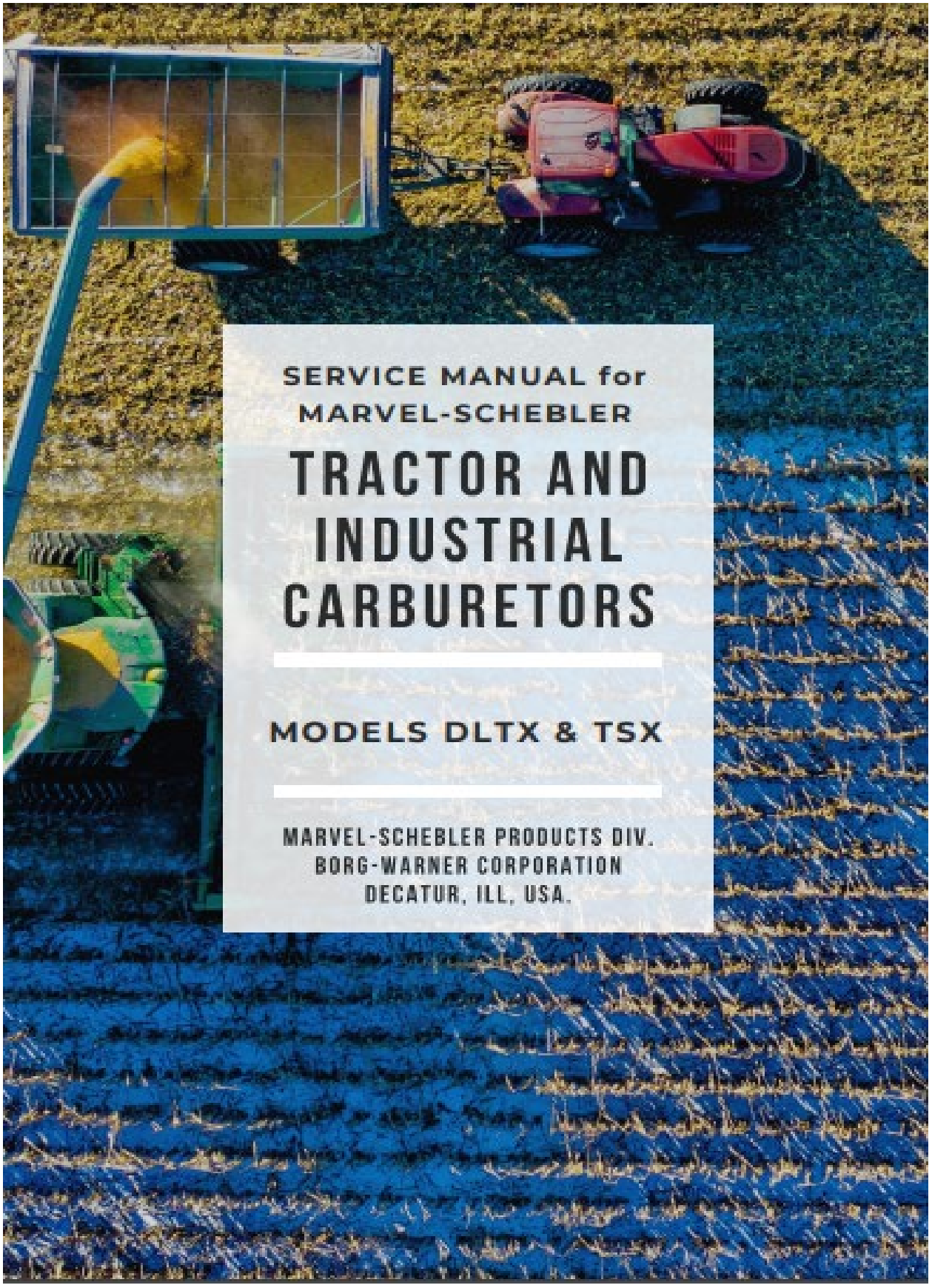


SERVICE MANUAL for
MARVEL-SCHEBLER

TRACTOR AND INDUSTRIAL CARBURETORS

MODELS DLTX & TSX

MARVEL-SCHEBLER PRODUCTS DIV.
BORG-WARNER CORPORATION
DECATUR, ILL, USA.

SERVICE MANUAL

for

MARVEL-SCHEBLER

TRACTOR and INDUSTRIAL CARBURETORS

MODELS DLTX & TSX

MARVEL-SCHEBLER PRODUCTS DIV.
BORG-WARNER CORPORATION
DECATUR, ILL, USA.

Principle of Operation

Marvel-Schebler Carburetors are used on thousands of tractor and industrial engines and have been designed to provide many years of trouble-free service, however, as in the case of all mechanical devices, they do in time require proper service and repairs. An understanding of their construction and how they operate as well as an understanding of their function with respect to the engine will not only avoid many false leads on the part of the serviceman in diagnosing so-called carburetor complaints but will create customer satisfaction and a profitable business for the progressive service shop.

To understand a carburetor, it is necessary to realize that there is only one thing that carburetor is designed to do and that is to mix fuel and the air in the proper proportion so that the mixture will burn efficiently in an engine. It is the function of the engine to convert this mixture into power.

There are three major factors in an engine which control the change of fuel and air into power:

1. Compression.

2. Ignition.

3. Carburetion.

Carburetion has been listed last because it is absolutely necessary for the engine to have good compression and good ignition before it can have good carburetion.

When the average person thinks of “carburetion” they immediately think of the carburetor as a unit. Carburetion is the combined function of the carburetor, manifold, valves, piston and rings, combustion chamber, and camshaft.

It can be readily seen that “carburetion” is a far deeper subject than consideration of the carburetor alone, and expecting the carburetor to cure faulty ignition, compression, valves, etc. will only result in wasted time and effort on the part of the serviceman and added expense to the customer.

It must be remembered that the function of the carburetor does not extend beyond delivering the proper mixture of fuel and air to the manifold and the other factors which affect power and economy cannot be changed or corrected by the carburetor. The inability to understand all the factors that affect engine operation is the reason many service mechanics change from factory standards and attempt to improve on the engine set-up by their own methods or “standards”. All that any service mechanic should ever try to do is to make the particular engine he is working on as good as the manufacturer intended it to be, but he can make it a lot worse. Far too many engines are running below their standard of performance in service today.

For the carburetor to accomplish its function it must be able to vary the mixture strength dependent upon the engine demands. It must supply a mixture strength that will allow the engine to give maximum horsepower, whenever the throttle is fully opened, while at part throttle conditions it must lean out the mixture so that the maximum economy can be obtained. In addition, it must have flexibility throughout the entire range of operating speeds, from idle and part throttle to full power wide open throttle position. The carburetor must also have an accelerating “well” with enough fuel capacity to start handling sudden maximum leads. In other words, the carburetor not only varies the

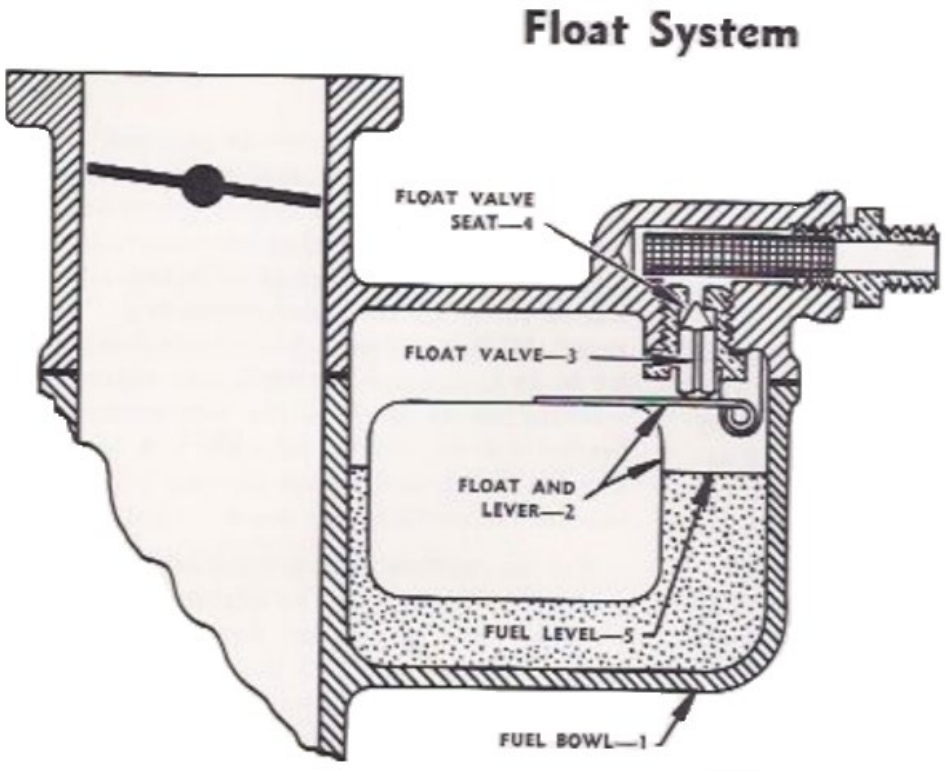
volume of fuel and air that enters the engine but also varies the amount of fuel that foes in with a given amount of air, in order to produce the proper mixture proportion for any condition under which the engine is operating at any time.

In order to understand the function and operation of the Marvel-Schebler Tractor and Industrial Carburetors, it is well to consider the systems that make up each carburetor.

These systems are:

- The Float System,
- The Idle System,
- The Power Fuel Feed System,
- The Back-Suction Economizer System, and
- The Choke System.

A thorough knowledge of each system will help the service mechanic to quickly locate and correct legitimate carburetor complaints ag well as to inspect, repair, and put back to standard any carburetor that requires an overhaul.



The float system controls the level and supply of gasoline in the fuel bowl throughout the operating range of the engine.

When the fuel bowl (1) is empty the float and lever (2) and float valve (3) drop and fuel under pressure from the fuel pump (or gravity feed) is forced through the float valve seat (4) around the float valve (3) and into the fuel how! (1). As the fuel in the bowl approaches the correct operating level it raises the float and lever (2) with enough force to raise the float valve and cut off the flow of fuel into the bowl. As fuel feeds through the carburetor jets into the engine the fuel level (5) drops, allowing additional fuel to enter the fuel bowl. Some Marvel Schebler carburetors will have problems with the needle sealing fresh out of the box. Wipe the viton tip with mineral spirits to remove any residue. Even if this is not done, a needle will usually operate normally after about 10 starts.

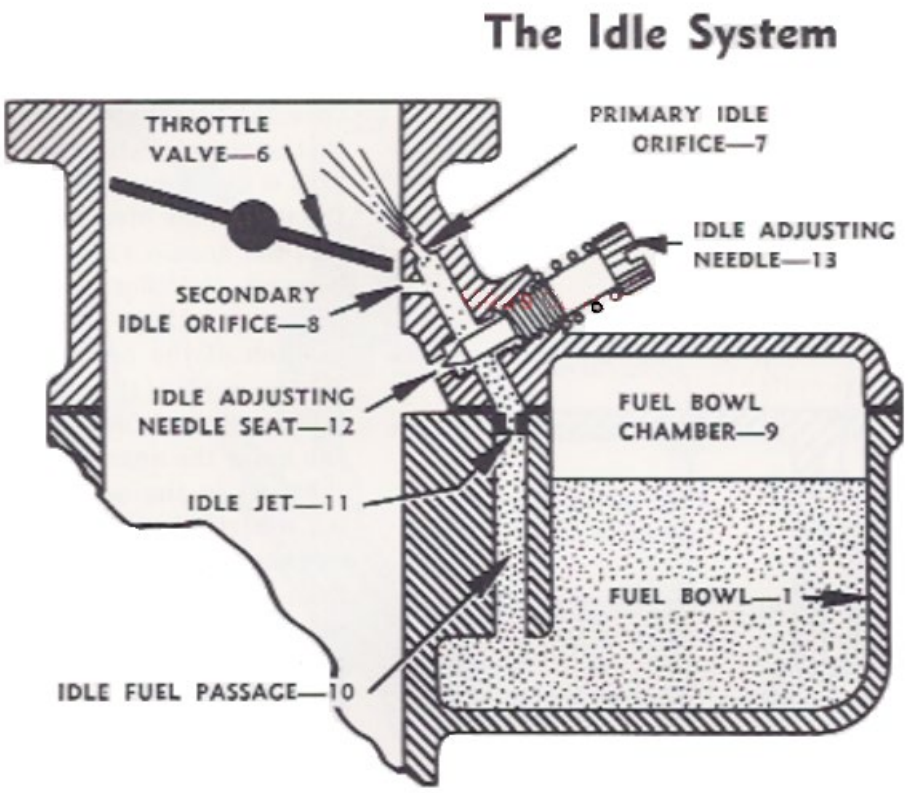
Under actual operating conditions the fuel level (5) and float and lever (2) automatically position themselves so that the inward flow of gasoline to the carburetor is equal to the outward flow of gasoline to the engine.

