FLOAT SYSTEM

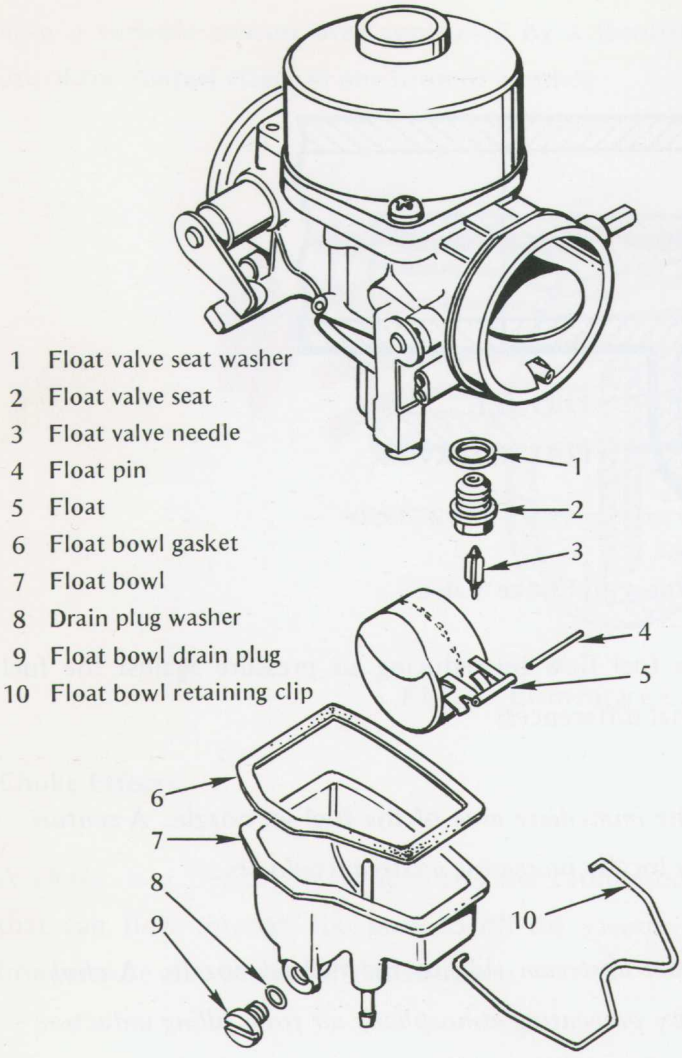

FIG. 4 Float System Components

The purpose of the float system is to maintain a constant and correct level of fuel in the carburetor's fuel reservoir.

A float, made of brass or plastic, rises and falls with the level of fuel in the float chamber.

When the float rises, the arm on which the float pivots presses against a valve, shutting off the fuel supply to the float chamber (Fig. 5).

When the float falls, the float arm releases the valve, allowing fuel to enter the float chamber (Fig. 6).

The float arm is adjusted to close the valve when the fuel reaches exactly the right level. If the fuel level should rise above the correct level, too much fuel may be released into the carburetor bore, resulting in a rich air-fuel mixture. If the fuel level should fall below the correct level, too little fuel may reach the carburetor bore, resulting in a lean mixture.

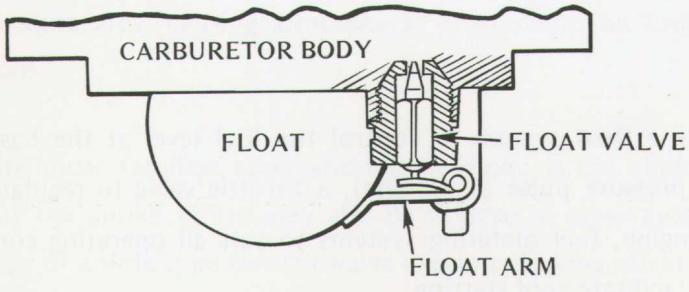

FIG. 5 Float Valve Closed

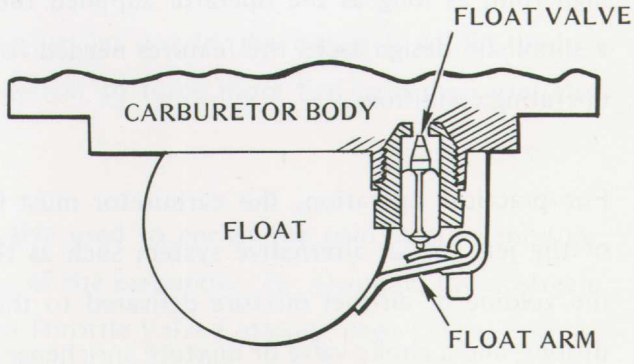

FIG. 6 Float Valve Open

Eccentric Float Chamber:

