

FIGURE 8. BF AND NH SPEC J AIR FILTER ASSEMBLY

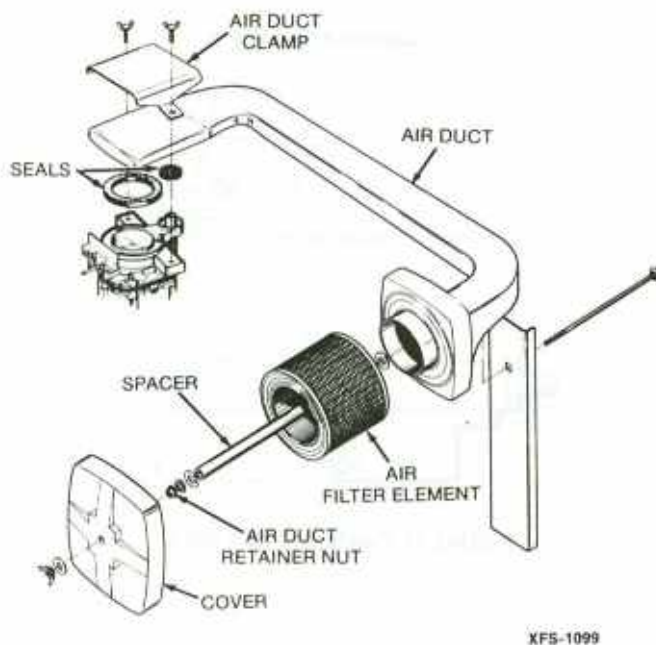


FIGURE 9. BFA, BGA, AND NH SPEC K-P AIR FILTER ASSEMBLY

BFA, BGA, and NH Spec K-P Disassembly/Assembly: To disassemble, loosen the air filter wing nut and remove the air filter cover and air filter element. Loosen the air duct retaining nut and remove the washers, spacer, and carriage bolt. Loosen the air duct clamp wing screws and remove the air duct clamp, air duct, and adapter to air duct seals. Assembly is the reverse of disassembly.

When assembling, replace any seals that are deteriorated.

Carburetor And Intake Manifold Assembly

The carburetor and intake manifold must be removed as an assembly. Refer to Figure 10.

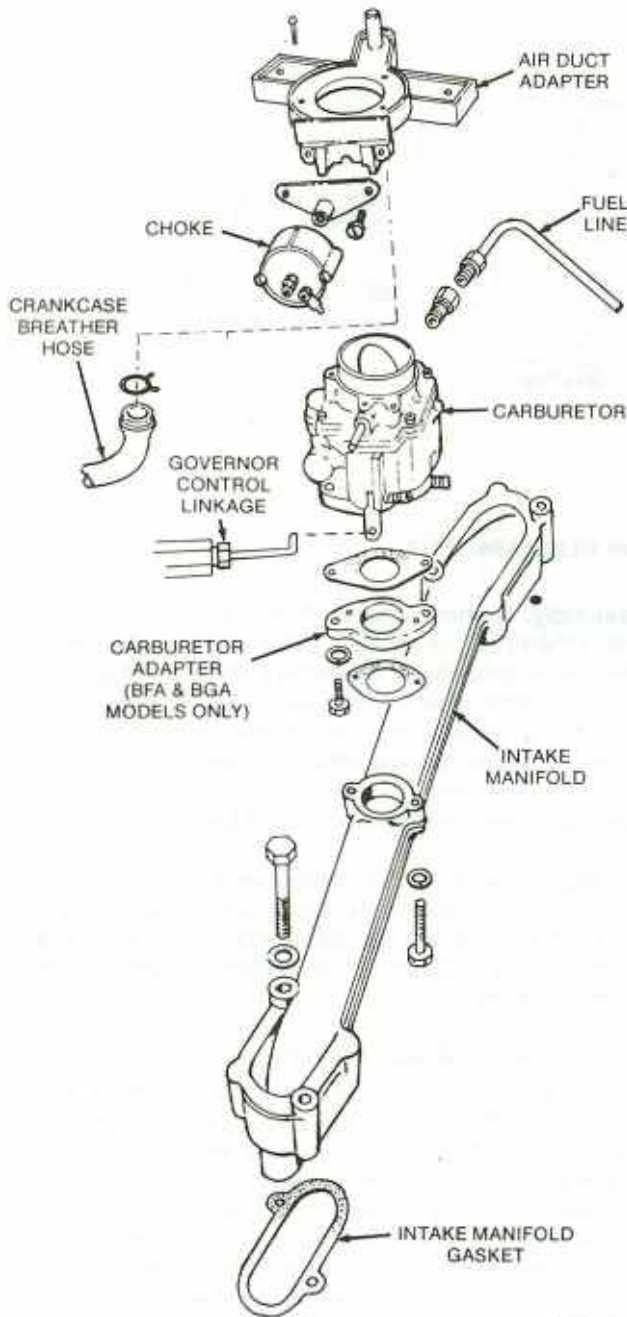
Disassembly: Remove the air filter assembly as described in the previous section. Disconnect the fuel line, crankcase breather hose, governor control linkage, and choke lead from the carburetor. Loosen the intake manifold cap screws and lift off the carburetor and intake manifold as an assembly. Remove the two intake manifold gaskets and plug the intake ports with a rag to prevent accidental entrance of loose parts.

