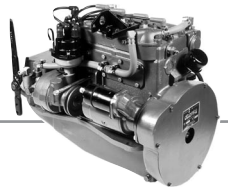

These instructions apply to both our Carburetor Full Rebuild Kit (FCAR_02_54), and the Carburetor Service Kit (FCAR_594) packaged by Zenith. As per Zenith's recommendation, replacement of the choke and throttle shaft seals contained in their service kit are normally unnecessary due to the limited throttle usage in our marine application versus that which is encountered in an automotive application (racing from traffic light to traffic light).

OPERATING PRINCIPLE

1. A float valve maintains the fuel level within the bowl chamber (and internal passages) to a point approximately 5/16" below the top of the main discharge nozzle.

2. At idle, fuel is drawn up through the idle passage (through the idle fuel jet) and into the upper throat of the carburetor through two small idle ports.

3. During idle, air is also mixed with the fuel by the idle mixture needle valve on top of the carburetor.

4. As the engine accelerates, the throttle valve uncovers the second (lower) idle port to increase fuel flow and assist in smoothly getting "off idle" to higher RPM.

5. At speeds above idle, the venturi creates low pressure sufficient to draw fuel up through the main discharge nozzle. From there the fuel is atomized in the air stream as it passes up into the intake manifold.

6. As RPM increases, proper fuel/air mixture is supplied through the main discharge nozzle by the inter-action of the main jet (which meters fuel) and the well vent jet (which meters air).

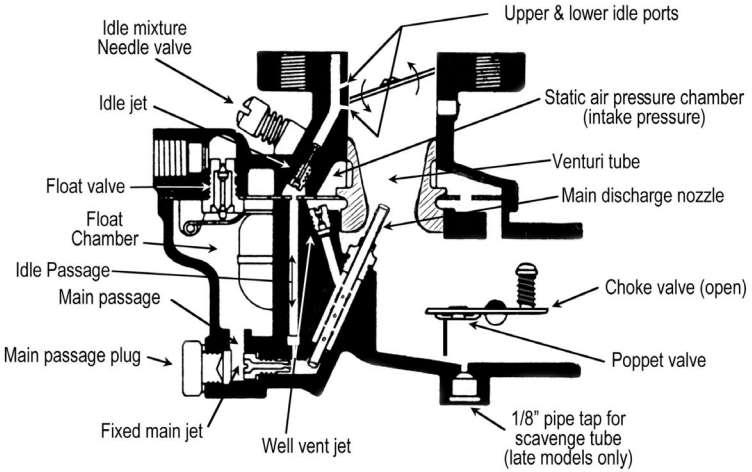

Fig. 1

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DISASSEMBLY

Note: If the carburetor has been recently cleaned, steps I through 3 can be skipped.

1. Remove the 2 small bolts securing the throttle valve and then slide the shaft and throttle lever out through the side of the upper housing.

2. Remove the choke lever, spring, and bracket from the lower housing.

3. Remove the 2 small bolts securing the choke valve and then slide the choke rod out through the side of the lower housing.

4. Remove the idle mixture adjusting needle and spring from the top of the carburetor.

5. Remove the 4 (or 5) bolts holding the upper and lower housings together.

6. Pry the upper and lower housings apart. Try to have the gasket come off with the upper housing.

7. Remove the float assembly from the upper housing by removing its pivot pin. If the gasket is still intact, it can be removed at this time. See Fig 2.

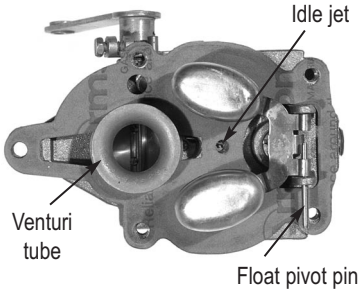

Fig. 2

8. Remove the venturi tube, the idle jet, and float valve seat from the upper housing.

Caution: The idle jet is extremely easy to damage during removal. It is important to procure the exact sized screw driver to fit the slot on top of the jet. It is better to leave the idle jet installed than to destroy it in attempting to remove it.

9. Remove the 1/2" hex head plug (the main passage plug) from the bottom of the lower housing (See Fig 2) and remove the brass main jet directly in front of the main passage plug. Be careful not to lose the small round main jet gasket. This gasket sometimes stays in the lower housing and other times comes out with the main jet.

NOTE: On early models, the 1/2" hex head plug will be replaced by an adjusting needle. A new adjusting needle is included in kit.

