



FUEL SYSTEM AND CARBURETION

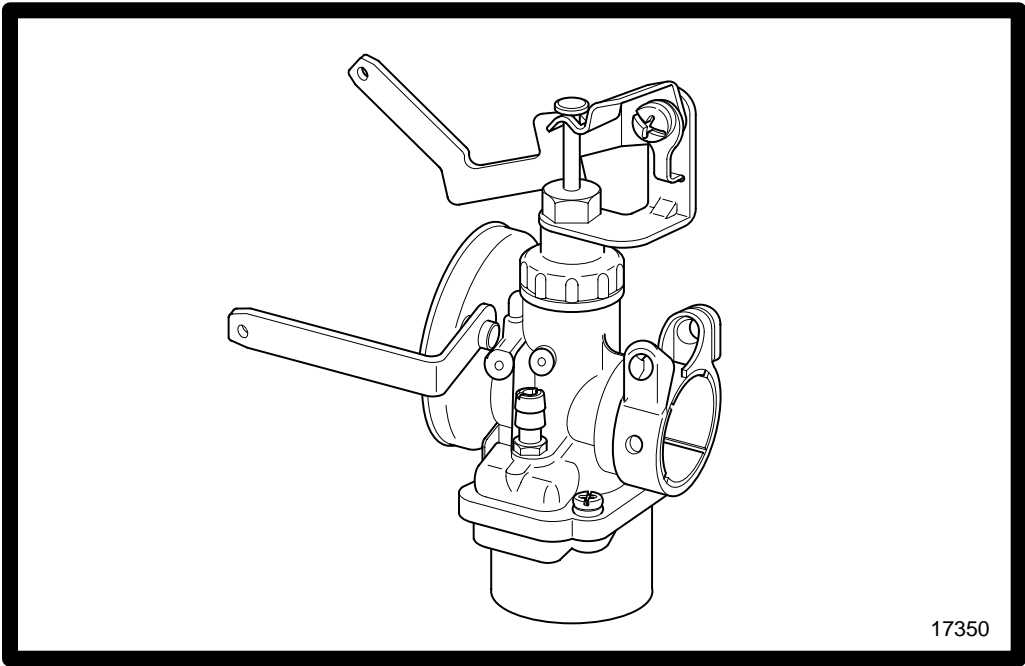




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Troubleshooting

Problems, which sometimes are thought to be caused by the fuel system, may be something completely different. Trouble with items 1-2-3-4, listed on the right, also may give the impression that a problem exists in the fuel system.

1. Spark Plug
2. Ignition Spark Voltage
3. Cylinder Compression
4. Reed Valves

Problem: Engine Will Not Start or Starts Hard When Cold Engine Idles Rough and Stalls

Engine Hesitates upon Acceleration Engine Runs Uneven or Surges

Possible Cause	Corrective Action
Improperly mixed fuel; contaminants (water, dirt, etc.) in fuel	Check fuel in fuel tank and replace if necessary
Fuel tank air vent closed or restricted	Check air vent in filler cap. Air vent must be fully open and free from restrictions
Restricted fuel line or fuel shut-off valve	Check and replace or clean fuel line or fuel shut-off valve
Carburetor flooding	See following
Restricted fuel strainer	Check and clean fuel strainer
Idle speed screw out-of-adjustment	Refer to “ Carburetor Adjustment ” in this section
Improper carburetor float setting	Reset float to correct level
Engine runs lean	See following
Engine runs rich	See following

Problem: Engine Runs Too Rich

Possible Cause	Corrective Action
Choke not opening	Check operation of choke
Clogged pilot air passage or pilot jet	Clean, then blow out with compressed air
Fuel level too high	Reset float to correct level
Carburetor floods	See following

