

LEAF VALVES

The leaf valves time the injection of the fuel mixture into the crankcase by opening only when the pressure in the crankcase has dropped to a predetermined point on the compression stroke. See Figure 3-1.

CHOKE

The carburetor is fitted with a manual choke to reduce the ratio of air to fuel for cold starts. A choke valve in the air inlet of the barrel is mounted on the choke shaft. When the choke knob is pushed in, the valve is held open, allowing air to pass freely through the inlet. When the choke knob is pulled out, the valve is closed, restricting the flow of air to the carburetor.

REMOVAL OF CARBURETOR AND LEAF VALVE ASSEMBLY

- a. Remove motor cover.
- b. Pull off high and low speed knobs. Remove cotter and hinge pin to remove choke knob. See Figure 3-2.

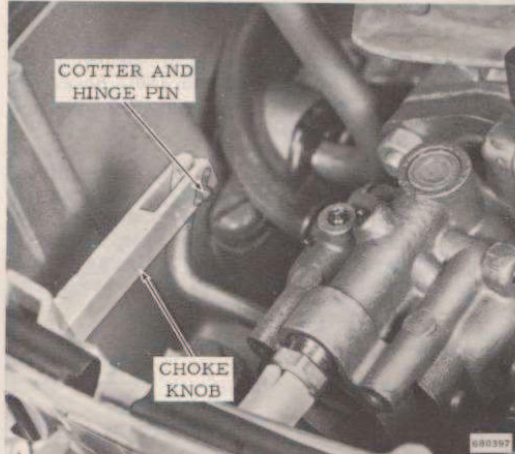


Figure 3-2. Remove Choke Knob

- c. Remove cam follower.
- d. Disconnect fuel hose at carburetor. See Figure 3-3.
- e. Remove carburetor by removing the two attaching nuts. See Figure 3-3.
- f. Remove four intake manifold capscrews. See Figure 3-3. Remove manifold, gaskets and leaf

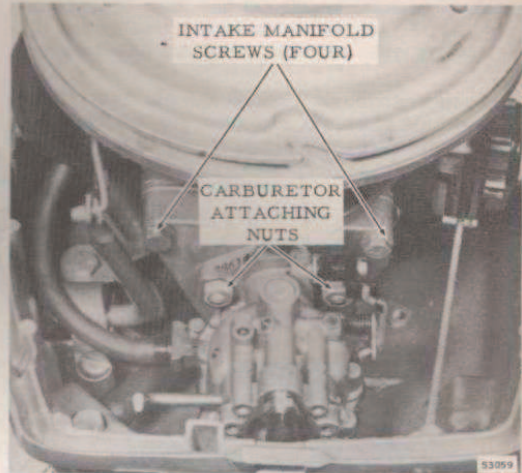


Figure 3-3. Carburetor Attaching Nuts

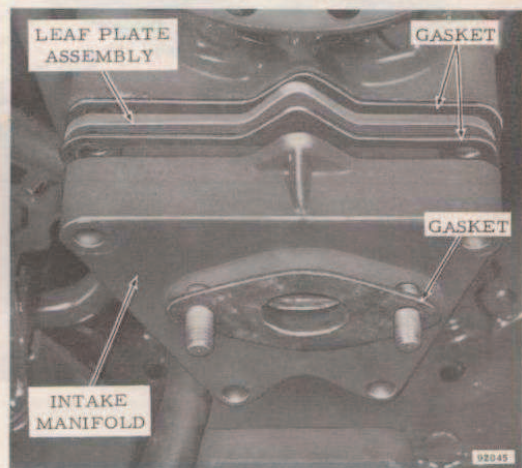


Figure 3-4. Removing Manifold and Leaf Plate Assembly

CARBURETOR DISASSEMBLY

- a. Remove packing nut and high speed needle. Drain carburetor.
- b. Remove float chamber by removing five screws attaching carburetor body to float chamber.
- c. Remove low-speed packing nut, then remove needle valve. Remove packing from carburetor body, using care to avoid damaging threads in carburetor body and float chamber.
- d. Remove hinge pin, float, and float valve, and unscrew valve seat and gasket.
- e. Remove high-speed nozzle and boss gasket. See

