

## TUNE-UP

### ENGINE IDENTIFICATION

Engine Code letters are suffix of Engine Identification Number. Number is stamped on a pad on front right hand side of cylinder block.

Application	Code
307" Man. Trans. ....	WA, WB, WD, WY, WL, WI, WH, WG, WN
307" Auto. Trans. ....	WE, WC, WO, WF, WM, WR, WW, WP, ZX, ZY
327" Man. Trans. ....	YC, YS, YX, YL, YA
327" Auto. Trans. ....	YD, YK, YU, YB, YR, YH, YT, YU, YJ, YM
396" Man. Trans. ....	XF, XK, XN
396" Man. Trans. W/A.I.R. ....	XE
396" Auto. Trans. ....	XH, XL, XM
396" Auto. Trans. W/A.I.R. ....	XG

### MODEL IDENTIFICATION

#### VEHICLE IDENTIFICATION NUMBER

The Vehicle Identification Number is found on the GVW Rating plate. Plate is attached to upper left hand door pillar on "C" and "K" models, on left cowl inner panel on all cowl models and on left side of steering column on "G" and "P" models.

CS138F100043

- First Digit - Chassis Designation.
- Second Digit - Engine Designation.
- Third Digit - GVW Rating.
- Fourth Digit - Truck Type.
- Fifth Digit - Model Year 8 (1968).
- Sixth Digit - Assembly Plant.
- Remaining Digits - Sequence Built Number.

### TUNE-UP NOTES

► **IDLE SPEED ADJUSTMENT CAUTION** - 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 CARBURETION 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.

### COMPRESSION PRESSURE

With air cleaner removed and throttle and choke wide open, crank engine through at least four compression strokes. Compression should be 150 psi with a maximum variation of 20 psi between cylinders.

### VALVE TAPPET CLEARANCE

Hydraulic Lifters ..... One turn down from zero lash.

### VALVE ARRANGEMENT

- 307", 327" E-I-I-E-E-I-I-E (Both banks, front to rear.)
- 396" E-I-E-I-E-I-E-I (Left bank, front to rear.)
- I-E-I-E-I-E-I-E (Right bank, front to rear.)

### SPARK PLUGS

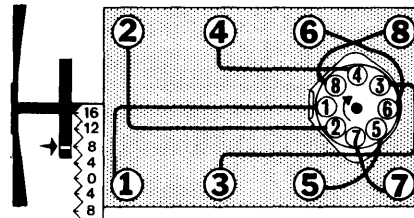
Gap ..... .035"  
Torque..... 25 ft. lbs.

#### Spark Plug Type

Application	AC No.
307" .....	44S
327" .....	44
396" .....	43N

### DISTRIBUTOR

Point Gap  
New ..... .019"  
Used ..... .016"  
Cam Angle..... 28-32°  
Breaker Arm Spring Tension ..... 19-23 ozs.  
Condenser Capacity ..... .18-.23 mfd.



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### FIRING ORDER & TIMING MARKS

### IGNITION TIMING

Ignition timing is checked or adjusted with engine at normal operating temperature, distributor vacuum line disconnected from distributor and plugged, manual transmission in Neutral and automatic transmission in "D".

Application	Timing
307" All .....	2° BTDC
327" All (Exc. Man. Trans. W/A.I.R.) .....	4° BTDC
327" Man. Trans. W/A.I.R. ....	0° BTDC
396" All .....	4° BTDC

### HOT (SLOW) IDLE RPM

**Without Idle Speed Solenoid** - Screw idle mixture screws into stop, then back out three turns. Start engine and warm to normal operating temperature. With choke valve and preheater valve wide open, manual transmission in Neutral, automatic transmission in "D" and air conditioning "OFF", ad-

## TUNE-UP (Cont.)

just idle speed screw to specified RPM. Adjust idle mixture screws until highest steady idle speed is obtained. Turn mixture screws in until engine speed drops 20 RPM, then back out ¼ turn. Readjust idle speed screw to specified RPM if necessary.

