## TUNE-UP

**280ZX**
**810**

### ENGINE IDENTIFICATION

Engine serial number is stamped on right rear side of cylinder block at cylinder head contact surface. Serial number is preceded by engine model number.

**Engine Model Number**

| Application | Model No. |
|---|---|
| 280ZX | L28E |
| 810 | L24 |

### COMPRESSION PRESSURE

Test compression with engine at normal operating temperature, spark plugs removed, throttle and choke open, and engine at cranking speed. Lowest reading cylinder must be at least 80% of highest reading cylinder. Compression pressure should be as follows at 300-400 RPM:

| Application | Min. Pressure psi (kg/cm²) | Max. Pressure psi (kg/cm²) |
|---|---|---|
| 280ZX | 128 (9) | 171 (12) |
| 810 | 128 (9) | 171 (12) |

### VALVE TAPPET CLEARANCE

Adjust valves with engine off and at normal operating temperature. Insert feeler gauge between heel of cam and pivot arm from valve side of head. Use suitable wrench (ST1064001) to loosen pivot locking nut and a second wrench to turn pivot adjuster until specified clearance is obtained. Tighten locking nut and recheck clearance.

**Valve Clearance Specifications**

| Application | Intake | Exhaust |
|---|---|---|
| All Models | .010" (.25 mm) | .012" (.30 mm) |

**VALVE ARRANGEMENT**

E-I-I-E-I-E-E-I-E-I-I-E (front to rear).

### SPARK PLUGS

| Application | Gap In. (mm) | Torque Ft. Lbs. (mkg) |
|---|---|---|
| All Models | .039-.043 (1.0-1.1) | 11-14 (1.5-2.0) |

**Spark Plug Type**

| Application | NGK No. |
|---|---|
| 280ZX & 810 | BP6ES-11 |

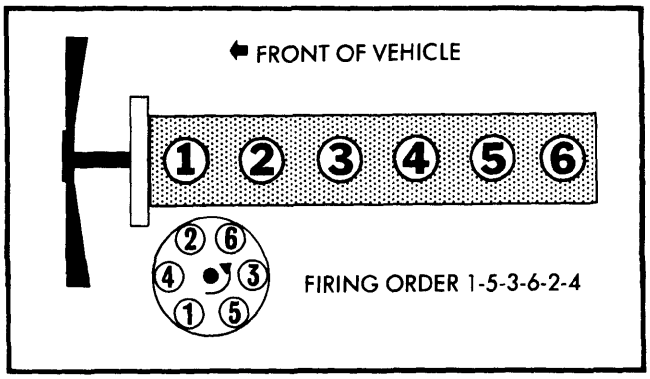


*Fig. 1 Firing Order and Distributor Rotation*

### HIGH TENSION WIRE RESISTANCE

Remove distributor cap from distributor but do not disconnect high tension wires from cap. Disconnect high tension wires from spark plugs. Using an ohmmeter, check resistance from contact at spark plug end of wires to contact inside of distributor cap. Resistance should be less than 30,000 ohms. If resistance is more, disconnect wire from cap and recheck resistance. Replace wire if resistance still exceeds specifications.

### DISTRIBUTOR

All models use a single pick-up transistor ignition system with no point set. The only adjustment needed is for air gap between the reluctor and pick-up coil.

Measure air gap using a non-magnetic feeler gauge. If gap is not to specifications, loosen pickup coil screws and adjust gap.

Air Gap ..... .012-.020" (.3-.5 mm)

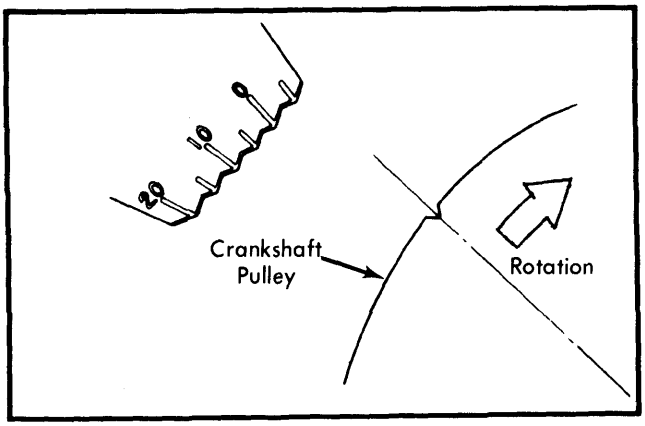


*Fig. 2 Ignition Timing Mark Location*

### IGNITION TIMING

With engine at normal operating temperature, connect a timing light and tachometer to engine. Check air gap and idle speed and adjust to specifications if necessary. With Man. Trans. in neutral or Auto. Trans. in "D", adjust timing by loosening set screw and rotating distributor until timing is set to specifications. Tighten set screw and recheck timing.

