43z OWNERS GUIDE

mjm yachts

BOAT INFORMATION

MODEL	43z Downeast
HIN NUMBER	EOU43z_____
DESIGN PATENT	US D475 338S (3 June 2003)
DELIVERY DATE	_____
AIS MMSI NO.	_____
REGISTRATION NO.	_____
ENGINES	Mercury
MODEL	Verado _____
SERIAL NUNBERS.	_____ & _____&
	_____
DRIVES	Mercury
MODEL	1307V23LY & 1307V24LY
PROPELLORS	_____
MJM YACHTS LLC	Robert L. Johnstone
PHONE	401-862-4367 Mobile
EMAIL	info@mjmyachts.com
ADDRESS	39 Washington St., Newport RI 02840
ZURN YACHT DESIGN	Doug Zurn
PHONE	781-639-0678
ADDRESS	89 Front St., Marblehead MA 01945
BOSTON BOATWORKS LLC	Scott Smith or Rafael Silva
PHONES	207-252-7190 or 978-589-4519
	BBW Main # 617-561-9111
EMAIL	scotts@bostonboatworks.com
ADDRESS	333 Terminal St, Charlestown MA 02129
BBW SERVICE CONTACTS	Jon Clermont/Alston Shackelford/Nick Bannister
PHONE	207-400-7182 or 662-347-3388 or 857-406-3029
EMAIL	jonc@bostonboatworks.com
DEALER	_____
BROKER	_____
PHONE	_____
EMAIL	_____

Dear 43z Owner

Congratulations on becoming an owner of an MJM 43z. We're dedicated to making it the world's best in class. As you read this guide and share cruising adventures, we hope you'll discover our mission has been accomplished.

MJMs are built of the highest quality materials, a composite of epoxy, Eglass and Corecell. That contributes to MJMs being most fuel-efficient yachts of their type by a wide margin. The same is true in the selecting of equipment suppliers and cabinetmakers. 43z is built to structural scantlings of Category A and will be certified at least to ISO Category B Offshore. 43z leads the outboard market with unusually complete standard specifications and amenities. The boats are safe, reliable, easy to handle by one person, and high performers. Last but not least, and our number 1 design mandate, they turn heads entering harbor.

In addition to this Owners Guide, and primaryin terms of authority, are two large binders with equipment supplier owner manuals and warranties. These documents contain an enormous amount of important information. Please keep them accessible for reference when you have an issue or question not covered in sufficient detail by this guide. You can download most from supplier websites onto an iPad or install them on the Raymarine display.

This guide reflects our experience from building over 250 MJMs. I personally have spent more than 6000 hours cruising on MJM yachts so want to impart some advice and background information along with the "how to do it." See comments in the blue sidebars.

As you enjoy your new boat, remember that much of the equipment contains computer chips that can sometime have glitches, which are often corrected with a re-boot. With proper safety precautions and good weather planning, you will spend many enjoyable hours on your new vessel.

Robert L. Johnstone

Founder and CEO
(401) 862-4367
bobj@mjmyachts.com

QUICK START GUIDE

Here's a reminder checklist for an experienced captain, familiar with operation of triple Mercury Verado outboards equipped with Joystick Piloting and information in this guide and accompanying binders.

Check Systems

CHECK to see that raw water strainers of the GENERATOR, SEAKEEPER and AIR CONDITIONING units are clear.

Change AC Power Source - Shore Power to Inverter

Turn OFF the two SHORE POWER breakers at the top of 120V AC panels. Then:

1. If planning to use the GENERATOR to power the SEAKEEPER or AIR CONDITIONER underway, start the GENERATOR and turn on the TRANSFER switch (there's a 2 minute delay until panel lights up active).
2. Otherwise flip the PHOENIX CONTROL toggle to ON to activate the INVERTER to sustain power to 120V AC circuits.

Turn OFF the Dock Pedestal breaker first, then disconnect 30amp cord(s) or retract the optional 50amp power cord with Glendinning reel. The 50amp input splits to 2-30amp circuits inside the boat to power the two AC Panels.

Activate 12 Volt Equipment

With HOUSE BATTERY switch ON, check for at least 12.2V on the electrical panel. Turn ON TRIM TABS, ELECTRONICS, HORN, WIPERS, FW PUMP, HEAD, BOW THRUSTER, GYRO and other breakers for equipment used underway… such as NAVIGATION LIGHTS and SEARCHLIGHT if at night.

Turn ON red ENGINE BATTERY switch (turns on all 3 engines) at the top of the 120V AC panel.

Insert TPS key fob (Theft Prevention System) into its slot above the electrical panels.

Insert and turn ON ENGINE KEYS (ignore START position as that happens on deck). Listen for acknowledging beep and look for Green "Systems OK" Light on Vesselview.

SELECT "Engine Page" on VesselView and check engine battery voltage in top center.

CAUTION If batteries are low, don't leave the dock until you diagnose and correct the problem.

LOWER engines using rocker switch on port control handle, confirmed by trim bars in lower center on VesselView.

CAUTION Ensure people, equipment, lines and hoses are clear and not in the water before starting.

Start Your Engines

Momentarily TOUCH engine start buttons to starboard of wheel. Don't hold them in. It's automatic.

TAP JOYSTICK lightly in any direction to insure it is functioning. The rim lights up GREEN.

Cast Off

CAUTION Confirm that no one is on the foredeck or in the water.

If everything is in order, cast off dock lines. When maneuvering with the JOYSTICK, minimize going back to center to avoid shifting of outboard gears. If moving sideways to clear a float: You can move the bow to catch up with the stern by twisting the knob at the same time while held sideways… likewise with moving the boat slightly forward or aft by leaning the joystick forward or aft while still leaning the joystick in the sideways direction desired.

Move the SHIFT LEVER forward out of neutral normal operation to automatically disengage the JOYSTICK. The JOYSTICK is automatically ready for use (Green Lighted Rim) when SHIFT is in neutral.

BOAT INFORMATION

MODEL	43z Downeast
HIN NUMBER	EOU43z_____
DESIGN PATENT	US D475 338S (3 June 2003)
DELIVERY DATE	_____
AIS MMSI NO.	_____
REGISTRATION NO.	_____
ENGINES	Mercury
MODEL	Verado _____
SERIAL NUNBERS.	_____ & _____&
	_____
DRIVES	Mercury
MODEL	1307V23LY & 1307V24LY
PROPELLORS	_____
MJM YACHTS LLC	Robert L. Johnstone
PHONE	401-862-4367 Mobile
EMAIL	info@mjmyachts.com
ADDRESS	39 Washington St., Newport RI 02840
ZURN YACHT DESIGN	Doug Zurn
PHONE	781-639-0678
ADDRESS	89 Front St., Marblehead MA 01945
BOSTON BOATWORKS LLC	Scott Smith or Rafael Silva
PHONES	207-252-7190 or 978-589-4519
	BBW Main # 617-561-9111
EMAIL	scotts@bostonboatworks.com
ADDRESS	333 Terminal St, Charlestown MA 02129
BBW SERVICE CONTACTS	Jon Clermont/Alston Shackelford/Nick Bannister
PHONE	207-400-7182 or 662-347-3388 or 857-406-3029
EMAIL	jonc@bostonboatworks.com
DEALER	_____
BROKER	_____
PHONE	_____
EMAIL	_____

CE CERTIFICATION

CERTIFICATE NO.	BBBW Pending
AUTHORITY: ADDRESS:	International Marine Certification Institute
	Rue Abbe Cuypers 3
	B-1040 Bruxelles. Belgique
PHONE	+32-2-741-2418
WEBSITE	www.imci.org
CLASSIFICATION	ISO CE Mark Design Category B Offshore (EC Directive 94/25/EC) for craft designed for offshore voyages (1) where the vessel is correctly handled in the sense of good seamanship and operated at a speed appropriate to the prevailing sea state and (2) with significant wave heights above 4 m (calculations are based on 7 m) and wind speeds in excess of Beaufort Force 8, but excluding abnormal conditions, e.g. hurricanes.

CAPACITY

	Maximum 22 Persons
PERSONS	Maximum Load 1650 kg
PERSONS/GEAR	Maximum Load 4316 kg

RECEIPT BY OWNER In compliance with ISO 10240:1995(E) the owner hereby certifies receipt of this manual and has read and agrees to the terms of the Builder's Limited Warranty included herein.

MJM Yachts 43z

Built in the USA by Boston BoatWorks LLC
Charlestown MA
Under United States Patent No. D475,338S
Max Persons 22 = 1650 kg
Max Persons & Luggage = 4316 kg.

ISO Category B Offshore

Prototype Builders Plate Shown

NAME

Signature

Printed Name(s) and Date

BOAT

Boat Name and Hull Number

CONTACT INFORMATION

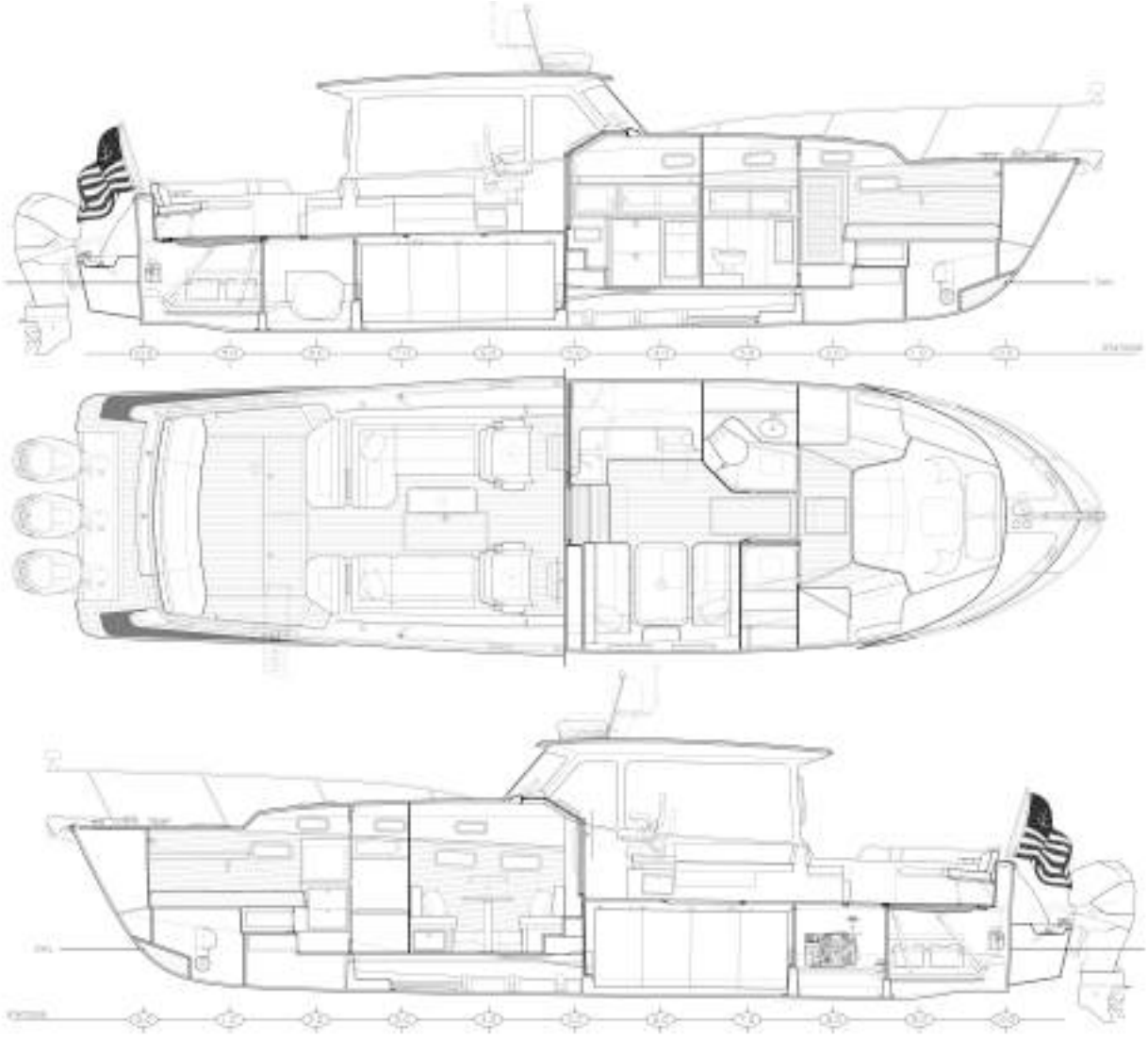
Street Address

City, State, Zip

Mobile Phone

E-Mail

Please sign one of the two copies of this page and return it in the attached stamped envelope to MJM Yachts, 39 Washington Street. Newport, RI 02840.



MJM 43z

LOA: Length Over-All including engines down & bow roller ..... 46.3 ft.

LOD: Length on deck (LOD)..... 42.6 ft.

Beam (Maximum width on trailer)..... 12.0 ft.

Maximum Lift weight (full tanks, no crew) ..... 23,520 lbs.

Draft with Engines (Up) Down .....(1.8 ft.) 3.1 ft.

Displacement (1/2 Load)..... 18,960 lbs.

Fuel tank..... 540 gal.

Fresh water tankage (including hot water tank) ..... 113 gal.

Holding tank ..... 30 gal.

Air height above water to top of radar dome mounted on hard top ..... 10.0 ft.

1 INTRODUCTION

1.1 PURPOSE AND LIMITATIONS

This purpose of this *Owners Guide* and the equipment suppliers' manuals in the accompanying binders is to provide you with an overview of the yacht's equipment, operation, systems and maintenance. The people at MJM and Boston BoatWorks have taken pains to edit this guide for accuracy in good faith. Most of these topical require further study and learning by the captain of a vessel who assumes extensive responsibilities for safe operation of the vessel and for safety of the crew.

This summary guide of yacht equipment and operation will never be complete or accurate in all respects. And, since we frequently make improvements, we assume no responsibility for missing information or errors contained herein. This document doesn't replace common sense nor qualify the reader in safety practices, boat handling or navigational skills. Mastering these systems and the skills of seamanship is each owner's/captain's responsibility. If this is your first yacht, or if you're changing from a different type of yacht, please get instruction and experience before assuming command. Your dealer, yacht club, marina or the US Power Squadron https://www.usps.org are all good resources that can recommend licensed captains, schools or other instructional entities.

Although this guide and the accompanying binders describe systems on the boat, they don't qualify you to work on them. When they need attention, please use qualified and certified trades personnel. If you question the information or are unsure about an action, check with the equipment supplier, a qualified person or us.

The *Appendix* includes other useful information. And there's a chapter on the people who create MJM yachts you can contact if you need help. Study these resources to understand how to operate your yacht safely.

DANGER The operation of a powerboat can be dangerous. Pay careful attention to safety notices in this guide and in the manuals in the binders.

Keep this guide in a secure place on the boat. If you sell the yacht, please give this copy to the new owner.

This guide is published in accordance with ISO standard 10240:1995E Small Craft - Owner's Manual.
Please contact us if you have a question about the material in this book, if you find a conflict between this material and the material in the binders or if you find an error or important omission on the following pages please contact Customer Service at Boston Boat Works.

…R.I.J.

1.2 STANDARD SPECIFICATIONS

You may download the latest version of this guide and the standard specifications for a MJM43z from http://www.mjmyachts.com/43z to install on your computer, an iPad or navigational display.

1.3 CONVENTIONS

When we reference a specific device or item of equipment on the boat, it will be in all caps, such as HOUSE BATTERY.

As we describe each device we often use the following order.

1. BREAKER PANEL settings
2. Function, what it does
3. Directions for use
4. Advice or comments in a sidebar
5. The URL for the manual if available

2 SAFETY and some USCG REQUIREMENTS

2.1 BINDER MANUALS

The equipment suppliers' manuals in the accompanying binders have many safety notices that relate to their products, their operation and maintenance and their use in the boat. Ensure that you understand this essential information before you operate the boat. Spend time reviewing the safety procedures, how safety equipment works and where It's stowed. Instruct guests in safety procedures.

2.2 STANDARD EQUIPMENT

To send a distress call (without specifying its nature) press and hold the red distress key for 3 seconds. See Ray218E/Ray55E Installation and Operation Instructions.

VHF Radio BREAKER PANEL settings: ELECTRONICS breaker on. The VHF RADIO may be used for receiving weather broadcasts, communicating with harbors, locks (ch13), bridges (ch 9), marinas, the U.S. Coast Guard (USCG), rescue services boats and other boats. The USCG monitors channel 16. If you normally have your radio tuned to channel 16 you can listen for emergency calls from nearby boats or be able to make an emergency call quickly. Don't use Channel 16 for a private conversation.

MMSI Number The radio has Digital Selective Calling (DSC). It's arguably the most important piece of safety equipment on the boat. There's a one-button emergency transmit button that sends a Maritime Mobile Service Identity (MMSI) number to the USCG. The signal identifies the boat. It's interfaced with GPS so your position will be sent with the emergency message. The Automatic Identification System (AIS) will report your MMSI number to other vessels and you will see their MMSI number. If you sell your boat, log onto your account to cancel the MMSI number, so the new owner can register, acquiring a new MMSI.

In addition to the safety function, an MMSI number is like a phone number. You can make a call to another DSC-equipped vessel if you know its MMSI number. Only the vessel being called will receive the hail.

BoatUS http://www.boatus.com/MMSI/ is authorized by the Federal Communications Commission and the USCG to assign MMSI numbers. The *Installation and Operation Instructions* for the VHF RADIO included in the binder explains how to install the MMSI number in your radio. It also explains how to use the VHF RADIO. It may be downloaded at:
https://raymarine.app.box.com/s/grwg60669c5sozf6iolq/1/2757682985

The Horn BREAKER PANEL settings: HORN breaker on. The USCG requires a "Sound Producing Device" for signals under many circumstances. The HORN is operated from a switch on the CONSOLE SWITCH PANEL at the helm. The adjacent UNDERWAY HORN/ANCHOR switch has programmed signals. (See page 13.)

