UNITED MOTORS SERVICE - AC DIVISION

GENERAL MOTORS PRODUCTS OF CANADA LIMITED

OSHAWA, ONTARIO

Bulletin 9D-8-57
Date: 12-1-56
Page: 1 of 1
File After 9D-8 BC-Basic Model Manual

ROCHESTER PRODUCTS CARBURETOR BULLETIN

SUBJECT: MODEL BC - 1957 DESIGN CHANGES

APPLICATION

CHEVROLET

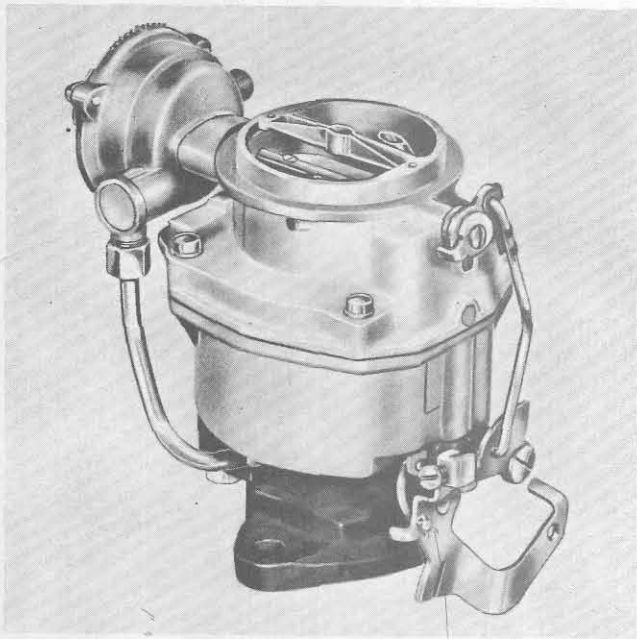
Syncromesh "6" — 7009657

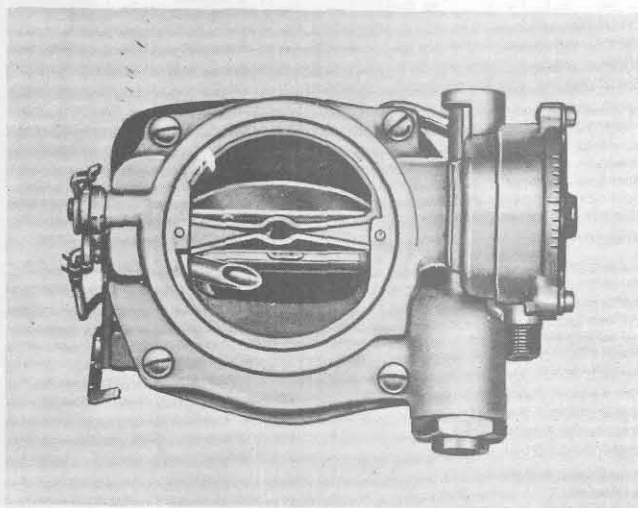
Powerglide "6" — 7005656

PONTIAC Series 2000 and 2200

Syncromesh "6" — 7010516

Powerglide "6" — 7010517





DESCRIPTION OF CHANGES

APPEARANCE:

The Model BC Carburetors for 1957 incorporate a new low air horn design, to facilitate lower hood styling. Along with decrease in height, air horn construction has been altered to include a center stud hole for simpler and more positive air cleaner mounting. A larger fuel inlet is used with a pressed bead type strainer installed under the fuel inlet nut. The new type strainer can be easily removed for cleaning and will give improved fuel filtering.

OPERATION:

A new type power piston is used this year with a solid stem for more support to eliminate any possibility of the end flaring.

With the exception of minor calibration changes to meet new engine requirements the carburetors are the same in operation and adjustment as the 1956 Models.

QUICK REFERENCE ADJUSTMENT SPECIFICATIONS

ADJUSTMENT	DIMENSION	TOOL No.
Float Level	1-9/32"	M-250
Float Drop	1-3/4"	Scale
Choke Rod	.076	BT-99
Unloader	.230	BT-99

AUTOMATIC CHOKE SETTINGS	
7009657—Syncromesh	1 Notch Rich
7009656—Powerglide	2 Notch Lean
7010516—Syncromesh	Index
7010517—Powerglide	Index

BULLETIN 9D-8-59
PAGE 1 OF 1
DATE 12-58
SUPPLEMENT No. 2
TO
BULLETIN 9D-8
DATED AUGUST 1951

Rochester Carburetors
MODEL B, BC
1959 DESIGN CHANGES

MODEL BC - PASSENGER CHEVROLET: 6 CYLINDER

APPLICATIONS:

SYNCHROMESH
AUTOMATIC TRANSMISSION
SYNCHROMESH (VEL. GOVERNOR)
Refer to 9C-326 for Carburetor Numbers

CANADIAN PONTIAC 6 CYL (70 Series)

APPLICATION:

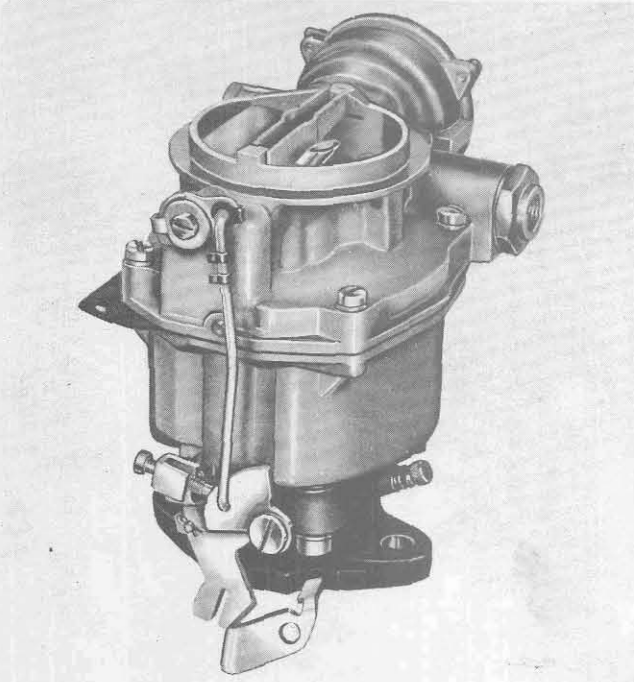
SYNCHROMESH – AUTOMATIC TRANSMISSION
Refer to 9C-615 for Carburetor Numbers

DESCRIPTION OF CHANGES:

APPEARANCE:

The model BC Rochester carburetors for 1959 are similar in appearance to the 1958 models.

The fuel inlet filter has been redesigned for more filtering capacity. This was accomplished by the addition of a cone shaped section to the center of the filter element.

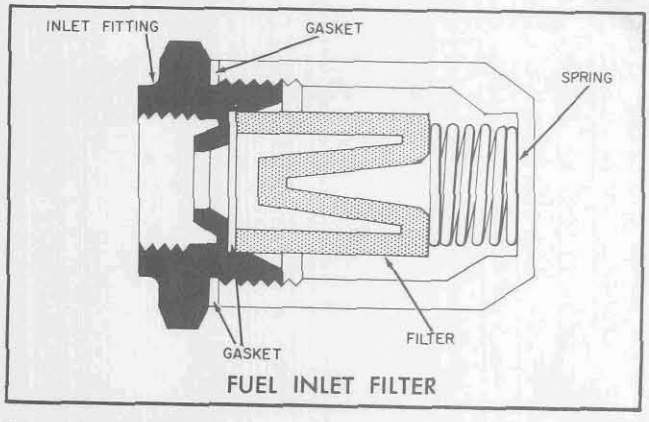


OPERATION:

In operation, the filter element will remove any foreign particles in the fuel which are larger than .003" diameter. The filter element is held in place by a small pressure relief spring. If the filter should become clogged at any time fuel flow will not be restricted, because the filter element will be pushed off its seat, against the pressure relief spring and fuel will by-pass the filter element. Cleaning of the element should be done periodically to insure maximum filtering efficiency.

Care should be used when removing and installing the filter element to make sure it is assembled properly. It should be assembled as shown.

Other than the filter element, operation of the model BC is basically the same as previous models. However, the metering and calibration have been changed to meet the demands of the 1959 engine.



FUEL INLET FILTER

SPECIFICATIONS:

See Bulletin 9C-326 and 9C-615 for specifications and adjustments.

1959 TRUCK MODEL B

APPLICATION:

CHEVROLET 6 CYLINDER TRUCK
(235 CUBIC INCH ENGINE)
STANDARD — SMALL VENTURI
Refer to 9C-305 for Carburetor Numbers

APPEARANCE:

The Model B truck carburetor for 1959 is very similar to the previous model, the only difference being minor calibration changes.

The small venturi carburetor listed above is similar to the standard except for smaller venturi sizes. It will be used as an economy carburetor on application where top horsepower is not required.

OPERATION:

Operation is the same as the 1958 and previous Model B carburetors. The standard air bleed power piston is used and the only changes are minor differences in calibration.

SPECIFICATIONS:

See Bulletin 9C-305 for specifications and adjustments.

GM U·M·S PARTS SALES UNITED MOTORS SYSTEM

Rochester Carburetors
MODEL B, BC
1960 DESIGN CHANGES

BULLETIN 9D-8-60
PAGE 1 OF 1
DATE: 4-1-60
SUPPLEMENT No. 3
TO
BULLETIN 9D-8
DATED AUGUST 1951

Model BC - Passenger
CHEVROLET - 6

APPLICATIONS:

Synchromesh—U.S. and Canada
Powerglide—U.S. and Canada

(Refer to 9C Section for carburetor numbers)

APPEARANCE

The Model BC carburetors for 1960 are a carry over from 1959. The gasket between the choke housing and the air horn has been removed and is replaced by a metal to metal contact seal. This feature greatly improves the screw torque retention of the choke housing to the air horn.

OPERATION

Minor calibration improvements have been made in the carry over models but they are of such a nature that complete interchangeability will be possible. All adjustment settings and procedures will remain the same.

SERVICE

Refer to 9C section for complete carburetor adjustments.

Refer to 9D-1 section for carburetor specifications.

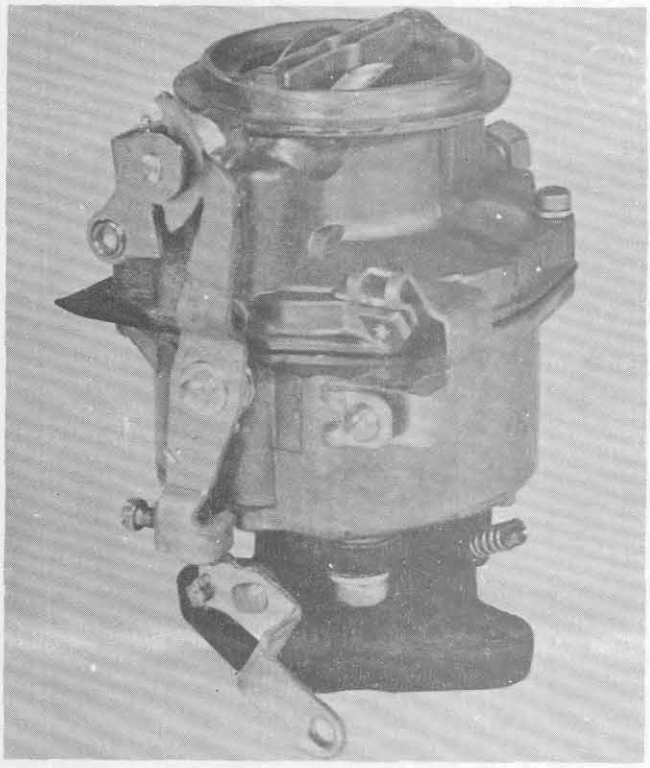
Model B - Truck
CHEVROLET - 6 CYLINDER

APPLICATIONS

235 Cubic Inch Engine
Synchromesh
Automatic Transmission
Velocity Governor

261 Cubic Inch Engine
Powermatic
Velocity Governor

(Refer to 9C Section for carburetor numbers)



APPEARANCE

The Model B carburetors for 1960 incorporate a new low air horn design, similar to the Model BC carburetor. Along with decrease in height, air horn construction has been altered to include a center stud hole for simpler, more positive air cleaner mounting.

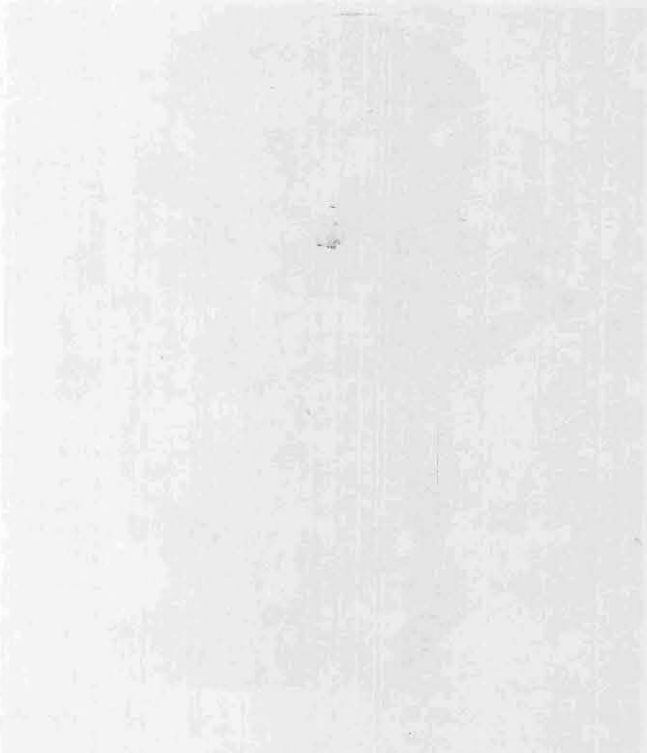
OPERATION

With the exception of minor calibration changes to meet new engine requirements the carburetors are the same in operation and adjustment as the 1959 models.

SERVICE

Refer to 9C section for complete carburetor adjustments.

Refer to 9D-1 section for carburetor specifications.



