

R-31

Owner's
Manual



Quality Craftsmanship Since 1958

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CONGRATULATIONS

The Ranger Tug family has a passion for boating. We are committed to continuous process improvement in all areas that affect our customer's satisfaction with our products and providing great customer service.

SAFETY

Safety is always a concern at Ranger Tugs. Please read all manuals to ensure that equipment is used in a safe manner. We highly recommend attendance in a Coast Guard approved boating safety course. Such courses are available from the Coast Guard directly or from boating organizations. Owners should have annual inspections to ensure that all safety equipment is current.



WARNING

Operating, servicing and maintaining a recreational marine vessel can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust, service your vessel in a well-ventilated area and wear gloves or wash your hands frequently when servicing this vessel. For more information go to www.P65warnings.ca.gov/marine.

SYMBOL GLOSSARY



Attention! – Important Operating or Maintenance Instructions



Attention! – Electrical Shock Hazard



Fresh Water



Black Water



Fuel



Standard Equipment



Optional Equipment



Hints

SPECIFICATIONS



R-31 S

Length	31' 2"	9.5 m
Length Overall (w/swim step)	35' 2"	10.72 m
Beam	10' 0"	3.05 m
Draft	30"	.76 m
Weight, Dry	11,000 lbs	4,989.52 kg
Water Bridge Clearance (mast up)	14' 0"	4.27 m
Water Bridge Clearance (mast down)	9' 8"	2.95 m
Height on Trailer (mast down)	13' 1"	3.99 m
Fuel Capacity	180 gal	681.37 L
Water Capacity (fresh)	60 gal	227.12 L
Holding Tank Capacity	40 gal	151.42 L
Hot Water Tank Capacity	11 gal	41.64 L
Length of boat on trailer (Standard factory trailer)	41' 8"	12.7 m

R-31 CB

Length	31' 2"	9.5 m
Length Overall (w/swim step)	35' 2"	10.72 m
Beam	10' 0"	3.05 m
Draft	30"	.76 m
Weight, Dry	11,500 lbs	5,216.31 kg
Water Bridge Clearance (bridge/mast up)	17' 9"	5.41 m
Water Bridge Clearance (bridge/mast down)	10' 3"	3.12 m
Height on Trailer	13' 4"	4.06 m
Fuel Capacity	180 gal	681.37 L
Water Capacity (fresh)	60 gal	227.12 L
Holding Tank Capacity	40 gal	151.42 L
Hot Water Tank Capacity	11 gal	41.64 L
Length of boat on trailer (Standard factory trailer)	41' 8"	12.7 m

(Subject to Change Without Notice)

EQUIPMENT LOCATION



STARBOARD FITTINGS

STE

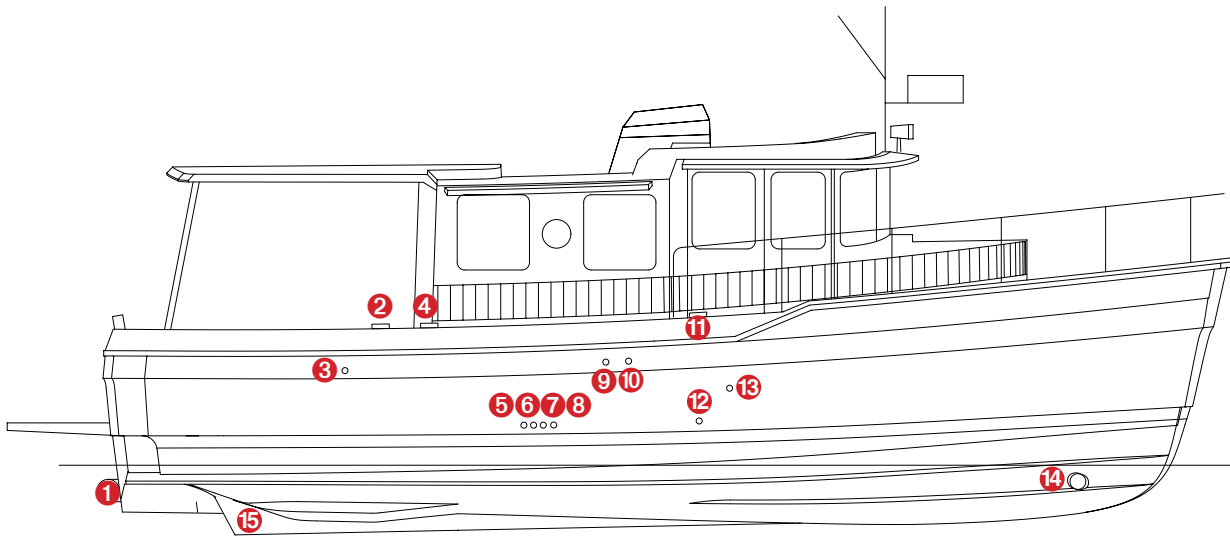
1 2 3 4 5 6 7 8 9 10 11 12 14

OPT

13



Keep all vents, drains and exhausts clear of any obstructions to ensure proper performance of each system.



- | | |
|-----------------------|--------------------|
| 1 Stern thruster | 9 Water Tank Vent |
| 2 Diesel Fill On Deck | 10 Waste Tank Vent |
| 3 Fuel Tank Vent | 11 Waste Pumpout |
| 4 Water Fill | 12 Door Well Drain |
| 5 Cockpit Sink Drain | 13 Webasto Exhaust |
| 6 Aft Bilge Drain | 14 Bow Thruster |
| 7 Forward Bilge Drain | 15 Drain Plug |
| 8 Galley Sink Drain | |

PORT FITTINGS



STE

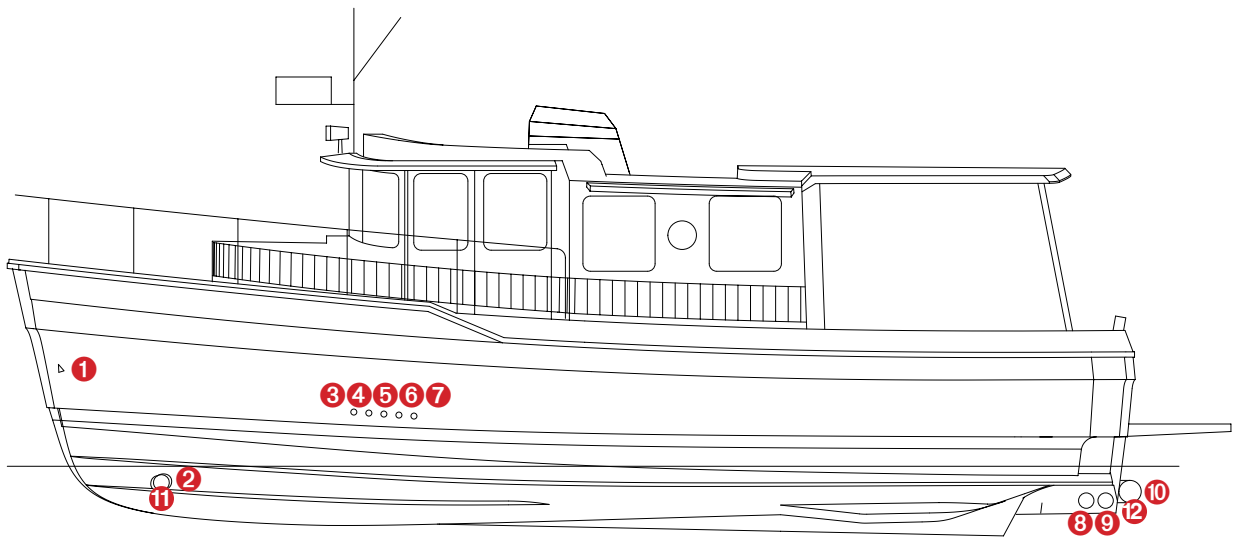
1 2 5 6 7 8 10 11 12

OPT

3 4 9



Keep all vents, drains and exhausts clear of any obstructions to ensure proper performance of each system.



- | | |
|-----------------------|-----------------------|
| ① Anchor Locker Drain | ⑦ Macerator |
| ② Bow Thruster | ⑧ Engine Exhaust |
| ③ Forward AC | ⑨ Generator Exhaust |
| ④ Aft AC | ⑩ Stern Thruster |
| ⑤ Head Sink Drain | ⑪ Bow Thruster Zinc |
| ⑥ Shower Sump Drain | ⑫ Stern Thruster Zinc |

MAIN CABIN TOP DECK COMPONENTS

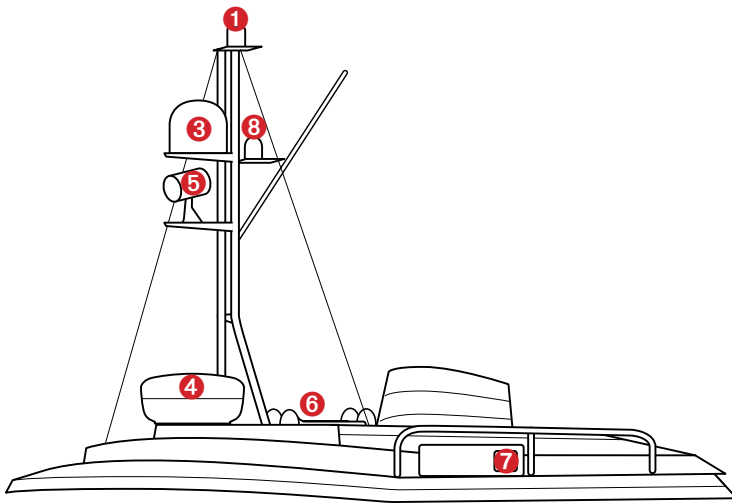


STE

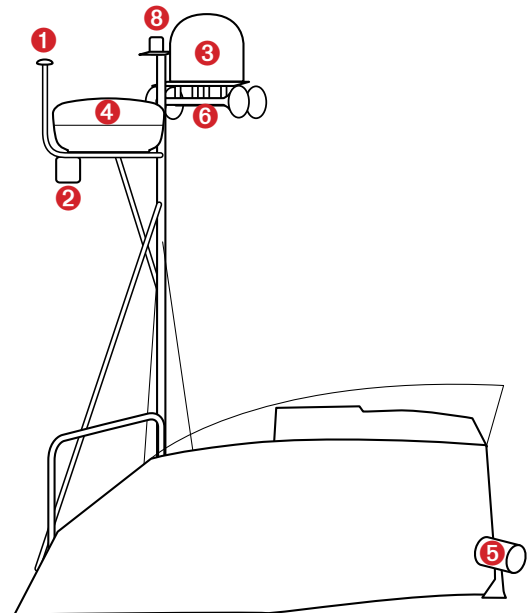
1 2 3 4 5 6 7

OPT

8



R-31 S



R-31 CB

- 1 Anchor Light
- 2 Spreader Lights
- 3 TV Antenna
- 4 Radar
- 5 Searchlight

- 6 Horn
- 7 Navigation Light
(RED Port, GREEN Starboard)
- 8 GSM 53 XM/Weather Antenna

