1975-79 TUNE-UP PROCEDURES
Chevrolet 4-Cylinder

ENGINE IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER

Fifth character of Vehicle Identification Number (VIN), located on plate attached to top left side of instrument panel, is the engine code letter.

NOTE: Limited information is available for Vega models with Cosworth 122" (2.0L) DOHC engine. Only use the following data, such as spark plug type and gap, base ignition timing, and curb idle speed.

VIN CODES

Application	Code
95" (1.4L) 1-Bbl.	I
98" (1.6L) 1-Bbl.	
Base Engine	E
High Output Engine	J
98" (1.6L) 2-Bbl.	
Base Engine	E
High Output Engine	O
122" (2.0L) EFI (1975-76 Only)	O
140" (2.3L) 1-Bbl.	A
140" (2.3L) 2-Bbl.	B
151" (2.5L) 2-Bbl.	
Federal	V
Calif.	1

ENGINE IDENTIFICATION CODE

Engine Identification Code is stamped on a pad on right side of block, below No. 1 spark plug on all 95" and 98" engines. Code is on right side of block above starter on 140" engines. On 151" (VIN "1") engines, number is located on a pad at right side of block, by distributor shaft hole. On 151" (VIN "V") engines, number is on a pad at left front of block.

TUNE-UP NOTES

NOTE: In order to comply with emission standards, specifications shown on Emission Control Tune-Up Decal must be used in all instances.

NOTE: The EPA High Altitude emission standards apply to vehicles sold in certain areas outside of California which have an elevation above 4000 feet.

CAUTION: Before making compression test, or cranking engine with a remote starter switch, disconnect ignition switch connector (Pink wire) from High Energy Ignition (HEI) distributor.

CAUTION: Do not remove spark plug wires with engine running. HEI secondary voltage is higher than standard ignition systems and may inflict harmful electrical shock.

CAUTION: Damage to the HEI electronic module and/or coil may result if "TACH" terminal is directly grounded.

ENGINE COMPRESSION

Check compression pressure with engine at normal operating temperature, all spark plugs removed, and throttle and choke valves wide open.

COMPRESSION SPECIFICATIONS

Application	Specification
Compression Ratio	
95" & 98"	8.5:1
140"	8.0:1
151"	8.3:1
Recommended Fuel	Unleaded (87 AKI Minimum)
Compression Pressure	
95" & 98"	145 psi
140" & 151"	140 psi
Max. Variation Between Cylinders	20 psi

VALVE CLEARANCE

VALVE CLEARANCE SPECIFICATIONS

Application	Specification
1975 Only	
Intake (Cold)	[1] .014-.017"
Exhaust (Cold)	[1] .029-.032"
All Others	
Hydraulic Lifters	Zero Lash

[1] - One turn on adjustment screw equals .003" lash change. Adjustment screw must be turned one full turn for each .003" change in lash.

VALVE ARRANGEMENT

95", 98" & 140" - I-E-I-E-I-E-I-E (Front-to-rear).
151" (VIN "1") - E-I-I-E-E-I-I-E (Front-to-rear).
151" (VIN "V") - I-E-I-E-E-I-E-I (Front-to-rear).

SPARK PLUGS

SPARK PLUG INSTALLATION

Application	Specification
Gap	
95", 98" & 140"	[1] .035"
122" (2.0L)	[1] .035"
151"	.060"
Torque	
95", 98" & 140"	15 ft. lbs.
151"	22 ft. lbs.

[1] - .060" gap for 1975.

SPARK PLUG TYPE

Application	AC NO.
1975	
122"	R43LTS-6
All Others	R43TSX
1976-77	
122"	R43LTS
All Others	R43TS
1978	
98"	R43TS
151"	R43TSX
1979	
98"	R42TS
151"	R43TSX

1975-79 TUNE-UP PROCEDURES
Chevrolet 4-Cylinder (Cont.)

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 specification, or fluctuates from infinity to any value, replace wire.

WIRE RESISTANCE (OHMS)

Wire Length	Resistance (Ohms)
1975-76	
0-15"	3000-10,000 Max.
16-24"	4000-15,000 Max.
24-35"	6000-20,000 Max.
Over 36"	25,000 Max.
1977-79	
0-24"	30,000 Max.
Over 24"	50,000 Max.

