

48

SILENCER COVER AND CARBURETORS (20 AND 25 HP TWO-CYLINDER MODELS)

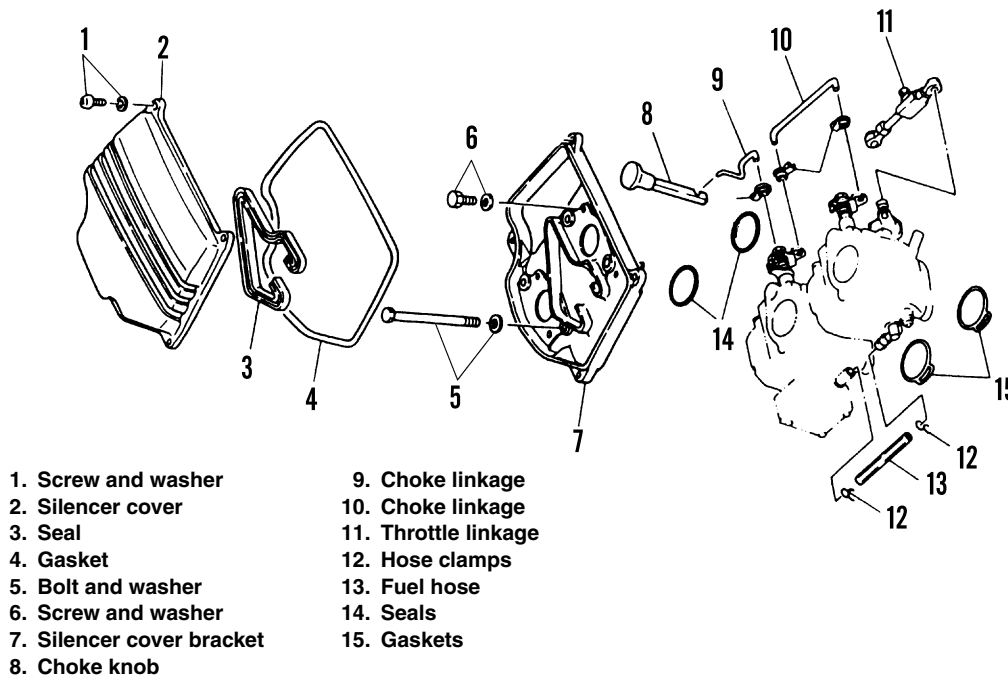


Figure 46 or **6, Figure 47)** from the silencer cover. Remove the cover, then temporarily reinstall the bolts to hold the carburetor.

4D. On 20-90 hp models, refer to **Figures 48-53** to locate the bolts that secure the silencer cover to the silencer bracket. Remove the bolts and silencer cover.

5. Remove and inspect any seals, O-rings or gaskets from the silencer cover, bracket or carburetor. Replace the seals, gaskets or O-ring(s) if they are damaged or deteriorated.

6. Installation is the reverse of removal. Note the following:

- a. Replace any damaged seals, O-rings or gaskets.
 - b. On 3 and 6-15 hp models, to prevent unnecessary damage to the carburetor mounting gasket or seal, have an assistant support the carburetor while threading the silencer mounting bolts into the intake.
 - c. Tighten all fasteners to the specification in **Table 1** or to general torque specifications in Chapter One.
7. On electric start models, connect the battery cables.
8. Connect the spark plug lead(s).

CARBURETOR

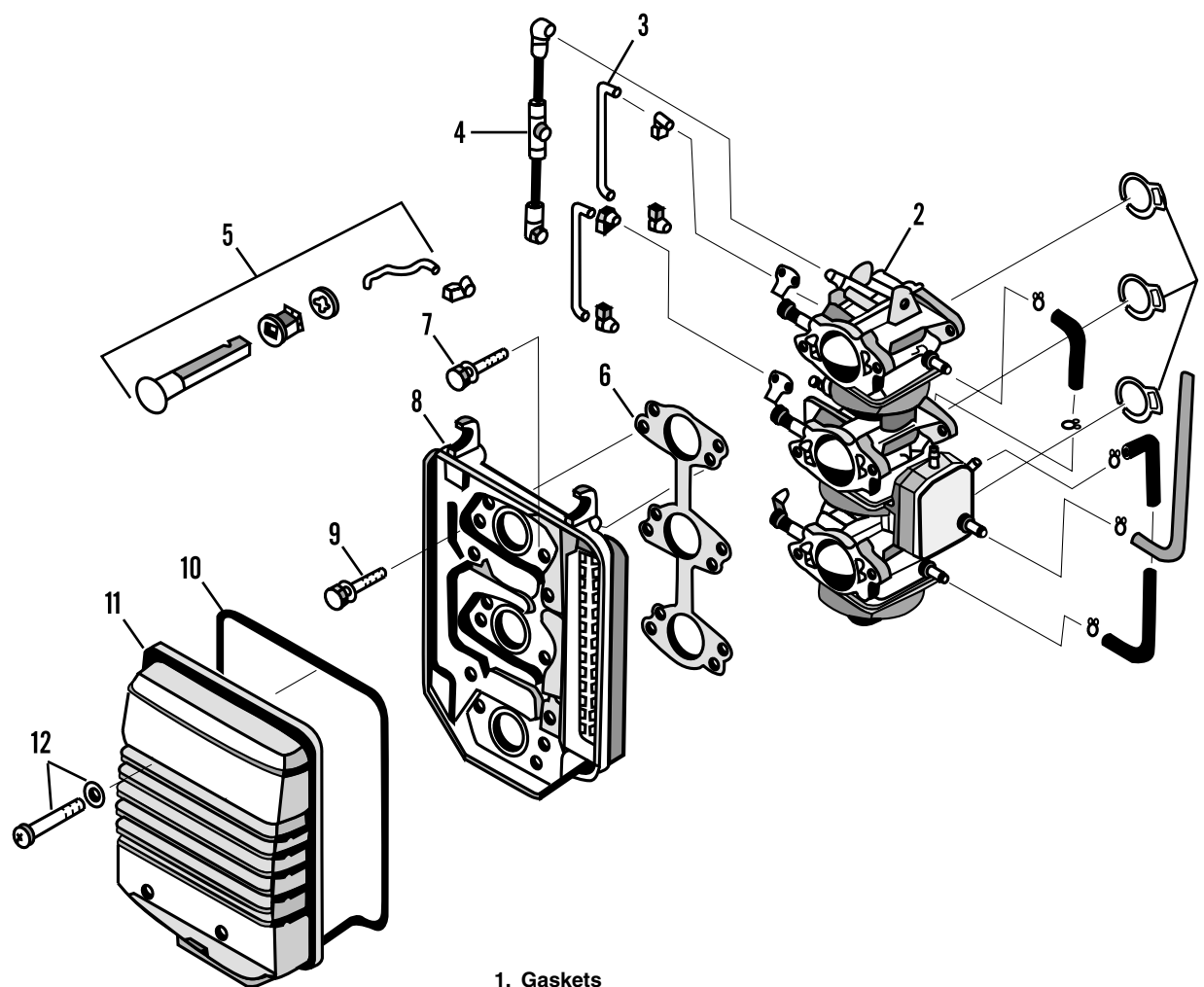
Pay close attention when removing and installing components, especially carburetors, to avoid installing them in the wrong locations. Mark them if necessary.

When disassembling carburetors, pay very close attention to the location and orientation of internal components. Jets normally have a jet number stamped on the side or opening end. Purchase replacement jets from a Yamaha dealership or carburetor specialty shop. Replacement jets must have the same size and shape of opening as the original jets. Engines used at higher altitudes or in extreme environments may require alternate jets for optimum performance. Contact a Yamaha dealership if the engine will be used in these environments.

Be careful and patient when removing jets and other threaded or pressed-in components. Clean the passage without removing the jet if it cannot be easily removed. Carburetor jets are easily damaged if the screwdriver slips in the slot. Never install a damaged jet into the carburetor as the fuel or air flow may be altered. Altering the fuel or air flow can cause performance problems or potentially serious engine damage.

49

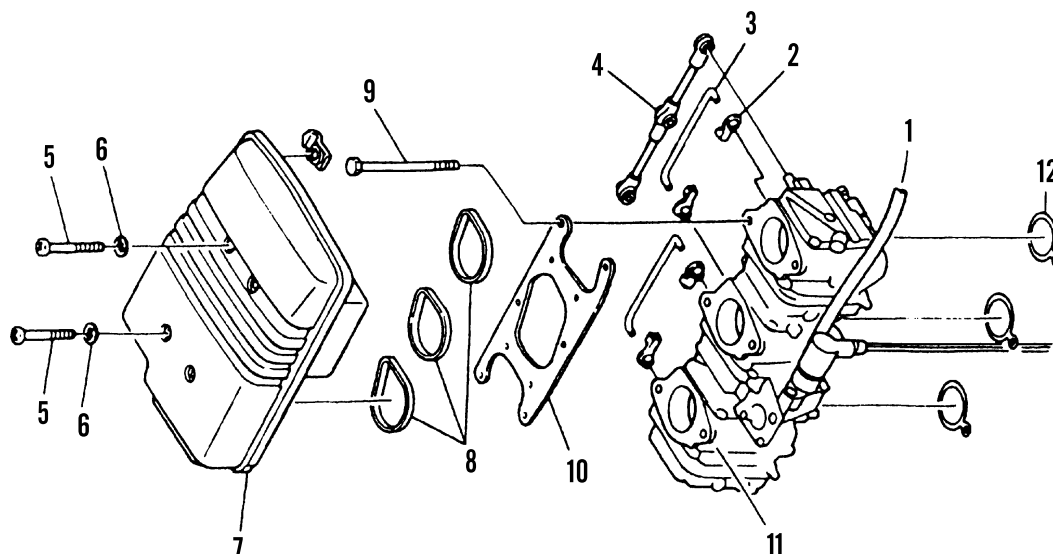
**SILENCER COVER AND CARBURETORS
(25 HP THREE-CYLINDER AND 30 HP MODELS)**



1. Gaskets
2. Carburetors
3. Choke linkages
4. Throttle linkage
5. Choke knob and linkage
6. Gasket
7. Bolt
8. Silencer cover bracket
9. Bolt
10. Gasket
11. Silencer cover
12. Bolt and washer

50

SILENCER COVER AND CARBURETORS (28 JET, 35 JET, 40 HP AND 50 HP MODELS)



1. Fuel inlet hose
2. Connector
3. Choke linkage
4. Throttle linkage
5. Bolt
6. Washer
7. Silencer cover
8. Seals
9. Bolt
10. Silencer cover bracket
11. Carburetors
12. Seals

To avoid fuel or air leaks, replace all gaskets, seals or O-rings when a fuel system component is disassembled.

