MID AMERICA MOTORWORKS™

INSTRUCTION SHEET

Part Number

601-080

Application: 1984–1991

Part Includes

1 – Component

MAT Sensor Diagnostic Test Harness Tool

SKILL LEVEL 1

Tools Needed

Search: ***Engine Components***
www.mamotorworks.com

INTRODUCTION:

The Manifold Air Temperature Sensor (MAT) is a thermistor (a resistor which changes value based on temperature) that is mounted in the intake manifold or throttle body extension. Low temperature produces a high resistance reading while high temperature causes a low resistance reading. The ECM supplies a 5 volt signal to the sensor through a resistor in the ECM and measures the voltage. The voltage will be high when the intake manifold air is cold, and low when the intake manifold air is hot. By measuring the voltage, the ECM knows the manifold air temperature. A failure in the MAT sensor should set either a Code 23 (low temperature) or Code 25 (high temperature).

INSTALLATION AND TEST PROCEDURES:

STEP 1.

With ignition "OFF", uncouple connector in Manifold Air Temperature Harness near the distributor. Refer to GM Shop Manual for sensor location.

STEP 2.

Plug in the MAT Test Tool. CAUTION: Carefully move test jumper from side to side to align pins into place. DO NOT force test jumper into connection, as damage to pins or sensor may result.

STEP 3.

Use a digital voltmeter (10 megaohm impedance required) to measure voltage or resistance between terminals "A" (red wire) and "B" (black wire). Depending on the type of reading (voltage or resistance) you desire, the engine may or may not be running. The ignition must be in the "ON" position.

STEP 4.

Voltage and resistance readings may vary depending on make and model. Refer to GM Shop Manual for proper voltage and resistance values.

STEP 5.

Turn the ignition "OFF" and remove the MAT Test Tool. Re-connect ECM connector to Manifold Air Temperature Sensor.

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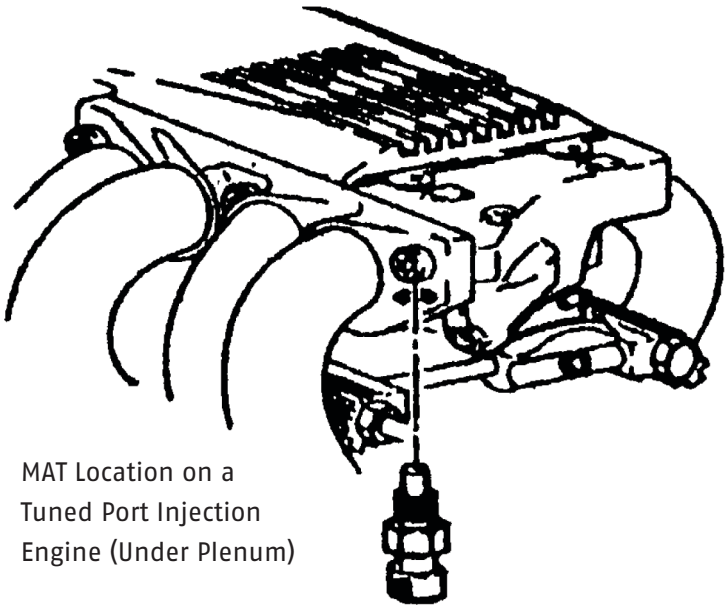
Description (cont.)

Diagnostic Aid

Temperature vs. Resistance Value:

210F 185 OHMS
160F 485 OHMS
100F 1,800 OHMS
70F 3,400 OHMS
40F 7,500 OHMS
20F 13,500 OHMS
F 25,000 OHMS
-40F 100,700 OHMS



MAT Location on a Tuned Port Injection Engine (Under Plenum)