# 1980 Exhaust Emission Systems

## DATSUN SPARK TIMING CONTROL SYSTEM

**All Models**
**(Exc. Federal Pickup & Calif. Man. Trans. Pickup)**

NOTE – *California automatic transmission equipped pickups (except heavy duty models) are equipped with a vacuum delay valve only.*

### DESCRIPTION

The Spark Timing Control system is designed to control distributor vacuum advance under varying driving conditions to reduce HC and NOx emissions. This is accomplished through the use of thermal vacuum valves (TVV) on all models (except pickups). Thermal valves are major components of the EGR system. In addition to thermal vacuum valves, a vacuum delay valve (one-way valve) is installed on all models (except all 200SX and 510 models, Federal 210 models with Auto. Trans. and California 280ZX and 810 models.

NOTE – *Federal 280ZX and 810 vacuum advance line is actuated at normal operating temperature. At idle, manifold vacuum is regulated by orifices and spark timing is advanced half-way.*

### OPERATION

The thermal vacuum valves monitor engine coolant temperature to open and close the carburetor throttle vacuum line connected to the EGR control valve, which opens and closes the vacuum advance line. The vacuum delay valve (if equipped) prevents rapid vacuum change in the distributor vacuum advance line. The delay valve is constructed for one-way operation and when vacuum source decreases, the vacuum advance responds normally.

### TESTING

#### SPARK TIMING CONTROL SYSTEM

NOTE – *The following system test pertains to all models except California pickups with automatic transmission. The only test required to test the pickup system is to test the operation of the Vacuum Delay Valve.*

