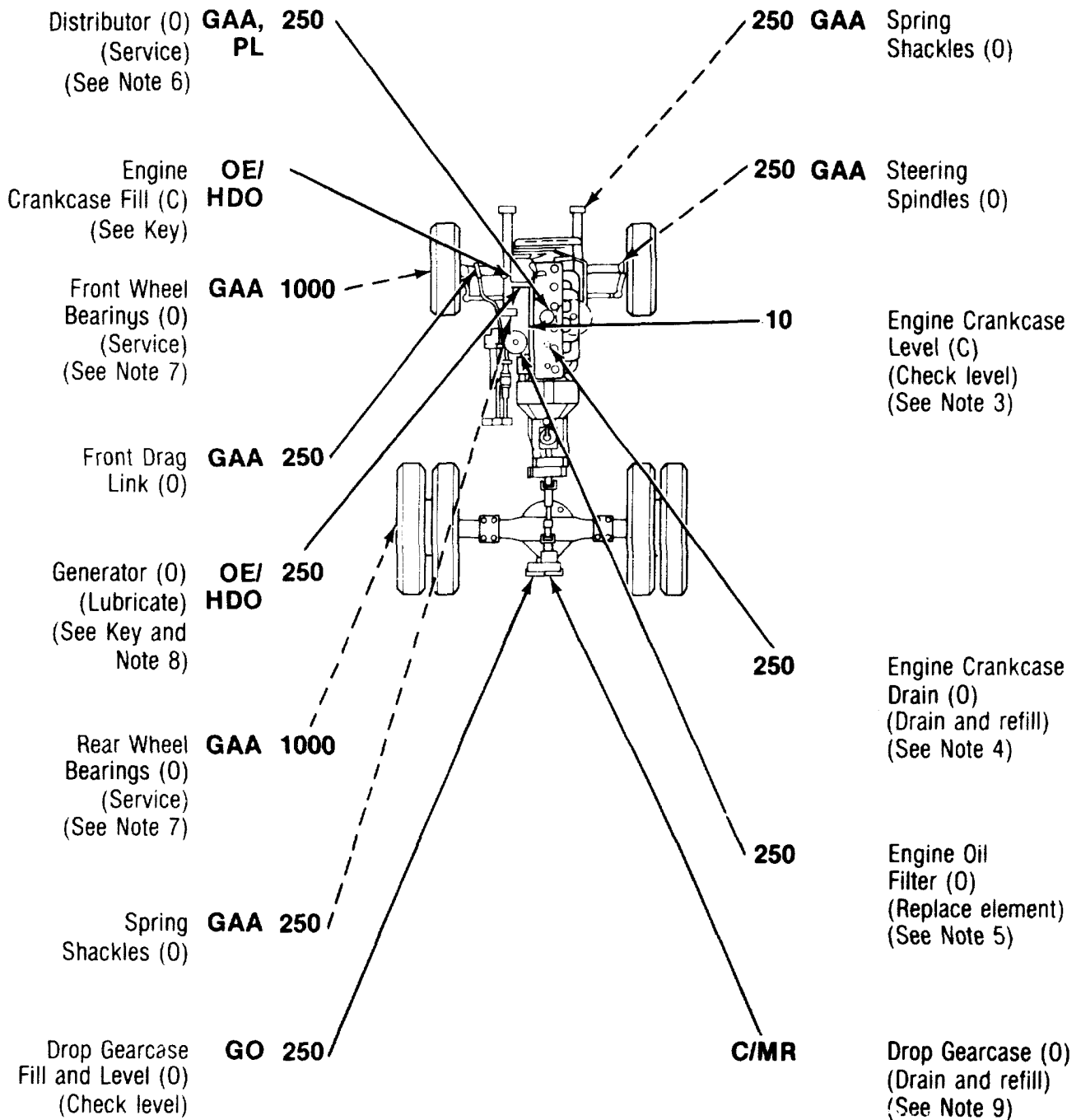
Reporting errors and recommending Improvements. You can help improve this manual. If you find any mistakes, or if you know of a way to improve the procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) direct to: Commander, US Army Tank-Automotive 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 | 1000 | 2.3 |
| 250 | 3.0 | | |

