

## TUNE-UP

### ENGINE IDENTIFICATION

#### VEHICLE IDENTIFICATION NUMBER CODE

Engine can be identified by the Eighth Digit of Vehicle Identification Number, located on plate attached to top left corner of instrument panel and visible through windshield.

#### VIN Engine Code

Application	Code
1.7L (105") .....	A
2.2L (135") .....	B
2.6L (156") .....	D

#### ENGINE IDENTIFICATION NUMBER CODE

The engine identification and serial number is stamped in the following locations: On 1.7L engines, on rear of engine block (left side). On 2.2L engines, on front of engine block (next to cylinder head). On 2.6L engine, on left rear side of engine block (facing radiator) directly behind core plug.

### 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 one cylinder for an extended period of time. Damage to converter may occur due to loading converter with unburned air/fuel mixture.

**CAUTION** — On vehicles equipped with catalytic converters, do not add fuel system cleaning agents to fuel tank or carburetor as their use may be detrimental to the catalytic converter.

**CAUTION** — Before making a compression test or cranking engine using a remote starting switch, disconnect coil wire from distributor and secure to a good ground.

### ENGINE COMPRESSION

Compression Ratio	
1.7L .....	8.2:1
2.2L .....	8.5:1
2.6L .....	8.2:1
Compression Pressures	
1.7L .....	100 psi
2.2L .....	130-150 psi
2.6L .....	149 psi
Variation Between Cylinders	
1.7L .....	25 psi
2.2L .....	20 psi
2.6L .....	15 psi

Check compression pressure with engine warm, spark plugs removed, throttle valve wide open, and at cranking speed.

### VALVE CLEARANCE

Application	Clearance (Hot)
Intake	
1.7L .....	.008-.012"
2.2L .....	Hydraulic
2.6L .....	.006"
Exhaust	
1.7L .....	.016-.020"
2.2L .....	Hydraulic
2.6L .....	.010"
Jet Valve (2.6L Only) .....	.006"

### VALVE ARRANGEMENT

1.7L	E-I-E-I-I-E-I-E (Front-to-Rear)
2.2L	E-I-E-I-E-I-E-I (Front-to-Rear)
2.6L	Right Side — All Exhaust Left Side — All Intake

### SPARK PLUGS

Application	Gap (In.)	Torque Ft. Lbs. (N*m)
1.7L, 2.2L .....	.035	20 (27)
2.6L .....	.041	20 (27)

### Spark Plug Type

Application	Chrysler No.
All .....	65PR

### HIGH TENSION WIRE RESISTANCE

Carefully remove spark plug wire from spark plug and install proper adapter between wire and spark plug. Carefully remove wire from distributor cap. Connect an ohmmeter between spark plug adapter and opposite end of wire. If resistance is not within specifications, replace wire. To check coil wire resistance, remove distributor cap from distributor without removing wire from cap or coil. Connect an ohmmeter between center contact in cap and either primary terminal at coil. If resistance is not within specifications, remove coil wire at coil tower and check cable resistance. If resistance is now within specifications, check for a loose connection at coil tower or defective coil. If resistance is not within specifications, replace wire.

### Resistance (Ohms)

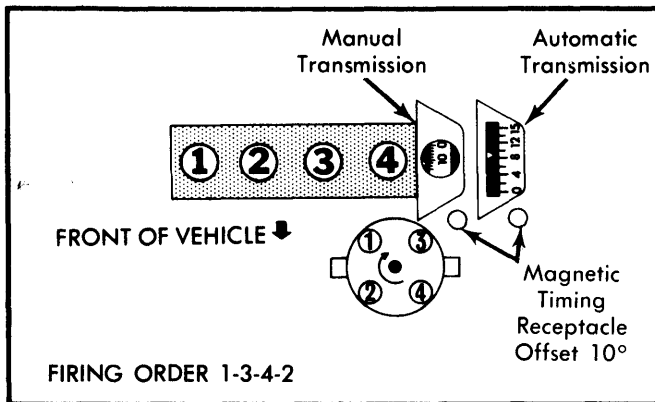
Application	Maximum
Coil Wire	
1.7L, 2.2L	
Installed .....	25,000
Removed .....	15,000
2.6L	
Removed .....	22,000
Spark Plug Wires	
1.7L, 2.2L .....	50,000
2.6L .....	22,000

