

**United
Delco**

www.carburetor-parts.com

BULLETIN 9D-3
MODELS 2G, 2GC, 2GV
AUGUST 1964
PAGE 1
FILE IN "D" SECTION
REPLACES 9D-10, 9D-10A

MODELS 2G, 2GC, 2GV SERVICE MANUAL

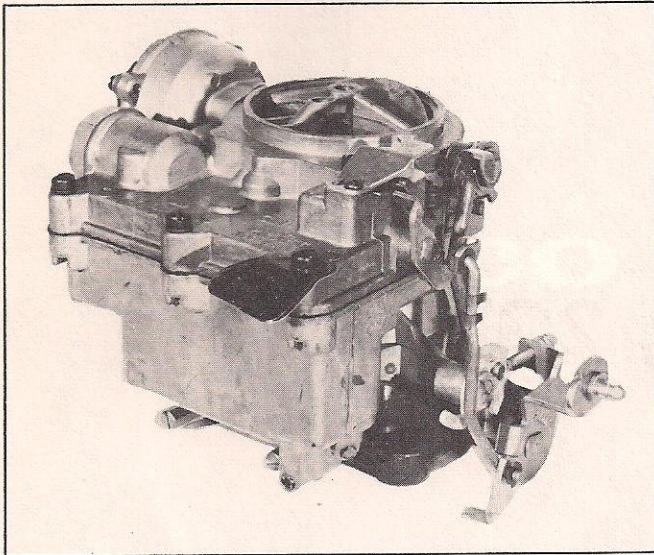
Delco 
Rochester

ROCHESTER PRODUCTS
DIVISION OF GENERAL MOTORS
ROCHESTER, NEW YORK

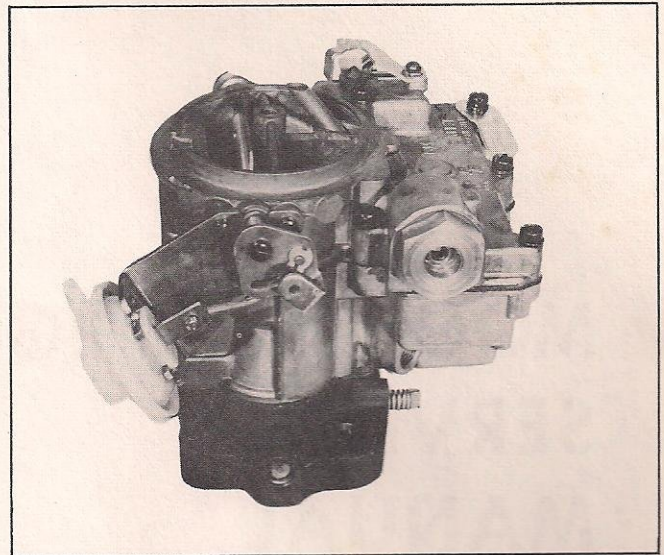
CO, WD, 131, 132:16, 9X, 9FR, 9FD

PRICE 25 cents

TYPICAL MODELS 2GC, 2GV



2GC



2GV

GENERAL DESCRIPTION

There are three basic model "G" Rochester two-bore carburetors. They are the Models 2G, 2GC and 2GV.

The basic model designation is "G". The (2) ahead of the "G" means the carburetor has 2 bores, 2 venturii and 2 separate but identical metering systems, one for each carburetor bore. The 2-bore carburetor is normally used on V-8 engines where each bore supplies air and fuel to 4 cylinders through a divided intake manifold.

There are two different throttle body flanges used on the Rochester 2-bore carburetors. They are SAE (1-1/4") and (1-1/2"). The flange size used for a particular application is usually determined by the carburetor bore size. Larger engines normally have more air capacity, hence, larger carburetor bores and flanges are needed on these applications.

The *Model 2G carburetor* is equipped with a manually operated choke valve. Its major applications are on truck and marine engines where an automatic choke is not an absolute necessity.

The *Model 2GC carburetor* is the basic model 2G unit except the "C" designates an automatic choke which in this case is an integral part of the carburetor unit. The automatic choke housing and thermostatic coil may be located on the air horn or throttle body, depending upon which application the particular unit is to be used.

The *Model 2GV carburetor* is also an automatic choke model. However, a vacuum break diaphragm unit is used in place of the conventional choke housing and choke piston. The choke thermostatic coil is located on the engine exhaust manifold and is connected to the choke valve by linkage.

The Rochester 2-bore carburetor has been kept basically simple for ease in servicing the unit. The major portion of the calibrated metering parts are contained in the venturi cluster assembly. The venturi cluster fits on a flat portion of the carburetor float bowl at the side of the main venturi. The idle tubes and main discharge nozzles are permanently installed in the cluster body by means of a precision pressed fit. The main nozzles and idle tubes are suspended in the fuel in the main wells of the float bowl. This method of assembly and design serves to insulate the main metering parts from engine heat, thus preventing fuel vapors from disrupting efficient carburetor metering during "hot" engine operation.

The main metering jets are a fixed orifice type so that wearing parts can be kept to a minimum. Metering calibration is accomplished through a system of calibrated orifices and air bleeds which supply the correct air/fuel mixtures to the engine throughout all operational ranges. The carburetor float bowl is located so that each system will give instantaneous response for maximum efficiency and performance.

Operating Systems

There are six basic systems used in the Rochester Model "G" 2-bore carburetor. They are float, idle, main metering, power, accelerator pump and choke systems. The following text will describe the operation of these systems for ease in trouble-shooting. The recommended disassembly, cleaning, inspection and assembly procedures are also given.

For specific adjustment procedures and specifications for each particular carburetor, refer to the "C" section of the parts and service manual.

Float System (Fig. 1)

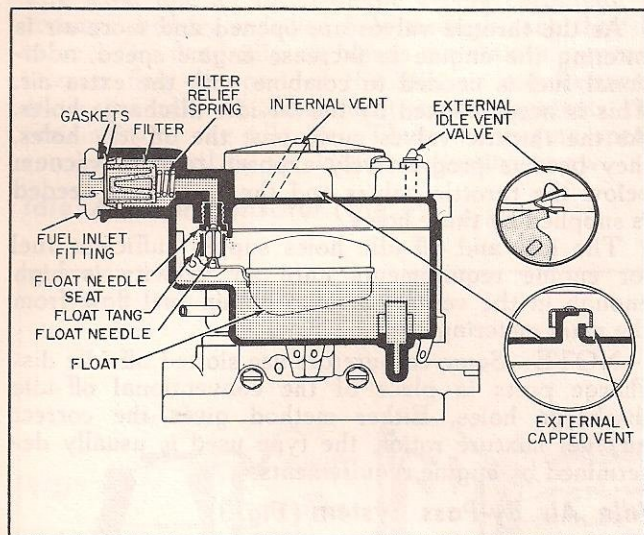


FIGURE 1

The carburetor float system controls the fuel level in the carburetor bowl. Fuel level is very important, because it must be maintained to give proper carburetor metering throughout all ranges of engine operation. If the fuel level is too high in the float bowl, problems such as rich mixtures, fuel spillage from the main discharge nozzles on turns, and engine loading can result. If the fuel level is lower than the specified setting it can cause lean mixtures, hesitation on acceleration, engine surge plus engine cut-out during heavy fuel demands.

The float system operates as follows:

Fuel from the engine fuel pump is forced through the fuel inlet screen or filter, and on through the float needle seat, past the float needle, into the float bowl. Fuel flow continues until the fuel raises the float pontoon to a position where it forces the float needle against the float needle seat and shuts off fuel flow. As fuel is used from the carburetor bowl during engine operation, the float again drops downward moving the float needle off its seat, allowing more fuel to flow into the float bowl, thereby, keeping the fuel level constant.

A float drop tang located at the rear of the float arm prevents the float from moving too far downward. The maximum float drop must be maintained so that the float assembly will drop sufficiently to allow maximum fuel flow under heavy engine fuel

demands. Some models use a float needle pull clip which is attached to the float arm and connected to the float needle valve. The purpose of the pull clip is to pull the float needle off its seat, should it stick closed due to dirt or gum formations.

There are several methods of float bowl venting used in the Model "G" 2-bore carburetor. The method and type of venting used for a particular engine will be varied in design to meet the flow characteristics desired for the engine on which it is used.

Some applications use a "fixed" external vent located on the top of the carburetor air horn just above the float bowl chamber. This vents to the outside any fuel vapors which may form in the fuel bowl due to engine heat during periods of hot engine operation. This keeps the vapors from being forced into the carburetor bores thereby causing poor idle and hard starting due to excessive richness.

An internal vent located inside the air horn bore just beneath the air cleaner, is used to help balance 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 vents internally below the air cleaner, the carburetor automatically compensates for built-in air cleaner restriction hence a balance can be maintained between the air flowing through the carburetor venturi and the air acting upon the fuel in the float bowl. If the carburetor is also equipped with a fixed external vent, it will not be completely balanced but the pressure difference will be less, so consequently, the internal vent tube will very much effect carburetor calibration. Fuel vapors will also be drawn from the area above the fuel in the float bowl by the internal vent during engine operation and is compensated for in the calibration of the carburetor unit.

The float system, on some models, has an atmospheric idle vent valve which is normally open only during the engine idling period and when it is shut down. The idle vent valve is used in place of the fixed external bowl vent and is operated by a tang on the pump lever. When the throttle lever is in the idle speed position the idle vent valve is open, this allows any fuel vapors in the float bowl during periods of hot engine idle and hot soak to be vented to the outside. The vent valve closes when the throttle valves are opened to the off-idle position at which point the carburetor returns to an internal balance by the internal vent tube which transmits air pressure from beneath the air cleaner to the fuel in the float bowl.

It is necessary that the idle vent valve be closed during all periods of operation except at idle, otherwise excessive richness can be caused by the higher atmospheric pressure acting upon the fuel in the float bowl.

Some units are equipped with an integral fuel inlet filter located behind the fuel inlet fitting. On these units the filter element is spring loaded. This feature provides a pressure relief so that in the event the filter should become clogged, the restriction will cause fuel pump pressure to overcome the filter relief spring and allow fuel to by-pass the filter.

Idle System (Fig. 2)

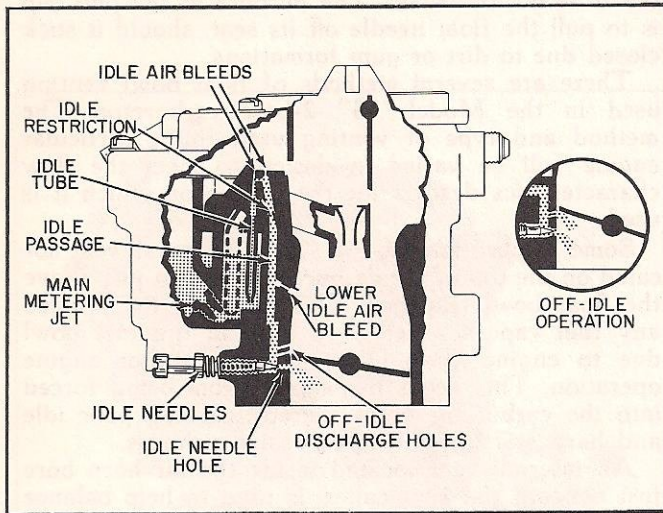


FIGURE 2

The Model "G" 2-bore carburetor has an idle system to supply the correct air/fuel mixture ratios to the engine during idle and low speed operation. The idle system is necessary during this period because air flow through the carburetor venturi is not great enough to cause fuel to flow from the main discharge nozzles. Each bore of the carburetor has a separate idle system. They consist of idle tubes, idle passages, idle air bleeds and the idle mixture adjustment needles and discharge holes.

In the conventional idle system, at idle speeds the throttle valve is cracked slightly open, allowing a small amount of air to pass between the throttle valve and bore of the carburetor. Since the engine requires very little air for idle and low speeds, fuel is added to the air by the application of vacuum (low pressure) from the intake manifold, directly through the idle system to the fuel in the carburetor float bowl. With the idle mixture needle holes located in a high vacuum (low pressure) area below the throttle valves and the fuel in the float bowl vented to atmosphere, the idle system operates in the following manner.

