

TUNE-UP - 4-CYL

1988 Jeep Cherokee

1988 Jeep 4 Tune-Up
TUNE-UP

All Models

IDENTIFICATION

ENGINE IDENTIFICATION

Engine can be identified by the 4th character of the Vehicle Identification Number (VIN). The VIN is stamped on a plate attached to top left corner of instrument panel.

ENGINE CODES

Engine	Code
2.5L (150") TBI	H

TUNE-UP NOTES

NOTE: When performing tune-up procedures described in this article, the following notes and precautions must be followed.

Due to late changes and corrections, always refer to Emission Control Label in engine compartment before attempting tune-up. If manual and label differ, always use label specifications.

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

When performing tune-up on vehicles equipped with catalytic converter, do not allow or create an engine misfire in one or more cylinders for an extended period of time. Damage to converter may occur due to loading converter with unburned fuel.

TESTING

ENGINE COMPRESSION

Test compression with all spark plugs removed, throttle plates and choke valve wide open and engine at normal operating temperature. Crank engine through at least 5 compression strokes before recording reading.

COMPRESSION SPECIFICATIONS

Application	Specification
Compression Ratio	9.2:1
Compression Pressure	155-185 psi (10.9-13.0 kg/cm ²)
Max. Variation Between Cylinders	30 psi (2.1 kg/cm ²)

SPARK PLUGS

SPARK PLUG TYPE

Application	Champion No.
2.5L	RC-12LYC

SPARK PLUG SPECIFICATIONS

Application	Gap: In. (mm)	Torque: Ft. Lbs. (N.m)
2.5L035 (.89)	7-15 (9-20)

HIGH TENSION WIRE RESISTANCE

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

ADJUSTMENTS

VALVE ARRANGEMENT

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

VALVE CLEARANCE

All models are equipped with hydraulic lifters, which should be adjusted to zero lash.

IGNITION COIL WIRE

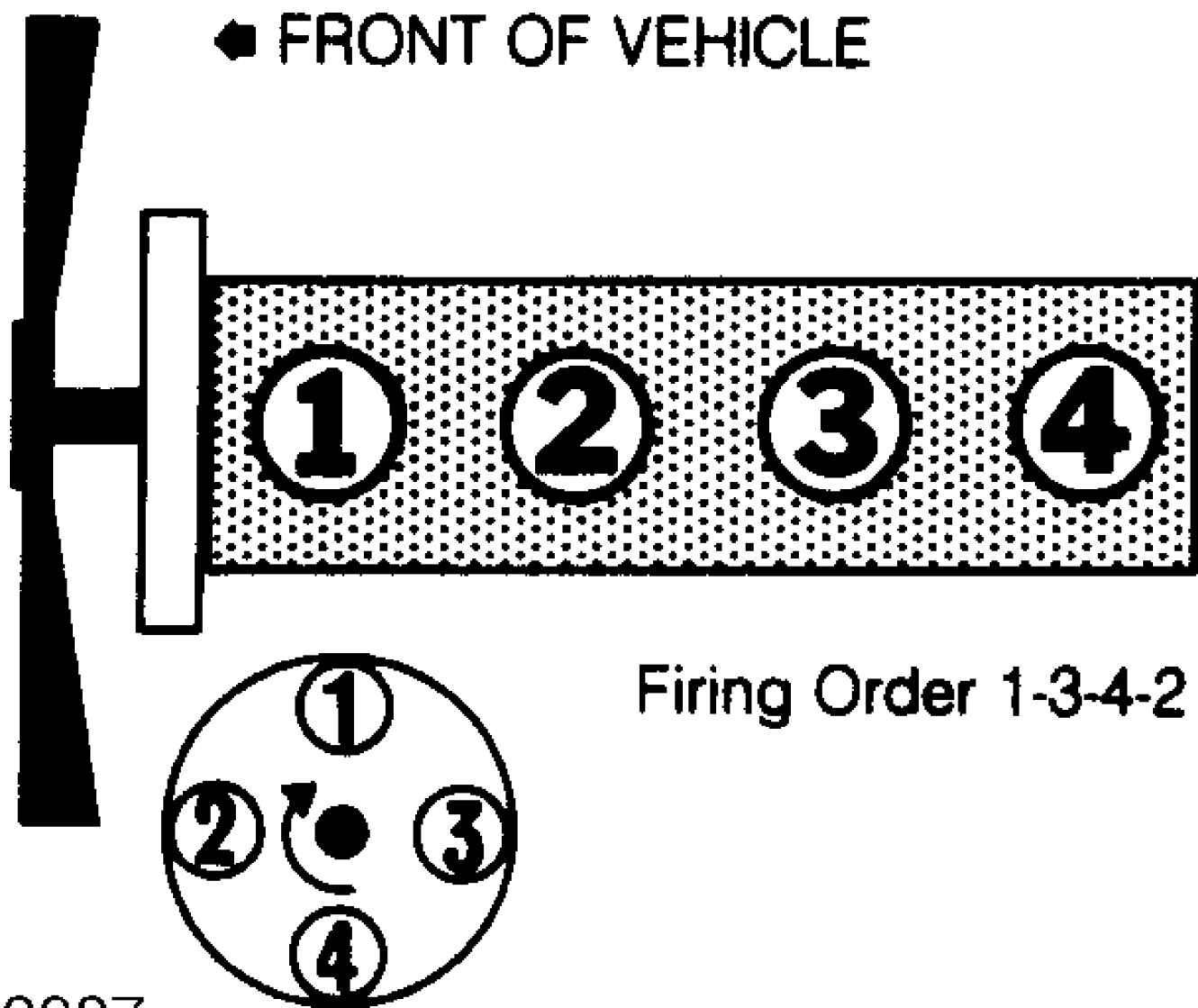
Remove ignition coil wire from coil and distributor cap. Check terminals for corrosion and clean if necessary. Check coil wire resistance. Replace wire if resistance is excessive.