Problem: Engine Runs Too Lean

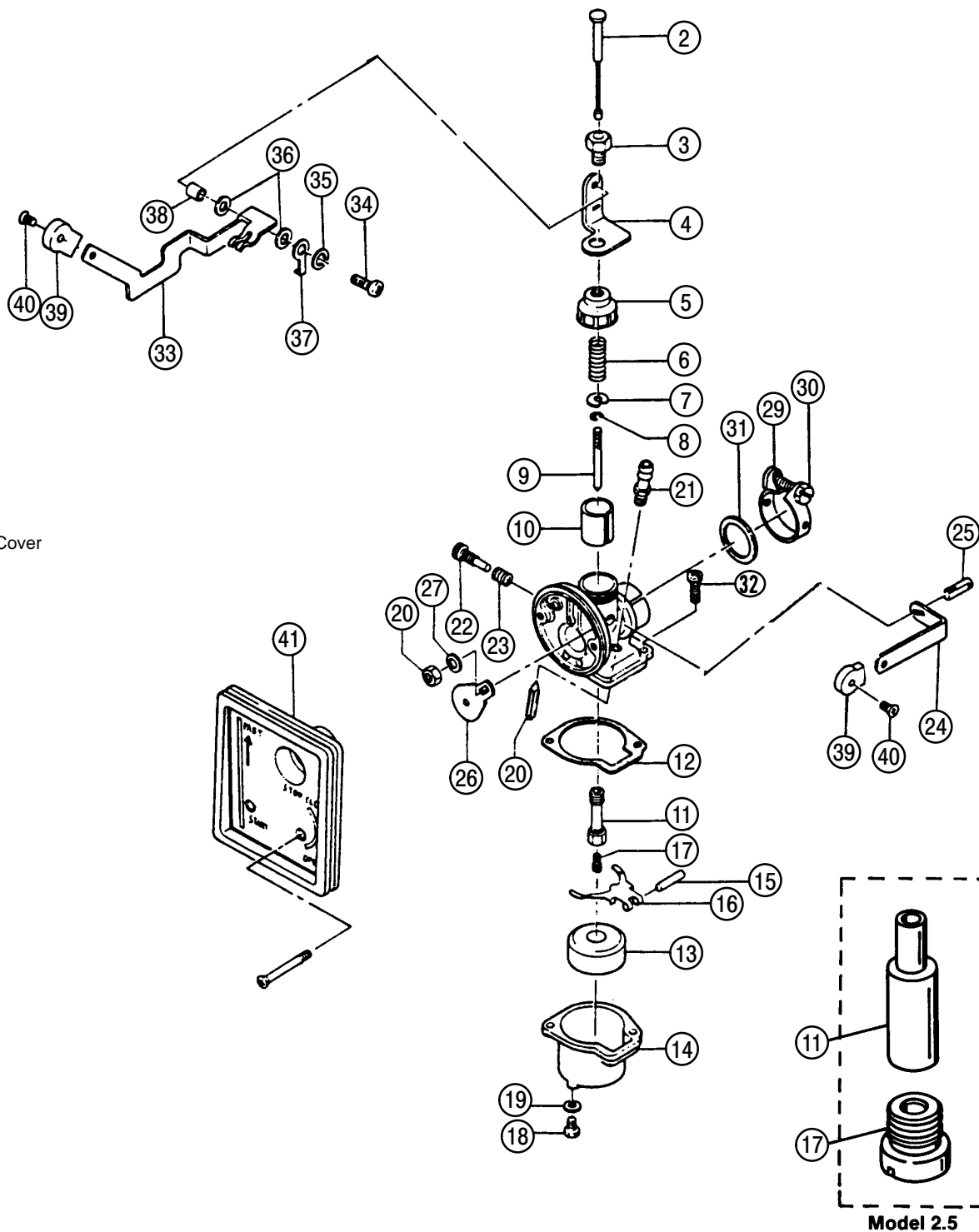
Possible Cause	Corrective Action
Carburetor loose on reed block housing	Tighten locknuts securely
Air drawn in from mixing chamber cover	Tighten cover
Fuel level too low	Reset float level to correct level
Clogged main jet or needle jet	Check and clean, if necessary

Problem: Engine Floods

Possible Cause	Corrective Action
Dirt or foreign particles are preventing inlet needle from seating	Flush out inlet seat and clean inlet needle
Worn inlet needle or weak inlet needle spring	Remove and replace with new inlet needle and seat assembly
Punctured or deformed float	Replace with new float
Incorrect float setting	Reset float to correct level



Carburetor Components

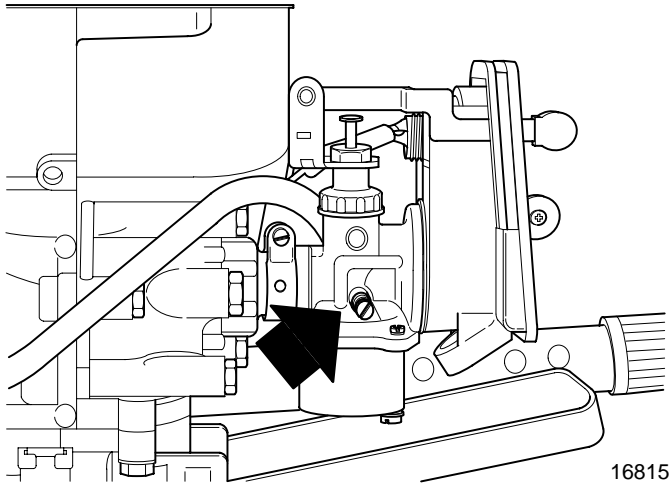


- 1 - Screw
- 2 - Throttle Cable
- 3 - Retainer Nut
- 4 - Bracket
- 5 - Mixing Chamber Cover
- 6 - Spring
- 7 - Retainer
- 8 - E-Clip
- 9 - Jet Needle
- 10- Throttle Valve
- 11- Main Nozzle
- 12- Gasket
- 13- Float
- 14- Float Bowl
- 15- Hinge Pin
- 16- Float Hinge
- 17- Main Jet
- 18- Screw
- 19- Gasket
- 20- Inlet Needle
- 21- Seat
- 22- Idle Speed Screw
- 23- Spring
- 24- Choke Lever
- 25- Screw
- 26- Choke Plate
- 27- Washer
- 28- Nut
- 29- Clamp
- 30- Screw
- 31- Gasket
- 32- Screw
- 33- Throttle Lever
- 34- Screw
- 35- Lock washer
- 36- Gasket
- 37- Lever Support
- 38- Collar
- 39- Knob
- 40- Screw
- 41- Cover



Idle Speed Adjustment

Start the engine. After engine has been warmed up, position throttle lever at the lowest speed position. Adjust idle speed screw to obtain recommended idle speed (900 - 1000 RPM).



