ENGINE FUEL

CONTENTS OF THIS SECTION

GENERAL DESCRIPTION

HEAT CONTROL

All models have an automatically operated heat control, mounted in the right bank manifold, which utilizes the exhaust gases of the engine to heat the incoming fuel air charge during warm-up so as to improve vaporization and distribution. The heat control valve is regulated by a coiled thermostatic spring (Fig. 6B-1). A counterweight is mounted on the other end of the heat control valve shaft and this counterweight in conjunction with the thermostatic spring operates to close and open the heat control valve. The assembly is kept from rattling by an anti-rattle spring mounted next to the thermostatic spring.

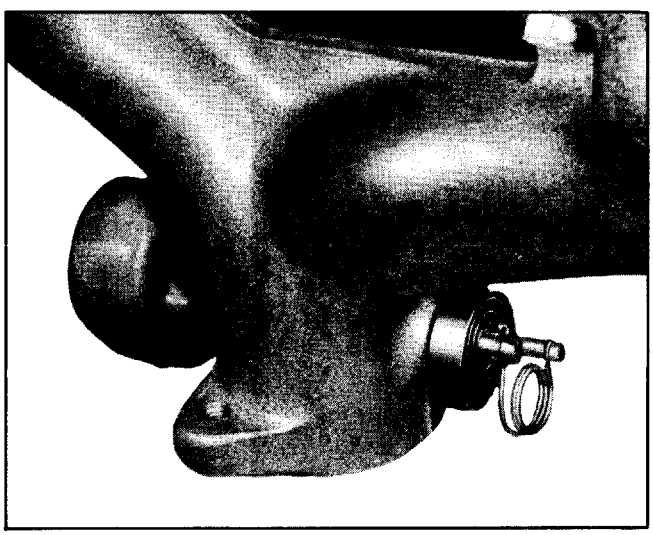


Fig. 6B-1 Heat Control Valve Thermostatic Spring and Counterweight

A detailed description of the operation of the heat control valve will be found on page 6–6.

FUEL FILTER

A fuel filter is located at the gasoline inlet of the carburetor for the purpose of removing any dirt and water which may be present in the gasoline. The filter contains a filtering disc made up of a large number of tiny, tin coated, copper spheres bonded together in such a manner that no straight through passages exist to allow the passage of dirt or moisture into the carburetor (Fig. 6B-2).

The filter is provided with a removable drain plug which should periodically be removed to allow

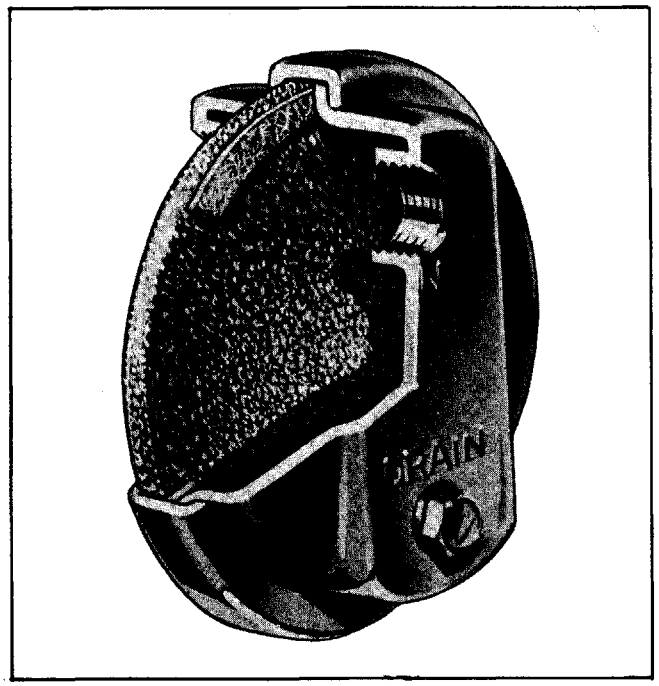


Fig. 6B-2 Cross-Section of Fuel Filter

collected dirt and water to drain. In cases where excessive foreign material has collected in the filter and fuel starvation occurs the filter should be removed for cleaning. Before removing filter remove the drain plug and drain filter, then remove and agitate the filter in carburetor solvent or its equivalent. Direct an air stream through the *outlet* port of the filter to force dirt from the filter element through the inlet port or drain port. Rinse the filter in kerosene and again direct an air stream through the outlet port. Install drain plug and reinstall filter.

CARBURETOR AIR CLEANER AND SILENCER

Combined air cleaners and silencers are used on all models. These units filter air entering the carburetor to keep abrasive dust from being carried into the engine, and silence the induction system noise emanating from the carburetor.

The air cleaner has an oil reservoir in its base so air entering the carburetor first strikes the oil in the cleaner reservoir, this coupled with the rapid change in direction of the air flow causes the heavier dust particles to be picked up by the oil. The high velocity of the air stream picks up some of the oil and carries it upward into the filter element through which the air next passes thus keeping the element continually washed and moistened with oil.

DESCRIPTION

CARTER WGD DUAL CLIMATIC ® CONTROL* CARBURETOR

NOTE: The following illustrations are used by permission of the copyright owner Carter Carburetor Corporation, St. Louis, Missouri. 6B-3 through 6B-9, 6B-27, 6B-34, 6B-35, 6B-37.

The Carter Model WGD dual carburetor combines design features of Carter carburetors used previously on Pontiac engines with several new features all in one easy-to-service assembly. A few of its new features are: Reduced over-all height, exhaust heated flange, simplified and accessible adjustments and a new compact Climatic Control choke.

Five conventional circuits, as used in previous carburetors, are to be found in this unit. They are:

Float Circuit

Low-Speed Circuit

High-Speed Circuit

Pump Circuit

Climatic Control (Choke) Circuit

These circuits are described and illustrated schematically in the following text.

Figures 6B-10, 6B-11, and 6B-12 illustrate the passages as they actually appear to the carburetor mechanic.

FLOAT CIRCUIT (FIG. 6B-3)

The purpose of the float circuit is to maintain a supply of fuel at the proper level in the bowl for use by the low-speed, high-speed and pump circuits.

Setting the float to specifications assures an adequate supply of fuel in the bowl for all operating conditions. Float adjustment must be made with the bowl cover gasket removed and the bowl cover held inverted and level at eye height with the free weight of the float resting on the intake needle. Adjust the float by bending the float arm. To avoid placing unnecessary strain on the float do not grasp the float shell when bending the float arm.

*"Climatic Control" Reg. U.S. Pat. Off.

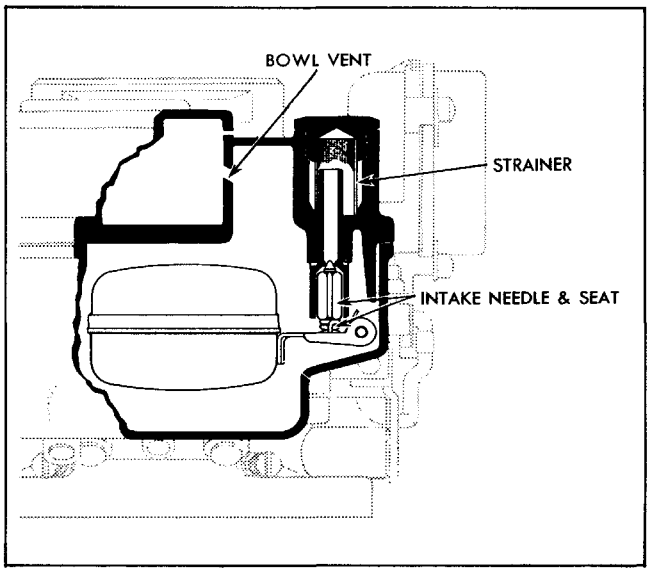


Fig. 6B-3 Float Circuit—Carter

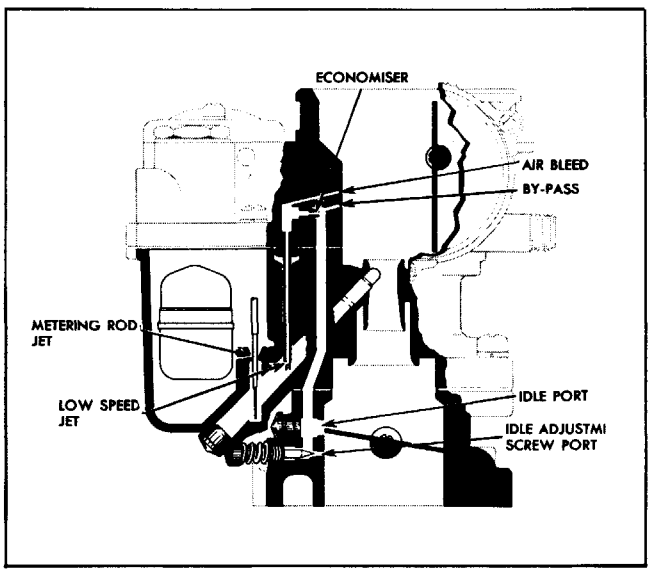


Fig. 6B-4 Low Speed Circuit—Carter

Inspect the intake needle and seat, and float assembly for wear. The carburetor bowl and the intake strainer screen should be clean and free of dirt, gum, or other foreign matter.

The bowl is vented through the metering rod chamber in the air horn to outside atmosphere. The bowl vent is calibrated to provide proper air 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.

LOW-SPEED CIRCUIT (FIG. 6B-4)

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. The low-speed jets measure the amount of fuel for idle and early part throttle operation. The air by-pass passages, economizers and idle air bleeds 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 the fuel and air mixture to enter the carburetor bores.

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

HIGH-SPEED CIRCUIT (FIG. 6B-5)

Fuel for part throttle and full throttle operation is supplied through the high-speed circuit.

The position of the metering rods in the metering rod jets controls the amount of fuel flowing in the high-speed circuit. 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 vacumeter link.

