

SECTION 3-C
ADJUSTMENTS AND REPLACEMENTS—EXCEPT IN PUMP
AND CARBURETOR ASSEMBLIES

CONTENTS OF SECTION 3-C

Paragraph	Subject	Page	Paragraph	Subject	Page
3-7	Air Cleaner, Gas Filter, and Manifold Valve Service.....	3-10	3-9	V-8 Throttle Linkage and Dash Pot Adjustments.....	3-13
3-8	Carburetor and Automatic Choke Adjustments.....	3-11	3-10	Replacement of Gasoline Tank or Filler.....	3-14

NOTE: For Series 40 procedures see Section 3-C in the 1952 Buick Shop Manual.

SERVICE BULLETIN REFERENCE

Bulletin No.	Page No.	SUBJECT

3-7 AIR CLEANER, GAS FILTER, AND MANIFOLD VALVE SERVICE

a. Air Cleaner Service

An air cleaner with a dirty element, or with oil that is dirty, too heavy, or too high in the reservoir will restrict the air flow to the carburetor and cause a rich mixture at all speeds. The device will not properly remove dirt from the air and the dirt entering the engine will cause abnormal formation of carbon, sticking valves, and wear of piston rings and cylinder bores.

Regular cleaning of the element and reservoir and re-filling with clean oil at 5000-mile intervals, or more frequently in dusty territory, is necessary to prevent excessive engine wear and abnormal fuel consumption. The procedure for cleaning and refilling the air cleaner is given under Lubricare Instructions, paragraph 1-2.

b. Cleaning Gasoline Filter

The gasoline filter located at carburetor inlet collects dirt and water. The drain plug at the bottom of the inlet side of filter should be removed occasionally to drain out the accumulation of dirt and water.

When a thorough cleaning is required, remove the filter, remove the drain plug and agitate the filter in Bendix Metacelene or its equivalent.

Direct air stream through the *outlet* port of filter to force dirt from the inlet side of filtering disk. Rinse filter in kerosene, distillate, or white gasoline and again direct air stream through the outlet port. Install drain plug and reinstall filter.

c. Cleaning Carburetor Gasoline Strainers

A fine mesh strainer is located in the carburetor inlet. This strainer should seldom require cleaning because of the gasoline filter which precedes it in the gasoline supply line. This strainer should be inspected however, if fuel supply at carburetor inlet is adequate but carburetor operation indicates lack of fuel.

On *Carter* carburetors the inlet strainer is located under the brass nut above the fuel inlet. On the 2-barrel carburetor it is necessary to remove the air horn in order to remove the nut and strainer. On all *Stromberg* carburetors it is necessary to remove the carburetor in order to reach the strainer, which is held in the inlet port in air horn by a small wire retainer clip.

d. Freeing Up Sticking Exhaust Manifold Valve

Lubrication of the exhaust manifold valve shaft every 1000 miles is specified in Lubricare Instructions (par. 1-1).

Carbon or lead salt deposits around the valve shaft may cause the valve to stick or become sluggish in operation. A valve sticking in the open position will cause slow engine warm up, excessive spitting and sluggish engine operation when cold. A valve sticking in the closed position will cause overheating, loss of power, and hard starting when the engine is hot, and may also cause warped or cracked manifolds. Sticking in either position will adversely affect fuel economy.

If the valve shaft is sticking or frozen in the manifold, free it up by tapping on the ends with a light hammer, and by rotating the counterweight. Penetrating oil or kerosene may be used to aid in freeing the shaft. When the valve shaft is free, apply a mixture of kerosene and powdered graphite liberally to the shaft bearing; the mixture to be composed of $2\frac{1}{2}$ ounces of powdered graphite to 1 pint of kerosene.

e. Checking Manifold Valve Thermostat Setting

The setting of the exhaust manifold valve thermostat may be checked when the engine is at room temperature of approximately 70° F. Unhook the outer end of thermostat from anchor stud on the manifold and hold the valve in the closed position. To bring the end of thermostat to the anchor stud will then require approximately $\frac{3}{8}$ turn wind-up of the thermostat as shown in figure 3-6.

The thermostat is not adjustable and should never be distorted or altered in any way as this will affect its calibration. If the thermostat does not have the proper setting, or is damaged, it should be replaced.