STERN COMPONENTS

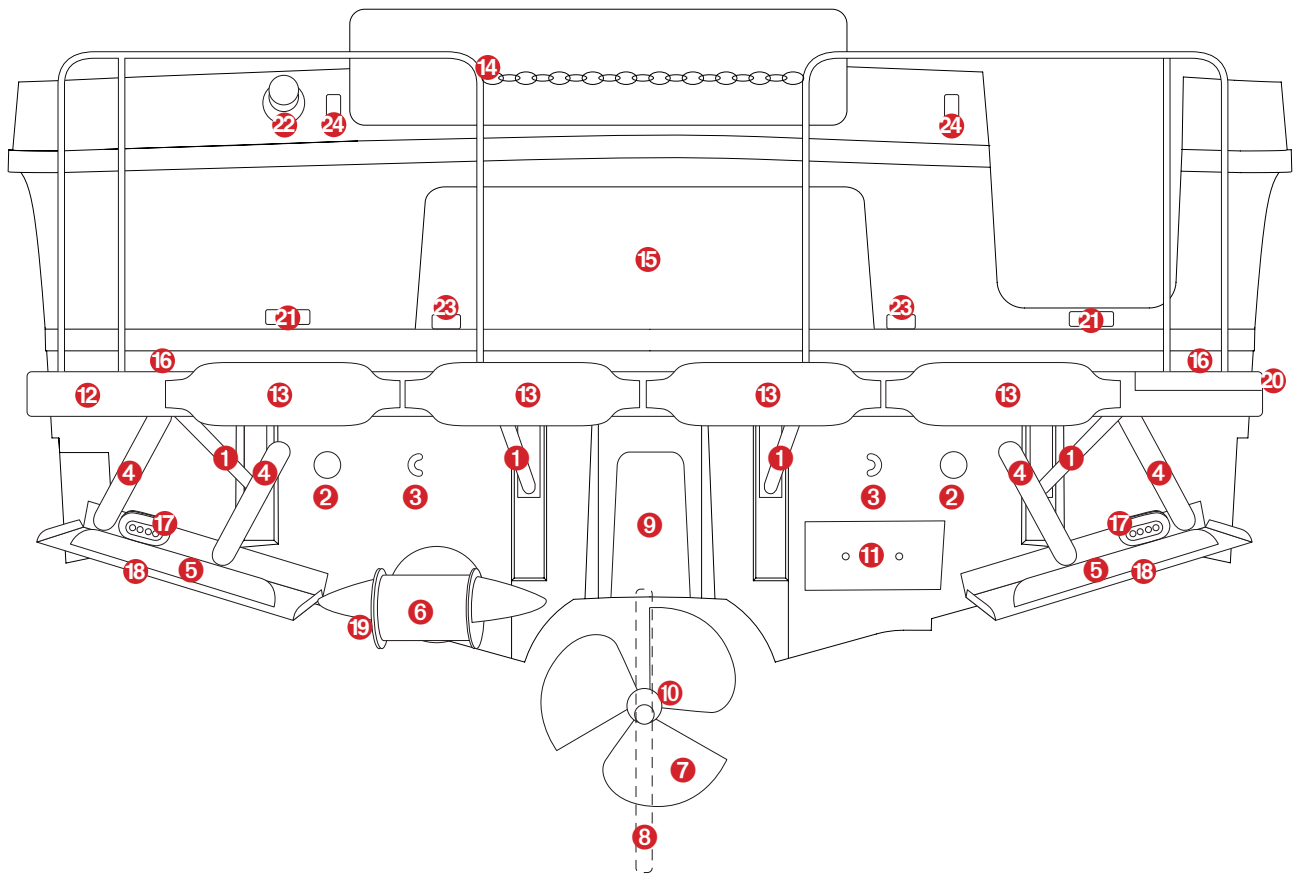


STE

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 19 20 21 22 23

OPT

18 23 24



- | | | |
|-------------------------------|--------------------------|--------------------------------|
| 1 Swim Platform Support Rails | 9 Stern Plate | 17 Underwater Lights |
| 2 Cockpit Scupper with Flap | 10 Prop Zinc | 18 Trim Tab Zincs |
| 3 Towing Strapdown Eye | 11 Transom Zinc | 19 Thruster Zinc (inside tube) |
| 4 Trim Tab Ram | 12 Swim Platform | 20 Swim Ladder |
| 5 Trim Tab | 13 Swim Platform Fenders | 21 Amber Courtesy Lights |
| 6 Stern Thruster | 14 Rail with Chain Gate | 22 Flagstaff Mount |
| 7 Prop | 15 Propane Locker | 23 Dinghy Davit |
| 8 Rudder | 16 Dinghy Cleats | 24 Dinghy Standoff Mounts |

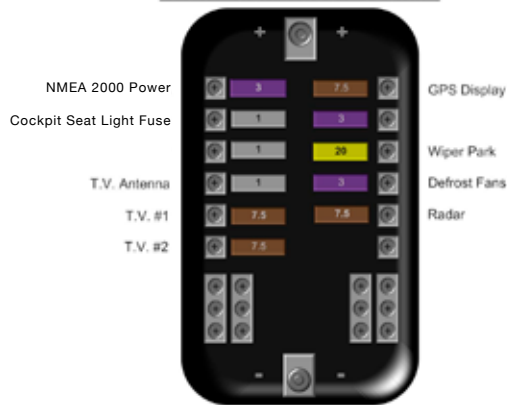
FUSE LOCATION & VALUES



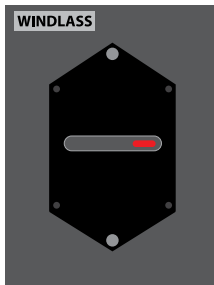
STE

The DC fuse blocks, windlass breaker and head breaker are located behind the helm, accessed through the top teak cabinet in the v-berth. Fuses are automotive blade type and all values shown below are in Amps.

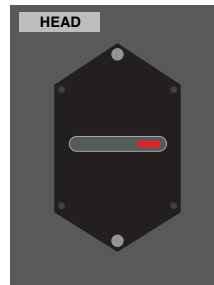
R-31 Dash Fuse Block #1



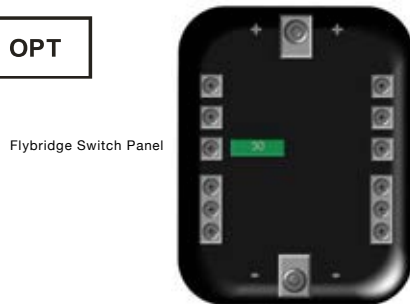
R-31 Dash Fuse Block #2



* To reset, reinsert yellow arm "up" into the breaker.
To test, press red button and the yellow arm should flip down.



OPT



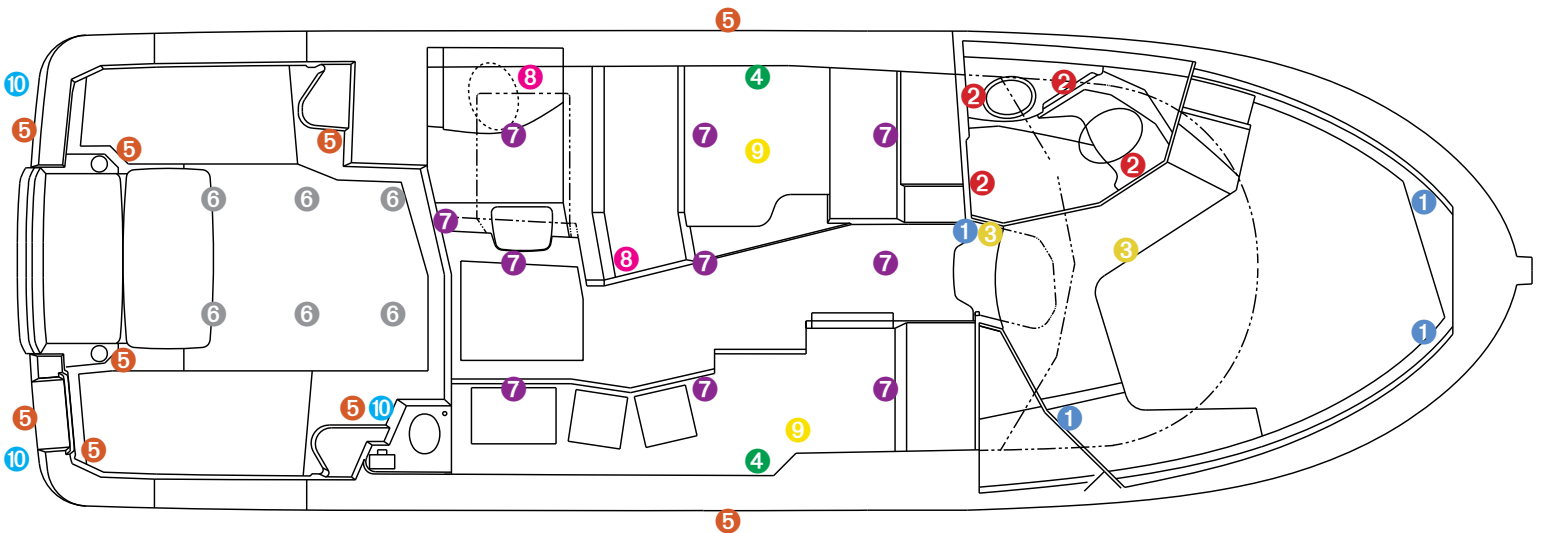
Optional fuse block located below the bridge on CB models.

MAIN CABIN AND COCKPIT LIGHTS



STE

	Main Cabin Switch	DC Breaker Panel (On First)	Fixture Switch	Forward Cabin Switch	Head Switch	Under-water Switch	Cockpit/Transom Switch
1 V-Berth Cabin Lights		✓	✓	✓			
2 Head Lights		✓			✓		
3 Under Bed Lighting		✓		✓			
4 Indirect Cabin Lights		✓	✓				
5 Cockpit & Transom Lights/ Indirect Exterior Lights		✓					✓
6 Hard Top Red/White Combo		✓					
7 Overhead Red/White Cabin Lights	✓	✓					
8 Midberth Cabin Lights		✓	✓				
9 Dinette Lights		✓	✓				
10 Underwater Lights		✓				✓	

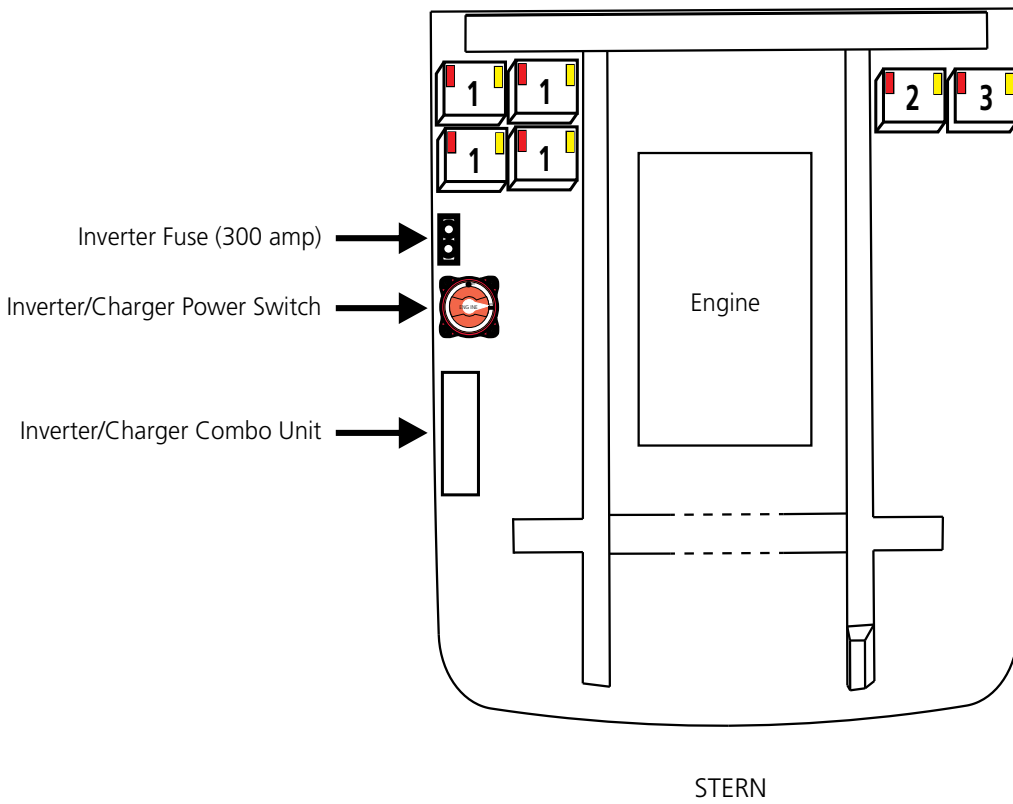


BATTERY CONFIGURATION



STE

House Batteries, Engine Battery, Thruster Battery, Inverter Fuse (300 AMP),



Batteries
1 = House
2 = Engine
3 = Thruster

POWER DISTRIBUTION PANEL (P.D.P)



STE

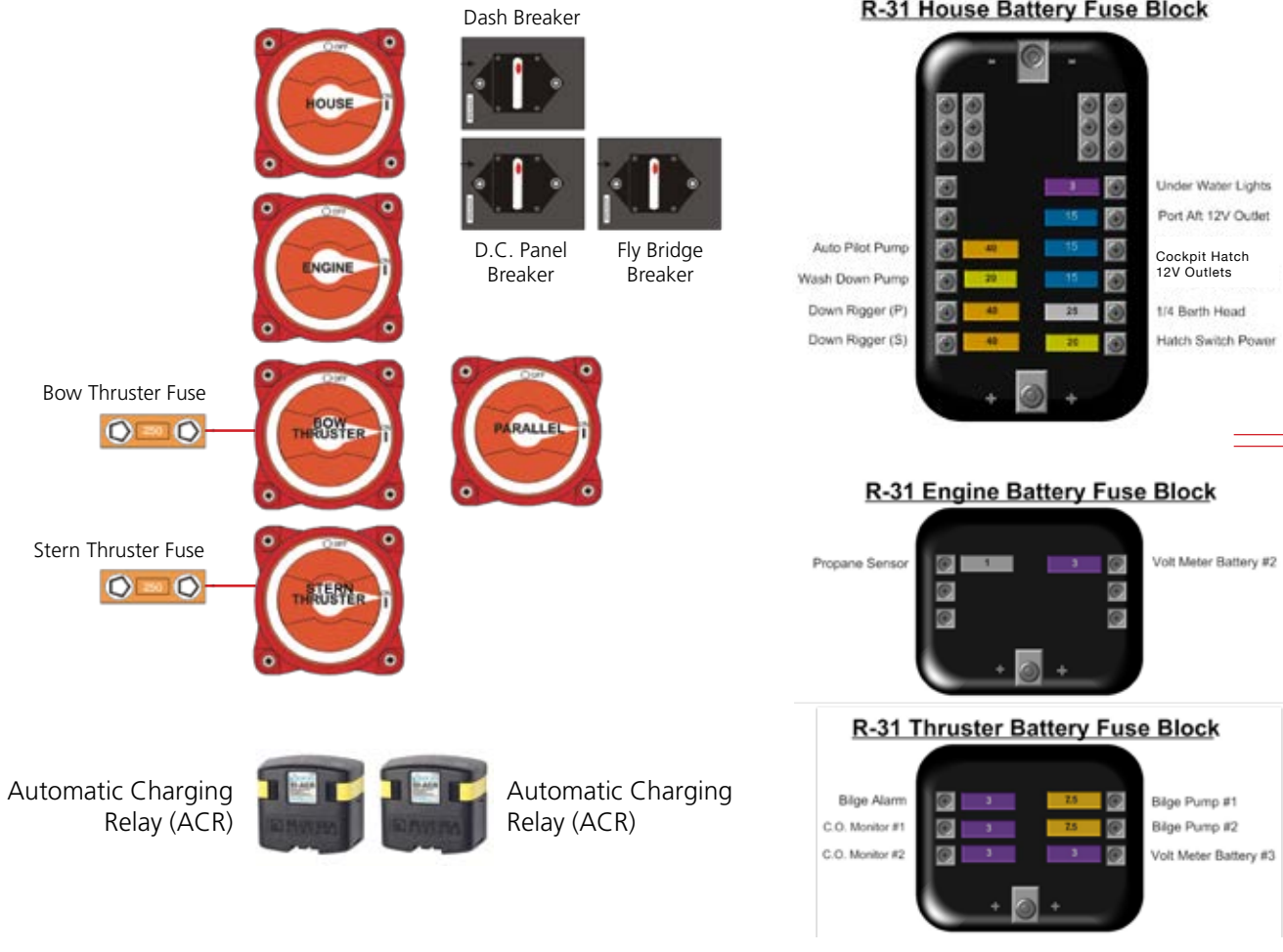
This Power Distribution Panel is located underneath the cockpit sink.



