

**LOGISTICS SUPPORT VESSEL (LSV)  
NSN 1915-01-153-8801 (EIC WAX)  
(LSV 1-6 ONLY)**

**References:** FM 9-207, TM 55-1915-200-10, TM 55-1915-200-24&P, TM 55-1915-215-24&P,  
TM 55-1915-229-24&P, TB 43-0211

**REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS**

You can help improve this publication. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Submit your DA Form 2028 (Recommended Changes to Equipment Technical Publications) through the Internet on the Army Electronic Product Support (AEPS) website. The Internet address is <https://aeps.ria.army.mil>. The DA Form 2028 is located under the Public Applications section on the AEPS public home page. Fill out the form and click on SUBMIT. Using this form on the AEPS site will enable us to respond quicker to your comments and better manage the DA Form 2028 program. You may also mail, fax, or e-mail your letter or DA Form 2028 directly to: AMSTA-LC-LMPP/ TECH PUBS, TACOM-RI, 1 Rock Island Arsenal, Rock Island, IL 61299-7630. The e-mail address is ROCK-TACOM-TECH-PUBS@conus.army.mil. The fax number is DSN 793-0726 or Commercial (309) 782-0726.

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**DISTRIBUTION STATEMENT A** - Approved for public release; distribution is unlimited.

**NOTICE** - Copy of this lubrication order will remain with the equipment at all times; instructions contained herein are mandatory.

**NOTES**

Intervals (on condition or hard time) and the related task-hour times are based on normal operation. The task-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.

This Lubrication Order (LO) is for operator or crew (C) and unit (O) maintenance. Lube intervals (on-condition or hard time) are based on normal operation. Lube more often during constant operation of equipment and less during inactive periods of operation. Use the correct grade of lubricant for the seasonal temperature expected.

On the illustrations, a dashed line indicates that there are lubrication points on both sides of the equipment.

Clean parts with dry cleaning solvent (SD), type II, or equivalent. Use cleaning compound solvent (RBC) on powder-fouled parts. Dry before lubricating. DO NOT use a fluid or a semi-fluid lubricant on an SFD lubricated surface. Wipe surfaces dry.

**Always**

- a. Clean grease fittings before lubricating.
- b. Use the lubrication order as your guide.

**Never**

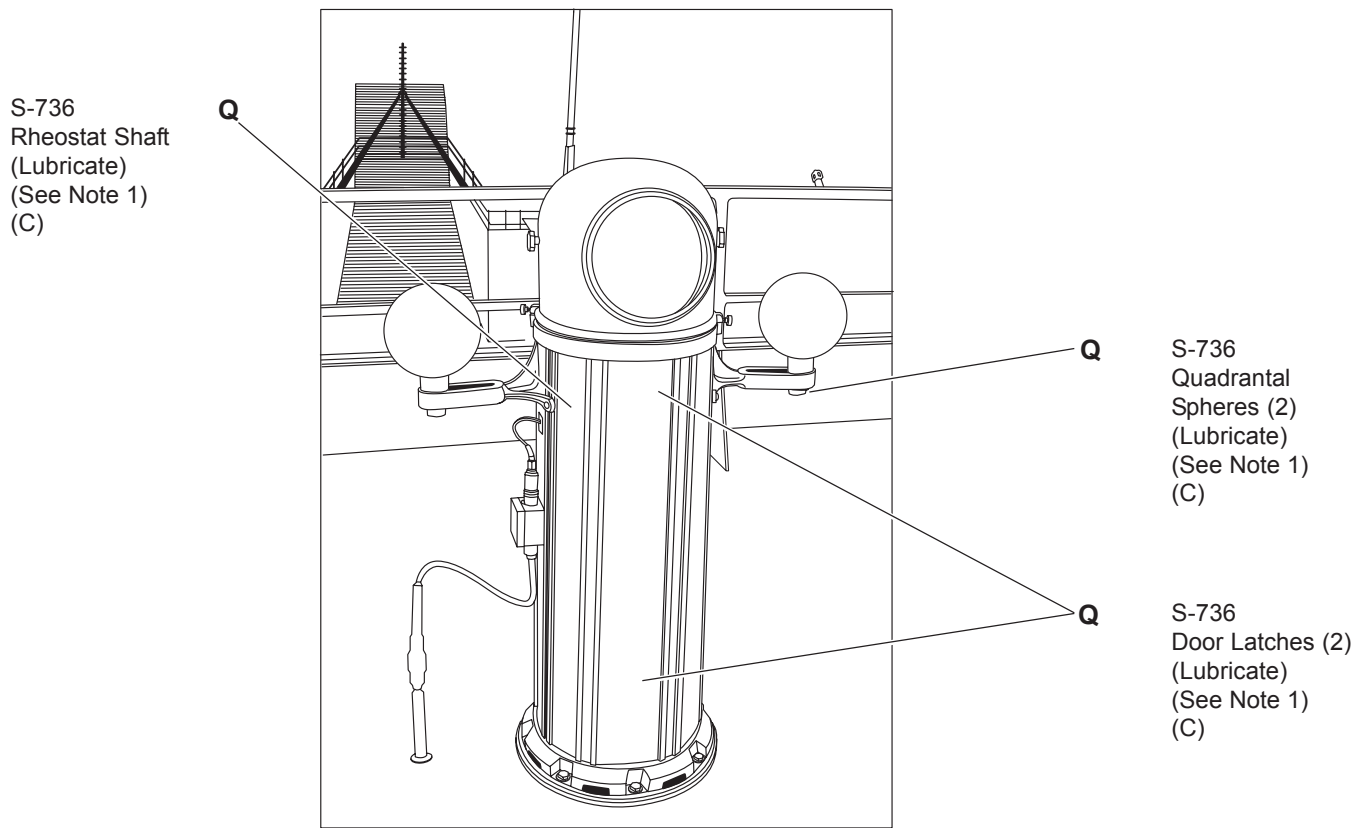
- a. Use the wrong type/grade of grease.
- b. Use too much lubricant.

For arctic operation refer to FM 9-207.

\* The time specified is the time required to perform all services at the particular level.

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT



S-736  
Rheostat Shaft  
(Lubricate)  
(See Note 1)  
(C)

S-736  
Quadrantal  
Spheres (2)  
(Lubricate)  
(See Note 1)  
(C)

S-736  
Door Latches (2)  
(Lubricate)  
(See Note 1)  
(C)

**MAGNETIC COMPASS**

| TOTAL TASK-HOURS* |            |
|-------------------|------------|
| INTERVAL          | TASK-HOURS |
| Q                 | 0.3        |

**-KEY-**

| LUBRICANTS                              | CAPACITY    | EXPECTED TEMPERATURES | INTERVALS              |
|-----------------------------------------|-------------|-----------------------|------------------------|
|                                         |             | ALL TEMPERATURES      |                        |
| S-736 (SAE-AS8660)<br>Silicone Compound | As Required | Silicone Compound     | Q-Quarterly (3 Months) |

**Notes:**

1. Use a small brush and lubricate the the rheostat shaft, the quadrantal spheres (2), and the door latches (2) with silicone compound as required.

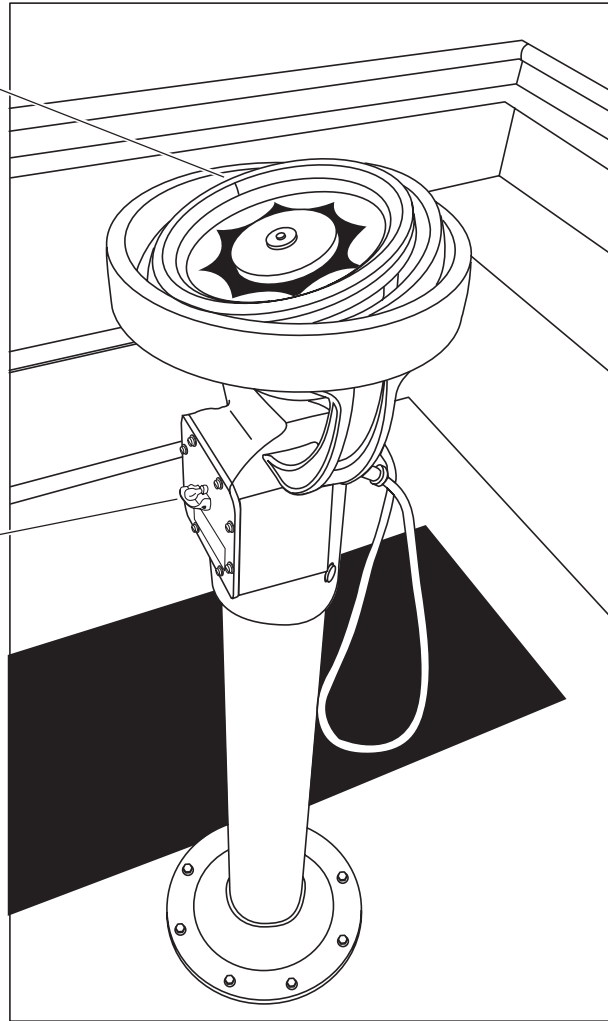
**LUBRICANT • INTERVAL**

S-736  
Synchronized  
Knob Shaft and  
Rubber Discs  
(Lubricate)  
(See Note 2)  
(C)

Q

S-736  
Rheostat Shaft  
(Lubricate)  
(See Note 2)  
(C)

Q



**COLUMN BEARING STAND**

**TOTAL TASK-HOURS\***

| INTERVAL | TASK-HOURS |
|----------|------------|
| Q        | 0.3        |

**-KEY-**

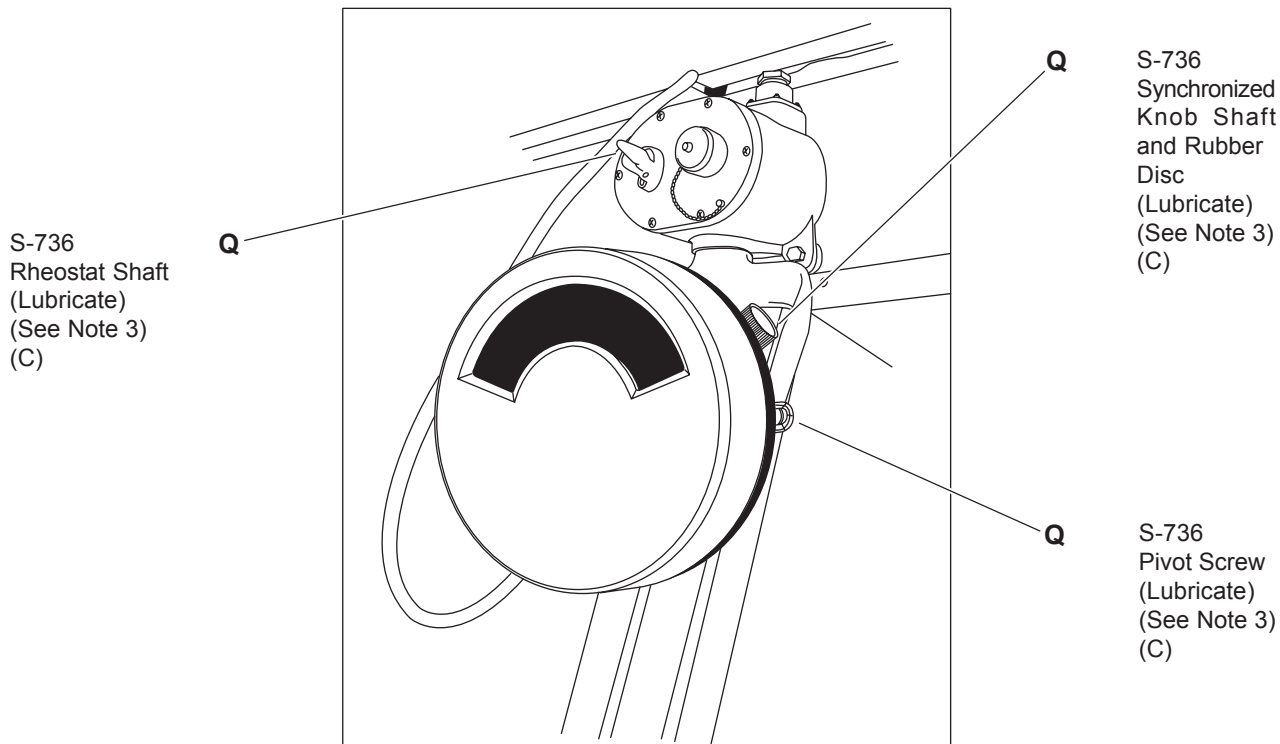
| LUBRICANTS                              | CAPACITY    | EXPECTED TEMPERATURES | INTERVALS              |
|-----------------------------------------|-------------|-----------------------|------------------------|
|                                         |             | ALL TEMPERATURES      |                        |
| S-736 (SAE-AS8660)<br>Silicone Compound | As Required | Silicone Compound     | Q-Quarterly (3 Months) |

**Notes:**

- Use a small brush and lubricate the synchronized knob shaft and rubber discs and rheostat shaft on the column bearing stand gyrocompass repeaters. The column bearing stand gyrocompass repeaters are located on the bridge wings (2) and the pilothouse top (1).

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT



S-736  
Rheostat Shaft  
(Lubricate)  
(See Note 3)  
(C)

S-736  
Synchronized  
Knob Shaft  
and Rubber  
Disc  
(Lubricate)  
(See Note 3)  
(C)

S-736  
Pivot Screw  
(Lubricate)  
(See Note 3)  
(C)

**GYROCOMPASS REPEATER BULKHEAD MOUNT**

| TOTAL TASK-HOURS* |            |
|-------------------|------------|
| INTERVAL          | TASK-HOURS |
| Q                 | 0.3        |

**-KEY-**

| LUBRICANTS                              | CAPACITY    | EXPECTED TEMPERATURES | INTERVALS              |
|-----------------------------------------|-------------|-----------------------|------------------------|
|                                         |             | ALL TEMPERATURES      |                        |
| S-736 (SAE-AS8660)<br>Silicone Compound | As Required | Silicone Compound     | Q-Quarterly (3 Months) |

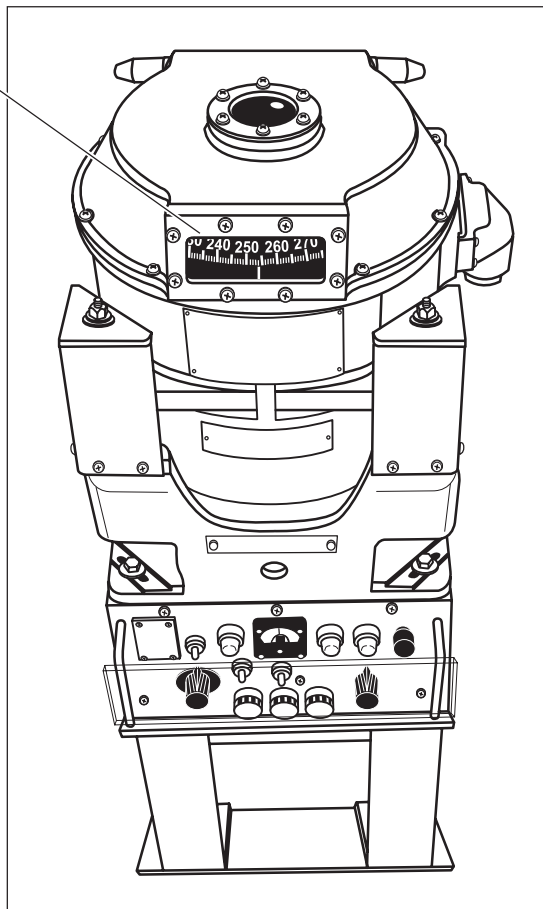
**Notes:**

- Use a small brush and lubricate the rheostat shaft, the synchronized knob shaft and rubber discs, and the pivot screws on all bulkhead mounted gyrocompass repeaters. The bulkhead mounted gyrocompass repeaters are located on the bridge (1) and in the emergency steering compartment (1).

**LUBRICANT • INTERVAL**

Dow Corning  
200-5 Centistoke  
Window  
(Check Level)  
(See Note 4)  
(C)

**W**



**GYROCOMPASS**

**TOTAL TASK-HOURS\***

| INTERVAL | TASK-HOURS |
|----------|------------|
| W        | 0.1        |

**-KEY-**

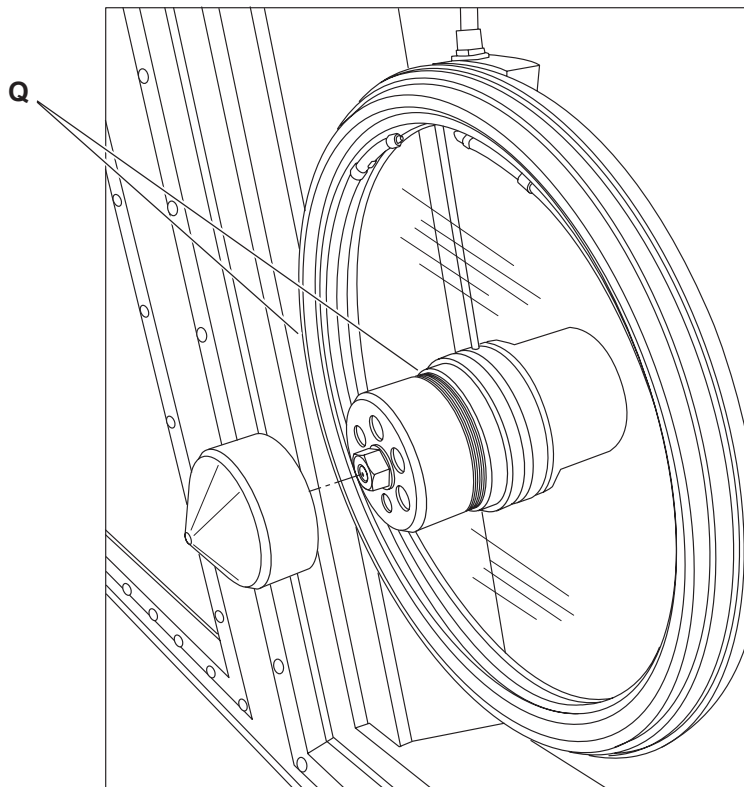
| LUBRICANTS                                     | CAPACITY | EXPECTED TEMPERATURES | INTERVALS |
|------------------------------------------------|----------|-----------------------|-----------|
|                                                |          | ALL TEMPERATURES      |           |
| Dow Corning 200-5<br>Centistoke Silicone Fluid | 1 Gallon | Silicone Fluid        | W-Weekly  |

**Notes:**

4. Check the silicone fluid level in the window for the presence of bubbles. If bubbles are present, the gyrocompass requires additional silicone fluid. Notify the maintenance supervisor.

**LUBRICANT • INTERVAL**

GGP  
Locking Ring and Cone  
(Lubricate)  
(See Note 5)  
(C)



**CLEAR VIEW**

| TOTAL TASK-HOURS* |            |
|-------------------|------------|
| INTERVAL          | TASK-HOURS |
| Q                 | 0.5        |

**-KEY-**

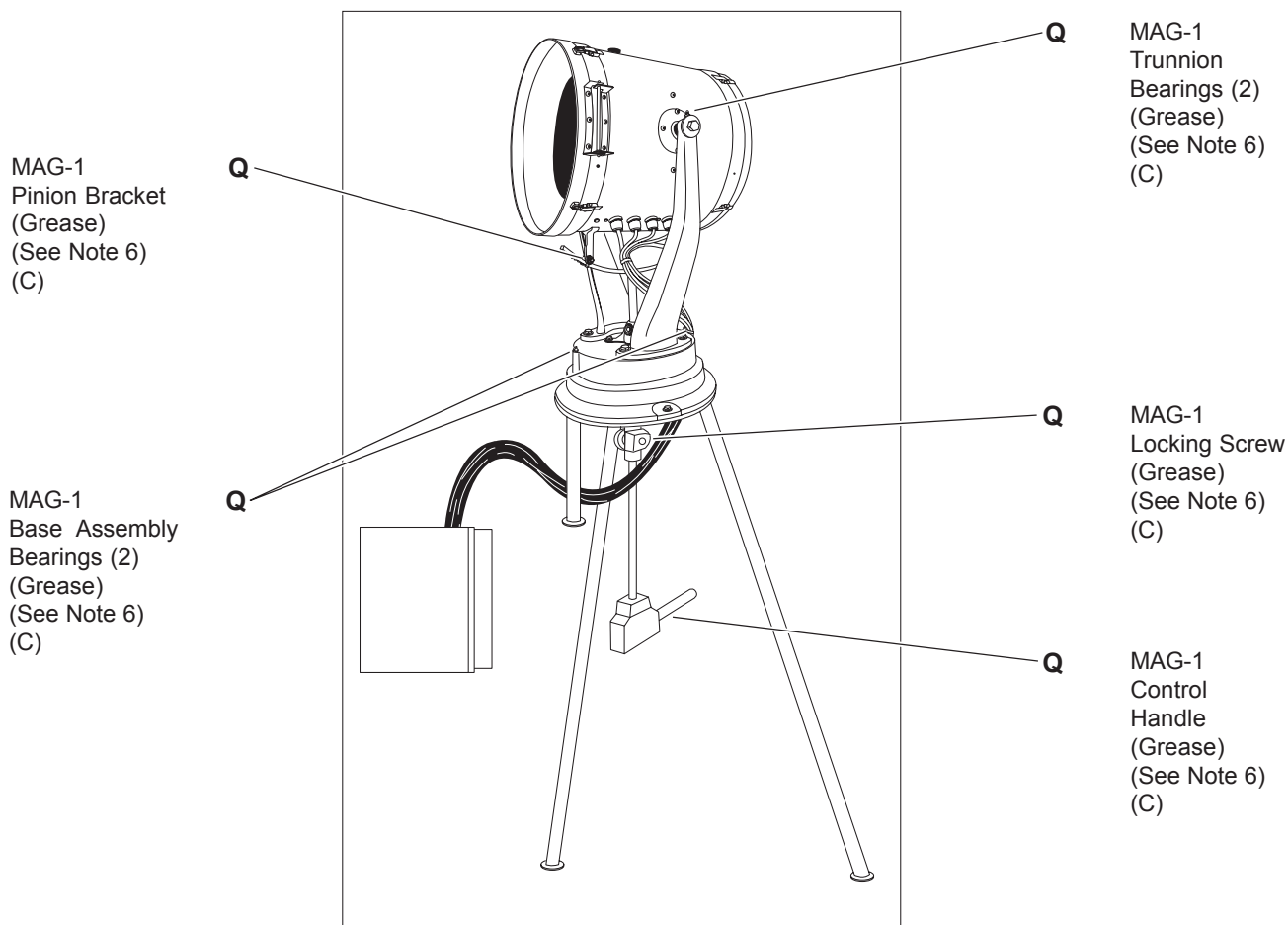
| LUBRICANTS                                          | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS              |
|-----------------------------------------------------|-------------|-------------------------|------------------------|
|                                                     |             | ALL TEMPERATURES        |                        |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139) | As Required | Grease, General Purpose | Q-Quarterly (3 months) |

**Notes:**

- Remove the cone and locking ring from each clear view. Use a brush to lubricate the locking ring and cone threads with general purpose grease. Install the cone and locking ring on each clear view.

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT



**SEARCHLIGHT**

| TOTAL TASK-HOURS* |            |
|-------------------|------------|
| INTERVAL          | TASK-HOURS |
| Q                 | 0.8        |

**-KEY-**

| LUBRICANTS                       | CAPACITY    | EXPECTED TEMPERATURES | INTERVALS              |
|----------------------------------|-------------|-----------------------|------------------------|
|                                  |             | ALL TEMPERATURES      |                        |
| MAG-1, Fiske Brothers Lubriplate | As Required | Grease, Waterproof    | Q-Quarterly (3 Months) |

**Notes:**

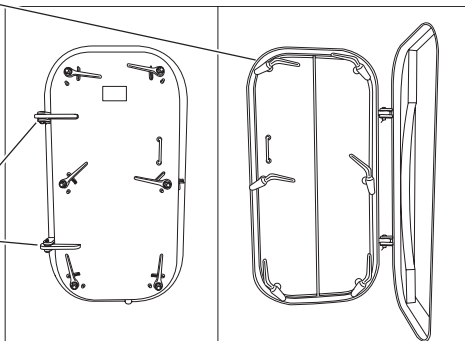
- Use a handheld lubricating gun and brush to apply one to two strokes of waterproof grease to the pinion bracket, the base assembly bearings (2), the trunnion bearings (2), the locking screw, and the control handle of each searchlight.

**LUBRICANT • INTERVAL**

**INTERVAL • LUBRICANT**

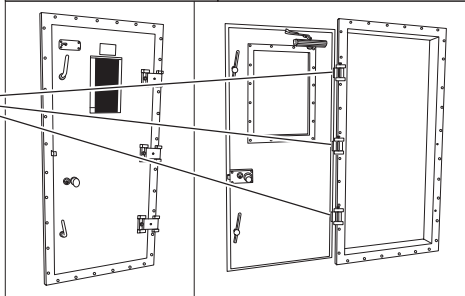
GGP  
Dog Grease  
Fittings (6 per  
Door)  
(Grease)  
(See Note 7)  
(C)

**M**



GGP  
Hinge  
(Grease)  
(See Note 7)  
(C)

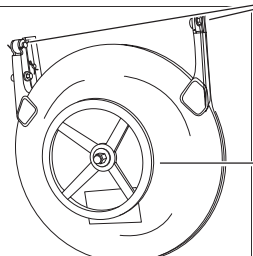
**M**



GGP  
Hinge  
(Grease)  
(See Note 8)  
(C)

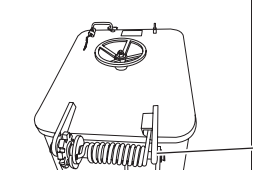
**M**

**M**



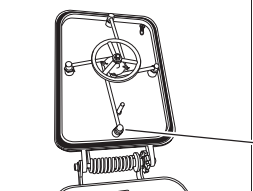
GGP  
Hinge  
(Grease)  
(See Note 9)  
(C)

**M**



GGP  
Quick Acting  
Dog Grease  
Fittings (3)  
(Grease)  
(See Note 9)  
(C)

**M**



GGP  
Hinge  
(Grease)  
(See Note 9)  
(C)

**M**

GGP  
Quick Acting  
Dog Grease  
Fittings (4)  
(Grease)  
(See Note 9)  
(C)

**WATERTIGHT DOORS/HATCHES/WEATHERTIGHT DOORS**

| TOTAL TASK-HOURS* |            |
|-------------------|------------|
| INTERVAL          | TASK-HOURS |
| M                 | 1.5        |

**-KEY-**

| LUBRICANTS                                          | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS |
|-----------------------------------------------------|-------------|-------------------------|-----------|
|                                                     |             | ALL TEMPERATURES        |           |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139) | As Required | Grease, General Purpose | M-Monthly |

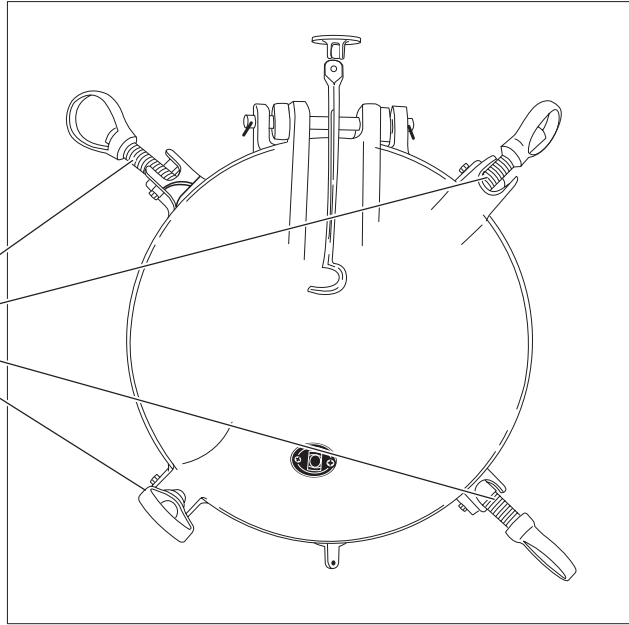
**Notes:**

- Use a handheld lubricating gun and apply one to two strokes of general purpose grease to the dogs and hinges of all watertight doors (6 on the focsle and 8 on the house).
- Use a small brush and apply general purpose grease to all weathertight door hinges. Weathertight doors are located in 15 locations on the O2 level and above.
- Use a handheld lubricating gun and apply one to two strokes of general purpose grease to the hinges and quick acting dogs of all watertight hatches and scuttles (1 in the emergency generator room, 2 penetrating the main deck by the pilot doors, and 2 on the focsle).



**LUBRICANT • INTERVAL**

**M**  
GGP  
Dogs (4 per  
Portlight)  
(Grease)  
(See Note 10)  
(C)



**PORTLIGHTS**

| TOTAL TASK-HOURS* |            |
|-------------------|------------|
| INTERVAL          | TASK-HOURS |
| M                 | 1.0        |

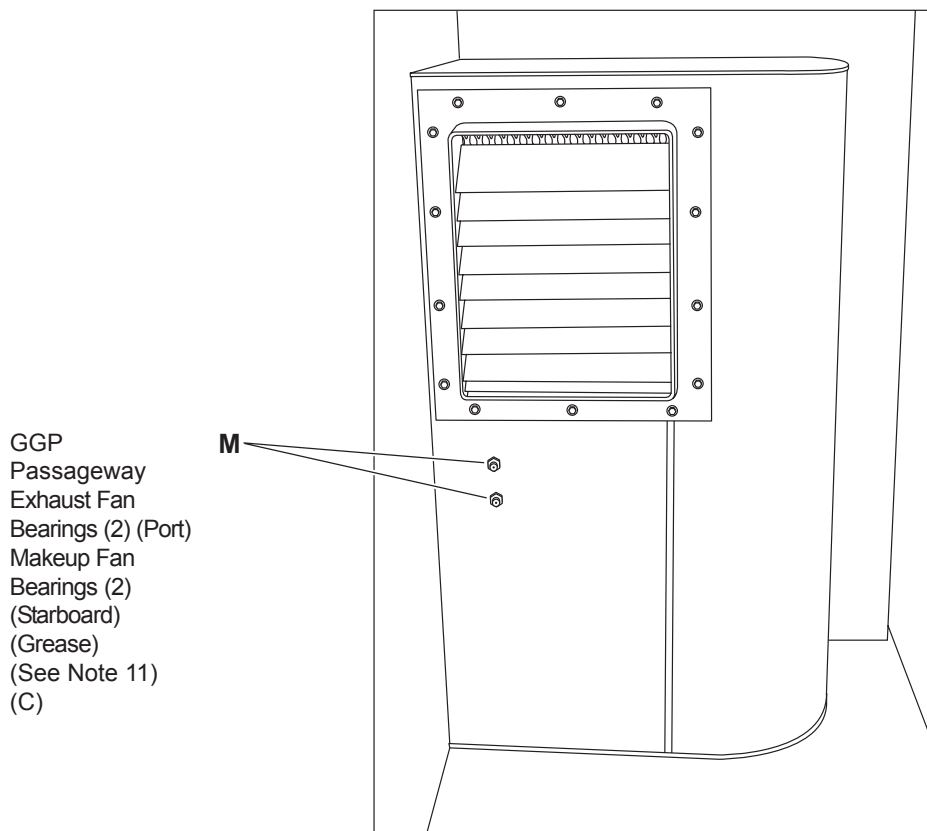
**-KEY-**

| LUBRICANTS                                          | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS |
|-----------------------------------------------------|-------------|-------------------------|-----------|
|                                                     |             | ALL TEMPERATURES        |           |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139) | As Required | Grease, General Purpose | M-Monthly |

**Notes:**

10. Use a brush to apply general purpose grease to the dogs of all portlights.

LUBRICANT • INTERVAL



HOUSE VENTILATION

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

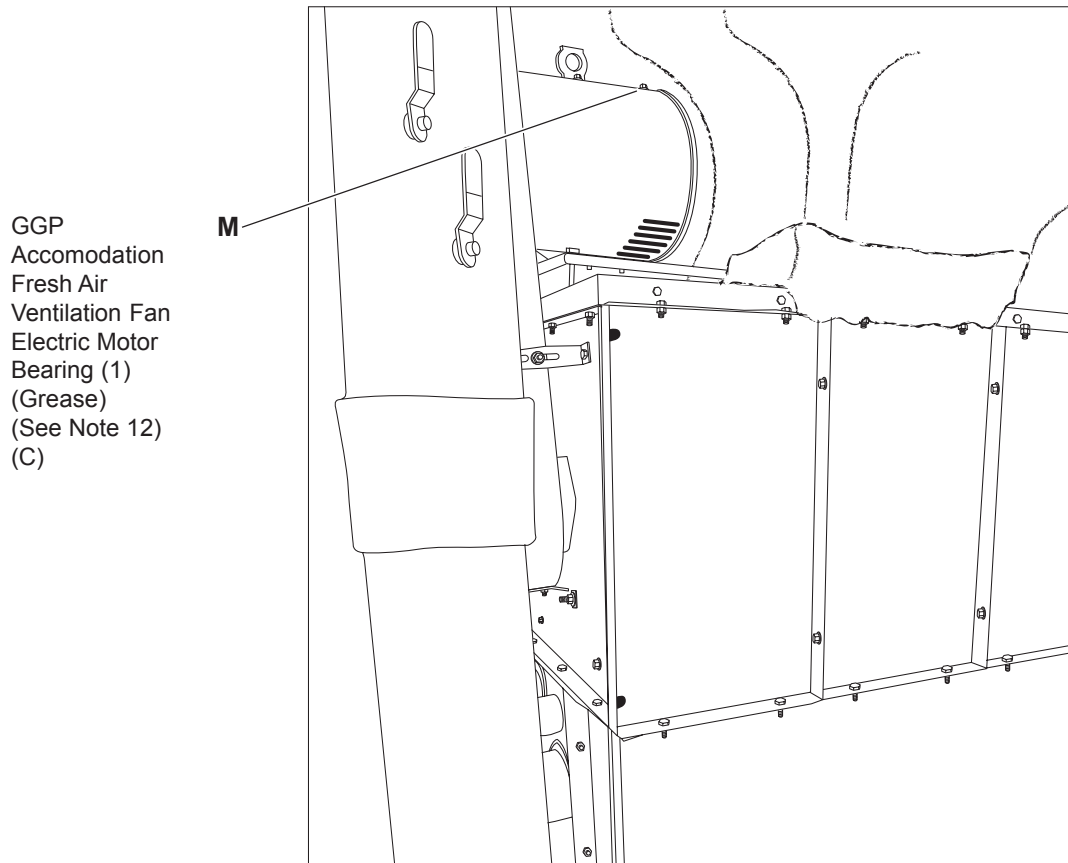
-KEY-

| LUBRICANTS                                          | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS |
|-----------------------------------------------------|-------------|-------------------------|-----------|
|                                                     |             | ALL TEMPERATURES        |           |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139) | As Required | Grease, General Purpose | M-Monthly |

Notes:

- Use a handheld lubricating gun and apply one to two strokes of general purpose grease to the upper and lower bearing of the passageway exhaust fan located on the port side of the 03 level and one to two strokes of general purpose grease to the upper and lower bearing of the makeup fan located on the starboard side of the 03 level.