As can readily be seen the foal system under the most favorable of operating conditions is subjected to a certain amount of wear. Under severe conditions or conditions that result in excessive vibrations being transmitted to the carburetor, float valve, and float valve seat wear is accelerated.

It should be an established policy that whenever the carburetor is disassembled for whatever cause the serviceman to make the following checks:

1. Examine the float valve for any signs of wear. If it is not true or is grooved and hasn't a perfect taper, a new float valve and also a new float valve seat must be used. These float valves and seats are supplied in matched sets and are tested at the factory for leaks. Always use a new float valve seat gasket to make sure of a perfect seal.
2. Examine float for any signs of failure. To test metal float, submerge float in the pan of hot water and if air bubbles are observed replace it with a new float. Examine cork float (replace with a brass float) for bare places or cracks in the coating. If either is found or if a float shows evidence of having been soggy, replace with a new one, (Do not attempt to recover float with shellac or varnish.)
3. Set float height to the proper specification for the particular model carburetor being serviced. Make certain that the entire assembly works free and that there is no binding. Check the float pin for any wear. A worn pin can cause a float to bind. This strainer is not critical if you have an in-line filter installed.
4. Wash fuel strainer assembly in gasoline and a clean screen with air under pressure. If the screen or the threads on the strainer are not in good condition, install a new assembly. When re-installing fuel strainer assembly always use a new strainer gasket, if a gasket is used to obtain a seal.

   It has been proven, with few exceptions, that with a float system in good order, carburetor flooding only occurs when the dirt or foreign matter becomes lodged between the float valve (3) and float valve seat (4).



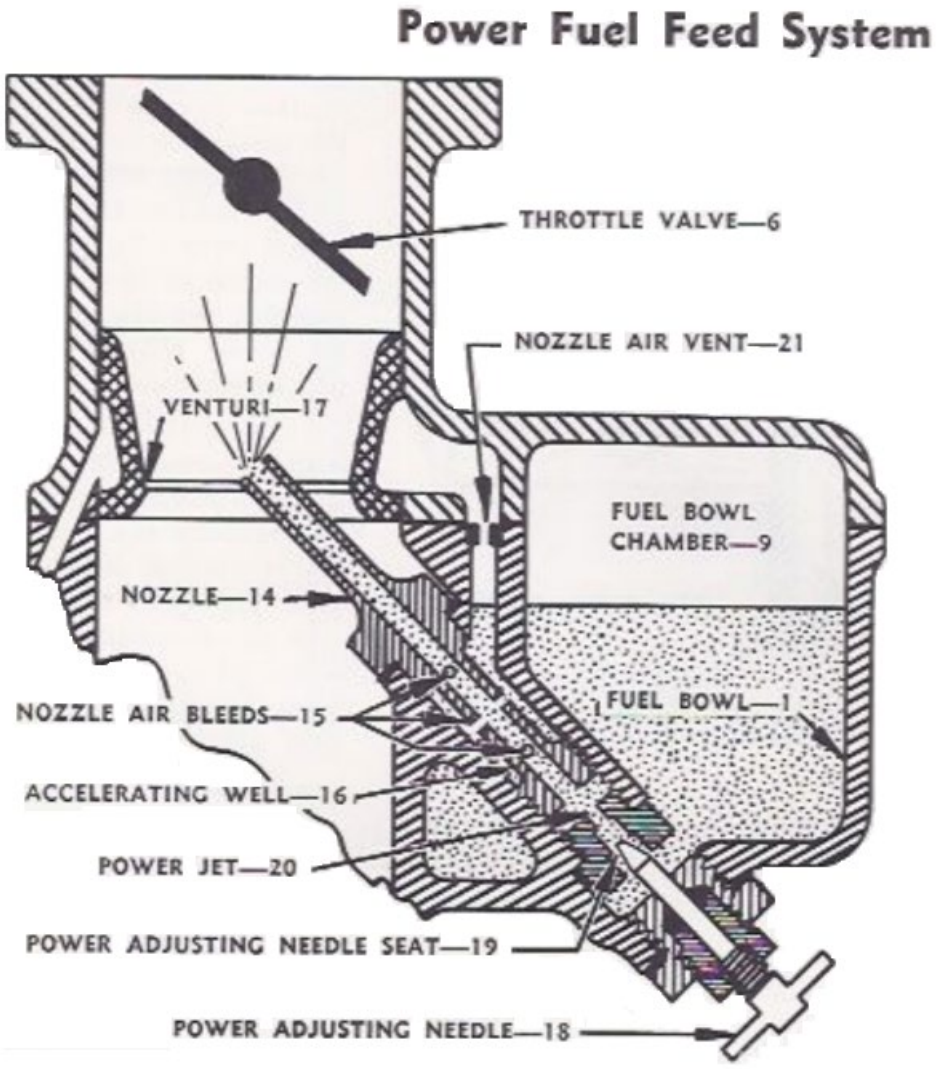
The idle system controls the flow of fuel at idle speed and at slow speeds until the throttle in opened wide enough to allow the power fuel feed system to function.

When the throttle valve (6) is in the idle position the edge of the valve is between the primary idle orifice (7) and the secondary idle orifice (8). With the valve in this position the air pressure (manifold vacuum) at the primary idle orifice (7) is lower than the air pressure in the fuel bowl chamber (9) and fuel is forced from the fuel bowl (1) into the idle fuel passage (10). As the fuel travels through the idle fuel passage (10) it passes through the metering: orifice of the idle jet (11) to the point where it is combined with air entering through the idle adjusting needle seal (12). The mixing of air with gasoline helps to atomize the fuel and this process is repeated at the secondary idle orifice (8) as the fuel travels through the idle fuel passage (10). As this rich mixture of fuel and air emerges from the primary idle orifice (7) it is reduced to correct proportions by the air which passes around the throttle valve (6) since this valve must be slightly open to permit the engine to idle. The resultant mixture is correct for operating the engine at idle speed, provided the idle adjusting needle (13) is properly adjusted.

As the throttle valve (6) is slowly opened from the slow idle position it gradually subjects the secondary idle orifice (8) to intake manifold vacuum, and the secondary idle orifice (8) no longer bleeds air to the idle fuel passage (10) but feeds an additional quantity of fuel into the engine. This is proper since the throttle valve is now open wider and will admit a greater amount of air to blend with this additional fuel to maintain the correct proportions of fuel and air for the engine.

The idle system as described above is the most positive and satisfactory of idle systems, as it is working under very high suction and the mixture flows through the small passages and orifices are very high velocities. It if necessary, to bear in mind, however, that there are times when these small holes may become plugged with particles of dirt or

foreign matter and will require cleaning. At such times the passages, jets, and small drilled holes should only be cleaned with a cleaning fluid such as carb dip, or and air under pressure. Never use drills or wires as a change in the size of these small openings will change the entire calibration of the carburetor.



With the throttle valve (6) in slow or just off slow idle position, fuel rises up through the nozzle (14) and out the nozzle sir bleeds (15) to fill the accelerating well (16) to approximately the height of the fuel level in the fuel bowl (1).

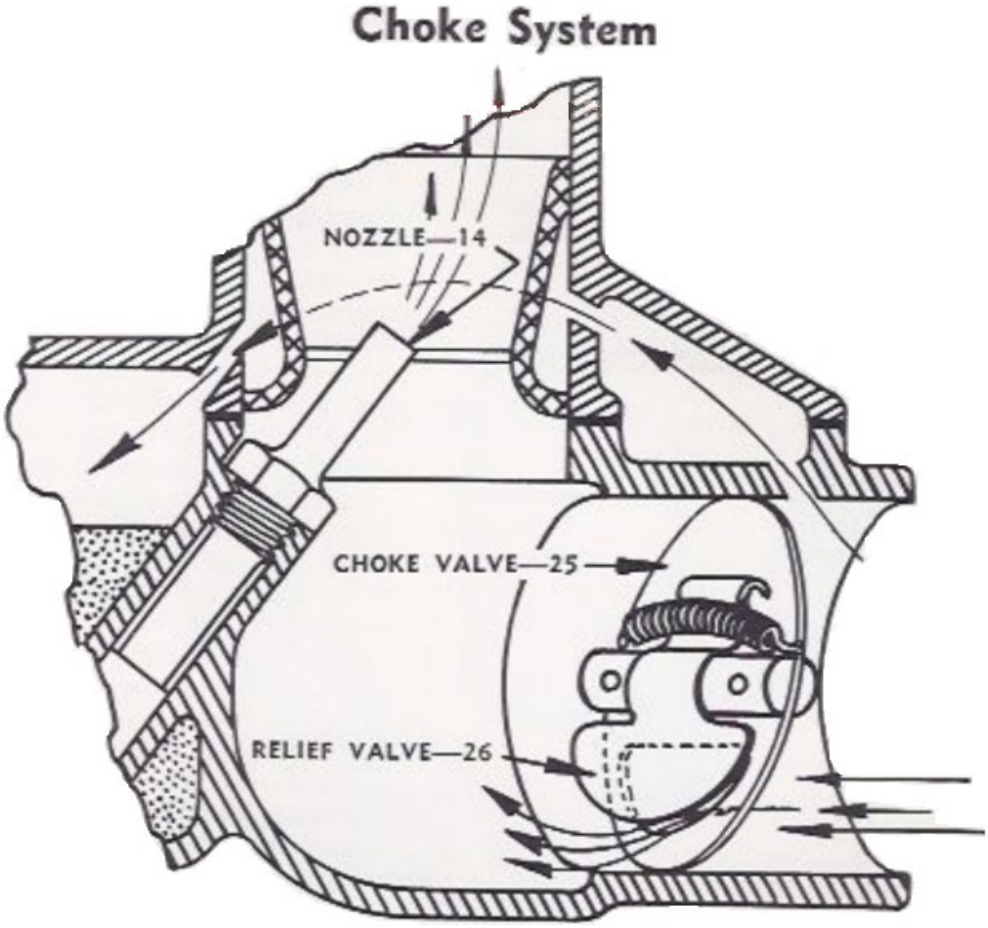
As the engine speed is increased from the slow idle position the airflow through the venturi (17) is gradually increased, and so the idle the system begins to diminish the velocity through the venturi (17) is high enough to create a pressure at the tip of the nozzle (14) slightly less than the pressure in the fuel bow! chamber (9) and the accelerating well (16), Fuel, therefore, feeds from the fuel bow] (1) through the opening between the power (load) adjusting needle (18) and the power adjusting needle seat (15), through the power jet (20) and out the nozzle (14) to be discharged into the airstream at the venturi (17}. At the same time, the fuel that is stored in the accelerating

well (16) is also forced through the nozzle air bleeds (15) into the nozzle (14). But Because of the size of the power jet (20) sends the position of the power adjusting needle (12) restrict the amount of fuel that can enter the nozzle (14). the fuel in the accelerating well (16) will soon be exhausted and air will then enter through the nozzle air bleeds (15) to mix with the fuel passing through the nozzle (14). The amount of air that can enter into the nozzle (14) is limited by the size of the nozzle air vent (21).

The result of air bleeding into the nozzle (14) is, to help atomize or break up the fuel into finer particles, to regulate the quantity and the rate of discharge of the fuel fed from the accelerating well (16), during acceleration, and to provide the correct mixture proportions for full-throttle operation.

As the throttle valve is opened toward the wide-open position the velocity through the venturi (17) continues to increase, lowering the air pressure al the nozzle (14) and resulting in additional fuel being supplied to the engine as the speed is increased.

When the throttle valve (6) is opened suddenly from slow or just off slow idle position, the fuel stored in the accelerating well (16) is forced out through the nozzle sir bleeds (15) very rapidly and serves to provide the extra richness required by the engine to meet the sudden load. When the throttle valve (6) is closed fuel again fills the accelerating well (16), ready for the next acceleration.



The choke system is used during cold starting and the warm-up period. Under these cold conditions, it is necessary to supply an additional rich mixture of fuel and air, as only the “light ends” or more volatile portions of the fuel will vaporize with the manifold and air temperatures at these cold conditions. Consequently, it is necessary that a large quantity of fuel be available so that there will be enough “light ends,” to combine with the air to form a combustible mixture for starting the engine.

The function of the choke valve (25) is to restrict the amount of air that can enter the carburetor and increase the suction on the nozzle (14) so that additional fuel will be drawn into the manifold, As soon as the engine fires and runs the rich mixture must be rapidly reduced to prevent stalling. This change in the mixture is accomplished by the operator positioning the choke valve to provide the proper mixture. However, A few degrees movement of the choke valve (25) will make a big change in the mixture strength and to help reduce the sensitivity of the choke valve (25) position use is made of a Spring-loaded relief valve (26) in many applications, this valve opens automatically with the engine speed and load and eliminates a great deal of manipulation of the choke on the part of the operator.

