

# FUEL SYSTEM

## SERVICE INSTRUCTION WORKSHEET

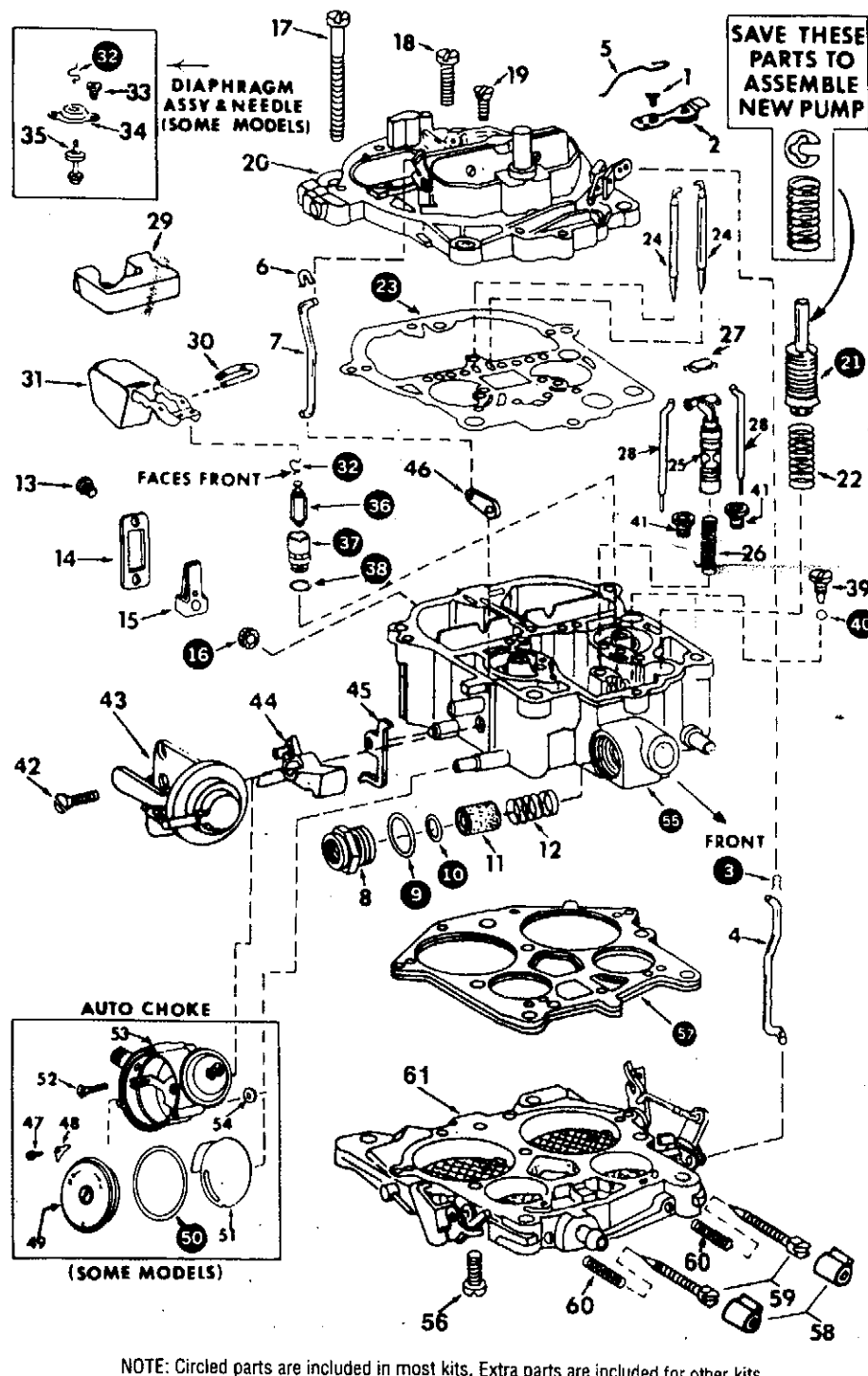
TO REPAIR

GF3478-13

ROCHESTER CARBURETOR

4 BARREL • TYPE 4MC, 4MV

EXPLODED VIEW



NOTE: Circled parts are included in most kits. Extra parts are included for other kits.