**With Idle Speed Solenoid** — Screw idle mixture screws into stop, then back out three turns. Start engine and warm to normal operating temperature. With choke valve and preheater valve wide open, manual transmission in Neutral, automatic transmission in "D" and air conditioning "OFF", adjust idle speed to 500 RPM by adjusting solenoid plunger with a wrench. Disconnect wire to solenoid, with solenoid de-energized, throttle lever should contact carburetor idle screw. Adjust screw to obtain an engine speed of 400 RPM. Adjust idle mixture screw in until highest steady idle speed is obtained, then turn mixture screw in until engine speed drops 20 RPM and back out ¼ turn. Readjust to obtain specified RPM if necessary.

### Idle Speed (RPM)

Application	RPM
307" All (W/O A.I.R.)	500
307" Man. Trans. (W/A.I.R.)	700
307" Auto. Trans. (W/A.I.R.)	600
327", 396" Man. Trans. (All)	700
327", 396" Auto. Trans. (All)	600

### COLD (FAST) IDLE RPM

**Rochester 2G** — Nonadjustable, preset by manufacturer.

**Rochester 4MV** — With cam follower on highest step of fast idle cam, adjust fast idle speed to 2400 RPM.

## GOVERNOR ADJUSTMENT

### SPEED ADJUSTMENT

**307"** — To adjust governor for higher speed, rotate adjusting cap counterclockwise. To obtain a lower speed, rotate cap clockwise.

## SURGE & STABILITY ADJUSTMENT

**307"** — If a surging condition exists, remove adjusting cap and shaft assembly. Using a suitable hollow wrench (A-24283), hold nut in bore and rotate screw one turn to right with a suitable hex wrench (A-25264). Now turn nut ¼ turn to right without turning screw. If a more sensitive adjustment is required, use same procedure and turn screw and nut to left. Tap lightly on wrench securing nut to ensure nut is seated correctly. Replace shaft assembly and adjusting cap.

## CHOKE ADJUSTMENT

**Manual Choke** — To adjust choke, push knob into stop, then pull out ⅛". Loosen cable clamp at carburetor bracket and adjust cable through clamp until choke valve is fully open, tighten cable clamp. Make sure choke valve fully opens and closes as cable is actuated.

**Automatic Choke** — With air cleaner removed, check that choke valve and rod move freely. Disconnect choke rod at choke lever. Hold choke valve in fully closed position and pull choke rod down against stop. The top of choke rod should be even with bottom of hole in choke lever. To adjust, bend choke rod until it freely enters hole. Reconnect rod and install air cleaner.

## FUEL PUMP PRESSURE & VOLUME

Pressure (At Idle)..... 5-6.5 psi  
Volume (At Cranking Speed)..... 1 pt. in 30-45 sec.

## MANIFOLD HEAT CONTROL VALVE

Check valve for freedom of movement and lubricate with a suitable solvent (GM Manifold Heat Control Valve Solvent).

## EMISSION CONTROL

See appropriate article in EMISSION CONTROL Section.

## IGNITION

### DISTRIBUTOR

Application	Delco Part No.
307" Man. Trans.	Ⓛ1111439
307" Auto. Trans.	1111257
327" Man. Trans. (Exc. W/4-Bbl.)	1111298
327" Auto. Trans. (Exc. W/4-Bbl.)	1111297
327" W/4-Bbl.	1111305
396" All	1111169

Ⓛ — Second production — 1111257.

Other Data & Specifications — See Tune-Up and Delco Distributors in ELECTRICAL Section,

### IGNITION COIL

Application	Delco Part No.
All	1115238
<b>Resistance</b>	<b>Ohms @ 75°F</b>
Primary	1.77-2.05
Secondary	3,000-20,000
Ballast Resistor Loom	1.8

# 1968 Chevrolet V8 Tune-Up

## CARBURETION

### CARBURETORS

#### Rochester Model 2G 2-Bbl.

Application	Carb. No.
307" 10 Series (Early).....	7028105
307" 10 Series W/Gov. (Early).....	7028106
307" 10 Series W/O.D. (Early).....	7028100
307" 10 Series (Late).....	7028125
307" 20 Series (Early).....	7028107
307" 20 Series W/Gov. (Early).....	7028111
307" 20 Series (Late).....	7028127

#### Rochester Model 4MV 4-Bbl.

Application	Carb. No.
327" (All).....	7028213
396" (All).....	7028211

Other Data & Specifications — See *Tune-Up and Rochester Carburetors* in **CARBURETION** Section.