HIGH TENSION WIRE RESISTANCE (OHMS)

Wire Length (In.)	Minimum	Maximum
0-15	3000	10,000
15-25	4000	15,000
25-35	6000	20,000
Over 35	8000	25,000

DISTRIBUTOR

All models are equipped with a Renix solid state ignition module. Renix system uses a TDC sensor mounted near the flywheel. The distributor consists of a cap and rotor. Its only function is to distribute high voltage to appropriate spark plug. No adjustments are required on either system.



9087

Fig. 1: 2.5L Firing Order & Distributor Rotation

IGNITION TIMING

NOTE: No adjustment is possible on models with Renix ignition.

HOT (SLOW) IDLE RPM

NOTE: Adjust ISC motor plunger only after replacing ISC motor.

Idle Speed Control (ISC) Motor Plunger

1) Remove air cleaner, turn off A/C (if equipped) and warm engine to normal operating temperature. Connect tachometer negative lead to diagnostic connector terminal "D1-3" and positive lead to connector terminal "D1-1". See Fig. 2. Turn ignition off. ISC plunger should fully extend.

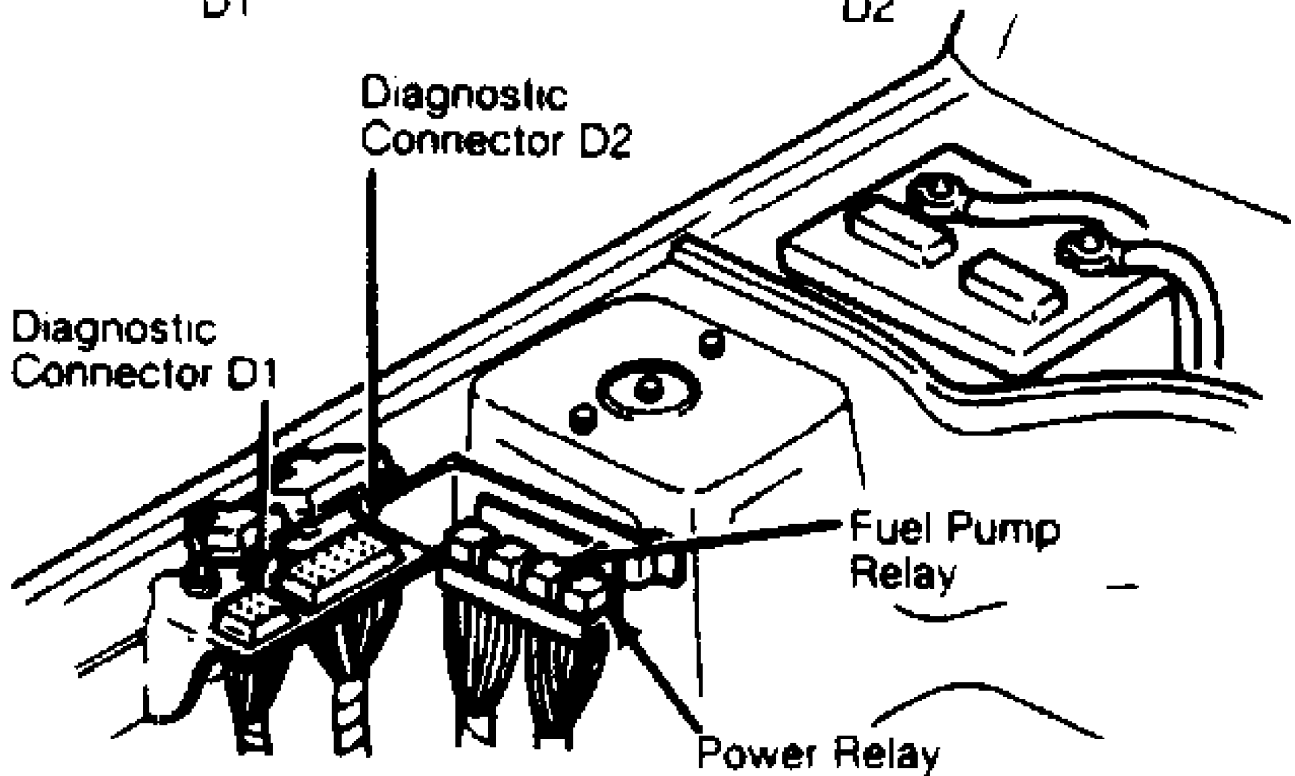
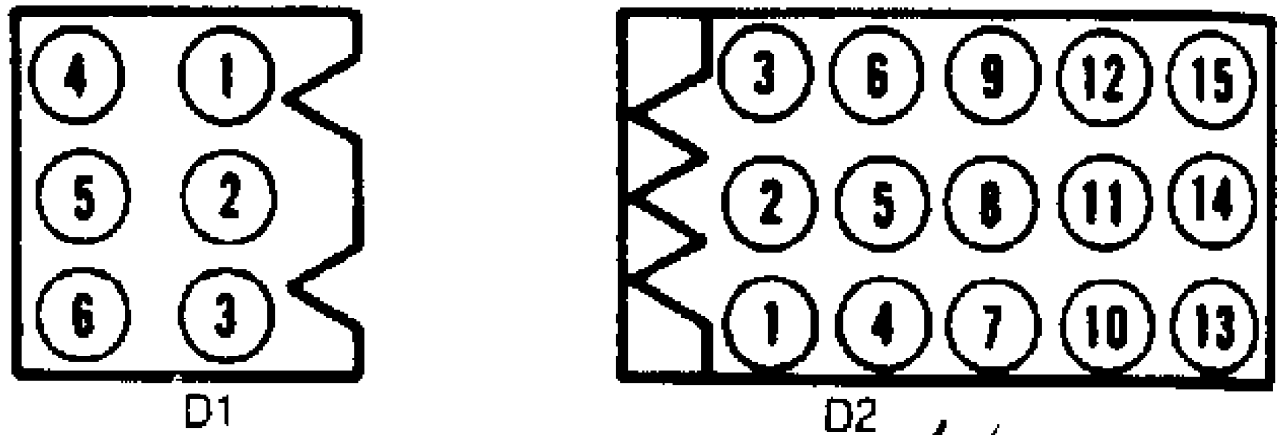


Fig. 2: TBI Diagnostic Connector & Terminal ID
 Courtesy of Chrysler Motors.

