

LANDING CRAFT, UTILITY
BOSTON MARINE CORPORATION
HULL NUMBERS 1667-1670
NSN 1905-00-168-5764

References: TM 55-1905-219-14-1 Thru-11

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GENERAL NOTES

The level of maintenance authorized to lubricate a point is indicated by the following: (C) Operator/crew; or (O) Unit Maintenance.

Intervals and related task-hour times are based on normal hours of operation. The task-hour time specified (*) is the time you need to do all the services prescribed for a particular interval. Change the interval if your lubricants are contaminated or if you are operating the equipment under adverse operating conditions, including longer-than-usual operating hours. You may extend the interval during periods of low activity, but you must take adequate preservation precautions.

Clean fittings before lubricating. Relubricate all areas exposed to water after amphibious operation.

Lubricate points indicated by dotted arrow shaft on both sides of equipment.

Clean parts with SOLVENT, dry cleaning, or with OIL, fuel, diesel. Dry before lubricating.

LUBRICANT • INTERVAL

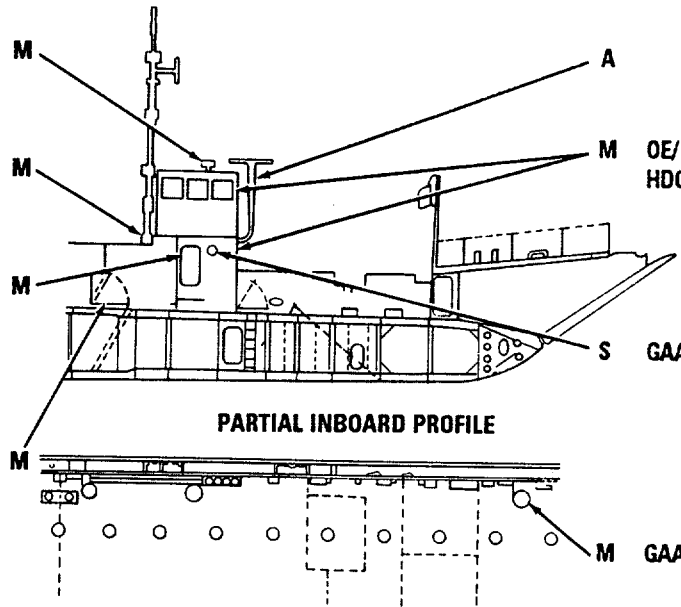
INTERVAL • LUBRICANT

SEARCHLIGHT OE/
HDO
Grease fitting on socket
and bearing housing (C)

MAIN MAST GAA M
Lubricate hinge pin,
2 places (C)

DOORS GAA M
Lubricate hinges,
links and dogs
(152 places).
See NOTE 1. (C)

HATCHES GAA M
Lubricate hinges,
links and dogs
(21 places) (C)



RADAR ANTENNA DRIVE
(C). See NOTE 2

WINDSHIELD WIPERS OE/
HDO
Lubricate linkages (C)

BATTLE COVERS AND AIRPORTS. Lubricate dogs and hinges (40 places on battle covers and 118 places on airports) (C)

SCUTTLES M GAA
Lubricate hinges,
links and dogs
(17 places) (C)

4956-001

*TOTAL TASK HOURS		*TOTAL TASK HOURS	
INTERVAL	TASK-HOURS	INTERVAL	TASK-HOURS
M	2.5	S	0.75
		A	10

-KEY-

LUBRICANTS	CAPACITY	EXPECTED TEMPERATURES			INTERVALS
		Above +32°F Above 0°C	+ 40°F to-10°F + 5°C to-23°C	0°F to -65°F -18°C to-54°C	
GAA Grease, automotive (MIL-G-10924F) and artillery	As Required	All Temperatures			M - Monthly S - Semiannually A - Annually
OE/HDO Lubricating oil, (MIL-L-2104) engine					
OEA Lubricating oil, ice (MIL-L-10295) arctic		OEA			

NOTES

1. DOORS. Clean all paint from watertight door seals as required. Lubricate watertight door seals with OE/HDO monthly.

WARNING

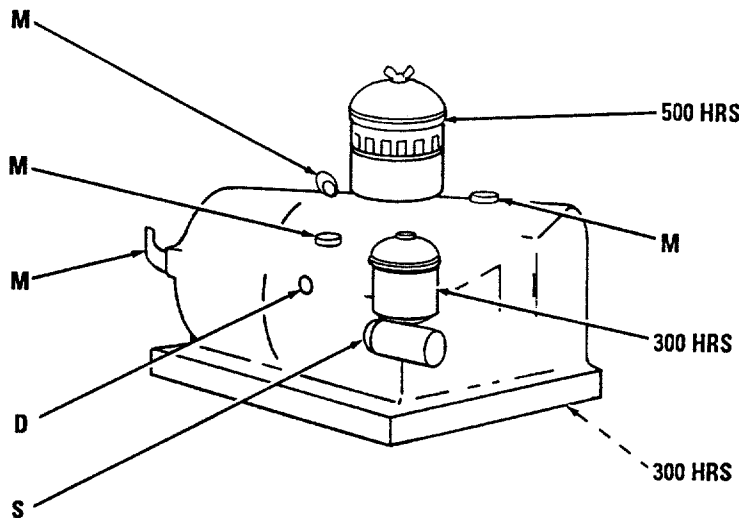
High voltage is used in the operation of this equipment. Death on contact may result if personnel fail to observe safety precautions. Deenergize the equipment before attempting to perform maintenance.

2. RADAR ANTENNA DRIVE. Add 4-6 drops of OE/HDO oil to oil can on the motor gear assembly yearly. Add teaspoonful of GAA to the rotary joint seal yearly.

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT

- THROTTLE CONTROL** OE/ M
Lubricate Throttle
Control Linkage (C)
See NOTE 3
- BREATHER CAP** OE/ M
Clean breather with
OE/HDO (C)
- GENERATOR BEARING** OE/ M
Check sight gage
and add oil
as required (C)
- OIL LEVEL GAGE** (C) See NOTE (1)
- ALTERNATOR** OE/ S
Add 5 to 6 drops of
oil at hinge cap
oiler (C)



- AIR CLEANER** (C)
See NOTE 5
- OIL FILLER CAP** (C)
- OIL FILTER** (C)
See NOTE 6
- CRANKCASE DRAIN** (C)
See NOTE 7

**SHIPS SERVICE GENERATOR
ENGINE, DETROIT DIESEL
MODEL 1033-7005**

4956-002

*TOTAL TASK HOURS		*TOTAL TASK HOURS	
INTERVAL	TASK-HOURS	INTERVAL	TASK-HOURS
D	0.1	Q	0.1
M	1.2	S	0.1

-KEY-

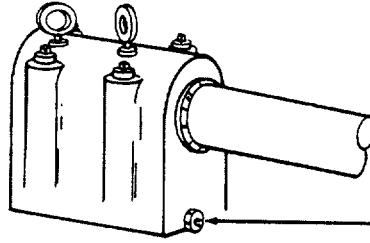
LUBRICANTS	CAPACITY	EXPECTED TEMPERATURES			INTERVALS
		Above + 32°F Above 0°C	+ 40°F to-10°F + 5°C to-23°C	0°F to -65°F -18°C to-54°C	
OE/HDO Lubricating oil, (MIL-L-2104) engine	15 qts (14.19-liters)	OE/HDO 30	OE/HDO 10	OEA	D - Daily
OEA Lubricating oil, ice, (MIL-L-10295) arctic					M - Monthly Q- Quarterly
GAA Grease, automotive (MIL-G-10924F) and artillery	As Required	All Temperatures			S- Semiannually

NOTES

3. OIL CAN POINTS. Lubricate control linkages, clevises, pins and all exposed adjusting threads with OE/ HDO.
4. OIL LEVEL GAGE. Check oil level daily before starting engine. Add oil as required to bring it to full mark.
5. AIR CLEANER. Disassemble and remove dirty oil and sludge from reservoir. Wash all parts in clean fuel oil. Refill reservoir with OE/HDO.
6. OIL FILTER. Drain oil from crankcase (See note 7). Remove filter element, clean housing and install new element. Fill crankcase with 15 qts (14.19 liters) of oil (OE/HDO). Operate engine 5 minutes, check for leaks, check crankcase oil level and bring to full mark.
7. CRANKCASE DRAIN. Do not drain oil into bilges. Use oil separation system to collect drained oil.

