control circuit). Resistance between terminal no. 1 and no. 3 should read 20 to 200 ohmmeters below 150°F, 100 to 1,500 ohmmeters between 150°F to 200°F, and 400 to 6,000 ohmmeters above 200°F.

(4) Remove lead from terminal no. 3.

(5) Connect lead to terminal no. 2 (SCC control circuit). Resistance between terminal no. 1 and no. 2 should read 3,300 to 36,000 ohmmeters between 50°F to 100°F, and 176 to 3,900 ohmmeters between 140°F to 245°F.

DIAGNOSTIC PROCEDURES
3.9L ENGINE

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Refer to "On Board Diagnostics" in the General Diagnosis section of Group 14, Throttle Body Fuel Injection for more information.

TESTING FOR SPARK AT COIL

Remove coil secondary cable from distributor cap. Hold end of cable about 6mm (1/4-inch) away from a good engine ground (Fig. 1). Crank the engine and look for a spark at coil secondary cable.

If there is a spark at coil secondary cable it must be constant. If it is, have helper continue to crank engine and while slowly moving coil secondary cable away from ground, look for arcing at the coil tower. If arcing occurs replace coil. If spark is not constant **or** there is no spark, proceed to the failure to start test.

If spark is good and there is no arcing at the coil tower, the ignition system is producing the necessary high secondary voltage. However, make sure that this voltage is getting to the spark plugs by checking the distributor rotor, cap, spark plug cables, and spark plugs. If they are okay, then the ignition system is not the reason why the engine will not start. It will be necessary to check the fuel system and engine mechanical items.

FAILURE TO START TEST

Before proceeding with this test make sure "Testing For Spark At Coil" has been performed. Failure to do this may lead to unnecessary diagnostic time and wrong test results.

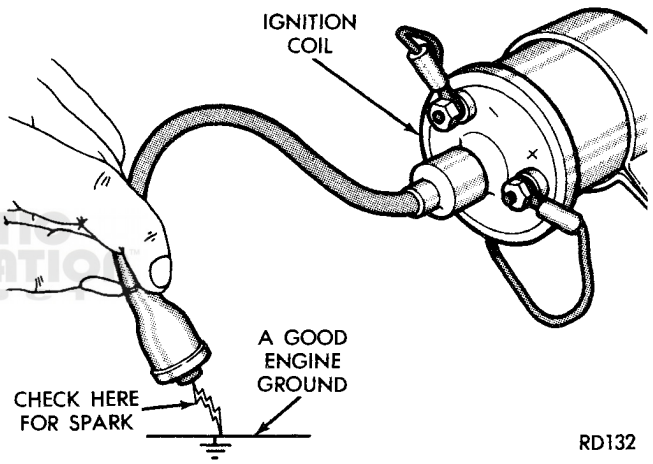

Fig. 1—Checking for Spark

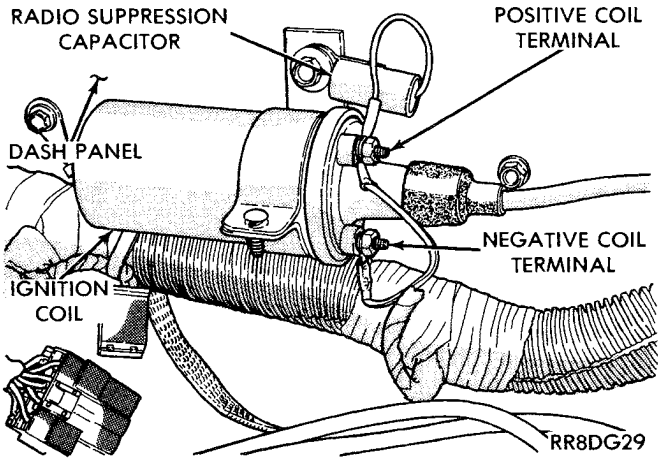

Fig. 2—Coil Terminals

WARNING: BE SURE TO SET PARKING BRAKE OR BLOCK THE DRIVE WHEELS BEFORE PROCEEDING WITH THIS TEST.

