The Holley Carburetor Model 2300 is a dual downdraft carburetor and is used as standard equipment on the 80 Series. This carburetor can be considered as two carburetors built side by side into one unit, but utilizing the same fuel inlet and air inlet. Each barrel has its own venturi, idle system, main metering system, booster venturi and throttle plate.

This carburetor is composed of three major sub-assemblies. They are the main body assembly, fuel bowl and metering body assembly and the throttle body assembly.

The die cast fuel bowl, and metering body assemblies contain the fuel chamber, fuel inlet needle valve, float, accelerating pump, power valve, main jets and all the fuel metering passages.

The die cast throttle body assembly contains the throttle plates, throttle linkage, and various fuel and vacuum passages.

It is essential that the engine receives the correct fuel-air mixture at the precise moment. Therefore, to meet this requirement, this carburetor utilizes four basic fuel metering systems. The four basic systems are: The Idle System, provides a rich mixture for smooth idle and low speed performance; the Accelerating Pump System, provides additional fuel during acceleration; the Main Metering System, provides an economical mixture for normal cruising conditions; and the Power Enrichment System, provides a richer mixture when high power output is desired.

In addition to these four basic systems, there is a fuel inlet system that constantly supplies the fuel to the basic metering systems. There is also a choke which temporarily enriches the mixture to aid in starting and running a cold engine.

The difference in air pressure within the carburetor provides the force for proper discharge of fuel for the various engine speed and load conditions. This pressure is actually less than atmospheric, due to the slight restriction of air flow through the air cleaner. However, to simplify the explanation of the functioning of the fuel metering systems, the pressure within the carburetor will be considered as being atmospheric.

**Fuel Inlet System**

All fuel first enters the fuel bowl which stores fuel at a specific head for the four basic metering systems. The fuel enters the fuel bowl through a screen ahead of the fuel inlet valve, which is frequently referred to as the fuel inlet needle and seat assembly. The amount of fuel entering the fuel bowl is determined by the space between the movable needle and its seat and also by the pressure from the fuel pump.

This carburetor incorporates a Viton tipped fuel inlet needle. This synthetic material provides a better seal and thereby can maintain a more constant fuel level in the carburetor bowl. It is not readily affected by small particles of foreign matter.

Movement of the needle in relation to the seat is controlled by the float and hinge assembly which rises and falls with the fuel level. As the fuel level drops, the float drops, opening the needle valve to allow fuel to enter the float chamber. When the fuel reaches a specified level, the float moves the needle valve to a position where it restricts the flow of fuel, admitting only enough to replace that being used.

Any slight change in the fuel level causes a corresponding movement of the float, opening or closing the fuel inlet needle valve to immediately restore or hold the proper fuel level. The fuel inlet system must constantly maintain the specified level of fuel as the basic fuel metering systems are calibrated to deliver the proper mixture only when the fuel is at this level.

The float chamber is vented internally by the vent tube at all times. At curb idle or when the engine is stopped, the chamber is also vented by the external vent on top of the fuel bowl. This external vent provides a release of excess fuel vapors from the bowl.

**Choke System**

The choke supplies the richer fuel-air mixture required for starting and operating a cold engine. Most of the vaporized fuel from the carburetor condenses to a liquid upon contact with the cold surfaces of the intake manifold. This fuel in liquid form burns too slowly and incompletely in the cylinders, causing loss of power and stalling. The choke plate, which is
FIGURE 76 — Fuel Inlet System

usually closed during the cranking period and partially closed during warm-up, confines the manifold vacuum below the choke plate. This greater vacuum causes both the main metering and idle system to discharge fuel into the cylinders.

The automatic choke is mounted on the main body and is linked to the choke shaft and the choke plate at the upper portion of the main body.

