

CARBURETION

Vacu-Jet & Two Piece Flo-Jet

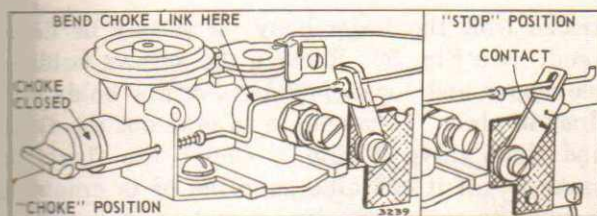


Fig. 55 - Adjust Choke Link

Install Carburetor

Install carburetor and fuel tank as an assembly. Hook throttle link into carburetor throttle and governor lever. (For various hook-ups, see Remote Control, Section 4). Raise carburetor into place, insert a new gasket and fasten with mounting screws.

Install governor spring. Install ground wire and remote control where used. Fig. 56.

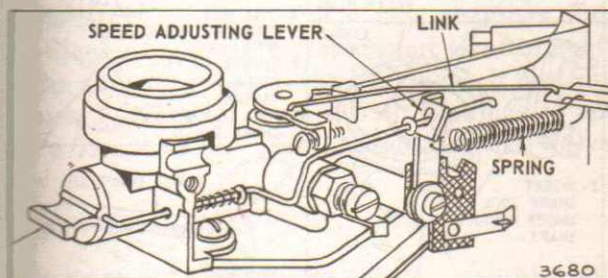


Fig. 56 - Install Carburetor

Choke-A-Matic Remote Controls

See Remote Controls, Section 4, for illustrations by engine model.

Carburetor Adjustment

The initial setting of the needle valve, Fig. 57, is made by turning the needle valve all the way in, then turning out $1\frac{1}{2}$ turns. Final adjustment is made with engine running.

The carburetor should be adjusted with the fuel tank approximately half full, with the engine running at approximately 3000 RPM, turn the needle valve in until the engine starts to lose speed, (lean mixture) then open needle valve very slowly until engine begins to run unevenly. This mixture will seem to be too rich but will be correct for good performance under full load.

Hold throttle in idling position. Engine should idle no slower than 1750 RPM. Turn idle speed adjustment screw until this speed is reached.

