# SAFETY INFORMATION

**Before working on any part of the outboard, read the SAFETY section at the end of this manual.**

This manual is written for qualified, factory-trained technicians who are already familiar with the use of *Evinrude*®/*Johnson*® Special Tools. This manual is not a substitute for work experience. It is an organized guide for reference, repair, and maintenance of the outboard(s).

This manual uses the following signal words identifying important safety messages.

**⚠ DANGER ⚠**

**Indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.**

**⚠ WARNING ⚠**

**Indicates a potentially hazardous situation which, if not avoided, CAN result in severe injury or death.**

**⚠ CAUTION ⚠**

**Indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate personal injury or property damage. It also may be used to alert against unsafe practices.**

**IMPORTANT:** Identifies information that will help prevent damage to machinery and appears next to information that controls correct assembly and operation of the product.

These safety alert signal words mean:

ATTENTION!
BECOME ALERT!
YOUR SAFETY IS INVOLVED!

Always follow common shop safety practices. If you have not had training related to common shop safety practices, you should do so to protect yourself, as well as the people around you.

It is understood that this manual may be translated into other languages. In the event of any discrepancy, the English version shall prevail.

To reduce the risk of personal injury, safety warnings are provided at appropriate times throughout the manual.

DO NOT make any repairs until you have read the instructions and checked the pictures relating to the repairs.

Be careful, and never rush or guess a service procedure. Human error is caused by many factors: carelessness, fatigue, overload, preoccupation, unfamiliarity with the product, and drugs and alcohol use, to name a few. Damage to a boat and outboard can be fixed in a short period of time, but injury or death has a lasting effect.

When replacement parts are required, use *Evinrude/Johnson Genuine Parts* or parts with equivalent characteristics, including type, strength and material. Using substandard parts could result in injury or product malfunction.

Torque wrench tightening specifications must be strictly followed. Replace any locking fastener (locknut or patch screw) if its locking feature becomes weak. Definite resistance to turning must be felt when reusing a locking fastener. If replacement is specified or required because the locking fastener has become weak, use only authorized *Evinrude/Johnson Genuine Parts.*

If you use procedures or service tools that are not recommended in this manual, YOU ALONE must decide if your actions might injure people or damage the outboard.

# MODELS COVERED IN THIS MANUAL

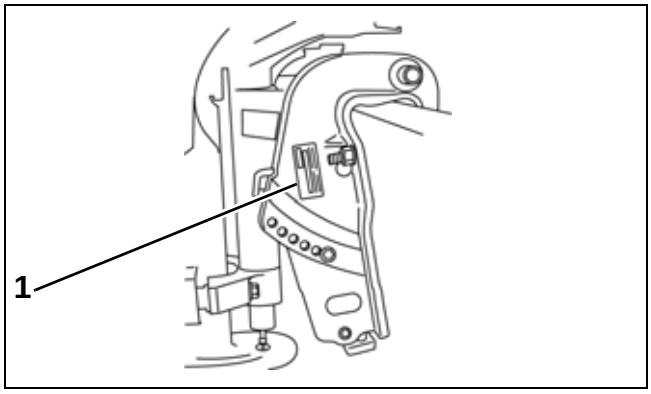
This manual covers service information on *Johnson* 30 HP 4-stroke models. Use this manual together with the proper Parts Catalog for part numbers and for exploded views of the outboard, which are a valuable aid to disassembly and reassembly.

This manual presents the U.S. values and dimensions first and the metric values and dimensions second, inside parentheses ( ).

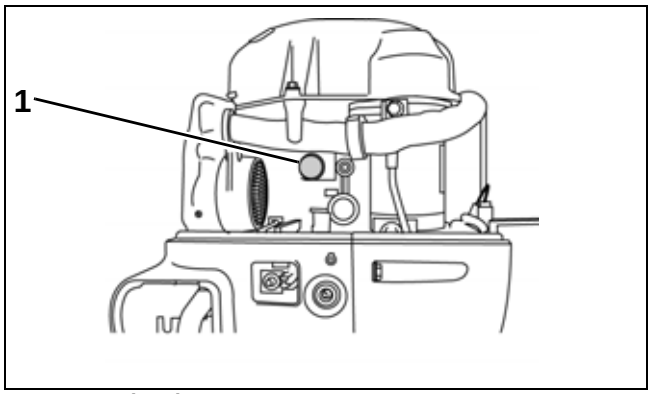
| Model Number | Start | Shaft | Steering |
|---|---|---|---|
| J30TEL4SUA | Electric | 20in. | Tiller |
| J30PL4SUA | Electric | 20in. | Remote |

## Identifying Model and Serial Numbers

Outboard model and serial numbers are located on the swivel bracket and on the powerhead.