Fuel from the float bowl flows through the main metering jets into the main fuel well. It is then picked up and metered by the calibrated orifice at the tip of the idle tubes. It then passes up the idle tubes and is mixed with air from air bleeds located at the top of the idle tubes and in the idle cross channels in the venturi cluster casting. The mixture then passes downward in the idle channels through a calibrated restriction to the off idle discharge holes located just above the throttle valves. Here the fuel mixture is again bled with air and then moved to the idle needle holes where it is discharged and blends with the air passing the slightly open throttle valves and enters the engine manifold as a combustible mixture. The idle mixture needle controls the amount of fuel mixture which enters each carburetor bore. Turning the mixture screw clockwise (inward) decreases the fuel discharge (gives

a leaner mixture) and turning the screw counter-clockwise (outward) increases (enriches) the fuel mixture. The number, size and location of air bleeds in the idle passages in the cluster castings, are determined by the engine idle requirements. These will vary between carburetor models.

On some applications, lower idle air bleeds are used in the idle system to supplement fuel flow after off-idle operation and during the main metering system operation. During idle they act as air bleeds. Operation of the lower idle air bleeds is explained under the main metering system.

Off-Idle Operation

(SEE FIGURE 2)

As the throttle valves are opened and more air is entering the engine to increase engine speed, additional fuel is needed to combine with the extra air. This is accomplished by the off-idle discharge holes. As the throttle valves move past the off-idle holes, they become progressively exposed to high vacuum below the throttle valves and the extra fuel needed is supplied by these holes.

The idle and off-idle holes supply sufficient fuel for engine requirements until air velocity is high enough in the venturi area to obtain fuel flow from the main metering system.

NOTE: Some carburetors use slotted off-idle discharge ports in place of the conventional off-idle discharge holes. Either method gives the correct air/fuel mixture ratios, the type used is usually determined by engine requirements.

Idle Air By-Pass System (Fig. 3)

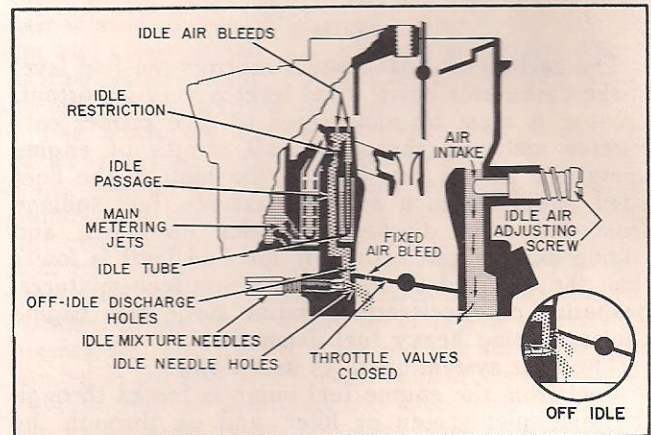


FIGURE 3

The idle air by-pass system is used on some two bore carburetors to allow the throttle valves to be completely closed during curb idle operation. This prevents gum and carbon formation, which may form around the valves, from disrupting engine idle.

The fuel flow in the system is basically the same as described in the conventional idle system. However, the idle air which normally by-passes the slightly open throttle valve is passed around the closed throttle valves through an idle air by-pass channel.

In this system, idle air is taken from the carburetor bore above the throttle valves, by-passes around the closed throttle valves, through a separate air channel and enters the carburetor bore just below the throttle valves. The amount of air which is supplied to the engine is regulated by an idle air adjustment screw located in the idle air by-pass channel. The idle air adjustment screw is mounted in the float bowl casting at the rear of the carburetor unit. Turning the screw inward (clockwise) decreases the engine idle speed and turning it outward (counterclockwise) increases the engine speed.

In order to obtain sufficient idle air for stable idle speed adjustment, a fixed idle air bleed is necessary. The fixed idle air bleed in the 2-bore carburetor is accomplished by a drilled hole through each throttle valve. The fixed idle air bleeds maintain a constant idle air flow for part of the idle air requirements, while the idle air adjustment screw regulates the remainder of the idle air. Thus, the engine speed can be adjusted by the idle air adjusting screw.

Idle Air Compensator (Fig. 4)

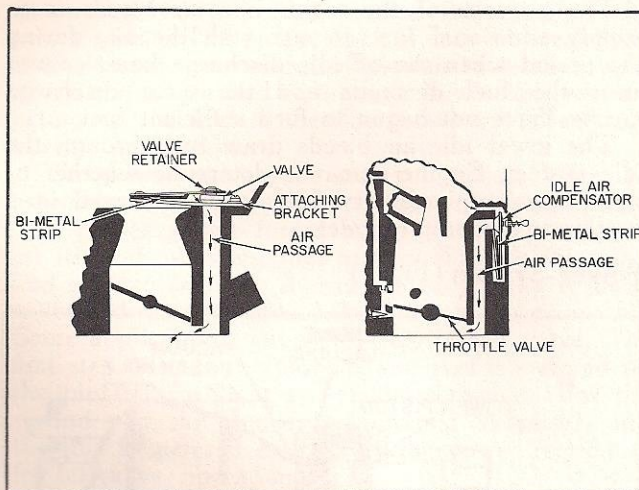


FIGURE 4

The idle air compensator is used on some carburetor models to offset enriching effects caused by excessive fuel vapors from fuel percolation, during extreme hot engine operation.

The compensator consists of the thermostatically controlled valve usually mounted in the area above the main venturi or at the rear of the float bowl. The valve closes off an air channel which leads from above the carburetor venturi to a point below the throttle valves.

The compensator valve is operated by a bi-metal strip which senses temperature. During extreme hot engine operation, excessive fuel vapors entering the engine manifold cause richer than normally required mixtures, resulting in rough engine idle and stalling. At a certain pre-determined temperature, when extra air is needed to off-set the enriching effects of fuel vapors, the bi-metal strip bends and unseats a valve which uncovers the air channel leading from the

carburetor venturi to below the throttle valves. At this time, just enough air is added to the engine to offset the richer mixtures and maintain a smooth engine idle. When the engine cools and the extra air is not needed, the bi-metal strip closes the valve and operation returns to normal mixtures.

In order to insure proper idle adjustment, the valve should always be closed when setting engine idle speed and mixtures.

Throttle Body Venting (Fig. 5)

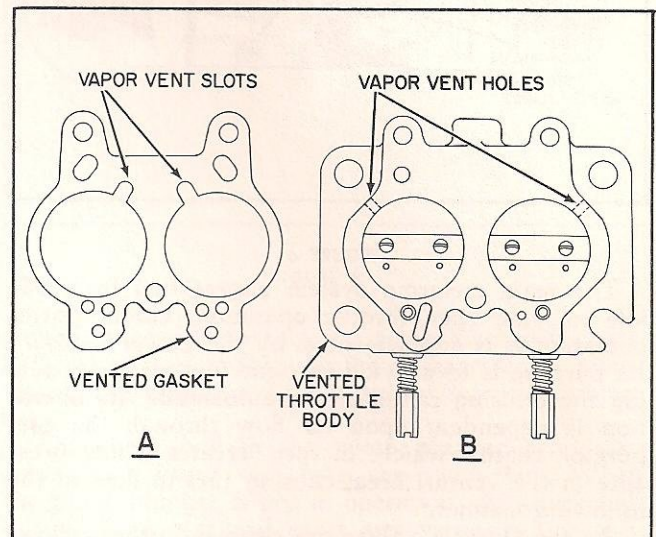


FIGURE 5

An important design feature used in the Rochester 2-bore carburetor is throttle body venting. Its purpose is to give quicker hot engine starting after the engine has been shut down for a short period.

During extreme hot engine operation the fuel in the carburetor tends to boil and vaporize due to engine heat. Some of the fuel vapor tends to reach the carburetor bores and condense on the throttle valves and seep into the engine manifold; by venting the area just above the throttle valves, hot engine starting time can be reduced to a minimum, on applications where the carburetor is exposed to extreme engine heat.

There are two methods used in venting the throttle bore area.

1. A special throttle body to bowl gasket is used. See Figure 5A. This gasket has cut-out areas which vent fuel vapors from the carburetor bores just above the throttle valves.
2. The other type venting is accomplished by drilled holes through the throttle body casting just above the throttle valves. See Figure 5B. They serve the same purpose as the vented gasket.

The location of the vent holes are such that they will not disrupt engine idle or off-idle operation. They are located above the throttle valves on the side opposite the mixture screws, in an area where the transfer from idle to main metering will not be affected.

Main Metering System (Fig. 6)

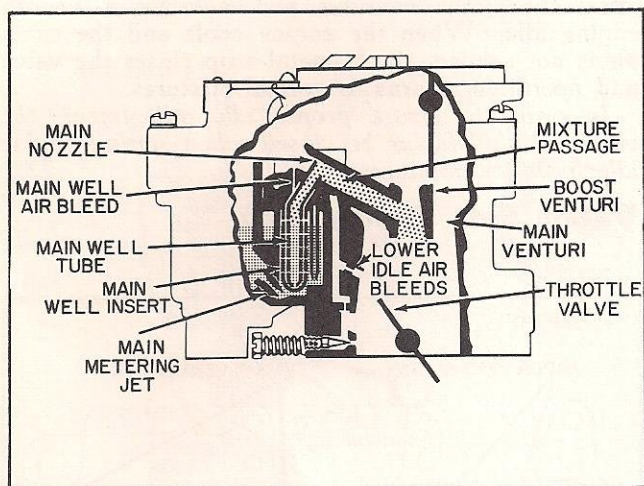


FIGURE 6

The main metering system meters fuel from off-idle to wide open throttle operation. Under power operation it is supplemented by the power system. Its purpose is to provide efficient fuel metering during the cruising range of the automobile. Its operation is dependent upon air flow through the carburetor venturi which, in turn, creates a low pressure in the venturi area, causing fuel to flow in the following manner.

As the throttle valves are opened further, allowing more air to enter the manifold and engine speed to increase, the vacuum decreases below the throttle valves so the air/fuel mixture below the throttle valves from the off-idle holes gradually diminishes.

With the increased throttle opening, there is increased air velocity in the venturi system. This causes a drop in pressure in the main venturi which is increased many times in the boost venturi. Since the low pressure (high vacuum) is now in the boost venturi, fuel will flow in the following manner.

The low pressure in the boost venturi is transmitted to the tip of the main well tube or main discharge nozzle. Atmospheric pressure, which is greater, forces fuel from the float bowl through the main metering jets and into the main well. As the fuel passes through the main well tubes, it is mixed with air from the calibrated main well air bleeds. The fuel mixture then passes from the tip of the discharge nozzle, through the mixture passage, to the boost venturi and on into the intake manifold.

As the throttle valve opening is increased and more fuel is drawn through the main well tubes, the fuel in the main well drops. The calibrated holes in the main well tubes are proportionately exposed to the air in the upper well area. When this occurs, they become air bleeds mixing progressively more air with the fuel passing through the main well tubes. Therefore, although the nozzle suction is increased at higher engine speeds, the air/fuel mixture to the engine remains constant throughout the part throttle range.

In some 2-bore carburetor applications main well inserts are used. They are larger than the main well tubes and set in a recess beneath the venturi cluster. The main well inserts surround the main well tubes and have calibrated holes which are similar to those in the main well tubes. The purpose of the main well inserts is to break up vapor bubbles which may form in the main well during hot engine operation. This prevents the vapor bubbles in the fuel, caused by heat, from disrupting carburetor metering and provides even fuel flow from the main well tubes and discharge nozzles. The main well inserts are used only on applications where engine heat causes excessive vapor bubbles in the main well area.

