

R-23

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 priority 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.

MAXIMUM CAPACITIES

8 PERSONS OR 1450 LBS.

2350 LBS, PERSONS, MOTOR AND GEAR

200 HORSEPOWER MOTOR MAX

THIS BOAT COMPLIES WITH U.S. COAST GUARD SAFETY STANDARDS IN EFFECT ON THE DATE OF CERTIFICATION

MANUFACTURER: FLUID MOTION LLC

MODEL: RANGER 23

KENT, WA

SYMBOL GLOSSARY



Attention! – Important Operating or Maintenance Instructions



Attention! – Electrical Shock Hazard



Fresh Water



Black Water



Fuel



Standard Equipment



Optional Equipment



Hints

SPECIFICATIONS



R-23

| | | |
|--------------------------------------|-------------|----------|
| Length (hull) | 22' 8" | 9.04 m |
| Length rigged (LOA) motor up | 29' 8" | 9.04 m |
| Length rigged (LOA) motor down | 28' 5" | 8.66 m |
| Beam | 8' 6" | 2.6 m |
| Draft (motor down) | 30" | .76 m |
| Draft (motor up) | 19" | .48 m |
| Height on trailer (w/radar) | 11' 4" | 3.5 m |
| Height on trailer (no radar) | 10' 10" | 3.3 m |
| Length on trailer motor up | 36' 10" | 11.22 m |
| Length on trailer motor down | 34' 10" | 10.61 m |
| Weight, dry | 5,000 lbs | 2,268 kg |
| Bridge clearance (mast down) | 8' 6" | 2.6 m |
| Fuel capacity | 80 U.S. Gal | 302.8 L |
| Water capacity | 22 U.S. Gal | 83.3 L |
| Holding tank capacity | 11 U.S. Gal | 41.6 L |
| Hot water tank | 4 U.S. Gal | 15.14 L |

(Subject to Change Without Notice)

EQUIPMENT LOCATION



STARBOARD FITTINGS

STE

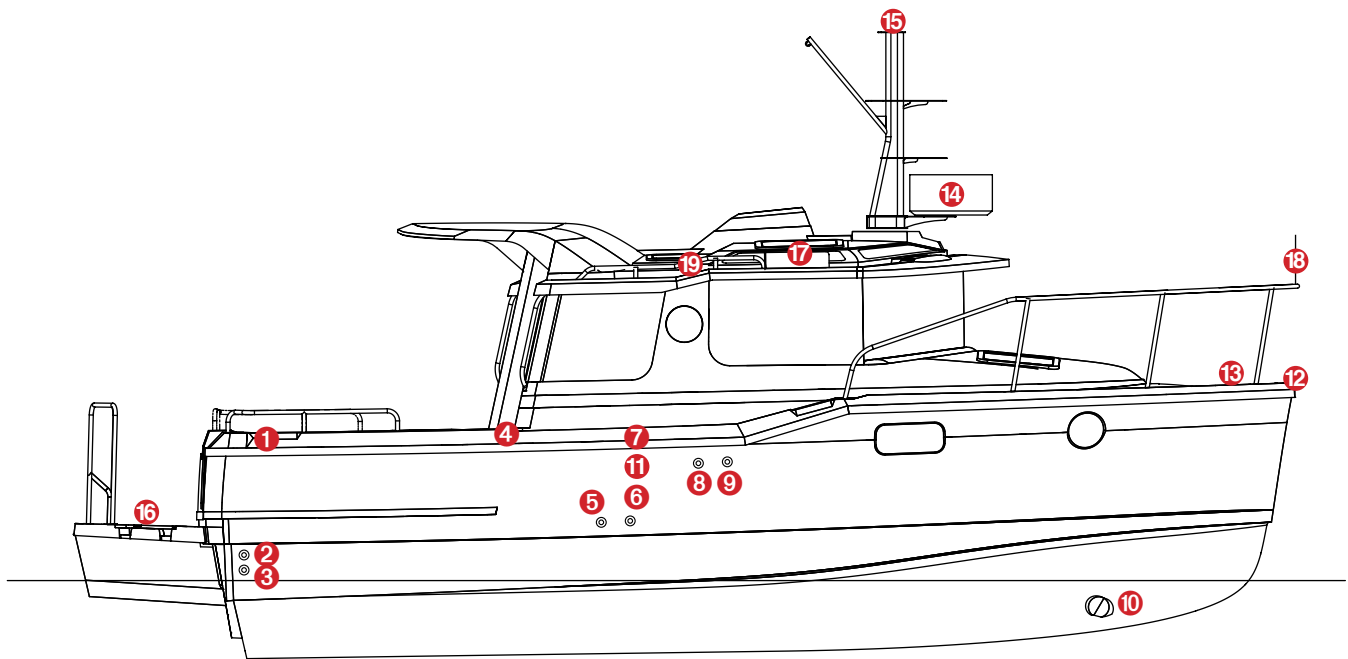
1 2 3 4 6 7 8 9 11 12 16

OPT

5 10 13 14



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



- | | | |
|-----------------------|-------------------------------|-----------------|
| 1 Fuel Fill | 8 Water Tank Vent | 15 Anchor Light |
| 2 Aft Bilge | 9 Waste Tank Vent | 16 Swim Ladder |
| 3 Forward Bilge | 10 Bow Thruster | 17 Nav Light |
| 4 Waste Pumpout | 11 Trailing Side Marker Light | 18 Burgee Pole |
| 5 Macerator Thru-Hull | 12 Anchor Roller | 19 VHF Antenna |
| 6 Galley Sink Drain | 13 Windlass | |
| 7 Water Fill | 14 Radar | |

PORT FITTINGS



STE

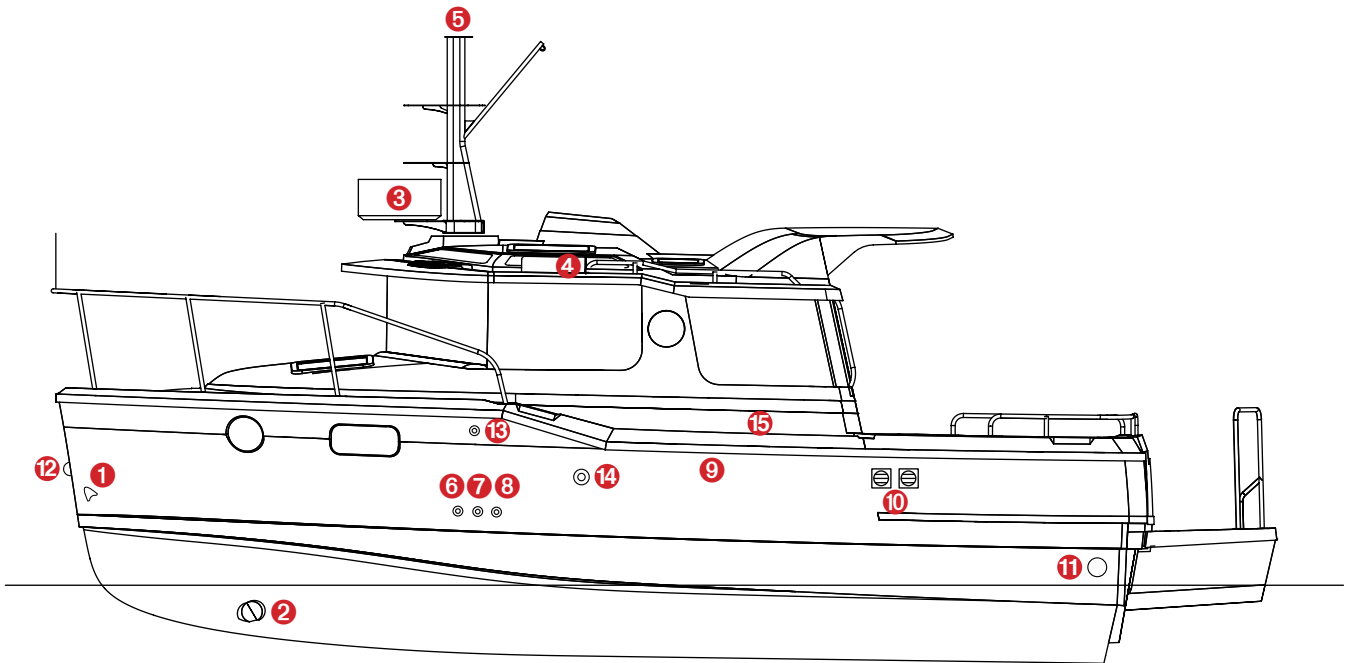
1 2 3 4 5 6 7 8 9 14

OPT

2 3 10 11 12 13 14 15



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



- 1 Anchor Locker Drain
- 2 Bow Thruster
- 3 Radar
- 4 Nav Light
- 5 Anchor Light

- 6 Head Sink Drain
- 7 AC Drain
- 8 Shower Drain
- 9 Trailering Side Marker Light
- 10 Generator Air Intake

- 11 Generator Exhaust
- 12 Bow Eye
- 13 Webasto Air Intake
- 14 Webasto Exhaust
- 15 Webasto Fuel Fill

