

## 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. ....  | UA, UB, UO, UP, UG, UH                       |
| 307" Auto. Trans. .... | UC, UD, UE, UF, UM, UN<br>UQ, UI, UJ, UK, UL |
| 350" Man. Trans. ....  | XA, XB, XW, XX                               |
| 350" Auto. Trans. .... | XC, XD, XO, XY, XZ, WA                       |
| 396" Man. Trans. ....  | YR, YS                                       |
| 396" Auto. Trans. .... | YP, YQ                                       |

### 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.

CS139F100043

- First Digit - Chassis Designation.
- Second Digit - Engine Designation.
- Third Digit - GVW Rating.
- Fourth Digit - Truck Type.
- Fifth Digit - Model Year 9 (1969).
- 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", 350"  
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

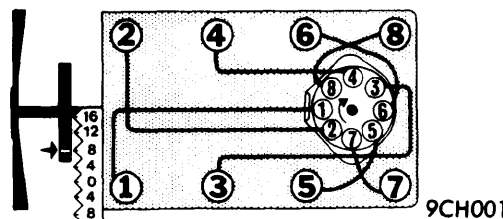
Gap ..... .035"  
Torque.....25 ft. lbs.

#### Spark Plug Type

| Application      | AC No. |
|------------------|--------|
| 307", 350" ..... | R44    |
| 396" .....       | R43N   |

### DISTRIBUTOR

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



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, automatic transmission in "D" and engine at normal idle.

| Application           | Timing  |
|-----------------------|---------|
| 307" All .....        | 2° BTDC |
| 350" Man. Trans. .... | 0° BTDC |
| All Others .....      | 4° BTDC |

## TUNE-UP (Cont.)

## 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", adjust 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 from solenoid (solenoid de-energized), throttle lever should contact carburetor idle screw. Adjust screw to obtain an engine speed of 400 RPM. Reconnect solenoid and adjust idle mixture screws until highest steady idle speed is obtained, then turn mixture screws in until engine speed drops 20 RPM and back out ¼ turn. Readjust solenoid to obtain specified RPM if necessary.

| Application            | Idle Speed (RPM) | RPM |
|------------------------|------------------|-----|
| All, Man. Trans. ....  |                  | 700 |
| All, Auto. Trans. .... |                  | 600 |

## COLD (FAST) IDLE RPM

**Rochester 2G & 2 GV 2-Bbl.** — Preset by manufacturer, fast idle RPM is correct when Hot (Slow) Idle RPM is correctly adjusted.

**Rochester 4MV 4-Bbl.** — With cam follower on highest step of fast idle cam, adjust 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 &amp; 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 procedures 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 and tighten 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 upward to end of travel. The bottom of choke rod should be even with top of hole in choke lever. To adjust, bend rod at offset until it freely enters hole in choke lever. Reconnect rod and install air cleaner.

## FUEL PUMP PRESSURE &amp; 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" All .....                | 1111481           |
| 350" 4-Bbl. Man. Trans. ....  | 1111956, ①1111486 |
| 350" 4-Bbl. Auto. Trans. .... | 1111955, ①1111487 |
| 396" All .....                | 1111500           |

① — Second production.

**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 Loom Resistor ..... | 1.8                |

## CARBURETION

### CARBURETORS

#### Rochester Model 2G & 2GV 2-Bbl. ①

| Application                       | Carb. No. |
|-----------------------------------|-----------|
| 307" G-10 (Man. Choke).....       | 7029125   |
| 307" All Others (Man. Choke)..... | 7029107   |
| 307" W/ Gov. (Man. Choke).....    | 7029108   |
| 307" All (Auto. Choke).....       | 7029105   |

① - G designates manual choke and GV designates automatic choke.

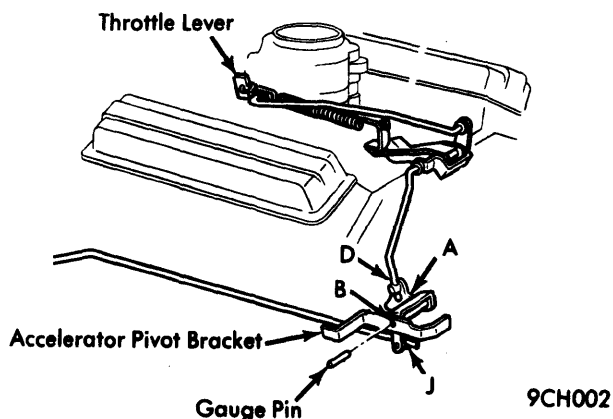
#### Rochester Model MV 4Bbl.

| Application    | Carb. No. |
|----------------|-----------|
| 350" All ..... | 7029223   |
| 396" All ..... | 7029214   |

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) and hole in throttle lever (all remaining models).



### "G" MODELS ACCELERATOR LINKAGE ADJUSTMENT

"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 floorboard 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. Only - With air cleaner removed, disconnect accelerator linkage at carburetor, accelerator return spring 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 CABLE ADJUSTMENT

Turbo Hydra-Matic 350 Trans. Only - Remove air cleaner and loosen detent cable clamp. Adjust accelerator linkage if necessary. With choke valve wide open, position throttle lever in wide open position and pull detent cable rearward until internal stop in transmission is felt. Cable must be pulled through transmission detent to reach wide open position. Tighten cable clamp and check linkage for correct operation.

