

1975-79 TUNE-UP PROCEDURES

Buick V8

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.

VIN CODES

Application	Code
1975-76	
260" 2-Bbl.	Y
350" 4-Bbl.	H
350" 4-Bbl.	J
455" 4-Bbl.	T
1977-79	
301" 2-Bbl.	Y
301" 4-Bbl.	W
305" 2-Bbl.	
(1977-78)	U
(1979)	G
305" 4-Bbl.	H
350" 4-Bbl. (1977)	J
350" 4-Bbl.	L
350" 4-Bbl.	R
350" 4-Bbl.	X
403" 4-Bbl.	K

ENGINE IDENTIFICATION CODE

An engine identification code is stamped on cylinder block in the following locations:

- 260" (VIN "F")** – Stamped on tape on oil fill tube.
- 301" & 350" (VIN "X")** – Stamped on right side of front.
- 305" & 350" (VIN "G", "H", "L" & "U")** – Stamped on front of right side.
- 350" (VIN "H" & "J")** – Stamped on front of left side.
- 350" (VIN "R"), 403" & 455"** – Stamped on front of left side.

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 a compression test or cranking engine with a remote starting 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 HEI electronic module and/or coil may result if "TACH" terminal in distributor cap connector is directly grounded.

ENGINE COMPRESSION

Test compression with engine warm, all plugs removed and throttle and choke valves open.

COMPRESSION SPECIFICATIONS

Application	Specifications
Compression Ratio	
260" V8	8.5:1
301" V8	8.2:1
305" V8	8.5:1
350" V8	
VIN "L"	8.5:1
VIN "R"	8.3:1
VIN "H", "J" & "X"	8.0:1
403" & 455" V8	8.3:1
Recommended Fuel	Unleaded (87 AKI Minimum)
Normal Compression Pressure	155-175 psi
Minimum Compression Pressure	100 psi
Max. Variation Between Cylinders	30%

VALVE CLEARANCE

Hydraulic Lifters Zero Lash

VALVE ARRANGEMENT

350" (VIN "R") & 403"

I-E-I-E-E-I-E-I (Front-to-Rear, Both Banks).

All Others

E-I-I-E-E-I-E-I (Front-to-Rear, Both Banks).

SPARK PLUGS

SPARK PLUG INSTALLATION

Application	Specification
Inch Gap	
260"080"
305" & 350" (1978-79 VIN "L")045"
All Others060"
Torque	
301", 305" & 350" (Except VIN "R")	15 ft. lbs.
350" (VIN "R"), 403" & 455"	25 ft. lbs.

SPARK PLUG TYPE

Application	AC NO.
1975-76	
260" 2-Bbl.	R46SX
All Others	R45TSX
1977-79	
301" 2-Bbl.	R46TSX
301" 4-Bbl.	R45TSX
305" & 350" (1978-79 VIN "L")	R45TS
350" (1977 VIN "H", "J", "L" & "R")	R46TSX
350" (1978-79 VIN "R") & 403"	R46SZ
350" (VIN "X")	R45TSX or R46TSX

