

# 1-52 1981 General Motors Diesel Tune-Up

## TUNE-UP

### ENGINE IDENTIFICATION

#### VEHICLE IDENTIFICATION NUMBER CODE

Eighth digit of Vehicle Identification Number (VIN) is used to identify engine. VIN is located at top left side of dashboard and visible through windshield.

#### VIN Engine Codes

Application	Code
5.7L (350") V8 Diesel .....	N

#### ENGINE IDENTIFICATION NUMBER

Engine code number is located on label attached to left valve cover, or stamped in left front corner of block below cylinder head.

#### TUNE-UP NOTES

**NOTE** — In order to comply with emission standards, specifications shown on engine compartment emission control decal must be used in all instances.

**NOTE** — Ensure that all diesel injection lines and fittings are thoroughly cleaned before removing. Cap all lines, nozzles, and fittings when removed. Dirt in system may damage injection pump.

### ENGINE COMPRESSION

**NOTE** — Prior to checking compression, be sure batteries are fully charged. When turning engine over during test, 6 "puffs" per cylinder should be used to obtain reading.

Compression Ratio .....	22.5:1
Compression Pressure .....	Min. 275 psi
Max. Variation Between Cylinders .....	30%
Recommended Fuel .....	ⓐ Diesel 2-D
ⓐ — Use 1-D for vehicles operated below 20°F.	

1) Remove air cleaner and install air crossover screen cover. Disconnect electrical wire from fuel solenoid terminal on injection pump.

2) Disconnect glow plug wiring and remove all glow plugs. Use compression tester (J-26999) to test individual cylinders.

**CAUTION** — Do not add oil to cylinders during compression check as extensive engine damage will result.

### VALVE CLEARANCE

Hydraulic Lifters .....

Zero Lash

#### VALVE ARRANGEMENT

All Models  
I-E-I-E-E-I-E-I (Front to rear, both banks)

### GLOW PLUGS

All Models ..... G.M. 5613680  
Torque ..... 12 Ft. Lbs.

### INJECTOR TIMING

Engine is properly timed when pump timing mark is lined up between edges of pump adapter mark. If marks are not aligned, adjustment is necessary. Engine must not be running.

1) Loosen 3 pump retaining nuts, then align timing marks on pump and adaptor. Tighten nuts to 18 ft. lbs.

**NOTE** — Use a 3/4" wrench on the boss at front of injection pump to aid in rotating pump for alignment.

2) Check and tighten fuel line fittings if necessary. Adjust throttle rod. See *Linkage Adjustment in G.M. Diesel Fuel Injection article in FUEL SYSTEMS Section.*

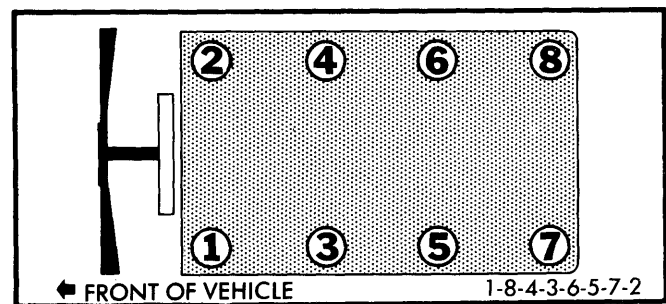


Fig. 1 Diesel Firing Order

### IDLE SPEED (RPM)

**NOTE** — Use magnetic pick-up tachometer (J-26925) to check idle speed. Insert probe in timing indicator hole.

1) Disconnect and plug parking brake release vacuum hose at release cylinder (below dashboard). Set parking brake and block drive wheels.

2) Warm engine to normal operating temperature, then stop engine. Disconnect connector at coolant temperature switch (top left rear of engine). Use a jumper wire to bridge terminals in connector. Do not allow jumper to touch ground.

3) Start engine and adjust solenoid until solenoid RPM is obtained. Turn engine off and remove jumper wire, then reconnect connector at temperature switch.

4) Start engine and check slow idle speed. If adjustment is necessary, use slow idle adjustment screw to adjust.

#### Idle Speed (RPM)

Application	Curb Idle	Solenoid Energized
All Models .....	600	750

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## TUNE-UP (Cont.)

### INJECTION PUMP FUEL PRESSURE

1) Remove air crossover and install screened covers (J-26996-2 for Calif., or J-26996-10 for Fed.). Remove pressure tap plug.

2) Remove seal from pressure tap plug and install on adaptor (J-29382). Screw adaptor into pump housing, then install low pressure gauge and adaptor (J-28526).

3) Install magnetic pick-up tachometer (J-26925). Check pressure with engine running at 1000 RPM with transmission selector in "P". Pressure should be 8-12 psi with no more than 2 psi variation.

