

MJM Yachts LLC

89 Pinckney Street, Boston MA 02114
Tel 617-723-3629 Fax 617-723-3629

2009

Dear 29z Owner:

Congratulations on becoming Captain and Owner of the world's best built and most fuel efficient yacht of its size. The enclosed copy of the 29z Owner Manual should further contribute to your enjoyment and proficiency afloat.

This manual was created jointly with Zurn Yacht Design, Boston BoatWorks and MJM Yachts. Our experience with the first 64 of the 34z's and 33 of the 29z's has been incorporated to make this manual as useful and relevant as possible. Keep in mind that there may be some variances such as location of the breakers on the panel. And, from time-to-time we will change specifications to keep pace with changes made to improve the boat.

When addressing a problem with a specific piece of equipment, this 29z Owner's Manual is to be regarded only as a preliminary source of information. The equipment manufacturer's own manual with trouble-shooting procedures, etc. is the primary source and authority.

A National Marine Manufacturer's Association (NMMA) publication *Sportfish, Cruisers, Yachts* accompanies, and forms part of, this 29z Owner's Manual. This booklet has many universal handling and operating tips worth reviewing.

This Owner's Manual is designed to be a living document, not only for builder updates but for your own use and record. Each boat is provided with a copy of the current Manual organized in a STAPLES "Mini-Ring" type binder that allows you to add pages as needed.

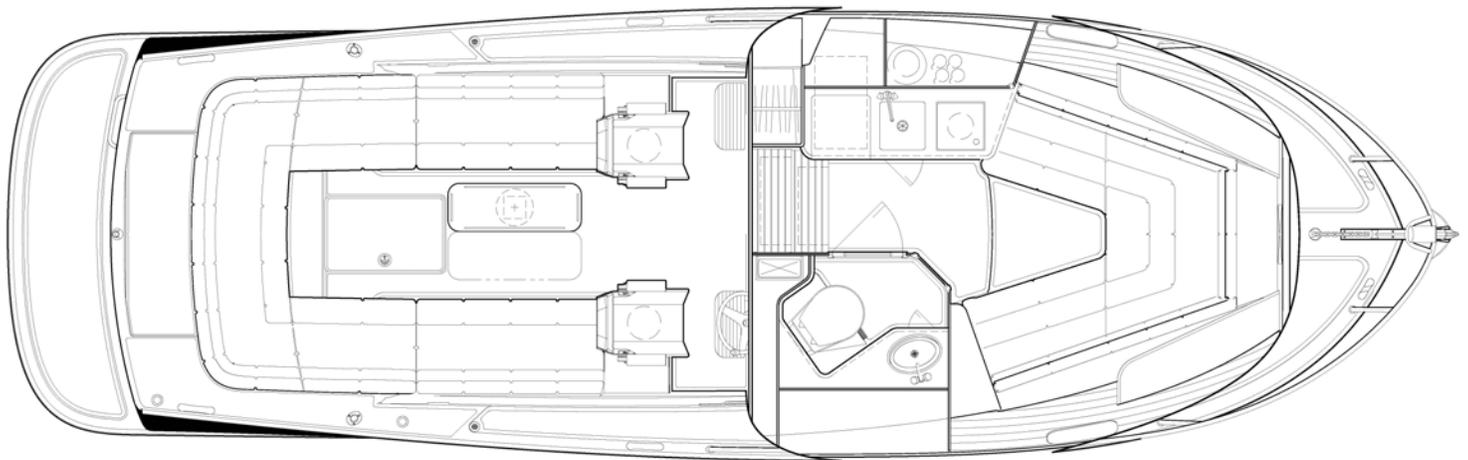
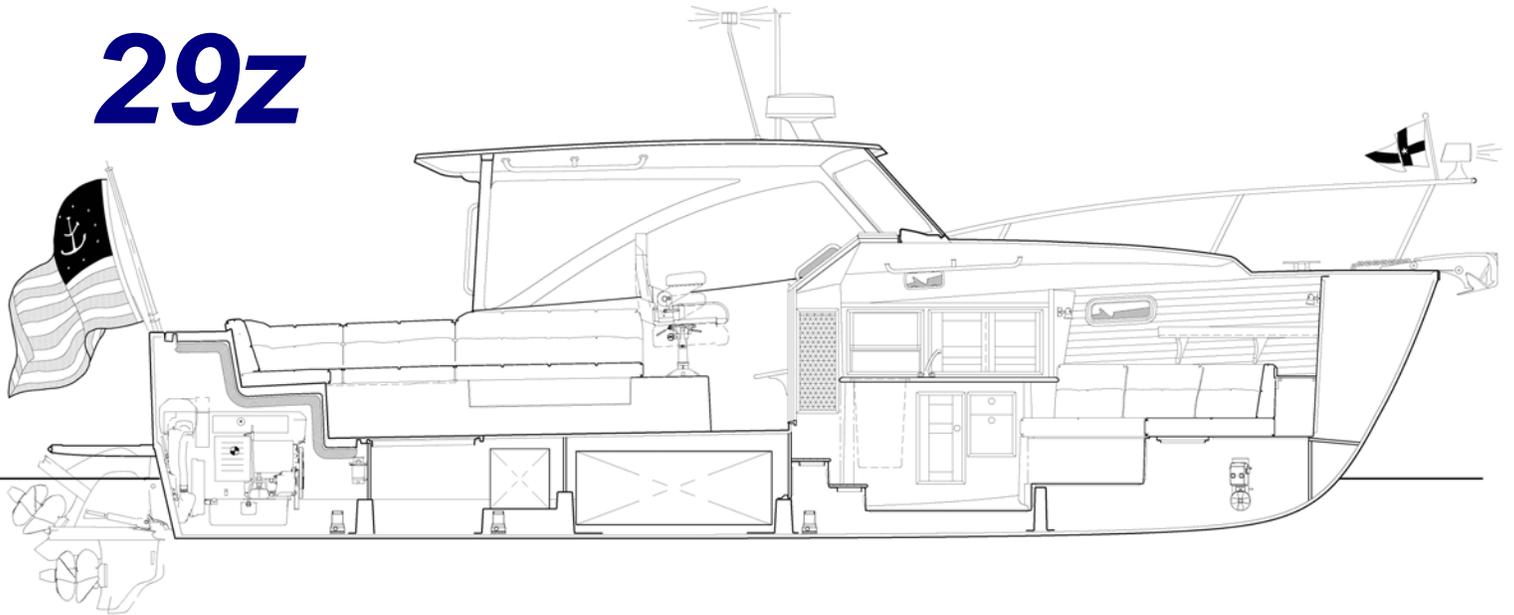
One of the great advantages of purchasing a series-built or semi-custom design is that owners have the benefit of learning from one another. So, with your continued input and comments we can keep adding useful information and helpful hints to this manual.

Part of the ISO CE Mark Certification Program is confirmation by the owner that the manual has been received. Please sign the extra page No. 3 included in the Manual as a receipt and return it in the stamped envelope provided.

Best wishes for fair winds and sunny skies. On behalf of the builder and designer, we are most appreciative, and I am particularly honored, that you have chosen the 29z.

Robert L. Johnstone
Chief Operating Member

29z



Length Overall (Including Swim Platform and Bow Roller)	32.5 ft.	(9.91 m)
Length on Deck	29.0 ft.	(8.84 m)
Length Waterline	26.4 ft.	(8.05 m)
Beam	10.2 ft.	(3.11 m)
Draft	2.4 ft.	(0.73 m)
Displacement (1/2 load)	8,600 lbs.	(3909 kgs)
Fuel Tank	125 gals.	(473 liters)
Fresh Water Tank	30 gals.	(106 liters)
Hot Water Tank	6 gals.	(23 liters)
Holding Tank	10 gals.	(38 liters)
Height over Water (w/ radar)	8.5 ft.	(2.60 m)
Height of Boat (w/ radar & drive lifted)	10.8 ft.	(3.3 m)

Note: This manual is published in accordance with ISO standard 10240:1995E Small Craft - Owner's Manual

BOAT INFORMATION

BOAT

MODEL: 29z DownEast Hardtop-
HULL SERIAL # (HIN): EOU29Z
DESIGN PATENT: Patent No. US D475.338S (3Jun03)
DELIVERY DATE: _____
REGISTRATION #: _____

ENGINE

MAKE: VOLVO
MODEL: D4-260A w/power steering
SERIAL #: _____
Volvo 24 Hour Service 1-877-74PENTA (747-3682) or Arjen Steegstra cell 508-246-1182

TRANSMISSION

MAKE: VOLVO TSK DP-H S/N
MODEL: TSK DP-H
DRIVE #: _____
RATIO: 1.85:1

PROPELLER

MAKE: Volvo
BLADES: _____
DIA./PITCH: Part # 3587380 G5
OTHER: _____

MJM YACHTS, LLC

CONTACT: Robert L. Johnstone
PHONE: 617-723-3629 MA
MOBILE: 401-862-4367
FAX: 617-723-3643
Email: boj@mjmyachts.com
ADDRESS: 89 Pinckney St., Boston MA 02114

NAVAL ARCHITECT

NAME: Doug Zurn
FIRM: Zurn Yacht Design
PHONE: 781-639-0678
ADDRESS: 89 Front St., Marblehead, MA 01945

LICENSED BUILDER

NAME: Boston BoatWorks, LLC
CONTACT: Scott R. S. Smith
PHONE: 617-561-9111
MOBILE: 207-252-7190
FAX: 617-561-9222
EMAIL: scotts@bostonboatworks.com
ADDRESS: 256 Marginal St., Boston MA 02128

DEALER

NAME: _____
PHONE: _____
ADDRESS: _____

CE CERTIFICATION

CERTIFICATE NO. BBBW001 (30Sept03)
 AUTHORITY: International Marine Certification Institute
 ADDRESS: Rue Abbe Cuypers 3
B-1040 Bruxelles, Belgique
 PHONE: +32-2-741-2418
 WEBSITE: www.imci.org
 CLASSIFICATION: CE Mark Design Category B Offshore Under 12m Small Craft (EC Directive 94/25/EC) for craft designed for offshore voyages where conditions up to and including wind force 8 (Beaufort Scale) and significant wave heights up to and including 4 m may be experienced.

CAPACITY

PERSONS: Maximum 10 Persons or 750 kg
 PERSONS/GEAR: Maximum 1175 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.

 Signature

Printed Name _____ Date _____

Boat Name _____ Hull # _____

 Address

 City, State, Zip

 Tel.

 Email

NOTE: PLEASE SIGN ONE OF THE TWO COPIES OF THIS PAGE AND RETURN IT IN THE ATTACHED STAMPED ENVELOPE TO: MJM YACHTS at 89 Pinckney Street, Boston MA 02114.

▲ DANGER

Denotes an extreme intrinsic hazard exists which would result in high probability of death or irreparable injury if proper precautions are not taken.

▲ WARNING

Denotes a hazard exists which can result in injury or death if proper precautions are not taken.

▲ 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.

TABLE OF CONTENTS

CHAPTER 1 OPERATION

- 1.1 GENERAL
- 1.2 QUICK START GUIDE
- 1.3 OPERATING PROCEDURES
- 1.4 NAVIGATION
- 1.5 TOWING
- 1.6 HAULING OUT

CHAPTER 2 SAFETY EQUIPMENT

- 2.1 GENERAL
- 2.2 ENGINE
- 2.3 FIRE

CHAPTER 3 PROPULSION SYSTEM

INTRO – TOP 10 REASONS of ENGINE FAILURE

- 3.1 GENERAL
- 3.2 COOLING
- 3.3 NEW ENGINE BREAK-IN PERIOD
- 3.4 LUBRICATION
- 3.5 ZINCS
- 3.6 AIR
- 3.7 EVCecc-C Control Panel
- 3.8 STARTING ENGINE
- 3.9 Unused
- 3.10 STOPPING
- 3.11 ALARMS
- 3.12 OPERATION
- 3.13 VOLVO LCD ENGINE DATA
- 3.14 ELECTRONIC THROTTLE/SHIFT

CHAPTER 4 STEERING & TRIM SYSTEM

- 4.1 GENERAL
- 4.2 STEERING
- 4.3 POWER TRIM CONTROL
- 4.4 FOUR TRIM MODES
- 4.5 BOW-THRUSTER
- 4.6 TRIM TABS
- 4.7 AUTOPILOT OPERATION
- 4.8 WINDSHIELD WIPERS

CHAPTER 5 FUEL SYSTEM

- 5.1 GENERAL
- 5.2 FILLING THE TANKS
- 5.3 CHECKING THE SYSTEM
- 5.4 FUEL CONSUMPTION & LOG

CHAPTER 6 ELECTRICAL SYSTEM

- 6.1 GENERAL
- 6.2 DC SYSTEM
- 6.3 AC SYSTEM
- 6.4 REVERSE POLARITY
- 6.5 ELECTROLYSIS & CORROSION
- 6.6 BONDING
- 6.7 ELECTRICAL SAFETY
- 6.8 GENERATOR
- 6.9 INVERTER/CHARGER
- 6.10 FUSE LOCATIONS/SPECS

CHAPTER 7 FRESHWATER SYSTEM

- 7.1 GENERAL
- 7.2 FILLING
- 7.3 USING & MAINTAINING
- 7.4 HOT WATER
- 7.5 WATER PURIFIER

CHAPTER 8 RAW WATER SYSTEM

- 8.1 GENERAL
- 8.2 ENGINE RAW WATER
- 8.3 ADDITIONAL RAW WATER USES

CHAPTER 9 GRAY WATER SYSTEM

- 9.1 GENERAL
- 9.2 GRAY WATER SUMP
- 9.3 BILGE PUMPS
- 9.4 COMMON DRAINS

CHAPTER 10 EXTERIOR EQUIPMENT

- 10.1 GENERAL
- 10.2 ANCHOR WINDLASS
- 10.3 PILOTHOUSE CURTAINS
- 10.4 COCKPIT OPTIONS

CHAPTER 11 INTERIOR EQUIPMENT

- 11.1 VACUFLUSH MARINE HEAD SYSTEM
- 11.2 REFRIGERATION
- 11.3 COOKTOP
- 11.4 MICROWAVE/OVEN
- 11.5 AIR-CONDITIONING (Optional)
- 11.6 HEATING SYSTEM (Optional)
- 11.7 STEREO & MP3
- 11.8 SIRIUS SATELLITE SYSTEM

CHAPTER 12 ROUTINE MAINTENANCE

- 12.1 SCHEDULE
- 12.2 FLUIDS

CHAPTER 13 LAY UP/LAUNCHING

CHAPTER 14 MISCELLANEOUS

- 14.1 TRUCKING CHECKLIST

CHAPTER 15 LIMITED WARRANTY

CHAPTER 16 QUICK START

1.1 GENERAL

This manual has been compiled to help you operate your yacht with safety and pleasure. It contains details of the yacht; the equipment supplied or fitted, its systems, and information on its operation and maintenance. Please read it carefully, and familiarize yourself with the yacht before using it.

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

PLEASE KEEP THIS MANUAL IN A SECURE PLACE ON THE BOAT, AND HAND IT OVER TO THE NEW OWNER IF YOU EVER SELL THE CRAFT.

This Owner's Manual is not intended to be a course in boating safety, boat handling, navigation or general boating skills. It is the responsibility of the user to independently gain these skills. Instead, this manual will serve as a reference for matters specific to the 29z. Standard options are included in the manual with which your particular yacht may or may not be fitted. Custom options may be addressed in an addendum.

1.2 QUICK START GUIDE (See CHAPTER 16)

A separate "Quick Start Guide" is included that briefly reviews the key items to check before departure. Please review the topics in this manual before relying on the checklist – it is simply an "at-a-glance" sheet to insure that you don't overlook anything important.

1.3 OPERATING PROCEDURES – ENGINE INSPECTION

To access the propulsion system, the stern-seat must be tilted up. The procedure is as follows:

- Remove the stern seat cushions and cockpit side cushions with supporting panels
- Turn the securing locks 90 degrees
- Pull up and back on the handle on centerline.

1.4 NAVIGATION

The builder installed navigation system option generally includes autopilot w/compass, depth-sounder, chart-plotter, and radar. Modern marine electronics are a subject unto themselves and you should refer to the manuals that came with the equipment you purchased. However, here are a few points to consider:

- If you are unfamiliar with navigation, educate yourself before using the boat. *Electronic equipment is NOT a substitute for navigation skills.*
- It is not recommended to rely solely on electronic charts- bring paper chart back-ups.
- Depending on your chart-plotter, it may be necessary to power up the depth-sounder prior to the chart-plotter.
- It is prudent to check (or have checked) your compass alignment once the boat is in your primary area of operation. See the Ritchie instructions for compensation.
- Check that all equipment is functioning, even if you intend not to use it.
- Radar functioning and properly aligned (Double-check when underway) See manual to adjust, tune and operate.

Compass Heading & Calibration

There are 3 heading references for navigation on the 29z: (1) The compass on the dash, (2) Autopilot fluxgate compass, and (3) GPS COG (Course Over Ground). All of these headings

should be within a degree or so of each other. If not, it is recommended that differences be recorded on a deviation card after following the calibration method outlined below or employing the services of a compass adjuster. Use COG as the primary reference at a time when you are not influenced by wind/wave/tidal set. The fluxgate compass sensor is located on the forward bulkhead of the hanging locker and is accessible by removing the bottom drawer under the galley. *Avoid storing steel or iron items such as tools in the bottom drawer, in the bottom of the hanging locker or under the companionway treads.*

Ship's Compass Calibration Method

- 1) With the compass in its intended position, but not finally secured, select a course on your chart using two identifiable marks, buoys or landmarks that are within ten degrees (10°) of the north/south line. Try to select this course so that you can maneuver your boat "down range" of the marks selected.
- 2) From a position down range of the North/South marks, and keeping the marks lined up, run the boat visually along the northerly course selected. Turn the port/starboard compensator until the compass reads correctly.
- 3) Reversing direction, run the boat southerly, again keeping the marks lined up. If the compass is not correct at this time, there is an alignment error. To correct, rotate the compass itself to remove one half of this error. Repeat Steps 1 and 2 and then recheck this Step 3.
- 4) Simply repeat the procedures of Steps 1, 2 and 3, except this time, using an east/west course and the fore/aft compensator, although at this time any alignment error should have been eliminated.
- 5) Upon completing the procedure, secure the compass in its final position.

Boat Speed Boats equipped with the Raymarine C120 plotter and the optional High Definition Fishfinder fairing block with paddlewheel sensor (located in aft port cockpit locker) have the capability of reading Boatspeed through the water and Water Temperature. SOG (Speed Over Ground) is displayed by the chart-plotter and may be shown on the Autopilot display. Eventually, you will learn to approximate boat speed through the water by relating it to RPM on the tachometer. For instance, boat speed in knots is about 70% of RPM in 100's (1200 RPM = 8.3 kts) below 20 knots. Or at higher speeds RPM/100 is approximately mph.

1.5 TOWING

Refer to the included NMMA publication "Sportfish, Cruisers, Yachts – Owner's Manual" for towing instructions.

1.6 HAULING OUT

A facility that is unfamiliar with the 29z may require information before hauling the boat with a TraveLift or crane & straps. The keel (centerline of the boat) and chines (edges) are reinforced fiberglass and should be used to position weight bearing supports. Since the engine is aft, the fore and aft lift points are located pretty much at either end of the pilot house hard top.

⚠ CAUTION Point loading flat areas other than centerline and chine or setting the weight of the hull on supports of insufficient area may result in damage to the hull.

2.1 GENERAL

Spend time reviewing where your safety equipment is and how it functions BEFORE you need it. Remember, the best way to protect yourself and others from accidents is to eliminate potential causes of accidents before they occur. Good seamanship and common sense go a long way in this endeavor.

Here is a safety checklist derived in part from the USCG Vessel Check List. State Regulations may vary:

PFD's

A wearable USCG approved personal flotation device (life-jacket) must be provided for each person aboard. On the 29z, these can be types I, II, III or V. Also, one type IV throwable PFD must be immediately available for use.

Children under 13 years of age are required to wear a USCG life jacket that fits when underway unless they are in an enclosed cabin or belowdecks.

Visual Distress Signals (VDS)

You must carry VDS's aboard. If operating between sunset and sunrise, they must be suitable for night use and be within the age dates marked on the side of the flares. A minimum of 3 day/night use combination pyrotechnic flares are required. For a list of USCG approved devices, see the USCG recreational checklist.

Fire Extinguisher

In addition to the automatic fire suppression system fitted in the engine space, you are required to carry at least one type B-1 extinguisher aboard, which is located outboard of the port helm seat. This should be checked regularly.

EPIRB

Especially if operating offshore, an EPIRB (electronic position indicating radio beacon) is recommended.

Ships Papers & Registration

You should carry the vessel's registration papers and number plate

Pollution Regulation Plaques

5"x8" Oil Discharge Plaque and a 4"x9" Waste Discharge Placard should be fixed were visible.

Charts & Light Lists

Charts, light lists and a USCG required copy of the Inland "Rules of the Road" Navigation Rules

Horn or Whistle

Recommended to signal intentions or signal position. For instance, when in a narrow channel or the Intracoastal Waterway: To signal which side of another boat you will pass on, blow **1 blast** if you are passing to their starboard side and **2 blasts** if passing on their port side..

Life Raft

If you plan to be coastal cruising out of sight of land, it is prudent to carry a Coastal Life Raft which come in compact sizes that can be stored in one of the aft cockpit lockers.

Heaving Line

These floating lines are available and handy to have ready in case of emergency or to simply trail behind the boat when swimming, .with the end attached to one of the stern cleats.

First Aid Kit

Not a place to scrimp. It is advisable to carry a good, comprehensive, and well-organized (by injury) marine first-aid kit with manual. We recommend that it be stored in the head and that everyone onboard be informed of its location. (Remember, you may be the one in need of it!)

2.2 ENGINE

The fuel shut-off valve is located at the aft top port corner of the fuel tank and is *accessible from the deck by opening the port settee locker hatch, reaching down and behind the gray textilene storage bag and immediately under the deck you are kneeling. Best to get in the locker to be sure you know exactly the location...ahead of the time you may need to access it.* It is highly recommended that you open this from time to time to insure that it has not become stuck. Make sure you know how to shut off the fuel valve. (When the handle is perpendicular to the hose, the valve is closed.) In case of a fuel fire, STOP any machinery and close the valve to cut the supply of fuel to the fire/engine. If you should ever see fuel in the bilges, turn off the valve, clean the bilges, and find the source of the leak immediately.

2.3 FIRE

Fire aboard a boat is a serious matter, and fire safety begins with fire prevention. You can reduce the risk of fire by following common sense guidelines:

- Do not allow debris to collect in bilges or machinery spaces.
- Understand your electrical system, allow only qualified marine electricians to work on it, and shut down as many circuits as practical when leaving the boat. Do not leave appliances running while unattended.
- Have your fire suppression equipment inspected regularly and learn how to use it.

An automatic fire suppression system is installed on every boat in the engine space. It is heat activated. Read the information that comes with the equipment. The system can also be manually activated at the helm station. [See *Helm Console Section*] Because a diesel engine would evacuate the suppression agent from the affected space, the system will shut down the engine (and generator) when it discharges. If manually activating the system, the engine should be shut down first. After the situation has stabilized, the shut-down feature can be over-ridden to restart the engine. A loud warning alarm will sound when the system has been activated.

There is a hand-held fire extinguisher mounted outboard of the port or starboard helm seat. It is rated to fight type A, B & C fires. Periodically check that this extinguisher is fully charged.

To extinguish a fire, the most effective method is to cut the source of fuel to the fire. In the case of a diesel fuel fire, the fuel tank valves should be closed. In the case of an electrical fire, the main battery switches or main disconnect breakers should be turned off. Fire needs oxygen to burn, so if a fire should occur in an enclosed area, the best course of action may be to exit the area and seal it from the outside by closing all means of air intake.

INTRODUCTION - THE TOP 10 CAUSES OF ENGINE FAILURE

It doesn't happen often and if you're familiar with the most common causes of engine failure you can cut down on the chances of a breakdown. As an introductory to this chapter, we want to familiarize you with this list of causes, compiled by *Motorboating Magazine* (February 2006) You will notice that none of the top 3 causes for engine failure are prevented by the installation of twin engines. And, in the case of other causes, normal maintenance procedures or the clearing of the raw water intake, etc, obviate any perceived advantage of a twin installation in these instances. Here are the Top Ten to be aware of:

1. NO FUEL: This is probably less of a problem on a fuel-efficient MJM than on other boats, but lack of owner attention to fuel consumption is the primary culprit for engine failure. A boat's fuel tank can be nearly dry as a bone – even when the gauge claims there's a 8th of a tank left. This makes sense when you realize that at cruising speed, the gauge shows the tanks reading more than when the boat is at rest.

2. DIRTY FUEL: Engine problems are caused by dirt and water in the fuel. Debris, stirred up from the bottom of the tank by wave action, is drawn into the fuel line and clogs the fuel filter element. Starved for fuel, the engine begins to run poorly, and then not at all. Water in the fuel can drive you mad. Moisture condenses out of the highly humid air on the inside walls of a fuel tank, then runs down into the fuel. Water can also be introduced at the fuel dock from a contaminated fuel supply. Fuel floats on top of water and the fuel pick ups are near the bottom of the tank. A fuel/water separator protects against this by handily extracting the water. Check the bowl daily and drain off the accumulated water. For severe contamination, use a fuel drying additive.

3. FUEL BUGS: Diesel engines suffer from microbial bugs growing in the fuel. If left unchecked, these critters clog filters. If you leave the same diesel fuel in the tank for any length of time, a fuel conditioner similar to that supplied with your boat by the builder will kill the bugs and break up any hydrocarbon residue into particles that will burn completely in the combustion process.

4. TIRED PUMP: As boats age, a worn-out circulating water pump is another engine killer. Impeller blades are commonly made of nitrile that stiffens over time and can break off entirely, reducing coolant flow. Periodic engine maintenance procedures can prevent this problem. A spare is provided in the Volvo Spares Kit.

5. HARD HOSE: Another issue to be concerned about with older boats. As water intake hoses age, they lose their resiliency and collapse under suction, causing a restriction in the flow of engine coolant. This results in over-heating. Prevention is easy: Visually inspect cooling hoses and squeeze them to be sure they retain shape and set.

6. CLOGGED INTAKE: Floating debris in the water is another culprit. Things like discarded plastic baggies, weeds, etc. can plug up the raw-water intake. You can avoid this problem by visually inspecting the strainer basket. When removing debris, be sure to properly replace the seal, otherwise the pump will lose suction. Smearing the seal with Vaseline or other marine-grade grease helps.

7. HARD KNOCKS: Collision with an underwater obstacle that damages the prop. Often you can still operate the boat at low RPM to return to port, being careful to avoid excessive vibration that might otherwise compound the damage by breaking/bending the strut and/or shaft. In 4 known incidents on 34z's over 3 years, boats made it home at low RPM or there was no damage. (1) Hitting a rock ledge in the Narrows above Mt. Desert Island at mid-tide. The strut was also bent. (2) Hitting submerged Hurricane debris in Miami – Diver fixed blade in a day (3) Grounding at 15 knots in Sarasota – backed off, no damage. (4) Grounding in mud/sand in Stuart FL – no damage. The problem may be corrected in a day or so without hauling by an experienced diver who has access to a prop shop where the blades can be repaired and the prop re-balanced, then re-installed.

8. BAD BATTERY: Marine starting batteries die from old age and neglect. Keep the terminals and posts clean from that green corrosion that builds up, restricting the flow of current – preventing them from

fully charging. Periodically have your batteries tested to determine their condition and expected longevity. The 29z is equipped with a “parallel” switch which can be turned on to employ the 400 ampere-hour house bank in starting the engine.

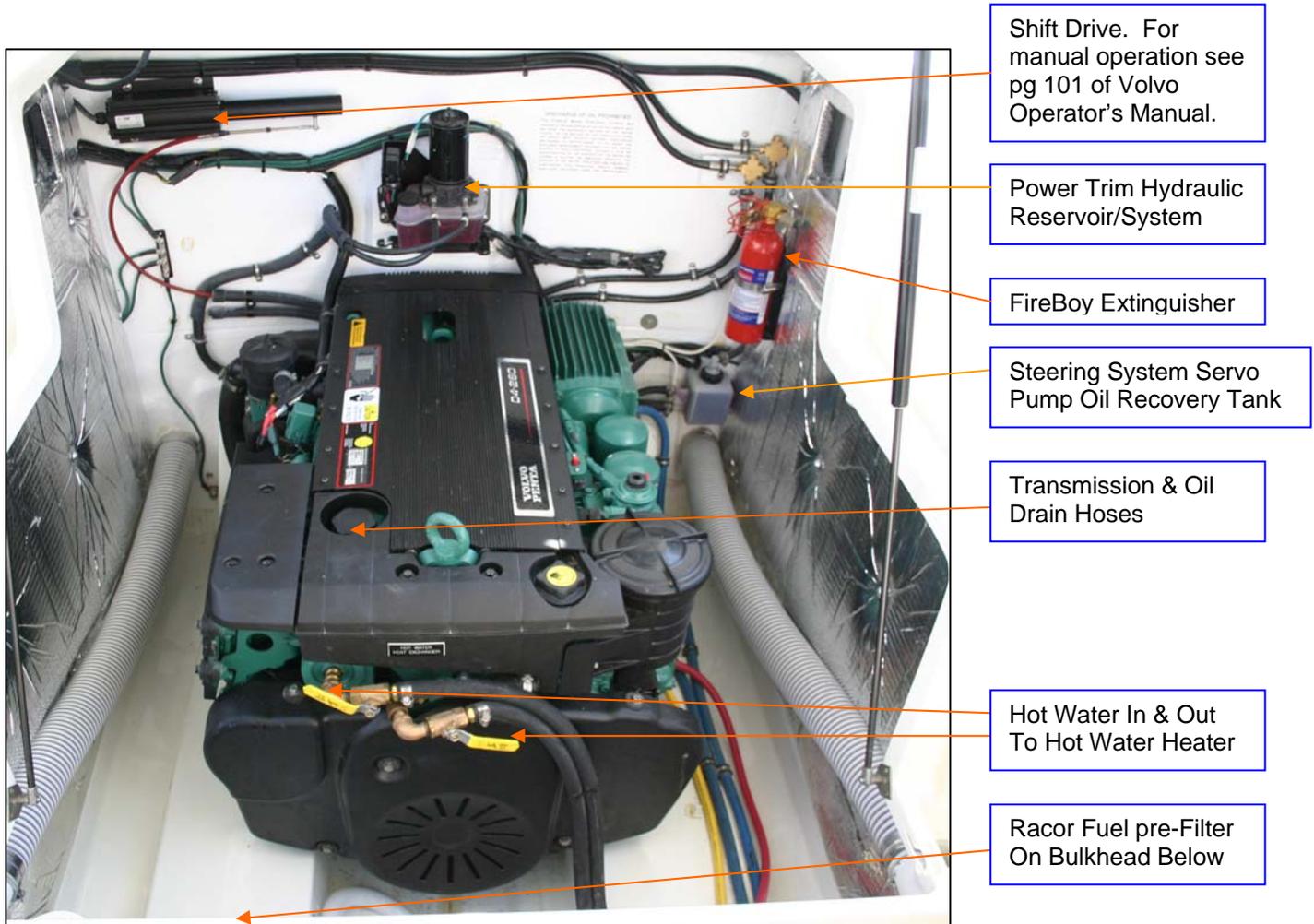
9. STALE GASOLINE: Not applicable

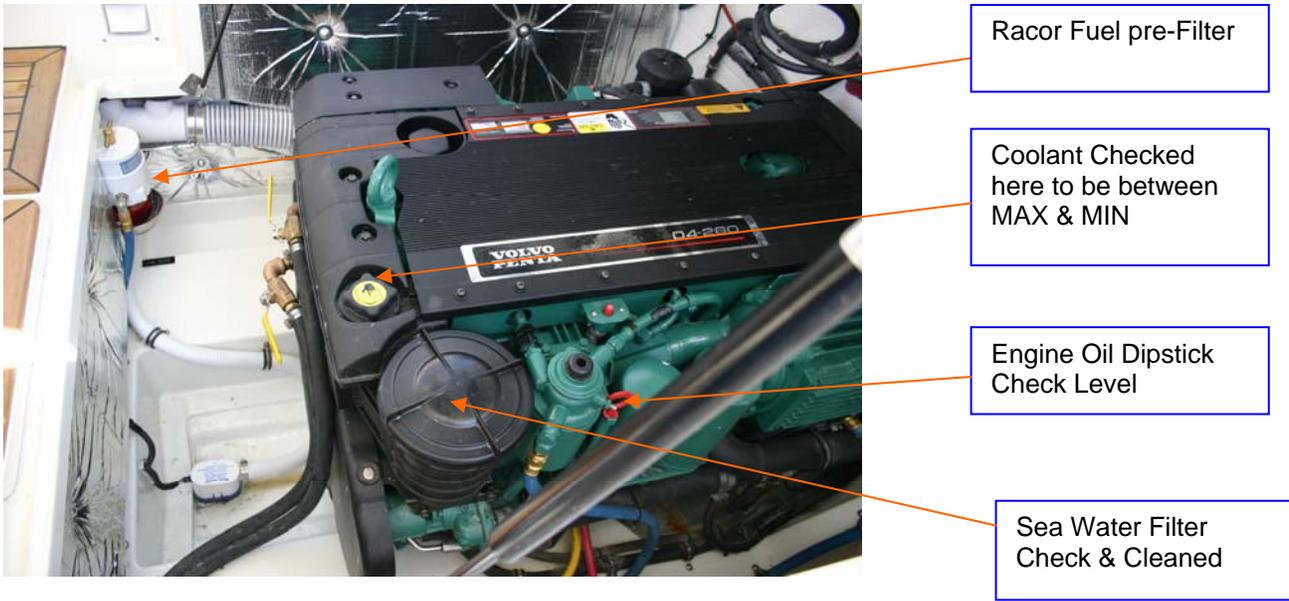
10. SAGGING BELT: As V-belts wear, they stretch and begin to slip. Consequently, alternators and water pumps don’t spin to their full speed. Batteries may not fully charge and coolant circulates sluggishly. The solution is to check belt tension regularly and tighten belts when necessary. Drive belts can also snap. The only way to avoid this malady is to replace them once they begin to show wear. Spare belts are provided in the Volvo spares kit.

3.1 GENERAL Your 29z is propelled by the latest electronic VOLVO D4 Common Rail 4 cylinder diesel engine turning (via a transmission) a pair of Volvo DuoProp, counter-rotating four-blade propellers. The single-lever electronic control acts as a combination throttle and gear selector. Care should be taken when shifting. Always allow the transmission to engage the new gear before throttling up.

⚠ WARNING The engine should never be running when swimmers are near the boat.

Most of the propulsion system is accessed by tilting the bridge-deck (using the electric lifts).





3.2 COOLING

Your engine passes seawater (raw water) from the intake on the sterndrive, through a heat exchanger where it cools the engine's coolant. This coolant is circulated through the engine and returns to the heat exchanger. For the engine to keep cool, it must have an adequate supply of raw water and coolant. Before starting check the seawater filter and the coolant level. .

⚠ CAUTION Do not attempt to remove the coolant cap of a hot engine.

For details on what type of coolant to use, consult the Volvo operator's manual or the maintenance schedule included in this manual..

3.3 **⚠ CAUTION** NEW ENGINE BREAK-IN

On the initial engine start-up, check for proper engine oil pressure, diesel fuel leaks, engine oil leaks, coolant leaks, proper operation of the indicators and gauges, proper exhaust color, engine vibrations and sounds, adequate seawater discharge from the exhaust.

The engine must be run-in for its first 10 operating hours as follows: Operate the engine normally. Do not operate at full load except for short periods. Never run the engine at a constant speed for long periods during the running-in period.

The engine can be expected to use more engine oil during the running-in period than would otherwise be normal.

Carefully observe oil pressure and engine temperature and check engine oil and coolant levels frequently.

3.4 LUBRICATION (See Volvo D4 Engine Manual)

Both the engine and transmission (reverse gear) use oil for lubrication. The transmission will tend to use less oil than the engine, but both should be checked frequently. For the proper type of oils to use (which may depend on the service area and conditions) consult the maintenance schedule.

The engine oil may be checked on either side by pulling the red dipstick on the port top of the engine. The transmission dipstick is red.

Only use the fuel and oils recommended in the chapter on Technical Data in the Volvo Engine Manual.

3.5 **⚠ WARNING ZINCS**

With a sterndrive, TO AVOID SERIOUS DAMAGE TO THE STERNDRIVE, PAY VERY CLOSE ATTENTION, AS IN CHECK EVERY DAY, the condition of the zinc on the top of the cavitation plate on the sterndrive. It's easy to see from the swim platform without swimming. That could be your first indication of a problem. There is a 2nd zinc on the sterndrive up under the drive next to the collar where it attaches to the stern. You will need a diver to check that one. In fact, a diver should check the thruster and transom zincs every time the bottom is cleaned or once per month. In addition to sterndrive, thruster and transom zincs, pay close attention to any engine zincs (sacrificial anodes) on the heat exchanger and intercooler. See Volvo manual. The timing for replacing zincs varies depending on the characteristics of the seawater, the amount of electrical current in marinas, or even (if excessive wear is noted) an electrical short on the boat, etc. Inspect the engine zincs periodically at the time of oil changes and remove the corroded area on the surface, replacing them when they've deteriorated to less than 50% of original size. Extra engine zincs are provided in the Volvo Spare Parts Kit. Otherwise corrosion of the seawater cooling system will occur and water leakage or parts breakage will result.

3.6 AIR

Diesel engines use a large quantity of air for combustion. The engine of the 29z gets this air thru intakes in cockpit walls, both port and starboard. It is important to keep these intakes clear and free of foreign matter. Before entering the engine, air passes thru an air filter in a plastic case on the starboard side of the engine, which should be checked at intervals per the maintenance schedule.

3.7 EVCec-C BUTTON CONTROL PANEL This allows the operator to perform settings and choose information displayed on the engine control LCD screen.



CALIBRATION MODE – Calibrates different parts of the EVC system. To enter this mode, turn ignition ON then press BACK and ENTER together for 3 seconds. This permits the following calibrations: Throttle Lever – Slip Calibration for low speed – Idle Speed

SERVICE/OEM MODE – Turn ignition ON and press MULTI for 5 seconds to give access to menus in the LCD that the builder needs to access, including more information regarding fault codes and configuration of the LCD display pages.

MAIN MENU – Turn ignition ON and press ENTER. The top 4 items (Speed, Water Temp, Depth, Trip Computer) will only be visible if the information is available through a multi-sensor, NMEA interface, or as optional software.

The 5th shows “cool temp” as a default. Pressing ENTER, you will be able to then turn the knob to choose which of 11 available views you’d like presented in the main menu as the default. Press ENTER to confirm.

“Settings” contains sub-menu “OEM mode” with settings normally set by the builder for Fuel Tank/Volume, Fuel Tank/Set Empty, Fuel Alarm/Set Level. “Units” covers metric, nautical miles, etc. “Language”, “Display Contrast”, “Info Beep”,

3.8 START ENGINE

Before starting the engine, make sure (1) the raw water intake seacock is in the forward OPEN position (2) the raw water strainer is clean (3) the engine has sufficient oil and coolant (4) transmission fluid is to the proper level (5) there are no restrictions to the air intake grills (6)) the fuel switch over the starboard tank is OPEN (8) the HOUSE and ENGINE battery banks (under the top companionway step) are turned ON (9) the throttle is in the neutral position showing the “N” Green Light on the EVC Control Panel (9) no one is in the water near the boat and (10) all machinery space hatches are closed.

TURN ON ENGINE CONTROLS. Turn the spring-loaded Ignition Key clockwise to the first detent. The LCD screen will momentarily show “Volvo Penta EVC”.

A long continuous beep indicates that the self-test function has failed.

Ignore the top “key” symbol on the EVC panel which is only activated for dual helm station boats.

START ENGINE Turn & hold the Ignition Key clockwise with pressure to the right for several seconds until the engine starts. The engine will not start if the shift lever is in FWD or REV.

▲ CAUTION Never engage the starter motor (turning key hard to the right) while the engine is running. This may damage the pinion and/or ring gear.

IF BATTERY VOLTAGE is low and you have difficulty turning over the engine, a momentary Parallel Switch is located underneath the ignition key panel. By holding this switch UP and turning the Ignition Key ON, you add the capacity of the house bank to the start battery.

TO REV RPMS in NEUTRAL by disengaging the shift function. With the lever in neutral, push and hold down the “N” button on the EVC Control Panel while moving the Control Lever out of neutral into forward. Green light over “N” flashes to acknowledge shift is disengaged. When the Lever is pulled back to “N” (Neutral), normal function is activated, showing steady green light. Never race the engine when it is cold.

3.9 Unused

3.10 STOP ENGINE

Turn & hold the spring-loaded Ignition Key with pressure to the left until the engine stops. If unsuccessful, there’s a clearly labeled “Emergency Shutdown” button in the upper middle of the starboard side of the engine. Make sure to turn OFF the Engine Battery Switch under the companionway stair when leaving the boat.

Engine Stop & Restart after Crash-Stop If the engine otherwise stops, the following procedure for re-start must be followed (pg 102 Volvo Manual):

1. Put control lever in NEUTRAL
2. Acknowledge the ALARM by pressing ENTER on the EVC Panel.
3. TURN & HOLD ignition switch left to OFF until all lamps have gone out.
4. Then TURN the ignition system to the ON (not the engine Start) position only.
5. Acknowledge the ALARM by pressing ENTER on the EVC Panel.
6. START the engine by: TURNING & HOLDING the ignition switch to the right.
7. STOP the engine. Wait again until all lamps have gone out.
8. RESTART the Engine.

3.11 ALARM DISPLAY

When the ignition key is first turned ON or turned to the START position, you may hear an audible alarm signal and see a "Stop Sign" appear on the EVC Display, indicating that the diagnostic function has registered malfunction.

PRESS the ENTER knob once on the EVC Display to acknowledge the alarm. When the fault has been acknowledged, the audible warning will become silent and the source of the problem indicated on the display.

Please refer to Volvo Engine Manual chapters "In Case of Emergency" and "Fault Register" and you will find detailed information about recommended action.

3.12 OPERATION

⚠ WARNING Engine trouble can arise if the engine is operated for a long time under overloaded conditions at max RPM. Recommended "Max Cruising Speed" is at least 10% below full throttle of 3400-3600 RPM.

OIL PRESSURE – Normally between 3 and 5 bars, except lower when idling

COOLANT TEMPERATURE – Normally between 167 and 203 degrees F.

CHARGING – System 13.5 – 14 Volts during Operation.

Depending on hull structure and engine installation, engine and hull resonance may be greater at some speeds than others. This is normal and you will learn to pick the sweet spots. If you hear any abnormal sounds, stop the engine and inspect.

⚠ WARNING If any warning lights or buzzers activate, stop the engine immediately. Determine the cause and repair the problem before continuing to operate.

While running, pay attention to the engine gauges on the LCD display. A significant change in temperature, oil pressure, or voltage should be investigated immediately, before the engine is damaged.

3.13 ENGINE DATA DISPLAY

This single display is used instead of traditional gauges. The words VOLVO PENTA EVC will appear briefly after turning the switch ON.

DISPLAY CONTRAST Press Button 5 to set contrast to one of five levels. Then EXIT.

CONFIGURATION MENU Press Button 5 for longer than 3 seconds. See page 39 of the Volvo Owner's Manual for configuration menu structure/options.



ENGINE DATA (button 1) is programmed to show RPM, Coolant Temp, Voltage and Fuel Level on 1st page, then will show other info next time button is pushed.

MULTI DATA (button 2) Shows operating info in 4 different windows. The user can choose the info to be displayed as numbers or analog, shifting between modes as button is pushed.

TRIP/FUEL INFO (button 3 - See Volvo Operating Manual page 44)

HISTOGRAPHS (button 4) - Values can be established for a range of 2 minutes to 8 hours.

3.14 ELECTRONIC THROTTLE/SHIFT CONTROL

There are 3 positions for the handle. FORWARD THRUST, NEUTRAL and REVERSE THRUST.

SUDDEN MOVEMENT HAZARD This Electronic control lever governs both throttle and shifting functions. The boat may start to move abruptly when the marine gear is engaged: Ensure the boat is clear of all obstacles forward aft. Cautiously shift to the FORWARD position then quickly back to NEUTRAL position. Observe whether the boat moves as you expect.

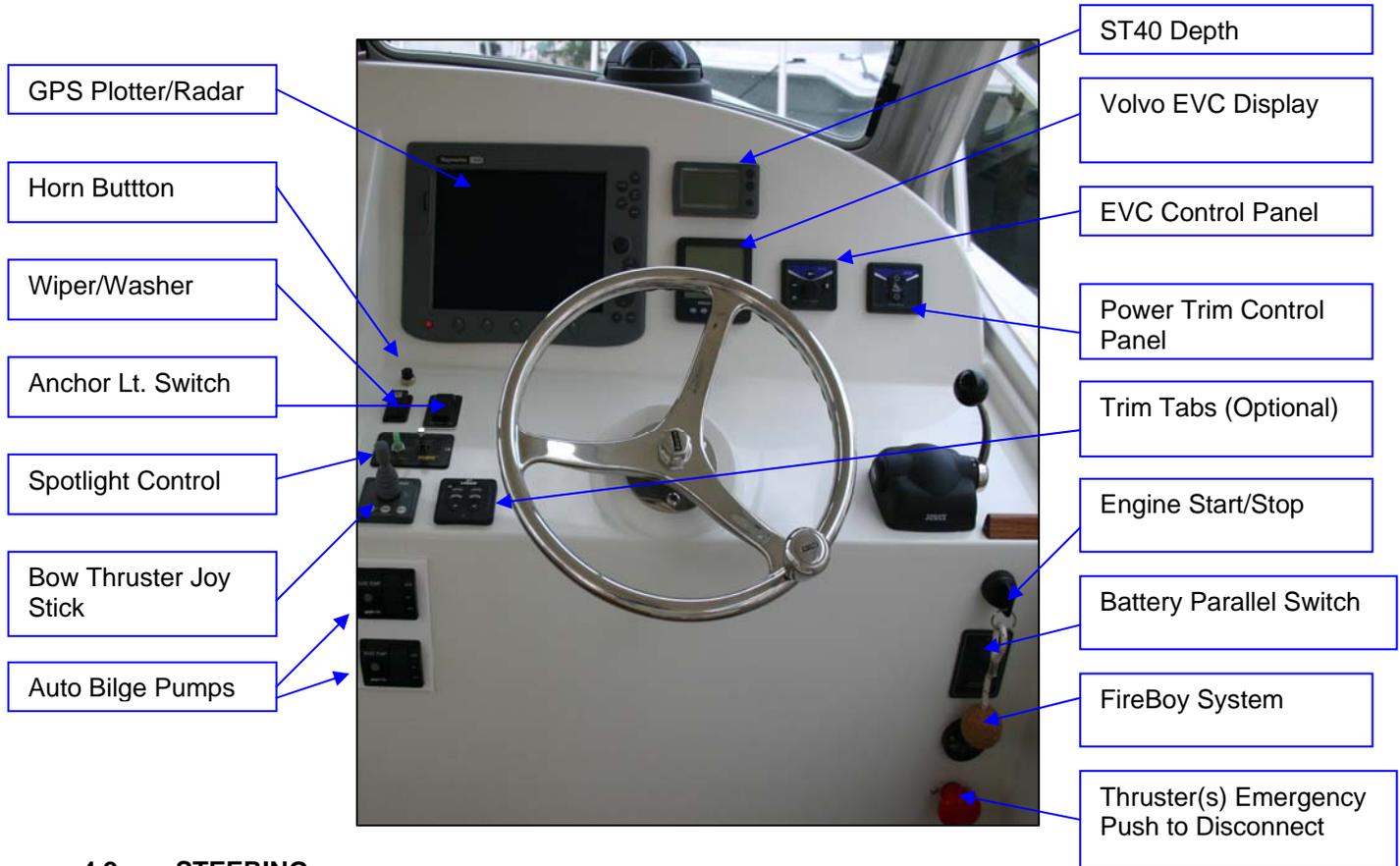
FRICION BRAKE The control lever has a friction brake which may be adjusted. After stopping the engine, move the control lever forward to access a groove in the hub. Use a screwdriver to remove the plug, then use an 8 mm wrench to make the action stiffer (clockwise) or to loosen it (counter-clockwise).



Shift Friction Brake Adjustment Hub Cap

4.1 GENERAL

The helm control console is where most of the operation controls of the boat are located. Become familiar with these before you need to use them. You don't want to be looking for your glasses and a flashlight while trying to turn on the bow-thruster at night! In addition, make sure that when you are using the boat, even if you are not using a specific piece of equipment, that the circuit breakers are on for any equipment you *might* need. Again, you don't want to be searching for a breaker when you need something in a hurry.



4.2 STEERING

Steering of the 29z is by power assisted hydraulic system that directs the stern drive. There is no rudder. Like an outboard engine, the thrust of the propeller can be directed from side to side.

4.3 POWER TRIM CONTROL PANEL

Activate by turning on the ignition then PUSH the "KEY" button on the EVC Control Panel. The current position (angle) of the drive can be shown on the EVC Display. If not, PRESS button 2 of the display until "lower window" mode opens. Then turn the ENTER/Toggle knob to "Trim Angle". Push same ENTER/Toggle knob to accept.

To RAISE the Bow (and to lift the drive up) PRESS "Up Arrow"
 To LOWER the Bow (and lower the drive) PRESS "Down Arrow"



Emergency Trimming. If a fault prevents the trim panel from working, PRESS & HOLD the BACK button (--) on the EVC Control Panel then trim the drive using the Trim Panel.

⚠ WARNING This action over-rides preset automatic trim limits and could drive the top of the housing up into the bottom of the swim platform, damaging both.

4.4 FOUR TRIM MODES

Automatic Power Trim Assistant (PTA) Ranges – The trim range is adjusted automatically according to RPM. When a preset RPM level is reached, the drive is angled automatically to the trim angle specified. In addition to “idle”, 4 trim angles can be selected at different RPM levels to attain optimum comfort/performance. The PTA must be activated for this procedure. One example of PTA RPM breakpoint/power trim settings is shown below:

Idle	-3
1500	-1
2000	0
3000	2
3500	3

The PTA is turned ON or OFF in the EVC Display menu under “Settings/sub-menu PTA”. Port side is the “master” for a single engine. **⚠ WARNING** The function must be turned “Off” before hauling the boat out of the water to prevent any auto trimming if any test are performed with the boat on land.

Manual Over-ride. When the PTA is activated and the driver desires a drive angle other than the presets, use of the Trim Panel buttons momentarily deactivates the PTA until one of the preset RPM levels is passed. Automatic mode then resumes.

To determine the best trim angle and ranges, familiarize yourself with the characteristics of the boat, recording the RPMs and trim position at various speeds and in various wave conditions.

Beach Range – Used for running in shallow water **⚠ WARNING** *at reduced speed of not greater than 1500 rpm. Make sure the drive’s raw water intake is never trimmed out of the water.*

Lift Range – When the drive is tilted to maximum height, but not when running, for trailing. Power trim has an automatic stop that cuts power when the preset end limit has been reached. The stop is reset automatically when activating down trimming. **⚠ WARNING** Never run the engine when the drive is in “Lift Range”.