Assembly: Carburetor and intake manifold assembly is the reverse of disassembly. Use new gaskets when assembling and tighten the manifold cap screws to the specified torque. Do **not** use sealer on the intake manifold gaskets.

Carburetor Float Adjustments

A high float setting might result in hard starting and flooding when the engine is warm. A low float setting will result in insufficient fuel delivery which can cause stumbling or hesitation when a load is applied. Remove the intake manifold assembly as described in the previous section. Remove the carburetor from the intake manifold for easier handling when checking the float level. Separate the upper body of the carburetor from the fuel bowl section. Refer to the appropriate section for the adjustment procedures.

BFA, BGA, and NH Generator Sets: A carburetor design change in 1979 resulted in several changes to the carburetor used on BFA, BGA, and NH generator sets. However, the carburetor part number and the generator spec number did not change. Before making any adjustments, identify the carburetor by comparing it with the illustrations in Figure 11. Positive identification is necessary because the float adjustments are not the same for the two carburetors. Refer to the following sections for the appropriate adjustment procedures.



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FIGURE 10. INTAKE MANIFOLD ASSEMBLY

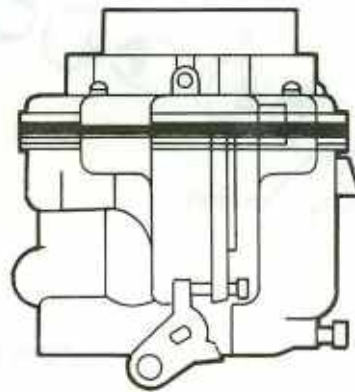
Adjust the float setting for **Carburetor Type A** using the following procedure:

The float level setting is specified in Table 1. Hold the carburetor as shown in Figure 12 and place a straight edge across the top of the bowl (without gasket). The float assembly tab *should* be resting against the needle valve. Measure the distance between the top of the float and the straight edge as shown in Figure 12. If the setting is incorrect, remove the float assembly to adjust. Bend the assembly only at the point indicated in Figure 12.

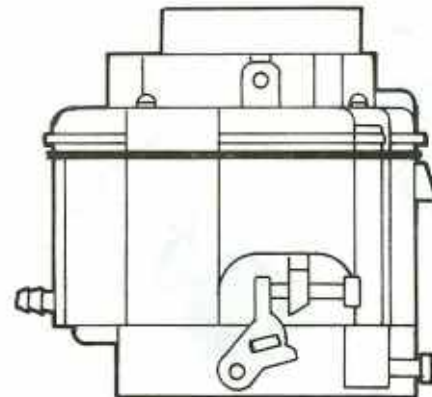
CAUTION Attempting adjustments with the float assembly installed might damage the inlet needle and seat. Remove float assembly before making adjustments.

