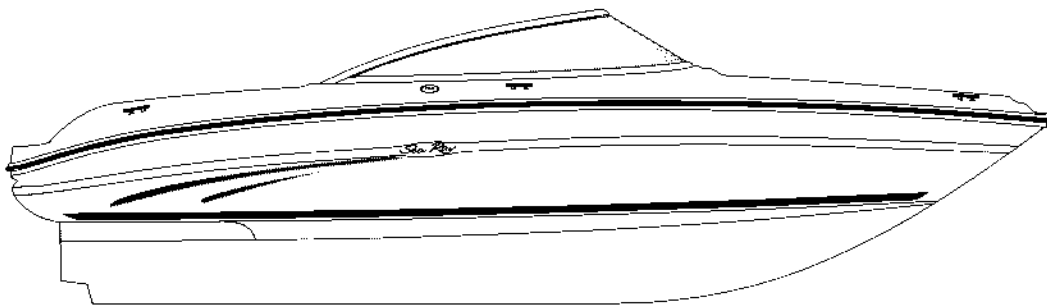


# Owner's Manual Supplement

## 190 Bow Rider



*Sea Ray*

Sea Ray® 190 Bow Rider Owner's Manual Supplement • MRP #1154293  
Printed in the U.S.A. May 1998, Reprinted January 2000. Revised November 2001. © Sea Ray Boats, Inc.  
Sea Ray Boats, Inc. 2600 Sea Ray Blvd., Knoxville, TN 37914  
For information call 1-800-SRBOATS, or fax 1-314-213-7878  
Internet address: <http://www.searay.com>  
Note: Not all accessories shown in pictures or described herein are standard equipment or even available as options.  
Options and features are subject to change without notice.



# INTRODUCTION & TABLE OF CONTENTS

This owner's manual supplement has been written to provide additional specific information about your boat and should be read carefully. Keep this booklet with the owner's manual in the owner's manual packet.

The owner's manual packet has been compiled to help you to operate your craft with safety and pleasure. It contains details of the craft, the equipment supplied or fitted, its systems and information on its operation and maintenance. Please read the information in it carefully, and familiarize yourself with the craft before using it.

If this is your first craft, or you are changing to a type of craft you are not familiar with, for your own comfort and safety, please ensure that you obtain handling and operating experience before "assuming command" of the craft. Your dealer or yacht club will be pleased to advise you of local sea schools, or competent instructors.

**PLEASE KEEP THIS OWNER'S MANUAL PACKET IN A SECURE PLACE, AND HAND IT OVER TO THE NEW OWNER WHEN YOU SELL THE CRAFT.**

Warranty Information .....	4	Automatic Fire Extinguisher System .....	10
Construction Standards .....	4	Anchoring.....	10
Hull Identification Number .....	4	Anchoring Arrangement.....	10
Servicing Your Sea Ray®.....	4	Life Saving Equipment (PFD) .....	10
General Arrangements, Specifications & Dimensions .....	5	Boat Storage .....	11
Seating Plan Options .....	6	Troubleshooting .....	11
Accessory Locations .....	6	List of Reference Manuals and Drawings.....	11
Supplemental General Information .....	7	Repair and Parts Facilities.....	11
Bilge Pumping System .....	7	Docking / Lifting / Trailing .....	11
Propulsion System .....	7	Canvas Information .....	12
Propellers.....	7	Canvas .....	12
Fuel System .....	7-8	Canvas Care & Maintenance .....	13
Exhaust System .....	8	Installation Tips .....	13
Engine Cooling System .....	8	Trailing With Canvas .....	13
Electrical Installations .....	8	Dash Layout .....	14
Battery .....	8-9	Electronic Switch Pad .....	15
12 Volt Receptacle .....	9	Location Of Through-Hull Fittings .....	16
Steering System .....	9	Bilge Layout .....	16
Ventilation System / Bilge Blower .....	9	Wire Harness Installation .....	17
Fire Extinguisher System .....	9	Wiring Schematics .....	18-10
Fire Extinguisher Discharge Port .....	10	International Homologations .....	20

(This book contains 21 pages.)

Information in this publication is based upon the latest product specifications available at printing. Sea Ray Boats, Inc. reserves the right to make changes at any time, without notice, in the colors, equipment, specifications, materials and prices of all models, or to discontinue models. Should changes in production models be made, Sea Ray® is not obligated to make similar changes or modifications to models sold prior to the date of such changes.

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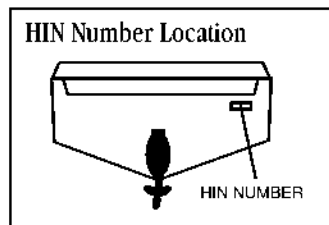


## WARRANTY INFORMATION

Sea Ray's® warranty is better than ever. Find the warranty information card in your owner's manual packet for complete details. If for some reason the card is missing, contact your Sea Ray® dealer for a new one.

## CONSTRUCTION STANDARDS

Sea Ray's® commitment - Excellence by Design - has enabled us to create a superior craft providing you with comfort, performance, safety and dependability. All our boats comply with the safety standards set by the United States Coast Guard and are designed, engineered and manufactured in accordance with applicable recommendations and guidelines of the American Boat and Yacht Council (ABYC) certified by the National Marine Manufacturers Association (NMMA).



## HULL IDENTIFICATION NUMBER (HIN)

The "**Hull Identification Number**," located on the starboard side of the transom, is the most important identifying factor and

must be included in all correspondence and orders. Failure to include it only creates delays. Also of vital importance are the engine serial numbers and part numbers when writing about or ordering parts for your engine. Refer to the engine owner's manual for locations.

## SERVICING YOUR SEA RAY®

When your boat needs service beyond regular maintenance it should be taken to an authorized Sea Ray® dealer.

To find a dealer in your area call:

1-800-SRBOATS

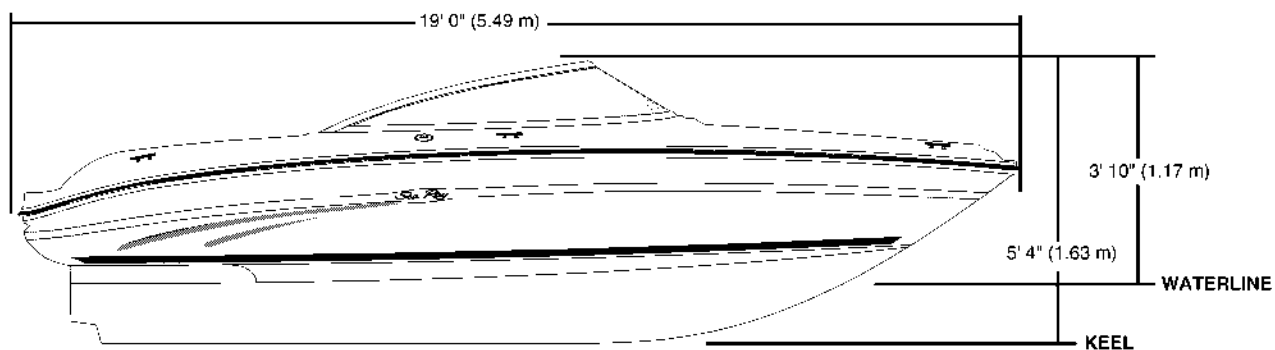
Fax: 1-314-213-7878

If a problem is not handled to your satisfaction:

1. Discuss any warranty-related problems directly with the service manager of the dealership or your sales person. Give the dealer an opportunity to help the service department resolve the matter for you.
2. If a problem arises that has not been resolved to your satisfaction by your dealer, contact Sea Ray Boats at 1-800-SRBOATS and the appropriate customer service department information will be provided for you.

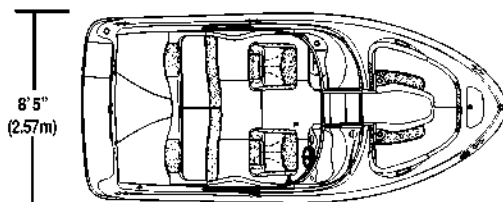
# GENERAL ARRANGEMENTS / SPECIFICATIONS & DIMENSIONS

Profile  
(fig. 5.1)



## 190 BOW RIDER — SPECIFICATIONS

Overall Length .....	19' 0" (5.49 m)
Beam .....	8' 5" (2.57 m)
Draft (Stern Drive Down) .....	35" (88.9 cm)
Draft (Stern Drive Up) .....	18" (45.7 cm)
Dry Weight (Lbs.) .....	0,000 (1,361 kg)
Fuel Capacity (Gallons) ...	38 gal (143.8 liters)
Usable Fuel (Gallons) .....	36 gal (136.6 liters)
Dead Rise .....	20°
System Voltage .....	12 VDC
Battery Capacity .....	Dealer Installed



## HEIGHT DIMENSIONS

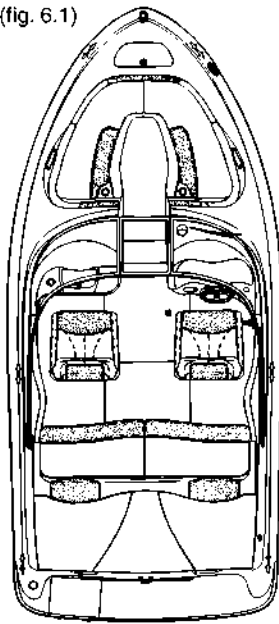
Waterline To Top Of Windshield .....	3' 10" (1.17 m)
Keel To Top Of Windshield .....	5' 4" (1.63 m)

(FIG. 5.2)

The specification measurements and locations are approximations and subject to variance

