

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 located at the base of the steering column on "P" models, and on the upper left corner of the dash on all other models.

Application	VIN Engine Codes	VIN Code
4.1L (250") 2-Bbl	D
4.8L (292") 1-Bbl	T

SPARK PLUGS

Application	Gap (In.)	Torque (Ft. Lbs.)
All Models	.035	17-27

Spark Plug Type

Application	AC No.
4.1L	R45TS
4.8L	R44T

TUNE-UP NOTES

CAUTION — *IDLE SPEED ADJUSTMENT: Procedures and specifications for idle speed adjustment must be followed exactly as outlined. See "Hot (Slow) Idle RPM" under Tune-Up.*

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.*

NOTE — *SERIES IDENTIFICATION: The vehicle series numbers used in this article have been abbreviated for common reference to both Chevrolet and GMC models. Chevrolet models use numerical designation as listed; GMC models are identified as follows: 10 = 1500; 20 = 2500; 30 = 3500.*

NOTE — *For tune-up purposes, "Light Duty" refers to vehicles up to 8500 lbs. "Heavy Duty" refers to vehicles exceeding 8500 lbs.*

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)

Wire Length	Maximum
Under 24"	30,000 Max.
Over 24"	50,000

DISTRIBUTOR

All models are equipped with High Energy Ignition systems and no adjustments are required.

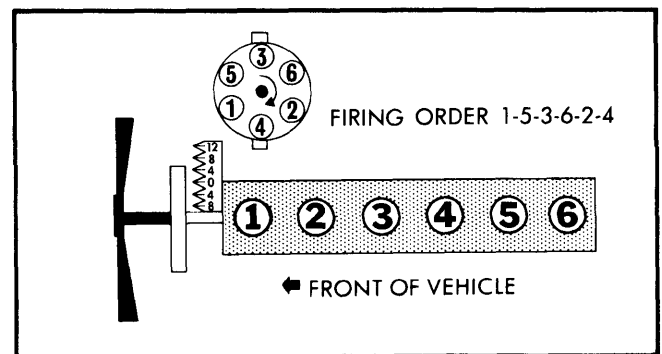


Fig. 1 Firing Order and Timing Marks

ENGINE COMPRESSION

Compression Ratio	
4.1L	8.3:1
4.8L	8.0:1
Compression Pressure	130 psi
Maximum Pressure Variation Between Cylinders	30 psi

When making compression checks, disconnect ignition switch pink wire from High Energy Ignition system. With air cleaner removed and throttle and choke wide open, crank engine through at least four compression strokes.

VALVE CLEARANCE

Hydraulic Lifters One turn down from zero lash.

VALVE ARRANGEMENT

E-I-I-E-E-I-I-E-E-I-I-E

IGNITION TIMING

NOTE — *Engines are equipped with a receptacle for magnetic probe timing equipment, located 10° ATDC. Do not use this location for timing with a conventional light.*

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 engine timing with engine at normal operating temperature, distributor advance line disconnected and plugged, and automatic transmission in "D". On heavy duty vehicles, leave transmission on all models in neutral.

TUNE-UP (Cont.)

Ignition Timing Specifications (Degrees BTDC@RPM)

Application	Man. Trans.	Auto. Trans.
4.1L	10@750	ⓐ10@650
4.8L	8@700	8@700

ⓐ - Set Decal AAC and ADC to 8°.

HOT (SLOW) IDLE RPM

4.1L - 1) Warm engine to normal operating temperature and place transmission selector in "D". Disconnect and plug EGR and canister purge hoses at carburetor.

2) Open throttle slightly to allow solenoid to extend, then adjust curb idle by turning screw in back of solenoid. Disconnect solenoid wire and set base idle speed with idle speed screw. Reconnect solenoid wire and all hoses.

4.8L - 1) Warm engine to normal operating temperature. Leave transmission in neutral on all models. Adjust solenoid idle speed by turning solenoid assembly in or out.

2) Disconnect solenoid wire and set base idle speed by turning hex head screw in rear of solenoid. Reconnect solenoid wire.

3) Connect hose from hand vacuum pump to throttle return control (if equipped). Apply 20 in. Hg and adjust plunger to obtain 1500 RPM. Reconnect hoses and remove test equipment.