A single float, located to one side of the fuel jet (Fig. 7) maintains a constant fuel level in the jet while the machine stands in an upright position but causes the fuel level in the jet to rise or fall when the machine is tilted to one side. If the carburetor uses a separate float chamber, mounted to one side of the carburetor, the variation in fuel level is even more pronounced.

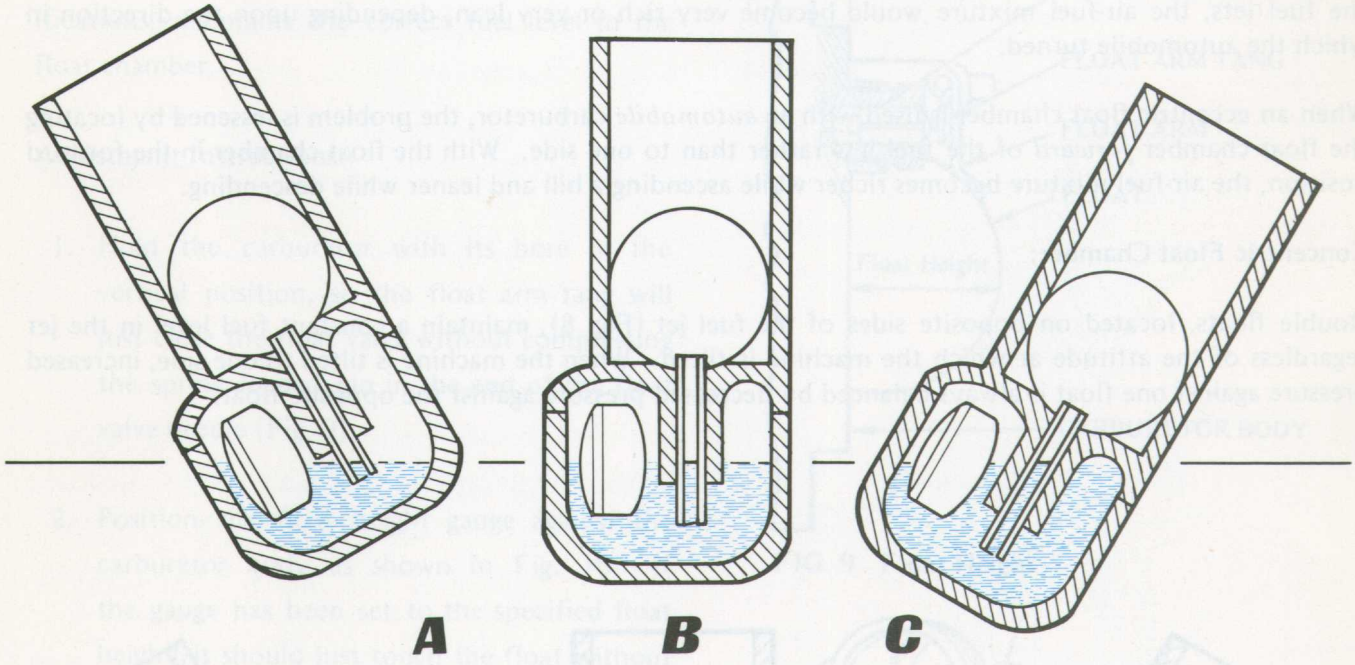

FIG. 7 Eccentric Float Chamber

In Fig. 7B, the motorcycle is standing upright. When fuel enters the float chamber, the float rises to the position illustrated and closes the float valve. The fuel level is maintained at the height shown.