Once the EMERGENCY PARALLEL switch is placed in the on position the power from the HOUSE batteries will be transferred to the ENGINE battery. Use only for EMERGENCY starting. Turn the parallel switch off after engine is started.



All fuses hooked directly to the battery switches are labeled and powered all the time whether the switch is set to the on or off position.



Switched on/off with house battery switch

Wired directly to batteries - ALWAYS HOT

DC DISTRIBUTION PANEL, DC BANK METER

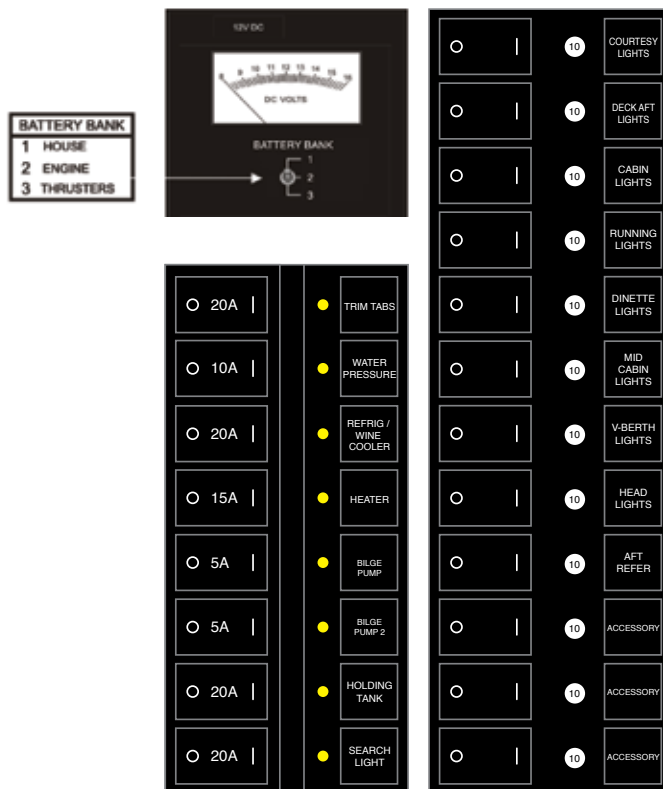


STE



The bilge pumps operate automatically with electronic float switches even when all switches and breakers are in the OFF position.

However, the BILGE PUMP and BILGE PUMP2 will run continuously once their switches are placed in the on position. Monitor the outflow accordingly. Do not run when dry.

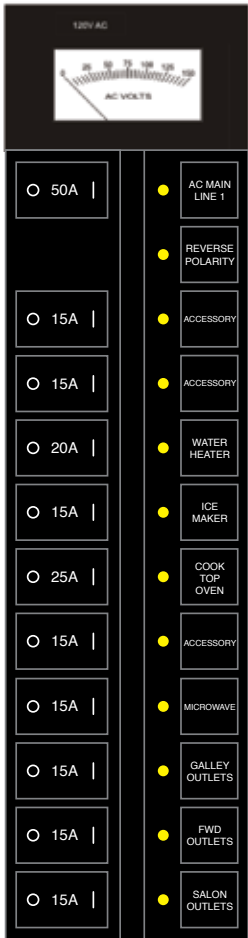


AC DISTRIBUTION PANEL & ROTARY SWITCH



STE

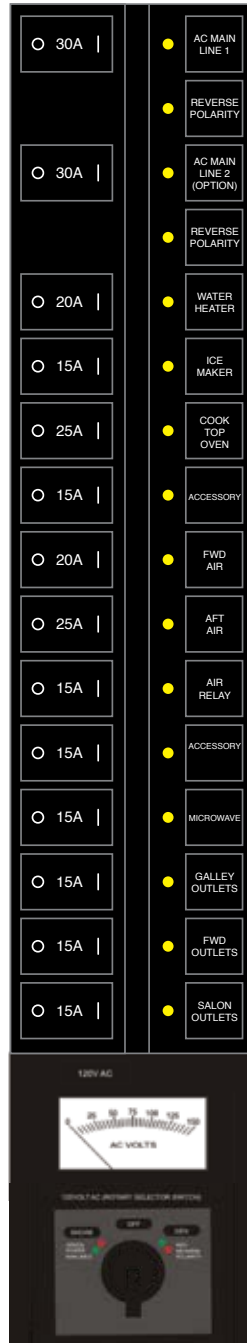
AC Distribution Panel



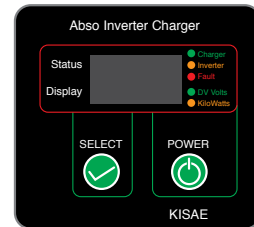
Inverter only powers these breakers.

OPT

AC Rotary Selector Switch (Available with Generator) AC Main Line 2 (with AC)



AC Main 1 when "on" will automatically turn on the charger/inverter combo unit to "charge mode". When turned "off" the combo unit automatically goes into "inverter" mode.



Inverter only powers these breakers.

The AC Rotary Switch Selector Switch will determine which source of incoming 120 Volt power to use for your AC Distribution Panel.

*ELCI breaker is located below aft cockpit seat.

12V HELM CONTROL OPERATION



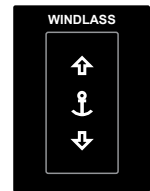
STE



The high bilge alarm should be set to the "armed" position for it to automatically operate. This is wired directly to battery power at the house cutoff switch. The high bilge alarm will still be active when the main battery cutoff switches are set to the off position.



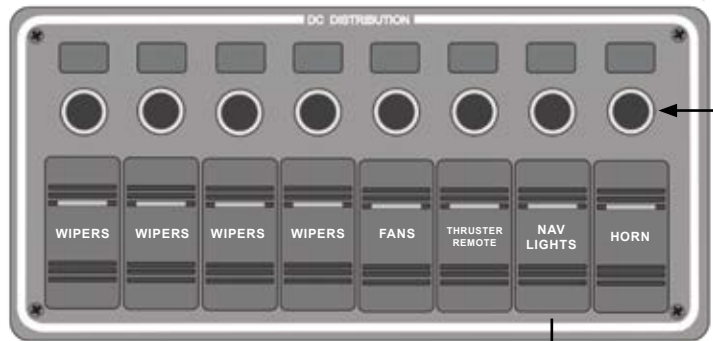
The Heater Control will operate the fan speed of the Heater Craft Heater. The Heater Craft Cabin Heater will only warm as the engine reaches normal operating temperature.



Must turn on DC breaker before heater switch will operate



TEST is up
OFF is in the middle
ARMED is down



Push button breakers



"Up" all Navigational lights on.
"Center" is all off.
"Down" is anchor light only.

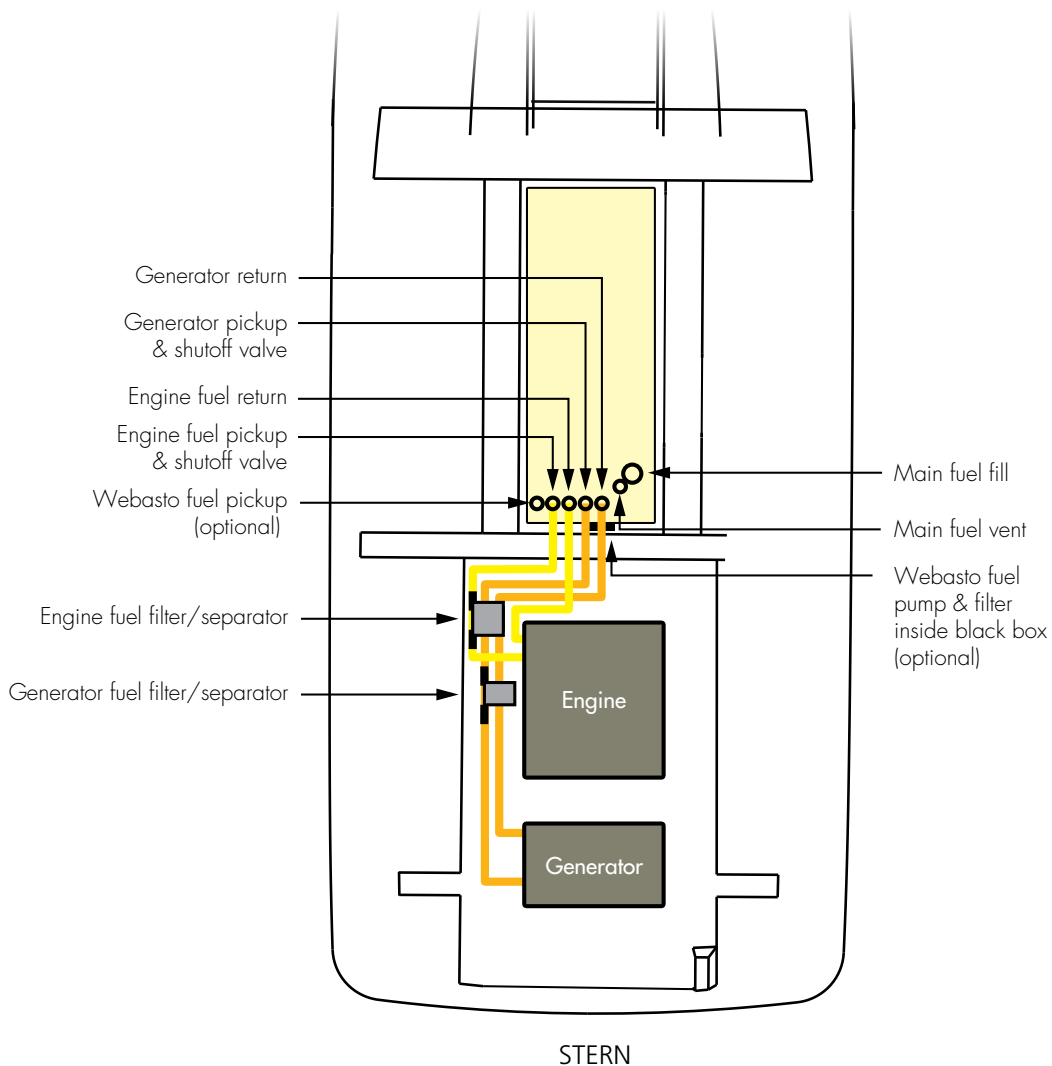
FUEL SYSTEM, ENGINE, GENERATOR & WEBASTO FURNACE



STE

Volvo D4-300
180 gallon fuel tank

- There is a secondary on engine fuel filter that is not shown on this drawing. You will be able to find information about this filter in the diesel engine manual supplied with your boat. The water fuel sensor is located on the engine mounted filter.
- Main engine fuel shutoff is located underneath the hatch as you enter the main cabin.



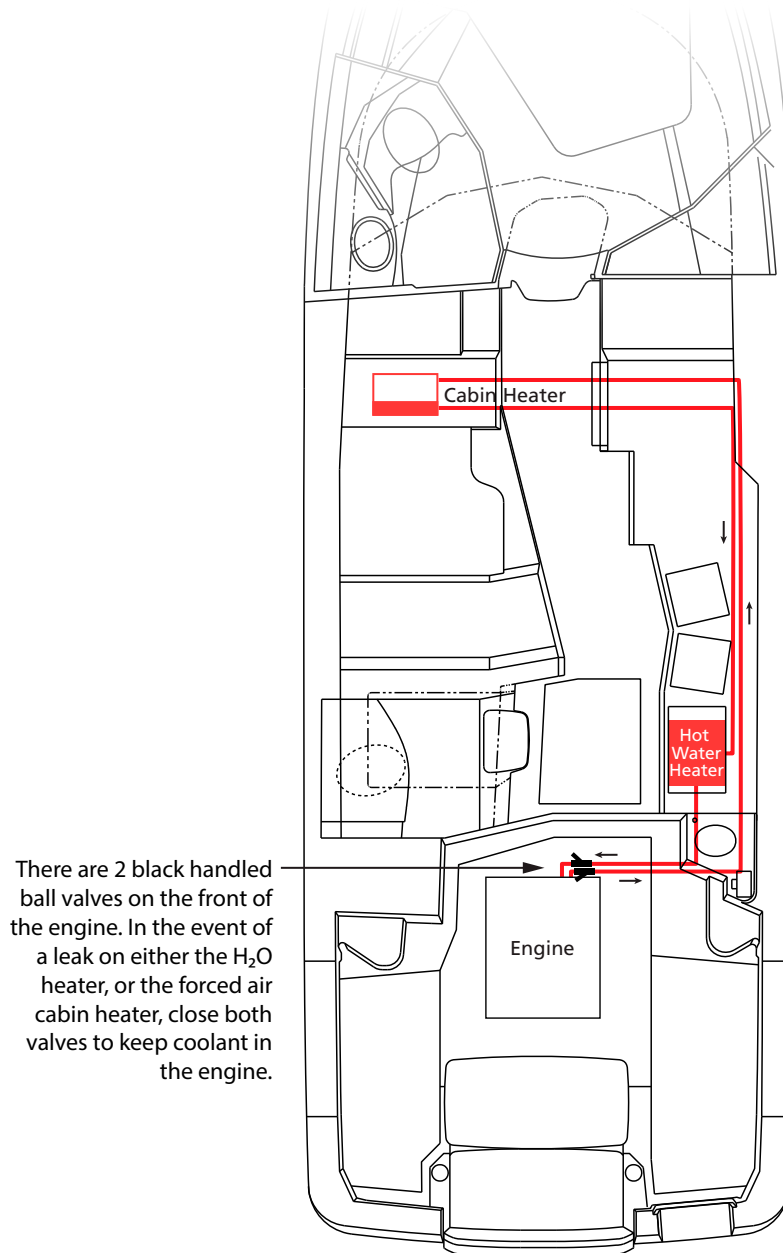
CLOSED ENGINE COOLING SYSTEM



STE

Provides alternate heating system for the Fresh Water Heater and provides primary heating source for the Forced Air Cabin Heater. This system is also designed to provide cooling to the internal components of your engine. Please refer to your engine operations manual for more information.