1. Carefully read the text in the following pages to become familiar with the contents of this worksheet before performing carburetor overhaul.

2. The exploded view shown is typical of the model carburetor this kit will service. The view may differ slightly from the actual carburetor being overhauled.

3. Use the exploded view as a guide. The numerical sequence may generally be followed to disassemble the carburetor far enough to permit cleaning and inspection.

4. Parts list shown DOES NOT reflect the contents of the kit.

5. Kit may contain extra parts for other carburetors within this group. Substitute identical replacement parts for original worn parts found in carburetor.

6. After removal of carburetor, cover opening on intake manifold to protect engine.

CLEANING

Cleaning must be done with carburetor disassembled. Use spray cleaner and a stiff bristle brush to remove dirt and carbon deposits. Do not use abrasives and wires to clean parts and passageways. Wash off in suitable solvent, and clear all passageways with compressed air.

Caution: When cleaning with solvent do not soak or spray parts containing rubber, leather, plastic and electrical components.

PARTS LIST

- |                                       |  |
|---------------------------------------|--|
| 1. Screw, vent valve                  | 35. Needle and diaphragm assembly                  |
| 2. Valve, vent assembly               | 36. Needle, fuel inlet                             |
| 3. Clip, accel. pump rod              | 37. Seat, fuel inlet                               |
| 4. Rod, accel. pump                   | 38. Gasket, fuel inlet seat                        |
| 5. Lift wire, vent valve              | 39. Cover screw, pump discharge ball               |
| 6. Lock ring, choke rod               | 40. Check ball, pump discharge                     |
| 7. Rod, choke                         | 41. Jets, main, primary (2)                        |
| 8. Fitting, fuel inlet                | 42. Screw, mounting, vacuum break (choke pull-off) |
| 9. Gasket, fuel fitting               | 43. Vacuum break assembly (choke pull-off)         |
| 10. Seal, fuel filter                 | 44. Cam, plastic, fast idle                        |
| 11. Filter, fuel                      | 45. Lockout lever, secondary                       |
| 12. Spring, pressure relief           | 46. Arm, intermediate choke                        |
| 13. Screw, cover (2)                  | 47. Screw, thermostatic cover assembly             |
| 14. Cover, hot idle compensator       | 48. Retainer, screw                                |
| 15. Hot idle compensator              | 49. Thermostatic cover assembly                    |
| 16. Gasket, hot idle compensator      | 50. Gasket, cover assembly                         |
| 17. Screw, air horn (4)               | 51. Baffle plate, choke                            |
| 18. Screw, air horn (3)               | 52. Screw, mounting, choke housing                 |
| 19. Screw, air horn (2)               | 53. Housing, choke                                 |
| 20. Air horn                          | 54. Seal, choke Housing                            |
| 21. Pump plunger assembly             | 55. Main body assembly                             |
| 22. Return spring, pump               | 56. Screw, throttle body to main body (3)          |
| 23. Gasket, air horn                  | 57. Gasket, throttle body to main body             |
| 24. Metering rods, secondary (2)      | 58. Limiter caps (2) (some models)                 |
| 25. Power piston assembly             | 59. Screw, idle mixture (2)                        |
| 26. Spring, power piston              | 60. Springs, idle mixture (2)                      |
| 27. Spring, metering rods             | 61. Throttle body                                  |
| 28. Metering rods, primary (2)        |  |
| 29. Baffle, anti-fuel slosh           |  |
| 30. Rod, float                        |  |
| 31. Float assembly                    |  |
| 32. Lift hook, float needle           |  |
| 33. Screw, retainer, needle diaphragm |  |
| 34. Retainer, needle diaphragm        |  |

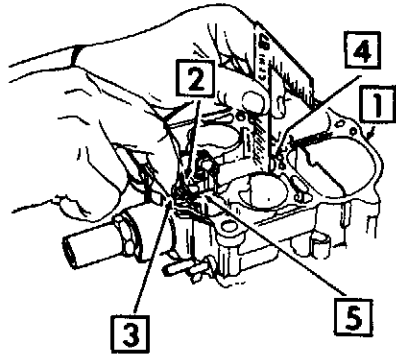
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PARTS LIST SHOWN DOES NOT REFLECT THE CONTENTS OF THE KIT

