
410 EXPRESS CRUISER

OWNER'S MANUAL SUPPLEMENT

MRP#1230879

This Owner's Manual Specific Information booklet has been written to provide additional information about your boat and should be read carefully.

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.

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(This booklet contains 69 pages.)

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).

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 Sea Ray® dealer in your area call Sea Ray® Customer Service at:

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 to you.

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.



1-800-SRBOATS
www.searay.com

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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.

Life Saving Equipment

(Personal Flotation Device (PFD))

STORAGE: The 410 EC offers lifesaving equipment storage in the helm companion seat compartment and under the aft facing cockpit seat 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.

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 keys from the ignition, lock hatches, lock the cabin door. Remove and stow any removable electronic gear (fishfinders, LORAN, etc.) and personal gear (fishing poles, etc.) normally left aboard your boat.

Troubleshooting

List of Reference Manuals and Drawings

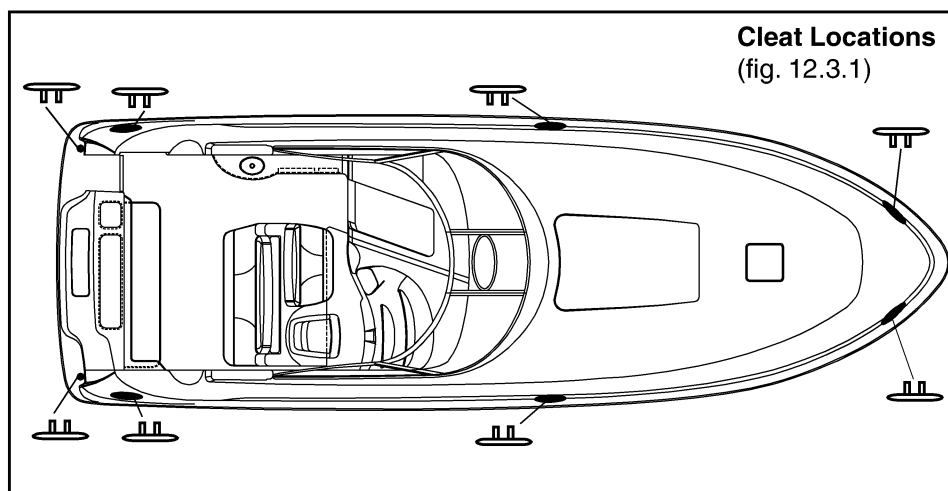
PERFORMANCE: Refer to the owner's manual.

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.

Cleats

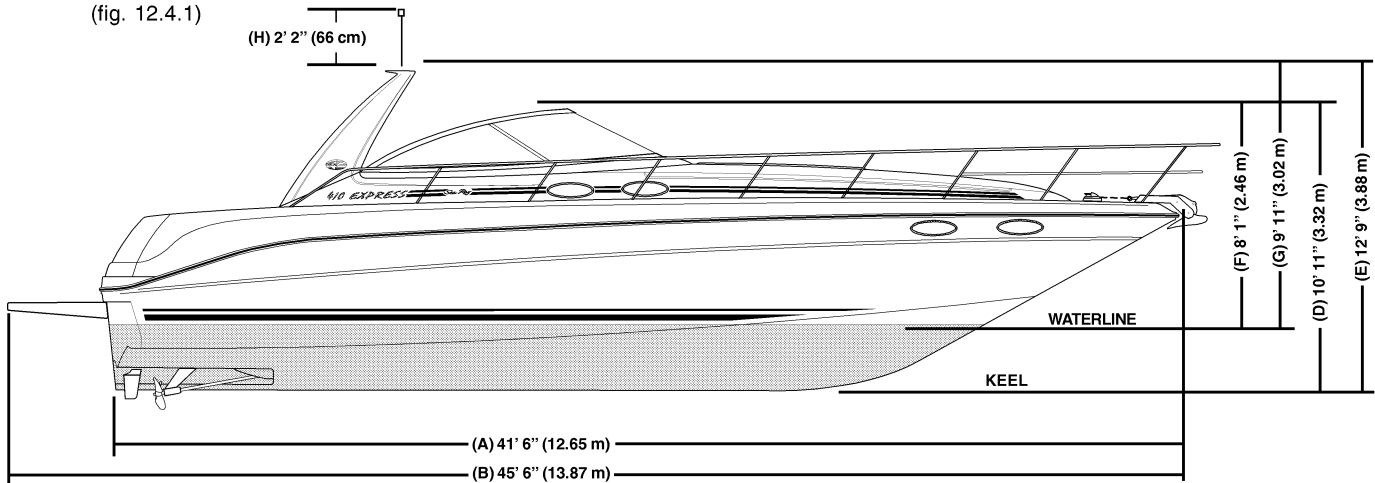
Cleats are intended for mooring use only. Do not use cleats for towing or lifting the boat. Figure 5.1 illustrates the location of cleats on your boat.



SPECIFICATIONS & DIMENSIONS

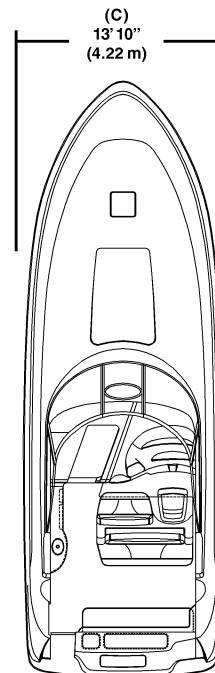
Profile

(fig. 12.4.1)



SPECIFICATIONS & HEIGHT DIMENSIONS

A. Overall Length	41' 6" (12.65 m)
B. Overall Length w/ Swim Platform .	45' 6" (13.87 m)
C. Beam	13' 10" (4.22 m)
Draft w/Inboard Engines	40" (101.6 cm)
Dry Weight – Standard Power ..	21,000 lbs. (9,526 kg)
Fuel Capacity	335 gal. (1,268 liters)
Usable Fuel	318 gal. (1,205 liters)
Water Capacity	100 gal. (378.5 liters)
Holding Tank	42 gal. (159 liters)
Dead Rise	19°
D. Keel To Top Of Windshield	10' 11" (3.32 m)
E. Keel To Top Of Spoiler	12' 9" (3.88 m)
F. Waterline To Top Of Windshield	8' 1" (2.46 m)
G. Waterline To Top Of Spoiler	9' 11" (3.02 m)
H. Spoiler To Top Of Mastlight	2' 2" (66 cm)

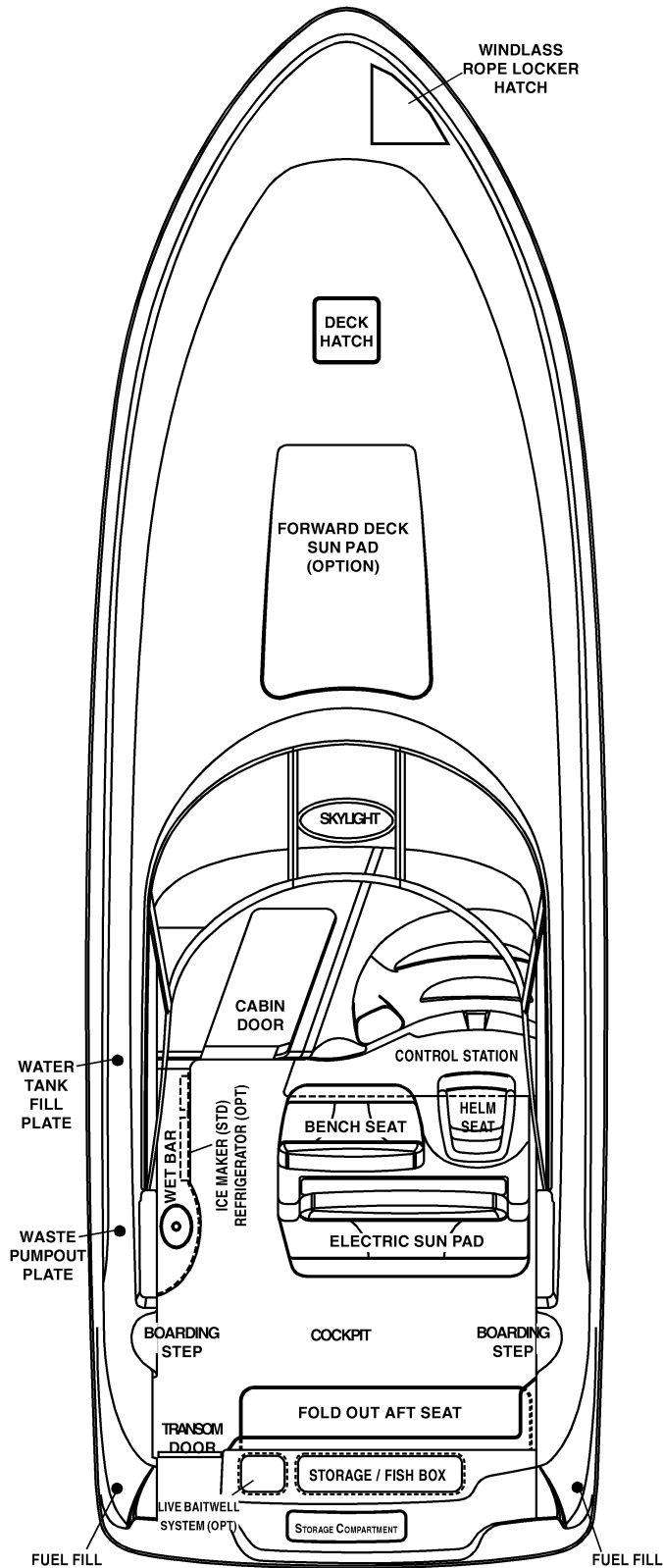


(fig. 12.4.2)

ACCOMMODATION PLANS

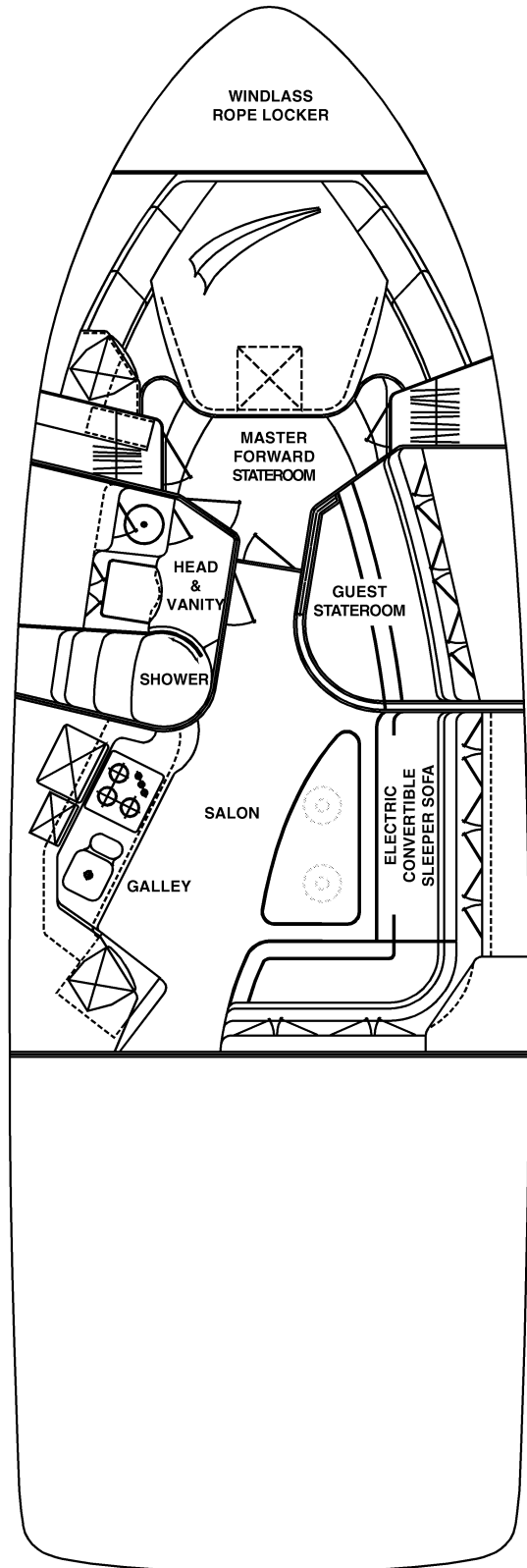
Main Deck (Floor Plan)

(fig. 12.5.1)

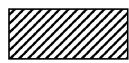


Mid Deck (Floor Plan)

(fig. 12.5.2)



DECK OCCUPANCY PLAN



WORKING DECK
(DECK AREA INTENDED FOR OCCUPATION DURING ANCHORING, MOORING AND EMERGENCY OPERATION ONLY)



ACCOMMODATION DECK
(DECK AREA INTENDED FOR OCCUPATION DURING NORMAL OPERATION)



DO NOT WALK ON THIS AREA



WARNING

Anchor should be independently secured to prevent accidental release.

ATTACH THE SAFETY LANYARD TO THE ANCHOR to insure that the anchor is held in place should the windlass fail. DO NOT use the safety lanyard to SUPPORT the anchor in a stored position.



DANGER

DO NOT USE SUN PAD WHEN BOAT IS UNDERWAY.



WARNING

PERSONAL INJURY HAZARD
When underway, keep passengers clear of areas not designed for riding. Especially hazardous areas include seat backs, bow, gunwale, transom platform and fore and aft decks.



WARNING

SLIPPING HAZARD - Wet decks are slippery. Wear proper footwear and use extreme caution on wet surfaces.



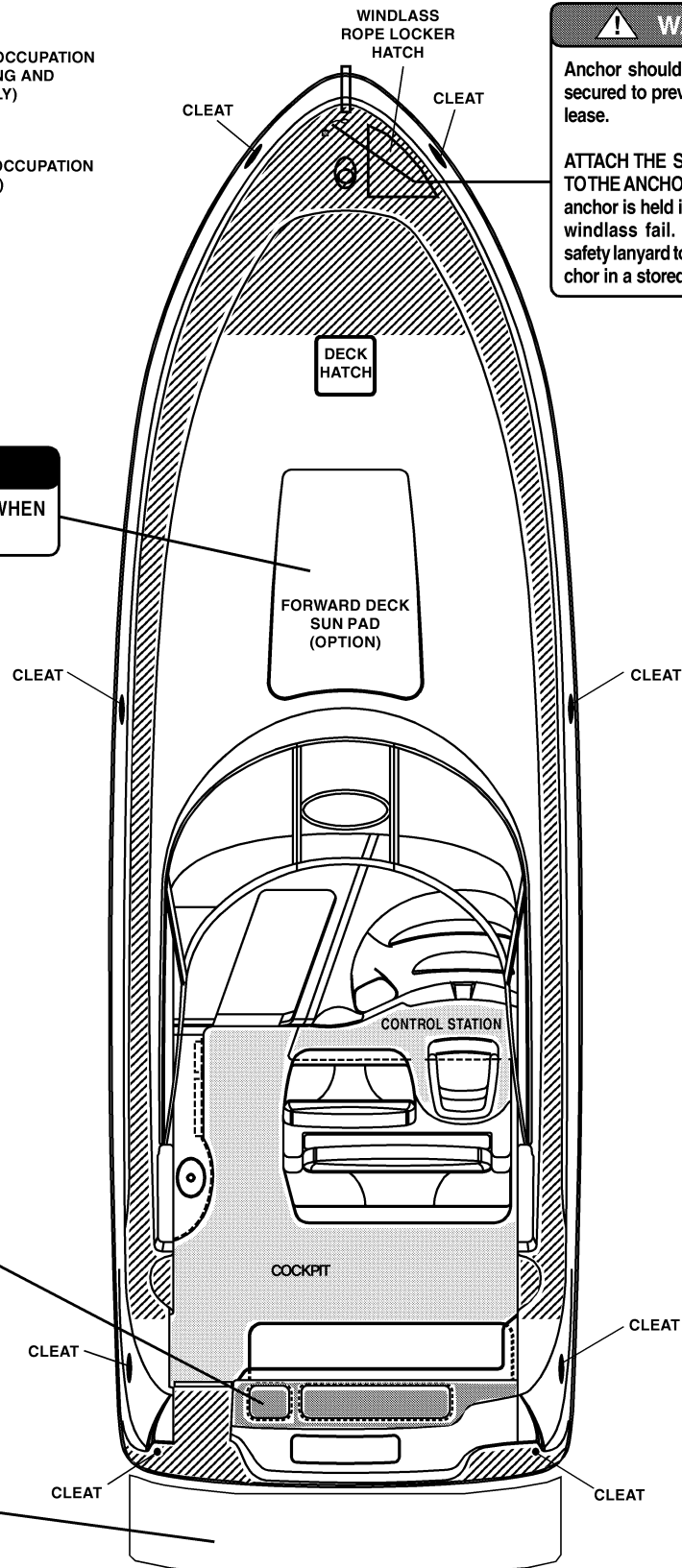
WARNING

DO NOT STAND OR WALK ON AREAS SHOWN IN THE DARKEST SHADING. SERIOUS INJURY COULD RESULT.



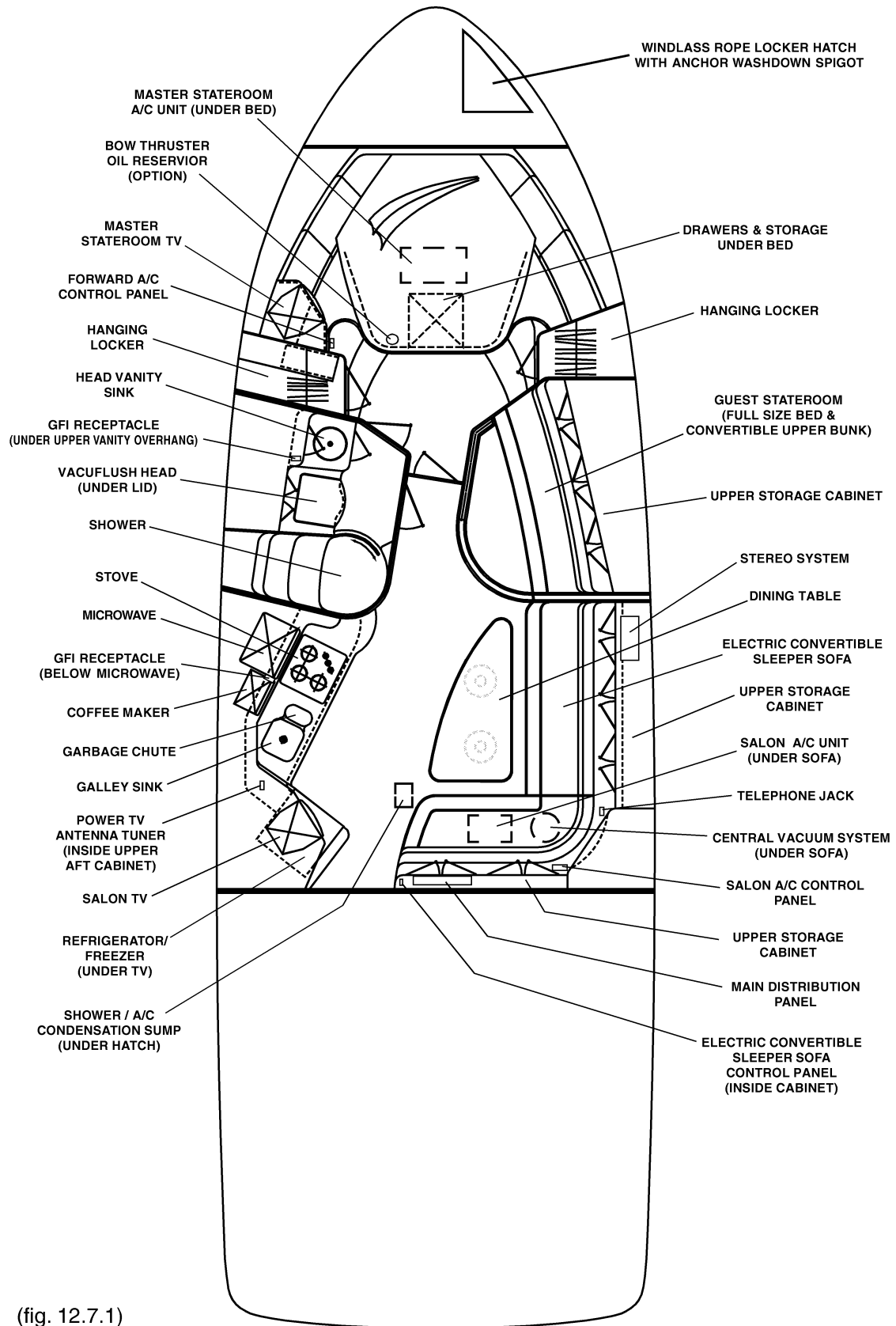
DANGER

TO AVOID RISK OF SERIOUS INJURY OR DEATH SHUT OFF ENGINE WHEN NEAR SWIMMERS OR PRIOR TO USING SWIM PLATFORM AND BOARDING LADDER.



(fig. 12.6.1)

ACCESSORY LOCATIONS



(fig. 12.7.1)

GENERAL INFORMATION

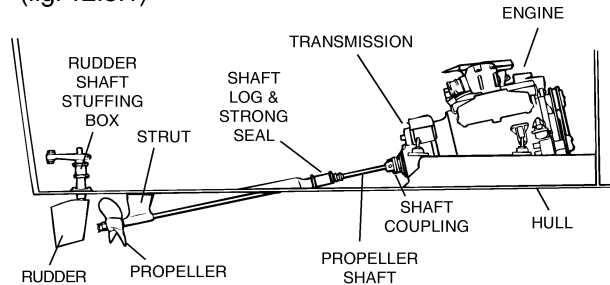
Propulsion System



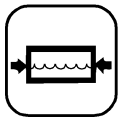
The 410 EC is equipped with an inboard drive type propulsion system also known as inboard engines.

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

Inboard Drive
(fig. 12.8.1)



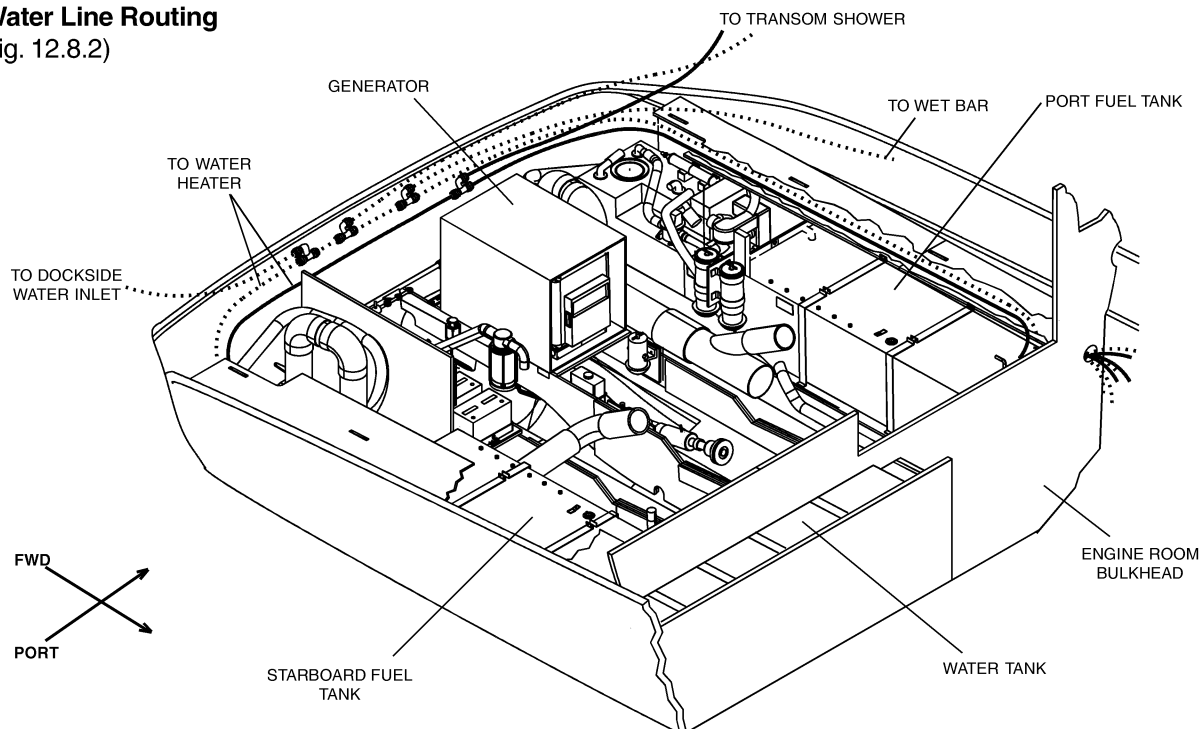
Water System



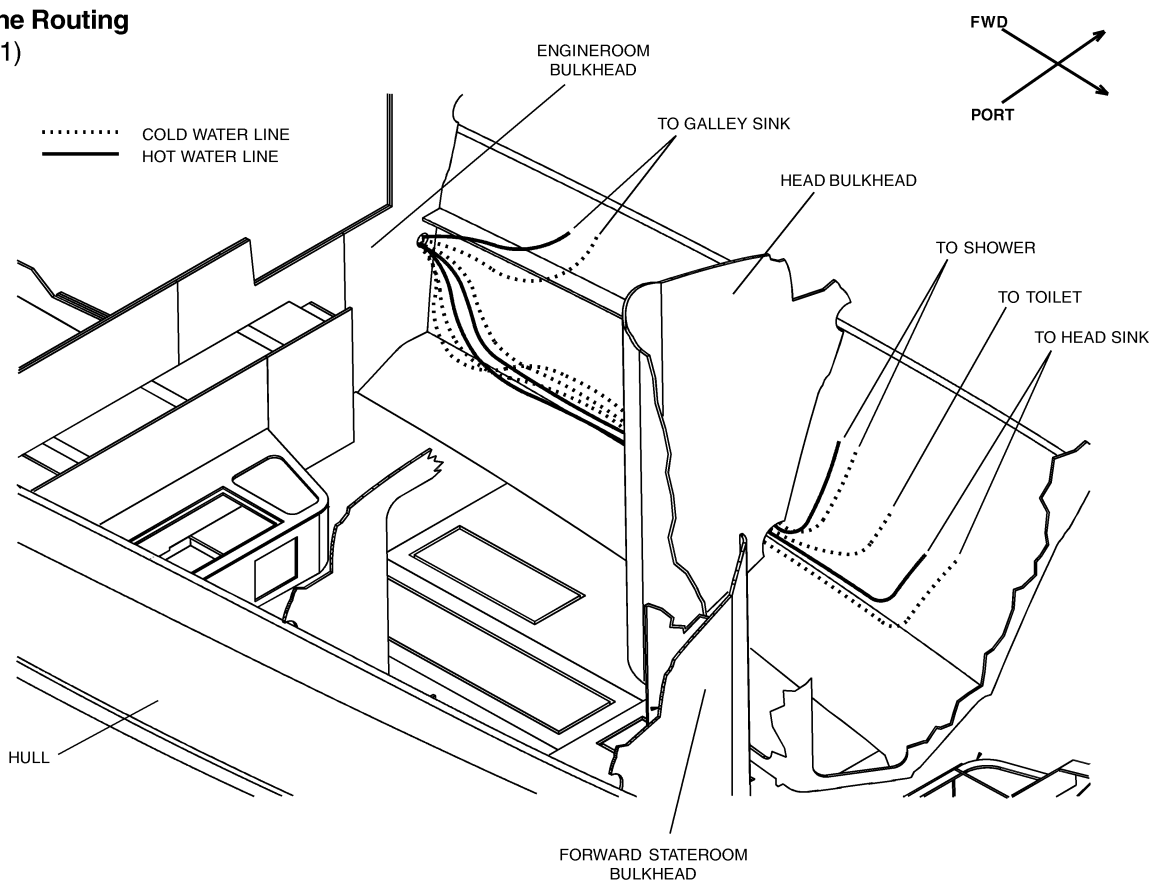
Water system information can be found in *Section 5 • Water System* of the owner's manual.

