

# SECTION F

## CARTER AFB CARBURETOR

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## DIVISION I SPECIFICATIONS AND ADJUSTMENTS

### 64-30 CARTER AFB CARBURETOR CALIBRATIONS

	340 Eng. Man. Trans.	340 Eng. Auto Trans.	340 Eng. Auto Trans. California	400 Eng. Man. Trans.	400-401 Eng. Man. Trans. California
Tag Color . . . . .	Silver	Blue	Blue	Green	Green
Model Designation . . . . .	AFB	AFB	AFB	AFB	AFB
Number of Barrels . . . . .	4	4	4	4	4
Buick Number . . . . .	1374635	1374634	1374640	1376791	1374639
Carter Number . . . . .	4056S	4055S	4061S	4179S	4060S
Bore Diameter, Primary . . . . .	1 7/16"	1 7/16"	1 7/16"	1 9/16"	1 9/16"
Large Venturi Diameter, Primary . . . . .	1 1/8 "	1 1/8 "	1"	1 3/16"	1 1/16"
Bore Diameter, Secondary . . . . .	1 7/16"	1 7/16"	1 7/16"	1 11/16"	1 11/16"
Large Venturi Diameter, Secondary . . . . .	1 1/4 "	1 1/4 "	1 1/4 "	1 9/16"	1 9/16"
Float Level Adjustment . . . . .	1 13/32"	1 13/32"	1 13/32"	1 15/32"	1 15/32"
Float Drop Adjustment . . . . .	3/4" Min.	3/4" Min.	3/4" Min.	3/4" Min.	3/4" Min.
Float Needle Seat . . . . .	#42	#42	#42	#38	#38
Low Speed Jet . . . . .	#66	#68	#68	#68	#66
Idle Discharge Port . . . . .	.180" x .030"	.180" x .030"	.150" x .030"	.185" x .030"	.125" x .030"
Lower Idle Port . . . . .	#52	#52	#52	#52	#52
Metering Jet, Primary . . . . .	120-256	120-256	120-203	120-256	120-203
Metering Jet, Secondary Production . . . . .	120-222	120-222	120-185	120-165	120-158
High Altitude . . . . .	120-185	120-185		120-165	
Metering Rod Production . . . . .	16-341	16-341		16-219	16-255
High Altitude . . . . .	16-382	16-382		16-255	

**NOTE:** Use High Altitude Kit Above 3500 Feet.  
Use Kit Consisting of Secondary Jets, Primary Rods and Springs.  
Throttle Bore Vents . . . . .

#42                      #42                      #42                      #42                      #42

## 64-30 CARTER AFB CARBURETOR CALIBRATIONS (Cont'd.)

	340 Eng. Man. Trans.	340 Eng. Auto Trans.	340 Eng. Auto Trans. California	400 Eng. Man. Trans.	400-401 Eng. Man. Trans. California
Anti-Percolator or Main Bleed Hole . . . . .	#64	#64	#64	#64	#64
Choke Suction Hole . . . . .	#40	#40	#40	#40	#40
Pump Discharge Jet . . . . .	#72	#72	#72	#70	#70
Vacuum Spark Control Hole . . . . .	.180" x .040"	3/32"	.130" x .040"	.130" x .040"	.130" x .040"
Choke Coil Housing Number . . . . .	170AJ478S	170AJ478S	170AJ478S	170BE478S	170BE478S

## 64-31 CARTER AFB CARBURETOR ADJUSTMENTS

		1 Notch Rich	1 Notch Rich	Index	Index
Choke Thermostat <sup>®</sup> Setting . . .	Index	7/16" Center	7/16" Center	1/2" Inner	1/2" Inner
Pump Setting at Closed Throttle . . . . .	7/16" Center Hole	7/16" Center Hole	7/16" Center Hole	1/2" Inner Hole	1/2" Inner Hole
Choke Piston Setting (With .026" Wire) . . . . .	.090"	.090"	.090"	.110"	.110"
Closing Shoe Clearance . . . .	.020"	.020"	.020"	.020"	.020"
F.I. Cam Setting, Choke Closed . . . . .	Index	Index	Index	Index	Index
F.I. Cam Number . . . . .	181-356	181-354	181-354	181-292	181-292
Unloader Opening at Choke Valve Edge . . . . .	.160"	.160"	.160"	.215"	.215"
Initial Idle Speed . . . . .	1/2 Turn In	1/2 Turn In	1/2 Turn In	1/2 Turn In	1/2 Turn In
Initial Idle Mixture . . . . .	1 Turn Out	1 Turn Out	1 Turn Out	3/4 Turn Out	3/4 Turn Out
Fast Idle Speed in Drive (Hot, on Low Step) . . . . .	600 RPM	600 RPM	600 RPM	600 RPM	600 RPM

