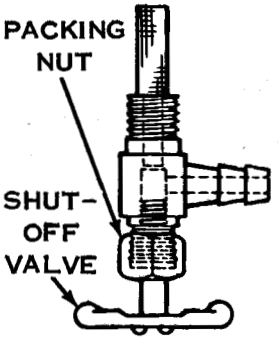
FUEL TANK VENTING

Fuel tanks must be vented to prevent vacuum forming and stopping flow of fuel. Tank caps have a plain vent hole. A closed vent will create a vacuum in the tank as fuel is used - the engine will run a few minutes and stop. In a few minutes the vacuum will decrease and the engine can be started again, but it will stop again in a few minutes. The vent hole can become clogged with dirt, inspect and clean as required.

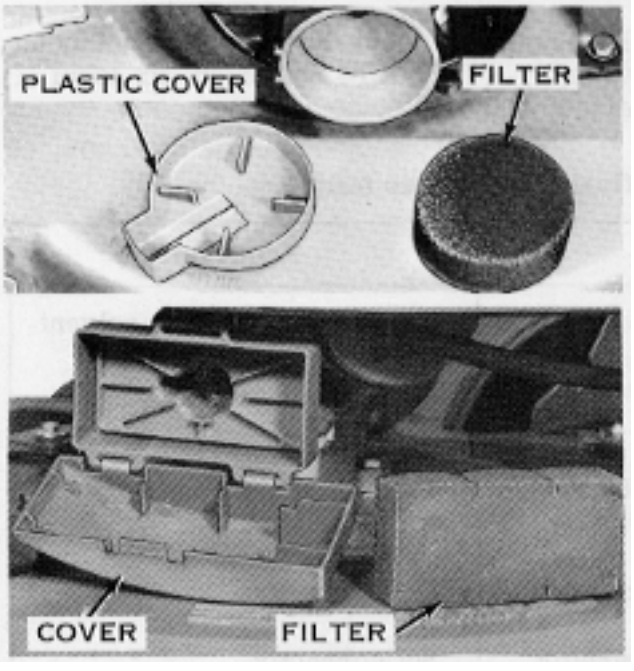


SHUT-OFF VALVE

The screen assembly or the shut-off valve can become clogged. This can be checked easily by removing the fuel hose, opening the valve and observing for fuel flow through the valve. Replace the valve and screen assembly if gummed up, rusted, or if packing is damaged.

NOTE

Shut-off valve should be open and packing nut loose before screwing assembly into tank. Secure assembly to tank, then close valve and tighten packing nut. Wing should turn easily, but snugly.



AIR FILTER

If engine is flooded, fuel can drain back into filter. As filter becomes saturated, incoming air picks up more fuel, causing greater flooding. A puckered filter will allow air and dirt to bypass filter. Make certain that filter covers cup area. If oiled, properly, filter is very efficient. First wash out with hot, soapy water. Wring out and dry completely, then apply 10 to 15 drops of oil. Squeeze several times to distribute oil. If engine "smokes" for no apparent reason, check filter for flooding and a rich running condition.

Later D-400 Series models have a plastic air cleaner. To remove grasp the cover lip and pull back or fold down as required.

NOTE

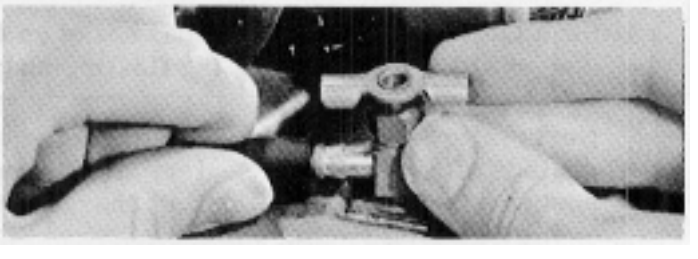
Reinstall filter in the same position which it was removed.

FUEL LINE

Inspect the fuel line. If cracked, spongy, or otherwise not fit for good safe use, replace. DON'T TWIST FUEL LINE - INSERT ON CONNECTIONS WITH FINGERS, NOT PLIERS.

⚠ SAFETY WARNING

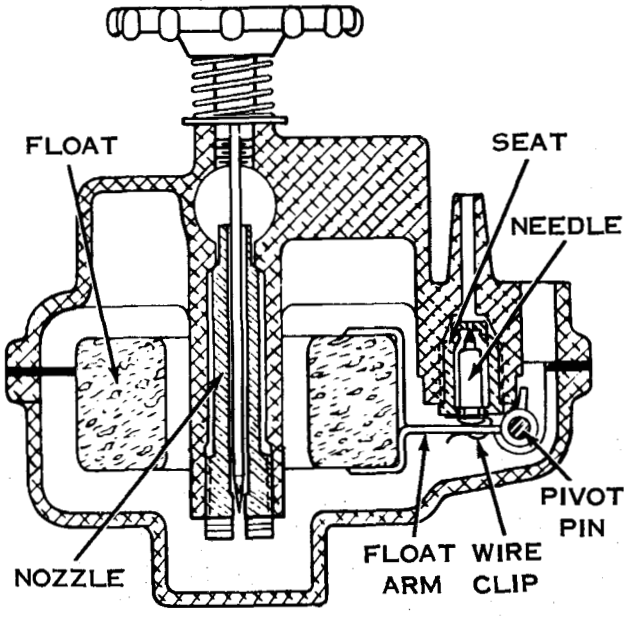
DO NOT SUBSTITUTE WITH INFERIOR FUEL HOSE WHICH MAY CAUSE LEAKAGE FROM PREMATURE DETERIORATION. LEAKAGE OF FUEL MAY CAUSE AN EXPLOSION AND/OR FIRE.



D-400 SERIES FUEL SYSTEM INSPECTION

NOTE

Some later model D-400 engines are equipped with the D-600 Series fuel system. A thorough visual inspection will determine the fuel system used on the engine.



FLOAT VALVE

The float valve consists of a needle and seat assembly, activated with a float in the float bowl. The needle is steel with rubber tip and the seat brass, materials which will not readily adhere together. The needle rests on the float arm, (held in place by a spring clip on later models).

Operation is automatic. When the float bowl is empty, the float rests on the bottom of the bowl. As fuel enters bowl of carburetor, the float rises, moving needle into seat and shutting off fuel. As the engine uses fuel, the float drops slightly, allowing more fuel to enter bowl, maintaining a constant fuel level in bowl.

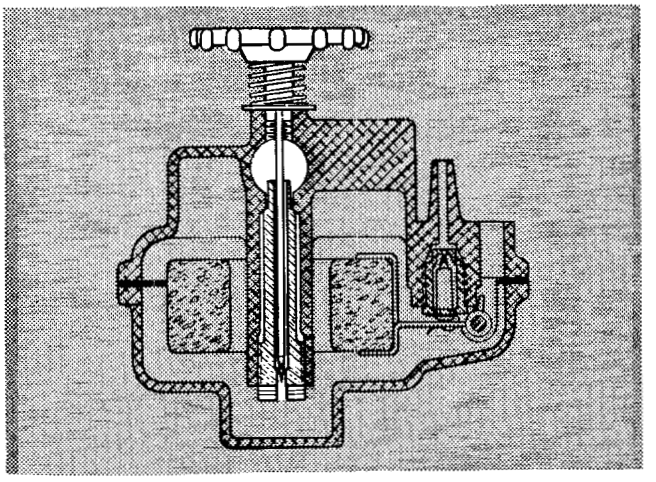
The needle and seat must be replaced as an assembly. They are matched to form a perfect seal.

Some of the problems you may encounter with the float valve are as follows:

Cause	Effect	Remedy
GUM IN FUEL	Stops up openings	*Clean out carb. with solvent
SPRING WIRE CLIP COMES OFF	Needle may stick shut	Replace Clip
NEEDLE AND SEAT NOT MATCHED	Fuel supply can't be shut off from float bowl	Replace Needle and Seat as an Assembly
FLOAT ARM NOT SET RIGHT	Set too high - carburetor floods	Set correctly
	Set too low - carburetor starves	Set correctly
PIVOT PIN CORRODED OR BENT	Float sticks	Replace Pin
FLOAT STRIKING NOZZLE	Float sticks	Replace Float
VARNISH OFF FLOAT	Float soaks up fuel, changing floating characteristics	*Replace Float

*Never allow a strong solvent to come in contact with the float. The cork float is coated with an epoxy sealer. If the solvent removes the epoxy, the float will absorb gasoline and its floating characteristics will change.

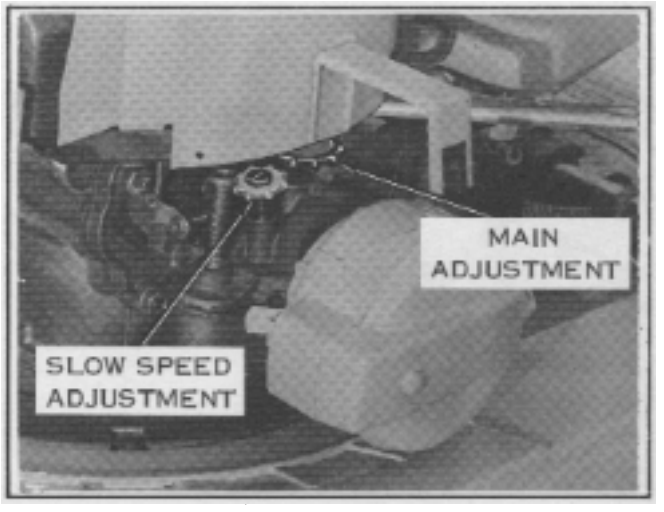
D-400 SERIES CARBURETOR ADJUSTMENTS

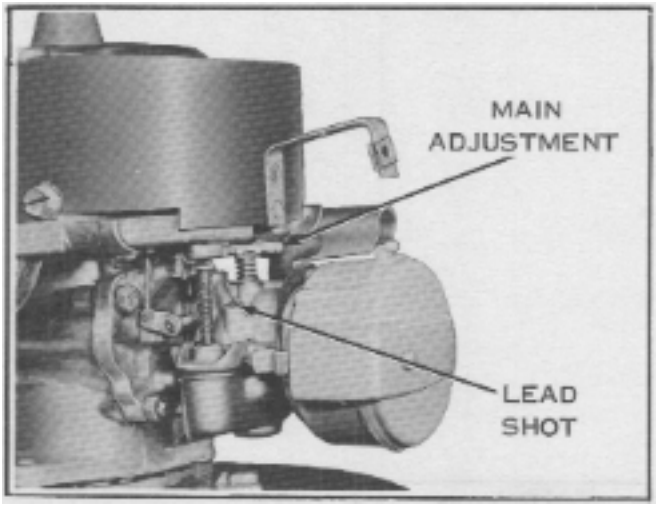


NEEDLE ADJUSTMENT

To adjust needle, turn adjusting knob clockwise until needle seats lightly; DO NOT FORCE NEEDLE DOWN TOO TIGHT, SINCE YOU MAY DAMAGE NEEDLE OR SEAT IN NOZZLE AND MAKE FURTHER ADJUSTMENT DIFFICULT.

Then open needle two turns. Start engine. If engine begins to die, open carburetor adjusting knob by turning counterclockwise. If engine runs roughly, close knob by turning clockwise until engine smooths out. Let engine run for about 5 minutes to warm up. Close adjusting knob slowly until engine begins to die, then open adjusting knob 1/4 to 1/2 turn.





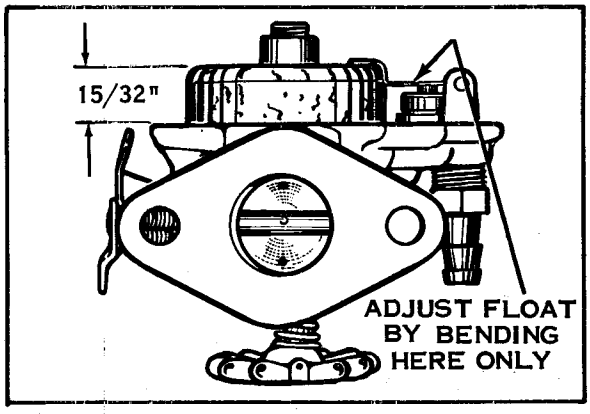
Carburetors on earlier "D" 400 model engines also contain a slow speed adjustment. The correct setting for this adjustment is 1 turn open. If an engine runs ROUGH or "HUNTS" at the "low" speed setting it can be leveled out by opening, or closing this adjustment.

On later "D" 400 model engines the low speed needle adjusting valve has been replaced with a fixed jet. This jet is pressed into the low speed passage and the passage opening is sealed with a lead shot.