When fuel enters the float chamber with the motorcycle tilted as shown in Fig. 7A, the float will be raised to the closed position before the fuel level rises to the correct height in the jet.

When fuel enters the float chamber with the motorcycle tilted as shown in Fig. 7C, the float will not be raised to the closed position until the fuel level rises above the correct height in the jet.

Fuel levels shown in Fig. 7A, B, & C apply when the motorcycle is at rest or operated in a straight line. Under those conditions, gravity is the controlling force. When the motorcycle negotiates a curve in the road, however, centrifugal force also affects the level of the fuel.

When ridden through a curve in the road, the motorcycle is leaned to the inside of the curve to a point where the combination of gravitational force and centrifugal force acts through the plane of the wheels. Fortunately, this combination of forces also serves to keep the fuel level in the carburetor perpendicular to the jet, as shown in Fig. 7B.

Because a motorcycle is leaned to the inside of the curve when cornering, an eccentric float chamber located to one side of the fuel jet will maintain the correct fuel level in the jet under most operating conditions.

If an eccentric float chamber, located to one side of the jet, were to be used in an *automobile*, centrifugal force while cornering would pose a problem. Because an automobile does *not* lean to the inside of the curve, fuel is sloshed to one side of the float chamber. If the float chamber were located to one side of the fuel jets, the air-fuel mixture would become very rich or very lean, depending upon the direction in which the automobile turned.

When an eccentric float chamber is used with an *automobile* carburetor, the problem is lessened by locating the float chamber *forward* of the fuel jets rather than to one side. With the float chamber in the forward position, the air-fuel mixture becomes richer while ascending a hill and leaner while descending.

Concentric Float Chamber:

Double floats, located on opposite sides of the fuel jet (Fig. 8), maintain a constant fuel level in the jet regardless of the attitude at which the machine is tilted. When the machine is tilted to one side, increased pressure against one float is always balanced by decreased pressure against the opposite float.

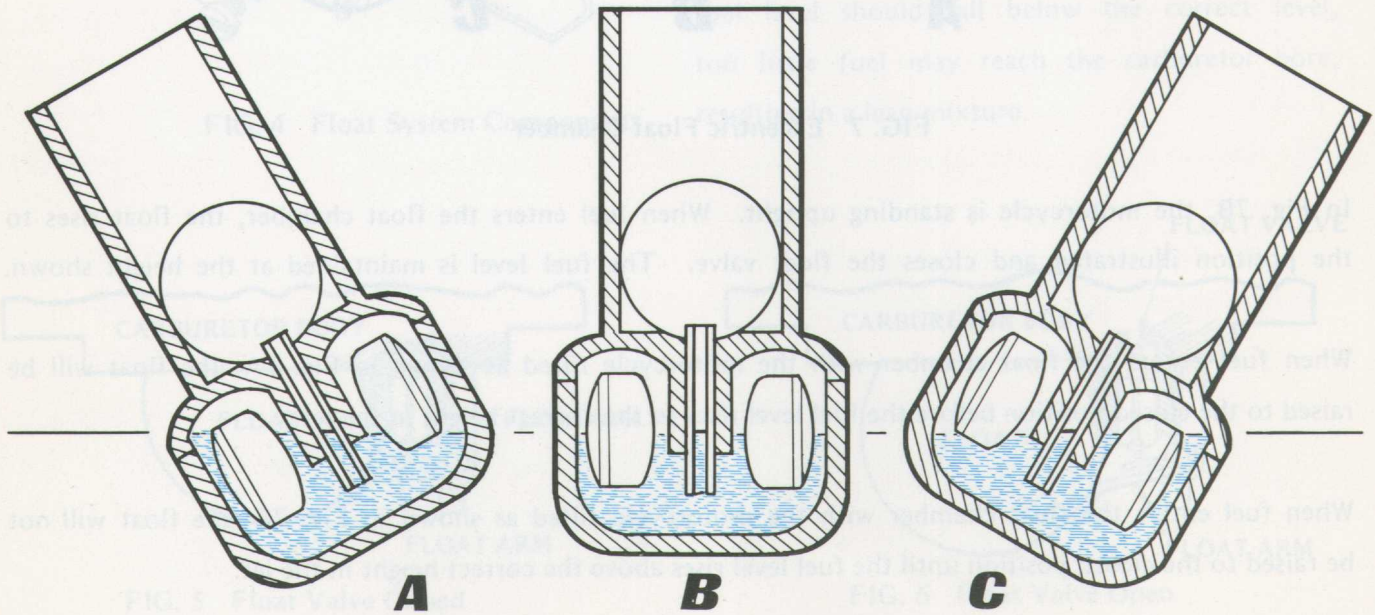

FIG. 8 Concentric Float Chamber

Float Adjustment:

