TUNE-UP

ENGINE IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER CODE

Engine can be identified by the 4th digit of the Vehicle Identification Number (VIN) which is stamped on a plate attached to top left corner of instrument panel.

VIN Engine Code

Application	Code
2.5L (151") 2-Bbl.	B

ENGINE IDENTIFICATION NUMBER CODE

Engine code is stamped into block at upper left rear corner. On engines built for sale in Georgia and Tennessee, a second code is stamped in left rear flange of block.

Engine Code

Application	Man. Trans.	Auto. Trans.
Federal with A/C	CO	CS
Federal without A/C	CN	CR
Calif.	CU	CW

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.*

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	8.3:1
Recommended Fuel	Unleaded (87 AKI Minimum)
Compression Pressure	140 psi
Maximum Variation Between Cylinders	20 psi

Check compression pressure with engine at normal operating temperature, all spark plugs removed, and throttle and choke valves wide open.

VALVE CLEARANCE

Hydraulic Lifters	Zero Lash

VALVE ARRANGEMENT

I-E-I-E-E-I-E-I

SPARK PLUGS

Application	Gap (In.)	Torque (Ft Lbs.)
All Models	.060	7-15

Spark Plug Type

Application	AC No.
All Models	R44TSX

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 Delco High Energy Ignition system distributor and no adjustments are necessary.

IGNITION TIMING

NOTE — *Engines are equipped with a receptacle for a magnetic probe timing light, located at 10° ATDC. Do not use this location for timing with a conventional light.*

Check or adjust ignition timing with engine at normal operating temperature, distributor vacuum hose disconnected and plugged, and engine at curb idle speed.

Ignition Timing Specifications (Degrees BTDC@RPM)

Application	Man. Trans.	Auto. Trans.
All Models		
Federal	10@900	12@700
Calif.	10@900	①10@700

① — Set Eagle Auto. to 8°.

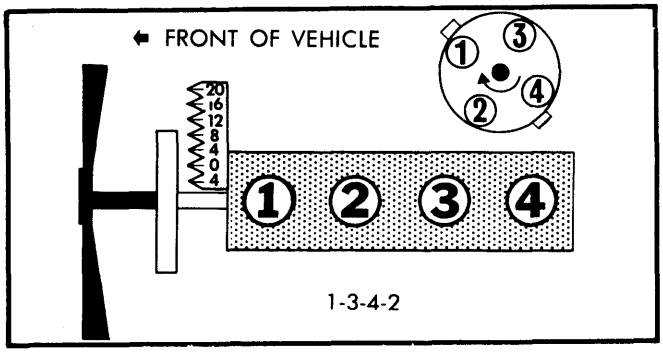

Fig. 1 Firing Order and Timing Marks

TUNE-UP (Cont.)

HOT (SLOW) IDLE RPM

NOTE – *Do not idle engine for over 3 minutes at a time. If idle adjustment is not completed within 3 minutes, run engine at 2000 RPM for 1 minute before continuing, repeat as necessary.*

1) Warm engine to normal operating temperature. Disconnect and plug purge hose at canister and deceleration valve supply hose. On models with feedback carburetor, connect a dwell meter to the light blue wire taped to carburetor mixture solenoid. Set dwell meter to 6-cylinder scale.

2) Connect tachometer to green wire above heater fan motor on firewall. Start engine. Dwell meter should show needle movement (about 10-15°) between 10 and 50 on scale. Set parking brake and place transmission in Drive. Disconnect air conditioning clutch wire (if equipped) and turn on A/C. Open throttle momentarily to allow plunger to extend.

3) On all models, use plunger on solenoid to obtain solenoid RPM. Turn off A/C, or if not equipped with A/C, disconnect solenoid wire. Adjust to curb idle using idle speed screw. Connect all wiring and hoses and disconnect test equipment.

Idle Speed (RPM)

Application	Curb Idle	Solenoid Energized
2.5L (151")		
Man. Trans.		
With A/C	900	1250
Without A/C	500	900
Auto. Trans		
With A/C	700	950
Without A/C	500	700

IDLE MIXTURE

NOTE – *Do not idle engine for over 3 minutes at a time. If idle mixture adjustment is not completed within 3 minutes, run engine at 2000 RPM for 1 minute before continuing, repeat as necessary.*

MIXTURE SCREW PLUG REMOVAL

1) Remove carburetor and drain fuel. Place upside down on holding fixture. Place a punch in locator point in throttle body (beneath mixture plug).

2) Drive punch through locator until plug breaks, then drive out loose pieces by holding punch at a 45° angle. Reinstall carburetor and make adjustments using a thin wall 3/16"deep socket.

LEAN DROP PROCEDURE (FEDERAL VEHICLES ONLY)

1) Connect an accurate tachometer, start engine, and warm to normal operating temperature.

2) Place manual transmission in neutral and automatic transmission in "D". Starting from full rich position, turn mixture screw leaner (clockwise) until a noticeable RPM loss is indicated.

3) Turn mixture screw richer (counterclockwise) until highest RPM reading is obtained. Do not turn screw any further than point at which highest RPM is first obtained.