D-400 SERIES CARBURETOR SERVICING

FLOAT SETTING

Remove float bowl and gasket. Invert carburetor. With float arm resting on float valve needle, the top of float should be 15/32 inch above edge of carburetor body. To adjust; bend metal arm with needle nose pliers.



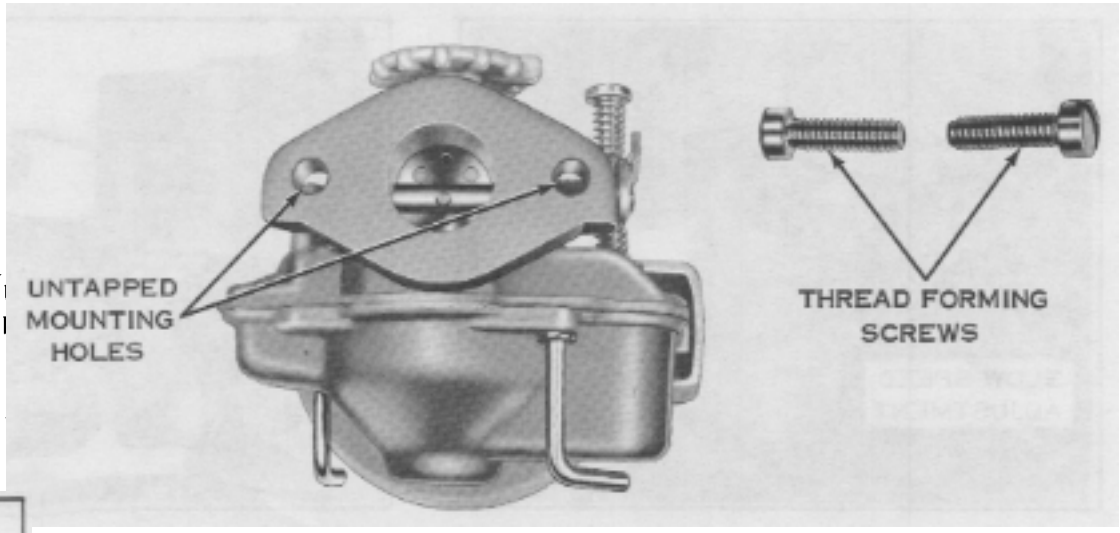
NOTE

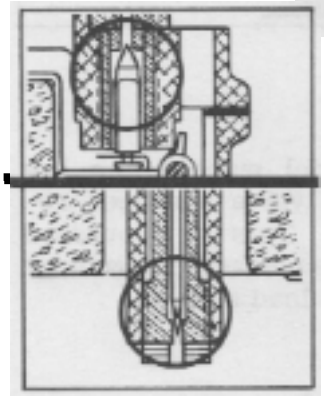
DO NOT attempt to bend by applying pressure to cork float.

Carburetor servicing consists of inspection, cleaning, adjustment, and replacement of faulty parts.

To remove carburetor from engine, carburetor and reed plate must be removed as an assembly, and reed plate removed from carburetor.

Carburetor service assemblies include 2 thread forming screws. The reed plate mounting flange on the carburetor is drilled but not tapped. These screws form a very tight fit eliminating the possibility of screws vibrating loose during engine operation.

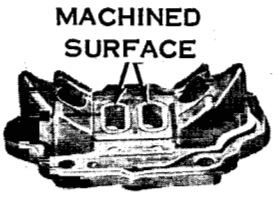


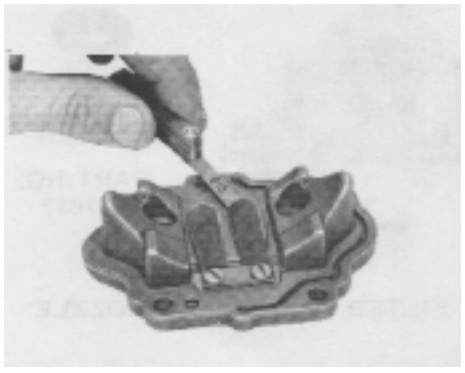


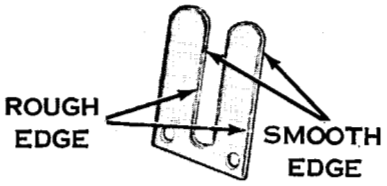
The metal carburetor body can be cleaned with a good solvent and blown dry with air, EXCEPT THE CORK FLOAT. A solvent will remove the varnish from the float. Inoperative floats should be replaced. DO NOT DRY CARBURETOR PARTS WITH A CLOTH, because lint may stick to the parts and cause trouble in the reassembled carburetor.

Inspect valve needles for grooves or other defects. If grooved or otherwise defective, replace. Use a magnifying glass in the inspection. Tiny scratches or worn surfaces affect the operation.

The reed plate can be cleaned with solvent with the rest of the carburetor. Be careful in handling reeds, so as not to distort them. The reeds must lie flat against the reed plate to form a perfect seal. Bent or otherwise damaged reeds cannot be repaired. Check the reed plate for warpage. DO NOT USE COMPRESSED AIR ON REEDS. The rough edge of the reed should be away from the plate.





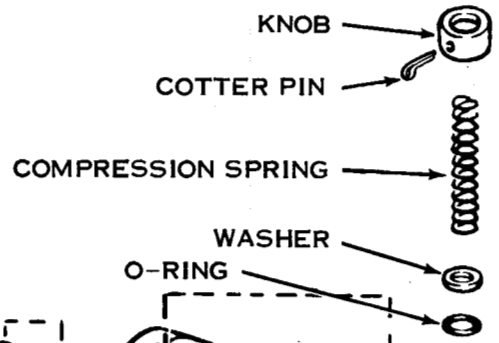


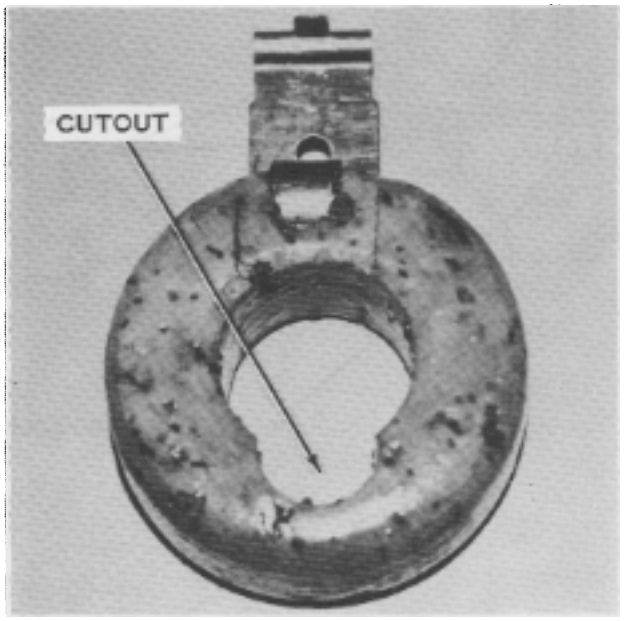
NOTE

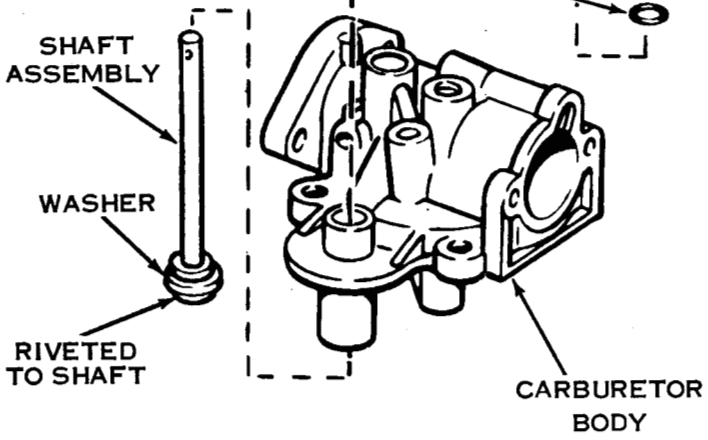
Maximum clearance allowed between reed tip and reed plate is .015. If clearance exceeds this, reeds must be replaced.

There are a few things to remember when you reassemble a carburetor.

1. Be sure to use new gaskets.
2. When installing nozzle in carburetor, unscrew control knob a few turns to avoid accidentally tightening needle on seat.
3. Use new attaching hardware if excessively worn, when replacing carburetor, to assure tight seal between reed plate and crankcase.
4. A cut or torn rubber washer can render the Primer inoperative. Replace complete Primer with Service Assembly 678414. Do not reuse old spring. New spring is supplied in kit.







CARBURETOR FLOAT

The carburetor float contains a cutout for proper clearance.

D-400 SERIES CARBURETOR SERVICING

FUEL NOZZLE FILTER

The nozzle filter will provide a secondary filtering device to minimize the possibility of "fuzz" or other minute particles getting into the carburetor area, which causes engine stalling.

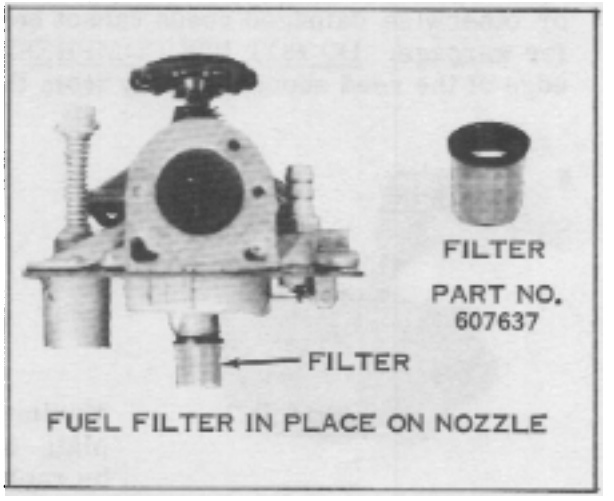
Prior to installing nozzle filter clean carburetor, high speed nozzle, fuel tank, fuel shut-off valve and filter assembly. High speed nozzle must be removed to clean it properly.

Install filter on the nozzle firmly.

NOTE

DO NOT slide neoprene ring over fuel passage hole.

Hold float up and lift bowl carefully in place. (For easier installation, take carburetor off and turn upside down.)

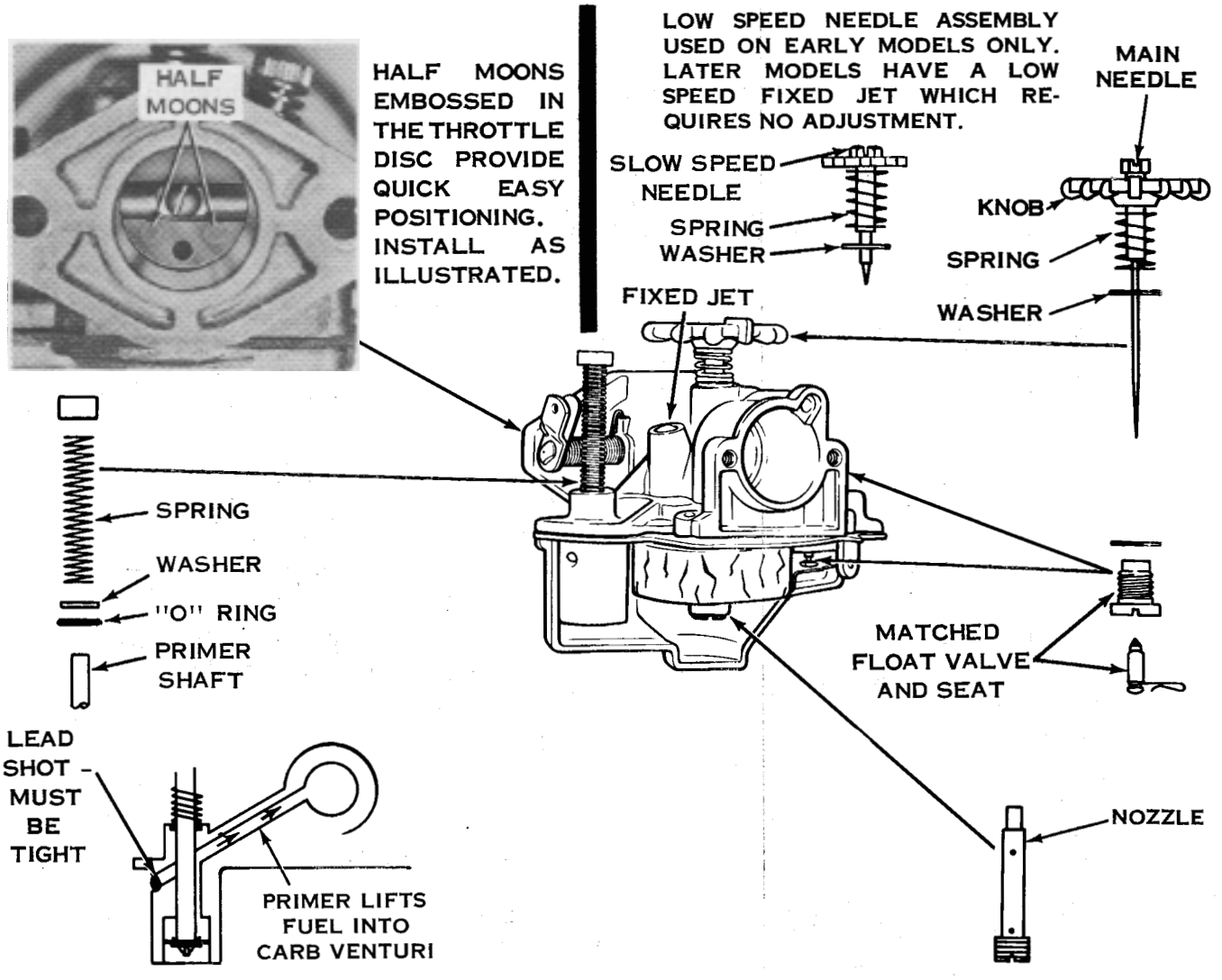


FUEL FILTER IN PLACE ON NOZZLE

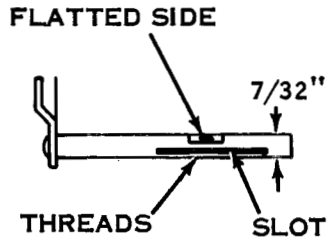
D-400 SERIES ENGINE CARBURETOR SERVICING HINTS

HALF MOONS EMBOSSED IN THE THROTTLE DISC PROVIDE QUICK EASY POSITIONING. INSTALL AS ILLUSTRATED.

