PREFACE

This SERVICE MANUAL has been prepared as a "SERVICE GUIDE" for the mechanic responsible for the upkeep of the HONDA OUTBOARD MOTOR B75.

It is compiled into nine sections and summarizes the procedures for disassembling, inspecting and reassembling the components of the machine.

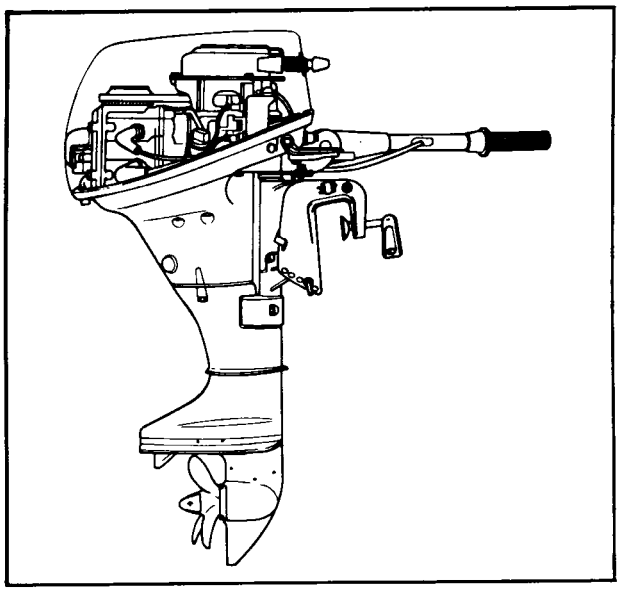
Careful attention to the instructions given herein will result in better, safer service work.

HONDA MOTOR CO., LTD.
Service Publications Office

CONTENTS

Date of Issue: Feb. 1977

2 POWER HEAD AND LOWER UNIT REMOVAL AND INSTALLATION



1. LOWER UNIT

1. Move the lock lever in the direction of arrow and remove the engine cover.

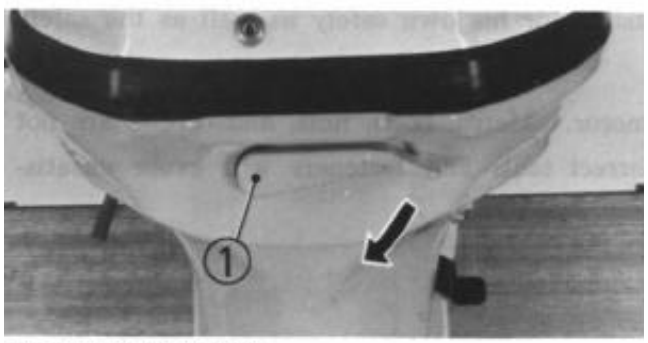


Fig. 2-1 ① Lock lever

2. Pull out the cotter pin and 5 mm pin, and disconnect the shift rod from the shift shaft.

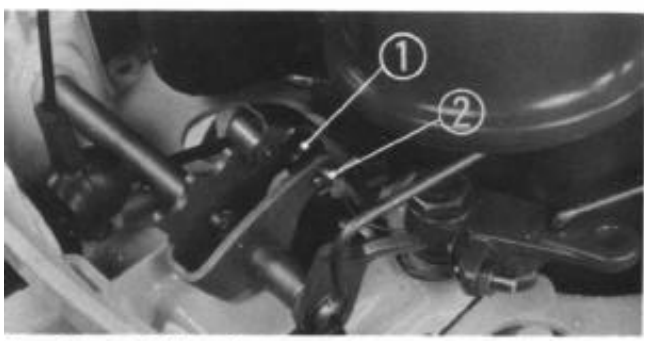


Fig. 2-2 ① Shift rod ② 5 mm pin

3. Remove the two 8 mm nuts and remove the lower mount housing.
4. Remove the four 8 mm bolts and remove the extension case from the oil case.

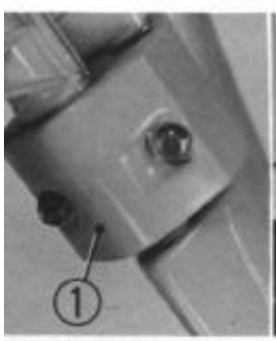


Fig. 2-3 ① Lower mount housing

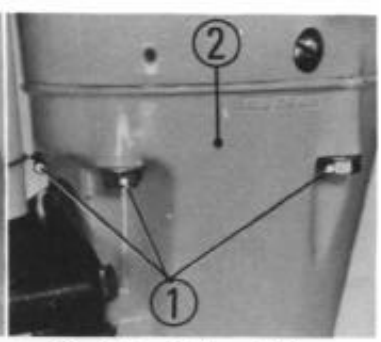


Fig. 2-4 ① 8 mm bolts ② Extension case

Date of Issue: Oct. 1975

2. POWER HEAD

1. Remove the fuel pump cover and disconnect the fuel tubes from the pump.

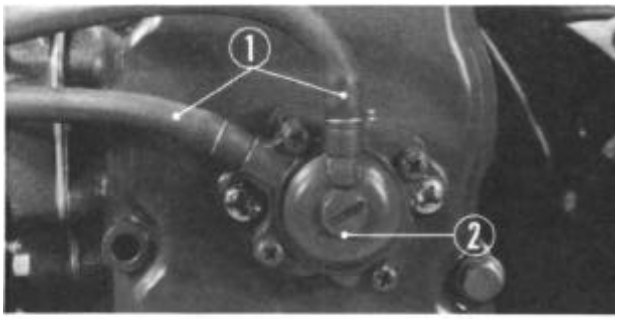


Fig. 2-5 ① Fuel tubes ② Fuel pump

2. Disconnect the choke rod and fuel stop rod.

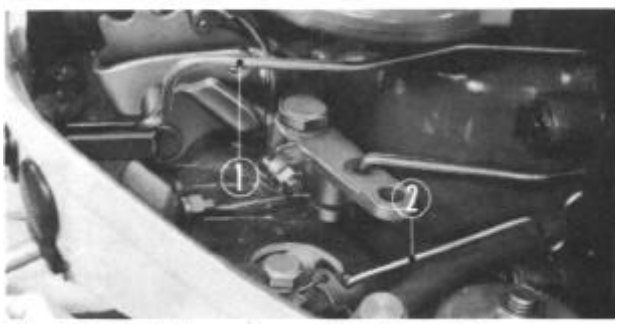


Fig. 2-6 ① Choke rod ② Fuel stop rod

3. Remove the 6 mm bolts and the linkage rods should remain attached to the carburetor.

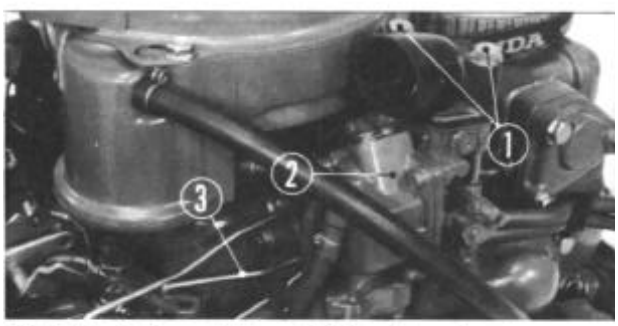


Fig. 2-7 ① 6 mm bolts ② Carburetor ③ Throttle rod

4. Disconnect the primary wire from the engine switch.

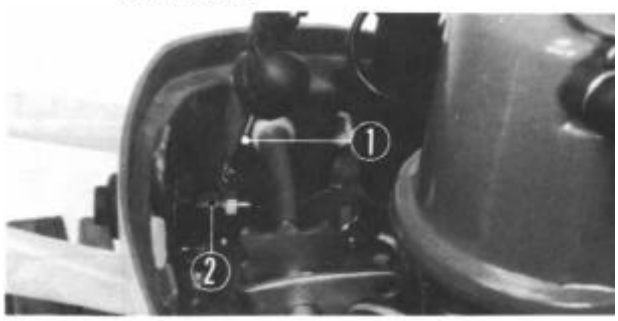


Fig. 2-8 ① Ground cable ② Engine switch

5. Disconnect the breather tube, overflow pipe and cooling water pipe.

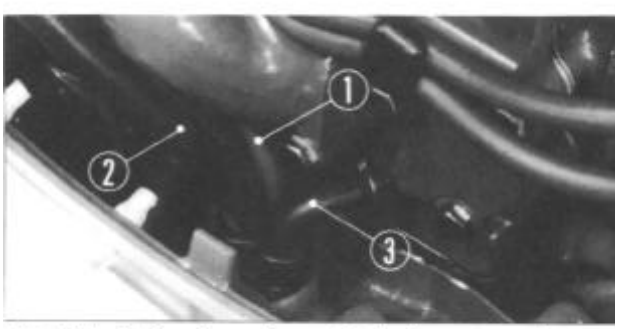


Fig. 2-9 ① Overflow pipe ② Breather tube ③ Cooling water pipe

Date of Issue: Oct. 1975

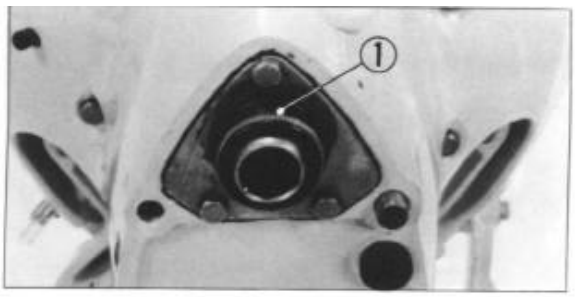


Fig. 2-10 ① Exhaust plate

6. Remove the exhaust plate.

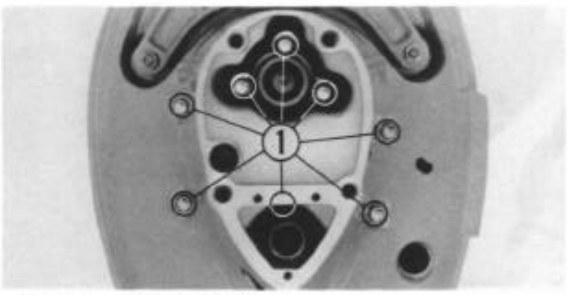


Fig. 2-11 ① 6 mm bolts

7. Remove the eight 6 mm bolts.

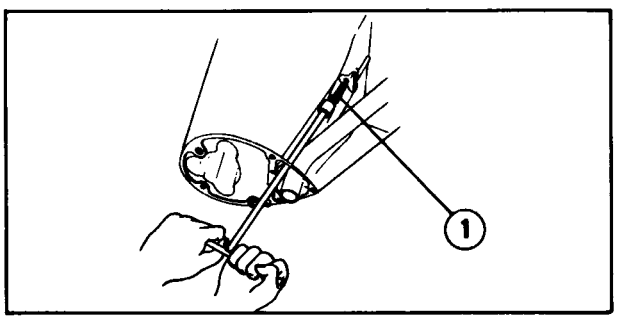


Fig. 2-12 ① 6 mm bolt

Note:

Remove one 6 mm bolt, working through it with a socket. (Special tool)

Date of Issue: Feb. 1977

3 POWER HEAD

The following table shows if engine removal is necessary in order to remove the individual components.

No.	Component	Ref. page	Engine removal
1	**Recoil starter**	5	Unnecessary
2	**Carburetor and intake manifold**	8	Unnecessary
3	**Cooling system**	12	Unnecessary
4	**Cylinder head and camshaft**	13	Necessary
5	**Cylinder block, pistons and crankshaft**	18	Necessary
6	**Electrical system**	23	Unnecessary
7	**Oil pump**	26	Necessary
8	**Fuel pump**	26	Unnecessary

1. RECOIL STARTER

Disassembly

1. Remove the engine cover. (See page 2.)
2. Loosen the three 6 mm bolts and remove the recoil starter by turning it counterclockwise.

Fig. 3-1 ① Recoil starter ② 6 mm bolts

3. Pull out the rope and untie the knot. Remove the E-ring. Then remove the starter grip, seal plate, spring and rope guide in this order.

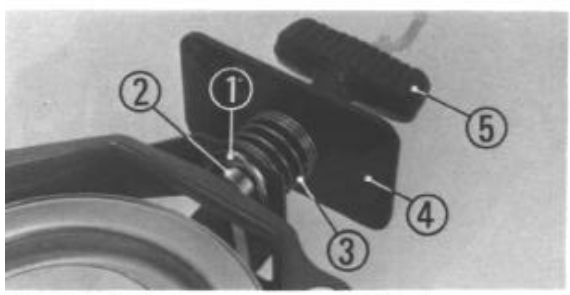


Fig. 3-2 ① E-ring ② Rope guide ③ Seal plate spring ④ Seal plate ⑤ Starter grip

4. Remove the 6 mm bolt and remove the friction plate.

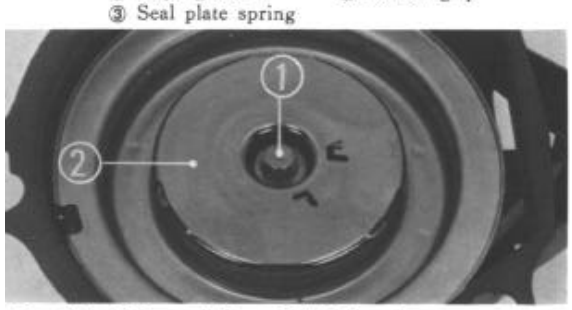


Fig. 3-3 ① 6 mm bolt ② Friction plate

Date of Issue: Oct. 1975

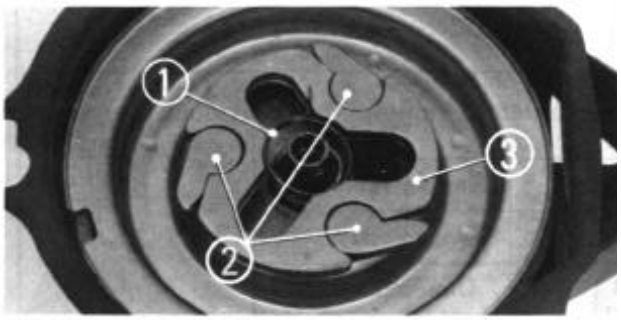


Fig. 3-4 ① Return spring ③ Starter pulley
② Starter ratchet

5. Remove the return spring and remove the starter ratchets from the starter pulley.

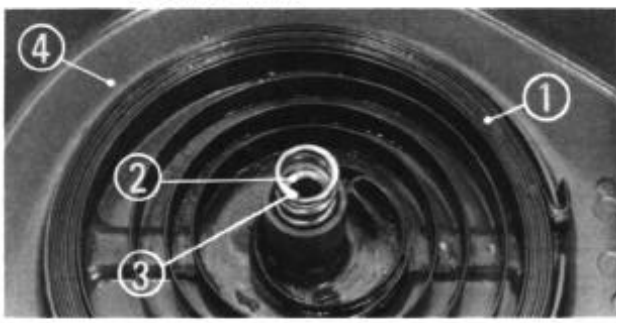


Fig. 3-5 ① Recoil starter spring ③ Friction spring
② Collar ④ Starter case

6. Remove the starter pulley and remove the recoil starter spring, collar and friction spring from the starter case.

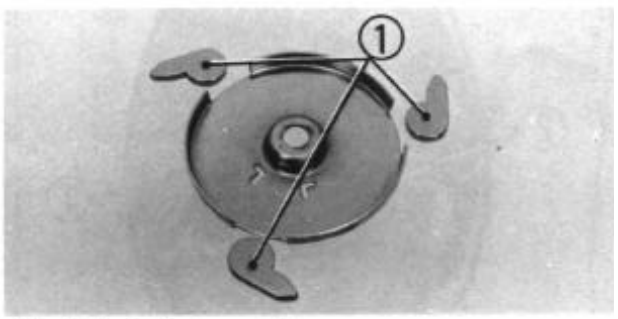


Fig. 3-6 ① Starter ratchet

Inspection

1. Check the condition of the starter rope and replace it if frayed.
2. Replace the recoil starter spring if it is broken.
3. Replace the starter ratchets if the pawl is worn or damaged.

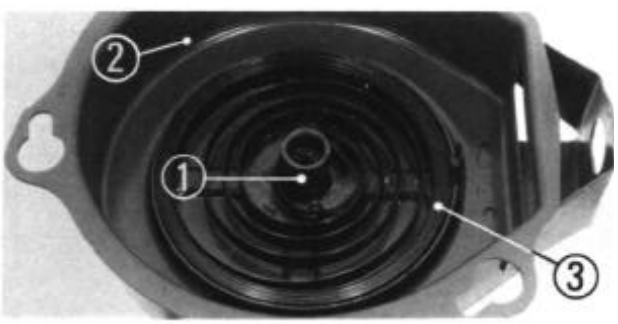


Fig. 3-7 ① Starter case shaft ③ Recoil starter spring
② Starter case

Assembly

1. Apply a coat of grease to the starter case shaft and install the recoil starter spring.

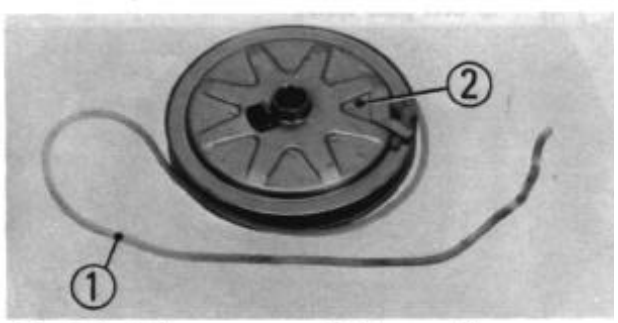


Fig. 3-8 ① Starter rope ② Starter pulley

2. Route the starter rope through the recoil starter pulley and tie a knot in the end of the rope. Then wind the rope on the pulley.

Date of Issue: Oct. 1975

3. Install the friction spring and collar in the starter case.

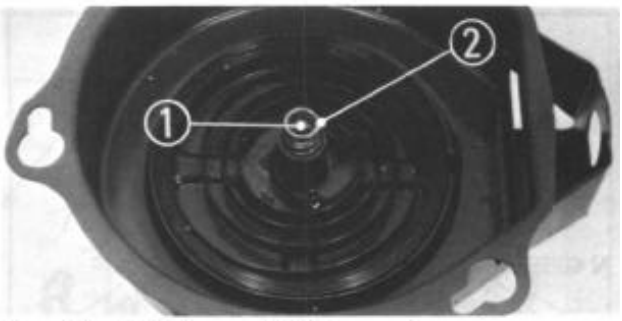


Fig. 3-9 ① Collar ② Friction spring

4. Slightly lift the inside end of the recoil starter spring, and install the starter pulley in the starter case while attaching the spring hook to the pulley stopper.

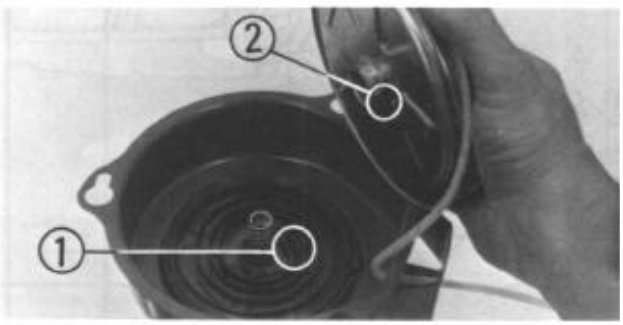


Fig. 3-10 ① Recoil starter spring hook
② Starter pulley stopper

5. Install the starter ratchets to the starter pulley and then install the return spring.

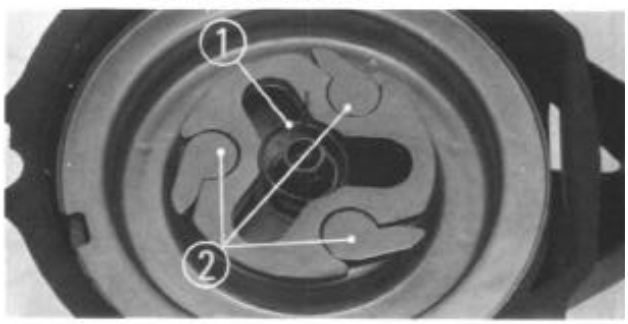


Fig. 3-11 ① Return spring ② Starter ratchet

6. Fit the slot (1) in the friction plate to the hook of the return spring, and rotate the friction plate 1/3 turns clockwise to give a preload, and secure them with the washer, lock washer and 6 mm bolt.

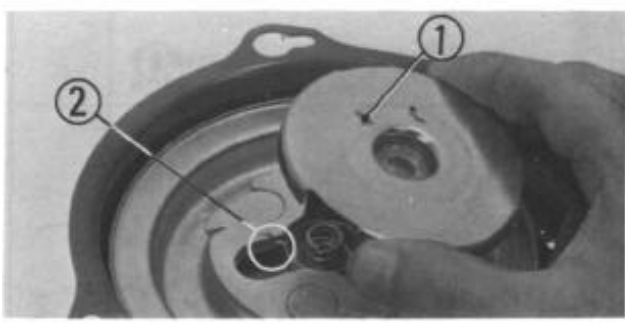


Fig. 3-12 ① Slot in friction plate
② Hook of return spring

7. Pull a short length of the rope out of the recoil starter pulley. With the end of the rope pulled out of the slot in the recoil starter, wind the starter coil three or four turns to give a preload.

   Attach a spring pull scale to one end of the rope, and check to see if the rope pull is 1.2~2.0 kg (2.6~4.4 lbs). If the pull is incorrect wind or unwind as necessary.

8. Route the starter rope through the rope guide, spring, seal plate, and starter grip, and tie a secure knot in the end of the rope. Then secure the rope guide with the E-ring.

9. Check the starter ratchets for proper operation and the starter rope for smooth return.

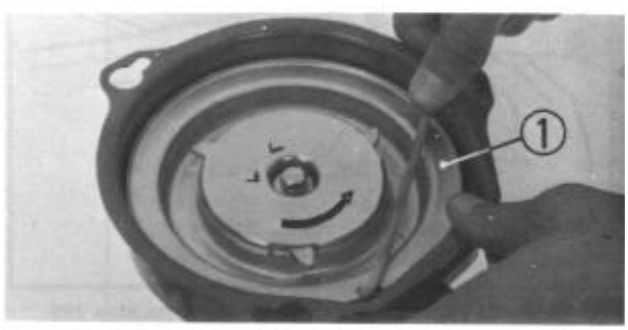


Fig. 3-13 ① Recoil starter pulley

Date of Issue: Oct. 1975

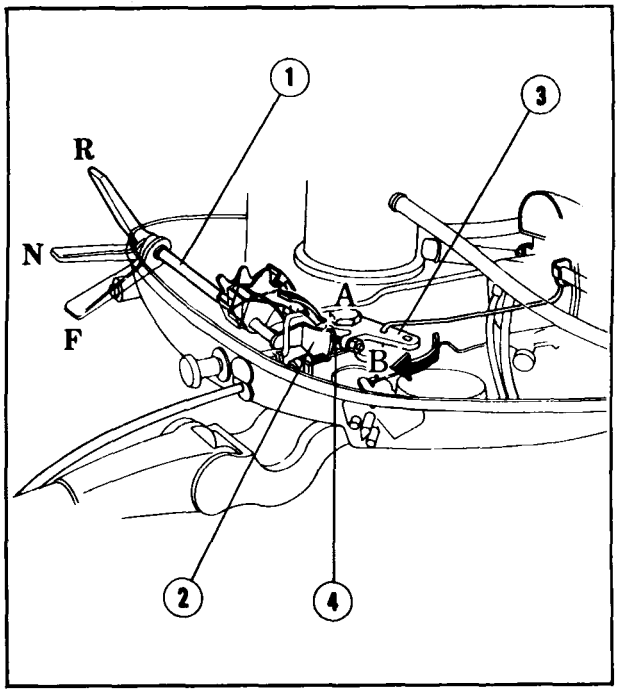


Fig. 3-14 ① Shift shaft ③ Throttle arm
② Cam ④ Adjusting screw

2. CARBURETOR AND INTAKE MANIFOLD

Throttle stop mechanism

The carburetor is provided with a built-in throttle stop mechanism. This mechanism limits the throttle operation in the neutral and reverse position to avoid engine overspeed.

a. When the shift lever is moved from the forward into the neutral or reverse position, the shift shaft cam turns in the direction A.

b. When the throttle grip is rotated, the throttle arm is turned in the direction B. When the shift lever is moved into the neutral or reverse position, the shift lever cam is moved toward the throttle arm stopper to limit the throttle arm movement.

c. The maximum engine speed in neutral and reverse can be changed by the adjusting screw in the throttle arm.

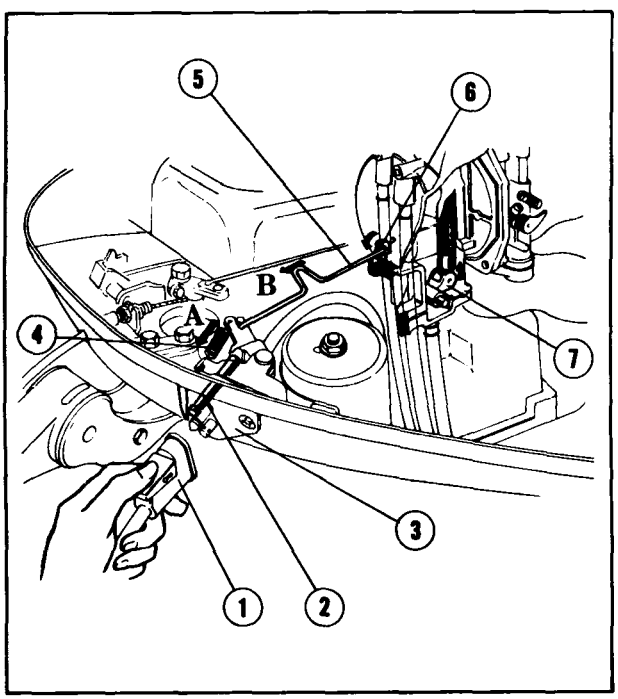


Fig. 3-15 ① Female fuel connector ⑤ Fuel stop rod
② Fuel stop shaft ⑥ Fuel stop lever
③ Male fuel connector ⑦ Link shaft
④ Spring

Fuel stop mechanism

When the female fuel connector is disconnected from the male fuel connector, the fuel stop shaft is moved in the direction A by the spring and, at the same time, the carburetor fuel stop lever is moved in the direction B by the fuel stop rod. This stop lever has a rubber stopper which prevents fuel from flowing into the jet.

When the female fuel connector is connected to the male fuel connector, the link shaft moves away from the main jet to allow fuel to flow into the jet.

Note:
There should be no play in the fuel stop rod linkage when the female fuel connector is attached. If there is noticeable play, stretch the fuel stop rod just enough to eliminate play when the connector is attached.

Date of Issue: Feb. 1977

Disassembly

Carburetor

1. Disconnect the fuel tube from the carburetor.

Fig. 3-16 ① Fuel tube

2. Remove the two 6 mm bolts and remove the carburetor from the intake manifold. Disconnect the throttle rod.

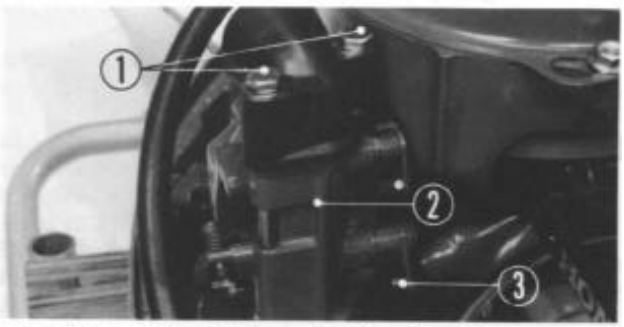


Fig. 3-17 ① 6 mm bolts ② Carburetor ③ Throttle rod

3. Remove the four 4 mm screws and remove the float chamber body.

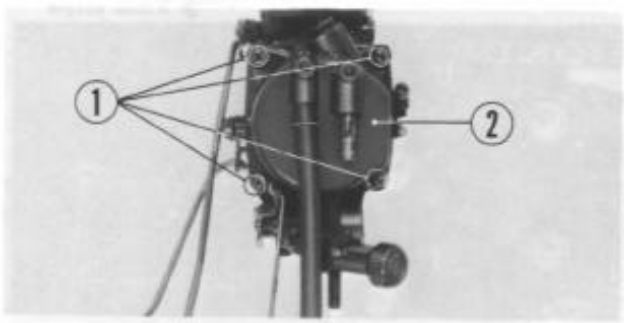


Fig. 3-18 ① 4 mm screws ② Float chamber body

4. Remove the 4 mm screw and remove the clip plate, main jet and main nozzle from the jet block.

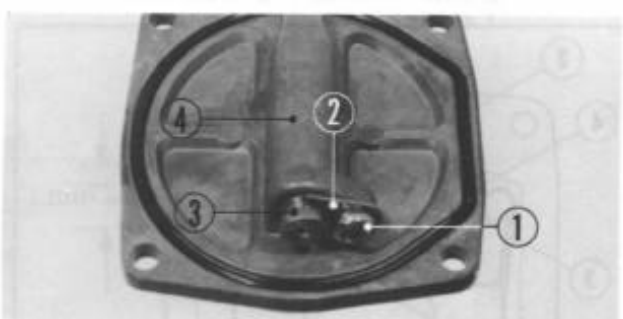


Fig. 3-19 ① 4 mm screw ② Clip plate ③ Main jet ④ Jet block

5. Remove the gasket from the carburetor body.
6. Remove the collar and float from the float chamber body.

Fig. 3-20 ① Gasket ② Carburetor body

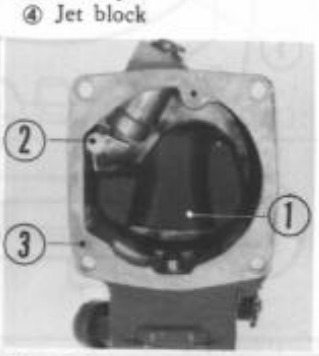


Fig. 3-21 ① Float ② Collar ③ Float chamber body

Date of Issue: Oct. 1975

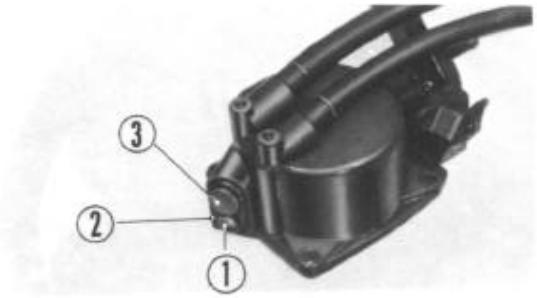


Fig. 3-22 ① 4 mm screw ③ Valve seat
② Clip plate

7. Remove the 4 mm screw, clip plate, valve seat and valve from the float chamber body. (Fig. 3-23)

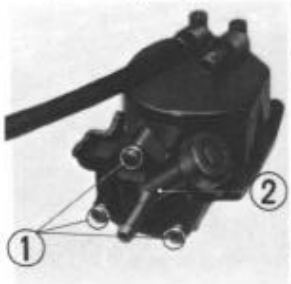


Fig. 3-23 ① 4 mm screws
② Cover

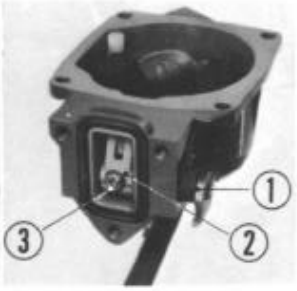


Fig. 3-24 ① Link shaft
② Link arm
③ 3 mm screw

8. Remove the three 4 mm screws and remove the cover.
9. Remove the 3 mm screw. Pull out the link shaft and remove the link arm.

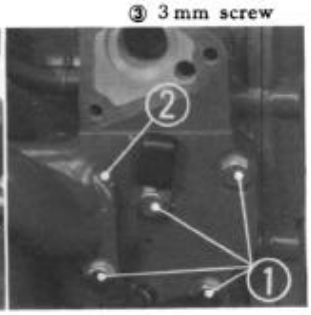


Fig. 3-25 ① 6 mm bolts ③ Thermostat cover
② Intake manifold ④ Water tubes

Intake manifold

1. Disconnect the water tubes.
2. Remove the three 6 mm bolts, and remove the thermostat cover and thermostat.
3. Remove the four 6 mm bolts and remove the intake manifold.