The most important step in carburetor repair is the cleaning process. Use a good quality solvent to remove varnish-like deposits that commonly form in fuel systems. Spray-type carburetor cleaners available at automotive parts stores are effective in removing most stubborn deposits. Never use solvent that is not suitable for aluminum material. Some solvents may irreparably damage the carburetor casting. Remove all plastic or rubber components from the fuel pump, fuel filter or carburetor before cleaning them with solvent. Carefully scrape gasket material from the components with a razor scraper. Work carefully to avoid removing material or scratching sealing surfaces. Use a stiff bristle brush and solvent to remove deposits from the carburetor fuel bowl. Never use a wire brush as delicate sealing surfaces can be damaged. Use com-

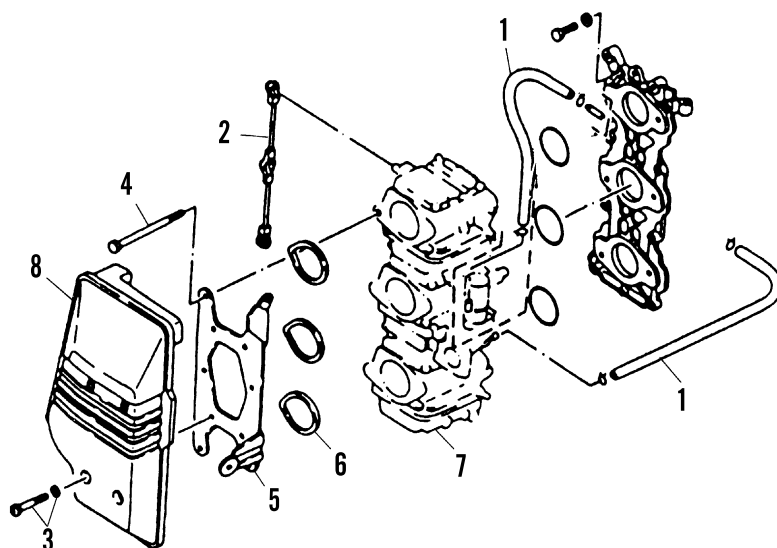
pressed air to blow out all passages and orifices (**Figure 1**). A piece of straw from a broom works well to clean out small passages. Never use stiff wire for this purpose as the wire may enlarge the size of the passage and alter the carburetor calibration. Allow the component to soak in the solvent if the deposits are difficult to remove. Never compromise the cleaning process. Continue to clean until all deposits and debris are removed.

Numerous variations exist for carburetor mounting. Refer to **Figures 43-53** during the carburetor removal and installation procedures.

Installation/Removal

Note the location and orientation of all fasteners and gaskets before removing the silencer cover. Be careful when pulling the cover from the engine to avoid damaging

51



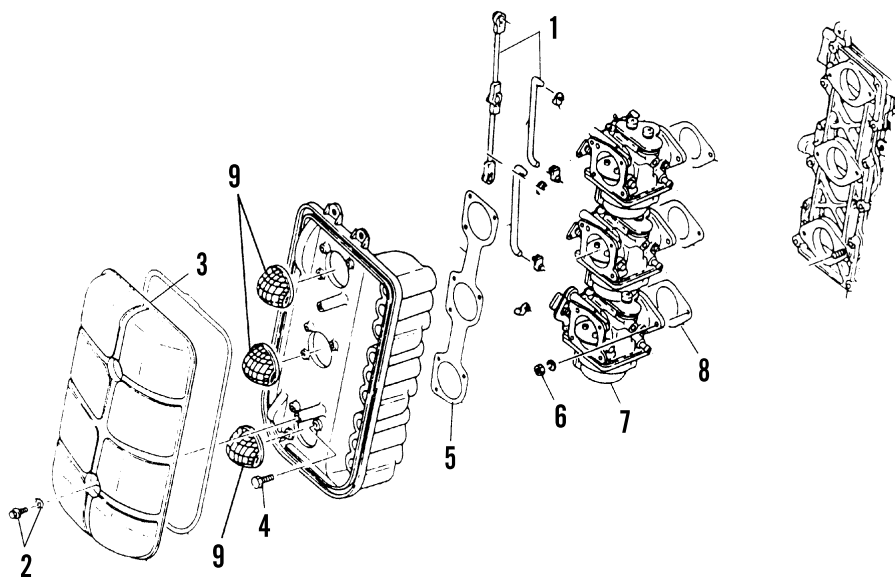
SILENCER COVER AND CARBURETORS (60 AND 70 HP MODELS)

1. Fuel inlet hose
2. Throttle linkage
3. Bolt and washer
4. Bolt
5. Silencer cover bracket
6. Seals
7. Carburetors
8. Silencer cover

5

52

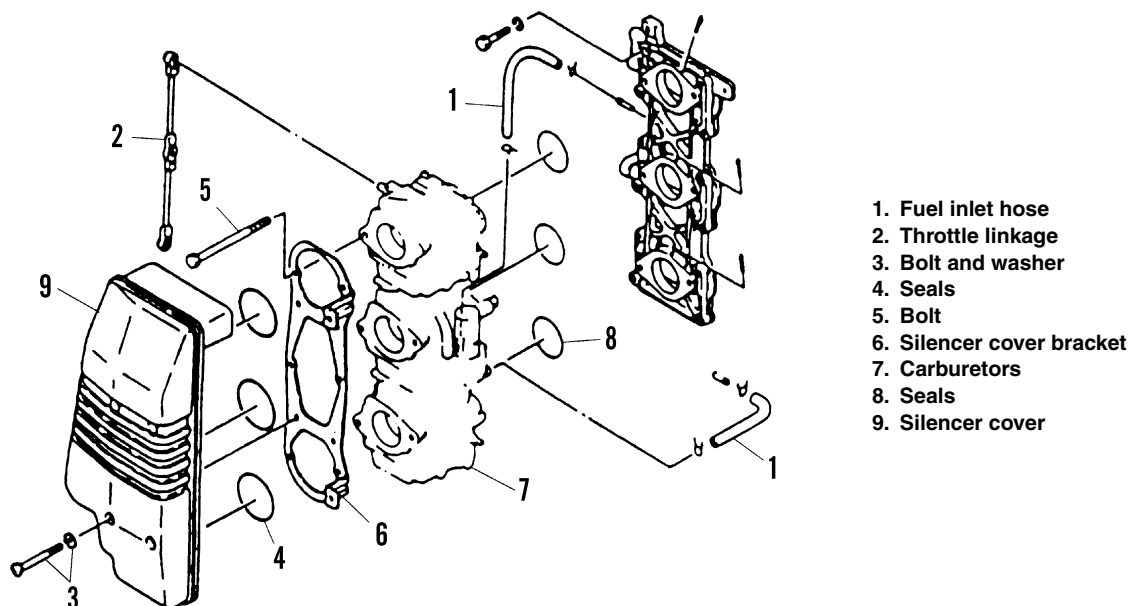
SILENCER COVER AND CARBURETORS (E75 MODEL)



1. Choke linkage
2. Bolt and washer
3. Silencer cover
4. Screw
5. Gasket
6. Nut and washer
7. Carburetors
8. Gaskets
9. Screens

53

SILENCER COVER AND CARBURETORS (75-90 HP [EXCEPT E75] MODELS)



1. Fuel inlet hose
2. Throttle linkage
3. Bolt and washer
4. Seals
5. Bolt
6. Silencer cover bracket
7. Carburetors
8. Seals
9. Silencer cover

the cover gasket or seal. Always replace torn or damaged gaskets during assembly.

1. Disconnect and ground the spark plug lead(s) to prevent accidental starting.
2. On electric start models, disconnect the battery cables.
3. Place a suitable container or shop towel under the carburetor(s) to capture spilled fuel.
- 4A. On 2-5 hp models, close the fuel valve, then pull the fuel hose from the carburetor fitting.
- 4B. On 6-90 hp models, remove the clamp(s), then carefully pull the fuel hose(s) from the carburetor fittings.
5. Drain residual fuel from the disconnected hose(s).
6. On 2 hp models, remove the screw (12, **Figure 43**), spring (13) and plate (14). Remove the E-clip (15, **Figure 43**), then pull the linkage (11), throttle lever (17) and pivot (16).
7. On 3-5 hp models, loosen the clamp and anchor screw, then disconnect the cable from the carburetor throttle lever.
8. On 9.9 and 15 hp models, loosen the screw until the throttle rod (11, **Figure 47**) slides freely in the connector (10).
9. On 3-75 hp models, refer to **Figures 44-52**, then carefully pry the choke linkages from the carburetor(s).

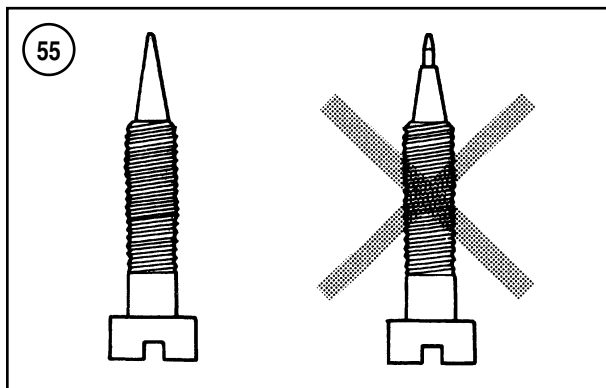
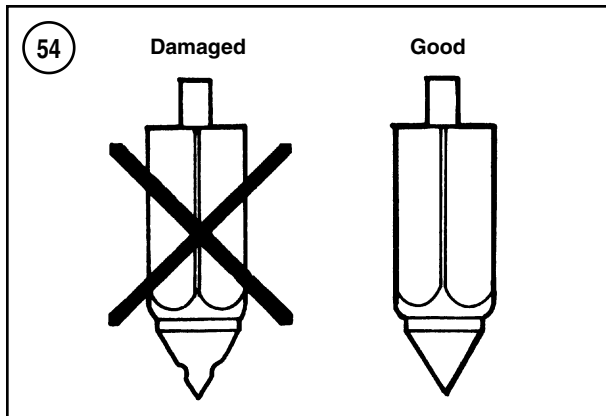
10. On 20-90 hp models, refer to **Figure 48-53**, then carefully pry the throttle linkage from the carburetor throttle levers.

11A. On 2-15 hp models, remove the carburetor from the intake manifold as follows:

- a. *2 hp models*—Loosen the bolt (20, **Figure 43**) and nut (18), then carefully pull the carburetor assembly from the reed housing/intake.
- b. *3 hp models*—Remove the two bolts (1, **Figure 44**), then carefully remove the carburetor (12) from the adapter (9).
- c. *4 and 5 hp models*—Remove the two nuts and washers (5, **Figure 45**), then carefully remove the carburetor (6).
- d. *6 and 8 hp models*—Remove the two bolts (1, **Figure 46**), then carefully remove the carburetor (3).
- e. *9.9 and 15 hp models*—Remove the two bolts (6, **Figure 47**), then slide the carburetor forward until the connector is free from the throttle rod (11). Remove the carburetor.