DISTRIBUTOR

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

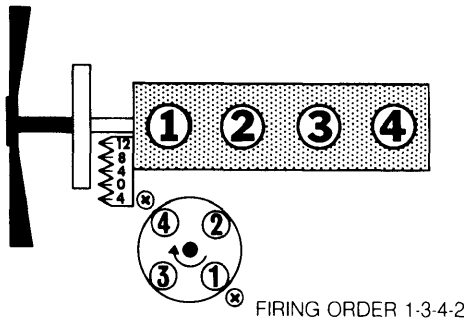

Fig. 1: 95" & 98" Firing Order & Timing Marks

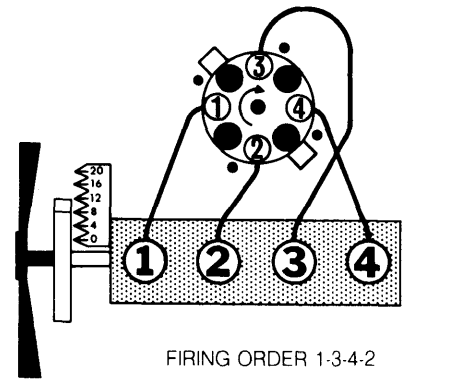

Fig. 2: 122" & 140" Firing Order & Timing Marks

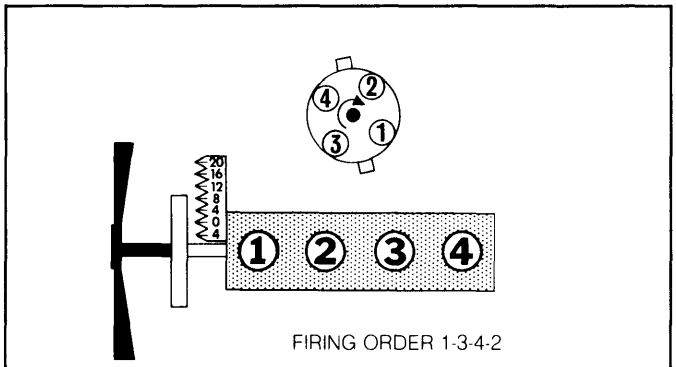

Fig. 3: 151" (VIN "1") Firing Order & Timing Marks

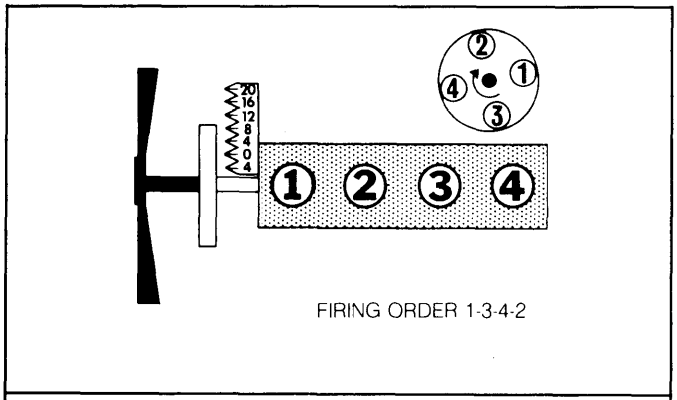

Fig. 4: 151" (VIN "V") Firing Order & Timing Marks

IGNITION TIMING

NOTE: Some engines may include a magnetic timing probe hole. This is for use with special electronic timing equipment. Refer to equipment manufacturer's instructions for correct procedures.

Check or adjust ignition timing with engine at normal operating temperature, distributor vacuum advance hose disconnected and plugged and engine at correct RPM. See IGNITION TIMING SPECIFICATIONS (DEGREES BTDC@RPM) table. On 1975 models with automatic transmission, transmission must be in Drive and idle solenoid energized.

1975-79 TUNE-UP PROCEDURES
Chevrolet 4-Cylinder (Cont.)

IGNITION TIMING SPECIFICATIONS (DEGREES BTDC@RPM)

Application	Man. Trans.	Auto. Trans.
1975-76		
95"	10@800	10@800
98"	8@800	10@800
122" EFI	12@800	.....
140"		
1-Bbl.	8@750	10@750
2-Bbl.	10@750	12@750
140"		
1977		
95"	12@800	12@800
98"	8@800	8@800
140"		
Federal	2@650	0@700
High Alt.	2@700	0@700
Calif.	0@650	[1] 2@700
1978		
98"	8@800	8@800
151"		
Federal	12@650	.....
Calif.	14@1000	14@1000
1979		
98"		
Federal	12@800	18@750
Calif.	12@800	[2] 16@750
151"		
Federal	12@900	12@650
Calif.	14@1000	14@1000

[1] – Timing specification is ATDC.
[2] – 12° BTDC on Calif. 98" (VIN "O").

HOT (SLOW) IDLE RPM

95" & 98" (VIN "E", "J" & "O")

1) With engine at normal operating temperature, ignition timing set, and A/C "OFF", disconnect and plug the following hoses:

- Vacuum source hose to air cleaner.
- Vacuum hose at distributor.
- Vacuum hose at EGR valve.
- Purge hose at vapor canister.

2) Place automatic transmission in Drive. Adjust idle speed screw to obtain specified "Curb Idle" RPM. On models without idle stop solenoid, set speed with idle speed screw contacting low step of fast idle cam. Reconnect distributor vacuum hose.

3) On models with air conditioning, place transmission in Park or Neutral. Disconnect electrical connector from air conditioning compressor.