2) With plunger extended, disconnect ISC motor electrical connector. Start engine. Engine idle speed should be 3300-3700 RPM. If not, turn plunger hex head to obtain 3500 RPM. See Fig. 3.

3) To fully retract ISC motor, hold closed throttle switch plunger inward while opening throttle. Closed throttle switch plunger should not touch throttle lever when throttle is closed. If this occurs, check linkage and/or cable for binding.

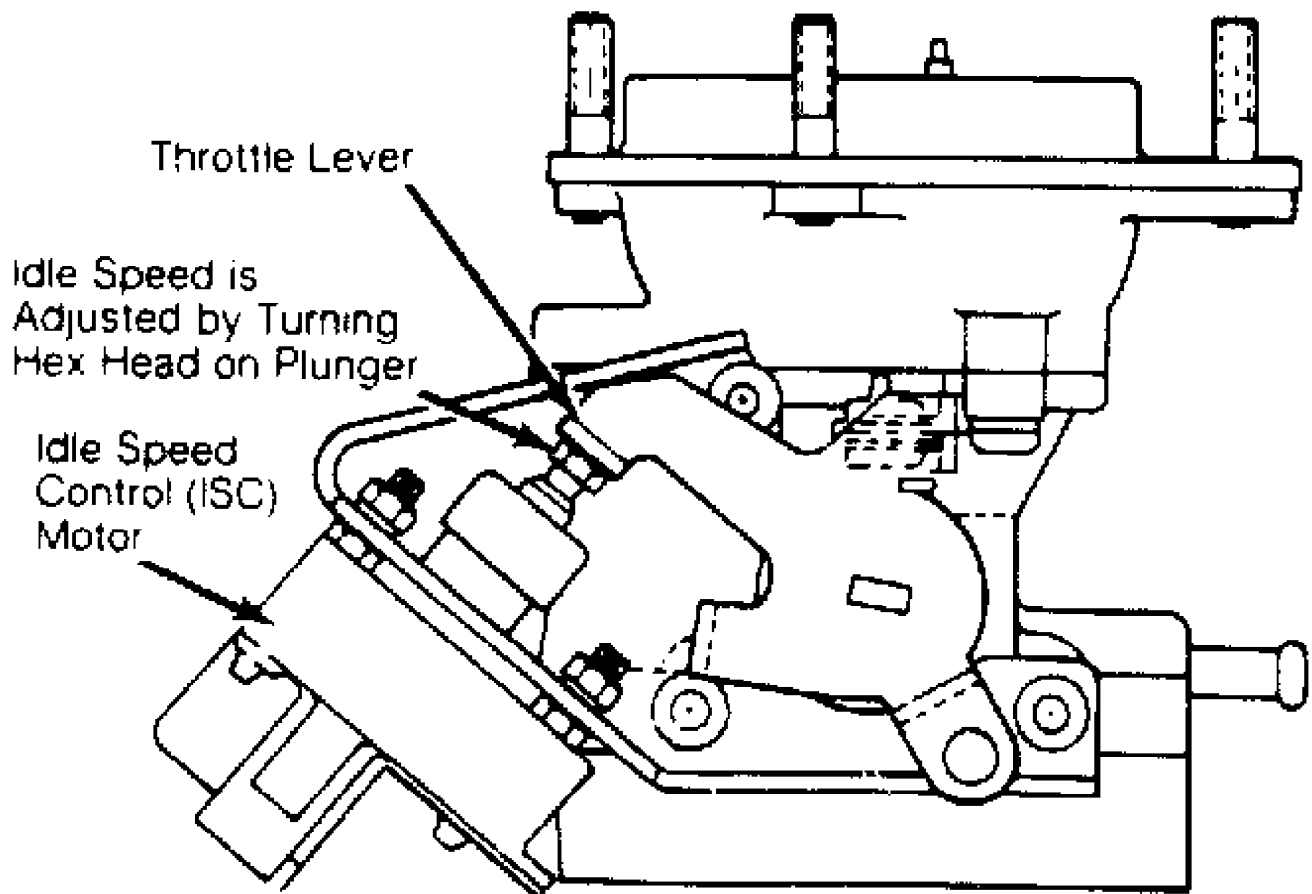


Fig. 3: TBI Idle Speed Control (ISC) Motor Adjustment
 Courtesy of Chrysler Motors.