BFA, BGA, NH

CARBURETOR TYPE A (PRE-1979)

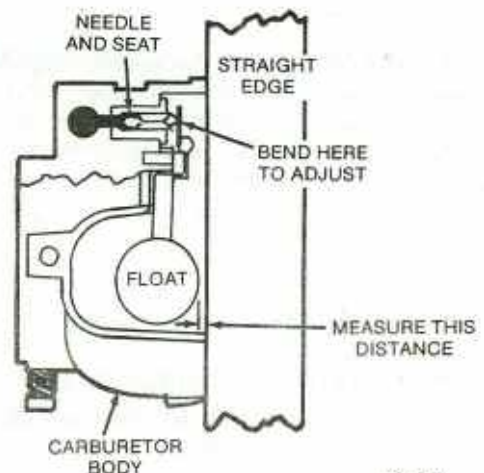


CARBURETOR TYPE B



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FIGURE 11. CARBURETOR TYPES



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FIGURE 12. CARBURETOR TYPE A ADJUSTMENTS

TABLE 1. CARBURETOR ADJUSTMENT SPECIFICATIONS

MODEL	MIXTURE SETTINGS		FLOAT* DROP	FLOAT* LEVEL
	IDLE	MAIN		
BF	1 $\frac{1}{4}$	1 $\frac{1}{4}$	—	5/16 \pm 1/32 in. (7.9 \pm 0.8 mm)
Carb. A BFA, BGA, NH	7/8-1 $\frac{1}{8}$	1 $\frac{1}{4}$ -1 $\frac{1}{2}$	—	0.07 \pm 0.02 in. (1.8 \pm 0.5 mm)
Carb. B BFA, BGA, NH	7/8-1 $\frac{1}{8}$	1 $\frac{1}{4}$ -1 $\frac{1}{2}$	0.200 in. (0.005 mm) minimum	0.02 \pm 0.02 in. (0.5 \pm 0.5 mm)

*When checking float drop and float level, measure to float body, not seam.

Adjust the float setting for **Carburetor Type B** using the following procedure:

A Float Drop and a Float Level setting is specified in Table 1 for the type B carburetor. To check the **float drop**, hold the carburetor as shown in Figure 13 and place a straight edge across the top of the bowl (without gasket). The float assembly **should not** be resting on the needle valve. Measure the distance between the top of the float and the straight edge as shown in Figure 13. If the setting is incorrect, remove the float assembly to adjust. Bend the assembly only at the point indicated in Figure 13.

CAUTION Attempting adjustments with the float assembly installed might damage the inlet needle and seat. Remove float assembly before making adjustments.

To check the **float level**, invert the carburetor as shown in Figure 13 and place a straight edge across the top of the bowl (without gasket). The float assembly **should** rest against the needle valve. Measure the distance between the top of the float and the straight edge as shown in Figure 13.

The top of the float should extend out of the float bowl. If the setting is incorrect, remove the float assembly to adjust. Bend the assembly only at the point indicated in Figure 13.

BF Generator Sets: The float level setting is specified in Table 1. To adjust, invert the fuel bowl cover so that the float assembly is resting on the inlet needle valve as shown in Figure 14. Place the bowl cover gasket on the bowl cover. Measure the distance between the bowl cover gasket and the end of the float (side opposite needle valve). If the setting is incorrect, remove the float assembly to adjust. Bend the float near the shaft to obtain the correct level.

CAUTION Attempting adjustments with the float assembly installed might damage the inlet needle and seat. Remove float assembly before making adjustments.

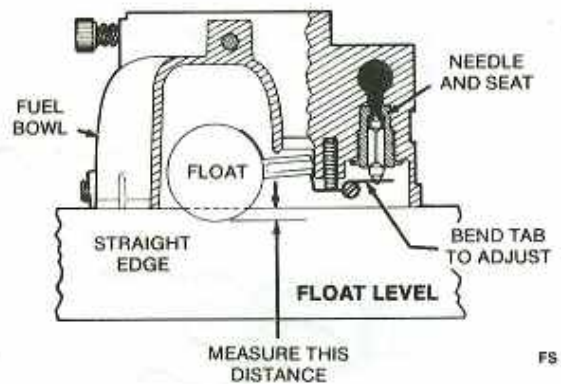
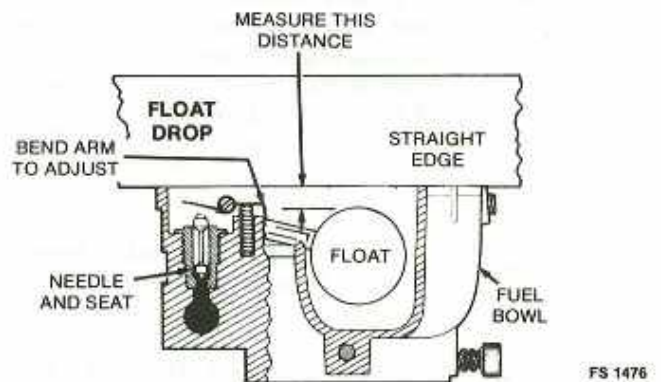