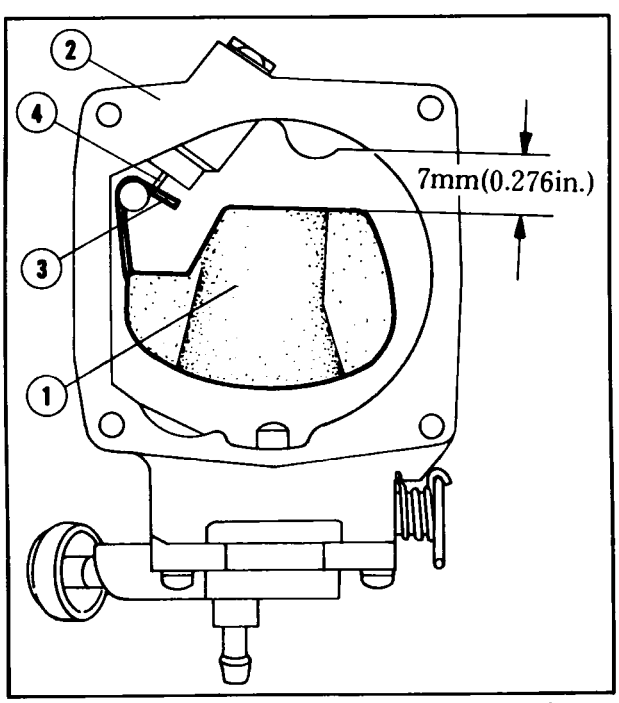


Fig. 3-26 ① Float ③ Float arm lip
② Float chamber body ④ Float valve

Inspection

1. Main jet and nozzle

   Check the jet and nozzle orifices for clogging, and use a blast of compressed air to clean them if necessary.

2. Float valve and seat

   Excessive wear or clogging of the valve may cause fuel overflow. Replace a worn valve together with its seat. Clean the valve by using compressed air.

3. Float level

   Place the float chamber body as shown in Fig. 26. Move the float to left or right to find the position where the float valve comes in contact with the float arm lip. In this position, check if the clearance between the float and body is 7 mm (0.276 in.). If the clearance is out of specification, adjust it by bending the float arm lip.

4. Adjustment of carburetor

   To adjust the carburetor, see page 47.

Date of Issue: Feb. 1977

Assembly

Intake manifold

1. Install the chamber gasket A, chamber plate and chamber gasket B, on the cylinder head, and install the intake manifold to the head with the three 6 mm bolts.

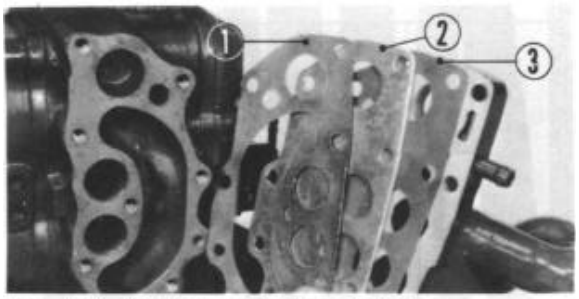


Fig. 3-27 ① Exhaust chamber gasket, A
② Exhaust chamber plate
③ Exhaust chamber gasket, B

2. Install the thermostat into the intake manifold and install the thermostat cover to the manifold with the three 6 mm bolts.
3. Connect the water tubes.

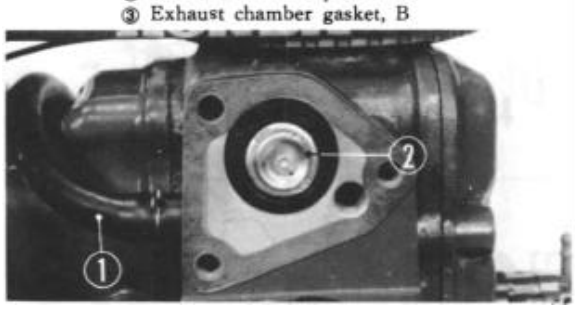


Fig. 3-28 ① Water tube ② Thermostat

Carburetor

1. To assemble, reverse the disassembly procedure. (See pages 9 thru 10.)

   Install the main jet and valve seat clip plate as shown.

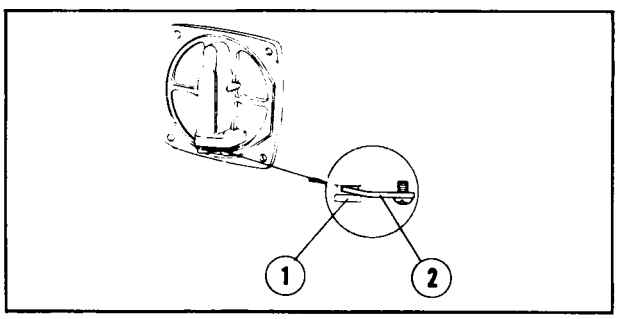


Fig. 3-29 ① Main jet ② Clip plate

2. Connect each rod to its arm.
   Check fuel stop rod adjustment. (See page 9.)

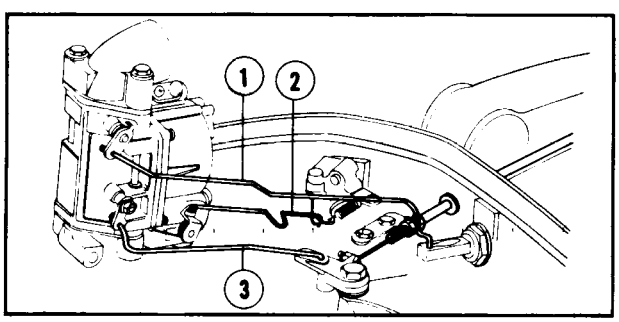


Fig. 3-30 ① Choke rod ③ Throttle rod
② Fuel stop rod

Date of Issue: Feb. 1977

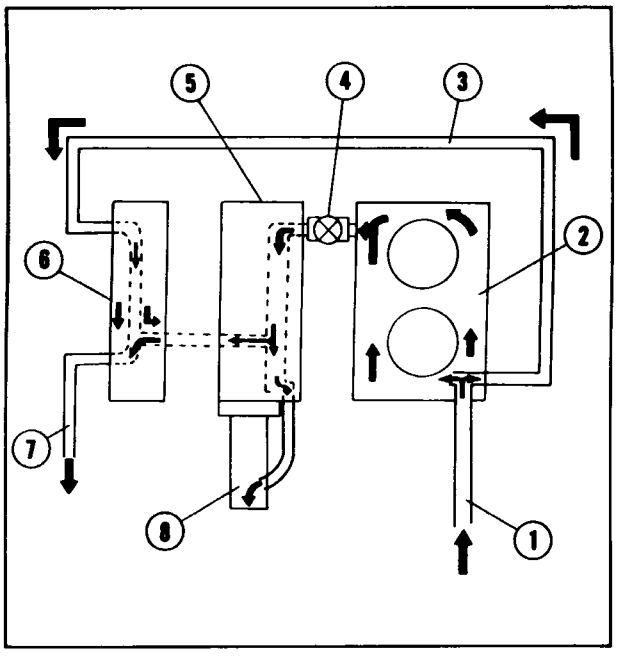


Fig. 3-31 ① From water pump ⑤ Cylinder head
② Cylinder block ⑥ Intake manifold
③ Bypass ⑦ Water check pipe
④ Thermostat ⑧ Exhaust pipe

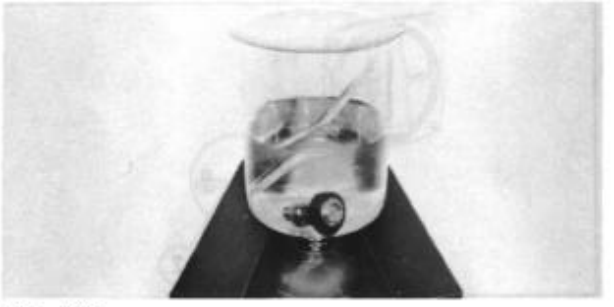


Fig. 3-32

Fig. 3-33 ① 3~4 mm

3. COOLING SYSTEM

The thermostat is located in the passage leading from the water jacket formed around the cylinders and operates (opens or closes), depending on the temperature of water returning from the engine, to maintain the water temperature within the limited range.

There are two circuits from the pump outlet.

- When the engine is hot (thermostat open), water from the pump flows into the cylinder jacket, past the thermostat, into the cylinder head, and drains into the exhaust pipe to cool the exhaust system. Some excess water also flows out through the water check pipe.
- When the engine is cold (thermostat closed), water from the pump flows through the bypass line (tube), through a passage in the intake manifold, and drains both through the water check pipe and into the exhaust pipe.

Thermostat specifications:

Valve starts opening at 60~64°C (140~147°F)
Valve fully opens at 70°C (158°F)
Valve lift: 3~4 mm (0.119~0.157 in.)

Thermostat

Check for clogging and proper functioning.

Date of Issue: Feb. 1977

4. CYLINDER HEAD AND CAMSHAFT

Disassembly

1. Remove the engine. (See page 3.)
2. Disconnect the exhaust pipe.
3. Remove the recoil starter. (See page 5.)
4. Remove the carburetor and intake manifold. (See pages 9 thru 11.)
5. Disconnect the primary wire.

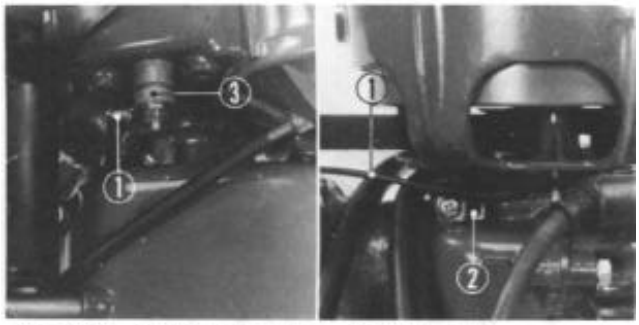


Fig. 3-34 ① Primary wire ③ Terminal ② Lock plate

6. Remove the cam pulley point cover and remove the 6 mm bolt.
7. Screw the flywheel puller handle "Tool No. 07933-9350000" (12 mm bolt) in the cam pulley as a jacking screw and remove the cam pulley.

Notes :

1. Do not strike the pulley with a hammer.
2. Take care not to damage the belt grooves in the pulley ; otherwise the belt life may be shortened.
3. Do not pry the pulley off with pry bars or screwdrivers.

Fig. 3-35 ① Flywheel puller handle ② Cam pulley

8. Remove the timing belt from the cam pulley.

Notes :

1. Do not pry off the belt with a screwdriver.
2. Do not bend the belt.

Fig. 3-36 ① Timing belt ② Cam pulley

9. Remove the three 5 mm screws and remove the advancer case. Then remove the contact breaker and condenser.

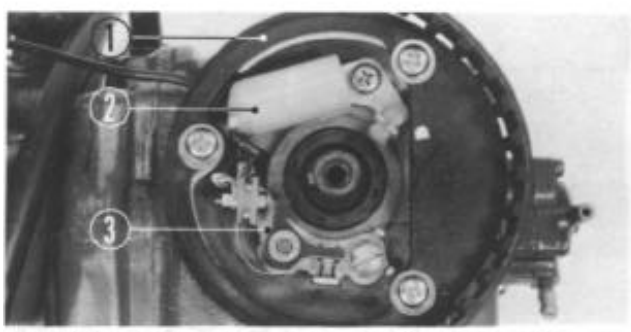


Fig. 3-37 ① Advancer case ③ Contact breaker ② Condenser

10. Remove the two 6 mm screws and the fuel pump.

Fig. 3-38 ① 6 mm screws ② Fuel pump

Date of Issue: Oct. 1975

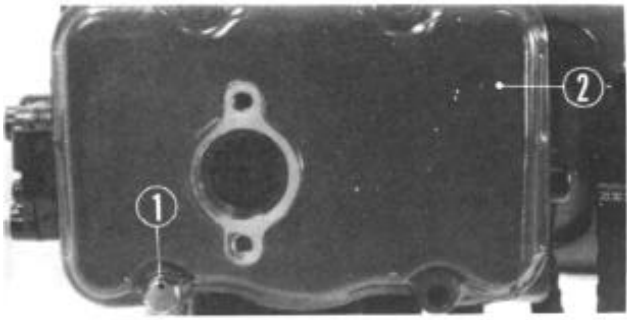


Fig. 3-39 ① 6 mm bolts ② Cylinder head cover

11. Remove four 6 mm bolts and remove the cylinder head cover.

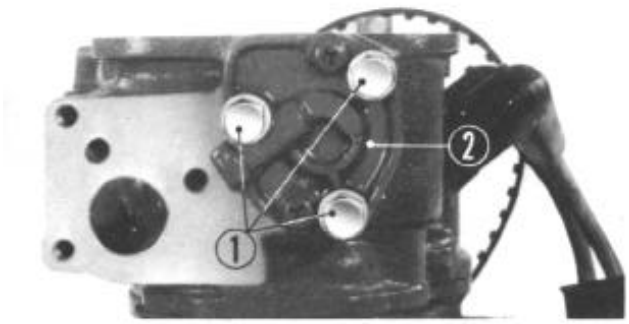


Fig. 3-40 ① 6 mm bolts ② Oil pump

12. Remove the three 6 mm bolts and remove the oil pump.

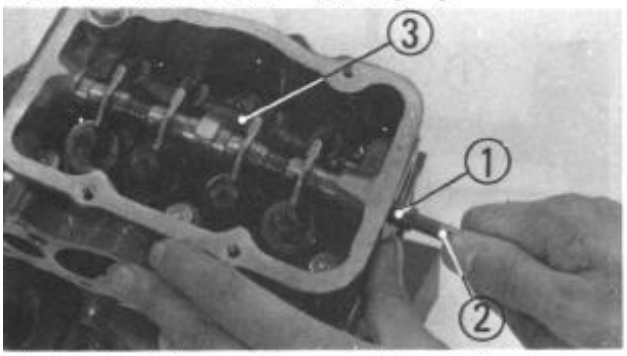


Fig. 3-41 ① Valve rocker arm shaft ③ Camshaft
② 8 mm bolt

13. Screw the 8 mm bolt in the valve rocker arm shaft and pull the shaft out of the cylinder head.
14. Remove the cam pulley key.
    Remove the cam shaft.

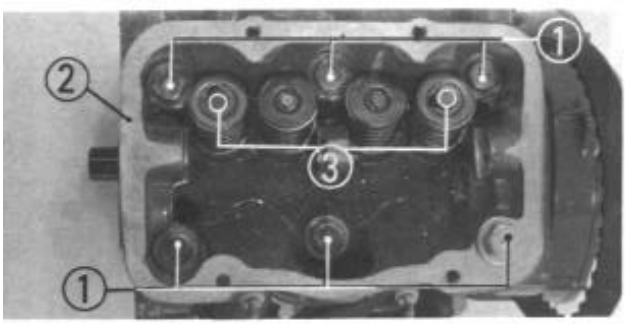


Fig. 3-42 ① 8 mm bolts ③ Tappet clearance adjuster
② Cylinder head

15. Remove the tappet clearance adjusters from the exhaust valve stems.
16. Remove the six 8 mm bolts and remove the cylinder head.

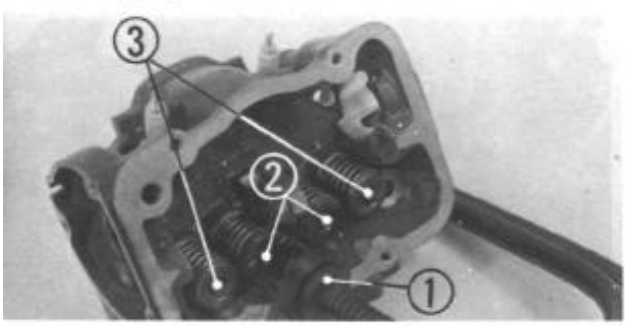


Fig. 3-43 ① Valve spring compressor
② Intake valve ③ Exhaust valve

17. Remove the intake side valve cotters, retainers, valve springs and valves from the cylinder head by using the valve spring compressor (Tool No. 07957-3290001).
18. Slide and remove the exhaust valve spring retainers and remove the valve springs and valves.
19. Remove the valve guides with the valve guide remover (Tool No. 07942-3290100).

Date of Issue: Oct. 1975

Inspection

1. Valve-to-guide clearance

   Insert a valve into the valve guide, and measure the clearance between the two with a dial gauge in two directions, X and Y. If the clearance is out of specification, replace the valve and valve guide as an assembly. (Service data: page 55.)

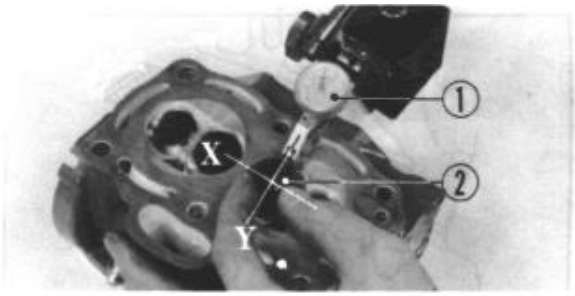


Fig. 3-44 ① Dial gauge ② Valve

2. Valve seat width

   Apply a thin coat of red lead or Prussian blue to the valve seat surface. Press the valve against the seat and rotate it to check the seating. If the seating is improper, lap the valve and seat, and recheck. If the seating is still improper or if the seat width exceeds 1.5 mm (0.059 in.), reface the valve seat with a valve seat cutter.

   Valve seat refacing

   First cut the valve seat with the 90° valve seat cutter (Tool No. 07980-9210100). Then narrow the seat width with the flat valve seat cutter (Tool No. 07980-9210200 for intake valves and Tool No. 07980-9210400 for exhaust valves).

   Seat width specification:
   0.7~1.0 mm (0.028~0.039 in.)

   Note:

   Be very careful when refacing the seats because the brass seats are easily damaged.

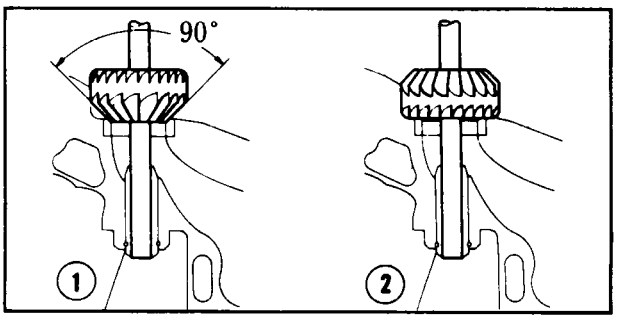


Fig. 3-45 ① 90° valve seat cutter
② Flat valve seat cutter

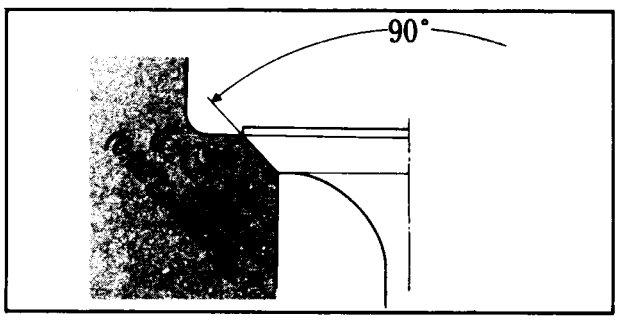


Fig. 3-46

3. Valves

   - Replace the valves if the seat width exceeds 1.5 mm (0.059 in.).
   - Decarbon the valves if necessary.
   - Check the valve stems for bending and replace them if necessary.
   - If the valve face is burned replace the valve. Do not reface the valves on a valve grinding machine.

Date of Issue: Feb. 1977

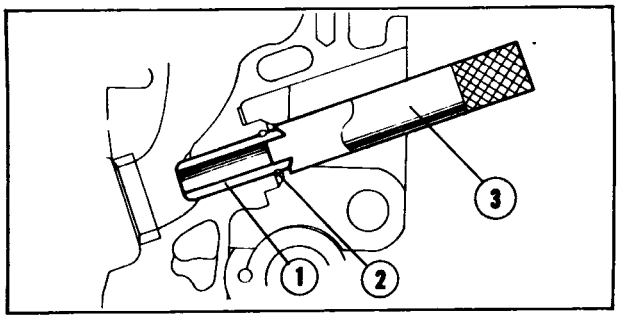


Fig. 3-47 ① Valve guide ③ Valve guide driver
② Valve guide clip

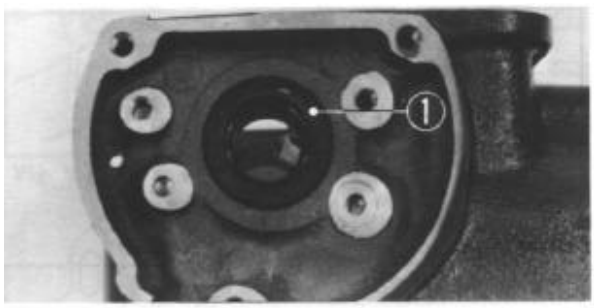


Fig. 3-48 ① Oil seal

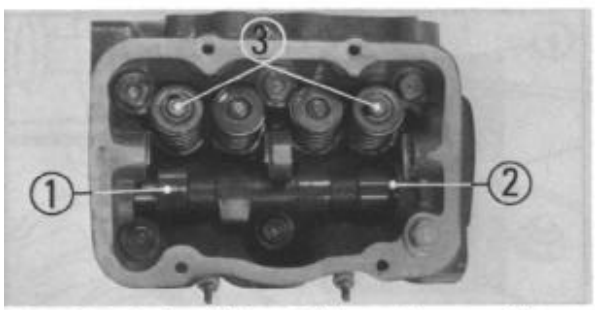


Fig. 3-49 ① Camshaft ③ Tappet clearance adjuster
② 16 mm thrust washers

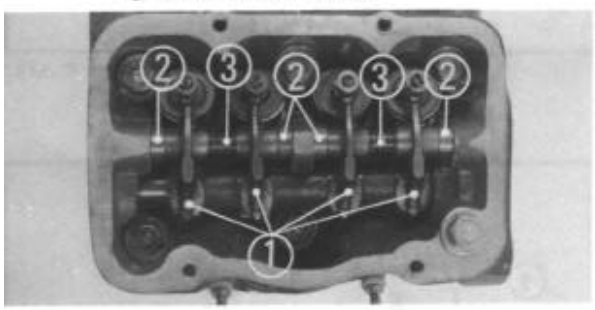


Fig. 3-50 ① Rocker arms ③ Rocker arm springs
② Rocker arm collars

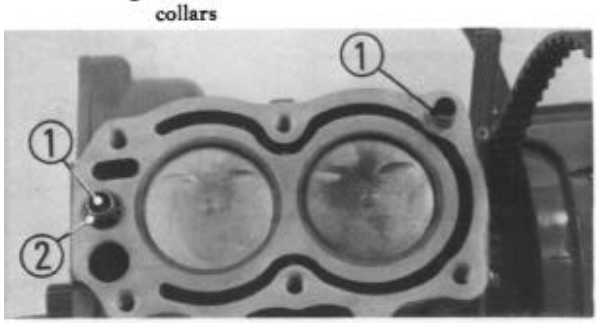


Fig. 3-51 ① Dowel pins ② O-ring

Assembly

1. Attach the valve guide clip to an oversized valve guide and insert the guide with the valve guide driver (Tool No. 07942-9350000). Then finish the guides to the specified dimension with the valve guide reamer (Tool No. 07984-2000000).

2. Apply a thin coat of oil to the valve stems and insert them into the valve guides. Then install the valve spring seats, valve springs, retainers and cotters with the valve lifter. Pour a small amount of oil or solvent around the valve heads in the combustion chamber, and apply a blast of 1 kg/cm^2 (14 lb/in^2) of compressed air into the part to check for air leaks. If bubbles are noticed, check the valve seat surface. Lap the valve and seat if necessary.
3. Drive the oil seal (16×28×6) in the cylinder head until it is flush with the top surface.
4. Install the 16 mm thrust washer on both ends of the camshaft, and install the camshaft in the cylinder head.
   Install the tappet clearance adjusters on the end of the exhaust valve stems.
5. Install the valve rocker arms, springs, collars and rocker arm shaft on the cylinder head.
6. Install the cylinder head gasket, the two 10×16 dowel pins and 9.8×2.2 O-ring on the cylinder block.

Date of Issue: Oct. 1975

7. Install the cylinder head on the cylinder block. The tightening sequence is as shown in Fig. 3-52.

   Torque specification :
   200~280 kg-cm (14.4~20.2 lb-ft)

8. Install the oil pump with the three 6 mm bolts and washers.

9. Install the contact breaker with the 5 mm screw (standard type) and the condenser with the 5 mm screw (Phillips type) by fitting each dowel pin in the hole properly.

   Make sure that the primary wire is not binding.

10. Connect the terminal of the primary wire to the terminal of the ignition coil, and secure the wire at the intermediate point with a clip.

11. Install the advancer case with the three 5 mm screws.

12. Adjust the valve timing.
    a. Align the "T" mark on the flywheel with the index mark on the starter case.
    b. Install the cam pulley key in the camshaft.
    c. Align the index mark on the cam pulley with the index mark on the cylinder block. Then lift the cam pulley slightly and wrap the timing belt around the pulley.
    d. Install the cam pulley with the timing belt on the camshaft by fitting the key in the key way properly. Then tighten the pulley with the 6 mm washer and bolt.
    e. After installing the timing belt, make sure that the index marks are aligned.

13. Adjust the valve clearance
    a. Align the "T" mark with the index mark on the starter case, and measure the valve clearance when both intake and exhaust valves are closed. Loosen the tapped adjuster lock nut, insert a 0.06 mm feeler gauge between the adjuster and valve, and turn the adjuster in either direction to obtain the correct setting.
    b. Then turn the flywheel 360° and similarly adjust the clearance on the other cylinder.

14. Adjust the ignition timing. (See page 24.)

15. Install the point cover on the cam pulley.

16. Install the cylinder head cover gasket in the head cover and tighten the 6 mm bolts.

17. Install the fuel pump.

18. Install the carburetor and intake manifold. (See page 11.)

19. Install the recoil starter. (See pages 6 thru. 7.)

20. Install the engine. (See page 4.)

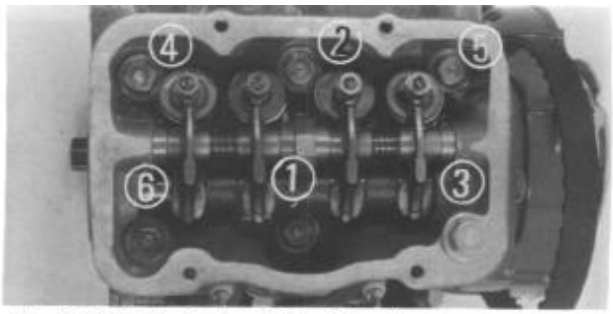


Fig. 3-52 Cylinder head bolt tightening sequence

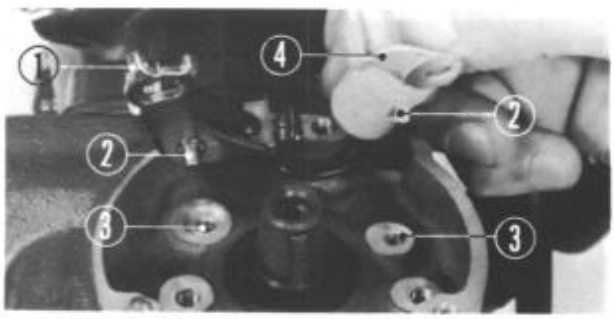


Fig. 3-53 ① Contact breaker ③ Dowel pin holes
② Dowel pins ④ Condenser

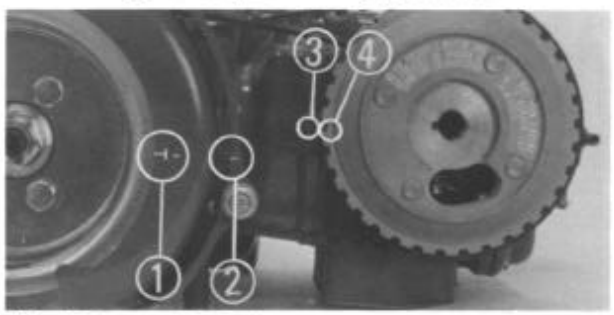


Fig. 3-54 ① "T" Mark
② Index mark (on starter case)
③ Index mark (on cylinder block)
④ Index mark (on cam pulley)

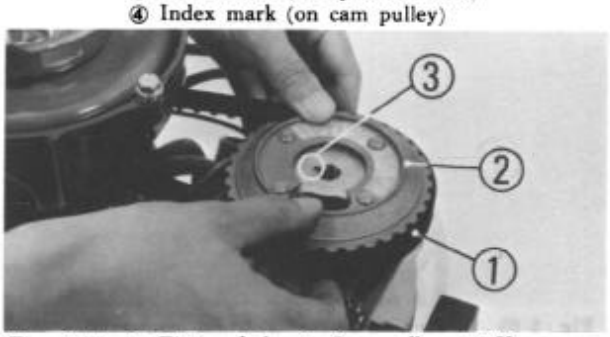


Fig. 3-55 ① Timing belt ② Cam pulley ③ Key way

Fig. 3-56 ① Tappet adjuster ③ Feeler gauge
② Lock nut

Date of Issue: Feb. 1977

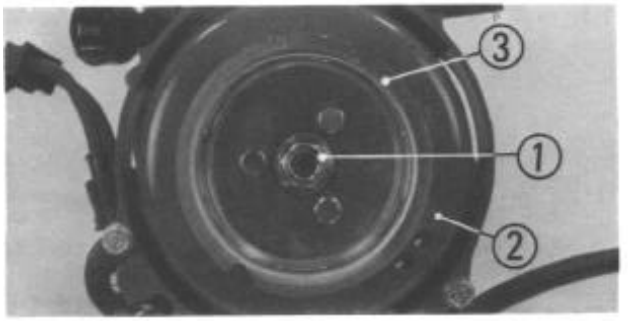


Fig. 3-57 ① 12 mm special nut ③ Ratchet pulley
② Flywheel

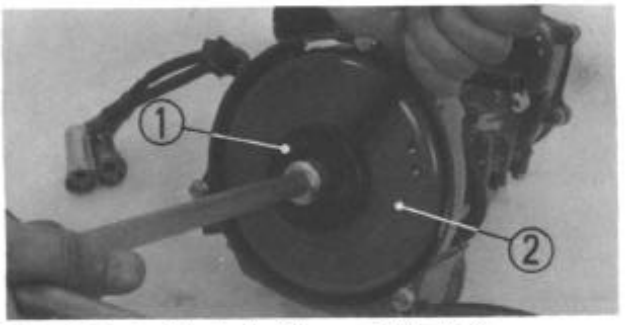


Fig. 3-58 ① Flywheel puller ② Flywheel

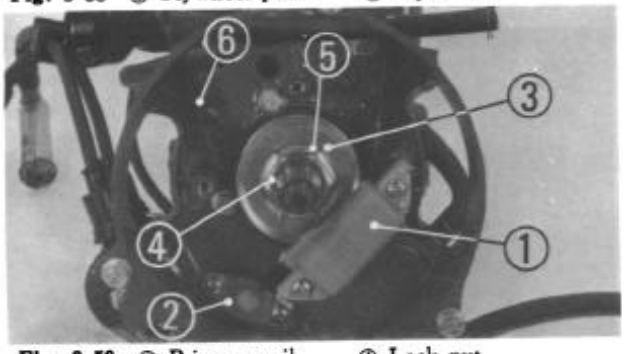


Fig. 3-59 ① Primary coil ④ Lock nut
② Terminal ⑤ 22 mm lock washer
③ Timing pulley ⑥ Timing belt

Fig. 3-60 ① Ignition coil ② 6 mm screws

Fig. 3-61 ① Oil return tube ③ Water tubes
② Breather tube A

5. CYLINDER BLOCK, PISTONS AND CRANKSHAFT

Disassembly

1. Remove the engine. (See page 3.)
2. Remove the recoil starter. (See page 5.)
3. Remove the carburetor and intake manifold. (See pages 9 thru. 11.)
4. Remove the oil pick-up pipe and disconnect the exhaust pipe.
5. Remove the cylinder head. (See pages 13 thru 14.)
6. Remove the three 6 mm bolts and ratchet pulley.
   Install the flywheel puller (Tool No. 07933-9350000) to the flywheel and loosen the 12 mm special nut to remove flywheel from the crankshaft.
7. Remove the primary coil and clamp.
8. Straighten the locking tab of the 22 mm lock washer, remove the lock nut, the timing pulley and belt.
9. Remove the ignition coil.
10. Disconnect the oil return tube, breather tube A and water tube from the cylinder block.

