MIXER, BITUMINOUS MATERIAL, NON-SELF - LOADING, D.E.D. (BARBER-GREENE MDL KA-60) (NSN 3895-00-933-0577) WITH ELEVATOR, BUCKET TYPE (BARBER-GREENE MDL 882-251) (NSN 3910-00-089-9357) (AND FEEDER, AGGREGATE, BARBER-GREENE MDL 442) (NSN 3895-00-089-9001), COMPONENT OF MIXING PLANT, ASPHALT, 100-150 TON PER HOUR, MDL KA-60 (NSN 3895-00-9368613)

Reference: TM 5-3895-287-15 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**
10	2.0	100	0.5
50	0.3	250	1.2

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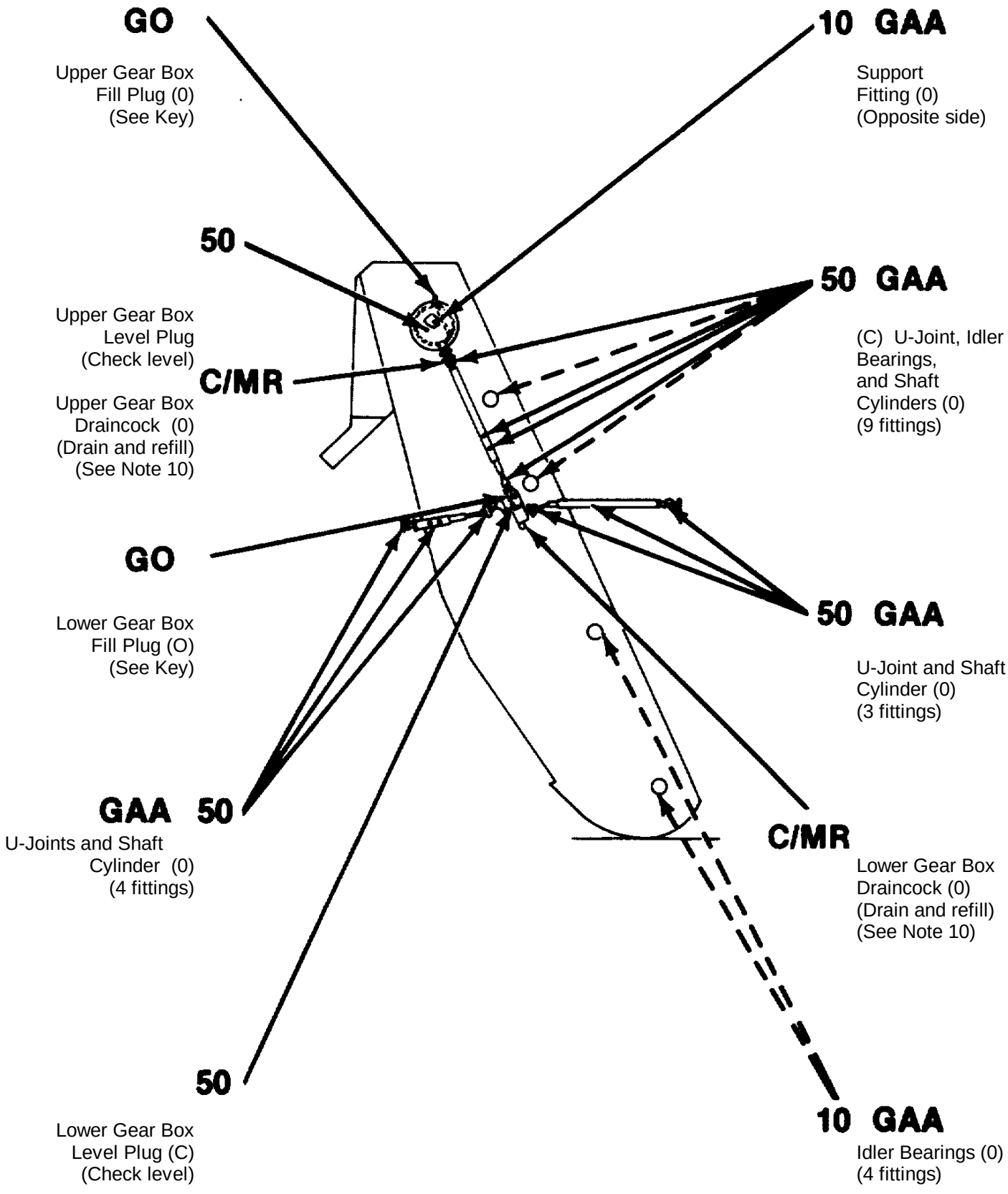