Slow Idle Speed (RPM)

Application	Curb Idle	Base Idle
4.1L		
Man. Trans.	750ⓐ	450
Auto. Trans.	650ⓑ	450
4.8L		
Man. Trans.	700	450
Auto. Trans.	700	450

ⓐ - Set Decal ADA to 800 RPM.

ⓑ - Set Decal AAC to 700 RPM.

IDLE MIXTURE

NOTE - Idle mixture should be adjusted only after major carburetor overhaul, throttle body replacement, or failure of emissions test.

PROPANE ENRICHMENT PROCEDURE

4.1L MODELS ONLY

1) Set parking brake and block drive wheels. On vehicles equipped with vacuum parking brake release, disconnect and plug hose at brake. With engine at normal operating temperature, air conditioning "OFF", and vacuum advance hoses disconnected and plugged at distributor, connect tachometer to engine.

2) Set timing to specifications and reconnect vacuum advance hose. Set idle speed to specifications. Disconnect crankcase ventilation tube from air cleaner. Using tool J-26911 (or

equivalent), insert hose with rubber stopper (from propane valve) into ventilation tube opening in air cleaner. Be sure propane cartridge is vertical.

3) With engine idling in "D" or neutral, open propane supply control valve slowly. Add propane until engine speed begins to drop from over-richness. Note maximum engine speed.

NOTE - If rich speed drop cannot be obtained, check for empty propane cartridge.

4) Engine speed should rise above normal idle by amount specified. If so, mixture is correct. Proceed to step 7).

5) If speed is not within specifications, remove idle mixture screw plugs. (On 2SE, carburetor must be removed and punch driven through bottom of throttle body to remove plug.) Seat screws, then back out until engine just runs. Place transmission in "D", then back out screw slowly until maximum idle speed is reached. Then set idle to enriched idle specification.

6) Turn each mixture screw in (clockwise) 1/8 turn at a time until idle speed reaches specification. Recheck enriched speed with propane. If not within specification, repeat steps 5) and 6), beginning with shift lever placement. Then, check and adjust fast idle speed.

7) Turn off engine. Remove propane tool, connect crankcase ventilation tube and reconnect all vacuum hoses.

Propane Enriched RPM

Application	Man. Trans.	Auto. Trans.
4.1L Engines		
Federal	100ⓐ	20-30
Calif.	100	30

ⓐ - Set carburetor No. 17081621 to 75 RPM, 17081627 to 130 RPM, and 17081629 to 150 RPM.

LEAN DROP PROCEDURE

4.8L MODELS ONLY

1) Set parking brake and block drive wheels. Remove air cleaner for access to carburetor, but keep vacuum hoses connected. Disconnect and plug other hoses as directed on Emission Control Tune-Up decal in engine compartment.

2) With engine at normal operating temperature, choke open, air conditioning "OFF", connect a tachometer to engine. Disconnect and plug distributor vacuum advance hose. Check ignition timing and adjust if necessary. Reconnect vacuum advance hose.

3) Using care not to bend idle mixture screw, remove limiter cap from screw. Lightly seat mixture screw, then back out just enough so engine will run. Place transmission in neutral.

4) Back out mixture screw slowly until maximum idle speed is obtained. Adjust idle speed screw so enriched RPM is 0-75 RPM faster than idle speed. Turn mixture screw in until specified idle RPM is reached. Reconnect all hoses and install air cleaner, then recheck idle speed.

TUNE-UP (Cont.)

COLD (FAST) IDLE RPM

4.1L — Place fast idle screw on high step of fast idle cam. Turn screw to adjust fast idle RPM.

4.8L — Place cam follower on high step of fast idle cam. Support lever with pliers and bend tang in or out to adjust fast idle RPM.

NOTE — On models with manual choke, rotate fast idle cam clockwise to farthest "UP" position.

Fast Idle Speed (RPM)

Application	Man. Trans.	Auto. Trans.
4.1L	2000	2200
4.8L	2400	2400

AUTOMATIC CHOKE

All choke caps are retained with rivets and are non-adjustable.

