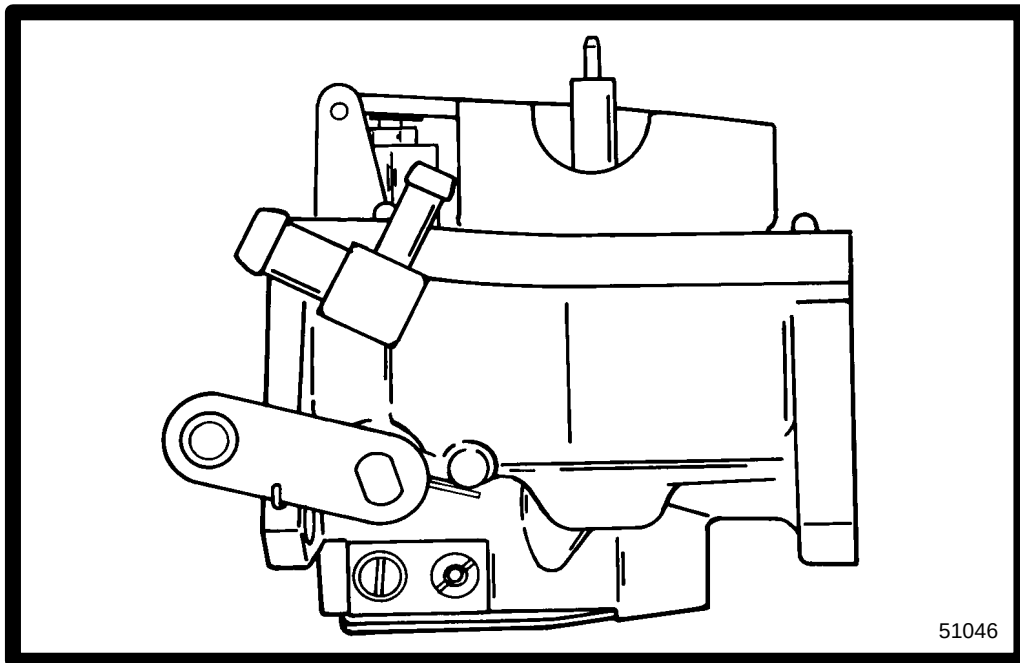




FUEL SYSTEMS

3

A



CARBURETION



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Specifications

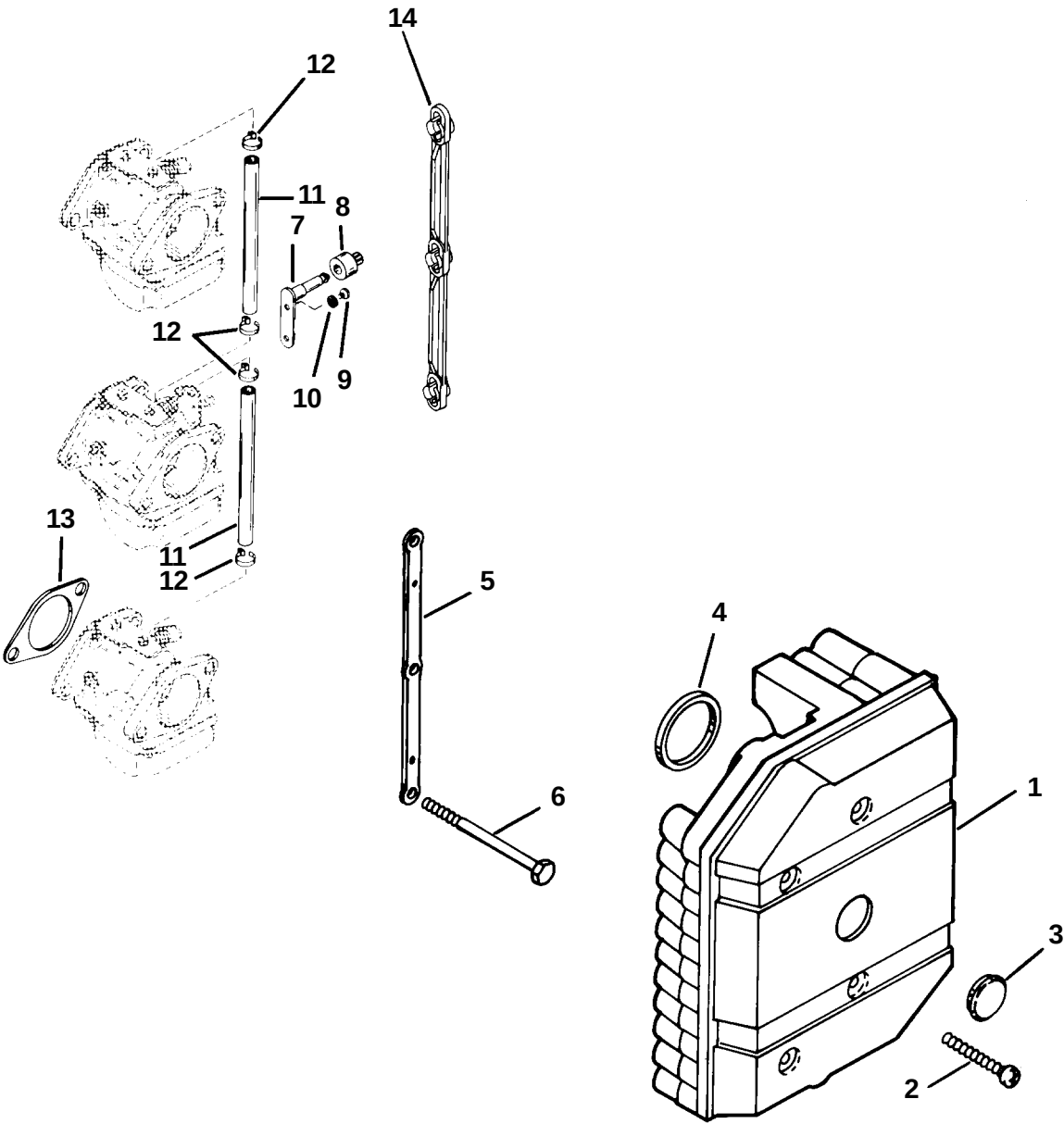
Idle RPM (in "Forward" Gear)	650-700
Float Level	9/16 in. (14.3mm)
Fuel Pump Pressure (@ W.O.T.)	4-7 PSI (28-43 kPa)

