SECTION D

ROCHESTER 4MV CARBURETOR

CONTENTS

DIVISION I SPECIFICATIONS AND ADJUSTMENTS

64-18 ROCHESTER 4MV CARBURETOR CALIBRATIONS

NOTE: All carburetors have a color code paint mark and a part number stamped on the float bowl for identification.

	350 Eng. Man. Trans.	350 Eng. Auto. Trans.	400 Eng. Man. Trans.	400 Eng. Auto. Trans.	430 Eng. Auto. Trans.	430 Riviera
Paint Color						
Model Designation	4MV	4MV	4MV	4MV	4MV	4MV
Number of Barrels	4	4	4	4	4	4
Carburetor Number	7029245	7029244	7029243	7029242	7029240	702924
Code Letters						
Throttle Bore, Primary	1-3/8"	1-3/8"	1-3/8"	1-3/8"	1-3/8"	1-3/8"
Throttle Bore, Secondary	2-1/4"	2-1/4"	2-1/4"	2-1/4"	2-1/4"	2-1/4"
Small Venturi	9/32"	9/32"	9/32"	9/32"	9/32"	9/32"
Middle Venturi	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"
Large Venturi	1-3/32"	1-3/32"	1-3/32"	1-3/32"	1-3/32"	1-3/32"
Main Metering Jet	.073"	.070"	.070"	.070"	.070"	.070"
Metering Rod, Primary						
Production	.043"	.043"	.045"	.045"	.045"	.045"
Altitude	Same	Same	Same	Same	Same	Same

NOTE: Special Kits Are Not Required for Altitude.

Metering Rod, Secondary	AK	AK	AY	AY	AY	AY
Idle Needle Hole	#44	#44	#44	#44	#44	#44
Spark Hole	.035" x .151"	.035" x .151"	.045" x .151"	.045" x .151"	.045" x .151"	.045" x .151"
Pump Discharge Hole	2-#70	2-#70	2-#70	2-#70	2-#70	2-#70
Fast Idle Cam Color	White	Yellow	Black	Black	Black	Black

64-19 ROCHESTER 4MV CARBURETOR ADJUSTMENTS

	350 Eng. Man. Trans.	350 Eng. Auto. Trans.	400 Eng. Man. Trans.	400 Eng. Auto. Trans.	430 Eng. Auto. Trans.	430 Eng. Riviera
Choke Coil Rod Adjustment	Gaging Slot	Gaging Slot	Gaging Slot	Gaging Slot	Gaging Slot	Gaging Slot
Choke Hole Setting	Std. Hole	Std. Hole	Std. Hole	Std. Hole	Std. Hole	Std. Hole
Float Level	5/16"	5/16"	3/8"	3/8"	3/8"	5/16"
Pump Rod Location	Outer Hole	Outer Hole	Outer Hole	Outer Hole	Outer Hole	Outer Hole
Pump Adjustment	13/32"	13/32"	13/32"	13/32"	13/32"	13/32"
Idle Vent Adjustment	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
Choke Rod Adjustment	.130"	.130"	.140"	.130"	.130"	.130"
Vacuum Brake Adjustment	.215"	.190"	.215"	.180"	.180"	.180"
Air Valve Dash Pot Adjustment	.030"	.030"	.030"	.030"	.030"	.030"
Choke Unloader Adjustment	.325"	.325"	.325"	.325"	.325"	.325"
Air Valve Lockout Adjustment	.015"	.045"	.015"	.045"	.045"	.045"
Secondary Opening Adjustment	.070"	.070"	.070"	.070"	.070"	.070"
Secondary Closing	.020"	.020"	.020"	.020"	.020"	.020"
Secondary Metering Rod	53/64"	53/64"	53/64"	53/64"	53/64"	53/64"
Air Valve Spring Wind-Up	1/2 Turn	1/2 Turn	1/2 Turn	1/2 Turn	1/2 Turn	1/2 Turn
Fast Idle Speed (In Drive, Low Step)	720	620	720	620	620	620
Slow Idle Speed (In Drive)	700	600	700	600	550	550

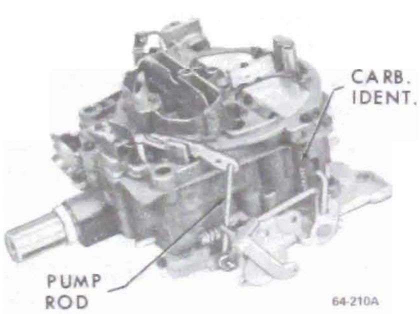

Figure 64-28 Rochester Quadrajet Carburetor

DIVISION II

DESCRIPTION AND OPERATION

64-20 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 venturi equipped with plain tube nozzles. The triple venturi, plus the smaller primary bores, give a finer fuel control in the idle and economy ranges of operation. Fuel metering

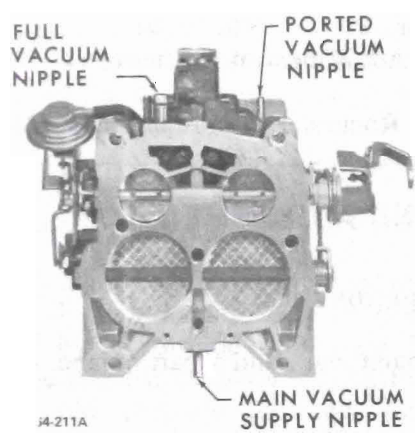

Figure 64-29 Quadrajet Carburetor Bottom View

in the primary side is accomplished with tapered metering rods positioned by a vacuum piston.

The secondary side has two very large bores which have ample air capacity to meet present day and future automotive engine demands. See Figure 64-29.

Using the air valve principle, fuel is metered in direct proportion to the air passing through the secondary bores. See Figure 64-30.

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 has a synthetic tip which gives added insurance against flooding problems caused by dirt.