STERN COMPONENTS

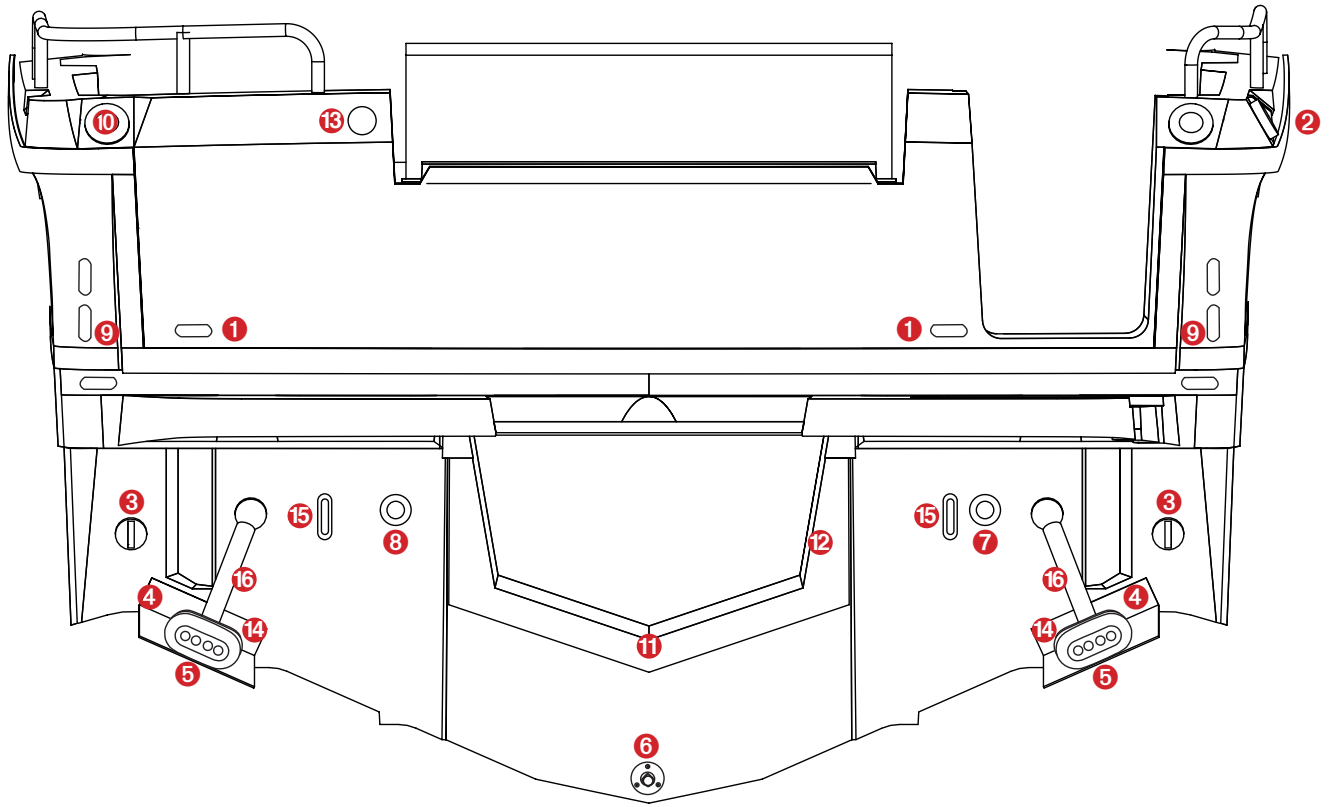


STE

1 2 3 4 6 8 10 11 12 13 15 16

OPT

7 5 14



- 1 Swim Platform Courtesy Lights
- 2 Fuel Fill
- 3 Cockpit Scupper Drains
- 4 Trim Tabs
- 5 Underwater Lights
- 6 Drain Plug

- 7 Multiport Strainer Exhaust
- 8 Engine Pod Bilge Pump
- 9 Trailer Turn/Brake Lights
- 10 Rod Holders
- 11 Pod Drain Plug
- 12 Engine Well Drain

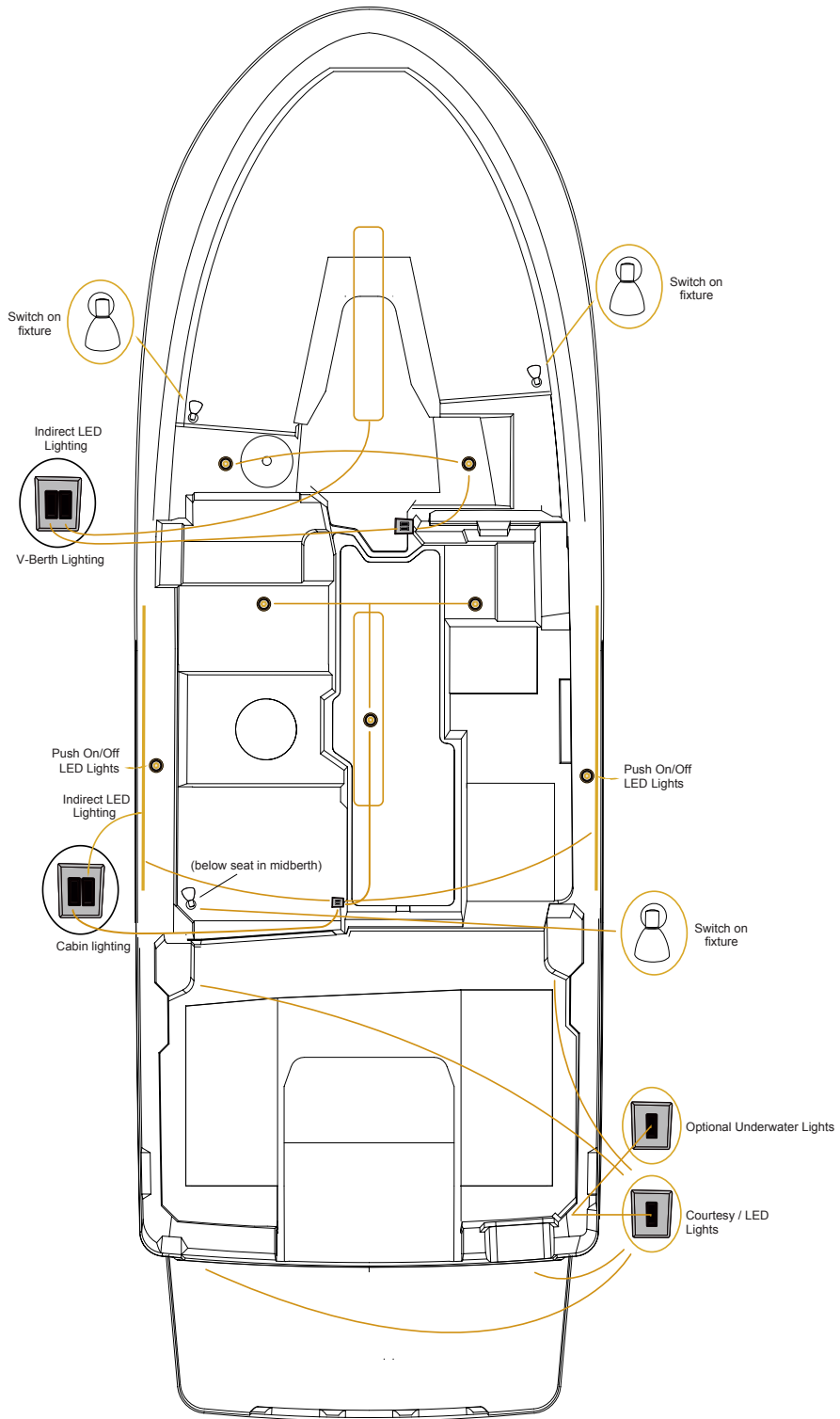
- 13 Flagstaff Mount
- 14 Trim Tab Zinc (behind lights)
- 15 Towing Strapdown
- 16 Trim Tab Ram

MAIN CABIN AND COCKPIT LIGHTS



STE

OPT



FUEL SYSTEM, GENERATOR

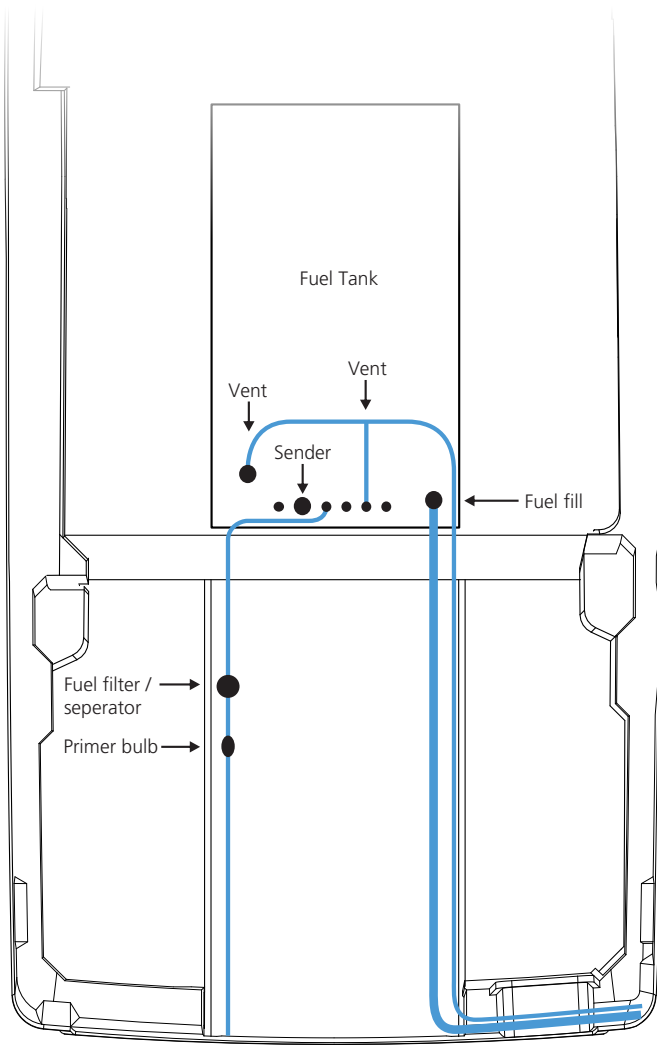


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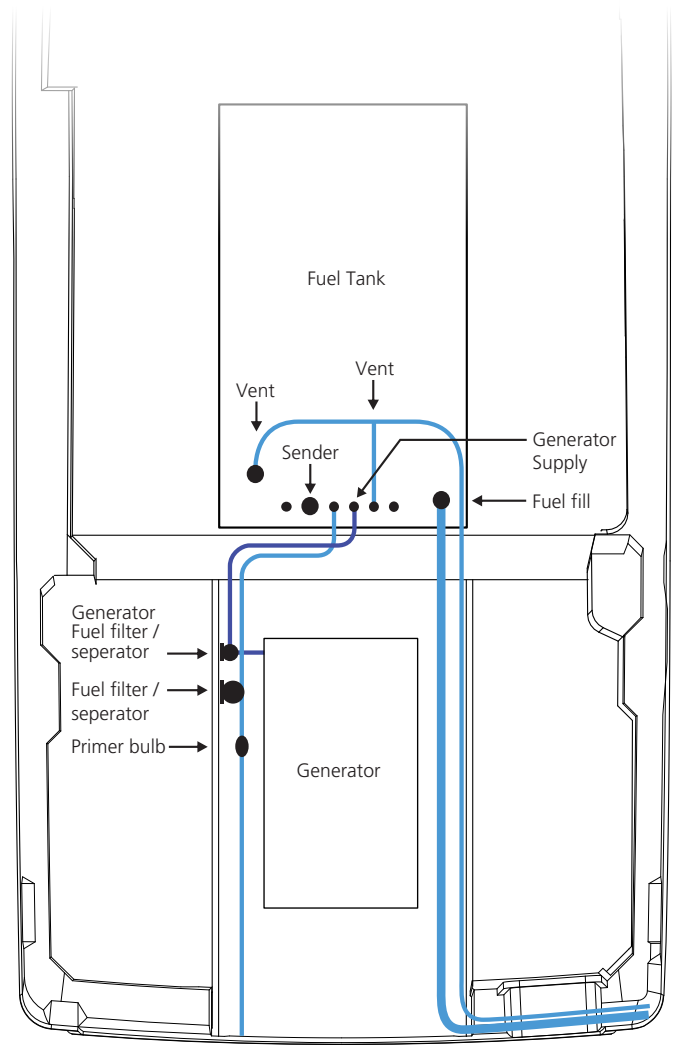
Yamaha 200