Special Tools

Part No.	Description
91-36392	Carburetor Scale



Attenuator Plate





Attenuator Plate

REF. NO.	QTY.	DESCRIPTION	TORQUE		
			lb. in.	lb. ft.	N·m
1	1	SOUND ATTENUATOR			
2	4	SCREW	Drive Tight		
3	1	CAP PLUG			
4	3	SEAL			
5	2	SOUND ATTENUATOR PLATE			
6	6	SCREW	100		135.5
7	1	ARM			
8	1	ROLLER			
9	1	SCREW	Drive Tight		
10	1	WASHER			
11	2	TUBING (4-1/4 IN.)			
12	AR	STA-STRAP			
13	3	GASKET			
14	1	THROTTLE LINK			



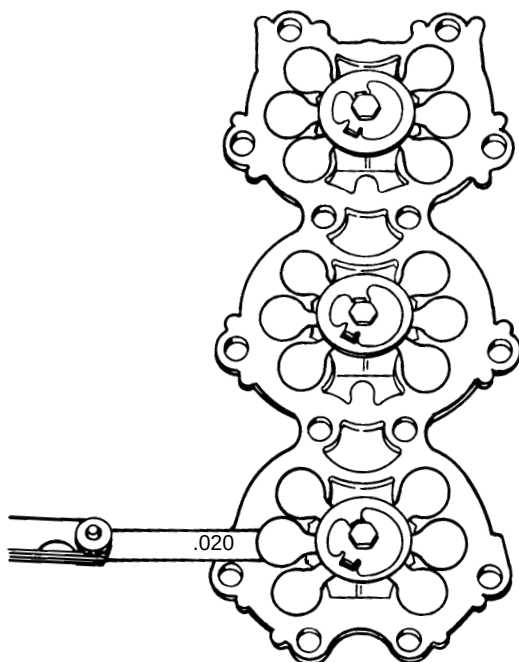
WME Carburetor Specifications

Carburetor Number Stamped at TOP of Carburetor Mounting Flange				
Carburetor Number	Location	Model H.P.	Main Jet	Bowl Vent Jet
WME 43-1 WME 43-2 WME 43-3	Top Carburetor Center Carburetor Bottom Carburetor	50	.048	.090
WME 45-1 WME 45-2 WME 45-3	Top Carburetor Center Carburetor Bottom Carburetor	60	.062	.090
WME 44-1 WME 44-2 WME 44-3	Top Carburetor Center Carburetor Bottom Carburetor	55/60	.060	None

REED VALVE SPECIFICATIONS

Reed Valve Opening (Maximum)

.020 in. (0.5 mm)



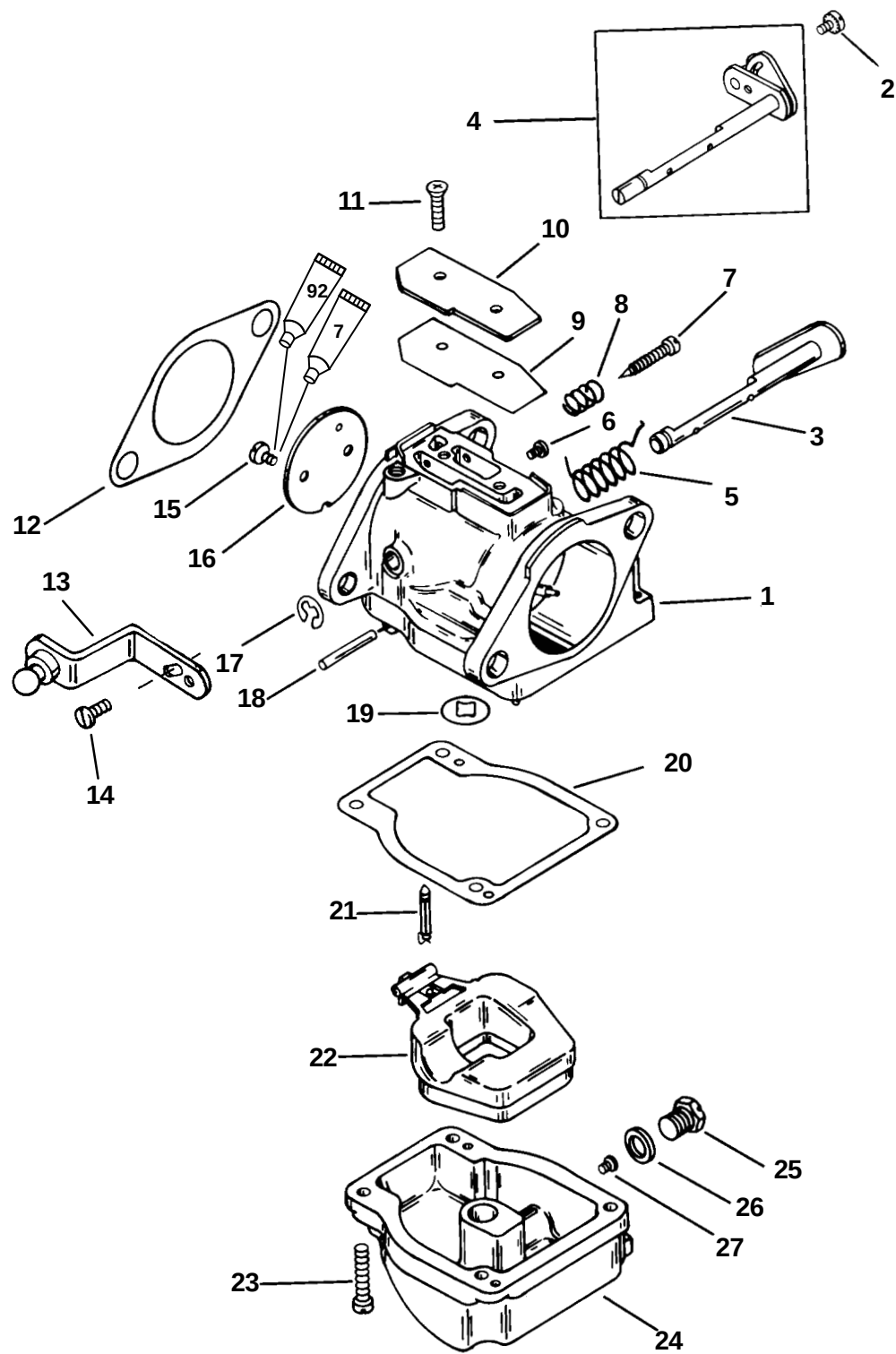


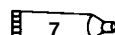
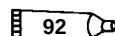
Notes:





Carburetor



-  Loctite 271 (92-809820)
-  Loctite 7649 Primer (92-809824)



