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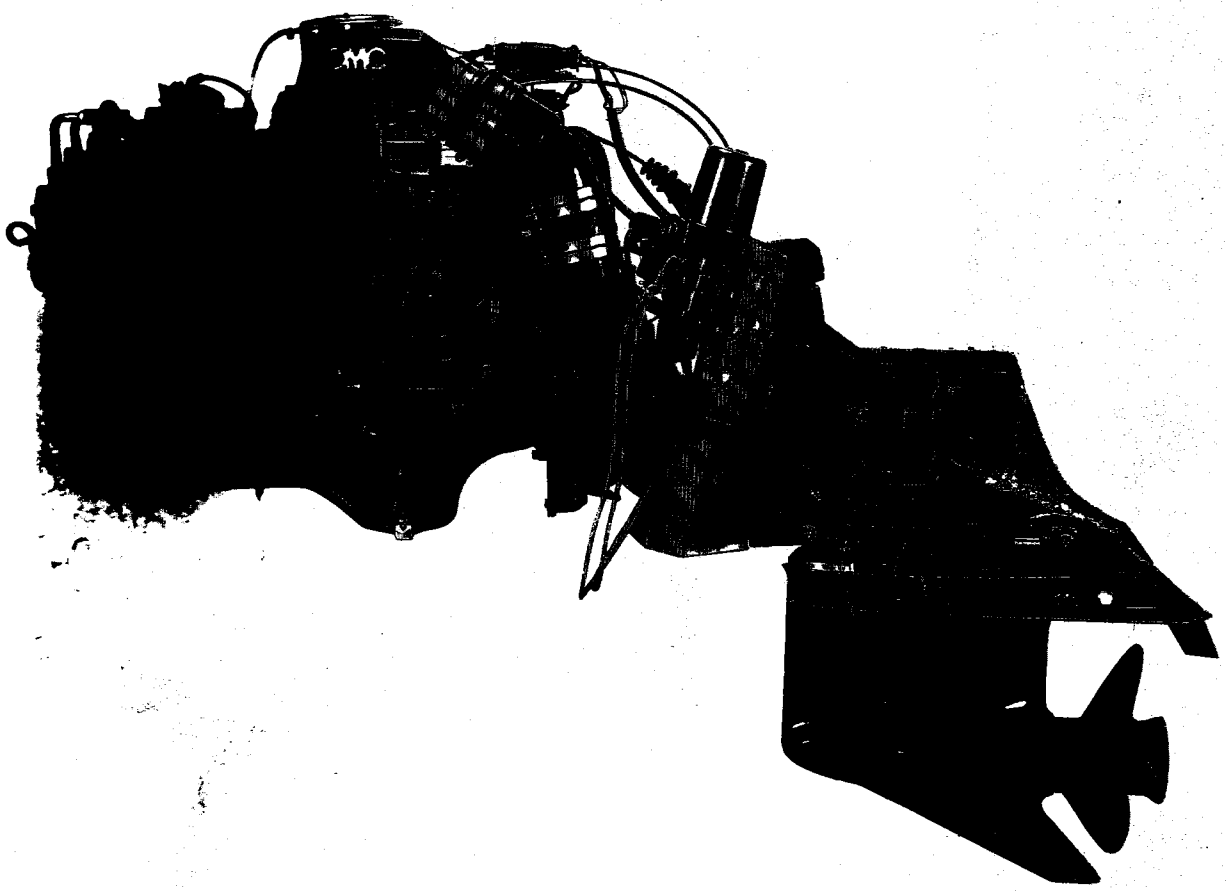
OMC Cobra®
STERN DRIVES



Service Manual

...Fuel System: Add *OMC 2+4* fuel conditioner to ...at the recommended rate stated on the container. ...will stabilize the fuel and prevent the formation of varnish ...d gum in the entire fuel system. Do this before continuing with the following procedures.

