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.

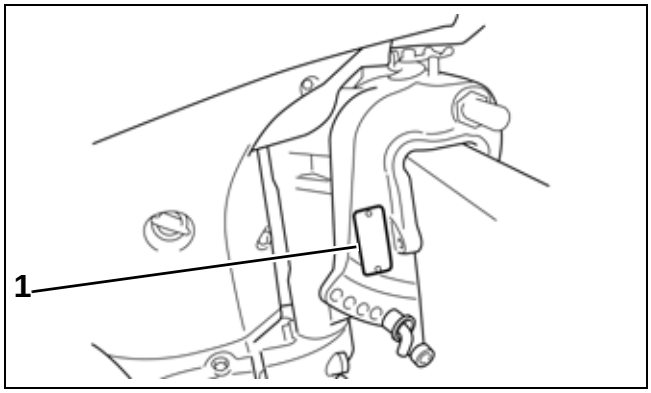
MODELS COVERED IN THIS MANUAL

This manual covers service information on *Johnson* 25 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.

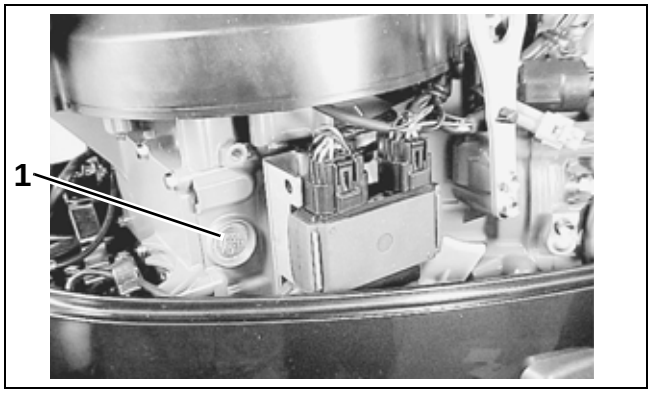
Model Number	Start	Shaft	Steer
J25R4SUR	Rope	15 in.	Tiller
BJ25R4SUC	Rope	15 in.	Tiller
J25RL4SUR	Rope	20 in.	Tiller
BJ25RL4SUC	Rope	20 in.	Tiller
J25TE4SUR	Electric	15 in.	Tiller
BJ25TE4SUC	Electric	15 in.	Tiller
J25TEL4SUR	Electric	20 in.	Tiller
BJ25TL4SUC	Electric	20 in.	Tiller
J25E4SUR	Electric	15 in.	Remote
BJ25E4SUC	Electric	15 in.	Remote
J25EL4SUR	Electric	20 in.	Remote
BJ25EL4SUC	Electric	20 in.	Remote

Identifying Model and Serial Numbers

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



Starboard Stern Bracket 005520
1. Model and serial number



Powerhead 005521
1. Serial number

PRODUCT REFERENCE AND ILLUSTRATIONS

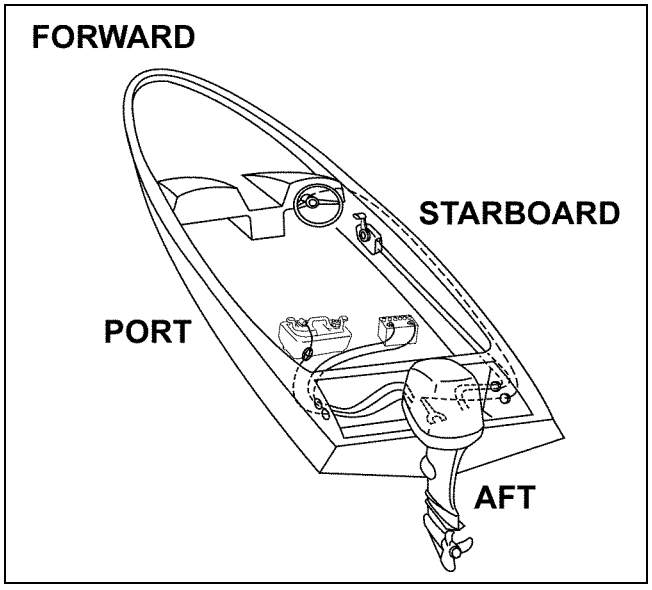
BRP US Inc. reserves the right to make changes at any time, without notice, in specifications and models and also to discontinue models. The right is also reserved to change any specifications or parts, at any time, without incurring any obligation to equip same on models manufactured prior to date of such change. Specifications used are based on the latest product information available at the time of publication.

The continuing accuracy of this manual cannot be guaranteed.

All photographs and illustrations used in this manual may not depict actual models or equipment, but are intended as representative views for reference only.

Certain features or systems discussed in this manual might not be found on all models in all marketing areas.

All service technicians must be familiar with nautical orientation. This manual often identifies parts and procedures using these terms.



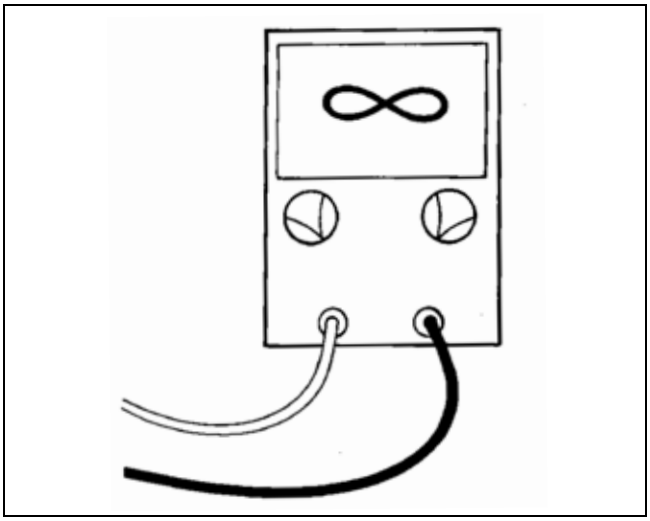
Nautical Orientation

SYMBOLS

Throughout this service manual, symbols are used to interpret electrical troubleshooting results or to assign values in drawings.

