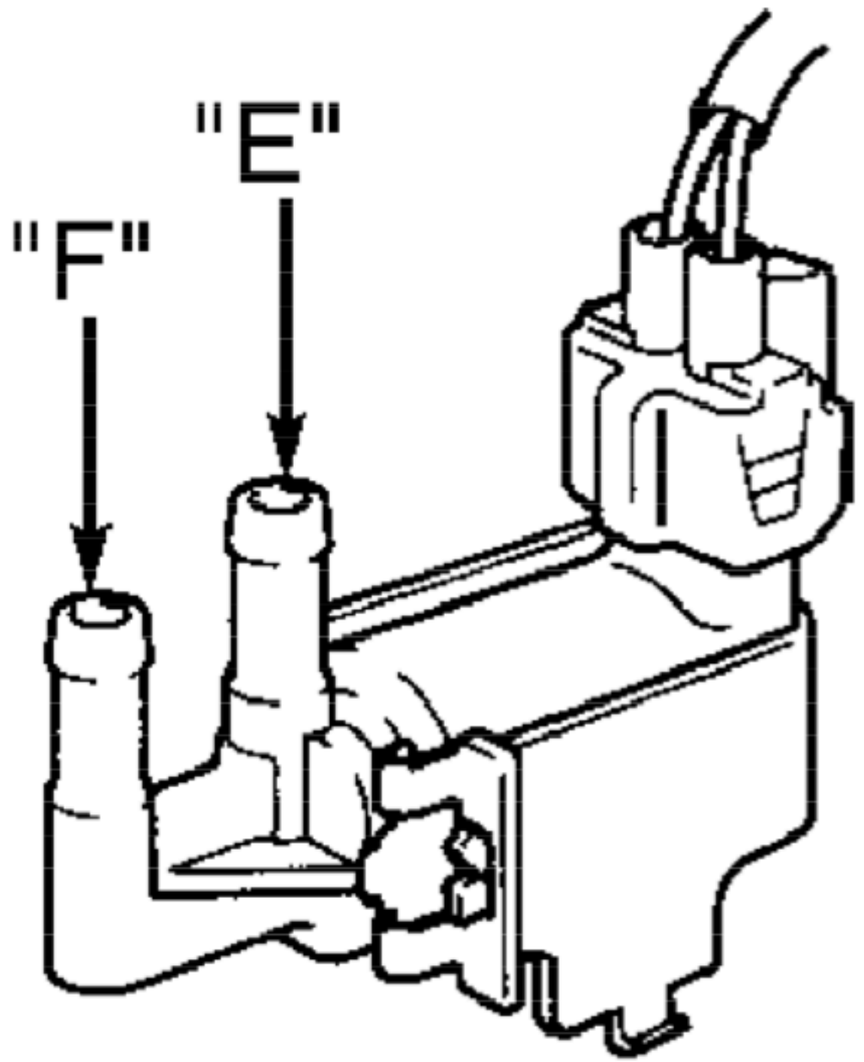
okay, replace ECM and retest system.




G96D09634

Fig. 5: Identifying EVAP VSV Vacuum Ports
Courtesy of Toyota Motor Sales, U.S.A., Inc.

## DTC P0450: EVAP PRESSURE SENSOR MALFUNCTION DTC P0451: EVAP PRESSURE SENSOR RANGE/PERFORMANCE FAULT

CAUTION: If ECM replacement is instructed in following testing, always ensure ECM harness connector and ground circuit are okay. If either are suspect, repair and repeat testing to confirm ECM malfunction. If ECM is replaced, ECM must be programmed with proper ignition key code for engine immobilizer system. For programming procedures, see COMPUTER RELEARN PROCEDURES article in GENERAL INFORMATION.

Circuit Description

Vapor pressure sensor and Vacuum Switching Valve (VSV) for vapor pressure sensor are used to detect faults in EVAP system.

DTC P0450 is set if 10 seconds after engine starts, vapor pressure sensor reading is less than -1.0 in. Hg (-3.5 kPa), or equal to or greater than .4 in. Hg (1.5 kPa) for 7 seconds or more. DTC P0451 is set if vapor pressure sensor output changes while vehicle is standing at idle and vapor pressure sensor VSV is on. Possible causes are:

* Short or open in vapor pressure sensor circuit.
* Faulty vapor pressure sensor.
* Faulty ECM.

Diagnostic Aids

Using scan tool, read freeze frame data. Freeze frame records engine conditions when malfunction is detected.

Diagnosis & Repair

1) Access ECM harness connectors behind glove box. Turn ignition on. Backprobing ECM harness connector, measure voltage between terminals No. 2 (Yellow/Black wire) and No. 18 (Brown wire) at ECM E6 connector. See Fig. 2. If voltage is 4.5-5.5 volts, go to next step. If voltage is not 4.5-5.5 volts, replace ECM and retest system.

2) Backprobing ECM harness connector, measure voltage between terminal No. 17 (Blue wire) at ECM E8 connector and terminal No. 18 (Brown wire) at ECM E6 connector. Disconnect vacuum hose from vapor pressure sensor. Sensor has 2 vacuum ports and is mounted on charcoal canister underneath rear of vehicle. Connect a vacuum pump to sensor. If voltage is 2.9-3.7 volts without vacuum applied, and .5 volt with 1.2-19.7 in. Hg (4-66 kPa) vacuum applied, replace ECM and retest system. If voltage is not as specified, go to next step.

3) Check for an open or short in wiring harness between vapor pressure sensor and ECM. See appropriate wiring diagram in WIRING DIAGRAMS article. Repair as necessary. If wiring is okay, replace vapor pressure sensor. Retest system.

## DTC P0500: VEHICLE SPEED SENSOR (VSS) MALFUNCTION

CAUTION: If ECM replacement is instructed in following testing, always ensure ECM harness connector and ground circuit are okay. If either are suspect, repair and repeat testing to confirm ECM malfunction. If ECM is replaced, ECM must be programmed with proper ignition key code for engine immobilizer system. For programming procedures, see COMPUTER RELEARN PROCEDURES article in GENERAL INFORMATION.

Circuit Description

Anti-Lock Brake System (ABS) Vehicle Speed Sensor (VSS) detects wheel speed and sends signals to ABS ECU. The ABS ECU converts signals into a 4-pulse signal and outputs signal to instrument cluster. Instrument cluster converts signal to a more precise waveform and outputs signal to ECM. ECM determines vehicle speed based on frequency of these pulse signals. DTC is set when ECM does not detect