2. **Change crankcase oil and oil filter:**

   - The engine should first be operated under load until the oil is thoroughly warmed up. If the oil is allowed to warm up before draining, a more complete draining will be accomplished since hot oil flows better than cold. In addition, the accumulated impurities will be held in suspension by the oil and removed during the draining operation.
   - Drain the crankcase oil.
   - Install a new oil filter and fill the crankcase with fresh oil.
   - After changing the engine oil, with vertical drive in full down position, run the engine at a fast idle for a few minutes to distribute the clean oil through the engine.
   - Check the oil filter gasket for leaks.
   - Shut off the engine and check the oil level. Add oil if necessary to bring the oil level up to, but not over, the full mark.

Note Vertical drive must be submerged in water or use an accessory flushing adapter while operating engine.

⚠ **When using a flushing adapter, remove the propeller before starting the engine to prevent accidental contact with moving propeller.**

3. **Change vertical drive lubricant:** Drain and refill with fresh *OMC Hi-Vis* gearcase lube. See **Vertical Drive Lubrication,** page 2-14.

4. **Fog engine:**

- Warm up engine to ensure fuel conditioner is throughout the fuel system.
- Use 1/2 pint (0,25 liter) of *OMC Storage Fogging Oil* to fog engine.
- Remove flame arrestor from carburetor. Bring engine up to fast idle, slowly pour 2/3 of fogging oil into carburetor.
- Keep engine running while pouring fogging oil into carburetor throat (a thick smoke will develop).
- Rapidly dump the remaining 1/3 of fogging oil into carburetor, reduce throttle to idle and let engine die.
- Turn off ignition and replace flame arrestor.

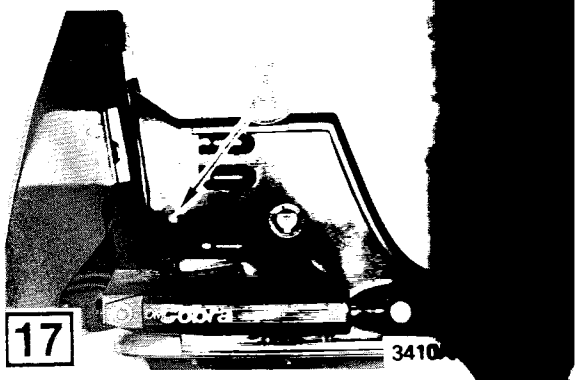
5. **Drain cooling system:**

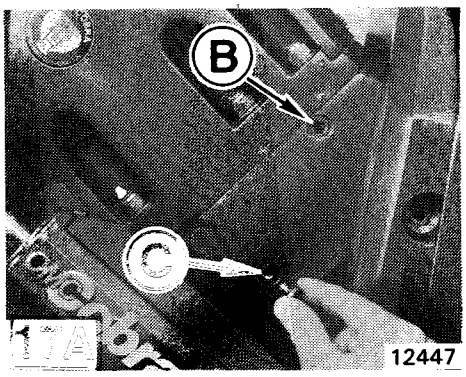
When draining the engine, raise or lower the bow of the boat to position the engine in a horizontal plane. This will provide for complete drainage of the block and manifold. If the bow of the boat is higher or lower than the stern, some water may be trapped in the block.

- Use ½ pint (0,25 litre) of *OMC Storage Fogging Oil* to fog engine.
- Remove flame arrestor from carburetor. Bring engine up to fast idle, slowly pour two-thirds of fogging oil into carburetor.
- Keep engine running while pouring fogging oil into carburetor throat (a thick smoke will develop).
- Rapidly dump the remaining one-third of fogging oil into carburetor, reduce throttle to idle and let engine die.
- **On power steering equipped models,** remove drain plug from oil cooler. **On 460 *King Cobra* models,** remove drain plug from engine oil cooler.

17
17A

- With the vertical drive in the down (vertical) position, remove the water drain plug Ⓐ on port side of pivot housing. Also remove vent plug Ⓑ and drain plug Ⓒ on starboard side of pivot housing. Crank engine momentarily to expel water from drive pump. Run the vertical drive to the full tilt position and allow any water to drain. When finished, return the vertical drive to the full down position and allow any additional water to drain out. After draining, replace the plugs.





Note Failure to ensure complete drainage of the cooling system may result in serious damage to the engine and/or vertical drive. If complete draining of engine, vertical drive or exhaust manifold is in doubt, remove the petcock valves and water drain plug. Clear the openings with a small piece of wire. After complete drainage, replace the petcock valves in the open position and ensure that the water drain plug is securely in place.