4) Turn air conditioning "ON" and open throttle momentarily to allow solenoid plunger to fully extend. Place automatic transmission in Drive.

5) On models with solenoid, adjust hex screw on and of solenoid to obtain specified "Solenoid Energized" RPM. After adjustments are completed, reconnect electrical connector to compressor and all disconnected hoses.

6) If equipped with a dashpot, perform following adjustment. With engine at curb idle speed, loosen lock nut. Rotate dashpot until plunger end contacts throttle lever tang. Turn dashpot 2 full turns and tighten locknut.

140" & 151" 2-BBL. (VIN "V" & "1")

With engine at normal operating temperature, ignition timing set, and air conditioning "OFF", disconnect purge hose at vapor canister and proceed as follows:

Models Without A/C – Adjust solenoid plunger to obtain specified "Solenoid Energized" RPM. Disconnect electrical lead to solenoid, then adjust idle speed screw to obtain specified "Curb Idle" RPM.

IDLE SPEED (RPM)

Application	Curb Idle	Solenoid Energized
1975-76		
95" & 98"		
Man. Trans.	600	800
Auto. Trans.	[1] 700	[1] 800
122"	1600	1600
140"		
1-Bbl.		
Man. Trans.	750	1200
Auto. Trans.	550	750
2-Bbl.		
Man. Trans.	700	[2] 1000
Auto. Trans.	600	750
1977		
95"	600	800
98"		
Man. Trans.		
Federal	600	800
Calif. & High Alt.	800	.....
Auto. Trans.		
without A/C	600	800
with A/C	800	950
140"		
Man. Trans.		
Federal	700	1250
Calif.	800	1250
High Alt.	800	1250
Auto. Trans.		
Federal	650	850
Calif.	700	850
High Alt.	650	850
1978		
98" 1-Bbl.		
without A/C	600	800
with A/C	800	950
151" 2-Bbl.		
Man. Trans.		
Federal	500	1000
Calif.	[3]	[3]
Auto. Trans.		
Federal	500	650
Calif.		
Without A/C	500	650
With A/C	650	850
1979		
98" 2-Bbl.		
Man. Trans.	800	1150
Auto. Trans.	750	1150
151" 2-Bbl.		
Man. Trans.		
Federal	900	1250
Calif.	1000	1200
Auto. Trans.		
All Models	650	850

[1] – Set 100 RPM higher with A/C.
[2] – Calif. only.
[3] – See Emission Control Tune-Up Decal.

Models With A/C – 1) On all models, disconnect air conditioning compressor clutch electrical connector. On 1978-79 Calif. models (VIN "1"), disconnect electrical connector at WOT air conditioning override switch located on accelerator linkage bracket (if equipped).
2) On all models, adjust idle speed screw to obtain specified "Curb Idle" RPM.

1975-79 TUNE-UP PROCEDURES
Chevrolet 4-Cylinder (Cont.)

3) With curb idle speed set, turn air conditioning "ON" and open throttle momentarily to allow solenoid plunger to fully extend. Adjust solenoid plunger or solenoid screw to obtain specified "Solenoid Energized" RPM.

NOTE: After adjustments have been completed, reconnect all disconnected electrical leads and vacuum hoses.

IDLE MIXTURE

NOTE: Idle mixture screws on some 1978 carburetors and all 1979 carburetors are covered by hardened steel plugs. Manufacturer recommends plug removal and mixture adjustment only after major carburetor overhaul, throttle body replacement, or emissions failure.

MIXTURE SCREW PLUG REMOVAL

If plug(s) must be removed, perform the following procedure:
Holley Carburetors - Remove carburetor from engine. Remove staking around idle mixture needle cup plug. Remove cup plug using a screw extractor and turning counterclockwise. Reinstall carburetor.

CAUTION: Do not attempt to drill a hole in cup plug to remove it from carburetor. This may damage idle mixture needle.

Rochester Carburetors - 1) Remove carburetor from engine, invert carburetor and drain fuel. Place carburetor on a holding fixture with manifold side up.
2) Using a punch between the 2 locator points under throttle body (manifold side), break through throttle body and drive out each hardened steel plug covering mixture needle.

NOTE: If plug shatters, remove loose pieces.

3) Reinstall carburetor on engine. Use a thin wall $^{3}/_{16}$" deep socket to make mixture adjustments.

TACHOMETER (LEAN DROP) PROCEDURE

1975-77 Only - 1) Warm engine to operating temperature. Set ignition timing and idle speed. Connect a tachometer to engine. Disconnect and plug distributor vacuum advance hose on all except 1977 140" with 2-Bbl. All accessories must be off and air cleaner installed.
2) Remove limiter caps. Lightly seat mixture screws. Turn out equally until engine will run. Set parking brake. Place automatic transmission in Drive or manual transmission in Neutral.
3) Back out each mixture screw equally until maximum RPM is obtained. Set high idle speed (with idle solenoid, if equipped) to indicated RPM in IDLE MIXTURE (RPM) table.
4) Now turn mixture screws equally clockwise to obtain lean drop RPM. Install replacement limiter caps. Reset idle speed as noted on Emission Control Tune-Up Decal.
5) Emission Control Tune-Up Decal idle speed may not be the same as lean drop idle speed. Always use Emission Control Tune-Up Decal specifications for adjustments. Reconnect vacuum hoses and air cleaner.