When the engine has obtained normal operating temperature the choke valve (25) must be fully opened to assure maximum power and economy. In addition, extended use of the choke results in more gasoline being supplied to the engine than can be burned. A large percentage of the unburned gasoline is lost through the exhaust system. The remainder of the raw gasoline is forced between the pistons and cylinder walls, washing away the protective oil film and increasing engine wear and enters the crankcase where it dilutes the engine oil.

Any adjustments that are necessary on the carburetor should never be attempted until the engine has obtained its normal operating temperature and the choke valve (25) has been placed in the wide-open position.

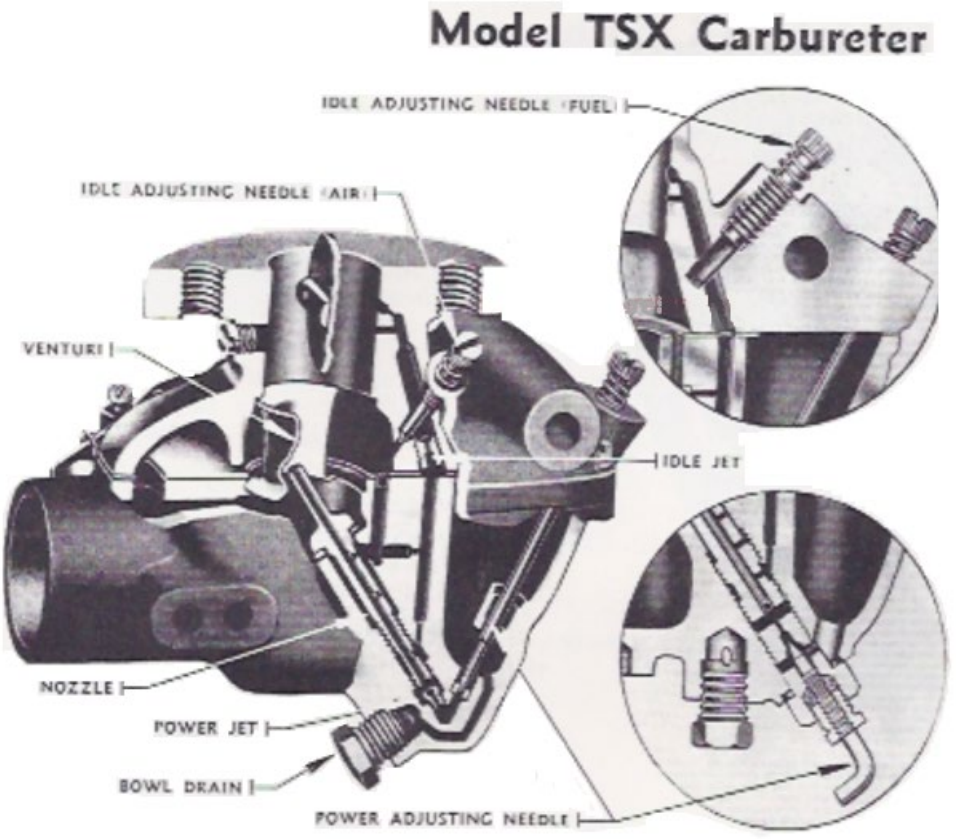


Fig. 1—Idle and Power Fuel Feed Systems

The carburetor is manufactured in three S.A. nominal sizes:

- $^{7}/_{8}$ inches
- 1 inch
- $^{1\,1}/4$ inches

In addition to these variations in size, there are also variations necessitated by the specific requirement of the engines on which the carburetors are used. Many engines, for instance, require special throttle and choke operating levers,

and for purpose of calibration, they may have different size jets, nozzles, venturi, etc. For this reason, when ordering parts, refer to the individual carburetor service parts list for the engine on which the carburetor is installed.

The Model TSX Carburetor consists of only two major castings:

- The throttle body casting which forms the cover for the fuel bowl.
- The fuel bowl casting which contains the air inlet.

Cast iron material is used for ruggedness. It will be noticed (Figure 1} that all passage, whenever Possible, are drilled from the top face of the fuel bowl casting to prevent any fuel leaks to the outside of the carburetor, because of shrunken gaskets or defective hole plugs, and also to prevent vapor lock or “percolation” of the fuel when the carburetor is operated under extremely hot conditions, resulting in hard starting or erratic engine operation.

The Model TSX carburetor is completely sealed against dust or dirt. All air entering the fuel the bowl of the carburetor must first pass through the air cleaner. The throttle shaft bearings and choke shaft bearings are sealed to eliminate dust and dirt entering al these points.

The back-suction economizer system (Figure 2) is provided with a removable economizer jet. The size of this jet has been carefully established by engineering tests to provide the exact fuel requirements for maxim economy at part throttle operation. Always use the customer jet specified in the individual carburetor service parts list to assure proper engine operation.

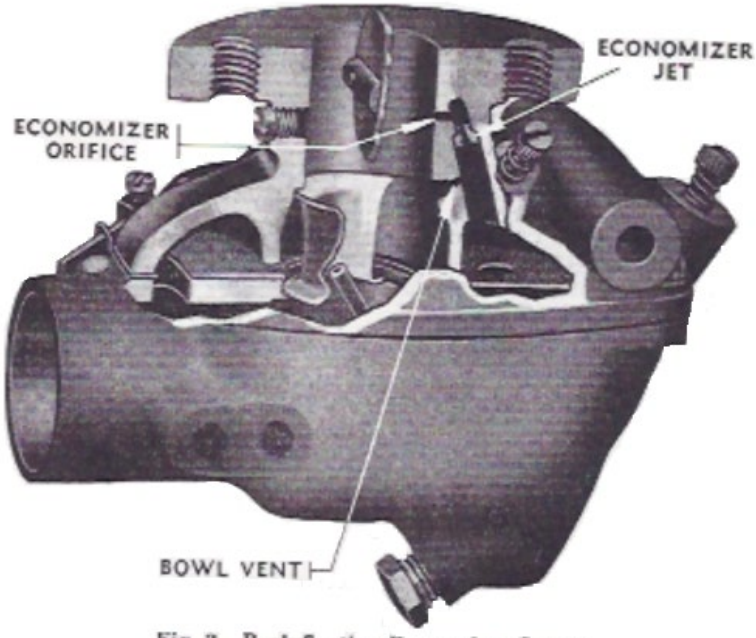


Fig. 2—Back Suction Economizer System

Model TSX Carbureter

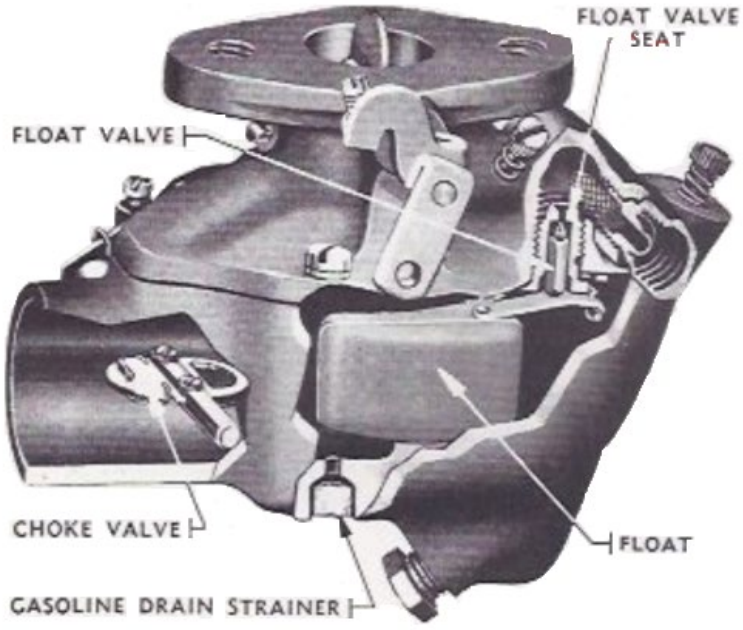


Fig. 3—Float and Choke Systems

On some carburetor models, the proper fuel requirements are established without the use of an economizer jet and the fixed economizer orifice machined in the carburetor throttle body regulates the fuel supplied to the engine. In addition, there are the engine and carburetor combinations that do not require the back-suction economizer system. In these carburetors, the economizer orifice has not been machined in the throttle body casting.

To provide additional economy, in addition to the back suction economizer system, some carburetor is provided with two adjusting needles, the low speed or idle adjusting needle, and the power or load adjusting needle, However, the power adjusting needle is not always required and for applications of this nature the fixed jet type carburetor is used in which the power jet controls the amount of fuel that is supplied to the engine.

There are two variations in carburetors having the power adjusting needle, commonly called the adjustable jet type carburetor. In Figure 1 is shown these two arrangements. The adjustment of either type is accomplished in the same manner.

A large percentage of the Model TSX Carburetors are provided with an idle adjusting needle which alters the fuel and air proportions of the mixture enter the carburetor bore from the idle passage (figure 1). This is known as an air adjusting idle needle. The upper inset in Figure 1 shows an idle adjusting needle which alters the amount of fuel and air mixture which enters the carburetor bore from the idle passage. This is commonly known as a fuel adjusting idle needle. It is important to remember in selling the idle mixture the air adjusting idle needle must be turned in, or clockwise, to enrich the idle mixture. and the fuel adjusting the idle needle must be turned out, or counterclockwise to enrich the idle mixture.

A dual float mechanism (Figure 3) is used in a fuel bawl that almost completely surrounds the nozzle, This design and construction is such that the tractor, or engine, can be operated at any angle up to 45 degrees without seriously affecting the fuel and air ratio and without flooding because of the means level of the nozzle tip is practically constant at any angle of operation.

Some carburetors are equipped with a spring-loaded governor control lever to permit manual closing of the throttle to an idle position for engines equipped with certain type governors. An example of this type of lever is shown in Figure 4, however, there are other variations of this type depends upon the particular application.

While there are many variations produced by combining the different types and sizes into a specific application, all Model TSX carburetors incorporate the same engineering principles and are alike from a functional standpoint.

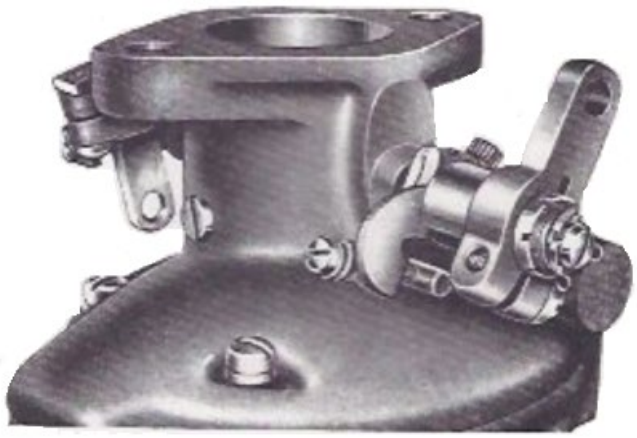


Fig. 4—Spring-Loaded Governor Lever

		
Type A – no jet adjustment	Type B – long 3” adjustment	Type C -main jet adjusts from bottom

The following procedure for the service of all Model TSX Carburetor is for a complete overhaul. After removing the carburetor from engine wash thoroughly with cleaning fluid such as Carb cleaner, or Simple Green to permit examination of external parts for damage. For type carburetor being serviced see illustrations above. Instructions apply to all types unless specified otherwise.

* Before assembling carburetor, clean castings, channels, and parts with carburetor cleaning fluid and air under pressure. Make certain all small holes and channels are open and free from carbon and dirt. Do not use wire or small drills to clean out small holes as a slight change in the size of these holes will affect the carburetor operation. To assure a successful overhaul always replace all worn or damaged parts and any parts that are questionable. Always use all new gaskets.

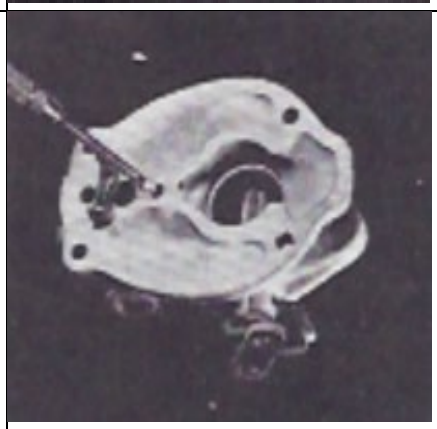
Marvel Schebler Rebuild Video.

Dis-Assemble

1- Remove Power Adjustment

5- Remove Economizer Jet. Not required in all carburetors. Apply heat to the outside if necessary.

