1974-79 EXHAUST EMISSION SYSTEMS
Datsun Boost Controlled Deceleration Device

All BCDD Equipped Models

DESCRIPTION

The Boost Controlled Deceleration Device (BCDD) is installed to reduce hydrocarbon (HC) emissions during deceleration. On 1979 models, the BCDD is mounted on carburetor (under throttle chamber on 280ZX and 810). The device supplies additional air/fuel mixture (additional air on 280ZX and 810) to the intake manifold to maintain the proper air/fuel ratio for complete combustion of fuel during periods of vehicle deceleration. System components include: boost controlled deceleration device, vacuum solenoid valve, speed detecting switch (manual transmission), amplifier and inhibitor switch (automatic transmission).

OPERATION

The BCDD system is used on all 1974-76 models, except B210 and F10. On 1976-78 models, the BCDD system comes into operation when engine is suddenly decelerated between 1800-2000 RPM. A diaphragm monitors manifold vacuum and will open vacuum control valve when vacuum manifold exceeds a certain level. As valve opens, air is allowed into a vacuum chamber and diaphragm assembly. As diaphragm moves, it allows additional air into the manifold. The amount of air is controlled by the air control valve and vacuum control valve so that manifold vacuum can be maintained at correct level.

The 1979 BCDD system contains two diaphragms. When vacuum in the intake manifold exceeds a pre-determined value, diaphragm I opens the vacuum control valve. This allows manifold vacuum into a vacuum chamber in the BCDD and actuates diaphragm II. *See Fig. 1.*

When actuated, diaphragm II opens the air control valve on 280ZX and 810 models, or the mixture control valve on 200SX, 510 and Pickup models, allowing additional air or air/fuel mixture into the manifold to maintain the required air/fuel ration.

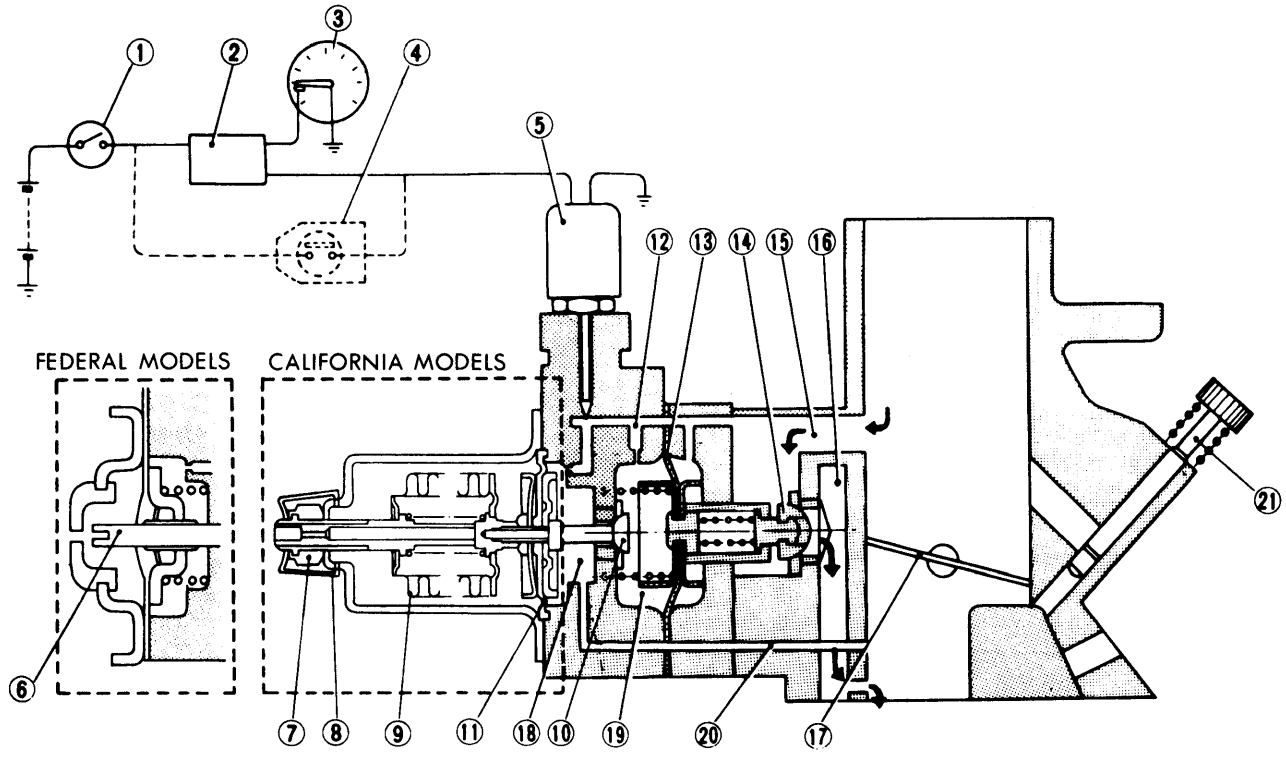
The amount of air or air/fuel mixture entering the manifold is controlled by the servo-action of the air or mixture control valve and vacuum control valve so that the manifold vacuum may be kept at the pre-determined operating pressure.