LOW SPEED NEEDLE ASSEMBLY USED ON EARLY MODELS ONLY. LATER MODELS HAVE A LOW SPEED FIXED JET WHICH REQUIRES NO ADJUSTMENT.

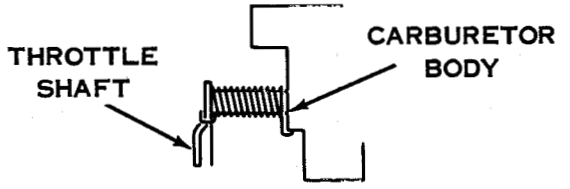


D-400 SERIES CARBURETOR THROTTLE SHAFT IS SPLIT FOR THROTTLE DISC MOUNTING.



THE SHAFT SIZE IS LARGER THAN "C" ENGINE THROTTLE SHAFTS.

ALWAYS PLACE CORRECT TENSION ON THROTTLE SHAFT SPRING WHEN INSTALLING.

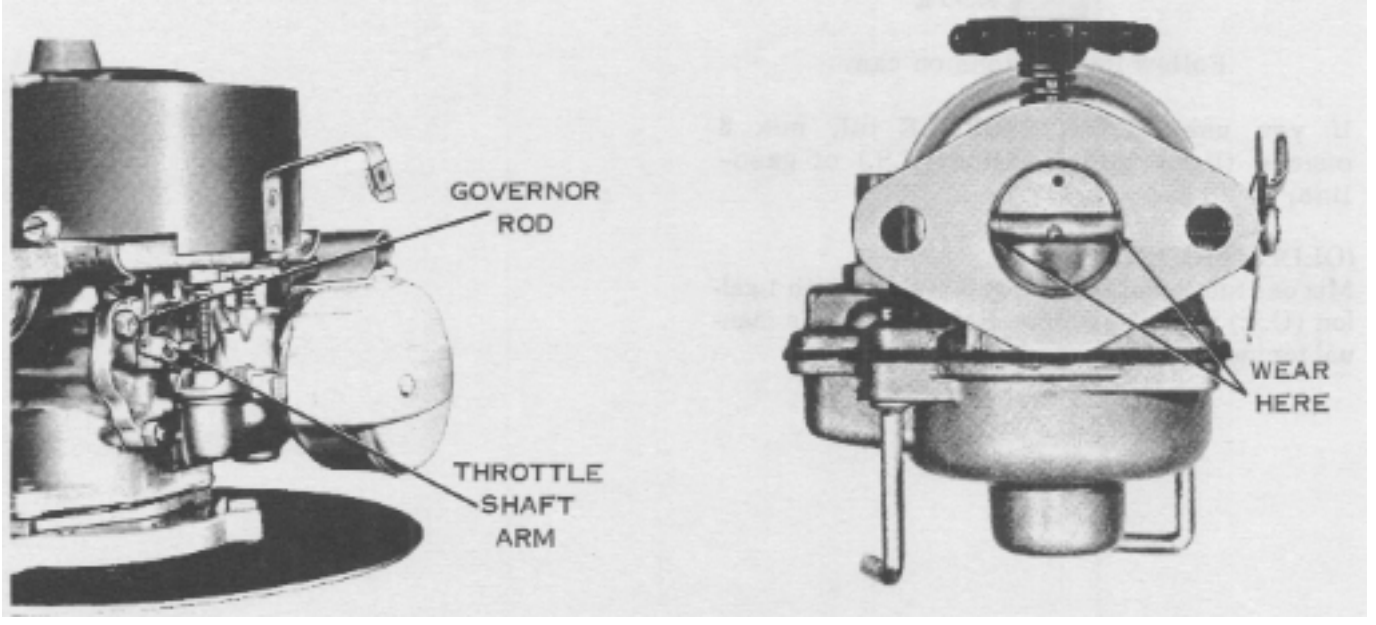


HOOK END IN CARBURETOR BODY AND ADD TENSION BY TURNING SPRING 1/2 - 3/4 TURN AND HOOK ON THROTTLE SHAFT ARM.

ENGINE SURGING DUE TO CARBURETION

Surging explanation: High to Low R.P.M. constantly.

1. A burr on the throttle shaft arm which holds governor rod in place can cause a drag. This can contribute to surging. Repair - clean off burr, check governor rod for wear.
2. Throttle shaft may wear causing shaft and/or throttle disc to bind. Replace shaft and disc.
3. Improper adjustment.



FUEL INFORMATION

NOTE

Your LAWN-BOY uses a two cycle engine. This means the oil and gasoline must be mixed together. Failure to use the proper fuel mixture will result in serious damage to the engine.

GASOLINE - Use automotive regular grade with a minimum of 89 pump octane, "No-Lead" or "lead free" gasoline of 86 pump octane is satisfactory if owner wishes to use it. **DO NOT USE GASOHOL OR OTHER GASOLINES THAT CONTAIN ETHANOL OR METHANOL.**

LUBRICATION (OIL) - Use LAWN-BOY 2 cycle oil available from your LAWN-BOY dealer. If not readily available, use a good grade of two cycle oil from a reputable oil company. DO NOT USE AUTOMOTIVE OILS.

FUEL MIXTURE

Use clean container. Mix thoroughly. DO NOT mix fuel directly in mower fuel tank.

CORRECT FUEL MIXTURE
(CURRENT MODELS)

Use LAWN-BOY SPECIAL 2-cycle oil. Mix one full can with 2 gallons (U.S.) of gasoline.

NOTE

Follow instructions on can.

If you use OTHER 2-CYCLE oil, mix 8 ounces (U.S.) with 1 gallon (U.S.) of gasoline.

(OLDER MODELS)
Mix one full can of Lawn-Boy 2-cycle oil with 1 gallon (U.S.) regular gasoline. Refer to owner's manual for instructions.

SAFETY WARNING

GASOLINE IS EXTREMELY FLAMMABLE AND HIGHLY EXPLOSIVE UNDER CERTAIN CONDITIONS. ALWAYS STOP ENGINE, AND DO NOT SMOKE OR ALLOW OPEN FLAMES OR SPARK WHEN REFUELING.

PRINCIPLES OF CARBURETION

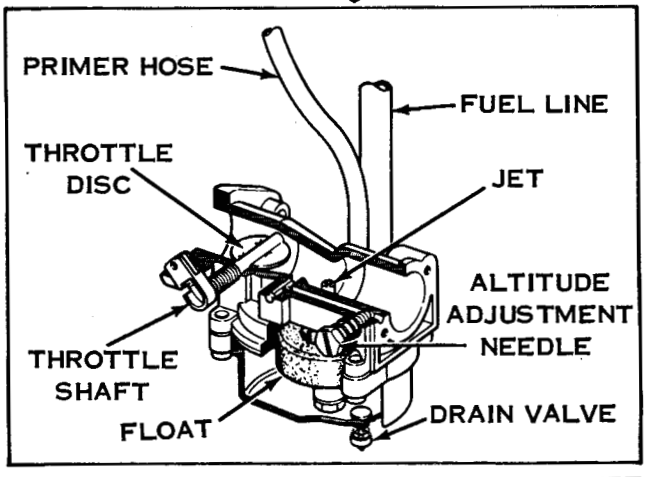
NOTE

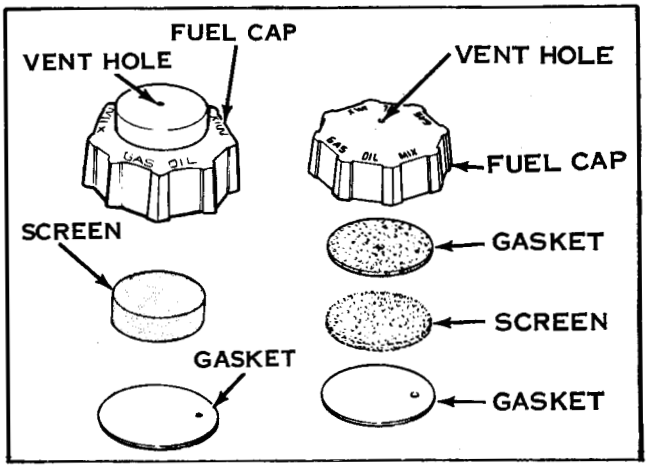
Some later model D-400 engines are equipped with the D-600 series fuel system. A thorough visual inspection will determine the fuel system used on the engine.

⚠ SAFETY WARNING

DO NOT SUBSTITUTE WITH INFERIOR FUEL HOSE WHICH MAY CAUSE LEAKAGE FROM PREMATURE DETERIORATION. LEAKAGE OF FUEL MAY CAUSE AN EXPLOSION AND/OR FIRE.

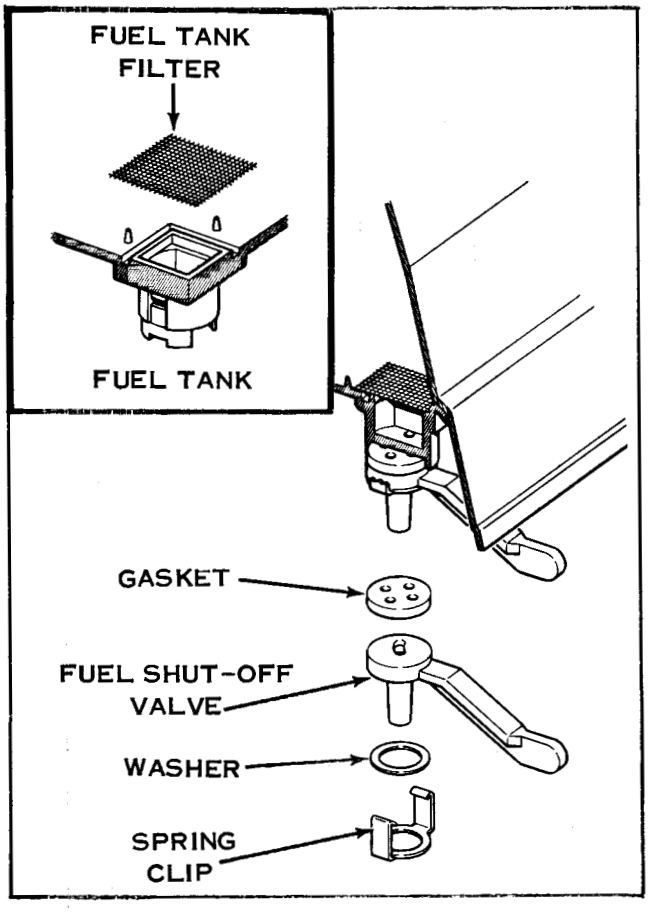
The carburetor used on Solid State (C.D.) ignition engines is automatic. No fuel adjustments are necessary to regulate fuel intake. A single, metered jet allows the correct amount of fuel to mix with the incoming air which is regulated by a single adjusting needle that is explained on page 4-15 of this section. Adjustment must be changed when a significant change in altitude is encountered.