HIGH TENSION WIRE RESISTANCE

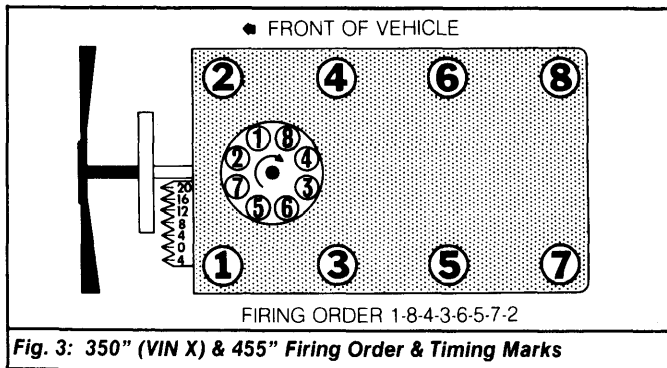
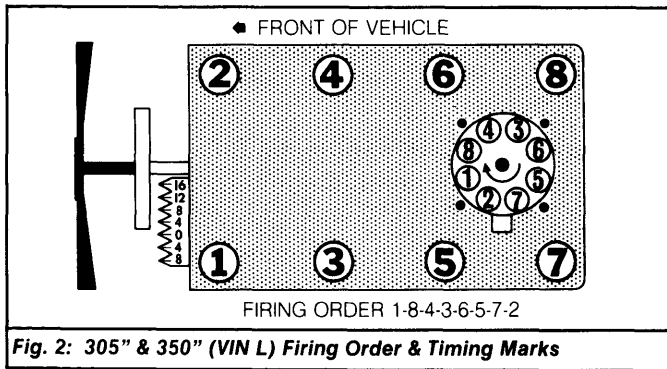
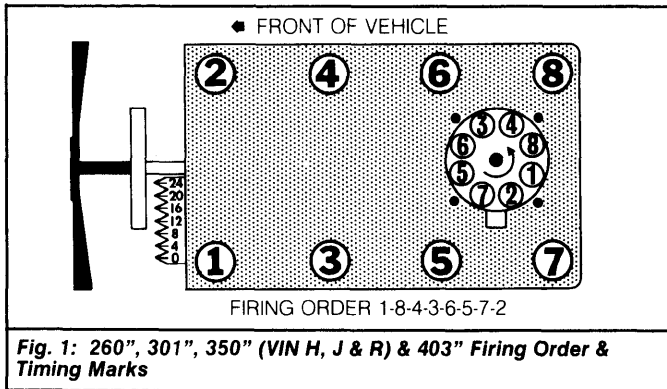
Carefully remove ends of wire from spark plug and distributor. Using an ohmmeter, check resistance while gently twisting wire. If resistance is not to specification, or fluctuates from infinity to any value, replace wire.

WIRE RESISTANCE

Application	Ohms
1975-76	
All	3000-20,000
1977-79	
Under 24"	30,000 Max.
Over 24"	50,000 Max.

1975-79 TUNE-UP PROCEDURES

Buick V8 (Cont.)



DISTRIBUTOR

All models are equipped with HEI systems and no adjustments are required.

IGNITION TIMING

NOTE: Some engines may include a magnetic timing probe socket. Insert probe into timing socket until it almost contacts vibration damper. Socket is located 9.5° ATDC. Do not use the probe location to check timing using a conventional timing light.

- 1) On 1975-77 models, warm engine to operating temperature and ensure air cleaner is installed. Set timing with engine at idle speed and distributor vacuum hose disconnected and plugged.
- 2) On 1978-79 models, ignition timing procedures will vary with vehicle model and component application. Refer to Emission Control Tune-Up Decal in engine compartment for correct adjustment procedures.

IGNITION TIMING SPECIFICATIONS (DEGREES BTDC@RPM)

Application	Timing
1975-76	
260"	
Federal	18°@1100
Calif.	14°@1100
All Others	12°@600
1977	
301"	12°@550
305" & 350" (VIN "L")	1°@500
350" (VIN "R")	2°@1100
350" (VIN "H" & "J")	12°@600
403"	
Federal	24°@1100
Calif. & High Alt.	20°@1100
1978	
301"	12°@1100
305" Federal	4°@500
305" Calif.	6°@500
305" High Alt.	8°@500
350" (VIN "L")	1°@500
350" (VIN "R")	20°@1100
350" (VIN "X")	15°@600
403"	20°@1100
1979	
301"	12°@650
305" 2-Bbl.	4°@600
305" 4-Bbl.	
High Alt.	8°@600
All Others	4°@500
350" (VIN "L")	1°@500
350" (VIN "R")	20°@1100
350" (VIN "X")	15°@550
403"	20°@1100

¹ - Set High Alt. models at 600 RPM.

² - Set Skyhawk, LeSabre and Estate Wagon to 18°@1100.

HOT (SLOW) IDLE RPM

NOTE: Idle speed adjustment procedures will vary with vehicle model and component application. On 1975-76 models, remove and plug EGR and canister purge hoses. On other models, refer to Emission Control Tune-Up Decal for adjustment preparations, then proceed as follows:

Vehicles W/O Air Conditioning - Set curb idle speed adjusting screw on low step of fast idle cam. Turn idle speed screw to obtain specified "Curb Idle" RPM.

