



Information for this
file is taken from
OEM Service Manual
Number 14

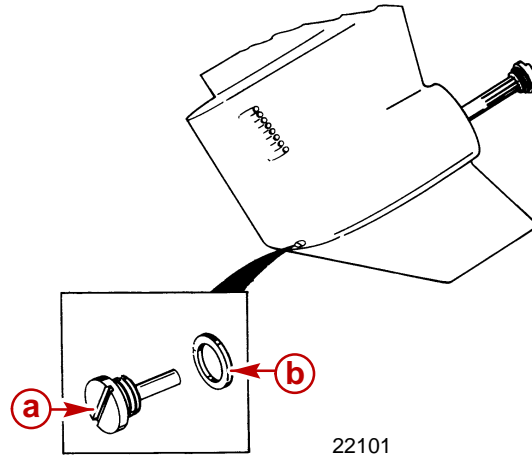
**Raw Water Pump
Service and Repair
Alpha I Gen II**



Drive Shaft Housing/Gear Housing

Separation

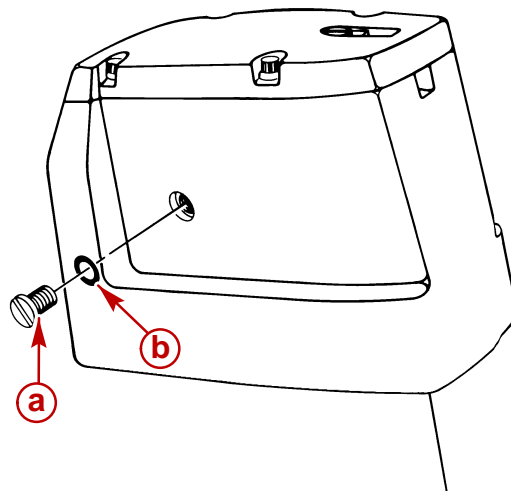
1. Clamp the unit on the gear housing anti-ventilation plate in a suitable fixture.
2. Tilt the unit at a 45 degree angle, remove the oil fill/drain plug, then remove the drive shaft housing vent screw. Allow the drive unit to drain completely.



22101

22103

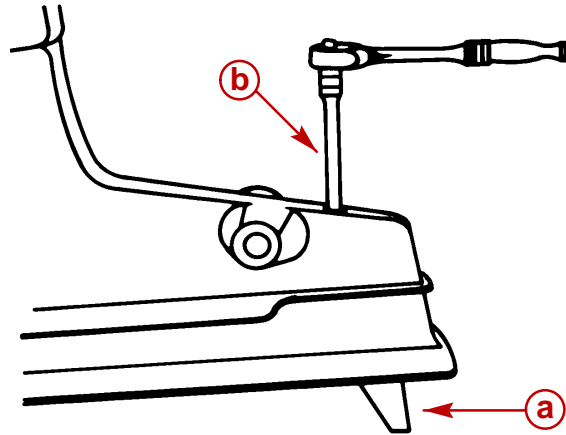
- a** - Fill/Drain Screw
- b** - Sealing Washer Or O-ring



70131

- a** - Vent Screw
- b** - Sealing Washer Or O-ring

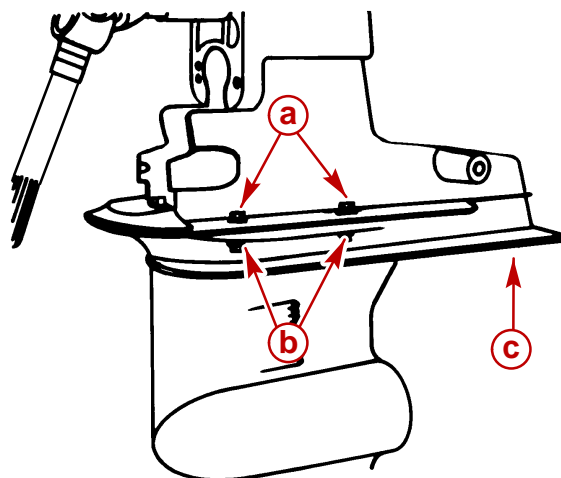
3. Mark the trim tab position (if equipped) with a piece of tape on the gear housing and remove the trim tab or anodic plate, if equipped.



70116

- a** - Trim Tab
- b** - Extension With 1/2 in. Socket

4. Remove the bolts, nuts and washers from the port and starboard sides of the unit.
5. Remove the aft screw (in the trim tab well of the gear housing).
6. Remove the nut from the forward end of the unit.