Throttle Jet Needle Adjustment

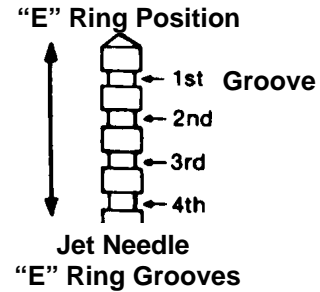
This carburetor is equipped with a throttle valve that utilizes a tapered jet needle to vary the fuel flow as the carburetor is opened. Normally the "E" ring is in the second groove. Locating the "E" ring closer to the end of the jet will "lean" the mixture. Further leaning requires a change of the main jet.

The first indication of an overly rich mixture will be a decrease in RPM as the carburetor is opened beyond 2/3 throttle.

Change jet needle adjustment as follows:

1. Remove carburetor from engine as outlined in "**Carburetor Removal**".
2. Remove and disassemble throttle valve assembly.
3. Change "E" ring groove and reassemble throttle valve assembly and carburetor as instructed in "**Carburetor Reassembly**," following.
4. Reinstall carburetor as outlined in "**Carburetor Installation**".

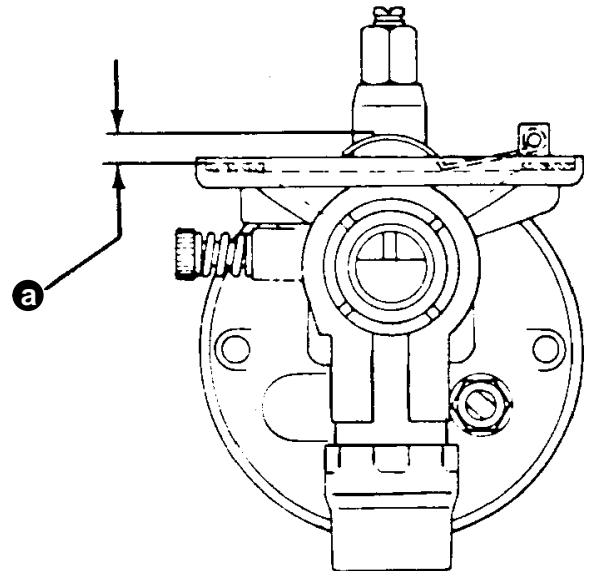
IMPORTANT: Lowering the "E" ring on the jet needle results in a richer fuel mixture. Raising the "E" ring on the jet needle results in a leaner fuel mixture. It is preferable to adjust fuel mixture a little rich rather than too lean.



Standard Main Jet #92 - for CDI Ign. Models
Standard Main Jet #94 - for MAGNETO Ign. Models

Float Level Adjustment

Adjust float hinge as shown.



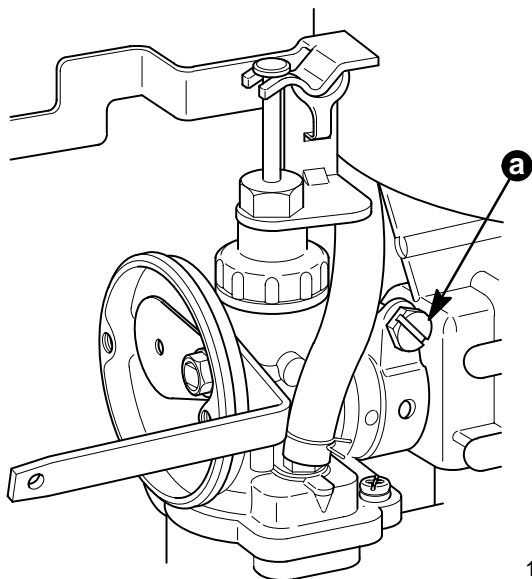
a - Models with MAGNETO Ignition: 0.090 in. (2.0mm) from top of gasket.
Models with CAPACITOR DISCHARGE Ignition: 0.118 in. (3.0mm) from top of gasket.



Carburetor Removal/Installation

Removal

1. Remove knobs from throttle and choke levers.
2. Remove 2 screws and lift intake front cover from carburetor.
3. Close fuel shut-off valve and remove fuel line from carburetor.
4. Loosen clamp screw and remove carburetor.

