

1975-79 TUNE-UP PROCEDURES

American Motors V8

ENGINE IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER

Seventh character of Vehicle Identification Number (VIN), located on plate attached to top left corner of instrument panel, is the engine code letter.

VIN CODES

Application	Code
1975-77	
304" 2-Bbl.	H
360" 2-Bbl.	N
360" 4-Bbl.	P
401" 4-Bbl. ¹	Z
1977-78	
304" 2-Bbl.	H
360" 2-Bbl.	N
1979	
304" 2-Bbl.	H

¹ - Police only for 1975.

ENGINE IDENTIFICATION CODE

The engine build date code is located on a tag attached to right bank cylinder head cover. The code numbers identify year, month and day that engine was built. The code letter identifies cubic inch displacement, carburetor type and compression ratio.

NOTE: A nonrepeating number is used to identify 1978-79 engines built for use in Georgia and Tennessee. It is located on a machined pad on left side of block, adjacent to front care plug.

ENGINE CODE

Application	Code
1975-77	
304" 2-Bbl.	H
360" 2-Bbl.	N
360" 4-Bbl.	P
401" 4-Bbl. ¹	Z
1977-78	
304" 2-Bbl.	H
360" 2-Bbl.	N
1979	
304" 2-Bbl.	H

¹ - Police only for 1975.

TUNE-UP NOTES

NOTE: Some 1978 Matador models with 360" engine and power steering, may have no vacuum advance. This may be caused by the fitting on distributor contacting the power steering bracket. If necessary, pull distributor and advance distributor gear one tooth. Install distributor and reset timing.

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 of 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 1 cylinder for an extended period of time. Damage to converter may occur due to loading converter with unburned air/fuel mixture.

ENGINE COMPRESSION

ENGINE COMPRESSION

Application	Specification
Compression Ratio	
304"	8.4:1
360" & 401"	8.25:1
Recommended Fuel	Unleaded (87 AKI Min.)
Compression Pressure	120-150 psi
Max. Variation Between Cylinders	30 psi

VALVE CLEARANCE

Hydraulic Lifters Zero Lash

VALVE ARRANGEMENT

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

SPARK PLUGS

Application	Specification
Gap033-.038"
Torque	25-30 ft. lbs.

SPARK PLUG TYPE

Application	Champion No.
All	¹ N-12Y

¹ - RN-12Y is alternate plug.

HIGH TENSION WIRE RESISTANCE

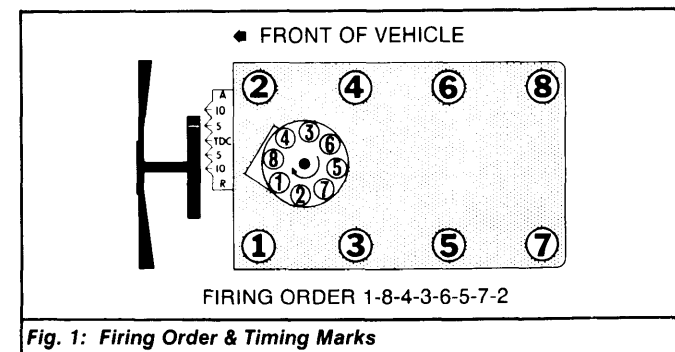
Do not puncture spark plug wires with any type of probe. Remove spark plug wire and check resistance using an adapter.

WIRE RESISTANCE (OHMS)

Wire Length	Minimum	Maximum
0-15"	3000	10,000
15-25"	4000	15,000
25-35"	6000	20,000
Over 35"	8000	25,000

DISTRIBUTOR

All 1975-77 models are equipped with Prestolite Breakerless Inductive (BID) ignition system. 1978-79 models are equipped with a Solid State Ignition (SSI) system. No adjustments are possible on either system.



1975-79 TUNE-UP PROCEDURES

American Motors V8 (Cont.)

IGNITION TIMING

NOTE: All 1978-79 engines include a magnetic timing probe socket cast into timing case cover. Insert probe into timing socket until it contacts vibration damper. Socket is located 9.5° ATDC. Do not use the probe location to check timing with a conventional timing light.

NOTE: If a timing light with an advance control feature is used, set control to OFF position. On SSI coils, a terminal is provided for tachometer connection.

Check or adjust ignition timing with engine at normal operating temperature, distributor vacuum hose disconnected and engine at specified RPM.

IGNITION TIMING SPECIFICATIONS (DEGREES BTDC@RPM)

Application	Man. Trans.	Auto. Trans.
1975	5°@500	5°@500
1976		
Federal	5°@500	10°@500
Calif. & Altitude	5°@500	5°@500
1977		
Federal & Altitude	10°@500	10°@500
Calif.	5°@500	5°@500
1978		
Federal & Altitude	10°@600	10°@600
Calif.	5°@700	5°@700
1979 All	5°@800	8°@600

HOT (SLOW) IDLE RPM

NOTE: Do not idle engine for over 3 minutes at a time. If idle speed adjustment is not completed within 3 minutes, run engine at 2000 RPM for one minute before continuing, repeat as necessary.

- 1) With engine at normal operating temperature, air cleaner installed, and automatic transmission in Drive (manual transmission in Neutral), turn curb idle adjusting screw to obtain specified curb idle speed.
- 2) To adjust idle speed on models equipped with a solenoid, turn hex screw on solenoid carriage to obtain specified curb idle speed. Then, disconnect solenoid wire and adjust curb idle speed screw to obtain 500 RPM idle speed. Connect solenoid wire and recheck curb idle speed.