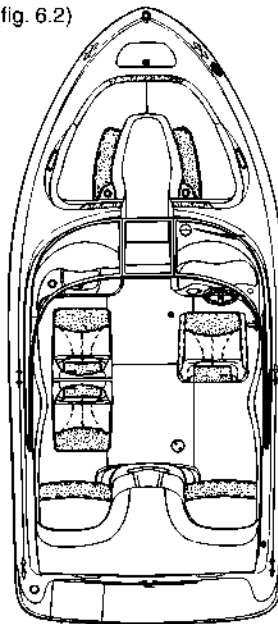
# SEATING PLAN (INTERIOR PLAN)

(fig. 6.1)



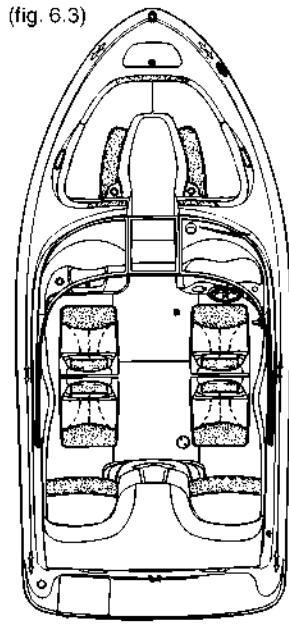
**STANDARD SEATING PLAN**  
Swivel Bucket Helm Seat w/Slider,  
Swivel Bucket Passenger Seat,  
Fiberglass Bench Seat w/Storage Below

(fig. 6.2)



**OPTIONAL SEATING PLAN #1**  
Adjustable Back-to-Back Lounger  
Seat On Port Side  
[Replaces Swivel Bucket Seat],  
Hi-Lo Aft Jump Seats  
[Forms Sun Pad], Hinged Motor Box

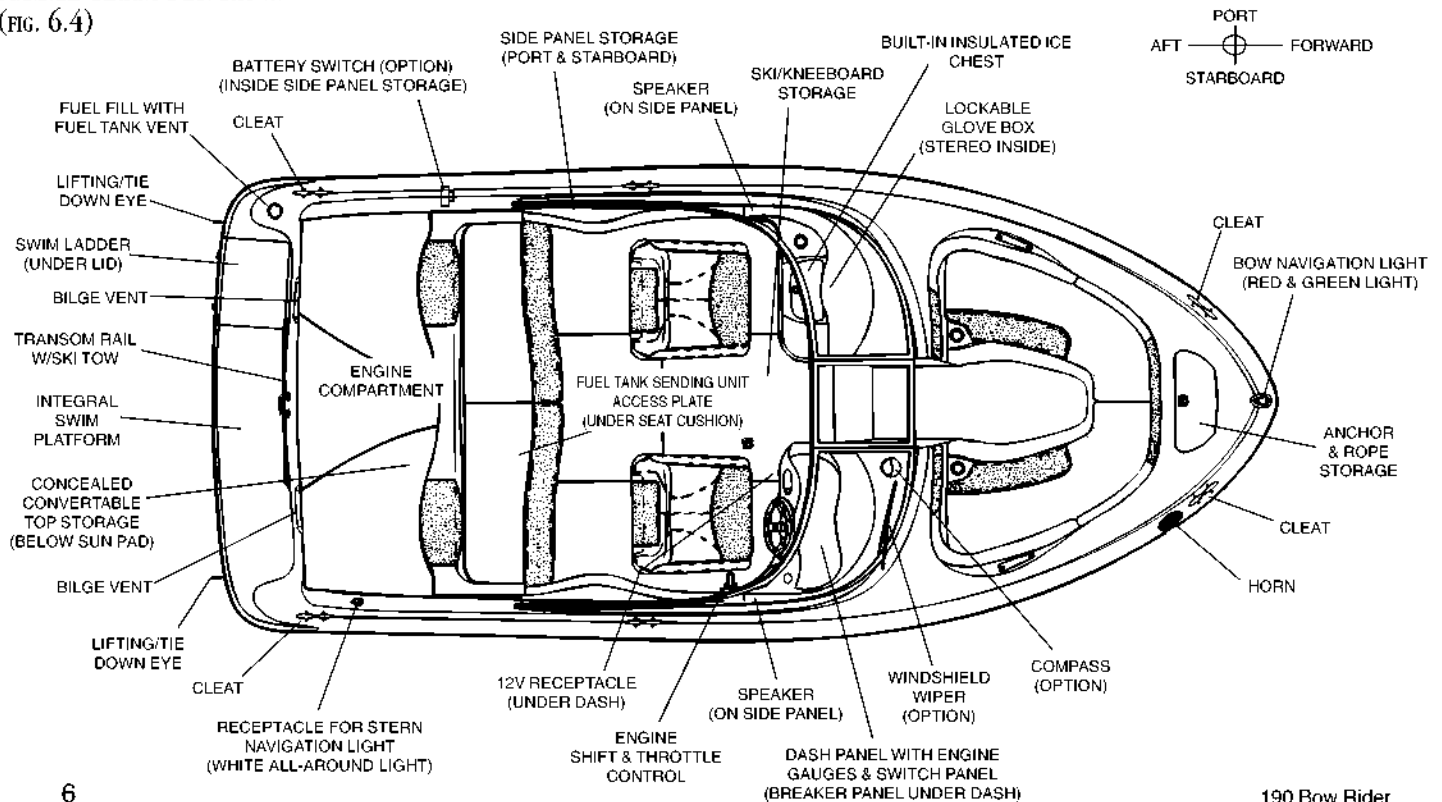
(fig. 6.3)



**OPTIONAL SEATING PLAN #2**  
Adjustable Back-to-Back Lounger  
Seat Port & Starboard  
[Replaces Swivel Bucket Seat],  
Hi-Lo Aft Jump Seats  
[Forms Sun Pad], Hinged Motor Box

## ACCESSORY LOCATIONS

STANDARD SEATING PLAN SHOWN  
(FIG. 6.4)

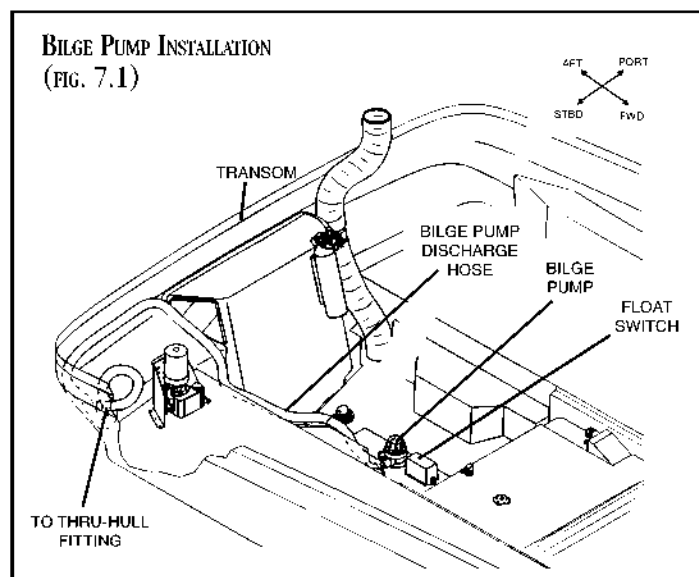


# SUPPLEMENTAL GENERAL INFORMATION

## BILGE PUMPING SYSTEM



Your boat is equipped with an automatic electric bilge pumping system consisting of a bilge pump with float switch. The pump is protected by 4 amp fuse located on the port side bilge (see fig. 17.4).



The bilge pump is equipped with a switch on the dash with a "MANUAL" and "AUTO" position. When the switch is in the "MANUAL" position, the pump will run continuously. When in the "AUTO" position, the pump is activated when there is enough water in the bilge to raise the float switch to its highest position; and deactivated when the water recedes. **The pump should NOT be left in the "MANUAL" mode unless the bilge is being pumped out for servicing.**

Frequently inspect the area under the pumps and float switches to ensure they are free from debris and gummy bilge oil.

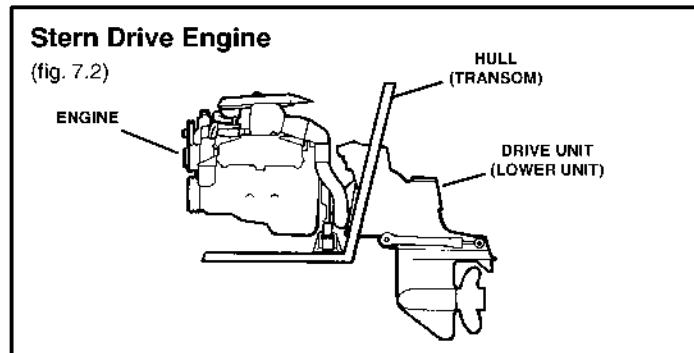
REFER TO THE OWNER'S MANUAL AND OWNER'S PACKET FOR INSTRUCTIONS AND WARRANTY INFORMATION.

## PROPULSION SYSTEM



The 190 BR is equipped with a stern drive type propulsion system also known as an inboard-outboard engine. This type of propulsion system has the engine secured to the hull's stringers at the aft end of the hull and covered by a engine box. The drive unit, also called the lower unit because it hangs below the hull, is the part of the propulsion system that attaches to the outside of the hull or transom. The drive unit pivots to steer the boat.

REFER TO THE OWNER'S MANUAL AND ENGINE OWNER'S MANUAL FOR OPERATING INSTRUCTIONS AND WARRANTY INFORMATION.