## TUNE-UP (Cont.)

### Ignition Timing Specifications

| Application | ①Timing |
|---|---|
| All Models | 10°BTDC |

① — Auto. Trans. in "D".

## IDLE SPEED & MIXTURE

NOTE — *Ignition switch must be "OFF" before disconnecting fuel injection system component harness connectors. Engine should be at operating temperature. Be sure CO meter is fully warmed up before check.*

### FEDERAL MODELS

1) Connect a tachometer to engine and run at 2000 RPM for 5 minutes to stabilize operating condition. Accelerate engine 2-3 times and return to idle. Turn idle speed adjusting screw to obtain specified idle RPM.

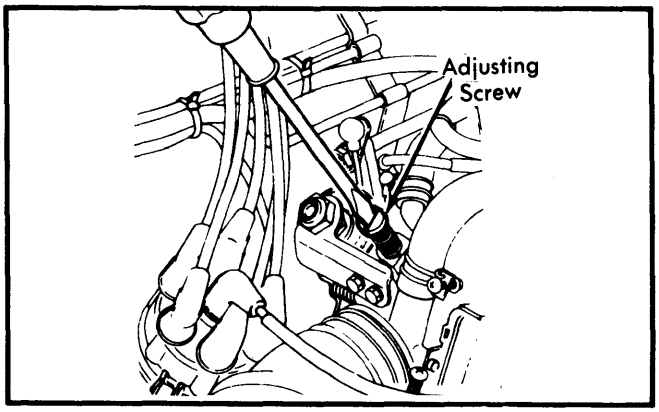


*Fig. 3 Adjusting Idle Speed*

2) Turn ignition switch off and disconnect throttle valve switch harness connector. Position harness connector at least 4" away from any secondary ignition wires.

3) Disconnect and plug distributor vacuum hose. Disconnect air induction hose and canister purge hose at intake manifold. Plug air induction pipe and purge hose fitting on intake manifold. Start engine, accelerate 2-3 times and allow to idle for 1 minute.

4) Check ignition timing and reset idle speed screw to obtain 700 RPM. Connect a jumper wire between throttle valve switch harness connector terminals No. 24 and No. 30. *See Fig. 4.*

NOTE — *Connecting jumper wire between connector terminals signals the control unit of a full throttle condition which allows the idle mixture to run at full load enrichment. This step is necessary to enrichen the CO% level at idle enough to be read by the CO meter.*

5) Insert CO meter probe into tail pipe (at least 16"), and measure CO level. If necessary, remove air by-pass screw plug from air flow meter and adjust by-pass screw to obtain specified CO level (according to altitude in which vehicle is operated). Turn air by-pass screw clockwise to richen mixture or counterclockwise to lean mixture.

6) Stop engine and remove jumper wire from throttle valve switch harness connector. Reconnect harness and all hoses. Reset idle speed to specified RPM.

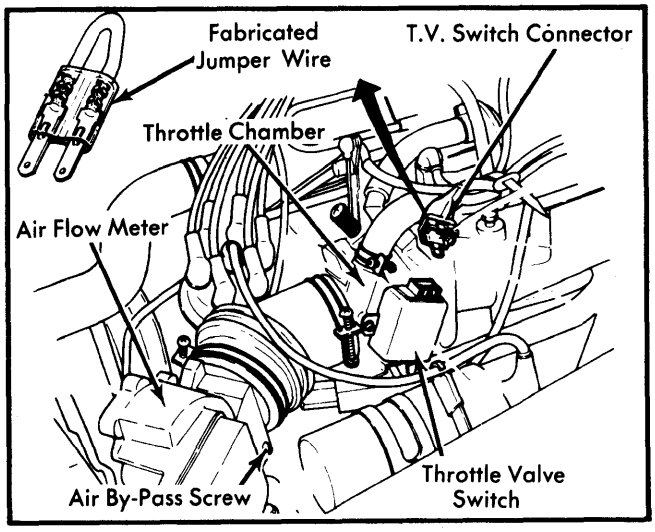


*Fig. 4 Idle Mixture Adjustment (CO%) (280ZX Shown — 810 Similar)*

### CALIFORNIA MODELS

1) Start engine and run to normal operating temperature. Accelerate and run engine at 2000 RPM for 5 minutes to stabilize operating condition.