PROPANE ENRICHMENT PROCEDURE

1978 Federal & High Alt., & All 1979 Except 151" VIN "1" - 1) With engine at normal operating temperature, choke fully open and A/C off (if equipped). Set parking brake and block drive wheels. Disconnect and plug hoses as directed on Emission Control Tune-Up Decal under the hood.
2) Connect tachometer to engine. Set curb idle to specifications on Emission Label. Disconnect vacuum advance and set timing to specifications on Emission Label. Reconnect vacuum advance. Disconnect PCV tube from air cleaner. Insert hose with rubber stopper (J-26911) from propane valve into PCV tube opening in air cleaner.

IDLE MIXTURE (RPM)

Application	Before Lean Drop RPM	After Lean Drop RPM
1975		
Man. Trans.	825	700
Auto. Trans.	825	750
1976		
95" & 98"		
Man. Trans.		
Federal	825	800
Calif.	1100	1000
Auto. Trans.		
Federal	850	800
Calif.	900	850
140"		
1-Bbl.	825	750
2-Bbl.		
Man. Trans.	900	700
Auto. Trans.	830	750
1977		
95" & 98"		
Man. Trans.	875	800
Auto. Trans.	900	800
140"		
Man. Trans.		
Federal	780	700
All Others	880	800
Auto. Trans.		
High Alt.	730	700
All Others	680	650

3) Propane cartridge must be in vertical position. Slowly open propane control valve until maximum engine speed is reached with automatic transmission in Drive and manual transmission in Neutral.

NOTE: Too much propane will cause engine speed to drop.

4) Observe propane flow meter to ensure propane cartridge is full. With propane flowing, adjust idle screw to the "Enriched" RPM. Readjust propane flow to be certain of maximum engine speed and adjust idle speed if necessary.
5) Turn off propane. Place transmission in Neutral and run at 2000 RPM for 30 seconds. Put transmission in Drive (manual transmission in Neutral). Check idle speed. If idle speed agrees with idle speed shown on Emission Control Tune-Up Decal, idle mixture is correct. Proceed to step **8)**.
6) If idle speed is too low, carefully remove plug from mixture screw and back screw out (richen) ⅛ turn at a time until correct speed is reached. If speed is too high, turn mixture screw in (leaner) ⅛ turn at a time until correct speed is obtained.

NOTE: It may be necessary to remove air cleaner to reach idle mixture screw. Reinstall air cleaner to check idle speed.

7) Turn propane on again to check maximum engine idle speed. If speed is different from specification, readjust idle speed screw to "Enriched" RPM with propane flowing. Turn off propane, place transmission in Neutral and accelerate engine to 2000 RPM for 30 seconds. Recheck idle speed. Idle speed should agree with specifications. If not, repeat procedure starting with step **6)**.
8) If idle is unusually rough, turn mixture screws in until lightly seated. Back screws out equally to previous position and rerun propane idle test starting with step **2)**. If idle is correct, turn engine off and remove propane tool. Connect PCV system and reconnect all other hoses.

1975-79 TUNE-UP PROCEDURES
Chevrolet 4-Cylinder (Cont.)

PROPANE ENRICHMENT RPM

Application	Enriched RPM
1978-79	
98" (1978 Only) [1]	
98" 2-Bbl. (1979 Only)	
Man. Trans.	[2] 925
Auto. Trans.	
Exc. High Alt.	800
High Alt.	825
140" [1]	
151" 2-Bbl. (VIN "V")	
Man. Trans.	1040
Auto. Trans.	695

[1] – See Emission Control Tune-Up Decal.
[2] – 900 RPM for Calif. 98" (VIN "E").

FUEL METERING FEEDBACK (IDLE NEEDLE) DIAPHRAGM

1978-79 151" VIN "1" Only – 1) With engine at normal operating temperature, choke open and air conditioning off, set parking brake and block drive wheels. Disconnect and plug hoses as directed on Emission Control Tune-Up Decal under hood.
2) Connect tachometer to engine. Check and adjust ignition timing. Disconnect and plug control vacuum hose (to vacuum modulator) at carburetor.
3) Remove idle mixture cup plug and soft lead plug covering idle needle diaphragm adjusting screw. Lightly seat idle mixture screw and back out 2 turns. Turn in idle needle diaphragm adjusting screw until needle is lightly seated.

NOTE: Do not force needle into seat.