Lower idle air bleeds are used in some 2-bore carburetor applications to act as supplementary fuel feeds after off-idle, and during the main metering and power system operation. As the throttle valves are opened further past the off-idle discharge holes, air velocity past the lower idle air bleeds creates a vacuum and they begin to feed fuel. They continue to supply fuel during the main metering and power system operation, where they supplement fuel flow from the main discharge nozzles.

The purpose of the lower idle air bleeds is to supply additional fuel, to mix with the air, during the period when the off-idle discharge holes cannot meet the fuel demands and the main discharge nozzles have not begun to feed sufficient fuel.

The lower idle air bleeds draw fuel through the idle system. Engine demands determine whether or not these supplementary fuel feeds are used in a particular carburetor model.

Power System (Fig. 7)

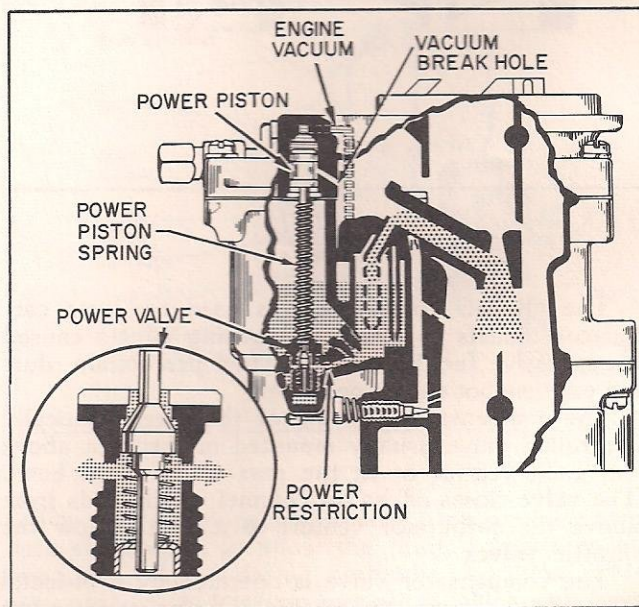


FIGURE 7

To obtain the proper mixtures required when more power is desired or sustained high speed driving is to be maintained, the Rochester 2-bore carburetor uses a vacuum operated power system.

The spring loaded power piston, located in a cavity in the air horn, directly above the power valve, is held in the up position by engine manifold vacuum supplied directly through a connecting passage from the base of the carburetor. The power system is exposed to manifold vacuum at all times during engine operation.

During idle and cruising ranges, the relatively high engine vacuum holds the power piston in the up position against tension of a calibrated spring located on the power piston stem. During this period, the power valve remains closed.

Increases in engine load lower the manifold vacuum. When it has dropped sufficiently, the power piston spring overcomes the upward vacuum pull and the power piston moves downward, opening the power valve to allow additional fuel to flow through calibrated restrictions and on into the main well area. The fuel flowing through the power system supplements the fuel passing through the main metering jets to give the proper mixtures required for power operation.

A hole is drilled from the carburetor air horn to the bore of the power piston cavity to break any vacuum that might leak around the sides of the power piston. The purpose of the vacuum break hole is to prevent the transfer of vacuum from the piston to the top of the fuel in the float bowl. Any vacuum acting on the fuel in the float bowl will affect carburetor calibration.

The power valve (see inset) is a self contained assembly consisting of a plunger and closing spring. The power piston forces the power valve plunger off its seat, allowing fuel to flow through the valve and on into separate fuel channels, passing through calibrated restrictions and then on into the main well. Some applications use a two step power valve. The first step unseats the plunger and fuel is metered by the plunger for light power requirements. For the second step, the plunger is bottomed completely and the fuel is metered entirely by the power restriction for full power operation.

The power system is specifically calibrated for a particular engine's power requirements and is a self contained unit which requires no adjustment.

Pump System (Fig. 8)

When the throttle is opened rapidly, the air flow and manifold vacuum change almost instantaneously, while the heavier fuel tends to lag behind causing a momentary leanness. The accelerator pump is used to provide the fuel necessary for smooth operation during this time.

Fuel for acceleration is supplied by a double spring loaded pump plunger. The top and bottom springs combine to move the plunger so that a smooth sustained charge of fuel is delivered for acceleration. When the pump plunger moves upward as happens during throttle closing, fuel enters the slotted pump well, flows by the check ball in the plunger head and also around the side of the pump plunger and into the bottom of the pump well. Downward motion of the plunger seats the check ball in the plunger head. Fuel is forced through the pump discharge

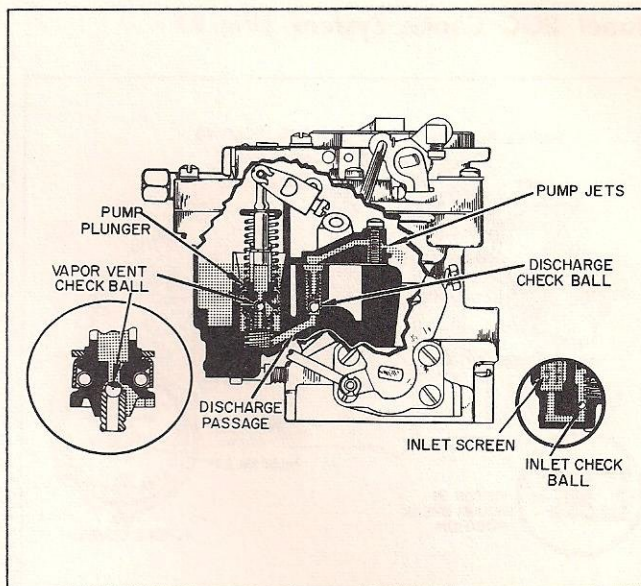


FIGURE 8

passage where it unseats the pump discharge check ball and passes on through the passage to the pump jets in the cluster, where it sprays into the venturi area.

The check ball in the pump plunger head also serves as a vapor vent from the pump well. When the pump plunger is not in operation, the check ball drops off its seat and vents any vapors which may form in the bottom of the pump well into the float bowl area. Without this vapor vent check ball, vapor pressure in the pump well might force fuel from the pump system into the engine manifold causing hard starting and pump slugging conditions under extreme heat. The vapor vent check ball in the pump plunger head also allows any vapors in the bottom of the pump well to escape so that a solid stream of fuel may be maintained from the pump plunger at all times.

(SEE INSET)

On some model 2-bore carburetors, a fuel inlet check ball and channel is used in the bottom of the pump well. In this type unit, fuel is drawn through an inlet screen in the bottom of the fuel bowl, through the inlet channel, past the check ball to the bottom of the pump well. Downward motion of the pump plunger seats the inlet check ball forcing fuel out of the pump jets in the normal manner described previously.

Choke System

The 2GC and 2GV model carburetors use an automatic choke while the 2G models use a manual choke.

There are four different designs of automatic choke systems used on the Rochester 2-bore carburetors. They include the carburetor mounted thermostatic coil, (Model 2GC), the exhaust manifold mounted coil, (Model 2GV), the hot water choke system and the split linkage system.

Model 2GC Choke System (Fig. 9)

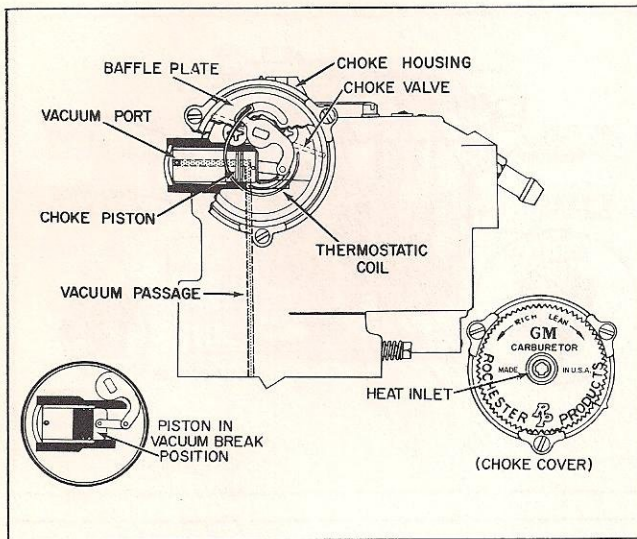


FIGURE 9

The Model 2GC choke system may have the choke housing assembly mounted on the air horn or throttle body. On units with the housing on the throttle body, an intermediate choke rod adjustment is necessary. The principles of operation are the same on both units.

The choke system consists of a thermostatic coil assembly, choke piston, off-set choke valve and fast idle cam and linkage. Its operation is controlled by a combination of intake manifold vacuum, the off-set choke valve, and temperature.

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 off-set choke valve causes it to open slightly against the torque of the thermostatic coil. In addition, intake manifold vacuum is applied to the choke piston through a passage which also tends to open the choke valve. The choke valve assumes a position where the torque of the thermostatic coil is balanced against vacuum pull on the choke piston and air velocity against the off-set choke valve. This is when the choke piston is in the vacuum break position (see inset). This results in a regulated air flow into the carburetor which provides the richer mixture needed during the warm-up period.

As the engine warms up, hot air from the exhaust manifold is drawn into the thermostatic coil housing. The hot air causes the coil to slowly relax its tension. Thus the choke valve is allowed to move gradually to the full open position.

During the warm-up period the choke piston also serves to modify the choke action to compensate for varying engine loads on acceleration. Any acceleration or increased load decreases the vacuum pull on the choke piston. This allows the thermostatic coil to momentarily increase choke valve closure to provide the engine with a richer mixture for acceleration.

To prevent stalling during the warm-up period it is necessary to run the engine at a slightly higher idle speed than for a warmer engine. This is accomplished by a screw which rests on the steps of the fast idle cam. The fast idle cam is linked to the choke valve shaft by the choke rod, choke trip lever and upper choke lever and collar assembly. The rotation of the fast idle cam in relation to the choke valve holds the throttle valves open sufficiently during the warm-up period to increase the idle R.P.M. until the choke valve moves to the full open position.

When 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 choke piston, 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 on the fast idle cam is made to contact the throttle lever at wide open throttle position to sufficiently open the choke valve. This is called a choke unloader and also serves to de-choke a flooded engine during starting, whenever the engine is cranked with the accelerator held fully depressed.

Model 2GV Choke System (Fig. 10)

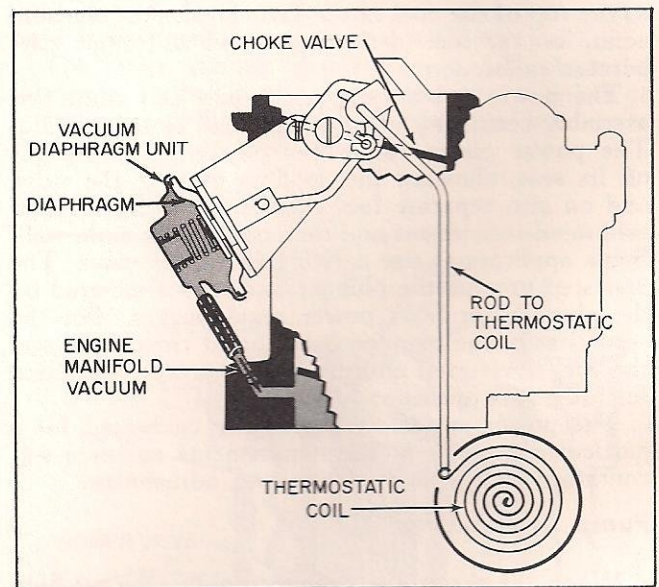


FIGURE 10

The Model 2GV choke system consists of a choke valve located in the carburetor air horn, a vacuum diaphragm unit, fast idle cam, choke linkage and a thermostatic coil which is located on the engine manifold. The thermostatic coil is connected to the choke valve by a rod. The choke operation is controlled by a combination of intake manifold vacuum, the off-set choke valve, and temperature.