CAUTION Electronics fail. It's wise to have a portable VHF radio, GPS receiver, SEARCHLIGHT and HORN that are battery operated and hand held.

Fire Extinguishers See *EMERGENCY DIAGRAM* page 5 for Fire Extinguisher locations when the boat is delivered.

Carbon Monoxide Detector See *EMERGENCY DIAGRAM* page 5.

Companionway Hatch Board or Closure A companionway board with the label *"DON'T REMOVE WHILE UNDERWAY"* is provided to comply with ISO requirements for cockpit draining and to prevent large waves from crashing down into the cockpit, running forward and entering the interior of the boat if the companionway door is not securely closed.

Better to just secure the companionway slider and lid. It's quieter, prevents someone from being pitched below and provides a Chart Kit navigation surface.
---R.I.J.

Going Onto the Foredeck in Rough Weather. Primary access to the foredeck is intended to be via the forward cabin hatch… for instance to secure an anchor that has come loose from the windlass and poses a hazard. ISO requires that a Jackstay be fitted to access the foredeck in heavy weather. The jackstay should be secured to a foredeck cleat prior to entering rough seas then led aft port or starboard inside the bowrail stanchions and anchored to a secure point aft of the pilothouse. A proper offshore harness with lifejacket should be worn to secure yourself to the jackstay.

2.3 Commissioning Package Safety Items

The Commissioning Package Option, if purchased with your boat, will have:

- A copy of the *U.S. Department of Homeland Security United States Coast Guard Navigation Rules* to be on board. It also may be downloaded at: http://www.navcen.uscg.gov/pdf/navrules/navrules.pdf
- A First Aid Kit
- Twelve wearable USCG approved personal flotation devices (life-jackets) and one type IV throwable PFD
- A 12-Gauge Flare Kit
- A Hand-held Bilge Pump
- A Hand-held LED Flashlight
- Paper Charts

2.4 USCG Required Equipment

A Boater's Guide to the Federal Requirements for Recreational Boats, published by the USCG, lists required safety items. The Guide may be downloaded at: http://www.uscgboating.org/images/420.PDF. Check state regulations where you cruise for other requirements.

2.5 Additional Safety Equipment

There are many other items of safety equipment to consider such as:

EPIRB (Emergency Position Indicating Radio Beacon) alerts search and rescue services by transmitting a coded message and is detectable by satellite anywhere in the world. Although the USCG doesn't require them, EPIRBs are essential offshore and desirable anywhere.

Inflatable Life Raft isn't required but prudent. Rafts come in compact sizes that can be stored in a cockpit locker. A dinghy isn't a substitute for a life raft.

Heaving Line is handy to have for emergency or to simply trail behind the boat (if the engines are off) attached to one of the stern cleats when people are swimming. Polypropylene is good because it floats.

A Storm Anchor is useful as a back up and for situations when two anchors are prudent or necessary.

2.6 Some Additional USCG Requirements

In addition to the above safety equipment, the USCG requires:

Ships Registration and Documentation Carry the Vessel Registration, either the state-issued Certificate of Number or Vessel Documentation if federally documented with the USCG. It's wise to have your insurance as well.

Pollution Regulation Plaques You are required to post three visible placards in the boat that stipulate that waste must be managed; that oil discharge is prohibited and deposit of any refuse matter of any kind into the waters of the US is prohibited. West Marine has such plastic placards with adhesive backs that are available at little or no cost.

2.7 Fuel Shut-off Valves

The first thing to do if there is a fuel fire or leak is stop engines, turn off ignition and engine battery switches and close fuel shut-off valves by turning them perpendicular to the hose. They are located under the cockpit sole hatch. If there is fuel in the bilges, close valves, find the source of the leak and then clean bilges.

2.8 Fire Suppression

An automatic, heat-activated, fire suppression system is installed in the generator compartment. It can be activated manually at the helm station. To prevent the engines from evacuating the fire suppression agent when it discharges, the system will shut off blowers and generator. Refer to the manual for maintenance instruction. (

Hand-held fire extinguishers (see *Emergency Diagram* following for locations) are rated to fight type A, B & C fires. To extinguish a fire, first cut the source of fuel to the fire. In a fuel fire, turn off the fuel tank valves. In an electrical fire, turn off the BATTERY switches.

Fire safety begins with prevention. Reduce fire risk with these guidelines:

- Don't allow debris or oily rags to collect anywhere.
- Check bilges for oil or fuel regularly.
- Shut down unnecessary circuits when leaving the boat.
- Don't leave heat-producing appliances or equipment unattended.
- Inspect fire suppression equipment regularly and learn how to use it.

DANGER Exhaust gas contains carbon monoxide. It's colorless, odorless and lethal. Avoid inhaling. Inspect the exhaust system regularly. Idling engines at a mooring or at a dock isn't good for the engine and may allow gasses to accumulate in the cockpit or cabin.

DANGER Don't work on any mechanical or electrical equipment unless you're qualified. Electrical current and moving parts are dangerous and can be lethal.

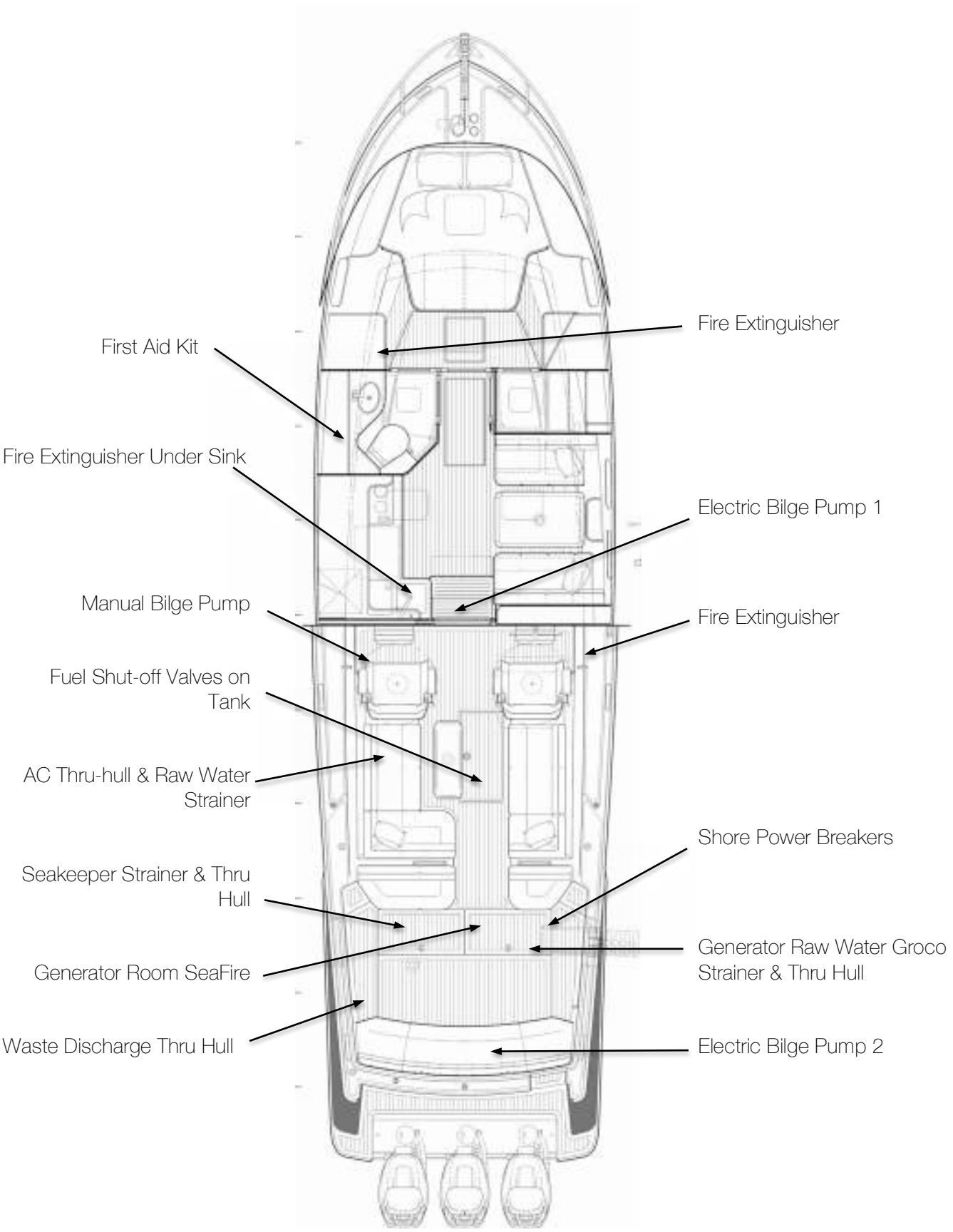
2.9 Notices

CAUTION Denotes a reminder of safety practices or directs attention to unsafe practices which could result in personal injury or damage to the craft or components.

WARNING Denotes a hazard that exists which can result in injury or death if proper precautions aren't taken.

DANGER Denotes an existing extreme intrinsic hazard that would result in high probability of death or irreparable injury if proper precautions aren't taken.

2.10 EMERGENCY AND THRU HULL DIAGRAM



3 PROPULSION

3.1 ENGINES

The MJM 43z is propelled by triple Mercury Verado 350 HP 4-stroke, 6-cylinder in-line outboard engines with HD heavy duty drives having either 3 blade Enertia-ECO 3-Blade or 4-blade Evolution-4 stainless steel propellers. When raised, engines are out of the water.

3.2 ENGINE CHECKS

See “Mercury Operation & Maintenance Manual (MOMM”) provided with your MJM. Before long trips, checki hydraulic steering fluid level under the rear cockpit seat and engine oil level by removing the top cowl.

Top Cowl Removal to access most maintenance points. To tilt the engine closer, making this easier, use the small black AUXILIARY TILT SWITCH on the port side of the engine just below the top cowl.

Pull up on the top cowl latch on the back of the engine.

Pull the top cowl forward and lift off.

Remove dipstick on port side of engine to check oil, then securely reinserti.

Putting the top cowl back on is a bit tricky. Position the top cowl loosely in place over the engine, being sure it fits on top of the rubber seal all the way around. (MOMM says front first)..

Push down on the cowl, MOMM says back half first, then front half until it clicks into place. Make sure it’s secure by pulling up on the back of the cowl. Don’t want this flying off underway!

Carbon Streaks rub off with a swipe of the hand when hosing down boat.

Mercury FUEL FILTERS & Fuel Shut Offs

TPS (Theft Prevention) fob.

Engine Ignition Keys.

Engine START/STOP Buttons to starboard under wheel. .

Water Separating Fuel Filters should be replaced every 100 hours or annually. They are located on bulkheads outboard of the generator and aft of the fuel shut-off valves on top of the fuel tank. Shown here on a 35z.

The wire out of the bottom of the filter bowl is the sensor to alert that water is in the filter. This is not usually of an urgent nature, but rather a "change at next opportunity" event.

In-Line Fuel Filter under the engine cowl should also be replaced every 100 hours or annually. This pencil like deviice primarily capturres fabrication debris picked up by the fuel in the tanks or hoses. Rarely does fuel clog it. (See MOMM pg 76)

Check Fuel Level The primary cause of engine failure is running out of fuel. There's a fuel level sensor in the 530 gallon tank and read out on VESSEL VIEW.

3.3 Five Steps to Start

CAUTION Ensure there are no lines and hoses in the water near the props.

1. Turn on the MASTER ENGINE BATTERY rocker switch at the upper right of the AC (120v) breaker panel.

2. Insert the TPS fob into it's independent slot above the electrical panels.

3. Turn on the 3 engine ignition keys over the AC Panel. You will hear an acknowledging beep and the VesselView panel will become activated.

DANGER Don't start the engine if people are in the water nearby.

4. Lower engines using the rocker switch on the port control handle. Ensure the ENGINE/SHIFT CONTROL LEVERS are in neutral. The engines won't start if either lever is in gear.

5. Start Engines, push and immediately release the engine start button for each engine to starboard of the wheel. Do not hold them in as process is automatic until engine starts. If you don't hear the engines (these are quiet boats) look at the VESSEL VIEW DISPLAY panel to see they read 500-600 rpm idle. Also check to see if the Joystick base rim lights up GREEN indicating that it is active. See JOYSTICK PILOTING

CAUTION The boat may move abruptly when the gear is engaged. Ensure the boat is clear of all obstacles forward and aft. Cautiously shift to the IDLE FORWARD position then quickly back to NEUTRAL position. Observe whether the boat moves as you expect.

WARNING If a warning light or buzzer activates, stop the engine immediately. Determine the cause and repair the problem before continuing to operate.

3.4 Stopping the Engines

Put ENGINE/SHIFT CONTROL LEVERS in neutral. Push the lower STOP buttons on START/STOP Panel. The green base of the Joystick goes out and RPMs go to "0". Once the engines have been raised, Reverse the Start process by turning of Ignition Keys, pulling out the TPS fob (and hiding it) then truning off the two ENGIINE BATTERY SWITCHES. i

It is unnecessary to remove the ignition keys, since they are below and the TPS fob is hidden ENGINE BATTERY SWITCHES are off and the cabin is locked.

A reboot can solve mysterious issues and even obvious ones like after wrapping a stern line around a prop. after which the joystick control starts acting crazy. Electronic engine controls are computers. Mysterious problems may be caused by unusual switching sequence. They can often be fixed with a reboot. Stop the engines. Turn everything off—shut down the entire boat. Wait at least 10 seconds. (My printer and router call for 25 seconds.) Then turn HOUSE BATTERY and ENGINE BATTERY switches on (but not the ENGINE EMERGENCY, PARALLEL switch). Go on deck. Turn Ignition switches on at the helm. Wait until the Vessel View shows data and has gone through its initial warm up. Then start the engines and check the Joystick Control functions.
…R.I.J

WARNING Engine work should not be done with the engine running unless specified by the manufacturer for a specific reason and done by a qualified marine mechanic. Stop engines before opening engine hatch.

3.5 New Engine Break-in

When running the engine for the first time, frequently check oil pressure, coolant temperature (normal is 145°), exhaust color, engine vibration, sounds and the operation of indicators and gauges. Don't run the engine at a constant RPM for long periods of time or apply full throttle for more than about 30 seconds.

Lubrication During the first 10 hours of operation, high oil consumption is typical. Change oil between 50 and 100 hours. Consult the *MOMM* for the proper oils for the climate where the boat will be operating.

3.6 Operating Parameters

Pay attention to the engine data on the VESSEL VIEW or displayed on the Raymarine gS165 data bar. A significant change in oil pressure, coolant temperature or pressure, or voltage drop should be quickly investigated before the engine is damaged. Data should read approximately:

- Oil Pressure: 50 psi at 3000 RPM or more.
- Coolant Temperature: 145° F to 165 ° F
- Coolnant Pressure over 3000 RPM: 15-25 psi.
- Charging: 13-14 Volts underway

While Mercury has run their engines for 300 hours straight at max RPM without damage, a good fast cruising speed is 35-37 knots. Or about 90% of max RPM at about 5200 RPM. Listen and feel for sweet spots. If you hear abnormal sounds, stop the engine and inspect.

3.7 Leaving the Boat

With SHOREPOWER connected - Leave 12v HOUSE BATTERY switch on, as well as REFRIGERATOR breaker. And, on AC Panel: leave AIR CONDITIONER and ARI CONDITIONER PUMP breakers on.

Check that BILGE PUMP switches are set to AUTO

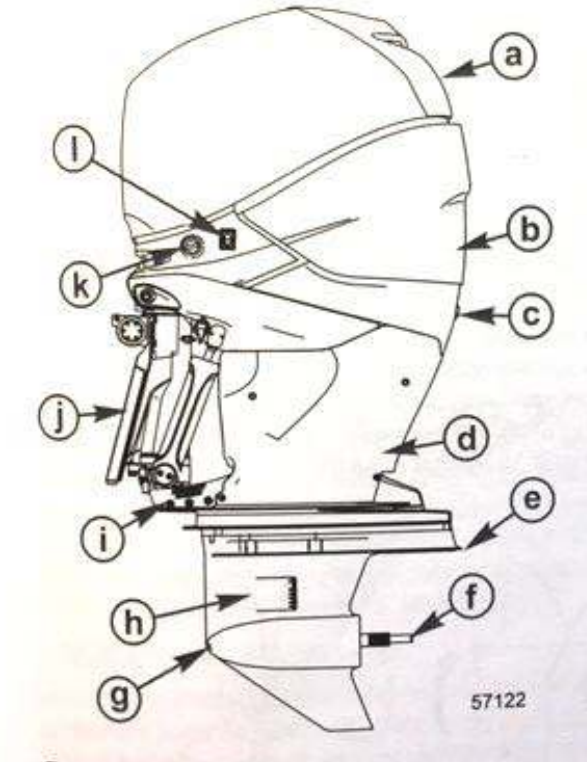
Turn INVERTER toggle switch on PHOENIX CONTROL to "Charge Only"

If moored or with no shore power, If gone for more than a week, it's best to turn everything off, including the MAIN INVERTER UNIT itself under the starboard pilothouse settee, to avoid the risk of having dead batteries when you return.

Or, take advantage of the optional156W SOLBIIEN SOLAR PANEL. With INVERTER on It is designed to keep REFRIGERATOR and FREEZER going with a trickle charge to the HOUSE BATTERIES if not connected to Shore Power.

Flushing the Engines If you plan to let the boat sit for more than a few days, MOMM advises to flush the engines by hooking up a dock hose to the flush connectior on the port side of the engines next to the auxiliary lift button and lettig it run for about 15 minutes. See MOMM page 70.

3.8 MERCURY VERADO 350 HP ENGINE



a. Top Cowl
b. Rear Cowl
c. Idle Relief Exhaust
d. Lower Cowl Chaps
e. Anti-Ventilation Plate
f. Propeller Shaft
g. Low Water Intake Holes
h. Water Intake Holes
i. Trim Guide Plates
j. Pedestal
k. Engine Flush
l. Auxiliary Lift Switch

4 INSTRUMENTS AND CONTROLS

43z power steering rotates outboards through a 20° arc. The steering is more positive and immediate than deflecting prop wash off a rudder from a propeller on a straight shaft and far more positive than directing a jet of water at water passing the hull..

