CHEVROLET

1963-64 Bel Air, Biscayne, Impala

TUNE-UP AND WHEEL ALIGNMENT

CTC-2

CYLINDER NUMBERING SEQUENCE

230 eng.

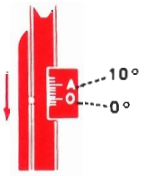
FIRING ORDER: 1 5 3 6 2 4

283 eng.

327, 409 eng.

FIRING ORDER: 1 8 4 3 6 5 7 2

TIMING MARK



6-cyl.
(Each line equals 2°)

V-8
(Each line equals 2°)

ENGINE IDENTIFICATION

Code Location: 6-cyl. right side of engine at rear of distributor. V-8 eng. immediately forward of right cylinder head.

Engine Code 1963	Engine Code 1964	Engine			Horsepower
—	—	6	230	1V	140
—	—	V-8	283	2V	195
R,S	R,S	V-8	327	4V	250
RB,SB	RB,SB	V-8	327	4V Hi-Perf.	300
QC,QG	QC, QG	V-8	409	4V	340
QA	QA	V-8	409	4V Solid lifters	400
QB	QA	V-8	409	8V Solid lifters	425

BATTERY

Negative ground

	ATLAS Group No.	Ampere Hours
230, 283 eng.	23	53
327, 409 eng.	23	53, 70
Optional, all	23	70

COMPRESSION PRESSURE

(at cranking speed, engine warm, throttle open)

		psi	Maximum Variation psi
230 eng.		130	20
283 eng.	1963	140	20
	1964	150	20
327 eng.		160	20
409 eng.		150	20

FUEL SYSTEM

FUEL PUMP

AC mechanical

Pressure: 230 eng. 3½-4½ lb. 283, 327, 409 (340-hp) eng. 5¼-6½ lb. 409 (400-, 425-hp) eng. 7¼-8½ lb. All @ idle to 1000 rpm

Volume: ⅝ pint in 30-45 seconds @ idle rpm

CARBURETOR ADJUSTMENT

Carter, Rochester	Idle Mixture (initial turns)	Choke (notches) Man. Trans.	Auto. Trans.
1963-64 230-1V, BV	1½	*	*
1963 283 2V, 2GC	1½	1 lean **	index
1964 283 2V, 2GV	1½	*	*
1963-64 327 (250-hp) 4V, 4GC	1-1½	index	index
1963-64 327 (250-hp) 4V, WCFB	1	index	index
1963 327 (300-hp) 4V, AFB	1½	1 lean	index
1964 327 (300-hp) 4V, AFB	1½	1 lean	1 lean
1963 409 4V, AFB	1½	2 lean	—
1964 409 4V, 4GC	1-1½	index	—
1963-64 409 8V, AFB	1½-2	2 rich	—

* 1 rod diameter above top of hole in choke lever. ** W/Air cond. index. ½ rod diameter above top of hole in choke lever.

ENGINE IDLE SPEED

		Man. Trans.	Auto. Trans.
1963	230 eng.	475-525	475-525 D
1964	230 eng.	450-500	450-500 D
1963	283, 327 (250-hp), 409 (340-hp) eng.	450-500	425-475 D
1964	283, 327 (250-hp), 409 (340-hp) eng.	450-500	450-500 D
1963-64	327 (300-hp) eng.	750-850	—
1963-64	409 (400-, 425-hp) eng.	950-1000	—

IGNITION SYSTEM

SPARK PLUGS

ATLAS Champion: 6-cyl. UN-12Y. V-8: 283, 327 ex. hi-perf. UJ-12Y or J-12Y; 327 hi-perf. J-7; 409 UN-12Y

Gap: .035"
Torque: 25 ft. lb.

IGNITION POINTS

ATLAS: 6-cyl. P1-9D. V-8 P1-7D

	Gap (inches) Used	Gap (inches) New	Dwell (degrees)	Max. Dwell Variation (degrees @ rpm)	Spring Tension (ounces)
6-cyl.	.016	.019	31-34	3 @ 1750	19-23
V-8	.016	.019	28-32	3 @ 1750	19-23

CONDENSER

ATLAS: 6-cyl. P2-1D. V-8 P2-2D

Capacity: .18-.23 mfd

COIL

Delco

	Resistance (ohms) 230 eng.	283, 327 eng.	409 eng.
Primary	1.45-1.63	1.28-1.42	1.03-1.13
Secondary	5600-6900	7200-9500	8000-10,500

TIMING SETTING

(Before Top Dead Center unless otherwise specified) (Each line equals 2°)

Engine	230	283	327 (250-hp)	327 (300-hp)	409 (340-hp)	409 (400-, 425-hp)
1963 Man. Trans.	4°(4 -8)	4	4°	8°	8°	12°
Auto. Trans.	4°(4 -8°)	4°	4°	—	—	—
1964 Man. Trans.	4°(4 -8)	4°(4 -8)	4°(4 -8)	8°(6 -12)	6°	12°
Auto. Trans.	4°(4 -8°)	4°(4 -8°)	4°(4 -8)	—	—	—

CHARGING SYSTEM

BELT TENSION

A belt operated more than 1,000 miles is considered a used belt.