LUBRICANT • INTERVAL



GGP  
Accommodation  
Fresh Air  
Ventilation Fan  
Electric Motor  
Bearing (1)  
(Grease)  
(See Note 12)  
(C)

ACCOMODATION FRESH AIR VENTILATION FAN

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

-KEY-

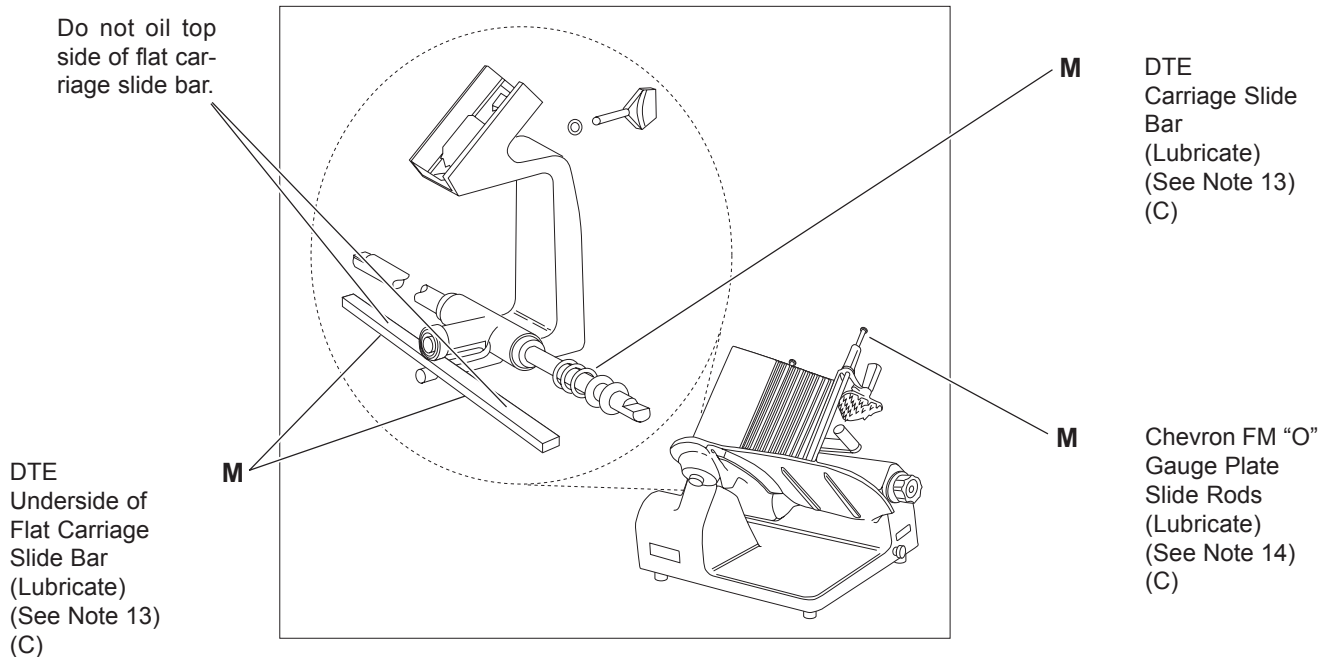
| LUBRICANTS                                          | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS |
|-----------------------------------------------------|-------------|-------------------------|-----------|
|                                                     |             | ALL TEMPERATURES        |           |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139) | As Required | Grease, General Purpose | M-Monthly |

Notes:

- Use a handheld lubricating gun and apply one to two strokes of general purpose grease to the electric motor bearing (1) of the accommodation fresh air ventilation fan.

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT



FOOD SLICER

| TOTAL TASK-HOURS* |            |
|-------------------|------------|
| INTERVAL          | TASK-HOURS |
| M                 | 0.5        |

-KEY-

| LUBRICANTS                                                                   | CAPACITY    | EXPECTED TEMPERATURES       | INTERVALS |
|------------------------------------------------------------------------------|-------------|-----------------------------|-----------|
|                                                                              |             | ALL TEMPERATURES            |           |
| Chevron FM "O" Lubricating Oil, General Purpose (77988) DTE Heavy Medium Oil | As Required | Lubricating Oil, Food Grade | M-Monthly |

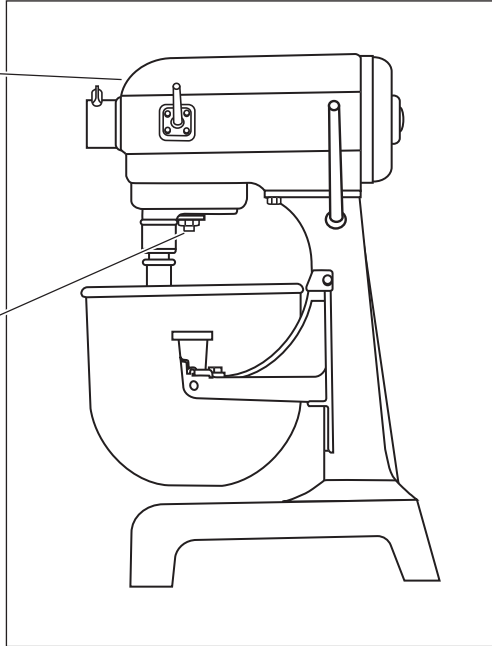
Notes:

- 13. Lubricate the underside of the flat carriage slide bar and the carriage slide bar with Mobile DTE heavy medium oil.
- 14. Lubricate the two gauge plate slide rods with a light coating of Chevron FM "O" lubricant.

**LUBRICANT • INTERVAL**

DOD-L-24651  
Transmission Oil  
Fill Plug  
(Fill)  
(See Note 15)  
(C)

**A**



DOD-L-24651  
Transmission Oil  
Drain Plug  
(Drain)  
(See Note 15)  
(C)

**A**

**FOOD MIXER**

**TOTAL TASK-HOURS\***

| INTERVAL | TASK-HOURS |
|----------|------------|
| A        | 0.5        |

**-KEY-**

| LUBRICANTS                                           | CAPACITY | EXPECTED TEMPERATURES       | INTERVALS              |
|------------------------------------------------------|----------|-----------------------------|------------------------|
|                                                      |          | ALL TEMPERATURES            |                        |
| Oil, Food Processing Equipment (81349) (DOD-L-24651) | 3 Pints  | Lubricating Oil, Food Grade | A-Annually (12 months) |

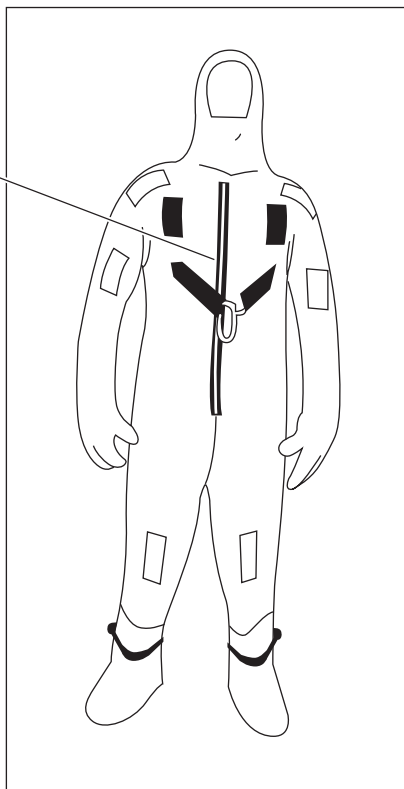
**Notes:**

- Remove the mixer cover for access to the transmission oil fill plug. Place a suitable drain pan under the transmission oil drain plug. Remove the transmission oil drain plug and drain the food grade lubricating oil into the suitable drain pan. Install the transmission oil drain plug. Remove the transmission oil fill plug and fill with three pints of food grade lubricating oil. Install the transmission oil fill plug and the mixer cover.

**LUBRICANT • INTERVAL**

Paraffin  
Zipper  
(Lubricate)  
(See Note 16)  
(C)

**M**



**IMMERSION SUIT**

| <b>TOTAL TASK-HOURS*</b> |            |
|--------------------------|------------|
| INTERVAL                 | TASK-HOURS |
| M                        | 1.0        |

**-KEY-**

| LUBRICANTS             | CAPACITY    | EXPECTED TEMPERATURES | INTERVALS |
|------------------------|-------------|-----------------------|-----------|
|                        |             | ALL TEMPERATURES      |           |
| Paraffin, Liquid (WAX) | As Required | Wax                   | M-Monthly |

**Notes:**

16. Lubricate the zipper of each immersion suit with paraffin and check the zipper for proper operation.

**LUBRICANT • INTERVAL**

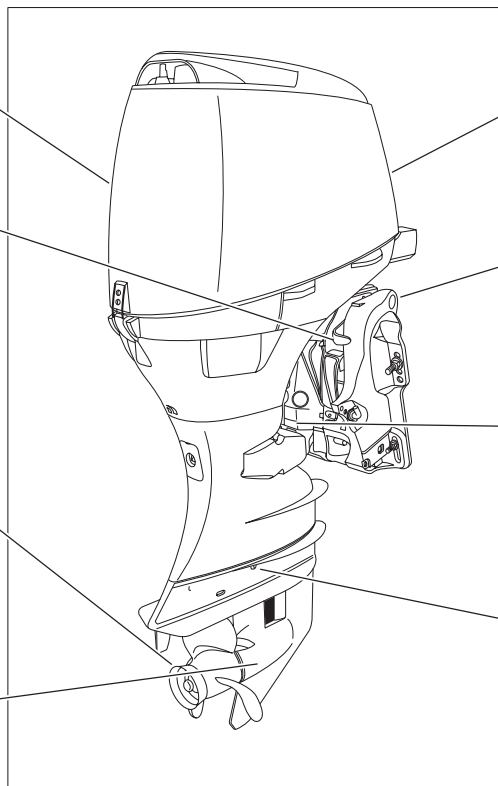
**INTERVAL • LUBRICANT**

**M**  
GGP  
Shift Linkage  
(Grease)  
(See Note 17)  
(C)

**M**  
GGP  
Reverse Lock  
Lever  
(Grease)  
(See Note 17)  
(C)

**Q**  
GGP  
Propeller  
Splined Shaft  
(Grease)  
(See Note 18)  
(C)

**M**  
GO-80/90  
Gear Housing  
(Fill/Drain)  
(See Note 19)  
(C)



**M**  
GGP  
Throttle  
Linkage  
(Grease)  
(See Note 17)  
(C)

**M**  
GGP  
Tilt Tube Grease  
Fittings (2)  
(Grease)  
(See Note 20)  
(C)

**M**  
GGP  
Swivel Bracket  
Pin Grease  
Fittings (2)  
(Grease)  
(See Note 20)  
(C)

**M**  
GO-80/90  
Gear Housing  
Vent Plug  
(Drain/Fill)  
(See Note 19)  
(C)

**WORKBOAT OUTBOARD MOTOR**

**TOTAL TASK-HOURS\***

| INTERVAL | TASK-HOURS | INTERVAL | TASK-HOURS |
|----------|------------|----------|------------|
| M        | 1.0        | Q        | 1.0        |

**-KEY-**

| LUBRICANTS                                                        | CAPACITY    | EXPECTED TEMPERATURES               | INTERVALS                           |
|-------------------------------------------------------------------|-------------|-------------------------------------|-------------------------------------|
|                                                                   |             | ALL TEMPERATURES                    |                                     |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139)               | As Required | Grease, General Purpose             | M-Monthly<br>Q-Quarterly (3 months) |
| GO-80/90 Lubricating Oil, Gear, Multipurpose (81343) (MIL-L-2105) | 22 Ounces   | Lubricating Oil, Gear, Multipurpose |                                     |

**WORKBOAT OUTBOARD MOTOR (continued)**

**Notes:**

17. Use a brush and apply general purpose grease to the shift linkage, the reverse lock lever, and the throttle linkage.
18. Remove the propeller and apply general purpose grease to the splined shaft using a brush. Install the propeller.
19. Place a suitable drain pan under the gear housing fill/drain plug. Remove the gear housing fill/drain plug and drain the gear housing lubricating oil into the suitable drain pan. Remove the gear housing vent plug. Fill the gear housing with lubricating oil until the lubricating oil starts to come out of the gear housing vent plug. Install the gear housing vent plug and the gear housing fill/drain plug.
20. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to the tilt tube grease fittings (2) and the swivel bracket pin grease fittings (2).



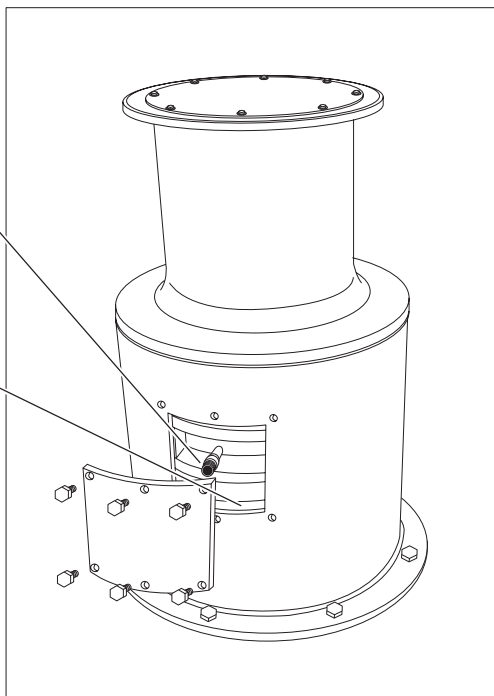
**LUBRICANT • INTERVAL**

GO-80/90  
Reducer  
Gear Case  
(Check Level)  
(See Note 21)  
(C)

**M**

GO-80/90  
Reducer  
Gear Case  
Drain Plug  
(Drain/Fill)  
(See Note 22)  
(C)

**S or  
2500  
Hrs**



**CAPSTAN**

**TOTAL TASK-HOURS\***

| INTERVAL | TASK-HOURS | INTERVAL      | TASK-HOURS |
|----------|------------|---------------|------------|
| M        | 0.1        | S or 2500 Hrs | 1.0        |

**-KEY-**

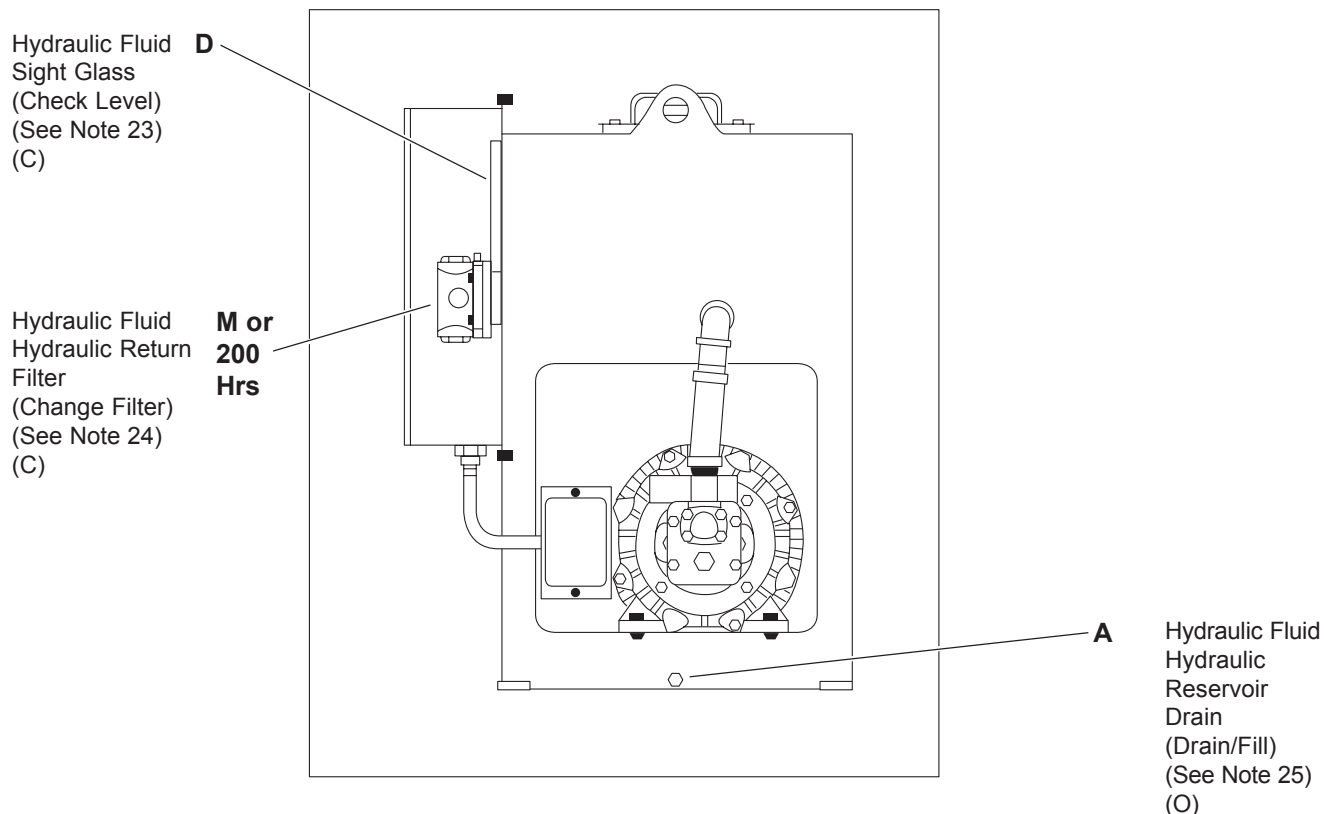
| LUBRICANTS                                                              | CAPACITY   | EXPECTED TEMPERATURES               | INTERVALS                              |
|-------------------------------------------------------------------------|------------|-------------------------------------|----------------------------------------|
|                                                                         |            | ALL TEMPERATURES                    |                                        |
| GO-80/90 Lubricating Oil,<br>Gear, Multipurpose<br>(81343) (MIL-L-2105) | 15.5 Pints | Lubricating Oil, Gear, Multipurpose | M-Monthly<br>S-Semiannually (6 months) |

**Notes:**

21. Check the oil level in the gear case. The oil level should be at the bottom of the fill tube. Add multipurpose gear lubricating oil as required.
22. Semiannually or every 2500 hours of operation, whichever occurs first. Remove the reducer gear case drain plug and drain the multipurpose gear lubricating oil from the reducer gear case into a suitable drain pan. Fill with multipurpose gear lubricating oil until the oil level is at the bottom of the fill tube. Install the reducer gear case drain plug.

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT



**WORKBOAT DAVIT HYDRAULIC POWER UNIT (LSV 2 AND 4)**

| TOTAL TASK-HOURS* |            |              |            |
|-------------------|------------|--------------|------------|
| INTERVAL          | TASK-HOURS | INTERVAL     | TASK-HOURS |
| D                 | 0.1        | M or 200 Hrs | 0.1        |
| A                 | 4.0        |              |            |

**-KEY-**

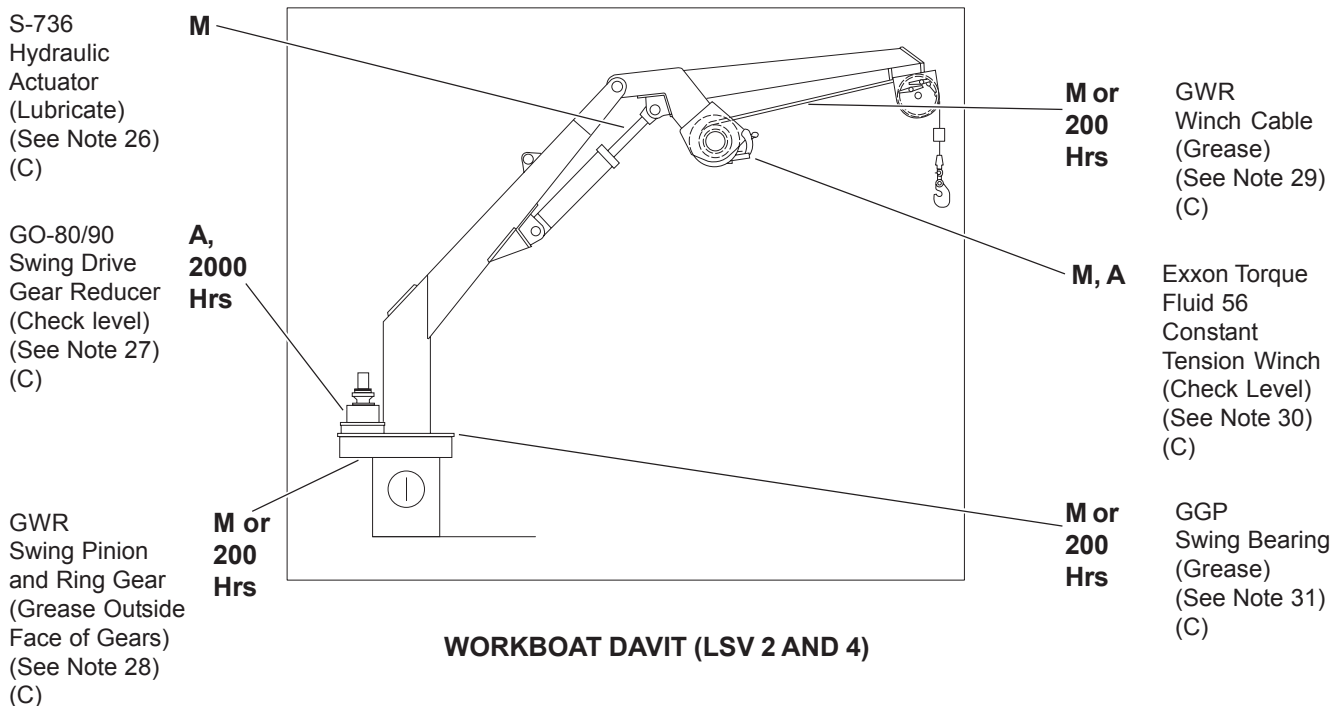
| LUBRICANTS                              | CAPACITY    | EXPECTED TEMPERATURES | INTERVALS                                      |
|-----------------------------------------|-------------|-----------------------|------------------------------------------------|
|                                         |             | ALL TEMPERATURES      |                                                |
| Hydraulic Fluid (81349) (MIL-PRF-17672) | 100 Gallons | Hydraulic Fluid       | D-Daily<br>M-Monthly<br>A-Annually (12 Months) |

**Notes:**

- 23. Check the hydraulic fluid level at the sight glass. Add hydraulic fluid as required.
- 24. Remove the return filter from the hydraulic power unit. Apply a light coat of hydraulic fluid to the gasket of a new return filter and install it on the hydraulic power unit.
- 25. Drain the hydraulic fluid power unit reservoir into a suitable drain pan. Fill the hydraulic power unit reservoir with new hydraulic fluid.

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT



WORKBOAT DAVIT (LSV 2 AND 4)

TOTAL TASK-HOURS\*

| INTERVAL     | TASK-HOURS | INTERVAL | TASK-HOURS |
|--------------|------------|----------|------------|
| M or 200 Hrs | 4.0        | A        | 4.0        |

-KEY-

| LUBRICANTS                                                                                                                                                                                                                                      | CAPACITY    | EXPECTED TEMPERATURES                                                                                                                                      | INTERVALS                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
|                                                                                                                                                                                                                                                 |             | ALL TEMPERATURES                                                                                                                                           |                                     |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139)<br>GWR (MIL-PRF-18458) Grease, Wire Rope-Exposed Gear<br>GO-80/90 Lubricating Oil, Gear, Multipurpose (81343) (MIL-L-2105)<br>Exxon Torque Fluid 56<br>S-736 (SAE-AS8660) Silicone Compound | As Required | Grease, General Purpose<br><br>Grease, Wire Rope-Exposed Gear<br><br>Lubricating Oil, Gear, Multipurpose<br><br>Exxon Torque Fluid 56<br>Silicone Compound | M-Monthly<br>A-Annually (12 Months) |

**WORKBOAT DAVIT (LSV 2 AND 4) (continued)****Notes:**

26. Apply a thin coat of silicone compound to the bare metal surface of the hydraulic actuator rod.
27. Drain the swing drive gear into a suitable drain pan. Fill the swing drive gear with multipurpose gear lubricating oil until the gear oil level is visible through the fill plug on top of the swing drive gearbox.
28. Use a brush to apply wire rope-exposed gear grease to the outside face of the pinion and ring gear.

**WARNING**

**Wire rope can become frayed or contain broken wires. Wear leather palmed work gloves when handling wire rope. Frayed or broken wires can injure hands. Never let wire rope slide through hands, even when wearing gloves. A broken wire could cut through gloves and injure hands. Never grasp wire rope near stationary objects. Sudden movement of the wire rope could injure hands. Failure to comply can cause damage to equipment and serious injury or death to personnel.**

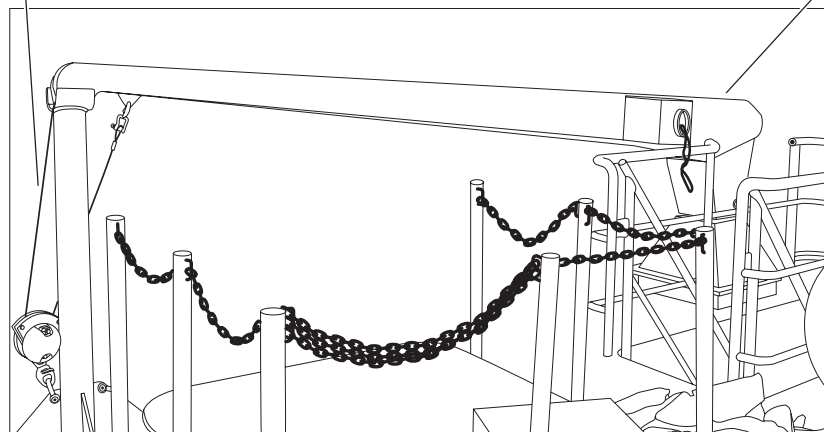
29. Use a brush to apply wire rope-exposed gear grease to the wire rope. Ensure that the wire rope-exposed gear grease is worked into all strands of the wire rope.
30. Monthly, remove the plug on top of the gear box spacer and the plug on the cable drum barrel. The oil level of the constant tension winch should be visible. Add Exxon Torque Fluid 56 as required. Annually, drain the constant tension winch into a suitable drain pan. Fill the constant tension winch with Exxon Torque Fluid 56 until the oil level is visible at the fill plug on top of the gearbox spacer.
31. Lubricate the swing bearing through the lube fitting on the davit using a handheld lubricating gun. Rotate the davit in 30-degree increments between applications. Rotate the davit through its entire swing arc after lubrication to distribute the lubricant.

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT

**Q**  
GWR  
Wire Rope  
(Grease)  
(See Note 32)  
(C)

**W**  
Mobilux No. 2  
Metal-to-Metal  
Moving Parts  
(Lubricate)  
(See Note 33)  
(C)



**WORKBOAT DAVIT (LSV 1, 3, 5, 6)**

**TOTAL TASK-HOURS\***

| INTERVAL | TASK-HOURS | INTERVAL | TASK-HOURS |
|----------|------------|----------|------------|
| W        | 0.1        | Q        | 1.0        |

**-KEY-**

| LUBRICANTS                                                                                      | CAPACITY    | EXPECTED TEMPERATURES                                    | INTERVALS                          |
|-------------------------------------------------------------------------------------------------|-------------|----------------------------------------------------------|------------------------------------|
|                                                                                                 |             | ALL TEMPERATURES                                         |                                    |
| Mobilux No. 2 Grease<br>Waterproof<br>GWR (MIL-PRF-18458)<br>Grease, Wire Rope-<br>Exposed Gear | As Required | Grease, Waterproof<br><br>Grease, Wire Rope-Exposed Gear | W-Weekly<br>Q-Quarterly (3 months) |

**WORKBOAT DAVIT (LSV 1, 3, 5, 6) (continued)****Notes:****WARNING**

**Wire rope can become frayed or contain broken wires. Wear leather palmed work gloves when handling wire rope. Frayed or broken wires can injure hands. Never let wire rope slide through hands, even when wearing gloves. A broken wire could cut through gloves and injure hands. Never grasp wire rope near stationary objects. Sudden movement of the wire rope could injure hands. Failure to comply can cause damage to equipment and serious injury or death to personnel.**

32. Use a brush to apply wire rope-exposed gear grease to the wire rope. Ensure that the wire rope-exposed gear grease is worked into all strands of the wire rope.
33. Lubricate all metal-to-metal moving parts with waterproof grease.

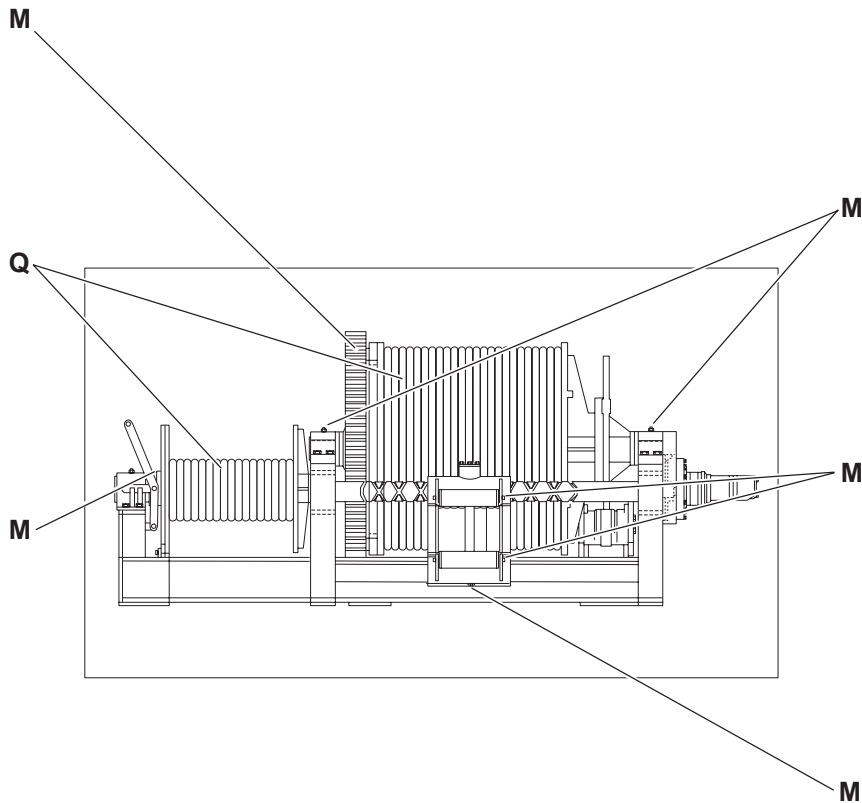
LUBRICANT • INTERVAL

INTERVAL • LUBRICANT

GWR  
Main Gear  
(Grease)  
(See Note 34)  
(C)

GWR  
Wire Rope  
(Grease)  
(See Note 35)  
(O)

GGP  
Sliding Jaw Clutch  
Grease Fitting (1)  
(Grease)  
(See Note 36)  
(C)



GGP  
Main Spool  
Bearing Grease  
Fittings (2)  
(Grease)  
(See Note 36)  
(C)

GGP  
Levelwind  
Horizontal  
Bushing Grease  
Fittings (2)  
(Grease)  
(See Note 36)  
(C)

GGP  
Levelwind Guide  
Shaft Grease  
Fitting (1)  
(Grease)  
(See Note 36)  
(C)

STERN RAMP ANCHOR WINDLASS (FRONT VIEW)

TOTAL TASK-HOURS\*

| INTERVAL | TASK-HOURS | INTERVAL | TASK-HOURS |
|----------|------------|----------|------------|
| M        | 1.0        | Q        | 2.0        |

-KEY-

| LUBRICANTS                                                                                                                                                             | CAPACITY    | EXPECTED TEMPERATURES                                                                                    | INTERVALS                           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------------------------------------------------------------------------------------------|-------------------------------------|
|                                                                                                                                                                        |             | ALL TEMPERATURES                                                                                         |                                     |
| GWP Grease, General Purpose (81349) (MIL-PRF-24139)<br>GO-80/90 (MIL-L-2105) Lubricating Oil, Gear, Multipurpose<br>GWR (MIL-PRF-18458) Grease, Wire Rope-Exposed Gear | As Required | Grease, General Purpose<br><br>Lubricating Oil, Gear, Multipurpose<br><br>Grease, Wire Rope-Exposed Gear | M-Monthly<br>Q-Quarterly (3 months) |

**LUBRICANT • INTERVAL**

**INTERVAL • LUBRICANT**

GWR  
Clutch Hub  
(Grease)  
(See Note 34)  
(C)

GGP  
Auxiliary Spool  
Bushing Grease  
Fittings (2)  
(Grease)  
(See Note 36)  
(C)

GGP  
Jigger Winch  
Main Bearing  
Grease  
Fittings (2)  
(Grease)  
(See Note 36)  
(C)

GWR  
Pinion Gear  
(Grease)  
(See Note 34)  
(C)

GGP  
Clutch Grease  
Fittings (2)  
(Grease)  
(See Note 36)  
(C)

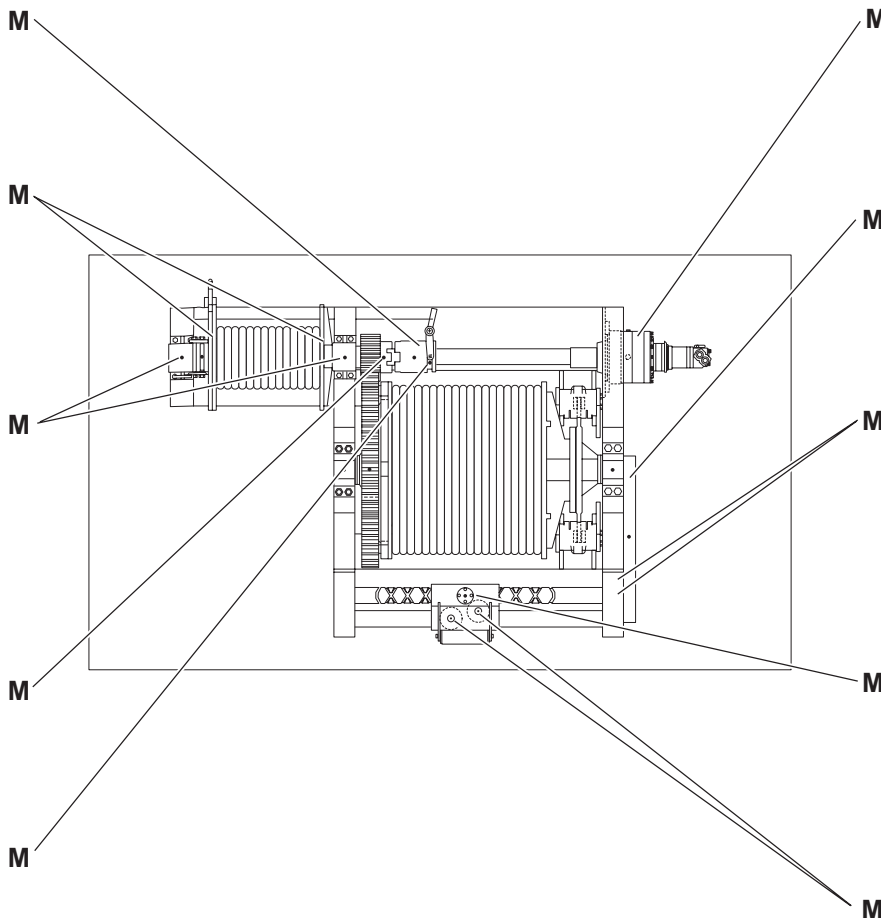
GO-80/90  
Planetary  
Reducer  
(Check Level)  
(See Note 37)  
(C)

GWR  
Levelwind  
Sprocket/Chain  
(Grease)  
(See Note 34)  
(C)

GGP  
Levelwind  
Main Shaft  
Bushing Grease  
Fittings (2)  
(Grease)  
(See Note 36)  
(C)

GGP  
Levelwind  
Pawl Grease  
Fitting (1)  
(Grease)  
(See Note 36)  
(C)

GGP  
Levelwind Vertical  
Bushing Grease  
Fittings (2)  
(Grease)  
(See Note 36)  
(C)



**STERN RAMP ANCHOR WINDLASS (TOP VIEW)**

**TOTAL TASK-HOURS\***

| INTERVAL | TASK-HOURS | INTERVAL | TASK-HOURS |
|----------|------------|----------|------------|
| M        | 1.0        | Q        | 2.0        |

**-KEY-**

| LUBRICANTS                                                                                                                                                             | CAPACITY    | EXPECTED TEMPERATURES                                                                            | INTERVALS                           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------------------------------------------------------------------------------------------------|-------------------------------------|
|                                                                                                                                                                        |             | ALL TEMPERATURES                                                                                 |                                     |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139)<br>GO-80/90 (MIL-L-2105) Lubricating Oil, Gear, Multipurpose<br>GWR (MIL-PRF-18458) Grease, Wire Rope-Exposed Gear | As Required | Grease, General Purpose<br>Lubricating Oil, Gear, Multipurpose<br>Grease, Wire Rope-Exposed Gear | M-Monthly<br>Q-Quarterly (3 months) |



**STERN RAMP ANCHOR WINDLASS (continued)****Notes:**

34. Use a brush and apply wire rope-exposed gear grease to the main gear, the clutch hub, the pinion gear, and the levelwind sprocket and chain.

