SECTION E

ROCHESTER 4MC CARBURETOR

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DIVISION I
SPECIFICATIONS AND ADJUSTMENTS

64-24 ROCHESTER 4MC CARBURETOR CALIBRATIONS

	425 Eng. Auto. Trans.		425 Eng. Auto. Trans. California	
Tag Color	Blue		Red	
Model Designation	4MC		4MC	
Number of Barrels	4		4	
Carburetor Number	7026240		7036240	
	Primary	Secondary	Primary	Secondary
Throttle Bore	1-3/8"	2-1/4"	1-3/8"	2-1/4"
Small Venturi	9/32"	—	9/32"	—
Middle Venturi	5/8"	—	5/8"	—
Large Venturi	1-3/32"	—	1-3/32"	—
Main Metering Jet	.074"	Fixed	.074"	Fixed
Main Metering Rod				
Production	.045"	AK	.047"	AK
Altitude	.047"	AK		
NOTE: Use Altitude Kit Above 3500 Feet; Kit Consists of Primary Metering Rods & Power Piston Spring				
Idle Needle Hole	#44		#44	
Spark Hole	1-1/8"		.031" x .155"	
Pump Discharge Hole	2-#70		2-#70	
Choke Restriction				
Inlet	#47		#47	
Outlet	None		None	
Choke Coil Number	44		44	
Fast Idle Cam Color	Lt. Green		Lt. Green	

64-25 ROCHESTER 4MC CARBURETOR ADJUSTMENTS

	425 Eng. Auto. Trans.	425 Eng. Auto. Trans. California
Float Setting	1/4"	1/4"
Pump Rod Location	Inner Hole	Inner Hole
Pump Setting	9/32"	9/32"
Idle Vent Setting	Start to Open-3/8"	Start to Open-3/8"
Air Valve Setting	1-3/16"	1-3/16"
Choke Rod Setting	.140"	.140"
Vacuum Break Setting	.230"	.230"
Choke Unloader Setting	.325"	.325"
Choke Setting	Index	Index
Fast Idle Speed in Drive (Hot, on Low Step)	600 RPM	600 RPM
Initial Idle Mixture	1-1/2 Turns Out	1-1/2 Turns Out
Initial Idle Speed	2 Turns In	2 Turns In

DIVISION II
DESCRIPTION AND OPERATION

64-26 DESCRIPTION AND OPERATION OF ROCHESTER QUADRAJET CARBURETOR

a. General Description

The Quadrajet carburetor has two stages in operation. The primary side has small bores with triple venturii equipped with plain tube nozzles. The triple venturii, plus the smaller primary bores, give a finer fuel control in the idle and economy ranges of operation. Fuel metering in the primary side is accomplished with tapered metering rods positioned by a vacuum piston.

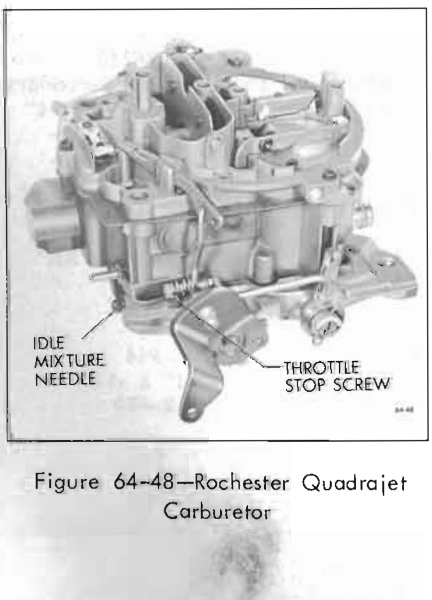

Figure 64-48—Rochester Quadrajet Carburetor

The secondary side has two very large bores which have ample air capacity to meet present day and future automotive engine demands. See Figure 64-49.

Using the air valve principle, fuel is metered in direct proportion to the air passing through the secondary bores. See Figure 64-50.

The small fuel reservoir is centrally located to avoid problems of fuel slosh causing engine turn cut-out and delayed fuel flow to the carburetor bores. The float system uses a single float pontoon. The float valve is pressure balanced to overcome problems encountered with high fuel pump pressures, and to permit use of a small float to control fuel shutoff at the large fuel inlet needle seat. The float valve has a synthetic tip which gives added insurance against flooding problems caused by dirt.

A sintered bronze fuel inlet filter is mounted in the fuel inlet casting and is easily removed for cleaning or replacement.

The primary side of the carburetor has six systems of operation. They are float, idle, main metering, power, pump, and choke. The secondary side has one metering system which supplements the primary main metering system and receives fuel from a common float chamber.

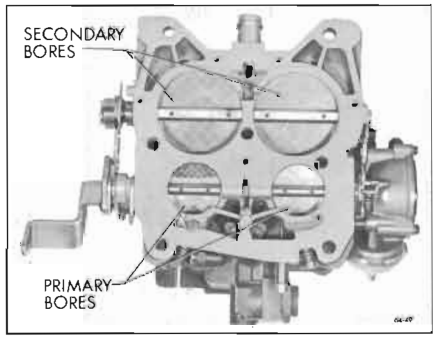

Figure 64-49—Quadrajet Carburetor - Bottom View

b. Operation of Float System

The Quadrajet carburetor has a centrally located float chamber with a single pontoon float and float needle valve. The fuel bowl is centered between the primary bores and is adjacent to the secondary bores. This type design assures adequate fuel supply to

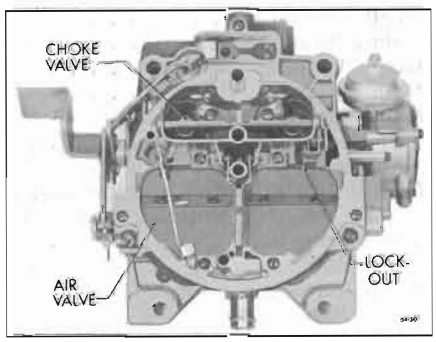

Figure 64-50—Quadrajet Carburetor - Top View

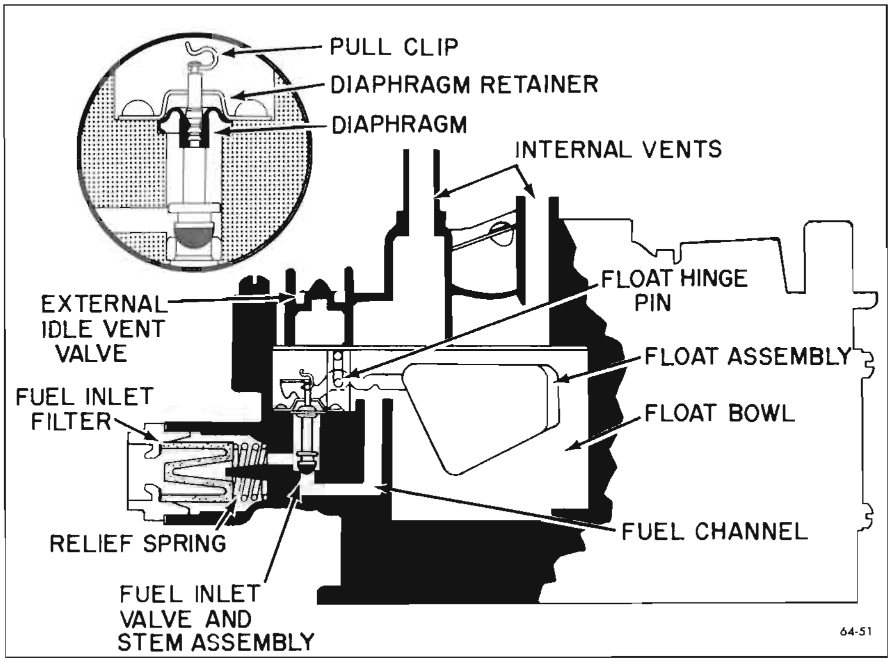

Figure 64-51—Float System

all carburetor bores, and performance is not effected by car inclination or severity of turns. See Figure 64-51.

The float pontoon is solid and is made of a closed cell plastic material. It is lighter than a brass pontoon which results in added buoyancy and allows the use of a smaller float.

A sintered bronze fuel inlet filter is used with a pressure relief spring. The relief spring allows fuel pump pressure to force the filter off its seat if for any reason it should become clogged. A guide is cast into the filter housing to prevent the possibility of the filter being installed in the reverse position.