## TUNE-UP (Cont.)

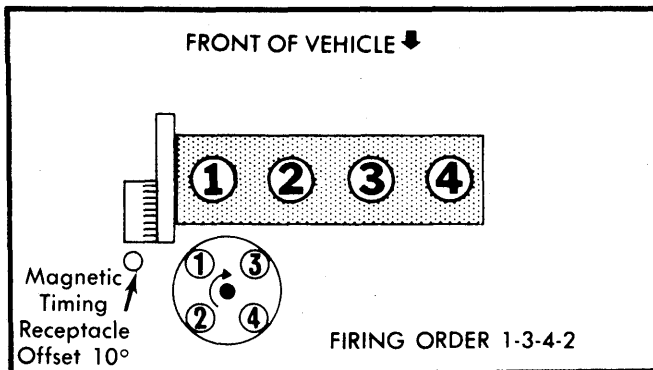
### DISTRIBUTOR

All models are equipped with Chrysler Corp. Electronic Ignition as standard equipment. Some models are equipped with a Combustion Computer and Feedback Carburetor as optional equipment. With both systems, no adjustments are required.

**NOTE** — Dwell is not adjustable, even though it may be read with a dwell meter. There is no means provided to change dwell.



**Fig. 1 Firing Order and Timing Marks (1.7 Liter and 2.2 Liter Engines)**



**Fig. 2 Firing Order and Timing Marks (2.6 Liter Engine)**

### IGNITION TIMING

**CAUTION** — Timing light connections should be made using proper adapters. Do not puncture cables, boots or nipples with test probes.

Connect a suitable timing light to number 1 cylinder. With engine at normal operating temperature, adjust to specified curb idle RPM. Disconnect and plug vacuum hose at vacuum transducer. Check timing through access hole in clutch housing on 1.7L and 2.2L engines, or in timing plate on 2.6L engines.

#### Ignition Timing Specifications

Application	Degrees (BTDC)
1.7L .....	① 12
2.2L .....	12
2.6L .....	7

① — Auto. Trans.; 20° BTDC on Man. Trans.

### IDLE SPEED & MIXTURE

#### PROPANE ENRICHMENT ADJUSTMENT PROCEDURE (1.7L & 2.2L ENGINES ONLY)

- 1) Start engine and warm to operating temperature. Turn off all accessories and place transmission selector lever in "N". Disconnect and plug hose at EGR valve.
- 2) Disconnect and plug vacuum hose to heated air door sensor at the 3-way connector. Connect propane supply hose in its place. Check engine timing and adjust if necessary.
- 3) Connect a jumper wire between carburetor switch and ground, then jumper radiator fan connector so it runs constantly. Disconnect and plug 3/16" control hose at canister. Remove PCV valve from rubber connector and allow it to draw under hood air.
- 4) Open propane slowly until maximum RPM is reached. Adjust idle speed screw on top of solenoid to obtain propane RPM. Recheck propane flow and reset propane RPM if necessary.
- 5) Turn off propane and allow idle speed to stabilize. With air cleaner installed, adjust mixture screw carefully until curb idle speed is obtained. Pause between adjustments to allow idle to stabilize.
- 6) Turn on propane and observe maximum RPM. If more than 25 RPM from propane speed, repeat adjustment procedure.
- 7) Turn engine off and remove all test equipment. Reconnect hoses and wiring to original locations, then remove carburetor and install new roll pin and plug. On vehicles with A/C, perform A/C idle speed and idle set RPM adjustments.

#### Propane Enriched Idle Speed

Application	Curb Idle RPM	Propane Enriched Idle RPM
1.7L		
Man. Trans. ....	850	950
Auto. Trans. ....	900	1000
2.2L		
W/O Feedback Carb.		
Man. Trans. ....	850	925
Auto. Trans. ....	900	975
W/Feedback Carb.		
Man. Trans.		
Federal .....	850	950
Calif. ....	850	925
Auto. Trans.		
All ① .....	900	975

① — All except Federal models with carb. No. R-9504A. Curb idle is 850 RPM, Propane Enriched is 950 RPM on this carburetor.

#### MIXTURE SCREW PLUG REMOVAL (1.7L & 2.2L ONLY)

- 1) Remove carburetor and clamp in vise with padded jaws so idle mixture screw is facing up. Drill 1/16" pilot hole through gasket surface at 45° angle into area of plug. Redrill hole to 1/8".

## TUNE-UP (Cont.)

2) Drive mixture screw plug out with punch. Insert sharp punch through mixture screw hole and slide roll pin out. Reinstall carburetor.

### AIR CONDITIONING IDLE SPEED & IDLE SET RPM (1.7L & 2.2L ONLY)

1) Make sure timing is set correctly. Disconnect and plug vacuum hose at EGR valve. Jumper radiator fan so it runs continuously. Remove PCV valve and allow it to draw fresh air during adjustment. Plug  $\frac{3}{16}$ " diameter control hose at canister. Connect tachometer and start engine.

