1982 Chrysler Corp. V8 Tune-Up

TUNE-UP

ENGINE IDENTIFICATION

Engine identification number is stamped on a pad located to the rear of the right engine mount. First digit indicates model year. The next 3 digits indicate engine size in cubic inches. Engine can also be identified by the eighth digit in the Vehicle Identification Number (VIN). VIN is located on a plate attached to driver's door post.

VIN ENGINE CODES

Application	VIN Code
5.2L (318") 2-Bbl.	P
5.2L (318") 4-Bbl.	R
5.9L (360") 4-Bbl. (Federal)	T
5.9L (360") 4-Bbl. (Calif.)	U
5.9L (360") 4-Bbl. (Heavy Duty)	V

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.

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.

NOTE: For tune-up purposes, "Light Duty" refers to vehicles 8500 lbs. GVW or less and "Heavy Duty" refers to vehicles over 8500 lbs. GVW.

ENGINE COMPRESSION

Before making a compression test or cranking engine using a remote starting switch, disconnect coil wire from distributor and secure to a good ground. Test compression with engine warm, all spark plugs removed and throttle wide open.

COMPRESSION SPECIFICATIONS

Compression Ratio	
5.2L	8.7:1
5.9L	8.6:1
Compression Pressure	100 psi (7.0 kg/cm²)
Maximum Pressure Variation	40 psi (2.8 kg/cm²)

VALVE CLEARANCE

All engines are equipped with hydraulic lifters. Lifters should be adjusted to zero lash.

VALVE ARRANGEMENT

E-I-I-E-E-I-I-E (Front to rear, both banks)

SPARK PLUGS

SPARK PLUG SPECIFICATIONS

Application	Gap In. (mm)	Torque Ft. Lbs. (N.m)
All Models	.035 (.90)	30 (41)

SPARK PLUG TYPE

Application	Champion No.
5.2L	RN-11Y
5.9L	RN-12Y

HIGH TENSION WIRE RESISTANCE

1) Carefully remove spark plug wire from spark plug. Remove distributor cap with wires attached. Connect an ohmmeter between electrode inside cap and end of spark plug wire. If resistance is not within specifications, replace wire.

2) To check coil wire resistance, remove distributor cap from distributor (with wires still attached). Do not remove wire from coil. Connect an ohmmeter between center contact in cap and either primary terminal at coil.

3) If combined resistance of coil and cable 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 for a faulty coil. If resistance is not within specifications, replace wire.

RESISTANCE (Ohms)

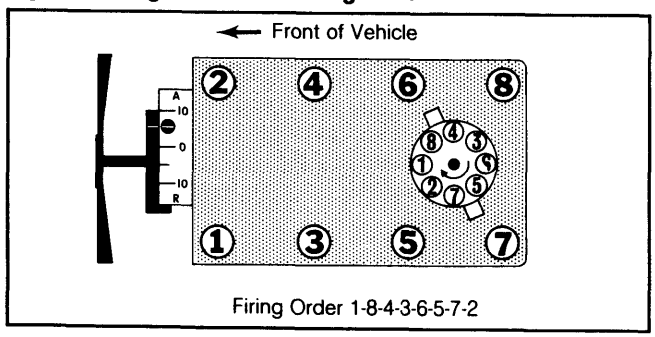
Application	Maximum
Coil Wire	
Installed	25,000
Removed	15,000
Spark Plug Wire	50,000

DISTRIBUTOR

All models are equipped with Chrysler Electronic Ignition system and no adjustments are required. Automatic transmission models use a dual pick-up distributor, while manual transmission vehicles have a single pick-up.

TUNE-UP (Cont.)

Fig. 1: Timing Marks and Firing Order



Magnetic probe socket located at 10° ATDC.

IGNITION TIMING

NOTE: All models are equipped with a receptacle for magnetic timing light equipment, located 10° ATDC. Do not use this location for timing with a conventional timing light.

1) Connect timing light to number 1 cylinder and connect tachometer to engine. Start engine, set parking brake and place transmission in neutral. Bring engine to normal operating temperature. With engine at operating temperature, momentarily open throttle and ensure idle speed screw returns against its stop.

2) On vehicles with a carburetor switch, connect a jumper wire between switch and ground. Disconnect and plug vacuum line at Spark Control Computer (SCC). On vehicles not equipped with SCC, disconnect and plug vacuum line at distributor. Adjust idle speed screw if necessary to obtain curb idle.

3) If timing is not within 2° of specification, loosen distributor hold-down arm screw and rotate distributor housing to obtain correct timing. Tighten distributor hold-down screw when timing is correct. Recheck idle set RPM and timing.

CAUTION: DO NOT use distributor vacuum advance unit as a handle when turning distributor housing.