11B. On 20-90 hp models, remove the silencer cover and carburetors as an assembly as follows:

- a. On Prime-Start models, disconnect the electrothermal valve wires from the engine wire



harness connections. Locate the hose fitting next to the electrothermal valve. Trace the hose to its connection onto the top of the No. 1 carburetor or intake manifold. Disconnect the hose from both fittings.

- b. Refer to **Figures 48-53** to locate the silencer bracket and carburetor mounting bolts.
 - c. Support the silencer bracket while loosening the four or six mounting bolts.
 - d. Remove the two or three carburetors and silencer bracket as an assembly. Mark the carburetor mounting location on each carburetor. Remove the bolts and separate the carburetors.
12. Remove the gasket, seal or O-ring from the carburetor mount. Do not reuse the carburetor mounting gaskets, seals or O-rings. Carefully scrape residual gasket material from the carburetor or intake manifold mating surfaces. Do not scratch the mating surfaces.
13. Installation is the reverse of removal. Note the following:
- a. Install new gaskets, seals and O-rings on the carburetor-to-intake mating surfaces. Make sure the openings in the gaskets match openings in the intake and carburetor.

- b. On 20-90 hp models, fit the mounting bolts through the silencer bracket and carburetors, then install the carburetors and bracket as an assembly.
 - c. Tighten the mounting bolts to the specification in **Table 1** or Chapter One.
 - d. Connect the fuel hoses to the carburetor fittings and clamps as described in this chapter under *Fuel Hose Connectors*.
 - e. On 25-90 hp Prime-Start models, connect the electrothermal valve leads onto the engine wire harness connections.
14. Install the silencer cover as described in this chapter.
15. Observe all fuel hoses and connections while opening the fuel valve or squeezing the primer bulb. Repair fuel leaks before proceeding.
16. Perform applicable carburetor synchronization and adjustments as described in Chapter Four.
17. On electric start models, connect the battery cables.
18. Connect the spark plug lead(s).

Inspection

A clean working environment is essential for carburetor repairs. Mark all hose connections before removing them from the carburetor(s). On multi-carburetor engines, match each carburetor to its respective cylinder and repair *one* carburetor at a time.

Place all components on a clean work surface as they are removed from the carburetor and cleaned. Arrange these components in a manner consistent with the illustrations. This will save time and help ensure a proper repair.

Use a solvent designed for carburetor cleaning to clean all deposits from the carburetor passages, jets, orifices and float bowl. Use compressed air to blow through passages to help remove contaminants.

Carefully remove jets from the carburetor. Use the proper size screwdriver and maintain downward force while removing jets. If jets cannot be easily removed, soak the carburetor in solvent for several hours before attempting to remove them. Clean the carburetor without removing the jets if they are especially difficult to remove and the carburetor has a significant amount of deposits or corrosion. Replace the jets if they are damaged during removal.

Inspect the fuel inlet valve upon removal for damaged sealing surfaces (**Figure 54**). Inspect the valve seat for pitting, worn or irregular surfaces. Replace worn or damaged components. On some carburetors the seat is not available separately and the carburetor must be replaced if the seat is faulty.

Inspect the pilot screw for worn or damaged surfaces (**Figure 55**). Damage in this area is usually caused by excessive force when seating the screw. If the screw is dam-

aged, inspect the seat in the screw opening for damage. Replace the screw if it is damaged. Replace the carburetor if the seat is damaged. The engine will not operate properly at lower speeds with a damaged screw or seat.

Use an accurate ruler to check the float height or drop settings (**Figure 56**). Set the float exactly as specified to help ensure maximum performance and durability. Float settings have a profound affect on fuel calibration.

Inspect the float (**Figure 57**) for fuel saturation and worn or damaged surfaces. Some floats are constructed with a translucent material that allows it to be visually inspected for saturation. On models using nontranslucent floats, gently press a thumbnail against the float surface. Remove the thumbnail and inspect the thumbnail indentation in the float. Replace the float if fuel appears in the indentation.

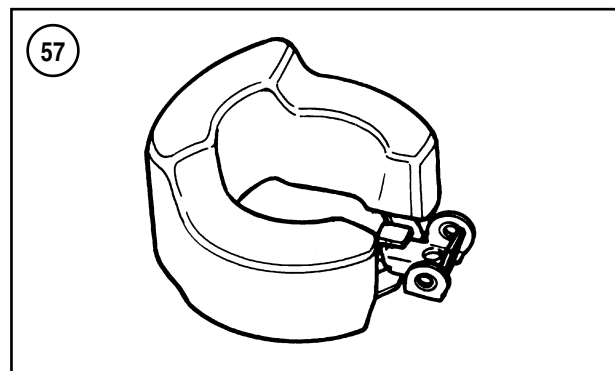
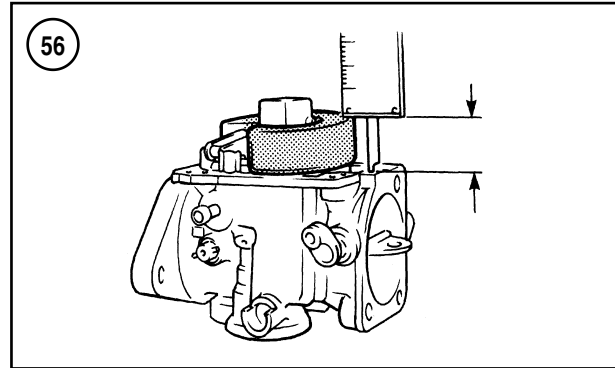
The float height can be adjusted without the carburetor being completely disassembled. The electrothermal valve can be serviced without the carburetor being removed or disassembled. Refer to the instructions in the disassembly/assembly procedures.

Disassembly/Assembly

2 hp models

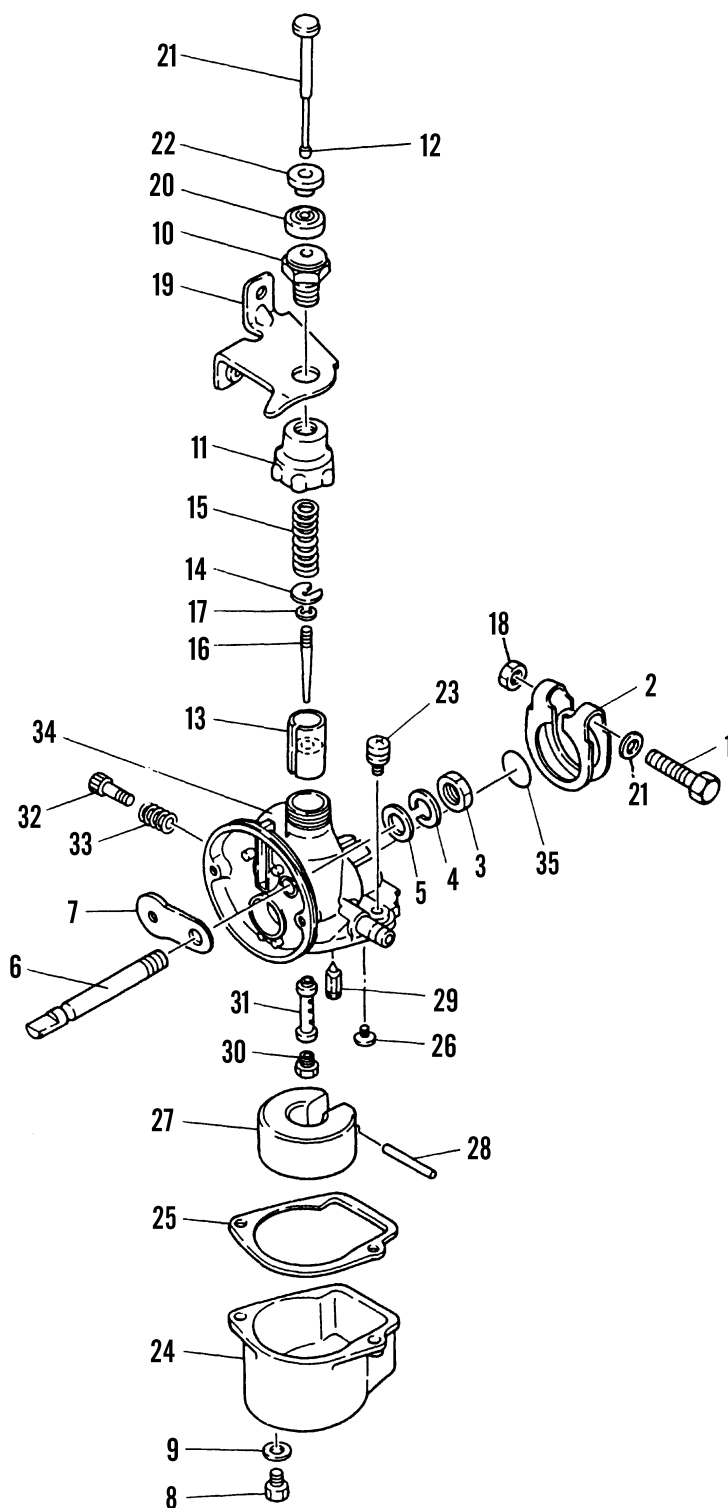
Refer to **Figure 58** for this procedure.

1. Remove the silencer cover and carburetor as described in this chapter.
2. Position the carburetor over a container suitable for holding fuel, then remove the bowl drain screw (8, **Figure 58**) and gasket (9). Discard the drain screw gasket. Drain all fuel from the float bowl.
3. Remove the nut, lockwasher and plain washer from the choke valve shaft (6, **Figure 58**). Remove the shaft and choke valve.
4. Remove the throttle screw (10, **Figure 58**), throttle link bracket (19), cap (20), spacer (22) and throttle plunger (12).
5. Note the E-clip groove position on the throttle plunger (**Figure 59**). The E-clip must be installed in the original groove during assembly. Remove the E-clip (**Figure 60**), then separate the throttle plunger from the mixing chamber screw. Carefully pull the throttle valve from the throttle bore.
6. Remove the two screws (23, **Figure 58**) and float bowl (24). Remove and discard the gasket (25, **Figure 58**).
7. Remove the screw (26, **Figure 58**), then lift the float (27) and float pin (28) from the carburetor.
8. Remove the main nozzle (31, **Figure 58**), then carefully remove the main jet (**Figure 61**) from the nozzle.