### ACCELERATOR LINKAGE ADJUSTMENT

All (Exc. "G" Models) — With accelerator pedal depressed to floor and throttle lever in wide open position, adjust swivel on throttle rod until it freely enters hole in pedal lever (P-20 and P-30) or hole in throttle lever (all remaining models).

"G" Models — Disconnect swivels "D" and "J" from their respective levers (see illustration). Insert a  $\frac{3}{16}$ " diameter gauge pin in hole "B" on lever "A" and accelerator pivot bracket. Rotate throttle lever to wide open position and adjust swivel "D" until it freely enters hole in lever "A". Depress accelerator pedal until it is  $\frac{1}{4}$ " from floor and adjust swivel "J" until it freely enters hole in lever "A". Install clips on swivel and remove gauge pin.

### THROTTLE VALVE LINKAGE ADJUSTMENT

Powerglide Trans. — With air cleaner removed, disconnect accelerator linkage at carburetor, accelerator return spring



### "G" MODELS ACCELERATOR LINKAGE ADJUSTMENT

and throttle valve rod return spring. Pull up on throttle valve control rod until it reaches internal stop in transmission. If throttle valve rod is correctly adjusted, carburetor must reach wide open position at the same time ball stud contacts slot in upper end of throttle valve rod. If adjustment is incorrect, adjust swivel on upper end of rod until correct condition exists. Allowable tolerance is  $\frac{1}{32}$ ". Check accelerator linkage adjustment. See *Accelerator Linkage Adjustment*.

### DETENT SWITCH ADJUSTMENT

Turbo Hydra-Matic Trans. — Accelerator linkage must be correctly adjusted before adjusting detent switch. See *Accelerator Linkage Adjustment*. Rotate throttle lever to wide open position and adjust switch on mount until .20" (327") and .05" (307" and 396") clearance is obtained between switch and lever.

## ELECTRICAL

### BATTERY

12 Volt — Negative Ground.

Application	Capacity (Amps)
"G" Models (Standard).....	45
"P" Models (Standard).....	70
All Others W/307" (Standard).....	53
All Others W/327", 396" (Standard).....	61
"G" Models (Optional).....	70

### STARTER

Application	Delco Part No.
307", 327" Man. Trans. (3-Speed).....	1108368
327" Man. Trans. (4-Speed).....	1108362
396" Man. Trans. ....	1108385
307", 327" Auto. Trans. (Powerglide).....	1108367
All Auto. Trans. (Turbo Hydra-Matic).....	1107365
All "P" Models (Optional).....	1108372
327" (Optional).....	1108364

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

### ALTERNATOR

Application	Amps	Delco Part No.
Standard <sup>①</sup> .....	37	1100794
Standard <sup>②</sup> .....	42	1100795
Optional All.....	61	1100750
Optional All <sup>③</sup> .....	62	1117782, 1117756

- ① — Except on P-20 and 30 models, models equipped with A/C and stake bed models with dual rear wheels.
- ② — Standard on P-20 and 30 models, models equipped with A/C and stake bed models with dual rear wheels.
- ③ — Except "G" models.

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

## ELECTRICAL (Cont.)

### ALTERNATOR REGULATOR

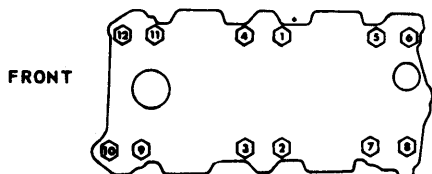
Other Data & Specifications - See Delco Alternator Regulators in ELECTRICAL Section.

<b>Application</b>	<b>Delco Part No.</b>
All (Exc. 62 Amp Alt.).....	1119515
62 Amp Alt. ....	1116378

## ENGINE

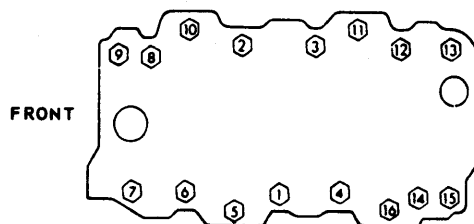
### INTAKE MANIFOLD TIGHTENING

Tighten bolts to 30 ft. lbs. in sequence shown in illustration.



