



# service bulletin

TO: SERVICE MANAGER  TECHNICIANS   
PARTS MANAGER

No. 97-9

**NOTICE: The information contained in this Service Bulletin supersedes all previous bulletins, including 93-14.**

## Weber 4 bbl Carburetor

### 8 Point Carburetor Check List

To ensure that the carburetor is the cause of the engine's problem, make the following checks BEFORE ordering and installing a new carburetor. If questions 1, 2, 3, 5, 6 and 7 are YES and 8 is NO, the carburetor may not be the problem.

- |   |   |   |
|---|---|---|
| 1. Does the choke close completely (before starting)?   | Y | N |
| 2. Does the choke open completely (during engine warm-up)?  | Y | N |
| 3. Are idle mixture screws set correctly?<br>(Engines with Thunderbolt V ignition must have module locked in base timing mode). | Y | N |
| 4. What is the idle mixture screw setting? Choke side: _____ Turn. Cable side: ____ Turn.                                       |   |   |
| 5. Is the engine idle speed (RPM) correct?  | Y | N |
| 6. Is primary venturi cluster discharging fuel (by 2000 RPM)?   | Y | N |
| 7. Is a good stream of fuel being discharged by both pump injector nozzles?<br>(When throttle lever is pumped with engine off). | Y | N |
| 8. Does the engine flood at idle?   | Y | N |

### Adjusting Idle Mixture Screw

The initial idle mixture screw setting is 1-1/4 to 1-1/2 turns out from seat. Setting the idle mixture screws at 2-3 turns out from the seat will cause the engine to run too rich at lower RPM.

To adjust the idle mixture screw correctly, the throttle plates must be nearly closed. Please do the following:

**NOTE:** Engines with Thunderbolt V ignition systems must have the ignition module put into 'base timing' mode before turning key to start the engine. After adjustments, shut engine off. Remove the module grounding wire, then restart the engine to take module out of 'base timing' mode.

1. Disconnect throttle cable.
2. Set idle speed (RPM) screw so engine idles at 550-600 RPM in neutral gear.
3. Adjust idle mixture screws.
4. Reset the idle speed screw until engine idles at its recommended RPM.
5. Adjust and connect throttle cable.

## Electric Choke Operation, V8 Engines S/N 0F601465-0L000000

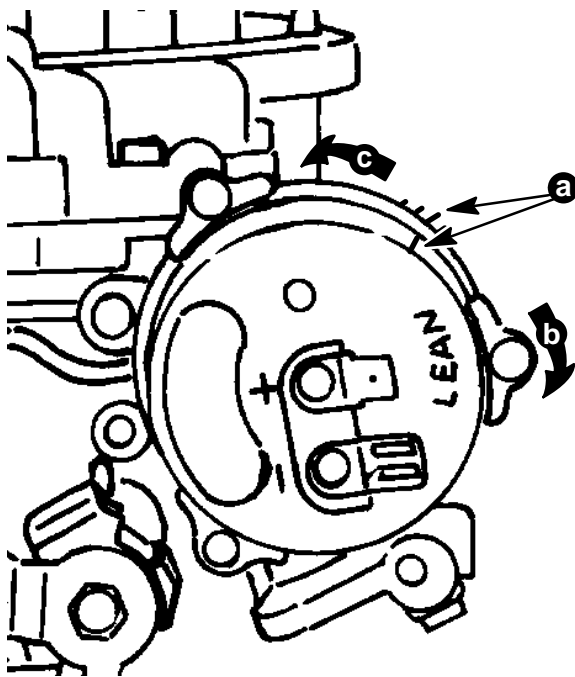
**NOTE:** Some earlier V8 engines with Thunderbolt V may have a PUR/YEL choke wire that is connected to the alternator. This information would apply to them also.

On these engines, a PUR/YEL wire connects the electric choke to a terminal on the alternator. The terminal on the alternator will not put out enough voltage to open the choke until the engine exceeds 800 RPM. If an engine is started and left to idle below 800 RPM, the choke may not open. This can cause a rich running condition. Whenever troubleshooting a choke opening problem on one of these engines, make sure that the engine RPM exceeds 800 when first starting.

Tell your customers to exceed 800 RPM for a short time after starting their engine. This will allow the alternator to start charging.