**NOTE** — Air cleaner must be installed when checking A/C Idle Speed RPM and Idle Set RPM. Remove air cleaner to make speed adjustment, then install air cleaner to check RPM.

2) Turn A/C on and set blower on low. Open throttle slightly to energize solenoid. Remove adjusting screw and spring from top of A/C solenoid. Insert a  $\frac{1}{8}$ " Allen wrench into solenoid and adjust solenoid to obtain correct idle speed.

3) With idle speed adjusted, replace adjusting screw and spring on solenoid. Turn off A/C and allow engine to stabilize.

4) With engine stabilized, check idle speed. If idle speed is not to specifications, turn idle speed screw on top of solenoid until correct idle set RPM is obtained.

5) Reconnect all disconnected hoses and wires to original position.

### A/C Idle Speed & Idle Set RPM

Application	Man. Trans.	Auto. Trans.
1.7L .....	850 .....	.....
2.2L <sup>⓪</sup> .....	850 .....	900

⓪ — All except automatic transmission models with carb. No. R-9504A. Specification should 850 RPM.

### IDLE SPEED ADJUSTMENT PROCEDURE (2.6L ONLY)

1) Warm engine to operating temperature. Connect tachometer and place transmission selector in "N". Electric fan should be off.

2) Wait 1 minute and check idle RPM. To adjust, turn idle speed adjusting screw to obtain specified idle RPM.

**NOTE** — See Emission Label in engine compartment for curb idle specification.

3) Turn A/C on and with compressor running, adjust idle speed, with idle up adjusting screw, to 900 RPM.

### MIXTURE SCREW PLUG REMOVAL (2.6L ONLY)

Remove carburetor from engine. Hold in fixture or padded vise and drill out mixture screw plug. Use small punch to drive out roll pin. Install carburetor, using new flange gasket, without roll pin or plug.

### IDLE MIXTURE ADJUSTMENT (2.6L ONLY)

1) With transmission selector lever in "N", turn off all lights and accessories. Disconnect cooling fan and connect a tachometer to engine.

2) With engine at normal operating temperature and timing set correctly, disconnect air hose running between pulse air feeder and air cleaner. Plug hose to prevent any secondary air flow into pulse air feeder.

3) Insert infra-red exhaust gas analyzer probe into tailpipe. Set idle CO and engine speed to specifications on Emission Control Decal (located in engine compartment) by simultaneously turning speed adjusting and mixture adjusting screw.

4) Remove plug from air hose and reconnect it to air cleaner. If necessary, reset idle speed to specifications. Install new roll pin and plug into carburetor to seal mixture screw.

### Idle Mixture CO Level (2.6L Only)

Application	CO%
2.6L .....	0.5

### THROTTLE STOP SPEED (RPM) ON 1.7L & 2.2L A/C MODELS W/O FEEDBACK CARBURETOR

1) Adjustments are made with engine at normal operating temperature. Place transmission in neutral and set parking brake. Make sure headlights are off.

2) Using jumper wire, ground idle stop carburetor switch. Disconnect idle speed solenoid. Adjust throttle stop speed screw to specification. Reconnect solenoid wire and remove jumper wire.

### Throttle Stop Speed (RPM) Air Conditioned Models Without Feedback Carburetor

Application	RPM
1.7L & 2.2L .....	700

### COLD (FAST) IDLE RPM

1) With engine at normal operating temperature, transmission in "N", parking brake set, all lights and accessories turned off, carburetor switch grounded, check and adjust timing if necessary. On 2.2L engines with feedback carburetor, disconnect 2-way electrical connector at carburetor (red and tan wires).

2) Remove air cleaner if necessary. Disconnect and plug EGR hose at EGR valve. Connect a jumper wire to radiator fan so it will run continuously.

3) Start engine and let speed stabilize. Place fast idle screw on slowest step of fast idle cam. With choke valve fully open, ad-

## TUNE-UP (Cont.)

just fast idle speed to specifications. Reconnect all components to their original positions.

### Fast Idle Speed (RPM)

Application	Man. Trans.	auto. Trans.
1.7L .....	1400 .....	1400
2.2L		
Calif. ....	1300 .....	1600
Federal .....	①1300 .....	②1600
2.6L .....	③ .....	③

- ① — All except models with carb. No. R-9582A and R-9583A. Set fast idle speed to 1200 RPM on these carburetors.
- ② — All except models with carb. No. R-9584A and R-9585A. Set fast idle speed at 1500 RPM on these carburetors.
- ③ — See Emission Control Tune-Up Decal.

