SECTION 6A – SPORT JET INSTALLATION

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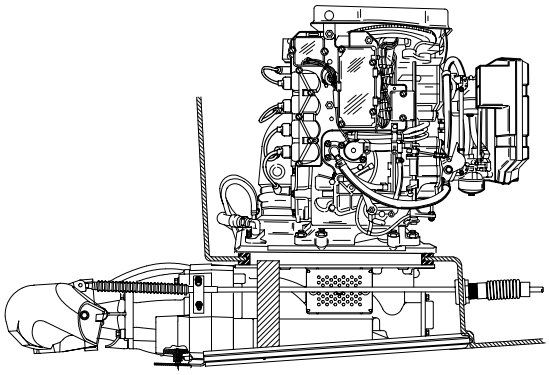


General Information

Notice to Installer

Throughout this publication, “Warnings” and “Cautions” (accompanied by the International Hazard Symbol ⚠) are used to alert the installer to special instructions concerning a particular service or operation that may be hazardous if performed incorrectly or carelessly. — **Observe Them Carefully!**

These “Safety Alerts,” alone, cannot eliminate the hazards that they signal. Strict compliance to these special instructions when performing the service, plus “common sense” operation, are major accident prevention measures.

⚠ WARNING

Hazards or unsafe practices which COULD result in severe personal injury or death.

⚠ CAUTION

Hazards or unsafe practices which could result in minor personal injury or product or property damage.

IMPORTANT: Indicates information or instructions that are necessary for proper installation and/or operation.

This installation manual has been written and published by the service department of Mercury Marine to aid installers when installing the products described herein.

It is assumed that these personnel are familiar with the installation procedures of these products, or like or similar products manufactured and marketed by Mercury Marine. Also, that they have been trained in the recommended installation procedures of these products which includes the use of mechanics’ common hand tools and the special Mercury Marine or recommended tools from other suppliers.

We could not possibly know of and advise the marine trade of all conceivable procedures by which an installation might be performed and of the possible hazards and/or results of each method. We have not undertaken any such wide evaluation. Therefore, anyone who uses an installation procedure and/or tool, which is not recommended by the manufacturer, first must completely satisfy himself that neither his nor the product’s safety will be endangered by the installation procedure selected.

All information, illustrations, and specifications contained in this manual are based on the latest product information available at time of publication. As required, revisions to this manual will be sent to all OEM boat companies.

INSTALLATION PRODUCTS

Loctite “271”	92-823089--1
Quicksilver Anti-Corrosion Grease	92-78376A6
Liquid Neoprene	92-25711--2
Dielectric Grease	92-823506--1
Perfect Seal	92-34227--1

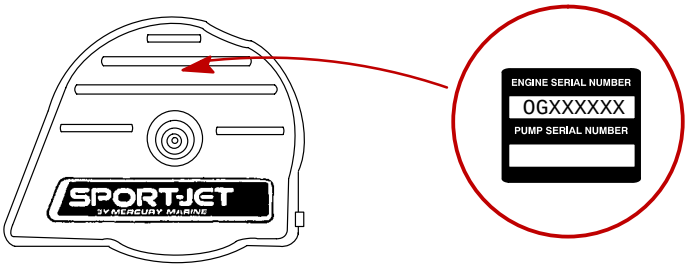
Torque Specifications

NOTE: *Tighten all fasteners, not listed, securely.*

Exhaust Bellows Clamps	50 lb. in. (5.6 N·m)
Shift Cable Swivel Screws	50 lb. in. (5.6 N·m)
Shift Cable Mounting Bracket Screws	50 lb. in. (5.6 N·m)
8 mm Fasteners(Powerhead to Pump)	20 lb. ft. (27 N·m)
10 mm Fasteners (Powerhead to Pump)	35 lb. ft. (47 N·m)
Cooling Waterline Nut	Snug with Wrench, Then Tighten One Addition Flat (60 degrees)
Steering Cable Mounting Bracket Screws	200 lb. in. (23 N·m)
Reverse Stop Screw	120 lb. in. (14 N·m)
Forward Stop Screw	120 lb. in. (14 N·m)
Ride Plate-to-Pump Screws	75 lb. in. (8.5 N·m)
Drive Housing Cover to Drive Housing fasteners	35 lb. ft. (47 N·m)

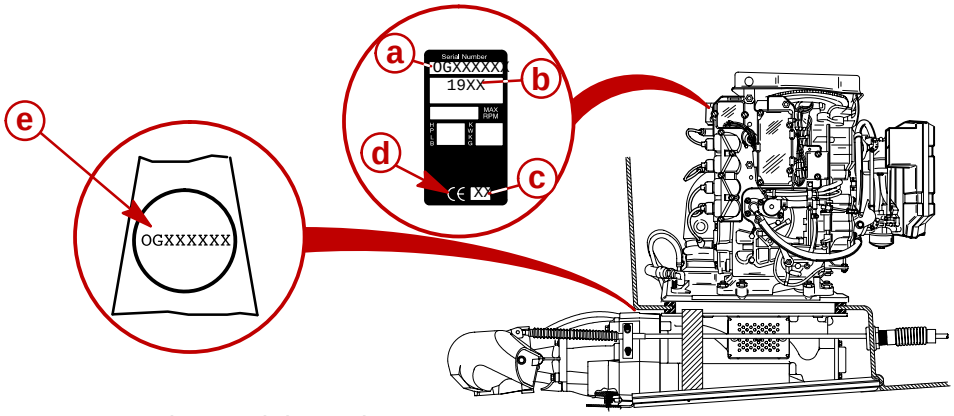
Serial Number Decal Location

A serial number decal is located on the flywheel cover.



IMPORTANT: The Pump Unit Serial Number sticker must be taken out of the envelope affixed to the pump unit and applied to the flywheel cover decal.

The engine serial number and pump serial number are different and unique. The engine serial number is located aft of the flywheel cover. The pump unit serial number is stamped in a plug located above the shift cable hole on the port side of the pump housing.



- **a** - Engine Serial Number
- **b** - Model Year
- **c** - Year Manufactured
- **d** - Certified Europe
- **e** - Pump Unit Serial Number

Corrosion Protection

This power package is equipped with anodes to help protect it from galvanic corrosion under moderate conditions. See the Operator's Manual for location of anodes.

Installation Requirements

IMPORTANT: The Sport Jet is considered an INBOARD engine. The boat it is installed in must meet industry standards (ABYC, NMMA, etc.), federal standards and Coast Guard regulations for INBOARD engine installations

Battery/Battery Cables

IMPORTANT: Boating industry standards (ABYC, NMMA, etc.), federal standards and Coast Guard regulations must be adhered to when installing battery. Be sure battery cable installation meets the pull test requirements and that positive battery terminal is properly insulated in accordance with regulations.

IMPORTANT: Engine electrical system is negative (–) ground. It is recommended (required in some states) that battery be installed in an enclosed case. Refer to regulations for your area.

1. Select a battery that meets all of the following specifications:
   a. 12-volt marine type.
   b. 670 Marine Cranking Amps (MCA) or 520 Cold Cranking Amps (CCA).
   c. Reserve capacity rating of at least 100 minutes.
2. Select proper size positive (+) and negative (–) battery cables using chart. Battery should be located as close to engine as possible.

IMPORTANT: Terminals must be soldered to cable ends to ensure good electrical contact. Use electrical grade (resin flux) solder only. Do not use acid flux solder, as it may cause corrosion and a subsequent failure.

Cable Length	Cable Gauge
Up to 3-1/2 ft. (1.1 m)	4 (25 mm^2)
3-1/2 - 6 ft. (1.1-1.8 m)	2 (35 mm^2)
6 - 7-1/2 ft. (1.8-2.3 m)	1 (50 mm^2)
7-1/2 - 9-1/2 ft. (2.3-2.9 m)	0 (50 mm^2)
9-1/2 - 12 ft. (2.9-3.7 m)	00 (70 mm^2)
12 - 15 ft. (3.7-4.6 m)	000 (95 mm^2)
15 - 19 ft. (4.6-5.8 m)	0000 (120 mm^2)

Boat Construction

IMPORTANT: All applicable Coast Guard regulations for INBOARD engines must be complied with, when constructing engine compartment.

Care must be exercised in the design and construction of the engine compartment. Seams must be located so that any rain water or splash, which may leak through the seams, is directed away from the engine and carburetor cover. Also, the passenger compartment drainage system should not be routed directly to the engine compartment. **Water that runs on or is splashed in the carburetor cover may enter the engine and cause serious damage to internal engine parts.**

IMPORTANT: Mercury Marine will not honor any warranty claim for engine damage as a result of water entry.

Engine Compartment Ventilation

Engine compartment must be designed to provide a sufficient volume of air for engine breathing and also must vent off any fumes in engine compartment in accordance with industry standards (ABYC, NMMA, etc.), federal standards and Coast Guard regulations for inboard engines. Pressure differential (outside engine compartment versus inside engine compartment) should not exceed 2 in. (51 mm) of water (measured with a manometer) at maximum air flow rate.