**WARNING**

**Wire rope can become frayed or contain broken wires. Wear leather palmed work gloves when handling wire rope. Frayed or broken wires can injure hands. Never let wire rope slide through hands, even when wearing gloves. A broken wire could cut through gloves and injure hands. Never grasp wire rope near stationary objects. Sudden movement of the wire rope could injure hands. Failure to comply can cause damage to equipment and serious injury or death to personnel.**

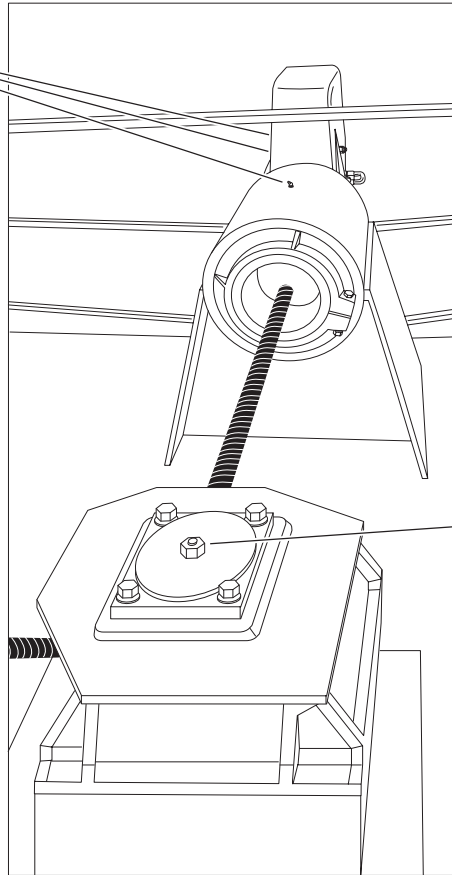
35. Use a brush to apply wire rope-exposed gear grease to the stern anchor wire rope and the jigger winch wire rope. Ensure that the wire rope-exposed gear grease is worked into all strands of each wire rope.
36. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to the the sliding jaw clutch grease fitting (1), the main spool bearing grease fittings (2), the levelwind horizontal bushing grease fittings (2), the levelwind guide shaft grease fitting (1), the auxiliary spool bushing grease fittings (2), the jigger winch main bearing grease fittings (2), the clutch grease fittings (2), the levelwind main shaft bushing grease fittings (2), the levelwind pawl grease fitting (1), and the levelwind vertical bushing grease fittings (2).
37. Remove the gear oil level plug from the planetary reducer and verify that the gear oil level is at the bottom of the plug. Add multipurpose gear lubricating oil as required.

**LUBRICANT • INTERVAL**

**INTERVAL • LUBRICANT**

Mobilux EP1  
 Universal  
 Fairlead Grease  
 Fittings (3)  
 (Grease)  
 (See Note 38)  
 (C)

**Q**



**W**

Mobilux EP1  
 Wire Rope  
 Sheave Grease  
 Fitting (1)  
 (Grease)  
 (See Note 39)  
 (C)

**UNIVERSAL FAIRLEAD**

**TOTAL TASK-HOURS\***

| INTERVAL | TASK-HOURS | INTERVAL | TASK-HOURS |
|----------|------------|----------|------------|
| W        | 0.2        | Q        | 0.2        |

**-KEY-**

| LUBRICANTS                         | CAPACITY    | EXPECTED TEMPERATURES | INTERVALS                          |
|------------------------------------|-------------|-----------------------|------------------------------------|
|                                    |             | ALL TEMPERATURES      |                                    |
| Mobilux EP 1 Grease,<br>Waterproof | As Required | Grease, Waterproof    | W-Weekly<br>Q-Quarterly (3 months) |

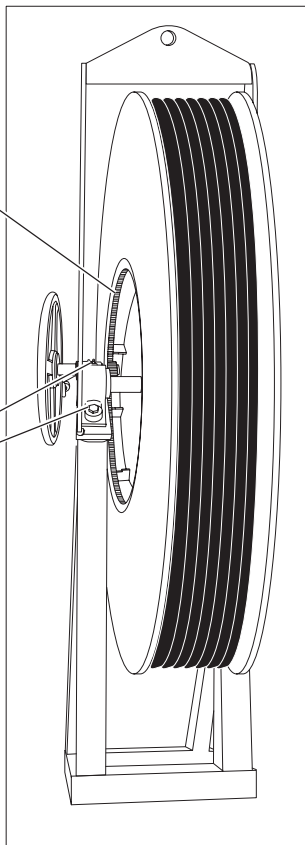
**Notes:**

- 38. Use a handheld lubricating gun and apply one to two strokes of waterproof grease to the three grease fittings on the universal fairlead.
- 39. Use a handheld lubricating gun and apply one to two strokes of waterproof grease to the stern anchor wire rope sheave.

**LUBRICANT • INTERVAL**

GGP  
Gears  
(Grease)  
(See Note 40)  
(C)

Q



GGP  
Handwheel  
Grease Fittings (2)  
(Grease)  
(See Note 41)  
(C)

Q

**SHORE POWER CABLE REEL**

| TOTAL TASK-HOURS* |            |
|-------------------|------------|
| INTERVAL          | TASK-HOURS |
| Q                 | 0.5        |

**-KEY-**

| LUBRICANTS                                          | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS              |
|-----------------------------------------------------|-------------|-------------------------|------------------------|
|                                                     |             | ALL TEMPERATURES        |                        |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139) | As Required | Grease, General Purpose | Q-Quarterly (3 months) |

**Notes:**

- 40. Use a brush and apply general purpose grease to the shore power cable reel gears.
- 41. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to the handwheel grease fittings (2).

LUBRICANT • INTERVAL

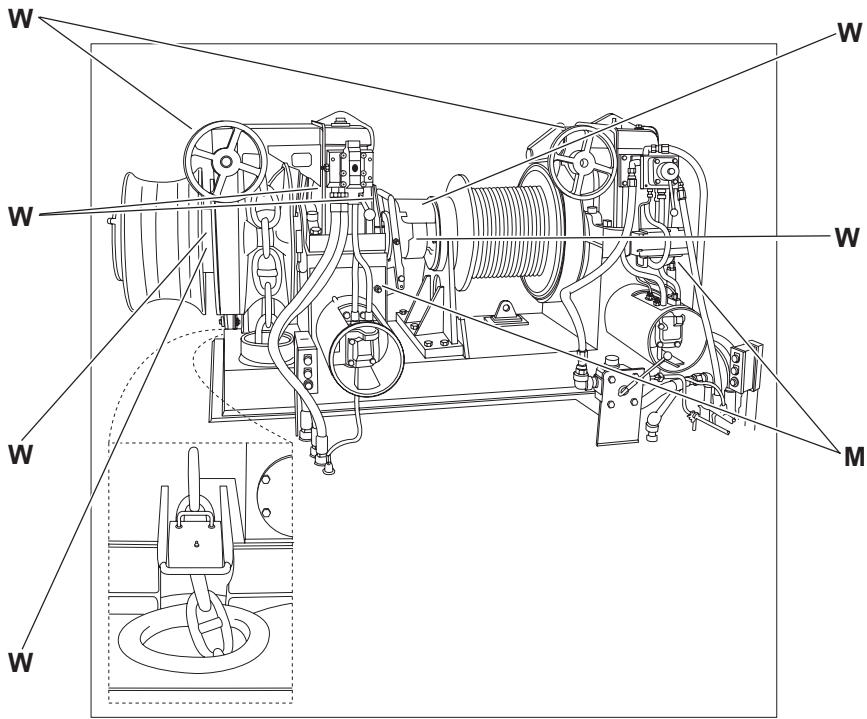
INTERVAL • LUBRICANT

GGP  
Handwheel Grease  
Fittings (2)  
(Grease)  
(See Note 42)  
(C)

GGP  
Outboard Gear  
Case Bearing  
Grease Fittings (2)  
(Grease)  
(See Note 42)  
(C)

GGP  
Gypsy Shaft  
Grease Fittings (2)  
(Grease)  
(See Note 42)  
(C)

GGP  
Wildcat Shaft  
Grease Fittings (2)  
(Grease)  
(See Note 42)  
(C)



GGP  
Pedestal Bearing  
Grease Fitting (1)  
(Grease)  
(See Note 42)  
(C)

GGP  
Drum Shaft  
Grease Fitting (1)  
(Grease)  
(See Note 42)  
(C)

GO-80/90  
Gear Oil Level  
Plugs (2)  
(Check Level)  
(See Note 43)  
(C)

**BOW RAMP ANCHOR WINCHES (LSV 1-5)**

**TOTAL TASK-HOURS\***

| INTERVAL | TASK-HOURS | INTERVAL | TASK-HOURS |
|----------|------------|----------|------------|
| W        | 1.0        | M        | 1.0        |
| Q        | 2.0        | A        | 1.0        |

**-KEY-**

| LUBRICANTS                                                | CAPACITY    | EXPECTED TEMPERATURES               | INTERVALS                                                                 |
|-----------------------------------------------------------|-------------|-------------------------------------|---------------------------------------------------------------------------|
|                                                           |             | ALL TEMPERATURES                    |                                                                           |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139)       | As Required | Grease, General Purpose             | W-Weekly<br>M-Monthly<br>Q-Quarterly (3 Months)<br>A-Annually (12 Months) |
| GO-80/90 (MIL-L-2105) Lubricating Oil, Gear, Multipurpose |             | Lubricating Oil, Gear, Multipurpose |                                                                           |
| GWR (MIL-PRF-18458) Grease, Wire Rope-Exposed Gear        |             | Grease, Wire Rope-Exposed Gear      |                                                                           |

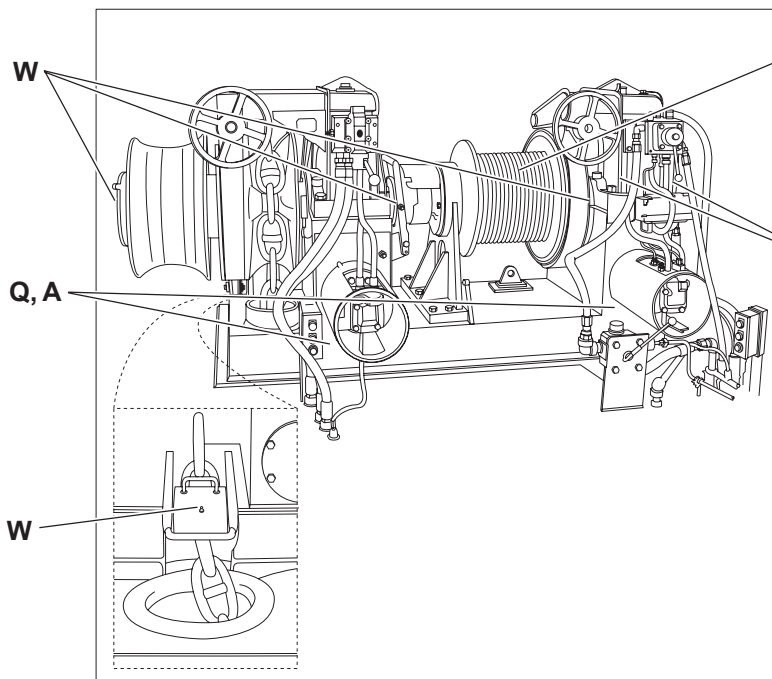
LUBRICANT • INTERVAL

INTERVAL • LUBRICANT

GGP  
Clutch Grease  
Fittings (3)  
(Grease)  
(See Note 42)  
(C)

GO-80/90  
Gear Case  
Drain Plugs (2)  
(Drain/Check)  
(See Notes 44  
and 45)  
(O)

GGP  
Anchor Chain Pawl  
Locking Device  
Grease Fitting (1)  
(Grease)  
(See Note 42)  
(C)



Q  
GWR  
Wire Rope  
(Grease)  
(See Note 46)  
(C)

W  
GGP  
Inboard Gear Case  
Bearing Grease  
Fittings (2)  
(Grease)  
(See Note 42)  
(C)

**BOW RAMP ANCHOR WINCHES (LSV 1-5)**  
(Illustration repeated for clarity)

**TOTAL TASK-HOURS\***

| INTERVAL | TASK-HOURS | INTERVAL | TASK-HOURS |
|----------|------------|----------|------------|
| W        | 1.0        | M        | 1.0        |
| Q        | 2.0        | A        | 1.0        |

**-KEY-**

| LUBRICANTS                                                | CAPACITY    | EXPECTED TEMPERATURES               | INTERVALS                                                                 |
|-----------------------------------------------------------|-------------|-------------------------------------|---------------------------------------------------------------------------|
|                                                           |             | ALL TEMPERATURES                    |                                                                           |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139)       | As Required | Grease, General Purpose             | W-Weekly<br>M-Monthly<br>Q-Quarterly (3 Months)<br>A-Annually (12 Months) |
| GO-80/90 (MIL-L-2105) Lubricating Oil, Gear, Multipurpose |             | Lubricating Oil, Gear, Multipurpose |                                                                           |
| GWR (MIL-PRF-18458) Grease, Wire Rope-Exposed Gear        |             | Grease, Wire Rope-Exposed Gear      |                                                                           |

**BOW RAMP ANCHOR WINCHES (LSV 1-5) (continued)****Notes:**

42. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to the handwheel grease fittings (2), the outboard gear case bearing grease fittings (2), the gypsy shaft grease fittings (2), the wildcat shaft grease fittings (2), the pedestal bearing grease fitting (1), the drum shaft grease fitting (1), the clutch grease fittings (3), the anchor chain pawl locking device grease fitting (1), and the inboard gear case bearing grease fittings (2) for each bow ramp and anchor windlass.
43. Remove the gear oil level plugs (2) and verify that the gear oil level is at the bottom of the plug. Add multipurpose gear lubricating oil as required. Perform the same procedure on the opposite bow ramp and windlass.
44. Quarterly, place a suitable drain pan under the gear case drain plugs (2). Back out the gear case drain plugs just far enough for liquid to seep around the threads. Check for the presence of water. If water is present perform the annual service. If no water is present install the gear case drain plugs.
45. Annually, place a suitable drain pan under the gear case drain plugs (2). Remove the gear case drain plugs and allow the gear case to drain into the suitable drain pan. Remove the gear oil level plugs. Install the gear case drain plugs. Fill the gear case with multipurpose gear lubricating oil until it is at the bottom of the gear oil level plugs. Install the gear oil level plugs.

**WARNING**

**Wire rope can become frayed or contain broken wires. Wear leather palmed work gloves when handling wire rope. Frayed or broken wires can injure hands. Never let wire rope slide through hands, even when wearing gloves. A broken wire could cut through gloves and injure hands. Never grasp wire rope near stationary objects. Sudden movement of the wire rope could injure hands. Failure to comply can cause damage to equipment and serious injury or death to personnel.**

46. Use a brush to apply wire rope-exposed gear grease to the ramp windlass wire rope. Ensure that the wire rope-exposed gear grease is worked into all strands of the ramp windlass wire rope.

**LUBRICANT • INTERVAL**

**INTERVAL • LUBRICANT**

GGP  
Handwheel Grease  
Fitting (1)  
(Grease)  
(See Note 47)  
(C)

W

GGP  
Wildcat Shaft  
Grease Fitting (1)  
(Grease)  
(See Note 47)  
(C)

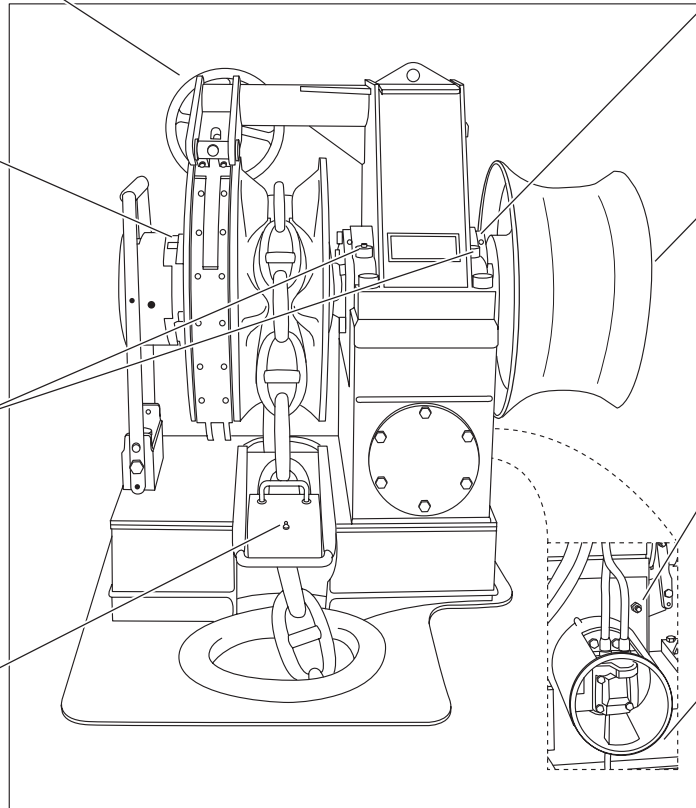
W

GGP  
Gear Case Bearing  
Grease Fittings (2)  
(Grease)  
(See Note 47)  
(C)

W

GGP  
Chain Pawl  
Locking Device  
Grease Fitting (1)  
(Grease)  
(See Note 47)  
(C)

W



W

GGP  
Gypsy Shaft  
Grease Fitting (1)  
(Grease)  
(See Note 47)  
(C)

W

GGP  
Clutch Grease  
Fitting (1)  
(Grease)  
(See Note 47)  
(C)

M

GO-80/90  
Gear Oil Level  
Plug (1)  
(Check Level)  
(See Note 48)  
(C)

Q, A

GO-80/90  
Gear Case Drain  
Plug (1)  
(Drain/Check)  
(See Notes 49  
and 50)  
(O)

**LSV 6 BOW RAMP ANCHOR WINCHES**

**TOTAL TASK-HOURS\***

| INTERVAL | TASK-HOURS | INTERVAL | TASK-HOURS |
|----------|------------|----------|------------|
| W        | 1.0        | M        | 1.0        |
| Q        | 0.1        | A        | 1.0        |

**-KEY-**

| LUBRICANTS                                                                                                       | CAPACITY    | EXPECTED TEMPERATURES                                              | INTERVALS                                                                 |
|------------------------------------------------------------------------------------------------------------------|-------------|--------------------------------------------------------------------|---------------------------------------------------------------------------|
|                                                                                                                  |             | ALL TEMPERATURES                                                   |                                                                           |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139)<br>GO-80/90 (MIL-L-2105) Lubricating Oil, Gear, Multipurpose | As Required | Grease, General Purpose<br><br>Lubricating Oil, Gear, Multipurpose | W-Weekly<br>M-Monthly<br>Q-Quarterly (3 Months)<br>A-Annually (12 Months) |

**LSV 6 BOW RAMP ANCHOR WINCHES (continued)****Notes:**

47. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to handwheel grease fitting (1), the wildcat shaft grease fitting (1), the gear case bearing grease fittings (2), the chain pawl locking device grease fitting (1), the gypsy shaft grease fitting (1), and the clutch grease fitting (1) for each anchor windlass.
48. Remove the gear oil level plug (1) and verify that the gear oil level is at the bottom of the plug. Add multipurpose gear lubricating oil as required. Perform the same procedure on the opposite anchor windlass.
49. Quarterly, place a suitable drain pan under the gear case drain plug. Back out the gear case drain plug just far enough for liquid to seep around the threads. Check for the presence of water. If water is present, perform the annual service. If no water is present, install the gear case drain plug.
50. Annually, place a suitable drain pan under the gear case drain plug. Remove the gear case drain plug and allow the gear case to drain into the suitable drain pan. Remove the gear oil level plug. Install the gear case drain plug. Fill the gear case with multipurpose gear lubricating oil until it is at the bottom of the gear oil plug. Install the gear oil level plug.

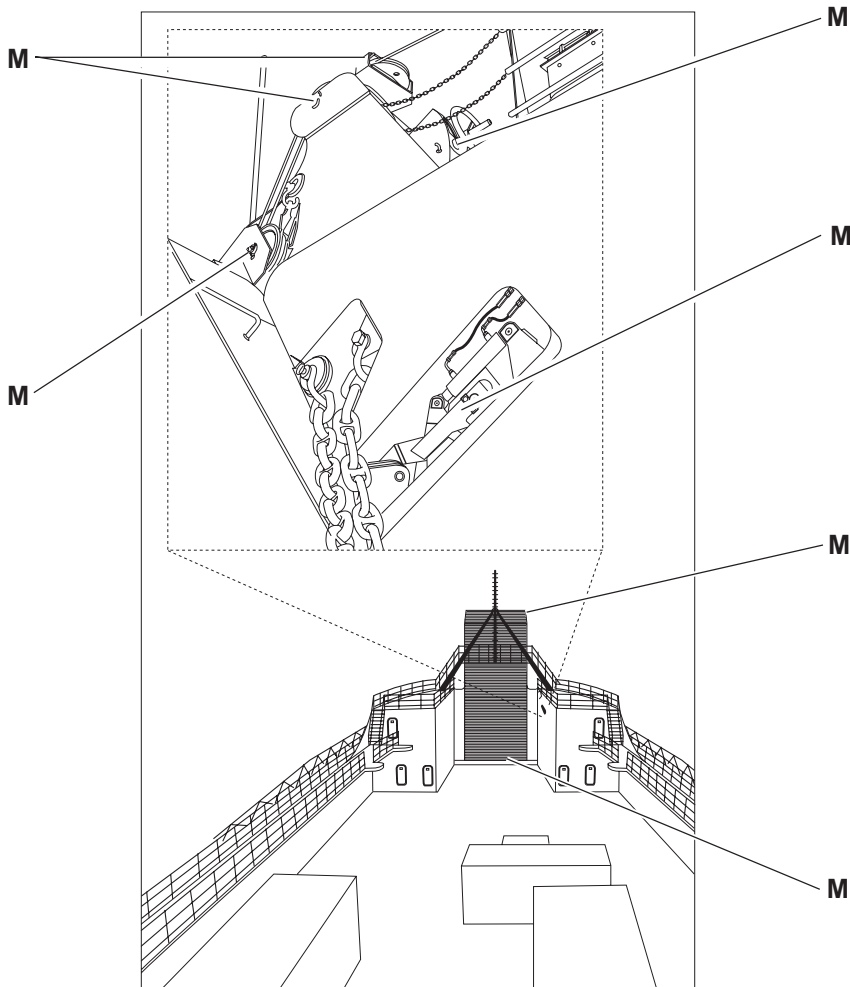


LUBRICANT • INTERVAL

INTERVAL • LUBRICANT

GGP  
Upper Ramp  
Sheave Grease  
Fittings (2)  
(Grease)  
(See Note 51)  
(C)

GGP  
Lower Ramp  
Sheave Grease  
Fittings (2)  
(Grease)  
(See Note 51)  
(C)



GGP  
Locking Bar  
Threads  
(Grease)  
(See Note 52)  
(C)

GGP  
Hydraulic  
Battening Device  
Grease  
Fittings (5)  
(Grease)  
(See Note 51)  
(C)

GGP  
End Flap  
Hinge Grease  
Fittings (6)  
(Grease)  
(See Note 51)  
(C)

GGP  
Main Hinge  
Grease  
Fittings (10)  
(Grease)  
(See Note 51)  
(C)

**BOW RAMP**

**TOTAL TASK-HOURS\***

| INTERVAL | TASK-HOURS |
|----------|------------|
| M        | 1.0        |

**-KEY-**

| LUBRICANTS                                          | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS |
|-----------------------------------------------------|-------------|-------------------------|-----------|
|                                                     |             | ALL TEMPERATURES        |           |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139) | As Required | Grease, General Purpose | M-Monthly |

**BOW RAMP (continued)**

**Notes:**

51. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to the port and starboard upper ramp sheave grease fittings (2), the port and starboard lower ramp sheave grease fittings (2), the port and starboard hydraulic battening devices (2 port side, 2 starboard side, with 5 grease fittings on each hydraulic battening device), the end flap hinge grease fittings (6), and the main hinge grease fittings (10).
  
52. Use a brush to apply general purpose grease to the port and starboard locking bar threads.

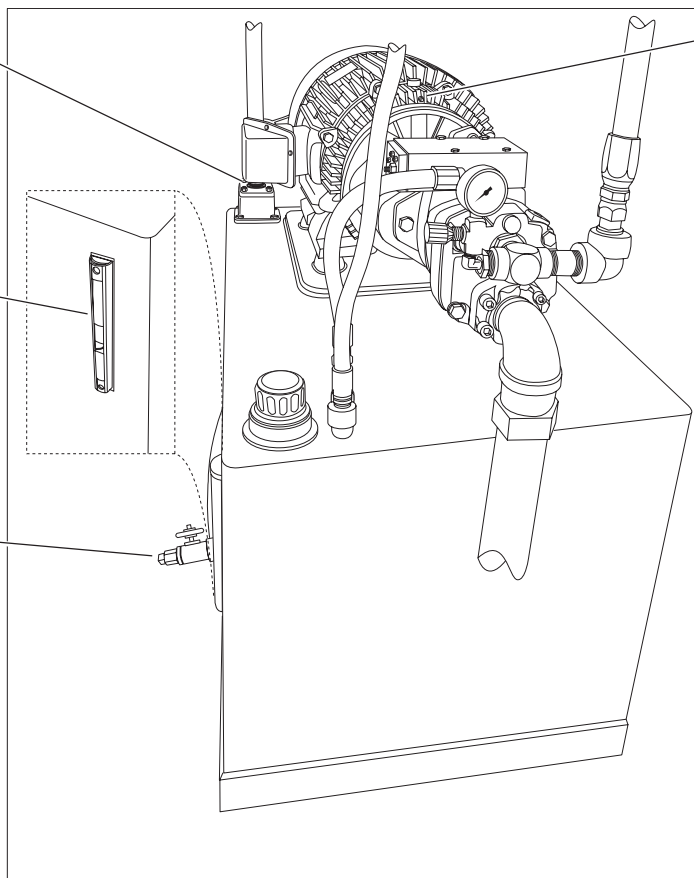
**LUBRICANT • INTERVAL**

**INTERVAL • LUBRICANT**

**D**  
Filter Condition Indicator  
(Check if Gauge is in the Green)  
(See Note 53)  
(C)

**D**  
OE/HDO-10 Sight Glass  
(Check Level)  
(See Note 54)  
(C)

**OC**  
**36**  
**Months**  
Reservoir Drain  
(Drain/Fill)  
(See Note 55)  
(O)



**M**  
GGP  
Bow Anchor  
Electric Motor  
Grease Fitting (1)  
(Grease)  
(See Note 56)  
(C)

**BOW RAMP POWER PACK**

**TOTAL TASK-HOURS\***

| INTERVAL | TASK-HOURS | INTERVAL | TASK-HOURS |
|----------|------------|----------|------------|
| D        | 0.1        | M        | 0.2        |
| OC       | 2.5        |          |            |

**-KEY-**

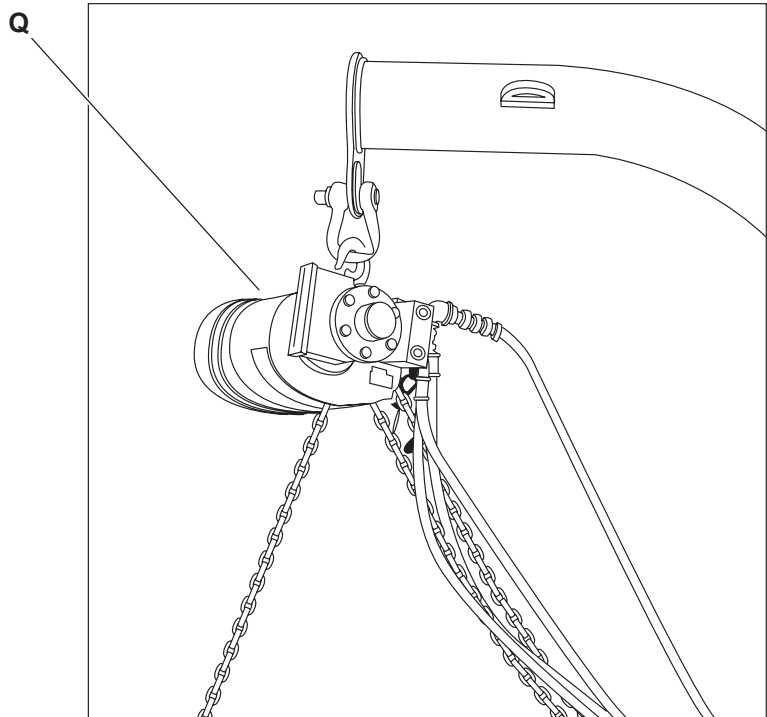
| LUBRICANTS                                                 | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS                                        |
|------------------------------------------------------------|-------------|-------------------------|--------------------------------------------------|
|                                                            |             | ALL TEMPERATURES        |                                                  |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139)        | As Required | Grease, General Purpose | D-Daily<br>M-Monthly<br>OC-On Condition (Months) |
| OE/HDO-10 (81349) (M2104-3-10W)<br>Lubricating Oil, Engine | 150 Gallons | Lubricating Oil, Engine |                                                  |

**BOW RAMP POWER PACK (continued)****Notes:**

53. Check the filter condition indicator to ensure it does not indicate red. Notify the maintenance supervisor if the filter condition indicator indicates a red condition. The filter condition indicator is installed only on LSVs 1 through 5.
54. Check the engine lubricating oil level sight glasses for the bow ramp winch reservoir and the bow ramp anchor windlass reservoir. The sight glass level should be 3/4 full. Add engine lubricating oil as required. The bow ramp winch and anchor windlass reservoirs are located in the hydraulic machinery room on the mezzanine deck for LSVs 1 through 5 and in the bow thruster room for LSV 6.
55. Place a suitable drain pan under the reservoir drain for the bow ramp winch reservoir and the bow ramp anchor windlass reservoir and drain the engine lubricating oil into the suitable drain pan. Remove the inspection covers from each reservoir and replace the strainers located inside of each reservoir. Install the inspection covers and fill each reservoir with engine lubricating oil until the level on each reservoir sight glass is 3/4 full. Operate the bow anchor windlass and the bow ramp. Check the reservoir sight glasses for the proper level. Add engine lubricating oil as required. The bow ramp winch and anchor windlass reservoirs are located in the hydraulic machinery room on the mezzanine deck for LSVs 1 through 5 and in the bow thruster room for LSV 6.
56. Use a handheld lubrication gun and apply one to two strokes of general purpose grease to the bow ramp winch electric motor bearing (1) and the bow anchor windlass electric motor bearing (1). The bow ramp winch and anchor windlass electric motors are located in the hydraulic machinery room on the mezzanine deck for LSVs 1 through 5 and in the bow thruster room for LSV 6.