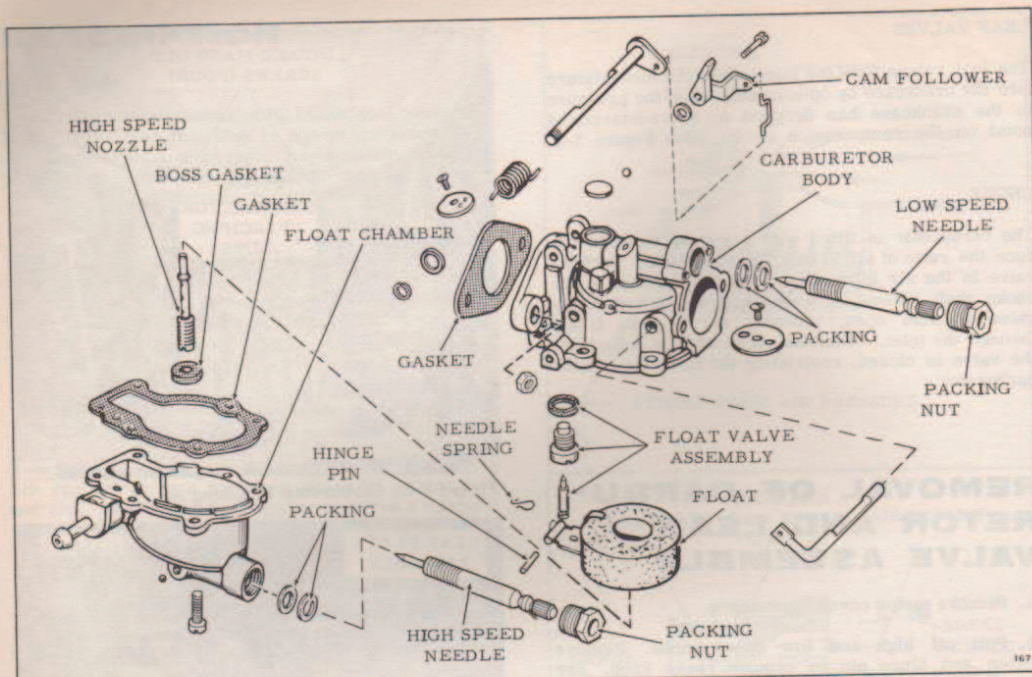


Figure 3-5. Carburetor Assembly

CLEANING, INSPECTION, AND REPAIR

GENERAL INSTRUCTIONS

Clean all parts, except cork float, in solvent and blow dry. DO NOT dry parts with a cloth as lint may cause trouble in the reassembled carburetor. Be sure all particles of gaskets are removed from gasket surfaces. Flush out passages in the carburetor body and float chamber with solvent and remove any gummy deposits with OMC Accessory Engine Cleaner. Certain solvents will not remove this gum which accumulates particularly in the float chamber and on the needle valves.

FLOAT AND NEEDLE VALVE

a. Inspect float and arm for wear or damage. If the cork float has become oil-soaked, discard it and install a new one. Check float arm wear in the hinge pin and needle valve contact areas, and replace if necessary.

b. Inspect hinge pin for wear, which may result from excessive vibration. Replace if necessary.

c. Inspect the float needle valve for grooves, nicks, or scratches; if any are found replace float valve

assembly. See Figure 3-6. Gum or varnish on the needle valve may be removed with OMC Accessory Engine Cleaner. DO NOT attempt to alter the shape of the needle valve or seat.

d. Check the needle valve seat with a magnifying glass; if seat is nicked, scratched, or worn out-of-round, it will not give satisfactory service. The valve seat and needle are a matched set; if either is worn, both parts must be replaced. Use a new gasket when reinstalling the needle seat. See Figure 3-7.

