1978-79 TUNE-UP PROCEDURES
Chrysler Corp. 4-Cylinder

1978-79 Chrysler, Dodge, Plymouth

ENGINE IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER

Engine can be identified by the fifth character of Vehicle Identification Number (VIN), located on plate attached to left corner of instrument panel and visible through windshield.

VIN CODE

Application	Code
104" 2-Bbl.	A

ENGINE IDENTIFICATION CODE

Engine identification code is stamped on pad above fuel 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.

NOTE: The EPA High Altitude emission standards apply to vehicles sold in certain areas outside California which have an elevation above 4000 feet.

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 coil wire to a good ground.

ENGINE COMPRESSION

Check compression pressure with engine warm, spark plugs removed, throttle valve wide open, and at cranking speed. Minimum compression pressure should be 100 psi, with a maximum variation of 25 psi between cylinders.

ENGINE COMPRESSION

Application	Specification
Compression Ratio	8.4:1
Recommended Fuel	Unleaded (87 AKI Minimum)

VALVE CLEARANCE

VALVE CLEARANCE

Application	Clearance (Hot)
Intake	.008-.012"
Exhaust	.016"-.020"

VALVE ARRANGEMENT

E-I-E-I-I-E-I-E (Front-to-rear)

SPARK PLUGS

SPARK PLUG INSTALLATION

Application	Specification
Gap	.035"
Torque	20 ft. lbs.

SPARK PLUG TYPE

Application	Champion No.
All	RBL-16Y

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 a faulty coil. If resistance is not within specifications, replace wire.

RESISTANCE (OHMS)

Application	Maximum Ohms
Coil Wire	
Installed	25,000
Removed	15,000
Spark Plug Wire	50,000

NOTE: Some Omni and Horizon models may exhibit intermittent start, no start or loss of primary signal from Hall Effect switch. This may be caused by the shutter blade part of the rotor not being grounded. Remove the distributor and check for continuity between the shutter blade assembly and distributor housing. If not present, remove the rotor and check the metal grounding tab located in bottom-side center of rotor. Clean the top of distributor shaft and recheck for continuity.

NOTE: Some 4-Cylinder engines may develop poor or rough running (ignition timing changes) immediately after replacing a distributor rotor. This condition may be caused by installing a rotor made for a 1980 and later engine. Remove new rotor and compare shutter blade alignment with old rotor. If necessary, replace with one made for 1978-79 engines.

DISTRIBUTOR

All models are equipped with Chrysler Corp. Electronic Ignition System. 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.

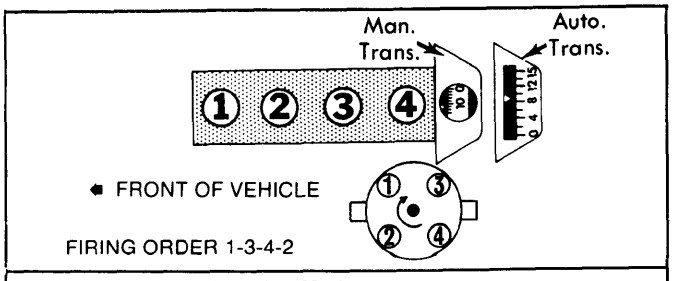

Fig. 1: Firing Order & Timing Marks

1978-79 TUNE-UP PROCEDURES
Chrysler Corp. 4-Cylinder (Cont.)

IGNITION TIMING

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

Connect a timing light to No. 1 cylinder. With engine at normal operating temperature, adjust to curb idle RPM. Disconnect and plug vacuum hose at vacuum transducer. Check timing through access hole in clutch housing.

IGNITION TIMING SPECIFICATIONS

Application	Degrees (BTDC)
All Models	15°

IDLE SPEED & MIXTURE

PROPANE ENRICHMENT PROCEDURE

1) Adjustments are made with engine at normal operating temperature. Attach hose from propane bottle to air cleaner side of four-way vacuum nipple. Connect a tachometer and timing light to engine.
2) Disconnect and plug vacuum hose at EGR valve. Ground idle stop carburetor switch with a jumper wire. Unplug PCV valve and allow to draw open air. Place transmission in Neutral.

NOTE: On vehicles not equipped with A/C, ensure idle speed solenoid is energized. Opening and closing throttle will energize solenoid.

3) Ensure headlights and A/C (if equipped) are off. Connect a jumper wire to radiator fan switch so that fan is running. Check ignition timing.
4) Slowly open propane control valve until maximum RPM is reached and leave at maximum with gas on. Do not touch metering valve until carburetor throttle valves are correctly set.

NOTE: Too much propane will begin to reduce engine idle speed. The propane bottle must stand straight up to maintain a near constant flow.

5) With propane flowing, adjust idle speed screw on top of solenoid to obtain specified propane enriched RPM. Readjust propane control for maximum RPM if necessary.
6) Turn off propane and adjust idle mixture screw to obtain smoothest idle at specified curb idle RPM. Turn propane on and check maximum RPM to see if idle speed has changed.
7) If maximum speed is more than 25 RPM different than propane enriched RPM, repeat adjustment procedure. Reinstall air cleaner vacuum hose on carburetor. Reconnect all remaining hoses.