On all models except 280ZX and 810, the amount of mixture entering the manifold depends mainly upon the coasting air bleed, while the mixture ratio is determined by the coasting jet and coasting air bleed I. *See Fig. 2.*

On California models, the intake manifold operating pressure (vacuum) changes depending on the altitude at which the vehicle is being operated. To compensate for this, an altitude compensator is incorporated into the BCDD on these models. The altitude compensator automatically adjusts the operating pressure in response to altitude.

TESTING

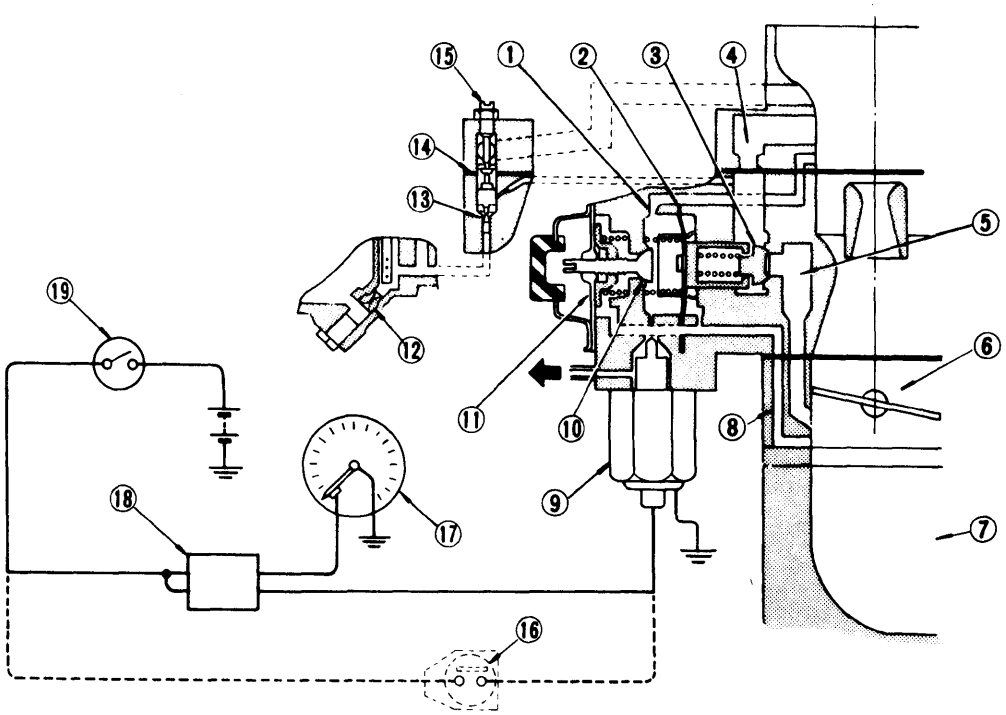
NOTE: Function test connector may be found next to the ignition coil, below air cleaner assembly, or located inside passenger compartment, next to brake pedal.