Auto Kick Up – Releases the drive if hits bottom or an object in the water. **⚠ WARNING** This feature only protects the drive when going forward. There’s no protection in reverse. If the function has been tripped and drive released, it must be trimmed back to the original position using the control buttons.

Check after any contact that the drive or propeller are not damaged, or if there are vibrations from the drive. If this is the case, then the boat (if possible) can be run at slow speed to harbor to haul and inspect. Check the oil level in the drive. If colored gray, water has entered. If this is the case or other damage exists, contact an authorized Volvo Penta workshop. If only the propeller is damaged, it must be replaced then the boat run to be sure there is no other damage.

⚠ WARNING If the parallel strut shows signs of damage, run at reduced speed to harbor as this is a critical steering element and must be replaced. Never align or weld a damaged strut.

4.5 BOW-THRUSTER & STERN THRUSTER (Optional)

If fitted, thrusters can be used to greatly increase the maneuverability of the boat at slow speeds in tight quarters around docks and slips.

⚠ CAUTION Passengers on the foredeck are at risk if the bow thruster is engaged without their prior knowledge.

Consult the user's manual for specifics about your thruster. In general, thrusters are best used in short bursts. Prolonged use may damage the motor, or at least trip the breaker. When not in a situation where the thruster may be necessary, leave it turned OFF to avoid damage. Consider the fact that your thruster gets DC power from the engine start battery, which is charged by the engine's alternator. If the engine is not running, has not warmed up for 7-8 minutes to the point that the alternator is charging the start battery, or running at idle, the thruster can consume more energy than the alternator can provide. *It is possible to discharge the battery or burn out a thruster motor by over-use of the thruster.*

The thruster automatically turns OFF after 6 minutes with no use.

Turn on the thruster(s) by holding down the two left buttons (or turning the switch to ON with some models) until the activation light appears. (You will hear the breaker click) If the light does not appear, check to see that the large red knob for the bow-thruster circuit breaker (below ignition panel) is pulled out.

⚠ CAUTION When operating the thrusters, allow a second or two for the propeller to come to complete stop before reversing direction. Failure to do so may result in damage to a shear pin.

⚠ CAUTION Thruster zincs should be checked periodically and replaced if significantly worn.

4.6 TRIM TABS (Optional)

While trim tabs are not necessary on the 29z because the running angle is adjusted automatically by the angle of the stern drive, they can come in handy to fine-tune the port to starboard trim of the 29z. The trim tab breaker on the DC panel must be ON for the unit to work. The trim tabs are wired intuitively, so by pushing down the starboard tab, the bow leans down to starboard. (Actually, the port tab is going down to lift the port aft corner of the boat).



4.7 AUTOPILOT (Optional)

The Autopilot/Depth breaker (on the DC panel) must be ON for the autopilot to function. Check the autopilot display and note the rudder angle indicator which helps in maneuvering the boat. When the compass heading is displayed on the autopilot it is operational and can be activated by pushing AUTO. The boat will then maintain the displayed heading. Push +1 or -1 for one degree course corrections or +10 or -10 for ten degree increments. When not activated, the Autopilot display maybe configured to show BOATSPEED (SOG from the GPS). See the Raymarine manual.

⚠ CAUTION The autopilot system is part of the hydraulic steering system. DO NOT turn the wheel when the autopilot system is ON. Push STANDBY to switch back to manual steering.

4.8 WINDSHIELD WIPERS

The 29z is fitted with two windshield wipers. For specific instructions, refer to the user manual.

The wash feature is connected to your boat's freshwater system and requires that the system be pressurized (i.e. that the freshwater pump is ON). If the wipers are to be used in sub-freezing temperatures, a separate system must be installed which utilizes anti-freeze.

CHAPTER 5

FUEL SYSTEM

5.1 GENERAL

It is important to understand the fuel system aboard your boat. Diesel fuel is different than gasoline. In most respects it is safer, however precautions need to be taken to maintain the safety of your boat. Please study the safety precautions in the NMMA publication "Sportfish, Cruisers, Yachts – Owner's Manual."

Diesel engines need to intake more fuel than they burn, and so they differ from gasoline engines in that they return excess fuel to the tank.

5.2 FILLING THE TANK

The Deck fill is mounted on the starboard side decks and labeled "DIESEL." As the tank is filled, vapor escapes the tank thru the vent. Overflow is prevented by an in-line fuel/air separator that will not allow fuel to pass. However, caution should be taken while filling. Check the fuel level gauges and listen for the rise in pitch at the deck fill, as fuel reaches the top. Shut off the nozzle immediately. *Do not attempt* to "top off" the tank. Variations in temperature as well as trim angle could cause overflow or vent-line blockage.

5.3 CHECKING THE SYSTEM

Your engine needs clean fuel to operate. Be sure to buy diesel fuel from a reputable marina. Also, check the primary fuel filter regularly. The primary fuel filter has a clear bowl that will allow you to inspect for water and sediment accumulation. You should be able to see thru the fuel in the bowl at all times. Cloudy fuel indicates a problem. Also, you should not see bubbles passing through the filter while running. This would indicate a leak on the suction side of the fuel system.

5.4 FUEL CONSUMPTION

To assist you in estimating fuel usage and range, the following chart was developed from sea trials on hull #1 with the Volvo D4 260HP Diesel engine, showing fuel consumption and range on 112 gallons of fuel (90% of capacity) at various RPM or speed levels. The actual speed you may achieve is a function of the weight carried aboard, condition of the bottom (barnacles/slime), prop design, etc.

<u>RPM</u>	<u>Speed</u>	<u>GPH</u>	<u>Pitch</u>	<u>dba</u>	<u>MPG</u>	<u>Range</u>
900	5.8	0.6	1	68	9.7	1083
1200	7.4	1	1	71	7.4	829
1500	8.3	2	3	74	4.2	465
1800	10.4	3.5	4	75	3.0	333
2100	14.4	4.6	5	78	3.1	351
2400	19.1	5.7	4	79	3.4	375
2700	23.2	7.3	4	80	3.2	356
3000	26.6	8.9	3	82	3.0	335
3300	30.1	11	3	83	2.7	306
3600	33.4	14	3	86	2.4	267

Diesel engines are more efficient when run at about 85% of maximum rpm. The maximum rated rpm of the Volvo D4 engine at propeller load is approximately 3500-3600 rpm.

It's advisable keep the accompanying 29z FUEL CONSUMPTION LOG of engine hours and gallons on each fill-up to best predict fuel usage.

It's rare that the boat is operated constantly at higher speeds. Average recreational fuel consumption between fill-ups is projected at 2-3 gallons per hour of engine time.

6.1 GENERAL

The 29z's electrical system is probably more advanced than what you may be accustomed to. It combines DC and may include optional AC power. An understanding of how the system works will aid you in your ownership.

12 volt DC power is stored in your batteries. This power is replenished either by an engine-driven alternator or by a battery charger converting AC power to DC power. Most of the electrical components on your boat use DC power.

120 volt AC power is what is typically found in homes. It is supplied to the boat in 3 ways: (1) via an optional shore-power cord plugged into a shoreside receptacle (2) by the optional generator running onboard (3) by inverting DC power from a battery into AC power. The AC components aboard your boat include the cooktop, microwave, flat-screen TV, air-conditioning, AC water heater, inverter, and receptacles (for use with your own AC equipment).

⚠ DANGER Both AC and DC electrical power sources are potentially dangerous. Do not attempt to work on any part of your boat's electrical system if you are not a qualified marine electrician.



6.2 DC SYSTEM

There are two battery banks on your boat. The house bank consists of (1) one or two (option) 200Ah, absorbed-glass mat (AGM) batteries. The engine bank consists of a single 105Ah AGM battery, and it is used to start the engine and also to run the optional windlass and bow-thruster. Whenever a charging source is present (either from the battery charger or an engine-driven alternator) *both* banks are automatically charged. AGM batteries are essentially no-maintenance. *Do not attempt to open the batteries.* Other than keeping them properly charged, stored, and clean (especially between the terminals), there is virtually nothing you need to do to them. The battery charger is factory set specifically for AGMs.

MOMENTARY PARALLEL SWITCH This is located under the ignition switch and is used to combine the capacity of both the house bank and start battery in case the start battery voltage is low. The spring-loaded parallel switch must be held up while the ignition is turned on.

will still accept a charge from the battery charger. Leave “Inverter/Charger” breaker ON on AC Panel 1. If you are leaving the boat plugged into shore-power and you wish to turn off all DC loads, but still be able charge batteries, leave the house switch ON and turn off the main DC disconnect breaker on the DC panel.