The bi-metallic thermostat spring in the choke control mechanism will expand when cooled, loosening and unwinding its coils. When warmed, it will contract winding the coils tighter. When the engine is cold, the thermostat spring has expanded, holding the choke plate in the closed position. When the engine is started, manifold vacuum acts directly on the choke plate, and the vacuum piston located in the choke housing, immediately moving against the tension of the thermostat spring to partially open the choke plate. The choke shaft does not pass through the center of the choke plate. Instead, it is offset, thus

FIGURE 77 — Automatic Choke

exposing a much larger area on one side of the closed choke plate to manifold vacuum. When the engine is
started or at idle, manifold vacuum is not sufficiently strong to open the choke plate. But the impact of air against the choke plate partially opens the plate. Manifold vacuum channeled through a passage in the choke housing acts to draw the choke vacuum piston downward, thus exerting another opening force upon the choke plate. These two features allow enough air to enter the engine to enable it to run smoothly. As the engine continues to run, the vacuum acting on the choke vacuum piston is drawn out of the heat tube in the manifold where the air is warmed by the engine heat, and then through the thermostat housing where the air warms the thermostat spring, causing it to contract. This gradually decreases the tension of the thermostat spring as manifold temperature rises, permitting the vacuum acting on the choke vacuum piston to further open the choke plate. The air then flows through the manifold vacuum passage in the carburetor and is exhausted into the air stream in the throttle body.

When the engine reaches its normal operating temperature, the thermostat spring no longer exerts an opposing tension on the choke vacuum piston, thus allowing the vacuum piston to pull the choke plate to the full open position.

In the full open position the vacuum piston is in its lowest position in the cylinder. Slots in the cylinder wall permit sufficient air to bleed past the piston and into the intake manifold to allow a continuous flow of warm air to pass through the thermostat housing. This keeps the thermostat spring warm and the choke plate fully open until the engine is shut down and allowed to cool.

During the warm-up period, the air flow past the partially opened offset choke plate acts upon the plate in much the same manner as manifold vacuum does upon starting. As air flow increases with increased engine speed, the engine requires less choking and the force of the increased air flow holds the choke plate closer to the open position. The offset choke plate, vacuum piston, and thermostat spring are engineered to provide the correct degree of choking for all conditions of engine speed, power output, and temperature.

The choke rod at the carburetor actuates a fast idle cam during choking. Designed to increase the idle R.P.M. for smoother running when the engine is cold, the fast idle cam has a series of steps on one edge. As the choke and rod is moved through its range of travel from the closed position to the open position, the fast idle cam rotates, presenting successive steps to a throttle stop screw. Each step permits a slower idle R.P.M. as engine temperature rises and choking is reduced.

If the engine should approach a stall at any time during the warm-up period, manifold vacuum will drop. The tension of the thermostat spring then overcomes the reduced force acting on the vacuum piston and the choke plate will be moved toward the closed position, providing a richer mixture to allow the engine to "catch" and run smoothly again.

**Idle System**

At idle and low speeds, the air flow through the carburetor is not sufficiently strong enough to draw fuel through the venturi for the main metering system. Intake manifold vacuum is high because of the greater restriction to the air flow by the nearly closed throttle plates. This high manifold vacuum is used to provide the pressure differential to operate the idle system.

The carburetor utilizes two identical idle systems, one for each bore. Since the two passages function identically, only one side will be considered in this explanation.

At idle, the normal air pressure in the float chamber causes the fuel to flow through the idle system to the greatly reduced pressure area below throttle plate. Fuel flows from the float chamber through the main jet then into the small angular but horizontal passage that leads across to a vertical passage.

The fuel flows up this vertical passage, (idle well) past the idle feed restriction and then it is mixed with air coming in from the idle air bleed. This fuel-air mixture flows through a short horizontal passage and then down another vertical passage. At the bottom of this vertical passage the fuel-air mixture branches in two directions, one through the idle discharge passage and the other to the idle transfer passage.

The fuel in the idle discharge passage flows past the pointed tip of the idle adjusting needle which controls the mixture delivered at idle. Turning the needle in toward its seat restricts the flow of fuel, thus providing a leaner idle mixture. Turning the needle out enriches the mixture by allowing a greater flow of fuel.

From the idle adjusting needle chamber, the fuel goes through a short passage, down another passage in the main body and into the throttle bore below the throttle plate.

During off-idle operation when the throttle plate is moved slightly, the fuel flows through the idle transfer passage from the metering body into the throttle body passage. As the idle transfer slot is exposed to manifold vacuum, fuel is discharged into the throttle bore.