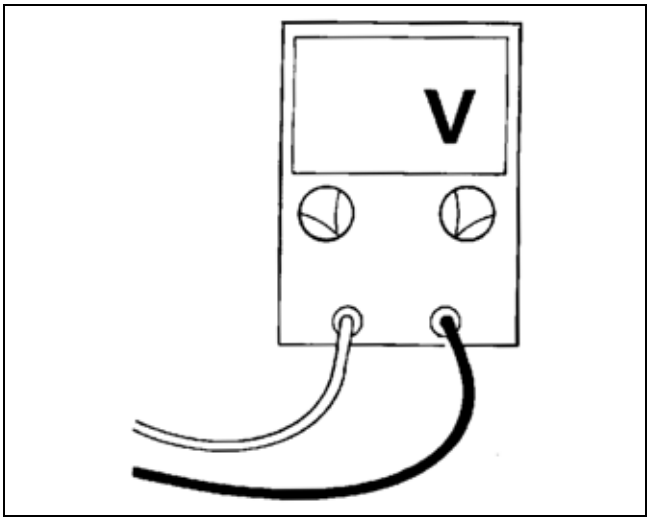
Electrical

When "∞" shows on the meter face, no continuity, or very high resistance, is indicated. The symbol is referred to as infinity.



DR4203

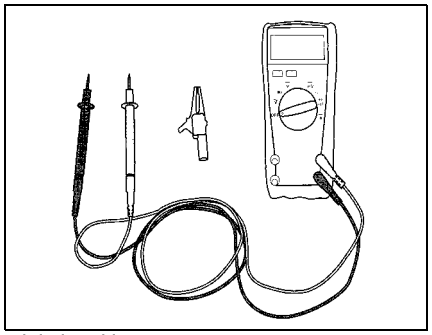
When "V" follows a value on the meter face, the procedure is measuring voltage.



DR4204

SPECIAL TOOLS

Electrical / Ignition

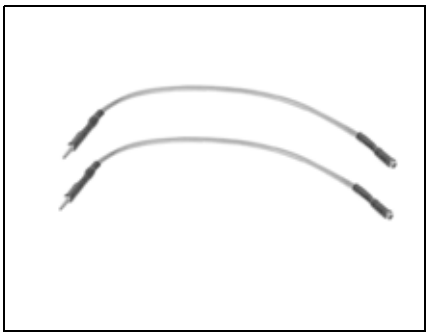


Digital multimeter DRC7265
Ohms resolution 0.01
Purchase through local supplier

CD Peak reading voltmeter 49799
P/N 507972

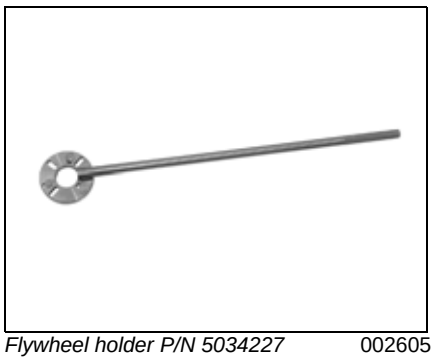
Multimeter, analog 49793
P/N 501873

Flywheel removal screws 002570
P/N 5034235

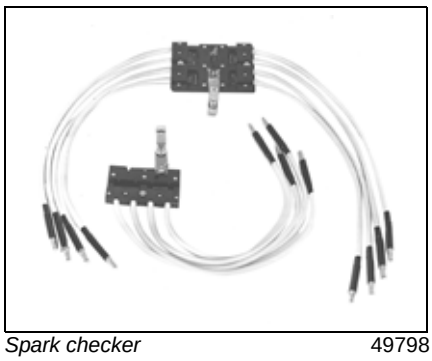


Wire harness adapter leads 40269
P/N 342228

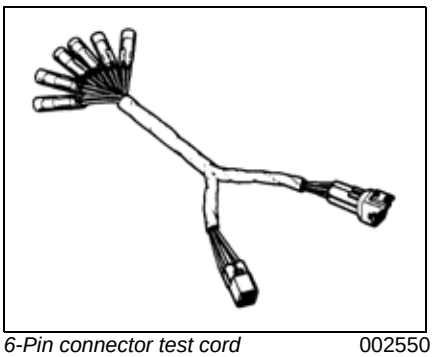
Tachometer/timing light 49789
P/N 507980



Flywheel holder P/N 5034227 002605

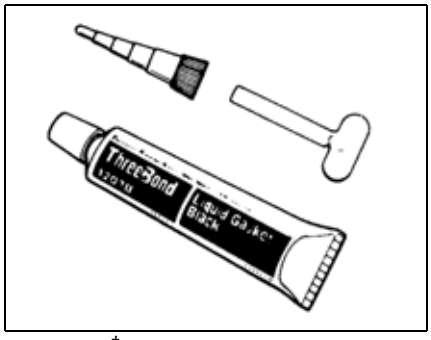


Spark checker 49798
P/N 508118



6-Pin connector test cord 002550
P/N 5034231

Gasket Sealing Compound P/N 317201



ThreeBond† 1104, P/N 351052
ThreeBond 1207B, P/N 351053

Permatex† No. 2, P/N 910032

GE† RTV Silicone Sealant P/N 263753

Pipe Sealant with Teflon P/N 910048

Thermal Joint Compound P/N 322170

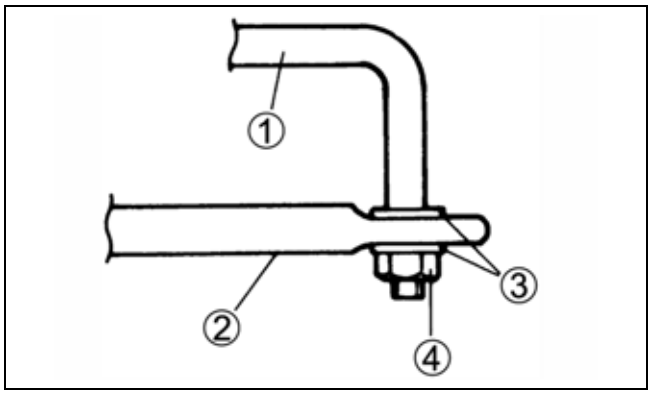
GM† Gear Mark Compound P/N 772666

Locquic Primer P/N 772032

1. *Screw Lock P/N 500417*
   (Loctite† Purple 222 equivalent
2. *Nut Lock P/N 500421*
   (Loctite Blue 242 Equivalent)
3. *Ultra Lock P/N 500423*
   (Loctite Red 271 Equivalent)

Drag Link

Connect drag link to the steering cable with washers and safety nut. Tighten the nut to 88 in. lbs. (10 N·m), then back the nut off 1/8 turn.