**LUBRICANT • INTERVAL**

OE/HDO-10  
Gear Casing  
(Check Level)  
(See Note 57)  
(C)



**GANGWAY AIR HOIST**

| TOTAL TASK-HOURS* |            |
|-------------------|------------|
| INTERVAL          | TASK-HOURS |
| Q                 | 0.2        |

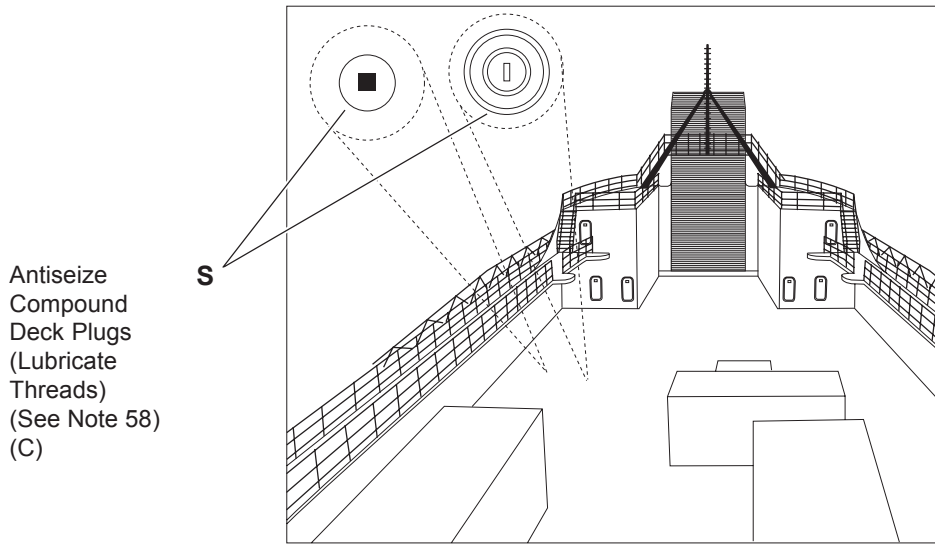
**-KEY-**

| LUBRICANTS                                                    | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS              |
|---------------------------------------------------------------|-------------|-------------------------|------------------------|
|                                                               |             | ALL TEMPERATURES        |                        |
| OE/HDO-10 (81349)<br>(M2104-3-10W)<br>Lubricating Oil, Engine | As Required | Lubricating Oil, Engine | Q-Quarterly (3 months) |

**Notes:**

- 57. Remove the recessed screw on top of the gangway air hoist. Check the engine lubricating oil level. The oil level should be at the bottom of the plug. Add engine lubricating oil as required and install the recessed screw.

LUBRICANT • INTERVAL



S  
Antiseize  
Compound  
Deck Plugs  
(Lubricate  
Threads)  
(See Note 58)  
(C)

DECK PLUGS

| TOTAL TASK-HOURS* |            |
|-------------------|------------|
| INTERVAL          | TASK-HOURS |
| S                 | 1.0        |

-KEY-

| LUBRICANTS                                 | CAPACITY    | EXPECTED TEMPERATURES | INTERVALS                 |
|--------------------------------------------|-------------|-----------------------|---------------------------|
|                                            |             | ALL TEMPERATURES      |                           |
| Antiseize Compound<br>(26916) (034-000750) | As Required | Antiseize Compound    | S-Semiannually (6 Months) |

Notes:

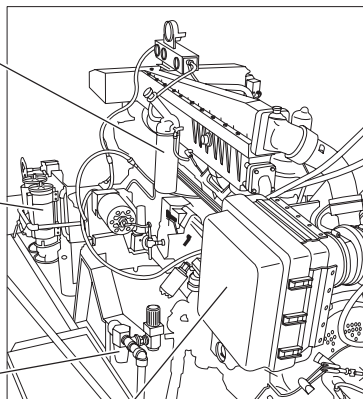
58. Remove all sounding tube and reach rod deck plugs. Remove corrosion from the threads of the deck plugs. Apply antiseize compound to the threads of each deck plug and install them in the deck.

**LUBRICANT • INTERVAL**

**INTERVAL • LUBRICANT**

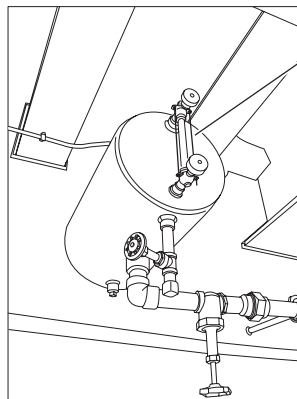
FO  
Fuel Filter  
(Change)  
(See Note 59)  
(C)

**OC**  
**500**  
**Hrs**



FO  
Fuel Filter/  
Water  
Separator  
(Check Bowl)  
(See Note 60)  
(C)

**OC**  
**250**  
**Hrs**



**D**

Expansion Tank  
Sight Glass  
(Check Level)  
(See Note 64)  
(C)

OE/HDO-40  
Moisture  
Separator  
(Drain)  
(See Note 61)  
(C)

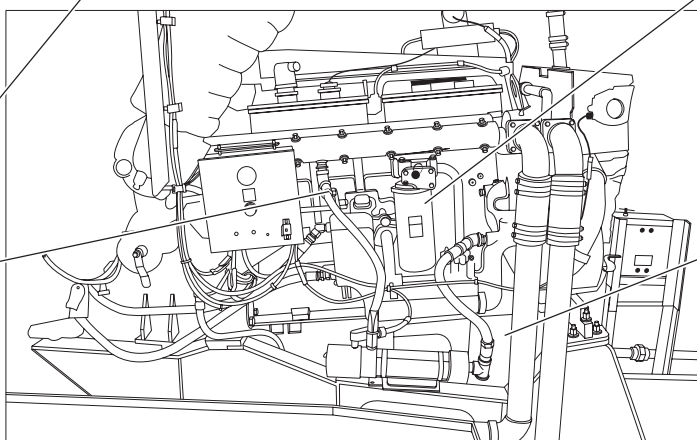
**D**

**OC**  
**250**  
**Hrs**

OE/HDO-40  
Oil Filter  
(Change)  
(See Note 62)  
(C)

Air Filter  
(Change)  
(See Note 62)  
(C)

**OC**  
**250**  
**Hrs**



**OC**

Crankcase  
(Drain/Fill)  
(See Notes  
65 and 66)  
(O)

OE/HDO-40  
Crankcase  
Oil Dipstick  
(Check Level)  
(See Note 63)  
(C)

**D**

**BOW THRUSTER ENGINE**

**TOTAL TASK-HOURS\***

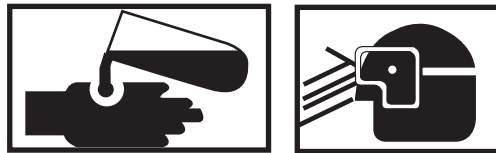
| INTERVAL | TASK-HOURS | INTERVAL | TASK-HOURS |
|----------|------------|----------|------------|
| D        | 0.3        | OC       | 4.0        |

**-KEY-**

| LUBRICANTS                                                                          | CAPACITY    | EXPECTED TEMPERATURES                   | INTERVALS                          |
|-------------------------------------------------------------------------------------|-------------|-----------------------------------------|------------------------------------|
|                                                                                     |             | ALL TEMPERATURES                        |                                    |
| OE/HDO-40 (81349)<br>(MIL-PRF-2104) (SAE 40)<br>Lubricating Oil, Engine<br>Fuel Oil | As Required | Lubricating Oil, Engine<br><br>Fuel Oil | D-Daily<br>OC-On Condition (Hours) |

**BOW THRUSTER ENGINE (continued)****Notes:**

59. Change the fuel filter every 500 hours of operation.
60. Check the fuel filter/water separator bowls for the presence of water. Drain any water from the fuel filter/water separator bowls. Clean the fuel filter/water separators at 250 hours of operation.
61. Remove water from the air start system moisture separator and add lubricating oil as required.
62. Change the air filter and oil filter every 250 hours of operation.
63. Check the oil level in the bow thruster crankcase. The oil level should be between the add and full marks on the dipstick. Add lubricating oil as required.

**WARNING**

**Coolant reservoir and lines may be under pressure, especially after operating. Relieve pressure by operating the appropriate control valve if possible. Loosen cap or fittings on lines slowly. Allow coolant to run around threads of cap or fittings, releasing pressure before disconnecting cap or fittings. Releasing pressurized coolant suddenly may cause severe personal injury.**

**Do not allow coolant to come in contact with unprotected skin or eyes. Prolonged skin contact can cause illness or injury. Eye contact can cause serious injury. Always wear chemical protective gloves and goggles when handling coolant. Failure to follow these precautions can result in illness or serious injury.**

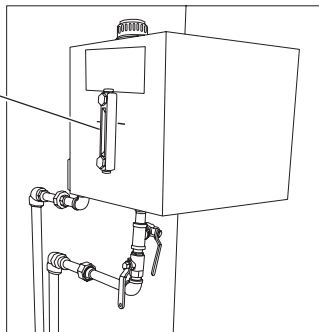
64. Check the expansion tank sight glass for the proper level of coolant. The level should be halfway on the expansion tank sight glass. Add coolant as required.
65. A sample of oil shall be sent to an Army Oil Analysis Program (AOAP) laboratory for analysis at an interval of 100 hours or 90 days for Active Army and 50 hours or 180 days for USAR/NG. Refer to TB 43-0211 for sampling requirements.
66. When AOAP laboratory support is not available, drain and refill the crankcase at 250 hours or 6 months.



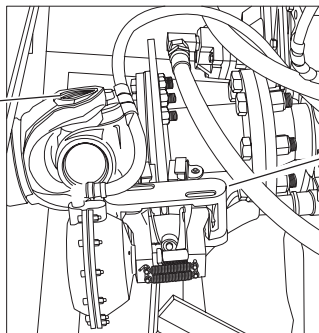
LUBRICANT • INTERVAL

INTERVAL • LUBRICANT

Shell Omala 150 **D**  
Bow Thruster  
Reservoir  
(Check Level)  
(See Note 67)  
(C)



GGP **W**  
Bow Thruster  
Drive Shaft  
Universal Joint  
Grease Fittings (2)  
(Grease)  
(See Note 68)  
(C)



**W** GGP  
Pneumatic Brake  
Actuator Grease  
Fittings (2)  
(Grease)  
(See Note 69)  
(C)

**BOW THRUSTER DRIVE SHAFT AND BRAKE**

| TOTAL TASK-HOURS* |            |          |            |
|-------------------|------------|----------|------------|
| INTERVAL          | TASK-HOURS | INTERVAL | TASK-HOURS |
| D                 | 0.1        | W        | 0.2        |

**-KEY-**

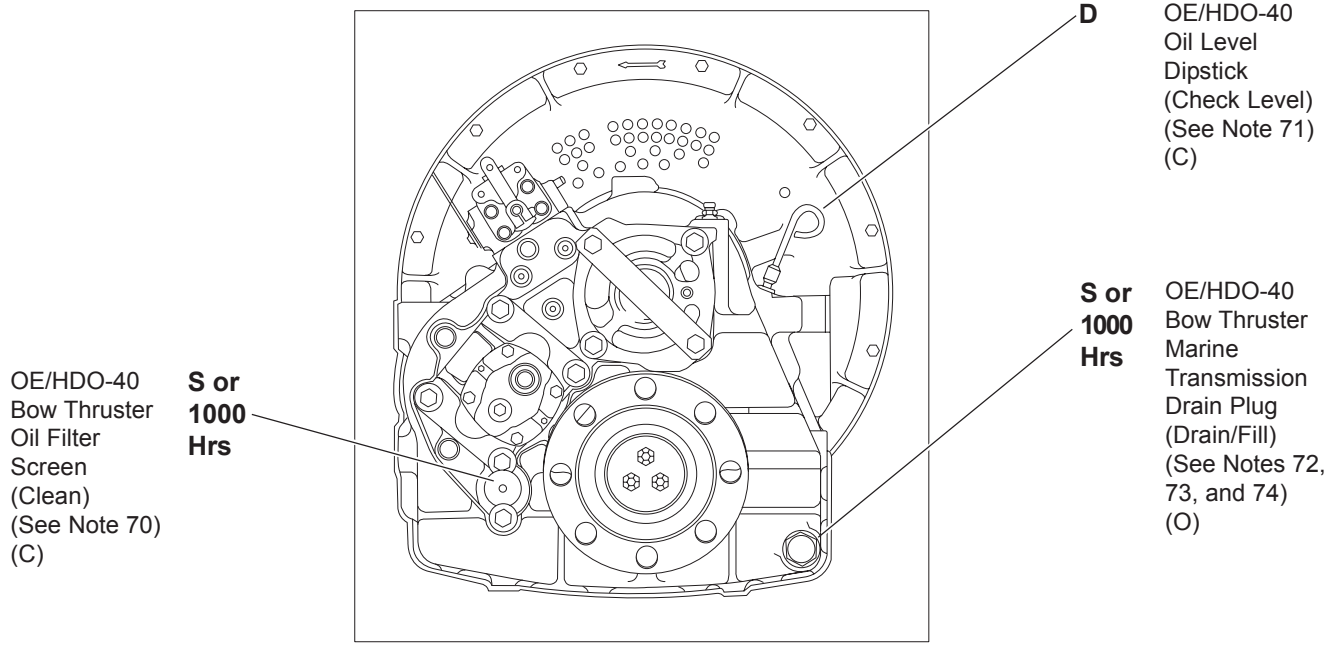
| LUBRICANTS                                          | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS |
|-----------------------------------------------------|-------------|-------------------------|-----------|
|                                                     |             | ALL TEMPERATURES        |           |
| Shell Omala 150 or Equivalent                       | 12 Gallons  | Oil, Lubricating        | D-Daily   |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139) | As Required | Grease, General Purpose | W-Weekly  |

**Notes:**

- 67. Check the oil level in the bow thruster reservoir. The oil level should be 3/4 full on the sight glass. Add Shell Omala 150 lubricating oil as required.
- 68. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to the bow thruster drive shaft universal joint grease fittings (2). The proper amount of grease is achieved when grease begins to come out of the cup seals.
- 69. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to the pneumatic brake actuator grease fittings (2).

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT



OE/HDO-40  
Bow Thruster  
Oil Filter  
Screen  
(Clean)  
(See Note 70)  
(C)

**S or  
1000  
Hrs**

**S or  
1000  
Hrs**

**D** OE/HDO-40  
Oil Level  
Dipstick  
(Check Level)  
(See Note 71)  
(C)

OE/HDO-40  
Bow Thruster  
Marine  
Transmission  
Drain Plug  
(Drain/Fill)  
(See Notes 72,  
73, and 74)  
(O)

**BOW THRUSTER MARINE TRANSMISSION**

| TOTAL TASK-HOURS* |            |               |            |
|-------------------|------------|---------------|------------|
| INTERVAL          | TASK-HOURS | INTERVAL      | TASK-HOURS |
| D                 | 0.1        | S or 1000 Hrs | 1.5        |

**-KEY-**

| LUBRICANTS                                                      | CAPACITY     | EXPECTED TEMPERATURES   | INTERVALS                            |
|-----------------------------------------------------------------|--------------|-------------------------|--------------------------------------|
|                                                                 |              | ALL TEMPERATURES        |                                      |
| OE/HDO-40 (MIL-PRF-2104)<br>(SAE 40) Lubricating Oil,<br>Engine | 2.70 Gallons | Lubricating Oil, Engine | D-Daily<br>S-Semiannually (6 Months) |

**Notes:**

70. Clean the bow thruster marine transmission oil filter screen every 1000 hours or semiannually, whichever occurs first.
71. Check the bow thruster marine transmission oil level. The oil level should be between the add and full marks on the dipstick. Add lubricating oil as required.
72. Place a suitable drain pan under the bow thruster marine transmission. Remove the bow thruster marine transmission drain plug and drain the lubricating oil into the suitable drain pan. Install the bow thruster marine transmission drain plug and fill with 2.70 gallons of lubricating oil. Operate the bow thruster marine transmission and check the oil level. Add lubricating oil as required.
73. A sample of oil shall be sent to an Army Oil Analysis Program (AOAP) laboratory for analysis at an interval of 100 hours or 90 days for Active Army and 50 hours or 180 days for USAR/NG. Refer to TB 43-0211 for sampling requirements.
74. When AOAP laboratory support is not available, drain and refill the crankcase at 250 hours or 6 months.

**LUBRICANT • INTERVAL**

**INTERVAL • LUBRICANT**

Shell Tellus 32  
Headstock Oil  
System Sight  
Glasses  
(Check Level)  
(See Note 75)  
(C)

**W**

GGP  
Change Gears  
Grease Fittings (3)  
(Grease)  
(See Note 76)  
(C)

**W**

Shell Tellus 32  
Headstock Oil  
Points (3)  
(Oil)  
(See Notes 77  
and 78)  
(C)

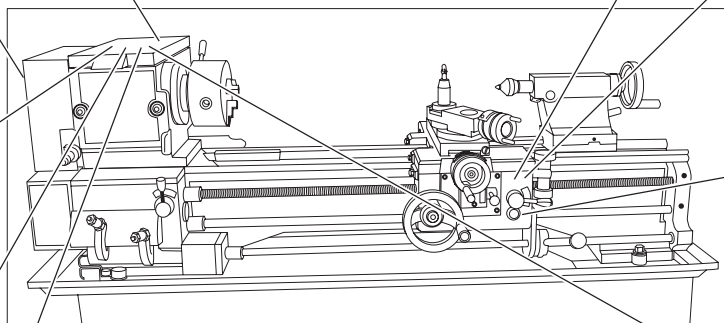
**W**

GGP  
Headstock  
Grease Fittings (2)  
(Grease)  
(See Note 79)  
(C)

**W**

GGP  
Headstock Gears  
and Drive Shaft  
Grease Fittings (2)  
(Grease)  
(See Note 79)  
(C)

**W**



**LATHE**

Shell Tellus 32  
Carriage Oil  
System  
(Check Level)  
(See Note 80)  
(C)

**W**

Shell Tellus 32  
Carriage Oil  
Points  
(Oil)  
(See Notes 77  
and 81)  
(C)

**D**

Shell Tellus 32  
Carriage Drain  
Plug  
(Drain/Fill)  
(See Note 82)  
(C)

**S**

Shell Tellus 32  
Headstock  
Drain Plug  
(Drain/Fill)  
(See Note 82)  
(C)

**S**

**TOTAL TASK-HOURS\***

| INTERVAL | TASK-HOURS | INTERVAL | TASK-HOURS |
|----------|------------|----------|------------|
| D        | 0.5        | W        | 0.5        |
| S        | 1.0        |          |            |

**-KEY-**

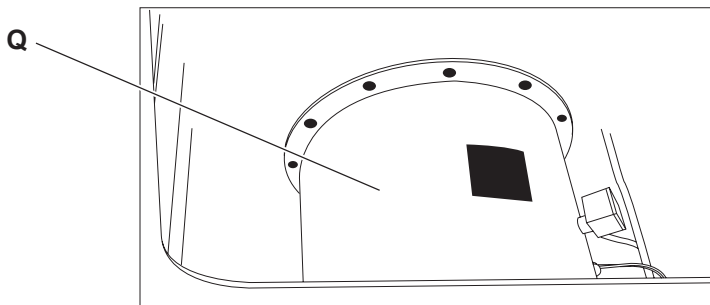
| LUBRICANTS                                                                             | CAPACITY    | EXPECTED TEMPERATURES                          | INTERVALS                                        |
|----------------------------------------------------------------------------------------|-------------|------------------------------------------------|--------------------------------------------------|
|                                                                                        |             | ALL TEMPERATURES                               |                                                  |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139)<br>Shell Tellus 32 Lubricating Oil | As Required | Grease, General Purpose<br><br>Lubricating Oil | D-Daily<br>W-Weekly<br>S-Semiannually (6 Months) |

**LATHE (continued)****Notes:**

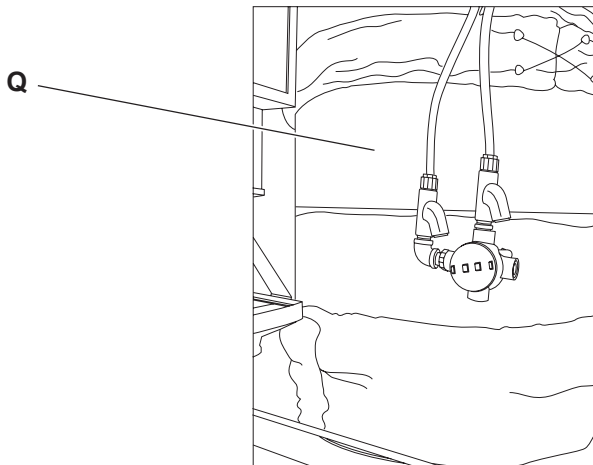
75. Remove the headstock cover. Check the lubricating oil level in the sight glasses. The sight glasses are located on the front of the headstock housing in line with each bearing. Add lubricating oil as required.
76. Open the change gear access cover located at the end of the headstock. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to the change gear grease fittings (3). Apply a light coating of general purpose grease to the exposed teeth of the change gears. Close the change gear access cover.
77. All oiling points on the lathe consist of ball seal spring-loaded type fittings.
78. Remove the headstock cover and the plastic caps from the fill holes. Use an oil can and apply lubricating oil to the headstock oil points (3). Lubricating oil is added to the fill holes located directly above the two separate bearings. The front bearing oil hole is visible on the top of the headstock housing. The rear bearing oil hole is only visible after the headstock cover has been removed. The fill holes are covered with plastic caps that must be kept in place when not adding lubricating oil. Install the plastic caps and the headstock cover.
79. Remove the headstock cover. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to the headstock grease fittings (2) and the headstock gears and drive shaft grease fittings (2). Install the cover.
80. Check the lubricating oil level in the carriage oil system. Add lubricating oil as required.
81. Use an oil can and apply lubricating oil to the oil fittings in the carriage, the compound rest and ways, the lead screw and half nut, the quick change gear box, and the tailstock. Apply general purpose grease to the the half nut and the carriage cross travel worm gear every other week.
82. Place a suitable drain pan under the carriage and headstock. Remove the drain plugs in the carriage and headstock and allow each to drain into the suitable drain pan. Install the drain plugs in the carriage and headstock. Fill the carriage and headstock with lubricating oil.

**LUBRICANT • INTERVAL**

GGP  
 Engine Room  
 Exhaust Fan  
 Electric Motor  
 Bearings  
 (Grease)  
 (See Note 83)  
 (C)



GGP  
 Engine Room  
 Supply Fan  
 Electric Motor  
 Bearings  
 (Grease)  
 (See Note 84)  
 (C)



**ENGINE ROOM VENTILATION**

| TOTAL TASK-HOURS* |            |
|-------------------|------------|
| INTERVAL          | TASK-HOURS |
| Q                 | 0.4        |

**-KEY-**

| LUBRICANTS                                          | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS              |
|-----------------------------------------------------|-------------|-------------------------|------------------------|
|                                                     |             | ALL TEMPERATURES        |                        |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139) | As Required | Grease, General Purpose | Q-Quarterly (3 Months) |

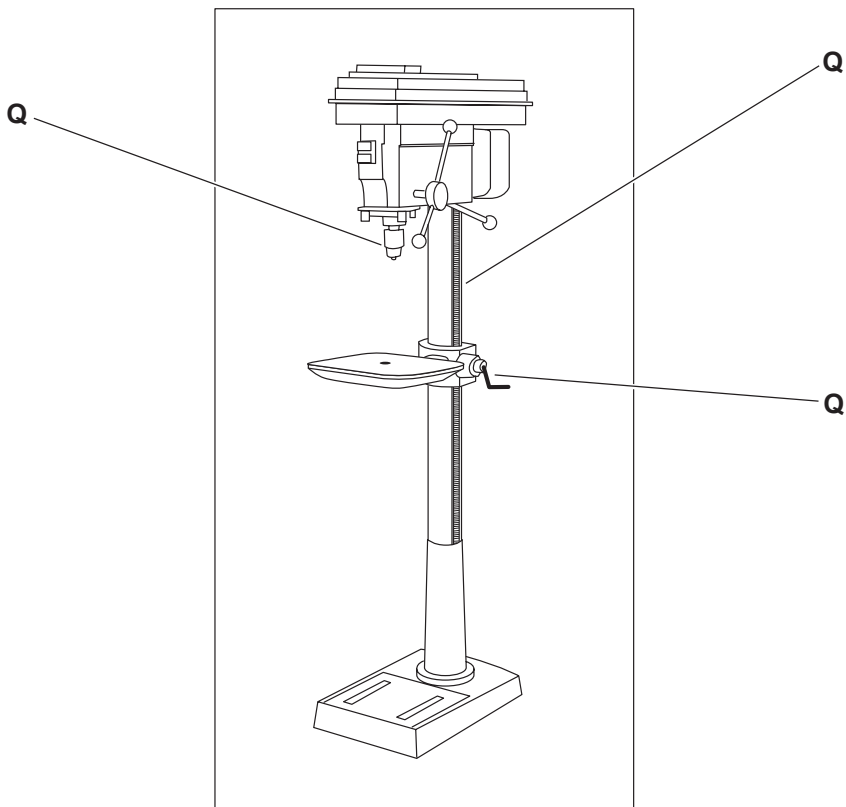
**Notes:**

- 83. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to the bearings of each engine room exhaust fan electric motor. The grease fittings (2 per fan) are located on each stack at the 04 level.
- 84. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to the bearings of each engine room supply fan electric motor. The starboard engine room supply fan grease fittings (2 per fan) are located in the machine shop. The port engine room supply fan grease fittings are located in the armory.

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT

GGP  
Quill  
(Lubricate)  
(See Note 85)  
(C)



GGP  
Slide Bar  
(Lubricate)  
(See Note 85)  
(C)

GGP  
Table Crank  
(Lubricate)  
(See Note 85)  
(C)

**DRILL PRESS**

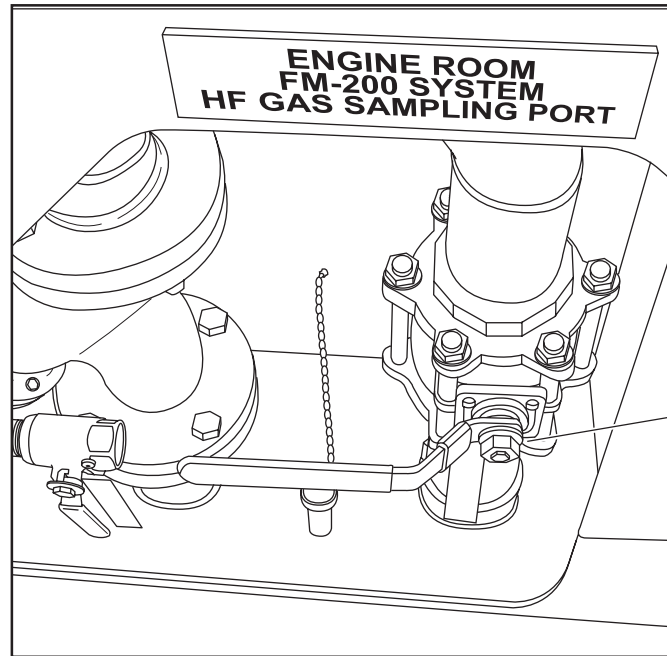
| TOTAL TASK-HOURS* |            |
|-------------------|------------|
| INTERVAL          | TASK-HOURS |
| Q                 | 0.5        |

**-KEY-**

| LUBRICANTS                                          | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS              |
|-----------------------------------------------------|-------------|-------------------------|------------------------|
|                                                     |             | ALL TEMPERATURES        |                        |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139) | As Required | Grease, General Purpose | Q-Quarterly (3 months) |

**Notes:**

85. Use a brush to apply general purpose grease to the drill press quill, slide bar, and table crank.



M GGP  
FM-200 Water  
Washdown Valve  
(See Note 86)  
(C)

**FM-200 WATER WASHDOWN VALVE**

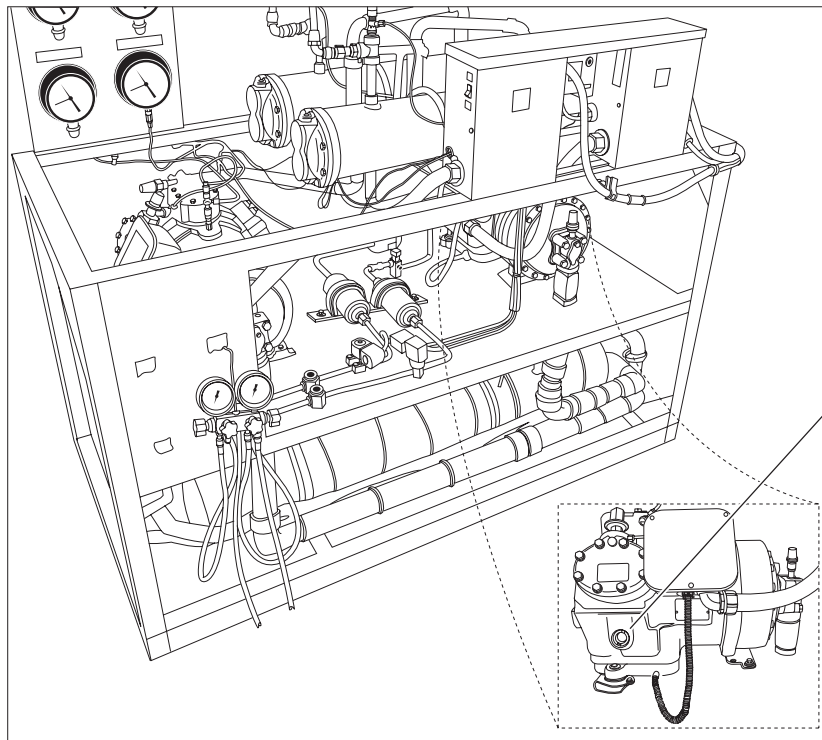
| TOTAL TASK-HOURS* |            |
|-------------------|------------|
| INTERVAL          | TASK-HOURS |
| M                 | 0.2        |

**-KEY-**

| LUBRICANTS                                          | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS |
|-----------------------------------------------------|-------------|-------------------------|-----------|
|                                                     |             | ALL TEMPERATURES        |           |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139) | As Required | Grease, General Purpose | M-Monthly |

**Notes:**

86. Lubricate the FM-200 water washdown valve as required.



D  
 RCO-4  
 Oil Level  
 Sight Glass  
 (Check Level)  
 (See Note 87)  
 (C)

**AIR CONDITIONER COMPRESSOR**

| TOTAL TASK-HOURS* |            |
|-------------------|------------|
| INTERVAL          | TASK-HOURS |
| D                 | 0.1        |

**-KEY-**

| LUBRICANTS                                                            | CAPACITY    | EXPECTED TEMPERATURES                  | INTERVALS |
|-----------------------------------------------------------------------|-------------|----------------------------------------|-----------|
|                                                                       |             | ALL TEMPERATURES                       |           |
| RCO-4 (81348) (VV-L-825)<br>Oil, Compressor Refrigeration,<br>Type IV | As Required | Oil, Compressor Refrigeration, Type IV | D-Daily   |

**Notes:**

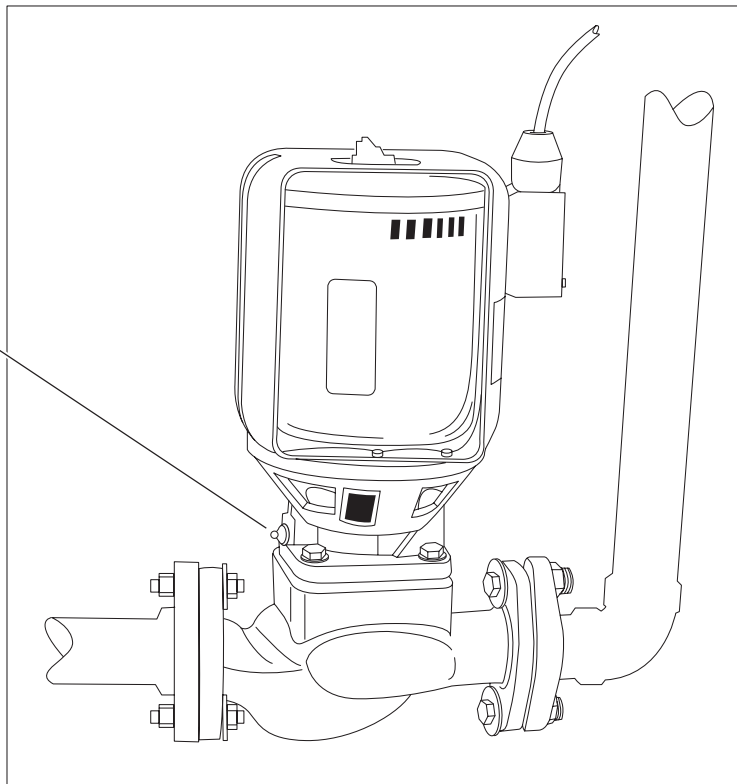
87. Check all air conditioner compressor sight glasses after the compressors have run for approximately 10 minutes. The compressor refrigeration oil level should be at the halfway point in the sight glass. Notify the maintenance supervisor if the compressor refrigeration oil level is above or below the halfway point in the sight glass.



