

SECTION 3-C

ADJUSTMENTS AND REPLACEMENTS—EXCEPT IN PUMP AND CARBURETOR ASSEMBLIES

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NOTES

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 some carburetor inlets. 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.

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 coun-

terweight. 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 ¾ 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.

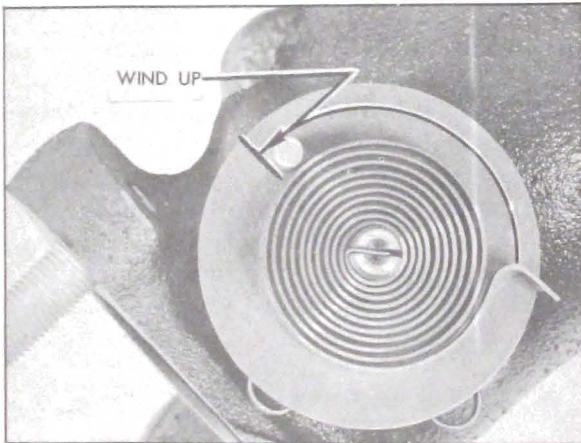


Figure 3-5—Valve Thermostat Wind-Up

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 float 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 both *Carter* carburetors, turn each needle OUT (counterclockwise) 1 turn. On *Stromberg* carburetors, turn each needle OUT 1¾ turns. On *Rochester* carburetors, turn each needle OUT 1¼ 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. On all carburetors, turn throttle stop screw IN (clockwise) until it just contacts, then turn screw IN one complete turn. This setting should give an approximate idling speed so that engine can be warmed up for final adjustment as described below.

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.

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.

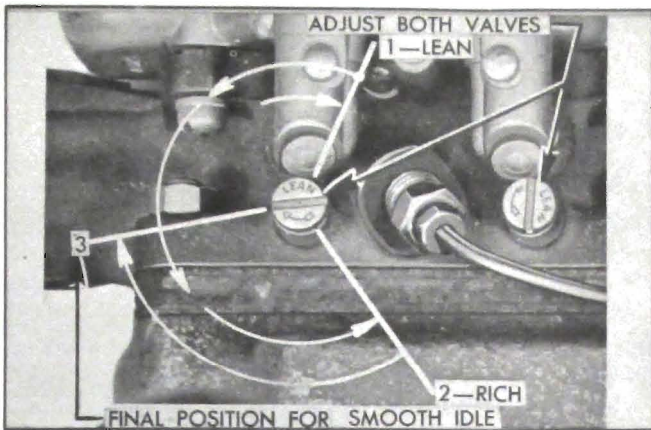


Figure 3-6—Adjustment of Idle Needle Valves

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 the Rochester carburetor only.

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 carburetors. See figure 3-7.

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.*

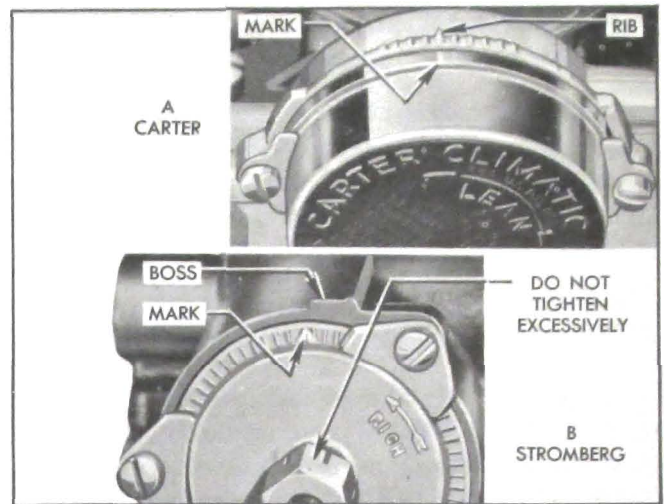


Figure 3-7—Choke Thermostat Settings

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), 3-24 (Stromberg), or 3-29 (Rochester).

3-9 THROTTLE LINKAGE AND DASH POT ADJUSTMENTS

The procedure for adjusting throttle linkage is identical on Synchronesh and Dynaflo cars. On *Dynaflo* cars, however, the throttle linkage actuates other linkage connected to the stator control valve. Also, *Dynaflo* cars have a dash pot to prevent engine stalling from too rapid release of the accelerator pedal. Therefore, a stator operating lever adjustment and a dash pot adjustment are required on *Dynaflo* cars in addition to the adjustments necessary on Synchronesh cars.

a. Throttle Linkage Adjustment

1. Make sure that accelerator pedal is in

good condition and that floor mat is properly installed. Then tighten pedal mounting screws.

2. Check throttle linkage for proper lubrication. Make sure that pedal rod does not bind going through floor, and make sure that return spring is strong enough to fully close the throttle.

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

4. Hold choke valve closed and move throttle to wide open position to check adjustment of choke unloader. If choke unloader does not operate properly, adjust as described in paragraph 3-17 (Carter) or 3-24 (Stromberg), or 3-29 (Rochester).

5. On Dynaflow cars, back off the stator pick-up lever adjusting screw until screw end is flush with lever surface. This is because an incorrectly adjusted screw might keep accelerator from contacting floor mat as required in step 8 below.