## 64-30 CARTER AFB CARBURETOR CALIBRATIONS (Cont'd.)

	400 Eng. Auto. Trans.	400 Eng. Auto. Trans. California	401 Eng. Man. Trans.	401 Eng. Auto. Trans.	401 Eng. Auto. Trans. California
Tag Color . . . . .	Black	Black	Red	Gold	Gold
Model Designation . . . . .	AFB	AFB	AFB	AFB	AFB
Number of Barrels . . . . .	4	4	4	4	4
Buick Number . . . . .	1376792	1376793	1374633	1374632	1374638
Carter Number . . . . .	4180S	4181S	4054S	4053S	4059S
Bore Diameter, Primary . . . .	1 9/16"	1 9/16"	1 9/16"	1 9/16"	1 9/16"
Large Venturi Diameter, Primary . . . . .	1 3/16"	1 1/16"	1 3/16"	1 3/16"	1 1/16"
Bore Diameter, Secondary . . . .	1 11/16"	1 11/16"	1 11/16"	1 11/16"	1 11/16"
Large Venturi Diameter, Secondary . . . . .	1 9/16"	1 9/16"	1 9/16"	1 9/16"	1 9/16"
Float Level Adjustment . . . . .	1 15/32"	1 15/32"	1 15/32"	1 15/32"	1 15/32"
Float Drop Adjustment . . . . .	3/4" Min.	3/4" Min.	3/4" Min.	3/4" Min.	3/4" Min.
Float Needle Seat . . . . .	#38	#38	#38	#38	#38
Low Speed Jet . . . . .	#65	#68	#68	#65	#68
Idle Discharge Port . . . . .	.200" x .030"	.125" x .030"	.185" x .030"	.200" x .030"	.125" x .030"
Lower Idle Port . . . . .	#52	#52	#52	#52	#52
Metering Jet, Primary . . . . .	120-256	120-203	120-256	120-256	120-203
Metering Jet, Secondary Production . . . . .	120-158	120-158	120-165	120-158	120-158
High Altitude . . . . .	120-233		120-165	120-233	
Metering Rod Production . . . . .	16-219	16-189	16-219	16-219	16-189
High Altitude . . . . .	16-255		16-255	16-255	

64-30 CARTER AFB CARBURETOR CALIBRATIONS (Cont'd.)

	400 Eng. Auto. Trans.	400 Eng. Auto. Trans. California	401 Eng. Man. Trans.	401 Eng. Auto. Trans.	401 Eng. Auto. Trans. California
<b>NOTE:</b> Use High Altitude Kit Above 3500 Feet. Use Kit Consisting of Secondary Jets, Primary Rods and Springs.					
Throttle Bore Vents . . . . .	#42	#42	#42	#42	#42
Anti-Percolator or Main Bleed Hole . . . . .	#64	#64	#64	#64	#64
Choke Suction Hole . . . . .	#40	#40	#40	#40	#40
Pump Discharge Jet . . . . .	#70	#70	#70	#72	#72
Vacuum Spark Control Hole . . .	3/32"	.130" x .040"	.130" x .040"	3/32"	.130" x .040"
Choke Coil Housing Number . . . . .	170BE478S	170BE478S	170BE478S	170BE478S	170BE478S

64-31 CARTER AFB CARBURETOR ADJUSTMENTS (Cont'd.)

	Index	Index	Index	Index	Index
Choke Thermostat Setting . . . .	Index	Index	Index	Index	Index
Pump Setting at Closed Throttle . . . . .	1/2" Inner Hole	1/2" Inner Hole	7/16" Center Hole	7/16" Center Hole	7/16" Center Hole
Choke Piston Setting (With .026" Wire) . . . . .	.110"	.095"	.110"	.100"	.095"
Closing Shoe Clearance . . . . .	.020"	.020"	.020"	.020"	.020"
F.I. Cam Setting, Choke Closed . . . . .	Index	Index	Index	Index	Index
F.I. Cam Number . . . . .	181-351	181-351	181-292	181-351	181-351
Unloader Opening at Choke Valve Edge . . . . .	.215"	.215"	.215"	.215"	.215"
Initial Idle Speed . . . . .	1/2 Turn In	1/2 Turn In	1/2 Turn In	1/2 Turn In	1/2 Turn In
Initial Idle Mixture . . . . .	3/4 Turn Out	3/4 Turn Out	3/4 Turn Out	3/4 Turn Out	3/4 Turn Out
Fast Idle Speed in Drive (Hot, on Low Step) . . . . .	600 RPM	600 RPM	600 RPM	600 RPM	600 RPM

**DIVISION II  
DESCRIPTION  
AND OPERATION**

64-32 DESCRIPTION AND OPERATION OF  
CARTER 4-BARREL CARBURETOR

**a. General Description**

The Carter Model AFB carburetor is a 4-barrel downdraft type which provides the advantages of a compound installation of two 2-barrel carburetors in one compact unit. See Figures 64-66 & 67. See paragraphs 64-30 & 31 for the specifications of this carburetor.

The primary section covers the 2-barrelled forward half of the carburetor assembly. This section is essentially a complete 2-barrel carburetor containing a

low speed system, high speed system, power system and accelerating system. This section also includes the automatic choke mechanism.

The secondary section covers the 2-barrelled rearward half of the carburetor assembly. This section is essentially a supplementary 2-barrel carburetor which cuts in to assist the primary section when a predetermined car speed or engine load is reached. This section contains its own high speed system. It has a separate set of throttle valves and a set of auxiliary valves which are located in the barrels above the throttle valves.

The primary throttle valves are operated by the accelerator pedal and the connecting throttle link-

age. The secondary throttle valves are operated by the primary throttle valve shaft through delayed action linkage which permits a predetermined opening of the primary valves before the secondary valves start to open. Action of the linkage then causes both sets of throttle valves to

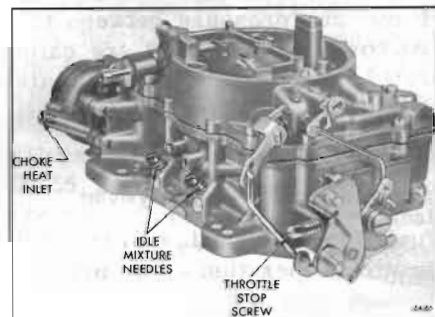


Figure 64-66—Carter AFB Carburetor Assembly - 300-340 Engines

reach the wide open position at the same time.

### b. Operation of Float Systems

The purpose of the float system is to maintain an adequate supply of fuel at the proper level in the bowl for use by the low-speed, high-speed, pump and choke circuits.