Deflection method: Apply 15-pound pressure to belt midway between pulleys. Measurements are in fractions of an inch.

Gauge method: Use a strand tension gauge. Measurements are in pounds.

	Alternator	Power Steering	Air Cond.
Used	75	70	½-¾
New	80	75	½-¾

ALTERNATOR

Delcotron	Output (amperes @ 2500 rpm)	Field Current Draw (amperes @ 12.0 V)
	37	1.9-2.3
Optional (No. 1100669)	42	1.9-2.3
Air Cond.	55	2.2-2.6

REGULATOR

Delco

Voltage Limiter Setting (volts)					
Ambient Air Temperature °F.	85	105	125	145	165
Voltage	13.8-14.8	13.7-14.6	13.5-14.4	13.4-14.2	13.2-14.0

Field Relay Closing (volts) 2.3-3.7

VALVE CLEARANCES

(engine hot and running)

	Normal Intake	Normal Exhaust	High Speed Intake	High Speed Exhaust
1963 327 (300-hp) eng.	.012"	.020"	.018"	.030"
1963 409 (400-, 425-hp) eng.	.025"	.025"	.030"	.030"

1963 230, 283, 327 (250-hp), 409 (340-hp) eng.: hydraulic lifters
1964 230, 283, 327, 409 eng.: hydraulic lifters

WHEEL ALIGNMENT

	Caster ♦ (degrees)	Camber ♦ (degrees)	Toe-In (inches)	Toe-Out on Turns (degrees) Outside Wheel	Toe-Out on Turns (degrees) Inside Wheel	Steering Axis Inclination (degrees @ degree camber)
Low	−½	0	1/16			
Ideal	0	− ½		18	20	6¾-7¾ @ 0
High	− ½	+ 1	3/16			

♦ Variation between wheels should not exceed ½ .

TIRE PRESSURE

	LIGHT LOAD (to 750 lbs.) Front	LIGHT LOAD (to 750 lbs.) Rear	FULL LOAD Front	FULL LOAD Rear
7.00-14, 7.50-14, 8.00-14	24	24	24	24
8.00-14 wagon	24	28	22	30


1964


1963

CHEVROLET

1963-64 Bel Air, Biscayne, Impala

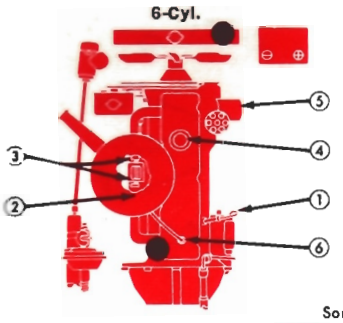
SERVICE AT TIME OR MILEAGE—WHICHEVER COMES FIRST

CTC-2A

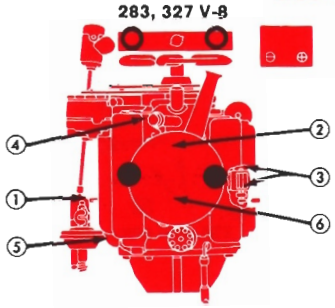
HOOD RELEASE: Front

CTC-2A

6-Cyl.

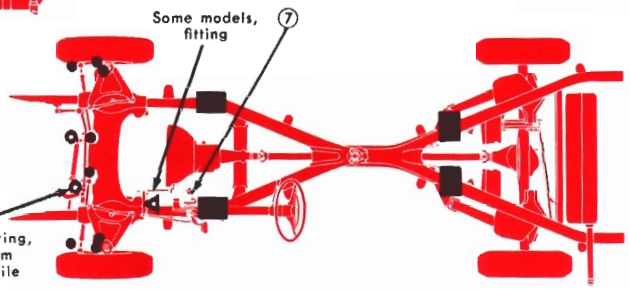


283, 327 V-8



① Crankcase dipstick
Right front on 409 engine
② Fuel filter
③ Manifold heat valve
④ Oil fill cap
⑤ Oil filter
⑥ PCV valve
⑦ Powerglide shift linkage

8-11 FITTINGS 0-1 PLUG
Use low pressure or hand gun



Chek-Chart®

■ Lift adapter position
△ Plug, some models
● Cooling system drain
• Fitting
○ Fitting, some models
○ Cooling system drain, some models