### Idle Speed & CO Level

| Application | Idle RPM① | CO% |
|---|---|---|
| 280ZX & 810 | | |
| Federal | | |
| 0-2000 feet | ②700 | 0.2-1.8 |
| 2000-4000 feet | ②700 | 2.4 |
| 4000-6000 feet | ②700 | 3.5 |
| Above 6000 feet | ②700 | 4.7 |
| California | ②700 | ③ |

① — Auto. Trans. in "D".
② — Set 810 model with Auto. Trans. at 650 RPM.
③ — See adjustment procedure.

2) Accelerate engine 2-3 times and allow to idle. Turn idle speed adjusting screw to obtain specified idle RPM. Check ignition timing and reset if necessary. Raise engine speed to 2000 RPM and observe inspection light on bottom of EFI computer.

3) Light should blink more than 5 times in 10 seconds, indicating mixture is correct and is being controlled by the computer. If not, refer to *Mixture Control Components Test in Bosch AFC Fuel Injection article in FUEL SYSTEMS Section* for repair and testing of system.

## FUEL PUMP PRESSURE

| | |
|---|---|
| Pressure | 36.3 psi (2.6 kg/cm²) |

## EXHAUST EMISSION SYSTEMS

*See EXHAUST EMISSION SYSTEMS section.*

# GENERAL SERVICING

## IGNITION

### DISTRIBUTOR

All models are equipped with Hitachi Transistor Ignition System.

**Other Data & Specifications** – *See Tune-Up article and appropriate article in DISTRIBUTORS & IGNITION SYSTEMS section.*

### IGNITION COIL

**Coil Resistance (Ohms@68° F)**

| Application | Primary | Secondary |
|---|---|---|
| 280ZX & 810 | .84-1.02 | 8,200-12,400 |

## FUEL SYSTEMS

### FUEL INJECTION

All models are equipped with Bosch AFC Fuel Injection System.

**Other Data & Specifications** – *See Tune-Up and Bosch AFC Fuel Injection in FUEL SYSTEMS Section.*

## ELECTRICAL

### BATTERY

| Application | Amp. Hr. Rating |
|---|---|
| All Models | |
| Battery Type | |
| N50Z | 60 |
| N70Z | 70 |

**Battery Location** – Right side of engine compartment.

### STARTER

| | |
|---|---|
| Hitachi | Overrunning Clutch |
| Free Speed Voltage | 12 at 4300 RPM |
| Free Speed Amperage | 100 (Max.) at 4300 RPM |

### ALTERNATOR

| Application | Rated Amp. Output |
|---|---|
| All Models | 60 |

### ALTERNATOR REGULATOR

All models use a Hitachi alternator regulator with an operating voltage of 14.3-15.3 volts at 68°F (20°C).

### BELT ADJUSTMENT

| Application | ①Deflection |
|---|---|
| All Belts | 5/16-1/2" (8-12 mm) |

① – Deflection is with 22 lbs. (10 kg) pressure applied midway on belt run.

### FILTERS

| Filter | Service Interval (Miles) |
|---|---|
| Oil Filter | Replace every 7500 |
| Air Filter | Replace every 30,000 |
| Fuel Filter | Replace every 30,000 |
| Canister Filter | Replace every 30,000 |

### CAPACITIES

| Application | Quantity |
|---|---|
| Crankcase (Includes Filter) | |
| 280ZX | 4.8 qts. |
| 810 | 5.9 qts. |
| Cooling System (Includes Heater) | |
| 280ZX | |
| With Reservoir | 11.1 qts. |
| Without Reservoir | 10.3 qts. |
| 810 | 11.0 qts. |
| Man. Trans. (API GL-4/SAE 80) | |
| 280ZX & 810 | |
| 4-Speed | 3.6 pts. |
| 5-Speed | 4.3 pts. |
| Auto. Trans. (Dexron) | 5.9 qts. |
| Rear Axle (API GL-5/SAE 80-90) | |
| 280ZX | |
| Model R-180 | 2.1 pts. |
| Model R-200 | 2.8 pts. |
| 810 | 2.1 pts. |
| Fuel Tank | |
| 280ZX | 21.1 gals. |
| 810 Sedan | 15.9 gals. |
| 810 Station Wagon | 14.5 gals. |