

## D - ADJUSTMENTS

1990 Nissan 240SX

1990 ENGINE PERFORMANCE  
On-Vehicle Adjustments

Nissan; Axxess, Stanza, 240SX

### ENGINE COMPRESSION

- 1) Start engine and warm to normal operating temperature. Disconnect distributor center cable. Disconnect fusible link for injectors. Check compression pressure with all spark plugs removed, throttle valve wide open and engine at specified cranking speed.
- 2) Crank engine at least 6 revolutions to determine engine compression. Compression reading should be within specification. See ENGINE COMPRESSION table. After servicing engine, turn ignition off and reconnect components disconnected. Erase memory Code 22 (if necessary).

#### ENGINE COMPRESSION

Model	Standard psi (kg/cm <sup>2</sup> )	Minimum psi (kg/cm <sup>2</sup> )	Minimum RPM
Axxess .....	175 (12.3)	146 (10.3)	300
Stanza .....	175 (12.3)	146 (10.3)	250
240SX .....	192 (13.5)	142 (10.0)	300

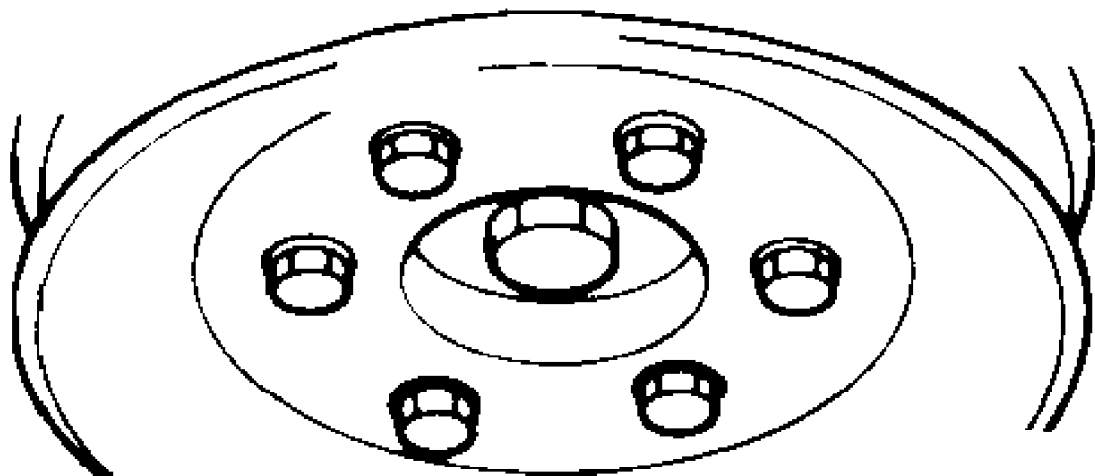
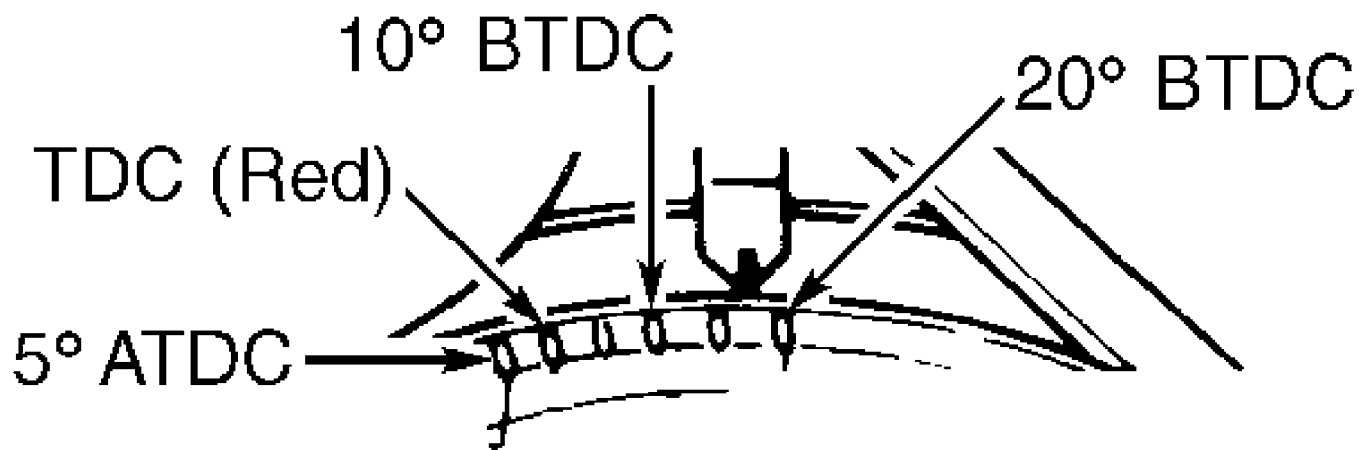
### VALVE CLEARANCE