4) Disconnect purge hose at vapor canister and insert a "Y" fitting into hose end. Install stopper of propane tool hose on large leg of "Y". Leave small leg of "Y" open to act as a calibrated air bleed.
5) Start engine and place automatic transmission in Drive. Slowly open propane valve until maximum engine speed is obtained. Adjust idle speed screw to obtain 760 RPM with propane flowing. Recheck propane valve adjustment to ensure maximum RPM has been obtained. If higher RPM is obtained, readjust idle speed screw to obtain 760 RPM.
6) Turn off propane and adjust idle mixture screw to obtain 650 RPM. Richen mixture to increase speed; lean out mixture to lower speed. Place transmission in Neutral and run engine at 2000 RPM for 30 seconds to clear system.
7) Place automatic transmission back in Drive. Recheck step **5)** to assure that maximum engine speed, with propane flowing, has been obtained.
8) Cap calibrated air bleed (small leg of "Y" fitting). Remove plug from end of vacuum control hose. Tee in accurate vacuum gauge and connect vacuum control hose to carburetor.
9) Adjust idle speed screw to obtain 650 RPM. Adjust idle needle diaphragm adjusting screw to obtain an average control vacuum reading of 2.5 in. Hg at 650 RPM.

NOTE: It is normal for vacuum reading to flucutate. The midpoint (average) between high and low fluctuation should be 2.5 in. Hg.

10) Turn off engine. Remove vacuum gauge, propane tool and vacuum "Y" fitting. Reconnect all disconnected hoses. Install new idle mixture needle cup plug and idle needle diaphragm adjusting screw plug.

COLD (FAST) IDLE RPM

1) With engine at normal operating temperature, ignition timing set and air conditioning off, disconnect and plug vacuum hose at distributor (except 1975 1-Bbl.) and purge hose at vapor canister.
2) Place transmission in Park or Neutral. Position fast idle adjusting screw on specified step of fast idle cam. Adjust fast idle screw to obtain specified fast idle RPM. Reconnect all disconnected hoses.
3) On models which include a dashpot, adjust dashpot as follows. Set fast idle cam on lowest step. Loosen lock nut and turn dashpot until it just touches throttle lever. Turn dashpot in 5 full turns and tighten lock nut.

FAST IDLE SPEED (RPM)

Application	RPM	Step
95"	2200	High
98"	[1] 2500	High
140"		
1-Bbl.		
Man. Trans.	[1] 2000	High
Auto. Trans.	2200	High
2-Bbl.	1600	2nd
151"		
Man. Trans.	2200	High
Auto. Trans.	2400	High

[1] – Set 1976 98" to 2000 RPM.

AUTOMATIC CHOKE

On 1975-76 140" 1-Bbl. engines, remove choke rod from upper lever. Push choke rod down against stop and hold choke valve wide open. Top of choke rod (or swivel pin) should align with bottom of hole in lever. On all others, set fast idle screw on highest step of cam, loosen choke cover retaining screws and align marks on cover and housing as specified.

AUTOMATIC CHOKE SETTING

Application	Setting
1975	
140" 2-Bbl.	
Man. Trans.	3NR
Auto. Trans.	4NR
1976	
95" & 98"	3NR
140" 2-Bbl.	
Man. Trans.	2NR
Auto. Trans.	3NR
1977	
95" & 98"	
Federal	3NR
Calif. & High Alt.	2NR
140"	3NR
1978	
98"	
Federal	3NR
Calif. & High Alt.	2NR
151" (VIN "1")	1NR
151" (VIN "V")	
Federal	2NR
High Alt.	1NR
1979	
98"	
Federal	2NR
Calif.	1NR
151" (VIN "1")	
Man. Trans.	2NR
Auto. Trans.	1NR
151" (VIN "V")	
Man. Trans.	1NR
Auto. Trans.	2NR

Other Data & Specifications – Also see Delco Ignition Systems in DISTRIBUTORS & IGNITION SYSTEMS section.

1975-79 TUNE-UP PROCEDURES
Chevrolet 4-Cylinder (Cont.)

FUEL PUMP

Application	Specification
Pressure (At Idle)	
95" & 98"	2.5-6.5 psi
151"	5.0-6.5 psi
Pressure (at 12.6 volts)	
140"	3-4.5 psi
Volume (At Idle)	
98", 140" & 151"	1 pint in 30 sec.

IGNITION

DISTRIBUTOR

Delco-Remy - High Energy Ignition

NOTE: Module must be replaced as a unit. A liberal coat of silicone grease MUST be applied to surface on which module will be mounted.

Other Data & Specifications - Also see Delco Ignition Systems in DISTRIBUTORS & IGNITION SYSTEMS section.

IGNITION COIL

Application	Specification
Resistance	
Primary (at 75°F)	.4-1.0 ohm
Secondary (at 75°F)	6000-30,000 ohms
Current Draw	
Engine Stopped	.25 amp
Engine Idling	1.0 amp
Coil Output	
At all engine speeds	[1] 25-35 KV Minimum

[1] - Replace if below 25 KV.