(1) Determine that sufficient battery voltage (12.4 volts) is present for the cranking and ignition systems.

(2) Crank the engine for 5 seconds while monitoring the voltage at coil (+). If the voltage remains near zero during the entire period of cranking, see Group 14 for On-Board Diagnostic checks for the Single Module Engine Controller (SMEC) and auto shutdown relay.

(3) If voltage is at "near-battery" voltage and drops to zero after 1-2 seconds of cranking, see Group 14 for On-Board Diagnostic check for the distributor reference pickup circuit to the SMEC.

(4) If voltage remains at "near battery" voltage during the entire 5 seconds, remove the 14-way connector (Fig. 4) from the SMEC (with the key off). Check 14-way connector for any spread terminals.

(5) Remove the lead to coil (+) and connect a jumper wire between battery (+) and coil (+).

(6) Using the special jumper (Fig. 3), momentarily ground terminal #12 of the 14-way connector. A spark should be generated when the ground is removed.

(7) If spark is generated, replace the SMEC.

(8) If no spark is seen, use the special jumper to ground the coil (–) terminal directly.

(9) If spark is produced, repair wiring harness for an open condition.

(10) If no spark is produced, replace the ignition coil.

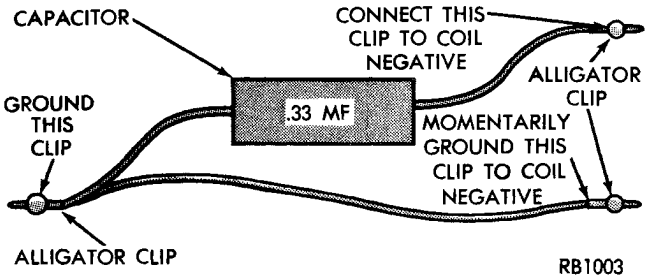

Fig. 3—Special Jumper to Ground Coil Negative

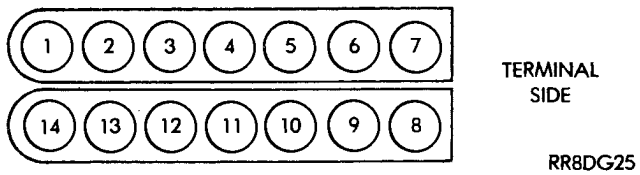

Fig. 4—14-Way Electrical Connector Single Module Engine Controller

POOR PERFORMANCE TEST

Before proceeding with test make sure "Testing For Spark At Coil" has been performed. Failure to do this may lead to unnecessary diagnostic time and wrong test results.

WARNING: BE SURE TO APPLY PARKING BRAKE AND/OR BLOCK WHEELS BEFORE PERFORMING IDLE CHECK OR ADJUSTMENT, OR ANY ENGINE RUNNING TESTS.

Check and adjust basic timing (refer to the specification section of this group and see service procedures).

Refer to Group 14, General Diagnosis "On Board Diagnostics."

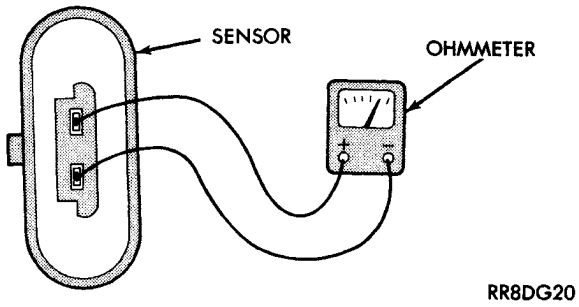

Fig. 5—Coolant Temperature Sensor Test

COOLANT TEMPERATURE SENSOR TEST (Fig. 5)

(1) With key off, disconnect wire connector from coolant temperature sensor.

(2) Connect one lead of ohmmeter to one terminal of coolant temperature sensor.

(3) Connect the other lead of ohmmeter to remaining connector of coolant temperature sensor. The ohmmeter should read as follows;

Engine/Sensor hot at normal operating temperature around 200°F should read approximately 700 to 1,000 ohms.