1 — Ignition Switch
2 — Ampilifer (M/T Only)
3 — Speed Switch (M/T Only)
4 — Inhibitor Switch (A/T Only)
5 — Vacuum Control Solenoid Valve
6 — Adjusting Screw
7 — Adjusting Nut
8 — Lock Spring
9 — Altitude Compensator
10 — Vacuum Control Valve
11 — Diaphragm I
12 — Air Passage
13 — Diaphragm II
14 — Air Control Valve
15 — Air Passage
16 — Air Passage
17 — Throttle Valve
18 — Vacuum Chamber
19 — Vacuum Chamber
20 — Vacuum Passage
21 — Idle Speed Adjusting Screw

Fig. 1: 1979 280ZX & 810 Boost Controlled Deceleration Device System

1974-79 EXHAUST EMISSION SYSTEMS
Datsun Boost Controlled Deceleration Device (Cont.)



1 – Air Jet
2 – Diaphragm II
3 – Mixture Control Valve
4 – Coasting Air Bleed II
5 – Mixture Air Passage
6 – Secondary Barrel
7 – Intake Manifold
8 – Vacuum Passage
9 – BCDD Solenoid Valve
10 – Vacuum Control Valve
11 – Diaphragm I
12 – Secondary Main Jet
13 – Coasting Jet
14 – Coasting Air Bleed I
15 – BCDD Mixture Adjusting Screw
16 – Inhibitor Switch (A/T Only)
17 – Speed Switch (M/T Only)
18 – Amplifier (M/T Only)
19 – Ignition Switch

Fig. 2: 1979 Federal 200SX & 510 Boost Controlled Deceleration Device System

BCDD CONTROL CIRCUIT

1974 Models – 1) Warm engine to normal operating temperature and place transmission in Neutral. Connect vacuum gauge and tachometer to engine. Note vacuum reading at idle, increase engine speed to 3000-3500 RPM, and quickly release throttle.

2) Manifold vacuum should be about 24 in. Hg and then gradually decrease to level noted at idle. Check that set vacuum is 21 in. Hg. If set level is higher (lower) than specified, turn adjusting screw counterclockwise (clockwise) until correct level is reached.

1975-78 Manual Transmission Equipped Models – 1) Check continuity between terminals "A" and "B" at function test connector. *See Fig. 3 or 6.* Check for voltage with vehicle above 10 MPH. Continuity should exist and voltage should be zero (0).

2) If no continuity exists, check for disconnected and/or faulty amplifier, speed detecting switch, or BCDD solenoid valve. If voltage is not zero (0), check connectors, wiring, fuse, amplifier, BCDD solenoid valve, or speed detecting switch. Repair or replace as necessary.

1975-78 Automatic Transmission Equipped Models – 1) Turn ignition on and place transmission in Neutral (inhibitor switch on). Check for 12 volts across terminals "A" and "B" at function test connector. *See Fig. 3 or 6.*

2) If voltage is not present or if reading is low, check for faulty or unplugged connectors, BCDD solenoid, or inhibitor switch. Repair or replace as necessary.

3) Place transmission in any gear (inhibitor switch off) and check resistance between terminal "A" and "B" at function test connector. Reading should be less than 32 ohms (15-28 ohms on 280Z and 810 models). If reading is incorrect, check for faulty connector, BCDD solenoid, or inhibitor switch. Repair or replace as necessary.

1979 Federal Models (Exc. Pickup) – 1) Connect voltmeter to BCDD test connector terminals. *See Fig. 3.* On manual transmission equipped models, go to next step. On automatic transmission equipped models, go to step **4)**.

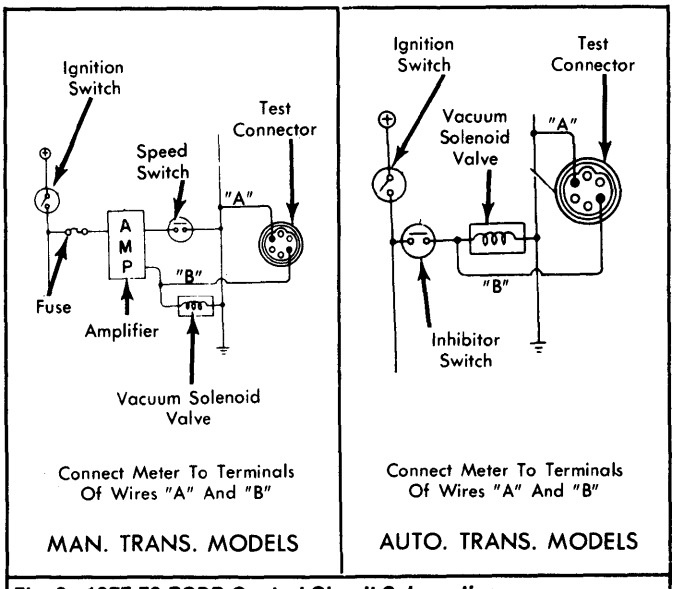


Fig. 3: 1977-79 BCDD Control Circuit Schematics

Datsun Boost Controlled Deceleration Device (Cont.)