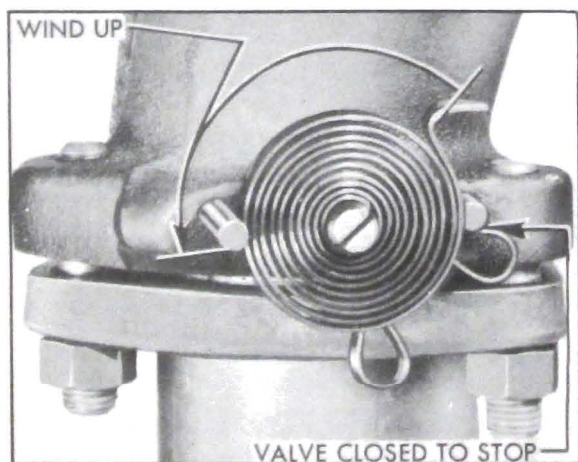


Figure 3-6—Valve Thermostat Wind-Up

3-8 CARBURETOR AND AUTOMATIC CHOKE ADJUSTMENTS

Carburetor adjustment should not be attempted until it is known that all items affecting engine *Ignition* and *Compression* are in good order, as outlined in paragraph 2-9. *Any attempt to adjust or alter the carburetor to compensate for faulty conditions elsewhere in items affecting engine performance will result in reduced fuel economy and overall performance.*

The two idle needle valves and the throttle stop screw are the only external means provided for adjusting the carburetor for engine performance. The idle needle valves control the idle or low speed system of the carburetor; all adjustments or calibrations affecting the high speed, power, and accelerating systems are accomplished during assembly of the carburetor.

a. Initial Setting of Idle Needle Valves and Throttle Stop Screw

1. With engine stopped, turn both idle needle valves clockwise until they are *lightly* seated. *Forcing valves hard against seats will score valves and seats and ruin them for proper adjustment.*

2. On *Carter* carburetor, turn each valve "OUT" (counterclockwise) one full turn. On *Stromberg 2-barrel* carburetor, turn each valve "OUT" $1\frac{1}{4}$ turns. On *Stromberg 4-barrel* carburetor, turn each valve "OUT" $1\frac{1}{8}$ turns. These settings provide an average starting adjustment.

3. Back off throttle stop screw and hold fast idle cam in HOT (choke open) position so that throttle valves are fully closed.

4. Turn throttle stop screw "IN" (clockwise) until it just contacts arm on throttle lever (*Carter*) or lowest step of fast idle cam (*Stromberg*), then turn stop screw "IN" one complete turn. This setting will give an engine idling speed of approximately 450 RPM.

b. Final Adjustment of Idle Needle Valves and Throttle Stop Screw

1. With throttle stop screw and idle needle valves at the initial settings described above (subpar. a), start the engine and run it until it is at normal operating temperature.

2. With engine at normal operating temperature and idling at 450 RPM, adjust one needle valve at a time (fig. 3-7) to provide smooth idle, as follows:

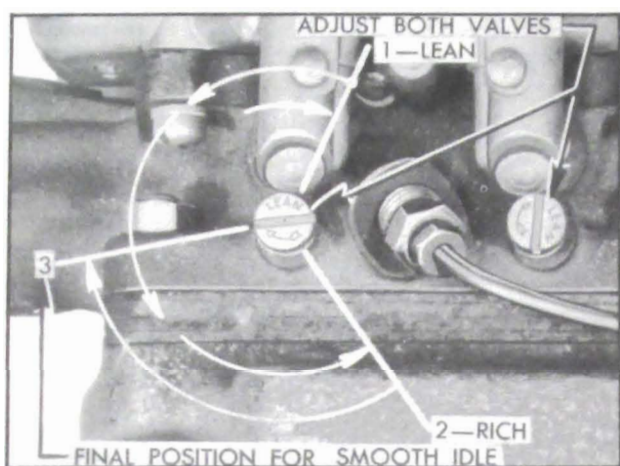


Figure 3-7—Adjustment of Idle Needle Valves

(a) Slowly turn needle valve “IN” (clockwise) until engine just begins to lag or run irregularly because of lean mixture.