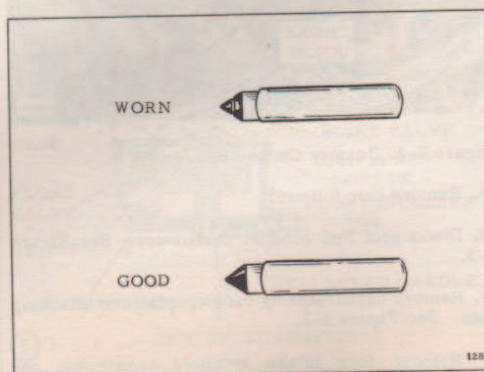


Figure 3-6. Inlet Needle Valve Wear

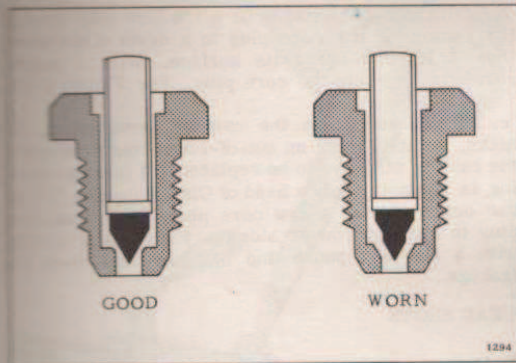


Figure 3-7. Inlet Needle Valve Seat Wear

NEEDLE VALVES

a. Inspect the tapered end of the needle valves for grooves, nicks, or scratches; replace if necessary. See Figure 3-8.

b. DO NOT attempt to alter the shape of the needle valves.

LEAF VALVES

a. Inspect the leaf valve assembly and disassemble if necessary. The leaf valves must be free from all

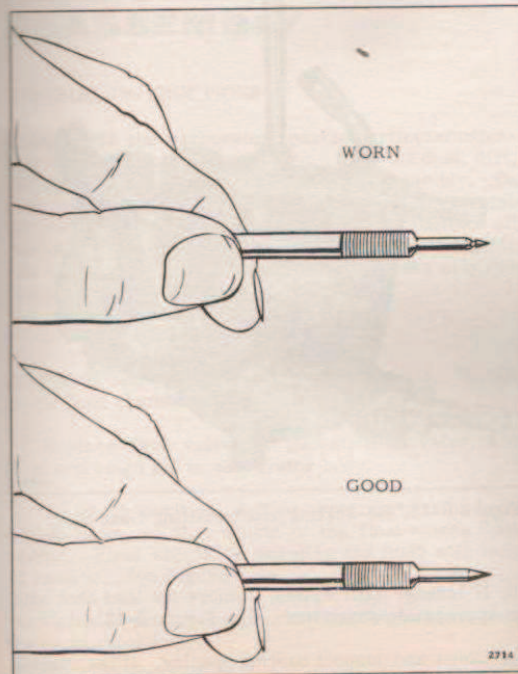


Figure 3-8. Needle Valve Wear

varnish and gum, and the leaves must be perfectly flat and without distortion so that they form a perfect seal with the leaf plate base. See Figure 3-9.

b. DO NOT attempt to bend or repair a damaged leaf; replace the complete assembly if damaged. DO NOT under any circumstances bend or flex the leaves by hand.

c. Replace the leaf stop if any leaves are broken.

d. Clearance under leaf stop should be 1/4"; adjust if necessary by bending leaf stop. See Figure 3-9.

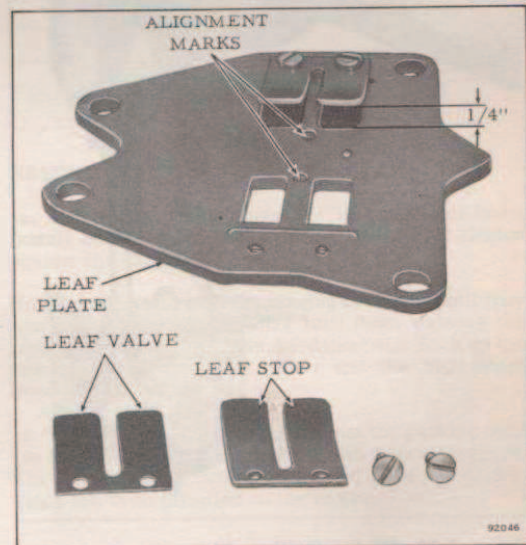


Figure 3-9. Leaf Plate Assembly

CARBURETOR BODY

a. Clean out all the jets and passages, and the venturi, making sure no gum or varnish deposits remain. Dry after cleaning with compressed air. Keep clean for final reassembly.

b. Check all gasket surfaces for nicks, scratches, or distortion. Slight irregularities can be corrected with the use of a surface plate and emery cloth.

c. Check throttle and choke shafts for excessive play. Check operation of choke and throttle valves to be sure they correctly shut off air flow, yet move freely without binding. Replace carburetor body if valves or shafts are excessively worn or damaged.