There are two separate float circuits. Each float circuit supplies fuel to a primary low-speed circuit and a primary and secondary high-speed circuit. See Figure 64-68.

Setting the floats to specifications assures an adequate supply of fuel in the bowls for all operating conditions. Special consideration should be given to be sure the floats do not bind in their hinge pin brackets or drag against inner walls of bowl.

The intake needle seats are installed at an angle to provide the best possible seating action of the intake needles.

Intake needles and seats are carefully matched during manufacture. Do not use the left needle in the right seat or vice versa. To avoid unnecessary bending, both floats should be reinstalled in their original positions and then adjusted.

The bowls are vented to the inside of the air horn and also to atmosphere. A connecting vent passage in the air horn effects a balance of the air pressure between the two bowls. Bowl vents are calibrated to provide proper air pressure above the fuel at all times.

### c. Operation of Low Speed Systems

Fuel for idle and early part throttle operation is metered through the low speed system. The low speed system is located on the primary side only. See Figure 64-69.

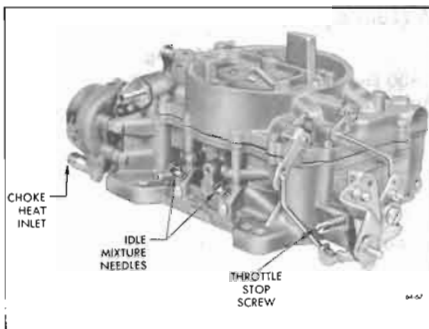


Figure 64-67—Carter AFB Carburetor Assembly - 400-401-425 Engines

Gasoline enters the idle wells through the main metering jets. The low speed jets measure the amount of fuel for idle and early part throttle operation. The air by-pass passage economizers and idle air bleeds are carefully calibrated and serve to break up the liquid fuel and mix it with air as it moves through the passages to the idle ports and idle adjustment screw ports. Turning the idle adjustment screws toward their seats reduces the quantity of fuel mixture supplied by the idle circuit.

The idle ports are slot shaped. As the throttle valves are opened, more of the idle ports are uncovered allowing a greater quantity of the gasoline and air mixture to enter the carburetor bores. The secondary throttle valves remain seated at idle.

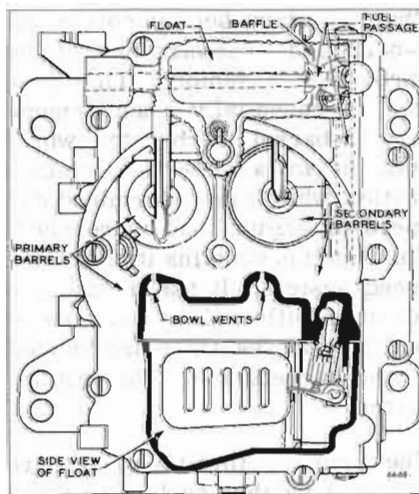


Figure 64-68—Float Circuits

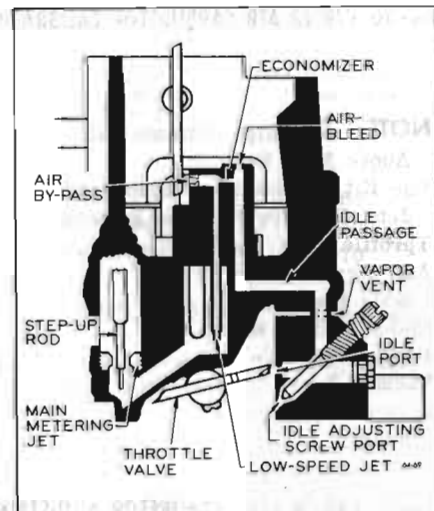


Figure 64-69—Low Speed Circuit

The low speed jets, air bleed, economizer and by-pass bushings are pressed in place in the venturi assemblies. Do not remove in servicing. If replacement is necessary, use a new venturi assembly. To insure proper alignment of the low speed mixture passage, each primary venturi assembly is designed so it can be installed on one side only.

To assist in quick hot engine starting, fuel vapor accumulated in the primary and secondary bores is vented to atmosphere through vent passages above throttle valves.

To combat engine stalling during warm-up on cool humid days, caused by "carburetor icing", exhaust gases are directed against a steel baffle plate that contacts the carburetor mounting flange. The heat transferred helps eliminate ice formation at the throttle valve edges and idle ports.

To compensate for loss of engine RPM while idling under very hot operating conditions, a thermostatic valve assembly is installed in the web between the right and left secondary venturi. When the temperature rises beyond a certain point, the calibrated thermostatic spring opens the valve.

This allows additional air to flow through a special passage to an outlet below the secondary throttle valves. At normal operating temperatures, the valve should be closed. The thermostatic valve cannot be adjusted or repaired; therefore, a faulty valve must be replaced. See Figure 64-70.

#### d. Operation of High Speed Systems

Fuel for all except early part throttle and for all full throttle operation is supplied through the high speed system. See Figure 64-71.

The position of the step-up rod in the primary main metering jet controls the amount of fuel admitted to the nozzles. The position of the step-up rod is controlled by a manifold vacuum piston.

During normal part throttle operation, manifold vacuum pulls the step-up piston and rod assembly down, holding the larger diameter of the step-up rod in the primary main metering jet. This is true when the vacuum under the piston is strong enough to overcome the tension of the step-up piston spring. Fuel is then metered around the larger diameter of the step-up rod in the jet.