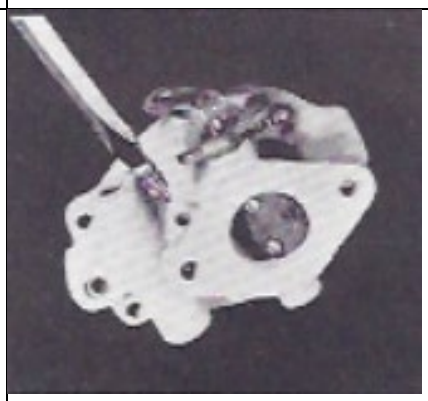
2- Remove Bowl Cover Screws and Lock Washers



6- Remove Idle Jet. Not required in all carburetors. Be careful, these don't get along with the cast iron very well. For stuck jets, apply heat around the outside.

3- Remove Float Valve, Bowl Gasket, & Venturi.

If valve is grooved or damaged, replace valve & seat.



7- Removing Idle Adjusting Needle & Spring. Inspect the needle for any grooves, or other damage around the tapered tip. This is due to someone tightening down the screw too hard.

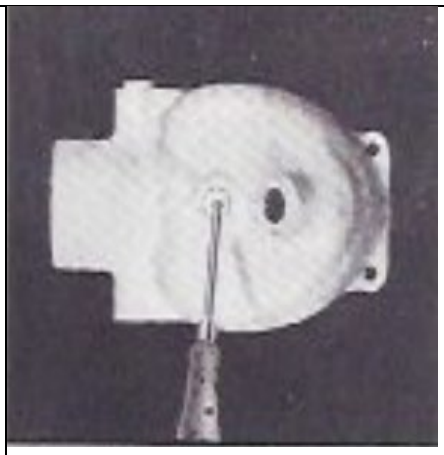
4- Remove Float Valve Seat & Gasket.

8- Remove Throttle Valve Screws, Valve and Throttle Shaft & Lever Assembly.

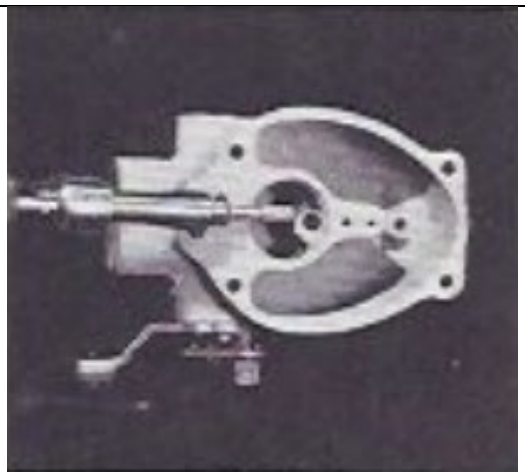
The small screws break easily so unless you have a good reason to take this apart leave it alone.

Check the shaft for wear. The shaft should not move up and down more than 1/32". If it does, get another carburetor, or have this one bushed, which is beyond the expertise of the average person.

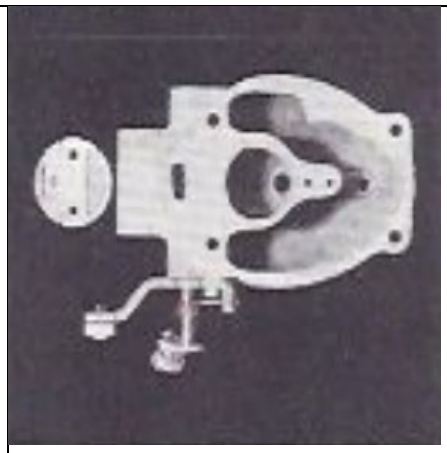
9- Remove throttle Shaft Packing Retainer & Packing. Force out retainer with small screwdriver or punch.



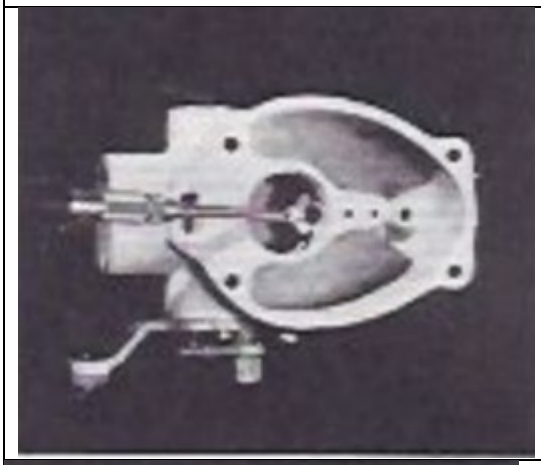
14- Remove Retainer Plug & Gasoline Drain Strainer. Strainer can only be replaced on carburetors having a curled hair or felt type strainer. Only replace (part is not available) when impossible to clean with Simple Green, or carb leaner and compressed air.



10- Remove Main Nozzle & Gasket. Only on Type A, or B.



15- Remove Choke Valve Screws, Valve, Choke Shaft & Lever Assembly. Choke Return Spring & Choke Bracket.
The tiny screws are easily broken. Do not take this apart unless you have a good reason or are well equipped with drill bits & taps.



11- Remove Power Jet. Only on Type A, or B

16- Remove Choke Shaft Packing Retainer & Packing. Force out retainer with small screwdriver or punch. This packing & retainer is not available in kits.

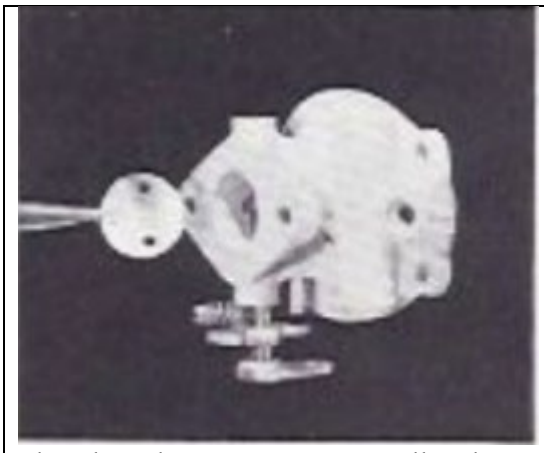
12- Remove Power Adjusting Needle Assembly.
Type C. Carburetors not having adjustable needle remove power jet.

13- Remove Main Nozzle & Gasket.

Assemble

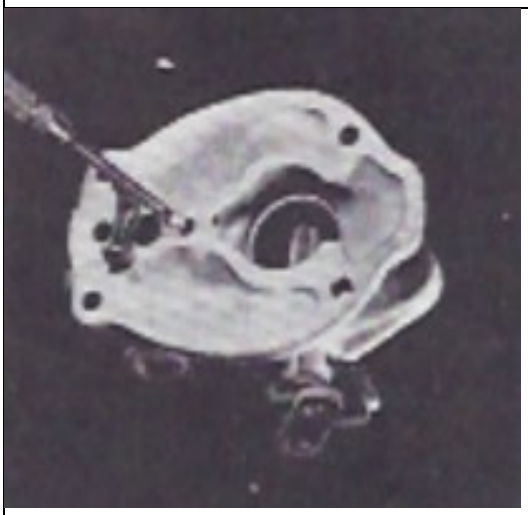
17- Install Throttle Shaft Packing & Retainer

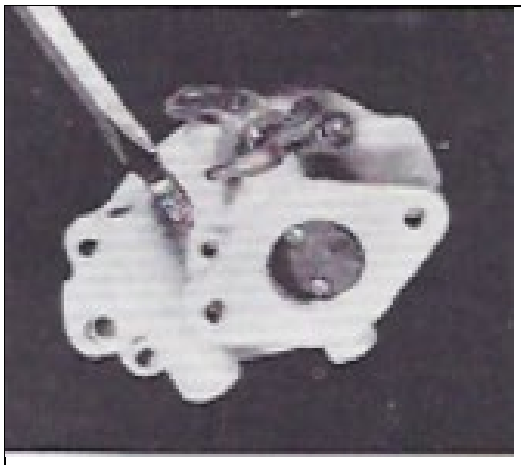
22- Install Float Valve Seat & Gasket. Use new float valve and seat assembly.



18- Install Throttle valve & Screws. Install valve with angle identification mark facing flange face of carburetor. Tap valve lightly to center in throttle bore. Tighten screws securely.

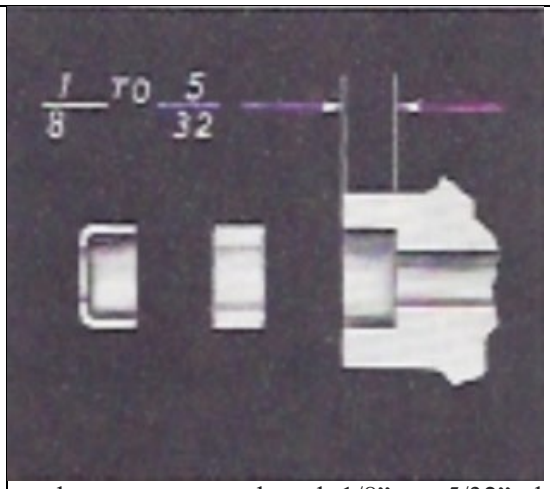
23- Assemble Bowl Cover Gasket & Venturi in Casting.

	Install float valve. NOTE: Do not put pressure on the needle when adjusting the float. Any pressure will ruin the needle tip.
 19- Install Economizer Jet.	 24- Install Float & Lever Assembly & Float Lever Pin. Some carburetor kits will have a clip that clips the float lever to the needle. Clip so that the float pulls the needle straight out and does not bind when float goes down.
 20- Install Idle Jet	 25- Install Choke Shaft Packing retainer & Packing. Install retainer as shown in illustrations below. Note: On some carburetor models the packing is retained by choke bracket in place of packing retainer.

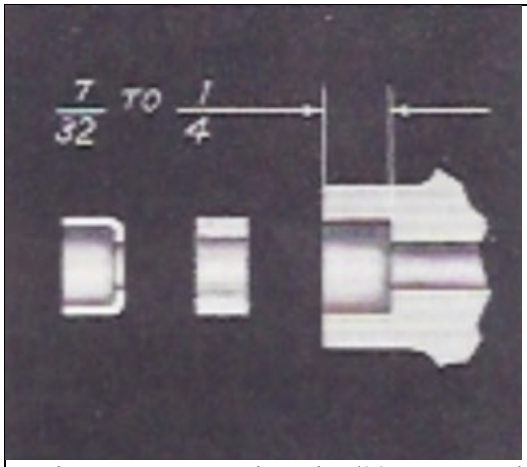


21- Install Idle Adjusting Needle & Spring. Set approximately one turn from seat for preliminary setting.

Once the carburetor is installed bring the engine to operating temperature and adjust screw to get the smoothest idle.



25A- On carburetors counterbored 1/8" to 5/32" deep install retainer with cup facing towards casting. Tap lightly until flush with casting face.



25B- On carburetors counterbored 7/32" to ¼" deep install retainer with cup facing away from casting. Tap lightly until flush with casting face.

30- Install Power Adjusting Needle Assembly.

Type C

Use new gasket.

Set approximately one turn from seat for preliminary setting.

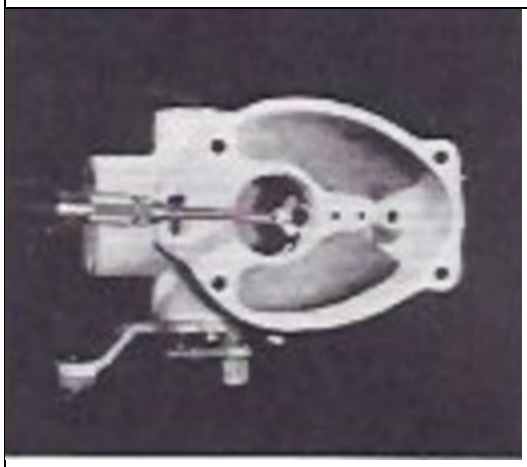
26- Install Choke Bracket, Choke Return Spring, Choke Shaft & Lever Assembly, Valve, and Screws.

Center valve in casting before tightening screws.

31- Install Gasoline Drain Strainer & Retainer Plug.

Stake retainer plug in place with center punch to insure secure locking.

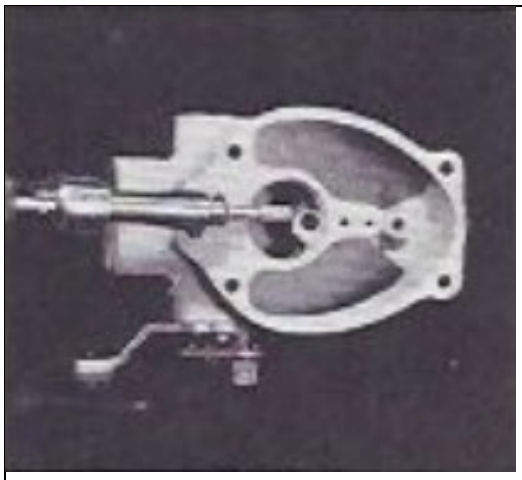
Strainer & plug are not being produced.



27- Install Power Jet.
Type A
Type B

32- Assemble Castings.

Invert throttle body and lower fuel bowl over floats taking precaution that venturi guides bodies into position.