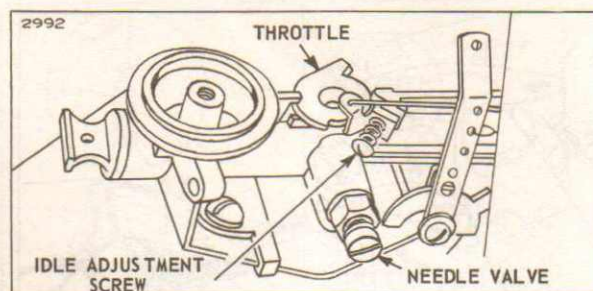


Fig. 57 - Carburetor Adjustment

TWO PIECE FLO-JET CARBURETOR REPAIR LARGE and SMALL LINE

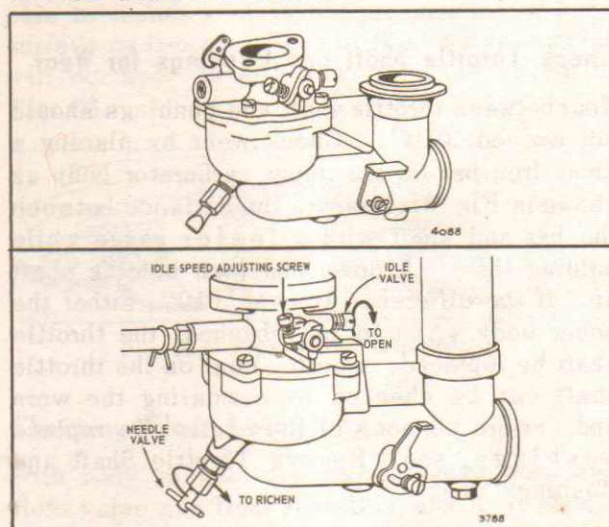


Fig. 58 - Two Piece Flo-Jet Carburetor

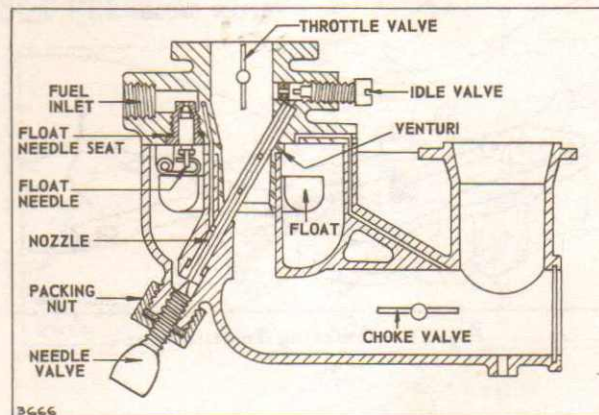


Fig. 59 - Two Piece Carburetor

Check Upper Carburetor Body for Warpage

With carburetor assembled and body gasket in place, if a .002" feeler gauge can be inserted between the upper and lower bodies at the air vent boss, just below the idle valve, the upper body is warped and should be replaced. Fig. 59.

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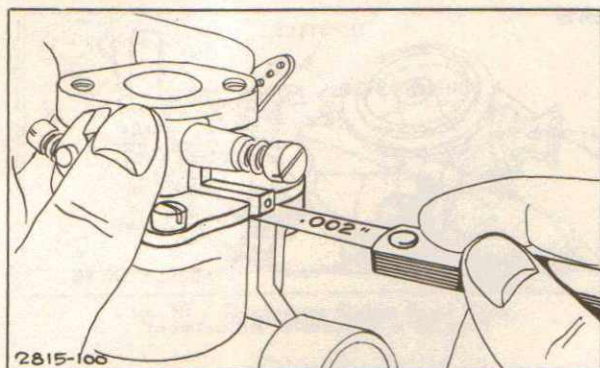


Fig. 60 - Checking Carburetor Body

Check Throttle Shaft and Bushings for Wear

Wear between throttle shaft and bushings should not exceed .010". Check wear by placing a short iron bar on the upper carburetor body as shown in Fig. 61. Measure the distance between the bar and shaft with a feeler gauge while holding the shaft down and then holding shaft up. If the difference is over .010", either the upper body should be rebushed, the throttle shaft be replaced, or both. Wear on the throttle shaft can be checked by comparing the worn and unworn portions of the shaft. To replace bushings, see "Remove Throttle Shaft and Bushings".

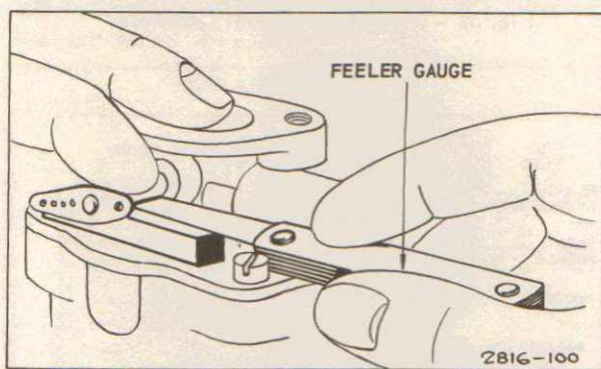


Fig. 61 - Checking Throttle Wear

Disassemble Carburetor

Remove idle valve. Then loosen needle valve packing nut. Remove the packing nut and needle valve together. To remove the nozzle use a narrow blunt screw driver #19061 or #19062, so as not to damage threads in the lower carburetor body. The nozzle projects diagonally into a recess in the upper body and must be removed before the upper body is sep-

arated from the lower body, or it may be damaged. See Fig. 59. Remove the screws holding the upper and lower bodies. A pin holds the float in place. Remove pin to take out the float and float valve needle. Check the float for leakage. If it contains gasoline or is crushed, it must be replaced. Use a wide proper fitting screw driver to remove the float inlet seat, if used. Lift the venturi out of the lower body of small engine carburetors. Some carburetors have a welch plug. This should be removed only if necessary, to remove the choke plate. Some carburetors have a nylon choke shaft. Remove as shown in Fig. 62.

