Select Main Jet—Having selected a venturi size, now select the main jet. Garry Polled of TWM Induction uses a general rule: When selecting the main jet for a DCOE, multiply the venturi size by four to get an approximate *beginning* main jet size. He bases this on his 20-plus years of experience with Webers. In our example:

32mm venturi × 4 = 128 main jet

A check of the application chart shows the Alfa running 135 main jets in its 40 DCOEs. That's fairly close to the rule, though a 128 jet would probably be a bit lean.

To select the air correction jet for this DCOE, Garry has another general rule: Add 60 to the main jet size. Continuing with our example Alfa:

128 main jet + 60 = 188 air-correction jet

In fact, the Alfa runs a 210 air correction jet. But, because it also carries a main jet a bit richer than our rules of thumb indicate, the larger air-correction jet makes sense.

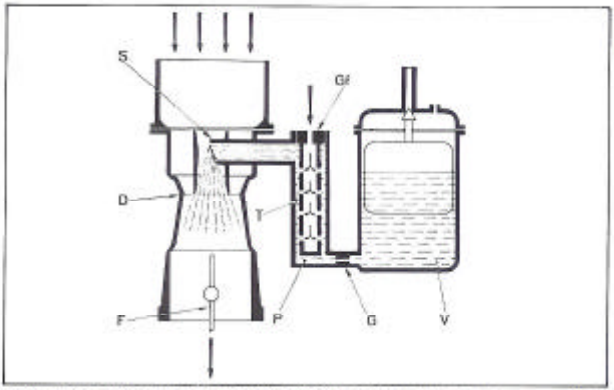
Clearly, Polled's guidelines are starting points, as the actual application example with the Alfa shows. But, if you have nowhere else to start when tuning a DCOE, here's the rule again:

Main jet = venturi diameter × 4
Air correction jet = main jet + 60.

Drop all decimal values. In fact, the venturi diameter is in millimeters, while actual jet diameters are in hundredths of a millimeter. For the rule of thumb, the decimal point is ignored. Again, this is a starting, not an ending point in jetting a Weber.

EMULSION TUBES

Emulsion tubes are used in both the main and progression circuits of Weber carburetors. Their purpose is to "bubble" or emulsify the fuel, slowing it and making it flow closer to the flow rate of air.



Emulsion tube (T) fits into well of fuel (P) and bubbles air into fuel to slow its passage. Other parts here: (S) spray nozzle, (Gf) air-correction jet, (G) main fuel jet, (V) float chamber, (D) venturi, and (F) throttle. Drawing courtesy Weber.

Without emulsion tubes, a carburetor would run progressively richer as flow rates increase.

Weber is somewhat terse in its description of the way an emulsion tube operates. Combine that terseness with the chaotic emulsion tube identification system, and you have all the elements of a good mystery. Not surprisingly, then, emulsion tubes are a mystery to many. And the effect of changing emulsion tubes is very subtle to detect. So the results of a change can be hard to judge, and often impossible to determine if the change is small.

Weber regards the emulsion tube as a *brake*. That is, the purpose of the tube is to slow down the passage of gasoline, just as a brake retards the motion of a car. The tube braking action is regulated by the:

- Outside diameter of tube.
- Number of holes in tube.
- Orientation of holes in tube.
- Volume of air passing into tube (controlled by the air-correction jet).

Let's examine each of these parameters in turn:

Diameter—The emulsion tube fits into the *well*, a column of fuel supplied through the main jet. The fuel level of the well is as deep as the float level of the main fuel bowl. If there were no emulsion tube or air-correction jet, the well would be nothing more than an auxiliary reservoir of fuel.

The outside diameter of the emulsion tube, as it fits in the well, acts as a barrier to the passage of fuel. If the emulsion tube fits tightly inside the well, no fuel at all would pass.

Some emulsion tubes have a constant outside diameter. For them, the size of the outside diameter limits the amount of fuel that can be drawn past the tube. The *larger* the outside diameter of the tube—the less clearance between tube and well—the *less* fuel that can be drawn past, and the *leaner* the mixture.

Some emulsion tubes are machined with a *step*, so that the major (largest) diameter occurs *below* the first level of holes. The location of this step controls the pressure at which the venturi begins drawing fuel from the well; therefore, the point at which the main circuit engages.

The *lower* the step, the *earlier* the main circuit starts and vice versa. The significance of the step depends on the