

Fig. 6B-39 Carter WCFB Four-Barrel Climatic (R) Control Carburetor

## DESCRIPTION

### CARTER WCFB FOUR-BARREL CLIMATIC (R) CONTROL CARBURETOR

**NOTE:** The following illustrations are used by permission of the copyright owner, Carter Carburetor Corporation, St. Louis, Missouri: Figs. 6B-39 through 6B-47 and Figs. 6B-64 through 6B-70.

The Carter Model WCFB carburetor (Fig. 6B-39) is basically two dual carburetors contained in one assembly. The section containing the metering rods, accelerating pump and choke is termed the primary side of the carburetor; the other section, the secondary side. It has five (5) conventional circuits, as have been used in previous carburetors. They are:

- 2—Float Circuits
- 1—Low Speed Circuit
- 2—High Speed Circuits
- 1—Pump Circuit
- 1—Climatic (R) Control (choke) Circuit

#### FLOAT CIRCUITS (FIG. 6B-40)

The purpose of the float circuits is to maintain an adequate supply of fuel at the proper level in the bowls for use by the low speed, high speed, pump and

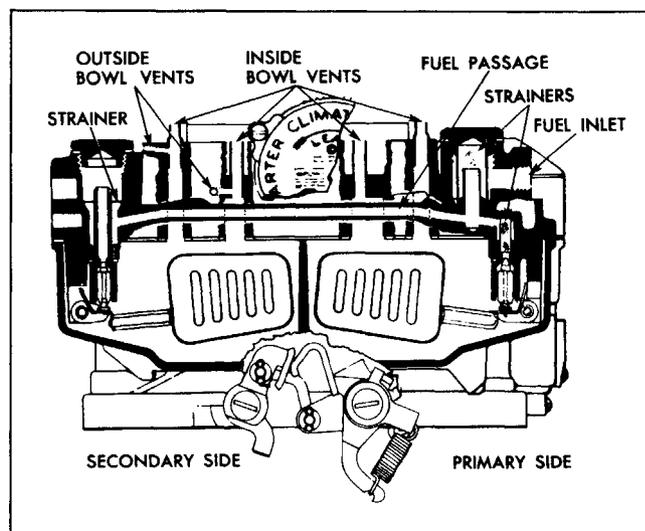


Fig. 6B-40 Float Circuit

choke circuits. Primary and secondary bowls are separated by a partition. A connecting passage along the outside of the body effects a balance of the fuel levels and pressures between the two bowls. The fuel line connection is on the primary side. Fuel is supplied to the primary and secondary intake needles and seats through a passage in the bowl cover. There are three strainer screens in the bowl cover. They are located at the fuel inlet and at both primary and secondary needle seats.

Setting the floats to specifications assures an adequate supply of fuel in the bowls for all operating conditions. Float adjustments must be made with the bowl cover gasket removed and should be checked vertically (specified distance between bowl cover and bottom of floats) and laterally (sides of floats should just clear the arms of gauge) (see adjustment—page 6B-33). Correct lateral adjustment is important. If the floats are misaligned, they may bind or drag against the walls of the bowl.

Intake needles and seats are carefully matched during manufacture. Do not use the primary needle in the secondary seat or vice versa. To avoid unnecessary bending, floats should be reinstalled in their original positions and then adjusted.

The bowls are vented to the inside of the air cleaner and also to atmosphere. The bowl vents are calibrated to provide proper pressure above the fuel at all times. The bowl cover gasket seals the fuel bowl, idle and vacuum passages. To assure a positive seal, always use a new bowl cover gasket when re-assembling. An air leak at this point can result in a performance or economy complaint.

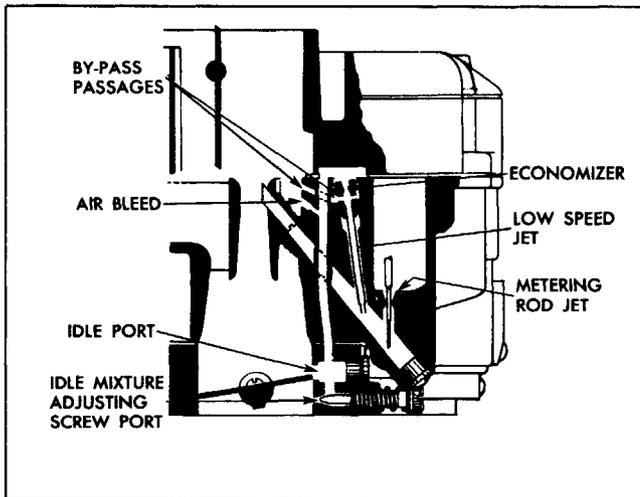


Fig. 6B-41 Low Speed Circuit

### LOW SPEED CIRCUIT (FIG. 6B-41)

Fuel for idle and early part throttle operation is metered through the low speed circuit.

Fuel enters the idle wells through the metering rod jets on the primary side of the carburetor. No idle system is used in the secondary side of the carburetor.

The low speed jets measure the amount of fuel for idle and early part throttle operation. The air by-pass, economizer, and idle air bleed are carefully calibrated and serve to break up the liquid fuel and mix it with air as it moves through the passages to the idle ports and idle adjustment screw ports. Turning the idle adjustment screws toward their seats reduces the quantity of fuel mixture supplied by the idle circuit.

The idle ports are slot shaped. As the throttle valves are opened, more of the idle ports are uncovered allowing a greater quantity of fuel and air mixture to enter the carburetor bores. The secondary throttle valves remain seated at idle.

Air leakage at the gasketed surface surrounding the low speed mixture passages or between the flange and manifold may cause poor idle and low speed operation. Always use new gaskets.

All by-passes, bleeds, economizers, idle ports, idle mixture adjustment screw ports, as well as the bores of the flange must be clean and free of carbon. Obstructions will cause poor low speed engine operation. Worn or damaged idle adjustment screws or low speed jets should be replaced.

To combat engine stalling during warm-up on cool, humid days, caused by "carburetor icing", exhaust gas is circulated through a passage in the base of the

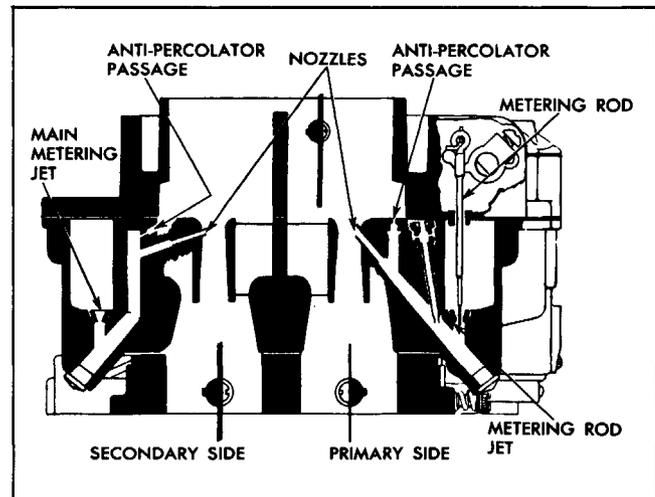


Fig. 6B-42 High Speed Circuits

carburetor flange. The heat transferred is sufficient to eliminate ice formation at the throttle valve edges and idle ports.

### HIGH SPEED CIRCUITS (FIG. 6B-42)

Fuel for part throttle and full throttle operation is supplied through the high speed circuits. Main discharge nozzles are permanently installed and must not be removed in service.

#### PRIMARY SIDE

The position of the metering rods in the metering rod jets controls the amount of fuel flowing in the high speed circuit of the primary side of the carburetor. The position of the metering rods is dual controlled; mechanically by movement of the throttle, and by manifold vacuum applied to the vacuum piston on the vacuum link.

#### MECHANICAL METERING ROD ACTION

During part throttle operation, manifold vacuum pulls the vacuum piston, link and metering rod assembly down holding the vacuum link against the metering rod countershaft arm (Fig. 6B-43). Movement of the metering rods will then be controlled by the metering rod countershaft arm which is connected to the throttle shaft. This is true at all times that the vacuum under the piston is strong enough to overcome the tension of the vacuum spring.

#### VACUUM METERING ROD ACTION

Under any operating condition (acceleration, hill climbing, etc.) when the tension of the vacuum

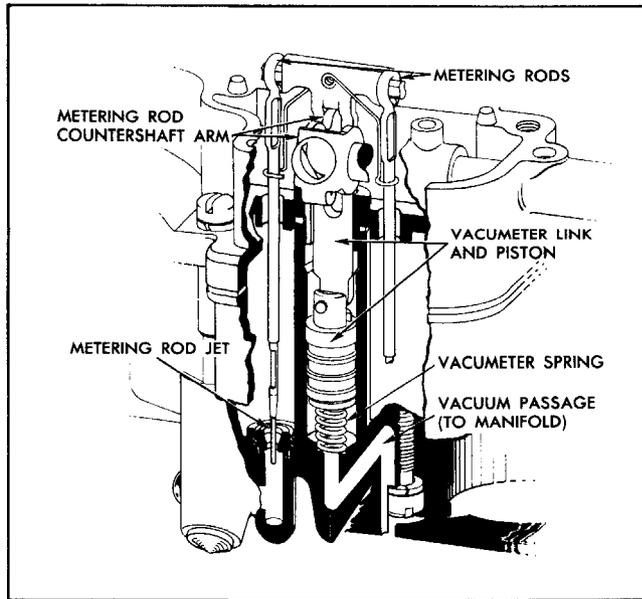


Fig. 6B-43 Metering Rods and Vacuum Piston

spring overcomes the pull of vacuum under the piston, the metering rods will move toward their wide open throttle or power position.

## SECONDARY SIDE

Fuel for the high speed circuit of the secondary side is metered at the secondary main metering jets (no metering rods used).