28- Install Main Nozzle & Gasket.

Type A
Type B

Use new gasket.

33- Install Bowl Cover Screws & Lock Washers.

Tighten screws gradually until all are tight.

29- Install Main Nozzle & Gasket

Type C

Use new gasket.

34- Install Power Adjusting Needle Assembly.

Type A

Set approximately one turn from seat for preliminary setting.

ADJUSTMENT INSTRUCTIONS

PRELIMINARY ADJUSTMENTS

Set throttle stop screw so that throttle valve is open slightly, make certain that fuel supply to carburetor is open. Close choke valve. Start the engine and partially release choke, After the engine has been run sufficiently to bring up to operating temperature throughout, see that choke is returned to wide-open position.

LOW SPEED OR IDLE ADJUSTMENT

Set throttle of governor control lever in the slow idle position and adjust throttle stop screw for the correct engine idle speed. (On a new, stiff engine this speed must be slightly higher than required for a thoroughly run-in engine.) Turn idle adjusting needle until engine begins to falter or roll from richness, then turn needle in the opposite direction until the engine runs smoothly.

NOTE: It is better that this adjustment be slightly too rich than too learn.

IDLE ADJUSTING NEEDLE—AIR ADJUSTING

To richen the idle mixture, turn the idle adjusting needle to the right or clockwise,

IDLE ADJUSTING NEEDLE —FUEL ADJUSTING

To richer, the idle mixture turns the idle adjusting needle to the left or counterclockwise.

POWER OR LOAD ADJUSTMENT (TYPE B, TYPE C)

With the engine running at governed speed under load, turn power adjusting needle to the right, or clockwise. a little at a time until the power drops appreciably. Then turn the needle to the left, or counterclockwise, until the engine picks up power and runs smoothly, this will give an economical part throttle mixture, and, due to the economizer action, the proper power mixture for full-throttle operation. Due to variations in temperature or fuels, it may be necessary to richen up this mixture by backing out the power adjusting needle, a small amount at a time until good acceleration is obtained.

NOTE: Carburetor TSX-107, TSX-330, TSX. 339, TSX-355, TSX-385, and TSN-398 use the fuel gas adjusting type idle needle. All other Model TXN Carburetors use the air adjusting type idle needle.

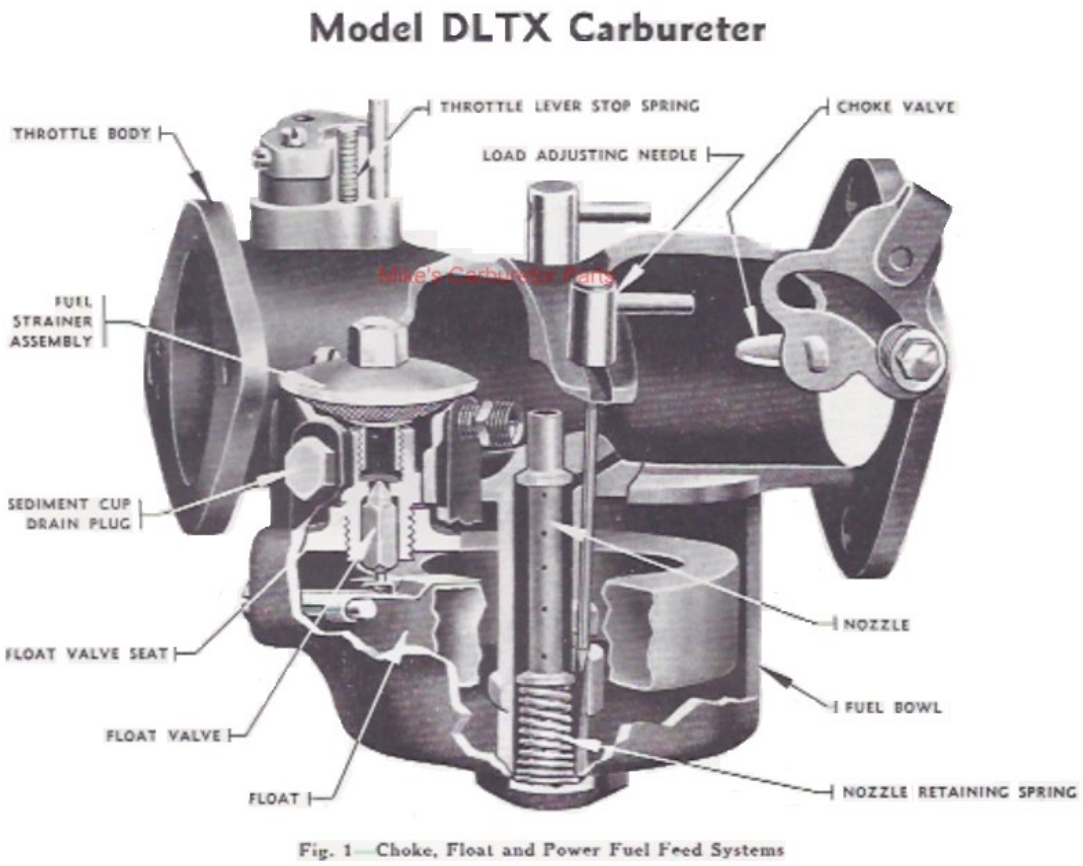


Fig. 1—Choke, Float and Power Fuel Feed Systems

The Marvel-Schebler Model DLTX Carburetor is a horizontal type carburetor used on John Deere tractors. To meet the specific engine requirements of the individual tractor on which the carburetor is installed requires a different size jet, nozzles, venturi, throttle: and choke operating levers, etc. For this reason, when ordering parts, always refer to the individual carburetor service parts list for the engine on which the carburetor is installed.

The Model DLTX Carburetor consists of two castings:

1. The throttle body casting which contains the air inlet.

2. The fuel bowl casting.

The throttle body casting contains, in addition to the throttle assembly, a venturi machined in the casting and the choke assembly. Cast iron material is used for ruggedness, all passages, whenever possible, are drilled within the casting to prevent any fuel leaks to the outside of the carburetor because of shrunken gaskets or defective hole plugs.

The Model DLTX Carburetor is completely sealed against dust or dirt. All air entering the fuel bowl of the carburetor must first pass through the air cleaner. The throttle shaft bearings and the choke shaft bearings are sealed to eliminate dust and dirt entering at these points. New throttle shaft bushings can be installed when the bearings have become worn.

The float mechanism is contained in a cast iron fuel bowl (Figure 1) on all DLTX models with the exception of Model DLTX-26 and Model DLTX-46. In these two carburetors, the float assembly is retained by the throttle body casting surrounded by a stamped metal fuel bowl.

All models have a fuel strainer to prevent dirt and foreign substances from entering the fuel bowl.

A throttle lever stop spring (Figure 1) is provided to prevent uneven running or “hunting”(governor opening and closing) when the load is released and the governor closes shut, turn the throttle stop screw against the throttle lever stop spring until the “hunting” is corrected and idling is satisfactory, normally there is 1/12" clearance between the throttle stop screw and the throttle lever stops spring at fast idle.

While there are many variations produced by combining the types and sizes into a specific application, all Model DLTX carburetors incorporate the same engineering principles and are alike from a functional standpoint.

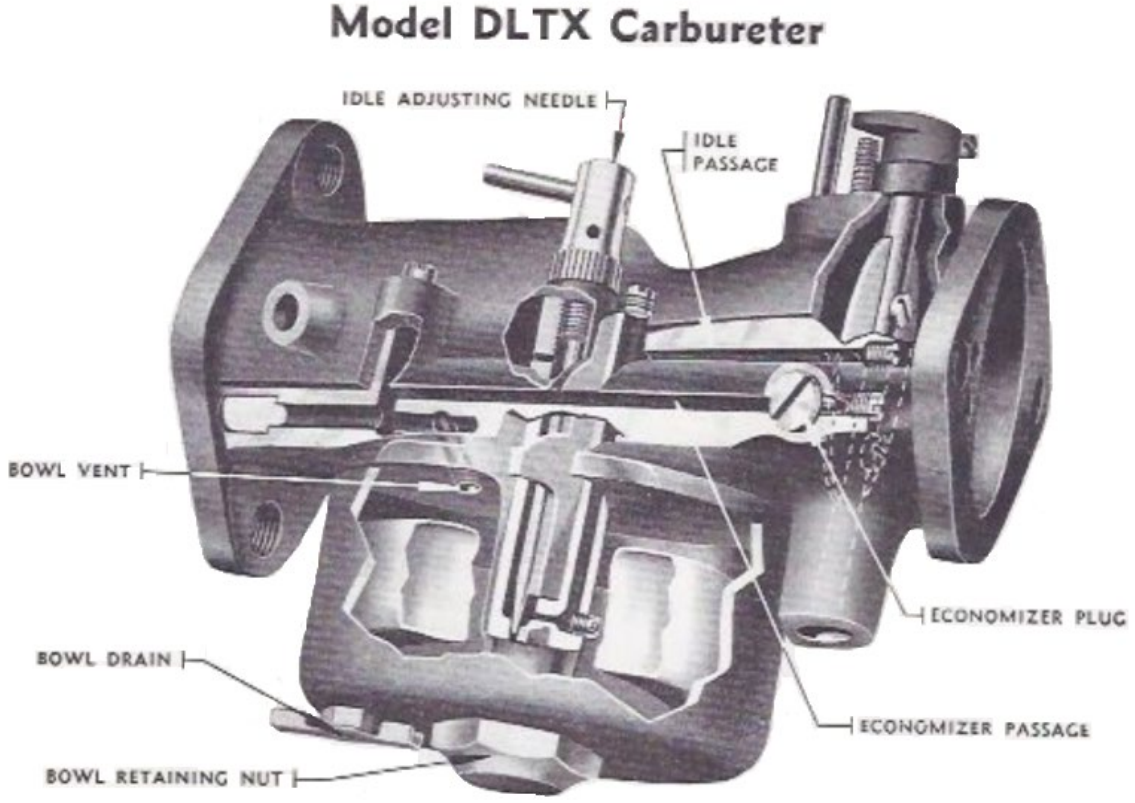


Fig. 2—Idle and Back Suction Economizer Systems

To service the fuel strainer in the east iron fuel bowl, first, remove the sediment cup drain plug (Figure 1) to permit any dirt to drain off. Then remove the fuel strainer assembly and clean with carburetor cleaner and air under pressure.

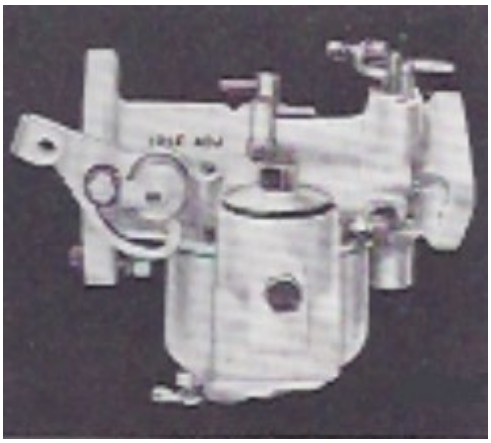
Flush sediment cup by turning on the fuel supply valve using a small brush to wash out any remaining dirt in the cup. Be careful not lo damage or remove composition gasket on fuel strainer assembly. Always replace any damaged gasket.

A calibrated economizer plug (Figure 2) is used in the back-suction economizer system to regulate the air pressure in the fuel bowl chamber for proper fuel delivery to the engine. The size of the plug is carefully established by engineering tests and the specified size for a given carburetor model must always be used to assure the proper operation of the carburetor on the engine. In some models, a calibrated fixed orifice is machined in the throttle body casting in place of the economizer plug.

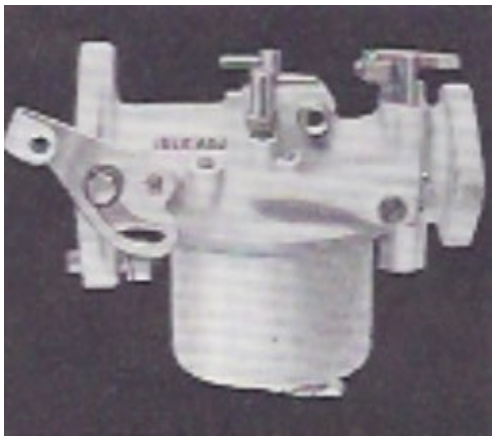
To provide an additional economy, in addition to the back-suction economizer system, the carburetor provides for two adjusting needles, the low speed or idle adjusting needle and the loaded adjusting needle. These needles must not be interchanged. The idle adjusting needle head is brass plated, and the load needle cadmium plated (fray color) to distinguish.

A throttle lever stop spring (fig 1) is provided to prevent uneven running or hunting (governor opening and closing) when the load is released, and the governor closes clear shut. Turn the throttle stop screw against the throttle lever stop spring until the hunting is corrected and idling is satisfactory. Normally there is 1/32” clearance between the throttle stop screw and the throttle lever stop spring at fast idle.