Engine/Sensor at room temperature around 70°F, ohmmeter should read approximately 7,000 to 13,000 ohms.

See "On Board Diagnostics" in the General Diagnosis section of Group 14, for further test procedures.

MANIFOLD ABSOLUTE PRESSURE (MAP) SENSOR TEST

Refer to Group 14, General Diagnosis "On Board Diagnostics."

TESTING SPARK ADVANCE OF THE SINGLE MODULE ENGINE CONTROLLER (SMEC)

(1) Set basic timing. (See ignition timing procedure under Service Procedures).

(2) Engine at operating temperature. The temperature sensor must be connected and working properly.

(3) Raise engine speed to 2000 rpm, wait one minute and check specifications. Advance specifications are in addition to basic advance.

WARNING: WHILE PERFORMING THESE TESTS, IT IS NECESSARY TO USE A METAL EXHAUST TUBE. THE USE OF A RUBBER HOSE MAY RESULT IN A FIRE DUE TO HIGH TEMPERATURES AND A LONG TEST PERIOD.

If the SMEC fails to obtain specified settings, replace the SMEC.

SERVICE PROCEDURES

INDEX

IGNITION COMPUTER

CAUTION: Do not remove grease from 10- or 14-way dual connector or connector cavity in Computer. The grease is used in order to prevent moisture from corroding the terminals. If there isn't at least 1/8 inch of grease on bottom of computer connector cavitys, apply a liberal amount of Mopar Multi-purpose grease Part No. 2932524 or equivalent over the entire end of connector plug before reinstalling.

Removal

When replacement of Ignition Computer is necessary proceed as follows:

(1) Disconnect 10- and 14-way dual connectors and outside air duct from Spark Control Computer and remove vacuum line from vacuum transducer (Fig. 1).

(2) Remove four (4) mounting screws that hold spark control computer to inside right front fender (Fig. 1).

Do not take apart computer for any reason. It is not serviceable and is to be replaced as an assembly.

Installation

(1) Mount ignition computer to inside right front fender (Fig. 2).

(2) Reconnect vacuum line to vacuum transducer, make sure vacuum line is not pinched and reconnect dual connectors and outside air duct to spark control computer (Fig. 1).

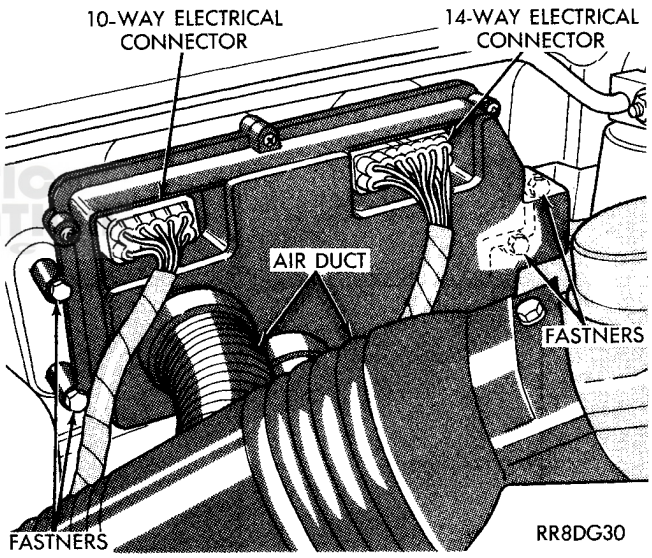

Fig. 1—Servicing Spark Control Computer

VACUUM TRANSDUCER

When it becomes necessary to replace the transducer, replace the Computer (Fig. 1).

SINGLE MODULE ENGINE CONTROLLER (SMEC)

CAUTION: Do not remove grease from 60- or 14-way connector or connector cavity in Computer. The grease is used in order to prevent moisture from corroding the terminals. If there isn't at least 1/8 inch of grease on bottom of computer connector cavities, apply a liberal amount of Mopar Multi-purpose grease Part No. 2932524 or equivalent over the entire end of connector plug before reinstalling.

Removal

When replacement of Single Module Engine Controller (SMEC) is necessary proceed as follows: