MERCURY
MARINER
MERCURY Sport Jet

service information

☑ ADVISORY
☐ BULLETIN

No. 2001-17

Circulate to: ☐ Sales Manager ☐ Accounting ☑ Service Manager ☑ Technician ☑ Parts Manager

Fuel Starvation

NOTICE
This Bulletin replaces Mercury Outboard Service Bulletin 99-5.

Models Affected

MERCURY/MARINER

1987 and Later, 30 Thru 250 HP, (with square fuel pump)

FORCE

1994-1/2 and later 40 Thru 120 HP, 1997 and later 175 Sport Jet

It is important that fuel supply restrictions/vacuum levels do not exceed specification. High restrictions may result in the engine stalling at low speed, and /or a lean fuel condition at high RPM, that could cause non-warrantable engine damage. It is recommended to check fuel system vacuum on all new boats/engines being prepared for delivery to ensure customer satisfaction and engine durability.

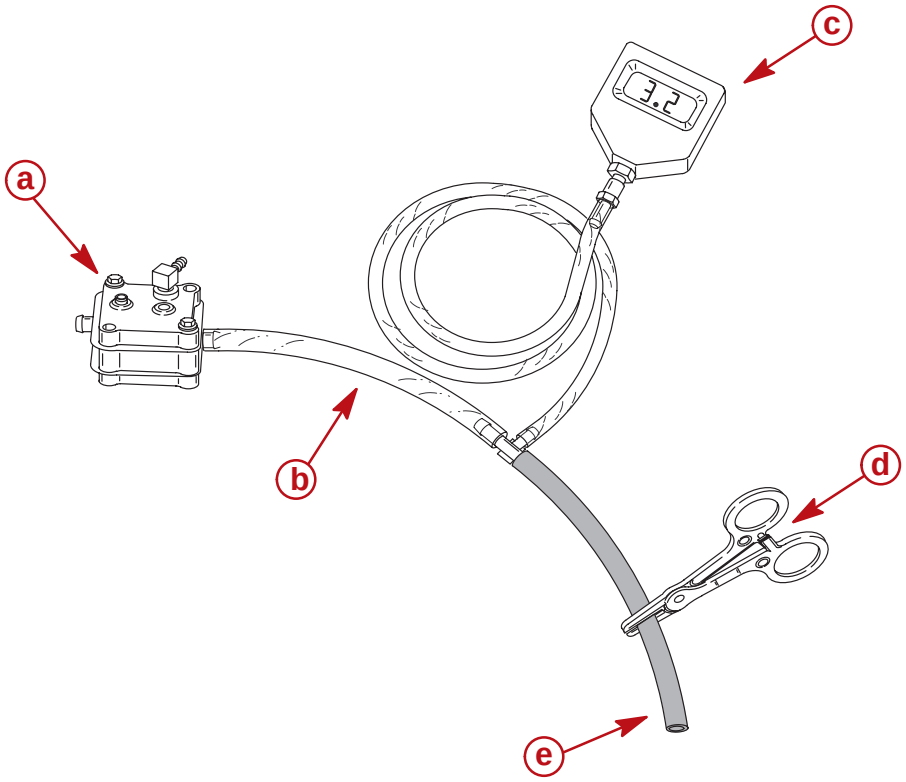
Inspection/Test

The purpose of the following tests is to check the vacuum level required to draw fuel from the fuel tank to the pulse driven fuel pump, check for air leaks in the fuel supply system, and the condition of the pulse driven pump. The following items will be required to perform these tests.

- Short piece of clear hose ¼" .250 [6.35mm] I.D.
- Vacuum gauge, (digital gauge is preferred) obtain locally
- "TEE" fitting that will fit ¼" .250 [6.35mm] I.D. fuel hose
- Tubing clamp P/N 91-804063

Make vacuum gauge, "TEE" fitting, and hose connection as shown on page 2.

NOTE: *Make the "TEE" fitting connection as close to the fuel pump as possible.*



a - Pulse driven fuel pump
b - Clear hose connected between pulse pump and “TEE” fitting
c - Vacuum gauge (digital)
d - Tubing clamp P/N 91-804063
e - Fuel supply hose from fuel tank

Test Procedure

PUMP CAPABILITY TEST

Before proceeding with the system vacuum test, confirm that the pulse fuel pump is capable of supplying the required vacuum. To do this, start the engine and run at idle speed, pinch off/restrict the fuel supply hose between the vacuum gauge and fuel tank, using tubing clamp.

Normal Reading →	2.5 in. of vacuum (mercury) or higher, proceed to fuel system leak test.

