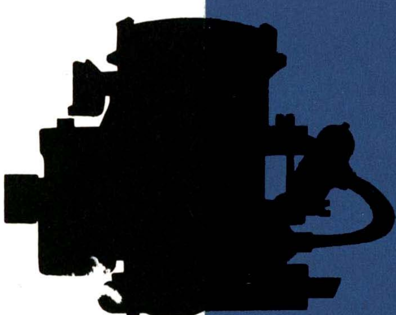
MASTER TECHNICIANS SERVICE CONFERENCE

REFERENCE BOOK **70-8**

CARBURETION FUNDAMENTALS AND FACTS



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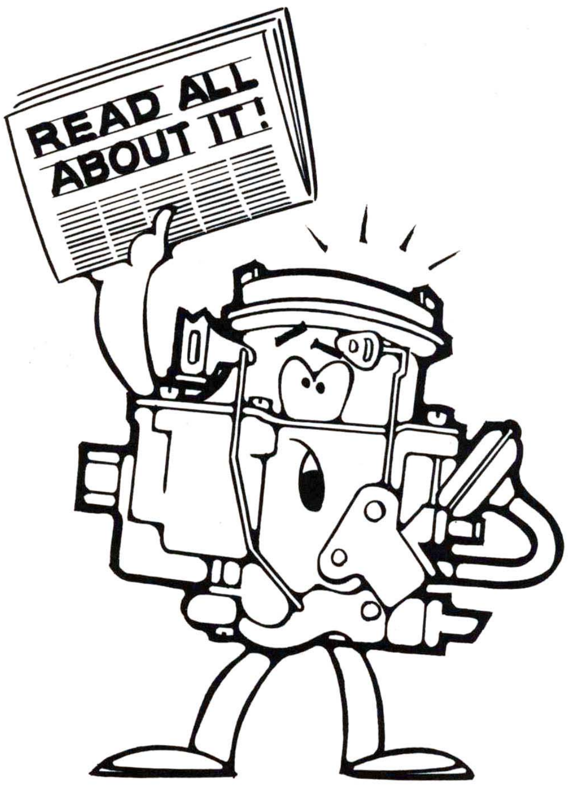

The basic principles involved in supplying an internal combustion engine with the right amount of fuel and air haven't changed. However, reducing undesirable exhaust emissions by insuring more complete combustion has brought about some very important changes in carburetion requirements. And, as carburetion requirements become more complex, carburetor adjustment and service become more critical.

You will be better qualified to handle carburetor diagnosis and service if you have a clear understanding of the fundamentals of carburetion. It is particularly important that you understand the function of each of the carburetion systems and auxiliary control devices. This knowledge will help you appreciate the critical nature of carburetor adjustment and provide a sound basis for diagnosing and correcting carburetion problems.

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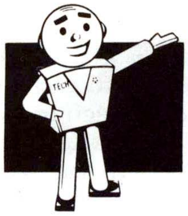


THE BASIC FACTS AND PRINCIPLES

AS A MATTER OF FACT

The carburetor must supply the engine with the correct mixture of fuel and air to insure good combustion. Because mixture requirements vary with temperature, speed and load on the engine, it is very difficult to provide perfect carburetion for all operating conditions.

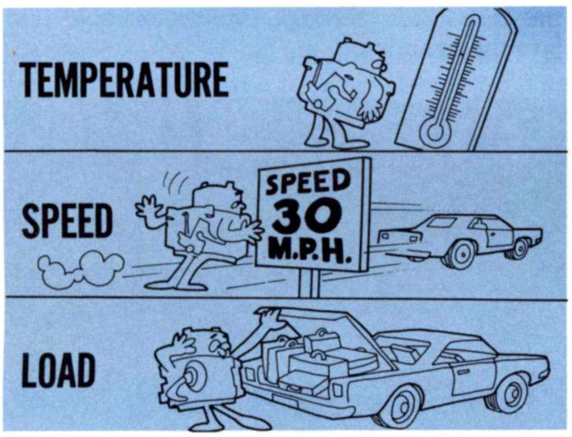


Fig. 1—Operating conditions affect mixture requirements

MIXTURE NEEDS CHANGE WITH TEMPERATURE

Outside temperature as well as engine operating temperature affects air-fuel ratio requirements. For ease of starting, particularly in cold weather, a very rich mixture is needed. The instant the engine starts, the air-fuel ratio requirement changes. The proportion of air to fuel must be increased to prevent flooding and stalling. As the engine warms up, fuel vaporization improves and progressively leaner mixtures are called for.

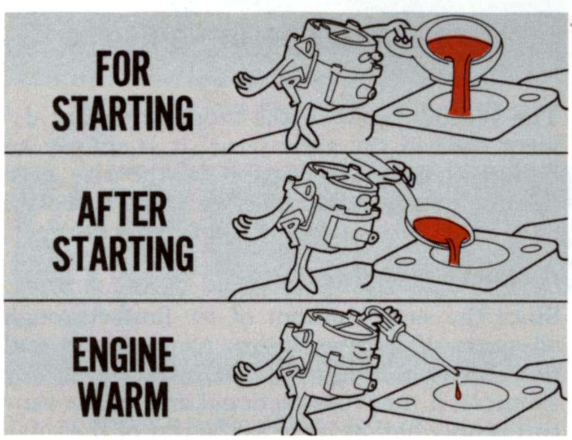


Fig. 2—Mixture requirements change with temperature

MEETING SPEED AND POWER REQUIREMENTS

Changes in engine speed and power output also affect air-fuel ratio requirements. At idle and during low-speed, low-power operation, a lean mixture is required to minimize exhaust emissions. At medium speed and part-throttle, still leaner mixtures must be supplied for good fuel economy. For maximum power, a rich mixture is needed.

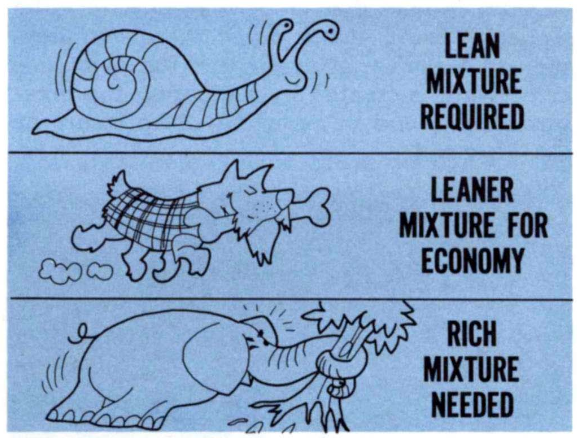


Fig. 3—Speed and power affect mixture needs

It's a fact that the engine uses about thirty or forty times as much air to produce maximum power as it does when the engine is idling. This will give you some idea of how versatile the carburetor must be and how difficult a job it is to provide the correct air-fuel ratio for all operating conditions.

IF IT FLOWS IT'S A FLUID

The entire science of carburetion is concerned with the flow of fuel and air. Scientifically

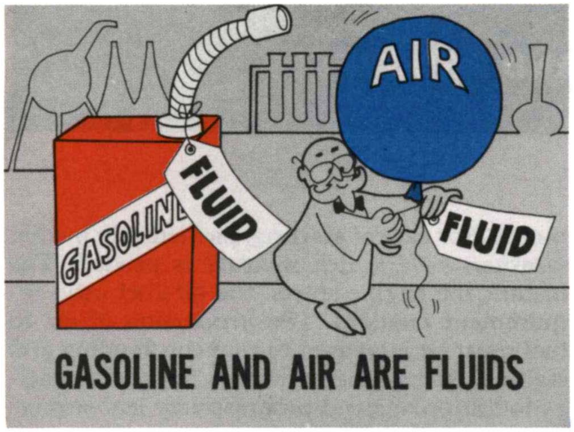


Fig. 4—If it flows it can be classified as a fluid

speaking, both gasoline and air are classified as fluids because they can be made to move or flow. For example, water is a fluid and it flows readily through a garden hose. Since air can be made to flow through a hose, it is also a fluid.