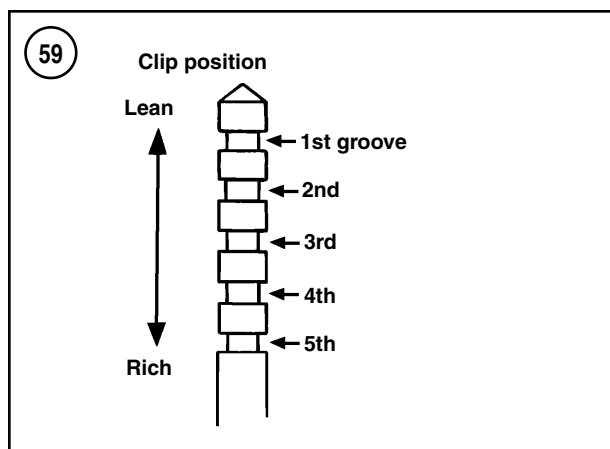
9. Thoroughly clean all passages and all surfaces. Inspect all components as described earlier in this section. Replace worn or damaged components.
10. Assembly is the reverse of disassembly. Note the following:
 - a. Install new gaskets and seals in all locations.
 - b. Apply Loctite 242 to the threads of the throttle screw (10, **Figure 58**).
 - c. Install the E-clip in the same groove from which it was removed. If the E-clip was missing or dislodged before the position was checked, install the E-clip in the second groove.
 - d. Apply a light coat of water-resistant grease to the throttle shaft and idle adjusting screw spring.
 - e. Before installing the float bowl, adjust the float height as described in Step 11.
11. Adjust the float height as follows:
 - a. Place the carburetor on a work surface with the bowl side facing up.
 - b. Gently lift and drop the float several times to verify proper seating of the inlet needle.
 - c. Measure the float height at the points indicated in A, **Figure 62**. If the float height is not in the range in **Table 3**, remove the float and gently bend the float tab (B, **Figure 62**) until the measurement is correct.

58



CARBURETOR (2 HP MODEL)

1. Screw
2. Clamp
3. Nut
4. Lockwasher
5. Washer
6. Choke valve shaft
7. Choke valve
8. Drain screw
9. Gasket
10. Throttle screw
11. Mixing chamber screw
12. Throttle plunger
13. Throttle valve
14. Spring seat
15. Spring
16. Jet needle
17. E-clip
18. Nut
19. Throttle link bracket
20. Cap
21. Throttle shaft
22. Spacer
23. Screw
24. Float bowl
25. Gasket
26. Screw
27. Float
28. Float pin
29. Inlet needle
30. Main fuel jet
31. Main nozzle
32. Idle adjustment screw
33. Spring
34. Carburetor body
35. O-ring

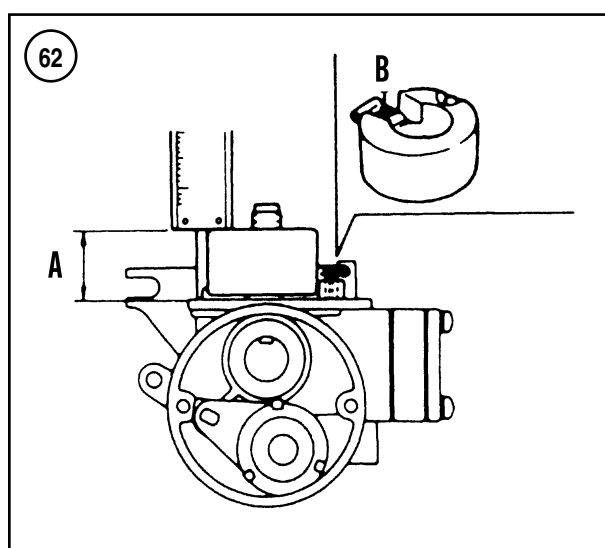
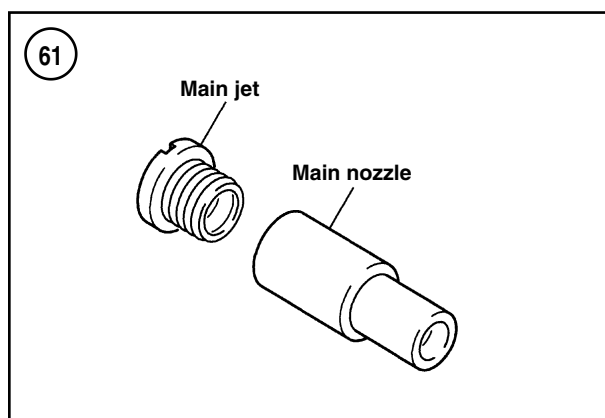
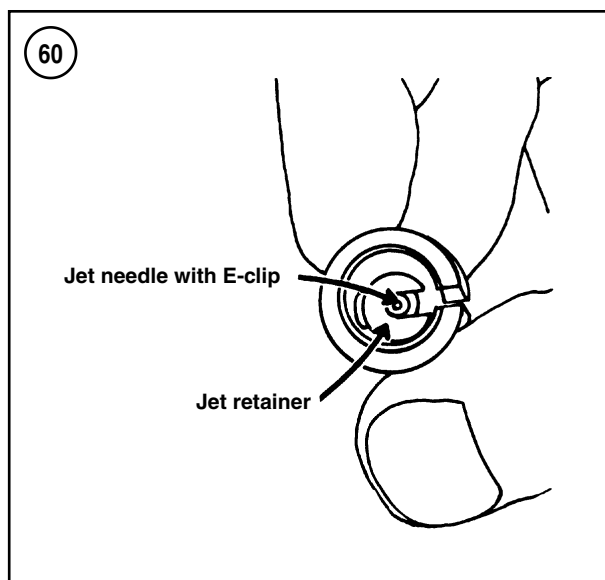


12. Install the carburetor and silencer cover as described in this chapter.

3, 6 and 8 hp models

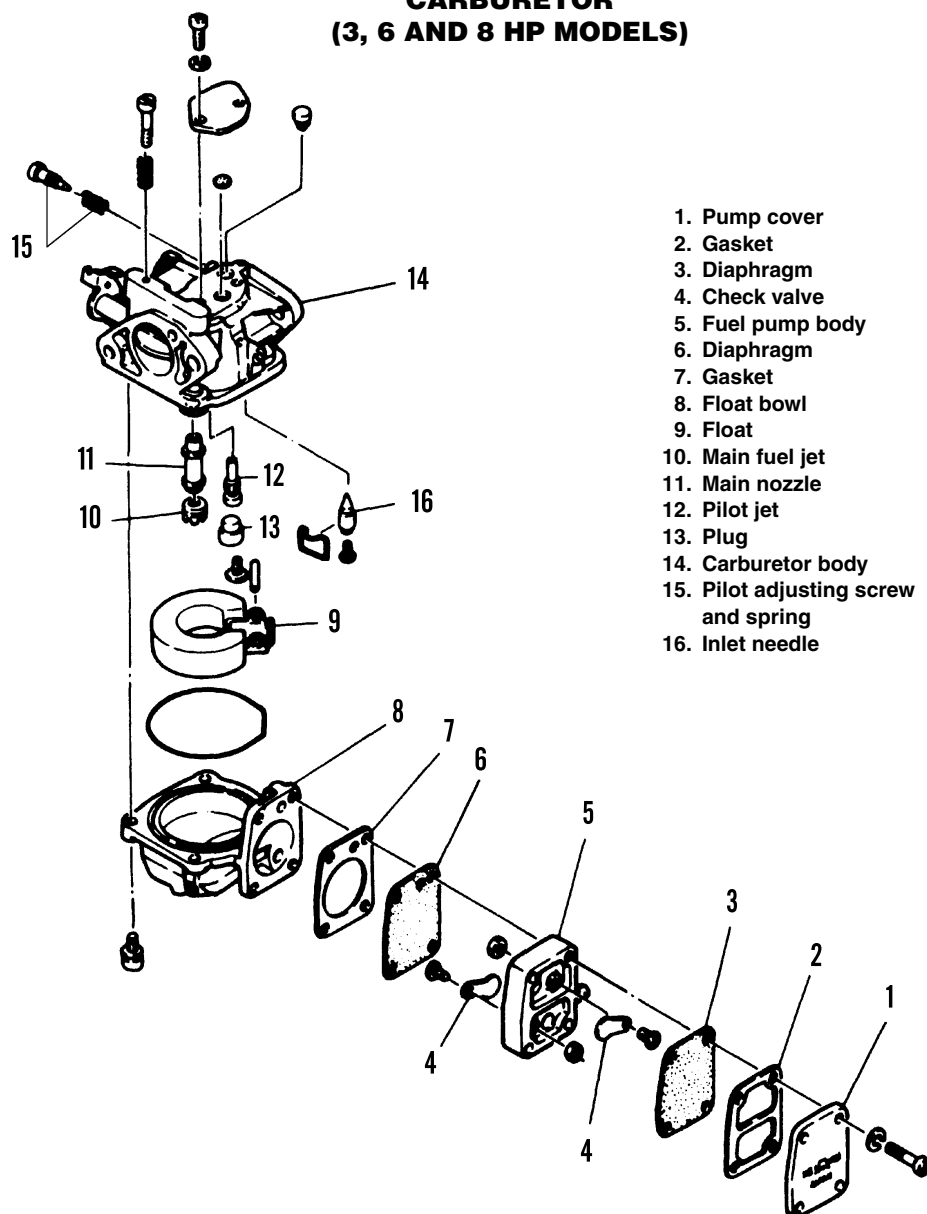
Refer to **Figure 63** for this procedure.

1. Remove the silencer cover and carburetor as described in this chapter.
2. Position the carburetor over a container suitable for holding fuel, then remove the bowl drain screw and gasket. The screw is located on the corner of the bowl near the fuel pump. Discard the drain screw gasket. Drain all fuel from the float bowl.
3. Remove the fuel pump components from the carburetor as described in this chapter.
4. Remove the four screws, float bowl (8, **Figure 63**) and O-ring from the carburetor. Discard the O-ring.
5. Remove the screw, then lift the float (9, **Figure 63**), pivot pin and inlet needle (16) from the carburetor.
6. Remove the main jet and nozzle (10 and 11, **Figure 63**). Pull the plug (13, **Figure 63**) from the opening, then remove the pilot jet (12).
7. Remove the pilot adjusting screw and spring (15, **Figure 63**). Remove the two screws and washers, then lift the cover and gasket from the top of the carburetor. Discard the gasket.
8. Thoroughly clean all passages and surfaces. Inspect all components as described earlier in this section. Replace worn or damaged components.
9. Assembly is the reverse of disassembly. Note the following:
 - a. Apply a light coat of water-resistant grease to the throttle shaft, pilot adjusting screw spring and idle adjusting screw spring.



