1980 G.M. Diesel V8 Tune-Up

TUNE-UP

ENGINE IDENTIFICATION

Engine is a 350" (5.7 litre) diesel V8. Engine code letters are suffix of Engine Identification Number. Number is on a label located on rear face of left valve cover.

MODEL IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER

The Vehicle Identification Number appears on the upper left side of instrument panel pad. Engine can be identified by 3rd digit of number.

VIN Engine Codes

Application	VIN Code
350" Diesel	Z

TUNE-UP NOTES

NOTE – *Due to late changes and corrections, always refer to Engine Tune-Up Decal in engine compartment before attempting tune-up. If the decal specifications are different than the specifications presented here, use the decal specifications.*

CAUTION – *Adjustment of injectors or internal adjustments of injection pump must be done in a properly equipped injector shop with clean environment.*

ENGINE COMPRESSION

NOTE – *Prior to checking compression, be sure battery is fully charged to avoid battery run-down. When turning engine over during test, 6 "puffs" per cylinder should be used to obtain reading.*

Compression Ratio	22.5:1
Compression Pressure	275 psi (min.)
Max. Pressure Variation	①
Recommended Fuel	Diesel 2-D②

① – Lowest cylinder must read within 70% of highest.
② – Use 1-D for vehicle operation below 20° F (−7° C).

1) Remove air cleaner. Install air crossover screened cover (J-26996-1).

2) Disconnect electrical wire from fuel solenoid terminal of injection pump.

3) Disconnect glow plug wires. Remove all glow plugs.

4) Use suitable compression tester (J-26999 or equivalent) to test individual cylinders. Crank engine.

NOTE – *Compression should build up evenly and rapidly to proper level while rotating engine past six compression strokes. If piston rings are worn or cracked, compression will read low on 1st stroke, will rise on each stroke thereafter, but will not reach normal level.*

VALVE TAPPET CLEARANCE

Lifters are hydraulic and are not adjustable. They should have zero lash.

NOTE – *Some engines were produced with both standard and .010" oversize lifters installed. Oversize lifters can be identified by an "O" etched on side of lifter boss. Diesel engine lifters are NOT interchangeable with gasoline engine lifters.*

GLOW PLUGS

Glow plugs are small 6-volt heaters operated by an electronic relay. They cycle on and off, powered by 12 volts to give rapid heating. Glow plug light on dash should cycle on and off as plugs do. If test lamp is connected to glow plugs and ground, it should flash on and off. Relay can be heard clicking on and off after ignition has been on for approximately 6 seconds.

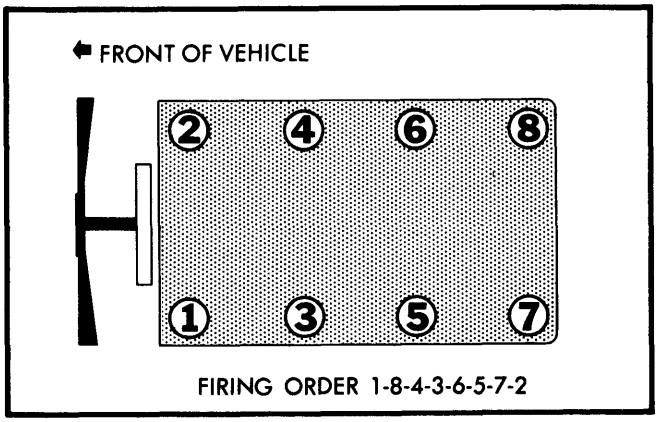

Fig. 1 General Motors 350" Diesel Firing Order

INJECTOR TIMING

1) With engine off, use tool (J-26987 or equivalent) to loosen (3) pump retaining nuts.

2) Align mark on injection pump with mark (line) on adaptor and tighten nuts to 35 ft. lbs. *See Fig. 2.*

NOTE – *To rotate pump to align marks, use a ¾" open end wrench on boss at front of injection pump.*

3) Now adjust throttle rod (engine off).

TUNE-UP (Cont.)

