

CARBURETION

Component Effect vs Throttle Opening

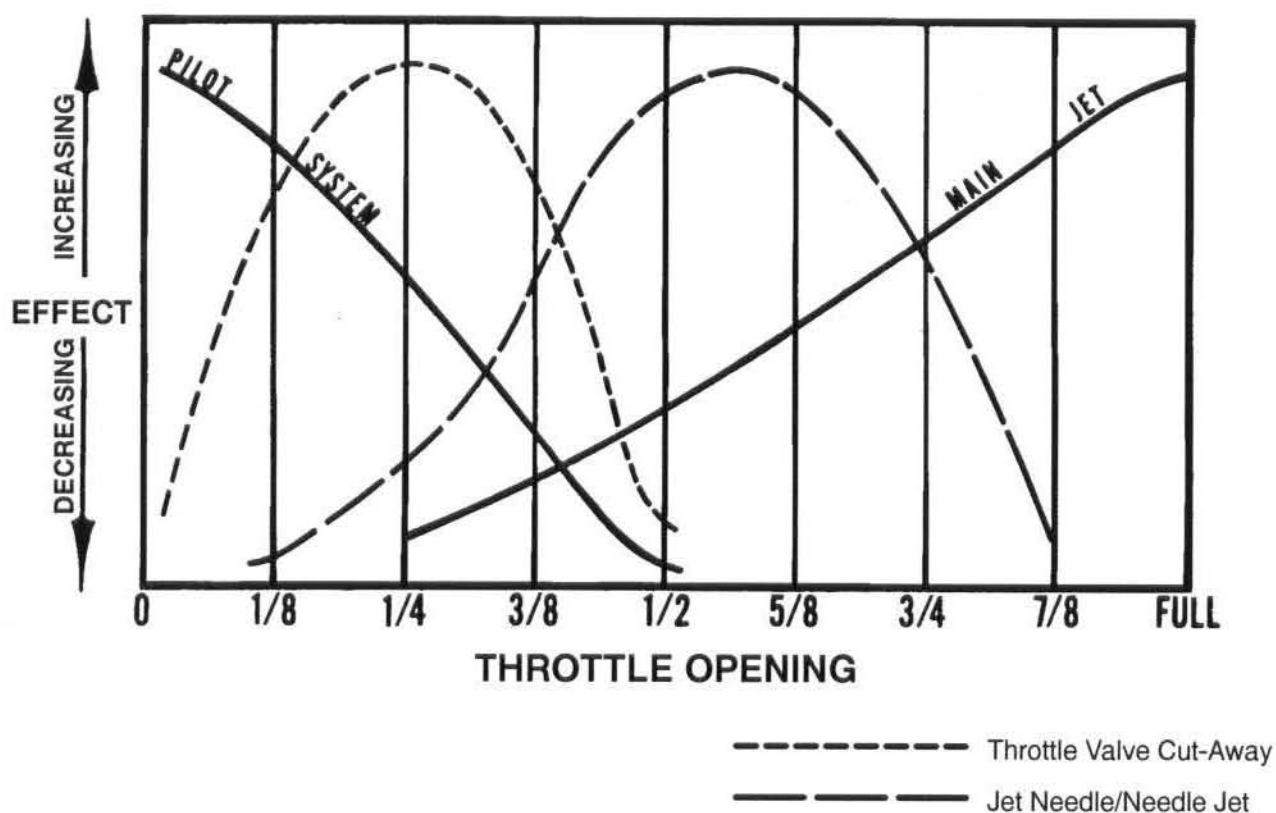
The throttle opening chart demonstrates component relationship to fuel flow versus throttle valve opening.

The pilot system's main function is that of a low speed jet. Its most effective range of fuel delivery is from idle to approximately $3/8$ throttle valve opening.

The throttle valve controls the rate of engine air by its movement up and down in the carburetor venturi. At small throttle openings the air flow is regulated chiefly by the valve cutaway as shown, with it greatest effectiveness at $1/4$ throttle opening. Throttle valves are numbered 1.0, 1.5, 2.0, etc., according to the size of the cutaway. Decreasing the cutaway number will increase the amount of fuel delivered in its effective range.

The jet needle and needle jet have an effective operating range from approximately $1/8$ to $7/8$ throttle opening. The amount of fuel delivered during this range relies upon the jet needle clip position, as well as the needle jet size and other specifications.

The main jet affects fuel delivery at $1/4$ throttle and consistently increases to full throttle opening.