The float valve seat is a brass insert and is pressed into the bottom of the float bowl. It is not necessary to remove the seat for servicing, as this type of valve tip makes seat wear negligible. Care should be used during servicing so that the seat is not nicked, scored, or moved. The float valve seat is factory staked and tested and cannot be serviced in the field.

Fuel from the engine fuel pump enters the chamber above the float valve tip. The pressure in the float valve chamber acts upon the small diaphragm fastened to the top of the float valve stem, tending to force the float valve upward and pull the float valve off its seat. The fuel passage leads upward to a point just above normal liquid level and the fuel spills over into the float bowl.

A float needle pull clip, fastened to the float valve stem, hooks over the center of the float arm above the needle valve. Its purpose is to assist in lifting the float valve off its seat whenever fuel pump pressure is low and the fuel level in the float bowl is low.

The fuel enters the float chamber at the top to prevent incoming fuel vapors from mixing with solid fuel in the bottom of the float bowl and disrupting good carburetor metering. A plastic filler block is located in the top of the float chamber in the area just above the float valve. This block prevents fuel slosh on severe brake applications. This maintains a more constant fuel level during this type maneuver, to prevent stalling.

The carburetor float chamber is internally vented except at slow idle. An internal vent tube is located in the primary bore section of the carburetor air horn just above the float chamber. The purpose of the internal vent is to balance incoming air pressure beneath the air cleaner with air pressure acting on fuel in the float bowl. Therefore, a balanced air/fuel mixture ratio can be maintained because the same pressure acting upon the fuel in the float bowl will be balanced with the air flow through the carburetor bores. The internal vent tube also allows the escape of fuel vapors in the float chamber during hot engine operation. This prevents fuel vaporization from causing excessive pressure build-up in the float bowl, which can result in excessive fuel spillage into the carburetor bores.

During idling or hot engine soak, an external idle vent valve is used to vent fuel vapors which may form inside the float bowl. When the throttle valves return to the engine idle position, an actuating link on the pump lever strikes the spring arm on the idle vent valve, and opens the valve. Thus, the fuel vapors are allowed to vent externally, thereby preventing them from entering the carburetor bores and being drawn into the engine. This prevents rough engine idle and excessively long hot engine starting time.

When the throttle valves are opened to the off-idle and part throttle position, the idle vent valve closes, returning the carburetor to the internally balanced venting.

c. Operation of Idle System

The Quadrajet carburetor has an idle system on the primary side of the carburetor only. Each primary bore has a separate and independent idle system consisting

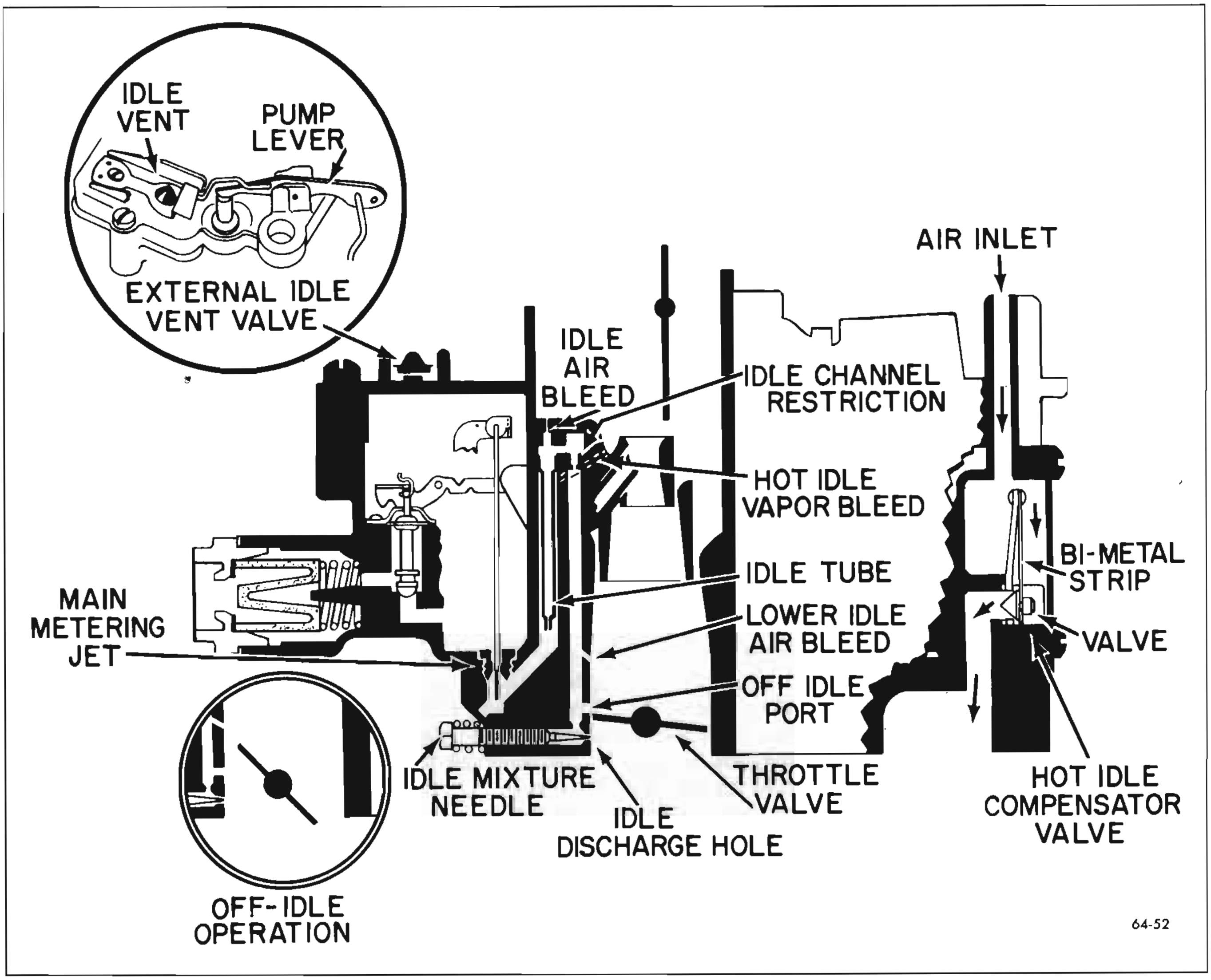

Figure 64-52—Idle System

of an idle tube, idle passages, idle air bleeds, an idle channel restriction, an idle mixture adjustment needle, and an idle discharge hole. See Figure 64-52. The idle system operates as follows:

Fuel is forced from the float bowl down through the primary metering jets into the main fuel well. It passes from the main fuel well into the idle passage where it is picked up by the idle tubes. The fuel is metered at the tip of the idle tubes and passes up through the idle tubes. The fuel is mixed with air at the top of each idle tube through an idle air bleed. The fuel mixture then crosses over to the idle down channels where it passes through a calibrated idle channel restriction.

It then passes down the idle channel past the lower idle air bleed holes and off-idle discharge ports, just above the primary throttle valves where it is mixed with more air. The air/fuel mixture then moves down to the idle needle discharge holes, where it enters the carburetor bores and mixes finally with air passing around the slightly open throttle valve.

d. Off Idle Operation

As the primary throttle valves are opened from curb idle to increase engine speed, additional fuel is needed to combine with the extra air entering the engine. This is accomplished by the slotted off-idle discharge ports. As the primary throttle valves open, they pass by the off-idle ports, gradually exposing them to high engine vacuum below the throttle valves. The additional fuel added from the off-idle ports mixes with the increasing air flow past the opening throttle valves to meet increased engine air and fuel demands.

Further opening of the throttle valves increases the air velocity through the carburetor venturi sufficiently to cause low pressure at the lower idle air bleeds. As a result, fuel begins to discharge from the lower idle air bleed holes and continues to do so throughout operation of the part throttle to wide open throttle ranges, supplementing the main discharge nozzle delivery.

e. Operation of Hot Idle Compensator

The hot idle compensator is located in a chamber at the rear of the carburetor float bowl adjacent to the secondary bores. Its purpose is to offset enrichening effects caused by excessive fuel vapors during hot engine operation.

Normally the compensator valve is held closed by tension of the bi-metal strip. 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 pre-determined temperature, when extra air is needed to offset the enrichening effects of fuel vapors, the bimetal strip bends and unseats the compensator valve. This uncovers the air channel leading from the valve chamber to the point below the throttle valves. This allows enough air to be drawn into the engine manifold to offset the richer mixtures and maintain a smooth engine idle. When the engine cools and the extra air is not needed, the bimetal strip closes the valve and operation returns to normal mixtures.