WHAT MAKES FLUIDS FLOW?

The flow of any fluid, either a gas or a liquid, is the direct result of a difference in pressure. The direction of flow is always away from the higher pressure and towards the lower pressure. It doesn't matter whether the difference in pressure is created by increasing the pressure at one end or reducing the pressure at the other end.

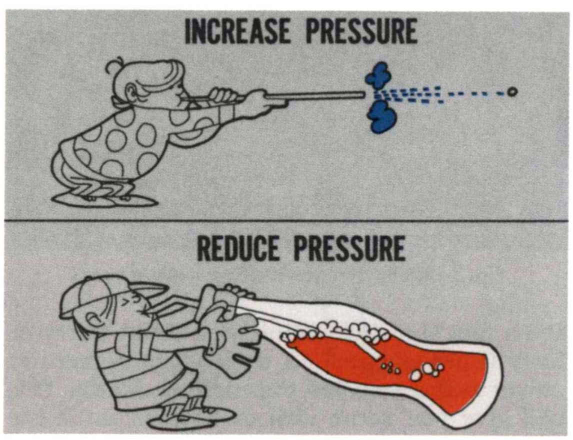


Fig. 5—A difference in pressure causes fluids to flow

In other words, you can move a fluid, gas or liquid, by increasing pressure at one end and blowing it through a tube, or you can make it flow by reducing the pressure at one end of a tube. Scientifically speaking, the "suction" that pulls a soda through a straw is actually a lowering of the pressure at the mouth-end so that the higher atmospheric pressure acting on the delectable concoction can push it up the straw and into the sipper's mouth. In the case of either a bean shooter or a soda straw, it's the pressure difference that moves the fluid. Now, let's see why it is important to understand this principle as it applies to carburetion.

AN ENGINE IS ALSO A PUMP

The engine's primary job is to produce power, but on the intake stroke it is a very efficient vacuum pump. The downward movement of the piston creates a partial vacuum or low pressure condition in the cylinder. The higher atmospheric pressure pushes air through the carburetor, through intake manifold and into the cylinder.

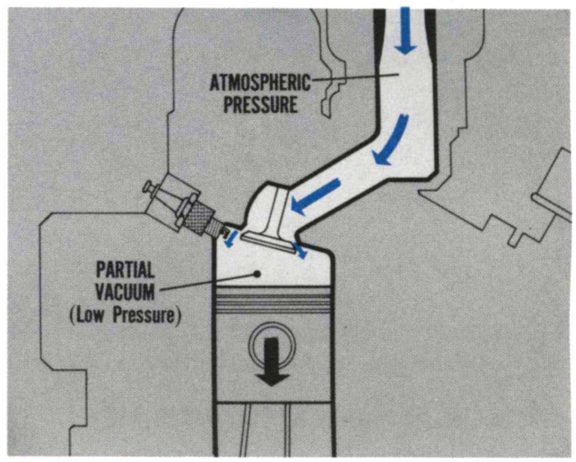


Fig. 6—The engine is also a vacuum pump

THIS IS A MATTER OF PRINCIPLE

The venturi is one of the most important devices used in the carburetor. It is simply an hourglass-shaped reduction in the size of a tube or passage. But let's see what a venturi does to air flow and how it affects pressure.

IT'S HURRY! HURRY! HURRY!

Since the same amount of air flows through all parts of a tube, it has to speed up and flow faster through the narrowest part. For example, if the cross-sectional area of the venturi is only half as large as the rest of the tube, the air will go twice as fast through the venturi.

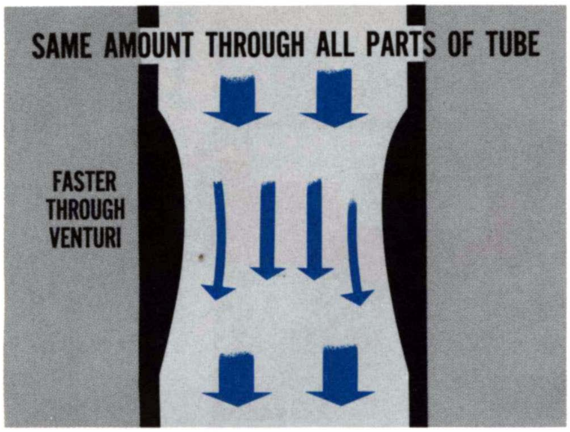


Fig. 7—Air flows faster through the venturi

SPEED GOES UP AND PRESSURE GOES DOWN

As the velocity of the air flowing through the venturi increases, the pressure decreases. The velocity of the air is greatest and the pressure is the lowest at the narrowest section of the venturi. A scientific, fluid dynamic explanation of why a venturi causes a pressure drop is a bit complex. However, there is a simple everyday example of how increasing the speed of air flow results in a reduction in pressure.

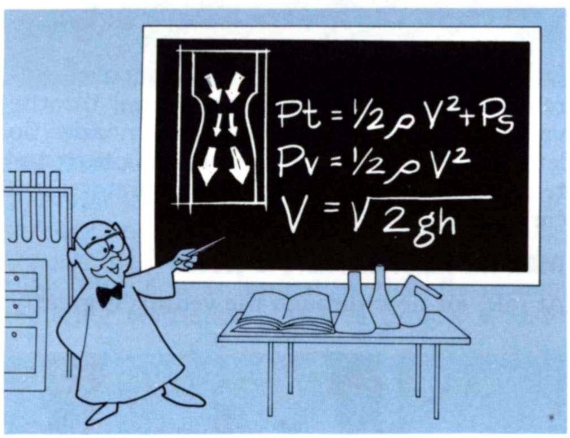


Fig. 8—These formulas explain venturi action

DON'T LET THE VENTURI ACTION BUG YOU

Just about everyone has used a hand-operated bug sprayer at one time or another. And you know that pumping air across the nozzle-end of the pickup tube pulls fluid out of the tank and squirts it at the plant or the bugs thereon. The reason the fluid flows up the tube is because the pressure at the nozzle-end of the tube is lower than the pressure at the lower end of the tube.

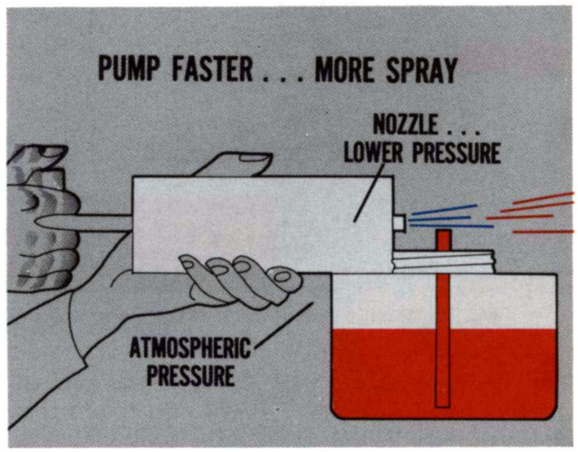
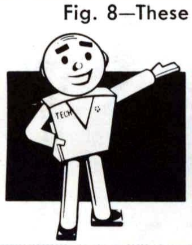


Fig. 9—Increasing air flow lowers the pressure

You also know that pumping the bug sprayer faster increases the amount of spray that comes out of the nozzle-end of the tube. That's because increasing the speed of the air flowing past the pickup tube lowers the pressure at the top of the tube even more, so there is a still greater pressure difference between the top and the bottom of the pickup tube. In a carburetor, a venturi is used to increase the speed of the air and lower the pressure at the throat of the venturi.