Rochester Carburetors
MODEL B, BC
1961 DESIGN CHANGES

BULLETIN. 9D-8-61
PAGE 1 OF 1
DATE APRIL, 1961
SUPPLEMENT NO. 4 TO
BULLETIN 9D-8 DATED
AUGUST, 1951

CHEVROLET — 6 Cylinder

APPLICATION*

Same as 1960 models

APPEARANCE

Same as 1960 models

OPERATION

Same as 1960 models

ADJUSTMENTS

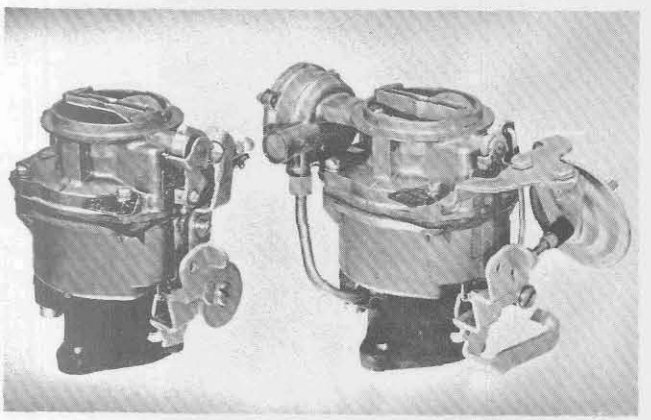
Same as 1960 models
Refer to 9C section for complete carburetor adjustments.
Refer to 9D-1 section for carburetor specifications.

PONTIAC — L4 "TEMPEST"

APPLICATIONS*

Synchromesh—Model B (Manual choke)

Auto. Transmission—Model BC (Auto. choke)



APPEARANCE

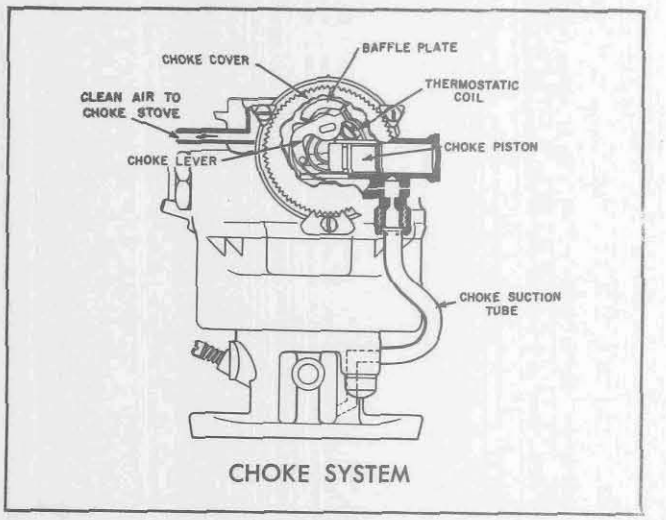
The models B and BC carburetors used on the 1961 Pontiac L4 engine are basically the same in appearance as those used on Chevrolet.

An internal fuel filter is designed into the air horn, behind the fuel inlet nut, so that any foreign material in the fuel will be removed before it reaches the main metering parts of the carburetor unit. The filter is removable and can be periodically cleaned or replaced if necessary.

In case the filter does become clogged on the road, a pressure relief spring allows fuel pressure to push the filter off its seat and let fuel by-pass the filter, so that the engine will have fuel to run.

OPERATION

The carburetor systems operate basically the same as those described in the 9D-6 (Model B) and 9D-8 (Model BC) service manuals.



CHOKE SYSTEM

A choke air pick up tube has been added to the carburetor air horn. The purpose of the tube is to supply clean air from beneath the air cleaner to the automatic choke stove in the exhaust manifold. This prevents dirt and foreign material from being drawn through the choke heat pipe into the choke housing.

To help insure trouble-free operation of the choke system and minimize wear, teflon washers are used on the choke shaft between the choke valve and air horn.

ADJUSTMENTS

All adjustment procedures are the same as the standard Chevrolet Model B and BC carburetors. A positive idle stop for the throttle lever has been added to the Model B carburetor. This will require a new adjustment.

A throttle return check has been added to the Model BC carburetor which will also require adjustment.

See 9C section for new adjustment procedure and specifications.

Refer to 9D-1 section for complete carburetor metering specifications.

*REFER TO 9C BULLETIN FOR CARBURETOR NUMBERS.

Rochester Carburetors

MODEL B, BC

1961 DESIGN CHANGES

CHEVROLET — 6 Cylinder

APPLICATION*

Same as 1960 models

APPEARANCE

Same as 1960 models

OPERATION

Same as 1960 models

ADJUSTMENTS

Same as 1960 models

Refer to 9C section for complete carburetor adjustments.

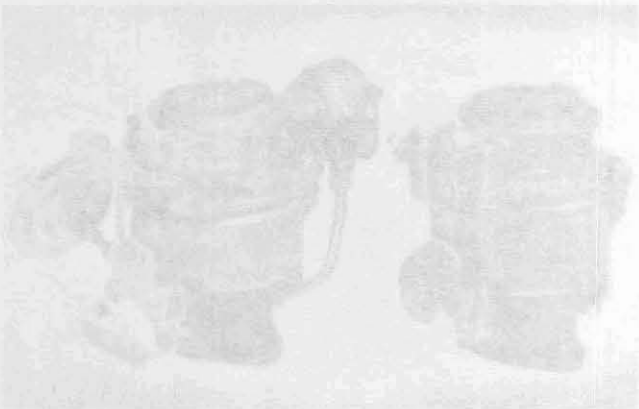
Refer to 9D-1 section for carburetor specifications.

PONTIAC — L4 "TEMPEST"

APPLICATIONS*

Synchromesh—Model B (Manual choke)

Aero Command—Model BC (Aero choke)



APPEARANCE

The models B and BC carburetors used on the 1961 Pontiac L4 engine are basically the same in appearance as those used on Chevrolet.

An internal fuel filter is designed into the air horn, behind the fuel inlet nut, so that any foreign material in the fuel will be removed before it reaches the main metering parts of the carburetor unit. The filter is removable and can be periodically cleaned or replaced if necessary.

In case the filter does become clogged or the road a pressure relief spring allows fuel pressure to push the filter off its seat and let fuel by-pass the filter, so that the engine will have fuel to run.

OPERATION

The carburetor systems operate basically the same as those described in the 9D-6 (Model B) and 9D-8 (Model BC) service manuals.

A choke air pick up tube has been added to the carburetor air horn. The purpose of the tube is to supply clean air from beneath the air cleaner to the automatic choke stove in the exhaust manifold. This prevents dirt and foreign material from being sucked through the choke heat pipe into the choke housing.

To help insure trouble-free operation of the choke system and maintain water, teflon washers are used on the choke shaft between the choke valve and air horn.

ADJUSTMENTS

All adjustment procedures are the same as the standard Chevrolet Model B and BC carburetors. A positive idle stop for the throttle lever has been added to the Model B carburetor. This will require a new adjustment.

A throttle return check has been added to the Model BC carburetor which will also require adjustment.

See 9C section for new adjustment procedure and specifications.

Refer to 9D-1 section for complete carburetor metering specifications.

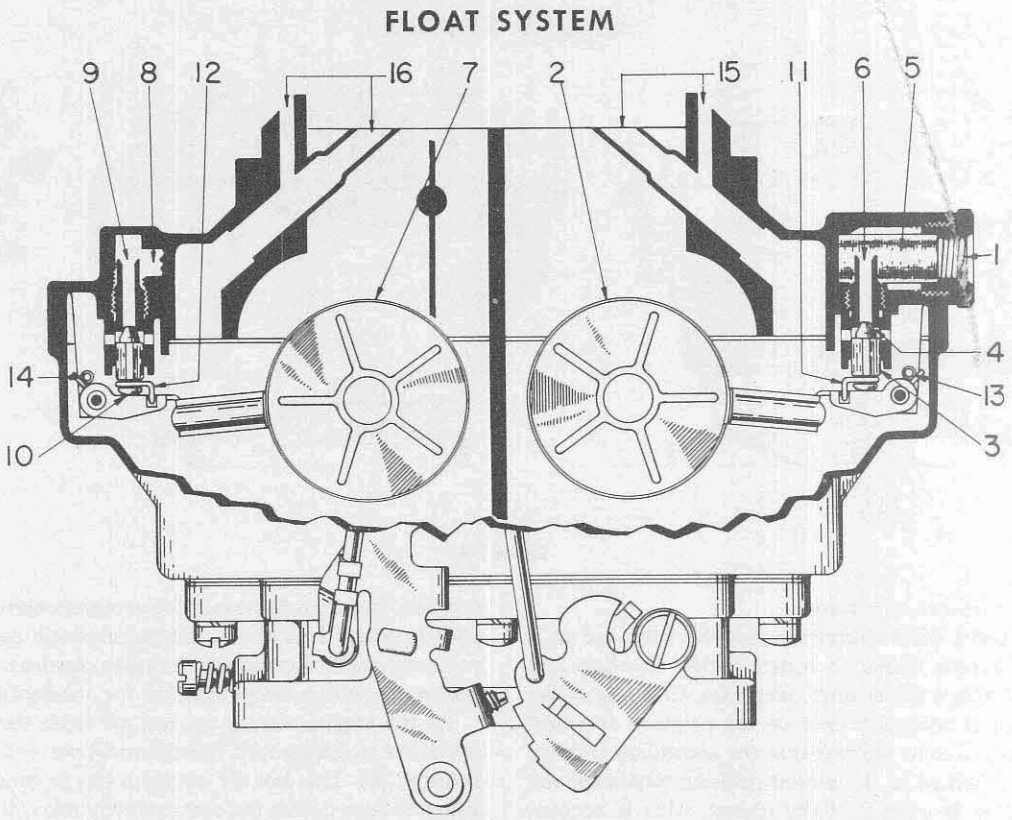


Figure 7-5

To aid in maintaining the correct fuel level under all conditions of operation, the Model 4GC Carburetor employs the use of two sets of twin floats.

Use Figure 7-5 as a reference.

Both sides of the carburetor incorporate individual float systems for maintaining the proper fuel level in each float bowl. All fuel enters the carburetor on the secondary or fuel inlet (1) side.

As the fuel level on the secondary side drops, the twin floats (2) also drop, thus moving the inlet needle (3) off its seat (4). Then pressure, from the fuel pump, forces fuel through the filter screen (5), into the inlet passage (6), and the float bowl. As the fuel level rises, the floats rise and once again close off the inlet needle.

As fuel is drawn from the float bowl on the primary or pump side of the carburetor, the float action is identical with that on the secondary side. As the twin floats drop (7), pressure from the fuel pump forces fuel through the fuel inlet (1) and filter screen (5). This fuel then passes through a channel cored in the air horn and enters the inlet passage on the primary side at (8). It then passes through the needle seat channel (9), past the now open inlet needle (10), and into the float bowl. As on the secondary side, when the fuel level rises, the floats rise and once again close off the inlet needle.

Both float systems are provided with float needle pull clips (11 & 12) (on some model 4GC Carburetors only) and float balance springs (13 & 14). The float needle pull clips link together the twin floats and the inlet needles, thus causing the inlet needles to retract from their seats upon a drop in fuel level in the float bowls. This is to prevent the possibility of gum deposits causing a sticking condition. The balance springs act as vibration dampeners and enable the carburetor to maintain a more constant and accurate fuel level.

Both sides of the carburetor are individually and internally vented by the channels shown in 15 and 16. These vents transmit the pressure from beneath the air cleaner to the fuel in the float bowl. The amount of fuel metered by the carburetor is dependent upon the pressure in the float bowl causing fuel to flow. By locating the vents below the air cleaner, or internally, the carburetor automatically compensates for air cleaner restriction, since the same pressure causing air to flow will also be causing fuel to flow.

A cored passage in the float bowl, slightly above the normal fuel level, links the primary and secondary float bowls together. In this way any abnormal rise in level on one side will be absorbed by the other and should not seriously disrupt the operation of the engine.

CHOKE SYSTEM

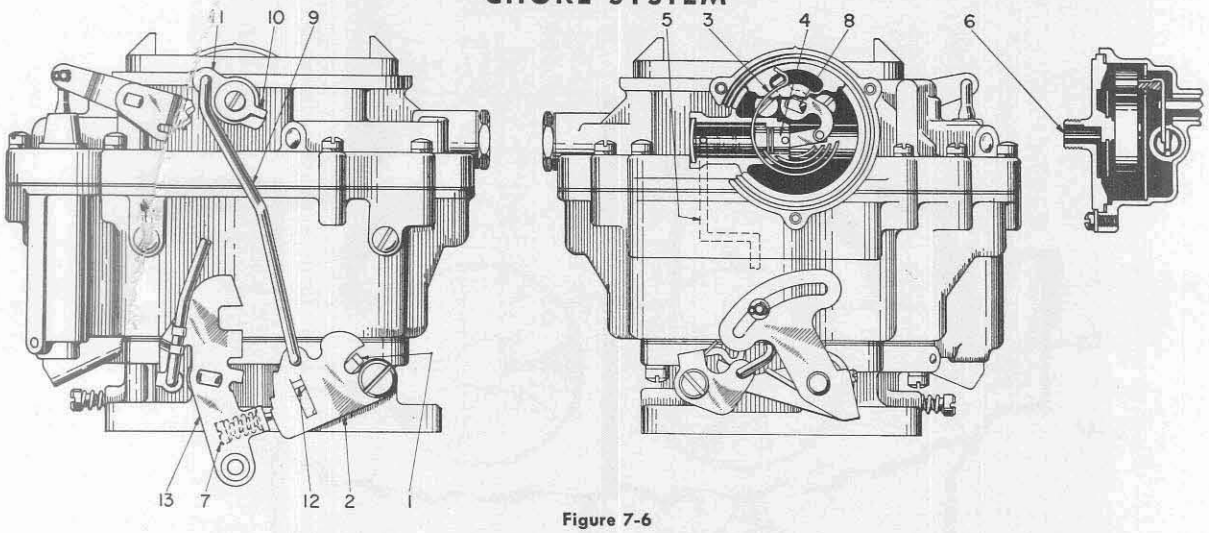


Figure 7-6

Use Figure 7-6 as a reference.