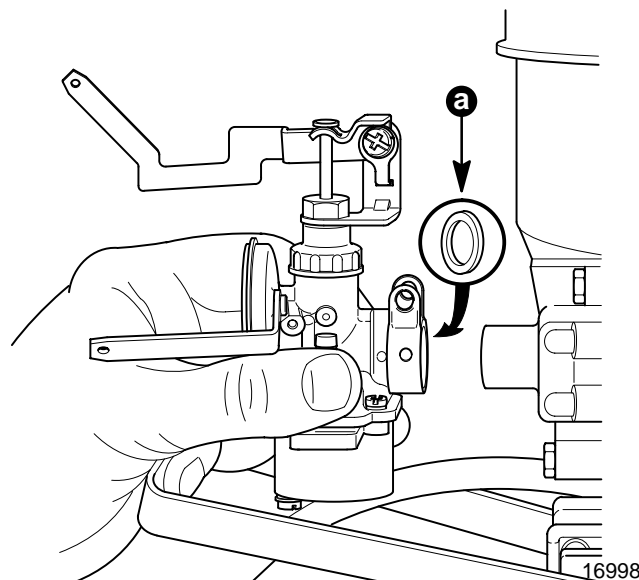


a - Clamp screw

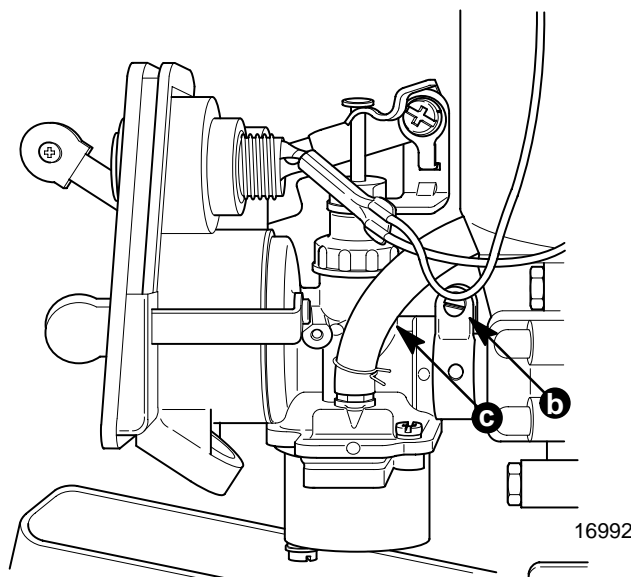
Installation

1. Place seal into carburetor.
2. Slide carburetor onto crankcase cover and secure by tightening clamp screw.
3. Connect fuel line to carburetor.

4. Reinstall front cover and install knobs on throttle and choke levers.



a - Seal

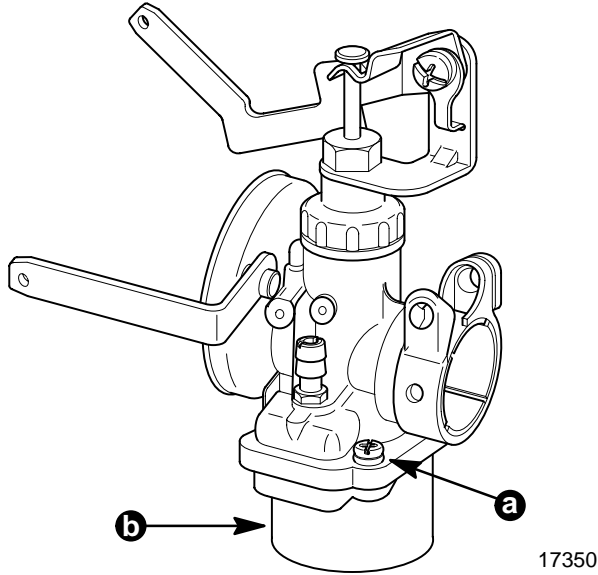


b - Clamp Screw
c - Fuel Line



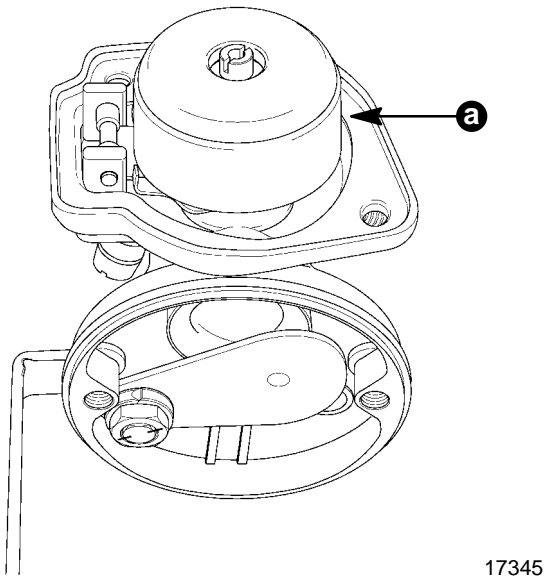
Carburetor Disassembly

1. Remove 2 screws and lift float bowl from carburetor.



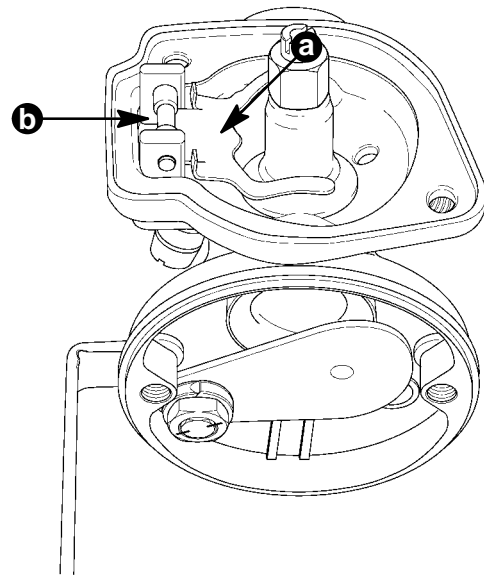
a - Screws
b - Float Bowl

2. Remove float from carburetor.



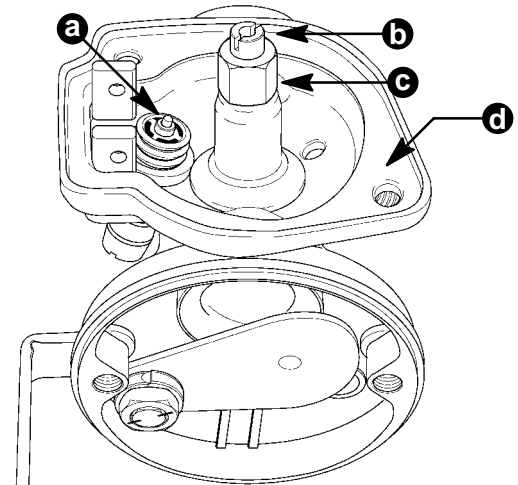
a - Float

3. Remove float hinge and float pin.



a - Float Hinge
b - Float Pin

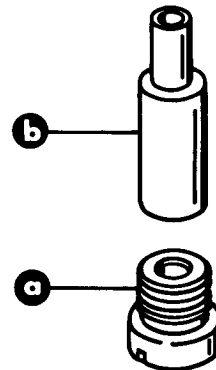
4. **Model 2.2 - 3.0** - Remove inlet needle, main jet, screw in main nozzle and float bowl gasket .