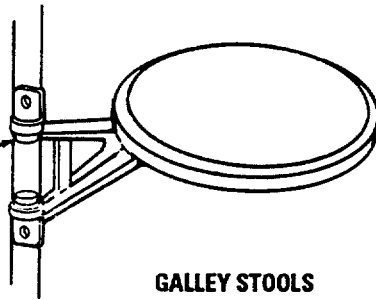
LUBRICANT • INTERVAL

INTERVAL • LUBRICANT



M OE/
HDO **SHAFT STEADY BEARING**
Check Level (C)
See NOTE 8

SHAFT PILLOW BLOCK IN AFT ENGINE ROOM



STOOLS (6) OE/
HDO
Lubricate bushings,
upper and lower
(2) places) (C)

GALLEY STOOLS

4956-003

*TOTAL TASK HOURS		*TOTAL TASK HOURS	
INTERVAL	TASK-HOURS	INTERVAL	TASK-HOURS
M	0.1	S	0.1

-KEY-

LUBRICANTS	CAPACITY	EXPECTED TEMPERATURES			INTERVALS
		Above +32°F Above 0°C	+ 40°F to-10°F + 5°C to -23°C	0°F to-65°F -18°C to - 54°C	
OE/HDO Lubricating oil, (MIL-L-2104) engine	As Required	All Temperatures			M - Monthly S - Semiannually
OEA Lubricating oil, ice, (MIL-L-10295) arctic				OEA	

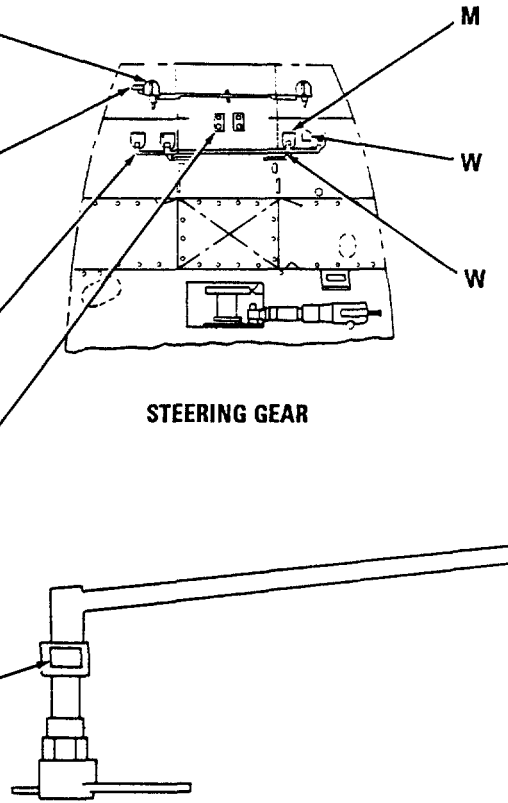
NOTES

8. SHAFT STEADY BEARING. Remove plug from fitting and check oil level with finger. Oil level is correct if finger touches oil. Add oil as required.

LUBRICANT • INTERVAL

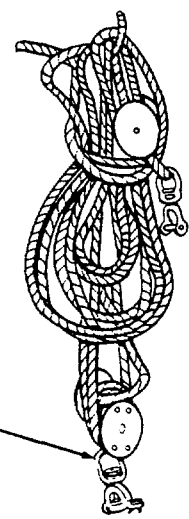
INTERVAL • LUBRICANT

- MAIN RUDDERS (2)** GAA M
Lubricate upper and lower bushings at grease fittings (4) places (C)
- RUDDER REPEATBACK TRANSMITTER** OE/HDO GAA W S
Lubricate ball joints, weekly (2) places. Lubricate grease fitting every six months (C)
- STEERING LINKAGE** OE/HDO M
Lubricate ball joints (12) places (C)
- HYDRAULIC PUMP UNIT (2)** 2135 TH M
See NOTE (9) (C)
- EMERGENCY STEERING GUIDE BEARINGS** OE/HDO U
Lubricate guide bearings (2) places (C)



- M GAA **FLANKING RUDDERS (4)**
Lubricate upper and lower bushings (8) places (C)
- W OE/HDO **RUDDER LIMIT SWITCH**
Lubricate ball joints (2) places (C)
- W GAA **HYDRAULIC CYLINDER (4)**
Lubricate grease fitting on each end of the hydraulic cylinders (8) places (C)

DECK SOCKET AND EMERGENCY TILLER GUIDE BEARINGS



- EMERGENCY STEERING BLOCKS** OE/HDO U
Lubricate guide blocks (2) places (C)

EMERGENCY STEERING BLOCK AND TACKLE STOWED

*TOTAL TASK HOURS		*TOTAL TASK HOURS	
INTERVAL	TASK-HOURS	INTERVAL	TASK-HOURS
M	0.8	W	0.2
S	2.1	U	0.2

- KEY -

LUBRICANTS	CAPACITY	EXPECTED TEMPERATURES			INTERVALS
		Above + 32°F Above 0°C	+ 40°F to -10°F + 5°C to -23°C	0°F to 65°F -18°C to 54°C	
OE/HDO Lubricating oil, (MIL-L-2104) engine	As Required	OE/HDO	OE/HDO		U - Before Using W - Weekly M - Monthly S - Semiannually
GAA Grease, automotive (MIL-G-10924F) and artillery	As Required				
FRH Hydraulic Fluid, petroleum, (MIL-H-46170B) (H-544) inhibited	30 gal (113.55-liters)	All Temperatures			
OEA Lubricating oil, ice (MIL-L-10295) arctic	As Required			OEA	

NOTES

9. HYDRAULIC PUMP UNIT. Change the hydraulic fluid after the first month of operation and once a year for hard continuous service or every two years for light service. Change hydraulic fluid as follows:

Step a. Operate the hydraulic system until the oil is warm. Stop the pump and drain all oil from tank and remainder of system.

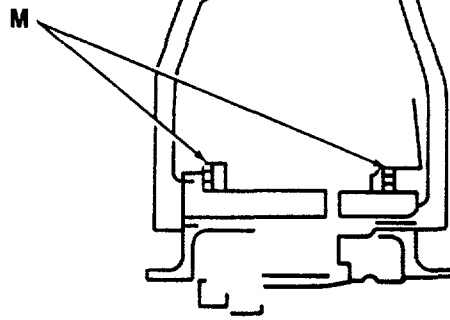
Step b. Remove tank access plate and clean sump. Remove strainer element and clean with diesel oil. Reinstall strainer element and access plate.

Step c. Refill tank with clean FRA hydraulic oil, 30 gal (113.55 liters). Operate the system and maintain the tank oil level. Continue to operate system to purge air from the lines for smooth and quiet operation. Add hydraulic oil as required to maintain the proper level as system fills.