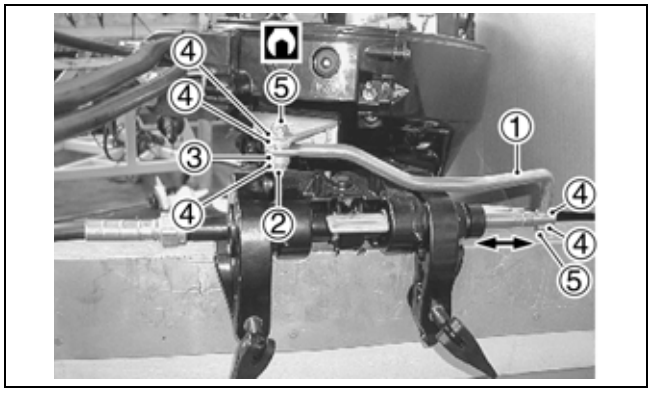
004824

1. *Drag link*
2. *Steering cable*
3. *Washers*
4. *Safety nut*

Move the steering cable until hole of drag link aligns with the thread hole on the attachment.

Connect the drag link to the attachment by tightening the screw with spacer and washer. Tighten screw to 24.5 ft. lbs. (34 N·m).

Install safety nut and tighten to 24.5 ft. lbs. (34 N·m).



005903

1. *Drag link*
2. *Screw*
3. *Spacer*
4. *Washer*
5. *Safety nut*

IMPORTANT: After assembly, check for smooth and free steering operation.

Outboard Mounting

Fastening the Outboard to the Transom

⚠ WARNING ⚠

The outboard must be correctly installed. Failure to correctly install the outboard could result in serious injury, death, or property damage.

IMPORTANT: Follow all directions carefully. The outboard's warranty will not cover product damage or failure resulting from incorrect outboard installation.

⚠ WARNING ⚠

Even if equipped with clamp screws, the outboard must be bolted to the boat to prevent it from "working off the transom" during operation.

Center the outboard on the boat's transom (or mounting bracket) and tighten the clamp screws by hand, NOT with tools. An accessory transom plate is recommended to protect the boat's transom (or mounting bracket).

⚠ WARNING ⚠

If either side of the transom deforms or cracks when the bolts are tightened to their recommended torque, the transom construction may not be adequate or may be deteriorated. Structural failure of the transom could result in loss of boat control and injury to the occupants.

INSPECTION AND MAINTENANCE SCHEDULE

Routine inspection and maintenance is necessary for all mechanized products. Periodic maintenance contributes to the product's life span. The following chart provides guidelines for outboard inspection and maintenance to be performed by an authorized Dealer.

IMPORTANT: Outboards used for rental operations, commercial applications, or other high hour use applications require more frequent inspections and maintenance. Inspection and maintenance should be adjusted according to operating conditions and use; and environmental conditions.

Engine Maintenance and Inspection Schedule						
		Frequency				
Description	**Engine Care Product**	**Each Use**	**10-Hour Inspection**	**Every 50 Hours or 6 months**	**Every 100 Hours or Annually**	**Every 200 Hours or Biannually**
Swivel bracket, inspect and lubricate (1)	D	Every 60 days / Every 30 in Saltwater				
Clamp screws, inspect and lubricate (1)	D	Every 60 days / Every 30 in Saltwater				
Tilt lock pin, inspect and lubricate (1)	D	Every 60 days / Every 30 in Saltwater				
Throttle linkage, inspect and lubricate (1)	D	Every 60 days / Every 30 in Saltwater				
Steering bracket, lubricate (1)	D	Every 60 days / Every 30 in Saltwater				
Exhaust housing bushing (1)	D	Every 60 days / Every 30 in Saltwater				
Lubrication and corrosion protection for metallic components	A	Every 60 days / Every 30 in Saltwater				
Battery connections and condition, check	D	✓	✓			
Anticorrosion anodes, check operation		✓	✓			
Water intake screens, check condition		✓	✓			
Overboard water pump indicator, check operation		✓	✓			
Steering friction, check/adjust		✓	✓			
Throttle and shift operation, check function		✓	✓			
Emergency stop circuit and lanyard, check function		✓	✓			
Starter, inspect cord		✓	✓			
Crankcase oil level, check	H	✓	✓			
Crankcase oil, replace (2)	H		✓		✓	
Oil filter, replace			✓			✓
Fuel filter inspection, eliminate contamination			✓		✓	
Fuel fitter, replace						✓
Flush cooling system		✓				
Thermostat, inspect and check operation			✓		✓	
Operator's Guide, onboard		✓				
Engine upper and lower motor covers, clean and wax				✓		

BATTERY

Check battery connections frequently. Periodically remove battery to clean and service connections.

⚠ WARNING ⚠

Battery electrolyte is acidic—handle with care. If electrolyte contacts any part of the body, immediately flush with water and seek medical attention.

- Confirm that battery meets the minimum engine requirements.
- Connections must be clean and tight.

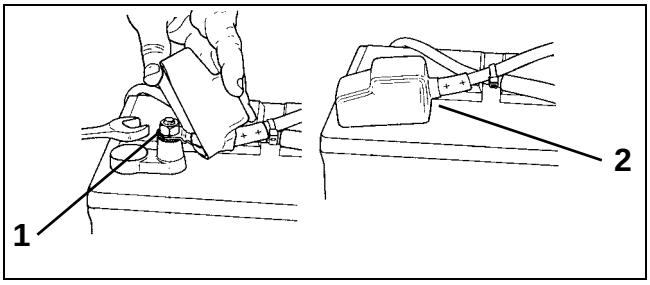
Disconnect battery negative (–) cable **first** and the battery positive (+) cable last.

Clean all terminals, battery posts, and connectors with a solution of baking soda and water. Use a wire brush or battery terminal tool to remove corrosion buildup. Rinse and clean all surfaces.