A 2 inch pleated paper fuel filter is mounted in the fuel inlet casting and is easily removed for 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

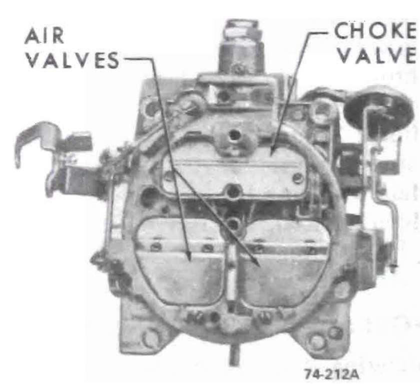

Figure 64-30 Quadrajet Carburetor - Top View

receives fuel from a common float chamber.

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 bore. This type design assures adequate fuel supply to all carburetor bores, and performance is not affected by car inclination or severity of turns. See Figure 64-31.

The float pontoon is solid anz dis 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 2 inch pleated paper 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. This allows the car to be driven, but at reduced speed.

The conventional float needle and seat is used in all carburetors.

A float needle pull clip, fastened to the float needle, hooks over the center of the float arm above the needle. Its purpose is to assist in lifting the float needle off its seat.

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 resutl 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 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 64-32.

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

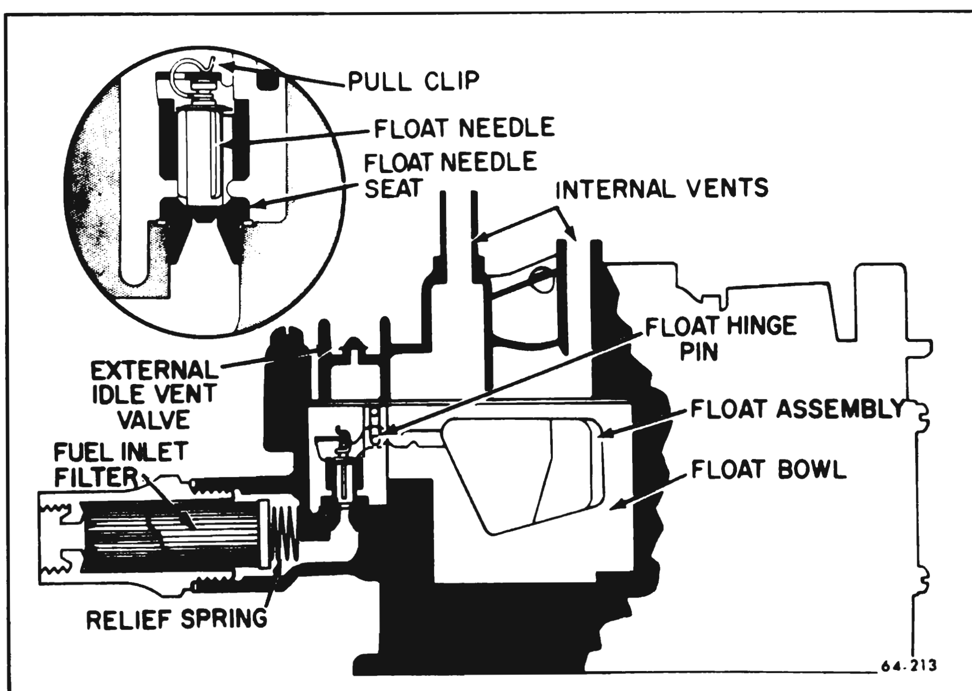

Figure 64-31 Float System

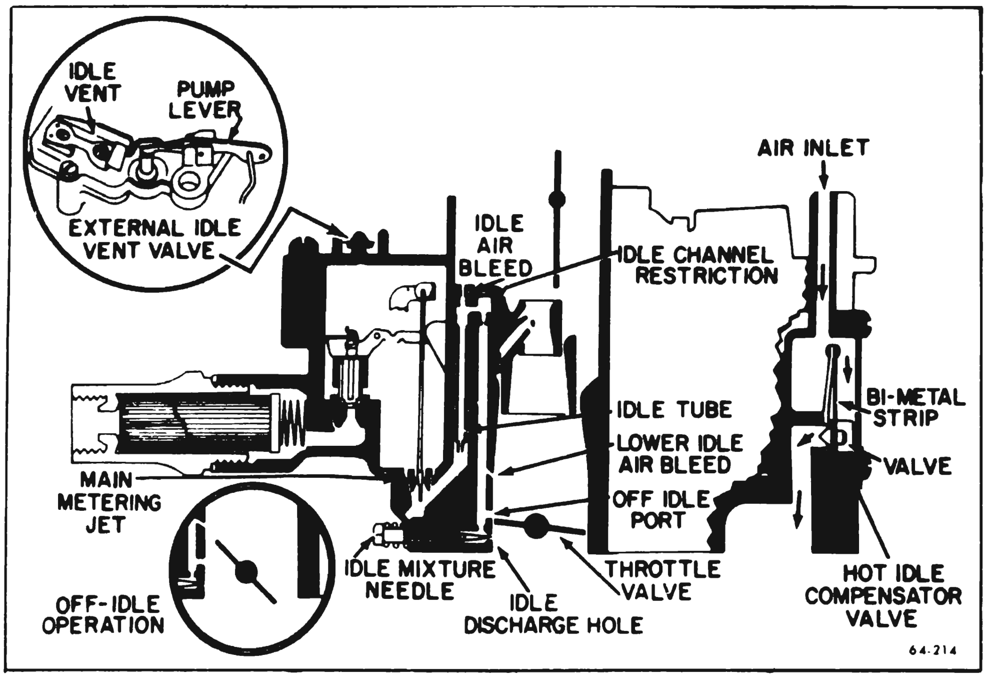

Figure 64-32 Idle System

and mixes finally with air passing around the slightly open throttle valves. The idle needle hole size is reduced to limit richness in the idle range.

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. See Figure 64-32.

