SECTION 3-C

ADJUSTMENTS AND REPLACEMENTS—EXCEPT IN PUMP AND CARBURETOR ASSEMBLIES

CONTENTS OF SECTION 3-C

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 at 5000 mile intervals 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 Metaclene 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 2½ 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 ⅜ turn wind-up of the thermostat as shown in figure 3-5.

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.

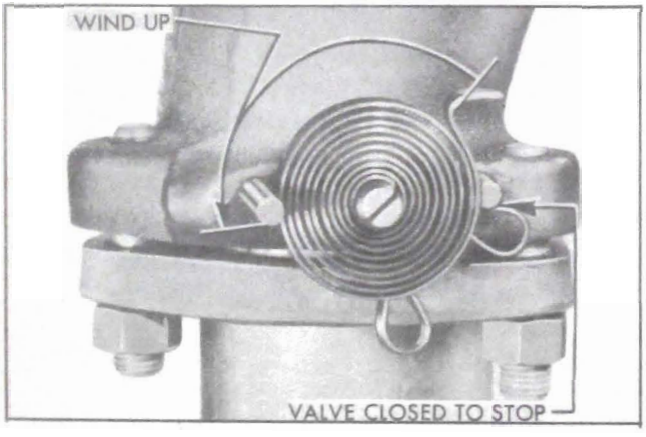


Figure 3-5—Valve Thermostat Wind-Up

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" 1¼ turns. On *Stromberg 4-barrel* carburetor, turn each valve "OUT" 1⅛ 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. 3-6) to provide smooth idle, as follows:

(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.

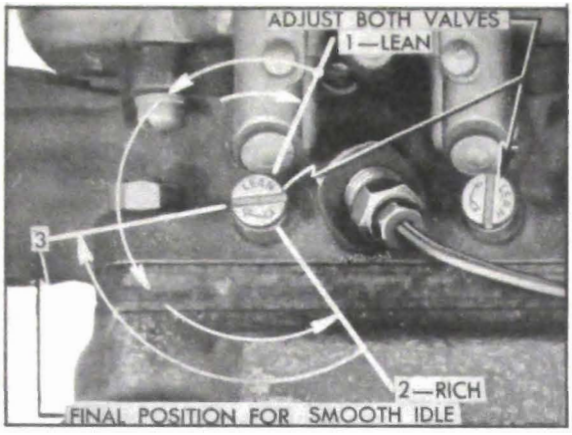


Figure 3-6—Adjustment of Idle Needle Valves

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 temperature, 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 *all Series* Carter and Stromberg carburetors. See figure 3-7.

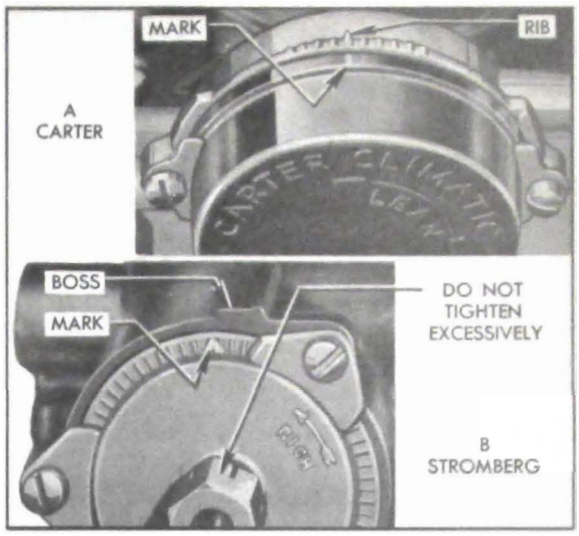


Figure 3-7—Choke Thermostat Settings

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 THROTTLE LINKAGE AND DASH POT ADJUSTMENTS

On *Dynaflow* cars, the throttle linkage actuates other linkage connected to the stator control valve located in the high accumulator. The throttle operating rod contains an adjustable spring loaded stretch link which may be optionally adjusted to provide "overtravel" for delayed operation of the variable pitch stator.