6. Remove vertical drive. This will allow access to U-joint grease fittings for required lubrication. See Gimbal Housing and Universal Joints Lubrication, page 2-24.

7. Inspect vertical drive water pickup screen for obstructions.

8. Disconnect the battery and place in storage. When storage will be for a considerable length of time, periodically recharge the battery following the manufacturer's recommendations.

9. Spray entire engine and vertical drive with a rust preventive coating, following the directions on the container.

Optional Winterization Procedure

After following all steps in Off-Season Storage Preparations, a good quality ethylene glycol base antifreeze, premixed 50/50 with water, may be poured into the cooling system.

1. Close all petcocks and replace rubber caps and clamps or plugs, if equipped.

2. Remove upper end of large water pump hose at thermostat housing assembly.

3. Pour 50/50 water/antifreeze mixture into hose until antifreeze appears at thermostat opening.

OMC

STERN DRIVES

PWC
PWS
Models

4 CYLINDER
2.5 L Models
3.0 L Models

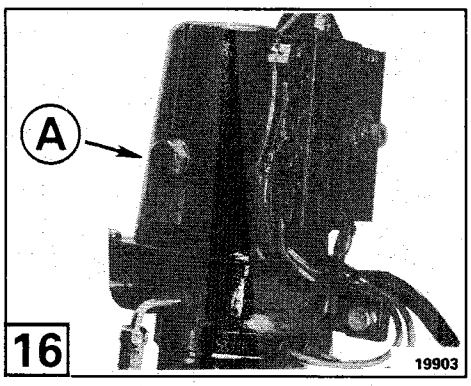
6 CYLINDER
4.3 L Models
4.3 L HO Models

8 CYLINDER
5.0 L Models
5.0 L HO Models
5.7 L Models
5.8 L Models

SERVICE MANUAL

- Fill vertical drive with *OMC Hi-Vis* gearcase lubricant through the oil fill plug location. The vertical drive is properly filled when the oil level appears at the mark on the dipstick. Check oil level with the dipstick cap threads resting on top of the hole and read oil level reference to the mark on dipstick.

- Securely replace the oil level dipstick before installing the oil fill plug. This will create an air lock and will hold the oil in the drive unit while the oil fill plug is being replaced.



Note When completely changing the lubricant in the vertical drive, the oil level must be checked after the unit has been run and trapped air is purged. Improper oil level may result in serious vertical drive damage.

Power Trim/Tilt-Fluid Level Check

16 The trim/tilt assembly contains the electric motor, hydraulic pump, and reservoir. At the beginning of each boating season, check the fluid level in the reservoir as follows:

- With the vertical drive tilted up, remove the level/fill plug.

⚠ **The trim/tilt hydraulics are pressurized when the vertical drive is in the down position. The vertical drive must be tilted up to relieve hydraulic pressure before removing level/fill plug Ⓐ. Failure to tilt the vertical drive in the up position before removing level/fill plug would result in hydraulic oil being sprayed. Caution should always be taken when removing level/fill plug by placing a rag over the level/fill plug to prevent residual pressure from spraying oil.**

- Check the fluid level. The fluid level should be at the bottom of the fill hole when the vertical drive is at full tilt.

- If necessary, add *OMC Power Trim/Tilt and Power Steering Fluid.* Replace the level/fill plug and tighten securely.

When checking fluid level, inspect the trim/tilt unit for leaks and proper operation.

Off-Season Storage Preparations

1. Condition the fuel system: Add *OMC 2+4®* fuel conditioner to fuel system at the recommended rate stated on the container. This will stabilize the fuel and prevent the formation of varnish and gum in the entire fuel system. Do this before continuing with the following procedures.

2. **Change motor oil and oil filter:**

- The engine should first be operated under load until the oil is thoroughly warmed up. If the oil is allowed to warm up before draining, a more complete draining will be accomplished. In addition, the accumulated impurities will be held in suspension by the oil and be removed during the draining operation.
- Drain the motor oil.
- Install a new oil filter and fill the crankcase with recommended oil.
- After changing the motor oil, with vertical drive in full down position, run the engine at a fast idle for a few minutes to distribute the clean oil through the engine.
- Check the oil filter gasket for leaks.
- Shut off the engine and check the oil level. Add oil if necessary to bring the oil level up to, but not over, the full mark.