## PROPELLERS

Your Sea Ray® has been equipped with a propeller which our tests have shown to be the best suited for general use under normal conditions and load. In some situations you may wish to change propellers to give your boat slightly different performance characteristics. In general, changing to a lower pitch propeller will increase acceleration and load-pulling ability, but with a slight decrease in top speed. Conversely, moving to a higher pitch propeller will attain higher top speed with a light load, but will sacrifice acceleration and power. Your particular requirements should be discussed with your Sea Ray® dealer. **Under no circumstances use a propeller which allows the engine to operate at higher than recommended RPM.**

## FUEL SYSTEM

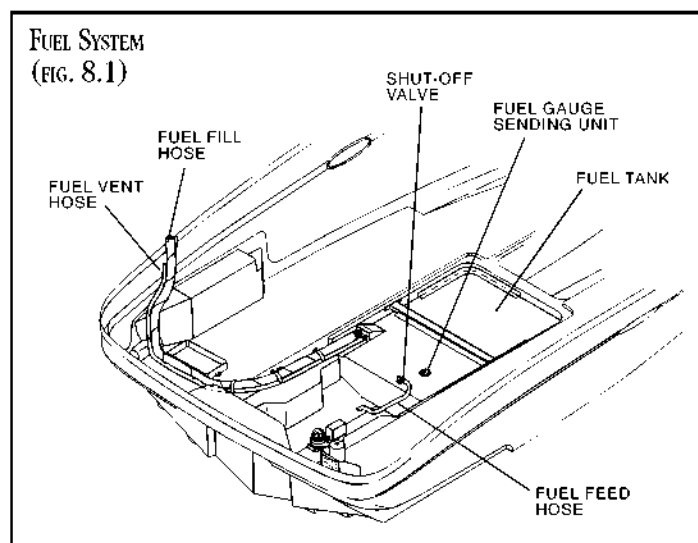


Located in the owner's packet is the *Sea Ray® Operational and Safety Manual* that contains important fueling information. Take time to read all the fuel related information in the owner's packet.

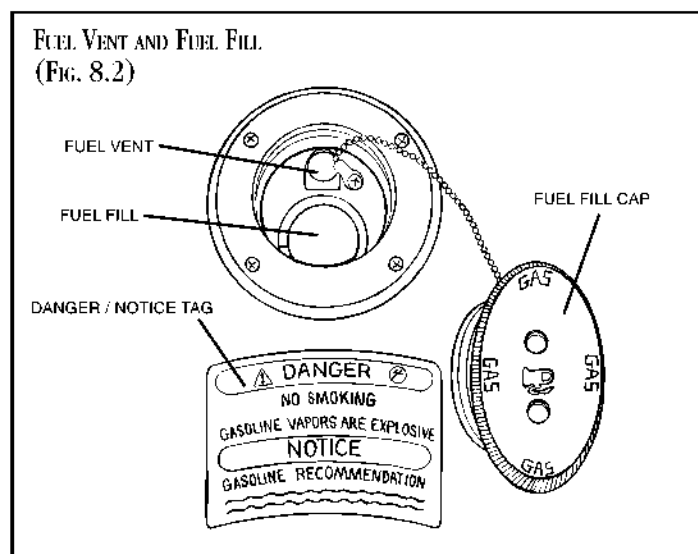
The 190 BR's standard gasoline fuel system consists of a 38 gallon (143.8 liter) fuel tank, shut-off valve, engine fuel supply line and fuel fill with vent (see fig. 8.1).

## SUPPLEMENTAL GENERAL INFORMATION

The gasoline engine fuel pick-up at the fuel tank has a shut-off valve to prevent fuel from siphoning out in the event of fuel line failure or while performing engine maintenance.



The fuel tank vent serves as a pressure/vacuum release and safety overflow. The fuel vent is located at the fuel fill under the fuel cap. Periodically check the vent to assure that it is not clogged.



### **! CAUTION**

Never start an engine until you are certain that fuel fumes are not present in engine compartment or elsewhere in the boat.

## EXHAUST SYSTEM

The boat's exhaust system is an integral part of the propulsion system.

REFER TO THE ENGINE OWNER'S MANUAL FOR INSTRUCTIONS AND WARRANTY INFORMATION.

## ENGINE COOLING SYSTEM

The engine cooling system is an integral part of the propulsion system.

REFER TO THE ENGINE OWNER'S MANUAL FOR INSTRUCTIONS AND WARRANTY INFORMATION.

## ELECTRICAL INSTALLATIONS

This owner's manual supplement contains electrical schematics for your boat. These electrical schematics were generated by technicians at the engineering division for technical reference and service technicians. Sea Ray® does not recommend that you attempt to work on the boat's electrical system yourself, instead we recommend that you take your boat to your authorized Sea Ray® dealer for service. Sea Ray® reserves the right to change or update the electrical system on any model at any time without notice to the consumer and is NOT obligated to make any updates to units built prior to changes.

## BATTERY



Refer to the *Sea Ray® Operational and Safety Manual* for battery disconnect and maintenance.

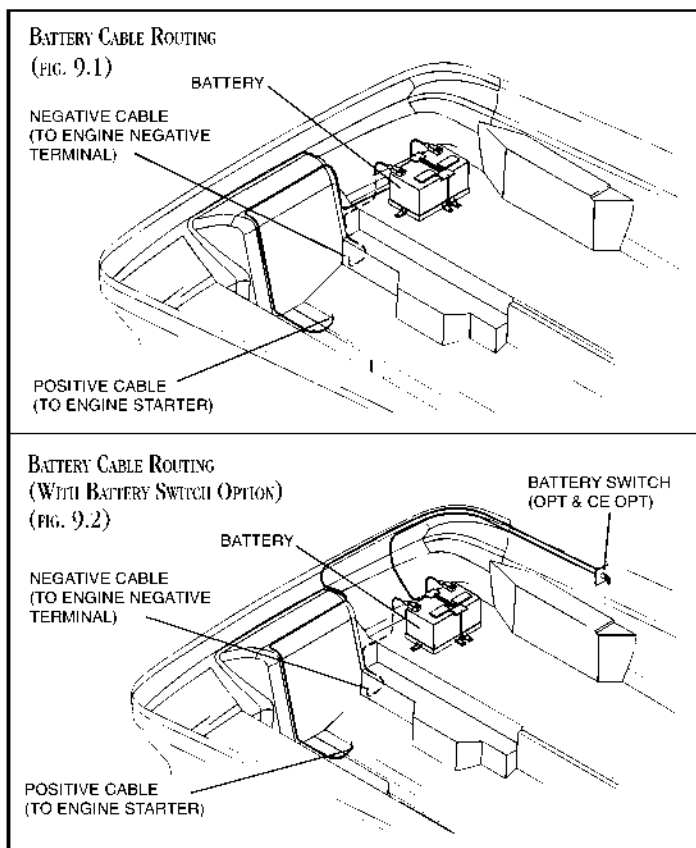
ALWAYS DISCONNECT BATTERY CABLES BEFORE DOING ANY WORK ON THE ENGINE'S ELECTRICAL SYSTEM OR ALTERNATOR WIRING TO PREVENT ARCING OR DAMAGE TO THE ALTERNATOR.

### **! DANGER**

- Never use an open flame in the battery storage area.
- Avoid striking sparks near the battery.
- A battery will explode if a flame or spark ignites the free hydrogen given off during charging.



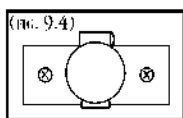
## SUPPLEMENTAL GENERAL INFORMATION



### CAUTION

While the engine is running, the battery terminal clamps must not be loosened or detached nor should the battery switch(es) be turned off, otherwise the alternator and other electronic units will be damaged.

### 12 VOLT RECEPTACLE



The 190 Bow Rider is equipped with a 12 volt power receptacle under the dash. Use this receptacle to power a 12 volt spot light, phone charger or any other 12 volt device.

The receptacle is protected by a fuse under the dash.

### STEERING SYSTEM

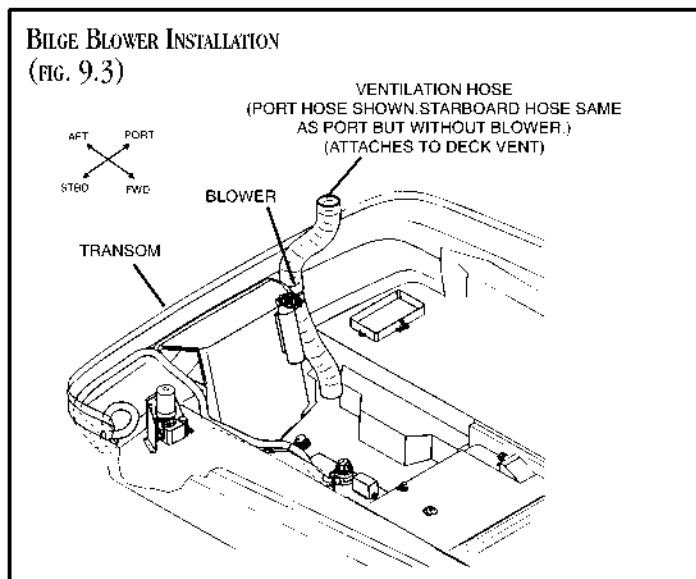
The boat is equipped with a power steering system.

REFER TO THE ENGINE OWNER'S MANUAL IN THE OWNER'S PACKET FOR INSTRUCTIONS AND WARRANTY INFORMATION.

### VENTILATION SYSTEM/BILGE BLOWER



Sea Ray® Sport Boats are equipped with an electric bilge blower to remove fumes from the engine compartment and provide ventilation through the deck vents before starting the engine and when operating below cruising speeds. The bilge blower is located on the port side of the transom.



### FIRE EXTINGUISHING SYSTEM

The 190 BR is offered with an optional automatic fire extinguishing system. If your boat is not equipped with this option, you must carry an approved fire extinguisher.

Following are United States Coast Guard (USCG) requirements and American Boat & Yacht Council (ABYC) recommendations for boats not equipped with the automatic fire extinguishing system option for open boats over 16 feet (4.9 meters) but less than 26 feet (7.9 meters).