The thermostatic coil located on the engine manifold is calibrated to hold the choke valve closed when the engine is cold. When starting the engine, air velocity against the off-set choke valve causes the valve to open slightly, against the torque of the thermostatic coil. When the engine is started, manifold

vacuum applied to the vacuum diaphragm unit mounted on the carburetor air horn, will open the choke valve to a point where the engine will operate without loading or stalling. The choke valve will remain in this position until the engine begins to warm up and heat from the exhaust manifold warms the thermostatic coil to relax its tension and allows the choke valve to gradually open. Opening of the choke valve is controlled by air flow past the off-set choke valve, and manifold heat acting upon the thermostatic coil.

The operation of the 2GV choke system linkage is the same as on the model 2GC.

Split Linkage Choke—Model 2GC (Fig. 11)

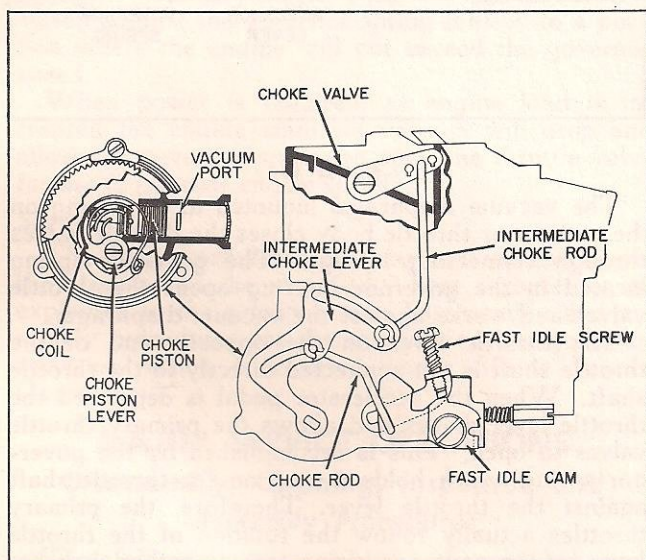


FIGURE 11

The split linkage choke is designed to let the choke valve and fast idle cam work independently. The operation of the choke coil and piston is the same as used on the conventional system. The split linkage operates in the following manner.

The intermediate choke rod is attached to a slot near the outer end of the intermediate choke lever, while the choke rod is attached to a slot approximately half way out on the lever. The result is, that as the thermostatic coil warms up and the intermediate choke lever rotates clockwise, the intermediate choke rod moves farther than the choke rod; this allows the choke valve to open fully while still maintaining a fast idle. This design provides a relatively short choking period with adequate fast idle for a cold engine.

Hot Water Choke System (Fig. 12)

The hot water choke system differs from the conventional choke system in the following manner. Instead of using hot air from the exhaust manifold to heat the thermostatic coil, heat from the engine hot water is used. The engine water is circulated directly from the engine to a chamber in the choke cover. The hot water choke has an inner and outer

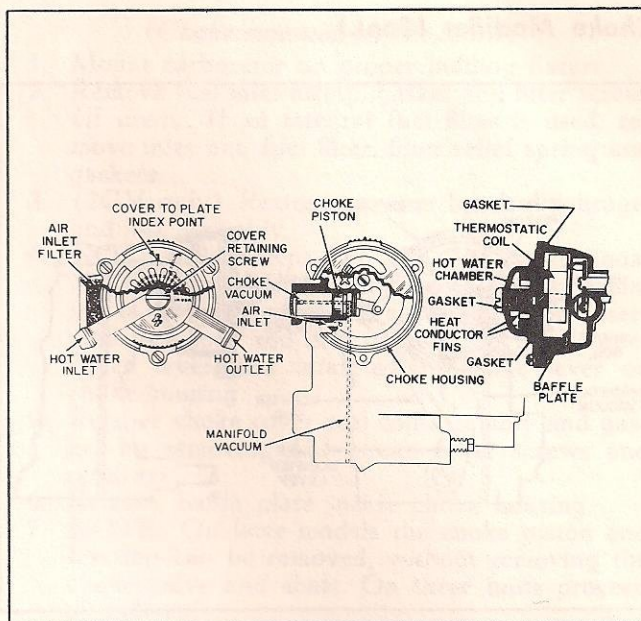


FIGURE 12

cover. The inner cover retains the choke coil and the outer cover provides the chamber through which the hot water is circulated. Pick up fingers on the inner cover extend into the hot water chamber and pick up heat from the water. The heat is then transmitted to the inner cover and around the thermostatic coil. The choke housing inside baffle plate is made of insulating material to hold the heat around the thermostatic coil which will gradually relax the tension on the coil and allow the choke valve to open.

The conventional choke piston is used to control the vacuum break and to assist in opening the choke valve as the coil relaxes its tension. Air flow needed to control vacuum acting on the choke piston enters the choke housing through an opening at the side of the housing which is covered with an air filter. The piston and housing are designed so that when the choke valve is in the wide open position, the choke piston blocks off the vacuum passage in the housing. This allows very little air flow through the inner housing when the choke is open. The constant movement of hot water through the outer chamber maintains necessary heat to the choke coil to keep it relaxed and the choke valve wide open. The filter covering the air inlet opening at the side of the choke housing requires periodic cleaning for proper operation.

Choke Modifier (Fig. 13)

The purpose of the choke modifier is to lessen the tension of the thermostatic coil acting on the choke valve during heavy acceleration on cold driveaway.

As explained previously under choke operation, during heavy acceleration the manifold vacuum drops, therefore, the vacuum pull on the choke piston is less. On some applications the tension of the thermostatic coil tends to close the choke valve too much,

Choke Modifier (Cont.)

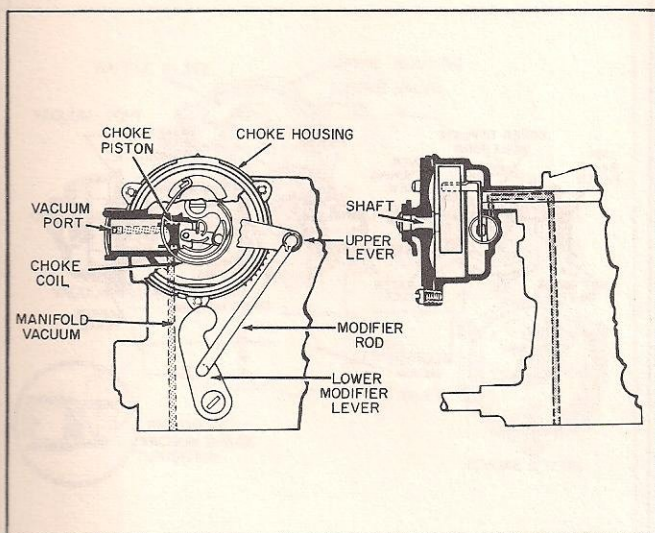


FIGURE 13

causing excessively rich mixtures, resulting in engine loading. The choke modifier is used to overcome this problem and operates as follows.

The lower modifier lever mounted on the throttle shaft is connected by a rod to the upper modifier lever on the choke housing cover. The thermostatic coil is attached to a shaft protruding through the choke cover. The outer end of the shaft is attached to the upper modifier lever with an attaching screw. Thus, during cold driveaway when the throttle valves are opened, the choke modifier linkage rotates the choke coil shaft to lessen the tension of the thermostatic coil. This feature compensates for the decrease in manifold vacuum pull on the choke piston and prevents over-choking and engine loading during cold engine operation.

Adjustment of the thermostatic coil differs from the conventional type. Refer to the "C" section of the parts and service manual for proper adjustment procedures and specifications.

**MODEL 2G TRUCK
 VACUUM CONTROLLED GOVERNOR**

Operation (Figs. 14 and 15)

The purpose of the Model 2G truck governor carburetor is to prevent excessive engine speed under light loads by partially closing the throttle valves, but yet allow the throttle valves to be wide open when full power is required. The governor gives full advantage of engine horsepower without danger of excessive engine wear due to overspeeding.

The governor consists of two basic units.

1. A vacuum diaphragm and connecting linkage mounted on the carburetor throttle body. Fig. 14.
2. A centrifugal controlled vacuum bleed valve in the ignition distributor. Fig. 15.

The above units are connected together by a vacuum line.

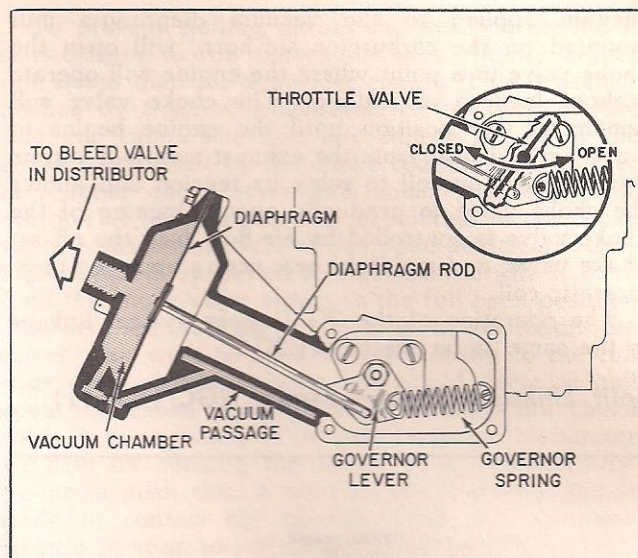


FIGURE 14

The vacuum diaphragm mounted in a housing on the carburetor throttle body closes the throttle valves through connecting linkage. The governor spring located in the governor housing opens the throttle valves and works against the vacuum diaphragm.

The throttle lever on the opposite end of the throttle shaft is not connected directly to the throttle shaft. When the accelerator pedal is depressed the throttle lever moves and allows the primary throttle valves to open. This is accomplished by the governor spring which holds a tang on the throttle shaft against the throttle lever. Therefore, the primary throttles actually follow the rotation of the throttle lever by the governor spring tension rather than being directly forced open, as on the conventional carburetor.

In operation, manifold vacuum is supplied to the top side of the governor diaphragm through a passage in the housing which leads to manifold vacuum directly beneath the throttle valves. Calibrated restrictions are used in this passage to control the amount of vacuum applied to the diaphragm.

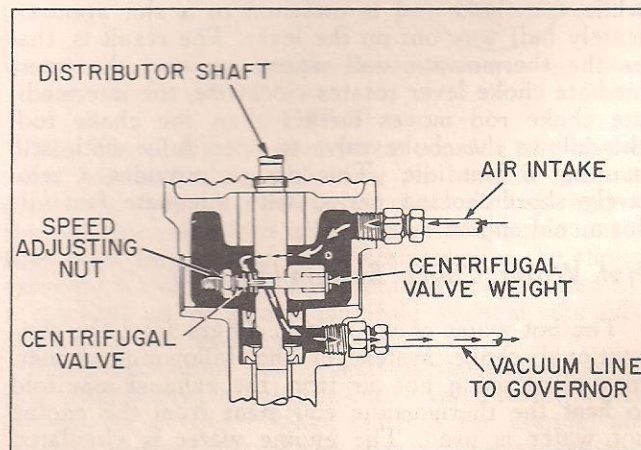


FIGURE 15

The centrifugal bleed valve (Fig. 15) mounted in the ignition distributor shaft is nothing more than a sliding valve which is normally held open by spring tension at low engine speeds. It closes at high engine speeds, as centrifugal force of the counterweight on the end of the valve shaft moves the valve outward and covers the bleed hole.

At normal engine speeds the bleed valve in the distributor stays open and bleeds off the vacuum applied to the governor diaphragm, therefore, no governor action takes place. At higher engine speeds approximately 3800 - 4000 engine RPM where governing is needed, the centrifugal weight on the distributor bleed valve shaft closes the valve and vacuum is applied directly to the governor diaphragm. The diaphragm pulls the throttle valves closed against the governor spring tension to a position where the engine will not exceed the governed speed.

When power is required, as engine load is increased the engine manifold vacuum will drop and allow the governor spring to open the throttle valve farther to increase engine speed.