Vehicles W/Air Conditioning - 1) Turn A/C off (solenoid de-energized) and place idle speed screw on low step of fast idle cam. Turn idle speed screw to obtain specified "Curb Idle" RPM.

2) Disconnect A/C compressor lead at compressor. Turn A/C on and place transmission in Drive. Open throttle slightly to allow solenoid plunger to fully extend, then turn solenoid screw to obtain specified "Solenoid Energized" RPM. Reconnect compressor lead after adjustment.

IDLE SPEED (RPM) ¹

Application	Curb Idle	Solenoid Energized
1975-76		
260"		
Federal	550	650
Calif.	600	650
350" & 403"	650	
1977-78		
301"	550	650
305" (VIN U)		
Federal	500	600
Calif.	550	650
High Alt.	700	700

1975-79 TUNE-UP PROCEDURES

Buick V8 (Cont.)

IDLE SPEED (RPM) ¹ (Cont.)

Application	Curb Idle	Solenoid Energized
305" (VIN H)	500	600
350" (VIN J)	550
350" (VIN L)		
Calif.	500	600
High Alt.	600	650
350" (VIN R)		
& 403"		
Calif.	550	650
High Alt.	700	600
350" (VIN X)	550
High Alt.	600	650
1979		
301"	500	650
305" 2-Bbl. ²	550	600
305" 4-Bbl. & 350" (VIN "L")		
High Alt.	600	650
All Others	500	600
350" (VIN "R") & 403"		
Federal	550	650
Calif.	500	600
High Alt.	600	700
350" (VIN "X")	550

¹ - With Auto. Trans. in Drive.

² - 500 RPM on models without A/C.

IDLE MIXTURE

NOTE: Idle mixture screws on some 1977-78 and all 1979 Rochester 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 - 1) Remove carburetor from engine, invert carburetor and drain fuel. Place inverted carburetor on holding fixture manifold side up.

2) Place a punch between the two locator marks on throttle body beneath each mixture screw plug (manifold side) and break out throttle body to gain access to plugs.

3) Use punch to drive out both plugs. If plugs shatter, remove loose pieces.

TACHOMETER (LEAN DROP) PROCEDURE

1975-77 Only - 1) Warm engine to operating temperature. Set idle speed. Connect a tachometer to engine. 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 to indicated RPM in IDLE MIXTURE (RPM) table.

IDLE MIXTURE (RPM)

Application	Before Lean Drop RPM	After Lean Drop RPM
1975-76		
260"		
Federal	610	550
Calif.	700	600
All Others	680	600

IDLE MIXTURE (RPM) (Cont.)

Application	Before Lean Drop RPM	After Lean Drop RPM
1977		
301"	590	550
305"	530	500
350" (VIN H)	660	600
350" (VIN J)	600	550
350" (VIN "L")		
Fed. & Calif.	550	500
High Alt.	650	600
350" (VIN "R") & 403"		
Federal	580	550
Calif.	575	550
High Alt.	625	600

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.

PROPANE ENRICHMENT PROCEDURE

1978-79 Only - 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 Tune-Up Decal under the hood.

2) Connect tachometer to engine. Disconnect vacuum advance hose and set timing to specification on Emission Decal. Reconnect vacuum advance. Disconnect PCV ventilation tube from air cleaner. Insert hose with rubber stopper (J-26911) from propane valve into PCV tube opening in air cleaner.

3) Propane cartridge must be in vertical position. Slowly open propane control valve until maximum engine speed is reached.

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 speed screw to the "Enriched RPM". See PROPANE ENRICHED IDLE SPEED (RPM) table. 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 engine 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 Decal, idle mixture is correct. Proceed to step 8).

6) If idle speed is too low, back mixture screws out $\frac{1}{8}$ turn at a time until correct speed is reached. If speed is too high, turn mixture screws in $\frac{1}{8}$ turn at a time until correct speed is obtained.