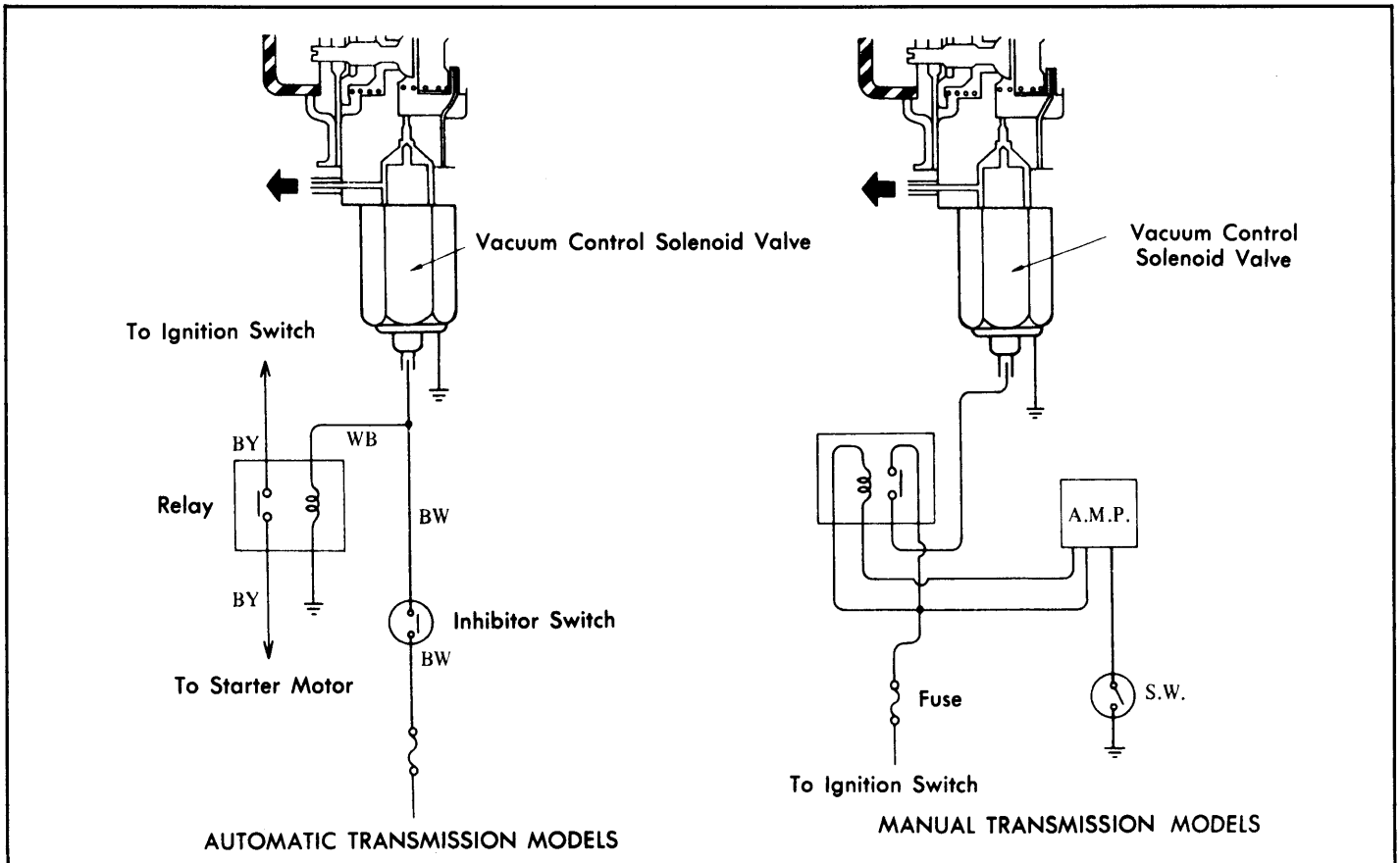


Fig. 4: 1974 BCDD Control Circuit Schematics

2) Block front wheels. Raise and support rear of vehicle so that drive wheels are free to turn. Start engine and measure voltage as vehicle is slowly accelerated.
3) Control circuit is okay if voltmeter reads 12 volts with vehicle speed below 10 MPH and zero (0) volts with speed above 10 MPH. If not, check connectors, wiring, amplifier, speed detecting switch, or BCDD control solenoid (if equipped). Repair or replace as necessary.
4) Turn ignition on and measure voltage in gear positions. Control circuit is okay if voltmeter reads 12 volts with selector lever in Park and Neutral and zero (0) volts in all other positions.
5) On 200SX and 510 models, connect an ohmmeter to same test connector terminals and check resistance between terminals. *See Fig. 3.* If resistance is 25 ohms or less, control circuit is okay.
6) If voltage and ohm readings are not as specified, check connectors, wiring, inhibitor switch, and BCDD solenoid valve (if equipped). Repair or replace parts as necessary.

BCDD OPERATING VACUUM