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT

**LEVER
HANDLE BEARINGS**
Remove cover and
add 2 to 4 drops of
oil, OE/HDO 10,
to cover screw holes
in housing (C)

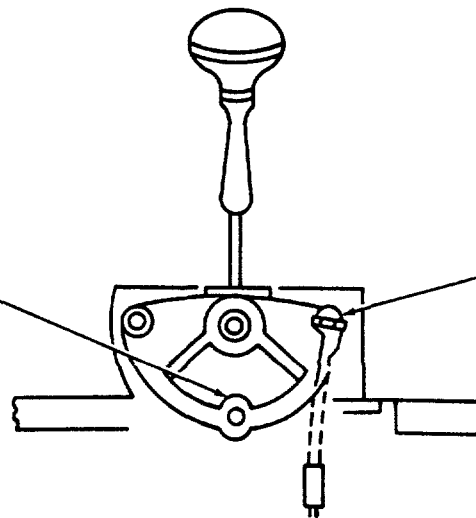


PILOT HOUSE CONTROL LEVERS, SECTIONAL VIEW

CLUTCH QUADRANT CAM
Apply grease to cam
(2 places) (C)

GAA

M

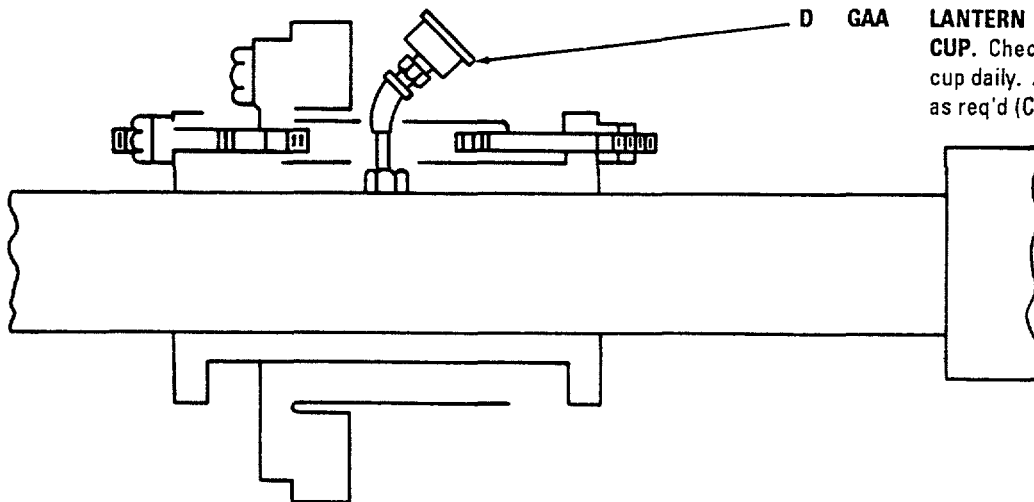


M

OE/
HDO

**CONTROL CABLE
SWIVEL JOINTS.** Add 2
to 4 drops of oil,
OE/HDO 10 to swivel
joints (4 places) (C)

CLUTCH CONTROL LEVER AND QUADRANT SECTIONAL VIEW



D

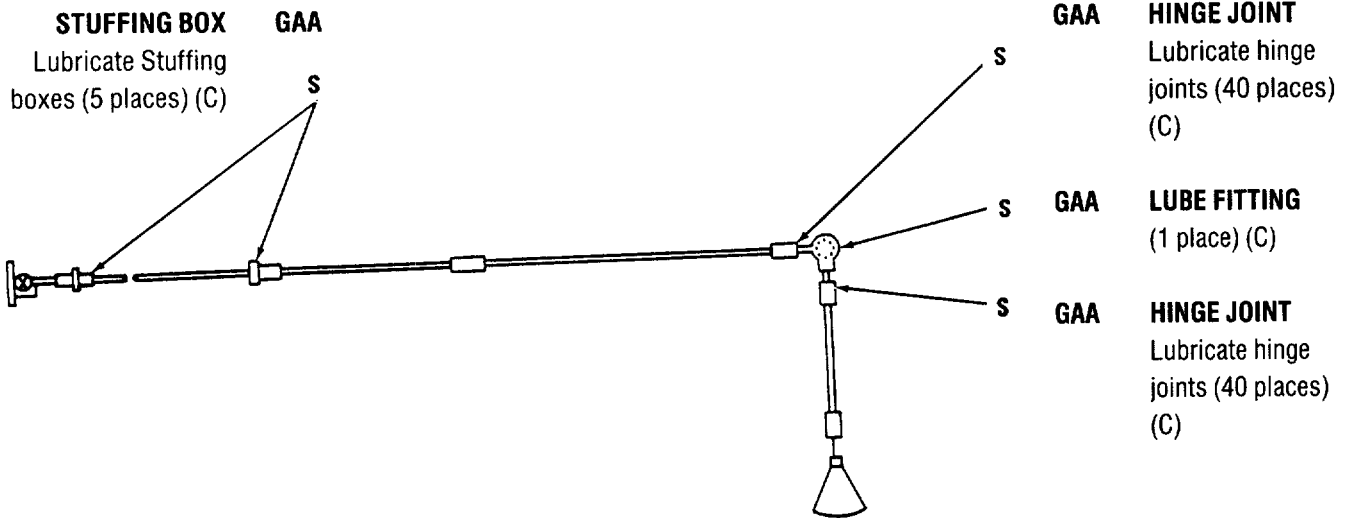
GAA

**LANTERN RING GREASE
CUP.** Check grease
cup daily. Add grease
as req'd (C)

BULKHEAD STUFFING BOX AND ENGINE COUPLING

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT



*TOTAL TASK HOURS		*TOTAL TASK HOURS	
INTERVAL	TASK-HOURS	INTERVAL	TASK-HOURS
D	0.1	S	1.5
M	0.5		

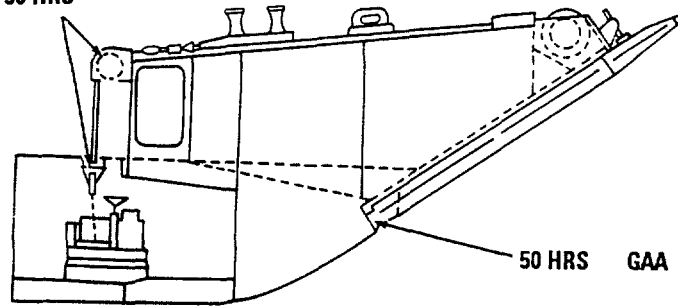
-KEY-

LUBRICANTS	CAPACITY	EXPECTED TEMPERATURES			INTERVALS
		Above +32°F Above 0°C	+ 40°F to -10°F + 5°C to -23°C	0°F to -65°F -18°C to -54°C	
OE/HDO Lubricating oil, (MIL-L-2104) engine	As Required As Required	OE/HDO	OE/HDO		D - Daily
All Temperatures					
OEA Lubricating oil, ice, (MIL-L-10295) arctic				OEA	M - Monthly S - Semiannually

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT

BOW RAMP CABLE SHEAVES. Lubricate grease fittings (5 places) (C)

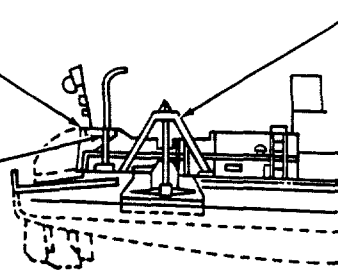


50 HRS GAA BOW RAMP. See NOTE 11

BOW RAMP AND WINCH

STERN GATE GAA 50 HRS
Lubricate hinges (4 places) (C)

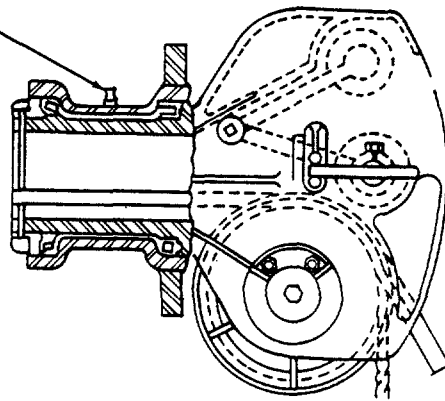
STERN GATE DAVITS GAA 50 HRS
Lubricate upper and lower supports (4 places) (C)