Standard	Boat	Qty.	Type
USCG	190 BR	1	B1
ABYC	190 BR	2	B1

Location: Steering position and galley or passenger cockpit.

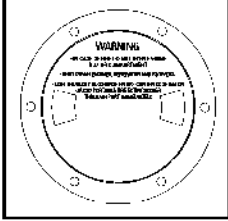
Note: To be ABYC compliant Sea Ray Boats, Inc. Follows ABYC construction standards, and recommendations.

REFER TO THE OWNER'S MANUAL AND OWNER'S PACKET FOR INSTRUCTIONS AND WARRANTY INFORMATION.

# SUPPLEMENTAL GENERAL INFORMATION

## FIRE EXTINGUISHER DISCHARGE PORT

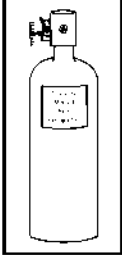
(fig. 10.1)



Your sport boat is equipped with a fire extinguisher discharge port. This port is located directly below the aft bench seat back cushion with the standard seating plan and on the port side of the motor box with the optional seating plans. In the event of a fire, the access plate on the engine compartment can be removed to allow the operator to discharge a fire extinguisher into the engine compartment without having to open the engine box. Do not open the engine compartment immediately! This feeds oxygen to the fire and flashback could occur.

## AUTOMATIC FIRE EXTINGUISHING SYSTEM

(fig. 10.2)



The 190 Bow Rider is offered with the optional automatic fire extinguishing system. If your boat is not equipped with this option you must carry an approved fire extinguisher. Refer to the Coast Guard pamphlet "Federal Requirements and Safety Tips for Recreational Boats."

The automatic fire extinguisher system is installed in the bilge. In the event of a fire, the heat sensitive automatic head will release extinguishant flooding the area. The system indicator light is wired to the ignition and is turned ON when the ignition is turned ON. The system indicator light is located on the helm instrument panel. Under normal circumstances, when the ignition is ON the indicator light is lit. If the unit discharges, the light will go out.

**WHEN ACTUATION OCCURS, IMMEDIATELY SHUT DOWN ALL ENGINES, POWERED VENTILATION, ELECTRICAL SYSTEMS AND EXTINGUISH ALL SMOKING MATERIALS. DO NOT OPEN THE ENGINE COMPARTMENT IMMEDIATELY!! THIS FEEDS OXYGEN TO THE FIRE, AND FLASHBACK COULD OCCUR.**

Allow the extinguishant to "soak" the compartment for at least fifteen (15) minutes and for hot metals or fuels to cool before cautiously inspecting for cause of damage. Have portable extinguishers at hand and ready. Do not breathe fumes or vapors caused by the fire.

**REFER TO THE OWNER'S MANUAL AND OWNER'S PACKET FOR INSTRUCTIONS AND WARRANTY INFORMATION.**



## WARNING

- In case of fire **DO NOT** open engine box or compartment.
- Shut down engines, generator and blowers.
- Continuously discharge entire contents of portable fire extinguisher through port immediately.

## ANCHORING

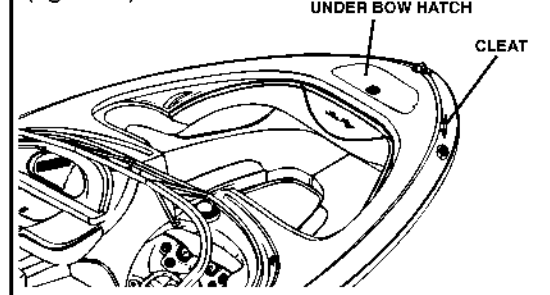


To anchor, bring the bow into the wind or current and put the engine in neutral. When the vessel comes to a stop, lower, do not throw, the anchor over the bow. The anchor line should be 5 to 7 times the depth of water.

## ANCHORING ARRANGEMENT

The 190 BR is equipped with an anchor storage compartment under the bow hatch. Note: Before using the anchor, be sure the anchor line is secured to the boat – to the bow eye or bow cleat.

(fig. 10.3)



## LIFE SAVING EQUIPMENT

### (Personal Flotation Device (PFD))

**STORAGE:** The 190 BR offers storage in the cockpit side panels and floor storage.

**OPERATION:** Wear PFD according to manufacturer recommendations. See pamphlet *Federal Requirements And Safety Tips For Recreational Boats* in the owner's packet or get one from your dealer.

**MAINTENANCE:** Rinse with fresh water and let dry thoroughly. Do not store in a damp compartment. Avoid the possibility of mildew.

# SUPPLEMENTAL GENERAL INFORMATION

## BOAT STORAGE

**WET STORAGE PROCEDURES:** Special care for boats that are moored: If permanently moored in salt water or fresh water, your boat will collect marine growth on its bottom. This will detract from the boat's beauty and greatly affect its performance. There are two methods of preventing this:

- Periodically haul the boat out of the water and scrub the bottom with a bristle brush and a solution of soap and water.
- Paint the hull below the waterline with a good grade of antifouling paint. DO NOT paint the engine drive surfaces.

**NOTE:** There are EPA regulations regarding bottom paint application. Consult your marine paint dealer for proper application methods.

**SECURITY CONSIDERATIONS:** Be conscious of the security of your boat. Always remove the key from the ignition, store your boat in a secure place, put a lock on the trailer and if location permits, chain your trailer to a pole or other permanently fixed object. Remove and stow any removable electronic gear (fishfinders, VHF radio, GPS, LORAN, etc.) and personal gear (fishing poles, skis, etc.) normally left aboard your boat.

## TROUBLE SHOOTING

### List of Reference Manuals and Drawings

**PERFORMANCE:** Refer to the owner's manual.

**ENGINE:** Refer to the owner's manual and/or the engine manual.

**ELECTRICAL:** Refer to electrical section of the owner's manual and electrical schematics in this owner's manual supplement. Only a qualified marine electrical technician may service the boat's electrical system.

### Repair and Parts Facilities

To find a Sea Ray® dealer in your area, call: Sea Ray® Customer Service: 1-800-SRBOATS  
FAX: 1-314-213-7878

To find repair and parts facilities for equipment installed on your boat, refer to the original equipment manuals (OEMs) found in the owner's manual packet.

## DOCKING / LIFTING / TRAILERING

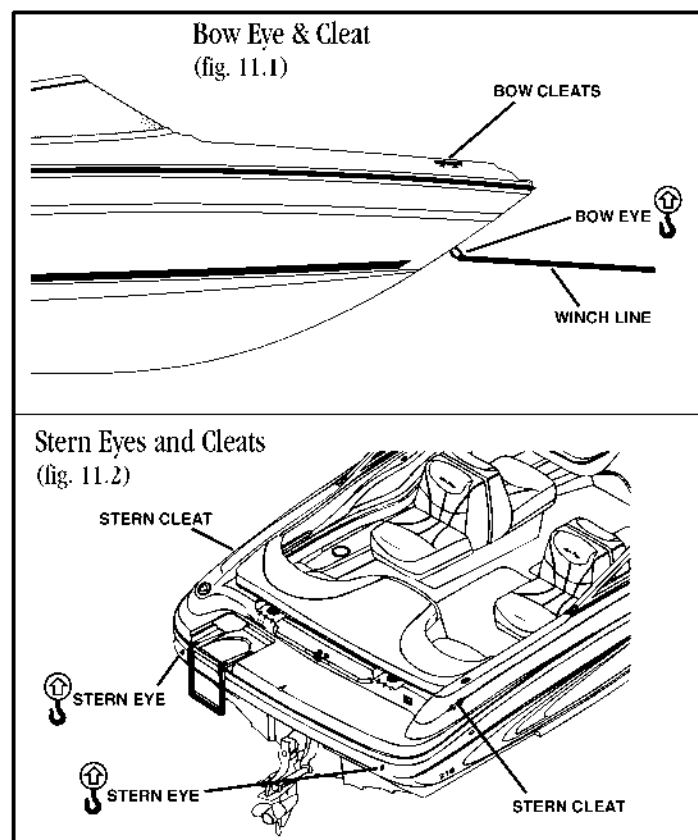
**CLEATS:** Cleats must not be used for lifting the boat, they are intended for mooring use only.



**BOW AND STERN EYES:** The bow eye should be used to haul the boat onto a trailer. The stern eyes should be used as tie down points for trailering the boat. The bow and stern eyes may be used for short term lifting of the boat such as for service. Long term lifting with the bow and stern eyes may cause stress on the fiberglass and gel coat.

For long term storage, use flat, wide belt-type slings and spreaders long enough to keep pressure from gunwales. Do not place slings where they may lift on underwater fittings.

REFER TO OWNER'S MANUAL.



# CANVAS INFORMATION

## CANVAS

REFER TO OWNER'S MANUAL PACKET FOR CANVAS MANUFACTURER INSTRUCTIONS AND WARRANTY INFORMATION.

Sea Ray's® commitment to boating safety will refer you to the Owner's Operational and Safety Manual located in the Owner's Packet. One area in particular is *Exhaust Emissions* and *Emergency Procedures*. Read and understand the effects of carbon monoxide and how to ventilate your Sport Boat to prevent the build-up of this invisible gas.

Attached to the inside of the convertible top is a DANGER tag for Carbon Monoxide Gas (CO) buildup and a WARNING tag for excessive speeds while canvas is installed. The Aft Curtain also has a WARNING tag stating "The Aft Curtain is not designed to be used while engine is running or boat is underway". If your canvas does not have these tags, they become lost or are unable to be read, contact your dealer for replacement labels.