A part throttle adjustment is made at the factory, then sealed; no attempt should be made to adjust it in the field. The adjustable part throttle feature includes a new power piston and primary metering rods. The new piston has a pin pressed into it, which protrudes through the float bowl and gasket and contacts the adjustable link in the throttle body. See Figure 64-33. The new primary metering rods have a different taper than the rods used before. These rods can be identified by the suffix "B" stamped after the diameter on the rod. The purpose of this feature is to give better control of the fuel during the part throttle range for improved exhaust emissions. This is accomplished by adjusting the lowermost (light load) position of the metering rods in the jets.

e. 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

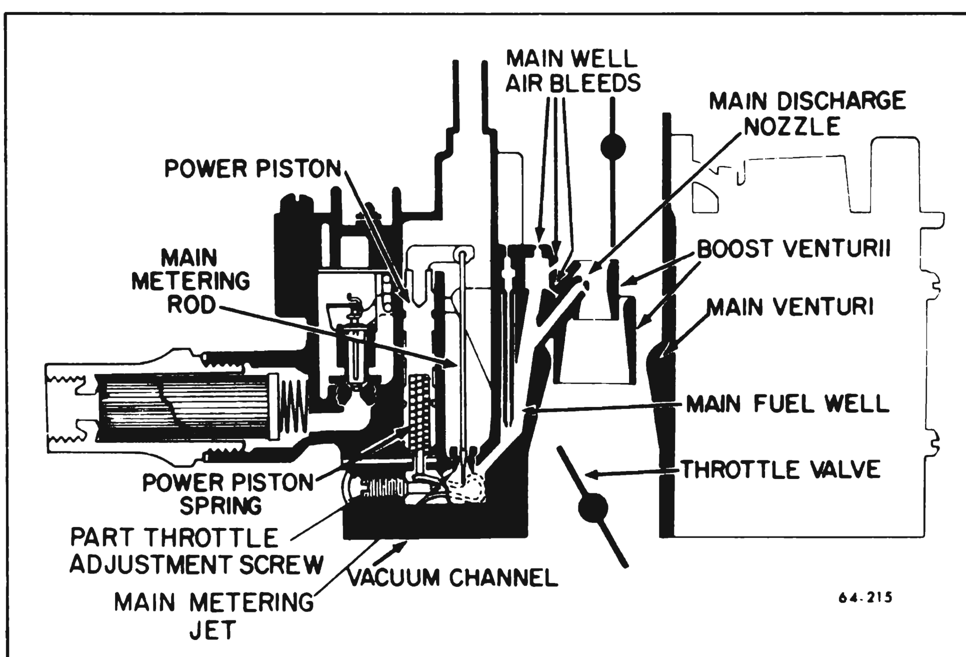

Figure 64-33 Main Metering System

main metering jets. See Figure 64 33.

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 of which leads from inside the bore area above the venturi and another from the cavity around the main fuel nozzle in the main well). The fuel then passes through the main discharge nozzle into the boost venturi and on into the engine.

f. 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 64-34.

In 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 fuel 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 secondary throttle valves begin to open, the accelerating well ports are exposed to manifold vacuum. The ports immediately start to feed fuel from the accelerating wells and continue to feed fuel until the fuel in the wells i gone. This prevents a momentary leanness as the air valve opens and before 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. See Figure 64-29. 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 disc is directly proportional to air flow through the secondary carburetor bores.

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 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