1) Warm engine to normal operating temperature. Ensure idle speed is set to specifications and place transmission in Neutral. Disconnect solenoid harness (if equipped). Connect a vacuum gauge to intake manifold.
2) Run engine under no load conditions and note vacuum reading. Increase engine speed to 3000-3500 RPM, then quickly close throttle. Manifold vacuum should increase to 24 in. Hg or more and then gradually decrease to level noted at idle.
3) If BCDD operating vacuum at idle is not as specified in BCDD OPERATING VACUUM table, turn adjusting screw/nut as necessary until specified operating vacuum is obtained. *See Figs. 5 and 7.*
4) Turning adjusting SCREW counterclockwise increases operating vacuum. Turning adjusting NUT clockwise increases operating vacuum. Turn adjusting nut in or out with lock spring in place. Always set lock spring properly to prevent changes in operating pressure.

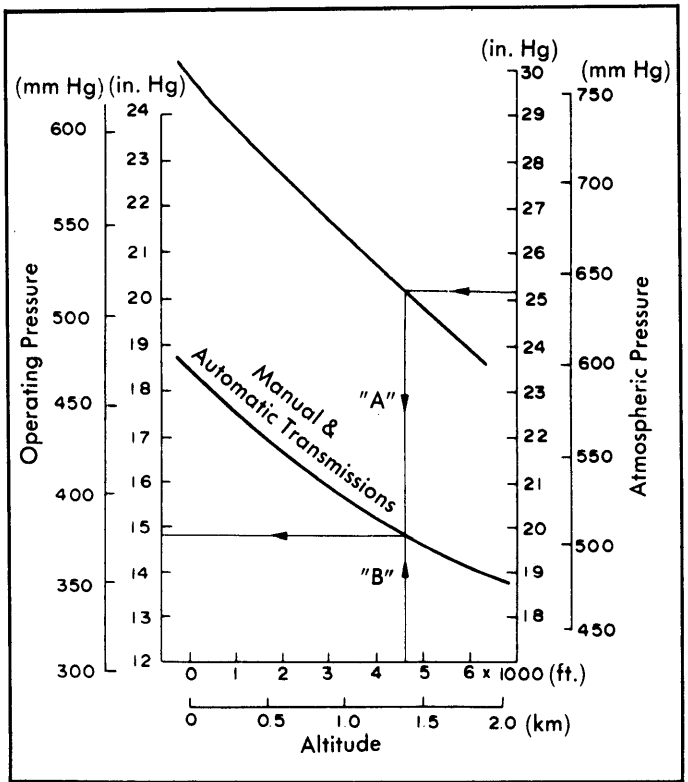


Fig. 5: 1976-78 280Z & 810 BCDD Operating Vacuum Chart

1974-79 EXHAUST EMISSION SYSTEMS
Datsun Boost Controlled Deceleration Device (Cont.)

