TUNE-UP

ENGINE IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER CODE

Fifth digit of Vehicle Identification Number, located on plate attached to top left side of instrument panel, is the engine code letter.

VIN Code

Application	Code
151" 2-Bbl.	5

ENGINE IDENTIFICATION NUMBER CODE

The engine number code is stamped on the front of the engine block near the water pump.

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 — *Before making a compression test or cranking engine with a remote starting switch, disconnect ignition switch connector (pink wire) from H.E.I. system distributor.*

CAUTION — *Do not remove spark plug wires with engine running. High Energy Ignition secondary voltage is higher than standard ignition systems and may inflict harmful electrical shock.*

CAUTION — *Damage to the H.E.I. electronic module and/or ignition coil may result if "TACH" terminal, in distributor cap connector or on ignition coil, is directly grounded.*

ENGINE COMPRESSION

Compression Ratio	8.3:1
Recommended Fuel	Unleaded (87 AKI Minimum)
Compression Pressure (At 160 RPM Minimum)	140 psi
Max. Variation Between Cylinders	20 psi

Test compression pressure with engine at normal operating temperature, air cleaner removed and throttle and choke valves wide open. Check compression through at least 4 revolutions.

VALVE TAPPET CLEARANCE

Hydraulic Lifters	Zero Lash

VALVE ARRANGEMENT

I-E-I-E-E-I-E-I (Front to Rear)

SPARK PLUGS

Gap	.060"
Torque	15 ft. lbs.

Spark Plug Type

Application	AC No.
151" 2-Bbl.	R43TSX

HIGH TENSION WIRE RESISTANCE

Carefully remove ends of wire from spark plug and distributor. Using an ohmmeter, check resistance while gently twisting wire. If resistance is not to specification, or fluctuates from infinity to any value, replace wire.

Resistance (Ohms) Per Wire

All	50,000 Max.

DISTRIBUTOR

All models are equipped with High Energy Ignition systems and no adjustments are required.

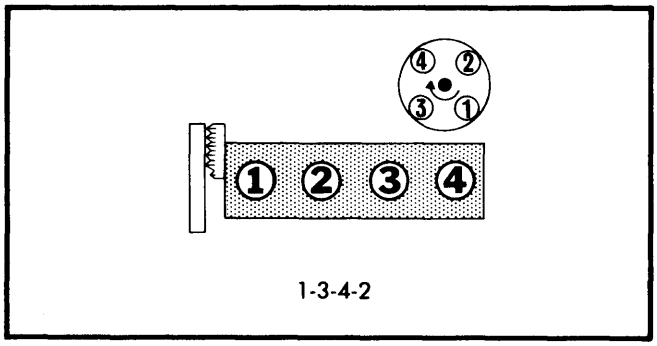

Fig. 1 151" Firing Order and Timing Marks

IGNITION TIMING

NOTE — *Engines have a receptacle for use with a magnetic probe timing light, located at 9.5° ATDC. Do not use this receptacle with a conventional timing light.*

1) Timing is checked and adjusted with engine at normal operating temperature, choke open and air conditioning "OFF".

2) Disconnect and plug vacuum advance at distributor. Place automatic transmission in Drive (manual in neutral) and connect timing light to number 1 spark plug wire.

Ignition Timing Specifications (Degrees BTDC@RPM)

Application	Man. Trans.	Auto. Trans.
151" 2-Bbl.	10@1000	10@650

HOT (SLOW) IDLE RPM

NOTE — *Check Emission Control Decal for specific instructions on disconnecting hoses and other idle preparation procedures.*

TUNE-UP (Cont.)

Engine must be at normal operating temperature with choke open, air conditioning off and automatic transmission in Drive (manual in neutral).

Without A/C – Check to see that solenoid is energized. Open throttle slightly to ensure plunger is fully extended. Adjust plunger screw to set solenoid RPM, then disconnect solenoid lead. Set curb idle speed with idle speed screw. Reconnect solenoid lead.