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

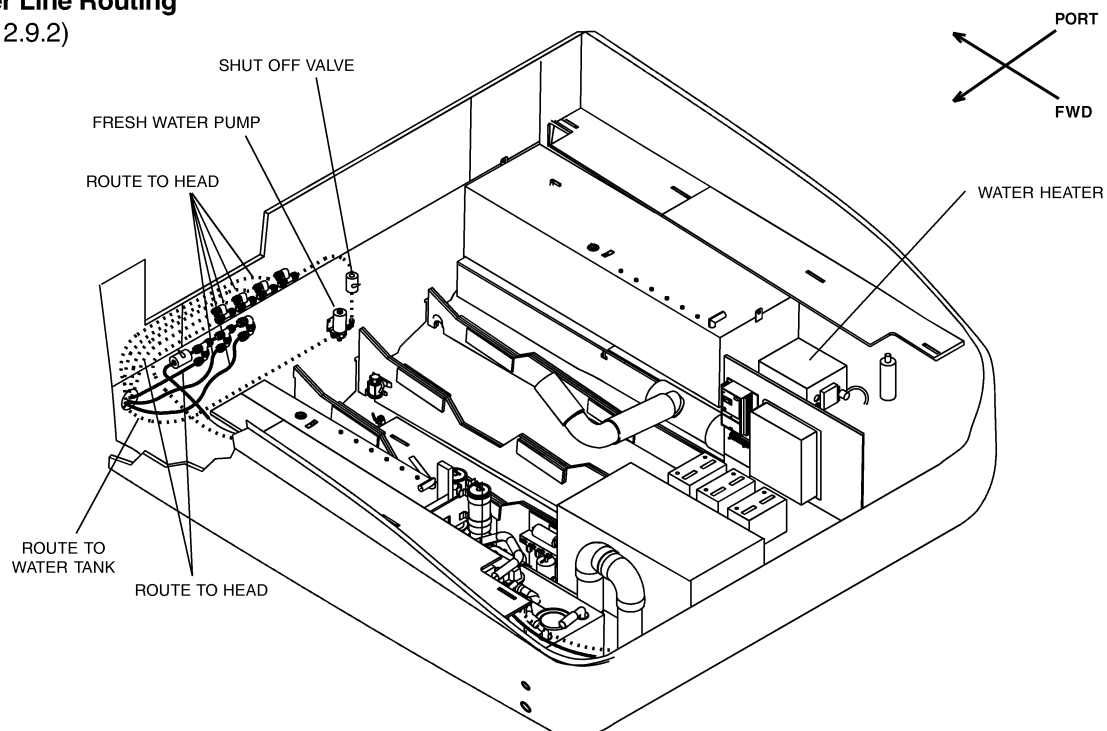
Water Line Routing
(fig. 12.8.2)



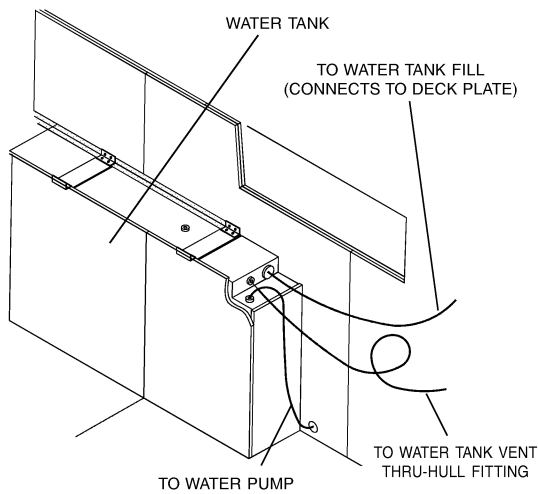
Water Line Routing (fig. 12.9.1)



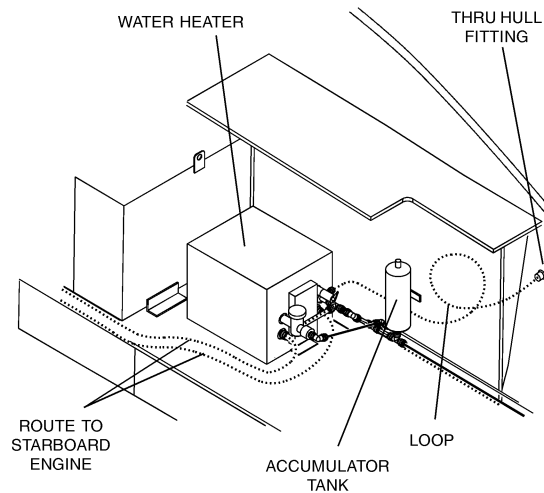
Water Line Routing (fig. 12.9.2)



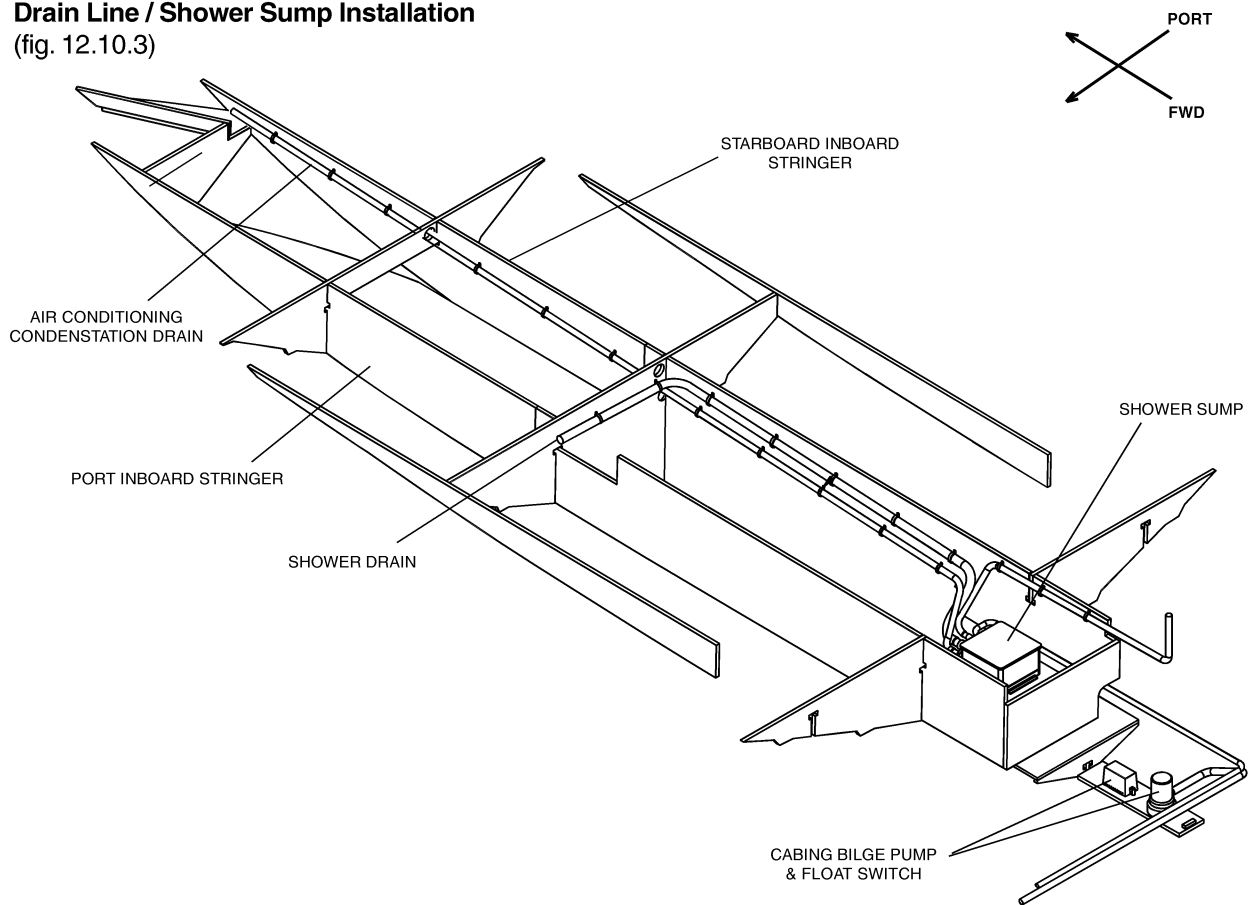
Water Tank (fig. 12.10.1)



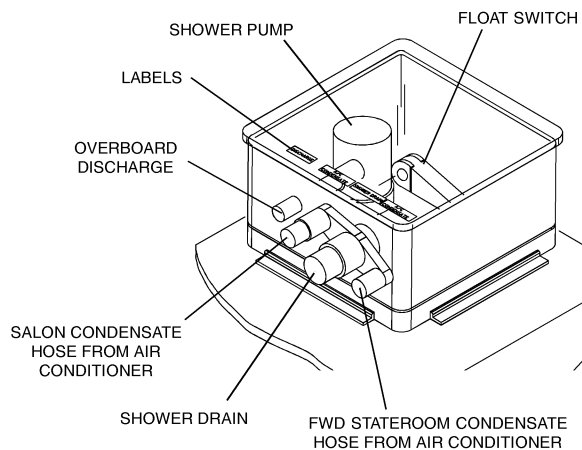
Water Heater (fig. 12.10.2)



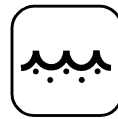
Drain Line / Shower Sump Installation (fig. 12.10.3)



Shower Sump Detail (fig. 12.11.1)



Head System



Head System information can be found in *Section 6 • Head System* of the owner's manual. The Owner's Manual Packet in your boat contains information pertaining to your head system that should be carefully read.

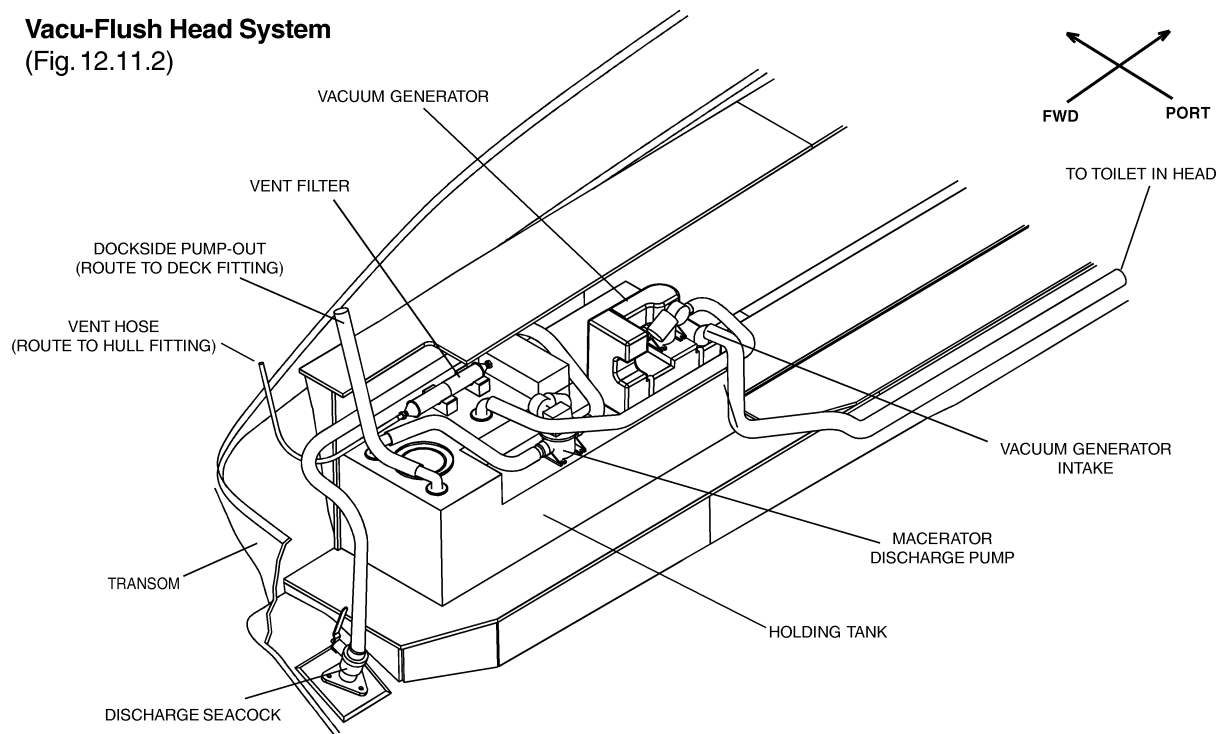
REFER TO THE OWNER'S MANUAL AND OWNER'S PACKET FOR INSTRUCTIONS AND WARRANTY INFORMATION.



CAUTION

Do not place facial tissue, paper towels or sanitary napkins in head.

Vacu-Flush Head System (Fig. 12.11.2)



Live Baitwell System



The baitwell system will keep live bait alive for an extended period of time. The live baitwell is equipped with a light that is turned on with the cockpit lights switch.

To Operate:

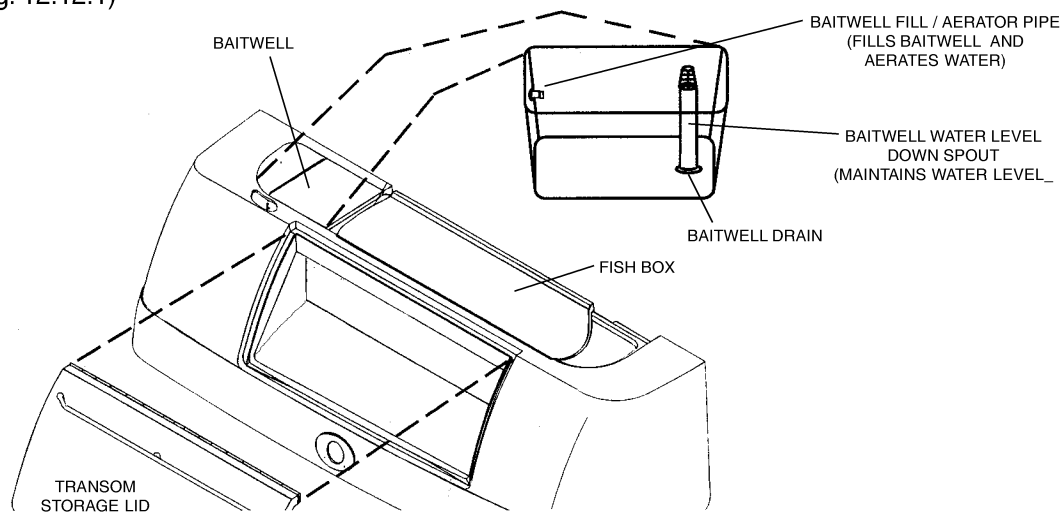
1. Open baitwell seacock.
2. Insert down spout into drain.
3. Turn on baitwell switch located next to transom door.

Water will be pumped and aerated into the baitwell.

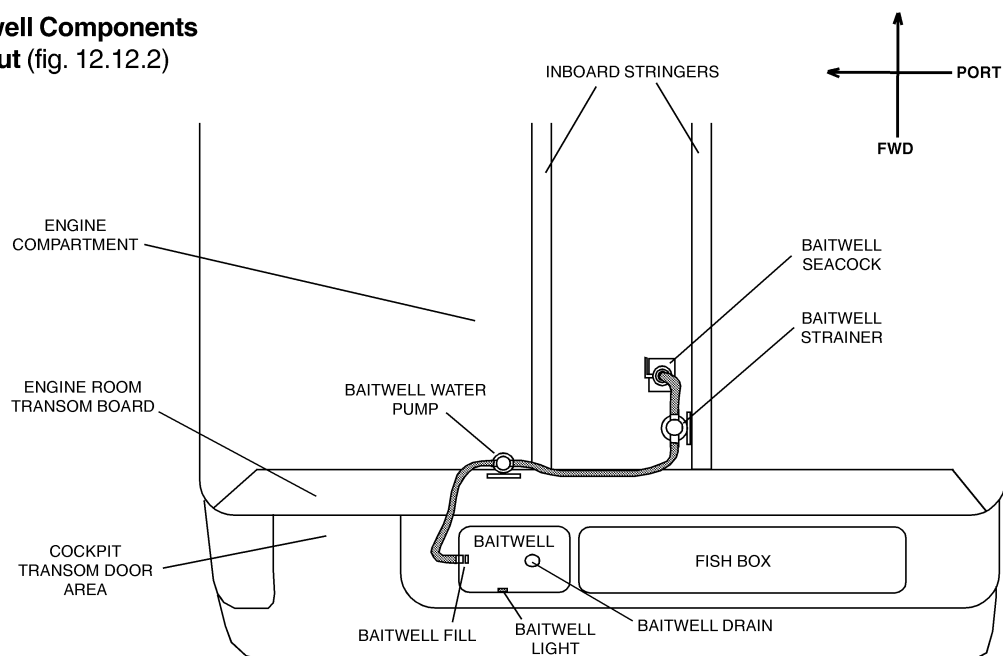
To Empty:

1. Turn off baitwell switch.
2. Remove down spout from drain.
3. Close baitwell seacock.

Baitwell (fig. 12.12.1)



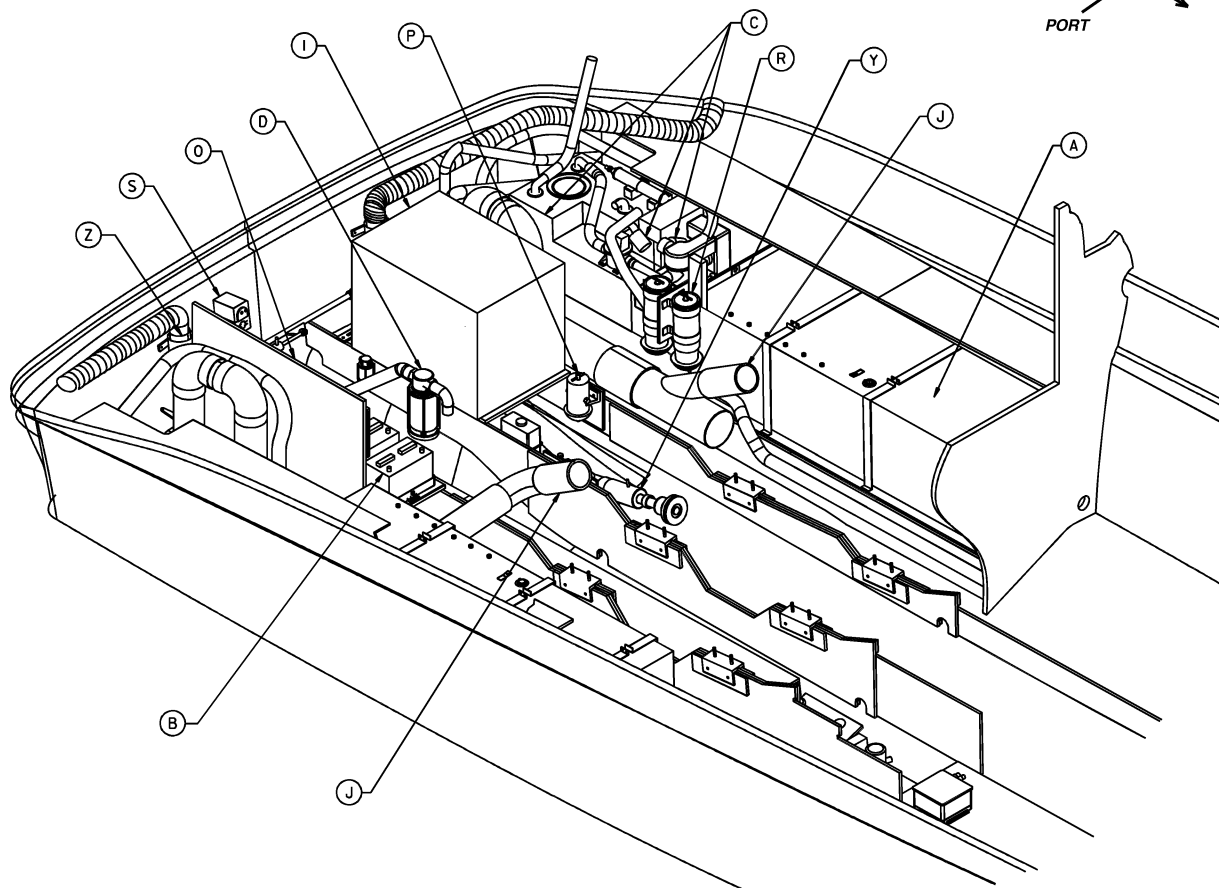
Baitwell Components Layout (fig. 12.12.2)



410 Express Cruiser Bilge Layout (With Diesel Inboard Engines) (Drawing 1 of 2)

Note: Layout With Gasoline Engines Not Available At Time Of Printing

Bilge Layout
(fig. 12.13.1)

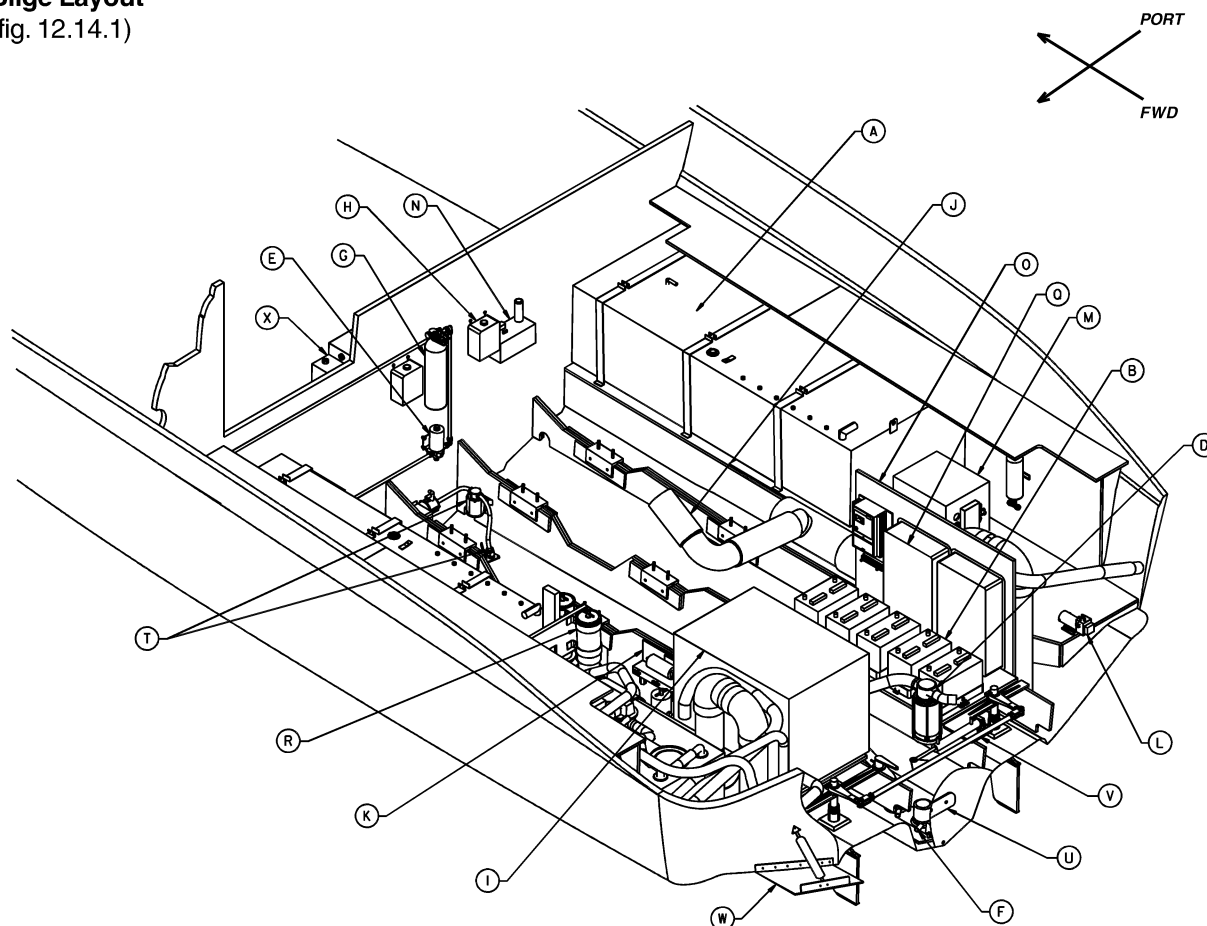


- | | |
|---------------------------------|---------------------------------|
| A FUEL TANK | P GENERATOR FUEL FILTER |
| B BATTERIES | Q MAIN DISTRIBUTION PANEL |
| C WASTE SYSTEM | R ENGINE FUEL FILTERS |
| D ENGINE STRAINER AND SEACOCK | S TRIM TAB PUMP |
| E FRESH WATER PUMP | T A/C SEACOCK AND STRAINER |
| F BILGE PUMP AND FLOAT SWITCHES | U GARBOARD DRAIN & ZINC PLATE |
| G FIRE EXTINGUISHER | V RUDDER ARM, TIE BAR, STEERING |
| H ENGINE RESERVOIR BOTTLE | W TRIM TAB |
| I GENERATOR | X WAER TANK |
| J EXHAUST LAYOUT | Y SHAFT LOG TUBE |
| K OIL EXCHANGE PUMP (OPTION) | Z BILGE BLOWERS |
| L AUTO PILOT PUMP (OPTION) | |
| M WATER HEATER | |
| N ENGINE SYNCHRONIZER (OPTION) | |
| O BILGE COMPONENT BOARD | |

410 Express Cruiser Bilge Layout (With Diesel Inboard Engines) (Drawing 2 of 2)

Note: Layout With Gasoline Engines Not Available At Time Of Printing

Bilge Layout
(fig. 12.14.1)



- | | |
|---------------------------------|---------------------------------|
| A FUEL TANK | P GENERATOR FUEL FILTER |
| B BATTERIES | Q MAIN DISTRIBUTION PANEL |
| C WASTE SYSTEM | R ENGINE FUEL FILTERS |
| D ENGINE STRAINER AND SEACOCK | S TRIM TAB PUMP |
| E FRESH WATER PUMP | T A/C SEACOCK AND STRAINER |
| F BILGE PUMP AND FLOAT SWITCHES | U GARBOARD DRAIN & ZINC PLATE |
| G FIRE EXTINGUISHER | V RUDDER ARM, TIE BAR, STEERING |
| H ENGINE RESERVOIR BOTTLE | W TRIM TAB |
| I GENERATOR | X WAER TANK |
| J EXHAUST LAYOUT | Y SHAFT LOG TUBE |
| K OIL EXCHANGE PUMP (OPTION) | Z BILGE BLOWERS |
| L AUTO PILOT PUMP (OPTION) | |
| M WATER HEATER | |
| N ENGINE SYNCHRONIZER (OPTION) | |
| O BILGE COMPONENT BOARD | |

Fuel System

The 410 EC is equipped with either a gasoline or diesel fuel system. A detailed drawing of the fuel system can be found in the *Parts Manual*. Fueling instructions and precautions can be found in the *Owner's Manual*.

NOTE: IN ROUGH SEAS, ALLOW APPROXIMATELY 15% RESERVE WHEN PLANNING FUEL CONSUMPTION.

REFER TO THE ENGINE OPERATOR'S MANUAL FOR MORE DETAILED INFORMATION.

Electric Fuel Valves (Gasoline)

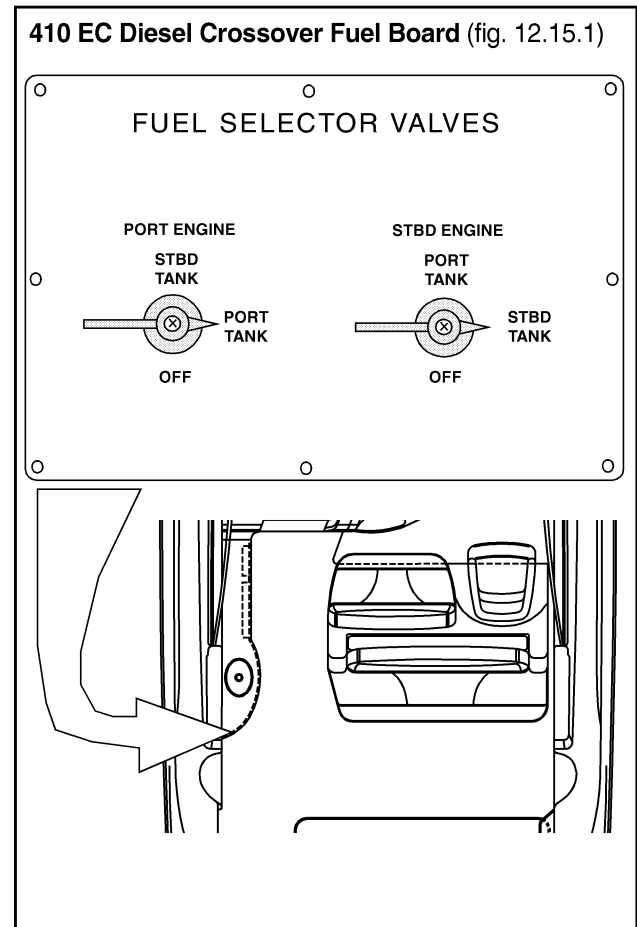
The valves are wired to the ignition switch. When the ignition is turned ON the valve opens, when the ignition is turned OFF the valve closes. The manual override knob on the side of the valve should be left in the OFF position at all times.

In the event of an electrical malfunction, the valve can be opened and closed manually by turning the manual override knob.

The electric fuel valve is installed in-line on the fuel hose between the fuel tank and the engines and generator.

Crossover Fuel System (Diesel)

The crossover fuel system allows the engines to draw fuel from either tank. This allows switching to an alternate tank in case of fuel contamination or for even fuel weight distribution. Each engine is equipped with valves on the crossover fuel board. The generator only draws fuel from the port fuel tank. The crossover fuel board is located on the port side of the cockpit aft of the entertainment center.

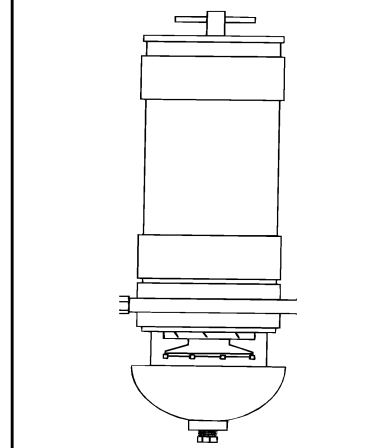


Fuel Filters: (Diesel)

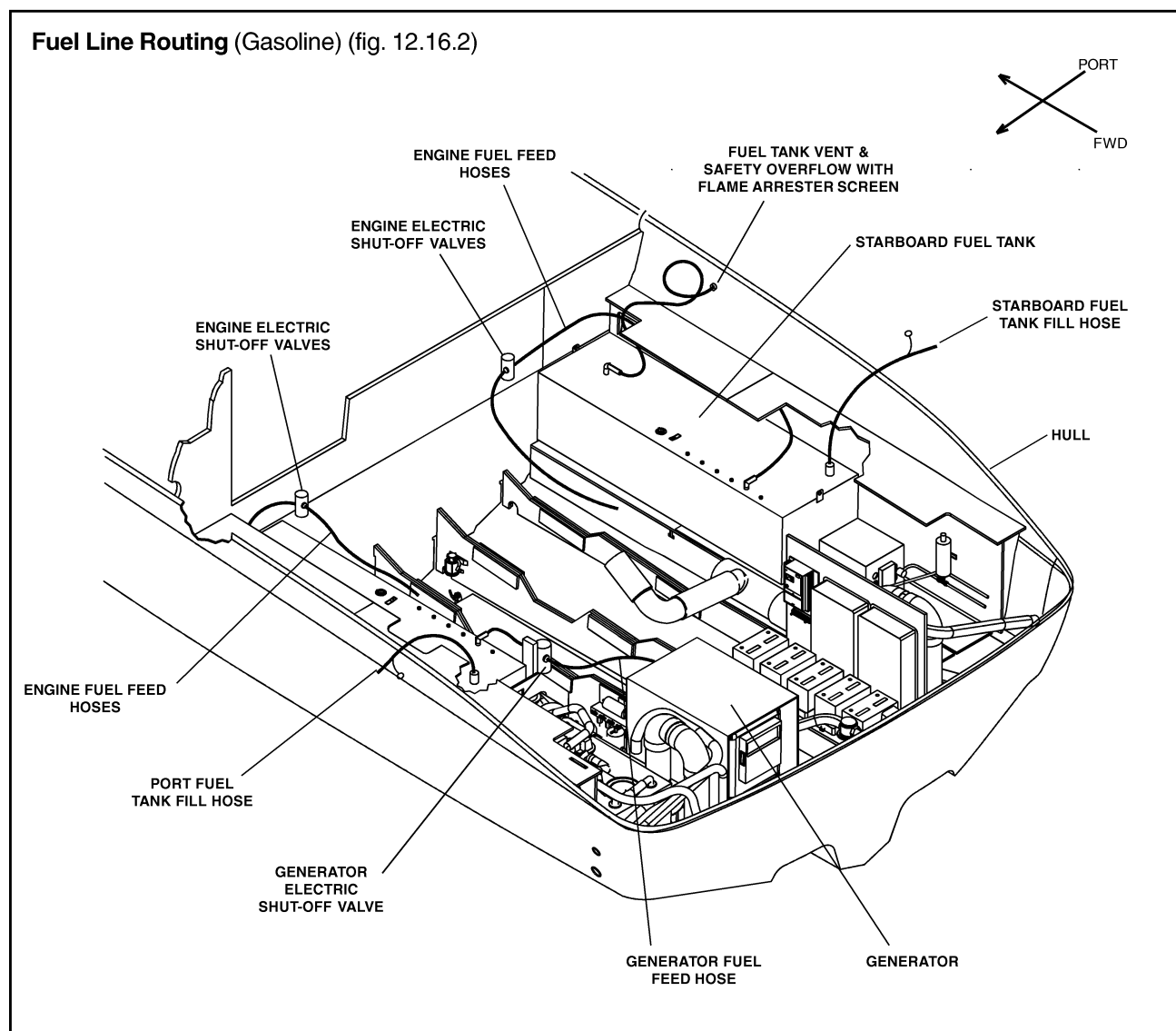
Primary and secondary fuel filters are installed on your Sea Ray® to keep the fuel as clean as possible. Primary fuel filters are the Racor® water separating fuel filters installed on the forward bilge bulkhead accessory board. The generator filter is located on the starboard side of the bilge adjacent to the generator. The secondary fuel filters are located on the engines and should be replaced in accordance with the Engine Owner's Manual.

Use of any methanol, gasohol or alcohol based fuel additive will damage the fuel filter.

