

IMPORTANT INFORMATION

Section 1B - Maintenance

**1
B**

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Maintenance Schedules

Maintenance Intervals

Maintenance intervals and the tasks to be performed, as shown in this current schedule, or as found in a previously printed schedules, are generally based on an average boating application and environment. However, individual operating habits and personal maintenance preferences can have an impact on the suggested intervals. In consideration of these factors, Mercury MerCruiser has adjusted some maintenance intervals and corresponding tasks to be performed. In some cases, this may allow for more individual tasks to be performed in a single visit to the serving dealer, rather than multiple visits. Therefore, it is very important that the boat owner and servicing dealer discuss the current Maintenance Schedule and develop appropriate maintenance intervals to coincide with the individual operating habits, environment, and maintenance requirements.

⚠ CAUTION
Always disconnect battery cables from battery BEFORE working around electrical systems components to prevent injury to yourself and damage to electrical system should a wire be accidentally shorted.

Gas Sterndrive

Routine Maintenance *				
	Each Day Start	Each Day End	Weekly	Every Two Months
Check crankcase oil (interval can be extended based on experience).				
	•			
If operating in salt, brackish or polluted waters, flush cooling system after each use.				
		•		
Check drive unit oil level, trim pump oil level and power steering pump fluid level.				
			•	
Check water pickups for debris or marine growth. Check water strainer and clean. Check coolant level.				
			•	
Inspect drive unit anodes and replace if 50 percent eroded.				
			•	
Inspect fuel pump sight tube and have pump replaced if fuel is present.				
			•	
Check battery connections and fluid level.				
				•
Lubricate propeller shaft and the retorque nut (if operating in only freshwater, this maintenance may be extended to every four months).				
				•
Operating in Saltwater Only: treat engine surface with corrosion guard.				
				•

* Only perform maintenance which applies to your particular power package.

Gas Sterndrive (Continued)

Scheduled Maintenance *					
Annually	Every 100 Hours or Annually◆	Every 200 Hours or 3 Years◆	Every 300 Hours or 3 Years◆	Every 2 Years	Every 5 Years
Touch-up paint power package and spray with corrosion guard.					
•					
Change crankcase oil and filter.					
	•				
Change drive unit oil and retorque connection of gimbal ring to steering shaft.					
	•				
Replace fuel filter.					
	•				
Check steering system and remote control for loose, missing or damaged parts. Lubricate cables and linkages.					
	•				
Inspect U-joints, splines and bellows. Check clamps. Check engine alignment. Lubricate U-joint splines.					
	•				
Lubricate gimbal bearing and engine coupler.					
	• ⁸				
Check continuity circuit for loose or damaged connections. Test MerCathode® unit output on Bravo models.					
	•				
Retorque engine mounts.					
	•				
Check spark plugs, wires, distributor cap and ignition timing. Check and adjust idle speed.					
	•				
Clean flame arrestor and crankcase ventilation hoses. Replace PCV valve.					
	•				
Check electrical system for loose, damaged or corroded fasteners.					
	•				
Inspect condition and tension of belts.					
	•				
Check cooling system and exhaust system hose clamps for tightness. Inspect both systems for damage or leaks.					
	•				
Disassemble and inspect seawater pump and replace worn components.					
	•				
Clean seawater section of closed cooling system. Clean, inspect and test pressure cap.					
	•				
Replace coolant.					
				♠	•

* Only perform maintenance which applies to your particular power package.

◆ Whichever occurs first.

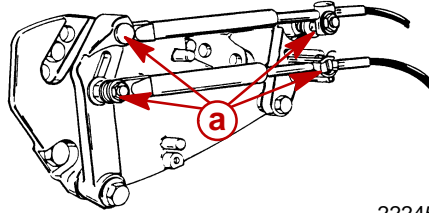
⁸ Lubricate engine coupler every 50 hours if operated at idle for prolonged periods of time.

♠ Interval will be reduced if not using extended life coolant.

Quicksilver Maintenance Products

We recommend the use of Quicksilver Maintenance Products where specified.

