# TUNE-UP

## ENGINE IDENTIFICATION

### VEHICLE IDENTIFICATION NUMBER CODE

Fourth digit of Vehicle Identification Number, located on a plate attached to top left corner of instrument panel and visible through windshield, is engine code letter.

**VIN Engine Codes**

| Application | Code |
|---|---|
| 4.2L (258") 2-Bbl. | C |

### ENGINE IDENTIFICATION NUMBER CODE

Engine code is part of number stamped on machined pad on right side of cylinder block between number two and three cylinders.

NOTE – *Engines built for sale in Georgia and Tennessee have an additional nonrepeating number enclosed by asterisks, located on the right side of engine below build date code.*

### TUNE-UP NOTES

NOTE – *In order to comply with emission standards, specifications shown on engine compartment emission control tune-up decal must be used in all instances.*

NOTE – *The EPA High Altitude (Hilly Terrain) emission standards apply to vehicles sold in certain areas outside of California which have an elevation above 4,000 feet.*

CAUTION – *When performing tune-up on vehicles equipped with catalytic converters, do not allow or create a condition of engine misfire in more than 1 cylinder for an extended period of time. Damage to converter may occur due to loading converter with unburned air/fuel mixture.*

## ENGINE COMPRESSION

| | |
|---|---|
| Compression Ratio | 8.6:1 |
| Compression Pressure | 120-150 psi |
| Max. Variation Between Cylinders | 30 psi |

## VALVE CLEARANCE

| | |
|---|---|
| Hydraulic Lifters | Zero Lash |

### VALVE ARRANGEMENT

E-I-I-E-I-E-E-I-E-I-I-E (Front to rear)

## SPARK PLUGS

| Application | Gap (In.) | Torque Ft. Lbs. (N·m) |
|---|---|---|
| 4.2L 2-Bbl. | .033-.038 | 7-15 (10-20) |

**Spark Plug Type**

| Application | Champion No. |
|---|---|
| 4.2L 2-Bbl. | RFN14LY or FN14LY |

## HIGH TENSION WIRE RESISTANCE

Do not puncture spark plug wires with any type of probe. Remove spark plug wire and check resistance using an ohmmeter.

**Resistance (Ohms)**

| Wire Length | Minimum | Maximum |
|---|---|---|
| 0-15" | 3000 | 10,000 |
| 15-25" | 4000 | 15,000 |
| 25-35" | 6000 | 20,000 |
| Over 35" | 8000 | 25,000 |

## DISTRIBUTOR

All models are equipped with a Solid State Ignition system (SSI) and no adjustments are required.

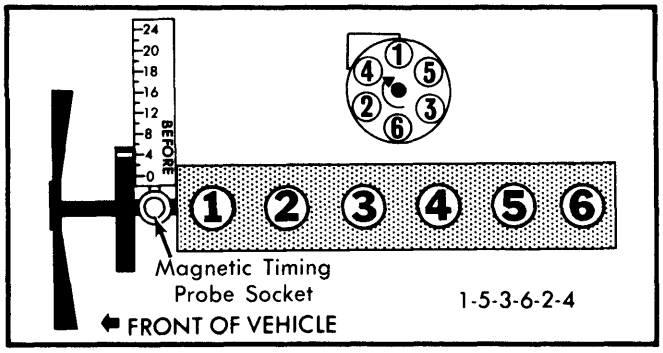


***Fig. 1 4.2L Firing Order and Timing Marks***

## IGNITION TIMING

NOTE – *All 6 cylinder engines incorporate a magnetic timing probe socket. This is for use with special electronic timing equipment. Refer to the equipment manufacturer's instructions for correct procedures. Do not use the probe location to check timing using a conventional timing light.*

NOTE – *If a timing light incorporating an advance control feature is used, set control to OFF position. On SSI coils, a terminal is provided for tachometer connection.*

Check or adjust ignition timing with engine at normal operating temperature, distributor vacuum hose disconnected and engine running at specified speed.