10. From the top of the lower housing, remove the well vent jet, and the main discharge nozzle. The hex head of the discharge nozzle requires an 11/32" nut driver. See Fig 3.

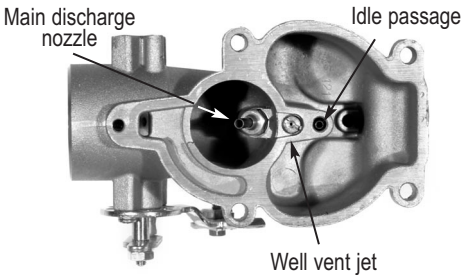

Fig. 3

REASSEMBLY

Prior to reassembly, clean all internal passages of both upper and lower housings using a good quality aerosol carburetor cleaner. The small plastic tube that comes with these cans is ideal to reach into all of the passages and chambers. **If installing a new kit, install all new jets and nozzles.** Otherwise, clean the orifices of the idle jet, the main jet, the well vent jet, and the main discharge nozzle.

Examine the float valve seat with a strong light (and magnifying glass if available). **If any imperfections exist around the orifice where the needle seats, dress up the orifice using a pointed 3/16" hard wood dowel.** Press and turn the dowel into the seat until the orifice is clean and free of imperfections. See Fig 4.

Fig. 4

Reassemble the upper housing as follows:

1. Install the idle jet, and float valve seat (with its washer).

2. Install the venturi tube and main bowl gasket. See Fig 4 for proper relationship between gasket and tube.

3. Install the needle valve and float assembly. With the upper housing held upside down, make sure that the float assembly is parallel with the underside of the housing. See Fig 5.

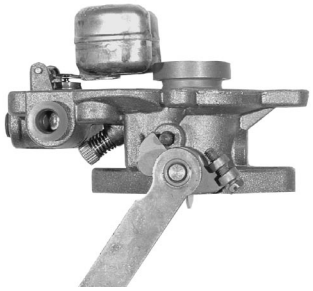

Fig. 5

Reassemble the lower housing as follows:

1. Install the well vent jet, then the main jet, the main discharge nozzle, and the main passage plug (with their washers in place). On early models, turn the main jet adjusting needle in against the seat and then back it out about 2 turns. Later, with the engine fully warmed up, set the adjustable main jet for best RPM at normal cruising power setting.

2. Holding the upper housing upside down, carefully slip the lower housing down in place over the venturi tube and the float assembly.

3. Install the 4 (or 5) retaining bolts to the secure the housings together.

4. Install the idle mixture needle and spring in the upper housing. After seating the needle against its seat, turn it back out approximately 1 1/2 turns. After the engine is started and warmed up, set the idle mixture valve for smoothest idle condition. Turn the valve "in" to make the mixture richer and "out" to lean it.

5, Install the choke lever, choke valve, and choke return spring.

Caution note: Be careful to not overtighten the 11/32" nut on the end of the choke rod when securing the cable lever. These threads strip relatively easily.

4. Install the throttle rod, and throttle valve. Turn the idle speed adjusting screw in or out until the throttle valve is slightly cracked open. When the engine is started, set idle speed to approximately 800 RPM.

PREVENTATIVE MAINTENANCE

It is critically important to provide clean fuel to the carburetor for dependable performance of the engine.
An in-line fuel filter is recommended directly ahead of the carburetor if there is any uncertainty regarding the condition of the fuel supply system.

1. Change or service the main fuel filter (following the manufacturer's recommendations) at least once each year, preferably during Spring start-up.

2. Clean out the sediment bowl on mechanical fuel pumps once each year, preferably during Spring start-up.

3. Replace the in-line filter once each 5 years. (This frequency can be increased if it is not practical to service the fuel pump sediment bowl each Spring.

4. The following procedure should be performed during Spring start-up to insure that any sediment or water that may have collected during winter is removed:

a. Remove the main passage plug from the bottom of the carburetor and drain its contents into a clean glass jar. Examine the fuel carefully for particulates or water.

b. While holding the glass jar below the carburetor, operate the priming lever of the fuel pump until clean fuel is once again observed coming through the carburetor. Electric pumps can be operated by installing a jumper wire across the oil safety switch.

5. During Winter lay-up, it is recommended that the fuel tank be filled so as to minimize the condensation of water vapor within the air space above the fuel.

NOTE: The prevention of water accumulation within the fuel system pays big dividends in dependability. Even if the water never gets to the carburetor; after a certain period of time it will cause corrosion debris and scaling within the fuel system. Also, bio-growth is known to grow along the interface between fuel and water. **Both of these contaminants will clearly pose a threat to dependable performance.**