*Use only Volvo VCS (yellow) Coolant, do not mix coolants.

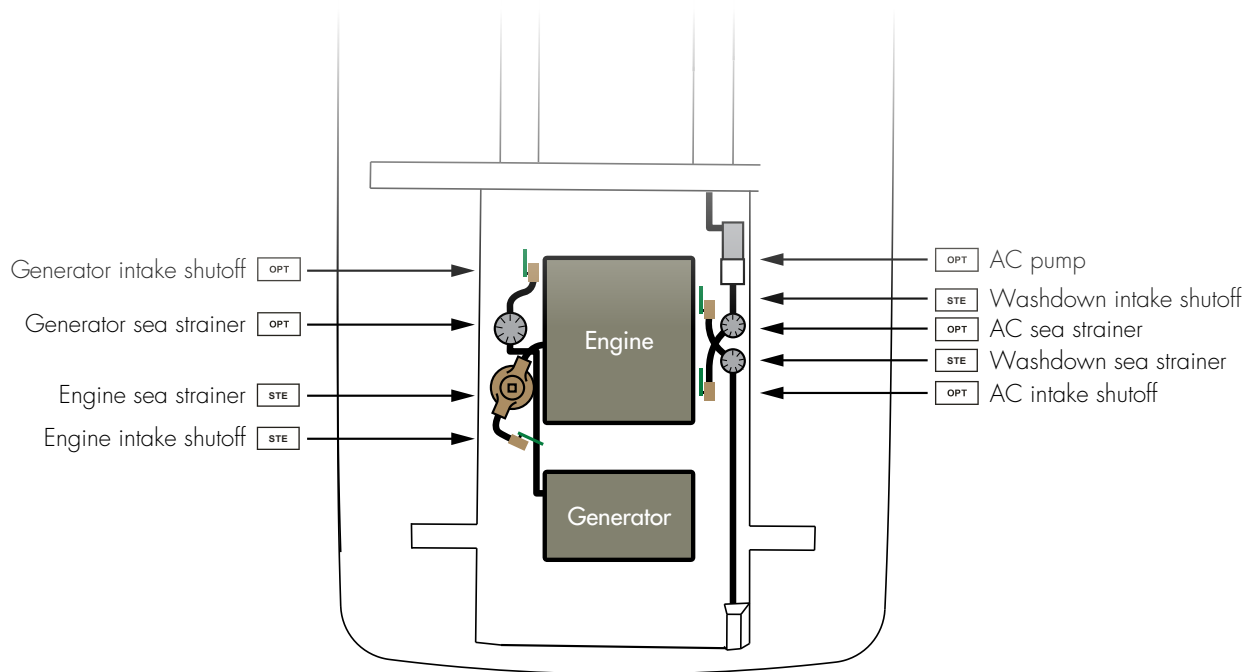


SEA STRAINER SYSTEM



STE

Multi Port Sea Strainer for engine and raw water wash down.
NW Editions have individual strainers & valves.

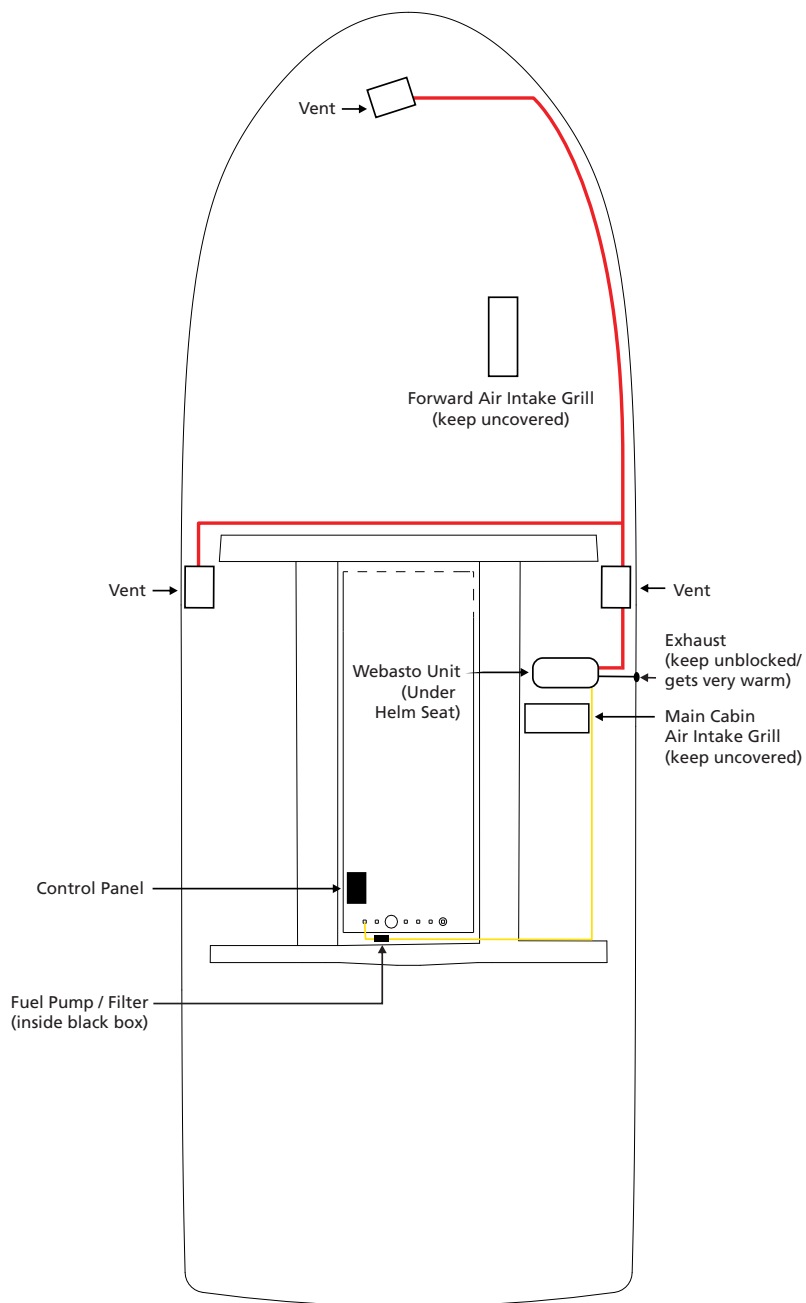


WEBASTO FURNACE



OPT

Webasto furnace is located under access panel below refrigerator.
The control panel is located at the mid cabin power management center.
The fuel pump is in the salon floor hatch compartment inside of the black box.



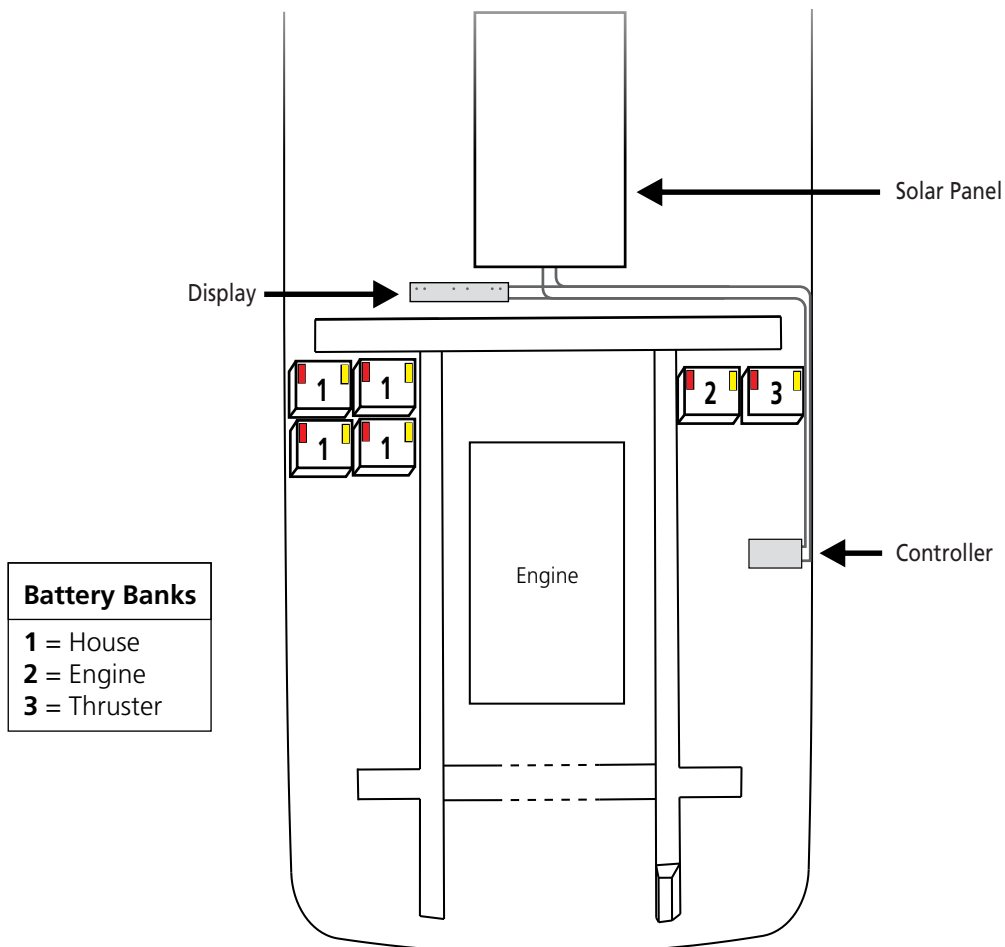
SOLAR PANEL



OPT

Solar panel 160 watt, with display panel

- The solar panel is designed to provide charging to the house & engine batteries. 90% of its charge is dedicated to the house battery and 10% is dedicated to the engine battery.
- The green light on the solar display indicates proper operation.
- The solar display is located port side mid cabin.
- The controller is located in the starboard lazarette
 - *Keep panel clean and completely uncovered for best results



POWER PANEL AND SOLAR PANEL CONTROLLER BOX



● Located in the starboard side cockpit lazarette

OPT

Command Bridge

50 Amp Breaker



STE

Sedan

50 Amp Breaker



150 Amp Breaker



Automatic Charging Relay (ACR)



Automatic Charging Relay (ACR)