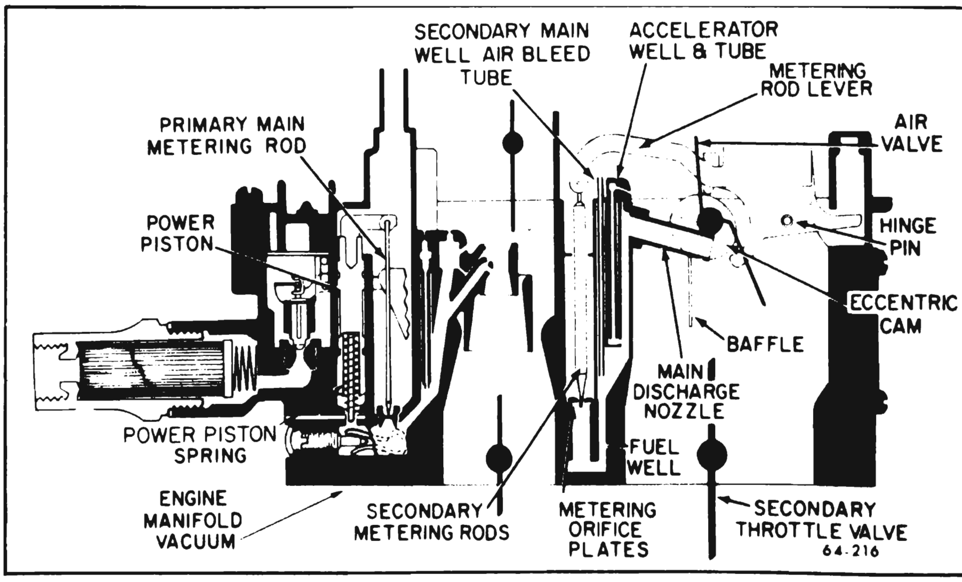

Figure 64-34 Power System

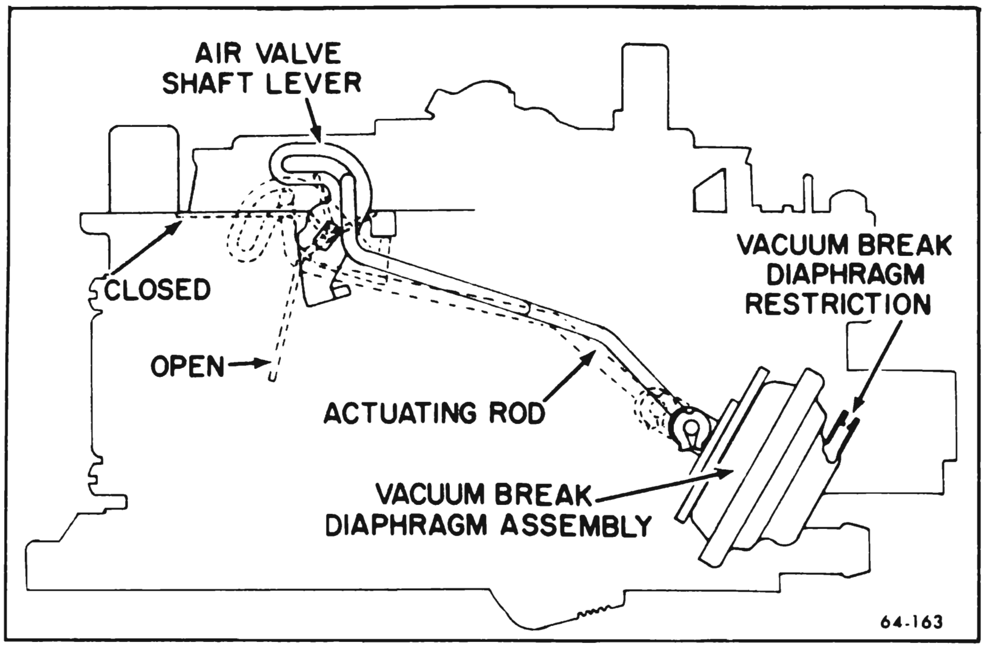

Figure 64-35 Air Valve Dash Pot Operation

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.

g. Operation of Air Valve Dash Pot

The secondary air valve is connected to the vacuum break unit by a rod, to control the opening rate of the air valve and prevent any secondary discharge nozzle lag. See Figure 64--35.

Whenever manifold vacuum is above approximately 5″ - 6″ the vacuum break diaphragm stem is seated. However, when the secondary valves are opened and manifold vacuum drops below the 5″-6″ point, the spring in the vacuum break unit will force the diaphragm and stem off its seat. The rate of movement off the seat is controlled by a restriction in the cover of the vacuum break unit.

When the diaphragm is seated it pulls the rod nearly to the end of the slot in the air valve shaft lever. As the air valve starts to open, when the secondary valves are opened, the restriction in the cover will restrict the air movement to the back side of the diaphragm and slow down the opening of the air valve.

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

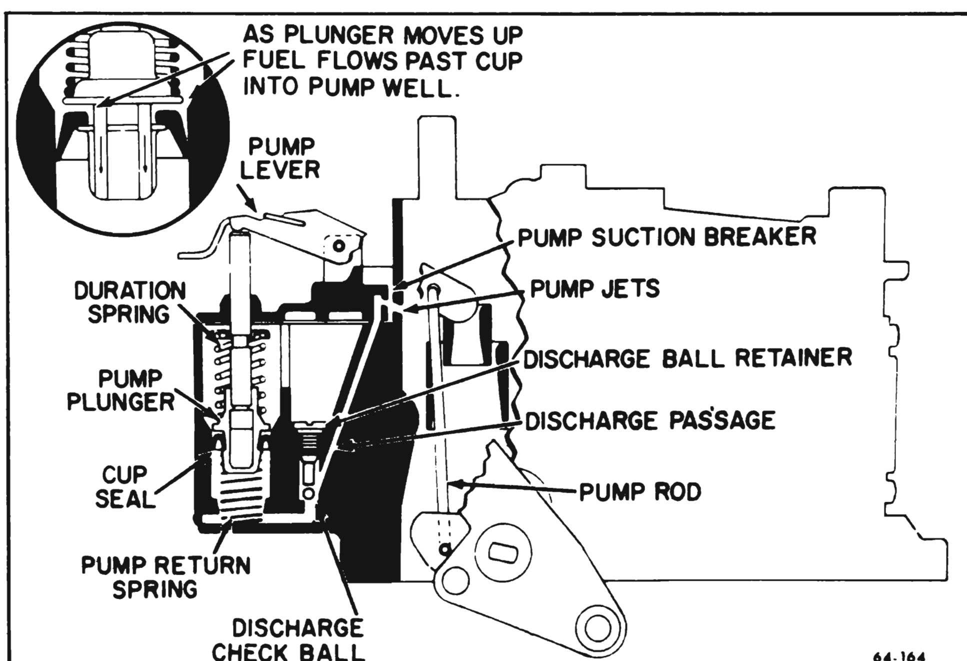

Figure 64-36 Accelerator Pump System

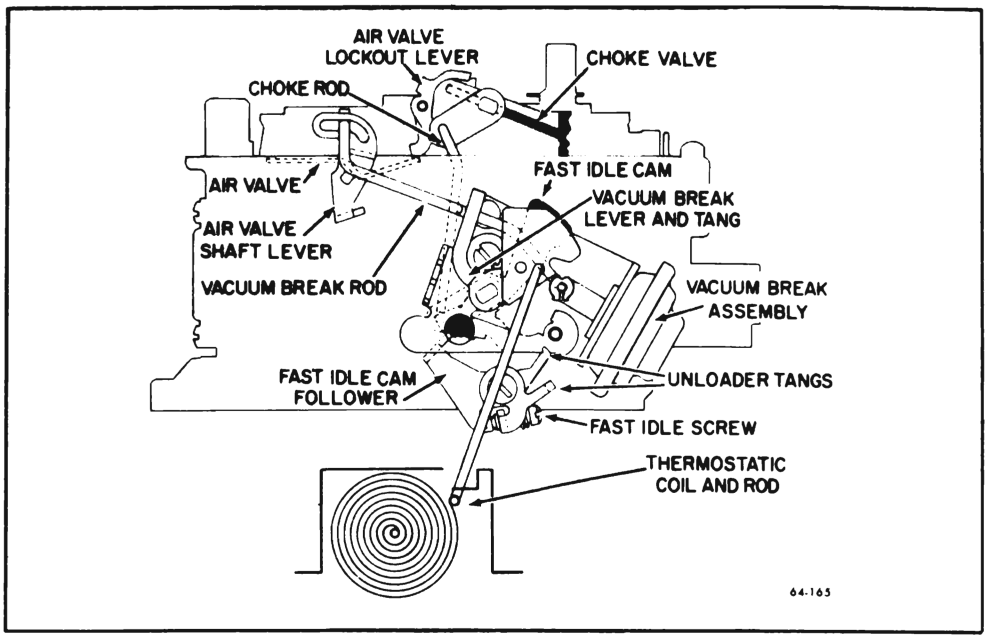

Figure 64-37 Choke System

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 and passes on through the passage to the pump jets located in the air horn. See Figure 64-36.