63

CARBURETOR (3, 6 AND 8 HP MODELS)



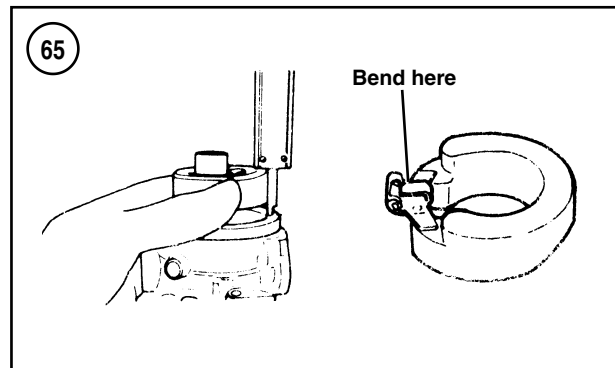
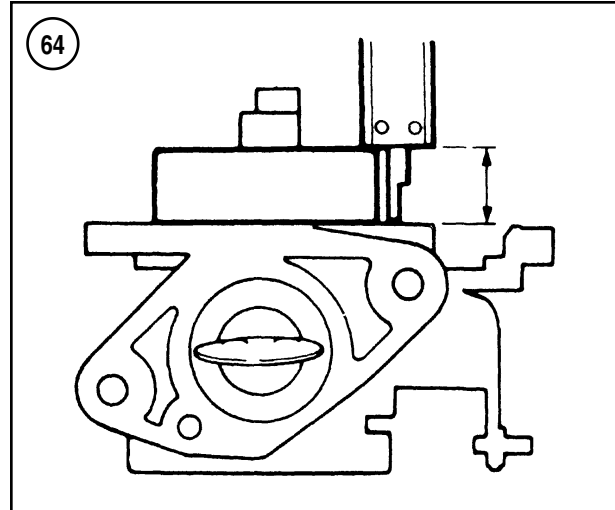
- b. Fit the pull-off clip onto the groove in the inlet needle. Slip the clip over the tab of the float during installation.
10. Adjust the float height as follows:
 - a. Place the carburetor on a work surface with the bowl side facing upward.
 - b. Gently lift and drop the float several times to verify proper seating of the inlet needle.
 - c. Measure the float height at the points indicated in **Figure 64**. If the float height is not in the range in **Table 3**, remove the float and gently bend the float tab (**Figure 65**) until the measurement is correct.
 - d. Install the float bowl.
11. Install the fuel pump components as described in this chapter.

12. Install the carburetor and silencer cover as described in this chapter.

4 and 5 hp models

Refer to **Figure 66** for this procedure.

1. Remove the silencer cover and carburetor as described in this chapter.
2. Position the carburetor over a container suitable for holding fuel, then remove the bowl drain screw and gasket (7, **Figure 66**). Discard the drain screw gasket. Drain all fuel from the float bowl.
3. Remove the fuel pump components from the carburetor as described in this chapter.
4. Remove the four screws (17, **Figure 66**), float bowl (18) and gasket (19) from the carburetor. Discard the gasket.
5. Remove the screw, then lift the float (21, **Figure 66**), float pin (20) and inlet needle (22) from the carburetor.
6. Remove the main jet (23, **Figure 66**), nozzle (24) and pilot jet (25).
7. Remove the pilot adjusting screw and spring (26, **Figure 66**). Remove the three screws (27, **Figure 66**), then lift the top cover (28) and gasket (29). Discard the gasket.
8. Thoroughly clean all passages and surfaces. Inspect all components as described earlier in this section. Replace worn or damaged components.
9. Assembly is the reverse of disassembly. Note the following:
 - a. Install new gaskets and seals in all locations.
 - b. Apply a light coat of water-resistant grease to the throttle shaft, pilot adjusting screw spring and idle adjusting screw spring.
 - c. Before installing the float bowl, adjust the float height as described in Step 10.
10. Adjust the float height as follows:
 - a. Place the carburetor on a work surface with the bowl side facing up.
 - b. Gently lift and drop the float several times to verify proper seating of the inlet needle.
 - c. Measure the float height at the points indicated in A, **Figure 62**. If the float height is not in the range in **Table 3**, remove the float and gently bend the float tab (B, **Figure 62**) until the measurement is correct.
11. Install the fuel pump components as described in this chapter.
12. Install the carburetor and silencer cover as described in this chapter.



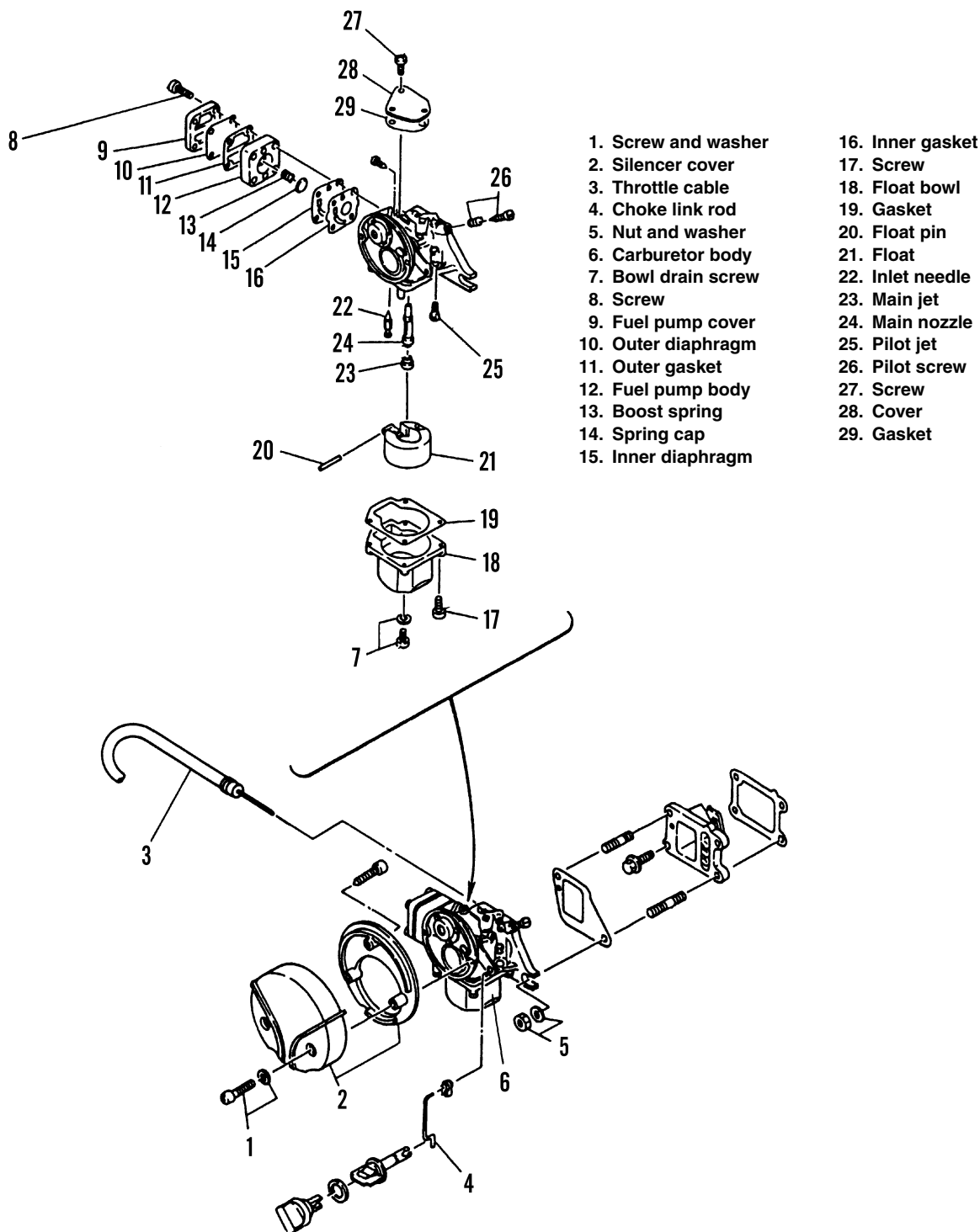
9.9 and 15 hp models

Refer to **Figure 67** for this procedure.

1. Remove the silencer cover and carburetor as described in this chapter.
2. Position the carburetor over a container suitable for holding fuel, then remove the float bowl drain screw (1, **Figure 67**) and gasket (2). Discard the drain screw gasket. Drain all fuel from the float bowl.
3. Remove the fuel pump components from the carburetor as described in this chapter.
4. Remove the four screws (3, **Figure 67**), float bowl (4) and O-ring (5). Discard the O-ring.
5. Remove the screw (6, **Figure 67**), then lift the float (8), float pin (7) and inlet needle (9) from the carburetor.
6. Remove the main fuel jet (12, **Figure 67**) and nozzle (11). Remove the plug (13, **Figure 67**), then unthread the pilot jet (14) from the carburetor.
7. Remove the four screws (15, **Figure 67**), then lift the top cover (16) and gasket (17) from the carburetor. Discard the gasket.