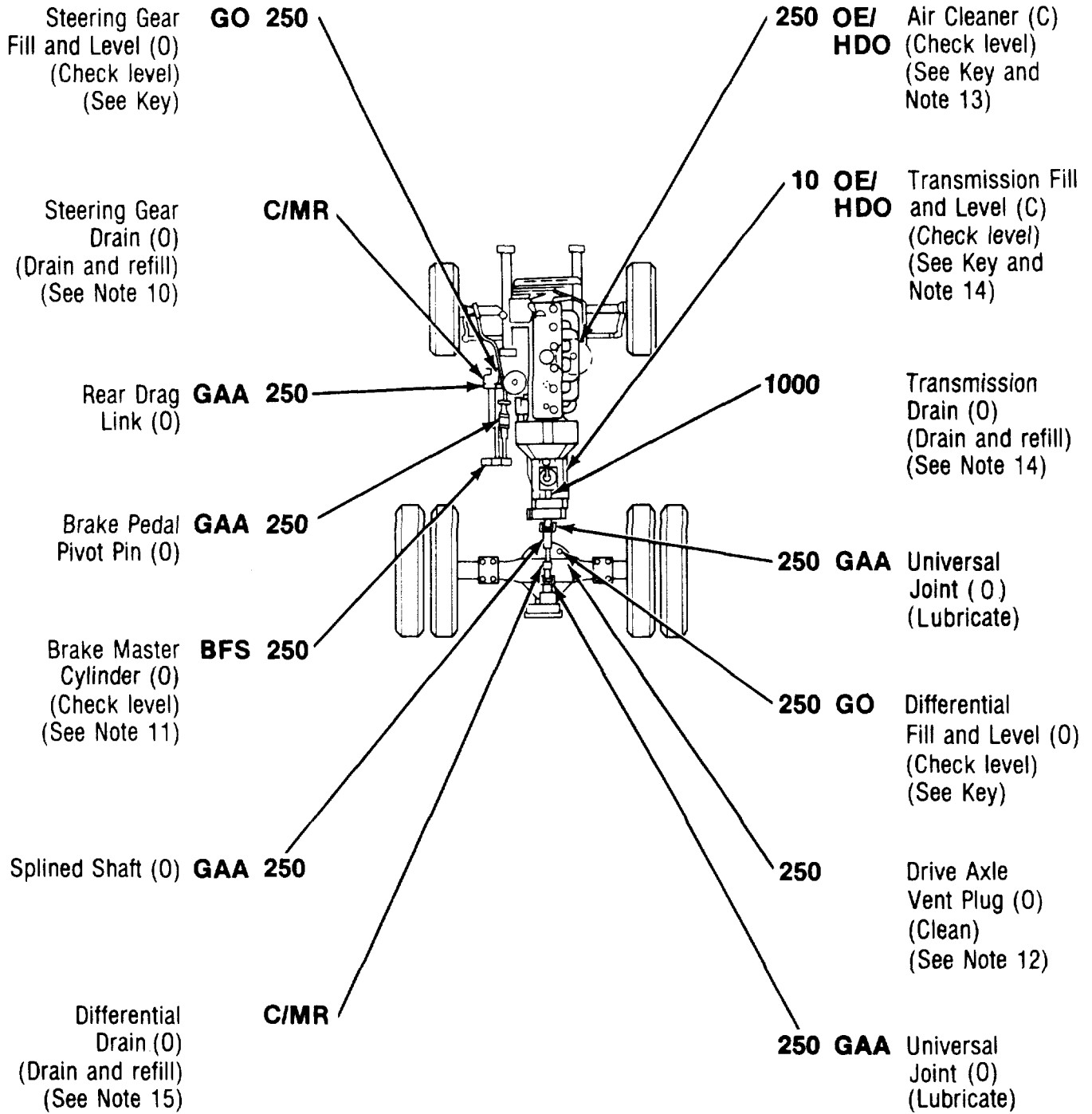
LUBRICANT•INTERVAL

INTERVAL•LUBRICANT



LUBRICANT • INTERVAL

INTERVAL • LUBRICANT



* 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 - Oil Can Points (See Note 2) - Engine Crankcase | 5-1/2 qts. (5.2 L) | OE/HDO 30 | OE/HDO 10 | OEA (See Note 1) | C/MR-Condition Monitor Intervals given are in hours of normal operation. |
| - Air Cleaner - Transmission and Torque Converter | 1 pt. (0.5 L) 10 qts. (9.5 L) | | | | |
| GO - Lubricating Oil, Gear - Steering Gear - Differential - Drop Gearcase | 1 pt. (0.5 L) 2-1/2 qts. (2.4 L) 2 pts. (0.9 L) | GO 85W/140 | GO 80W/90 | GO 75W | |
| BFS - Brake Fluid, Silicone, Automotive - Brake Master Cylinder | 1 pt. (0.5 L) | ALL TEMPERATURES | | | |
| PL - Lubricating Oil, General Purpose, Preservative - Distributor | | PL-M | PL-S | PL-S | |
| GAA - Grease, Automotive and Artillery | | ALL TEMPERATURES | | | |

For Arctic operation refer to FM 9-207

*See Note 16 for lubricant specification number.

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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 operating hours lubricate control linkages, pins and clevises, 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 CRANKCASE. Oil is to be changed each 250 operating hours. Drain when oil is warm.

5. ENGINE OIL FILTER. Each 250 operating 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. DISTRIBUTOR. Each 250 operating hours lubricate breaker arm pivot and wick under rotor with one or two drops of PL. Wipe breaker cam lightly with GAA. Remove housing plug and fill reservoir with PL. Avoid excessive lubrication.

7. WHEEL BEARINGS. Each 1000 operating hours remove wheels, clean and inspect all parts, replace worn or damaged parts, repack bearings, and assemble.

8. GENERATOR. Each 250 operating hours lubricate generator bearings with six to eight drops of OE/HDO. Avoid excessive lubrication.