a - Inlet Needle
b - Main Jet
c - Main Nozzle

d - Gasket

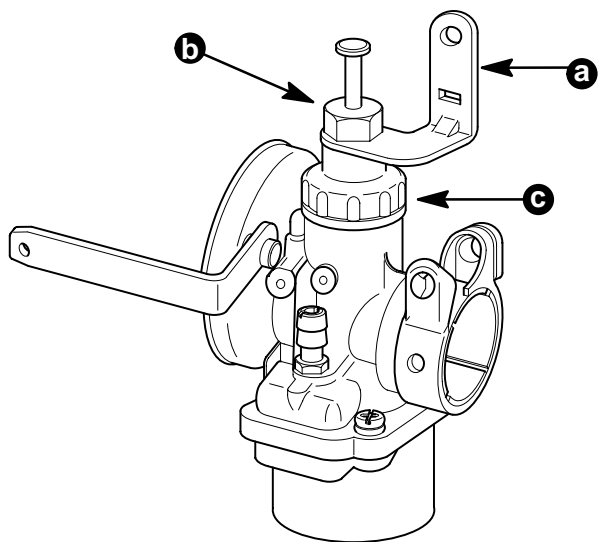
Model 2.5 - 3.3 - Remove main jet and main nozzle



a - Main Jet
b - Main Nozzle

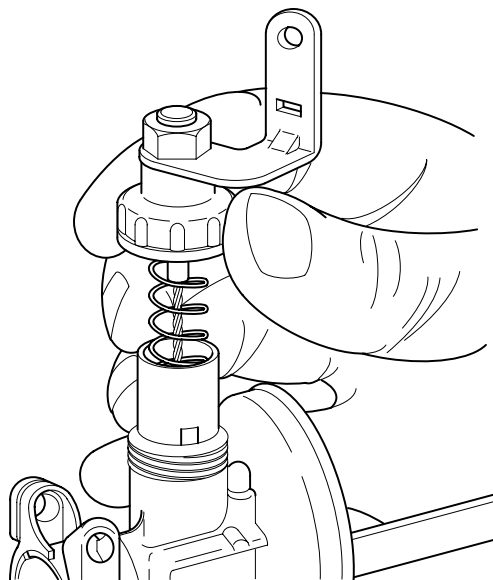


5. Remove throttle lever from bracket.
6. Loosen retainer several turns and then unscrew mixing chamber cover.
7. Lift throttle valve assembly from carburetor.



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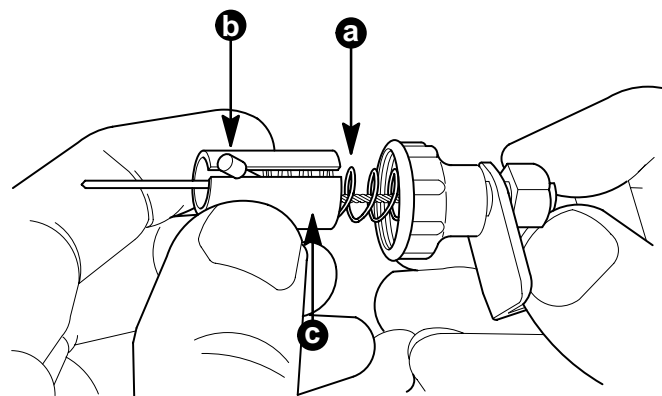
- a - Bracket
- b - Retainer
- c - Mixing Chamber Cover



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Removing Throttle Valve Assembly

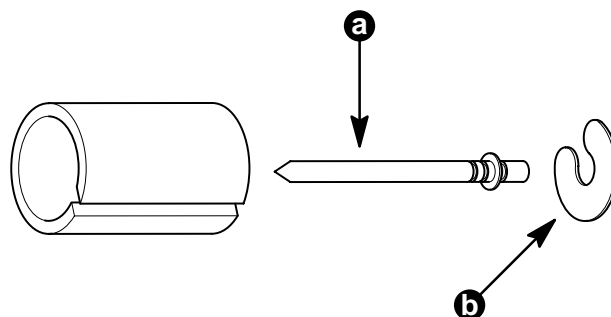
8. Compress spring and unhook throttle cable from throttle valve.



