

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
252" 4-Bbl.	4

ENGINE IDENTIFICATION NUMBER CODE

Engine code letters are stamped into the block on left rear corner near the bellhousing.

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 "BATT" terminal lead at distributor.

CAUTION — Do not remove spark plug wires with engine running. H.E.I. secondary voltage is higher than standard ignition systems and may inflict harmful electrical shock.

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

ENGINE COMPRESSION

Compression Ratio	8.0:1
Recommended Fuel	Unleaded (87 AKI Minimum)
Compression Pressure	100 psi minimum
Max. Variation Between Cylinders	30%

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

VALVE TAPPET CLEARANCE

Hydraulic lifters are used and require zero lash clearance.

VALVE ARRANGEMENT

E-I-E-I-I-E (Left Bank — Front to Rear)
E-I-I-E-I-E (Right Bank — Front to Rear)

SPARK PLUGS

Gap060"
Torque	15 ft. lbs.

Spark Plug Type

Application	AC No.
252" 4-Bbl.	R45TSX

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

Wire Length	Resistance
Under 24"	30,000 Max.
Over 24"	50,000 Max.

DISTRIBUTOR

All models are equipped with High Energy Ignition system and no adjustment is required.

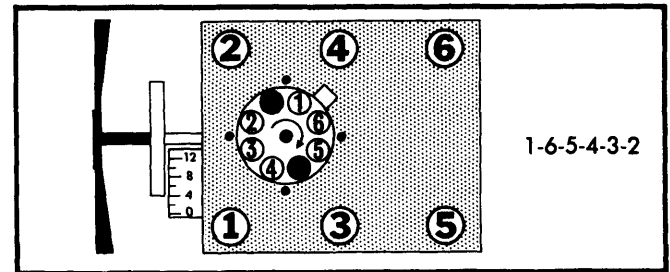


Fig. 1 252" Firing Order and Timing Marks

IGNITION TIMING

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

Check or adjust ignition timing with engine at normal operating temperature, choke fully open, air cleaner installed and air conditioning "OFF". Disconnect and plug distributor vacuum advance or disconnect electrical connector at base of distributor housing.

Ignition Timing Specifications (Degrees BTDC@RPM)

Application	Auto. Trans.
252" 4-Bbl.	15@550

HOT (SLOW) IDLE RPM

NOTE — Idle speed adjustment procedures will vary with vehicle model and component application. Refer to Emission Control Tune-Up Decal in engine compartment for adjustment preparations, then proceed as follows:

1) Turn A/C off (solenoid de-energized) and place idle speed screw on low step of fast idle cam. Turn idle speed screw to obtain specified "Curb Idle" RPM.

TUNE-UP (Cont.)

2) Disconnect A/C compressor electrical lead at compressor. Turn A/C on and place automatic transmission in Drive. Open throttle slightly to allow solenoid plunger to fully extend, then turn solenoid screw to obtain specified "Solenoid Energized" RPM. Reconnect compressor lead after adjustment.

Application	Idle Speed (RPM)	
	Curb Idle	Solenoid Energized
252" 4-Bbl.	550	680

IDLE MIXTURE

NOTE — Idle mixture screws on all carburetors are covered with hardened steel plugs. Mixture adjustment is not part of a tune-up and is necessary only when carburetor has been disassembled or vehicle failed emission testing.

MIXTURE SCREW PLUG REMOVAL

1) Remove carburetor from engine, invert carburetor and drain fuel into a container. Place carburetor on a suitable holding fixture with manifold side up.

2) Place a punch between the 2 locator marks on throttle body beneath mixture screw plug (manifold side) and breakout throttle body to gain access to plug. Use a punch to drive out plug. If hardened steel plug shatters, remove loose pieces. Remove remaining plug (if equipped) in same manner.

PROPANE ENRICHMENT PROCEDURE

1) With engine at normal operating temperature, choke fully open and air conditioning "OFF", set parking brake and block drive wheels. Disconnect and plug vacuum parking brake release at brake. Disconnect and plug hoses as directed on Emission Control/Tune-Up Decal.