FUEL TANK VENTING

Fuel tanks must be vented to prevent vacuum forming and stopping flow of fuel. Tank caps will have a vent hole. A closed vent will create a vacuum in the tank as fuel is used - and eventually cause the engine to stop. In a few minutes the vacuum will decrease and the engine can be started again, but it will stop again in a short period of time. The vent hole can become clogged with dirt. Check vent hole before each operation and clean if necessary.

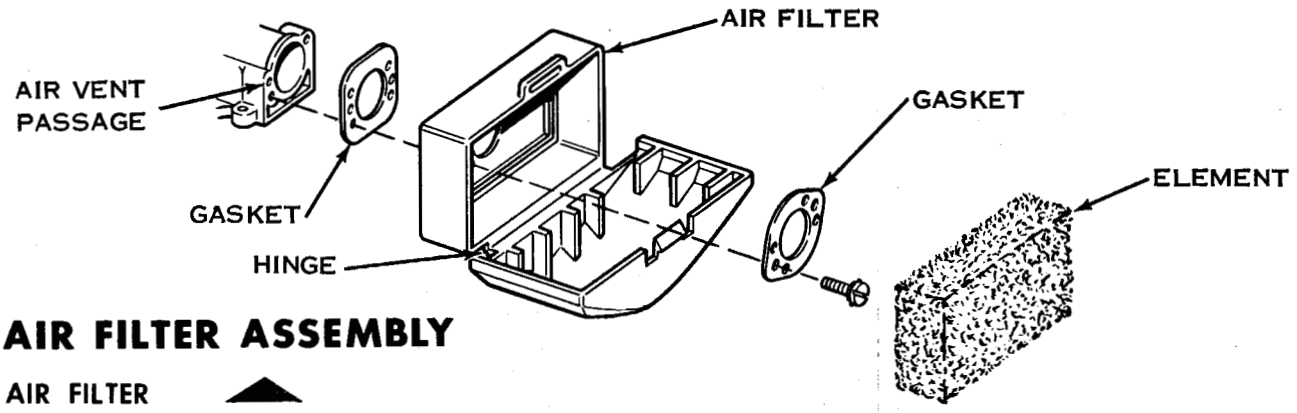


SHUT-OFF VALVE

The fuel tank screen assembly or the shut-off valve can become clogged. This can be checked easily by removing the fuel hose, opening the valve and observing for fuel flow through the valve. Replace the fuel shut-off assembly if damaged.

NOTE

Shut-off valve is secured to fuel tank with a spring clip; exercise care when re-installing to fuel tank.



AIR FILTER ASSEMBLY

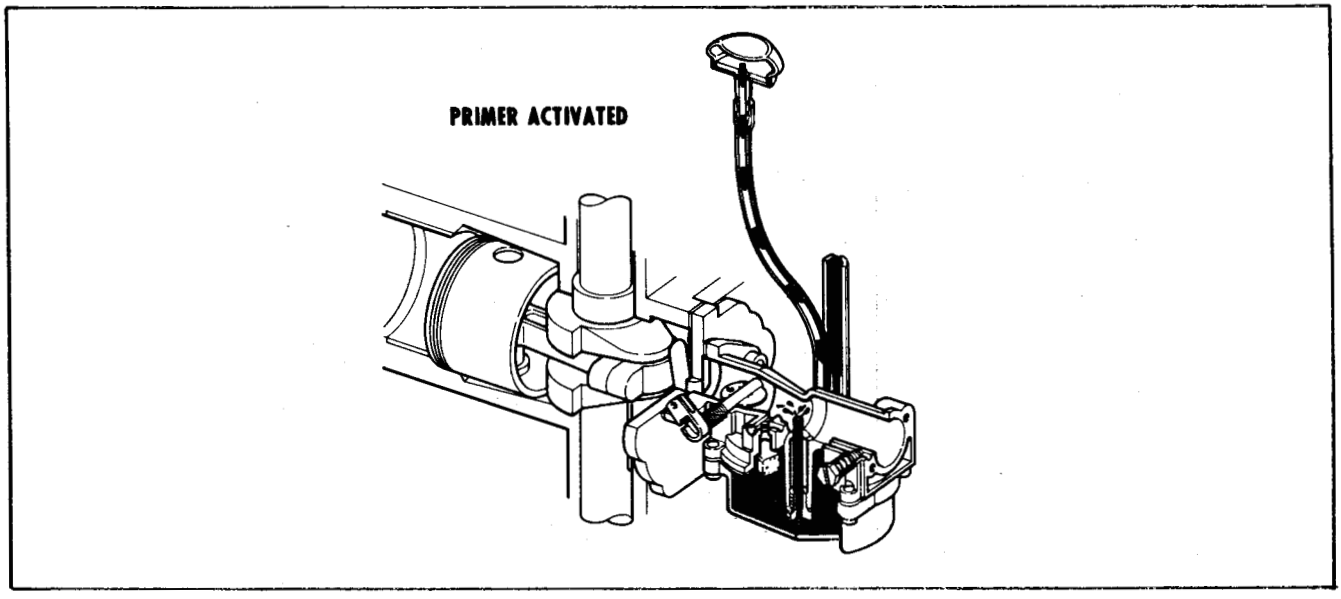
AIR FILTER

If engine is flooded, fuel can drain back into filter. As filter becomes saturated, incoming air picks up more fuel, causing greater flooding. A puckered filter will allow air and dirt to bypass filter. Make certain that filter covers cup area. If oiled properly, filter is very efficient. First wash out with fuel, then apply 10 to 15 drops of oil. Squeeze several times to distribute oil. If engine "smokes" for no apparent reason, filter may be saturated with fuel mix or may need cleaning.

To remove grasp the cover, loosen snap and fold cover down.

NOTE

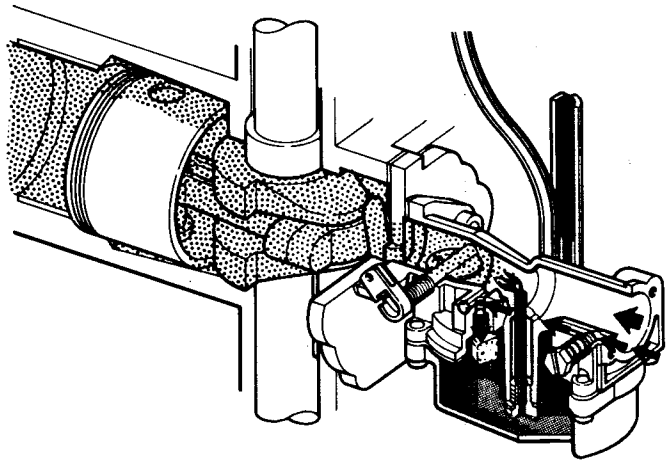
Reinstall filter in the same position which it was removed to prevent imbedded particles in intake side from entering carburetor. Install air filter case correctly. Hinge on bottom. If installed upside down the air vent passage will be blocked.



PRIMER

Examine the primer system. Instead of lifting fuel up in the carburetor throat as in the case with some D-400 series engine, the pneumatic primer forces compressed air into the float bowl chamber which forces fuel into the carburetor venturi.

1-1/2 TURNS SETTING



AIR ADJUSTMENT ▲

The carburetor is completely automatic. There are no adjustments to be made to regulate the amount of fuel entering the carburetor venturi. There is an atmospheric pressure adjustment that would have to be made if the engine is operating in very high or very low altitudes.

All D-600 series and modular carburetors require a final adjustment of the altitude needle prior to putting the mower into service.

To adjust, proceed as follows:

1. Pre-set altitude needle 1-1/2 turns from seat.
2. Start engine and allow to run for 3 to 5 minutes to warm up.
3. Place speed control lever in LOW SPEED running position (2400-2600 R.P.M.)
4. Turn altitude needle clockwise until engine starts to "hunt," "surge" or slow down.
5. Slowly turn altitude needle counterclockwise until engine is running smoothly. Allow engine to run for one or two minutes to make sure adjustment is not too lean.
6. Place speed control lever in HIGH SPEED running position (3100-3300 R.P.M.) Observe engine operation. If not running smoothly, turn altitude needle counterclockwise approximately 1/4 turn at a time to obtain proper engine operation.
7. After carburetor adjustment is completed, shut off engine. IMMEDIATELY attempt to restart engine. It should start within 2 pulls on starter handle. Check starting engine at both HIGH and LOW speed settings. If difficult to restart, turn altitude needle 1/8 to 1/4 turn counterclockwise to richen fuel mixture and obtain easy restarting.

NOTE

DO NOT PRIME A HOT ENGINE.

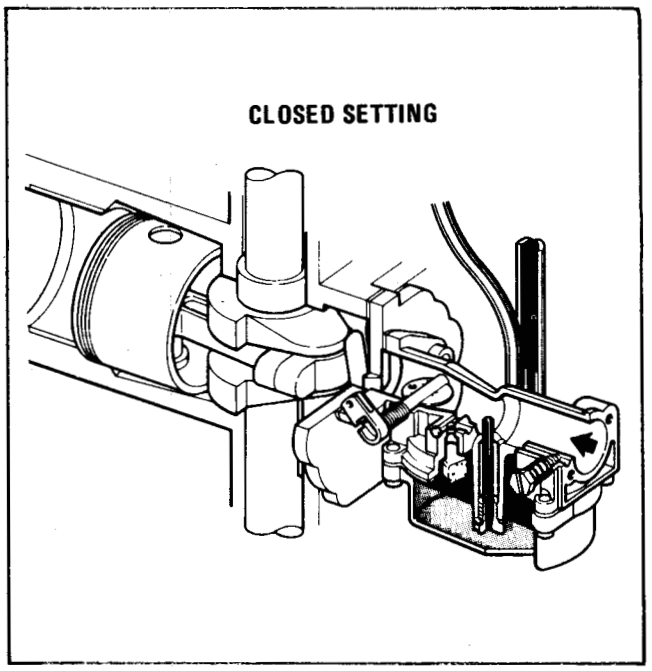
NOTE

The governor will control the amount of fuel entering the engine. The purpose of the atmospheric pressure adjusting needle is to mix the right amount of fuel with the correct amount of incoming air.

AIR ADJUSTMENT (Continued)

NOTE

In the closed position no air is entering the carburetor vent passage. Therefore, the float bowl pressure has been eliminated and the fuel supply to the carburetor venturi is cut off.



FLOAT AND VALVE

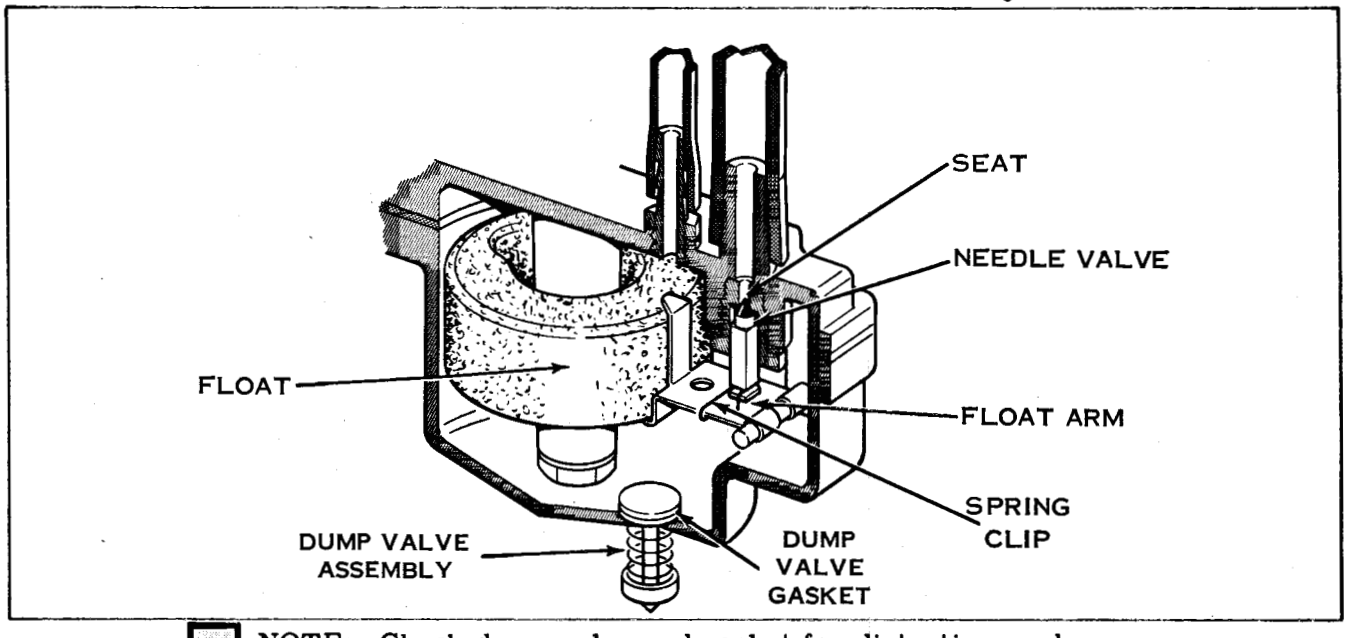
Examine float appearance. Should be glossy because of epoxy sealer. If dull in appearance, or portions of epoxy has chipped away - replace.