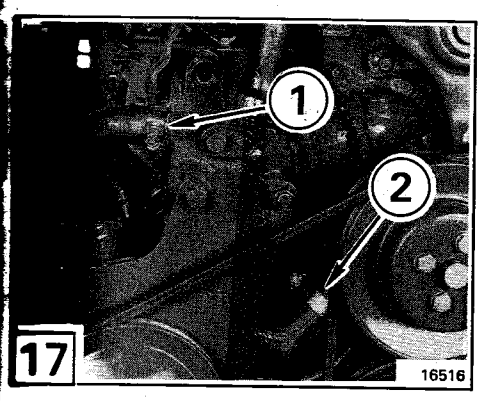
Note Vertical drive must be submerged in water or an accessory flushing adaptor must be used while operating engine.

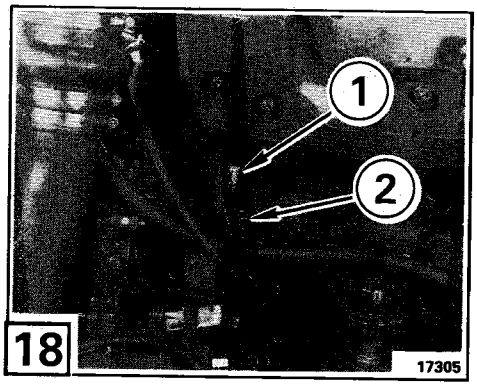
⚠ **When using a flushing adaptor, remove the propeller before starting the engine to prevent accidental contact with moving propeller.**

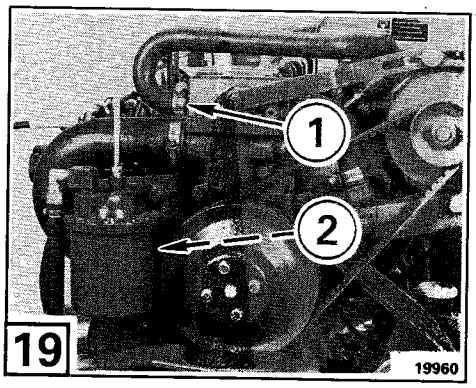
3. **Change vertical drive lubricant:** Drain and refill with fresh *OMC Hi-Vis®* gearcase lube. Refer to Vertical Drive Lubrication.

4. **Fog engine:**

- Warm up engine to ensure fuel conditioner is throughout the fuel system.
- Use 0,25 litre (½ pint) of *OMC® Storage Fogging Oil* to fog engine.
- Remove flame arrestor from carburetor. Bring engine up to fast idle and slowly pour ⅔ of fogging oil into carburetor.
- Keep engine running while pouring fogging oil into carburetor throat.
- Rapidly dump the remaining ⅓ of fogging oil into carburetor, reduce throttle to idle and let engine die.
- Turn off ignition and replace flame arrestor.







5. Drain cooling system:

When draining the engine, raise or lower the bow of the boat to position the engine in a horizontal plane. This will provide for complete drainage of the block and manifold. If the bow of the boat is higher or lower than the stern, some water may be trapped in the block.

2.3 L Models

17 Front

① Loosen and slide clamp back. Remove and drain long hose at thermostat housing.
② Disconnect and drain large hose at water pump housing.

18 Starboard

① Open one exhaust manifold petcock.
② Open one cylinder block petcock.

3.0 L & 3.0 L HO Models

19 Front

① Loosen and slide clamp back. Remove and drain long hose at thermostat housing.
② Disconnect and drain large hose at water pump housing.

20 Port

① Open one exhaust manifold petcock.
② Open one cylinder block petcock.