…R.I.J.

The following material includes selected summaries of Mercury *Operator's Manual (MOM)* included in the binders. Please read the entire manual for safety instructions.

Helm Station

Most of the boat's controls and instruments are at the helm station. Below is the layout on ZINNIA #1. The respective circuit breakers must be on for the equipment to operate.

1 Ritchie Compass
2 Raymarine gS165 MFD
3 Mercury VesselView
4 Console Switch Panel
5 Raymarine MFD Control Pad
6 Raymarine Multi-display with Depth
7 Seakeeper Control Panel
8 Searchlight Control
9 Mercury Joystick Piloting
10 Autopilot Button
11 ZipWake Auto Trim
12 Engine/Shift Control Levers
13 Flip Down Drink Holder
14 PH Light Switches (uncer 13)
15 Bilge Pump Controls (2)
16 Not Shown
17 Engine Start/Stop
18 Windlass Up/Down
19 Mercury Active Trim
20 Engine Up/Down Rocker Switch
21 Bow Thruster.

Esthec Riser (Option) This 4" high removable riser improves visibility for someone shorter than 5'5". It locks into place with a barrel bolt and can be stored in one of the settee lockers.

FEATURES AND CONTROLS

SPECIAL DIGITAL THROTTLE AND SHIFT (DTS) FEATURES

The DTS system features several alternate operational modes for the electronic remote control (ERC) levers. Any of the listed features can operate simultaneously.

Dual engine ERC

Item	Control	Function
a	Trim control (handle)	Raises and lowers the engines for best efficiency, or for conditions such as shallow water, trailering, etc.
b	NEUTRAL lights	Illuminate when the drive is in the neutral gear position. The lights flash when the engine is in throttle only mode.
c	TRANSFER	Allows boat control to be transferred to a different helm. Refer to **Helm Transfer**.
d	DOCK	Control lever operation reduces throttle capacity to approximately 50% of normal control lever throttle demand.
e	+	Increases brightness settings for CAN pad, VesselView and SmartCraft gauges.
f	THROTTLE ONLY	Allows the boat operator to increase engine RPM for warm-up without shifting the transmission into gear.

Item	Control	Function
g	–	Decreases brightness settings for CAN pad, VesselView and SmartCraft gauges.
h	1 LEVER	Enables the throttle and shift functions of both engines to be controlled by the port lever.
i	SYNC	Turns off or on the auto-synchronization feature. Refer to **Sync**.

NOTE: *Not all functions may be active.*

Dock

Dock mode reduces throttle capacity to approximately 50% of normal throttle demand, allowing finer control of engine power in close quarter situations.

DOCK button

Throttle Only

NOTE: *Throttle only mode should be used if the captain is not in command at the helm. Placing the ERC in throttle only mode will avoid unintended gear engagement. The engines will turn using the steering wheel and the RPM of the engines can be increased while in the throttle only mode, but the gear position will remain in neutral.*

THROTTLE ONLY button

To engage throttle only mode:

1. Place both ERC levers in neutral.
2. Press the THROTTLE ONLY button. The button light will turn on and the neutral lights will blink.
3. Place either ERC lever into gear. The warning horn will beep each time the levers are moved in and out of gear while in throttle only, but will remain in neutral.
4. The RPM of the engines can be increased.

NOTE: *Pressing the THROTTLE ONLY button while the ERC levers are not in the neutral position, turns the button light off and remains in throttle only mode. You must place the ERC levers into the neutral position to disengage throttle only mode.*

To disengage throttle only mode:

1. Place both ERC levers into neutral. Throttle only will not disengage unless the ERC levers are in neutral.
2. Press the THROTTLE ONLY button. The button light will turn off.
3. The neutral lights stop flashing and remain illuminated.

1 Lever

This feature commands both engines with a single lever on a dual engine application. This feature simplifies engine management during rough sea conditions by allowing you to use a single lever to command both engines simultaneously. It is not the same as the system feature called Sync.

1 LEVER button

To engage 1 Lever mode:

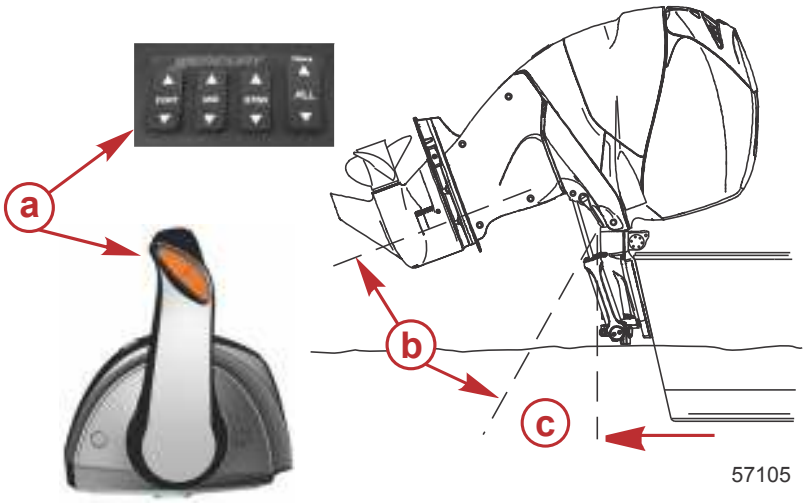
1. Place both ERC levers in neutral.
2. Press the 1 LEVER button. The button light will turn on.
3. Place the starboard ERC lever into gear.
4. When the handle is moved, the engines RPM and gear position is synchronized.

To disengage 1 Lever mode:

1. Place both ERC levers in neutral.

Power Trim and Tilt

The outboard has a trim/tilt control called power trim. This enables the operator to easily adjust the position of the outboard by pressing the trim switch. Moving the outboard in closer to the boat transom is called trimming in or trimming down. Moving the outboard further away from the boat transom is called trimming out or trimming up. The term trim generally refers to the adjustment of the outboard within the first 20° range of travel. This is the range used while operating the boat on plane. The term tilt is generally used when referring to adjusting the outboard further up out of the water. With the engine not running and the key switch in the ON position, the outboard can be tilted out of the water. At speeds below 4300 RPM, the outboard can be tilted up past the normal trim range.



a - Trim switch
b - Tilt range of travel
c - Trim range of travel

POWER TRIM OPERATION

With most boats, operating around the middle of the trim range will give satisfactory results. However, to take full advantage of the trimming capability there may be times when you choose to trim the outboard all the way in or out. Along with an improvement in some performance aspects comes a greater responsibility for the operator, this being an awareness of some potential control hazards.

Consider the following lists carefully:

1. Trimming in or down can:
   - Lower the bow.
   - Result in quicker planing off, especially with a heavy load or a stern heavy boat.

4.1 MERCURY FEATURES AND CONTROLS (PAGES 56 -77)

4.2 JOYSTICK PILOTING

The Mercury Joystick Piloting functions very much like the Volvo Penta IPS, except it's more automatic.

MOVE Engine Controls to Nuetral. The ring at the base of the JOYSTICK lights up Green to show that it's active.

TWIST Joystick to turn the boat or LEAN Joystick in direction desired or do both at same time While PUSHING Joystick forward or aft… without going back to center.

PUSH ADJUST "+" for 100% torque (shows 2 lights).
PUSH "-" for 50% torque (1 light). "+" is recommended.

ENGAGE Engine Controls to deactivate.

4.3.1 AUTOPILOT Press boat outline button (Lower Left of Joystick) to engage Autopilot.

TAP Joystick port or starboard to alter course by 1 degree increments. Beep confirms.

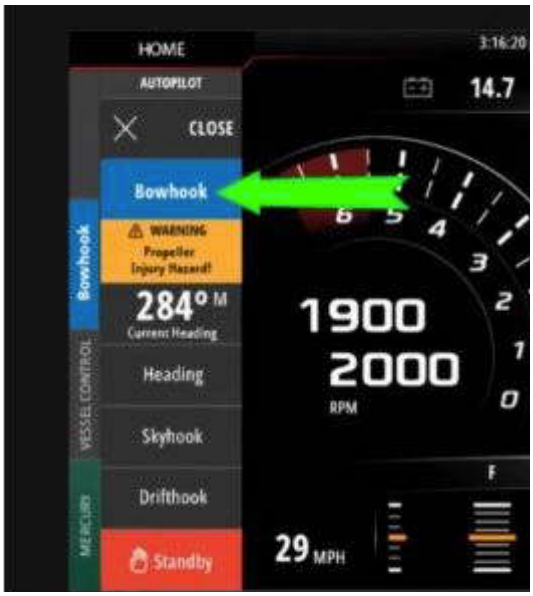
TWIST and RELEASE to alter AP Course in 10 degree increments.

In an emergency, you can forcibly TURN the wheel to disengage the autopilot

4.3.2 WAYPOINT TRACK Press "Tri-circle" diagram on starboard side of joystick to set course to WP-1 of course plotted on Raymarine display. Upon arrival at WP-1, there will be an audible beep. Push "Tri-circle" button again to set course to WP-2, etc.

4.3.3 SKYHOOK PUSH "SKYHOOK" button to hold heading and GPS position. GREEN necklace turns BLUE to indicate it is active. Seakeeper gyro helps greatly here, too, so waves don't readily throw the bow around.

4.3.4 BOWHOOK With SKYHOOK activated, PUSH "Bowhook" on Vessel View screen to hold GPS position, but unlock compass heading allowing boat to point into direction of wind/current so engines don't have to work so hard to keep boat in position. See illustration at right.



- Generally improve the ride in choppy water.
- In excess, can lower the bow of some boats to a point where they begin to plow with their bow in the water while on plane. This can result in an unexpected turn in either direction (called bow steering or oversteering) if any turn is attempted, or if a significant wave is encountered.

⚠ WARNING

Operating the boat at high speeds with the outboard trimmed too far under can create excessive bow steer, resulting in the operator losing control of the boat. Install the trim limit pin in a position that prevents excessive trim under and operate the boat in a safe manner.

2. Trimming out or up can:
   - Lift the bow higher out of the water.
   - Generally increase top speed.
   - Increase clearance over submerged objects or a shallow bottom.
   - In excess, can cause boat porpoising (bouncing) or propeller ventilation.
   - Cause engine overheating if any cooling water intake holes are above the waterline.

TILTING TO FULL UP POSITION

Tilt at Helm

NOTE: *The trim/tilt switch will remain active for 15 minutes after the ignition key switch has been turned off.*

1. If the ignition key switch has been turned off for over 15 minutes, turn it to the "ON" position.
2. Press the trim/tilt switch to the up position. The outboard will tilt up until the switch is released or it reaches its maximum tilt position.

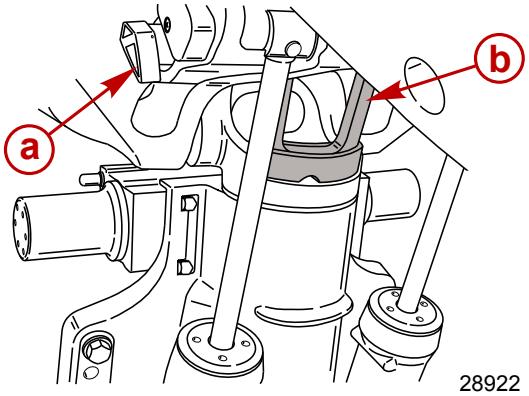
Tilt at Engine

The cowl mounted auxiliary tilt switch can be used to tilt the outboard with the key switch in the "OFF" position.

Tilt Support Lever

1. Rotate the tilt support lever down.
2. Lower outboard until tilt support bracket rests on the pedestal.

3. Disengage the tilt support bracket, by raising the outboard up and rotating the tilt support lever up. Lower the outboard.

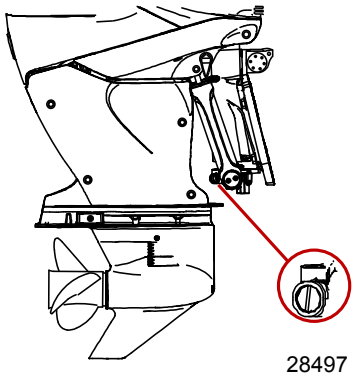


28922

a - Tilt support lever
b - Tilt support bracket

MANUAL TILTING

If the outboard cannot be tilted using the power trim/tilt switch, the outboard can be manually tilted.



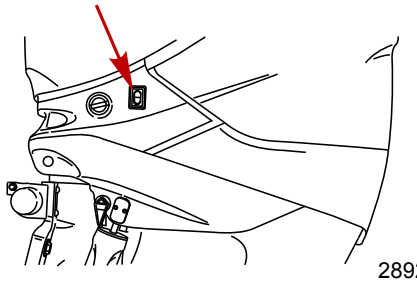
28497

NOTE: *The manual tilt release valve must be tightened before operating the outboard to prevent the outboard from tilting up during reverse operation.*

Turn out the manual tilt release valve three turns counterclockwise. This allows manual tilting of the outboard. Tilt the outboard to the desired position and tighten the manual tilt release valve.

AUXILIARY TILT SWITCH

The auxiliary tilt switch can be used to tilt the outboard up or down using the power trim system.



28927

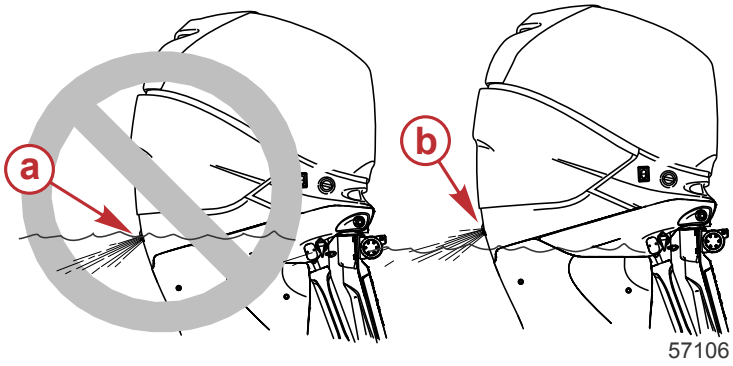
SHALLOW WATER OPERATION

When operating your boat in shallow water, you can tilt the outboard beyond the maximum trim range to prevent hitting bottom.

1. Reduce engine speed below 4300 RPM.
2. Tilt outboard up. Make sure all the water intake holes stay submerged at all times.
3. Operate the engine at slow speed only. With the outboard tilted past 20° trim limit, the warning horn will sound and engine speed will be automatically limited to approximately 4300 RPM. The outboard must be tilted (trimmed) down below the maximum trim range to allow operation above 4300 RPM.

Setting Trim Angle While Running Engine at Idle Speed

The exhaust relief hole on the outboard can become submerged on some boats if the engine is trimmed full in while running at idle speed. This may result in exhaust restriction, rough idle, excessive smoke, and fouled spark plugs. If this condition exists, trim outboard up until exhaust relief hole is out of the water.



a - Relief hole submerged (wrong)
b - Relief hole above waterline (correct)

Engine Break-in Procedure

IMPORTANT: Failure to follow the engine break-in procedures can result in poor performance throughout the life of the engine and can cause engine damage. Always follow break-in procedures.

1. For the first two hours of operation, run the engine at varied throttle settings up to 4500 RPM or at three-quarter throttle, and at full throttle for approximately one minute every ten minutes.
2. For the next eight hours of operation, avoid continuous operation at full throttle for more than five minutes at a time.

Fuel Supply Module Priming Procedure

The fuel supply module (FSM) is not vented to the ambient air. The air trapped in the FSM, fuel lines, and fuel rail, will be slightly compressed during the initial ignition key "ON" with a dry or drained fuel system. Additional key "ON" events under these conditions, will not compress the air further to finish the priming of the FSM. Excessive number of key "ON" events may eventually damage the fuel pumps. The volume of air trapped in the FSM must be purged to prime the fuel system. This can be achieved by connecting a tool to the fuel rail Schrader valve fitting to quickly purge the system into an approved container, or by cranking the engine.

4.3 DISPLAYS

The Mercury VESSELVIEW 702 DISPLAY panel allows the operator to perform settings and choose information to be displayed. (Refer to the adjacent *VessleView 702 Quick Guide)* This panel is activated when the engine ignition keys are turned on.

Modern marine navigation electronics are subjects beyond the scope of this guide. Extensive manuals are in the binders. The Lighthouse Operating Instructions are also available on the RAYMARINE MFD. You may also download it at: https://raymarine.app.box.com/s/rb0rjilwkwla2h16k4d9iuf7tzbw2bs7 if you aren't familiar with navigation, please learn. Electronic equipment can fail. Have paper chart back-ups and learn dead-reckoning skills.

…R.I.J.

RAYMARINE gS165 DilSPLAY, MULTIFUNCTION DEPTH DISPLAY and VHF are activated by turning on the ELECTRONICS breaker on the 12V ELECTRICAL PANEL. Turn on any other iequipment that you plan to use that have independent switches. Verify that all the navigation instruments are functioning as expected before you leave the dock.

Boat Speed over ground (SOG) imay be displayed in the bar at the top of the Raymarine *MULTI FUNCTION DISPLAY (MFD*). Or on VESSELVIEW. SOG is derived from tracking GPS positions rather than a paddle wheel or sonic device. SOG from the same source may be chosen for display in large digits on the MULTIFUNCTION display. Wind and current affect speed over ground and SOG isn't the same as speed through the water. If you learn to approximate speed through the water from RPM on the tachometer, you can compare it to SOG to determine the effect of wind and current.

4.4 COMPASS HEADING AND CALIBRATION

The yacht is equipped with three devices that display bearing:

1. The RITCHIE COMPASS on the dash
2. A DiGITAL COMPASS
3. The GPS COG (Course Over Ground) on the MFD or VESSELVIEW

When you are underway, these three sources should agree within a degree or so. If they don't, employ a professional compass adjuster. The DIGITAL COMPASS SENSOR is located aft (a puck) on the hard top.