MECHANICAL METERING ROD ACTION

During part throttle operation, manifold vacuum pulls the vacumeter piston, link and metering rod assembly down holding the vacumeter link against

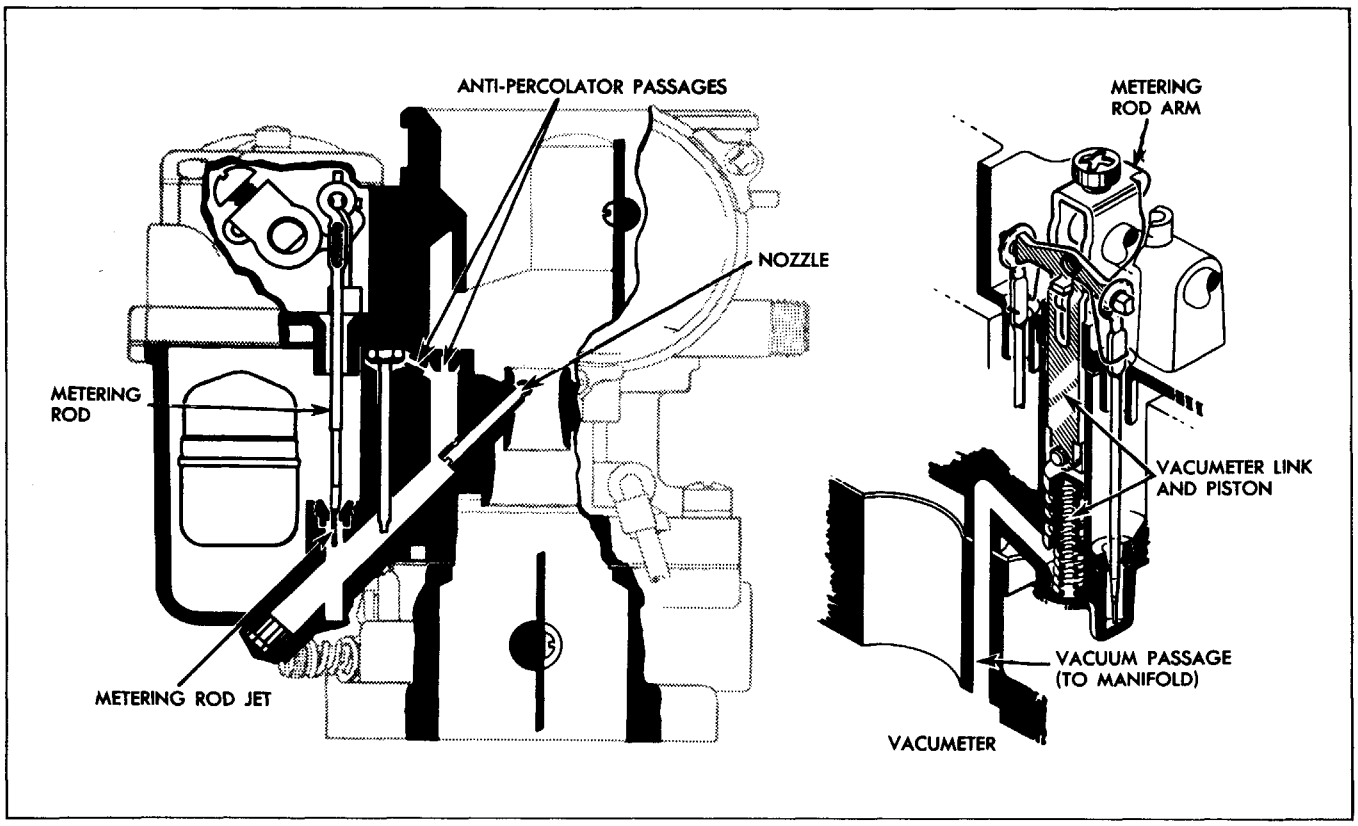


Fig. 6B-5 High Speed Circuit—Carter

the metering rod countershaft arm. 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 vacumeter spring.

VACUUM METERING ROD ACTION

Under any operating condition (acceleration, hill climbing, etc.), when the tension of the vacumeter spring overcomes the pull of vacuum under the piston, the metering rods will move toward their wide-open throttle or power position.

ANTI-PERCOLATOR

To prevent the vapor bubbles in the nozzle passages and low-speed wells caused by heat from forcing fuel out of the nozzles, anti-percolator passages, and calibrated plugs and bushings 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 plugs, bushings, and main nozzles are permanently installed and must not be removed in service.

PUMP CIRCUIT (FIG. 6B-6)

The accelerating pump circuit provides a measured amount of fuel, which is necessary to insure smooth engine operation for acceleration at low speeds.

When the throttle is closed, the pump plunger moves upward in its cylinder and fuel is drawn into pump cylinder through the intake check. (Fig. 6B-7). The discharge check 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 check, and out of the pump jets. When the plunger moves downward the intake check is closed preventing fuel from being forced back into the bowl.

At higher speeds pump discharge is no longer necessary to insure smooth acceleration. When the throttle valves are opened, a pre-determined amount, the pump plunger bottoms in the pump cylinder eliminating pump discharge due to pump plunger movement at high speeds.

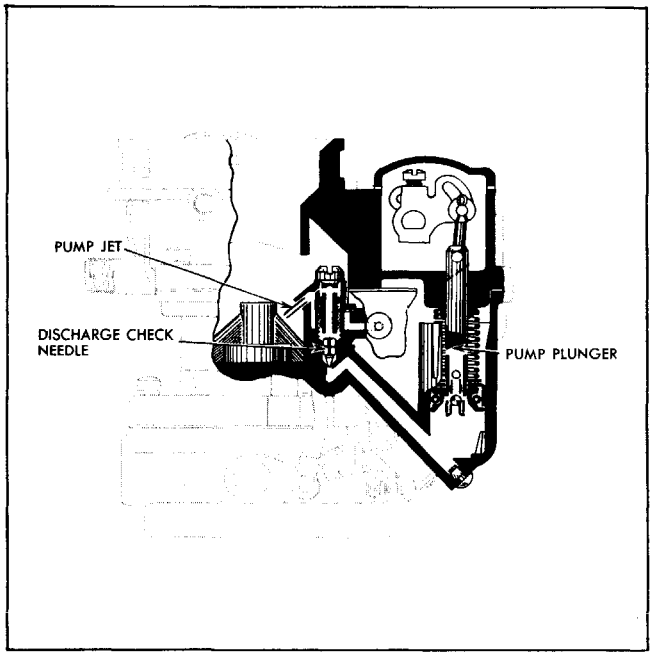


Fig. 6B-6 Pump Circuit—Carter

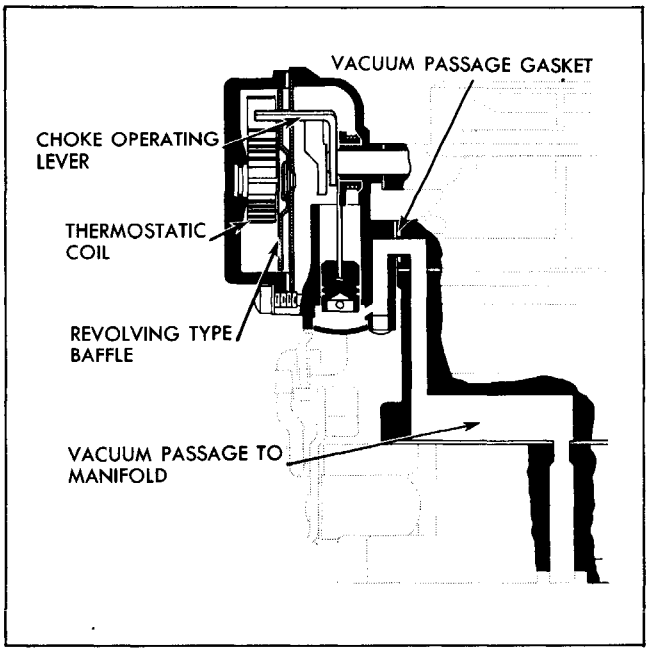


Fig. 6B-8 Choke Circuit (Vacuum Passage)—Carter

PUMP ANTI-PERCOLATOR

When the pump plunger is stationary the intake check is not seated. This permits fuel vapor pressure caused by heat to be relieved through the intake passages located in the plunger shaft.

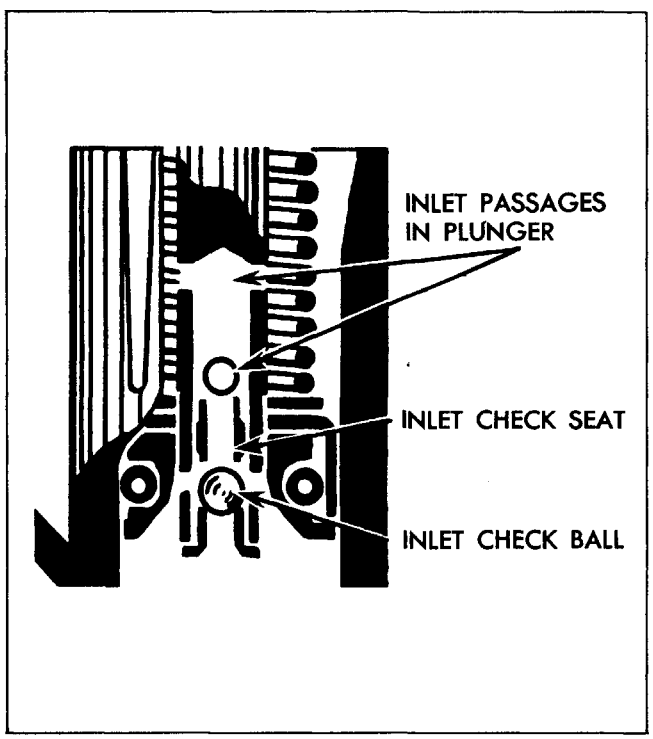


Fig. 6B-7 Pump Circuit (Plunger Detail)—Carter

CLIMATIC CONTROL CHOKE CIRCUIT (FIG 6B-8 AND FIG. 6B-9)

The climatic 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 vaccum on the piston and force of air velocity on the offset valve.

When the engine starts, slots located in the sides of the choke piston cylinder are uncovered allowing intake manifold vacuum to draw warm air heated by the exhaust manifold, through the climatic 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 full-open position.

A secondary baffle plate revolves with the choke valve. The revolving baffle prevents the warm air entering the housing from striking the thermostatic coil until the choke valve opens a predetermined

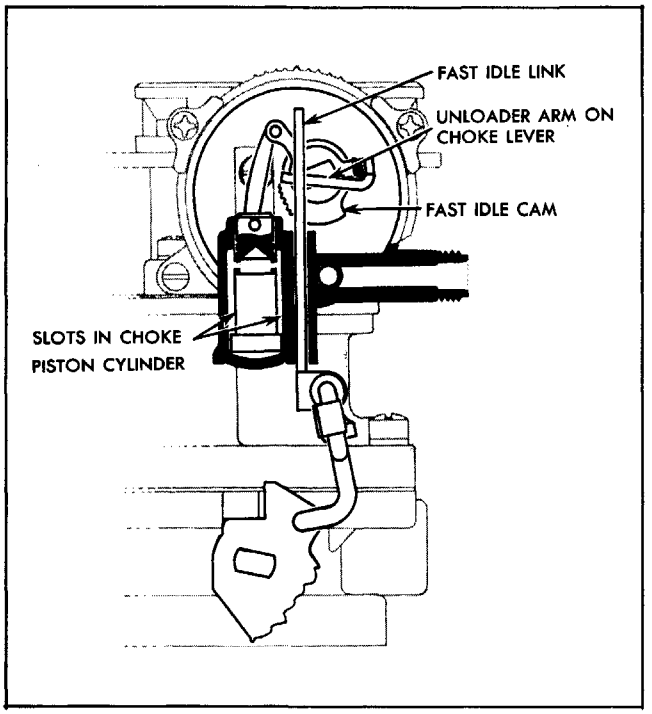


Fig. 6B-9 Choke Circuit (Fast Idle Cam)—Carter

amount. This serves to delay the initial opening of the choke.

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

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 connected to the choke shaft. The fast idle link attached to the throttle lever contacts the fast idle cam and prevents the throttle valve from returning to a normal warm engine idle position while the climatic control is in operation.

If during the starting period the engine becomes flooded, the choke valve may be opened manually to clean out any excessive fuel in the intake manifold. This may be accomplished by depressing the accelerator pedal to the floor mat and engaging the starter. The unloader projection on the fast idle link will contact the unloader arm on the choke shaft and in turn partially open the choke valve.