Carburetor

REF. NO.	QTY.	DESCRIPTION	TORQUE		
			lb. in.	lb. ft.	N·m
1	1	CARBURETOR (TOP)			
1	1	CARBURETOR (CENTER) 50 - WME-43			
1	1	CARBURETOR (BOTTOM)			
1	1	CARBURETOR (TOP) 55/60 SeaPro/Marathon			
1	1	CARBURETOR (CENTER)			
1	1	CARBURETOR (BOTTOM) WME-44			
1	1	CARBURETOR (TOP) 60 - WME-45			
1	1	CARBURETOR (CENTER) BEACHING/PONTOON/BIG FOOT			
1	1	CARBURETOR (BOTTOM) FORMULA/MAGNUM III			
2	2	SCREW—throttle adjustment (UPPER/BOTTOM)			
3	1	THROTTLE SHAFT (UPPER)			
4	1	THROTTLE SHAFT (CENTER) 50/60			
4	1	THROTTLE SHAFT (BOTTOM)			
3	2	THROTTLE SHAFT (UPPER/BOTTOM)			
4	1	THROTTLE SHAFT (CENTER) WME-44			
5	3	SPRING—throttle return			
6	3	VENT JET (.090 - 50/60)			
7	3	IDLE NEEDLE			
8	3	SPRING—idle needle			
9	3	GASKET—cover plate			
10	3	COVER PLATE			
11	6	SCREW—cover plate	18		2.0
12	3	GASKET—flange			
13	1	LEVER—oil pump (WME43/45 - Bottom)			
14	1	SCREW—oil pump lever (WME43/45 - Bottom)			
15	6	SCREW—throttle valve	6		0.7
16	3	THROTTLE VALVE			
17	3	RETAINING RING			
18	3	FLOAT SHAFT			
19	3	GASKET—nozzle well			
20	3	GASKET—fuel bowl			
21	3	INLET NEEDLE VALVE			
22	3	FLOAT			
23	12	SCREW—fuel bowl	18		2.0
24	1	FUEL BOWL (UPPER)			
24	2	FUEL BOWL (CENTER/BOTTOM)			
25	3	PLUG KIT	25		3.0
26	3	SEAL—bowl drain			
27	3	MAIN FUEL JET (.048 - 50)	14		1.5
27	3	MAIN JET (.060-55/60 SeaPro/Marathon/Pontoon)	14		1.5
27	3	MAIN FUEL JET (.062 - 60)	14		1.5



Carburetion

Fuel System Troubleshooting

Troubles, that are caused by items 1-thru-5, listed below, may give the impression that a problem exists in the fuel system:

1. Spark plugs
2. Ignition spark voltage
3. Cylinder compression
4. Reed valves
5. Ignition timing

Troubleshooting Charts

PROBLEM 1: ENGINE TURNS OVER BUT WILL NOT START OR STARTS HARD WHEN COLD	
Possible Cause	Corrective Action
Improper starting procedure	Check procedure, as outlined in "Operation and Maintenance Manual."
Fuel tank empty; improperly mixed fuel; contaminants (water, dirt, etc.) in fuel.	Check fuel in fuel tank and replace or add.
Fuel tank air vent closed or restricted.	Air vent must be open and free from contaminants.
A pinched or restricted fuel line.	Check, and replace as needed.
Dirty or restricted fuel filter	Check, replace or clean.
Enrichener Valve not operating.	Check enrichener system. (Refer to "Enrichener System" following.)
An inlet needle (in carburetor) that is stuck open or closed. (A needle stuck open, will cause a flooding condition. A needle stuck closed, will prevent fuel from entering carburetor.)	Remove, clean, or replace.
Anti-Siphon valve restricting fuel flow.	Refer to "Checking for Restricted Fuel Flow caused by Anti-Siphon Valves", following.

See "Checking for Restricted Fuel Flow caused by Anti-Siphon Valves, page 3A-13.



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.	Replace.
Punctured float.	Replace.
Incorrect float setting.	Reset float.

PROBLEM: ENGINE RUNS TOO LEAN	
Possible Cause	Corrective Action
Carburetor is loose. Air leaks past mixing chamber cover.	Tighten bolts securely. Tighten cover or replace gasket.
Fuel level too low.	Reset float level.
Clogged high speed jet.	Check and clean.
Restricted fuel flow to carburetor.	Check fuel lines and filter(s) for restricted flow.
Incorrect high speed jet.	Refer to main jet chart and replace with proper jet.
Idle mixture set too lean.	Adjust to run richer.
Air leakage into fuel system.	Check fuel line connections, hose clamps, fuel pump, and fuel outlet tube (located in fuel tank) for loose fittings.
Anti-Siphon valve restricting fuel flow.	Refer to "Checking for restricted fuel flow caused by Anti-Siphon valves."

PROBLEM: ENGINE RUNS TOO RICH	
Possible Cause	Corrective Action
Fuel level too high.	Reset float to correct level.
Carburetor floods.	See preceding "Engine Floods"
Idle nozzle air holes plugged.	Blow out with compressed air.
Restricted air flow.	Check cowl air inlet and carburetor for obstructions.
Main Fuel Jet loose.	Retighten Jet.

PROBLEM 1: ENGINE IDLES ROUGH AND STALLS	
PROBLEM 2: ENGINE RUNS UNEVEN OR SURGES	
PROBLEM 3: ENGINE WILL NOT ACCELERATE	
Possible Cause	Corrective Action
Fuel tank air vent closed or restricted.	Check - Air vent must be open all-the-way and free from restrictions.
A pinched, cut or restricted fuel line; also loose fuel line connection.	Check all fuel lines and replace as needed. Check and tighten all fuel line connections.
A dirty or restricted fuel filter.	Check, replace, or clean all fuel filters.
Restricted filter in fuel tank.	Clean by rinsing in clean lead-free gasoline or kerosene.
Improperly mixed fuel; contaminants (water, dirt, etc.) in fuel.	Check fuel and replace, if necessary.
An inlet needle (in carburetor) that is either stuck open or closed. (A needle, that is stuck open, will cause a flooding condition. A needle, that is stuck closed, will prevent fuel from entering carburetor.)	Remove and replace with new inlet needle.
Incorrect idle mixture adjustment.	Re-adjust.
Damaged fuel pump diaphragm.	Replace.
Carburetor is loose.	Tighten bolts securely.
Chamber cover leaking air.	Tighten or replace gasket.
Off idle holes plugged.	Blow out with compressed air.
Main nozzle or idle nozzle air bleed holes plugged.	Blow out with compressed air.
Improper main jet or restricted jet.	Clean or replace with proper jet (refer to "Main Jet Chart").
Damaged reed(s).	Inspect reeds as outlined in Section 4A.
A crack in the fuel pick-up outlet tube (located in fuel tank).	Replace.

