ENGINE FUEL

CONTENTS OF THIS SECTION

CARBURETOR AIR CLEANER AND SILENCER

An oiled polyurethane filter element is standard equipment on the 215 6-cyl. and 326 H.O. V-8 engines and is heavy duty equipment on the 326 V-8.

An oiled aluminum mesh filter element is standard equipment on the 326 V-8.

For servicing filter elements see "General Lubrication", Section 2.

HEAT CONTROL VALVE (Fig. 6B-1 & 6B-2)

A thermostatically controlled valve in the outlet of the exhaust manifold on the 6-cyl. and V-8 engines directs the passage of exhaust gases to the intake manifold when the engine is cold.

In the 6-cyl. engine, exhaust gases will then pass through the hollow rectangular housing beneath the intake manifold to warm the incoming fuel mixture.

In the V-8 engine, exhaust gases will pass through the intake manifold crossover passage beneath the carburetor and heat the fuel mixture. From the intake manifold the exhaust gases pass through the left exhaust pipe and out of the system.

As the engine warms up, the thermostatic heat control valve opens allowing all gases to be exhausted without heating the intake manifold.

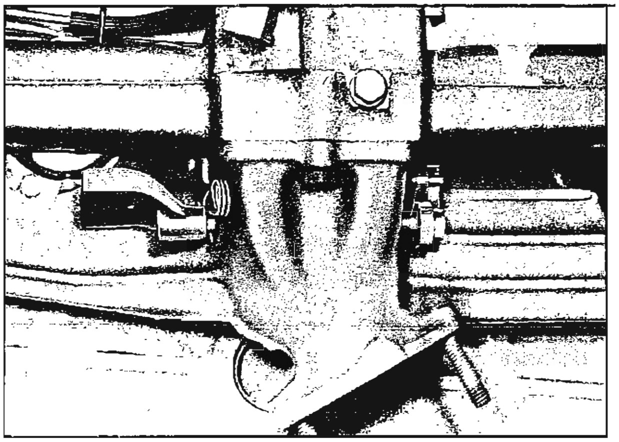

Fig. 6B-1 Heat Control Valve 6 Cylinder

THROTTLE RETURN CHECK (Fig. 6B-3)

The throttle return check is mounted on the carburetor and is designed to open the throttle valves to increase engine speed slightly and prevent stalling when engine vacuum drops. It also acts to retard throttle when the driver suddenly takes his foot off the accelerator pedal. The throttle return check is standard on Tempest V-8 engines with automatic transmissions.

THROTTLE RETURN CHECK ADJUSTMENT (AUTOMATIC TRANS.)

1. Set hot idle and mixture adjustment to specifications.

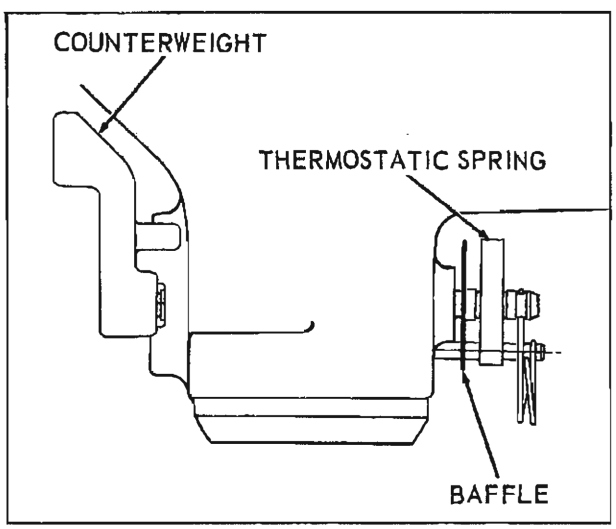

Fig. 6B-2 Heat Control Valve V-8

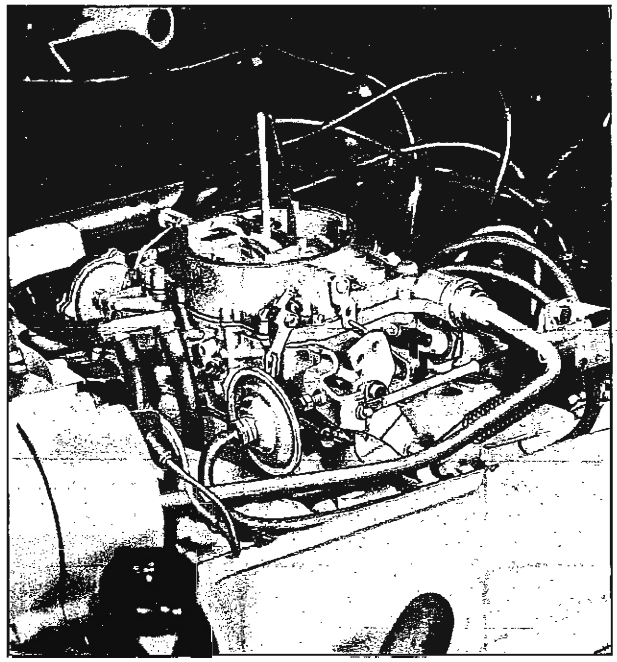

Fig. 6B-3 Throttle Return Check

2. Place transmission in neutral.

3. With engine running adjust diaphragm plunger screw so that when hose is disconnected and plugged, engine speed of 1030-1080 rpm is obtained.

CAUTION: Hold sleeve next to diaphragm from turning while adjusting contact screw.

IDLE SPEED-UP DEVICE

The idle speed-up device (Fig. 6B-4) is standard on 6-cyl. engines with air conditioning. It consists

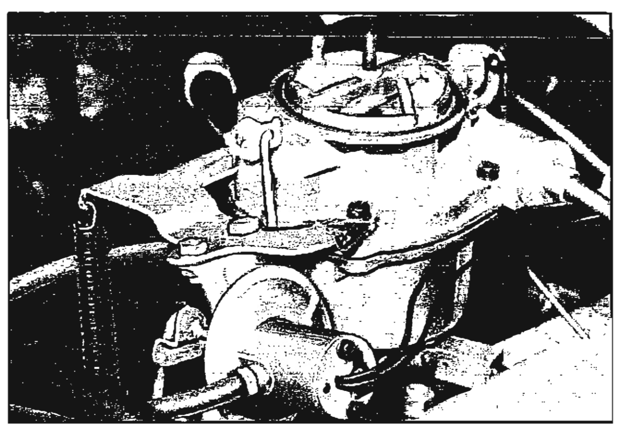

Fig. 6B-4 Idle Speed Up Device

of a solenoid (connected by two wires to the air conditioning compressor) and a vacuum diaphragm similar to a throttle return check diaphragm. The mechanism increases idle speed when air conditioning is on and acts as a throttle return check when the air conditioning is off. When the air conditioning compressor is operating, the solenoid opens a release valve, decreasing diaphragm vacuum, thus causing the diaphragm plunger to partially open the carburetor throttle valve. The solenoid is inoperative when the air conditioning is off.

IDLE SPEED-UP DEVICE ADJUSTMENT

Set hot idle speed and mixture to specification and leave automatic transmission in drive and synchromesh transmission in neutral. Turn on air conditioning for maximum cooling and adjust diaphragm screw to obtain engine speed as follows:

Automatic in Drive, air conditioning on, hot idle compensator closed - 540-560 rpm.

Synchromesh in Neutral, air conditioning on, hot idle compensator closed - 580-600 rpm.

CAUTION: Hold sleeve next to diaphragm from turning while adjusting screw.

HOT IDLE COMPENSATOR

The hot idle compensator used on six-cylinder engines with air conditioning is attached to the tee fitting in the intake manifold. It consists of a bi-metal strip, a valve and housing. It functions as follows:

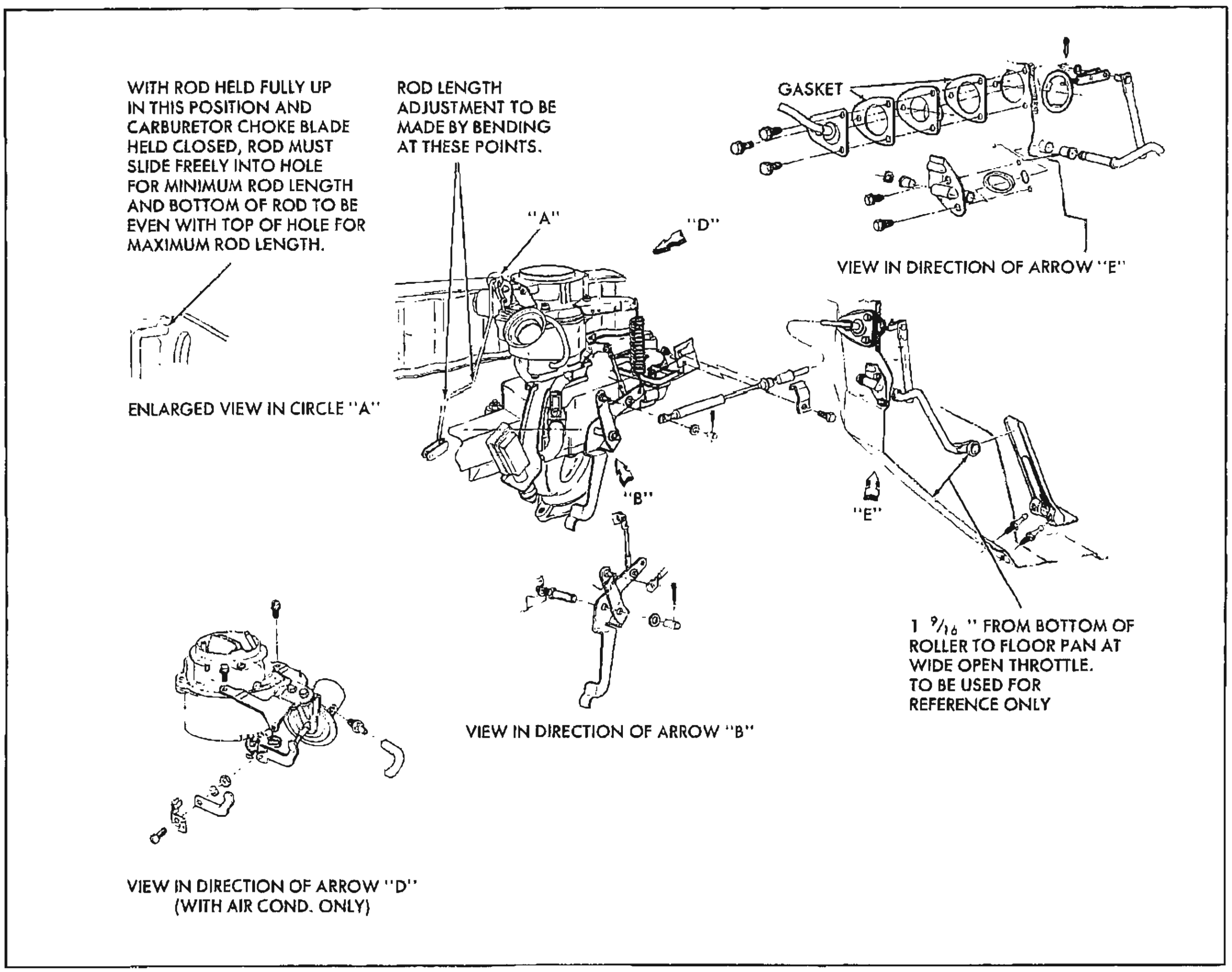

Fig. 6B-5 Accelerator Linkage 6 Cylinder

As engine and underhood temperatures rise to a predetermined value, the bi-metal strip lifts the valve off its seat. This allows fresh air to enter the manifold below the throttle valves and offset rich mixtures, due to fuel vapors, which can cause rough idle and stalling.

When underhood temperatures return to normal, the bi-metal strip will lower and the compensator valve will close and normal idle operation will resume.

NOTE: No adjustments are necessary on the idle compensator. The compensator valve must be closed while adjusting engine idle.

ACCELERATOR LINKAGE ADJUSTMENT

Throttle linkage adjustments cannot be made in 1965. A reference dimension of 1-9/16'' between the bottom of the accelerator pedal roller and floor pan (Fig. 6B-5-6) can be used only as a check for bent bracket assemblies.

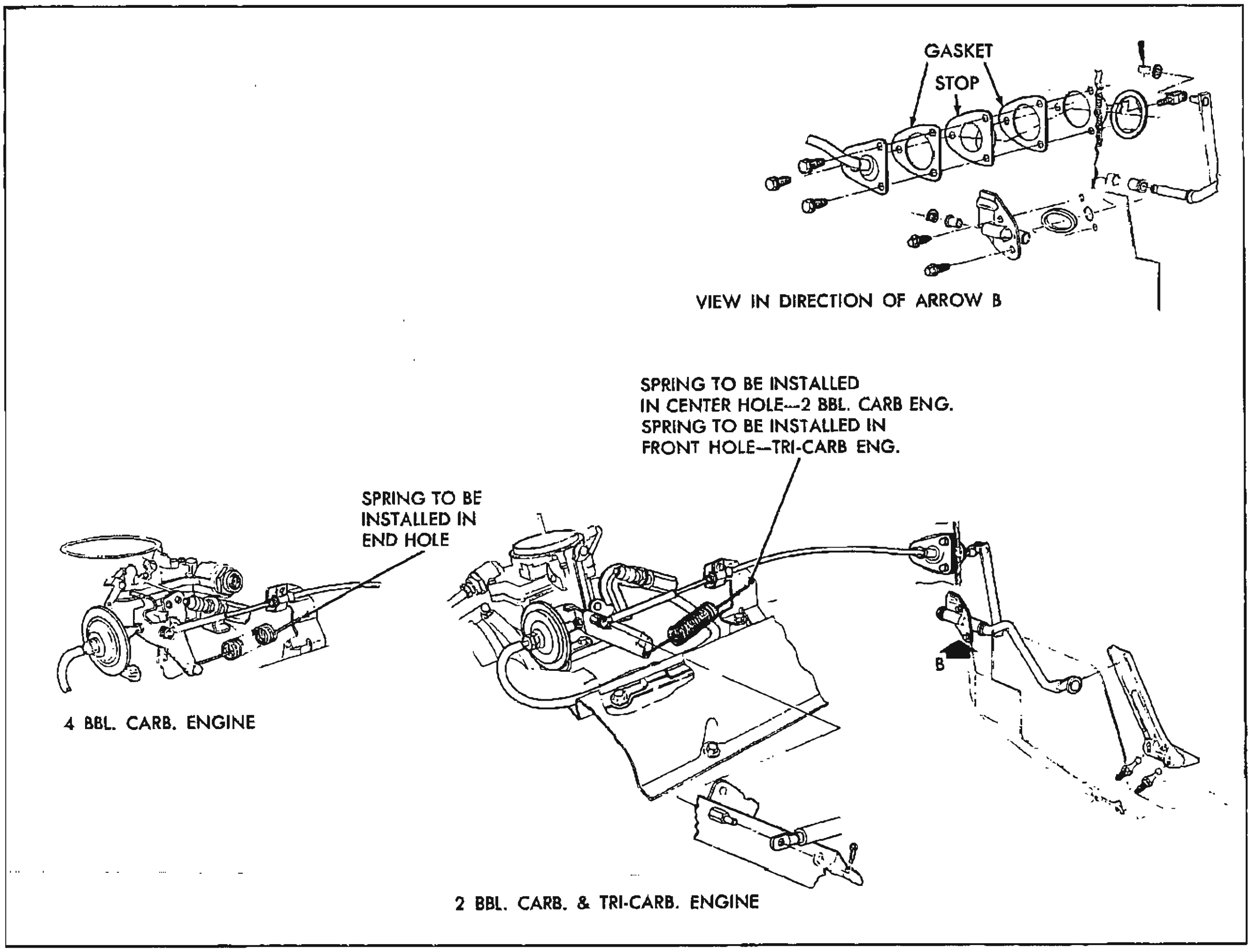

Fig. 6B-6 Accelerator Linkage V-8

ROCHESTER BV CARBURETORS

6 CYL. ENGINE
(1-9/16 Throttle Bore)

GENERAL DESCRIPTION

The Rochester Model BV carburetor is a single barrel, downdraft model with provision for automatic choke mounted on the exhaust manifold, and is used on the 1964 Tempest, 215-cu. in. engine, for both automatic transmission and synchromesh applications (Fig. 6B-7).

Carburetor No.	Used On
7025167	6-cyl. Synchromesh Transmission
7025168	6-cyl. Automatic Transmission

The Model BV carburetor incorporates several distinct features. It has a concentric float bowl, which completely surrounds the main bore of the carburetor. The design of the float bowl, in conjunction with the centrally located discharge nozzle, prevents fuel loss on inclined roads. Regardless of the angle the car assumes, the fuel level is below the nozzle spill point at all times.

Another feature of the carburetor is the unique design of the main well assembly. This assembly contains the main metering jet and power valve. It is attached to the carburetor air horn and is suspended in the float bowl. Engine heat cannot be directly transmitted from the float bowl into the main well area.

On the Model BV carburetor the choke thermostatic coil is located on the exhaust manifold and is connected directly to the choke valve shaft by a connecting rod (Fig. 6B-8). The exhaust-mounted choke coil provides excellent choke response to supply the correct fuel mixtures to the engine during the warm-up period. A vacuum diaphragm unit mounted on the carburetor air horn opens the choke valve, just after starting, to a point where the cold engine will run without loading or stalling (Fig. 6B-8).

The Model BV carburetor incorporates the six systems of carburetion: Float, Idle, Main Metering, Power, Pump and Choke.

FLOAT SYSTEM (Fig. 6B-9)

The Model BV carburetor has the conventional needle and seat to control fuel level in the float bowl. With the concentric float bowl design, dual floats