Reinstall battery and tighten connections securely. Refer to **Battery Installation** on p. 29.

IMPORTANT: DO NOT secure battery cables with wing nuts.

Coat all connections with *Triple-Guard* grease and insulate to prevent shorts or spark arcing.



1. Connection 000866
2. Insulator

⚠ WARNING ⚠

Keep battery connections clean, tight, and insulated to prevent their shorting or arcing and causing an explosion. If the battery mounting system does not cover the connections, install covers.

LUBRICATION

Engine Oil

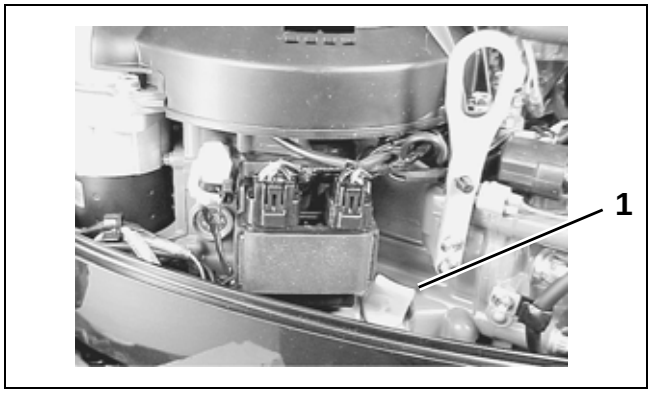
Oil Level Check

Place outboard upright on a level surface.

Remove the oil level dipstick (filler cap) and wipe clean.

Reinsert dipstick fully into filler hole, then remove to check oil level.

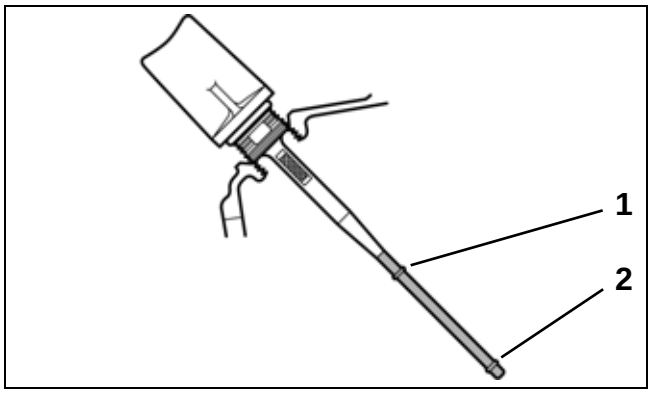
IMPORTANT: Do not screw dipstick in to check oil level.



1. Oil filler cap 005533

Oil level should be between full level (Max) line and low level (Min) line.

If oil is low, add recommended oil.



1. Full level line 005534
2. Low level line

Oil Pressure Caution Lamp Circuit

Remove the blue lead wire from the oil pressure switch.

Start the engine.

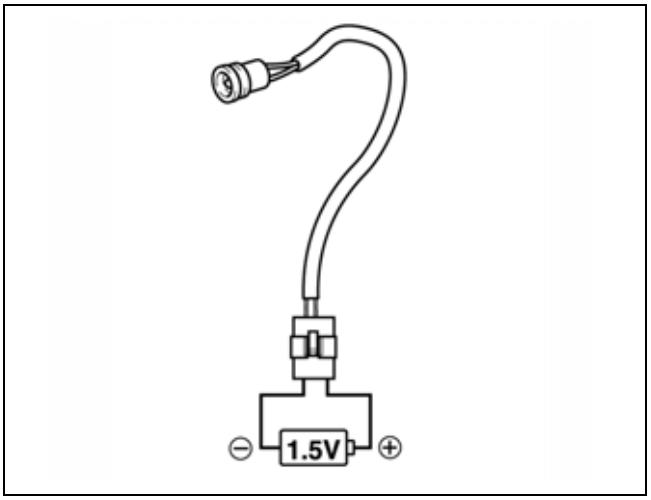
Touch the blue lead wire to engine ground. If the caution lamp comes on, the oil pressure switch circuit and lamp are normal.

Caution Lamp

Disconnect lamp lead wires from engine harness.

Connect the wires to a 1.5 V battery.
- Pink wire to battery positive
- Black wire to battery negative

If lamp does not light, replace lamp.



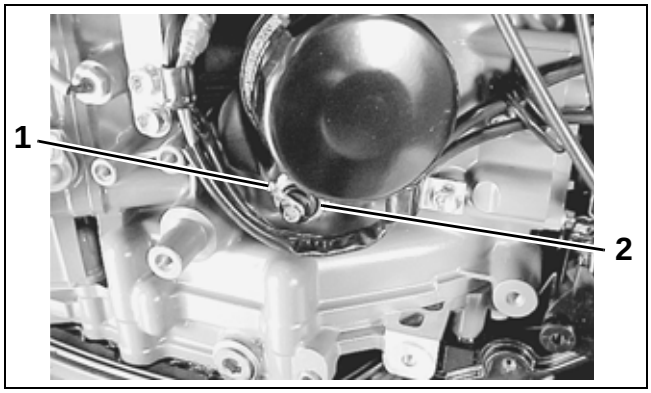
004717

Oil Pressure Switch Service

Removal

Loosen screw and disconnect blue lead wire from oil pressure switch.

Remove the oil pressure switch.

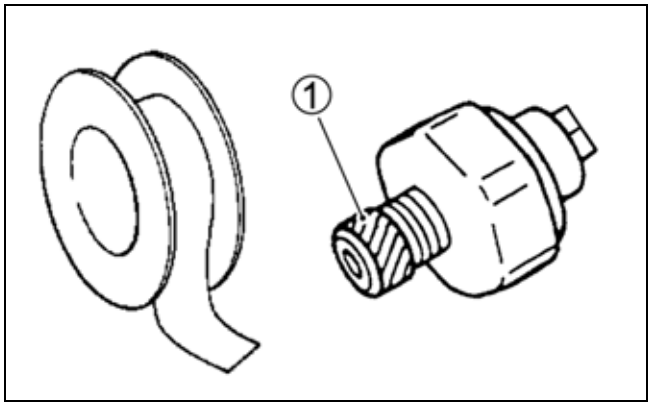


1. Blue lead wire 005552
2. Oil pressure switch

Installation

Installation is reverse order of removal with special attention to the following steps:

Before installing oil pressure switch, wrap threads with sealing tape.