**! DANGER**  
FATALITY IS 100% FROM THIS GAS.  
CO CAN KILL!  
CANVAS MONITOR GAS (CO)  
BOATS WITH CANVAS OR TOPS  
VENTILATION IS REQUIRED. DO NOT  
COLLECT FUMES. DO NOT ALLOW  
SWITCHES, IGNITION, CIGARETTES,  
BATTERIES AND EQUIPMENT TO GET  
WET. IF YOU DO NOT KNOW,  
CONTACT YOUR DEALER OR  
MANUFACTURER FOR MORE DETAILS.

**! WARNING**  
SUNSHADE SHOULD  
NOT BE USED WHEN  
VESSEL SPEED EXCEEDS  
45 MPH

**! WARNING**  
THE AFT CURTAIN IS NOT  
DESIGNED TO BE USED  
WHILE ENGINE IS RUNNING  
OR BOAT IS UNDERWAY

The Canvas manufacturer has provided the canvas piece name, and position on each canvas piece with a sewn on white label. Do not remove these tags. They will help you with identification and position for easier installation procedures.

It is recommended you decide which canvas pieces you want to remove or install before you leave the boat slip or off load your Sport Boat from the trailer into the water. Removing or installing canvas on the water could be difficult as not all water conditions allow for your stability while attempting removal or installation.

Your Sea Ray® Sport Boat standard canvas set consists of the following pieces:

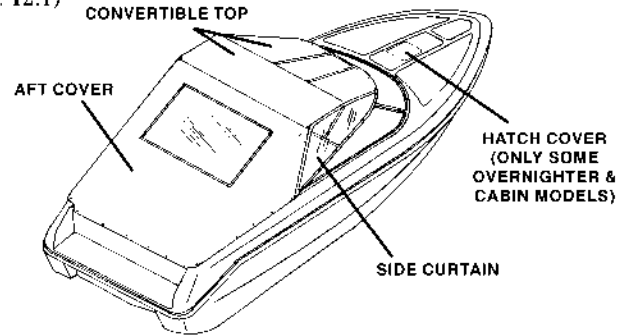
- 1 Sunbrella® Convertible Top

Canvas options available consist of the following pieces:

- 1 Bimini Top w/Boot & Vertical Storage
- 1 Cockpit Cover & Tonneau Cover
- 1 Canvas Package:
  - 1 Top Boot
  - 2 Side Curtains
  - 1 Aft Curtain
  - 1 Tonneau Cover
  - 1 Canvas Storage Bag

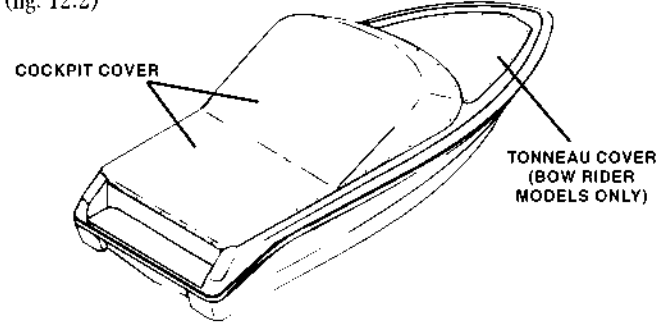
### Sport Boat Canvas Placement

(Note: Your Sport Boat May Not Be Equipped With All Of The Canvas Shown)  
(fig. 12.1)



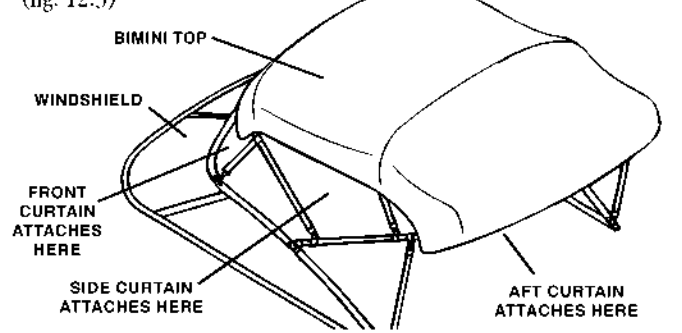
### Sport Boat Canvas Placement

(Note: Your Sport Boat May Not Be Equipped With All Of The Canvas Shown)  
(fig. 12.2)



### Sport Boat Canvas Placement (Optional)

(Note: Your Sport Boat May Not Be Equipped With All Of The Canvas Shown)  
(fig. 12.3)



### Storage:

- Do not fold or store any of the canvas set pieces while wet. All canvas should be rolled or folded when dry and stored in a clean, dry place.
- For clear vinyl pieces, the recommended methods for storage are rolling or laying down flat. The clear vinyl should never be folded or creased as cracking will result. To protect the clear vinyl from rubbing against itself while rolled or stored flat, place a piece of very soft, non abrasive cloth between the pieces. If the surface of the clear vinyl becomes scratched, the canvas manufacturer has

# CANVAS INFORMATION

provided a canvas care sheet located in your Owner's Manual Packet.

- When storing the aft curtain, fold the canvas over the clear vinyl window (do not fold clear vinyl), then roll or store flat.

## CANVAS CARE & MAINTENANCE

The fabric should be cleaned regularly before substances such as dirt, pollen, etc. are allowed to accumulate on and become embedded in the fabric. The fabric can be cleaned without being removed from the installation. Simply brush off any loose dirt, roof particles, etc.; hose down and clean with a mild solution of a natural soap in lukewarm water (no more than 100° F., 38° C) Rinse thoroughly to remove soap. **DO NOT USE DETERGENTS.** Allow to completely air dry.

If you have stubborn cleaning cases, call your dealer for proper procedures. Do not try your own cleaning procedures as they may void any warranties.

After each use, especially in salt water areas, rinse the canvas completely with fresh cold water. Then let the canvas dry completely before stowing.

All metal components of the canvas set should be rinsed with fresh cold water and exposed components wiped dry to maintain appearance and working order.

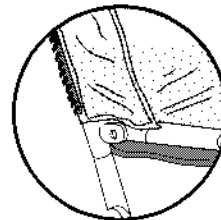
## INSTALLATION TIPS:

- **Zippers** are located on each canvas piece. Make sure canvas is centered over bows. When attaching any canvas piece, zip the zippers only partially. This helps to hold the piece in place and relieves tension, helping the other sides zip or snap easier. After all the sides of the piece are secure, finish zipping all the zippers. This will ensure a tight fit.
- **Adjustable Support Poles** are located on the Convertible Top. Take time to look at the adjustable support poles to see how they work. There is an outside tube and an inside tube. The button requires pushing in to enable the tubes to adjust to a longer or shorter settings.
- **Windshield Snapless Vinyl Insert**  
The snapless extrusion designed by Sea Ray® eliminates the need for snaps and provides a superb water barrier at the windshield frame area. On the bottom edge of the Windshield Visors and Side Curtains you will notice the snapless rubber insert. The insert fits into the top of the windshield frame. See the illustration for proper installation of the snapless insert into the windshield frame. To ease the installation of the insert, remember to partially zip the Windshield Visor and Side Curtains to relieve tension.

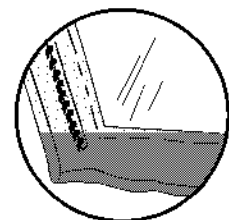
It is recommended for safety and ease of installation that two (2) or more people are available to install or remove the canvas set. Take time to read over the instructions for the canvas piece(s) that you are to install or remove to familiarize yourself with the location of the components of your Sport Boat canvas set.

## TRAILERING WITH CANVAS

You may trailer your boat with either cockpit cover or tonneaucover installed, however, the mooring cover must be installed over boat with tie down straps secure. The convertible top, side curtains and camper aft cover must be removed when trailering. Damage will occur to canvas and bows or boat if attached to boat while trailering.

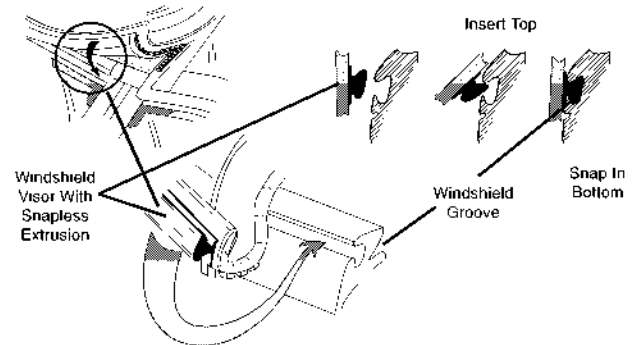


Zipper On Canvas  
(fig. 13.1)



Zipper On Window  
(fig. 13.2)

Snapless Vinyl Insert  
(fig. 13.3)



### WARNING

Convertible Top should not be used when the vessel speed exceeds 45 MPH. DO NOT have Convertible Top installed when trailering. Use Cockpit cover ONLY when trailering.