The compensator valve assembly is held in place by the dust cover over the valve chamber. A seal is used between the compensator valve and the float bowl casting.

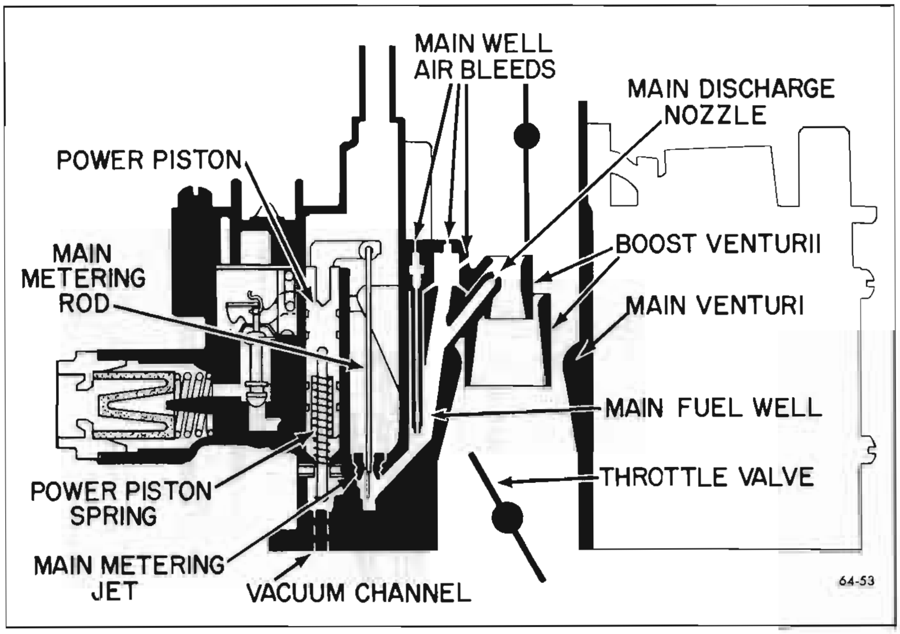

Figure 64-53—Main Metering System

In order to insure proper idle adjustment, the compensator valve must be closed. To check this, hold a finger over the compensator air inlet channel located on top of the air horn. If no drop in engine RPM is noted on the tachometer, the valve is closed. If the valve is open, the engine is too hot for a proper engine idle adjustment; or, if the engine is cool, the compensator valve must be defective.

f. Operation of Main Metering System

The main metering system supplies fuel through the primary bores from off-idle to wide open throttle operation.

During cruising speeds and light engine loads, the high engine manifold vacuum holds the main metering rods down in the main metering jets against spring tension. Fuel flow is then metered between the largest section of the metering rods and the main metering jets. See Figure 64-53.

Fuel flows from the float bowl through the main metering jets into the main fuel well and is bled with air from the vent at the top of the main well and side bleeds (one which leads from inside the bore area above the venturi and another from the cavity around the main fuel nozzle into the main well). The fuel then passes through the main discharge nozzle into the boost venturi and on into the engine.

g. Operation of Power System

The power system provides extra mixture enrichment for heavy acceleration or high speed operation. The richer mixture is supplied through the main metering system in the primary and secondary sides of the carburetor.

The power system located in the primary side consists of a vacuum piston and spring located in a cylinder connected by a passage to intake manifold vacuum. The spring located beneath the vacuum operated power piston tends to push the piston upward against manifold vacuum. See Figure 64-54.

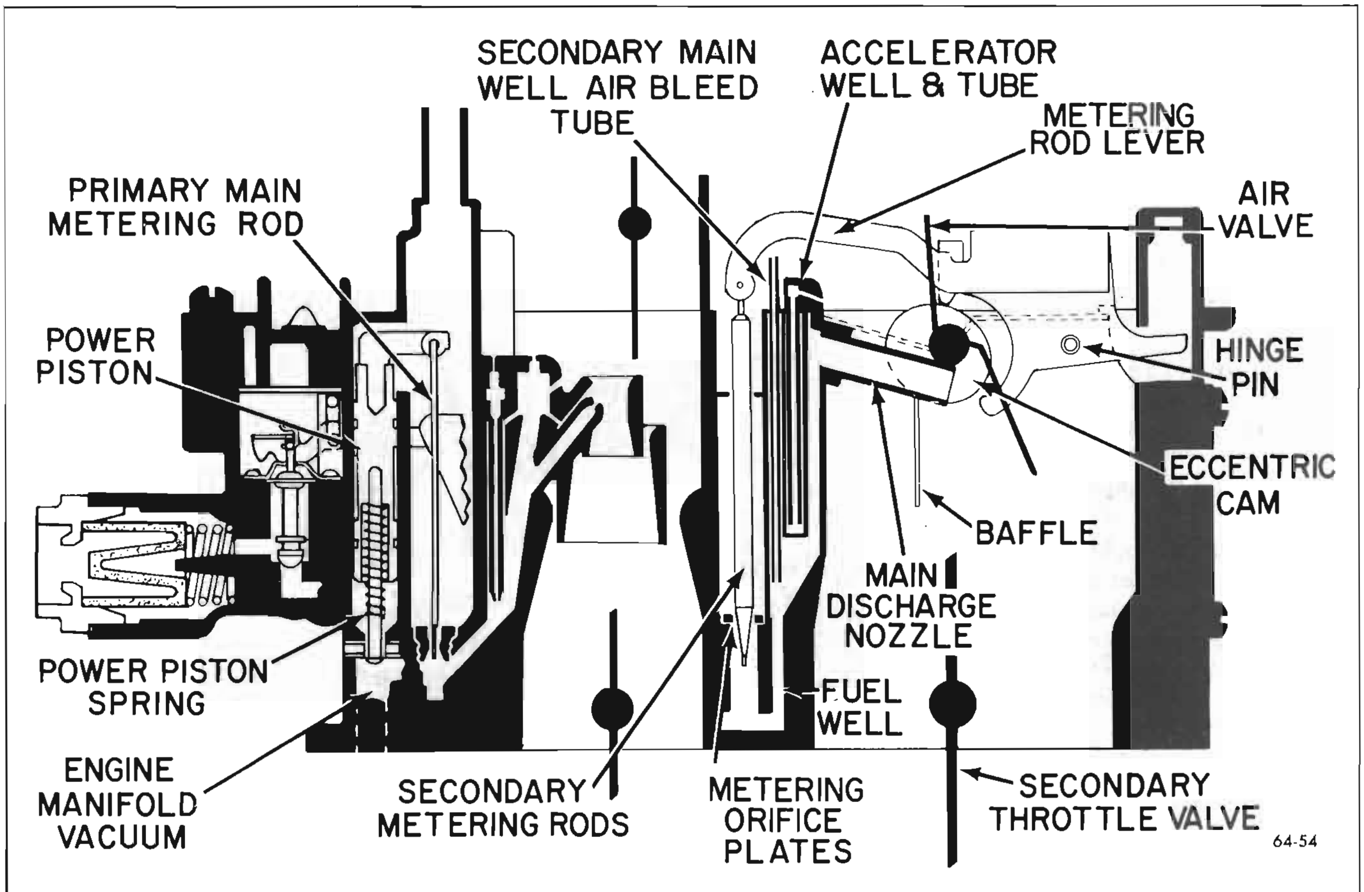

Figure 64-54—Power System

On part throttle and cruising ranges, manifold vacuums are sufficient to hold the power piston down against spring tension so that the larger diameter of the metering rod is held in the main metering jet orifice. Mixture enrichment is not necessary at this point. However, as engine load is increased to a point where extra mixture enrichment is required, the spring tension overcomes the vacuum pull on the power piston and the tapered primary metering rod moves upward in the main metering jet orifice. The smaller diameter of the metering rod allows more fuel to pass through the main metering jet and enrich the mixture flowing into the primary main wells and out the main discharge nozzles.

As the engine speed increases, the primary side of the carburetor can no longer meet the engine air and fuel requirements. To meet these demands, the secondary side of the carburetor is used. As air flow through the secondary bores creates a low pressure (vacuum) beneath the air valve, atmospheric pressure on top of the air valve forces the air valve open against spring tension. This allows the required air for increased engine speed to flow past the air valve.