70117

- a** - Nuts, Bolts And Washers
- b** - Nut
- c** - Screw

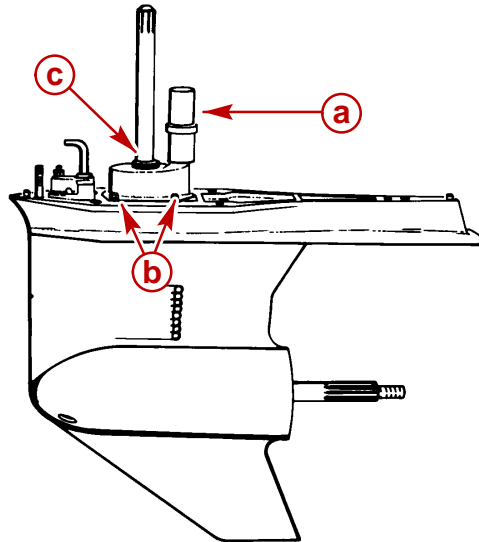
7. Lift the drive shaft housing straight off of the gear case and set aside.

Gear Housing and Component Disassembly

Water Pump Subassembly

REMOVAL

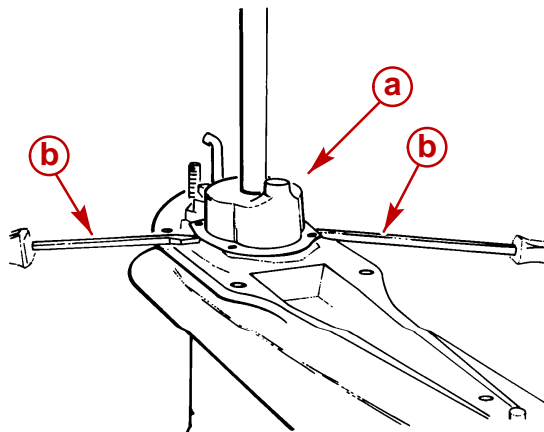
1. Remove the water seal, water tube coupling assembly and the water pump screws.



70486

- a** - Water Tube Assembly
- b** - Water Pump Screws
- c** - Water Seal

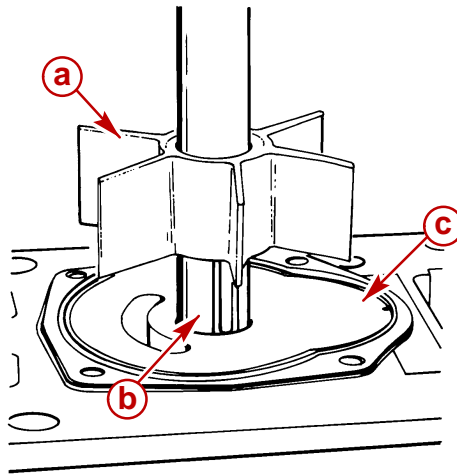
2. Carefully slide the water pump straight up off of the drive shaft. It may be necessary to gently pry up on its mounting flanges with a couple of screwdrivers.



70487

- a** - Water Pump Body
- b** - Screwdrivers

3. Remove the impeller, impeller key, the face plate and gaskets (discard the gaskets).

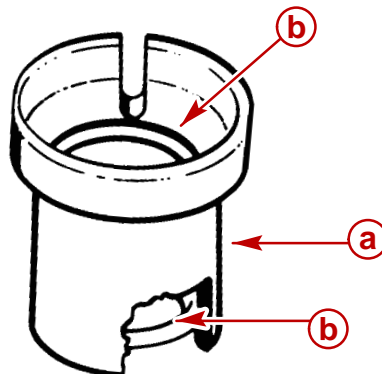


70605

- a** - Impeller
- b** - Impeller Key
- c** - Water Pump Face Plate and Gaskets (One On Each Side Of The Face Plate)

WATER PUMP ASSEMBLY - COMPONENT INSPECTION

1. Inspect the water tube coupling assembly for wear or damage. If necessary, replace the worn or damaged components. Check the top and bottom inside O-ring seals for wear.