4.3 L & 4.3 L HO Models

21 Front

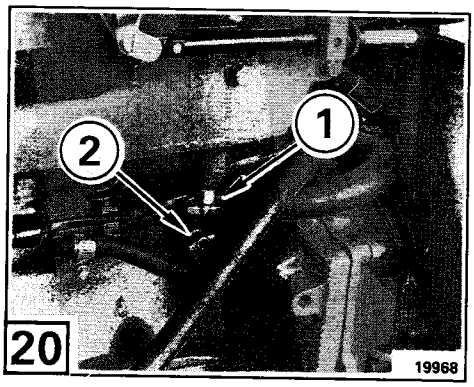
① Disconnect and drain long hose at thermostat housing.
② Disconnect and drain large hose at water pump housing.

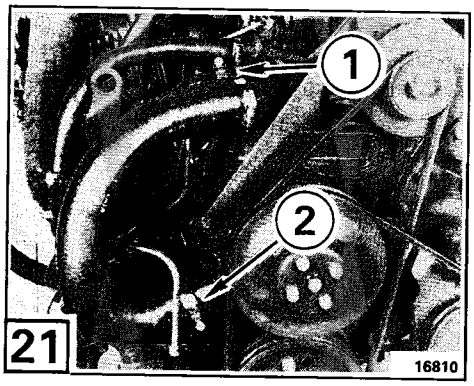
22 Starboard

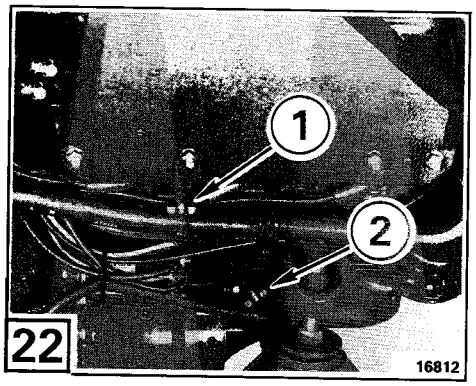
① Open one exhaust manifold petcock.
② Open one cylinder block petcock.

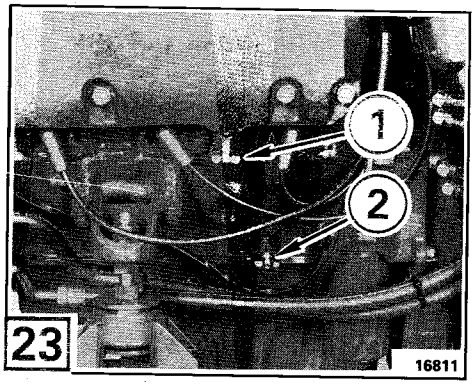
23 Port

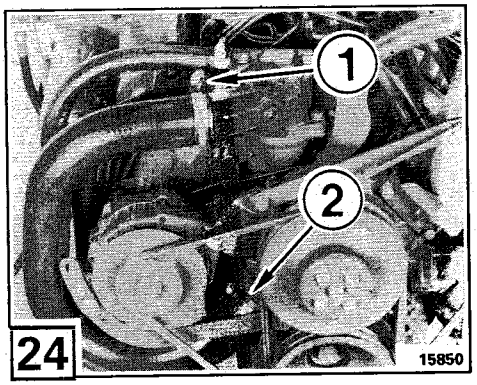
① Open one exhaust manifold petcock.
② Open one cylinder block petcock.

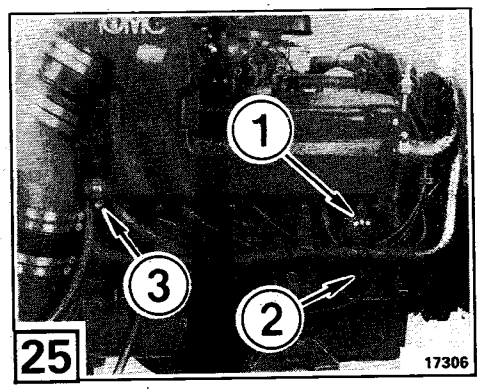


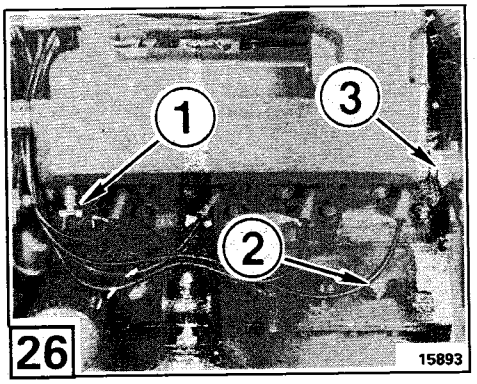












5.0 L, 5.0 L HO & 5.8 L Models

24 Front
① Disconnect and drain long hose at thermostat housing.
② Disconnect and drain large hose at water pump housing.