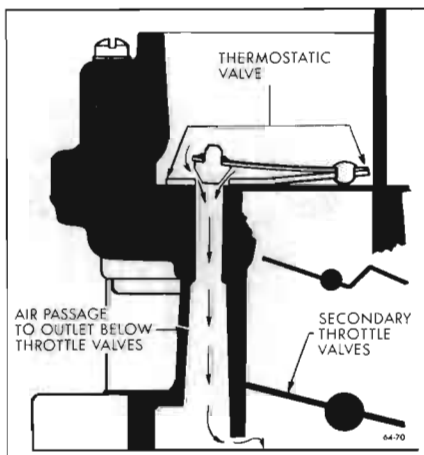


Figure 64-70—Thermostatic Valve Assembly

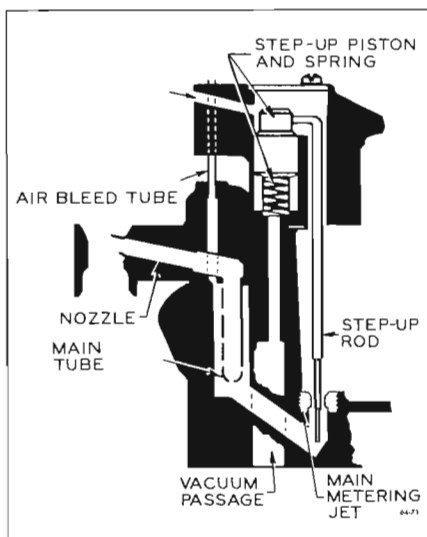


Figure 64-71—Primary High Speed Circuit

Under any operating condition, when the tension of the spring overcomes the pull of vacuum under the piston, the step-up rod will move up so its smaller diameter or power step is in the jet. This allows additional fuel to be metered through the jet. The step-up rod does not require adjustment.

Fuel for the high-speed circuit of the secondary is metered at the main metering jets (no step-up rods used). See Figure 64-72.

Initial discharge ports are incorporated to supplement starting of the fuel flow in the secondary high-speed circuit. These ports are located next to the venturi struts. When the auxiliary valves start to open, the vacuum on the initial discharge ports pulls fuel from the main vent tube well through passages that rise above the fuel level in the bowl. Air bleeds serve to break-up the liquid fuel and mix it with air as it moves through the passages to the initial discharge ports where it is discharged into the air stream. As the auxiliary valves continue to open, and the secondary nozzles start delivering fuel, less fuel flows from the initial discharge ports.

The main vent tubes on primary and secondary sides mix air drawn through the high speed air bleed with the fuel before it passes out of the nozzles.

Air bleeds in the primary nozzle passage plugs cause the air fuel mixture to closely follow the requirements of the engine. Also, their position at the junction of the nozzle passage and the main vent tube serves to break the flow of fuel from the high speed circuit quickly as the throttle is closed upon deceleration.

A clogged air bleed or main vent tube may cause excessively rich mixtures. The high speed bleed and main vent tubes are permanently installed. If replacement is necessary, use a new venturi assembly.

The high speed bleeds also act as anti-percolator vents when a hot engine is stopped or at idling speed. This will help vent fuel vapor pressure in the high speed and idle well before it is sufficient to push fuel out of the nozzles and into the intake manifold.

Engines operated at part throttle on level road use a mixture of maximum leanness. The mixture for greatest power and acceleration is somewhat richer, and is furnished by the power and accelerating systems described later.

The high speed systems in the primary section control the flow of fuel during the intermediate or part throttle range of operation and up to approximately 85 MPH. The secondary throttle valves remain closed until the primary valves have opened approximately 50-55 degrees, after which they are opened proportionately so that all valves reach the wide open position at the same time. While the secondary valves are closed, the auxiliary valves located above them are held closed by the weights on the auxiliary valve

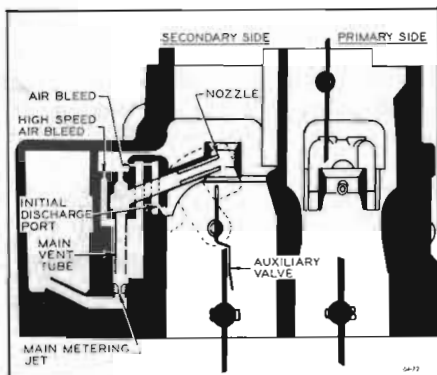


Figure 64-72—Secondary High Speed Circuit

shaft lever (Figure 64-72); therefore there is not sufficient air flow through the barrels to operate the high speed systems in the secondary section.

When the secondary throttle valves are open and the engine speed is at least 1400-1600 RPM, the resulting air flow through the secondary barrels starts to open the auxiliary valves because their supporting shaft is located off-center in the barrels. When the auxiliary valves are open the high speed systems in the secondary section also supply fuel to the engine.

#### e. Operation of the Power System

For maximum power or high speed operation above approximately 85 MPH, a richer mixture is required than that necessary for normal throttle opening. The richer mixture is supplied through the high speed systems in the primary section through vacuum control of the step-up rods.

Each power circuit consists of a vacuum piston located in a cylinder connected to manifold vacuum and a spring which tends to push the piston upward against manifold vacuum. See Figure 64-73.

Under part throttle operation, manifold vacuum is sufficient to hold the piston and rod down

against the tension of the spring, so that the large diameter of the rod is in the metering jet for economy. When the throttle valve is opened to a point where additional fuel is required for satisfactory operation, manifold vacuum decreases sufficiently so that the piston spring moves the piston and rod upward to the small rod diameter to give the required richer mixture for power. As soon as the demand is passed manifold vacuum again moves the piston and rod down.

#### f. Operation of Accelerating System

The accelerating pump circuit, located in the primary side, provides a measured amount of fuel necessary to insure smooth engine operation on acceleration at lower car speeds.

When the throttle is closed, the pump plunger moves upward in its cylinder and fuel is drawn into the pump cylinder through the intake check. The discharge check is seated at this time to prevent air from being drawn into the cylinder. When the throttle is opened, the pump plunger moves downward forcing fuel out through the discharge passage, past the discharge check, and out of the pump jets. When the plunger

moves downward, the intake check is closed, preventing fuel from being forced back into the bowl. See Figure 64-74.