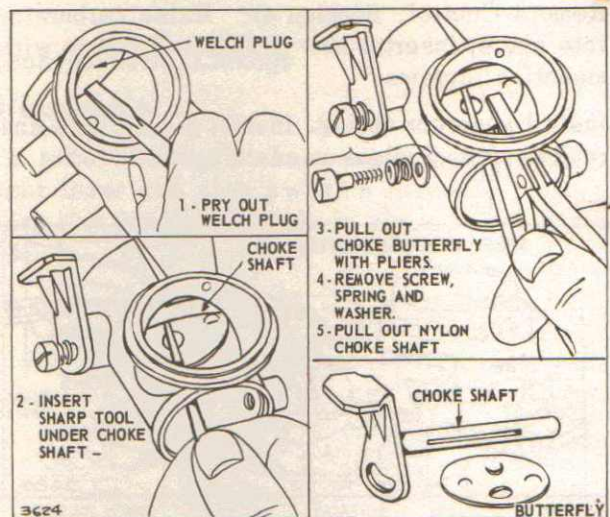


Fig. 62 - Nylon Choke Plate

Remove Throttle Shaft and Bushings

Throttle shaft should be removed only when necessary to replace throttle shaft and/or bushings. To remove throttle shaft, use a thin punch to drive out the pin holding throttle stop to the shaft, remove the throttle valve, then pull out the shaft. Fig. 63.

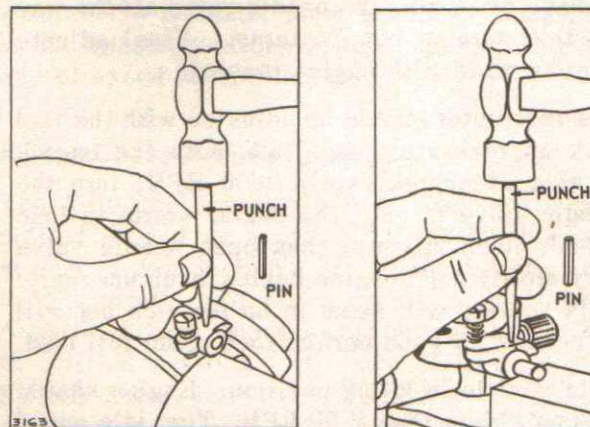


Fig. 63 - Remove Throttle Shaft and Bushings

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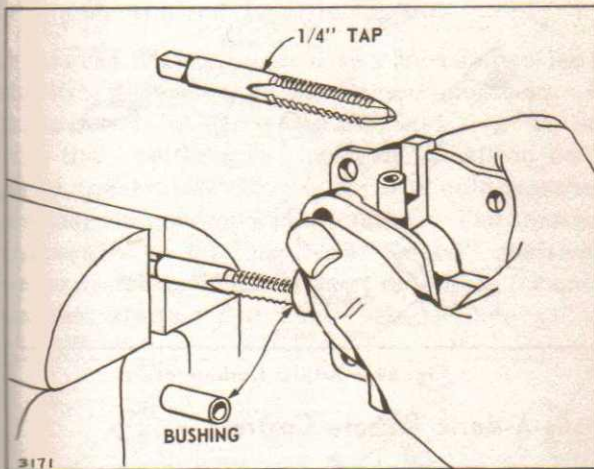


Fig. 64 - Replacing Throttle Shaft Bushings

Replace Throttle Shaft Bushings

Place a 1/4" x 20 tap or an E-Z out in a vise. Turn carburetor body so as to thread tap or E-Z out into bushings enough to pull bushings out of body. Fig. 64. Press new bushings into carburetor body with a vise. Insert throttle shaft to be sure it is free in the bushings. If not, run a size 7/32" drill through both bushings to act as a line reamer. Install throttle shaft, valve and stop.

Repair Carburetor.

Use new parts where necessary. Always use new gaskets - old gaskets take a set or harden and may leak. Carburetor repair kits are available. Tighten inlet seat with gasket securely in place, if used. Some float valves have a spring clip to connect the float valve to the float tang. Others are of nylon with a stirrup which fits over the float tang. Older type float valves and engines with fuel pumps have neither spring or stirrup.

A viton tip float valve is used in later models of the large, two piece Flo-Jet carburetor. The seat is pressed in the upper carburetor body and does not need replacement unless damaged.

Replacing Pressed In Float Valve Seat

Use a #93029 self threading screw or remove one self threading screw from a #19069 fly-wheel puller and clamp head of screw in a vise. Turn carburetor body to thread screw into seat. Fig. 65. Continue turning carburetor body drawing seat out. Leave seat fastened to screw. Insert new seat #230996 into carburetor body. (Seat has starting lead).