The Model 4GC Carburetor employs the use of a fully automatic choke to insure proper starting and driving during cold weather operation. Choking of the carburetor is necessary only on the primary or pump side. This is due to the fact that the secondary throttle valves are locked in the closed position whenever the choke valve is even partially closed. This is accomplished by a secondary throttle shaft lock out lever (1) and a slot in the fast idle cam (2). Whenever the choke valve is closed the lock out lever prevents opening of the secondary throttle valves. However, when the choke valve is wide open, the fast idle cam drops down so that the lock out lever clears the cam, thus permitting the secondary throttle valves to open.

The choke system is composed of a thermostatic coil (3), vacuum piston (4), offset choke valve, and fast idle cam (2). Its operation is controlled by a combination of intake manifold vacuum, the offset choke valve, atmospheric temperature, and exhaust manifold heat.

When the engine is cold the thermostatic coil is calibrated to hold the choke valve closed. As the engine is started, air velocity against the offset choke valve causes the valve to open slightly against the torque of the thermostatic coil. In addition, intake manifold vacuum is applied to the vacuum piston (4), through the vacuum channel (5) which also tends to open the choke valve. Therefore, the choke valve assumes a position where the torque of the thermostatic coil is balanced against vacuum pull upon the choke piston and air velocity against the offset choke valve, thereby causing a regulated air flow into the carburetor which provides a richer mixture during the warm-up period.

During warm-up, the vacuum piston (4) serves to modify the choking action to compensate for varying engine loads or acceleration. Any acceleration or increased road load decreases the vacuum exerted on the choke piston. This allows the thermostatic coil torque to momentarily increase choke valve closure to provide the engine with a richer mixture for acceleration.

As the engine warms up, hot air from the exhaust manifold is drawn into the thermostatic coil housing through (6). This hot air causes a rise in temperature which in turn causes the coil to slowly relax its tension. Thus the choke valve is allowed to move gradually to the full open position.

To prevent stalling during the warm-up period, it is necessary to run the engine at a slightly higher idle speed than for a warm engine. This is accomplished by the fast idle screw (7) which rests on the steps of the fast idle cam (2). The fast idle cam is in turn linked to the choke valve shaft (8) by the choke rod (9), choke trip lever (10) and choke lever and collar assembly (11) and holds the throttle valves open sufficiently during the warm-up period to give the increased idle RPM, until the choke valve moves to the full open position.

While the automatic choke is in operation, the driver may wish to advance the throttle to the full wide open position. Since this would decrease pull upon the vacuum piston (4) thereby closing the choke valve, it is necessary to provide increased carburetor air flow by opening the choke valve mechanically. To accomplish this, a tang (12) on the fast idle cam (2) is made to contact the throttle lever (13) at wide open throttle position so as to sufficiently open the choke valve. This is also called a choke unloader and serves to dechoke a flooded carburetor during cold starting operation. This choke unloader will also relieve a flooded condition on starting by allowing more air to enter the carburetor and mix with the excess gasoline in the manifold whenever the engine is cranked with the accelerator held fully depressed.

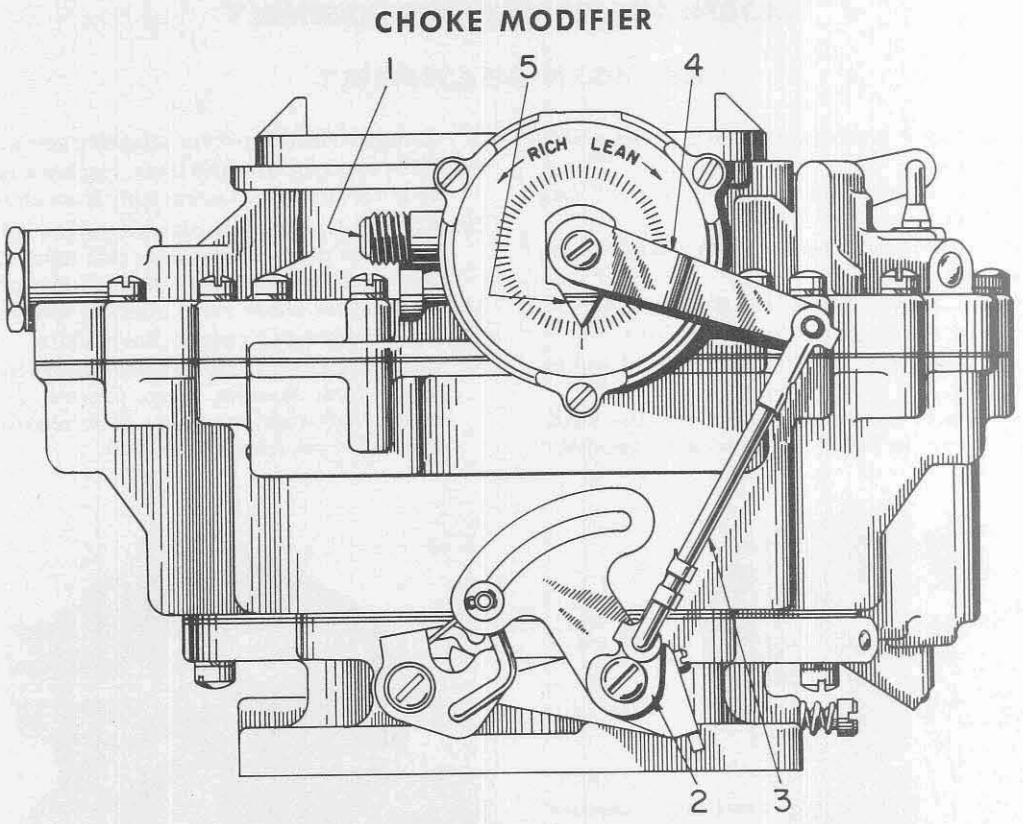


Figure 7-7

Use Figure 7-7 as a reference.

The choke system, as used on some Model 4GC Carburetors, also incorporates a choke modifier. The purpose of this choke modifier, as required by certain engines, is to prevent "loading up" or excessively rich mixtures during the warm-up period.

Under normal operating conditions, the automatic choke assumes a position where the torque of the thermostatic coil is balanced against the vacuum pull on the choke piston plus the air velocity against the offset choke valve. As the heat from the exhaust manifold relaxes the tension on the thermostatic coil, the choke valve gradually opens.

When the engine is started cold and the throttle is opened considerably (such as in going up a steep hill), vacuum drawing heat to the thermostatic coil housing through (1) may not be sufficient to heat and relax the coil before some "loading up" takes place. The choke modifier, being linked directly to the throttle by means of the throttle shaft modifier lever (2), choke modifier rod (3), thermostat modifier lever (4) and index plate (5) is actuated by the slightest throttle movement. Thus the choke modifier lever rotates the thermostatic coil, thereby relaxing the tension on the coil and allowing the choke valve to open sufficiently to prevent "loading up."

MODEL 4GC CARBURETOR ASSEMBLY

AIR HORN DISASSEMBLY

1. Remove fuel strainer nut and fiber gasket with a ¾" wrench.
2. Remove fuel inlet strainer with a pair of long nosed pliers.
3. Remove three retainer screws and retainers from stat cover.
4. Remove stat cover, gasket, and coil assembly.
5. Remove choke baffle plate. (Figure 7-8.)
6. Remove clips from each end of pump rod and remove pump rod. (Figure 7-9.)
7. Remove pump lever attaching nut and lock washer. Then remove pump shaft and lever assembly.
8. Remove choke trip lever attaching screw.
9. Then remove choke trip lever, spacing washer, and choke lever and collar assembly from choke shaft.
10. Remove fast idle cam attaching screw. (Figure 7-10.) Then remove choke lever and collar assembly, choke rod, and fast idle cam as an assembly.
11. Remove two choke valve attaching screws.
12. Remove choke valve from slot in shaft.
13. Rotate choke shaft counter clockwise to free choke piston from housing. Then remove piston and choke shaft from air horn. Then remove piston and piston pin from choke shaft.

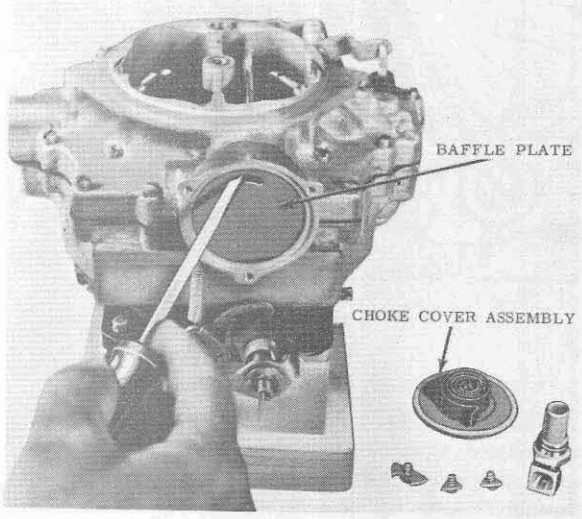


Figure 7-8

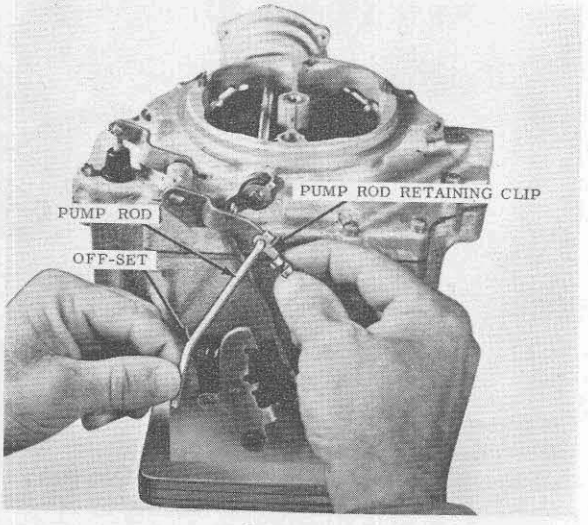


Figure 7-9

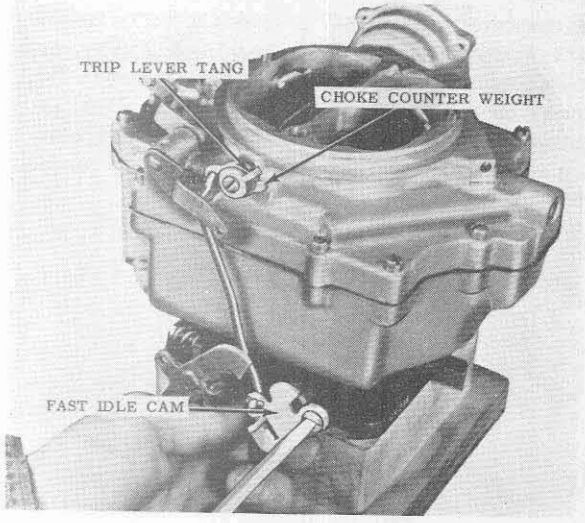


Figure 7-10

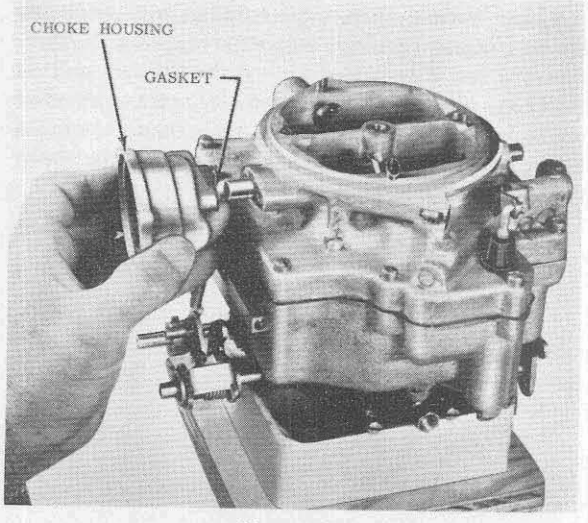


Figure 7-11

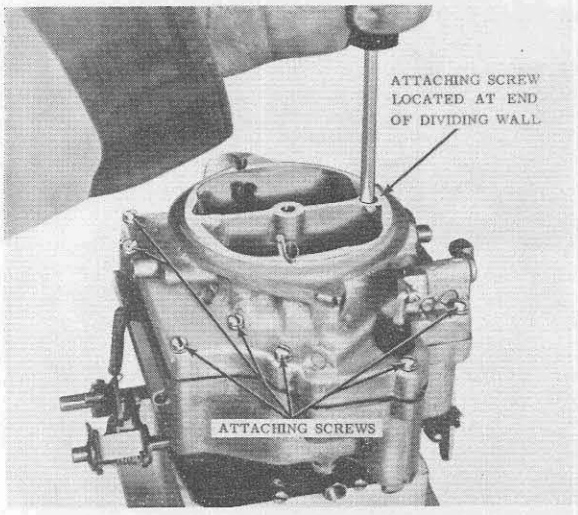


Figure 7-12

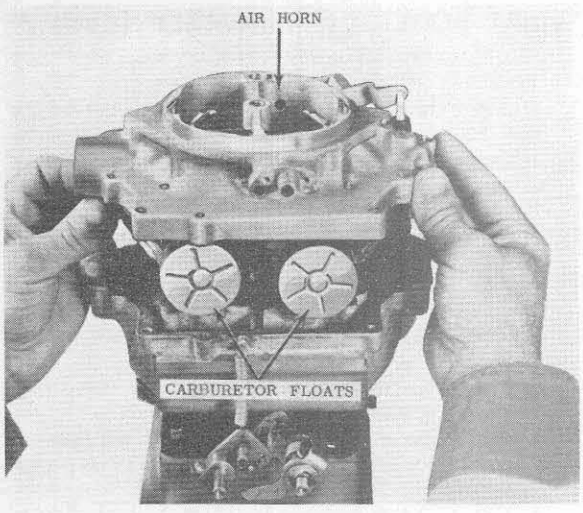


Figure 7-13

14. Remove two choke housing to air horn attaching screws. Then remove choke housing and gasket from air horn. (Figure 7-11.)
15. Remove cotter pin from pump plunger rod and remove inside pump lever.
16. Remove 13 air horn attaching screws and lock washers. (Figure 7-12.)
17. Carefully remove air horn from float bowl. Lift straight up until float assemblies clear carburetor bowl. (Figure 7-13.)
18. Remove float hinge pin and float and needle assembly from inlet side (secondary). Then remove float needle from float assembly.
    NOTE: Group and keep floats, needle, needle seat, and gaskets together as units. NEVER MIX FLOAT NEEDLES AND SEATS.
19. Remove needle seat and gasket from inlet side of carburetor.
20. Remove balance spring and clips from inlet side of carburetor.
21. Remove float hinge pin and float and needle assembly from pump side (primary). Then remove float needle from float assembly.
22. Remove needle seat and gasket from pump side of carburetor.
23. Remove balance spring and clips from pump side of carburetor.
24. Rotate power piston retaining washer and remove power piston and actuating spring.
25. Remove rubber seal and plunger assembly from air horn. Then remove rubber seal from pump plunger assembly. (Figure 7-14.)
26. Remove air horn gasket.