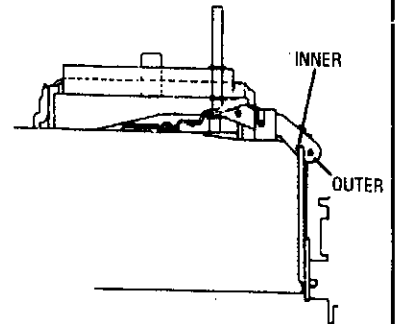
# ADJUSTMENT DATA

**FIG. 1  
FLOAT LEVEL  
ADJUSTMENT**

1. REMOVE GASKET.
2. HOLD FLOAT ROD FIRMLY IN PLACE.
3. PUSH FLOAT DOWN LIGHTLY AGAINST NEEDLE.
4. GAUGE FROM TOP OF CASTING TO TOP OF FLOAT AT 3/16" FROM EDGE OF TOE END AS SPECIFIED.
5. TO ADJUST, REMOVE FLOAT & BEND FLOAT ARM AS NEEDED.  
NOTE: AFTER ADJUSTMENT, CHECK FLOAT ALIGNMENT.



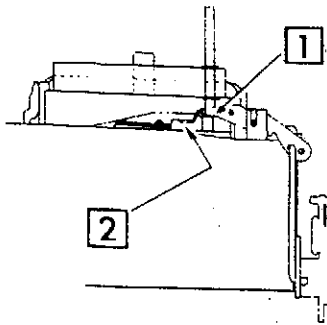
**FIG. 2  
PUMP ROD  
LOCATION**



**FIG. 3-A  
IDLE VENT  
ADJUSTMENT**

NOTE: PRIMARY THROTTLE MUST BE OPEN TO WHERE IDLE VENT JUST CLOSES.

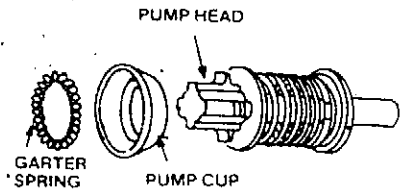
1. GAUGE FROM TOP OF PUMP SHAFT TO TOP OF CHOKE WALL NEXT TO VENT STACK AS SPECIFIED.
2. TO ADJUST, BEND WIRE TANG.



**FIG. 3-B**

**KITS WITH PUMP CUP ONLY**

REMOVE OLD CUP (WITH GARTER SPRING IF USED) FROM PUMP HEAD. INSTALL NEW CUP (WITH NEW GARTER SPRING; IF USED) IN SAME POSITION ON PUMP HEAD.

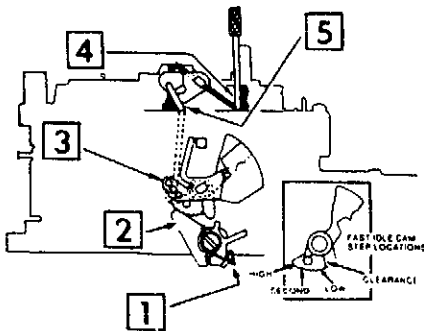


**FIG. 4  
CHOKE ROD (FAST IDLE  
CAM ADJUSTMENT)**

NOTE: FAST IDLE ADJUSTMENT (BEND) SHOULD BE MADE PRIOR TO THE CHOKE ROD ADJUSTMENT.

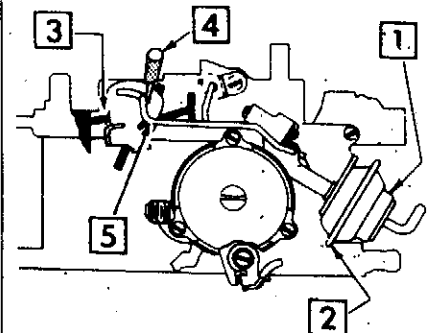
1. PERFORM FAST IDLE ADJUSTMENT BY PRESETTING FAST IDLE SCREW.
2. POSITION CAM FOLLOWER ON SECOND STEP OF FAST IDLE CAM.
3. PUSH DOWN ON VACUUM BREAK LEVER (MODEL 4MV) OR THERMOSTATIC COIL TANG (MODEL 4MC) TO CLOSE CHOKE VALVE.

