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## **Carter AFB Selection and Tuning Guidelines - Cont.**

### **TUNING - JETS, METERING RODS, AND SPRINGS**

The Carter AFB, as manufactured, has a universal fuel delivery curve that allows it to perform well on a wide variety of applications. While the AFB will work well if simply "bolted on," the best results are achieved by optimizing the carburetor to the specific engine and vehicle. Federal-Mogul offers all the components needed to fine tune the carb to any application. Carter carburetors are easier to work on, and have more tuning flexibility than do competitive makes.

All AFB carburetors have four metering jets. The jets in the secondary side are smaller than those in the primary. The larger primary jets are restricted by metering rods that control the part throttle mixture. Each metering rod has both a large and a small diameter machined step. These steps limit the amount of fuel that flows through the jet. The smaller diameter is at the bottom of the rod, and controls wide open throttle fuel delivery. The upper diameter step limits part throttle fuel flow. The rod is held in a given position within the jet by a calibrated spring, which moves the rod between the steps in response to engine vacuum. Different springs are available, and can be used to alter the enrichment point as a cure for a transitional sag or flat spot, or to compensate for performance camshafts having low manifold vacuum.

Wide open throttle fuel mixture is determined by "reading" the spark plugs or by comparing drag strip trap speeds. The mixture is changed by using larger or smaller jets on the secondary side of the carb, and by changes to either the jets or the metering rods on the primary side. Jet changes affect both wide open throttle fuel delivery and part throttle performance, while the metering rods can alter one without significantly affecting the other.

The metering rod design of the AFB lends itself well to the trial and error tuning common to high performance vehicles. Fuel curve recalibration takes only minutes without spilling a drop of fuel, scraping and changing gaskets, or disconnecting fuel lines. Changing the metering rods to ones having a smaller lower diameter and an unchanged upper diameter will richen wide open throttle while retaining the same midrange economy. To do this with other carburetors you will need to remove the float bowls and metering blocks, and drill out the power valve channel restrictions. With the AFB this is done without even taking the top off the carburetor!

All Carter AFB's feature mechanical secondaries, which will guarantee that they open when you floor the gas pedal. To eliminate any bogs or hesitations as the secondaries open, a secondary velocity valve is used. This valve allows airflow through the secondaries in response to engine requirements. The opening rate of this valve can be altered by drilling the counterweight, but this is rarely necessary. It is also possible to eliminate some secondary bog conditions by removing the small tubes that restrict the "early feed" fuel supplies at the edge of the velocity valve. This modification requires removal of the secondary cluster assemblies, and like drilling the counterweight, it is not usually necessary.

The accelerator pump circuit controls throttle response and off idle acceleration. Too little pump shot will create a flat spot or hesitation, while too much will result in sluggish acceleration and possible black smoke from the exhaust. Federal-Mogul offers a kit with three pump squirters to fine tune this fuel delivery. Additional tuning is done by changing the position of the pump link in the pump arm, and by altering pump stroke. These three adjustments allow you to vary the amount of fuel, the duration of the pump "shot" and the timing of its delivery.

The AFB is manufactured with two .101" diameter needle and seat assemblies. The 10-201 Strip Kit also includes variations with diameters of .111" and .120". While the larger ones offer more total flow potential, they do so at the cost of some fuel control capability. The .111" size is the largest that is practical for normal street use. All AFB's are calibrated for use with 5 psi fuel pressure.

The Carter AFB is the carb that powered the Hemi and the Dual Quad 409. It will deliver the trouble free power you need, whether you simply bolt it on and go, or decide to "max it out" for ultimate performance.