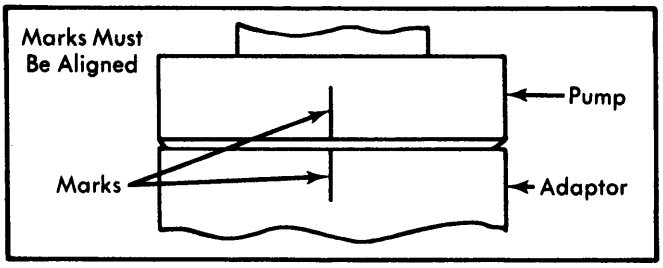

Fig. 2 Timing Marks on Injection Pump & Adaptor

4) With transmission vacuum regulator valve installed, loosen throttle rod lock nut and shorten rod several turns.

5) Rotate bellcrank to full throttle stop. Then lengthen rod until injection pump lever touches injection pump full throttle stop. Release bellcrank. Tighten lock nut on throttle rod. Check idle adjustment.

SLOW IDLE RPM

NOTE – *Use magnetic pickup tachometer (J-26925 or equivalent) to check idle speed. Insert probe in timing indicator hole.*

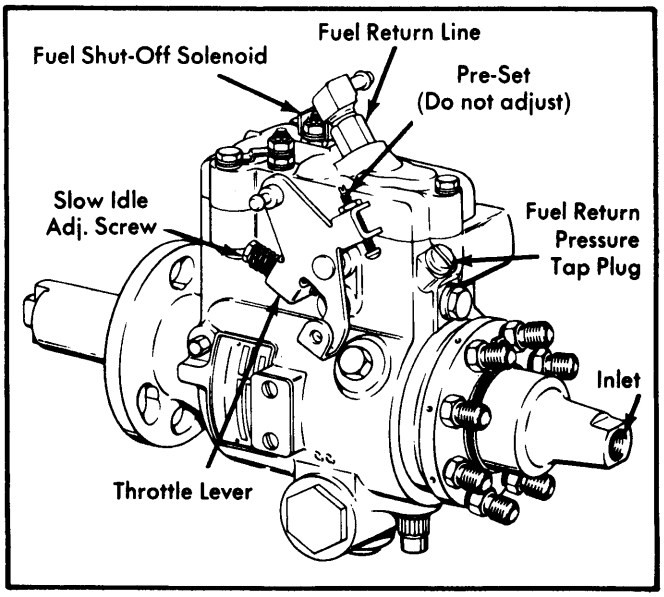

Fig. 3 Diesel Injection Pump Adjustment Locations

1) Block driving wheels and engage parking brake. Start engine.

2) Adjust slow idle screw on injection pump to obtain 575 RPM. See *Fig. 3*. Automatic transmission should be in "D" (Drive) and A/C should be OFF.

IDLE SOLENOID ADJUSTMENT (FAST IDLE RPM)

1) Block driving wheels and engage parking brake. Start engine. Be sure fast idle solenoid is energized by attaching a jumper wire across fast idle temperature switch connector terminals. This switch is located in left rear corner of intake manifold. Connector removal is usually not necessary.

2) Advance throttle momentarily to be sure fast idle solenoid is fully extended and to check that it is energized.

3) Adjust the extended solenoid to 650 RPM with shift lever in "D" (Drive). Remove jumper wire after adjustment.

INJECTION PUMP FUEL PRESSURE

1) Remove fuel return pressure tap plug. See *Fig. 3*.

2) Screw pressure tap adaptor (J-28526 or equivalent) into pump housing. Be sure to use seal from tap plug on tap adaptor before installing. Connect a low pressure gauge to adaptor.

3) Connect magnetic pickup tachometer (J-26925 or equivalent). Place shift lever in PARK position. Start engine.

4) Raise engine speed to 1000 RPM. Pressure should be as follows:

Pressure	8-12 psi
Maximum Fluctuation	2 psi

5) If pressure does not read within specifications, replace fuel return line connector assembly. Recheck pressure and if still not within specifications, remove injection pump for repair.

6) Remove tachometer, gauge and adapter. Install new seal on plug and tighten plug in housing.

INJECTION NOZZLES

If engine starts, but idles roughly, check injection nozzles as follows:

1) Start engine. Loosen injection line fitting at each nozzle, one at a time. Be sure to direct fuel away from sources which could cause fire.