Throttle valves in the secondary side remain closed until the primary throttle valves have been opened a predetermined amount. They arrive at wide open throttle position at the same time as the primary valves. This is accomplished by linkage between the throttle levers.

Secondary throttle valves are locked closed during choke operation to assure proper cold engine starting and warm-up.

## ANTI-PERCOLATOR

To prevent vapor bubbles in the nozzle passages and low speed wells from forcing fuel out of the nozzles, anti-percolator passages with calibrated vents are used. Their purpose is to vent the vapors and relieve the pressure before it is sufficient to push the fuel out of the nozzles and into the intake manifold. Anti-percolator vent plugs and bushings are permanently installed and must not be removed in service.

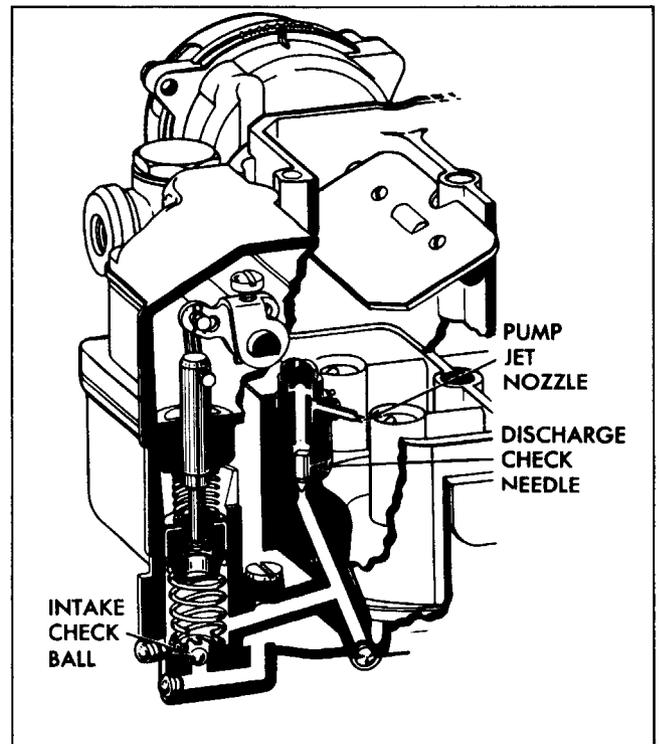


Fig. 6B-44 Pump Circuit

## PUMP CIRCUIT (FIG. 6B-44)

The pump circuit is located only in the primary side of the carburetor.

The accelerating pump circuit provides the measured amount of fuel necessary to ensure smooth engine operation during acceleration at speeds below approximately 30 MPH.

When the throttle is closed the pump plunger moves upward in its cylinder and fuel is drawn into the pump cylinder through the inlet passage. The discharge needle is seated at this time to prevent air being drawn into the cylinder. When the throttle is opened the pump plunger moves downward forcing fuel out through the discharge passage, past the discharge needle, and out of the pump jets. When the plunger moves downward the inlet valve is closed preventing fuel from being forced back into the bowl.

If the throttle is opened suddenly, the plunger shaft will telescope compressing the pump spring. The spring will then push the plunger down resulting in a smoother pump discharge of longer duration.

At speeds above approximately 30 MPH pump discharge is no longer necessary to ensure smooth acceleration. When the throttle valves are opened a predetermined amount, the pump plunger bottoms in the pump cylinder eliminating pump discharge.

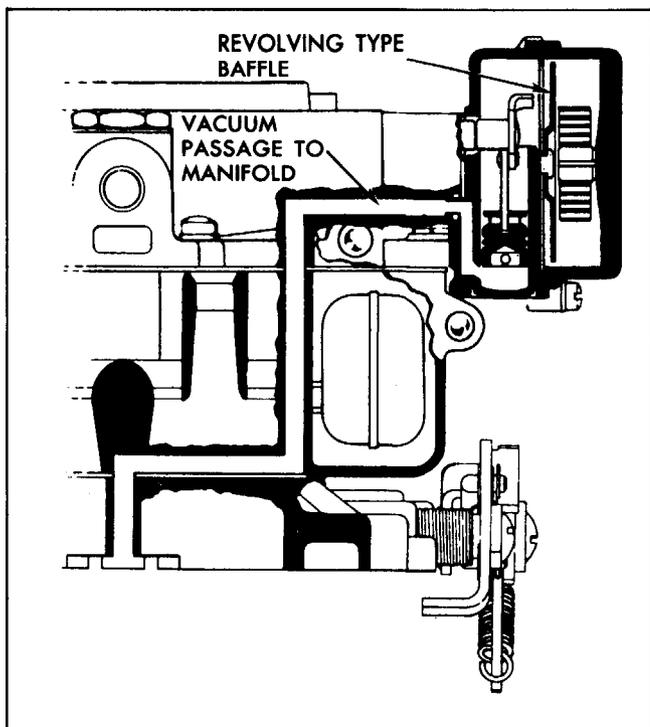


Fig. 6B-45 Choke Circuit

#### CHOKE CIRCUIT (FIG. 6B-45)

The Climatic (R) control circuit provides a correct mixture necessary for quick cold engine starting and warm-up.

When the engine is cold, tension of the thermostatic coil holds the choke valve closed. When the engine is started, air velocity against the offset choke valve causes the valve to open slightly against the thermostatic coil tension. Intake manifold vacuum applied to the choke piston also tends to pull the choke valve open. The choke valve assumes a position where tension of the thermostatic coil is balanced by the pull of vacuum on the piston and air velocity on the offset choke valve.

When the engine starts, slots located in the sides of the choke piston cylinder (Fig. 6B-46) are uncovered allowing intake manifold vacuum to draw warm air from the hot air tube, located in the exhaust crossover passage of the intake manifold, through the Climatic (R) control housing. The flow of warm air in turn heats the thermostatic coil and causes it to lose some of its tension. The thermostatic coil loses its tension gradually until the choke valve reaches wide open position.

A secondary baffle plate revolves with the choke valve. The revolving baffle prevents the warm air

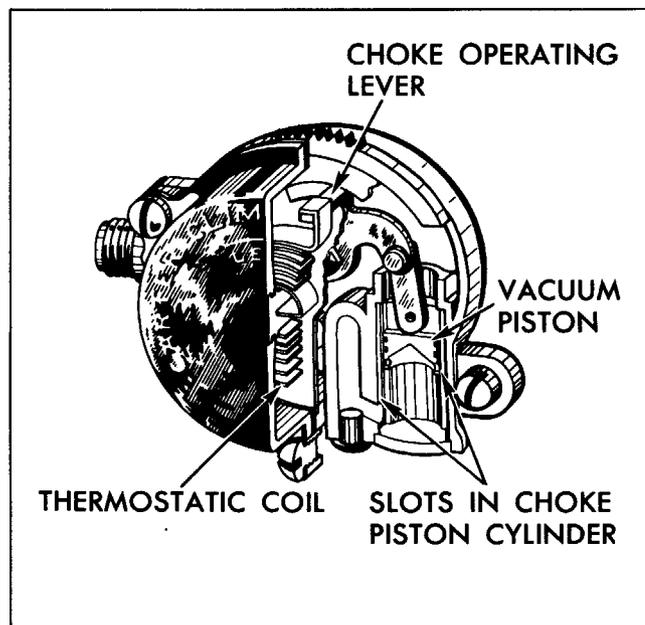


Fig. 6B-46 Choke Housing Detail

entering the housing from striking the thermostatic coil until the choke valve opens a predetermined amount. This serves to delay the opening of the choke.

When the engine is accelerated during the warm-up period, the corresponding drop in manifold vacuum applied to the choke piston allows the thermostatic coil to momentarily close the choke, providing a richer mixture.

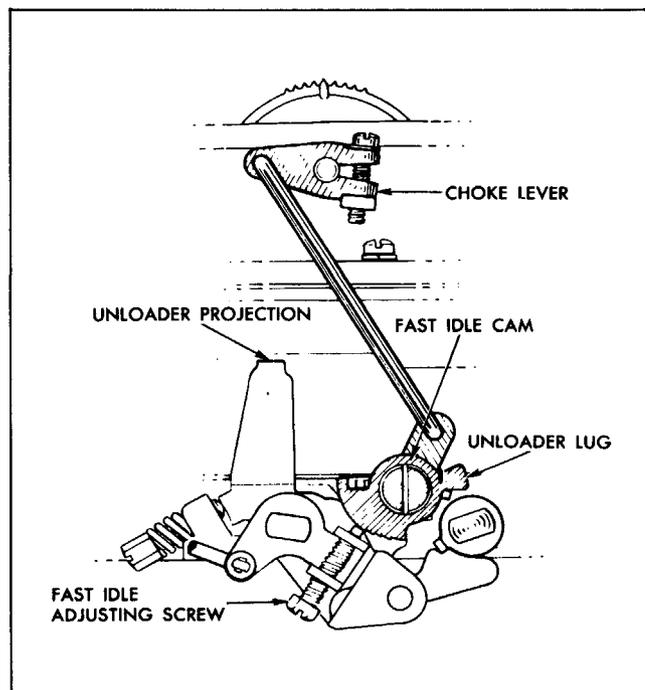


Fig. 6B-47 Choke Linkage

During the warm-up period it is necessary to provide a fast idle speed to prevent engine stalling. This is accomplished by a fast idle cam which is rotated by a connector rod attached to the choke shaft (Fig. 6B-47). The fast idle cam prevents the primary throttle valves from returning to a normal warm engine idle position while the Climatic (R) control is in operation.

During the starting period if the engine becomes flooded the choke valve can be partially opened manually. This can be accomplished by depressing the accelerator pedal to the floor. The unloader projection on the throttle lever will rotate the fast idle cam and in turn partially open the choke valve.