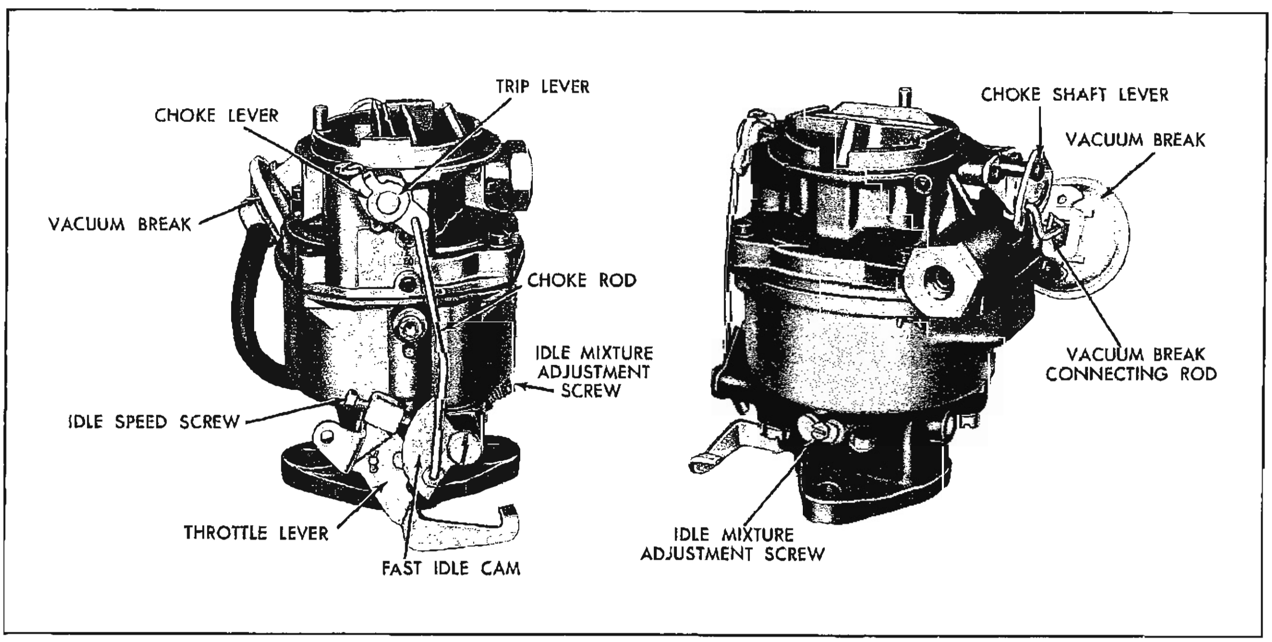

Fig. 6B-7 Rochester BV Carburetors

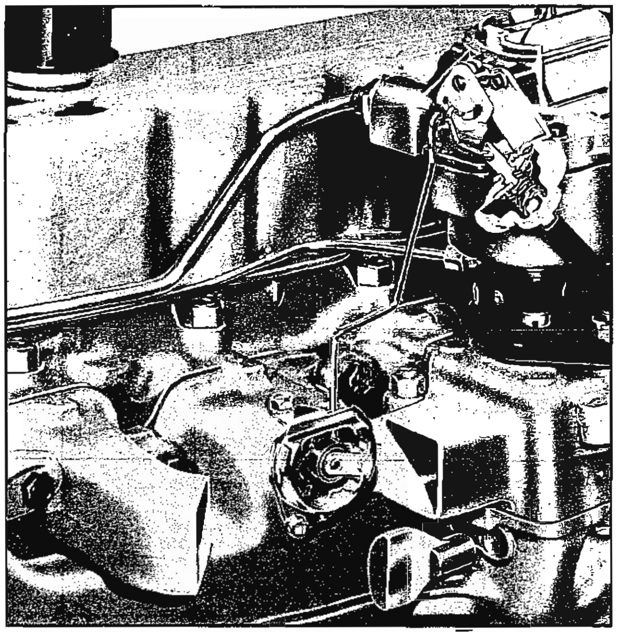

Fig. 6B-8 Thermostatic Coil and Connecting Rod

are used to maintain a constant fuel level at all times. This is important because fuel level directly affects the air/fuel ratio by determining the distance the fuel must rise to enter the nozzle bar for the idle and main discharge systems. A low fuel level will produce too lean a mixture, while a high fuel level will produce a richer mixture and possibly cause flooding. The float bowl is designed so that the fuel is centrally located around the main well, so that efficient carburetor metering can be maintained under all engine operating conditions.

As shown, components of the float system are the inlet fitting and gasket, fuel filter and gasket, pressure relief spring, needle valve and seat, and the float. It should be noted that the fuel filter at the fuel line connection, behind the fuel inlet nut, is spring loaded (Fig. 6B-10). This provides a pressure relief feature so that in the event the filter should plug, the restriction would cause fuel pump pressure to overcome the spring and allow fuel to by-pass the filter.

When the float bowl fuel level is low, the float drops downward and allows the needle to come off its seat. This allows fuel to flow into the float bowl from the engine fuel pump supply. The fuel intake continues until the fuel level reaches the correct height set by the float level adjustment.

At this point, the needle again seats and fuel intake ceases. While the engine is running the float needle is continuously unseating an amount proportional to the rate of fuel consumption by the engine. The float drop tang at the rear of the float hanger prevents the float needle from dropping out of the seat during disassembly and assembly operations.

The carburetor is internally vented by two vent tubes located inside the air horn bore just beneath the air cleaner. The air vents balance the air pressure from beneath the air cleaner to the fuel in the float bowl. The amount of fuel metered by the carburetor is dependent upon the air pressure in the float bowl, causing fuel to flow. By locating the vents below the air cleaner, or internally, the carburetor automatically compensates for air cleaner restriction, since the same pressure causing air to flow will also be causing fuel to flow.

IDLE SYSTEM (Fig. 6B-11)

At idle speeds, the throttle valve is nearly closed so there is not enough air flow through the venturi

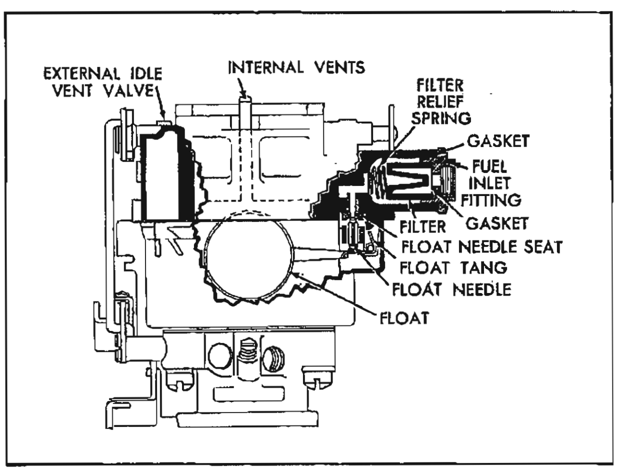

Fig. 6B-9 Float System

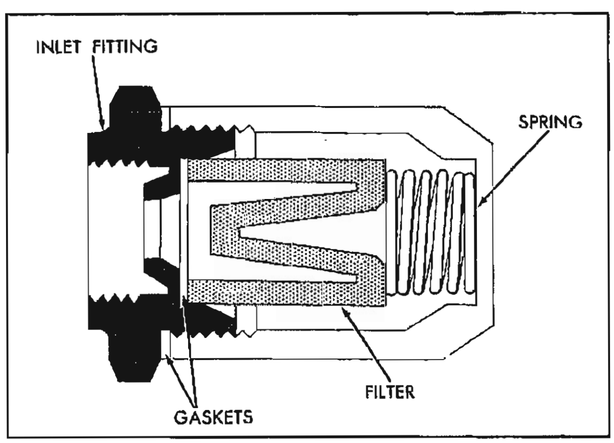

Fig. 6B-10 Fuel Inlet Components

to lift fuel from the float bowl. Therefore, to supply enough fuel for idle and off idle requirements, a separate system is used, called the idle system. To make fuel flow, manifold vacuum is applied directly to the fuel in the bowl from the idle needle hole and off idle port as the throttle valve is gradually opened. The idle system consists of the idle pick-up tube, idle tube, idle passages, idle air bleed, idle mixture adjustment needle, idle discharge holes, and an idle speed adjustment screw.

A fixed air bleed drilled through the throttle valve acts as a deterrent to stalling due to gum formation at the throttle valve. The fixed idle air bleed maintains a constant idle air flow for part of the idle air requirements, while the idle speed adjusting screw regulates the remainder of the idle air. The engine idle speed can be adjusted by the idle speed adjusting screw.

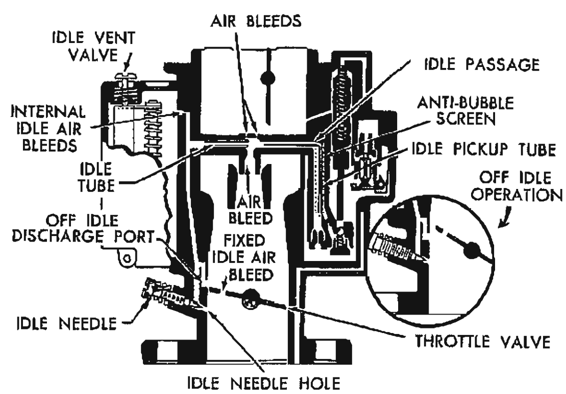

Fig. 6B-11 Idle System

The idle mixture needle hole is in the high vacuum area below the throttle valve while the fuel bowl is vented to atmospheric pressure. Vacuum can be called lack of pressure, so a high vacuum area can be spoken of as an area of low pressure. There is considerable pressure difference between the normal atmospheric pressure on the fuel in the bowl and the low pressure (or high vacuum) at the idle mixture needle hole. The air/fuel mixture will be forced by atmospheric pressure to occupy any low pressure area. Due to the difference in pressure, the fuel will flow from the fuel bowl to the engine manifold.

Atmospheric pressure, acting on the fuel in the float bowl, forces fuel through the main metering jet into the main well. The fuel then passes through an anti-bubble screen in the main well which removes any vapor bubbles that might form during hot engine idle to disrupt carburetor metering. The fuel then travels up through the idle pick-up tube and then through the cross bar channel in the air horn. Air is bled into the idle fuel at the center of the cross bar through the two top bleeds and nozzle hole. The air/fuel mixture then is picked up by the horizontal idle tube in the cross bar and metered through a calibrated restriction, where it passes through a vertically positioned channel and is further bled with air by an internal idle air bleed in the vertical channel in the top of the float chamber. The fuel then travels downward, past the off idle discharge port where more air is picked up to mix with the fuel mixture and it then passes out the idle needle port below the throttle valve. Here the fuel mixture mixes with air coming past the slightly open throttle valves and passes on into the engine as a combustible idle mixture.

The idle air bleed passage in top of the float chamber serves a dual purpose. When the engine is idling or first stopped, the fuel in the carburetor is heated by warm air rising from engine and tends to form vapor in the idle system. A bleed to the float chamber permits the idle system to vent, thereby preventing hard hot starting and rough idling due to vapor build-up in the idle system. The air bleed also assists in removing fuel vapors from the fuel bowl by utilizing these vapors during hot engine idle.

An external idle vent valve located on top of the air horn is operated by the pump plunger rod and vents fuel vapors from the float bowl during hot engine idle and hot "soak". This feature greatly improves hot engine idle and starting. The idle vent automatically closes after the throttle valve has moved from idle position into the part throttle range, at which point the carburetor returns to an internal balance.

Except for the idle mixture adjustment needle, the idle system is specifically calibrated for low engine speeds.

OFF-IDLE OPERATION (see inset Fig. 6B-11)

As the throttle valve is opened slightly and engine speed increases, extra fuel is needed to combine with the additional air going by the throttle valve. This fuel is supplied by the off-idle discharge port. This supplies additional fuel to the engine until air velocity is high enough in the venturi area to obtain efficient metering from the main metering system.