Engine Compartment Specifications		
Model	**Engine Air Requirements at Wide Open Throttle**	**Physical Engine Volume***
95 HP	230 $ft.^3$/min. (0.109m^3/sec.)	0.60 $ft.^3$ (17 L)
120 HP	304 $ft.^3$/min. (0.143 m^3/sec.)	0.67 $ft.^3$ (19 L)

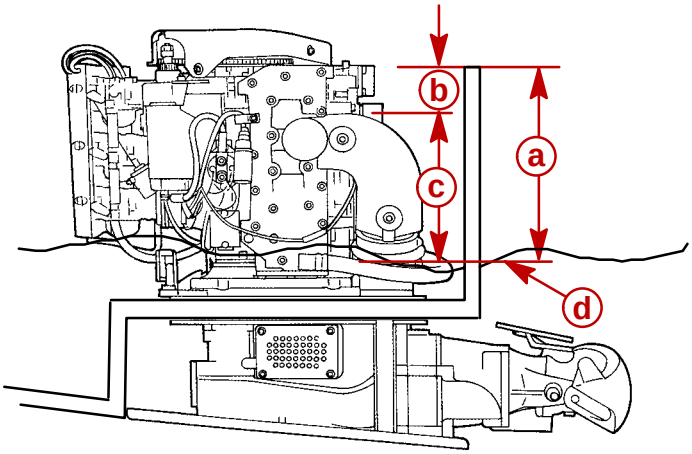
* Physical engine volume is used in flotation calculations and is representative of the amount of flotation the engine provides.

For serviceability, it is recommended that an additional 6 inches minimum (152 mm) (per side) of clearance be allowed between powerhead and engine compartment walls.

Exhaust System

IMPORTANT: It is the responsibility of the boat manufacturer, or installing dealer, to properly locate the engine. Improper installation may allow water to enter the exhaust manifold and combustion chambers and severely damage the engine. Damage caused by water in the engine will not be covered by Mercury Marine Limited Warranty, unless this damage is the result of defective part(s).

The engine must be properly located to ensure that water will not enter the engine through the exhaust system. Determine the correct engine height by taking measurements (a) and (b), with boat at rest in the water and maximum load aboard. Subtract (b) from (a) to find (c). If (c) is less than specified in chart, boat construction must be altered to properly lower waterline relative to exhaust elbow.



a - From Waterline to Top of Transom
b - From Highest Point on Exhaust Elbow to Top of Transom
c - (a) minus (b) = (c)
d - Waterline at Rest (at Maximum Load)

Model	c = (a) minus (b)
95/120 HP	(c) must be 7.5 in. (330 mm) or more.

Fuel Delivery System

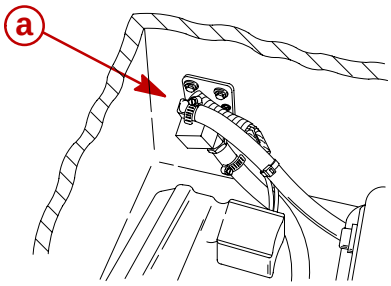
⚠ WARNING

Boating standards (NMMA, ABYC, etc.), federal standards and U. S. Coast Guard regulations for INBOARD engines must be adhered to when installing fuel delivery system. Failure to comply could result in severe personal injury or death.

⚠ CAUTION

Remove plastic plug from fuel inlet fitting. Attach fuel line to fuel fitting with U.S. Coast Guard approved hose clamp. Inspect for fuel leaks.

1. Fuel tank should be mounted below carburetor(s) level (if possible) or gravity feed may cause carburetor fuel inlet needle(s) to unseat, and flooding may result.
2. Fuel pickup should be at least 1 in. (25 mm) from the bottom of the fuel tank to prevent picking up impurities.
3. Fuel lines used must be Coast Guard approved (USCG type A1), fittings and lines must not be smaller than 5/16 in. (8 mm) I.D.
4. On installations requiring long lines or numerous fittings, larger size lines should be used.
5. Fuel line should be installed free of stress and firmly secured to prevent vibration and/or chafing.
6. Sharp bends in fuel line should be avoided.
7. A flexible fuel line must be used to connect fuel line to engine fuel pump to absorb deflection when engine is running.
8. A primer bulb is not necessary with this application. If a primer bulb is used, it must be Coast Guard approved for inboard engine applications.
9. Mount the fuel primer pump in a suitable location in the boat. Follow the installation instructions which are provided with the fuel primer pump.



a - Fuel Primer Pump

IMPORTANT: Fuel Primer Pump must be mounted within 12" of the powerhead per U.S. Coast Guard regulation.

Instrumentation

⚠ CAUTION

If a fused accessory panel is to be used, it is recommended that a separate circuit (properly fused) be used from the battery to the fuse panel with sufficient wire size to handle the intended current load.

NOTE: *The charging system on these engines is capable of producing 9 amps maximum charge at 3500 RPM (4.5 amps minimum at 1000 RPM). The electrical load of the boat should not exceed this capacity. If loads higher than the capacity of the charging system are anticipated, refer to "Quicksilver Accessory Guide" for a high output alternator.*

We recommend the use of Quicksilver Instrumentation and Wiring Harness(es). Refer to "Quicksilver Accessories Guide" for selection.

If other than Quicksilver electrical accessories are to be used, it is good practice to use waterproof ignition components (ignition switch, lanyard stop switch, etc.). A typical jet boat of this nature will see water splashed on these components. Therefore, precautions must be taken to avoid ignition failure due to shorting out of ignition components.

⚠ WARNING

Sudden stopping of engine (shorting ignition components) while boat is underway will cause loss of steering control due to loss of thrust. This loss of steering control may cause property damage, personal injury or death.

A warning horn must be incorporated in the wiring harness (see wiring diagram) to alert the user of an overheat or low oil condition.

IMPORTANT: If a warning horn system is not installed by the boat manufacturer, Mercury Marine will not honor any warranty claims for engine damage as a result of overheating or lack of engine oil.

Route instrumentation wiring harness back to engine, making sure that harness does not rub or get pinched. If an extension harness is required, be sure to secure connection properly. Fasten harness(es) to boat at least every 18 in. (460 mm), using appropriate fasteners.

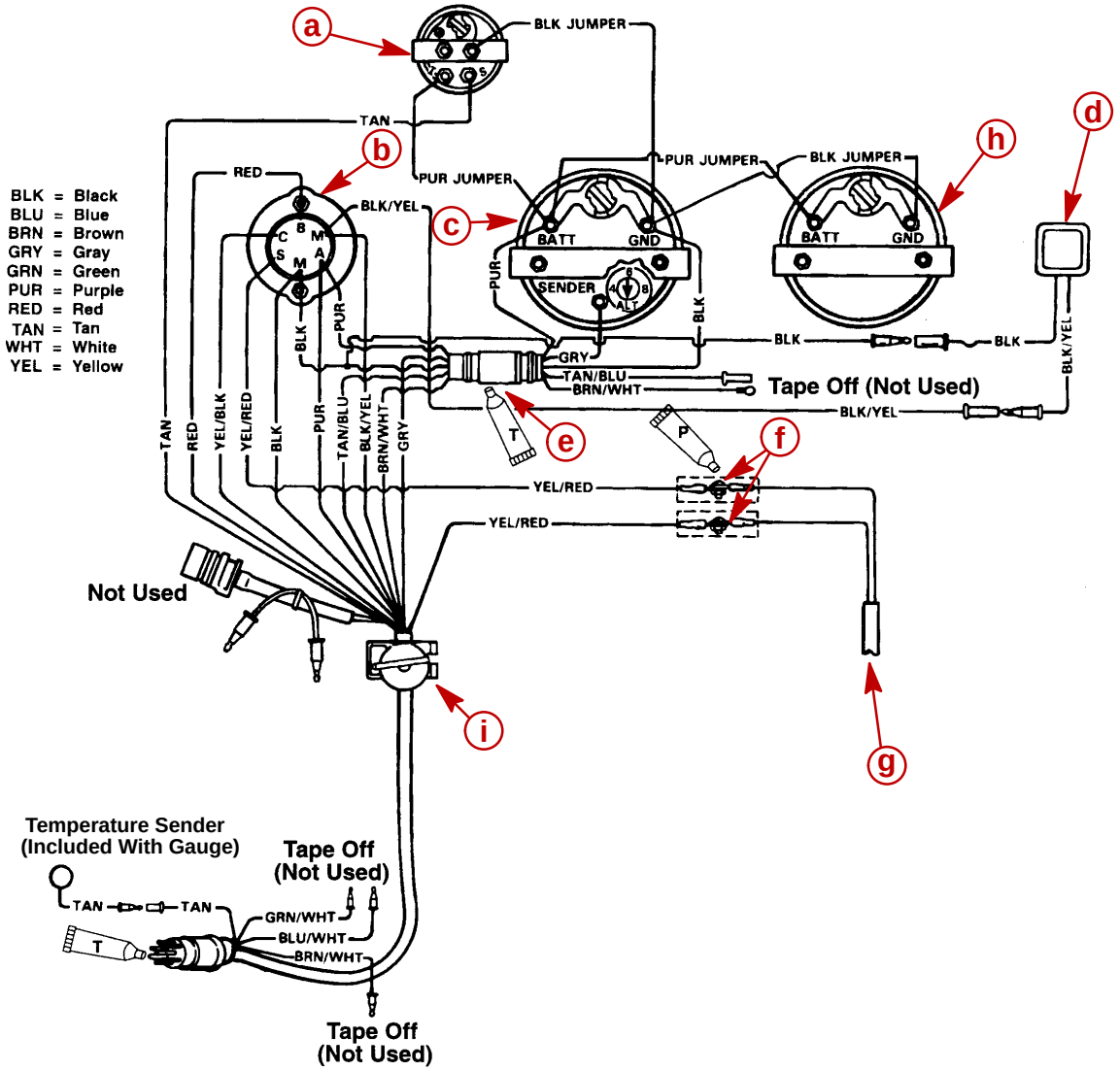
Wiring Diagrams

QUICKSILVER INSTRUMENTATION, TYPICAL INSTALLATION SHOWN

Refer to gauge manufacturer's instructions for specific connections.