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

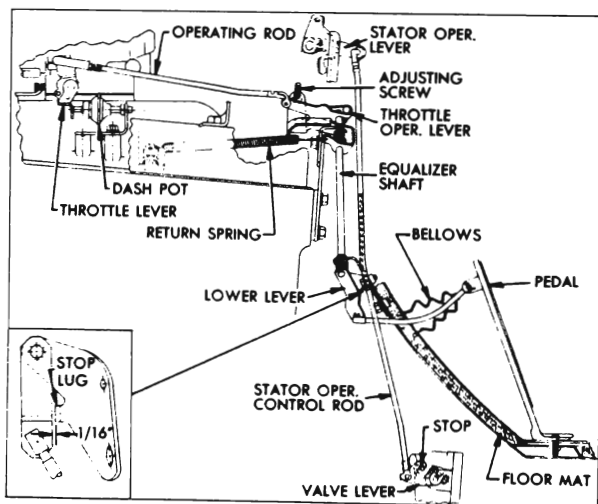


Figure 3-8—Throttle and Stator Control Linkage

7. Adjust throttle operating rod in rod end at carburetor so that approximately $\frac{5}{8}$ " of thread is exposed with lock nut tightened.

8. While another man presses accelerator pedal firmly against floor mat, hold throttle in wide open position, and hold rear end of operating rod at hole in throttle operating lever.

Rod end must be approximately $\frac{1}{16}$ " short of entering hole in lever. Change position of lever on shaft as required to obtain this condition, then tighten clamp bolt securely.

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

10. With accelerator pedal pressed against floor mat, check throttle for wide open position.

11. With throttle closed to hot idle position, check clearance between equalizer shaft lower lever and stop lug on the shaft-to-cowl mounting bracket. A minimum clearance of $\frac{1}{16}$ " must exist at this point. See figure 3-8.

12. If clearance between lower lever and stop lug is less than $\frac{1}{16}$ ", or choke unloader does not operate properly, readjust the throttle operating rod length or change the position of upper lever on equalizer shaft slightly until proper settings are obtained.

13. Finally, check for smooth operation of linkage from fully closed to wide open position of throttle. Make sure that throttle closes firmly against stop screw. The desired wide open condition is to have full opening of throttle valve just as accelerator pedal strikes floor mat rather than having stop on throttle lever strike hard against boss on throttle body.

b. Stator Lever Adjustment (Dynaflow Only)

Adjust stator lever only after throttle linkage adjustment has been made as described above (subpar. a).

1. Have accelerator pedal pressed firmly against floor mat, then turn stator pick-up lever adjusting screw against stator operating lever, raising lever until all vertical play is removed from stator operating control rod. Turn screw back $\frac{1}{2}$ turn to provide a slight clearance between stator control valve operating lever and its stop on high accumulator.

2. Adjust dash pot as follows (subpar. c).

c. Dash Pot Adjustment (Dynaflow Only)

Adjust the dash pot only after the throttle linkage and stator lever adjustments have been made as described above (subpar. a and b) and the engine is at normal operating temperature.

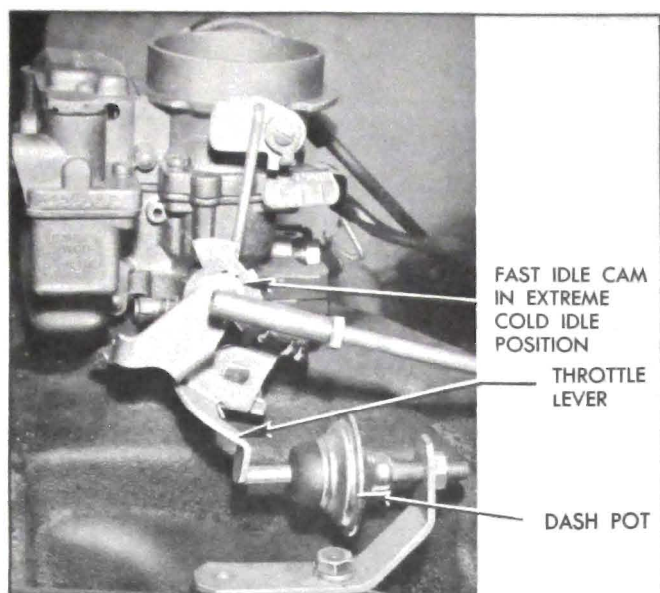


Figure 3-9—Dash Pot Adjustment

1. Open throttle to clear fast idle cam, rotate cam to extreme fast idle position, and allow throttle to close against fast idle cam. See figure 3-9.

2. Adjust dash pot until it just touches the throttle lever, then screw dash pot one turn forward. Tighten lock nut. *This is a preliminary setting only—be sure to continue with the following steps.*

3. With transmission in Drive and brakes firmly applied, speed engine up to about 1500 RPM and release accelerator pedal rapidly. Note engine operation as throttle closes.

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

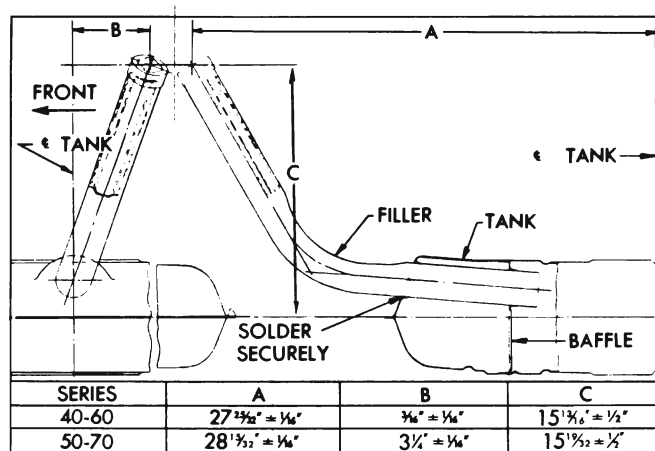


Figure 3-10—Location Dimensions for Installing Gasoline Tank Filler

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.