NOTE

Do not clean float with any type of solvent or carburetor cleaner. Clean with standard fuel mix.

The float valve consists of a needle and seat assembly, activated by a float in the carburetor bowl. The steel needle is rubber tipped and the seat brass. This combination eliminates possible sticking and provides a perfect seal. The needle rests on float arm, held in place by a spring clip. Operation is automatic. When float bowl is empty, float rests on bottom of bowl. As fuel enters bowl of carburetor, float rises, moving needle valve into seat and shutting off fuel. As engine uses fuel, float drops slightly, allowing more fuel to enter bowl, maintaining a constant fuel level in bowl.

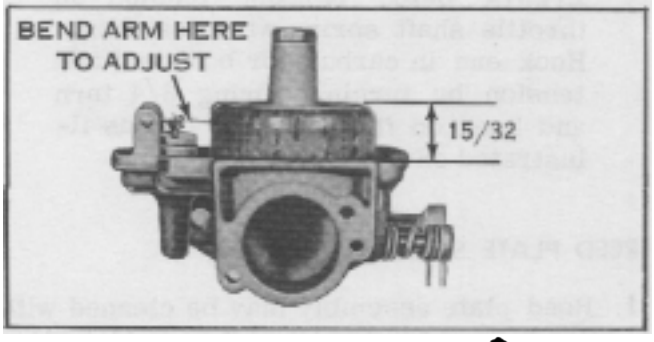
Needle and seat must be replaced as an assembly. They are matched to form a perfect seal.



NOTE: Check dump valve and gasket for distortion or damage.

Some of the problems you may encounter with the float valve are as follows:

Cause	Effect	Remedy
GUM IN FUEL	Stops up openings	*Clean out carburetor with solvent
SPRING WIRE CLIP COMES OFF	Needle may stick shut	Replace clip
NEEDLE AND SEAT NOT MATCHED	Fuel supply can't be shut off from float bowl	Replace needle and seat as an assembly
FLOAT ARM NOT SET CORRECTLY	Set too high - carburetor floods	Set correctly
	Set too low - carburetor starves	Set correctly
PIVOT PIN CORRODED OR BENT	Float sticks	Replace pin
FLOAT STRIKING NOZZLE	Float sticks	Replace float
VARNISH OFF FLOAT	Float soaks up fuel, changing floating characteristics	*Replace float



FLOAT ADJUSTMENT

FLOAT SETTING

Remove float bowl and gasket. Invert carburetor. With float arm resting on float valve needle, the top of float should be 15/32 inch above edge of carburetor body as shown. To adjust; bend float arm with long nose pliers.

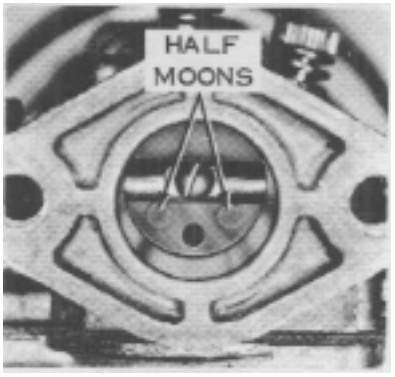
NOTE

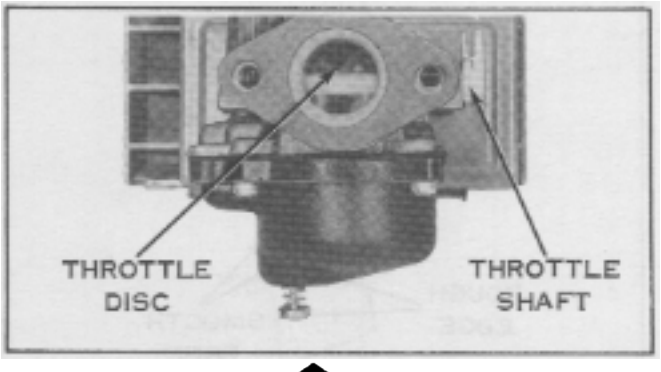
DO NOT bend by applying pressure to cork float. Bend arm only by grasping with pliers.

THROTTLE SHAFT AND VALVE (DISC) SERVICING

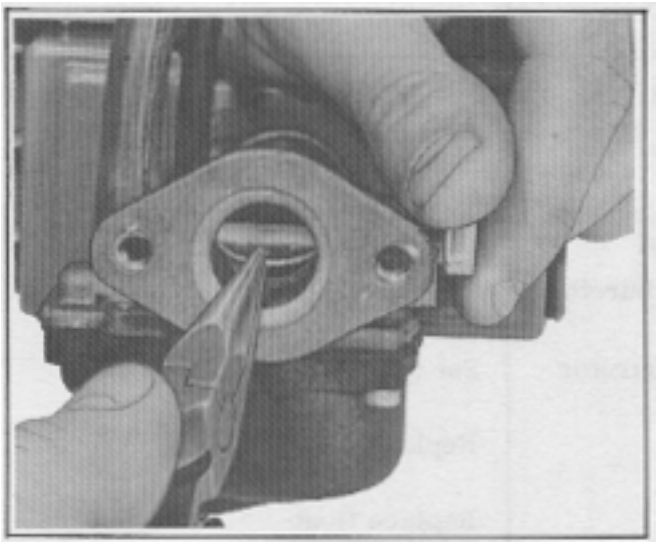
Early 1972 production models used plastic throttle shaft and snap-in disc. Later 1972 production models include bronze shaft, disc and screw assembly part 681008. If replacement of shaft or disc is necessary, use this assembly number.

Disc is secured to shaft with screw as illustrated.





1. Remove reed plate assembly.



2. Using needle nose pliers grasp throttle disc and remove disc from throttle shaft. Inspect disc for wear or burrs. Replace if necessary with shaft, disc and screw assembly part no. 681008.

3. Remove "E" ring and slide throttle shaft from carburetor body. Inspect plastic throttle shaft for wear and replace if required with shaft, disc and screw assembly part no. 681008.

4. Reassemble in reverse order making sure small hole in throttle disc is installed facing reed plate assembly.

NOTE

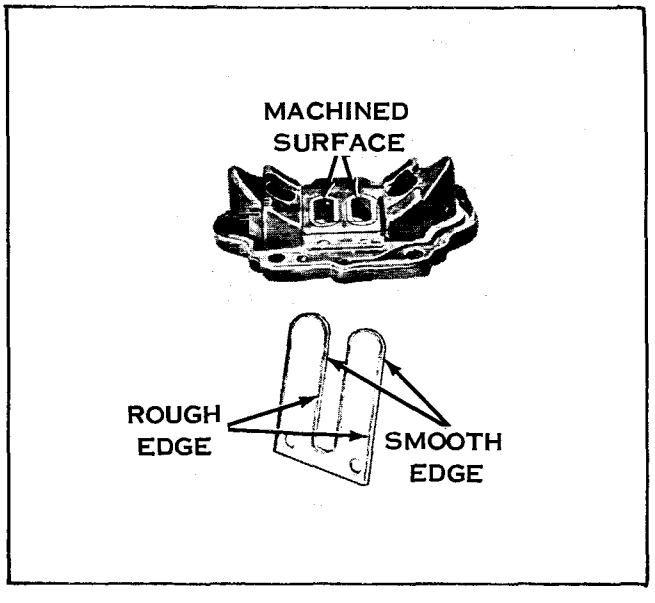
Always place correct tension on throttle shaft spring when installing. Hook end in carburetor body and add tension by turning spring 3/4 turn and hook on throttle shaft leaf as illustrated on page 4-11.

REED PLATE SERVICING

1. Reed plate assembly may be cleaned with same solvent used to clean carburetor. Exercise care in handling reeds, so as not to distort them. Bent or distorted reeds must be replaced.

2. Check for excessive clearance between reed tip and reed plate as illustrated. Maximum allowed clearance .015 inch.

3. Reeds must be installed with rough edge away from plate as shown.

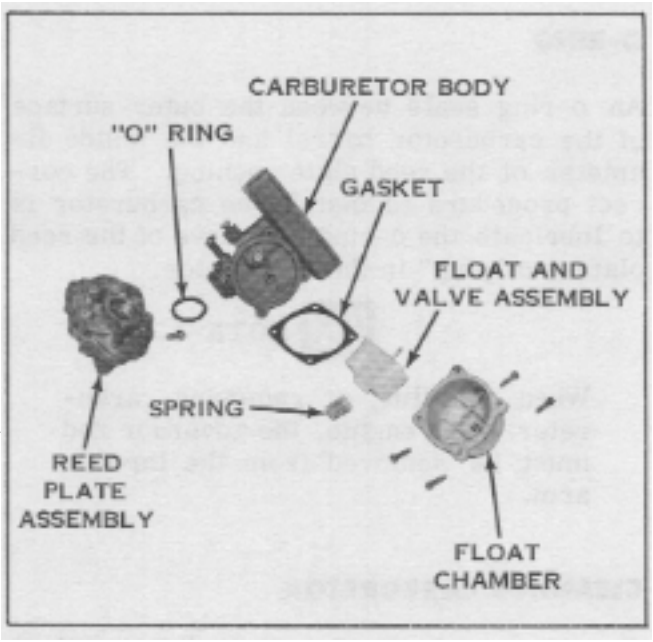


NOTE

DO NOT USE COMPRESSED AIR TO CLEAN REED VALVES.

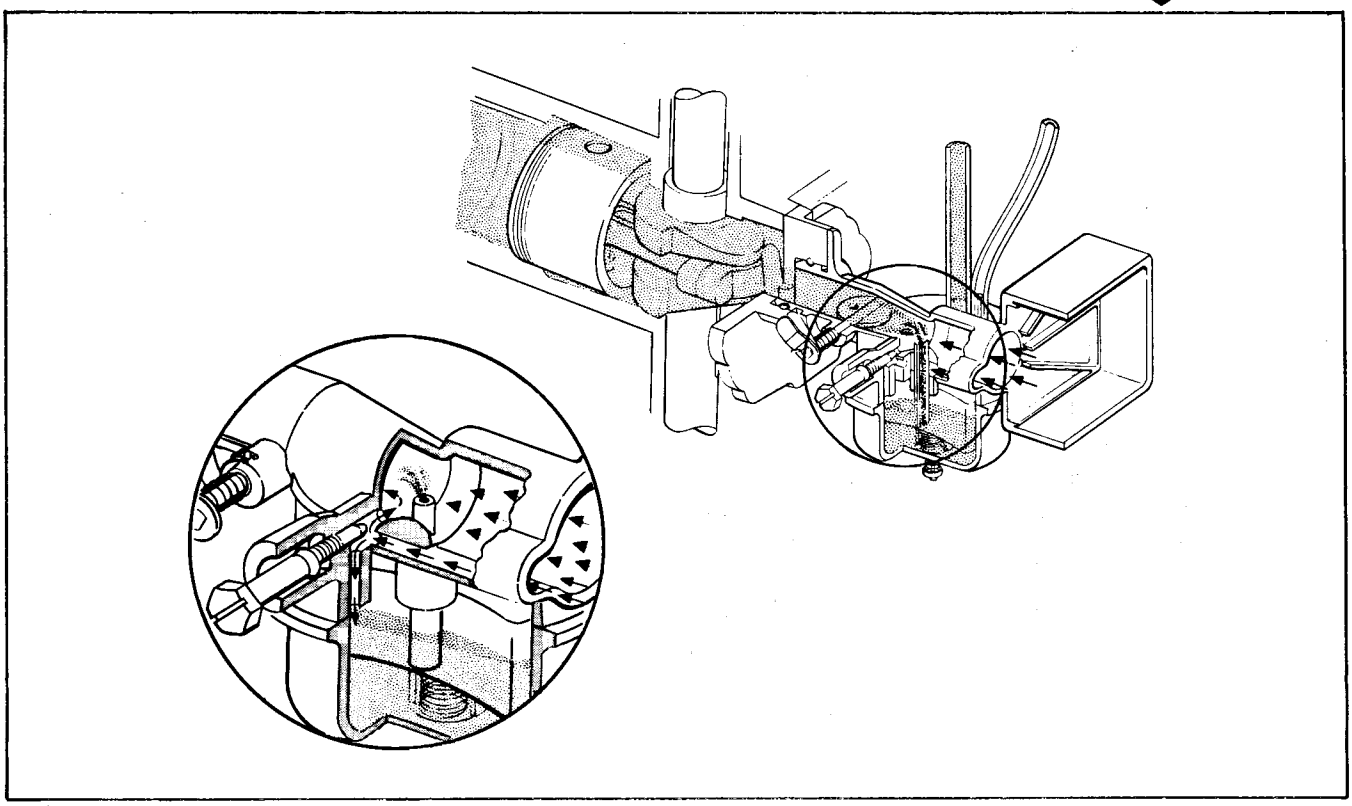
MODULAR CARBURETOR COMPONENTS

The new modular carburetor was introduced in the 1975 D-600 series engines and later production D-400 series engines. This new carburetor is constructed of a special injection molded plastic material. The body and air filter chamber is a one-piece plastic assembly which "plugs" into the reed plate and is secured by a single screw. An O-ring installed between the carburetor and reed plate insures positive sealing. The float and fuel valve is also a one-piece assembly. This assembly rests on a spring located in the plastic float chamber. The spring provides vertical tension against the float forcing the fuel valve into the fuel inlet seat when the float chamber is full of fuel. As fuel enters a single metered jet it is mixed with incoming air to form the correct combustible mixture. The amount of fuel flow through the metering jet is regulated by the altitude needle. Adjustment procedure is same as earlier D-600 series carburetors. Refer to page 4-15 for adjustment procedure.