THE FLOAT AND LOW-SPEED SYSTEMS

THE FLOAT AND THE THROTTLE VALVE

So far we have covered the basic factors affecting an internal combustion engine's fuel mixture requirements. We have also discussed the principle of fluid flow and the function of a venturi. Next, we will explain how these fundamentals apply to a simple carburetor.

THE FLOAT CONTROLS THE NEEDLE VALVE

The fuel pump takes gasoline from the fuel tank and delivers it to the inlet of the fuel bowl at a constant pressure . . . regardless of engine speed. The float controls the needle valve, which in turn, controls the flow of gasoline so that the fuel in the bowl is always maintained at the same level.

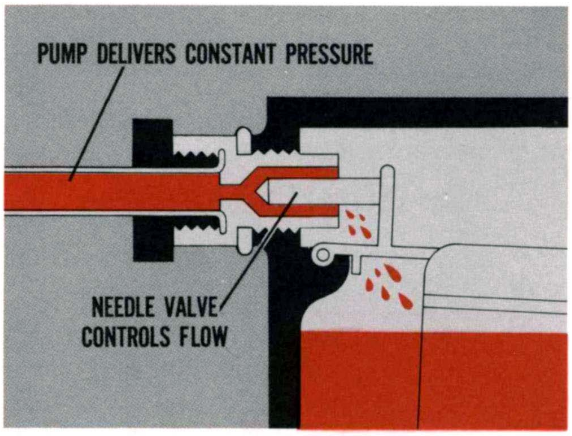


Fig. 10—The float controls the needle valve

The slightest drop in the level of the fuel in the fuel bowl allows the float to drop and this opens the needle valve. As soon as the level of fuel in the bowl is restored, the float closes the needle valve.

Under actual operating conditions, the float allows the needle valve to remain open just far enough to meter the fuel flow and maintain a very precise fuel level. It is impossible to overemphasize the importance of setting the float carefully so that the correct fuel level will be maintained under all operating conditions.

INCORRECT FLOAT LEVEL CAUSES PROBLEMS

If the level of the fuel in the bowl is too low, the air flowing through the venturi will have to lift the gasoline farther. As a result, fuel flow will be reduced in proportion to air flow and the mixture will be too lean. This can cause sluggishness and similar performance problems.

If the float level is high, too much fuel will be discharged into the air stream and the mixture will be too rich. This condition can contribute to poor fuel economy and may cause performance problems. It can also cause or contribute to "hot starting" problems.

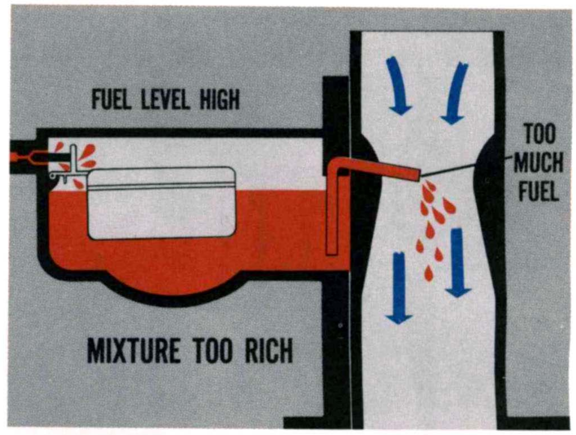


Fig. 11—The float level affects the air-fuel ratio

THE THROTTLE IS A FLOW VALVE

The throttle valve controls the amount of air-fuel mixture entering the intake manifold. It is simply an air-flow control valve. However, the design and exact location of this valve is very important. This will become evident when we discuss the relationship of the throttle valve to the idle and the transfer ports.

FEEDING THE ENGINE AT LOW SPEED

Of course there is a lot more to a modern carburetor than a fuel bowl, float system, throttle valve, venturi and fuel discharge nozzle. So let's move on to the idle system and other systems required in a practical carburetor for a car or truck.

WHEN THE THROTTLE VALVE IS CLOSED

At idle, air flow through the venturi is greatly

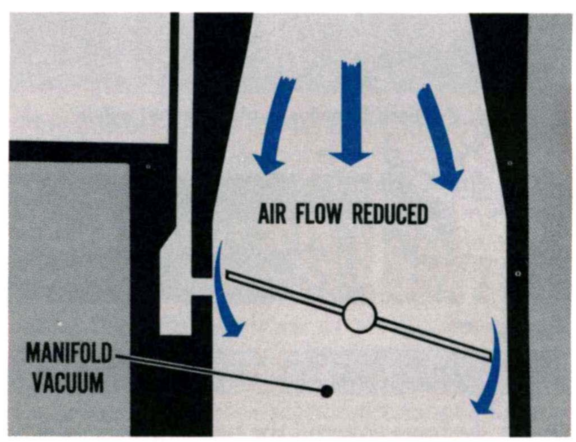


Fig. 12—Reduced pressure at the idle port

reduced by the almost closed throttle valve. The pressure drop in the venturi is very slight so no fuel is supplied by the main discharge nozzle. However, the space below the throttle valve is exposed to manifold vacuum. So, there is a low-pressure condition below the nearly closed throttle.

The idle port is located just below the edge of the closed throttle valve. The small amount of fuel needed to keep the engine running at idle is discharged from the idle port and mixed with the air flowing past the nearly closed throttle valve.

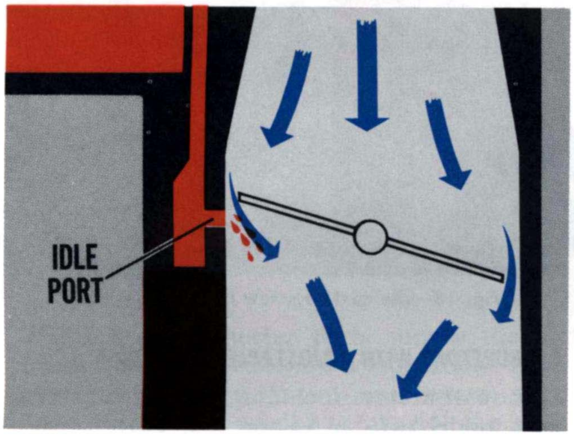


Fig. 13—Fuel flow at closed throttle

FUEL FLOW AT IDLE IS METERED

The idle system is supplied by fuel flowing through the main metering jet. After leaving the jet, the fuel flows upward through the idle tube. Fuel flow is limited by the idle system metering restriction which is usually a calibrated opening at the lower end of the idle tube. Above the idle tube, the idle passage makes two quick right-angle turns and leads downward to the idle port.

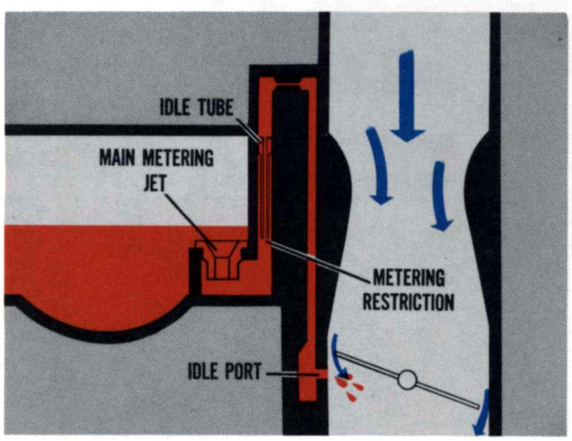


Fig. 14—Fuel flow is limited by a restriction

THOSE ANTI-SYPHON AIR BLEEDS

Although the idle port is located below the level of the fuel in the fuel bowl, no syphoning action takes place. That's because one or more air bleeds at the upper end of the idle passage serve as vents so there can be no syphoning of fuel from the fuel bowl. Equally important, tiny air bubbles enter the fuel stream through the air bleeds. Aerating the fuel before it reaches the idle port helps the fuel mix more readily and uniformly with the air flowing through the carburetor.