NOTE: *When fastening bullet connectors use force to ensure a positive connection.*

NOTE: *If gauge options are not used, tape back unused wiring harness leads.*



a - Temperature Gauge
b - Key Switch
c - Tachometer Gauge
d - Emergency Stop Switch
e - Tachometer Harness (P/N 84-86396A8) (Not Included with Key/Choke Harness Kit)
f - Connect Wires Together with Screw and Hex Nut (2 places). Apply Quicksilver Liquid Neoprene to connections and slide rubber sleeve over each connection.
g - To Neutral Start Safety Switch in Remote Control Box
h - Speedometer Gauge
i - Overheat/Low Oil Horn

P Liquid Neoprene (92-25711--2)

T Dielectric Grease (92-823506--1)

Impeller Selection

IMPORTANT: Installed impeller must allow engine to run in its specified maximum wide-open-throttle RPM range.

The jet drive comes equipped with a standard stainless steel impeller which allows the engine to operate in its specified operating range.

If a different impeller is installed in place of the standard impeller, it is the responsibility of the installer to ensure engine RPM remains in specified range. Specified engine WOT RPM range is listed in “Operation and Maintenance Manual” attached to the engine.

Remote Control and Cables

To ensure proper shift and throttle operation, we recommend the use of the Sport Jet Remote Control (P/N 802755). This remote control has been qualified by Mercury Marine to be used with the Sport Jet and provides the following required features:

- Start-in-gear protection
- Neutral rpm limit at 2,000 rpm

NOTE: *This applies to dual lever remote controls as well as single lever remote controls*

- High strength mechanism to accommodate loads transmitted to the remote control
- Shift cable travel of 3 inches ±1/8 inch (76 mm ±3 mm)
- Ability to use 40 series shift cable

If a remote control other than the Sport Jet Remote Control (P/N 802755) is used, the remote control must meet the above criteria as well as the design criteria outlined in the ABYC manual pertaining to Mini-Jet Boats (Standard P-23).

SHIFT CABLE

The shift cable to be used MUST MEET the following criteria:

- 40-Series Cable
- Allow for a minimum of 3 inches (76 mm) of travel.
- A means of attaching and locking the cable to the wear ring.
- Cable end at pump must allow for a clevis pin and cotter pin (all provided) to connect cable to the reverse gate.
- Protected against water intrusion and/or corrosion as the cable end (at the pump) is submersed in water with the boat at rest.

A cable bellows is provided with the cable (P/N 64-858342A_). Follow installation procedures for proper sealing of cable.

The shift cable end (at the pump) is submersed in water. It should be sealed against water intrusion, protected against corrosion and be able to withstand the shift loads imparted on it by the reverse gate.

Follow shift cable adjustment procedure for proper adjustment.

THROTTLE CABLE

The throttle cable must have one end compatible with the control box. The other end must have Mercury style connectors.

Follow throttle cable adjustment procedures for proper adjustment.

Steering Helm and Cable

STEERING HELM

The steering helm must limit steering cable travel to 3.50 ± .10 inches (88.9 ± 2.5 mm).

⚠ WARNING

Failure to limit steering cable travel at the helm could pre-load the cable resulting in premature failure of a steering component causing loss of steering. This loss of steering could cause property damage, personal injury or death.

STEERING CABLE

The steering cable to be used MUST MEET the following criteria:

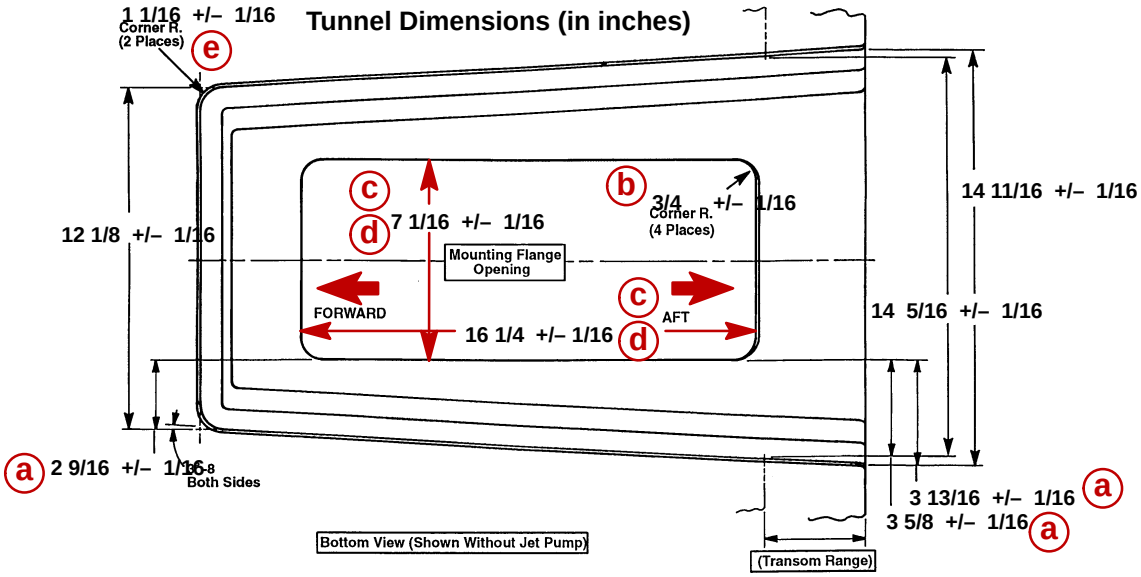
- 60 Series Steering Cable
- 60 Series bulkhead fitting at output end
- Allow for a minimum of 3.75 inches (95.3 mm) of travel.
- Cable end at pump must allow for a 5/16 in. threaded adaptor shouldered thru-bolt and lock nut to connect the cable to the steering arm.
- A means of attaching and locking the cable to the steering cable bracket (provided).

Sport Jet Hull Dimensions

HULL OPENING CUT OUT

The pump to powerhead opening in the hull is the most important factor to consider in a Sport Jet installation. There are three areas of concern:

1. Location (a) of the pump to powerhead hull cut out relative to the boat bottom for proper ride plate seal fit.
2. Dimensional control of the cutout - corner radii (b), straightness (c) and size (d) for proper grommet installation, and corner radii (e) for ride plate seal fit.
3. Flatness and thickness of the area around the hull cut out for proper grommet sealing (see drawing on next page).



a - Location
b & e - Size and Straightness
c & d - Size and Straightness

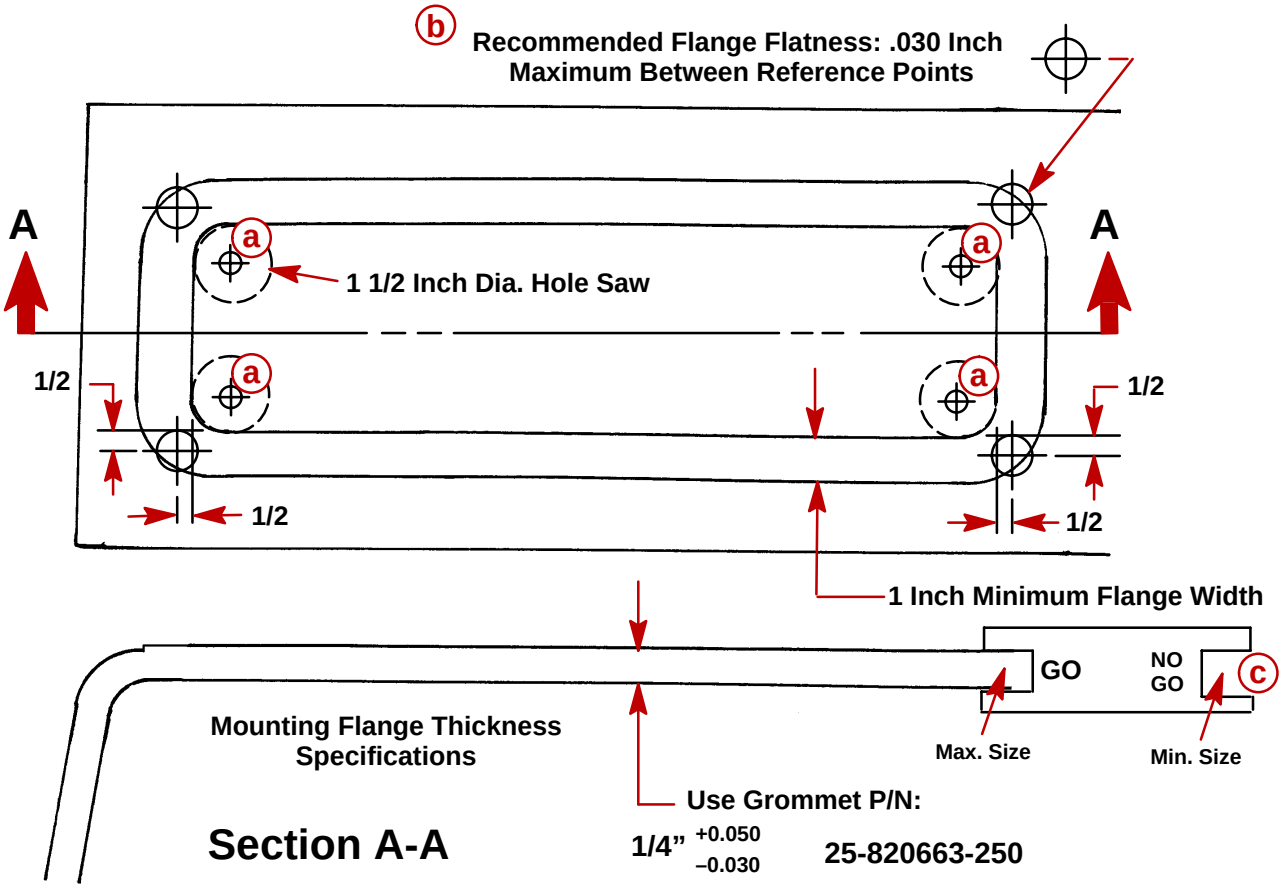
METHODS OF CONTROLLING LOCATION AND SIZE

If the tunnel area in the plug is correct, the boat bottom mold should repeat and reproduce the tunnel area which will aid the cut out process.