## ADJUSTMENTS ON CAR

All adjustments with the exception of Fast Idle Adjustment, are included in the "OVERHAUL AND ADJUSTMENTS" procedure and can be done with the carburetor on the car. The fast idle can be adjusted on the car as follows:

1. Start engine and run until engine reaches normal temperature.
2. Move fast idle cam so that highest step is under end of fast idle screw.
3. Observing tachometer, adjust fast idle screw to give an engine speed of 1900 RPM.

## OVERHAUL AND ADJUSTMENTS

Flooding, stumble on acceleration and other performance complaints are, in many instances, caused by the presence of dirt, water or other foreign matter in the carburetor. To aid in diagnosing the cause of the complaint, the carburetor should be carefully removed from the engine without draining the fuel from the bowl. The contents of the fuel bowl may then be examined for contamination as the carburetor is disassembled. **CAUTION:** Whenever the carburetor is removed from the engine, care must be exercised to avoid damaging the throttle valves, as the lower edge of the valves project below the throttle flange when the valves are in the open position.

The following is a step-by-step sequence by which the Carter model WCFB Carburetor may be completely disassembled and reassembled. Adjustments may be made and the various parts of the carburetor may be serviced without completely disassembling the entire unit.

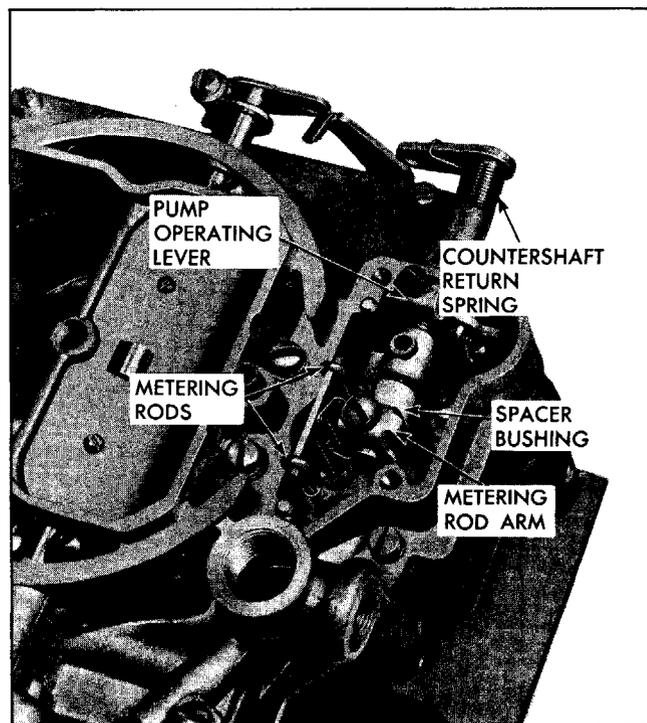


Fig. 6B-48 Metering Rod and Pump Linkage

## DISASSEMBLY OF AIR HORN

1. Remove gasoline strainer nut and gasket assemblies from primary and secondary sides and screen from primary side.
2. Remove throttle connector rod.
3. Remove choke connector rod.
4. Remove 2 metering rod housing dust cover attaching screws, dust cover and gasket.
5. Unhook countershaft return spring (Fig. 6B-48).
6. Loosen, but do not remove screw holding the pump operating lever to pump countershaft.
7. Loosen, but do not remove metering rod arm screw.
8. Slide pump countershaft and lever assembly from air horn assembly.
9. Remove pump arm and link assembly, spacer bushing and metering rod arm from metering rod housing.
10. Remove both metering rods.
11. Remove choke lever from choke shaft.
12. Remove 3 choke coil housing screws and retainers.

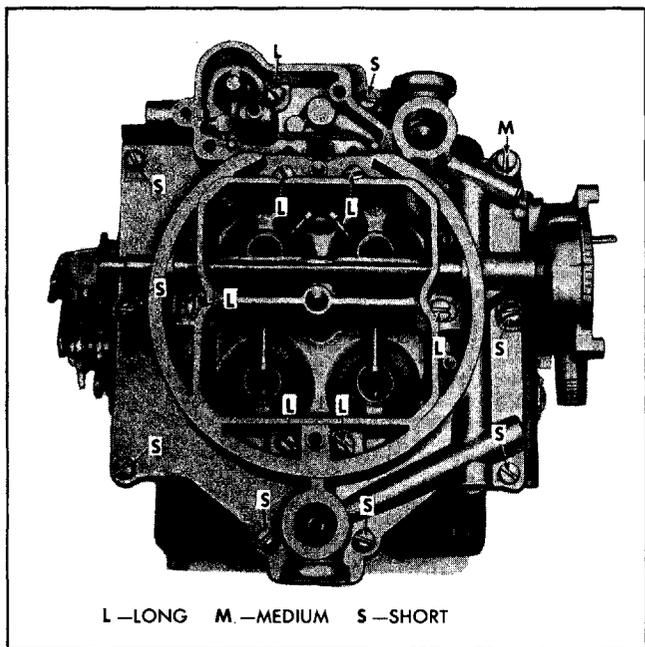


Fig. 6B-49 Location of Air Horn Attaching Screws

13. Remove choke coil housing, gasket and then baffle plate.

**NOTE:** Under normal service the carburetor air horn may be cleaned without further disassembly. If complete disassembly is necessary, perform operations a, b, and c.

a. File off staked end of choke valve screws. Remove screws and valve.

b. Rotate choke shaft counter-clockwise, and remove shaft and piston assembly.

c. Remove 3 self-tapping screws, choke piston housing and gasket.

14. Remove 16 air horn attaching screws (Fig. 6B-49).

15. Carefully remove air horn assembly with gasket and attached parts by lifting straight up from carburetor body assembly (Fig. 6B-50).

**NOTE:** To avoid bending floats, be sure bowl cover gasket is not sticking to body casting.

16. Remove primary float hinge pin, float assembly, and intake needle. **IMPORTANT:** Mark and group float assemblies with needle and needle seat together as units. Extreme care should be used to avoid mixing needles and seats.

17. Remove secondary float hinge pin, float assembly and intake needle in the same manner.

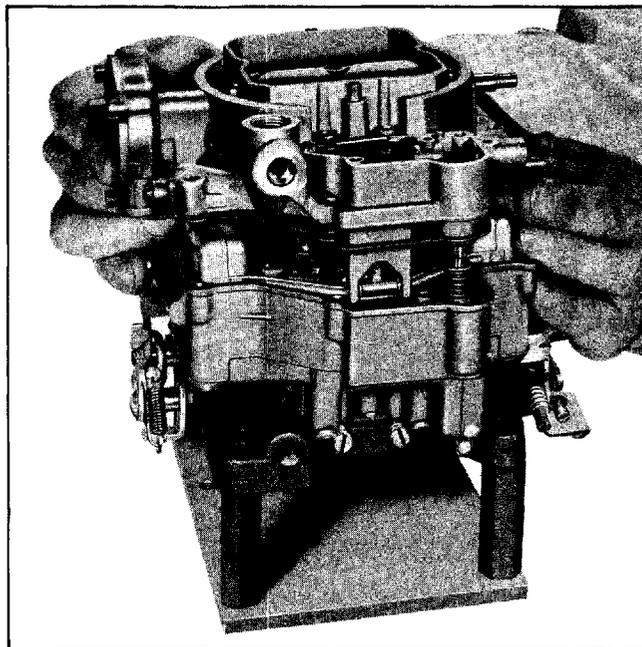


Fig. 6B-50 Removing Air Horn Assembly

18. Remove primary needle seat with strainer screen and gasket.

19. Remove secondary needle seat, strainer screen, and gasket.

20. Remove vacuumer piston and vacuumer piston link.

21. Remove gasket from air horn.

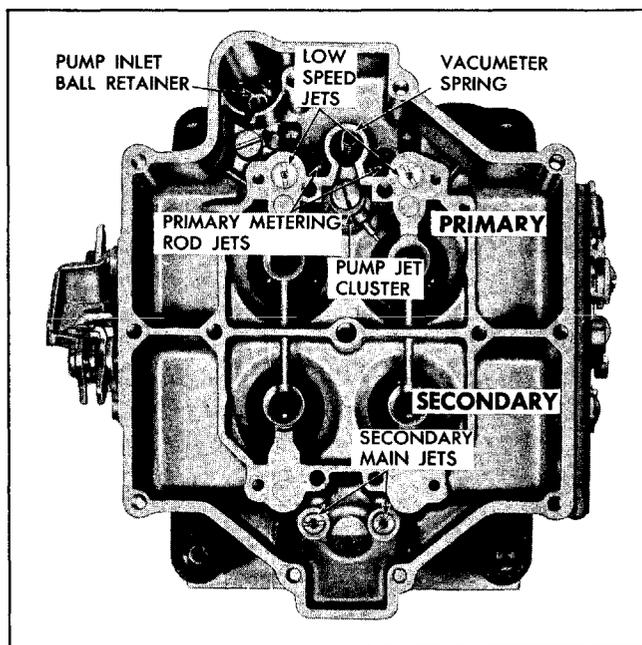


Fig. 6B-51 Carburetor Body—Top View

**DISASSEMBLY OF CARBURETOR BODY**

1. Remove pump plunger assembly and lower pump spring.

2. Remove vacuumer spring (Fig. 6B-51).

3. Check the fuel in the bowl for contamination by dirt, water, gum or other foreign matter, then drain fuel from bowl.

**NOTE:** Magnet swept around bottom of bowl while fuel is still present will pick up iron oxide dust which may have contributed to float needle leaks.

4. Remove pump jet cluster attaching screw, then remove cluster and gasket.

5. Invert carburetor and remove small brass pump discharge needle.

6. Remove pump inlet ball retainer and check ball from bottom of pump cylinder.

**NOTE:** Use  $\frac{5}{16}$ " six point socket to pry sideways on dome of retainer to loosen it.

7. Remove pump passage screw plug and gasket.

8. Remove 2 primary metering rod jets (located on pump cylinder side of carburetor).

9. Remove 2 secondary main jets. **NOTE:** Primary metering rod jets have larger openings than the secondary main jets. Never mix these jets.