300 Amp ANL Bus Fuse



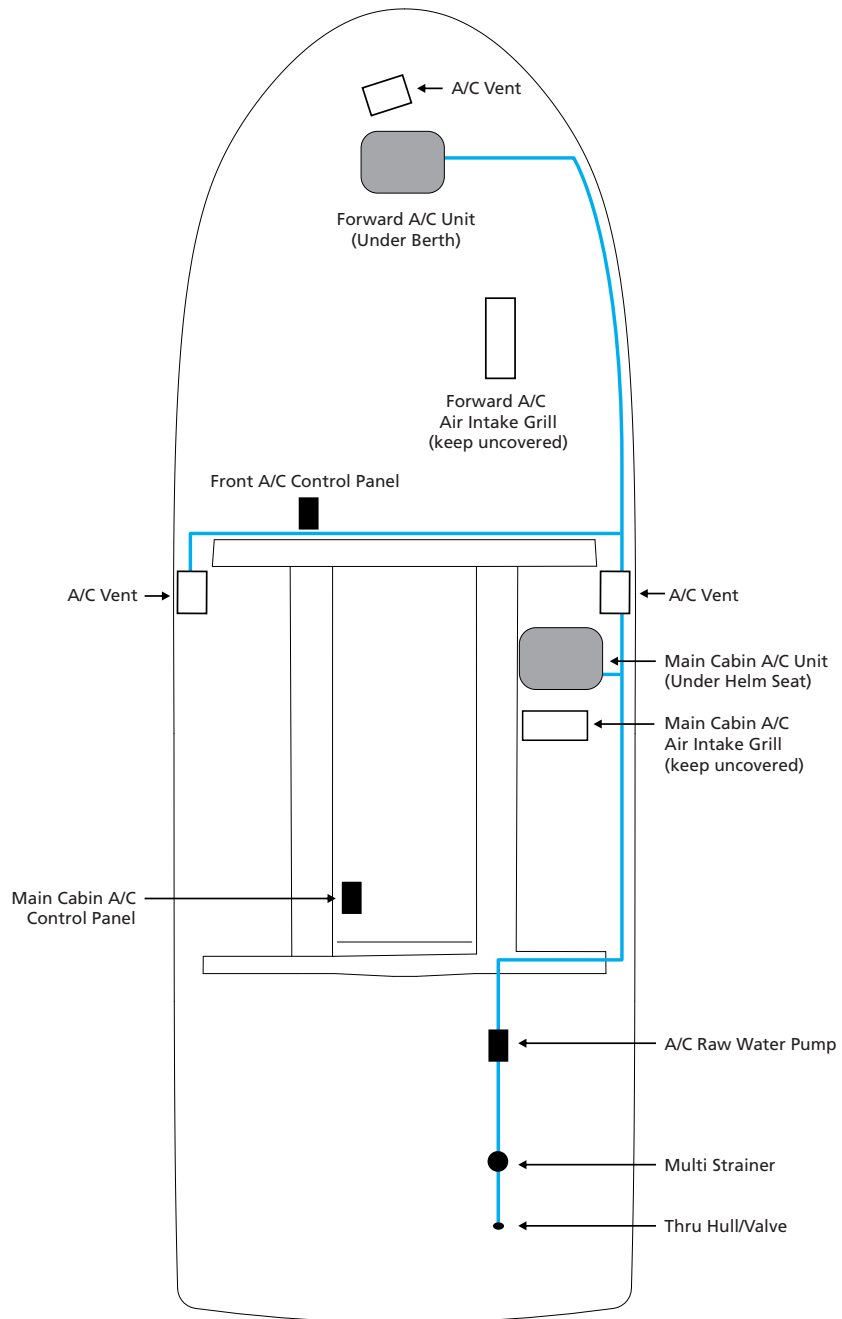
Solar Panel Controller



AIR CONDITIONING



OPT

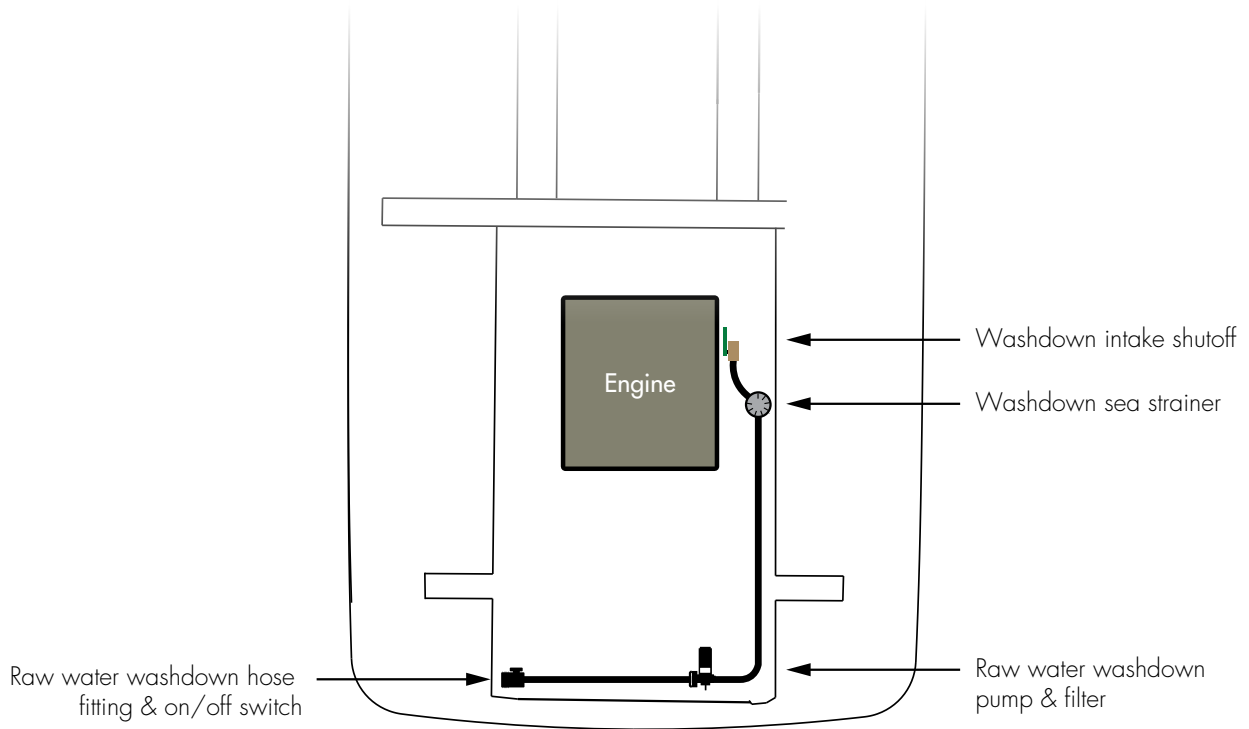


RAW WATER WASH DOWN



STE

Johnson Aqua Jet 5.2 GPM



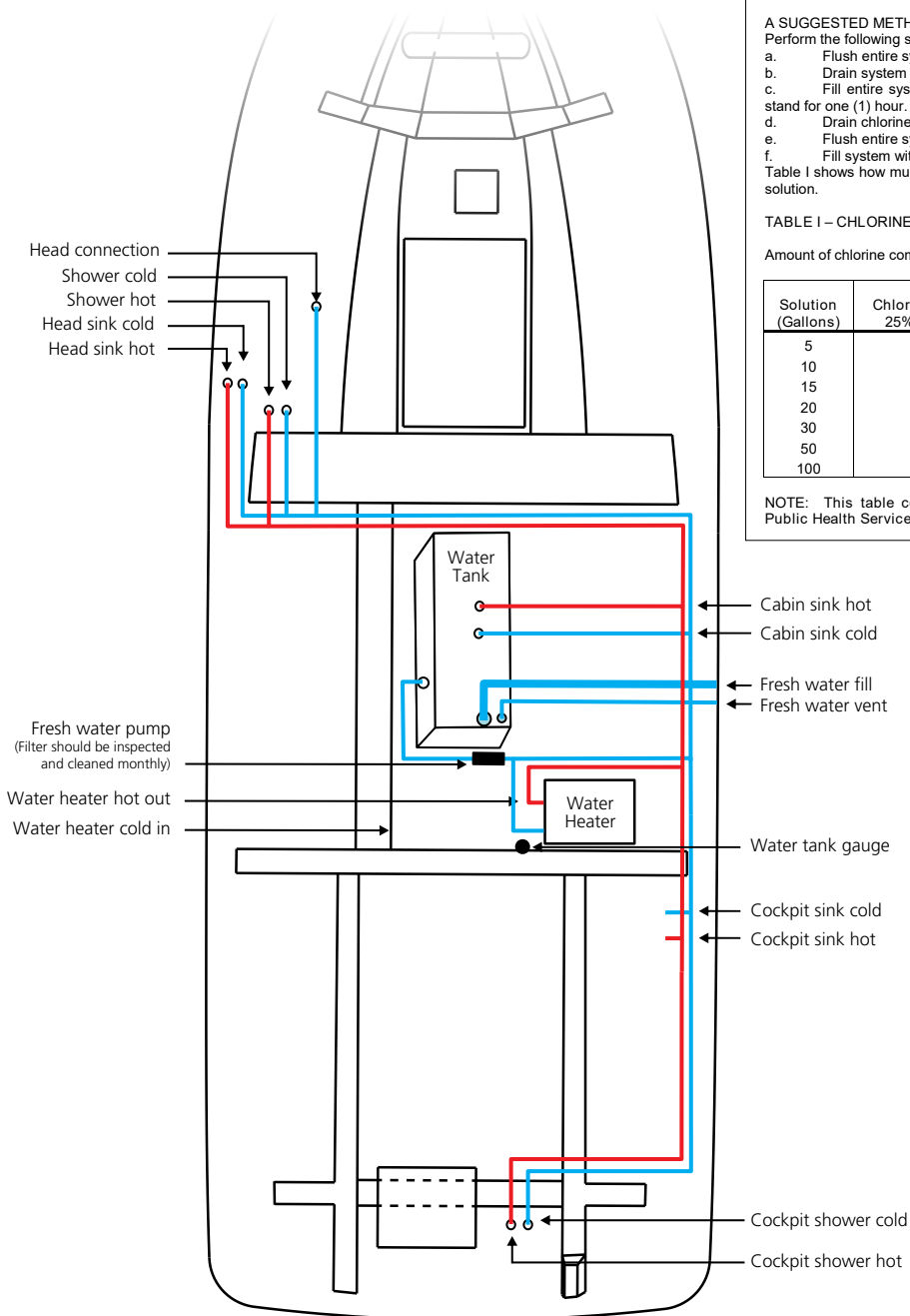
FRESH WATER PLUMBING SYSTEM



STE

60 Gallon Fresh Water Tank, 11 Gallon Hot Water Heater, 3.5 GPM Fresh Water Pump

Water pressure switch is located on the DC breaker panel



The information contained in this appendix provides supplementary data about disinfecting a potable water system.

A SUGGESTED METHOD OF DISINFECTION

Perform the following steps in the order indicated:

- Flush entire system thoroughly by allowing potable water to flow through it;
- Drain system completely;
- Fill entire system with a chlorine solution having a strength of at least 100 parts per million, and allow to stand for one (1) hour. Shorter periods will require greater concentrations of chlorine solution. [See Table I](#)
- Drain chlorine solution from entire system;
- Flush entire system thoroughly with potable water;
- Fill system with potable water.

Table I shows how much disinfecting agent is required to make up various quantities of 100 parts per million chlorine solution.

TABLE I – CHLORINE CONCENTRATIONS

Amount of chlorine compound required for 100 ppm solution

Solution (Gallons)	Chlorinated Lime 25% (ounces)	High Test Calcium Hypochlorite 70% (ounces)	Liquid Sodium Hypochlorite 1% (quarts)
5	0.3	0.1	0.2
10	0.6	0.2	0.4
15	0.9	0.3	0.6
20	1.2	0.4	0.8
30	1.8	0.6	1.2
50	3.0	1.0	2.0
100	6.0	2.0	4.0

NOTE: This table contains information taken from the Handbook on Sanitation of Vessel Water Points, Public Health Service Publication No. 274 - Reprinted June 1963.

SHOWER SUMP

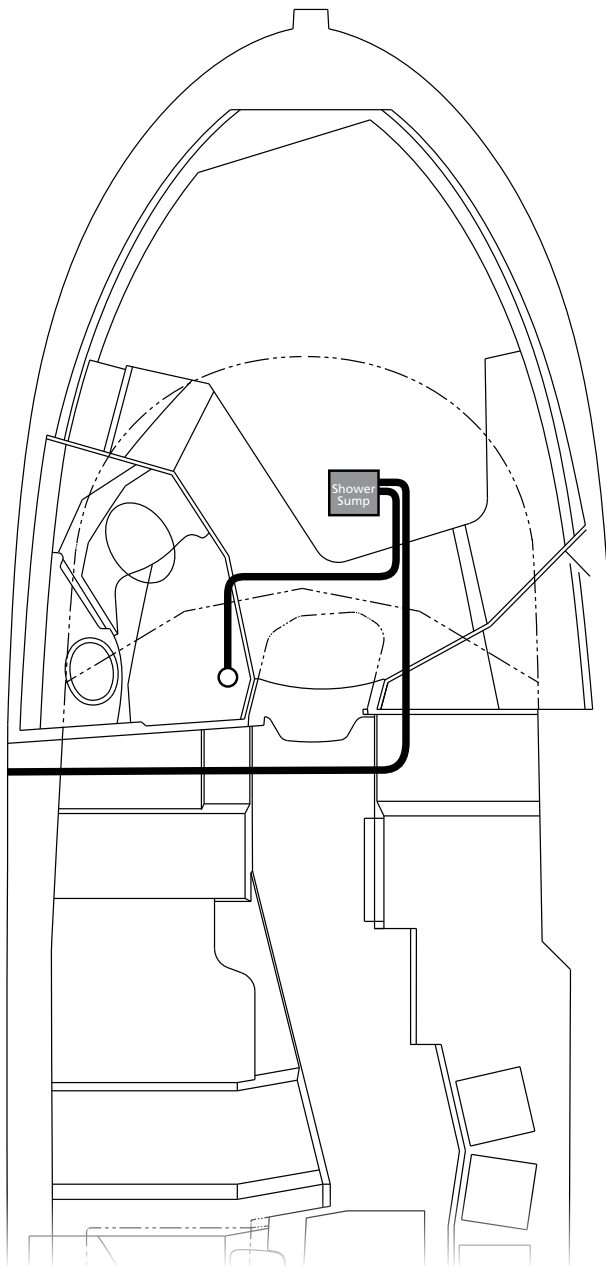


STE

12V, 800 GPH
(This should be inspected for debris on a regular basis if shower is used frequently.)



The shower sump box is located underneath the island berth in the forward stateroom.