FUEL PUMP PRESSURE & VOLUME

For pressure test, pinch off fuel return line (if equipped), connect pressure gauge to fuel line at carburetor, and hold pressure gauge at level of pump outlet. For vacuum test, disconnect fuel line at carburetor, install hose on line and route gas back to tank.

Pressure (At Idle) 4.5-6.0 psi
 Volume (At Cranking Speed) 1 pt. in 30 seconds or less

EMISSION CONTROL

See appropriate article in EMISSION CONTROL Section.

GENERAL SERVICING

IGNITION

DISTRIBUTOR

Delco High Energy Ignition

Other Data & Specifications — See Tune-Up and Delco distributors in ELECTRICAL Section.

IGNITION COIL

Coil Resistance (Ohms@75° F)

Application	Primary	Secondary
All Models	0.4-1.0	6000-30,000

Coil Output

At all engine speeds 25-35KV Minimum

IGNITION PICKUP COIL

Resistance 500-1500 ohms

FUEL SYSTEMS

CARBURETOR

Application	Model
4.1L	Rochester 2SE 2-Bbl.
4.8L	Rochester 1ME 1-Bbl.

Other Data & Specifications — See Tune-Up and Rochester Carburetors in FUEL SYSTEMS Section.

ELECTRICAL

BATTERY

Application	Cold Cranking Amps@0° F	Reserve Capacity Minutes
Standard		
4.1L	275	60
4.8L	350	80
Optional	430	100

STARTER

Delco Overrunning Clutch

Starter Specifications

Application	Volts	Amps	Test RPM
4.1L	9	50-80	5500-10,500
4.8L	9	50-80	3000-6000

Other Data & Specifications — See Delco Starters in ELECTRICAL Section.

ALTERNATOR

Delco |Integral Regulator

Application	Rated Amp. Output
Standard	
4.1L	37
4.8L	
G20, G30 & "P" Models	42
All Others	37
Optional (All)	61, 80

Other Data & Specifications — See Delco Alternators in ELECTRICAL Section.

GENERAL SERVICING (Cont.)

ALTERNATOR REGULATOR

Delco — Nonadjustable, integral with alternator.

Operating Voltage @85° 12.5-15.5 volts

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

BELT ADJUSTMENT

Tension (Lbs.) Using Strand Tension Gauge

Application	New Belt	①Used Belt
Air Conditioning	135-145	90-100
All Others	120-130	70-80

① — One that has been rotated at least one complete revolution of the engine pulley.

REPLACEMENT INTERVALS

Components	Intervals (Miles)
Oil Filter	15,000
Fuel Filter	15,000
Spark Plugs	22,500
PCV Valve and Filter	30,000
Air Filter	30,000

CAPACITIES
(COOLING)

Application	Quantity (Qts.)
4.1L	
Van Models	17.0 qts.
All Other Models	15.0 qts.
4.8L	
"P" Models	13.5 qts.
All Other Models	15.0 qts.

CAPACITIES
(EXCEPT COOLING)

Application	Quantity
Crankcase	
4.1L	①4.0 qts.
4.8L	①5.0 qts.
Automatic Transmission (Dexron)	
THM 350	
Overhaul	10.0 qts.
Refill	6.0 pts.
THM 400	
Overhaul	11.0 qts.
Refill	7.0 pts.
Manual Transmission (SAE 80W-90)	
3-Speed	3.0 pts.
4-Speed	4.0 qts.
Transfer Case (SAE 10W-30)	5.0 pts.
Front Axle (SAE 80W-90)	5.0 pts.
Rear Axle (SAE 80W-90)	②
Power Take-Off (SAE 80W-90)	5.0 qts.
Fuel Tank	
Pickup Models	
Short Wheelbase (Each Tank)	16.0 gals.
Long Wheelbase (Each Tank)	20.0 gals.
Van Models	
Standard	22.0 gals.
Optional	33.0 gals.
Suburban Models	
Standard	25.0 gals.
Optional	31.0 or 40.0 gals.
Blazer Models	
Standard	25.0 gals.
Optional	31.0 gals.
"P" Models	
Standard	31.0 gals.
Optional	40.0 gals.

① — Add one quart with filter change.

② — Fill to bottom of filler hole.