LUBRICANT • INTERVAL

OE/HDO-30  
Hot Water  
Circulating Pump  
Oil Pump  
(Check Level)  
(See Note 88)  
(C)

A



**HOT WATER CIRCULATING PUMP**

| TOTAL TASK-HOURS* |            |
|-------------------|------------|
| INTERVAL          | TASK-HOURS |
| A                 | 0.2        |

**-KEY-**

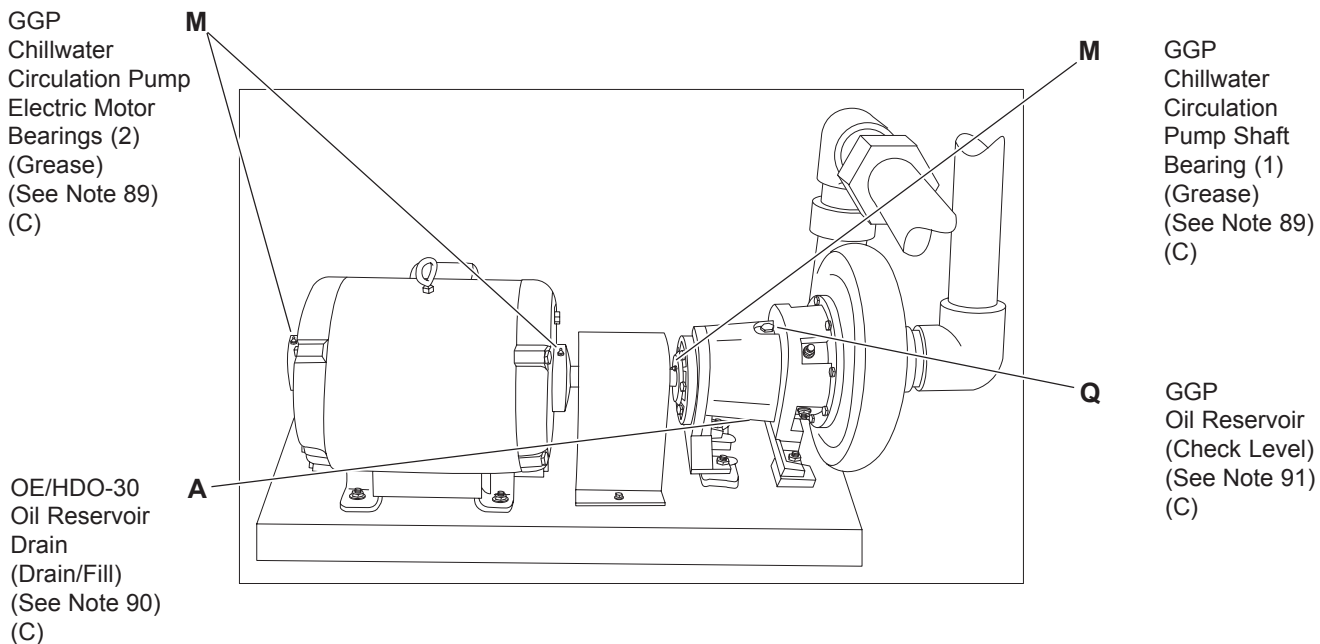
| LUBRICANTS                                                    | CAPACITY  | EXPECTED TEMPERATURES   | INTERVALS              |
|---------------------------------------------------------------|-----------|-------------------------|------------------------|
|                                                               |           | ALL TEMPERATURES        |                        |
| OE/HDO-30 (81349)<br>(M2104-3-30W)<br>Lubricating Oil, Engine | 0.5 Ounce | Lubricating Oil, Engine | A-Annually (12 Months) |

**Notes:**

88. Check the hot water circulating pump oil cup lubricating oil. The oil level should be visible at the oil cup opening. Add lubricating oil as required.

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT



**CHILLWATER CIRCULATION PUMP**

**TOTAL TASK-HOURS\***

| INTERVAL | TASK-HOURS | INTERVAL | TASK-HOURS |
|----------|------------|----------|------------|
| M        | 0.1        | Q        | 0.2        |
| A        | 0.8        |          |            |

**-KEY-**

| LUBRICANTS                                                                                                        | CAPACITY    | EXPECTED TEMPERATURES                                  | INTERVALS                                                     |
|-------------------------------------------------------------------------------------------------------------------|-------------|--------------------------------------------------------|---------------------------------------------------------------|
|                                                                                                                   |             | ALL TEMPERATURES                                       |                                                               |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139)<br>OE/HDO-30 (81349) (M2104-3-30W)<br>Lubricating Oil, Engine | As Required | Grease, General Purpose<br><br>Lubricating Oil, Engine | M-Monthly<br>Q-Quarterly (3 months)<br>A-Annually (12 months) |

**Notes:**

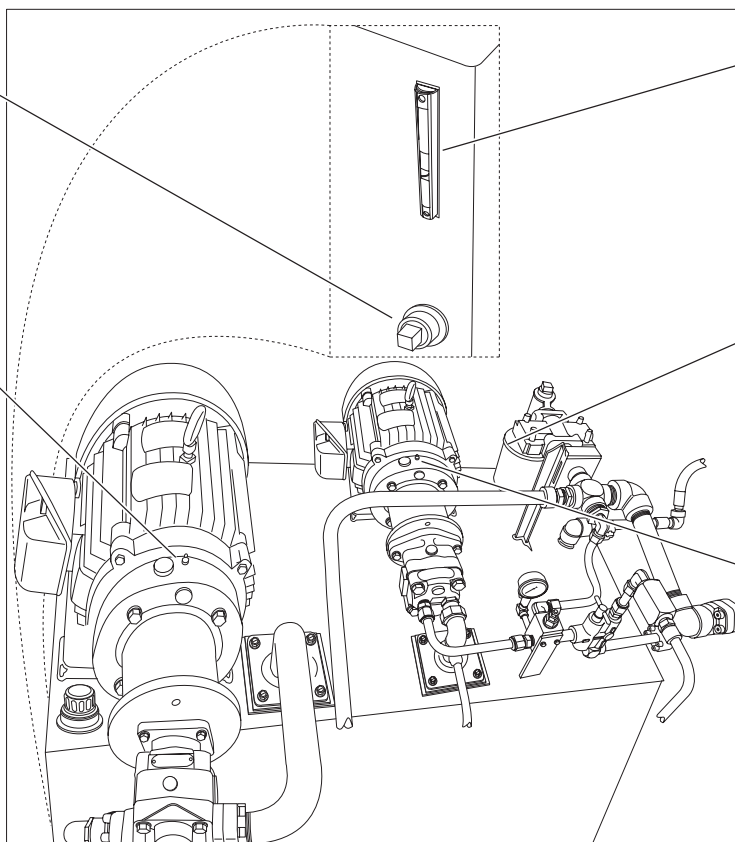
- 89. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to the the chillwater circulation pump electric motor bearings (2) and the chillwater circulation pump shaft bearing (1).
- 90. Drain the chillwater circulation pump oil reservoir and fill with lubricating oil.
- 91. Check the chillwater circulation pump oil reservoir for lubricating oil. Add lubricating oil as required.

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT

OE/HDO-10 **OC**  
 Reservoir  
 Drain  
 (Drain/Fill)  
 (See Note 92)  
 (O)

GGP  
 Stern Anchor  
 Power Pack  
 Electric Motor  
 Grease  
 Fitting (1)  
 (Grease)  
 (See Note 93)  
 (C)



**D** OE/HDO-10  
 Reservoir Sight  
 Glass  
 (Check Level)  
 (See Note 94)  
 (C)

**A** OE/HDO-10  
 Filters  
 (Change)  
 (See Note 95)  
 (C)

**M** GGP  
 Stern Ramp  
 Power Pack  
 Electric Motor  
 Shaft Bearing  
 Grease Fitting (1)  
 (Grease)  
 (See Note 93)  
 (C)

**STERN ANCHOR AND RAMP POWER PACK**

**TOTAL TASK-HOURS\***

| INTERVAL | TASK-HOURS | INTERVAL | TASK-HOURS |
|----------|------------|----------|------------|
| D        | 0.1        | M        | 0.2        |
| A        | 0.2        | OC       | 2.5        |

**-KEY-**

| LUBRICANTS                                                 | CAPACITY                                | EXPECTED TEMPERATURES   | INTERVALS                                             |
|------------------------------------------------------------|-----------------------------------------|-------------------------|-------------------------------------------------------|
|                                                            |                                         | ALL TEMPERATURES        |                                                       |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139)        | As Required                             | Grease, General Purpose | D-Daily<br>M-Monthly                                  |
| OE/HDO-10 (81349) (M2104-3-10W)<br>Lubricating Oil, Engine | 300 Gallons (150 Gallons per Reservoir) | Lubricating Oil, Engine | A-Annually (12 Months)<br>OC-On Condition (36 Months) |

**STERN ANCHOR AND RAMP POWER PACK (continued)**

**Notes:**

92. Place a suitable drain pan under the reservoir drain and drain the lubricating oil into the suitable drain pan. Remove the inspection cover from the reservoir and replace the strainers located inside of the reservoir. Install the inspection cover and fill the reservoir with lubricating oil until the level on the reservoir sight glass is 3/4 full. Operate the stern anchor and ramp power pack. Check the reservoir sight glass for the proper level. Add lubricating oil as required.
93. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to the stern anchor and stern ramp power pack electric motor shaft bearings grease fittings (1 each).
94. Check the lubricating oil level in the sight glass for the stern anchor and ramp power pack reservoir. The sight glass level should be 3/4 full. Add lubricating oil as required.
95. Change both filters. Lubricate the gasket of each filter with clean lubricating oil and install. Operate the stern anchor and ramp power pack and check the sight glass for the proper level. Add lubricating oil as required.

**LUBRICANT • INTERVAL**

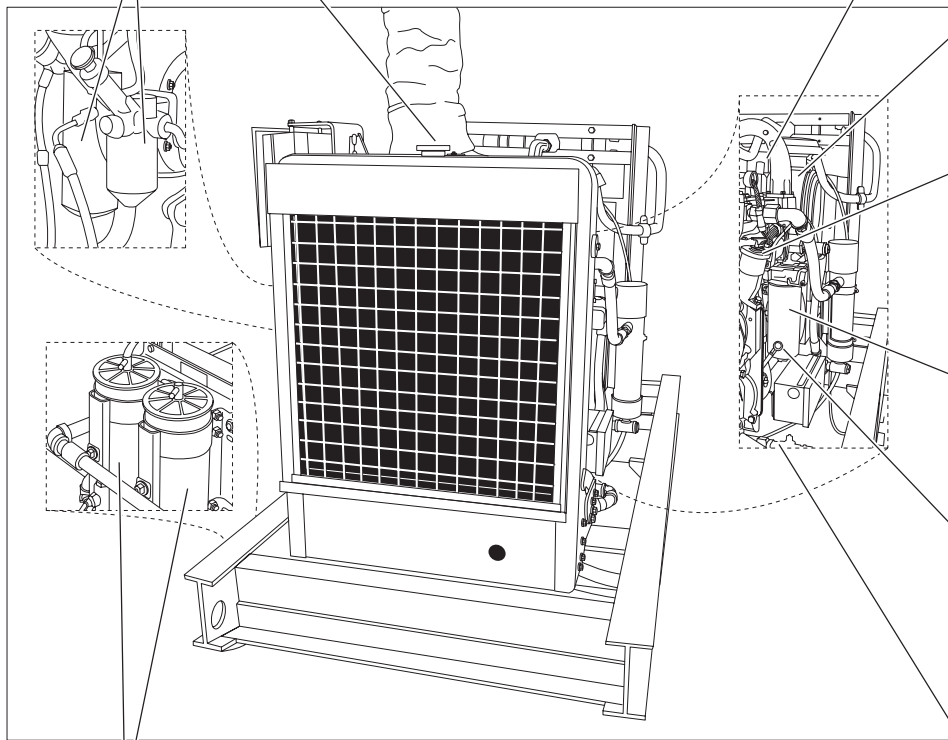
**INTERVAL • LUBRICANT**

Radiator  
(Check Level)  
(See Note 96)  
(C)

**D**

Fuel Filters  
(Change)  
(See Note 97)  
(C)

**OC  
250 Hrs**



**D** Air Filter  
Restriction  
Gauge  
(Check)  
(See Note 99)  
(C)

**OC  
250  
Hrs** Air Filter  
(Change)  
(See Note 97)  
(C)

**OC  
250  
Hrs** OE/HDO-30  
Crankcase Fill  
(Fill)  
(See Notes 100  
and 101)  
(C)

**OC  
250  
Hrs** OE/HDO-30  
Oil Filter  
(Change)  
(See Note 97)  
(C)

**D** OE/HDO-30  
Crankcase Oil  
Level Dipstick  
(Check Level)  
(See Note 102)  
(C)

**OC  
250  
Hrs** OE/HDO-30  
Crankcase Drain  
(Drain)  
(See Notes 100  
and 101)  
(O)

**D,  
OC  
250 Hrs** FO  
Fuel Filter/  
Water Separator  
(Drain/Clean)  
(See Note 98)  
(C)

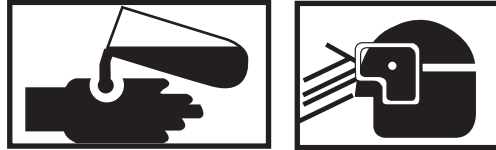
**EMERGENCY GENERATOR**

**TOTAL TASK-HOURS\***

| INTERVAL | TASK-HOURS | INTERVAL | TASK-HOURS |
|----------|------------|----------|------------|
| D        | 0.3        | OC       | 4.0        |

**-KEY-**

| LUBRICANTS                                                                | CAPACITY    | EXPECTED TEMPERATURES                   | INTERVALS                          |
|---------------------------------------------------------------------------|-------------|-----------------------------------------|------------------------------------|
|                                                                           |             | ALL TEMPERATURES                        |                                    |
| OE/HDO-30 (81349)<br>(M2104-3-30W)<br>Lubricating Oil, Engine<br>Fuel Oil | As Required | Lubricating Oil, Engine<br><br>Fuel Oil | D-Daily<br>OC-On Condition (Hours) |

**EMERGENCY GENERATOR (continued)****Notes:****WARNING**

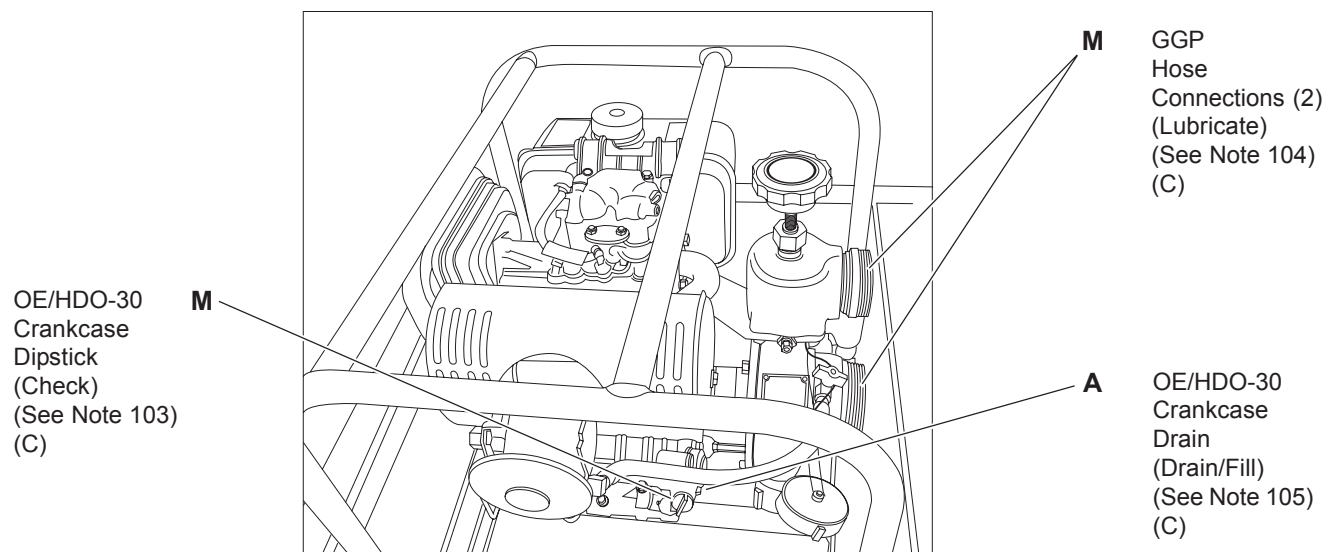
**Coolant reservoir and lines may be under pressure, especially after operating. Relieve pressure by operating the appropriate control valve if possible. Loosen cap or fittings on lines slowly. Allow coolant to run around threads of cap or fittings, releasing pressure before disconnecting cap or fittings. Releasing pressurized coolant suddenly may cause severe personal injury.**

**Do not allow coolant to come in contact with unprotected skin or eyes. Prolonged skin contact can cause illness or injury. Eye contact can cause serious injury. Always wear chemical protective gloves and goggles when handling coolant. Failure to follow these precautions can result in illness or serious injury.**

96. Check the radiator for the proper level of coolant. The coolant should be visible with the radiator cap removed. Add coolant as required.
97. Change the fuel filters, air filter, and oil filter every 250 hours of operation.
98. Daily, check the fuel filter/water separator bowls for the presence of water. Drain any water from the fuel filter/water separator bowls. Clean the fuel filter/water separator at 250 hours of operation.
99. Daily, check the air filter restriction gauge. Change air filter if the air filter restriction gauge is in the RED.
100. A sample of oil shall be sent to an AOAP laboratory for analysis at an interval of 100 hours or 90 days for Active Army and 50 hours or 180 days for USAR/NG. Refer to TB 43-0211 for sampling requirements.
101. When AOAP laboratory support is not available, drain and refill the crankcase at 250 hours or 6 months.
102. Check the oil level in the emergency generator crankcase. The oil level should be between the add and full marks on the dipstick. Add lubricating oil as required.

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT



**P-100 PORTABLE FIREFIGHTING PUMP**

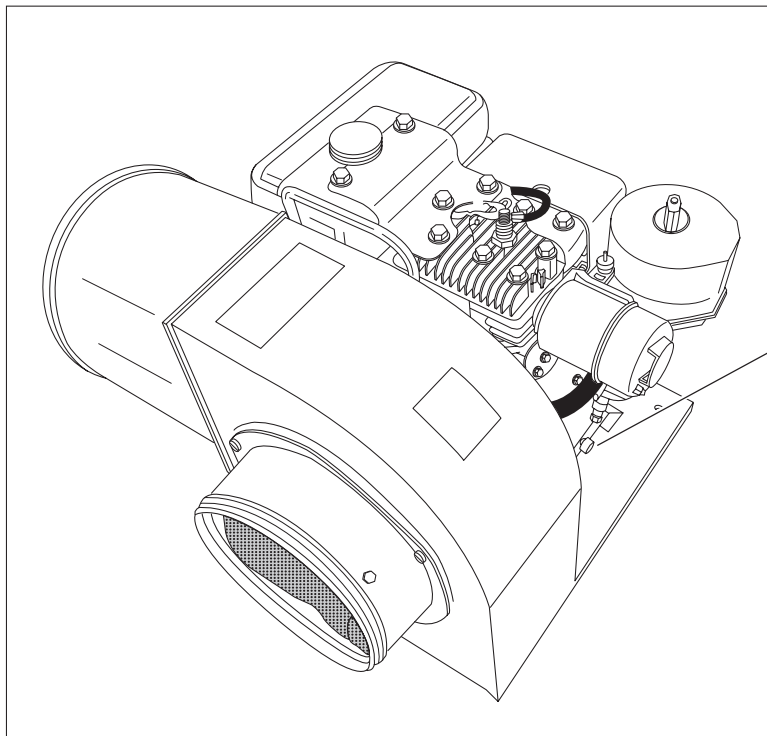
| TOTAL TASK-HOURS* |            |          |            |
|-------------------|------------|----------|------------|
| INTERVAL          | TASK-HOURS | INTERVAL | TASK-HOURS |
| M                 | 0.1        | A        | 1.0        |

**-KEY-**

| LUBRICANTS                                                                                                        | CAPACITY    | EXPECTED TEMPERATURES                                  | INTERVALS                           |
|-------------------------------------------------------------------------------------------------------------------|-------------|--------------------------------------------------------|-------------------------------------|
|                                                                                                                   |             | ALL TEMPERATURES                                       |                                     |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139)<br>OE/HDO-30 (81349) (M2104-3-30W)<br>Lubricating Oil, Engine | As Required | Grease, General Purpose<br><br>Lubricating Oil, Engine | M-Monthly<br>A-Annually (12 months) |

**Notes:**

- 103. Remove the crankcase dipstick and check the crankcase oil level. The oil level should be between the add and full marks on the dipstick. Do not screw the crankcase dipstick back in to check the level. Screwing the crankcase dipstick back in will indicate that the oil level is higher than what it actually is. Add engine lubricating oil as required.
- 104. Use a brush to lightly coat the threads of the hose connections (2) with general purpose grease.
- 105. Place a suitable drain pan under the crankcase drain. Remove the crankcase dipstick. Remove the crankcase drain and drain the engine oil into the suitable drain pan. Install the crankcase drain and fill the crankcase with engine lubricating oil. Check the crankcase oil level often using the instructions in note 103 to avoid overfilling the crankcase.



**A** OE/HDO-30  
Crankcase  
Oil Drain  
(Drain/Fill)  
(See Note 106)  
(C)

**PORTABLE GAS POWERED BLOWERS**

| TOTAL TASK-HOURS* |            |
|-------------------|------------|
| INTERVAL          | TASK-HOURS |
| A                 | 0.2        |

**-KEY-**

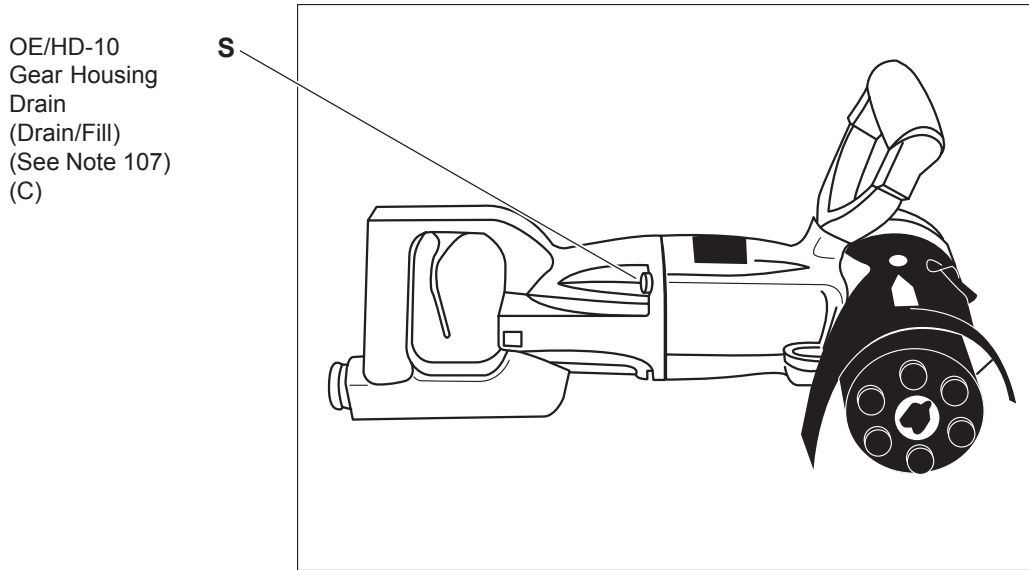
| LUBRICANTS                                                     | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS              |
|----------------------------------------------------------------|-------------|-------------------------|------------------------|
|                                                                |             | ALL TEMPERATURES        |                        |
| OE/HDO-30 (81349)<br>(M2104-3-30W))<br>Lubricating Oil, Engine | As Required | Lubricating Oil, Engine | A-Annually (12 Months) |

**Notes:**

106. Drain the lubricating oil from the crankcase into a suitable drain pan. Fill the crankcase with lubricating oil.



**LUBRICANT • INTERVAL**



**DECK CRAWLER**

| TOTAL TASK-HOURS* |            |
|-------------------|------------|
| INTERVAL          | TASK-HOURS |
| S                 | 0.2        |

**-KEY-**

| LUBRICANTS                                                   | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS                 |
|--------------------------------------------------------------|-------------|-------------------------|---------------------------|
|                                                              |             | ALL TEMPERATURES        |                           |
| OE/HD-10 (81349)<br>(M2104-3-10W)<br>Lubricating Oil, Engine | As Required | Lubricating Oil, Engine | S-Semiannually (6 Months) |

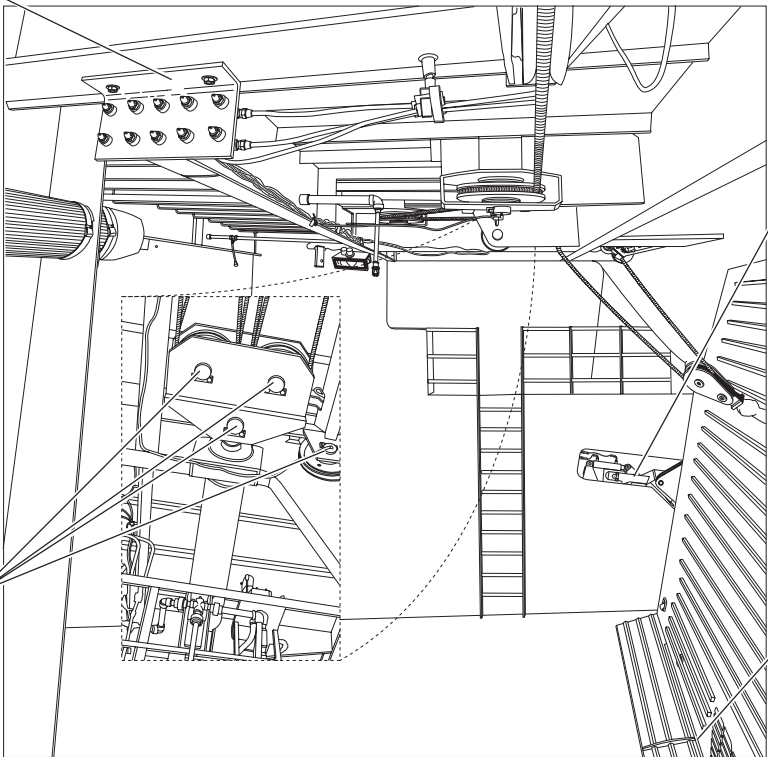
**Notes:**

107. Remove the recessed screw from the side of the deck crawler. Drain the lubricating oil from the gear housing into a suitable drain pan. Fill the gear housing with lubricating oil and install the recessed screw in the side of the deck crawler.

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT

GGP  
Port Sheave  
Assembly  
Grease  
Fittings (8)  
(Grease)  
(See Note 108)  
(C)



M  
GGP  
Hydraulic  
Battening  
Device Grease  
Fittings (5)  
(Lubricate)  
(See Note 109)  
(C)

M  
GGP  
Starboard  
Sheave  
Assembly  
Grease  
Fittings (4)  
(Grease)  
(See Note 108)  
(C)

M  
GGP  
Main Hinge  
Grease  
Fittings (4)  
(Grease)  
(See Note 108)  
(C)

**STERN RAMP**

| TOTAL TASK-HOURS* |            |
|-------------------|------------|
| INTERVAL          | TASK-HOURS |
| M                 | 1.0        |

**-KEY-**

| LUBRICANTS                                          | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS |
|-----------------------------------------------------|-------------|-------------------------|-----------|
|                                                     |             | ALL TEMPERATURES        |           |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139) | As Required | Grease, General Purpose | M-Monthly |

**Notes:**

- 108. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to the stern ramp port sheave assembly grease fittings (8), the starboard sheave assembly grease fittings (4), and the stern ramp main hinge grease fittings (4).
- 109. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to the port hydraulic battening device grease fittings (5) and the starboard hydraulic battening device grease fittings (5).

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT

OE/HDO-30  
Governor Oil  
Level Sight  
Glass  
(Check Level)  
(See Note 110)  
(C)

D

OE/HDO-30  
Governor Oil  
Level Drain  
(Drain/Fill)  
(See Note 111)  
(O)

OC  
4000  
Hrs

FO  
Fuel Filters  
(Change)  
(See Note 112)  
(C)

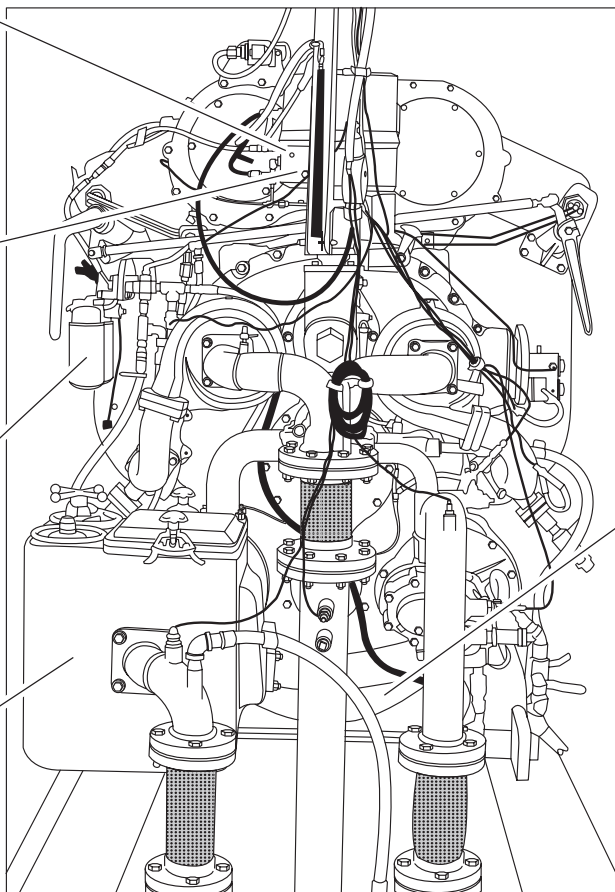
OC  
2000  
Hrs

OE/HDO-30  
Lube Oil  
Strainers  
(Clean)  
(See Note 113)  
(C)

OC  
1400  
Hrs

OC  
250  
Hrs

OE/HDO-30  
Crankcase Oil  
(Drain/Fill)  
(See Notes 114  
and 115)  
(O)



MAIN ENGINE

TOTAL TASK-HOURS\*

| INTERVAL | TASK-HOURS | INTERVAL | TASK-HOURS |
|----------|------------|----------|------------|
| D        | 0.3        | M        | 0.2        |
| OC       | 8.0        |          |            |

-KEY-

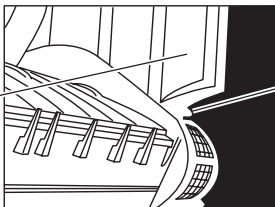
| LUBRICANTS                                                                | CAPACITY    | EXPECTED TEMPERATURES                   | INTERVALS                                       |
|---------------------------------------------------------------------------|-------------|-----------------------------------------|-------------------------------------------------|
|                                                                           |             | ALL TEMPERATURES                        |                                                 |
| OE/HDO-30 (81349)<br>(M2104-3-30W)<br>Lubricating Oil, Engine<br>Fuel Oil | As Required | Lubricating Oil, Engine<br><br>Fuel Oil | D-Daily<br>M-Monthly<br>OC-On Condition (Hours) |

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT

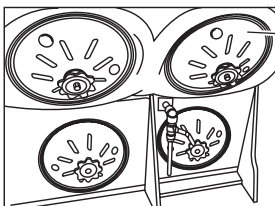
Air Filters  
(Change)  
(See Note 112)  
(C)

**OC**  
**2000**  
**Hrs**



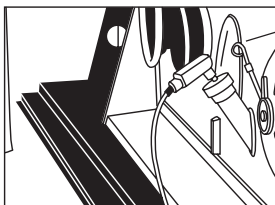
**D**

Air Filter  
Restriction Gauge  
(Check)  
(See Note 118)  
(C)



**OC**  
**2000**  
**Hrs**

Air Box  
(Clean)  
(See Note 112)  
(C)

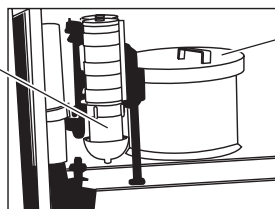


**D**

OE/HDO-30  
Crankcase Oil  
Level  
(Check)  
(See Note 119)  
(C)

FO  
Fuel Filter/  
Water Separator  
(Clean/Drain)  
(See Note 116)  
(C)

**D**

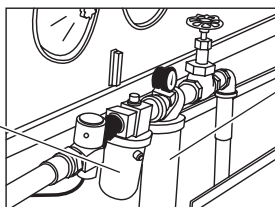


**OC**  
**1400**  
**Hrs**

OE/HDO-30  
Lube Oil Filters  
(Change)  
(See Note 113)  
(C)

Oiler  
(Drain/Fill)  
(See Note 117)  
(C)

**M**



**D**

OE/HDO-30  
Moisture  
Separator  
(Drain)  
(See Note 117)  
(C)

**MAIN ENGINE**

**TOTAL TASK-HOURS\***

| INTERVAL | TASK-HOURS | INTERVAL | TASK-HOURS |
|----------|------------|----------|------------|
| D        | 0.3        | M        | 0.2        |
| OC       | 8.0        |          |            |

**-KEY-**

| LUBRICANTS                                                                | CAPACITY    | EXPECTED TEMPERATURES   |  | INTERVALS                                       |
|---------------------------------------------------------------------------|-------------|-------------------------|--|-------------------------------------------------|
|                                                                           |             | ALL TEMPERATURES        |  |                                                 |
| OE/HDO-30 (81349)<br>(M2104-3-30W)<br>Lubricating Oil, Engine<br>Fuel Oil | As Required | Lubricating Oil, Engine |  | D-Daily<br>M-Monthly<br>OC-On Condition (Hours) |
|                                                                           |             | Fuel Oil                |  |                                                 |

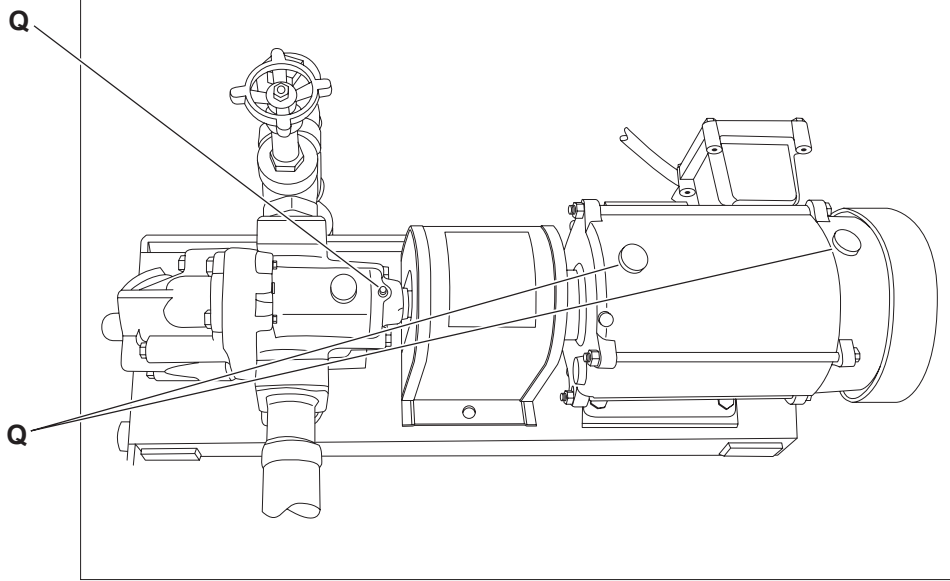
**MAIN ENGINE (continued)**

**Notes:**

110. Check the oil level in the governor sight glass. The oil level should be between the two solid lines (halfway) on the sight glass. Add engine lubricating oil as required.
111. At 4000 hours of operation, drain the engine lubricating oil from each main engine governor and fill with new engine lubricating oil.
112. At 2000 hours of operation, change the fuel filters, air filters, and clean the air boxes on each main engine.
113. At 1400 hours of operation, clean the lube oil strainers and change the lube oil filters on each main engine.
114. A sample of oil shall be sent to an AOAP laboratory for analysis at an interval of 100 hours or 90 days for Active Army and 50 hours or 180 days for USAR/NG. Refer to TB 43-0211 for sampling requirements.
115. When AOAP laboratory support is not available, drain and the refill crankcase at 250 hours or 6 months.
116. Check the fuel filter/water separator bowls for the presence of water. Drain as required.
117. Monthly, drain the oil from the oiler and fill the oiler with new engine lubricating oil. Daily, drain the moisture separator in each main engine starting air system.
118. Check the air filter restriction gauge for each set of air filters on both the port and starboard main engines. Replace air filters when the air filter restriction gauge indicates a RED condition.
119. Check the crankcase oil level on the inboard and outboard side of the port and starboard main engine. Add engine lubricating oil as required.