10. Remove two low speed jets (primary side).

**NOTE:** The anti-percolator vent plugs and bushings, and main discharge nozzles are pressed in place and should not be removed.

11. Remove the 6 throttle flange to carburetor body attaching screws (Fig. 6B-52).

12. Remove throttle flange.

13. Remove body flange gasket.

**DISASSEMBLY OF THROTTLE FLANGE**

1. Remove idle mixture adjusting screws with springs. **NOTE:** Under normal service the carburetor flange may be cleaned without further disassembly. If complete disassembly is necessary, perform the remaining operations.

2. Remove fast idle cam screw, fast idle cam assembly, lockout arm and lockout arm spring.

3. Remove primary to secondary connector rod pin springs and washers, then remove rod.

4. Remove primary throttle shaft screw and washer.

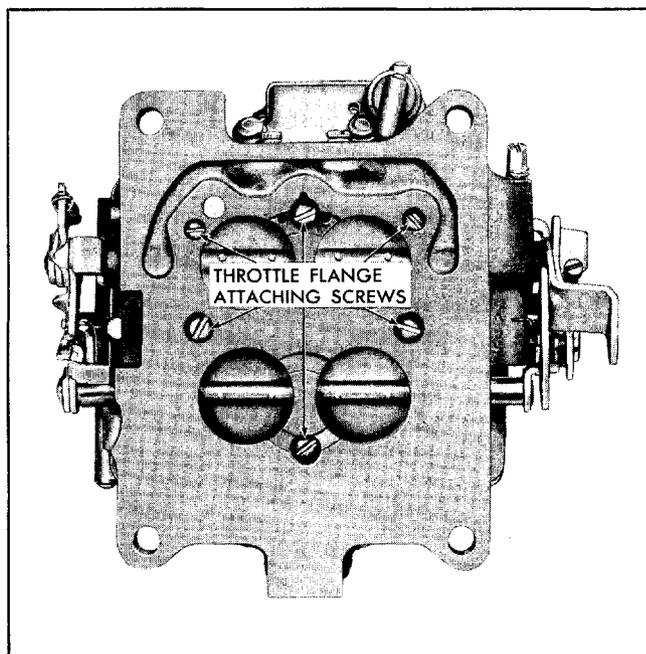


Fig. 6B-52 Location of Throttle Flange Attaching Screws

5. Remove primary throttle levers and spring as an assembly.

6. Remove primary throttle shaft spring thrust washer.

7. Remove secondary throttle shaft screw and washer.

8. Remove secondary throttle lever, and secondary throttle return spring.

9. File off staked ends of throttle valve attaching screws and remove screws and throttle valves from the four bores.

10. Remove primary and secondary throttle shafts.

11. Remove idle speed screw and spring.

**CLEANING AND INSPECTION OF PARTS**

Dirt, gum, water or carbon contamination in the carburetor or on the exterior moving parts of a carburetor are often responsible for unsatisfactory performance. For this reason, efficient carburetion depends upon careful cleaning and inspection while servicing.

1. Thoroughly clean carburetor castings and all metal parts in clean carburetor cleaning solution. **CAUTION:** Composition and plastic parts such as thermostatic coil housing and pump plunger should not be immersed in cleaner.