CAUTION Don't store ferrous items such as tools near the DIGITAL COMPASS SENSOR or on the dash by the RITCHIE COMPASS.

4.5 TRIMMING THE 43Z

Trimming a 43z is somewhat of an art form as there are 3 WAYS to do so and they are inter-related. The boat seems to run fine just trimming the outboards with the auto tirim systems off.

4.6.1 ENGINE TRIM With no side wind or leaning of the boat to port or starboard, there's not much more necessary than adjusting a comfortable bow up or down angle using the buttons on the ENGINE CONTROL LEVERS to change the angle of the outboards.

4.6.2 MERCURY ACTIVE TRIM (can automatically do the same, adjusting the outboards to your boats loading and your ride preference. SEE DETAIL FOLLOWING

4.6.3 LECTROTAB AUTO LEVELING On the 12v BREAKER PANEL, Turn TRIM TAB breaker on. This activates the LECTROTAB automatic or manual leveling system. The degree to which the tabs are lowered is shown by the two rows of lights. SEE DETAIIL FOLLOWING

CAUTION It's possible to have dueling trim systems. If the boat is running level, and the LECTROTAB does not respond to raise the bow higher in seas, you'll note that blades are fully retracted, so engines must be raised to correct trim.

OPERATION

Introduction to Active Trim

Active Trim is Mercury Marine's patented GPS-based automatic trim system. This intuitive, hands-free system continually adjusts engine or drive trim for changes in operating conditions to improve performance, fuel economy, and ease of operation. It responds to boat maneuvers with precision and delivers a better overall driving experience. No knowledge of trimming an engine or drive is needed to take advantage of Active Trim.

- As the boat accelerates, the engine or drive will trim out.
- As the boat decelerates, for example, while making a turn, the engine or drive will trim in.
- Active Trim can be overridden at anytime by using the regular, manual trim buttons.
- Active Trim allows the boat operator to compensate for changes in boat load, driver preferences, and weather conditions while maintaining full automatic control.

HOW IT WORKS

The Active Trim system has four modes of operation:

61896

1. Idle Speeds
Maintains the existing trim position.

61897

2. Acceleration (hole shot)
Tucks the engine or drive under to minimize bow rise and improve time-to-plane.

61898

3. Planing Speeds
Progressively trims the engine or drive based on GPS speed to maintain the most efficient running attitude.

61899

4. Override
When the boat operator uses manual trim, the Active Trim system is immediately overridden, returning full control to the operator.

At boat startup, Active Trim resumes the on/off state from the previous shut down. For example, if Active Trim was on at the previous shut down, it will be on at the next startup.

BUILT-IN GPS

This device includes a built-in GPS antenna used to determine vessel speed. The GPS has three start-up modes:

- Cold Start - If vessel battery power was turned off (using a battery switch), GPS will take 30–60 seconds to acquire a signal.
- Warm Start - If vessel battery power has been maintained since last shutdown, GPS will acquire a signal in approximately 30 seconds.
- Hot Start - If the vessel has been keyed off for less than eight hours, the GPS will acquire a signal in less than 10 seconds.

The Active Trim system will not automatically control trim until the GPS unit has acquired a signal. The system status light flashing red may indicate that no GPS signal has been acquired.

Active Trim Keypad

NOTE: *Refer to the engine's Operation and Maintenance manual for important information about the product's starting procedure and the standard power trim system before attempting to operate the Active Trim system.*

The relative angle of the boat bottom to the water when the vessel is on plane affects acceleration, top speed, fuel economy, handling, and operation in rough or choppy water.

61873

- **a -** **ON/RESUME** button and system status light
- **b -** **OFF** button
- **c -** Trim profile indicator: Indicates the adjustable profile currently engaged. If any of these lights are flashing, the system is in setup mode (refer to **Setup and Configuration**).
- **d -** Trim profile adjust **Up Arrow**: Changes the adjustable trim profile to a more aggressive trim curve (more trim angle at a lower boat speed).
- **e -** Trim profile adjust **Down Arrow**: Changes the adjustable trim profile to a less aggressive trim curve (less trim angle at a lower boat speed).

SYSTEM STATUS LIGHT

60539

- A constant amber light indicates that the system is working normally.
- A flashing amber light indicates that the Active Trim system is not controlling trim (user override). Press the ON/RESUME button to resume Active Trim control.
- A flashing red light indicates a problem with the system. Refer to **Troubleshooting**.

Active Trim Operation

- Active Trim automatically controls trim to maintain the optimum engine or drive position based on engine RPM and boat speed.
- Active Trim progressively trims out the engine or drive to maintain an efficient running attitude.
- The operator can always override the Active Trim system with the panel mounted or control handle trim position switch. A flashing amber light on the **ON/RESUME** button indicates that an override has occurred. Press the **ON/RESUME** button to resume Active Trim operation.
- Active Trim will maintain the last known trim position when operating at speeds in excess of 80 km/h (50 mph).
- Operation above 80 km/h (50 mph) may require trim adjustments using the panel mounted or control handle trim position switch.
- Active Trim will gradually return the engine or drive to the down position during deceleration.
- Active Trim will only function when the engine or drive is in the normal trim range. Refer to **Trailer Position and Active Trim**.

NOTE: *When paired with a SmartCraft gauge with an available ECO mode screen, the Active Trim system will override any ECO mode request.*

RESUME FUNCTIONALITY

If the boat operator overrides the Active Trim system at planing speeds using the trim button, or exceeds 80 km/h (50 mph), the system will stop controlling the trim. Active Trim will resume automatically under the following conditions:

- Override occurred above 80 km/h (50 mph) and the boat operator then decelerates to below 80 km/h (50 mph).
- Override occurred above 80% of the rated engine RPM and the boat operator then decelerates to below 80% of the rated engine RPM.
- Override occurred in the cruising speed range and then the boat operator decelerates to idle. Active Trim will become active on the next acceleration.

TRIM PROFILE ADJUSTMENT

Use the Active Trim keypad **Up Arrow** and **Down Arrow** buttons to adjust the selected profile to the most efficient running attitude to compensate for changes in boat loading (passenger or gear distribution, changes in ballast or fuel tank levels), weather, propping, and operator preference.

61873

- **a -** **ON/RESUME** button and system status light
- **b -** **OFF** button
- **c -** Trim profile indicator: Indicates the adjustable profile currently engaged.
- **d -** Trim profile adjust **Up Arrow**: Changes the adjustable trim profile to a more aggressive trim curve (more trim angle at a lower boat speed).
- **e -** Trim profile adjust **Down Arrow**: Changes the adjustable trim profile to a less aggressive trim curve (less trim angle at a lower boat speed).

When you press either the up or down arrow, you are selecting a different trim curve. This means that Active Trim will use different trim angles throughout the entire range of operation. This is not the same thing as manually adjusting the trim (override).

NOTE: *The boatbuilder or dealer should have configured the Active Trim system for optimal performance for your boat and power package combination. The five adjustable trim profiles should provide enough latitude to compensate for changes in environmental conditions or boat loading.*
If the five adjustable trim profiles are not adequate, Active Trim can be reconfigured to a different major trim profile. Changing the major trim profile will provide a different range of adjustable trim profiles. Refer to ***Setup and Configuration****, in the* ***Installation*** *section of this manual.*

Selecting the Correct Profile

With so many available trim profiles, it can be difficult to determine which profile is the correct one. In making this determination, it is important to understand what trim is, how it affects boat operation, and how boat loading can influence the required trim angle. Armed with a clear understanding of these concepts, selecting the correct trim profile becomes simple.

NOTE: *The system can be returned to the setup mode if necessary by simultaneously pressing and holding the* ***ON/RESUME*** *+* ***Up Arrow*** *buttons for five seconds.*

61873

- **a -** **ON/RESUME** button
- **b -** **OFF** button
- **c -** Trim profile indicator
- **d -** Trim profile adjust **Up Arrow**
- **e -** Trim profile adjust **Down Arrow**

5. Operate the vessel in open, navigable water.
6. Accelerate until the vessel is on plane and cruising at the approximate desired speed. A comfortable cruising speed for most applications is typically achieved between 48 and 64 km/h (30 and 40 mph).

IMPORTANT: RPM will increase as the sterndrive or engine is trimmed out.

7. Momentarily press the keypad **Up Arrow** or **Down Arrow** to adjust the trim profile to the most efficient running attitude.
   - The number of flashing lights will increase or decrease, accordingly.

NOTE: *The topmost flashing light indicates the major profile currently selected.*

   - As a general rule, increase the major profile level until the boat begins to porpoise. Then decrease one level.
8. Simultaneously press and release the **Up Arrow** + **Down Arrow** to capture the most efficient running attitude and retain the optimum trim profile in the Active Trim system's memory. The amber lights on the vertical LED trim display will stop flashing, and the display will move to the center profile position (level 3). The Active Trim is now ready to use.

CDS G3 Setup

NOTE: *CDS G3 setup is required only for dual station applications and for enabling the GPS receiver for use with SmartCraft gauges.*

- For multiple stations, assign the Active Trim keypad locations by performing a Trackpad Configuration in CDS G3. Next select the Active Trim GPS tab and follow directions to select which Active Trim keypad GPS helm source you would like to use.

Automatic Leveling Control

LECTROTAB

As wind shifts, water conditions change or passengers move about, the Automatic Leveling Control (ALC) will automatically adjust your trim tabs to maintain a level boat for a more comfortable and enjoyable ride.

The ALC automatically corrects the roll from side to side and pitch from fore to aft to enhance your boating experience and improve your fuel economy.

FEATURES

- Microprocessor based automatic leveling trim tab control with LED tab position indicators
- Controls roll and pitch automatically
- Internal GPS - no GPS antenna or network required
- Automatically adapts to varying sea conditions
- Completely sealed and waterproof (IP68)
- UV protected - will not deteriorate in sunlight
- Prevents automatic corrections while turning
- Designed for planing and semi displacement hulls larger than 20ft
- Actuators connect directly to ALC-1 display panel (no external power module box required)
- Automatically dims LED tab position indicators in darkness and brightens in sunlight
- Automatically retracts trim tabs when boat is off plane or using optional key switch connection
- Dual station operation available (ALC-1D and ALC-2D does require external power module)
- Operates on 10 to 30 Volts DC
- 2 Year Warranty
- CE Approved (Compliance with EMC regulations)

SPECIFICATIONS

Model Number	Display Color	Number of Stations	Actuators per tab plate	Overall Width	Overall Height/ Thickness	Mounting Hole Cutout (Diameter)	DC Voltage	Fuse Size Power Input (1 Actuator per Tab)	Fuse Size Power Input (2 Actuators per Tab)
ALC-1	Black	1	1	3.15”/ 80mm	3.0“(77mm)/ 0.437”(11mm)	2”/50mm	12/24	12vdc = 15 amp 24vdc = 10amp	N/A
ALC-2D	Black	1 or 2	2	3.15”/ 80mm	3.0“(77mm)/ 0.437”(11mm)	2”/50mm	12/24	N/A	12vdc = 30amp 24vdc = 20amp
ALC-1D	Black	1 or 2	1	3.15”/ 80mm	3.0“(77mm)/ 0.437”(11mm)	2”/50mm	12/24	12vdc = 15 amp 24vdc = 10amp	N/A

Note: Second station keypad (ALC-2S) not included in ALC-2D and ALC-1D models.

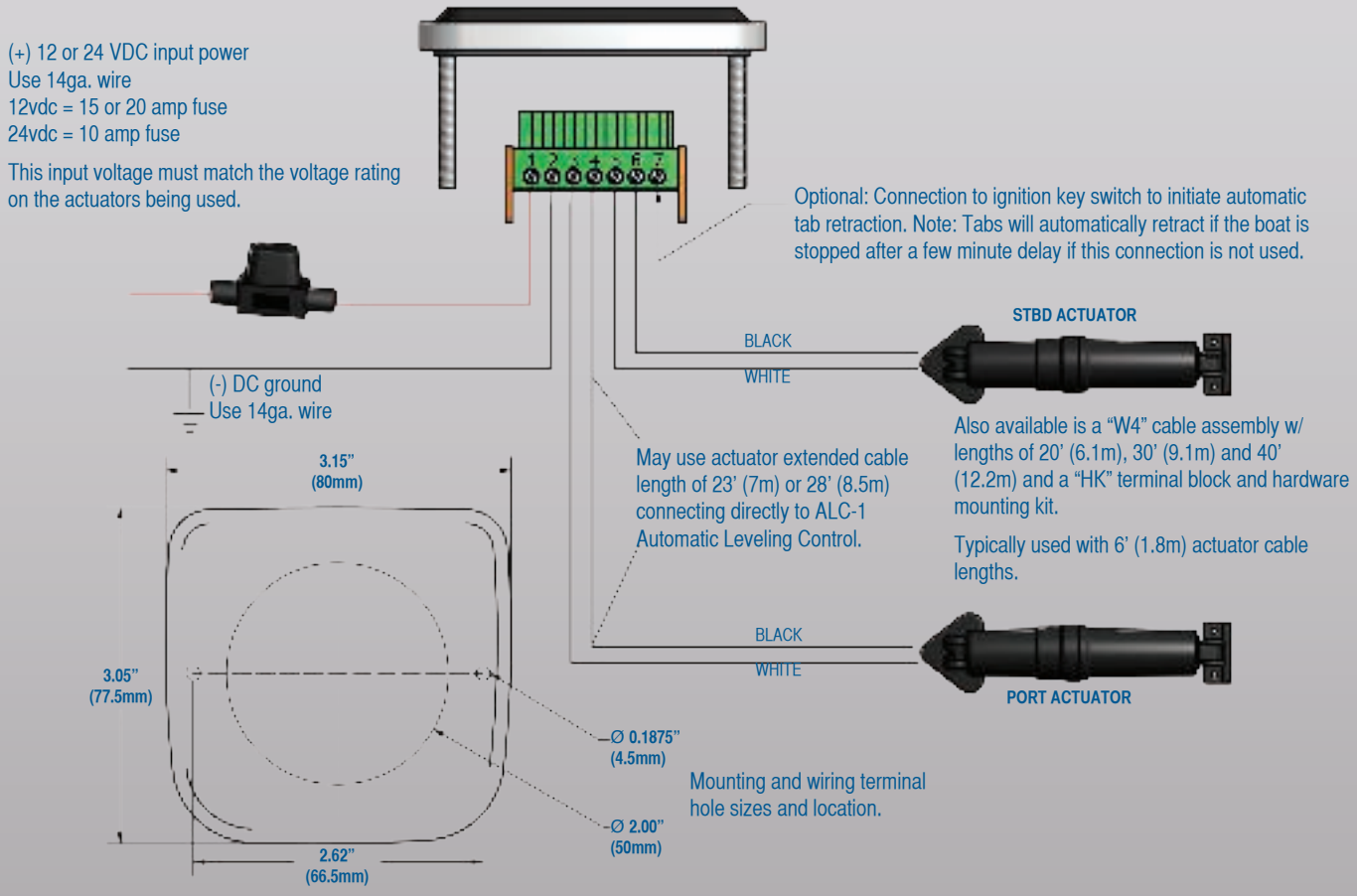
Linear Devices Corporation
11126 Air Park Road, Suite G, Ashland, VA 23005
Toll Free: 1-888-LECTROTAB (532-8768) | Tel: 804-368-8428 | Fax: 804-368-8438
www.lectrotab.com

August 2014

Automatic Leveling Control

LECTROTAB

AUTO LEVELING CONTROL WIRING ALC-1



AUTO LEVELING CONTROL (ALC) PROGRAMMING

	Program Mode Sequence			
Function	**Enter**	**Button Hold**	**Adjustment**	**Store Memory**
Calibration	BOW UP + BOW DOWN	12s	Begin calibration	N/A
Attitude Set	N/A	N/A	Adjust tabs to best attitude	Press AUTO 4s
Gain Adjust	RIGHT + LEFT	4s	BOW UP + BOW DOWN	RIGHT + LEFT 4s

ADDITIONAL OPERATION FEATURES

- **Press AUTO to enter automatic leveling**
- **Press AUTO mode again to enter manual mode so tabs may be adjusted manually**
- **The ALC incorporates an "Adaptive system" to maintain optimum running attitude in varying sea conditions**
- **Reducing speeds below planing speed the ALC will not attempt to control attitude**
- **The ALC automatically starts correcting attitude during acceleration**

Linear Devices Corporation
11126 Air Park Road, Suite G, Ashland, VA 23005
Toll Free: 1-888-LECTROTAB (532-8768) | Tel: 804-368-8428 | Fax: 804-368-8438
www.lectrotab.com

August 2014

4.6 SEARCHLIGHT

BREAKER PANEL settings: SEARCHLIGHT breaker on. Turn on the light by depressing the on/off button.

The SEARCHLIGHT is a powerful LED appliance that may be operated with a joystick from the helm. The LEDs draw less power (only 2.8 amps at 13.8V) than previous incandescent devices.

With the joystick on the dash control, rotate your light to the desired location.

The speed of the light rotation can be controlled by depressing the fast/slow button once and by depressing it again to restore the original speed. The hard-wired dash control will be backlit when the bulb is illuminated.

T

SEARCHLIGHT CONTROL

4.7 MULTIFUNCTION DISLAY (MFD)

BREAKER PANEL settings: Turn INSTRUMENTS breaker on.

The primary purpose of the MULTI FUNCTION DISPLAY (MFD) is to show depth in big numbers. The depth transducer is installed on the hull under the companionway steps. Depending on loading, speed and wave action It's about 1.3 feet below the waterline.

The MFD may be calibrated to show the water depth from the boat's waterline or from the bottom of the propeller. However, we do not recalibrate depth settings during sea trails and recommend keeping the 1.5 foot safety margin rather than recalibrating. The bottom can come up fast and it's helpful to buy seconds to react.