Reading below 2.5 in. vacuum (mercury) →	• Pump check valves defective, replace valves • Pump diaphragm defective, replace diaphragms • Air leak in pump, rebuild pump with new gasket, check fitting for leaks • Low crankcase pressure, check for crankcase leaks or plugged pulse pump pressure/vacuum passageways.

FUEL SYSTEM LEAK TEST

This test is done with the engine running, and the tubing clamp removed. The clear hose that was installed previously is used to view the fuel flow to the pulse pump.

No air bubbles seen in clear hose →	No air leaks, perform vacuum test (following)

Air bubbles seen in clear hose →	Air leak on intake side of fuel system • Pick up tube in fuel tank leaking • Outlet fitting at fuel tank leaking • Fuel inlet hose not properly clamped at fitting • Leaking fuel tank valve • Fuel line from kicker engine connected into fuel line of main engine.

VACUUM TEST

The system vacuum test is normally performed at an idle speed. As engine RPM increases, there will be a slight increase in vacuum; this increase should not exceed normal readings at any RPM.

Normal Reading →	Below 2.5 in. of Vacuum (mercury)

Reading above 2.5 in. of vacuum (mercury) →	Restriction within the fuel system • Restricted anti-siphon valve • Restricted or malfunctioning primer bulb • Kinked or collapsed fuel hose • Plugged water separating fuel filter (in the boat) • Restriction in fuel line thru-hull fitting • Restriction in fuel tank switching valves • Plugged fuel tank pick-up screen

Correction:

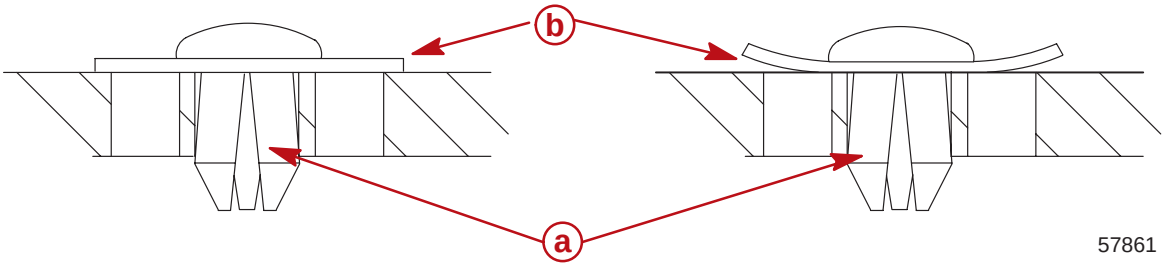
If the fuel capability test indicated good vacuum level (2.5 in. mercury or higher) proceed to PRIMER BULB replacement.

If the fuel pump capability test indicate low vacuum, proceed with the following two upgrades to the fuel system to prevent low speed stalling.

PULSE FUEL PUMP:

The new repair kits contain check valves made of a plastic material, impervious to damage from fuel additives. When repairing the fuel pump discard old rubber and small plastic check valve disks, and install one new plastic disk under each retainer. Caution must be taken not to push the check valve retainer too tightly against the check valve, this may cause the valve to deform.

NOTE: *Before driving the check valve pin into the retainer, support the pump housing on the opposite side, directly below the check valve retainer using a socket or spacer. This will prevent distortion or cracking of the pump housing.*



CORRECT **INCORRECT**

a - Check valve retainer
b - Check valve (plastic)

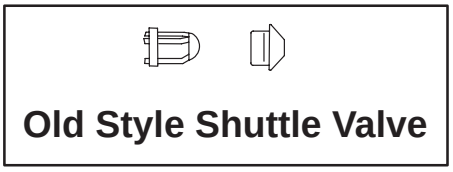
The new plastic check valve started in production at the serial numbers listed below.

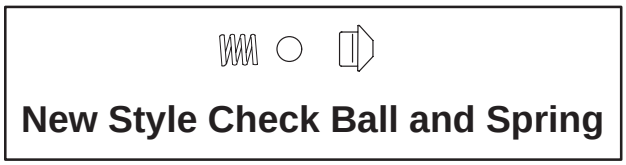
MERCURY/MARINER	USA	BELGIUM
200 – 225 HP, 3.0 Liter Carb/EFI/Optimax	0G925400	
135 – 200 HP, 2.0/2.5 Liter Carb/EFI/OptiMax	0G912213	
75 – 125 HP, 65 Jet	0G923899	0P054758
40 – 60 HP	0G919929	0P054357
30 – 40 HP	0G919618	0P054357