Service

The basic carburetor systems and operation are the same as on the standard 2-bore carburetors, as explained in the previous text. Disassembly and assembly procedures are the same except for governor servicing which is covered under Major Service Operations.

MAJOR SERVICE OPERATIONS

Disassembly, Cleaning, Inspection and Assembly Procedures

The following disassembly and assembly procedures may vary somewhat between applications due to specific design features. However, the following will basically pertain to all Rochester 2-bore carburetors of the side bowl "G" design.

Air Horn Removal and Disassembly (Fig. 16)

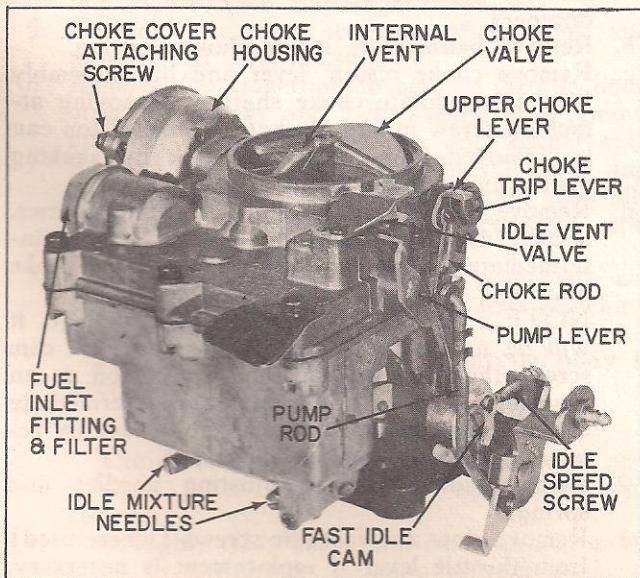


FIGURE 16

(Choke mounted on Air Horn)

1. Mount carburetor on proper holding fixture.
2. Remove fuel inlet fitting, gasket and filter screen (if used). If an integral fuel filter is used, remove inlet nut, fuel filter, filter relief spring and gaskets.
3. (2GV only) Remove vacuum break diaphragm and link assembly.
4. NOTE: Omit steps 5, 6 and 7 if choke housing is mounted on throttle body. If choke housing is on throttle body, remove clips from intermediate choke rod and remove rod from upper choke lever and intermediate choke lever on choke housing.
5. Remove choke cover and coil assembly and gasket by removing (3) choke cover screws and retainers.
6. Remove baffle plate inside choke housing.
7. NOTE: On later models the choke piston and housing can be removed, without removing the choke valve and shaft. On these units proceed as follows.
 - a. Remove the choke piston, lever and link assembly from choke housing by removing attaching screw in end of choke shaft. Choke piston can be removed from lever and link by shaking piston pin into palm of hand.
 - b. Remove (2) choke housing attaching screws, then remove choke housing and gasket.
8. Remove fast idle cam attaching screw and then remove fast idle cam. Choke rod can be removed after air horn is removed.

NOTE: On early models, remove trip lever screw in end of choke shaft, then remove trip lever and upper choke lever and choke rod.
9. Remove idle vent valve and shield (if used) by removing small attaching screw.
10. Remove retaining clips from pump rod, then remove rod from pump lever and throttle lever.
11. Remove (8) air horn attaching screws and remove air horn from float bowl by carefully lifting upward. Place air horn inverted on clean bench.

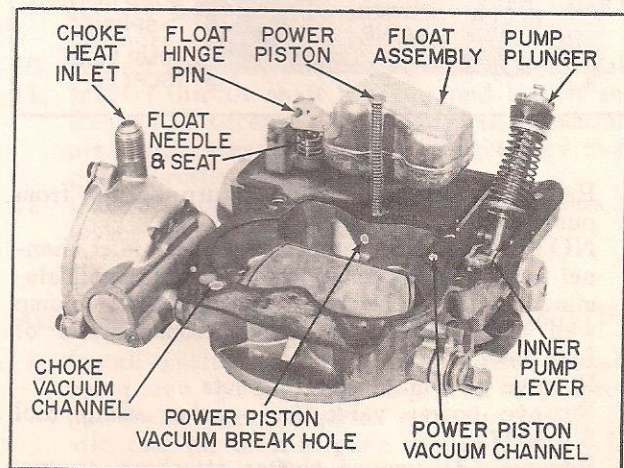


FIGURE 17

12. Remove float hinge pin and float assembly.
13. Remove float needle; then remove float needle seat and gasket, using tool BT-3006.

Air Horn Removal and Disassembly (Cont.)

14. Remove air horn to float bowl gasket.
15. Remove power piston assembly by depressing shaft and allowing spring to snap, thus forcing piston retainer from casting.
 NOTE: If heavy staking is encountered, remove from around power piston retaining washer.
16. Remove retainer from end of pump plunger shaft, then remove pump assembly from inner pump arm. The pump lever and shaft assembly may be removed by loosening set screw on inner arm and removing outer lever and shaft assembly from air horn.
17. Remove (2) choke valve retaining screws (file off staked end). Remove choke valve and choke shaft. Choke rod and upper choke lever may now be removed from choke shaft by sliding off end of shaft.

NOTE: On early units where the choke piston and lever assembly is riveted to choke shaft, rotate choke shaft to free choke piston from bore and remove choke shaft, lever and piston assembly. Then remove two choke housing attaching screws, choke housing and gasket.

Float Bowl Disassembly (Fig. 18)

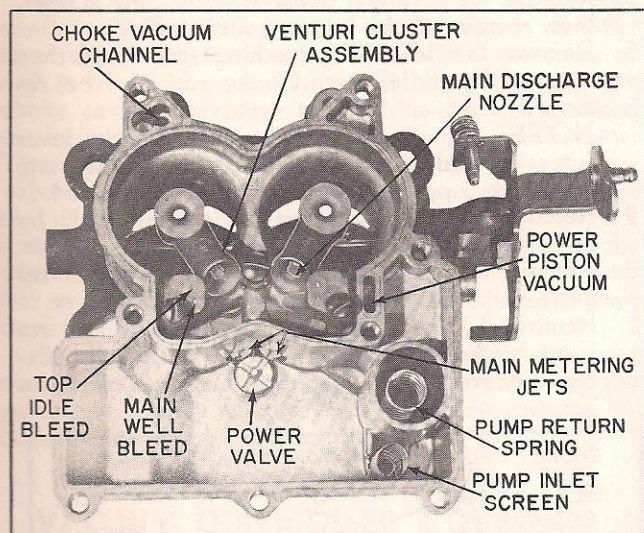


FIGURE 18

1. Remove accelerator pump return spring from pump well.
 NOTE: On carburetors using pump inlet channel in bottom of pump well, remove small aluminum inlet check ball from bottom of pump well and pump inlet screen from bottom of fuel bowl.
2. Remove (2) main metering jets.
3. Remove power valve and gasket using tool BT-3007.
4. Remove (3) venturi cluster attaching screws, then remove cluster and gasket. Center cluster screw has smooth shank for accelerator pump fuel by-pass and fibre sealing washer under screw head in place of lockwasher.

5. Using needle nose pliers remove pump discharge ball spring T-shaped retainer. Then remove pump discharge spring and steel check ball.
6. Remove main well insert tube from main fuel wells (if used). Consult parts list for application on particular carburetor model.
7. Remove idle air by-pass adjusting screw and spring at rear of float bowl (where used).
8. Remove distributor vacuum fitting from float bowl (where used).
9. Invert carburetor and remove three throttle body to bowl attaching screws. Remove throttle body and throttle body to bowl gasket.

Throttle Body Disassembly (Fig. 19)

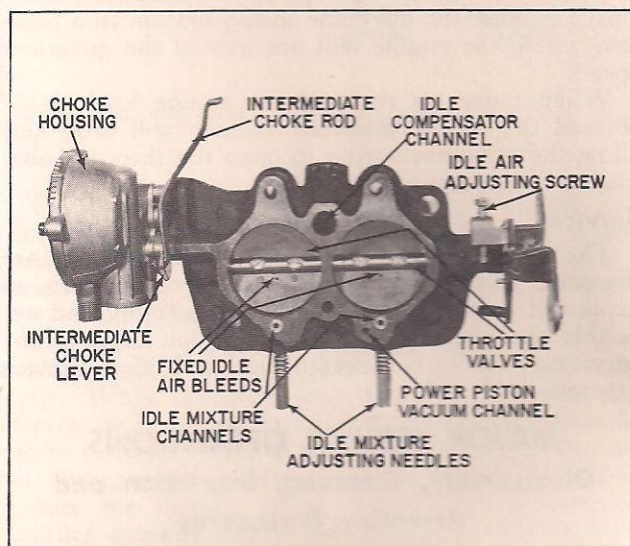


FIGURE 19

1. NOTE: On units using the throttle body mounted choke housing, disassemble as follows.
 - a. Remove choke cover and coil assembly by removing (3) choke cover attaching screws and retainers.
 - b. Remove baffle plate inside choke housing.
 - c. Remove choke piston, lever and link assembly from intermediate choke shaft by removing attaching screw in end of shaft. Choke piston can be removed from lever and link by shaking piston pin into hand.
 - d. Remove (2) choke housing attaching screws, remove choke housing and gasket. Remove intermediate choke shaft and lever from choke housing.
- NOTE: On units with split choke linkage, it will be necessary to remove the fast idle cam screw, then remove cam and choke rod as an assembly. The fast idle cam and intermediate choke lever can be disassembled further by removing clips on ends of choke rod.
2. Remove idle mixture adjusting needles and springs.
 3. Remove slow and fast idle screws (where used) from throttle lever if replacement is necessary.
 No other disassembly of throttle body is

needed. The throttle valves should never be removed as the idle and spark holes are drilled in direct relation to the location of the throttle valves. Removal of the valves will upset this location. The throttle body is serviced as a complete unit with valves intact.

Disassembly of the 2G Governor Throttle Body (Fig. 20)

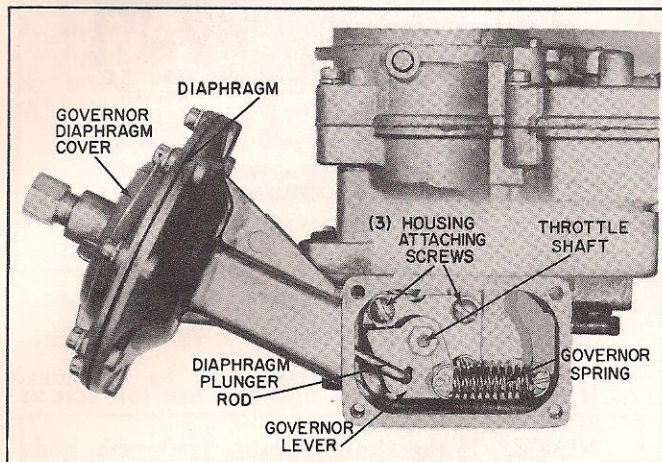


FIGURE 20

1. Break seal and remove (4) attaching screws and lockwashers on governor side plate and remove plate.
2. Remove governor spring from pin on governor lever and stationary pin.
3. Remove governor lever retaining nut and lockwasher, then remove lever from end of throttle shaft. Rotate lever to line up slot in diaphragm plunger rod hole with "squirt" on rod. Slide governor lever off end of diaphragm plunger rod.
4. Break seal and remove (8) governor diaphragm cover attaching screws and lockwashers. Mark location of diaphragm cover in relation to housing, then remove diaphragm cover.
5. Carefully remove governor diaphragm and plunger rod from housing.
6. Remove (3) governor housing to throttle body attaching screws and lockwashers, then remove housing, gasket, seal retainer and leather seal.
7. Remove fast idle cam from throttle lever and bearing plate assembly by removing fast idle cam attaching screw (if not removed previously).
8. Remove throttle lever, bearing and plate assembly and gasket by removing four attaching screws and lockwashers.

No further disassembly of throttle body is necessary.

Cleaning of Parts

The carburetor should not be cleaned in any solution other than a cold immersion type cleaner.