OPT

Generator



Standard Fuel System



Optional Fuel System
with Generator

RAW WATER / SEA STRAINER SYSTEM



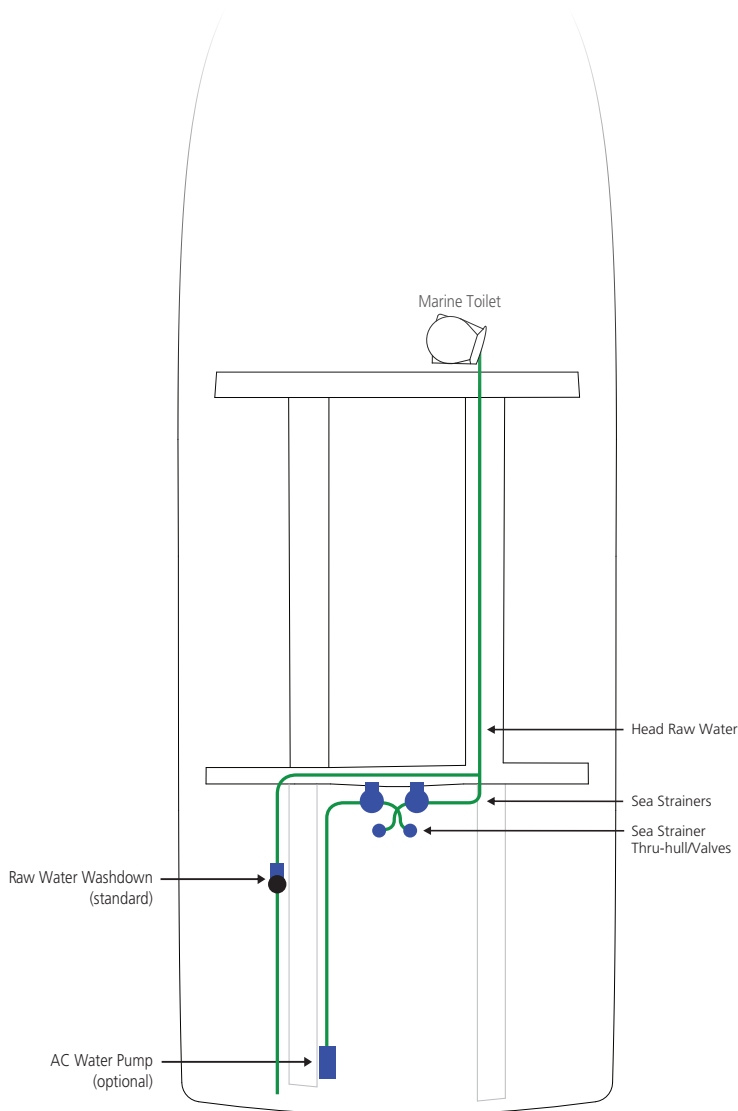
STE

- Multi port sea strainer for head and raw water wash down pump.

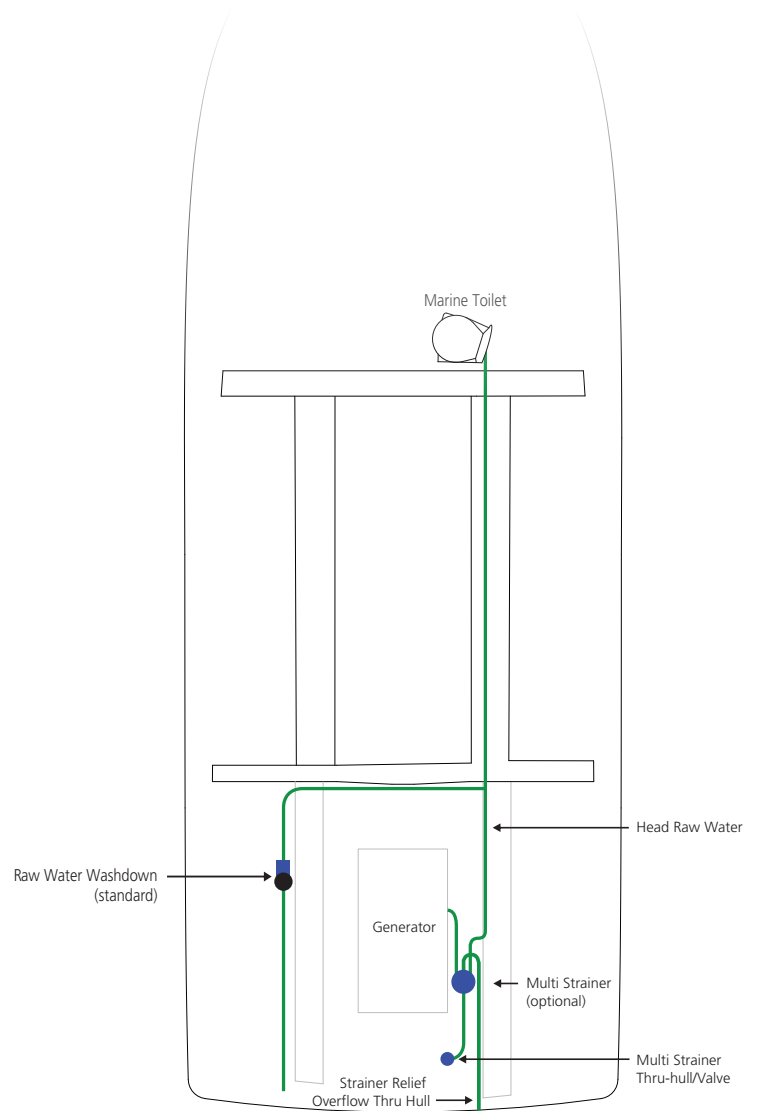
OPT

- A/C Raw Water Input
- Generator raw water thru-hull strainer

Raw Water System



Raw Water System with Generator

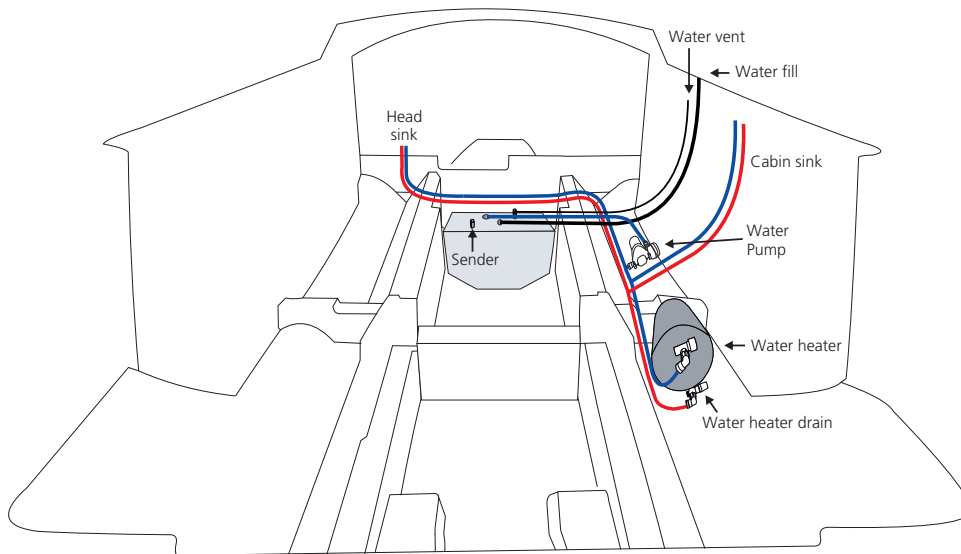


FRESH WATER PLUMBING SYSTEM



STE

22 Gallon Fresh Water Tank, 4 Gallon Hot Water Heater, 3.5 GPM Fresh Water Pump.



Disinfecting The Fresh Water System

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

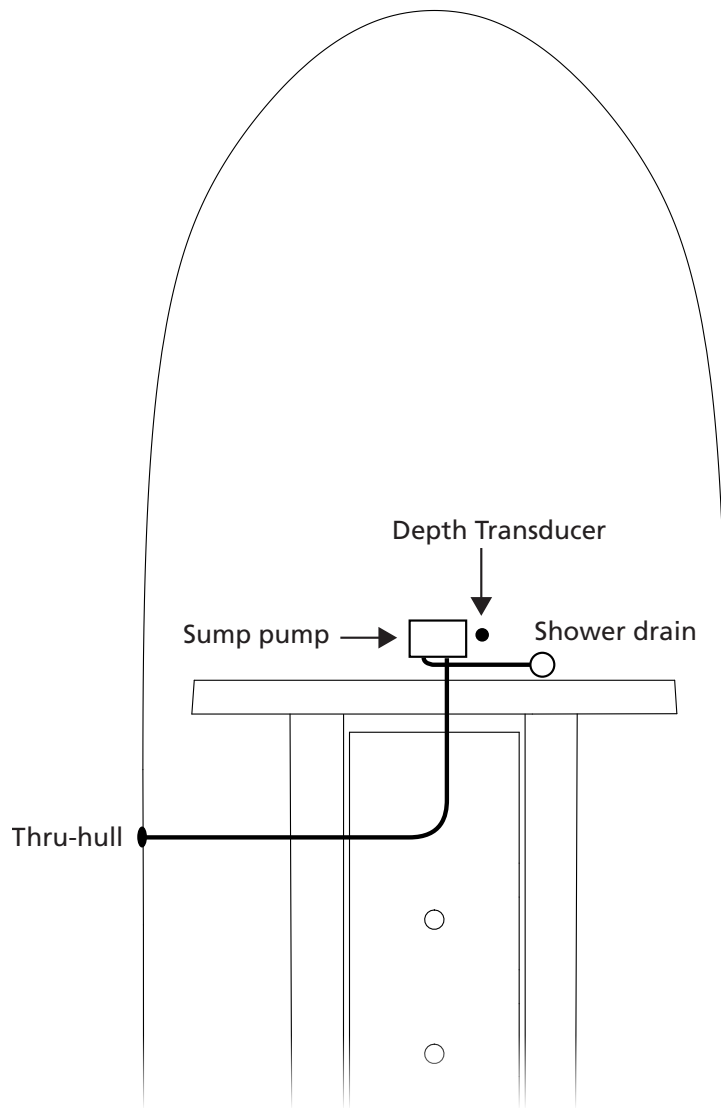


STE

12V, 1000 GPH
(This should be inspected for debris on a regular basis if shower is used frequently.)