Date of Issue: Oct. 1975

11. Remove the starter case.

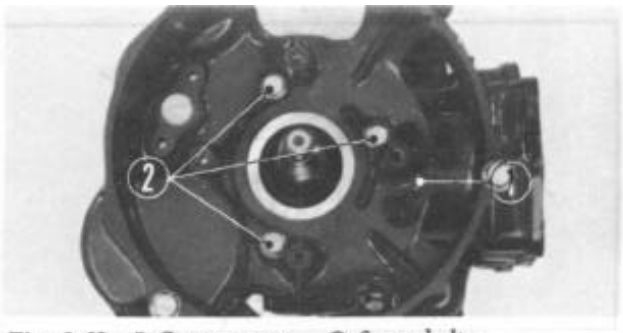


Fig. 3-62 ① Starter case ② 6 mm bolts

12. Remove the ten 6 mm bolts and remove the crankcase.

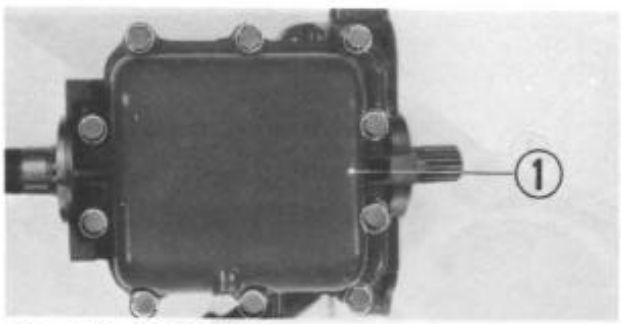


Fig. 3-63 ① Crankcase

13. Straighten the locking tab of the lock washer, remove the connecting rod bolts and the connecting rod caps. Remove the crankshaft from the cylinder block.
14. Remove the oil seals (25×38×7) and thrust bearings from the crankshaft.

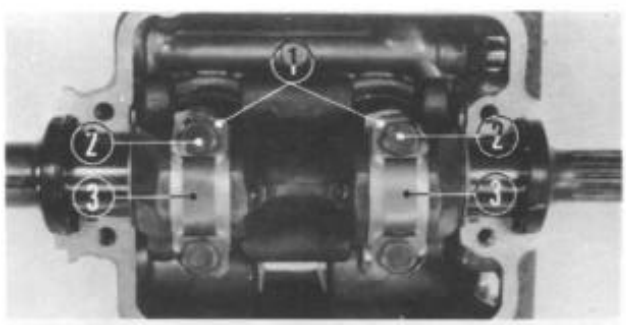


Fig. 3-64 ① Lock washer ② Connecting bolt ③ Connecting rod cap

15. Remove the pistons and connecting rods from the cylinder block.

Note :

Identify the connecting rods and their caps so that they can be assembled in their original position.

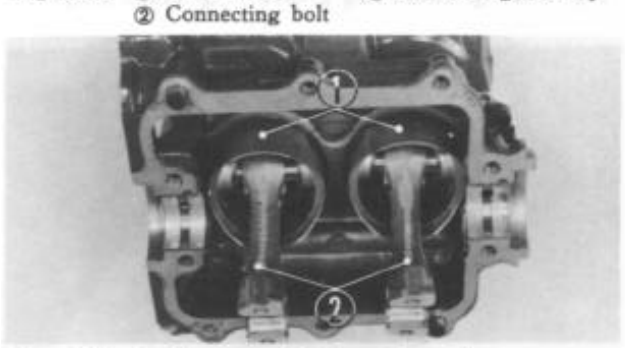


Fig. 3-65 ① Pistons ② Connecting rods

16. Remove the piston pin clips and remove the pistons from the connecting rods.

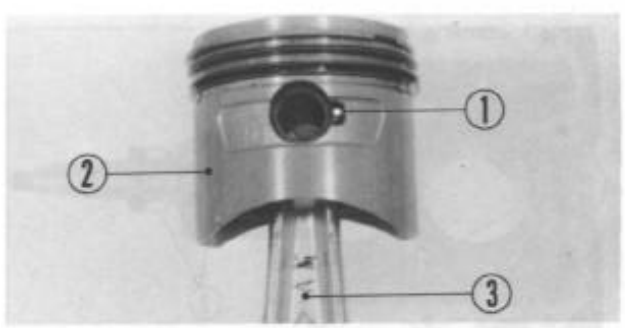


Fig. 3-66 ① Piston pin clips ② Piston ③ Connecting rod

Date of Issue: Oct. 1975

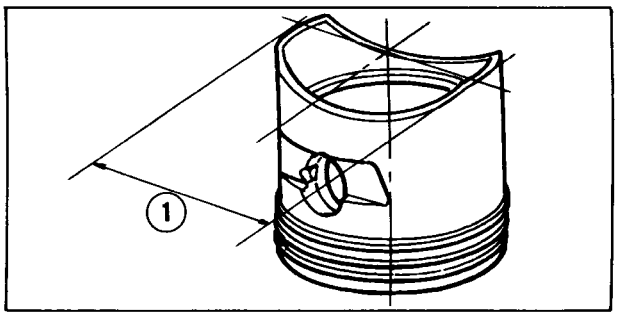


Fig. 3-67 ① Piston skirt O.D.

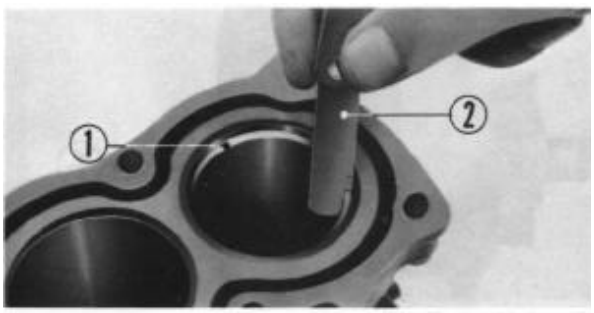


Fig. 3-68 ① Piston ring ② Feeler gauge

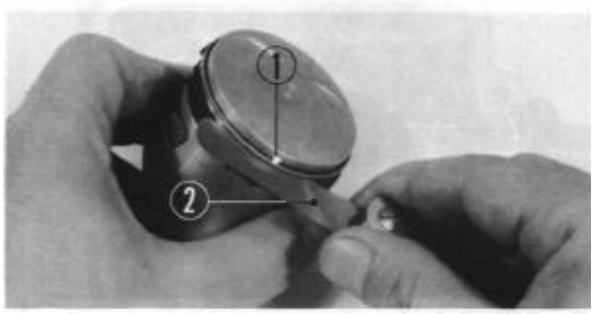


Fig. 3-69 ① Piston ring groove ② Feeler gauge

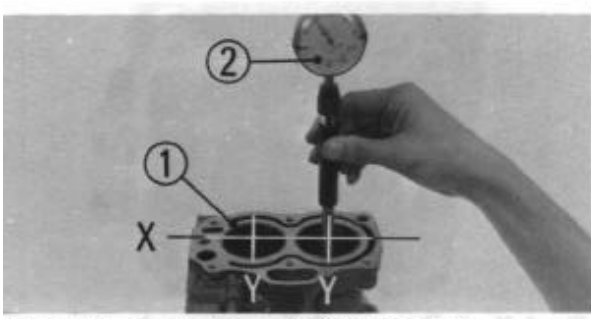


Fig. 3-70 ① Cylinder ② Cylinder gauge

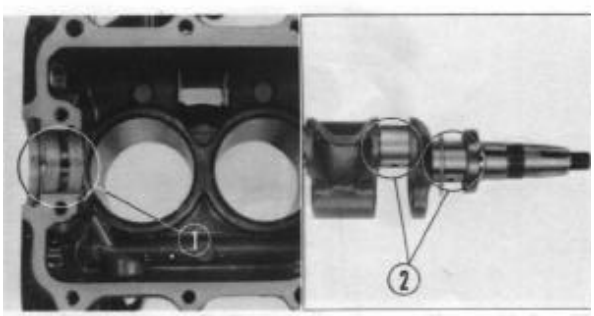


Fig. 3-71 ① Bearings ② Journals

Inspection

1. Pistons
   - Check the pistons for scuffing and hairline cracks. Replace damaged pistons.
   - If carbon is accumulated on the piston crown or in the ring grooves in the piston, decarbon, taking care not to damage the piston.
   - Measure the piston skirt O.D. at right angles to the piston pin boss. If the O.D. is below the service limit, replace the piston. For the service data, see page 54.
2. Piston pins

   If the pin scored or worn or if it does not turn freely in the piston and rod, replace it.
3. Piston ring gap

   Insert the piston rings in the cylinder and measure the ring gap with a feeler gauge. If the gap exceeds the service limit, replace the rings. For the service data, see page 54.
4. Piston ring side clearance in piston ring groove

   Insert a feeler gauge into the piston ring groove as shown to check for ring clearance. If the clearance exceeds the service limit, replace the piston and rings. For the service data, see page 54.
5. Cylinder bore

   Using a cylinder gauge, measure the cylinder bore in two directions, X and Y, and at the top, middle and bottom. If the bore exceeds the service limit, replace the cylinder block.
6. Bearings

   Check the bearings for damage and replace them if necessary. Check the bearing clearances with plastigage.
7. Crankshaft

   Check the crankpins and journals of crankshaft for wear or damage, and replace the crankshaft if necessary. For the service data, see page 55.

Date of Issue: Feb. 1977

Assembly

1. Install the piston rings (oil ring, second ring and top ring in this order) in the piston with the markings on the ring facing upward.
2. Install the piston to the connecting rod with the piston pin and lock the pin with the pin clips.

   Note:

   Always use new piston pin clips.

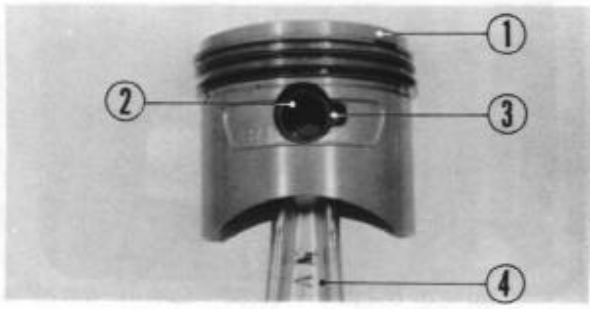


Fig. 3-72 ① Piston ③ Piston pin clip
② Piston pin ④ Connecting rod

3. Install the two bearings to the crankshaft journals.

Fig. 3-73 ① Crankshaft bearings

4. Apply a thin coat of oil to the piston rings, and install the pistons in the cylinder block from the head attaching side.

   Make sure that the piston ring gaps are not in the directions of arrows shown in the figure.

   Install the piston so that the valve recess on the top is toward the manifold side. (Fig. 3-74)

   Use of the piston slider (Tool No. 07958-9210000) will make the job easier.

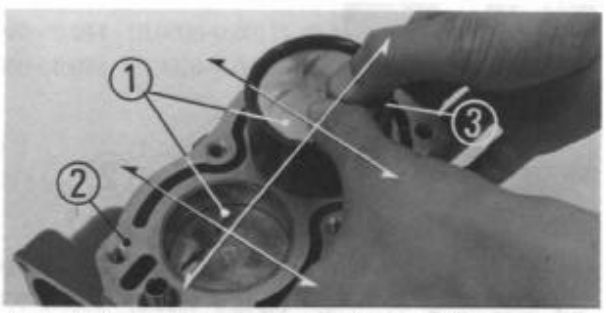


Fig. 3-74 ① Pistons ③ Piston slider
② Cylinder block

5. Install the two thrust bearings to the crankshaft. Then install the oil seal A to the tapered side of crankshaft and the oil seal B to the other side.

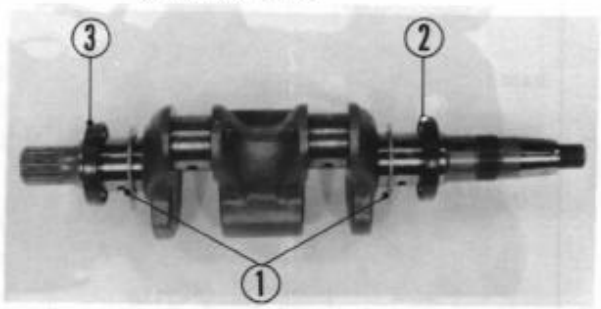


Fig. 3-75 ① Crankshaft thrust bearings
② Oil seal A ③ Oil seal B

6. Apply a coat of oil to the crankshaft bearings and oil seal lips. Then install the crankshaft to the cylinder block and bend the thrust bearing tab into the cylinder block recess.

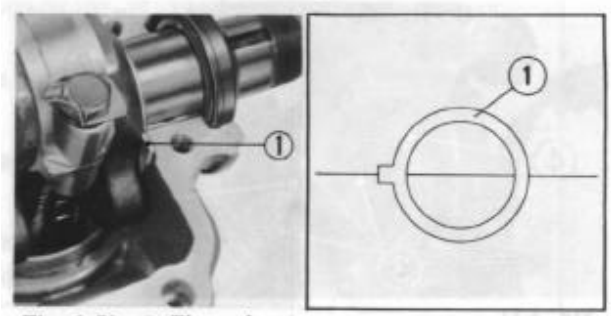


Fig. 3-76 ① Thrust bearing

Date of Issue: Feb. 1977

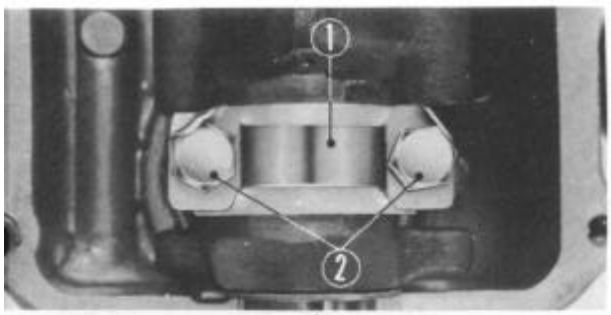


Fig. 3-77 ① Lock washer ② Cap bolts

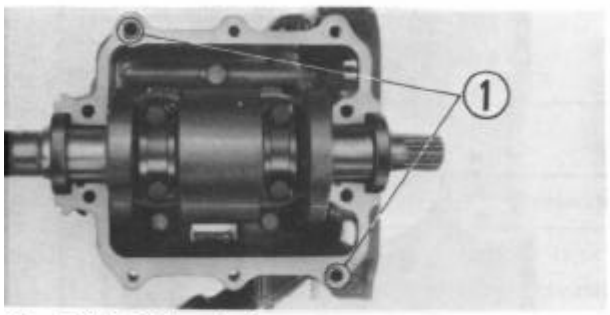


Fig. 3-78 ① Dowel pins

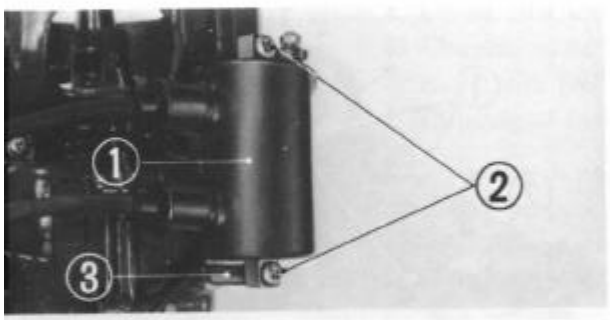


Fig. 3-79 ① Ignition coil ③ Spacer
② 6 mm screws

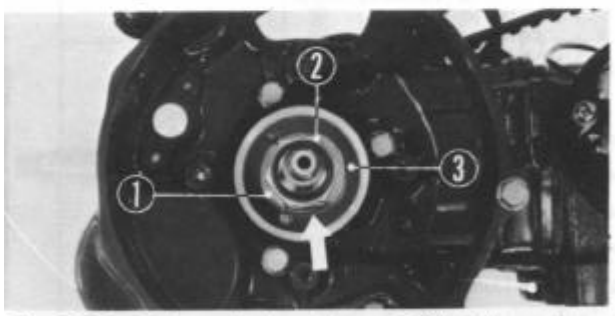
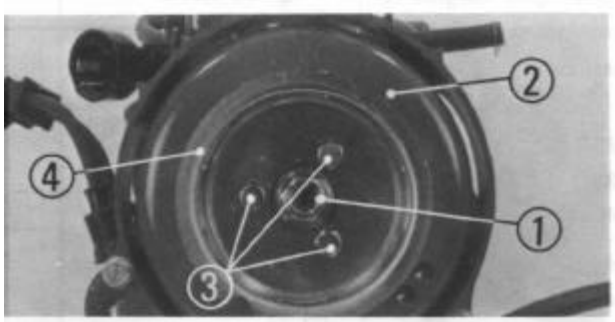


Fig. 3-80 ① 22 mm lock washer ③ Timining pulley
② 22 mm lock nut



7. Install the connecting rod caps and secure them with the lock washers and connecting rod bolts. Then bend the locking tabs of the lock washers securely.

   Torque specification:
   90~120 kg-cm (6.51~8.68 lb-ft)

   Note:

   The identification number is stamped on the outside of the connecting rod caps. Install the caps to the connecting rods having the same number.

8. Install the two 8×14 dowel pins in the cylinder block, and apply a thin coat of sealant (silicone rubber) to the crankcase attaching surface.

   Note:

   Do not allow excess sealant to enter the cylinder block because it can pell off and block oil passage.

9. Install the crankcase with the ten 6 mm bolts and washers. After installing, rotate the crankshaft to check for smooth rotation.
10. Install the starter case.
11. Connect the oil return tube and breather tube A.
12. Install the ignition coil with the two 6 mm screws and spacer. Then connect the terminal of the primary wire.
13. Install the timing belt around the timing pulley. Install the pulley with the 22 mm lock washer and lock nut and tighten it by the socket wrench (Tool No. 07907-9350001). Then bend the locking tab of the lock washer securely.

    Torque specification:
    200~250 kg-cm (14.4~18.0 lb-ft)

14. Install the primary coil and terminal on the starter case.
15. Install the cylinder head. (See page 17.)
16. Install the flywheel to the crankshaft with the woodruff key and tighten it with the 12 mm special nut by using the socket wrench (Tool No. 07907-9350001).

    Torque specification:
    600~700 kg-cm (43.4~50.6 lb-ft)

17. Install the starter ratchet pulley on the flywheel with the three 6 mm bolts and washers.
18. Install the oil pick-up pipe and connect the exhaust pipe. (See page 28.)
19. Install the carburetor and intake manifold. (See page 9 thru. 11.)
20. Install the recoil starter. (See pages 6 thru. 7.)
21. Install the engine. (See page 4.)

Date of Issue: Feb. 1977

6. ELECTRICAL SYSTEM

Disassembly

1. Flywheel and primary coil

   Remove the flywheel and primary coil. (See page 18.)

2. Ignition coil

   Remove the ignition coil. (See page 18.)

3. Contact breaker points

   Remove the contact breaker and condenser. (See page 13.)

Inspection

1. Ignition coil

   Inspect the ignition coil by measuring the spark with a 3-point spark tester. If the gap is less than 7 mm (0.276 in.), replace the coil.

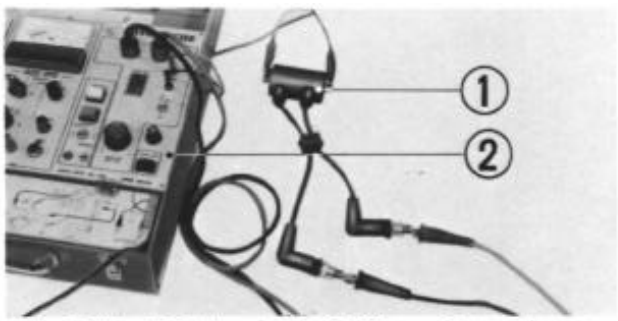


Fig. 3-82 ① Ignition coil ② Three-point spark tester

2. Contact breaker points

   Check the point surfaces for burning, fouling or wear. If necessary, polish the surfaces with a very fine emery cloth or point file. If the surfaces are excessively worn or damaged, replace the points.

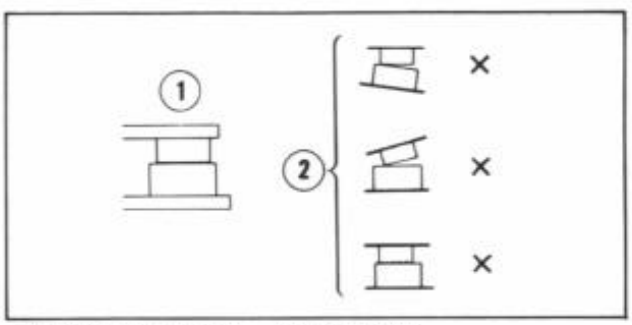


Fig. 3-83 ① Proper ② Improper

3. Condenser

   Measure the capacity of the condenser with a service tester. If the capacity is out of specification ($0.24\mu F \pm 0.03$), replace the condenser.

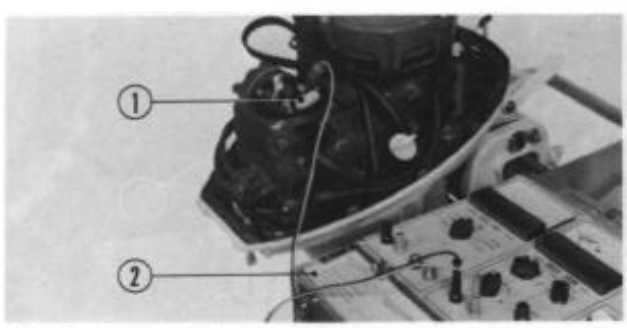


Fig. 3-84 ① Condenser ② Servce tester

4. Spark advancer

   Check the advancer weights for smooth movement. If not, repair or replace the weights.

   If the springs may be weak, engine reaches full advance before the specified R.P.M.

Fig. 3-85 ① Spark advancer ② Advancer weight

Date of Issue: Feb. 1977

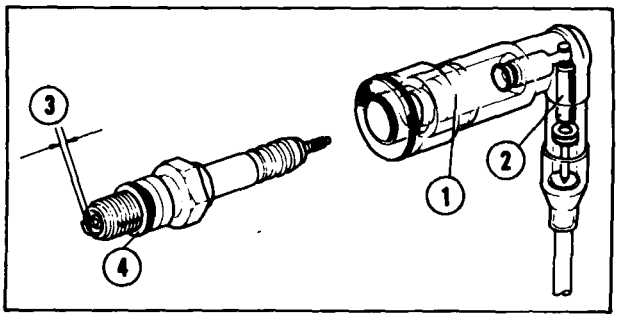


Fig. 3-86 ① Plug cap ③ 0.6~0.7 mm (0.024~0.028 in.) ② Noise suppressor ④ Plug gasket

5. Spark plug and plug cap.

   A spark plug having the proper heat range is very important for peak operation of the engine.

   In order to avoid noise and protect wireless radio communication two noise suppressors are provided in plug caps.

Removal

Remove the spark plug with a plug wrench.

Inspection

Inspect the spark plug for worn electrodes, excessive gap, foulded condition and damaged porcelain insulation.

1. Clean dirty spark plug with a plug cleaner or wire brush.
2. Measure the electrode gap with a feeler gauge and if necessary, adjust to the specified gap.

   Standard gap: 0.6~0.7 mm (0.024~0.028 in.)
3. Replace the spark plug if the porcelain insulator is damaged or distorted.

   Standard spark plug: D-5HS (NGK)

Reinstallation

Install the spark plug in the reverse order.

Torque: 1.5~2.0 kg-m (11~14 lb-ft)

Note:

Exercise care not to drop the plug gasket.

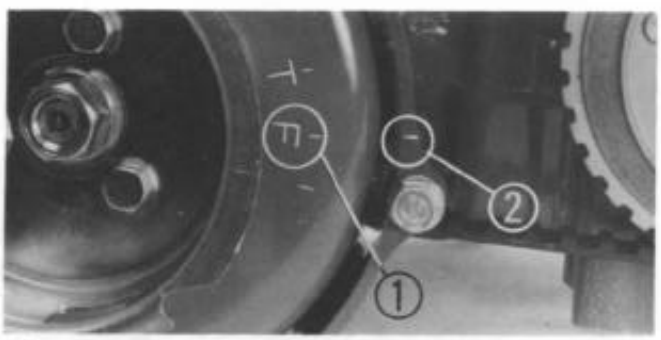


Fig. 3-87 ① "F" mark ② Index mark

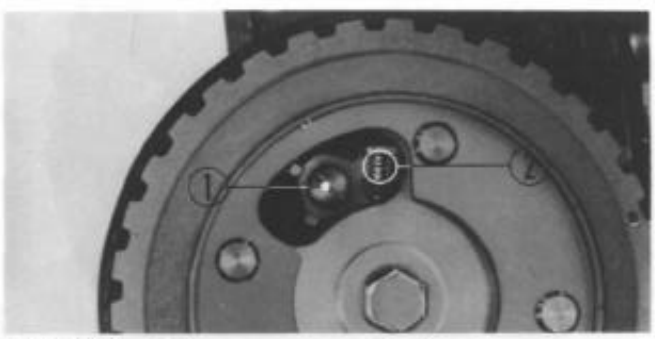


Fig. 3-88 ① 6 mm screw ② Points

Assembly

1. Contact breaker points

   Install the contact breaker points and condenser. (See page 17.)
2. Ignition coil

   Install the ignition coil. (See page 22.)
3. Flywheel and primary coil

1) Install the primary coil and flywheel. (See page 22.)
2) Adjust the ignition timing.
   a. When the "F" mark on the flywheel is aligned with the index mark on the starter case, the points should start opening. If not, adjust by loosening the 6 mm screw.

      The use of a timing tester will make it possible to check the timing more accurately. A strobo timing light can be used to check initial timing and full advance while the engine is running.

   b. The specified point gap is 0.3~0.4 mm (0.012~0.016 in.).

Date of Issue: Oct. 1975

7. OIL PUMP AND FUEL PUMP

The oil pump is built into the cylinder head. It is of a trochoid type and is driven by the camshaft. The lubricating oil circuit is illustrated below.

The fuel pump, which is built in the cylinder head cover, is of a diaphragm type and is driven by the valve rocker arm.

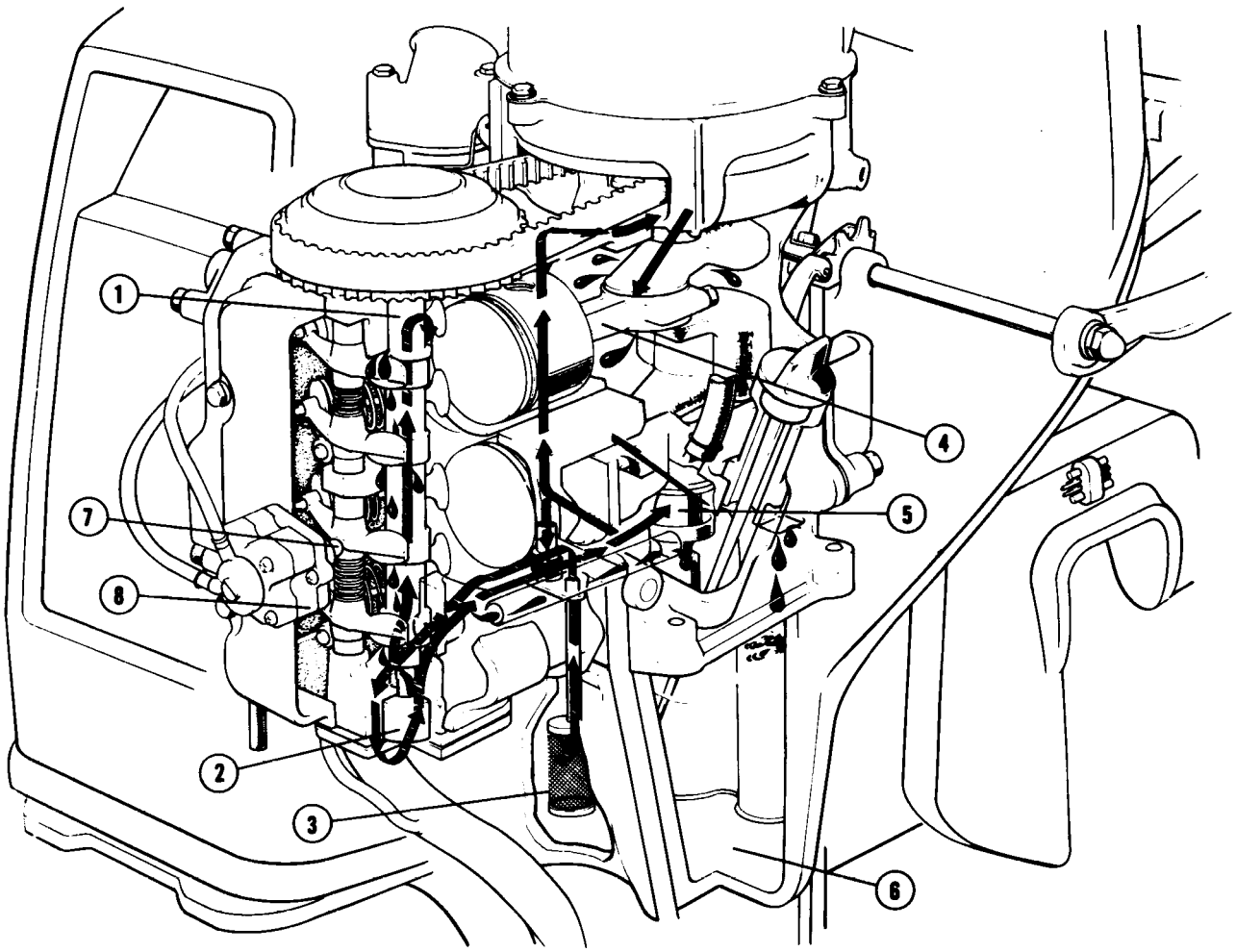


Fig. 3-89 ① Camshaft ② Oil pump ③ Oil pick-up pipe ④ Connecting rod ⑤ Crankshaft ⑥ Oil ⑦ Valve rocker arm ⑧ Fuel pump

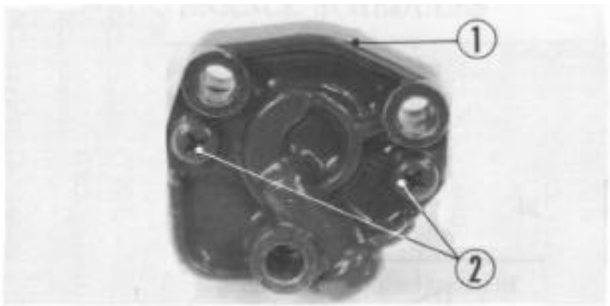


Fig. 3-90 ① Oil pump ② 5 mm screws

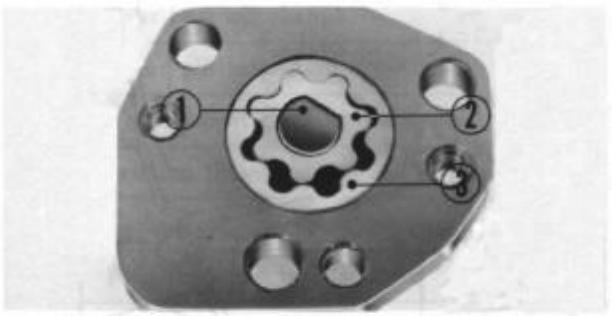


Fig. 3-91 ① Oil pump shaft ③ Outer rotor
② Inner rotor

Fig. 3-92 ① 6 mm bolt ③ Check valve spring
② Oil pick-up pipe ④ Check valve

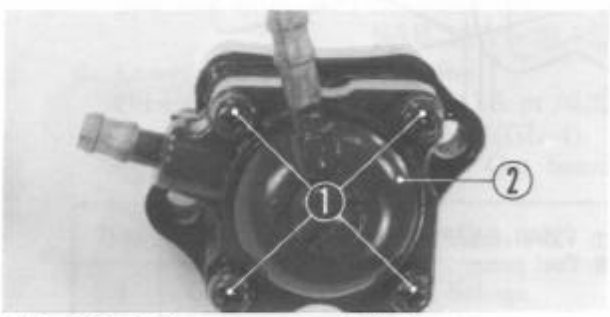


Fig. 3-93 ① 4 mm screws ② Fuel pump

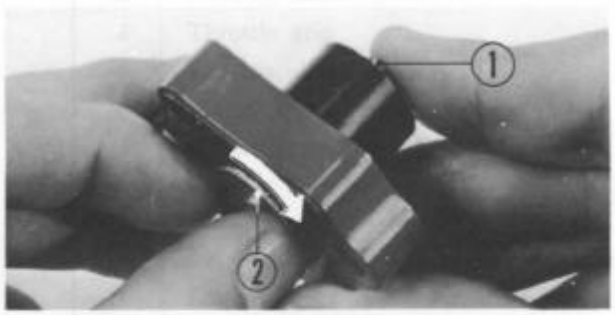


Fig. 3-94 ① Push rod ② Diaphragm

Disassembly

Oil pump

1. Remove the engine. (See page 3 thru. 4.)
2. Remove the three 6 mm bolts and remove the oil pump.
3. Remove the two 5 mm screws and remove the oil pump cover.
4. Remove the oil pump shaft, inner and outer rotors.
5. Remove the 6 mm bolt and remove the oil pick-up pipe check valve spring and check valve.