A reference area for the cut out can be produced on the plug and bottom mold as a raised area or a cutting guide.

Location pins (a) that would project into the internal hull area could simplify the cut out process.

These location pin holes could allow the use of a 1-1/2 inch diameter hole saw to cut the four corner radii and use of a reciprocating saw or router template to connect the four holes.



a - Location Pins in Hull Mold
b - Flange Flatness Specification
c - Go – No Go Gauge for Thickness

CHECKING MOUNTING FLANGE THICKNESS AND FLATNESS

Use a flat plate that will contact the flange at the reference points (b) and a .030 in. feeler gauge to check flatness.

Additional sanding and/or resin / filler may be required to maintain the flatness specification.

A simple slotted go / no go gauge (c) will check the flange thickness.

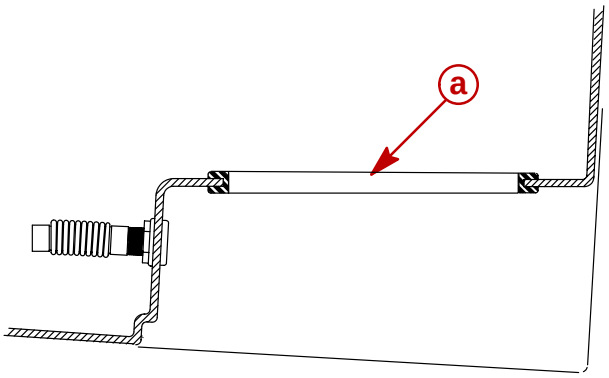
Installing Jet Pump

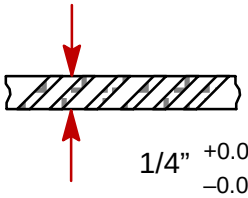
Hull Cutout

⚠ CAUTION

The hull cutout dimensions are critical for proper sealing between Jet Pump and boat. Measure cutout thickness and overall dimensions before attempting a Jet Pump installation.

1. Install tunnel grommet (a) in cut-out of boat. Three different size grommets are available depending on cutout thickness.

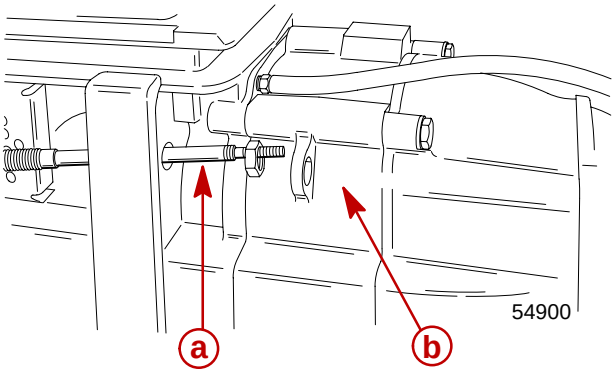


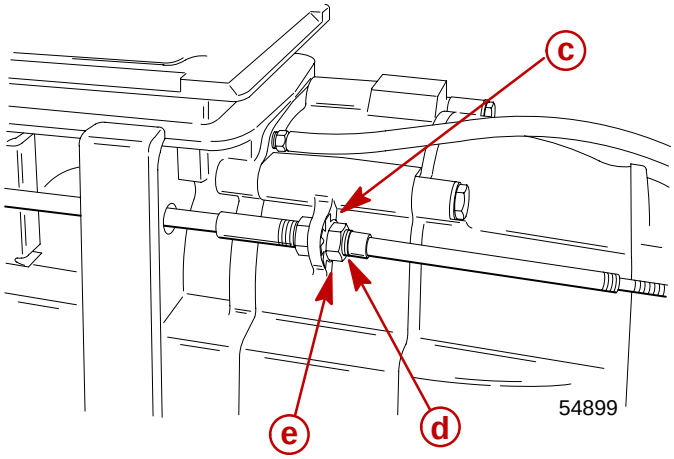


		Use Grommet P/N:
1/4”	+0.050 –0.030	25-820663-250
3/8”	+0.050 –0.030	25-820663-375
1/2”	+0.070 –0.030	25-820663-500

Cutout Thickness

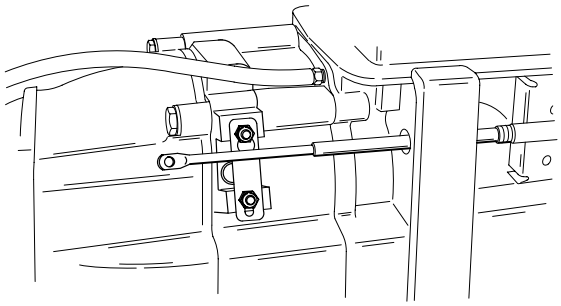
2. Route steering cable through the port side hole in flange of pump housing. Install nut on cable before routing cable through wear ring.
3. Install tab washer and nut on cable after guiding through wear ring. Locate tab washer in tab hole. Coarse cable adjustment is made using these nuts. Do not tighten until after final steering adjustment is made.





a - Shift Cable
b - Wear Ring
c - Tab Hole
d - Nut
e - Tab Washer

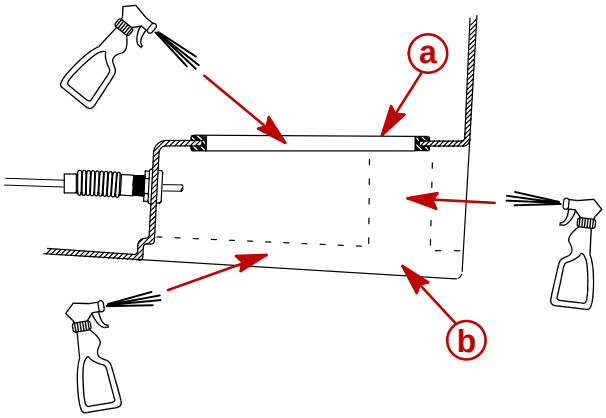
4. Route shift cable through the starboard side hole in flange of pump housing.

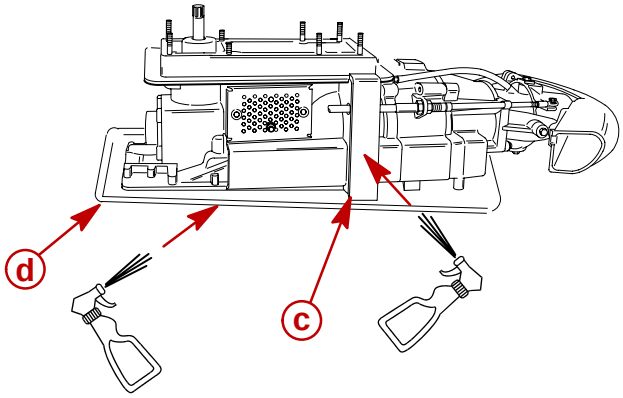


IMPORTANT: Ensure that the shift lever in the control box is set for three (3) inches of travel.

NOTE: *It is easier to adjust the shift and steering cables before installing pump unit in boat.*

5. Spray soapy water on tunnel grommet, both side foam exhaust seals, ride plate seal and sides of boat tunnel.



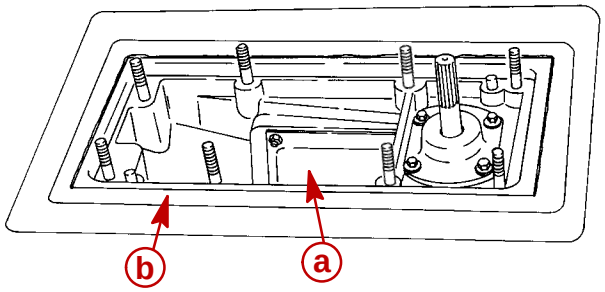


a - Tunnel Grommet
b - Boat Tunnel
c - Foam Exhaust Seals (One Each Side)
d - Ride Plate Seal

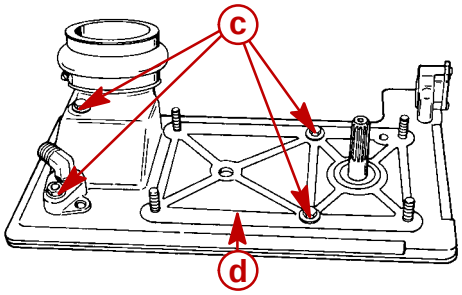
NOTE: *When installing pump in tunnel, be sure cables are below tunnel grommet flange on pump to prevent pinching of cables between pump and boat.*

6. Install jet pump (a) by pushing unit through opening in tunnel grommet (b). Ride plate seal should fit snug in boat tunnel without any gaps along perimeter.