25 Starboard
① Open one exhaust manifold petcock.
② Open one cylinder block petcock.
③ Loosen clamp and remove rubber cap.

26 Port
① Open one exhaust manifold petcock.
② Open one cylinder block petcock.
③ Loosen clamp and remove rubber cap.

5.7 L Models

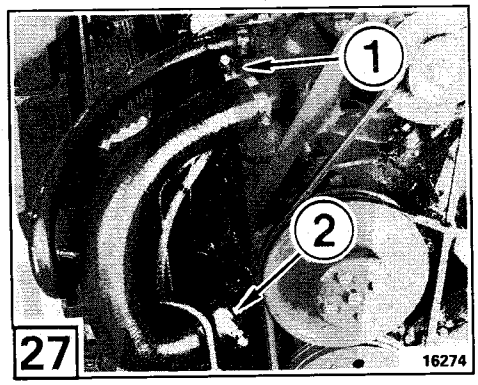
27 Front
① Disconnect and drain long hose at thermostat housing.
② Disconnect and drain large hose at water pump housing.

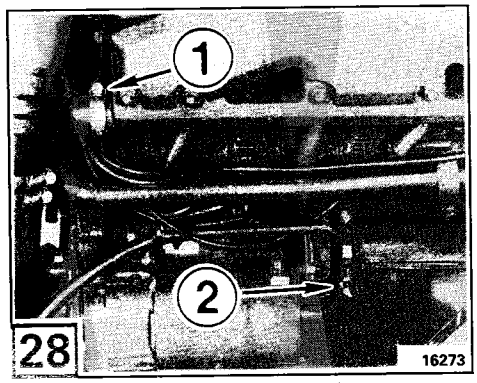
28 Starboard
① Loosen clamp and remove rubber cap.
② Open one cylinder block petcock.

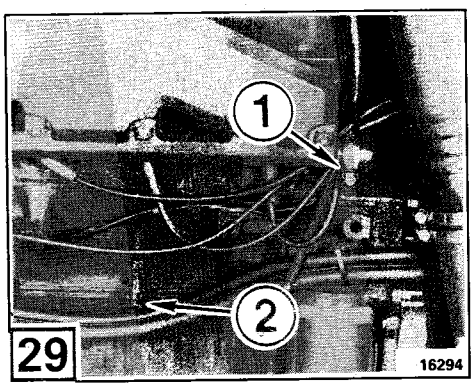
29 Port
① Loosen clamp and remove rubber cap.
② Open one cylinder block petcock.

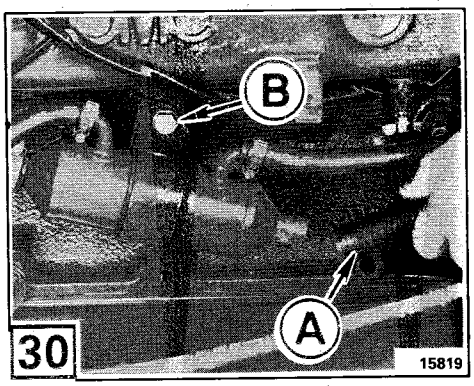
Models With Oil Coolers

30 On models so equipped, remove the lower water hose from the power steering cooler. If cooler is mounted horizontally, remove one water hose Ⓐ from oil cooler, loosen mounting bolt Ⓑ, and tip oil cooler downward to drain.