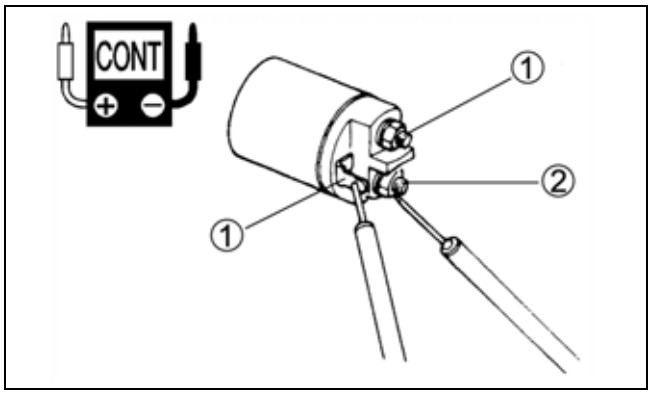
004718

Tighten switch to 114 in. lbs. (13 N·m).

Start engine and check for oil leaks.

Check for continuity across magnetic switch “S” terminal and “M” terminal.

If no continuity, replace coil.

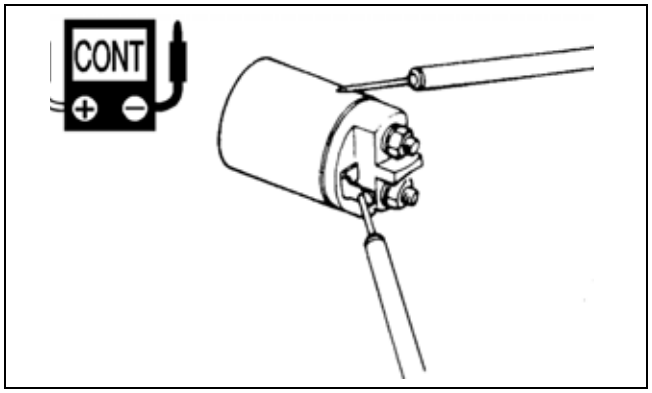


1. “S” terminal
2. “M” terminal
3. “B” terminal

004771

Check for continuity across magnetic switch “S” terminal and coil case.

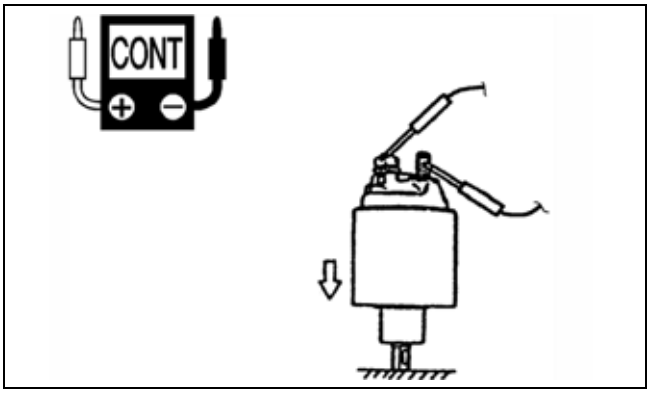
If no continuity, replace coil.



004772

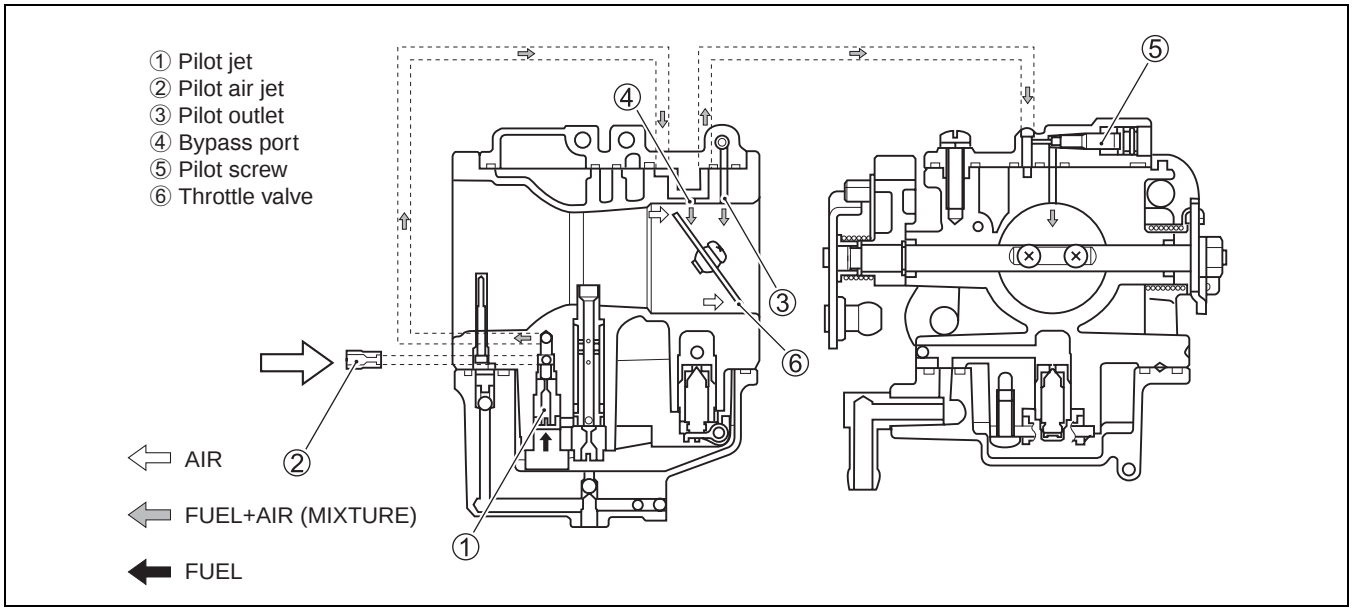
Place plunger against a flat surface and push the magnetic switch down. With switch held down, check for continuity between terminal “B” and terminal “M.”

If no continuity, replace the magnetic switch and/or plunger.