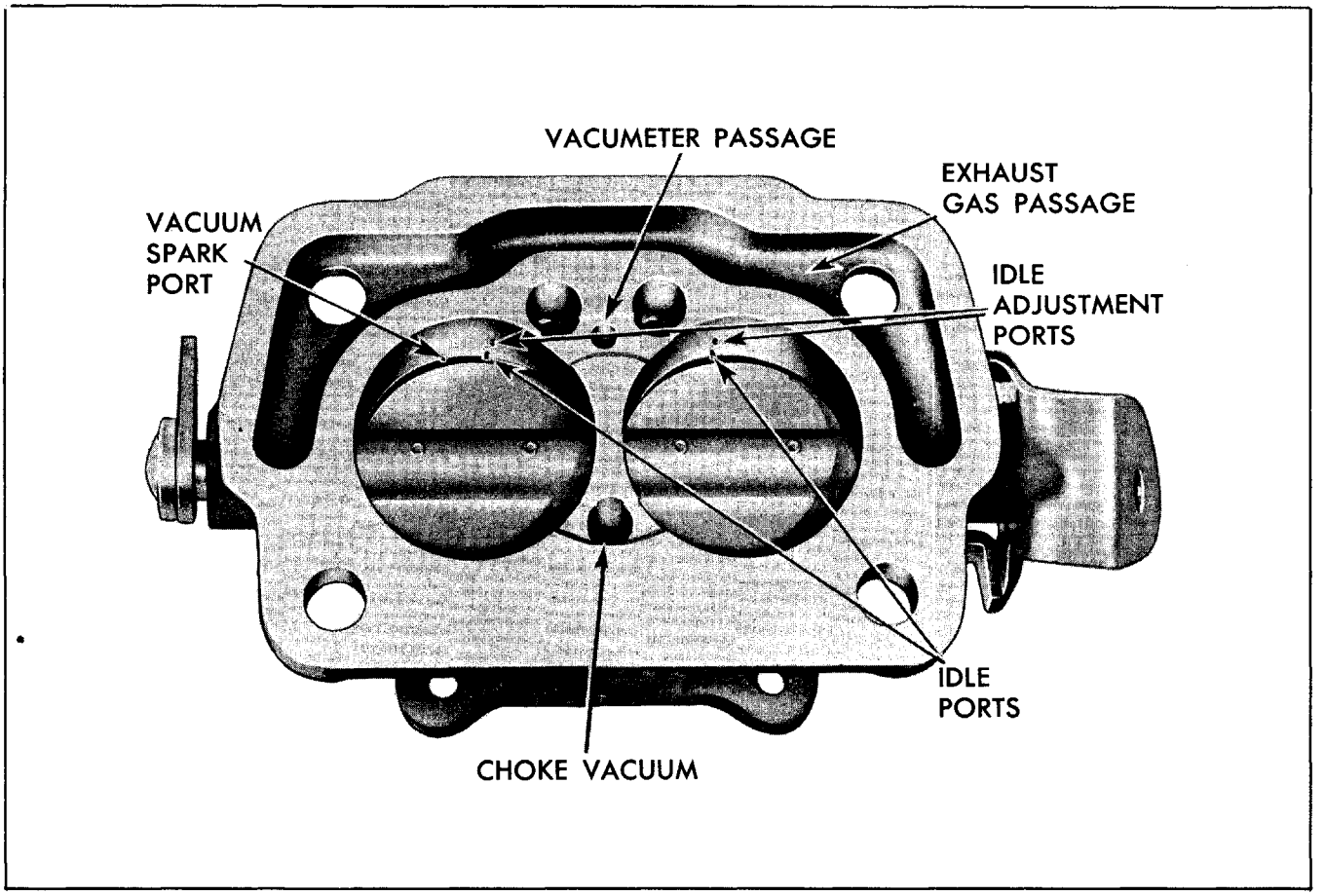


Fig. 6B-10 Passage Identification (Flange)—Carter

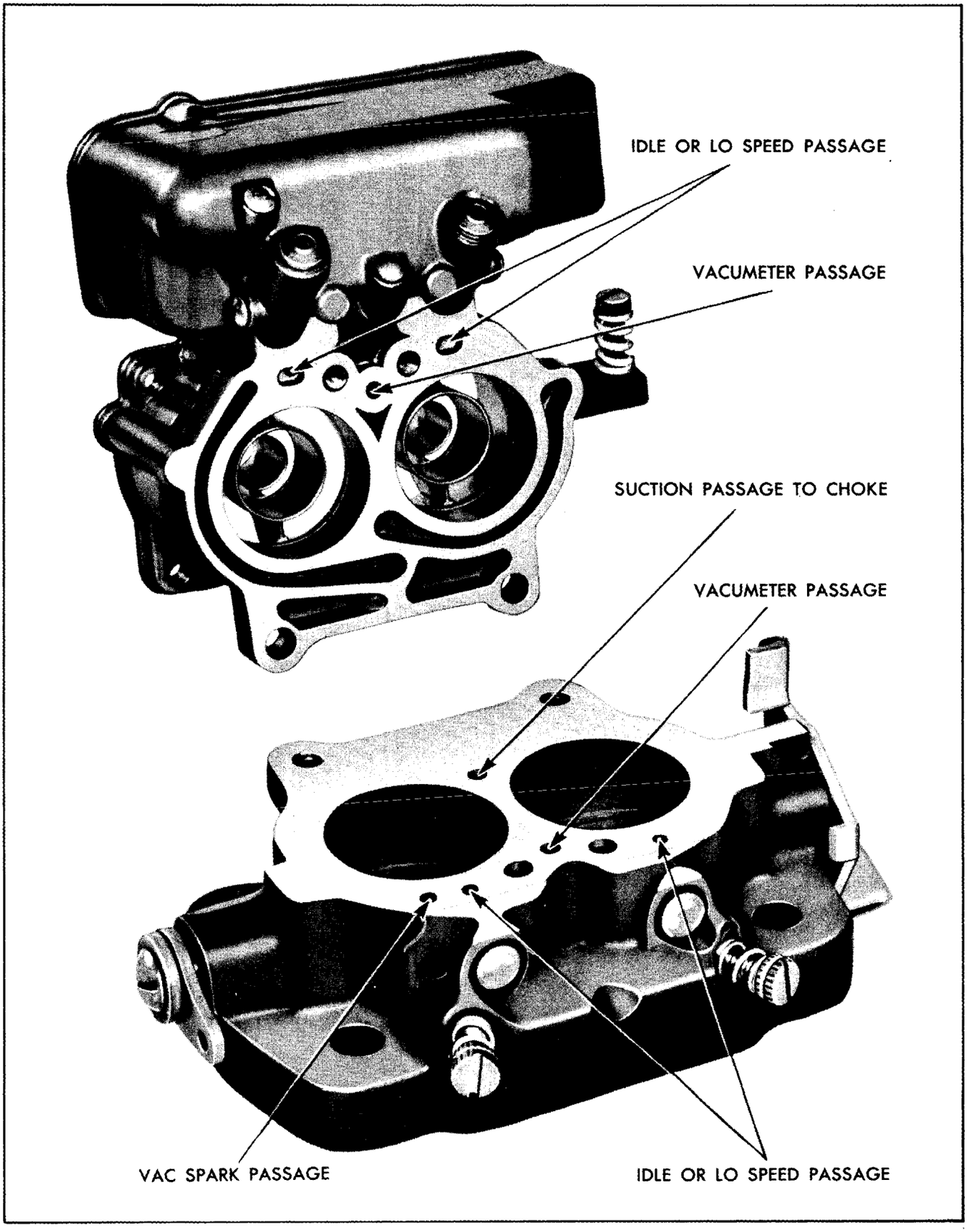


Fig. 6B-11 Passage Identification (Bowl-Flange)—Carter

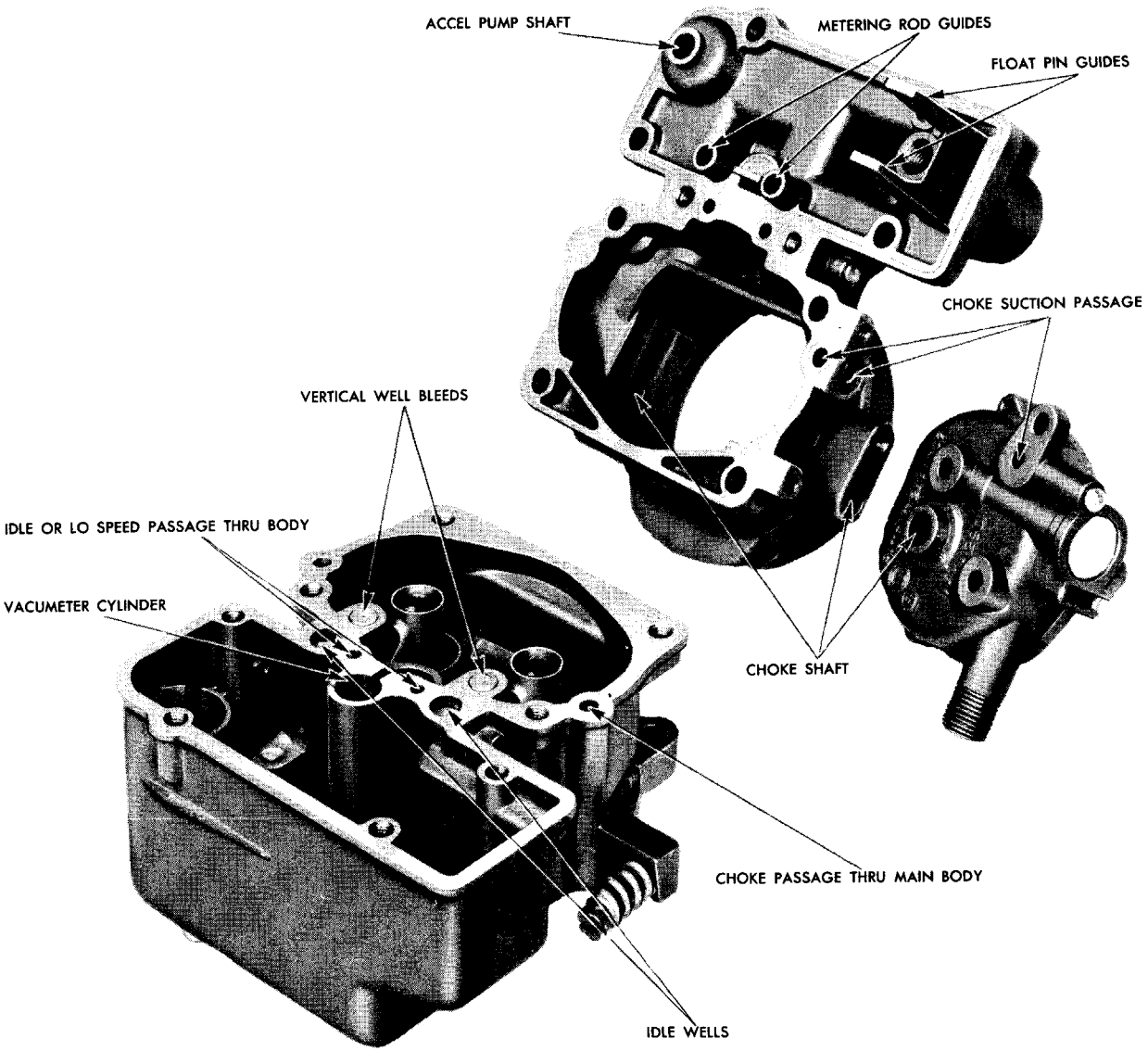


Fig. 6B-12 Passage Identification (Bowl, Air Horn, Choke Housing)—Carter

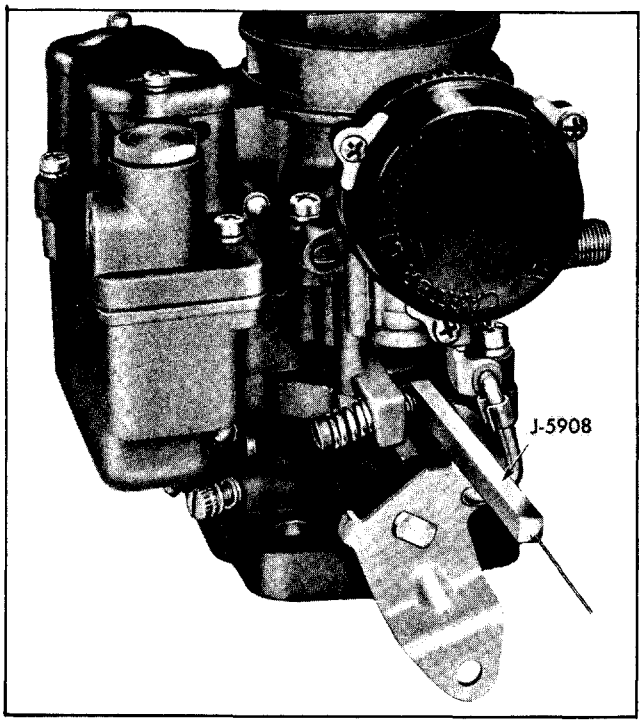


Fig. 6B-13 Fast Idle Adjustment—Carter

ADJUSTMENTS ON CAR

CARTER MODEL WDG CARBURETOR

All adjustments with the exception of the on car fast idle adjustment and the idle speed and mixture adjustment are included in "OVERHAUL AND ADJUSTMENTS" procedure and can be done on the car. Following are the fast idle adjustment and the idle speed and mixture adjustment.

FAST IDLE ADJUSTMENT

1. Remove air cleaner and silencer.

2. With choke valve open, back off idle speed screw until throttle valve is fully closed.

3. Turn idle speed screw until it *just contacts* lip of outer throttle lever.

4. With choke valve closed, manually open throttle to full open position to position fast idle cam.

5. With choke valve closed gauge J-5908 should just fit between end of adjusting screw and lip on outer throttle lever as shown in Fig. 6B-13. If gauge does not fit or excess clearance exists bend choke connecting rod to correct.

IDLE SPEED AND MIXTURE ADJUSTMENT

Idle speed should be set by turning the idle speed screw to give 450-475 engine RPM on Synchro-Mesh cars and 390-410 RPM in neutral on Hydra-Matic equipped cars. When adjusting, check to make sure that engine is at normal operating temperature and choke is open.

The two idle mixture adjusting screws should be turned in or out equally to give an even, smooth idle at the correct idle speed as set above. Missing is a sign of too lean a mixture while "rolling" or "loping" indicates too rich a mixture. Turning the adjusting screws in leans the idle mixture. Normally, the correct idle mixture is obtained with the idle mixture screws ¾ to 1¾ turns open.

CHOKE CLIMATIC CONTROL ADJUSTMENT

Direction for adjustment (lean or rich) is clearly marked on the thermostatic spring housing. The standard setting is one notch rich on Hydra-Matic equipped cars, one notch lean on Synchro-Mesh. It should never be necessary to move the choke index more than two notches from the standard setting to take care of unusual conditions. If a need for greater adjustment appears to be necessary, trouble lies elsewhere than in the choke thermostatic spring adjustment.