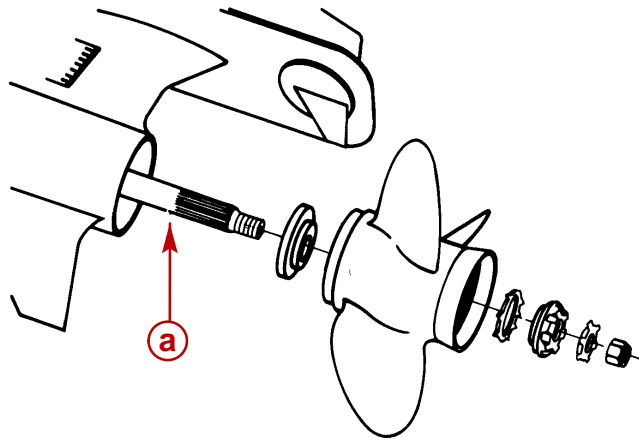
Lubricating Shift Cable Pivot Points



22245

a - SAE 20 Or 30 Engine Oil

Lubricating Propeller Shaft



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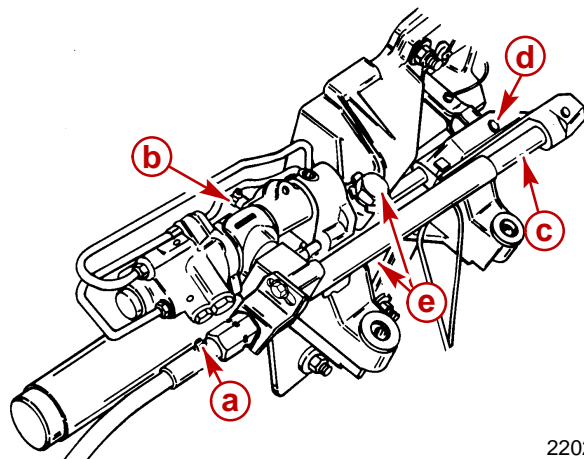
a - Special Lubricant 101, 2-4-C Marine Lubricant With Teflon Or Perfect Seal With Teflon (Listed In Order Of Effectiveness)

Lubricating Steering System

⚠ WARNING

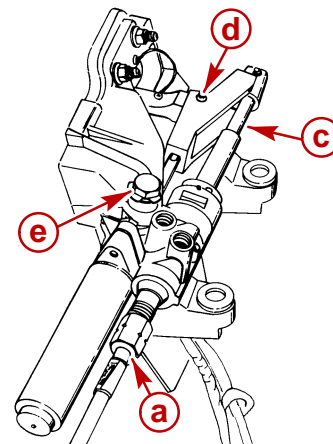
Transom end of steering cable **MUST BE** fully retracted into cable housing when lubricating cable. If cable is lubricated while extended, hydraulic lock of cable could occur.

Power Steering Models



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Earlier Style Control Valve

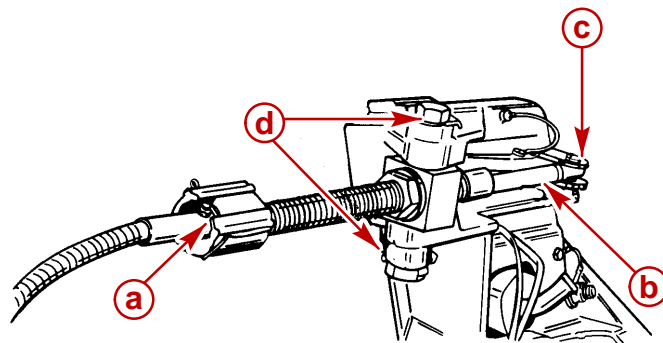


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Later Style Control Valve

- a** - Steering Cable Grease Fitting - 2-4-C Marine Lubricant With Teflon
- b** - Control Valve Grease Fitting - 2-4-C Marine Lubricant With Teflon
- c** - Steering Cable End - Special Lubricant 101
- d** - Pivot Point - Sae 20 Or 30 Engine Oil
- e** - Pivot Bolts - Special Lubricant 101

Manual Steering Models

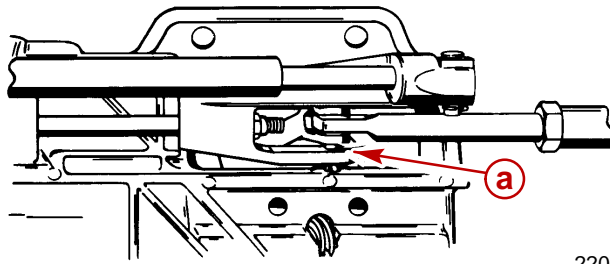


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- a** - Steering Cable Grease Fitting - 2-4-C Marine Lubricant With Teflon
- b** - Steering - Cable End And Exposed Portion - Special Lubricant 101
- c** - Pivot Points - SAE 20 Or 30 Engine Oil
- d** - Pivot Bolts - Special Lubricant 101