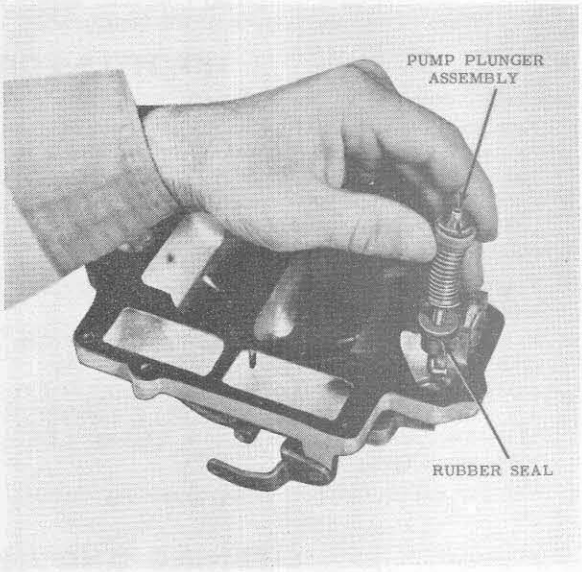


Figure 7-14

FLOAT BOWL DISASSEMBLY

1. Remove three attaching screws and lock washers from venturi cluster on pump side of carburetor. Then carefully remove cluster and gasket.
   NOTE: The venturi cluster on the pump side contains the pump discharge nozzles and must always be installed on the pump side of the carburetor. The venturi clusters also carry the idle tubes and main well tubes and are serviced as complete assemblies. If necessary, remove the brass vent valve from the primary venturi cluster by tapping from the underside with a 1/16″ punch or rod. If this valve is removed, be certain to replace it with a new one, as the original will be damaged during disassembly.
2. Remove both Main Metering Jets from the pump side of the carburetor bowl. As these jets differ in

FLOAT BOWL DISASSEMBLY (Cont'd)

size from the jets on the secondary side, they must always be installed on the pump side.

3. Remove the power valve and fiber gasket from the pump side.
4. Remove three attaching screws and lock washers from venturi cluster on inlet (secondary) side. Then carefully remove venturi cluster and gasket.
5. Remove both main metering jets from the inlet (secondary) side.
   NOTE: These jets are also stamped with the last two digits of the jet part number and must always be installed on the inlet (secondary) side of the carburetor.
6. Remove the pump return spring from the pump well with a pair of long-nosed pliers.
7. Carefully invert the carburetor bowl and remove the aluminum pump inlet ball and the brass pump outlet needle. (Figure 7-15.)
   NOTE: NEVER SUBSTITUTE A STEEL BALL FOR THE ALUMINUM BALL.
8. If necessary, remove the pump inlet filter screen and retainer from the bottom of the float bowl.

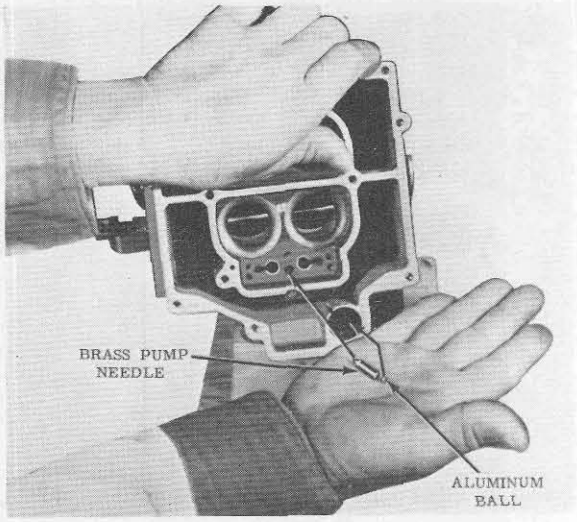


Figure 7-15

THROTTLE BODY DISASSEMBLY

1. Place carburetor in inverted position.
2. Remove throttle body from carburetor bowl by removing three 10-32 attaching screws and lock washers and one large 3/8-24 attaching screw and lock washer from the center of the throttle body.
3. Carefully remove throttle body gasket.
4. Remove idle adjusting needles and springs.
5. Remove fast idle screw and spring from throttle lever.
6. Remove idle stop screw and spring from throttle body casting.
   NOTE: THE THROTTLE BODY IS SERVICED AS A UNIT LESS THE THROTTLE LEVERS. TO REMOVE AND REPLACE THESE LEVERS PROCEED AS FOLLOWS:
7. Remove two cotter pins from secondary throttle lever link.
8. Remove washer from upper end of secondary throttle lever link.
9. Remove secondary throttle lever retaining screw and washer.
10. Unhook inner end of override shaft spring (heavy spring).
11. Remove shaft override spring retaining screw from primary throttle shaft.
12. Remove secondary throttle actuating lever and override spring.
13. Remove secondary throttle lever link assembly.
14. Unhook secondary throttle lever return spring from secondary lever.
15. Remove secondary throttle lever from secondary throttle shaft. Then remove secondary throttle lever return spring from secondary throttle shaft.

CLEANING AND INSPECTION OF PARTS

1. Inspect idle adjusting needles for burrs or ridges.
2. Thoroughly clean carburetor castings and metal parts in carburetor cleaning solvent.
   CAUTION: Choke Coil, Primary venturi cluster (with pump discharge nozzles) and pump plunger should not be immersed in solvent. Clean these parts in clean gasoline only.
3. Blow all passages in castings dry with compressed air. Do not pass drills through jets or calibrated passages.
4. Clean filter screens of dirt or lint. If they are distorted or plugged, replace.
5. Check floats for dents or wear or burrs at hinge pin holes.
6. Shake floats to check for leaks.
7. Examine float needle and seat. If grooved, replace with a factory matched float needle, seat, and gasket assembly.
8. Check choke shaft for wear in the air horn bores. If worn excessively, replace.
9. Inspect holes in inside and outside pump levers, fast idle cam, and throttle lever. If holes are worn excessively or out of round to the extent of improper operation of the carburetor, the worn parts should be replaced.
10. If excessive wear is noted on the steps of the fast idle cam, it should be replaced to assure proper engine operation during the warm-up and choking periods.
11. Inspect pump plunger leather, replace the plunger as an assembly if leather is creased or cracked.
12. Inspect the gaskets for flexibility. If the gaskets appear hard or brittle, they should be replaced to assure a proper seal.
    NOTE: Due to the close tolerance fit of the throttle valves, and the fact that the idle discharge holes are drilled in relation to a proper fitting valve, the throttle body and valve assembly should be replaced as a complete assembly when wear is noted at the throttle valves, or throttle body bores.

MODEL 4GC CARBURETOR ASSEMBLY

THROTTLE BODY ASSEMBLY

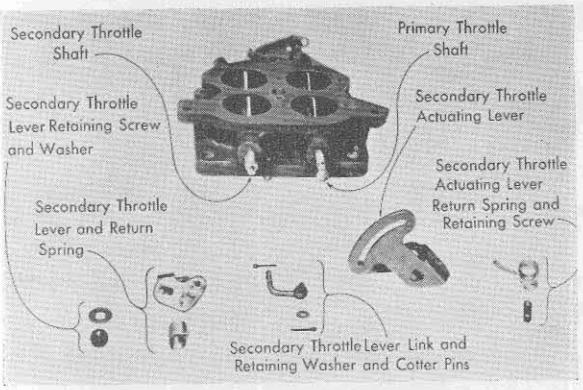


Figure 7-16

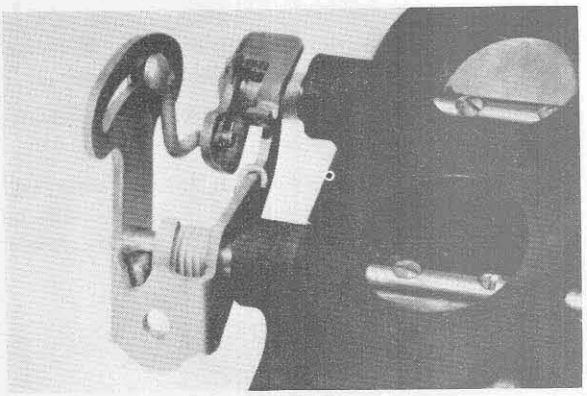


Figure 7-17

NOTE: Refer to Figure 7-16 for steps 1 through 7.

1. Install secondary throttle lever return spring on secondary throttle shaft so that end hooks into hole in throttle body casting.
2. Install secondary throttle lever on secondary throttle shaft. Then install secondary throttle lever retaining screw and washer.
3. With a piece of wire, wind up the secondary throttle lever return spring one complete turn.
4. Install the secondary throttle lever link assembly and cotter pin to the secondary throttle lever.
5. Install the secondary throttle actuating lever and override spring on the primary throttle shaft. Then install the secondary throttle lever link assembly into the secondary throttle actuating lever with a washer and cotter pin.
6. Install the shaft override spring retaining screw into the primary throttle shaft so that the hooked end of the spring stops against the retaining screw.
7. Hook the inner end of the override shaft spring onto the secondary throttle actuating lever. Refer to Figure 7-17 for proper assembly of throttle linkages.
8. Install the idle stop screw and spring into the throttle body casting.
9. Install the fast idle screw and spring into the throttle lever.
10. Install both idle adjusting needles and springs into the throttle body casting.
11. Place the throttle body gasket in position on the float bowl, with the bowl inverted on a flat surface. (Figure 7-18.) Be certain that all gasket holes are properly aligned.
12. Place Throttle Body in Position on float bowl. (Figure 7-19.) Attach with three 10-32 attaching screws and lock washers and one large ⅜-24 screw and lock washer.

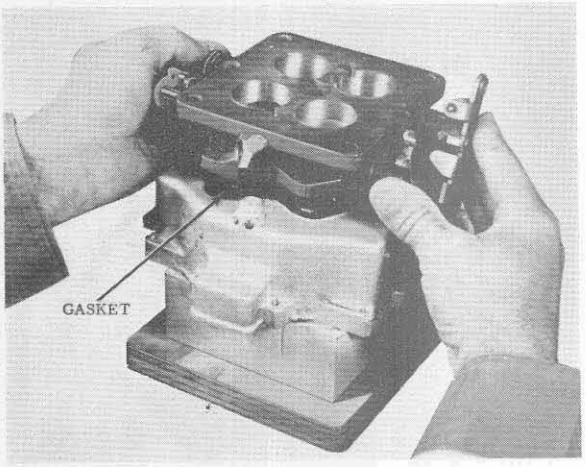


Figure 7-18

Figure 7-19

FLOAT BOWL ASSEMBLY (Continued)

10. Place venturi cluster gasket in position on pump side of carburetor. Be certain all gasket holes are properly aligned.
11. Install primary venturi cluster on pump side of carburetor with three retaining screws and lock washers. (Figure 7-23.) This cluster contains the pump discharge nozzles.

AIR HORN ASSEMBLY

1. Place air horn gasket in position on air horn. Be certain all gasket holes are properly aligned.
2. Assemble power piston and actuating spring into air horn cavity. Rotate retaining washer to hold piston in place. (Figure 7-24.)
3. Place rubber seal on pump plunger assembly. Then assemble plunger and seal in carburetor air horn so that casting positions in groove on seal. (Figure 7-25.)
4. Install float balance spring and clips on pump side of carburetor. (Figure 7-26.)
5. Install fiber gasket and needle seat on pump side of carburetor. (Figure 7-26.)