4.8 CONSOLE SWITCH PANEL

BREAKER PANEL settings: Turn on breakers for the CONSOLE switch panel functions you plan to use. Turn on the WINDLASS breaker and the FRESH WATER PUMP breaker to enable the ANCHOR WASHDOWN and the WINDSHIELD WIPER/WASHER.

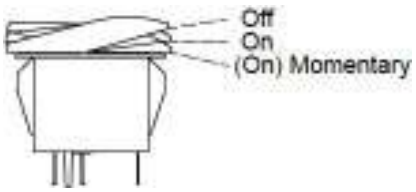
Windshield Actuators Three switches operate the electric synchronous actuators that open the windshields (option).

Horn Press to sound the horn.

Underway Horn / Anchor Press forward end of rocker switch to automatically sound a one prolonged blast every 2 minutes when operating in low or restricted visibility. When at anchor or stopped and making no way through the water, press the aft end of the rocker switch to sound 2 prolonged blasts every 2 minutes.

Windshield Wipers

- One push to the on position will start three motors in synchronized interval.
- One more push to momentary will run three motors slow speed synchronized. One more push will run three motors fast speed synchronized.
- One more push starts from interval and so on.



WINDSHIELD WIPER switch

- One long push from off to momentary will start one motor in interval (wiper 1). One more push will run one motor slow speed.
- One more push will run one motor fast speed.
- One more push starts one motor from interval and so on.

For improved ventilation or visibility, you can travel comfortably at 14-15 knots without being blasted by the wind if you open the starboard windshield and move slightly toward the centerline of the boat to get out of direct wind flow …R.I.J.

When running, push switch to momentary more than one second and washer will start. If the wiper motors get overloaded the power automatically breaks. Push switch to off, then to on and motor will start again.

CAUTION If the wiper's washer system is to be used in sub-freezing temperatures, a separate system must be installed which uses anti-freeze.

NAV/ANC Press the forward end of rocker switch to turn on the RED and GREEN NAVIGATION LIGHTS and the STEAMING LIGHT on the hard top over the pilothouse. Press the aft end of rocker switch to turn on the ANCHOR LIGHTS.

Anchor Washdown With windlass switch on, press switch to spray fresh water on the anchor rode when retrieving anchor.

4.9 WINDSHIELD OPERATION

POWER OPERATING WINDSHIELD

Manual Front Windshield While the double manual windshield design creates individual windows that are easy to lift, a stick with a rubber tip is a handy way to raise or lower the windows without having to stretch over the console.

Power Opening Windshield (option) BREAKER PANEL settings: ELECTRIC WINDOWS breaker on. Lineal actuators open the windshields.

CAUTION Be sure to open all the dogs (securing levers) prior to raising the windows, otherwise you will snap off the dogs. The lifters are that powerful!

The optional power windows may be opened to any angle by electric powered lineal actuators. If they are left closed for some time, they tend to stick and then pop up when opening. The remedy is to coat the gasket with Teflon grease, such as Snap & Zipper Lube. The windows shut with a solid thunk. It's not necessary to dog them down at the bottom except in the roughest weather, even when leaving the boat.

5 ELECTRICAL SYSTEMS

DANGER AC and DC electricity can be lethal. Don't work on the boat's electrical system if you aren't a qualified marine electrician..

AND BE SURE TO TURN OFF GENERATOR AND INVERTER THAT PROUCE 110 VOLT CURRENT WHEN SWIMMING FROM THE BOAT.

5.1 ELECTRICAL SAFETY

Please read and understand the safety precautions in the included National Marine Manufacturers Association (NMMA) publication, Sportfish, Cruisers, Yachts: Owner's Manual concerning electrical safety. For more reading, there is Boat Owner's Mechanical and Electrical Manual by Nigel Calder and Boat Owner's Illustrated Electrical Handbook by Charlie Wing.

5.2 ELECTRICAL POWER

The MJM 43z includes both 12-volt direct current (DC) and 120-volt alternating current (AC).

12-Volt DC Most of the boat's electrical devices use 12V DC. It's stored in up to 1002 amp-hours of capacity in AGM absorbed-glass mat no-maintenance batteries as follows:

- Two Group 8D, 245 amp-hour HOUSE BATTERIES
- Three Group 31, 105 amp-hour PORT and STBD ENGINE BATTERIES
- One Group 27, 92 amp-hour GENERATOR BATTERY (if optional generator is present)
- One Group 31 105 amp-hour BOW THRUSTER BATTERY (Optional)

The Victron INVERTER/CHARGER is factory set for AGM batteries.

CAUTION Don't try to open the batteries. Other than keeping them charged, stored and clean (especially between the terminals), there's no maintenance required.

CAUTION Don't let the voltage fall below 12 volts. Sensitive electronics may fail to function.

120-Volt AC Two different sources can provide 120V AC to the INVERTER/CHARGER to charge the batteries and provide power to the 120V AC circuits.

1. SHORE POWER
2. WESTERBEKE GENERATOR (option)

120-volt AC power provides power for the SEAKEEPER GYRO, COOKTOP, MICROWAVE, TV, AIR CONDITIONING, WATER HEATER and OUTLET/RECEPTACLES. There are SPARE BREAKERS that may be added for other devices. A 20-amp circuit with a ground fault circuit interrupter (GFCI) outlet/receptacle serves the AC OUTLET/RECEPTACALS.

The GENERATOR and SHORE POWER provide power to the INVERTER/CHARGER that charges the batteries and provides power to the 120V AC circuits at the left side of the 120V breaker panel.

Only one GFCI OUTLET/RECEPTACLE *is in the circuit with other non-GFCI outlet/receptacles. If the* 120-VOLT BREAKER *on the electrical panel is on and there is no power at the AC OUTLET/* RECEPTACLES, the circuit interrupter may have tripped. Press the reset button *on the* GFCI *OUTLET/* RECEPTACLE.

…R.I.J.

SHORE POWER & TV INLETS

SHORE POWER BREAKER BOX *located on starboard hull over the GENERATOR. If no AC power showing on Panel, check to be sure the BREAKERS aren't tripped.*

5.3 SHORE POWER

Unless your boat has installed the optional Glendinning reel with single 50A 240V AC, which is then split into two 30Z 125V AC circuits inside the boat to feed the two AC Panels, there are two ways to provide shore power.

A single 30A 125V shore power cable plugged in to SHORE POWER INLET 1 in the transom (shown in the adjacent photograph) will provide power to breakers at the left side of the 120V AC panel.

Two 30A 125V shore power cables connected to 30A 125V volt sockets at the dock and plugged into SHORE POWER INLET 1 AND SHORE POWER INLET 2 will provide power to breakers on both sides of the 120V AC panel. The transfer switch should be off. Even if it is on, 120V AC won't be transferred to the left panel from the right panel.

Instead of two 30A 125V volt sockets at the dock, there may be a single 50A 225V socket. In that case, use a Y adapter that splits the power for two 30A 125V shore power cables. (See adjacent image.)

Charging The batteries will accept a charge from 120V shore power through the INVERTER/CHARGER if SHORE POWER 1 is on even if the HOUSE BATTERY switch is off.

Transfer Switch If SHORE POWER 2 isn't connected, the TRANSFER SWITCH transfers power from the left side of the 120V AC BREAKER panel to the right side. However, the circuits on the right side are for high amp loads. If you use the TRANSFER SWITCH with SHORE POWER 1 alone, the circuits that can be successfully powered are limited.

Circuits on the left side of the 120V AC panel can be also be supplied from the HOUSE BATTERIES with the INVERTER.

5.4 FUSE LOCATIONS

24-Hour (See the Appendix, Page 41.)

5.5 24-HOUR CIRCUITS

The connection block for the 24-hour circuits is forward in the starboard pilothouse settee locker. The 24-hour circuits (shown in the sidebar) bypass the breaker panel, HOUSE, ENGINE and GENERATOR switches and are connected directly to the HOUSE BATTERY. They are:

- BILGE PUMPS (3 connections)
- HIGH WATER ALARM
- EMERGENCY PARALLEL
- STEREO MEMORY

The EMERGENCY PARALLEL connection enables the EMERGENCY PARALLEL switch on the 12V DC panel. The STEREO MEMORY connection provides a trickle charge to maintain the clocks and user settings.

CAUTION Disconnecting shore power with INVERTER left on will discharge the HOUSE BATTERIES over time. When leaving the boat for more than a few days without shorepower connected, be sure to turn off the Inverter on the unit itself under the starboard settee

5.6 The 12V DC Panel

The 12V DC panel includes circuit breakers for all 12V DC equipment except the 24-hour circuits that are permanently connected to the HOUSE BATTERY. The breakers are lighted and labeled. Spares are available for future installations.

The TOGGLE switch below the digital display on the 12V DC panel shows volts or amps for the HOUSE BATTERIES in position 1 and the GENERATOR BATTERY in position 2. Position 3 is not connected.

ENGINE BATTERY volts and amps are displayed on the Mercury VesselView.

Press the > and < buttons under the display to show volts or amps.
The center button dims the display

The switch between the HOUSE BATTERY and the GEN BATTERY raises and lowers the dining table.

The HOUSE BATTERY switch and the GENERATOR BATTERY switch are at the upper right of the 12V DC panel. Turning on the HOUSE BATTERY switch provides power to the individual breakers at the panel. Turning on the GENERATOR BATTERY switch provides power to start the optional GENERATOR. The GEN. EMERG. PARALLEL switch combines the GENERATOR BATTERY with the HOUSE BATTERY BANK.

Turn on the FRESH WATER PUMP breaker to activate the gauge that indicates the fresh water level on the lower right of the 120V AC panel that is displayed on the next page.

5.7 THE 120V AC PANEL

The 120V AC panel receives power from the INVERTER/CHARGER or from SHORE 1 or from the Westerbeke GENERATOR. It also includes breakers for loads that can be handled by the HOUSE BATTERIES inverted to 120V AC by the Vitctron INVERTER/CHARGER.

When the SHORE POWER CABLE is connected:

1. Turn on the charger function on the PHOENIX CONTROL
2. Push the slider down and turn on the SHORE POWER breaker to supply 120V AC power to the circuit breakers of the AC panel.

WARNING Heavier Water Heater and Air Conditioning loads should only be turned on when Shore Power or Generator are used to source. 120v AC.

WARNING The 120V AC panel has reverse polarity indicators. If an AC supply is wired incorrectly, either aboard the boat or shore side, a dangerous shock situation could exist. If the reverse polarity lights are illuminated, disconnect that source of power and engage a qualified marine electrician and notify the marina dock master if in a slip.

The three buttons below the digital readout select volts, amps or watts for presentation on the digital display. The TOGGLE switch selects which side of the panel is reported in the digital display. Information from the left side of the panel is displayed in the up position, and information from the right side of the panel is displayed in the down position.

The PORT and STBD ENGINE BATTERY switches are at the upper right of the AC panel. Turning them on connects the battery to engine starter motors. The ENGINE EMERGENCY PARALLEL switch combines the PORT and STBD ENGINE BATTERIES. If the ACR switches are closed , the ENGINE BATTERIES are also combined with HOUSE BATTERIES.

The AUTO position is the same as off.

Notice the hinge at the bottom of each panel. The marquee at the top of each panel will pop off. There are screws that may be removed so a qualified electrician may hinge the panel down to add a new circuit for a new device or appliance at one of the SPARE positions.

Custom labels are available from customer service at Boston Boat Works.

5.8 WESTERBEKE 6.5 MCG GENERATOR (OPTION)

The *Westerbeke Operator's Manual is* included in the binders.

Pre-Start Check List The daily pre-start checklist :

1. Close seacock, clean the sea strainer (the cap should be hand tightened) and reopen the seacock.
2. Check the coolant. See diagram attached.
3. Check that the oil level is at the "FULL mark on the dipstick .
4. Look to see that there are no loose belts or wires and that there is no oil or fuel in the pan under the GENERATOR.

CAUTION Don't remove the coolant cap from a hot engine.

To Start Turn on the GENERATOR BATTERY switch at the upper right of the 12V DC panel. Push both SLIDING INTERLOCKS up on the 120V AC panel and turn on the GENERATOR breaker at the left side of the 120V AC panel to connect the left side of the panel to generator power.

The green LED run indicator light on the rocker switch will illuminate when the start circuit is energized. It will go dim as the engine cranks and will brighten as the engine starts, indicating the generator is running.

The LED fault shutdown display has six separate LED combinations that indicate to the operator the cause of the engine's automatic shutdown. The LED displays are: Check Engine, Oil Pressure, Engine Temperature, External Alarm, Exhaust Temperature, and Speed (Overspeed -LEDs and Underspeed-LEDs) flashing. ***Should the generator shutdown from one of these faults, the fault LED will remain illuminated. To reset the LED, the panel DC breaker must be cycled OFF then ON***

GENERATOR FUEL PRE-FILTER is behind the generator against the bulkhead

Press the Rocker switch to the start position and release. The engine will crank and start electronically after a brief delay. A GREEN LED on the switch will indicate that the engine is running. Approximately 120V should show on the digital display at the top left of the 120V AC panel. If the TRANSFER switch is pressed, there is a 2-minute delay before power is available on the right side of the panel.

Apply a light load until the generator warms up.

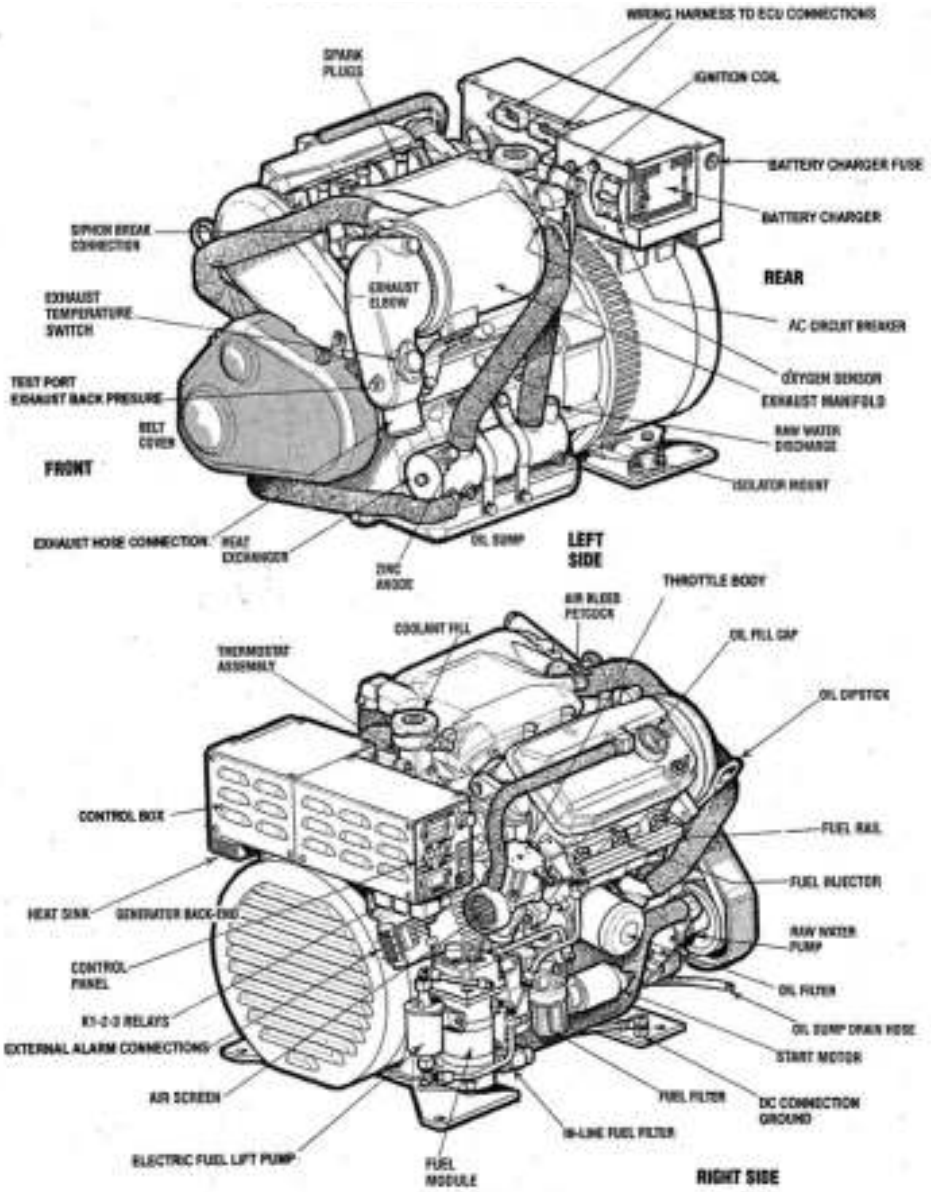
Keep the GENERATOR BATTERY switch on while the generator is running so its alternator will charge its battery. (Without a load on the alternator, the battery-charging regulator could be damaged.) Also, keep the GENERATOR breaker on while the generator is running. (It is not good for a diesel engine to run for an extended period with no load.)

If the generator starts but no AC voltage is seen at the panel, ensure that the SLIDING INTERLOCKS at the top of the 120V AC panel are up and that the GENERATOR breaker is on. If so, there is a possibility the generator was overloaded. See Westerbeke Manual.

To Stop Turn off breakers for 120V loads and run the generator for 2 or 3 minutes without a load to allow it to cool. Press the rocker switch and release. The Green light will go off.

.

5.9 GENERATOR COMPONENT LOCATIONS



5.10 VICTRON INVERTER/CHARGER

Under normal circumstances there is no need for adjustment other than switching the INVERTER on at the AC Panel and the toggle at the PHOENIX CONTROL to on to invert 12v DC Battery power to 120V AC power…or to off when 120V is sourced from SHORE POWER or GENERATOR.

When off, it works in reverse when charging from a 120v source.

Charging When SHORE POWER is connectedor when the GENERATOR is on, the INVERTER charges the HOUSE BATTERIES, the ENGINE START BATTERIES, the THRUSTER (Option) BATTERY and the GENERATOR START BATTERY. Push the toggle switch to "charge only" to activate the charger.

