1975-79 TUNE-UP PROCEDURES
Jeep 6-Cylinder Tune-Up

ENGINE IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER

A 13 character Vehicle Identification Number (VIN) is stamped on a metal plate attached to left hand side of firewall under the hood. Seventh character of VIN identifies engine.

VIN CODE

Application	Code
1975-78 Models	
232"	E
258"	
1-Bbl. Carburetor	A
2-Bbl. Carburetor	C
1979 Models	
258" 2-Bbl.	C

ENGINE IDENTIFICATION CODE

Engine can be identified by the 4th character of engine code, located on a tag attached to right side of block (between No. 2 and 3 cylinders). The same identification code is used as the 7th character of the Vehicle Identification Number.

TUNE-UP NOTES

NOTE: Procedures and specifications for idle speed adjustment must be followed exactly as outlined. See HOT (SLOW) IDLE RPM in this article.

NOTE: 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 Emission Control 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.

ENGINE COMPRESSION

Measure compression pressure with engine at normal operating temperature, spark plugs removed, throttle and choke valves wide open and engine at cranking speed.

ENGINE COMPRESSION SPECIFICATIONS

Application	Specification
Compression Ratio	
1975-78 Models	8.0:1
1979 Models	8.3:1
Recommended Fuel	Unleaded (87 AKI Minimum)
Compression Pressure	120-150 psi
Maximum Pressure Variation	20 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 TYPE

Application	Champion No.
1975-77 Models	N-12Y
1978 Models	N-13L
1979 Models	RN-13L

SPARK PLUG INSTALLATION

Application	Gap	Torque
All Models	.033-.038"	22-33 Ft. Lbs.

HIGH TENSION WIRE RESISTANCE

Do not puncture spark plug wires with any type of probe. 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

All 1975-77 models use Prestolite Breakerless Inductive Discharge (BID) Ignition systems. The 1978-79 models use Motorcraft Solid State Ignition systems.

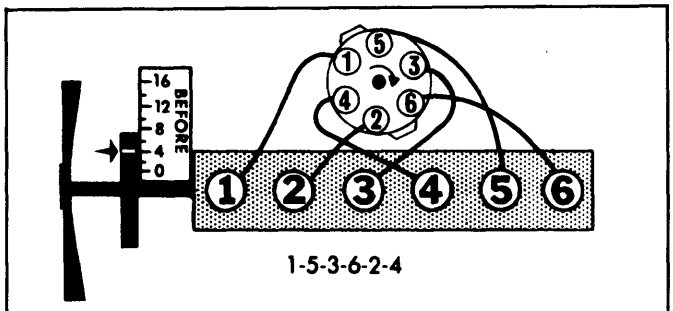

Fig. 1: 1975-77 Firing Order & Timing Mark Identification

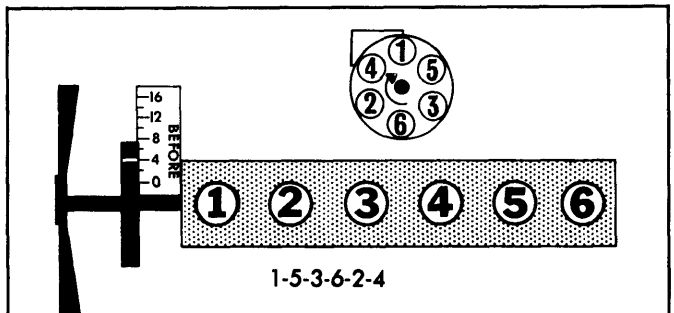

Fig. 2: 1978-79 Firing Order & Timing Mark Identification

IGNITION TIMING

1975-78 Models - Disconnect and plug vacuum hose at distributor. Connect timing light to engine. Start engine and adjust idle speed to 500 RPM with solenoid disconnected. Adjust timing to specification. Recheck timing after distributor hold-down is tightened.

1979 Models - 1) Timing is set by lining up a milled notch in vibration damper with graduated degree scale located on timing case cover. A socket cast into timing case cover is used with special magnetic timing probe equipment.

2) Disconnect and plug vacuum hose at distributor. Connect a tachometer and ignition timing light. If light has an advance control feature, turn control to OFF position.

3) Start engine and adjust idle speed to 500 RPM with solenoid disconnected. Adjust timing to specifications by loosening distributor hold-down clamp and turning distributor. Recheck timing after distributor hold-down is tightened.