As the throttle plate is opened still wider and engine speed increases, the air flow through the carburetor is also increased. This creates an increased vacuum in the venturi to bring the main metering system into operation. The flow from the idle system tapers off as the main metering system begins discharging fuel. The two systems are engineered to
provide smooth gradual transition from idle to cruising speeds.

**Accelerating Pump System**

As the throttle opening is increased upon acceleration, the air flow through the carburetor responds almost immediately. The fuel, however, is heavier than air and there is a brief interval before the fuel flow responds to the increased opening of the throttle. During this short period, the desired balance of fuel and air cannot be maintained by the other fuel metering systems. It is during this interval that the accelerating pump operates, supplying fuel until the other metering systems can provide the proper mixture.

The accelerating pump is located in the bottom of the fuel bowl. The pump begins to function when the pump operating lever is actuated by throttle move-
FUEL — CARBURATION — EXHAUST

At cruising speed, the fuel flows from the float chamber through the main jet, which measures or meters the fuel flow, into the bottom of the main well. The fuel moves up the main well air bleed hole in the side of the well. Filtered air, enters through the air bleed in the main body and then into the main metering body by interconnecting passages. This mixture of fuel and air, being lighter than raw fuel, responds faster to any change in venturi vacuum and vaporizes more readily when discharged into the air stream of the venturi. The mixture of fuel and air moves up the main metering passage and passes into the short horizontal passage leading to the main body; then through the horizontal channel of the discharge nozzle. This fuel is discharged into the booster venturi and then in the air stream of the carburetor venturi.

The throttle plate controls the amount of fuel-air mixture admitted to the intake manifold, regulating the speed and power output of the engine in accordance with accelerator pedal movement.

**Power Enrichment System**

During high power operation, the carburetor must provide a mixture richer than is needed when the engine is running at cruising speed under no great power requirements. The added fuel for power operation is supplied by the power enrichment system.

This system is controlled by manifold vacuum which gives an accurate indication of the power demands placed upon the engine. Manifold vacuum is strongest at idle and decreases as the load on the engine increases. As the load on the engine is increased, the throttle plate must be opened wider to maintain a given speed. Manifold vacuum is thus reduced because the opened throttle plate offers less restriction to air entering the intake manifold.

A vacuum passage in the throttle body transmits manifold vacuum to the power valve chamber in the

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**Main Metering System**

As the engine is running, the intake stroke of each piston draws the air through the carburetor venturi and booster venturi. The air, passing through the throat of a venturi, creates a low pressure commonly called a vacuum. The strength of this low pressure is determined primarily by the velocity of the air flowing through the throat of the venturi. This, in turn, is regulated by the speed and power output of the engine. The difference, between the pressure in the booster venturi and the normal air pressure in the float chamber, causes fuel to flow through the main metering system.

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**FIGURE 80 — Main Metering System**

**FIGURE 81 — Power Enrichment System**
main body. The power valve, which is located in the main metering body, is affected by this manifold vacuum. The manifold vacuum, acting on the diaphragm at idle or normal load conditions, is strong enough to hold the diaphragm closed, and overcomes the tension of the power valve spring. When high power demands place a greater load on the engine and manifold vacuum drops below a predetermined point, the power valve spring overcomes the reduced vacuum opening the power valve. Fuel flows from the float chamber, through the valve and out the small holes in the side of the valve through the diagonal restrictions in the main metering body and then into the main well. Here the fuel joins the fuel flow in the main metering system, enriching the mixture.

As engine power demands are reduced, manifold vacuum increases. The increased vacuum acts on the diaphragm, overcoming the tension of the power valve spring. This closes the power valve and shuts off the added supply of fuel which is no longer required.

**Spark Advance**

This carburetor utilizes changes in air pressure to control spark timing to satisfy all engine speed and load conditions.

The spark must be advanced as the engine speed is increased since a definite time is required for the fuel-air mixture to burn and reach its maximum pressure at the right time for highest efficiency of the engine cycle. Because the fuel-air mixture induced into the intake manifold at light loads is not as dense as that during high load operation, it burns more slowly, hence the spark under these conditions must also be advanced.