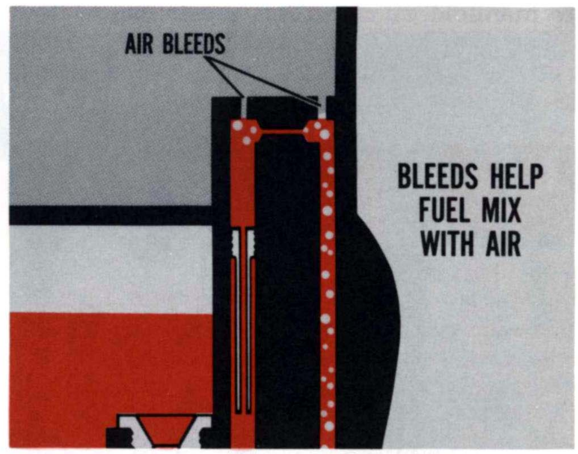


Fig. 15—Air bleeds also prevent syphoning of fuel

THE TRANSFER PORT ADDS AIR, TOO

At idle when the throttle valve is closed, addi-

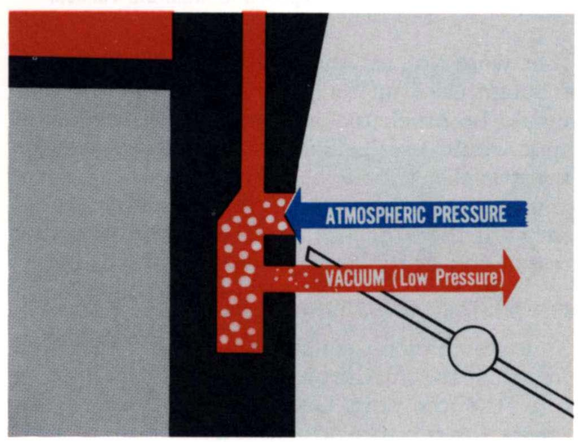


Fig. 16—The transfer port serves as an air bleed

tional air is bled into the idle system fuel stream through the transfer port. But we better explain *why* air bleeds in through the transfer port at closed throttle instead of fuel spilling out of it.

For all practical purposes, at closed throttle the pressure at the transfer port is at or near atmospheric pressure. However, below the throttle valve at the idle port there is manifold vacuum or low pressure. Because of this pressure difference, air flows in through the transfer port, mixes with the fuel and is discharged through the idle port.

THE TRANSFER PORT ALSO SUPPLIES FUEL

When the throttle valve is opened slightly, the transfer port as well as the idle port is exposed to manifold vacuum. This causes fuel to flow from both the idle and the transfer port to supply the correct air-fuel ratio for low-speed, off-idle operation.

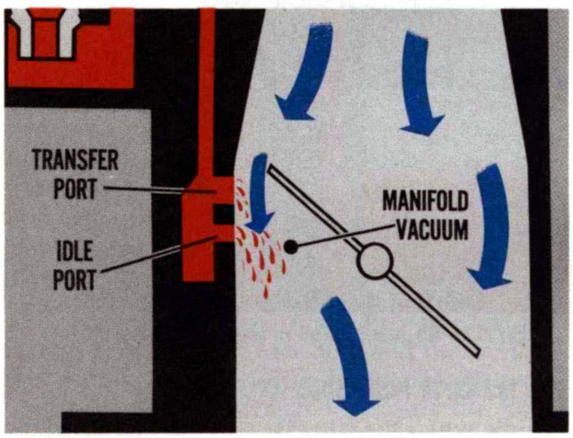


Fig. 17—Transfer port exposed to manifold vacuum

If it were not for the additional fuel supplied through the transfer port, the off-idle mixture would be much too lean and a low-speed flat spot would result. That's because opening the throttle slightly allows more air flow but there is no corresponding increase in the flow of fuel through the idle port because of the metering restriction at the lower end of the idle tube.

IDLE MIXTURE ADJUSTMENT

So far we haven't considered the methods used to adjust the maximum amount of fuel flowing from the idle port. On the majority of carburetors, the mixture adjustment is accomplished by a fuel metering needle valve in the idle circuit near the idle discharge port. Turning the screw clockwise reduces fuel flow to produce a leaner mixture and turning the screw counterclockwise allows more fuel to flow for a richer mixture. Two- and four-barrel carburetors have two complete idle systems and two idle mixture screws.

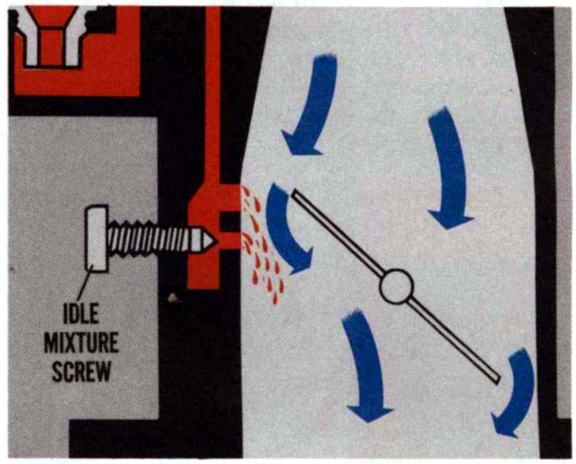


Fig. 18—Idle mixture screw controls fuel flow

CARBURETORS WITH ADJUSTABLE AIR BLEED

Some carburetors, including some of our recent past model two-barrel and four-barrel carburetors, have one idle mixture adjusting screw for the two idle systems. Carburetors with this arrangement have idle mixture limiter screws which were adjusted, flow-tested and then sealed at the factory. This type screw limits the maximum amount of fuel that can be supplied at idle.

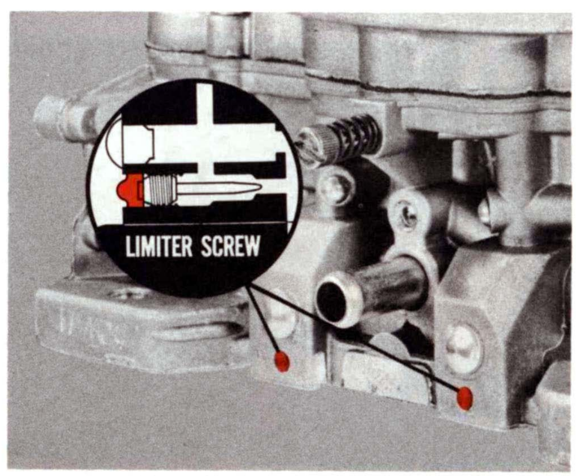


Fig. 19—Idle mixture limiter screws are sealed

To provide for idle mixture adjustment in service, carburetors with sealed idle mixture limiter screws have an adjustable air bleed. Opening this screw lets more air bleed into the fuel in the idle passage to lean out the mixture and closing the idle adjusting cuts down on the air to make the mixture richer. On these carburetors, the idle mixture screw is an air bleed adjusting screw. Incidentally, this adjusting screw has a left-hand thread. As a result, it must be turned counterclockwise to increase the richness of the mixture and clockwise to make the mixture leaner. In other words, the direction of rotation for richer or leaner mixtures is the same as it is for a conventional idle mixture screw.