1975-79 TUNE-UP PROCEDURES
Jeep 6-Cylinder Tune-Up (Cont.)

IGNITION TIMING SPECIFICATIONS (DEGREES BTDC)

Application	Man. Trans.	Auto. Trans.
1975 Models		
232"	5	5
258"	3	3
1976 Models		
232"	8	8
258"	8	6
1977-78 Models		
232"		
Federal	5	
High Alt.	[1] 10	
258"		
Calif.	8	8
Federal	[2] 3	[2] 8
High. Alt.	[1] 10	[1] 10
1979 Models		
CJ Models (258")		
Federal	6	4
Calif.	6	4
Cherokee, Wagoneer & Truck (258")	8	8

[1] – If operated below 4000 feet, adjust to 6°BTDC.
[2] – Set to 6 degrees BTDC on 2-barrel carburetor equipped models.

HOT (SLOW) IDLE RPM

1) Set parking brake and block drive wheels. Warm engine to normal operating temperature with transmission shift lever in Neutral (Drive on automatic transmission).
2) On carburetors without solenoid, turn curb idle adjusting screw to obtain specified curb idle speed. On carburetors with solenoid, turn nut on solenoid plunger to obtain specified idle speed. Tighten lock nut (if equipped). Disconnect solenoid wire and adjust curb idle screw to obtain 500 RPM idle speed. Reconnect solenoid wire.

HOT (SLOW) IDLE RPM SPECIFICATIONS

Application	Man. Trans.	Auto. Trans.
1975 Models		
California	600	
Federal		
Without EGR	700	
With EGR	650	550
1976 Models		
232"	600	600
258"	[1] 600	[2] 700
1977-78 Models		
CJ Models (232")		
Federal	850	
High Alt.	600	
CJ Models (258")		
Calif.	850	700
Federal	850	550
High Alt.	600	550
Cherokee, Wagoneer & Truck (258")	650	550
1979 Models		
CJ Models (258")		
Federal	700	600
Calif.	700	600
Cherokee, Wagoneer & Truck (258")	600	600

[1] – On Cherokee and Truck models, set idle speed to 650 RPM.
[2] – Set Federal automatic transmission models to 550 RPM.

IDLE MIXTURE

NOTE: The tachometer (lean drop) procedure is the only recommended idle mixture setting procedure for 1979 models. Before adjusting idle mixture, be sure engine is performing properly and curb idle has been properly set. Air cleaner should be installed. If mixture setting takes more than 3 minutes, run engine at 2000 RPM in Neutral for 1 minute.

EXHAUST GAS ANALYZER PROCEDURE

1975-78 Models Without Catalytic Converter – 1) With engine at normal operating temperature, at proper idle speed, and transmisison in Neutral (Drive on automatic transmission), calibrate analyzer and insert probe into tailpipe.
2) Observe CO level. Turn mixture screws(s) $^1/_{16}$ turn at a time in direction required to achieve specified CO level. Remove limiter cap(s) if necessary.
3) If limiter cap(s) is/are remove, carefully install new Blue limiter cap(s) with tab(s) positioned against full rich stop. Press cap(s) firmly and squarely into place.

IDLE MIXTURE SPECIFICATION

Application	CO%
1975-78 Models	
Man. Trans.	1.0-1.5
Auto. Trans.	0.8

TACHOMETER (LEAN DROP) PROCEDURE

1975-78 Models With Catalytic Converter & 1979 Models – 1) With engine at normal operating temperature and running at curb idle speed in Neutral (Drive on automatic transmision), turn idle mixture screw(s) to full rich stop (counterclockwise). Note position of screw head slot(s) inside limiter cap(s).
2) Remove and discard limiter cap(s). If screw position has changed, return to position noted before cap removal. Turn mixture screw(s) clockwise (leaner) until RPM begins to decrease.
3) Now turn screw(s) counterclockwise until highest RPM reading is obtained. This is lean best idle. Finally, turn mixture screw(s) clockwise until specified lean drop RPM is obtained. See IDLE MIXTURE RPM SPECIFICATIONS table.

NOTE: If final RPM differs more than 30 RPM from specified curb idle speed, reset curb idle and repeat mixture adjustment.

4) Carefully install new blue limiter cap(s) with tab(s) positioned against full rich stop. Press cap(s) firmly and squarely into place.