NOTE

The threaded edges of the choke and throttle valve attaching screws are staked during carburetor assembly to prevent loss during operation. Disassembly of these valves is possible but replacement of the carburetor body is recommended.

CORE PLUGS

a. If leakage occurs at a core plug area, a smart tap with a hammer and flat end punch in the center of the core plug will normally correct this condition. See Figure 3-10. If necessary, remove core plug to clean out slow speed orifice holes. See Figures 3-11 and 3-1B.

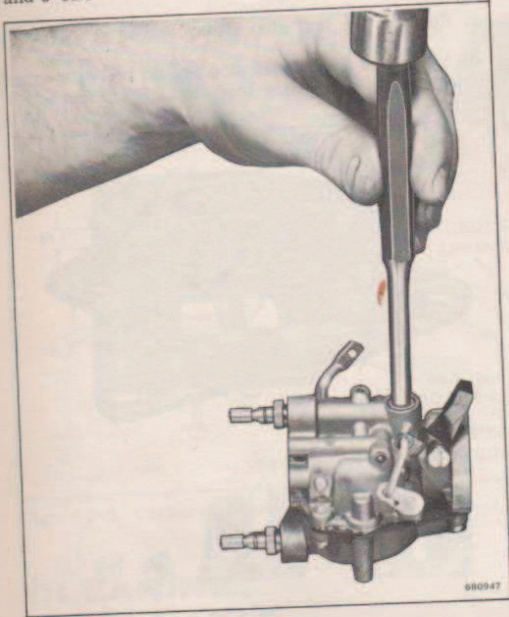


Figure 3-10. Re-Seating Core Plug

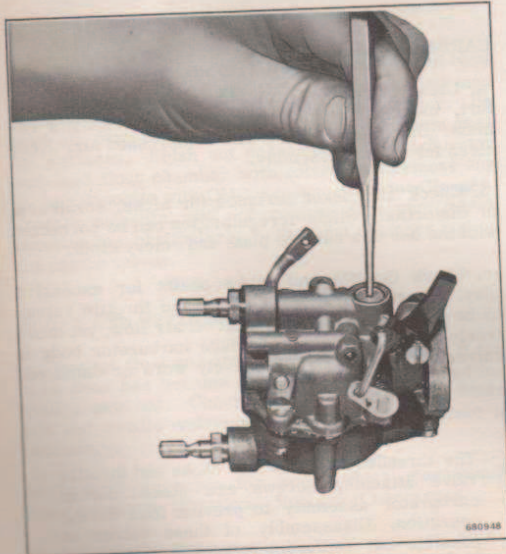


Figure 3-11. Removing Core Plug

the center of the core plug to a depth of not more than 1/16 inch below its surface. With a punch, carefully pry out the core plug. See Figure 3-11.

c. Inspect and clean the casting contact area. If nicks, scratches, or an out-of-round condition exist, the casting will have to be replaced. If casting opening is normal, apply a bead of OMC Adhesive "M" to the outer edge of a new core plug. Place new core plug in casting, convex side up. Flatten to a tight fit with a flat end punch and hammer, and check for leakage.

LEAD SHOTS

If leakage occurs at a lead shot area, follow these corrective measures:

a. If leakage is slight, a smart tap with a hammer in the center of the lead shot will normally correct this condition. See Figure 3-12.