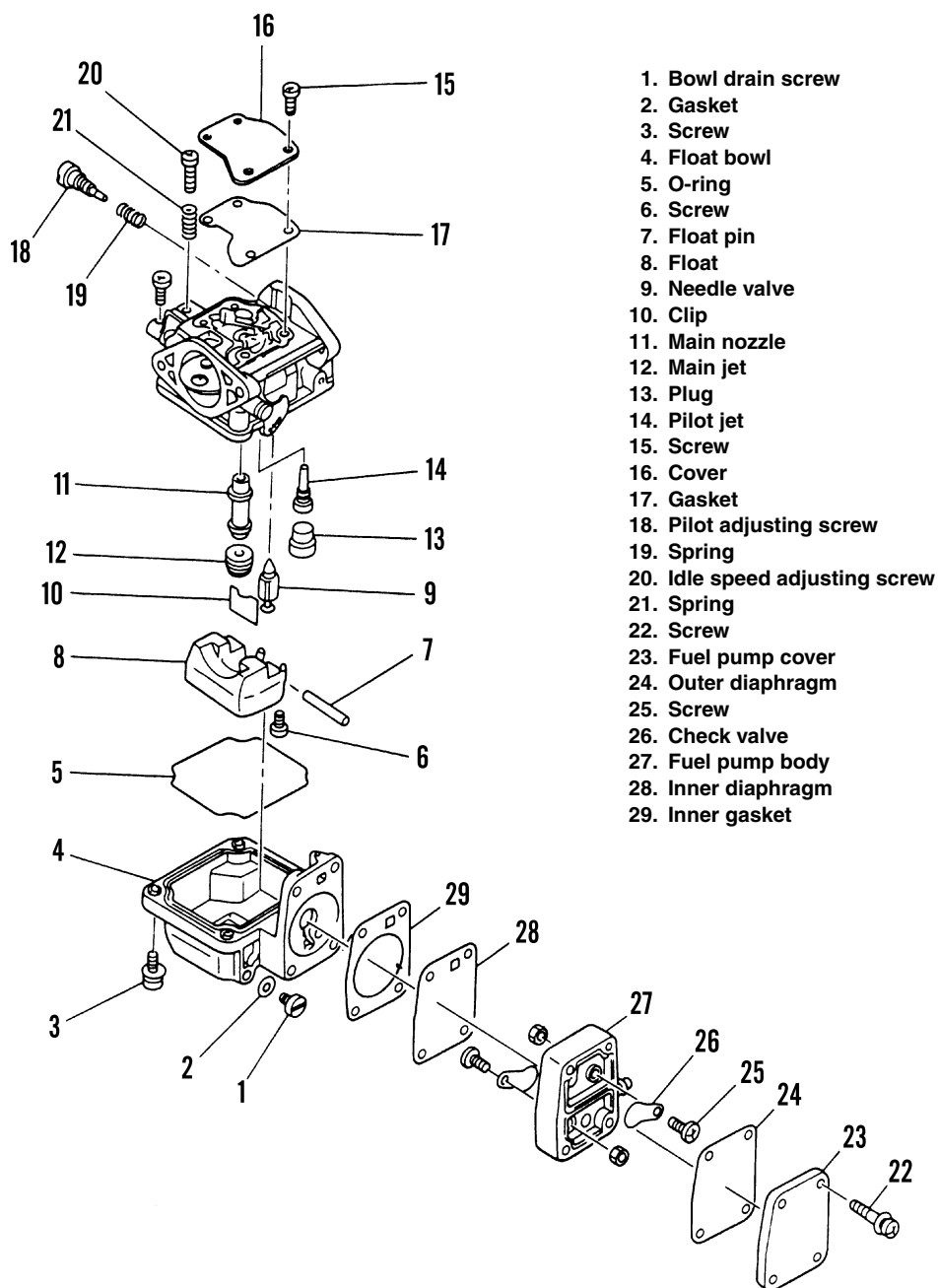
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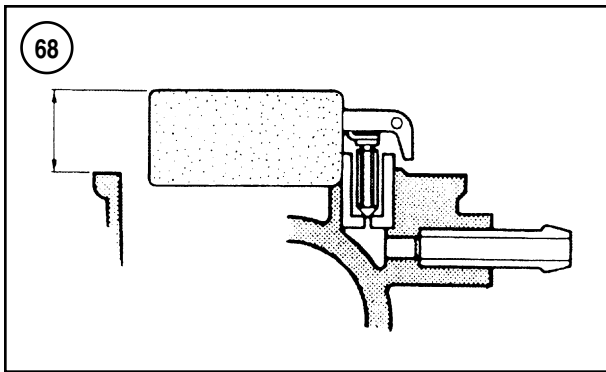
CARBURETOR (4 AND 5 HP MODELS)



67

CARBURETOR (9.9 AND 15 HP MODELS)





8. Remove the pilot adjusting screw (18, **Figure 67**) and spring (19), and the idle speed adjusting screw (20) and spring (21).

9. Assembly is the reverse of disassembly. Note the following:

- a. Install new gaskets and seals in all locations.
 - b. Apply a light coat of water-resistant grease to the throttle shaft, pilot adjusting screw spring and idle adjusting screw spring.
 - c. Fit the pull-off clip onto the groove in the inlet needle. Slip the clip over the tab of the float during installation.
10. Adjust the float height as follows:
- a. Place the carburetor on a work surface with the bowl side facing up.
 - b. Gently lift and drop the float several times to verify proper seating of the inlet needle.
 - c. Measure the float height at the points indicated in **Figure 68**. If the float height is not in the range in **Table 3**, replace the float.
 - d. Install the float bowl.

11. Install the fuel pump components as described in this chapter.

12. Install the carburetor and silencer cover as described in this chapter.

20 and 25 hp two-cylinder models

Refer to **Figure 69** for this procedure.

1. Remove the silencer cover and carburetors as described in this chapter.
2. Position the carburetor over a container suitable for holding fuel, then remove the float bowl drain screw and gasket (15, **Figure 69**). Discard the drain screw gasket. Drain all fuel from the float bowl.
3. For the lower carburetor, remove the fuel pump components from the carburetor as described in this chapter.

4. Remove the four screws, float bowl (16, **Figure 69**) and O-ring (14). Discard the O-ring.

5. Remove the screw, then lift the float (12, **Figure 69**), float pin (13) and inlet needle (11) from the carburetor.

6. Remove the main fuel jet (8, **Figure 69**) and nozzle (7). Remove the plug (10, **Figure 69**), then unthread the pilot jet (9) from the carburetor.

7. Remove the two screws, then lift the top cover (1, **Figure 69**) and gasket (2) from the carburetor. Discard the gasket.

8. Remove the pilot adjusting screw (4, **Figure 69**) and spring (3), and the idle speed adjusting screw (5) and spring (3).

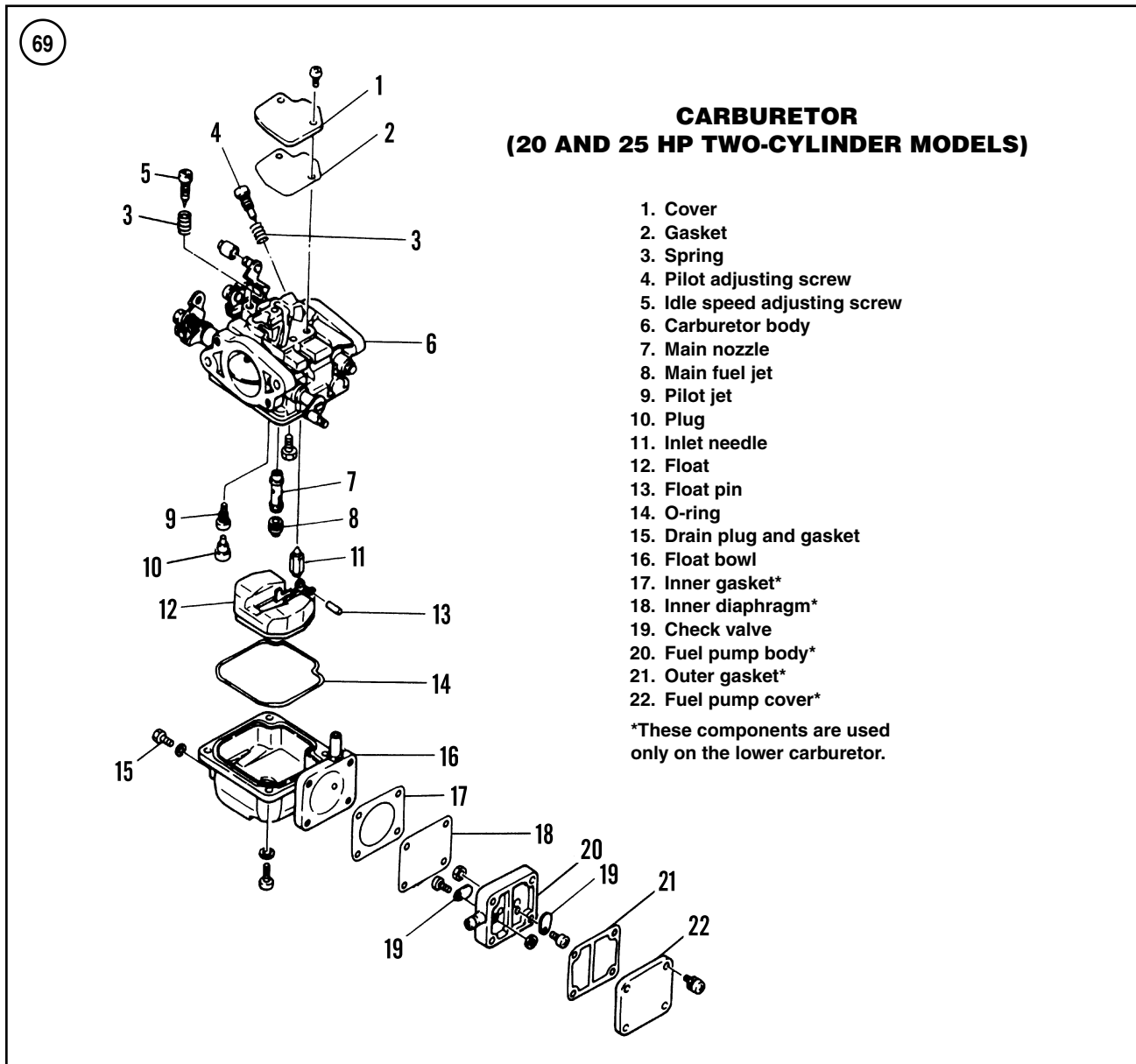
9. Assembly is the reverse of disassembly. Note the following:

- a. Install new gaskets and seals in all locations.
 - b. Apply a light coat of water-resistant grease to the throttle shaft, pilot adjusting screw spring and idle adjusting screw spring.
10. Adjust the float height as follows:
- a. Place the carburetor on a work surface with the bowl side facing up.
 - b. Gently lift and drop the float several times to verify proper seating of the inlet needle.
 - c. Measure the float height at the points indicated in **Figure 68**. If the float height is not in the range in **Table 3**, remove the float and gently bend the float tab (**Figure 65**) until the measurement is correct.
 - d. Install the float bowl.
11. For the lower carburetor, install the fuel pump components as described in this chapter.
12. Install the carburetor and silencer cover as described in this chapter.

25 hp three-cylinder and 30 hp models

Refer to **Figure 70** for this procedure.

1. Remove the silencer cover and carburetors as described in this chapter.
2. Position the carburetor over a container suitable for holding fuel, then remove the float bowl drain screw and gasket (15, **Figure 70**). Discard the drain screw gasket. Drain all fuel from the float bowl.
3. For the middle carburetor, remove the fuel pump components from the carburetor as described in this chapter.
4. Remove the four screws, float bowl (16, **Figure 70**) and O-ring (14). Discard the O-ring.
5. Remove the screw, then lift the float (13, **Figure 70**), float pin (12) and inlet needle (10) from the carburetor. Remove the pull-off clip from the needle.



6. Remove the main fuel jet (9, **Figure 70**) and nozzle (8). Remove the plug (7, **Figure 70**), then unthread the pilot jet (6) from the carburetor.