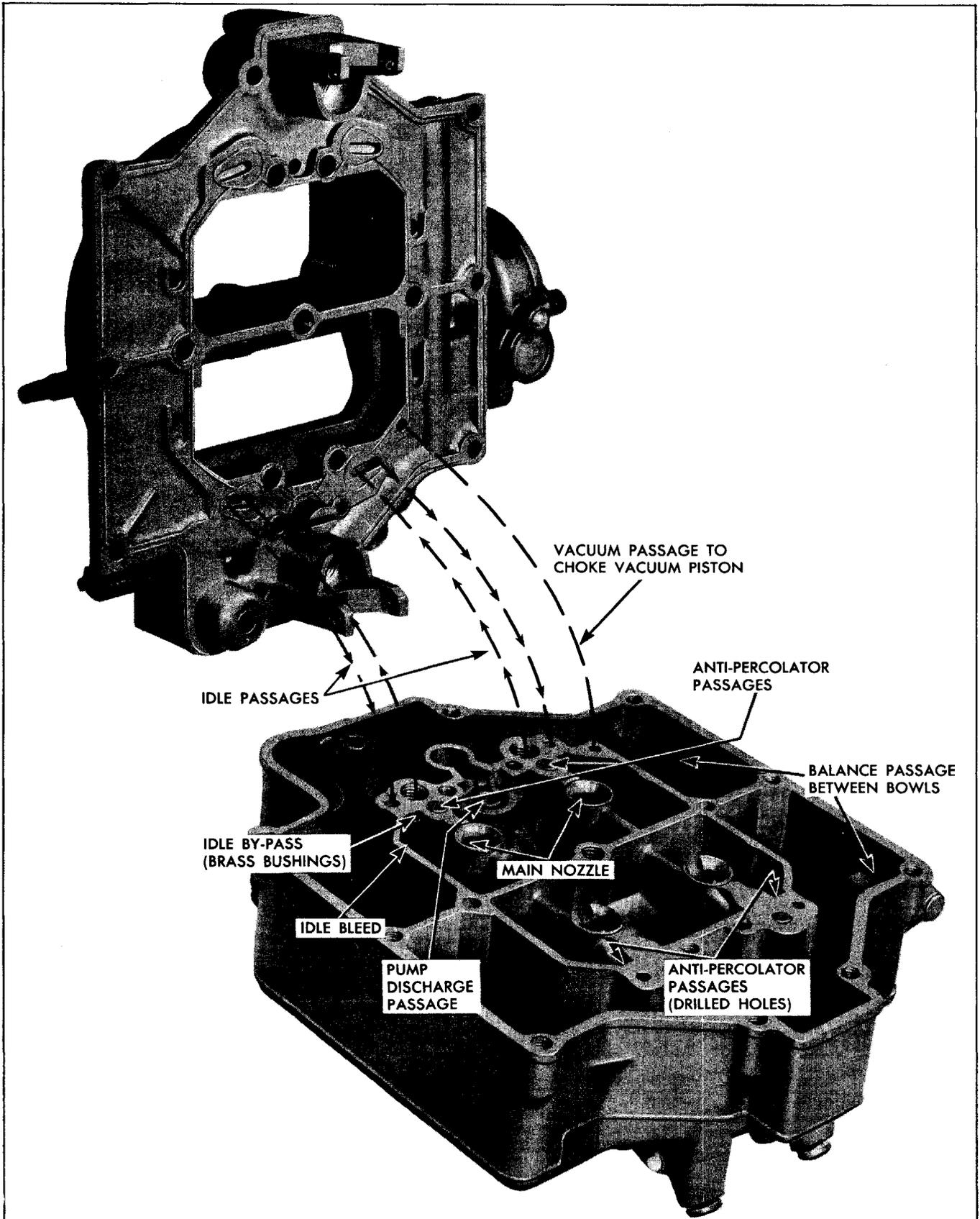


Fig. 6B-53 Passage Identification—Body to Air Horn

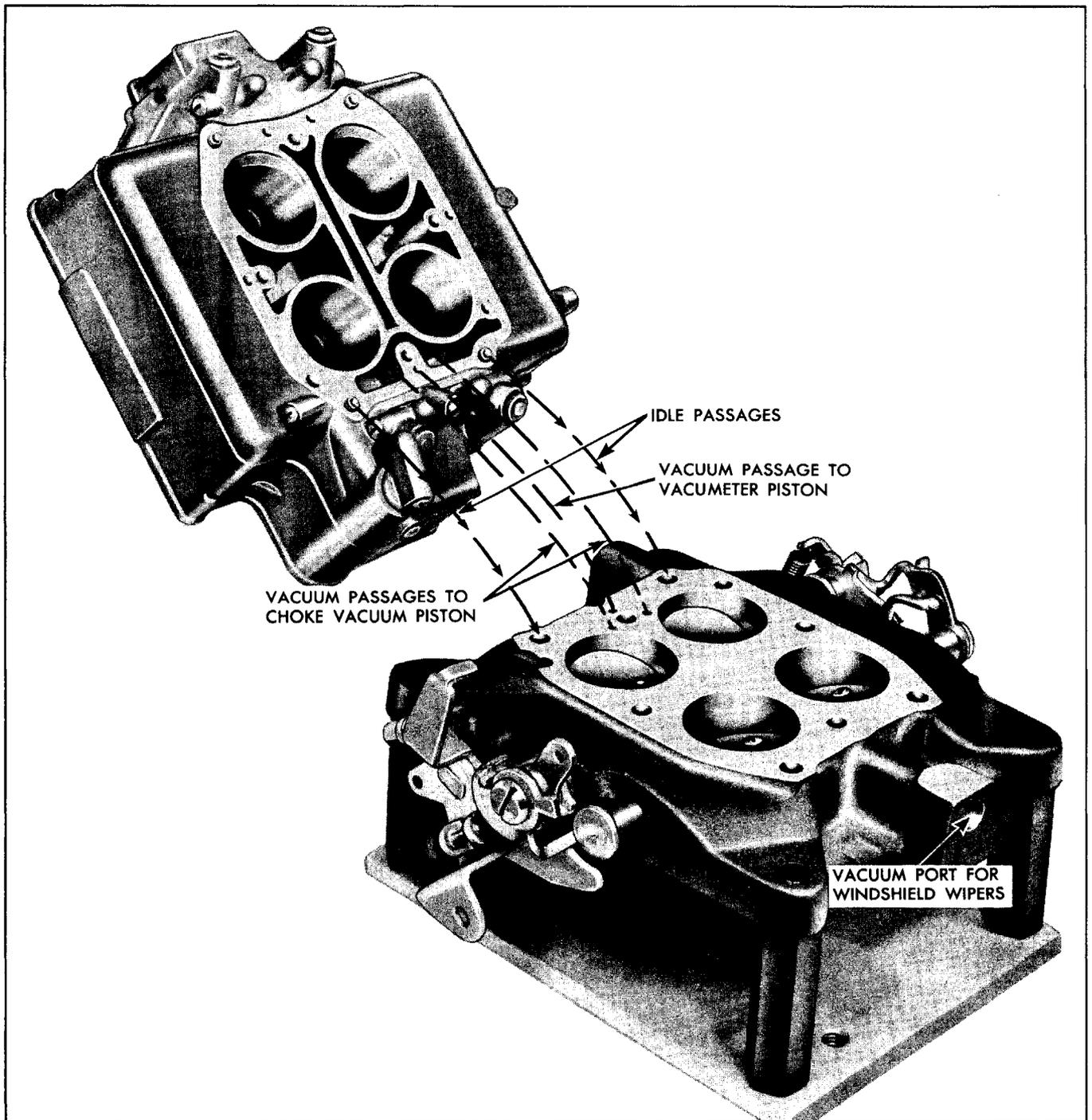


Fig. 6B-54 Passage Identification—Body to Throttle Flange

2. Blow out all passages (Figs. 6B-53-6B-55) in casting with compressed air and blow off all parts so they are free of cleaner (be sure to follow instructions furnished with cleaning solution). **CAUTION:** Do not use drills or wire to clean out jets or ports as this may enlarge the opening and affect carburetor operation.

3. Carefully inspect parts for wear and replace those which are worn. Check the following specific points:

- a. If choke housing was disassembled in steps 13 a, b, and c for complete overhaul, remove Welch plug in the bottom of the choke piston housing. Plug can be removed by piercing center with a small pointed

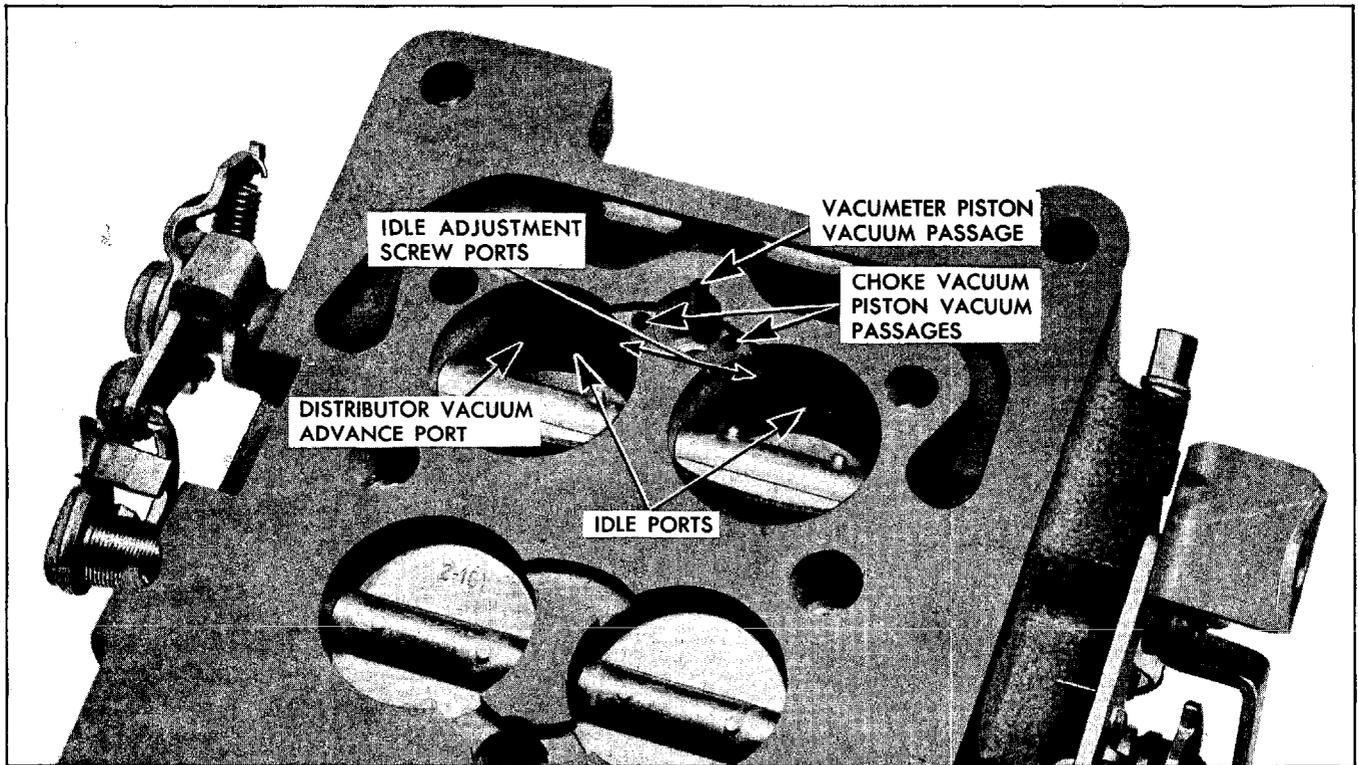


Fig. 6B-55 Passage at Manifold Side of Throttle Flange

instrument and prying outward. Care should be exercised so that damage will not result to the casting when removing this plug. Before installing new plug, carbon present in piston cylinder slots should be removed and the Welch plug seat should be carefully cleaned.

b. Remove carbon from bores of throttle flange with sandpaper; never use emery cloth.

c. Inspect needle or seat for wear; if worn, both must be replaced.

d. Inspect float pin for excessive wear.

e. Inspect float for dents and excessive wear on lip. Check for fluid inside float by shaking. Replace float if any of above are present.

f. Inspect air horn for wear in countershaft hole (hole worn egg shaped).

g. Inspect throttle shafts for excessive wear (looseness or rattle in body flange casting).

h. Inspect idle mixture adjusting screws for burrs. Replace if burred.

i. Inspect metering rods and jets for bent rods and signs of wear, and replace if bent rods or wear are noted. Always replace both metering rod and jet; do not install new rod in old jet or vice versa.

j. Inspect pump plunger assembly. If leather is not in good condition, replace plunger.

k. Inspect gasketed surfaces between body and air horn, and between body and flange. Small nicks or burrs should be smoothed down to eliminate air or fuel leakage. Be especially particular when inspecting choke vacuum passages and the top surface of the inner wall of the bowl.

4. Check part numbers of jets, metering rods, etc. (where stamped with Carter part number), against Master Parts Catalog to make sure correct parts will be installed.

#### ASSEMBLY OF THROTTLE FLANGE

1. Install idle mixture adjusting screws and springs finger tight, then back out 1 turn. **CAUTION:** Do not tighten idle mixture adjusting screws more than finger tight.

If throttle flange was fully disassembled, reassemble as follows:

2. Install primary and secondary throttle shafts.

3. Install primary throttle valves from top or body side, with trade mark (C in circle) toward idle ports when viewing flange from manifold side. Use **NEW**

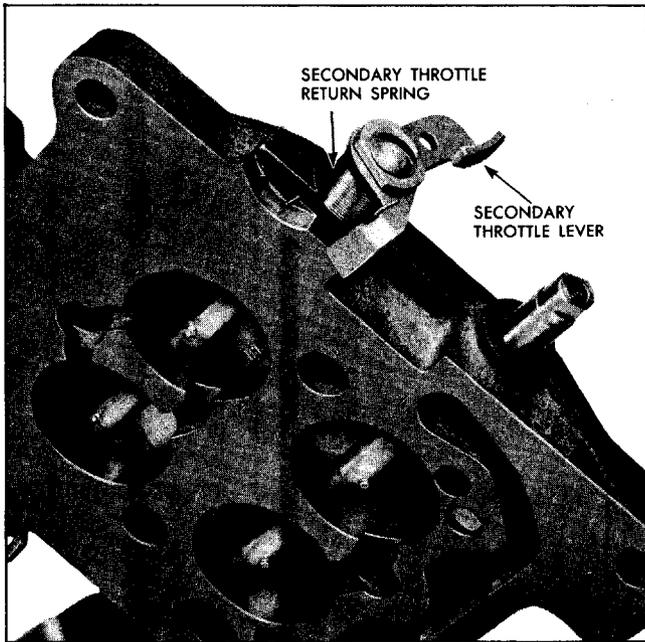


Fig. 6B-56 Proper Assembly of Secondary Throttle Lever

screws. Install secondary throttle valves with trade mark (C in circle) away from center of carburetor when viewing flange from manifold side.