Further opening of the throttle valve causes increased air flow through the carburetor bore which causes pressure drop in the small venturi sufficient to cause fuel delivery from the main nozzle. It should be remembered, however, that idle port discharge does not cease at this transfer point, but rather diminishes as main nozzle discharge increases. Thus, the two systems interact and produce a smooth air/fuel flow at all engine speeds.

MAIN METERING SYSTEM (Fig. 6B-12)

As mentioned, once air flow is sufficient to create enough pressure differential in the small venturi for fuel flow to start from the main nozzle, the transfer point has been reached and the carburetor starts metering from the main metering system.

Since the low pressure point is now in the small venturi area, fuel will be forced from the fuel bowl through the main metering system into the venturi, as follows:

The fuel passes through the main metering jet into the main well where it rises in the main well tube. The fuel continues up the main well tube to the horizontal cross bar in the air horn and through the cross bar to the main discharge nozzle. At this point, air is bled into the fuel by the two air bleeds in the top of the cross bar channel. The mixture is then discharged through the main discharge nozzle into the small venturi. Here, the air/fuel mixture mixes with additional air and moves on to the bore of the carburetor and into the intake manifold.

The calibration of the main metering jet and air bleeds in the cross bar maintain economical air/fuel ratios throughout the main metering or cruising range. Therefore, no adjustments are necessary in the main metering system.

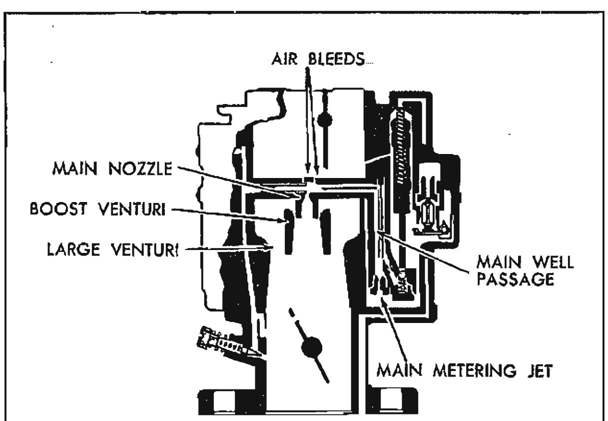

Fig. 6B-12 Main Metering System

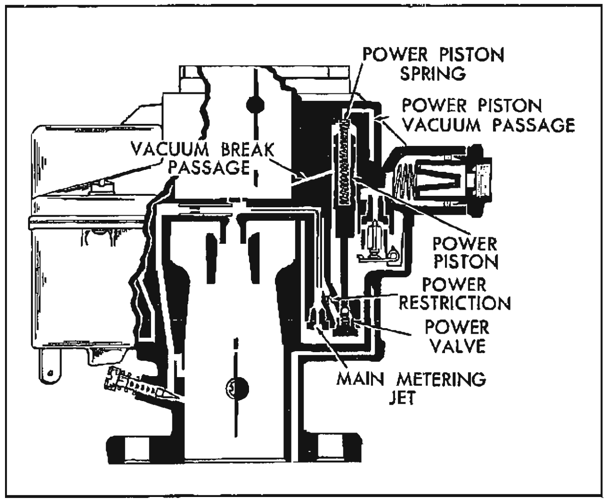

Fig. 6B-13 Power System

POWER SYSTEM (Fig. 6B-13)

A vacuum-operated power system is used in the carburetor to provide additional fuel for sustained high speed operation or increased road load power. A direct manifold vacuum passage within the carburetor to the engine intake manifold connects to the power piston. Under heavy engine load the manifold vacuum drops, thereby decreasing the vacuum pull on the power piston and the piston is forced downward by a spring above the power piston. The power piston spring is specifically calibrated to force the power piston downward at a given manifold vacuum.

The downward motion of the power piston unseats the spring-loaded ball in the power valve assembly. Fuel passes around the ball in the base of the main well support. The calibrated power restriction meters the fuel prior to joining the fuel from the main metering jet. Conversely, as the manifold vacuum rises above a specific point, the power piston is drawn up immediately to the up position and the spring-loaded ball of the power valve closes, returning the carburetor to the economical part throttle mixture. There is no adjustment required for the power system.

The relief passage which is drilled from the bore of the air horn to the power piston chamber serves to relieve any vacuum build-up around the piston diameter. This vacuum, if unrelieved, will draw fuel vapors from the float bowl past the piston and down the vacuum passage into the manifold, resulting in an overly rich mixture.

PUMP SYSTEM (Fig. 6B-14)

Extra fuel for smooth, quick acceleration is supplied by a double spring pump plunger. Rapid opening of the throttle valve, as in the case where accelerating from low speed, causes an immediate increase in air velocity in the carburetor venturi and bore area. Since fuel is heavier than air, it requires a short period of time to "catch up" with the air flow. To avoid a leanness during this momentary lag, the accelerator pump furnishes a quantity of liquid fuel sprayed into the air stream to mix with the incoming air and maintain the proper air/fuel mixture.

The pump is operated by the combined action of two springs which are calibrated to move the plunger in such a manner that a sustained charge of fuel is delivered for smooth acceleration. The pump is attached by linkage to the throttle lever. When the throttle valves are closed, the pump plunger moves upward in its cylinder, allowing fuel to flow from the float bowl through a slot in the side of the pump well, into the pump well, past the plunger head, through the vapor check ball and on into the bottom of the pump well. The pump discharge ball is seated at this time to prevent fuel and air from draining into the pump well from the pump discharge passage.

When the pump plunger is moved downward for acceleration, the force of the stroke seats the vapor check ball in the pump plunger head to prevent fuel flow back into the float bowl. Downward motion of the pump plunger forces fuel up through the discharge passage and lifts the pump discharge check ball from its seat and then passes on through the pump jets into the venturi area where it strikes the side of the boost venturi, atomizing the fuel with the air and is delivered to the engine.

The check ball, inside the pump plunger head, vents any vapors which might form in the pump well during periods of "hot idle" or "hot soak". The check ball is designed so that it can move up and down in its passage. When the pump plunger is not in operation, the vapor vent check ball drops off its seat and vents any vapors which might form in the pump well below the pump plunger head, out through the hole in the pump plunger into the fuel bowl area and out the air horn vents.

CHOKE SYSTEM (Fig. 6B-15)

The purpose of the choke system is to provide a richer mixture for cold engine starting and operation. Mixture enrichment is necessary because fuel vapor has a tendency to condense on cold engine parts, such as the inside area of the intake manifold and cylinder head, thereby decreasing the amount of combustible mixture available in the engine cylinder.

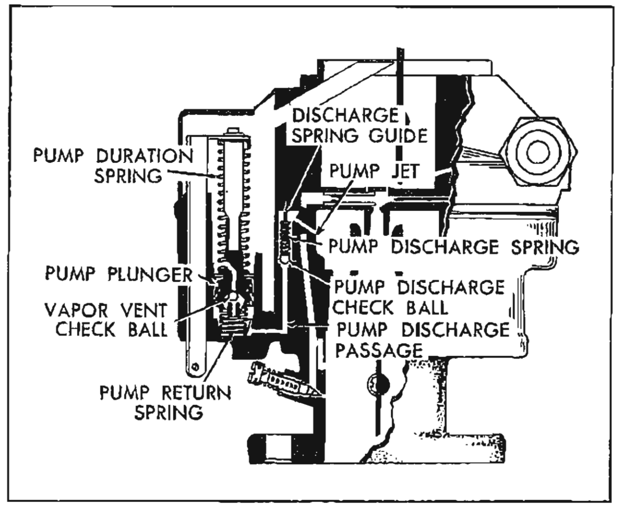

Fig. 6B-14 Pump System

The choke system consists of a choke valve located in the carburetor air horn, a vacuum break diaphragm unit, fast idle cam, choke linkage and a thermostatic coil which will be located on the engine exhaust manifold. The thermostatic coil is connected to the choke valve by a rod. The choke operation is controlled by a combination of intake manifold vacuum, the offset choke valve, atmospheric temperature and exhaust manifold heat.

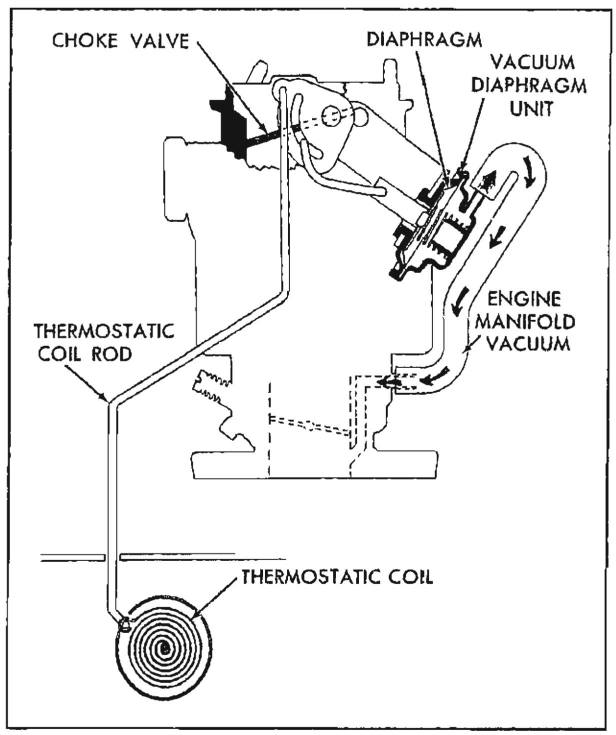

Fig. 6B-15 Choke System

The thermostatic coil located on the engine manifold is calibrated to hold the choke valve closed when the engine is cold. When starting the engine, air velocity against the offset choke valve causes the valve to open slightly, against the torque of the thermostatic coil. When the engine is started and running, intake manifold vacuum applied to the vacuum diaphragm unit mounted on the carburetor air horn will open the choke valve to a point where the engine will continue to run without loading or stalling. The choke valve will remain in this position until the engine begins to warm up and the heat from the engine manifold warms up the thermostatic coil to relax its tension and allows the choke valve to gradually open. Opening of the choke valve is controlled directly by air flow through the carburetor air horn past the offset choke valve and manifold heat acting upon the thermostatic coil.

