

## TUNE-UP

Coupe  
GLE

### ENGINE IDENTIFICATION

B28F engine identification number is stamped in lower left front corner of block above oil pan.

#### Engine Code

Application	Code
Federal	
Man. Trans. ....	498-640
Auto. Trans. ....	498-641
Calif.	
Man. Trans. ....	498-638
Auto. Trans. ....	498-639

### COMPRESSION PRESSURE

Check compression with engine at normal operating temperature, all spark plugs removed, throttle valve wide open and at normal cranking speed (250-300 RPM). Crank engine at least 6 "puffs" per cylinder.

#### Compression Pressure Specifications

Application	Pressure psi (kg/cm <sup>2</sup> )
All Models .....	114-156 (8-11)

### VALVE CLEARANCE

1) Adjust valves with engine cold. Rotate crankshaft so No. 1 cylinder is at TDC of ignition stroke (both rocker arms for No. 1 cylinder have clearance).

**NOTE** — Crank pulley has 2 notches. When No. 1 cylinder is at TDC, upper notch will align with "0" notch on timing marker and lower crank pulley notch will be 150° counterclockwise from upper notch. (Second notch is TDC for No. 6 cylinder when aligned with "0" on timing marker).

2) Adjust valves in sequence as follows:

Intake	Exhaust
Cyl. 1.....	Cyl. 1
Cyl. 2.....	Cyl. 3
Cyl. 4.....	Cyl. 6

3) Rotate crankshaft 360°. This will set No. 1 cylinder at TDC of exhaust stroke (rocker arms for No. 1 cylinder indicating no clearance). Adjust valves in following sequence:

Intake	Exhaust
Cyl. 3.....	Cyl. 2
Cyl. 5.....	Cyl. 4
Cyl. 6.....	Cyl. 5

### Valve Clearance Specifications

Application	Intake In. (mm)	Exhaust In. (mm)
All Models .....	.004-.006 (.10-.15)	.010-.012 (.25-.30)

### VALVE ARRANGEMENT<sup>⓪</sup>

Right Bank: E-I-E-I-E-I (front to rear).  
Left Bank: I-E-I-E-I-E (front to rear).

⓪ — Intake valves are inside the engine's "V"; exhaust valves are on outer sides of heads.

### SPARK PLUGS

Application	Gap In. (mm)	Torque Ft. Lbs. (N·m)
All Models .....	.030 (.75)	9 (12)

#### Spark Plug Type

Application	Bosch No.
All Models .....	HR6DS

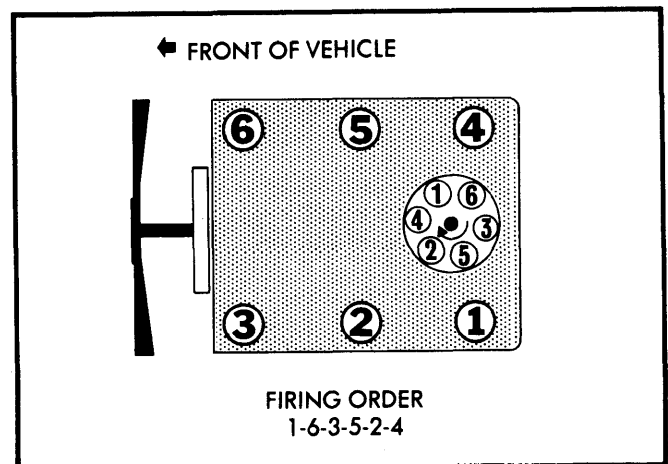


Fig. 1 Firing Order and Distributor Rotation

### DISTRIBUTOR

All models are equipped with the Bosch Electronic Ignition System and no adjustments are required.

### IGNITION TIMING

Connect a timing light and tachometer. Disconnect and plug distributor vacuum hose. Use idle air adjusting screw to set idle speed to specified timing RPM. Rotate distributor to set timing to specifications. Reconnect distributor vacuum hose.

## TUNE-UP (Cont.)

### Ignition Timing Specifications (Degrees BTDC @ RPM)

Application	ⓐ Timing
Federal .....	10@750
Calif. ....	10@900

ⓐ — With distributor vacuum hose disconnected and plugged.