While there are many variations produced by combining the types and sizes into a specific application, all Model DLTX carburetors incorporate the same engineering principles and are alike from a functional standpoint.



Type A – Cast Fuel Bowl



Type B – Stamped Fuel Bowl

The following procedure for the service of DLTX carburetor models is for a complete overhaul. After removing the carburetor from engine wash thoroughly with cleaning fluid, such as gasoline, to permit examination of external parts for damage, for type carburetor being serviced, see illustrations above.

Instructions apply to both types unless specified otherwise.

1— Remove Bowl Retaining Nut, Gasket, and Nozzle Retaining Spring

Separate Castings

2— Remove Fuel strainer Assembly and Gasket Type A

Replace assembly if screen or threads are not in good condition

3— Remove Float Valve seat and Gasket Type A

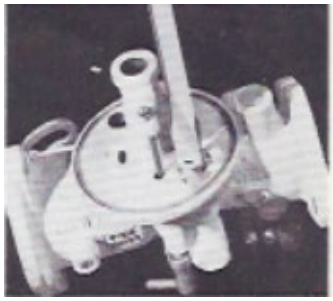
Remove seat with Schebler Tool No. 725A

4— Remove Float Lever Bearing Screw and Float Type A

Replace screws and pin if parts are worn

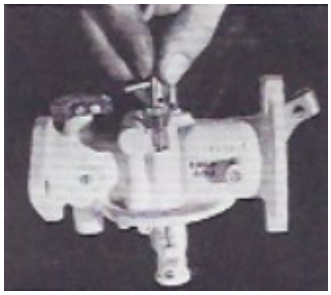
5— Remove Float and Lever Assembly & Float Valve. Type A

Replace the float valve and seat if the valve is grooved or worn or seat damaged.



6— Remove Float Valve, float Valve Seat & Gasket Type B

Replace Float Valve and Seat if the valve is grooved or worn or damaged

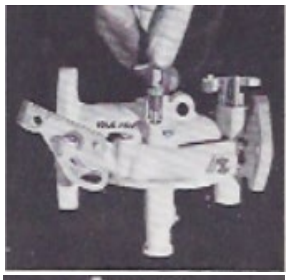


7— Remove Load adjustment Needle.

Replace needle if grooved or damaged.

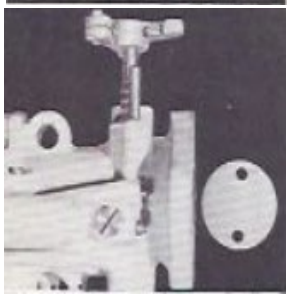
8— Remove idle Adjusting Needle.

Replace needle if grooved or damaged



9— Remove Throttle Valve Screws Valve, & Throttle Shaft & Lever Assembly.

Note: On some model it is necessary to first remove throttle valve can be removed. Replace throttle seat if worn



10— Remove Choke Valve Screws and Valve

Do not remove choke shaft

11—Remove Nozzle

Insert Flat and of Schebler Tool No. 2599 under choke shaft and force nozzle down as far as possible.

11A—Insert bent end of tool over choke shaft and force nozzle out

12—Remove Choke Shaft and Lever Assembly.

Replace shaft and lever assembly if shaft is worn

12A—A Remove Choke Shaft and Lever assembly

Replace shaft and lever assembly if shaft is worn

13— Remove all Channel Pugs. Throttle Shaft Bushing Repair.

Procedure for replacing worn throttle shaft busting.

14— Remove Upper Throttle Shaft Bushing.

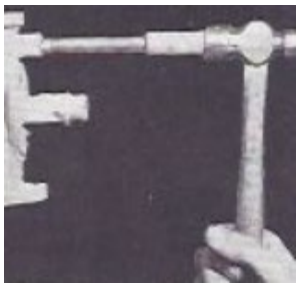
Insert Schebler Tool No. 2603 & drive bushing out.Note: On Models DLTX 26 and DLTX - 46 remove bushing with tool No. M-130

15— Remove Lower Shaft Bushing

Insert Schebler Tool No. 2603 through upper throttle shaft bushing boss and drive bushing out. On Model DLTX-26 and DLTX - 46 use Tool No. M-131

16—Install Lower Shaft Bushing. Open End Bushing

Place new lower bushing on Tool No. 132 and drive bushing in casting up to shoulder on tool.



16A—Install Throttle Shaft Hole plug.

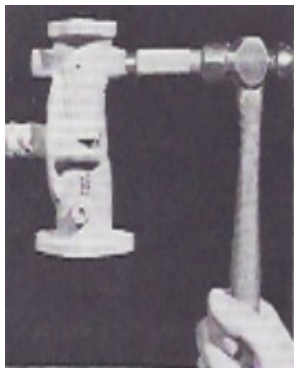
Drive the plug with face of lower throttle shaft bushing boss**.**

16B—Install Lower Shaft Bushing - Blind End Bushing.

Drive bushing until flush with the face of casting boss.

17— Install Upper Shaft Bushing.

Place new upper bushing on the pilot of Schebler Tool no. 2604 and drive bushing into the body until flush with the top of casting boss. Use tool no. M-129 for Models DLTX - 26 and DLTX - 46

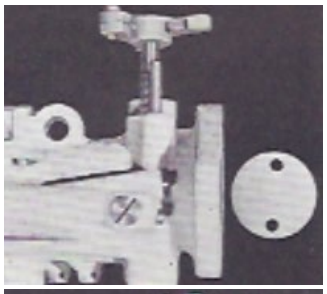


18— Ream Throttle Shaft Bushings.

If throttle shaft binds in bushings ream bushings with the special reamer Schebler Tool No. M-128 for Models DLTX - 26 and DLTX -46.

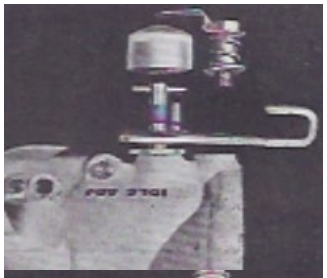
19— Install all Channel Plugs and Economizer Plug

Install a new economizer plug if the plug is nicked or damaged.



20— Install Throttle Shaft and Lever Assembly, Valve, and Screws

Tap Valve lightly to center in throttle bore. Tighten Screws



21— Install Coke shaft and Lever Assembly, Choke Valve, and Screws.

Center valve in casting before tightening screws**.**

21A— Install Choke Assembly Parts, Choke Valve, and Screws

Before assembling the dust, cap attach the choke flex spring as shown in the illustration below.

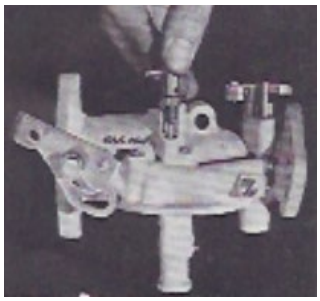
21B— Attach Choke Flex Spring

With choke valve in open position attach spring to pins on choke lever and shaft as shown

22— Install Idle Adjusting Needle.

Set approximately 1 and 1/2 turns from scat for the preliminary setting.

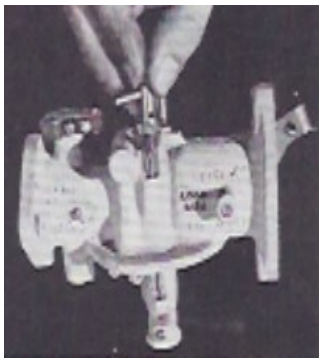
NOTE: Idle needle brass plated to distinguish.



23— Install Lead Adjusting Needle.

Set approximately 1 turn from scat for the preliminary setting.

NOTE: Lead needle cadmium plated (gray color) to distinguish



24— Install Nozzle

Tap the bottom of the nozzle lightly to seat in casting

* Before assembling carburetor, clean castings, channels, and parts with carburetor cleaning fluid and air under pressure. Make certain all small holes and channels are open and free from carbon and dirt. Do not use wire or small drills to clean out small holes as a slight change in the size of these holes will affect the carburetor operation. Gum deposits not removed by carburetor cleaning fluid, clean with a lacquer thinner. To assure a successful overhaul always replace all worn or damaged parts and any parts that are questionable. Always use new gaskets.

25— Install Float and Lever Assembly & Float Valve. Type A

Before installing a float submerge in a pan of hot water. Replace if air bubbles are observed escaping from the float.

26— install Float Lever Pin and Float Lever Bearing Screws. Type A

27— install Float Valve Seat and Gasket. Type A

Use a new gasket. Examine the action of float. Be sure there is no sticking between fingers on float lever and head of float valve.

28— Set Float Level. Type A

Set float 1/2" on models DLTX - 3 to DLTX - 63 inclusive.

Set float 3/8" on models DLTX - 67 to DLTX - 73 inclusive.

Measure from top of the fuel bowl to top of the float. Use Schebler Tool No. 35 to bend float lever.

29— Install Fuel Strainer Assembly. Type A

Always use a new strainer gasket

30— Install Float Valve Seat, Gasket and Float Valve. Type B

Use a new strainer gasket.

31—Set Float Level. Type B

Before installing the float submerge in part of hot water. Replace if air bubbles are observed escaping from the float. Set the float from the lower flange face to the nearest edge of the float.

32—Assemble Castings

Use a new bowl gasket and bowl retaining nut gasket. Tighten bowl retaining nut securely.

ADJUSTMENT INSTRUCTIONS

PRELIMINARY ADJUSTMENTS

Set speed control lever so that the throttle valve is open slightly, make certain that fuel supply to the carburetor is open. Close choke valve. Stark engine and partially release choke. After engine has been run sufficiently to bring up to operating temperature throughout, see that choke is returned to a wide-open position.

IDLE ADJUSTMENT

Advance speed control lever toe wide open throttle position which will be fast idle, or governor controlled idle. Adjust idle adjusting needle until engine runs evenly.

NOTE: To enrich the idle mixture torn idle adjusting needle to the left or counter-clockwise.

LOAD ADJUSTMENT

To secure maximum fuel economy with tractor pulling load turns the load adjusting needle to the right, or clockwise. Until the power drops appreciably. Then turn the needle to the left, or counterclockwise, until the engine picks up power and runs smoothly. Due to variations in temperature or fuels may be necessary to richen up this mixture by backing out the power adjusting needle, a small amount at a time until good acceleration is obtained.

If, when low is released, governor closes throttle clear shut, causing uneven running or “hunting,” (governor opening and closing) turn the throttle stop screw against.

the throttle lever stops spring until the “hunting” is corrected and idling is satisfactory. Normally there: is the clearance between the throttle: step screw and the throttle lever stop spring at fast idle.

Service Complaints

IDLE—UNEVEN IN OPERATION

The idle construction used in Marvel-Schebler Tractor and Industrial Carburetors is the most positive and satisfactory of idle systems because it is working under very high suction and the mixture flows through the small passages at very high velocities. It is necessary to bear in mind, however, there are times when these small holes may become plugged with particles of dirt or lint, but very seldom. If idle trouble is experienced, first check the manifold to the cylinder head gasket and the carburetor to manifold gasket for air leaks, At slow idle an engine requires only approximately 20) to 25 lbs. of air per hour, and an alight leak will result in a very erratic or rough idling engine.

Other causes for a rough idling engine are uneven compression, caused by sticky or leaking valves; leaking valve seats: tappets with Improper clearances; leakage past pistons and rings; cylinder head gasket leaking: weak spark or spark plug points not spaced correctly; ignition cable covering cracked and thus grounding spark, and cable not assembled properly in the distributor cap which causes corrosion and weak spark.

The spark timing of the engine is most important, and should also be checked very carefully and set exactly on the mark as called for in factory standard specifications. In fact, all of the above items must be checked very carefully to factory standards, and not just given a casual inspection with the common expression.

"Everything looks O.K." You can KNOW definitely that the tractor is up to the standards set by the manufacturer.

POWER AND ECONOMY—LOW

Complaints are received: from the field that the engine will not pull or develop its maximum horsepower, or that it develops good power, but uses far too much fuel. Too often a serviceman will at once change the carburetor to correct these complaints, but by so doing he may not be succeeded in overcoming the difficulty.

It must be clearly understood by all servicemen that when a new engine is designed and developed the management first decides what horsepower they want this engine to produce at rated speed. The engineering department develops the new engine to pull there required horsepower. In the design, there are certain fixed dimensions that never change. For instance, the bore and stroke, the displacement, compression ratio, diameter of valves, lift of valves, the diameter of the intake passage. The carburetor engineer works out the diameter of the throttle bore, venturi size, and provides for means of adjusting and regulating the power fuel mixture ratio, as well as the idle. Now, in service, consider, that the compression, ignition, and timing have been checked and found to be 100% in this engine. If the air intake temperature and the water temperature is held constant, then the only variable we have that affects maximum horsepower is the fuel mixture ratio.