U GAA ANCHOR HANDLING (C)
See NOTE 12

STERN GATE AND HINGED ANCHOR "A" FRAME

FAIRLEADER GAA 50 HRS
Lubricate grease fittings (3 places) (C)



SMITH BERGER FAIRLEADER MODEL 714

*TOTAL TASK HOURS		*TOTAL TASK HOURS	
INTERVAL	TASK-HOURS	INTERVAL	TASK-HOURS
D	0.3	U	0.3
M	1.0	S	0.1

-KEY-

LUBRICANTS	CAPACITY	EXPECTED TEMPERATURES			INTERVALS
		Above + 32°F Above 0°C	+ 40°F to -10°F +5°C to -23°C	0°F to -65°F -18°C to -54°C	
OE/HDO Lubricating oil, (MIL-L-2104) engine	As Required	All Temperatures			U - Before Using
G090 Lubricating oil, gear, (MIL-L-2105) multipurpose	1 gal (3.78 liters)				D - Daily
GAA Grease, automotive (MIL-G-10924F) and artillery	As Required				W - Weekly
OEA Lubricating oil, ice (MIL-L-10295) arctic	As Required		OEA	M - Monthly	
				S - Semiannually	
				A - Annually	

NOTES

10. BOW RAMP WINCH. Lubricate pawl, when used, with OE/HDO. Check reducer oil level monthly. Add G090 as required. Replace reducer oil with 1 gal (3.78 liters) every six months. Lubricate coupling with OE/HDO annually. Lubricate brake nut with OE/HDO annually.

11. BOW RAMP. Lubricate ramp hinge (10 places) with GAA. Lubricate cable and sheaves with GAA. Lubricate wildcat (2 places) with GAA. Lubricate dog assembly (2 places) with GAA.

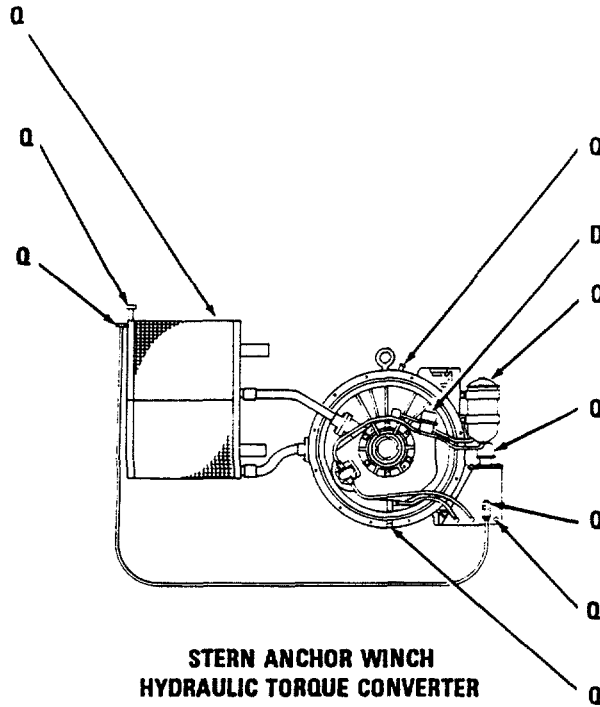
12. ANCHOR HANDLING. Lubricate wire rope cutter, when used with GAA. Lubricate slack puller daily with GAA. Lubricate "A" frame leg hinge pin weekly (2 places) with GAA. Lubricate "A" frame fairleader weekly (2 places) with GAA. Lubricate "A" Frame Guide Sheave weekly with GAA.

LUBRICANT • INTERVAL

RADIATOR
(C) See NOTE 13

**VENTED
FILLER CAP**
(C) See NOTE 13

BLEED VALVE
(C) See NOTE 13



**STERN ANCHOR WINCH
HYDRAULIC TORQUE CONVERTER**

INTERVAL • LUBRICANT

VENT VALVE (C)
See NOTE 13

OIL LEVEL GAGE (C)

FILTER Replace
filter element when
oil is changed (C)

**OE/
HDO** **RESERVE TANK
FILLER CAP (C)**
See NOTE 13

ORIFICE ASSEMBLY (C)
See NOTE 13

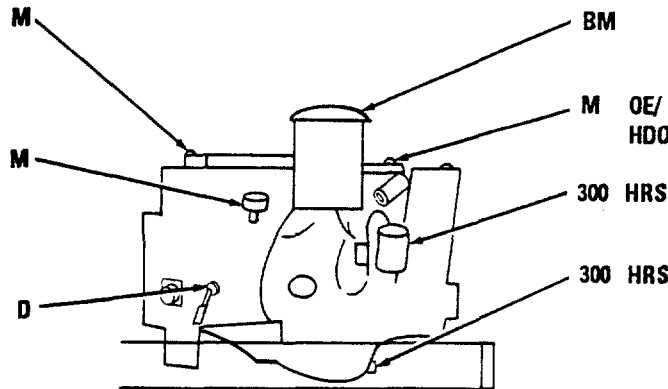
RESERVE TANK DRAIN (C)
See NOTE 13

CONVERTER DRAIN (C)
See NOTE 13

THROTTLE CONTROL OE/
HDO
Lubricate throttle
control linkage (C)
See NOTE 18

BREATHER CAP OE/
HDO
Clean breather
with
OE/HDO (C)

OIL LEVEL GAGE
(C) See NOTE 15



**STERN ANCHOR WINCH
ENGINE, DETROIT DIESEL
MODEL 1043-7000**

AIR CLEANER (C)
See NOTE 14

**M OE/
HDO** **OIL FILTER**
Cap (C)

300 HRS **OIL FILTER (C)**
See NOTE 16

300 HRS **CRANKCASE DRAIN (C)**
See NOTE 17

*TOTAL TASK HOURS		*TOTAL TASK HOURS	
INTERVAL	TASK-HOURS	INTERVAL	TASK-HOURS
BM	0.2	Q	1.0
D	0.1	M	0.5

-KEY-

LUBRICANTS	CAPACITY	EXPECTED TEMPERATURES			INTERVALS
		Above +32°F Above 0°C	+40°F to -10°F + 5°C to -23°C	0°F to -65°F -18°C to -54°C	
OE/HDO Lubricating oil, (MIL-L-2104) engine	As Required	OE/HDO 30	OE/HDO 10		BM - Bi-monthly
OEA Lubricating oil, ice, (MIL-L-10295) arctic				OEA	D - Daily
GAA Grease, automotive (MIL-G-10924F) and artillery			All Temperatures		M-Monthly
					Q - Quarterly

NOTES

13. CHANGING TORQUE CONVERTER FLUID. Change the torque converter fluid every three months. Make certain the winch engine is not operating. Do not drain oil into bilges; use the oil separation and recovery system to collect the drained oil. To drain converter remove plug in bottom of turbine housing. Remove plug in reserve tank. Drain radiator. Clean screen element in bottom of reserve tank and remove orifice assembly. Clean filter screen and hole in orifice. Install orifice assembly and drain plug. Open vent valve on top of the turbine housing and bleed valve on top of the radiator. Remove radiator filler cap. Add approximately 7 gallons (26.5 liters) of oil (OE/HDO) through the radiator filler opening until fluid flows from the vent on top of the turbine housing. Close vent valve and continue filling, until the oil level reaches the filler opening. Then close bleed valve. Tightly install filler cap to prevent leakage when operating. Remove filler cap from reserve tank. Fill tank with approximately 3 qts (2.84 liters) of oil (OE/H DO), to one inch below the full mark on dip stick. Install filler cap, start engine and operate at half throttle. Check all fittings for leaks. Check pressure gage for operating pressure. Normal operating pressure is 45 to 65 PSI, and fluid temperature is under 200°F when converter is properly filled and vented. The pressure gage responds instantly to full pressure upon starting engine and zero pressure upon stopping. Sluggishness indicates air trapped within unit requiring further venting at the high point bleed valve. At part-throttle operation, check reserve tank oil level frequently to ensure adequate fluid level. Add fluid as required.