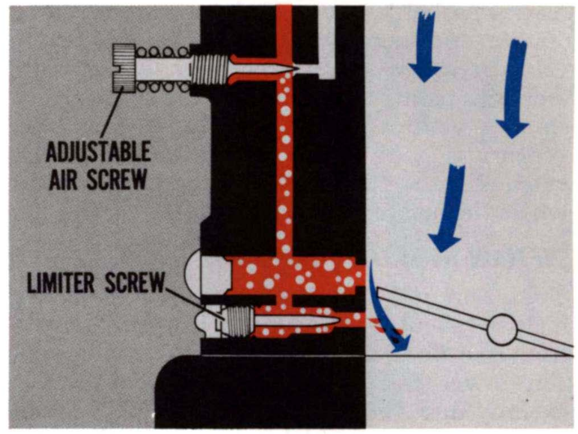
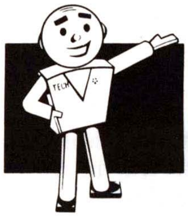


Fig. 20—The idle mixture air screw has left-hand thread



THE HIGH-SPEED AND STEP-UP SYSTEMS

The idle and transfer ports supply the fuel needs for low-speed power operation. However, a high-speed system, and several auxiliary systems are needed to provide the richer mixtures required for sudden acceleration, maximum power and cold-engine starting.

THE HIGH-SPEED SYSTEM

As the throttle is opened beyond the transfer port, air flow through the carburetor increases. The increased speed of the air flowing through the venturi reduces the pressure enough to cause fuel to flow from the main discharge nozzle. At this point, the pressure at the end of the main nozzle is lower than the pressure at the transfer and idle ports. As a result, there is no further flow of fuel from these outlets. As a matter of fact, since the idle system is supplied from the main well, the high-speed system tends to draw the fuel out of the idle system passages.

DOUBLE AND TRIPLE VENTURIS

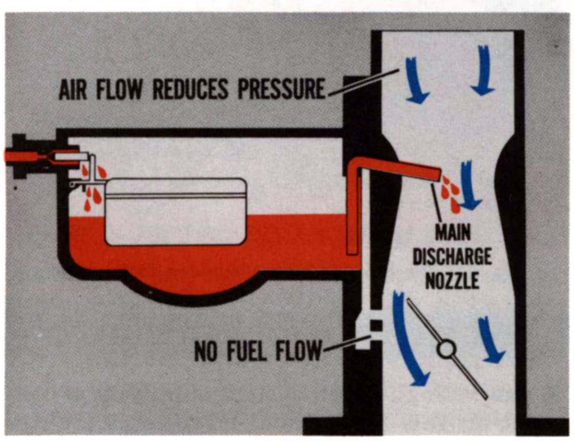


Fig. 21—Fuel flows from the main discharge nozzle

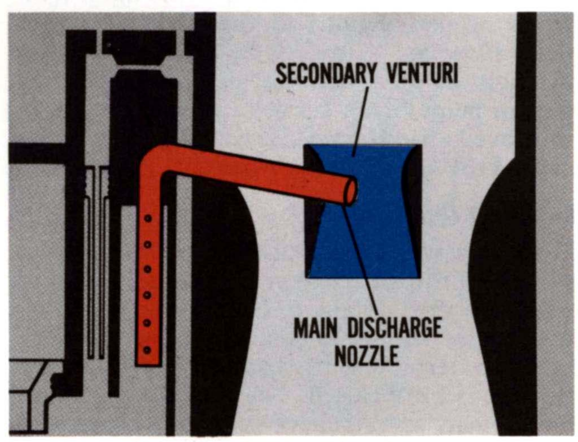


Fig. 22—Carburetor with a secondary venturi

As you probably know, many carburetors have double and triple venturis. Where multiple venturis are used, the speed of the air flow increases as it passes through the successively smaller venturis. For example, if a double venturi is used, the main discharge nozzle extends into the smaller secondary venturi where the pressure drop is greatest.

THE MAIN JET METERS FUEL FLOW

The main jet, sometimes referred to as the high-speed jet, controls or meters fuel flowing from the float bowl and into the main well. The lower end of the main discharge tube extends into the main well. The high-speed system picks up its fuel supply from the main well and discharges it into the stream of air flowing through the venturi.

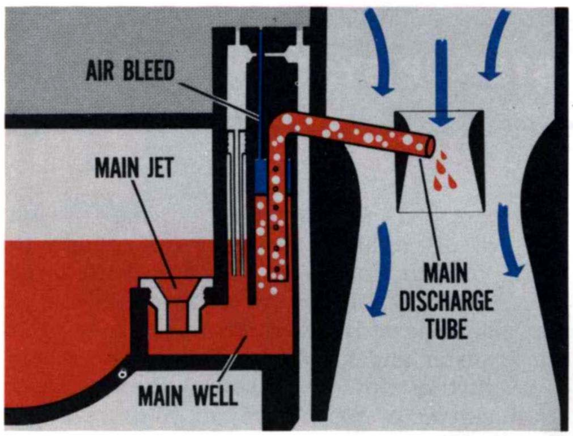


Fig. 23—Air bleeds improve atomization of fuel

The high-speed system also has one or more air bleeds. It is common practice to provide an air bleed at the upper end of the main well. Holes or perforations in the main discharge tube allow air to mix with the fuel flowing through the tube. Introducing air into the fuel stream helps break up the fuel and results in improved atomization . . . just as it does in the case of the idle system air bleeds.

BALANCED FUEL BOWL VENT

Up to now we have purposely avoided any discussion of the fuel bowl vent because we didn't want the vent details to complicate our illustrations of the basic fuel passages. The fuel bowl is externally vented only at idle, when the throttle is fully closed. The purpose of the external vent is to relieve any vapor pressure which might develop in the fuel bowl as a

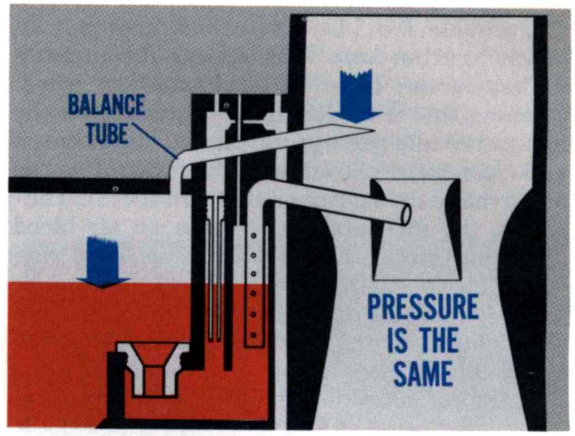


Fig. 24—The fuel bowl has an internal vent system

result of underhood engine heat. At all off-idle throttle positions, the fuel bowl is internally vented through the balance tube.

The balance tube extends from the fuel bowl to the upper part of the carburetor air horn. As a result, the pressure is balanced which simply means that the pressure acting on the fuel in the bowl is the same as the pressure in the air horn. The balance tube automatically compensates for normal changes in restriction to air flow through the air cleaner. If the carburetor didn't have a balance tube, a dirty air cleaner would have "choke effect" on air flow causing the mixture to be excessively rich.

Fig. 25—The balance tube eliminates choke effect

THE STEP-UP AND POWER SYSTEMS

A simple high-speed system supplying a constant air-fuel ratio would be suitable for stationary engine application where speed and load are also constant. However, a fixed mixture ratio will not satisfy passenger car or truck requirements because both speed and load vary a great deal.