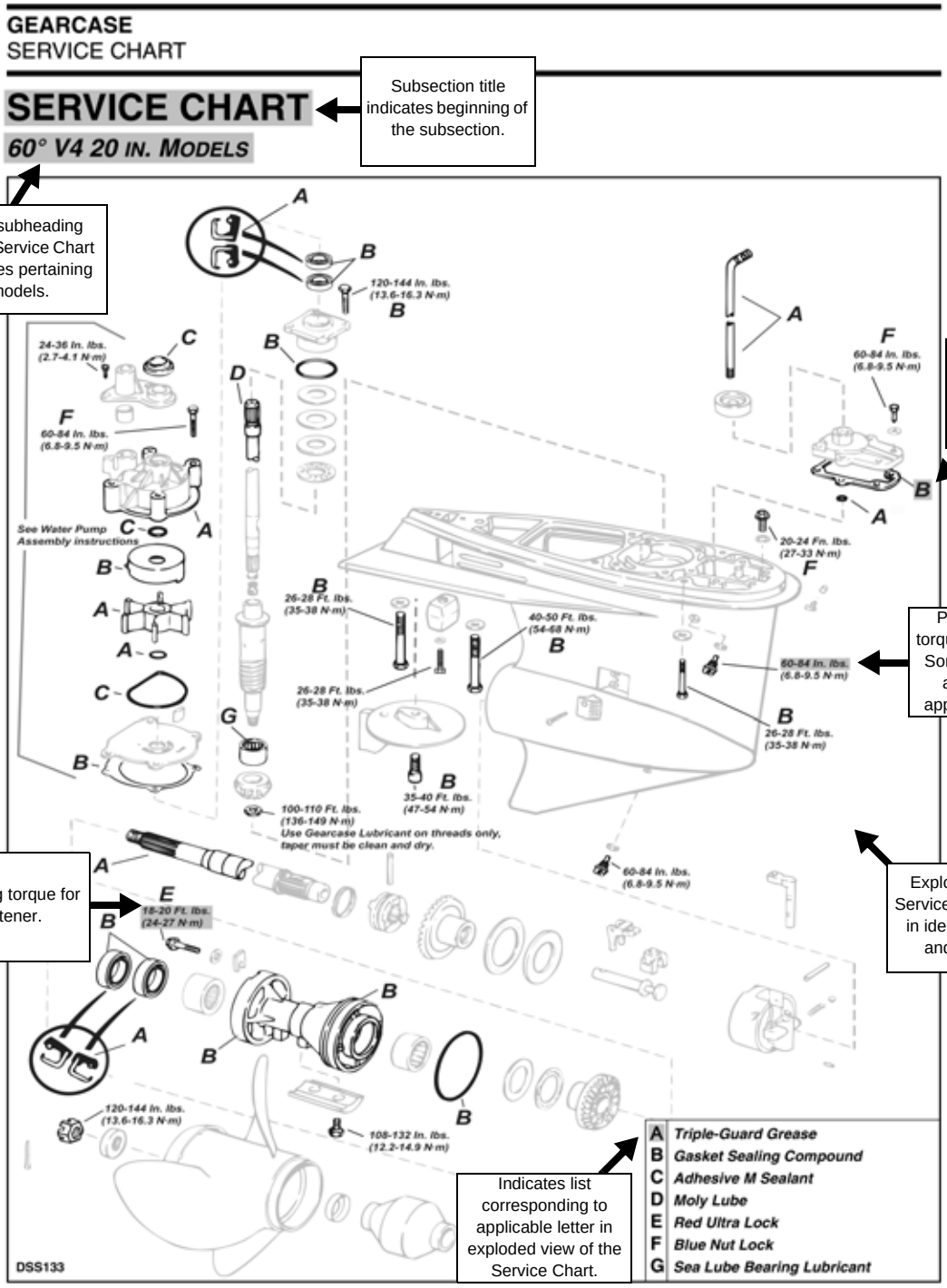



**30 HP Swivel Bracket** 001968
*1. Model and serial number*



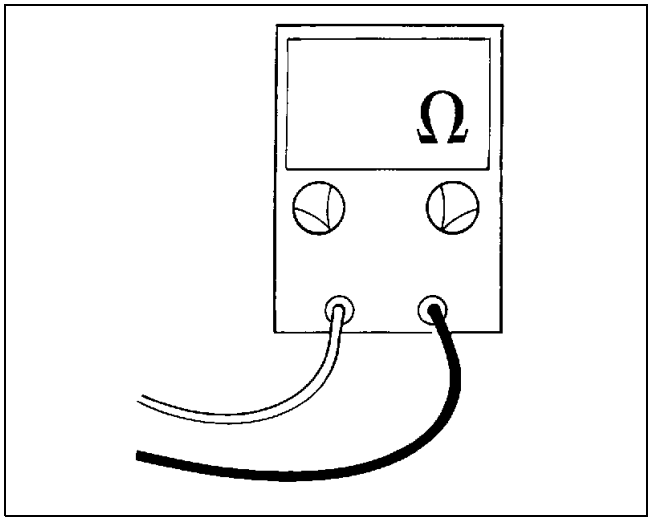

**30 HP Powerhead** 001969
*1. Serial number*

# TYPICAL PAGE – A




328 ← Page Number

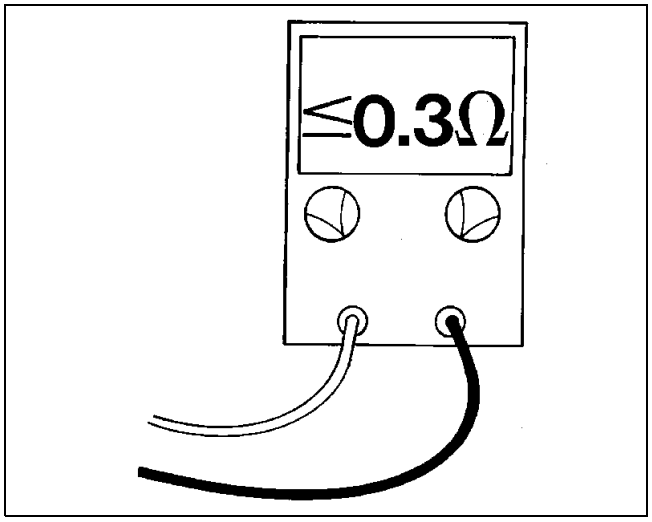
When "Ω" follows a value on the meter face, the procedure is measuring resistance. Ω is the symbol for ohm, the unit of measurement for resistance.




DR4205

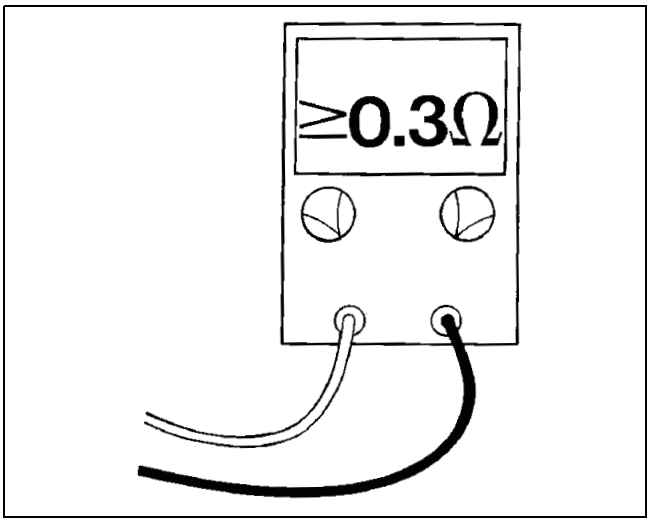
## Values

When "≤" precedes a value on the meter face, the reading should be less than, or equal to, the value shown.




DR4206

When "≥" precedes a value on the meter face, the reading should be greater than, or equal to, the value shown.




DR4207

# OUTBOARD INSTALLATION

## Hull Preparation

### Maximum Capacity

**⚠ WARNING ⚠**

**Do not overpower the boat by installing an outboard that exceeds the horsepower indicated on the boat's capacity plate. Overpowering could result in loss of control.**

Before installing outboard:

- Refer to the boat manufacturer's certification label for maximum horsepower rating.
- Refer to ABYC Standards to determine the maximum horsepower capacity for boats without certification labeling.


1029A

### Mounting Surface

Inspect transom surface prior to drilling mounting holes.

- The transom should meet ABYC Standards.
- The transom must be flat and cannot have any protrusions.
- The transom angle should be approximately 14 degrees.
- Check transom strength and height.

**⚠ WARNING ⚠**

**DO NOT install an outboard on a curved or irregular surface. Doing so can wear, bind, and damage components, causing loss of control.**

### Top Edge of Transom or Bracket

Transom thickness or off-sets must also be considered. The top edge of the transom or bracket must provide a proper surface for stern brackets. The stern brackets must contact the flat surface of the transom or bracket. Modify moldings or components that prevent the stern brackets from resting against the transom surface. Do not modify transom brackets.

### Transom Clearances

Make sure the transom and splash well area provide adequate clearances.

- The top edge of the transom should be wide enough to allow full steering travel. The ABYC standard for most single outboard installations is 33 in. (84 cm).
- Check cable and hose routing clearances.
- Make sure there is clearance for mounting bolts and washers. Check the inside area of the transom for obstructions prior to drilling holes.

### Water Flow

Inspect the hull area directly in front of the mounting location.

- Boat-mounted equipment should not create turbulence in the water flow directly in front of the outboard's gearcase. Turbulence or disruptions in the water flow directly in front of the gearcase will affect engine cooling and propeller performance.