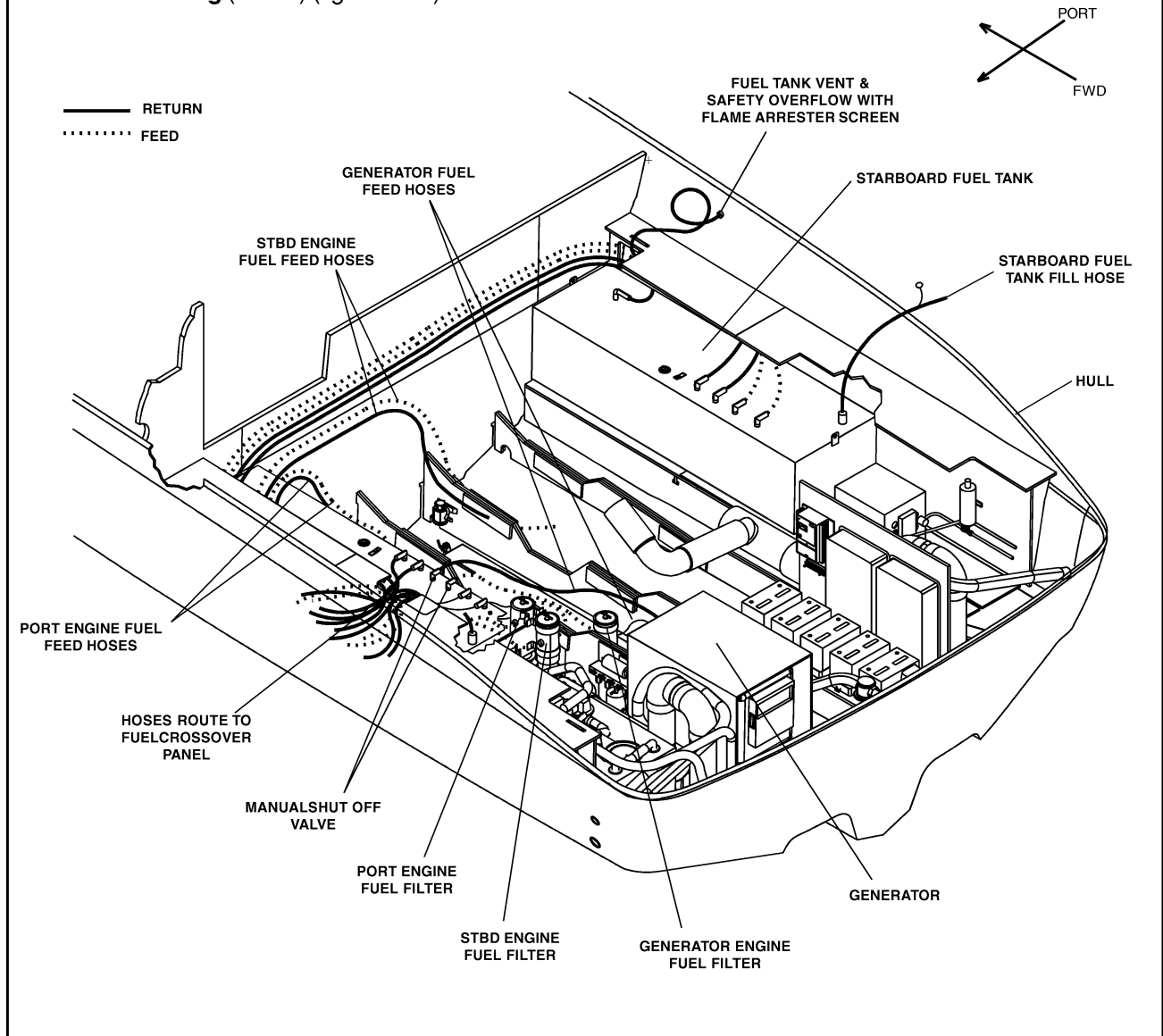
Racor® Water Separating Fuel Filters (fig. 12.16.1)



Fuel Line Routing (Gasoline) (fig. 12.16.2)



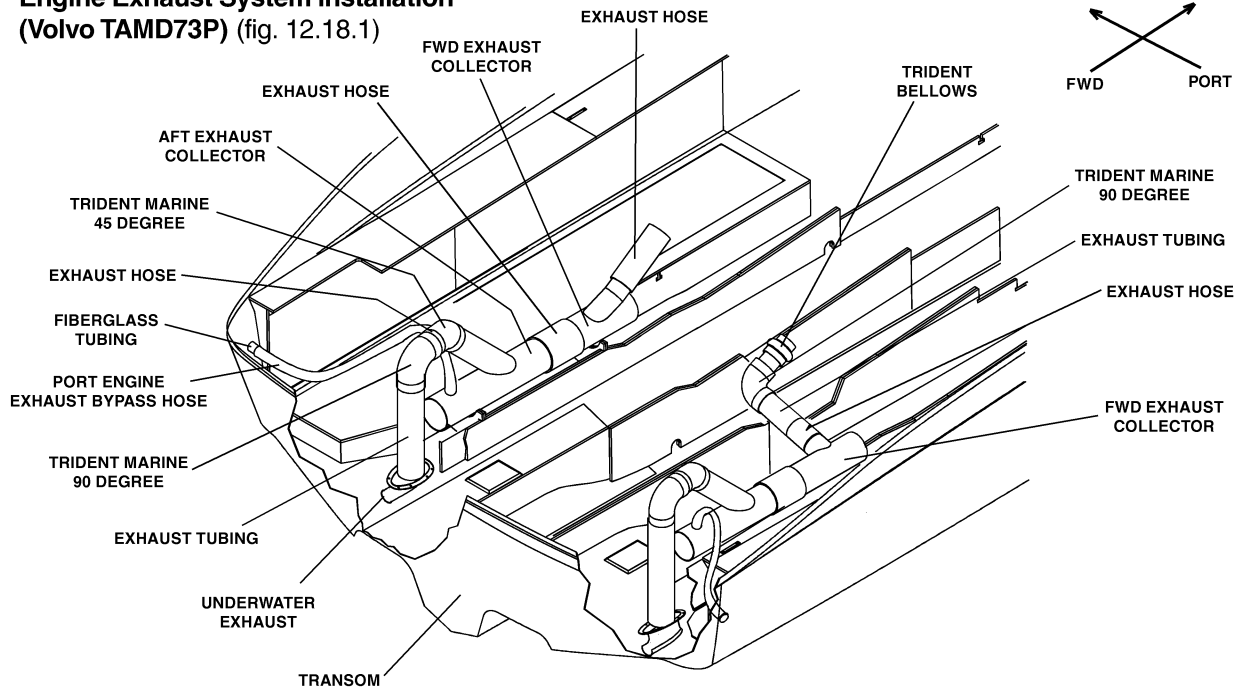
Fuel Line Routing (Diesel) (fig. 12.17.1)



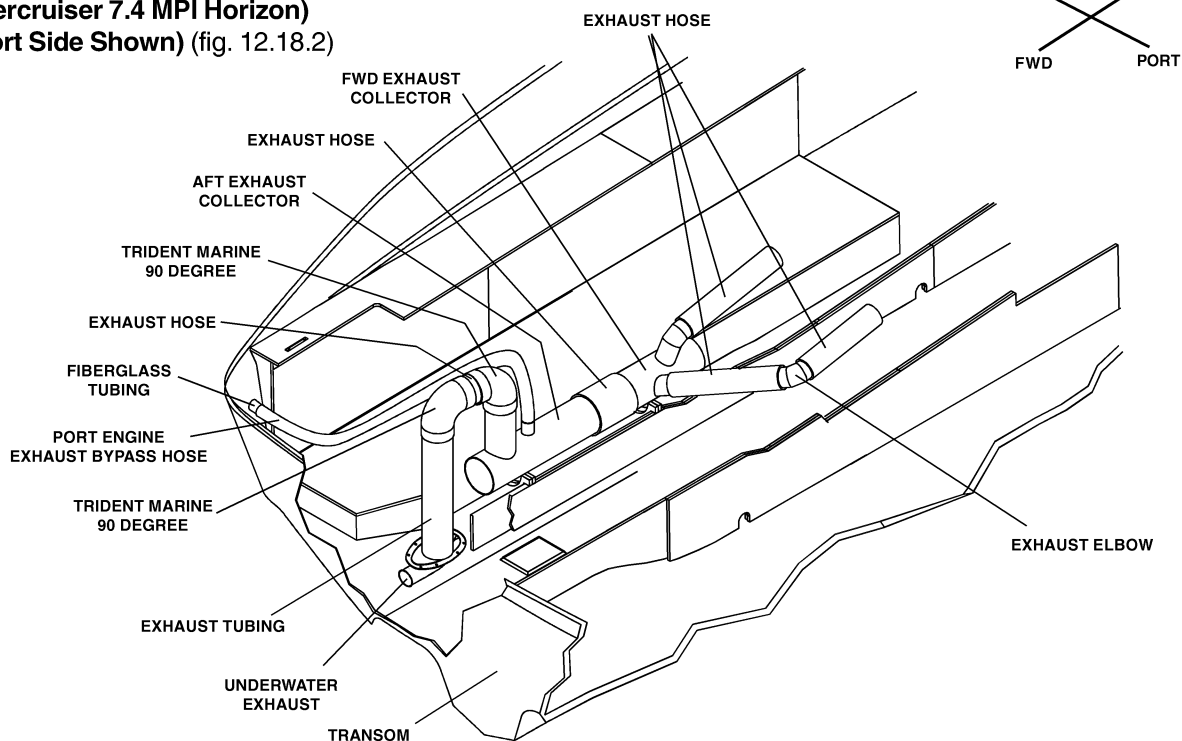
Exhaust System

General exhaust system information can be found in *Section 2 • Bilge & Underwater Gear* of the owner's manual. Below are illustrations of the optional engine exhaust systems. REFER TO THE OWNER'S MANUAL AND ENGINE OWNER'S MANUAL FOR INSTRUCTIONS AND WARRANTY INFORMATION.

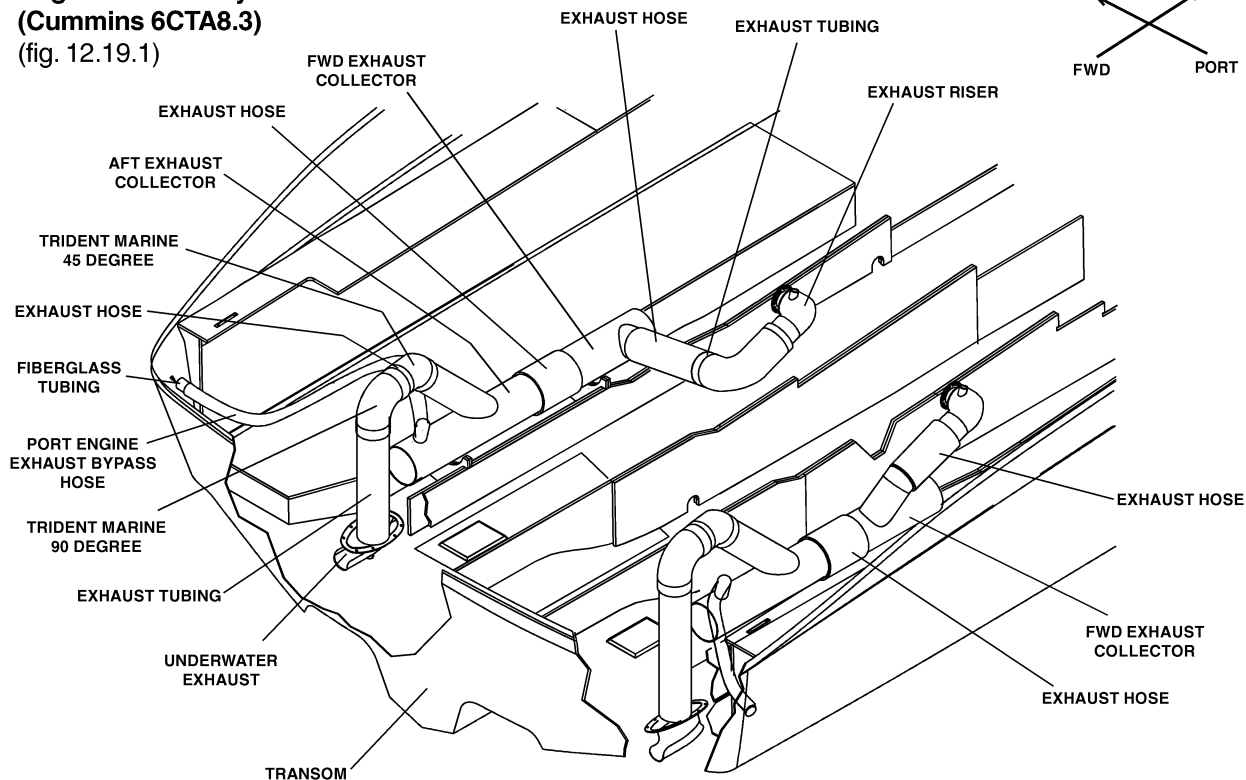
Engine Exhaust System Installation (Volvo TAMD73P) (fig. 12.18.1)



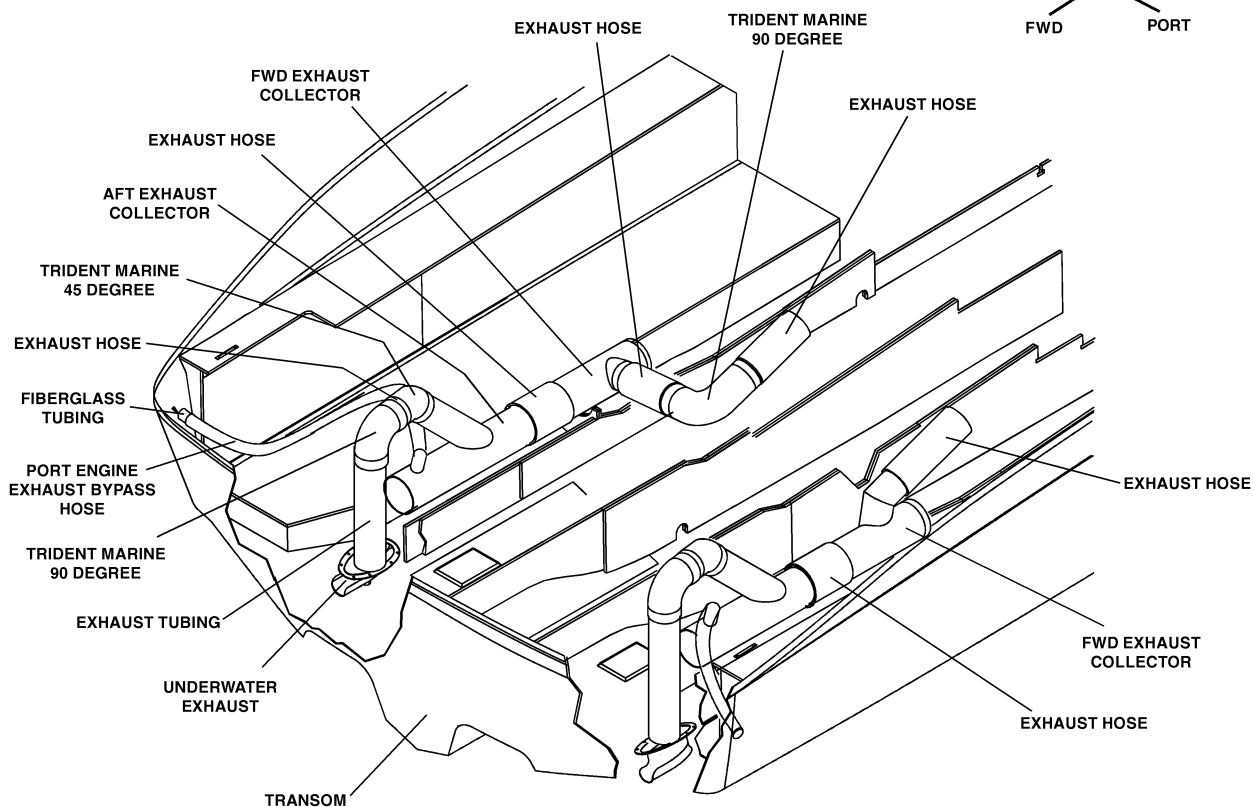
Engine Exhaust System Installation (Mercruiser 7.4 MPI Horizon) (Port Side Shown) (fig. 12.18.2)



Engine Exhaust System Installation (Cummins 6CTA8.3) (fig. 12.19.1)



Engine Exhaust System Installation (Caterpillar 3126 & 3116) (fig. 12.19.2)



Ventilation System / Bilge Blowers



Sea Ray® Sport Yachts are equipped with electric bilge blowers 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 blowers are located in the engine compartment on the port and starboard sides of the transom.

Bilge blower switches are located on the helm switch panel and the cabin DC main distribution panel. Bilge blower breakers are located on the main DC breaker panel in the engine compartment.

The blower switches have a two way switching capability. The blower module allows the blowers to be turned ON and OFF at either the control station or the main distribution panel. Also, they can be turned ON at one station and turned OFF at the other.

Blower Switch Lights:

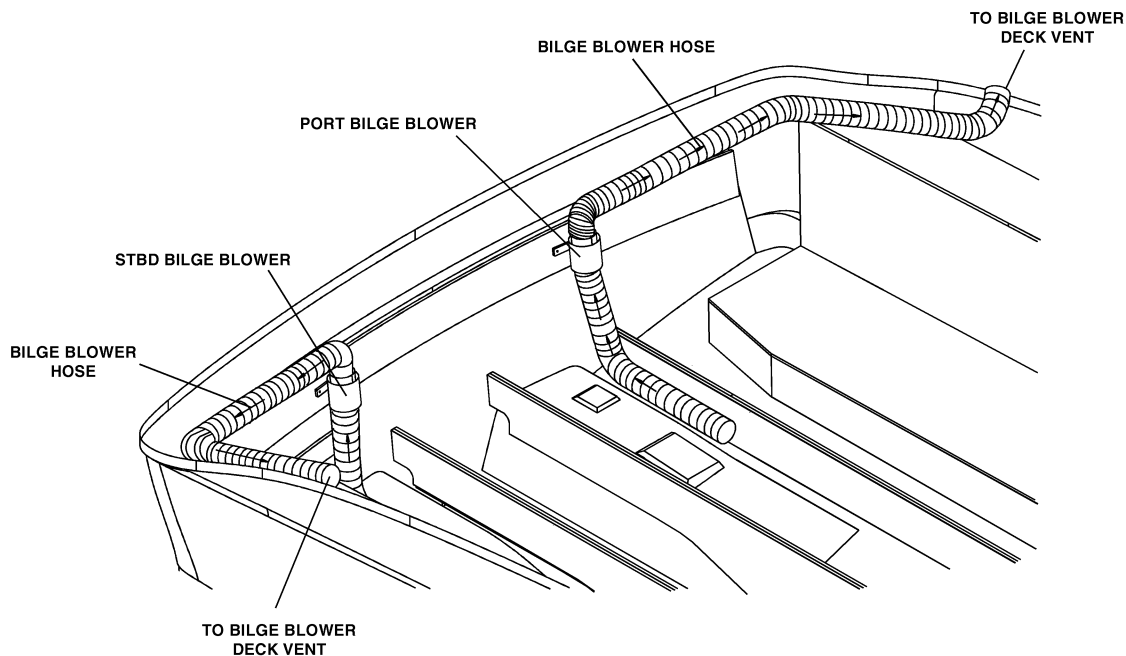
Lights On: When the blowers are turned ON, the lights in the switches will come on and stay on, indicating that the blowers are functioning correctly.

Lights Blinking: If the lights are blinking, it is an indication that one of the blower breakers has tripped. Reset the tripped breaker.

Lights Not On or Blinking: If you try to turn ON the blowers and no lights come on then both breakers are tripped and the switch is not receiving power. Reset the tripped breakers.

REFER TO *OWNER'S MANUAL* AND *OWNER'S PACKET* FOR OPERATING INSTRUCTIONS AND SAFETY PRECAUTIONS.

Bilge Blower Installation (fig. 12.20.1)



Bilge Pumping System



The 410 EC is equipped with an automatic bilge pump system. A manual bilge pump system is available as an international option to comply with CE standards.

Manual Bilge Pump (With International CE Option)

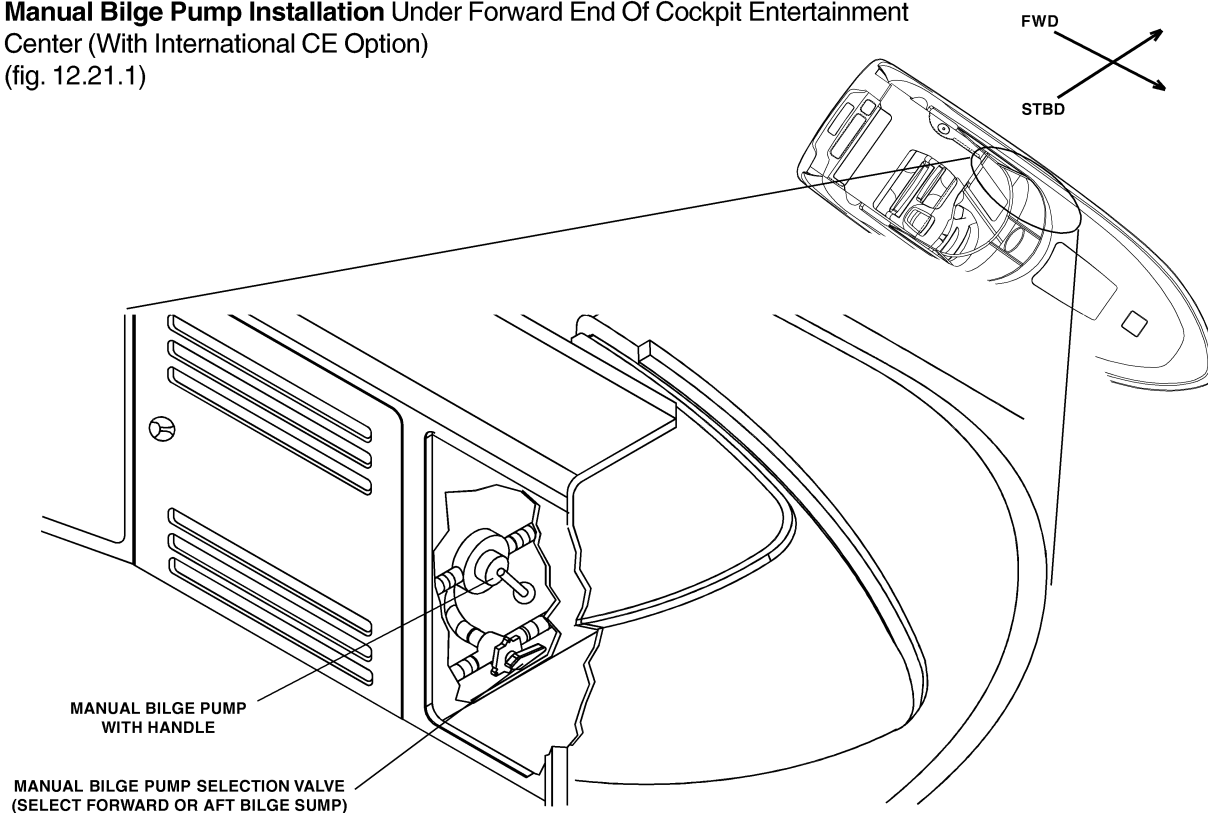
The manual bilge pump system is located on the forward port side of the cockpit under the wet bar.

To Operate:

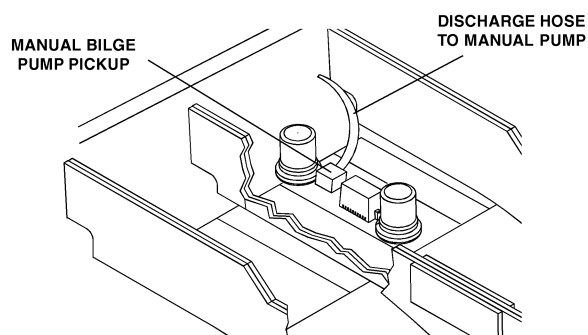
1. Rotate valve to select forward or aft pump.
2. Place handle into pump.
3. Move handle up and down to actuate pump.

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

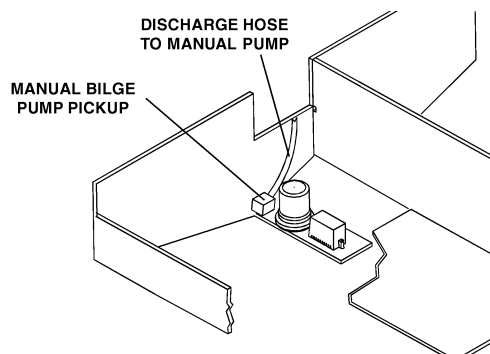
Manual Bilge Pump Installation Under Forward End Of Cockpit Entertainment Center (With International CE Option) (fig. 12.21.1)



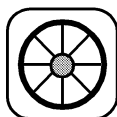
Aft Manual Bilge Pump Pickup (Aft Bilge Sump) (With International CE Option) (fig. 12.21.2)



Cabin Manual Bilge Pump Pickup (Cabin Sump) (With International CE Option) (fig. 12.21.3)



Steering System

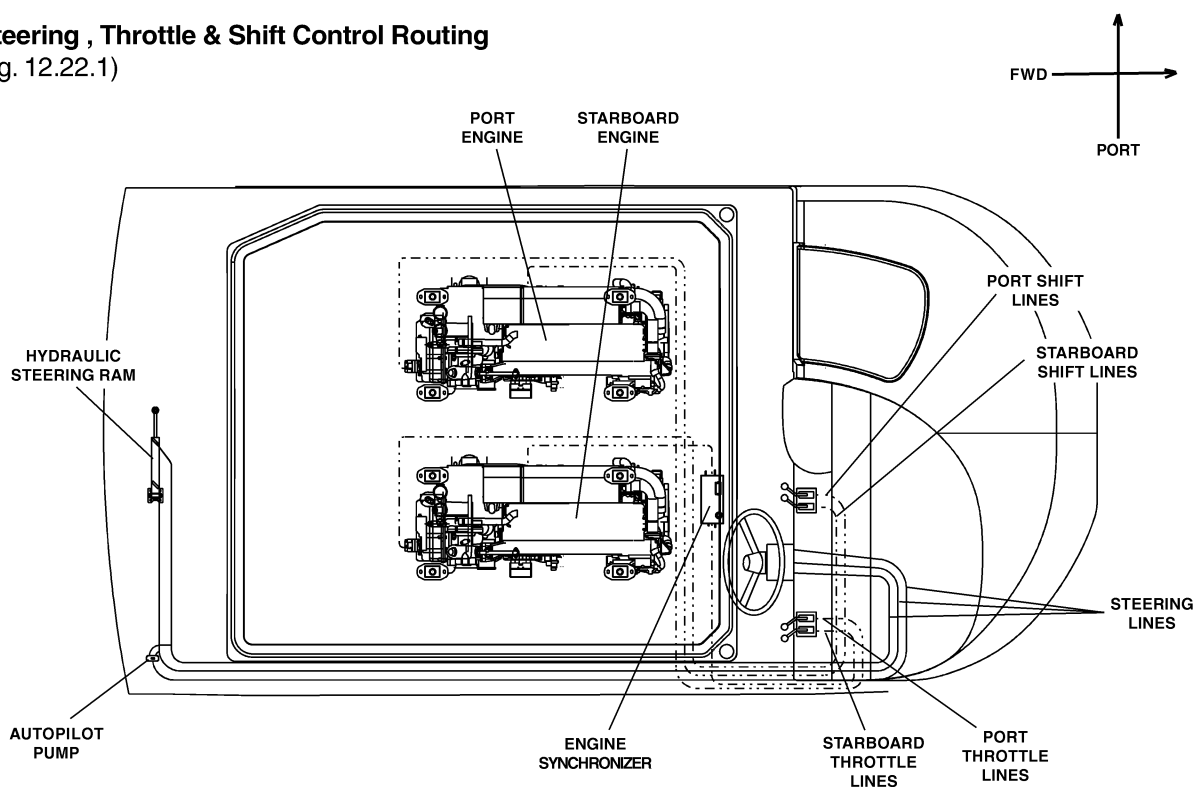


The 410 EC is equipped with a hydraulic steering system.

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

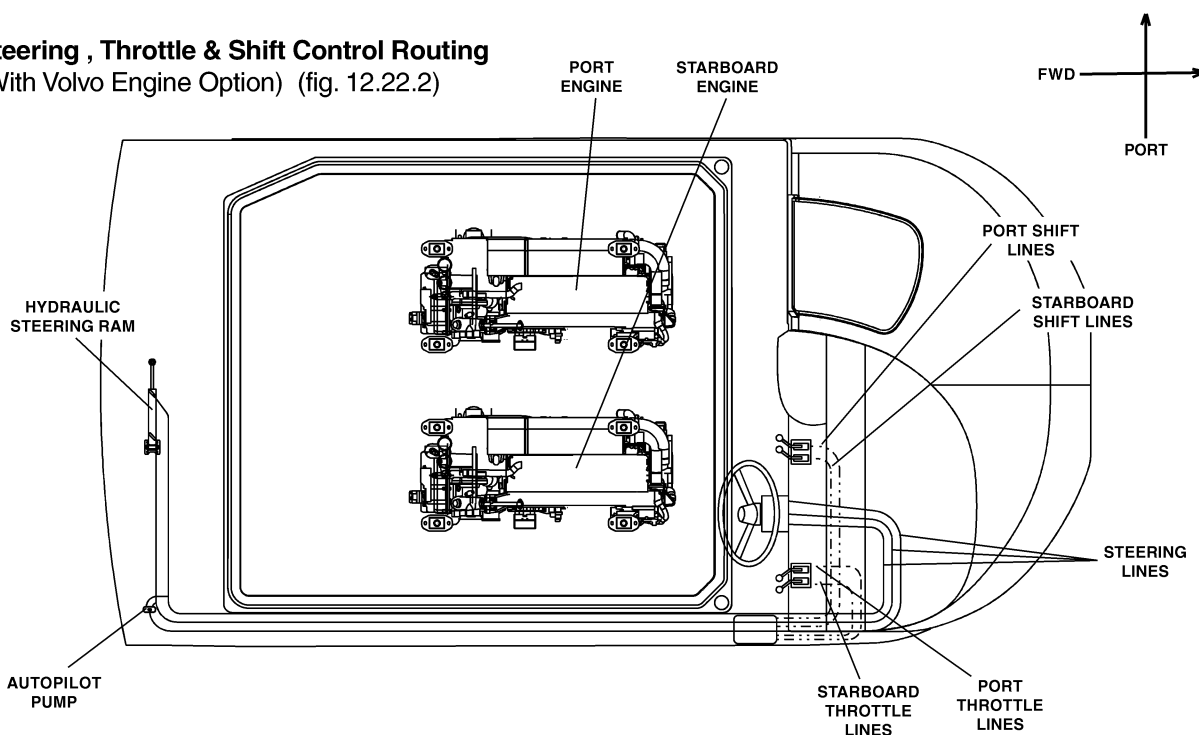
Steering , Throttle & Shift Control Routing

(fig. 12.22.1)



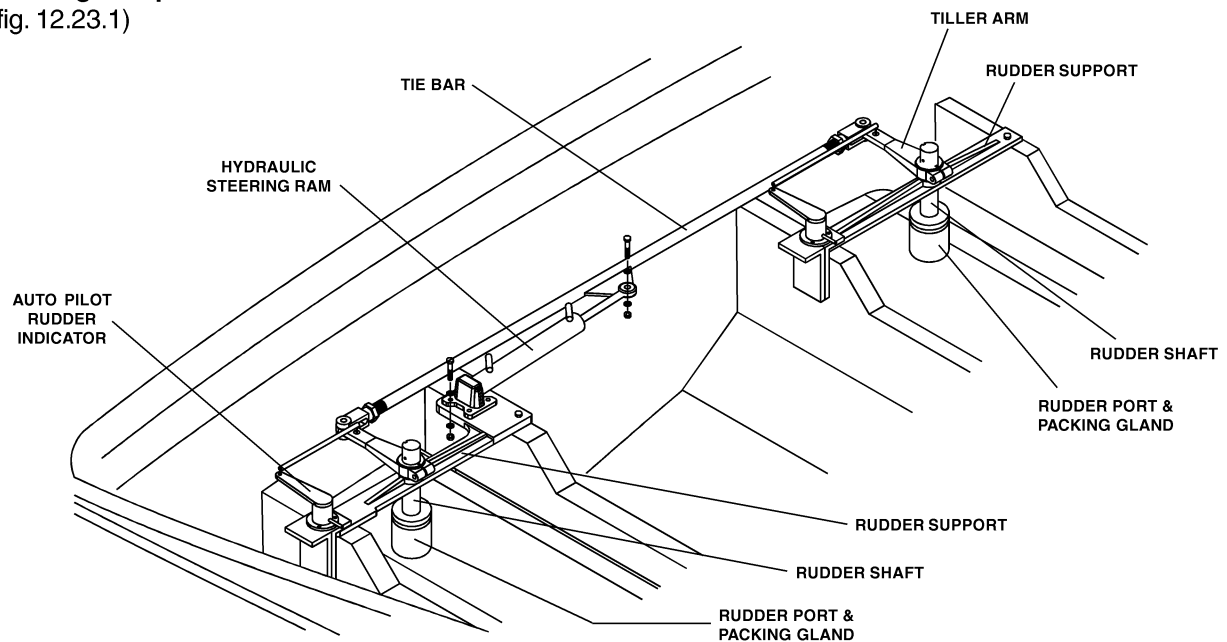
Steering , Throttle & Shift Control Routing

(With Volvo Engine Option) (fig. 12.22.2)

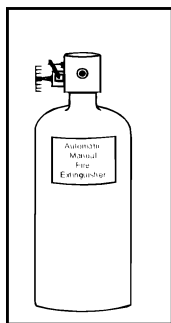


Steering Components

(fig. 12.23.1)



Fire Extinguishing System



The 410 EC is offered with the standard automatic fire extinguishing system. Your boat also needs to be equipped with approved portable fire extinguishers. It is your responsibility to equip and maintain fire extinguishers.

