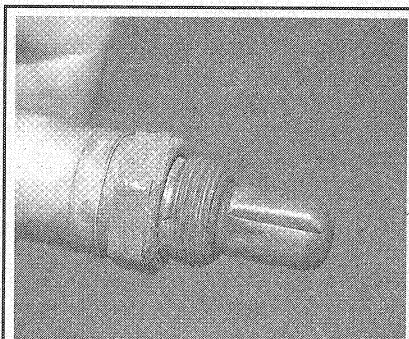


## 4-8 DRIVEABILITY AND EMISSIONS CONTROLS



91194P25

**Fig. 35** Inspect the sensor tip for any signs of build-up or damage



93144P19

**Fig. 36** Coat the threads of the sensor with a suitable anti-seize compound before installation

not be removed from the sensor. Damage or removal of the pigtail or connector will affect the proper operation of the sensor. Keep the electrical connector and lowered end of the sensor clean and free of grease. NEVER use cleaning solvents of any type on the sensor! The oxygen sensor may be difficult to remove when the temperature of the engine is below 120°F (49°C). Excessive force may damage the threads in the exhaust manifold or exhaust pipe.

1. Disconnect the negative battery cable.
2. Raise and support the vehicle.
3. Unplug the electrical connector and any attaching hardware.

➔Lubricate the sensor with penetrating oil before removal.

4. Remove the sensor using an appropriate tool. Special oxygen sensor sockets are available to remove the sensor and can be purchased at many parts stores or where automotive tools are sold. The proper size wrench can be used, most sensors are 7/8 inch or 22mm sizes.

5. A 22mm crows foot works very well.

### To install:

6. Coat the threads of the sensor with a suitable anti-seize compound before installation. New sensors are treated with this compound.
7. Install the sensor and tighten it. Use care in making sure the silicone boot is in the correct position to avoid melting it during operation.

8. Attach the electrical connector.
9. Lower the vehicle.
10. Connect the negative battery cable.

### Idle Air Control Valve

#### OPERATION

The Idle Air Control (IAC) valve adjusts the engine idle speed. The valve is located on the throttle body. The valve is controlled by a duty cycle signal from the PCM and allows air to bypass the throttle plate in order to maintain the proper idle speed.

#### TESTING

##### ♦ See Figure 37

1. Turn the ignition switch to the **OFF** position.
2. Disconnect the wiring harness from the IAC valve.
3. Measure the resistance between the terminals of the valve.

➔Due to the diode in the solenoid, place the ohmmeter positive lead on the VPWR terminal and the negative lead on the ISC terminal.

4. Resistance should be 7–13 ohms.
5. If resistance is not within specification, the valve may be faulty.



91054P12

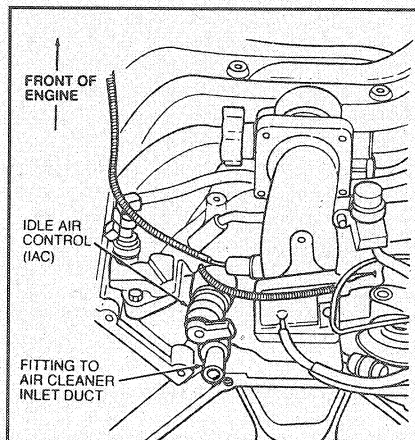
**Fig. 37** The IAC can be monitored with an appropriate and Data-stream capable scan tool

#### REMOVAL & INSTALLATION

##### ♦ See Figures 38 and 39

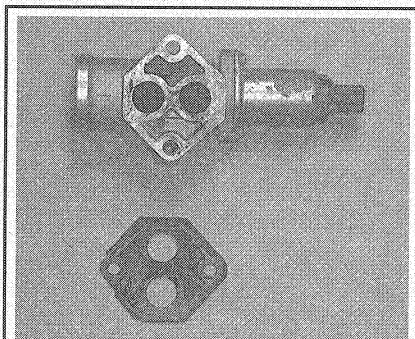
1. Disconnect the negative battery cable.
2. Detach the IAC solenoid connector.
3. Remove the two retaining bolts and remove the IAC solenoid and gasket from the throttle body.
4. Installation is the reverse of the removal procedure. Use a new gasket and tighten the retaining bolts to 71–97 inch lbs. (8–11 Nm).

➔If scraping is necessary to remove old gasket material, be careful not to damage the IAC solenoid or the throttle body gasket surfaces or drop material into the throttle body.



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**Fig. 38** IAC solenoid location—4.6L engine



93143P08

**Fig. 39** This is an IAC valve off of a 5.0L engine

### Engine Coolant Temperature (ECT) Sensor

#### OPERATION

The Engine Coolant Temperature (ECT) sensor resistance changes in response to engine coolant temperature. The sensor resistance decreases as the coolant temperature increases, and increases as the coolant temperature decreases. This provides a reference signal to the PCM, which indicates engine coolant temperature. The signal sent to the PCM by the ECT sensor helps the PCM to determine spark advance, EGR flow rate, air/fuel ratio, and engine temperature. The ECT is a two-wire sensor, a 5-volt reference signal is sent to the sensor and the signal return is based upon the change in the measured resistance due to temperature.

#### TESTING

##### ♦ See Figures 40, 41 and 42

1. Disconnect the engine wiring harness from the ECT sensor.
2. Connect an ohmmeter between the ECT sensor terminals.