### Mounting Hardware

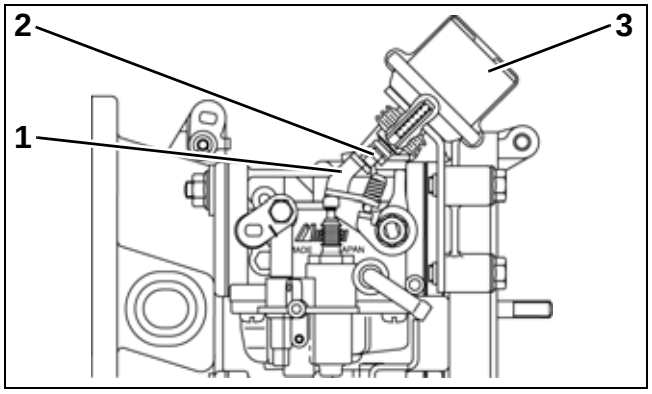
**⚠ WARNING ⚠**

**Use all mounting hardware supplied with the outboard to help ensure a secure installation. Substituting inferior hardware can result in loss of control.**

## Dashpot Adjustment

The dashpot provides a controlled return to idle speed when the throttle is closed. A properly functioning and adjusted dashpot holds the engine speed briefly at approximately 1500 RPM, then slowly decelerates the engine to idle speed.

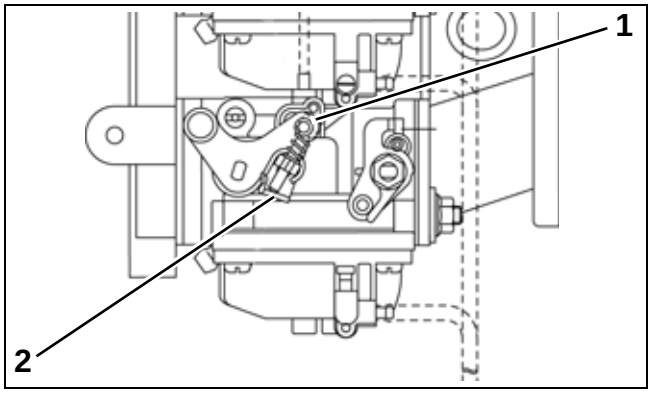
The dashpot's ability to perform a controlled return to idle as designed should always be checked and adjusted if necessary after synchronizing the carburetor throttle valves.




*1. Accelerator pump lever* 001345
*2. Rod*
*3. Dashpot unit*

Start the engine and allow the engine to warm up to normal operating temperature.

Turn the No. 3 carburetor idle adjusting screw to set engine speed at 4000 RPM. Count the number of turns it takes to achieve this speed from idle.




*1. Idle adjusting screw* 001346
*2. Throttle stop*

**IMPORTANT:** Dashpot adjustments must be made in neutral gear.

Stop the engine. Remove the flywheel cover or recoil starter.

Operate the throttle at the wide open position. Then return the throttle gradually to idle speed while watching the tip of the dashpot rod. The tip of the rod must contact the accelerator pump lever at the same time that the No 3 carburetor idle adjusting screw contacts the throttle stop.

If these two contacts do not occur at the same time, adjust the dashpot rod. Turning the rod clockwise moves the rod inward. Turning the rod counterclockwise moves the rod outward.

To reset the engine idle speed, return the No.3 carburetor idle adjusting screw to its original position according to the number of turns that were counted earlier.

Install the flywheel cover or recoil starter.

Start the engine and, if necessary, adjust the engine speed to the specified in-gear idle speed of approximately 850 RPM.

As a final adjustment check, shift into forward gear and quickly decelerate to full closed throttle from several different throttle positions. This checks the dashpot's ability to provide a controlled return to idle speed each time the throttle is closed.

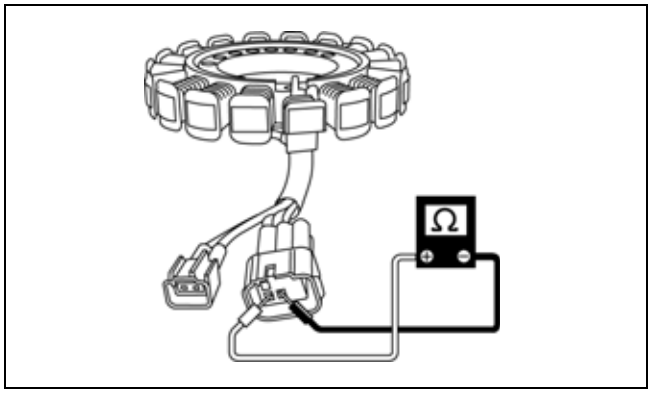
# Charge Coil Tests

## Resistance

Disconnect the charge coil lead wire from the power pack. Connect an ohmmeter between the charge coil leads.

If the measurement is out of specification, replace the charge coil.

| Charge Coil Resistance Tests | | | |
|---|---|---|---|
| | Tester probe connection | | |
| | Red (+) | Black (–) | Resistance |
| Test 1 | White | Green | 10.1 to 15.1 ohms |
| Test 2 | Brown | Green | |




001661

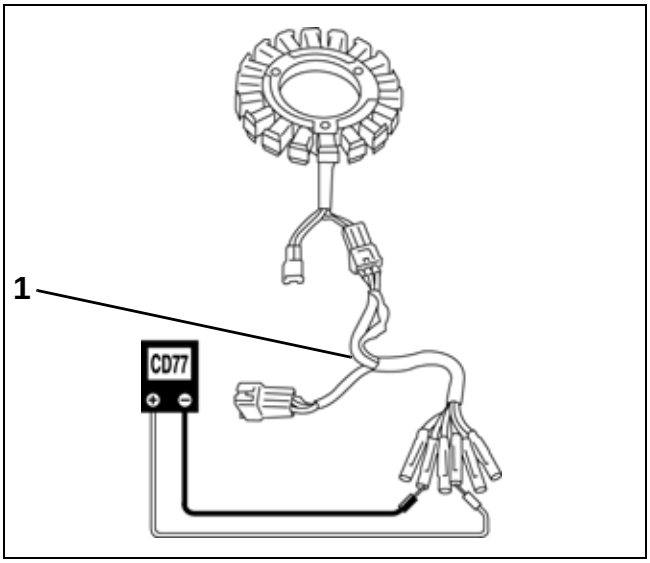
## Cranking Output

Disconnect the charge coil lead wire from the power pack. Connect a 6 pin test cord, P/N 5034618, as shown. Connect a peak voltage tester between the charge coil leads.

Remove all spark plugs.

