1975-79 TUNE-UP PROCEDURES
General Motors 6-Cylinder Tune-Up

ENGINE IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER

The Vehicle Identification Number (VIN) is located on a plate on the upper left part of instrument panel, except on "P" models. On "P" models, the plate is attached to front of dash and toe panel, just left of steering column.

Engine VIN also appears on vehicle identification and rating plate, found on left door pillar or inside face of dash and toe panel and on service parts identification sticker, located on glove compartment door or inner front fender skirt of "C" and "K" models, the inner hood panel of "G" models, and mailed separately on "P" models.) On 1979 models, 3rd character of VIN is engine code.

1979 VIN CODES

Application	Code
250" 2-Bbl.	D
292" 1-Bbl.	T

ENGINE IDENTIFICATION CODE

Engine codes are a suffix of Engine Identification Number. Number is stamped on pad located at right side of cylinder block, just rear of distributor. Engines on 1979 models can also be identified by 3rd character of Vehicle Identification Number.

1975 ENGINE IDENTIFICATION CODES

Application	Man. Trans.	Auto. Trans.
250"	TTF, TTK, TTM, TTS, TTU	TTL, TTR, TTT, TTW
292"	TUF, TUM, TUH	TUJ, TUK, TUL

1976 ENGINE IDENTIFICATION CODES

Application	Man. Trans.	Auto. Trans.
250"	TBA, TBC, TAT, TAA	TBB, TBD, TAS
292"	THR, THH	THK, THC, THT, THU

1977 ENGINE IDENTIFICATION CODES

Application	Man. Trans.	Auto. Trans.
250"		
Calif.	TBA, TBC, TBJ, TAT	TBD, TAS, TBK
Federal	TAA, TBA, TAT, TBF	TBB, TBH, TAS
292"		
Calif.	THR	THT, THU
Federal	THH	THK, THL

1978 ENGINE IDENTIFICATION CODES

Application	Man. Trans.	Auto. Trans.
250"		
Calif.	TCL, TCR	TCM, TCS
Federal	TAC, TAF, TAR, TAC, TAF, TAR	TAB, TAH, TAM, TAS, TBB
292"		
Calif.	THS	
Federal	THJ, THM, THY, TUF	THC, THF, TUH

1979 ENGINE IDENTIFICATION CODES

Application	Man. Trans.	Auto. Trans.
250"		
C10 & C20		
Federal	TAJ	TAK
Calif.	TAA, TAW	TAD, TAX
G10-30		
Federal	TAL	TAS
Calif.	TAT	TAD, TDC, TDW
K10 Federal	TAJ	TAK
292"		
P10-30		
Federal		TH8, THB, THH
Calif.		THH
High Alt.		THH
C30 & K30	THA	THH

TUNE-UP NOTES

NOTE: Idle speed adjustment procedures and specifications for idle speed adjustment must be followed exactly as outlined. See HOT (SLOW) IDLE RPM in this article.

NOTE: Due to changes and corrections, always refer to Emission Control Tune-Up Decal in engine compartment before tune-up. If specifications conflict between this manual and decal, use decal specifications.

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 may occur.

NOTE: 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 6000 lbs. GVW or less and "Heavy Duty" to vehicles 6001 lbs. or more. 1977 California and Federal models built after 1978, "Light Duty" refers to vehicles 8500 lbs. GVW or less and "Heavy Duty" to vehicles 8501 lbs. or more.

ENGINE COMPRESSION

When making compression checks, disconnect ignition switch Pink wire from High Energy Ignition (HEI) system. With air cleaner removed and throttle and choke wide open, crank engine through at least 4 compression strokes.

ENGINE COMPRESSION SPECIFICATIONS

Application	Specification
Compression Ratio	
250"	8.25:1
292"	8.0:1
Compression Pressure	130 psi
Maximum Pressure Variation	20 psi
Recommended Fuel	Unleaded (87 AKI Minimum)

1975-79 TUNE-UP PROCEDURES
General Motors 6-Cylinder Tune-Up (Cont.)

VALVE CLEARANCE

Hydraulic Lifters - One turn down from zero lash.

VALVE ARRANGEMENT

E-I-I-E-E-I-I-E-E-I-I-E (Front-to-Rear)

SPARK PLUGS

SPARK PLUG TYPE

Application	AC No.
250"	
1975	R46TX
1976	
Light Duty	R46TS
Heavy Duty	R46T
1977-79	
Light Duty	R46TS
Heavy Duty	R46T
292"	
1975	R44TX
1976-79	R44T

SPARK PLUG INSTALLATION

Application	Gap	Torque
1975	.060"	15 Ft. Lbs.
1976-79	.035"	15 Ft. 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.