Inverting The 120V AC panel operates accessories that require 120V AC, such as the COOKTOP, MICROWAVE, TV, and OUTLET/RECEPTACLES. To activate the inverter function: DO NOT activate the WATER HEATER and AIR CONDITIONING when investing. The loads are too great.

1. Turn on the switch at the INVERTER/CHARGER located over the STARBOARD FUEL TANK under the pilothouse settee.

2. Push the toggle switch at the DIGITAL MULTI CONTROL to on. 120V AC power will be supplied to the left side of the AC 120V panel.

CAUTION Although INVERTER/CHARGER specifications claim it will automatically shut off the inverting process if the battery voltage drops, it's unwise to count on it. If you leave the boat with the DIGITAL MULTI CONTROL switched to INVERTER on, it may draw amperage even if no AC device is turned on and discharge your batteries. When you leave the boat, keep the PHOENIX CONTROL units switched to "charge only".

LEFT SIDE,INVERTING STATUS

inverter on: *INVERTER is converting 12V DC to 120V AC for 120V loads on the left side of the 120V breaker panel and is draining the HOUSE BATTERIES.*

overload: *Load on the INVERTER is over 4000 amps.*

low battery: *The HOUSE BATTERY is low. INVERTER won't work.*

temperature *HOUSE BATTERY temperature is high.*

RIGHT SIDE, CHARGING STATUS

mains on: *SHORE POWER is connected.*

bulk: *Charging at maximum rate.*

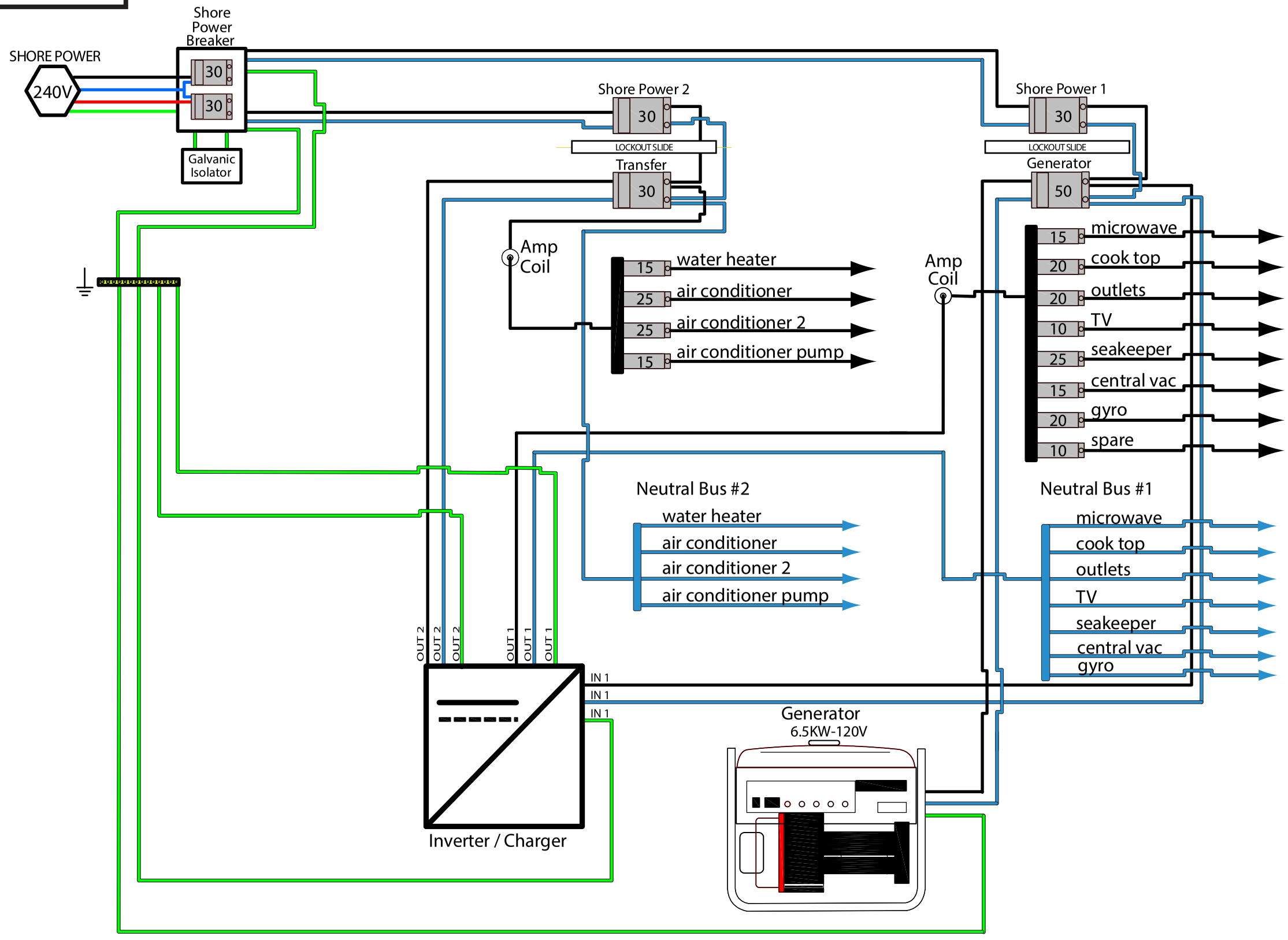
5.11 BONDING

The boat's bonding system connects underwater metal fittings to the sacrificial anode and the boat's negative bus bar. For the anode to protect an underwater part, the connection must be clean and secure. The green wires that make up this system don't normally carry current.

Boston BoatWorks LLC

43z

AC Electrical Diagram



HOT

HOT

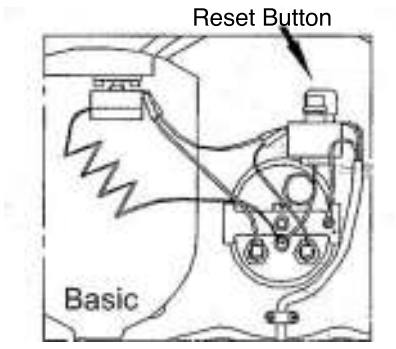
NEUTRAL

GROUND

DRAWN:	RS/JK
UPDATED:	09/19/2017

DOCKSIDE HOSE INET with hose connected.

Johnson Aqua Jet WPS 10.4 Duo 12V FRESH WATER PUMP



6 WATER SYSTEMS

6.1 FRESH WATER

BREAKER PANEL settings: FRESH WATER PUMP breaker on.

Fresh water may be supplied from two sources:

1. A 100-gallon FRESH WATER TANK under the pilothouse sole is filled through a deck fill fitting on the starboard side near the helm labeled LWATER. Air is vented as the tank fills. The FRESH WATER GAUGE is located at the right bottom corner of the 120 V AC breaker panel.

2. A DOCKSIDE HOSE INLET at port in the cockpit (see sidebar) bypasses the FRESH WATER TANK and the FRESH WATER PUMP to provide dockside water and dockside pressure. Don't try to fill the tank with it; a check valve keeps the dock water supply from backing up into the FRESH WATER TANK.

CAUTION Don't leave the boat for any length of time with the DOCKSIDE HOSE INLET connected. If it were left on and a fitting failed, the boat's bilge pumps would work continuously to pump it out.

Fresh Water Pump

A JABSCO 42755-0092 12V FRESH WATER PUMP provides fresh water pressure. The pump is in the pilothouse port settee locker. It runs when a faucet, the head, anchor chain wash, wiper wash, showers, etc., are used. It has two switches to maintain pressure in a useable range so the pump doesn't switch on every time fresh water is used. When pressure drops below the minimum, the pressure switches turn the pumps on and build pressure to the maximum. The pumps have outlet check valves that maintain pressure when pumps are off. The pump is protected from sediment by an in-line strainer mounted adjacent to the pump. Check and clean the strainer periodically.

If the pump runs continuously, a faucet might be open. The transom shower valve is a frequent culprit. If nothing is on, check that the FRESH WATER TANK has water. Then look for leaks in the lines. An air bubble in the line may defeat a pressure switch and cause the pump to fail to operate. Opening a faucet and turning the FRESH WATER breaker off for a moment and on may fix it. If that doesn't work, attach a hose to the DOCKSIDE HOSE INLET and run water through various fresh water outlets.

6.2 HOT WATER

Water is heated in the 13 gallon INDEL ISOTEMPT HOT WATER TANK only via the 120V circuit powered by Shorepower or the GENERATOR.

The 13-gallon HOT WATER TANK is under the port pilothouse settee. It's part of the freshwater system and doesn't need separate filling.

There is no specified periodic maintenance, but it's wise to Inspect connections and clamps periodically.

If you don't get hot water from the immersion heater, press the reset button under the white cover at the right side of tank. See sidebar and the *Indel Isotemp Owner's Manual* in the binders.

Water Purifier
The General Ecology Seagull WATER PURIFIER in the galley is an excellent water purifier. It's used on many airlines and by the military.

General Ecology, Inc., states that Seagull IV purification systems meet the EPA guide standard protocol for microbiological purifiers for bacteria, cysts and viruses and excels at removing chemical and aesthetic contaminants, including herbicides, pesticides, chlorine and foul tastes, odors and colors.

The purifier has a cartridge in a stainless pressure vessel under the sink. Replace it if reduced water flow indicates that it's clogged, if any particulates are seen in the water, if there is any taste in the water or at least annually. The replacement cartridge is Seagull IV X-1 Residential Replacement Cartridge RS-1SG and can be bought online.

https://generalecology.com/category_products.php?category_name_url=in-home

CAUTION Clear the fresh water system of antifreeze before running water through the cartridge.

GENERAL ECOLOGY SEAGULL WATER PURIFIER

Mary and I credit our good health to using this system in all our boats and homes for the past 37 years.

…R.I.J

6.3 GRAY WATER

Sumps A GRAY WATER SUMP BOX collects water from the shower drain, sinks, the dish locker drain, and AIR CONDITIONER condensate. Gray water can be legally discharged overboard. The sump pump switch on the 12V DC panel provides power to a pump with a float switch to empty the tank. Remove the tank cover and clean tank and strainers periodically. It is located below the bottom companionway step.

GRAY WATER SUMP

Common Gray Water Drains To minimize through-hull penetrations, a common drain pipeline is used on port and starboard sides to drain SIDE DECK DRAINS and HATCH GUTTERS
at should be checked regularly.

Bilge Pumps There are two automatic ELECTRIC BILGE PUMPS

Located under the companionway steps and aft at the transom.
They are wired directly to the HOUSE BATTERY so they function even if all battery switches are off. (See *24-Hour Circuits*, page 16.) 3-way switches at the helm control the pumps. The pump will run in the AUTO position if water is present. The pump will run in the MANUAL position whether there is water in the bilge or not. The switches are wired so that the off position functions the same as the AUTO position.

Aft BILGE PUMP

BILGE PUMP SWITCH

The emergency MANUAL BILGE PUMP (delivered under the port pilot seat) Is a backup to the two automatic bilge pumps. You may operate it by opening the plastic cover, inserting the handle (supplied loose) and pumping up and down. There's a noticeable difference when the bilge runs dry. Its capacity is 15 gal/min.

6.4 RAW WATER

Raw Water (seawater) is used for heat exchange for the GENERATOR, optional SEAKEEPER and the AIR CONDITIONER

7 SEAKEEPER GYROSTABILIZER (Option)

The SEAKEEPER is a 790 lb. sphere that spins up to 10,700 RPM. It's anchored to a reinforced structure low in the boat to resist roll.

Following is a summary of the Seakeeper 5 Gyrostabilizer (GYRO) operation. Please review the details of operation and the safety notices in the Seakeeper Operation Manual in the binders. You can download a copy at:

http://www.seakeeper.com/technical-library.

Before you start the GYRO, Check its raw water strainer to ensure that the cooling water intake to the GYRO is clear.

The buttons left to right are POWER ON/OFF; GYRO ON/OFF; DISPLAY DAY/NIGHT; HOME SCREEN; SETTINGS.

7.1 To Start the Gyro

The GYRO requires 120V AC. The display requires 12V DC. (See the adjacent images.)

With SHORE POWER or the GENERATOR on (see page 22) turn on HOUSE BATTERY switch and the GYRO breaker at the 12V DC panel and the GYRO breaker on the left side of the 120V AC panel.

When the 12V DC GYRO breaker is turned on the display will initialize and the HOME screen will appear. (See adjacent image at top.) If a FAULT is present an ALARM screen will appear.

Press the POWER ON/OFF button once. The RED PROGRESS BAR turns green and the GYRO begins spinning. It takes about 40 minutes before the GYRO is ready for stabilizing.

To start, press the POWER ON/OFF. A RED PROGRESS BAR will appear. When the GYRO reaches operating speed the PROGRESS BAR will turn GREEN. The GYRO is available for stabilization.

7.2 Activate/De-activate

Press GYRO ON/OFF (the lock turns green). It takes 5-10 seconds to activate. The GREEN PROGRESS BAR disappears and the GYRO Graphic starts rolling when MAX stabilizing is in effect.

Press GYRO ON/OFF button (the lock turns red) to deactivate the GYRO.

CAUTION There is a large amount of torque about the gimbal axis when the GYRO is processing. Cover panels protect the GYRO while it's in operation. Don't stand on them or put anything on top. The covers should always be in place during operation. No maintenance should be attempted unless the gyro is locked and the flywheel has stopped spinning.

Press GYRO ON/OFF. Stabilization takes 5-10 seconds to reach full effectiveness.

8 EQUIPMENT, APPLIANCES and FINISHES

8.1 ANCHOR WINDLASS

BREAKER PANEL settings: HOUSE BATTERY switch, FRESH WATER PUMP and WINDLASS breaker on.

It's prudent to have the engine or GENERATOR running when using the windlass; it draws considerable battery power from the HOUSE BATTERIES.

To retrieve the anchor, use the engine to move the boat over the anchor, not the windlass; it's sized to retrieve the anchor and rode, not pull the boat. If the anchor is lodged, motor over the anchor to break it loose, then retrieve it with the windlass.

Stop the windlass before reversing its rotation, otherwise the windlass fuse may blow or the breaker may trip. Refer to the windlass manual in your binders for specific operating instructions.

The WINDLASS can be operated from the WINDLASS CONTROL panel at the helm.

http://www.muir.com.au/product-page/6145c752-d6cb-2bea-5d0e-6d4ab1547832

MUIR Anchor Windlass

WINDLASS control panel at helm

CAUTION When anchoring, don't rely on the windlass to hold the anchor rode. Remove the rode from the anchor chute and feed it through a bow chock to a bow mooring cleat to avoid chafe on the anchor rode and to avoid damaging the windlass gears.

CAUTION When underway or when leaving the boat, secure the anchor and chain with the retainer clamp. This prevents the anchor and rode from running free and fouling the props. If the anchor chain slips, use the winch handle in the top of the windlass to tighten.

8.2 ANCHOR WASHDOWN

BREAKER PANEL settings: ENGINE START BATTERY switches on, HOUSE BATTERY switch, WINDLASS breaker and FRESH WATER PUMP breaker on.

A spray nozzle under the anchor roller washes salt water and mud from the anchor rode and chain as the anchor is raised when the rocker switch at the CONSOLE SWITCH PANEL is pressed. (See page 13.)

There is good advice on anchoring and retrieving lodged anchors at http://fortressanchors.com/resources/safe-anchoring-guide

…R.I.J.

8.3 FUSION MULTI-MEDIA PLAYER

BREAKER PANEL settings: STERO breaker on.

The Fusion multi-media player has a single slot to play audio CDs and video DVDs on the TV. It has a SiriusXM receiver. You may install a Pandora app, tune in DAB stations and pair up to eight Bluetooth media devices.

FUSION MULTI-MEDIA PLAYER

See the instruction manual in the binders for operating instructions and for connecting to Internet media services.

https://www.fusionentertainment.com

8.4 PRIVACY/SUNSCREEN CURTAINS (OPTION)

PRIVACY/SUNSCREEN CURTAINS

The optional PRIVACY/SUNSCREEN CURTAINS provide privacy so the pilothouse can serve as an additional stateroom.

The two large side curtains roll up in place. The other curtains roll up in a carry bag. The aft and windshield curtains hook up inside. An advantage of inside curtains is that they don't get dirty or need storage when wet from dew when departing in the morning.

One good way to roll up the curtains is to lay them over the top of the pilothouse table. Roll all sections up together and put them in the storage tube. Don't fold them.

8.5 VACUUM CLEANER

BREAKER PANEL settings: VACUUM breaker on,

Dirt Devil states that the HEPA filter bags capture particles that cover common allergens, from mold and animal dander to dust mites and pollen, along with some small particles from smoke and pollution.

The vacuum hose is stored in a companionway step.

Change the filter bag frequently in the beginning to determine the proper interval. The filter bag canister is located forward under the starboard pilothouse seat locker. Lift the lid and pull bag collar off connector. Open new bag and expand pleats and slide collar onto the inlet connector. To reorder bags, check bag for instructions or go to www.rvbags.com.

The VACUUM CLEANER has a thermal protector to prevent overheating. If it doesn't operate, turn the VACUUM breaker off, let it cool and turn it back on.

If the motor brushes or bearings are worn, the thermal protector will trip after a short period. An authorized representative should perform service.

See the Dirt Devil Owner's Manual in the binders for safety notices and detailed operating instructions.

8.6 COOKTOP

BREAKER PANEL settings: COOKTOP breaker on. The COOKTOP in the galley requires 120V AC from SHORE POWER 1, the GENERATOR or the INVERTER. The COOKTOP has flush-mount, pop-up, heat-resistant rubber potholders. You must push on them for several seconds for them to respond. Refer to the *Installation Guide & Operation Manual* included in the binders. **CAUTION** Don't leave an unattended cooktop on.

