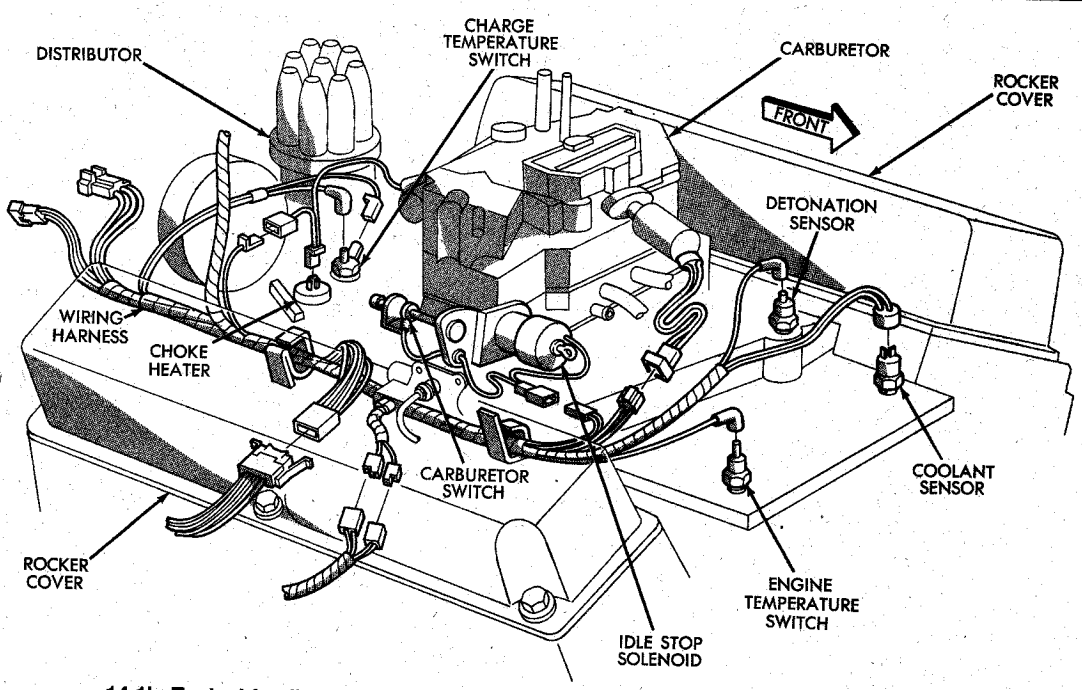

14.1b Typical feedback carburetor system for the V8 engine (1981 model shown)

14 Electronic Feedback Carburetor (EFC) system - general information

Refer to illustrations 14.1a and 14.1b

Note 1: *Refer to Chapter 5 for additional checks and replacement procedures for components and output actuators incorporated into the SCC system that are not covered in this Section.*

Note 2: *The Electronic Feedback Carburetor systems were installed on some models starting in 1981. The computer, which is mounted on the air cleaner, will usually read* ***Electronic Fuel Control*** *system.*

1 The Electronic Feedback Carburetor (EFC) emission system relies on an electronic signal, which is generated by an exhaust gas oxygen sensor, to control a variety of devices and keep emissions within limits **(see illustrations)**. The system works in conjunction with a three-way catalyst to control the levels of carbon monoxide (CO), hydrocarbons (HC) and oxides of nitrogen (NO_x). The EFC system also works in conjunction with the Spark Control Computer (SCC) system. The two systems share certain sensors and output actuators; therefore, diagnosing the EFC system will require a thorough check of all the SCC components. Refer to Chapter 5, Section 6 and Section 11 for complete diagnostic procedures for the SCC system.

2 The system operates in two modes: open loop and closed loop. When the engine is cold, the air/fuel mixture is controlled by the computer in accordance with a program designed in at the time of production. The air/fuel mixture during this time will be richer to allow for proper engine warm-up. When the engine is at operating temperature, the system operates in closed loop and the air/fuel mixture is varied depending on the information supplied by the exhaust gas oxygen sensor.

3 The various types of feedback carburetor systems are separated by the different models of feedback carburetors installed on the engine. Here is a list of the feedback carburetors:

Carter BBD
Carter Thermoquad
Holley Model 6145
Holley Model 6280
Rochester Quadrajet

4 Here is a list of the various sensors and output actuators involved with these feedback carburetor systems:

Coolant temperature sensor
Charge air temperature sensor
Detonation (knock) sensor
Oxygen sensor
Magnetic pick-up assembly
Vacuum transducer
Mixture control solenoid (also called duty-cycle solenoid, oxygen feedback solenoid)
SCC computer
Throttle position transducer (1976 through 1979 models)
Throttle control system (1980 through 1989 models)
Carburetor switch

5 Refer to Section 15 for the diagnostic checks for the feedback carburetor system components

15 Information sensors and output actuators - check and replacement

Engine coolant temperature sensor

Refer to illustration 15.2

General description

1 The coolant temperature sensor on 1981 through 1987 models is a thermistor (a resistor which varies the value of its resistance in accordance with temperature changes). The change in the resistance values will directly affect the voltage signal from the computer. As the sensor temperature DECREASES, the resistance values will DECREASE. As the sensor temperature INCREASES, the resistance values will INCREASE. **Note:** *On some early feedback carburetor versions the coolant temperature sensor acts as a switch. When the engine is cold, the ohmmeter indicates continuity and when the engine is warmed up, the ohmmeter indicates no continuity (open circuit).*

Check

2 To check the sensor on 1981 through 1987 models, install the probes of the ohmmeter onto the terminals of the coolant temperature sensor while it is completely cold (50 to 80-degrees F = 500 to 1,000