In order to obtain a vacuum to operate the spark advance as dictated by the engine load conditions, a port is located in the throttle bore just above the full closed position of the throttle plates. As the throttle is opened, this port is subjected to manifold vacuum, which varies with changes in engine load. This port in the throttle body is connected to the main body by a short vertical passage, and then to a passage

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**FIGURE 82 — Disassembly — Three Major Subassemblies**

1. Fuel Bowl Screws and Gaskets (4)
2. Fuel Bowl
3. Fuel Bowl Gasket
4. Metering Body
5. Metering Body Gasket
6. Throttle Body to Main Body Screws and Lockwashers (5)
7. Throttle Body
8. Throttle Body Gasket
9. Main Body
in the main metering body. This passage in turn leads to an outlet on the side of the main metering body which connects to a single line to the distributor.

Disassembly
Major Subassemblies

This carburetor consists of three major subassemblies. Separation of these three subassemblies is the first step in the disassembly procedure.

Remove the four fuel bowl screws and gaskets. Slide the gaskets off the screws and discard. The fuel bowl, fuel bowl gasket, and metering body will slide off. Separate these parts and discard the gaskets (Fig. 83).

Invert the carburetor and remove the five throttle body to main body screws and lockwashers (Fig. 85). Separate the throttle body and main body and discard the gasket.

Remove the float and hinge retainer and slide the float and hinge assembly and the float spring out of the fuel bowl. Remove the float spring off its boss on the float arm.

FIGURE 83 — Separating Fuel Bowl and Metering Body

FIGURE 84 — Disassembly — Fuel Bowl and Metering Body
FIGURE 85 — Removing Throttle Body Screws

Remove the baffle plate.
Using a screwdriver remove the fuel inlet needle assembly adjusting lock screw and with an open end wrench remove the fuel inlet assembly. Discard the gaskets.

FIGURE 86 — Interior of Fuel Bowl

Remove the four pump diaphragm cover screws and lockwashers. Lift off the pump diaphragm cover, diaphragm assembly and return spring (Fig. 87).
Using a box-end wrench, remove the fuel inlet fitting and gasket (Fig. 88). Discard the gasket. Remove the filter screen assembly.
Remove air vent clamp screw and bowl air vent assembly. Note position of spring for proper assembly.
From the metering body, remove the two main jets, using Tool J-10174. (Fig. 89).
Using Tool Number J-10175, remove the power valve assembly and gasket (Fig. 90). Discard the gasket.
Remove the two idle adjusting needles and seals (Fig. 91). Discard the seals.

FIGURE 87 — Removing Accelerator Pump

FIGURE 88 — Removing Fuel Inlet Fitting

FIGURE 89 — Removing Main Jets

Remove the three thermostat cover screws and clamp (Fig. 93). Lift the thermostat cover and gasket off the choke housing.
Remove the lower choke rod retainer.
Remove the three choke housing screws and lockwashers. (Fig. 94). Lift the housing off the main body and discard the two gaskets.
Remove the choke shaft nut, lockwasher and spacer. Slide out the choke shaft and the fast idle cam assembly. Remove the choke lever, link and piston assembly, from its chamber in the housing.
FIGURE 90 — Removing Power Valve

FIGURE 91 — Remove Idle Adjusting Needles

FIGURE 92 — Disassembly — Main Body Assembly

FIGURE 93 — Removing Thermostat Cover Screws

FIGURE 94 — Removing Choke Housing Screws

Remove the upper choke rod retainer. Slide the choke rod out of its position and remove the two choke rod seal retainers and seal. Discard the seal.

Lightly scribe a mark along the choke shaft on the choke plate to insure proper positioning of the choke plate during assembly.

Remove the two choke plate screws and slide the choke plate out of the choke shaft.
Slide the choke shaft out of its position in the main body (Fig. 95).

FIGURE 95 — Removing Choke Shaft

Using a Phillips head screwdriver, remove the pump discharge nozzle screw (Fig. 96). Remove the pump discharge nozzle and gasket. Discard the gasket.

Invert the main body and shake out the pump check needle.