Following are United States Coast Guard (USCG) requirements and American Boat & Yacht Council (ABYC) recommendations for boats

over 40 feet (12.1 meters) but less than 65 feet (19.8 meters).

Standard	Boat	No Fixed System	*With Fixed System
		Qty. - Type	Qty. - Type
USCG	410 EC	3 - B1 ABC or 2 (1 - B2 ABC & 1 - B1 ABC)	2 - B1 ABC or 1 - B2 ABC
ABYC	410 EC	4 - B1 ABC	

*Boats with approved fixed extinguishing system, (automatic fire extinguisher system).

Location: Outside engine compartment, steering position, crews quarters and galley.

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

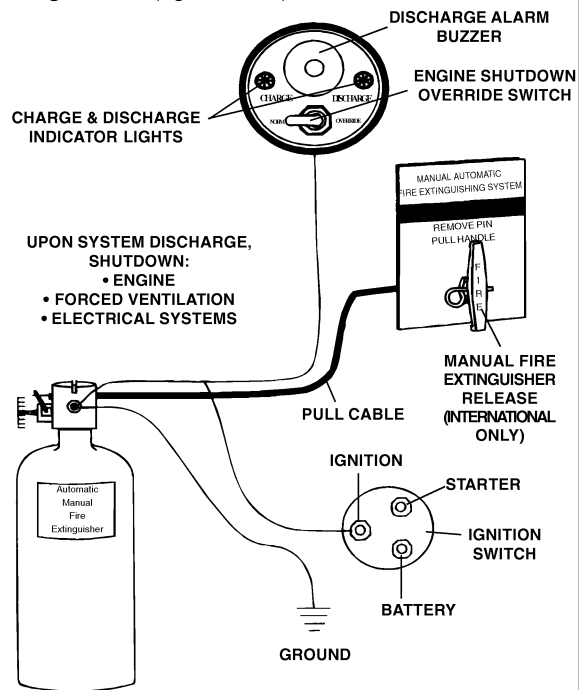
REFER TO THE OWNER'S MANUAL AND OWNER'S PACKET FOR INSTRUCTIONS AND WARRANTY INFORMATION.



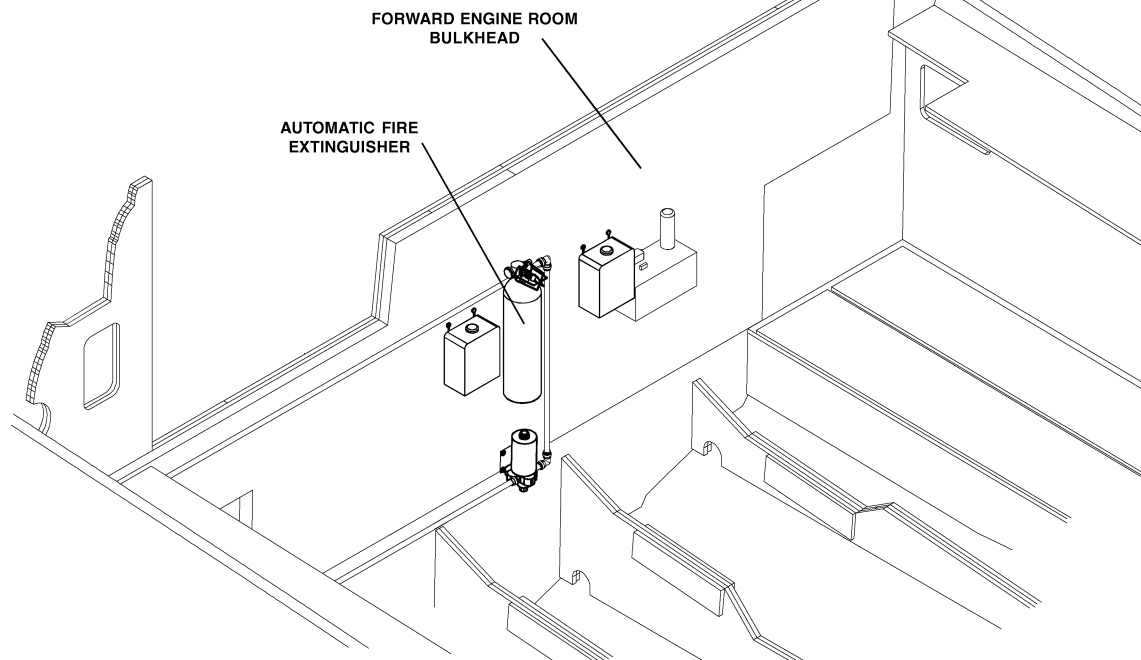
WARNING

- In case of fire **DO NOT** open engine compartment.
- Shut down engines, generator and blowers.

Automatic Fire Extinguisher System Configuration (fig. 12.24.1)



Automatic Fire Extinguisher Installation (fig. 12.24.2)



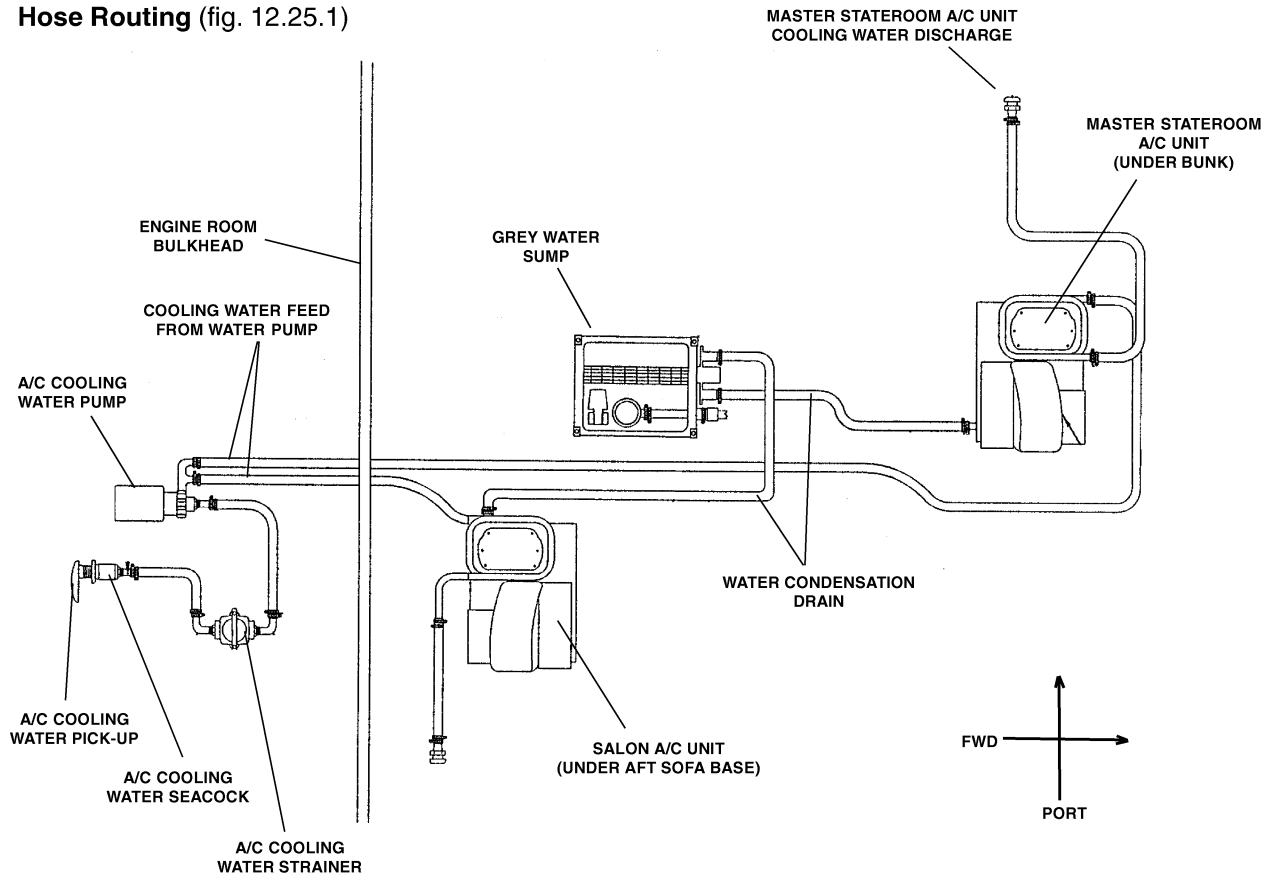
Air Conditioning / Heating System



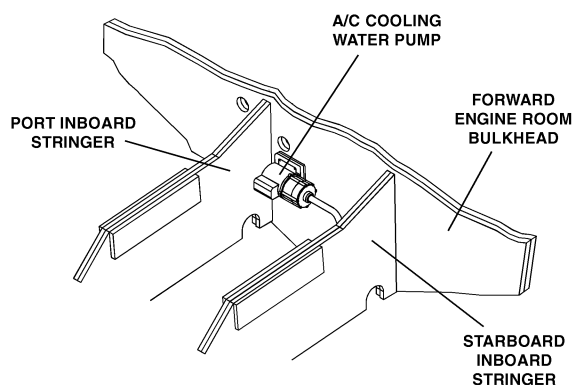
Air Conditioning and Heating System information can be found in *Section 8 • Accessories* of the owner's manual.

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

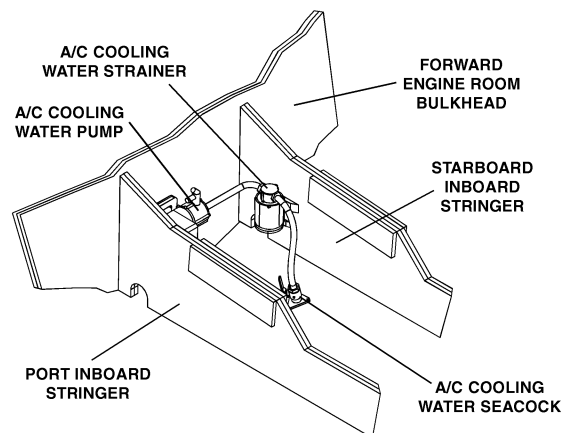
Air Conditioning Water Cooling Hose Routing (fig. 12.25.1)



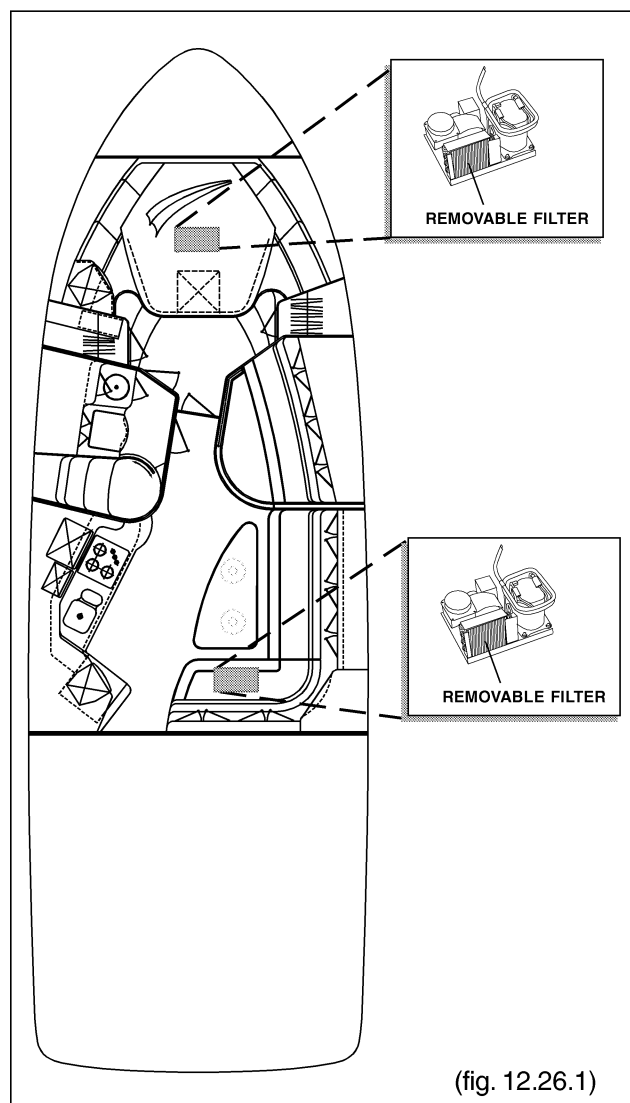
Air Conditioning Water Cooling Pump (fig. 12.25.2)



Air Conditioning Water Cooling Pump Strainer & Seacock (fig. 12.25.3)



Air Conditioner / Heater Locations

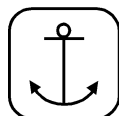


Engine Cooling System

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

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

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 410 EC is equipped with a windlass and an anchor chute. Stow the anchor in the chute when not in use. Note: Before using the anchor, be sure the anchor safety lanyard or that the chain stop are removed from the chain and the anchor is secured to the windlass chain.

The boat is equipped with an anchor line/chain storage hatch. Inside the hatch is a drain, fresh water rinse connection and manual winch handle.

REFER TO *SECTION 8* IN THE OWNER'S MANUAL AND THE WINDLASS OWNER'S MANUAL IN THE OWNER'S PACKET FOR INSTRUCTIONS AND WARRANTY INFORMATION.

GENERATOR SUPPLEMENT

Generator Information

Sea Ray® strongly urges you to fully comply with the manual provided by the generator manufacturer. The generator is warranted separately by the generator manufacturer, not Sea Ray®. Follow the recommended maintenance and warranty schedule in your Generator Operator's Manual included in the Owner's Manual Packet. Generator abuse or improper maintenance may adversely affect claims made under generator manufacturer's separate warranty.



CAUTION

Do not run the generator in an enclosed area, such as a closed boat house, as there is a possibility of build-up and inhaling of carbon monoxide.



DANGER

GASOLINE VAPORS CAN EXPLODE

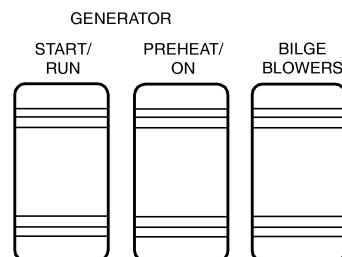
Before Starting Generator:

- Check machinery compartment for gasoline vapors.
- Operate blower for four (4) minutes.

Run Blower At All Times When Generator Is Running.

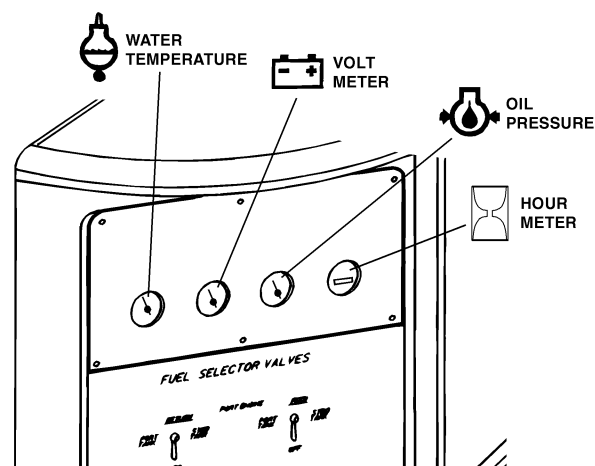
Generator Switches

(Located on DC Distribution Panel in the Cabin and on the Generator in the Bilge)
(fig. 12.27.1)



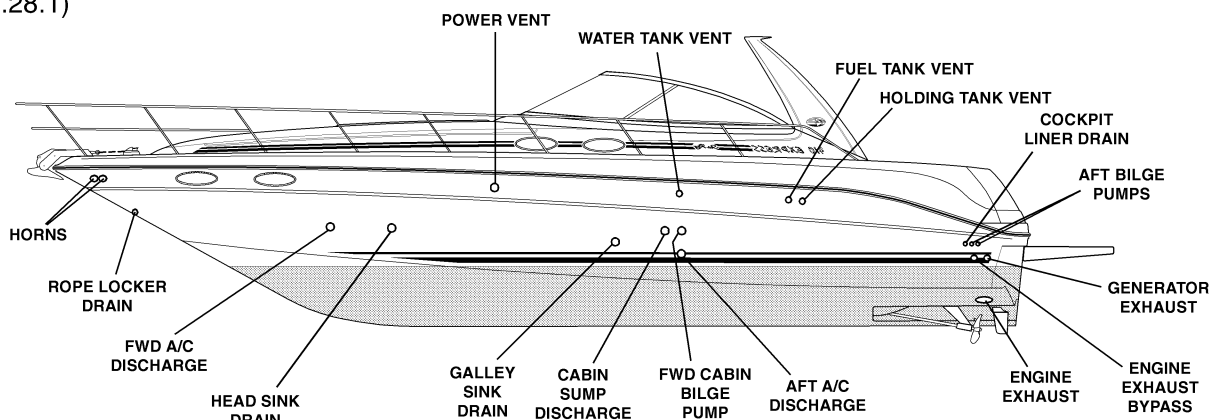
Generator Gauges

(Above Crossover Fuel Board)
(fig. 12.27.2)

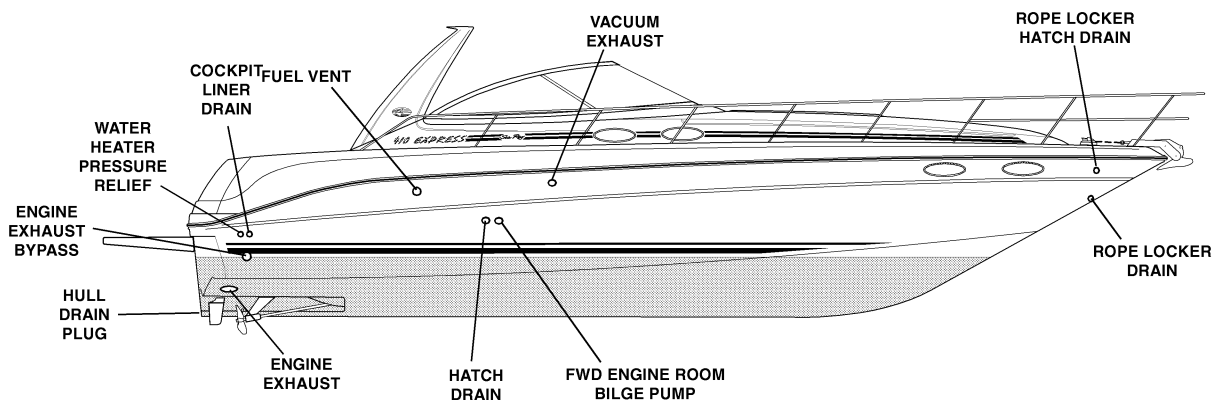


LOCATION OF THROUGH-HULL FITTINGS

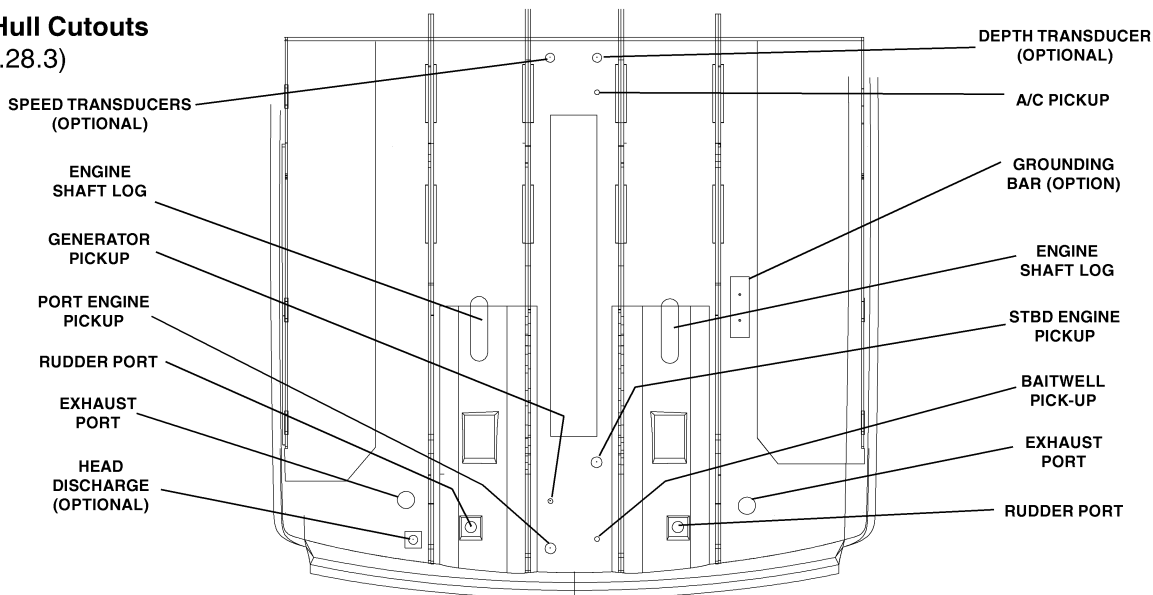
Port Side
(fig. 12.28.1)



Starboard Side
(fig. 12.28.2)

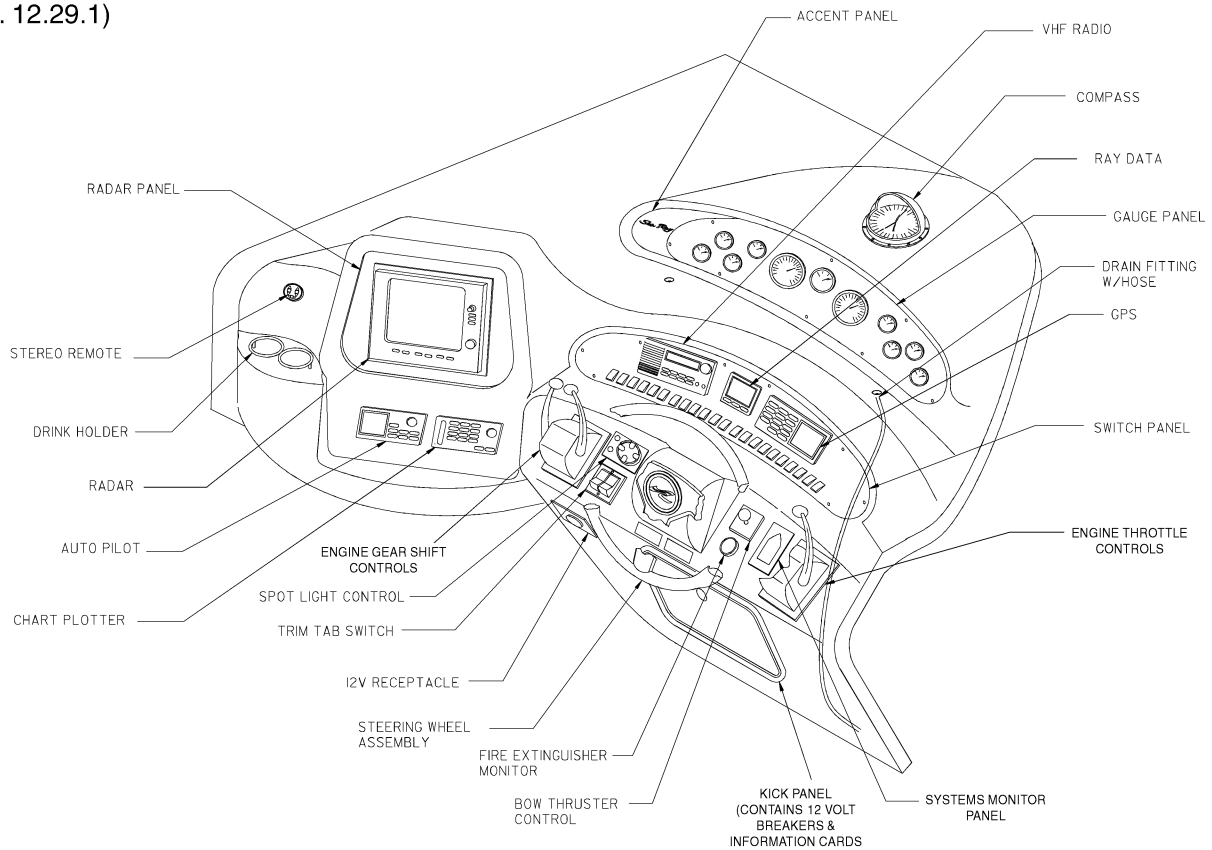


Bilge Hull Cutouts
(fig. 12.28.3)

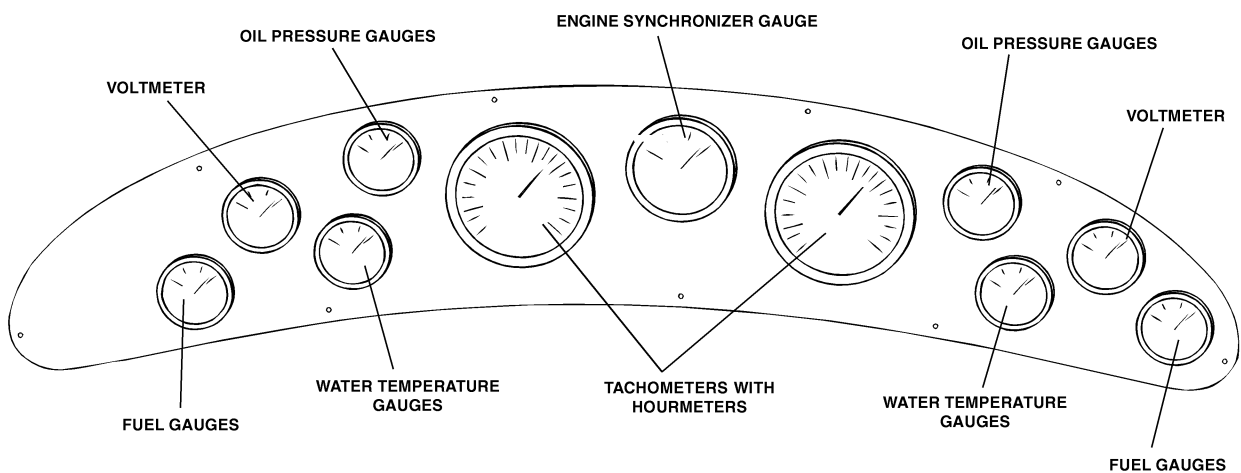


CONTROL STATION LAYOUT

Control Station
(fig. 12.29.1)

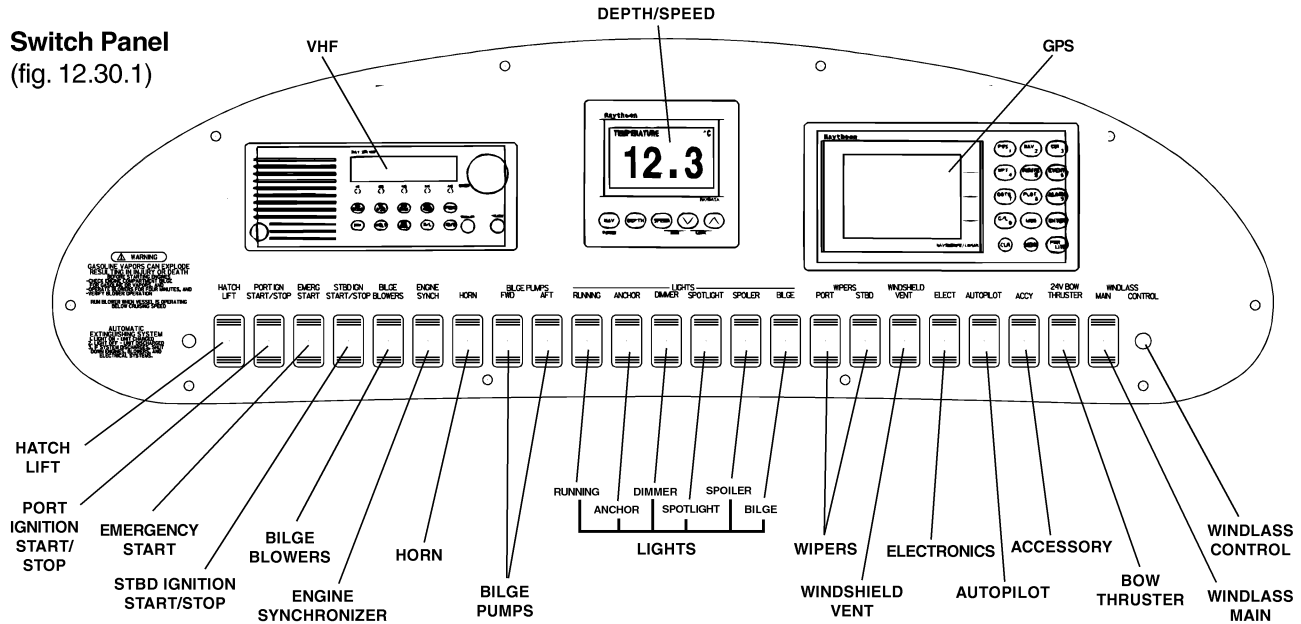


Gauge Panel
(fig. 12.29.2)

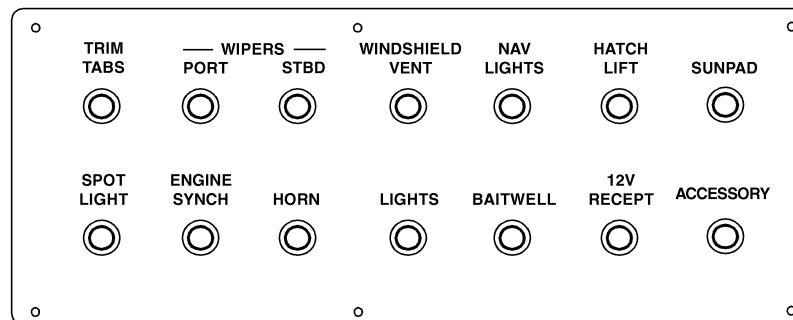


CONTROL STATION LAYOUT

Switch Panel
(fig. 12.30.1)



Breaker Panel
(Behind Kick Panel)
(fig. 12.30.2)



INSTRUMENTS & CONTROLS

Systems Monitor Panel

The systems monitor panel, located at the control station, monitors critical engine functions, bilge pumps, high water emergency bilge pump, shower sump pump (if installed) and generator shutdown. It is equipped with a test button to test the indicator lights and the engine alarm buzzer. The panel is protected by a 5 amp fuse installed in the circuit breaker which is on the main DC breaker panel.

Diesel Option Only: Each engine is equipped with three alarm senders – water temperature, oil pressure and transmission temperature – which are connected to the alarm buzzer and appropriate indicator light on the systems monitor panel.

The warning buzzer and corresponding indicator light will be activated if the cooling system water temperature rises too high, the engine oil pressure gets too low, or the transmission temperature rises too high. Refer to the Engine Operator's Manual for proper gauge readings or aid in finding and correcting the problem.