Measure the charge coil output at cranking. If the measurement is out of specification, replace the charge coil.

| Charge Coil Cranking Output Tests | | | |
|---|---|---|---|
| | Tester probe connection | | |
| | Red (+) | Black (–) | Resistance |
| Test 1 | White | Green | 21V or more |
| Test 2 | Brown | Green | |

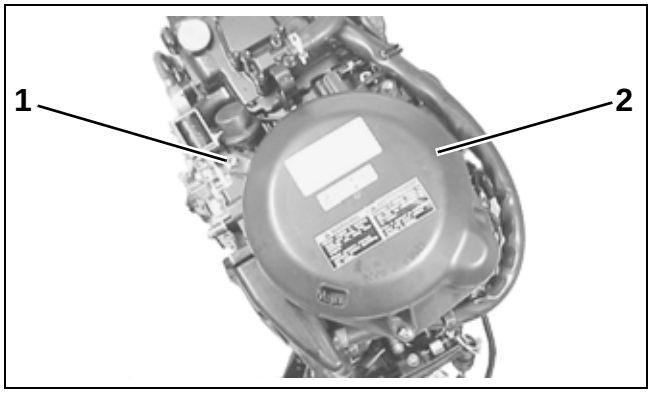



*1. 6 pin test cord* 001663

# CARBURETORS

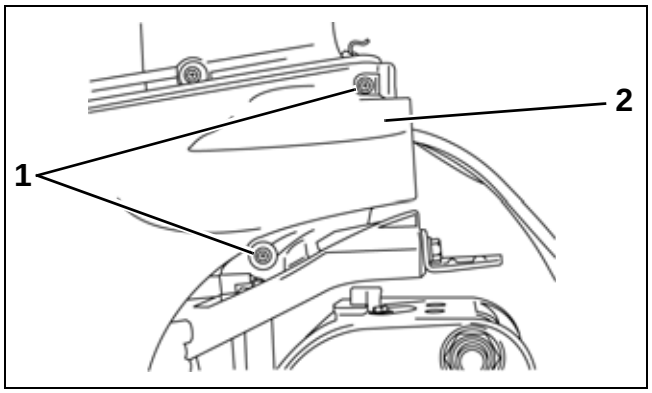
## Removal

Remove three (3) bolts and the flywheel cover.




*1. Bolts (3)*
*2. Flywheel cover*
001394

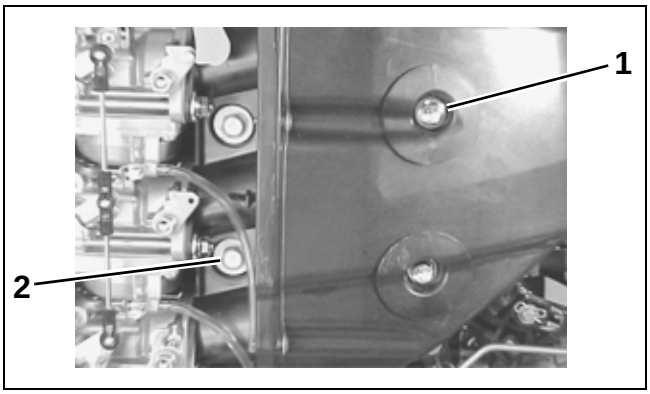
Remove four (4) bolts and the starboard side cover.




*1. Screws (2)*
*2. Starboard side lower cover*
001723

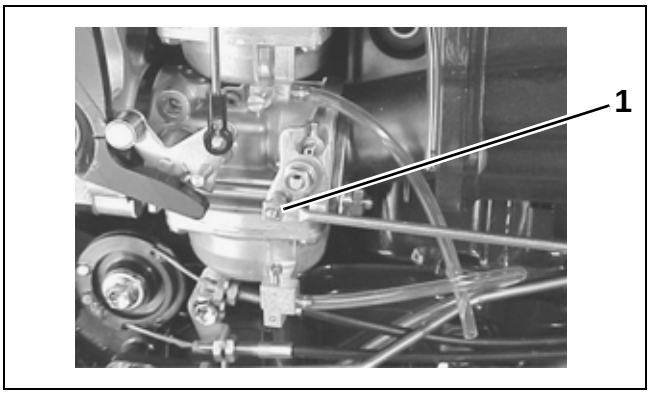
Remove two (2) bolts that secure the silencer case.

Remove two (2) bolts that secure the air silencer pipe to the crankcase.




*1. Air silencer case bolts (2)*
*2. Air silencer pipe bolts (2)*
001610

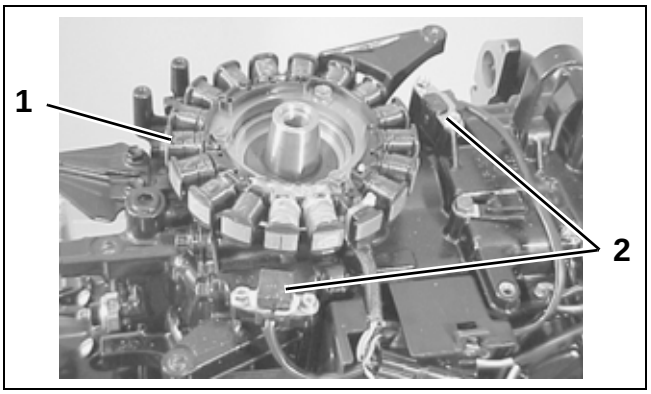
**Tiller handle models only:** Remove the E-ring and the choke rod from the bottom carburetor.



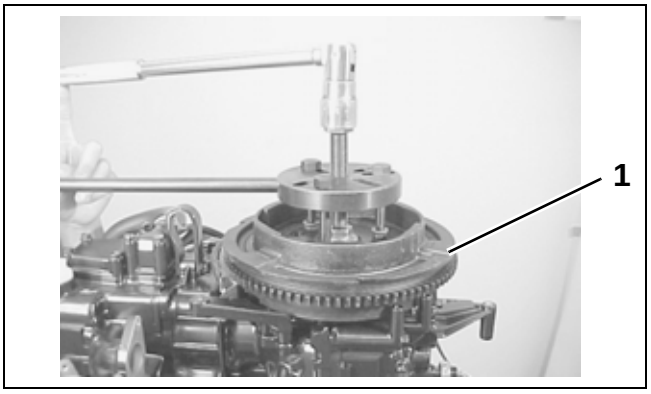

*1. Choke rod*
001611

Remove the throttle control rod from the throttle cam.

Install the battery charge coil, the crankshaft position sensors, and the flywheel. Refer to the **ENGINE CONTROL** section.

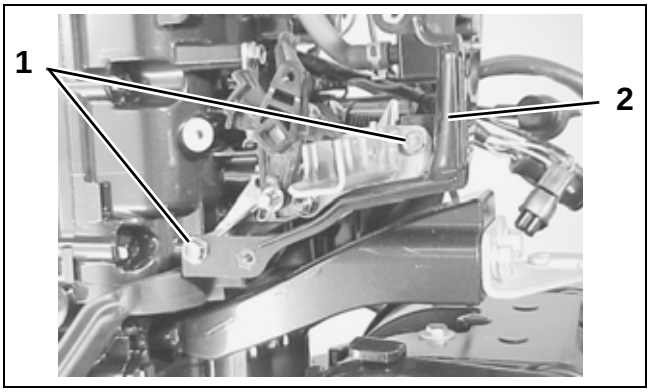



1. *Battery charge coil* 001407
2. *Crankshaft position sensors*



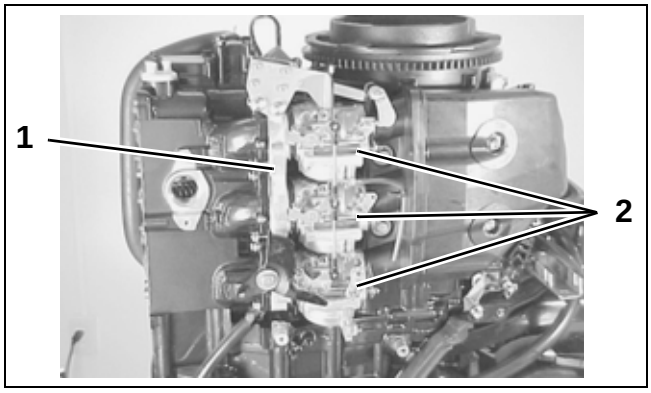

1. *Flywheel* 001406

Install the two (2) bolts that secure the front panel.