Remove the accelerator pump lever retainer and slide the lever off its stud (Fig. 99).

FIGURE 96 — Removing Pump Discharge Nozzle Screw

Remove the fast idle cam lever screw and lock-washer (Fig. 100). Slide the fast idle pick-up lever, fast idle cam lever, and spring off its position.

NOTE: Note correct position of fast idle cam lever spring before removing for easier assembly.

Lightly scribe both throttle plates along the throttle shaft and mark the plates and its corresponding bore with a number or letter to insure proper replacement.

FIGURE 97 — Removing Pump Check Needle

Remove the four throttle plate screws; then remove the plates.

Slide the throttle shaft out of the throttle body. Remove the throttle stop screw and spring.

**Inspection**

Check all castings for cracks, warpage, stripped threads, damaged gasket mating surfaces, and other damages. The passages in the castings should be checked with compressed air to make certain they are free of obstructions. If any irregularities are found, replace the casting with a new one. Discard and replace any assemblies that are corroded or damaged in any way.

The choke and throttle plates should be replaced if edges are nicked or if the protective plating has been damaged, exposing bare metal to corrosion. Check the throttle and choke shafts for binding.

Check all linkage for binding and excessive wear. Replace the automatic choke thermostat lever link and piston assembly if the piston sides are scored or nicked in any manner that would cause the piston to bind, or if any part of the assembly is damaged, or corroded.
1. Accelerator Pump Lever Retainer
2. Accelerator Pump Lever
3. Fast Idle Cam Lever Screw and Lockwasher
4. Fast Idle Cam Pick-Up Lever
5. Fast Idle Cam Lever

**FIGURE 98 — Disassembly — Throttle Body Assembly**

6. Fast Idle Cam Lever Spring
7. Throttle Plate Screws (4)
8. Throttle Plates (2)
9. Throttle Shaft Assembly
10. Throttle Stop Screw
11. Throttle Stop Screw Spring

**FIGURE 101 — Scribing Marks and Lines**

**FIGURE 99 — Removing Pump Lever Retainer**

**FIGURE 102 — Removing Throttle Plate Screws**

**FIGURE 100 — Removing Fast Idle Cam Lever Screw**

**FIGURE 103 — Removing Throttle Shaft**

**FIGURE 103 — Removing Throttle Shaft Assembly**
Assembly

Install the throttle stop screw and spring, turn in until spring tension is felt. Slide the throttle shaft into the throttle body.

Referring to lines and figures scribed on the throttle plates during disassembly, install the throttle plates. Insert the four throttle plate screws snugly, but do not tighten. Close the throttle plates and hold the throttle body up to the light. Little or no light should show between throttle plates and the walls of the throttle bores. If the throttle plates are properly aligned, there will be no binding when throttle shaft is rotated, then tighten the throttle plate screws. Using an approved staking tool, stake the screws. If it is necessary to use an impact type of staking tool, be sure to back up the heads of the throttle plate screws to prevent bending the throttle shaft when staking.

Place the fast idle cam lever spring inside the fast idle cam lever and position the lever on its stud. Place the fast idle pick-up lever on the stud, the longest end of the spring should be resting on the longest arm of the pick-up lever. The smallest end of the spring should be resting on the loop of the fast idle cam on the opposite side from the pick-up lever long arm. Install the screw and lockwasher.

Slide the pump lever assembly in its stud and install the retainer.

NOTE: The two holes in the throttle lever permit adjustment of the accelerating pump discharge. The accelerator pump cam retaining screw should be in the Number 2 position for all normal driving. For operation under extreme hot temperatures the Number 1 position can be used to obtain a leaner pump discharge.

Before installing the pump discharge needle, check the needle seat. If the seat is rough, using the old discharge needle, place a small brass rod on the needle and tap it lightly with a mallet to insure proper seating of the needle valve. Check to see that no damage has been inflicted on the seat during this operation. Discard the old needle and replace with a new one making sure the needle travels in the passage freely.

Install new pump discharge nozzle gaskets on both top and bottom of the discharge nozzle and insert the pump discharge nozzle screw and install on the carburetor. Tighten securely to prevent leakage (Fig. 104).