Fuel pump

1. Remove the fuel pump. (See page 3.)
2. Remove the four 4 mm screws and disassemble the fuel pump.
3. By rotating the diaphragm in the direction of arrow with the push rod held with one hand, disassemble the diaphragm, spring push rod and return spring.

Note :

Do not damage the diaphragm.

Date of Issue: Oct. 1975

Inspection

Oil pump

1. Inner-to-outer rotor clearance

   Measure the inner-to-outer rotor clearance with a feeler gauge. If the clearance exceeds the service limit, replace the oil pump as an assembly. For the service data, see page 55.

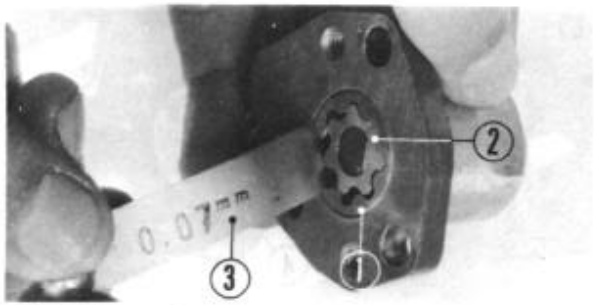


Fig. 3-95 ① Outer rotor ② Inner rotor ③ Feeler gauge

2. Pump body-to-rotor clearance

   Put a pump gasket on the pump body and measure the pump body-to-rotor clearance with a feeler gauge. If the clearance exceeds the service limit, replace the pump. For the service data, see page 55.

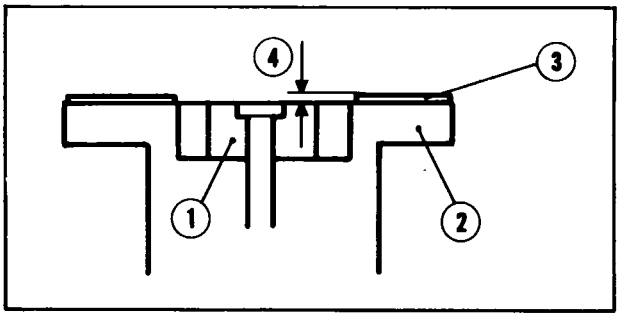


Fig. 3-96 ① Rotor ② Pump body ③ Pump gasket ④ Clearance

3. Check valve seat

   Check the valve seat surface for accumulation of dirt or dust. Also check the seat surface for scores or scratches, and reface it with an oilstone or replace the seat if necessary.

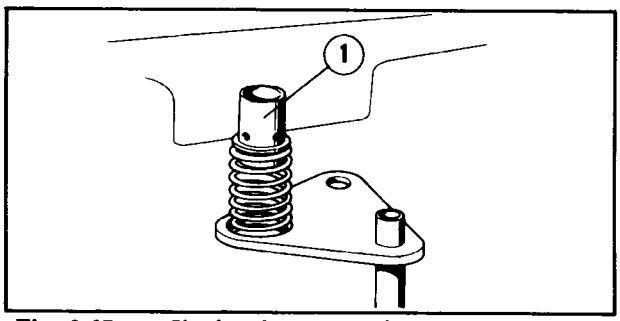


Fig. 3-97 ① Check valve seat surface

4. Oil pick-up pipe
   Check the screen for clogging and clean if necessary.

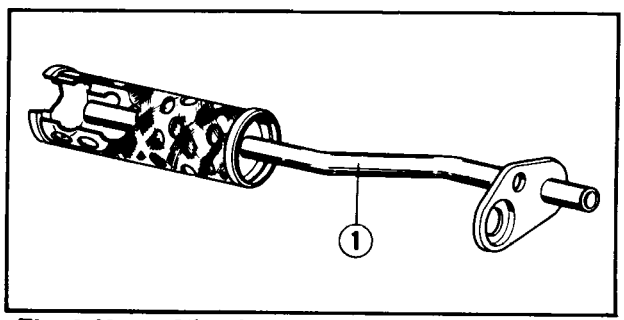


Fig. 3-98 ① Oil pick-up pipe

Fuel pump

Supply fuel to the pump through the inlet port. Then check to see if the fuel comes out of the outlet port. Check the diaphragm for breakage and replace it if necessary.

Note:

If the diaphragm or the fuel pump leaks, fuel can contaminate the oil and cause serious engine damage.

Caution:

Test in a well ventilated area which is free of sparks and open flame.

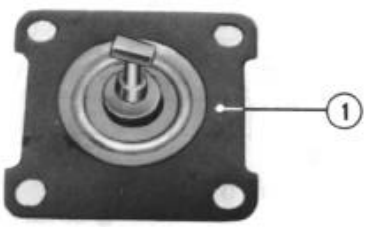


Fig. 3-99 ① Diaphragm

Date of Issue: Oct. 1975

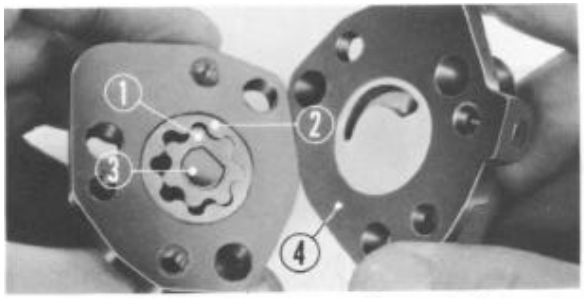


Fig. 3-100 ① Inner rotor ③ Oil pump shaft
② Outer rotor ④ Gasket

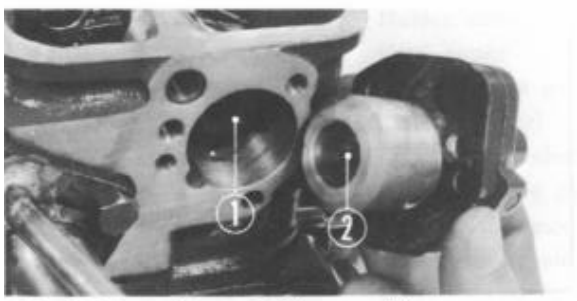


Fig. 3-101 ① Pin ② Oil pump shaft

Assembly

Oil pump

1. Install the inner and outer rotors, oil pump shaft and gasket to the pump body, and install the pump cover with the two 5 mm screws and lock washers.

   Check the pump shaft for smooth rotation after assembly.

   Note:

   On Model 1974 and after, two O-rings are used as the oil pump gasket.

2. Position the oil pump shaft against the camshaft end and fit the oil pump shaft to the camshaft by rotating the camshaft slowly and aligning the pin in the camshaft with the slot on the oil pump shaft end.
3. Install the oil pick-up pipe together with the check valve spring and check valve.

   Note:

   Keep the check valve seat clean.

Fuel pump

1. Wash the pump parts and install them correctly as shown.
2. Install the fuel pump. (See page 3.)

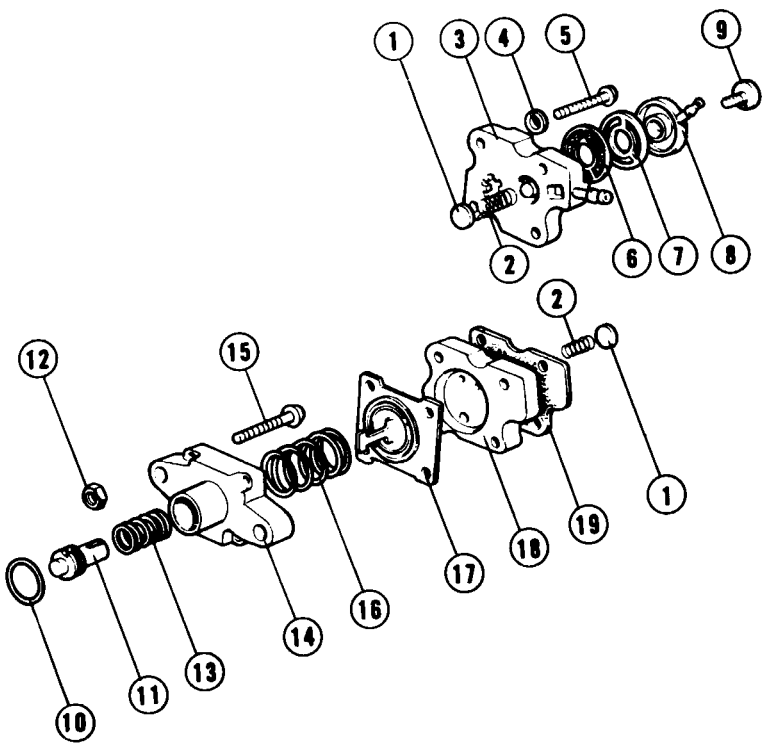


Fig. 3-102

① Valve
② Valve springs
③ Filter body
④ 4 mm spring washer
⑤ 4×28 mm screw
⑥ Screen
⑦ Screen gasket
⑧ Cap
⑨ Cap screw
⑩ 20.8×2.4 mm O-ring
⑪ Push
⑫ 6 mm nut
⑬ Return spring
⑭ Lower body
⑮ 6×16 mm bolt
⑯ Diaphragm spring
⑰ Diaphragm complete
⑱ Upper body
⑲ Valve gasket

Date of Issue: Oct. 1975

4 LOWER UNIT

No.	Component	Ref. page
1	Propeller	29
2	Water pump and water tubes	30
3	Gear case and shift mechanism	33

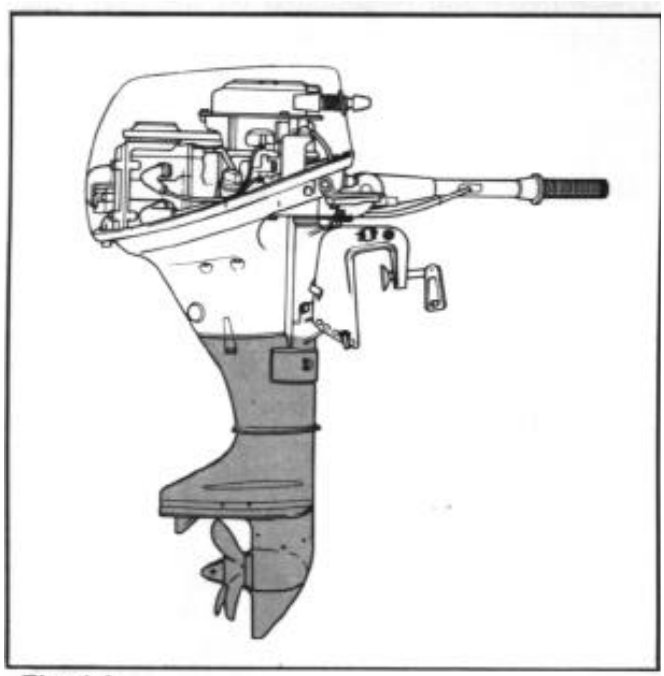


Fig. 4-1

1. PROPELLER

Disassembly

1. Pull out the cotter pin and remove the propeller cap.
2. Remove the propeller and pull out the shear pin.

Caution :

When installing or removing the propeller, disconnect the spark plug wires to prevent accidental starting.

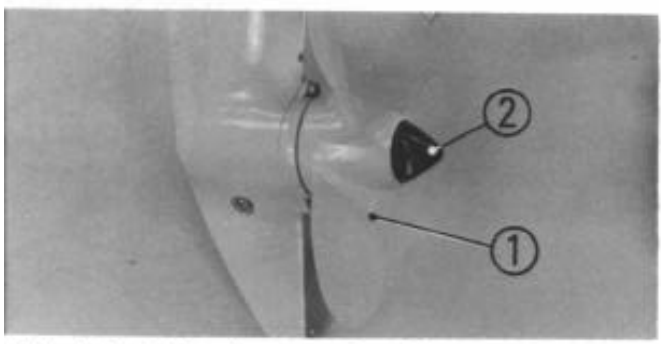


Fig. 4-2 ① Propeller ② Propeller cap

Inspection

1. Shear pin

   Check the shear pin notches for hairline cracks or scars and replace the pin if necessary.
2. Propeller

   Check the propeller blades for bending or any other damage, and replace the propeller if necessary. Do not weld cracked or broken propellers.

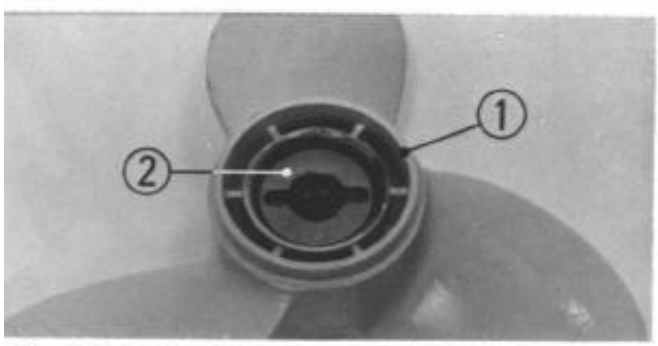


Fig. 4-3 ① Propeller ② Propeller bushing

Assembly

1. Grease the shaft with anti-corrosion lube.
2. Insert the shear pin into the propeller shaft and install the propeller.
3. Screw in the propeller cap and lock it with the cotter pin.

   Use a new cotter pin. Spread the cotter pin against the propeller cap surface as shown.

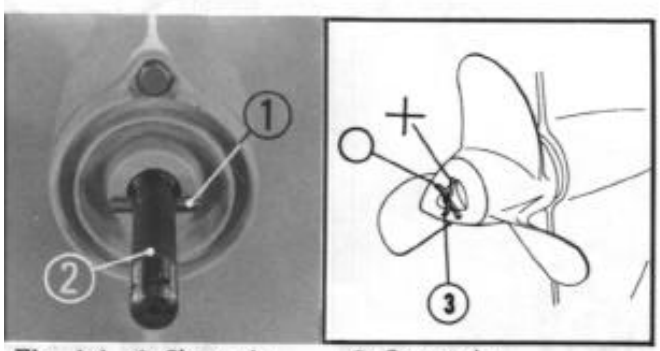


Fig. 4-4 ① Shear pin ② Propeller shaft ③ Cotter pin

Date of Issue: Feb. 1977

2. WATER PUMP AND WATER TUBES

The water pump is mounted on the gear case. It is of an impeller type and is driven by the pinion shaft. Water drawn by the pump is delivered to the engine through the water tubes and cool the cylinders and cylinder head. It is then drained from the exhaust pipe.

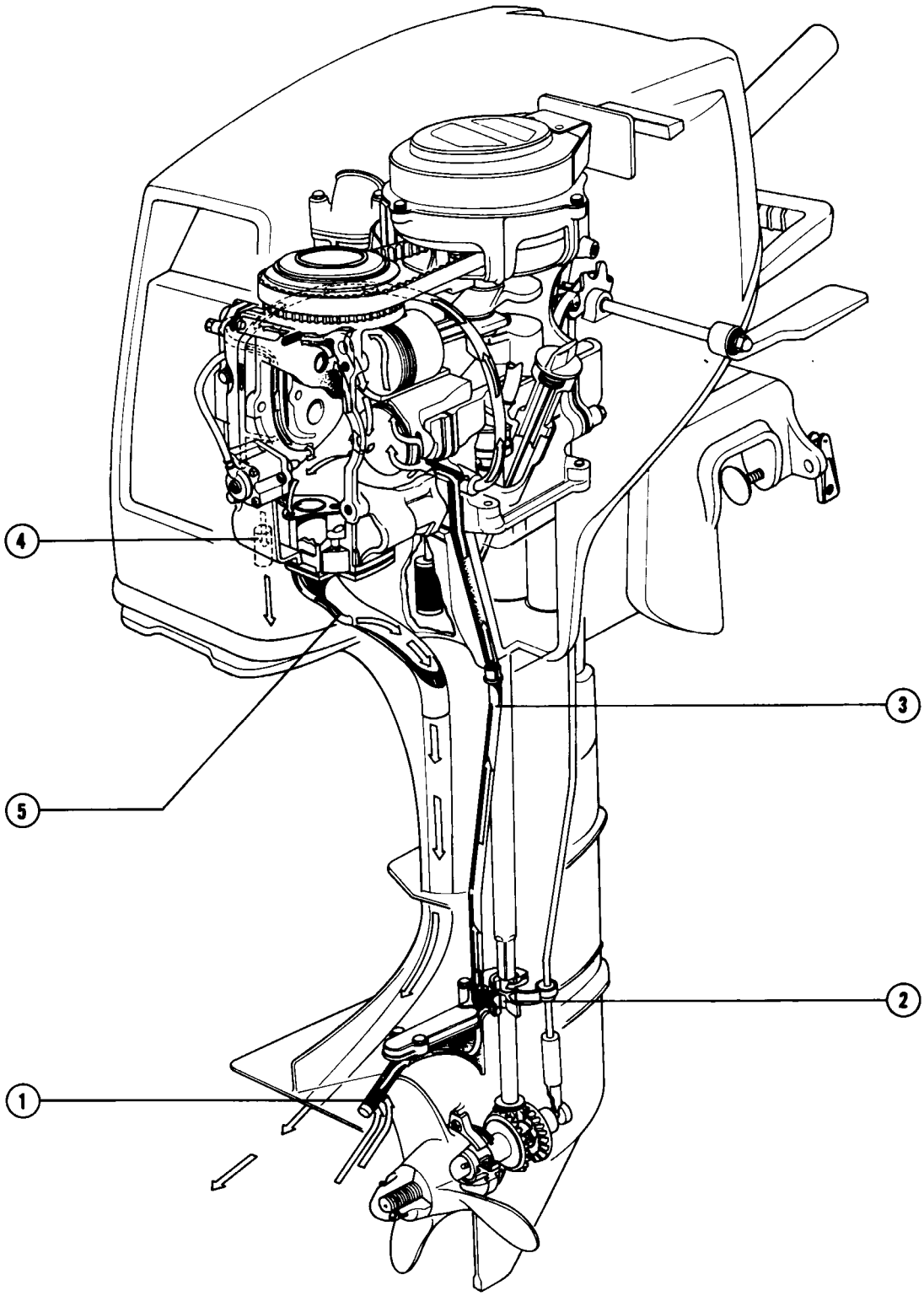


Fig. 4-5 ① Water screen
② Water pump
③ Water tube
④ Water check tube
⑤ Exhaust pipe

Date of Issue: Oct. 1975

Disassembly

1. Remove the shift rod joint. (See page 2.)
2. Remove the five 6 mm bolts and remove the gear case from the extension case.

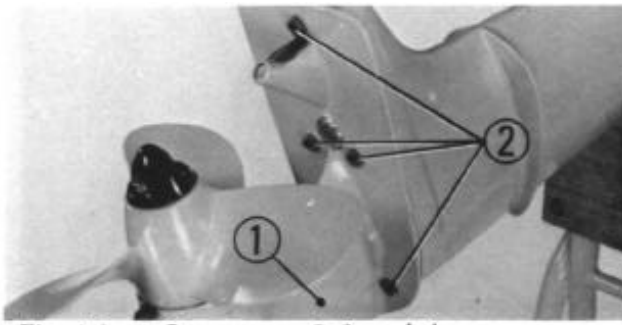


Fig. 4-6 ① Gear case ② 6 mm bolts

3. Disconnect the water tubes and drive shaft from the gear case.

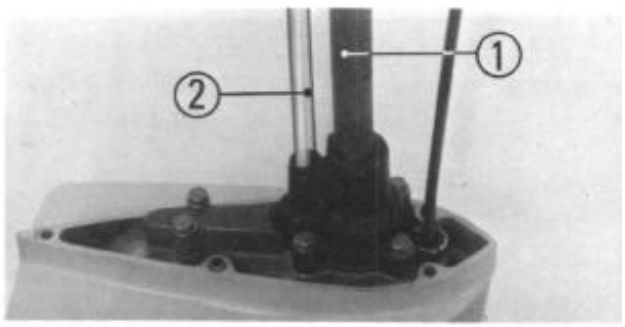


Fig. 4-7 ① Drive shaft ② Water tube

4. Remove the six 6 mm bolts and remove the impeller housing and cover.

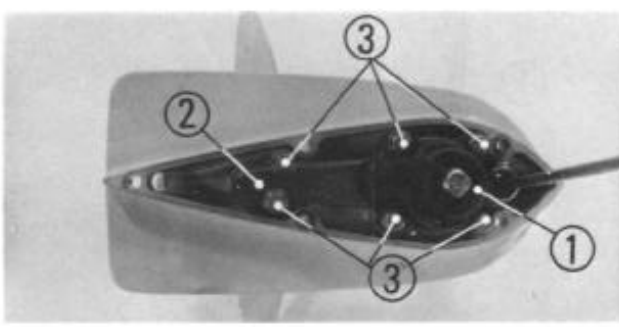


Fig. 4-8 ① Impeller housing ③ 6 mm bolts
② Cover

5. Remove the impeller key, impeller cover, and pump gasket.

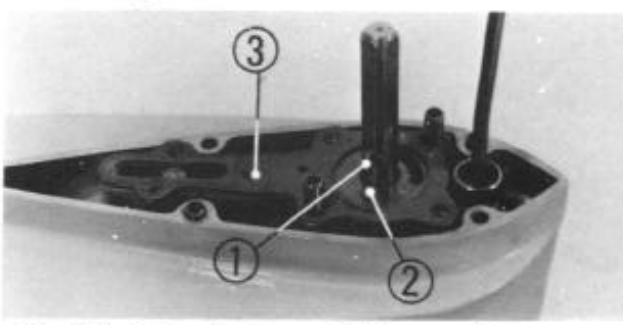


Fig. 4-9 ① Impeller key ③ Pump gasket
② Impeller cover

6. Remove the water screen from the gear case.

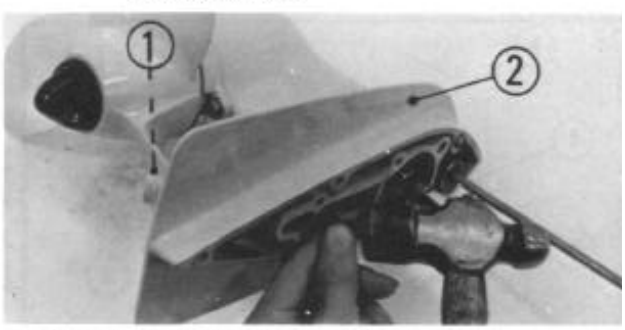


Fig. 4-10 ① Water screen ② Gear case

Date of Issue: Oct. 1975

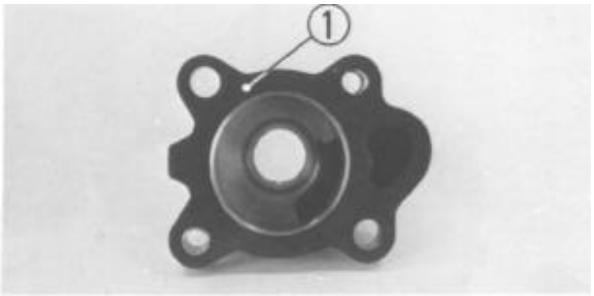


Fig. 4-11 ① Impeller hausing

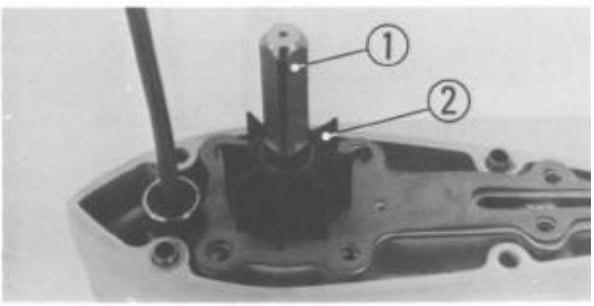


Fig. 4-12 ① Pinion shaft ② Pump impeller

Fig. 4-13 ① Impeller housing

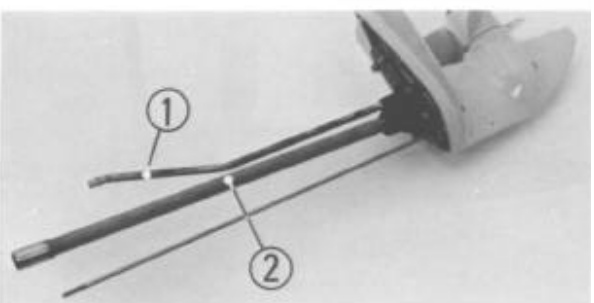


Fig. 4-14 ① Water tube ② Drive shaft

Inspection

1. Impeller

   Check the impeller and keyway in the impeller for wear or damage, and replace the impeller if necessary.

2. Impeller housing

   Check the inside surface of the housing for wear, and replace the housing if necessary.

3. Water tubes

   Fit the tube in the seal ring to check for looseness.

Assembly

1. Install the water screen to the gear case and driver in the plug.
2. Install the pump gasket and impeller cover on the gear case. Attach the impeller key to the pinion shaft and install the pump impeller.
3. Install the impeller housing as shown in Fig. 4-13, rotate the housing in the direction A. Install two collars and cover and tighten with six 6 mm bolts.
4. Connect the water tubes as shown in Fig. 4-14. Then connect the drive shaft to the pinion shaft.
5. To facilitate assembly of the gear case to the extension case, first separate the extension case from the oil case and install it to the gear case.

   Install the 8×10 mm dowel pins in position, then attach the gear case to the extension case with the five 6 mm bolts and washers. Finally assemble the extension and gear case assembly to the oil case, installing the two 10×14 mm dowel pins and taking care not to dislodge the water tube.

Date of Issue: Oct. 1975

3. GEAR CASE AND SHIFT MECHANISM

Shifting into position (forward, reverse) can be performed by means of the shift lever. The shifting patterns and descriptions are as follows:

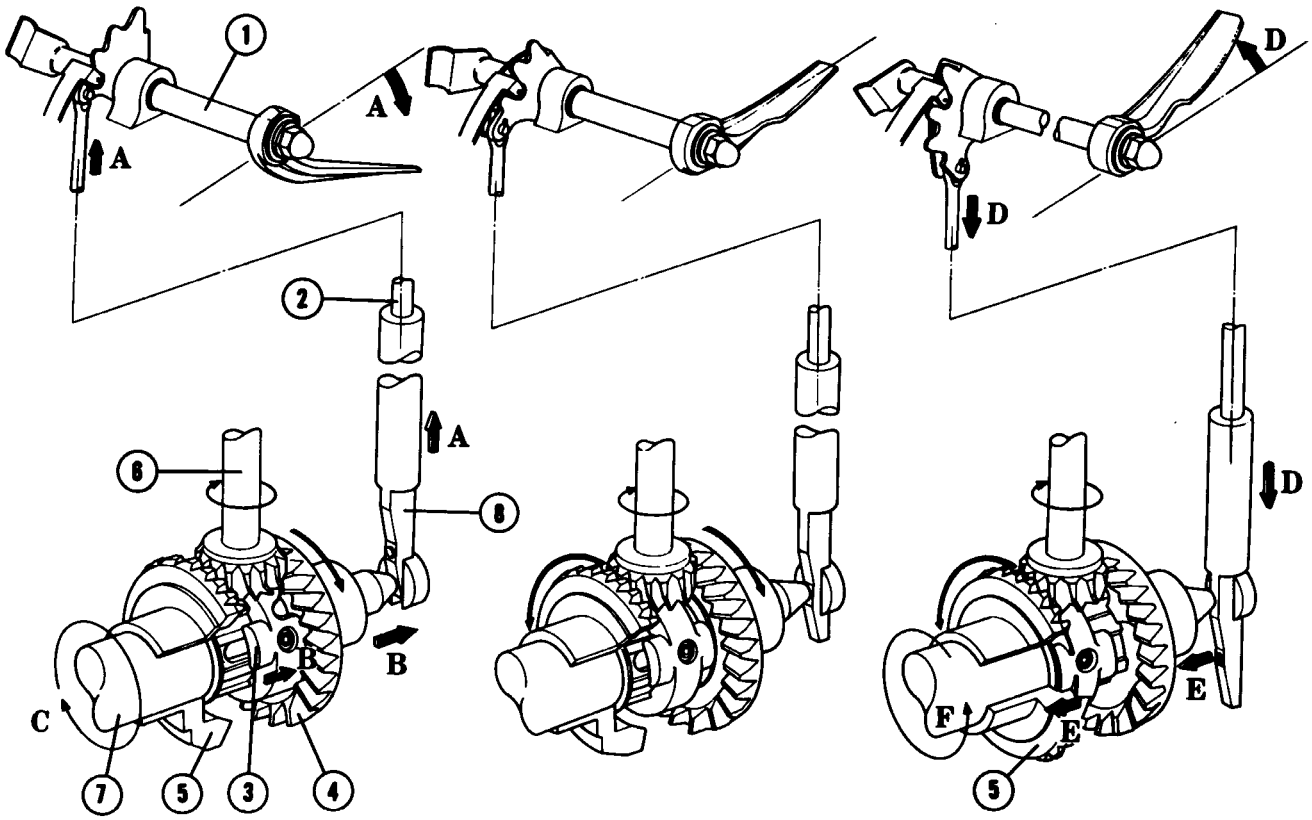


Fig. 4-15 ① Shift shaft ② Shift rod ③ Clutch shifter ④ Front bevel gear ⑤ Rear bevel gear ⑥ Pinion shaft ⑦ Propeller shaft ⑧ Push rod

FORWARD

When the shift lever is moved into the forward position, the shift rod and push rod are moved in the direction A by the shift and the clutch shifter is moved in the direction B by the spring. Now the shifter engages with the front bevel gear, and the engine power is transmitted to the bevel pinion, front bevel gear (clutch shifter) and propeller shaft. Then the propeller is rotated in the direction C to propel the boat forward.

NEUTRAL

When the shift lever is moved into the neutral position, the push rod moves the clutch shifter away from the front and rear bevel gears. Now the shifter no longer engages with the bevel gear, and the engine power is not transmitted to the propeller shaft.

REVERSE

When the shift lever is moved into the reverse position, the push rod is moved in the direction D and the clutch shifter is moved in the direction E so that the shifter engages with the rear bevel gear and the engine power is transmitted to the bevel pinion, rear bevel gear (clutch shifter) and propeller shaft. Then the propeller shaft is rotated in the direction F to reverse the boat.

Date of Issue: Feb. 1977

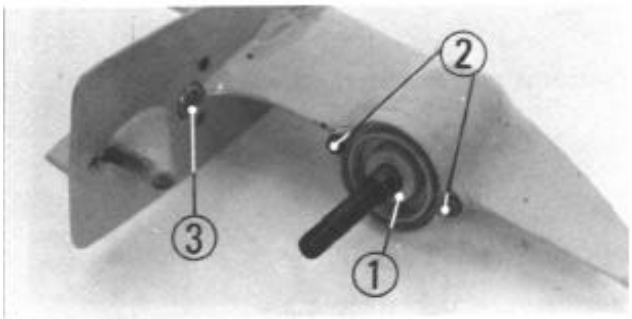


Fig. 4-16 ① Propeller shaft holder ③ Anode metal
② 6 mm bolts

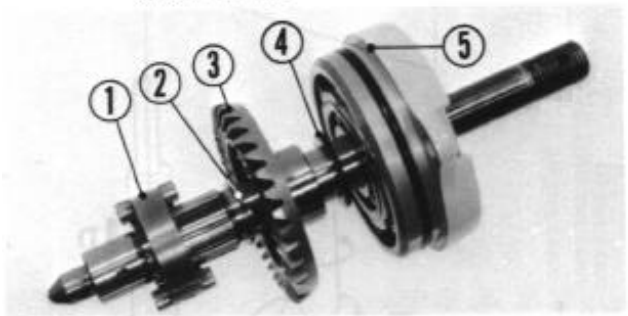


Fig. 4-17 ① Propeller shaft ④ Gear washer
② 17 mm washer ⑤ Propeller shaft holder
③ Rear bevel gear

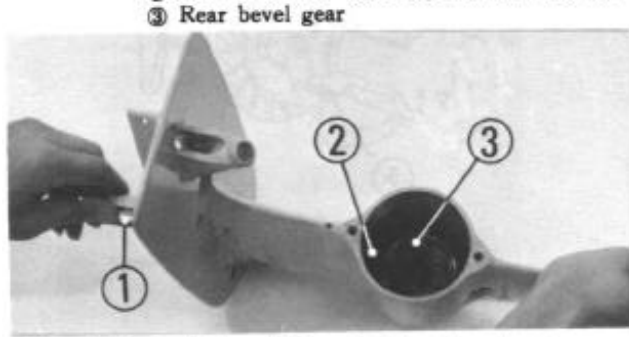


Fig. 4-18 ① Pinion shaft ③ Front bevel gear
② Bevel pinion

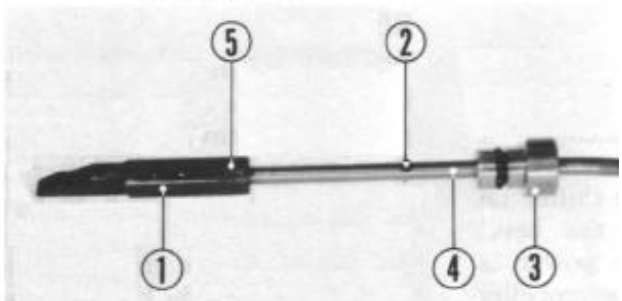


Fig. 4-19 ① Push rod ④ Shift rod
② Split pin ⑤ Roller pin
③ Seal holder

Fig. 4-20 ① Clutch shifter

Disassembly

1. Remove the propeller. (See page 29.)
2. Remove the gear case and water pump. (See pages 30 and 31.)
3. Remove the drain bolt and drain the gear case.