1. *Bolts (2)* 001405
2. *Front panel*

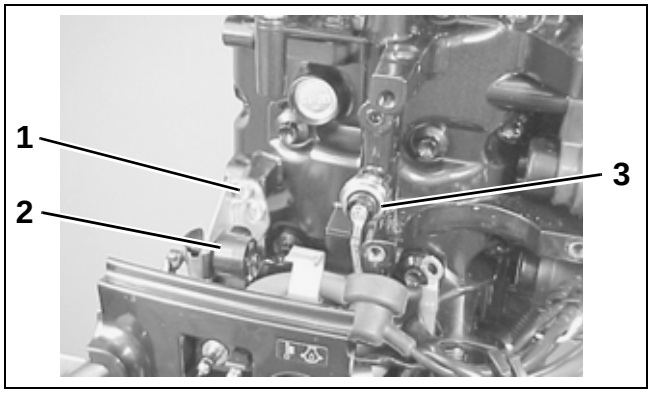
Install the inlet case and carburetor assembly. Refer to the **FUEL SYSTEM** section.




1. *Inlet case* 001402
2. *Carburetor assemblies (3)*

Install the switch bracket, the neutral switch, and the two (2) bolts. Connect the neutral switch lead wire.

Connect the oil pressure switch lead wire. Tighten the screw securely.



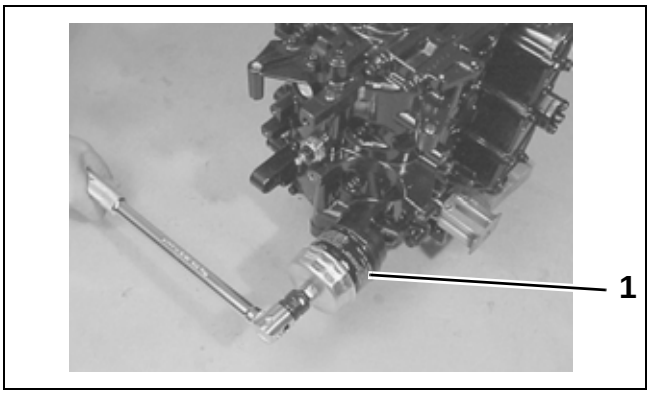

1. *Bolt* 001404
2. *Neutral switch*
3. *Oil pressure switch*

# PISTON, CYLINDER, AND CRANKSHAFT

## Removal

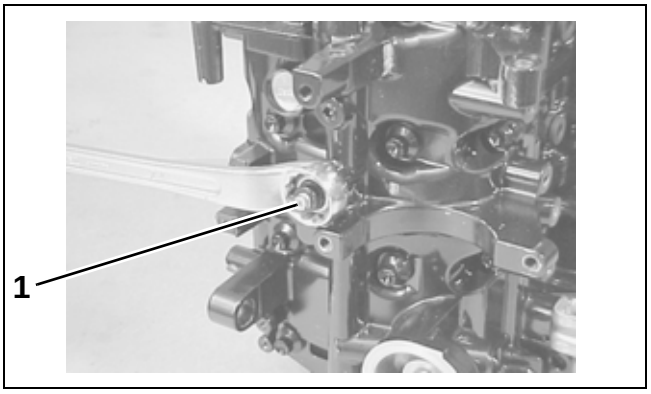
First, remove the powerhead, the timing chain, and the cylinder head.

Remove the oil filter.



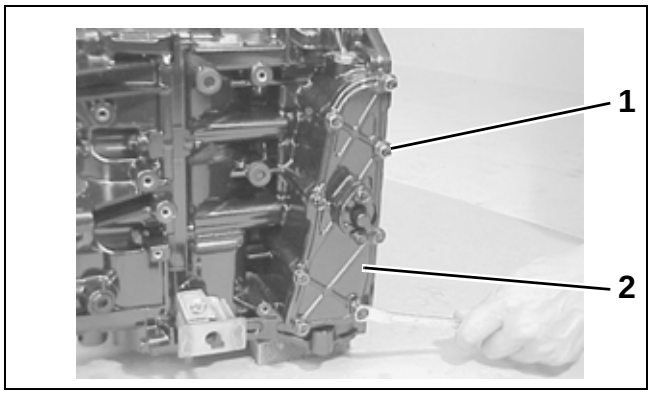

*1. Oil filter* 001529

Remove the oil pressure switch.



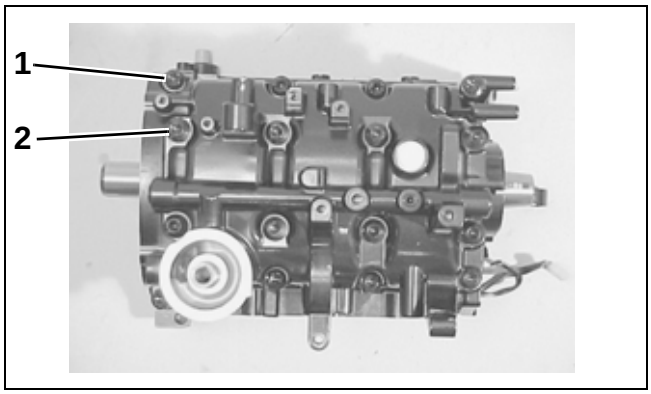

*1. Oil pressure switch* 001530

Remove eight (8) bolts and the exhaust cover.



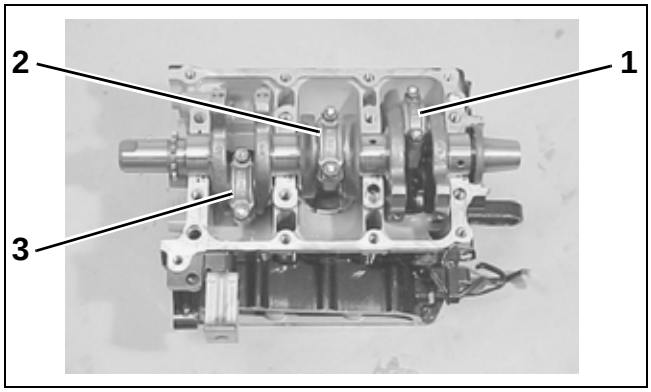

*1. Bolts (8)* 001531
*2. Exhaust cover*

Remove eight (8) outer bolts, then eight (8) inner bolts. Remove the crankcase from the cylinder block.