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.

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 2,000 RPM for 30 seconds.

5) Return to idle and place transmission in Drive. If idle speed is correct, procedure is complete. If not, remove mixture screw plugs. Turn screws out $\frac{1}{8}$ turn at a time to raise RPM, or in $\frac{1}{8}$ turn at a time to lower RPM to idle 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	Auto. Trans.
252" 4-Bbl.	590

COLD (FAST) IDLE RPM

With engine at normal operating temperature, disconnect and plug vacuum lines at distributor and EGR valve. Position cam follower on high step of fast idle cam and adjust screw to obtain specified RPM.

Fast Idle RPM

Application	Auto. Trans.
252" 4-Bbl.	2000

AUTOMATIC CHOKE

The choke cover is riveted on in a fixed position and no adjustment is necessary or possible.

FUEL PUMP

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

Pressure	3.0 psi
Volume	1 pint in 30 sec.

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 surface on which module will be mounted.

IGNITION COIL

Resistance

Primary (At 75°F)4-1.0 ohms
Secondary (At 75°F)	6000-30,000 ohms

GENERAL SERVICING (Cont.)

Coil Output

At all engine speeds ①25-35 KV Minimum

① - Replace if below 25 KV.

CARBURETION

CARBURETORS

Application	Model
252" 4-Bbl.	Rochester M4ME

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	430	100
Optional	500	125

STARTER

Delco-Remy solenoid actuated with overrunning clutch.

Free Speed Voltage 9@7000-11,900 RPM
Free Speed Amperage 50-80@7000-11,900 RPM

ALTERNATOR

Application	Rated Amp. Output
Standard	70
Optional	100

ALTERNATOR REGULATOR

Delco-Remy nonadjustable, integral with alternator.

ALTERNATOR

Application	Rated Amp. Output
Standard	70
Optional	100

ENGINE

INTAKE MANIFOLD TIGHTENING

Tighten intake manifold bolts in sequence shown to 45 ft. lbs.

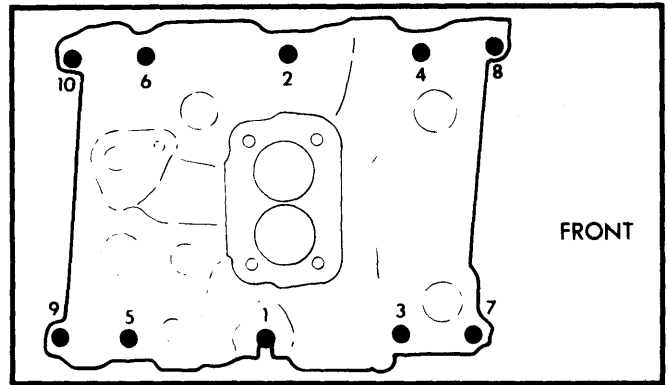


Fig. 2 252" Intake Manifold Tightening Sequence

BELT ADJUSTMENT

Tension (Lbs.) Using Strand Tension Gauge

Application	New	Used
A.I.R. Pump	80	50
Alternator & Water Pump		
Standard Design	140	70
Cogged Belt		60
All Other Belts	165	90

FILTERS & CLEANERS

Filter or Cleaner	Service Interval (In Miles)
Oil Filter	Replace every 2nd oil change
Air Cleaner	Replace every 30,000
Fuel Filter	Replace every 15,000
PCV Filter	Replace every 30,000
PCV Valve	Replace every 30,000
Vapor Canister Filter	Replace every 30,000

CAPACITIES

Application	Quantity
Crankcase	①4.0 qts.
Cooling System	13.0 qts.
Auto. Trans. (Dexron II)	②6.5 pts.
Rear Axle (SAE 80W-90)	4.25 pts.
Fuel Tank	25.0 gals.

- ① - Add 1 qt. with filter change.
- ② - Drain and refill capacity.