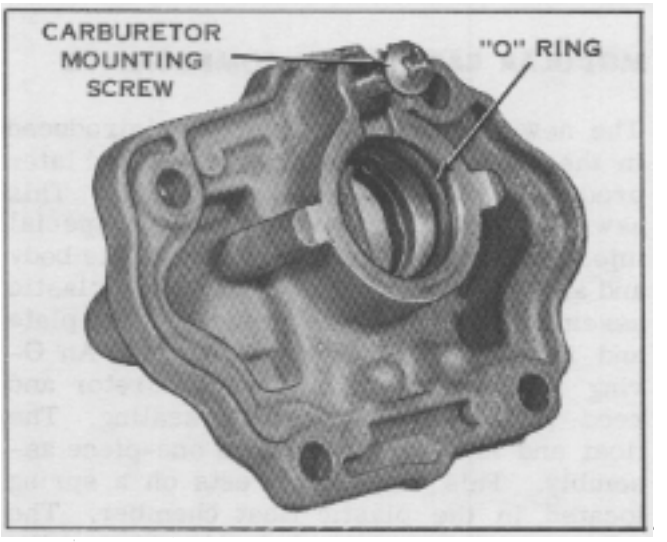
NOTE

The governor will control the amount of fuel entering the engine. The purpose of the atmospheric pressure adjusting needle is to mix the right amount of fuel with the correct amount of incoming air.



O-RING

An o-ring seals between the outer surface of the carburetor barrel and the inside diameter of the reed plate opening. The correct procedure to install the carburetor is to lubricate the o-ring in groove of the reed plate and "plug" in the carburetor.



NOTE

When installing or removing carburetor from engine, the governor rod must be removed from the throttle arm.

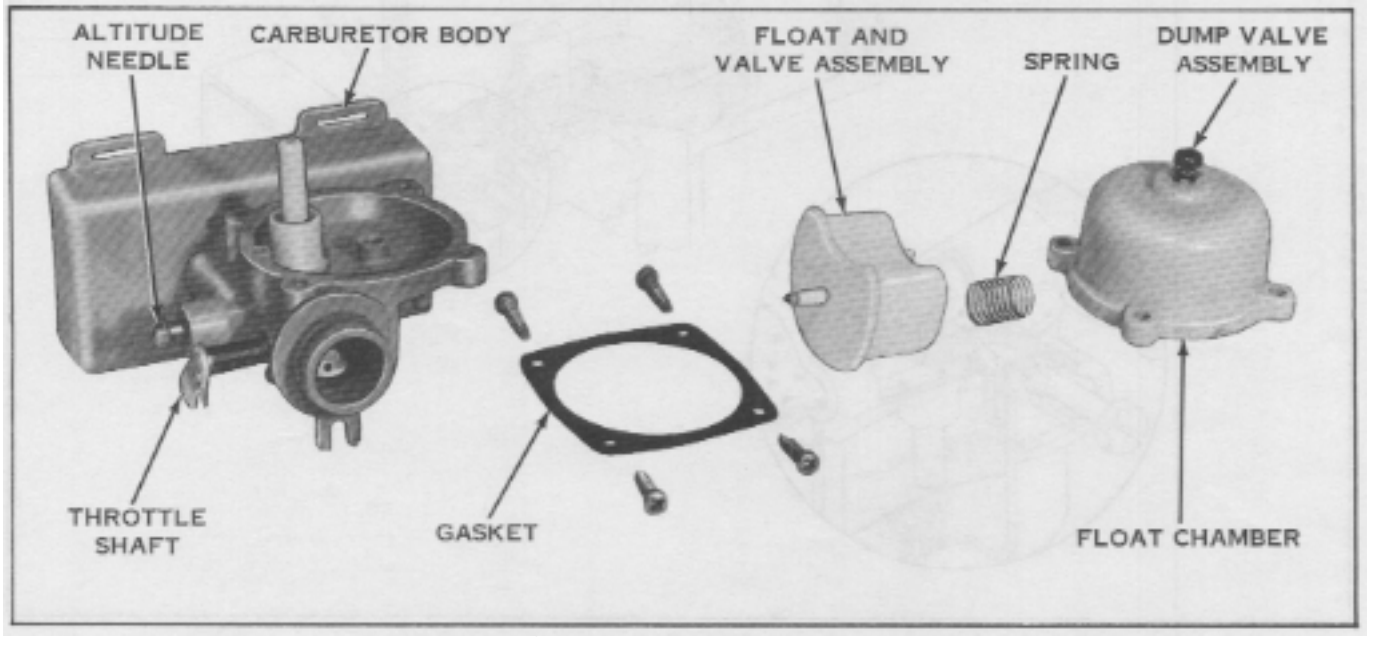
CLEANING CARBURETOR

The carburetor assembly is injection molded plastic. DO NOT clean using a standard carburetor cleaner. Disassemble carburetor components, wash and clean using a good grease solvent, dry and clean parts with compressed air — DO NOT dry using a cloth, lint may block passages impeding proper carburetor operation.

After cleaning, inspect all parts. Check float and fuel valves for cracks or damage. Check throttle shaft, valve and spring for smooth operation. Check float chamber for cracks or damage. Check dump valve and gasket for distortion or damage. Check altitude needle for damage. Check spring for damage - DO NOT BEND SPRING. Check gasket for cracks or wear. Always use new gasket during reassembly.

NOTE

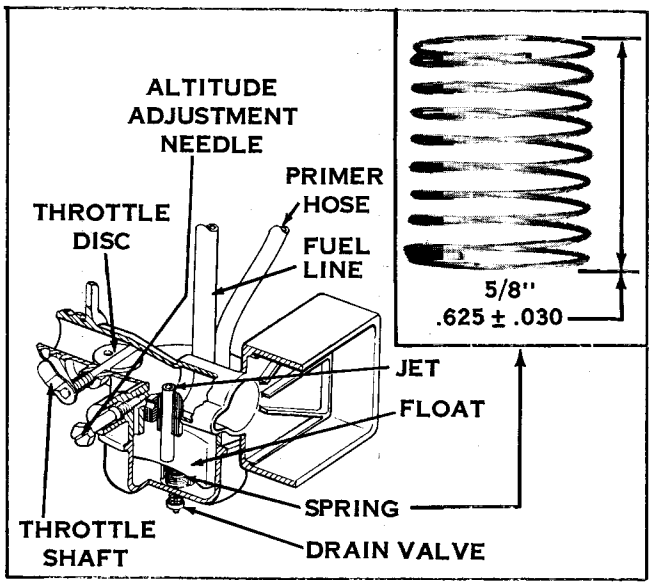
If any part appears worn or damaged, replace it. To ensure proper float action the float must be correctly installed in float chamber (not binding). After assembling float chamber to carburetor body shake in a vertical motion and listen for float movement. If no sound (movement) is heard remove float chamber and reinstall correctly.



FLOAT SPRING

The float spring is very critical in its operation.

It provides vertical pressure to the float and fuel valve forcing the fuel valve into the fuel inlet to stop the flow of fuel when the bowl has filled. Each end of the spring is located in a recessed area. The walls of these recesses provide guidance for vertical movement of the float and fuel valve. Without these walled recesses the float and fuel valve would move laterally preventing the fuel valve from entering the fuel inlet seat squarely. Mowing at an angle such as a terrace could result in a carburetor flooding without these recesses.

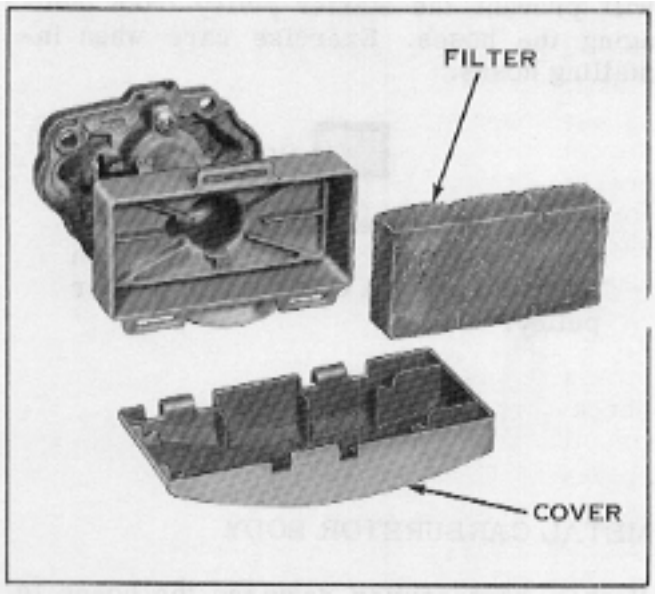


NOTE

DO NOT ATTEMPT TO CHANGE THIS SPRING DIMENSIONALLY. A specific free length dimension of 5/8" (.625 ± .030) is required to complete its function.

AIR FILTER ASSEMBLY

If engine is flooded, fuel can drain back into filter. As filter becomes saturated, incoming air picks up more fuel, causing greater flooding. A puckered filter will allow air and dirt to bypass filter. Make certain that filter covers cup area. If oiled properly, filter is very efficient. First wash out with fuel, then apply 10 to 15 drops of oil. Squeeze several times to distribute oil. If engine "smokes" for no apparent reason, filter may be saturated with fuel mix or may need cleaning.



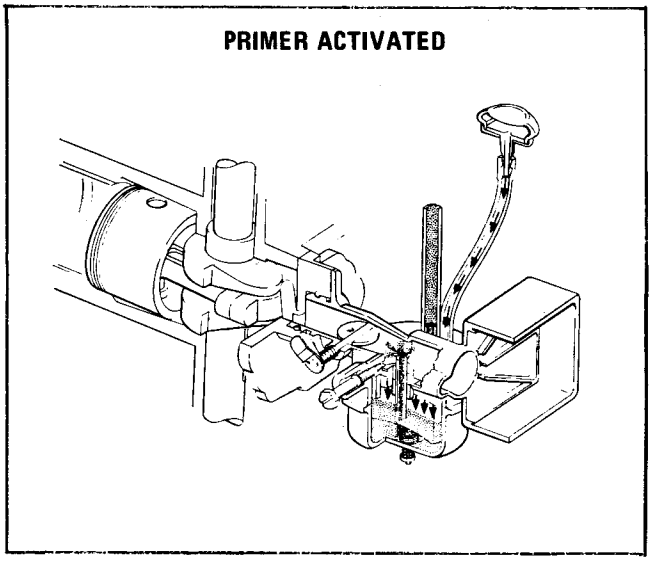
To remove grasp the detachable cover, loosen snap and fold cover down.

NOTE

Reinstall filter in the same position which it was removed to prevent imbedded particles in intake side from entering carburetor.

PRIMER

Examine the primer system. A pneumatic primer forces compressed air into the float bowl chamber which forces fuel into the carburetor venturi.