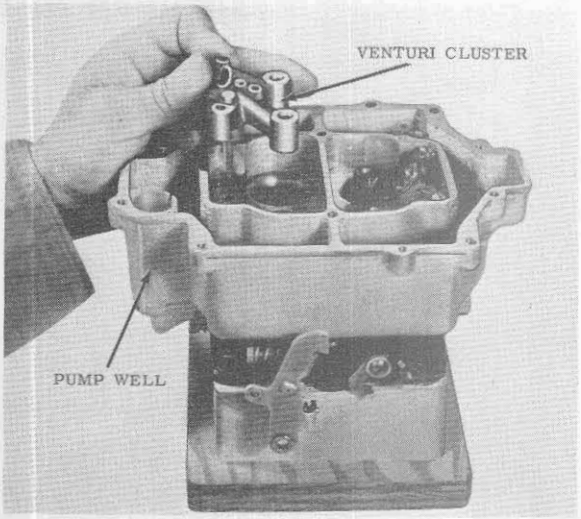


Figure 7-23

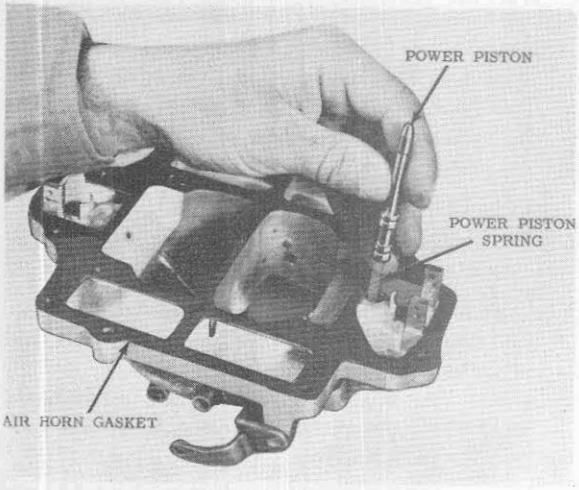


Figure 7-24

Figure 7-25

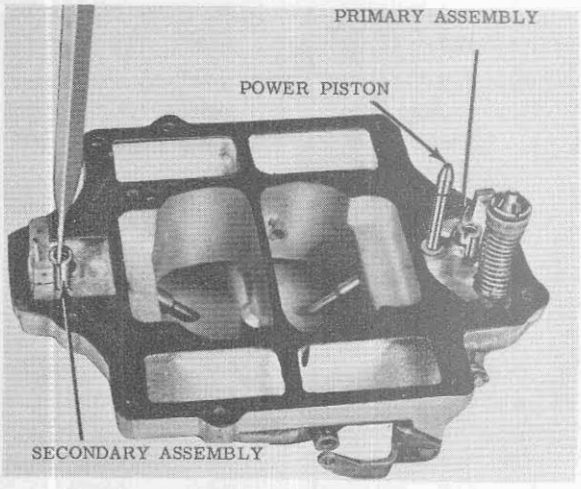


Figure 7-26

AIR HORN ASSEMBLY (Continued)

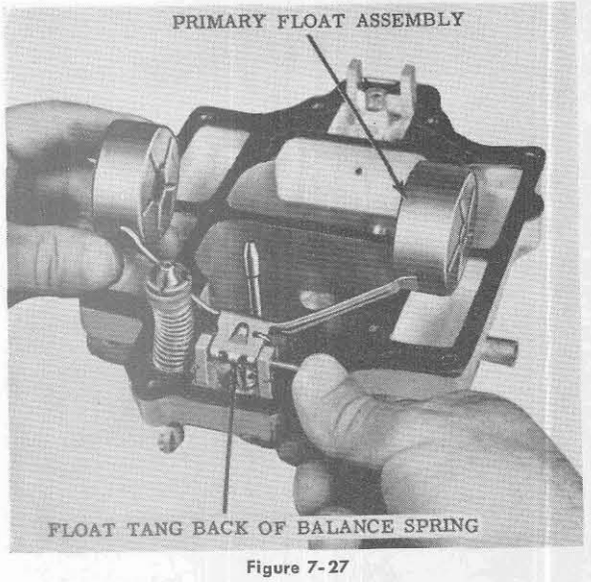


Figure 7-27

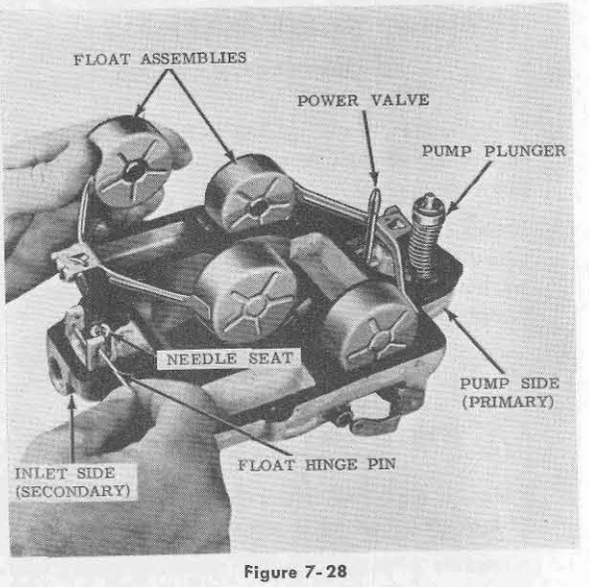


Figure 7-28

6. Assemble float needle to float assembly. Then install float, needle and hinge pin on pump side of carburetor. (Figure 7-27.)
7. Install float balance spring and clips on fuel inlet side of carburetor.
8. Install fiber gasket and needle seat on fuel inlet side of carburetor. (Figure 7-26.)
9. Assemble float needle to float assembly. Then install float, needle, and hinge pin on fuel inlet side of carburetor. (Figure 7-28.)
   NOTE: The float level and tension adjustments should be made at this point. See adjustment bulletin for proper setting.
10. Install air horn assembly on float bowl, being careful to guide pump plunger in well and not to bend float assemblies. Align air horn and gasket to screw holes in float bowl.
11. First tighten the three inner attaching screws and lock washers evenly and securely. Then tighten the remaining ten air horn attaching screws and lock washers.
12. Assemble inside pump lever to pump plunger rod and install cotter pin.
13. Assemble choke housing gasket to air horn. Then install choke housing to air horn with two attaching screws and lock washers.
14. Assemble choke piston and piston pin to choke shaft, lever, and link assembly. Install choke shaft assembly, through choke housing, into the air horn. (Figure 7-29.) Rotate choke shaft clockwise to assemble piston into choke housing sleeve.
15. Slide choke valve through choke shaft so that letters "RP" are facing up when valve is closed.
16. Start, but do not tighten, two choke valve attaching screws.
17. Install the choke lever and collar assembly, choke rod, and fast idle cam and retaining screw (as an assembly) to the choke shaft on one end, and throttle body on the other.

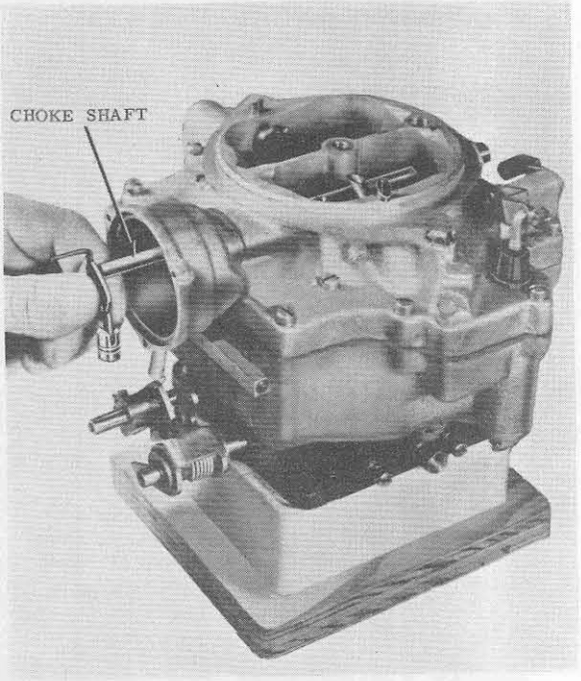


Figure 7-29

AIR HORN ASSEMBLY (Continued)

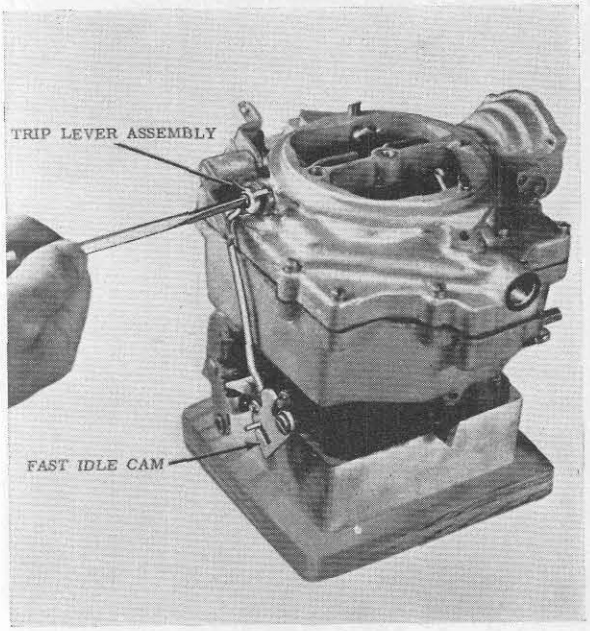


Figure 7-30

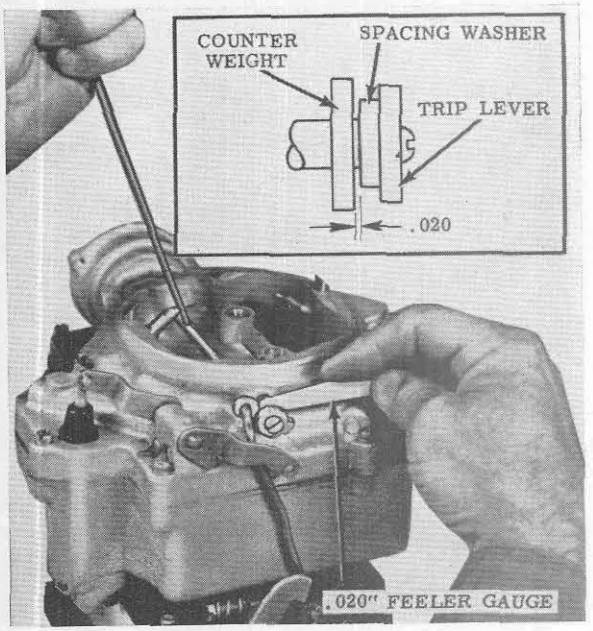


Figure 7-31

18. Then install the trip lever, spacing washer, and retaining screw on the end of the choke shaft. (Figure 7-30.)
19. To provide correct fit of choke valve in air horn, push lightly on choke shaft to obtain a *minimum* clearance of .020" between spacing washer and lever and collar assembly. (Figure 7-31.) While holding in this position tighten choke valve retaining screws.
20. Install pump shaft and lever assembly into air horn casting. Assemble shaft to inside pump lever with attaching nut and lock washer.
21. Assemble pump rod with two clips to pump lever on one end and throttle lever on the other. Dog leg of pump rod should be assembled nearest the throttle lever.
22. Assemble choke baffle plate into choke housing.
23. Assemble stat cover, gasket and coil assembly to choke housing so that coil contacts shaft link.
24. Rotate stat cover until the scribe line on the cover coincides with the index mark on the choke housing. Secure stat cover with three retaining screws and retainers.
25. Place fuel inlet strainer and fiber gasket on strainer nut. Then install this assembly in carburetor fuel inlet with a ¾" wrench.

CHOKE MODIFIER DISASSEMBLY AND ASSEMBLY

DISASSEMBLY

1. Remove clips from choke modifier rod and remove rod.
2. Remove screw from index lever and remove lever. Do not remove index plate.
3. Remove stat cover screws and retainers, then stat cover and coil assembly.
4. Remove primary throttle shaft modifier lever.

ASSEMBLY

1. Assemble primary throttle shaft modifier lever with letters RP facing outward and lever pointed up with throttle valves closed.
2. Assemble stat cover and coil assembly with screws and retainers.
3. Assemble stat modifier lever to stat cover. Leave retaining screw loose.
4. Assemble choke modifier rod with rod end clips. Stat modifier lever should point away from fuel inlet.
5. Tighten retaining screw.

Refer to Figure 7-7 for proper assembly.

UNITED MOTORS SERVICE - AC DIVISION

GENERAL MOTORS PRODUCTS OF CANADA LIMITED

OSHAWA, ONTARIO

Bulletin 9D-9-57
Date: 12-1-56
Page: 1
File After 9D-9 4GC-Basic Model Manual

ROCHESTER PRODUCTS CARBURETOR BULLETIN

SUBJECT: MODEL 4GC - 1957 DESIGN CHANGES

BUICK

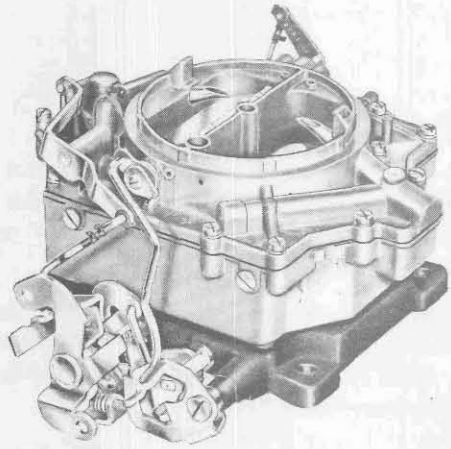
Model 4GC — 1957 Applications

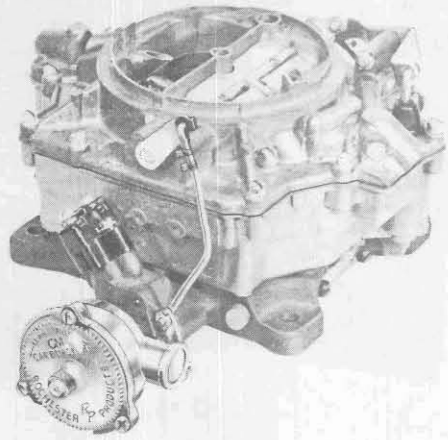
Series 50-60-70 — 7010070

DESCRIPTION OF CHANGES

APPEARANCE:

The Model 4GC carburetor for 1957 Buick is radically different in appearance from earlier models, having been reduced in height by approximately one inch. The float bowl is lowered with new type cutaway floats which are spring balanced. The automatic choke housing has been moved from the float bowl to the throttle body. The throttle body thickness has been reduced by removing the counterweighted auxiliary valves and installing new type spring loaded auxiliary valves in the float bowl.





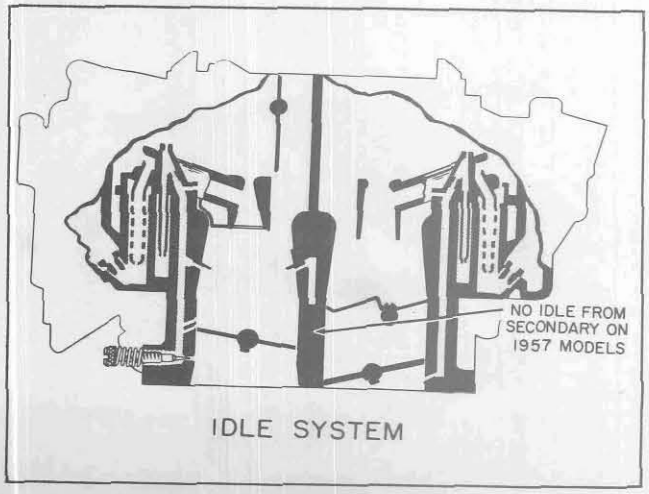
SPECIFICATIONS:

The throttle body bore size has been increased from 1-7/16" to 1-9/16" on the primary side and from 1-7/16" to 1-11/16" on the secondary side. The large venturi size has been increased from 1-3/16" to 1-5/16" on the primary side and from 1-1/4" to 1-15/32" on the secondary side. The small venturi on the primary side has been increased from 1/8" to 1/4". Calibration and metering has been changed to meet the demands of the new 1957 engine.