## AUTOMATIC CHOKE

All models are equipped with non-adjustable choke covers.

## FUEL PUMP

Application	Specification
Pressure (At Idle) .....	4.5-6.0 psi
Volume (At Idle) .....	1 pint in 30 seconds

## EXHAUST EMISSION SYSTEMS

See EXHAUST EMISSION SYSTEMS section.

## GENERAL SERVICING

### IGNITION

#### DISTRIBUTOR

Chrysler Corp. Electronic Ignition with Combustion Computer available on some models.

#### Coil Resistance (Ohm@70-80°F)

Application	Primary	Secondary
Prestolite .....	1.60-1.79 .....	9400-11,700
Essex .....	1.41-1.62 .....	9000-12,200
Mitsubishi .....	.70-.85 .....	9000-11,000

#### Coil Current Draw and Output

Application	Specification
Current Draw	
Engine Stopped .....	3.0 amps.
Engine Idling .....	1.9 amps.
Coil Output .....	20 KV (Minimum)

### ELECTRICAL

#### BATTERY

Application	Cold Crank Amps@0°F	Reserve Capacity Minutes
1.7L, 2.2L .....	310 .....	60
2.6L .....	325 .....	68
Optional		
Omni, Horizon .....	430 .....	100
Aries, Reliant .....	500 .....	120

#### STARTER

Either a Bosch or Nippondenso direct drive starter is used on 1.7L or 2.2L engines. A Mitsubishi reduction gear starter is used on 2.6L engine.

#### Starter Specifications

Application	Volts	Amps	Test RPM
1.7L, 2.2L .....	11 .....	47 .....	6600
2.6L .....	11 .....	85 .....	3700

## CARBURETION

### CARBURETORS

Application	Models
1.7L 2-Bbl. ....	Holley 6520
2.2L 2-Bbl.	
W/O Feedback .....	Holley 5220
W/Feedback .....	Holley 6520
2.6L 2-Bbl. ....	Mikuni

### ALTERNATOR

Application	Rated Amp. Output
Chrysler	
1.7L Yellow Tag .....	60
2.2L Brown Tag .....	78
Mitsubishi	
2.6L .....	75

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## GENERAL SERVICING (Cont.)

<b>Current Draw</b>	<b>Amps@12V</b>
1.7L & 2.2L .....	4.5-6.5

### ALTERNATOR REGULATOR

Chrysler Corp. Electronic Voltage Regulator

### Operating Voltage (at 80°F)

All Models ..... 13.9-14.6 Volts

## ENGINE

### INTAKE & EXHAUST MANIFOLD TIGHTENING

Start at center and work out. Tighten exhaust manifold stud nuts to 200 INCH lbs. on 1.7L and 2.2L engines or to 150 INCH lbs. on 2.6L engine. Tighten intake manifold bolts to 200 INCH lbs. on 1.7L and 2.2L engines or to 150 INCH lbs. on 2.6L engine. Tighten intake-to-exhaust manifold bolts to 180 INCH lbs. on 1.7L engine.

### BELT ADJUSTMENTS

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

Application	New Belt	① Used Belt
All .....	120	80

① — Any belt operated for 15 minutes.

### COOLING CAPACITIES

Application	Quantity
1.7L .....	6.0 qts.
2.2L .....	7.0 qts.
2.6L .....	8.5 qts.

### TRANSMISSION & DIFFERENTIAL CAPACITIES

Application	Quantity
Manual Transaxle (Dexron II)	
A412 .....	3.0 pts.
A460 .....	4.0 pts.
Auto Transaxle (Dexron II)	
1.7L .....	7.3 qts.
2.2L .....	7.5 qts.
2.6L .....	8.5 qts.
Final Drive (Dexron II) .....	2.4 pts.

### OIL & FUEL CAPACITIES

Application	Quantity
Crankcase (Including Filter)	
1.7L, 2.2L .....	4.0 qts.
2.6L .....	5.0 qts.
Fuel Tank	
All Models .....	13.0 gals.

### REPLACEMENT INTERVALS

Component	Interval (Miles)
Oil Filter .....	15,000
Air Filter	
1.7L, 2.2L .....	52,500
2.6L .....	30,000
Fuel Filter .....	①
PCV Valve .....	②
Spark Plugs .....	24,000

- ① — No scheduled replacement, check and replace if clogged.
- ② — Clean and relubricate every 52,500 miles.