(b) Slowly turn needle valve “OUT” until engine just begins to “roll” or “gallop” because of rich mixture.

(c) Slowly turn needle “IN” just enough to provide the smoothest engine operation.

(d) Repeat this same procedure on the other needle valve.

3. Using a tachometer, if available, adjust the throttle stop screw to provide a hot idling speed of 450 RPM. If the idling speed changed very much during the needle valve adjustments it may be necessary to readjust the needle valves to insure smoothest engine operation at 450 RPM.

Final adjustment of the carburetor idle needle valves also may be made with the aid of a combustion tester, tachometer, or vacuum gauge. When such instruments are used, be sure they are in good condition and are used in accordance with the instructions of the manufacturer.

Regardless of the methods or instruments used for making adjustments in the shop, the correctness of adjustment should be finally checked by a road test for smoothness at idling speed, power on acceleration, and freedom from sluggishness or flat spots throughout entire speed range.

c. Checking Float Bowl Level

The sight hole in the float bowl may be used to check for proper fuel level in the bowl on all carburetors *except the Carter 4-barrel carburetor. On this carburetor, the sight holes should be used only to check the float action.*

With engine idling at normal operating tem-

perature, remove plug from sight hole. The fuel will be just high enough to wet the threads at lower side of sight holes if the float is correctly adjusted. Securely install plug in sight hole after checking fuel level.

d. Automatic Choke Adjustments

The choke thermostat is calibrated to give satisfactory performance with regular blends of fuel when it is placed at the standard factory setting, which is at INDEX for *Series 50-70* Carter and Stromberg carburetors. See figure 3-8.

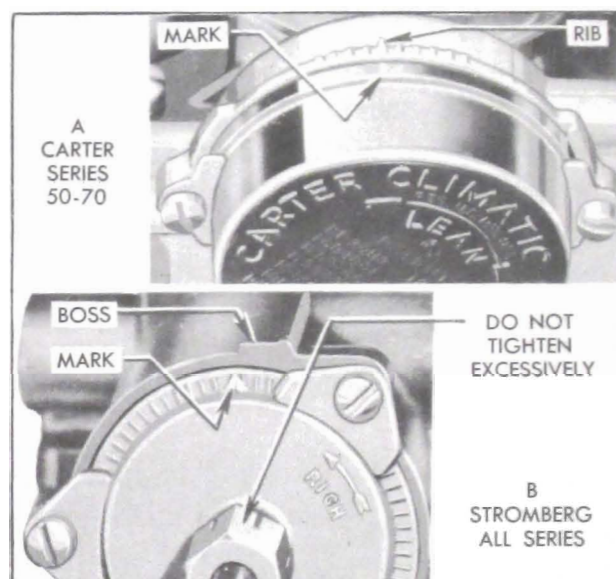


Figure 3-8—Choke Thermostat Settings

When it is necessary to adjust the thermostat loosen the housing or cover attaching screws and turn as required. On *Stromberg choke* it is also necessary to loosen the heat pipe connection to turn the cover. *When tightening heat pipe connection after adjustment do not use excessive pressure, which may change position of thermostat cover.*

Thermostat settings other than standard should be used only when the car is habitually operated on special blends of fuel which do not give satisfactory warm-up performance with the standard setting. A “Lean” setting may be required with highly volatile fuel which produces excessive loading or rolling of engine on warm-up with the standard thermostat setting. A “Rich” setting should be used only when excessive spitting occurs on engine warm-up with the standard thermostat setting. When making either a “Lean” or “Rich” setting, change one point at a time and test results *with engine cold*, until the desired performance is obtained.

If the engine operates on fast idle too long

after starting or else moves to slow idle too soon, or the choke unloader does not operate properly, check the fast idle and choke unloader adjustments as described in paragraph 3-17 (Carter) or paragraph 3-26 (Stromberg).