With A/C – With air conditioning off, set curb idle with idle speed screw. Disconnect compressor clutch lead at compressor and turn air conditioning on. Open throttle slightly to allow plunger to fully extend. Turn solenoid screw to adjust solenoid RPM. Connect compressor lead after adjustment.

Idle Speed (RPM)

Application	Curb Idle	Solenoid Energized
151" 2-Bbl.		
Man. Trans.		
Fed. With A/C	1000	1300
Calif. With A/C	1000	1200
All Without A/C	500	1000
Auto. Trans.		
All With A/C	650	900
All Without A/C	500	650

IDLE MIXTURE

NOTE – *Mixture screws on all carburetors are covered by hardened steel plugs. Mixture adjustment is not part of a tune-up and should not be performed unless carburetor has been disassembled or vehicle failed emissions testing.*

MIXTURE SCREW PLUG REMOVAL

1) Remove carburetor from engine, drain fuel and place on holding fixture upside down. Place a punch between locator marks on underside of throttle body and break through carefully.

2) Use punch to drive out steel plug. If plug breaks, remove loose pieces. Repeat to remove other plug (if equipped).

PROPANE ENRICHMENT PROCEDURE FEDERAL ONLY

1) With engine at normal operating temperature, choke fully open and air conditioning off (if equipped), set parking brake and block drive wheels. Disconnect and plug hoses as directed on Emission Control/Tune-Up Decal under the hood.

2) Connect tachometer to engine. Disconnect vacuum advance and set timing to specification on Emission Decal. Reconnect vacuum advance. Disconnect crankcase ventilation tube from air cleaner. Insert hose with rubber stopper tool J-26911 from propane valve into positive crankcase ventilation tube opening in air cleaner.

3) Propane cartridge must be in vertical position. With engine at idle, slowly open propane control valve until maximum engine speed is reached with transmission in Drive (neutral for manual transmission).

NOTE – *Too much propane will cause engine speed to drop.*

4) Check propane bottle and flow meter to be sure bottle is full. With propane flowing, adjust idle speed screw to enriched RPM setting. Check propane flow and adjust screw again to insure maximum idle speed. Turn off propane, place in Neutral and run engine at 2000 RPM for 30 seconds.

5) Return to idle and place automatic transmission in Drive. If idle speed is correct, procedure is complete. If not, remove mixture screw plugs. Turn screws out 1/8 turn at a time to raise RPM, or in 1/8 turn at a time to lower RPM to idle speed.

NOTE – *It may be necessary to remove air cleaner to reach mixture screws. Replace air cleaner to check speed.*

6) Turn on propane again to check enriched RPM. If necessary, use idle speed screw to adjust. Turn off propane, run engine at 2,000 RPM for 30 seconds in Neutral and recheck idle speed.

7) If idle is correct, remove propane and test equipment and reconnect vacuum hose. If not, turn mixture screws in until seated. Back screws out to previous position and repeat adjustment procedure.

Propane Enrichment RPM

Application	Enriched RPM
151" 2-Bbl.	
Manual Transmission	1250
Automatic Transmission	700

IDLE MIXTURE ADJUSTMENT – C-4 CALIFORNIA ONLY

1) If mixture adjustment is necessary, remove carburetor and mixture screw plugs. Turn screws in until seated and back out 5 turns. If plug in air horn has been removed, turn idle air bleed screw in until seated, then out 3 turns. If plug is in place, DO NOT remove.

2) Remove vent stack screen assembly. Turn part throttle lean mixture screw in until it seats, then back out 2 1/2 turns. Reinstall carburetor. Disconnect bowl vent line at carburetor, and disconnect and plug vacuum hose to "T" in vent line (if used).

3) Disconnect EGR valve and canister purge at carburetor and plug carburetor port. Connect dwell meter to green mixture control solenoid test lead and tachometer to brown test lead from distributor. Set dwell meter on 6 cylinder scale.

4) Run engine on high step of fast idle cam at least 3 minutes until cooling fan begins to cycle. Run engine at 3000 RPM and carefully adjust lean mixture screw until average dwell reading is 35°. Turn screw out to raise dwell; in to lower dwell.