BILGE PUMP SYSTEM



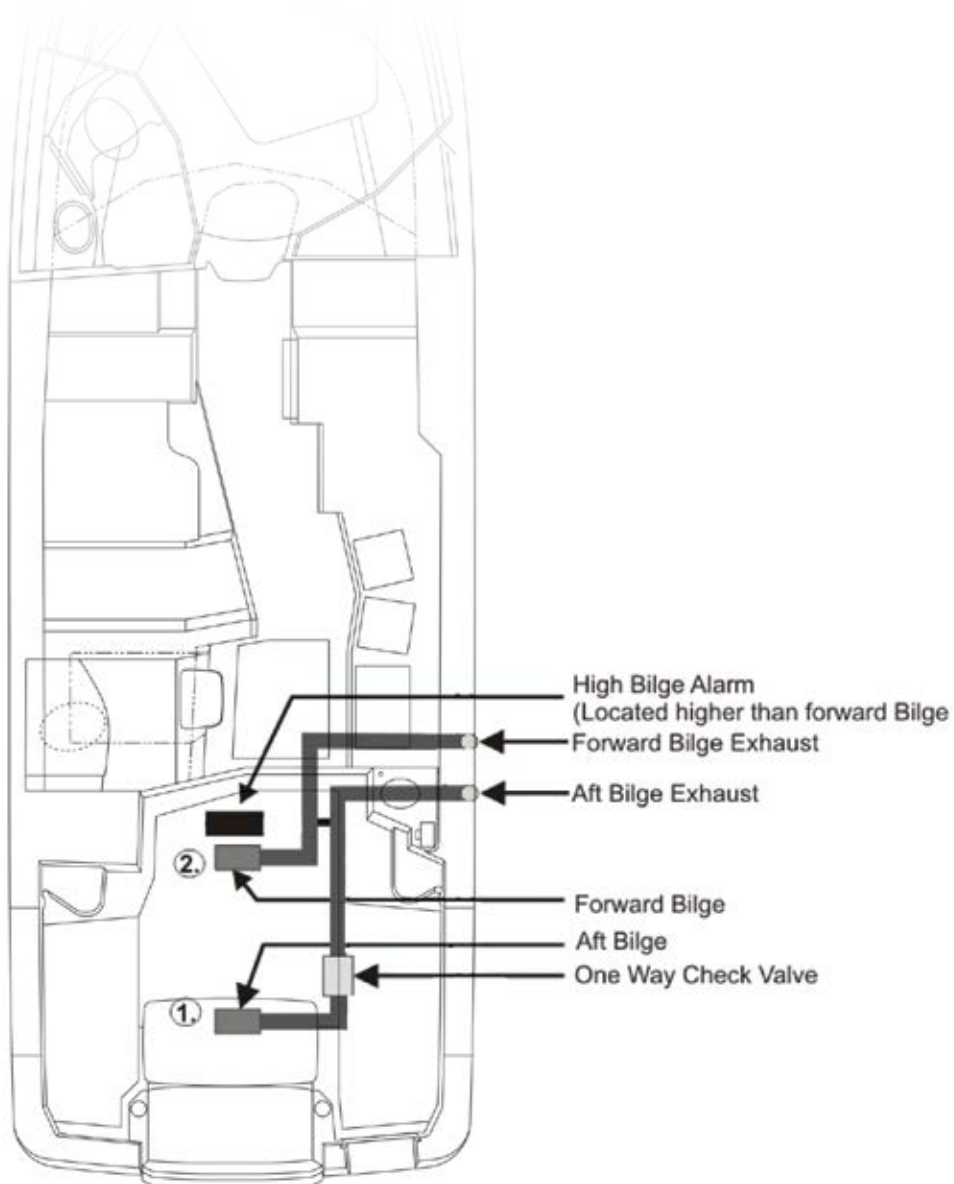
STE

12V 1100GPH



The bilge pumps operate automatically with electronic float switches even when all switches and breakers are in the OFF position.

However, the BILGE PUMP and BILGE PUMP2 will run continuously once their switches are placed in the on position. Monitor the outflow accordingly. Do not run when dry.



WASTE SYSTEM WITH MACERATOR PUMP



STE



40 Gallon Tank with standard pump out, and vent

STE

Macerator pump out



Waste tank level can be checked by utilizing the head control panel. Please refer to your head operations manual.



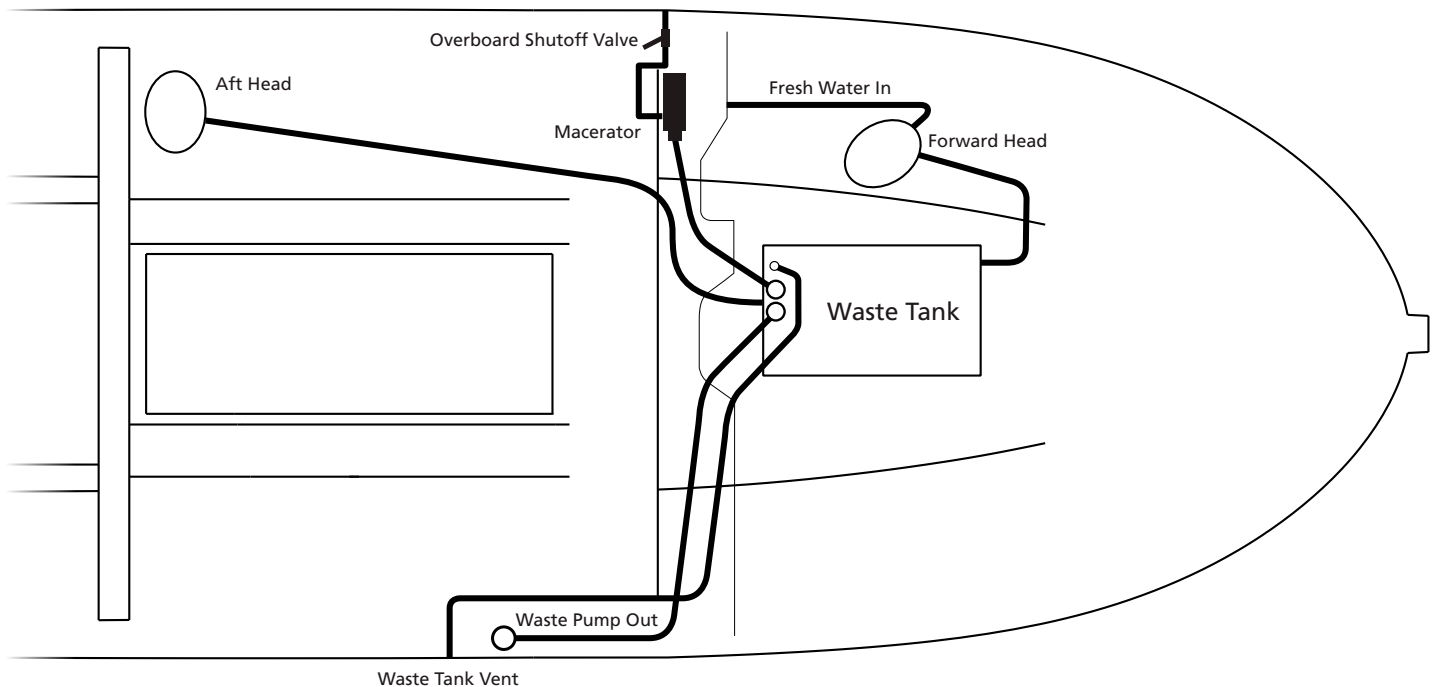
Waste tank pump out stations are widely available. Please follow the directions carefully for the pump out equipment you are using to avoid damage to the waste system.



Boat owner is responsible for following all applicable laws when using the macerator system to pump out into the surrounding waters.



Overboard shutoff valve is accessed through velcro access panel in forward mid cabin berth.



Waste Tank Vent

MAST AND BRIDGE SET UP AND TAKEDOWN



SEDAN

MAST SET UP PROCEDURE

1. Remove the three black plastic wing nuts from the mast base.
2. Remove the two mast tie down cables from their storage positions in the roof clips.
3. With the mast tie down cables still loose, raise the mast off of the stainless steel support bar.
4. Secure the stainless steel retaining bar in the appropriate clip attached on the rooftop.
5. Raise the mast to its full extension and ensure that it fits correctly over the mounting studs on the roof mounting plate.
6. Attach the three black plastic wing nuts to the mounting studs and hand tighten securely.
7. Attach the two mast tie down cables to their appropriate clips on the port and starboard side of the roof.
8. Make sure the mast tie down cables are adjusted properly.

MAST TAKE DOWN PROCEDURE

1. Remove the mast tie down cables from their clips on the port and starboard side of the roof.
2. Remove the three black plastic wing nuts from the mast base mounting studs.
3. Carefully lower the mast onto the stainless steel support bar.
4. Attach the black plastic wing nuts back onto the screws on the mast mounting plate and secure them for storage by hand tightening.
5. Attach the two mast tie down cables to their storage positions in the roof clips.
6. Recommend securing the mast with a tie down.

COMMAND BRIDGE

COMMAND BRIDGE SET UP PROCEDURE

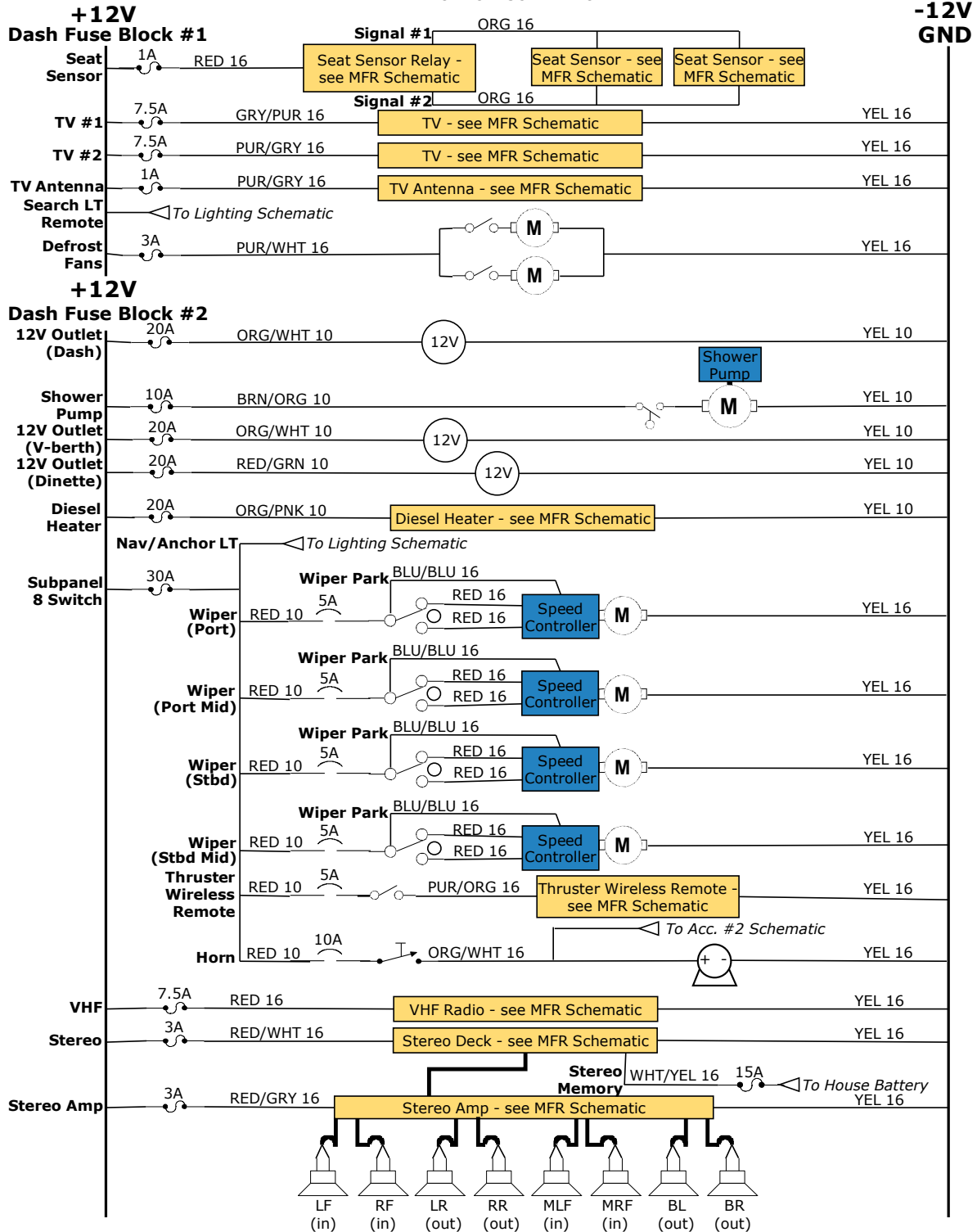
1. Raise the mast.
2. Loosen black bridge hold down straps (port and starboard sides).
3. Raise bridge.
4. Lock bridge feet in place).
5. Tighten black bridge hld down straps (port and starboard sides).
6. Raise seat and insert seat pins (x2).
7. Install port and starboard command bridge railing and pins.
8. Install aft command bridge railing and pins.