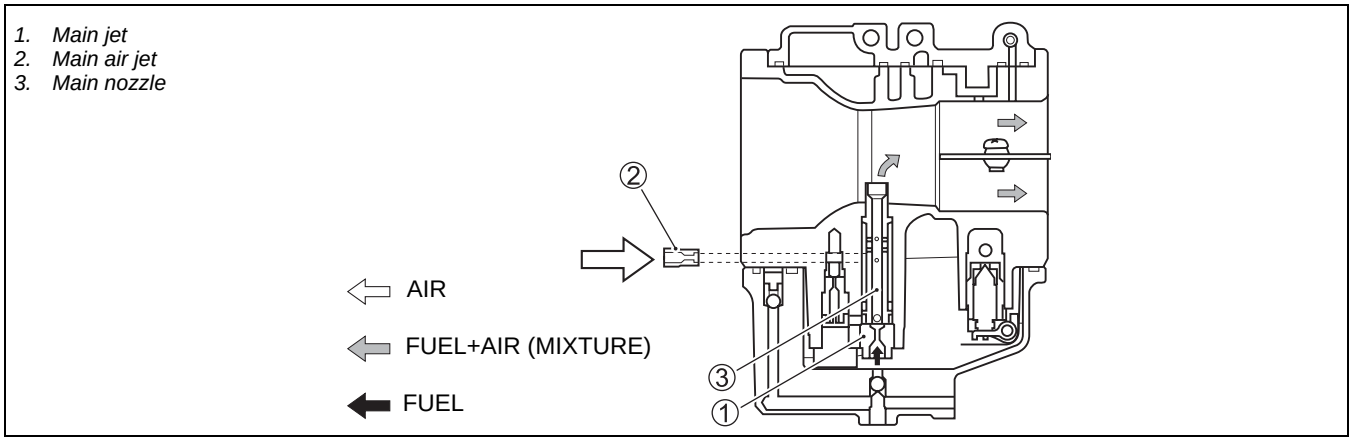
004773

Low-Mid Speed



As the throttle valve is opened gradually, air flowing through the throttle bore increases in proportion to the valve opening angle. At this time, because fuel mixture jets from the bypass port #2 and those upstream successively, the optimum mixture ratio (A/F) is maintained, raising engine speed smoothly.

Mid-High Speed

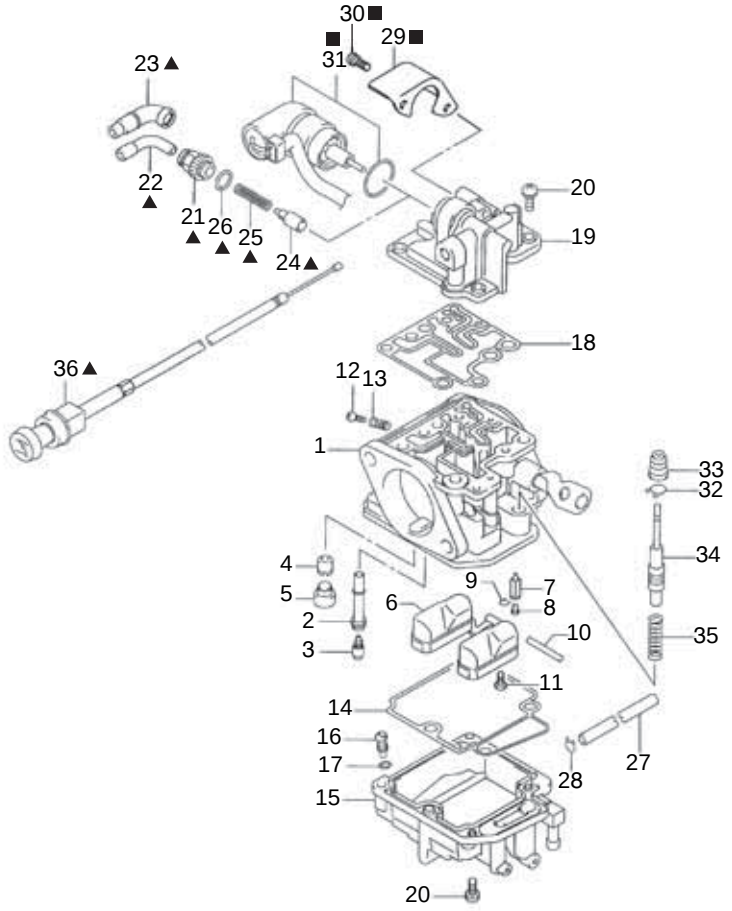


When the throttle valve opens further and engine speed rises, fuel passes through the main jet and enters the main nozzle, in which it is mixed with air supplied from the main air jet before sprayed into the main bore.