### Setting the Electric Choke

Each carburetor has its choke preset at the factory. This choke setting is different from engine model to model. When installing a new carburetor, do not move factory setting. When replacing the choke itself, reset new choke to the same position as the old choke. If you do not know where the old choke was set, start by setting the choke with the two alignment marks lined up. If needed, the choke can be set slightly richer or leaner to customize it for the operating conditions that the engine will be run in.



74104

a - Timing Mark in Cover is Shown In Line With Center Index Mark.

b - Clockwise = Richer.

c - Counterclockwise = Leaner.

### Automatic Choke Takes Long Time to Open

If the engine runs rich for a long period of time after start-up or the choke takes a long time to open, the automatic choke may be at fault. The failure to the choke may be its anchor pin. This pin anchors the choke spring to the base. The pin may be rotating in the base. This will cause the choke 'timing' to be off.

1. Start a cold engine and watch the choke operation.
2. If the choke does not open or opens very slowly, the problem could be the choke's anchor pin. Order a new automatic choke from the engine's parts list.

## **Automatic Choke Models with Hard Starting**

If you receive a complaint about a hard starting condition after engine sits for a week, do the following:

1. Before starting the engine, remove flame arrestor. Operate the throttle to see if the choke closes on its own.
2. If choke is stuck open, check choke stove link rod and choke linkage on both sides of carburetor for cause of sticking. There could be paint or interference to rod or linkage.
3. If choke plate closes but does not close tight against the air horn, check the same areas outlined in step 2.
4. If choke plate still does not close tightly after steps 2 or 3, then the choke link rod should be replaced. Order a new link rod from the engine's parts list. All replacement link rods in stock are the correct length. After installation, make sure rod does not rub against stove cover or carburetor throughout its travel.

## **Automatic Choke Pull-Off Specification for All Models**

Whenever servicing one of these engines or if your customer is experiencing a rich running condition after first starting the engine, check the choke pull-off specification. Refer to the service manual for the engine that you are working on for this procedure.

If your older service manuals show a different specification than this, write in these new specifications. The newer service manuals have been corrected.

V6 & V8 305, 350 cid: 3/16 in. (4.5 mm)

V8 454 & 502 cid: 15/64 in. (6 mm)

## **Flooding at Idle RPM**

If you get an engine that is flooding at idle RPM, please check for the following:

1. Bad needle and seat.
2. Incorrect float level or drop.
3. Sticky substance from fuel left in the bottom of float bowl causing float to stick open.
4. On engines with a mechanical fuel pump, check fuel pressure at the carburetor. If fuel pressure is too high, check sight tube from fuel pump to make sure it is not pinched or blocked.

## **4.3 LX Surging or Popping Condition above 4000 RPM, S/N 0F004226 and Below**

If you are working on an engine with this condition, install .089 in. secondary metering jets.

823724 Secondary Metering Jet, .089 in.

### 4.3 LX Flame Arrestor Stud Breakage or Cracked Air Horn, S/N 0F001219 and Below

If you experience this condition, order the following parts to correct the problem.

**NOTE:** The replacement stud will not thread in by hand because it has an interference thread on it. You must use a stud driver to install it.