   Note :

   If water is present in the oil, the cause should be determined and corrected.
4. Remove the two 6 mm bolts and remove the propeller shaft holder.

   Remove the anode metal from the gear case.
5. Remove the holder, gear washer, rear bevel gear and 17 mm washer from the propeller shaft.
6. Remove the 6203 ball bearing and 17 mm water seal from the propeller shaft holder.
7. Pull the pinion shaft out of the gear case, and remove the bevel pinion and pinion washer. Then remove the 17 mm washer and front bevel gear.
8. Disconnect the shift rod from the gear case.
9. Remove the split pin, and remove the push rod and seal holder from the shift rod.

Inspection

1. Clutch shifter
   - Check the clutch shifter for smooth movement.
   - Check the shifter dogs for wear or damage, and replace the shifter if necessary.
2. Bevel gear and pinion

   Check the gear teeth for damage and replace the gear if necessary. Check the bearings for roughness.

Date of Issue: Oct., 1975

3. Anode metal

   Check the anode metal for corrosion or wear and replace it if necessary.

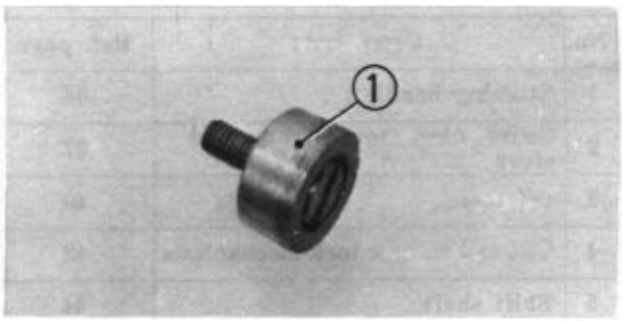


Fig. 4-21 ① Anode metal

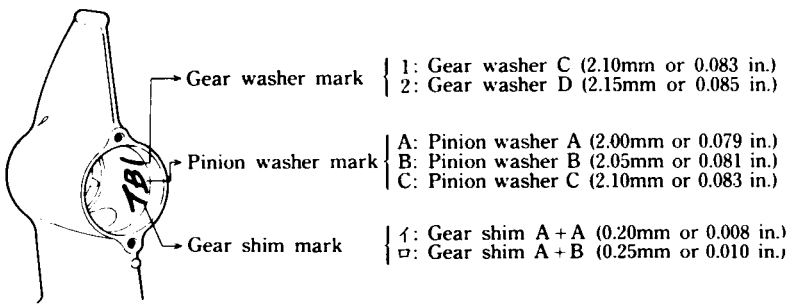
Assembly

1. Install the seal holder on the shift rod, drive in the roller pin and connect the push rod.
2. Connect the shift rod to the gear case.
3. When the gear case replacement is required, select the gear washer, gear shims and pinion washer according to the identification marks on the gear case and table below.

Pinion washer	Thickness mm (in.)
A	2.00 (0.079)
B	2.05 (0.081)
C	2.10 (0.083)

Gear washer	Thickness mm (in.)
C	2.10 (0.083)
D	2.15 (0.085)

Gear shim	Thickness mm (in.)
A	0.10 (0.004)
B	0.15 (0.006)



Note:
Prior to assembly, make sure that the gear washer, gear shims and pinion washer are properly selected by measuring them with a micrometer caliper or a slide caliper.

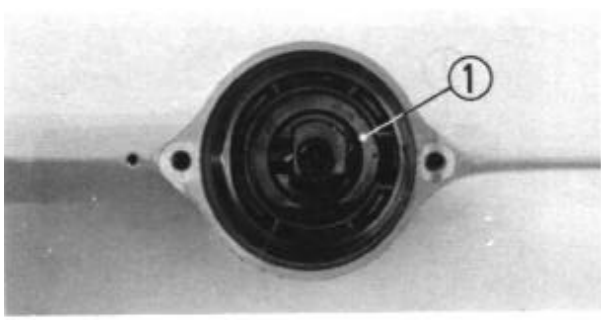


Fig. 4-22 ① Gear shim

4. Install the 17 mm washer, rear bevel gear, gear washer and propeller shaft holder to the propeller shaft.
5. Install the gear shim to the gear case, and then install the front bevel gear (with the ball bearing).
6. Install the pinion shaft to the gear case, and install the pinion washer, thrust bearing, and bevel pinion.
7. Install the propeller shaft into the gear case and secure it with the two 6 mm bolts. Hand-rotate the propeller shaft to check for smooth rotation.

   When installing the propeller shaft into the gear case, take care not to damage the 62 mm O-ring.
8. Move the push rod vertically and set it in the neutral position. The neutral position can be determined by the resistance which is felt when the pin fits into the hole in the rod.
9. Install the water pump. (See page 32.)
10. Install the propeller. (See page 29.)

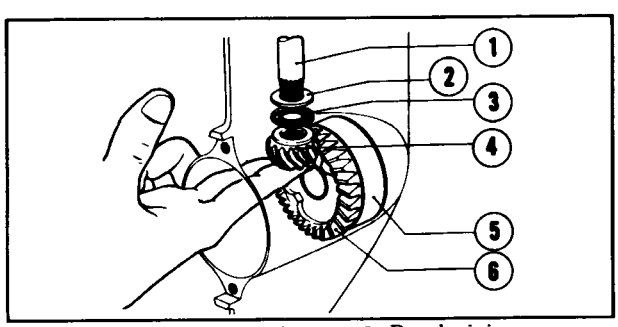


Fig. 4-23 ① Pinion shaft ② Pinion washer ③ Needle thrust bearing ④ Bevel pinion ⑤ 6005 ball bearing ⑥ Front bevel gear

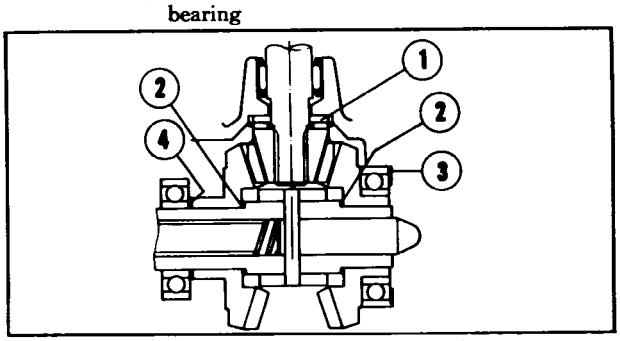


Fig. 4-24 ① Pinion washer ② 17 mm washer ③ Gear shim ④ Gear washer

Date of Issue: Feb. 1977

5 SWIVEL UNIT

The swivel unit consists of the following components.

1. STEERING HANDLE

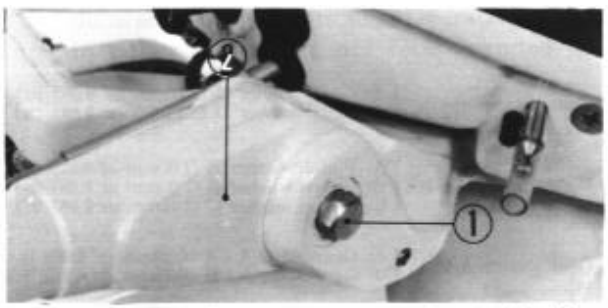


Fig. 5-1 ① Handle pivot screw ② Steering handle

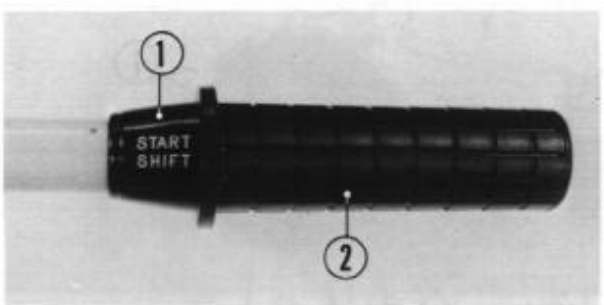


Fig. 5-2 ① Grip pipe cover ② Grip rubber

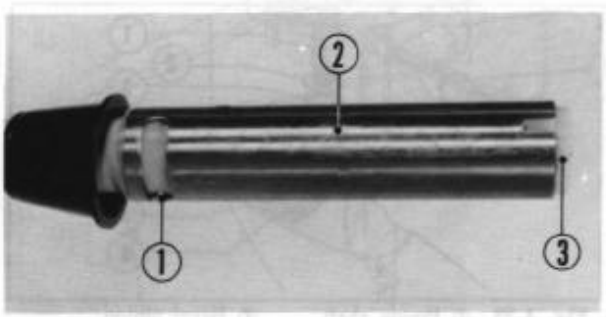


Fig. 5-3 ① Grip pipe stopper ③ Grip friction nut
② Grip pipe

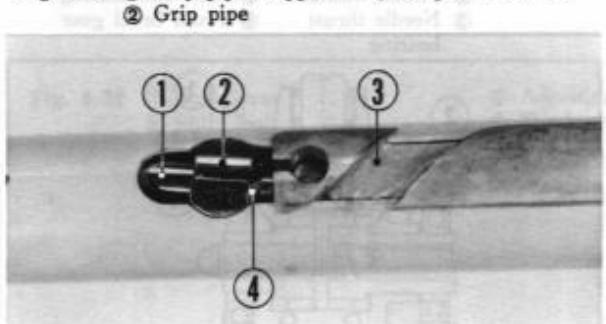


Fig. 5-4 ① Throttle cable ③ Throttle cable hinge
② Throttle cable holder ④ Cable stopper

Disassembly

1. Disconnect the throttle cable. (See page 3.)
2. Remove the handle pivot screw and disconnect the steering handle.
3. Remove the grip pipe cover and detach the grip rubber from the handle.
4. Remove the grip pipe stopper and grip friction nut, and disconnect the grip pipe from the steering handle.
5. Disconnect the throttle cable from the throttle cable hinge, and remove the throttle cable holder and cable stopper.

Date of Issue: Oct. 1975

Inspection

1. Check the throttle grip for smooth movement.
2. Check the throttle cable for damage and replace it if necessary.

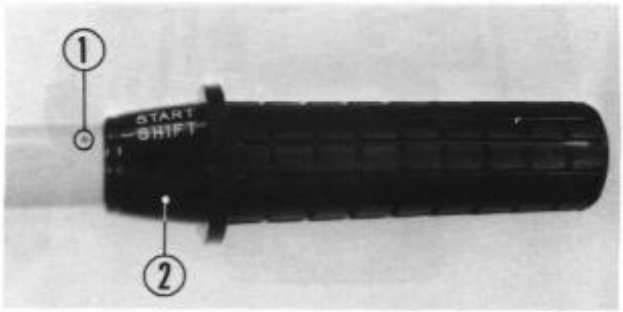


Fig. 5-5 ① Red mark ② Grip pipe cover

Assembly

1. To assemble, reverse the disassembly procedures. (See pages 36 and 37.) Pay attention to the following points:
   - When connecting the throttle cable to the cable hinge, apply a sufficient coat of grease to the cable end.
   - Align the mark "SHIFT" on the grip pipe cover to the red mark on the handle. The grip pipe cover should be glued to the rubber grip in that position.
   - Throttle grip resistance can be adjusted by the adjusting screw located at the end of the grip. Turning in the screw will increase the resistance, and vice versa.

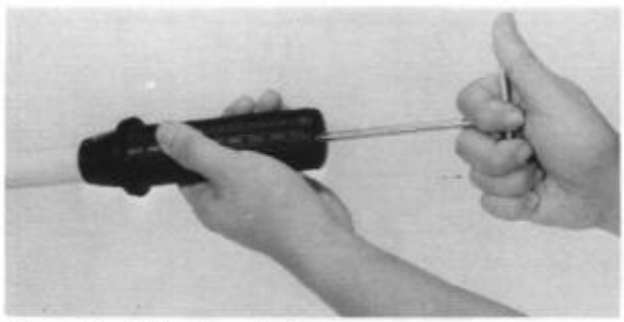


Fig. 5-6 Adjusting grip resistance

2. SWIVEL CASE, MOUNT FRAME AND STERN BRACKETS

Disassembly

1. Remove the lower unit. (See page 2.)
2. Disconnect the throttle cable from the oil case.
3. Remove the three 8 mm nuts, and remove the oil case together with the engine.

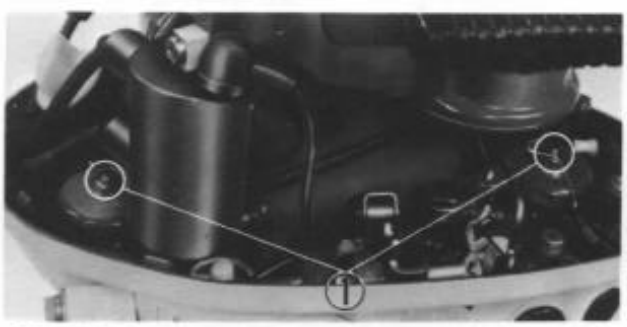


Fig. 5-7 ① 8 mm nuts

4. Remove the 8 mm nuts and remove the upper rubber mount.

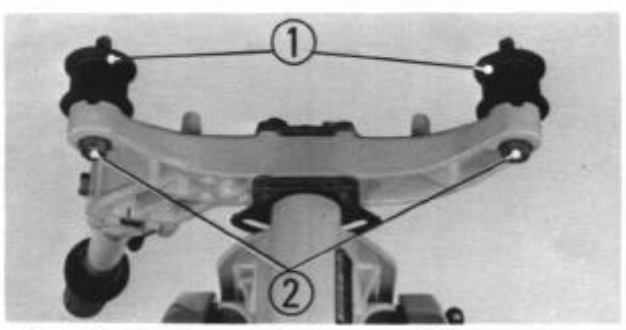


Fig. 5-8 ① Upper rubber mount ② 8 mm nuts

Date of Issue: Oct. 1975

Fig. 5-9 ① 6 mm bolts ② Thrust rubber mount

5. Remove the two 6 mm bolts and remove the thrust rubber mount.

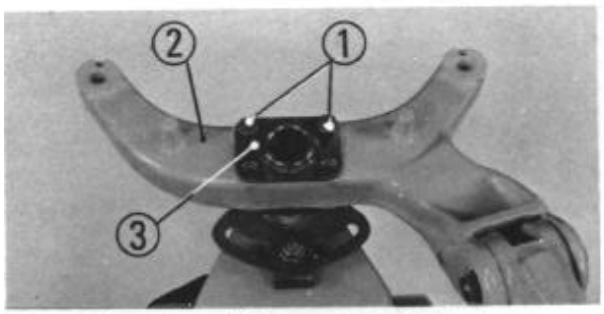


Fig. 5-10 ① 6 mm bolts ② Mount frame ③ Swivel shaft

6. Remove the two 6 mm bolts, and remove the mount frame and swivel shaft.

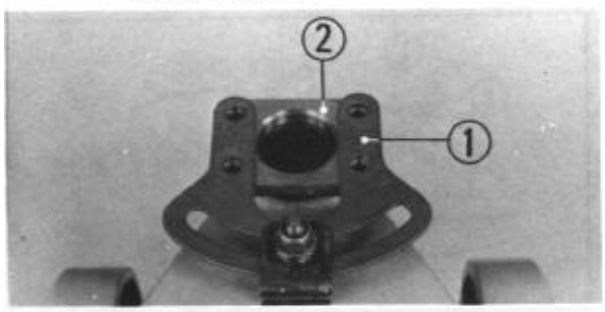


Fig. 5-11 ① Friction plate ② Lower flange

7. Remove the friction plate and lower flange.

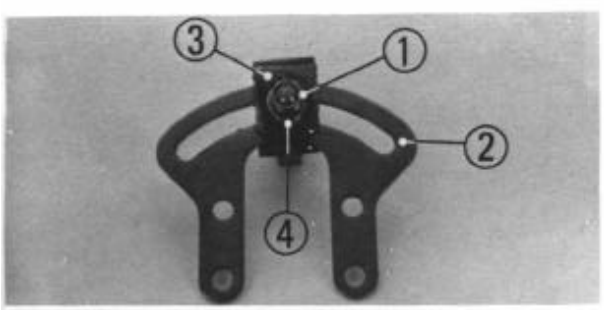


Fig. 5-12 ① 6 mm nut ② Friction plate ③ Friction stator ④ Friction spring

8. Remove the 6 mm nut and remove the friction stator from the friction plate.

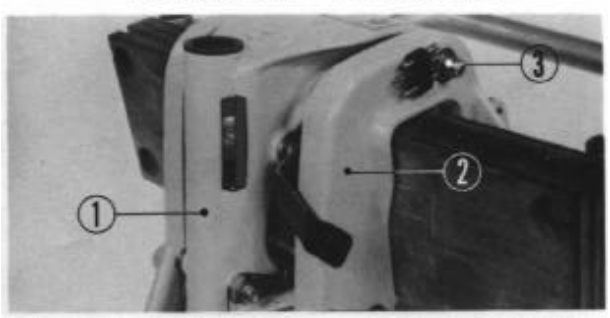


Fig. 5-13 ① Swivel case ② Stern bracket ③ 8 mm through bolt

9. Pull out the adjusting rod. Remove the 6 mm bolt and tilt bolt, and remove the swivel case from the stern brackets.
10. Drive the swivel case bushings out, taking care not to damage them.

Date of Issue: Oct. 1975

Inspection

Check each part for cracks or any other damage, and replace any damaged part.

Assmbly

1. Attach the swivel case to the stern brackets with the parts shown in Fig. 5-14.

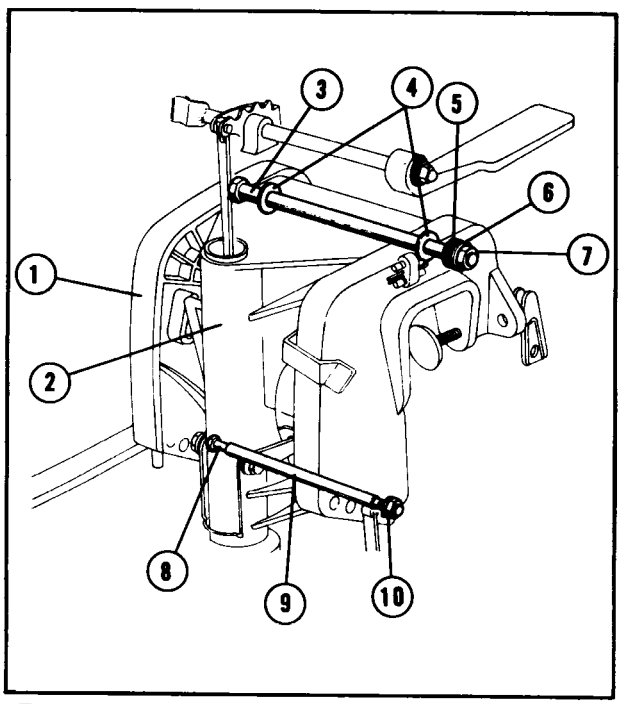


Fig. 5-14 ① Stern bracket ② Swivel case ③ 8 mm through bolt ④ 10 mm washer ⑤ Tilt spring ⑥ 8 mm washer ⑦ 8 mm nut ⑧ 6×160 mm bolt ⑨ 6 mm collar ⑩ 6 mm nut

2. To assemble, reverse the disassembly procedures. (See pages 37 and 38.)

Note:

- Proper fit of the friction stator guide pin in the hole in the swivel case.

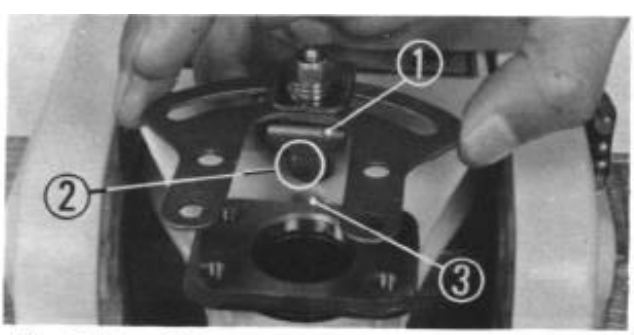


Fig. 5-15 ① Friction stator ② Guide pin ③ Pin hole

Date of Issue: Feb. 1977

3. OIL CASE

Disassembly

1. Separate the oil case and from the engine and the extension case. (See pages 2 thru. 4.)
2. Remove the 6 mm screw and remove the male fuel connector.

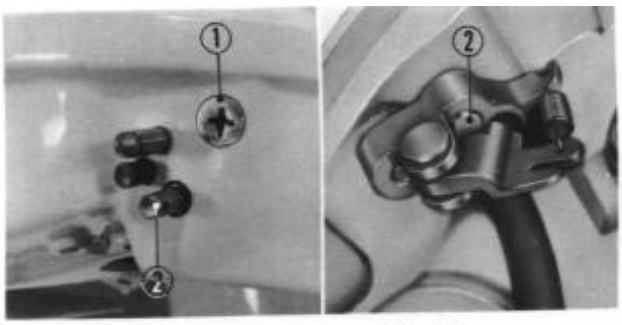


Fig. 5-16 ① 6 mm screw ② Male fuel connector

3. Remove the two 6 mm bolts and remove the cable holder.

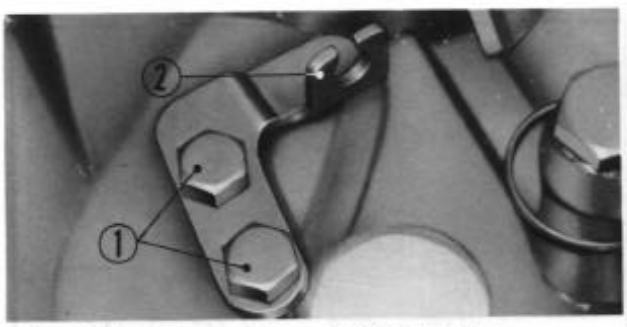


Fig. 5-17 ① 6 mm bolts ② Cable holder

4. Remove the throttle arm.

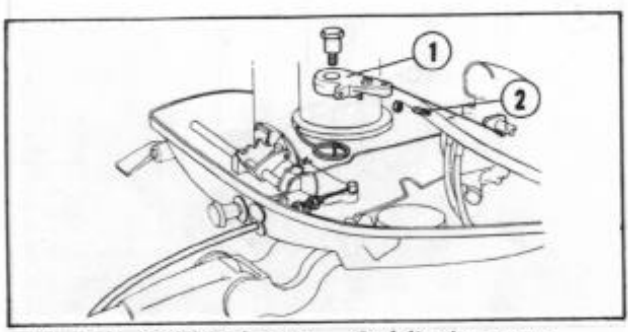


Fig. 5-18 ① Throttle arm ② Adjusting screw

5. Remove the 16 mm nut and remove the choke knob.

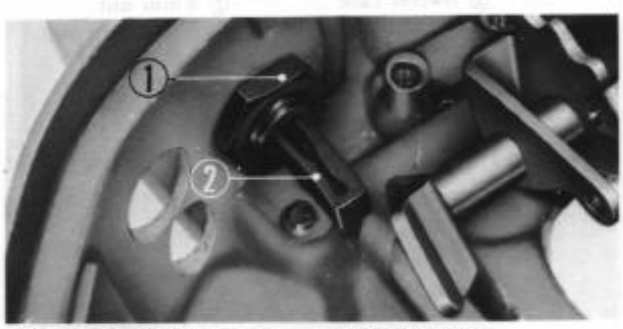


Fig. 5-19 ① 16 mm nut ② Choke knob

6. Remove the 16 mm nut and remove the engine switch.
7. Remove the shift shaft. (See page 2.)

Fig. 5-20 ① 16 mm nut ② Engine switch ③ Ground cable

Date of Issue: Oct. 1975

Inspection

1. Check the male fuel connector for leaks. Inspect the O-ring for nicks or cuts.
2. Check each part for cracks or any other damage, and replace any damaged part if any.

Assembly

1. To assemble, reverse the disassembly procedures. (See pages 40.)

Note:

- When connecting the ground cable, clean rust or dirt off the cable.
- Do not forget to install the two 8×14 mm dowel pins, 10 mm O-ring and oil case gasket. Use a new gasket.

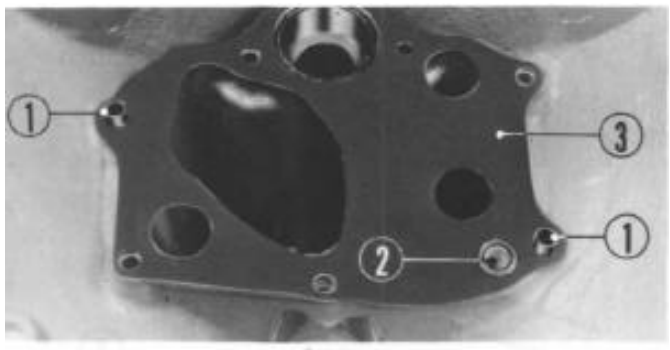


Fig. 5-21 ① Dowel pins ③ Gasket
② 10 mm O-ring

Date of Issue: Feb. 1977

4. TILT AND REVERSE LOCK MECHANISMS

- The tilt mechanism is a device used to tilt the engine unit. To tilt the unit, first stop the engine and move the shift lever into the forward or neutral position. This causes the shift shaft to pull the release rod upward to disengage the reverse lock hook from the adjusting rod. Then hold the oil case with one hand at the recess in the case and move the tilt lever with the other hand to set the tilt links to any desired position inside the stern bracket. There are two different tilting positions. Operating the engine in either position is not recommended.
- The installation angle of the transom can be adjusted by repositioning the adjusting rod. There are four different positions.
- Reverse lock mechanism

  When the shift lever is moved into the reverse position, the reverse lock hook is engaged with the adjusting rod to lock the unit. In a locked position, the unit cannot be tilted.

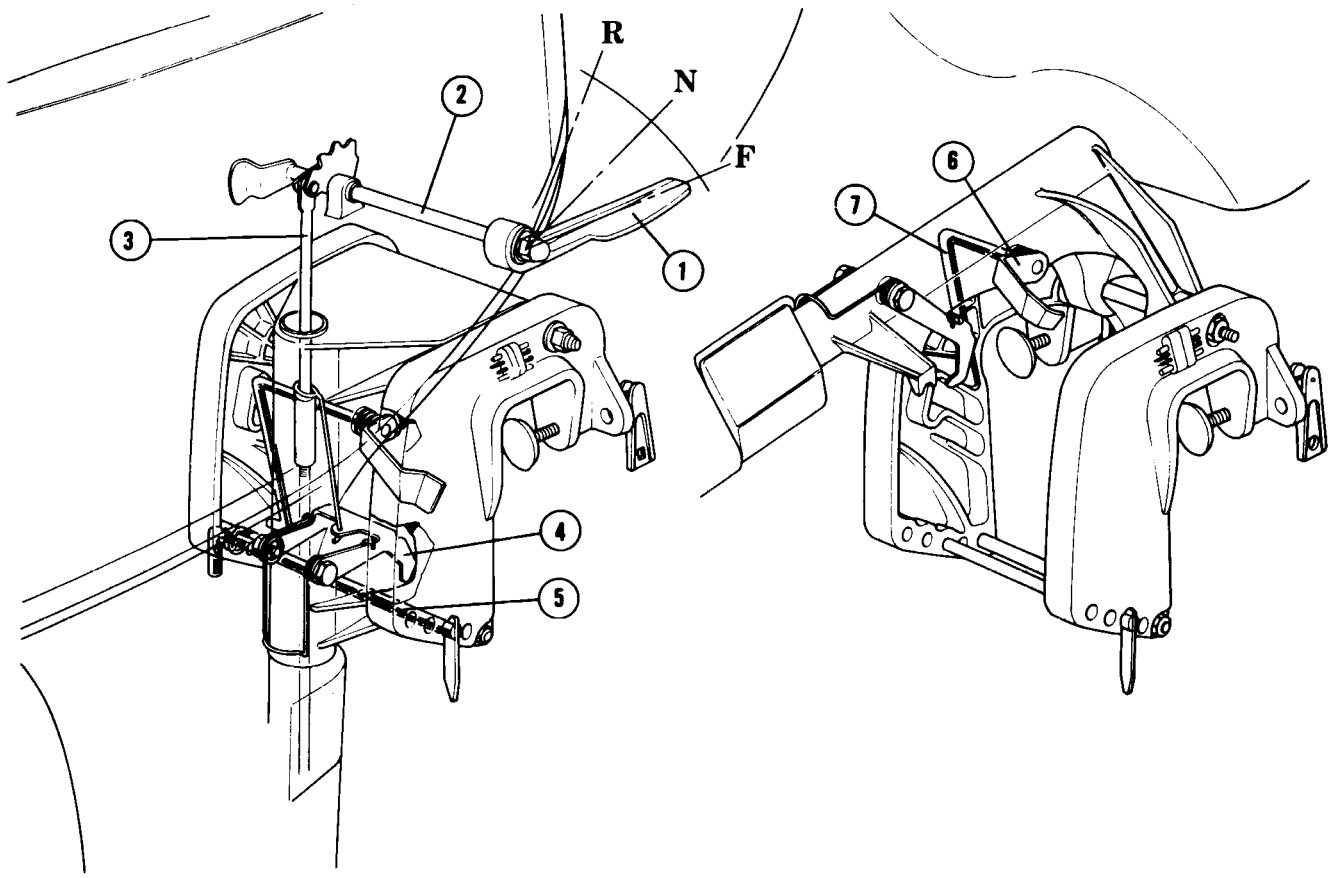


Fig. 5-22 ① Shift lever
② Shift shaft
③ Release rod
④ Reverse lock hook
⑤ Adjusting rod
⑥ Tilt lever
⑦ Tilt rod

Disassembly

1. Tilt the unit with the shift lever moved into the forward or neutral position.
2. Pull out the adjusting rod.
3. Disconnect the release rod from the shift shaft. (See page 2.)

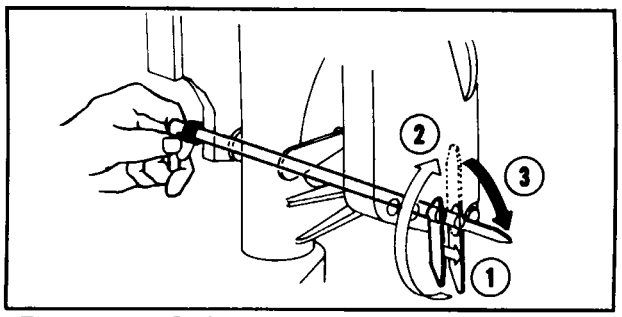


Fig. 5-23 ① Push ③ Pull out
② Turn about 180°

4. Remove two flanged bolts, and remove the reverse lock hook and hook return spring from the swivel case.

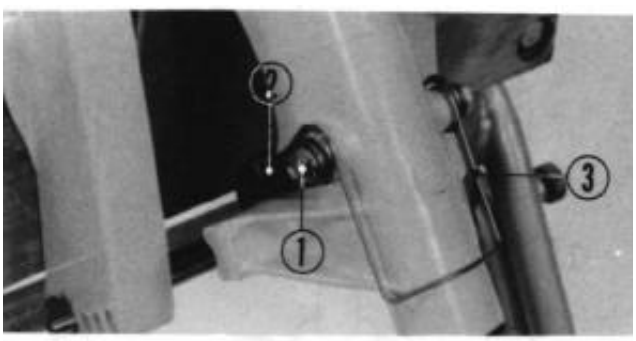


Fig. 5-24 ① Flanged bolt ③ Hook return spring
② Reverse lock hook

5. Remove the swivel case. (See page 38.)
6. Pull out the 4 mm split pin, and remove the tilt lever and tilt spring.

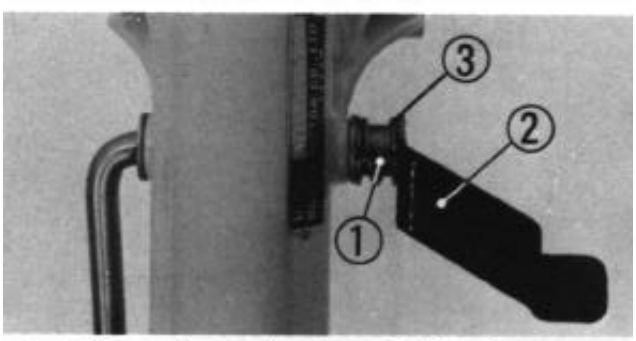


Fig. 5-25 ① 4 mm split pin ③ Tilt spring
② Tilt lever

7. Pull out the 2 mm split pins and remove the tilt links.

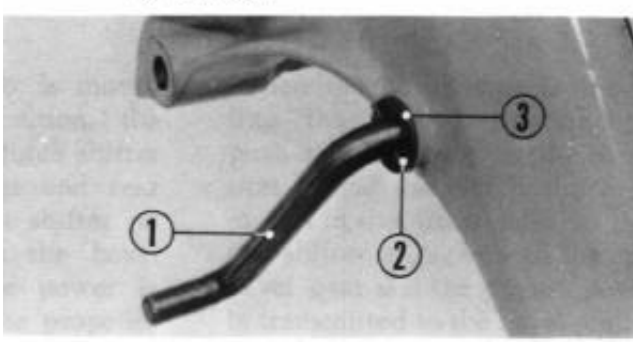


Fig. 5-26 ① Tilt link ③ 10 mm washer
② 2 mm split pin

Inspection

1. Check the tilt links for bending and replace them if necessary.
2. Check the reverse lock hook pawl for damage, and replace the hook if necessary.
3. Check the adjusting rod stopper for damage and replace it if necessary.