3-9 V-8 THROTTLE LINKAGE AND DASH POT ADJUSTMENTS

The throttle linkage must work freely and be adjusted so that the accelerator pedal can move the throttle valve smoothly from fully closed to wide open positions. When pedal is pressed down against floor mat the throttle must fully open to the throttle stop on carburetor, and the choke unloader must be operated in the wide open position. When pedal is released, the throttle must close against the throttle stop screw; on Dynaflo cars the dash pot must govern the closing to prevent stalling or rolling of the engine.

a. Throttle Linkage Adjustment

1. Make sure that accelerator pedal is in good condition and that the floor mat is properly installed, then tighten the pedal mounting screws.
2. Check throttle linkage for proper lubri-

cation, make sure that pedal rod does not bind in its seal, and make sure that the return spring is strong enough to fully close the throttle valve.

3. Adjust throttle stop screw for proper HOT idling speed of 450 RPM if necessary (par. 3-8).

4. With engine shut off and throttle closed to hot idling position check clearance between rear leg of the accelerator lever (bell crank) and the front face of the stop lug on the lever mounting bracket.

5. Clearance should be .040" ($\frac{3}{64}$ ") to permit proper closing of throttle valves to hot idling position. Disconnect upper end of the vertical throttle operating rod and adjust the rod as required to obtain specified clearance. See figure 3-9.

6. While a second man presses accelerator pedal firmly against the floor mat, check for full opening of throttle valve. The desired condition is to have full opening of throttle valve when accelerator pedal strikes floor mat rather than having the stop on throttle lever strike hard against the boss on throttle body.

7. If necessary, disconnect horizontal throttle operating rod at equalizer shaft and adjust as

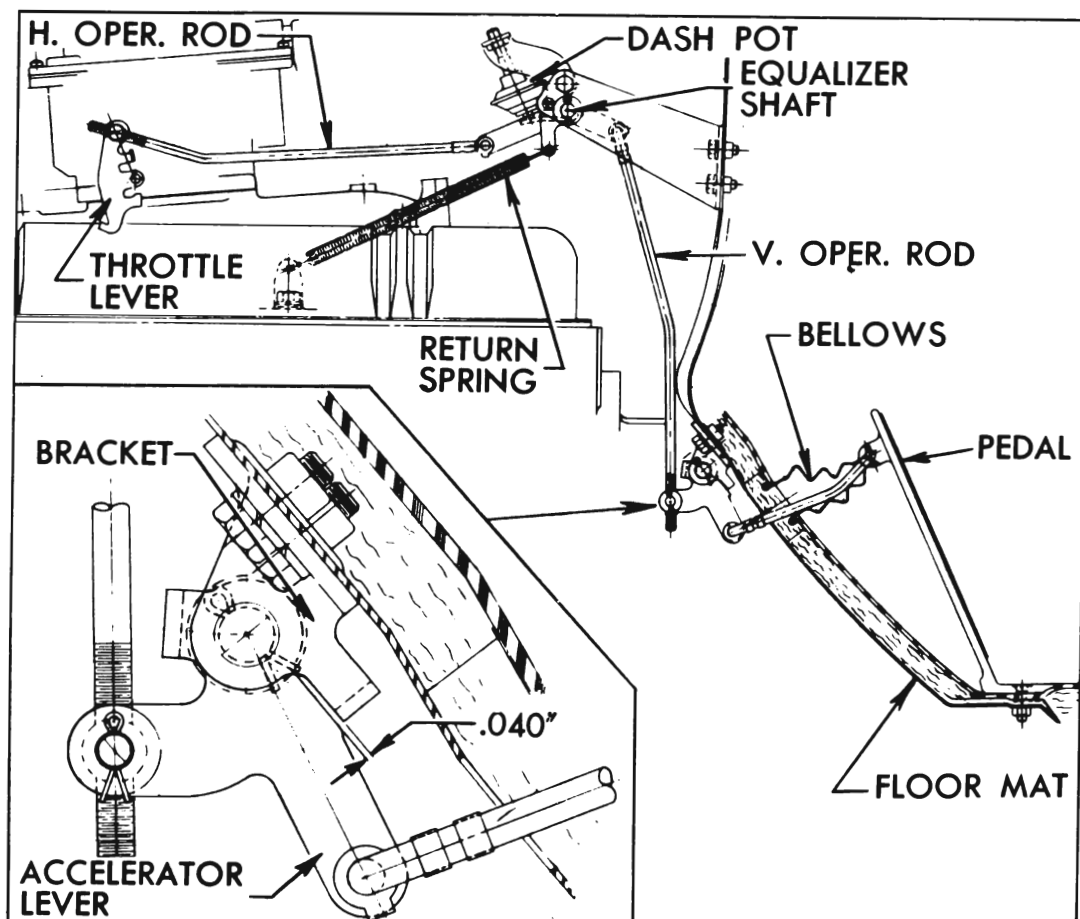


Figure 3-9—Throttle Linkage Adjustments

required to obtain the specified throttle opening.