AIR-FUEL RATIO EXTREMES

To provide maximum power the high-speed system must feed the engine a mixture that is about 13 pounds of air to one pound of gasoline. For maximum part throttle economy and minimum exhaust emissions, the mixture ratio must be about 17 pounds of air to one pound of gasoline. Incidentally, air-fuel mixture ratios are normally expressed by weight . . . not by volume.

THE JET AND VENTURI CONTROL THE RATIO

In the basic high-speed system we have been considering, the main jet represents a fixed fuel flow restriction and the venturi is a fixed air flow restriction. This arrangement can only deliver a fixed or constant air-fuel ratio. To produce a variable air-fuel ratio some method of changing either the effective size of the venturi or the effective size of the main jet must be provided. In actual practice, one of several methods are used to vary the amount of fuel flow depending on engine operating conditions and requirements.

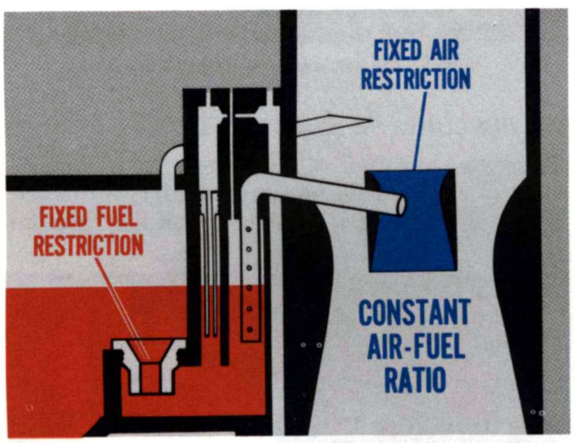


Fig. 26—Simple high-speed system

A METERING ROD PROVIDES A VARIABLE RATIO

One way to provide a variable air-fuel ratio is to use a metering rod. Where this method is used, the main jet is big enough to provide the richest mixture required for full engine power. Leaner mixtures are obtained by inserting a metering rod into the jet opening to restrict fuel flow.

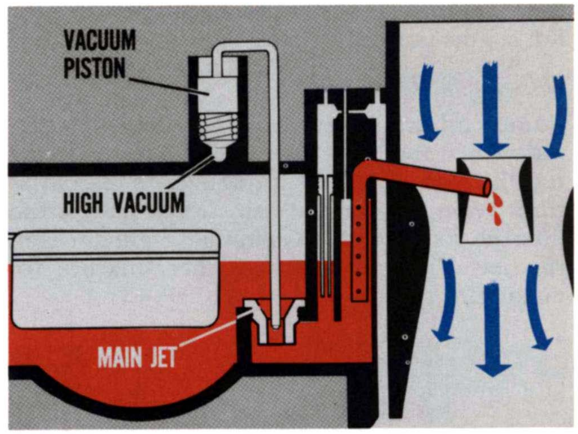


Fig. 27—Metering rod provides variable mixture ratio

Since engine vacuum changes with air-fuel mixture requirements, a vacuum piston or a vacuum diaphragm can be used to control the metering rod. Under constant speed and load conditions manifold vacuum is high and a lean mixture is desirable for maximum economy and minimum exhaust emissions. In carburetors equipped with a spring-loaded piston and metering rod, high manifold vacuum pulls the piston downward so that the lower end of the rod extends into the jet. This reduces fuel flow through the jet to provide the required lean air-fuel ratio.

RICHER MIXTURE FOR FULL POWER

When the throttle is wide open, for maximum acceleration or for climbing a steep grade, manifold vacuum drops and the spring pushes the vacuum piston upward. This lifts the metering rod out of the jet to allow more fuel

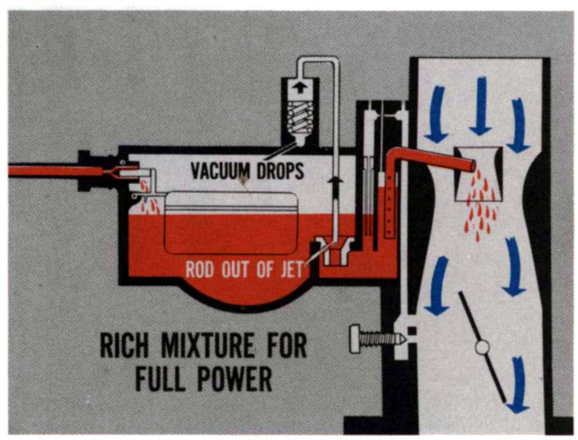


Fig. 28—Vacuum controls the metering rod

flow and provide the richer mixture needed for full engine power.

TWO-STEP METERING RODS

Some carburetors have a two-step metering rod. When the large diameter extends into the jet, the high-speed circuit delivers a lean mixture. When engine vacuum drops, the piston lifts the rod so that the smaller diameter is in the jet. This provides a richer mixture for maximum power.

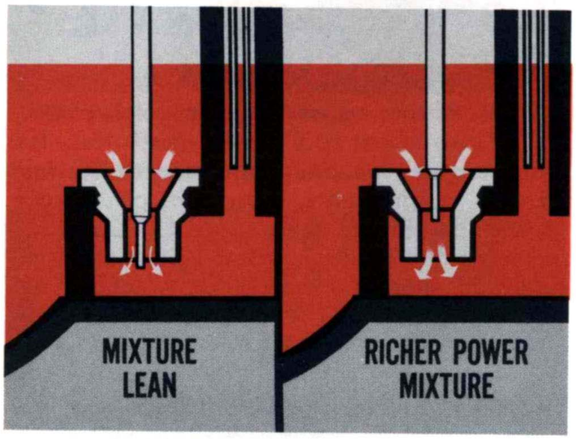


Fig. 29—A two-step metering rod system

AND THREE-STEP METERING RODS

Some carburetors have a three-step metering rod with a large upper diameter for lean economy mixture, a tapered center section provides a moderately lean transitional mixture ratio. A smaller diameter at the lower end provides the richer, maximum power, air-fuel ratio. Where a three-step rod is used on carburetors

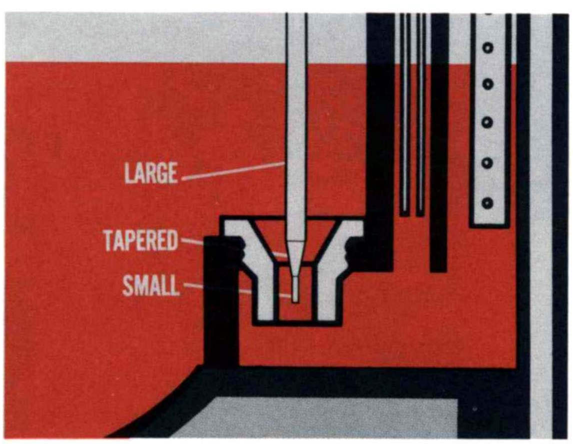


Fig. 30—A three-step metering rod

for Chrysler-built vehicles, the metering rod is controlled by a vacuum piston.

SOME CARBURETORS HAVE A POWER JET

Another way to provide a variable air-fuel ratio is to use a power jet. This is in addition to the main jet. The opening and closing of the power jet can be controlled by either a vacuum piston or by a vacuum diaphragm. If a vacuum piston is used, the setup is similar to that of a vacuum piston controlled metering rod. If a vacuum diaphragm is used, the basic arrangement is quite different so we will explain and illustrate the operation of a vacuum diaphragm controlled power jet.

