

1982 General Motors 4 Tune-Up

TUNE-UP

ENGINE IDENTIFICATION

Engines can be identified by the 8th digit of the Vehicle Identification Number (VIN). The VIN number is stamped on a plate attached to the left top side of dash.

VIN ENGINE CODE

| Application | VIN Code |
|-------------------------|----------|
| 1.9L (119") 2-Bbl. | A |

TUNE-UP NOTES

NOTE: For other items affecting Tune-Up, see FUEL SYSTEMS Section or EMISSION CONTROL Section.

NOTE: Due to changes and corrections, 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, decal specifications prevail.

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.

ENGINE COMPRESSION

When making compression checks, disconnect the ignition switch connector pink wire from high energy ignition system. With air cleaner removed and throttle and choke wide open, crank engine through at least 4 compression strokes.

COMPRESSION SPECIFICATIONS

| | |
|----------------------------|----------------------------------|
| Compression Ratio | 8.4:1 |
| Compression Pressure | 170 psi (12 kg/cm ²) |
| Minimum Pressure | 100 psi (7 kg/cm ²) |
| Maximum Variation | 10 psi (.7 kg/cm ²) |

VALVE CLEARANCE

Check rocker arm bracket nuts for looseness and retighten as necessary before adjusting valves. Adjust valves with engine cold.

VALVE ADJUSTMENT

| Application | Clearance |
|---------------|----------------|
| Intake | .006" (.15 mm) |
| Exhaust | .010" (.25 mm) |

VALVE ARRANGEMENT

Right Side — All Exhaust
Left Side — All Intake

SPARK PLUGS

SPARK PLUG SPECIFICATIONS

| Application | Gap In. (mm) | Torque Ft. Lbs. (N.m) |
|------------------|-----------------|--------------------------|
| All Models | .043 (1.1) | |

SPARK PLUG TYPE

| Application | AC Number |
|------------------|-----------|
| All Models | R42XLS |

HIGH TENSION WIRE RESISTANCE

Carefully remove ends of wire from spark plug and distributor. Using an ohmmeter, check resistance while gently twisting wire. If resistance is not to specifications, or fluctuates from infinity to any value, replace cable.

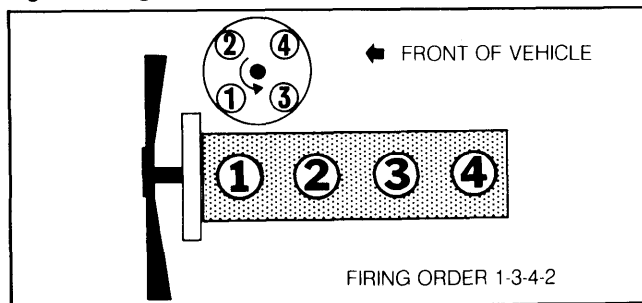
RESISTANCE (Ohms)

| Application | Ohms |
|------------------|------------------------|
| All Models | 31,500-73,500 per foot |

DISTRIBUTOR

All models are equipped with a Nippondenso electronic ignition distributor. No adjustments are necessary.

Fig. 1: Firing Order



IGNITION TIMING

1) Install timing light with an adapter between No. 1 spark plug and No. 1 spark plug wire, or use an inductive type pickup. Do not puncture wire.

2) Check or adjust ignition timing with engine at normal operating temperature, distributor advance line disconnected and plugged, and automatic transmission in "D".

TIMING SPECIFICATIONS (Degrees BTDC@RPM)

| Application | Man. Trans. | Auto. Trans. |
|------------------|--|--------------|
| All Models | 1 6°@900 | 6°@900 |
| 1 | — Federal and High Altitude models 6°@800 RPM. | |

TUNE-UP (Cont.)

HOT (SLOW) IDLE RPM

1) Warm engine to normal operating temperature and place transmission in "Neutral". Disconnect and plug distributor vacuum hose, canister purge line and EGR vacuum line.

2) Pinch off idle compensator vacuum line by bending rubber hose. Adjust throttle adjusting screw to obtain specified idle RPM. If vehicle is equipped with air conditioning, turn A/C on maximum cold and high blower.

3) On vehicles with emission labels CBY, CBW, and CMJ, disconnect and ground single wire from back of A/C compressor. On all models, open throttle momentarily to assure solenoid is fully extended and allow to close. Adjust screw on throttle lever to obtain solenoid RPM.

IDLE SPEED SPECIFICATIONS

| Application | Idle RPM | Solenoid RPM |
|------------------|------------------|-------------------|
| All Models | ¹ 900 | ² 1900 |

¹ — Federal manual transmission models 800 RPM.

² — Manual transmission models 900 RPM.

IDLE MIXTURE

FEDERAL MODELS

1) Remove carburetor. Remove idle mixture screw plug with a screw driver inserted into slit on carburetor lower flange. Reinstall carburetor. Block drive wheels and place transmission in neutral.

2) Disconnect and plug distributor vacuum line, idle compensator and EGR vacuum lines. With engine at normal operating temperature, turn idle mixture screw all the way in and back out 1½ turns. Adjust throttle screw to 850 (Man. Trans.) or 950 (Auto. Trans.) RPM.