The shower sump box is located underneath the removable v-berth step positioned just outside the head door.



BILGE PUMP SYSTEM



STE

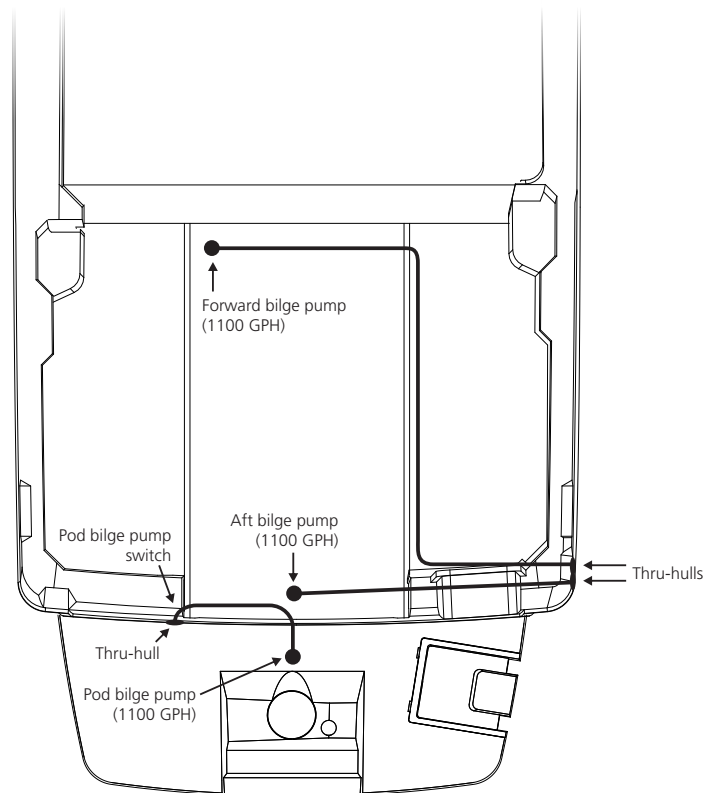
12V 1100GPH



The bilge pumps operate automatically by checking for water every 2.5 minutes even with battery switches and breakers in the OFF position.

However, the bilge pumps will run continuously once their switches are placed in the on position. Monitor the outflow accordingly. Do not run when dry.

- Manual switches are located at the helm for the forward and center pumps.
- The aft bilge pump switch is located in the aft section of the cockpit.



WASTE SYSTEM WITH MACERATOR PUMP



STE



11 Gallon Tank with standard pump out, and vent

OPT

Macerator pump out



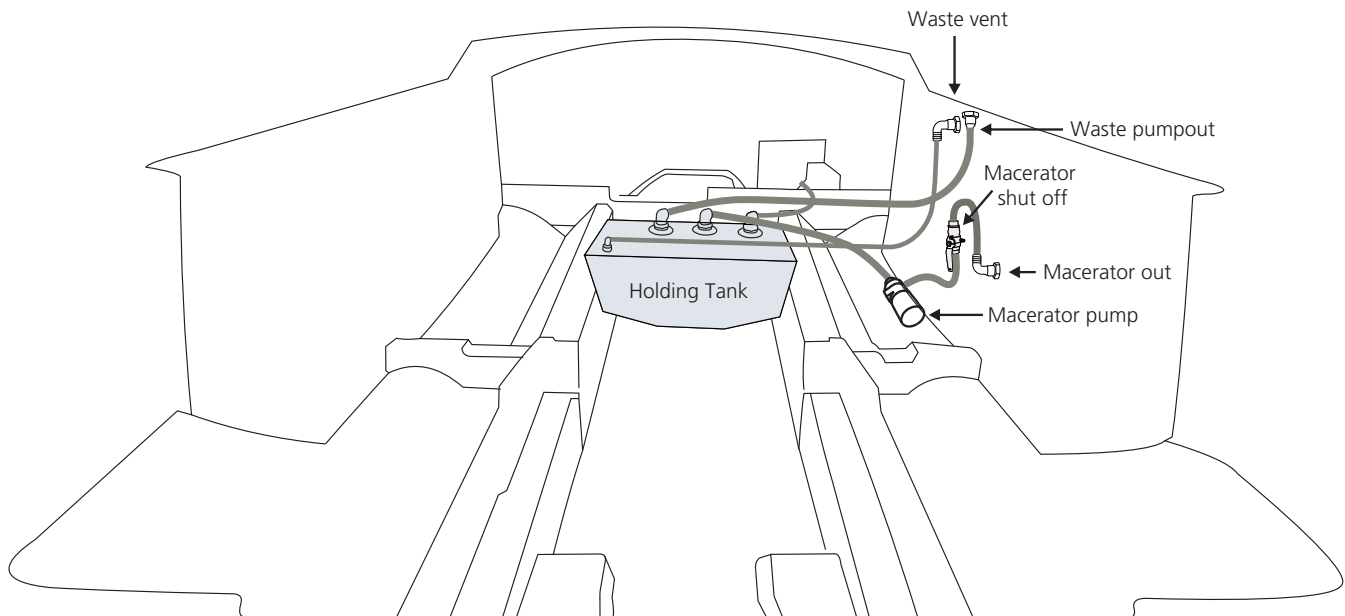
Waste tank pump out stations are widely available. Please follow the directions carefully for the pump out equipment you are using to avoid damage to the waste system.



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



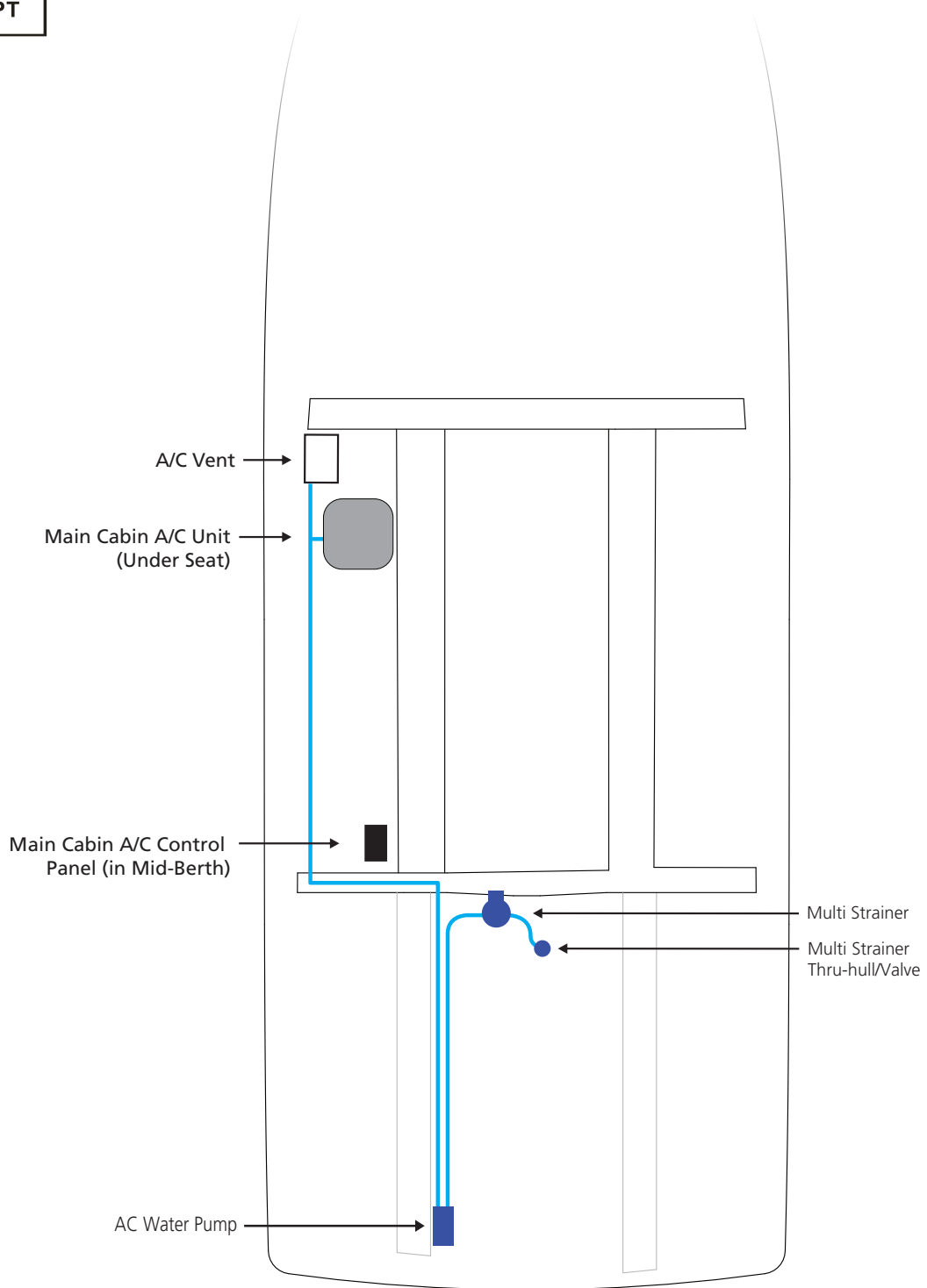
Overboard shutoff valve is accessed under the galley sink above the pump area.