FIGURE 13. CARBURETOR TYPE B ADJUSTMENTS

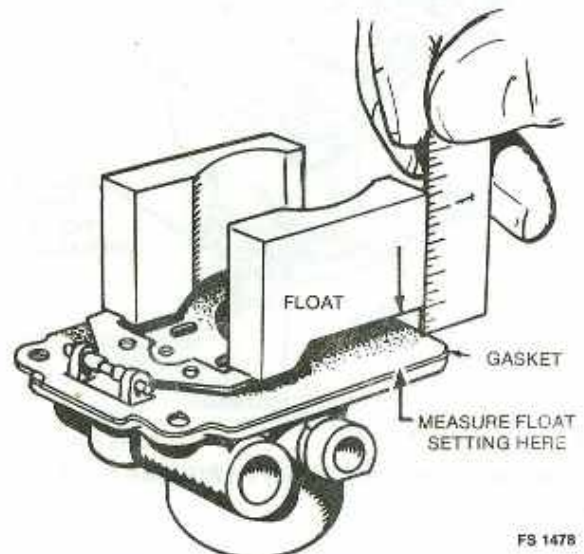


FIGURE 14. BF FLOAT LEVEL ADJUSTMENTS

Mixture Screw Adjustments

The most common cause of poor carburetion is unsatisfactory adjustment of the idle or main mixture adjustment screws. Significant variation from the correct settings may result in serious engine trouble. An overly rich mixture not only wastes fuel, but can increase engine wear by washing the lubricant from the cylinder walls and diluting the crankcase oil. An overly lean mixture results in a loss of power, flat spots in acceleration and a greater tendency to burn valves and spark plugs.

Mixture screw adjustment should be checked with every engine tune-up and whenever a carburetion problem is suspected. Before adjusting, be sure the ignition system is working properly and the governor is correctly set. If the carburetor is totally out of adjustment, use the mixture settings given in Table 1 as preliminary adjustments. Turn the mixture screws in until lightly seated, then turn out the specified number of turns.

CAUTION Forcing the mixture adjustment screws tight will damage the needle and seat. Turn in only until light tension can be felt.

WARNING T-handled main adjustment screws are locked in position with a packing nut. This nut must be loosened before adjustments are made and retightened afterward. Failure to tighten the packing nut might result in leaking fuel, creating a serious fire hazard.

Start the engine and allow it to warm up until the choke is completely open, then set the adjustment screws. Refer to Figures 15 and 16 for the location of the idle and main adjustment screws.

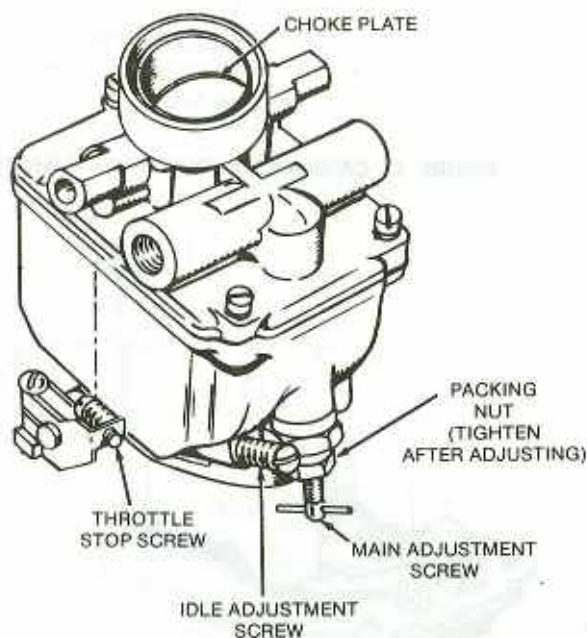


FIGURE 15. MIXTURE SCREW ADJUSTMENTS (BF)