TIMING SPECIFICATIONS (Degrees BTDC@RPM)

Application	Man. Trans.	Auto Trans.
5.2L 2-Bbl.	12@700	12@700
5.2L 4-Bbl.		
Light Duty		
Federal	12@750	16@750
Calif.	16@750	16@750
Heavy Duty	8@750	8@750
5.9L 4-Bbl.		
Federal	4@700	4@700
Calif.	10@750	10@750

HOT (SLOW) IDLE RPM

1) Before checking or adjusting idle speed, check and adjust ignition timing. Disconnect and plug vacuum hose at EGR valve. Disconnect and plug carburetor vacuum hose at heated air temperature sensor. Remove air cleaner and plug control hose at canister.

2) Remove PCV valve at cylinder head cover and allow valve to draw underhood air. Start the engine. Allow the engine to run for 1 minute and check RPM. If the RPM is not correct, turn the idle speed screw to obtain proper idle set RPM.

IDLE SPEED

Application	RPM
5.2L 2-Bbl.	700
Federal 5.9L 4-Bbl.	700
All Other Models	750

IDLE MIXTURE

MIXTURE SCREW PLUG REMOVAL

Remove carburetor from vehicle. Remove throttle body from carburetor and clamp in a padded vise. Drill a 5/64" pilot hole at a 45° angle toward concealment plugs. Redrill to 1/8" and repeat on opposite side. Drive out plug with a blunt punch. Reassemble and reinstall carburetor.

PROPANE ENRICHMENT PROCEDURE

1) Remove concealment plug. Set parking brake and place transmission in neutral. Start engine and allow to warm up on the second highest step of fast idle cam. When engine has reached operating temperature return to idle.

2) Disconnect and plug vacuum hoses at EGR valve, distributor, carburetor to the heated air sensor at air cleaner and OSAC valve (if equipped). Remove air cleaner. On 4-barrel, remove bowl vent vacuum hose from carburetor nipple. Install a "T" fitting between nipple and vacuum hose.

3) On 2-barrel models, disconnect vacuum supply hose from choke diaphragm at "T". On all models install propane supply hose. With the propane bottle upright, remove PCV valve from the cylinder head cover and allow valve to draw underhood air.

4) Disconnect and plug control hose from canister. Open propane main valve. Slowly open the metering valve until maximum RPM is reached. With propane flowing, adjust idle speed screw to reach specified RPM. Adjust metering valve again to reach maximum RPM.

5) If there has been a change in maximum RPM, readjust idle speed screw to specified RPM. Turn off propane and allow engine speed to stabilize. Adjust the idle mixture screws 1/16 turn at a time, waiting 30 seconds between adjustments, until smoothest idle at specified RPM is reached.

6) If RPM is more than 25 RPM different from specified RPM, repeat steps **4)** and **5)**. Turn off the propane valves. Remove supply hose and "T" and reconnect bowl vent vacuum hose. Install new concealment plugs.

TUNE-UP (Cont.)

PROPANE ASSISTED MIXTURE ADJUSTMENT

Application	RPM
5.2L 2-Bbl.	
Carter	830
Holley R-9493A	850
Holley R-9491A	880
5.2L 4-Bbl.	
Light Duty	840
Heavy Duty	810
5.9L 4-Bbl.	800

COLD (FAST) IDLE RPM

1) Remove air cleaner. Disconnect and plug vacuum hoses at EGR valve, carburetor and heated air temperature sensor. Open throttle slightly and place fast idle adjustment screw on second highest step of fast idle cam. With choke fully open, turn fast idle screw to obtain proper RPM.

2) Return engine to idle and then reposition fast idle adjusting screw. Readjust if necessary. Return to idle and stop engine. Reinstall air cleaner. Unplug vacuum hose and reconnect to heated air temperature sensor and air cleaner. Reconnect vacuum hose to EGR valve. Remove tachometer and reinstall PCV valve.

FAST IDLE SPEED

Application	RPM
2-Bbl.	
Holley	1500
Carter	1600
4-Bbl.	1500-1800

BOWL VENT VALVE ADJUSTMENT

NOTE: Idle speed must be properly set before performing this adjustment.

5.2L 2-BBL.

1) Warm engine to normal operating temperature. Operate engine at curb idle. Remove air cleaner, step-up piston cover plate and gasket.

2) Using pin gauge, measure clearance between top of bowl vent valve and seat. Clearance should be .080" (.20 mm). If adjustment is required, bend bowl vent lever tab until specification is obtained. Support bowl vent lever while bending vent tab.

3) Stop engine. Install step-up piston, gasket and air cleaner.