4) As final adjustment, turn mixture screw clockwise to obtain specified drop in engine RPM. If final RPM differs more than ±30 RPM from specified curb idle speed, reset curb idle to specification and repeat mixture adjustment.

Specified RPM Drop (Federal Vehicles Only)

Application	RPM Drop
All Models	
Federal	
Man. Trans.	100
Auto. Trans.	50

DWELL METER PROCEDURE (CALIFORNIA VEHICLES ONLY)

1) Remove mixture screw plug. With carburetor removed from vehicle, turn mixture screw in until it lightly seats, then back out 3 turns (automatic) or 2½ turns (manual). If the plug in air horn covering idle air bleed is removed, seat screw and turn out 1¼ turns. If plug is in place, do not adjust.

2) Remove vent stack screen to reach lean mixture screw. Turn lean mixture screw in until seated and back out 3 turns. Install carburetor on engine.

3) Disconnect bowl vent line at carburetor. Disconnect and plug vacuum hose at "T" fitting in vent line (if used). Disconnect EGR and canister purge at carburetor and plug carburetor port. Connect dwell meter to mixture control solenoid test lead and tachometer to green lead above heater motor.

4) Place transmission in Park or Neutral and start engine. Operate at fast idle for at least 3 minutes to allow system to shift to Closed Loop operation.

5) Operate engine at 3000 RPM and adjust lean mixture screw (below vent stack screen) carefully to obtain 35° dwell reading. Back screw out to raise dwell; turn screw in to lower dwell reading. Allow engine to operate between adjustments to stabilize readings. Return engine to idle and adjust to 700 RPM.

6) Adjust idle mixture screw to obtain average dwell of 25°. Back screw out slowly to raise dwell reading; turn screw in to lower reading. Allow engine to stabilize between adjustments.

7) Disconnect mixture control solenoid wire and check that idle speed drops at least 50 RPM. If not, check idle air bleed circuit. Connect solenoid and recheck 3000 RPM dwell reading. If not correct, repeat adjustment procedure.

8) Replace all hoses and set idle speed to specification. Remove test equipment. Be sure vent stack screen is replaced.

TUNE-UP (Cont.)

COLD (FAST) IDLE RPM

Set fast idle with engine at normal operating temperature and EGR disconnected. Position fast idle screw on high step of fast idle cam and turn to obtain fast idle RPM.

Fast Idle (RPM)

Application	RPM
All Models	
Man. Trans.	2300-2500
Auto. Trans.	2500-2700

AUTOMATIC CHOKE

Choke coil cover is riveted in place and no adjustment is necessary.

FUEL PUMP

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

Fuel Pump Specifications

Pressure	6.5-8.0 psi
Volume	1 pint in 30 seconds
Vacuum	10 in. Hg min.

EXHAUST EMISSION SYSTEMS

See EXHAUST EMISSION SYSTEMS section.

GENERAL SERVICING

IGNITION

DISTRIBUTOR

Delco High Energy Ignition System.

IGNITION COIL

Coil Resistance (Ohms@75°F)

Application	Primary	Secondary
All Models	.4-1.0	6000-30,000

Coil Output	
All Models	25-35 KV Minimum
Current Draw	
Engine Stopped	.25 amps
Engine Idling	1.0 amps

CARBURETION

CARBURETOR

Application	Model
All Models	
Federal	Rochester 2SE
California	Rochester E2SE

Other Data & Specifications – *See Tune-Up and Rochester Carburetors in FUEL SYSTEMS Section.*

ELECTRICAL

BATTERY

Application	Cold Crank. Amps@0°F	Reserve Capacity Minutes
Green Code (Std.)	380	75
Red Code (Opt.)	450	90

STARTER

Delco-Remy solenoid actuated with overrunning clutch.

Starter Specifications

Application	Volts	Amps	Test RPM
All Models	9	45-70	7000-11,900

ALTERNATOR

Application	Rated Amp. Output
Standard	42
Optional	55,63

ALTERNATOR REGULATOR

Delco-Remy non-adjustable, integral with alternator.

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

GENERAL SERVICING (Cont.)

BELT ADJUSTMENT

Tension (lbs.) Using Strand Tension Gauge

Application	New Belt	Used Belt
Serpentine	180-200	140-160
All Others	125-155	90-115

REPLACEMENT INTERVALS

Component	Interval (Miles)
Oil Filter	7500
Air Filter & PCV Filter	30,000
Fuel Filter	15,000
PCV Valve	30,000
Spark Plugs	30,000

CAPACITIES

Application	Quantity
Crankcase (With or Without Filter)	3.0 qts.
Cooling System (Includes Heater)	6.5 qts.
Man. Trans. (SAE 80W-90)	3.3 pts.
Auto. Trans. (Dexron)	7.1 pts.
Transfer Case (SAE 10W-30)	3.0 pts.
Rear Axle (SAE 80W-90)	3.0 pts.
Front Axle (SAE 80W-90)	2.5 pts.
Fuel Tank	
Concord, Eagle 2 Dr. & Wagon	22.0 gals.
Spirit, Eagle Kammback & SX4	21.0 gals.