COOKTOP

8.7 MICROWAVE

BREAKER PANEL settings: MICROWAVE breaker on. The MICROWAVE in the galley requires 120V AC from shore power connected to SHORE POWER 1, the GENERATOR or the INVERTER.

MICROWAVE

8.8 REFRIGERATOR

12v DC BREAKER PANEL settings: REFRIGERATOR breaker on..

The thermostat has an on/off button and a temperature adjustment button. Each time the temperature adjustment button is pressed, the LED indicator advances from left to right indicating a cooler setting.

It can take a while for temperature to stabilize, particularly after initial stocking with food and beverages.

REFRIGERATOR

8.9 FREEZER

12v DC BREAKER PANEL settings: REFRIGERATOR breaker on.

The FREEZER in the galley requires 12V DC stainless steel inner lining, plastic bottom section, wire basket and interior light. It has a range of 0 °C to -20 °C. https://www.indelwebastomarine.com:

FREEZER

8.10 TVS (OPTIONAL)

BREAKER PANEL settings: GENERATOR on, or SHORE POWER 1 on, or INVERTER on and TV breaker on.

See the manual in the binders. The picture in the upper sidebar is of an optional TV installation in the forward cabin. The cabinet behind the TV holds the "entertainment center" with a CD changer, DVD player or satellite TV receiver. The second picture is of a TV in the pilothouse that hinges up against the overhead.

Video signals may be acquired from the Fusion DVD player, from a dockside cable TV outlet, from the optional Glomax TV antenna that will receive local HD stations, from the optional KVH satellite dish system or from other devices you choose. Antenna breakers need to be activated for reception.

Depending on options you select, Surround-Sound may be achieved using the AUX function at the FUSION MULTI-MEDIA RECEIVER to integrate both TV Audio and the six-speaker stereo audio. Or kids can watch TV with dedicated audio below decks while parents are listening to jazz, with the "Fade" function directing sound to the two cockpit speakers.

DROP DOWN 32" TV

.

VACUUM FLUSH HEAD AND WASTE DISCHARGE control panels

8.11 VACUUM FLUSH HEAD SYSTEM

BREAKER PANEL settings: FRESH WATER PMP and HEAD beakers on.

Press the ADD WATER switch until desired water level is achieved. (It will shut off automatically to avoid overflow.)

Press the FLUSH switch down for a moment, then release it. It activates a macerator pump that siphons water and waste from the bowl, macerates, and propels the effluent to a 20-gallon waste tank. The capacity is generous since, unlike conventional marine heads that use several quarts of seawater, each flush uses about a cup of fresh water.

Toilet can flush when the green "OK TO FLUSH" light is on. If the red "DO NOT FLUSH" light is on, the system is either recharging the vacuum, or the holding tank is full.

See the Sealand Vacuum toilet system Instruction manual for instructions on safety, changing flush modes, service mode, cleaning, maintenance, spare parts, clearing hoses during extended periods of non-use, clearing blockage, locating leaks, winterizing and more.

The lights on the DISCHARGE PUMP control panel (see adjacent image) indicate the level of waste in the holding tank. The level can be double-checked by looking at the semi-transparent holding tank. Waste is discharged in one of two ways:

1. Pumped out at an authorized pumping facility from the WASTE deck fitting. To remove all the waste, turn off the vacuum pump system and press the SERVICE BUTTON to remove the vacuum.
2. Discharged overboard with the DISCHARGE PUMP. Open the large through-hull discharge waste valve, accessible under the cockpit hatch, aft and starboard. Then insert the key in the WASTE DISCHARGE control panel (see sidebar). Turn and hold the switch clockwise to activate overboard pumping using the macerator pump.

Don't leave the key in the switch. Waste discharge regulations vary by location. And, don't lose it either. May be worth making a duplicate.

CAUTION Ensure compliance with federal, state and local regulations before discharging.

WARNING Normal household toilet tissues don't dissolve or flow well in low water consumption toilets. These tissues build up in a tank and eventually the toilet system fails. Use rapidly dissolving single ply Scott tissue. To determine that a tissue will dissolve, immerse a square of tissue in a jar of water and shake five times. It should disintegrate.

8.12 AIR CONDITIONING (OPTIONAL)

BREAKER PANEL settings: AIR CONDITIONER breakers on, and 12V SUMP PUMP breaker on. You must have the GENERATOR on, SHORE POWER on

There is a 16,000 BTU heat pump that heats or cools the interior and pilothouse as all one or separate zones, if AC grates are closed off ito direct air flow into one zone or the other. They use raw water (seawater) much like the engines, for heat exchange. The heat exchangers extract heat from the refrigerant for the cooling cycle, and by reversing the flow of

refrigerant they extract heat from seawater for heating. The heating cycle is effective if the sea temperature is above 35 degrees.

There's an intake seacock, RAW WATER strainer and pump located in the cockpit seat locker and port cockpit sole locker aft. They should be checked frequently and are the first things to check if the unit fails to deliver heat or cooling.

Programming Procedure There's a wide range of options for controlling the AC system. You can set it to heat mode, cool mode or automatic mode; set it to cycle on and off for humidity control when the boat is unused; control fan speeds, view service history and hour meter and set many more options. For a full explanation of the options, controls and the programing procedure, see the users manual.

Programmable Parameters The default parameters may be changed. Once new values are entered and memorized, the factory defaults are overwritten and the new parameters become the default values. You can restore the original factory default parameters manually. A summary of the parameters, the permitted values and original factory default settings are listed in Table 2, page 12 of the manual in the binders. When used with optional electric heat, the fan remains on for four minutes after the heater cycles off even if fan is set to cycled operation.

8.13 FINISHES

Hull paint The 43z hull is painted with Awlcraft 2000 color and three coats of clear Awlcraft. Awlgrip states that while it doesn't hurt to wax it, it doesn't help and can create a maintenance problem.

The interior cabin sole and cabinetwork are finished in clear Awlgrip. See the Awlgrip website for care and maintenance advice.

http://www.awlgrip.com

Corian Instructions for maintaining Corian counter tops are in the binders.

Strataglass Don't use chemicals or brushes to clean; use only mild soap and a sponge or a soft rag. If the curtains are scratched a mild polishing compound (a white cream similar to what is used on Awlgrip) can be hand applied to remove them. Test a small, unobtrusive area first. (See the Strataglass Care and Maintenance website.)

http://www.strataglass.com/strataglass-care-and-maintenance

It's best to leave the curtains in place, even when trucking. If they're removed, store them flat or rolled together with towels or paper between layers. To avoid creases, don't fold.

Gull droppings on the hardtop that drizzle down the side curtains after a rain or heavy dew have an acid that can, over time, etch the Strataglass curtains. Be sure to clean frequently. There is one known instance with a 36z that was moored in Chilmark on Martha's Vineyard.

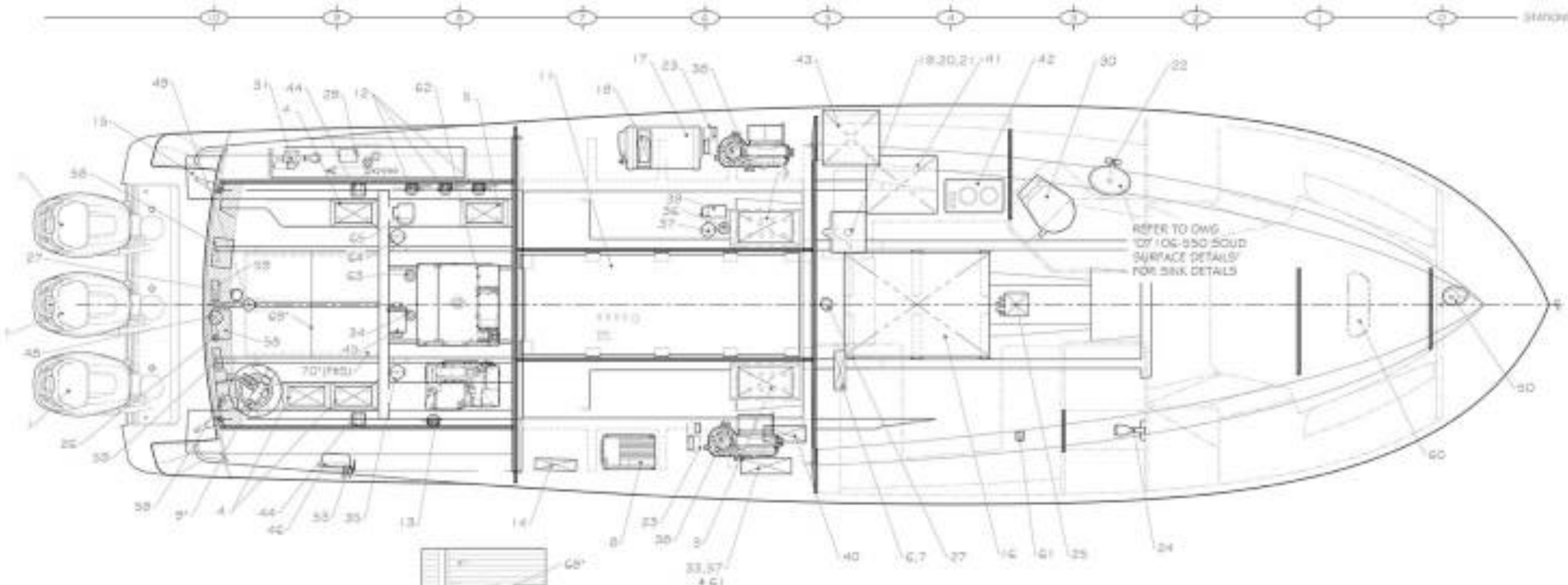
…R.I.J.

UltraLeather Upholstery The standard UltraLeather upholstery is water resistant, but don't use chemicals or brushes to clean, only mild soap and a sponge or a soft rag.

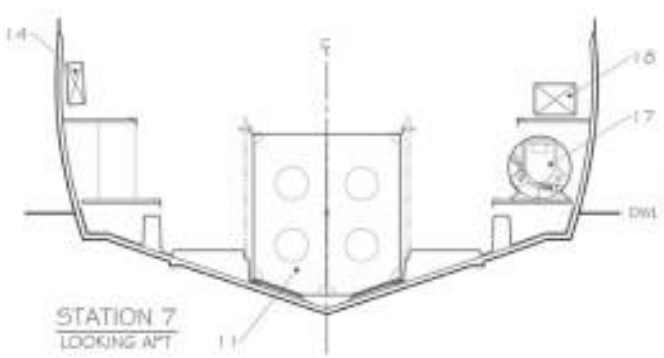
Stidd Seats See http://stidd.com/support/ for maintenance recommendations. The Stidd seats swivel and lower for a sociable setting. Slide the seats forward before swiveling so the seat doesn't jam into the pilothouse walls.

REF	QTY	DESCRIPTION	MAKE / MODEL
1	3	MAIN ENGINE	YAMAHA
2*	1	GENERATOR (6kW)	WESTERBEKE 6.5kW MCG
3	2	HOUSE BATTERY	EAST PENN 8A8D
4	3	START BATTERY (ENGINE)	EAST PENN 8A31DTM
5*	1	START BATTERY (GENSET)	EAST PENN 8A27M
6	1	ELECTRICAL PANEL AC	BLUE SEA 3602914
7	1	ELECTRICAL PANEL DC	BLUE SEA 3602915
8	1	CHARGER/INVERTER	VITCRON QUA 125021100
9*	1	SHORE POWER 50A	CABLEMASTER CM-7
10*	1	HAWSE PIPE	GLENDINNING CM 4050
11	1	FUEL TANK (530 GAL)	FL MARINE TANK BBW530.00117
12	3	FUEL FILTER (ENGINE)	RACOR 490R-RAC 10 MICRON
13*	1	FUEL FILTER (GENSET)	RACOR 320R-RAC 10 MICRON
14	1	FUEL VENT CARBON FILTER	ATTWOOD 99CC085-1
15	1	TRIM CONTROL SYSTEM SET	LECTROTAB 5316-0085-P&S
16	1	F.W. TANK (100 GAL)	RONCO B400
17	1	F.W. HEATER (13 GAL)	ISOTHERM BASIC 50
18	1	F.W. PRESSURE PUMP	JOHNSON 10-13409-01
19	1	F.W. PURIFICATION SYSTEM	G. ECOLOGY SEAGULL IV
20	1	GALLEY FAUCET	SCANDVIK 10871
21	1	GALLEY SINK	SCANDVIK 10220
22	1	HEAD FAUCET	SCANDVIK 46010
23	2	A/C CONDENSATE PUMP	ASPEN ASP-MO-115
24	1	SHOWER/MIXER	SCANDVIK 10763/10813
25*	1*	SUMP PUMP (2x W/O GYRO)	RULE 98A
26	1	COCKPIT SHOWER/MIXER	SCANDVIK 12144
27	3	BILGE PUMP (AUTO)	JABSCO RM1100AM
28	1	BILGE PUMP (MAN)	BOSWORTH GH-M500D (M5V)
29	1	B.W. TANK (32 GAL)	SEALAND
30	1	TOILET	DOMETIC VACUFLUSH 4806
31	1	PUMP - B.W. DISCHARGE	JABSCO 1859-2092
32	-	- RESERVED -	- RESERVED -

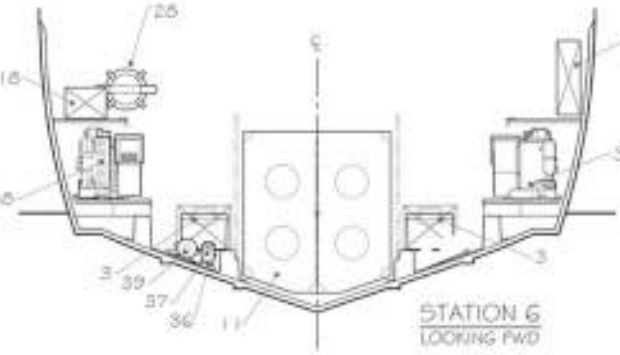
REF	QTY	DESCRIPTION	MAKE / MODEL
33	1	MULTI HUB	YAMAHA 6Y8-81920-01
34*	1	SEACOCK (GENSET)	FORESPAR 931144-1
35*	1	STRAINER (GENSET)	GROCO ARG 1000-P
36*	1	SEACOCK (A/C)	FORESPAR 931264
37*	1	STRAINER (A/C)	GROCO ARG 1250-P
38*	2	A/C UNIT	MARINE AIR VTD16K-HV
39*	1	A/C PUMP	MARINE AIR
40*	3	HEATER	WALLAS 40DT
41	1	FRIDGE/FREEZER	VITRIFRFRIGO SEA DRAWER DW180 FLUSH MOUNT
42	1	COOK TOP	KENYON B40575LPUPS
43	1	MICROWAVE	SHARP R-331Z5
44	2	EXHAUST FAN (BLOWER)	DELTA T 500-304121 1P
45*	1	GENSET MUFFLER	WESTERBEKE - QUIET HUSH
46*	1	GAS/WATER SEPARATOR	CENTEK 1020150
47	1	FIRE SUPPRESSION (FWD)	SEA-FIRE FG100A
48	1	FIRE SUPPRESSION (AFT)	SEA-FIRE FG125A
49	1	HATCH LIFT	THOMSON ELECTRAK 10
50	1	WINDLASS	MUIR VR 1250
51	-	- RESERVED -	- RESERVED -
52	1	TV INLET	HUBBELL HBLTVSS
53	1	GENSET WET EXHAUST SEACOCK	FORESPAR 931155
54*	1	GENSET DRY EXHAUST OUTLET	GEM 71007-2
55	2	LOUVERED SUCTION VENT	VETUS ASV 30
56	2	ENGINE AIR INTAKE GRILLES	DTS #800-095537-01
57	3	POWER CONTROL UNIT	YAMAHA 6E5-85590
58	3	STEERING PUMP ASSEMBLY	YAMAHA 6E5-7611A-01
59	2	STEERING CONTROL UNIT	YAMAHA 6E5-859A0-01
60*	1	BOW THRUSTER	SIDEPOWER SE100
61	-	- RESERVED -	- RESERVED -
62*	1	GYRO STABILIZER	SEAKEEPER 5
63*	1	SEACOCK (GYRO)	FORESPAR 1" 931264
64*	1	STRAINER (GYRO)	GROCO ARG-755-P
65*	1	GYRO PUMP	MARINE AIR PML500L
66	1	AIR HORN COMPRESSOR/TANK KIT	KAHLENBERG P449-17
67*	1	GRILL - SERVICE BAR	KENYON FRONTIER B70057
68*	1	FRIDGE - SERVICE BAR	INDEL DR 49
69*	2	FIBERGLASS BAR GRATING	MCMASTER #6228T43
70*	1	FRP "L" GRATING SUPPORT	MCMASTER #8542K52