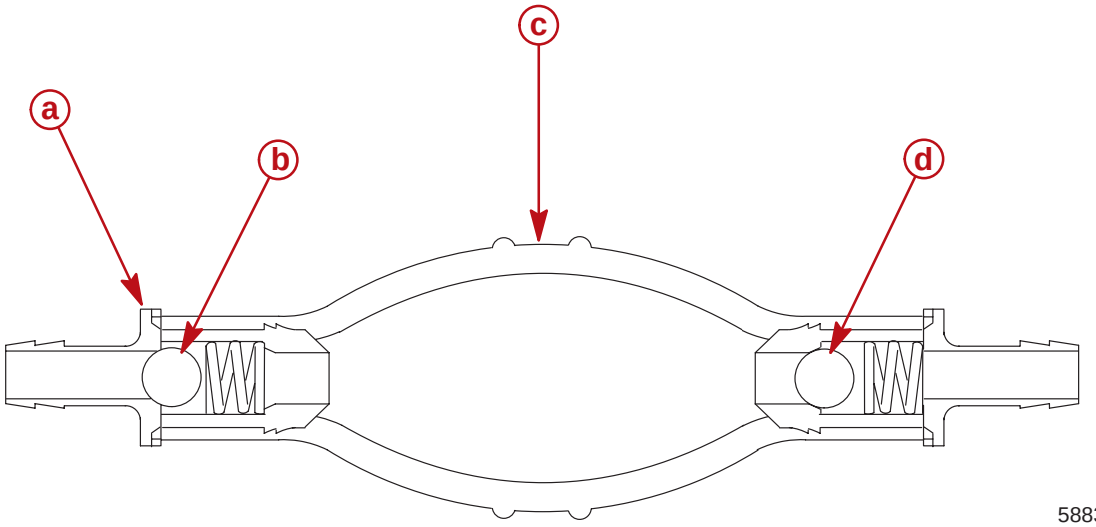
PRIMER BULB:

The earlier style primer bulbs P/N 13330A3 used a shuttle type check valve (See picture below). Under certain conditions the early style valves may experience sticking, which could cause the engine to stall due to a lack of fuel. In most cases the valve sticking is seen at low speeds (idle or off idle).

A new primer bulb P/N 13330T5 or 13330Q5 has been developed to help resolve this condition. The new bulb uses a round check ball and spring arrangement, (See picture below) rather then the shuttle style check valve. The check ball and spring arrangement are less likely to stick. The new primer bulb is identified by a yellow ring/washer between the bulb and fitting. The new primer bulb should NOT automatically be replaced unless confirmed to be the problem.







58834

a - Yellow identification washer (located either end)
b - Inlet check valve
c - Primer bulb
d - Outlet check valve

The new primer bulb started in production on 2000 model at the serial numbers listed below. The 2001 models no longer had the fuel line assembly shipped with the engine.

MERCURY/MARINER	USA	BELGIUM
All V-6 115 – 250	0T144003	
75 – 125 HP, 80 Jet	0T089012	0P063645
75/90 4 Stroke	0T143069	
60 HP and Below U.S. only	0T081656	
30 – 60 HP Belgium		0P063194

Service Parts Inventory

PRIMER BULBS: Any inventory of the early style primer bulbs or fuel line assemblies, should be used up on 25 HP and lower engines. Because of the lower fuel volumes required by these engines check valve sticking has not been an issue.

Parts Required

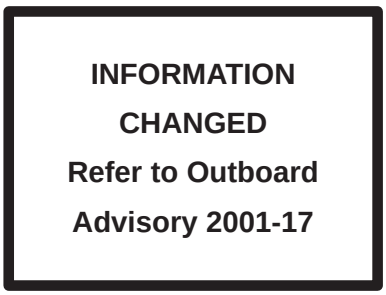
Qty. 1 P/N 21-857005A1 Repair kit pumps with two solid diaphragms

Qty. 1 P/N 21-42909A4 Repair kit pumps with oil mixing holes in one diaphragm

Qty. 1 P/N 13330T5 or 13330Q5 Primer bulb

Sticker

A sticker is provided to place on Mercury Outboard Service Advisory 99-5. The sticker is to inform the reader that the advisory is superseded by this advisory.



Warranty

The normal factory warranty applies. The above items are considered a product improvements and do NOT suggest a recall or rework campaign. Warranty will not cover upgrades to engines if a failure has not occurred.

INFORMATION
CHANGED
Refer to
Outboard Advisory
2001-17

INFORMATION
CHANGED
Refer to
Outboard Advisory
2001-17

INFORMATION
CHANGED
Refer to
Outboard Advisory
2001-17

INFORMATION
CHANGED
Refer to
Outboard Advisory
2001-17

INFORMATION
CHANGED
Refer to
Outboard Advisory
2001-17

INFORMATION
CHANGED
Refer to
Outboard Advisory
2001-17

INFORMATION
CHANGED
Refer to
Outboard Advisory
2001-17

INFORMATION
CHANGED
Refer to
Outboard Advisory
2001-17