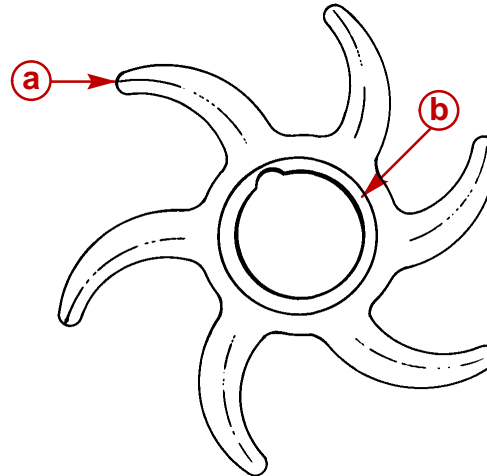


70613

- a** - Water Tube Adaptor
- b** - O-ring Seals (2)

2. Inspect the water pump impeller for wear on the end, top and bottom of the impeller blades. Replace the impeller if this condition is found.

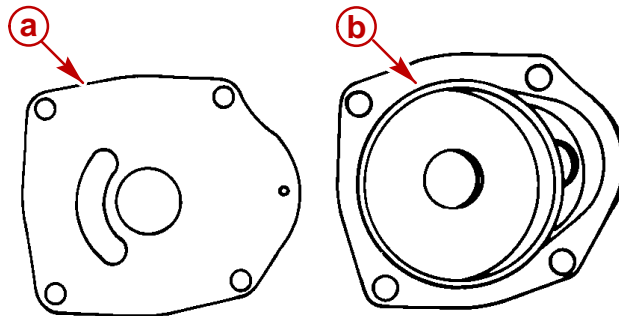
3. Inspect for proper bonding between the hub and the impeller. Replace the impeller if improper bonding is found.



70500

a - Impeller
b - Hub

4. Inspect the impeller blades to see if they are hard or deformed. Replace the impeller if the blades are in this condition.
5. Inspect the water pump face plate and the water pump interior for roughness and/or grooves. Replace the appropriate components if any are found.



70609

a - Water Pump Face Plate
b - Water Pump Body

Water Pump Assembly

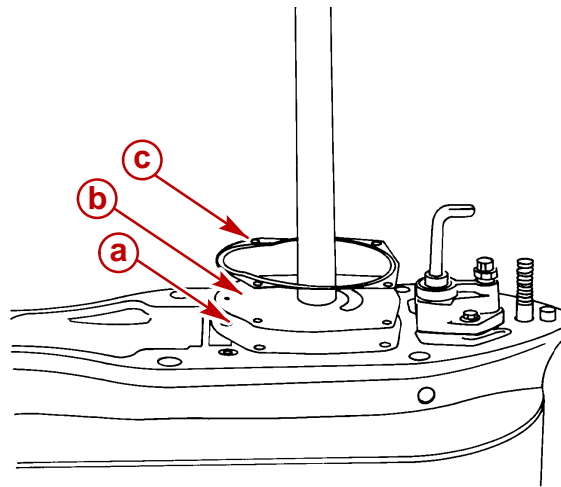
Installation

NOTE: The aluminum dam has been changed to a rubber filler plug. If the aluminum water pump dam in the gear housing has become corroded or damaged, it can be replaced with the rubber filler plug.

IMPORTANT: The gaskets/face plate hole pattern is not symmetrical. If the holes of the gaskets/face plate do not align with the screw holes of the gear case and/or each other, one or more of the parts is upside down. Determine which part(s) is (are) upside down and turn the appropriate part(s) over.

1. Apply Quicksilver Perfect Seal to the small hole gasket. Place the small hole gasket, the face plate and the large hole gasket onto the gear case.

NOTE: Add Quicksilver Perfect Seal to the gasket to seal it and prevent water from seeping into the gear housing.



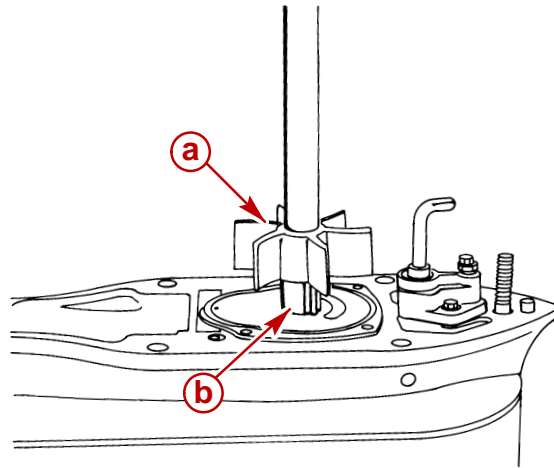
70720

- a** - Small Hole Gasket
- b** - Face Plate
- c** - Large Hole Gasket

2. Place a small amount of Quicksilver 2-4-C Marine Lubricant with Teflon on the flat surface of the impeller key and assemble the key onto the drive shaft keyway.