NOTE: If engine is equipped with a fuel pump, install #231019 seat.

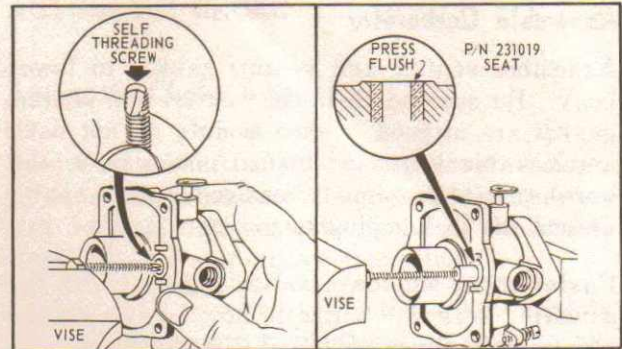


Fig. 65 - Replacing Float Valve Seat

Press new seat flush with body using screw and old seat as a driver. See Fig. 65. Use care to insure seat is not pressed below body surface or improper float to float valve contact will occur. Install float valve as shown in Fig. 66.

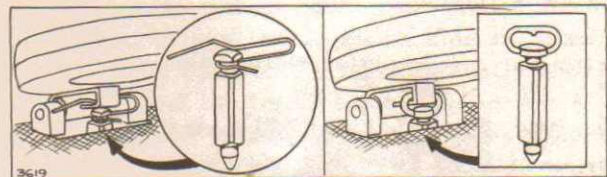


Fig. 66 - Float Valve Variations

Checking Float Level

With body gasket in place on upper body and float valve and float installed, the float should be parallel to the body mounting surface. If not, bend tang on float until they are parallel. DO NOT PRESS ON FLOAT TO ADJUST. Fig. 67.

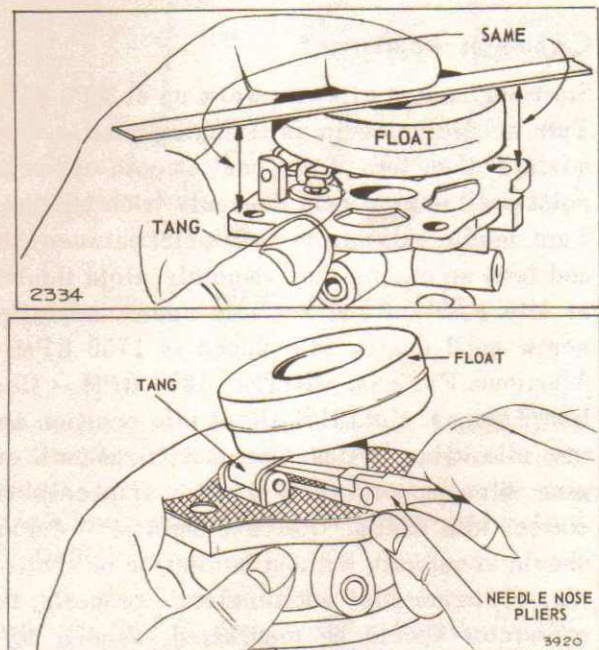


Fig. 67 - Checking Float Level

CARBURETION Two Piece Flo-Jet

Assemble Carburetor

Assemble venturi and venturi gasket to lower body. Be sure holes in the venturi and venturi gasket are aligned. Some models do not have a removable venturi. Install choke parts and welch plug if previously removed. Use a sealer around the welch plug to prevent entry of dirt.

Fasten upper and lower bodies together with the mounting screws. Screw in nozzle with narrow blunt screw driver #19061 or #19062, being careful that nozzle tip enters the recess in the upper body. Fig. 68. Tighten nozzle securely. Screw in needle valve and idle valve until they just seat. Back off needle valve 1-1/2 turns. Do not tighten packing nut. Back off idle valve 3/4 turn. These settings are approximately correct. Final adjustment will be made when engine is running.