Assembly

To assemble, reverse the disassembly procedures.

Date of Issue: Feb. 1977

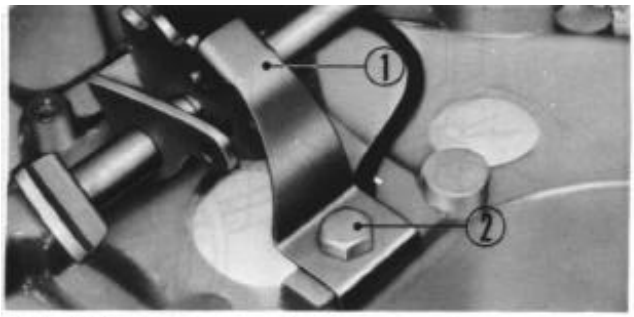


Fig. 5-27 ① Detent spring ② 6 mm bolt

5. SHIFT SHAFT

Disassembly

1. Pull out the shift shaft 5 mm pin. (See page 2.)
2. Remove the 6 mm bolt and remove the shift lever.
3. Remove the 6 mm bolt, remove the detent spring and pull out the shift shaft.

Inspection

1. Check the detent spring for tension or breakage replace it if necessary.

Assembly

1. To assemble, reverse the disassembly procedures. Check the adjustment of the shift rod.
   1) Place the shift lever in the neutral position. (See page 33.)
   2) Screw the gearshift rod joint in the shift rod, and install the rod to the shift shaft with the 5 mm pin and 1.6 mm cotter pin.

Date of Issue: Feb. 1977

6 POST-SERVICE TESTS

After overhauling this engine, inspect the following items :

1. Engine oil

   Remove the oil filler cap with the engine upright and add SAE 10W-30, API standard (SD or SE) oil. The capacity is 0.8 ℓ (1.7 US. pt, 1.4 Imp. pt). Then insert the level gauge in the filler hole and check to see if the oil level is up to the upper mark on the gauge. DO NOT screw in the gauge.

Fig. 6-1 ① Level gauge ② Upper mark ③ Lower mark

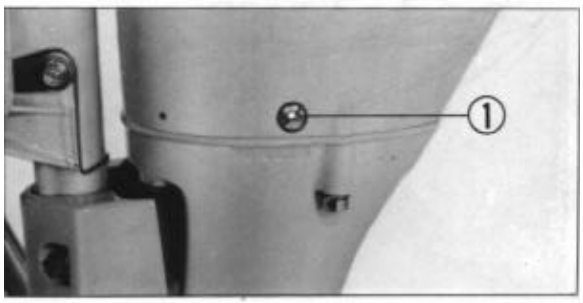


Fig. 6-2 ① Drair plug

2. Gear case oil

   Remove the level bolt and drain bolt with the engine upright. Using an oil tube, fill the gear case with SAE 90, API standard motor gear oil through the drain bolt hole until it comes out of the level bolt hole. The capacity is 0.18 ℓ (0.38 US. pt, 0.32 Imp. pt).

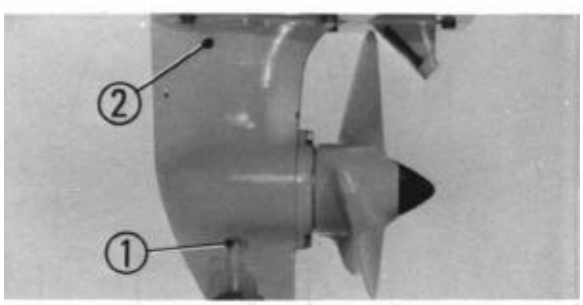


Fig. 6-3 ① Oil filler port (Drain bolt hole) ② Level bolt hole

3. Electrical wiring

   Check to see if the wiring is connected properly or if it is damaged.

   Caution :

   Do not start the engine with the cam pulley rubber cover removed.
   Keep clothing and hands away from timing belt while the engine is running.

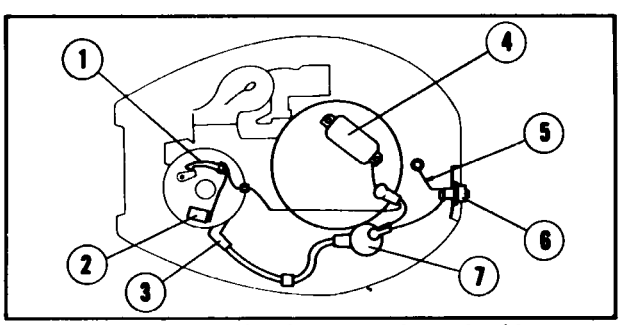


Fig. 6-4 ① Contact breaker ② Condenser ③ Spark plug ④ Primary coil ⑤ Ground cable ⑥ Engine switch ⑦ Ignition coil

Date of Issue: Feb. 1977

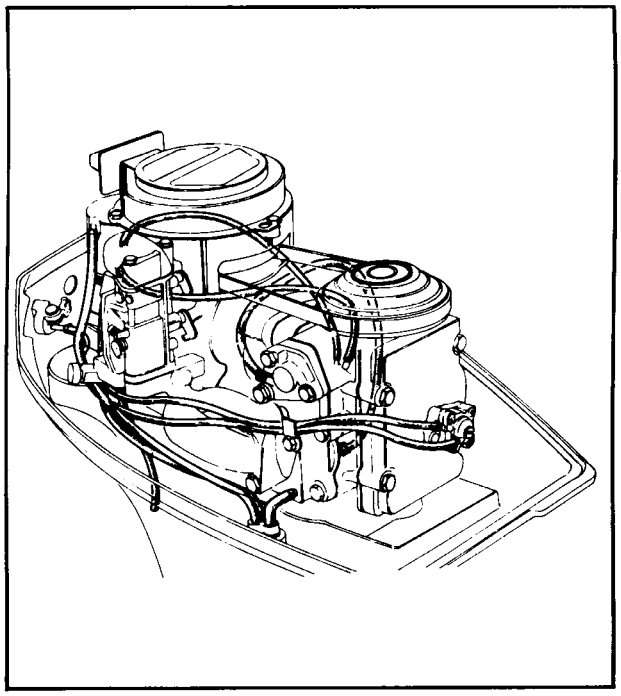


Fig. 6-5 Connecting the tubes

Fig. 6-6 ① Friction adjusting bolt

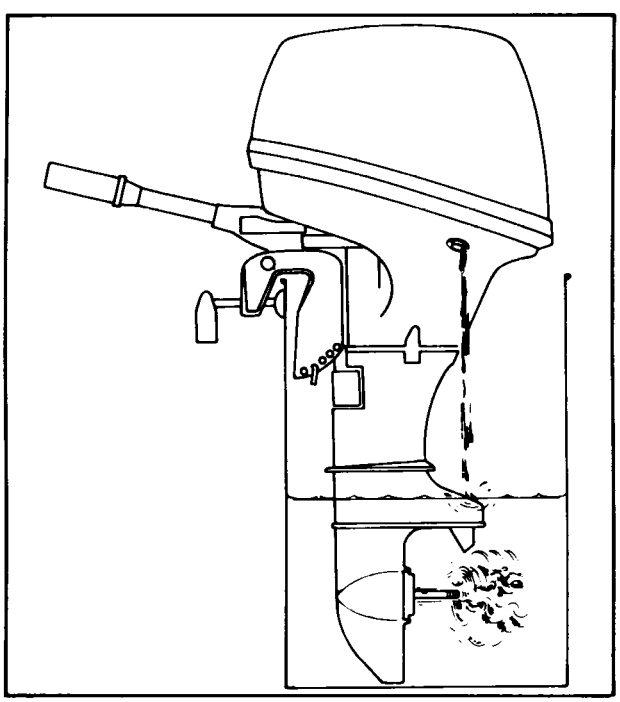


Fig. 6-7 Test tank

4. Tubes

   Check the fuel tubes, breather tube and water tubes for proper connection, bending or binding.

5. Steering handle friction

   Check the handle for smooth operation. If not, adjust by means of the friction adjusting nut. Turning the nut clockwise will increase the handle resistance. Turning it counterclockwise will decrease the resistance.

   Note:

   Attach a spring pull scale to the handle 300 mm (11.81 in.) from the pivot bolt and pull it. If the spring pull is 2~3 kg (4.41~6.61 lbs), the adjustment of handle is correct.

6. Tilt mechanism

   Check the tilt mechanism for proper operation. (See page .42)

7. Throttle grip

   Check the throttle grip for proper operation, and adjust if necessary. (See page 37.)

8. Mount the outboard in a test tank. Be sure that the water is deep enough to cover the anticavitation plate.

   Note:

   If the test tank is small it may be necessary to use a test propeller. (Special tool)

Date of Issue: Feb. 1977

9. Carburetor

Start the engine. Turn the stop screw to set the idle speed to 1,200 rpm. Then turn the pilot screw in either direction to obtain the highest possible smooth engine speed. Finally turn the stop screw to set the engine speed to the standard idle rpm.

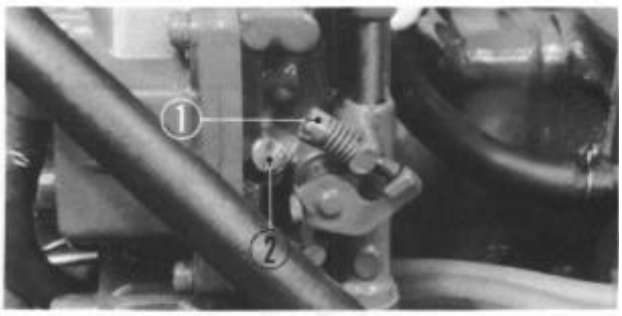


Fig. 6-8 ① Stop screw ② Pilot screw

10. Engine speed in reverse operation

1) Align the red mark on the shift lever with the "N" mark.

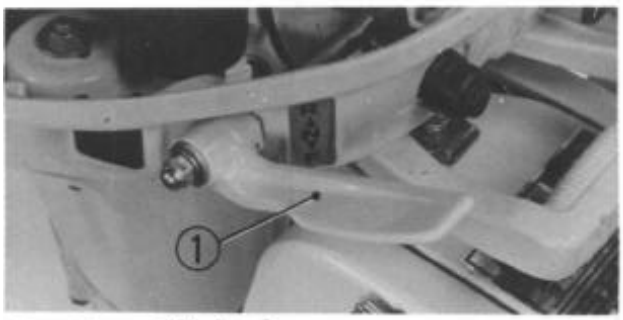


Fig. 6-9 ① Shift lever

2) Align the "SHIFT" mark on the grip pipe cover with the red mark on the handle.

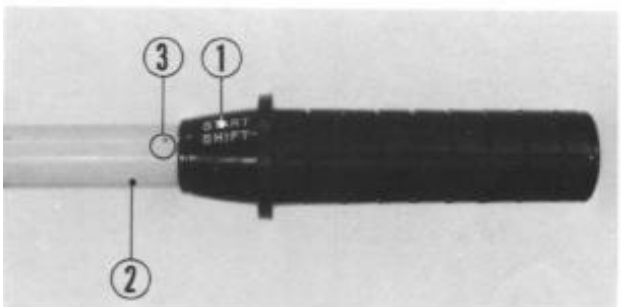


Fig. 6-10 ① Grip pipe cover ③ Red mark
② Handle

3) Loosen the lock nuts A and B, and adjust the throttle cable so that the throttle valve opens fully.
4) Loosen the lock nut C and turn in the adjusting screw until it comes in contact with the shift lever shaft cam.
Specified engine speed in reverse operation:
4,000±500 rpm

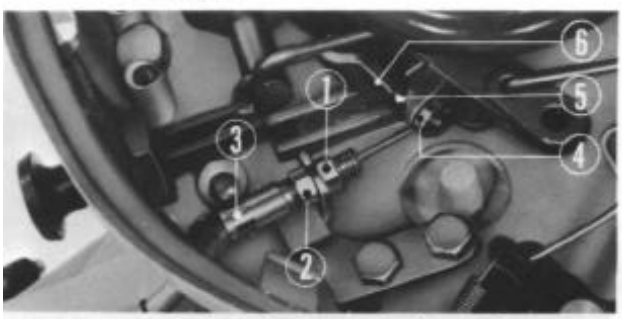


Fig. 6-11 ① Lock nut A ④ Lock nut C
② Lock nut B ⑤ Adjusting screw
③ Throttle cable ⑥ Cam

11. Lubricating oil

Loosen the oil check bolt and check to see if oil comes out. If not, recheck the lubricating system.

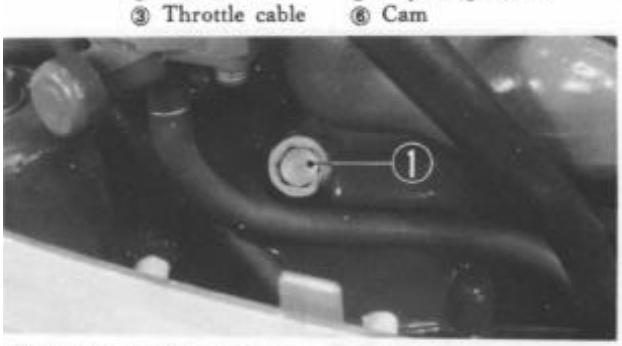


Fig. 6-12 ① Oil check bolt

Date of Issue: Oct. 1975

12. Cooling system

    Check to see if water comes out of the water check pipe. If water comes out, the water pump is operating.

13. Vibration

    If the unit vibrates excessively, check all tightening points for looseness.

14. Check for abnormal noise.

15. Throttle stop mechanism

    Check the throttle stop mechanism for proper operation. (See page 8.)

16. Fuel pump

    Disconnect the fuel tube and check if the fuel flow is adequate.

17. Engine switch

    Make sure that the engine stops when the engine switch is pushed.

18. Fuel stop mechanism

    Do not stop the engine by disconnecting the fuel connector. This method of inspection should not be used. But the fuel stop lever should be examined for proper operation.

19. Water and oil leak check

    Stop the engine. Remove a small amount of engine oil and gear oil, and check if the oils are mixed with water.

    If water is observed in the engine oil, check it as follows:

    1) Check for any source of the leaks.
    2) Check the oil seal and sealants.
    3) Check the performance of the thermostat.
    4) Check the passage surface for accumulation of any dirt or dust.

20. Check for fuel leaks

21. Painted surfaces

    Check the painted surfaces for blistering and, if necessary, recondition as follows:

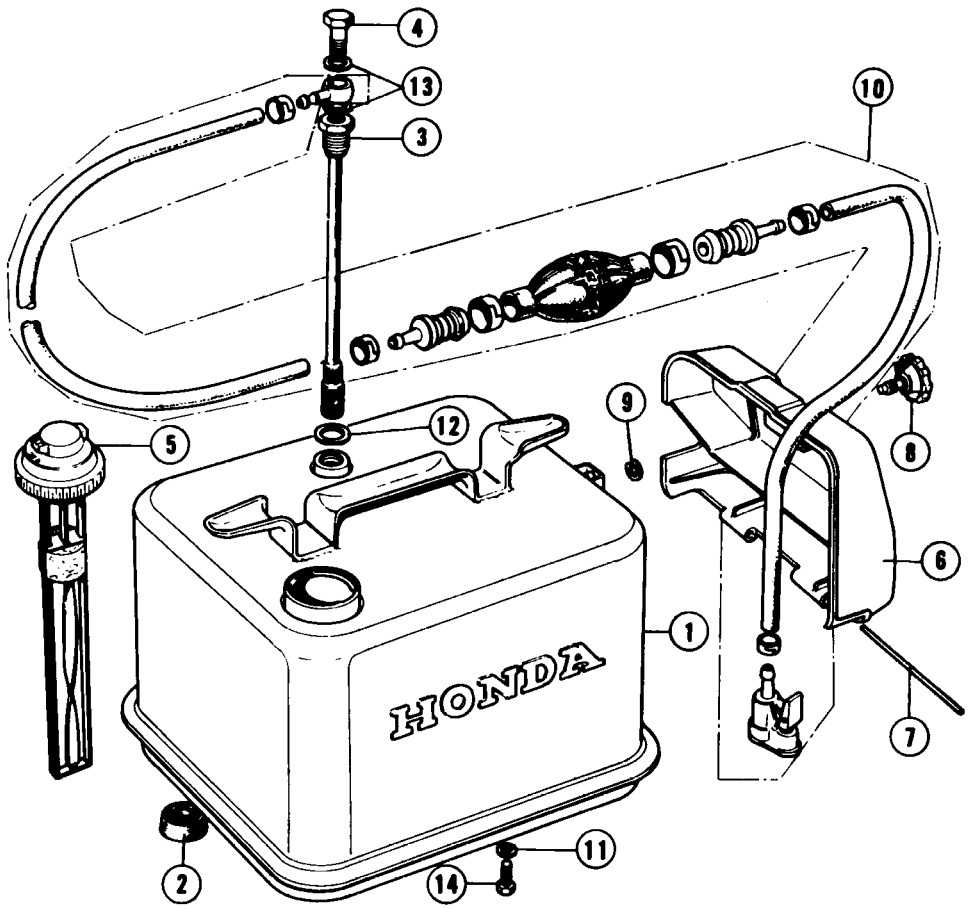
    1) Sand the damaged surface smooth with a #320~400 sand paper.
    2) Thoroughly wipe the surface with thinner.
    3) Apply a coat of the paint recommended by HONDA to the surface and dry it at a temperature of about 80°C (176°F). Use heat lamps if necessary but do not an open flame.

Date of Issue: Feb. 1977

7 FUEL TANKS

The fuel tank contains the primer bulb assembly, a filler cap assembly, and a carrying handle which holds the fuel tube when not in use.

A breathing valve is mounted at the top of the filler cap which prevents fuel leaks in transportation. Drain and flush the tank at least once a year. To facilitate complete draining of the tank, a drain screw is provided at the bottom of the fuel tank.



① Fuel tank
② Cushion
③ Fuel pick up pipe
④ Joint bolt
⑤ Filler cap and level gauge
⑥ Tool box
⑦ 3×150 bar
⑧ Latch
⑨ Latch stopper
⑩ Primer bulb and tube assembly
⑪ Drain screw gasket
⑫ Pick up pipe washer
⑬ Joint bolt washer
⑭ Drain screw

Fig. 7-1 Fuel tank set

REPAIR OF FUEL TANK AND PRIMER BULB ASSEMBLY

1. Remove the filler cap assembly, check parts for wear.
2. Remove the fuel pick up pipe to check for clogging of the filter at the end of the pick up pipe.
3. Check leaks from gaskets and replace worn parts if necessary.
4. Check the leaks from the female fuel connector. If "O" ring in the connector is damaged, replace it as air will enter fuel tube and carburetor and then the engine may stop in operation.
5. After reassembling worn parts, tighten them securely.

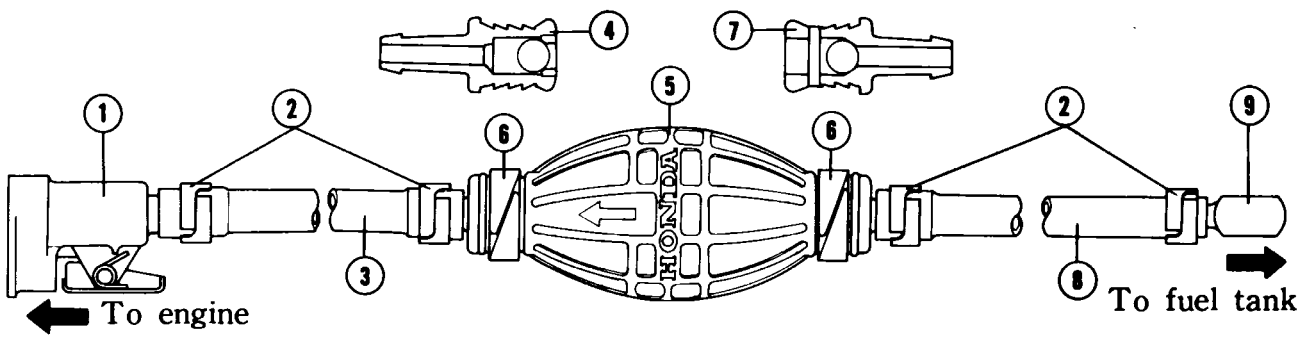


Fig. 7-2 ① Female fuel connector ② 11 mm clamp ③ Fuel tube, short ④ Outlet valve ⑤ Primer bulb ⑥ 20 mm clamp ⑦ Inlet valve ⑧ Fuel tube, long ⑨ Tube joint

Date of Issue: Oct. 1975

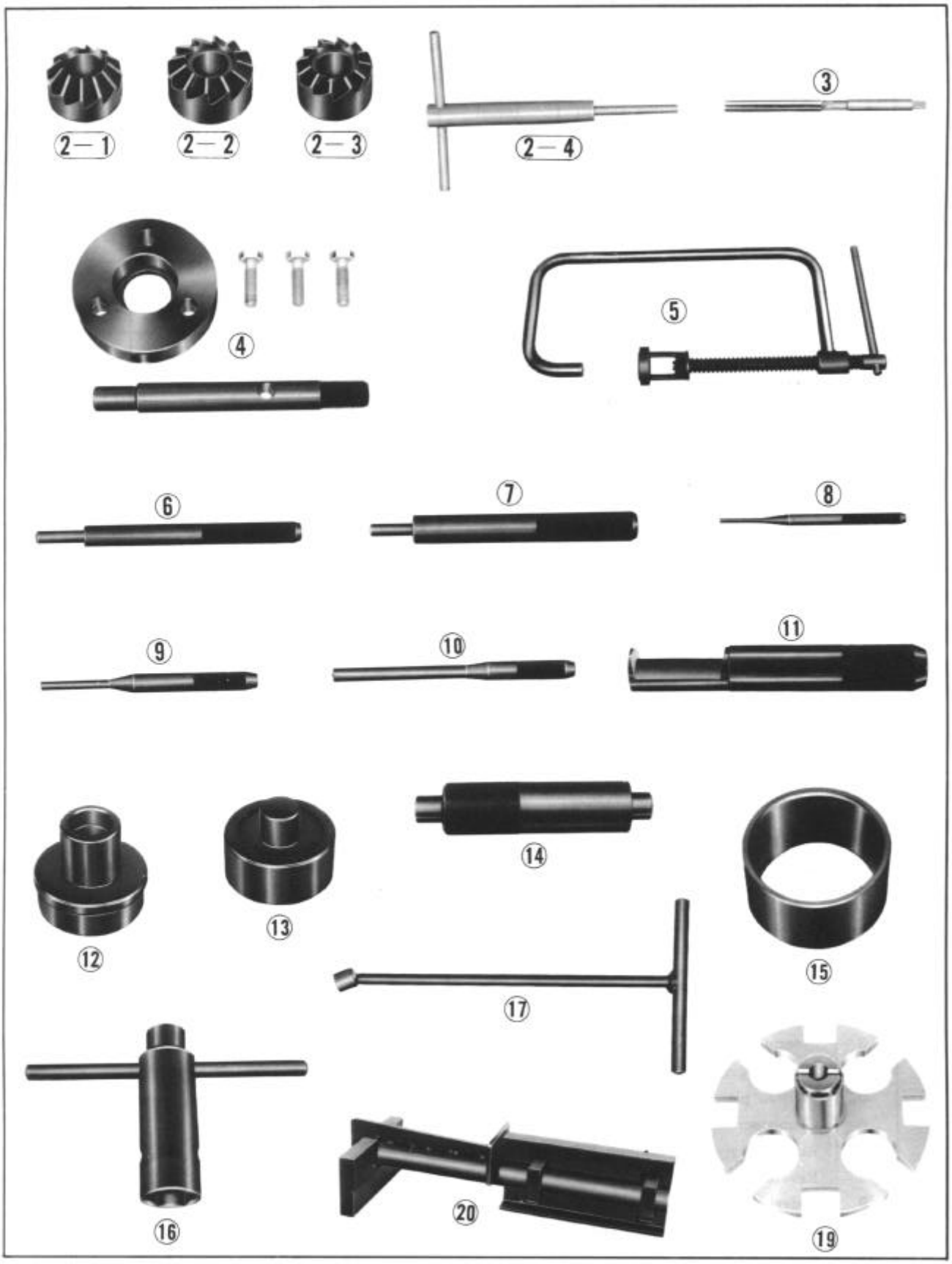
8 SERVICE DATA

1. SPECIAL TOOLS

Ref. No.	Tool No.	Tool name	Remarks
1	07000-9350001	Set, special tool	All special tools below include (item No. 2 through 18)
2-1	07980-9210100	Cutter, seat face	Used for seat facing of IN, and EX valves
2-2	07980-9210200	Cutter, flat (IN)	
2-3	07980-9210400	Cutter, flat (EX)	
2-4	07981-2160000	Holder, cutter	
2-5	07797-0510100	Case, cutter	
3	07984-2000000	Reamer, valve guide	
4	07933-9350000	Puller, flywheel	Flywheel and cam pulley remover
5	07957-3290001	Compressor, valve spring	
6	07942-3290100	Remover, valve guide	IN, EX, valve guide remover
7	07942-9350000	Driver, valve guide	IN, EX, valve guide driver
8	07944-9350100	Driver, spring pin 2.5 mm	
9	07944-9350200	Driver, spring pin 4 mm	
10	07944-9350300	Driver, spring pin 6 mm	
11	07945-9350000	Remover, bearing	Ball bearing 6203 and water seal 17 mm remover
12	07946-9350100	Driver att. A, bearing	Coupling seal, ball bearing 6203 and water seal 17 mm drive
13	07946-9350200	Driver att. B, bearing	Water seal 15 mm and ball bearing 6302 driver
14	07949-6110000	Handle, driver	Used with item No. 12 and 13
15	07958-9210000	Slider, piston	Used for piston installation
16	07907-9350001	Wrench, socket 27 mm×17 mm	Special nut 12 mm and lock nut 22 mm dis/assembling
17	07911-9350000	Wrench, universal 6 mm	Used for B75K0, K1
18	07797-0010400	Case, tool	
OPTIONAL TOOL			
19	07975-9350001	Blade, power inspection (Test wheel)	Used for B75K1, K2, K3
20	07965-9350000	Holder, dis/assembling	Used bench vice to support the holder.

Abbreviation ATT : Attachment
IN : Intake
EX : Exhaust

Date of Issue: Feb. 1977



Date of Issue: Oct. 1975

2. MAINTENANCE SCHEDULES

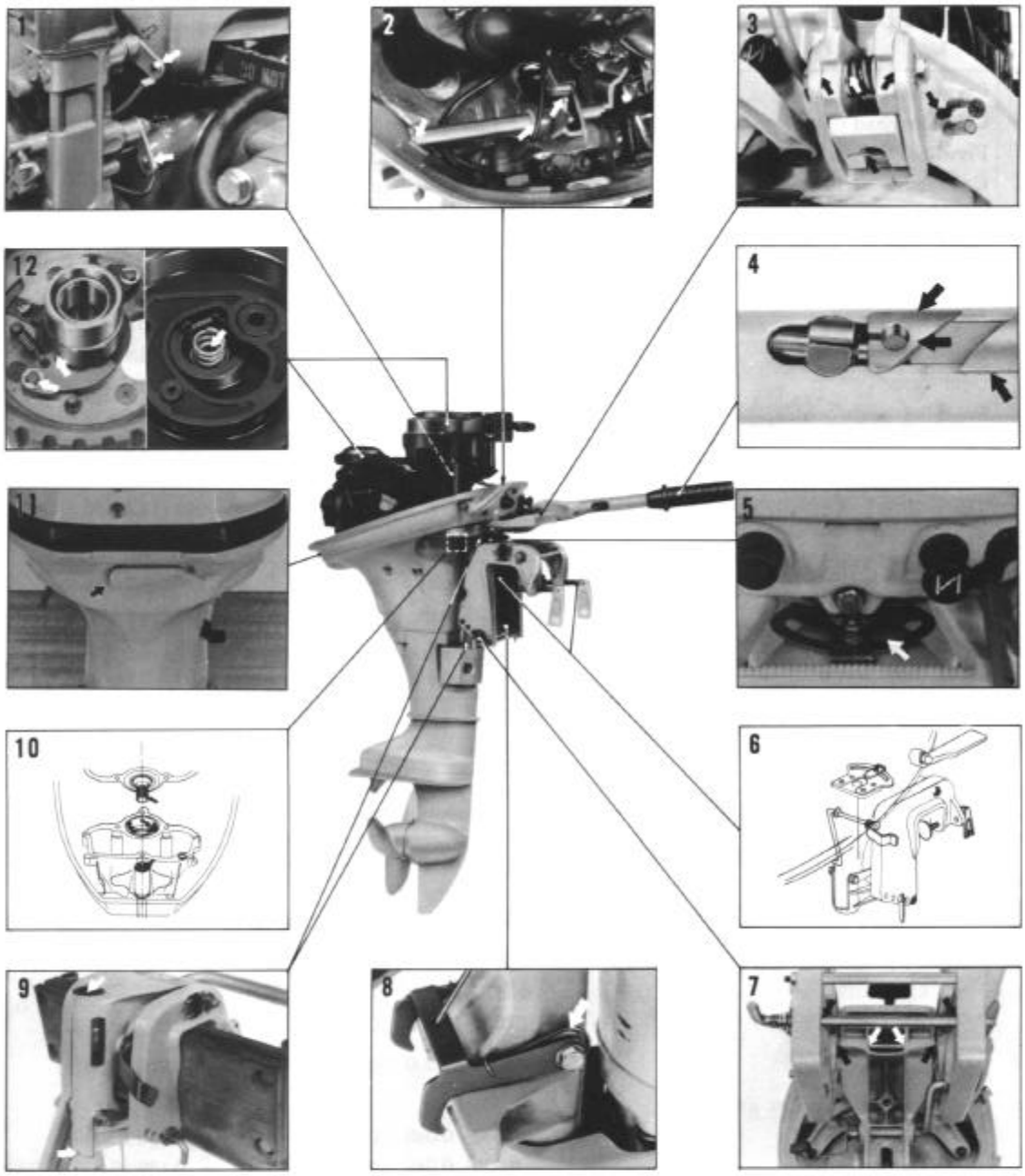
Periodie inspection schedule The purpose of schedule maintenance and adjustment is to keep the motor in the best operating condition and to prevent trouble from occurring. Perform inspections as scheduled in the table.	Initial 15 hrs or 1 month	Every 100 hrs or 6 months	Every 200 hrs or 1 year	Every 400 hrs or 2 years	Ref. page
Spark plug cleaning and adjustment		○			24
Engine oil change	●	○			45
Gear case oil change	●		○		45
Shear pin inspection		○			29
Valve tappet clearance adjustment	● (Check)		○		17
Ignition timing adjustment	● (Check)		○		24
Carburetor link operation check			○		8
Fuel tube and tank strainer check				○	48
Fastener tightness check	●	○			48
General damage check	●	○			48
General lubrication		○			53
Thermostat check			○		12
Breaker point check	● (Check)		○		23
Fuel pump filter check			○		28

3. LUBRICATION CHART

1. Engine oil
   Oil capacity : 0.8 ℓ (1.7 U.S. pt./1-4 Imp. pt.)
   Specified oil : API Standard (SD or SE)
   SAE 10W~30
2. Lower drive unit lubrication
   Oil capacity : 0.18 ℓ (0.38 U.S. pt./0.32 Imp. pt.)
   Specified oil : API Standard (GL-4)
   SAE 90 Out board motor gear oil

No.	Lubrication point	Lubricant
1	Carburetor and choke linkage	Anti-corrosion lubricant
2	Shift shaft and cam	
3	Steering handle pivot	
4	Throttle grip	
5	Friction plate	
6	Clamp screw and tilt linkage	
7	Adjusting rod and through bolt	
8	Reverse lock hook	
9	Swivel shaft and bushing	
10	Coupling seal, crankshaf and drive shaft splines	
11	Engine cover lock lever	
12	Advancer weight pivot and recoil starter shaft	

Date of Issue: Feb. 1977



Date of Issue: Oct. 1975

4. TORQUE SPECIFICATIONS

The tightening torques in the table below are on the key parts.