7. Remove the screw, then lift the top cover (1, **Figure 70**) and seals (2) from the carburetor. Discard the seals.

8. Remove the pilot adjusting screw (4, **Figure 70**) and spring (3).

9. Assembly is the reverse of disassembly. Note the following:

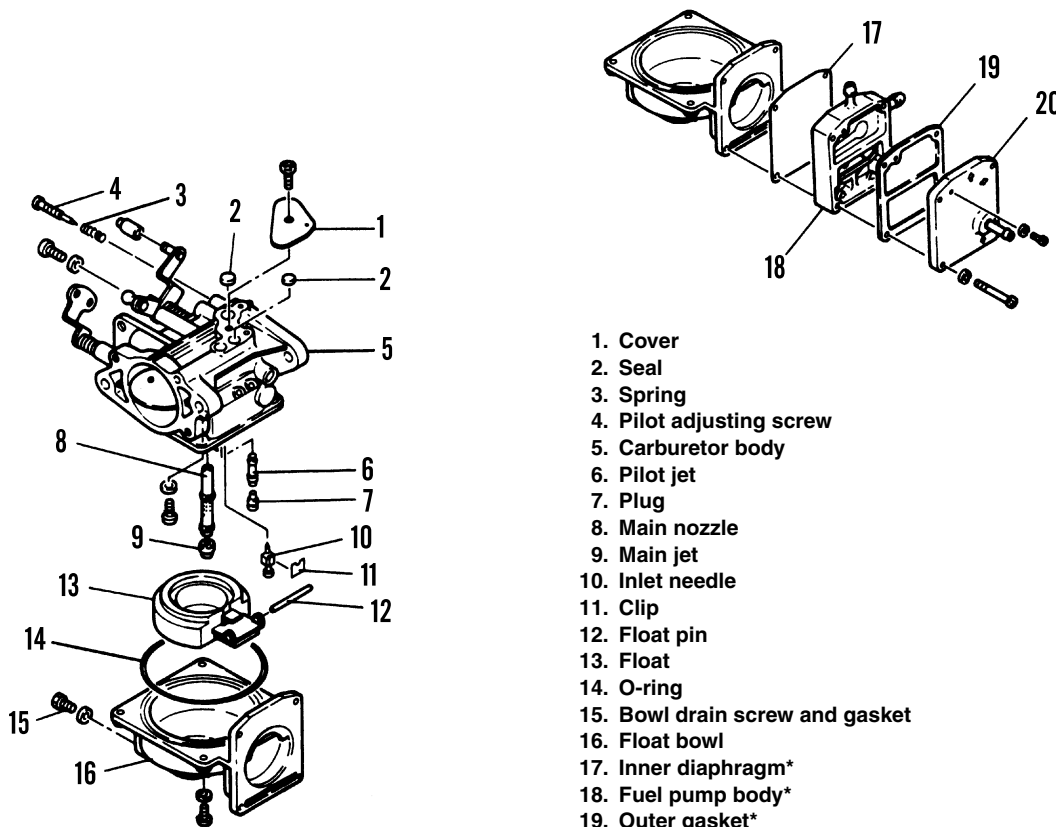
- a. Install new gaskets and seals in all locations.
- b. Apply a light coat of water-resistant grease to the throttle shaft and pilot adjusting screw spring.

10. Adjust the float height as follows:

- a. Place the carburetor on a work surface with the bowl side facing up.
- b. Gently lift and drop the float several times to verify proper seating of the inlet needle.
- c. Measure the float height at the points indicated in **Figure 64**. If the float height is not in the range in **Table 3**, replace the float and re-measure the height. Replace the inlet needle, then the valve seat if the measurement remains incorrect. The float is not adjustable on these models.
- d. Install the float bowl.

70

CARBURETOR (25 HP THREE-CYLINDER AND 30 HP MODELS)



1. Cover
2. Seal
3. Spring
4. Pilot adjusting screw
5. Carburetor body
6. Pilot jet
7. Plug
8. Main nozzle
9. Main jet
10. Inlet needle
11. Clip
12. Float pin
13. Float
14. O-ring
15. Bowl drain screw and gasket
16. Float bowl
17. Inner diaphragm*
18. Fuel pump body*
19. Outer gasket*
20. Fuel pump cover*

*These components used only on the middle carburetor.

11. For the middle carburetor, install the fuel pump components as described in this chapter.

12. Install the carburetor and silencer cover as described in this chapter.

28 jet, 35 jet and 40-90 hp choke valve models

Refer to **Figure 71** for this procedure.

1. Remove the silencer cover and carburetors as described in this chapter.
2. Position the carburetor over a container suitable for holding fuel, then remove the float bowl drain screw (7, **Figure 71**) and gasket (8). Discard the drain screw gasket. Drain all fuel from the float bowl.

3. Remove the four screws, float bowl and O-ring (9, **Figure 71**). Discard the O-ring.

4. Remove the screw, then lift the float (4, **Figure 71**), float pin and inlet needle (6) from the carburetor. Remove the pull-off clip from the needle.

5. Remove the main fuel jet (3, **Figure 71**) and nozzle (2). Remove the plug, then unthread the pilot jet (5, **Figure 71**) from the carburetor.

6. Remove the two screws, then lift the top cover and seals from the carburetor. Discard the seals.

7. Remove the pilot adjusting screw (1, **Figure 71**) and spring.

8. Assembly is the reverse of disassembly. Note the following:

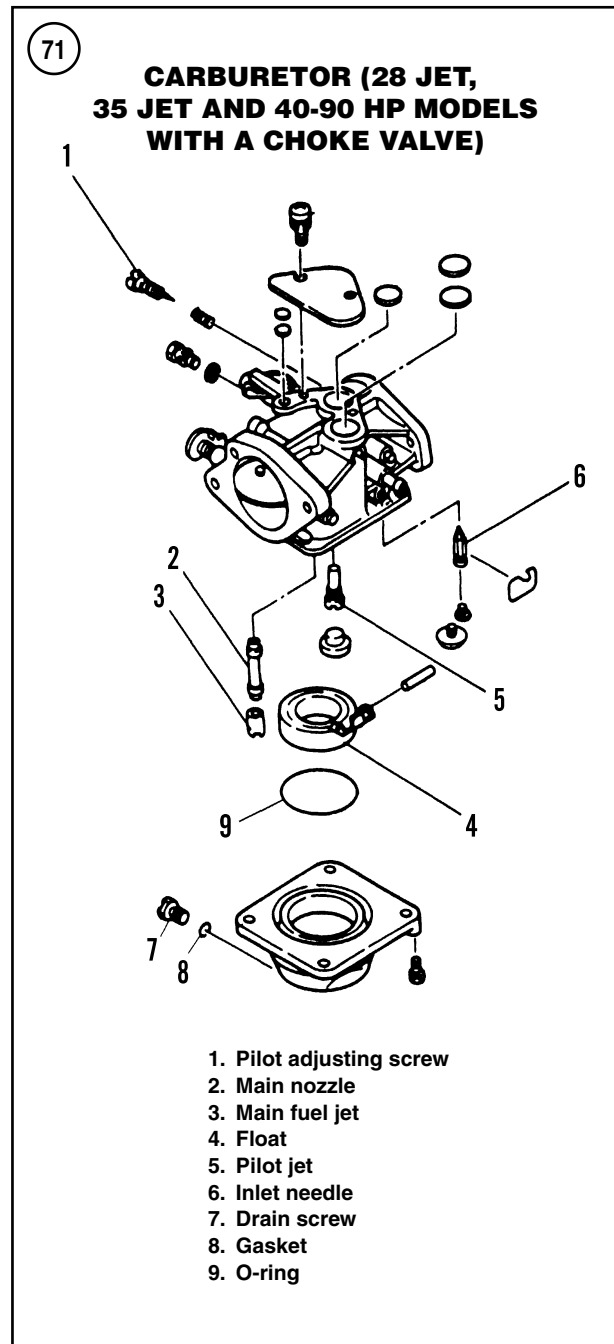
- a. Install new gaskets and seals in all locations.

- b. Apply a light coat of water-resistant grease to the throttle shaft and pilot adjusting screw spring.
 - c. Fit the pull-off clip onto the groove in the inlet needle. Slip the clip over the tab of the float during installation.
9. Adjust the float height as follows:
 - a. Place the carburetor on a work surface with the bowl side facing up.
 - b. Gently lift and drop the float several times to verify proper seating of the inlet needle.
 - c. Measure the float height at the points indicated in **Figure 68**. If the float height is not in the range in **Table 3**, remove the float and gently bend the float tab (**Figure 65**) until the measurement is correct. If the tab is not used on the float, replace the float to correct the float height.
 - d. Install the float bowl.
10. Install the carburetor and silencer cover as described in this chapter.

28 jet, 35 jet and 40-90 hp Prime-Start models

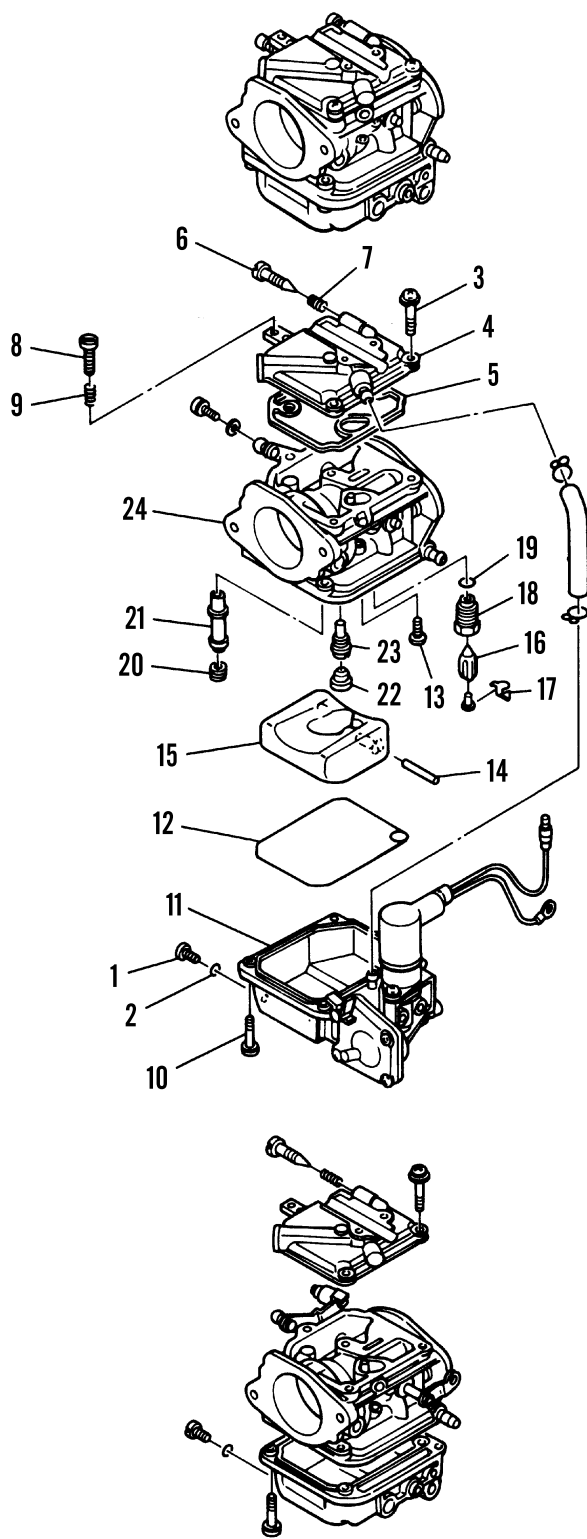
Refer to **Figure 72** for this procedure.