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

| Application | Man. Trans. | Auto. Trans. |
|---|---|---|
| 4.2L 2-Bbl. | | |
| Concord & Spirit | | |
| Federal | 15@1600 | 15@1600 |
| Calif. | 15@1600 | 15@1600 |
| High Alt. | 19@1600 | 19@1600 |
| Eagle | | |
| Federal | 15@1600 | 15@1600 |
| Calif. | 15@1600 | 15@1600 |
| High Alt. | 21@1600 | 21@1600 |

## TUNE-UP (Cont.)

### HOT (SLOW) IDLE RPM

1) Connect tachometer to negative terminal of coil. Start engine and allow it to reach normal operating temperature. Intake manifold heater and carburetor choke must both be off, this occurs at approximately 160°F (71°C).

2) Block wheels, set parking brake firmly, and place transmission in "N" (Man. Trans.) or in "D" (Auto. Trans.)

3) Disconnect and plug vacuum hose from Sole-Vac vacuum actuator. Disconnect wire connector from holding solenoid. Adjust idle speed adjusting screw to obtain specified curb ilde speed.

4) Apply vacuum to vacuum actuator until throttle positioner is fully extended. Then turn vacuum actuator adjustment screw on throttle lever until specified RPM is obtained. Disconnect vacuum source from vacuum actuator.

5) If vehicle is equipped with A/C, disconnect Sole-Vac wire connector and turn A/C on. Connect a jumper wire from battery positive terminal to Sole-Vac throttle positioner. Open throttle by hand to allow solenoid plunger to extend.

6) With Sole-Vac throttle positioner activated, if idle speed is not to specifications, adjust Sole-Vac adjusting screw to obtain specified RPM. Disconnect jumper wire and reconnect Sole-Vac wire connector. Disconnect tachometer and reconnect vacuum hose to vacuum actuator.

**Curb Idle Speed (RPM)**

| Application | Man. Trans. | ①Auto. Trans. |
|---|---|---|
| 4.2L 2-Bbl. | | |
| All Models | 550-650 | 450-550 |

① — Automatic transmission in DRIVE.

**Sole-Vac Adjustment Speed (RPM)**

| Application | Man. Trans. | Auto. Trans. |
|---|---|---|
| 4.2L 2-Bbl. | | |
| Holding Solenoid① | 700-800 | 850-950 |
| Vacuum Actuator① | 600-700 | 750-850 |

① — Actuated.

### IDLE MIXTURE

NOTE — *Idle mixture adjustment procedure should only be performed if idle mixture screws were removed for cleaning purposes during carburetor overhaul.*

1) It is necessary to remove carburetor to gain access to dowel pins covering idle mixture screws. Remove dowel pins and reinstall carburetor.

2) Place transmission in "N" (Man. Trans.) or in "D" (Auto. Trans.), block wheels, set parking brake firmly, and connect tachometer to engine. Start engine and wait until it reaches normal operating temperature.

NOTE — *Curb idle speed must be set to specification before continuing.*

3) Turn idle mixture screws leaner (clockwise) until a drop of 50 RPM is noted. Now turn idle mixture screws richer (counterclockwise) until hightest RPM is reached.

4) As final adjustment, turn idle adjustment screws leaner (clockwise) until idle speed drops 50 RPM. If this RPM is not within 30 RPM of specified curb idle, readjust curb idle speed and repeat step 3) and 4).

### COLD (FAST) IDLE RPM

1) Adjust fast idle speed with engine at normal operating temperature and EGR disconnected.

2) Position fast idle adjusting screw in contact with second step and against shoulder of fast idle cam. Turn fast idle adjusting screw to obtain specified fast idle speed.

**Fast Idle Speed (RPM)**

| Application | Man. Trans. | Auto. Trans. |
|---|---|---|
| 4.2L 2-Bbl. | | |
| All Models | 1750-1950 | 1750-1950 |

### AUTOMATIC CHOKE

To adjust automatic choke, loosen choke cover retaining screws and rotate cover in desired direction as indicated on cover to specified setting.

**Automatic Choke Setting (Notches Richer)**

| Application | Man. Trans. | Auto. Trans |
|---|---|---|
| 4.2L 2-Bbl. | | |
| All Models | ½-1½ | ½-1½ |

### FUEL PUMP

Make tests with air cleaner removed and fuel inlet line or filter disconnected at carburetor. Disconnect fuel return line at fuel filter and plug nipple on filter. Make all tests at idle speed.

