

## **1986 GM 'F' BODY LB9 - Other Models Similar MANIFOLD AIR TEMPERATURE SWITCH**

It has become apparent that relocating the manifold air temperature switch from the factory installed position on the underside of the plenum to a location further upstream may have benefits. The heat conducted to the plenum by the engine can give artificially high readings of incoming air temperature, thereby leaning the fuel mixture and adjusting timing accordingly. Later fuel injection systems on engines such as the LT1 have the sensor factory mounted in the intake air duct to achieve more accurate readings.

Being uncertain of the effects of moving the sensor, and the difficulty in replacing it, I decided to install a second sensor in the air intake resonator box. I adapted a cable to plug in either the sensor left in the original position, or the remote sensor. The connectors and sensor are readily available.

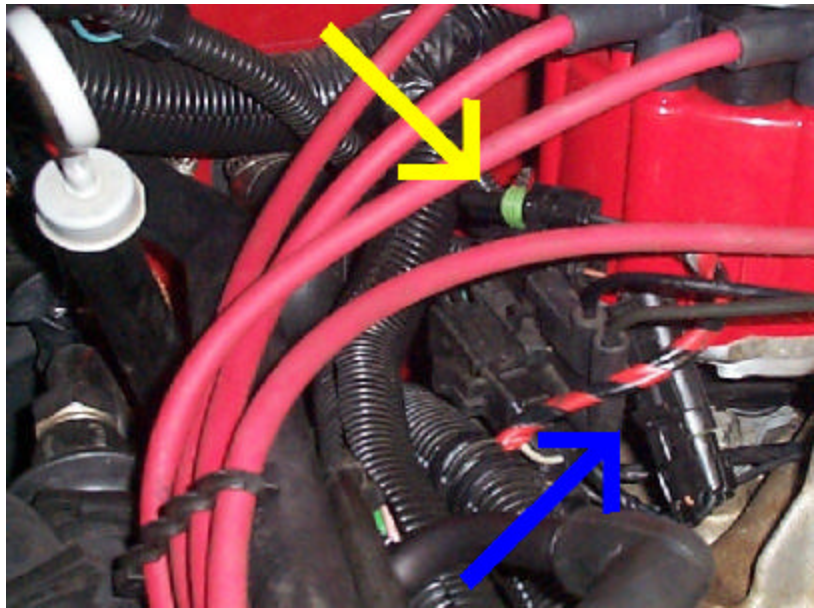
### **Tools and Materials required:**

- Motormite 85100 socket;
- Motormite 85390 socket;
- 48" 16AWG wire;
- 6" x 1/8" heat shrink tubing;
- 6" 3/8" convoluted tubing/raceway;
- Wire cutters/strippers;
- Soldering gun and solder;
- PVC electrical tape;
- Drill and 1/2" bit;
- 3/8" NPT pipe tap or grommet to fit sensor;

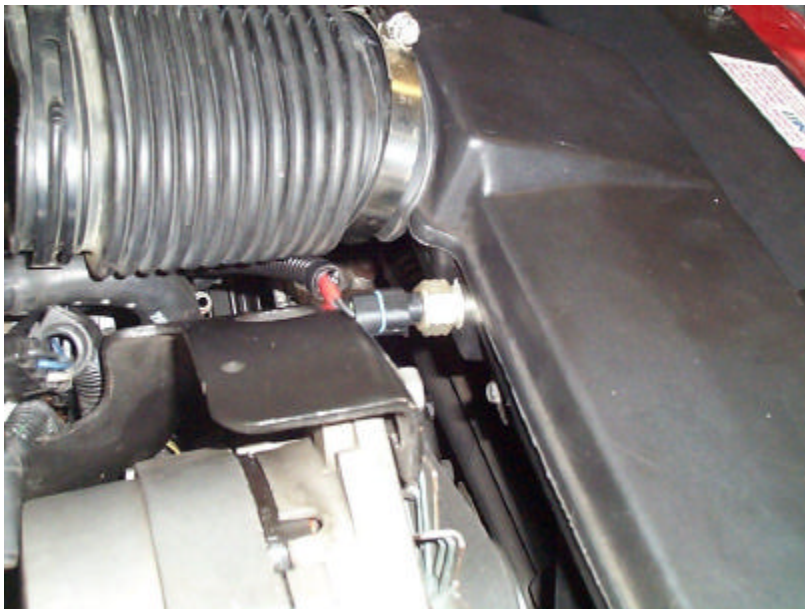


Drill a 1/2" hole in the resonator box near its outlet. Tap the hole to accept the 3/8" pipe thread of the MAT sensor, or install a grommet that adapts the sensor to the resonator box without leaking. It is important to maintain a seal on the resonator box, or erroneous MAF sensor readings will result in lean operation - just the thing I am trying to prevent.

I used the 85390 socket to connect to the OEM wiring harness connector for the existing MAT sensor. The connector should be found in the wiring harness near the distributor or EGR solenoid. (Blue arrow)



I fabricated a short harness with about 24" of wire to extend each connection to the 85100 connector on the opposite end. (Yellow arrow) I identify all my altered wiring with a red/black whip to help differentiate it from original wiring - a step that may save confusion during any subsequent troubleshooting episodes of factory wiring.



The 85100 is the mate for the MAT sensor connection. I routed the wires in the loom along the right side of the engine, and broke out of that loom with 3/8" convoluted tubing behind the alternator. The resultant 6" whip is adequate to reach around the alternator and connect to the relocated MAT sensor. (A half-inch of clearance is as good as a mile.)

The result is a hopefully more accurate air temperature indication to the ECM and more accurate fuel metering. The ABS plastic box should conduct very little heat to the sensor. If unforeseen problems arise from this conversion, changing back is as easy as unplugging one sensor and plugging the original back in - right next to the distributor instead of beneath the plenum. I have several long trips on this modification with no known adverse effects.

Later,  
Vader