4. MEASURE AS SPECIFIED BETWEEN AIR HORN WALL & LOWER EDGE OF CHOKE VALVE.
5. TO ADJUST, BEND ROD.



**FIG. 5  
AIR VALVE ROD  
ADJUSTMENT**

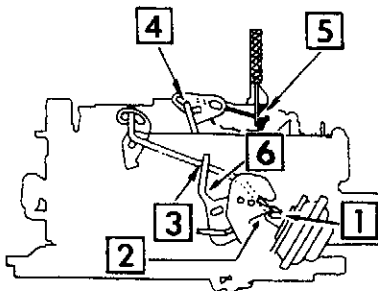
1. IF PURGE BLEED HOLE IS USED, PLUG END COVER WITH TAPE. REMOVE TAPE AFTER ADJUSTMENT.
2. USING AN OUTSIDE VACUUM SOURCE, SEAT CHOKE DIAPHRAGM.
3. COMPLETELY CLOSE AIR VALVE.
4. INSERT GAUGE BETWEEN ROD AND END OF SLOT.
5. TO ADJUST FOR SPECIFIED CLEARANCE, BEND HERE.



**FIG. 6  
FRONT VACUUM  
BREAK ADJUSTMENT**

NOTE: POSITION CAM FOLLOWER ON HIGH STEP OF FAST IDLE CAM.

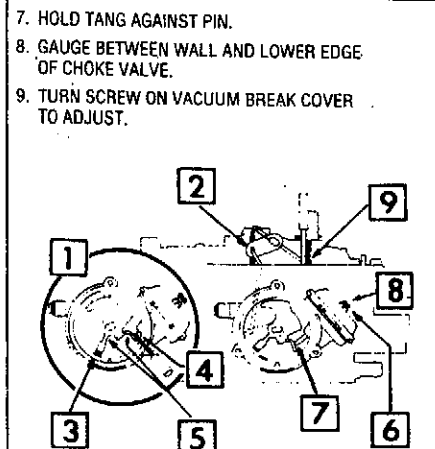
2. LIGHTLY PUSH UP ON VACUUM BREAK LEVER.
3. BE SURE TANG CONTACTS ROD.
4. LOCATE ROD IN BOTTOM OF SLOT IN LEVER.
5. MEASURE AS SPECIFIED BETWEEN LOWER EDGE OF CHOKE VALVE AND WALL OF AIR HORN.



**FIG. 7  
FRONT VACUUM  
BREAK ADJUSTMENT**

NOTE: LOOSEN THREE RETAINING SCREWS AND REMOVE THERMOSTATIC COVER AND COIL ASSEMBLY.

1. CLOSE CHOKE VALVE.
2. PUT CHOKE ROD IN BOTTOM OF THE SLOT IN THE UPPER CHOKE.
3. ALIGN THE THERMOSTATIC SPRING PICK-UP TANG DIRECTLY OVER THE INDEX TAB ON THE EDGE OF THE CHOKE HOUSING.
4. GAUGE BETWEEN TANG AND PIN.
5. BEND TANG TO ADJUST.
6. SEAT VACUUM BREAK DIAPHRAGM USING OUTSIDE VACUUM SOURCE.

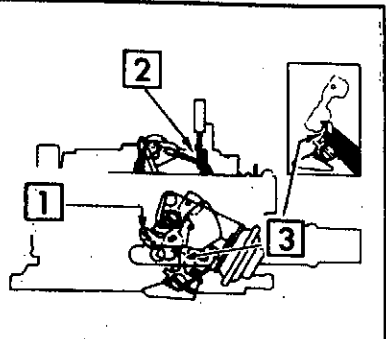


## ADJUSTMENT DATA (Cont'd)

**FIG. 8  
UNLOADER  
ADJUSTMENT**

NOTE: POSITION THROTTLE VALVES WIDE OPEN.

