EVINRUDE Johnson BRP

OUTBOARDS
Service Bulletin

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Suggested Routing:
☐ Service ☐ Sales ☐ Parts

Date: June 27, 2008 **No.** 2008-06(S)

MODELS: All Models **SUBJECT:** Fuel System Requirements and Testing

Dear *Evinrude/Johnson*® Dealers:

This communication is to provide *Evinrude* and *Johnson* dealers service information related to boat fuel systems and testing. Fuel systems must meet minimum specifications to insure the proper delivery of fuel to the outboard.

IMPORTANT: Inadequate fuel flow to high horsepower outboards can result in serious powerhead damage.

Fuel System Requirements

The guidelines established by the ABYC and U.S. Coast Guard should always be followed. See “Outboard Fuel System Recommendations” on page 2.

Fuel Hose

All fuel hoses must be designated as fuel hose and approved for marine use.

- Use only fuel lines (or copper tubing) that meet the outboard minimum I.D. requirement.
- “USCG Type A1” fuel hose must be used between permanent fuel tanks and motor well fittings on inaccessible routings.
- Use “USCG Type B1” for fuel hose routings in motor well areas.
- Permanently installed fuel hoses should be as short and horizontal as possible.
- Use corrosion-resistant metal clamps on permanently installed fuel hoses.

Fuel System Primers

Outboards require a priming system capable of refilling the fuel system after periods of non-use. Use fuel primer bulbs that meet the outboard's minimum inside diameter fuel line requirements. Marine primer pumps and primer bulbs must not restrict fuel flow to the outboard.

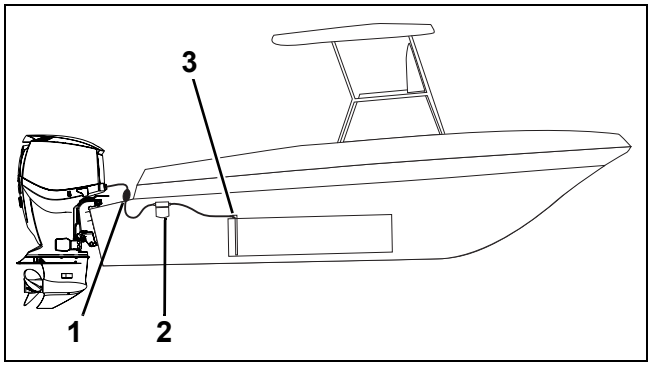
Fuel Filters

Boat-mounted fuel filters and water-separating fuel filter assemblies must meet the required fuel flow and filter specification. The filter must be mounted to a rigid surface above the “full” level of the fuel tank and accessible for servicing. “In-line” fuel filters have limited filter area and flow characteristics and may not be adequate for high horsepower outboards. Fuel Filter Assembly, P/N 174176, meets all requirements for a water-separating fuel filter.

Fuel Tanks

Fuel tanks must be adequately vented and fitted with pickup assemblies that meet the outboard’s fuel flow requirements. Antisiphon valves must provide adequate fuel flow for high horsepower outboards.

IMPORTANT: Multi-outboard applications require separate fuel tank pickups and fuel supply hoses.



Typical Fuel Supply Configuration 007074
1. *Primer bulb*
2. *Water separating fuel filter*
3. *Anti-siphon valve, in fuel pick-up of tank*

Outboard Fuel System Recommendations

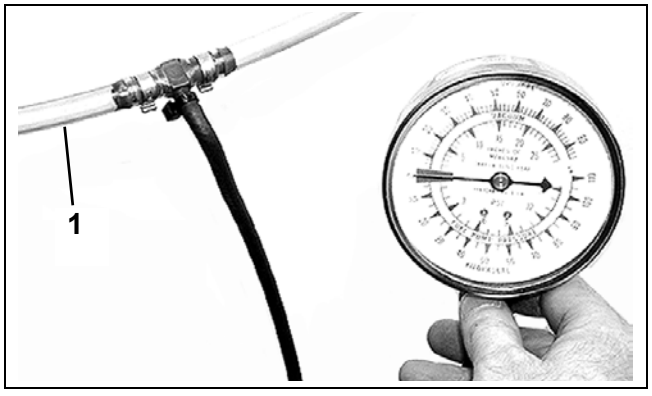
Component	25–130 HP Models	135–300 HP Models
Fuel tank pickup tube	5/16 in. (7.9 mm) min. I.D.	3/8 in. (9.5 mm) min. I.D.
Fuel fittings	1/4 in. (6.4 mm) min. I.D.	9/32 in. (7.1 mm) min. I.D.
Fuel supply hoses	5/16 in. (7.9 mm) min. I.D.	3/8 in. (9.5 mm) min. I.D.
	ALL MODELS	
Fuel tank pickup screen	100 mesh, 304 grade stainless steel wire, 0.0045 in. wire diameter, 1 in. (25 mm) long	
Antisiphon valve	2.5 in. (63.5 mm) Hg maximum pressure drop at 20 gph (76 l/hr) flow	
Remote fuel filter	0.4 in. Hg maximum pressure drop at 20 gph (76 l/hr) flow, 150 $in.^2$ (1290 cm^2) of filter area	
Maximum fuel pump lift height	Fuel pump should not be located more than 30 in. (76.2 cm) above bottom of fuel tank	

Fuel System Vacuum Testing

Confirm fuel supply to the fuel lift pump of outboard is unrestricted and not aerated.

Temporarily install a vacuum gauge, tee fitting (part number 331995), and 8 in. (20.3 cm) of clear vinyl hose between the fuel supply hose from fuel tank and the fuel lift pump. Secure connections with tie straps to prevent fuel or air leaks.

IMPORTANT: Do not use fuel primer bulb, manual fuel primer, or electric fuel pump primer to restart outboard. A positive pressure in the fuel supply could damage some vacuum gauges.



1. Clear vinyl hose 000243
2. Tee fitting (P/N 331995)

START outboard and run at FULL THROTTLE for at least two minutes. Monitor clear vinyl hose for the presence of air. Air bubbles indicate a faulty hose, connection, or fuel tank pick-up. Repair, if necessary, before proceeding.

There should be no air or vapor bubbles visible in the clear hose. The maximum inlet fuel vacuum should not exceed 4 in. Hg. (13.5 kPa) at the inlet to the fuel lift pump under any operating conditions (IDLE to WOT).

A higher vacuum indicates an excessive restriction in the fuel supply. Repair as needed.

Multiple Fuel Tank Use

Use of multiple fuel tanks can create adverse conditions related to fuel delivery to outboards. The following concerns should be noted.

- **Fuel fittings and the selector valve must support the required fuel flow to the outboard.**
- **Vacuum test each tank in multiple fuel tank applications.**
- **The outboard should not be unnecessarily run on near empty fuel tanks. Always change fuel tanks before the outboard is run on a limited or reduced supply of fuel.**
- **Running at high speeds on a near empty fuel tank can induce air into the fuel system and result in compromised fuel flow to the outboard.**