7. Install gasket and cover (d) on jet pump. Align holes in cover with locating pins in housing and secure with four (4) M10 x 1.5 nuts (c).



a - Jet Pump
b - Tunnel Grommet



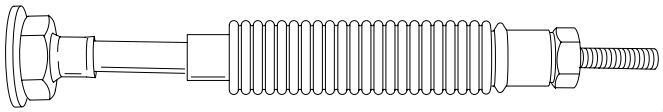
c - Nuts
d - Cover

NOTE: *Before torquing fasteners, check side exhaust seals and ride plate seal for proper fit in tunnel.*

8. Torque housing cover nuts (c) to 35 lb. ft. (47 N·m).

Steering Cable Adjustment

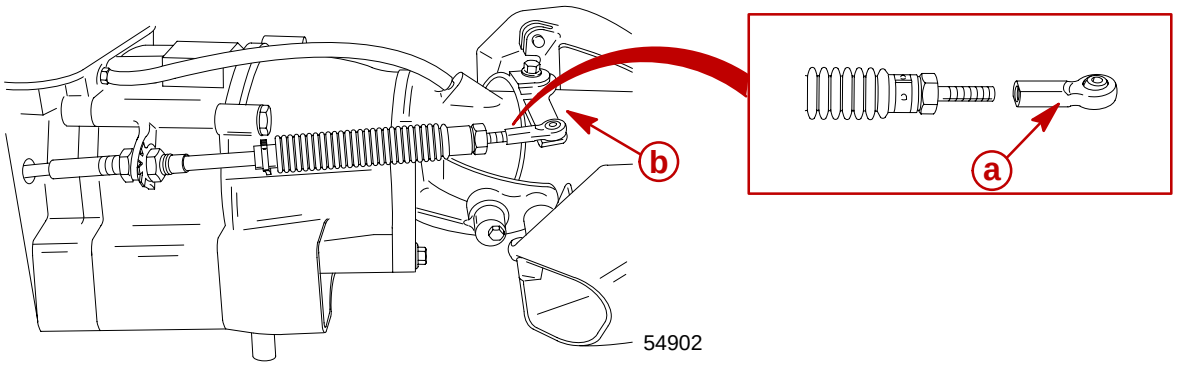
1. Slide bellows assembly over cable and thread on cable completely. Do Not tighten.



2. Thread cable end adaptor (a) on steering cable 14 turns (to allow for adjustment).

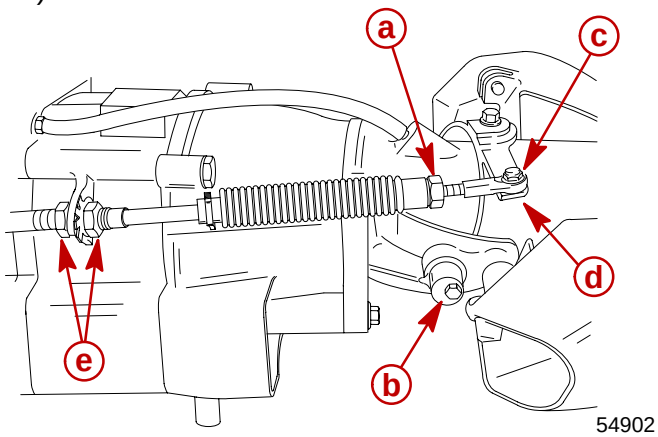
⚠ WARNING

Cable end adaptor must be installed a minimum of nine (9) turns. Failure to install cable end adaptor on steering cable a minimum of nine (9) turns could result in loss of steering control of boat, personal injury, or death.



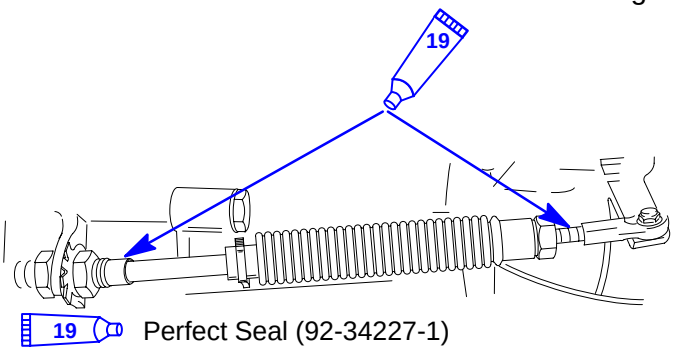
a - Cable End Adaptor
b - Steering Arm

3. Center rudder assembly on nozzle.
4. Center steering wheel by turning wheel lock to lock and positioning wheel midway between locks.
5. Adjust cable end adaptor until thru-hole in adaptor lines up with threaded hole in steering arm. This is the steering cable fine adjustment. Cable end adaptor **MUST** be installed on steering cable a minimum of nine (9) turns.
6. Attach steering cable to steering arm with bolt and locknut. Torque nut to 180 lb. in. (20.3 N·m).

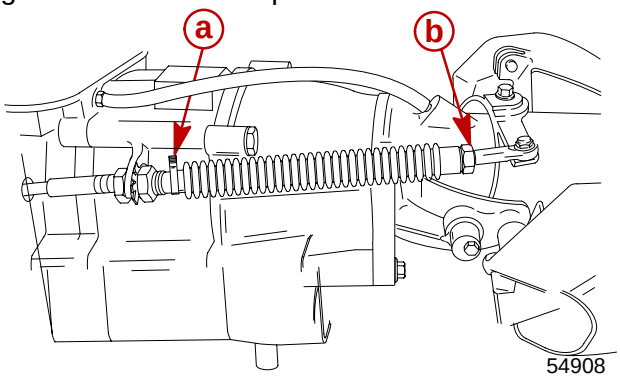


a - Bellows Nut
b - Forward Stop
c - Bolt
d - Lock Nut
e - Cable Nuts

7. Tighten cable nuts.
8. Check steering adjustment to ensure that the helm limits cable travel for maximum left and right turns. Correct if required.
9. Secure cable nut with tab washer.
10. Apply perfect seal (92-34227-1) to end threads and cable conduit end.
11. Turn bellows nut out and tighten against cable end adaptor.

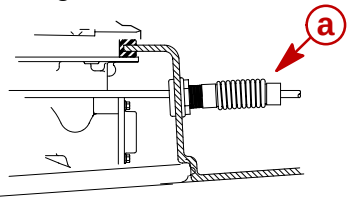


Perfect Seal (92-34227-1)



a - Bellows Clamp
b - Bellows Nut Tight Against Jam Nut

12. Turn rudder to port to compress bellows as much as possible. Pull bellows over cable conduit and secure with bellows clamp.
13. Seal the thru-hull fitting.

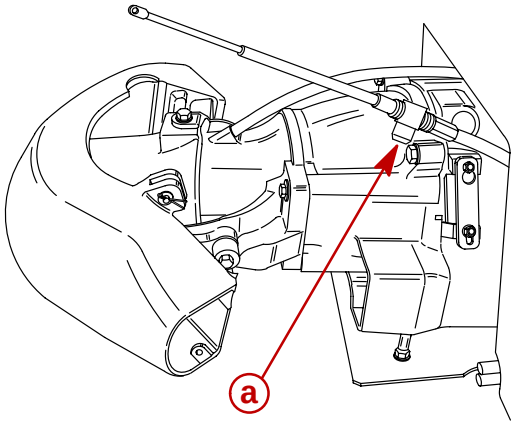


a - Thru-Hull Fitting

Shift Cable Adjustment

IMPORTANT: The shift cable MUST BE properly adjusted. The shift cable is adjusted so that the reverse gate is not pre-loaded against either the forward or reverse stop. Pre-load in either position may cause failure of the stop and/or premature wear of the shift cable or control box components. It may also cause stiffness of the throttle control.

1. Thread the cable barrel onto the shift cable.

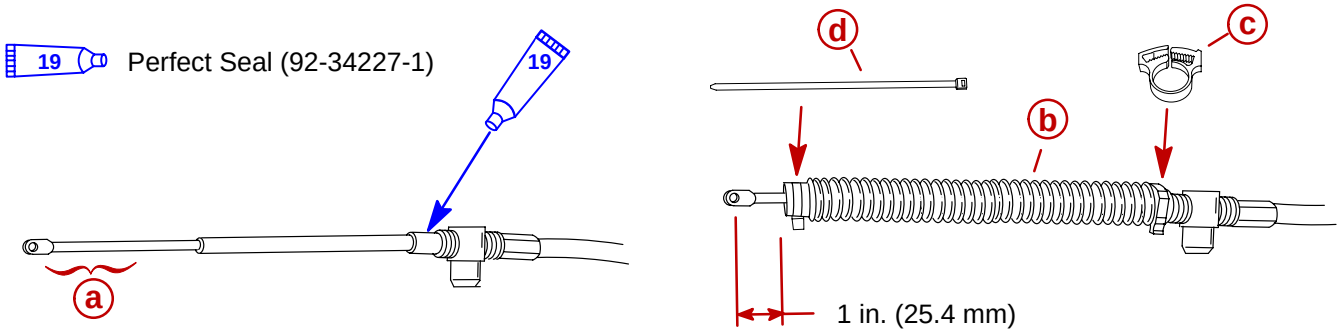


a - Cable Barrel

2. Use a degreaser and clean off all oil film from the area on the shift cable shown.

NOTE: *Removing the oil film from the shift cable is necessary to prevent the bellows from sliding on the cable.*

3. Apply Perfect Seal (92-34227-1) to cable conduit ahead of the threads.
4. Slide the bellows over the shift cable end. Position and install the bellows onto the cable conduit as shown. Fasten ends with clamp and sta-strap.