SOLENOID BOWL VENT VALVE

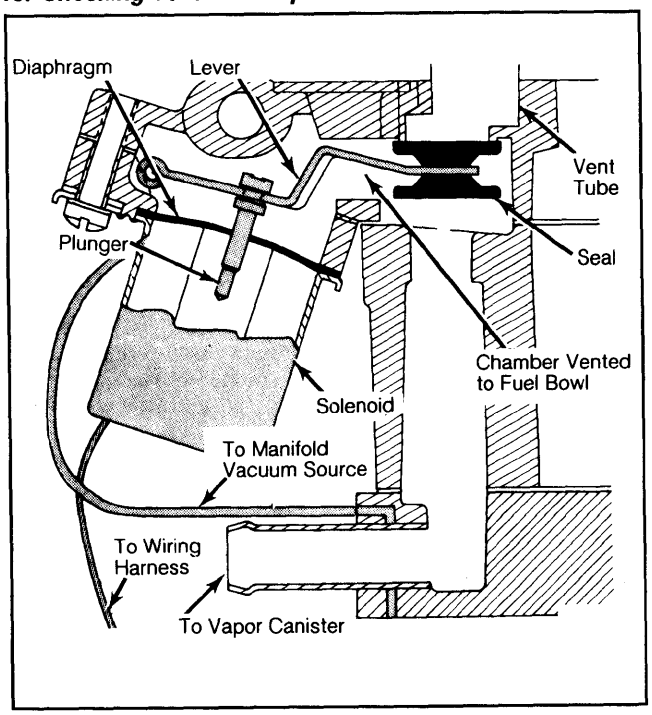
5.2L & 5.9L 4-BBL.

1) Remove air cleaner assembly. Disconnect hose to solenoid bowl vent diaphragm. Connect outside vacuum source and apply at least 15 in. Hg to diaphragm.

2) Look down through air horn vent tube and observe valve movement. *See Fig. 2.* Turn ignition switch "ON". Remove outside vacuum source from diaphragm. Valve should remain in down position until ignition switch is turned "OFF".

3) If valve does not move with vacuum applied, diaphragm is leaking and must be replaced. If valve does not remain in down position when ignition switch is turned "ON" and vacuum source is removed, solenoid or its related wiring is faulty.

Fig. 2: Cutaway View of Solenoid Vent Valve for Checking Vent Valve Operation



Perform test with carburetor installed on vehicle.

VACUUM THROTTLE POSITIONER ADJUSTMENT

5.2L & 5.9L 4-BBL. VANS

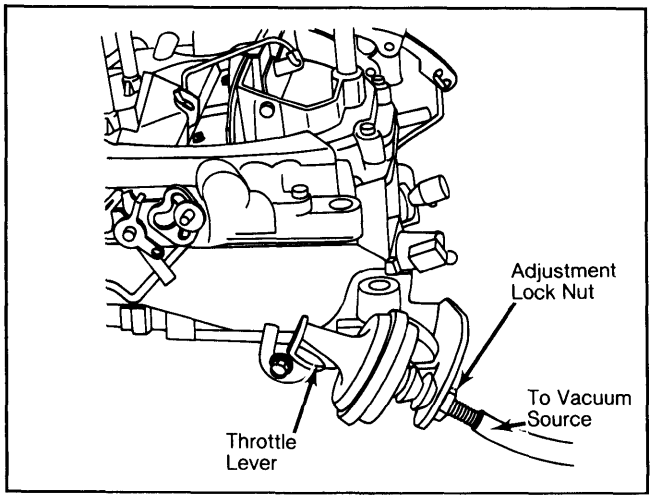
1) Start engine and allow to idle in neutral. Accelerate engine to above 2000 RPM. Make sure the vacuum positioner operates and can withstand being pushed on by hand when in the operating position.

2) Loosen the positioner adjustment lock nut and rotate the complete vacuum positioner assembly until positioner just contacs the throttle lever. *See Fig. 3.* Release throttle and slowly adjust positioner to decrease engine speed until a sudden drop of at least 1000 RPM occurs.

3) Turn positioner ¼ turn further and tighten lock nut. Accelerate engine to 2300 RPM and release throttle. Engine should return to normal idle.

TUNE-UP (Cont.)

Fig. 3: Vacuum Throttle Positioner



AUTOMATIC CHOKE SETTING

All models use an electric assist choke which requires no adjustment.

FUEL PUMP

Measure fuel pump pressure and volume at 500 RPM.

FUEL PUMP SPECIFICATIONS

Application	Pressure psi (kg/cm²)	Volume Quarts (Liters)
All Models	4.75-6.25 (.33-.44)	1 in 1 min. (.95 in 1 min.)