**PROBLEM 1: ENGINE IDLES ROUGH AND STALLS****PROBLEM 2: ENGINE RUNS ENEVEN OR SURGES****PROBLEM 3: ENGINE WILL NOT ACCELERATE.**

Possible Cause	Corrective Action
A crack in the fuel outlet tube (located in fuel tank.)	Replace.
Anti-Siphon valve restricting fuel flow.	Refer to "Checking for Restricted Fuel Flow Caused by Anti-Siphon Valves," following.

PROBLEM : FUEL BLOW-BACK OUT OF CARBURETOR

Possible Cause	Corrective Action
Chipped/Broken (reed-block) Reeds	Replace Reeds.
PROBLEM : ROUGH IDLE	
If related to reed-block, indicates excessive preload in reeds.	Replace Reeds.
PROBLEM : CAN'T REDUCE ENGINE RPM TO SLOW IDLE	
Multiple chipped reeds	Replace Reeds.

CHECKING FOR RESTRICTED FUEL FLOW CAUSED BY ANTI-SIPHON VALVES

While anti-siphon valves are helpful from a safety standpoint, they clog, they may be too small, or they may have too heavy a spring. The pressure drop across these valves can, create operational problems and/or powerhead damage by restricting fuel. Some symptoms of restricted (lean) fuel flow, are:

- 1 - Loss of fuel pump pressure
- 2 - Loss of power
- 3 - High speed surging
- 4 - Preignition/detonation (piston dome erosion)
- 5 - Outboard cuts out or hesitates upon acceleration
- 6 - Outboard runs rough
- 7 - Outboard quits and cannot be restarted
- 8 - Outboard will not start
- 9 - Vapor lock

Any type of anti-siphon device must be located between the outboard fuel inlet and fuel tank outlet. A method of checking [if such a device (or bad fuel) is a problem source] is to operate the outboard with a separate fuel supply which is know to be good.

If, it is found that the anti-siphon valve is the cause of the problem, either 1) replace the anti-siphon valve or 2) replace it with a solenoid-operated fuel shutoff valve.



Carburetor Adjustments

INITIAL STARTING ADJUSTMENT

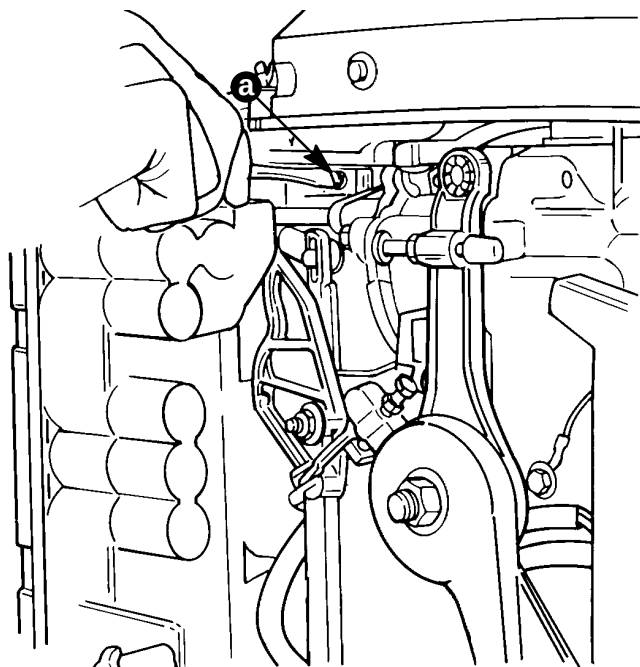
Turn idle mixture screw in (clockwise) until it seats LIGHTLY--then back-off (each carburetor) 1-1/4 turns.

IDLE SEED ADJUSTMENT

1. Adjust engine idle RPM as outlined in Section 2C "Timing/Synchronizing/Adjusting."

IDLE MIXTURE SCREW ADJUSTMENT

1. Start engine and allow to warm-up. Throttle back engine to idle for about one minute.
2. With engine running at idle speed in "Forward" gear -- turn idle mixture screw IN (clockwise) until engine starts to "bog" down and misfire. Back out 1/4 turn or more.



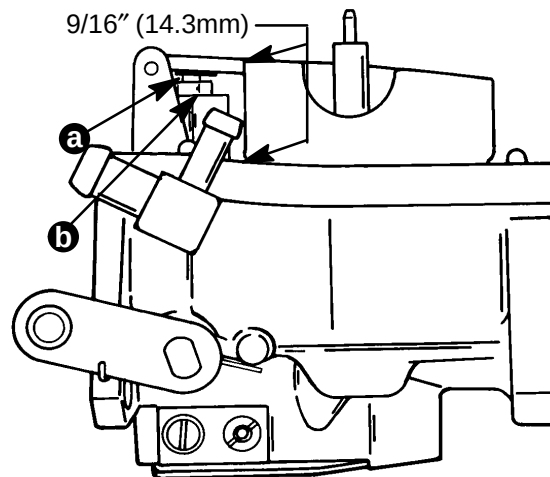
50555

a - Idle Mixture Screw (on each carburetor)

3. Check for too lean mixture on acceleration.
4. DO NOT adjust leaner than necessary to attain reasonably smooth idling. When in doubt, stay on the slightly rich side of the adjustment.

CARBURETOR FLOAT ADJUSTMENT

1. Remove carburetor as outlined in "Carburetor Removal," following.
2. Remove fuel bowl and gasket and check float level using a carburetor scale.
3. If necessary, adjust float level by bending metal tab (on float) to which inlet needle is clipped.