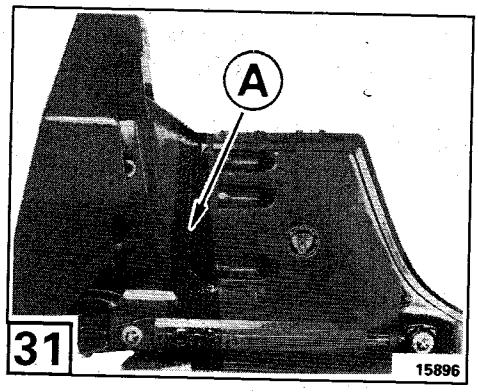


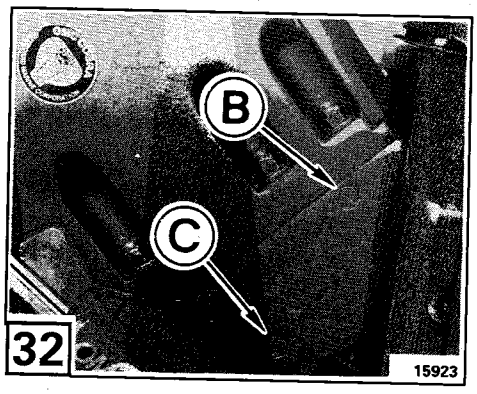






6. Drain Pivot Housing:





31 32 To drain cavities in pivot housing, tilt vertical drive to the full tilt (up) position and remove the water **drain plug** Ⓐ from the port side of the pivot housing. Remove both the **vent plug** Ⓑ and **drain plug** Ⓒ on the starboard side of the pivot housing. Crank the engine momentarily to expel any water trapped in the drive water pump and cooling passages. Run the drive to the full tilt up position, allow unit to drain, then return to full down position. After unit has completely drained, replace pivot housing plugs. Inspect vertical drive water intake screen for obstructions.

Note Failure to completely drain the cooling system will result in serious damage to the engine, exhaust manifolds, and pivot housing when temperatures go below freezing. If complete drainage is in doubt, check drain opening with a piece of wire.

7. Lubricate gimbal bearing and universal joints: Refer to Gimbal Bearing and Universal Joint Lubrication.

8. Inspect vertical drive water pickup screens for obstructions.

9. Disconnect the battery and place in storage. When storage will be for a considerable length of time, periodically recharge the battery following the manufacturer's recommendations.

10. Spray entire engine and vertical drive with a rust preventative coating, such as *CRC-6-66* or equivalent, following the directions on the container.

Preparation for Boating

1. Close all drain petcocks. Replace manifold rubber caps and clamps. Connect hoses and check the condition of hoses and connections. Install the boat drain plug, if removed.

2. **All Model Except 3.0 L, 3.0 L HO & 4.3 L HO:** Remove the distributor cap and rotor. Inspect the breaker points and check the point gap. Wipe the inside of the distributor cap dry with a clean cloth and spray with *CRC-6-66* or equivalent. Replace the rotor and cap.

3. Clean the battery terminals. With the ignition switch in the "OFF" position, install the battery and attach the battery cables. Spray terminals with *CRC-6-66* or equivalent.

⚠ 4. **Open the fuel shut-off valve and check all fuel line connections for leaks.**

⚠ 5. Check the flame arrestor and clean if necessary. **Reinstall, make sure all parts are in place and tighten nut securely.**

6. Make a thorough check of the boat and engine for loose or missing nuts and screws. Pump the bilge dry and air out the engine compartment.

7. Test run engine: Launch boat or use a flushing adaptor installed on vertical drive.

⚠ **Safety Warning**

- **To prevent a possible explosion, operate the blower as recommended by the boat manufacturer before starting engine. If the boat is not equipped with a bilge blower, open engine cover or hatch prior to starting and leave open until after engine is running.**
- **If operating boat in water, tie boat securely to prevent forward or backward movement.**
- **When using a flushing adaptor, remove the propeller before starting engine to prevent accidental contact with moving propeller.**

Note Do not start engine out of water unless using a flushing adaptor. Always turn water on before starting engine. Control water pressure as full water pressure may cause damage to water pump and engine.

⚠ 8. With engine compartment open, start the engine. Monitor the ammeter, voltmeter, oil pressure and water temperature gauges frequently to be sure all systems are operating properly. **Check for fuel, oil, and water leaks.**