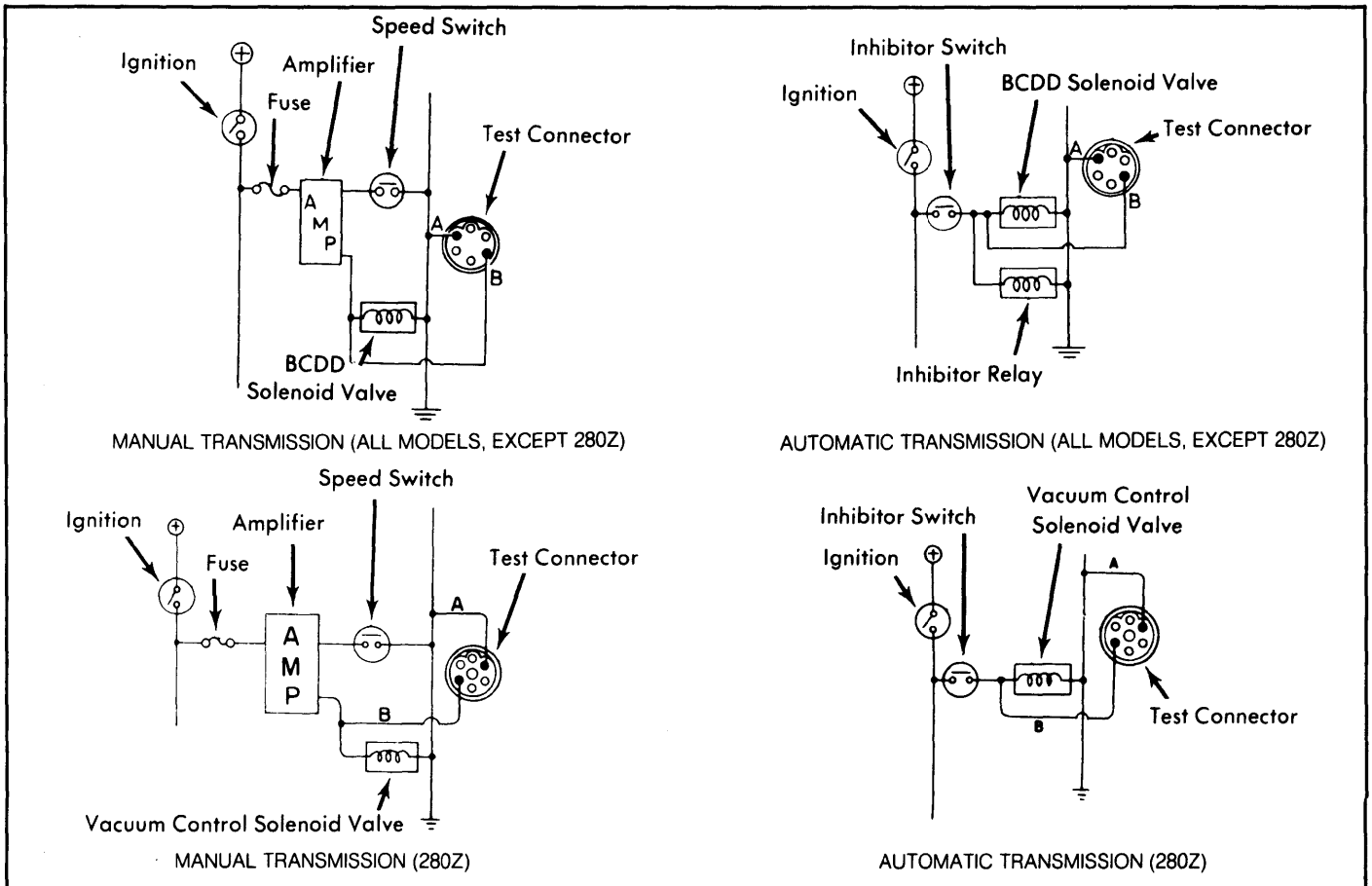


Fig. 6: 1975-76 BCDD Control Circuit Schematics

BCDD OPERATING VACUUM

Application	In. Hg
B210 & F10	20-21
200SX, 510 & Pickup	
Federal	21-22
Calif.	22-23
280Z & 280ZX	17-19
810	19-20