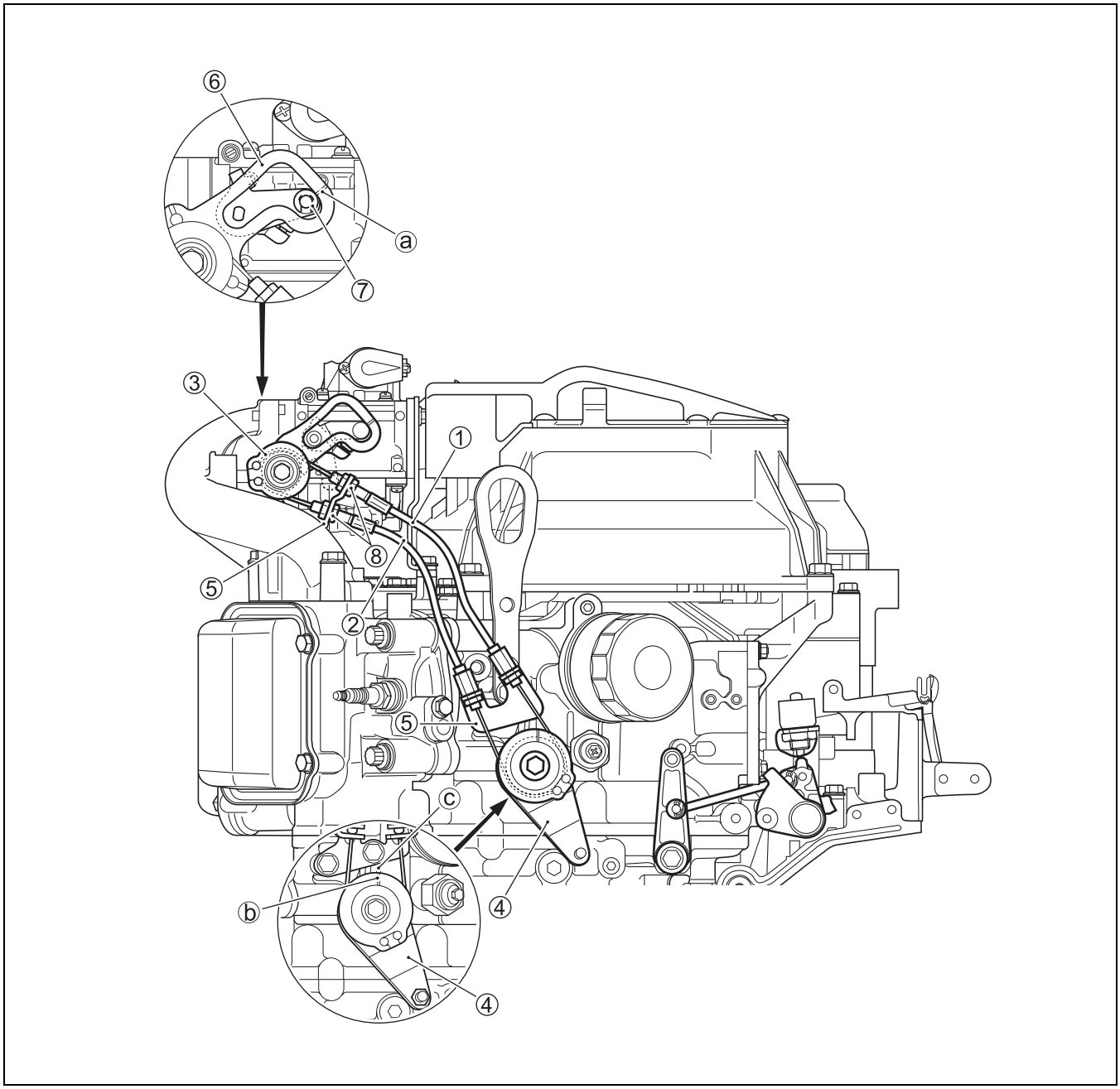
Assembly

1. Carburetor body
2. Main nozzle
3. Main jet
4. Pilot jet
5. Cap
6. Float
7. Needle valve
8. Needle valve pin
9. Clip
10. Pin
11. Screw
12. Stop screw
13. Spring
14. Gasket
15. Float chamber
16. Drain screw
17. O-ring
18. U-ring
19. Top cover
20. Screw
21. Cable holder
22. Cable guide
23. Cable sealing cap
24. Starter valve
25. Spring
26. O-ring
27. Drain hose
28. Clip
29. Heater guard
30. Screw
31. Starter assy
32. Clip
33. Cap
34. Plunger
35. Spring
36. Starter knob assy

■ Electric models
▲ Rope models



Remote Models



Install two throttle cable 1 · 2 to throttle drum 3 , interlink throttle lever 4 and each cable brackets 5 .

Align the match mark b (–) on interlink throttle lever 4 with the cylinder block rib C and hold this position.

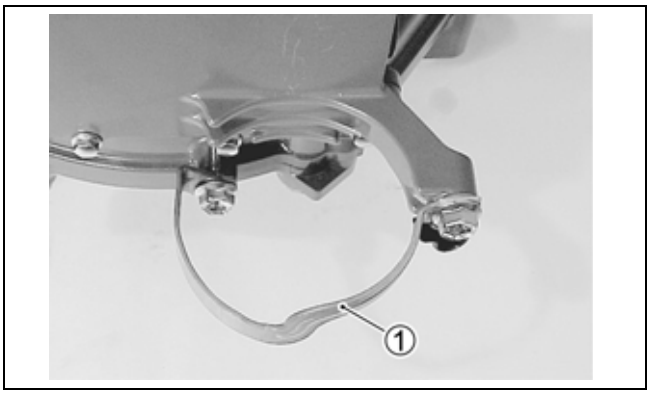
Align the match mark a on the throttle cam 6 with the center of throttle lever roller 7 , then hold this condition unmoved and turn the cable lock nuts 8 so as to removed play on inner cables. Tighten the lock nuts securely.

CYLINDER HEAD

Removal

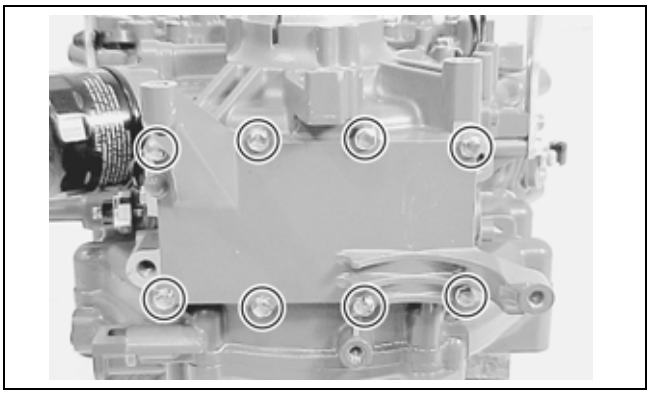
Remove powerhead. Refer to powerhead **REMOVAL AND INSTALLATION** on p. 130.

Remove screws and starter motor band.



1. Starter motor band 005660

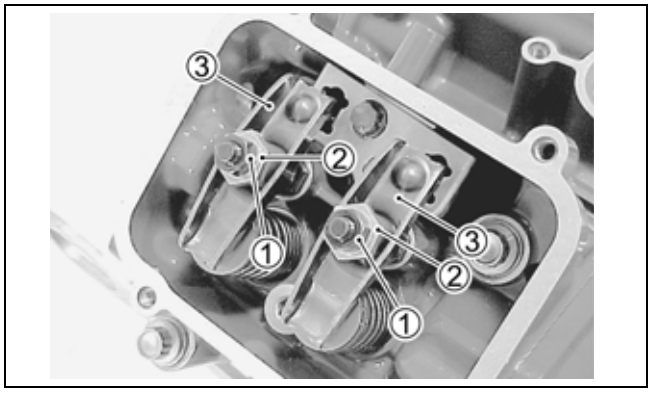
Remove eight screws and crankcase front plate.