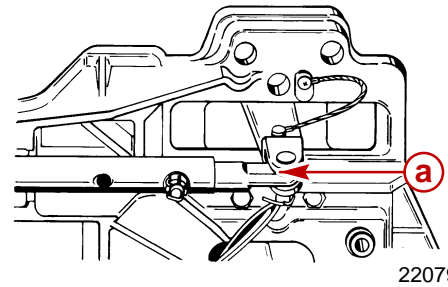
Lubricating Tie Bar Pivot Points

Models With Control Valve Mounted On Starboard Transom Assembly



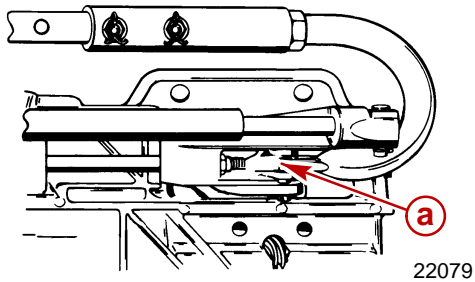
Starboard Engine

a - SAE 20 Or 30 Engine Oil



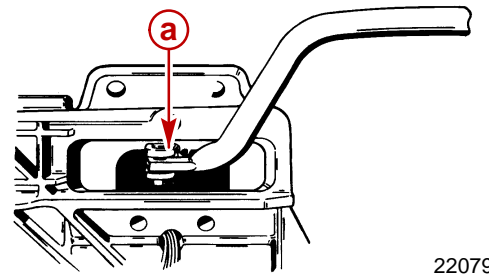
Port Engine

Models With Control Valve Mounted On Port Transom Assembly



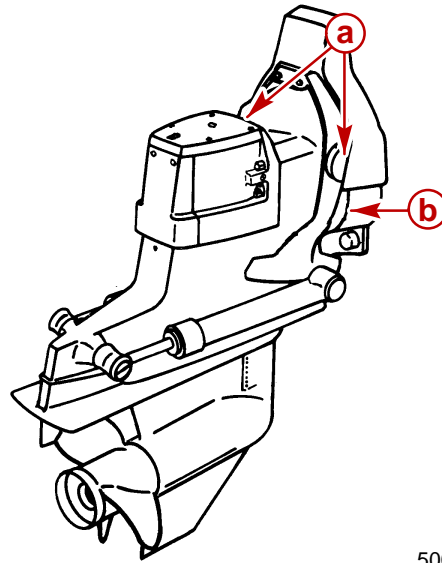
Port Engine

a - SAE 20 Or 30 Engine Oil



Starboard Engine

Lubricating Transom and Gimbal Assembly ,Hinge Pins and Gimbal Bearing



50072

- a** - Hinge Pins (One On Each Side)
- b** - Gimbal Bearing Grease Fitting - Quicksilver U-Joint And Gimbal Bearing Grease

Checking and Adding Sterndrive Oil

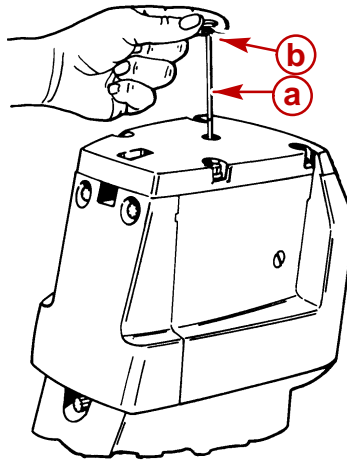
IMPORTANT: Position sterndrive unit in DOWN/IN position so that anti-ventilation plate is level.

Models Without Drive Unit Gear Lube Monitor

⚠ CAUTION

On models with Gear Lube Monitor, that have a dipstick in driveshaft housing cover: **DO NOT REMOVE DIPSTICK - DO NOT CHECK OIL LEVEL WITH DIPSTICK.** Removal of dipstick results in oil level raising/overflow condition, which can cause oil seal damage; if left open, drive unit will overflow.