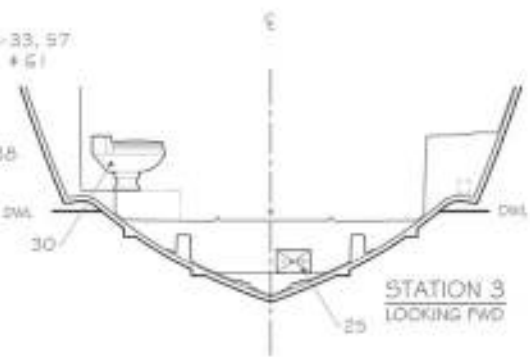
*SERVING BAR OPTION
STATION 8



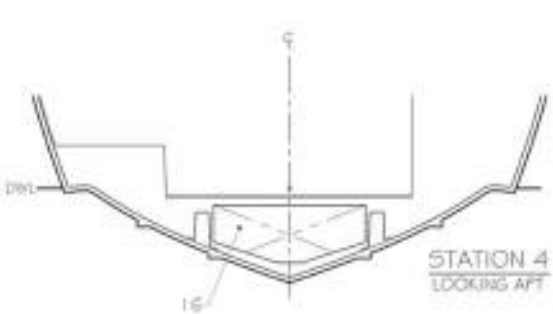
STATION 7
LOOKING AFT



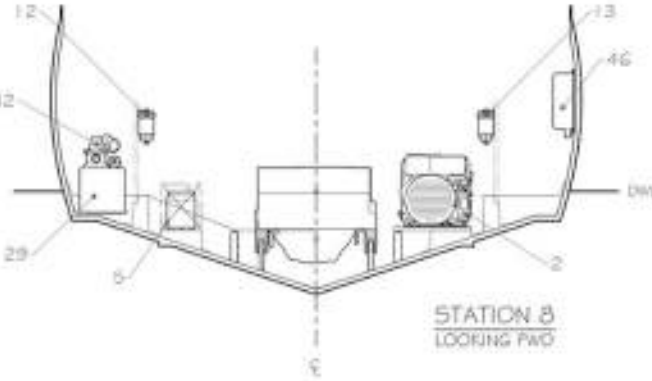
STATION 6
LOOKING FWD



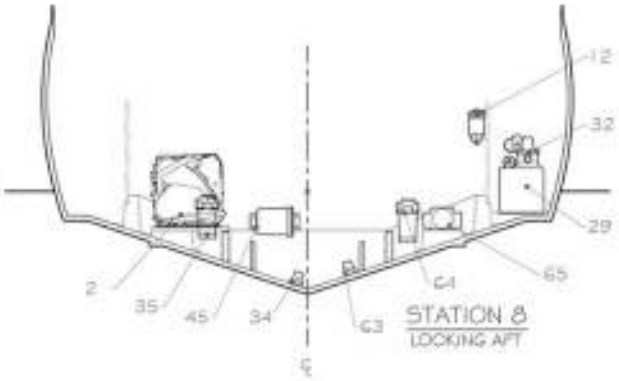
STATION 3
LOOKING FWD



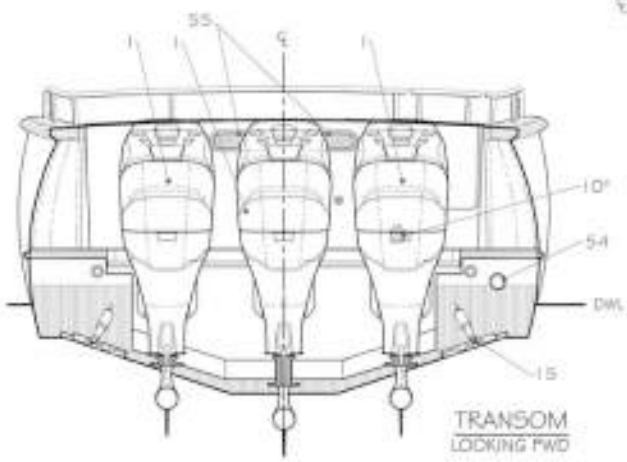
STATION 4
LOOKING AFT



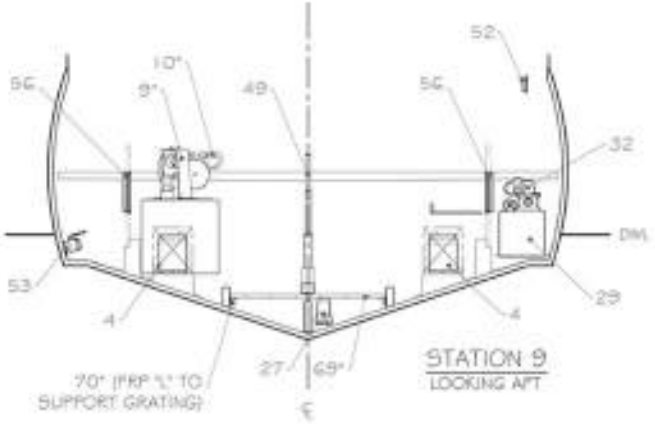
STATION 8
LOOKING FWD



STATION 8
LOOKING AFT



TRANSOM
LOOKING FWD



STATION 9
LOOKING AFT

MJM 43Z LIFTING & CRADLE DIAGRAM - OUTBOARDS

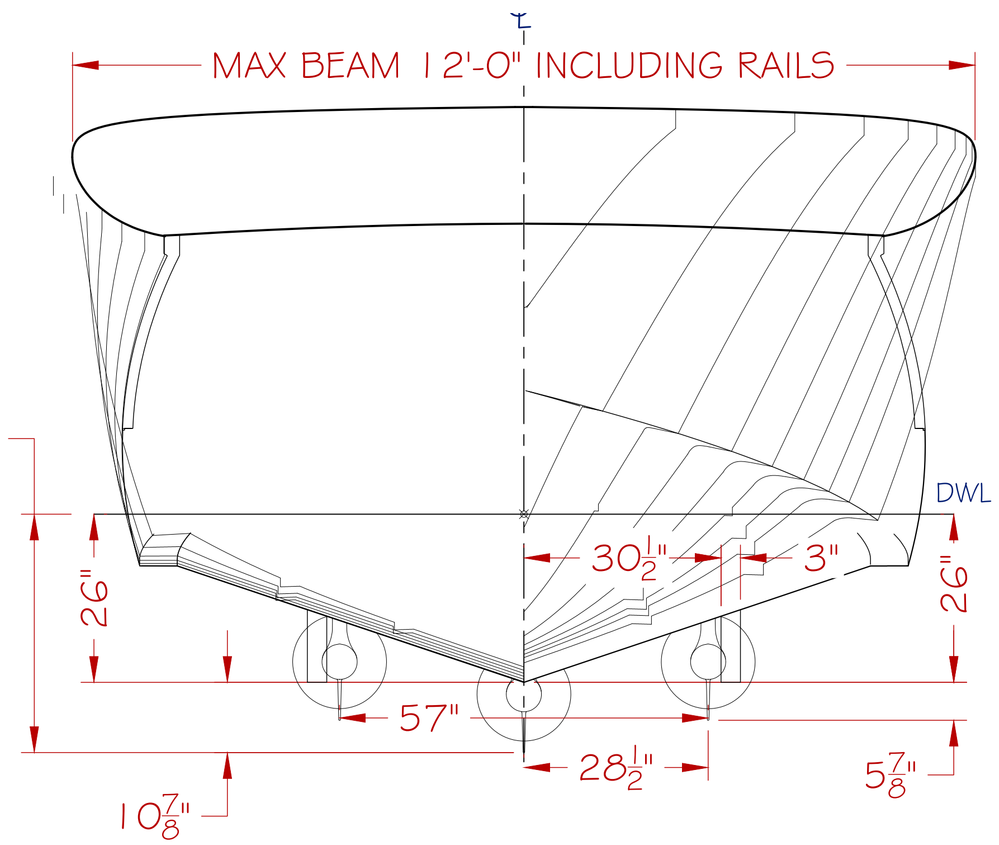
DRWG. NO. 07106 - 012D REV F

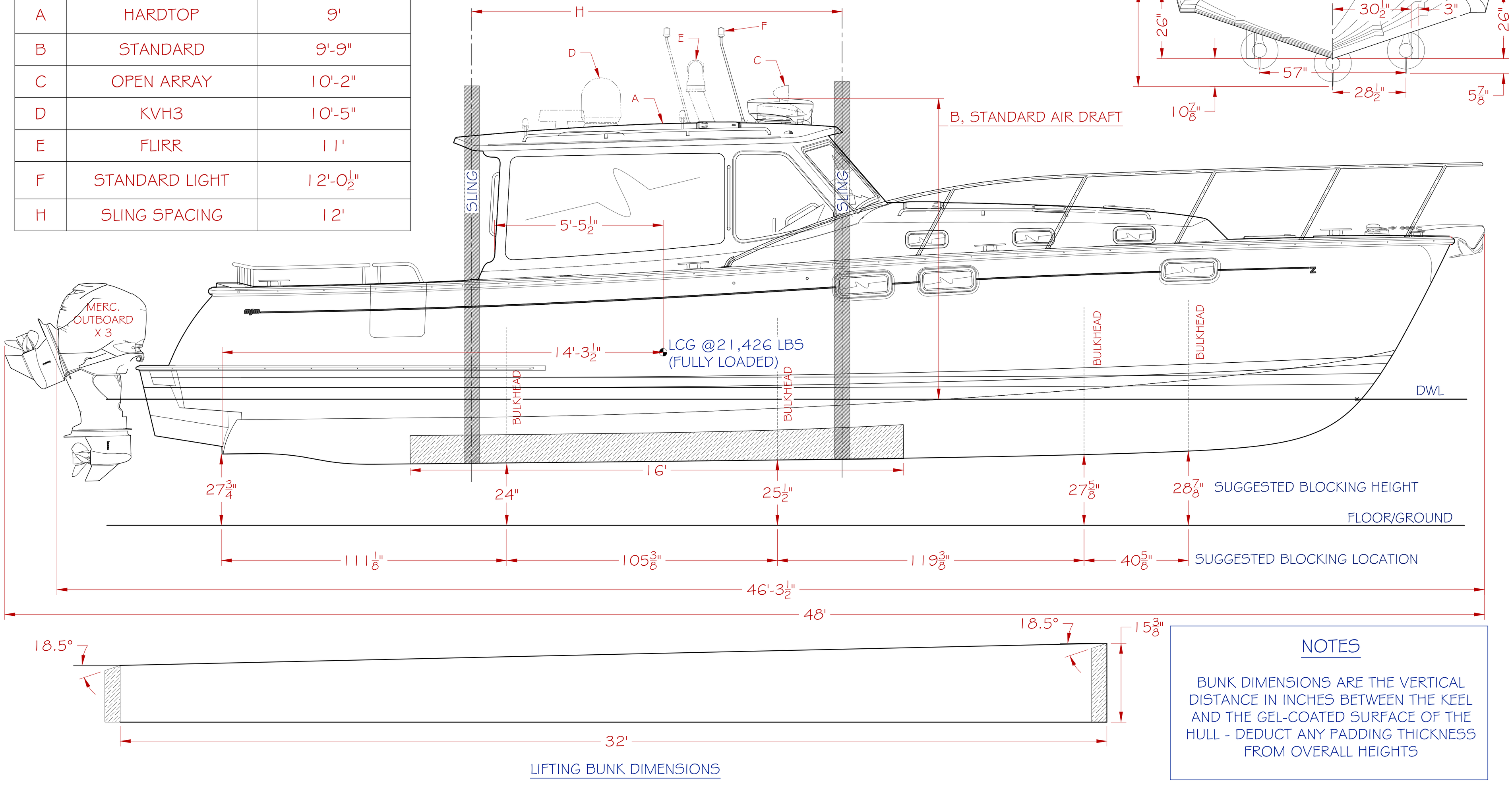
SCALE

INCHES 0 1 2 3 4 5 6 INCHES

FEET

REF	DESCRIPTION	AIR DRAFT
A	HARDTOP	9'
B	STANDARD	9'-9"
C	OPEN ARRAY	10'-2"
D	KVH3	10'-5"
E	FLIRR	11'
F	STANDARD LIGHT	12'-0 1/2"
H	SLING SPACING	12'





LIFTING BUNK DIMENSIONS

NOTES

BUNK DIMENSIONS ARE THE VERTICAL DISTANCE IN INCHES BETWEEN THE KEEL AND THE GEL-COATED SURFACE OF THE HULL - DEDUCT ANY PADDING THICKNESS FROM OVERALL HEIGHTS

9.16 Boston Boatworks Limited Warranty

Manufacturer's Sole and Limited Warranty for Pleasurecraft

A. General. This document sets forth the sole and limited warranty, which Boston BoatWorks, LLC ("The Manufacturer") is giving you in connection with the "Vessel" which you are acquiring. It is the only warranty being given by the Manufacturer and should be reviewed carefully together with manuals and other instructional material provided by the Manufacturer before you take delivery of the Vessel.

B. Basic Warranty. The Manufacturer warrants that the Vessel (except for Excluded items described below and when Properly Used, will be free of defects in material and workmanship for a period of twelve (12) months from delivery of the Vessel to you by an Authorized Dealer. If you sell the Vessel during this period, your buyer may receive the benefit of the balance of the warranty by agreeing to be bound by its terms.

c. Extended Warranty for Structure. In addition to the foregoing warranty, the Manufacturer warrants that the stringer systems, structural bulkheads and composite laminates of the Vessel (except for Excluded items) and when the Vessel is Properly *Used and Maintained, will be free of defects in material and workmanship for a period of five (5) years from delivery date by an Authorized Dealer. This warranty may be transferred to your buyer in the same manner as the Basic Warranty. *Improper over-the-road trucking of the vessel can cause local damage to the centerline of the boat requiring a localized FRP repair. Use authorized MJM trucking companies for moving your boat or contact Boston Boat Works' customer service managers for proper trucking information PRIOR to engaging with another trucking provider for boat transport.

D. Extended Warranty Against Osmotic Blistering. In addition to the foregoing warranties, the Manufacturer warrants that any gelcoat surfaces of the Vessel below the waterline won't blister when the Vessel is Properly Used for a period often (10) years from delivery date by an Authorized Dealer. This warranty may be transferred to your buyer on the same manner as the Basic Warranty.

E. Dealers. The name and address of Authorized Dealers is available from the Manufacturer. The Manufacturer doesn't authorize the Dealer, or any other person, to assume for the Manufacturer any liability in connection herewith or any liability or expense incurred in the repairing of its products other than those expressly authorized by the Manufacturer in writing.

F. Excluded Items. The Manufacturer gives no warranty as to:

a. Paints, varnishes, gelcoats (except where included in paragraph D above) exterior wood, vinyls, fabrics, glass, chrome plating or anodized or other finishes or surface coatings because of the varying quality of these items manufactured by others and the effect resulting from different climactic and use conditions

b. Engines, mechanical equipment, pumps, batteries, heating, plumbing, refrigeration, electronic components, masts, or other components manufactured by other than the Manufacturer, or the cost of removal or re-installment of the part and disassembly, or reassembly of the unit of which it is a component.

c. All items not installed by the Manufacturer or altered after their installation, and items installed or altered by Authorized Dealers.

d. Other than upon first being delivered, leaks in or around hatches, companionways, deck hardware or other leaks which are above the waterline.

e. Damage to the Vessel (including, but not limited to, wet core) caused by leakage around decks, hardware or other accessories attached to, or incorporated into, the Vessel.

f. Speed, fuel consumption or other performance characteristics, because they are estimated and not guaranteed.

G. Proper Use. The warranties contained herein are expressly conditioned upon your Proper Use of the Vessel. This means that you must use the Vessel solely as a pleasure craft (no commercial use) and operate it as directed in and after reviewing the manuals provided by the original equipment manufacturer and the Manufacturer, and perform maintenance to the Vessel as recommended in the manuals and as required by periodic inspections by an Authorized Dealer or Service Center.

H. Warranty Claims. To make a claim under this warranty you must do the following a. Report the defect to the Manufacturer or Authorized Dealer within 48 hours after discovery, and when possible prior to incurring any expense, identifying the Vessel and submitting photographs (email digital preferred).

b. Make the Vessel available for inspection by the Manufacturer or Authorized Dealer when requested.

c. Make the vessel available for repairs, if required, by the Manufacturer or Authorized Dealer.

d. Major components, such as engines, generators, air-conditioners, electronics, and appliances, for example, are warranted by the manufacturer of the component. They have authorized service dealers in most major boating markets. The Manufacturer or Dealer will identify such service dealers upon request.

I. Repair or Replacement. The manufacturer shall perform its obligations under this warranty by, at its option, repairing or replacing (at Manufacturer's expense) the defective part or component. Parts or components replaced will become the property of the Manufacturer. The replacement of parts o components won't extend the warranty but the replacement parts and components will be covered for the balance of the warranty period. You shall be responsible for returning the Vessel to Manufacturer at its plant or at a marina or to such other repair facility that the Manufacturer shall designate, at your sole expense.

J. Specification Changes. The manufacturer reserves the right to make changes in design, equipment, layout or construction without notice or being obligated to incorporate such changes in previous products.

K. Registration Cards. The Manufacturer recommends that you immediately fill out and return the Warranty Registration Card for the Vessel. Cards should be sent to:

Boston BoatWorks, LLC
333 Terminal Street
Charlestown, MA 02129
ATTN: Customer Service

L. The information contained on this card will enable the Manufacturer to more quickly process any warranty claims and to comply with the Federal Boating Safety Act. Should you sell the Vessel, the Manufacturer recommends that your buyer also fill or a Warranty Registration Card.

M. Exclusion of Implied Warranties. The foregoing warranty is intended to be in lieu of all other warranties, express or implied. In part, due to the hazardous, life-threatening environment, capable of overwhelming vessels of any size, that the Vessel will operate in, THE MANUFACTURER OR ITS DEALER DISCLAIMS ALL IMPLIED WARRRANTIES INCLUDING WARANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR USE. In some jurisdictions, the Manufacturer is prohibited from excluding or limiting implied warranties. In those jurisdictions, the Manufacturer expressly limits any implied warranties to the greatest extent and to the shortest duration allowed by law.

N. Limitation of Damages. THE MANUFACTUER OR ITS DEALER DISCLAIMS ANY LIABILITY TO YOU FOR INCIDENTAL, CONSEQUENTIAL OR INDIRECT DAMAGES TO YOU, including loss of use, loss of revenue, travel expenses, transportation charges, food or lodging charges or loss of personal property. In some jurisdictions, the Manufacturer is prohibited from excluding or limiting implied warranties. In those jurisdictions, the Manufacturer expressly limits any implied warranties to the greatest extent and to the shortest duration allowed by law.

o. Whole Agreement. This warranty is the sole warranty given to you by the Manufacturer. Authorized Dealers aren't authorized to make changes to this warranty. Any questions about the warranty should be directed to the Manufacturer. If you do bring a claim against the Manufacturer that is related to the Vessel, you must bring it in the Courts for the State of Massachusetts.

9.15 Fuel Consumption Log.

Date	Location	Engine Hours	Hours Since Last Fill	Gals To Fill	GPH	Comment