mercruiser
STERN DRIVES & INBOARDS

# service bulletin

TO: SERVICE MANAGER ☐ TECHNICIAN ☐
PARTS MANAGER ☐

▲ = Revised February, 1995

No. 93-13

**NOTICE: The information contained in this Service Bulletin supercedes all previous bulletins, including 92-6.**

## Mercarb 2 Barrel Carburetor

### New Float Setting

This float setting is for all MerCarbs. This supercedes all previous Service Bulletins. Please make this change to Number 3, 7, 8, 9, 10 and 13 Service Manuals.

### Float Level

Two Piece Solid Inlet Needle: 3/8 in. (10 mm)

Spring-Loaded Inlet Needle: 9/16 in. (14 mm)

### Float Drop

All: 1-3/32 in. (27 mm)

### Adjusting Idle Mixture Screw

To adjust the idle mixture screw correctly, the throttle plates must be just about closed. To make sure that this is done, please do the following:

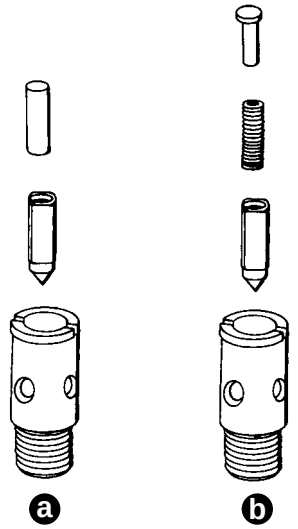
1. Disconnect throttle cable.
2. Reset idle speed (RPM) screw so engine idles at 550-600 RPM in neutral gear.
3. Adjust idle mixture screw.
4. Reset idle speed screw until engine idles at 650-700 RPM in forward gear.
5. Adjust and connect throttle cable.

### Flooding at Idle RPM

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

1. Problem in ignition system causing the engine to run rough.
2. Idle mixture screw adjusted incorrectly.
3. Bad needle and seat.
4. Incorrect float level or drop.

If all these items have been checked then you may want to check the type of needle and seat installed in the carburetor. Most MerCarbs use a solid two piece needle. The 3.0L carb P/N 1389-815396_ and 3.0LX carb P/N 1389-815397_ use a spring loaded needle.

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a - Solid Two Piece Needle
b - Spring Loaded Needle

If the carburetor has a solid two piece needle in it, install the spring loaded needle and seat kit. Reset float level to specification listed before.

Installing a spring loaded needle and seat kit on a 4 cylinder engine can cause a “lean out” condition in extremely hard turns. (GM 153, 181 CID: Right turn, Mercury 224 CID: Left turn). V6 and V8 engines should not be affected. Because of this potential “lean out” condition in extremely hard turns, you should make the boat owner aware of this condition before installing the spring loaded needle.

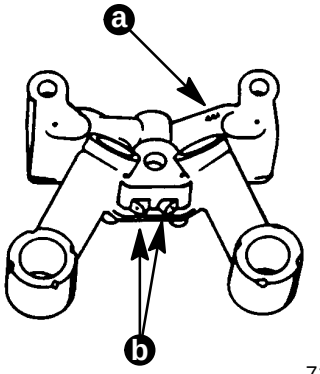
The spring loaded needle is the preferred one to use if you have a flooding problem at idle RPM.

3302-9407 Solid Two Piece Needle and Seat Kit

3302-9029 Spring Loaded Needle and Seat Kit

**Venturi Cluster Identification**

The venturi clusters are matched to the carburetor that they come in. Some time the replacement clusters get packaged wrong. The clusters have an identifying number on them. Refer to chart for carburetor/cluster use.

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a - Identification Number
b - Accelerator Pump Discharge Holes

| Engine | Carburetor P/N | Venturi Cluster ID Number | Accelerator Pump Discharge Hole Size |
|---|---|---|---|
| GM 4 Cyl. | 1389-8490_ | 408 | .035 in. (0.880 mm) |
| | 1389-9350_ | 442 | .025 in. (0.635 mm) |
| | 1389-9562_ | | |
| | 3310-806077_ | | |
| | 1389-815396_ | 592 | |
| | 3310-806078_ | | |
| | 1389-815397_ | 593 | |
| | 3310-805924_ | 464 | |
| Mercury Marine 4 Cyl. | 1389-8489_ | 411 | .035 in. (0.889 mm) |
| | 1389-9564_ | | |
| | 3310-806079_ | | |
| ▲ GM V6 | 3304-9353_ | 421 | |
| | 3304-9565_ | | |
| | 3310-806080_ | | |
| | 3310-806972_ | 466 | |
| GM V8 (Note 1) | 1389-8488_ | 407 | |
| | 1389-9563_ | | |
| | 3310-806081_ | | |
| | 1389-9670_ | | |
| | 3310-806082_ | 463 | .039 in. (0.99 mm) |

