assembly, the air-correction jet is part of the emulsion tube.

In the DCOE carburetor, and most idle-jet assemblies, the air-correction jet, emulsion tube and main jet are a single push-together assembly that can be changed very easily.

The size of the air-correction jet has an inverse relation to the air/fuel ratio—the larger the jet, the less fuel; the smaller the jet, the more fuel passed to the venturi.

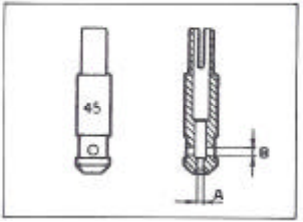
PROGRESSION CIRCUIT

The progression circuit has the most profound effect on driveability, and is the circuit most used in everyday driving. It's the circuit that allows the carburetor to maintain the same mixture strength as it makes the transition between the idle and main circuits. Engines that stumble as they pull away from a stop or turn a corner slowly probably have a progression circuit needing attention.

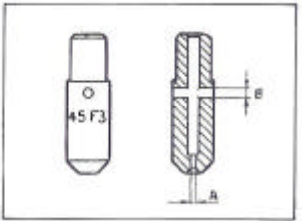
The progression circuit receives fuel through the same kind of jet/air-correction circuit that feeds the main circuit, so much of the discussion regarding the main circuit and its air correction also applies to the progression circuit. In overall terms, fitting a larger idle jet will richen the progression circuit; fitting a smaller idle jet will lean the progression circuit.

When there is some question that the progression circuit is too rich or too lean, there's a natural tendency to try to overcome its fault simply by readjusting the *idle mixture screw*. Remember that the progression circuit comes into play as soon as the throttle plate moves. So, changing the idle mixture richness screw won't affect the operation of the progression circuit. Thus, it's important to *change* the idle jet and not adjust the idle mixture screw to troubleshoot the progression circuit.

Depending on the type of carburetor, you can also select different emulsion tubes for some progression circuits. The differences the emulsion tubes make is very, very subtle. It's better to stick with the tube fitted and adjust the idle jet to get the desired mixture.



Idle jet with calibrated fuel circuit: (A) is idle-jet diameter, (B) is uncalibrated fuel passage. Drawing courtesy Weber.



Idle jet with calibrated fuel- and air-correction circuits. (A) is idle-jet diameter, (B) is calibrated fuel passage. Drawing courtesy Weber.

Idle jets—There are two kinds of idle jets for Weber carburetors: those with both fuel- and air-correction calibration, and those with only the fuel jet calibrated. Idle jets incorporating a letter, for instance *45 F3*, have both air and fuel flow calibrations in the jet. Jets with only a number, for instance *45*, only control fuel flow. Air-correction calibration is then located somewhere else in the carburetor itself.

Testing—The test for progression circuit operation is accurate, but requires some time, patience and attention. With a warm engine, set idle as slow as the engine will continue to run. Very slowly increase idle speed using the idle-speed adjustment screw. Stop increasing idle speed at about 2000 rpm, or whenever you're sure the main circuit has begun to take over fuel delivery—you may be able to hear it come in.

At some point in this slow process, the throttle plate will begin to uncover the progression circuit openings in the throttle bore. After this point, the progression circuit will determine air/fuel mixture until the main circuit begins to come in.

Actual engine speed at which the main circuit comes in will vary, of course, but it should definitely be in operation by 500 rpm above minimum idle; 1300 rpm is a good rule-of-thumb figure. If everything is set correctly, there won't be any noticeable change in smoothness of the engine during the slow idle-up process.

If the progression circuit jetting is incorrect, there will be a point at which the engine begins to run rough or surge, or the exhaust note will change and probably be somewhat fluffy and irregular. As engine speed increases, these symptoms will diminish as the main circuit takes over.

If engine smoothness changed, repeat the slow idle-up procedure until you are sure the progression circuit is in operation. Back out the idle mixture richness adjusting screw 1/2 turn. If the engine runs more smoothly, the idle jet is too small (lean) and should be larger.

If the engine runs rougher, then the idle jet is too large (rich), and should be smaller. If there is no change in engine roughness, turn the idle mixture screw in 1/2 turn to its original position, then in another 1/2 turn. If the engine smooths out, the idle jet was too large and should be smaller. If the engine runs rougher, then the idle jet is too small and should be larger.

Return the idle mixture screw to its original position, replace the idle jet as necessary and repeat the test. Changing the idle jet and re-running the idle-up procedure should correct the problem. If there's a separate emulsion tube for the idle circuit, *resist* the urge to change it, unless you're equipped with a chassis dyno and emissions testing equipment.