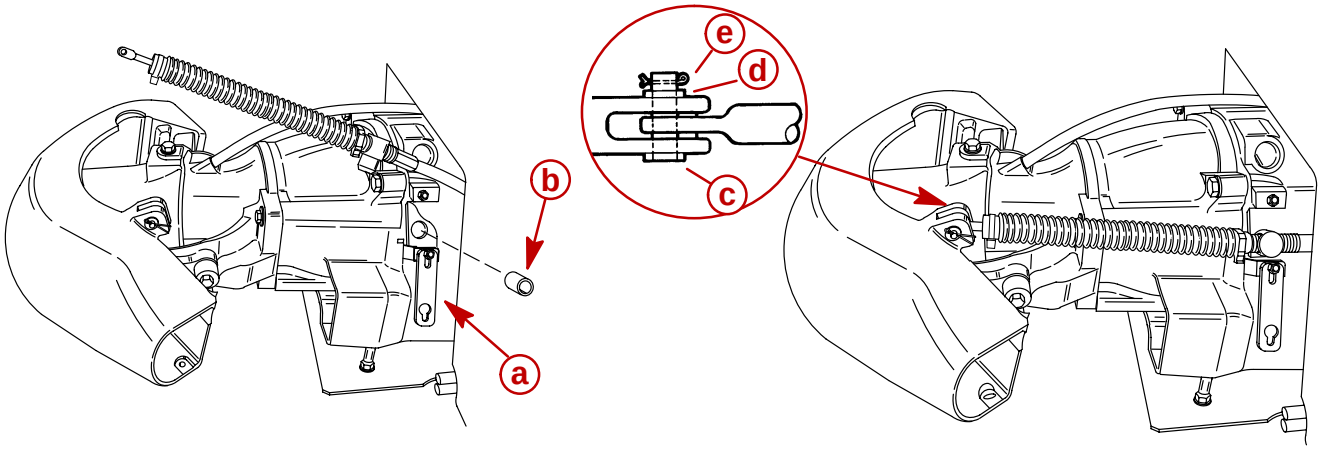


a - Remove Oil Film From This Area
b - Bellows
c - Clamp
d - Sta-Strap

5. Loosen the lock nuts and unfasten the top end of the shift cable retainer.

NOTE: *Locknuts do not have to be removed to open retainer.*

6. Install shift cable end in slot of the reverse gate and secure with clevis pin, flat washer, and cotter pin. Bend over ends of cotter pin.



a - Shift Cable Retainer
b - Plastic Barrel Holder
c - Clevis Pin
d - Flat Washer
e - Cotter Pin

⚠ WARNING

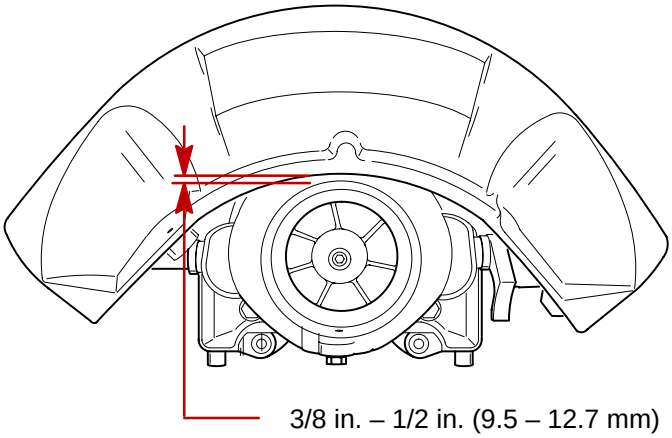
The shift cable must be adjusted correctly so that the reverse gate does not interfere with water flow coming out of the rudder. If the reverse gate hangs down into the water flow, a vibration may be felt in the control box. If this occurs, reduce throttle immediately and readjust the cable. Improper adjustment may result in pump damage including loss of the reverse gate. Failure to properly adjust the shift cable could result in loss of neutral and reverse, property damage, personal injury or death.

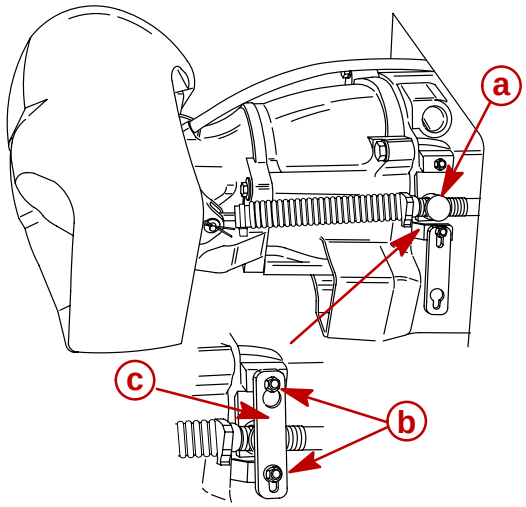
7. Adjust shift cable as follows:
   a. Position the control box into forward position.
   b. Position the bottom edge of the reverse gate 3/8 in. to 1/2 in. (9.5 - 12.7 mm) above the rudder. With the reverse gate at this position, adjust the cable barrel to fit into the barrel holder.
   c. After adjusting the shift cable, secure the cable barrel in place with the shift cable retainer. Fasten the retainer by tightening both locknuts.

IMPORTANT: The shift cable retainer must be fastened with self locking nylon insert locknuts. These locknuts must never be replaced with common nuts (non locking) as they could vibrate off, freeing the shift cable to disengage.

⚠ WARNING

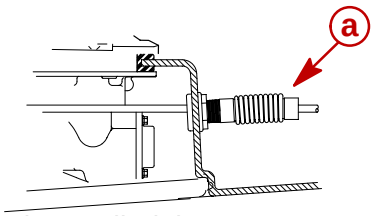
Disengagement of the shift cable can result in the boat suddenly shifting into reverse. This unexpected action could cause occupants to be thrown forward in the boat or to be ejected overboard. Serious injury or death could result.





a - Cable Barrel
b - Locknuts
c - Shift Cable Retainer

8. Check shift cable/reverse gate adjustment as follows:
   a. Shift the control box a few times from the forward position to reverse position.
   b. Return the control handle back to forward and check for the 3/8 to 1/2 in. clearance space between the reverse gate and rudder. If necessary, readjust the cable barrel.
9. Seal the thru-hull fitting to prevent any water leaks.



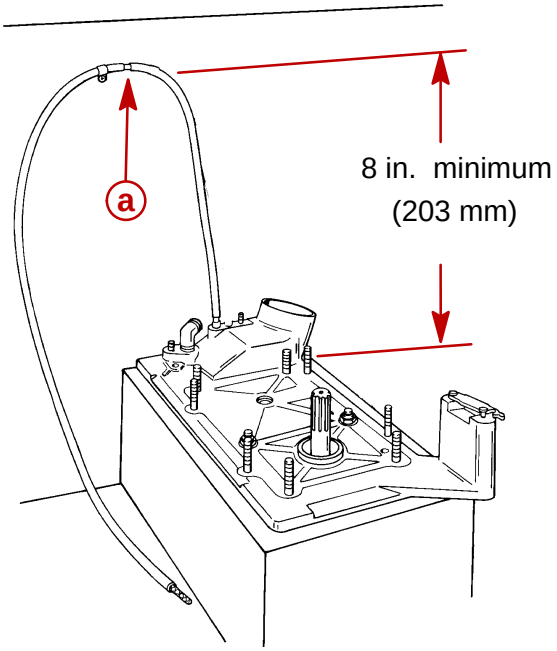
a - Steering Cable Thru-Hull Fitting

Bilge Siphon Feature

The Sport Jet incorporates an automatic bilge siphoning feature. The bilge siphon is working whenever the engine is running above idle speeds. Maximum performance of the bilge siphon is realized above 3,000 rpm. A hose is attached to the jet pump nozzle. The hose is routed to the engine compartment and placed in the bilge. Water exiting the nozzle creates a suction or vacuum in the hose creating the bilge siphon, drawing water out of the boat.

Installing Bilge Siphon

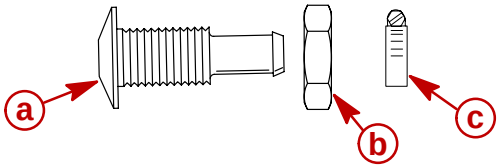
1. Attach the hose supplied to the hose barb located at the center rear of the drive housing cover.
2. Attach the hoses to the transom with the hose clip supplied.
3. Position siphon break (a) **a minimum of 8 in. (203 mm) above pump cover.**



Water By-Pass System

The water by-pass system is designed to improve powerhead cooling at idle speed.

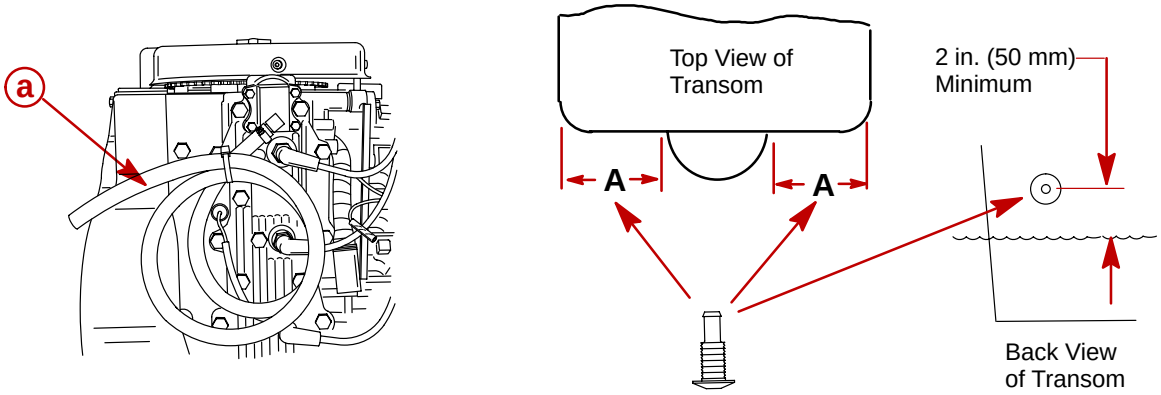
1. Locate the water by-pass components (provided).



a - Thru-Hull Fitting
b - Brass Nut
c - Hose Clamp

IMPORTANT: The thru-hull fitting must be correctly positioned in the boat transom as instructed in Step 3.