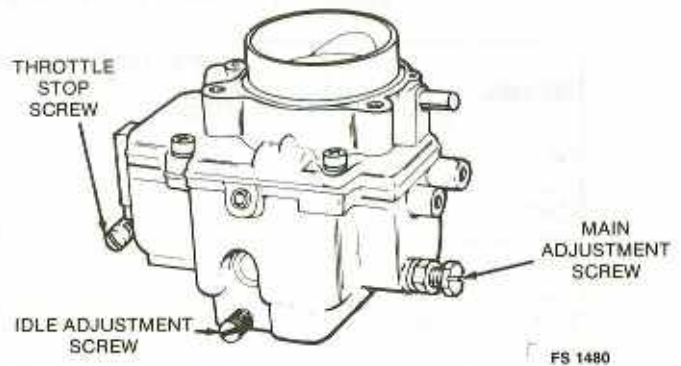


FIGURE 16. MIXTURE SCREW ADJUSTMENTS (BFA, BGA, NH)

Use the following procedure to adjust the idle and main adjustment screws.

1. Remove all electrical loads and connect a voltmeter and frequency meter to the generator set.
2. Pull the governor linkage toward the front of the set so that the throttle lever on the carburetor is resting against the throttle stop screw. Adjust the stop screw to obtain a setting of 90 to 100 volts on the voltmeter.
3. Continue to hold the governor linkage. Determine the best idle mixture setting by first turning the idle adjustment screw inward until set voltage (or frequency) drops (indicating a lean mixture) and then outward until set voltage (or frequency) drops again (rich mixture). Over a narrow range between these two settings the generator set voltage (or frequency) will remain at its highest. Set the idle adjustment screw slightly outward (rich) from the midpoint of this highest voltage range. Readjust the throttle stop screw as needed to retain the 90 to 100 volt setting.
4. Release the governor and apply a full load to the set. Set the main adjustment screw using the same procedure as given above for idle adjustment. Once again, final adjustment should be to a point slightly outward (rich) from the midpoint of the highest voltage range (highest frequency). Set the governor to the voltage and frequency specified in the Governor Adjustments section.
5. Remove the load from the generator, then observe the stability of the generator set. Adjust the sensitivity of the governor as necessary (see Governor Adjustments section). Add and remove a full load several times to make certain the generator set does not bog down or hunt.

Carburetor Overhaul

Carburetion problems not corrected by mixture or float adjustments are usually a result of gummed-up fuel passages or worn internal parts. The most effective solution is a complete carburetor overhaul.

In general, overhauling a carburetor consists of complete disassembly, a thorough cleaning, and replacement of worn parts. Carburetor repair kits are available that supply new gaskets and replacements for those parts most subject to wear.

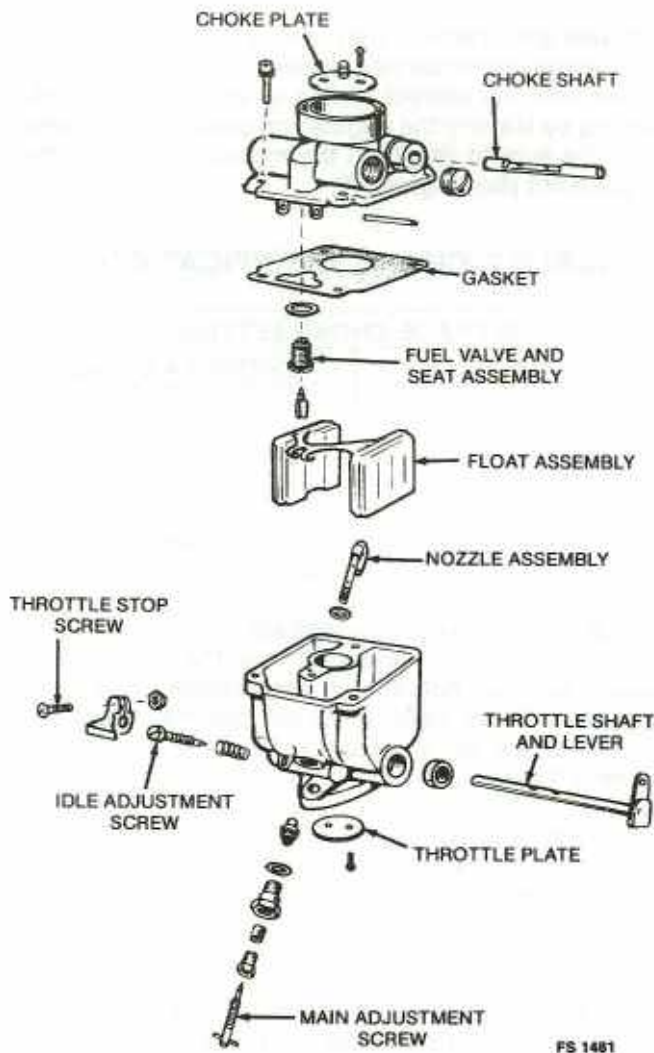


FIGURE 17. CARBURETOR OVERHAUL (BF)