14. DRY TYPE AIR CLEANER. Clean air cleaner element with compressed air every two months, and replace annually.

CAUTION

Air pressure at nozzle of air hose must not exceed 100 PSI.

Inspect cleaned element. If thin spots, pin holes or rupture is found, replace element.

NOTES (Cont)

15. OIL LEVEL GAGE. Check oil level daily before starting engine. Add oil as required to bring it to full level mark.
16. OIL FILTER. Drain oil from crankcase (see note 17). Remove filter element, clean housing and install new element. Fill crankcase with 15 qts (14.19 liters) of oil (OE/HDO). Operate engine for 5 minutes, check for leaks, check crankcase oil level and bring to full mark.
17. CRANKCASE DRAIN. Do not drain oil into bilges; use oil separation system to collect drained oil.
18. OIL CAN POINTS. Lubricate control linkages, clevises, pins and all exposed adjusting threads with OE/ HDO oil.

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT

WORM SHAFT BEARINGS GAA D
Lubricate worm shaft bearings (2 places) (C)

WORM SHAFT GAA W

CARRIAGE GUIDE RODS GAA D
Lubricate carriage guide rods, 2 places (C)

VERTICAL ROLLERS GAA D
Lubricate vertical rollers, 2 places (C)

FAIRLEAD GEARS CW W
Pour on fairlead gears while winch is operating (C)

FAIRLEAD PINION SHAFT GAA D
Lubricate fairlead pinion shaft grease fittings (C)

FAIRLEAD DRIVE CHAINS D
Add oil to oil can fitting (C)

TOP ROLLERS GAA D
Lift Cap & Add GAA

FLANGE BUSHINGS OE/HDO 30 D
Add oil to oil can fitting (3 places) (C)

Foot Brake Pedestal GAA D
Lubricate foot brake pedestal (2 places)

GEAR DRIVE BREATHER G090 M
Clean Breather and change oil (C)

SLACK PULLER GAA D
Lubricate slack puller (4 places) (C)

D GAA **DRUM BEARINGS**
Lubricate drum bearings (2 places) (C)

D GAA **INTERMEDIATE SHAFT BEARINGS**
Lubricate shaft bearings (2 places) (C)

M **2110TH HYDRAULIC TANK** (See NOTE 20) (C)

M **FILTER**
Clean or replace monthly (C)

W GAA **UNIVERSAL JOINTS**
Lubricate universal joints (2 places) (C)

W GAA **DRIVE BRAKE**
Lubricate drive brake (C)

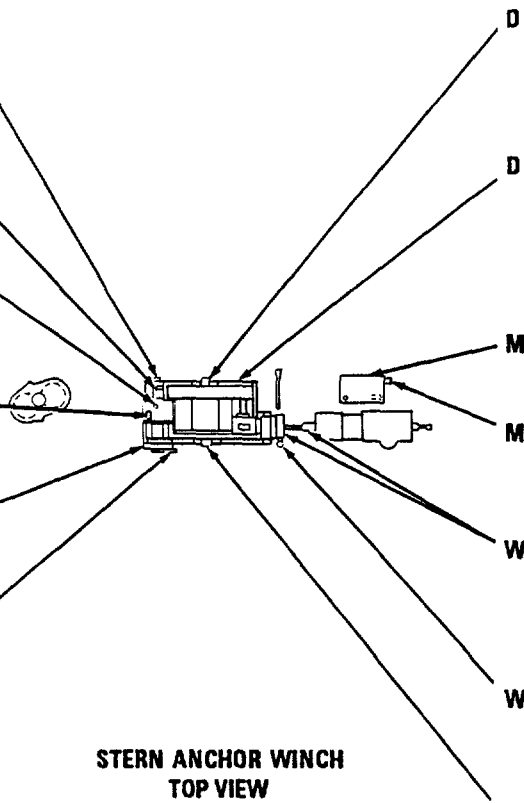
D GAA **DRUM BEARING**
Lubricate drum bearings (2 places) (C)

W CW **DRUM GEARS**
Pour on drum gears while winch is operating (C)

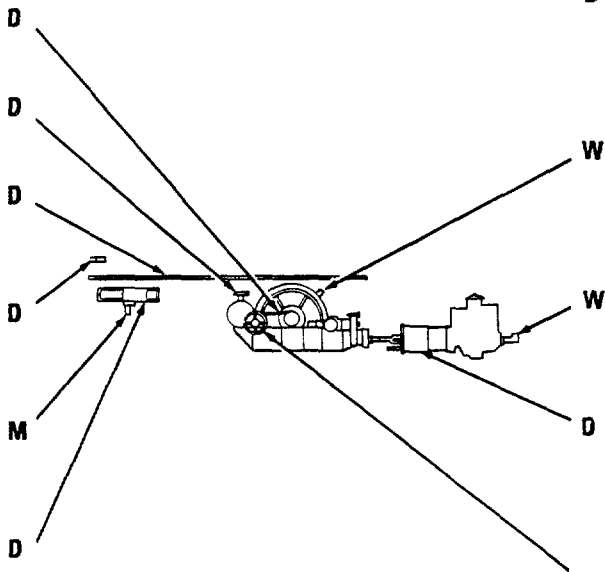
W GAA **DRIVE COUPLING**
Lubricate drive coupling (C)

D GAA **DISCONNECT CLUTCH**
Lubricate disconnect clutch (2 places) (C)

W GAA **HANDLE LUBE POINT.**
(1 place) (C)



STERN ANCHOR WINCH TOP VIEW



STERN ANCHOR WINCH SIDE VIEW

*TOTAL TASK HOURS		*TOTAL TASK HOURS	
INTERVAL	TASK-HOURS	INTERVAL	TASK-HOURS
D	1.0	M	1.1
W	0.3	A	2.0

-KEY-

LUBRICANTS	CAPACITY	EXPECTED TEMPERATURES			INTERVALS
		Above + 32°F Above 0°C	+ 40°F to - 10°F + 5°C to -23°C	0°F to -65°F -18°C to -54°C	
OE/HDO Lubricating oil, (MIL-L-2104) engine	As Required	All Temperatures			D- Daily W - Weekly M - Monthly A - Annually
GAA Grease, automotive (MIL-G-10924F) and artillery	As Required				
GAA Grease (MIL-G-81322)	As Required				
G090 Lubricating oil, gear (MIL-L-2105) multipurpose	10 gal (37.85 liters)				
CW Lubricating oil, (V-L-751) exposed gear	As Required				
FRH Hydraulic fluid, petroleum, (MIL-H-46170B) (H-544) inhibited	55 gal (208.18 liters)				
OEA Lubricating oil, ice (MIL-L-10295) arctic	As Required				

NOTES

19. GEAR DRIVE ASSEMBLY. Clean breather and change G090 oil, 1 pt (.47 liters) monthly. Change GO oil, 10 gal (37.85 liters) in gear drive assembly every six months. Do not drain oil into bilges; use oil separation and recovery system to collect the drained oil.

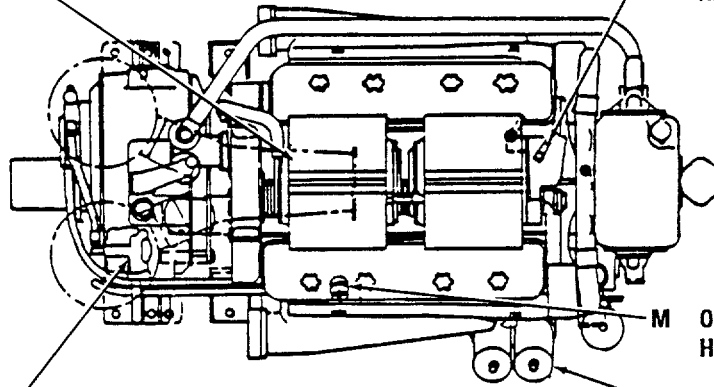
20. HYDRAULIC TANK. Clean strainer monthly. Clean breather monthly. Change FRH oil, 55 gal (208.18 liters) annually. Do not drain oil into bilges; use oil separation and recovery system to collect the drained oil.