1. Check oil level - oil should come up to line on dipstick. If oil is at proper level, reinstall oil dipstick and sealing washer. If oil is low, proceed to Step 2.



22098

- a - Oil Dipstick
- b - Sealing Washer (On Threads)

⚠ CAUTION

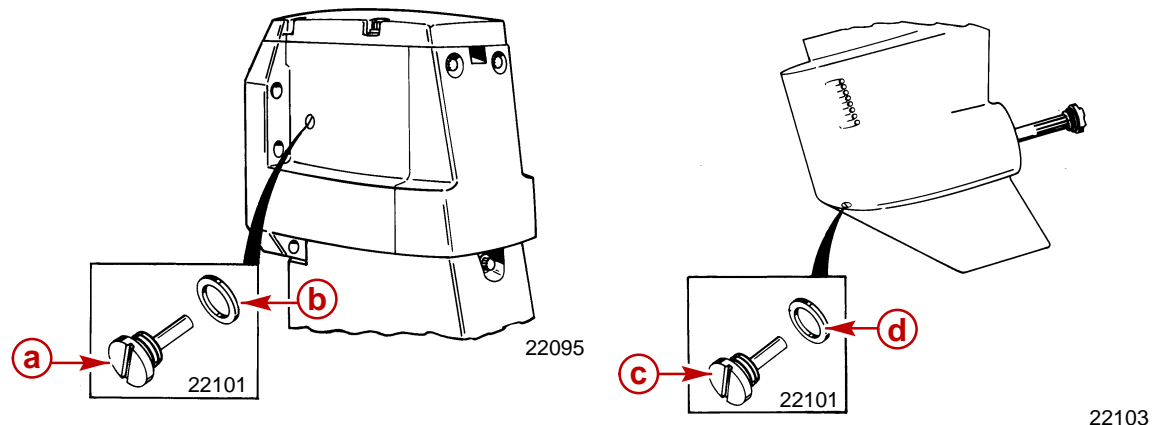
DO NOT attempt to fill drive unit through oil vent hole, as air will be trapped in drive unit and unit will be damaged from lack of lubrication.

⚠ CAUTION

If more than 2 fl. oz. (59 ml) of oil is required to fill drive unit, an oil leak may exist. Find and correct cause of leak before unit is placed in operation.

2. If oil level is low, reinstall dipstick; then, remove oil fill/drain plug and insert lubricant pump into oil fill/drain hole.

- Remove oil vent plug; then, fill drive unit (through oil fill/drain unit hole) with oil until an air-free stream of oil flows out of oil vent hole.



- a** - Oil Vent Plug
- b** - Sealing Washer Or O-ring
- c** - Oil Fill/Drain Plug
- d** - Sealing Washer Or O-ring

- Without removing lubricant pump from fill/drain hole, reinstall vent plug and sealing washer (or O-ring if equipped). Torque to 40 lb-in. (4 Nm).
- Remove lubricant pump and quickly reinstall fill/drain plug and sealing washer (or O-ring if equipped). Torque to 40 lb-in. (4 Nm).
- Recheck oil level, using dipstick.

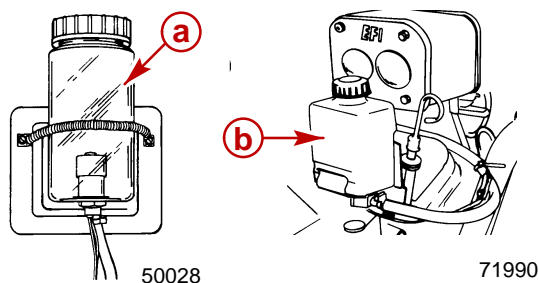
Models With Gear Lube Monitor

IMPORTANT: Position drive unit in **DOWN/IN** position, verify that the anti-ventilation plate is level.

NOTE: Drive unit oil level is checked at gear lube monitor.



IMPORTANT: Oil level in gear lube monitor will rise and fall during drive operation; always check oil level when drive is cool and engine is shut down.



- a** - Round Gear Lube Monitor
- b** - Square Gear Lube Monitor

1. Fill gear lube monitor to "FULL" line on decal. Lubricate O-ring seal on gear lube monitor neck with sterndrive oil, to ensure ease of installing and removing cap, and install gear lube monitor cap. Do not overtighten cap - 1/4 turn, after cap contacts seal, is sufficient.