HOT ELEVATOR MODEL 882-251

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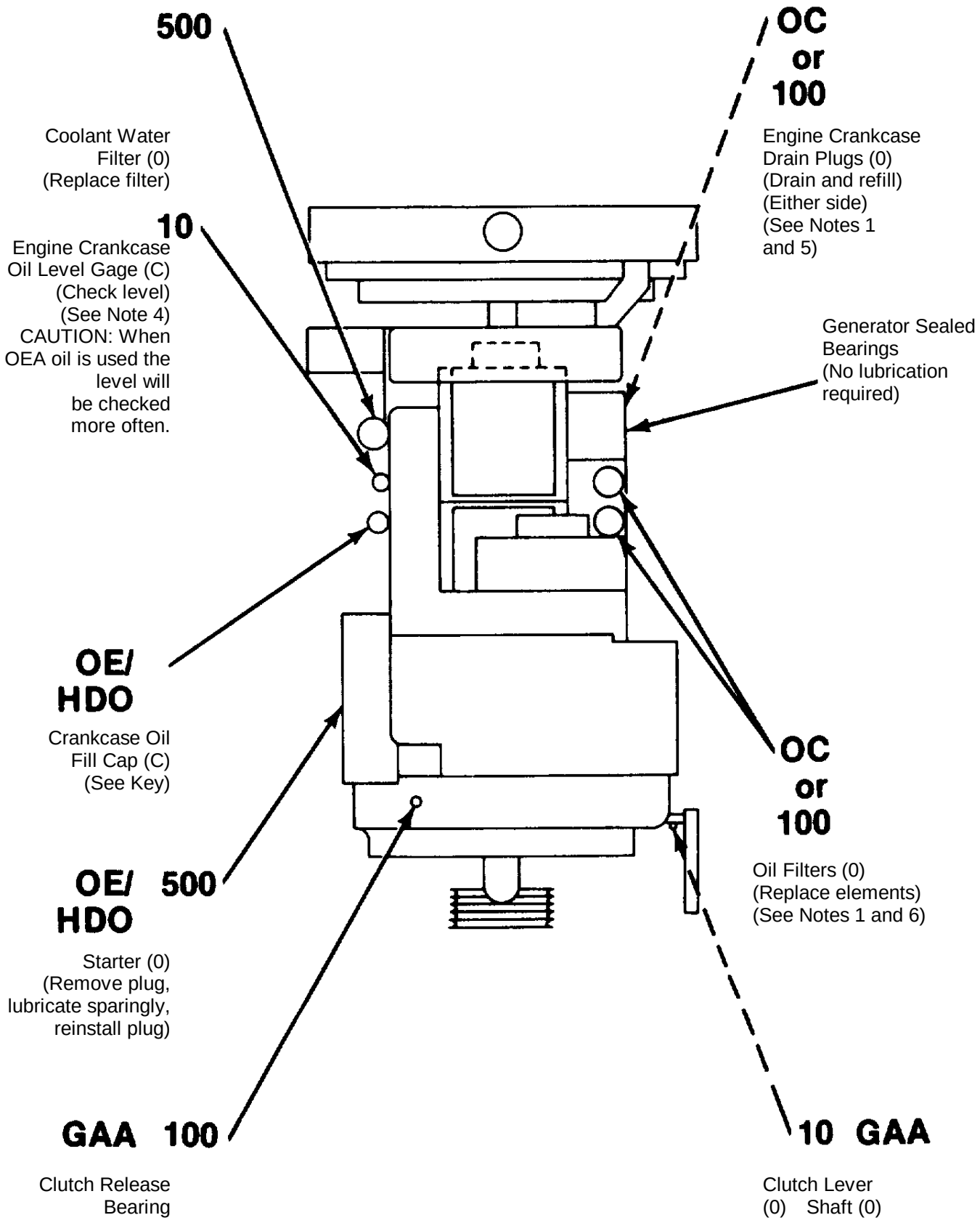