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT

AIR SILENCER S
Clean Screen (C)

M OE/ HDO **OVERSPEED GOVERNOR**
(C) SEE NOTE 24



REVERSER GEAR S
OIL FILTER. Replace (C)
See NOTE 21

M OE/ HDO **OIL FILLER CAP (C)**

100 HRS **OIL FILTERS**
Replace oil
Filters (C)
See NOTE 25

**MAIN PROPULSION ENGINE
TOP VIEW**

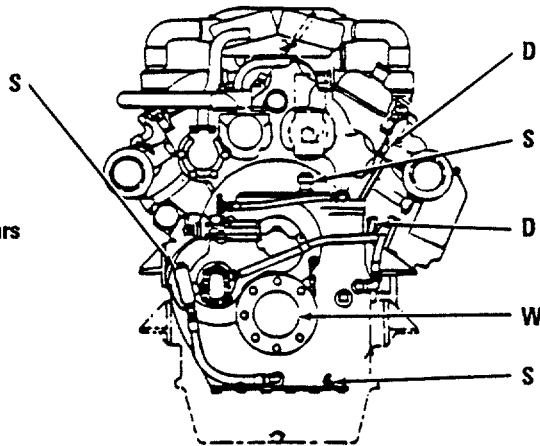
4956-010

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT

REVERSE GEAR OIL STRAINER
Clean Strainer (C)

CRANKCASE OIL DRAIN 100 hrs
(C) See NOTE 22



REVERSE GEAR, END VIEW

ENGINE OIL LEVEL GAGE (C)
(C). See NOTE 2

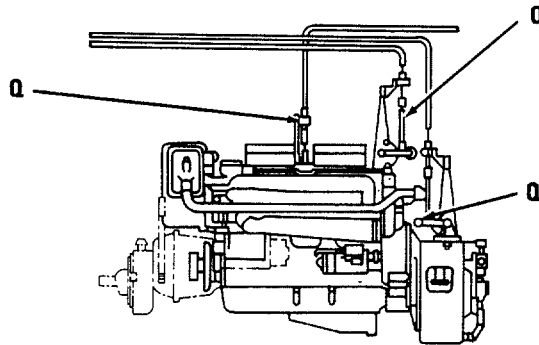
REVERSE GEAR OIL FILLER CAP
(C) Breather Type

REVERSE GEAR OIL LEVEL GAGE (C)

OUTPUT BEARING

REVERSE GEAR OIL DRAIN (C). See NOTE 26

ENGINE EMERGENCY SHUT DOWN LINKAGE OE/HDO
Lubricate Control Linkage with 2 to 4 drops of oil (12 places) (C) See NOTE 23



**ENGINE CONTROLS
MAIN PROPULSION ENGINE
DETROIT DIESEL MODEL 7122-700**

ENGINE CONTROL DISCONNECT. Lubricate control disconnects (2) with 2 to 4 drops of oil (C). See NOTE 23

ENGINE CONTROL UNIT BEARING
Lubricate control unit bearings (4) with 2 to 4 drops of oil (C) See NOTE 23

4956-011

*TOTAL TASK HOURS		*TOTAL TASK HOURS	
INTERVAL	TASK-HOURS	INTERVAL	TASK-HOURS
D	0.10	Q	0.5
M	1.00	S	0.80

-KEY-

LUBRICANTS	CAPACITY	EXPECTED TEMPERATURES			INTERVALS
		Above +32°F Above 0°C	+ 40°F to-10°F + 5°C to -23°C	0°Fto-65°F -18°C to -54°C	
OE/HDO Lubricating oil, (MIL-L-2104) engine OEA Lubricating oil, ice, (MIL-L-10295) arctic	58 qts (54.9 liters)	OE/HDO 30	OE/HDO 10	OEA	D- Daily M - Monthly Q-Quarterly
GAA Grease, Automotive (MIL-G-10924F) and artillery	As Required	All Temperatures			S - Semiannually

NOTES

- 21. REVERSE GEAR OIL FILTER. Drain oil from reverse gear reservoir (See Note 26). Remove filter element and install new element. Fill reverse gear reservoir with 24 qts (22.7 liters) of OE/HDO. Operate engine 5 minutes. Check for leaks, check reservoir oil level and bring to full mark.
- 22. CRANKCASE DRAIN. Do not drain oil into bilges; use oil separation system to collect drained oil.
- 23. OIL CAN POINTS. Lubricate control linkages, devises, pins and all exposed adjusting threads with OE/HDO.
- 24. OVERSPEED GOVERNOR. Do not lubricate the overspeed governor while the engine is operating. Avoid excessive lubrication. Add 5 or 6 drops of OE/HDO to hinge-type cap oiler or oil cups.
- 25. ENGINE OIL FILTERS. Drain oil from crankcase (See note 20). Remove filter elements, clean housings and install new elements. Fill crankcase with 34 qts (32.2 liters) of OE/HDO. Operate engine 5 minutes. Check for leaks, check crankcase oil level and bring to full mark.
- 26. REVERSE GEAR OIL DRAIN. Do not drain oil into bilges. Use oil separation system to collect drained oil.

LUBRICANT • INTERVAL

Wipe with
oil
after use (C)

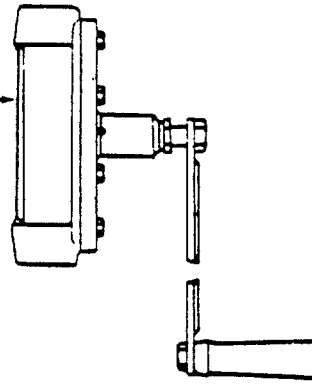
OE/
HDO



WIRE ROPE CUTTER

Turn pump over
weekly. Add a few
drops of OE/HDO to
pump monthly (C)

W

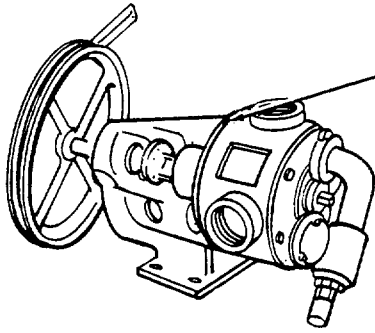


LUBE OIL TRANSFER HAND PUMP

4956-012

LUBRICANT • INTERVAL

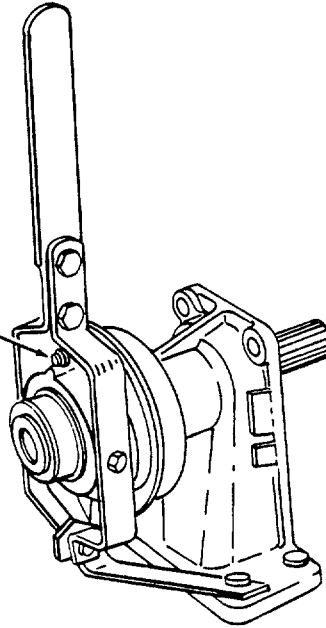
INTERVAL • LUBRICANT



M GAA Keep grease cups filled (C)

STANDBY LUBE OIL PUMP

Lubricate clutch-pack bearing fitting (C) **GAA S**



BILGE PUMP CLUTCHPACK

4956-013

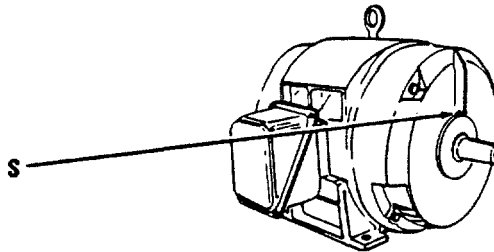
*TOTAL TASK HOURS		*TOTAL TASK HOURS	
INTERVAL	TASK-HOURS	INTERVAL	TASK-HOURS
W	0.1	S	0.1
M	0.1		