NOTE: Engines equipped with electronic fuel injection (EFI) or multi port injection (MPI) are equipped with one engine indicator light for each engine. If the alarm sounds and the light activates, pay particular attention to the engine gauges to distinguish the problem.

It is recommended that the system indicator lights and alarm be tested at least once every five hours of operation. To test, push the test switch on the systems monitor panel. All indicator lights and alarm should activate.

In the event the bilge high water alarm and light are activated, immediate attention to the bilge is required.



CAUTION

IF THE ENGINE INDICATOR(S) AND ALARM COME ON WHILE RUNNING, QUICKLY CHECK AND NOTE THE OIL PRESSURE AND WATER TEMPERATURE GAUGE READINGS. TURN OFF ENGINE IMMEDIATELY. Check for leaks and see if the cooling water pickup is blocked or clogged. If necessary, clear the water pickup of any foreign matter. DO NOT RESTART THE ENGINE UNTIL CAUSE FOR ALARM SOUNDING HAS BEEN FOUND AND CORRECTED.

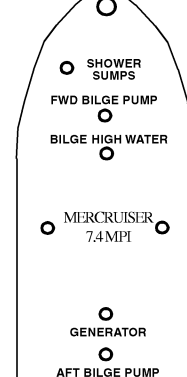
NOTICE

If an engine stalls during docking or slow maneuvering, the buzzer will sound until the engine is restarted. The buzzer will also sound while the engines are cranking and will continue until they start.

Light	Indicates (When Lit)
SHOWER SUMPS	SHOWER SUMP PUMP IS RUNNING
FWD BILGE PUMP	BILGE PUMP IS RUNNING
BILGE HIGH WATER	EMERGENCY BILGE PUMP IS RUNNING
GENERATOR	GENERATOR OIL PRESSURE IS TOO LOW
AFT BILGE PUMP	BILGE PUMP IS RUNNING
With Diesel System Only	
WATER TEMPERATURE	ENGINE COOLING SYSTEM IS TOO HOT
OIL PRESSURE	ENGINE OIL PRESSURE IS TOO LOW
TRANSMISSION	TRANSMISSION TEMPERATURE IS TOO HOT

Systems Monitor

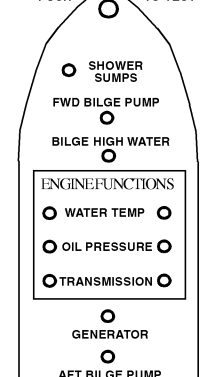
WITH BOTH KEY SWITCHES ON
PUSH TO TEST



Gasoline Systems
(fig. 12.31.1)

Systems Monitor

WITH BOTH KEY SWITCHES ON
PUSH TO TEST

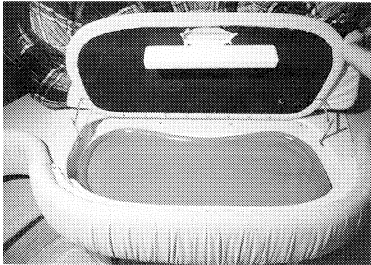


Diesel Systems
(fig. 12.31.2)

SPECIAL FEATURES

Salon Sleeping Arrangements

To convert the salon sofa to a sleeper:



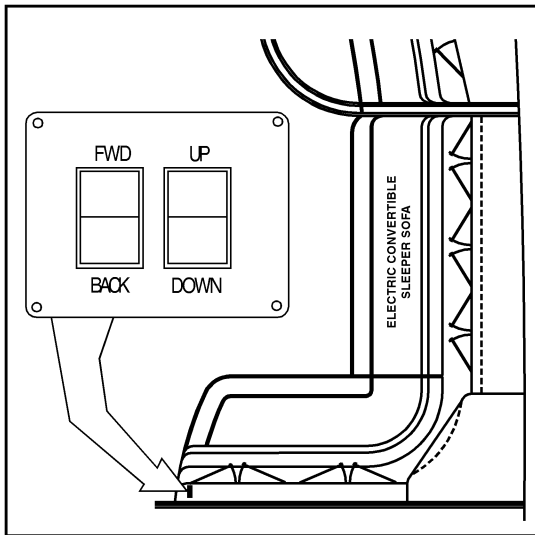
1. Salon table stores under the forward stateroom bunk. (fig. 12.32.1)



2. Salon sofa in normal position. (fig. 12.32.2)



3. Press control switch in storage compartment above aft sofa to bring seat forward and the back down. (fig. 12.32.3)



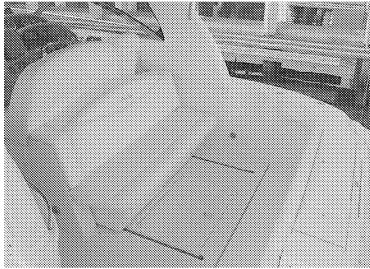
4. Salon sleeper control switch in storage compartment above aft sofa. (fig. 12.32.4)

To Operate:

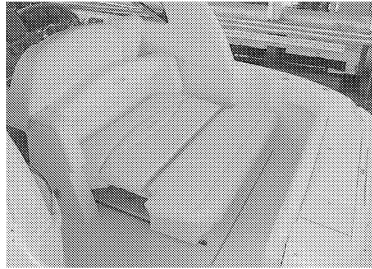
1. Press FWD button first to bring base forward.
2. Press DOWN button second to lower the back.
3. Reverse procedure to put sleeper sofa back into upright position.

Cockpit Sun Pad Arrangement (Optional Accessory)

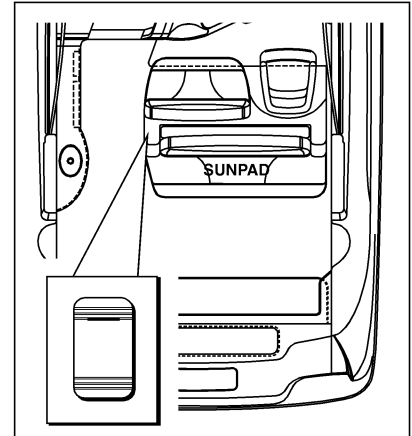
To extend the cockpit sunpad:



1. Sunpad in upright position.
(fig. 12.33.1)



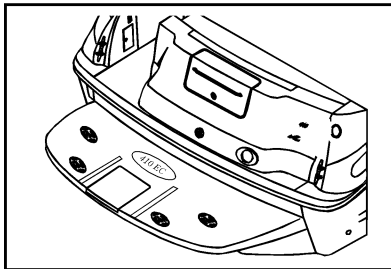
2. Press control switch in storage compartment under helm bench seat to extend sunpad.
(fig. 12.33.2)



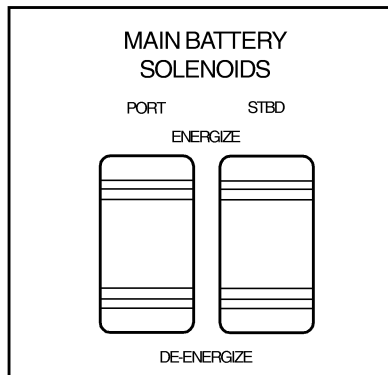
3. Sunpad switch under helm bench seat companionway storage. (fig. 12.33.3)

Hydraulic Lift Swim Platform Operation (Optional Accessory)

To lower and raise the hydraulic swim platform:



1. Platform in up position.
(fig. 12.33.4)



2. Battery switch must be ON. Platform electrical system is protected by the "SWIM PLATFORM LIFT" breaker on the main DC breaker panel in the bilge. (fig. 12.33.5)



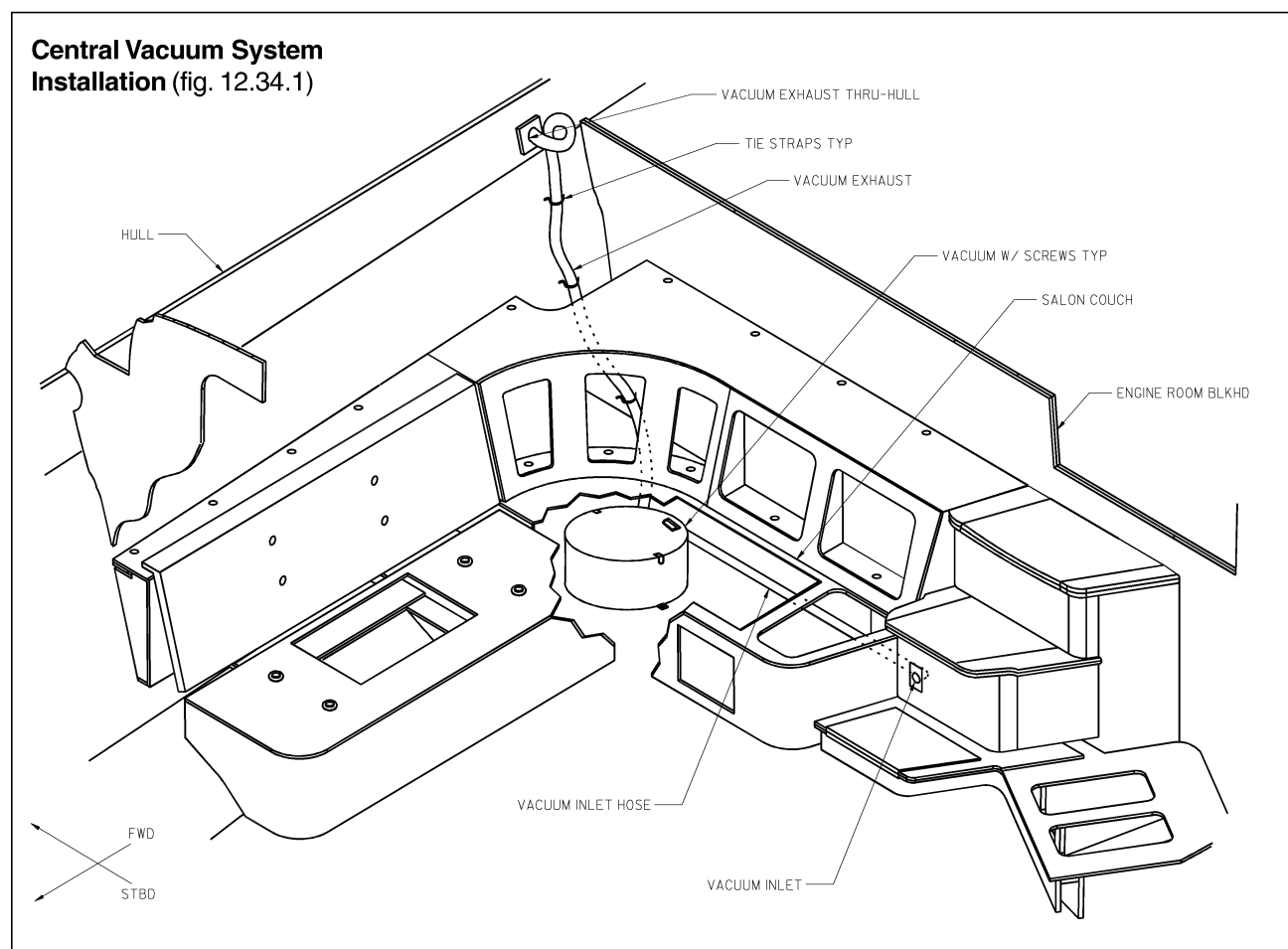
3. Platform switch remote control is located in the transom storage. Press UP or DOWN arrows to control platform.
(fig. 12.33.6)

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

Central Vacuum System

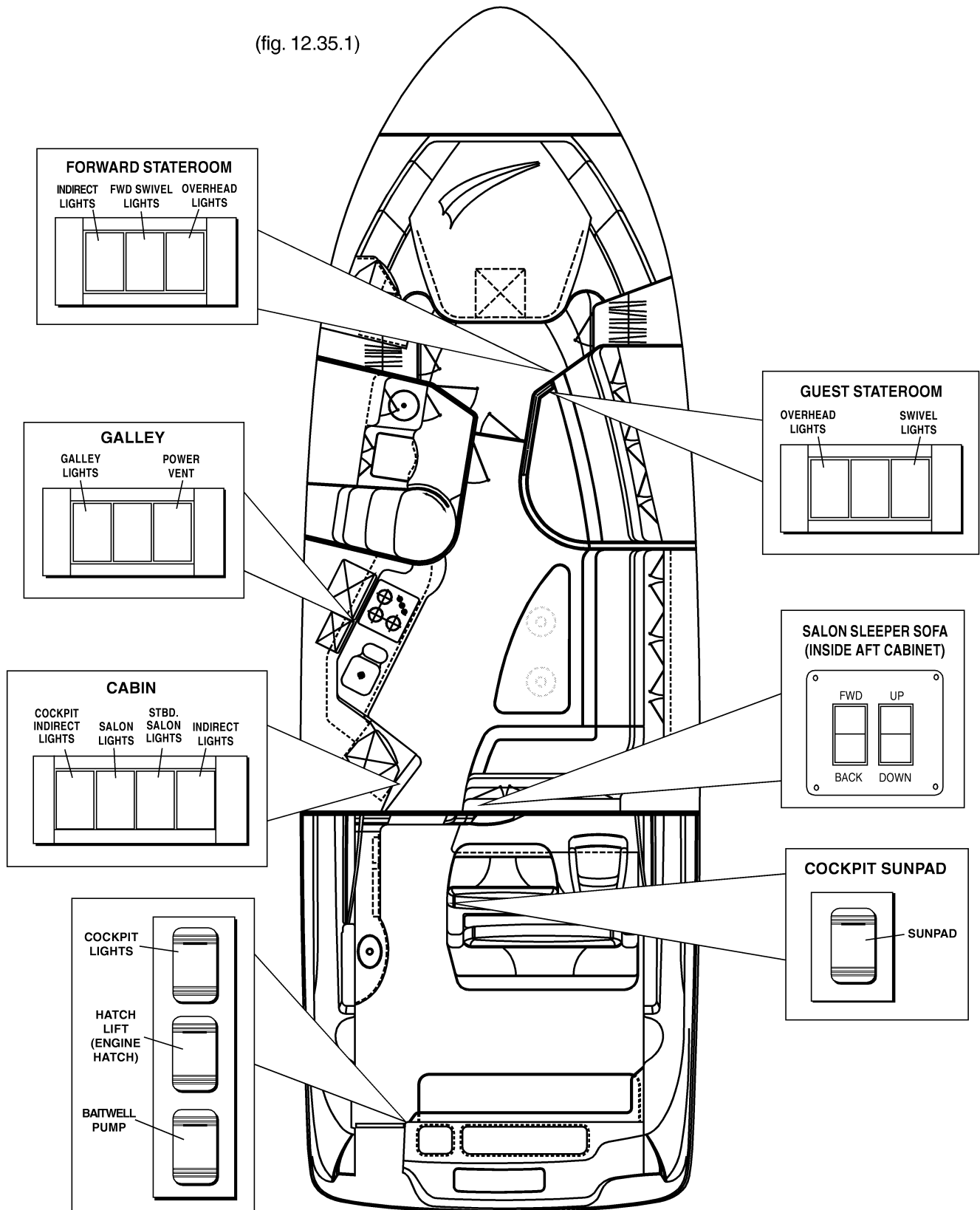
The central vacuum unit is located under the corner section of the salon sofa (see fig 12.34.1). The "SALON" breaker must be ON to operate the system. The 24 foot hose connects to the inlet located in the base of the salon entrance steps. The built in switch in the hose inlet fitting activates the vacuum when the hose is plugged in.

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



CABIN & COCKPIT SWITCH LOCATION & FUNCTION

(fig. 12.35.1)

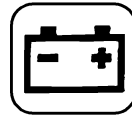


Electrical Installations

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 owner's manual for battery disconnect and maintenance.



Battery Specifications:

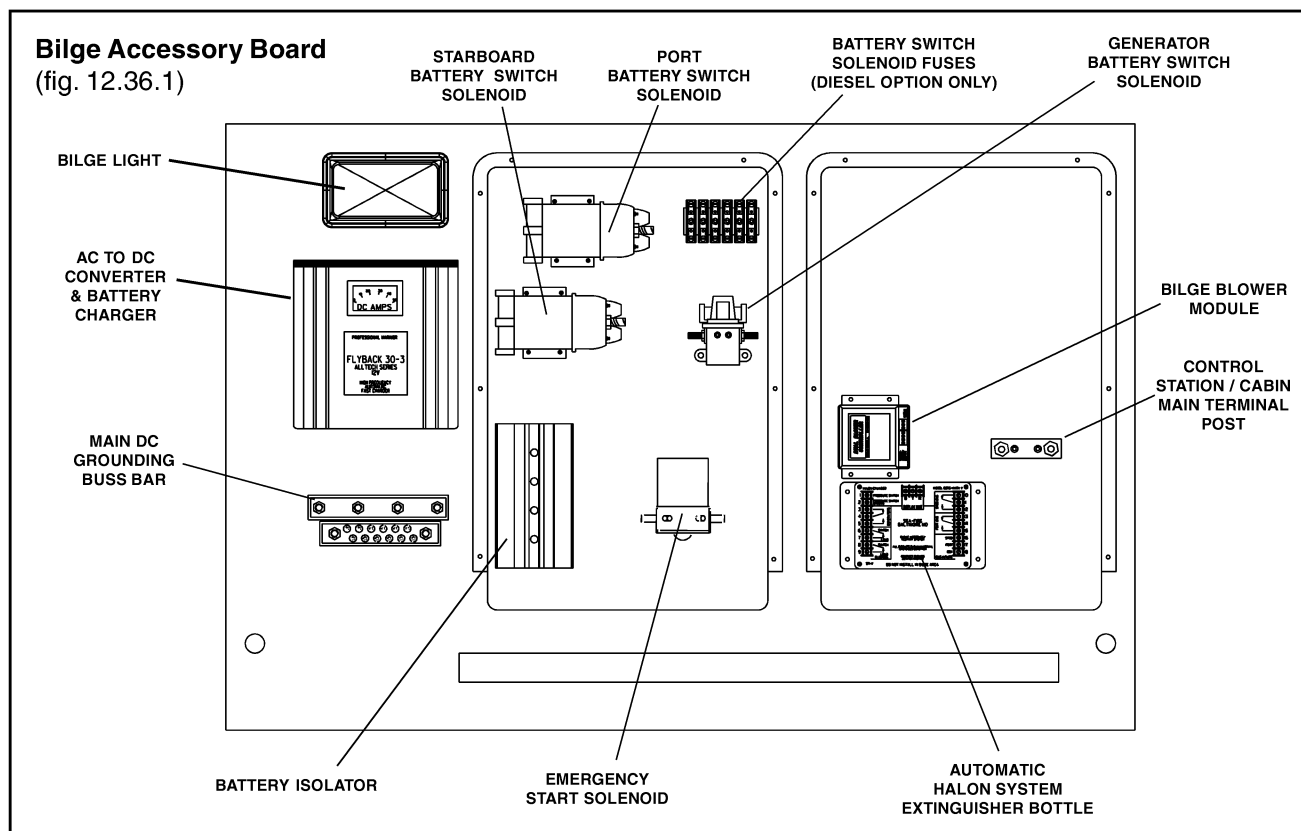
Group: 27

Cold Cranking Amps: 575

Reserve Capacity: 165 Minutes

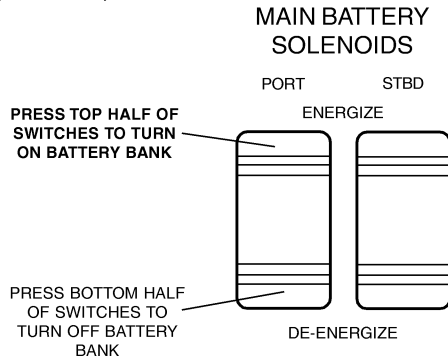
Sea Ray® recommended batteries are available through your Sea Ray® dealer.

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.



Battery Switch

(Located on DC Distribution Panel in the Cabin and on the Main DC Distribution Panel in the Bilge)
(fig. 12.37.1)



CAUTION

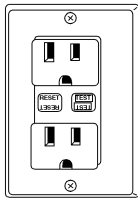
While the engine is running, the battery terminal clamps must not be loosened or detached nor should the battery switch(es) be turned off, otherwise the alternator and other electronic units will be damaged.

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.

Ground Fault Interrupter (GFI) Outlet Locations & Associated Loads

Ground Fault Interrupter Outlet (GFI) (fig.12.37.2)



Refer to the electrical system section of the owner's manual for operation and function information of the GFI's.

If any of the accessories on your boat fail to turn on, check the associated GFI outlet breaker first.

GFI Location

A: Inside head vanity, upper forward.

B: Inside the salon gunnel cabinet, aft.

C: Inside galley cabinet, upper aft.

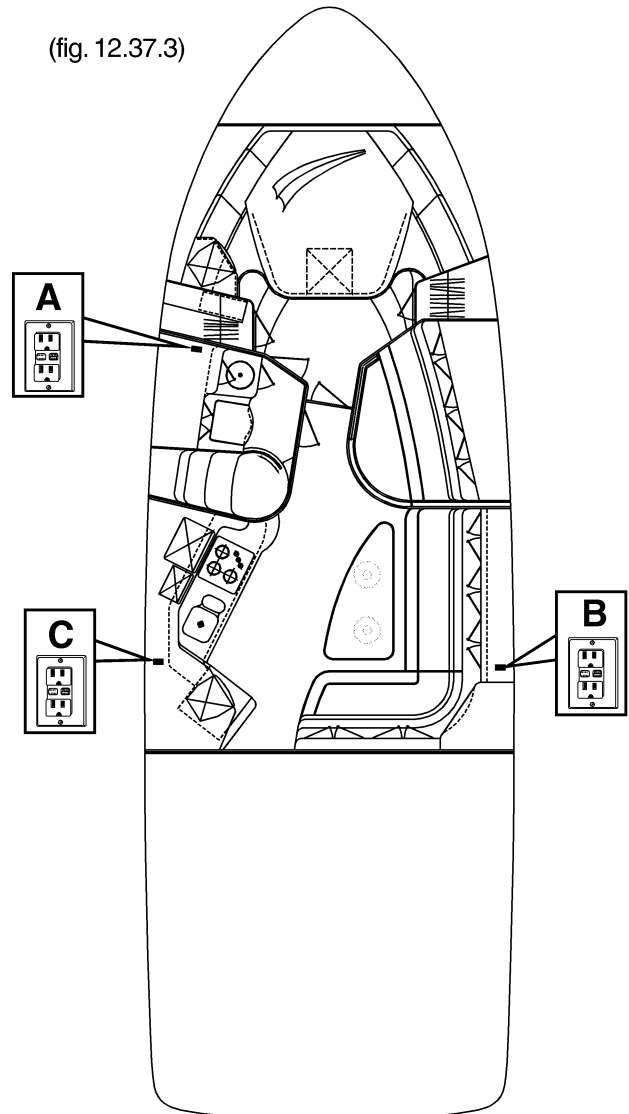
Associated Loads

- Head Receptacle
- Forward TV
- V-berth receptacle
- Galley TV
- Ice Maker
- Cockpit Receptacle

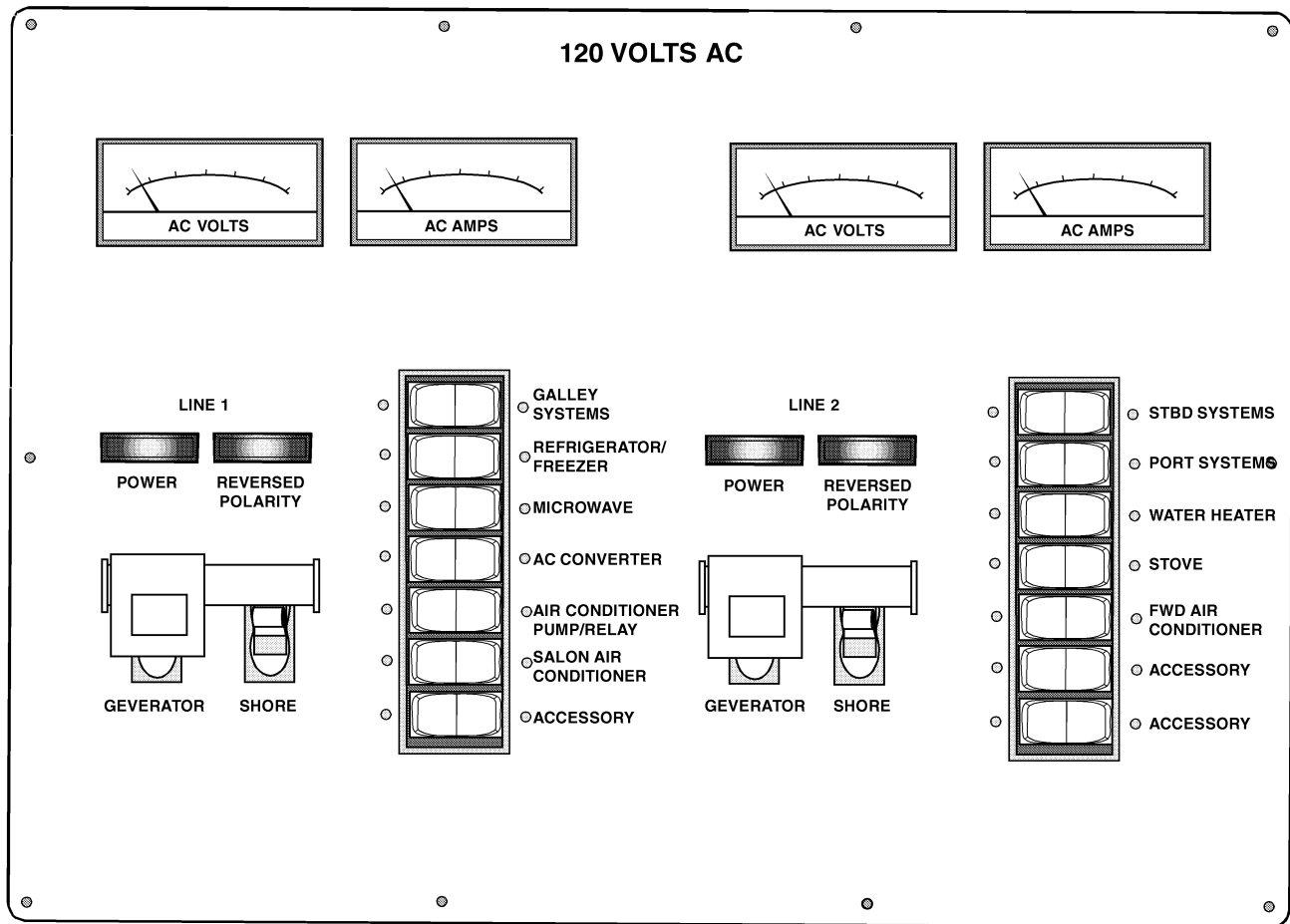
- Central Vacuum System
- Salon Receptacle
- Stbd Fwd Stateroom Receptacle

- Galley Receptacle
- Coffee Maker

(fig. 12.37.3)

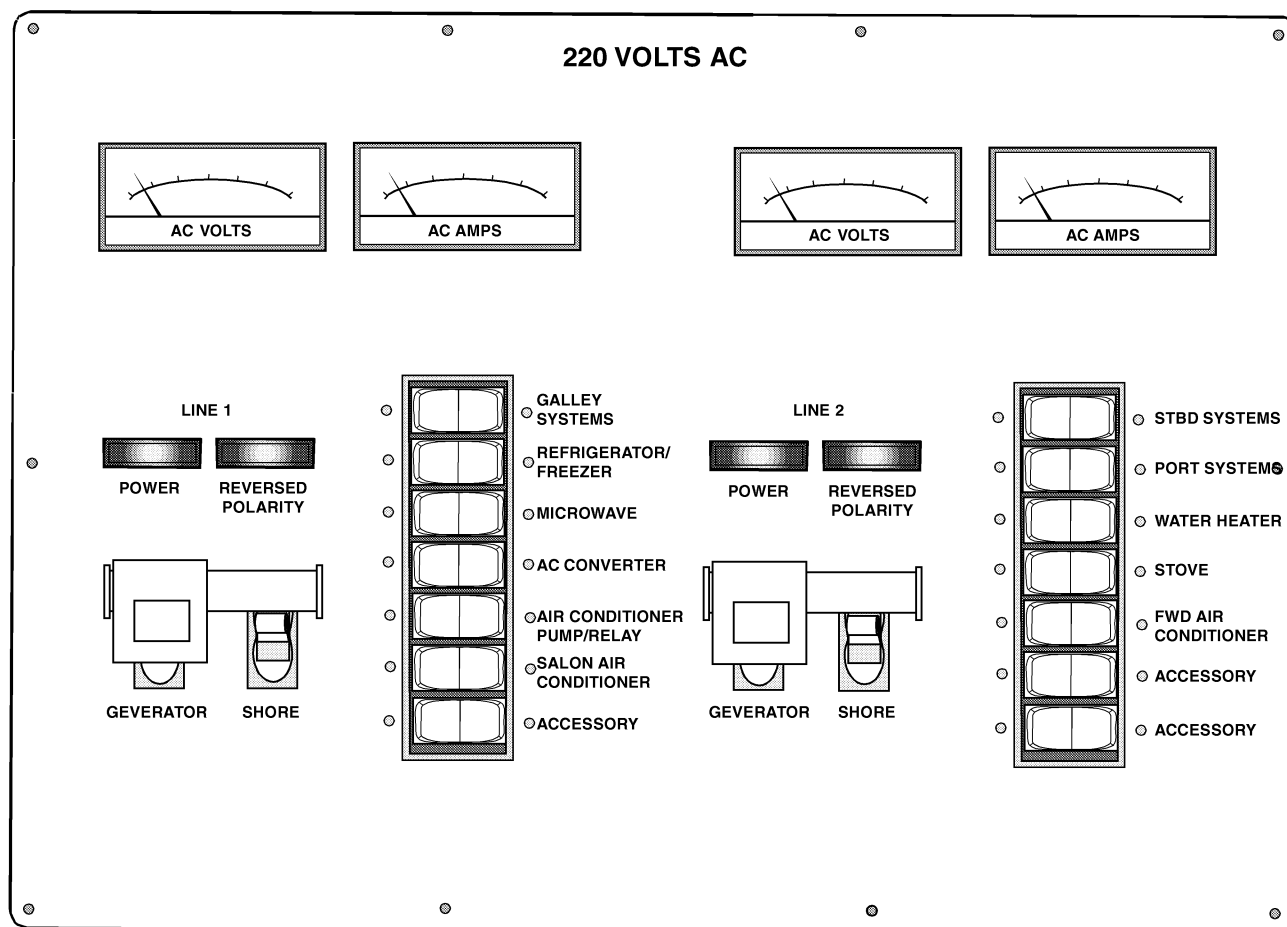


STANDARD AC MAIN DISTRIBUTION PANEL (120V)