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- a - Spring
- b - Throttle Cable
- c - Throttle Valve

9. Remove jet needle and jet retainer from throttle valve.



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- a - Jet Needle
- b - Jet Retainer

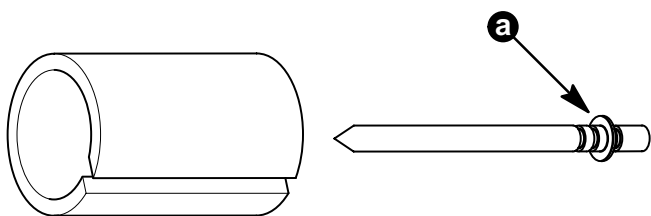


Cleaning and Inspection

1. Carefully inspect carburetor body casting for cracks, stripped threads, plugged or restricted passages and passage plugs that show signs of leakage.
2. Thoroughly clean all carburetor parts with a mild cleaning solution (that will not damage rubber or plastic) to remove dirt, gum and varnish which may have accumulated.
3. After washing parts, blow parts dry with compressed air. Blow air thru all passages, orifices and nozzles.
4. Inspect float hinge in the float pin area for wear and both float chambers for leaks.
5. Inspect inlet needle for wear. If worn, replace with new inlet needle.

Carburetor Reassembly

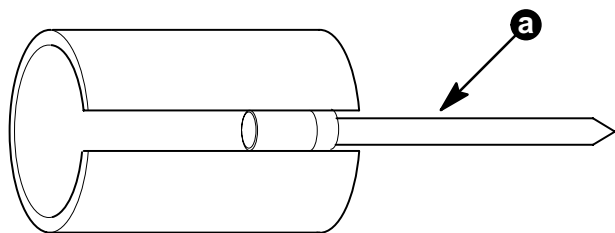
1. Reassemble throttle valve components as follows:
 - a. If "E" ring is removed from jet needle, refer to **"Throttle Jet Needle Adjustment,"** preceding, to determine correct "E" ring slot.



a - "E" Ring

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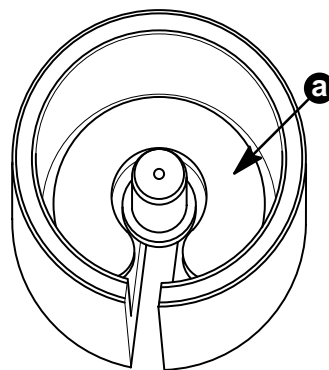
- b. Place jet needle in throttle valve.



a - Jet Needle

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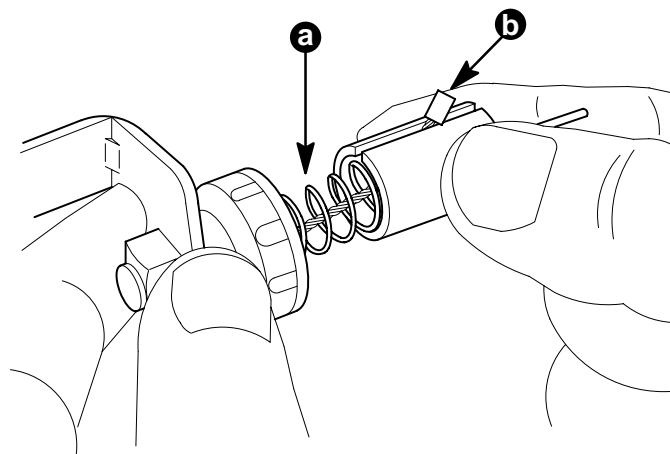
- c. Place needle retainer in throttle valve over "E" ring. Align retainer slot with slot in throttle valve.



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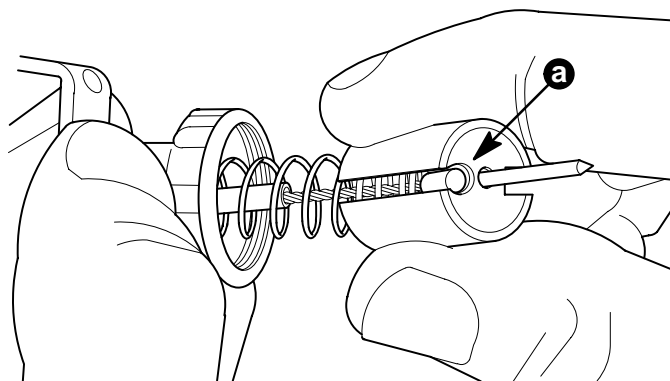
a - Needle Retainer

- d. Assemble throttle components as shown. Place spring over throttle cable. Compress spring; then slide anchor thru slot and into pocket in bottom of throttle valve.



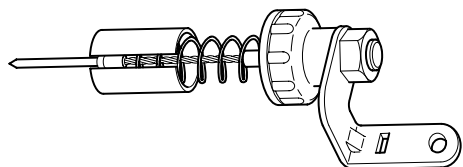
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a - Spring
b - Anchor



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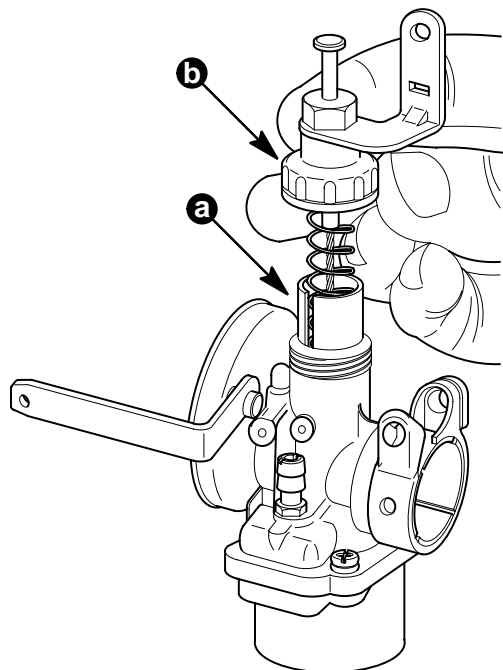
a - Pocket