**LUBRICANT • INTERVAL**

GGP  
Main Engine  
Prelube Pump  
Bearing (1)  
(Grease)  
(See Note 120)  
(C)



GGP  
Main Engine  
Prelube Pump  
Electric Motor  
Bearings (2)  
(Grease)  
(See Note 121)  
(C)

**MAIN ENGINE PRELUBRICATION PUMPS**

| TOTAL TASK-HOURS* |            |
|-------------------|------------|
| INTERVAL          | TASK-HOURS |
| Q                 | 0.1        |

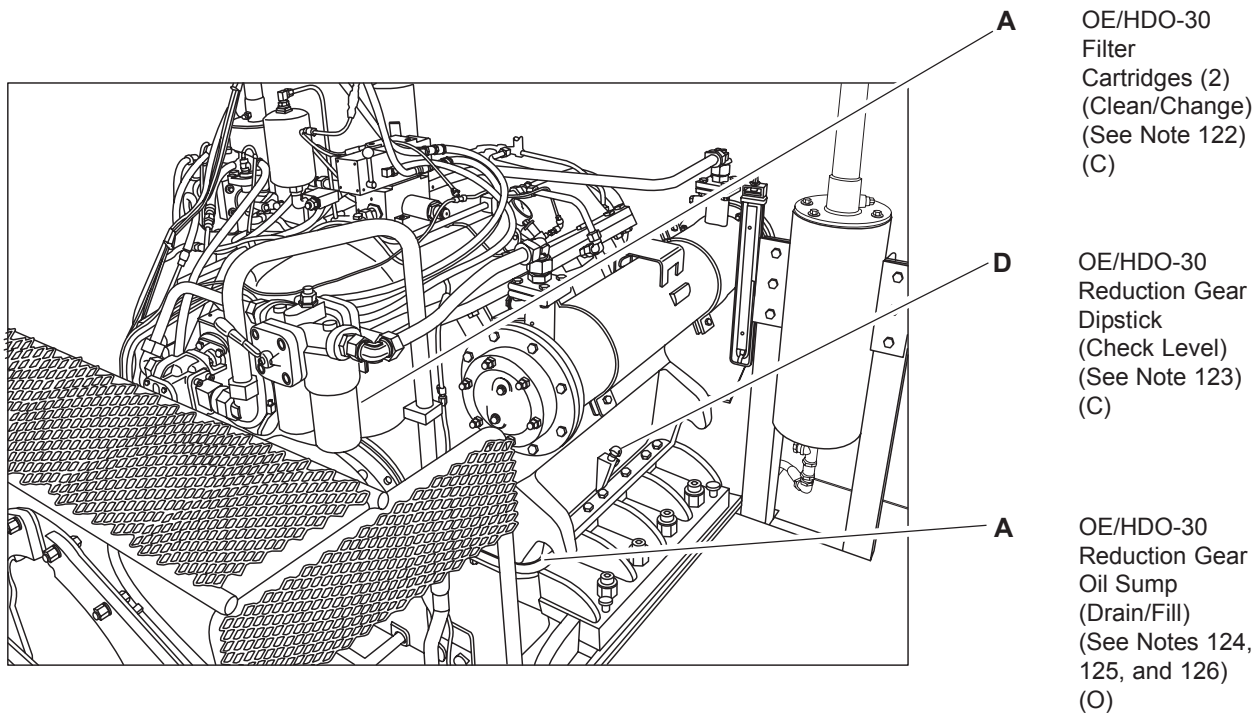
**-KEY-**

| LUBRICANTS                                          | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS              |
|-----------------------------------------------------|-------------|-------------------------|------------------------|
|                                                     |             | ALL TEMPERATURES        |                        |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139) | As Required | Grease, General Purpose | Q-Quarterly (3 Months) |

**Notes:**

- 120. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to the main engine prelubrication pump bearing (1).
- 121. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to the main engine prelubrication pump electric motor bearings (2).

**INTERVAL • LUBRICANT**



**REDUCTION GEAR**

**TOTAL TASK-HOURS\***

| INTERVAL | TASK-HOURS | INTERVAL | TASK-HOURS |
|----------|------------|----------|------------|
| D        | 0.1        | A        | 1.0        |

**-KEY-**

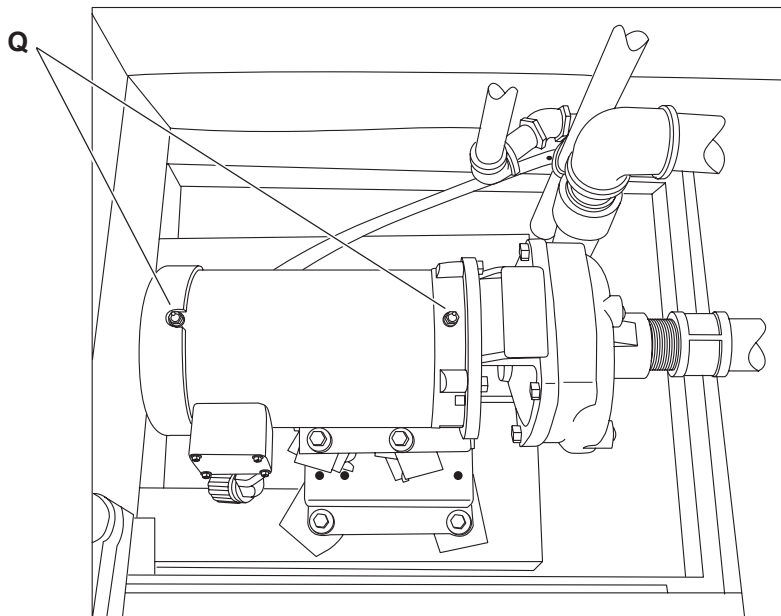
| LUBRICANTS                                                    | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS                         |
|---------------------------------------------------------------|-------------|-------------------------|-----------------------------------|
|                                                               |             | ALL TEMPERATURES        |                                   |
| OE/HDO-30 (81349)<br>(M2104-3-30W)<br>Lubricating Oil, Engine | As Required | Lubricating Oil, Engine | D-Daily<br>A-Annually (12 months) |

**NOTES:**

- 122. Clean and change the filter cartridges (2). After installing, operate the reduction gear, checking for leaks and proper oil level. Add engine lubricating oil as required.
- 123. Check the oil level at the dipstick. Add engine lubricating oil as required.
- 124. Drain the reduction gear oil into the waste oil tank and fill until the oil level reaches the full mark on the level gauge. Zip tie the drain valve in the closed position to prevent accidental draining of the reduction gear.
- 125. Perform oil sampling as directed by the Army Oil Analysis Program (AOAP). A sample of oil shall be sent to the AOAP laboratory for analysis at an interval of 100 hours or 90 days for Active Army and 50 hours or 180 days for USAR/NG. Refer to TB 43-0211 for sampling requirements.
- 126. When AOAP laboratory support is not available, drain and refill the crankcase at 250 hours or 6 months.

**LUBRICANT • INTERVAL**

GGP  
Reduction  
Gear Cooling  
Pump Electric  
Motor  
Bearings (2)  
(Grease)  
(See Note 127)  
(C)



**REDUCTION GEAR COOLING PUMP ELECTRIC MOTORS**

| TOTAL TASK-HOURS* |            |
|-------------------|------------|
| INTERVAL          | TASK-HOURS |
| Q                 | 0.1        |

**-KEY-**

| LUBRICANTS                                          | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS              |
|-----------------------------------------------------|-------------|-------------------------|------------------------|
|                                                     |             | ALL TEMPERATURES        |                        |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139) | As Required | Grease, General Purpose | Q-Quarterly (3 Months) |

**Notes:**

127. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to the reduction gear cooling pump electric motor bearings (2).



LUBRICANT • INTERVAL

INTERVAL • LUBRICANT

FO  
Fuel Filter  
(Change)  
(See Note 128)  
(C)

OC  
500  
Hrs

OE/HDO-30  
Oil Filter  
(Change)  
(See Note 129)  
(C)

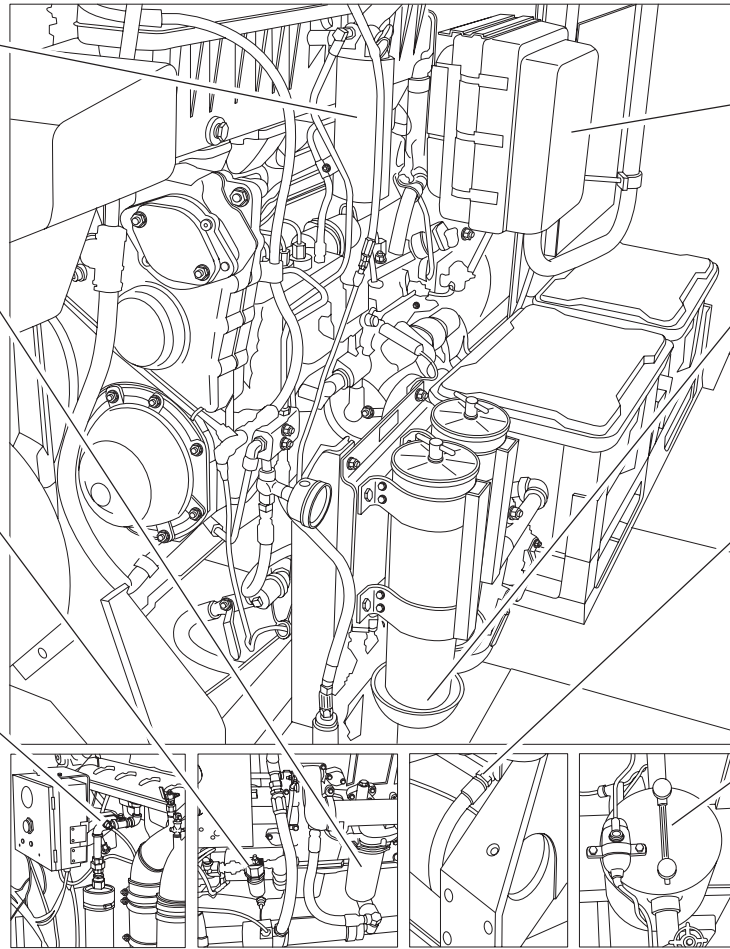
OC  
250  
Hrs

OE/HDO-30  
Moisture  
Separator  
(See Note 130)  
(C)

D

OE/HDO-30  
Crankcase  
Oil Level  
(Check)  
(See Note 131)  
(C)

D



OC  
250  
Hrs  
Air Filter  
(Clean/Change)  
(See Note 129)  
(C)

D  
250  
Hrs  
FO  
Fuel Filter/  
Water Separator  
(Check/Clean)  
(See Note 132)  
(C)

D  
250  
Hrs  
OE/HDO-30  
Crankcase  
Drain  
(Drain/Fill)  
(See Notes 133  
and 134)  
(O)

D  
OE/HDO-30  
Expansion Tank  
Sight Glass  
(Check Level)  
(See Note 135)  
(C)

SHIPS SERVICE DIESEL GENERATOR

TOTAL TASK-HOURS\*

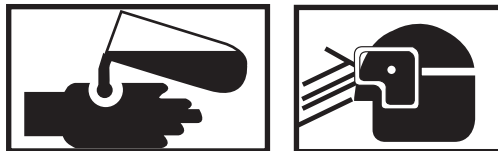
| INTERVAL | TASK-HOURS | INTERVAL | TASK-HOURS |
|----------|------------|----------|------------|
| D        | 0.3        | OC       | 4.0        |

-KEY-

| LUBRICANTS                                                                | CAPACITY    | EXPECTED TEMPERATURES                   | INTERVALS                          |
|---------------------------------------------------------------------------|-------------|-----------------------------------------|------------------------------------|
|                                                                           |             | ALL TEMPERATURES                        |                                    |
| OE/HDO-30 (81349)<br>(M2104-3-30W)<br>Lubricating Oil, Engine<br>Fuel Oil | As Required | Lubricating Oil, Engine<br><br>Fuel Oil | D-Daily<br>OC-On Condition (Hours) |

**SHIPS SERVICE DIESEL GENERATOR (continued)****Notes:**

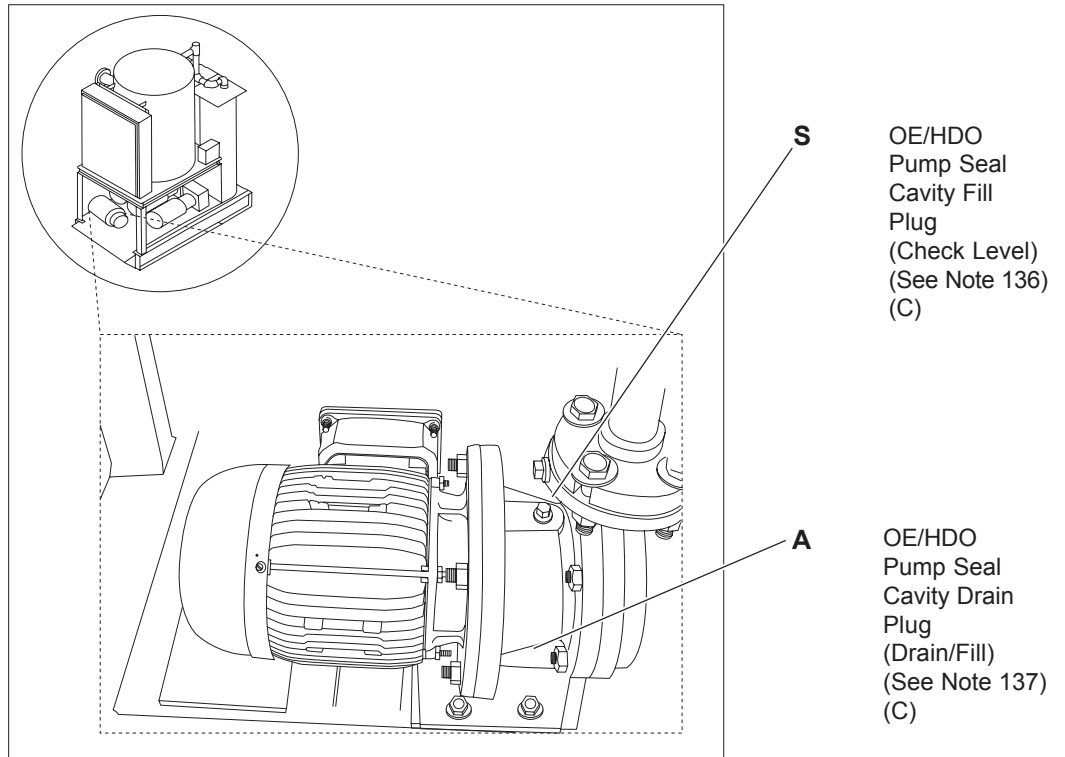
128. Change the fuel filter every 500 hours of operation.
129. Change the oil filter and air filter every 250 hours of operation.
130. Remove water from the air start system moisture separator on the number two ships service diesel generator and add lubricating oil as required.
131. Check the oil level in each ships service diesel generator crankcase. The oil level should be between the add and full marks on the dipstick. Add lubricating oil as required.
132. Check each ships service diesel generator fuel filter/water separator bowls for the presence of water. Drain any water from the fuel filter/water separator bowls. Clean the fuel water separators at 250 hours of operation.
133. A sample of oil shall be sent to an AOAP laboratory for analysis at an interval of 100 hours or 90 days for Active Army and 50 hours or 180 days for USAR/NG. Refer to TB 43-0211 for sampling requirements.
134. When AOAP laboratory support is not available, drain and the refill crankcase at 250 hours or 6 months.

**WARNING**

**Coolant reservoir and lines may be under pressure, especially after operating. Relieve pressure by operating the appropriate control valve if possible. Loosen cap or fittings on lines slowly. Allow coolant to run around threads of cap or fittings, releasing pressure before disconnecting cap or fittings. Releasing pressurized coolant suddenly may cause severe personal injury.**

**Do not allow coolant to come in contact with unprotected skin or eyes. Prolonged skin contact can cause illness or injury. Eye contact can cause serious injury. Always wear chemical protective gloves and goggles when handling coolant. Failure to follow these precautions can result in illness or serious injury.**

135. Check each ships service diesel generator expansion tank sight glass for the proper level of coolant. The coolant level should be halfway on the expansion tank sight glass. Add coolant as required.



**SEWAGE TRANSFER PUMP**

**TOTAL TASK-HOURS\***

| INTERVAL | TASK-HOURS | INTERVAL | TASK-HOURS |
|----------|------------|----------|------------|
| S        | 0.1        | A        | 0.4        |

**-KEY-**

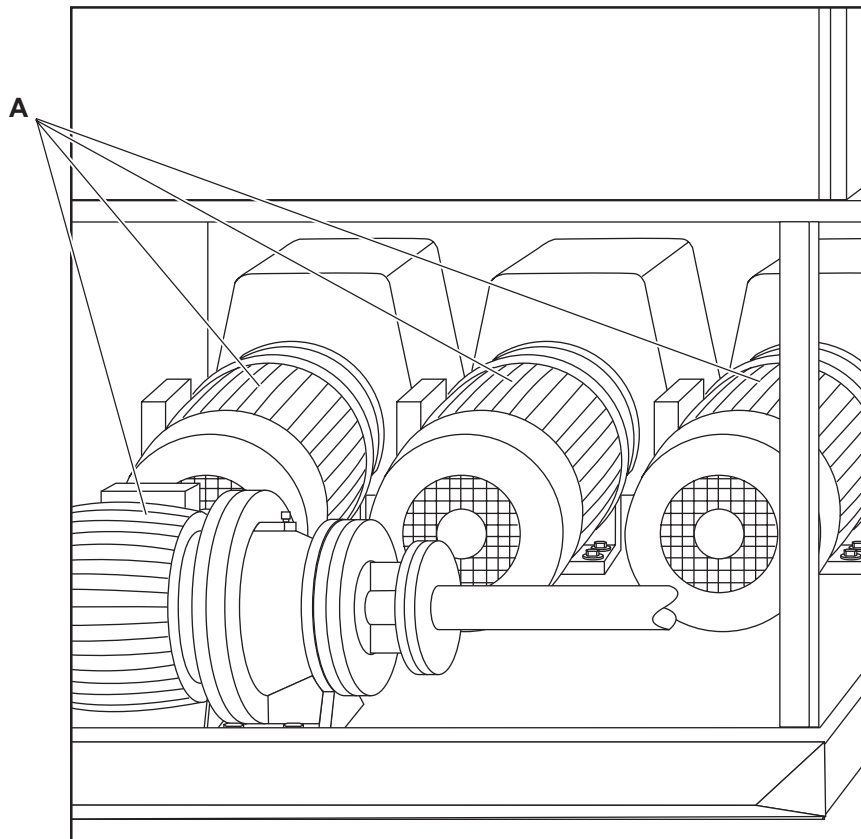
| LUBRICANTS                                                        | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS                                           |
|-------------------------------------------------------------------|-------------|-------------------------|-----------------------------------------------------|
|                                                                   |             | ALL TEMPERATURES        |                                                     |
| OE/HDO (MIL-L-2104)<br>(SAE 5W or 30W)<br>Lubricating Oil, Engine | As Required | Lubricating Oil, Engine | S-Semiannually (6 Months)<br>A-Annually (12 Months) |

**Notes:**

- 136. Check the lubricating oil level in the pump seal cavity. The lubricating oil level should be approximately one inch from the top of the pump seal cavity. Add lubricating oil as required.
- 137. Place a suitable drain pan under the pump seal cavity drain plug. Drain the lubricating oil from the pump seal cavity into the suitable drain pan. Fill the pump seal cavity with lubricating oil until it is approximately 1 inch from the top of the pump seal cavity.

**LUBRICANT • INTERVAL**

GGP  
Drive and  
Fan Side  
Bearings  
(Lubricate)  
(See Note 138)  
(C)



**MSD-ORCA II ELECTRIC MOTORS**

| TOTAL TASK-HOURS* |            |
|-------------------|------------|
| INTERVAL          | TASK-HOURS |
| A                 | 0.2        |

**-KEY-**

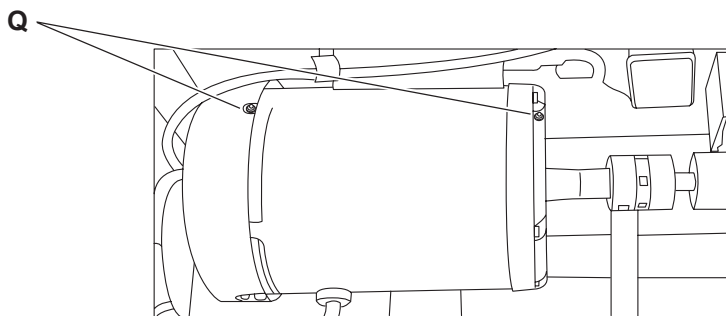
| LUBRICANTS                                          | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS              |
|-----------------------------------------------------|-------------|-------------------------|------------------------|
|                                                     |             | ALL TEMPERATURES        |                        |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139) | As Required | Grease, General Purpose | A-Annually (12 Months) |

**Notes:**

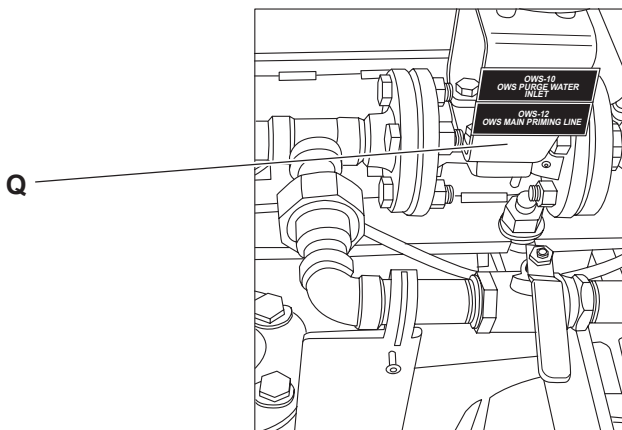
138. Lubricate all MSD-ORCA II electric motor bearings including the surge tank macerator pump electric motor with general purpose grease.

**LUBRICANT • INTERVAL**

GGP  
Oily Water  
Separator  
Pump  
Electric Motor  
Bearings (2)  
(Grease)  
(See Note 139)  
(C)



GGP  
Oily Water  
Separator  
Solenoid  
Valves  
(Remove/  
Disassemble/  
Lubricate)  
(See Note 140)  
(U)



**OILY WATER SEPARATOR**

| TOTAL TASK-HOURS* |            |
|-------------------|------------|
| INTERVAL          | TASK-HOURS |
| Q                 | 1.0        |

**-KEY-**

| LUBRICANTS                                          | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS              |
|-----------------------------------------------------|-------------|-------------------------|------------------------|
|                                                     |             | ALL TEMPERATURES        |                        |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139) | As Required | Grease, General Purpose | Q-Quarterly (3 months) |

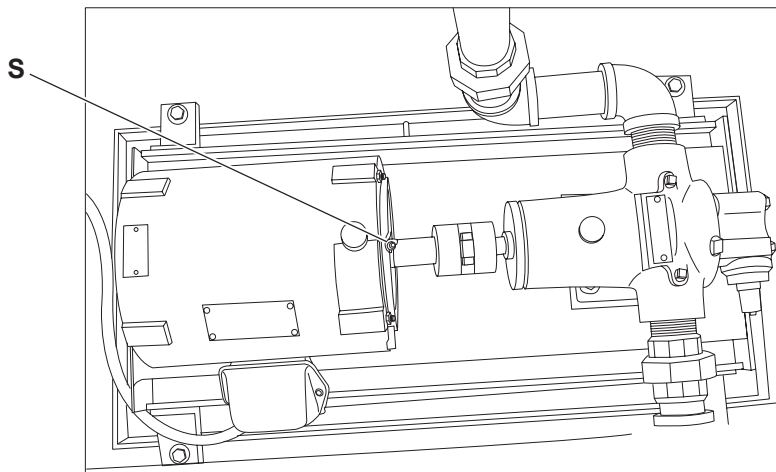
**Notes:**

139. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to the oily water separator electric motor bearings (2).

140. Remove, disassemble, and lubricate the solenoid valves as directed in TM 55-1915-229-24&P.

**LUBRICANT • INTERVAL**

GGP  
Lube Oil Transfer  
Pump Electric  
Motor Bearing  
Shaft (1)  
(Grease)  
(See Note 141)  
(C)



**LUBE OIL TRANSFER PUMP**

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

**-KEY-**

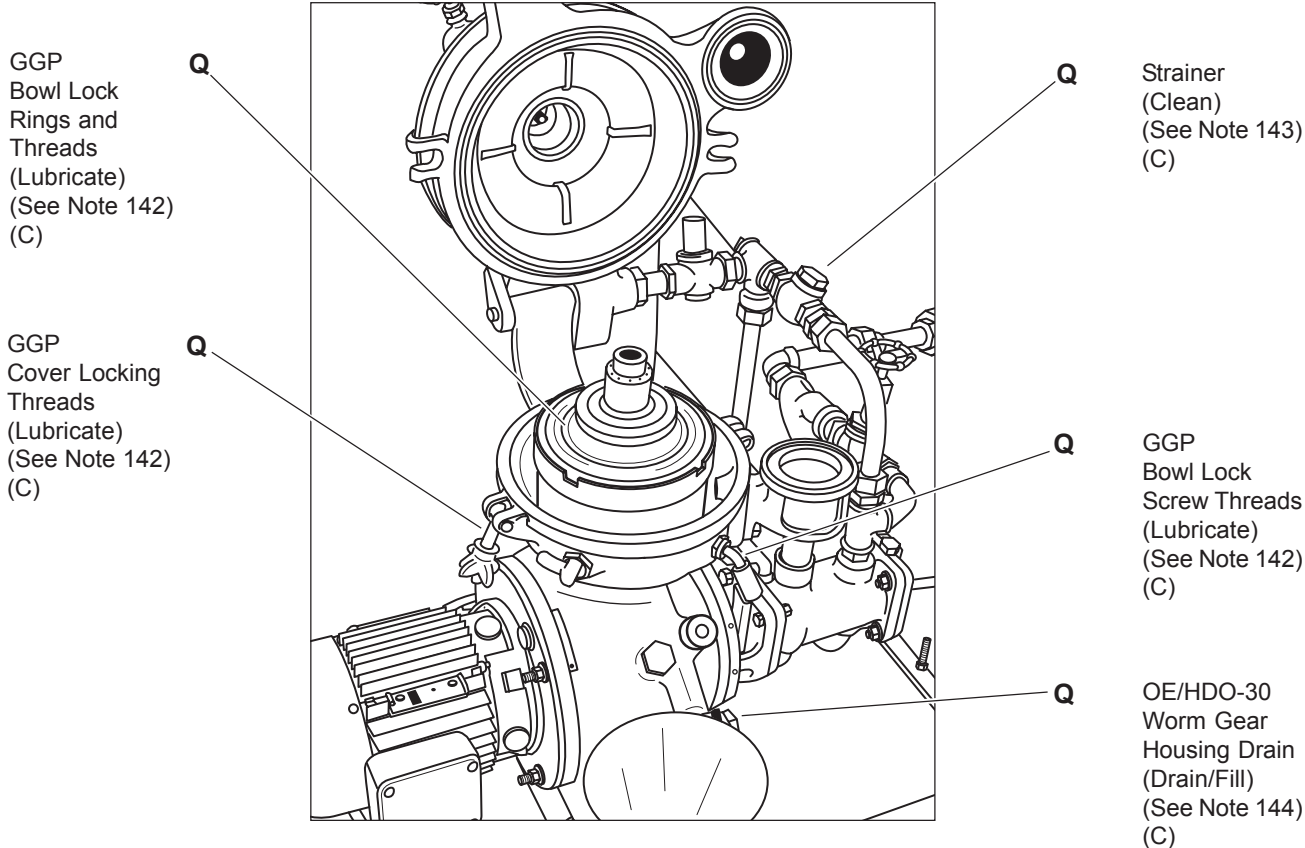
| LUBRICANTS                                          | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS                 |
|-----------------------------------------------------|-------------|-------------------------|---------------------------|
|                                                     |             | ALL TEMPERATURES        |                           |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139) | As Required | Grease, General Purpose | S-Semiannually (6 Months) |

**Notes:**

141. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to the shaft bearing (1) of the lube oil transfer pump electric motor.

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT



LUBE OIL CLARIFIER

TOTAL TASK-HOURS\*

| INTERVAL | TASK-HOURS |
|----------|------------|
| Q        | 1.0        |

-KEY-

| LUBRICANTS                                                                                                              | CAPACITY    | EXPECTED TEMPERATURES                                  | INTERVALS              |
|-------------------------------------------------------------------------------------------------------------------------|-------------|--------------------------------------------------------|------------------------|
|                                                                                                                         |             | ALL TEMPERATURES                                       |                        |
| OE/HDO-30 (81349)<br>(M2104-3-30W)<br>Lubricating Oil, Engine<br>GGP Grease, General Purpose (81349)<br>(MIL-PRF-24139) | As Required | Lubricating Oil, Engine<br><br>Grease, General Purpose | Q-Quarterly (3 Months) |

Notes:

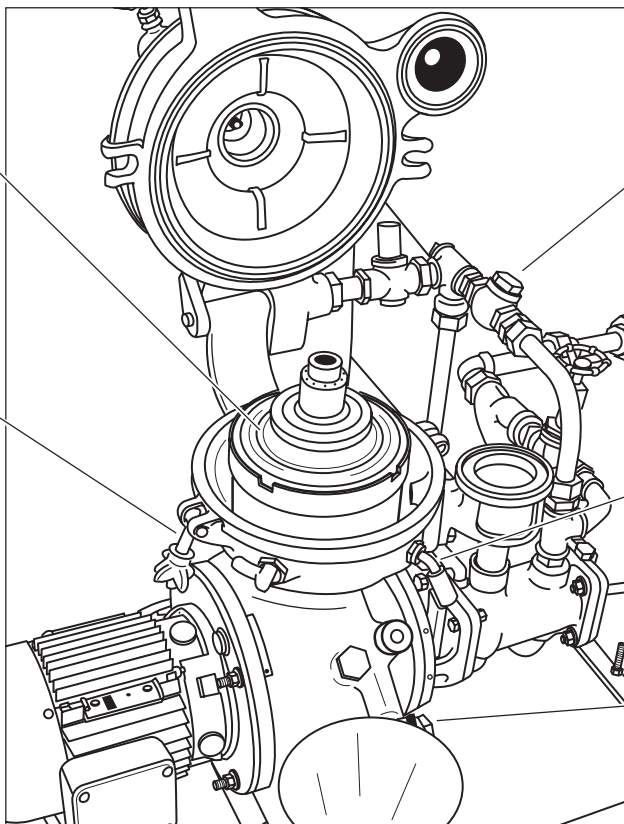
- 142. Use a brush to lubricate the bowl lock rings and threads, cover locking threads, and bowl lock screw threads.
- 143. Remove the cap from the strainer and clean the strainer. Install the cap.
- 144. Place a suitable drain pan under the worm gear housing drain plug. Remove the worm gear housing drain plug and drain into the suitable drain pan. Install the worm gear housing drain plug. Fill with engine lubricating oil.

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT

GGP Bowl Lock Rings and Threads (Lubricate) (See Note 145) (C)

GGP Cover Locking Threads (Lubricate) (See Note 145) (C)



Strainer (Clean) (See Note 146) (C)

GGP Bowl Lock Screw Threads (Lubricate) (See Note 145) (C)

OE/HDO-30 Worm Gear Housing Drain (Drain/Fill) (See Note 147) (C)

FUEL OIL PURIFIER 1 AND 2

| TOTAL TASK-HOURS* |            |
|-------------------|------------|
| INTERVAL          | TASK-HOURS |
| Q                 | 1.0        |

-KEY-

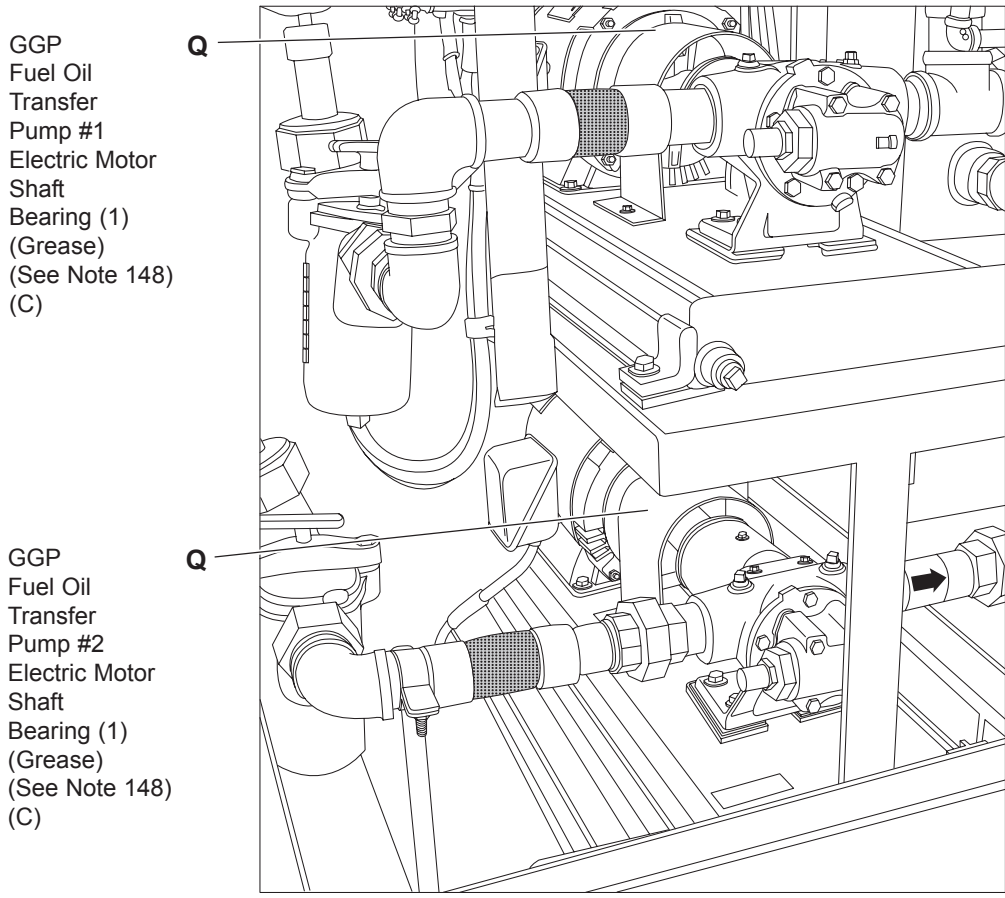
| LUBRICANTS                                                                                                     | CAPACITY    | EXPECTED TEMPERATURES                                  | INTERVALS              |
|----------------------------------------------------------------------------------------------------------------|-------------|--------------------------------------------------------|------------------------|
|                                                                                                                |             | ALL TEMPERATURES                                       |                        |
| OE/HDO-30 (81349) (M2104-3-30W) Lubricating Oil, Engine<br>GGP Grease, General Purpose (81349) (MIL-PRF-24139) | As Required | Lubricating Oil, Engine<br><br>Grease, General Purpose | Q-Quarterly (3 Months) |

Notes:

- 145. Use a brush to lubricate the bowl lock rings and threads, cover locking threads, and bowl lock screw threads.
- 146. Remove the cap from the strainer and clean the strainers of both fuel oil purifiers. Install the cap.
- 147. Place a suitable drain pan under the worm gear housing drain plugs of both fuel oil purifiers. Remove the worm gear housing drain plugs from both fuel oil purifiers and drain into the suitable drain pan. Install the worm gear housing drain plugs in both fuel oil purifiers. Fill both fuel oil purifiers with engine lubricating oil.



