

# 1975-79 TUNE-UP PROCEDURES

## American Motors 6-Cylinder

### 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	
232" .....	E
258" .....	A
1976-79	
232" 1-Bbl. ....	E
258" 1-Bbl. ....	A
258" 2-Bbl. ....	C

#### ENGINE IDENTIFICATION CODE

Engine code is part of number stamped on machined pad on right side of cylinder block between number 2 and 3 cylinders.

**NOTE: Engines built for sale in Georgia and Tennessee have an additional, nonrepeating number, located on the right side of the engine below the build date code.**

#### ENGINE CODES

Application	Code
1975	
232" .....	E
258" .....	A
1976-79	
232" 1-Bbl. ....	E
258" 1-Bbl. ....	A
258" 2-Bbl. ....	C

### TUNE-UP NOTES

**NOTE: In order to comply with emission standards, specifications shown on 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

#### COMPRESSION SPECIFICATIONS

Application	Specification
Compression Ratio	
232" .....	8.0:1
258" .....	8.3:1
Recommended Fuel	Unleaded (87 AKI Minimum)
Compression Pressure	
232" .....	140 psi
258" .....	150 psi
Max. Variation Between Cylinders	30 psi

### VALVE CLEARANCE

Hydraulic Lifters ..... Zero Lash

### VALVE ARRANGEMENT

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

### SPARK PLUGS

#### SPARK PLUG INSTALLATION

Application	Gap	Torque
All .....	.033-.038"	27 ft. lbs.

#### SPARK PLUG TYPE

Application	Champion No.
1975-77 .....	N12Y
1978 .....	<sup>1</sup> N13L
1979	
232" & 258" 1-Bbl. ....	<sup>1</sup> N13L
258" 2-Bbl. ....	<sup>2</sup> N14LY

<sup>1</sup> - RN13L is alternate plug.

<sup>2</sup> - RN14LY is alternate plug.

### HIGH TENSION WIRE RESISTANCE

Do not puncture spark plug wires. Remove spark plug wire and check resistance using an ohmmeter.

#### 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

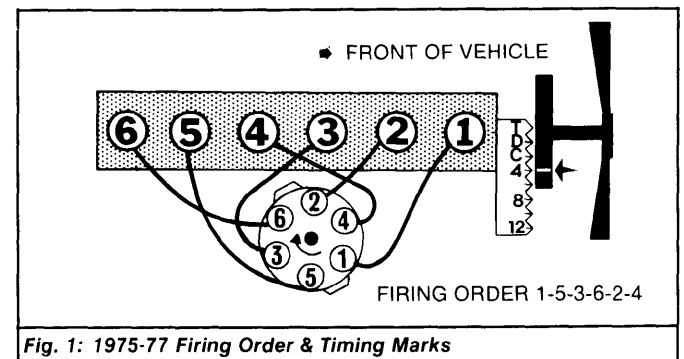
1975-77 models are equipped with Prestolite BID ignition system. 1978-79 models are equipped with a Solid State Ignition (SSI) system. No adjustments are required.

### IGNITION TIMING

**NOTE: All 1978-79 engines include a magnetic timing probe socket. 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 using 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 running at specified RPM.



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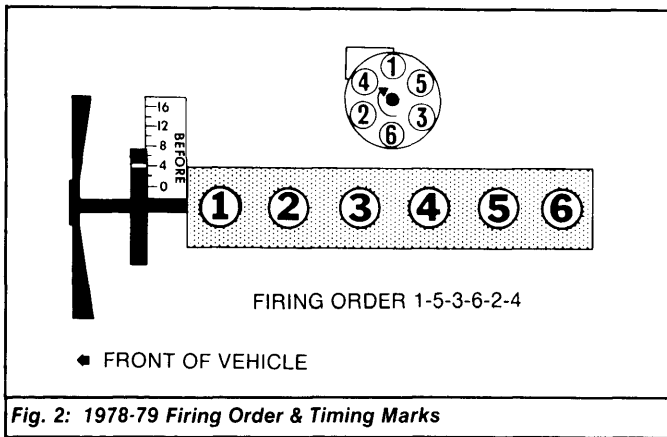