⚠ CAUTION

On models with Gear Lube Monitor, that have a dipstick in driveshaft housing cover: DO NOT REMOVE DIPSTICK - DO NOT CHECK OIL LEVEL WITH DIPSTICK. Removal of dipstick results in oil level raising/overflow condition, which can cause oil seal damage; if left open, drive unit will overflow.

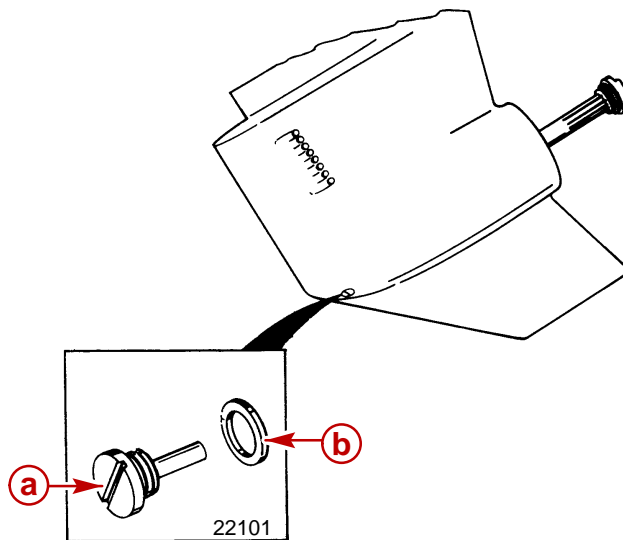
2. Check oil level in gear lube monitor.

Checking Lubricant for Water

Periodically inspect lubricant for water to ensure that drive unit seals are not leaking.

MODELS WITHOUT DRIVE UNIT GEAR LUBE MONITOR

1. Trim drive unit to the full Trim UP/OUT position.
2. Remove fill/drain plug to take a sample of lubricant. If water is observed or if lubricant appears discolored, drive unit is leaking and must be resealed.



22103

- a** - Fill/Drain Plug
- b** - Sealing Washer Or O-ring

3. Reinstall fill/drain plug. Torque to 40 lb-in. (4.0 Nm).

MODELS WITH GEAR LUBE MONITOR

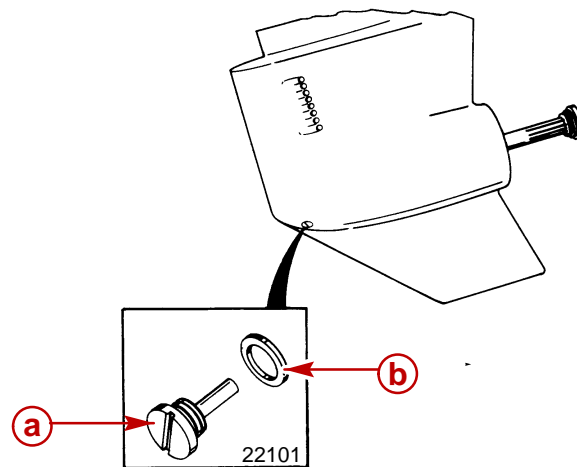
Check for water at bottom of gear lube monitor, and/or if oil appears discolored, a water leak is indicated somewhere in the drive unit, and drive unit must be resealed.

⚠ CAUTION

If more than 2 fl. oz. (59ml) of Quicksilver High Performance Gear Lube is required to fill gear lube monitor, a seal may be leaking. Find and correct cause of leak before unit is placed in operation.

IMPORTANT: If drive unit has set overnight or longer, check for water in drive unit, as follows:

1. Trim drive unit to full Trim UP/OUT position.



22103

- a** - Oil Fill/Drain Plug
- b** - Sealing Washer or O-ring

2. Remove fill/drain plug to sample lubricant. If water runs out, and/or if lubricant appears discolored, drive unit is leaking and **must** be resealed.
3. Reinstall fill/drain plug. Torque to 40 lb-in. (4 Nm).