CARBURETION

CARBURETORS

Application	Model
95"	Rochester 1ME
98"	
1-Bbl.	Rochester 1ME
2-Bbl.	Holley 5210-C
140"	
1-Bbl.	Rochester 1-MV
2-Bbl.	Holley 5210-C
151" (VIN "1")	Holley 6510-C
151" (VIN "V")	
1978	Holley 5210-C
1979	Rochester 2SE

Other Data & Specifications - Also see Holley or Rochester Carburetors in FUEL SYSTEMS section.

1975-79 TUNE-UP PROCEDURES
Chevrolet 6-Cylinder

ENGINE IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER

Fifth character of Vehicle Identification Number (VIN), located on a plate affixed to top left side of instrument panel and visible through windshield, is the engine code letter.

VIN CODES

Application	Code
250" 6-Cyl.	D

ENGINE IDENTIFICATION CODE

Engine code is stamped on right side of cylinder block, near distributor.

ENGINE CODES

Application	Code
1975	
Camaro & Nova	CJM, CJU, KJR
Chevelle	CJR
Chevelle, Nova & Camaro	CJL, CJT
Nova	CJS
1976	
California	CCC
Federal	CCB, CCD, CCF, CCJ
1977	
California	CCC
Federal	CCD, CCF, CCR
High Altitude	CCF
1978	
California	CCK, CCL, CJK, CJM
Federal	CCH, CCM, CJJ, CJR
1979	
All Models	DCA, DCB, DCC, DCD DKA, DKB, DKC, DKD, DKF

TUNE-UP NOTES

NOTE: In order to comply with emission standards, specifications shown on engine compartment Emission Control Tune-Up Decal must be used in all instances.

NOTE: The EPA High Altitude emission standards apply to vehicles sold in certain areas outside of California which have an elevation above 4000 feet.

NOTE: Before making compression test or cranking engine with a remote starting switch, disconnect ignition switch "BATT" terminal lead at distributor.

CAUTION: Do not remove spark plug wires with engine running. High Energy Ignition (HEI) system secondary voltage is higher than standard ignition systems and may inflict harmful electrical shock.

NOTE: Damage to the HEI electronic module and/or ignition coil may result if "TACH" terminal, in distributor cap connector, is directly grounded.

ENGINE COMPRESSION

Test compression pressure with engine at normal operating temperature, all spark plugs removed and throttle and choke valves wide open. Check compression through at least 4 compression strokes.

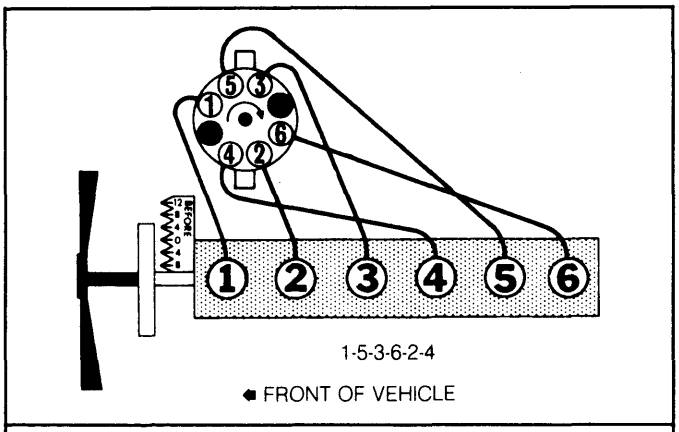

Fig. 1: 250" Firing Order & Timing Marks

COMPRESSION SPECIFICATIONS

Application	Specifications
Compression Ratio	8.3:1
Recommended Fuel	Unleaded (87 AKI Minimum)
Compression Pressure	130 psi
Maximum Variation Between Cylinders	20 psi

VALVE CLEARANCE

Hydraulic Lifters - One (1) full 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.
1975	
All Models	R46TX
1976-79	
All Models	R46TS

SPARK PLUG INSTALLATION

Application	Gap	Torque
1975		
All Models	.060"	15 ft. lbs.
1976-79		
All Models	.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 specification, or fluctuates from infinity to any value, replace wire.

WIRE RESISTANCE

Wire Length	Ohms (Maximum)
1975-76	
0-15"	10,000
15-25"	15,000
25-35"	20,000
Above 35"	25,000
1977-79	
Under 24"	30,000
Over 24"	50,000

1975-79 TUNE-UP PROCEDURES
Chevrolet 6-Cylinder (Cont.)

DISTRIBUTOR

All models are equipped with High Energy Ignition (HEI) system. No adjustments are required.

IGNITION TIMING

1975-76 Models - Set timing at specified hot (slow) idle speed with manual transmission in Neutral, automatic transmission in Drive, air conditioning off (if equipped), and distributor vacuum hose disconnected and plugged.