CURB IDLE SPEED (RPM) ¹

Application	Man. Trans.	Auto. Trans.
1975-76 All	750	700/500
1977		
Federal & Altitude	600	600
Calif.	700	700
1978		
Federal	600	600
Altitude	700	700
Calif.		
304"	700	700
360"	650	650
1979	800	600

¹ - ±100 RPM.

IDLE MIXTURE

NOTE: Do not idle engine for over 3 minutes at a time. If idle mixture adjustment is not completed within 3 minutes, run engine at 2000 RPM for one minute before continuing, repeat as necessary.

TACHOMETER (LEAN DROP) PROCEDURE

- 1) Warm engine to operating temperature. Set idle speed. Connect a tachometer to engine. All accessories must be off and air cleaner installed.
- 2) Adjust idle mixture screws to full rich stop (counterclockwise). Note position of screw head slots inside limiter caps.
- 3) Install a No. 10 sheet metal screw into limiter caps and turn clockwise to remove caps. Discard caps.

NOTE: Caps can also be removed by melting with a soldering iron.

- 4) Be sure mixture screws are not moved from position while removing limiter caps.
- 5) Set parking brake. Place automatic transmission in Drive or manual transmission in Neutral.
- 6) With curb idle speed set (solenoid energized), unhook solenoid wire. Set idle with engine-off throttle stop screw to 500 RPM. Reconnect solenoid wire.
- 7) Starting from full rich position, turn mixture screws clockwise (leaner) until RPM drops noticeably.
- 8) Turn screws counterclockwise (richer) until highest RPM reading is reached. DO NOT turn screws past high RPM point. This point is "Lean Best Idle".
- 9) Now turn mixture screws clockwise to obtain specified drop in RPM. Turn both idle mixture screws in small, equal amounts until desired drop is reached.

NOTE: If final RPM differs more than ±30 RPM from original curb idle speed, reset curb idle speed to specifications and repeat steps 8) and 9).

- 10) Install Blue replacement limiter caps. Limiter tabs should be positioned against full rich stop. Do not change mixture setting while installing caps.

SPECIFIED RPM DROP

Application	RPM Drop
1975	
Man. Trans.	40
Auto. Trans.	20
1976	
Man. Trans.	100
Auto. Trans.	20
1977-78	20
1979	40

COLD (FAST) IDLE RPM

- 1) Adjust fast idle speed with engine at normal operating temperature and with EGR valve plugged and idle solenoid disconnected.
- 2) Position fast idle adjusting screw in contact with second step and against shoulder of high step of fast idle cam. Turn fast idle adjusting screw to obtain specified fast idle, speed.

FAST IDLE SPEED (RPM) ¹

Application	Man. Trans.	Auto. Trans.
1975-76	1600	1600
1977		
Altitude	1600	1600
Federal	1600	1600
California		
304"	1800	1800
360"	1600	1600
1978		
304"	1600	1600
360" Federal	1600	1600
360" Others	1800	1800
1979	1500	1600

¹ - ±100 RPM.

1975-79 TUNE-UP PROCEDURES

American Motors V8 (Cont.)

AUTOMATIC CHOKE

To adjust automatic choke, loosen choke cover retaining screws and rotate cover in direction indicated on cover to desired setting.

AUTOMATIC CHOKE SETTING

Application	Setting
V8	
2-Bbl.	1NR
V8 4-Bbl.	2NR
1 - Set 1977-78 Federal 304" engine at Index.	

FUEL PUMP

Make tests with air cleaner removed and fuel inlet line or filter disconnected at carburetor. Disconnect fuel return line (if equipped) at fuel filter and plug nipple on filter. Make all tests at idle speed.

FUEL PUMP SPECIFICATIONS

Pressure	5-6.5 psi
Volume	One pint in 30 sec.
Vacuum (at fuel pump inlet)	10 in. Hg min.

IGNITION

DISTRIBUTOR

1975-77 models use Prestolite Breakerless Inductive Discharge (BID) system.

1978-79 models use Solid State Ignition (SSI) system.

Other Data & Specifications - Also see Motorcraft SSI or Prestolite BID article in DISTRIBUTORS & IGNITION SYSTEMS section.

IGNITION COIL

IGNITION COIL SPECIFICATIONS

Application	Specification
Sensor Pick-Up Resistance	
BID	1.6-2.4 ohms
SSI	400-800 ohms
Coil Resistance	
Primary (at 75°F)	
BID	1.25-1.40 ohms
SSI	1.13-1.23 ohms
Secondary (at 75°F)	
BID	9000-15,000 ohms
SSI	7700-9300 ohms
Coil Output	
All Models	20 KV Min.
Current Draw	
Engine Stopped	4 amps
Engine Idling	2 amps

CARBURETION

CARBURETORS

Application	Model
1975-76	
304" & 360" 2-Bbl.	Motorcraft 2100
360" & 401" 4-Bbl.	Motorcraft 4350
1977-78	
Federal & Calif.	Motorcraft 2100
Altitude	Motorcraft 2150
1979	Motorcraft 2100

Other Data & Specifications - Also see Motorcraft Carburetors in FUEL SYSTEMS section.