Changing Lubricant

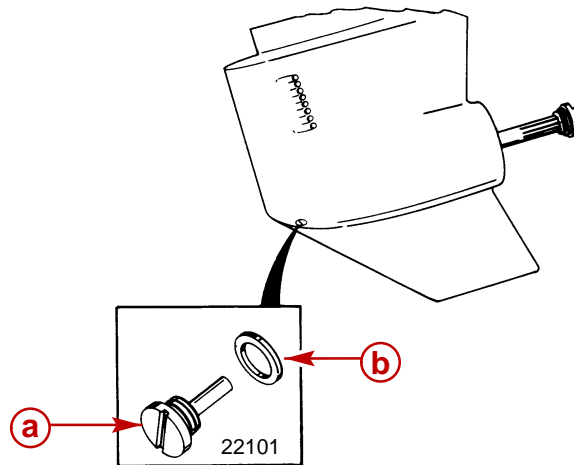
⚠ CAUTION

If any water drains from fill/drain hole, or if oil color appears discolored, a leak in drive unit may exist. Find and correct cause of leak before placing unit back in operation.

⚠ CAUTION

DO NOT attempt to fill drive unit through oil vent holes, as air will be trapped in drive unit and unit will be damaged from lack of lubrication.

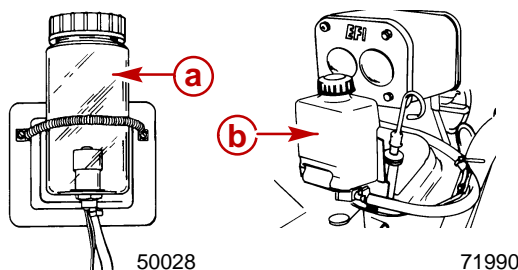
1. Trim drive unit to full Trim UP/OUT position.



22103

- a** - Oil Fill/Drain Plug
- b** - Sealing Washer or O-ring

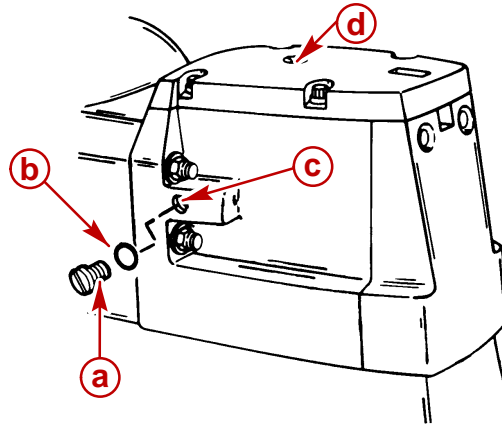
2. **Models with drive unit Gear Lube Monitor, only:** remove drive unit gear lube monitor from bracket, remove cap, empty contents of gear lube monitor into suitable container and discard. Clean gear lube monitor thoroughly, and return gear lube monitor to bracket. Do not refill at this time. Check condition of hose and hose connections - replace as necessary.



- a** - Round Gear Lube Monitor
- b** - Square Gear Lube Monitor

3. **All models:** remove drive unit vent plug, and fill/drain plug; allow lubricant to drain completely.

4. Trim drive unit to full DOWN/IN position, with anti-ventilation plate level, to complete draining process.



- a - Oil Vent Plug
- b - Sealing Washer Or O-ring
- c - Vent Hole
- d - Dipstick

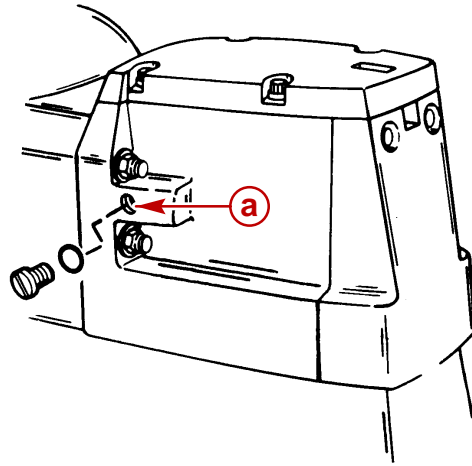
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5. Using lubricant pump, fill drive unit through fill/drain hole with lubricant until oil is even with bottom edge of vent hole.
6. Without removing lubricant pump from fill/drain hole, reinstall oil vent plug and sealing washer.
 - a. **Non-Gear Lube Monitor Models:** torque oil vent plug to 40 lb-in. (4 Nm).
 - b. **Gear Lube Monitor Models:** tighten oil vent plug snugly; do not torque at this time.
7. **All models:** remove lubricant pump and quickly reinstall fill/drain plug and sealing washer. Torque to 40 lb-in. (4 Nm).