General instructions for overhauling a carburetor are given below. Carefully note the position of all parts while removing to assure correct placement when reassembling. Read through all the instructions before beginning for a better understanding of the procedures involved. Carburetor components are shown in Figures 17 and 18.

Removal And Disassembly: Remove the carburetor and intake manifold assembly as specified in the Carburetor And Intake Manifold Assembly section. Remove the carburetor from the intake manifold and disassemble using the following procedure.

1. Remove the air cleaner adapter and the automatic choke assembly.
2. Remove throttle and choke plate retaining screws, then plates. Pull out throttle and choke shafts, being careful not to damage the teflon coating applied to some throttle shafts.
3. Remove main and idle mixture screw assemblies.
4. Separate the lower section of the carburetor (fuel bowl) from the upper section (fuel bowl cover) of the carburetor.

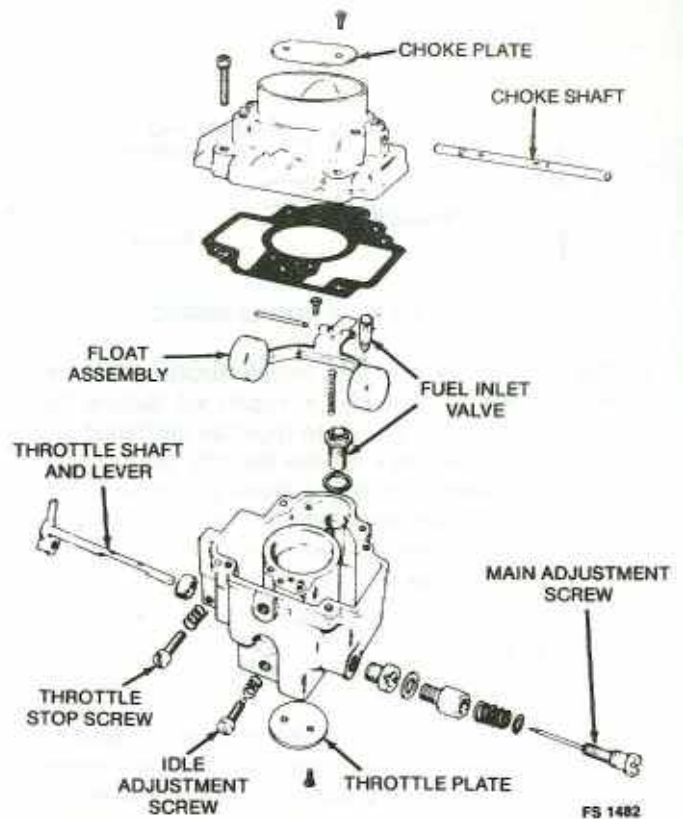


FIGURE 18. CARBURETOR OVERHAUL (BGA, BFA, NH)

5. Carefully note position of float assembly parts, then slide out retaining pin and remove the float assembly, any springs or clips, and the needle valve.
6. Unscrew and remove needle valve seat.

Clean And Repair: When the carburetor is completely disassembled, clean and repair using the following procedure.

1. Soak all metal components not replaced by repair kit in carburetor cleaner. Do not soak non-metal floats or other non-metal parts. Follow the cleaner manufacturer's recommendations.
2. Clean all carbon from the carburetor bore, especially where the throttle and choke plates seat. Be careful not to plug the idle or main fuel ports.
3. Blow out all passages with compressed air. Avoid using wire or other objects for cleaning that might increase the size of critical passages.
4. Check the condition of any needle valve not included in repair kit and replace if damaged (Figure 19). Replace float if loaded with fuel or damaged.
5. Check the choke and throttle shafts for excessive play in their bore and replace if necessary.
6. Replace old components with new parts included in repair kit.

Reassembly And Installation: When the carburetor parts are clean and dry, reassemble using the following procedure.