During warm-up it is necessary to provide a faster idle to prevent engine stalling. This is accomplished by fast idle cam which is connected by a link to the choke shaft. During cold engine starting, the idle screw will rest on the highest step of the fast idle cam. When started and the choke valve is partially open the idle screw drops to the second highest step and so on, until the engine is fully warm and the choke valve is wide open. At this point the idle screw will be on the lowest step of the fast idle cam where normal curb idle is obtained.

If the engine becomes flooded during the starting period, the choke valve can be partially opened manually to allow increased air flow to the carburetor. This is accomplished by depressing the accelerator pedal to the floor. The unloader projection on the throttle lever contacts the edge of the fast idle cam and, in turn, partially opens the choke valve.

ADJUSTMENTS ON CAR

All Rochester BV adjustments can be performed on the car. With the exception of the idle speed and mixture adjustment, all adjustments are included in the "Overhaul and Adjustments" procedure. Following are the idle speed and mixture adjustments.

IDLE SPEED AND MIXTURE ADJUSTMENT

With the engine at operating temperature, adjust idle speed to the following specifications:

Synchromesh. . . . . 580-600 rpm

Automatic (In Drive). . . . . 480-500 rpm

Air Conditioned:

(Automatic Drive Position -
Air Conditioning off
Hot Idle Compensator Closed). . . . .480-500 rpm

(S/M Neutral -
Air Conditioning off
Hot Idle Compensator Closed). . . . .580-600 rpm

1. As a preliminary setting, turn idle mixture screw out 1-1/2 turns from lightly seated position and speed screw in 1/2 to one turn from throttle closed position.

2. Set hand brake securely, place tranmission in neutral and connect tachometer to engine.

3. Start engine and warm up thoroughly. Be sure choke is fully open and carburetor is completely off fast idle.

4. Place automatic in "drive" and adjust idle speed screw to obtain specified idle speed.

5. Turn mixture screw to best quality (highest rpm) idle.

6. Reset idle speed screw to specified idle speed if mixture adjustment changed setting.

7. Recheck mixture adjustment to insure smoothest possible idle.

NOTE: Always recheck idle mixture setting after making idle rpm adjustment with idle speed screw.

8. Adjust idle speed-up device on 6-cyl. A/C cars as follows:

Set hot idle speed and mixture as above and on automatic transmissions leave transmission in drive. Turn air conditioning on for maximum cooling and adjust diaphragm plunger screw to obtain the following engine speeds.

A. Automatic transmission	540-560
B. Synchromesh transmission	580-600

CAUTION: The idle speed-up diaphragm plunger must be restrained from turning while adjusting plunger screw to prevent injury to diaphragm.

OVERHAUL AND ADJUSTMENT

DISASSEMBLY OF CHOKE

1. Disconnect choke vacuum break hose at diaphragm unit and from pipe in throttle body.

2. Remove choke shaft lever screw (diaphragm side), remove two diaphragm bracket screws and remove vacuum break diaphragm assembly.

3. Remove fast idle cam attaching screw. Then the fast idle cam and choke rod can be removed from upper choke lever by carefully rotating assembly upward and sliding end of rod out of upper choke lever. The choke rod can now be removed from the fast idle cam by rotating cam over end of rod.

4. To remove choke valve, remove stake on the end of choke valve screws. Then remove the two choke valve attaching screws from the choke shaft and pull upward on choke valve to remove from shaft. Choke shaft and lever assembly can now be removed from air horn.

Note position of choke trip lever in relation to upper choke lever tang for ease in reassembly.

DISASSEMBLY OF AIR HORN

1. Remove fuel filter inlet nut and gasket with 1" wrench. Then remove filter, filter spring and gasket between filter element and back side of inlet nut (Fig. 6B-16).

NOTE: Large open end of filter element always faces the fuel inlet nut.

2. Remove four air horn attaching screws. Lift air horn straight up from bowl so as not to damage float (Fig. 6B-17). Place air horn, inverted, on a flat surface.

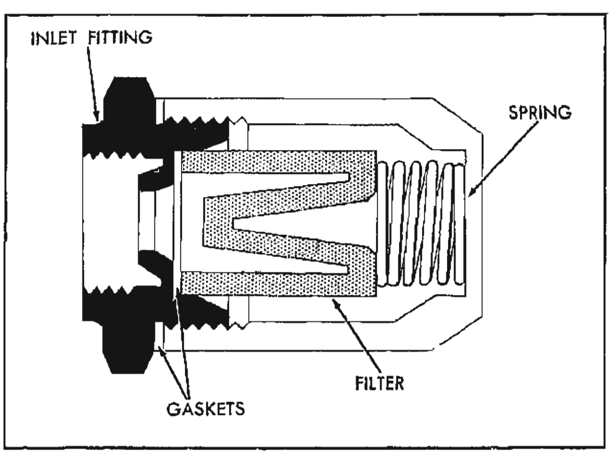

Fig. 6B-16 Fuel Inlet Components

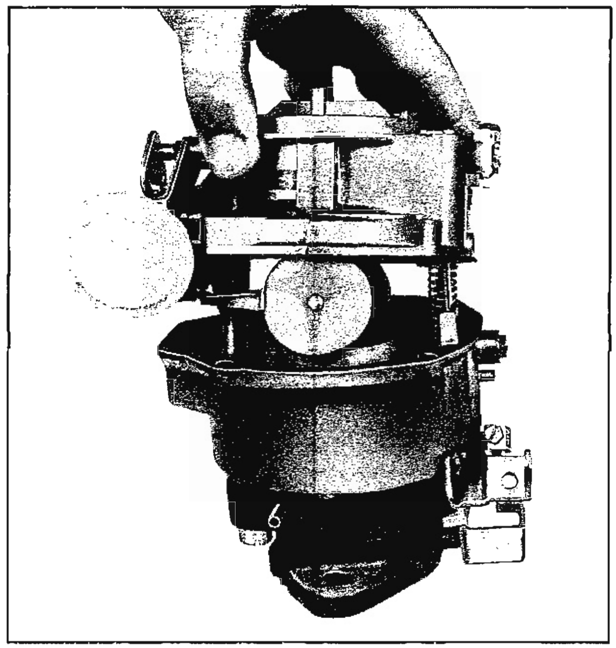

Fig. 6B-17 Removing Air Horn

3. Remove float hinge pin and lift float assembly from air horn (Fig. 6B-18). Float needle may now be removed.

4. Remove float needle seat and gasket with 1/2" bit screwdriver or special needle seat-removing tool (Fig. 6B-19).

5. Remove main metering jet from bottom of main well support (Fig. 6B-20).

6. Remove hex head power valve check ball retainer from bottom of support, then remove power valve spring and ball (Fig. 6B-21).

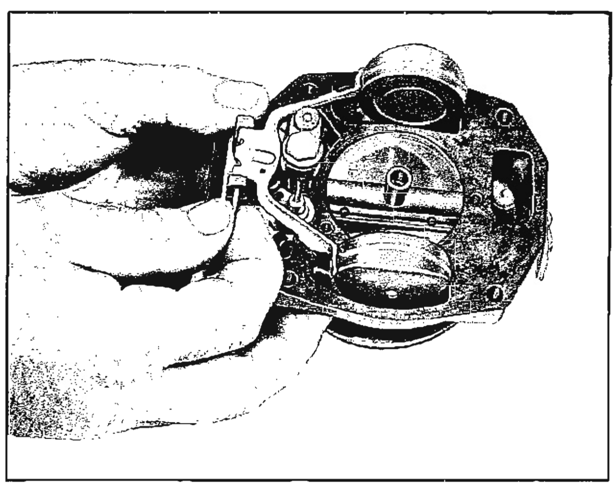

Fig. 6B-18 Removing Float Hinge Pin

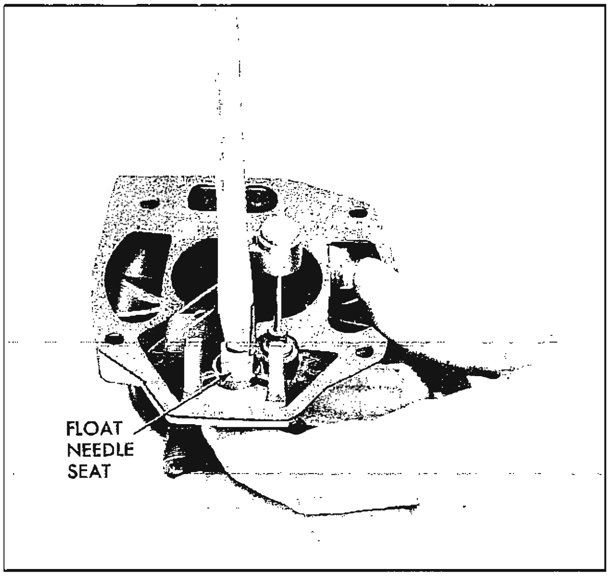

Fig. 6B-19 Removing Float Needle Seat

NOTE: Use care when removing power valve so as not to lose small spring and ball.

7. Remove screw at base of main well support, then remove the main well support from air horn.

8. Remove power piston and power piston spring from air horn (Fig. 6B-22).

NOTE: Do not remove idle pick-up tube from air horn as it is pressed in place. The anti-bubble screen located inside the main well should not be removed. Clean and blow out dry with compressed air only.