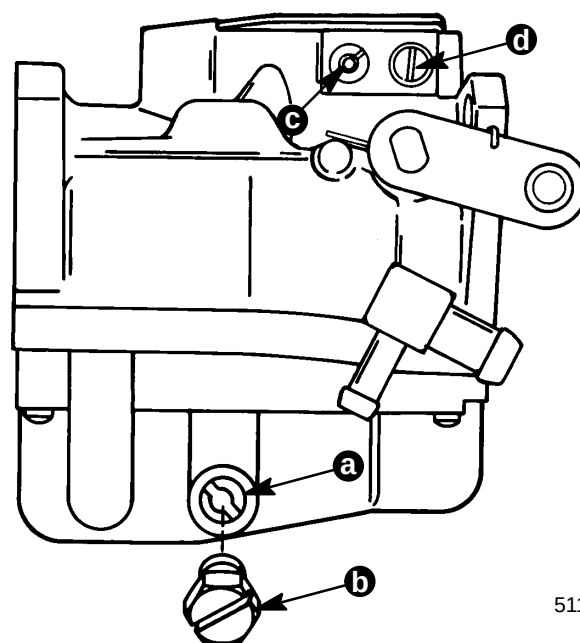


51046

a - Metal Tab
b - Inlet Needle

MAIN (HIGH SPEED) JET ADJUSTMENT

The carburetor has a fixed high speed jet. Extreme changes in weather (temperature and humidity) and/or elevation may result in a too lean or rich fuel mixture at wide-open-throttle, which may require a change in the high speed jet. A smaller size main jet will lean the fuel mixture, and a larger size jet will enrich the fuel mixture.



51118

a - High Speed Jet
b - Bowl Drain Plug
c - Bowl Vent Jet
d - Idle Mixture Screw



WME Carburetor Specifications

Carburetor Number Stamped at TOP of carburetor mounting flange.			
Carburetor Number	Model H.P.	Main Jet	Bowl Vent Jet
WME-23	50	.052	.092
WME-26	50	.048	.090
WME-27	55	.060	None
WME-22 A or B	60	.070	.090
WME-35	60	.068	None
WME-28	60	.062	.090
WME-43	50	.048	.090
WME-44	55/60	.060	None
WME-45	45/60	.062	.090

REJETTING CARBURETORS FOR HIGH ALTITUDE OPERATION

The carburetor jet installed at the manufacturer is for engine operation at sea level through an elevation of 2500 feet (762m) above sea level. If the engine is to be operated at an altitude higher than 2500 feet above sea level, it will be necessary to rejet (remove the carburetor jets and install jets with a different orifice size) the carburetors. Each time the engine is to be operated at a different elevation from the previous time, refer to the "Carburetor Jet Charts" following, and rejet the carburetors for elevation engine will be operated at.

HIGH ALTITUDE JET CHART	
Engine Operation Elevation (Above Sea Level)	High Speed Jet Size
2500'-5000' (750-1500m)	.002" smaller (than standard jet)
5000'-7500' (1500-2250m)	.004" smaller (than standard jet)
7500' and Up (2250m and Up)	.006" smaller (than standard jet)

*Standard Jets listed are for operation of engine from 0 ft. – 2500 ft. (0–762 M) of elevation.

JET ORIFICE SIZE/PART NUMBER CHART

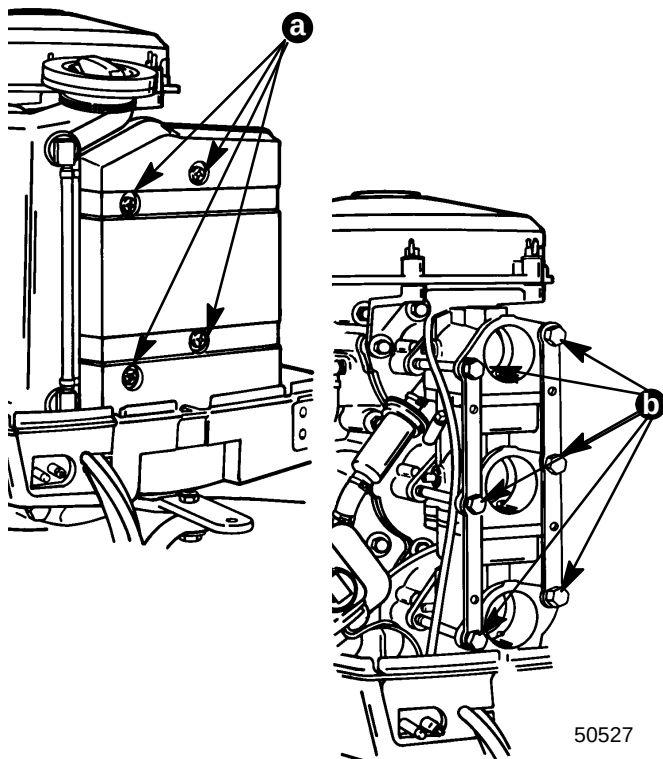
NOTE: Thread size for jets is 10-32.

JET ORIFICE SIZE/PART NUMBER CHART			
Jet Orifice Size (inch)	Part Number	Jet Orifice Size (inch)	Part Number
.040	19266040	.058	1395-7831
.042	1399-5315	.060	1395-6487
.044	1395-7394	.062	1399-4217
.046	1399-5317	.064	1399-4216
.048	1395-6246	.066	1399-4215
.050	1395-6028	.068	1395-6029
.052	1395-6359	.070	1395-6030
.054	1399-5225	.072	1395-6207
.056	1399-5213	.074	1399-3794
.076	1399-3796	.094	1395-8423
.078	1395-6680	.096	1399-6249
.080	1395-6201	.098	1395-7335
.082	1399-3518		
.084	1399-3517		
.086	1395-5815		
.088	1395-6202		
.090	1395-6247		
.092	1395-5733		



Carburetor Removal

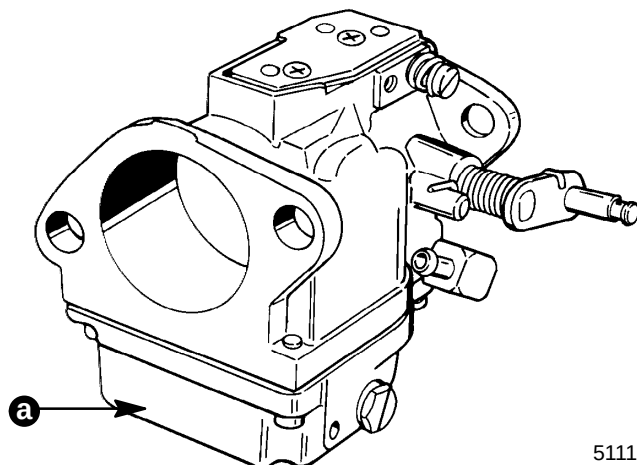
- Remove four screws and lift off attenuator.
- Remove six screws and remove carburetors. Disconnect linkages and fuel and primer lines.



a - Attenuator Screw (4)
b - Carburetor Screw (6)