MODEL 3500 ENGINE

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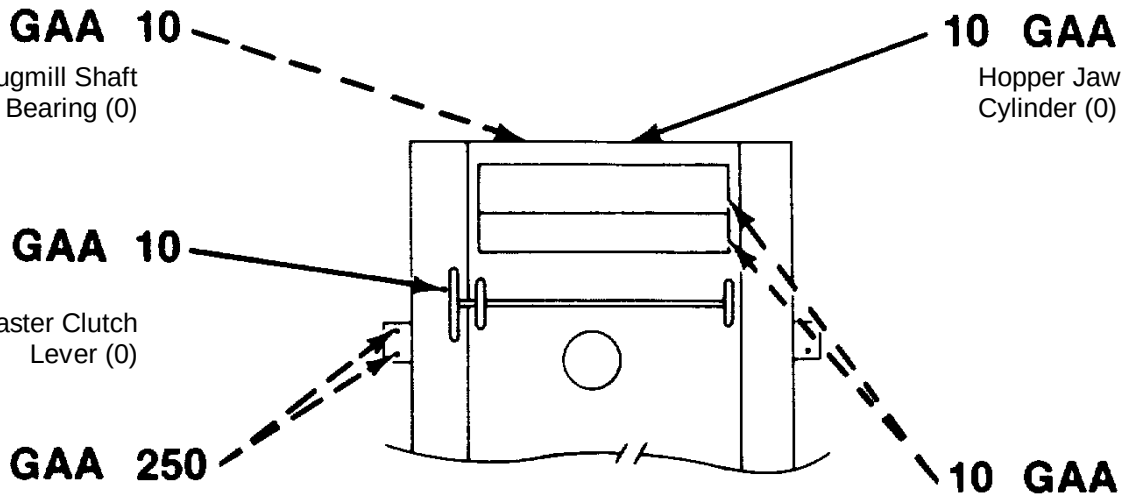
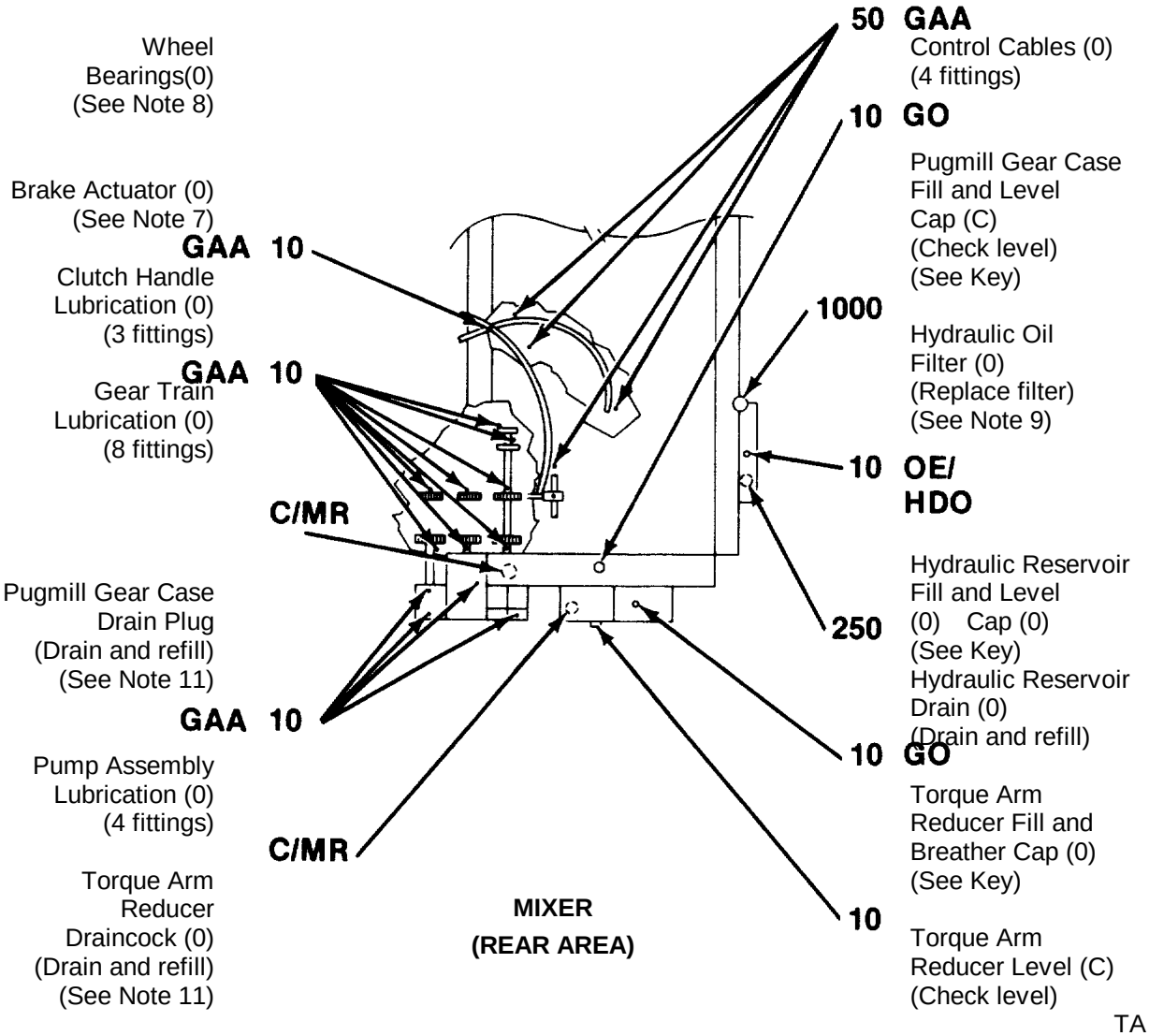