-KEY-

LUBRICANTS	CAPACITY	EXPECTED TEMPERATURES			INTERVALS
		Above + 32°F Above 0°C	+ 40°F to -10°F + 5°C to -23°C	0°F to -65°F -18°C to -54°C	
OE/HDO Lubricating oil, (MIL-L-2104) engine	As Required		All Temperatures		W - Weekly S - Semiannually
GAA Grease, automotive (MIL-G-10924F) and artillery					
OEA Lubricating oil, ice, (MIL-L-10295) arctic		OEA			M - Monthly

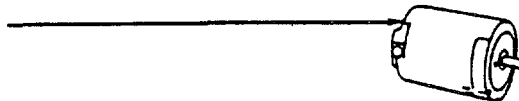
LUBRICANT • INTERVAL

BALL BEARINGS GAA
(See NOTE 27) (C)



STANDARD INTEGRAL HORSEPOWER INDUCTION MOTORS
 FIRE PUMP MOTOR, 30 HP
 SALT WATER CIRC. PUMP MOTOR, 5 HP
 RED GEAR LUBE OIL PUMP MOTOR, 1-1/2 HP
 AIR COMPRESSOR, 10 HP

BALL BEARINGS
(See NOTE 28)



FRACTIONAL HORSEPOWER MOTORS
 FRESH WATER PUMP MOTOR, 3/4 HP
 FLUSH WATER PUMP MOTOR, 1-1/2 HP
 SEA WATER COOLING PUMP MOTOR, 3/4 HP
 VESTIBULE FAN MOTOR, 1/5 HP
 FAN MOTOR, 1-114 HP
 FAN MOTOR, 3/4 HP
 FAN MOTOR, 1/3 HP
 NAVIGATION HORN AIR COMPRESSOR MOTOR, 1/2 HP

*TOTAL TASK HOURS		*TOTAL TASK HOURS	
INTERVAL	TASK-HOURS	INTERVAL	TASK-HOURS
S	0.1		

- KEY -

LUBRICANTS	CAPACITY	EXPECTED TEMPERATURES			INTERVALS
		Above 32°F Above 0°C	+ + 40°F to -10°F + 5°C to -23°C	0°F to -65°F -18°C to -54°C	
GAA Grease, automotive (MIL-G-10924F) and artillery	As Required	All Temperatures			S - Semiannually

NOTES

27. BALL BEARINGS. Use only clean grease from clean container, and use care to keep it clean. Never open a bearing housing in a dusty atmosphere. Never open a bearing housing without cleaning off all dirt from adjacent surfaces.

Always protect an exposed bearing with a protective cover.

Remove plug from filling hole.

Force GAA grease through filling hole until grease appears at drain hole or along shaft.

Replace plug after motor has run for at least 2 hours.

Wipe away excess grease.

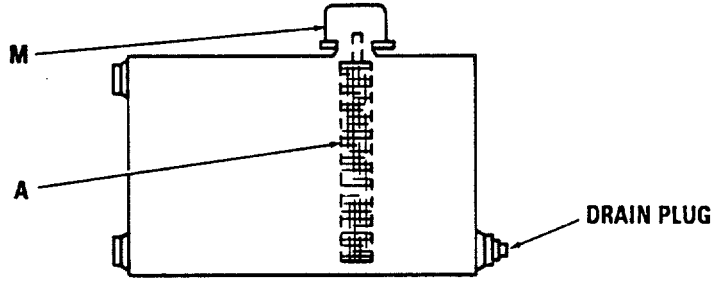
28. No lubrication is required. The initial lubrication is adequate for up to 10 years of operation under normal conditions. The initial lubricant is supplemented by a supply packed into reservoirs in the end shield at time of assembly.

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT

BREATHER 2135
 Clean Monthly
 and check fluid
 level. Add fluid
 as required (C).

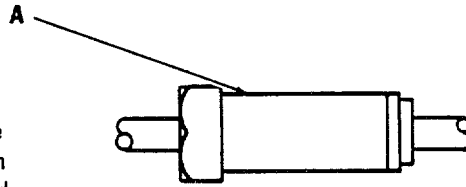
STRAINER
 Clean annually (C).



HYDRAULIC STARTING SYSTEM RESERVOIRS
 AFT ENGINE ROOM
 FWD ENGINE ROOM
 ANCHOR WINCH ROOM

FILTER ELEMENT
 Replace annually (C)

CAUTION
 Do not attempt to change
 filter element until system
 pressure has been relieved
 to atmosphere.



HYDRAULIC STARTING SYSTEM
HIGH PRESSURE FILTER (3 PLACES)
SUCTION FILTER (3 PLACES)

*TOTAL TASK HOURS		*TOTAL TASK HOURS	
INTERVAL	TASK-HOURS	INTERVAL	TASK-HOURS
M	0.1	A	0.1
D	0.1		

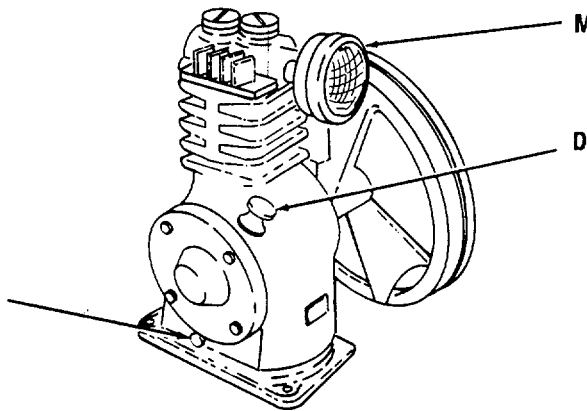
-KEY-

LUBRICANTS	CAPACITY	EXPECTED TEMPERATURES			INTERVALS
		Above +32°F Above 0°C	+40°F to -10°F + 5°C to -23°C	0°F to -65°F -18°C to -54°C	
FRH Hydraulic fluid, (MIL-L-46170B) petroleum, inhibited (H-544) CW Lubricating oil (VV-L-825) Compressor	As Required	All Temperatures			M - Monthly A - Annually D - Daily

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT

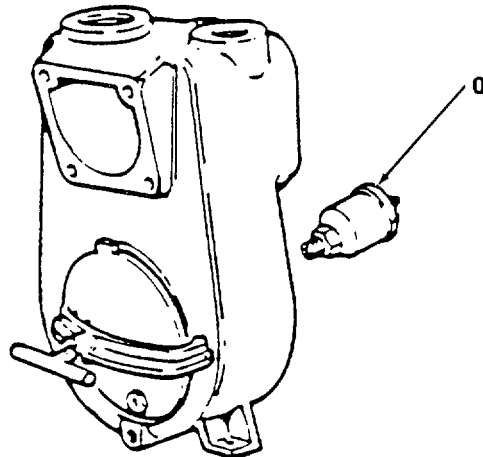
DRAIN PLUG
Drain and change oil after every 5000Hrs. of operation.