When the air valve begins to open, the upper edge of the air valve passes the accelerating well port. As the valve passes the port it exposes the port to manifold vacuum. The port will immediately start to feed fuel from the accelerating wells. The accelerating ports will continue to feed fuel until the fuel in the accelerating wells is depleted. The accelerating ports will prevent a momentary leanness as the valve opens and the secondary nozzles begin to feed fuel.

The secondary main discharge nozzles (one for each secondary bore) are located just below the air valve and above the secondary throttle valves. They, being in the area of lowest pressure, begin to feed fuel as follows:

When the air valve begins to open it rotates a plastic cam attached to the center of the main air valve shaft. The cam pushes on a lever attached to the secondary main metering rods. The cam pushes the lever upward, raising the metering rods out of the secondary orifice discs. Fuel flows from the float chamber through the secondary orifice discs into secondary main wells, where it is mixed with air from the main well tubes. The air emulsified fuel mixture travels from the main wells to the secondary discharge nozzles and into the secondary bores.

As the throttle valves are opened further, and engine speeds increase, increased air flow through the secondary side of the carburetor opens the air valve to a greater degree which in turn lifts the secondary metering rods further out of the orifice discs. The metering rods are tapered so that fuel flow through the secondary metering orifice discs is directly proportional to air flow through the secondary carburetor bores.

The depth of the main metering rods in the orifice discs in relation to the air valve position are factory adjusted to meet the air/fuel requirements for the specific engine model. No further adjustment should be required.

The secondary air valve has an attached piston assembly which acts as a dampener, to prevent oscillation of the valve due to engine pulsations. The dampener piston operates in a well which is filled with fuel from the float bowl. See Figure 64-55. The rod has a rubber seal which retains the dampener piston to the plunger rod and also acts as a valve. The purpose of the valve is to seat on the piston when the air valve opens and the piston rod moves upward. This closes off the area through the center of the piston and slows down the air valve opening to allow for secondary discharge nozzle lag.

There are three other features incorporated in the secondary metering system which are as follows:

1. The main well bleed tubes extend below the fuel level in the main well. These actually bleed air into the fuel in the well to quickly emulsify the fuel with air for good atomization as it leaves the secondary discharge nozzles.

2. The secondary metering rods have a slot milled in the side to insure adequate fuel supply in the secondary fuel wells. These are necessary because when the air valve is in the closed position, the secondary metering rods are nearly seated against the secondary metering orifice discs. During hot engine idle or hot soak the fuel could boil away out of the fuel well. The milled slot allows enough fuel to by-pass the orifice disc to keep the main well filled during this period. This insures immediate fuel delivery from the secondary fuel wells at all times.

3. Two baffle plates are used, one in each secondary bore. They extend up and around the secondary fuel discharge nozzles. Their purpose is to provide good fuel distribution at lower air flows by preventing too much fuel from going to the front of the engine.

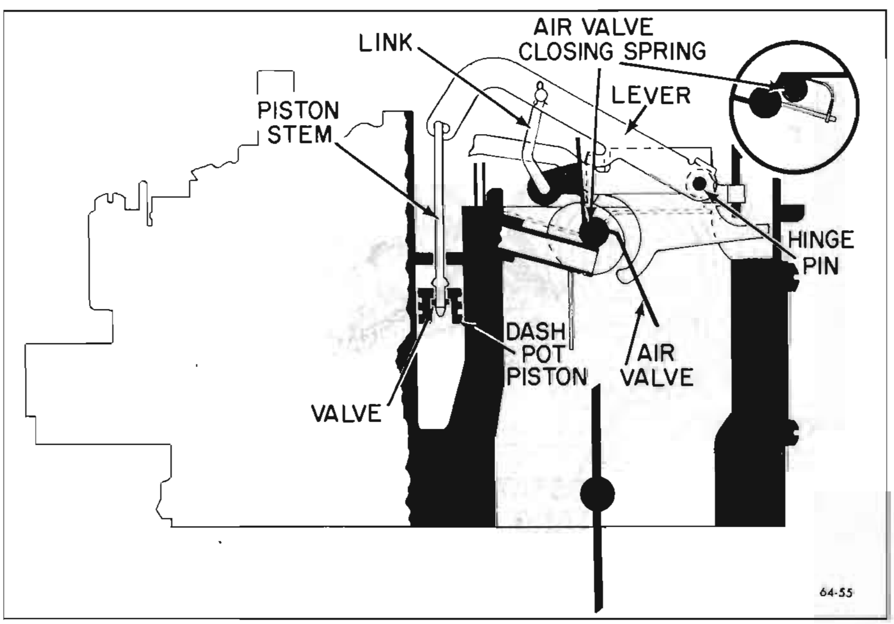

Figure 64-55—Air Valve Dash Pot Operation

h. Operation of Accelerating Pump System

During quick acceleration, when the throttle is opened rapidly, the air flow changes almost instantaneously. The fuel, which is heavier, tends to lag behind causing a momentary leanness. The accelerator pump is used to provide the extra fuel necessary for smooth operation during this time.

When the pump plunger moves upward in the pump well, fuel from the float bowl enters the pump well through a slot in the top of the pump well. It flows past the synthetic pump cup seal into the bottom of the pump well. The pump plunger is a floating type. (The cup moves up and down on the pump plunger head). When the pump plunger is moved upward the flat on the top of the cup unseats from the flat on the plunger head and allows free movement of fuel through the inside of the cup into the bottom of the pump well. This also vents any vapors which may be in the bottom of the pump well so that a solid charge of fuel can be maintained in the fuel well beneath the plunger head. When the primary throttle valves are opened the connecting linkage forces the pump plunger downward. The pump cup seats instantly and fuel is forced through the pump discharge passage, where it unseats the pump discharge check ball

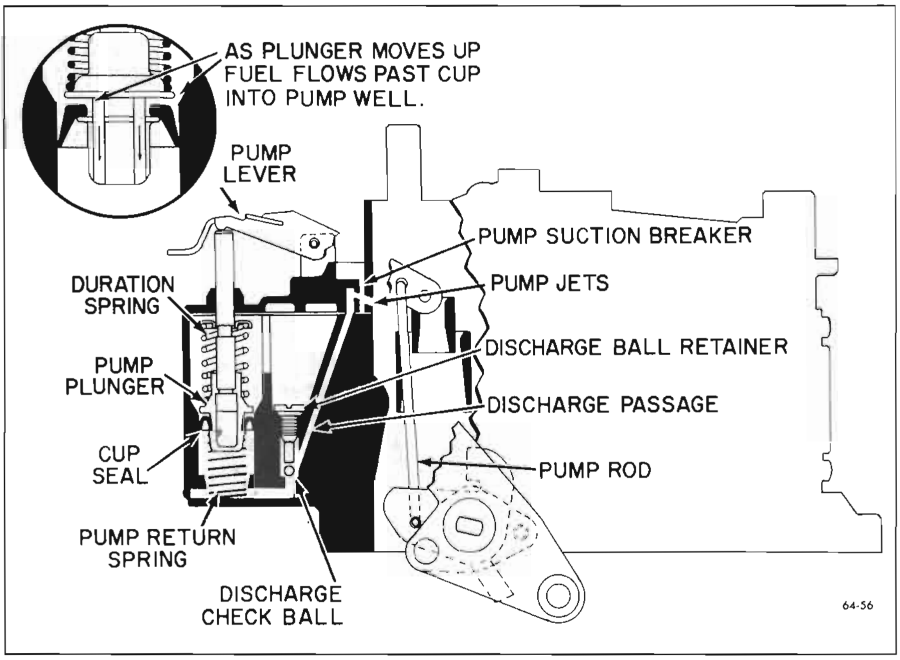

Figure 64-56—Accelerator Pump Circuit

and passes on through the passage to the pump jets located in the air horn. See Figure 64-56.

It should be noted the pump plunger is spring loaded. The top pump duration spring is balanced with the bottom pump return spring so that a smooth sustained charge of fuel is delivered during acceleration.

The pump discharge check ball seats in the pump discharge passage during upward motion of the pump plunger so that air will not be drawn into the passage; otherwise, a momentary acceleration lag could result.

During high speed operation, a vacuum exists at the pump jets. A cavity just beyond the pump jets is vented to the top of the air horn, outside the carburetor bores. This acts as a suction breaker so that when the pump is not in operation fuel will not be pulled out of the pump jets into the venturi area. This insures a full pump stream when needed and prevents any fuel "pull over" from the pump discharge passage.