NOTE: All engines except Z24i are equipped with hydraulic lifters. No adjustment is required.

### IGNITION TIMING

Axxess, Stanza, 240SX

- 1) Start engine and warm to normal operating temperature (coolant gauge needle in middle). Open engine compartment hood and run engine at 2000 RPM for 2 minutes. Perform self-diagnostic procedure. See G - TESTS W/CODES article. Check for smooth engine operation.
- 2) Increase engine speed to 2000 RPM, 2 or 3 times, then allow engine to return to idle. Check idle speed and ignition timing. See 4-CYLINDER IGNITION TIMING table. See Fig. 1. If ignition timing is correct, check idle mixture.
- 3) If ignition timing is incorrect, disconnect throttle position sensor harness connector. If engine speed is more than 800 RPM, reduce idle speed with idle speed adjusting screw. See Fig. 2 or 3.
- 4) Recheck ignition timing. If timing is incorrect, loosen hold-down bolt and turn distributor. With ignition timing correctly set, reconnect throttle position sensor. Check idle speed, oxygen sensor and idle mixture.



## 90G20574

Fig. 1: Locating Ignition Timing Marks  
 Courtesy of Nissan Motor Co., U.S.A.

### 4-CYLINDER IGNITION TIMING (Degrees BTDC @ RPM)

Application	Man. Trans.	(1) Auto. Trans.
Axxess & Stanza .....	15 @ 650-750 .....	15 @ 650-750
240SX .....	15 @ 700-800 .....	15 @ 700-800

(1) - Auto. trans. in Neutral.

### IDLE SPEED & MIXTURE

**NOTE:** Mixture adjustment is NOT a normal tune-up procedure. DO NOT adjust unless mixture control unit is replaced or vehicle fails emissions test.

### 4-CYLINDER IDLE SPEED

Axxess, Stanza & 240SX

1) Start engine and warm to normal operating temperature. Open engine compartment hood and run engine at 2000 RPM for 2 minutes. Perform self-diagnostic procedure. See G - TESTS W/CODES article. Check for smooth engine operation.

2) Increase engine speed to 2000 RPM, 2 or 3 times, then allow engine to return to idle. Check idle speed. See 4-CYLINDER IDLE SPEED & CO LEVEL table. If idle speed is correct, check ignition timing and idle mixture.

3) If idle speed is incorrect, disconnect throttle sensor harness connector. Ensure engine speed is less than 800 RPM (850 RPM on Pickup). If idle is not as specified, adjust by turning idle speed adjusting screw. See Fig. 2 or 3.

4) With idle speed set correctly, check ignition timing. If timing is incorrect, loosen hold-down bolt and turn distributor. With ignition timing correctly set, adjust idle speed to specification. Reconnect throttle sensor and recheck idle speed using step 2).