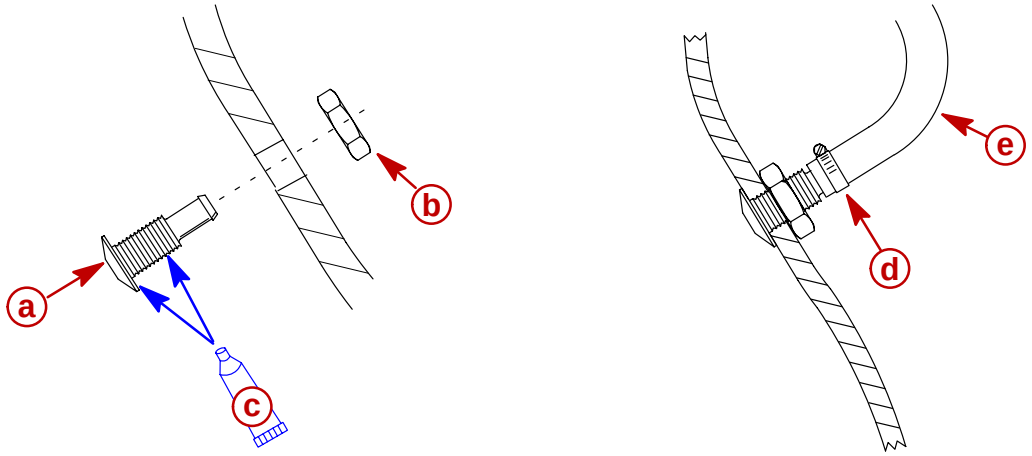
2. Cut the sta-strap and uncoil the water by-pass hose.
3. Select the mounting location for the thru-hull fitting as follows:



a - Water By-Pass Hose

- The thru-hull fitting must be mounted in either side of the transom within the zones marked A.
- The thru-hull fitting must be located a Minimum of 2 in. (50 mm) above the water line when boat is at its maximum load.
- The water by-pass hose must slope down towards the thru-hull fitting at a minimum rate of 1 in. (25 mm) drop per 12 inches (300 mm) of hose.
- The thru-hull fitting should be positioned so the water spray will be pointed downward.

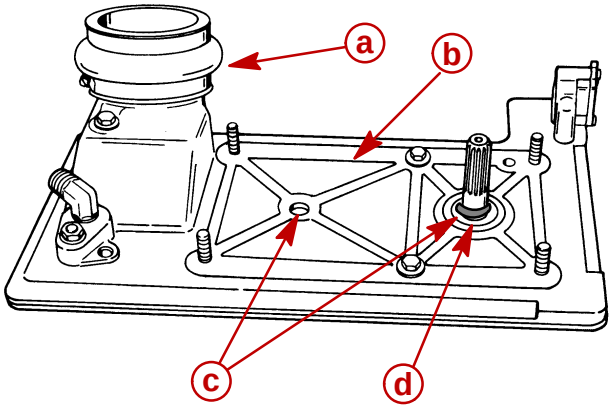
4. After the location has been selected for the thru-hull fitting, drill a 9/16 in. (14.3 mm) dia. hole.
5. Apply Marine Sealer to entire length of threads and under the head of the thru-hull fitting. Fasten the fitting into the transom with the brass nut (provided).
6. Connect the water by-pass hose to the thru-hull fitting with the hose clamp (provided). Make sure the hose slopes at a minimum rate of 1 in. (25 mm) drop per 12 inches (300 mm) of hose.

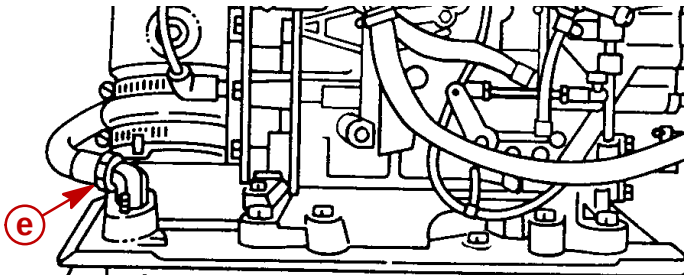


a - Thru-Hull Fitting
b - Brass Nut
c - Marine Sealer
d - Hose Clamp
e - Water By-Pass Hose

Installing Powerhead

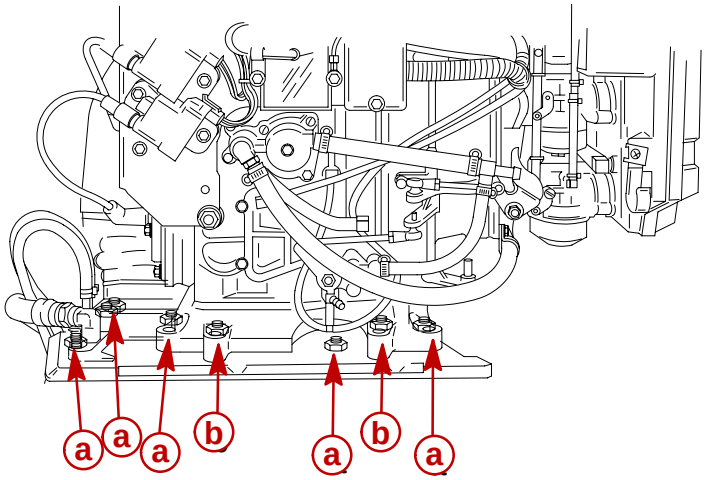
1. Remove exhaust bellows from exhaust elbow and install on drive housing cover.
2. Check that o-rings are in drive housing cover, and slinger is on drive shaft.
3. Lubricate drive shaft splines with anti-corrosion grease. Lubricate Exhaust Bellows with soapy water.
4. Lower powerhead on drive housing cover. Align exhaust boot with exhaust elbow, drive shaft splines with crank shaft splines, and powerhead mounting studs with adapter plate holes.
5. Torque clamp screws on exhaust bellows to 50 lb. in. (5.6 N·m).
6. Connect water line hose to fitting on drive housing cover. Snug nut with wrench then tighten nut one additional flat (60 degrees).

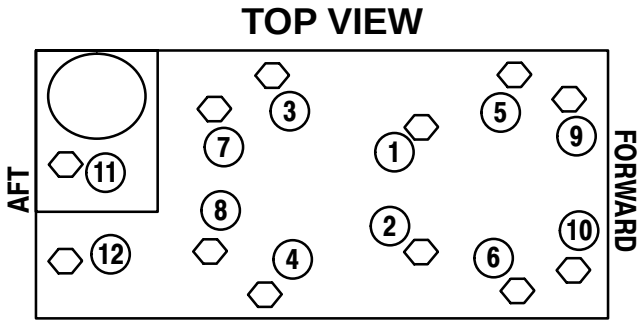




a - Exhaust Bellows
b - Drive Housing Cover
c - O-Rings
d - Slinger
e - Waterline Hose Fitting

7. Secure powerhead to drive housing cover with four (4) M10 x1.5 (a) and four (4) M8 x 1.25 nuts. (b) Torque fasteners following the torque sequence given. Repeat torque sequence to ensure all fasteners retain their torque.





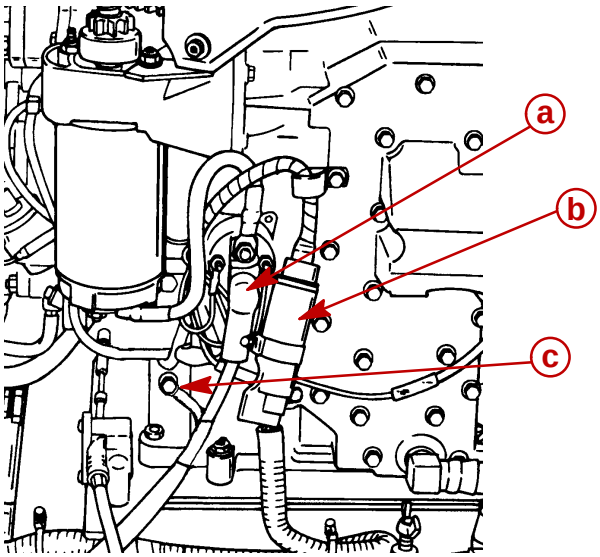
a - M10 x 1.5 Nuts – 35 lb. ft. (47 N·m)
b - M8 x 1.25 Nuts – 20 lb. ft. (27 N·m)

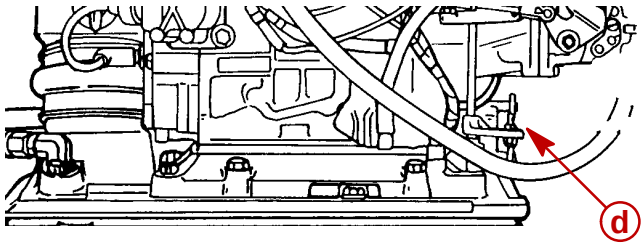
8. Attach positive (a) and negative (c) battery cables to starter solenoid and engine ground respectively.

⚠ WARNING

U.S. Coast Guard regulation #33 CFR 183.445 requires that the "positive" battery cable connection at the starter solenoid terminal be protected by either a boot ("a" shown following), or protective shield.

9. Attach remote control harness plug (b) to engine harness plug.
10. Attach throttle cable to towershaft arm (a) with washer and cotter pin.