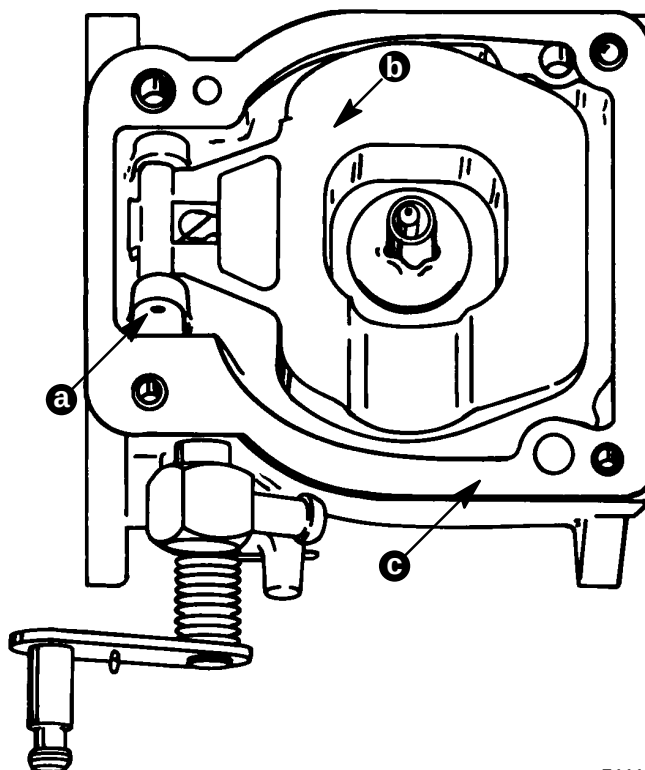
Carburetor Disassembly

- Remove fuel bowl.



a - Fuel Bowl

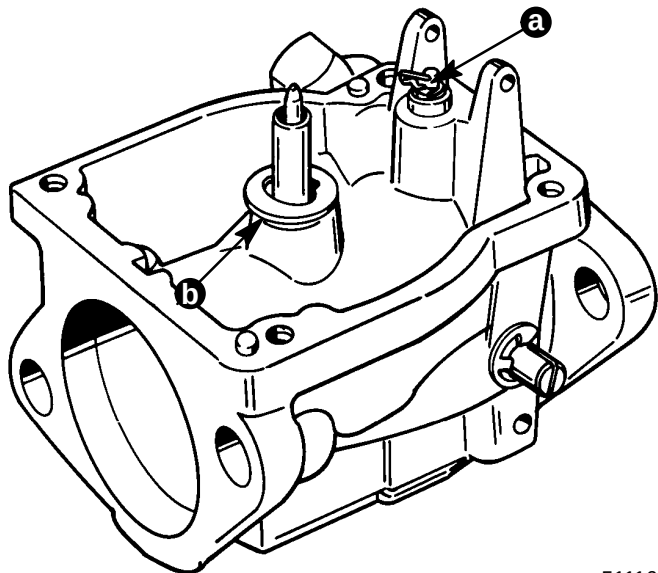
- Remove float pin and remove float.
- Remove fuel bowl gasket.



a - Float Pin
b - Float
c - Gasket



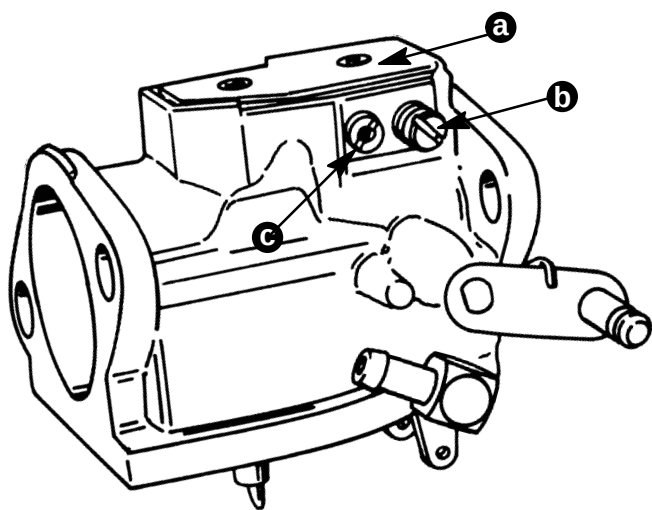
- Remove fuel inlet needle.
- Remove stem gasket.



51116

- a - Fuel Inlet Needle
- b - Stem Gasket

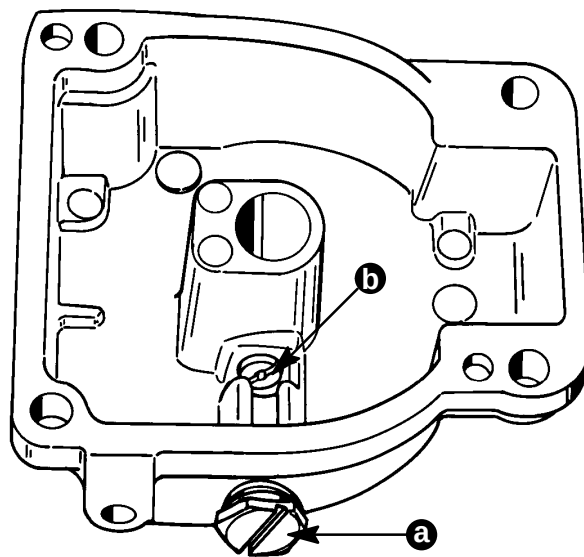
- Remove mixing chamber cover and gasket.
- Remove idle mixture screw.
- Remove bowl vent jet



51116

- a - Mixing Chamber Cover and Gasket
- b - Idle Mixture Screw
- c - Bowl Vent Jet

- Remove main jet plug and gasket.
- Remove main jet.

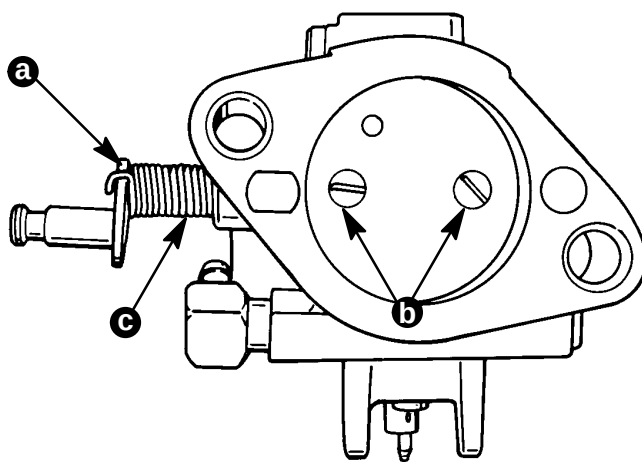


51116

- a - Main Jet Plug and Gasket
- b - Main Jet

NOTE: It is not necessary to disassemble carburetor beyond this point for cleaning. Examine throttle shaft for wear and inspect for damaged throttle shutter plate.