4) Connect ISC motor connector. Turn ignition off for 10 seconds. ISC motor should fully extend. Restart engine. Engine speed should momentarily be about 3500 RPM and return to idle speed. Turn ignition off and disconnect tachometer. Apply sealant to adjustment screw threads. Install air cleaner.

IDLE SPEED (RPM)

Application	Curb Idle
2.5L TBI (ISC Plunger Extended)	3500

NOTE: Holding plunger inward may create an intermittent trouble code in ECU memory. To clear ECU memory, turn ignition off and disconnect negative battery cable for 10 seconds.

THROTTLE POSITION SENSOR (TPS) ADJUSTMENT

NOTE: On some models, it may be necessary to remove throttle body from intake manifold, to access sensor wiring harness.

Automatic Transmission

- 1) Locate the square TPS connector. Note connector terminal identification stamped on the back of the connector. Turn ignition on.
- 2) Connect voltmeter through back of wiring harness

connector. Connect negative voltmeter lead to terminal "D" and positive voltmeter lead to terminal "A" to check input voltage. DO NOT disconnect TPS connector.

3) Hold throttle plate closed against idle stop and note voltage. Input voltage should be approximately 5 volts. Disconnect voltmeter positive lead and connect to terminal "B" to measure output voltage.

4) With throttle plate closed, measure the output voltage. The output voltage should be approximately .2 volts. If output voltage is not within specification, loosen TPS retaining screws.

5) Partially tighten one retaining screw. Rotate TPS to obtain correct output voltage. Tighten retaining screws once correct voltage is obtained.

Manual Transmission

1) Turn ignition on. Connect voltmeter through back of wiring harness connector. Connect negative voltmeter lead to terminal "B" and positive voltmeter lead to terminal "C". DO NOT disconnect TPS connector. See Fig. 4.

2) Rotate and hold throttle plate in wide open position. Ensure throttle linkage contacts stop. Note voltmeter reading. Voltage reading should be 5 volts at wide open throttle. Return throttle plate to closed throttle position. Disconnect voltmeter positive lead from sensor terminal "C" and connect it to terminal "A".

3) Rotate and hold throttle plate in wide open position. Ensure throttle linkage contacts stop. Note voltmeter reading. Output voltage should be 4.6-4.7 volts. If voltage is not as specified, loosen sensor mounting screw. Loosen upper sensor mounting screw for small adjustments and lower screw for large adjustments.

4) Adjust sensor. Tighten sensor mounting screws. Remove voltmeter and return throttle plate to closed position. Replace sensor if specified output voltage cannot be obtained.

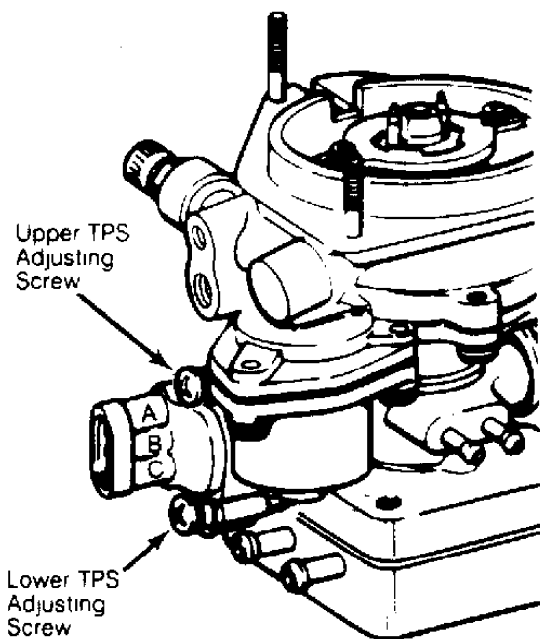


Fig. 4: Adjusting Throttle Position Sensor (Man Trans)
Courtesy of Chrysler Motors.