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.

i. Operation of Choke System

The Quadrajet choke valve is located in the primary side of the carburetor. It provides the correct air/fuel mixture enrichment to the engine for quick cold engine starting and during the warm-up period. The air valve is locked closed until the choke valve is wide open.

The thermostatic coil located in the engine manifold is calibrated to hold the choke valve closed when the engine is cold. See Figure 64-37.

When the choke valve is closed, the air valve lock-out lever is weighte d so that a tang on the lever catches the upper edge of the air valve and keeps the air valve closed.

During engine cranking, the choke valve is held closed by the tension of the thermostatic coil. This restricts air flow through the carburetor to provide a richer starting mixture. When the engine starts and is running, manifold vacuum applied to the vacuum diaphragm unit mounted on the float bowl will open the choke valve to a point where the engine will run without loading or stalling. When the throttle is opened, the fast idle cam follower lever on the end of the primary throttle shaft will drop from the highest (starting) step on the fast idle cam to a lower step. This gives the engine the correct fast idle and fuel mixture for running until the engine begins to warm up and heat the thermostatic coil. As the thermostatic coil on the engine manifold becomes heated, it relaxes its tension and allows the choke valve to open further because of intake air pushing on the off-set choke valve. Choke valve opening continues until the thermostatic coil is completely relaxed at which point the choke valve is wide open.

When the engine is thoroughly warm, the choke coil pulls the intermediate choke lever completely down and allows the fast idle cam to rotate so that the cam follower drops off the last step of the fast idle cam allowing the engine to run at slow idle speed. When the choke shaft lever moves toward the up position, the rod moves to the end of its travel, pushing the lock-out tang upward and unlocking the 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. To unload the engine the accelerator pedal must be depressed so that the throttle valves are held wide open. 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 carburetor bores to lean out the fuel mixture so that the engine will start.

DIVISION III

SERVICE PROCEDURES

64-21 DISASSEMBLY, CLEANING AND INSPECTION OF ROCHESTER QUADRAJET CARBURETOR

NOTE: **Place carburetor on proper holding fixture.**

a. Air Horn Removal

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

2. Remove clip from upper end of choke rod, disconnect choke rod from upper 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 clip from vacuum break rod and remove rod.

5. Remove nine air horn to bowl attaching screws, two of which are located next to the primary venturi. (Two long screws, five short screws, two countersunk screws).

6. 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 the small 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.

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

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

3. Remove pump lever roll pin then pump lever.

CAUTION: **Air valves and air valve shaft 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 retainer. Remove power piston spring from well.

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 and needle assembly by pulling up on retaining pin.

8. Remove needle and pull clip from float. Remove pull clip from needle.

9. Remove needle seat and gasket.

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

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

12. Remove baffle from secondary side of bowl.

13. Remove vacuum hose from vacuum break assembly and from tube connection on bowl.

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

NOTE: **If further disassembly of choke is necessary, spread the retaining ears on bracket for vacuum break assembly, then remove vacuum break assembly.**

CAUTION: **Do not place vacuum break assembly in carburetor cleaner.**

15. Remove choke rod actuating lever from inside of float bowl well.

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

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

18. Remove throttle body to bowl insulator gasket.

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: **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 seat for wear. Replace if necessary with 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.

64-22 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 hole of 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.

3. Place carburetor on proper holding fixture.

4. Install fuel inlet filter spring, filter, new gasket and inlet nut. Tighten nut securely.

NOTE: If vacuum break diaphragm was removed from bracket, slide vacuum break diaphragm between retaining ears and bend ears down slightly to hold securely.

5. Install fast idle cam on vacuum break 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 choke assembly engaging shaft with hole in actuating lever. Install retaining screw and tighten securely. Remove choke rod from lever for installation later.

7. Install vacuum hose to tube connection on bowl and vacuum break assembly.

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. Install float needle seat and gasket.

12. Install pull clip on needle. Install needle and pull clip on float.

13. Install float, needle and retaining pin assembly in float bowl.

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 gaging point 1/16" back from radius at toe). See Figure 64-38.

NOTE: Make sure retaining pin is held firmly in place and tang of float is seated on float needle. See specifications in paragraph 64-19.

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 re-install making sure that tension spring is connected to top of each metering rod. Install power piston assembly in well with metering rods properly positioned in metering jets. Press down firmly on power piston to make sure the retainer is properly positioned in the bore.

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

17. Install pump return spring in pump well.

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:

Pump lever and retain with roll pin.

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. Do not force air horn assembly on to float bowl as distortion of secondary metering plates will result. A slight sideward movement will center metering rods in metering plates. See Figure 64-48 for proper tightening sequence.