005661

Remove oil pump. Refer to **OIL PUMP** on p. 135.

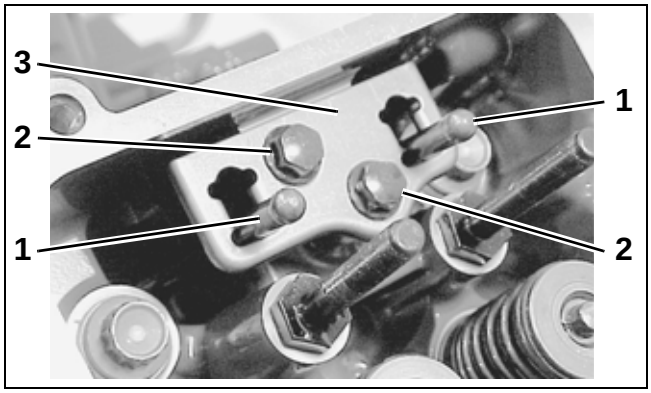
Loosen and remove valve adjusting lock nuts, then remove pivot nuts and rocker arms.



1. Lock nuts 005662
2. Pivot nuts
3. Rocker arms

IMPORTANT: Mark each rocker arm for reassembly in its original location.

Remove push rods. Remove screws and push rod guide.



1. Push rod 005663
2. Guide screws
3. Pushrod guide

Pistons and Rings

Measure piston ring to groove clearance after decarbonizing.

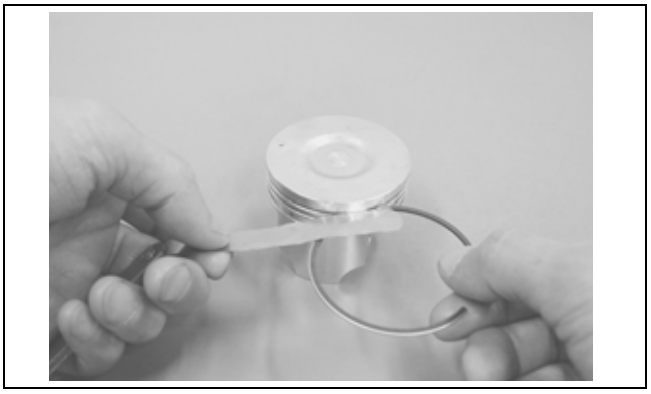
Standard piston ring groove width:
- 1st ring: 0.0402 to 0.0409 in. (1.02 to 1.04 mm)
- 2nd ring: 0.0476 to 0.0484 in. (1.21 to 1.23 mm)
- Oil ring: 0.0791 to 0.0799 in. (2.01 to 2.03 mm)

Standard piston ring thickness:
- 1st ring: 0.0382 to 0.0390 in. (0.97 to 0.99 mm)
- 2nd ring: 0.0461 to 0.0469 in. (1.17 to 1.19 mm)

Piston ring to groove clearance, standard:
- 1st ring: 0.0012 to 0.0028 in. (0.030 to 0.070 mm)
- 2nd ring: 0.0008 to 0.0024 in. (0.020 to 0.060 mm)

Service limit:
- 1st ring: 0.005 in. (0.12 mm)
- 2nd ring: 0.004 in. (0.10 mm)

If measurement exceeds service limit, replace the piston and/or piston ring.

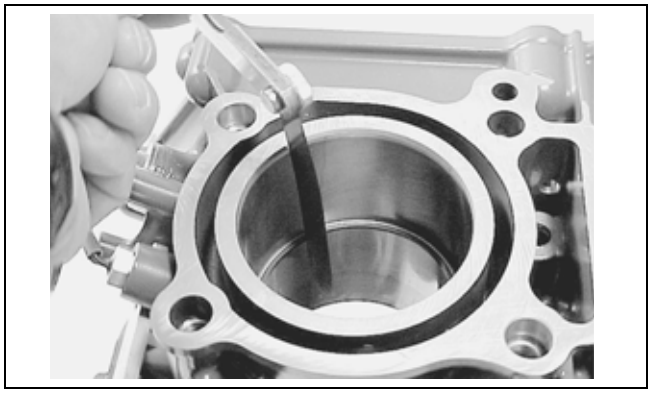


004574

Measure piston ring end gap with piston ring in the lowest position of cylinder bore. If measurement exceeds service limit, replace piston ring.

Piston ring end gap, standard:
- 1st ring: 0.0047 to 0.0106 in. (0.12 to 0.27 mm)
- 2nd ring: 0.0138 to 0.0197 in. (0.35 to 0.50 mm)

Service limit:
- 1st ring: 0.028 in. (0.70 mm)
- 2nd ring: 0.039 in. (1.00 mm)

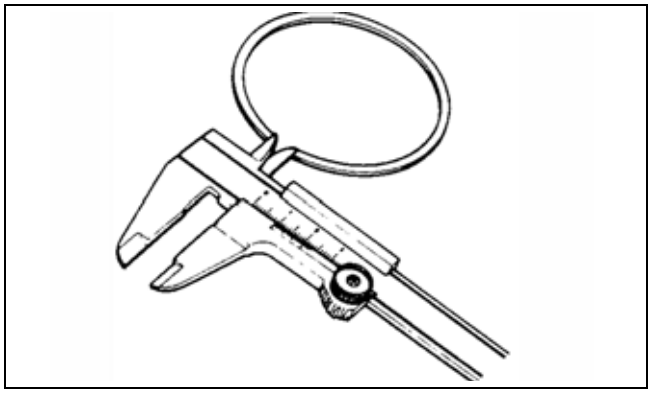


005716

Measure piston ring free end gap. If measurement exceeds service limit, replace piston ring.

Piston ring free end gap, standard:
- 1st ring: Approx. 0.3150 in. (8 mm)
- 2nd ring: Approx. 0.3937 in. (10 mm)

Service limit:
- 1st ring: 0.2520 in. (6.4 mm)
- 2nd ring: 0.3150 in. (8.0 mm)



004576