4) If pressure is zero, remove electrical connector from housing pressure cold advance terminal. If pressure rises to normal, check engine temperature switch. If pressure does not rise, remove injection pump cover and check that solenoid is not binding.

5) If pressure is too high, check fuel return line for restrictions. Test pressure with return fuel flowing into a container. If pressure is correct, replace or clean fuel return lines. If not, repair injector pump.

6) Remove test equipment and install pressure tap plug using new seal. Install air crossover.

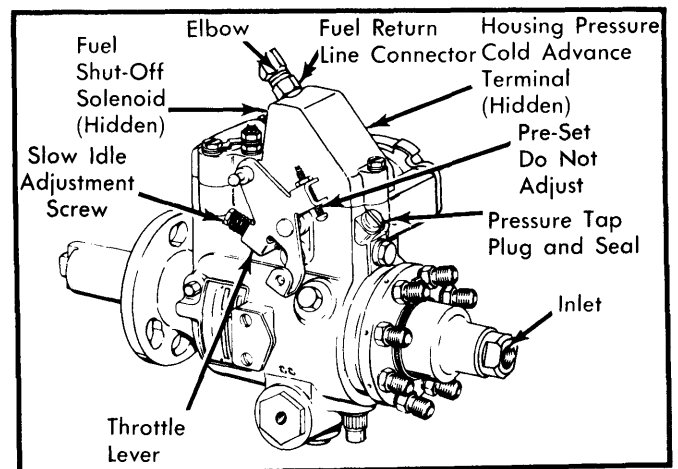


Fig. 2 Diesel Injection Pump Adjustment Locations

### EXHAUST EMISSION SYSTEMS

See EXHAUST EMISSION SYSTEMS section.

## GENERAL SERVICING

### FUEL INJECTION

Application	Type
All Models .....	Gear Driven Mechanical Pump (High Pressure Rotary)

**Other Data & Specifications** — See *Tune-Up and General Motors Diesel Fuel Injection* in **FUEL SYSTEMS** Section.

### ALTERNATOR

Application	Rated Amp Output
Cadillac .....	100
All Others	
Standard .....	55
Optional .....	63,70

### ELECTRICAL

#### BATTERY

Application	Cold Crank Amps at 0°F	Reserve Capacity Minutes
Standard .....	465	115
Optional .....	550	135

All models use 2 batteries, connected in parallel.

#### STARTER

Delco-Remy solenoid actuated with overrunning clutch.

#### Starter Specifications

Application	Volts	Amps	Test RPM
All Models .....	9	100-230	8000-14,000

### ALTERNATOR REGULATOR

Delco-Remy nonadjustable, integral with alternator.

### COOLING CAPACITIES

Application	Quantity
Caprice, Impala .....	16.2 qts.
Bonneville, Catalina, Grand Prix .....	17.0 qts.
Cutlass .....	17.4 qts.
Electra, LeSabre, Riviera, 88, 98, Toronado .....	18.0 qts.
Eldorado, Seville .....	18.4 qts.
DeVille, Fleetwood .....	23.7 qts.

**GENERAL SERVICING (Cont.)**

<b>TRANSMISSION &amp; DIFFERENTIAL CAPACITIES</b>	
<b>Application</b>	<b>Quantity</b>
Auto. Trans. (Dexron II)	
THM 200C .....	7.0 pts.
THM 350C .....	6.3 pts.
Auto. Transaxle (Dexron II)	
THM 325 .....	10.0 pts.
Rear Axle (SAE 80W-90) .....	4.3 pts.
Final Drive (SAE 80W-90) .....	3.3 pts.

<b>OIL &amp; FUEL CAPACITIES</b>	
<b>Application</b>	<b>Quantity</b>
Crankcase (Including filter) .....	7.0 qts.
Fuel Tank	
Cutlass Cruiser .....	18.0 gals.
Cutlass, Grand Prix .....	20.0 gals.
Eldorado, Riviera, Seville, Toronado .....	23.0 gals.
All Other Models	
Station Wagon .....	22.0 gals.
Exc. Station Wagon .....	27.0 gals.

<b>BELT ADJUSTMENT</b>		
<b>Tension (Lbs.) Using Strand Tension Gauge</b>		
<b>Application</b>	<b>New Belt</b>	<b>Used Belt</b>
A/C Compressor .....	135-165	90-100
All Others .....	110-140	70-80

<b>REPLACEMENT INTERVALS</b>	
<b>Component</b>	<b>Interval (Miles)</b>
Oil Filter (Every oil change) .....	5000
Air Filter .....	30,000
Fuel Filter .....	30,000
Crankcase Ventilation Breather	
Clean .....	15,000
Replace .....	30,000