▲ *Note 1: The "407" cluster has been superseded by the "463" cluster for service parts.*

### ▲ MCM 4.3L "Surge" at 3000-4000 RPM (S/N 0F293967 and Below)

If a boat owner experiences this condition and the engine serial number is below the listed, change the venturi cluster. In most cases, this cluster change will correct the problem. This is the same cluster as used in the current MCM 5.0L.

3302-808706 Venturi Cluster (from 5.0L carburetor).

Engines above the serial number given use a re-calibrated carburetor, P/N 3310-806972A1. This new carburetor also corrects this condition. Do Not use the Venturi Cluster from this new carburetor in an older carburetor because it could cause the engine to run too lean. This venturi cluster has distribution tabs on it and is calibrated to be used in the 3310-806972A1 carburetor only.

### ▲ MCM 4.3L "Surge" or "Popping" Above 4000 RPM

To correct this condition above 4000 RPM, install 1.60 mm main jets.

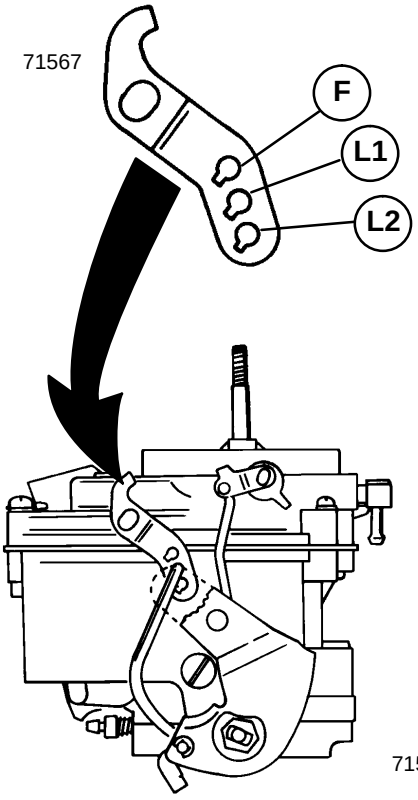
(2) 3302-810923 1.60 mm Main Jets.

### MCM 5.0L Running Rich at Idle or Off Idle (S/N 0F118346 and Below)

If you have an engine that has this condition and it's below the serial number listed, change the Venturi Cluster.Engines above S/N 0F118346 use the new 3310-806082A2 carb and it has this cluster in it. The idle circuit is leaner than the previous cluster.
Note!! This new cluster may give a "lean pop" on rapid acceleration with "no load" on the prop. Retest in the water with correct pitch propeller before trying to correct a"problem" that really isn't there.

**Adjustable Accelerator Pump Lever**

This new 3 holed lever will allow you to change the amount of fuel delivered to the engine by the accelerator pump. The hole closest to the lever's shaft, will give the same amount of fuel as the single hole lever did. The center hole gives approximately 0.5cc less fuel and the hole farthest away will give about 1.0cc less fuel.




**F -** Full Accelerator Pump Stroke
**L1 -** 0.5cc Less Fuel Per Stroke
**L2 -** 1.0cc Less Fuel Per Stroke

The technician should be able to correct most "bogging" problems with this 3 hole lever providing the "bogging" condition is caused by the carburetor. When installing the 3 hole lever, remove any metal ball that someone may have put in the accelerator pump well to limit pump travel. Also, make sure that the duration spring on the accelerator pump is stock and hasn't had several coils cut off. Make sure the venturi cluster is the correct one as outlined previously under "Identification".