RANGER TUG R-31 WIRING SCHEMATIC (ACC. 1)



R-31 Accessories #1

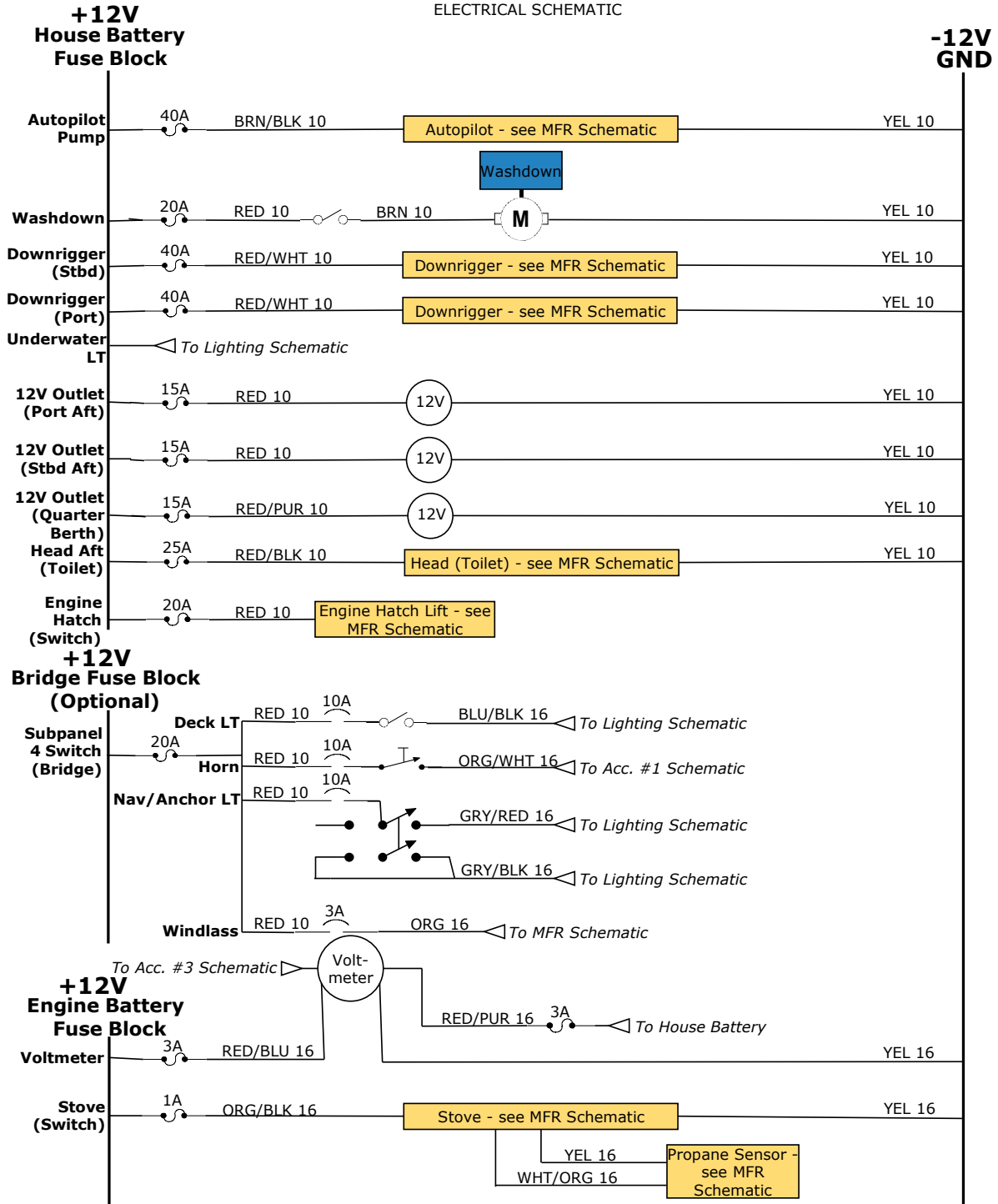
ELECTRICAL SCHEMATIC



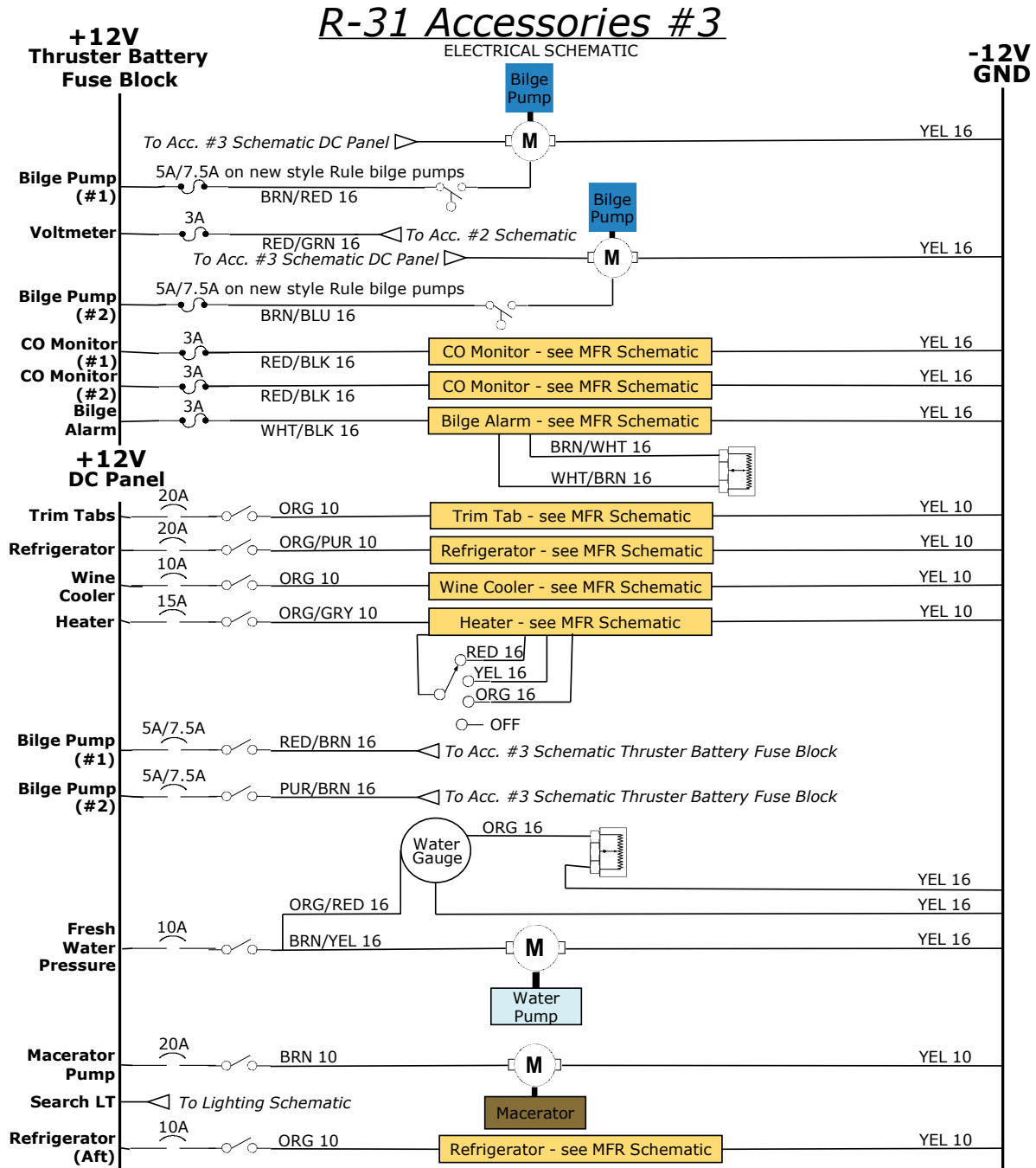
RANGER TUG R-31 WIRING SCHEMATIC (ACC. 2)



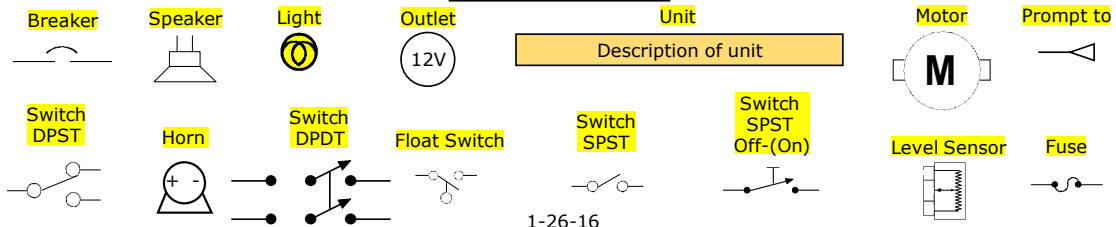
R-31 Accessories #2 ELECTRICAL SCHEMATIC



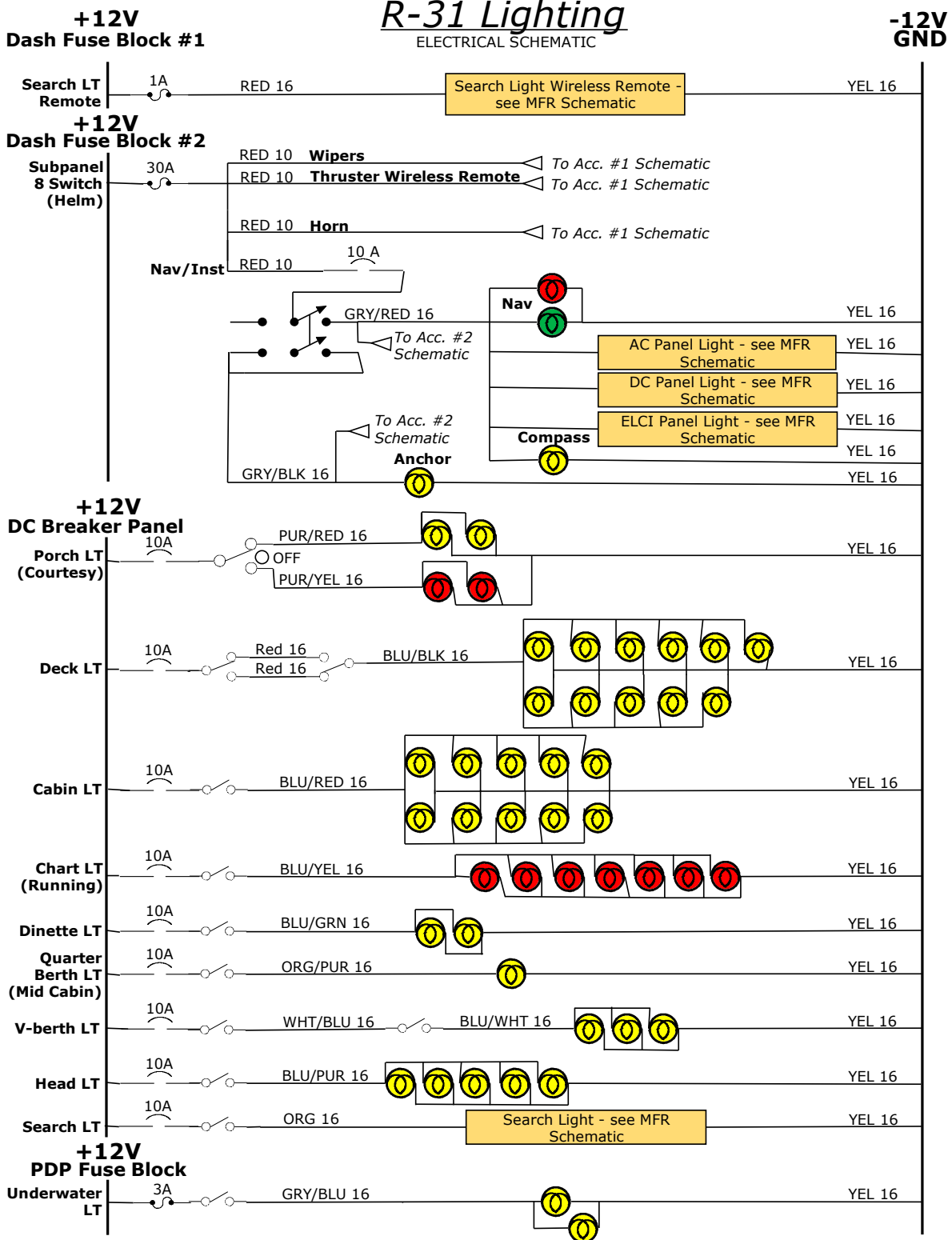
RANGER TUG R-31 WIRING SCHEMATIC (ACC. 3)