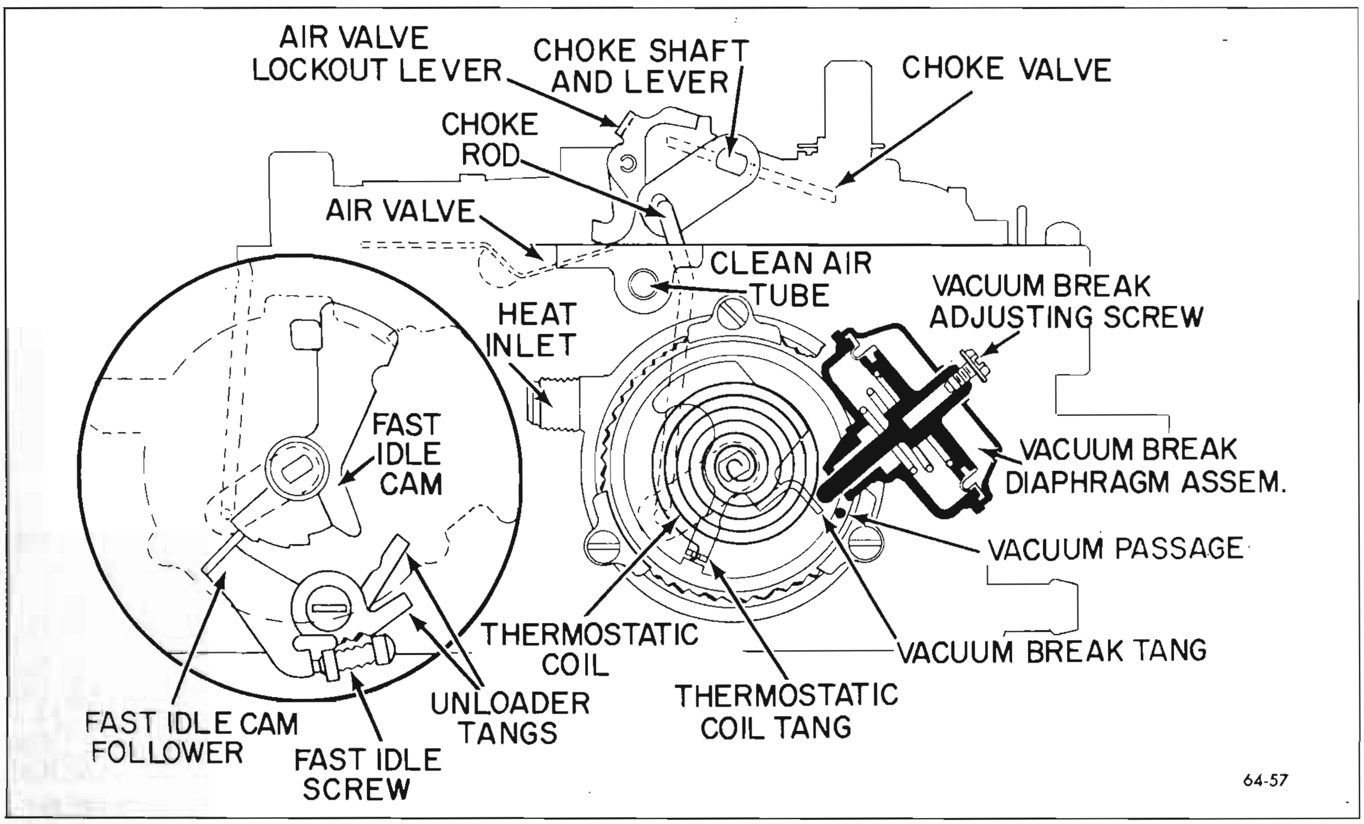

Figure 64-57—Choke System

i. Operation of Choke System

The choke valve is located on the primary side of the carburetor. It provides the correct enrichment for cold engine starting and warm-up. When the choke valve is closed, the secondary air valve lock-out lever is weighted so that it catches the upper edge of the air valve. This keeps the air valve closed until the choke valve is wide open. See Figure 64-57.

During engine cranking, the choke valve restricts air flow through the carburetor to provide the richer starting mixture required. When the engine starts, manifold vacuum applied to the vacuum diaphragm mounted in the choke housing forces the choke valve open to a point where the engine will run without loading or stalling. At the same time, the fast idle cam follower lever on the end of the primary throttle shaft will drop from the highest step on the fast idle cam to the second step if the throttle is opened. This gives the engine sufficient fast idle and correct fuel mixture for running until the engine begins to warm up and heat the thermostatic coil. As the thermostatic coil becomes heated, it relaxes its tension and opens the choke valve further. Choke valve opening continues until the thermostatic coil is completely relaxed and the choke valve is wide open.

When the engine is thoroughly warm, the choke coil rotation allows the fast idle cam to rotate, so that the cam follower drops the last step of the fast idle cam so the engine will run at normal idle speeds. When the choke moves to the open position, the choke rod pushes the lock-out tang upward and unlocks the secondary air valve.

The choke system is equipped with an unloader mechanism which is designed to partially open the choke valve, should the engine become loaded or flooded during the starting period. To unload the engine the accelerator pedal should be fully depressed. A tang on a lever on the choke side of the primary throttle shaft contacts the fast idle cam and through the intermediate choke shaft forces the choke valve slightly open. This allows extra air to enter the engine to lean out the fuel mixture so that the engine will start.

DIVISION III SERVICE PROCEDURES

64-27 DISASSEMBLY, CLEANING AND INSPECTION OF ROCHESTER QUADRAJET CARBURETOR

a. Air Horn Removal

1. Remove idle vent valve attaching screw then remove idle vent valve assembly.

2. Remove clips from upper end of choke rod, disconnect choke rod from upper and lower choke shaft lever and remove choke rod from bowl.

3. Remove spring clip from upper end of pump rod then disconnect pump rod from pump lever.

4. Remove nine air horn to bowl attaching screws, two attaching screws are located next to the primary venturi. (Four long screws, three short screws, two countersunk screws).

5. Remove air horn by lifting straight up. Air horn gasket should remain on bowl for removal later.

> **CAUTION:** Care must be taken not to bend two small main well air bleed tubes protruding from air horn. These are permanently pressed into casting. DO NOT REMOVE.

b. Air Horn Disassembly

1. Remove secondary metering rods by holding air valve wide open, then tilt and slide rods from holes in hanger.

2. Remove dashpot from air valve link by rotating bend through hole then remove dashpot from air horn by rotating bend through air horn.

> **NOTE:** Further disassembly of the air horn is not required for cleaning purposes. If part replacement is required, proceed as follows:

3. Remove choke valve attaching screws then remove choke valve and shaft.

4. Remove pump lever roll pin then pump lever.

> **CAUTION:** Air valves, air valve shaft and secondary metering rod hanger are calibrated and should not be removed.

c. Float Bowl Disassembly

1. Remove pump plunger from pump well.

2. Remove air horn gasket from dowels on secondary side of bowl, then remove gasket from around power piston and primary metering rods.

3. Remove pump return spring from pump well.

4. Remove plastic filler over float valve.

5. Remove power piston and primary metering rods, using needle nosed pliers to pull straight up on metering rod hanger directly over power piston. Remove power piston spring from well.

> **NOTE:** The power piston assembly is held in place by a brass sleeve which encircles the recessed center portion of the piston.

6. Remove metering rods from power piston by disconnecting tension spring from top of each

rod then rotating rod to remove from hanger.

7. Remove float assembly by pulling up slightly on retaining pin until pin can be removed by sliding toward pump well. After pin is removed, slide float assembly toward front of bowl to disengage needle pull clip being careful not to distort pull clip.

8. Remove pull clip from needle.

9. Remove two screws from float needle retainer then remove retainer and needle assembly.

CAUTION: Needle seat is factory staked and tested. Do not attempt to remove or restake. If damaged, replace float bowl assembly.

10. Remove primary metering jets. No attempt should be made to remove secondary metering discs.

11. Remove pump discharge check ball retainer and check ball.

12. Remove baffle from secondary side of bowl.

13. Remove choke coil retaining screws and clips, then remove choke coil assembly and baffle.

14. Remove retaining screw from choke housing assembly and remove assembly from float bowl.

15. Remove fast idle cam from choke assembly.

CAUTION: Do not place choke housing assembly in carburetor cleaner.

16. Remove lower choke rod lever from inside of float bowl well.

17. Remove two screws from hot idle compensator cover then remove hot idle compensator and "O" ring from float bowl.

18. Remove fuel inlet filter nut, gasket, filter and spring.

19. Remove throttle body by removing throttle body to bowl attaching screws.

20. Remove throttle body to bowl insulator gaskets.

d. Throttle Body Disassembly

1. Remove pump rod from throttle lever by rotating rod out of primary throttle lever.

2. Remove idle mixture screws and springs.

CAUTION: Extreme care must be taken to avoid damaging secondary throttle valves.