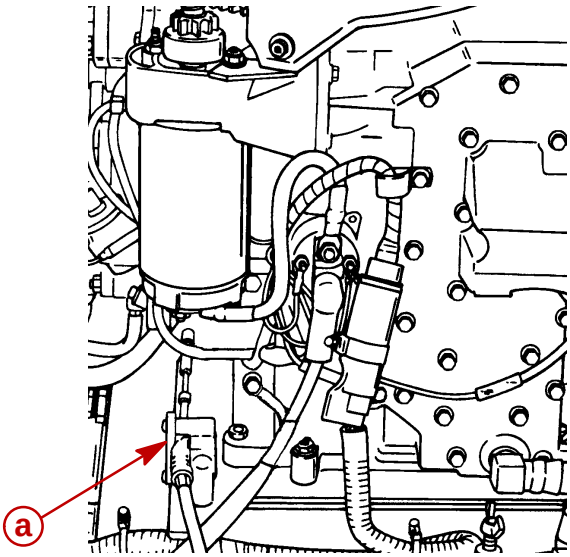




a - Positive Battery Cable Boot
b - Engine and Remote Harness Connection
c - Negative Battery Cable
d - Towershaft Arm

Throttle Cable Adjustment

1. With towershaft in the idle position and remote control in neutral (with no throttle advance), rotate throttle cable barrel until it lines up with barrel retainer (a). Turn cable barrel an additional 1 to 2 turns to pre-load cable. Insert cable in retainer and close retainer cover.



a - Throttle Cable Retainer

Battery Connection

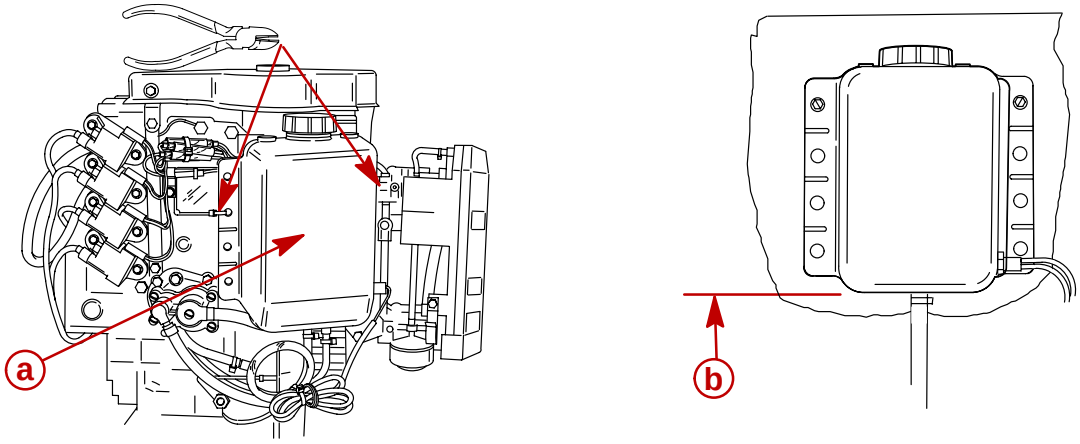
NOTE: *Engine electrical system is negative (–) ground.*

1. Connect engine positive (+) battery cable (usually red) to positive (+) battery terminal.
2. Connect engine negative (–) battery cable (usually black) to negative (–) battery terminal.
3. Make sure that all battery terminal connections are tight; then, spray terminals with a battery connection sealant to help retard corrosion.
4. Some states require that the positive battery terminal be properly insulated.

Oil Injection System

IMPORTANT: The oil injection system is setup and bled at the factory. Bleed only if air bubble are present in the oil line from the reservoir to the oil pump.

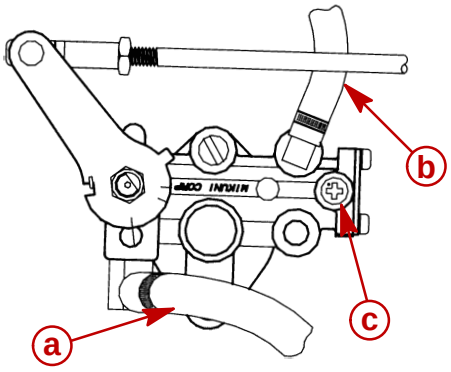
1. Cut the sta-straps that are temporarily holding the oil reservoir to the engine.
2. Uncoil the oil line. Select a mounting location in the boat for the oil reservoir that is in reach of the oil hose and where the bottom on the reservoir is higher than the oil pump. Mount the oil reservoir.



a - Oil Reservoir
b - Bottom of Reservoir Must Be Higher Than the Oil Pump

IMPORTANT: Oil Reservoir must be mounted higher than the oil pump. Oil is gravity fed to the oil pump.

3. Follow the oil line from the reservoir to the oil pump. There should be no air in the line. If air is present, loosen bleed screw (c) and bleed air out until oil is present. Tighten bleed screw.

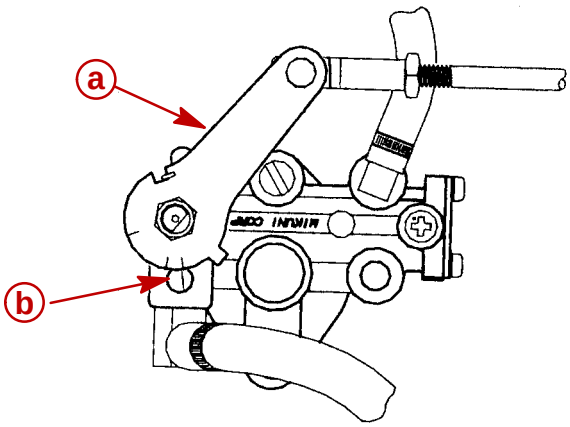


a - Oil Inlet Hose
b - Oil Outlet Hose
c - Bleed Screw

Check Oil Pump Adjustment

IMPORTANT: The oil injection system is setup and bled at the factory.

1. Move towershaft to the Wide Open Throttle position. Inspect oil pump alignment mark with the oil pump lever. If necessary, adjust oil pump link rod to align with the last mark.

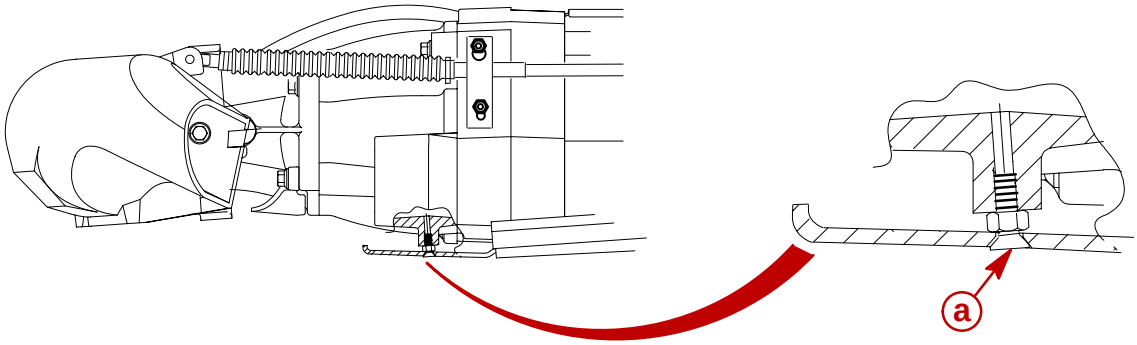


a - Oil Pump Lever
b - Alignment Mark (At Wide Open Throttle)

Trim Plate Adjustment

The Sport Jet trim plate is factory set for general applications. Should a particular boat experience porpoising problems, the trim plate can be adjusted as follows:

1. Loosen both jam nuts on trim plate (one starboard and one port).



a - Jam Nut w/Washer (Two: One On Each Side)

2. Turn both screws the exact same number of turns. Tighten both jam nuts against trim plate. The distance from top of nut to bottom of boss should be equal on both sides.

⚠ WARNING

Adjusting the trim plate may affect boat handling (steering). Overly sensitive steering or reduced turning ability could result from trim plate adjustments. Boat handling characteristics also vary with the load distribution in the boat. Use caution after adjusting: check for acceptable handling characteristics under all loading conditions. Failure to adequately test the boat could result in inadequate steering control resulting in property damage, personal injury or death.

Pre-delivery Inspection

Not Applicable	Check/ Adjust	

Check Before Running

☐	☐	Water hose connection/torqued
☐	☐	Cover plate & adaptor plate fasteners torqued
☐	☐	Battery charged & secure
☐	☐	All electrical connections tight
☐	☐	Exhaust hose clamps tight
☐	☐	All fuel connections tight
☐	☐	Throttle, shift, & steering adjusted correctly and fasteners torqued
☐	☐	Carb throttle shutters open & close completely
☐	☐	Pump housing oil level full (See Owner's Manual)
☐	☐	Oil injection reservoir full and bled
☐	☐	Warning system(s) operational

On the Water Test

☐	☐	Starter neutral safety switch operational
☐	☐	Lanyard stop switch operational
☐	☐	All gauges read properly
☐	☐	No fuel or oil leaks
☐	☐	No water leaks
☐	☐	No exhaust leaks
☐	☐	Ignition timing set to specs
☐	☐	Idle:_____RPM
☐	☐	Idle mixture adjusted
☐	☐	Forward-Neutral-Reverse operational
☐	☐	Steering operational throughout entire range
☐	☐	Acceleration test
☐	☐	WOT:_____RPM
☐	☐	Boat handling

Post Water Test

☐	☐	No fuel, oil, water or exhaust leaks
☐	☐	Re-torque adapter plate fasteners