WIRE RESISTANCE (OHMS)

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

DISTRIBUTOR

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

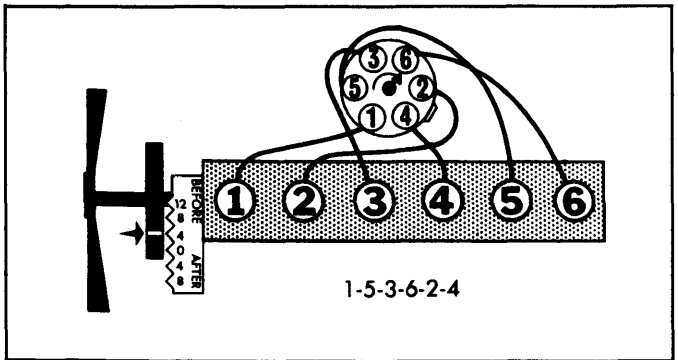

Fig. 1: 250" & 292" Firing Order & Timing Mark Identification

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 pick-up. Do not puncture wire.

2) Check or adjust ignition timing with engine at normal operating temperature, distributor vacuum advance line disconnected and plugged, and transmission in Neutral (automatic transmission in Drive). On 1978-79 Heavy Duty vehicles, place all transmissions in Neutral.

1975 IGNITION TIMING SPECIFICATIONS (DEGREES BTDC)

Application	Man. Trans.	Auto. Trans.
250"	10	10
292"	8	8

1976 IGNITION TIMING SPECIFICATIONS (DEGREES BTDC)

Application	Man. Trans.	Auto. Trans.
250"		
Light Duty		
Federal	10	10
Calif.	6	10
Heavy Duty	6	6
292"	8	8

1977 IGNITION TIMING SPECIFICATIONS (DEGREES BTDC)

Application	Man. Trans.	Auto. Trans.
250"		
Light Duty		
Federal	6	10
Calif.	8	12
High Alt.	8	....
Heavy Duty	6	6
292"	8	8

1978 IGNITION TIMING SPECIFICATIONS (DEGREES BTDC)

Application	Man. Trans.	Auto. Trans.
250"		
Light Duty		
Federal	8	8
Calif.	8	10
High Alt.	8	12
Heavy Duty	6	6
292"	8	8

1979 IGNITION TIMING SPECIFICATIONS (DEGREES BTDC)

Application	Man. Trans.	Auto. Trans.
250"		
Federal	10	10
Calif.		
C20, G20 & G30	6	8
All Others	10	10
292"	8	8

HOT (SLOW) IDLE RPM

250" (With 2SE 2-Barrel Carburetor) - 1) With engine at normal operating temperature, vacuum advance line disconnected and plugged at distributor, manual transmission in Neutral or automatic transmission in Drive, and solenoid energized, connect tachometer to engine. Choke should be open and air conditioning off.

2) Set parking brake and check timing. Reconnect distributor vacuum advance hose. Open throttle slightly to allow solenoid plunger to fully extend. Turn solenoid screw in end of solenoid to adjust curb idle RPM speed to specifications (solenoid still energized).

3) De-energize solenoid and turn idle speed screw to set base idle RPM to specifications. Reconnect solenoid electrical lead.

250" & 292" (With 1MV & 1ME 1-Barrel Carburetors) - 1) With engine at normal operating temperature, air cleaner installed, choke open and air conditioning off, and fast idle cam follower off steps of fast idle cam, connect a tachometer to engine.

2) Disconnect hoses at vapor canister. Disconnect and plug vacuum advance hose at distributor. Start engine and adjust timing to specification. Reconnect distributor vacuum hose.

1975-79 TUNE-UP PROCEDURES
General Motors 6-Cylinder Tune-Up (Cont.)

3) Place transmisssion in Neutral (Light Duty automatic transmission equipped models in Drive). With idle speed solenoid energized, turn solenoid in or out to obtain curb idle RPM. Then, de-energize solenoid and adjust base idle RPM by turning ⅛" hex screw, located in end of solenoid body. Reconnect solenoid lead and hoses.