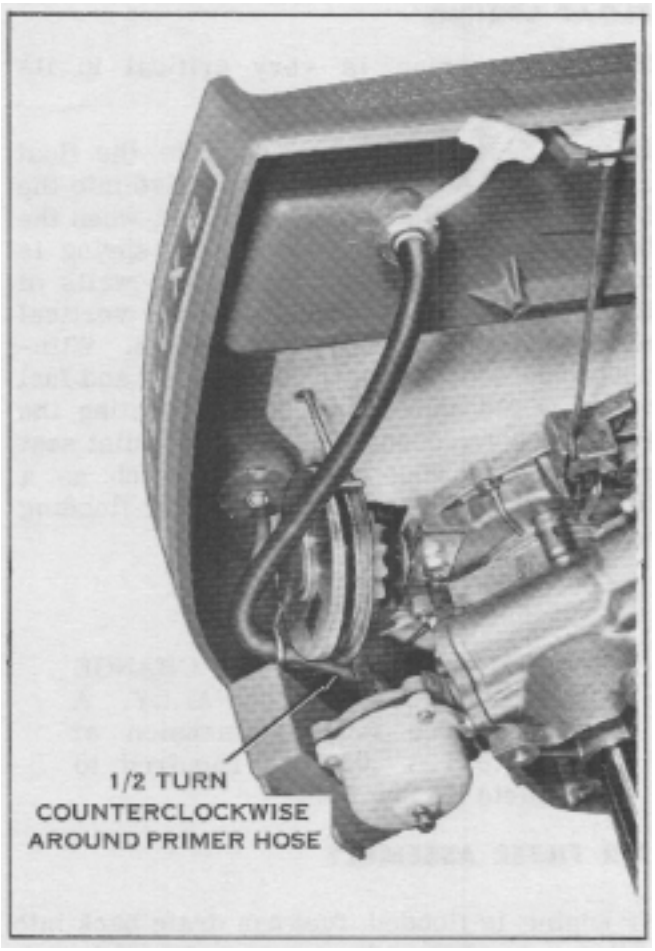
FUEL AND PRIMER HOSE ROUTING

⚠ SAFETY WARNING

DO NOT SUBSTITUTE WITH INFERIOR FUEL HOSE WHICH MAY CAUSE LEAKAGE FROM PREMATURE DETERIORATION. LEAKAGE OF FUEL MAY CAUSE AN EXPLOSION AND/OR FIRE.

PLASTIC CARBURETOR BODY

Proper hose routing requires the primer hose to be twisted counterclockwise approximately 1/2 turn around the fuel line. This will prevent the starter pulley from damaging the hoses. Exercise care when installing hoses.

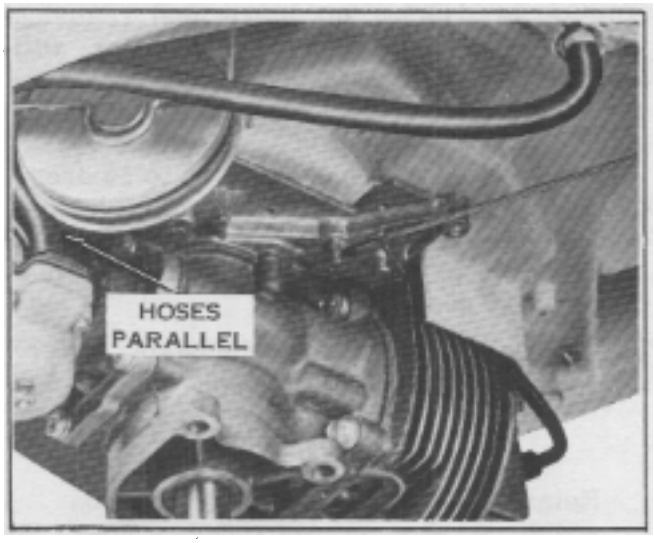


NOTE

Do not pull hoses taut in either direction. Leave sufficient slack in hoses to prevent contact with starter pulley.

METAL CARBURETOR BODY

Proper hose routing requires the hoses to be parallel with each other as shown. If twisted, it is possible for hoses to be damaged by starter pulley. Exercise care when installing hoses.



FUEL SYSTEM TROUBLE SHOOTING

1. Check for fuel in tank.	A. Fuel shut off (Tank) valve should be open.
	B. Examine vent hole in gas cap. Make sure it is not restricted.
2. Remove air filter element.	A. Watch nozzle in barrel of carburetor and push primer bulb down rapidly.
	B. Fuel should spurt from top of nozzle.
3. If spurting of fuel is not visible.	A. Remove fuel line from carburetor to determine if fuel is flowing from tank thru tank filter, valve and hose.
	B. If not, remove hose from tank valve. Turn valve on to determine if fuel is flowing from tank. If so, restriction is in fuel hose. Wash out in solvent and blow with compressed air.
4. Check function of primer bulb and hose.	A. Place finger over lower end of primer hose and press primer bulb. Resistance should be noted in bulb depression. Remove finger, there should be no resistance present when bulb is depressed.
	B. Depress primer bulb and place finger over end of hose. The bulb should remain collapsed. If not, replace primer bulb and hose assembly.
5. If fuel is spurting from nozzle, when being primed, close fuel valve and remove carburetor and reed plate assembly. Remove float chamber.	A. Check float valve and seat assembly.
	B. Check float level adjustment.*
	C. Check to make sure movement of float and float arm is free.*
	D. Check the throttle valve and shaft for freedom of movement.
	E. Remove metering nozzle and check for restriction.*
	F. Blow out altitude air vent passage.
	G. Check setting and condition of reed valves.

*NOT APPLICABLE TO MODULAR CARBURETOR

MODULAR CARBURETOR - UTILITY MODELS

MODULAR CARBURETOR COMPONENTS

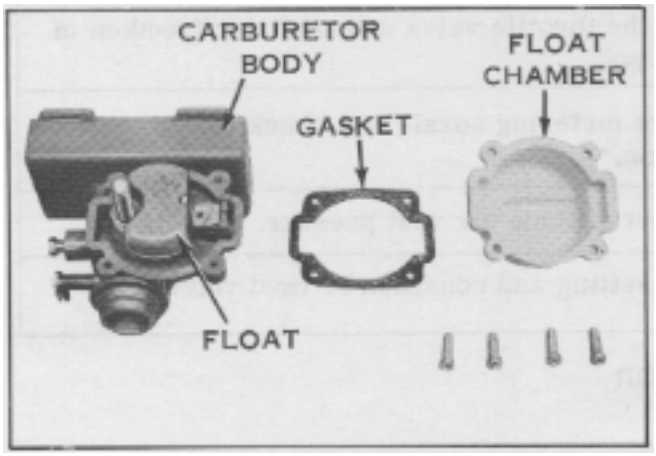
The new modular carburetor was introduced in the 1979 D-410 series engines on all utility models. This new carburetor is constructed of a special injection molded plastic material. The body and air filter chamber is a one-piece plastic assembly which "plugs" into the reed plate and is secured by a single screw. An O-ring installed between the carburetor and reed plate insures positive sealing. The modular carburetor has been redesigned featuring a new float chamber, gasket, float and carburetor body. A hinged type float of special cork material is sealed with an epoxy. During inspection, if the float appears dull or dark in appearance it should be replaced. The float in this new modular carburetor is positioned differently than previous modular carburetors with the float upside down, and a float level adjustment requirement of 11/16 inches from carburetor body to top of float. As fuel enters a single metered jet it is mixed with incoming air to form the correct combustible mixture. The amount of fuel flow through the metering jet is regulated by the altitude needle.

NOTE

The governor will control the amount of fuel entering the engine. The purpose of the atmospheric pressure adjusting needle is to mix the right amount of fuel with the correct amount of incoming air.

NOTE

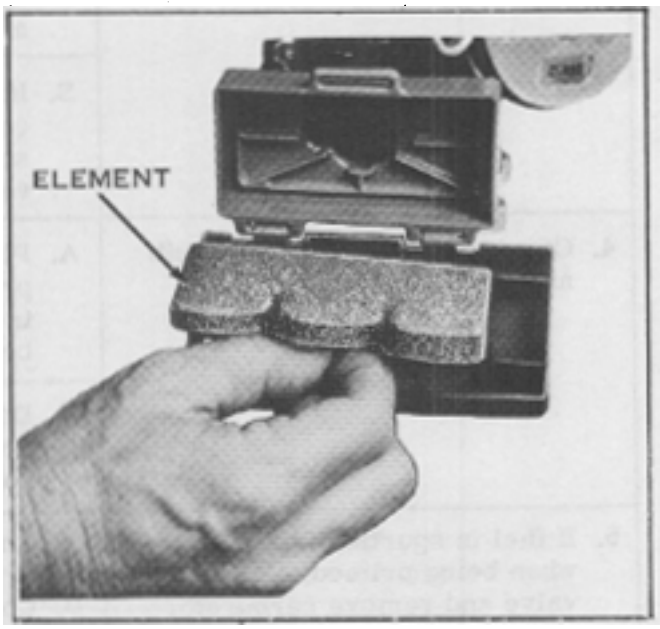
This new modular carburetor is also a Service replacement component for all previous D-Series modular carburetors. A Quick visual inspection will show you which modular carburetor is on the engine.



AIR FILTER ASSEMBLY

If engine is flooded, fuel can drain back into filter. As filter becomes saturated, incoming air picks up more fuel, causing greater flooding. A puckered filter will allow air and dirt to bypass filter. Make certain that filter covers cup area. If oiled properly, filter is very efficient. First wash out with fuel, then apply 10 to 15 drops of oil. Squeeze several times to distribute oil. If engine "smokes" for no apparent reason, filter may be saturated with fuel mix or may need cleaning.

To remove grasp the detachable cover, loosen snap and fold cover down.



NOTE

Reinstall filter in the same position from which it was removed to prevent imbedded particles in intake side from entering carburetor.

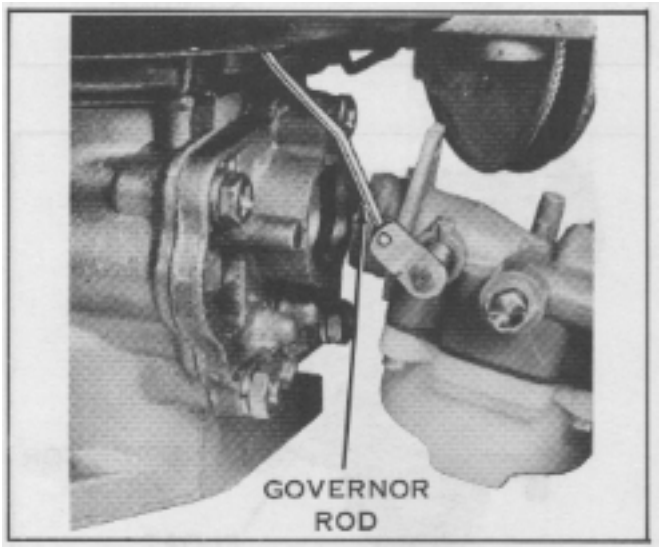
CARBURETOR REMOVAL

1. The modular carburetor is attached to the reed plate assembly by a single screw.

NOTE

During reassembly apply Lawn-Boy nut and screw lock part no. 682301 to threads of mounting screw.

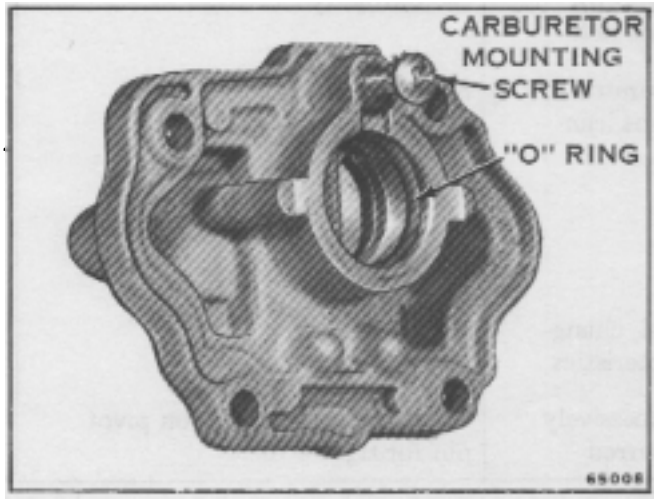
2. Pull carburetor from reed plate assembly. Do not bend or damage the governor rod and/or throttle arm of the carburetor.

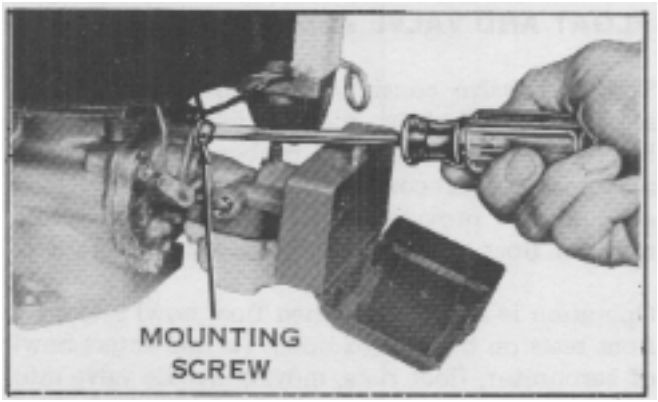


3. Check O-ring in reed plate assembly for damage. We recommend replacing O-ring every mowing season and during all tune-up operations.