MIXER
(FRONT AREA)



MIXER
(REAR AREA)

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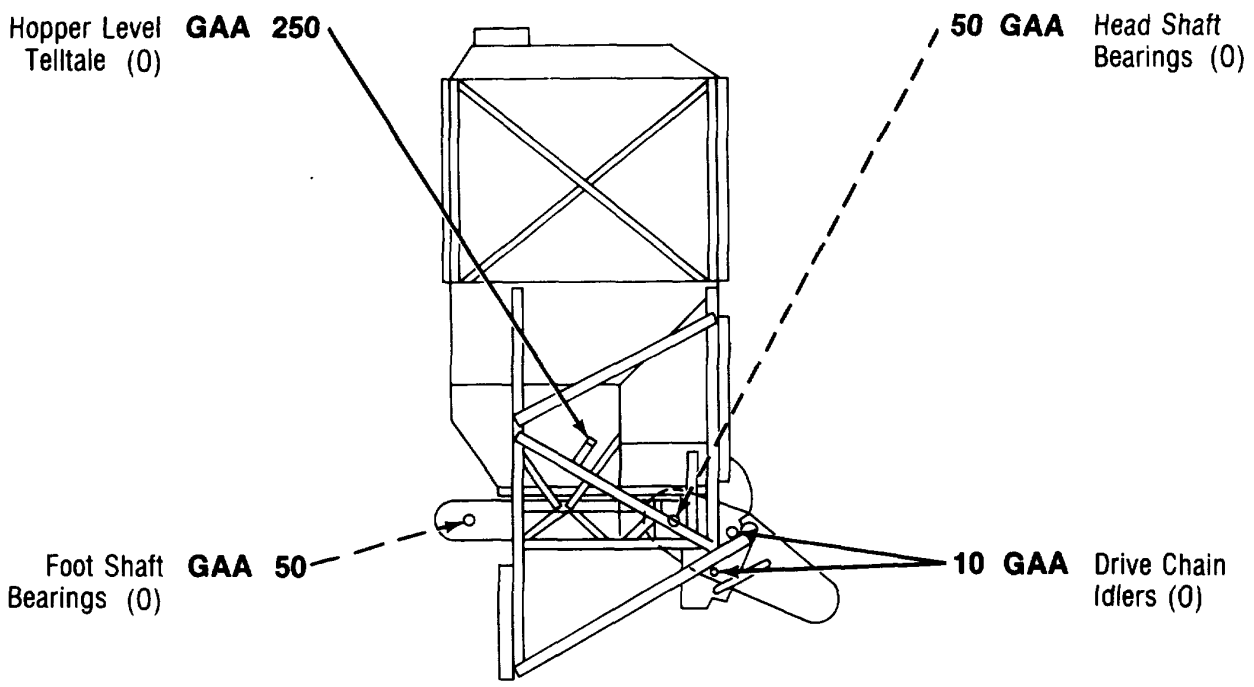
LUBRICANT•INTERVAL

