TUNE-UP

ENGINE IDENTIFICATION

The Engine Identification Number is located on the upper front corner of left side of block. The cubic inch displacement is indicated by first four digits of number.

Engine Code

Application	Code
196" (3.2L) 1-Bbl.	4-196

MODEL IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER

Vehicle Identification Number appears on left frame rail front and on a plate attached to right door hinge pillar.

TUNE-UP NOTES

CAUTION — *When performing tune-up on vehicles equipped with a catalytic converter, do not allow or create a condition of engine misfire in one or more cylinders for an extended period of time. Damage to converter from overheating may occur due to loading with unburned fuel.*

NOTE — *Due to production changes, always refer to Engine Tune-Up Decal in engine compartment before attempting tune-up. In the event of a conflict between specifications given in this manual and decal specifications, use the decal specifications.*

ENGINE COMPRESSION

Compression Ratio	8.02:1
Compression Pressure	①
Recommended Fuel	Unleaded (87 AKI Minimum)

① — With engine at normal operating temperature, spark plugs removed, and compression gauge installed, remove and ground distributor secondary coil wire. Block carburetor throttle open and run engine through 5 compression strokes. Lowest cylinder pressure should be at least 75% of highest cylinder.

VALVE TAPPET CLEARANCE

Hydraulic Lifters	Zero Lash

SPARK PLUGS

Gap	.035"
Torque	28-30 Ft. Lbs.

Spark Plug Type

Application	Champion No.
All	RJ-10Y

HIGH TENSION WIRE RESISTANCE

Carefully remove distributor cap and spark plug wire at spark plug. Connect an ohmmeter to inside of spark plug terminal boot and to terminal inside distributor cap. If resistance is greater than 8,000 ohms per foot or if reading fluctuates from infinity to any value, replace cable.

DISTRIBUTOR

All models are equipped with Prestolite electronic ignition system and no adjustments are required.

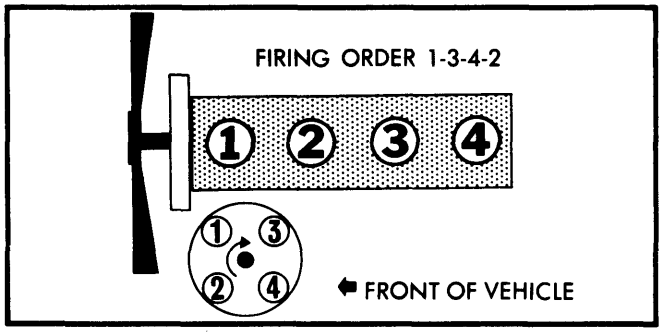

Fig. 1 196" Firing Order & Timing Mark Identification

IGNITION TIMING

1) Connect timing light. Disconnect and plug vacuum advance hose. Start engine and operate until it reaches normal operating temperature. Observe engine idle speed and compare to specifications.

2) Adjust idle speed if necessary. Observe ignition timing. To adjust, loosen distributor clamp and turn distributor until timing is correct. Tighten clamp and recheck timing. Stop engine and reconnect vacuum hoses and remove timing light.

Ignition Timing Specifications

Application	Timing
196" 4 Cylinder	TDC

HOT (SLOW) IDLE RPM

1) Apply parking brake. With air cleaner in place, transmission in Neutral, A/C off, and engine at normal operating temperature, connect tachometer.

2) With engine running and solenoid energized, turn curb idle adjusting screw in or out against solenoid plunger to obtain specified RPM. Then adjust low curb idle speed screw until end of screw just touches stop.

3) Back off screw ½ turn to obtain correct low curb idle speed setting. Reconnect solenoid wire.

Slow Idle Speed (RPM)

Application	RPM
196" 4 Cylinder	675-725

TUNE-UP (Cont.)

IDLE MIXTURE

PREPARATION

1) Set parking brake. With air cleaner installed, transmission in Neutral and A/C off, disconnect and plug vacuum purge hose at charcoal canister. If canister is equipped with vacuum controlled bowl vent switch, be sure vacuum supply is still connected to switch.

2) Do not idle engine continuously for more than 3 minutes at a time. After each 3 minutes of idling, run engine at 2000 RPM for 1 minute and continue. In winter months make idle mixture check as soon as possible after engine will run without choke.

WITH EXHAUST ANALYZER

1) Connect tachometer to engine. Disconnect air injection hose at check valve and insert probe from CO meter (SE-2842) into check valve. Be sure to insert fully so probe opens valve.

2) Start engine and adjust idle speed to specifications. Observe CO% and adjust as necessary. Readjust idle speed and CO% to match specifications.

3) If specified CO% cannot be achieved, remove limiter caps by filing (do not pry off). Adjust idle speed and mixture screws equal number of turns to provide specified CO%. Then, install new limiter caps with tabs at mid-position. Disconnect test equipment and reconnect air injection check valve hoses.