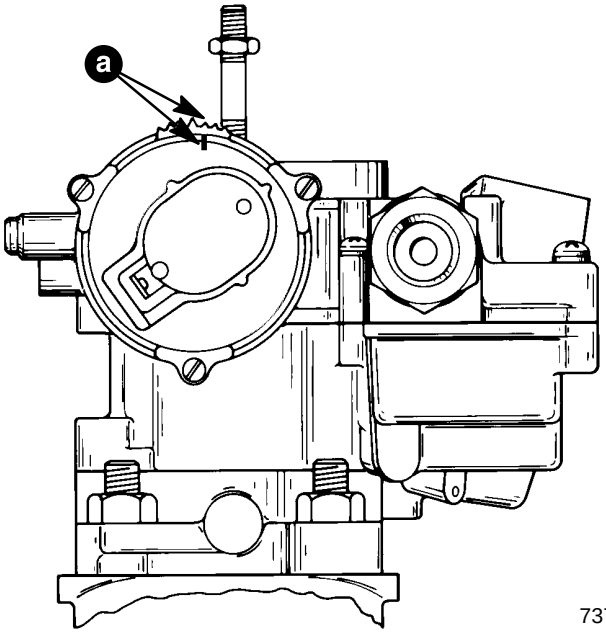
When installing this new lever in a carburetor that has a single hole lever, put the rod in the center hole. This will give 0.5cc less fuel to the engine on acceleration, than the single hole lever did. Test run boat in the water to see if bog has been corrected. Rod can be moved to other holes to richen or lean the pump stroke.

The 3 hole lever will be used on carburetors in production starting sometime in June, 1992. These carburetors will have the rod put in the center hole.

(1) 3302-823725 Lever (With 3 Holes)

### ▲MerCarb Choke Setting Change

When servicing the engine, the choke should be reset to the new choke setting which is 1 notch clockwise (leaner) as shown in drawing. The old setting was too “rich” for most conditions. Production is setting new engines to this new specification.




73776

a - 1 Notch Clockwise (Leaner)

3302-808706 Venturi Cluster

### Suggested Changes for Running at Altitude

For gear ratio changes, see Service Bulletin 93-7. The following is meant to be a guide when the engine is going to be used at altitudes other than sea level. If you are at sea level and your customer is going to a higher elevation for a short period of time, no changes to the gear ratio, timing or carburetor should be done. If your customer will be doing all their boating at higher altitudes, then changes can be done. If the boat is then brought back to sea level, everything has to be changed back for sea level use. Generally, timing can be advanced 2 degrees for every 5000 ft. (1525 m) elevation to help engine performance.

**⚠ CAUTION**

**To prevent engine damage, do not set timing any higher than for the lowest elevation that customer will be running the boat.**

Before ordering main jets, look at the part number on the carburetor. It is located on the float bowl under the fuel inlet fitting. Part numbers that have 6 digits will only have the last 5 digits stamped in the float bowl; 815397A 4 will be 15397A 4. Also, look at the main jet to see what size it is. A “165” stamped on it would mean that it is a 1.65 mm jet.

| Model | Carburetor Part Number | 5000 ft. (1525 m) and Below | 5000-9000 ft. (1525-2745 m) | 9000 ft. (2745 m) and Above |
|---|---|---|---|---|
| 2.5L/3.0L | 1389-9562A_<br>3310-806077A_ | 1.45 mm Stock Jets | 1.40 mm | 1.35 mm |
| 3.0L | 1389-815396A_<br>3310-806078A_ | 1.60 mm Stock Jets | 1.50 mm | 1.45 mm |
| 3.0LX | 1389-815397A_ | 1.65 mm Stock Jets | 1.55 mm | 1.50 mm |
| | 3310-805924A_ | 1.60 mm Stock Jets | 1.50 mm | 1.45 mm |
| ▲ 4.3L | 1389-9565A6, A7<br>3310-806080A_ | 1.60 mm Stock Jets | 1.50 mm | 1.45 mm |
| | 1389-9565A4 | 1.65 mm Stock Jets | 1.55 mm | 1.50 mm |
| | 3310-806972A_ | 1.55 mm Stock Jets | 1.35 mm | 1.35 mm |
| 5.0L | 1389-9563A_<br>3310-806081A_ | 1.70 mm Stock Jets | 1.60 mm | 1.55 mm |
| | 1389-9670A_<br>3310-806082A_ | 1.85 mm Stock Jets | 1.75 mm | 1.65 mm |

| Jet Size | Quicksilver Part Number |
|---|---|
| 1.30 | 3302-811849 |
| 1.35 | 3302-811850 |
| 1.40 | 3302-811851 |
| 1.45 | 3302-9050 |
| 1.50 | 3302-811852 |
| 1.55 | 3302-811853 |
| 1.60 | 3302-810923 |

| Jet Size | Quicksilver Part Number |
|---|---|
| 1.65 | 3302-9058 |
| 1.70 | 3302-9055 |
| 1.75 | 3302-811854 |
| 1.80 | 3302-811855 |
| 1.85 | 3302-811856 |
| 1.90 | 3302-811857 |