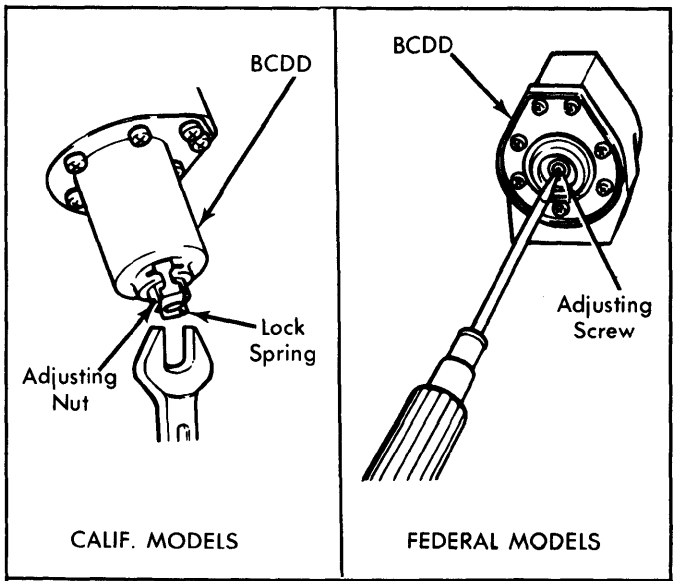


Fig. 7: Adjusting BCDD Operating Vacuum

BCDD IDLE MIXTURE

1979 200SX, 510 & Pickups – 1) Warm engine to normal operating temperature. Ensure idle speed is set to specifications and place transmission in Neutral. Disconnect and plug air injection hose at check valve.

2) On California models, disconnect vacuum hose at vacuum control valve and connect it to BCDD mixture control valve. *See Fig. 8.* On Federal models, actuate BCDD by removing rubber cap from BCDD adjusting screw and depressing screw with a screwdriver.

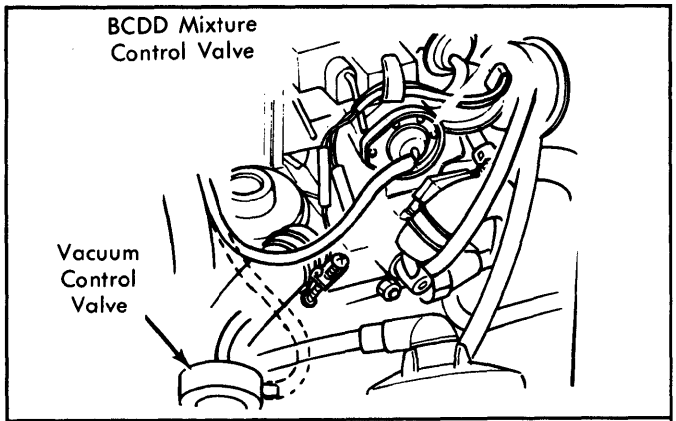


Fig. 8: Actuating BCDD On California Models

3) On all models, measure CO% level. The CO% level should be 1-3 percent. If not, remove air cleaner and loosen BCDD mixture adjusting screw lock nut. Turn adjusting screw until specified CO% level is obtained.

Datsun Boost Controlled Deceleration Device (Cont.)

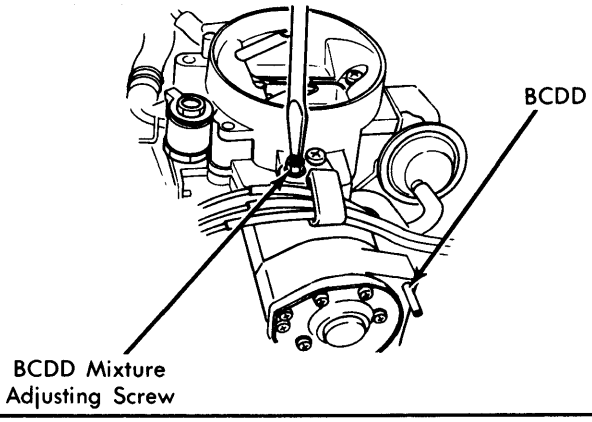


Fig. 9: Adjusting BCDD Idle Mixture (CO% Level)

4) Turning adjusting screw counterclockwise reduces CO% level, turning screw clockwise increases CO% level. *See Fig. 9.* Tighten adjusting screw lock nut, install air cleaner, and reconnect all disconnected hoses.