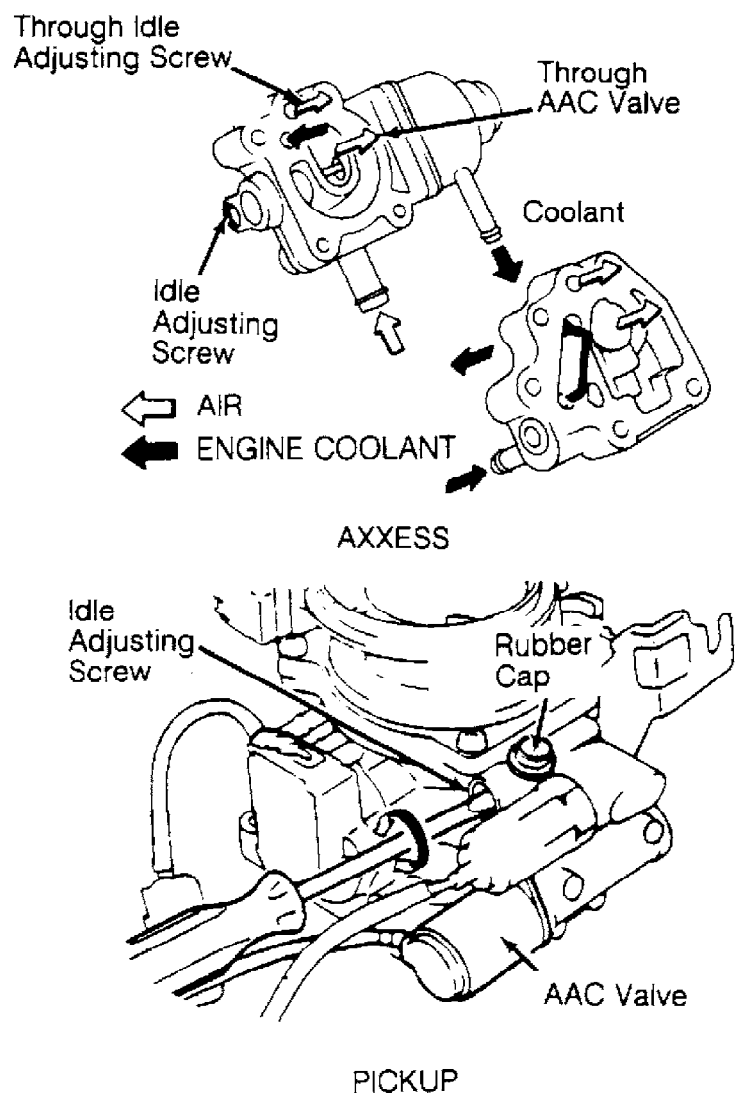


Fig. 2: Adjusting Idle Speed (Axxess)  
 Courtesy of Nissan Motor Co., U.S.A.

