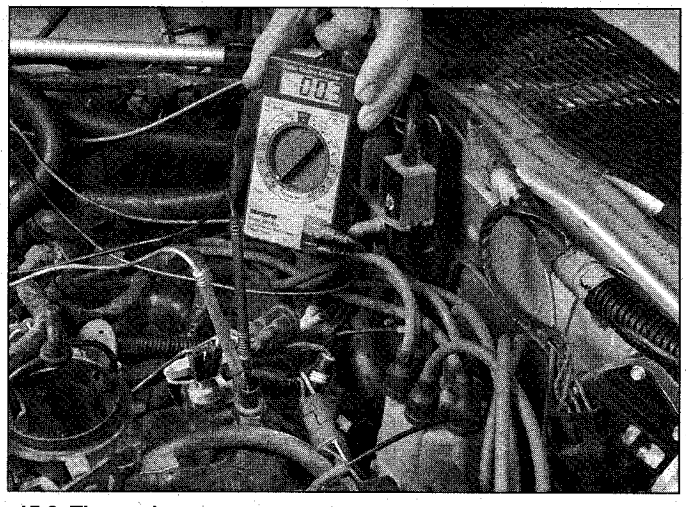


15.2 The coolant temperature sensor resistance will increase as the engine temperature increases (1986 models shown). Federal models equipped with the 318 CID (5.2L) and the two-barrel carburetor have the coolant temperature sensor installed where the charge temperature sensor is usually located.

ohms). Next, start the engine and warm it up until it reaches operating temperature **(see illustration)**. The resistance should be higher (180 to 200-degrees F = 1,200 to 1,400 ohms). **Note:** *Access to the coolant temperature sensor makes it difficult to position electrical probes on the terminals. If necessary, remove the sensor and perform the tests in a pan of heated water to simulate the conditions.*

Replacement

3 To remove the sensor, release the locking tab, unplug the electrical connector, then carefully unscrew the sensor. **Caution:** *Handle the coolant sensor with care. Damage to this sensor will affect the operation of the entire feedback carburetor system.*

4 Before installing the new sensor, wrap the threads with Teflon sealing tape to prevent leakage and thread corrosion.

5 Installation is the reverse of removal.

Oxygen sensor

Refer to illustration 15.8

Note 1: *The oxygen sensor is used only on 1981 and later models that are equipped with a feedback carburetor.*

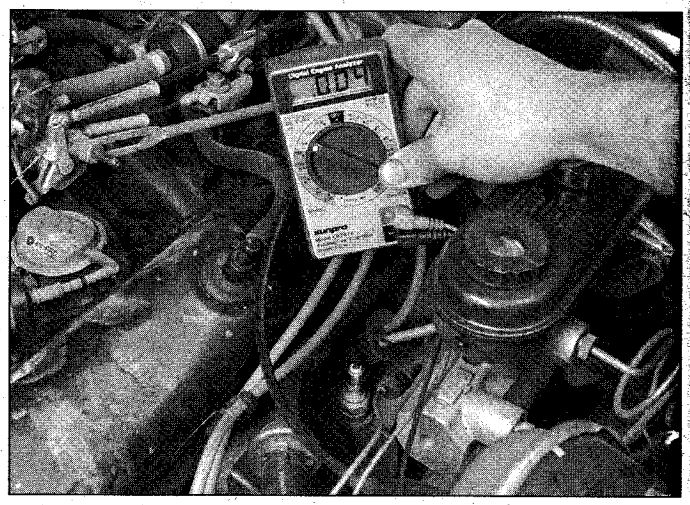
Note 2: *A faulty oxygen sensor is one of the most common causes of high fuel consumption and poor driveability on a vehicle equipped with a feedback carburetor.*

General description and check

6 The oxygen sensor, which is located in the exhaust manifold, monitors the oxygen content of the exhaust gas stream. The oxygen content in the exhaust reacts with the oxygen sensor to produce a voltage output which varies from 0.1-volt (high oxygen, lean mixture) to 0.9-volts (low oxygen, rich mixture). The electronic control unit constantly monitors this variable voltage output to determine the ratio of oxygen to fuel in the mixture. The electronic control unit alters the air/fuel mixture ratio by controlling the pulse width (open time) of the mixture control solenoid. A mixture ratio of 14.7 parts air to 1 part fuel is the ideal mixture ratio for minimizing exhaust emissions, thus allowing the catalytic converter to operate at maximum efficiency. It is this ratio of 14.7 to 1 which the electronic control unit and the oxygen sensor attempt to maintain at all times.

7 The oxygen sensor produces no voltage when it is below its normal operating temperature of about 600-degrees F. During this initial period before warm-up, the system operates in open loop mode.

8 If the engine reaches normal operating temperature and/or has been running for two or more minutes, and if the oxygen sensor is producing a steady signal voltage between 0.1 and 0.9-volts **(see illustration)**, the oxygen sensor is working properly.



15.8 With the engine warmed to operating temperature, check for a milli-volt signal from the oxygen sensor

9 The proper operation of the oxygen sensor depends on four conditions:

a) ***Electrical*** *- The low voltages generated by the sensor depend upon good, clean connections which should be checked whenever a malfunction of the sensor is suspected or indicated.*

b) ***Outside air supply*** *- The sensor is designed to allow air circulation to the internal portion of the sensor. Whenever the sensor is removed and installed or replaced, make sure the air passages are not restricted.*

c) ***Proper operating temperature*** *- The electronic control unit will not react to the sensor signal until the sensor reaches approximately 600-degrees F. This factor must be taken into consideration when evaluating the performance of the sensor.*

d) ***Unleaded fuel*** *- The use of unleaded fuel is essential for proper operation of the sensor. Make sure the fuel you are using is of this type.*

10 In addition to observing the above conditions, special care must be taken whenever the sensor is serviced.

a) *The oxygen sensor has a permanently attached pigtail and electrical connector which should not be removed from the sensor. Damage or removal of the pigtail or electrical connector can adversely affect operation of the sensor.*

b) *Grease, dirt and other contaminants should be kept away from the electrical connector and the louvered end of the sensor.*

c) *Do not use cleaning solvents of any kind on the oxygen sensor.*

d) *Do not drop or roughly handle the sensor.*

e) *The silicone boot must be installed in the correct position to prevent the boot from being melted and to allow the sensor to operate properly.*

Replacement

Note: *Because it is installed in the exhaust manifold or pipe, which contracts when cool, the oxygen sensor may be very difficult to loosen when the engine is cold. Rather than risk damage to the sensor (assuming you are planning to reuse it in another manifold or pipe), start and run the engine for a minute or two, then shut it off. Be careful not to burn yourself during the following procedure.*

11 Disconnect the cable from the negative terminal of the battery.

12 Raise the vehicle and place it securely on jackstands.

13 Carefully disconnect the electrical connector from the sensor.

14 Carefully unscrew the sensor from the exhaust manifold. **Caution:** *Excessive force may damage the threads.*

15 Anti-seize compound must be used on the threads of the sensor to facilitate future removal. The threads of new sensors will already be