INTERVAL•LUBRICANT



AGGREGATE FEEDER (MODEL 442)

KEY –

LUBRICANTS	CAPACITY	EXPECTED TEMPERATURES			For Arctic operation refer to FM 9-207	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		OE/HDO 30	OE/HDO 10			C/MR - Condition Monitor
OEA - Lubricating Oil, Internal Combustion, Arctic				OEA (See Note 2)		OC - On Condition (AOAP)
- Crankcase	24 qts. (22.70 L)					Intervals given are in hours of normal operation.
- Oil Can Points (See Note 3)						
- Cables and Drive Chains						
- Hydraulic Reservoir	15 gals. (56.75 L)					

*See Note 12 for lubricant specification number.

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-KEY-

LUBRICANTS	CAPACITY	EXPECTED TEMPERATURES			For Arctic operation refer to FM 9-207	INTERVALS
		Above +15°F (Above -9°C)	+40°to -15°F (+4°to -26°C)	+40°to -65°F (+4°to -54°C)		
GO - Lubricating Oil, Gear, Multipurpose		GO 80W/90	GO 80W/90	GO 75W		
- Upper Gear Box	5 pts. (2.36 L)					
- Lower Gear Box	3 pts. (1.42 L)					Intervals given are in hours of normal operation.
- Pugmill Gear Case	11 gals. (41.62 L)					
- Torque Arm Reducer	9 qts. (8.50 L)					
GAA - Grease, Automotive and Artillery		ALL TEMPERATURES				

*See Note 12 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 -15°F (-260C). 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 OEIHDO.

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 oil is warm.

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. BRAKE ACTUATOR. Each 250 hours lubricate 2 fittings on brake actuator with GAA.

8. WHEEL BEARINGS. Each 1000 hours, remove wheels, clean and inspect all parts, replace damaged or worn parts, repack bearing and assemble. Rotate stationary wheel bearings several turns weekly.

9. HYDRAULIC OIL FILTER. Each 1000 hours, remove filter element, clean housing, install new element. After replacement, operate hydraulic system for 5 minutes, check for leaks, check level and bring to "FULL" mark.

10. UPPER GEAR BOX/LOWER GEAR BOX. 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 level plug opening.

11. TORQUE ARM REDUCERIPUGMILL GEAR CASE. Check level each 10 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 to "FULL" mark.

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

OEIHDO	MIL-L-2104
GO	MIL-L-2105
GAA	MIL-G-10924
OEA	MIL-L-46167
(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

DISTRIBUTION:

To be distributed in accordance with DA Form 12-25B, Operator and Organizational maintenance requirements for Mixer.

TA 220197

*** US. GOVERNMENT PRINTING OFFICE: 1984-420-903/206**

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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.

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 decigram = .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 milliters = .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

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
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

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