4. Install secondary throttle return spring and secondary throttle lever (Fig. 6B-56).

5. Install secondary throttle washer and screw (Fig. 6B-56).

6. Wind spring  $1\frac{1}{2}$  turns with tag wire and hook over secondary throttle lever (Fig. 6B-56).

7. Install primary shaft thrust washer and inner throttle shaft arm (Fig. 6B-57).

8. Install outer throttle lever (Fig. 6B-58).

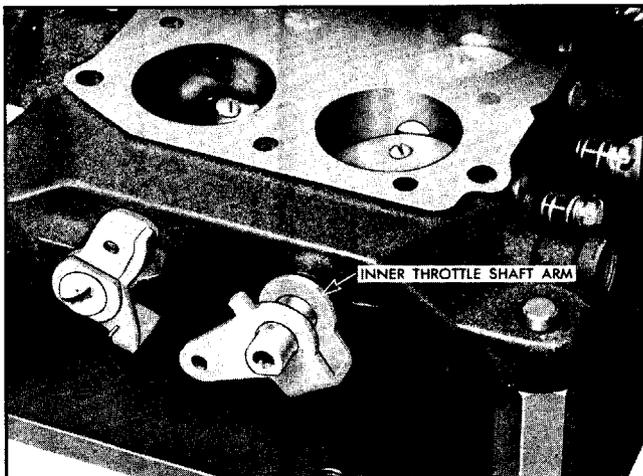


Fig. 6B-57 Inner Throttle Shaft Arm Installed

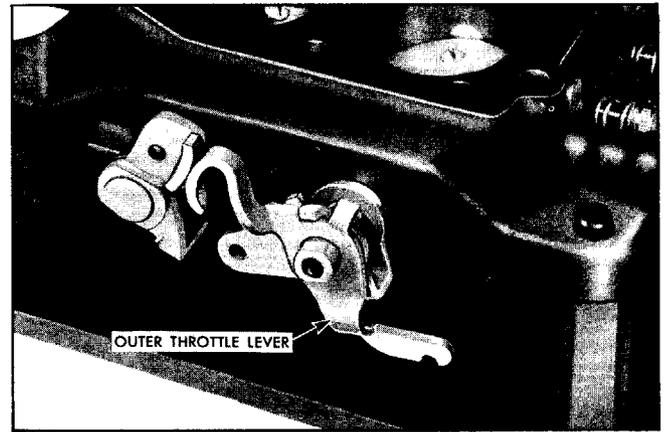


Fig. 6B-58 Outer Throttle Lever Installed

9. Install throttle shaft dog, washer, and screw. Hook throttle flex spring on outer throttle lever and throttle shaft dog (Fig. 6B-59).

10. Using a flat washer on each side of the levers, install connector rod (Fig. 6B-59). Retain with pin springs.

11. Install fast idle cam assembly, consisting of secondary lockout lever spring, secondary lockout lever, lower choke lever, fast idle cam and spring and attaching screw as follows:

a. Assemble fast idle cam and spring assembly and lower choke lever and place over attaching screw and set aside (Fig. 6B-60).

b. Hook secondary lockout lever spring in lockout lever and place lever against boss with spring hooked on casting (Fig. 6B-61).

c. Install fast idle cam assembly with screw (assembled in step a) in position on boss (Fig. 6B-62). Make sure cam and levers operate freely.

12. Install idle speed screw and spring.

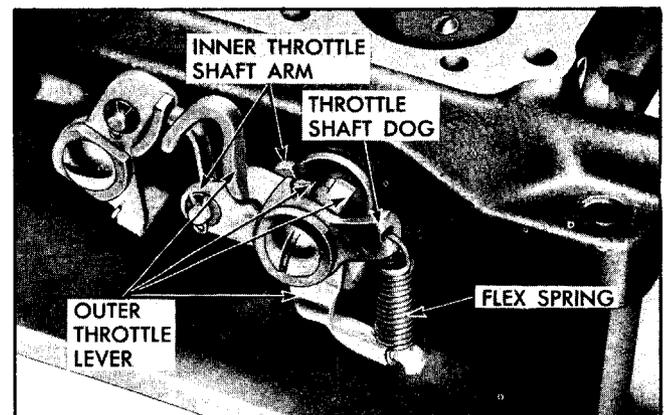


Fig. 6B-59 Proper Assembly of Primary and Secondary Throttle Levers

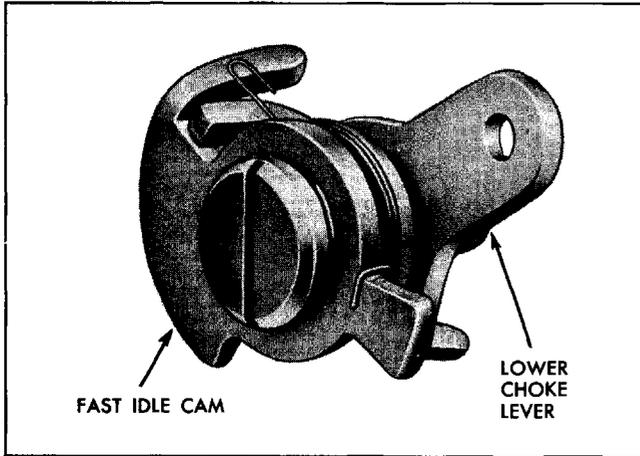


Fig. 6B-60 Fast Idle Cam and Lower Choke Lever

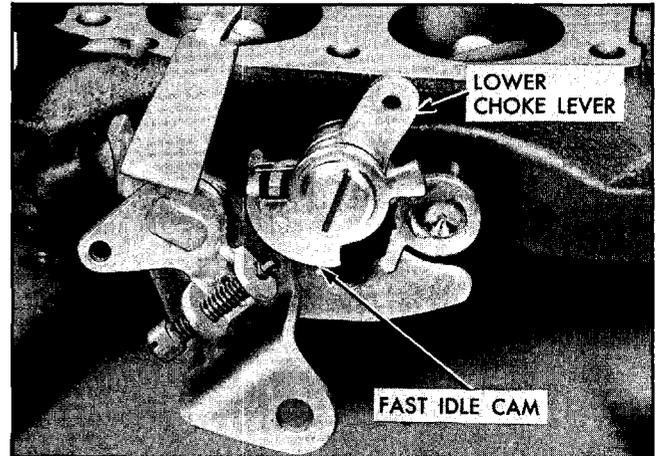


Fig. 6B-62 Fast Idle Cam and Secondary Lockout Assembly

### ASSEMBLY OF CARBURETOR BODY

1. Place NEW body to flange gasket on carburetor body being sure slot in gasket is lined up with vacuum passage.

2. Install throttle flange on carburetor body with 6 attaching screws and lock washers (Fig. 6B-52).

3. Install primary metering rod jets. NOTE: The primary metering rod jets have the large holes and must be installed in the primary side of the carburetor. This is the pump cylinder side of the carburetor body.

4. Install secondary main jets.

5. Install 2 low speed jets on primary side of body.

NOTE: Low speed jets are mounted at a slight angle.

6. Install steel pump inlet ball check and retainer (Fig. 6B-51). Press retainer into place with a  $\frac{5}{16}$ " six point socket.

7. Install pump passage screw plug and gasket.

8. Install brass pump discharge check needle (Fig. 6B-63). Be sure needle is installed point down.

9. Install pump discharge cluster gasket, cluster assembly and attaching screw.

10. Install vacuum spring in vacuum bore.

NOTE: The vacuum spring affects both economy and performance. If vacuum piston spring appears to be damaged or distorted, it should be replaced. If any doubt exists, use a new spring for comparison.

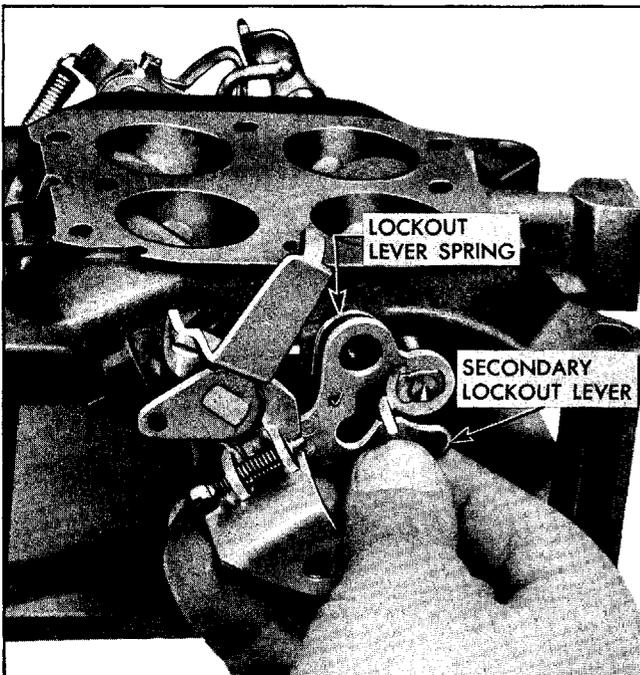


Fig. 6B-61 Positioning Secondary Lockout Lever

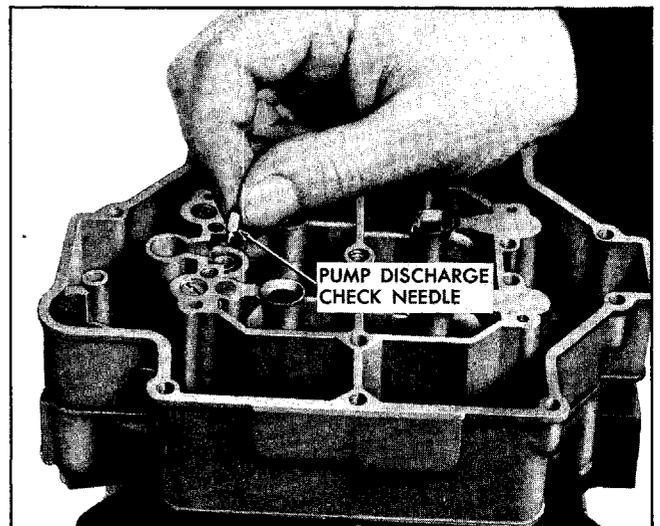


Fig. 6B-63 Installing Pump Discharge Check Needle

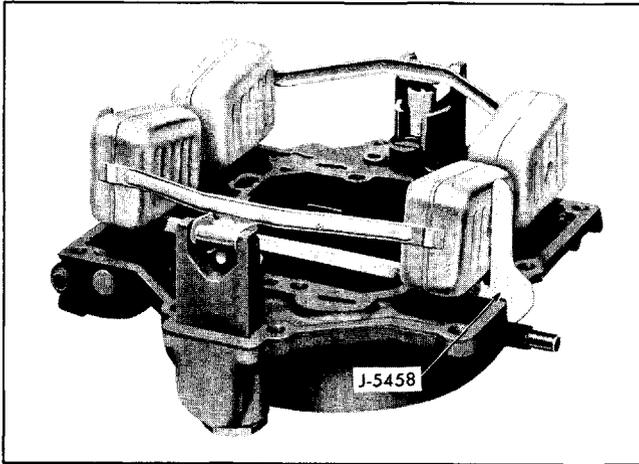


Fig. 6B-64 Float Gauge in Position for Checking Floats

11. Install lower pump spring in pump cylinder.

#### ASSEMBLY OF AIR HORN

1. Install strainer screen in primary intake needle seat. Then install primary needle and seat with new gasket. **IMPORTANT:** Float needles and seats are factory matched and must never be mixed.