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

PROPANE ENRICHED IDLE SPEED (RPM)

Application	Enriched RPM
301" 2-Bbl.	530
301" 4-Bbl.	540
305" 2-Bbl.	520-540
305" 4-Bbl. & 350" (VIN "L")	
High Alt.	630-670
All Others	520-560
350" (VIN "R") & 403"	
Federal	625-640
Calif.	575
High Alt.	590
350" (VIN "X")	590

¹ - 580 RPM on 1979.

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

1975-79 TUNE-UP PROCEDURES

Buick V8 (Cont.)

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 mixture 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.

COLD (FAST) IDLE RPM

With engine at normal operating temperature, disconnect and plug vacuum hose at EGR valve. Position cam follower on specified cam step and turn fast idle screw to obtain fast idle RPM.

FAST IDLE SPEED (RPM)

Application	RPM	Cam Step
1975	900	Low
1976		
2-Bbl.	900	Low
4-Bbl.	1800	High
1977-78		
301" 2-Bbl.	2200	2nd
305" 2-Bbl.		
305" 4-Bbl.	1600	Highest
350" (VIN L)	1600	² Highest
350" (VIN H)		
350" (VIN R)	1000	² Highest
350" (VIN X)	1550	² Highest
403"		
Calif. & High Alt.	1000	²
Federal	900	²
1979		
301" 2-Bbl.	2000	²
301" 4-Bbl.	2200	²
305" 2-Bbl.	1600	²
305" 4-Bbl. & 350" (VIN "L")		
High Alt.	1750	²
All Others	1600	²
350" (VIN "R") & 403"		
Calif.	1000	²
All Others	¹ 900	²
350" (VIN "X")	1500	²

¹ - Use step noted on Emission Control Tune-Up Decal.

² - 1000 RPM on High Alt. 403".

NOTE: Some 1975 models with 4-Bbl. carburetors may develop poor driveability during cold engine operation. This may be caused by the air cleaner damper door not closing. Ensure the vacuum hose between air door motor and air temperature sensor under air cleaner housing is not pinched. If necessary, shorten the vacuum hose and check routing.

AUTOMATIC CHOKE

Loosen choke cover retaining screws. Position fast idle cam follower on highest step of fast idle cam. Rotate cover and coil assembly counterclockwise until choke valve just closes. Align index mark on cover with specified mark on choke housing. Tighten cover retaining screws.

AUTOMATIC CHOKE SETTING

Application	Setting
1975	1NR
1976	
350" Calif. 4-Bbl.	Index
All Others	1NR

AUTOMATIC CHOKE SETTING (Cont.)

Application	Setting
1977	
M4MC 4-Bbl.	
17057241	1NR
17057248	Index
17057202, 204, 502, 504, 582, 584	2NL
All Others	2NR
1978	
2GC	¹ / ₂ NL
M2MC	2NL
M2ME	1NR
M4MC 4-Bbl.	
17058254, 259	3NR
17058241	1NR
17058250, 253, 257, 258, 550, 553	2NR
17058282, 284	Index
All Others	2NR
M4ME	Index
1979	
301"	2NR
305" 2-Bbl.	¹ / ₂ NL
305" 4-Bbl. & 350" (VIN "L")	
High Alt.	1NL
All Others	2NL
350" (VIN "R") & 403"	2NR
350" (VIN "X")	1NR

CARBURETION

CARBURETORS

Application	Model
260" 2-Bbl.	Rochester 2MC
305" & 350" 2-Bbl. (1975-77 Only)	Rochester 2GC
301" & 305" 2-Bbl.	Rochester M2MC
All Others	Rochester M4MC, M4ME & M4MCA

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

FUEL PUMP

Application	Specification
Pressure (At Carburetor Level)	
260", 350" (VIN "R") & 403"	5.5-6.5 psi
301"	7.0-8.5 psi
305" & 350" (VIN "L")	7.5-9.0 psi
350" (VIN "H", "J", "X")	3.0 psi
455"	4.5 psi
Volume (At Idle)	1 pint in 30 sec.

IGNITION

DISTRIBUTOR

Delco High Energy Ignition.

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

IGNITION COIL

COIL SPECIFICATIONS

Application	Specification
Resistance	
Primary (At 75°F)	
1975-77	.4-.5 ohm
1978-79	.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	25-35 KV