SYMBOL KEY



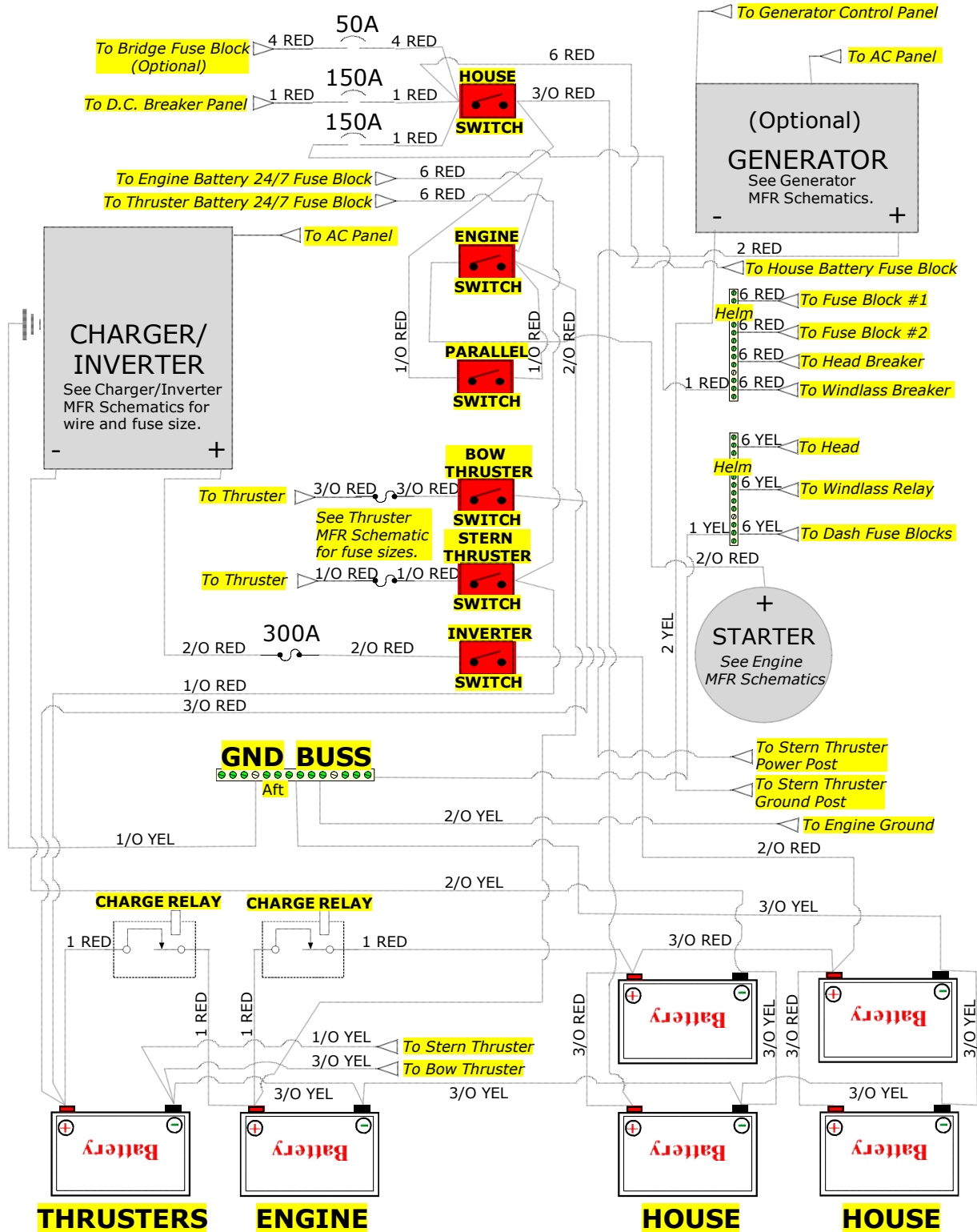
RANGER TUG R-31 WIRING SCHEMATIC (LIGHTING)



RANGER TUG R-31 WIRING SCHEMATIC (P.D.P.)



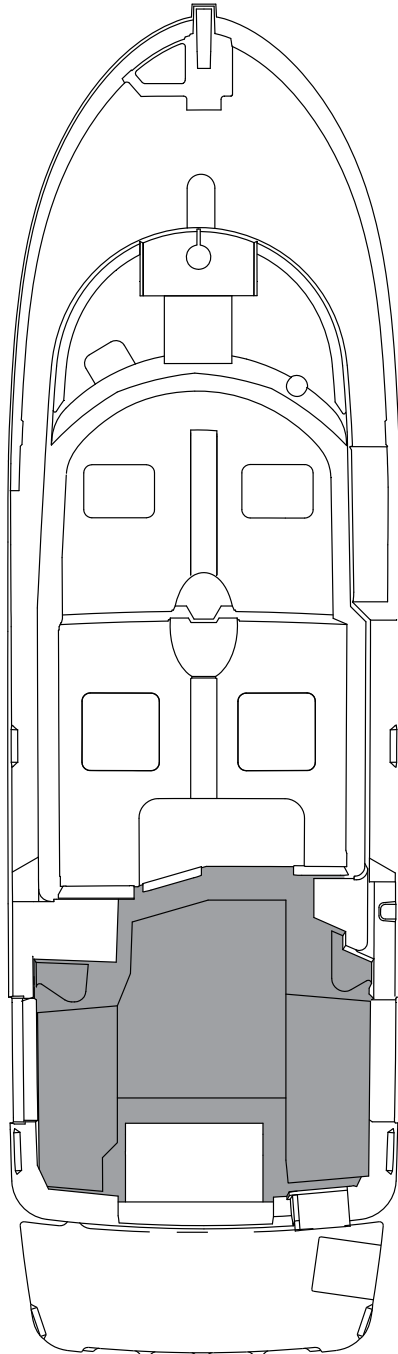
R-31 Power Distribution ELECTRICAL SCHEMATIC



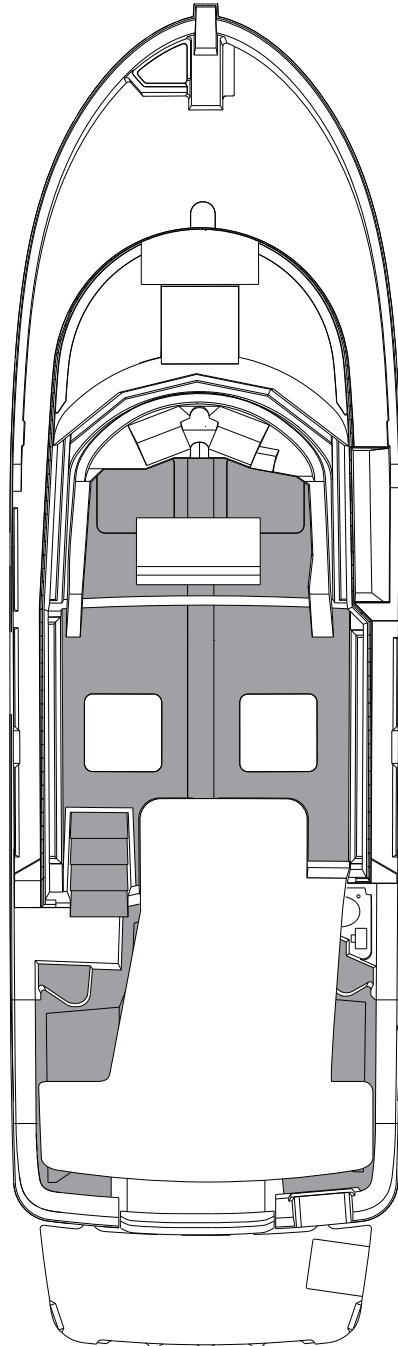
RANGER TUG R-31 WORKING DECK



STE



R-31 S



R-31 CB

CARE AND MAINTENANCE



The following checklists are examples and are not all inclusive and are provided only as a guide. Please customize to your personal needs. Consult your engine and trailer user manuals for additional information.

EXAMPLE OF A PREPARATION FOR THE ROAD CHECKLIST

TOW VEHICLE – PRIOR TO USE

- Test Lights.
- Check brakes.
- Check tire pressure and condition.
- Check hitch related electrical connections.

TRAILER – PRIOR TO USE

- Check registration
- Check rollers and bed rails.
- Check wheel bearings and lubricate as required.
- Check winch.
- Test electrical connection and lights.
- Check tire pressure and condition.
- Check safety chains.
- Check boat straps.
- Check braking system.
- Check hitch for proper connection and lock down.
- Install safety chains (cross under hitch).
- Remove tire blocks.

BOAT – PRIOR TO USE WITH TRAILER

- Lower mast.
- Lower VHF antenna.
- Secure the Bimini awning frame.
- Raise and secure swim platform ladder.
- Set all switches and breakers to the OFF position, Including Thruster/Windlass cutoff switch
- Close and secure all windows, ports and vents.
- Lock cabin.
- Center rudder.
- Remove Drain Plug

EXAMPLE OF A SPRING PRE-LAUNCH CHECKLIST



CLEANING

- Remove debris from scuppers and scupper drains.
- Clean hull using a mild biodegradable detergent and then wax.
- Clean topsides and decks using a mild biodegradable detergent and then wax.
- Clean and polish all bright work.
- Clean and oil teak.
- Clean windows, ports, and hatches.
- Clean bimini cover.
- Check and clean anchor, rode, and anchor storage compartment.

INSPECTION

- Check Drain Plug
- Check spare parts and tools and replace as necessary.
- Check wiper blades.
- Check swim platform.
- Inspect and test trim tabs.
- Check condition of bottom paint.
- Check windlass.
- Verify electronics for correct operation.
- Check all inside and outside lights.
- Macerator Y-Valve in proper position and secured.
- Inspect and verify position of all sea cocks and shut off valves.
- Check alarms for proper operation.
- Check fluid levels.

SAFETY EQUIPMENT

- Sound signaling device.
- Check flares and their expiration dates.
- Check personal flotation devices.
- Check fire extinguishers and their fill dates.
- First aid kits.

GALLEY

- Check stove for proper operation.
- Check everyday utensil stock.

DOCUMENTS

- Registration sticker.
- Insurance papers and Passports.
- Boat Inspection sticker.
- Charts and float plan forms.

EXAMPLE OF WINTER STORAGE CHECKLIST



GENERAL MAINTENANCE

- Fill Fuel Tank and add a fuel stabilizer.
- Empty and clean black water tank.
- Empty fresh water tank use a non-toxic antifreeze per manufacturer's directions.
- Winterize black and fresh water tanks as necessary based on weather.
- Check bilge area for oil and for proper operation
- Check zincs and replace as necessary.
- Check impeller.
- Check and clean water strainer.
- Clear barnacles and debris from hull fittings.
- Trickle charge batteries every 30-60 days.
- Vent boat to prevent mildew.
- Check trailer tire pressure and condition.
- Check trailer braking system.
- Check trailer bearings.
- Remove Drain Plug.
- Turn off all battery cutoff switches.

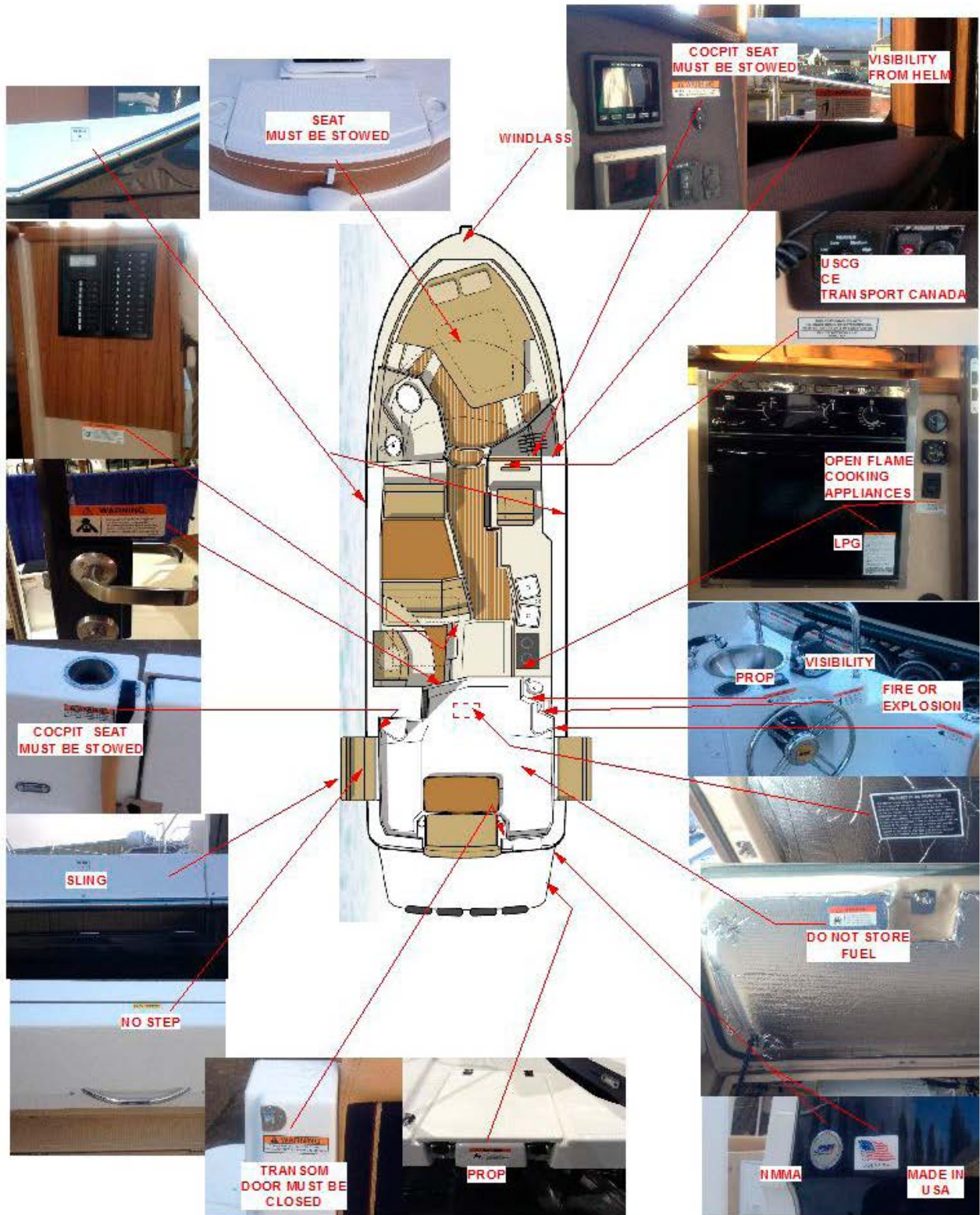
ENGINE

- Flush sea strainer system with fresh water.
- Check all fluid levels.
- Check all hose fittings.
- Check engine maintenance requirements.
- Inspect and verify position of all sea cocks and shut off valves.

GALLEY

- Empty, clean and freshen refrigerator.
- Remove all dry food from storage.

WARNING LABEL LOCATIONS





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