2. Install secondary intake needle and seat with new gasket.

3. Temporarily install both the primary and secondary float assemblies. **NOTE:** Float adjustments must be measured with air horn gasket removed.

4. Three separate float adjustments must be made—lateral, vertical, and float drop.

- a. **Lateral Adjustment:** Place float gauge J-5458 under center of float with notched portion of gauge fitted over edge of casting (Fig. 6B-64). Sides of float should just clear the vertical uprights of float gauge. Adjustment should be made by bending arms of float.

- b. **Vertical Adjustment:** With float gauge in position, (Fig. 6B-64) floats should just clear the horizontal portion of gauge. Vertical distance between top of float (at center) and machined surface of casting is  $\frac{3}{16}$ " (gauge J-5458) for both primary and secondary floats. Adjust by bending at center portion of float arms. Remove gauge.

- c. **Float Drop Adjustment:** With bowl cover held in upright position and measuring from center of float, the distance between top of floats and bowl cover should be  $\frac{9}{16}$ " for both primary and secondary floats (Fig. 6B-65). Adjust by bending stop tabs on float brackets.

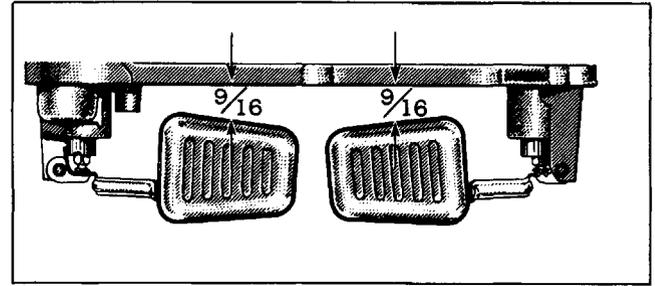


Fig. 6B-65 Float Drop

5. Remove floats and install new air horn gasket.
6. Install vacuumer link and vacuumer piston with lip on link toward center of air horn.
7. Insert pump plunger shaft through air horn and retain in position with link and pump arm assembly.
8. Reinstall the primary and secondary float assemblies.
9. Carefully position the air horn assembly on the carburetor body being sure the vacuumer piston and pump plunger are aligned so they enter their respective bores.
10. Install 16 air horn attaching screws. See Fig 6B-49 for proper location of different length screws.
11. Tighten all screws evenly and securely in alternate order.
12. Install both metering rods as follows: Catch metering rod spring loop with lower end of rod before rod is inserted, then twist "eye" of rod onto vacuumer piston link assembly.
13. Install countershaft return spring on countershaft.
14. Install pump countershaft by sliding shaft through pump operating arm, spacer bushing and metering rod arm (Fig. 6B-48). **CAUTION:** Be certain metering rod operating arm is positioned in slot in vacuumer piston link.
15. Tighten pump arm screw.
16. Using tag wire wind countershaft spring  $\frac{1}{2}$  turn and hook over pump arm.
17. Place washer on lower end of throttle connector rod, install rod into throttle lever while holding lever in wide open position, and retain with spring and retainer.
18. Install throttle connector rod in pump countershaft lever and retain with pin spring.

19. Install choke piston housing and NEW gasket using three self-tapping screws.

20. Assemble choke piston on link and install choke shaft and piston assembly through air horn while guiding piston into cylinder.

21. Place choke valve in position on choke shaft with the "C" (in circle) on valve visible from the top of carburetor. Center choke valve and install screws. Use new screws. **IMPORTANT:** Make sure that neither valve nor shaft binds in any position and that valve drops free by its own weight.

22. Position baffle plate into choke housing with choke operating lever extending through slot in stationary baffle and small hole in rotating baffle.

23. Install choke coil housing and new gasket on piston housing with index mark on plastic housing at the bottom. Revolve coil housing in direction opposite to arrow (counterclockwise) until index mark on coil housing is aligned with index mark on piston housing, and retain with 3 screws and retainers.

24. Install choke operating lever on shaft and tighten screw only enough to permit lever to be moved.

25. Install choke connector rod in choke operating lever and choke lower lever, and retain lower end of rod with pin spring.

26. Install strainer plug, gasket, and strainer in primary side.

27. Drop secondary strainer into place around stand pipe. Carefully press down into bore around standpipe. Install strainer plug and gasket.

## ADJUSTMENTS

The float adjustments have been described and made during assembly of the air horn. The remaining adjustments should be made in the following sequence:

1. Pump Adjustment
2. Metering Rod Adjustment
3. Fast Idle Cam Clearance Adjustment
4. Unloader Adjustment
5. Secondary Throttle Lever Adjustment
6. Secondary Throttle Lockout Adjustment

### PUMP ADJUSTMENT

1. Back out idle speed screw and fast idle speed screw until throttle valves seat in bores of carburetor.

2. Hold straight edge across top of dust cover boss at pump arm (Fig. 6B-66). Bend throttle connector

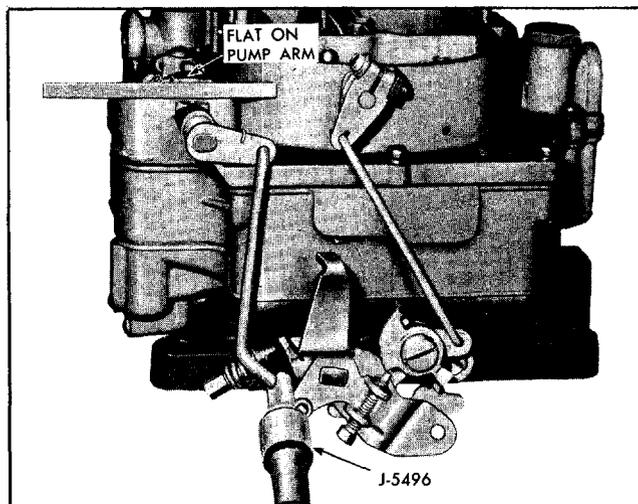


Fig. 6B-66 Accelerating Pump Arm Adjustment

rod at lower angle (use tool J-5496) until flat on top of pump arm is parallel with straight edge while throttle valves are seated (Fig. 6B-66).

### METERING ROD ADJUSTMENT

1. Back out idle speed screw and fast idle speed screw until throttle valves seat.

2. Press down on vacuumer piston link until metering rods bottom in carburetor body (Fig. 6B-67).

3. Holding rods in this downward position and with throttle valves seated, revolve metering rod arm until finger on arm contacts lip of vacuumer link. Hold in place and carefully tighten clamp screw (Fig. 6B-67).

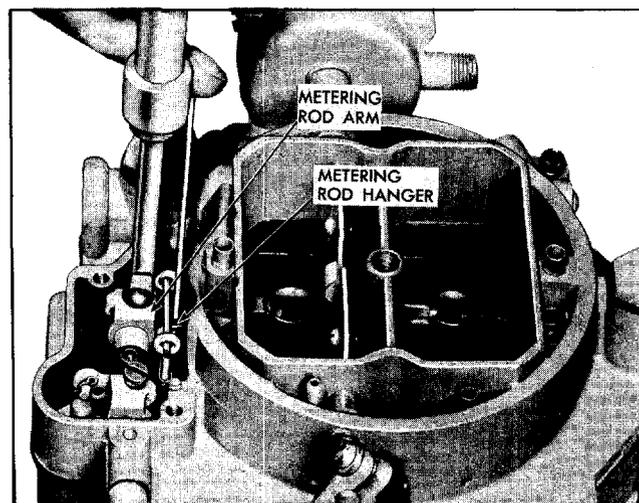


Fig. 6B-67 Metering Rod Arm Adjustment

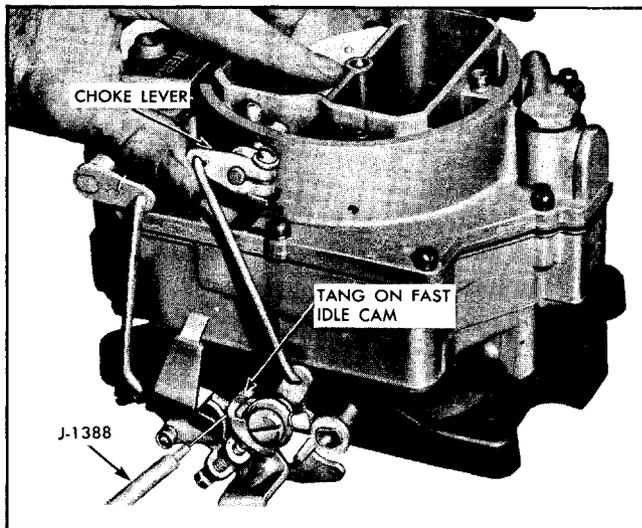


Fig. 6B-68 Fast Idle Cam Clearance Adjustment

4. Lubricate countershaft by dropping engine oil in 2 oil holes and install dust cover.

#### FAST IDLE CAM CLEARANCE ADJUSTMENT

1. Make sure choke lever clamp screw is still loose.
2. Hold choke valve closed.
3. Place .020" wire gauge (J-1388) on boss, rotate choke lever on shaft until tang on fast idle cam contacts wire gauge and all slack in linkage is removed (Fig. 6B-68)! While holding in this position, tighten choke lever clamp screw.