Slide the choke shaft in position and referring to the marks scribed during disassembly, install the choke. Install the two screws but do not tighten. Check the movement of the choke plate for binding, if none appears tighten the screws. Stake the screws with an approved staking tool.

Insert the choke rod seal into the retainer on the main body.

Slide the choke rod through the hole into the main body and insert the upper end of the rod into the choke shaft lever. Install the upper choke rod retainer. Recheck for freedom of movement of plate and rod.

Insert the choke lever, link and piston assembly into its chamber in the choke housing.

Place the fast idle cam on the choke housing bearing facing away from housing and insert the choke housing shaft and lever. Install the spacer, lockwasher and nut on the shaft.

NOTE: The weighted end of the fast idle cam should point towards the fuel bowl and rest on the choke rod.

Install the two new choke housing gaskets on the main body. Place the choke housing in position on the main body and install the three choke housing screws and lockwashers. When installing the choke housing be sure the choke rod fits into the choke housing shaft. Install the lower choke rod retainer.

Place the thermostat housing cover gasket in place and install the thermostat cover. Position the cover clamp with the ears of the clamp away from the cover and install the three screws. Be sure the thermostat spring picks up the tang on the cover.

NOTE: Align the index mark on the rim of the cover with the indicator on the choke housing (on index).

FIGURE 104 — Pump Discharge Nozzle Assembly

Place the throttle body to main body gasket on the main body and lower the throttle body on the main body. Insert the five screws and lockwashers.
Fuel Bowl and Metering Body Assembly

Using Tool J-10175 install the power valve assembly and new gasket on the metering body.

Install the two main jets using Tool J-10175.

Install the two idle adjusting needles with their new seals in the metering body. Turn the needles in gently, until they seat then back off one turn.

NOTE: Do not force the needles against their seat, as this will groove the tips of the needles making it impossible to correctly adjust the idle mixture.

Install the bowl air vent on the fuel bowl with return spring in place on the clamp. The bowl vent clearance is adjusted with throttle at curb idle.

The clearance is .050"-.070".

Install the fuel filter screen assembly, new inlet fitting gasket and fuel inlet fitting.

Position the pump diaphragm return spring in the recess and install the diaphragm assembly, with the head of the rivet facing up. Place the pump diaphragm cover in position (centered), making sure the holes are aligned. Install the four screws and lockwashers, tightening them alternately to evenly compress the diaphragm, holding the lever against the diaphragm to prevent the diaphragm from wrinkling.

Install the fuel valve and seat assembly, using new gaskets (Fig. 105).

To prevent damage to the “O” ring seal at time of installation, a light lubricant should be applied to the “O” ring.

Slide the baffle plate over the fuel valve and seat assembly.

Place the conical float spring in the locator of the float arm. Slide the float and hinge assembly, with the spring, on its shaft and install retainer.

With the fuel bowl inverted so the float arm rests on the fuel inlet needle holding it in the closed position, set the float crease line parallel with the horizontal crease line of the fuel bowl (Fig. 106). This adjustment is made by turning the fuel inlet needle and seat assembly adjusting nut.

NOTE: This setting must be rechecked with the carburetor on the engine for proper wet fuel level.

Insert the four fuel bowl screws with new gaskets into the fuel bowl and place the new fuel bowl gasket in the recess. Slide the metering body on the screws, then place the new metering body gasket on the metering body.

Make certain the gaskets are aligned with the passages in the fuel bowl, metering body and main body.

Position the fuel bowl and metering body assembly on the main body and tighten the screws.

When positioning the fuel bowl, the accelerating pump lever and air vent push rod must be depressed in order to clear the diaphragm pump lever.

Adjustments

Holley Model 2300

Fast Idle Adjustment

The fast idle setting with carburetor off the car is made by turning the fast idle adjusting screw to obtain .024" clearance between the throttle valve and the carburetor bore on the side opposite the idle port with the fast idle adjusting screw on the high step of the cam.

The fast idle setting can be altered with the carburetor on the car to suit individual requests, however, the aforementioned bench setting is most desirable for best overall operation.