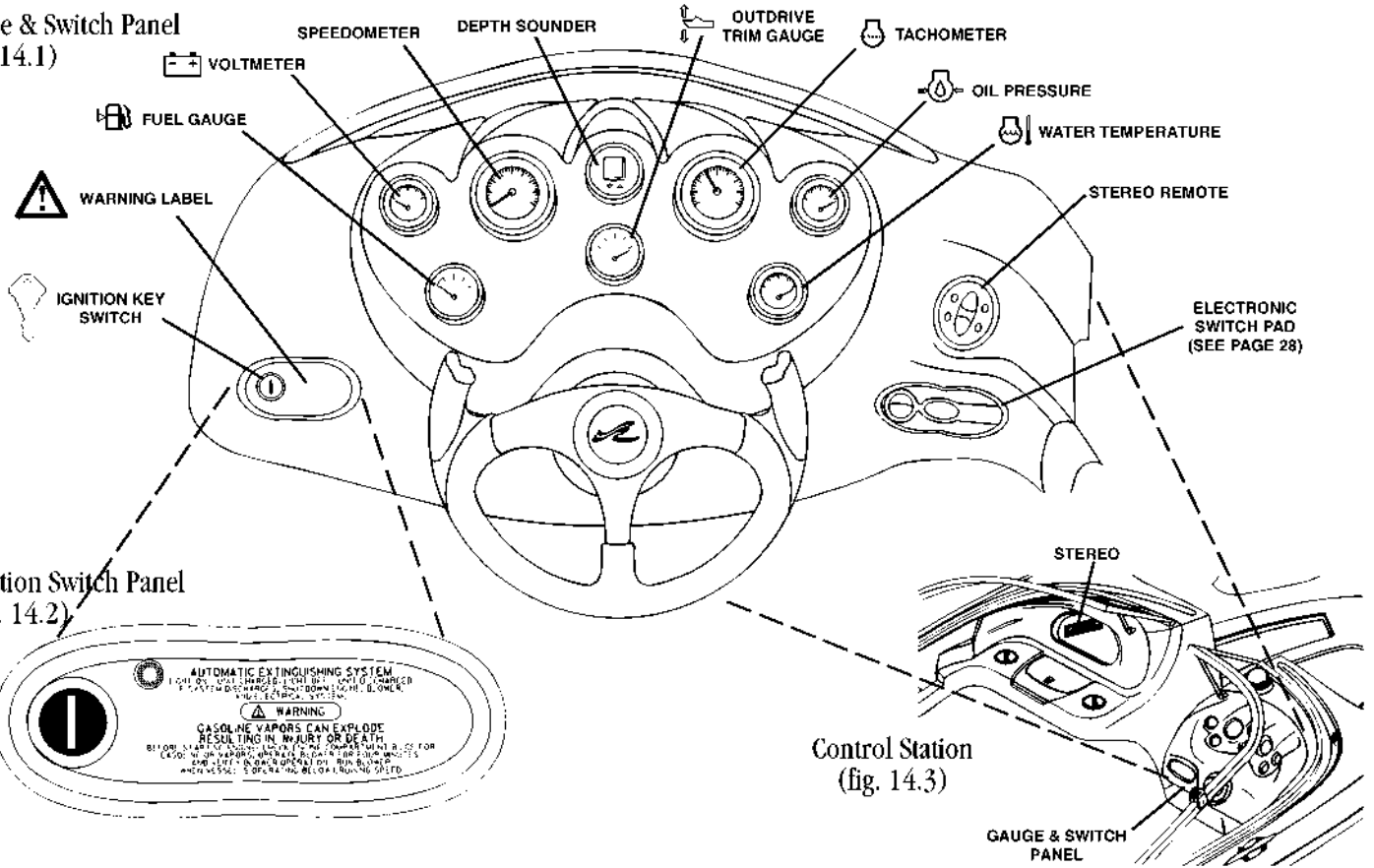
### WARNING

To Avoid Entrapment Of Carbon Monoxide Gas, Remove Aft Cover or Camper Top Canvas Before Starting Engine and Operating Vessel .



## DASH LAYOUT

### Gauge & Switch Panel (fig. 14.1)



# SUPPLEMENTAL GENERAL INFORMATION

## ELECTRONIC SWITCH PAD

The electronic switch pad installed on the 190 BR is illuminated and weatherproof. To operate any of the accessories on the pad simply press the button.

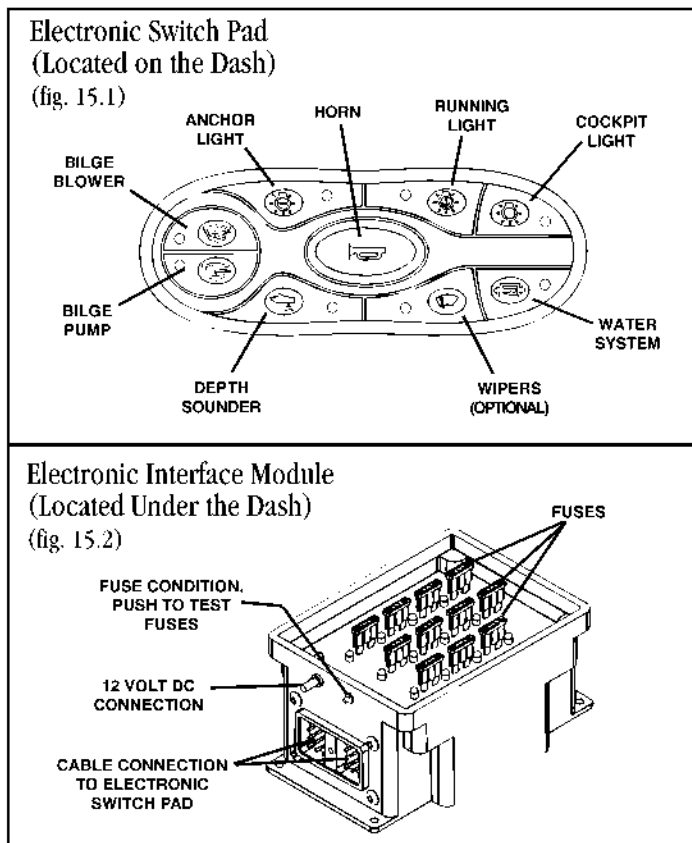
The switch pad is linked to a electronic interface module, located under the dash. The module holds fuses and test lights for each of the items listed on the panel and is fitted with a fuse condition test button. To test fuse condition, press the button on the side of the box. If a light does not come on, replace the corresponding fuse. To replace a fuse, remove the cover, pull out the bad fuse and replace with a fuse of the same size.

### Fuses

In the event it becomes necessary to replace a fuse, **REPLACE THE FUSE WITH ONLY A FUSE OF THE SAME RATINGS.** The fuse's amperage is marked on the fuse.

If a fuse is replaced with a fuse of lower amperage, it will be insufficient to carry the electrical load of the equipment it is connected to and cause nuisance blowing.

If a breaker is replaced with a breaker of higher amperage, it will not provide adequate protection against and electrical malfunction and create a possible fire hazard.



## Electronic Switch Pad / EIM Troubleshooting Guide

### Symptom:

The switch pad will not control any function.

### Diagnosis:

Press the "push to test" button on the EIM unit.

- If the "Power does not illuminate either the battery is dead or the system has become disconnected from the battery.
- If the "Power indicator illuminates, check the connection between the switch pad and the EIM unit.

### Symptom:

The switch pad will not control one or some functions individually, however other functions appear to operate correctly.

### Diagnosis:

Check the front panel indicator light corresponding to the particular function.

- If the corresponding switch pad indicator light operates, then check the device or the wiring to that device.
- If the switch pad indicator does not operate, press the "push to test" button on the EIM unit, and check that the EIM indicator corresponding to the particular function illuminates.
- If the EIM indicator does not illuminate, check the fuse corresponding to the particular function.
- If the corresponding indicator on the EIM unit operates but the switch pad indicator does not; there may be a problem with either the switch pad or with the EIM unit.
- Note that the horn does not have a switch pad indicator, proceed directly to the EIM "push to test switch." If the EIM horn indicator does not illuminate, check the fuse corresponding to the horn position.

### Symptom:

The switch pad indicator remains illuminated even when the switch pad is pushed.

### Diagnosis:

Check wiring corresponding to the individual function for shorts.

### Symptom:

Switch pad backlight does not illuminate even though panel lights are on and other panel lights are operational.

### Diagnosis:

Check wiring between the switch pad and the EIM units.

### Symptom:

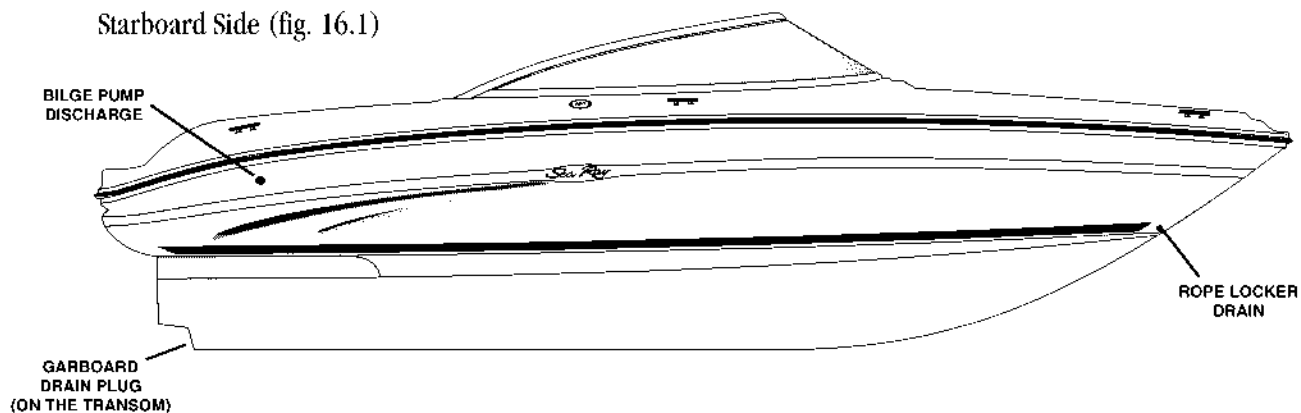
System seems to work with some functions; however, occasionally all functions are reset to "OFF" especially when turning on other functions.

