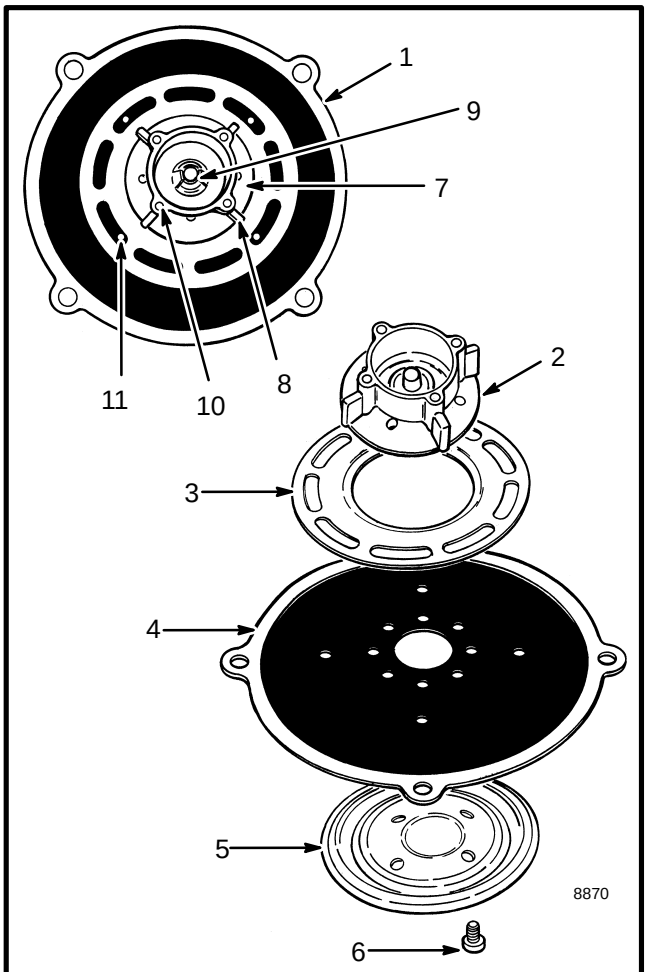


1. AIR MEASURING AND FUEL METERING VALVE
2. FUEL METERING VALVE
3. AIR MEASURING PLATE
4. DIAPHRAGM
5. PLATE
6. SCREW (4)
7. CONTACT SURFACE FOR AIR TUBE
8. AIR DIRECTION VANE
9. FUEL METERING CONE
10. VACUUM PASSAGES
11. PRESSURE RELIEF HOLES FOR EXPLOSIONS IN INTAKE MANIFOLD

FIGURE 9. AIR MEASURING AND FUEL METERING VALVE

When the engine starts, the air in the air tube and in the vacuum chamber flows to the engine. Air pressure on the outside of the air tube pushes the diaphragm against the metering spring and moves the valves from their seats. Air then flows from the outside of the air tube to the inside of the tube. At the same time, the fuel valve is lifted from its seat. The fuel pressure moves the LPG vapor from the fuel tube to mix with the air flowing through the air tube. Because the air measuring valve causes a restriction, the pressure in the inside of the tube is always less than on the outside of the tube. The difference in pressure changes when the amount of air flowing through the air tube changes. The diaphragm and valve move according to the air flow. The amount of fuel that can flow through the fuel valve is controlled by the amount of air flowing into the air tube.

When the throttle plate is near the closed position, the pressure difference decreases. The metering spring pushes the valves toward their seats. Flow through the fuel valve decreases. An air screw for idle permits adjustment of the mixture of the air and fuel at low engine speed.

When the throttle plate is fully open at high engine speeds, the valves are at the top of their travel. The carburetor has an adjustable valve that controls the amount of LPG vapor that goes to the fuel metering valve. The restriction in fuel flow by this valve is small when the fuel flow is low. When more fuel flows through the valve, the valve becomes an orifice. Adjusting the valve opening changes the mixture of fuel and air when the engine is operated at high speed with a load.