On the car fast idle adjustments should be made with a tachometer connected to observed RPM
changes. Turning the fast idle adjusting screw in clockwise, will increase RPM while turning the screw out counterclockwise, will decrease RPM. The normal fast idle RPM on the high step of the cam and engine at normal operating temperature is approximately 1700 RPM.

Idle Adjustment

The initial idle mixture adjustment can be made both on or off the car. Turn the idle mixture screws in (clockwise) until they seat lightly. Caution must be exercised not to seat the idle mixture needles too tightly as this will groove the tips of the needles and prevent a smooth idle. Then back the idle needles out one full turn. This initial idle setting must be tailored with carburetor on the car and engine running at normal operating temperature. Adjust the throttle stop screw to idle the engine at 475 RPM with automatic transmission in neutral or 550 RPM with standard and overdrive transmissions or 300 RPM when equipped with air conditioning, turned on.

Set one idle adjusting needle to obtain the highest steady manifold vacuum reading, or the smoothest running and maximum idle speed, if a vacuum gauge is not available. This can be done by turning one adjusting needle off over the “high spot” until it again begins to slow down. The idle adjusting needle adjusted halfway between these two points slightly on the rich side will result in a satisfactory idle mixture setting. Repeat this procedure with the other needle. Final fine adjustment may vary slightly from these settings but should not exceed ½ turn difference between the screws. If this adjustment results in an increased idle RPM, reset the throttle stop screw to obtain the specified idle RPM and again check both idle adjusting needles.

Automatic Choke Adjustment

The automatic choke setting is index for all normal driving. If for some reason a richer or leaner mixture is desired during the warm-up period, it can be obtained by rotating the thermostat cover. Never set the index mark on the cover more than two graduations off the specified setting.

A choke heat tube air bleed assembly located at the bottom end of the choke heat tube at the exhaust crossover of the intake manifold provides for better choke operation during cold weather engine warm up. The bimetal operated valve must be closed at 212°F and open at 75°F.

Choke Unload

The choke unloader dimension is measured at the opening in the choke air horn from the top edge of the choke plate to the forward top edge of the choke air horn with the throttle plates in the wide open position. This dimension should be approximately ¾". The unloader opening is designed into the linkage at time of manufacture and therefore provisions for adjustment are not readily accessible, however in the event the unloader opening is inadequate bending the tab on the throttle shaft lever where it contacts the fast idle cam will change the unloader opening.

Accelerator Pump Adjustment

The pump cam screw should be in the number two position on the throttle lever for all normal driving. The number one position can be used to provide leaner pump discharge.

The pump override spring is adjusted with throttle plates fully opened and pump lever in the compressed position, with the screw just touching the pump lever, tighten the screws ¼ turn. To insure
positive accelerator pump action there must be no lag in the pump linkage. The slightest movement of the throttle lever from curb idle must actuate the accelerator pump lever. To remove any lag in this linkage, lengthen the accelerator pump override spring screw.

**Dash-Pot Adjustment**

To restrict the throttle from closing too rapidly and causing the engine to stall, a dash-pot is provided on cars equipped with automatic transmission. The dash-pot adjustment is made with the throttle set at curb idle (not fast idle). Depress the dash-pot stem until it bottoms. Adjust by turning the dash-pot assembly in or out to obtain a clearance of \( \frac{3}{16} \)" between the stem and the throttle lever. (Fig. 109).

![Dash-Pot Assembly](image1)

**Exterior Bowl Vent**

The exterior bowl vent opening is \(.050\)" to \(.070\)" at idle. Adjust by bending the operating lever.

**Wet Fuel Level**

With the car on a level floor and engine running remove the sight plug from the fuel bowl. For proper operation, the fuel level should be in line with the bottom of the opening for the sight plug. To obtain this proper fuel level, loosen the top lock screw on the needle and seat assembly and with an open end wrench adjust the lower nut until the float maintains fuel at the desired level. Tighten the lock screw.

![Wet Fuel Level Adjustment](image2)

**NOTE:** It is advisable prior to making the wet fuel level adjustment to remove the lower fuel bowl screw farthest from the fuel inlet with the engine shut off and allow all the gasoline in the bowl to drain, thus purging the bowl of any particles of foreign matter.