IDLE MIXTURE RPM SPECIFICATIONS

Application	Man. Trans.	Auto. Trans.
1975 Models		
232"	50	35
258"		
Without EGR	100	[1]
With EGR	50	[1]
1976 Models (232" & 258")	50	25
1977-78 Models (232" & 258")		
CJ Models	50	25
Cherokee, Wagoneer & Truck	[1]	[1]
1979 Models (258")		
Federal		
CJ Models	50	25
Cherokee, Wagoneer & Truck	25	25
Calif.	50	25

[1] – Adjust to lean best idle. There is no specified idle drop.

1975-79 TUNE-UP PROCEDURES
Jeep 6-Cylinder Tune-Up (Cont.)

COLD (FAST) IDLE RPM

Disconnect EGR vacuum line and plug carburetor port. Disconnect TCS solenoid. With vacuum hoses disconnected and plugged at distributor, set curb idle speed. With engine running at normal operating temperature, place fast idle speed screw on second step of fast idle cam, and against shoulder of high step. Adjust screw to obtain specified fast idle speed.

COLD (FAST) IDLE RPM SPECIFICATIONS

Application	Man. Trans.	Auto. Trans.
1975-76 Models (232" & 258")	1600	1600
1977 Models		
232"	1600	1600
258" [1]		
Calif.	1600	1600
Federal	1600	1600
High Alt.	1600	1800
1978 Models		
232"	1500	1500
258" [1]		
Calif.	1600	1600
Federal	1600	1600
High Alt.	1500	1500
1979 Models (258")	1500	1600

[1] – Set 2-barrel carburetor equipped engines to 1700 RPM.

AUTOMATIC CHOKE ADJUSTMENT

To adjust automatic choke, loosen coil housing retaining screws and rotate housing in direction indicated by arrow on face of housing. Adjust to specification and tighten housing retaining screws.

NOTE: Some 1978 Cherokee 258" 2-barrel carburetor equipped engines may experience hard starting when cold, to correct this condition replace choke housing baffle plate restrictor. Use replacement Baffle Plate Restrictor (129399). Replace restrictor as follows:

1) Remove air cleaner and choke cover. Remove and replace choke heat inlet baffle plate restrictor. Install choke cover, turn 1/4 rich and tighten retaining screws.

2) Open throttle valve to place fast idle screw on high step of cam. Pull diaphragm against stop, using 19 in. Hg of vacuum. Measure clearance between choke plate and air horn wall.

3) Adjust choke valve clearance to .150". Adjust clearance by bending fast idle cam link down to increase clearance or up to decrease clearance. Loosen choke cover retaining screws and set to index mark. Tighten retaining screws and install air cleaner.

AUTOMATIC CHOKE SPECIFICATIONS

Application	Setting
1975 Models (232" & 258")	1NR
1976 Models (232" & 258")	
CJ (Auto. Trans.)	2NR
All Others	1NR
1977-78 Models	
232"	
Federal	1NR
High Alt.	2NR
258"	
California	Index
Federal	1NR
High Alt. & 2-Bbl.	2NR
1979 Models (258")	1NR

DASHPOT ADJUSTMENT

1976-79 Models – With throttle set at curb idle, depress dashpot stem and measure clearance between stem and throttle lever for a .078" gap. Adjust gap by loosening lock nut and turning dashpot.

FUEL PUMP

FUEL PUMP SPECIFICATIONS

Application	Specification
Pressure (at Idle)	4-5 psi
Volume In 1 Min. (at Idle)	1 qt.
Vacuum (at Idle)	10 In. Hg

IGNITION SYSTEM

DISTRIBUTOR

All 1975-77 models use Prestolite Breakerless Inductive Discharge (BID) Ignition systems. The 1978-79 models use Motorcraft Solid State Ignition systems.

Other Data & Specifications – See Motorcraft and Prestolite Distributors in DISTRIBUTOR & IGNITION SYSTEMS section.

IGNITION COIL

IGNITION COIL SPECIFICATIONS

Application	Specification
Primary Resistance	1.13-1.23 Ohms
Secondary Resistance	
Prestolite	9000-15,000 Ohms
Motorcraft	7700-9300 Ohms
Coil Output (Minimum)	24,000 Volts

FUEL SYSTEM

CARBURETORS

Application	Model
1975-78 Models	
1-Bbl. Carburetor	Carter YF 1-Bbl.
2-Bbl. Carburetor	Carter BBD 2-Bbl.
1979 Models	Carter BBD 2-Bbl.

Other Data & Specifications – See Carter Carburetors in FUEL SYSTEMS section.