Fig. 2: 1978-79 Firing Order & Timing Marks

### IGNITION TIMING SPECIFICATIONS <sup>1</sup>

Application	Man. Trans.	Auto. Trans.
1975		
232" .....	5°@500 .....	5°@500 .....
258" .....	5°@500 .....	5°@500 .....
1976		
232" .....	8°@500 .....	8°@500 .....
258" .....	6°@500 .....	8°@500 .....
1977		
232"		
Federal .....	8°@500 .....	10°@500 .....
Altitude .....	10°@500 .....	10°@500 .....
Calif. ....	10°@500 .....	10°@500 .....
258"		
Federal .....	6°@500 .....	<sup>2</sup> 8°@500 .....
Altitude .....	10°@500 .....	10°@500 .....
Calif. ....		8°@500 .....
1978		
232" 1-Bbl. ....	8°@600 .....	10°@550 .....
258" 1-Bbl. ....		
Altitude .....	10°@600 .....	10°@550 .....
Calif. ....	6°@850 .....	8°@700 .....
258" 2-Bbl. ....	6°@600 .....	8°@600 .....
1979		
232" 1-Bbl. ....	8°@600 .....	<sup>3</sup> 10°@550 .....
258" 1-Bbl. ....		8°@700 .....
258" 2-Bbl. ....	4°@700 .....	<sup>4</sup> 8°@600 .....

<sup>1</sup> - Settings are BTDC at specified RPM; ±2°, and ±100 RPM.  
<sup>2</sup> - 6°BTDC on Matador models.  
<sup>3</sup> - 12°@550 RPM on models with 2.37 axle ratio.  
<sup>4</sup> - 12°@600 on Federal when above 4000 ft.

### HOT (SLOW) IDLE RPM

**NOTE: Do not idle engine for over 3 minutes at a time. If idle 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, automatic transmission in Drive (manual transmission in Neutral), A/C off and timing set, turn curb idle adjusting screw to obtain specified curb idle speed.
- 2) To adjust idle speed on models equipped with a solenoid, turn nut on solenoid plunger 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.

### 1975-76 CURB IDLE SPEED (RPM) <sup>1</sup>

Application	Man. Trans.	Auto. Trans.
1975		
All Models		
Federal .....	600 .....	550 .....
Calif. ....	600 .....	550 .....
1976		
232" & 258" 1-Bbl.		
Federal		
Matador .....	600 .....	550 .....
All Others .....	850 .....	550 .....
Calif. ....	700 .....	700 .....
258" 2-Bbl. ....	600 .....	700 .....

<sup>1</sup> - ±100 RPM.

### 1977-79 CURB IDLE SPEED (RPM) <sup>1</sup>

Application	Man. Trans.	Auto. Trans.
1977		
232"		
Fed. & Altitude .....	600 .....	550 .....
Calif. ....	850 .....	700 .....
258" 1-Bbl.		
Fed. & Altitude .....	600 .....	550 .....
Calif. ....		700 .....
258" 2-Bbl.		
Federal .....	600 .....	600 .....
Calif. ....		700 .....
1978		
232" 1-Bbl. ....	600 .....	550 .....
258" 1-Bbl. ....		
Altitude .....	600 .....	550 .....
Calif. ....	850 .....	700 .....
258" 2-Bbl. ....	600 .....	600 .....
1979		
232" 1-Bbl. ....	600 .....	550 .....
258" 1-Bbl. ....		700 .....
258" 2-Bbl. ....	700 .....	600 .....

<sup>1</sup> - ±100 RPM.

**NOTE: Some 1977 models with 258" 2-Bbl. engine may stumble or hesitate on acceleration or cruise. This condition may be caused by incorrect EGR valve operation or a lean mixture. On Federal models, use revised EGR valve (3230261). On all others with carb. No. 8117, install revised EGR valve (3230175) and gasket (3221283) and install carburetor kit (8129809).**

### 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 1 minute before continuing, repeat as necessary.**

### EXHAUST ANALYZER PROCEDURE

**CAUTION: Do not use this procedure on vehicles equipped with a catalytic converter.**

- 1) Warm engine to operating temperature. Adjust idle speed and set timing. On manual transmission vehicles with AIR system, disconnect air pump. Calibrate analyzer and connect to vehicle.

### ANALYZER CO LEVEL

Application	CO%
Without AIR System .....	1.0
Auto. Trans. With AIR System .....	0.8
Man. Trans. With AIR System .....	0.5

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2) If CO is not to specification, turn mixture screw 1/16 turn at a time. Allow 10 seconds for CO analyzer to stabilize. If unable to obtain CO level, remove mixture limit cap and repeat adjustment.

### TACHOMETER (LEAN DROP) PROCEDURE

- 1) Ensure engine is warmed up, idle speed is set correctly. Install a tachometer. All accessories must be off and air cleaner installed.
- 2) Adjust idle mixture screw(s) to full RICH stop (counterclockwise). Note position of screw head slot(s) inside limiter cap(s).
- 3) Install No. 10 sheet metal screw into limiter cap(s) and turn clockwise to remove caps. Discard caps.