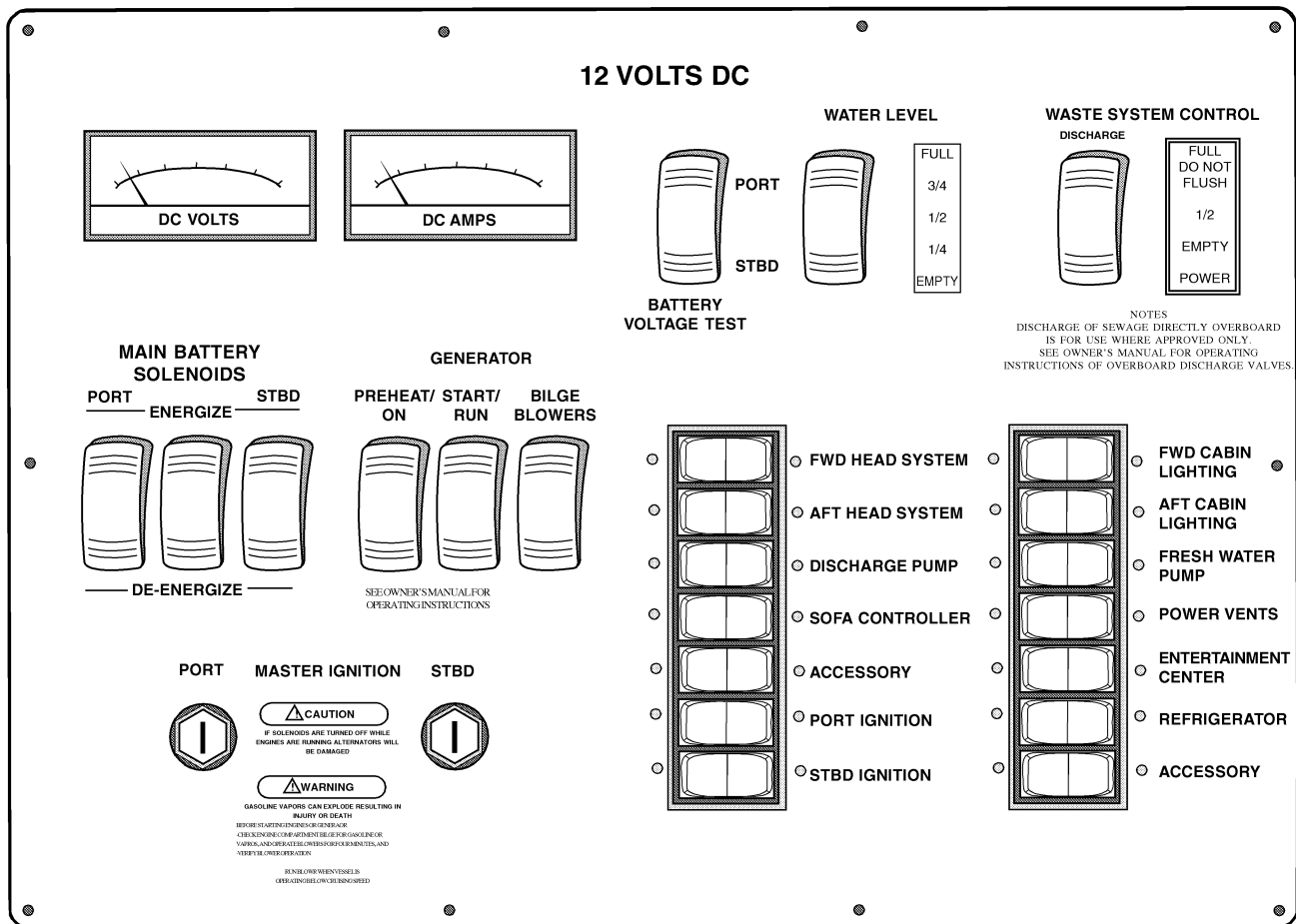
(fig. 12.38.1)

OPTIONAL AC MAIN DISTRIBUTION PANEL (220V)



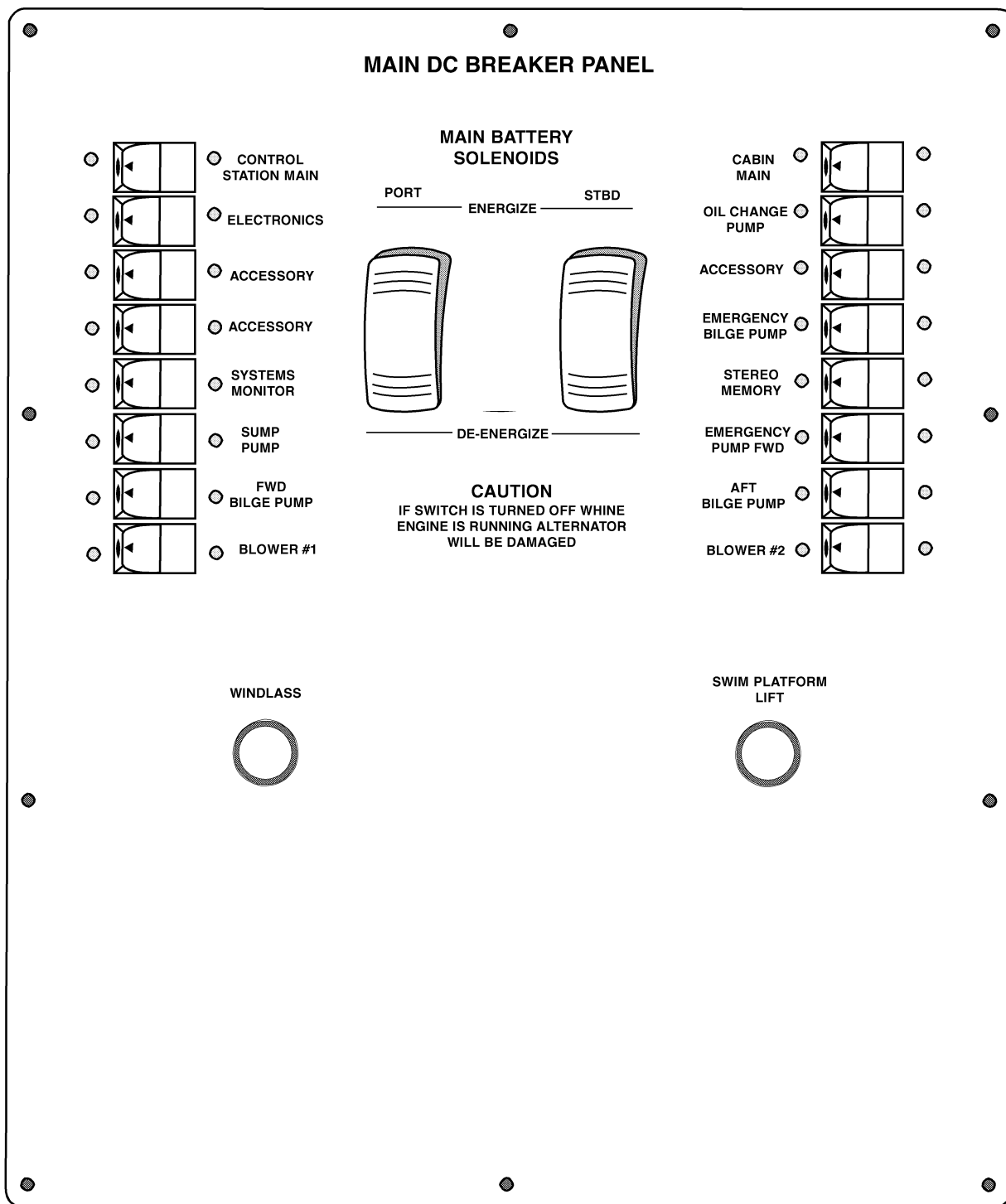
(fig. 12.39.1)

CABIN DC DISTRIBUTION PANEL (12V)



(fig. 12.40.1)

MAIN DC BREAKER & BATTERY SWITCH PANEL

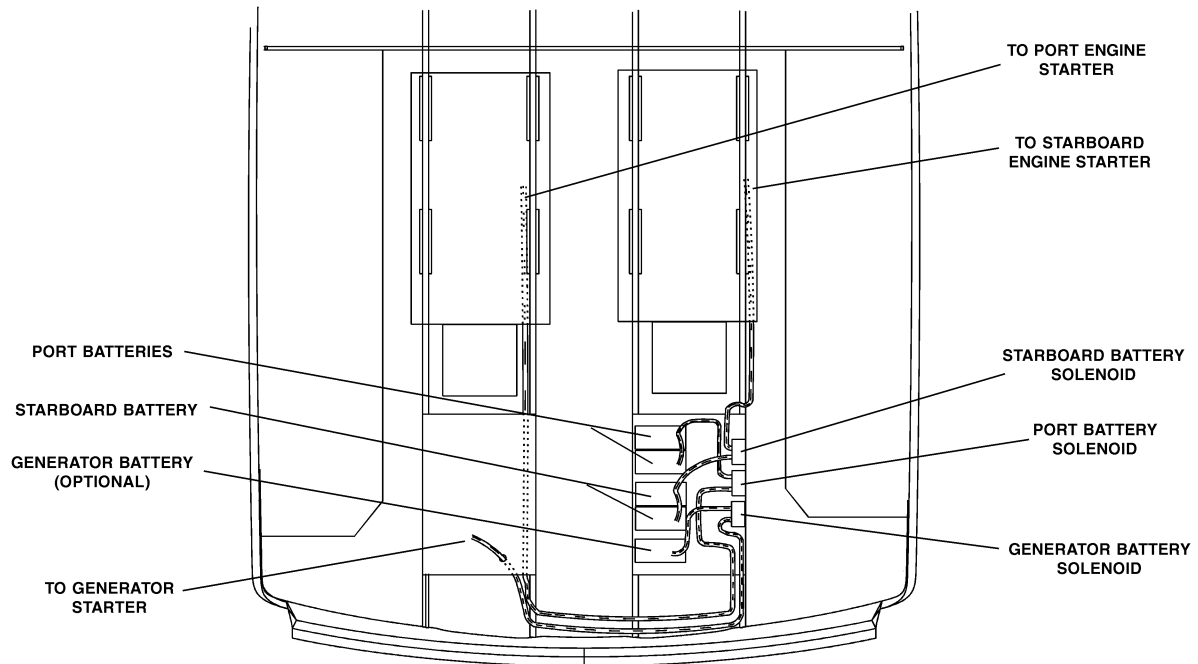


(fig. 12.41.1)

BATTERY CABLE INSTALLATION

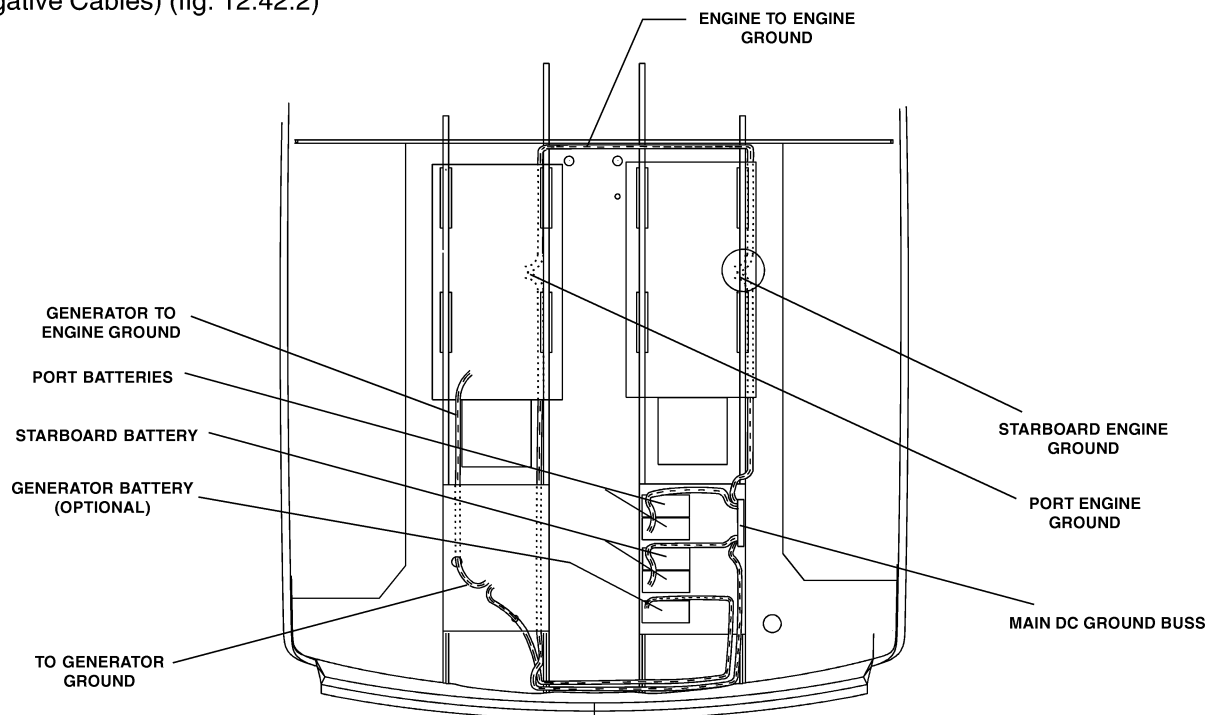
Battery Cable Installation

(Positive Cables) (fig. 12.42.1)

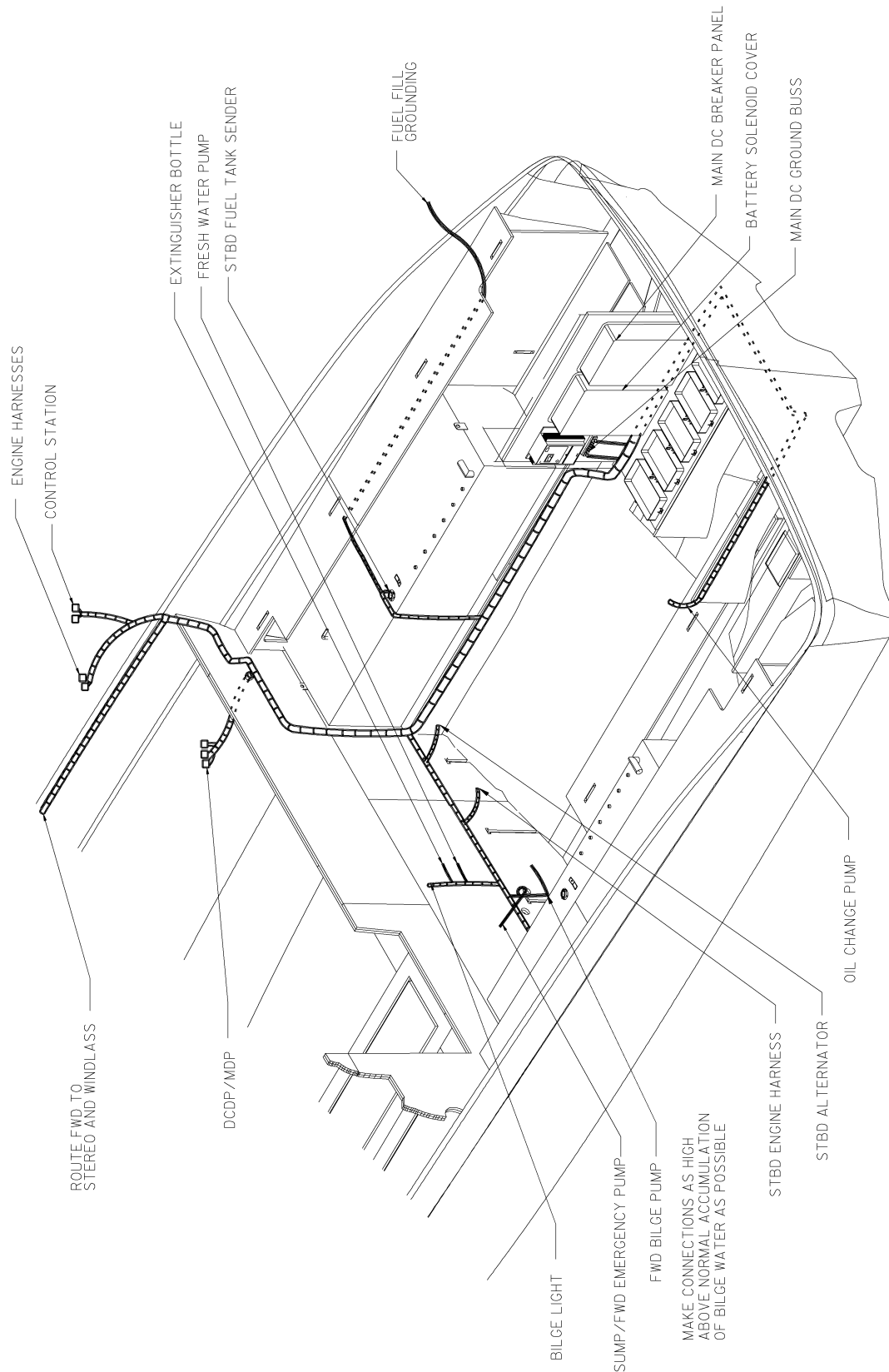


Battery Cable Installation

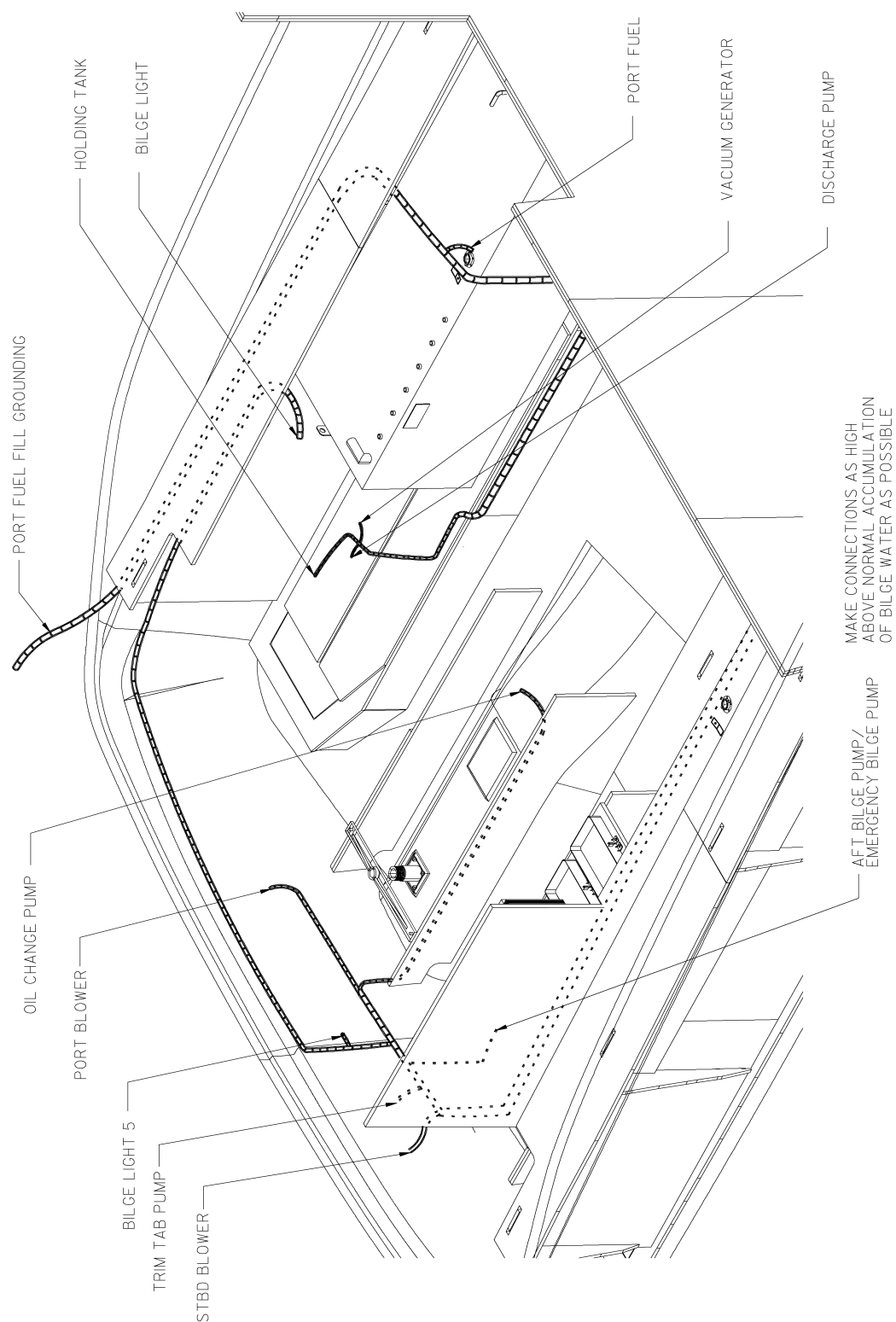
(Negative Cables) (fig. 12.42.2)



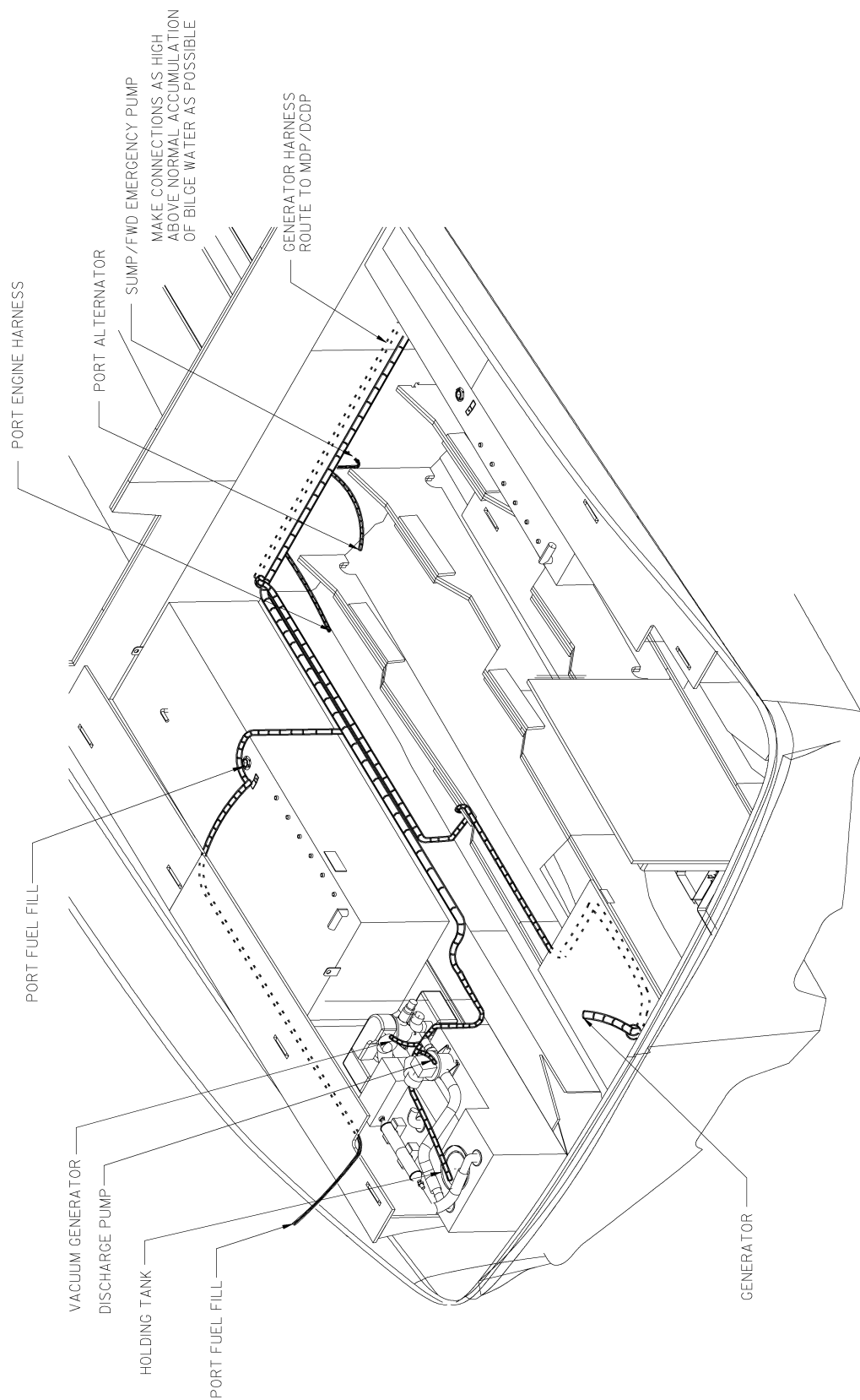
BILGE HARNESS INSTALLATION (1 OF 3)



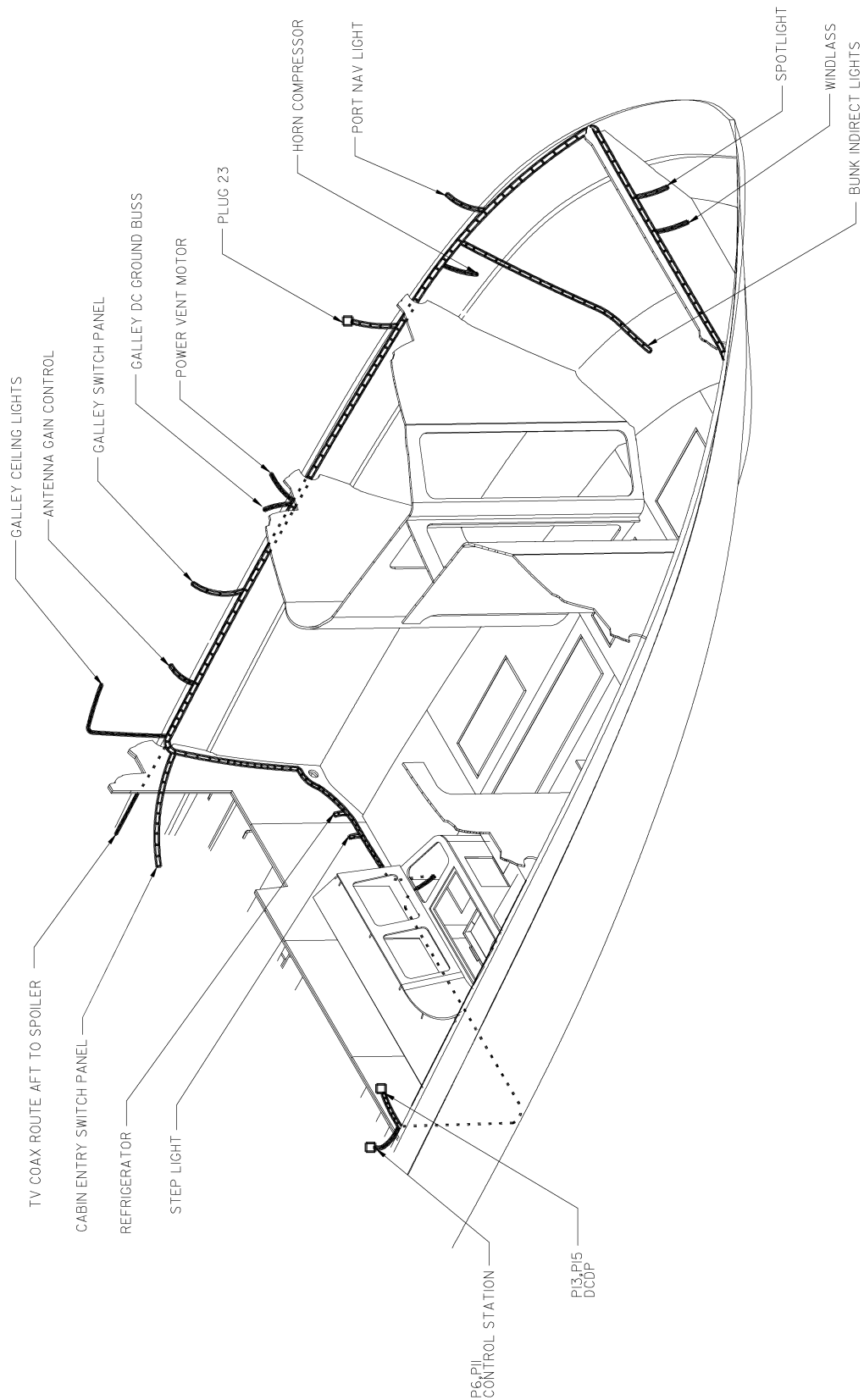
BILGE HARNESS INSTALLATION (2 OF 3)



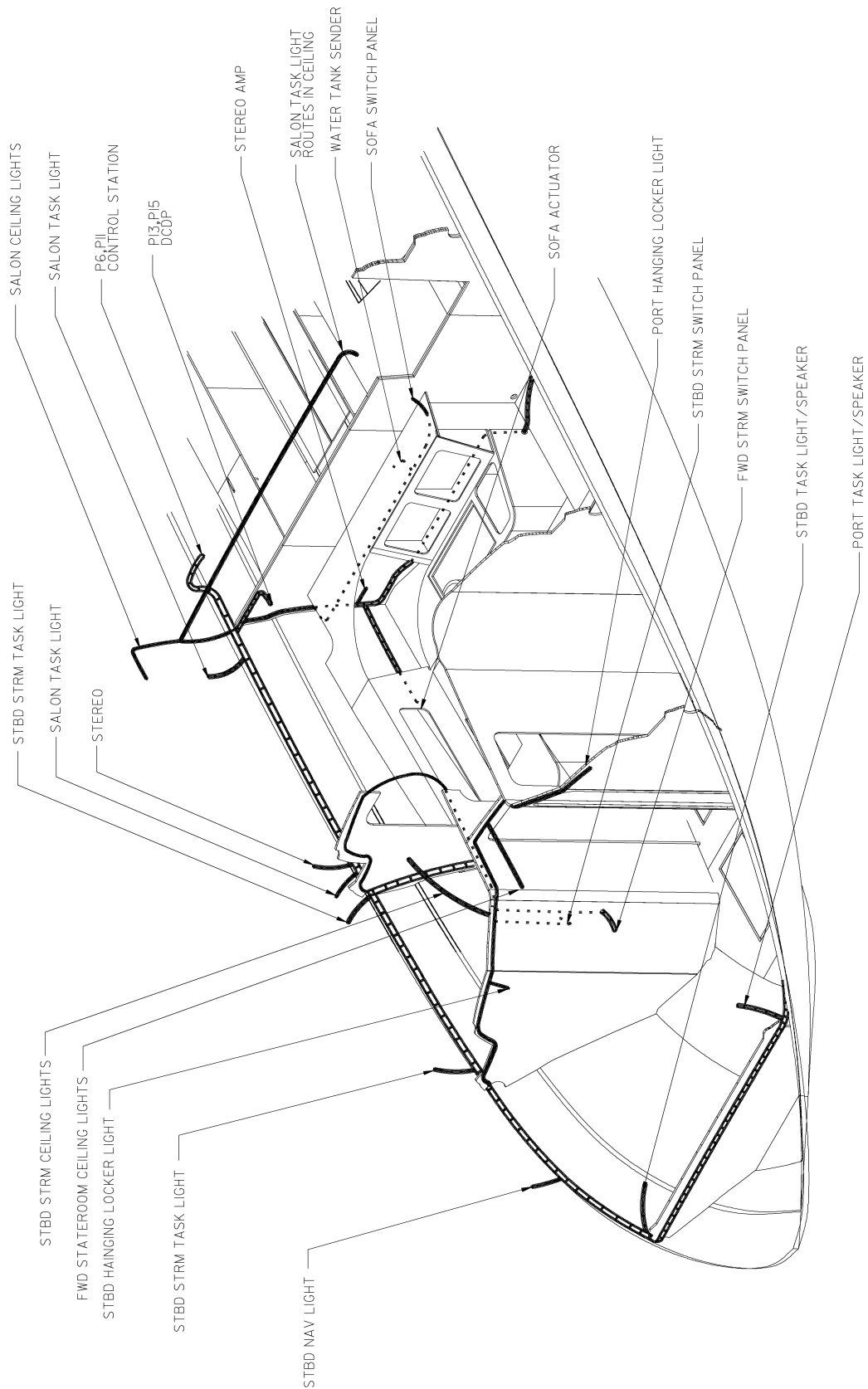
BILGE HARNESS INSTALLATION (3 OF 3)