1977 Models - 1) Ensure engine is at normal operating temperature, air cleaner installed, choke fully open, and air conditioner is off (if equipped). Set parking brake.

2) Disconnect fuel tank hose from vapor canister. Disconnect and plug vacuum advance hose at distributor. Start engine and check ignition timing. Adjust if necessary.

3) Reconnect vacuum advance hose to distributor. Place manual transmission in Neutral or automatic transmission in Drive. With idle speed solenoid energized, turn solenoid in or out to obtain curb idle RPM.

4) Disconnect solenoid lead to de-energize solenoid. Adjust base idle speed by turning 1/8 hex screw located in end of solenoid body. Reconnect solenoid lead and hose.

1978-79 Models - 1) Check or adjust ignition timing with engine at normal operating temperature, choke fully open, air cleaner installed and air conditioning off (if equipped).

2) Disconnect and plug distributor vacuum advance hose. Set timing at specified hot (slow) idle speed with manual transmission in Neutral, automatic transmission in Drive.

IGNITION TIMING SPECIFICATIONS (DEGREES BTDC@RPM)

Application	Man. Trans.	Auto. Trans.
1975		
Nova (Federal)	8@550	8@550
All Others	10@850	10@550
1976		
Nova (Federal)	8@550	8@550
All Others	[1] 6@850	6@850
1977 [2]		
Calif.		[3] 6@550
Federal	6@750	10@550
High Altitude		6@600
1978		
Calif.		6@600
Federal	6@800	10@550
1979		
Calif.		6@600
Federal	12@800	8@675

[1] - 600 RPM on California models.
[2] - Increase RPM by 50 on A/C equipped models, except high altitude models.
[3] - If equipped with carburetor No. 17057310 or 17057312, set timing to 8°BTDC.

HOT (SLOW) IDLE RPM

1) Adjust idle speed with engine at normal operating temperature, choke fully open, air cleaner installed, air conditioning off (if equipped). Place manual transmission in Neutral or automatic transmission in Drive.

2) Disconnect and plug vacuum advance hose at distributor. Check ignition timing and adjust as necessary. Reconnect vacuum advance hose.

3) Disconnect and plug vacuum hose at EGR valve and purge hose at vapor canister. With idle speed solenoid energized, turn solenoid in or out to obtain specified curb idle RPM.

4) Disconnect electrical lead to de-enegize solenoid. Turn 1/8" hex screw in end of solenoid to obtain specified base idle RPM. Reconnect all disconnected hoses.

IDLE SPEED (RPM) SPECIFICATIONS

Application	Curb Idle	Base Idle
1975		
Man Trans.	850	425
Auto. Trans.		
Calif.	600	425
Federal	550	425
Nova (Federal)	600	435
1976		
Man Trans.	850	425
Auto. Trans.		
Calif.	600	425
Federal	[1] 550	425
1977 [2]		
Calif.	550	425
Federal		
Man. Trans.	750	425
Auto. Trans.	550	425
1978		
Calif.	600	400
Federal		
Man. Trans.	800	425
Auto. Trans.	550	425
1979		
Calif.	600	400
Federal		
Man. Trans.	800	400
Auto. Trans.	675	400

[1] - With non-integrated head, set curb idle speed to 600 RPM.
[2] - Increase curb idle RPM by 50 on A/C equipped models, except High Altitude models.

IDLE MIXTURE

NOTE: Idle mixture screw is preset and capped at factory. Manufacturer recommends idle mixture adjustment only after major carburetor overhaul, throttle body replacement or emissions failure.

TACHOMETER (LEAN DROP) PROCEDURE

1975-77 Models - 1) Set parking brake and block drive wheels. Remove air cleaner to access carburetor, but keep vacuum hoses connected. Disconnect and plug other hoses as directed on Emission Control Tune-Up Decal under hood.

2) Ensure engine is at normal operating temperature and air conditioner is off (if equipped). Disconnect and plug distributor 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 idle mixture screw. Lightly seat idle mixture screw, then back out just enough so engine will run.

4) Place automatic transmission in Drive. Back out (richen) idle mixture screw until maximum idle speed is obtained. Next, adjust idle speed screw until maximum RPM reading is obtained.

5) Turn idle mixture screw in (lean) until lower RPM reading is obtained. Adjust idle speed screw to obtain specified curb idle speed. Reconnect all hoses.

1975-79 TUNE-UP PROCEDURES
Chevrolet 6-Cylinder (Cont.)

IDLE MIXTURE SPECIFICATIONS

Application	RPM
1975 [1]	
Man Trans.	850
Auto. Trans.	
California	600
Federal	550
Nova (Federal)	600
1976	
Man Trans.	1200/850
Auto. Trans.	
California	640/600
Federal	[2] 575/550
1977	
California	640/600
Federal	
Man. Trans.	950/750
Auto. Trans.	575/550
High Altitude	650/600

[1] – See Emission Control Tune-Up Decal under hood, for curb idle specifications.
[2] – With non integrated head, specification is 640/600 RPM.

