

power head and lower unit. Pump is located in the gearcase and driven by the propeller shaft.

Water inlet should be inspected for plugging or partial restriction if cooling system malfunction is noted. Refer to Fig. SZ1-9 for exploded view of water pump. To remove the impeller, remove propeller, propeller thrust pin and gearcase end cap (1), then withdraw the impeller (2). Inspect impeller for cracks or excessive wear or scoring. Power head should be separated from drive shaft housing and water passages thoroughly cleaned if large accumulations of foreign material are evident. Turn propeller shaft in a clockwise direction when inserting impeller in pump cavity.

POWER HEAD

REMOVE AND REINSTALL. To remove power head, remove power head cover, fuel tank, control panel assembly and carburetor. Remove recoil starter assembly, flywheel and magneto base plate assembly. Unscrew the six cap screws securing power head to drive shaft housing and separate power head from drive shaft housing.

Before reinstalling power head, inspect water inlet and outlet passages in drive shaft housing and remove any foreign material. Apply a coat of silicone sealer to mating surfaces of power head and drive shaft housing and install a new gasket. Assemble power head on drive shaft housing and tighten retaining cap screws to 6-10 N·m (53-88 in.-lbs.). Complete installation by reversing removal procedure.

DISASSEMBLY. Disassembly and inspection may be accomplished in the following manner: Remove cylinder head and clean carbon from combustion chamber and any foreign material accumulated in water passages. Detach crankcase half (1—Fig. SZ1-4) from cylinder block after removing six crankcase cap screws. Crankshaft and piston assembly may now be removed from cylinder block.

REASSEMBLY. Refer to specific service sections when assembling crankshaft, connecting rod, piston and reed valves. Make sure all joint and gasket surfaces are clean and free of nicks and burrs. Make sure all carbon, salt, dirt and sand are cleaned from the combustion chamber, exhaust port and water passages.

On early models place thrust rings (11—Fig. SZ1-5) in cylinder block (2—Fig. SZ1-4), then install crankshaft assembly. On later models, thrust rings are full-circle design and must be assembled on crankshaft prior to installing crank-

shaft. Press crankshaft seals flush against thrust rings. Install "O" ring (8) in cylinder block, then apply a suitable water resistant-grease to "O" ring and splined area of crankshaft. Apply a suitable sealer to cylinder block and crankcase half mating surfaces and position crankcase half on cylinder block. Using a crossing pattern, tighten six crankcase screws to 8-12 N·m (6-9 ft.-lbs.).

Do not use sealer when installing cylinder head gasket. Align water passage holes in cylinder block with holes in head gasket and install cylinder head. Tighten cylinder head bolts in a crossing pattern to 8-12 N·m (6-9 ft.-lbs.).

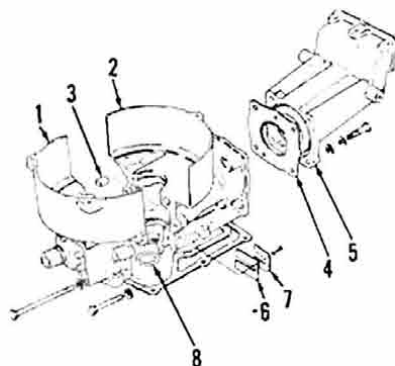


Fig. SZ1-4—Exploded view of crankcase and cylinder assembly.

- 1 Crankcase half
- 2 Cylinder block
- 3 Dowel
- 4 Head gasket
- 5 Cylinder head
- 6 Reed petal
- 7 Reed stop
- 8 "O" ring

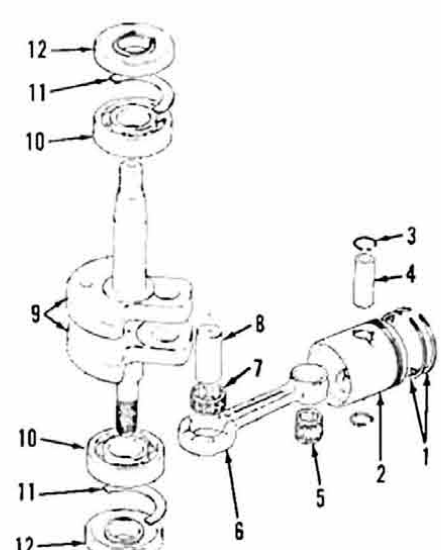


Fig. SZ1-5—Exploded view of crankshaft, piston and related components. On 1988 and later models, thrust rings (11) are full-circle design.

- 1. Piston rings
- 2. Piston
- 3. Retainer ring
- 4. Piston pin
- 5. Bearing
- 6. Connecting rod
- 7. Bearing
- 8. Crankpin
- 9. Crankshaft
- 10. Ball bearings
- 11. Thrust rings
- 12. Crankshaft seals

PISTON, PIN, RINGS AND CYLINDER. The piston is fitted with two piston rings. Piston ring end gap should be 0.10-0.25 mm (0.004-0.010 in.) with a maximum allowable ring end gap of 0.60 mm (0.024 in.). Piston rings are retained in position by locating pins. Piston-to-cylinder clearance should be 0.053-0.060 mm (0.0021-0.0024 in.). Pistons and rings are available in standard size as well as 0.25 mm (0.010) and 0.50 mm (0.020 in.) oversize. Cylinder should be bored to an oversize if cylinder is out of round or taper exceeds 0.10 mm (0.004 in.). Install piston on connecting rod so arrow on piston crown will point toward exhaust port.

CONNECTING ROD, BEARINGS AND CRANKSHAFT. Connecting rod, bearings and crankshaft are a press-together unit. Crankshaft should be disassembled ONLY by experienced service personnel using appropriate service equipment.

Caged roller bearings are used at both large and small ends of the connecting rod. Determine rod bearing wear from side-to-side as shown in Fig. SZ1-6. Normal side-to-side movement is 3.0 mm (0.118 in.) or less. Maximum limit of crankshaft runout is 0.03 mm (0.0012 in.) measured at bearing surfaces with crankshaft ends supported.

Apply a suitable high temperature grease to lip area of crankshaft seals and install seals on crankshaft with open side toward bearings.

REED VALVE. The reed valve is located on the inside of crankcase (1—Fig. SZ1-4). Power head must be removed and crankcase separated from cylinder block as outlined in the POWER HEAD section to service reed valve assembly.

Renew reed (6) if petals are broken, cracked, warped or rusted. Tip of reed petal must not stand open in excess of 0.2 mm (0.008 in.) from contact surface. Reed stop opening should be 4.0 mm (0.160 in.). Reed petal should be in-

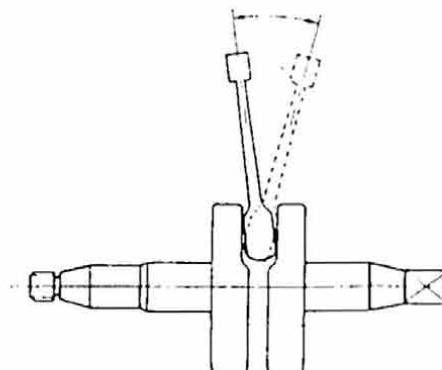


Fig. SZ1-6—Move connecting rod small end side-to-side as shown to determine rod, bearing and crankpin wear. Refer to text.