AIR CONDITIONING



OPT

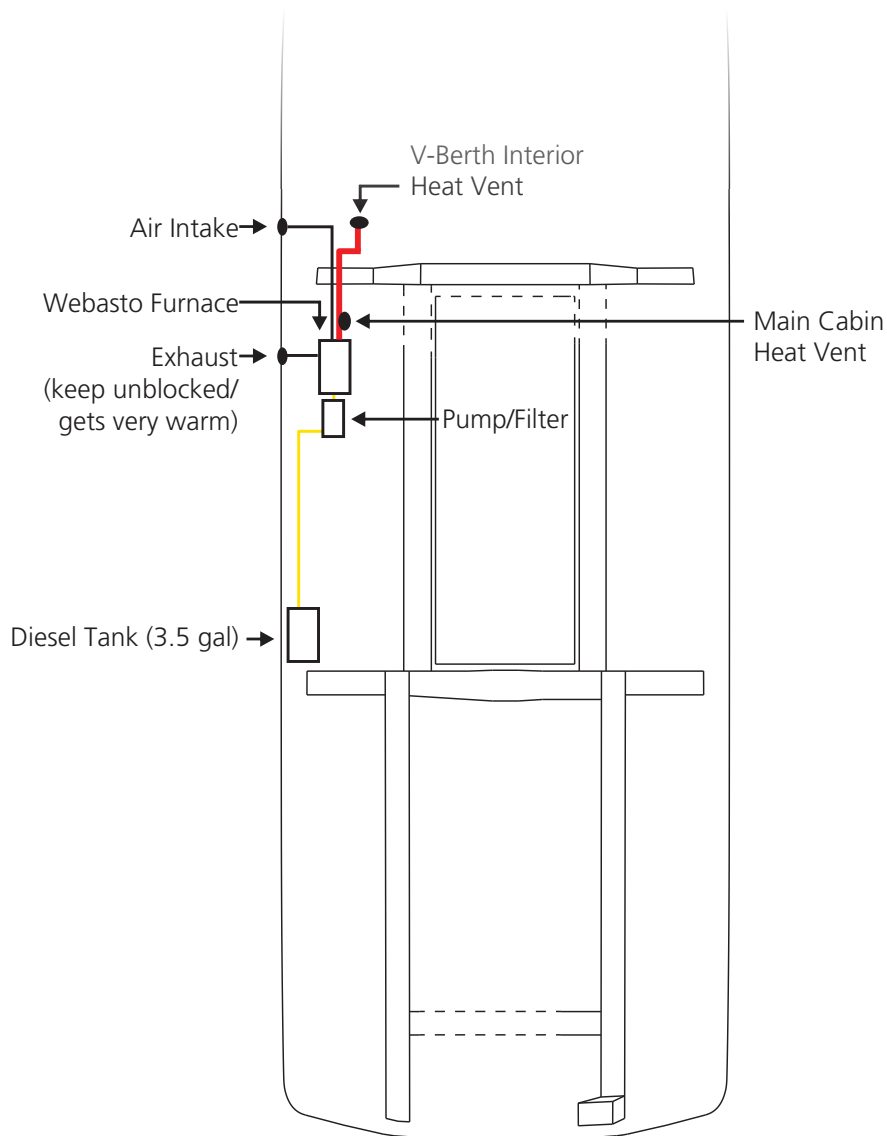


WEBASTO FURNACE



OPT

Webasto furnace is located under helm seat.
The control panel is located at the quarter berth power management center.
The fuel pump and filter are beneath the passenger seat, inside of the black box.
To access the heater/pump the seat must be removed. The fuel filter should be changed during the annual maintenance. Filter change intervals may vary depending on usage.



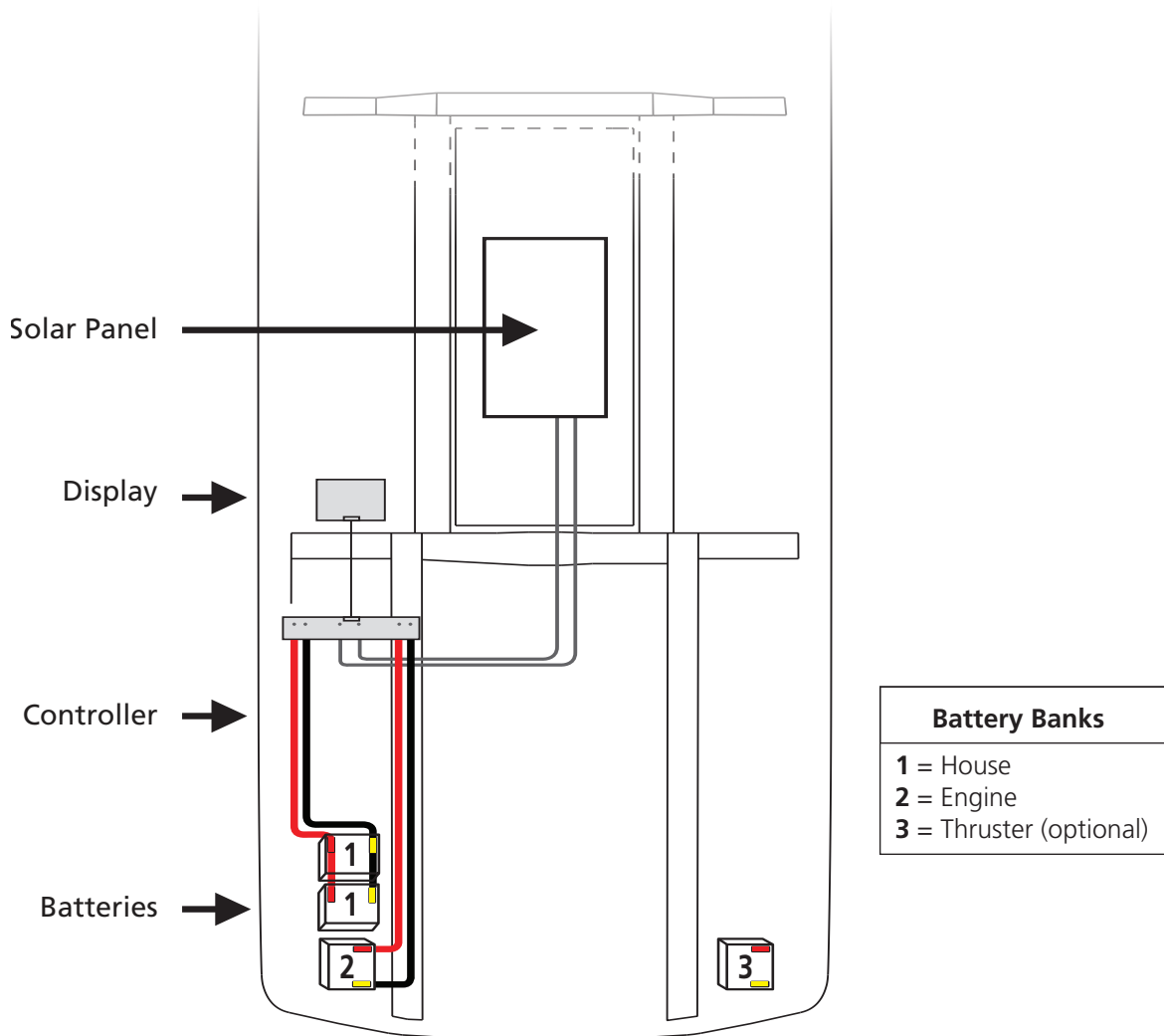
SOLAR PANEL



OPT

Solar panel 90 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 in the mid-berth.
- The controller is located in the lazarette
 - *Keep panel clean and completely uncovered for best results
- There is an inline fuse on top of the batteries for solar charging.



BATTERY CONFIGURATION



STE

2 House Batteries, 1 Engine Battery, 1 Thruster Battery (optional).

STE

House, engine, & battery parallel switches are located in the midberth.

OPT

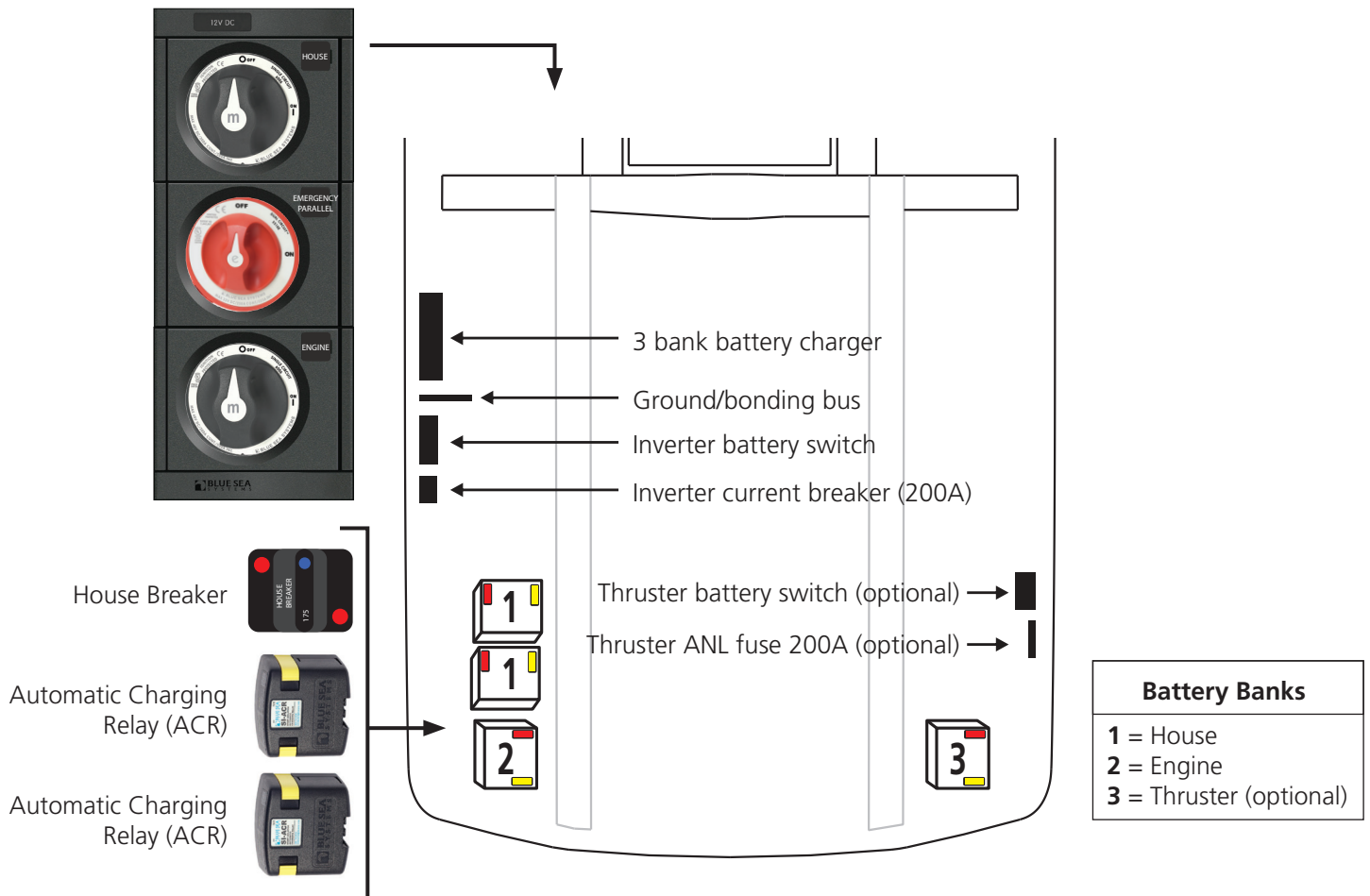
Thruster battery switch is located in the port side lazarette
Inverter battery switch and ANL fuse located in the port side lazarette