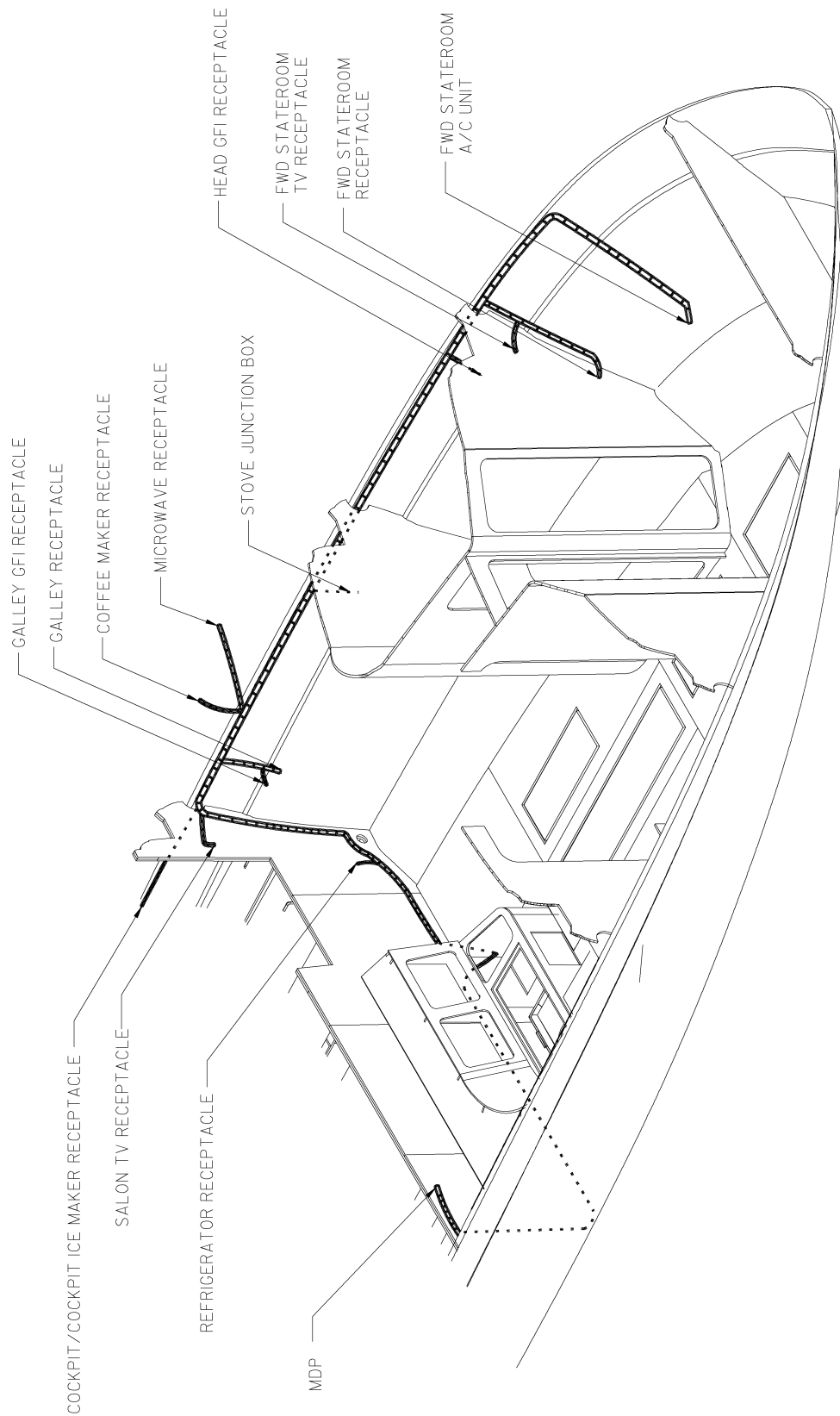
CABIN DC HARNESS INSTALLATION (1 OF 2)



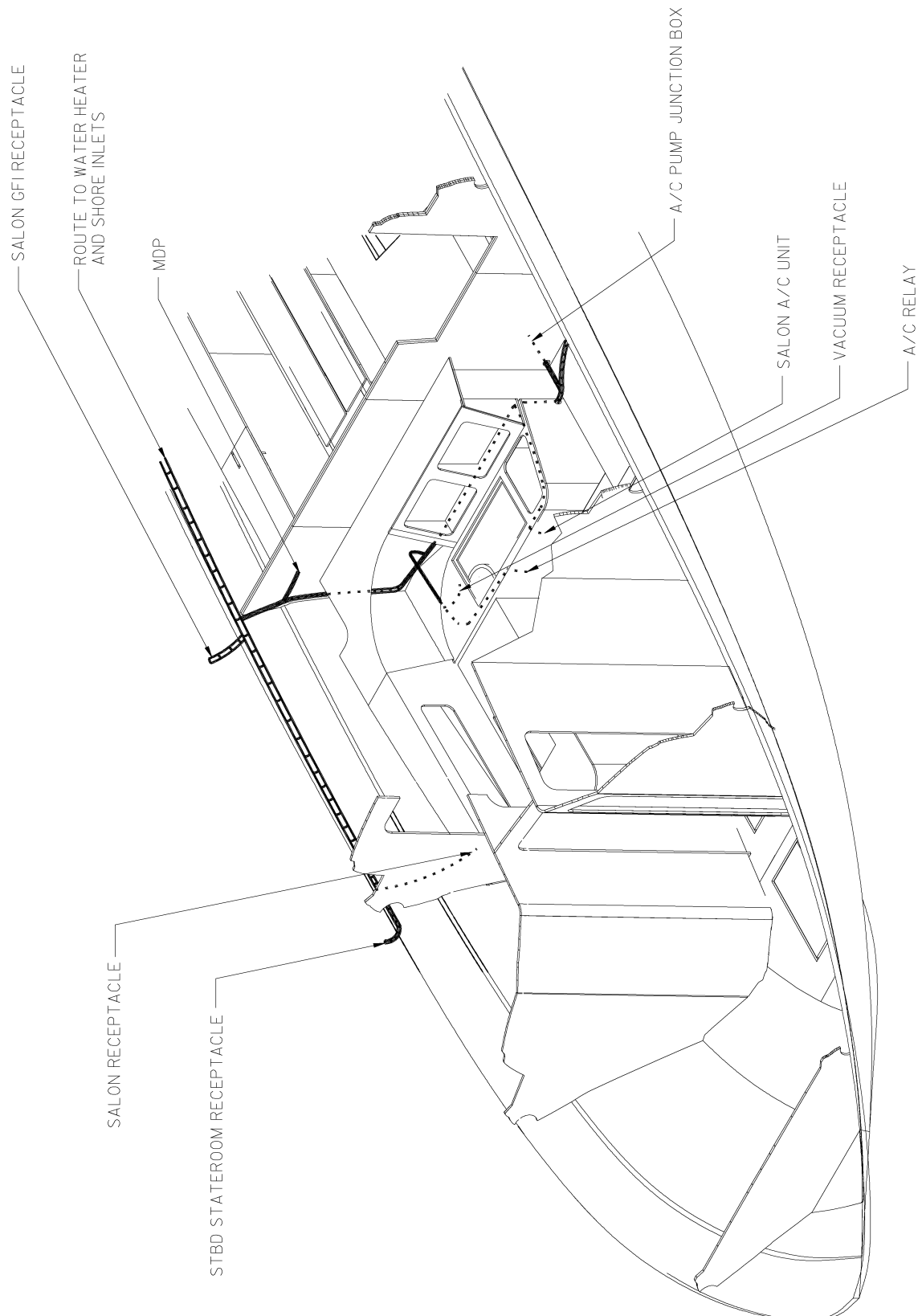
CABIN DC HARNESS INSTALLATION (2 of 2)



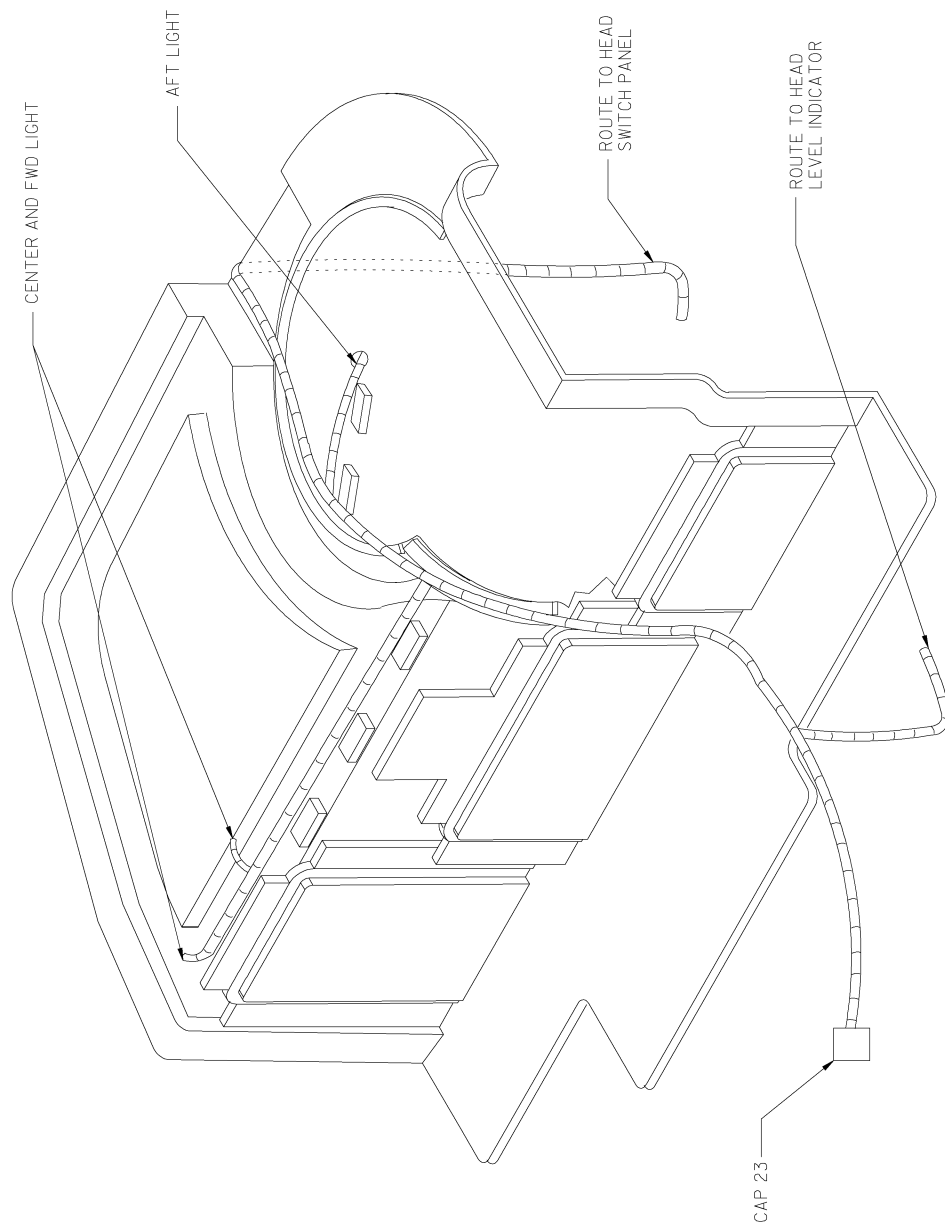
CABIN AC HARNESS INSTALLATION (1 of 2)



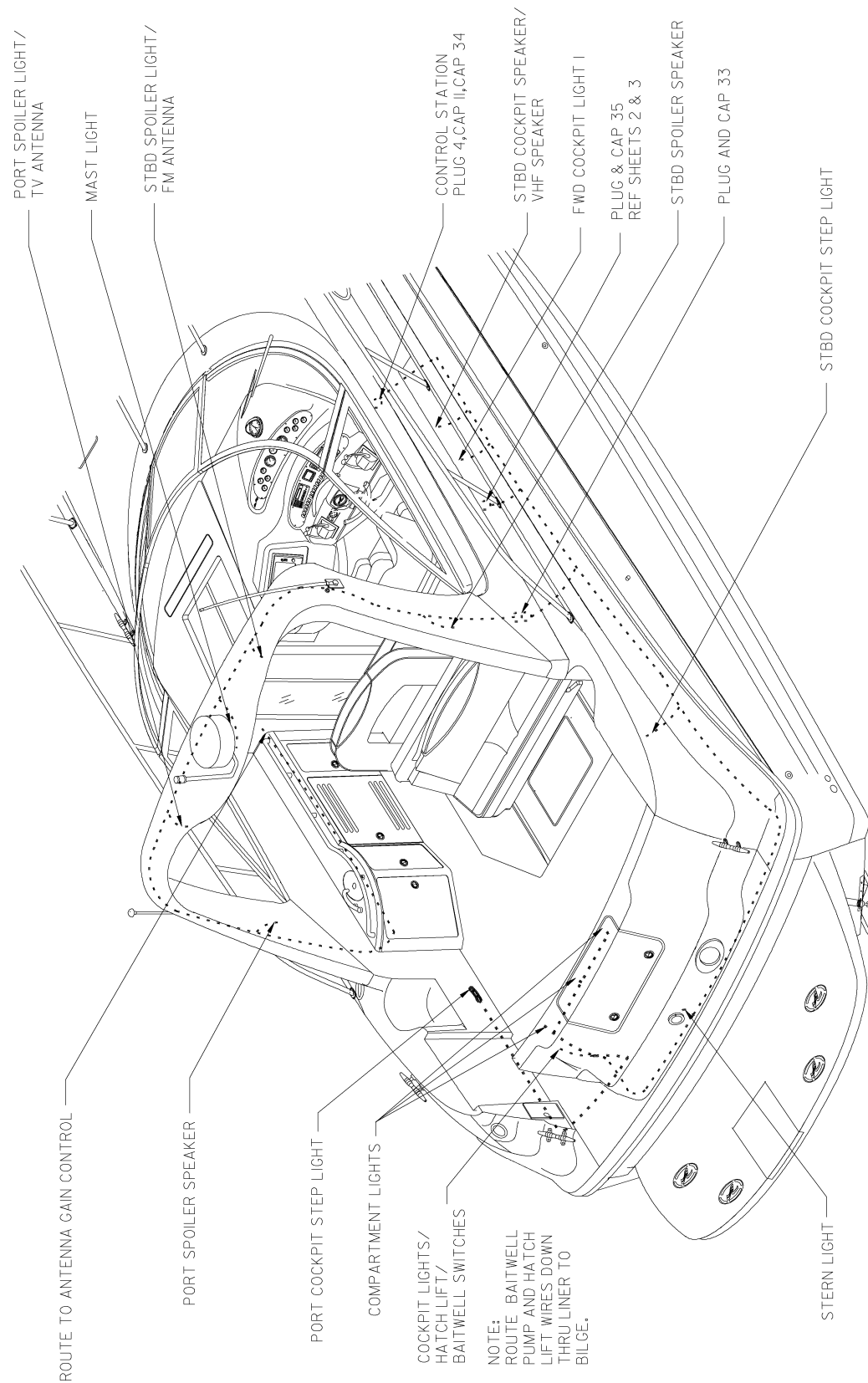
CABIN AC HARNESS INSTALLATION (2 OF 2)



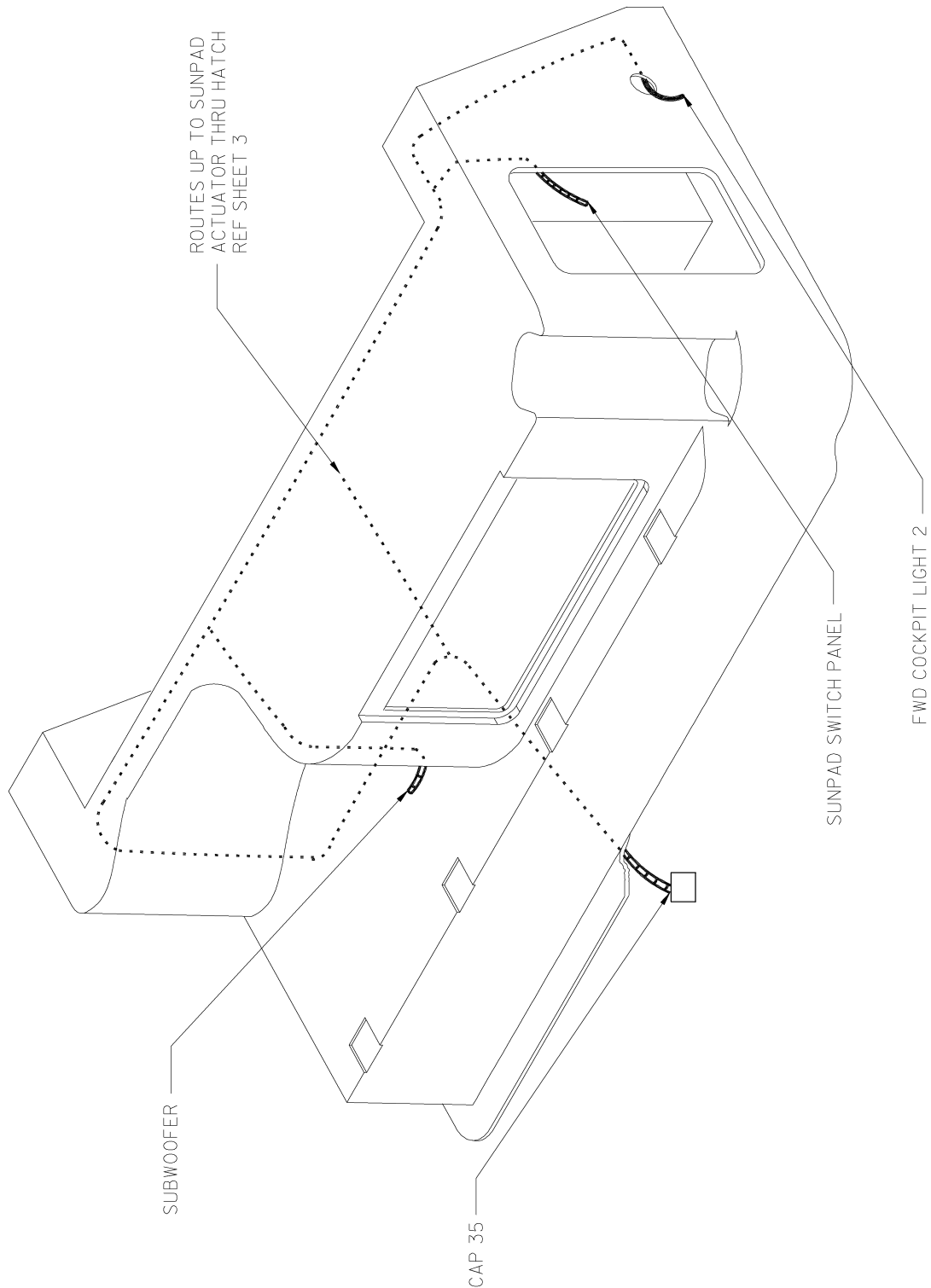
HEAD HARNESS INSTALLATION



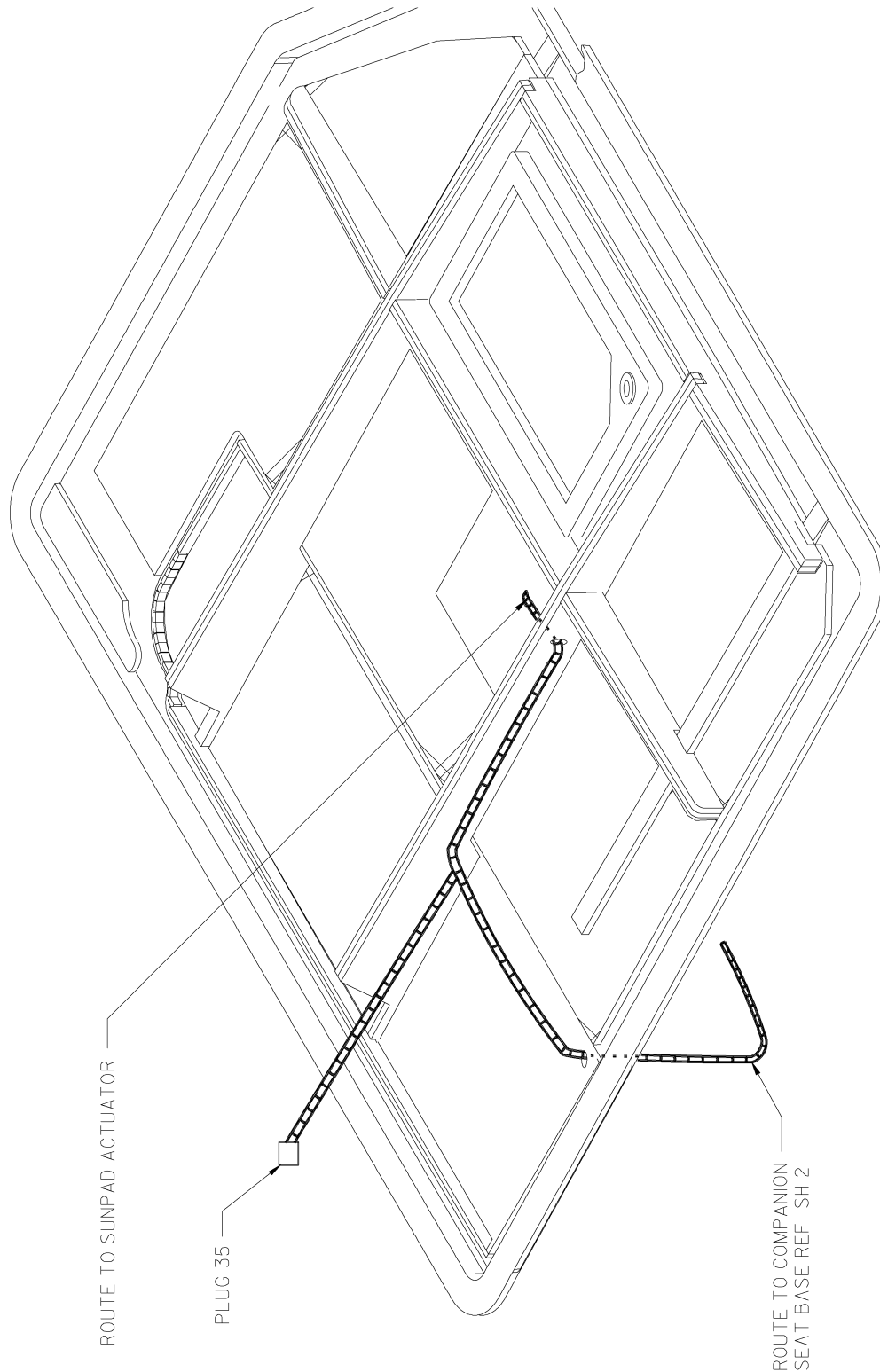
COCKPIT / SPOILER HARNESS INSTALLATION (1 OF 3)

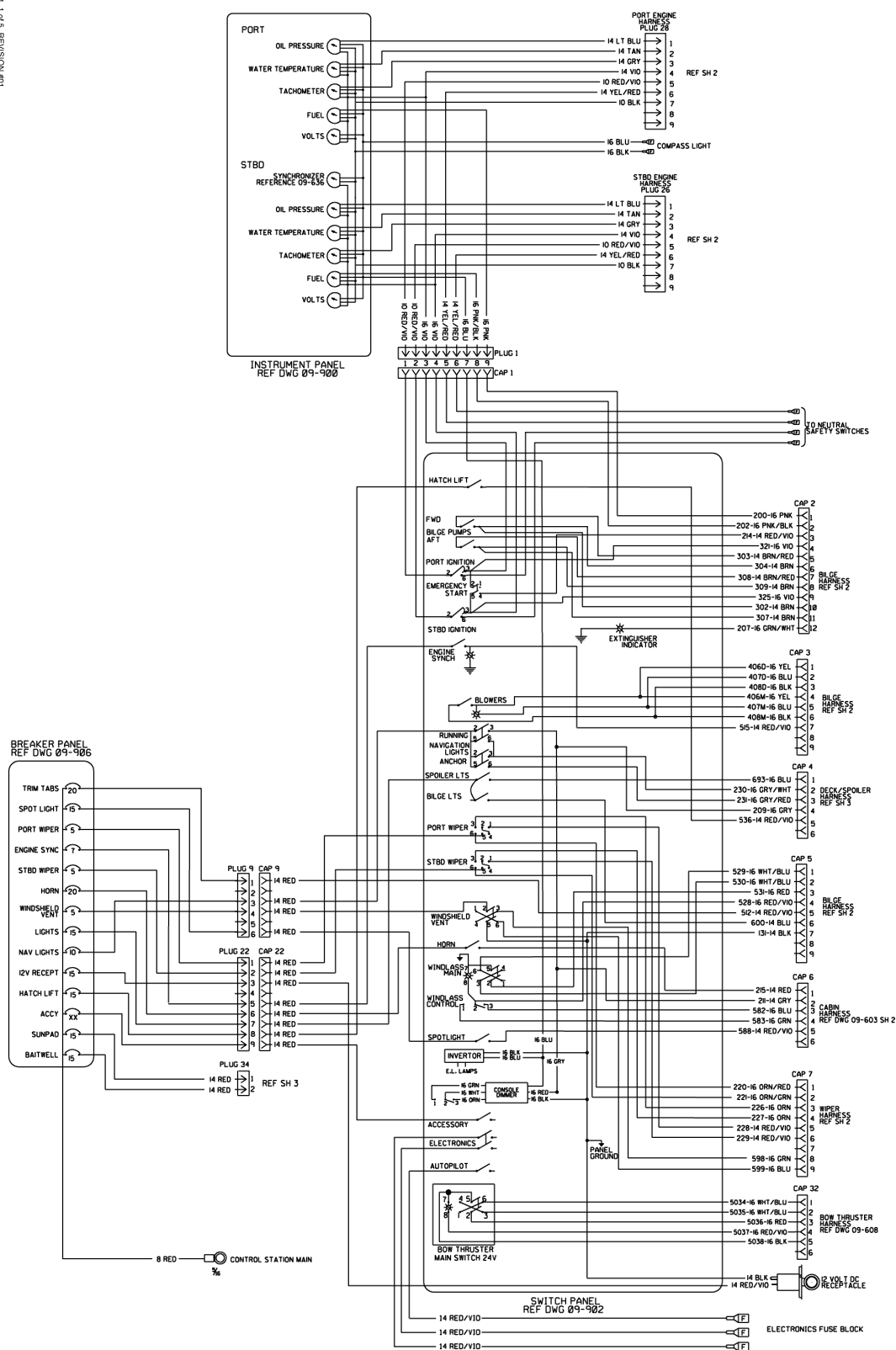


COCKPIT / SPOILER HARNESS INSTALLATION (2 OF 3)

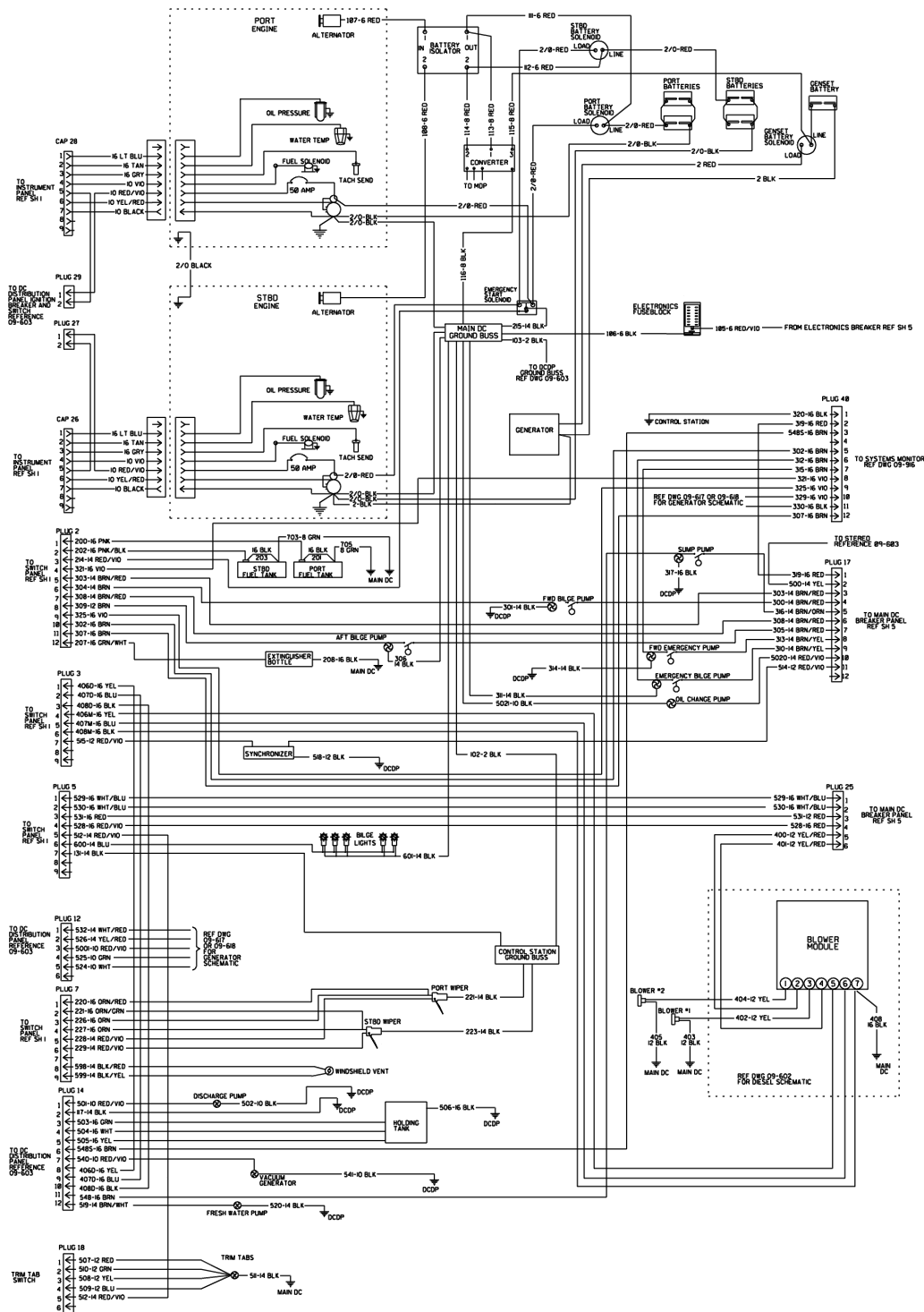


COCKPIT / SPOILER HARNESS INSTALLATION (3 OF 3)

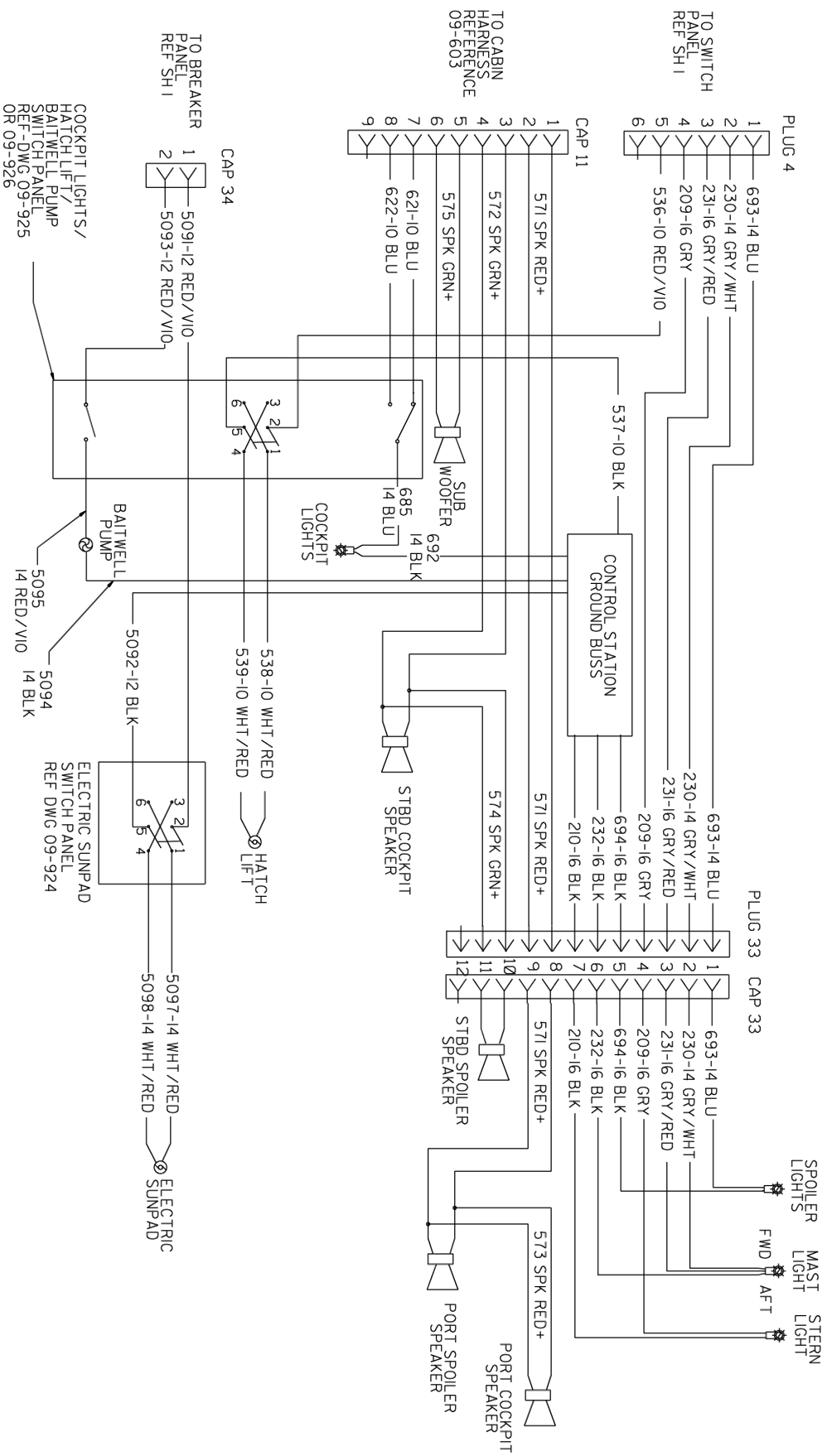




DC WIRING SCHEMATIC (2 OF 5)