If removal of throttle shaft and/or throttle shutter plate is necessary, remove 2 screws, which secure throttle shutter plate to throttle shaft. Remove retaining clip from end of throttle shaft, then pull shaft out of carburetor.



51117

- a - Throttle Shaft
- b - Screw (2)
- c - Throttle Shaft Spring

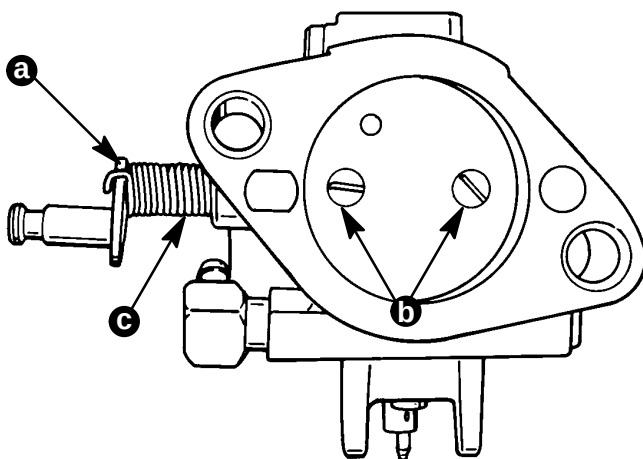


Cleaning and Inspection

1. Carefully inspect carburetor body and fuel bowl 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, and varnish that may have accumulated.
3. After washing parts, blow parts dry with compressed air. Be sure to blow air thru all passages, orifices and nozzles.
4. Check float hinge in the float pin area for wear and check float for leaks. Replace parts as necessary.
5. Examine inlet needle for wear. If worn, replace with new inlet needle.

Carburetor Reassembly

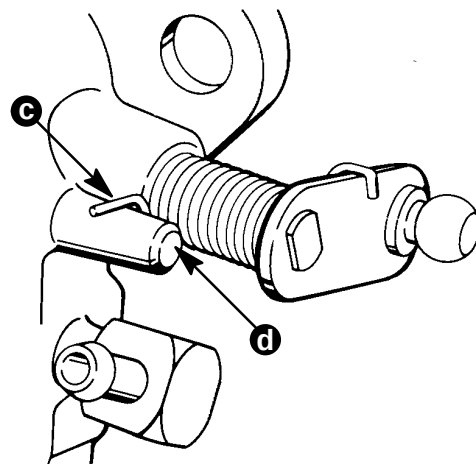
- If removed, install throttle shaft, throttle shutter plate, 2 screws (use Loctite Grade 'A'), and throttle shaft spring as shown. Install retaining clip on other end of shaft.



51117

- a - Throttle Shaft
- b - Screws (2) (Torque 6 lb. in. (0.7 N·m))
- c - Throttle Shaft Spring

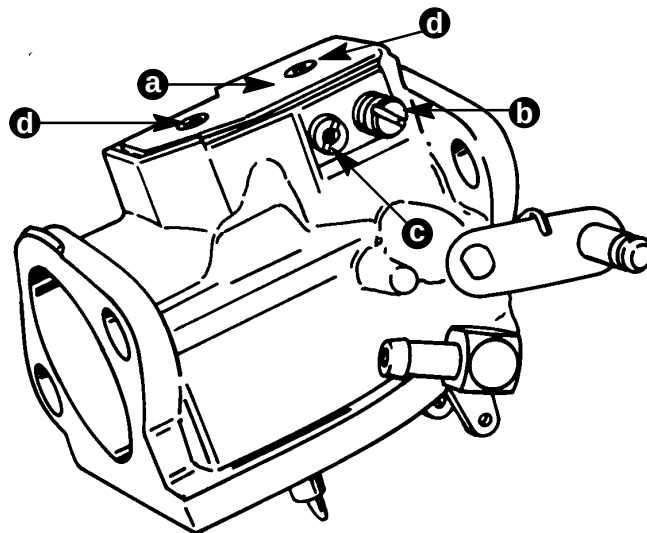
- Spring tension on stud.



51259

- c - Spring
- d - Stud

- Install mixing chamber cover and gasket as shown.
- Install idle mixture screw.
- Install bowl vent jet

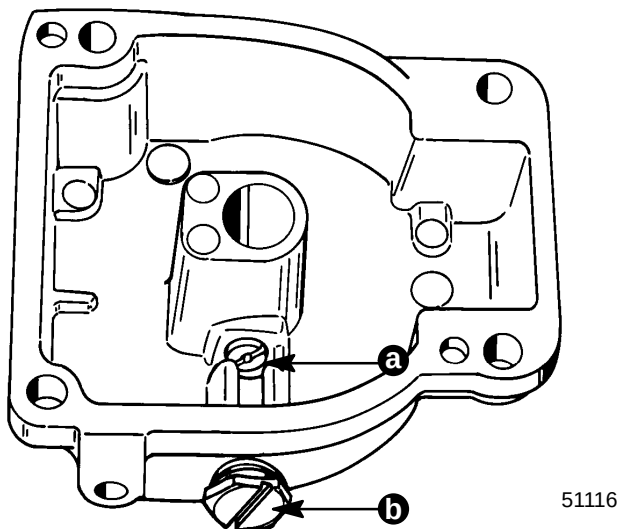


51116

- a - Mixing Chamber Cover and Gasket
- b - Idle Mixture Screw
- c - Bowl Vent Jet
- d - Screw (2) Torque 18 lb. in. (2.1 N·m)

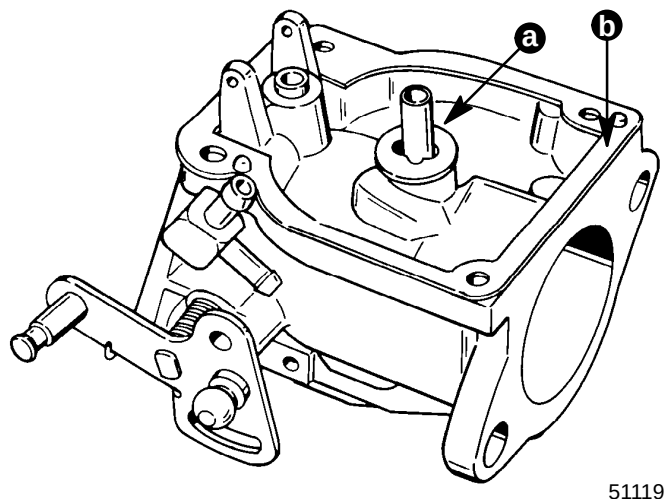


- Install main jet.
- Install main jet plug and gasket.