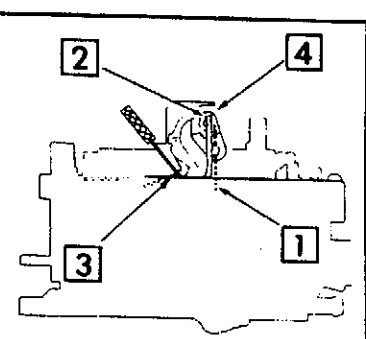
1. MOVE LEVER UP OR DOWN TOWARDS CLOSED CHOKE POSITION.
2. MEASURE AS SPECIFIED BETWEEN AIR HORN WALL AND LOWER EDGE OF CHOKE VALVE.
3. TO ADJUST, BEND TANG.



**FIG. 9  
AIR VALVE LOCKOUT  
ADJUSTMENT**

NOTE: BE SURE FAST IDLE AND CHOKE ROD ADJUSTMENTS ARE MADE FIRST.

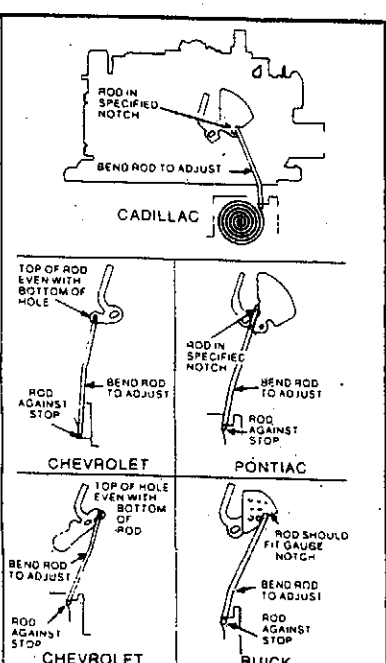
1. MAINTAIN CHOKE VALVE IN WIDE OPEN POSITION.
2. PLACE SROD IN TOP OF SLOT BY PUSHING UP ON THERMOSTATIC TANG.
3. GAUGE AS SPECIFIED BETWEEN FRONT EDGE OF VALVE AND TANG ON LOCKOUT LEVER.
4. TO ADJUST, BEND TANG.



**FIG. 10  
CHOKE COIL ROD  
ADJUSTMENTS — TYPICAL**

WITH CHOKE ROD IN BOTTOM OF CHOKE LEVER SLOT AND CHOKE VALVE COMPLETELY CLOSED, PUSH OR PULL CHOKE COIL ROD TO END OF TRAVEL. ROD MUST BE POSITIONED AS SHOWN.

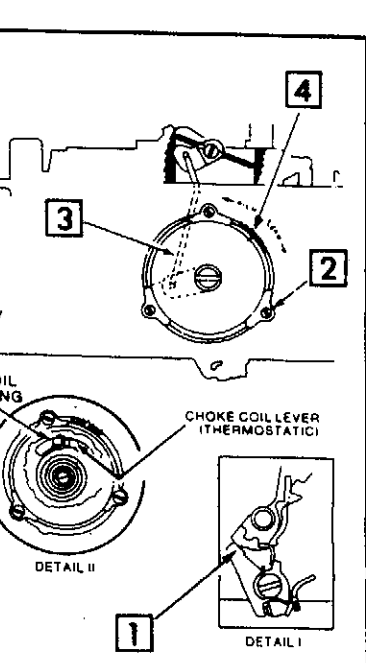
NOTE: BUICK MODELS, AFTER ADJUSTMENT WHEN VEHICLE IS OPERATED AT ALTITUDES OF 4000 FT., OR ABOVE, PLACE ROD IN "ALT" HOLE IN LEVER.



**FIG. 11  
AUTOMATIC CHOKE  
COIL ADJUSTMENT**

1. POSITION CAM FOLLOWER ON HIGHEST STEP OF CAM (SEE DETAIL I).
2. TO ADJUST, LOOSEN 3 SCREWS UNTIL COVER AND COIL ASSEMBLY ROTATE.
3. TURN CHOKE COVER AND COIL ASSEMBLY COUNTERCLOCKWISE UNTIL CHOKE VALVE CLOSES.
4. POSITION INDEX MARK ON COVER WITH SPECIFIED MARK ON HOUSING.

NOTE: FOR MODELS WITH SLOTTED COIL PICK-UP LEVER, BE SURE COIL TANG IS INSTALLED IN SLOT IN LEVER (SEE DETAIL II).