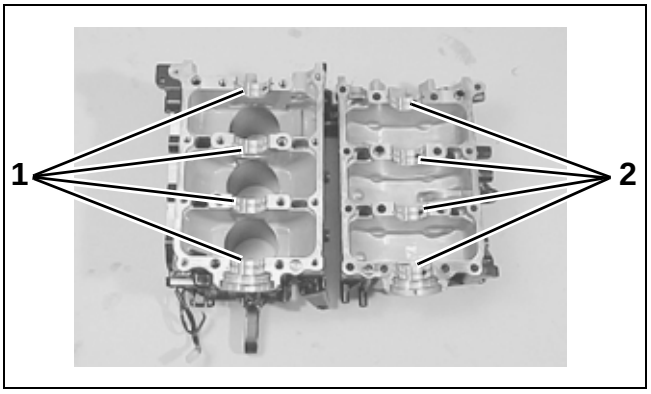

*1. Outer bolts (8)* 001532
*2. Inner bolts (8)*

For proper assembly, use quick drying paint to mark the corresponding cylinder number on each connecting rod and connecting rod cap.



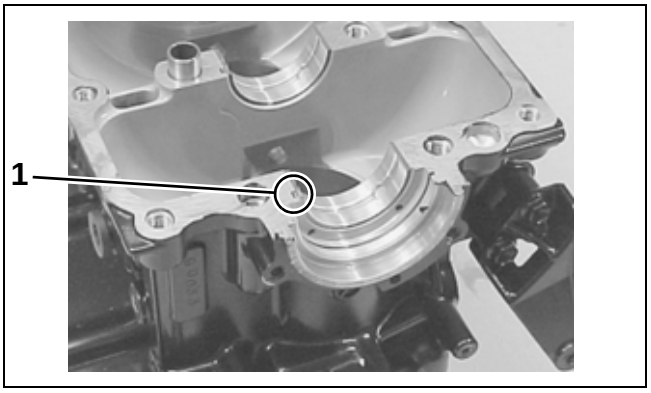

*1. Cylinder No. 1* 001533
*2. Cylinder No. 2*
*3. Cylinder No. 3*

If removed, install the crankshaft main bearings. Apply engine oil to the bearing wear surfaces. DO NOT apply oil between the bearing holder and the back of the bearing.




*1. Upper bearing shells* 001570
*2. Lower bearing shells*

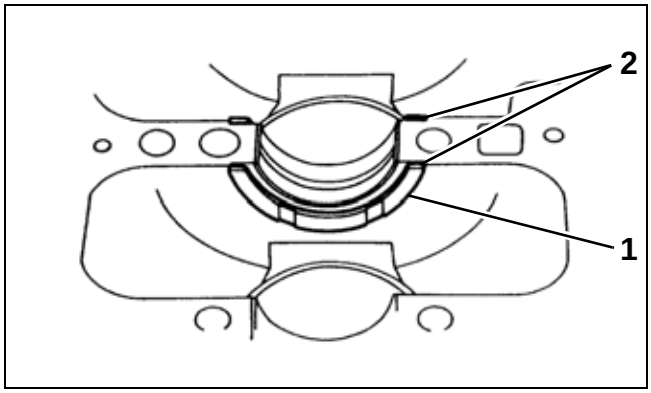
**IMPORTANT:** Make sure that the bearing tab is aligned with the notches in the cylinder and the crankcase.




*1. Bearing tab* 001571

If removed, install the main thrust bearing in the cylinder block between the No. 2 and No. 3 cylinders. Apply engine oil to the bearing.

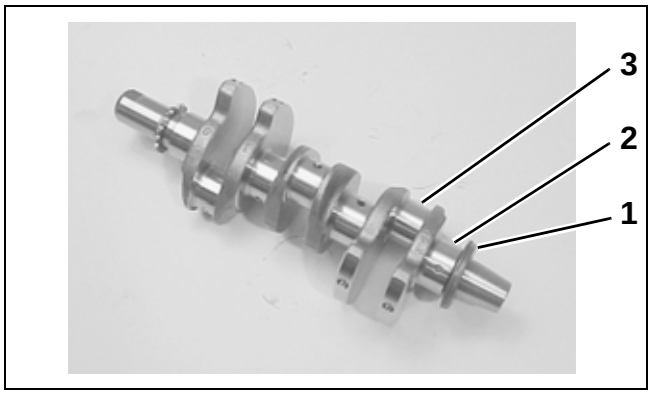
**IMPORTANT:** The oil groove sides of the thrust bearing must face toward the crank webs.




*1. Thrust bearing* 001567
*2. Oil grooves*

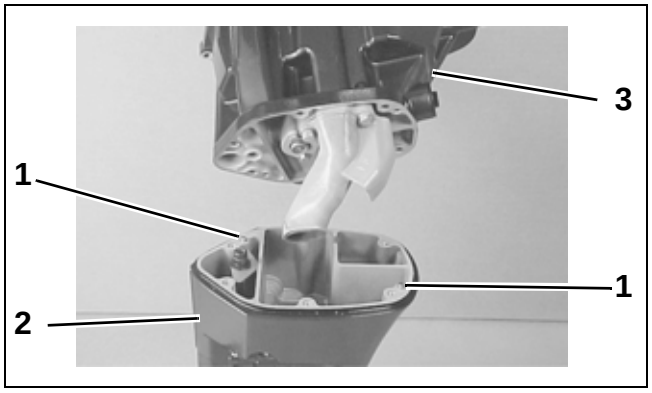
Apply engine oil to the lip of a **new** upper oil seal. Install the upper oil seal to the crankshaft. Make sure that the lip of the seal is facing inward.

Apply engine oil to the crank pin and the crankshaft main journal. Install the crankshaft in the cylinder.

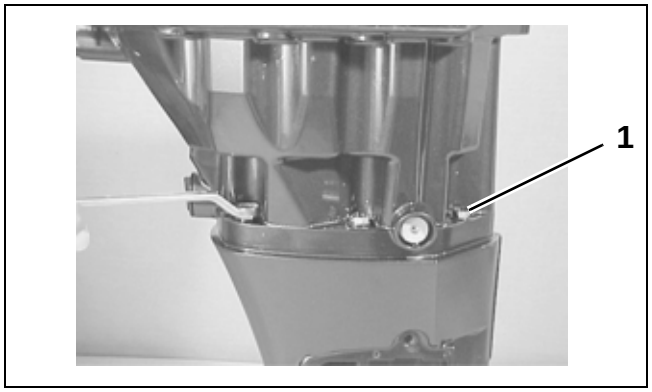



*1. Oil seal* 001593
*2. Crankshaft main journal*
*3. Crank pin*

Install the oil pan to the exhaust housing. Install and tighten six (6) bolts securely.