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 of the engine.



If the house bank drops below 10.8v you must reset the charging relay by switching on the parallel while the engine is running or while plugged into shore power.



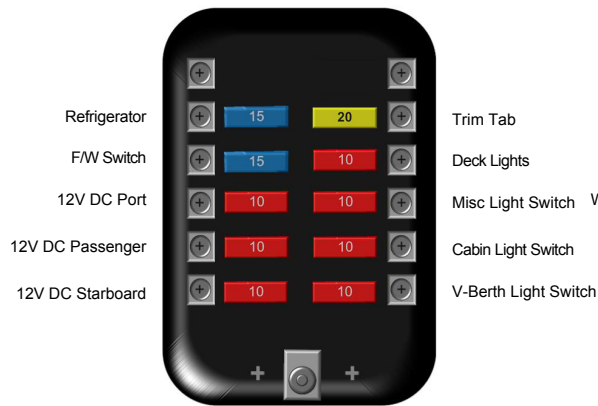
FUSE LOCATION & VALUES



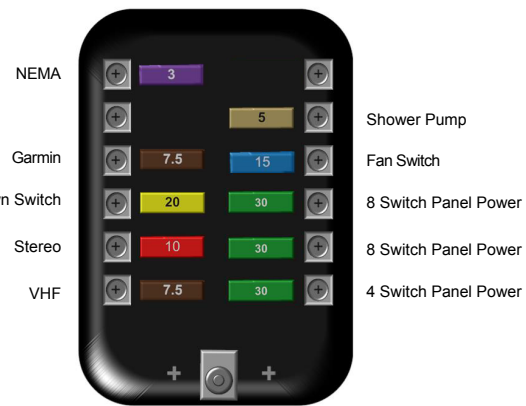
STE

Dash fuse blocks are located behind a hinged access panel in the head. The 24/7 fuse block is located in the mid cabin behind a removable panel secured with Velcro in the aft inboard corner. Fuses are automotive blade type and all values shown below are in Amps.

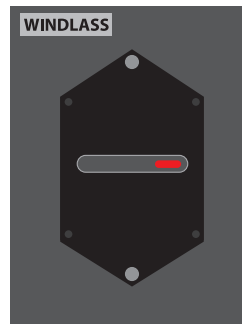
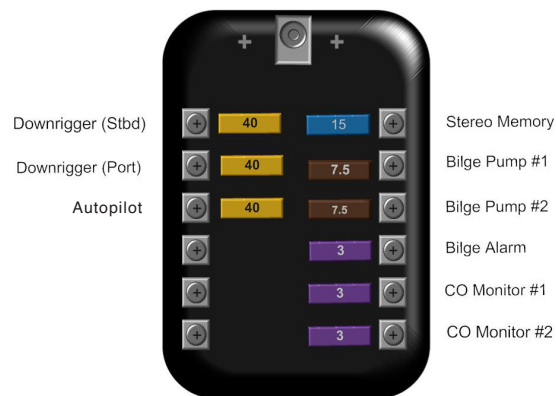
Dash Fuse Block #1



Dash Fuse Block #2



24/7 Fuse Block



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

AC DISTRIBUTION PANEL & ROTARY SWITCH



STE

AC Distribution Panel

OPT

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



A/C Main 1 and battery charger breaker must on in order for batteries to charge.



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

STE AC Distribution Panel



AC Main 1

OPT AC Distribution Panel with Generator



AC Main 1

AC Main 2

12V HELM CONTROL OPERATION



STE

High Water Alarm: Triggered = Red light/audible alarm Off = Normal operation.
The switch should remain in the down "armed position" while cruising.
Middle position mutes the alarm and all the way up is a momentary "alarm test".

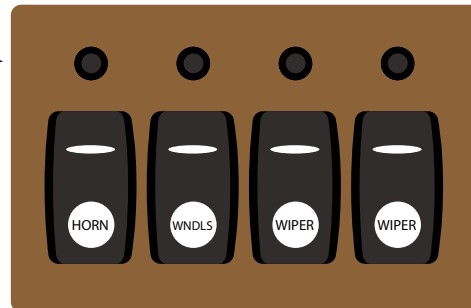


The bilge pumps operate automatically with electronic float switches regardless of battery switch position.

However, the aft, forward and pod pumps will run continuously once their switches are placed in the on position. Monitor the outflow accordingly. Do not run when dry.

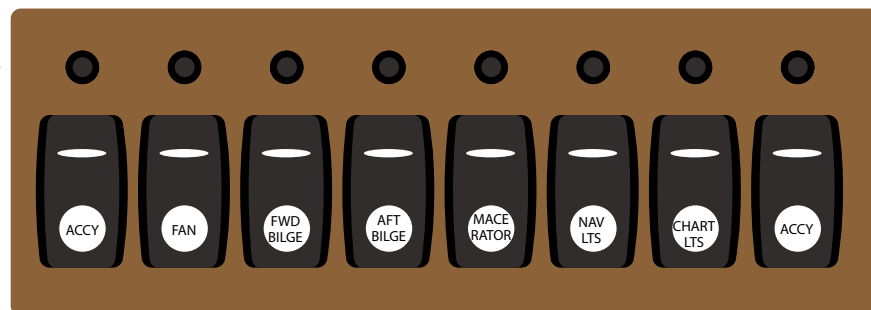
At Helm

Resettable switch breakers →



At Helm

Resettable switch breakers →

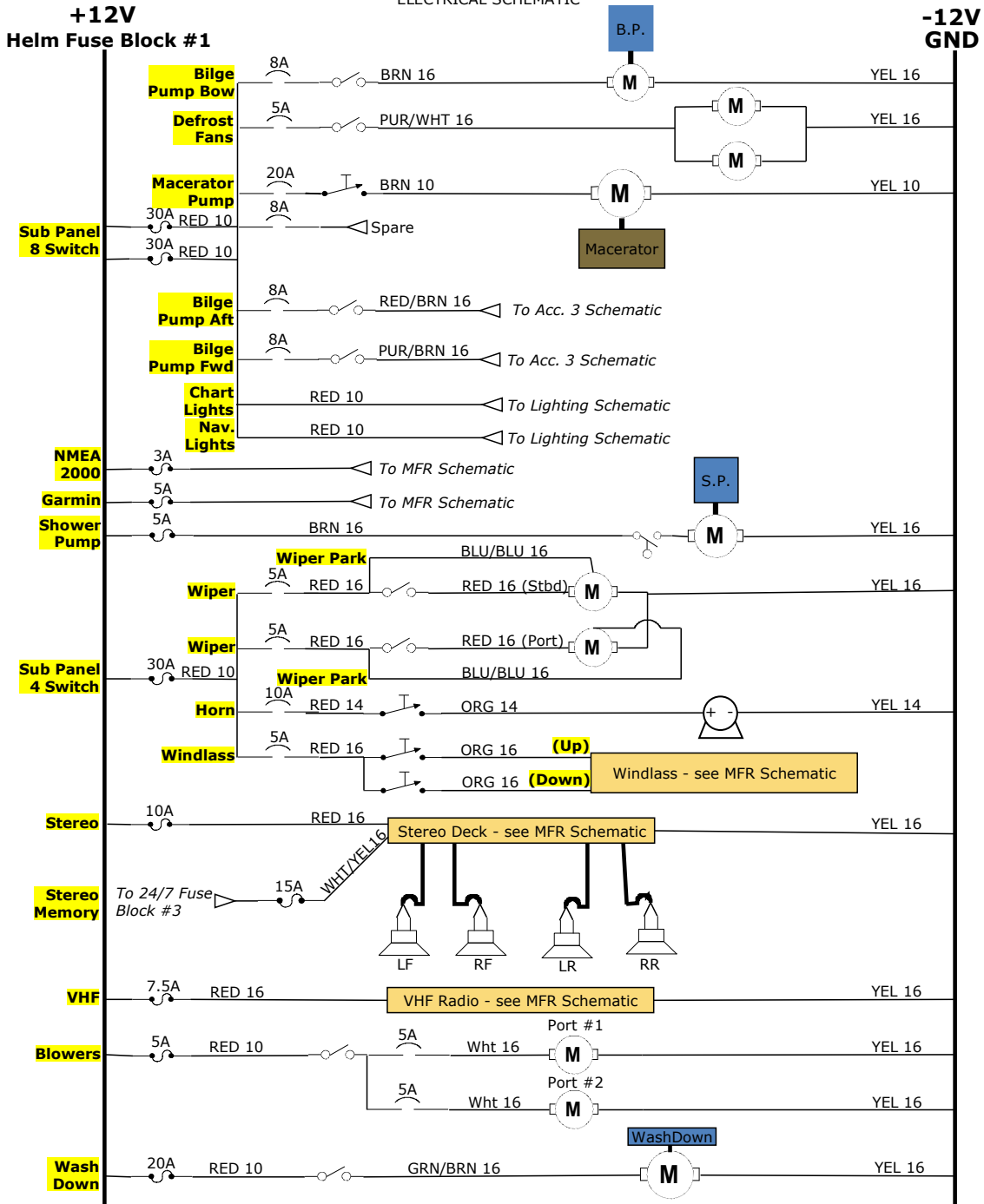


RANGER TUG R-23 WIRING SCHEMATIC (ACC. 1)