- a - Main Jet [Torque 14 lb. in. (1.6 N·m)]
b - Main Jet Plug and Gasket [Torque 22 lb. in. (2.5 N·m)]

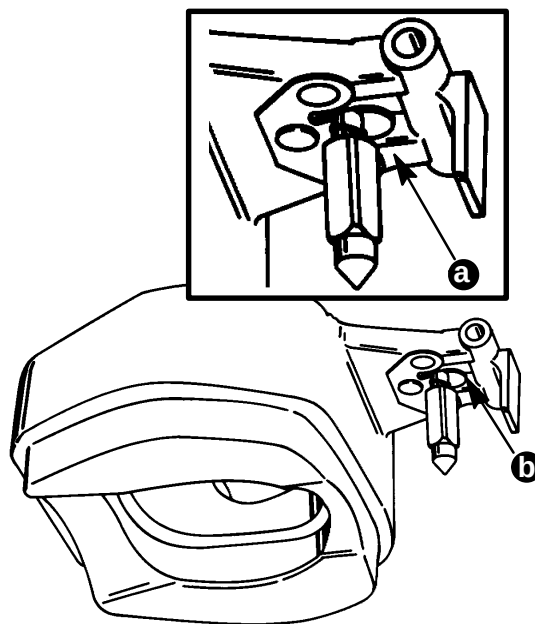
- Install stem gasket.
- Install fuel bowl gasket.



- a - Stem Gasket
b - Fuel Bowl Gasket

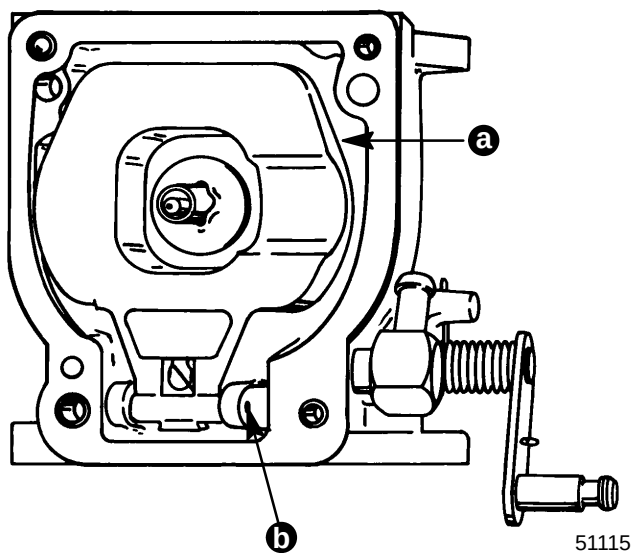
NOTE: If Spring Clip on Inlet Needle was removed, or if needle was replaced, be sure spring clip is reattached.

- Attach Spring Clip on Inlet Needle to metal float tab and place needle into its seat.



- a - Spring Clip
b - Float Tab

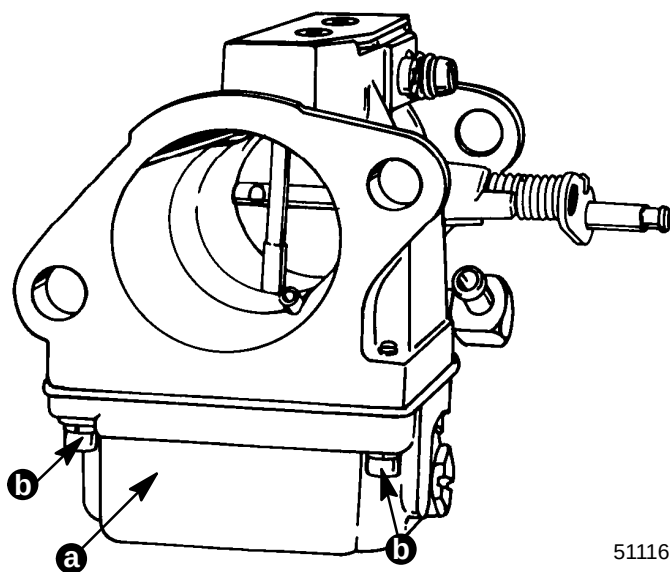
- Install float into carburetor with float pin.
- Adjust float following "Carburetor Float Adjustment," Page 3A-13.



- a - Float
b - Float Pin



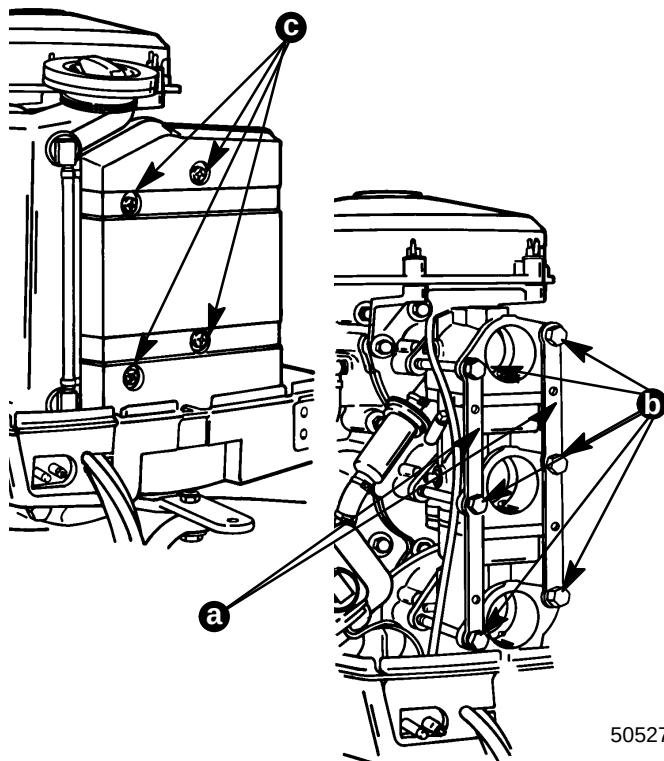
- Install float bowl.



- a - Fuel Bowl
b - Screw (4) Torque 18 lb in. (2.1 N·m)

Carburetor Installation

- Install carburetors, attenuator plate, connect linkages, and fuel and primer lines.
- Install sound attenuator.



- a - Attenuator Brackets (2)
b - Carburetor Screw (6) Torque 100 lb. in. (11.5 N·m)
c - Attenuator Screw (4)