1975 HOT (SLOW) IDLE RPM SPECIFICATIONS

Application	Curb Idle	Base Idle
250"		
Federal		
Man. Trans.	900	425
Auto. Trans.	550	425
Calif.		
Man. Trans.	900	425
Auto. Trans.	600	425
292"	600	450

1976 HOT (SLOW) IDLE RPM SPECIFICATIONS

Application	Curb Idle	Base Idle
250" Light Duty		
Federal		
Man. Trans.	900	425
Auto. Trans.	550	425
Calif.		
Man. Trans.	1000	425
Auto. Trans.	600	425
250" Heavy Duty	600	450
292"	600	450

1977 HOT (SLOW) IDLE RPM SPECIFICATIONS

Application	Curb Idle	Base Idle
250" Light Duty		
Federal		
Man. Trans.	750	425
Auto. Trans.		
With A/C	600	425
Without A/C	550	425
Calif.		
Man. Trans.	850	425
Auto. Trans.	600	425
High Alt.		
Auto. Trans.	600	425
250" Heavy Duty	600	450
292"	600	450

1978 HOT (SLOW) IDLE RPM SPECIFICATIONS

Application	Curb Idle	Base Idle
250" Light Duty		
Federal		
Man. Trans.	750	425
Auto. Trans.		
With A/C	600	425
Without A/C	550	425
Calif.		
Man. Trans.	750	425
Auto. Trans.	600	425
High Alt.		
Man. Trans.	750	425
Auto. Trans.	600	425
250" Heavy Duty	600	450
292"	600	450

1979 HOT (SLOW) IDLE RPM SPECIFICATIONS

Application	Curb Idle	Base Idle
250"		
Federal		
Man. Trans.	750	425
Auto. Trans.	600	425
Calif.		
Man. Trans.	750	425
Auto. Trans.	600	.....
292"		
Federal		
Man. Trans.	700	.....
Auto. Trans.	700	425
Calif.		
Man. Trans.	700	.....
Auto. Trans.	700	425

IDLE MIXTURE

NOTE: Only adjust idle mixture in cases of major carburetor overhaul, throttle body replacement or because of high emissions as determined by official inspections.

PROPANE ENRICHMENT PROCEDURE

1978-79 250" Light Duty Engine Equipped Models - 1) Set parking brake and block drive wheels. On vehicles 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 Adapter (J-26911), insert hose with rubber stopper (from propane valve) into ventilation tube opening in air cleaner. Ensure propane cartridge is vertical.

3) With engine idling in Drive (Auto. Trans.) or Neutral (Man. Trans.), slowly open propane control valve while pressing button. Add propane until speed begins to drop due to over richness. Note maximum engine speed.

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

4) If enriched idle speed is within idle specifications, the mixture is correct. Proceed to step **7)**.

PROPANE ENRICHED RPM

Application	RPM
1978 250" 1-Bbl. Engine	
Federal	
Man. Trans.	750-900
Auto. Trans.	600-620
Calif.	
Man. Trans.	750-850
Auto. Trans.	600-660
High Altitude	
Man. Trans.	750-900
Auto. Trans.	600-660
1979 250" 2-Bbl. Engine	
Federal	
Man. Trans.	750-900
Auto. Trans.	600-650
Calif.	
Man. Trans.	
C10 & G10	750-1000
Other Models	750-950
Auto. Trans.	600-650

1975-79 TUNE-UP PROCEDURES
General Motors 6-Cylinder Tune-Up (Cont.)

5) If enriched idle speed is not within specifications, remove mixture screw plugs by lightly seating screws, then backing them out equally, just enough so engine will run. Place transmission in Drive (Auto. Trans.) or Neutral (Man. Trans.). Back out each screw (richen) ⅛ turn at a time until maximum idle speed is obtained. Then set idle speed to enriched idle specification.
6) Turn each mixture screw (clockwise) ⅛ 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 set, connect crankcase ventilation tube and reconnect all vacuum hoses.

TACHOMETER LEAN DROP PROCEDURE

NOTE: Adjustment specifications are not available for 1978-79 models. See Emission Control Tune-Up Decal under hood for 1978-79 specifications.

1975-77 Light & Heavy Duty Models - 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 or Drive on all Light Duty models with automatic transmission.
4) Back out (richen) mixture screw ⅛ turn at a time until maximum idle speed is obtained. Next, adjust idle speed screw until enriched RPM specified on Emission Control Tune-Up decal is obtained. Turn mixture screw in (lean) until lower RPM specified on decal is obtained. Adjust idle speed screw until curb idle RPM is obtained. Check fast idle adjustment. Reconnect all hoses and install air cleaner. Recheck idle speed.