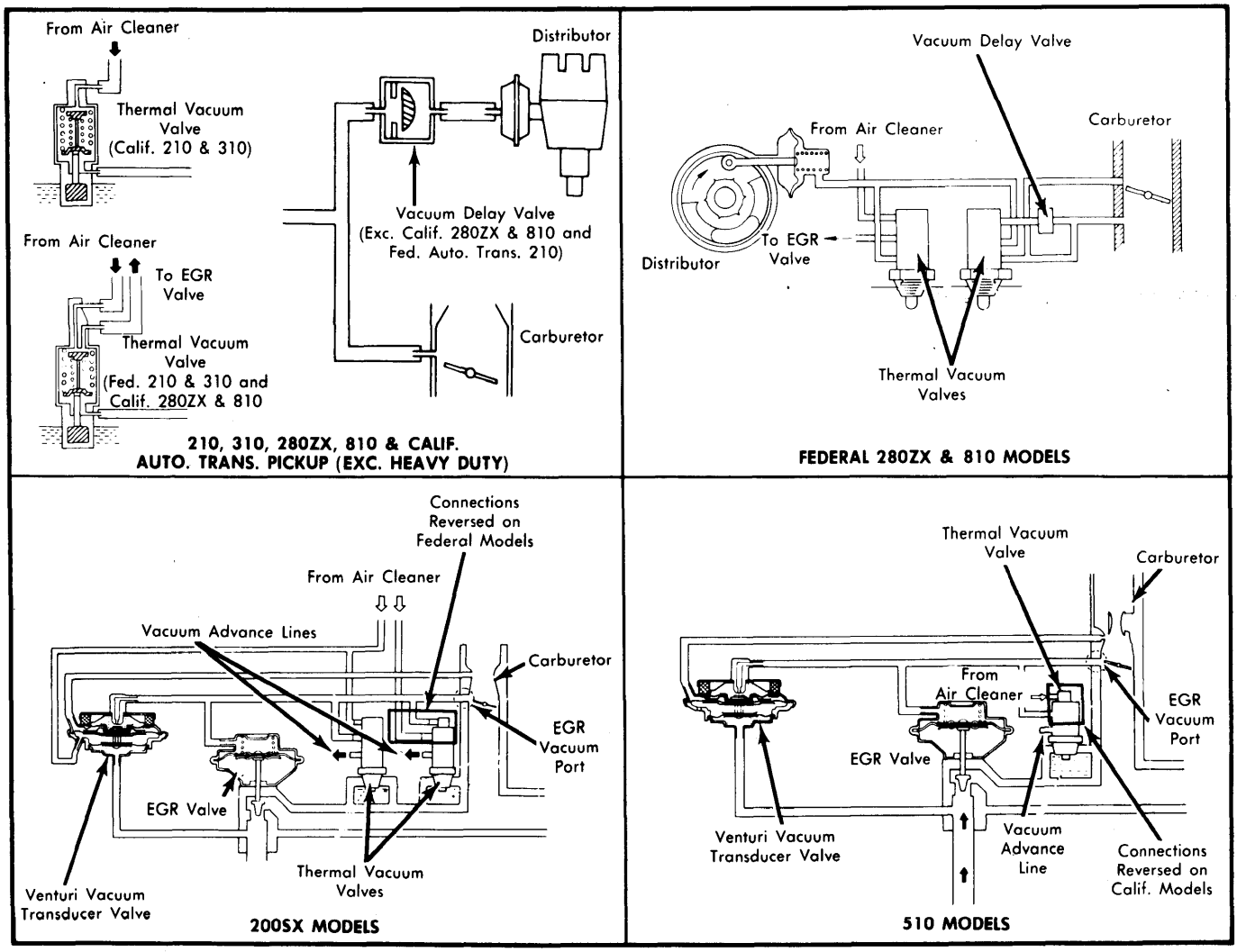


***Fig. 1 Datsun Spark Timing Control Schematics***

## DATSUN SPARK TIMING CONTROL SYSTEM (Cont.)

1) Ensure all vacuum hoses are in good condition and properly connected. Place transmission in neutral or "Park".

2) Ensure engine is cold. Connect timing light. Start engine and watch timing. In early stages of warm-up, timing should retard.

3) Continue to operate engine and note temperature gauge and timing. As needle of temperature gauge reaches middle position, timing should advance from former position.

4) If timing does not perform as described, replace thermal vacuum valve(s).

### THERMAL VACUUM VALVE

Thermal vacuum valve is a major component of EGR system. Test procedures for various thermal vacuum valves are contained in *"Datsun Exhaust Gas Recirculation System" article.*

NOTE – *Application of thermal vacuum valves between models varies greatly. The 2-port and 3-port valves may be used in any combination to comply with emission standards. Ensure proper valve and connections are used for applicable model.*

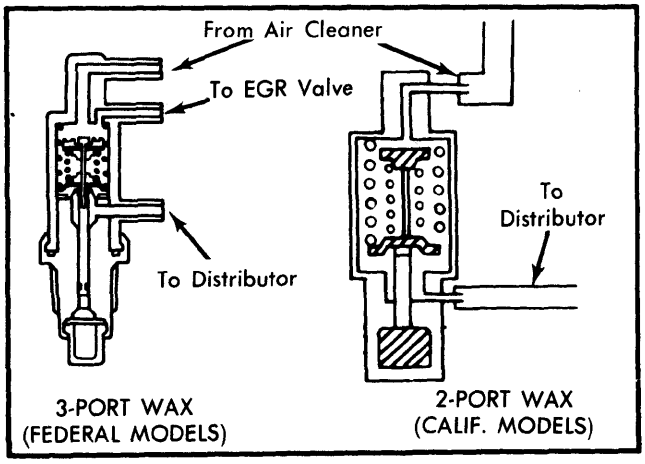


***Fig. 2 Thermal Vacuum Valves (210 & 310 Models Shown – Other Models Similar)***

### VACUUM DELAY VALVE

1) Remove vacuum delay valve from engine. Blow air into valve from distributor side of valve. Air should pass through valve without resistance. If not, replace valve.

2) Next, blow air through carburetor or throttle chamber side (white side on 280ZX and 810 models – brown side on all other models) of valve. Air should not pass through valve without resistance. If no resistance is encountered, replace valve.