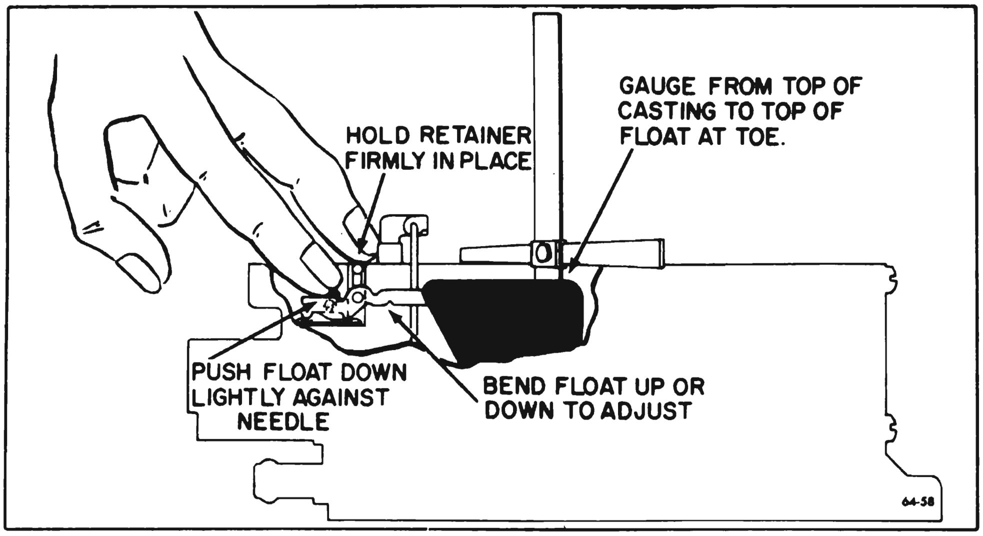

Figure 64-38 Float Level Adjustment

2. Install two long air horn screws, five short screws and two counter- -sunk screws in primary venturi area. All screws must be tightened evenly and securely.

3. Install idle vent actuating rod in pump lever.

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.

7. Install vacuum break rod and clip.

64-23 EXTERNAL ADJUSTMENT OF ROCHESTER QUADRAJET CARBURETOR

a. Accelerator Pump Adjustment

With throttle valves completely closed and pump rod in outer hole

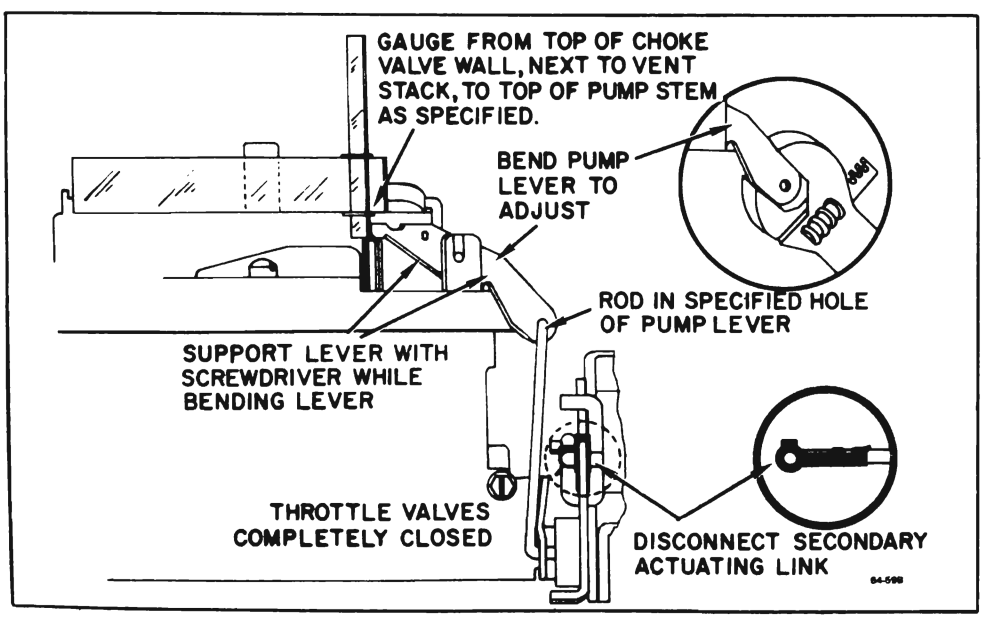

Figure 64-39 Accelerator Pump Adjustment

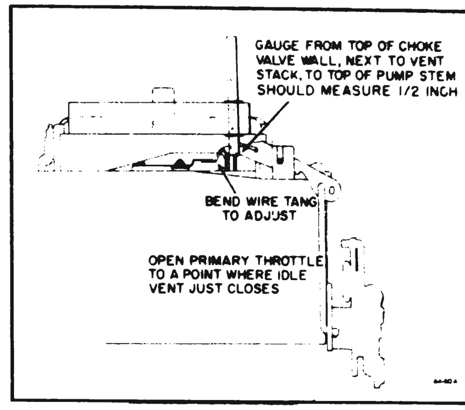

Figure 64-40 Idle Vent Adjustment

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 13/32 inches. Bend pump lever to adjust. See Figure 64-39.

b. Idle Vent Adjustment

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

With adjustable T-scale, measure the distance from the top of choke valve wall, next to bent stack, to top of the pump plunger stem. Bend wire tang on pump lever to obtain 1/2 inch measurement. See Figure 64-40.

c. Fast Idle Adjustment

With engine warm, transmission in drive and cam follwer on low step of fast idle cam, adjust fast idle screw so that engine runs 620 RPM (auto. Transmission) or 720 RPM (manual transmission). See Figure 64-41.