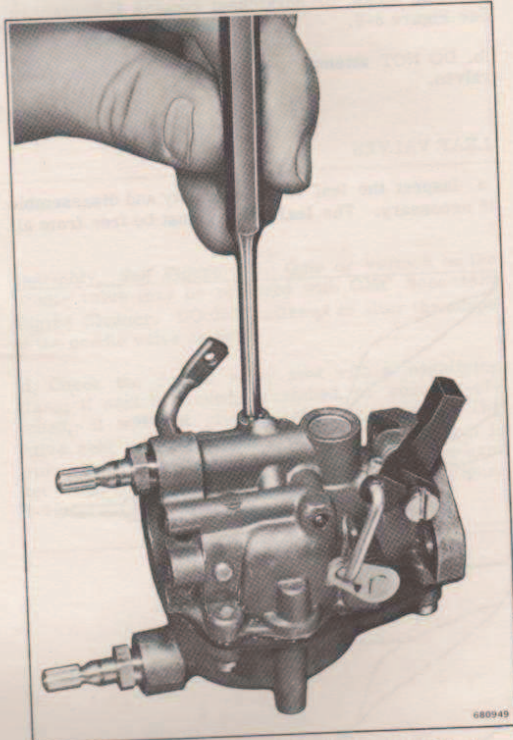


Figure 3-12. Re-Seating and Installing Lead Shot

b. If leakage still exists, remove the lead shot with an appropriate sharp tool. See Figure 3-13.

c. Clean and inspect casting opening. If the casting opening is normal, install a new lead shot and flatten out with light hammer taps. Check for leakage.

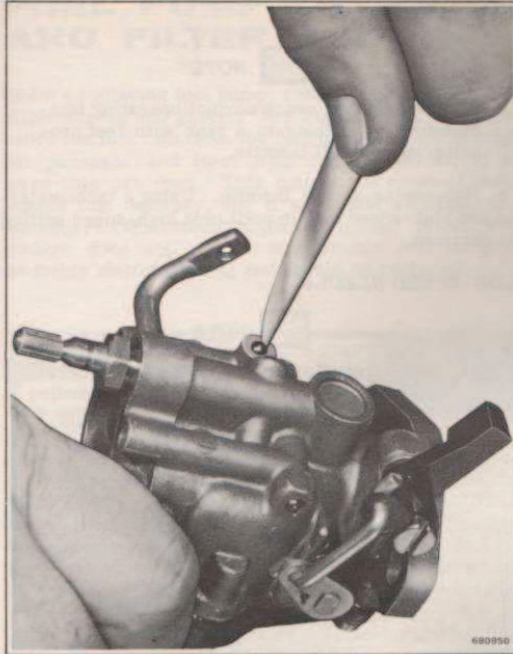


Figure 3-13. Removing Lead Shot

CARBURETOR REASSEMBLY

GENERAL INSTRUCTIONS

Reassemble the carburetor, paying particular attention to the following procedure. Keep all dust, dirt, and lint out of the carburetor during reassembly. Be sure that parts are clean and free from gum, varnish and corrosion when reassembling them. Replace all gaskets and sealing washers. DO NOT attempt to use original gaskets and washers, as leaks may develop after the engine is back in use.

FLOAT AND FLOAT CHAMBER

- a. Install and tighten the high-speed nozzle. Install a new float chamber boss gasket.
- b. Replace float valve and gasket, float valve, and float and hinge pin in carburetor body.
- c. To check position of float, turn carburetor body upside down, so that weight of the float closes float needle. Float should be parallel and flush with face of casting. See Figure 3-14.
- d. Using a new gasket, install the float chamber to the carburetor body.
- e. Install throttle linkage and cam follower.

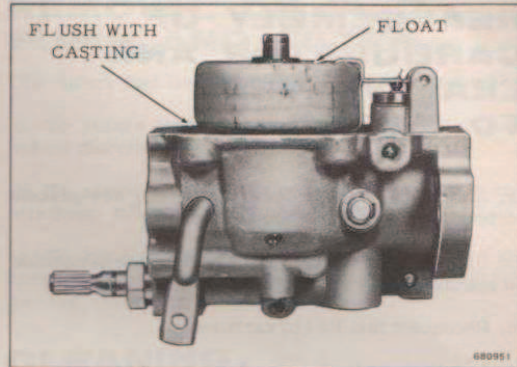


Figure 3-14. Float Level Adjustment

NEEDLE VALVES

- a. Install new packing washers in carburetor body. Install needle valve packing nuts, but do not tighten against the packing.
- b. Install needle valves, turning carefully until they are seated lightly. DO NOT turn down tight as the taper on the needles may be damaged. Back up the low speed needle 1-3/4 turns and the high speed needle 3/4 turn.
- c. Tighten the packing nuts against the packing until the needles can just be turned with finger pressure. The needle valves will be adjusted after the carburetor has been installed on the motor.