R-23 Accessories 1

ELECTRICAL SCHEMATIC

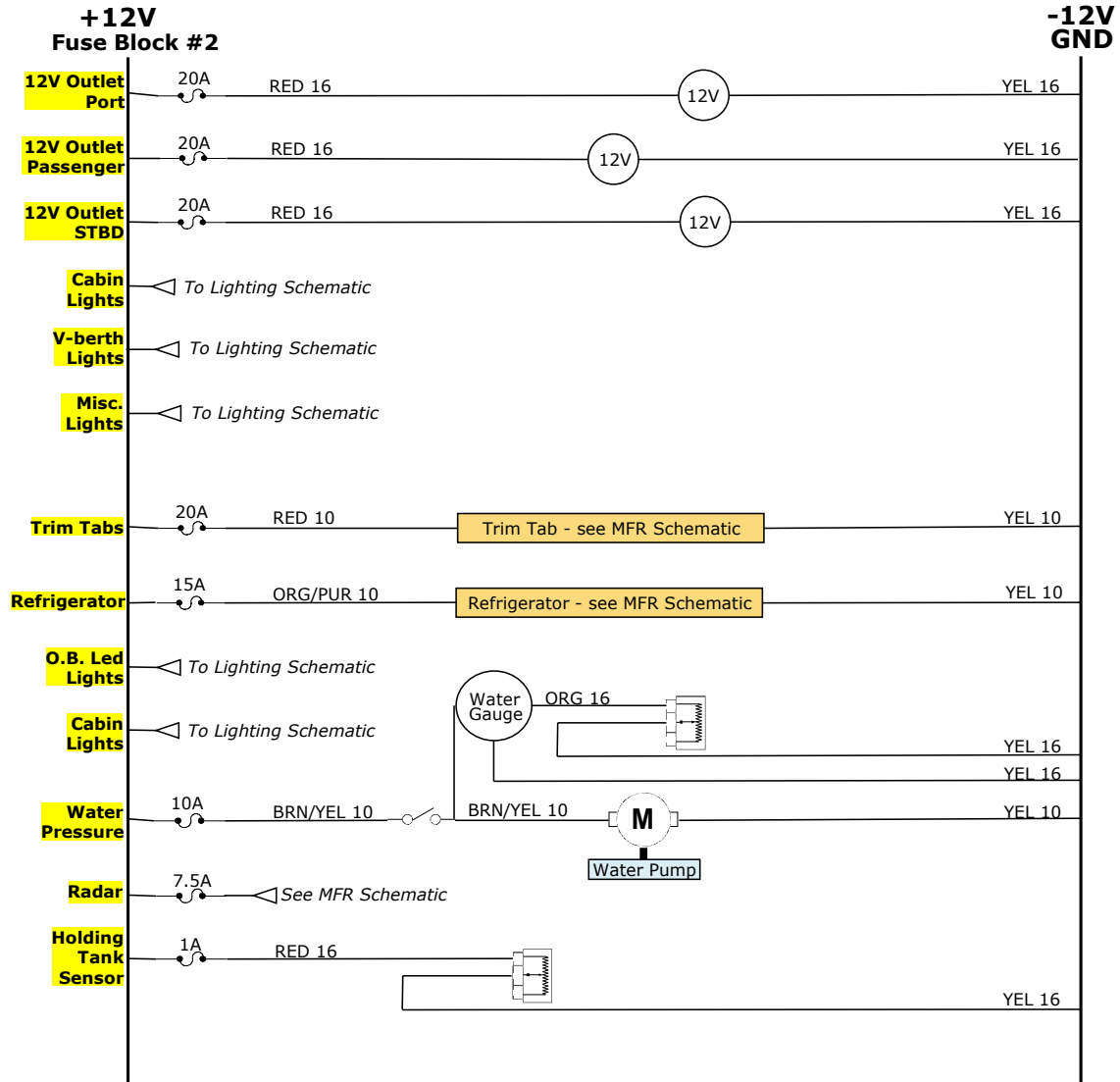


12-14-18

RANGER TUG R-23 WIRING SCHEMATIC (ACC. 2)



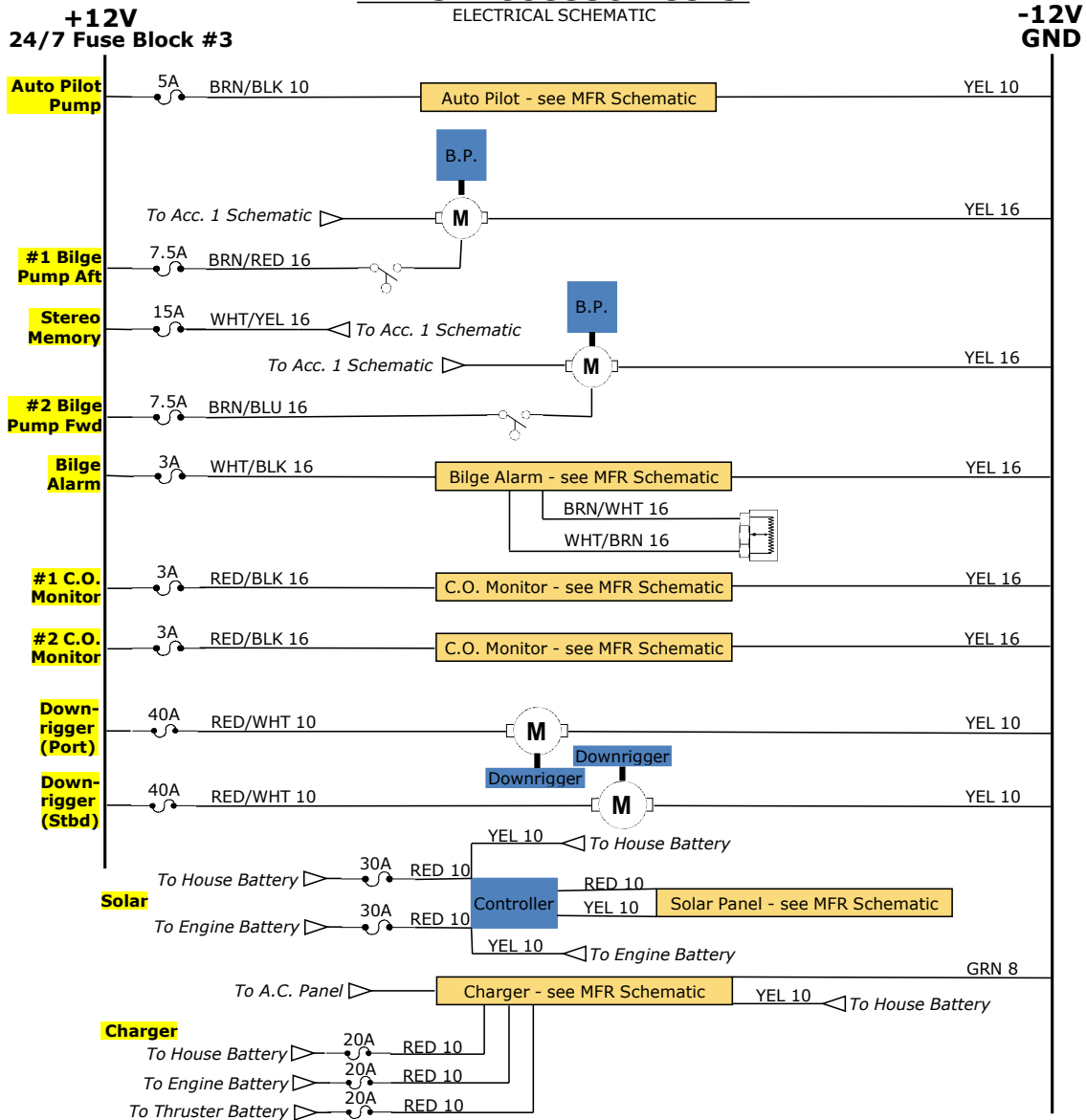
R-23 Accessories 2 ELECTRICAL SCHEMATIC



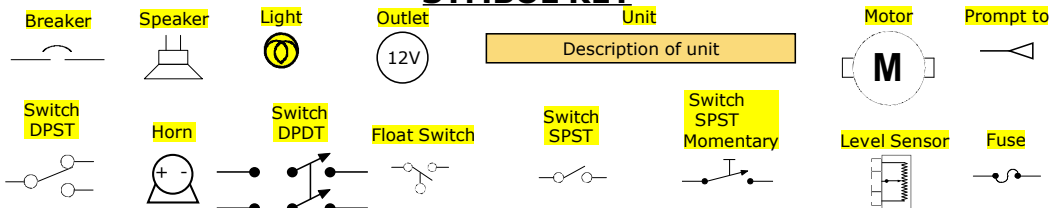
RANGER TUG R-23 WIRING SCHEMATIC (ACC. 3)