1. Thoroughly clean carburetor castings and metal parts in carburetor cleaning solvent such as (X-55).

CAUTION: Any rubber parts, plastic parts, diaphragms, leather seals and pump plunger should not be immersed in solvent. Clean with stoddard solvent only, (or equivalent).

2. Blow all passages in castings dry with compressed air.
DO NOT PASS DRILLS THROUGH JETS OR PASSAGES.
3. The 2G governor throttle body ball bearings can be cleaned in cold immersion type cleaner without disassembling the throttle valves, after leather seal has been removed. Make sure ball bearings are lubricated with light motor oil (SAE 10) before re-assembly.

Inspection of Parts

1. Check floats for dents or excessive wear at hinge pin holes.
2. Shake floats to check for leaks.
3. Examine float needle and seat. Replace if necessary with factory matched float needle, seat and gasket assembly.
4. Inspect the idle mixture adjustment needles for burrs or ridges.
5. Inspect upper and lower surfaces of carburetor castings to see that the small sealing beads are not damaged. Damaged beading may result in air or fuel leaks at this point.
6. Inspect holes in pump lever, fast idle cam, and throttle shaft lever. If holes are worn excessively or out of round to the extent of improper operation of the carburetor, the parts should be replaced.
7. Inspect the steps on the fast idle cam for excessive wear. If worn excessively, the cam should be replaced to insure proper fast idle operation during the engine warm-up and choking periods.
8. Inspect the pump plunger. If pump plunger cup is worn excessively or damaged, the plunger should be replaced. Shake pump plunger to make sure vapor vent check ball in plunger head is free. It should rattle after cleaning.
9. Inspect throttle body assembly. Make sure all passages and vacuum channels are clean.
10. Inspect governor diaphragm for cracks or leaks.
11. Inspect throttle shaft bearings and leather seal. Replace if necessary. If throttle shaft bearings are worn excessively it will be necessary to replace throttle body assembly.
12. Check throttle valve screws for tightness. If loose, tighten and stake properly.

CARBURETOR ASSEMBLY

Assembly of 2G Governor Throttle Body (Fig. 21)

1. Install throttle lever, bearing and plate assembly using new gasket, attaching with (4) screws and lockwashers. Tighten securely. Install fast idle cam on throttle plate assembly using fast idle cam screw. Tighten securely.
2. Install governor housing and gasket to throttle body. Hold in position, then install leather seal over throttle shaft and into recess in casting (lip on seal faces outward).

Assembly of 2 G Governor Throttle Body (Cont.)

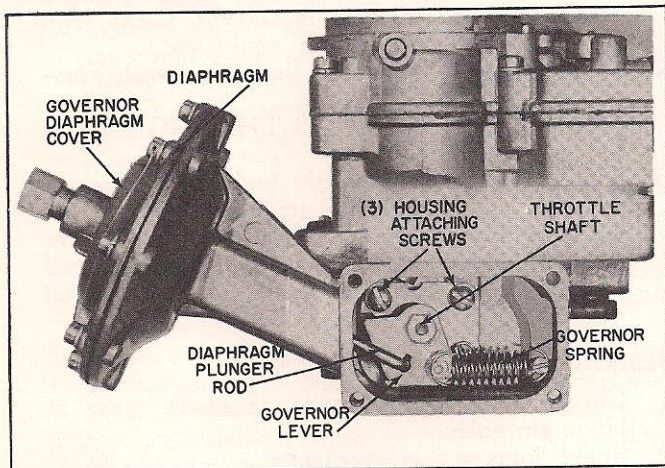


FIGURE 21

3. Install seal retainer plate, attaching with (3) screws and lockwashers. Tighten securely. (Lip on seal will protrude through retainer plate when installed correctly). Lubricate seal with light motor oil.
4. Install governor diaphragm and plunger rod into governor housing. End of plunger rod should face inward.
5. Line up holes in governor diaphragm with holes in diaphragm housing. Install diaphragm cover and (8) attaching screws and lockwashers. Leave screws loose so that diaphragm can move freely between cover and housing, until after diaphragm adjustment is made. See step 9.
6. Install plunger rod into hole in governor lever by lining up "squirt" on rod with slot in lever.
7. Install governor lever on end of throttle shaft as shown (Fig. 20). Make sure flats on lever are seated on flats on throttle shaft. Install retaining nut and lockwasher. Tighten securely.
8. Install ends of governor spring over stationary pin and pin on governor lever. Make sure spring is seated in grooves on pins and ends of spring loops point upward. Use a light grease on spring pins to prevent friction and breakage.
9. To obtain the proper convolute in the governor diaphragm, hold the throttle valves wide open. Then tighten governor diaphragm screws evenly and securely. If the diaphragm is not installed as described, it may be too taut and prevent full throttle opening.
10. Install governor housing side plate using (4) attaching screws and lockwashers. Tighten securely.

Assembly of Throttle Body - All Models (Fig. 22)

As mentioned during throttle body disassembly, there is a very close tolerance fit between the throttle valves and bores. Also the idle discharge orifices are drilled in relation to a proper fitting valve. Therefore, if the throttle valves, levers or shafts are worn excessively or damaged, a complete throttle body assembly is required.

1. Install idle mixture needles and springs finger

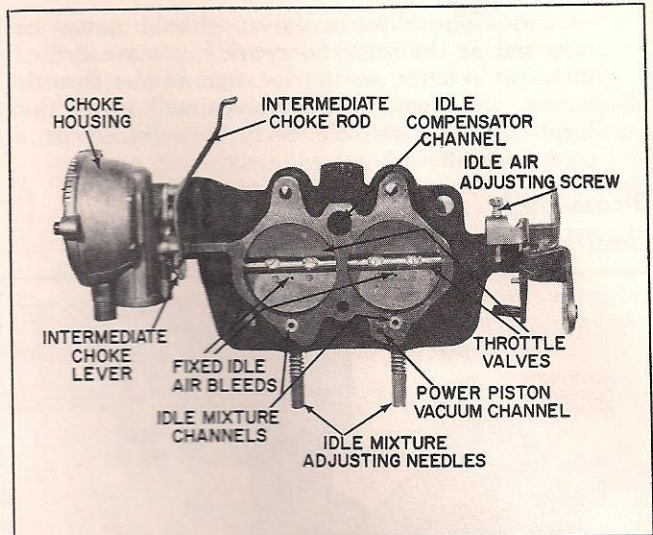


FIGURE 22

- tight. Back out the needles $1\frac{1}{2}$ turns as a preliminary idle adjustment.
 2. If removed, install the slow and fast idle screws in throttle levers.
- NOTE: If the choke housing is throttle body mounted, the installation is covered under FINAL CARBURETOR ASSEMBLY.

Assembly of Float Bowl (Fig. 23)

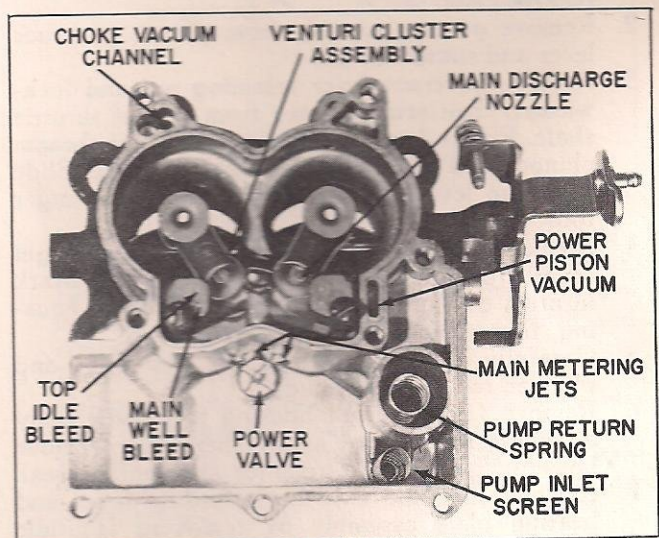


FIGURE 23

1. Install throttle body gasket on bottom of float bowl. (make sure gasket holes line up with holes in float bowl) Then install throttle body assembly on bowl using (3) attaching screws and lockwashers. Tighten evenly and securely.
2. Install distributor vacuum fitting into float bowl, if removed.
3. Install idle air by-pass adjustment screw (where used) into rear of float bowl. Turn screw inward lightly until it seats. Then back out (3) full turns as a preliminary idle adjustment.
4. Install main well insert tubes (if used) into main well. Make sure they are seated in recess provided.

5. Drop steel pump discharge ball into discharge hole. Install discharge spring and T-shaped retainer. Top of retainer must be flush with top of casting when installed correctly.
6. Install venturi cluster and gasket. Install (3) cluster screws and lockwashers. Tighten evenly and securely.
NOTE: Center screw has smooth shank and uses a fibre gasket in place of lockwasher for sealing pump discharge passage.
7. Install power valve and gasket in bottom of fuel bowl using tool BT-3007. Tighten securely.
8. Install (2) main metering jets. Tighten securely.
9. Install aluminum inlet check ball in bottom of pump well, (if bowl has pump inlet passage); insert pump return spring into pump well. Make sure spring is seated in bottom of well.
10. Install pump inlet screen in bottom of float bowl, where used.
NOTE: Refer to parts lists for use of pump inlet check ball and screen for use on a particular application.

Assembly of Air Horn (Fig. 24)

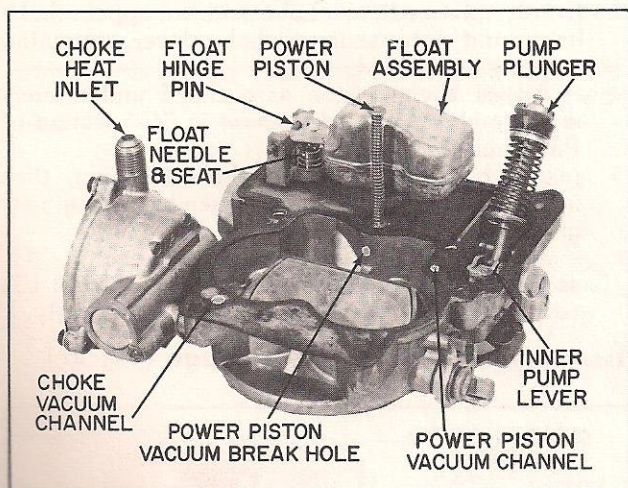


FIGURE 24

1. Install choke housing and gasket to air horn, retaining with two attaching screws. Tighten evenly and securely.
2. *On late units*, where choke trip lever is staked on to choke shaft, install upper choke lever and choke rod on choke shaft. Tang on choke lever should face towards trip lever and be positioned on top of trip lever.
3. Slide choke shaft assembly through choke shaft bores in air horn.
4. Install choke valve into slot in choke shaft. RP trademark should be on top side of valve with choke closed. Install two choke valve retaining screws. Do not tighten.
5. Install choke piston on choke piston lever and link assembly with piston pin. If choke piston has a flat on one side, this should face inward, toward choke valve.
6. Install choke piston lever and link assembly into choke housing. Align flats on piston lever with

- flats on choke shaft. Install retaining screw in end of choke shaft.
7. To center choke valve and shaft, close choke valve, then place .020" feeler gauge between choke trip lever and upper choke lever. Center shaft to maintain above clearance, then tighten choke valve screws and stake securely.
8. *On early units*, where the choke piston and lever assembly is riveted to choke shaft, install choke piston on choke lever and link; Flat side on choke piston should face inward toward air horn. Install choke shaft into air horn and rotate shaft to install choke piston in choke housing. Install choke valve, upper choke lever, trip lever and align as described in steps 4 and 7.
9. Lubricate pump shaft with light grease before installation. Install outer pump lever and shaft assembly and inner pump lever into air horn and tighten set screw.
10. Attach pump plunger assembly to inner pump lever with end of pump shaft pointing inward. Install pump retainer.
11. Install float needle seat and gasket into air horn. Use tool BT-3006 and tighten securely.
12. Install power piston assembly into power piston bore. Stake power piston retainer lightly in place. Power piston should travel up and down freely after installation.
13. Install new air horn gasket on air horn casting.
14. Install float needle into float needle seat and float assembly to air horn and secure in place with float hinge pin. On models using a float needle pull clip make sure pull clip is aligned properly in float arm.
15. *Adjust float assembly as outlined in the "C" section of Parts and Adjustment manual.*
16. Install air horn onto float bowl, making certain accelerator pump plunger is aligned properly in pump well. Lower cover gently straight downward to prevent damage to floats or power piston.
17. Install (8) air horn screws and lockwashers. Tighten evenly and securely.
18. (2GV only) Install vacuum break lever on end of choke shaft. Install attaching screw and tighten securely. Install vacuum break unit on air horn using two attaching screws. Install vacuum break link; retain with clip.