LEAF VALVES

- a. The importance of keeping the leaves in these valves free from distortion cannot be over-emphasized. Replace any leaf or leaf back-up plate which shows any indication of distortion or damage.
- b. The leaf is so designed that it maintains constant contact with the leaf plate until a predetermined pressure is exerted against it. Leaf travel away from the plate is limited to 1/4" by the leaf back-up plate. When pressure is removed, the inherent spring action of the leaf segments returns and holds them against the plate. Attach the leaf segments and leaf stops to the leaf plate, aligning leaves with marks on plate. See Figure 3-9.
- c. Examine each leaf carefully. Each leaf must lie flat against the plate with no edges turned up or away from the plate.

NOTE

DO NOT lift or bend leaf segments by hand. This may damage them so that the leaves would have to be replaced.

- d. Apply locktite grade screwlock to screws and tighten to torque specified in Section 2 to avoid distortion of the leaf plate.

REASSEMBLY OF CARBURETOR AND LEAF VALVES TO MOTOR

- Attach leaf plate to power head using new gaskets on both sides of plate. See Figure 3-4.
- Using a new gasket, place carburetor in position on manifold studs and fasten in place with nuts.
- Reconnect fuel line to carburetor.
- Install choke knob.

CARBURETOR ADJUSTMENT

THROTTLE CAM ADJUSTMENT

- Set speed control lever to stop position.
- Slowly advance the control until the cam follower just begins to open the throttle.
- The timing mark on the cam and the leading (starboard) edge of the cam follower should now be aligned. See Figure 3-15.

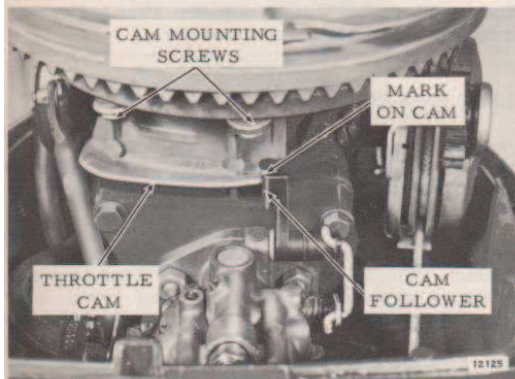


Figure 3-15. Throttle Cam Adjustment

- If the adjustment is not correct, loosen the cam mounting screws and set the cam so that, with the play out of the linkage, the throttle valve is closed. Mark on throttle cam must be directly behind rounded starboard edge of cam follower just as throttle begins to open. See Figure 3-15.

NEEDLE VALVE ADJUSTMENT

HIGH-SPEED NEEDLE

- Seat high- and low-speed needles gently. DO NOT force needles against seats. Back out high-speed needle 3/4 turn, and back out low-speed needle 1-3/4 turns.

- Start engine.

NOTE

Allow engine to reach normal operating temperature by running in a tank with test propeller at one-half throttle.

- Run engine at full throttle. Using a tachometer, adjust high-speed needle until best high-speed setting is obtained.

LOW-SPEED NEEDLE

NOTE

High-speed needle must be correctly adjusted as described above before low-speed needle adjustment is begun.

- With motor at operating temperature, run at slow speed (700-750 rpm) with test propeller in tank or on boat. Adjust low-speed knob until highest rpm reading and smoothest performance are obtained. Allow 15 seconds for motor to respond to adjustment. Adjustment of high-speed needle MUST be repeated after final low-speed needle adjustment.

- Install adjustment knob. DO NOT disturb position of needle. Position high speed knob so that the pointer is facing straight up and push back to original position on needle valve.

- Position low speed knob so that the pointer is facing down and push back to original position on needle valve. With cam and needle valve correctly adjusted, motor should idle at 600 rpm.

THROTTLE TENSION ADJUSTMENT

Throttle tension is correct when motor speed remains constant and throttle lever retains its position. To adjust throttle tension, tighten the throttle tension screw as required. See Figure 3-16.