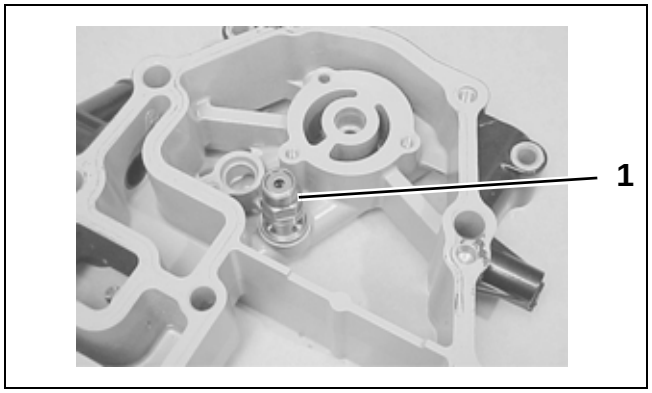



1. *Dowel pins (2)* 001787
2. *Exhaust housing*
3. *Oil pan*




1. *Bolts (6)* 001773

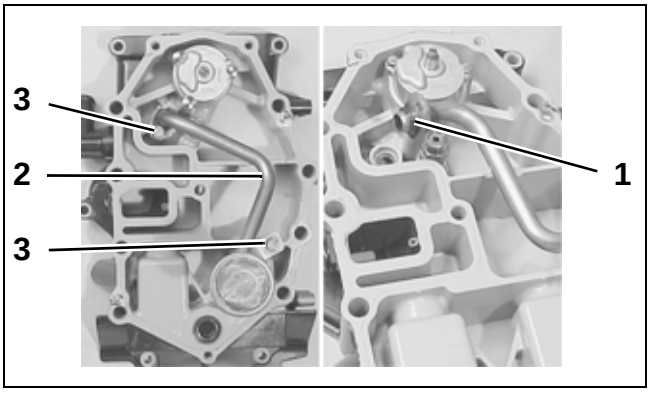
Install a **new** gasket and the oil relief valve to the engine holder. Tighten the relief valve to a torque of 20 ft. lbs. (27 N·m).




1. *Oil relief valve* 001772

Apply engine oil to a **new** O-ring, then install the O-ring on the oil strainer.

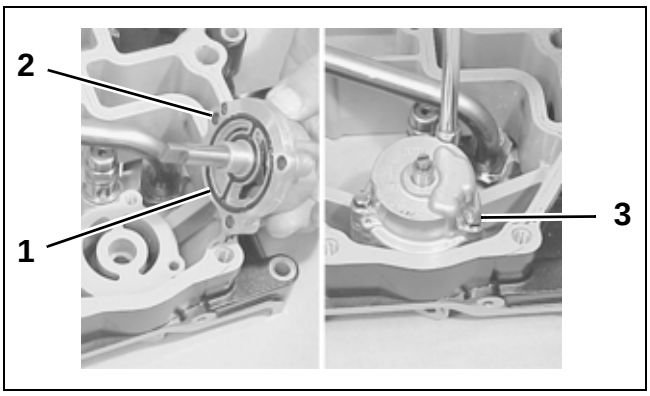
Install the oil strainer to the engine holder. Install and tighten the bolts securely.




1. *O-ring* 001770
2. *Oil strainer*
3. *Bolts (2)*

Apply engine oil to a **new** seal, then install the seal on the oil pump.

Install the oil pump to the engine holder. Install and tighten the bolts securely.



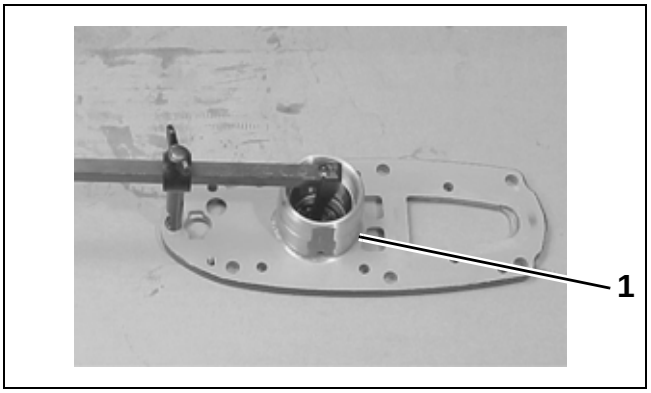

1. *Seal* 001788
2. *Oil pump*
3. *Bolts (3)*

Install two (2) dowel pins and a **new** gasket on the oil pan.

## Driveshaft Bearing Housing Seals

Use an oil seal remover or 2-jaw puller and plate assembly, P/N 432131, to draw two (2) oil seals out of the driveshaft bearing housing. Be careful not to damage driveshaft bearing race.

Remove the O-ring from the housing.

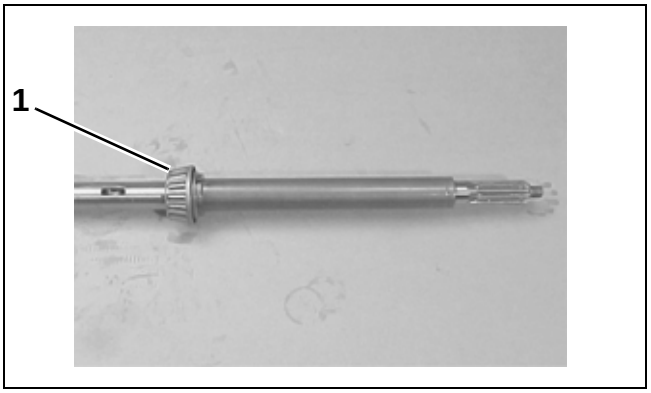



*1. O-ring* 001863

## Driveshaft Bearing

If the driveshaft bearing is pitted, noisy or rough, press the bearing from the driveshaft and replace it. Seat new bearing to shaft carefully using press.

To remove driveshaft bearing race in driveshaft bearing housing, use 2-jaw puller and plate assembly, P/N 432131.

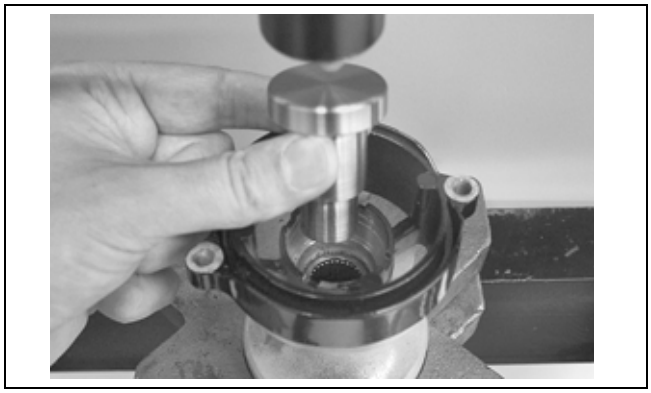



*1. Driveshaft bearing* 001865

# BEARING AND SEAL INSTALLATION

## Propeller Shaft Bearing

Apply *HPF XR* gearcase lubricant to the bearing. Using bearing installation tool, P/N 5034774, with lettered side of bearing facing tool, carefully press bearing into housing. Bearing is properly installed when tool flange seats against housing.