### Diagnosis:

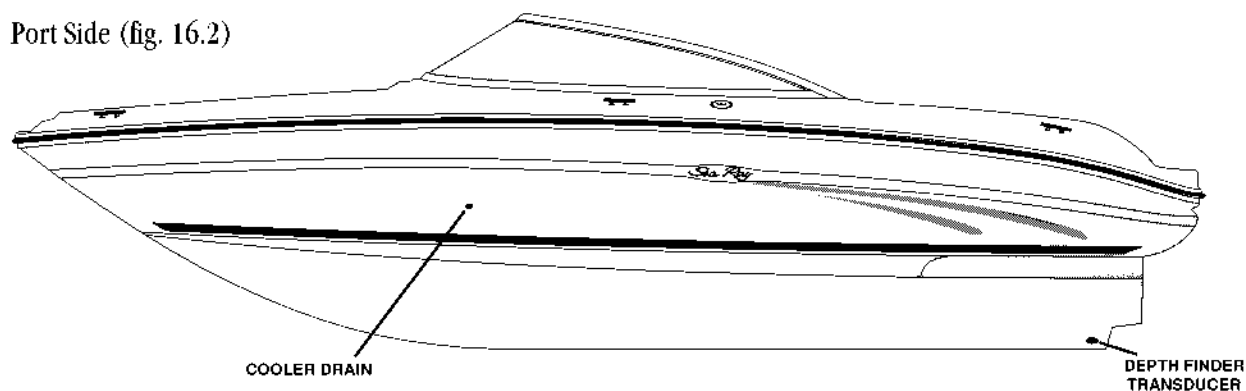
Check that the battery is fully charged, and that the wiring to the battery is not intermittent. The system is most likely detecting a low battery condition. A low battery will be sensitive to the number of functions that are turned on so the condition is most likely detected just as other functions are turned "ON".

# LOCATION OF THROUGH-HULL FITTINGS

Starboard Side (fig. 16.1)

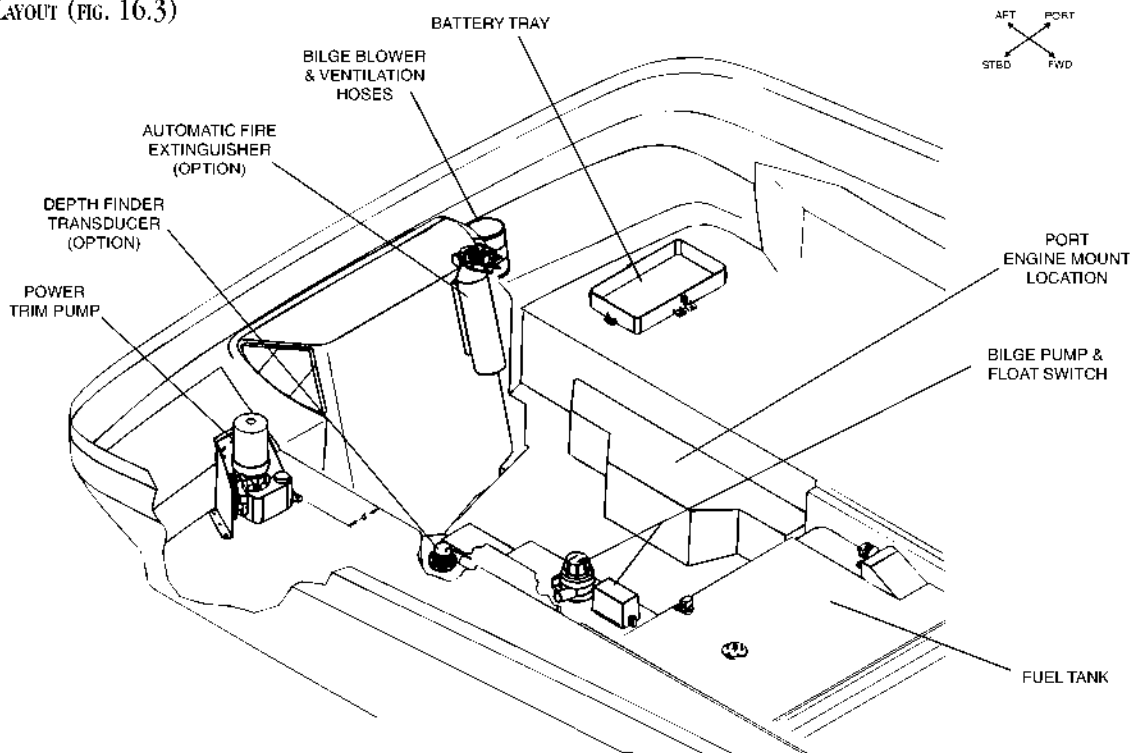


Port Side (fig. 16.2)



## BILGE LAYOUT

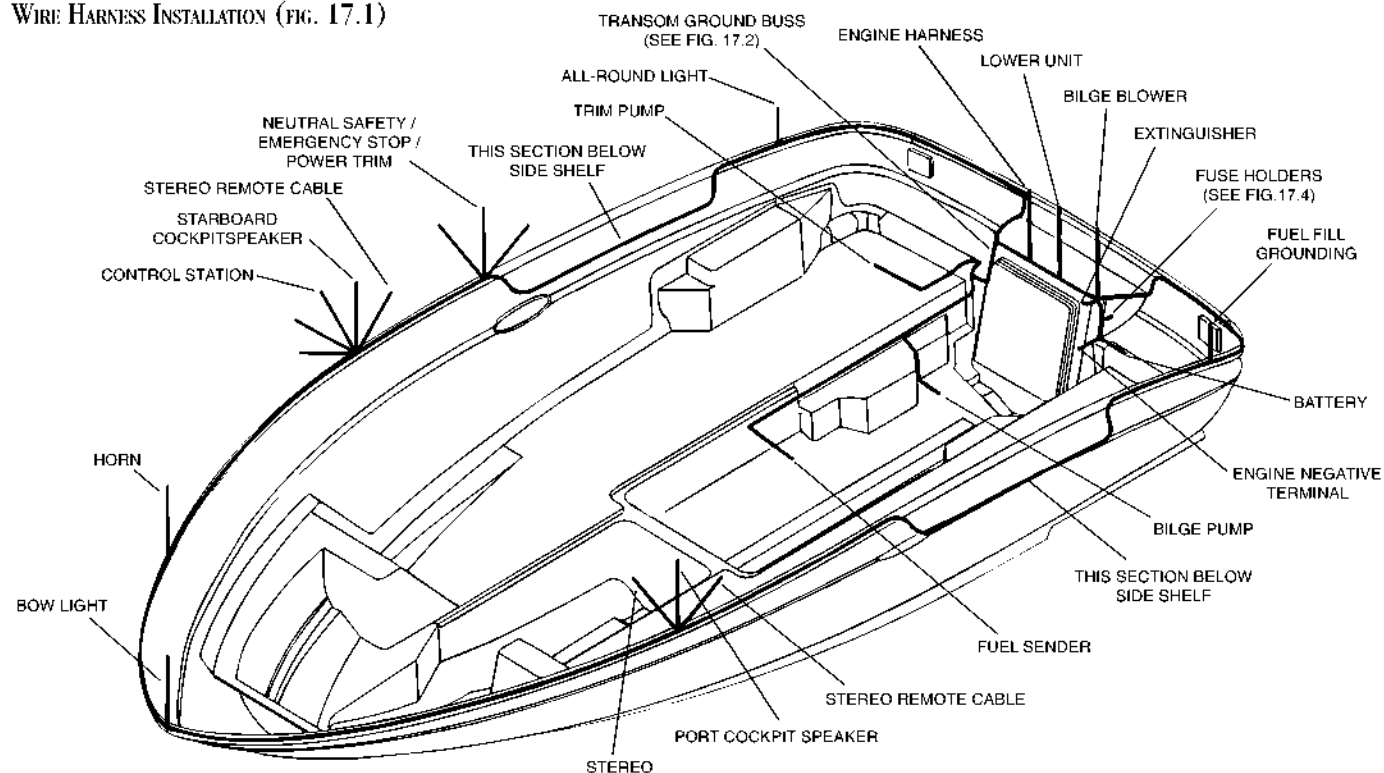
BILGE LAYOUT (FIG. 16.3)



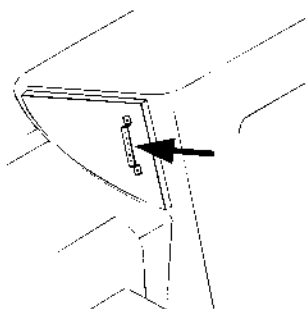


# WIRE HARNESS INSTALLATION

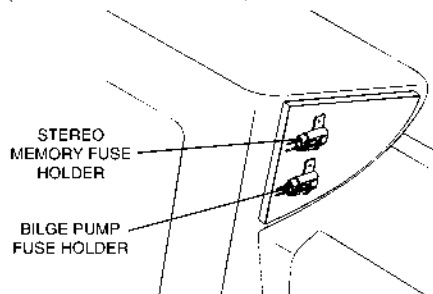
WIRE HARNESS INSTALLATION (FIG. 17.1)



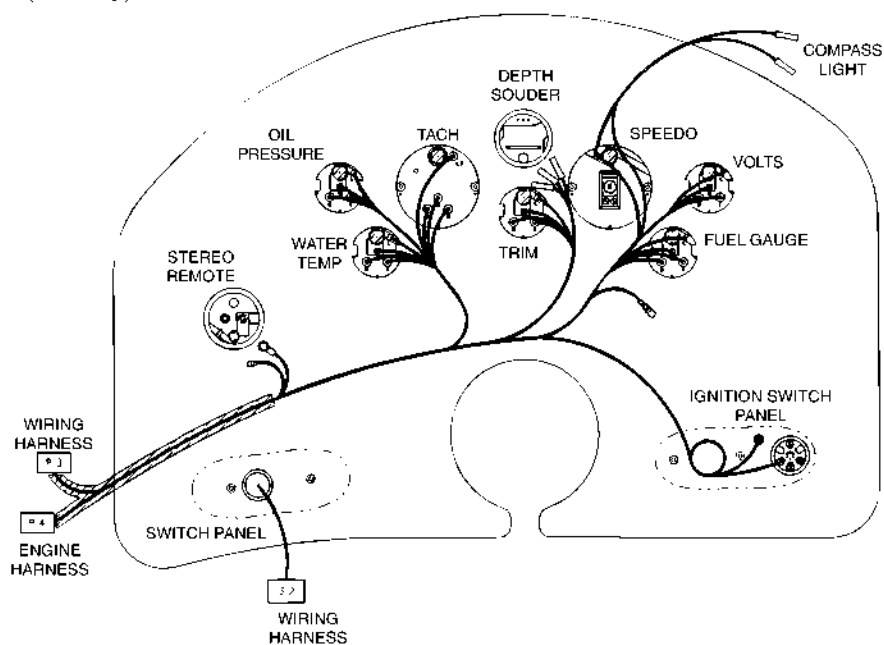
TRANSOM GROUNDING BUSS (FIG. 17.2)  
(PORT SIDE OF TRANSOM)