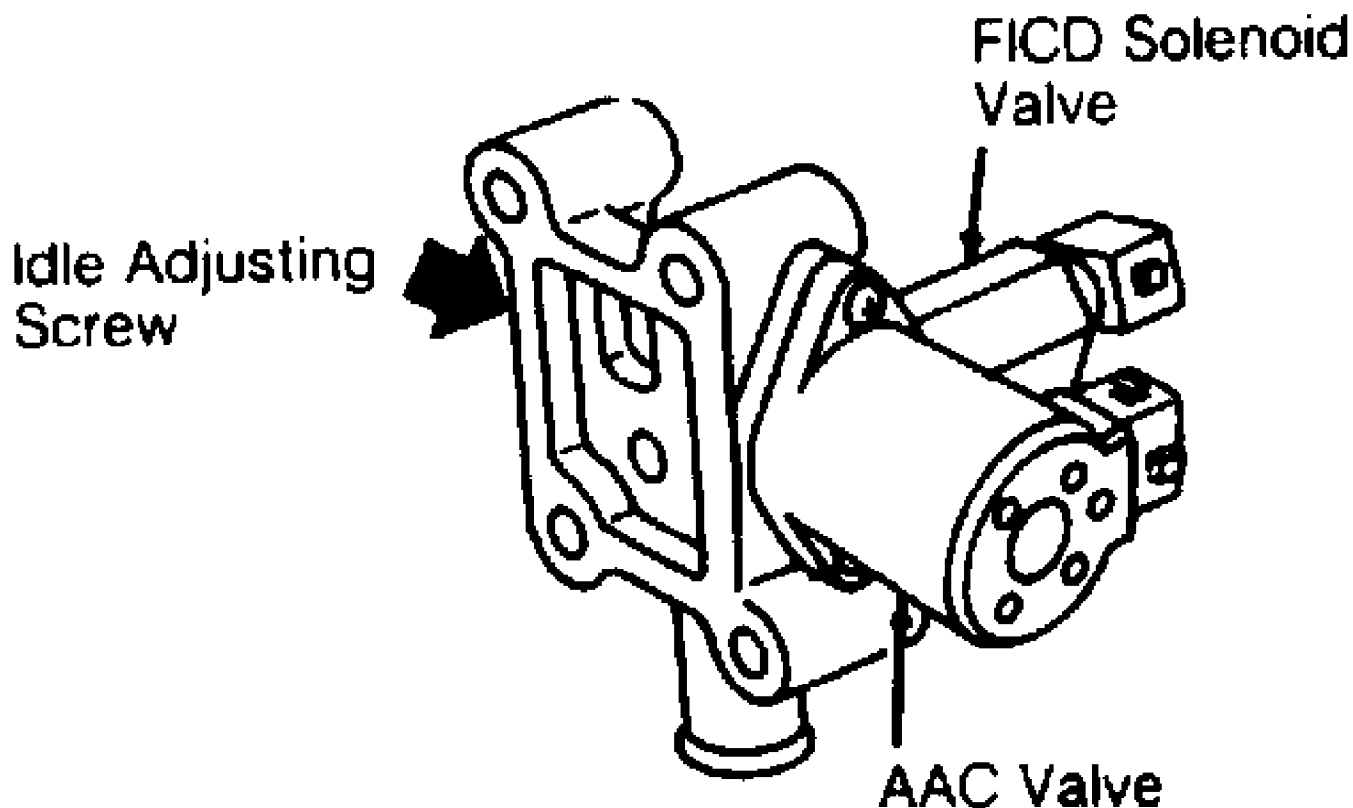


Fig. 3: Adjusting Idle Speed (240SX)  
Courtesy of Nissan Motor Co., U.S.A

#### 4-CYLINDER IDLE MIXTURE

Axxess, 240SX

1) Start engine and warm to normal operating temperature. Open engine compartment hood and run engine at 2000 RPM for 2 minutes. Perform self-diagnostic procedure. See G - TESTS W/CODES article. Check for smooth engine operation.

2) Check idle speed and ignition timing. With idle speed and ignition timing correctly set, locate ECU under passenger's seat (behind center console, next to accelerator pedal on Axxess and Stanza).

3) Increase engine speed to 2000 RPM for another 2 minutes. If Green LED on ECU DOES NOT go on and off more than 5 times during 10 seconds with engine running at 2000 RPM, go to step 5).

4) If Green LED goes on and off more than 5 times during 10 seconds with engine running at 2000 RPM, enter and set self-diagnostic system to Mode II. Red and Green LEDs on ECU should blink, simultaneously. If both LEDs blink, idle mixture is correctly set. If both LEDs do not blink simultaneously, go to step 7)

5) Turn off engine and disconnect negative battery cable. Disconnect oxygen sensor and wiring harness from ECU. Using a jumper wire, ground wiring harness at oxygen sensor connector.

6) Check continuity between terminal No. 19 of ECU wiring harness connector and ground. If continuity exists, remove jumper wire. Reconnect ECU and go to next step. If no continuity exists, repair wiring harness. After repairs, reconnect negative battery cable. Recheck idle speed and ignition timing.

7) Disconnect engine (coolant) temperature sensor. Connect a 2500-ohm resistor to engine (coolant) temperature sensor wiring

harness. Disconnect Air Induction Valve (AIV) and plug AIV pipe. Reconnect negative battery cable.

8) Start engine and warm to normal operating temperature. Increase engine speed to 2000 RPM, 2 or 3 times. Check idle mixture (CO% level).

9) If idle mixture is correct, replace oxygen sensor. If Green LED on ECU goes on and off more than 5 times during 10 seconds with engine running at 2000 RPM, recheck idle speed and ignition timing. If Green LED does not perform as indicated, go to next step.

10) If idle mixture is incorrect, reconnect oxygen sensor. Perform self-diagnosis and repair procedures for fuel pressure, airflow meter, injectors, and engine (coolant) temperature sensor. See SELF-DIAGNOSTICS article.

11) After checking/adjusting idle mixture, turn off engine. Remove 2500-ohm resistor from engine (coolant) temperature sensor wiring harness and reconnect sensor. Reconnect AIV hose to pipe.

#### Stanza

1) Start engine and warm to normal operating temperature (coolant gauge needle in middle). Open engine compartment hood and run engine at 2000 RPM for 2 minutes.

2) Perform self-diagnostic procedure. See SELF-DIAGNOSTICS article. Check for smooth engine operation. Check idle speed and ignition timing. With idle speed and ignition timing set correctly, locate ECU behind center console, next to accelerator pedal.