### DETENT SWITCH ADJUSTMENT

Turbo Hydra-Matic 400 Trans. Only - Accelerator linkage must be correctly adjusted before adjusting detent switch. See *Accelerator Linkage Adjustment.* Rotate throttle lever to wide open position. On 307" and 396" engines, adjust switch until .05" clearance is obtained between switch and lever. On 350" engines, adjust switch on mount until .20" clearance is obtained between switch and lever.

## ELECTRICAL

### BATTERY

| Application           | Delco Part No. | Cranking Power Watts @ 0°F |
|-----------------------|----------------|----------------------------|
| 307" "G" Models.....  | Y-55.....      | 2300                       |
| 307" All Others ..... | Y-59.....      | 2350                       |
| 350", 396" All.....   | R-59.....      | 2900                       |
| Optional All.....     | R-69.....      | 3150                       |

### STARTER

| Application                                       | Delco Part No. |
|---|----------------|
| 307" Man. Trans. ....                             | 1108368        |
| 307" "G" Models W/Auto. Trans. (Powerglide) ..... | 1108350        |
| 307" All Others W/Auto. Trans. (Powerglide).....  | 1108367        |
| 307" Auto. Trans. (Turbo Hydra-Matic).....        | 1108418        |
| 307" Optional Heavy Duty .....                    | 1108363        |
| 350" All .....                                    | 1108362        |
| 396" All .....                                    | 1108385        |

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

# 1969 Chevrolet V8 Tune-Up

## ELECTRICAL (Cont.)

### ALTERNATORS

| Application       | Amps    | Delco Part No. |
|-------------------|---------|----------------|
| Standard All..... | 37..... | 1100834        |
| C-20, C-30.....   | 42..... | 1100839        |
| Optional All..... | 42..... | 1100842        |
| Optional All..... | 61..... | 1100849        |
| Optional All..... | 62..... | 1117782        |

Other Data & Specifications - See Delco Starters in ELECTRICAL Section.

### ALTERNATOR REGULATORS

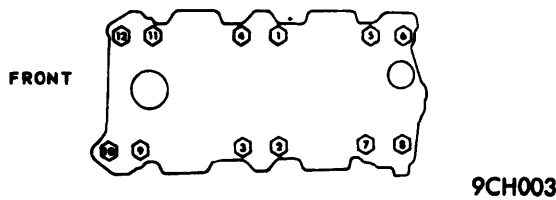
| Application                 | Delco Part No. |
|-----------------------------|----------------|
| All (Exc. 62 Amp Alt.)..... | 1119515        |
| 62 Amp Alt. ....            | 1116378        |

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

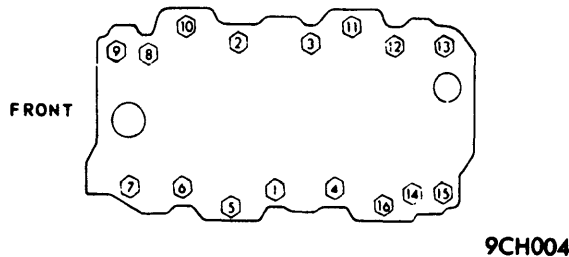
## ENGINE

### INTAKE MANIFOLD TIGHTENING

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



**307", 350"**  
**INTAKE MANIFOLD TIGHTENING SEQUENCE**



**396"**  
**INTAKE MANIFOLD TIGHTENING SEQUENCE**

### COOLING CAPACITIES

| Application       | Quantity  |
|-------------------|-----------|
| <b>307"</b>       |           |
| C-10.....         | 16.5 qts. |
| "K" Models.....   | 17.5 qts. |
| "G" Models.....   | 18 qts.   |
| All Others.....   | 17 qts.   |
| <b>350"</b>       |           |
| "C" Models.....   | 17.5 qts. |
| P-20 & 30.....    | 16 qts.   |
| K-10.....         | 18 qts.   |
| K-20.....         | 16.5 qts. |
| <b>396"</b>       |           |
| Man. Trans. ....  | 23 qts.   |
| Auto. Trans. .... | 24.5 qts. |

① - Add one quart if equipped with heater or heavy duty radiator.

### FILTERS & CLEANERS

| Filter or 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              |
| P.C.V. Valve.....                    | Replace 12,000           |
| Governor Filter.....                 | Replace 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.

### 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      |

## ENGINE (Cont.)

### CAPACITIES (EXCEPT COOLING)

| Application                        | Quantity   |
|------------------------------------|------------|
| Crankcase .....                    | ① 4 qts.   |
| Auto. Trans.                       |            |
| Powerglide .....                   | ② 9 qts.   |
| TH 350 .....                       | 10 qts.    |
| TH 400 .....                       | 9.5 qts.   |
| Man. Trans.                        |            |
| 3-Speed .....                      | 1.75 pts.  |
| Heavy Duty 3-Speed .....           | 3.5 pts.   |
| 4-Speed .....                      | 8 pts.     |
| Overdrive .....                    | .5 pt.     |
| Four-Wheel Drive                   |            |
| Transfer Case .....                | .5 pts.    |
| Knuckle Ends .....                 | .5 pt.     |
| Power Take-Off .....               | 1 pt.      |
| Drive Axles .....                  | ③          |
| Fuel Tank                          |            |
| Panel, Suburban & "G" Models ..... | 24.5 gals. |
| "G" & "K" Models .....             | 20 gals.   |
| P-10 .....                         | 20.5 gals. |
| P-20 & 30 .....                    | 30 gals.   |

- ① - Add one quart with filter change.
- ② - Add one pint if equipped with oil cooler.
- ③ - Fill to bottom of filler plug hole.