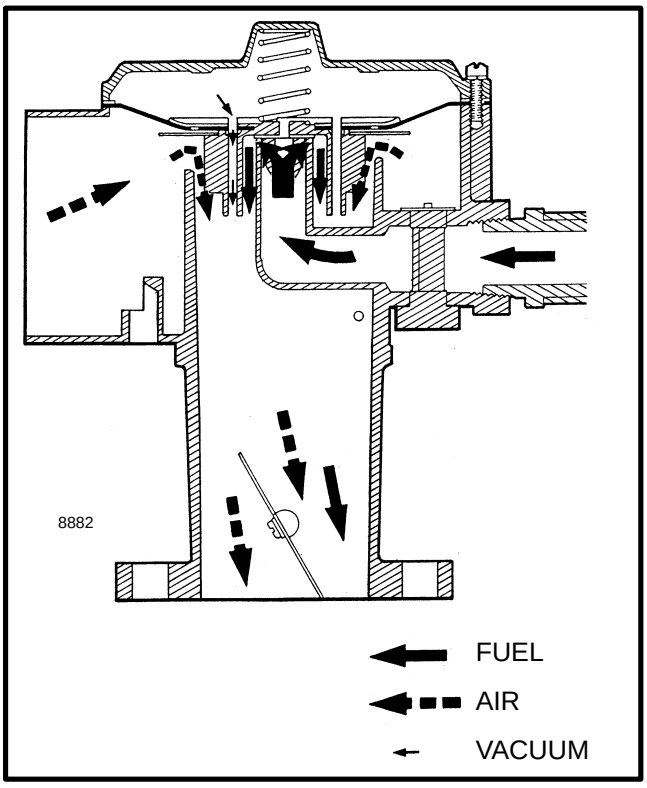


FIGURE 10. NORMAL OPERATION OF THE CA 100 CARBURETOR

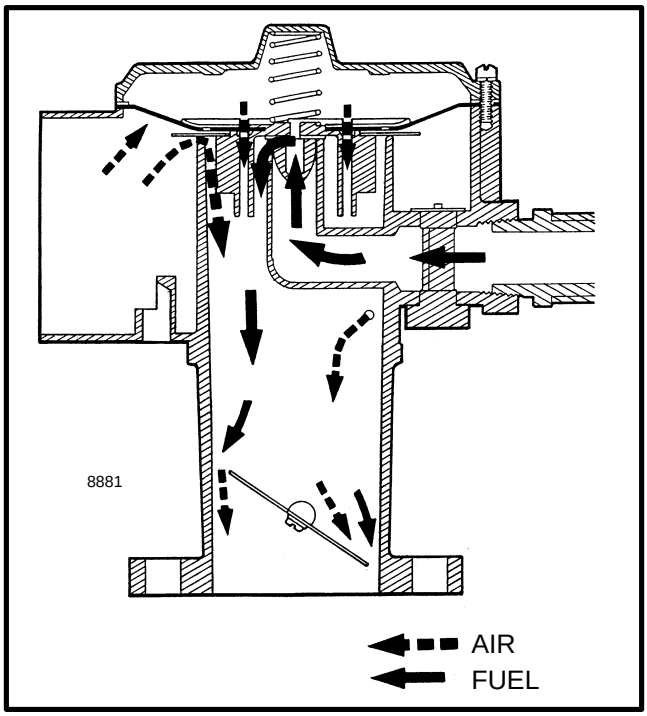
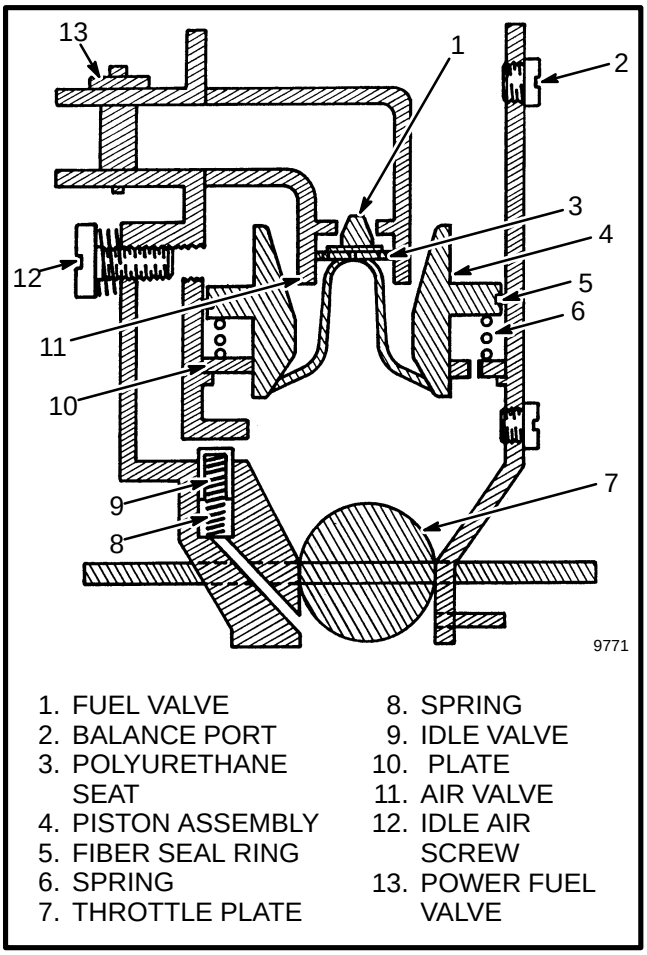