Final Carburetor Assembly (Fig. 25)

1. Install accelerator pump rod into upper pump lever and throttle lever, retaining with clips provided.
2. Install idle vent valve and shield, retain with attaching screw; tighten securely.
3. Install choke rod into fast idle cam, then install fast idle cam on to float bowl, retaining with fast idle cam attaching screw. Tighten securely. "RP" on cam should face outward.
4. Install choke baffle plate into choke housing.

NOTE: Some early carburetors use a stat coil torque relief spring that is assembled on the choke shaft in the choke housing. This spring contacts a tang on the choke baffle plate when

Final Carburetor Assembly (Cont.)

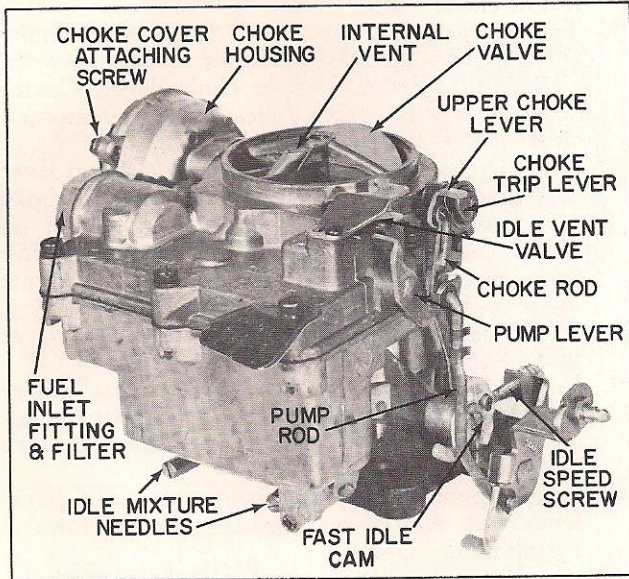


FIGURE 25

the choke valve is from the completely closed position to 15° open. This prevents over-choking and loading when starting with a partly warm engine, by off-setting the torque of the thermostatic coil.

The choke valve must be in the wide open position when installing the baffle plate in the choke housing to prevent damaging the stat coil torque relief spring.

If the relief spring is not installed properly the choke valve may be locked in the closed position. Check to be sure choke valve is free.

5. Install choke stat cover and coil assembly and gasket using three attaching screws and retainers.

To adjust thermostatic coil, rotate cover until choke valve is just closed and index marks are aligned as described in the "C" section of the Parts and Service Manual.

Tighten stat cover screws securely after adjustment.

6. Install fuel strainer, inlet fitting and gaskets. Tighten securely. If an integral fuel filter is used, install pressure relief spring, filter element with large open end toward inlet nut, filter gasket inside inlet nut; then install inlet nut and gasket. Tighten securely.

Assembly of Choke Mounted on Throttle Body

(Fig. 26)

1. Install intermediate choke shaft and lever into choke housing. Lever on shaft should hang downward between mounting bosses.
2. Install new gasket, then install choke housing on throttle body using (2) attaching screws. Tighten securely.
3. Assemble choke piston to choke piston link and lever assembly with piston pin. Then install choke piston and lever assembly into choke housing. Attach choke piston lever to end of intermediate choke shaft with retaining screw.

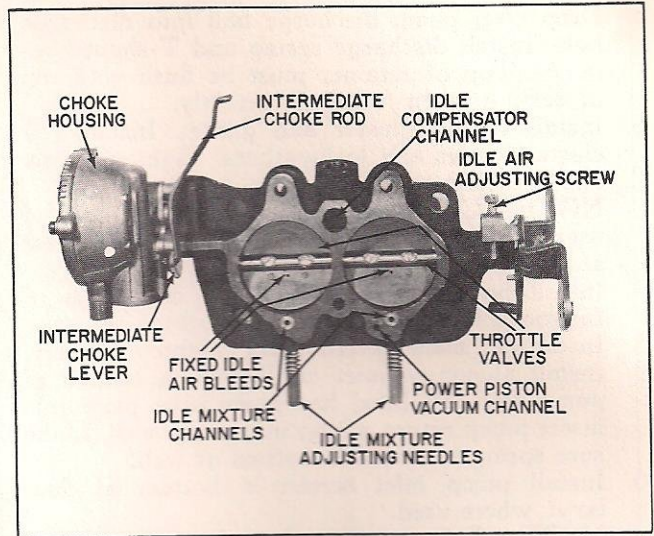


FIGURE 26

(Make sure flats in lever hole line up with flats on intermediate choke shaft). Tighten retaining screw securely.

4. Install intermediate choke rod to upper choke lever and intermediate choke lever, retaining with clips provided.

Adjust choke piston as outlined under *intermediate choke rod adjustment* in "C" section of Parts and Service Manual.

5. Install baffle plate inside choke housing, then install stat cover and coil assembly using new gasket.

Adjust thermostatic coil as outlined in "C" section of Parts and Service Manual. Install (3) cover screws and retainers. Tighten securely.

Assembly of Split Choke Linkage (Fig. 27)

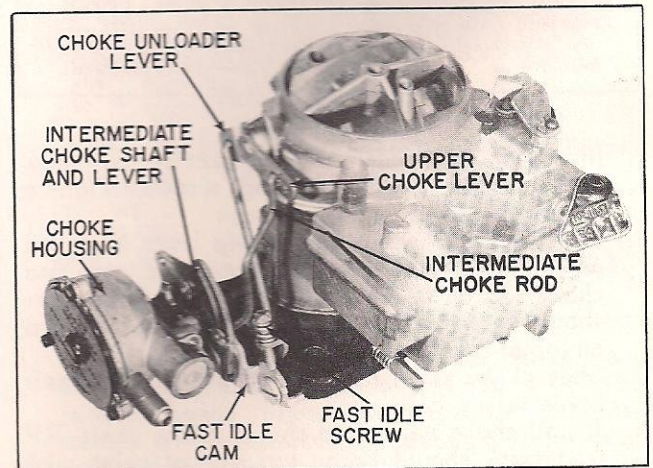


FIGURE 27

1. Assemble choke housing to throttle body as described previously.
2. Assemble flat washer on intermediate choke lever end of choke rod, then insert end of choke rod into the intermediate lever and fast idle cam, as shown. Retain with clips.
3. Install fast idle cam to throttle body, retaining with fast idle cam screw. Tighten securely.

Choke Modifier Disassembly and Assembly (Fig. 28)

Disassembly

1. Remove clips from choke modifier rod and re-

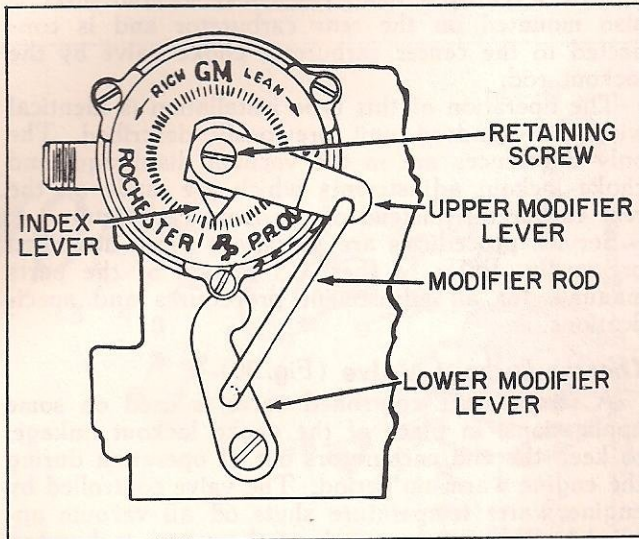


FIGURE 28

move rod.

2. Remove screw from index lever and remove upper modifier lever.
3. Remove choke cover screws and retainers, then remove choke cover and coil assembly.
4. Remove lower modifier lever from end of throttle shaft by removing retaining screw.

Assembly

1. Assemble lower modifier lever to throttle shaft, retaining with screw.
NOTE: Long end of lever points toward air horn and RP trademark outward.
2. Assemble choke cover and coil assembly with three screws and retainers. Tighten securely.
3. Assemble upper modifier lever to choke cover index lever with retaining screw. Upper lever points towards fuel inlet fitting.
4. Assemble choke modifier rod to modifier levers retaining with horseshoe clips. Ends of rod point inward towards carburetor.

Refer to Parts and Adjustment bulletin for correct choke modifier adjustment procedures.

Typical Three Two-Bore Carburetor Installation (Fig. 29)

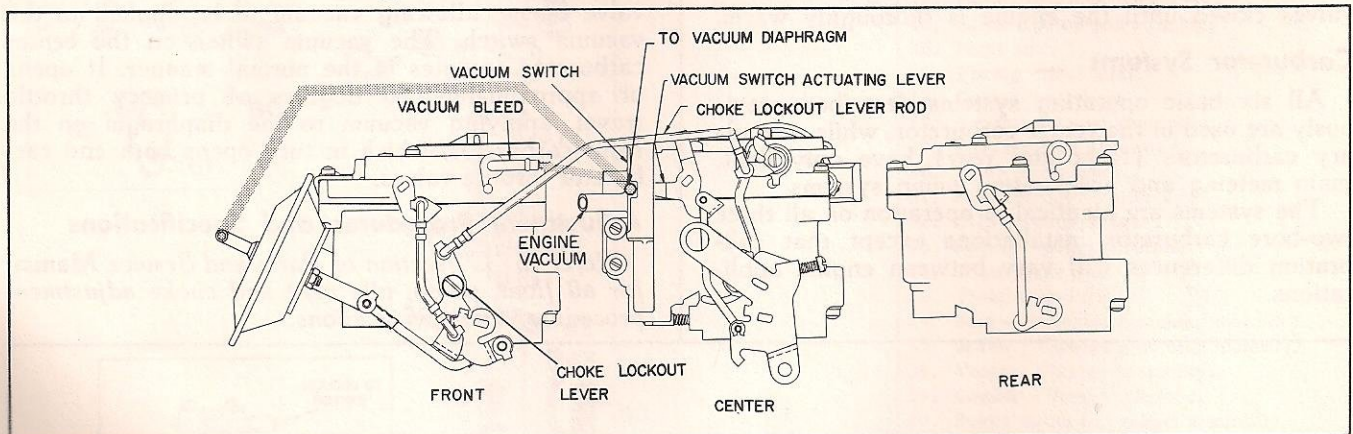


FIGURE 29

Operation

In this installation, three Rochester 2-bore carburetors are mounted in tandem. The center carburetor, called the primary carburetor, contains all the conventional systems of carburetion, including Float, Idle, Main Metering, Power, Pump and Choke. The Front and Rear Carburetors, called the secondary carburetors contain only Float, Pump and Main Metering Systems. The Primary (center) carburetor is the only one used during idle, warm up and part throttle operation. During idle and low speeds, the two secondary (end) carburetors are kept out of operation by closing springs externally attached to the throttle shafts.

The throttle valves and accelerator pumps on the secondary carburetors are operated by a vacuum

diaphragm which is controlled by a vacuum switch mounted on the center carburetor. The throttle shafts on the outside carburetors are connected by a common rod, so they will both operate simultaneously, controlled by the vacuum diaphragm.