NOTE: No further disassembly of the throttle body is required.

e. Cleaning and Inspection

NOTE: The carburetor should be cleaned in a cold immersion type cleaner.

1. Thoroughly clean carburetor castings and metal parts in an approved carburetor cleaner.

CAUTION: Any rubber parts, plastic parts, diaphragms, pump plungers, should not be immersed in carburetor cleaner. However, the delrin cam on the air valve shaft will withstand normal cleaning in carburetor cleaner.

2. Blow out all passages in castings with compressed air. Do not pass drills through jets or passages.

3. Inspect idle mixture needles for damage.

4. Examine float needle and diaphragm for wear. Replace if necessary with new float needle assembly.

5. Inspect upper and lower surfaces of carburetor castings for damage.

6. Inspect holes in levers for excessive wear or out of round conditions. If worn, levers should be replaced.

7. Examine fast idle cam for wear or damage.

8. Check air valve for binding conditions. If air valve is damaged, air horn assembly must be replaced.

9. Check all throttle levers and valves for binds or other damage.

64-28 ASSEMBLY AND INTERNAL ADJUSTMENT OF ROCHESTER QUADRAJET CARBURETOR

a. Throttle Body Assembly

1. Install idle mixture needles and springs until seated. Back out needles two turns as a preliminary idle adjustment.

2. Install pump rod in lower hole in throttle lever by rotating rod.

b. Float Bowl Assembly

1. Install new throttle body to bowl insulator gasket being certain the gasket is properly installed over two locating dowels on bowl.

2. Install throttle body making certain throttle body is properly located over dowels on float bowl then install throttle body to bowl screws and tighten evenly and securely.

Place carburetor on proper holding fixture.

3. Install fuel inlet filter spring, filter, new gasket and inlet nut and tighten nut securely.

4. Install hot idle compensator "O" ring seal in recess in bowl then install hot idle compensator.

5. Install fast idle cam on choke housing assembly. Be sure fast idle cam actuating pin on intermediate choke shaft is located in cut out area of fast idle cam.

6. Connect choke rod to choke rod actuating lever (plain end), then holding choke rod, with grooved end pointing inward, position choke rod actuating lever in well of float bowl and install

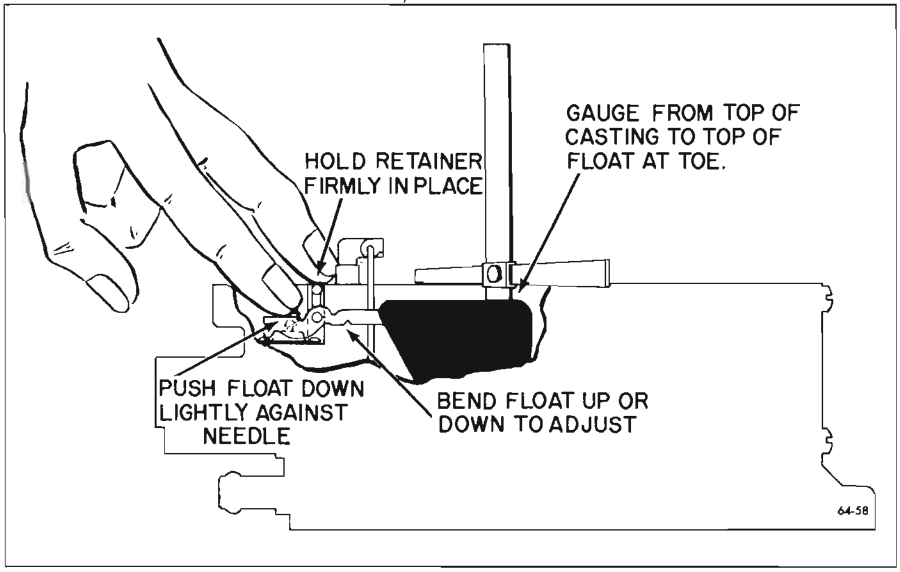

Figure 64-58—Float Level Adjustment

choke housing assembly engaging shaft with hole in actuating lever. Install retaining screw and tighten securely. Remove choke rod from lever for installation later.

7. Install choke baffle and thermostatic coil.

8. Install air deflector in secondary side of bowl with notches towards top.

9. Install pump discharge check ball and retainer in passage next to pump well.

10. Install primary main metering jets.

11. Insert float needle and diaphragm assembly. Be certain diaphragm is properly positioned before installing retainer. Install needle retainer and two screws and tighten securely.

12. Using needle nosed pliers to hold needle pull clip, install pull clip on needle. Pull clip is properly positioned with open end towards front of bowl.

13. Install float by sliding float lever under pull clip from front to back. With float lever in pull clip, hold float assembly at toe and install retaining pin from pump well side. Be careful not to distort pull clip.

14. Float Level Adjustment.

a. With adjustable T-scale, measure from top of float bowl gasket surface (gasket removed) to top of float at toe (locate gauging point 3/16" back from toe). See Figure 64-58.

NOTE: Make sure retaining pin is held firmly in place and tang of float is seated on float needle.

b. Bend float up or down for proper adjustment.

15. Install power piston spring in power piston well. If primary main metering rods were removed from hanger reinstall making sure that tension spring is connected to top of each metering rod. Make sure brass retaining sleeve is in place in the recessed center portion of the piston. Install power piston assembly in well with metering rods properly positioned in metering jets. Press down firmly on power piston to insure proper positioning of brass retaining sleeve in bore.