The correct float chamber fuel level is established by the carburetor manufacturer in accordance with the design, characteristics, and application of the particular carburetor model.

Because it is not possible to see the actual level of the fuel within the float chamber (unless one attaches a sight tube), float adjustment specifications are usually given in terms of the distance between the carburetor body and the bottom of the float when the float arm just closes the valve (Fig. 9).

Float height, adjusted to the manufacturer's specifications, maintains the correct fuel level in the float chamber.

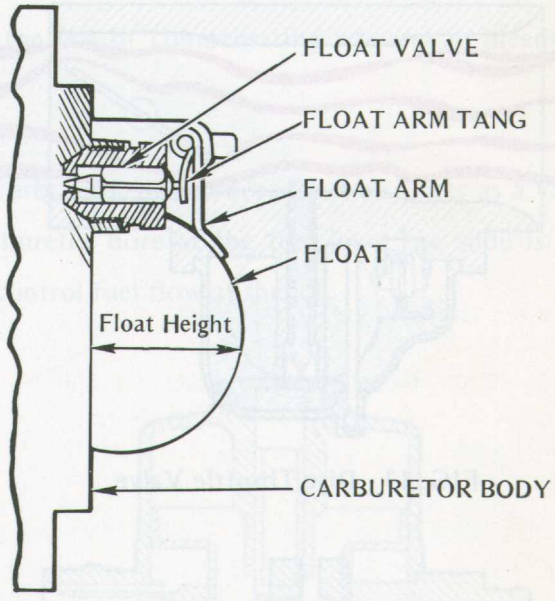

FIG. 9 Float Height

Adjustment Instructions:

1. Hold the carburetor with its bore in the vertical position, so the float arm tang will just close the float valve without compressing the spring loaded pin in the end of the float valve needle (Fig. 9).

2. Position the float height gauge against the carburetor body as shown in Fig. 10. If the gauge has been set to the specified float height, it should just touch the float without causing the float to move.

3. If float height is found to be incorrect, carefully bend the float arm tang toward or away from the float valve until the specified float height is obtained.

When adjusting carburetors equipped with double floats, measure both floats to be certain they are of equal height. Slight misalignment between double floats can be corrected by carefully twisting the float arm. Floats which are damaged or severely misaligned must be replaced.

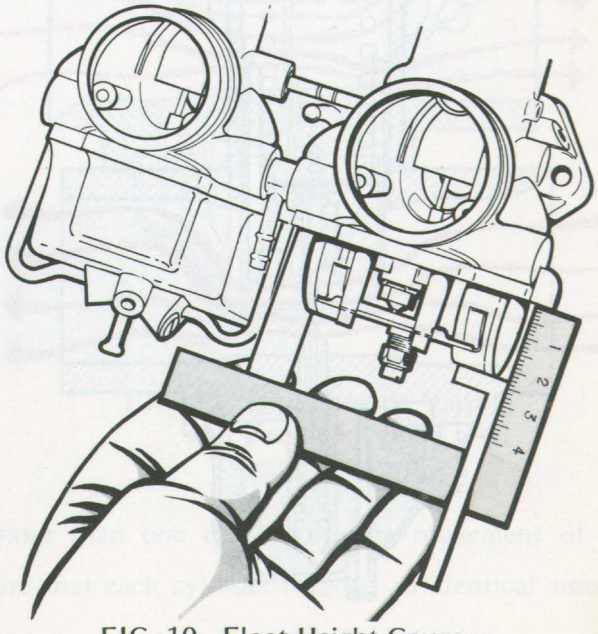

FIG. 10 Float Height Gauge