During idle and part throttle ranges the center carburetor feeds fuel while the outside carburetors remain out of operation. The two outside carburetors operate in the following manner: A vacuum switch located on the center carburetor is operated by a tang on the accelerator pump lever. The vacuum switch is connected directly to the engine vacuum. The switch has a vacuum line which runs to the vacuum diaphragm mounted on the front carburetor. The vacuum diaphragm is connected by linkage to the throttle lever on the front carburetor.

Three Two-Bore Carburetor Installation (Cont.)

On normal acceleration only the center carburetor feeds air and fuel until the throttle valves are opened approximately 60 degrees. When the throttle valves reach this point, a tang on the pump lever of the center carburetor, opens the vacuum switch which applies vacuum to the diaphragm. Vacuum applied to this diaphragm opens the throttle valves on both front and rear carburetors simultaneously allowing air and fuel to feed from the accelerating and main metering systems.

On deceleration the vacuum switch closes, shutting off all vacuum applied to the diaphragm. Air is then bled from inside the front carburetor airhorn by another line through the vacuum switch to the vacuum diaphragm unit, allowing the diaphragm to return to its normal position under spring tension, thereby, closing the throttle valves on both end carburetors. The two end carburetors feed fuel and air any time the throttle valves in the center carburetor are opened approximately 60 degrees or more, except during the engine warm-up period.

The choke operates basically the same as the choke on the standard 2-bore carburetor. However, there is a lockout lever located on the front carburetor connected to the choke shaft by a rod. This lockout lever automatically keeps the front and rear carburetors out of operation by locking the throttle valves closed until the engine is thoroughly warm.

Carburetor Systems

All six basic operating systems described previously are used in the center carburetor, while secondary carburetors (front and rear) have only float, main metering and accelerating pump systems.

The systems are identical in operation on all three two-bore carburetor installations except that calibration differences will vary between engine applications.

Service

On some three two-barrel carburetor installations the vacuum diaphragm is mounted on the rear carburetor and is connected to the rear carburetor throttle lever by a link. The choke lockout lever is also mounted on the rear carburetor and is connected to the center carburetor choke valve by the lockout rod.

The operation of this type installation is identical with the standard unit previously described. The only differences are in the vacuum diaphragm and choke lockout adjustments which are made on the rear carburetor, instead of the front carburetor.

Service procedures are similar to those described previously. Refer to the "C" section of the parts manuals for all adjustment procedures and specifications.

Thermo-Lockout Valve (Fig. 30)

A temperature controlled valve is used on some applications, in place of the choke lockout linkage, to keep the end carburetors out of operation during the engine warm-up period. The valve controlled by engine water temperature shuts off all vacuum applied to the vacuum switch on the center carburetor, until the engine is thoroughly warmed up.

When the engine temperature reaches approximately 145° F the temperature controlled vacuum valve opens, allowing vacuum to be applied to the vacuum switch. The vacuum switch on the center carburetor operates in the normal manner. It opens at approximately 60 degrees of primary throttle travel, applying vacuum to the diaphragm on the front carburetor, which in turn opens both end carburetor throttle valves.

Adjustment Procedures and Specifications

Refer to "C" section of Parts and Service Manual for all float, pump, idle vent and choke adjustment procedures and specifications.

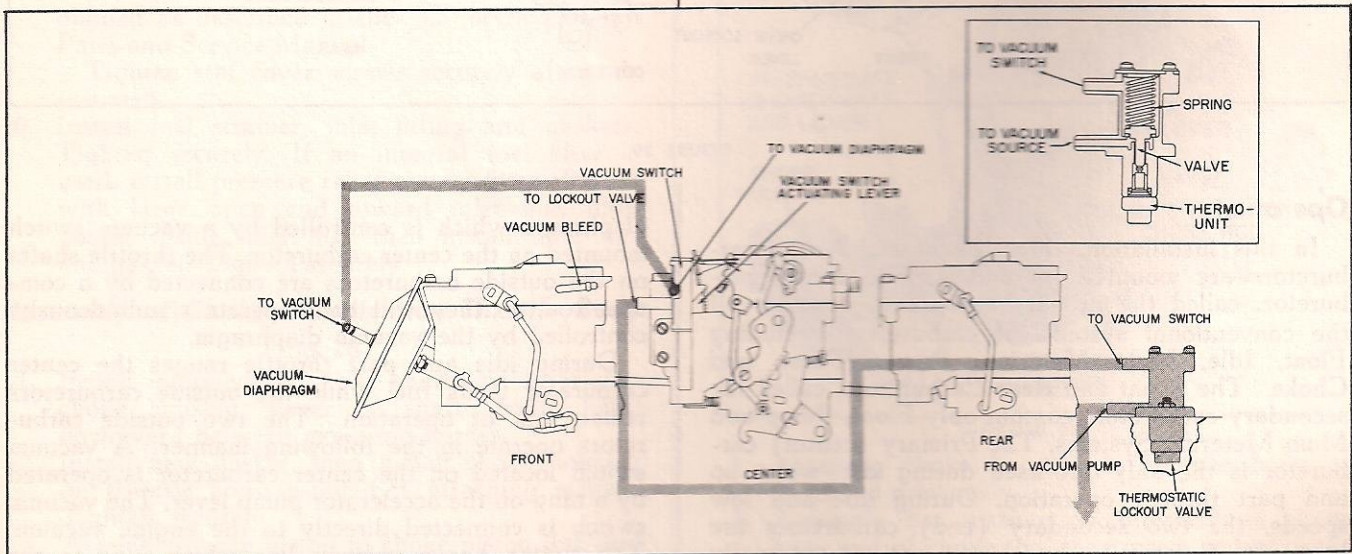
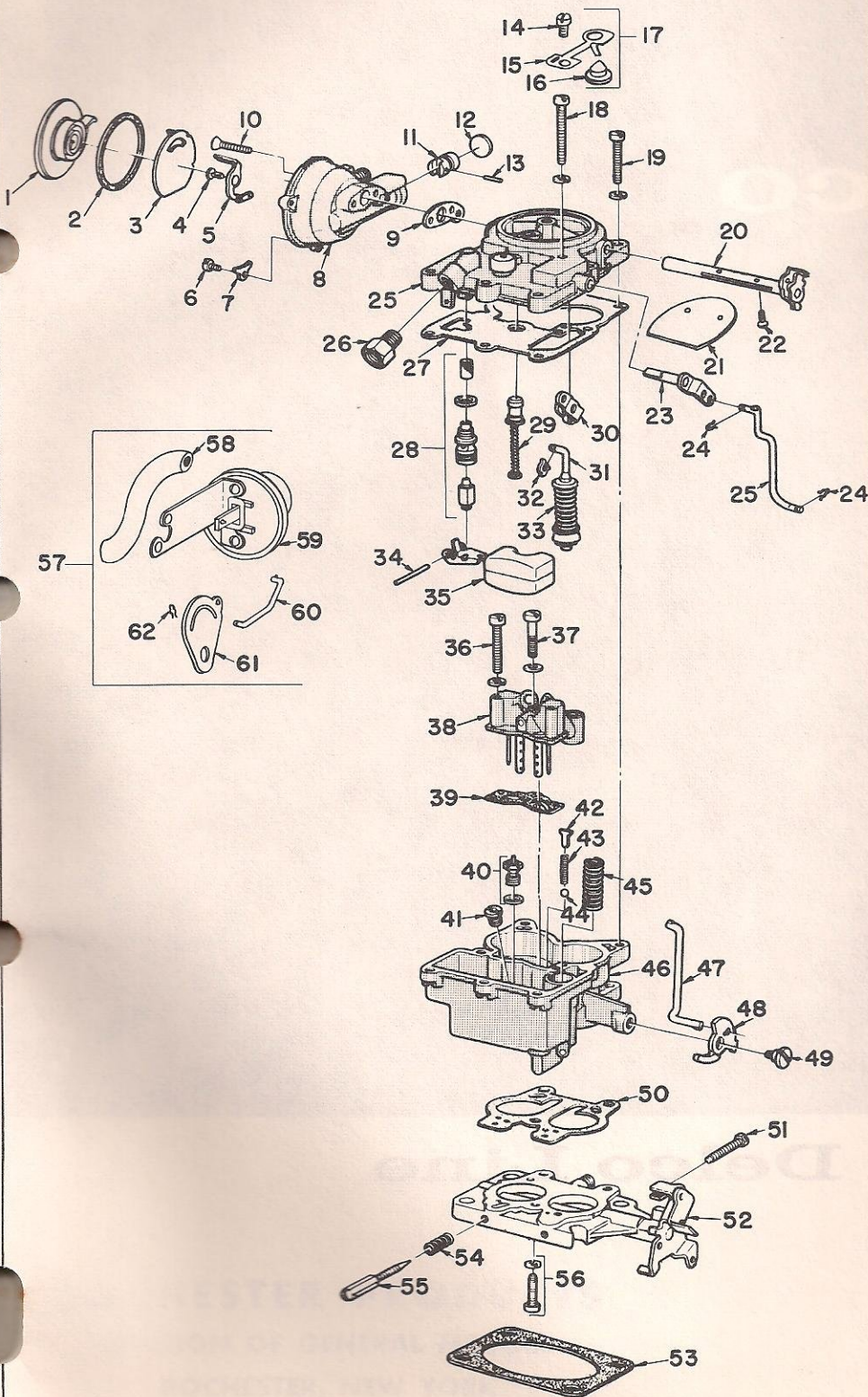


FIGURE 30

**CARBURETOR TOOLS AND GAUGES ARE AVAILABLE
THROUGH UNITED DELCO DISTRIBUTORS**

TYPICAL EXPLODED VIEW - MODELS 2G, 2GC, 2GV

PARTS



1. Choke cover and coil assembly.
2. Gasket - choke cover and coil.
3. Choke baffle plate.
4. Screw - choke piston lever.
5. Choke piston lever and link assembly.
6. Screw - choke cover attaching.
7. Retainers - choke cover.
8. Choke Housing assembly.
9. Gasket - Choke housing.
10. Screw - Choke housing attaching.
11. Choke piston.
12. Plug - Choke housing.
13. Pin - Choke piston.
14. Screw - Idle vent valve attaching.
15. Idle vent valve holder.
16. Idle vent valve.
17. Idle vent valve assembly.
18. Screw - Air horn attaching (long).
19. Screw - Air horn attaching (short).
20. Choke shaft and lever assembly.
21. Choke valve.
22. Screw - choke valve attaching.
23. Pump shaft and lever assy.
24. Clips - pump rod attaching.
25. Pump rod.
26. Fitting - fuel inlet.
27. Gasket - air horn.
28. Needle and seat assembly.
29. Power piston assembly.
30. Inner pump lever.
31. Pump plunger assembly.
32. Clip - pump plunger.
33. Spring - pump duration.
34. Float hinge pin.
35. Float assembly.
36. Screw - Cluster attaching (outside).
37. Screw - Cluster attaching (center).
38. Venturi Cluster assembly.
39. Gasket - Venturi cluster.
40. Power valve and gasket assembly.
41. Main Metering Jet.
42. Retainer - Pump discharge spring.
43. Spring - Pump discharge.
44. Ball - Pump discharge (steel).
45. Spring - pump return.
46. Float bowl assembly.
47. Choke rod.
48. Fast idle cam.
49. Screw - Fast idle cam attaching.
50. Gasket - Throttle body to bowl.
51. Screw - Idle speed.
52. Throttle body assembly.
53. Gasket - carburetor to manifold.
54. Spring - Idle mixture needle.
55. Screw - Idle mixture.
56. Screw & Lockwasher - Throttle Body attaching.
57. Choke - Vacuum diaphragm assembly.
58. Hose - Choke vacuum diaphragm.
59. Choke vacuum diaphragm assembly.
60. Link - Vacuum diaphragm to choke lever.
61. Lever - Choke shaft lever.
62. Clip - Vacuum diaphragm link.