In production the stretch link is locked solid to eliminate overtravel and the throttle linkage is adjusted so that the stator shifts to the high angle "performance" position just as wide open throttle is reached. If an owner habitually drives at high speed he may prefer to have the high angle shift occur after wide open throttle is reached. In this case, "overtravel" may be obtained by using the alternate step (8-a) given for stretch link adjustment in the following adjustment procedure.

The procedure for adjusting throttle linkage on *Synchromesh* cars is identical with that specified for Dynaflow cars *without overtravel*, except for operation on stretch link, stator control linkage, and dash pot.

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 lubrication, 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. Hold choke valve closed and move throttle to wide open position to check operation of choke unloader. If choke unloader does not operate properly, adjust as described in paragraph 3-17 (Carter) or 3-26 (Stromberg).

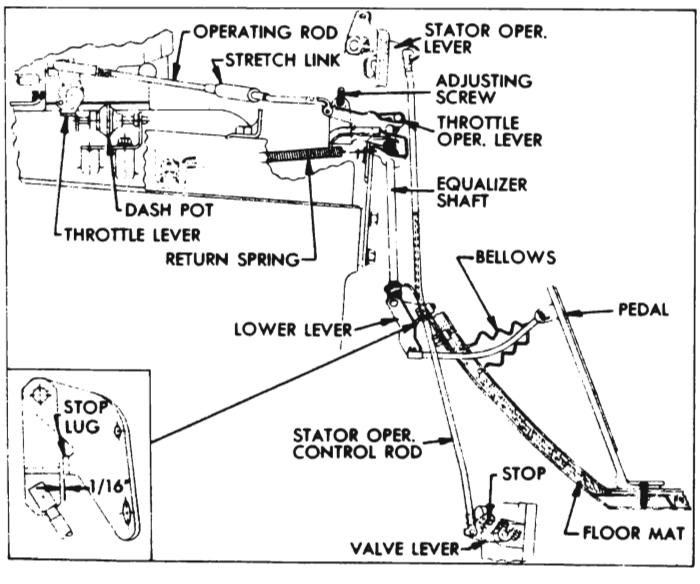


Figure 3-8—Throttle and Stator Control Linkage

5. Disconnect throttle return spring and disconnect throttle operating rod from lever on equalizer shaft. See figure 3-8.

6. Back off the stator pick-up lever adjusting screw until screw end is flush with lever surface.

7. Adjust throttle operating rod in rod end at carburetor so that approximately 5/8" of thread is exposed, then tighten lock nut.

8. For adjustment *without overtravel*, turn rear end of throttle operating rod until stretch link is locked. While another man presses accelerator pedal firmly against floor mat hold throttle lever in wide open position and hold rear end of operating rod at hole in throttle operating lever. Rod end must be approximately 1/16" *short* of entering hole in lever. Change position of lever on shaft as required to obtain this condition, then tighten clamp bolt securely.

8a. For adjustment *with overtravel*, turn rear end of throttle operating rod until rod can be stretched approximately 7/16" against tension of stretch link spring, measured at forward end of link. While another man holds the accelerator pedal *upward* as far as possible, hold throttle lever closed to hot idle position and hold rear end of operating rod at hole in throttle operating lever. Rod end must extend approximately 1/16" *beyond* hole in lever. Change position of lever on shaft as required to obtain this condition, then tighten clamp bolt securely.

9. Connect operating rod to operating lever, snap retaining clip over rod, then connect the return spring.

10. With throttle closed to hot idle position check clearance between the equalizer shaft lower lever and the stop lug in the shaft-to-cowl mounting bracket. A minimum clearance of 1/16" must exist at this point. See figure 3-8.