LEAN DROP MIXTURE RPM

Application	RPM/Drop Man. Trans.	RPM/Drop Auto. Trans.
1975		
250"		
Federal	1000/900	600/550
Calif.	1000/900	630/600
292"	700/600	700/600
1976		
250" Light Duty		
Federal	1075/900	575/550
Calif.	1150/1000	630/600
250" Heavy Duty	700/600	700/600
292"	700/600	700/600
1977		
250" Light Duty		
Federal		
With A/C	900/750	620/600
Without A/C	900/750	575/550
Calif.	1100/850	630/600
High Alt.		620/600
250" Heavy Duty	700/600	700/600
292"	700/600	700/600

COLD (FAST) IDLE RPM

1) Check or adjust fast idle speed with engine at normal operating temperature and choke valve open. Disconnect and plug distributor and EGR vacuum line. Leave air cleaner installed.
2) On 250" with 1-barrel and 292" 1-barrel engines, adjust curb idle speed with idle stop solenoid, screwing it in or out until specification is obtained. Place cam follower tang on high step of cam.

NOTE: On 292" 1-barrel engines with manual choke (smooth contour cam surface), rotate fast idle cam clockwise to its farthest up position.

3) Support lever with pliers and bend tang in or out to obtain specified fast idle RPM on 250" with 1-barrel and 292" engines.
4) On 250" 2-barrel engines, adjust curb idle speed with solenoid screw in end of solenoid. Place fast idle screw on high step of fast idle cam and turn screw in or out to obtain specified RPM.

FAST IDLE SPEED (RPM)

Application	RPM
1975	
Light Duty	1800
Heavy Duty	2400
1976-77	
Light Duty	2100
Heavy Duty	2400
1978	
Light Duty	
Federal	2000
Calif. & Hi. Alt.	2100
Heavy Duty	2400
1979	
250" 2-Bbl.	
Federal	
Man. Trans.	1800
Auto. Trans.	2000
Calif. & High Alt.	2100
292" 1-Bbl.	
Federal Man. Trans.	2400
Calif.	
Man. Trans.	2400
Auto. Trans.	2400

AUTOMATIC CHOKE

1975-76 Models - Remove air cleaner. Ensure choke rod moves freely. Disconnect choke rod from choke lever and hold choke valve closed. With rod pushed down to bottom of travel, bottom of rod should be even with top of lever on light duty vehicles. On heavy duty vehicles, top of rod should be even with bottom of hole in choke lever. Bend rod to adjust.
1977-79 Models - To adjust, loosen choke cover retaining screws and place follower on high step of fast idle cam. Choke coil lever should be located inside coil tang. Align mark on choke cover with proper mark on housing and tighten retaining screws.

NOTE: Some 1976 models with 350" or 400" 4-barrel engines may hesitate or stall on cold acceleration. This condition may be corrected by installing Choke Coil Assembly (46110).

AUTOMATIC CHOKE SETTING

Application	Setting
1977-78	Index
1979	
250" 2-Bbl. (2SE)	1 NR
292" 1-Bbl. (1ME)	2 NR

FUEL PUMP

For fuel pump 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.

FUEL PUMP SPECIFICATIONS

Application	Specification
Pressure (At Idle)	
1975-78	3.5-4.5 psi
1979	4.5-6.0 psi
Volume In 30 Sec. (At Cranking Speed)	1 pt.

1975-79 TUNE-UP PROCEDURES
General Motors 6-Cylinder Tune-Up (Cont.)

IGNITION SYSTEM

DISTRIBUTOR

All models use a Delco-Remy High Energy Ignition system. Module must be replaced as a unit. A liberal coat of silicone grease MUST be applied to both the module and mounting surface.

Other Data & Specifications - See Delco-Remy High Energy Ignition system article in DISTRIBUTORS & IGNITION SYSTEMS section.

IGNITION COIL

IGNITION COIL SPECIFICATIONS

Application	Specification
Resistance	
Primary (at 80°F)	
1975-76	0.4-0.5 Ohms
1977-79	0-1.0 Ohms
Secondary (at 80°F)	6000-30,000 Ohms
Ignition Pick-Up Coil	500-1500 Ohms
Current Draw	
1975-76 (Maximum)	5-6 Amps
1977-79	
Engine Stopped	0.1-0.2 Amps
Engine Idling	0.5-1.5 Amps
Coil Output (Minimum)	30,000 Volts

FUEL SYSTEM

CARBURETOR

Application	Model
1975-76	Rochester 1MV 1-Bbl.
1977-78	Rochester 1ME 1-Bbl.
1979	
250"	Rochester 2SE 2-Bbl.
292"	Rochester 1ME 1-Bbl.

Other Data & Specifications - See Rochester Carburetors in FUEL SYSTEMS section.