8. Hold choke valve closed and check for proper operation of choke unloader when accelerator is pressed to floor mat. If choke unloader does not operate properly, adjust as described in paragraph 3-17 (Carter) or 3-26 (Stromberg).

9. Finally, check for smooth operation of linkage from fully closed to wide open position of throttle valve.

b. Dash Pot Adjustment

Adjust the dash pot only after the throttle linkage has been adjusted as described above (subpar. a) and *engine is at normal operating temperature*.

1. With throttle closed to hot idling position, back off the dash pot until it is clear of lever on equalizer shaft, then adjust it down to touch the lever.

2. With transmission in Direct Drive and brakes firmly applied, speed engine up to about 1400 RPM and immediately release accelerator pedal. If engine stalls from too rapid closing of throttle, move dash pot down until its action prevents engine stalling, then lock it in position with the jam nut.

3. If proper control cannot be obtained by adjustment, replace the dash pot.

3-10 REPLACEMENT OF GASOLINE TANK OR FILLER

When removing gasoline tank, disconnect feed pipe from gasoline gauge pipe, support the tank while disconnecting support straps at rear ends, then lower tank far enough to disconnect the wire from gasoline gauge.

When installing gasoline tank by reversing procedure for removal, make sure that all road dirt is cleaned from gasoline gauge and wire terminal; also make sure that wire is securely attached to gauge and that insulation is folded over the terminal and snapped over the wire. An accumulation of road dirt around the gauge terminal may permit an electrical leak that will affect the accuracy of the gauge. Insulating strips must be located between the tank and the upper supports on body.

The gasoline tank and the filler are furnished separately so that they may be replaced if damaged. After unsoldering the old parts, the new filler should be installed in gasoline tank in accordance with the dimensions given in figure 3-10. Joints must be thoroughly soldered and should be tested for leaks with gasoline before installing gasoline tank.

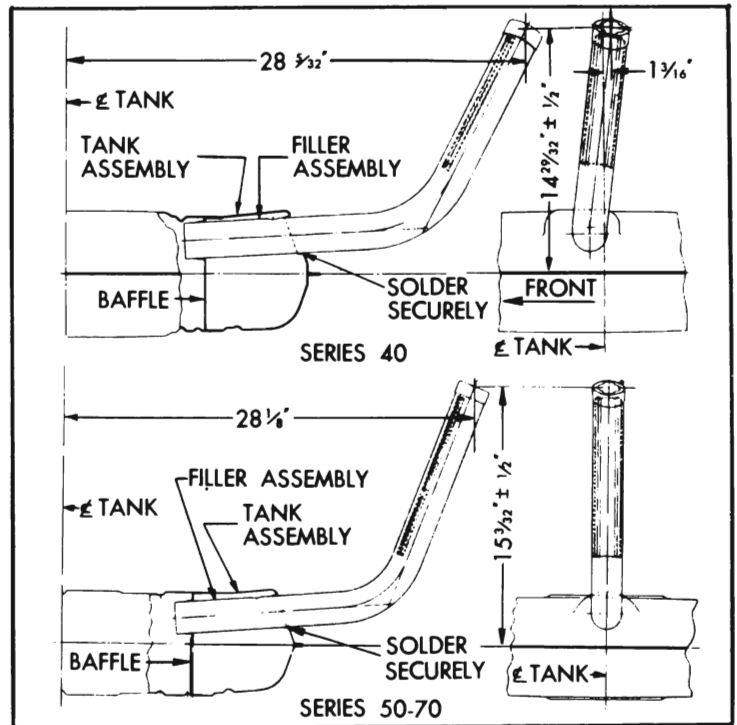


Figure 3-10—Location Dimensions for Installing Gasoline Tank Filler