**LUBRICANT • INTERVAL**



Q  
GGP  
Fuel Oil  
Transfer  
Pump #1  
Electric Motor  
Shaft  
Bearing (1)  
(Grease)  
(See Note 148)  
(C)

Q  
GGP  
Fuel Oil  
Transfer  
Pump #2  
Electric Motor  
Shaft  
Bearing (1)  
(Grease)  
(See Note 148)  
(C)

**FUEL OIL TRANSFER PUMPS**

| TOTAL TASK-HOURS* |            |
|-------------------|------------|
| INTERVAL          | TASK-HOURS |
| Q                 | 0.2        |

**-KEY-**

| LUBRICANTS                                          | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS              |
|-----------------------------------------------------|-------------|-------------------------|------------------------|
|                                                     |             | ALL TEMPERATURES        |                        |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139) | As Required | Grease, General Purpose | Q-Quarterly (3 months) |

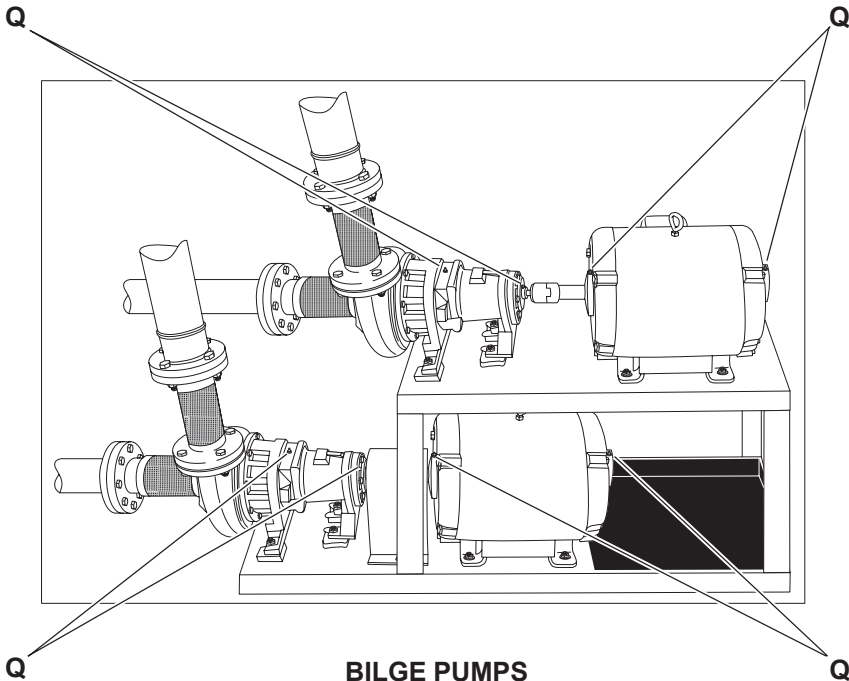
**Notes:**

148. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to fuel oil transfer pumps number 1 and 2 electric motor shaft bearings (1 each).

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT

GGP  
Bilge Pump  
Number 1  
Shaft  
Bearings (2)  
(Grease)  
(See Note 149)  
(C)



GGP  
Bilge Pump  
Number 1  
Electric Motor  
Bearings (2)  
(Grease)  
(See Note 150)  
(C)

GGP  
Bilge Pump  
Number 2  
Shaft  
Bearings (2)  
(Grease)  
(See Note 149)  
(C)

GGP  
Bilge Pump  
Number 2  
Electric Motor  
Bearings (2)  
(Grease)  
(See Note 150)  
(C)

**TOTAL TASK-HOURS\***

| INTERVAL | TASK-HOURS |
|----------|------------|
| Q        | 0.5        |

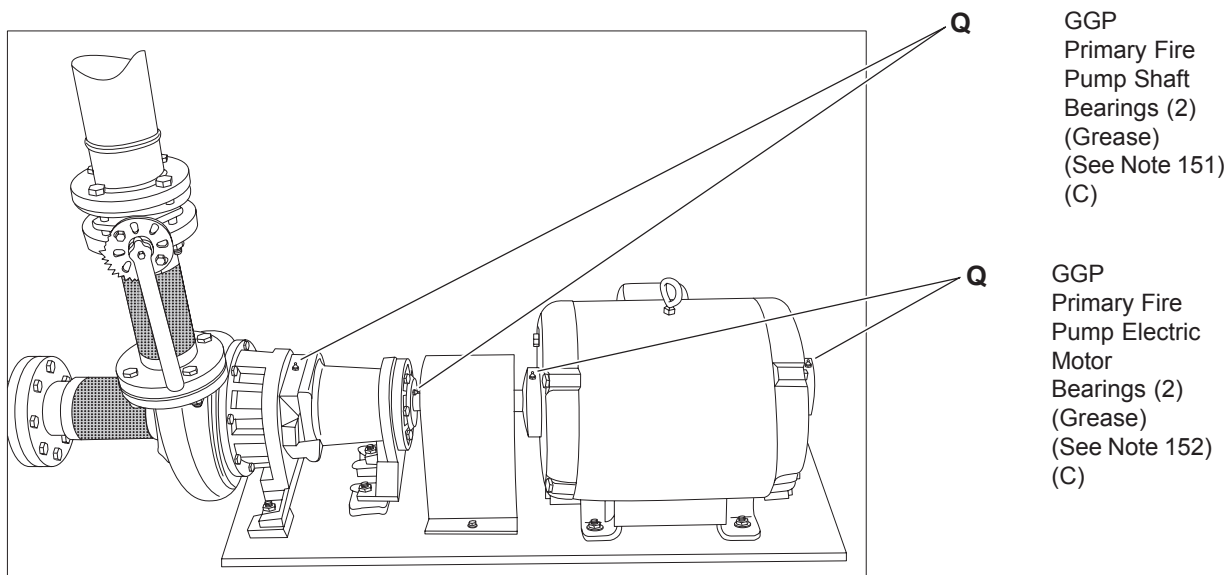
**-KEY-**

| LUBRICANTS                                          | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS              |
|-----------------------------------------------------|-------------|-------------------------|------------------------|
|                                                     |             | ALL TEMPERATURES        |                        |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139) | As Required | Grease, General Purpose | Q-Quarterly (3 months) |

**Notes:**

- 149. Remove the drain plugs and remove the old grease. Use a handheld lubricating gun and apply general purpose grease to each bilge pump shaft bearing seal grease cavity until it is approximately 1/3 to 1/2 full. Install the drain plugs.
- 150. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to each bilge pump electric motor bearings (2 each).

INTERVAL • LUBRICANT



Q GGP  
Primary Fire  
Pump Shaft  
Bearings (2)  
(Grease)  
(See Note 151)  
(C)

Q GGP  
Primary Fire  
Pump Electric  
Motor  
Bearings (2)  
(Grease)  
(See Note 152)  
(C)

**PRIMARY FIRE PUMP**

**TOTAL TASK-HOURS\***

| INTERVAL | TASK-HOURS |
|----------|------------|
| Q        | 0.1        |

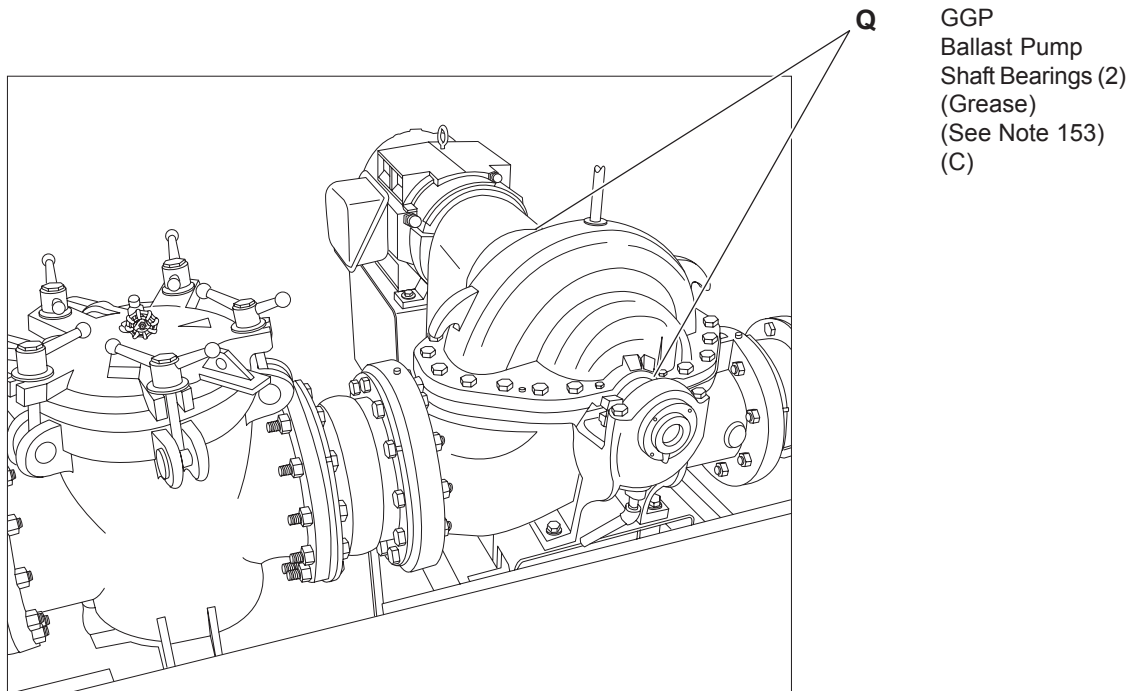
**-KEY-**

| LUBRICANTS                                          | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS              |
|-----------------------------------------------------|-------------|-------------------------|------------------------|
|                                                     |             | ALL TEMPERATURES        |                        |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139) | As Required | Grease, General Purpose | Q-Quarterly (3 months) |

**Notes:**

- 151. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to the primary fire pump shaft bearings (2).
- 152. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to the primary fire pump electric motor bearings (2).

INTERVAL • LUBRICANT



**BALLAST PUMP**

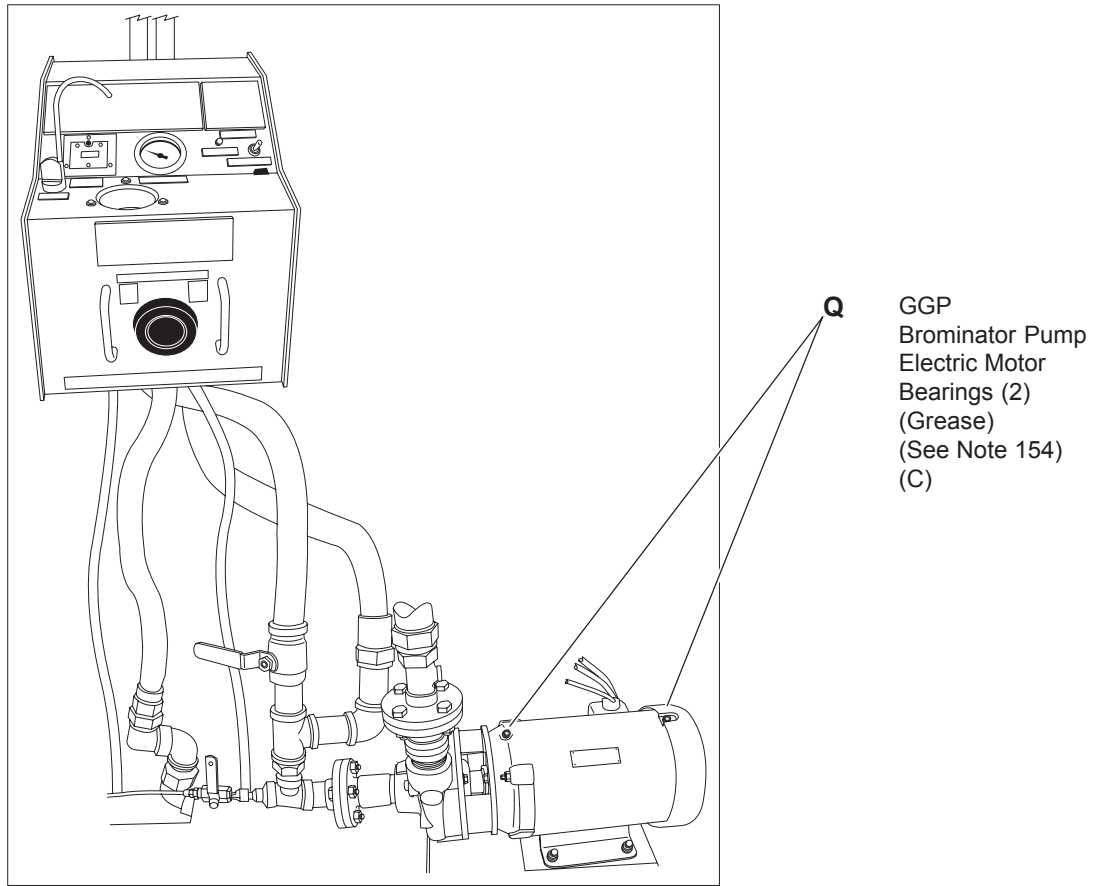
| TOTAL TASK-HOURS* |            |
|-------------------|------------|
| INTERVAL          | TASK-HOURS |
| Q                 | 0.5        |

-KEY-

| LUBRICANTS                                          | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS              |
|-----------------------------------------------------|-------------|-------------------------|------------------------|
|                                                     |             | ALL TEMPERATURES        |                        |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139) | As Required | Grease, General Purpose | Q-Quarterly (3 months) |

**Notes:**

153. Remove the drain plugs and remove old grease. Use a handheld lubricating gun and apply two to three strokes of general purpose grease to the ballast pump shaft bearings (2) grease cavity until it is approximately 1/3 to 1/2 full. Install the drain plugs.



**BROMINATOR**

| TOTAL TASK-HOURS* |            |
|-------------------|------------|
| INTERVAL          | TASK-HOURS |
| Q                 | 0.1        |

**-KEY-**

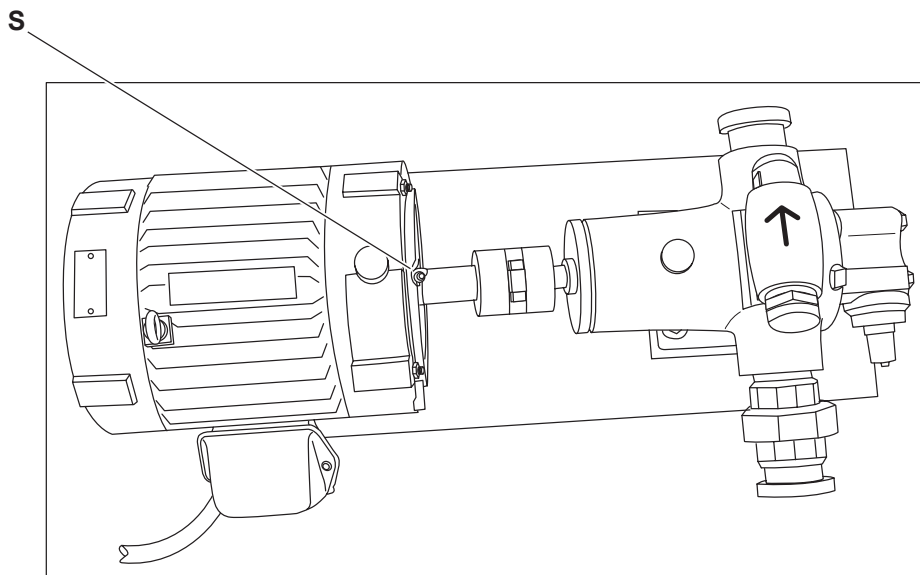
| LUBRICANTS                                          | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS              |
|-----------------------------------------------------|-------------|-------------------------|------------------------|
|                                                     |             | ALL TEMPERATURES        |                        |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139) | As Required | Grease, General Purpose | Q-Quarterly (3 months) |

**Notes:**

154. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to the brominator pump electric motor bearings (2).

**LUBRICANT • INTERVAL**

GGP  
Sludge Pump  
Electric Motor  
Bearing (1)  
(Grease)  
(See Note 155)  
(C)



**SLUDGE PUMP**

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

**-KEY-**

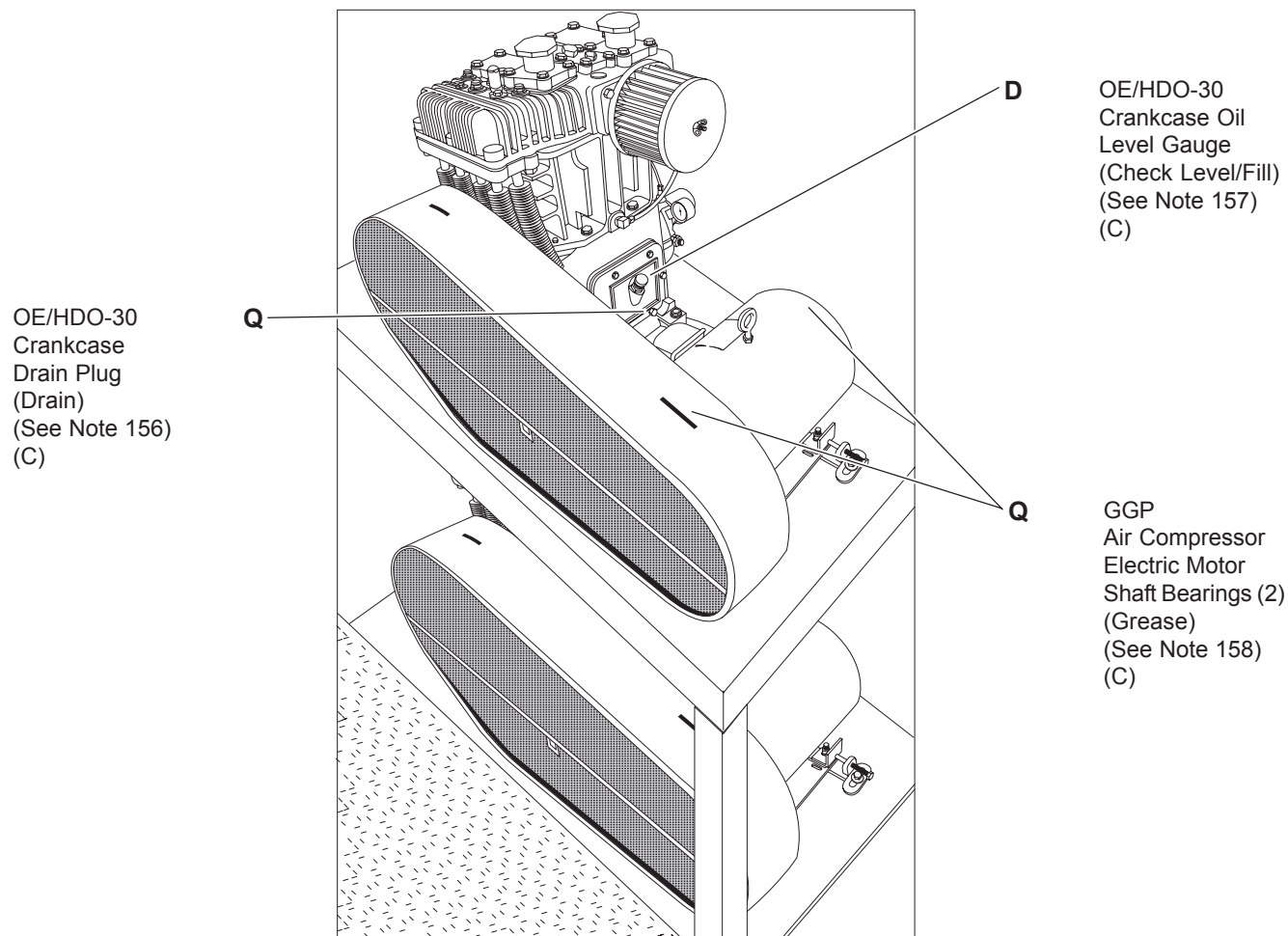
| LUBRICANTS                                          | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS                 |
|-----------------------------------------------------|-------------|-------------------------|---------------------------|
|                                                     |             | ALL TEMPERATURES        |                           |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139) | As Required | Grease, General Purpose | S-Semiannually (6 months) |

**Notes:**

155. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to the sludge pump electric motor bearing (1).

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT



**AIR COMPRESSOR ASSEMBLY**

| TOTAL TASK-HOURS* |            |          |            |
|-------------------|------------|----------|------------|
| INTERVAL          | TASK-HOURS | INTERVAL | TASK-HOURS |
| D                 | 0.1        | Q        | 0.5        |

**-KEY-**

| LUBRICANTS                                                                                                     | CAPACITY    | EXPECTED TEMPERATURES                                  | INTERVALS                         |
|----------------------------------------------------------------------------------------------------------------|-------------|--------------------------------------------------------|-----------------------------------|
|                                                                                                                |             | ALL TEMPERATURES                                       |                                   |
| OE/HDO-30 (81349) (M2104-3-30W) Lubricating Oil, Engine<br>GGP Grease, General Purpose (81349) (MIL-PRF-24139) | As Required | Lubricating Oil, Engine<br><br>Grease, General Purpose | D-Daily<br>Q-Quarterly (3 months) |

**AIR COMPRESSOR ASSEMBLY (continued)**

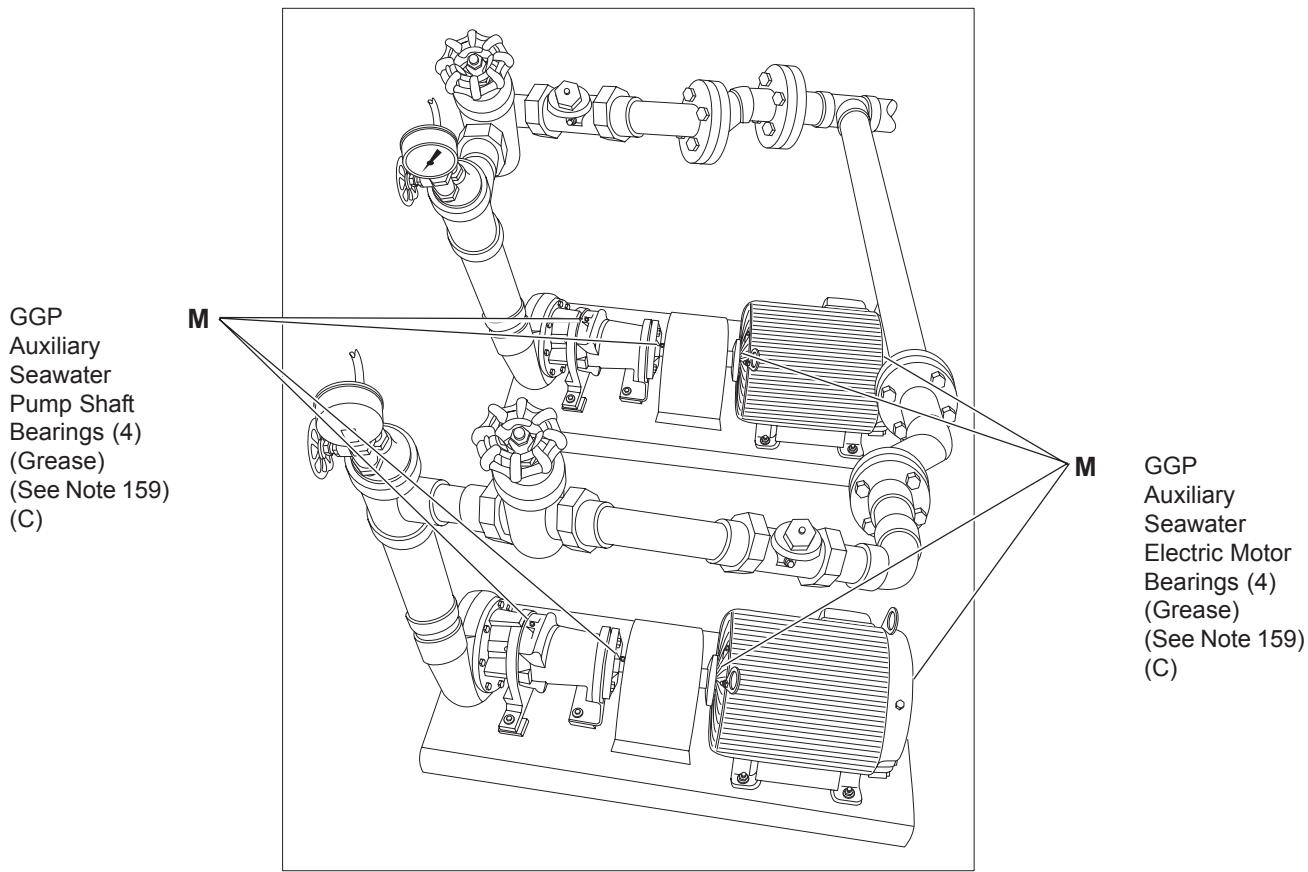
**Notes:**

156. Place a suitable drain pan under the crankcase drain plug for each air compressor. Remove the crankcase drain plug for each air compressor and drain the crankcase engine lubricating oil from each air compressor into the suitable drain pan. Install the crankcase drain plug in each air compressor and fill each crankcase with engine lubricating oil until it is at the proper level on the crankcase oil level gauge.
157. Remove the crankcase oil level gauge and check the crankcase oil level for each air compressor. The proper level for each air compressor is between the high and low level marks on the the crankcase oil level gauge. Install the crankcase oil level gauge and add engine lubricating oil as required.
158. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to both air compressor electric motor shaft bearings (2 each).



LUBRICANT • INTERVAL

INTERVAL • LUBRICANT



M  
GGP  
Auxiliary  
Seawater  
Pump Shaft  
Bearings (4)  
(Grease)  
(See Note 159)  
(C)

M  
GGP  
Auxiliary  
Seawater  
Electric Motor  
Bearings (4)  
(Grease)  
(See Note 159)  
(C)

**ASW PUMP**

| TOTAL TASK-HOURS* |            |
|-------------------|------------|
| INTERVAL          | TASK-HOURS |
| M                 | 0.2        |

**-KEY-**

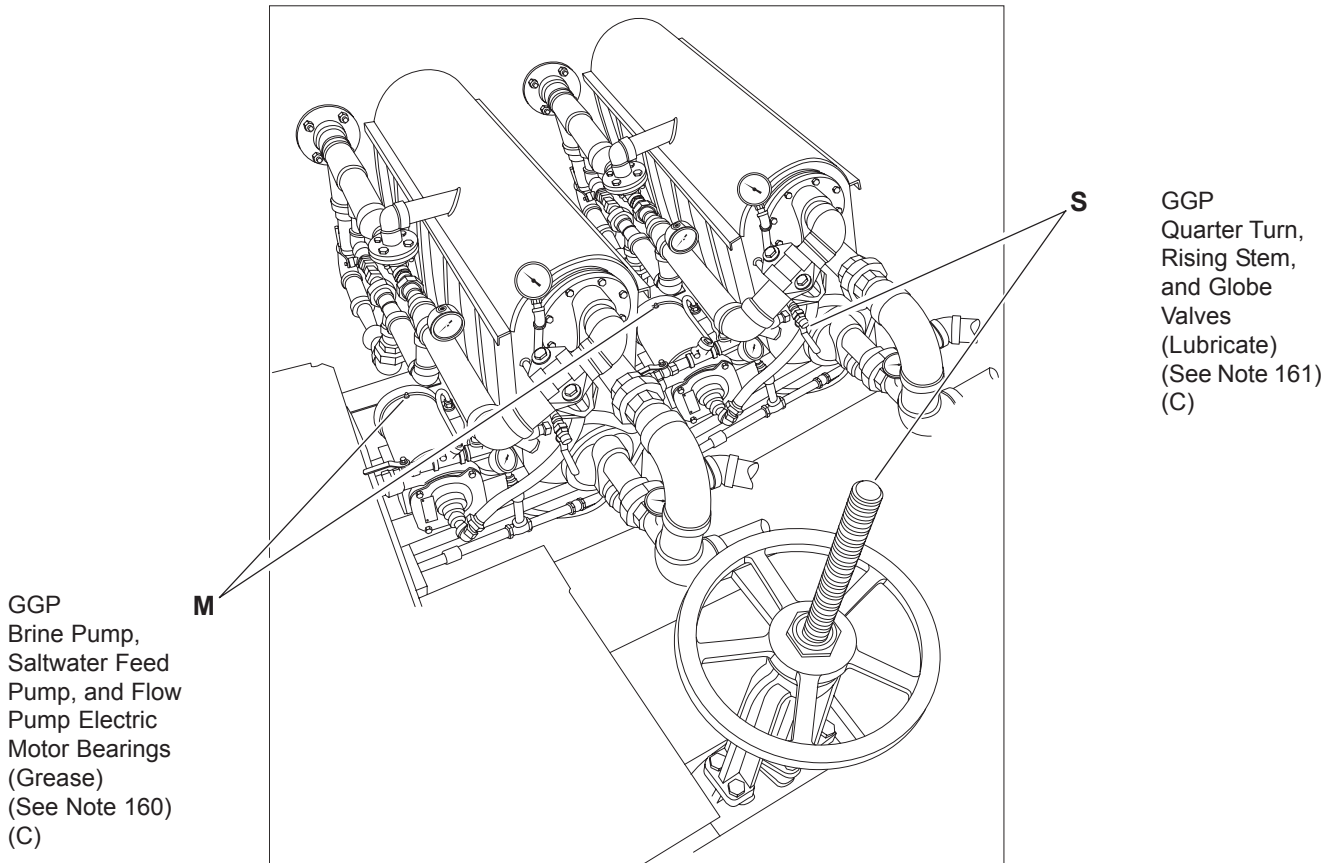
| LUBRICANTS                                          | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS |
|-----------------------------------------------------|-------------|-------------------------|-----------|
|                                                     |             | ALL TEMPERATURES        |           |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139) | As Required | Grease, General Purpose | M-Monthly |

**Notes:**

159. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to the auxiliary seawater cooling pump shaft bearings (4) and the auxiliary seawater electric motor bearings (4).