IMPORTANT: When using an impeller whose blades have taken a set, face the curl of the blades in a counterclockwise direction. **DO NOT** install the impeller with its blades oriented in a reversed direction from original rotation, or premature impeller failure will occur.

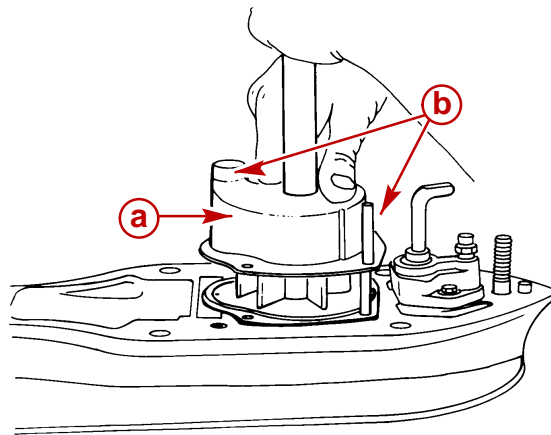
3. Assemble the water pump impeller onto the drive shaft and down over the key.



70721

- a** - Water Pump Impeller
- b** - Water Pump Impeller Key

4. On early models, install the two (2) water pump locating pins through the gaskets and face plate.
5. Position the water pump body over the drive shaft and water pump locating pins. Rotate the drive shaft in a clockwise direction, while pushing down on the water pump body to ease the water pump over the impeller blades.



70722

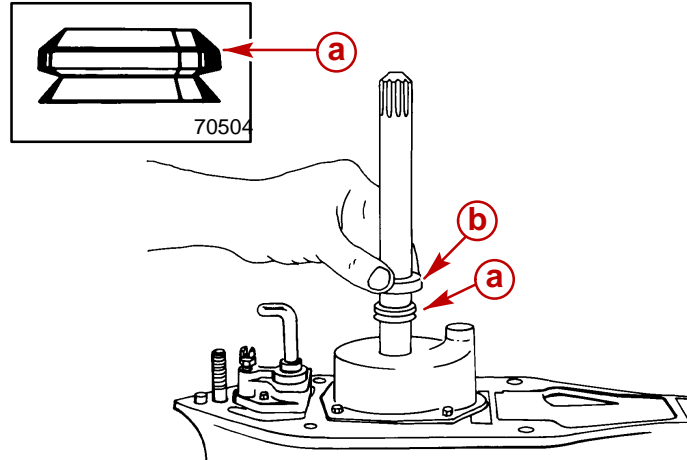
- a** - Water Pump Body
- b** - Water Pump Alignment Pins (91-821571A1)
- c** - Drive Shaft (Turn Clockwise While Installing Water Pump Body)

NOTE: Apply Quicksilver Perfect Seal to all four(4) screw threads before installation.

6. Hand start two (2) fasteners into the water pump assembly and remove the water pump locating pins. Assemble the remaining two (2) fasteners. Run all fasteners down and torque to 60 lb-in. (7.9 Nm).

IMPORTANT: The water pump face seal must be installed as outlined below. Improperly installing the water pump face seal may result in premature failure of the unit.

7. Assemble the water pump face seal to a position approximately 1/2 of the way down the drive shaft. Assemble the water pump face seal setting tool over the drive shaft and push the seal down onto the water pump with the tool while pulling up on the drive shaft. Remove the tool from the drive shaft.



70708

- a** - Water Pump Face Seal
- b** - Water Pump Face Seal Setting Tool

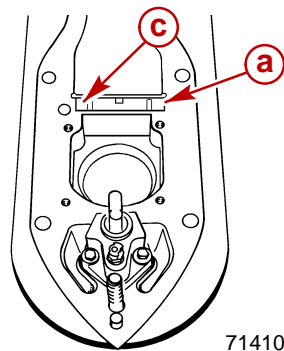
8. Lightly lubricate the O-rings in the water tube coupling with Quicksilver 2-4-C Marine Lubricant with Teflon. Assemble the water tube sleeve into the water tube coupling.
9. Assemble the water tube coupling assembly to the water pump ensuring that the O-rings are not damaged during assembly.