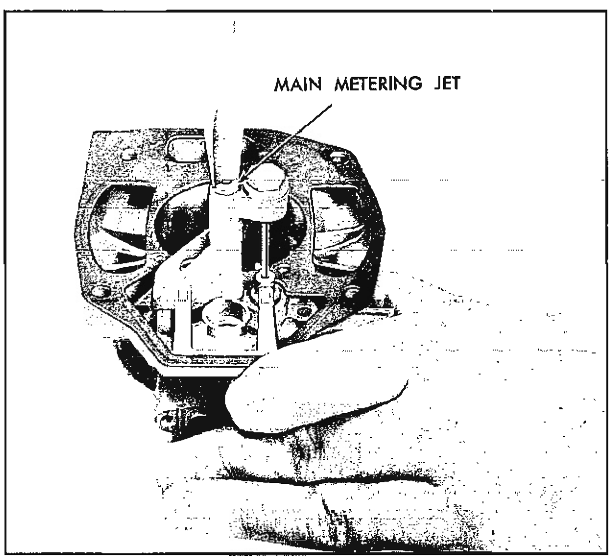

Fig. 6B-20 Removing Main Metering Jet

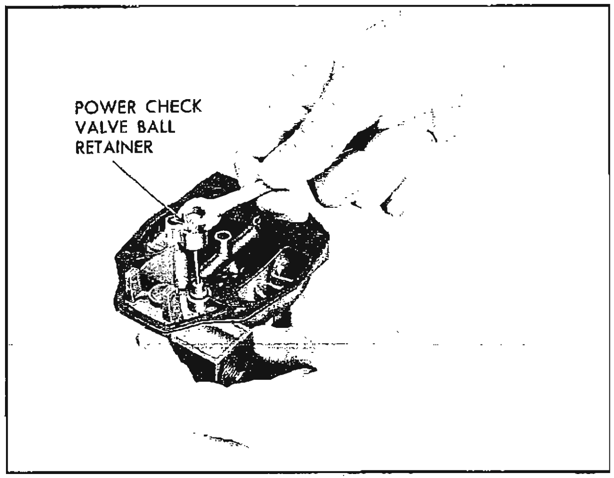

Fig. 6B-21 Removing Power Check Valve Ball Retainer

9. Remove air horn gasket.

DISASSEMBLY OF FLOAT BOWL

1. Using a pair of long nosed pliers, remove pump discharge guide (Fig. 6B-23). Pump discharge spring and ball may now be removed by inverting bowl and shaking into palm of hand.

2. Remove two hair pin clips from pump link and then remove pump link from throttle lever and pump plunger rod.

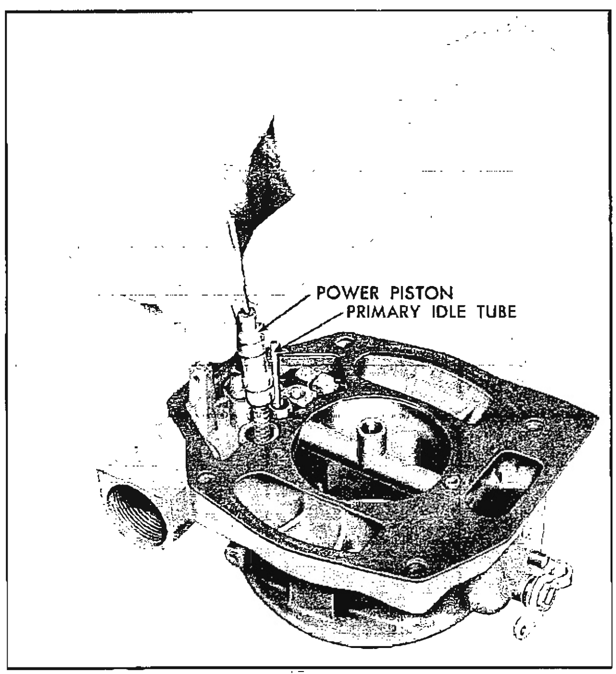

Fig. 6B-22 Removing Power Piston

3. Remove the pump plunger from the float bowl by pulling straight upward (Fig. 6B-24).

4. Remove pump return spring from bottom of pump well (Fig. 6B-25).

NOTE: Do not remove vacuum break suction tube from throttle body.

5. Place carburetor bowl with suction tube projected over edge of flat surface and remove two throttle body attaching screws. Throttle body and gasket may now be removed.

DISASSEMBLY OF THROTTLE BODY

1. Remove idle mixture adjusting needle and spring.

2. Remove idle stop screw from throttle lever if necessary to replace.

NOTE: Due to close tolerance fit of the throttle valve in the bore of the throttle body, do not remove the throttle valve or shaft from the throttle body.

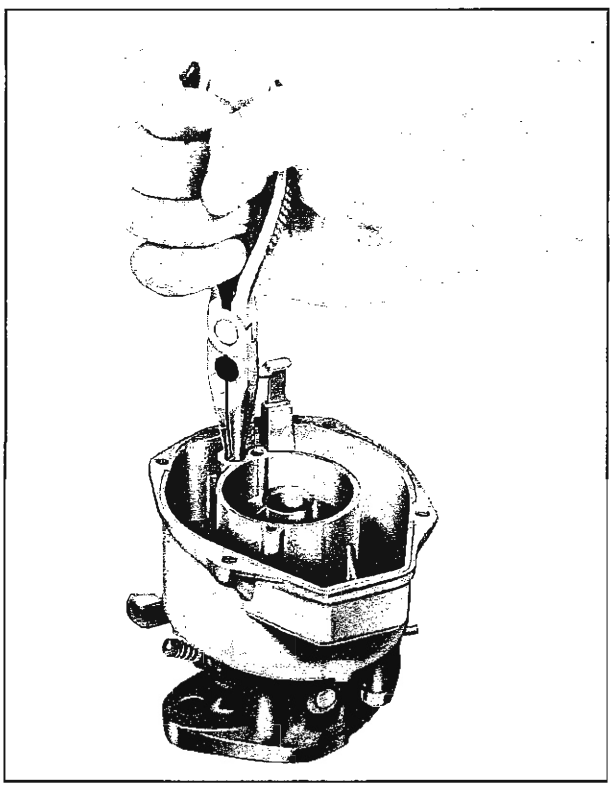

Fig. 6B-23 Removing Pump Discharge Guide

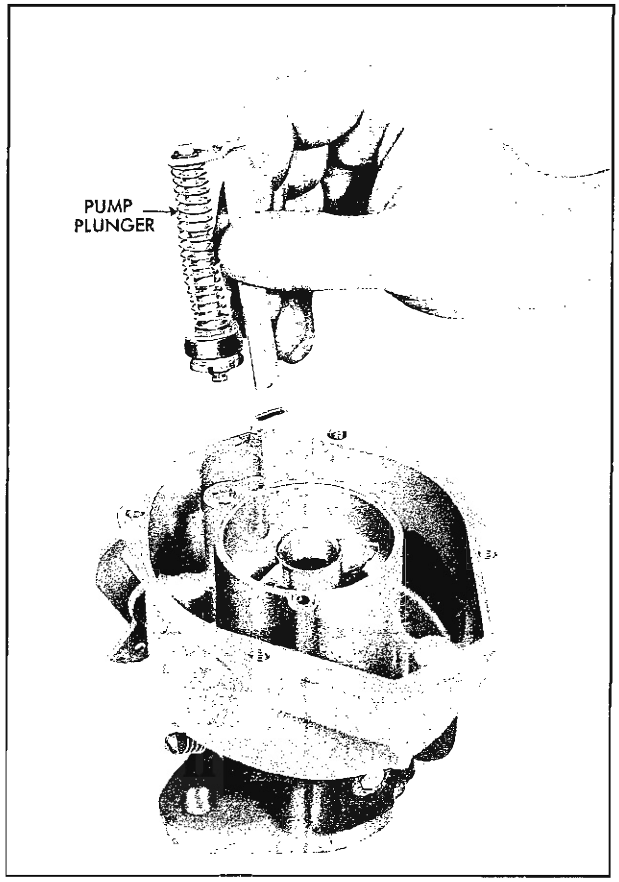

Fig. 6B-24 Removing Pump Plunger

CLEANING AND INSPECTION

1. Thoroughly clean carburetor castings and metal parts in carburetor cleaning solvent.

CAUTION: Pump plunger and any synthetic or plastic parts should not be immersed in commercial carburetor cleaner. Clean in clean solvasol or equivalent. Plastic vacuum break diaphragm unit should not be immersed in any cleaner.

2. After cleaning, blow all passages and castings with compressed air and blow out all parts until dry.

CAUTION: Do not pass drills or wires through calibrated jets or orifices as this may enlarge orifice and seriously affect carburetor calibration.

3. Check all parts for wear. If wear is noted, defective part must be replaced.

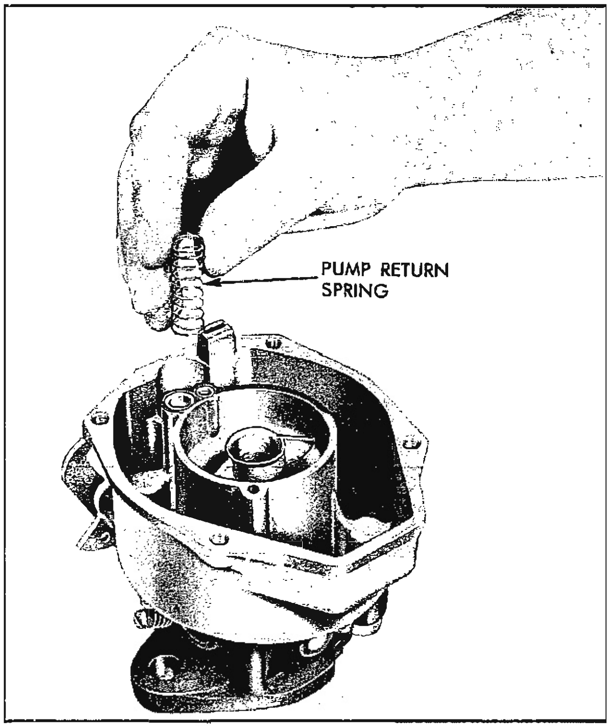

Fig. 6B-25 Removing Pump Return Spring

NOTE: Especially the following:

a. Check float needle and seat for wear.

b. Check tank on float arm above float needle for wear and floats for dents. Check floats for leaks by shaking.

c. Check throttle and choke shaft bores in throttle body and air horn castings for wear or out of round.

d. Check idle mixture needles for burrs or ridges.

e. If wear is noted on the steps of the fast idle cam, it should be replaced as it may upset engine idle during the engine warm-up period.

f. Inspect pump plunger. Replace plunger if leather or synthetic rubber is scored, hardened or damaged.

g. Check pump plunger vent ball to make sure it is free inside pump plunger head. This may be done by shaking; ball should rattle freely.

h. Inspect for burrs on the power piston or a distorted power piston stem or spring.