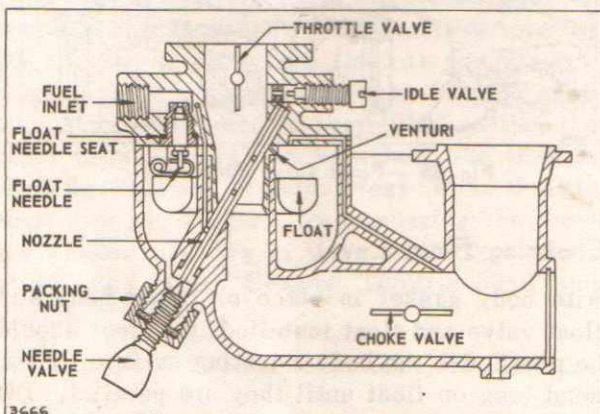


Fig. 68 - Assemble Carburetor

Carburetor Adjustment

Start engine and allow to warm up at 3000 RPM. Turn needle valve in until engine misses (lean mixture) then turn it out past smooth operating point until engine runs unevenly (rich mixture). Turn needle valve to the mid-point between rich and lean so engine runs smoothly. Hold throttle at idle position and set idle speed, adjusting screw until engine idle speed is 1750 RPM - Aluminum Engines. NOTE: 1200 RPM - Cast Iron Engines. Hold throttle at idle position and turn idle valve in (lean) and out (rich) until engine idles smoothly. Fig. 69. If necessary, correct idle speed. Release throttle - engine should accelerate without hesitation or sputtering. If engine does not accelerate properly, the carburetor should be readjusted, usually to a slightly richer mixture of needle valve.

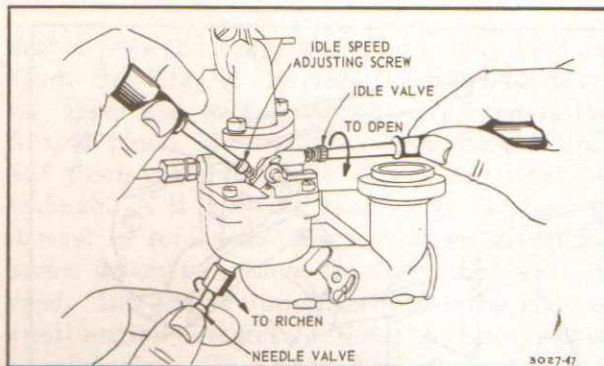


Fig. 69 - Adjust Carburetor

Choke-A-Matic Remote Control

On Choke-A-Matic carburetors, the remote control must be correctly adjusted in order to obtain proper operation of the choke and stop switch.

Choke-A-Matic Adjustment

Typical remote control installations, used with Choke-A-Matic carburetors, are shown in Fig. 70. To adjust, move remote control lever to "Fast" position. Choke actuating lever "A" should just contact choke link, or lever "B", as shown in Fig. 70. If not, loosen screw "C" slightly, and move casing and wire "D" in or out to obtain this condition and re-tighten screw "C".

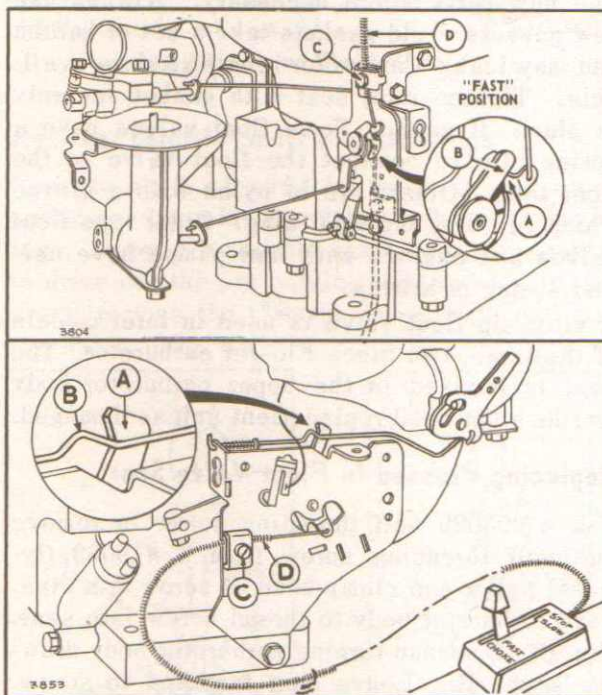


Fig. 70 - Choke-A-Matic Controls (Typical)

Additional control variations are illustrated in Controls. Section 4.