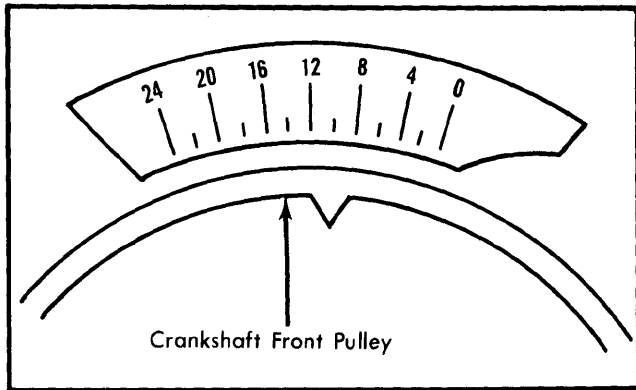


Fig. 2 Ignition Timing Mark Location

### IDLE SPEED & MIXTURE

**NOTE** — Mixture control adjustment screw opening is plugged to prevent tampering. Adjustment is not a normal maintenance procedure and should not be performed unless mixture control unit is replaced or vehicle fails emissions testing.

- 1) Remove mixture control unit and punch out mixture plug (steel ball) with a punch. Reinstall mixture control unit. Disconnect oxygen sensor electrical connector.
- 2) Remove plugs from header pipes (1 for each cylinder bank) and connect CO probe (5151) to each pipe. See Fig. 3. Connect tachometer and start engine. Run engine until normal operating temperature is reached and adjust idle speed to specification.

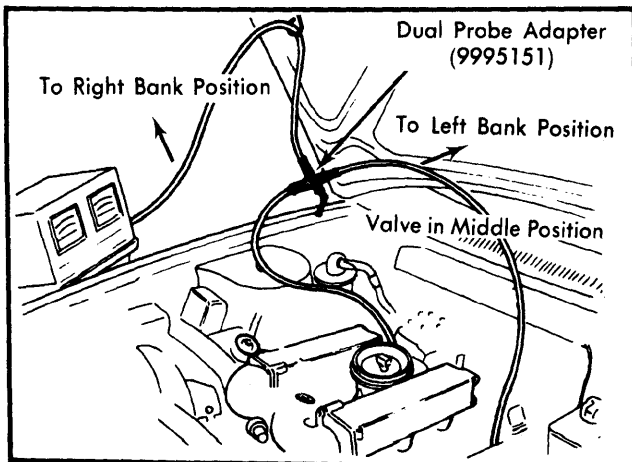


Fig. 3 CO Meter Installation

**NOTE** — Idle speed cannot be adjusted on California vehicles with constant idle speed system. Idle adjustment is factory-sealed and no adjustment is required.

- 3) Turn dual probe adapter to center position. In this position exhaust gases are admitted from both cylinder banks for total CO level reading. Read CO level.

**NOTE** — When checking CO level, mixture adjustment hole must be covered to prevent a lean mixture.

- 4) With CO meter and tachometer still installed, install air cleaner and connect hoses. To adjust CO level, insert adjusting wrench (5102) into adjustment hole and adjust CO to specifications. See Fig. 4.

**NOTE** — After each adjustment, adjusting wrench must be removed and adjustment hole covered to prevent a lean mixture while checking CO level.

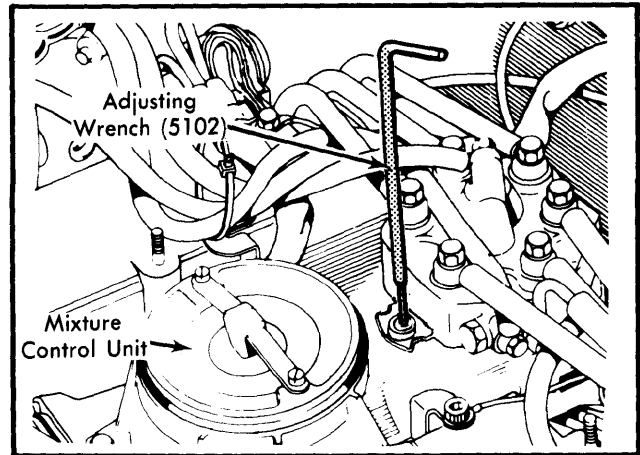


Fig. 4 Idle Mixture Adjustment

- 5) To check CO balance between left and right cylinder banks, proceed as follows: Turn dual probe adapter toward left cylinder bank and check CO reading. If left bank CO level is not within specifications, correct by removing balance screw plug and adjusting balance screw "2". See Fig. 5.