IDLE SPEED (RPM)

Application	Curb Idle	Propane Enriched
1978	900	1075
1979		
Federal	900	1050
California	900	975

EXHAUST GAS ANALYZER PROCEDURE

NOTE: Emission Control Tune-Up Decal in engine compartment will specify where exhaust sample is to be taken.

1) Adjustments are to be made with headlights and A/C off. Disconnect idle speed solenoid and ground idle stop carburetor switch with a jumper wire.
2) Radiator fan must be operating. Disconnect and plug vacuum hose at EGR valve. Disconnect and plug vacuum hose at distributor or spark control unit.
3) Allow vehicle to sit without engine running for a minimum of one hour. Start engine and run on step 2 of fast idle cam until engine is fully warmed up.
4) Disconnect and plug engine side of AIR pump supply hose. Using an exhaust gas analyzer and a tachometer, adjust curb idle and mixture screws to obtain specified CO% and smoothest curb idle at specified RPM.
5) Reconnect AIR pump hose. If necessary, reset curb idle speed. Reconnect all hoses disconnected and plugged.

IDLE SPEED (RPM) & IDLE CO (%)

Application	Curb Idle	Idle CO
All Models	900	.5%

IDLE SPEED ADJUSTMENT

NOTE: The propane enrichment procedure adjustment must be done before this adjustment.

Air Conditioned Models – All models equipped with A/C are equipped with an A/C (idle speed) solenoid on carburetor. This solenoid requires an additional idle speed adjustment other than the propane enrichment procedure. Adjust solenoid as follows:

1) Make all adjustments with engine at normal operating temperature. Connect a tachometer to engine. Disconnect and plug vacuum hose at EGR valve. Using a jumper wire, ground idle stop carburetor switch.
2) Using a jumper wire, jump radiator fan switch so fan is on. Remove adjusting screw and spring from top of solenoid. Ensure headlights are off.
3) If equipped with auto. trans., place in "D". Turn A/C on to energize solenoid. Using an Allen wrench inserted in top of solenoid, adjust idle speed to specification.

NOTE: When A/C is operating, compressor clutch will cycle on and off. Ensure compressor clutch is engaged when checking idle speed.

4) Turn A/C off. Install adjusting screw and spring in solenoid. Readjust curb idle speed to specification. Remove jumper wire and reconnect all vacuum hoses.

IDLE SPEED (RPM)

Application	RPM
Man. Trans.	850
Auto. Trans.	750

THROTTLE STOP SPEED (RPM)

Non-Air Conditioned Models – 1) Adjustments are made with engine at normal operating temperature. Place transmission in Neutral. Set parking brake. Headlights must be 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)

Application	RPM
All Models	700

COLD (FAST) IDLE RPM

1) Remove top of air cleaner. Disconnect and plug vacuum signal line to EGR valve. Plug all other disconnected vacuum lines.
2) Do not disconnect vacuum line to Spark Control Computer (SCC). Use a jumper wire to ground idle stop carburetor switch. A/C must be off.

1978-79 TUNE-UP PROCEDURES
Chrysler Corp. 4-Cylinder (Cont.)

3) Disconnect engine cooling fan electrical lead at fan. Use a jumper wire at connector to energize fan. Set parking brake. Place transmission in Neutral.
4) With engine off, open throttle slightly and place fast idle speed screw on lowest step of fast idle cam. Start engine and check RPM with a tachometer. Make sure choke valve is fully open.

NOTE: If engine RPM continues to rise slowly, the idle stop carburetor switch is not properly grounded.

5) Adjust idle speed screw to obtain specified fast idle RPM. Do not adjust screw containing plastic cam. Remove jumper wires and reconnect all vacuum hoses after adjustment procedure is completed.

FAST IDLE SPEED (RPM)

Application	RPM
1978	1100
1979	
Man. Trans.	1400
Auto. Trans.	1700

AUTOMATIC CHOKE

Loosen 3 choke housing cover screws and adjust choke housing to specification.

AUTOMATIC CHOKE SETTING

Application	Setting
All Models	2NR

FUEL PUMP

FUEL PUMP PRESSURE

FUEL PUMP SPECIFICATIONS

Application	Specification
Pressure	4-6 psi
Volume at Idle	1 quart in 1 minute

IGNITION

DISTRIBUTOR

All models are equipped with Chrysler Corp. Electronic Ignition System.

Other Data & Specifications – Also see Chrysler Corp. Distributors in DISTRIBUTORS & IGNITION SYSTEMS section.

IGNITION COIL

IGNITION COIL

Application	Specification
Resistance	
Primary (at 70-80°F)	
Essex	1.34-1.55
Prestolite	1.60-1.79 ohms
Secondary (at 70-80°F)	
Essex	8000-11,200 ohms
Prestolite	9400-11,700 ohms
Ballast Resistor	
Coil Side	.5-.6 ohm
Current Draw (Including Coil & Ballast Resistor)	
Engine Idling	1.9 amps.
Engine Stopped	3.0 amps.
Coil Output	
All Models	20 KV Minimum

CARBURETION

CARBURETORS

Application	Models
104" 2-Bbl.	Holley 5220

Other Data & Specifications – Also see Holley Carburetors in FUEL SYSTEMS section.