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### 307", 327" INTAKE MANIFOLD TIGHTENING SEQUENCE



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### 396" INTAKE MANIFOLD TIGHTENING SEQUENCE

BELT ADJUSTMENT		
Tension (Lbs.) Using Strand Tension Gauge		
Application	New Belt	Used Belt
Water Pump.....	125±5	75±5
Power Steering.....	125±5	75±5
Air Conditioning.....	140±5	95±5
A.I.R. Pump.....	75±5	55±5

FILTERS & CLEANERS	
Filter & Cleaner	Service Interval (Miles)
Oil Filter.....	Replace 12,000
Air Cleaner	
Oil Bath Type.....	①Check 12,000
Element Type.....	②Replace 24,000
Foam Type.....	Clean 12,000
Crankcase Ventilation Filter.....	③Clean 6,000
Crankcase Breather.....	Clean 6,000
Crankcase Ventilation Valve.....	Replace 12,000
Governor Filter.....	Replace 12,000
A.I.R. Filter.....	Clean 12,000
Turbo Hydra-Matic Sump Strainer.....	Replace 24,000
Fuel Filter.....	Replace 12,000
Distributor Cam Lubricator.....	Replace 24,000

① - Clean and replace with SAE 50 oil.  
 ② - Replace if dirty, do not clean.  
 ③ - If equipped, clean and replace with SAE 20 oil.

CAPACITY (EXCEPT COOLING)	
Application	Quantity
<b>Crankcase</b>	
283".....	① 4 qts.
327".....	① 5 qts.
<b>Automatic Transmission</b>	
Powerglide.....	9 qts.
Turbo-Hydramatic.....	9.5 qts.
<b>Manual Transmission</b>	
3-Speed.....	2 pts.
Overdrive.....	1 pt.
Heavy Duty 3-Speed.....	2.75 pts.
4-Speed.....	6.25 pts.
Four-Wheel Drive Transfer Case.....	5 pts.
Power Take-Off.....	1 pt.
<b>Rear Axle</b>	
3300, 3500 lb.....	4.5 pts.
5200, 7200 lb.....	6.5 pts.
11000 lb.....	18 pts.
Front Axle (Four-Wheel Drive).....	5 pts.
Four-Wheel Drive Knuckle Ends.....	5 pts.
<b>Fuel Tank</b>	
C-10, C-20, C-30, K-10, K-20	
Standard.....	18.5 gals.
Optional.....	20.5 gals.
C-10, C-20 Cowl Models.....	20.5 gals.
C-30 Cowl Models.....	21 gals.

① - Add 1 quart with filter change.

COOLING CAPACITIES	
Application	①Quantity
All Models W/307" (Exc. "G").....	18 qts.
All Other "C" and "G" Models.....	17 qts.
All Others.....	17.5 qts.

① - Add 1 quart with heater.

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## ENGINE (Cont.)

<b>CAPACITIES (EXCEPT COOLING)</b>	
<b>Application</b>	<b>Quantity</b>
Crankcase .....	① 4 qts.
<b>Automatic Transmission</b>	
Powerglide .....	② 9 qts.
Turbo Hydra-Matic .....	9.5 qts.
<b>Manual Transmission</b>	
3-Speed .....	1.75 pts.
Heavy Duty 3-Speed .....	3.5 pts.
4-Speed .....	6 pts.
Overdrive .....	.5 pt.
Four-Wheel Drive Transfer Case .....	5 pts.
<b>Rear Axle</b>	
2400 lb. ....	3.5 pts.
2900, 3300, 3500 lb. ....	4.5 pts.
5200, 7200 lb. ....	6.5 pts.
11,000 lb. ....	14 pts.
Front Axle (Four-Wheel Drive).....	5 pts.
Four-Wheel Drive Knuckle Ends.....	.5 pts.
<b>Fuel Tank</b>	
"G" Models.....	16 gals.
"C" and "K" Models	
Standard.....	18 gals.
Optional.....	21 gals.
C-10, C-20 Cowl Models, P-10.....	20.5 gals.
C-30 Cowl Models.....	21 gals.
P-20, P-30 Short Wheelbase .....	15.5 gals.
P-20, P-30 Long Wheelbase	
Standard.....	18 gals.
Optional.....	30 gals.
① — Add 1 quart with filter change.	
② — Add 1 quart if equipped with oil cooler.	