OPERATION:

The idle system has been changed in that there are no supplementary idle holes feeding, from the secondary side of the carburetor, between the primary and secondary bores.

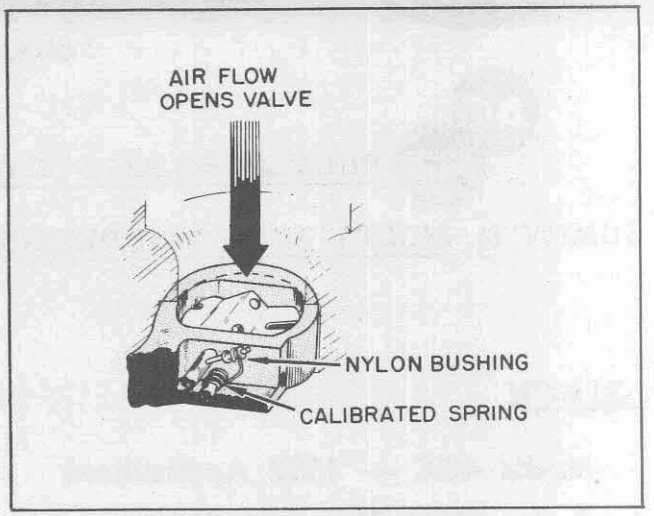
The secondary bores contain a new spring loaded auxiliary valve which keeps the secondary side of the carburetor out of operation, until air velocity is high enough to provide good metering.



IDLE SYSTEM

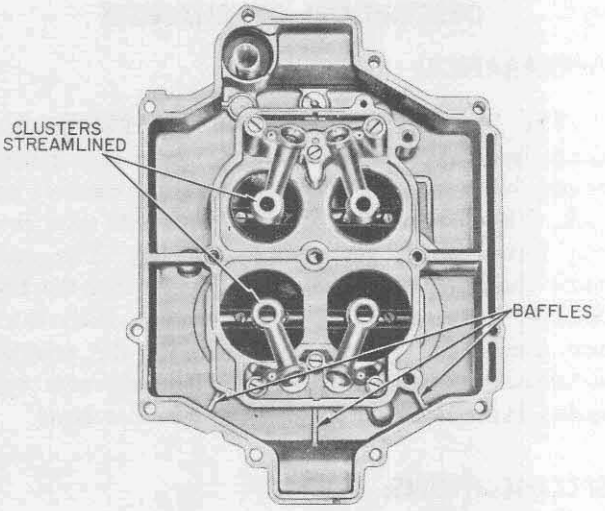
BUICK (Continued)

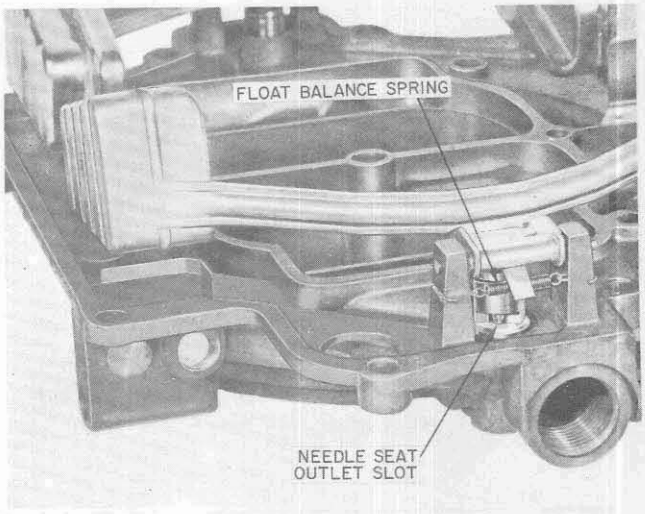
The auxiliary valve assembly fits in place in the underside of the float bowl casting and is held there by assembly of the throttle body to the bowl. Spring tension on the valve is factory calibrated and should not be reset in the field. Lubrication of the bushing is not generally necessary but light machine oil may be used if stickiness is encountered.



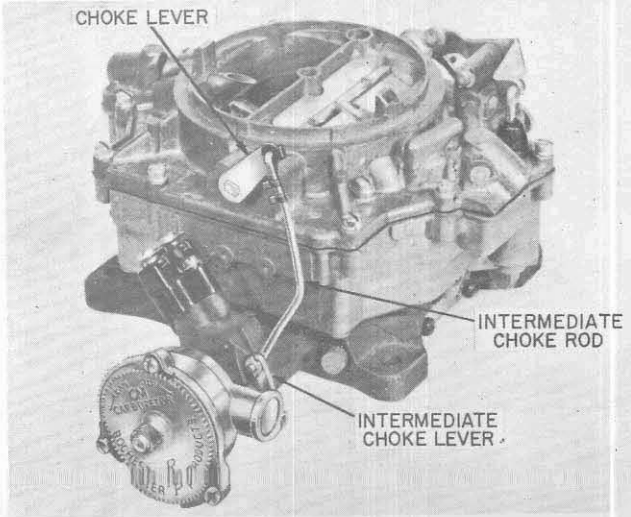
The large and small venturi and venturi clusters have been streamlined to provide minimum air turbulence and resistance to air flow for improved metering through the venturi system.

The new low bowl design has three baffles installed in the secondary side to prevent any spill-over of fuel from the secondary nozzles during sharp turns and abnormal operation.

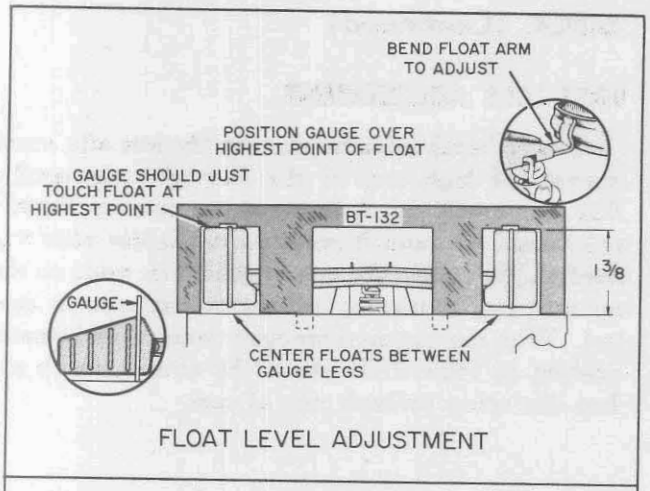




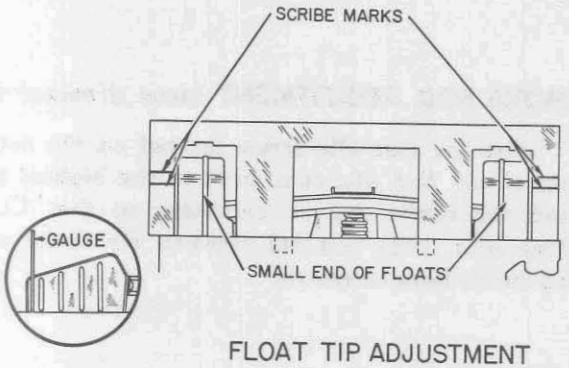
New type spring balanced, cutaway floats are used in the new low bowl design. The balance spring is mounted between the two float hanger posts and exerts pressure on the float tang to assist in closing the float valve. The purpose of the balance spring is to give a more positive closing of the float valve to eliminate any fuel spill-over during abnormal operation.



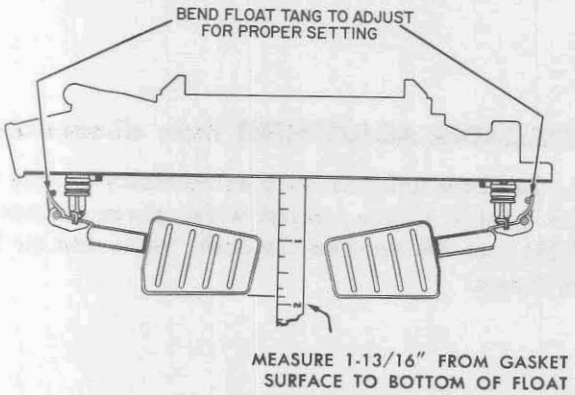
Moving the choke housing to the throttle body requires a longer intermediate choke rod to connect with the choke valve shaft. Otherwise choke operation is the same as 1956 models.



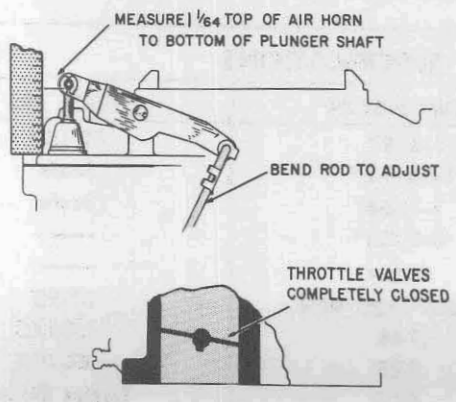
FLOAT LEVEL ADJUSTMENT



FLOAT TIP ADJUSTMENT



FLOAT DROP ADJUSTMENT



PUMP ROD ADJUSTMENT

BUICK (Continued)

SERVICE:

The following are adjustment changes made necessary by new design and construction.

FLOAT LEVEL ADJUSTMENT:

With the air horn inverted and air horn gasket in place, position Float Gauge BT-132 over the floats at their highest point as shown.

Bend the float arms at the rear so that the highest point of the floats just contact gauge.

Vertical height should be 1-3/8".

If necessary bend each float arm horizontally until each float pontoon is centered between gauge legs.

FLOAT TIP ADJUSTMENT:

Move Gauge BT-132 to small ends of floats as shown. With Gauge held vertically, the upper edge of the float at the point where the radius ends should align between scribe marks on gauge.

FLOAT DROP ADJUSTMENT

(due to new type floats)

Note: This adjustment is important because of the new type spring balanced floats.

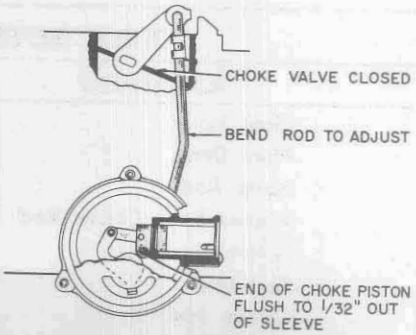
With air horn upright and floats hanging free, distance from air horn gasket to lowest point of float should be 1-13/16". Bend float tang to adjust.

PUMP ROD ADJUSTMENT *(new dimension)*

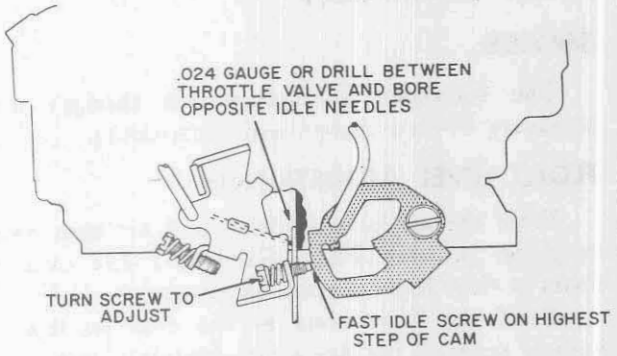
With the throttle valves completely closed, bend the pump rod to obtain a dimension of 1-1/64" from the air horn to the bottom of the pump plunger shaft.

INTERMEDIATE CHOKE ROD ADJ. *(new)*

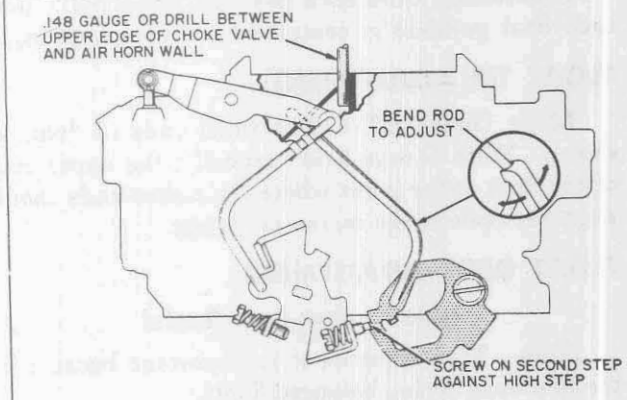
Holding the choke valve closed, bend the intermediate choke rod as necessary so that the end of the choke piston is flush to 1/32" out of the choke piston sleeve.



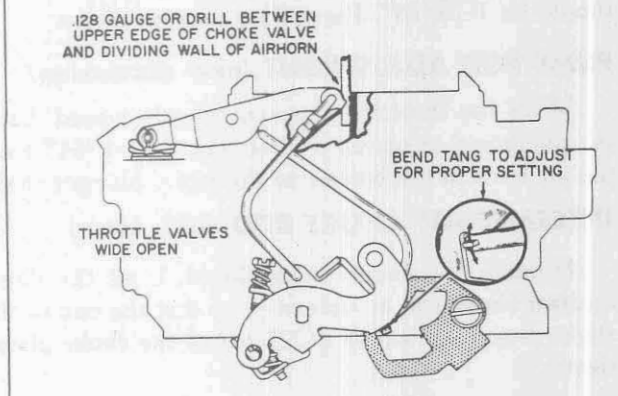
INTERMEDIATE CHOKE ROD ADJUSTMENT



FAST IDLE ADJUSTMENT



CHOKE ROD ADJUSTMENT



UNLOADER ADJUSTMENT

BUICK (Continued)

FAST IDLE ADJUSTMENT

As the bench adjustment, turn the fast idle screw against the high step of the fast idle cam until a .024 gauge will just fit between the primary throttle valve and carburetor bore, opposite the idle adjusting needles. Final fast idle setting should be made on the car with engine running and the transmission in neutral. With the engine thoroughly warm a tachometer reading of 1500 RPM should be obtained with the fast idle screw on high step of cam.

CHOKE ROD ADJUSTMENT *(new dimension)*

With the fast idle screw located on the second step of the fast idle cam, next to the highest step, bend the choke rod as necessary so that Gauge (dimension .148) just fits between the choke valve and the air horn as shown.