4. Always use new gaskets in reassembly.

5. Clean all dirt or lint out of the fuel inlet filter. If filter remains plugged, replace it. Check relief spring for distortion, replace it if necessary.

6. Thoroughly clean anti-bubble screen in main well. If screen remains plugged, replace main well support.

THROTTLE BODY ASSEMBLY

1. Install idle stop screw in throttle lever, if removed.

2. Screw idle mixture adjusting needle and spring into throttle body until it is finger tight. Back needle out 1-1/2 turns as a temporary idle mixture adjustment.

3. Using a new gasket, attach throttle body to bowl, using two screws and lockwashers. Tighten screws evenly and securely.

NOTE: If needed, a new vacuum seal can be installed after carburetor is completely assembled.

FLOAT BOWL ASSEMBLY

1. Install 3/16" steel ball into pump discharge cavity. Carefully insert pump discharge spring and guide on top of ball. Tap the discharge guide lightly to seat flush with the float bowl casting.

NOTE: The pump discharge guide is installed correctly when it is at right angles with the pump discharge jet.

2. Place pump return spring in pump well and bottom spring in well by forcing downward with index finger.

3. Install pump plunger assembly in bowl, making sure not to curl rubber during installation.

4. Attach pump link to pump plunger rod and throttle lever, using two hair pin clips.

NOTE: Dog leg in pump link will face away from throttle shaft when installed correctly. Ends of link will protrude outward away from throttle body.

AIR HORN ASSEMBLY

1. Install float needle seat and new gasket, using special tool or screwdriver with 1/2" bit.

2. Place new air horn gasket on top air horn, check to be sure that all air horn and gasket holes are in line.

3. Install power piston spring and power piston in vacuum cavity.

NOTE: Piston should ride free in cavity.

4. Install power valve ball (small steel ball), power valve spring, and retainer in main well support. Tighten retainer securely.

5. Attach main well support to air horn assembly and tighten attaching screw securely.

NOTE: Check for free motion of power piston.

6. Install main metering jet in main well support.

7. Place float needle in float needle seat.

8. Place float carefully in position with drop tang pointing downward towards air horn and install float hinge pin.

FLOAT LEVEL ADJUSTMENT (Fig. 6B-26)

With the air horn inverted and gasket in place, measure the distance from the air horn gasket to the bottom of each float, as shown. Bend the adjustment tang on float arm which contacts float needle, as necessary, to obtain the specified dimension of 1-9/32" ± 1/32".

Align floats by making sure they are parallel and centered in the air horn gasket cut-out. Recheck float level adjustment if float alignment is necessary.

FLOAT DROP ADJUSTMENT (Fig. 6B-27)

Bend the float tang at the rear of the float arm, next to the needle seat, as necessary to obtain a distance of 1-3/4" from the gasket surface to the bottom of the float with the air horn held in the upright position and the float hanging free. Measure with a scale.

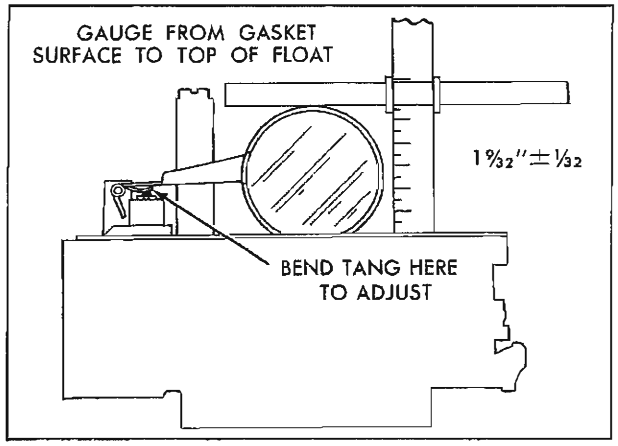

Fig. 6B-26 Float Level Adjustment

9. Install air horn to bowl assembly, being careful to lower the air horn straight down so that the floats will not be bent during installation.

10. Install four air-horn-to-float-bowl attaching screws and tighten evenly and securely.

11. Install filter gasket inside fuel inlet nut, filter relief spring, filter element retaining in place with the fuel inlet nut and gasket.

CHOKE ASSEMBLY

1. Install upper choke rod lever on choke shaft. Tang on the choke lever should point towards air horn casting.

2. Assemble choke shaft into air horn from the throttle lever side. Tang on the trip lever should be above the tang on the choke lever. See Fig. 6B-28.

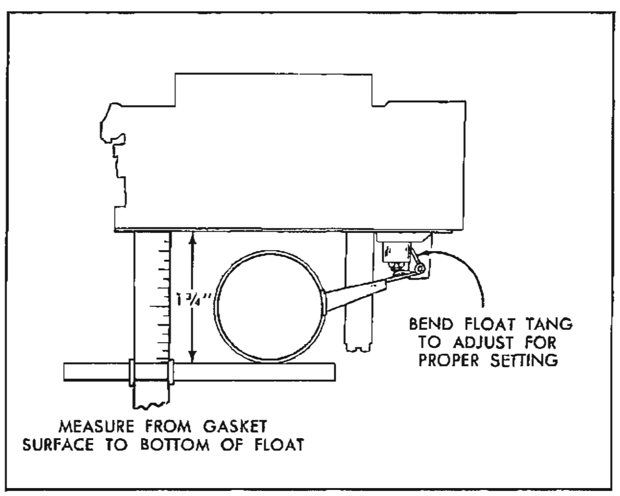

Fig. 6B-27 Float Drop Adjustment

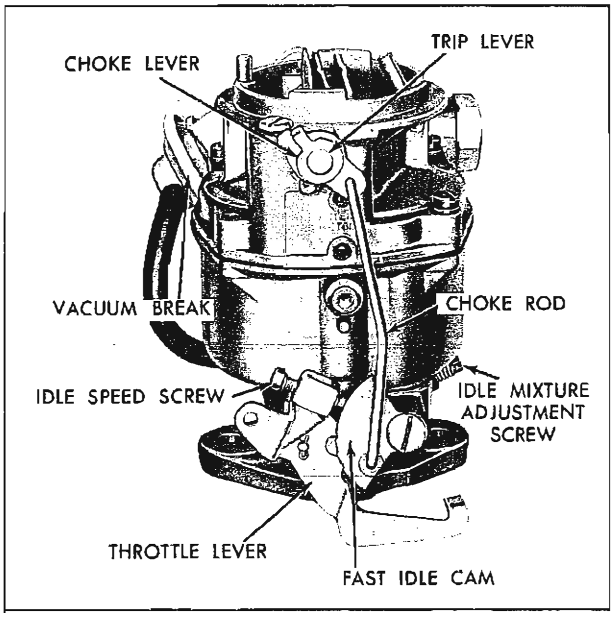

Fig. 6B-28 Trip Lever and Choke Rod Lever

3. Install choke valve into the slot in the choke shaft. RP trade mark should face upward. Install two choke valve attaching screws.

4. To insure proper end clearance between the choke trip lever and choke rod lever, move the choke shaft horizontally to obtain .020 clearance between the two levers (Fig. 6B-29). Then tighten the two choke valve attaching screws securely and stake in place.

5. Install vacuum diaphragm unit and bracket to side of air horn, retaining with two attaching screws. Tighten securely.

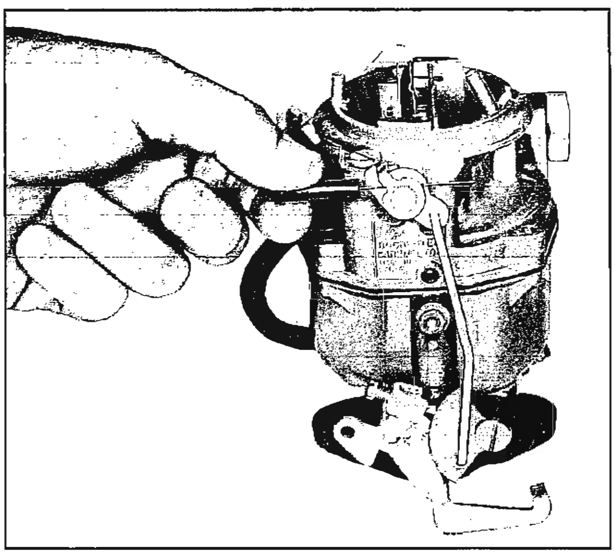

Fig. 6B-29 Trip Lever and Choke Rod Lever Clearance

6. Install choke shaft lever to end of choke shaft (diaphragm side), aligning flats on lever with flats on choke shaft. Large side of lever will hang downward and part No. identification faces outward (Fig. and tighten securely.

7. Install connecting rod to vacuum break diaphragm plunger by rotating end of rod so squirt on rod enters notch in plunger, ends of rod face inward (Fig. 6B-31). Install other end of rod into slot in choke lever. Install horseshoe clip in groove in rod end and pinch together.

8. Install the choke rod to the fast idle cam as shown, then carefully insert the upper end of the choke rod into the upper choke lever (Fig. 6B-32). The dog leg of rod must face towards the idle mixture adjusting needle.