Joining Drive Shaft Housing/Gear Housing

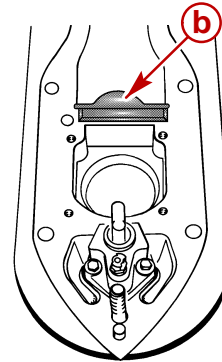
1. Lubricate the end of the water tube (in the drive shaft housing) and the splines of the drive shaft with Quicksilver 2-4-C Marine Lubricant with Teflon.

NOTE: The aluminum dam has been changed to a rubber filler plug. If the aluminum water pump dam in the gear housing has become corroded or damaged, it can be replaced with the rubber filler plug.

IMPORTANT: Ensure that the drain hole of the aluminum water pump dam is not clogged with any foreign material as damage may occur if it is.



71410

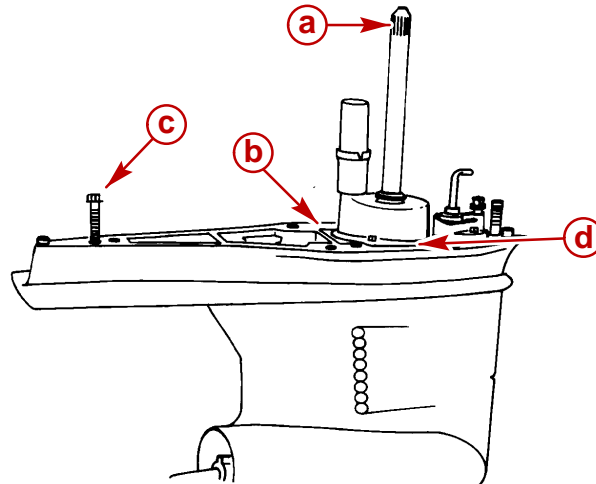


71436

- a** - Aluminum Dam
- b** - Rubber Filler Plug
- c** - Drain Hole

2. Units with an aluminum dam installed in them will require a bead of Permatex Ultra Blue Silicone Sealant along the top of the water pump dam as shown. If rubber filler plug is present, it is not necessary to use this sealant.
3. To replace the aluminum dam if it has been removed and undamaged, place a bead of Permatex Ultra Blue Silicone Sealant down both sides of it.

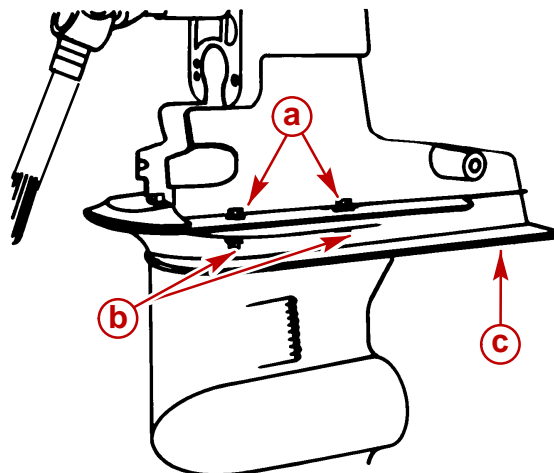
4. Ensure that the water pump dam in the drive shaft housing is present and installed correctly. Ensure that all parts are present on the gear housing and the drive shaft housing.



70710

- a** - Drive Shaft Splines
- b** - Sealant - Aluminum Dam Only
- c** - Trim Tab Bolt (Insert In Aft Hole)
- d** - Quad Ring

5. Position the drive shaft housing straight above the gear housing. Align the water tube sleeve with the water tube and the drive shaft with the upper drive gear and assemble the drive shaft housing to the gear housing. It may be necessary to rotate the propeller shaft or the u-joint to align the drive shaft splines with the upper drive gear splines.
6. Assemble the front nut to the front stud of the unit.
7. Assemble the aft screw and star washer (into the forward hole in the trim tab well of the gear housing).
8. Assemble the bolts, nuts and washers to the port and starboard sides of the unit. Torque to 35 lb.ft. (47.5 Nm).



70117

- a** - Nuts, Bolts, Washers
- b** - Nut
- c** - Screw

9. Assemble the trim tab and align it to the mark made previously on the gear housing. Torque the screw to 23 lb-ft (31 Nm).

10. Position or lower drive unit so anti-ventilation plate is level.
11. Refill drive unit with gear lube. Refer to section 1B.

Parts Included in OEM Impeller Kit