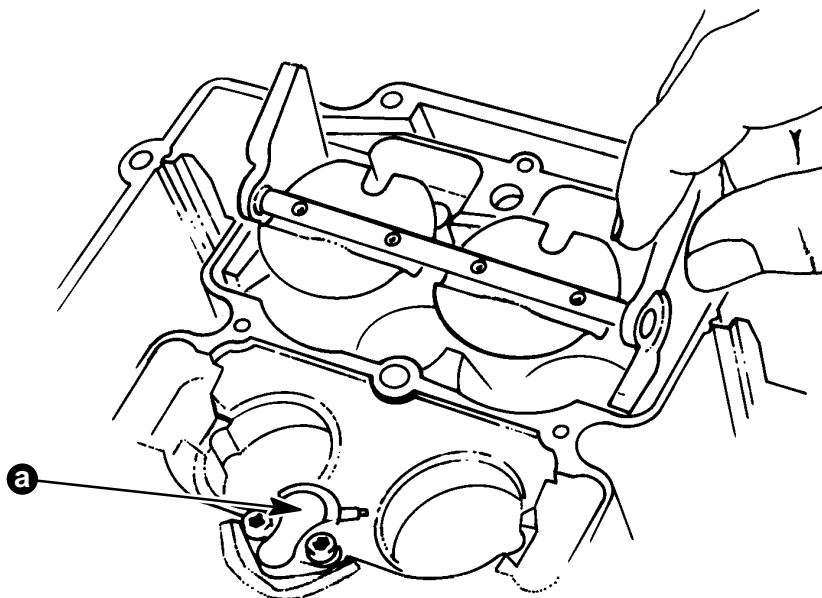
16-805277 Stud

3310-818660A1 Air Horn. Replace only if it is cracked or you cannot get the broken stud out.

#### Acceleration 'Bog'

With the engine off, pump the throttle lever and watch the carburetor's pump jet housing nozzles. Fuel should be coming out of both nozzles. If it is not, this could be the reason for the 'bog'. The two most common reasons for this problem are: an accelerator pump failure or a stuck check ball in the passage below pump jet housing.

Remove the air horn from the carburetor to inspect the accelerator pump. Repair if required. Remove the pump jet housing. Make sure the check ball, in the passage under the housing, is not stuck. If it is, use a pick to loosen the ball up. Clean check ball and reassemble.



70459

a - Pump Jet Housing. Check Ball is in Passage Under the Housing.

### Performance Problems on MCM 7.4L Sterndrive Engine, S/N 0F022828 and Below or MIE 7.4L Inboard, S/N 0D857999 and Below

**NOTE:** This does not affect MCM 454 Magnum engines.

If you have an engine with one of these problems:

- a. Engine runs rich at idle.
- b. Engine has a backfire between 2400 and 2600 RPM.
- c. Engine has a surge above 4000 RPM.

Check the jet sizes in the carburetor. The main jets should be .107 in. and the secondary jets should be .098 in. If they are not, change them. Engines above the serial numbers listed have these jets already in their carburetors.

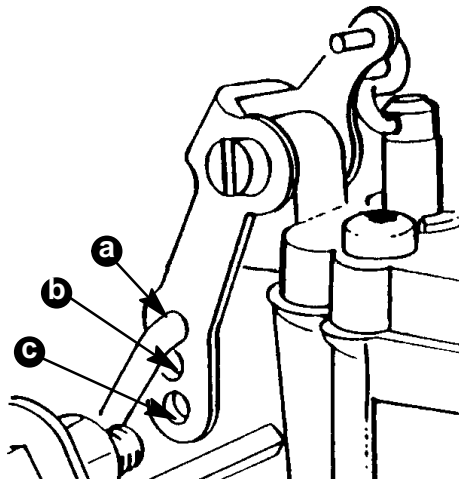
**NOTE:** Before changing jets, make sure you do not have an automatic choke problem that is causing the rich idle condition.

811541 Main Jet, .107 in.

811542 Secondary Jet, .098 in.

### Adjustable Accelerator Pump

The accelerator pump lever has three holes in it. The closest hole to the lever's pivot point is the richest and the hole farthest away is the leanest. The three holes in the lever are there so the amount of fuel delivered by the accelerator pump can be changed if acceleration problems occur in certain boat applications. Most bogging problems can be corrected by changing the rod's location, providing the bogging problem is being caused by the carburetor. Always test run the boat in the water to see if the bog has been corrected.



70472

- a - Rich.
- b - Lean.
- c - Leanest.

### Checking Accelerator Pump Adjustment

Check the accelerator pump height each time after you have made the idle mixture and RPM adjustments on an engine. If this is not checked after the idle adjustments are made, the pump may not be getting its full stroke which could cause an acceleration 'bog'. Follow procedures outlined in service manual.

Pump Rod height: 7/16 in. (11 mm).

## Suggested Changes for Running at Altitude

The following is meant to be a guide when the engine is going to be used at altitudes other than sea level.

1. Boats going to a higher elevation for a short period of time should only change their propeller to a lower pitch.
2. Customers that will be doing all their boating at higher altitudes can have the following changes made. If this boat is brought back down to sea level, all elevation changes that were made must to be returned to settings for sea level.