PERIODIC SERVICE

CARTER CARBURETOR

Lubricate accelerator pump arm countershaft every spring or fall or 10,000 miles as covered on page 0-4.

OVERHAUL AND ADJUSTMENTS

CARTER MODEL WGD CARBURETOR

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.

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

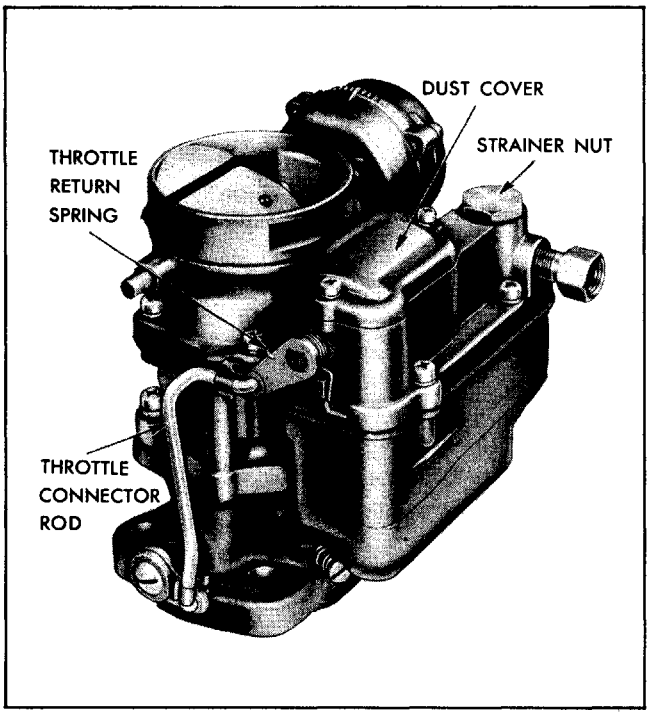


Fig. 6B-14 Carburetor Assembly—Carter

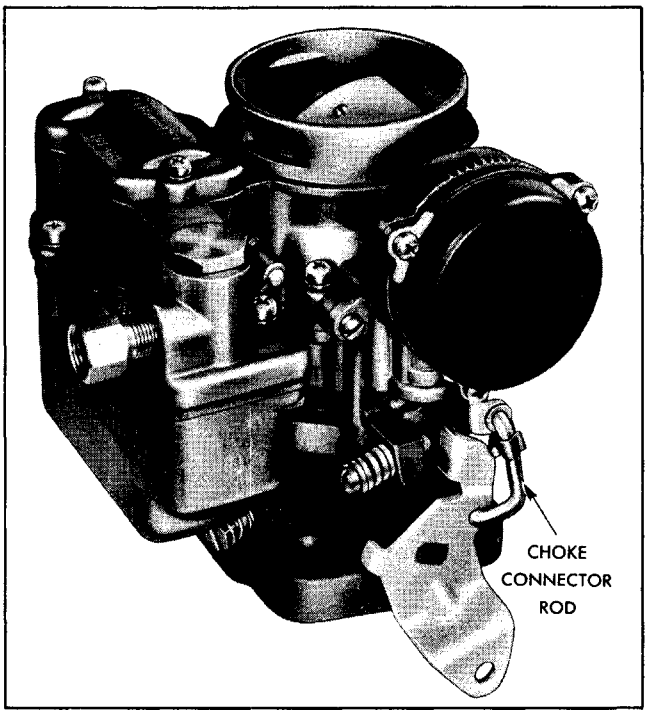


Fig. 6B-15 Carburetor Assembly—Carter

DISASSEMBLY

DISASSEMBLY OF AIR HORN

1. Remove dust cover and remove strainer nut assembly (Fig. 6B-14).

2. Remove throttle connector rod (Fig. 6B-14) and choke connector rod (Fig. 6B-15) at both ends.

3. Using a small screwdriver, pry end of throttle return spring off boss on air horn casting to release spring tension (Fig. 6B-16).

4. Loosen set screws on metering rod arm, and pump arm, then slide countershaft out of casting (Fig. 6B-16).

5. Remove metering rod arm.

6. Remove metering rods from vacumeter piston link.

7. Remove 8 bowl cover and air horn attaching screws and remove air horn assembly with all remaining parts attached (Fig. 6B-17).

8. Remove float and needle and seat assembly from bowl cover.

9. Disconnect vacumeter piston from link and remove link and metering rod spring assembly.

10. Remove air horn gasket and both low speed jets.

11. Remove pump arm and link assembly from hole in pump plunger stem and remove plunger and spring.

12. Remove thermostatic coil housing screws and retainers, housing, gasket, metal baffle plate, and fast idle link. NOTE: Under normal service the air horn may be cleaned without further disassembly. If complete disassembly is necessary, perform the remaining operations.

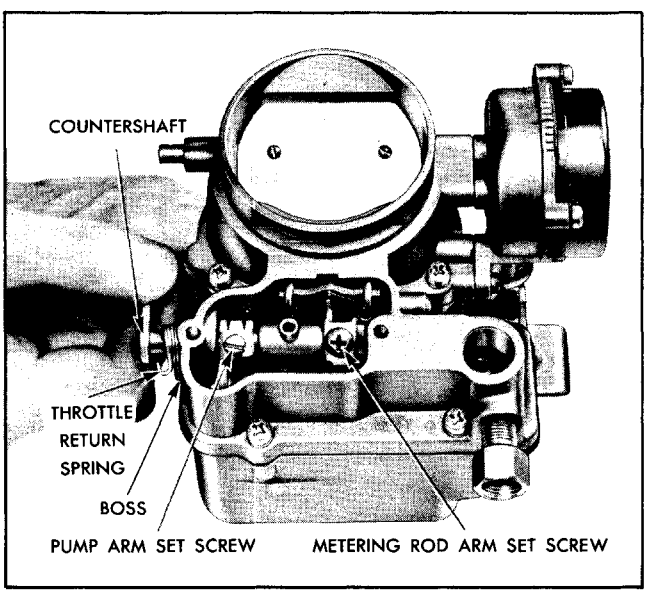


Fig. 6B-16 Removing Countershaft—Carter

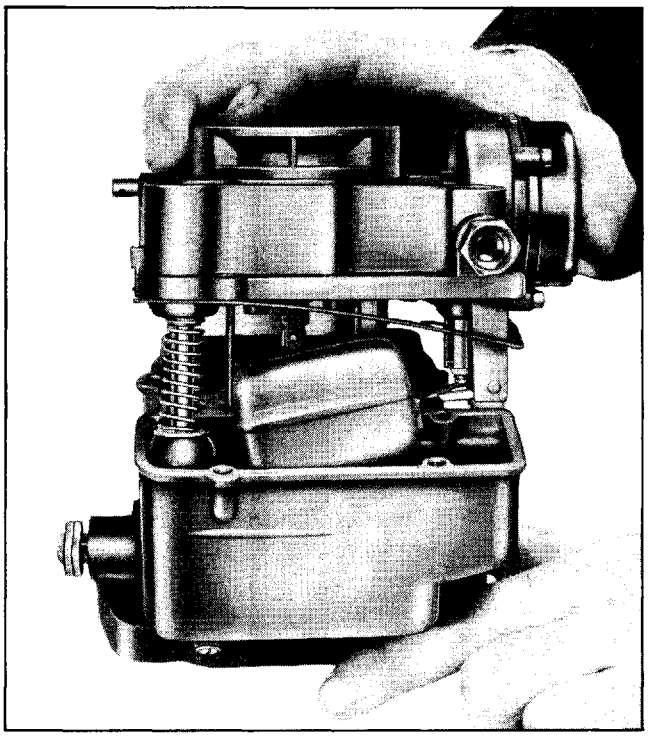


Fig. 6B-17 Removing Air Horn Assembly—Carter

13. File off staked ends of choke valve screws and remove screws and valve.

14. Rotate choke shaft while guiding piston until piston is clear of vacuum cylinder, and remove piston and shaft assembly. NOTE: It may be necessary to rotate fast idle cam to clear piston (Fig. 6B-18).