**NOTE: Caps can also be removed by melting with a soldering iron. Be sure mixture screw(s) is not moved from position while removing limiters.**

- 4) Set parking brake. Place automatic transmission in Drive and manual transmission in Neutral.
- 5) With curb idle speed set with solenoid energized, unhook solenoid wire. Set idle with engine-off throttle stop screw to 500 RPM. Reconnect solenoid wire.
- 6) Starting from full RICH position, turn mixture screw(s) clockwise (leaner) until RPM drops noticeably.
- 7) Turn screws counterclockwise (richer) until highest RPM reading is reached. DO NOT turn screw(s) past high RPM point. This point is "Lean Best Idle".
- 8) Turn mixture screw(s) CLOCKWISE to obtain specified drop in RPM. On BBD carburetors, 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 6) through 8).**

9) Install Blue replacement limiter cap(s). Limiter tab should be positioned against full rich stop. Do not change mixture setting while installing caps.

### SPECIFIED RPM DROP

Application	Man. Trans.	Auto. Trans.
1975-76	1 50	25
1977		
Federal	50	<sup>2</sup> 175
Calif. & Altitude	100	25
1978-79	50	25

<sup>1</sup> - RPM drop is 35 on 1975 models with catalytic converter.  
<sup>2</sup> - RPM drop is 25 on Matador.

### DASHPOT ADJUSTMENT

Set throttle at curb idle position. Depress dashpot stem fully and measure clearance between stem and throttle lever. If not .060-.090", loosen lock nut and rotate dashpot to adjust.

### COLD (FAST) IDLE RPM

1) Adjust fast idle speed with engine at normal operating temperature and with hose to vacuum advance and EGR valve disconnected plugged and TCS solenoid disconnected.

### FAST IDLE SPEED (RPM) <sup>1</sup>

Application	Man. Trans.	Auto. Trans.
1975	1600	1600
1976		
258" 2-Bbl. Pacer	1700	1700
All Others	1600	1600
1977-79	1500	1600

<sup>1</sup> - ± 100 RPM.

2) Position fast idle adjusting screw in contact with second step and against shoulder of fast idle cam. Turn fast idle adjusting screw to obtain specified fast idle speed.

**NOTE: Some 1979 Federal models with 232" engine may have cold-engine hard starting problems. This problem may be caused by fuel evaporating from the fuel bowl and lowering the carburetor float bowl level. To correct this condition, install thermal check valve (8129872) between the charcoal canister and carburetor vent hose.**

**NOTE: Some 1978 models with 258" 1-Bbl. engines may develop hard starting and cold engine driveability problems. To correct these problems, install revised EGR valve (3230175) and gasket (3221283) and install carb. kit (8129810). To install the carburetor kit, remove choke housing cover and coil. Using a .081" drill bit, drill open heat inlet (hole at base of choke housing from exhaust manifold tube) in choke housing. Install new choke housing cover and set choke index to 1NR. Install new carburetor tag No. (7318).**

### AUTOMATIC CHOKE

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

### AUTOMATIC CHOKE SETTING

Application	Man. Trans.	Auto. Trans.
1975	1NR	1NR
1976		
Federal	2NR	1NR
Calif.	1NR	1NR
1977		
Federal	1NR	1NR
Altitude	1NR	<sup>1</sup> 1NR
Calif.	Index	Index
1978		
232" 1-Bbl.	1NR	1NR
258" 1-Bbl.		
Altitude	1NR	2NR
Calif.	Index	Index
258" 2-Bbl.	1NR	Index
1979		
232" 1-Bbl.	1NR	1NR
258" 1-Bbl.		Index
258" 2-Bbl.	1NR	1NR

<sup>1</sup> - On 1-Bbl. carb. models set at 2NR.

### FUEL PUMP

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

### FUEL PUMP SPECIFICATIONS

Application	Specification
Pressure	4-5 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)  
 1978-79 models use Solid State Electronic Ignition (SSI)  
**Other Data & Specifications** - Also see Motorcraft SSI or Prestolite BID article in DISTRIBUTORS & IGNITIONS SYSTEMS section.

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## American Motors 6-Cylinder (Cont.)

### IGNITION COIL

#### IGNITION COIL SPECIFICATIONS

Application	Specification
Pick-Up Sensor 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 .....	9000-12,000 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
232" & 258" 1-Bbl. ....	Carter YF
258" 2-Bbl. ....	Carter BBD

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