1. Remove the silencer cover and carburetors as described in this chapter.
2. Position the carburetor over a container suitable for holding fuel, then remove the float bowl drain screw (1, **Figure 72**) and O-ring (2). Discard the O-ring. Drain all fuel from the float bowl.
3. For the middle carburetor, remove the electrothermal valve and Prime-Start pump from the carburetor as described in this chapter.
4. Remove the four screws (10, **Figure 72**), float bowl (4) and O-ring (12). Discard the O-ring.
5. Remove the screw (13, **Figure 72**), then lift the float (15), float pin (14) and inlet needle (16) from the carburetor. Remove the pull-off clip (17, **Figure 72**) from the needle.
6. Remove the main fuel jet (20, **Figure 72**) and nozzle (21). Remove the plug (22, **Figure 72**), then unthread the pilot jet (23) from the carburetor.
7. Remove the screws and washers (3, **Figure 72**), then lift the top cover (4) and O-ring (5) from the carburetor. Discard the O-ring.
8. Remove the pilot adjusting screw (6, **Figure 72**) and spring (7), and the idle speed adjusting screw (8) and spring (9).
9. Assembly is the reverse of disassembly. Note the following:
 - a. Install new gaskets and seals in all locations.
 - b. Apply a light coat of water-resistant grease to the throttle shaft and pilot adjusting screw spring.



10. Adjust the float height as follows:
 - a. Place the carburetor on a work surface with the bowl side facing up.
 - b. Gently lift and drop the float several times to verify proper seating of the inlet needle.
 - c. Measure the float height at the points indicated in **Figure 64**. If the float height is not in the range in **Table 3**, remove the float and gently bend the float

72

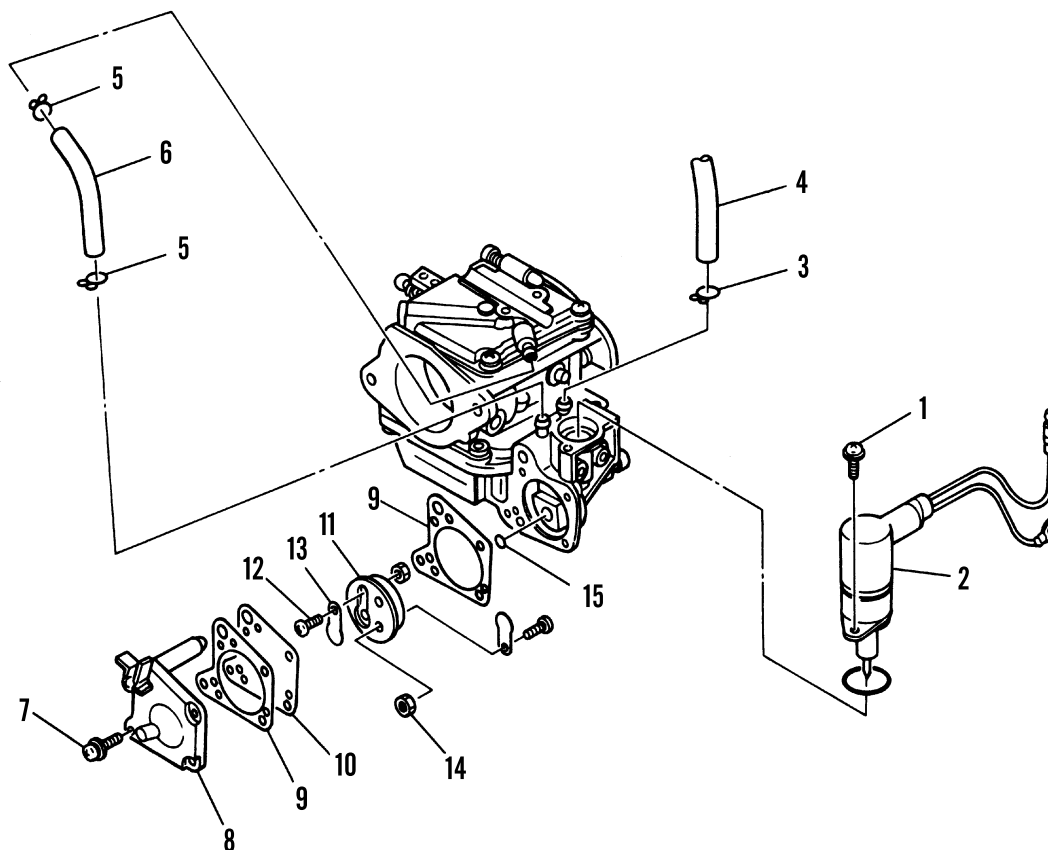


CARBURETOR (28 JET, 35 JET AND 40-90 HP MODELS WITH PRIME-START)

1. Bowl drain screw
2. O-ring
3. Screw and washer
4. Cover
5. Gasket
6. Pilot adjusting screw
7. Spring
8. Idle speed adjusting screw
9. Spring
10. Screw and washer
11. Float bowl
12. O-ring
13. Screw
14. Float pin
15. Float
16. Inlet needle
17. Clip
18. Inlet valve seat
19. Sealing washer
20. Main fuel jet
21. Main nozzle
22. Plug
23. Pilot jet
24. Carburetor body

73

PRIME-START PUMP AND ELECTROTHERMAL VALVE (28 JET, 35 JET AND 40-90 HP MODELS)



1. Screw and washer
2. Electrothermal valve
3. Hose clamp
4. Hose
5. Hose clamp
6. Hose
7. Screw and washer
8. Pump cover

9. Gasket
10. Diaphragm
11. Valve body
12. Screw
13. Valve
14. Nut
15. O-ring

tab (**Figure 65**) until the measurement is correct. If the tab is not used on the float, replace the float to correct the float height.

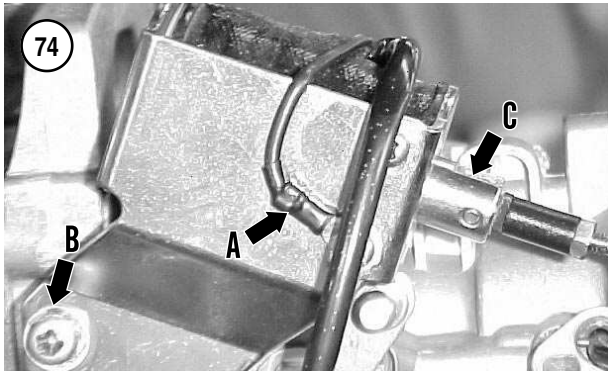
d. Install the float bowl.

11. For the middle carburetor, install the electrothermal valve and Prime-Start pump as described in this chapter.
12. Install the carburetor and silencer cover as described in this chapter.

Electrothermal Valve

The electrothermal valve is mounted on the port side of the middle carburetor. It can be replaced without the carburetor being removed or disassembled.

1. Disconnect and ground the spark plug leads to prevent accidental starting.
2. On electric start models, disconnect the battery cables.



3. Use compressed air to blow all debris or contaminants from the electrothermal valve mounting surfaces. This will help prevent contaminants from entering the Prime-Start pump.
4. Disconnect the electrothermal valve wires from the engine ground terminal and the connector on the engine wire harness.
5. Remove the screws and washer (1, **Figure 73**), then carefully lift the electrothermal valve (2) from the carburetor. Remove the O-ring from the valve or valve bore in the carburetor. Discard the O-ring.
6. Use a lint-free shop towel to wipe debris or contaminants from the electrothermal valve bore in the carburetor. Contamination in the bore will eventually block passages in the Prime-Start pump.
7. Install a new O-ring onto the electrothermal valve. Apply a light coat of Yamaha All-Purpose Grease to the O-ring.
8. Insert the valve tip into its bore in the carburetor and seat the valve onto the carburetor. Rotate the valve to align the mounting screw openings. Install and securely tighten the screws.
9. Connect the electrothermal valve ground and engine harness connections. Route the wire to prevent interference with moving components. Secure the wires with plastic locking type clamps as needed.
10. Connect the spark plug leads.
11. Connect the battery cables.

Prime-Start Pump

The Prime-Start pump is installed on the side of the middle carburetor. The valve can be serviced without the carburetor being removed or disassembled. If there is debris or contamination in the pump, completely disassemble and clean all three carburetors.

Refer to **Figure 73** for this procedure.

1. Disconnect and ground the spark plug leads to prevent accidental starting.
2. On electric start models, disconnect the battery cables.
3. Remove the silencer cover as described in this chapter.
4. Remove the electrothermal valve as described in this chapter.
5. Remove the three screws and washers (7, **Figure 73**), then carefully remove the pump cover (8), gasket (9) and diaphragm (10). Discard the gasket and diaphragm.
6. Pull the valve body (11, **Figure 73**) from the carburetor. Remove and discard the O-ring (15, **Figure 73**).
7. Remove the screws (12, **Figure 73**) and nuts (14), then lift the valves (13) from the valve body.
8. Clean all removed components, except the electrothermal valve, in a suitable solvent and dry them with compressed air.
9. Inspect the valves for bent, chipped or damaged surfaces. Inspect the valve body for wear at the valve contact surfaces. Replace the valve body and valves if there are worn or damaged surfaces.
10. Assembly is the reverse of disassembly. Install new seals, gaskets, diaphragms and O-rings in all locations during assembly.
11. Install the electrothermal valve as described in this chapter.
12. Install the silencer cover as described in this chapter.
13. Connect the spark plug leads.
14. Connect the battery cables.

Choke Solenoid

The choke solenoid is located on the starboard side of the carburetors.

1. Disconnect the battery cables.
2. Disconnect and ground the spark plug leads to prevent accidental starting.
3. Disconnect the blue choke solenoid wire from the engine wire harness connection.
4. Disconnect the black choke solenoid terminal (A, **Figure 74**, typical) from the engine ground connection.
5. Remove the mounting screws (B, **Figure 74**, typical) and lift the solenoid from the mount.
6. Apply a light coat of Yamaha All-Purpose Grease or equivalent to the choke plunger (C, **Figure 74**, typical), then insert the plunger into the solenoid. Install the mounting screws and securely tighten them.
7. Connect the black choke solenoid terminal to the engine ground. Connect the blue solenoid wire to the engine wire harness connection.
8. Connect the spark plug leads.
9. Connect the battery cables.