15. Separate fast idle cam and spring assembly from choke lever by unhooking fast idle cam spring (Fig. 6B-19).

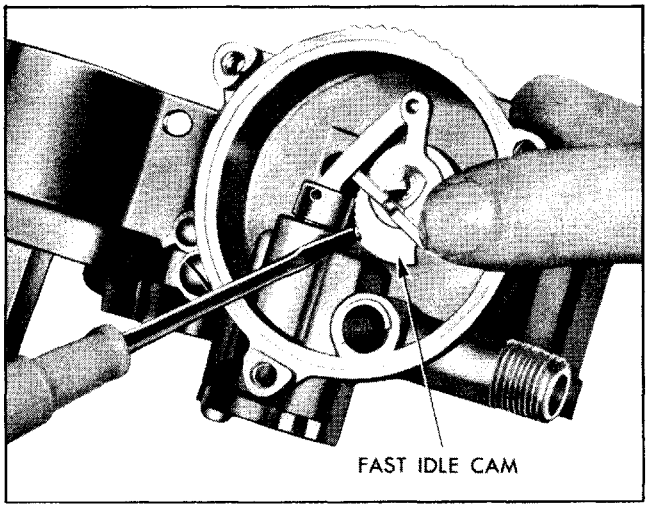


Fig. 6B-18 Removing Choke Piston and Shaft Assembly—Carter

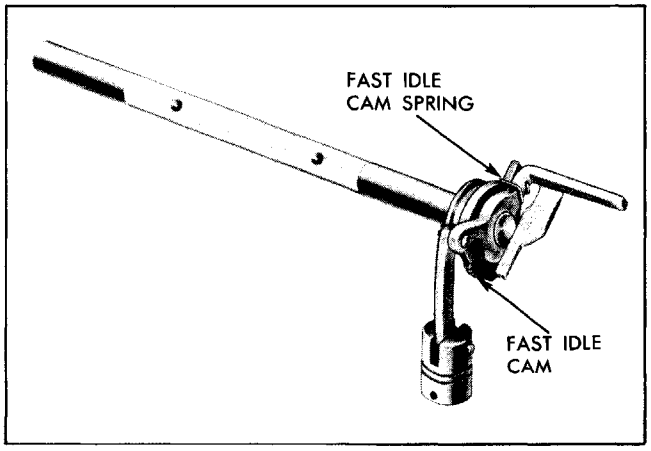


Fig. 6B-19 Choke Piston, Shaft and Fast Idle Cam Assembly—Carter

16. Remove 3 self-tapping screws and remove piston housing and small piston housing gasket from air horn casting (Fig. 6B-20).

DISASSEMBLY OF CARBURETOR BODY

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

1. Remove metering rod jets (Fig. 6B-21).

2. Remove pump jet cluster and gasket (Fig. 6B-21).

3. Invert casting to remove vacumeter spring, pump discharge needle (Fig. 6B-21) and drain fuel.

CAUTION: Never attempt to remove nozzles or anti-percolator plugs from body casting.

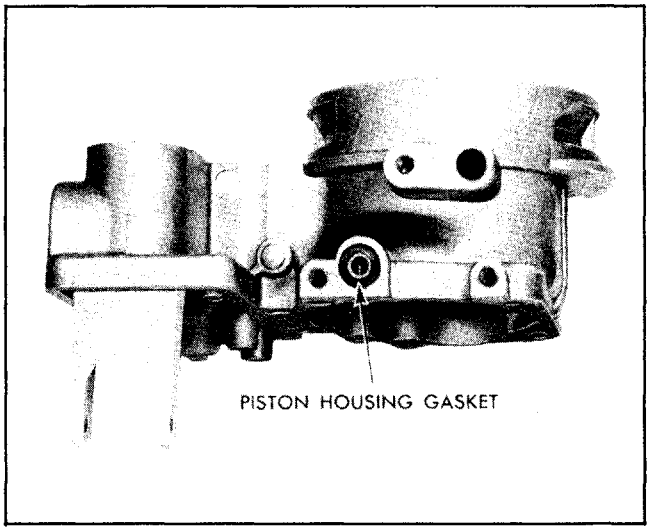


Fig. 6B-20 Choke Piston Housing Gasket—Carter

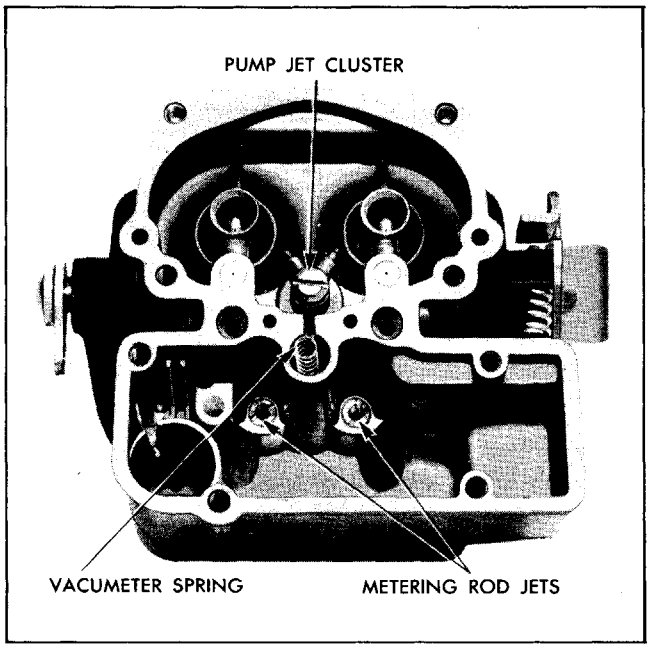


Fig. 6B-21 Carburetor Bowl Assembly—Carter

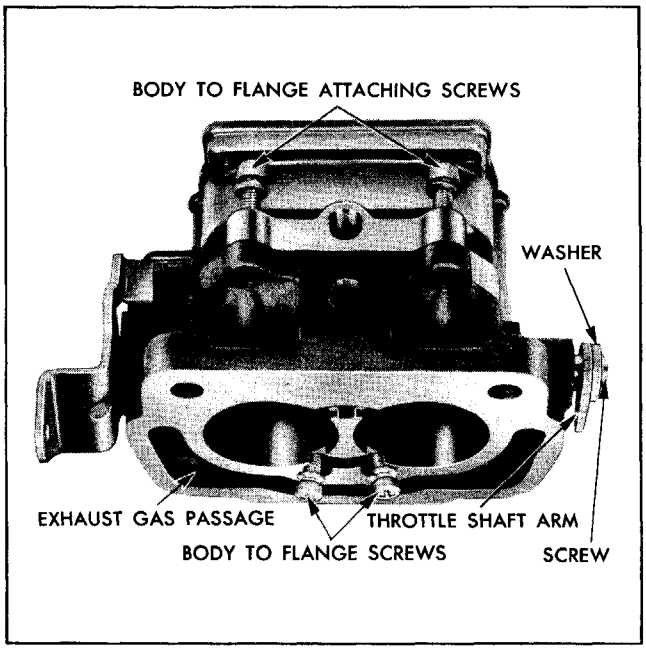


Fig. 6B-22 Throttle Flange Assembly—Carter

DISASSEMBLY OF THROTTLE FLANGE

1. Remove four throttle flange attaching screws to separate the carburetor body from flange, and remove gasket (Fig. 6B-22).

2. Remove idle mixture adjusting screws and springs.

NOTE: Under normal service the carburetor flange may be cleaned without further disassembly. If complete disassembly is necessary, perform the remaining operations.

3. Remove throttle shaft arm attaching screw, washer and throttle shaft arm (Fig. 6B-22).

4. File off staked ends of throttle valve attaching screws and remove screws and throttle valves.

5. Remove shaft from throttle flange.

CLEANING AND INSPECTION OF PARTS

Dirt, gum, water or carbon contamination in 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 cleaning solvent. CAUTION: Composition and plastic parts such as thermostatic coil housing and pump plunger should not be immersed in solvent. DO NOT SOAK AIR HORN ASSEMBLY IN CLEANER OR SOLVENT FOR MORE THAN ONE HALF HOUR IF CHOKE PISTON HOUSING HAS NOT BEEN REMOVED.

2. Blow out all passages in castings with compressed air and blow off all parts so they are free of solvent. CAUTION: Do not use drills or wire to clean out jets or parts 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. Carefully note the condition of slots in the choke piston cylinder. If they are found to be carbonized, remove Welch plug in the bottom of the climatic control housing by piercing center with a small pointed 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 flange with sandpaper; never use emery cloth.

c. Remove carbon from hot air passage in base of flange (Fig. 6B-22) and from mating holes in intake manifold.

d. See if needle or seat is worn; if so, both must be replaced.

e. Check float pin for excessive wear.

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

g. Check bowl cover for wear in countershaft hole (hole worn egg shaped).

h. Check throttle shaft for excessive wear (looseness or rattle in body flange casting).

i. Check idle mixture adjusting screws for burrs. Replace if burred.

j. 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.

k. Inspect pump plunger assembly. If leather is not in good condition, replace plunger. Check operation of pump intake valve in pump plunger.

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

ASSEMBLY AND ADJUSTMENT

ASSEMBLY OF THROTTLE FLANGE

1. Install throttle shaft and lever assembly in flange.

2. Install throttle valves with trademark (c in circle) toward idle ports when viewing flange from manifold side (Fig. 6B-23).

3. Hold valve firmly in place with fingers and tap lightly with screwdriver to center valves before tightening screws. Always use new screws.