Pressure ..... 4.0-5.0 psi
Volumn ..... One pint in 30 seconds.

### EXHAUST EMISSION SYSTEMS

See EXHAUST EMISSION SYSTEMS section.

## GENERAL SERVICING

### IGNITION

**DISTRIBUTOR**

Solid State Electronic Ignition (SSI)
Sensor Resistance ..... 400-800 ohms

**IGNITION COIL**

**Coil Resistance (Ohms@75°F)**

| Application | Primary | Secondary |
|---|---|---|
| 4.2L 6-Cyl. | | |
| All Models | 1.13-1.23 | 7700-9300 |

## GENERAL SERVICING (Cont.)

**Coil Output**
All Models ..... 24 KV

## CARBURETION

### CARBURETORS

| Application | Model |
|---|---|
| 4.2L 6-Cyl. | Carter BBD |

## ELECTRICAL

### BATTERY

| Application | Reserve Capacity (Minutes) | Amps① |
|---|---|---|
| 4.2L 6-Cyl. | | |
| Standard | 60 | 310 |
| Optional | 80 | 450 |
| Optional | 100 | 440 |

① – Cranking amps rating specifies minimum amps a fully charged battery will deliver at 0°F for 30 seconds without falling below 7.2 volts. Reserve capacity is number of minutes a fully charged battery at 80°F can be discharged at steady rate of 25 amperes and hold a voltage of 1.75 volts per cell (10.5 volts total) or higher.

### STARTER

**Starter Specifications**

| Application | Volts | Amps | Test RPM |
|---|---|---|---|
| 4.2L 6-Cyl. | 12 | 67 | 7380-9356 |

### ALTERNATOR

Delco – 10 SI and 15 SI

| Application | Rated Amp. Output |
|---|---|
| Standard | 55 |
| Optional | |
| Non-Heavy Duty | 63 |
| Heavy Duty | 70 |

| Field Current Draw | Amps. @ 80°F |
|---|---|
| All Models | 4.0-5.0 |

### ALTERNATOR REGULATOR

Delco-Remy nonadjustable, integral with alternator.

Operating Voltage (at 50-100°F) ..... 13.9-14.9 volts

### REPLACEMENT INTERVALS

| Components | Interval (Miles) |
|---|---|
| Oil Filter | 7,500 |
| Air Filter | 30,000 |
| Fuel Filter | 12,500 |
| PVC Valve | 30,000 |
| Spark Plugs | 30,000 |
| Oxygen Sensor | 30,000 |

### BELT ADJUSTMENT

**Tension (Lbs.) Using Strand Tension Gauge**

| Application | New Belt | Used Belt |
|---|---|---|
| Serpentine Belt | 180-200 | 140-160 |
| All Other Belts | 125-155 | 90-115 |

### COOLING CAPACITIES

| Application | Quantity |
|---|---|
| 4.2L 6-Cyl. | |
| Concord & Spirit | |
| With A/C or H.D. Cooling | 14 qts. |
| Without A/C or H.D. Cooling | 11 qts. |
| Eagle | |
| All Models | 14 qts. |

### OIL & FUEL CAPACITIES

| Application | Quantity |
|---|---|
| Crankcase (including filter) | |
| 4.2L 6-Cyl. | |
| All Models | 5.0 qts. |
| Fuel Tank | |
| Concord | 22.0 gals. |
| Spirit | 21.0 gals. |
| Eagle | |
| SX/4 & Kammback | 21.0 gals. |
| All Other Models | 22.0 gals. |

### TRANSMISSION & DIFFERENTIAL CAPACITIES

| Application | Quantity |
|---|---|
| Man. Trans. (Dexron II) | |
| 4-Speed | 3.5 pts. |
| 5-Speed | 4.0 pts. |
| Auto. Trans. (Dexron II) | |
| All Models | 8.5 qts. |
| Rear Differential (SAE 85W-90) | |
| All Models | 3.0 pts. |
| Front Differential (SAE 85W-90) | |
| Eagle Only | 2.5 pts. |
| Transfer Case (Dexron II) | |
| Eagle Only | 3.0 qts. |