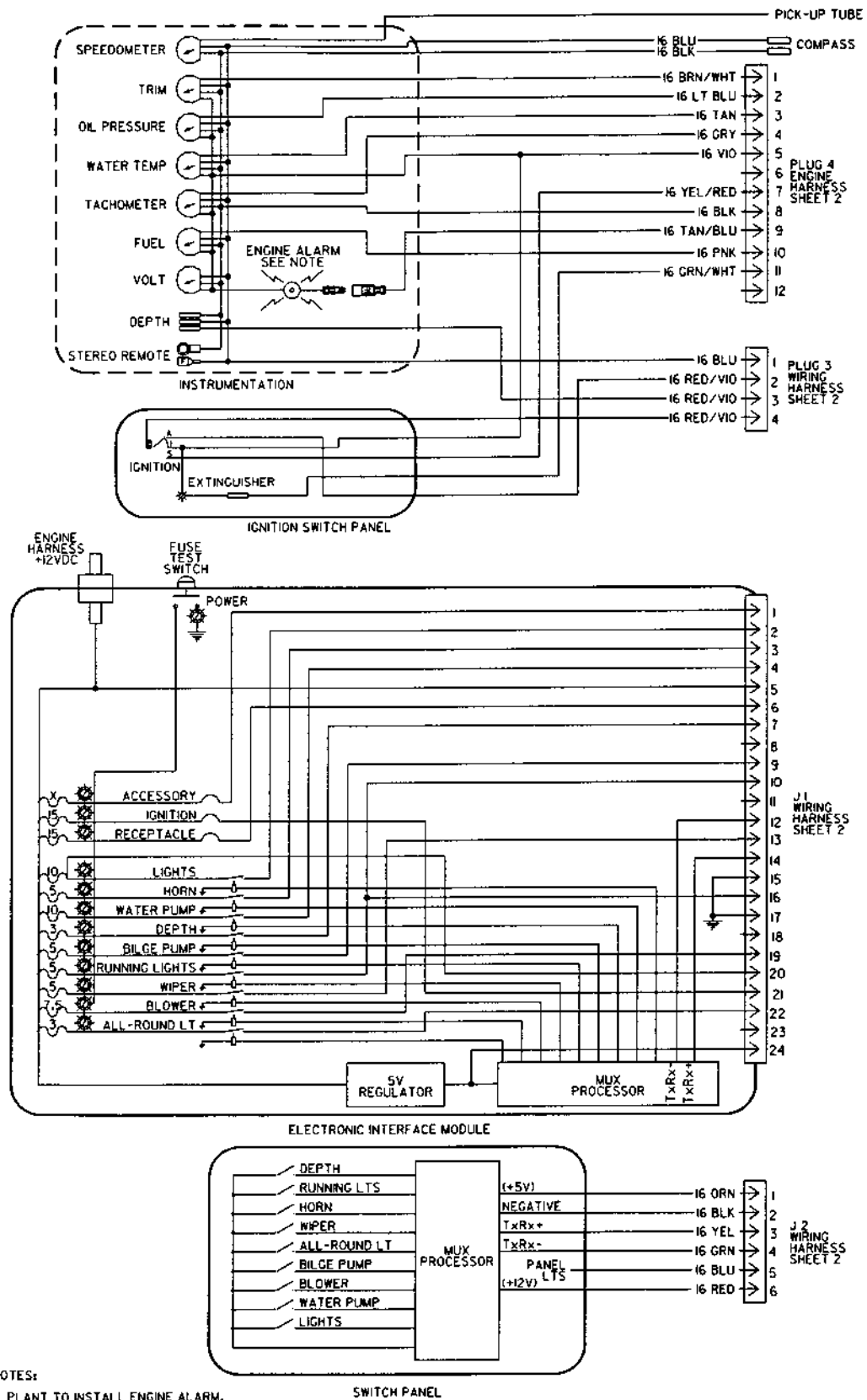
FUSE HOLDERS (FIG. 17.4)  
(STARBOARD SIDE OF TRANSOM)



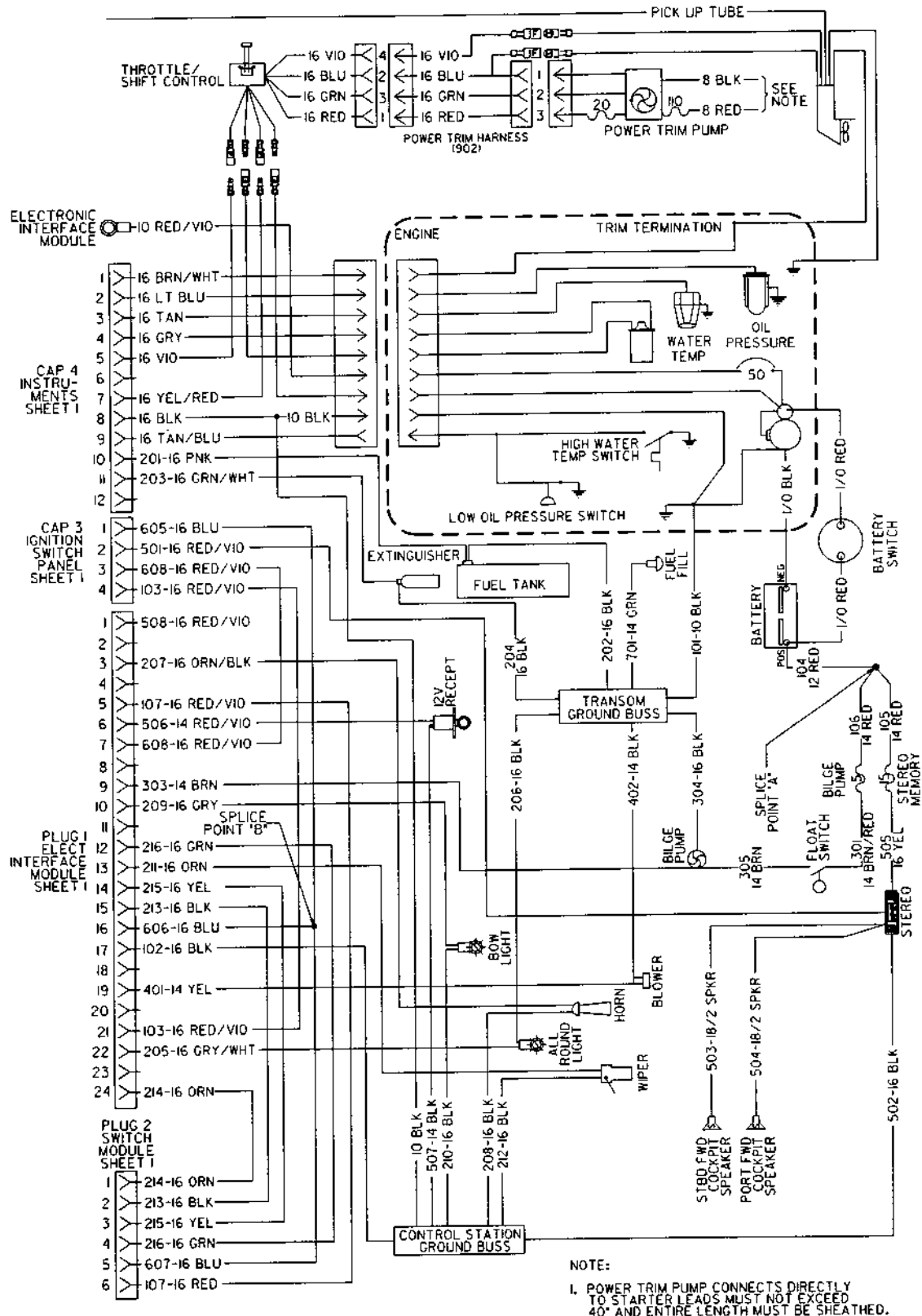
DASH ASSEMBLE ADAPTER HARNESS INSTALLATION  
(SHOWN FROM BACK SIDE)  
(FIG. 17.3)



# DC WIRING SCHEMATIC



# DC WIRING SCHEMATIC



# INTERNATIONAL HOMOLOGATIONS

This vessel and its systems have been constructed in accordance with standards and specifications in effect at the time of manufacture as published by the various regulatory authorities listed below.

1. Ministere De La Mer - France
2. Registro Italiano Navale - Italy
3. Det Norske Veritas - Norway
4. Securite des Nauires - Canada
5. J.C.I. (Japan Craft Inspection) - Japan
6. N.K.K. (Nippon Kaiji Kyokai) - Japan
7. B.S.I. (British Standards Institute) - England
8. Ministerio Obras Publicas Y Transporters - Spain
9. EC Directive - European Community

Further information may be obtained from Sea Ray® Customer Service. 1-800-SRBOATS.

## NOTES

[illegible]