Unit: kg-cm (lb-ft)

	Part	Bolt or nut (mm)	Torque
Engine	Crankcase	6 P 1.0 bolt	90~120 (6.5~ 8.6)
	Cylinder head	8 P 1.25 bolt	200~280 (14.4~20.2)
	Flywheel	12 P 1.25 nut	600~700 (43.4~50.6)
	Connecting rod	6 P 1.0 special bolt	90~120 (6.5~ 8.6)
	Timing pulley	22 P 1.0 special nut	200~250 (14.4~18.0)
	Carbureter air guide	6 P 1.0 bolt	90~120 (6.5~ 8.6)
	Cam pulley	6 P 1.0 bolt	90~120 (6.5~ 8.6)
Frame	Engine mounting	6 P 1.0 bolt	90~120 (6.5~ 8.6)
	Extension case	8 P 1.25 bolt	200~280 (14.4~20.2)
	Gear case	6 P 1.0 bolt	90~120 (6.5~ 8.6)
	Propeller shaft holder	6 P 1.0 bolt	90~120 (6.5~ 8.6)
	Mount rubbers (upper, thrust and lower)	8 P 1.0 nut	200~280 (14.4~20.2)
	Stern bracket	6 P 1.0 nut	90~120 (6.5~ 8.6)
	Tilt bolt	8 P 1.25 nut	200~280 (14.4~20.2)
	Swivel shaft	6 P 1.0 bolt	90~120 (6.5~ 8.6)
Standard screws	Hex. head bolt	6 P 1.0 bolt	80~120 (5.7~ 8.6)
	Hex. head bolt	8 P 1.25 bolt	200~280 (14.4~20.2)
	Cross head screw	6 P 1.0 bolt	80~120 (5.7~ 8.6)
	Cross head screw	5 P 0.8 bolt	30~ 60 (2.1~ 4.2)

5. SERVICE DATA

Unit: mm (in.)

Group	Part and item	Assembly standard	Service limit
Engine	Cylinder head flatness	0.1 (0.0004)	0.050 (0.0020)
	Cylinder		
	I.D.	50.000-50.010 (1.9685-1.9689)	50.100 (1.9724)
	Piston		
	O.D. at skirt	49.970-49.990 (1.9673-1.9681)	——
	Pin hole I.D.	13.002-13.008 (0.5119-0.5121)	13.050 (0.5138)
	Piston pin O.D.	12.994-13.000 (0.5116-0.5118)	12.900 (0.5079)
	Piston ring travel in groove		
	Top ring	0.030- 0.045 (0.0012-0.0018)	0.130 (0.0051)
	Second ring	0.030- 0.045 (0.0012-0.0018)	0.130 (0.0051)
	Oil ring	——	——
	Piston ring end gap		
	Top ring	0.150- 0.350 (0.0059-0.0138)	0.600 (0.0236)
	Second ring	0.150- 0.350 (0.0059-0.0138)	0.600 (0.0236)
	Oil ring	0.150- 0.400 (0.0059-0.0158)	0.600 (0.0236)
	Connecting rod		
	Small end I.D.	13.005-13.020 (0.5118-0.5120)	——
	Big end side clearance	0.020- 0.070 (0.0008-0.0028)	0.150 (0.0059)
	Big end journal clearance	0.018- 0.048 (0.0007-0.0019)	0.080 (0.0032)

Date of Issue: Feb. 1977

Group	Part and item	Assembly standard		Service limit
Engine (Continue)	Crankshaft journal			
	Clearance	0.020– 0.062	(0.0008–0.0024)	0.080 (0.0032)
	Crankshaft run out	0.03	(0.0012) max.	0.050 (0.0020)
	Thrust bearing thickness	1.430– 1.500	(0.0563–0.0591)	1.300 (0.0512)
	Cam height of camshaft			
	Intake	24.980–25.020	(0.9835–0.9850)	24.930 (0.9815)
	Exhaust	24.980–25.020	(0.9835–0.9850)	24.930 (0.9815)
	Camshaft			
	Journal O.D.	15.966–15.984	(0.6286–0.6293)	15.920 (0.6268)
	Cylinder head camshaft journal hole dia.	16.000–16.018	(0.6299–0.6306)	16.100 (0.6339)
	Valve seat width	0.7	(0.03)	1.500 (0.0600)
	Valve stem O.D.			
	Intake	5.468– 5.480	(0.2153–0.2158)	5.320 (0.2095)
	Exhaust	5.438– 5.450	(0.2141–0.2146)	5.320 (0.2095)
	Valve guide I.D.	5.500– 5.512	(0.2165–0.2170)	5.542 (0.2182)
	Valve-to-valve guide clearance			
	Intake	0.020– 0.044	(0.0008–0.0017)	0.080 (0.0031)
	Exhaust	0.050– 0.074	(0.0020–0.0029)	0.110 (0.0043)
	Valve spring			
	Free length	28.9	(1.1378)	—
	As installed load	8.5–9.5 kg	(18.7–20.9)	—
	Rocker arm shaft			
	O.D.	9.960– 9.975	(0.3921–0.3927)	—
	Shaft hole dia.	10.000–10.030	(0.3937–0.3949)	—
	Rocker arm-to-rocker arm shaft clearance	0.016– 0.052	(0.0006–0.0020)	—
	Oil pump			
	Inner-to-outer rotor radial clearance	0.15	(0.0059) max.	0.20 (0.0079) max.
	Outer rotor O.D.-to-body clearance	0.10–0.12	(0.0390–0.0050)	0.20 (0.0079)
	Rotor-to-body side clearance	0.01–0.07	(0.0004–0.0028)	0.15 (0.0059)
	Thermostat			
	Valve starts opening at 70°C (F)	60–64	(140–147)	—
	Valve fully opens at 70°C (F)	70	(158)	—
	Valve lift	3–4	(0.119–0.157)	—
Frame	Water pump			
	W. pump housing I.D.	35.900–36.100	(1.4134–1.4213)	36.800 (1.4488)
	Displacement			
	ℓ (U.S. gal)/min/rpm	8.4/6000	(2.2)	—
	Drive shaft			
	Upper end of O.D.	22.950–23.000	(0.9035–0.9055)	22.800 (0.8976)
	Pinion shaft			
	Run out	0.002	(0.0001)	0.010 (0.0004)
	Needle roller bearing journal O.D.	14.983–14.994	(0.5899–0.5903)	14.970 (0.5894)

Date of Issue: Feb. 1977

Group	Part and item	Assembly standard		Service limit
Frame (Continue)	Prop. shaft			
	Run out	0.05	(0.0002)	0.020 (0.0008)
	Bevel gear bearing journal O.D.	16.973–16.984	(0.6682–0.6687)	16.960 (0.6677)
	Shaft spline run out at assembly	0.02	(0.0008)	0.050 (0.0020)
	Back lash of pinion and gears	0.05–0.10	(0.0019–0.0039)	—
	Bevel gear			
	I.D.	17.000–17.018	(0.6693–0.6700)	—
	Gear-to-shaft clearance	0.027–0.0340	(0.0011–0.0013)	—
	Shift rod (push rod)			
	O.D.	12.966–12.984	(0.5105–0.5112)	—
	Shaft-to-gear case clearance	0.016–0.0390	(0.0006–0.0015)	—

6. TROUBLE SHOOTING

Trouble		Probable cause	Possible remedy
Engine will not start.	Fuel system	1. No fuel in tank	Refill.
		2. Improper connection of fuel tubes	Check and repair.
		3. Clogging of fuel filter of tank and fuel pump	Check and repair.
		4. Closed pilot screw	Adjust carburetor.
		5. Clogging of carburetor	Check and repair.
		6. Inoperative fuel stop lever	Check and repair carburetor.
		7. Clogging of fuel connectors	Check and repair.
	Electrical System	1. Fouled or damaged spark plug	Replace.
		2. Improper spark plug gap	Adjust to 0.6~0.7 mm (0.0236~0.0276 in.)
		3. High-tension wire leak	Replace ignition coil.
		4. Defective points	Adjust.
		5. Stop switch wire shorted	Repair or replace.
	Others	1. Failure to pull recoil starter rope properly	Pull briskly with a full-arm stroke.
Engine starts but stops immediately. Sometimes engine stops during operation.	Fuel system	1. Insufficient fuel in tank	Add.
		2. Water in fuel	Change fuel.
		3. Closed pilot screw	Adjust carburetor.
		4. Too low idle speed	Adjust carburetor.
		5. Clogging of carbureter	Check and repair carburetor.
		6. Clogged float bowl vent	Check and repair
		7. Inoperative fuel pump	Check and repair.
		8. Inoperative fuel stop lever	Check and repair.
	Electrical system	1. Engine stop switch shorted	Check and repair.
		2. Defective high-tension wire	Replace ignition coil.
		3. Defective coil and condenser	Replace coil or condenser,
		4. Defective points	Adjust or replace.
		5. Defective spark plug	Replace.
		6. Loose spark plug cap	Check and retighten.
		7. Incorrect ignition timing	Adjust.
	Others	1. Clogging of water pipe	Check and repair.
		2. Defective thermostat	Repair or replace.
		3. Overheating due to defective water pump	Repair or replace.

Date of Issue: Oct. 1975

7. SPECIFICATIONS

Dimension	Overall length Overall width Overall height (S) (L)	530 mm (20.9 in.) 315 mm (12.4 in.) 1,010 mm (39.8 in.) 1,160 mm (45.7 in.)
Weight	Dry weight (S) (L)	30.5 kg (67.3 lb.) 32.0 kg (70.6 lb.)
Engine	Total displacement Bore and stroke Engine type Compression ratio Compression pressure Maximum power output Valve timing Inlet (open) (close) Exhaust (open) (close) Valve tappet clearance Contact breaker point gap Idle speed Full throttle range Lubrication method Lubricating oil (Engine) Upper level Lower level Oil filter method Starting method Cooling method Water pump method Exhaust method Fuel pump method Lubrication oil (Gear case)	149 cc (9.1 cu. in.) 50×38 mm (1.969×1.496 in.) 4-cycle, 2-cylinder, O.H.C. 8.2 12.2/1200 kg/cm²-rpm (173.5 lbs/in²) 7.5/6000 ps/rpm 10° (after top dead center) 20° (after bottom dead center) 30° (befere bottom dead center) 10° (before top dead center) IN: 0.06 mm, EX: 0.06 mm (IN: 0.002 in., EX: 0.002 in.) 0.3 - 0.4 mm (0.012 - 0.016 in.) 1,200 rpm 5,500 - 6,000 rpm Forced lubrication by trochoid pump 0.8 lit. (0.8 U.S. qt.) 0.35 lit. (0.37 U.S. qt.) Screen filter Recoil starter Water cooled Volumetric type Exhaust in water Diaphragm fuel pump 0.18 lit. (0.19 U.S. qt.)
	Gear ratio	13 : 25
Fuel equipment	Fuel tank type Capacity Fuel gauge Fuel filter Carburetor Type Air valve method Main jet (MJ) Air jet (AJ) Fuel height	Tank with - operated pump 13 lit. (3.4 U.S. gal.) Tank cap Screen filter Downdraft Butterfly type #78 #120 7.0 mm (0.28 in.)
Electrical equipment	Voltage Ignition system Type Ignition time (BTDC/rpm) Ignition sequence Spark plug Make Type Screw Spark plug gap Ignition system Generator type Output	6V Flywheel magneto 15° - 30° BTDC Cooperative 360° NGK D-5HS 12 mm p1.25 mm 0.6 - 0.7 mm (0.02 - 0.03 in.) Flywheel A.C. generator 6V - 15W
Propeller	No. of blades - diameter × pitch	3 - 240×210 mm (9.4×8.3 in.) 2 - 240×240 mm (9.4×9.8 in.) optional

Date of Issue: Feb. 1977

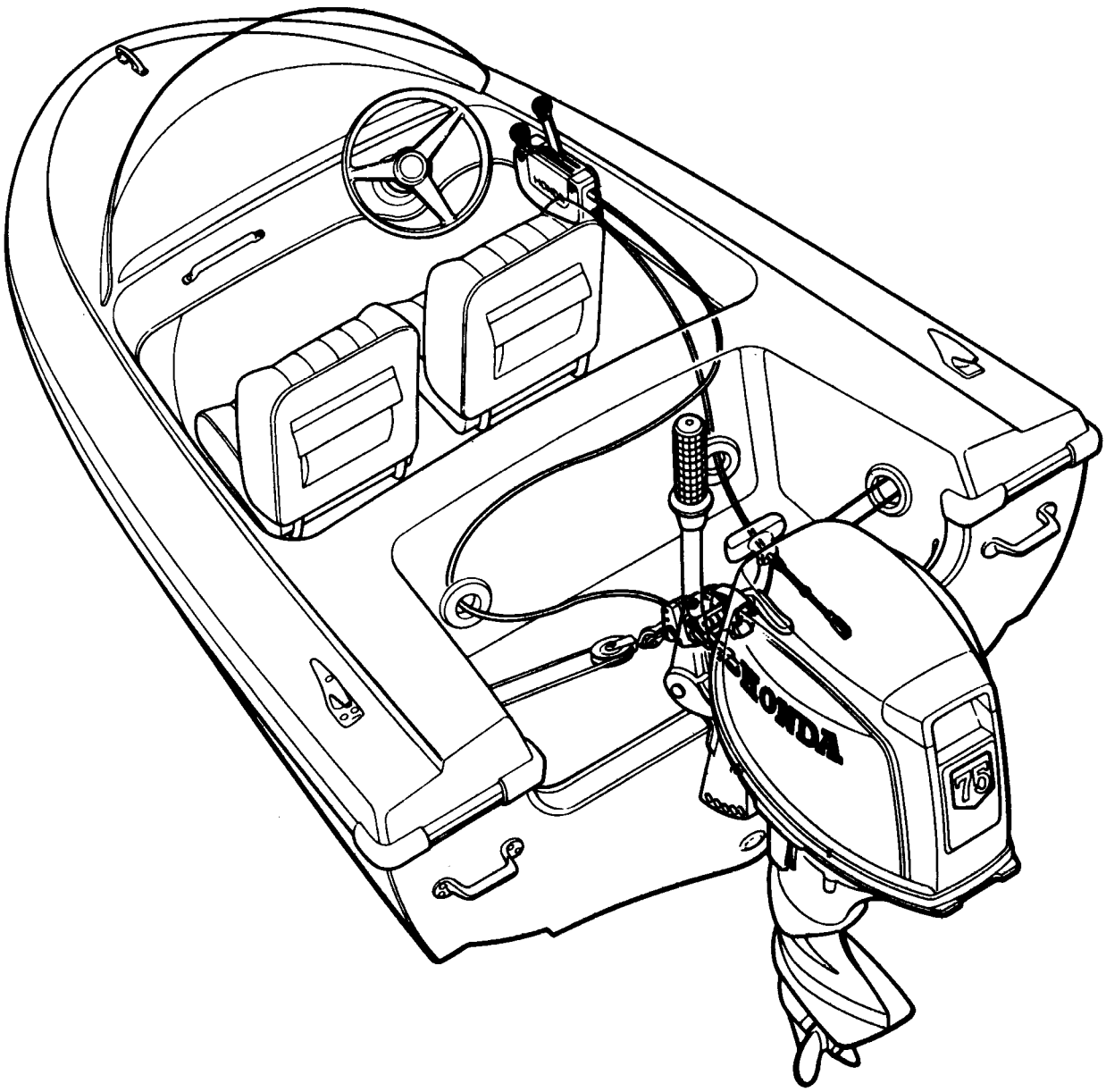
1 THE 9 RULES FOR EFFECTIVE SERVICE WORK

The following precautions and safe practices are recommended by HONDA whenever perform service work.

1. Use genuine HONDA or HONDA-recommended parts and lubricants or their equivalent when servicing.
2. Be sure to use the special tools designed for this outboard motor.
3. Install new gaskets, O-rings, cotter pins, lock plates, etc. when reassembling.
4. When torquing bolts or nuts, begin with larger-diameter or inner bolt first, and tighten them to specified torque diagonally.
5. Clean the engine and transmission parts in cleaning solvent upon disassembly. Coat the bearing surfaces with a good-quality lubricant when reassembling them.
6. Grease parts by coating or filling with Marine type anti-corrosion lubricants.
7. After reassembling, check to be sure each part is properly tightened without any sign of distortion or cracking.
8. When working with another person, each person is responsible for his own safety as well as the safety of his partner.
9. Use only metric tools when servicing this outboard motor. Metric bolts, nuts, and screws are not interchangeable with English fasteners. The use of incorrect tools and fasteners will cause unsatisfactory performance and unnecessary expense.

Date of Issue: Feb. 1977

9 REMOTE CONTROL (Optional)



Date of Issue: Feb. 1977

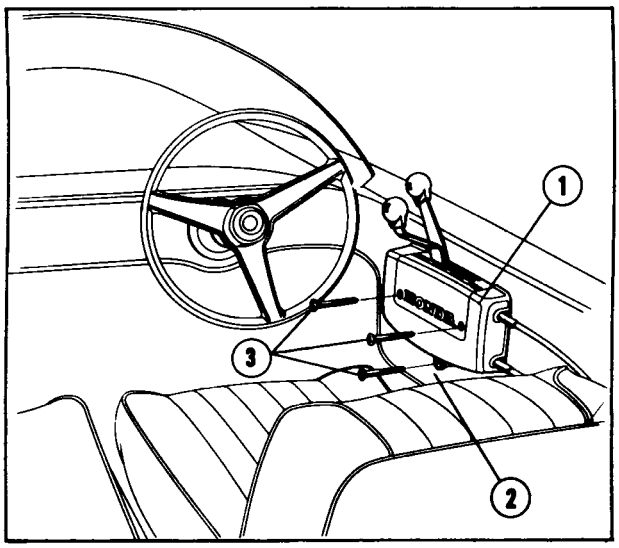


Fig. 9-1 ① Remote control box
② Remote control box mounting board
③ Wood screw

INSTALLATION

1. Install the remote control box on the remote control box mounting board by using wood screws.

   Note:

   The remote control box may also be installed on the port side of the boat. In this case lead the cables out of the box from the opposite side and replace the remote control box mark with the one for L/H side.

   Caution

   * Tighten wood screws firmly.
   * Select a position on the mounting board where control is maneuverable for installation.

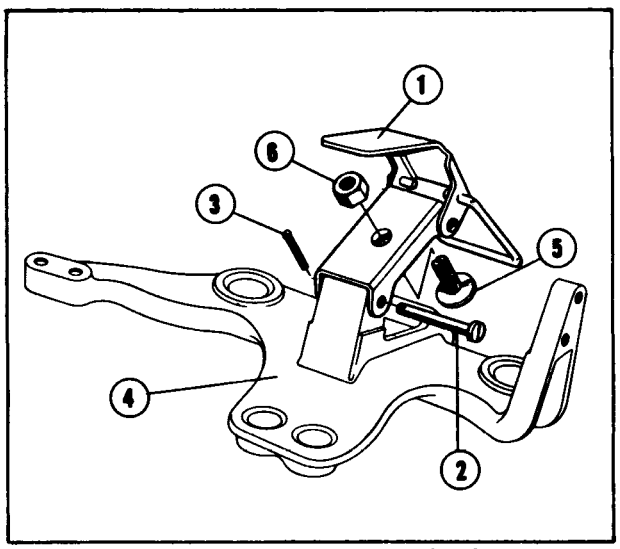


Fig. 9-2 ① Clamp ④ Steering bracket
② Clamp pin ⑤ Adjust screw
③ Split pin ⑥ 6 mm lock nut

2. Install the clamp on the steering bracket by using a clamp pin and a split pin.

3. Screw the adjust screw into the clamp and install a 6 mm lock nut.

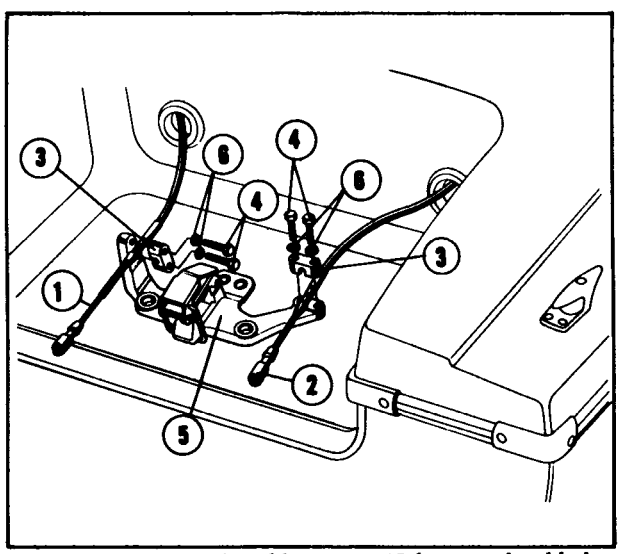


Fig. 9-3 ① Throttle cable ④ 6×25 hexagon head bolt
② Shift cable ⑤ Steering bracket
③ Holder ⑥ 6 mm plain washer

4. Connect the throttle cable and shift cable to the steering bracket by using holders and 6×25 hexagon head bolts.

Date of Issue: Oct. 1975

5. Do not oppositely connect throttle cable and shift cable to the steering bracket.

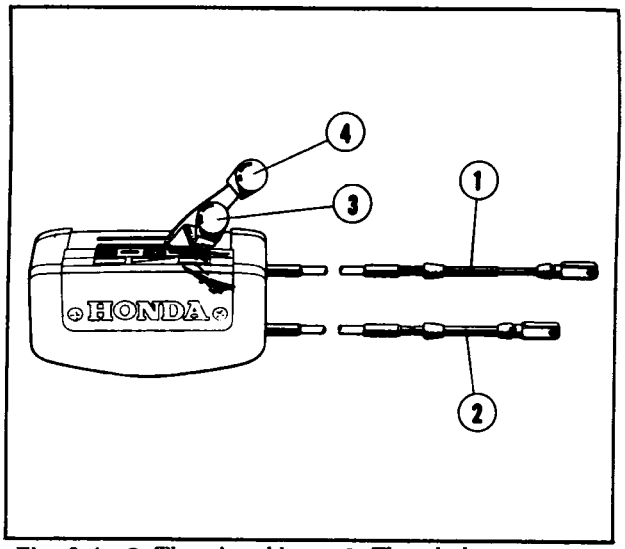


Fig. 9-4 ① Throttle cable ③ Throttle lever
② Shift cable ④ Shift lever

6. Install the bracket guide on the carrying handle by using a 6×18 cross screw.

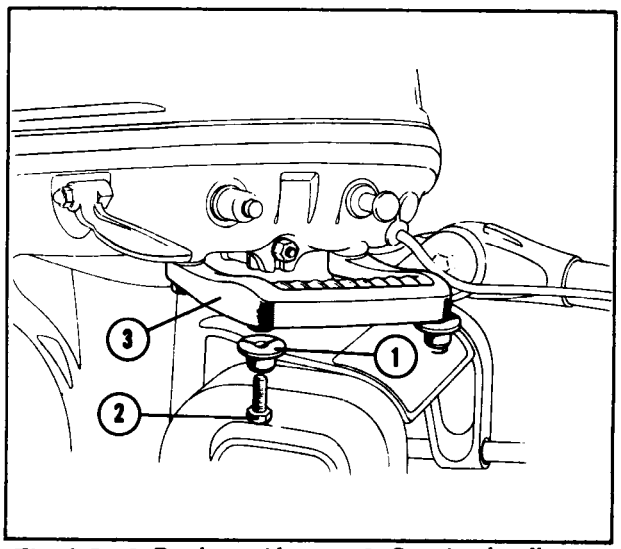


Fig. 9-5 ① Bracket guide ③ Carrying handle
② 6×18 hexagon head bolt

7. Remove the end stopper and disconnect the throttle cable from the throttle arm.
8. Remove the grommet from the oil case.

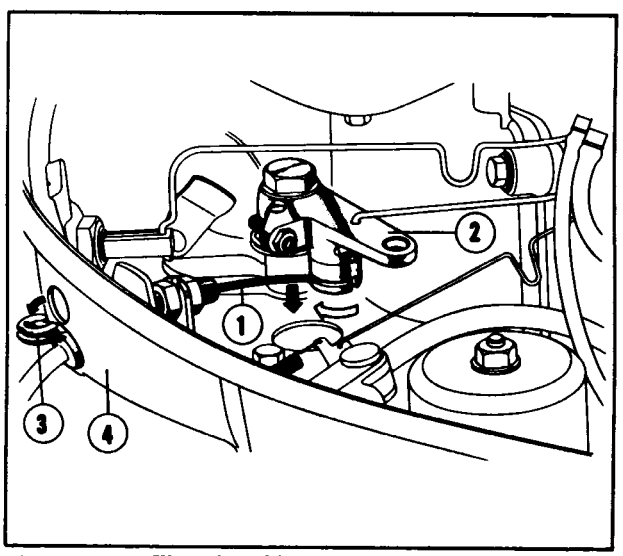


Fig. 9-6 ① Throttle cable ③ Grommet
② Throttle arm ④ Oil case

Date of Issue: Oct. 1975

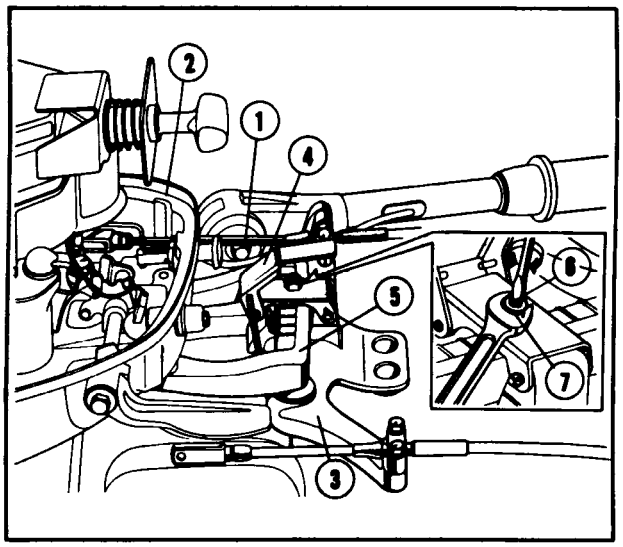


Fig. 9-7 ① Throttle cable ⑤ Carrying handle
② Oil case ⑥ Adjust screw
③ Steering bracket ⑦ 6 mm lock nut
④ Clamp

9. Adjustment of steering bracket.

Put the throttle cable through the hole in the oil case. Fit the steering bracket on the bracket guide and fix the bracket on the carrying handle.

Make adjustment so that the steering bracket is firmly fixed on the carrying handle.

To make adjustment, loosen 6 mm lock nut and turn the adjust screw.

Be sure to completely tighten the lock nut after adjustment.

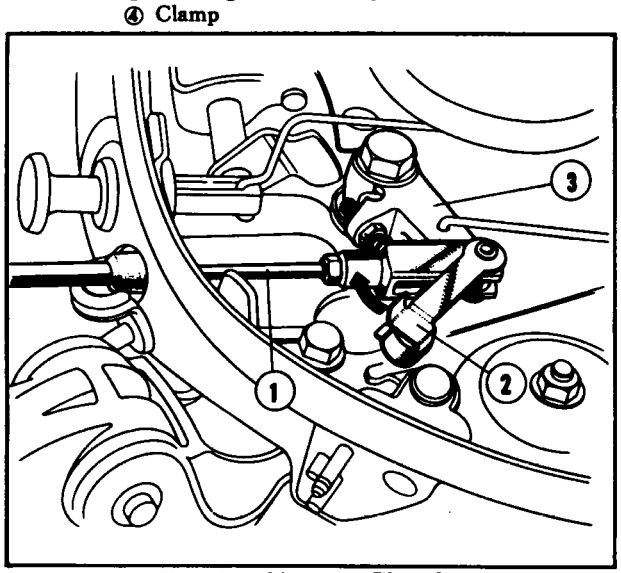


Fig. 9-8 ① Throttle cable ③ Throttle arm
② Cable clamp

10. Connect the throttle cable to the throttle arm by using a cable clamp.

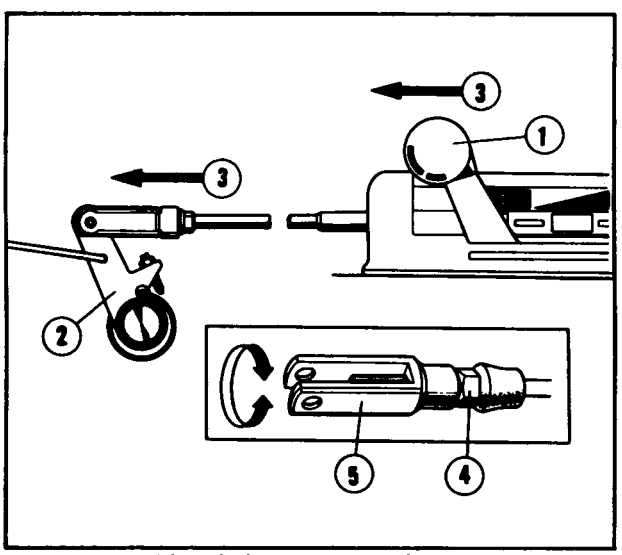


Fig. 9-9 ① Throttle lever ④ Lock nut
② Throttle arm ⑤ Cable end
③ Return

11. Adjustment of the throttle cable.

Fully back off the throttle lever to "SLOW" side and make adjustment so that the throttle arm fully returns.

To make adjustment, loosen the lock nut and turn the cable end.

Date of Issue: Oct. 1975

12. Loosen the 6 mm cap nut and remove the shift lever invisible from the engine.
13. Install the shift lever on the shift lever shaft by using the shift lever click and a 6 mm cap nut.

Caution

* Exercise care not to miss out the pin of the shift lever shaft.

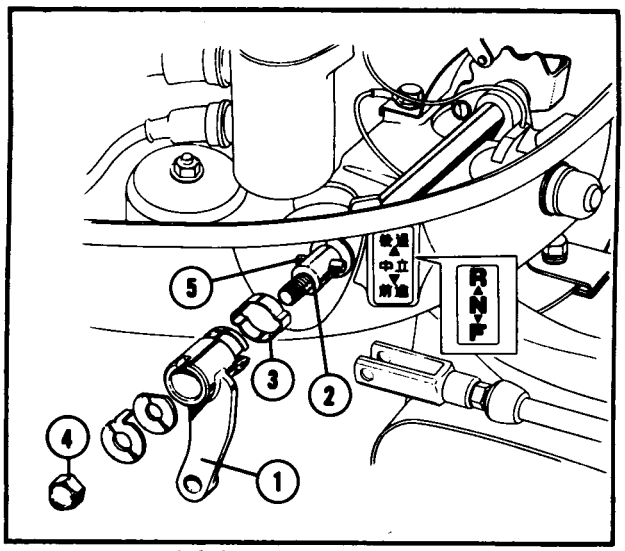


Fig. 9-10 ① Shift lever ② Shift lever shaft ③ Shift lever click ④ 6 mm cap nut ⑤ Pin

14. Connect the shift cable to the shift lever by using the cable clamp.

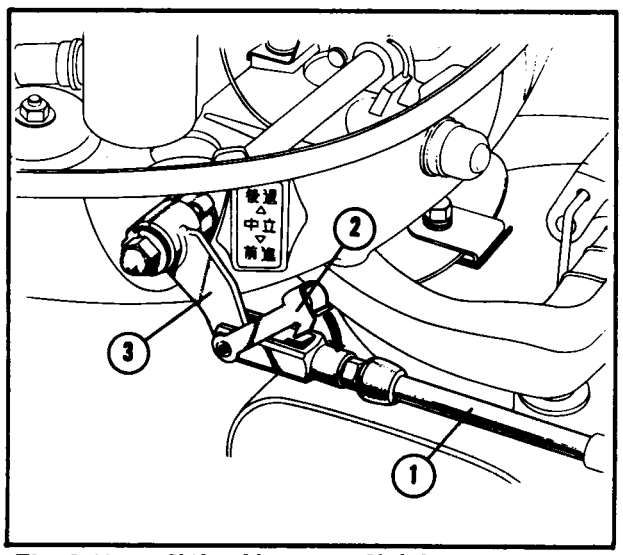


Fig. 9-11 ① Shift cable ② Cable clamp ③ Shift lever

15. Adjustment of shift cable.

    Place the shift lever in "R" (reverse) position and make adjustment so that the shift cable is free from slack. Loosen the lock nut and turn the cable end to make adjustment.