5) Return engine to idle and adjust to 700 RPM while cooling fan is off. Adjust idle mixture screw to obtain average dwell of 25° while cooling fan is off. Turn screw out to raise dwell; in to lower dwell.

NOTE – *These adjustments are very sensitive. Make final checks with adjusting tool removed, and allow time between adjustments for readings to stabilize.*

TUNE-UP (Cont.)

6) Disconnect mixture control solenoid lead while cooling fan is off. Check for a drop of at least 50 RPM. Repeat 3000 RPM check. If not correct, repeat adjustment procedure. Remove test equipment, connect hoses and replace vent stack screen.

COLD (FAST) IDLE RPM

Adjustment is made with engine at normal operating temperature. Transmission in Park or manual transmission in neutral. Idle speed should be correctly adjusted, air cleaner installed and choke open. Disconnect and plug vacuum lines to EGR valve and distributor vacuum advance. Make sure air conditioning is "OFF". Place fast idle screw on highest step of fast idle cam. Adjust fast idle screw to obtain specified fast idle RPM.

Cold (Fast) Idle RPM

Application	Man. Trans.	Auto. Trans.
151" 2-Bbl.		
Federal	2600	2600
Calif.	2200	2600

AUTOMATIC CHOKE

The choke coil cover is riveted in place on all models and no adjustments are possible.

FUEL PUMP

Make all tests at idle speed. For pressure test, pinch off return hose of vapor return system (if equipped) to obtain accurate reading.

Pressure	6.5-8.0 psi
Volume	1 pint in seconds

EXHAUST EMISSION SYSTEMS

See EXHAUST EMISSION SYSTEMS section.

GENERAL SERVICING

IGNITION

DISTRIBUTOR

Delco-Remy — High Energy Ignition.

NOTE — *Module must be replaced as a unit. A liberal coat of silicone grease MUST be applied to the surface on which module will be mounted.*

IGNITION COIL

Resistance

Primary (At 75°F)	0-1.0 ohms
Secondary (At 75°F)	6,000-30,000 ohms

Coil Output

At all engine speeds	①25-35 KV Minimum

① — Replace if below 25 KV.

CARBURETION

CARBURETORS

Application	Model
Federal	Rochester 2SE
Calif.	Rochester E2SE

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

ELECTRICAL

BATTERY

12 Volt — Negative Ground.

Application	Cold Crank Amps@0°F	Reserve Capacity Minutes
Standard	350	80
Optional	430	100
Optional	465	125

STARTER

Delco-Remy solenoid actuated with overrunning clutch.

Free Speed Voltage	9@7000-11,900 RPM
Free Speed Amperage	45-70@7000-11,900 RPM

ALTERNATOR

Application	Rated Amp. Output
Standard	42
Optional	63, 70

GENERAL SERVICING (Cont.)

ALTERNATOR REGULATOR

Delco-Remy nonadjustable, integral with alternator.

Operating Voltage (@80°F) 13.8-14.8

ENGINE

MANIFOLD TIGHTENING

Tighten bolts alternately, starting with center bolts and working toward outside of manifold. Tighten intake manifold bolts to 25 ft. lbs., and exhaust manifold bolts to 35 ft. lbs.

FILTERS & CLEANERS

Filter or Cleaner	Service Interval (Miles)
Oil Filter	Every Other Oil Change
Air Cleaner	Replace every 30,000
Fuel Filter	Replace every 15,000
PCV Filter & Valve	Replace every 30,000
Evaporative Canister Filter	Replace every 30,000

CAPACITIES

Application	Quantity
Crankcase (With or Without Filter)	3.0 qts.
Auto. Transaxle (Dexron II)	7.0 qts.
Man. Transaxle (Dexron II)	6.0 pts.
Cooling	
Standard	8.5 qts.
Optional	10.8 qts.
Fuel Tank	14.0 gals.

BELT ADJUSTMENT

Tension (Lbs.) Using Strand Tension Gauge

Application	New Belt	Used Belt
A/C	145-155	75-85
All Others	130-140	50-60