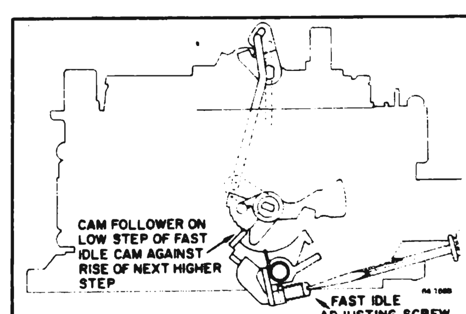

Figure 64-41 Fast Idle Adjustment

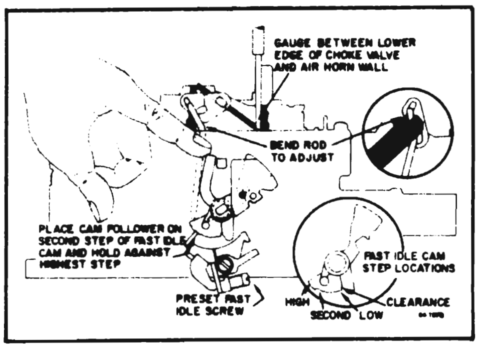

Figure 64-42 Choke Rod Adjustment

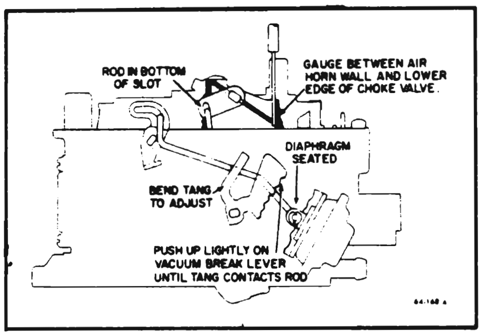

Figure 64-43 Vacuum Break Adjustment

d. Choke Rod Adjustment

With the cam follower on second highest step of fast idle cam, hold it against the high step by pushing up on the vacuum break lever. Dimension between the lower edge of choke valve at choke lever end, should be as listed in paragraph 64-19.

Bend choke rod to adjust. See Figure 64-42.

e. Vacuum Break Adjustment

With vacuum break diaphragm seated and with vacuum break lever held upward lightly, the dimension between the lower edge of choke valve and air horn should be as listed in paragraph 64-19.

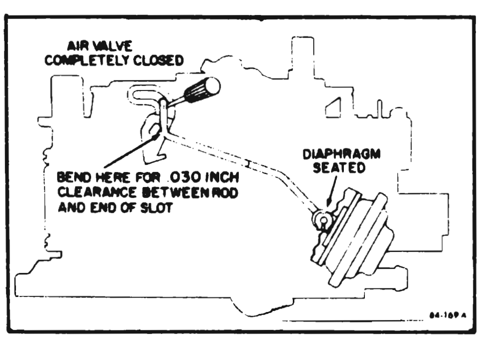

Figure 64-44 Air Valve Dash Pot Adjustment

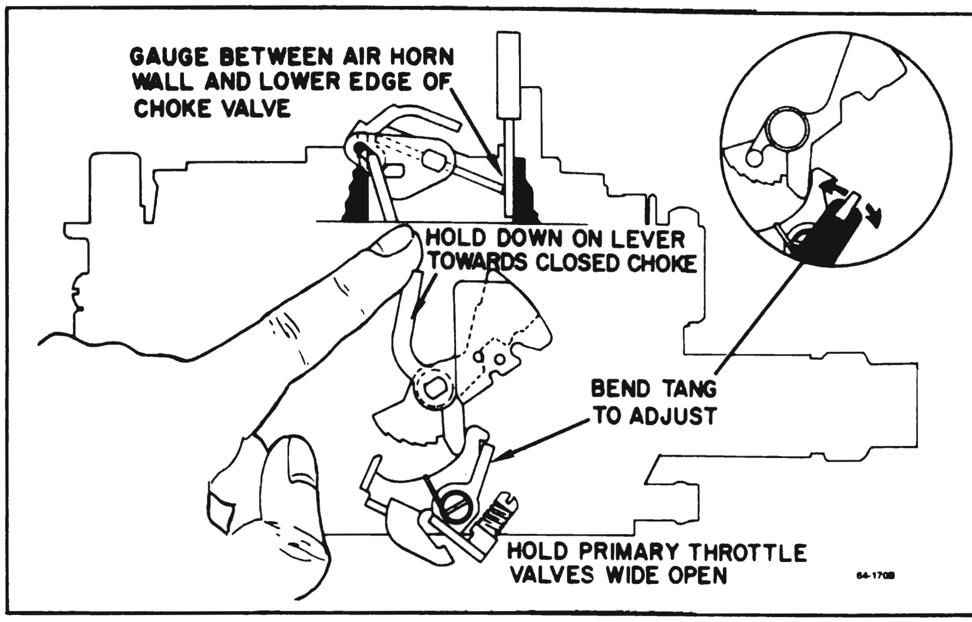

Figure 64-45 Choke Unloader Adjustment

Bend vacuum break tang to adjust. See Figure 64-43.

f. Air Valve Dash Pot Adjustment

With the vacuum break diaphragm seated, there must be .030 inch clearance between the dash pot rod and end of slot in air valve lever.

Bend rod, at air valve end, to adjust. See Figure 64-44.

g. Choke Unloader Adjustment

Push up lightly on vacuum break lever, then open the primary throttle to the wide open position. With the valves in this position, the dimension between the lower edge of choke valve and air horn wall should be .325 inch.

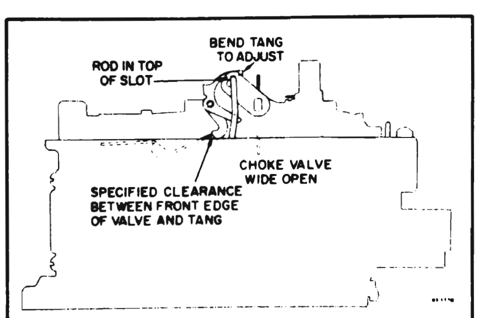

Figure 64-46 Air Valve Lockout Adjustment

Bend the tang on the fast idle lever to adjust. See Figure 64-45.

h. Air Valve Lockout Adjustment

Wth choke valve wide open, apply sufficient force to thermostat lever to move choke rod to top of slot in choke lever. Move air valve in direction to open valve.