IDLE MIXTURE ADJUSTMENT

NOTE: Idle mixture adjustment is not possible on TBI models.

COLD (FAST) IDLE RPM

NOTE: Fast idle is not adjustable on TBI models.

SERVICING

EMISSION CONTROL

See EMISSIONS section.

SPECIFICATIONS

IGNITION

Distributor

All models are equipped with Renix solid state ignition.

IGNITION COIL RESISTANCE - OHMS @ 75°F (24°C)

Application	Primary	Secondary
2.5L4-.8	2500-4000

FUEL SYSTEM

FUEL INJECTION

Application	Model
2.5L	Renix TBI

Fuel Pump

The 2.5L engine with TBI uses an electric fuel pump located in the tank.

FUEL PUMP SPECIFICATIONS

Application	Pressure: psi (kg/cm ²)	Volume: Pts. (L)
2.5L (TBI)	14.5 (1.0)	N/A

BATTERY

BATTERY SPECIFICATIONS

Application **	Cold Cranking (1) Amps	Reserve Capacity Minutes
Standard	421	75
Optional	452	81

(1) - At 0°F (-18°C).

STARTER

All 2.5L engines use a Bosch positive engagement starter.

STARTER SPECIFICATIONS

Application	Volts	Amps	Test RPM
2.5L	12	75	2900

ALTERNATOR

All 2.5L engines use a Delco-Remy 10SI or 12SI alternator with integral regulator.

ALTERNATOR SPECIFICATIONS

Application **	Field Current Draw @ 12 Volts	Rated Amp Output
Standard	4.0-5.0 Amps	56
Optional	4.0-5.0 Amps	66
Optional	4.0-5.0 Amps	78

ALTERNATOR REGULATOR

All 2.5L models use Delco-Remy nonadjustable regulators, integral with alternator.

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

Application	Voltage
2.5L	13.9-14.9

BELT ADJUSTMENT

BELT ADJUSTMENT - TENSION IN LBS. (KG) USING STRAND TENSION GAUGE

Application	New Belt	Used Belt
"V" Belts (1)	125-155 (57-70)	90-115 (41-52)
Serpentine	180-200 (82-91)	140-150 (64-68)

(1) - Adjust new P/S belt to 120-140 lbs. (54-64 kg).

SERVICE INTERVALS

REPLACEMENT INTERVALS

Component	Interval (Miles)
Air Filter	30,000
Fuel Filter	30,000
Engine Oil & Filter	7500
PCV Valve	30,000
Spark Plugs	30,000

CAPACITIES

FLUID CAPACITIES

Application	Quantity
Auto. Trans. (Dexron II)	
Wrangler	8.0 qts. (7.6L)
All Others	8.5 qts. (8.0L)
Cooling System	
Wrangler	9.0 qts. (8.5L)
All Others	10.0 qts. (9.5L)
Crankcase (Includes Filter)	4.0 qts. (3.8L)
Drive Axle	
Front	2.5 pts. (1.2L)
Rear	
Commanche	
Standard Capacity	2.5 pts. (1.2L)
Metric Ton Axle	4.8 pts. (2.3L)
All Others	2.5 pts. (1.2L)
Fuel Tank	
Cherokee & Wagoneer	
Standard	13.5 gals. (51L)
Optional	20 gals. (76L)
Comanche	
Standard	16 gals. (60L)
Optional	23.5 gals. (89L)
Wrangler	
Standard	15 gals. (57L)
Optional	20 gals. (75L)
Manual Transmission	
AX4	7.8 pts. (3.7L)
AX5	7.4 pts. (3.5L)
BA 10/5	3.5 pts. (1.6L)
Transfer Case (Dexron II)	
Wrangler	3.25 pts. (1.5L)
All Others	
Command Trac	2.2 pts. (1.0L)
Select Trac	3.0 pts. (1.4L)

SYSTEM REFRIGERANT CAPACITIES

Application	Ozs.
All Models	36