## SPECIFICATION CHART

Year	Application	Float Level	Pump Rod	Idle Vent	Choke Rod	Air Valve Rod	Vacuum Break Front	Unloader	Air Valve Lockout	Choke Setting
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**SPECIFICATION I.D.-A**

**AERO, CRUSADER, DAYTONA, KIEKHAEFER, OMC, OWEN YACHT, SALMON STILES — MARINE**

	283, 307, 327, 350, 427, 428 Eng.—Exc. Carb. No. 7040284	1/4 1/4	Inner —	— —	.100 .100	.030 .030	.150 .150	.300 .300	.015 .010	1 1
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**BUICK**

1968	350, 400, 430 Eng.—Exc. Carb. Nos. 7028243, 247 Carb. Nos. 7028244, 245	7/16 <sup>3</sup> 7/32 <sup>4</sup> 5/16	Outer <sup>3</sup> Outer Outer	1/2 1/2 1/2	.130 .140 .130	.030 .030 .030	.180 .215 .200 <sup>5</sup>	.325 .325 .325	.045 — .045 <sup>6</sup>	2 2 2
1967-66	400, 430 Eng. Carb. No. 7027244 Carb. No. 7027248 Carb. Nos. 7027246, 7041306 Carb. No. 7041305 Carb. No. 7041304, 307, 308, 309	1/4 5/16 1/4 <sup>7</sup> 3/16 1/4	Outer Inner Inner Inner Inner	1/2 7/16 3/8 3/8 3/8	.130 .120 .120 <sup>7</sup> .130 .135	.030 .030 .030 .030 —	.200 .200 .215 .200 .200 <sup>14</sup>	.325 .325 .325 .325 .325	.045 .045 .015 .015 Index <sup>20</sup>	2 2 2 2 2

**PONTIAC**

1967	400, 428 Eng. —A/T —M/T	3/16 3/16	Inner Inner	3/8 3/8	.085 .090	.030 .030	.160 .230	.325 .325	.020 .020	2 2
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**SPECIFICATION I.D.-C**

**CHEVROLET**

1967	396, 427 Eng. —A/T —M/T	3/16 3/16	Inner Inner	3/8 3/8	.085 .090	.030 .030	.160 .250	.190 .190	.015 —	1 1
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**CHEVROLET & GM TRUCKS**

1969-68	396, 427 Eng.—A/T —M/T	3/16 3/16	Inner Inner	3/8 3/8	.100 .100	.015 .015	.160 .245	.300 .300	.015 .015	1 1
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## SPECIFICATION CHART (Cont'd)

Year	Application	Float Level	Pump Rod	Idle Vent	Choke Rod	Air Valve Rod	Vacuum Break Front	Unloader	Air Valve Lockout	Choke Setting
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### SPECIFICATION I.D.-D CHECKER, CHEVROLET

1969	350, 396, 426 Eng.—Exc. Carb. Nos. 7029202, 203	1/4 7/32	Inner Inner	3/8 3/8	.100 .100	.015 .015	.245 <sup>8</sup> .180 <sup>9</sup>	.450 .450	— —	1 1
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### GM TRUCKS

1969-68	350, 396 Eng.—Exc. Carb. No. 7029224	7/32 <sup>10</sup> 1/4	Inner Inner	3/8 3/8	.100 .100	.015 .015	.245 .245	.300 .450	— —	1 1
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### SPECIFICATION I.D.-E CHECKER

1967	327 Eng.	9/32	Inner	3/8	.110	.015	.160	.260	.015	1
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### CHEVROLET

1967	327, 350 Eng.—A/T	9/32	—	3/8	.110	.015	.160	.180	.015 <sup>6</sup>	1
	—M/T—Exc.	9/32	—	3/8	.100	.015	.200	.180	.015 <sup>6</sup>	1
	Carb. No. 7037203	9/32	Inner	3/8	.110	.015	.230	.180	—	1
	396, 427 Eng.—A/T	9/32	—	3/8	.100	.015	.160	.180	.015 <sup>6</sup>	11
1966	—M/T	9/32	—	3/8	.100	.015	.245	.180	.015 <sup>6</sup>	11
	327 Eng.—A/T	1/4	Inner	3/8	.110	—	.150	.245	.015	1
	—M/T	1/4	Inner	3/8	.110	—	.200	.300	—	1
	396, 427 Eng.—A/T	1/4	Inner	3/8	.100	—	.160	.300	.015	11
1965	—M/T	1/4	Inner	3/8	.100	—	.245	.300	—	11
	396 Eng.—A/T	3/16 3/16	Inner Inner	13/32 13/32	.150 <sup>12</sup> .150 <sup>12</sup>	—	.160 .245	.325 .325	—	11 11