#### UNLOADER ADJUSTMENT

1. Hold throttle lever wide open.
2. There should be  $\frac{1}{8}$ " (gauge J-818-5) between top edge of choke valve and inner wall of air horn (Fig. 6B-69). If necessary, adjust by bending unloader projection on throttle lever.

#### SECONDARY THROTTLE LEVER ADJUSTMENT

1. Open choke valve to unlock secondary throttle valves.
2. Open primary throttle lever to wide open position.
3. Secondary throttle valves should reach wide open position at the same time as primary valves. If necessary, bend throttle operating rod at upper angle (Fig. 6B-70) (use bending tool T-109-213).

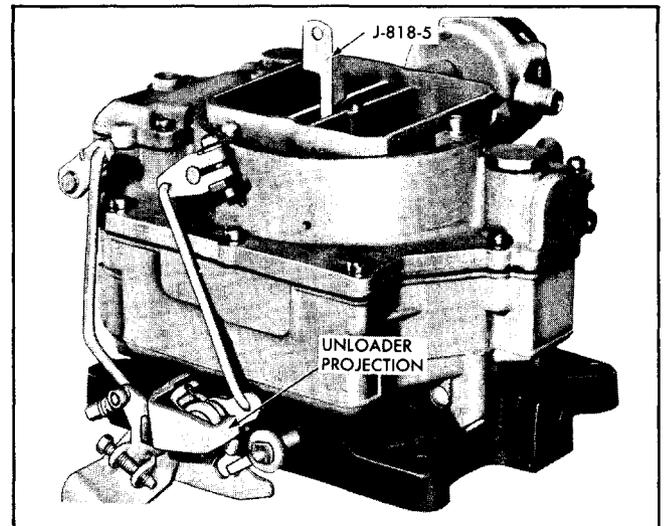


Fig. 6B-69 Unloader Adjustment

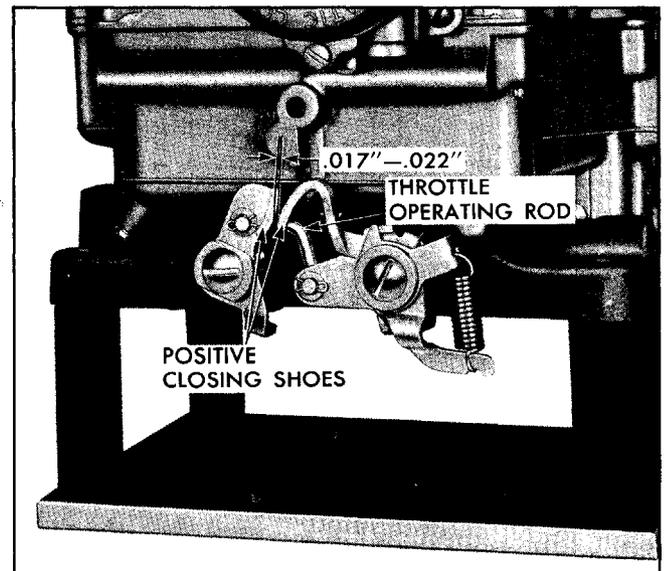


Fig. 6B-70 Primary and Secondary Throttle Levers

4. Check to see that there is .017" to .022" clearance between primary and secondary throttle positive closing shoes (Fig. 6B-70).

#### LOCKOUT ADJUSTMENT

1. Hold choke valve wide open.
2. Hold throttle lever closed.
3. Allow choke valve to close slowly. Lockout step on secondary lockout lever should freely engage tang on secondary throttle lever (Fig. 6B-71). If adjustment is necessary, bend tang (Fig. 6B-71).

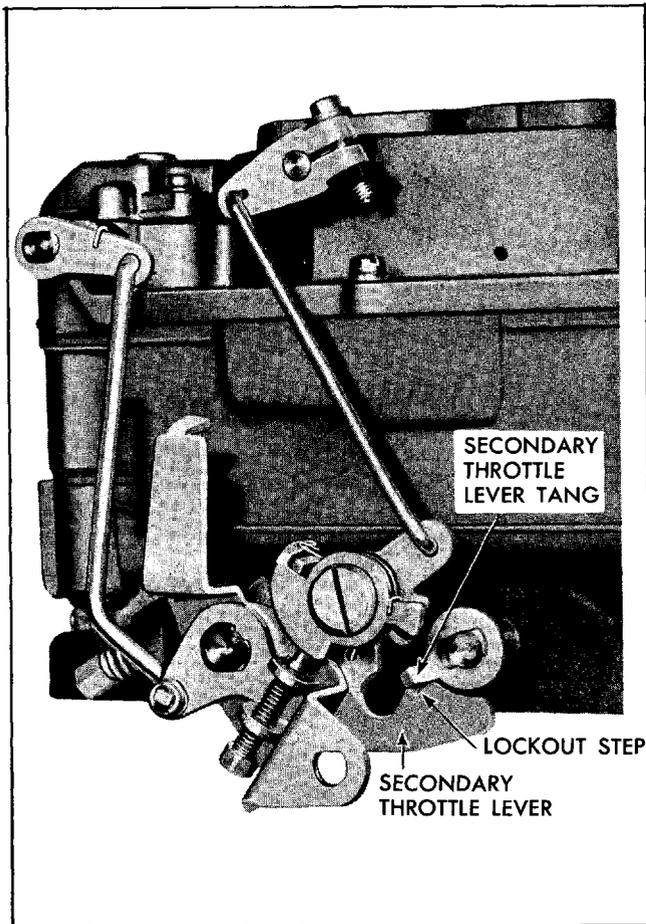


Fig. 6B-71 Lockout Adjustment

## TEST BEFORE INSTALLATION ON ENGINE

It is good shop practice to fill the carburetor bowl before installing the carburetor. This reduces the strain on the starting motor and battery and reduces the possibility of backfiring while attempting to start the engine. A fuel pump clamped on the bench, a small supply of fuel and the necessary fittings enable the carburetor to be filled and the operation of the float and intake needle and seat to be checked. Operate the throttle several times and check the discharge from the pump jets.

Before installing the carburetor, hold choke valve open and turn the idle speed screw until it just contacts the throttle lever, then  $\frac{3}{4}$  of a turn more to open the throttle valves enough to keep the engine running until the idle mixture and final RPM adjustment can be made.

## TROUBLE DIAGNOSIS AND TESTING

Excessive leanness during cold engine operation may indicate that the secondary throttle valves are partially open. Check the secondary lockout and check for too rapid choke opening.

In all other respects 4 barrel trouble diagnosis is the same as on the 2 barrel carburetor. See page 6B-18 for 2 barrel trouble diagnosis.

## CARTER CARBURETOR WCFB—SPECIFICATIONS

### ADJUSTMENT SPECIFICATIONS

Float Adjustment—Vertical distance between center of float and surface of air horn  $\frac{3}{16}$ " (gauge J-5458) for both primary and secondary.

Float Drop—Casting in operating position distance between center of floats and air horn is  $\frac{9}{16}$ " (no gauge necessary; use an ordinary scale).

Fast Idle—Cam to machined boss clearance minimum of .020" (gauge J-1388).

Unloader—Distance between upper edges of choke valve and wall of air horn  $\frac{1}{8}$ " (gauge J-818-5).

Clearance Between Positive Closing Shoes—is .017" to .022" with both valves seated (hold choke valve open to revolve fast idle cam and be sure idle speed screw is backed out so valves seat in bore).

Fast Idle Speed ..... 1900 RPM

Hot Idle Speed ..... 390-410 HM, 450-470 SM

Choke—Carter Climatic (R) Control—Butterfly Type, Set on Index. Offset choke valve on primary side only.

**GENERAL SPECIFICATIONS**

Flange Size .....	1 $\frac{1}{8}$ " (Four Bore—4 Bolt Type)
Primary Venturi (I.D.) .....	1 $\frac{1}{32}$ "
Main Venturi, Primary (I.D.) .....	1 $\frac{1}{16}$ "
Main Venturi, Secondary (I.D.) .....	1" HM, 1 $\frac{5}{16}$ " SM
Float Level .....	See Adjustments
Vents	
Outside .....	Five in Bowl Cover Two in Dust Cover
Inside .....	Three on Primary Side Two on Secondary Side
Gasoline Intake (In Needle Seat) .....	No. 38 Drill (.1015")
Low Speed Jet Tube (Primary Side Only)	
Jet (DO NOT REMOVE) .....	No. 68 Drill (.031") HM, No. 67 Drill (.032") SM
By-Pass (In Body) .....	No. 53 Drill (.0595")
Economizer (In Screw Plug) .....	.0492"
Idle Bleed (In Body) .....	No. 52 Drill (.0635")
Idle Port (Primary—Upper) .....	Slot Length .195", Width .030"
(Secondary) .....	None
Opening Above Throttle Valve When	
Valve Is Tightly Closed (Primary) .....	.139" to .145"
(Secondary) .....	None
Idle Port (lower for the idle screw—Primary) .....	No. 53 Drill (.0595")
(Secondary) .....	None
Idle Adjustment Screw Setting .....	$\frac{3}{4}$ to 1 $\frac{3}{4}$ turns open
Main Nozzle (DO NOT REMOVE) .....	Permanently Installed
Anti-Percolating Jet (Off Nozzle Well) .....	No. 60 Drill (.040")
Metering Rod (Primary)	
Economy Step .....	.074" HM, .072" SM
Middle Step Tapers To .....	.067" HM, .069" SM
Power Step .....	.059" All
Metering Rod (Secondary) .....	None
Metering Rod Jet	
Primary (for metering rod) .....	.0935"
Secondary (no metering rod) .....	.0492" HM, .0512" SM
Metering Rod Setting .....	See Adjustments
Accelerating Pump	
Discharge jet (Primary) .....	No. 72 Drill (.025")
(Secondary) .....	None
Intake Ball Check Seat .....	.115" to .120"
Discharge Needle Seat .....	.070"
Pump Adjustment .....	See Adjustment