9. Attach the fast idle cam to the throttle body assembly with the fast idle cam screw and tighten securely. The steps on the fast idle cam should face towards the idle speed screw (Fig. 6B-32).

IDLE VENT ADJUSTMENT (Fig. 6B-32)

With idle rpm set to specification, and screw on low step of cam, the idle vent valve should be open .040" ± .010" as specified. Adjust by turning valve on top of air horn, as needed.

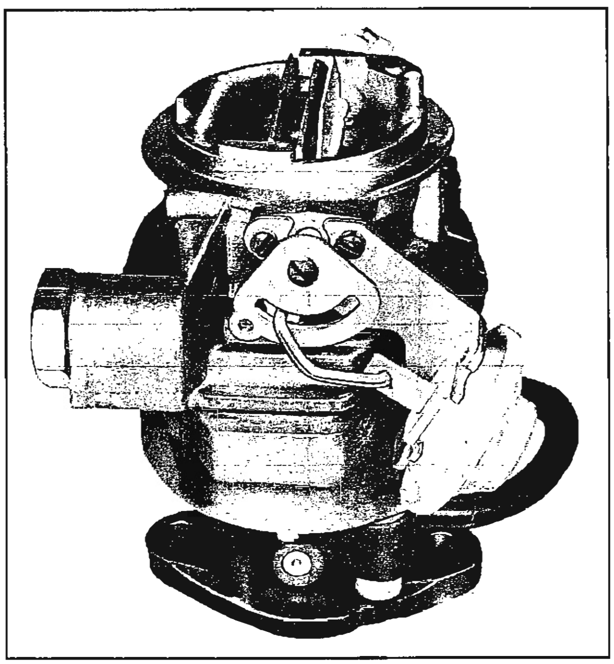

Fig. 6B-30 Choke Shaft Lever Installed

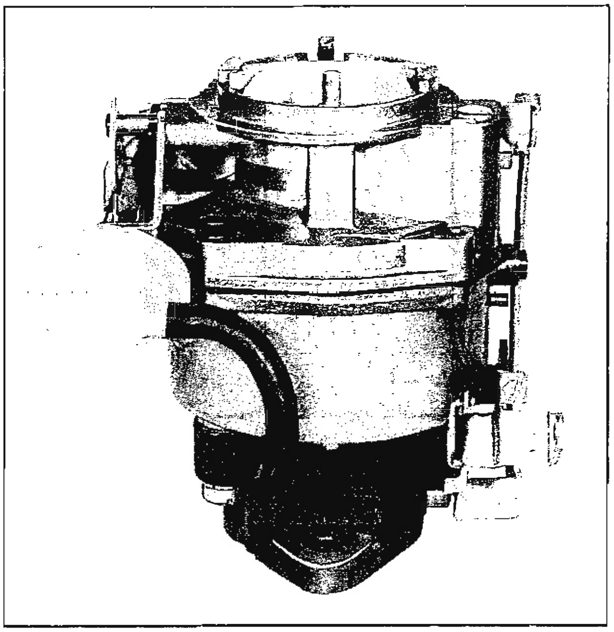

Fig. 6B-31 Vacuum Break Diaphragm Installed

VACUUM BREAK ADJUSTMENT (Fig. 6B-33)

To insure correct initial choke valve opening, just after engine starting, adjust vacuum break as follows.

Push the vacuum break diaphragm plunger in until seated, make sure the choke valve is held toward closed position so that the connecting rod is at end of the slot. In this position, adjust rod so that .140" ± .015" gauge will fit between lower edge of choke valve and inside of air horn casting.

To adjust, bend the connecting rod at the point shown.

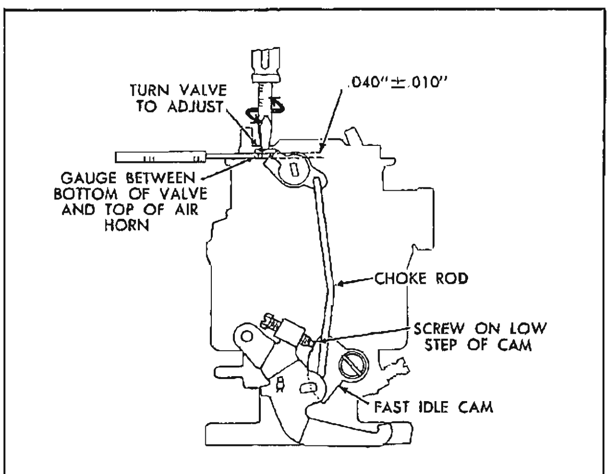

Fig. 6B-32 Idle Vent Adjustment

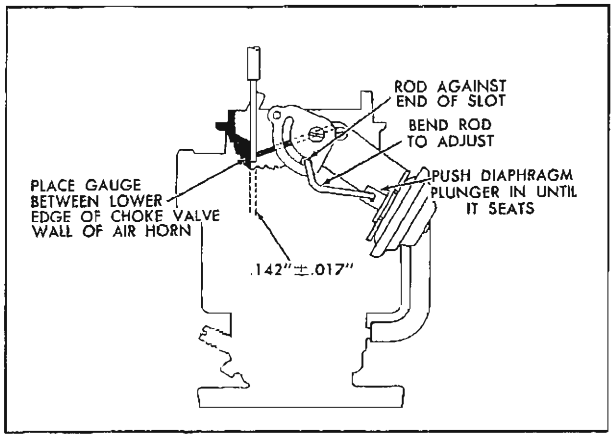

Fig. 6B-33 Vacuum Break Adjustment

CHOKE ROD ADJUSTMENT (Fig. 6B-34)

With the idle screw resting on the second step of the fast idle cam and against the shoulder of the high step, bend the choke rod as shown to obtain sufficient clearance to allow the insertion of a .060" ± .015" gauge between the lower edge of the choke valve and the dividing wall of the air horn.

UNLOADER ADJUSTMENT (Fig. 6B-35)

Bend the unloader tang on the throttle lever as necessary to allow the insertion of a .230" ± .030" gauge between the lower edge of the choke valve and the dividing wall of the air horn, with the throttle valves held wide open.

CAUTION: Make sure unloader arm does not interfere with fast idle cam screw after this adjustment.

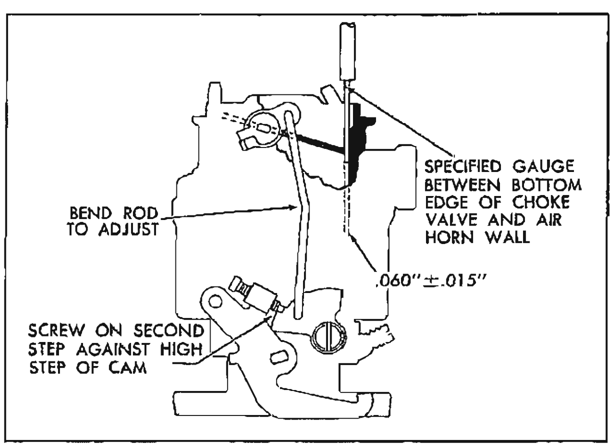

Fig. 6B-34 Choke Rod Adjustment

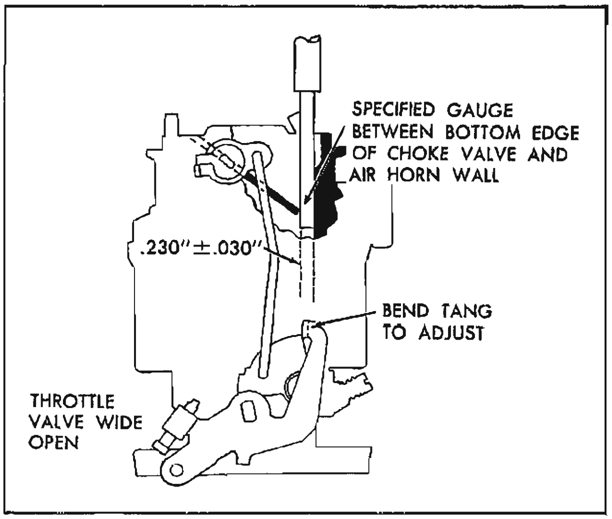

Fig. 6B-35 Unloader Adjustment

AUTOMATIC CHOKE ADJUSTMENT (Fig. 6B-36)

Disconnect upper end of choke thermostatic coil rod from choke lever. Hold the choke valve completely closed and pull up on thermostatic coil rod to the limit of its travel. The lower edge of the rod should be even with the top edge of the hole in choke shaft lever for maximum rod length while the rod should just line up with the hole for minimum rod length.

To adjust, bend rod as shown.

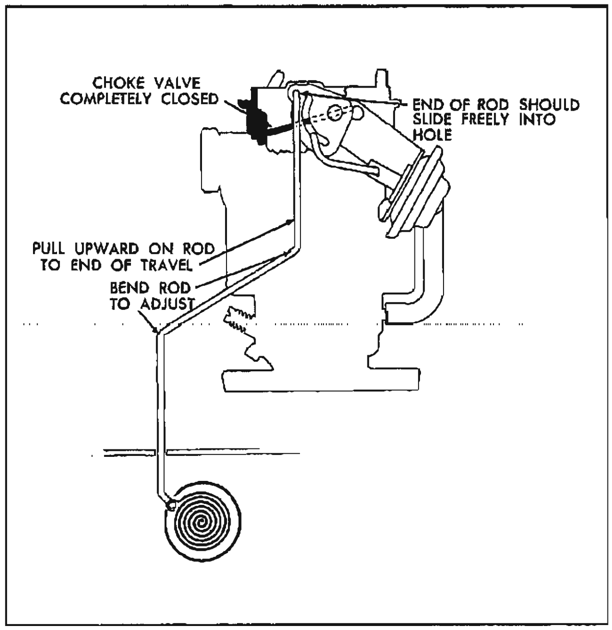

Fig. 6B-36 Automatic Choke Adjustment