### OLDSMOBILE

1966	330, 400, 425 Eng.	11/32	Inner	3/8	.130 <sup>13</sup>	—	.200	.300	.015	R Notch
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### SPECIFICATION I.D.-F BUICK

1967	400 Eng.—A/T	7/32	Outer	1/2	.130	.030	.200	.325	.045	2 15
	—M/T	7/32	Inner	3/8	.130	.030	.215	.325	—	2 15
	430 Eng.—A/T	9/32	16	7/16	.130	.030	.200	.325	.045	2 15
1966	400, 425 Eng.	1/4	Inner	3/8	.140	—	.200 <sup>17</sup>	.325	.030	Index <sup>20</sup>

### SPECIFICATION I.D.-G CHECKER

1968	327 Eng.	1/4	Inner	3/8	.100	.015	.160	.260	—	1
1967	327 Eng.—Late Carb. No. 7027087	9/32	Inner	3/8	.110	.015	.160	.260	.015	1
	—Carb. No. 7037083	1/4	Inner	—	.110	—	.160	.260	—	1

### CHEVROLET

1968	327, 350 Eng.—Exc.	1/4	Inner	3/8	.100	.015	.245	.300	—	1
	Carb. No. 7028208, 212	1/4	Inner	3/8	.100	.015	.160	.260	18	1
	396, 427 Eng.	3/16	Inner	3/8	.100	.015	.160 <sup>19</sup>	.300	—	1
1967	327, 350 Eng.—Exc.	9/32	Inner	3/8	.110	.015	.160	.180	—	1
	Carb. No. 7027213	9/32	Inner	3/8	.100	.015	.200	.180	—	1
	Carb. No. 7037213	9/32	Inner	3/8	.110	.015	.230	.180	—	1
	396, 427 Eng.—Exc.	3/16	Inner	3/8	.100	.015	.160	.180	.015	11
	Carb. Nos. 7027211; 7037211	3/16	Inner	3/8	.100	.015	.245	.180	.015	11

### GM TRUCKS

1969-68	327 Eng.	1/4	Inner	3/8	.100	.015	.245	.300	—	1
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#### FOOTNOTES

- <sup>1</sup> Top of rod even with bottom of hole. See Fig. 10.
- <sup>2</sup> Rod in gauge notch. See Fig. 10.
- <sup>3</sup> Carb. Nos. 7028240, 242 before "A" change set float level 3/8; pump rod inner. Carb. Nos. 7028246, 248 set float level 7/32.
- <sup>4</sup> Carb. No. 7029243 set 7/16.
- <sup>5</sup> Models with M/T set .215.
- <sup>6</sup> Models with A/T only.
- <sup>7</sup> Carb. No. 7041306 set float level 9/32; choke rod .130.
- <sup>8</sup> Carb. No. 7029200 set .160; 7029204 set .180.
- <sup>9</sup> Carb. No. 7029203 set .245.
- <sup>10</sup> Carb. No. 7029214 set 1/4.
- <sup>11</sup> Bottom of rod even with top of hole. See Fig. 10.
- <sup>12</sup> Carb. Nos. 7025220, 221 set .120.
- <sup>13</sup> 400, 425 Eng. set .120.
- <sup>14</sup> Refer to Fig. 7.
- <sup>15</sup> Models with A.I.R. use altitude notch.
- <sup>16</sup> Carb. Nos. 7027240 set inner; 7027241 set outer.
- <sup>17</sup> Vacuum break pin clearance .100.
- <sup>18</sup> Carb. No. 7028212 set .015.
- <sup>19</sup> Carb. No. 7028217 set .245.
- <sup>20</sup> Refer to Fig. 11.

#### ABBREVIATIONS

A.I.R.	Air Injection Reactor
A/T	Automatic Transmission
Exc.	Except
M/T	Manual Transmission