UNLOADER ADJUSTMENT *(new dimension)*

Bend the unloader tang as necessary so that with the throttle valves opened wide, gauge (dimension 128) just fits between the choke valve and air horn as shown.

QUICK REFERENCE ADJUSTMENT SPECIFICATIONS

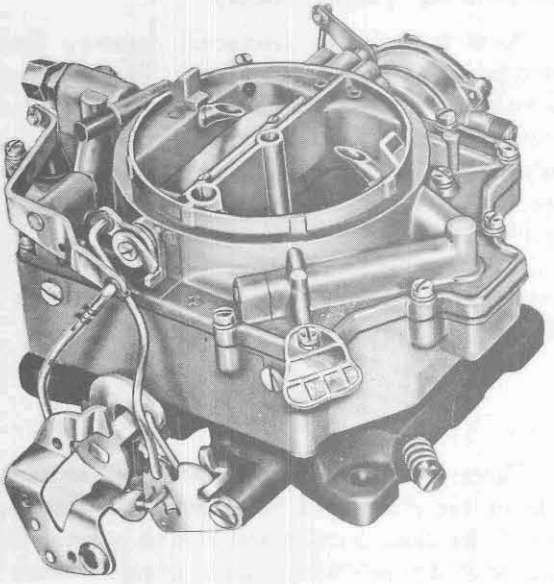
ADJUSTMENT	DIMENSION	TOOL No.
Float Level	1-3/8"	BT-132
Float Drop	1-13/16"	Scale
Pump Rod	1-1/64"	Scale
Intermediate Choke Rod	0-1/32"	——
Automatic Choke	Index	——
Fast Idle	.024 - 1500 RPM	BT-90
Choke Rod	.148	BT-135
Unloader	.128	BT-135
Sec. Lockout	.015	Feeler Gauge
Sec. Contour	.030	Feeler Gauge

CADILLAC

Model 4GC — 1957 Applications

Standard — 7010100
Air Conditioned — 7010101

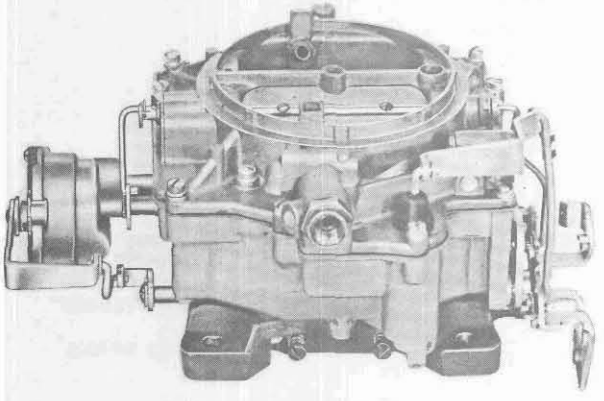
DESCRIPTION OF CHANGES



APPEARANCE:

The 1957 4GC is quite changed in appearance from earlier models.

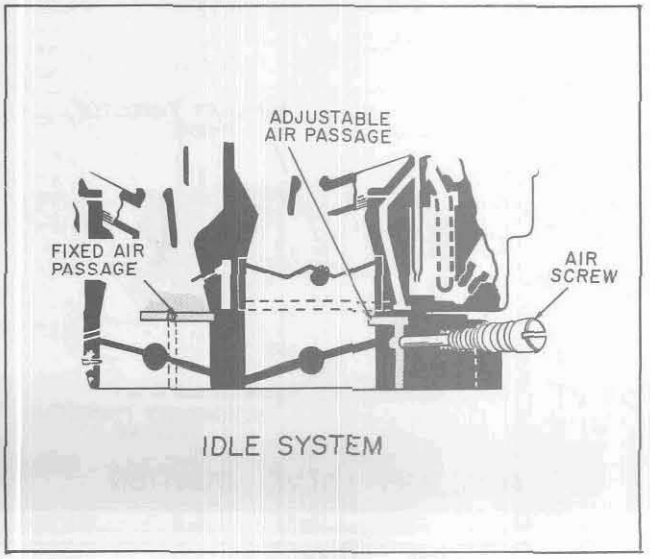
The overall height has been reduced by decreasing the flange thickness and the bowl height. The automatic choke has been moved from the air horn to the float bowl to allow lower hood styling. The secondary throttle actuating lever and linkage has been moved from the choke housing side to the throttle lever side of the carburetor and is now a part of the throttle shaft and lever assemblies. The idle air screw has been moved from behind the throttle lever to a more accessible position on the rear of the throttle body.



SPECIFICATIONS:

To meet increased performance requirements, the main venturi in both the primary and secondary sides have been increased in size. The large venturi on the primary side was increased from 1-1/16" to 1-1/8". The large venturi on the secondary side was increased from 1-3/16" to 1-15/32". The secondary bore size was increased from 1-7/16" to 1-11/16".

Calibration and metering has been changed to meet the demands of the new 1957 engine.



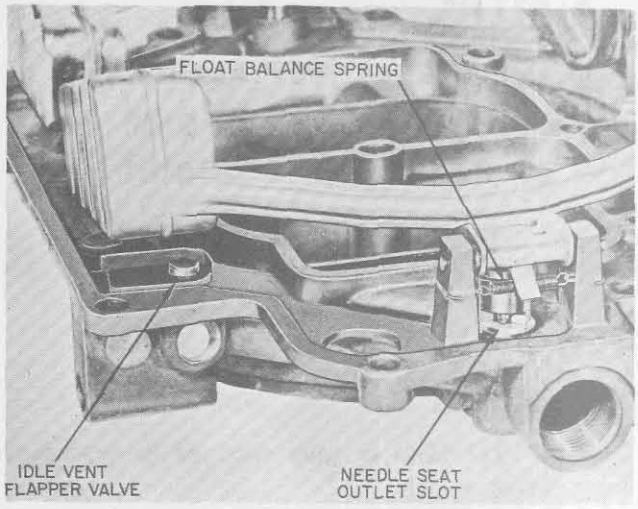
IDLE SYSTEM

OPERATION:

The idle system is slightly changed; idle air for the by-pass now comes from both the primary and secondary bores. The fixed air passage feeds air from the primary bores; the adjustable passage, regulated by the air screw, now feeds air from the secondary bores to the primary bores through the heat insulator block. Operation is otherwise unchanged.

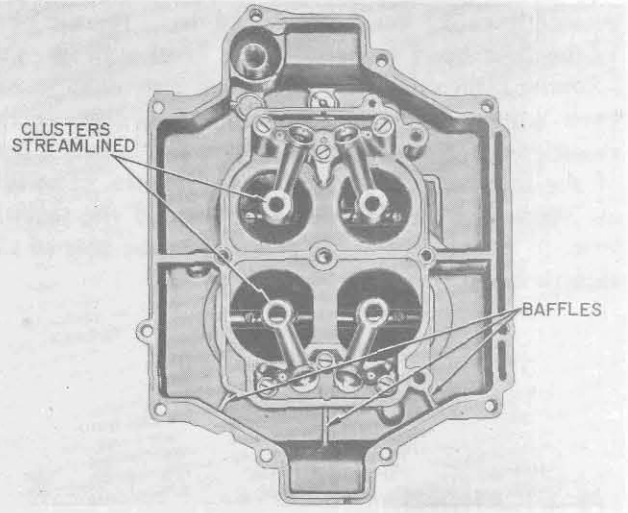
CADILLAC (Continued)

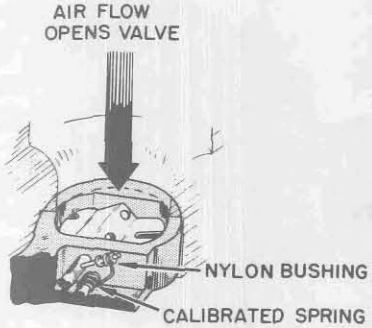
New type spring balanced, cutaway floats are used in the new low bowl design. The balance spring is mounted between the two float hanger posts and exerts pressure on the float tang. The purpose of the balance spring is to give a more positive closing of the float valve to eliminate any possibility of fuel spill-over during abnormal operation. A new anti-spill flapper valve has been installed under the idle vent valve to prevent any spillage of fuel out of the idle vent valve.



Three baffles have been added in the secondary side of the float bowl to prevent fuel from spilling out of the main nozzles and also to prevent the possibility of dry jets which might occur in sharp turns.

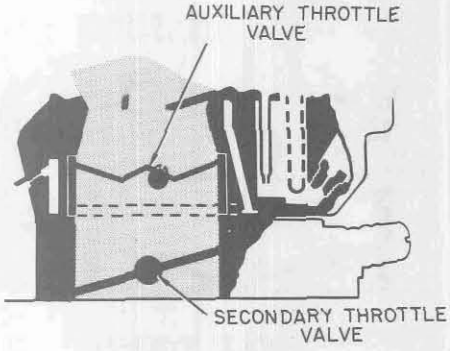
To minimize air flow resistance and turbulence, the venturi and venturi clusters have been streamlined in design and construction.





AUXILIARY VALVE

The secondary bores contain a new spring-loaded auxiliary valve which keeps the secondary side of the carburetor out of operation until air velocity is high enough to provide good metering. This new feature allows a wider range of full power operation.

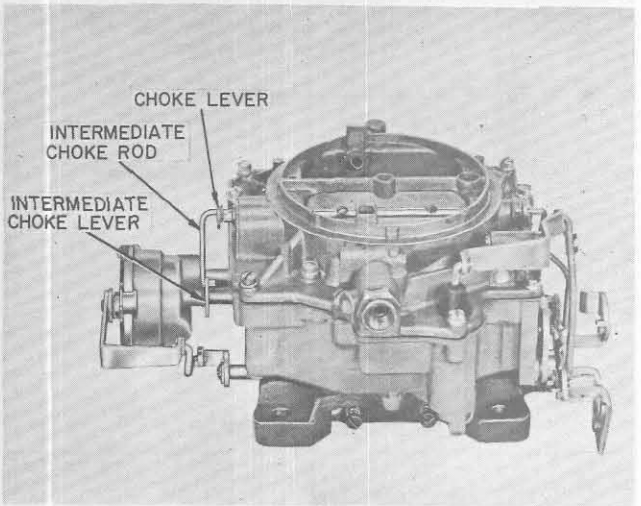


AUXILIARY VALVE LOCATION

The auxiliary valve assembly fits in place in the underside of the float bowl casting and is held in place by assembly of the throttle body to the bowl. Spring tension is set at the factory and should not be changed in the field. Lubrication is not generally necessary but light machine oil may be used if desired to prevent sticking.

CADILLAC (Continued)

The choke system, while basically the same in operation as earlier models, is slightly changed in that the thermostatic coil now acts on an intermediate choke lever which transmits the action through an intermediate choke rod to the choke valve shaft.



SERVICE:

The following are adjustment changes made necessary by new design and construction.

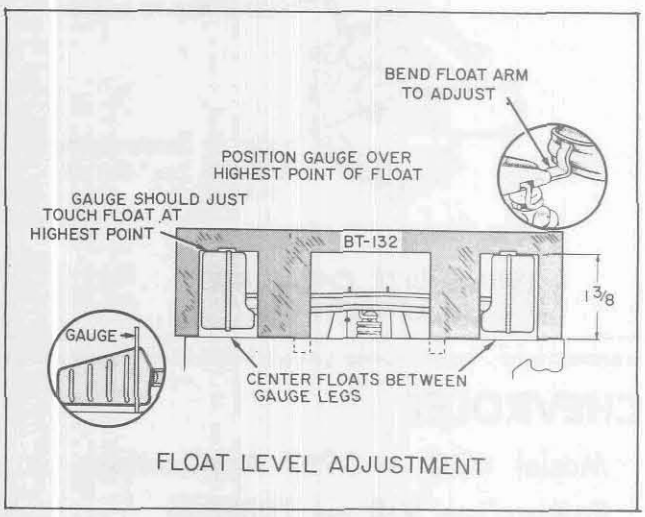
FLOAT LEVEL ADJUSTMENT:

With the air horn inverted and air horn gasket in place, position Float Gauge BT-132 over the floats at their highest point as shown.

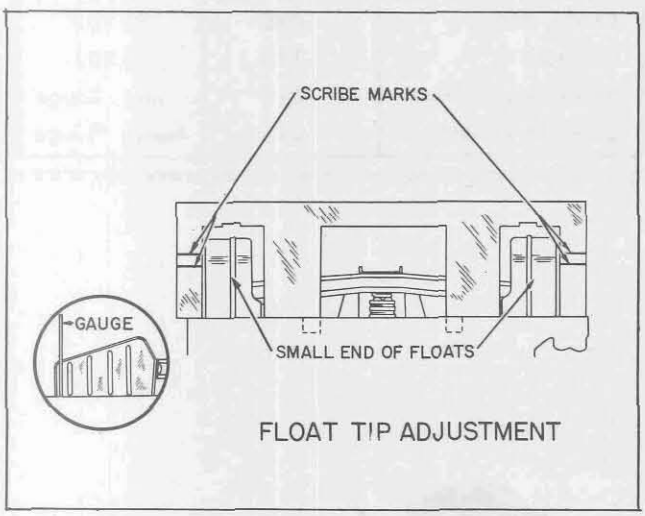
Bend the float arms at the rear so that the highest point of the floats just contact gauge.

Vertical height should be 1-3/8".

If necessary bend each float arm horizontally until each float pontoon is centered between gauge legs.



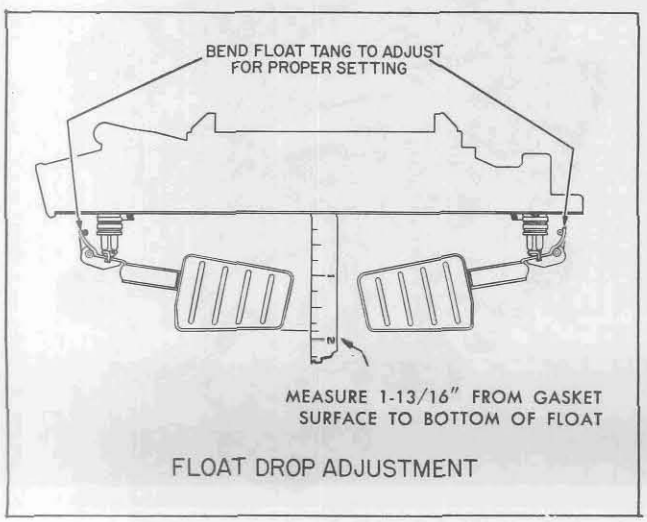
FLOAT LEVEL ADJUSTMENT



FLOAT TIP ADJUSTMENT

FLOAT TIP ADJUSTMENT:

Move Gauge BT-132 to small ends of floats as shown. With Gauge held vertically, the upper edge of the float at the point where the radius ends should align between scribe marks on gauge.