At higher car speeds, pump discharge is no longer necessary to insure smooth acceleration. When the throttle valves are opened a predetermined amount, the pump plunger bottoms in the cylinder eliminating further pump discharge.

Be sure the pump plunger cup is in good condition and the intake and discharge checks and pump jet are free of lint, gum or other foreign matter. The pump intake check is a one piece assembly located in an angular passage at the base of the pump assembly. The intake check is serviced only as a complete assembly.

#### g. Operation of Choke System

The choke circuit, located in the primary side, provides the correct mixture necessary for quick cold engine starting and during engine warm-up.

When the engine is cold, tension of the thermostatic coil holds the choke valve closed. When the engine is started, air velocity against the offset choke valve causes the valve to open slightly

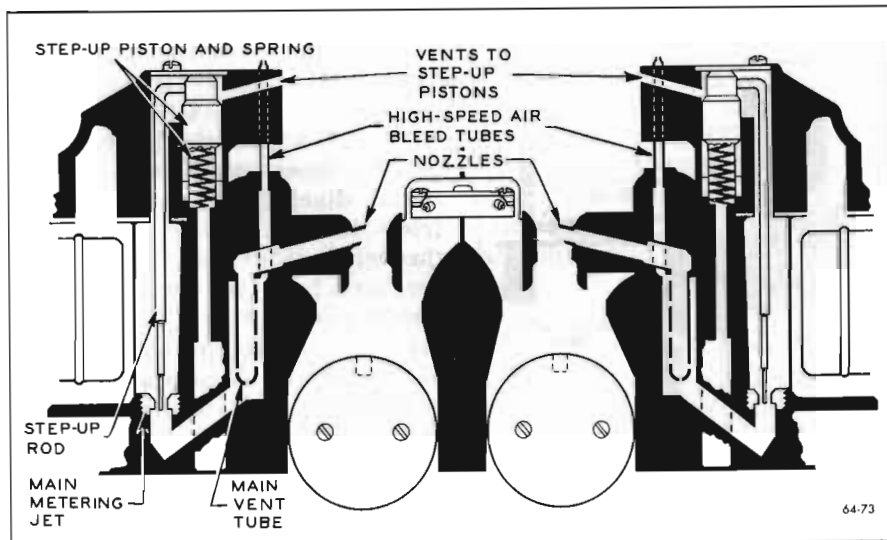


Figure 64-73—Power Circuit

against the thermostatic coil tension. Intake manifold vacuum applied to the choke piston also tends to pull the choke valve open. The choke valve assumes a position, where tension of the thermostatic coil is balanced, by the pull of vacuum on the piston, and force of air velocity on the offset valve.

When the engine starts, slots located in the sides of the choke piston cylinder are uncovered, allowing intake manifold vacuum to draw warm air through the climatic control housing. This air is heated in a tube running through the exhaust manifold. Clean, filtered air is used to operate the choke thermostatic coil. Air is taken from the air horn of the carburetor, down a pipe to the right exhaust manifold. The flow of warm air heats the thermostatic coil and causes it to lose some of its tension. The thermostatic coil loses its tension gradually, until the choke valve reaches the full-open position.

If the engine is accelerated during the warm-up period, the corresponding drop in manifold vacuum allows the thermostatic coil to momentarily partially close the choke, providing a richer mixture.

During the warm-up period, it is necessary to provide a fast idle

speed to prevent engine stalling. This is accomplished by a fast idle cam connected to the choke linkage. The fast idle adjusting screw on the throttle lever contacts the fast idle cam and prevents the throttle valves from returning to a normal warm engine idle position, while the choke is in operation. See Figure 64-75.

If during the starting period the engine becomes flooded, the choke valve may be opened manually to clean out excessive fuel in the intake manifold. This is accomplished by depressing the accelerator pedal to the floor mat. The unloader projection on the throttle lever contacts the fast idle cam which rotates and partially opens the choke valve.

The secondary section does not have a choke valve. In order to prevent air entering the carburetor through the secondary side during the engine warm-up period, it is necessary to lock the secondary throttle valves in the closed position. This is accomplished by engagement of a lock-out arm with a locking tang on the secondary valve shaft lever. See Figure 64-75.

With the choke valve in wide open position the lock-out arm rests in a lowered position, clear of the secondary valve shaft lever. As the choke valve closes it rotates the fast idle cam trip lever, allowing the lock-out arm to rise. As soon as the choke valve is closed a few degrees from wide

open position, the notch in the lock-out arm lies in the line of travel of the locking tang on the secondary valve shaft lever, thereby preventing the shaft and valves from turning.

The choke fast idle linkage permits the choke valve to float in that it can close a few degrees, if necessary, should the engine falter while running on fast idle during the warm-up period. When the engine starts, manifold vacuum applied to the choke piston pulls the choke valve partially open. Should the engine falter, the choke piston will sense the condition because of the reduction in vacuum and allow the tension of the thermostatic coil to partially close the choke, providing a slightly richer mixture to smooth out the engine's performance. This feature of allowing the choke valve to close partially while the fast idle screw is in contact with the cam helps prevent stalling during the warm-up period. The choke valve is allowed to come open during the warm-up period if the car is left running on fast idle while warming up.

### DIVISION III SERVICE PROCEDURES

#### 64-33 DISASSEMBLY, CLEANING AND INSPECTION OF CARTER 4-BARREL CARBURETOR

1. Remove pin spring from upper end of choke rod and disconnect rod from choke shaft lever. Reinstall pin spring on choke rod for safe keeping.