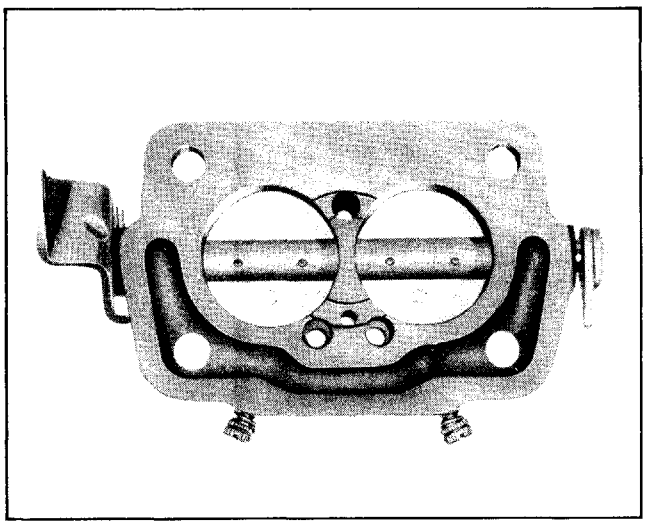


Fig. 6B-23 Correct Installation of Throttle Valves—Carter

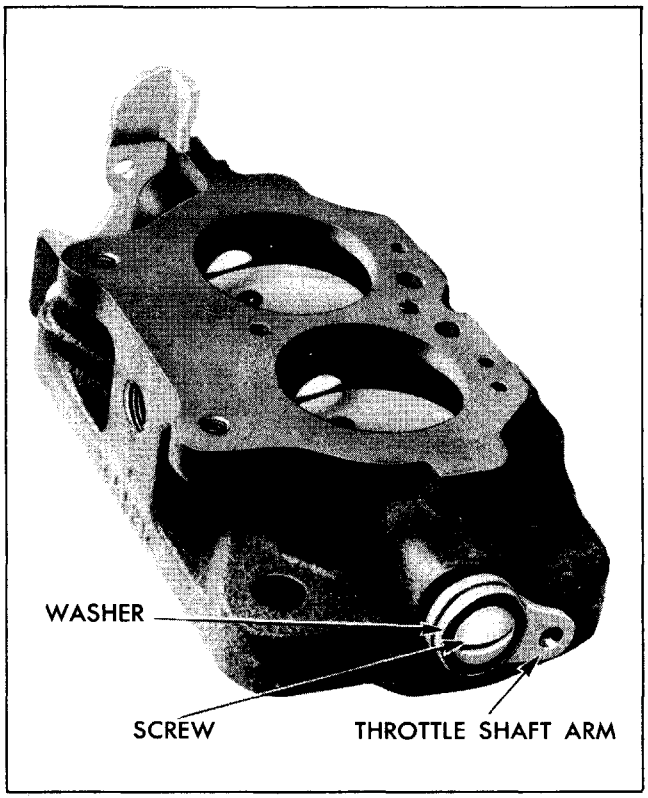


Fig. 6B-24 Throttle Shaft Installed—Carter

4. Install throttle shaft arm, washer and attaching screw in position shown in Fig. 6B-24. Throttle valves should be fully closed while tightening screw.

5. Install idle mixture adjustment screws and spring. CAUTION: To avoid possible damage to idle mixture screws, do not tighten more than finger tight. Temporary idle adjustment should be made by turning idle mixture screws until they are finger tight and then backing out 1—1½ turns.

6. Assemble body casting to flange using new gasket. Tighten screws evenly and securely (Fig. 6B-22). CAUTION: If two lower screws are not tightened securely poor engine idle will result.

ASSEMBLY OF CARBURETOR BODY

1. Install pump discharge needle (point downward), (Fig. 6B-25) pump jet cluster gasket and pump jet cluster and screw. Always use new gasket.

2. Blow out passages in body with compressed air.

3. Install vacuum piston spring into vacumeter cylinder.

4. Install metering rod jets. (No gaskets are used.)

NOTE: No pump intake strainer screen is used.

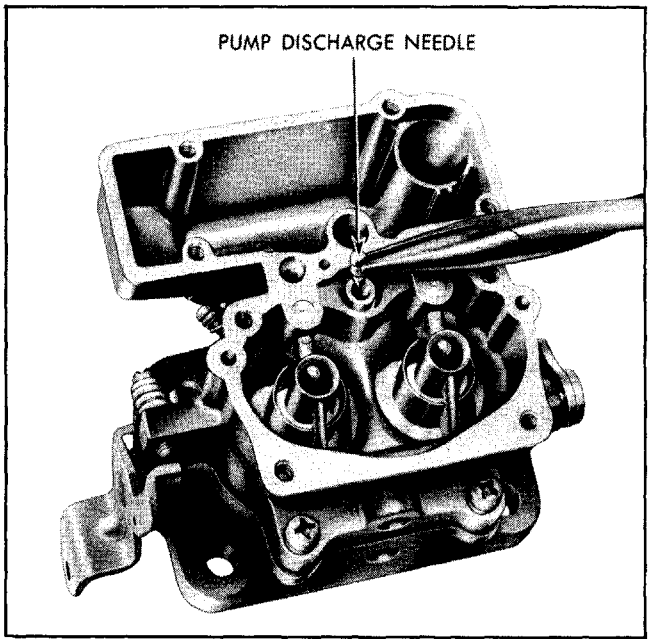


Fig. 6B-25 Installing Pump Discharge Needle—Carter

ASSEMBLY OF AIR HORN

1. Assemble pump plunger spring over plunger shaft.

2. Insert pump shaft through air horn and retain in position with link and pump arm assembly (Fig. 6B-26).

3. Install needle seat and gasket assembly.

4. Install low speed jets. (No gaskets used.)

5. Attach needle pull clip and needle to float, then install float assembly and float pin.

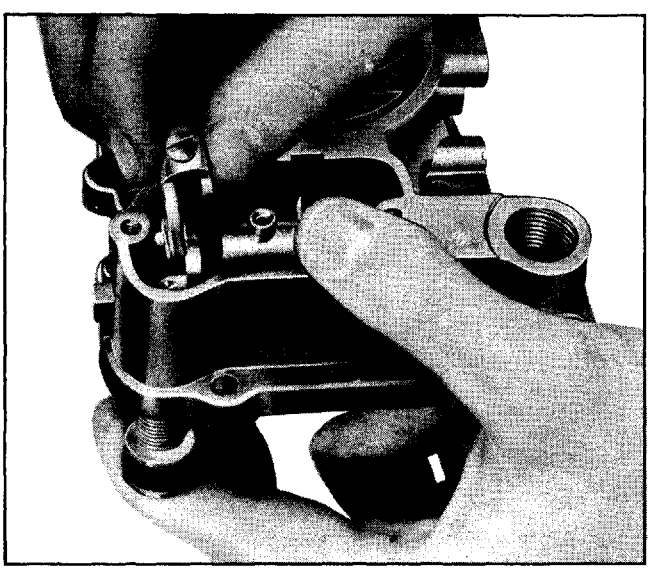


Fig. 6B-26 Installing Pump Shaft—Carter

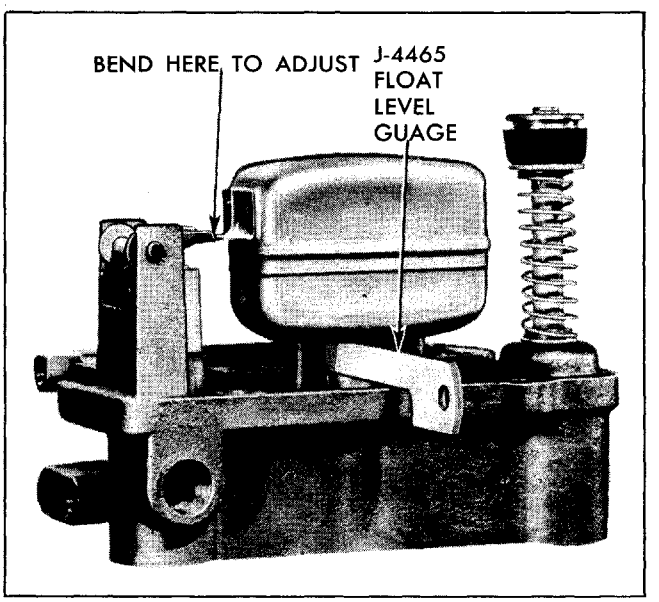


Fig. 6B-27 Float Adjustment—Carter

6. FLOAT ADJUSTMENT: With air horn inverted and needle seated adjust float arm so clearance between top center of float and air horn is 7/32" ± 1/64". Use gauge J-4465 (Fig. 6B-27). To avoid placing any strain on the float, do not grasp the float shell while bending the float arm.

7. Position gasket on air horn.

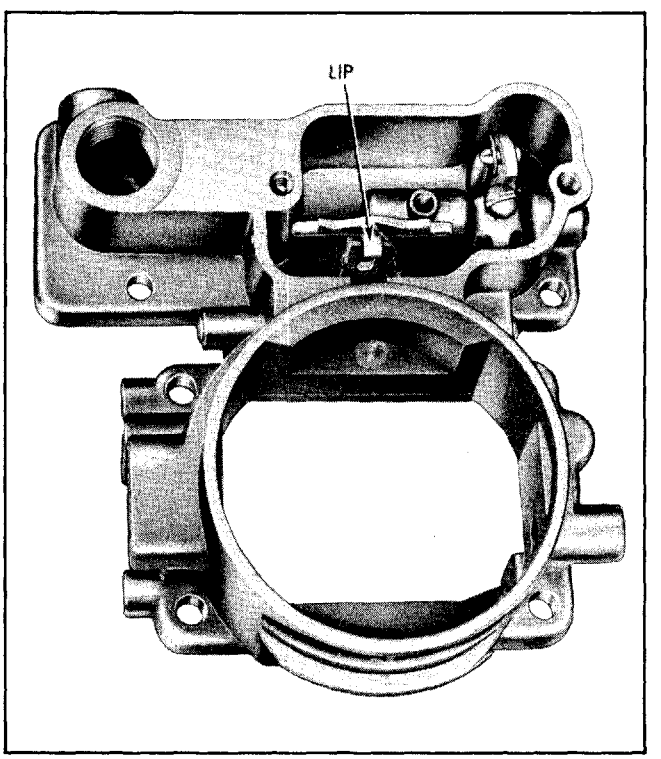


Fig. 6B-28 Installing Vacumeter Piston Link—Carter

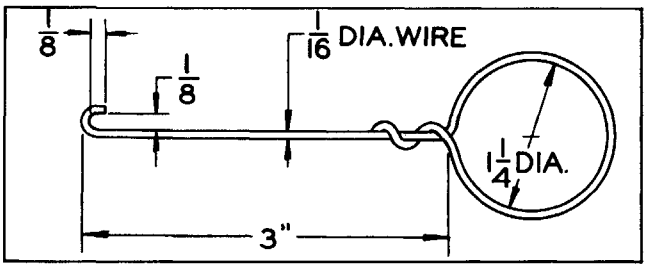


Fig. 6B-29 Wire Hook For Installing Throttle Return Spring—Carter

8. Install vacumeter piston link and metering rod spring assembly in slot with protruding lip toward air horn (Fig. 6B-28).

9. Install vacumeter piston on link with pin extending away from float.

10. Carefully position the air horn assembly on the carburetor body being sure the vacumeter piston and pump plunger are aligned so they enter their respective bores.

11. Install air horn screws, starting with center screws tighten evenly and securely.

12. Place throttle return spring on countershaft.

13. Hold pump arm in place and press countershaft through arm.

14. Hold metering rod arm with finger extending through slot in vacumeter piston link and press shaft in place making sure shaft is completely through metering rod arm. Tighten pump arm locking screw.