If compression, ignition, and timing, which are variable, are first properly checked by a serviceman and set to factory specifications. The little difficulty will be experienced in adjusting the carburetor to give the maximum horsepower and economy.

A great deal has been said regarding the importance of engine tune-up and the reasons for servicemen being exact in their service work on engines. The reasons why a carburetor may not function properly when everything else has been checked and set to factory standards will now be covered.

With the present type carburetor construction used on Marvel Schebler tractor and industrial carburetors not very much can go wrong with the possible exception that it may foul with dirt. There are only two places that are subject to wear—the throttle shaft and bushings and the float valve and seat. The wear on the throttle shaft and bushings, and resultant air leak there from results in a lean idle, and to compensate for the air leak, more fuel must be turned on for idle, Wear on the float valve and seat results in a high fuel level in the fuel bowl and flooding trouble, Both faults can be easily observed by the serviceman, and corrected by replacing worn parts with new ones. The proper functioning of the carburetor is obtained by a series of holes drilled to exact size and location, which do not wear or change location in service. It must realize that if the carburetor worked correctly at first when passed by the inspectors at the tractor factory, it will always function the same, provided these passages are all free from dirt.

On a carburetor complaint from the field, The only thing a serviceman can do to the carburetor is to disassemble it, BE SURE that the passages are open and free from dirt, that there is no wear on the throttle shaft and bushings, that float valve and seat are O.K., that the float height is correct, and that a good air-tight seal exists around the bowl gasket. If such a carburetor service does not correct the complaints, A complete check of the engine must again be made.

Marvel-Schebler Carburetor FLOAT SETTINGS

To check the float setting,' the casting must' beheld in an inverted position so that the float lever is in contact with the float valve and the float valve seabed.

Carburetor Model	Factory Setting	Where to Measure
DLTX-26 and 46	2.2/3.2"	From the bottom of the nozzle boss to the nearest surface of the front.
DLTX – 67,71,72,73	2/8"	Form the bowl gasket to the nearest surface of the float.
All other DLTX (except duals) (Cork for Metal Float)	½"	From the bow! gasket to the nearest surface of the float.
Duplex DLTX	¾"	From the bowl gasket seat in casting to the bottom of float.
"H"	1" to 32"	From the gasket to the top of the float
"MA" (All except – MA-4-5)	3 and 7/2"	From the top of the float to the gasket
MA-4-5	12"	From the top of the float to the gasket
"N"	1 and 51/54"	From the bowl cover face to the bottom of the float.

“NNF”	1/8”	From the top of float to flange gasket
“TCX”	1 and 5/4”	From upper bowl gasket to bottom of float
“TRX”	1 and 7/8”	From the gasket to the bottom of the float
“TSX” 7/8’, 1”, 1 and ¼”	¼”	From the gasket to the nearest surface of the float.
“TSV”	¼”	From the gasket to the nearest surface of the float.
“TTX”	2”	From the face of the flange to the bottom of the float.
“VD”	3/14”	From the gasket to the end of float furthest from hinge pin.
“VH” 5/8”	½”	From the nozzle boss to the end of the float furthest from hinge pin.
“VH” 1“	2 and ¼”	From the gasket flange face to the bottom of the float.

NOTE: Changing the float setting from our standard in an effort to improve the operation of the carburetor or in an effort to prevent flooding. will only result in faulty carburetor operation.

SPECIAL SERVICE NOTE

How to Give Your Engines Longer Life!

A loose throttle shaft and worn packings will allow coarsely, highly abrasive dirt to be pulled into the engine. It has been proved by actual test, that under extreme dust conditions, such as encountered by off-the-road-equipment, it is possible to wear the cylinder walls down one thousandth: of an inch in 50 hours of operation as a result of leakage around a worn throttle shaft.

Make sure on all engine overhaul and tune-up jobs that the carburetor is removed, cleaned and all worn parts replaced.

Remember! it is not the air which is drawn into the engine around worn shafts which wear out rings, valves, and cylinder walls, it’s the dust and dirt in the air.

Dirt Is Engine Enemy No. 1

General Instructions

- Take lots of pictures as you take your carburetor apart. This will give you a reference of where things go.
- Using a cookie sheet with folded up sides will help keep parts from falling on the floor.
- We suggest not removing the throttle shaft, valves, or choke shaft unless they are corroded, or very dirty. These parts can be easily damaged and are difficult to re-assemble.
- Instruction sheets that come with our carburetor kits are somewhat generic. It may not match your parts exactly.
- Do NOT use WD-40 around your carburetor. It reacts with ethanol.
- Using Silicon Spray Lubricant on the gaskets will help with sticking in case you need to take the carburetor apart again.
- Be careful after taking the top of the carburetor off. Turning the carburetor upside down may cause parts to fall out and you won't know where they were.
- Screws and jets that are frozen can often be removed after heating outside the screw or jet.
- Stuck check balls can be removed by heating the outside of where the check ball resides and tapping the carburetor on the work bench.
- Do not discard any parts until complete done. You may have to refer for size, or matching.

Cleaning:

- Clean with carburetor dis-assembled.
- Soak all parts except rubber & electrical in Simple Green for 2 hours. Aluminum parts will get discolored if left longer.
- Wash parts with hot water if available to remove all chemicals.
- Blow out each passage way taking special notice of the smaller ones. Test each passage that air goes through the entire passage.
- Blow out the idle mixture hole.

- Check any hole above the idle mixture hole (inside the bore). This is the idle discharge and often becomes plugged.
- A tooth brush can facilitate cleaning parts.
- Soda blasting, then washing again will make the carburetor look good any will clean any minor deposits.
- Any corrosion, or deposits that are hard to remove may indicate the passages are also corroded and the carburetor should be replaced.
- If your engine has been sitting for 6 months or more, the gas has probably turned, and the gas tank will need to be cleaned as well as the fuel lines. Flushing new gas through the tank will not be enough.

Assembly:

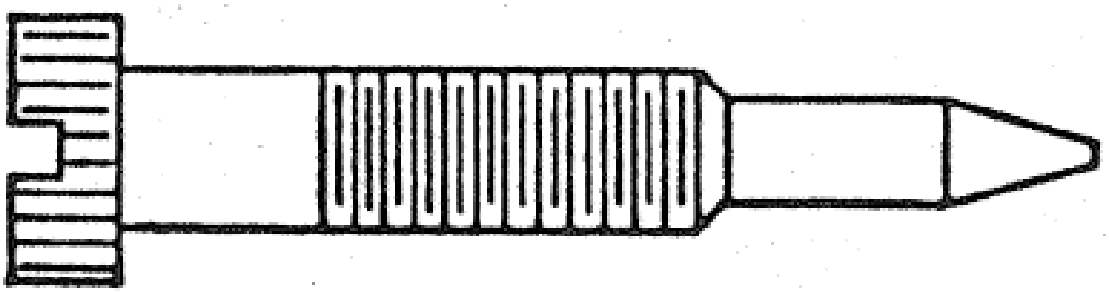
- Do NOT apply any gasket sealant on any of the gaskets. Gas will break sealant part and the particles will clog the small passages.
- Test your float.
    - Brass floats should be immersed into hot water. As the air inside expands any leak will be noticeable with air bubbles.
    - Plastic, or Nitrophyl floats should be weighed. The weight is in grams. Check our technical pages for any weight specification that we may have.
- Most gaskets will fit as expected, but you may have to trim some, especially under the venturis.
- Your kit may include multiple gaskets in order to get better coverage out of the kit. Use the one that fits the best. Look for any opening the gasket may leave allowing air into the carburetor. Some holes may be casting holes that don't lead to anything and do not have to be covered.
- Mounting gaskets for multiple bore carburetors do not have to have matching holes. Example a four-barrel gasket can be open in the middle instead of 4 holes as long as the carburetor has some kind of passage between bores. The passage is between primary, or secondary, not both.
- When adjusting the float be careful not to put any pressure on the needle. The viton tip is easily damaged.
- Most idle mixture screws can be cleaned using a soft wire wheel. Inspect for any scoring, which would indicate over tightening. Screw with scoring should be replaced.

Accelerator Pumps:

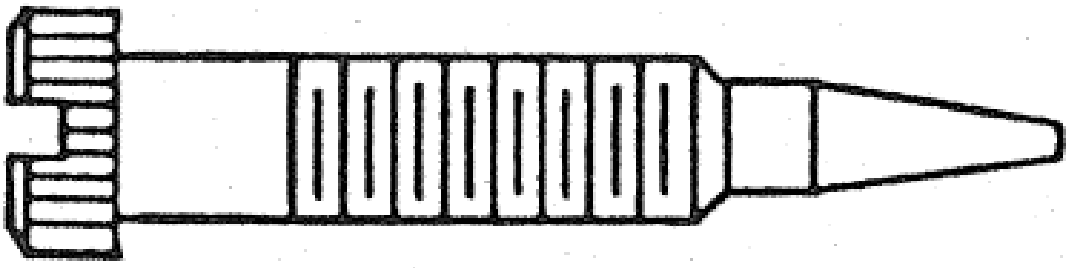
- On leather cups run your finger around the inside of the cup to break any manufacturer sealant.
- Apply 2 drops of oil to cups (leather, or rubber) before inserting into carburetor. Do not soak the cup in oil. The swelling of the cup needs to happen inside the carburetor. Allow the 2 drops of oil and the gas to do its job naturally.
- Twist the pump as you are inserting to help keep the cup from curling or folding over.
- Test your accelerator pump circuit before putting the top of the carburetor back on. Our technical pages have instructions on how to do this for most carburetor types.
- Pump wells are usually slight tapered, and the pump will not seal until it gets towards the bottom.

NOTICE!

THIS KIT IS PACKAGED WITH TWO IDLE ADJUSTING NEEDLES. BE SURE TO SELECT THE ONE WHICH MATCHES NEEDLE REMOVED FROM CARBURETOR.