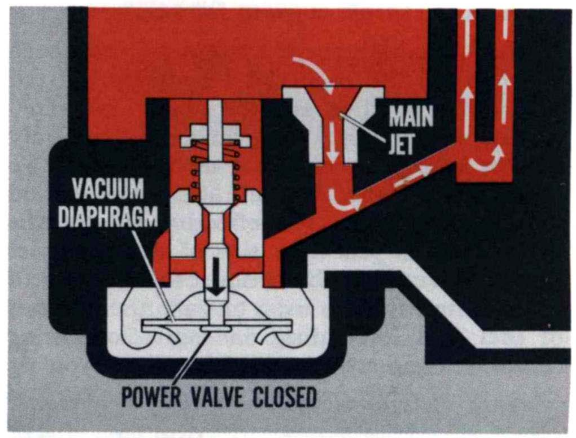


Fig. 31—The power jet is an auxiliary jet

VACUUM CLOSES THE POWER VALVE

The power valve is connected to a spring-loaded vacuum diaphragm. Under light-load operating conditions, high manifold vacuum

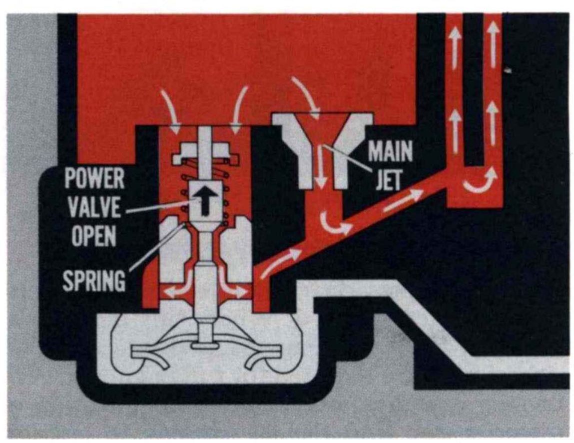


Fig. 32—Fuel flows through power and main jets

moves the diaphragm against spring pressure to close the power valve, cutting off flow through the power jet.

SPRING PRESSURE CLOSES THE POWER VALVE

When the throttle is opened and manifold vacuum drops, the power valve is opened by the diaphragm spring. Fuel flows through both the power jet and the main jet to provide the richer mixture needed for full power.

AUXILIARY SYSTEMS AND CONTROLS

In addition to the idle, high-speed, step-up and power systems, several auxiliary systems and controls are required in a practical modern carburetor for car or truck.

WHEN THE ACCELERATOR IS FLOORBOARDED

When the throttle is opened suddenly for rapid acceleration, a rich mixture is called for. However, under this condition, air flow increases faster than fuel flow. Although the step-up metering system or power valve is open, the mixture tends to lean out. This would cause a momentary stumble. That's because the air is light and it speeds up easily while the heavier liquid fuel speeds up slowly and lags behind the rapidly increasing flow of air.

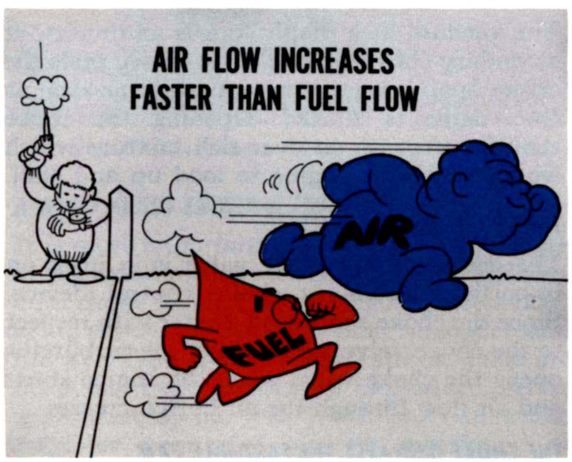


Fig. 33—The heavier liquid fuel lags behind

A SQUIRT OF FUEL DOES THE TRICK

When the throttle is suddenly opened, the accelerator pump delivers an extra squirt of fuel to enrich the air-fuel mixture and prevent the momentary stumble that might otherwise occur. Operation of the accelerator pump

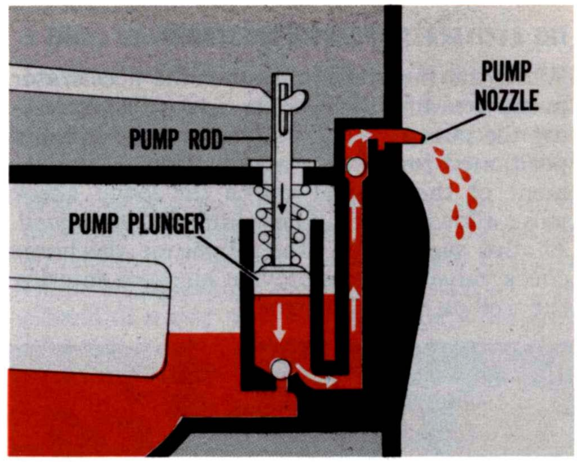


Fig. 34—A squirt of fuel from the accelerator pump

system is quite simple. When the throttle is opened, the throttle linkage releases the accelerator pump rod and the pump plunger is forced downward by the accelerator pump spring. The plunger pushes fuel out through the accelerator pump nozzle and into the stream of air flowing through the carburetor.

THE SPRING MAKES THE SQUIRT CONSISTENT

Spring actuation of the accelerator pump plunger insures an even, sustained flow of fuel. If the plunger were operated directly by the throttle linkage, the rate and the duration of the fuel discharge would vary, depending on how fast the throttle was opened. The pump stroke and rate of discharge is designed to furnish just enough extra fuel to enrich the mixture until flow through the step-up system catches up with air flow.

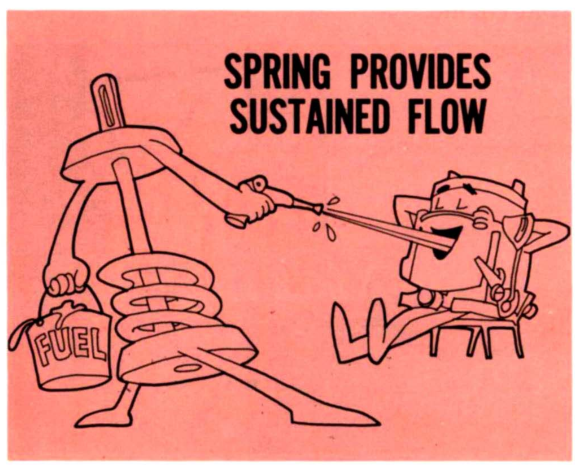


Fig. 35—The pump plunger is spring actuated

THE ACCELERATOR PUMP REFILL STROKE

When the throttle is released, the accelerator pump arm lifts the plunger upward compressing the pump spring. So, the plunger is again positioned for instant action. Upward movement of the plunger opens the lower check valve allowing fuel to flow into the pump well. At the same time, the upper or discharge check valve closes to prevent air from entering the well on the refill stroke.

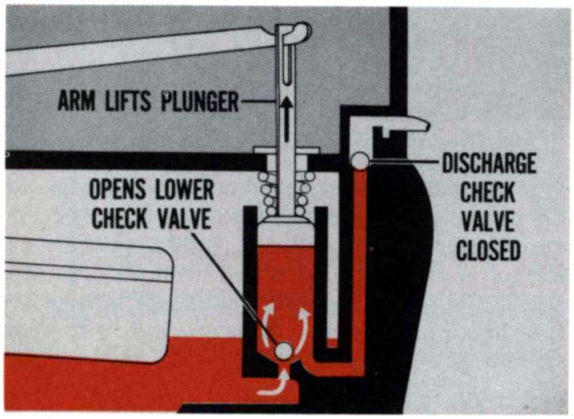


Fig. 36—Releasing the accelerator refills the pump well

IT REALLY STARTS WITH THE CHOKE

When the choke valve is closed and the throttle valve is partly open, air flow is restricted but manifold pressure exists at the high-speed discharge nozzle, the transfer port and the idle port. As a result of this low pressure condition, fuel is discharged from all three of these outlets at cold engine cranking speeds. This provides the extremely rich mixture needed to start a cold engine.