MANIFOLD HEAT CONTROL VALVE

At every oil change, apply solvent to both ends of valve shaft where it rotates in bushing. Work valve back and forth a few times.

NOTE: Apply solvent only when manifold is cool.

EMISSION CONTROL SYSTEMS

NOTE: See appropriate article in Emission Control Section.

GENERAL SERVICING

IGNITION

DISTRIBUTOR

All models are equipped with Chrysler Corp. Electronic Ignition System. Units are entirely self-contained and require no outside adjustments.

DISTRIBUTOR PICKUP COIL RESISTANCE (Ohms)

All Models	150-900

TOTAL SPARK ADVANCE@2200 RPM

Application	With Vac. Advance	Without VAc. Advance
Distributor No.		
4111950 & 4111501	20°	9°
4145602	18°	7°
4091661 [1]	19°	7°

[1] — At 2000 RPM.

IGNITION COIL

COIL RESISTANCE (Ohms)

Application	Primary	Secondary
Essex	1.3-1.6	9000-12,200
Prestolite	1.6-1.8	9400-11,700

FUEL SYSTEMS

CARBURETORS

Application	Carb. Model
5.2L 2-Bbl. (Federal Auto. Trans.)	Carter BBD
5.2L 2-Bbl.(All Others)	Holley 2280
5.2L 4-Bbl.	Carter Thermo-Quad
5.9L 4-Bbl.	Carter Thermo-Quad

ELECTRICAL

BATTERY SPECIFICATIONS

Application	Cold Cranking Amps. [1]	Reserve Capacity Minutes
Standard	305	68
Optional	375	86
Optional	430	100
Optional	500	120

[1] — At 0°F (-18°C).

STARTER

All models use a Chrysler Corp. reduction gear type starter.

STARTER SPECIFICATIONS

Application	Volts	Amps.	Test RPM
All Models	11	90	3700

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GENERAL SERVICING (Cont.)

ALTERNATORS

All models use Chrysler Corp. alternators.

ALTERNATOR SPECIFICATIONS

Tag Color	Rated Amp Output
Violet	41
Yellow ("D","W","AD","PD","AW" & "PW")	117
Yellow (All Others)	60

ALTERNATOR REGULATOR

All models use Chrysler Corp. Electronic Voltage Regulator. Unit is non-adjustable.

REGULATOR OPERATING VOLTAGE@80°F (27°C)

All Models	13.9-14.6

ADJUSTMENTS

BELT ADJUSTMENT

With 10 pounds (4.54 kg) pressure applied midway between pulleys, belt deflection for new belts should be .25" (6.0 mm). Belt deflection for used belts should be a maximum of .33" (8.0 mm). Used belts are any operated more than 15 minutes.

SERVICE INTERVALS

REPLACEMENT INTERVALS

Component	Light Duty Interval (Miles)	Heavy Duty Interval (Miles)
Oil Filter	15,000	12,000
Fuel Filter	30,000	18,000
Air Filter	30,000	[1] 24,000
PCV Valve	30,000	24,000
Spark Plugs	30,000	18,000

[1] — Clean at 12,000 mile intervals.

CAPACITIES

FLUID CAPACITIES

Application	Quantity
Cooling System	
5.2L	[1] 16.0 qts. (15.1L)
5.9L	14.5 qts. (13.7L)
Crankcase	[2] 5.0 qts. (4.7L)
Automatic Transmission (Dexron II)	[3] 7.7 pts. (3.6L)
Manual Transmission	
4-Speed Overdrive	
A-833 (Dexron II)	7.5 pts. (3.5L)
N.P. 435 4-Speed	
(SAE 80W-90)	7.0 pts. (3.3L)
Transfer Case	
N.P. 205 (SAE 80W-90)	4.5 pts. (2.1L)
N.P. 208 (Dexron II)	6.0 pts. (2.8L)
Rear Axle (SAE 80W-90)	
8⅜" Ring Gear	4.5 pts. (2.1L)
9¼" Ring Gear	4.5 pts. (2.1L)
9¾" Ring Gear	6.0 pts. (2.8L)
10½" Ring Gear	6.5 pts. (3.1L)
Front Axle (SAE 80W-90)	
Model 44	3.5 pts. (1.7L)
Model 60	6.5 pts. (3.1L)
Fuel Tank	
Van Models	
Standard	22.0 gals. (83.3L)
Optional	36.0 gals. (136.3L)
Pickup Models	
Standard	22.0 gals. (83.3L)
Optional	30.0 gals. (113.5L)
Optional	35.0 gals. (132.5L)
All Other Models	35.0 gals. (132.5L)

[1] — Add 1 qt. (.95L) with A/C or increased cooling.
[2] — Add 1 quart (.95L) with filter change.
[3] — Without torque converter drain.