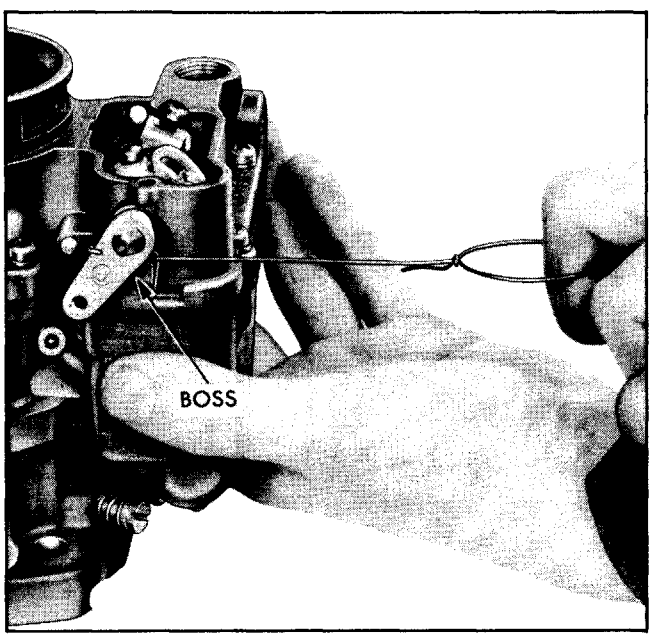


Fig. 6B-30 Installing Countershaft Spring—Carter

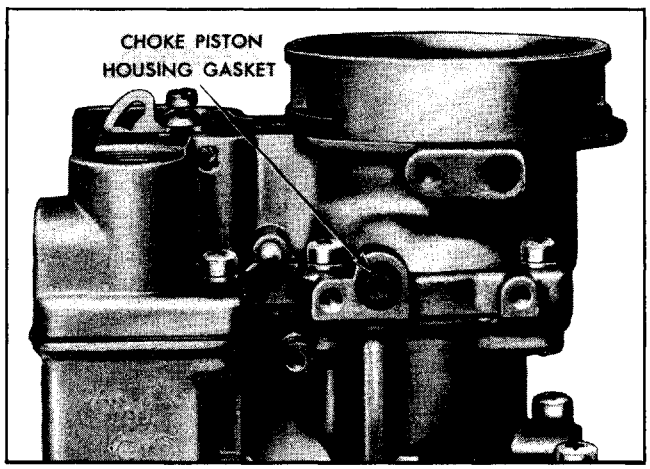


Fig. 6B-31 Choke Piston Housing Gasket Installed—Carter

15. Using a wire hook as shown in Fig. 6B-29, wind throttle return spring ½ turn and catch on boss as shown in Fig. 6B-30.

16. Install throttle connector rod and clevis clips.

17. Install metering rods as follows: Catch metering rod spring loop with lower end of rod as rod is inserted, then twist "eye" of rod onto vacumeter piston link assembly.

18. Install new choke piston housing gasket in air horn (Fig. 6B-31).

19. Assemble piston housing assembly to air horn. Carefully tighten screws alternately as they are of the self-tapping type and must be pulled down securely.

20. Connect the fast idle cam spring to the choke shaft lever (Fig. 6B-32). Install choke piston, lever, link and shaft in the air horn.

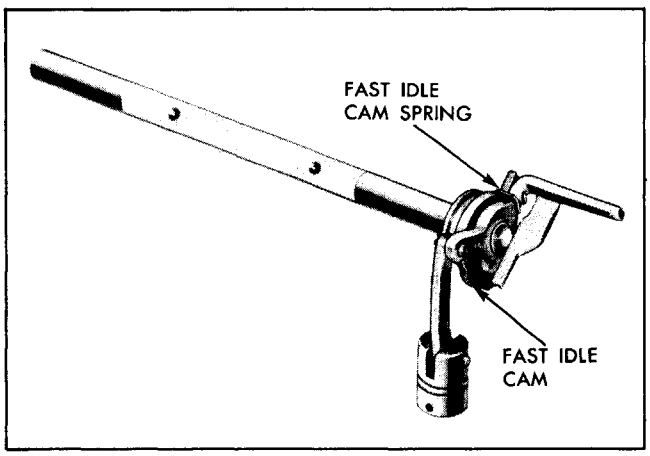


Fig. 6B-32 Choke Piston, Shaft and Fast Idle Cam Assembly—Carter

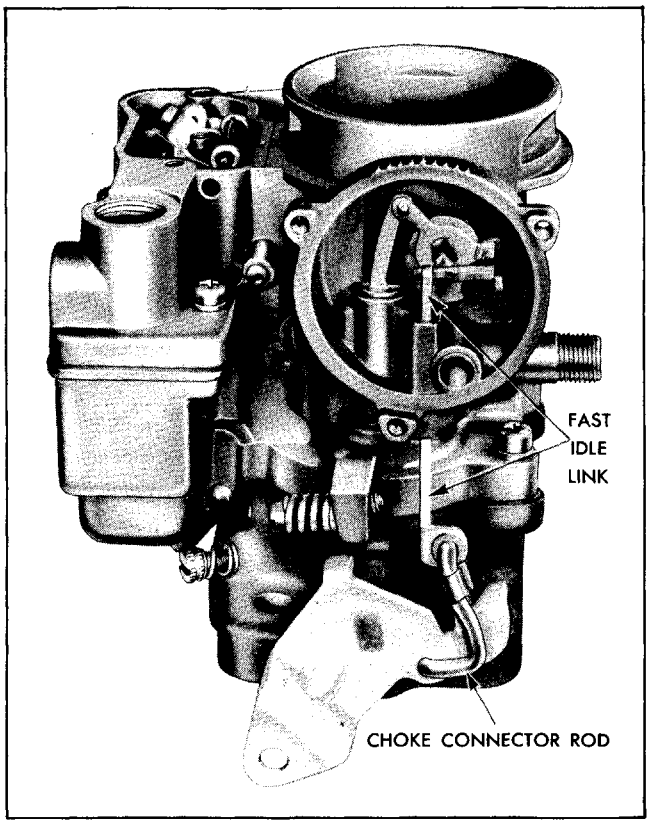


Fig. 6B-33 Fast Idle Link Installed—Carter

21. Install choke valve so that trademark (c in circle) is visible from the top of the carburetor with the valve in the closed position.

22. Center choke valve and install new screws. IMPORTANT: Make sure that neither valve nor shaft binds in any position and that valve drops free by its own weight.

23. Install fast idle link while holding throttle and choke valves wide open (Fig. 6B-33).

24. Install choke connector rod and retainers.

25. Install intake strainer screen, nut and gasket.

ADJUSTMENTS

NOTE: Adjustments should be made in the following order. Assembly of air horn can then be completed as outlined on page 6B–18.

1. Pump adjustment
2. Metering rod adjustment
3. Fast idle adjustment
4. Unloader adjustment

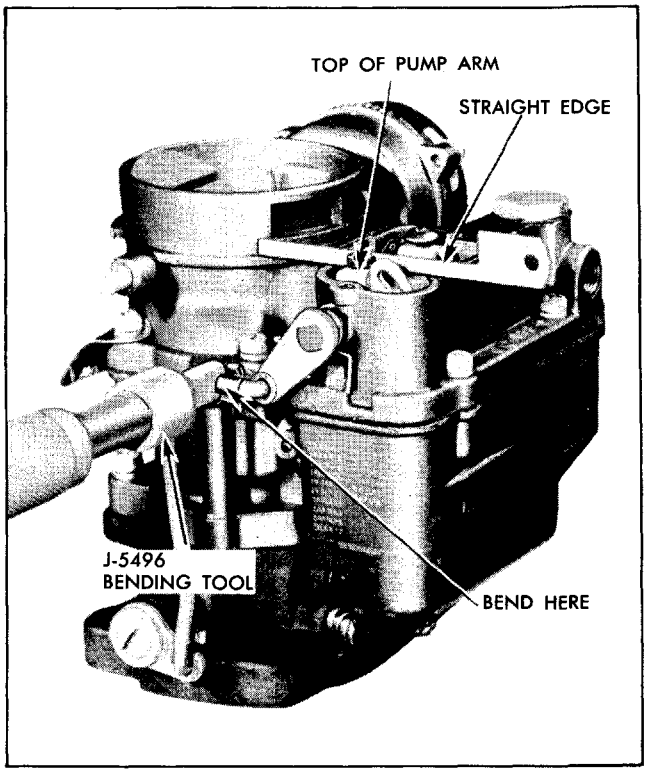


Fig. 6B-34 Accelerator Pump Adjustment—Carter

PUMP ADJUSTMENT

1. Back out 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-34). Bend rod at upper angle until upper flat of pump arm is parallel with straight edge while throttle valves are seated. (Use Tool J-5496.)

METERING ROD ADJUSTMENT

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

2. Press down on vacumeter piston link until metering rods bottom in carburetor body (Fig. 6B-35).

3. Holding rods in this downward position and with throttle valve seated, revolve metering rod arm until finger on arm contacts lip of vacumeter link. Hold in place and carefully tighten clamp screw.

4. Install dust cover.

FAST IDLE ADJUSTMENT (CARBURETOR REMOVED)

1. Hold choke valve tightly closed.

2. Open and close throttle valves. (This positions fast idle link on high step of fast idle cam.)

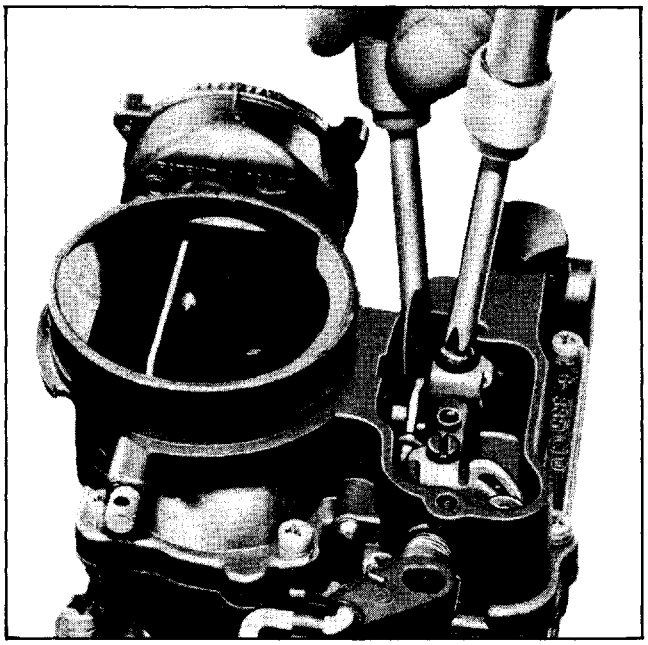


Fig. 6B-35 Metering Rod Adjustment—Carter

3. While holding throttle valves closed with slight tension there should be .026" (gauge J-5908) clearance between the center of throttle valves and bore, opposite idle mixture adjusting screws (Fig. 6B-36).