1978-79 Models – 1) With engine at normal operating temperature, choke fully open and air conditioning off (if equipped), set parking brake and block drive wheels. Disconnect and plug hoses as directed on Emission Control Label under hood. Connect tachometer to engine.

NOTE: On vehicles equipped with vacuum parking brake release, disconnect and plug vacuum hose.

2) Disconnect vacuum advance hose at distributor and set ignition timing to specification. Reconnect vacuum advance hose. Disconnect crankcase ventilation tube from air cleaner. Insert hose, with rubber stopper (J-26911), from propane valve into ventilation tube opening in air cleaner.
3) Propane cartridge must be in vertical position. Slowly open propane control valve until maximum engine speed is reached with manual transmission in Neutral or automatic transmission in Drive.

NOTE: Too much propane will cause engine speed to drop.

4) Observe propane flow meter to ensure propane cartridge is full. If enriched RPM is within specifications, the idle mixture is correct.
5) If enriched RPM is incorrect, remove idle mixture screw cap. Turn in mixture screw (clockwise) until lightly seated, then back screw out until lean best idle point at the enriched RPM" is reached.
6) Starting with a lean best idle setting at the enriched RPM, turn screw clockwise (leaner) until correct curb idle speed is reached.
7) Recheck enriched RPM with propane. If not within specifications, repeat adjustment procedure. Turn off engine and remove propane set up. Connect crankcase ventilation tube to air cleaner.

PROPANE ENRICHED RPM SPECIFICATIONS

Application	Enriched RPM
1978-79	
California	975-1025
Federal	
Man. Trans.	1050-1150
Auto. Trans.	1200-1250

COLD (FAST) IDLE RPM

1975-76 Models – Set fast idle with engine at normal operating temperature, choke fully open, transmission in Neutral, and EGR vacuum hose disconnected and plugged. On vehicles with ported vacuum advance, disconnect and plug vacuum advance hose at distributor. Position fast idle cam follower on highest step of cam and bend tang to obtain specified RPM.

1977-79 Models – With engine at normal operating temperature and curb idle set to specifications, place fast idle cam follower on highest step of cam. Bend fast idle cam follower to obtain specified fast idle RPM.

FAST IDLE RPM SPECIFICATIONS

Application	Man. Trans.	Auto. Trans.
1975		
Nova (Federal)		1800
All Others	1800	1700
1976		
California	1700	1700
Federal	[1] 2100	[1] 2100
1977		
California	1800	1800
Federal &		
High Altitude	2000	2000
1978		
California		2000
Federal	2000	2100
1979		
All Models	1800	2000

[1] – With non-integrated head, set fast idle to 2200 RPM.

AUTOMATIC CHOKE

1975-76 Models – Pull on choke coil rod to end of travel to close choke valve. Bottom of rod should be even with top of lever. Bend rod if adjustment is required.

1977-79 Models – To adjust, loosen choke cover retaining screws and place cam follower on highest step of fast idle cam. Align mark on choke cover to specified mark on choke housing. Tighten retaining screws.

AUTOMATIC CHOKE SETTING

Application	Setting
1977	
California	Index
Federal	
Man. Trans.	1 Notch Rich
Auto. Trans.	[1] 2 Notches Rich
High Altitude	1 Notch Lean
1978-79	
All Models	Index

[1] – On models equipped with carburetor No. 17057018, setting is one notch rich.

FUEL PUMP

FUEL PUMP PRESSURE

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	Specifications
1975-76	
Pressure (At Idle)	3.5 psi
Volume (At Idle)	1 pint in 30 sec.
1977-79	
Pressure (At Idle)	4.5-6.0 psi
Volume (At Idle)	1 pint in 30 sec.

IGNITION

DISTRIBUTOR

All models are equipped with High Energy Ignition (HEI) system. No adjustment is required.

1975-79 TUNE-UP PROCEDURES
Chevrolet 6-Cylinder (Cont.)

NOTE: Module must be replaced as a unit. A liberal coat of silicone grease MUST be applied to surface on which module will be mounted.

Other Data & Specifications - See Delco Ignition Systems in DISTRIBUTORS & IGNITION SYSTEMS section.

IGNITION COIL

IGNITION COIL SPECIFICATIONS

Application	Specification
Resistance	
Primary (at 75°F)	[1] 0.4-0.5 ohm
Secondary (at 75°F)	6000-30,000 ohms
Coil Output	[2] 25,000-35,000 volts

[1] - One ohm on 1975 models, 0-0.1 ohms on 1978-79 models.
[2] - Replace if below 25,000 volts.

FUEL SYSTEM

CARBURETOR

CARBURETORS

Application	Model
1976	
All Models	Rochester 1MV 1-Bbl.
1978-79	
All Models	Rochester 1ME 1-Bbl.

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