AIR INTAKE FILTER (C)
Clean monthly

OE/HDO BAYONET STICK OIL GAGE
Remove to add oil (C)

AIR HORN AIR COMPRESSOR



GAA GREASE CUP
Fill with grease (C)

SEWAGE DISCHARGE PUMP

*TOTAL TASK HOURS		*TOTAL TASK HOURS	
INTERVAL	TASK-HOURS	INTERVAL	TASK-HOURS
D	0.1	M	0.2
Q	1.0		

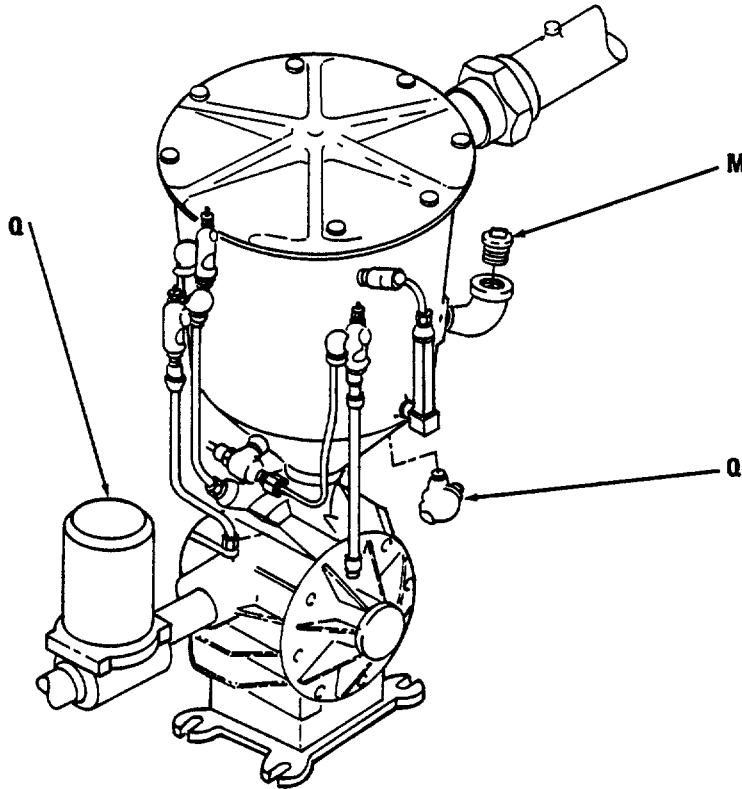
- KEY -

LUBRICANTS	CAPACITY	EXPECTED TEMPERATURES			INTERVALS
		Above + 32°F Above 0°C	+ 40°F to -10°F + 5°C to -23°C	0°F to -65°F -18°C to -54°C	
GAA Grease, automotive (MIL-G-10924F) and artillery	As Required	All Temperatures			D-Daily
OE/HDO Lubricating oil, (MIL-L-2104) engine					Q - Quarterly
OEA Lubricating oil, ice (MIL-L-10295) arctic		OEA	M - Monthly		

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT

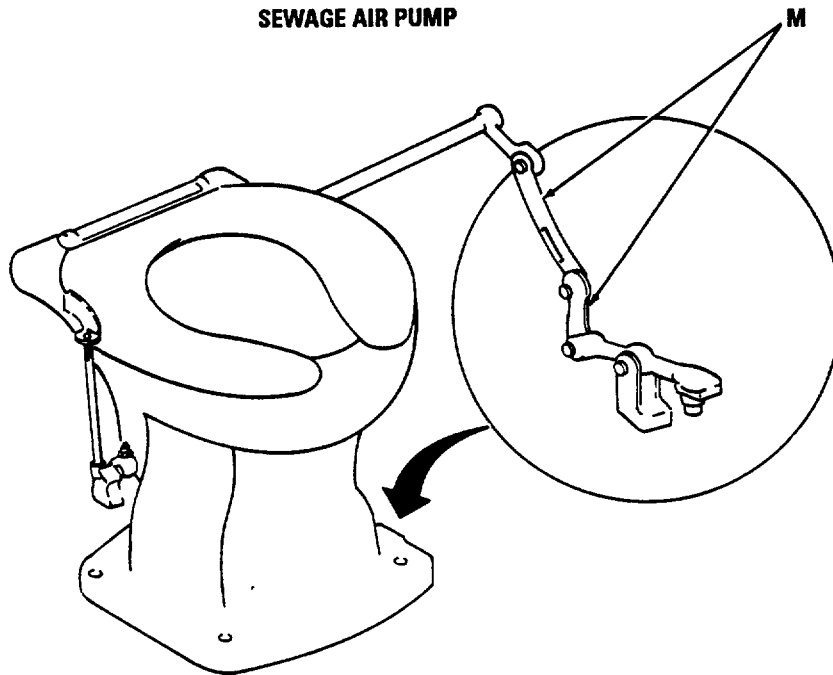
Replace filter bag quarterly (C)



SEWAGE AIR PUMP

M OE/ HDO
PIPE PLUG.
Check oil level and replenish (C)

Q DRAIN COCK.
Drain and change oil quarterly (C)



COMMODE

M GAA
PINS AND LINKS.
Lubricate with GAA (C)

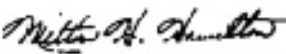
*TOTAL TASK HOURS		*TOTAL TASK HOURS	
INTERVAL	TASK-HOURS	INTERVAL	TASK-HOURS
Q	1.0	M	0.2

-KEY-

LUBRICANTS	CAPACITY	EXPECTED TEMPERATURES			INTERVALS
		Above +32°F Above 0°C	+40°F to -10°F + 5°C to -23°C	0°F to -65°F -18°C to -54°C	
OE/HDO Lubricating oil, (MIL-L-2104) engine	As Required	All Temperatures			D - Daily M - Monthly Q - Quarterly
GAA Grease, automotive (MIL-G-10924F) and artillery					
OEA Lubricating oil, ice, (MIL-L-10295) arctic		OEA			

By Order of the Secretary of the Army:

Official:


MILTON H. HAMILTON
*Administrative Assistant to the
 Secretary of the Army*
 01051

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

DISTRIBUTION:

To be distributed in accordance with DA Form 12-25E, (qty rqr bl no. 4248.)

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 = 3.2808.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
 1 decigram = 10 centigrams = 1.54 grains
 1 gram = 10 decigrams = .035 ounce
 1 dekagram = 10 grams = .35 ounce
 1 hectogram = 10 dekagrams = 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

Cubic Measure

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

Square measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. in.
 1 sq. decimeter = 100 sq. centimeters = 15.5 inches
 1 sq. meter (centare) = 100 sq. decimeters = 10.76 feet
 1 sq. dekameter (are) = 100 sq. meters = 1.076.4 sq. ft.
 1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
 1 sq. kilometer = 100 hectometers = .386 sq. miles

Liquid Measure

1 dekaliter = 10 liters = 2.64 gallons
 1 hectoliter = 10 dekaliters = 26.42 gallons
 1 kiloliter = 10 hectoliters = 264.18 gallons
 1 liter = 10 deciliters = 33.81 fl. ounces
 1 centiliter = 10 milliliters = .34 fl. ounce
 1 deciliter = 10 centiliters = 3.38 fl. ounces
 1 metric ton = 10 quintals = 1.1 short tons

Approximate Conversion Factors

To change	To	Multiply by	To change	To	Multiply by
inches	centimeters	2.540	ounce inches	newton-meters	.0070062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
sq. inches	sq. centimeters	6.451	kilometers	miles	.621
sq. feet	sq. meters	.093	sq. centimeters	sq. inches	.155
sq. yards	sq. meters	.836	sq. meters	sq. yards	10.764
sq. miles	sq. kilometers	2.590	sq. kilometers	sq. miles	1.196
acres	sq. hectometers	.405	sq. hectometers	acres	2.471
cubic feet	cubic meters	.028	cubic meters	cubic feet	35.315
cubic yards	cubic meters	.765	milliliters	fluid ounces	.034
fluid ounces	milliliters	29.573	liters	pints	2.113
pints	liters	.472	liters	quarts	1.057
quarts	liters	.946	grams	ounces	.035
gallons	liters	3.785	kilograms	pounds	2.205
ounces	grams	28.349	metric tons	short tons	1.102
pounds	kilograms	.454	pound-feet	newton-meters	1.356
short tons	metric tons	.907			
pound inches	newton-meters	.11296			

Temperature (Exact)

°F Fahrenheit temperature

5/9 (after subtracting 32)

Celsius Temperature °C

PIN: 034785/000