2. Remove retainer and spring from upper end of pump rod and disconnect rod from pump arm. Reinstall spring and retainer on pump rod.

3. Remove screws holding two step-up piston cover plates to air horn. Remove cover plates

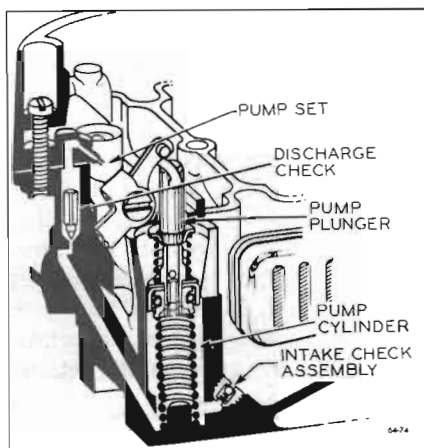


Figure 64-74—Pump Circuit

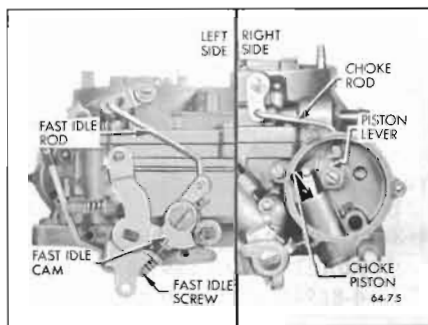


Figure 64-75—Choke Linkage

and remove each step-up piston, rod, and rod retainer spring as an assembly. Then remove two step-up piston springs. See Figure 64-76.

4. Remove screw from end of choke shaft and remove outer lever and washer. Then remove inner lever and fast idle rod from carburetor as an assembly. Remove choke valve attaching screws. Remove choke valve and shaft.

5. Remove fuel inlet fitting and gasket. Remove all air horn screws and lock washers, noting location of attached cable clip. Remove air horn and gasket from main body, lifting straight up to avoid damaging floats or pump plunger.

6. Remove float lever pins and floats. Remove float needles, needle seats, and gaskets. Keep float system parts separated so that they may be reinstalled in original location with a minimum amount of adjusting.

7. Remove pin spring from pump link. Remove link and reinstall pin spring. Remove pump plunger assembly from air horn. Remove air horn gasket.

8. Remove lower pump spring from main body. Remove thermostatic coil and housing assembly, gasket, and baffle plate from choke piston housing. Remove screw from end of choke piston housing shaft and remove washer. Then remove choke piston, lever, link and pin assembly.

9. Remove piston housing from main body. Remove small round gasket from piston housing. Remove choke shaft, lever, and rod assembly from piston housing.

10. Remove idle mixture adjustment screws and springs.

11. Remove thermostatic valve and gasket. See Figure 64-70.

12. Remove both secondary venturi assemblies and gaskets. Remove auxiliary valve assembly.

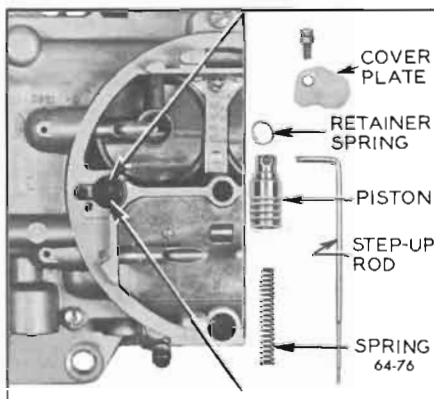


Figure 64-76—Step-Up Rod and Related Parts

Remove both primary venturi assemblies and gaskets. Notice that each venturi assembly is different and can be assembled in only one location. Notice also that primary venturi assembly gaskets are different from secondary gaskets.

13. Remove pump jet housing and gasket. Remove pump discharge check needle.

14. Remove all four metering jets. Notice that the primary jets have larger orifices than the secondary jets. This is because step-up rods are used only in the primary jets.

15. Remove pump intake ball check assembly.

Unless passages in main body appear to be clogged with carbon or gum to such an extent that penetration of cleaning solution is doubtful, it is seldom necessary to remove passage plugs.

For normal cleaning and inspection, it is not necessary to remove primary or secondary throttle valves and their connecting linkage. However, if throttle linkage is worn or damaged, service replacement parts are available.

#### 64-34 ASSEMBLY AND INTERNAL ADJUSTMENT OF CARTER 4-BARREL CARBURETOR

During assembly of carburetor use all new gaskets and any ad-

ditional new parts found to be necessary during inspection. Calibrated parts must be as specified for carburetor CODE number which is stamped in edge of mounting flange at rear center.

1. Place main body in upright position on bench or mounting fixture. Install primary and secondary metering jets and tighten securely.

**NOTE:** The primary jets are the two having the larger orifices and are installed in the holes nearest the center of the main body below step-up rod holes in air horn.

2. Install pump discharge check needle point down. Install pump jet housing and gasket. Install pump intake ball check assembly.

3. Install thermostatic valve using new gasket. See Figure 64-70.

4. Install auxiliary valve assembly with screw heads down. Then install secondary and primary venturi assemblies, using new gaskets.

**NOTE:** If a primary venturi assembly does not fit in place flush with top of main body, it belongs on other side.

5. Install idle mixture adjustment screws. Seal lightly and back out  $3/4$  turn, which will provide an average initial adjustment.

6. Install choke piston housing shaft, lever and rod assembly in piston housing with lever and rod pointing away from heat pipe connector. Install small round rubber gasket in housing recess, then install piston housing on main body using three self tapping screws. Install choke piston, pin, link and lever assembly in piston housing. Install piston lever on flats of shaft in such a way that inner and outer levers are pointing in same general direction. Then install screw.