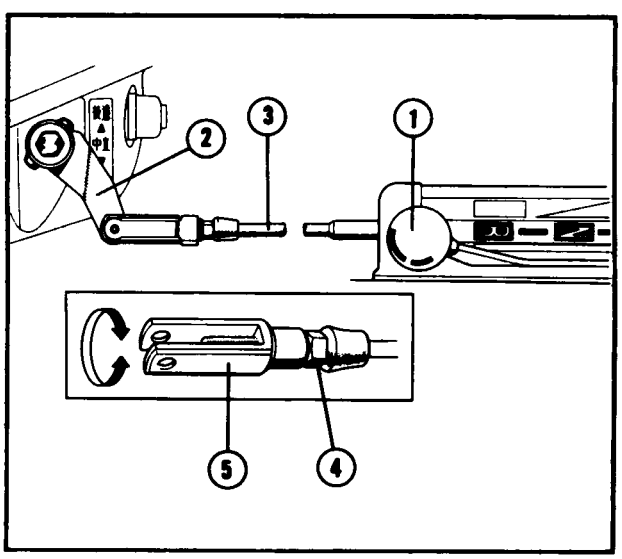


Fig. 9-12 ① Shift lever ② Shift lever (for remote control) ③ Shift cable ④ Lock nut ⑤ Cable end

Date of Issue: Oct. 1975

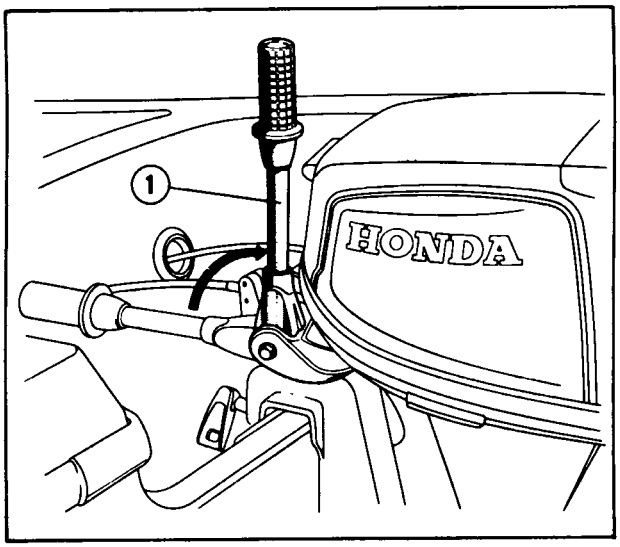


Fig. 9-13 ① Steering handle

16. Place the steering handle in upright position.
17. Install the steering control ropes.

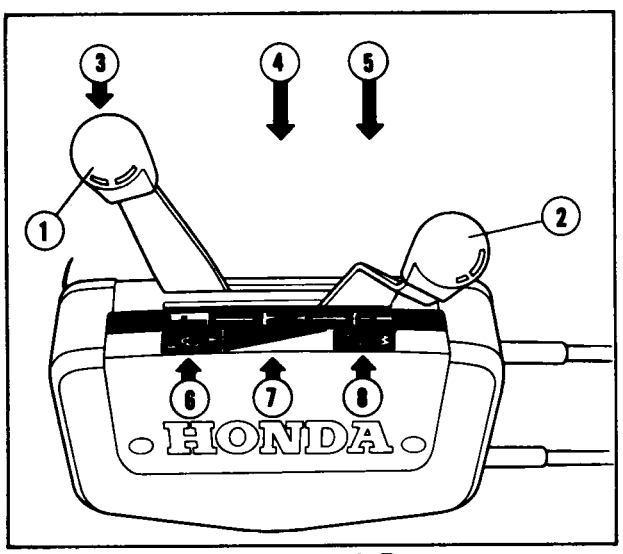


Fig. 9-14 ① Shift lever ② Throttle lever ③ Forward ④ Neutral ⑤ Reverse ⑥ FAST ⑦ Starting position ⑧ SLOW

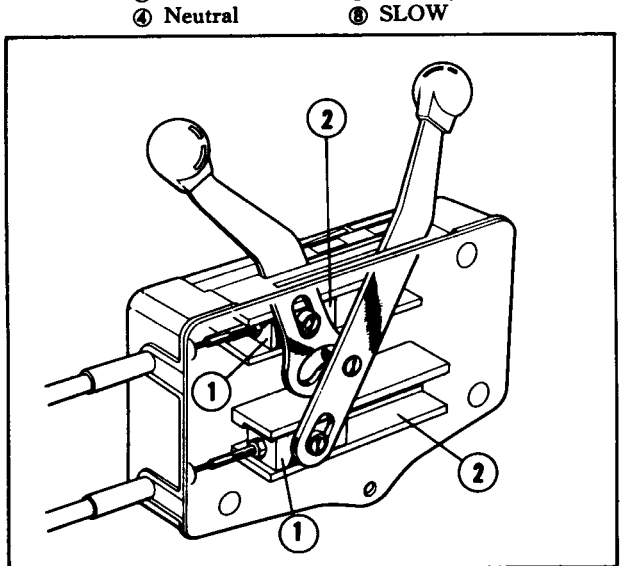


Fig. 9-15 ① Slider ② Apply grease

OPERATION

1. Throttle Lever
   The engine speed increases when the throttle lever is turned to "FAST" side and the engine speed drops when the lever is moved to "SLOW" side. Place the lever in the intermediate position when starting the engine.

2. Shift Lever
   Either forward, neutral or reverse can be selected by the shift lever. "F" position is for forward movement; "N" position is neutral and "R" position is for reverse.
   Move the shift lever gently after fully pulling the throttle lever to "SLOW" side.

Caution

* Make sure to lower the engine speed before attempting to make gearshift.
* The throttle will not be fully opened because of a safety device when the shift lever is in either "N" or "R" position. Do not force the throttle lever to "FAST" side when the shift lever is in either "N" or "R" position.

LUBRICATION

Apply grease on the slider section in the remote control box once every year.
Recommended grease: Outboard motor grease

Date of Issue: Oct. 1975

SHOP MANUAL

HONDA OUTBOARD MOTOR

B75K3

〈SUPPLEMENT〉

This supplement describes the major differences on the HONDA outboard engine B75 K3 (F/No. 4000001~) from the model B75 K2.

For further service information which is not covered in this supplement, refer to the HONDA B75 K2 SHOP MANUAL (Code No. 6193502).

All information, illustrations and specifications contained in this supplement are based on the latest product information available at the time of publication approval. Honda is reserves the right to make any changes at any time without notice and obligation.

HONDA MOTOR CO., LTD.
Service Publications Office

Date of Issue: Nov. 1976

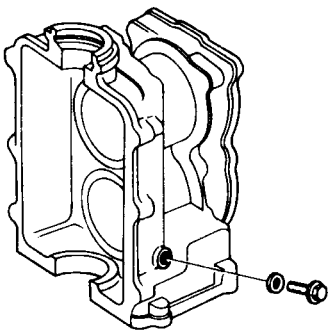
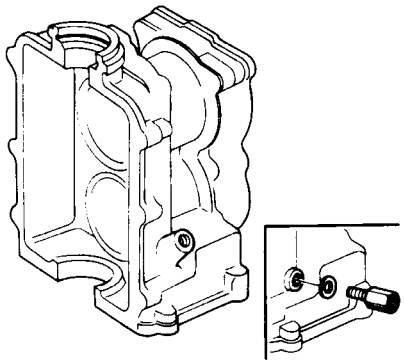
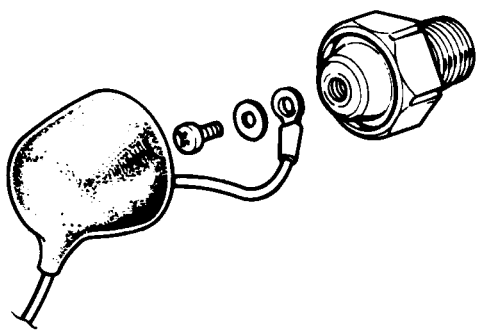
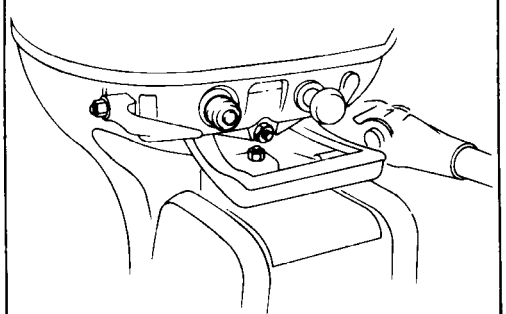
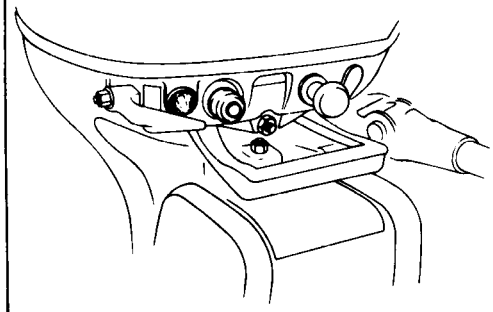
SPECIFICATIONS

		B75K2	B75K3
Dimension	Overall length Overall width Overall height (S) (L)	530 mm (20.9-in.) 315 mm (12.4-in.) 1,010 mm (39.8-in.) 1,160 mm (45.7-in.)	Same as B75K2
Weight	Dry weight (S) (L)	30.5 kg (67.3 lb.) 32.0 kg (70.6 lb.)	Same as B75K2
Engine	Total displacement Bore and stroke Engine type Compression ratio Compression pressure Maximum power output Valve timing Intake (open) (close) Exhaust (open) (close) Valve tappet clearance Contact breaker point gap Idle speed Full throttle range Lubrication method Lubricating oil (Engine) Upper level Lower level Oil filter Starter Cooling system Water pump Exhaust Fuel pump	149 cc (9.1 cu.in.) 50 x 38 mm (1.969 x 1.496-in.) 4-cycle, 2-cylinder, O.H.C. 8.2 12.2/1200 kg/cm²-rpm (173.5 lbs/in²) 7.5/6000 ps/rpm 10° (after top dead center) 20° (after bottom dead center) 30° (before bottom dead center) 10° (before top dead center) IN: 0.06 mm, EX: 0.06 mm (IN: 0.002-in., EX: 0.002-in.) 0.3–0.4 mm (0.012–0.016-in.) 1,200 rpm 5,500–6,000 rpm Forced lubrication by trochoid pump 0.8 lit. (0.8 U.S.qt.) 0.35 lit. (0.37 U.S.qt.) Screen filter Recoil starter Water cooled Volumetric type Exhaust in water Diaphragm fuel pump	Same as B75K2
Fuel equipment	Fuel tank type Capacity Fuel gauge Fuel filter Carbureter Type Air valve method Main jet (MJ) Air jet (AJ) Fuel height	Tank with hand pump 13 lit. (3.4 U.S.gal.) Tank cap Screen filter Downdraft Butterfly type #78 #120 7.0 mm (0.28-in.)	Same as B75K2
Electrical equipment	Ignition system Type Ignition time (BTDC/rpm) Ignition sequence Spark plug Make Type Screw Spark plug gap Charging system Generator type Output	 Flywheel magneto 15°–30° BTDC Cooperative 360° NGK D-5HS 12 mm pl. 25 mm 0.6–0.7 mm (0.02–0.03-in.) Flywheel A.C. generator 6V–15W (A.C.)	(change) 12V 50W (D.C.)
Lower unit	Propeller No. of blades -dia. x pitch Rotating direction Clutch method Reduction ratio Gear case oil	 3–240 x 210 mm (9.4 x 8.3-in.) 2–240 x 240 mm (9.4 x 9.8-in.) Clockwise Dog type (Forward–Neutral–Reverse) 12 : 33 0.18 lit. (0.19 U.S.qt.)	Same as B75K2

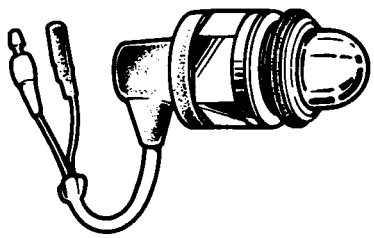
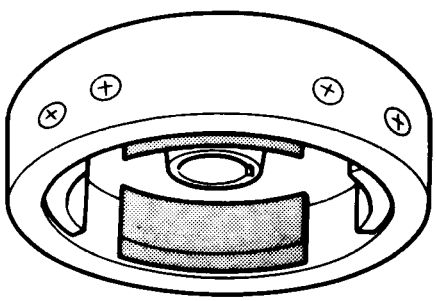
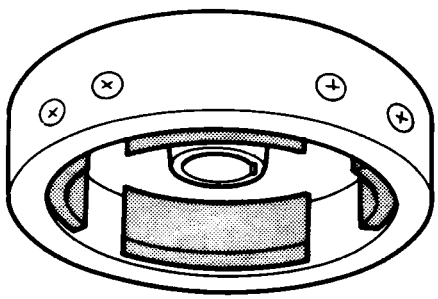
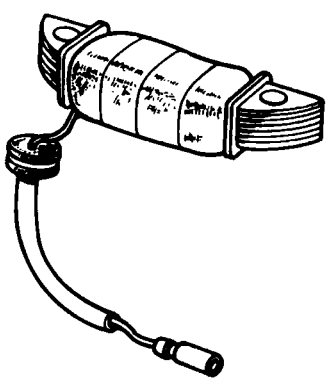
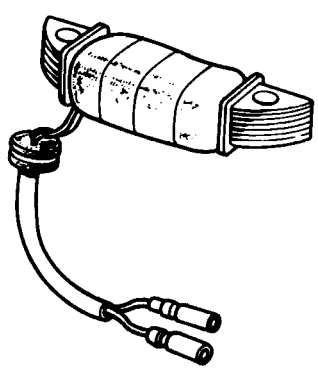
*DC of K3 is taken out by use of the optional consent and silicon rectifier.

Date of Issue: Feb. 1977

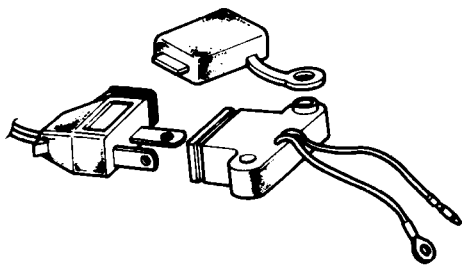
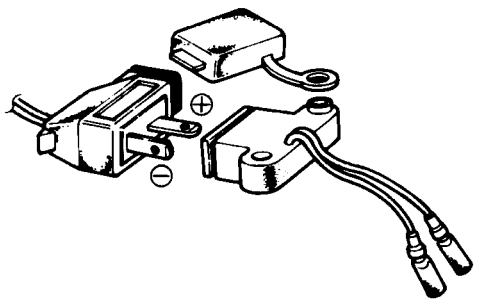
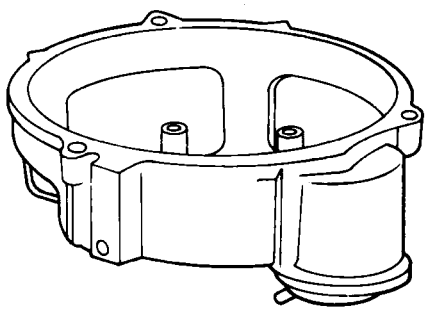
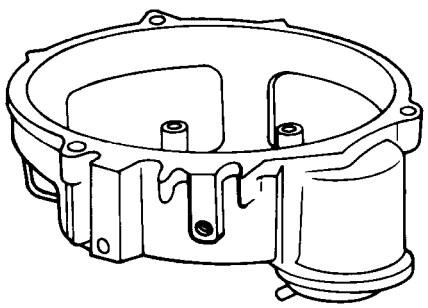
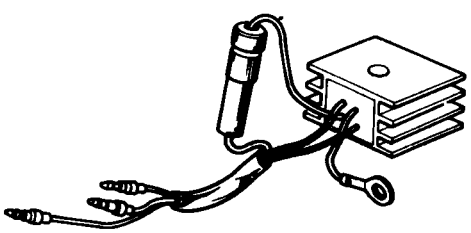
MAJOR MODIFICATIONS

	B75K2	B75K3
1. Cylinder Barrel comp.	 • Oil level bolt is installed.	 • Add the boss for installation of oil pressure switch. • NOTE: The adapter should be installed when the oil pressure switch is installed to the B75 K2 cylinder.
2. Oil pressure Switch		 • Add to the cylinder barrel. • Operating pressure: 0.2–0.4 kg • Normal : ON Abnormal: OFF • Tightening torque: 0.7–1.0 kg-m
3. Oil Case		 • Hole for installation of indicator lamp is added.

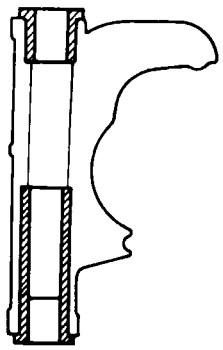
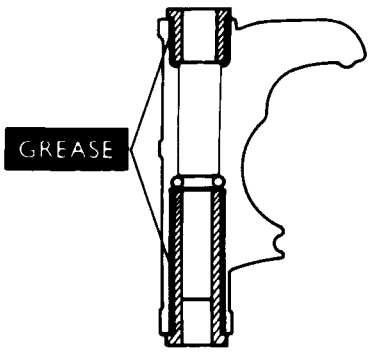
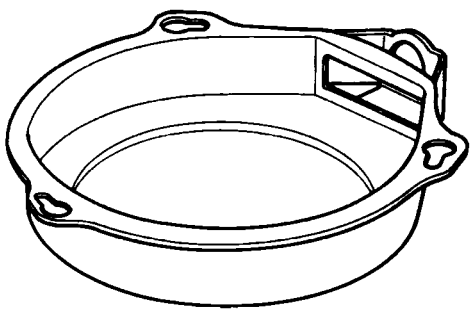
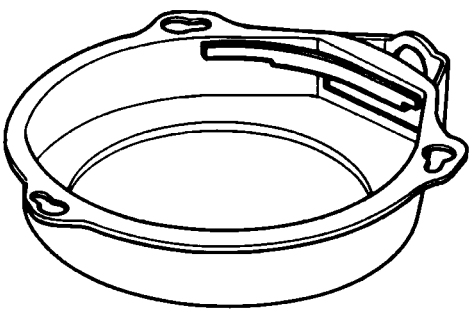
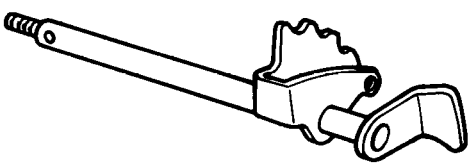
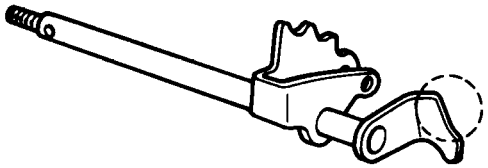
Date of Issue: Oct. 1976

	B75K2	B75K3
4. Indicator Lamp		 • Add for oil pressure warning. • Capacity: AC 12V 3.4W
5. Flywheel Magneto	 • Magnetic poles: 2 poles • Material: Pressed steel	 • Magnetic poles: 4 poles • Material: Cast iron
6. Charging Coil	 • Provision for optional parts. • Capacity: AC 6V 15W	 • Standard equipment. • Capacity: DC 12V 50W: in conjunction with optional rectifier. • Used for lighting the indicator lamp and generating the DC output.

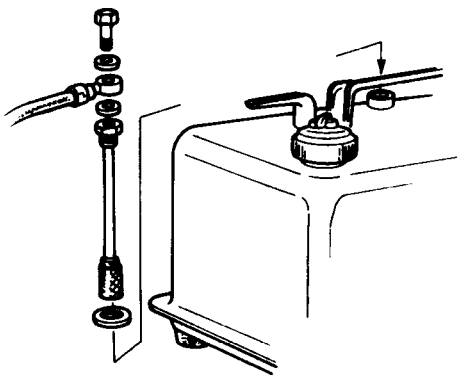
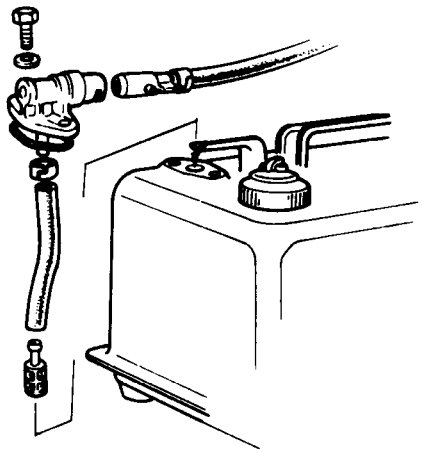
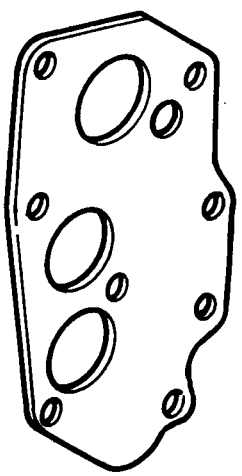
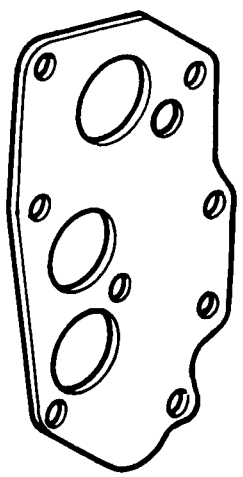
Date of Issue: Oct. 1976

	B75K2	B75K3
7. Consent assy.	 • Provision of optional parts.	 • Provision of optional parts. • The connector features have changed.
8. Starter Case comp.		 • Add the boss for installation of the silicon rectifier.
9. Silicon Rectifier comp.		 • Provision for optional parts • For use of the DC output. • Fuse capacity: 5A

Date of Issue: Oct. 1976

	B75K2	B75K3
10. Swivel Case		 • Add the O-ring. (Replace it when disassembling.) • Apply grease between the bushing and swivel case.
11. Recoil Starter Case		 • To return the rope easily, add the guide.
12. Shift Shaft	 • Engine rpm (Reverse): 3800 rpm	 • To improve the reverse speed, change the cam profile. • Engine rpm (Reverse): 4400 rpm

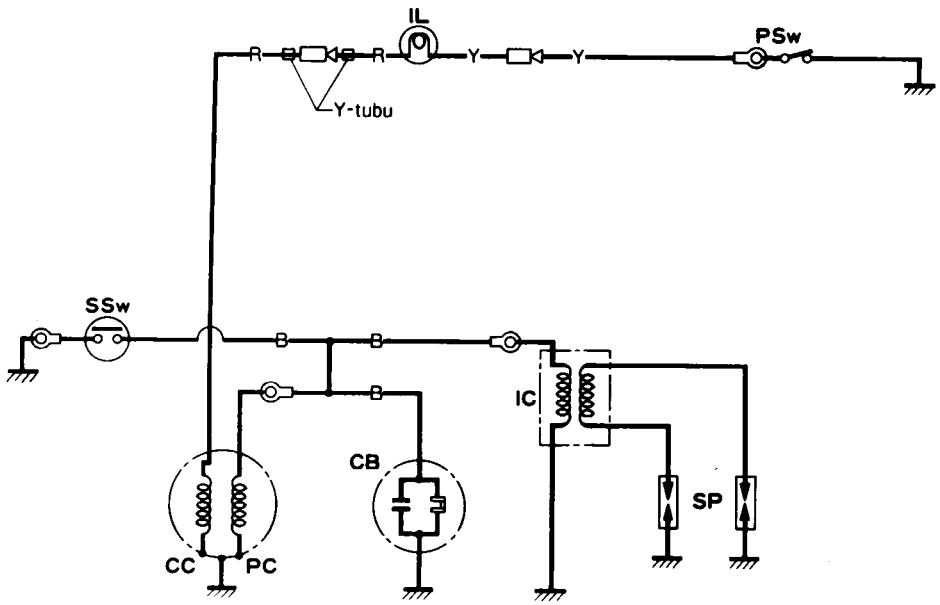
Date of Issue: Oct. 1976

	B75K2	B75K3
13. Fuel Joints and Fuel Tank comp.	 • Fixing the fuel line: Bolts tightening type	 • Fixing the fuel line: Fuel joints type
14. Exhaust Pipe	 • Material: Brass	 • Material: Stainless steel • The features have changed.
15. Exhaust Chamber Plate	 • Material: Aluminum	 • Material: Stainless steel

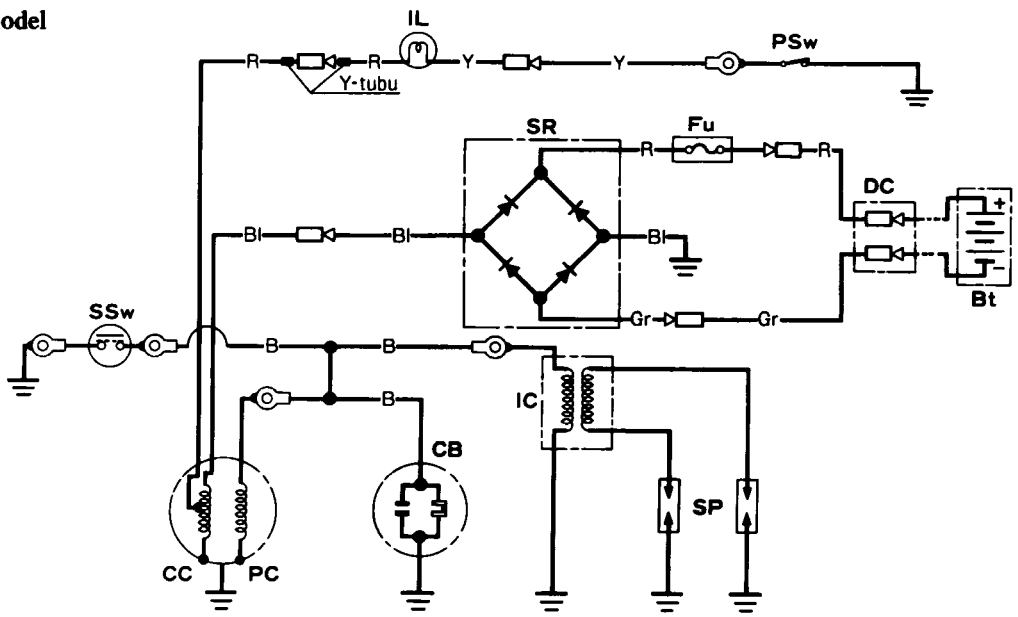
Date of Issue: Oct. 1976

WIRING DIAGRAM

Standard model



DC output (Optional) equipped model



Code	Description	Code	Description
Bt	Battery	SP	Spark Plug
CB	Contact Breaker	SR	Silicon Rectifier
CC	Charging Coil	SSw	Engine Stop Switch
DC	DC Consent		
Fu	Fuse	B	Black
IC	Ignition Coil	Bl	Blue
IL	Indicator Lamp	Gr	Green
PC	Primary Coil	R	Red
PSw	Oil Pressure Switch	Y	Yellow

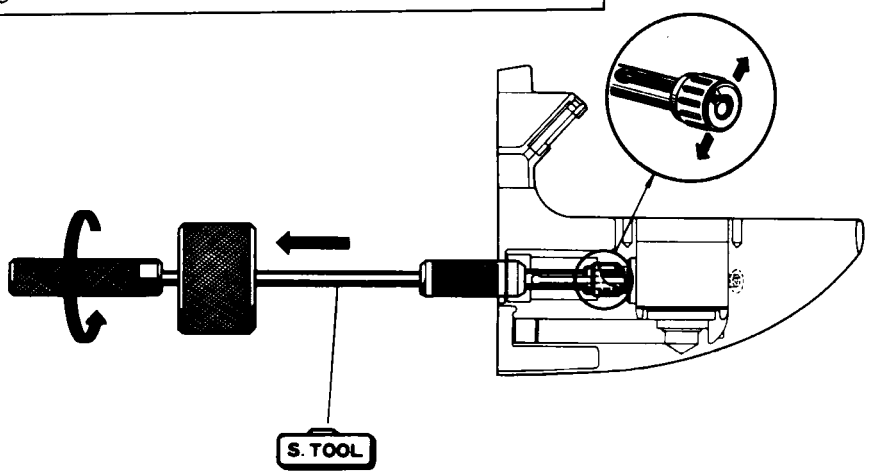
Date of Issue: Oct. 1976

SPECIAL TOOLS

* These special tools have been added to the B75 Sr cial Tool Set.

1. Removing the needle bearing of the gear case.

* After inserting the head into the bearing, turn the grip clockwise to grasp it.
Strike the weight against the grip and remove the bearing.



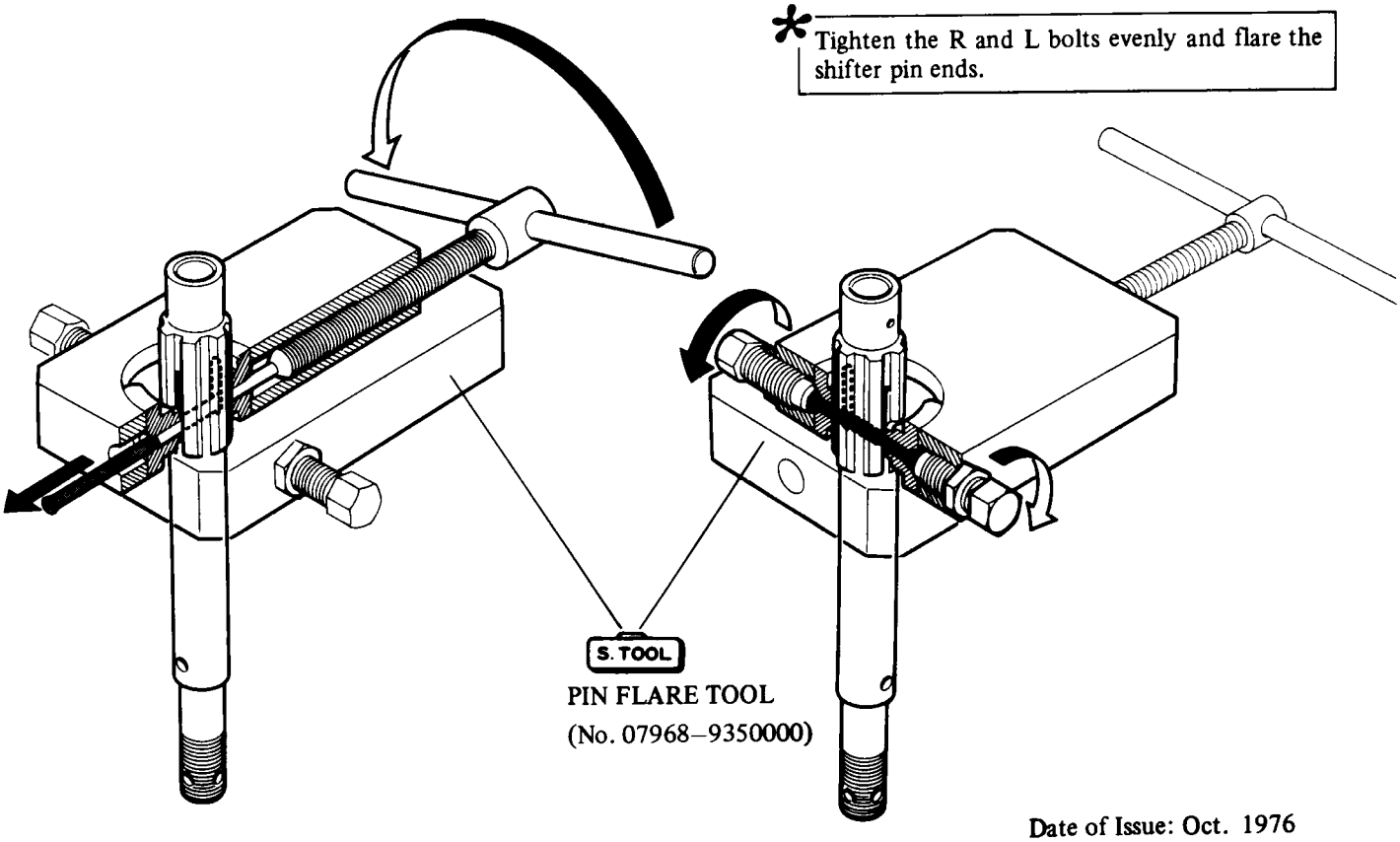
BEARING REMOVER SET
(No. 07936–9350000)

2. Replacing the shifter pin of the propeller shaft.

Removal

Installation

* Tighten the R and L bolts evenly and flare the shifter pin ends.



PIN FLARE TOOL
(No. 07968–9350000)

Date of Issue: Oct. 1976