EVERY CRANKCASE OIL CHANGE

Above 0°, 60 days or 6,000 miles
Below 0°, 30 days or 6,000 miles

Crankcase . . . . . change oil
Oil filter . . . . . replace
Under car on V-8. Replace at every third oil change or every 6,000 miles
Oil fill cap . . . . . clean and oil **MO**
With closed PCV, sealed cap, no service
Differential . . . . . check level
Transmission, manual . . . . . check level
Brake master cylinder . . . check level **HB**
Cooling system . . . . . check level
Maintain protection at least to 0° F.
Power steering reservoir . . . . . **AF**
Check level with wheels in straight ahead position
Transmission, automatic . . . . check level
At operating temperature, engine idling, in NEUTRAL.
Body . . . . . lubricate

✱ EVERY 6,000 MILES

Clutch cross shaft . . . . . fitting **UN**
Some models
Front suspension and steering linkage . . . . . 8-10 fittings **UN**
Parking brake cables, pulleys and guides . . . . . coat **UN**
Powerglide shift linkage . . . . . coat **UN**
Tires . . . . . rotate
Air cleaner paper element . . . . . check
Check after first 12,000 miles of use and replace if necessary. If not replaced, recheck every 6,000 miles until replaced
Battery . . . . . check level
Also clean terminals and oil felt washer
Manifold heat valve . . . . . **MH**
Lubricate if shaft is not free
PCV system . . . . . replace valve
Also remove and clean hose and related parts
ATLAS: 6-cyl. **PA-18.** V-8 **PA-17**

✱ EVERY 12,000 MILES

Air cleaner polyurethane element . . . **MO**
Clean and oil
Distributor cam lubricator . . . . . turn
6-cyl., rotate 180°; V-8, turn end for end
Engine . . . . . tune-up
Fuel filter . . . . . replace element

✱ EVERY 24 MONTHS

Cooling system . . . . . change coolant
Provide freezing protection to at least −32° F.

CAPACITY, quarts	w/heater	w/air cond.
6-cyl.	10	11½
V-8 409 eng.	18¼	19¾
1963 283, 327 eng.	15½	17
1964 283 eng.	14¼	15¾
327 eng.	13¼	14¾
300-hp	15	16½

Pressure, 13 pounds; with air conditioning, 15 pounds

✱ EVERY 24,000 MILES

Transmission, automatic . . . change fluid
Distributor cam lubricator . . . . . replace

✱ EVERY 30,000 MILES

Universal joints 1963 . . . . . repack **UN**

✱ EVERY 36,000 MILES

Clutch cross shaft . . . . . plug **UN**
Some models
Front wheel bearings . . . . . **WB**
Clean and repack
Torque 12 ft. lb.; back off ⅛ to ¼ turn
Steering gear . . . . . check level **GX**
Some models, fill thru screw hole

SEVERE SERVICE

Crankcase—Under conditions of extreme dust, frequent trailer-hauling, continuous stop-start or prolonged idling, oil should be changed if 3,000 miles between regular oil change intervals is exceeded

Transmission, automatic—Under heavy-duty operating conditions or extensive stop-and-go driving, replace fluid every 12,000 miles

✱ **REPEAT SERVICES SCHEDULED AT SHORTER TIME OR MILEAGE**

Esso

KEY TO LUBRICANTS

AF Esso Automatic Transmission Fluid
GX Esso Gear Oil GX
HB Atlas Brake Fluid Heavy Duty 400
MH Atlas Lock Ease
MO Uniflo, Esso Extra, Mobiloil Super, Mobiloil Special
UN Esso Unitol Grease
WB Esso Unitol Grease*
* Caution—Remove old grease before repacking bearings

* For Positraction Differential: Use special lubricant GM Part No. 5786991 for complete fills. Esso Gear Oil GX may be used alone for top-up

CRANKCASE . . . . . **3¼ quarts MO**
except 409 eng., **4 quarts**
Change in Winter every 30 days*
in Summer every 60 days*
* But never exceed car manufacturer's recommendations
Add extra ¾ quart when replacing oil filter

Above +32° . . .	20W	5W-30, 10W-30*
Above 0°	10W	5W-30, 10W-30*†
Below 0°	. . .	5W-30, 5W-20

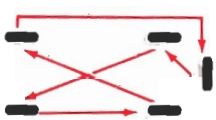
* 10W-40 may be used
† 5W-20 may be used

TRANSMISSION, Automatic . . . . . **AF**
CAPACITY 1¾ quarts
To drain, remove plug or pan

TRANSMISSION, Manual . . . . . 80 **GX**
CAPACITY, pints 3-speed, 1¾; 4-speed, 2

DIFFERENTIAL . . . . . 80 **GX***
CAPACITY 3¼ pints
POSITRACTION IDENTIFICATION:
Circular metal tag under fill plug

TIRE ROTATION



BRAKES

Brakes are self-adjusting. Adjustment not normally required
Bleeding sequence: **LR, RR, RF, LF**