Bend upper end of air valve lockout lever, if necessary, to give a specified

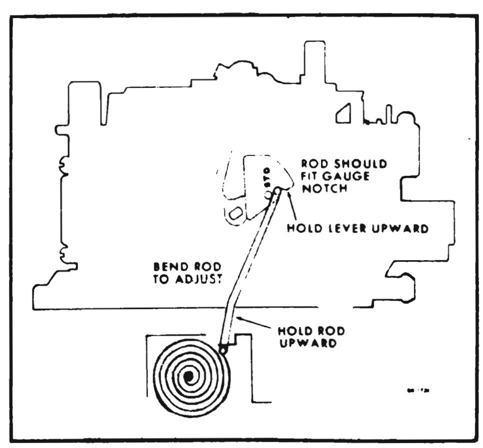

Figure 64-47 Choke Coil Rod Adjustment

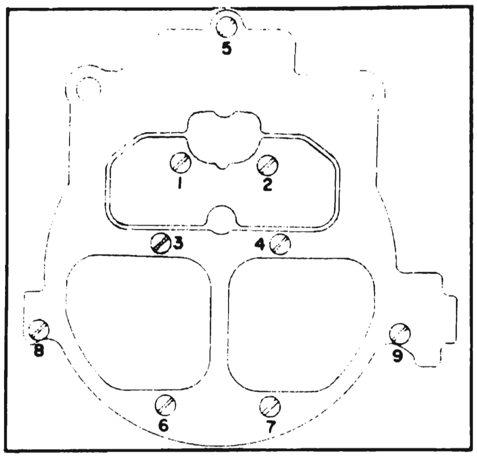

Figure 64-48 - Air Horn Screw Tightening Sequence

opening between lockout tang and front edge of air valve. See Figure 64-46.

i. Choke Operating Rod Adjustment

Hold choke valve completely closed with upward pressure on lever as shown. Pull upward on choke coil rod to end of travel. Rod should fit freely in gaging slot at edge of lever. Bend rod at loop as required to make it fit gaging slot.

Assemble rod in hole marked "STD". Install clip, pinching ends together with pliers. See Figure 64-47.

j. Air Horn Screw Tightening Sequence

To prevent binding of the choke valve or air valve due to distortion of the air horn, the air horn screws must be tightened in the proper sequence. Figure 64-48 show s the proper tightening sequence.

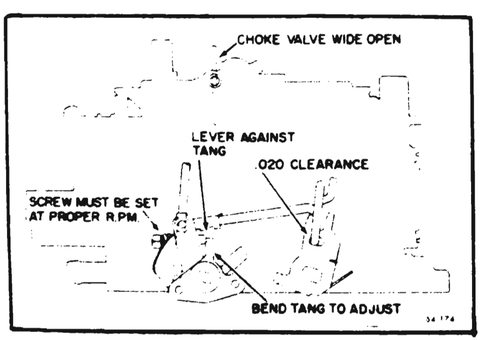

Figure 64-49 - Secondary Closing Adjustment

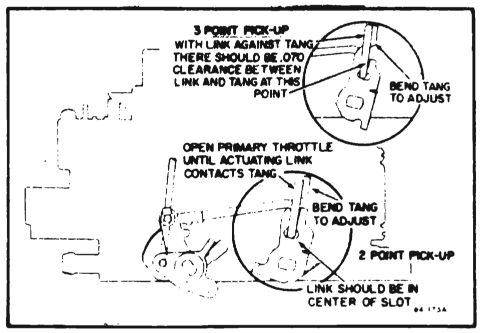

Figure 64-50 - Secondary Opening Adjustment

k. Secondary Closing Adjustment

To insure proper closing of the secondary throttle valves, check the closing adjustment as follows:

1. With engine warm, set curb idle.

2. Check for .020 clearance between actuating link and front of slot in secondary lever with tang of actuating lever against pin. See Figure 64-49.

3. Adjust, if necessary, by bending tang on actuating lever.

For correct opening of the secondary throttle valves, the following adjustment should be checked:

1. Open primary throttle valves until actuating link contacts upper tang on secondary lever. When valves are in this position:

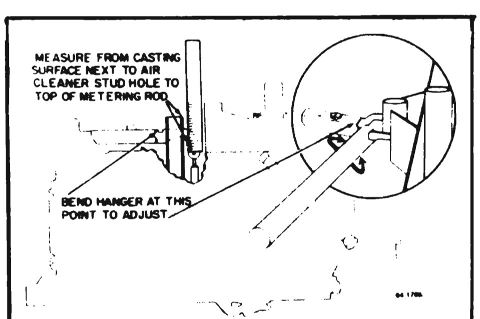

Figure 64-51 - Secondary Metering Rod Adjustment

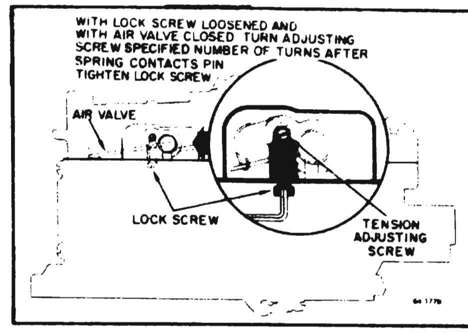

Figure 64-52 - Air Valve Spring Wind-Up Adjustment

(a) *With 2 point pick-up linkage,* bottom of link should be in center of secondary lever slot. See lower part of Figure 64-50.

(b) *With 3 point pick-up linkage,* clearance between link and middle tang should be .070 inch. See upper part of Figure 64-50.

2. Bend upper tang on secondary lever as required to adjust.

m. Secondary Metering Rod Adjustment

1. Check secondary metering rod adjustment by measuring from top of each metering rod to top of air horn casting next to air cleaner stud hole. Measurement should be 53/64 in. See Figure 64-51.

2. Adjust, if necessary, by bending metering rod hanger at point shown in Figure 64-51. Make sure *both* rods are correctly adjusted.

n. Air Valve Spring Wind-Up Adjustment

To adjust air valve spring wind-up, loosen lock screw (Allen screw) and turn adjusting screw counterclockwise to remove all spring tension. With air valve held closed, turn adjusting screw clockwise until torsion spring just contacts pin in shaft; then turn adjusting screw clockwise exactly 1/2 turn. While holding adjusting screw in this position, tighten lock screw. See Figure 64-52.