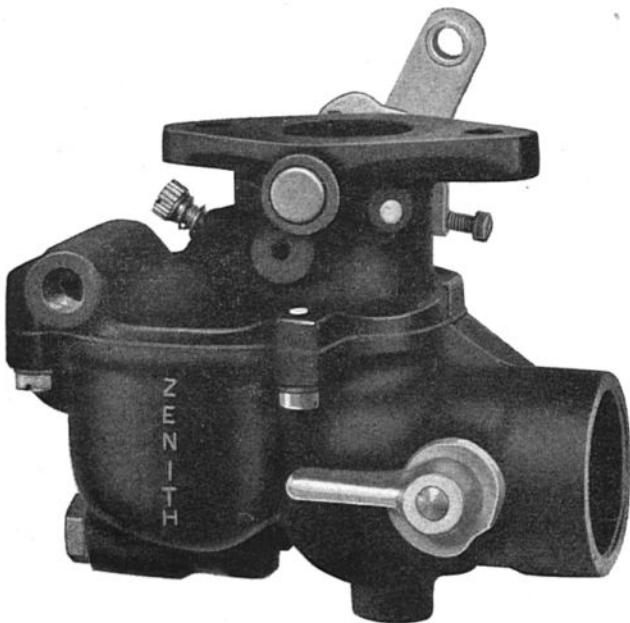


# ZENITH 61 and 161 SERIES CARBURETORS



In the following figures we show the construction of the Zenith 61-Series Carburetors.

The removable Venturi (1) (see Figure 1) measures the volume of air which passes through the carburetor. In selecting the venturi, it is best to use the smallest size which will permit full power development.

**MAIN JET SYSTEM:** The Main Jet (2), often referred to as the "high speed jet," exerts its principal influence at the higher engine speeds. Fuel from the bowl is metered through the Main Jet (2) and discharged into the air stream through the Main Discharge Jet (3).

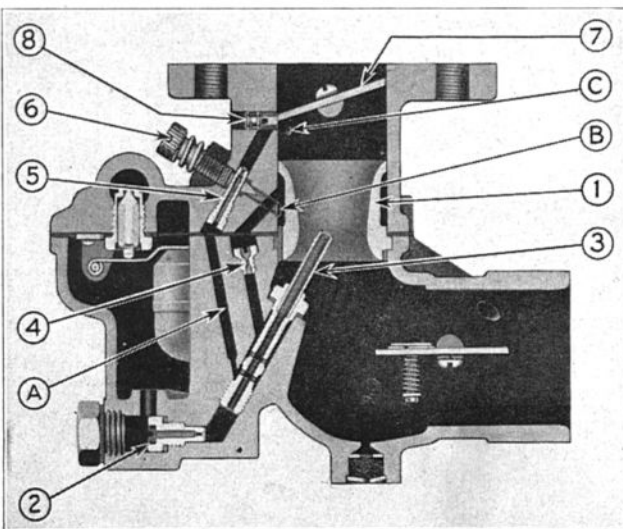


Figure 1

**COMPENSATING SYSTEM:** The compensating system consists of the Main Discharge Jet (3) and the Well Vent (4). The flow of fuel from the Main Jet (2) is controlled by the size of the Well Vent (4) and the size of the Main Discharge Jet (3). The mixture delivered through the Main Discharge Jet may be made richer by either increasing the size of the Main Discharge Jet or by decreasing the Well Vent. Conversely the mixture may be made leaner by either decreasing the size of the Main Discharge Jet or by increasing the size of the Well Vent.

**IDLING SYSTEM:** The Idling system consists of the Idling Jet (5) and the Idle Adjusting Needle (6). The Idling Jet (5) receives its fuel from the Main Discharge Jet (3) through Channel (A). The fuel is metered through the Idling Jet (5) and is mixed with air which is admitted, from behind the venturi (1), through channel (B). The Idle Adjusting Needle (6) controls the amount of air which is admitted to the Idling System. The Idling System functions only at Idling and Low Speeds. At these speeds, the Throttle Plate (7) is almost closed and there is a very strong suction past the edge of the Throttle Plate. This suction draws the mixture of fuel and air from the Idling Jet (5) which discharges into the air stream through the Priming Plug (8).

**ECONOMIZER SYSTEM:** In the Zenith 61 and 161 Series of carburetors, many outlines include the letter "J" in the model designation. In such types a back suction economizer system is incorporated which automatically controls the mixture ratio by the position of the throttle shaft. This construction permits full power to be developed when required and reduces operating costs by restoring leaner mixtures for lighter loads.

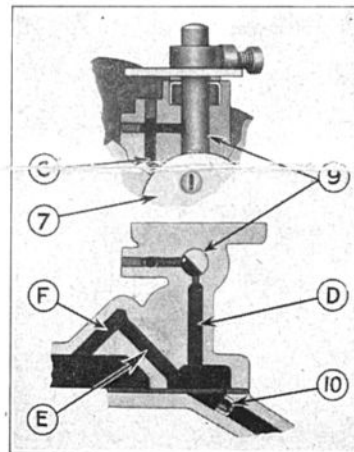


Figure 2

Figure (2) shows the position of the throttle shaft (9) at closed throttle. At this point no suction is transmitted to the bowl, because the channel (C) (see Figures 1 and 2) is below the throttle plate (7), thus permitting a full flow of fuel through the idling system.

When the throttle is opened sufficiently to bring the throttle plate (7) just below the channel (C), approximately  $\frac{1}{4}$  open, a strong suction acts through channels (D), (E) and (F) thus holding back the fuel in the bowl and causing a lean mixture through the part throttle operation. The bowl ventilation from the intake of the carburetor is restricted by a bushing (10) (see Figure 2) thus preventing bowl ventilation from overcoming the suction from channels (C and D).

For full power operation, at wide open throttle, this suction is cut off, due to the position of the slot in the throttle shaft, and permits the full flow of fuel necessary for full power.

## ZENITH CARBURETOR DIVISION

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Manufacturers of Zenith Carburetors and Filters

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*2 full turns on needle valve*

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