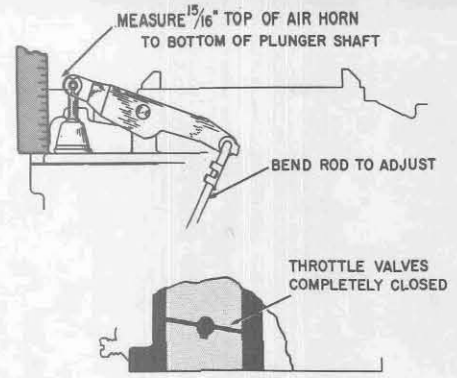


FLOAT DROP ADJUSTMENT

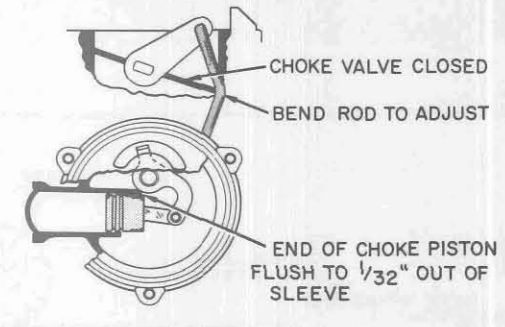
FLOAT DROP ADJUSTMENT *(new type floats)*

Note: This adjustment is important because of the new type spring balanced floats.

With air horn upright and floats hanging free, distance from air horn gasket to lowest point of float should be 1-13/16". Bend float tang to adjust.



PUMP ROD ADJUSTMENT



INTERMEDIATE CHOKE ROD ADJUSTMENT

CADILLAC (Continued)

PUMP ROD ADJUSTMENT *(new dimension)*

With the throttle valves completely closed, bend the pump rod as necessary to obtain a dimension of 15/16" from the top of the air horn casting to the bottom of the pump plunger shaft.

INTERMEDIATE CHOKE ROD ADJ. *(new)*

Hold the choke valve closed, bend the intermediate choke rod as necessary so that the choke piston is flush to 1/32" out of the end of the choke piston sleeve.

QUICK REFERENCE ADJUSTMENT SPECIFICATIONS

ADJUSTMENT	DIMENSION	TOOL No.
Float Level	1-3/8"	BT-132
Float Drop	1-13/16"	Scale
Pump Rod Set.	15/16"	Scale
Idle Vent	.063	BT-79
Int. Choke Rod	0-1/32"	——
Automatic Choke	Index	——
Fast Idle	.020	BT-67
Choke Rod	.040	BT-102
Unloader	.125	BT-102
Secondary Lockout	.015	Feeler Gauge
Secondary Contour	.015	Feeler Gauge

CHEVROLET

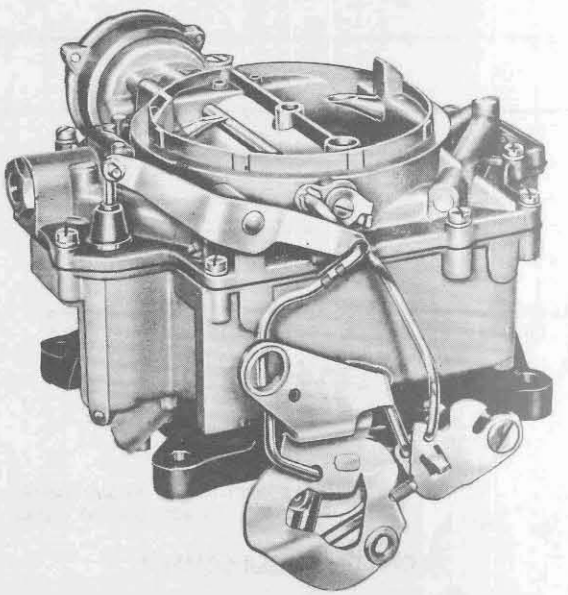
Model 4GC — 1957 Applications
Powerglide V-8 — 7009846

DESCRIPTION OF CHANGES

Except for minor calibration changes, the 1957 4GC is similar to the 1956 model. Service information will be the same as for 1956. Listed below are adjustment specifications.

QUICK REFERENCE ADJUSTMENT SPECIFICATIONS

ADJUSTMENT	DIMENSION	TOOL No.
Float Level	1-5/8"	BT-89
Float Drop	2-1/4"	Scale
Pump Rod	1-1/16"	Scale
Automatic Choke	1 notch lean	——
Choke Rod	.043	BT-131
Unloader	.235	BT-131
Secondary Lockout	.015	Feeler Gauge
Secondary Contour	.015	Feeler Gauge

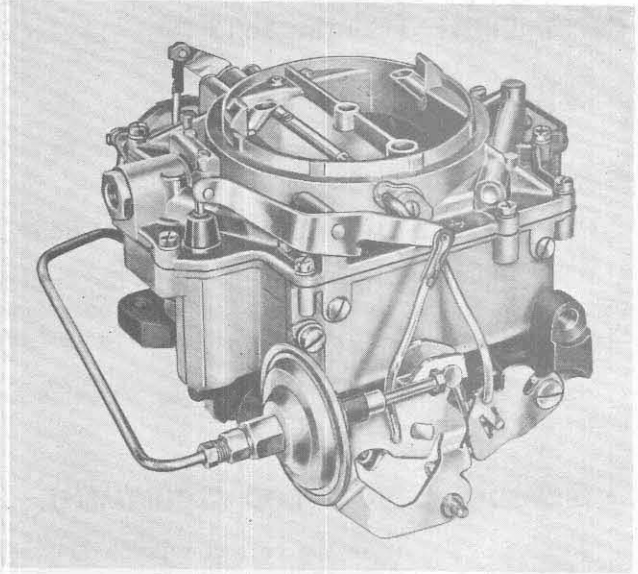


OLDSMOBILE

Model 4GC — 1957 Applications

88-98 Syncromesh — 7009471

88-98 Hydramatic — 7009470



APPEARANCE:

The 1957 4GC carburetor for Oldsmobile is similar in appearance to the unit used in 1956, with the exception that the automatic choke housing is located on the float bowl instead of the air horn. A choke modifier is used on the automatic choke for improved cold driveaway.

SPECIFICATIONS:

There is no change in general specifications but metering and calibration have been changed to meet the demands of the new 1957 engine.

OPERATION:

The only change in operation in the 1957 4GC is the choke system. In previous models the thermostatic coil acted directly on the choke shaft; in the 1957 4GC the choke coil acts through an intermediate choke shaft and rod to move the choke valve shaft.

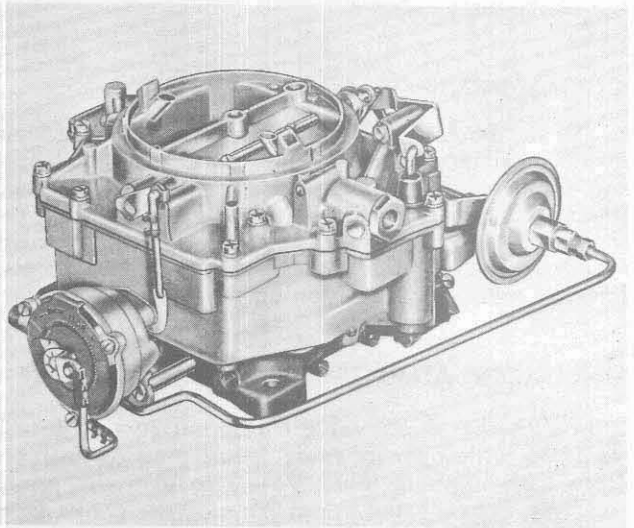
The choke modifier which is new for this year is used to prevent "loading up" and excessively rich mixtures during the engine warm-up period.

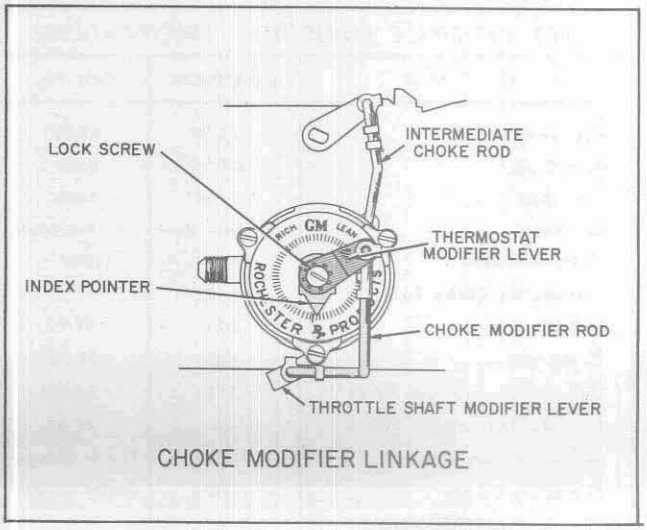
Under normal operation, the automatic choke valve assumes a position where the torque of thermostatic coil is balanced against vacuum pull on the choke piston plus air velocity against the offset choke valve. As heat from the exhaust manifold relaxes the tension on the thermostatic coil, the choke valve gradually opens.

When the engine is started cold and the throttle is opened considerably (such as going up a steep hill) vacuum pull on the choke piston is lessened, thereby causing the choke valve to close because the balance between the tension on the thermostatic coil and vacuum pull on the choke piston is upset. Also vacuum drawing heat to the thermostatic coil housing may not be sufficient to heat and relax the thermostatic coil before "loading up" takes place.

The choke modifier, being linked directly to the throttle by means of the throttle shaft, modifier lever, choke modifier rod, thermostat modifier lever and shaft is actuated by the slightest throttle movement. Thus the thermostat modifier lever rotates the thermostatic coil, thereby relaxing or increasing tension on the thermostatic coil as necessary to give the proper choke valve opening.

As can be seen when opening the throttle valves gradually to wide open position, the choke modifier is at its leanest point at approximately 45° of throttle opening and then as the throttle valves are opened to wide open position the choke modifier enrichens. The reason for this is the engine demands a certain fuel mixture at these different points of throttle opening and so the choke modifier has been calibrated thus to meet these demands.





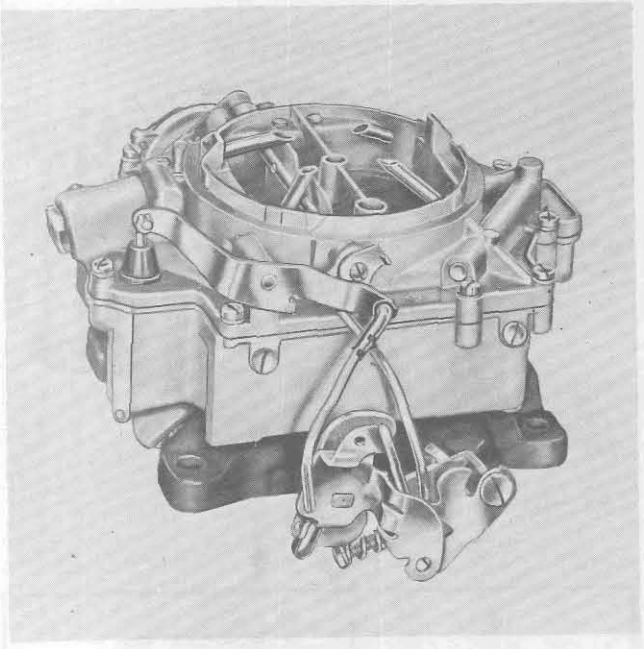
CHOKE MODIFIER LINKAGE

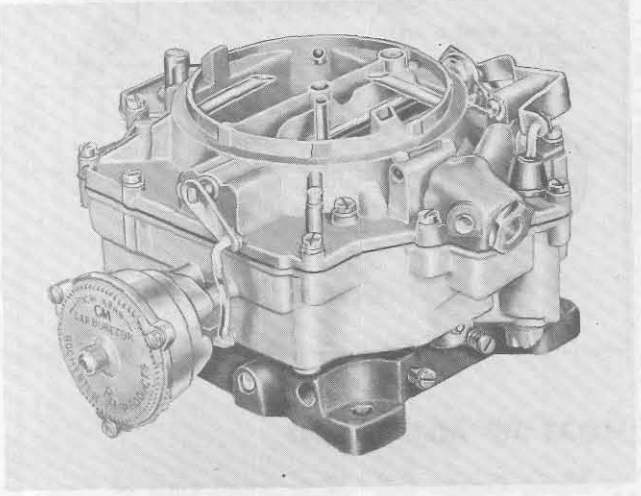
PONTIAC

Model 4GC — 1957 Application

Syncromesh — 7009829

Hydramatic — 7009830





DESCRIPTION OF CHANGES

APPEARANCE:

The 1957 Pontiac 4GC has been lowered in height with a new low bowl design. The automatic choke has been moved from the air horn to the float bowl to allow for improved air cleaner design and lower hood styling.

SPECIFICATIONS:

The secondary bores have been enlarged from 1-7/16" to 1-11/16" and the secondary main venturi has been enlarged from 1-1/4" to 1-15/32". Specifications and metering have been changed to meet the demands of the new 1957 engine. See specification sheet for calibration data.

OPERATION:

New type spring balanced, cutaway floats are used in the new low design. The balance spring is mounted between the two float hanger posts and exerts pressure on the float tang. The purpose of the balance spring is to give a more positive closing of the float valve to eliminate any fuel spillage during abnormal operation.

A new anti-spill flapper valve has been installed under the idle vent valve to prevent any spillage of fuel out of the idle vent valve.

Three baffles have been added in the float bowl on the secondary side to prevent spillage of fuel out the main nozzles and the possibility of dry jets which might be encountered in sharp turns and abnormal operation.

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