9. DROP GEARCASE. Each 250 operating hours check level. Change gear lubricant only when required by maintenance repair action, or contamination by water or other foreign material. Drop gearcase drains through differential drain. After refill, operate for 5 minutes, check for leaks and bring oil to "FULL" mark.

10. STEERING GEAR. Each 250 operating hours check level. Change gear lubricant only when required by maintenance repair action, or contamination by water or other foreign material. Remove capscrew from lower left side of housing end cover to drain. After refill, operate for 5 minutes, check for leaks and bring oil to "FULL" mark.

11. BRAKE MASTER CYLINDER. Each 250 operating hours check level and maintain to 1/4-inch (0.6 cm) from top with BFS.

WARNING

Particles blown by compressed air are hazardous. Make certain the air stream is directed away from user and other personnel in the area. To prevent injury user must wear safety goggles or face shield when using compressed air.

12. DRIVE AXLE VENT PLUG. Each 250 operating hours remove plug, clean with approved dry cleaning solvent, blow out with compressed air, and install plug.

13. AIR CLEANER. Each 250 operating hours disassemble entire unit, clean, assemble and refill with OE/HDO.

14. TRANSMISSION. Check oil level each 10 operating hours with oil at operating temperature and engine stopped. Maintain level to "FULL" mark with OE/HDO.

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NOTES - CONTINUED:

Each 1000 operating hours change transmission oil. After refill, operate for 5 minutes, check for leaks, stop engine, check oil level and bring to "FULL" mark. Disconnect filler tube at transmission to drain and re-connect to fill transmission. Drain when lubricant is warm.

15. DIFFERENTIAL. Each 250 operating hours check level. Change gear lubricant only when required by maintenance repair action, or contamination by water or other foreign material. To drain remove capscrew in lower side of housing cover. After refill operate for 5 minutes, check for leaks and bring to "FULL" mark.

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 |
| PL-M | MIL-L-3150 |
| PL-S | VV-L-800 |

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 12-25A, Operator and Organizational maintenance requirements for Wheeled Warehouse Tractors.

LO 10-3930-408-12

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 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.

PRINTED NAME, GRADE OR TITLE AND TELEPHONE NUMBER

SIGN HERE

The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
 1 decimeter = 10 centimeters = 3.94 inches
 1 meter = 10 decimeters = 39.37 inches
 1 dekameter = 10 meters = 32.8 feet
 1 hectometer = 10 dekameters = 328.08 feet
 1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
 1 decigram = 10 centigrams = 1.54 grains
 1 gram = 10 decigrams = .035 ounce
 1 decagram = 10 grams = .35 ounce
 1 hectogram = 10 decagrams = 3.52 ounces
 1 kilogram = 10 hectograms = 2.2 pounds
 1 quintal = 100 kilograms = 220.46 pounds
 1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliliters = .34 fl. ounce
 1 deciliter = 10 centiliters = 3.38 fl. ounces
 1 liter = 10 deciliters = 33.81 fl. ounces
 1 dekaliter = 10 liters = 2.64 gallons
 1 hectoliter = 10 dekaliters = 26.42 gallons
 1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
 1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
 1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
 1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
 1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
 1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
 1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
 1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

| <i>To change</i> | <i>To</i> | <i>Multiply by</i> | <i>To change</i> | <i>To</i> | <i>Multiply by</i> |
|------------------|--------------------|--------------------|--------------------|---------------|--------------------|
| inches | centimeters | 2.540 | ounce-inches | Newton-meters | .007062 |
| feet | meters | .305 | centimeters | inches | .394 |
| yards | meters | .914 | meters | feet | 3.280 |
| miles | kilometers | 1.609 | meters | yards | 1.094 |
| square inches | square centimeters | 6.451 | kilometers | miles | .621 |
| square feet | square meters | .093 | square centimeters | square inches | .155 |
| square yards | square meters | .836 | square meters | square feet | 10.764 |
| square miles | square kilometers | 2.590 | square meters | square yards | 1.196 |
| acres | square hectometers | .405 | square kilometers | square miles | .386 |
| cubic feet | cubic meters | .028 | square hectometers | acres | 2.471 |
| cubic yards | cubic meters | .765 | cubic meters | cubic feet | 35.315 |
| fluid ounces | milliliters | 29.573 | cubic meters | cubic yards | 1.308 |
| pints | liters | .473 | milliliters | fluid ounces | .034 |
| quarts | liters | .946 | liters | pints | 2.113 |
| gallons | liters | 3.785 | liters | quarts | 1.057 |
| ounces | grams | 28.349 | liters | gallons | .264 |
| pounds | kilograms | .454 | grams | ounces | .035 |
| short tons | metric tons | .907 | kilograms | pounds | 2.205 |
| pound-feet | Newton-meters | 1.356 | metric tons | short tons | 1.102 |
| pound-inches | Newton-meters | .11296 | | | |

Temperature (Exact)

| | | | | |
|----|---------------------------|-------------------------------|------------------------|----|
| °F | Fahrenheit temperature | 5/9 (after subtracting 32) | Celsius temperature | °C |
|----|---------------------------|-------------------------------|------------------------|----|