Two Piece Flo-Jet _ Automatic Choke

Idling Device and Throttle Control

A manual friction control may be used to limit throttle movement, to any pre-set position. It is commonly used for two purposes. 1. To return the throttle to a "no-load" position on a pump, generator, etc.; 2. For cold weather starting on governed idle engines. The throttle can easily be kept in a "near closed" position, while starting, which is most favorable for cold weather starts. Fig. 71.

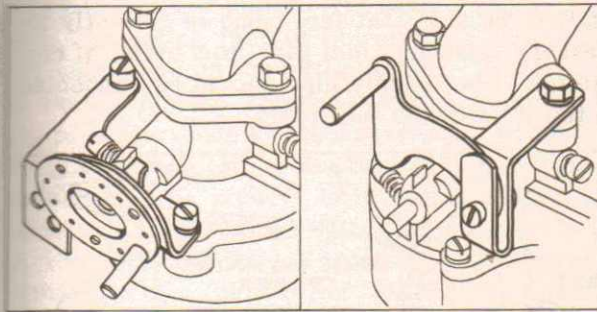


Fig. 71 - Idling Device and Throttle Control

Remote Throttle Control

The remote throttle control opens the carburetor throttle until the full governed speed is obtained, at which point the governor takes over control of the throttle. At any point below the governed speed, the throttle is held in a fixed position and the engine speed will vary with the load. Fig. 72.

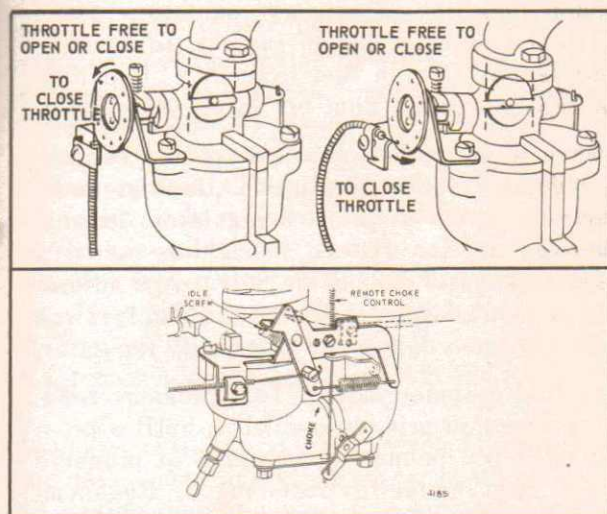


Fig. 72 - Remote Throttle Control

AUTOMATIC CHOKE

Automatic Choke Adjust

Hold choke shaft so thermostat lever is free. At room temperature the screw in the thermostat collar should be in the center of the stops, if not, loosen stop screw and adjust.

Loosen set screw on lever of thermostat assembly. Slide lever to right or left on shaft to insure free movement of choke link in any position. Rotate thermostat shaft clockwise until stop screw strikes tube. Fig. 73. Hold in position and set lever on the thermostat shaft so that choke valve will be held open about 1/8" from closed position. Then tighten set screw in lever.

Rotate thermostat shaft counter-clockwise until stop screw strikes the opposite side of tube. Fig. 73. Then open choke valve manually until it stops against the top of the choke link opening. The choke valve should now be open approximately 1/8" as before.

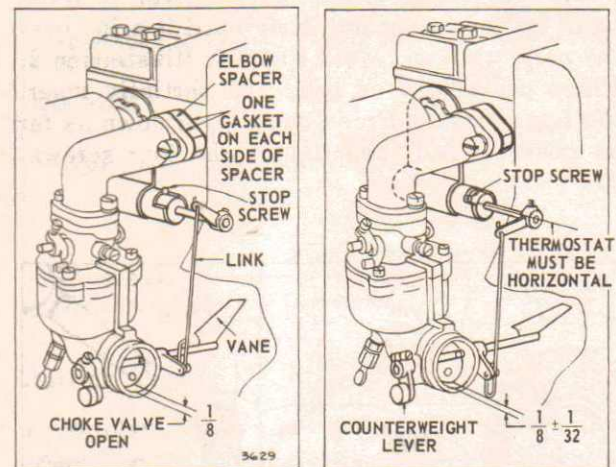


Fig. 73 - Adjust Automatic Choke

Check position of counter-weight lever. With the choke valve in wide open position (horizontal) the counter-weight lever should also be in a horizontal position with free end toward the right.

Operate the choke manually to be sure that all parts are free to move without binding or rubbing in any position.