3) Adjust setting of idle mixture screw to achieve maximum speed. Reset throttle screw to reach RPM listed in step 2). Turn idle mixture screw clockwise until engine speed drops 50 RPM.

4) If vehicle has air conditioner, turn A/C on to maximum cold and high blower. Open throttle approximately ½ and allow to close. Adjust speed up controller to set idle at 900 RPM.

CALIFORNIA MODELS

1) Remove carburetor. Remove idle mixture screw plug with screw driver inserted through slit on carburetor lower flange. Reinstall carburetor. Make idle speed and mixture adjustment with engine at normal operating temperature.

2) Disconnect and plug distributor vacuum line. Block idle compensator line by bending hose. Connect dwell meter to dwell meter lead on carburetor. Turn idle mixture screw all the way in and back out 1½ turns. Adjust throttle screw to obtain an idle of 850-950 RPM.

3) Adjust idle mixture screw to obtain an average dwell of 36°. Reset throttle adjusting screw to 850-950 RPM.

4) If vehicle is equipped with air conditioning, turn on A/C to maximum cold and set blower on high. Open throttle ½ and allow to close. Adjust speed up controller screw to set idle at 900 RPM.

COLD (FAST) IDLE RPM

When engine is warmed up and vacuum lines of distributor, idle compensator and EGR valve are disconnected and plugged, fast idle speed should be approximately 3200 RPM. Adjusted throttle valve opening at first step of fast idle cam should be 15-17° for manual transmission models and 17-19° for automatic transmission models. Adjust if necessary by turning fast idle screw.

AUTOMATIC CHOKE

Automatic choke is non-adjustable.

FUEL PUMP PRESSURE & VOLUME

NOTE: Information not available from manufacturer.

EMISSION CONTROL

NOTE: See appropriate article in EMISSION CONTROL Section.

GENERAL SERVICING

IGNITION

DISTRIBUTOR

All models are equipped with a Nippondenso solid state distributor. No adjustments are necessary.

DISTRIBUTOR PICKUP COIL RESISTANCE (Ohms)

| | |
|------------------|----------|
| All Models | 500-1500 |
|------------------|----------|

IGNITION COIL

COIL RESISTANCE (Ohms)@75°F (24°C)

| Application | Primary | Secondary |
|------------------|---------|-------------|
| All Models | 0.9-1.4 | 7300-11,100 |

FUEL SYSTEMS

CARBURETORS

| Application | Model |
|------------------|----------------|
| All Models | Hitachi DCH340 |

ELECTRICAL

BATTERY

BATTERY SPECIFICATIONS

| Application | Cold Cranking Amps. ¹ | Reserve Capacity Minutes |
|--------------------------------|----------------------------------|--------------------------|
| All Models | 315 | 75 |
| ¹ — At 0°F (-18°C). | | |

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GENERAL SERVICING (Cont.)

STARTER

All models are equipped with Hitachi starters.

STARTER SPECIFICATIONS

| Application | Volts | Amps. | Test RPM |
|-------------|-------|-------|----------|
| All Models | 12 | 70 | 6000 |

ALTERNATOR

All models are equipped with Delco alternators with integral voltage regulator.

ALTERNATOR SPECIFICATIONS

| Application | Rated Amp. Output |
|-------------|-------------------|
| All Models | 37 |

Field Current Draw@12 volts ¹

All Models 4.0-5.0 amps.

¹ — At 80°F (27°C).

ALTERNATOR REGULATOR

All models are equipped with Delco nonadjustable voltage regulators, integral with alternator.

ADJUSTMENTS

BELT ADJUSTMENT

Tension Using Strand Tension Gauge

| Application | Lbs. (Kg) |
|------------------------|-----------|
| New Belt | |
| Air Conditioning | 157 (71) |
| Power Steering | 135 (61) |
| Used Belt ¹ | |
| Air Conditioning | 90 (41) |
| Power Steering | 67 (30) |

¹ — Any belt that has been rotated at least 1 complete revolution of the engine pulley.

CAPACITIES

FLUID CAPACITIES

| Application | Quantity |
|----------------------------------|--------------------|
| Cooling System | 9.4 qts. (8.9L) |
| Crankcase | 4.0 qts. (3.8L) |
| Automatic Transmission | |
| Overhaul | 19.0 pts. (8.9L) |
| Refill | 7.0 pts. (3.3L) |
| Manual Transmission ¹ | |
| Rear Axle | 3.5 pts. (1.5L) |
| Fuel Tank | |
| Standard | 13.0 gals. (49.2L) |
| Optional | 20.0 gals. (75.7L) |

¹ — Add fluid to bottom of filler plug hole.

SERVICE INTERVALS

REPLACEMENT INTERVALS

| Component | Interval (Miles) |
|--------------------|------------------|
| Fuel Filter | 15,000 |
| Spark Plugs | 30,000 |
| PCV Valve & Filter | 30,000 |
| Air Filter | 30,000 |