R-23 Accessories 3 ELECTRICAL SCHEMATIC



SYMBOL KEY



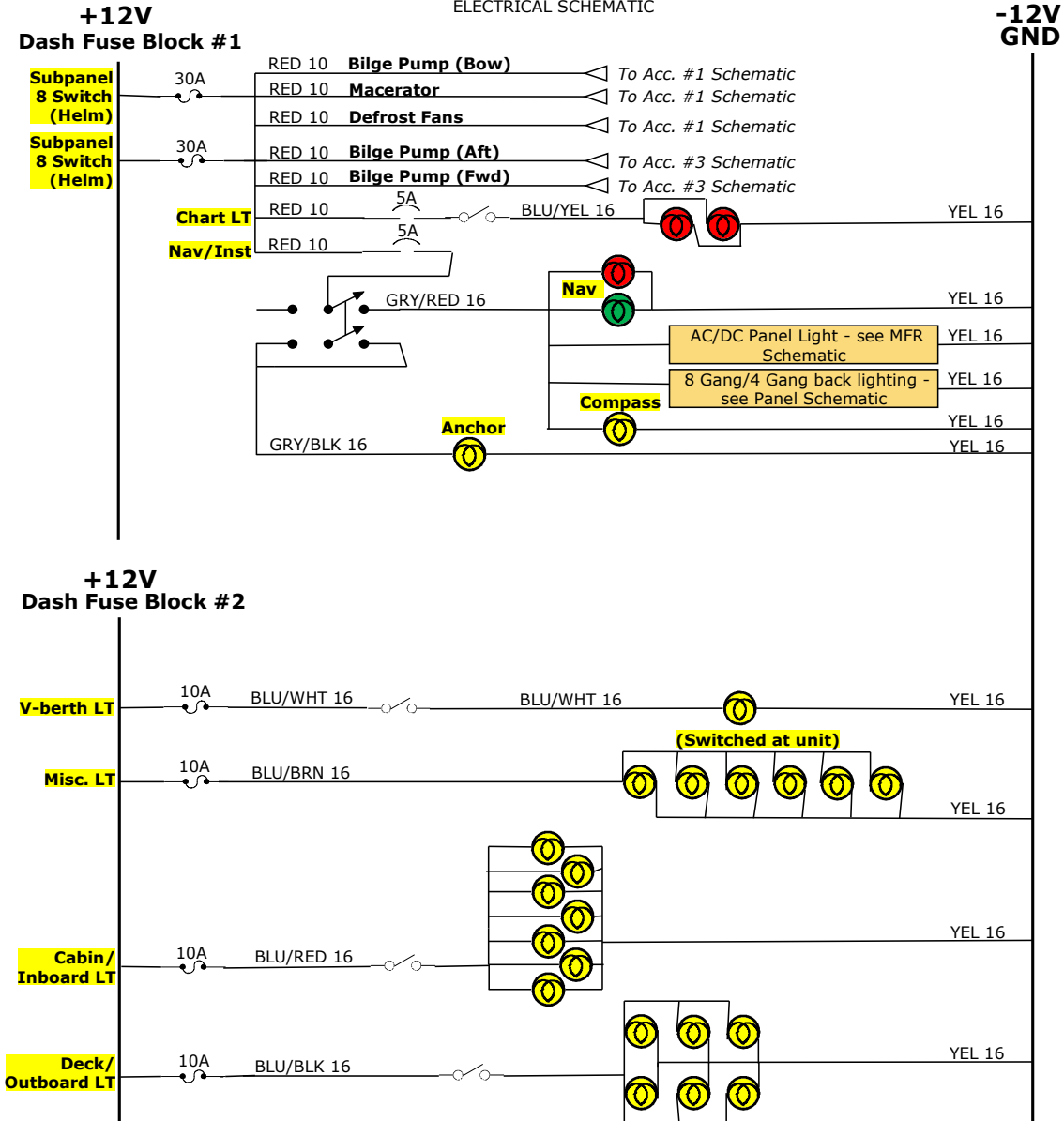
12-14-18

RANGER TUG R-23 WIRING SCHEMATIC (LIGHTING)

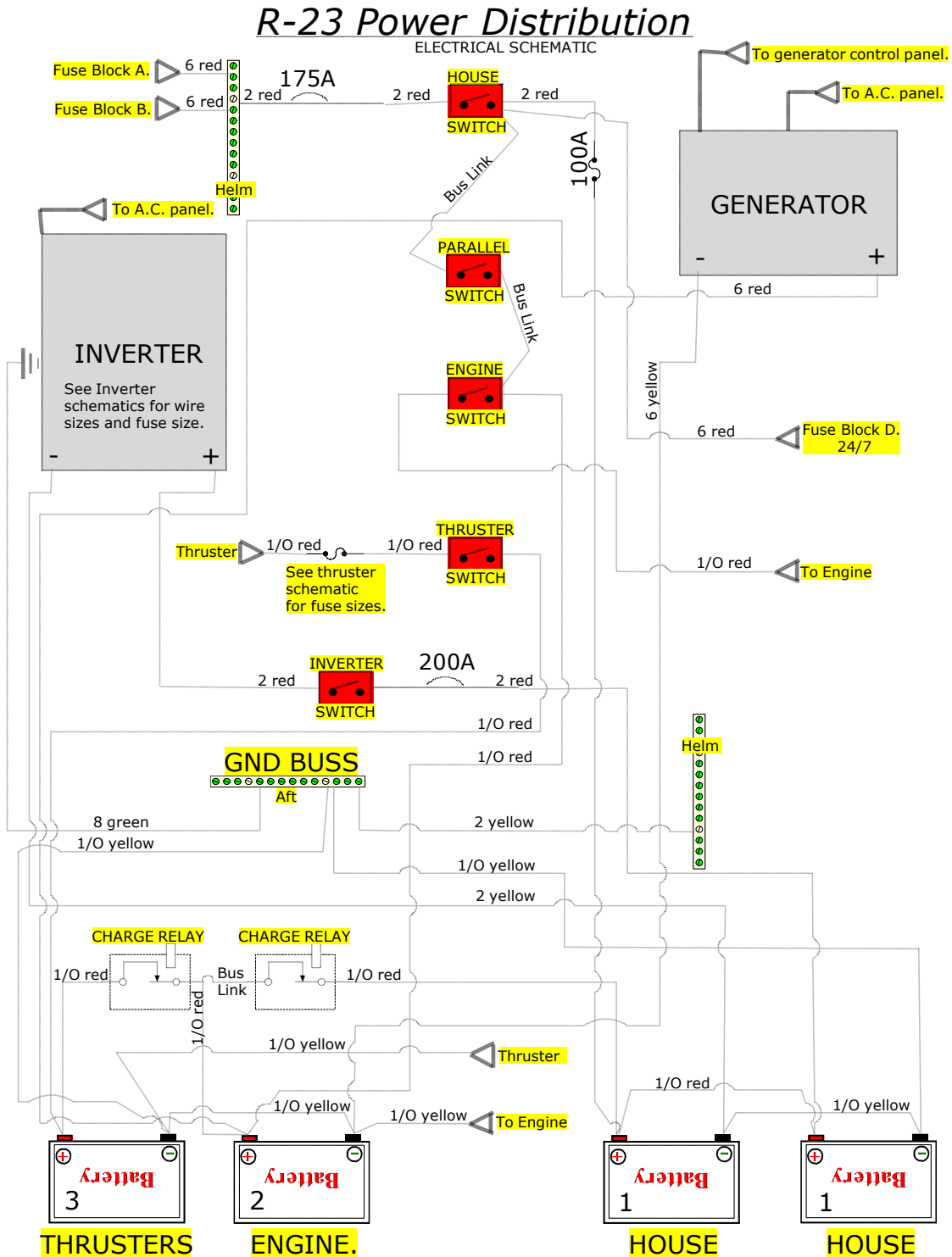


R-23 Lighting

ELECTRICAL SCHEMATIC



RANGER TUG R-23 WIRING SCHEMATIC (P.D.P.)

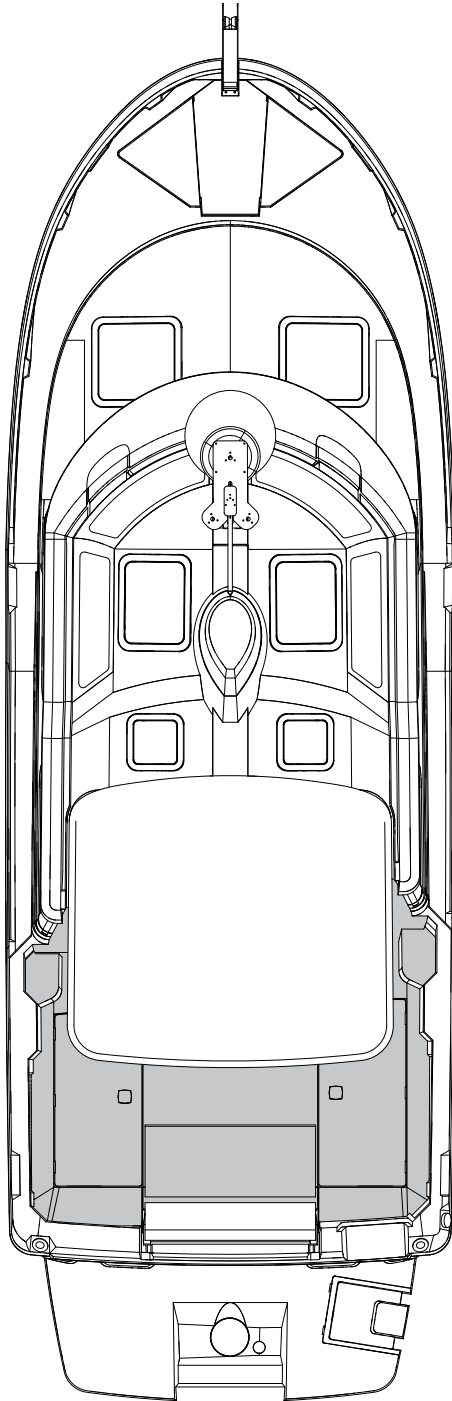


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RANGER TUG R-23 WORKING DECK



STE



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.
- Clear countertops.
- Lock fridge latch.
- Check engine is up!
- Lock cabin.
- 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 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/throw cushions.
- Check fire extinguishers and their fill dates.
- Boat hook.
- Lines/fenders.
- 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, or remove all water from the system.
- 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 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 engine(s) with fresh water.
- Check all fluid levels.
- Check all hose fittings.
- Check impeller.
- Check engine maintenance requirements.

GALLEY

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

WARNING LABEL LOCATIONS



PROP

LOW VISIBILITY

CARBON MONOXIDE

CARBON MONOXIDE

DO NOT STORE FUEL

INSPECT FOR FUEL LEAKS

PROPELLOR WARNING

HIGH VOLTAGE

EPA & COAST GUARD COMPLIANCE

SHOCK & FIRE HAZARD

TRANSOM DOOR MUST BE CLOSED

NOTES



A series of horizontal blue lines for writing, starting with a thicker line below the 'NOTES' header and followed by 21 thinner lines.

NOTES



A series of horizontal blue lines extending across the width of the page, providing a template for handwritten notes. The lines are evenly spaced and cover most of the page area below the title and logo.



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