O-RING

An O-ring seals between the outer surface of the carburetor barrel and the inside diameter of the reed plate opening. The correct procedure to install the carburetor is to lubricate the O-ring in groove of the reed plate and "plug" in the carburetor.

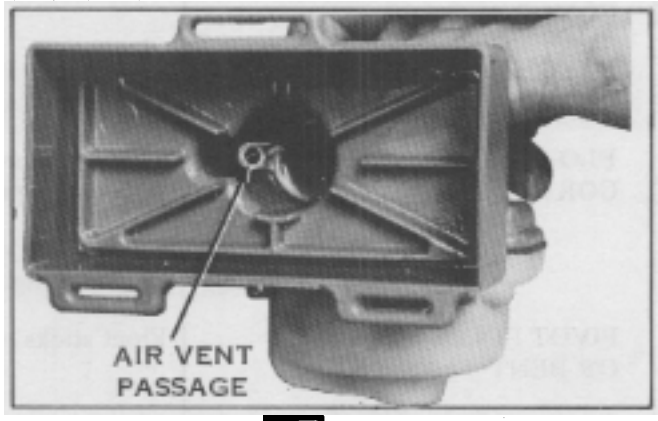




CLEANING CARBURETOR

The carburetor assembly is injection molded plastic. DO NOT clean using a standard carburetor cleaner. Disassemble carburetor components, wash and clean using a good grease solvent, dry and clean parts with compressed air — DO NOT dry using a cloth, lint may block passages impeding proper carburetor operation.

After cleaning, inspect all parts. Check float and fuel valves for cracks or damage. Check throttle shaft, valve and spring for smooth operation. Check float chamber for cracks or damage. Check altitude needle and O-ring for damage. Check air vent passage which allows air to flow into the float chamber. If this passage should become restricted with dirt and/or debris the engine will not run correctly or stop running and flooding of carburetor will occur. Check gasket for cracks or wear. Always use new gasket during reassembly.



NOTE

If any part appears worn or damaged, replace it. To ensure proper float action the float must be correctly installed in float chamber (not binding). Use needle nose pliers to secure hinge on float arm to pin.

MODULAR CARBURETOR - UTILITY MODELS

FLOAT AND VALVE ASSEMBLY

The float valve consists of a needle and seat assembly, activated by a float in the carburetor bowl. The steel needle is rubber tipped and the seat brass. This combination eliminates possible sticking and provides a perfect seal. The needle rests on float arm, held in place by a spring clip.

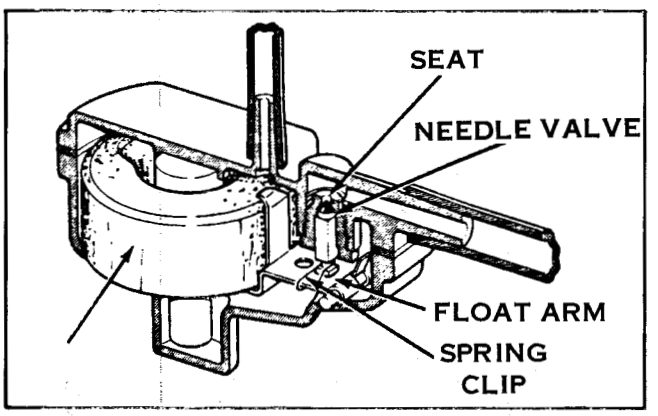
Operation is automatic. When float bowl is empty, float rests on bottom of bowl. As fuel enters bowl of carburetor, float rises, moving needle valve into seat and shutting off fuel. As engine uses fuel, float drops slightly, allowing more fuel to enter bowl, maintaining a constant fuel level in bowl.

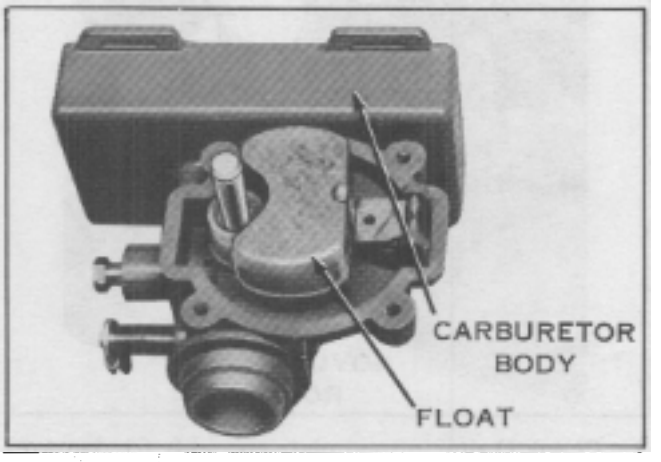
Needle, seat and spring clip must be replaced as an assembly. They are matched to form a perfect seal.

Remove float bowl and examine float appearance. Float should be glossy because of epoxy sealer. If dull in appearance, or portions of epoxy have chipped away - replace float.

NOTE

Do not clean float with any type of solvent or carburetor cleaner. Replace it.





Some of the problems you may encounter with the float valve are as follows:

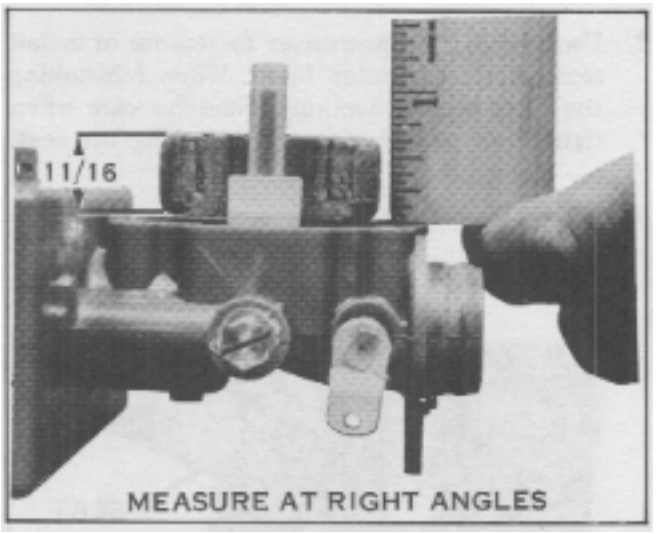
Cause	Effect	Remedy
VARNISH	Stops up openings	Clean out carburetor with solvent
SPRING WIRE CLIP COMES OFF	Needle may stick shut	Replace clip
NEEDLE AND SEAT NOT MATCHED	Fuel supply can't be shut off from float bowl	Replace needle and seat as an assembly
FLOAT ARM NOT SET CORRECTLY	Set too high - carburetor floods - Engine runs rich	Set correctly
	Set too low - carburetor starves - Engine runs lean	Set correctly
PIVOT PIN CORRODED OR BENT	Float sticks	Replace pin
FLOAT STRIKING NOZZLE	Float sticks	Replace float
VARNISH OFF FLOAT	Float soaks up fuel, changing floating characteristics	Replace float
LOOSE FLOAT HINGE CLIP ON PIVOT PIN	Engine 4 cycles excessively when bumped or jarred	Crimp float hinge clip on pivot pin for tighter fit

MODULAR CARBURETOR - UTILITY MODELS

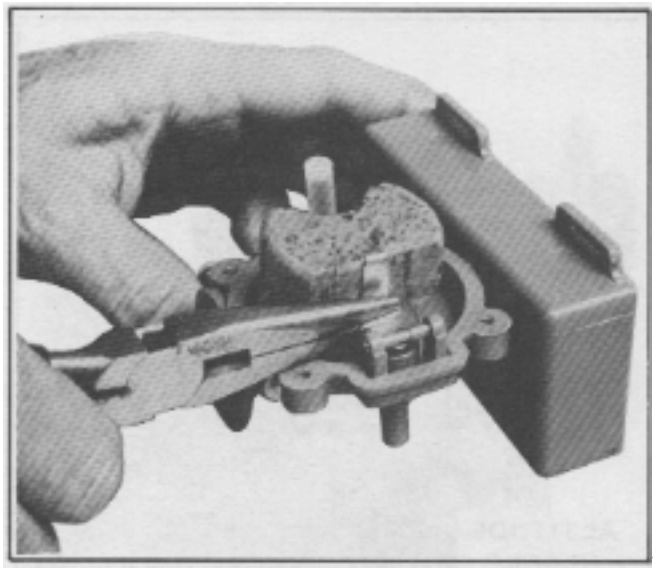
FLOAT ADJUSTMENT

Float Setting

Remove float bowl and gasket. Invert carburetor. With float arm resting on float valve needle, the top of float should be 11/16 inch above edge of carburetor body as shown. Obtain measurements at two points at right angles to each other.



If adjustment is required; using needle nose pliers bend float arm as shown. DO NOT bend float arm by applying pressure to float, this will damage rubber tip on inlet needle.



Check hinge on float arm to be sure it is secured to pin. Use needle nose pliers and tighten hinge. The hinge should be clamped tight enough so that the pin will swivel in the carburetor instead of the arm turning on the pin.

NOTE

Tightening hinge to pivot pin will prevent inlet needle from not seating correctly when mower crosses uneven terrain. This condition is called "fluttering."

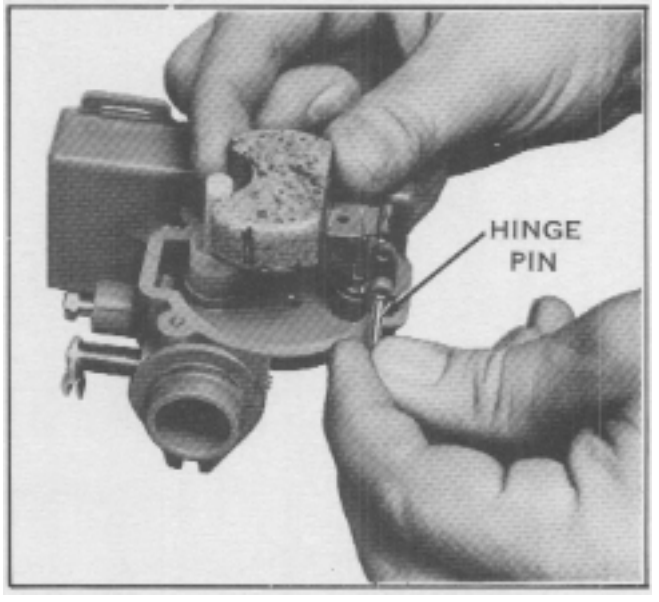
Check pin clip on float arm by rotating carburetor sideways. If clip falls off float arm -- replace it.

FLOAT VALVE AND SEAT ASSEMBLY

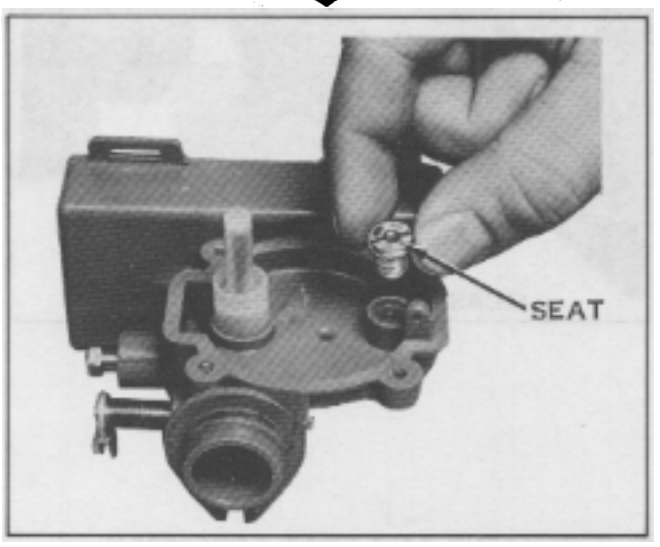
NOTE

The float valve and seat must be replaced as an assembly. They are matched to form a perfect seal.

1. Remove hinge pin and remove float and valve. Remove spring clip securing valve to float arm.



2. Use a wide bit screwdriver to remove or install seat from carburetor body. When reinstalling the seat, tighten securely. Exercise care when tightening seat to prevent damaging the seat.



ALTITUDE NEEDLE

The altitude needle has a rubber O-ring around it to seal the threads and prevent air from leaking through. It also serves as a locking feature to prevent the altitude needle from vibrating out of carburetor body.

The pre-setting position is ONE TURN OFF THE SEAT. Use caution when installing this needle as damage may occur to the carburetor body or the needle if it is tightened excessively.