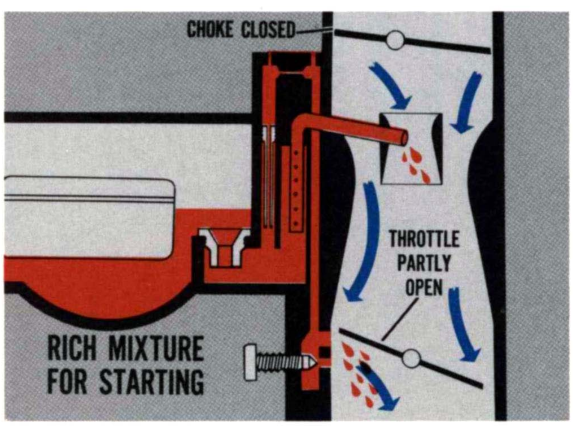


Fig. 37—The choke valve restricts air flow

THE WELL-TYPE AUTOMATIC CHOKE

The primary choke valve control is a thermostatic coil spring, usually located in a well in the intake manifold where it reacts to engine temperature. When the manifold and automatic choke are cold, the thermostatic spring coils up tighter. This moves a choke rod upward, pushing the choke valve into the closed position. As the manifold and the choke warm up, the thermostatic coil relaxes and this allows the choke valve to open.

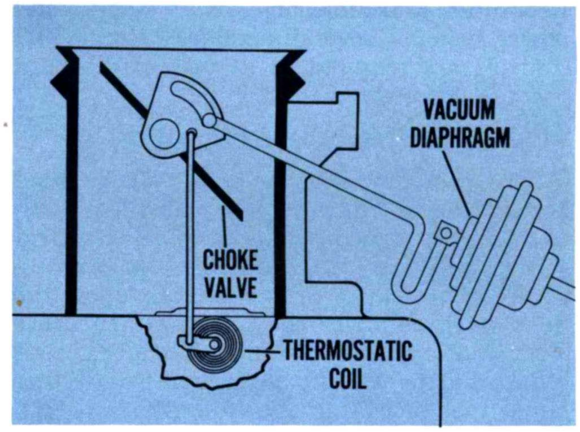


Fig. 38—Well-type choke valve control

The vacuum kick diaphragm is an important secondary choke control. This device pulls the choke open a very precise amount as soon as the engine is started. Opening the choke slightly prevents an over-rich mixture which would cause the engine to load up and stall.

THE CHOKE UNCHOKES ITSELF

The design of the choke valve is in itself an important secondary choke control device. Since the choke shaft is off-center with respect to the choke valve, air entering the carburetor opens the choke valve when the engine starts and air flow through the air horn increases.

THE CHOKE OPERATES THE FAST-IDLE CAM

The automatic choke linkage also rotates the fast-idle cam into the fast-idle position. The fast-idle screw rests on the cam and holds the throttle open wider than the curb-idle position. This puts the throttle in the correct position to facilitate starting of a cold engine and helps keep the engine running smoothly while it is warming up.

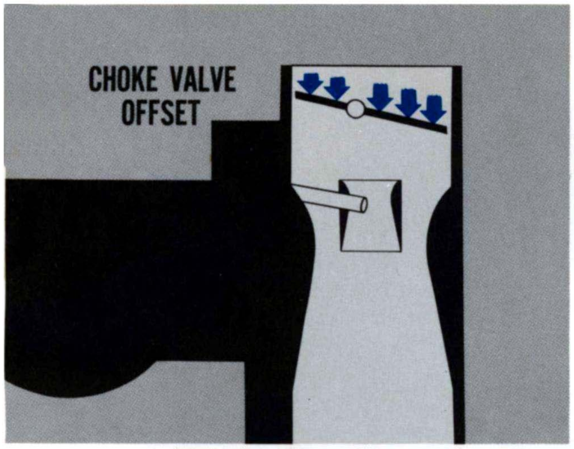


Fig. 39—Air flow tends to open the choke valve

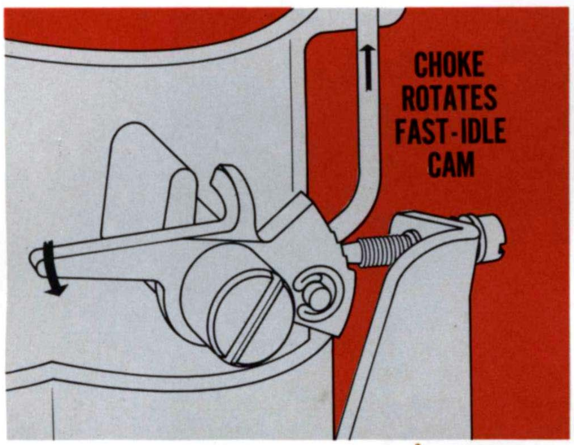


Fig. 40—The choke positions the fast-idle cam

A WORD ABOUT EXTERNAL LINKAGES

It is most important to understand the design of the external linkages connected to the vacuum choke diaphragm, the fast-idle cam, bowl vent, accelerator pump, choke unloader and the well-type choke. These external links are purposely bent and shaped to produce precise movement of the levers and parts to which they are connected without interfering or touching other carburetor parts or links.

A certain amount of looseness is designed into each linkage. This working clearance, particularly at the connecting ends of each link, minimizes the possibility of sticking or jamming in operation. Clearance at the point of connection reduces binding or sticking caused by dirt or gum accumulation.

A FINAL WORD OF WARNING

External carburetor linkages are designed to operate dry and should not be lubricated. If oil is used, it will attract dirt, become gummy and interfere with correct linkage operation.

When setting up a carburetor, it is sometimes necessary to bend a link in order to obtain the correct choke opening, fast-idle cam position, choke vacuum-kick, etc. Each link has a curve, a bend or a loop that was specifically designed into the rod for the purpose of providing an adjusting or "bending point".

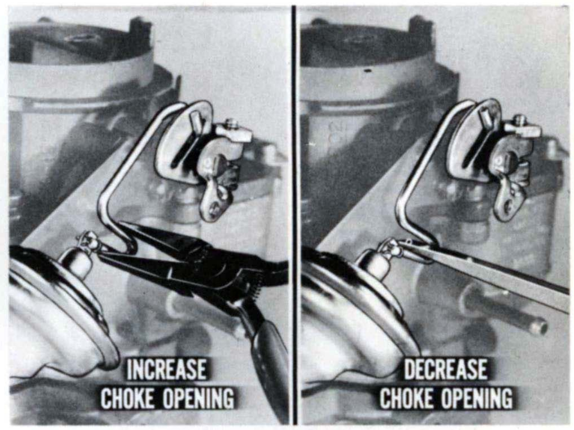


Fig. 41—Increasing or decreasing vacuum kick opening

When you adjust any carburetor linkage, bend the link only in the place specified in your Service Manuals. For example, when adjusting the vacuum kick, the only correct place to bend the link is at the U-shaped loop provided in the choke diaphragm link.

CARBURETOR SERVICE REMINDER

A special carburetor repair and adjustment tool kit, C-4127, has been released by Miller Special Tools. This kit is just the ticket for servicing 1967 through 1970 Holley four-barrel carburetors.

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