30° POINT



15° POINT

FORM NO. 40-461

1969 TECHLIT CO.
Printed in U.S.A.

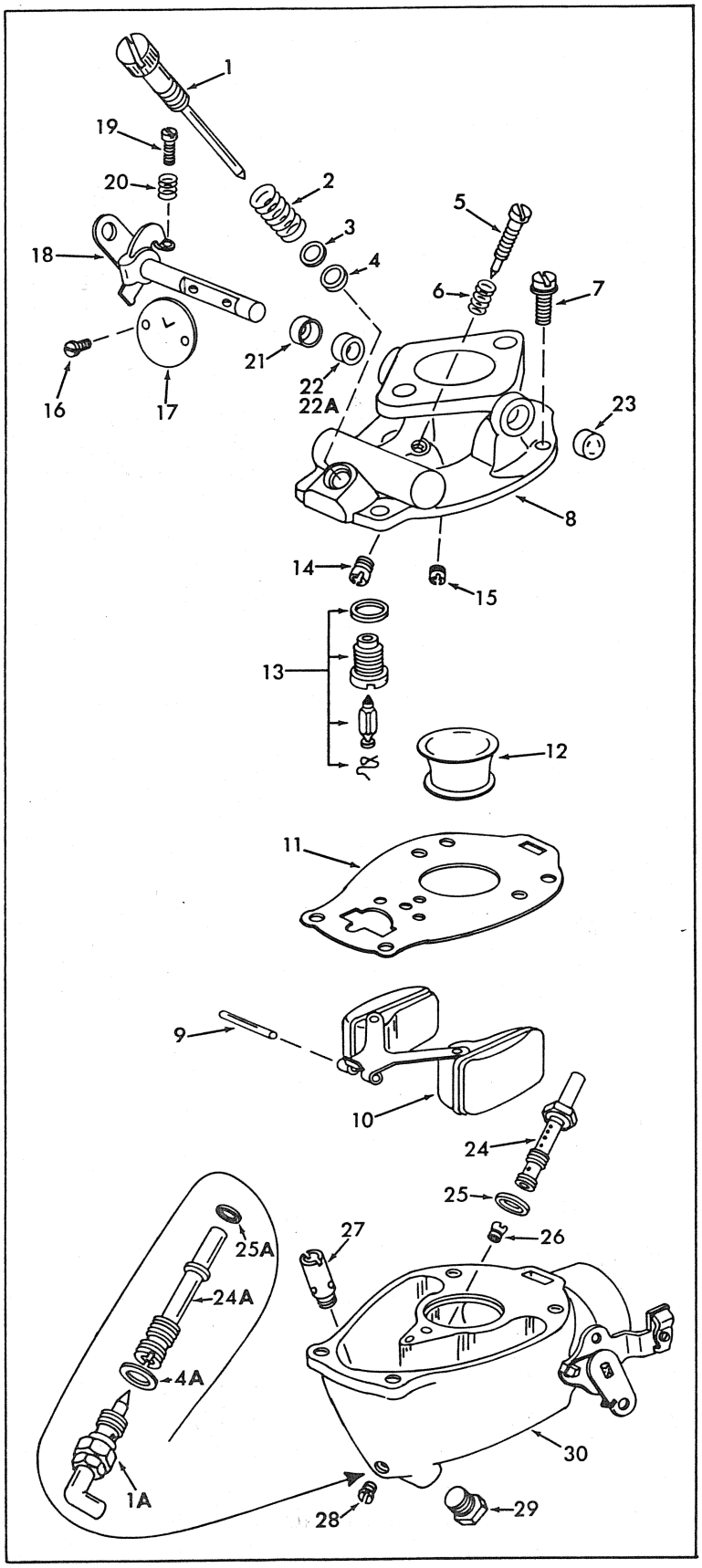
INSTRUCTION SHEET

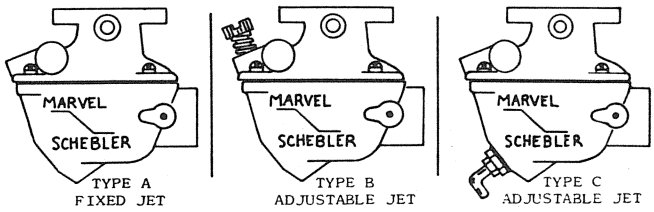
MARVEL-SCHEBLER CARBURETOR MODEL-TSX

50-386

GENERAL EXPLODED VIEW

THE GENERAL DESIGN AND PARTS SHOWN WILL VARY TO INDIVIDUAL UNITS COVERED ON THIS INSTRUCTION SHEET





DISASSEMBLY

USE EXPLODED VIEW AS A GUIDE. THE NUMERICAL SEQUENCE MAY GENERALLY BE FOLLOWED TO DISASSEMBLE UNIT FAR ENOUGH TO PERMIT CLEANING AND INSPECTION. NOTE: IDLE JET (14) AND ECONOMIZER JET (15) ARE NOT USED IN ALL CARBURETORS. WHEN REMOVING IDLE JET (14), ECONOMIZER JET (15), OR POWER JET (26) BE SURE TO USE THE PROPER SIZE SCREW DRIVER. JETS CAN EASILY BE BROKEN. BEFORE REMOVING THROTTLE VALVE (17), NOTE ANGLE IDENTIFICATION MARK FACING FLANGE FACE OF CARBURETOR. POWER ADJUSTING NEEDLE SEAT (27) NOT USED IN ALL TYPE B CARBURETORS.

NOMENCLATURE

REF. NO.		REF. NO.	
1.	NEEDLE-POWER ADJ. (TYPE B)	15.	JET-ECONOMIZER
1A.	NEEDLE ASSY.-POWER ADJUSTING (TYPE C)	16.	SCREW & LOCKWASHER (2) - THROTTLE VALVE
2.	SPRING-POWER ADJ. NEEDLE	17.	THROTTLE VALVE
3.	WASHER-FLAT POWER ADJ. NEEDLE SPRING	18.	SHAFT & LEVER ASSY.-THROTTLE
4.	GASKET-POWER ADJ. NEEDLE	19.	SCREW-THROTTLE STOP
4A.	GASKET-POWER ADJ. NEEDLE ASSY. (TYPE C)	20.	SPRING-THROTTLE STOP SCREW
5.	NEEDLE-IDLE ADJUSTING	21.	RETAINER-THROTTLE SHAFT SEAL
6.	SPRING-IDLE ADJ. NEEDLE	22.	SEAL (FELT)-THROTTLE SHAFT
7.	SCREW & LOCKWASHER (4) - BOWL COVER	22A.	SEAL (RUBBER)-THROTTLE SHAFT
8.	BOWL COVER	23.	CUP-THROTTLE SHAFT
9.	PIN-FLOAT LEVER	24.	NOZZLE-MAIN (TYPE A-B)
10.	FLOAT & LEVER ASSY.	24A.	NOZZLE-MAIN (TYPE C)
11.	GASKET-BOWL COVER	25.	GASKET-MAIN NOZZLE (TYPE A-B)
12.	VENTURI	25A.	GASKET-MAIN NOZZLE (TYPE C)
13.	NEEDLE, SEAT & GASKET ASSY.	26.	JET-POWER (TYPE A-B)
14.	JET-IDLE	27.	SEAT-POWER ADJ. NDL. (TYPE B)
		28.	SCREW-PLUG
		29.	PLUG-BOWL DRAIN
		30.	BOWL ASSY.-FLOAT

CLEANING

CLEANING MUST BE DONE WITH CARBURETOR DISASSEMBLED. SOAK PARTS LONG ENOUGH TO SOFTEN AND REMOVE ALL FOREIGN MATERIAL. USE (1) A CARBURETOR CLEANING SOLVENT, (2) LACQUER THINNER, OR (3) DENATURED ALCOHOL. MAKE CERTAIN THE THROTTLE BORES ARE FREE OF ALL CARBON AND VARNISH DEPOSITS. RINSE OFF IN SUITABLE SOLVENT. BLOW OUT ALL PASSAGES IN CASTINGS WITH COMPRESSED AIR AND CHECK CAREFULLY TO INSURE THOROUGH CLEANING OF OBSCURE AREAS. CAUTION: DO NOT SOAK RUBBER PARTS OR POWER ADJUSTING ASSEMBLY (1A) TYPE C IN CLEANING SOLVENT.

REASSEMBLY

REASSEMBLE IN REVERSE ORDER OF DISASSEMBLY. NOTE SPECIAL INSTRUCTIONS.

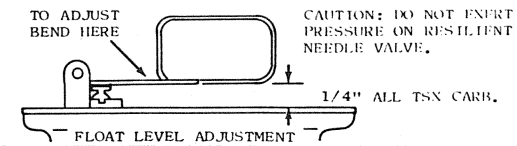
SPECIAL INSTRUCTIONS

THROTTLE SHAFT SEAL AND RETAINER INSTALLATION - ASSEMBLE RETAINER (21) AND FELT SEAL (22), OR RUBBER SEAL (22A) WITH RETAINER IF REQUIRED, ON THROTTLE SHAFT. INSERT SHAFT IN CARBURETOR AND TAP LIGHTLY UNTIL RETAINER IS FLUSH WITH CASTING.

THROTTLE VALVE (17) INSTALLATION - INSTALL VALVE WITH ANGLE IDENTIFICATION MARK FACING FLANGE FACE OF CARBURETOR. TAP LIGHTLY TO CENTER IN THROTTLE BORE. TIGHTEN SCREWS SECURELY.

IDLE ADJUSTING NEEDLE (5) - TURN NEEDLE IN LIGHTLY UNTIL SEATED. THEN BACK OUT 1 TURN.

POWER ADJUSTING NEEDLE (1) OR (1A) - TURN NEEDLE IN LIGHTLY UNTIL SEATED. THEN BACK OUT 1 TURN.



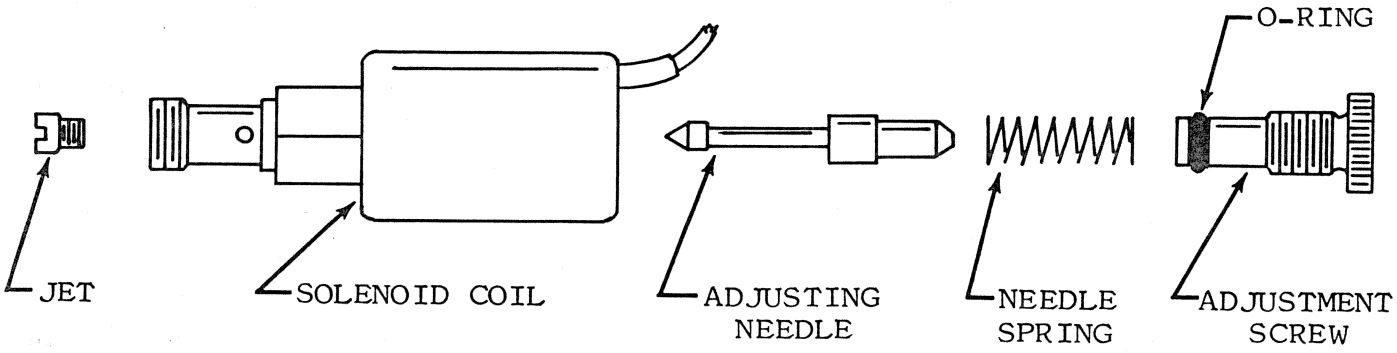
MEASURE FROM GASKET SURFACE TO NEAREST EDGE OF EACH FLOAT. TO ADJUST, BEND FLOAT LEVER KEEPING EDGE OF FLOAT PARALLEL WITH GASKET.

IDLE ADJUSTMENT - ENGINE AT OPERATING TEMPERATURE, CHOKE VALVE COMPLETELY OPEN, ADJUST IDLE SCREW UNTIL ENGINE RUNS SMOOTHLY STAYING ON THE RICH SIDE OF THE ADJUSTMENT.

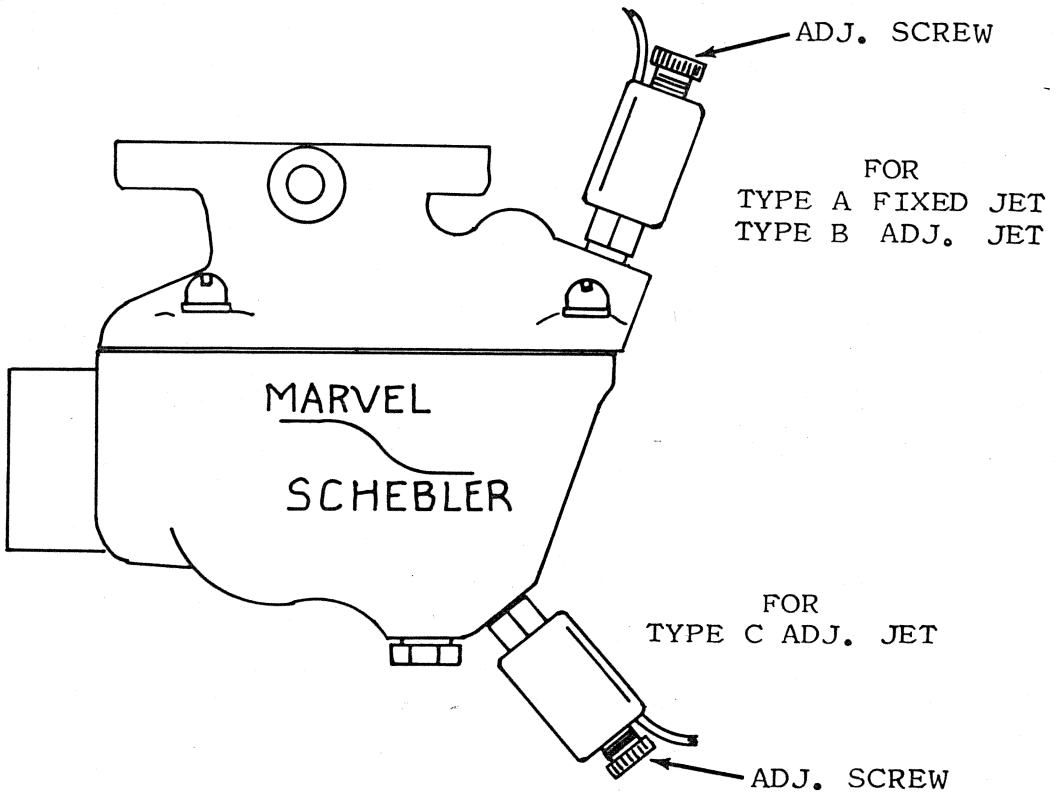
POWER ADJUSTMENT - ENGINE RUNNING AT GOVERNED SPEED UNDER LOAD, TURN POWER ADJUSTING NEEDLE CLOCKWISE UNTIL ENGINE BEGINS TO LOSE POWER. THEN BACK OUT UNTIL ENGINE PICKS UP POWER AND RUNS SMOOTHLY. A RICHER MIXTURE MAY BE NEEDED TO IMPROVE ACCELERATION.

SERVICE INSTRUCTIONS FOR CARBURETORS EQUIPPED WITH ANTI-DIESELING POWER ADJUSTING NEEDLE

REMOVE UNIT FROM CARBURETOR. DISASSEMBLE AS SHOWN. DO NOT TRY TO REMOVE O-RING. WASH IN CLEANING SOLVENT AND BLOW OFF WITH COMPRESSED AIR. CAUTION: DO NOT SOAK COIL ASSEMBLY OR RUBBER O-RING IN CARBURETOR CLEANER.



ASSEMBLY: LIGHTLY OIL O-RING AND REASSEMBLE IN REVERSE ORDER OF DISASSEMBLY.



PRELIMINARY SETTING. TURN ADJUSTMENT SCREW IN LIGHTLY UNTIL NEEDLE SEATS, THEN BACK OUT 2-3 TURNS. FINAL SETTING UNDER LOAD IN ACCORDANCE WITH YOUR ENGINE MANUAL.