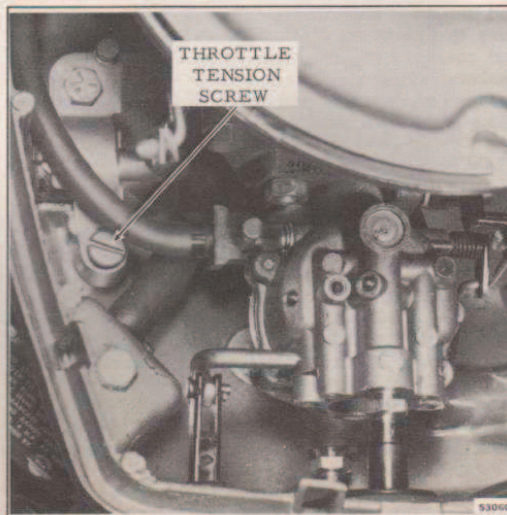


Figure 3-16. Throttle Tension Screw

FUEL PUMP AND FILTER

Before replacing fuel pump, remove and install a new filter screen and gasket. See Figure 3-17. Also remove the fuel line from the fuel tank and blow through all passages and lines with compressed air to be sure they are open. This may be the cause of inadequate fuel delivery, and if so, would eliminate unnecessary replacement of the fuel pump. If this procedure does not correct the trouble fuel pump is probably malfunctioning and should be replaced.

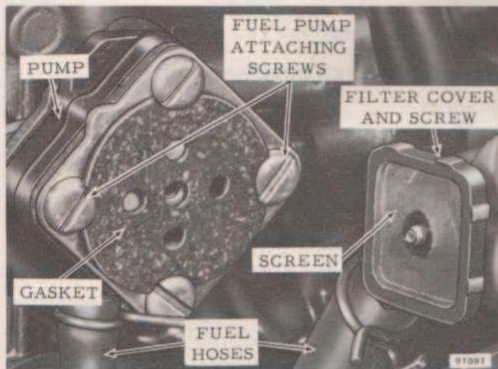


Figure 3-17. Fuel Pump and Filter

FUEL PUMP PRESSURE TEST

Conduct this test on the motor in a test tank or on the boat.

1. Remove carburetor to fuel pump hose. Connect a fuel pressure gauge between the carburetor and fuel pump.

NOTE

Before testing, loosen fuel tank gas cap momentarily to release any pressure that may have built up. Fuel tank should not be more than 30 inches below fuel pump.

2. Start motor and observe gauge. Pump pressures should read as below.

R.P.M.		
600	2500 to 3000	4500
1 PSI	1.5 PSI	2.5 PSI

REMOVAL OF FUEL PUMP AND FILTER

Disconnect fuel lines from pump and filter assembly.

- a. To assure correct reassembly, identify fuel lines before disconnecting.
- b. To remove fuel filter, remove screw and cover attaching filter to fuel pump. See Figure 3-17.
- c. To remove fuel pump, remove two screws attaching pump to power head, and remove pump assembly. See Figure 3-17.

CLEANING, INSPECTION, AND REPAIR

- a. The fuel pump operating components are not serviced separately. If a malfunction occurs, replace the complete pump.
- b. Clean all parts of the filter assembly and fuel connectors in solvent and blow dry. DO NOT dry parts with a cloth, as lint may stick to the parts and clog the passages or prevent the valves from seating. Dissolve any gummy deposits with OMC Accessory Engine Cleaner (certain solvents will not dissolve these deposits).

NOTE

It is recommended that a new fuel filter screen and gasket be installed when servicing the filter and pump assembly.

REASSEMBLY OF FUEL PUMP AND FILTER

- a. Reassemble the fuel filter to pump in the reverse order of disassembly being careful that lip of screen faces fuel pump.
- b. Attach fuel pump to power head, using new gasket.
- c. Reconnect fuel hoses. Tighten filter and pump screws securely. Check for leaks by connecting fuel tank line to motor and squeezing primer bulb until definite pressure is felt in the bulb.

FUEL TANK

FUEL MIXTURE

A motor in excellent mechanical and operating condition may give faulty performance because of an improper fuel mixture. Petroleum gum and varnish which precipitate from a stale mixture may clog the filter screen and any small orifices, interfering with starting and normal running. For proper fuel mixtures see Engine Fuel and Lubricant, page 2-6.