Models with Gear Lube Monitor:

8. Remove oil vent plug and sealing washer (with drive unit in full DOWN/IN position).
9. Fill gear lube monitor bottle with Quicksilver High-Performance Gear Lube. When oil starts to run out the vent hole (gear lube hose between drive unit and gear lube bottle becomes filled), reinsert vent plug. Torque to 40 lb-in. (4 Nm).
10. Fill gear lube monitor to "FULL" line on decal. Lubricate O-ring seal on gear lube monitor neck with sterndrive oil, to ensure ease of installing and removing cap. Install gear lube monitor cap. Do not overtighten.

11. **All models:** recheck oil level after first use.



50072

a - Vent Hole

General Maintenance

Maintaining Power Package Exterior Surfaces

Entire Power Package should be sprayed at recommended intervals with Quicksilver Corrosion Guard. Follow instructions on can for proper application.

At least once each year, entire Power Package should be cleaned and external surfaces that have become bare should be repainted with Quicksilver Primer and Spray Paint.

Steering Head and Remote Control Maintenance

Lubricate steering head and remote control with 2-4-C Marine Lubricant with Teflon. Inspect steering head and remote control for ease of operation.

Checking Quicksilver MerCathode System

If boat is equipped with a Quicksilver MerCathode System, system should be tested to ensure that it is providing adequate output to protect underwater metal parts on boat. Test should be made where boat is moored, using Quicksilver Reference Electrode and Test Meter. Refer to section 7.

Maintaining Anodic Trim Tab or Plate

Each sterndrive unit is equipped with a sacrificial anodic trim tab (or plate on later models) to help protect underwater metal parts from galvanic corrosion. Because of its self-sacrificing nature, trim tab (or plate) **MUST BE** replaced if eroded 50% or more. An anodic plate is the new service replacement for the anodic trim tab. Install the anodic plate in place of the anodic trim tab. Refer to Section 7.

Checking Optional Quicksilver Anti-Corrosion Anode Kit

If boat is equipped with Quicksilver Anti-Corrosion Anode Kit, inspect anode and replace if eroded to less than 50% of its original size. Carefully follow installation instructions, that accompany new Anode Kit, to ensure proper installation.

Boat Bottom Care

To achieve maximum performance and fuel economy, boat bottom **MUST BE** kept clean. Accumulation of marine growth or other foreign matter can greatly reduce boat speed and increase fuel consumption. To ensure best performance and efficiency, periodically clean boat bottom in accordance with manufacturer's recommendations.

In some areas, it may be advisable to paint the bottom to help prevent marine growth. Refer to the following information for special notes about the use of antifouling paints.

Antifouling Paint

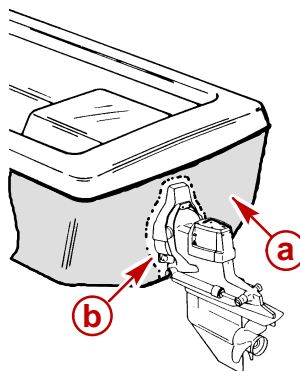
IMPORTANT: Corrosion damage that results from the improper application of antifouling paint will not be covered by the limited warranty.

Painting Boat Hull or Boat Transom: Antifouling paint may be applied to boat hull and boat transom but you must observe the following precautions:

IMPORTANT: **DO NOT** paint anodes or MerCathode System reference electrode and anode, as this will render them ineffective as galvanic corrosion inhibitors.

IMPORTANT: If antifouling protection is required for boat hull or boat transom, copper or tin base paints, if not prohibited by law, can be used. If using copper or tin based antifouling paints, observe the following:

- Avoid an electrical interconnection between the Mercury MerCruiser Product, Anodic Blocks, or MerCathode System and the paint by allowing a minimum of 1-1/2 in. (40mm) **UNPAINTED** area on transom of the boat around these items.



71176

a - Painted Boat Transom

b - Minimum 1-1/2 in. (40 mm) UNPAINTED Area Around Transom Assembly

NOTE: Drive unit and transom assembly can be painted with a good quality marine paint or an antifouling paint that DOES NOT contain copper, tin, or any other material that could conduct electrical current. Do not paint drain holes, anodes, MerCathode system, and items specified by boat manufacturer.