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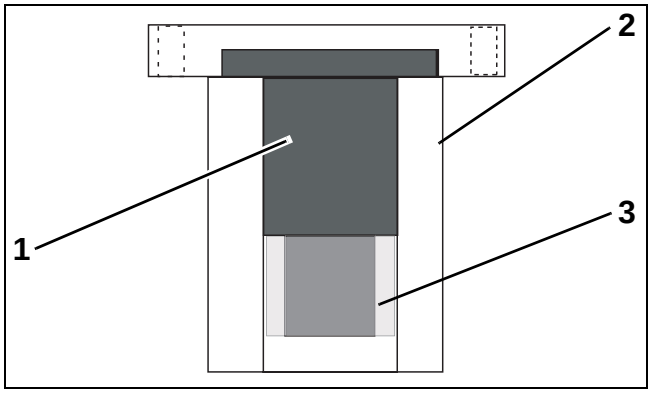


*1. Bearing installation tool, P/N 5034774* 002512
*2. Propeller shaft bearing housing*
*3. Propeller shaft bearing*

these components, which may cause system operating problems.


*1. PTT motor*
*2. Drive joint*
*3. O-ring*
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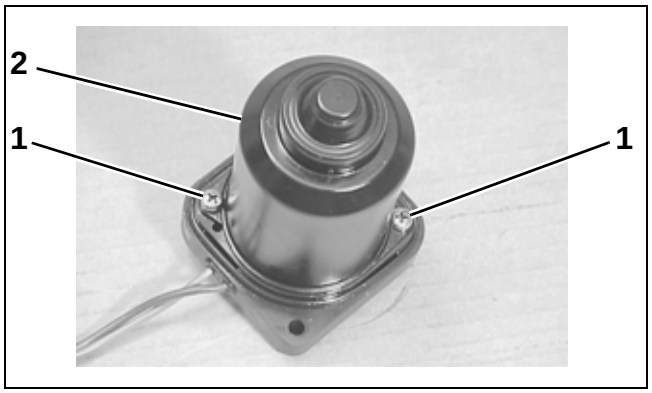
## Disassembly

**IMPORTANT:** For correct assembly, scribe an alignment mark across the motor case and brush holder.

Remove two (2) screws that secure the motor case to the brush holder.

Use a soft face hammer to gently tap the motor case from side to side to unseat it from the brush holder. Slide the motor case upward and away from the brush holder.




*1. Screws (2)*
*2. Motor case*
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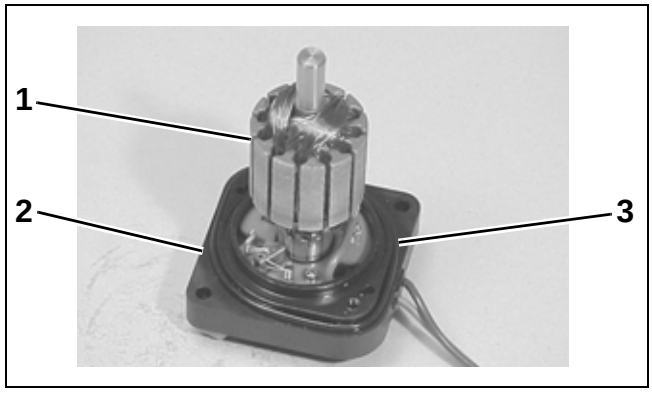
Slide the armature free of the brushes.

Note the position of the O-ring on the brush holder. Remove the O-ring.




*1. Armature*
*2. Brush holder*
*3. O-ring*
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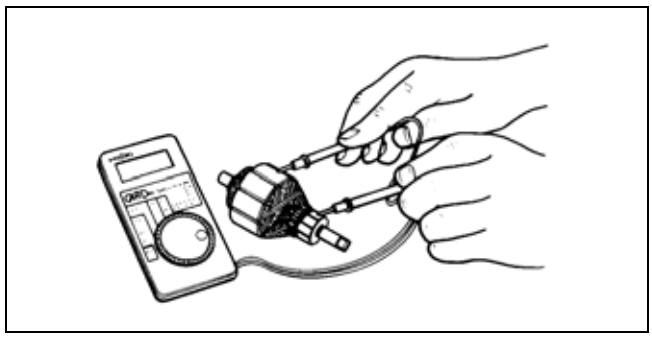
## Inspection

### Armature and Commutator

Use a digital tester to check for continuity between the commutator and the armature core/shaft. Replace the armature if continuity is indicated.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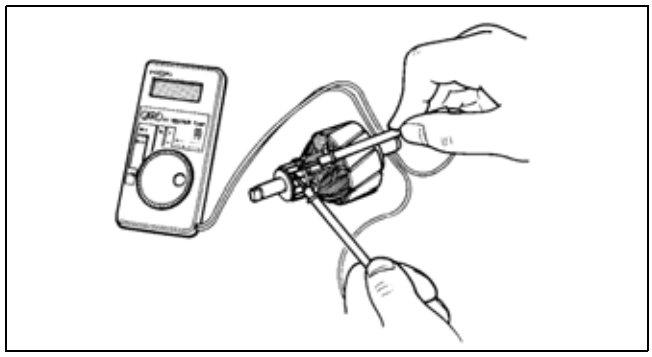
Check for continuity between the adjacent commutator segments. Replace the armature if no continuity is indicated.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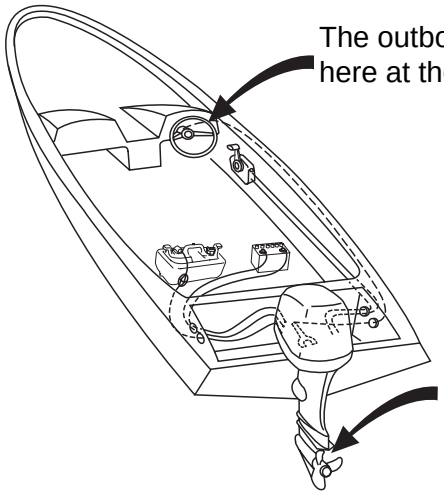
# Outboard Steering Control System and Safety

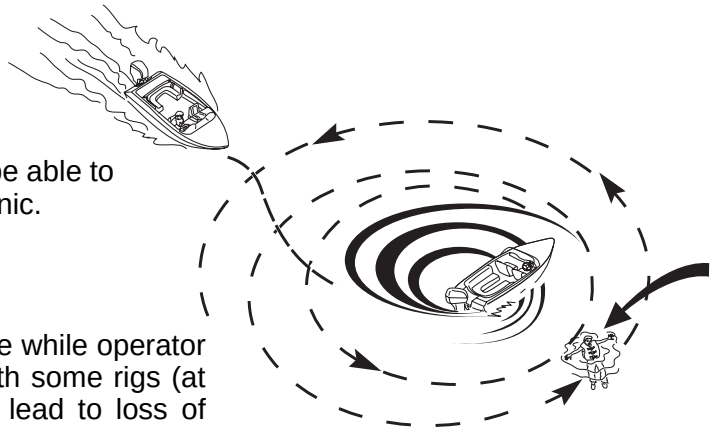



**What is most important?**

The steering system:
- Must not come apart;
- Must not jam; and
- Must not be sloppy or loose.

**What could happen?**

- If steering system comes apart, boat might turn suddenly and circle. Persons thrown into the water could be hit.



- If steering jams, operator may not be able to avoid obstacles. Operator could panic.

- If steering is loose, boat may weave while operator tries to steer a straight course. With some rigs (at high speed), loose steering could lead to loss of boat control.