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT



M  
GGP  
Brine Pump,  
Saltwater Feed  
Pump, and Flow  
Pump Electric  
Motor Bearings  
(Grease)  
(See Note 160)  
(C)

S  
GGP  
Quarter Turn,  
Rising Stem,  
and Globe  
Valves  
(Lubricate)  
(See Note 161)  
(C)

**FLASH EVAPORATOR**  
(All pumps not shown for clarity)

| TOTAL TASK-HOURS* |            |          |            |
|-------------------|------------|----------|------------|
| INTERVAL          | TASK-HOURS | INTERVAL | TASK-HOURS |
| M                 | 0.3        | S        | 0.3        |

-KEY-

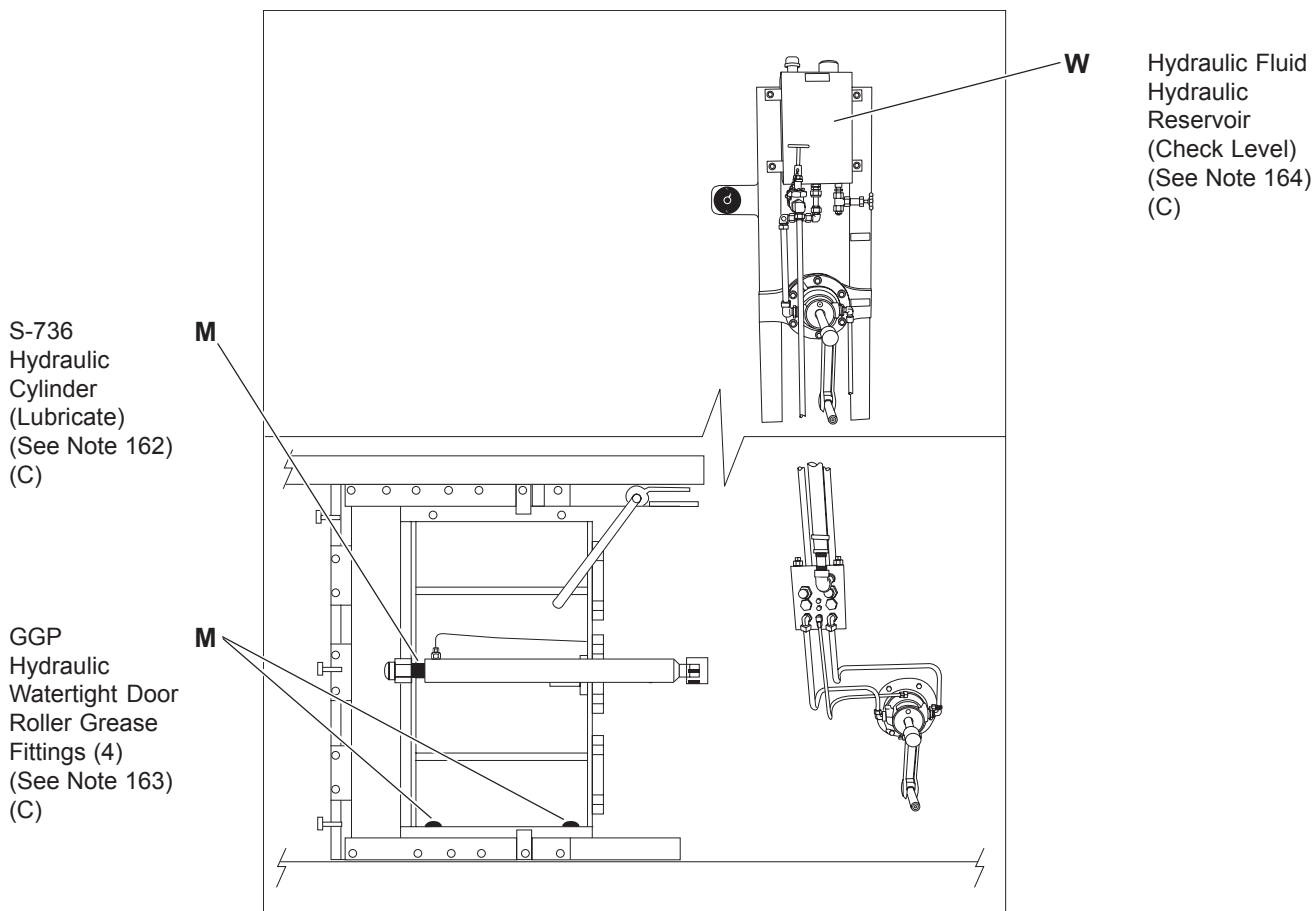
| LUBRICANTS                                          | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS                             |
|-----------------------------------------------------|-------------|-------------------------|---------------------------------------|
|                                                     |             | ALL TEMPERATURES        |                                       |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139) | As Required | Grease, General Purpose | M-Monthly<br>S-Semiannually(6 months) |

**Notes:**

- 160. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to the flash evaporator brine pump, the saltwater feed pump, and the flow pump electric motor bearings.
- 161. Lubricate all quarter turn valves, rising stem valves, and globe valves in each flash evaporator system using general purpose grease. Exercise each valve after lubrication.

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT



HYDRAULIC WATERTIGHT DOOR

| TOTAL TASK-HOURS* |            |          |            |
|-------------------|------------|----------|------------|
| INTERVAL          | TASK-HOURS | INTERVAL | TASK-HOURS |
| W                 | 0.1        | M        | 1.0        |

-KEY-

| LUBRICANTS                                                                                                                             | CAPACITY    | EXPECTED TEMPERATURES                                           | INTERVALS             |
|----------------------------------------------------------------------------------------------------------------------------------------|-------------|-----------------------------------------------------------------|-----------------------|
|                                                                                                                                        |             | ALL TEMPERATURES                                                |                       |
| Hydraulic Fluid (81349) (MIL-PRF 17672)<br>GGP Grease, General Purpose (81349) (MIL-PRF-24139)<br>S-736 (SAE-AS8660) Silicone Compound | As Required | Hydraulic Fluid<br>Grease, General Purpose<br>Silicone Compound | W-Weekly<br>M-Monthly |

**HYDRAULIC WATERTIGHT DOOR (continued)**

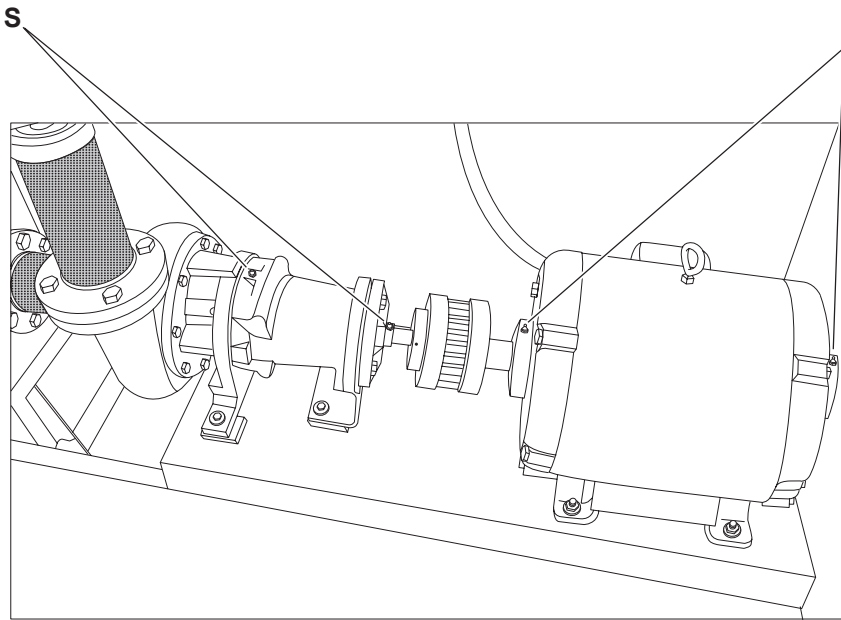
**Notes:**

162. Use a small brush and lubricate the exposed shaft on the hydraulic cylinder with silicone compound.
163. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to each hydraulic watertight door roller grease fitting (4). Operate the hydraulic watertight door after applying the general purpose grease.
164. Check the fluid level in the hydraulic reservoir. Add hydraulic fluid as required.

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT

GGP  
Emergency  
Fire Pump  
Shaft Bearings (2)  
(Grease)  
(See Note 165)  
(C)



GGP  
Emergency  
Fire Pump  
Electric Motor  
Bearings (2)  
(Grease)  
(See Note 165)  
(C)

**EMERGENCY FIRE PUMP**

| TOTAL TASK-HOURS* |            |
|-------------------|------------|
| INTERVAL          | TASK-HOURS |
| S                 | 0.2        |

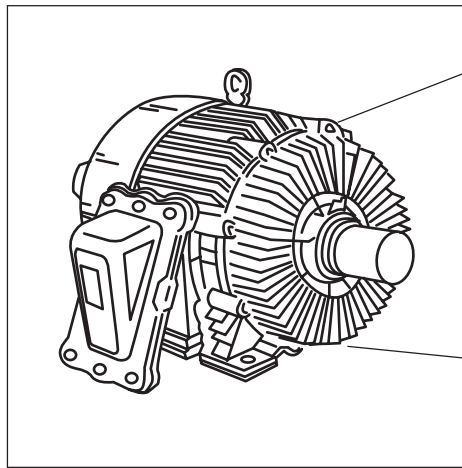
**-KEY-**

| LUBRICANTS                                          | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS                 |
|-----------------------------------------------------|-------------|-------------------------|---------------------------|
|                                                     |             | ALL TEMPERATURES        |                           |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139) | As Required | Grease, General Purpose | S-Semiannually (6 months) |

**Notes:**

165. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to the emergency fire pump shaft bearings (2) and the emergency fire pump electric motor bearings (2).

**INTERVAL • LUBRICANT**



Q  
GGP  
Fill Plug  
(Lubricate)  
(See Note 166)  
(C)

Q  
GGP  
Drain Plug  
(Drain/Fill)  
(See Note 166)  
(U)

**ELECTRIC MOTORS**

| TOTAL TASK-HOURS* |            |
|-------------------|------------|
| INTERVAL          | TASK-HOURS |
| Q                 | 1.0        |

**-KEY-**

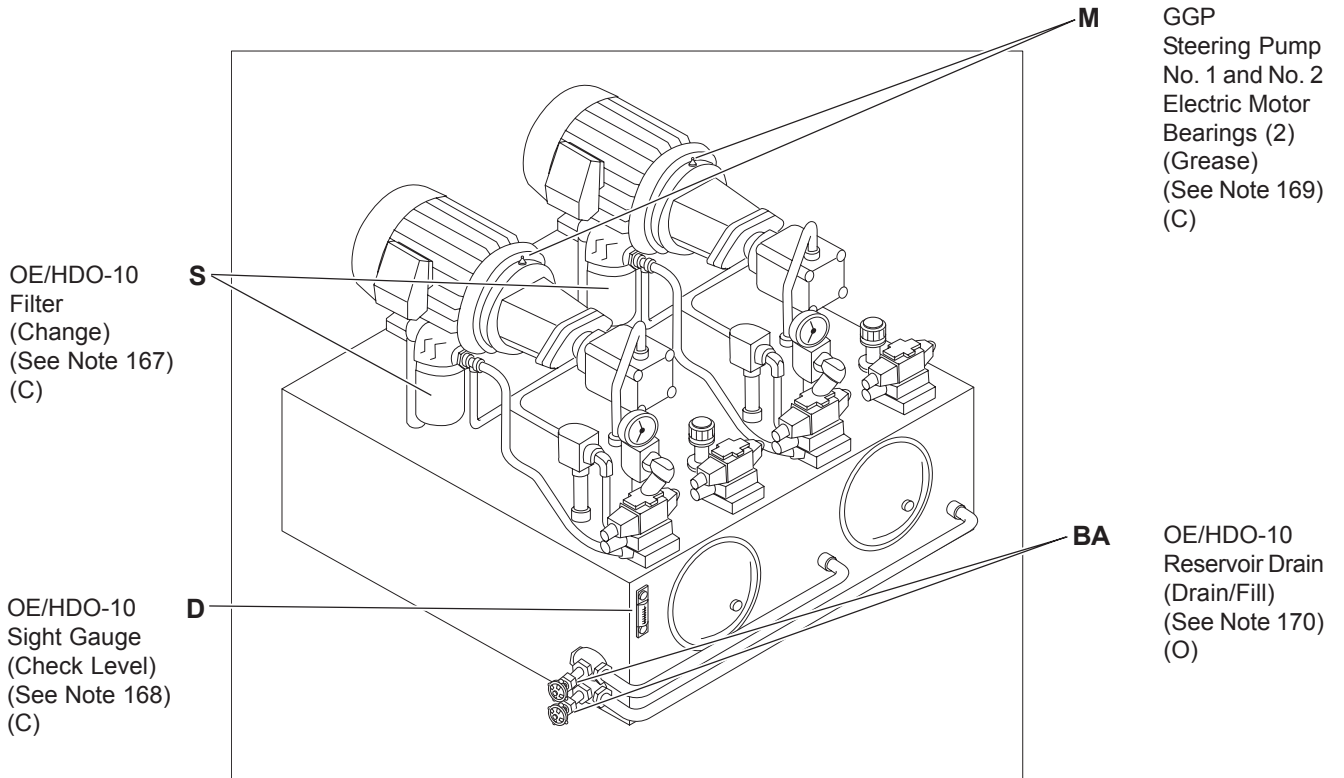
| LUBRICANTS                                          | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS              |
|-----------------------------------------------------|-------------|-------------------------|------------------------|
|                                                     |             | ALL TEMPERATURES        |                        |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139) | As Required | Grease, General Purpose | Q-Quarterly (3 months) |

**Notes:**

166. For all electric motors not covered by other cards in this Lubrication Order, remove the drain plug on the electric motor and remove any built up grease. Install the drain plug. Remove the fill plug on the electric motor. Use a handheld lubricating gun and apply general purpose grease to the fill cavity until it is approximately 1/3 to 1/2 full. Install the fill plug.

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT



**STEERING GEAR**

**TOTAL TASK-HOURS\***

| INTERVAL | TASK-HOURS | INTERVAL | TASK-HOURS |
|----------|------------|----------|------------|
| D        | 0.1        | M        | 0.1        |
| S        | 0.3        | BA       | 1.0        |

**-KEY-**

| LUBRICANTS                                                                                                     | CAPACITY                                    | EXPECTED TEMPERATURES                                  | INTERVALS                                                                      |
|----------------------------------------------------------------------------------------------------------------|---------------------------------------------|--------------------------------------------------------|--------------------------------------------------------------------------------|
|                                                                                                                |                                             | ALL TEMPERATURES                                       |                                                                                |
| OE/HDO-10 (81349) (M2104-3-10W) Lubricating Oil, Engine<br>GGP Grease, General Purpose (81349) (MIL-PRF-24139) | 60 Gallons per Reservoir<br><br>As Required | Lubricating Oil, Engine<br><br>Grease, General Purpose | D-Daily<br>M-Monthly<br>S-Semiannually (6 Months)<br>BA-Biannually (24 Months) |

**STEERING GEAR (continued)**

**Notes:**

167. Change the filters on each steering gear hydraulic reservoir. Lubricate the gasket of the filter with clean lubricating oil. Check the fluid level in each steering gear hydraulic reservoir after changing the filters.
168. Check the fluid level in each steering gear hydraulic reservoir. Add engine lubricating oil as required.
169. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to the steering pump electric motor bearings (2).
170. Drain each reservoir into a suitable drain pan. Remove the reservoir inspection covers from each reservoir. Replace the strainers in each reservoir. Inspect the internal reservoir for the presence of rust and service as required. Install the reservoir inspection covers. Fill each reservoir with 30 gallons of OE/HDO-10 engine lubricating oil. Operate each steering pump to purge trapped air. Check the oil level and add as required.

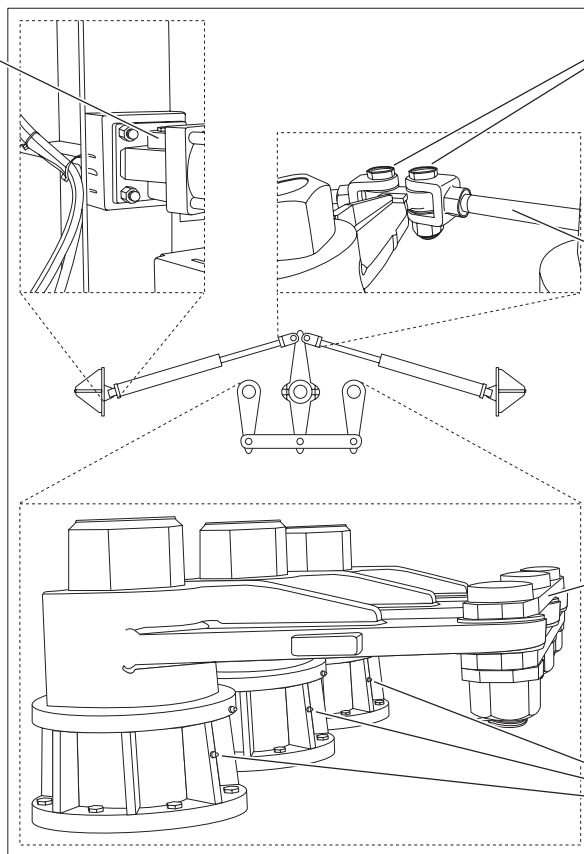


LUBRICANT • INTERVAL

INTERVAL • LUBRICANT

GGP  
Hydraulic  
Cylinder Base  
Grease  
Fittings (2)  
(Grease)  
(See Note 171)  
(C)

M



GGP  
Hydraulic  
Cylinder Tiller  
Grease  
Fittings (2)  
(Grease)  
(See Note 171)  
(C)

M

S-736  
Hydraulic  
Actuator (4)  
(Lubricate)  
(See Note 172)  
(C)

M

GGP  
Jockey Bar  
Grease  
Fittings (3)  
(Grease)  
(See Note 171)  
(C)

M

GGP  
Rudder Post  
Grease  
Fittings (28)  
(Grease)  
(See Note 171)  
(C)

M

STEERING GEAR LINKAGE

TOTAL TASK-HOURS\*

| INTERVAL | TASK-HOURS |
|----------|------------|
| M        | 1.5        |

-KEY-

| LUBRICANTS                                                                                     | CAPACITY    | EXPECTED TEMPERATURES                            | INTERVALS |
|------------------------------------------------------------------------------------------------|-------------|--------------------------------------------------|-----------|
|                                                                                                |             | ALL TEMPERATURES                                 |           |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139)<br>S-736 (SAE-AS8660)<br>Silicone Compound | As Required | Grease, General Purpose<br><br>Silicone Compound | M-Monthly |

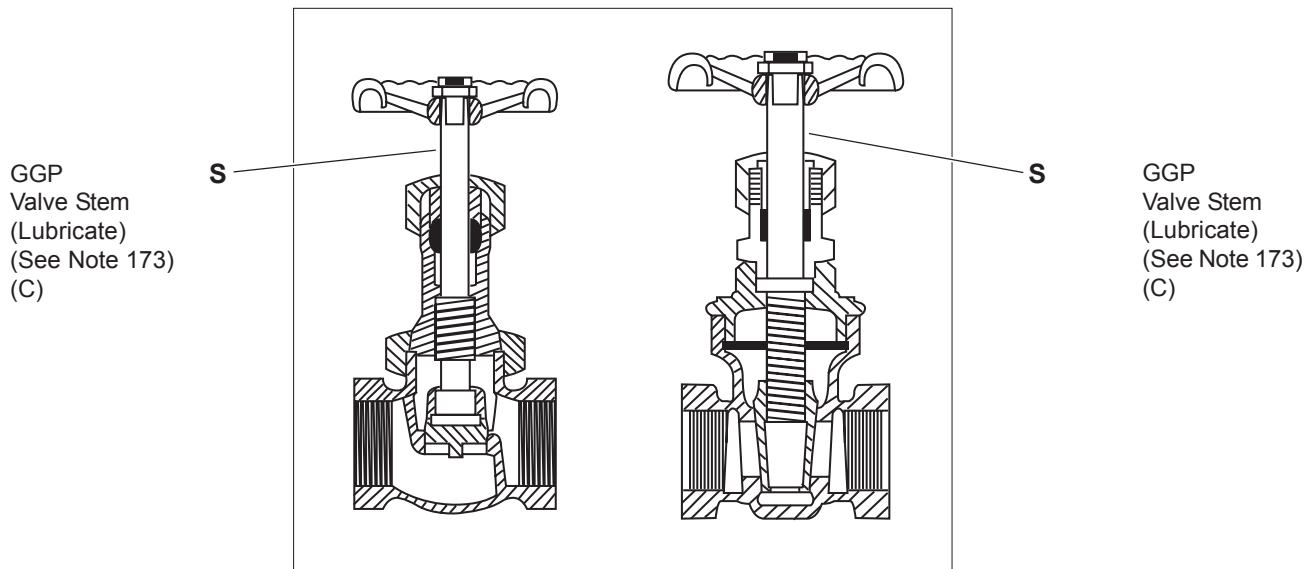
**STEERING GEAR LINKAGE (continued)**

**Notes:**

171. Use a handheld lubricating gun and apply one to two strokes of general purpose grease to the hydraulic cylinder base grease fittings (2), the hydraulic cylinder tiller grease fittings (2), the jockey bar grease fittings (3), and the rudder post grease fittings (28).
172. Use a brush and apply a thin coat of silicone compound to the bare metal surface of each hydraulic actuator (4).

LUBRICANT • INTERVAL

INTERVAL • LUBRICANT



**GLOBE AND GATE VALVES**

| TOTAL TASK-HOURS* |            |
|-------------------|------------|
| INTERVAL          | TASK-HOURS |
| S                 | 1.5        |

**-KEY-**

| LUBRICANTS                                          | CAPACITY    | EXPECTED TEMPERATURES   | INTERVALS                 |
|-----------------------------------------------------|-------------|-------------------------|---------------------------|
|                                                     |             | ALL TEMPERATURES        |                           |
| GGP Grease, General Purpose (81349) (MIL-PRF-24139) | As Required | Grease, General Purpose | S-Semiannually (6 months) |

**Notes:**

173. Lubricate the valve stems of all globe and gate valves. Exercise each valve after lubricating.

Table 1. Lubricants

| LUBRICANT                                                                               | NATIONAL STOCK NUMBER (NSN)/<br>PART NUMBER | UNIT<br>OF ISSUE |
|-----------------------------------------------------------------------------------------|---------------------------------------------|------------------|
| S-736 Silicone Compound (81343) (SAE-AS8660)                                            | 6850-00-880-7616                            | TU               |
| Centistoke Silicone Fluid Dow Corning 200-5                                             | P/N 4021360                                 | CN               |
| Grease, General Purpose (81349)<br>MIL-PRF-24139                                        | 9150-00-180-6381                            | CN               |
| Grease, Waterproof, Lubriplate MAG-1,<br>Fiske Brothers                                 | P/N 18998                                   | TU               |
| Chevron FM "O" Food Grade Lubricating Oil                                               | P/N CPS250506                               | CN               |
| Lubricating Oil, General Purpose (77988) DTE<br>Heavy Medium Food Grade Lubricating Oil | 9150-00-027-3098                            | QT               |
| Oil, Food Processing Equipment<br>(81349) DOD-L-24651                                   | 9150-01-237-7467                            | GL               |
| Paraffin, Liquid (WAX)                                                                  | 9925-01-465-6260                            | GL               |
| Lubricating Oil, Gear, Multipurpose GO-80/90<br>(81343) MIL-L-2105                      | 9150-01-035-5398                            | CN               |
| Hydraulic Fluid (81349) MIL-PRF-17672                                                   | 9150-00-985-7234                            | CN               |
| Grease, Wire Rope-Exposed Gear<br>(81349) MIL-PRF-18458                                 | 9150-00-530-6814                            | CN               |
| Exxon Torque Fluid 56                                                                   | P/N 213997                                  | CN               |
| Grease, Waterproof Mobilux No. 2                                                        | P/N 435-10519                               | CN               |
| Grease, Waterproof Mobilux EP 1 (77988)                                                 | 9150-01-341-0625                            | CN               |
| Lubricating Oil, Engine OE/HDO-10<br>(81349) M2104-3-10W                                | 9150-00-186-6668                            | CN               |
| Antiseize Compound (26916)<br>034-000750                                                | 8030-00-251-3980                            | LB               |
| Lubricating Oil, Engine (81349)<br>MIL-PRF-2104 (SAE 40)                                | 9150-01-178-4726                            | QT               |
| Shell Omala 150                                                                         | P/N 65141                                   | CN               |
| Shell Tellus 32 Lubricating Oil                                                         | P/N 5061285                                 | CN               |
| Lubricating Oil, Refrigerant Compressor,<br>RCO-4 (81348) VV-L-825                      | 9150-00-598-2911                            | QT               |
| Lubricating Oil, Engine OE/HDO-30<br>(81349) M2104-3-30W                                | 9150-00-188-9858                            | CN               |

These are the instructions for sending an electronic 2028.

The following format must be used if submitting an electronic 2028. The subject line must be exactly the same and all fields must be included; however, only the following fields are mandatory: 1, 3, 4, 5, 6, 7, 8, 9, 10, 13, 15, 16, 17 and 27.

**From:** "Whoever" whoever@avma27.army.mil  
**To:** whoever@avma27.army.mil  
**To:** TACOM-TECH-PUBS@ria.army.mil

Subject: DA Form 2028

1. **From:** Joe Smith
2. **Unit:** home
3. **Address:** 4300 Park
4. **City:** Hometown
5. **St:** MO
6. **Zip:** 77777
7. **Date Sent:** 19-OCT-93
8. **Pub no:** 55-1915-200-10
9. **Pub Title:** TM
10. **Publication Date:** 11-APR-88
11. **Change Number:** 12
12. **Submitter Rank:** MSG
13. **Submitter Fname:** Joe
14. **Submitter Mname:** T
15. **Submitter Lname:** Smith
16. **Submitter Phone:** 123-123-1234
17. **Problem:** 1
18. **Page:** 1
19. **Paragraph:** 3
20. **Line:** 4
21. **NSN:** 5
22. **Reference:** 6
23. **Figure:** 7
24. **Table:** 8
25. **Item:** 9
26. **Total:** 123
27. **Text:**

This is the text for the problem below line 27.



|                                                                                                                                                                |                 |                   |                 |                                                               |                  |                                                                                                                                                 |                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------|-----------------|---------------------------------------------------------------|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| <b>RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS</b><br>For use of this form, see AR 310-1; the proponent agency is the US Army Adjutant General Center. |                 |                   |                 |                                                               |                  | Use Part II (reverse) for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).                               | <b>DATE:</b><br>Date form is filled out. |
| <b>TO:</b> (Forward to proponent of publication or form) (Include ZIP Code)<br>Mailing address found on title block page.                                      |                 |                   |                 |                                                               |                  | <b>FROM:</b> (Activity and location) (Include ZIP Code)<br>Your mailing address.                                                                |                                          |
| <b>PART I - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS</b>                                                                                      |                 |                   |                 |                                                               |                  |                                                                                                                                                 |                                          |
| <b>PUBLICATION/FORM NUMBER:</b><br>TM X-XXXX-XXX-XXX                                                                                                           |                 |                   |                 |                                                               |                  | <b>DATE:</b><br>Date of the TM.                                                                                                                 | <b>TITLE:</b><br>Title of TM.            |
| <b>ITEM NO.</b>                                                                                                                                                | <b>PAGE NO.</b> | <b>PARA-GRAPH</b> | <b>LINE NO.</b> | <b>FIGURE NO.</b>                                             | <b>TABLE NO.</b> | <b>RECOMMENDED CHANGES AND REASON</b><br>(Exact wording of recommended change must be given)                                                    |                                          |
|                                                                                                                                                                | 0019 00 1       | 3                 | 1               | 1                                                             |                  | Step No. 2 says to secure doors open with locking bar or hooks from where to what? The bars or hooks are not identified.                        |                                          |
|                                                                                                                                                                | 0019 00 4       | 4                 | 1               | 1                                                             |                  | Step No. 19 states to remove locking bars, pins or hooks from where to what? The bars, pins or hooks are not identified. Where are they stored? |                                          |
| SAMPLE                                                                                                                                                         |                 |                   |                 |                                                               |                  |                                                                                                                                                 |                                          |
| * Reference to line numbers within the paragraph or subparagraph.                                                                                              |                 |                   |                 |                                                               |                  |                                                                                                                                                 |                                          |
| <b>TYPED NAME, GRADE OR TITLE</b><br>Doe, John, CPL                                                                                                            |                 |                   |                 | <b>TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION</b><br>755-1313 |                  | <b>SIGNATURE</b><br><i>CPL John Doe</i>                                                                                                         |                                          |

|                                                                             |                                                         |              |
|-----------------------------------------------------------------------------|---------------------------------------------------------|--------------|
| <b>TO:</b> (Forward to proponent of publication or form) (Include ZIP Code) | <b>FROM:</b> (Activity and location) (Include ZIP Code) | <b>DATE:</b> |
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**PART II- REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS**

|                                                      |                                 |                               |
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| <b>PUBLICATION/FORM NUMBER:</b><br>TM X-XXXX-XXX-XXX | <b>DATE:</b><br>Date of the TM. | <b>TITLE:</b><br>Title of TM. |
|------------------------------------------------------|---------------------------------|-------------------------------|

| PAGE NO.      | COLM NO. | LINE NO. | FEDERAL STOCK NUMBER | REFERENCE NO. | FIGURE NO. | ITEM NO. | TOTAL NO. OF MAJOR ITEMS SUPPORTED | RECOMMENDED ACTION |
|---------------|----------|----------|----------------------|---------------|------------|----------|------------------------------------|--------------------|
| <b>SAMPLE</b> |          |          |                      |               |            |          |                                    |                    |

**PART III - REMARKS** (Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)

\* Reference to line numbers within the paragraph or subparagraph.

|                                                     |                                                               |                                  |
|-----------------------------------------------------|---------------------------------------------------------------|----------------------------------|
| <b>TYPED NAME, GRADE OR TITLE</b><br>Doe, John, CPL | <b>TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION</b><br>755-1313 | <b>SIGNATURE</b><br>CPL John Doe |
|-----------------------------------------------------|---------------------------------------------------------------|----------------------------------|



| <b>RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS</b><br>For use of this form, see AR 25-30; the proponent agency is OAASA |      |       |      |            |                                            | Use Part II (reverse) for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM). | DATE      |
|---------------------------------------------------------------------------------------------------------------------------------|------|-------|------|------------|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------|-----------|
| <b>TO: (Forward to proponent of publication or form) (Include ZIP Code)</b>                                                     |      |       |      |            |                                            | <b>FROM: (Activity and location) (Include ZIP Code)</b>                                                           |           |
| <b>PART I - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS</b>                                                       |      |       |      |            |                                            |                                                                                                                   |           |
| PUBLICATION/FORM NUMBER<br>LO 55-1915-200-13                                                                                    |      |       |      |            | DATE                                       | TITLE<br>LUBRICATION ORDER<br>LOGISTICS SUPPORT VESSEL (LSV)<br>NSN 1915-01-153-8801 (EIC WAX)<br>(LSV 1-6 ONLY)  |           |
| ITEM                                                                                                                            | PAGE | PARA- | LINE | FIGURE NO. | TABLE                                      | RECOMMENDED CHANGES AND REASON                                                                                    |           |
|                                                                                                                                 |      |       |      |            |                                            |                                                                                                                   |           |
| TYPED NAME, GRADE OR TITLE                                                                                                      |      |       |      |            | TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION |                                                                                                                   | SIGNATURE |

|                                                                       |                                                                |             |
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**PART II - REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS**

|                                                |             |                                                                                                                      |
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| <b>PUBLICATION NUMBER</b><br>LO 55-1915-200-13 | <b>DATE</b> | <b>TITLE</b> LUBRICATION ORDER<br>LOGISTICS SUPPORT VESSEL (LSV)<br>NSN 1915-01-153-8801 (EIC WAX)<br>(LSV 1-6 ONLY) |
|------------------------------------------------|-------------|----------------------------------------------------------------------------------------------------------------------|

| PAGE NO. | COLM NO. | LINE NO. | NATIONAL STOCK NUMBER | REFERENCE NO. | FIGURE NO. | ITEM NO. | TOTAL NO. OF MAJOR ITEMS SUPPORTED | RECOMMENDED ACTION |
|----------|----------|----------|-----------------------|---------------|------------|----------|------------------------------------|--------------------|
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**PART III - REMARKS** *(Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)*

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| <b>RECOMMENDED CHANGES TO PUBLICATIONS AND<br/>BLANK FORMS</b><br>For use of this form, see AR 25-30; the proponent agency is OAASA |      |       |      |               |       | Use Part II ( <i>reverse</i> ) for Repair Parts and<br>Special Tool Lists (RPSTL) and Supply<br>Catalogs/Supply Manuals (SC/SM). | DATE                                                                                                             |
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| <b>TO: (Forward to proponent of publication or form) (Include ZIP Code)</b>                                                         |      |       |      |               |       | <b>FROM: (Activity and location) (Include ZIP Code)</b>                                                                          |                                                                                                                  |
| <b>PART I - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS</b>                                                           |      |       |      |               |       |                                                                                                                                  |                                                                                                                  |
| PUBLICATION/FORM NUMBER<br>LO 55-1915-200-13                                                                                        |      |       |      |               |       | DATE                                                                                                                             | TITLE<br>LUBRICATION ORDER<br>LOGISTICS SUPPORT VESSEL (LSV)<br>NSN 1915-01-153-8801 (EIC WAX)<br>(LSV 1-6 ONLY) |
| ITEM                                                                                                                                | PAGE | PARA- | LINE | FIGURE<br>NO. | TABLE | RECOMMENDED CHANGES AND REASON                                                                                                   |                                                                                                                  |
|                                                                                                                                     |      |       |      |               |       |                                                                                                                                  |                                                                                                                  |
| TYPED NAME, GRADE OR TITLE                                                                                                          |      |       |      |               |       | TELEPHONE EXCHANGE/AUTOVON,<br>PLUS EXTENSION                                                                                    | SIGNATURE                                                                                                        |

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**PART II - REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS**

|                                                |             |                                                                                                                         |
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| <b>PUBLICATION NUMBER</b><br>LO 55-1915-200-13 | <b>DATE</b> | <b>TITLE</b><br>LUBRICATION ORDER<br>LOGISTICS SUPPORT VESSEL (LSV)<br>NSN 1915-01-153-8801 (EIC WAX)<br>(LSV 1-6 ONLY) |
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| PAGE NO. | COLM NO. | LINE NO. | NATIONAL STOCK NUMBER | REFERENCE NO. | FIGURE NO. | ITEM NO. | TOTAL NO. OF MAJOR ITEMS SUPPORTED | RECOMMENDED ACTION |
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**PART III - REMARKS** *(Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)*

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| <b>RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS</b><br>For use of this form, see AR 25-30; the proponent agency is OAASA |      |       |      |            |                                            | Use Part II ( <i>reverse</i> ) for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM). | DATE      |
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| <b>PART I - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS</b>                                                       |      |       |      |            |                                            |                                                                                                                            |           |
| PUBLICATION/FORM NUMBER<br>LO 55-1915-200-13                                                                                    |      |       |      |            | DATE                                       | TITLE LUBRICATION ORDER<br>LOGISTICS SUPPORT VESSEL (LSV)<br>NSN 1915-01-153-8801 (EIC WAX)<br>(LSV 1-6 ONLY)              |           |
| ITEM                                                                                                                            | PAGE | PARA- | LINE | FIGURE NO. | TABLE                                      | RECOMMENDED CHANGES AND REASON                                                                                             |           |
|                                                                                                                                 |      |       |      |            |                                            |                                                                                                                            |           |
| TYPED NAME, GRADE OR TITLE                                                                                                      |      |       |      |            | TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION |                                                                                                                            | SIGNATURE |

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**PART II - REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS**

|                                                |             |                                                                                                                         |
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| <b>PUBLICATION NUMBER</b><br>LO 55-1915-200-13 | <b>DATE</b> | <b>TITLE</b><br>LUBRICATION ORDER<br>LOGISTICS SUPPORT VESSEL (LSV)<br>NSN 1915-01-153-8801 (EIC WAX)<br>(LSV 1-6 ONLY) |
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| PAGE NO. | COLM NO. | LINE NO. | NATIONAL STOCK NUMBER | REFERENCE NO. | FIGURE NO. | ITEM NO. | TOTAL NO. OF MAJOR ITEMS SUPPORTED | RECOMMENDED ACTION |
|----------|----------|----------|-----------------------|---------------|------------|----------|------------------------------------|--------------------|
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|-----------------------------------|---------------------------------------------------|------------------|

By Order of the Secretary of the Army:

Official:



JOYCE E. MORROW

*Administrative Assistant to the  
Secretary of the Army*

0801814

GEORGE W. CASEY, JR.  
*General, United States Army  
Chief of Staff*

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