Idle Mixture Specifications (Exhaust Analyzer Method)

Application	CO%
196" 4 Cylinder	1.5-3.0

WITHOUT EXHAUST ANALYZER

1) Connect tachometer. Note position of idle mixture screws. File off (do not pry off) limiter caps. Set idle screws to position noted before cap removal.

2) Run engine at normal operating temperature. Adjust to curb idle speed. Carefully adjust screws counterclockwise (equally) to provide maximum idle speed. Do not turn screws past point where highest RPM is first obtained (lean best idle).

3) Carefully adjust curb idle speed screw to 30 RPM over specifications. Turn mixture screws clockwise (equally) to obtain 30 RPM speed drop. Adjust curb idle speed to specifications if necessary. Install new plastic limiter caps with tabs in mid-position.

Idle Mixture Specifications (Speed Drop Method)

Application	Speed Drop (RPM)
196" 4 Cylinder	30

COLD (FAST) IDLE RPM

1) Run engine at normal operating temperature. Shut off engine. Remove air cleaner and disconnect and plug hose at EGR valve. Connect tachometer and check timing. Set curb idle speed.

2) With engine stopped, open throttle and move choke plate to fully closed position. While holding choke closed, close throttle. Fast idle screw should now be resting on high step of fast idle cam.

3) Without touching accelerator, start engine. Allow the engine speed to stabilize and observe tachometer to determine fast idle RPM. If necessary, adjust fast idle speed screw to specifications. If accelerator linkage moved accidentally during this procedure, repeat steps **2)** and **3)**.

Fast Idle Speed (RPM)

Application	RPM
196" 4 Cylinder	2000 on High Step

AUTOMATIC CHOKE

An integral electric assist choke may be adjusted by loosening choke cover retaining screws, and turning cover to specified setting. Then tighten cover retaining screws.

Application	Setting
196" 4 Cylinder	Index

FUEL PUMP

Make all tests at specified RPM. For pressure test, pinch off fuel return line, if equipped. Connect pressure gauge to fuel line at carburetor, then hold gauge at level of pump outlet during test. For volume test, use short hose from pump outlet into container.

Pressure (At 1000 RPM)	4-5.5 psi
Volume (At 2000 RPM)	3.2 pts. in 1 min.

EMISSION CONTROL

See appropriate article in EMISSION CONTROL Section.

GENERAL SERVICING

IGNITION

DISTRIBUTOR

Prestolite electronic ignition (breakerless) distributor features an external ignition coil and integral electronic control unit.

Other Data & Specifications – *See Tune-Up and Prestolite Distributors in ELECTRICAL Section.*

IGNITION COIL

Resistance

Primary (at 70° F)	1.2-1.4 ohms
Secondary (at 70° F)	9400-11,100 ohms

Coil Output (at 2500 RPM) ..... 20 KV Minimum

FUEL SYSTEMS

CARBURETORS

Application	Type
196" 4 Cylinder	Holley 1940C 1-Bbl.

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

ELECTRICAL

BATTERY

12 Volt – Negative Ground.

Application	Cold Cranking Amps
Standard	300
Optional	390, 500

STARTER

Delco	Enclosed Shift Lever
Free Speed Voltage	9 at 5500-10,500 RPM
Free Speed Amperage	50-80 at 5500-10,500 RPM

Other Data & Specifications – *See Delco Starters in ELECTRICAL Section.*

ALTERNATOR

Delco-Remy alternator with solid state regulator.

Application	Rated Amp. Output
Standard	37
Optional	63

Other Data & Specifications – *See Delco Alternators in ELECTRICAL Section.*

ALTERNATOR REGULATOR

Delco – Nonadjustable, integral with alternator.

Operating Voltage ..... 13.8-14.4 volts

Other Data & Specifications – *See Delco Alternators in ELECTRICAL Section.*

ENGINE

INTAKE MANIFOLD TIGHTENING

Check manifold bolts for 25-30 ft. lbs. torque.

CAPACITIES

Application	Quantity
Cooling (Including Heater)	14.0 qts.
Crankcase (Including Filter)	6.0 qts.
Front Axle (SAE 85W-140)	4.0 pts.
Rear Axle (SAE 85W-140)	3.0 pts.
Man. Trans. (SAE 20W-30)	
3-Spd.	3.0 pts.
4-Spd.	7.0 pts.
Auto. Trans. (Dexron)	19.0 pts.
Transfer Case (SAE 90W mineral oil)	3.5 pts.
Fuel Tank	19.0 gals.

FILTERS & CLEANERS

Filter or Cleaner	Service Interval (Miles)
Oil Filter	①Replace 5000
Air Filter	Clean 6000 Replace 15,000
PCV Valve	Clean 15,000 Replace 30,000
Vapor Storage Canister Filter	Replace 15,000
Fuel Filter	Replace 15,000

① – Or every oil change.

BELT ADJUSTMENT

Adjust power steering belt tension to obtain 3/8 inch deflection at belt midpoint; adjust all other belts for 1/2 inch deflection.