16. Install plastic filler over float needle, pressing downward until seated properly.

17. Install pump return spring in pump well.

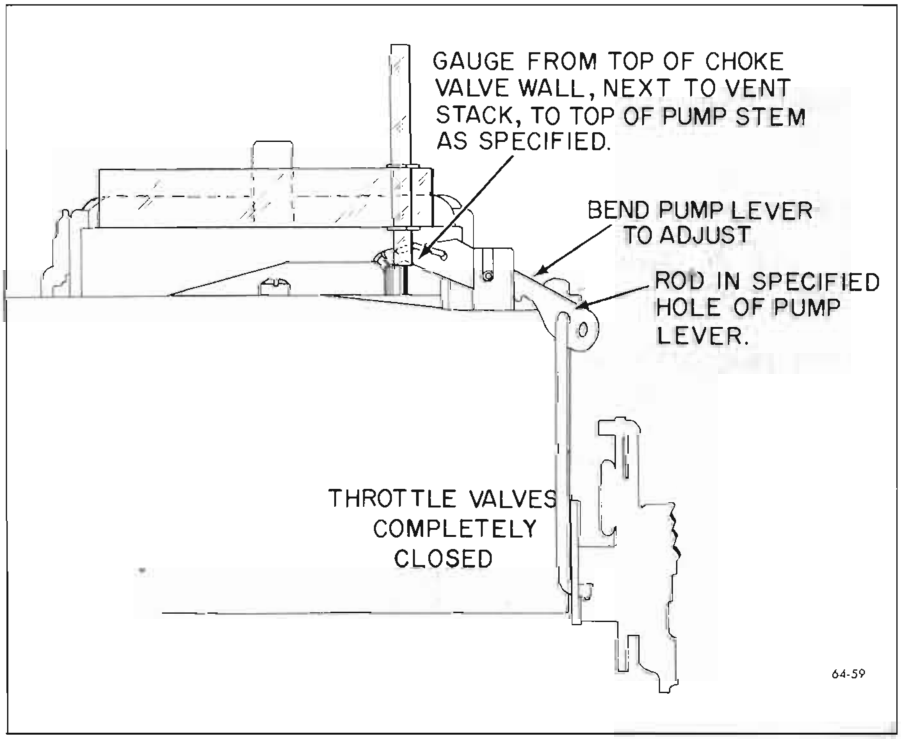

Figure 64-59—Accelerator Pump Adjustment

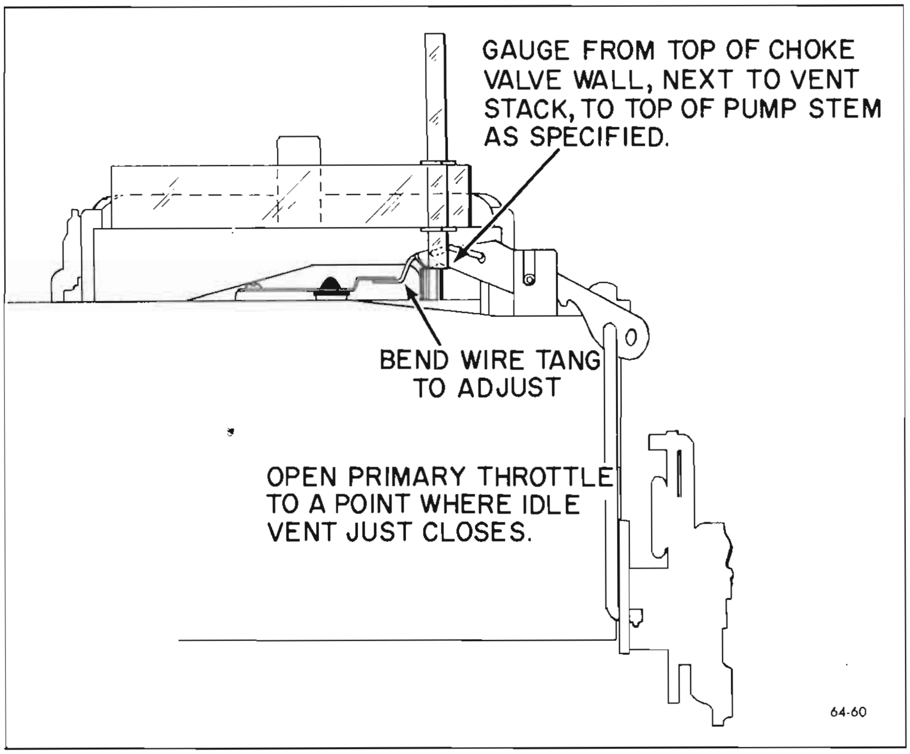

Figure 64-60—Idle Vent Adjustment

18. Install air horn gasket around primary metering rods and piston. Position gasket over two dowels on secondary side of bowl.

19. Install pump plunger in pump well.

c. Air Horn Assembly

1. Install the following, if removed.

- Install pump lever and retain with roll pin.

- Install dashpot plunger rod through air horn and attach actuating lever to rod.

- Install choke shaft, choke valve, and two attaching screws.

2. Install secondary metering rods. With air valve held wide open, rods should be positioned with upper ends through hanger holes and towards each other.

d. Air Horn to Bowl Installation

1. Place air horn assembly on bowl carefully, positioning secondary metering rods, vent tubes, and accelerating well tubes through air horn gasket. Care should be taken when installing to be sure dashpot and pump plunger are positioned properly through air horn. Do not force air horn assembly on to float bowl as distortion of secondary metering discs will result. A slight sideward movement will center metering rods in metering discs.

2. Install four long air horn screws around secondary side, two short screws in center section, and one short screw above fuel inlet. Two counter-sunk screws are installed in primary venturi area. All screws must be tightened evenly and securely.

3. Install idle vent actuating rod in pump lever.

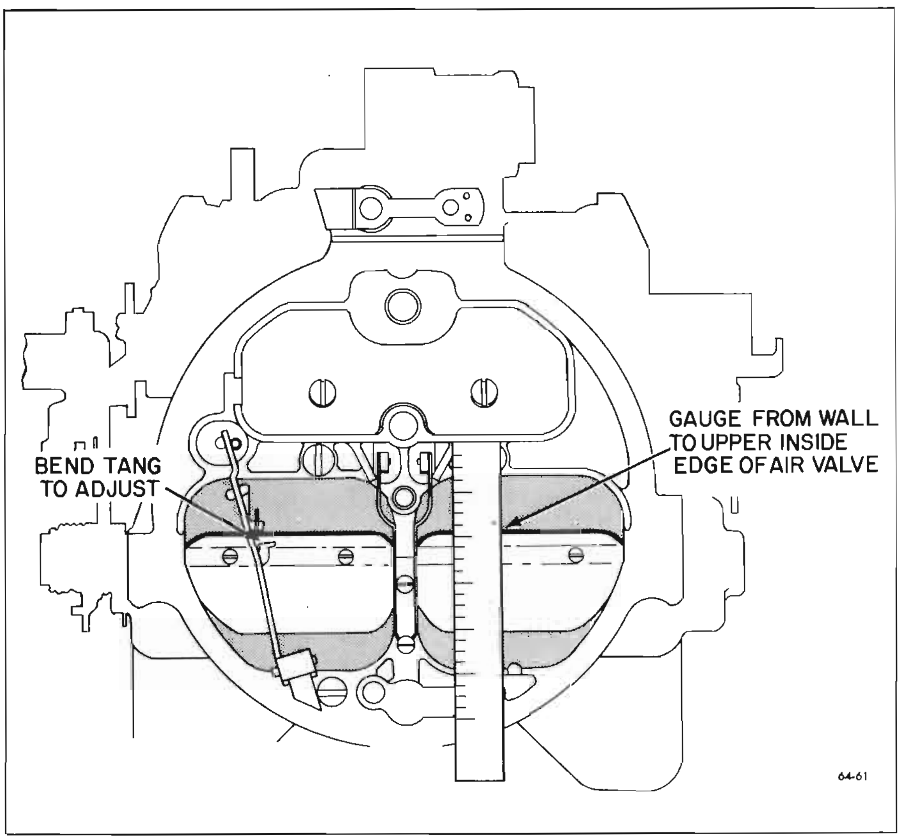

Figure 64-61—Secondary Air Valve Adjustment

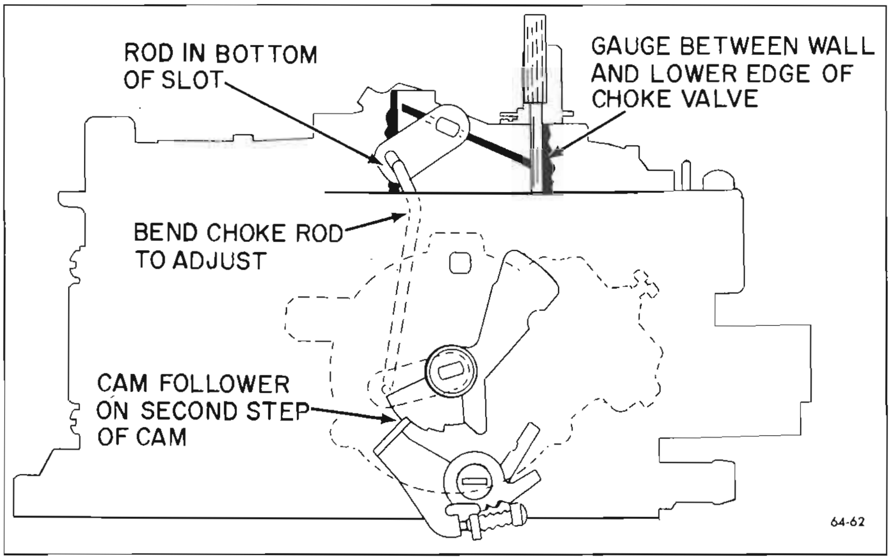

Figure 64-62—Choke Rod Adjustment

4. Connect pump rod in pump lever and retain with spring clip.
5. Connect choke rod in lower choke lever and retain in upper lever with spring clip.
6. Install idle vent valve, engaging actuating rod and tighten attaching screw.

64-29 EXTERNAL ADJUSTMENT OF ROCHESTER QUADRAJET CARBURETOR

a. Accelerator Pump Adjustment

With throttle valves completely closed and pump rod in inner hole of pump lever, measure from top of choke valve wall, next to vent stack, to top of pump stem with adjustable T-scale. Dimension should be as specified. Bend pump lever to adjust. See Figure 64-59.

b. Idle Vent Adjustment

After pump rod adjustment has been made, open primary throttle to a point where the idle vent just closes. See Figure 64-60.

