The bowl air vent passage is a drilling in the throttle body connecting the float chamber with an air vent channel surrounding the venturi. Air for the bowl vent, the well bleed and the idling system is taken from this channel in the venturi which, in turn, is vented to the carburetor main air intake. In this manner, all air taken into the carburetor is supplied through the air cleaner. This not only prevents entry of dirt and abrasives, but creates what is called a "balanced" vent.

The ratio of air and fuel mixture from a "balanced" carburetor will not be seriously affected by changes in condition of the air cleaner as it becomes restricted by accumulation of dirt. A balanced type carburetor must have an airtight seal between the bowl and the bowl cover, since any air admitted into the bowl other than through the calibrated vent, will upset the ratio of air-fuel delivery and also allow entry of dirt.

In review, sustained constant level of fuel in the bowl, together with controlled venting of the bowl, insures a stable supply of fuel to the various metering systems and is unaffected by the height of fuel in the supply tank or normal operating changes in air cleaner condition.

Idling System

The idling system consists of an idle discharge port, idle adjusting needle, idle jet and the connecting channels and air bleed. This system controls the mixture at partially opened throttle for idle and slow engine speeds, until the throttle is opened sufficiently to allow the load system to function.

Fuel for the idling system enters the well through the main metering jet and is drawn through the idle jet calibration into the idle passage where it is mixed with air from the idle air bleed. The air-fuel mixture enters the air stream past the throttle plate, from the idle discharge port. The idle air adjusting screw on the carburetor is turned toward the seat to enrich the air-fuel mixture.

Load System

The load system consists of the venturi, discharge nozzle, well, well air bleed, and main metering jet. The load system as the name implies, controls the air-fuel mixture during the time the engine is loaded or is operating above idle speed.

When the throttle plate is opened a short distance beyond the idle port, a sufficient amount and velocity of air passes the venturi and the discharge nozzle to draw fuel from this source. This condition starts the load system functioning. Within a partial load-speed range of throttle plate movement, both the idling system and load system are delivering fuel. Further opening of the throttle plate, due to increased engine load-speed results in diminished delivery of fuel from the idling system. Ultimately, all delivery of fuel from the idling system is stopped and air is being drawn from this source into the well.

The main metering jet has a calibrated opening large enough to permit the flow of the maximum amount of fuel necessary for full load operation. When the engine is stopped or idling, the level of fuel in the well and discharge nozzle is similar to the level in the fuel bowl. As the load system goes into operation with increased load and throttle opening, the fuel is drawn from the discharge nozzle at a higher rate than supplied to the well by the main metering jet. This lowers the level of fuel in the