Maintaining Ground Circuit Continuity

The transom assembly and sterndrive unit are equipped with a ground wire circuit, to ensure good electrical continuity between engine, transom assembly and sterndrive components. Good continuity is essential for the MerCathode System to function effectively. Refer to Section 7.

Power Package Layup (Out of Season Storage)

Engine

Refer to appropriate Engine Service Manual.

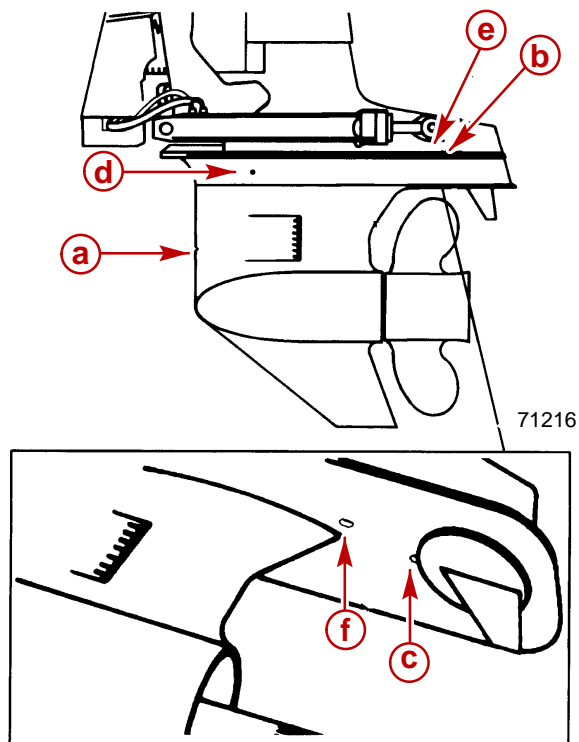
Sterndrive

1. Lubricate steering system. Refer to Section 6.
2. Lubricate transom gimbal housing assembly swivel shaft, gimbal bearing, and propeller shaft. Refer to Section 4 and Section 1-B.
3. Lubricate sterndrive unit U-joint shaft splines and cross bearings. Refer to Section 3-A.
4. Inspect U-joint bellows for cracks or other signs of deterioration. Check bellows clamps for tightness. Refer to Section 4.
5. Check engine alignment. Refer to Engine Service Manual.
6. Change sterndrive unit oil. Refer to Section 1-B.

⚠ CAUTION

Water holes in sterndrive unit MUST BE open to allow water to drain, or trapped water may freeze and cause severe damage to housings.

- Using a piece of wire, check water drain holes in sterndrive unit to ensure that they are open.



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Sterndrive Unit Water Drain Holes

- a** - Speedometer Pitot Tube
- b** - Trim Tab Cavity Vent Hole
- c** - Trim Tab Cavity Drain Passage
- d** - Gear Housing Water Drain Hole (One Each - Port and Starboard)
- e** - Gear Housing Cavity Vent Hole
- f** - Gear Housing Cavity Drain Hole

- Inspect sterndrive for damage. Repair or replace damaged components.
- Clean sterndrive exterior surfaces and repaint any bare metal surfaces with Quicksilver Primer and Spray Paint. Refer to Section 1-B.
- After paint has dried spray entire sterndrive with Quicksilver Corrosion Guard. Refer to Section 1-B.

⚠ CAUTION

Store sterndrive unit in the full trim DOWN/IN position. U-joint bellows may develop a "set" if unit is stored in raised position and may fail when unit is returned to service.

- Place sterndrive unit in the full trim DOWN/IN position.
- Store battery. Refer to battery manufacturer's instructions.

Power Package Recommissioning

Engine

Refer to appropriate Engine Service Manual.

Sterndrive

1. Perform ALL maintenance specified for completion "At Least Once Each Year" in "Maintenance Chart" (Refer to Section 1-B), except items which were performed at the time of sterndrive layup.
2. Install fully-charged battery. Clean battery cable clamps and terminals and reconnect cables. Be sure to tighten clamps securely. Apply a thin coat of petroleum based grease to clamps and terminals to help retard corrosion.
3. After recommissioning and starting engine, check steering system and shift control for proper operation.

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