4. To adjust, bend lower angle of choke connector rod. Use tool J-5496.

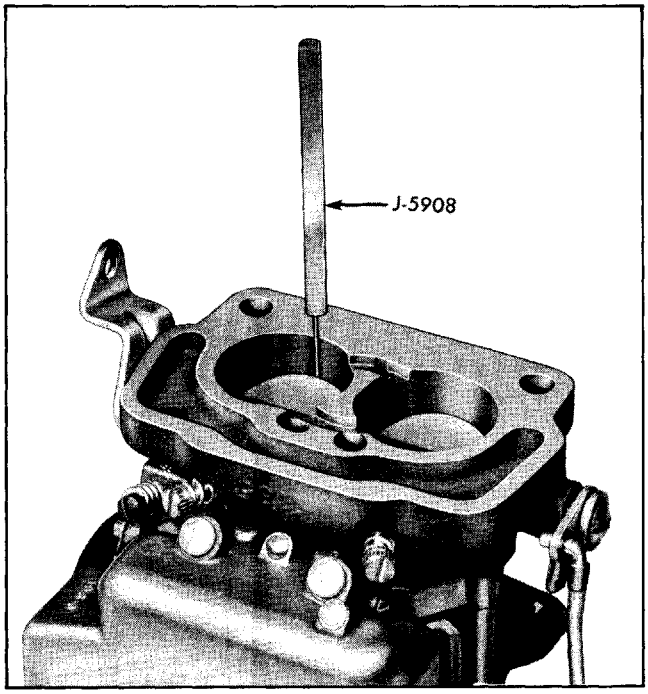


Fig. 6B-36 Fast Idle Adjustment (Carburetor Removed) Carter

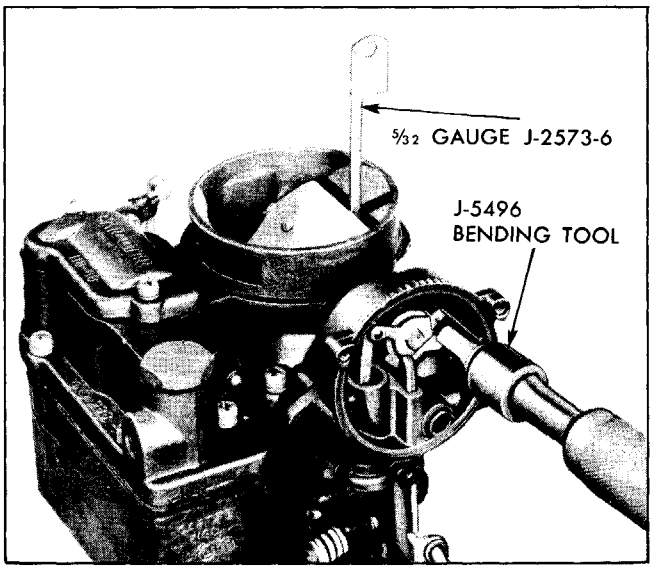


Fig. 6B-37 Unloader Adjustment—Carter

UNLOADER ADJUSTMENT

1. Hold throttle valves wide open.

2. Close choke valve as far as possible without forcing.

3. Clearance should be $\frac{5}{32}$" $\pm\frac{1}{64}$" (gauge J-2573-6) between top edge of choke valve and inner wall of air horn.

4. Adjust by bending choke shaft unloader arm (Fig. 6B-37). Use tool J-5496.

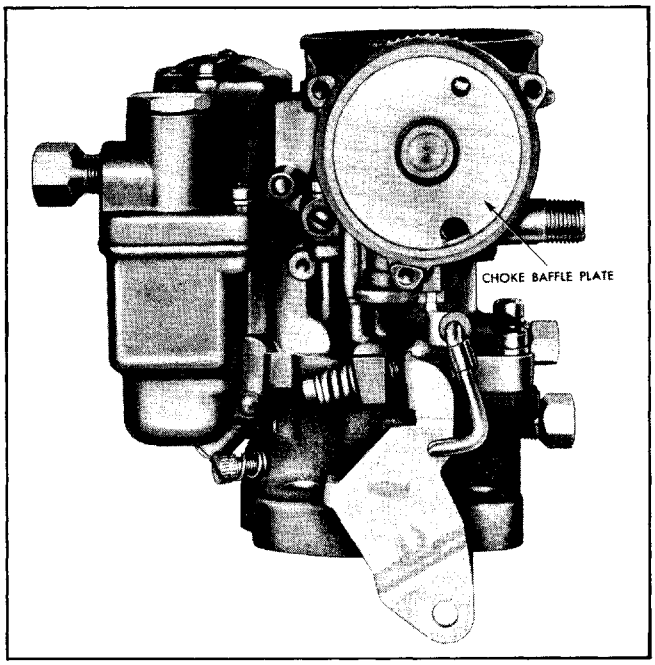


Fig. 6B-38 Choke Baffle Plate Installed—Carter

TO COMPLETE ASSEMBLY OF AIR HORN

1. Install choke baffle plate and gasket as shown in Fig. 6B-38.

2. Install thermostatic coil and housing assembly to air horn with index mark on plastic housing positioned at the bottom. Revolve housing in direction opposite to arrow until index mark on thermostatic coil housing assembly is one notch past center index mark on piston housing. Tighten attaching screws securely.

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.

TROUBLE DIAGNOSIS AND TESTING—CARTER

When carburetor troubles are encountered they can usually be corrected by making the adjustments outlined under "Adjustments on Car". The following list of common troubles and their causes will frequently save considerable time in locating the cause of the difficulty. NOTE: Before any work is performed on the carburetor, make sure trouble is not due to poor compression, or in the ignition system due to improper timing, defective spark plugs, burned ignition points, etc. Always diagnose performance trouble by using the Pontiac Tune-N-Test Guide before adjusting or repairing the carburetor.

When the cause of trouble is not located by the Tune-N-Test, check for trouble in the carburetion system as follows:

POOR FUEL ECONOMY

NOTE: Before any attempt is made to improve fuel economy the actual gasoline mileage should be determined using a tenth of a gallon tester. If the mileage obtained during this test compares favorably with that found on other normal cars, the poor mileage must be attributed to the driving conditions or driving habits of the owner. Also consider factors such as dragging brakes, soft tires, improper tire size, and improper speedometer driven gear.

1. Check automatic choke to see that it operates properly and that it is correctly indexed.

2. Inspect manifold heat valve to see that it operates freely.

3. Check for leaks in fuel line fittings, at fuel tank, or at fuel pump bowl.

4. Check for dirty or restricted air cleaner.

5. Test for high fuel pump pressure.

6. Check metering rod adjustment.

7. Disassemble carburetor and inspect throttle body to bowl gasket and air horn gasket for evidence of leaks in vacuum passages to metering rod vacuum piston and automatic choke vacuum piston. Check float level.

8. Check for worn metering rods and jets.

SURGING CONDITION AFTER SHORT STOP WITH HOT ENGINE

1. Lean carburetor adjustment. Check float level and metering rod adjustment. Also make sure correct metering rods are installed.

2. Weak fuel pump. Check fuel pump pressure and output as outlined on page 6B–77.

FLAT SPOT OR POOR ACCELERATION

1. See that manifold heat valve operates freely and that thermostat is properly installed.

2. Check accelerator pump action. Remove air horn and open throttle to observe stream from nozzles. If pump is not functioning properly check pump adjustment.

3. Check pump for defective plunger leather, obstructed passages, or leaking intake check valve.

ROUGH IDLE WHICH CANNOT BE CORRECTED BY MIXTURE AND SPEED ADJUSTMENT

1. Check manifold gaskets for evidence of air leak into intake manifold. When kerosene is used ensure that no liquid or fumes enter choke stove by disconnecting heat tubes.

2. Check float level.

3. Check idle jets for obstructions.

4. Check idle passages in carburetor castings for obstructions.

5. Check for leak between exhaust gas passage and throttle bore.

IMPROPER HIGH SPEED PERFORMANCE

1. Check spark plug gap.

2. Check distributor points.

3. Test fuel pump output and pressure as outlined on page 6B–77.

4. Check throttle body to bowl gasket and air horn gasket for evidence of air leaks into vacuum passage to metering rod vacuum piston.

5. Check metering rod and float level adjustments.

6. Check for worn or incorrect metering rods or jets.

7. Check for restriction in bowl vent.

8. Inspect high speed passages and nozzles for obstructions.

FLOODING OR LEAKING

1. Test fuel pump for excessive pressure.

2. Clean intake strainer and check for dirt on intake needle or seat.

3. Check float adjustment (make sure float is centered so it does not rub side of bowl).

4. Check for leaking or collapsed float.

5. Check for worn intake needle and seat.

6. Inspect bowl casting for cracks or loose passage plugs.

STALLING DURING WARM-UP DUE TO ICING

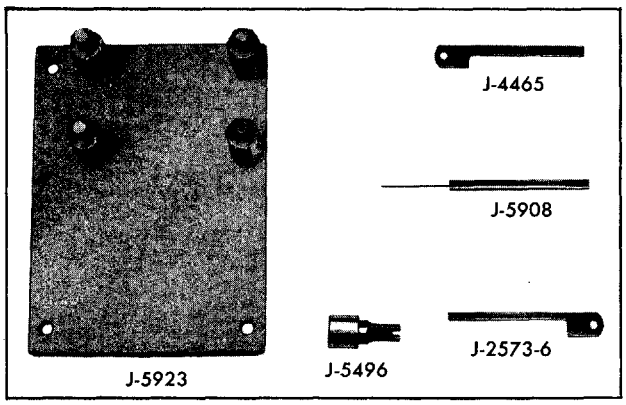
Check exhaust gas passage for carbon build up. Clean hole to manifold and manifold flange surface. Always use new manifold to carburetor gaskets to ensure against leak.

SPECIFICATIONS

CARTER MODEL WGD CARBURETOR

Flange Size	1¼"
Main Venturi (I.D.)	1 3/16"
Primary Venturi (I.D.)	11/32"
Secondary Venturi (I.D.)	21/32"
Throttle Bore	1 7/16"
Low Speed Jet Tube	
Jet 2182S-SA	No. 70 Drill (.028")
2207S	No. 66 Drill (.033")
By-Pass	No. 60 Drill (.040")
Economizer	No. 63 Drill (.037")
Idle Bleed	No. 54 Drill (.055")
Idle Port (upper)	Length .195"—Width .030"
Distance above throttle valve when valve is tightly closed	.139"-.145"
Idle Port (lower, for idle screw)	.0615"-.0655"
Float Level	7/32"
Accelerator Pump	
Pump Jet	No. 74 Drill (.0225")
Discharge Needle Seat	No. 50 Drill (.070")

Main Nozzle	Permanently Installed		
Metering Rod (vacumeter type)	Hydra-Matic 2182S	Hydra-Matic 2182SA-SB	Synchro-Mesh 2207S-SB
Carter No.	75–1124	75–1136	75–1135
Economy Step	.063″	.063″	.060″
Middle Step Tapers to	.056″	.056″	.055″
Power Step	.048″	.048″	.048″
Metering Rod Settings	No Gauges—Necessary to Follow Adjustment Instructions		
Metering Rod Jet	No. 44 Drill (.086″)		
Gasoline Intake Needle Seat	No. 42 Drill (.0935″)		
Vacuum Spark Port			
Diameter	.062″–.064″		
Distance from throttle valve with valve tightly closed	.029″–.039″ (To Top of Port)	.040″–.050″	



CARTER 2-BARREL SPECIAL TOOLS

J-2573-6 ..... Float Level Gauge
J-4465 ..... Choke Unloader Gauge
J-5496 ..... Bending Tool
J-5908 ..... Fast Idle Gauge
J-5923 ..... Holding Stand

SERVICE CRAFTSMAN NEWS REFERENCE

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