3) Increase engine speed to 2000 RPM for 2 minutes. Enter and set self-diagnostic system in Mode II. See SELF-DIAGNOSTICS article. Ensure Red LED on ECU goes on and off more than 5 times during 10 seconds with engine running at 2000 RPM.

4) If Red LED operates as indicated, idle mixture is correctly set. If Red LED does not operate as indicated, turn off engine and disconnect negative battery cable. Disconnect oxygen sensor and wiring harness from ECU. Using a jumper wire, ground wiring harness at oxygen sensor connector.

5) Check continuity between terminal No. 19 of ECU wiring harness connector and ground. If continuity exists, remove jumper wire. Reconnect ECU and go to next step. If continuity does not exist, repair wiring harness. After repairs, reconnect negative battery cable. Recheck idle speed and ignition timing.

6) Disconnect engine (coolant) temperature sensor. Connect a 2500-ohm resistor to engine (coolant) temperature sensor wiring harness. Disconnect Air Induction Valve (AIV) and plug AIV pipe. Reconnect negative battery cable.

7) Start engine and warm to normal operating temperature (coolant gauge needle is in middle of gauge). Increase engine speed to 2000 RPM, 2 or 3 times. Check idle mixture (CO% level). See 4-CYLINDER IDLE SPEED & CO LEVEL table.

8) If idle mixture is correct, replace oxygen sensor. Enter and set self-diagnostic system in Mode II. If Red LED on ECU goes on and off more than 5 times during 10 seconds with engine running at 2000 RPM, recheck idle speed and ignition timing. If Red LED does not perform as indicated, go to next step.

9) If idle mixture is incorrect, reconnect oxygen sensor. Perform self-diagnosis and repair procedures for fuel pressure, airflow meter, injectors and engine (coolant) temperature sensor. See G - TESTS W/CODES article.

10) After checking/adjusting idle mixture, turn off engine. Remove 2500-ohm resistor from engine (coolant) temperature sensor wiring harness and reconnect sensor. Reconnect AIV hose to pipe.

ECU GREEN LED FEEDBACK RESPONSE

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Application

Flashes @ 2000 RPM

Axxess, 240SX ..... 5  
 Stanza (1) ..... 9

(1) - A single Red LED is used on these models.

4-CYLINDER IDLE SPEED & CO LEVEL

Application	(1) Idle RPM	(2) Idle RPM	(3) CO Level
Axxess .....	(4) 650-750	(4) 600-700	(6) 5%
Stanza .....	(4) 650-750	(4) 600-700	(6) 5.0%
240SX .....	(4) 700-800	(4) 650-750	(6) 5.0%

- (1) - With throttle position sensor connected.
- (2) - With throttle position sensor disconnected.
- (3) - Measured in Self-Diagnostic Mode.
- (4) - Auto. trans. in Neutral.
- (5) - Idle speed is adjusted only with TPS connected.
- (6) - Set CO level to less than 5 percent.

**TPS CHECK & IDLE SWITCH ADJUSTMENT**

NOTE: Idle switch and throttle position sensor are contained in a single assembly.

**AXXESS (IDLE SWITCH)**

- 1) Remove air duct and disconnect idle switch. Connect ohmmeter between terminals "B" and "C". Ensure that continuity exists with throttle valve fully closed (no continuity with throttle valve open). If continuity is incorrect, replace idle switch.
- 2) To adjust idle switch, disconnect throttle position sensor connector (idle switch connector plugged in). Install air duct. Locate ECU behind center console, next to accelerator pedal. Start engine and warm to normal operating temperature.
- 3) Enter and set self-diagnostic system to Mode IV. See G - TESTS W/CODES article. Depress accelerator to 2000 RPM and release slowly. Idle switch (Red LED on ECU) should turn on within the range of 850-1150 RPM.
- 4) If idle switch does not come on as indicated, loosen hold-down screws and turn TPS/idle switch body. After adjustment, turn engine off. Remove air duct and tighten TPS/idle switch screws. Reconnect throttle position sensor connector and install air duct. Recheck idle switch on/off RPM.

**STANZA (THROTTLE POSITION SENSOR)**

- 1) Disconnect throttle position sensor. Connect ohmmeter between terminals "E" and "F". See Fig. 4. Ensure resistance varies as throttle is opened and closed. If resistance does not vary, replace throttle position sensor.
- 2) Reconnect throttle position sensor. Start engine and warm to normal operating temperature. Connect voltmeter between ECU terminal No. 20 and ground. With ignition on, adjust TPS output voltage to 0.4-0.5 volts. Disconnect TPS connector for few seconds, then reconnect it. Turn ignition off.