DC WIRING SCHEMATIC (3 OF 5)



PRINT #09-501, 3 of 5, REVISION #0

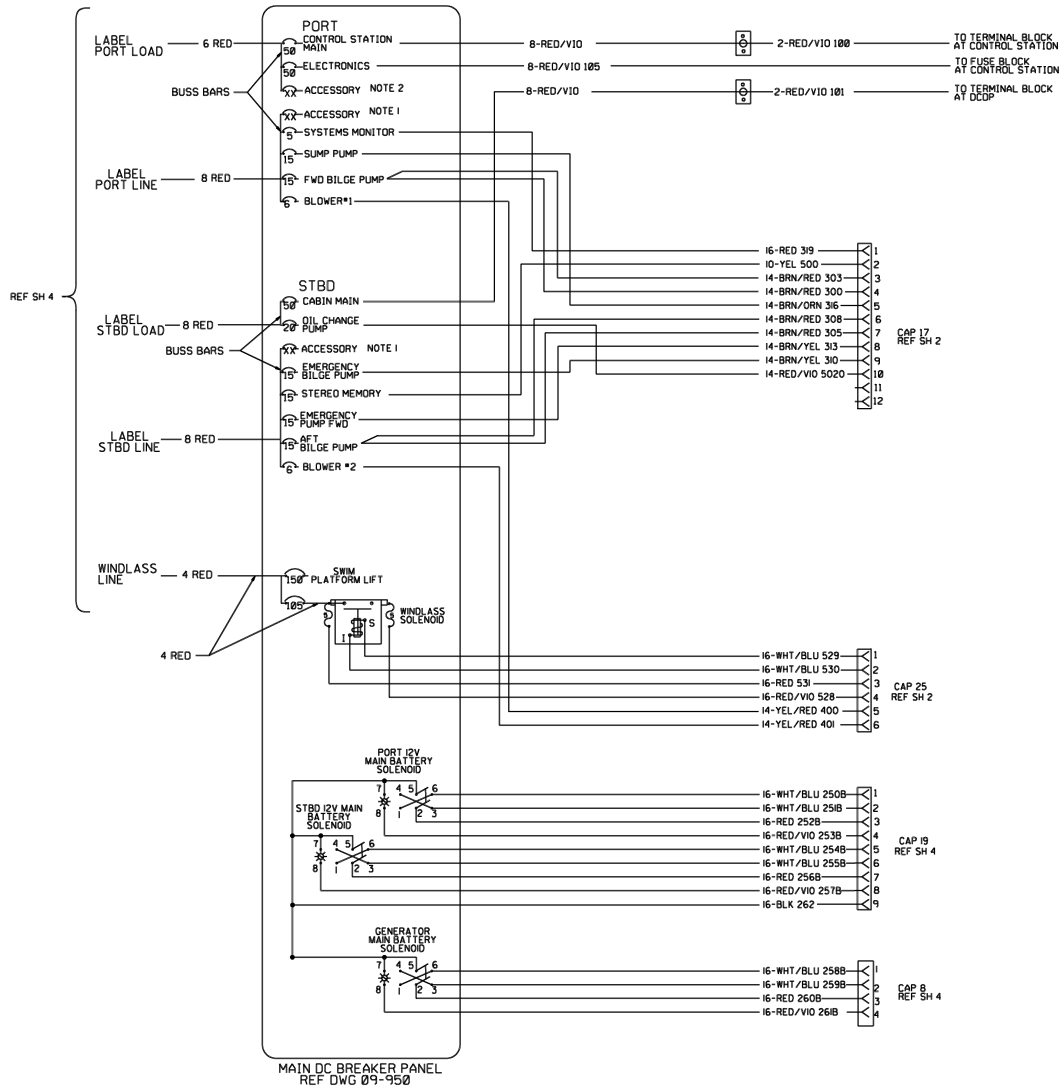
410 Express Cruiser

DC WIRING SCHEMATIC (4 OF 5)



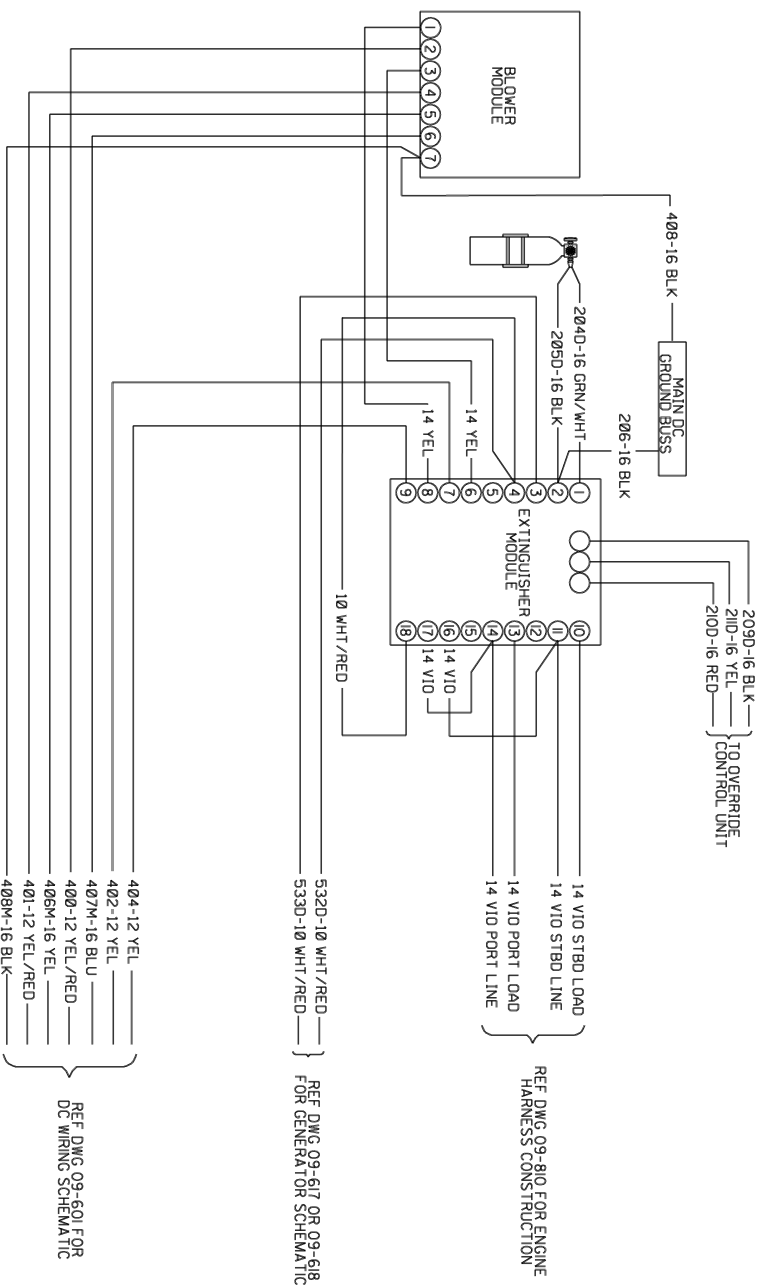
BATTERY AND SOLENOID WIRING

2) DIESEL SOLENOIDS SHOWN USE GAS SOLENOID AND 5 AMP FUSE FOR STANDARD BOAT

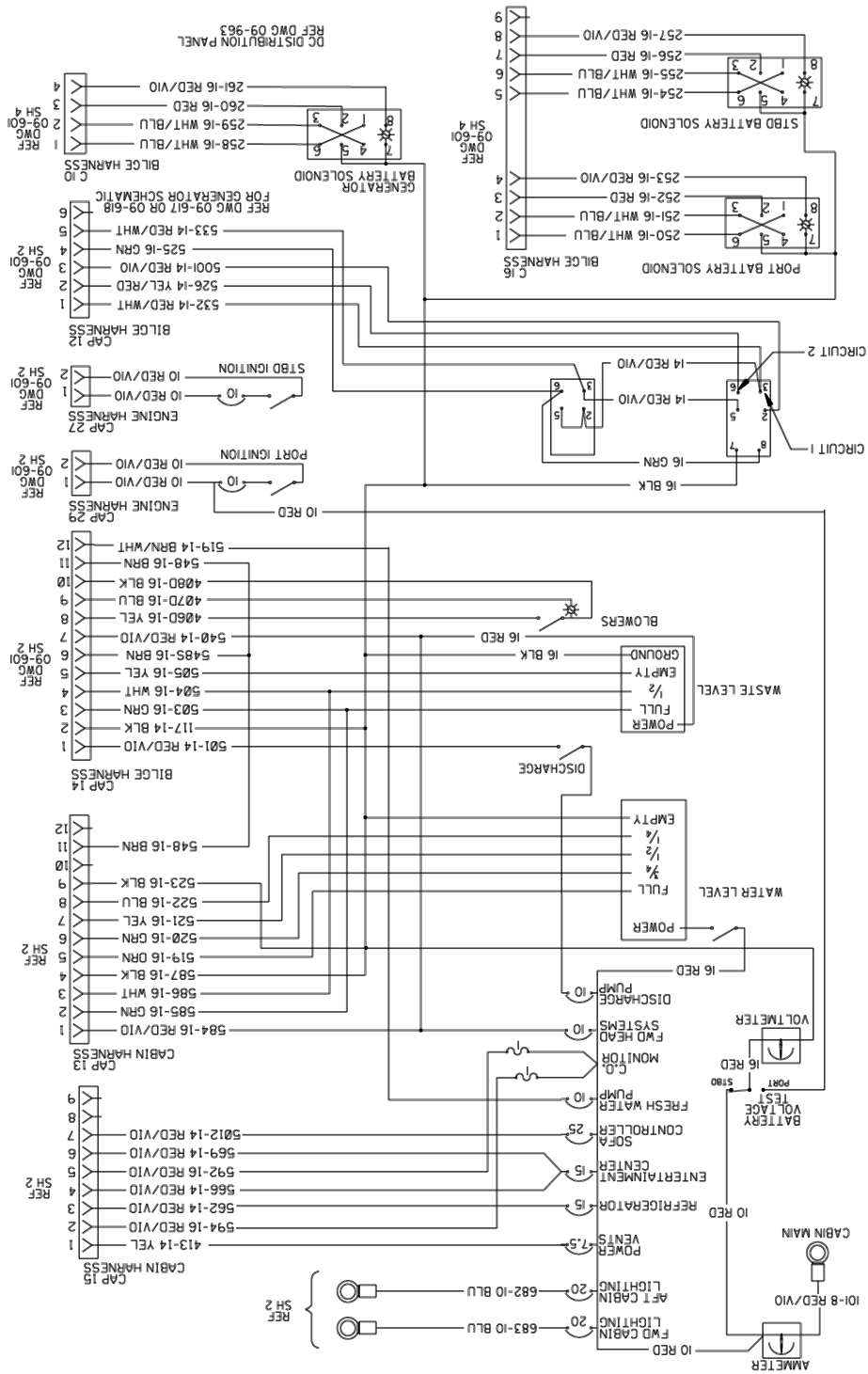


DC WIRING SCHEMATIC (5 OF 5)

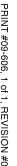
DC WIRING SCHEMATIC (DIESEL)



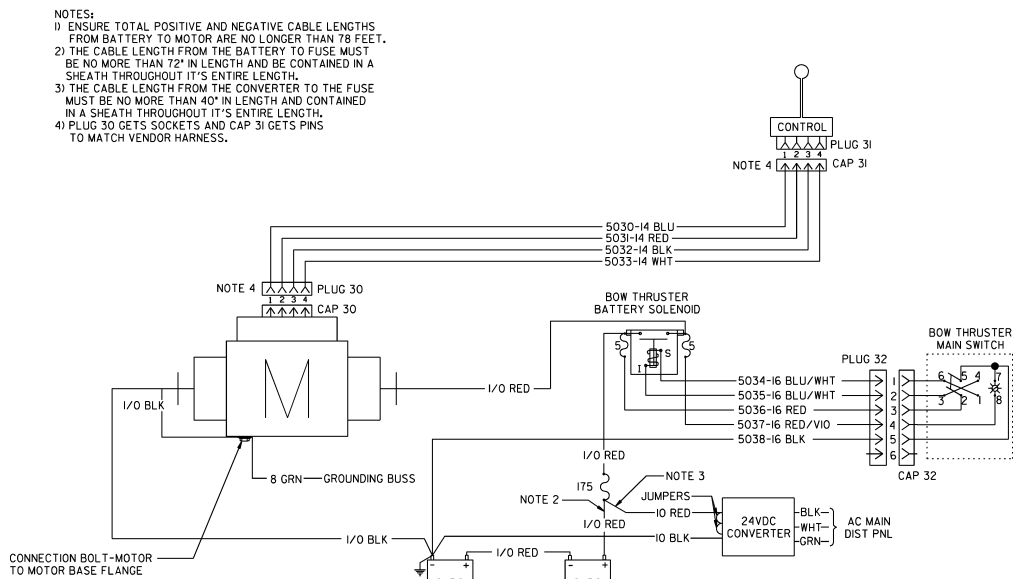
CABIN DC WIRING SCHEMATIC



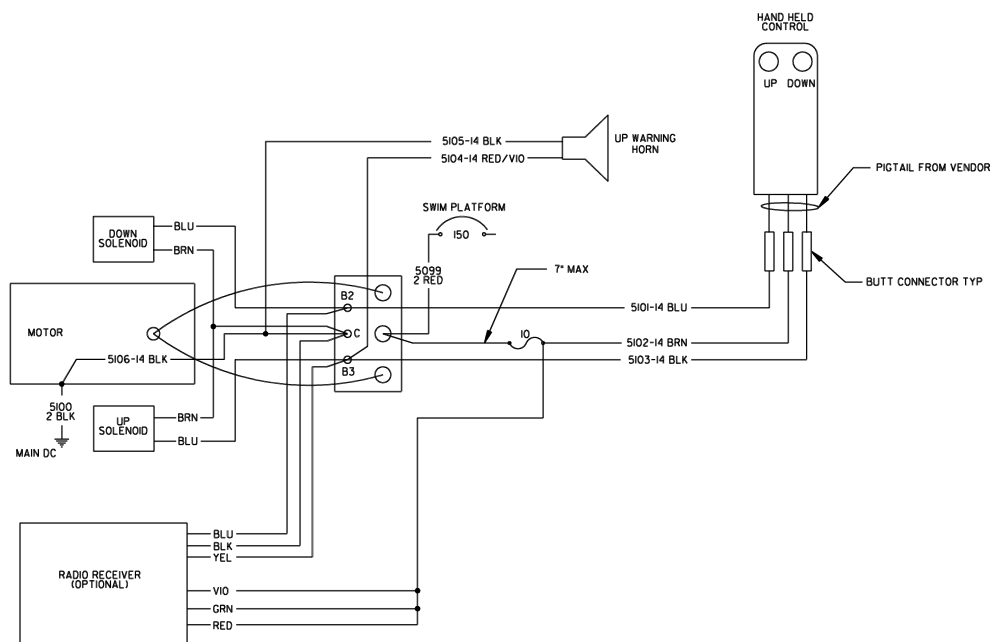
CABIN DC WIRING SCHEMATIC



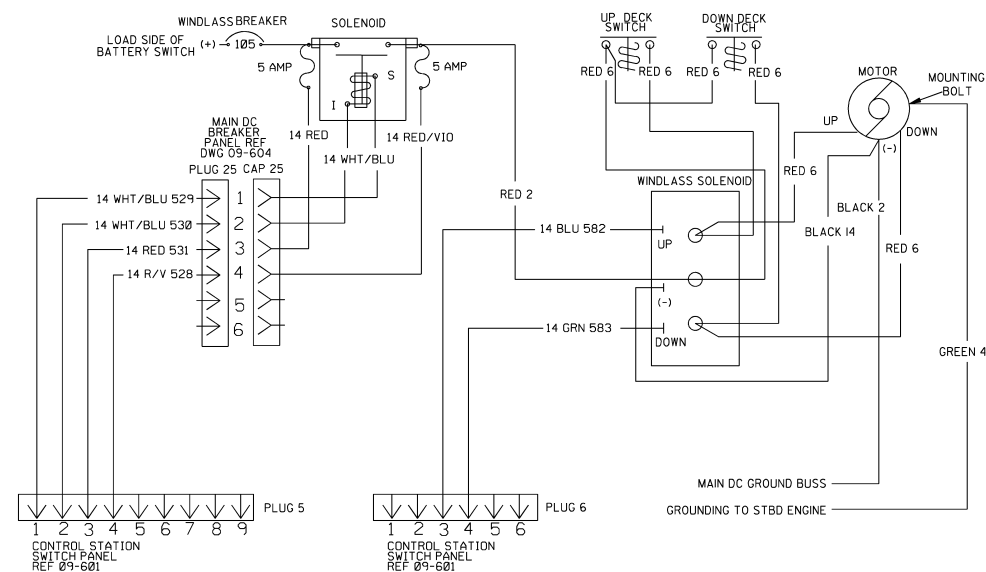
Bow Thruster Schematic (Vetus 80KGF)



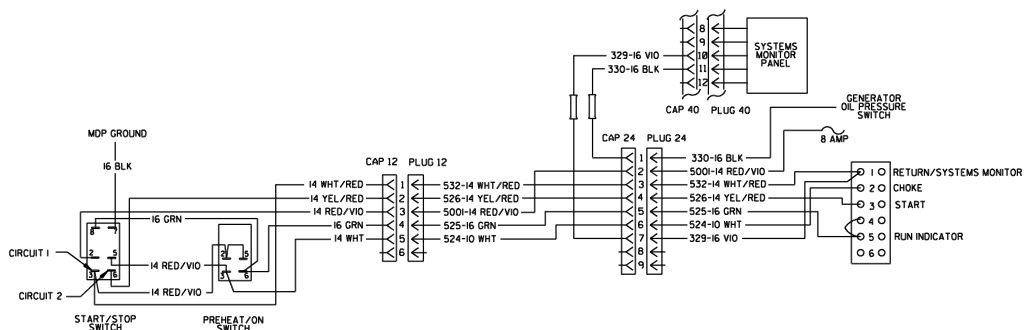
Swim Platform Lift Schematic



LOFRANS PROGRESS I WINDLASS WIRING SCHEMATIC



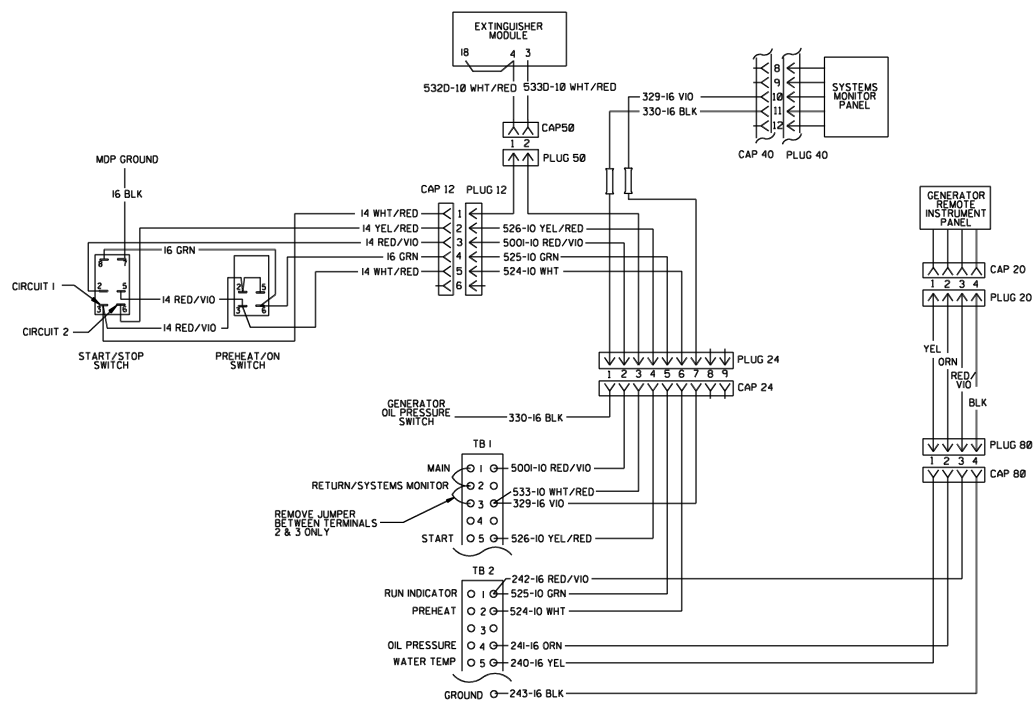
WESTERBEKE GAS GENERATOR SCHEMATIC 7.2KW



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WESTERBEKE DIESEL GENERATOR SCHEMATIC 7.6KW



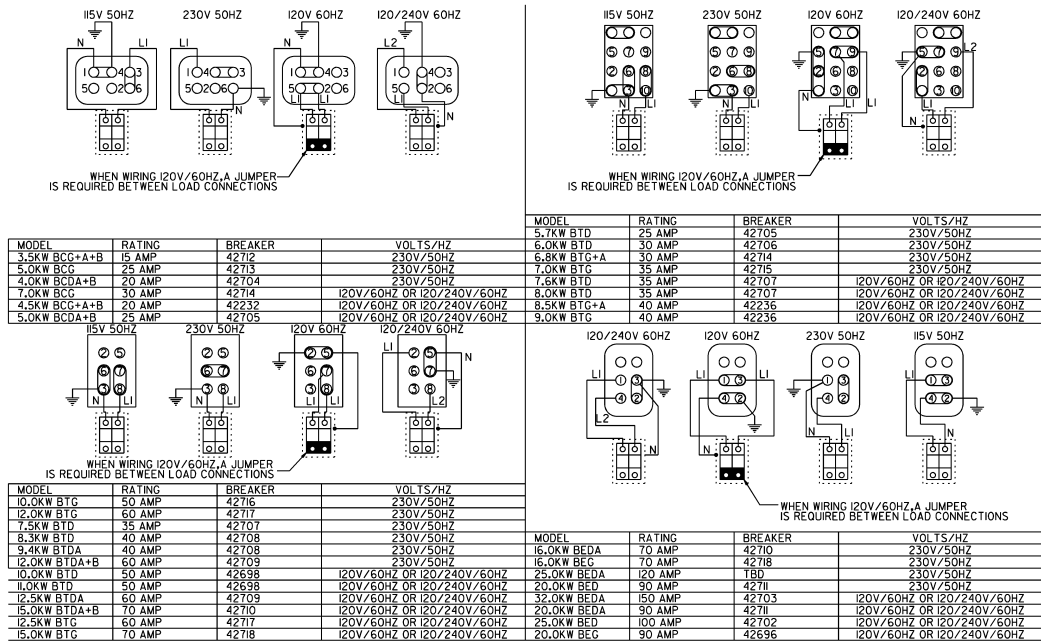
PRINT #09-618, 1 of 1, REVISION #0

WESTERBEKE GENERATOR HIGH VOLTAGE WIRING

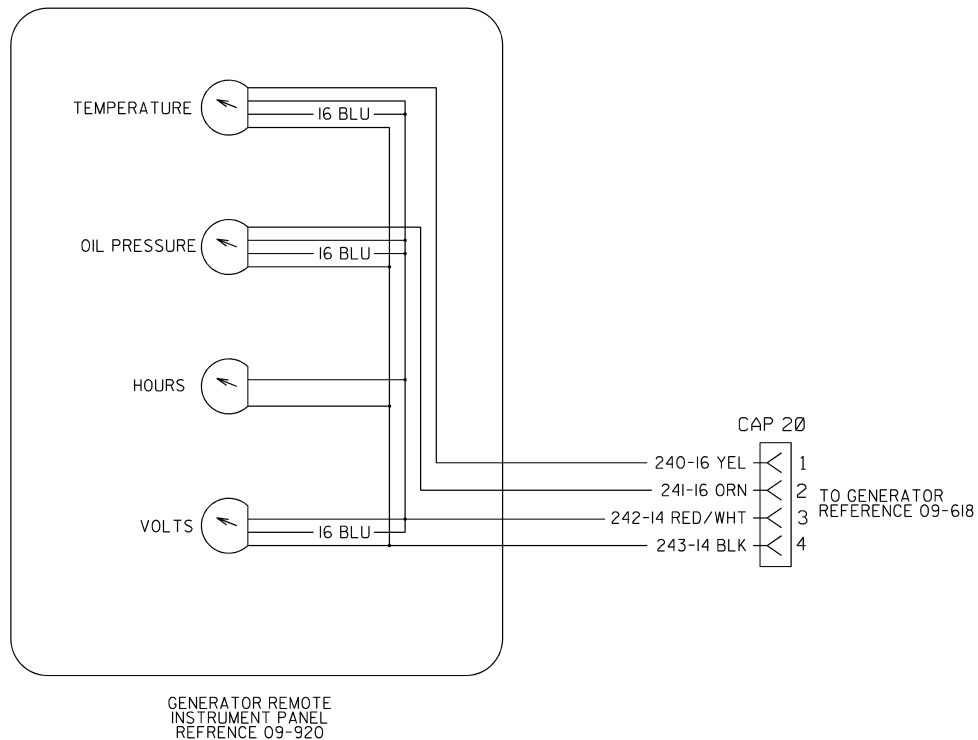
DIESEL GENERATOR INSTRUMENT PANEL SCHEMATIC (OPTIONAL)

12.66

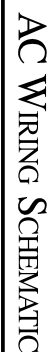
PRINT #09-519, 1 of 1, REVISION #0



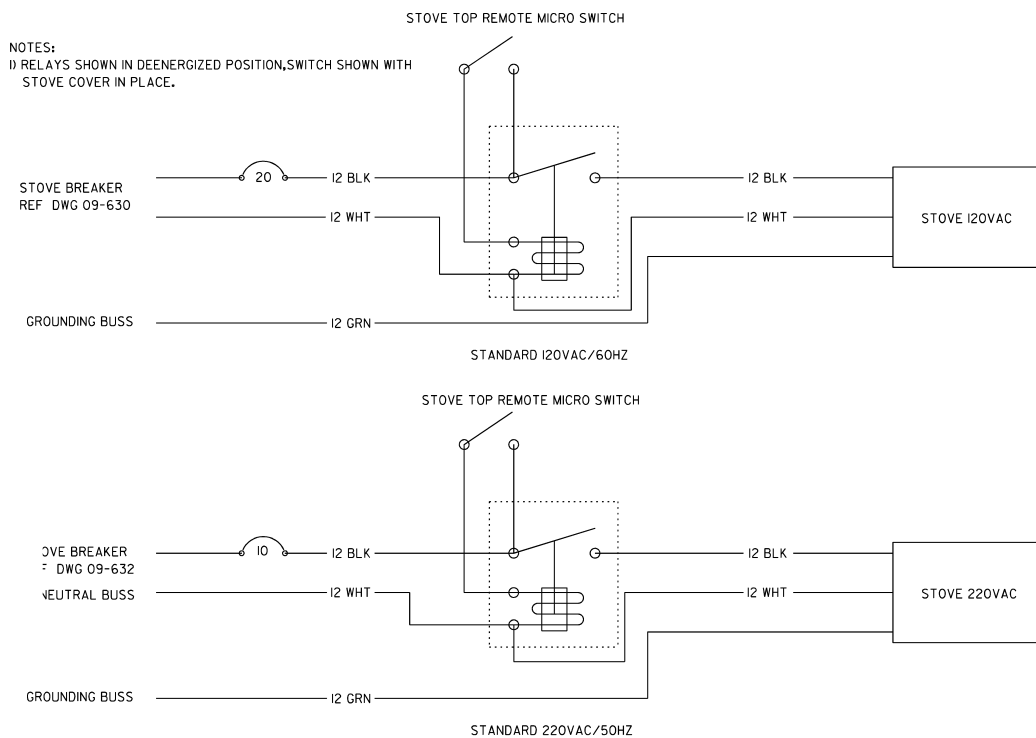
PRINT #09-620, 1 of 1, REVISION #0



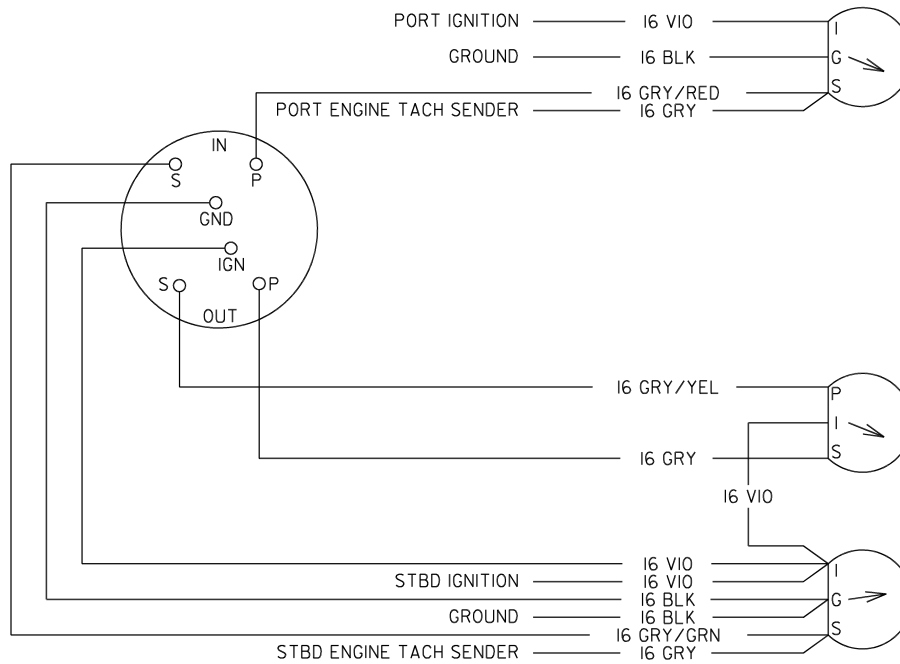
410 Express Cruiser



STOVE TOP SWITCH WIRING DIAGRAM



TELEFLEX ENGINE SYNCHRONIZER MODULE SCHEMATIC



NOTE: WIRED AS SHOWN, GAUGE WILL INDICATE TOWARD SLOWER ENGINE.

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.