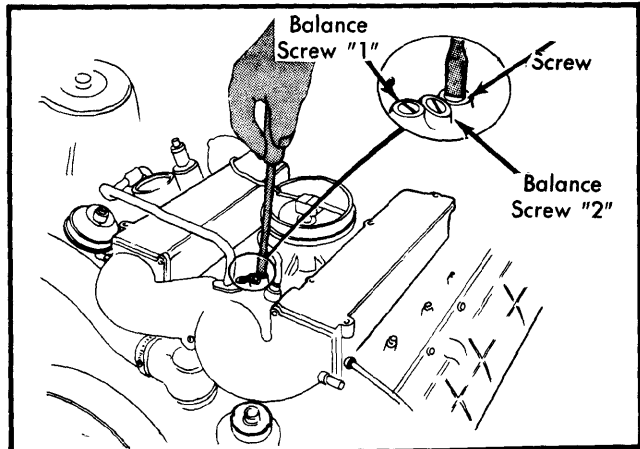


Fig. 5 Idle and Mixture Adjusting Screws

## TUNE-UP (Cont.)

**NOTE** — Left balance screw goes to right side manifold and right balance screw goes to left side manifold.

6) Turn dual probe adapter toward right cylinder bank and check CO reading. If right bank CO level is not within specifications, correct by removing balance screw plug and adjusting balance screw "1". See Fig. 5.

**NOTE** — CO reading should be equal for both banks and correct for the total system.

7) Recheck CO level with dual probe adapter in center position. If necessary, repeat adjustment procedure. Reconnect oxygen sensor electrical connector.

8) Recheck idle speed and adjust as necessary on vehicles without constant idle speed system. Remove test equipment, insert exhaust pipe plugs and seal mixture adjustment hole.

### Idle Speed & CO Level

Application	Idle RPM	CO%
All Models .....	900 .....	①0.7-1.3

① — With oxygen sensor connected, CO level should drop below 1.0%.

### FUEL PUMP PRESSURE

Pressure .....	64-74 psi (4.5-5.2 kg/cm <sup>2</sup> )
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## EXHAUST EMISSION SYSTEMS

See EXHAUST EMISSION SYSTEMS section.

## GENERAL SERVICING

### IGNITION

#### DISTRIBUTOR

All models are equipped with the Bosch Electronic Ignition System.

### FUEL SYSTEM

#### FUEL INJECTION

All models are equipped with Bosch Lambda/CIS fuel injection systems.

### ELECTRICAL

#### BATTERY

12 Volt — Negative Ground.

Application	Amp. Hr. Rating
All Models .....	70

Battery Location — In engine compartment on right side.

#### STARTER

Bosch..... Overrunning Clutch

#### Starter Specifications

Application	Volts	Amps	Test RPM
All Models .....	11.5 .....	30-50 .....	5500-7500

#### ALTERNATOR

All models are equipped with SEV Marchal alternators.

Application	Rated Amp. Output
All Models .....	70

### ALTERNATOR REGULATOR

All models are equipped with Bosch regulators with an operating voltage of 13.0-15.0 volts at 4000 RPM.

### BELT ADJUSTMENT

Application	①Deflection
All Belts .....	.2-.4" (5-10 mm)

① — Deflection is measured with thumb pressure applied at midpoint of longest belt run.

### FILTERS

Filter	Service Interval (Miles)
Oil Filter .....	Replace every 7500
Air Filter .....	Replace every 30,000
Fuel Filter .....	Replace every 45,000
Fuel Tank Filter .....	Replace every 60,000

### CAPACITIES

Application	Quantity
Crankcase (Includes Filter) .....	6.9 qts.
Cooling System (Includes Heater) .....	11.5 qts.
Man. Trans. with Overdrive (ATF Type F) .....	2.4 qts.
Auto. Trans. (ATF Type F) .....	7.3 qts.
Rear Axle (SAE 90) .....	1.7 qts.
Fuel Tank .....	15.8 gals.