**240SX (TPS/IDLE SWITCH)**

1) Disconnect throttle position sensor. Connect ohmmeter between terminals "E" and "F". Ensure resistance varies as throttle is opened and closed. If resistance does not vary, replace throttle position sensor. Reconnect throttle position sensor.

2) Locate ECU on passenger's side kick panel. Start engine and warm to normal operating temperature. Turn self-diagnostic system mode selector screw fully clockwise (Mode IV). See G - TESTS W/CODES article.

3) Disconnect idle switch connector. Connect ohmmeter between terminals "B" and "C". Check idle switch off/on speed, while closing throttle valve. Idle switch should turn on at 850-1150 RPM. If idle switch does not turn on, loosen idle switch hold-down screws and rotate switch body to set off/on speed to specification.

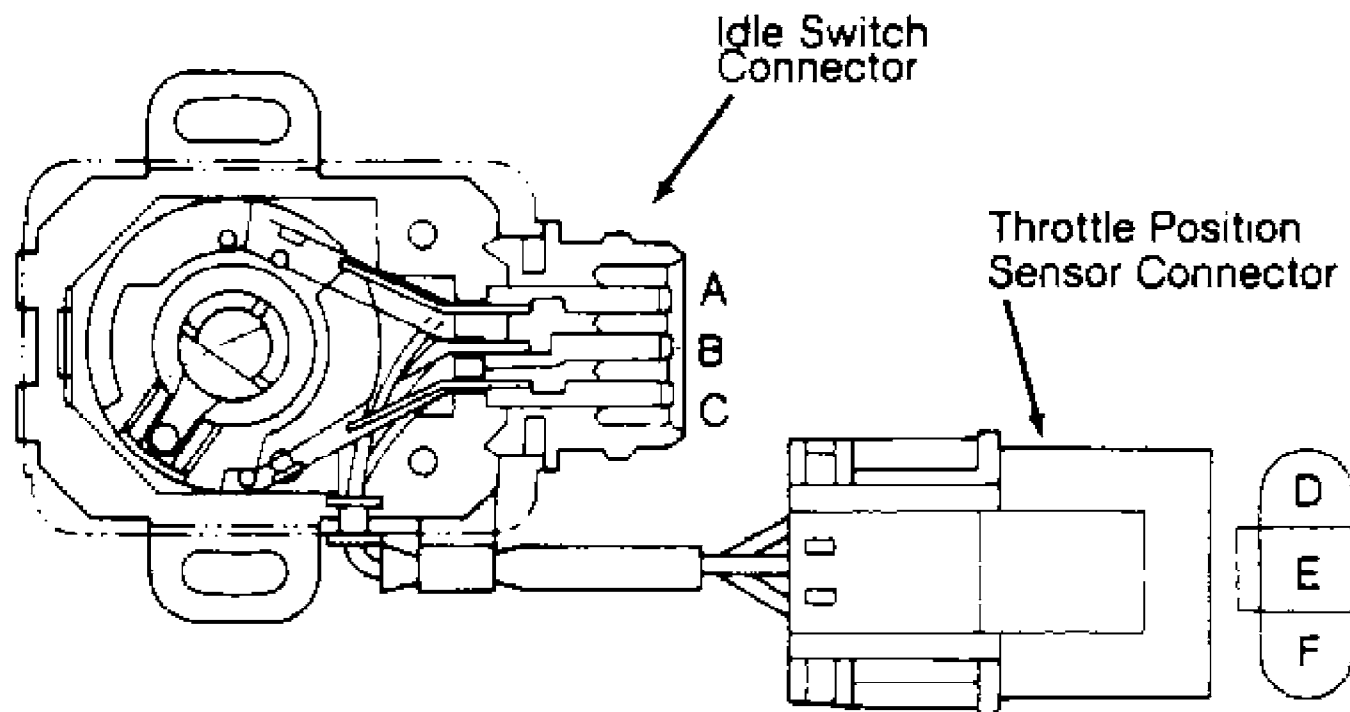


Fig. 4: Identifying Idle Switch & TPS  
Courtesy of Nissan Motor Co., U.S.A.