7. Place pump plunger assembly in position in air horn and install



pump link. Install pin spring in upper end of link. Invert air horn and install new air horn gasket.

8. Install float needle seats and gaskets. Install float needles, floats, and lever pins, making sure they are installed in original locations.

9. Align Float - Sight down side of float to determine if side is parallel with outer edge of air horn. If adjustment is necessary, bend float lever by applying pressure to end of float with fingers while supporting float lever with thumb. See Figure 64-77.

Remove any excess clearance between arms of float lever and lugs on air horn by bending float lever arms. Arms should also be parallel to inner surfaces of lugs. After aligning, each float must operate freely.

10. Adjust Float Level. With air horn inverted and air horn gasket in place, check measurement between upper corner of each float (at outer end) and air horn gasket. See Figure 64-78. To adjust, bend float lever. After any adjustment, recheck float alignment.

11. Adjust Float Drop. With air horn held in upright position, measure vertical distance from air horn gasket to outer end of each float using T-scale. Bend float arm tang as required to

obtain 3/4" measurement. See Figure 64-79.

12. Place lower pump spring in pump well (opposite choke piston housing). Install air horn assembly on main body, using care to avoid distortion of floats. Install air horn screws and tighten evenly. (Two longer screws go in middle holes.) Check auxiliary valve assembly by opening from above. Auxiliary valves must be perfectly free in any position.

13. Install choke shaft in air horn with attached lever toward choke piston housing. Install choke valve with markings up and install screws loosely. Align choke valve by working choke shaft endwise while maintaining an upward pressure on choke shaft lever. Tighten and stake choke valve screws. Check for uniform clearance and freedom from sticking, as improper fit or binding may cause hard starting. Mechanism is free if choke valve will fall open from its own weight.

14. Install assembled fast idle rod and choke lever by first engaging fast idle rod in fast idle cam. Then place lever over end of choke shaft so that it points toward accelerator pump with choke closed.

15. Install two step-up piston springs. Install each assembled retainer spring. Carefully push down on each step-up piston and rod until rod enters metering jet. Use care to avoid bending step-up rods. Then install cover

plates, holding plates down while tightening screws.

16. Install upper end of pump rod in pump arm. Install spring and retainer on rod, making sure that bronze washer is on opposite side of pump arm from spring.

17. Install upper end of choke rod in choke shaft lever, using pin spring on rod.

#### 64-35 EXTERNAL ADJUSTMENT OF CARTER 4-BARREL CARBURETOR

1. Adjust Choke Piston Linkage. Inside choke piston bore on left side, about 1/2 inch down, is a small slot. Insert 1/8 inch bent end of .026" wire gauge into upper end of slot; then close choke valve by pressing on piston lever in choke housing until piston stops against gauge. Check opening between upper edge of choke valve and inner wall of air horn using .100 gauge. See Figure 64-80. If adjustment is required, place Tool J-5197 on lower section of of choke rod and bend as necessary.

2. Install baffle plate in choke piston housing. Install thermostatic coil and housing assembly with gasket. Rotate clockwise until index marks align and choke valve is just closed, then tighten screws and retainers.

3. Adjust Pump. Push fast idle cam aside and back out throttle stop screw until throttle valves

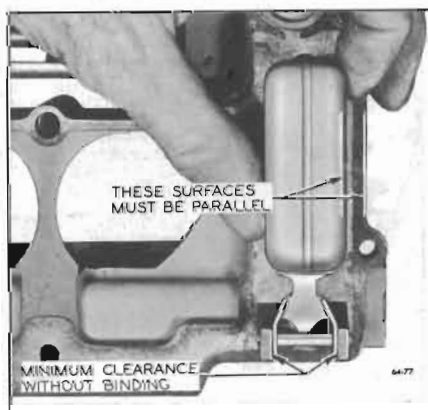


Figure 64-77—Float Alignment

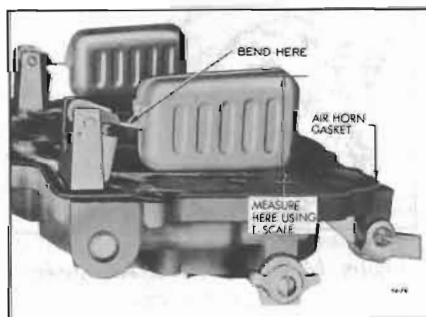


Figure 64-78—Checking Float Level

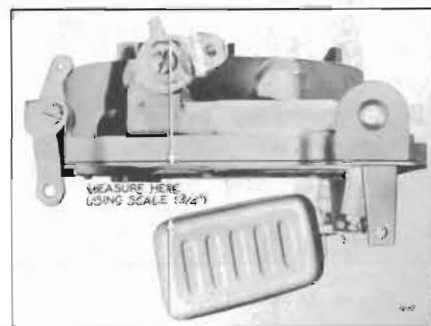


Figure 64-79—Checking Float Drop

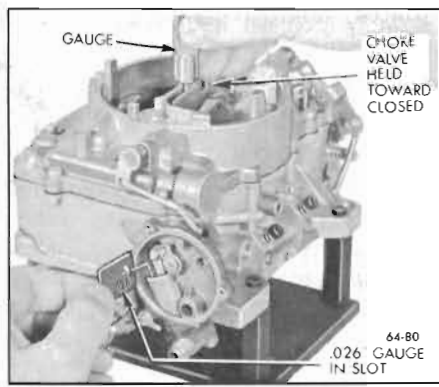


Figure 64-80—Choke Piston Adjustment

seat in throttle bores. With pump rod in center hole, measure from air horn to top of plunger shaft with T-scale. See Figure 64-81. Bend pump rod at lower angle as required to obtain 7/16" measurement using Tool J-4552. Turn throttle stop screw in (from fully closed throttle position) 3/4 turn which should provide an initial idle adjustment.