Throttle Valve Assembled

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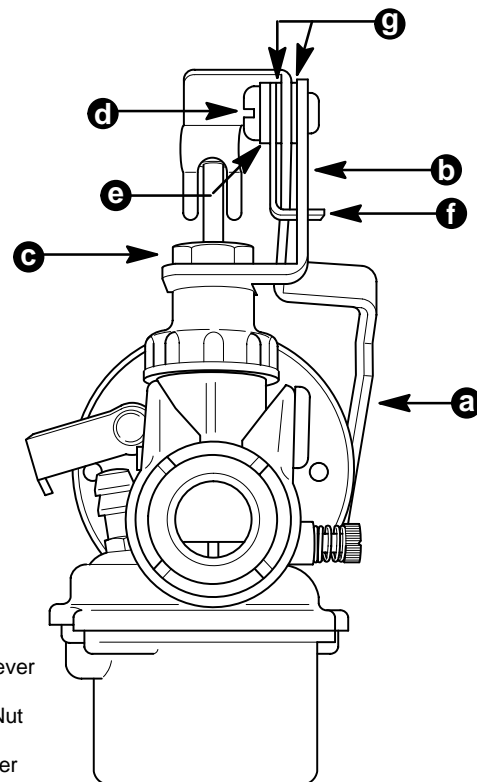
2. Position throttle valve so slot slides over alignment pin. Slide throttle valve assembly into carburetor.
3. Tighten cover.



- a - Slot
- b - Cover

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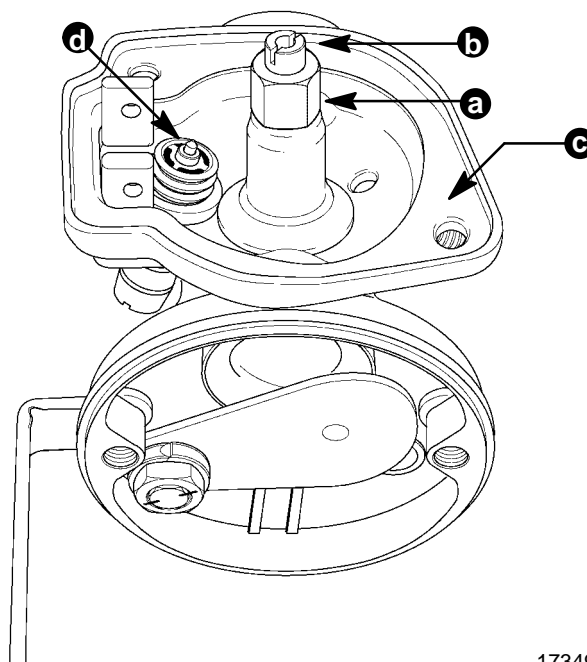
4. Reinstall throttle lever as shown. Position bracket so throttle lever just clears front of carburetor and then tighten retainer nut.



- a - Throttle Lever
- b - Bracket
- c - Retainer Nut
- d - Screw
- e - Lockwasher
- f - Lever Support
- g - Fiber Washer

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5. **Model 2.2 - 3.0** - Install main nozzle and main jet.
6. Install float bowl gasket.
7. Install inlet needle.

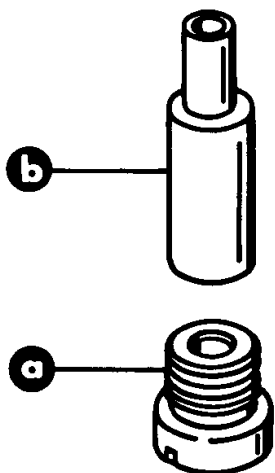


- a - Main Nozzle
- b - Main Jet
- c - Bowl Gasket
- d - Inlet Needle

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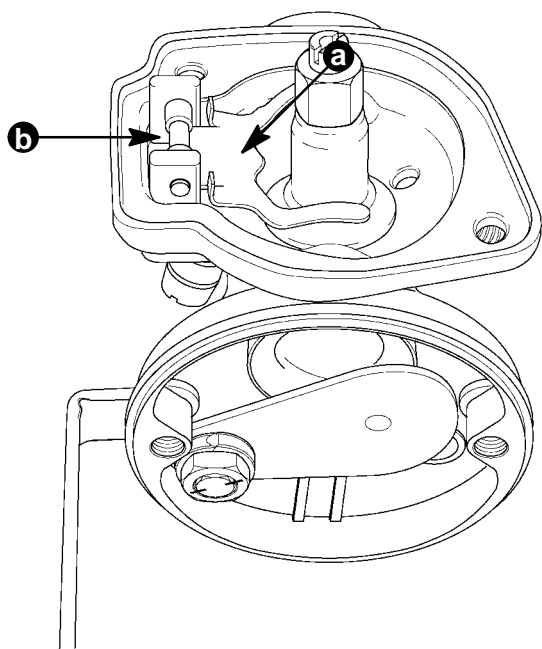


8. **Model 2.5 - 3.3** - Install main nozzle and main jet. Main jet holds main nozzle in place.