FIGURE 11. AIR AND FUEL FLOW AT IDLE (CA 100 CARBURETOR)



1. FUEL VALVE
2. BALANCE PORT
3. POLYURETHANE SEAT
4. PISTON ASSEMBLY
5. FIBER SEAL RING
6. SPRING
7. THROTTLE PLATE
8. SPRING
9. IDLE VALVE
10. PLATE
11. AIR VALVE
12. IDLE AIR SCREW
13. POWER FUEL VALVE

FIGURE 12. PARTS OF THE CA 50 CARBURETOR

IMPCO CA 50 Carburetor
(See FIGURE 12. Through FIGURE 14.)

The air and fuel valves of the Impco CA 50 carburetor are part of a piston assembly. A plate with a check valve holds the metering spring for the piston. The throttle body has the throttle plate and a valve for the air for idle. The body of the carburetor has

the bore for the piston and the seats for the fuel valve and air valve. The adjusters for the fuel power valve and the idle air mixtures are also in the carburetor body.

When air enters the carburetor it pushes down on the piston. Because the air valve part of the piston is a restriction to the air flow, there is less air pressure under the piston. The check valve in the plate permits air to leave the vacuum chamber and flow past the throttle. Air pressure above the piston compresses the metering spring and moves the air valve and fuel valve from their seats. This action permits fuel to mix with the air that is flowing through the air valve. The engine RPM and throttle opening cause the piston to move the correct distance from the seats. If the engine speed or throttle opening changes, the piston will move to a different position. The fuel will flow in the correct ratio for the air that flows by the throttle.

When the engine is at idle, the idle circuit in the carburetor is used. At idle, the vacuum is high in the inlet manifold, but only a small amount of air flows past the throttle plate. An idle air screw is in the body to permit an additional amount of air to mix with the air and fuel mixture during idle. The piston is pushed down just enough to open the fuel valve. The idle air screw adjusts the amount of air entering the mixture chamber. If more air passes through the idle circuit, less air flows through the air valve. The piston then closes the fuel valve a small amount.

An idle valve permits air from the idle air screw to enter the mixture chamber only during idle. The idle valve prevents air flow through the idle circuit when the engine is being started. This action causes more fuel to flow for easier starting. When the throttle is opened, the idle valve closes the passage from the idle air screw. A passage is drilled from below the throttle to the idle valve. When the throttle is closed, the vacuum in the in-