4. Adjust Fast Idle Cam Position. With choke valve held fully closed, open throttle slightly to allow fast idle cam to spring to a neutral position. Now index mark on fast idle cam must align with center of fast idle screw. If mark does not align, bend fast idle rod using Tool J-5197 as required to make mark align. See Figure 64-82.

**NOTE:** With choke fully closed and index mark aligned, lug on

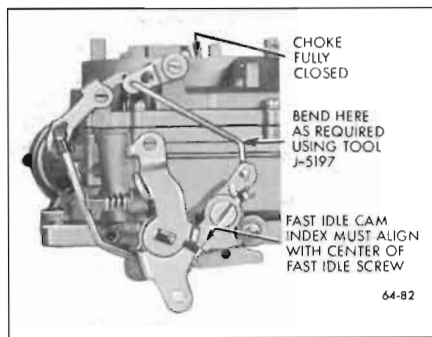


Fig. 64-82—Fast Idle Cam Adjustment

fast idle cam must clear stop on throttle body.

5. Adjust Unloader. Hold throttle wide open and check clearance between upper edge of choke valve and inner wall of air horn using the .215 gauge. Bend unloader tang on throttle shaft lever as required to obtain this clearance using pliers. See Figure 64-83.

6. Adjust Closing Shoe. Hold choke open and rotate primary throttle lever through full range. Check clearance between positive closing shoes on primary and secondary throttle levers at closest position using .020" gauge. Bend secondary closing shoe as required to obtain this clearance using pliers. See Figure 64-84.

7. Adjust Throttle Opening. At wide open throttle, primary throttle valves should be vertical. Secondary throttle valves should be a few degrees from vertical.

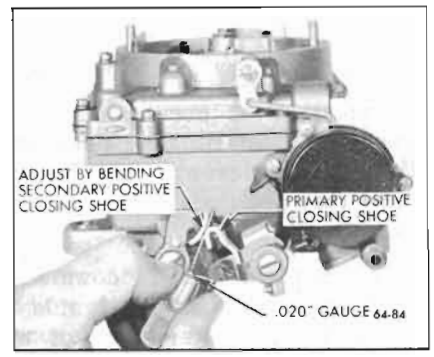


Figure 64-84—Closing Shoe Adjustment

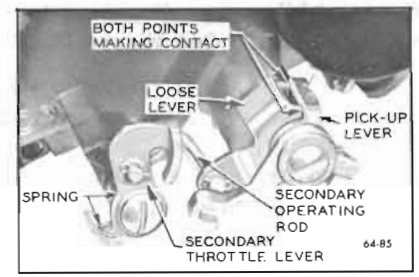


Figure 64-85—Secondary Throttle Opening Adjustment

Upper edge of secondary valves should just contact auxiliary valves when both are wide open. If necessary, bend wide open stop lug.

Primary and secondary throttle valves should reach wide open throttle at the same time. To synchronize, bend secondary operating rod. See Figure 64-85.

The pick-up lever located on the primary throttle shaft has two points of contact with the loose

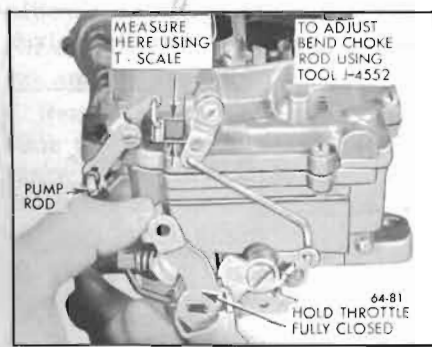


Figure 64-81—Pump Adjustment

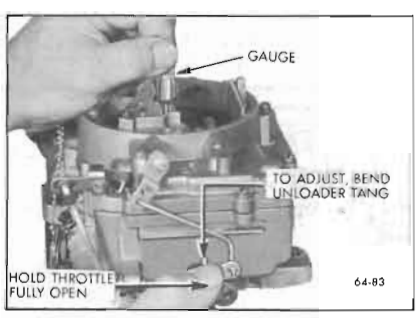


Figure 64-83—Unloader Adjustment

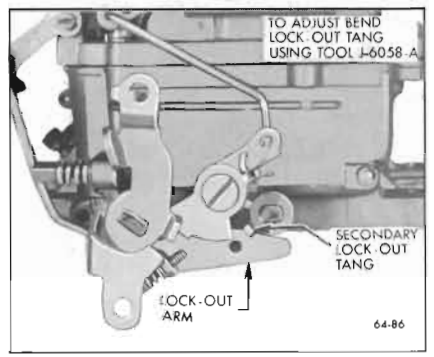


Figure 64-86—Secondary Throttle Lock-Out Adjustment

lever on the primary shaft. Caution should be taken that the pick-up lever contacts the loose lever at both points at the same time. See Figure 64-85. If they do not make this contact, bend pick-up lever to obtain proper engagement.

**8. Adjust Secondary Throttle Lock-Out.** Open primary throttle valves slightly to clear fast idle cam and manually open and close

choke valve. Lock-out tang on secondary throttle should freely engage in notch of lock-out dog while barely missing edge of notch. If necessary to adjust bend tang on secondary throttle lever using Tool J-6058-A. See Figure 64-86.

Install carburetor on car. Make final idle speed and mixture adjustments on car in normal manner. See paragraph 64-2.

**9. Adjust Fast Idle.** Make adjustment on car with engine operating at normal temperature and transmission in drive as follows:

(a) Position fast idle cam so that fast idle screw is resting on low step of fast idle cam with edge of screw aligned with starting edge of cam.

(b) Adjust fast idle screw so that engine runs 600 RPM.