a - Main Nozzle
b - Main Jet

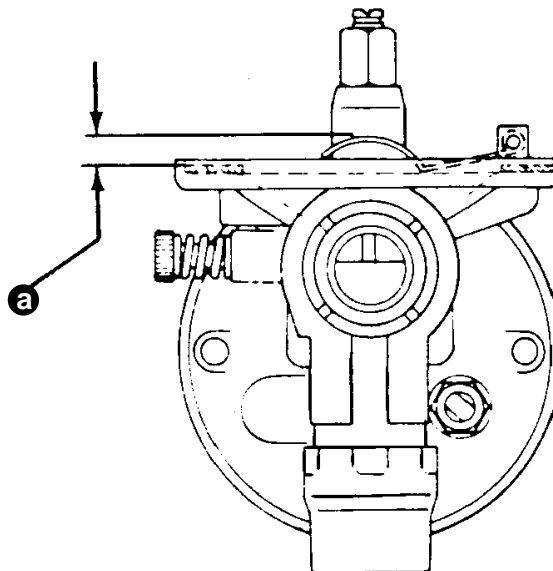
9. Install float hinge and float pin.



a - Float Hinge
b - Float Pin

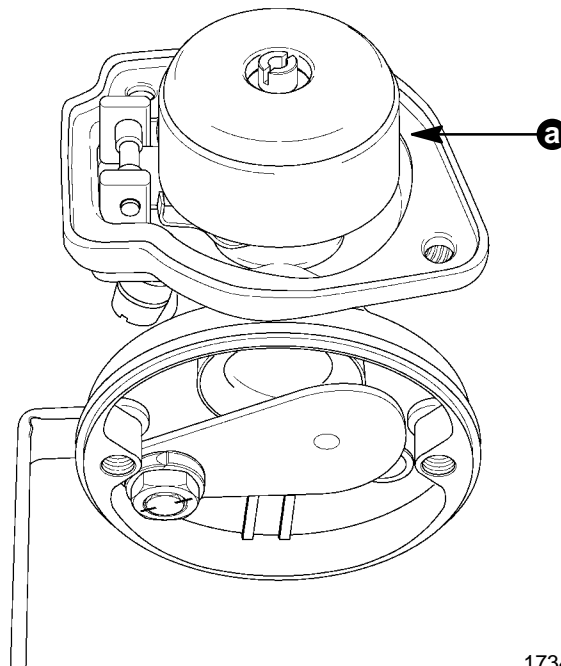
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10. Check float hinge adjustment as shown.



a - Models with MAGNETO Ignition: 0.090 in. (2.0mm) from top of gasket.
Models with CAPACITOR DISCHARGE Ignition: 0.118 in. (3.0mm) from top of gasket.

11. Install float as shown.

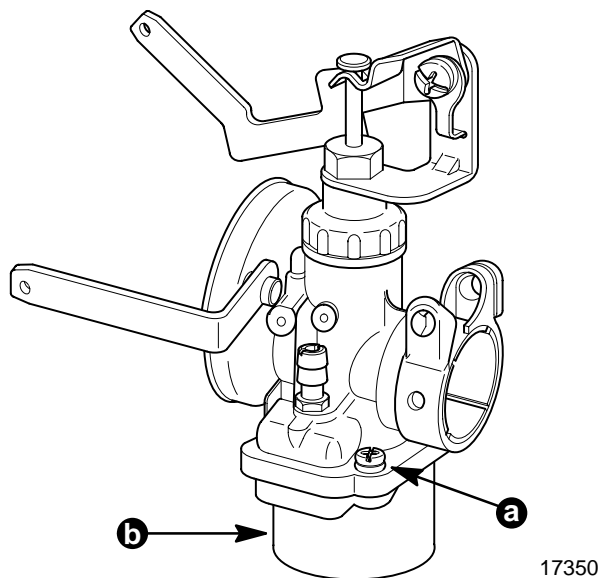


a - Float

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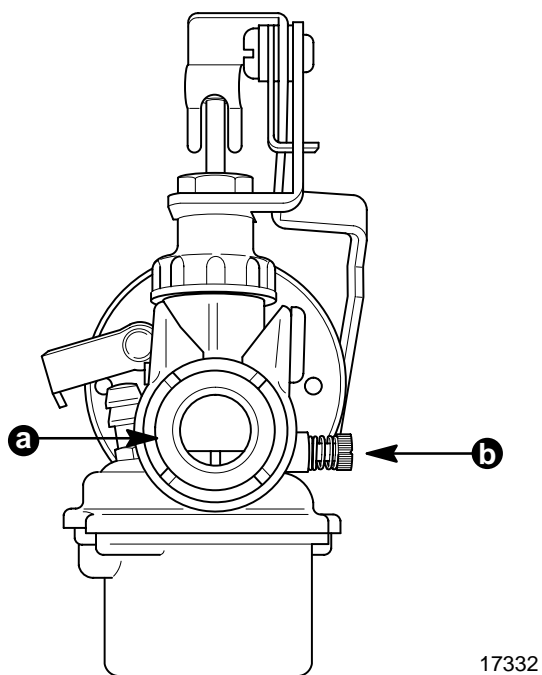
12. Install fuel bowl with 2 screws.



a - Screws
b - Bowl

13. Install seal into carburetor.

14. Reinstall idle speed adjustment screw.



a - Seal
b - Idle Speed Screw