With adjustable T-scale, measure the distance from the top of choke valve wall, next to vent stack, to top of the pump plunger stem. Bend wire tang on pump lever to adjust.

c. Secondary Air Valve Adjustment

With air valve wide open against stop tang, the distance between upper inside edge of air valve and choke valve wall, should be as specified. Bend stop tang on

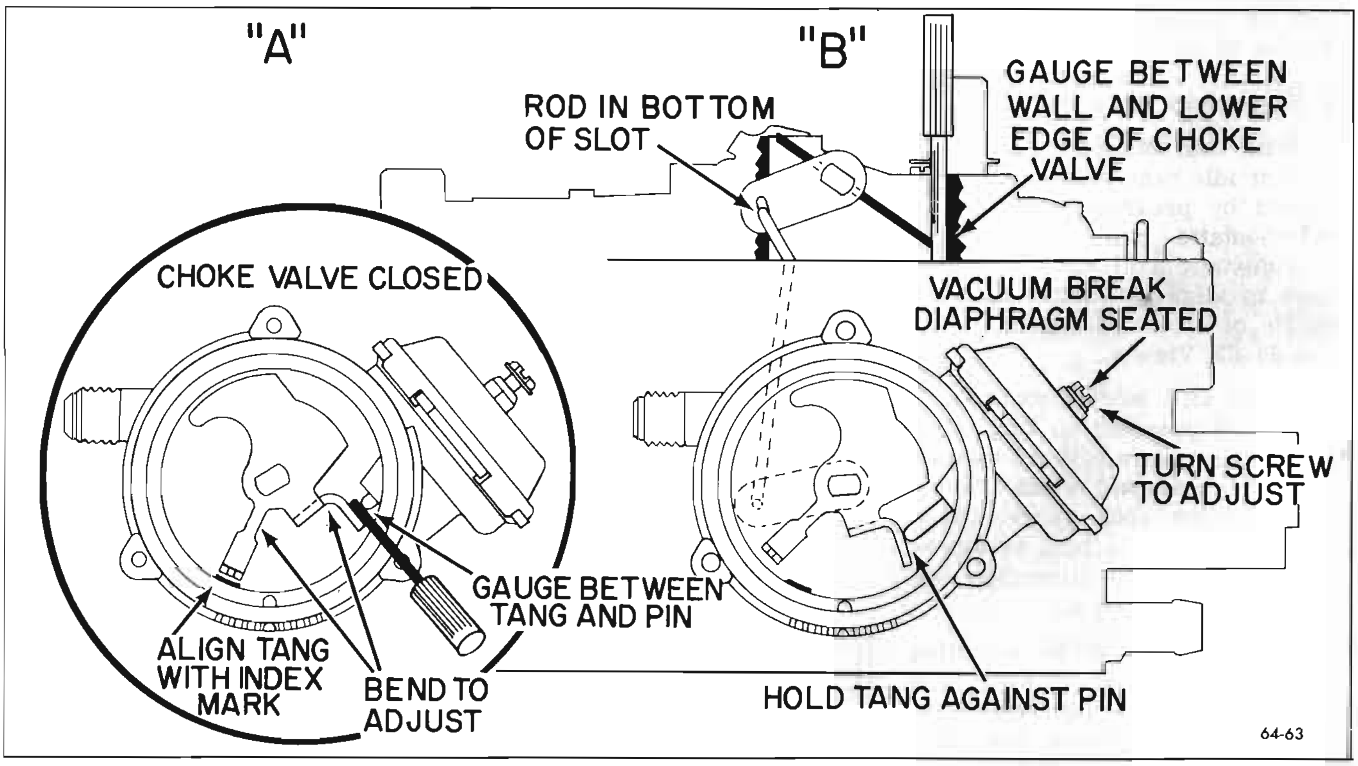

Figure 64-63—Vacuum Break Adjustment

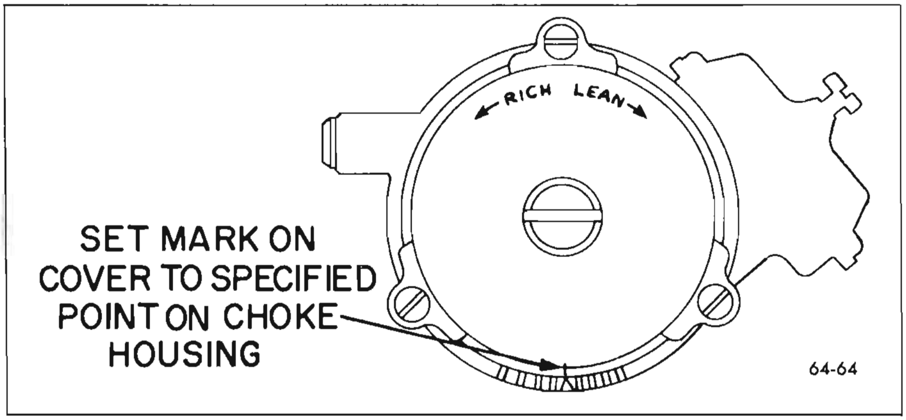

Figure 64-64—Automatic Choke Adjustment

dashpot lever to adjust. See figure 64-61.

d. Choke Rod Adjustment

Place cam follower on second step of fast idle cam and against high step. Then hold down firmly on thermostatic coil tang. With choke valve moved lightly toward open position to remove choke linkage slack, measure between lower edge of choke valve and wall using .140 gauge. Bend choke rod as necessary to adjust. See Figure 64-62.

e. Vacuum Break Adjustment

1. With cam follower on high step of fast idle cam, hold choke valve closed by pressing down on the thermostatic coil tang. Bend thermostatic coil tang as necessary to align with index mark on inside of choke housing. See Figure 64-63, View A.

2. While still holding choke valve closed by pressing on tang (as in Step 1), measure between vacuum break pin and tang which it contacts, using .100 gauge. Bend vacuum break pin tang as necessary to obtain this dimension. See Figure 64-63, View A.

3. Seat vacuum break adjusting screw on vacuum break diaphragm cover and hold tang against vacuum break pin. With choke valve moved lightly toward open to remove choke linkage slack, measure between lower edge of choke valve and wall, using .230 gauge. Adjust screw as necessary to obtain this dimension. See Figure 64-63, View B.

CAUTION: Let vacuum break plunger out before turning screw to avoid twisting type damage to diaphragm.

f. Automatic Choke Adjustment

Loosen choke cover retaining screws and rotate cover until mark on cover is aligned with index mark on choke housing. See Figure 64-64.

Due to differences in gasoline volatility, it may be possible to improve cold operation by moving cover one or two notches richer or leaner. However, if it is necessary to vary over two notches from index for proper cold operation, check for a defect in the choke system.

g. Choke Unloader Adjustment

Hold choke valve toward closed position with a rubber band on thermostatic coil tang. Rotate throttle to full open position. With choke valve moved lightly toward open position to remove choke linkage slack, measure between lower edge of choke valve and wall using .325 gauge. Bend tang on unloader lever as necessary to adjust. See Figure 64-65.

h. Secondary Air Valve Lockout Adjustment

Hold choke valve wide open. With choke rod in mid-position in choke lever slot, lockout tang should barely clear air valve. If air valve will not open, or if lockout clearance is too great, bend upper lockout tang as necessary to correct.

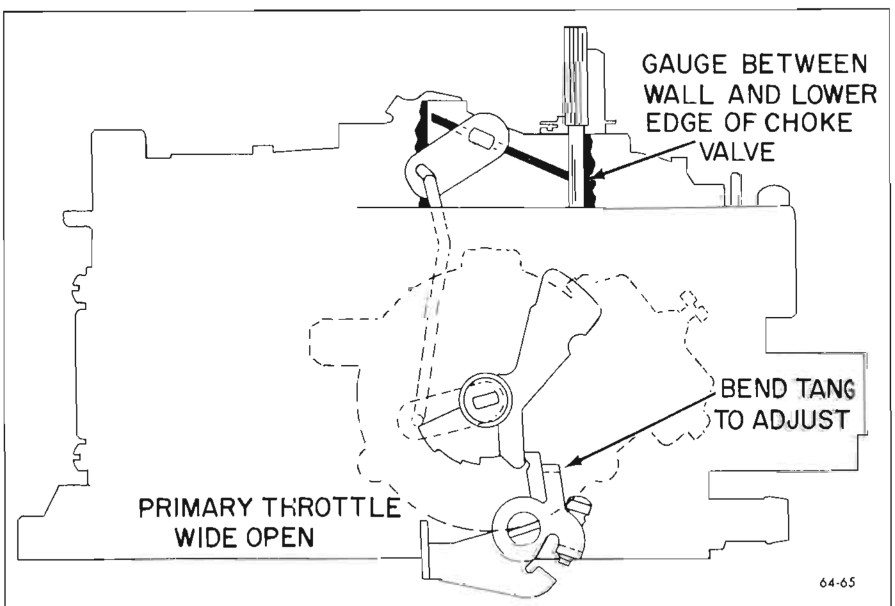

Figure 64-65—Choke Unloader Adjustment