11. Hold choke valve closed while accelerator pedal is pressed to floor mat, to check operation of choke unloader.

12. If clearance between lower lever and stop lug is less than 1/16", or choke unloader does not operate properly, readjust the operating rod length at rod end on throttle lever or change the position of upper lever on equalizer shaft one serration at a time until proper settings are obtained.

13. On *Dynaflow* car, have accelerator pedal depressed firmly against floor mat, then turn the stator pick-up lever adjusting screw against

the stator operating lever, raising lever until all vertical play is removed from the stator operating control rod. Turn screw back ½ turn to provide a slight clearance between the stator control valve operating lever and its stop on high accumulator.

14. Finally, check for smooth operation of linkage from fully closed to wide open position of throttle valve. Make sure that throttle closes firmly against the stop screw. On Synchromesh cars and Dynaflow cars *without overtravel* the desired wide open 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. On Dynaflow linkage set for *overtravel* the stop on throttle lever must contact boss on throttle body before accelerator pedal can be pressed to floor mat against tension of stretch link spring.

15. On Dynaflow car, adjust dash pot as follows (subpar. b).

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.*

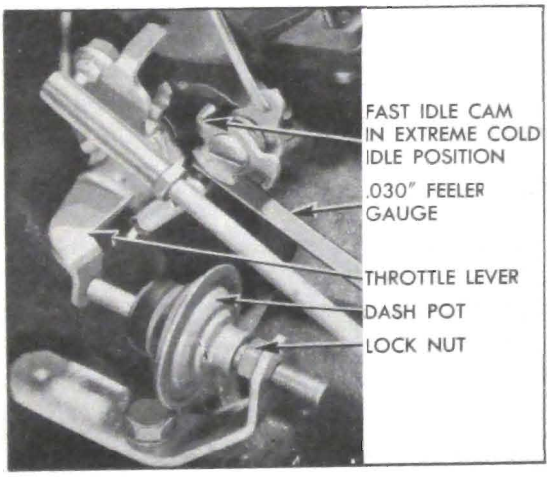


Figure 3-9—Dash Pot Adjustment

1. Rotate fast idle cam to extreme COLD idle (choke closed) position and hold the throttle lever closed against a .030" feeler gauge placed between the stop screw and the highest step of fast idle cam. See figure 3-9.

2. Adjust dash pot until it barely clears the arm of throttle lever, and tighten the lock nut. *This is a preliminary setting only—be sure to continue with the following steps.*

3. With transmission in Direct Drive and brakes firmly applied speed engine up to about 1500 RPM and immediately release accelerator pedal, noting engine operation as the throttle valves close.

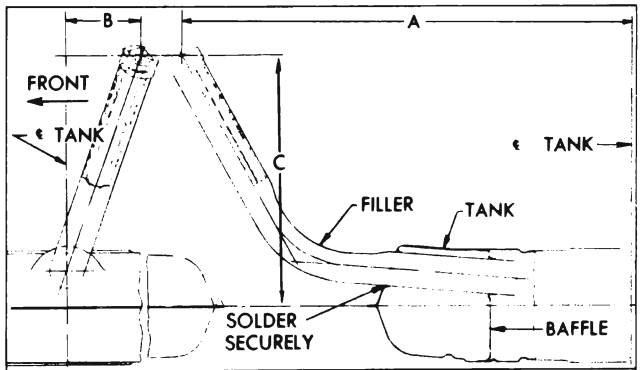
4. If engine stalls from too rapid closing of throttle valves, move dash pot forward until its action prevents engine stalling. If excessive time is required for throttle valves to reach the fully closed position, move dash pot rearward. Always tighten the lock nut after each adjustment.

5. 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.



SERIES	A	B	C
40-60-100	27 3/32" ± 1/16"	1 3/16" ± 1/16"	16 3/16" ± 1/2"
50-70	28 3/16" ± 1/16"	4 1/16" ± 1/16"	15 3/16" ± 1/16"

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

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.