2) If, when an injection line fitting is loosened, idle speed or quality does NOT change, replace that nozzle and repeat test.

3) Disconnect fuel return system from nozzles on one bank of engine at a time. Start engine. Observe fuel seepage at nozzles. Replace any nozzle that leaks excessively. Torque nozzle clamp bolt to 25 ft. lbs.

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GENERAL SERVICING

FUEL INJECTION

Application	Type
5.7 litre Diesel	Gear Driven Mechanical Fuel Injection Pump (High Pressure Rotary)

Other Data & Specifications – *See G.M. V8 Diesel Fuel Injection article in FUEL SYSTEMS Section.*

ELECTRICAL

BATTERIES

Two 89-5 12 volt negative (–) ground sealed top units. One battery is located on each side of engine compartment and they are wired in parallel.

STARTER

Minimum Cranking Speed ..... 100 Engine RPM

Free Speed Voltage ..... 9 at 8000-13,000 RPM
Free Speed Amperage① ..... 40-140 at 8000-13,000 RPM

① – Includes solenoid.

Other Data & Specifications – *See Delco Starters in ELECTRICAL Section.*

ALTERNATOR

Alternator supplies current to both batteries. There are no switches or relays in charging circuit.

Application	Amp. Output
Standard	63

Other Data & Specifications – *See Delco Alternators in ELECTRICAL Section.*

ALTERNATOR REGULATOR

Delco non-adjustable integral with alternator.
Operating Voltage (at 85° F) ..... 13.8-14.8 V

Other Data & Specifications – *See Delco Alternators and Regulators in ELECTRICAL Section.*

ENGINE

INTAKE MANIFOLD TIGHTENING

Dip entire bolt in oil before installing. Tighten all bolts in sequence shown to 15 ft. lbs., then repeat sequence, tightening to 40 ft. lbs.

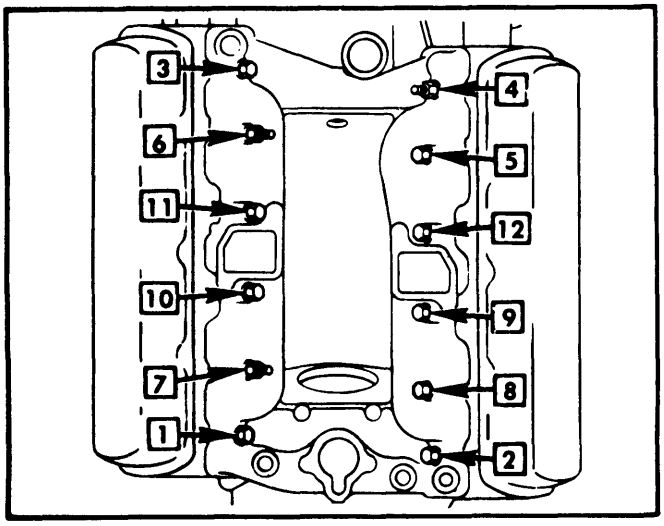

Fig. 4 Intake Manifold Tightening Sequence

FILTERS & CLEANERS

Filter or Cleaner	Service Interval (Miles)
Oil Filter	3000
Air Cleaner Element	30,000
Fuel Filter	15,000
Automatic Transmission Filter	100,000
Breather Cap and Filter	Check 6000 Replace 30,000
Ventilation Regulator Valve	Replace 30,000

CAPACITIES

Application	Quantity
Crankcase	①7.0 qts.
Auto. Trans. (Dexron)	②6.0 pts.
Rear Axle (SAE 80W-90)	③
Cooling System	18.0 qts.
Fuel Tank	
Short W.B. (Main or Auxiliary)	16.0 gals.
Long W.B. (Main or Auxiliary)	20.0 gals.

① – Includes filter. Oil MUST be designated BOTH SE & CC. If CD appears anywhere on can, do not use.
② – Total fill is 10.0 quarts.
③ – Fill to bottom of filler hole.

BELT ADJUSTMENT

Tension (Lbs.) Using Strand Tension Gauge

Application	New Belt	Used Belt
Air Conditioning	135-165	85-95
All Others	110-140	70-80