### CAUTION

**To prevent engine damage, DO NOT SET timing any higher than for the lowest elevation that customer will be running the boat.**

3. Generally, timing can be advanced 2 degrees for every 5000 ft. (1525 m) elevation to help engine performance.
4. Carburetors can be leaned out to help performance at higher elevations. Before ordering any parts, look at the part number on the carburetor. Then, look at the chart to determine the stock parts that came in the carburetor.

For gear ratio changes, see Service Bulletin 97-10.

**IMPORTANT: Change only the parts listed in the chart.**

Jet. Size	Part Number
.071	823719
.074	823720
.077	811651
.080	823721
.083	823722
.086	823723
.089	823724
.092	811657

Jet Size	Part Number
.095	811832
.098	811542
.101	811650
.104	811540
.107	811541
.110	823432
.113	811649

Elevation Kits	Part Number
Number 1	809615
Number 2	809620

**NOTE:** Kit Number 2 is used only on the MCM 454 Magnum

### MCM Sterndrive Engines

Model	Carburetor Part Number	5000 ft. (1525 m) and Below	5000-9000 ft. (1525-2745 m)	9000 ft. (2745 m) and Above
4.3LX 0F004225 and Below	3310-818660A_ (9660)	.095 in. #	.089 in.	.086 in.
4.3LX 0F004226-0F803114	3310-818660A_ (9660)	.089 in. #	.086 in.	.083 in.
4.3LXH	3310-807826A (9666S)	3 Step Metering Rods #	@	@
5.7L Alpha	3310-805484A_ (9661)	.101 in. #	.095 in.	.092 in.
	3310-806761A_ (9665S)	.095 in. #	.095 in. #	.092 in.
5.7L Bravo, 5.7LX or 350 Magnum	3310-816343A_ (9770) 3310-806970A_ (9770SA)	.092 in. #	.086 in.	.083 in.
	3310-807262A (9781S)	3 Step Metering Rods #	@	@
7.4L	3310-818659A_ (9772)	.098 in. Port # .077 in. Stbd. #	.092 in. .074 in.	.089 in. .071 in.
	3310-818659A_ (9772SA)	.098 in. #	.092 in.	.089 in.
	3310-806969A_ (9780S)	3 Step Metering Rods #	Use Elevation Kit Number 1	
7.4L PT Bravo 3	3310-805569A_ (9777)	.098 in. #	.092 in.	.089 in.
	3310-806755A_ (9779S)	3 Step Metering Rods #	Use Elevation Kit Number 1	
454 Magnum	3310-816917A_ (9773)	.107 in. #	.101 in.	.098 in.
	3310-806755A_ (9779S)	3 Step Metering Rods #	Use Elevation Kit Number 2	
502 Magnum	3310-805341A_ (9776) 3310-806791A_ (9776SA) 3310-806971A_ (9776SB)	.101 in. #	.095 in.	.092 in.

# = Stock Secondary Metering Jets or Metering Rods.

@ = There will not be an Elevation Kit available from Quicksilver for this carburetor.

### MIE Ski and Inboard Engines

Model	Carburetor Part Number	5000 ft. (1525 m) and Below	5000-9000 ft. (1525-2745 m)	9000 ft. (2745 m) and Above
5.7L Ski or 5.7L Inboard	3310-805484A_ (9661)	.101 in. #	.095 in.	.092 in.
	3310-806761A_ (9665S)	.095 in. #	.095 in. #	.092 in.
350 Mag Tour Ski or 5.7L Inboard	3310-816343A_ (9770) 3310-806970A_ (9770SA)	.092 in. #	.086 in.	.083 in.
	3310-807262A_ (9781S)	3 Step Metering Rods #	@	@
7.4L	3310-818659A_ (9772)	.098 in. Port # .077 in. Stbd. #	.092 in. .074 in.	.089 in. .071 in.
	3310-818659A_ (9772SA)	.098 in. #	.092 in.	.089 in.
	3310-806969A_ (9780S)	3 Step Metering Rods #	Use Elevation Kit Number 1	
8.2L	3310-805341A_ (9776) 3310-806791A_ (9776SA) 3310-806971A_ (9776SB)	.101 in. #	.095 in.	.092 in.

# = Stock Metering Jets or Metering Rods.

@ = There will not be an Elevation Kit available from Quicksilver for this carburetor.