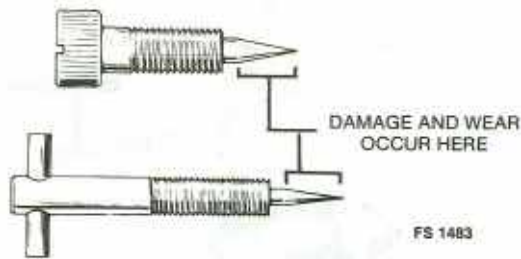


FIGURE 19. MIXTURE NEEDLE INSPECTION

1. Slide in throttle shaft and install throttle plate using new screws, if furnished in repair kit. Before tightening the screws, the plate must be centered in the bore. To do so, back off the throttle stop screw as necessary and completely close the throttle lever. Seat the plate by gently tapping with a small screwdriver, then tighten screws. Install the choke shaft and plate in the same manner.
2. Install main and idle mixture screw assemblies. Turn in screws until lightly seated and then out the number of turns specified in Table 1.

CAUTION Forcing the mixture adjustment screws tight will damage the needle and seat. Turn in only until light tension is felt.

3. Install needle valve and seat, fuel bowl gasket and float assembly. Make sure that all clips and springs are properly placed and that the float moves freely without binding. Check float level and adjust as specified in Carburetor Float Adjustments section.
4. Rejoin upper and lower carburetor sections.
5. Reinstall carburetor and adjust idle and main adjustment screws as specified in the Carburetor Adjustment section.

Choke

The choke consists of a bi-metal coil and an electric heating element. The bi-metal coil connects to the choke shaft and holds the choke plate nearly closed when the engine is cold.

As the engine starts, current is supplied to the electric heating element in the choke cover. Heat from the element causes the bi-metal coil to twist. The twisting action of the coil turns the choke valve shaft and gradually opens the valve. Heat from the element keeps the choke open while the engine is running.

WARNING The choke cover gets very hot during normal operation and can cause serious burns if touched. Do not touch the choke cover while the set is operating.

If the engine starts but runs roughly and blows out black smoke after a minute or two of operation, the choke is set too rich. If the engine starts but sputters or stops before it warms up, the choke is set too lean.

Adjustment: Table 2 lists average choke settings. Loosen the two mounting screws and rotate the choke cover until the correct setting is attained. Check the setting by starting the engine and observing its operation. Be sure to retighten the mounting screws after adjustment (See Figure 20).

TABLE 2. CHOKE SPECIFICATIONS

AVERAGE CHOKE SETTING	
AMBIENT TEMP	CHOKE OPENING
58° F (14° C)	closed
66° F (19° C)	1/4 open
72° F (22° C)	1/2 open
76° F (24° C)	3/4 open
82° F (28° C)	open

Repair: If the choke fails to operate, check to see if the heating element is working. If it is, the choke cover should become hot after a few minutes of engine operation. If the cover does not get hot, check for current at the cover terminal. The engine must be running. Trace down any opens or shorts.

Remove the choke cover to inspect the heating element and coil. See that the element is not burned out or broken. The bi-metal coil must not be damaged, dragging in the housing, or have an improperly directed spiral.

When installing a new coil, maintain the original direction of spiral inward from the fastening screw. Be sure the coil sets squarely in the housing so it will not bind.

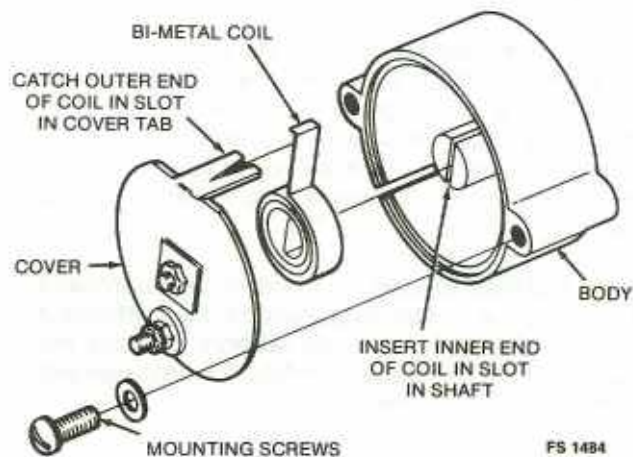


FIGURE 20. ELECTRIC CHOKE ADJUSTMENT