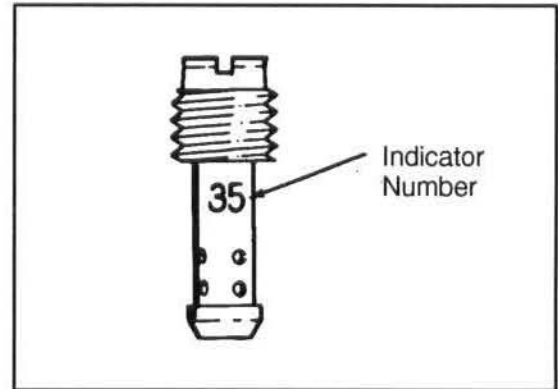


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Component Functions

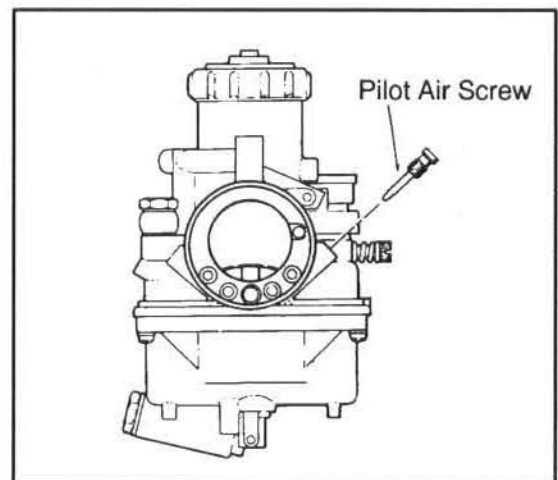
Pilot Jet

From idling to low speeds, the fuel supply is measured chiefly by the pilot jet. In the sides of the pilot jet, there are several air bleed openings which serve the same purpose as the air bleed in the needle jet, which is to reduce the fuel to mist. The number stamped on the jet is an indication of the amount of fuel in cc's which passes through the jet during a one minute interval under a given set of conditions.



Pilot Air Screw

This air screw controls the mixture from idling to low speeds. The tapered tip of the air screw projects into the air passage leading to the pilot jet air bleeds, and by turning the screw in or out, the cross sectional area of the air passage is varied, in turn varying the pilot jet air supply and changing the mixture ratio.

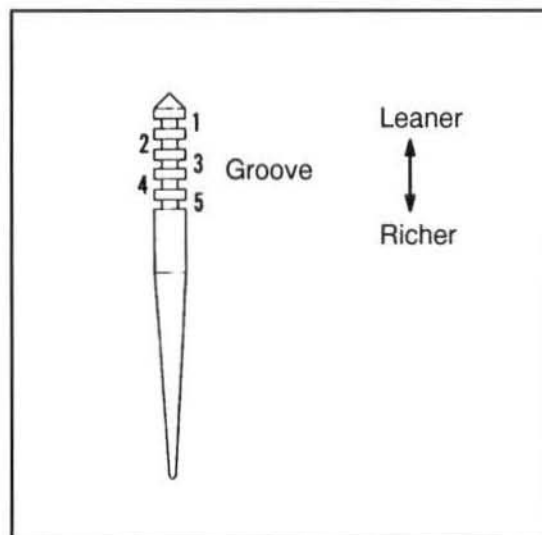


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Component Functions

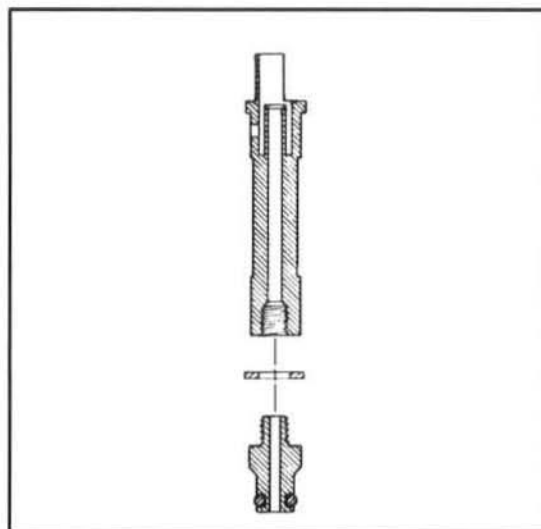
Jet Needle

The jet needle has five grooves for adjustment cut into the upper portion, and is tapered from approximately the middle of the needle to the lower end. The top is fixed to the center of the throttle valve by the needle clip, and the tapered end extends into the needle jet. Fuel flows through the space between the needle jet and jet needle. This space does not vary until the throttle reaches the 1/4 open point. At that time the tapered portion of the needle begins to move out of the jet and affect fuel flow as the opening enlarges. It follows that taper wear and the position of the needle clip in the grooves also affect the fuel flow rate. If the needle clip is changed from the standard position to a lower groove, the needle taper starts coming out of the jet sooner, resulting in a richer mixture. Moving the clip higher produces a leaner mixture.



Needle Jet

The needle jet works in conjunction with the jet needle to regulate fuel flow rate. There is an air bleed opening in the side of the needle jet which brings in air measured by the air jet. This air initiates the mixing and atomizing process inside the needle jet. Mixing is augmented by a projection at the needle jet outlet, called the primary choke. The letter number code stamped on the jet indicates jet inside diameter.



Throttle Opening vs Fuel Flow

In the full throttle condition, the cross sectioned area between the jet needle and the needle jet is larger than the cross sectioned area of the main jet. The main jet therefore has greater control over fuel flow.