⚠ CAUTION Disconnecting shore power with INVERT LED ON will cause discharge of the house battery bank.

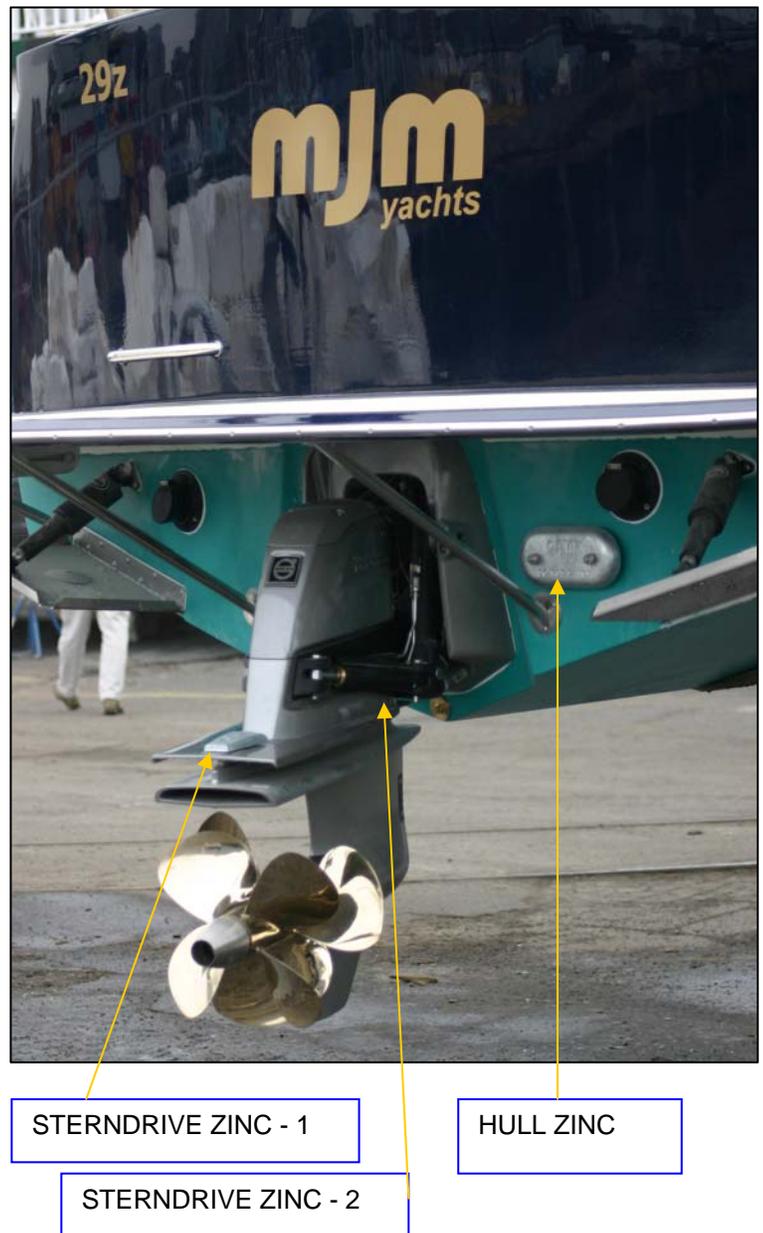
In the event of a dead or weak engine battery, the parallel battery switch can be used to combine the house bank to the engine start bank. All three switches must be ON for this function. This is recommended only as a last resort- if shoreside or genset charging is available, use that to re-charge the start batteries.

6.3 AC SYSTEM (Optional)

The AC system exists to power such items as a Cooktop, Microwave, Entertainment System, AC Outlets, Air-Conditioning and Water Heater. There are three ways to supply AC power to these appliances/systems: (1) You can plug a 30-amp shore power cords into a shore-power supply, depending on which items you want to power; (2) the generator can be used; or (3) the house batteries can supply DC power to the Inverter which converts it into AC power. The main AC disconnect breakers (top of the AC panel) must be ON for shore-power AC to supply the boat’s AC power. . To use the inverter, (1) the house battery selector switch must be ON and (2) the inverter breaker on the AC panel must be ON. Refer to the inverter/charger manual for more information

If the generator (optional) is being used in lieu of shore-power, the owner must be aware that using too many AC appliances at once may cause a breaker to blow. Avoid using major appliances simultaneously.

As mentioned, the generator (optional) can be used to create AC power. The generator battery selector switch must be ON and the generator must be selected on the AC panel. Refer to the manufacturer's manual for more information regarding the generator.



STERNDRIVE ZINC - 1

HULL ZINC

STERNDRIVE ZINC - 2

6.4 REVERSE POLARITY

⚠ WARNING As a safety precaution, your AC panel is fitted with reverse polarity indicators. If an AC supply were wired incorrectly, either aboard your boat or shoreside, a dangerous shock situation could exist. Normally, the reverse polarity lights should not be illuminated. If they are, disconnect that source of power and alert the appropriate person.

6.5 ELECTROLYSIS & GALVANIC CORROSION

Metallic fittings that are exposed to saltwater are subject to electrolysis and galvanic corrosion. To minimize potential damage, your boat is fitted with a sacrificial zinc at the transom. This zinc is connected to the bonding system of your boat. It should be visually inspected whenever possible and replaced when 1/2 of the zinc has been eroded. Pay special attention to its condition when in new waters and marinas, as environmental conditions affect the rate of deterioration. If the zinc erodes rapidly, current meters can be used to assess possible causes and remedies.

See Section 3.4, there is an engine zinc to monitor frequently as well.

6.6 BONDING

The bonding system of your boat connects all underwater metallic fittings to the sacrificial zinc and the boat's negative bus bar. In order for the zinc to protect an underwater part, the connection must be clean and secure. The green wires that make up this system are not normally current carrying.

6.7 ELECTRICAL SAFETY

Please read and understand the important safety precautions included in the included NMMA publication "Sportfish, Cruisers, Yachts – Owner's Manual" concerning electrical safety.

6.8 GENERATOR (Option) See Northern Lights 673D 5KW Operating Manual.

BREAK-IN PERIOD Change engine oil and filter at 50 hours and again at 100 hours. Oil consumption is greater until piston rings are seated. Maintain at least a 75% load on the generator for the first 100 hours, varying the load to help seat the rings.

PRESTART CHECKS [refer to Figure 2 & 3 on next page]

- (1) Check that cooling water is 1" below filler cap [2]
- (2) Check the oil at dipstick [22]
- (3) Open fuel line lever over starboard fuel tank.
- (4) Close the raw water seacock, check & clean sea strainer & reopen the seacock (port locker)
- (5) Reach behind the Generator Control Box [13] and be sure that the AC Circuit Breaker [14] and AVR Circuit Breaker [28] are both in the "Up" position
- (6) Turn ON battery switch for Generator. Note the battery switch must always be kept ON while the generator is running. If the switch is turned OFF with genset running, the battery charging regulator could be ruined.
- (7) Turn OFF all AC Panel 1&2 switches/breakers, including Generator double-handled switches on top of AC Panels 1 & 2 and AC Breakers below.

PREHEAT: On the Northern Lights Generator Control Panel on the face of the piloting console depress PREHEAT switch ON for 10-20 seconds to activate control system

START: Then, depress START switch while continuing to depress PREHEAT switch. When generator starts, release both switches. Do not crank for more than 20 seconds at a time. Allow the generator to run for about 15 seconds until LED green light appears next to "Generator" on AC Panel below (forward most) indicating that the panel is receiving electric current.

ACTIVATE AC PANEL : When the green LED light appears on AC Panel, turn ON double Generator Selector switch. There is a delay until Volts (about 115) register in the digital display.

TURN BREAKERS ON for the items you wish to operate.



- **Note:** if the generator starts, but no AC voltage is seen at the panel, check first that the selector switches (sliding interlocks) at the top of the AC panel are ON. If so, there is a possibility the generator was overloaded and the AC breaker on the back of the generator Control Box has tripped due to a momentary overload. Open the generator hatch and reset (pull up) the AC Output Circuit Breaker (located on the aft side of the control box).

STOP: Remove electrical load from the generator set. Allow the engine to run for a 3-5 minute cool-down period. Depress STOP momentarily on the lower part of the rocker switch.



AC & AVR Circuit Breakers Behind Control Box

6.9 INVERTER/CHARGER (Optional)

There are many functions that are fully explained in the inverter/charger manual. Please read it thoroughly for a complete understanding of this unit.

Under normal circumstances, the buttons and lights on the inverter/charger unit itself do not need to be used because the LINK 2000 panel can control most of these functions.

The 29z uses a combination inverter/charger (in a single unit). When a supply of AC power is present (from shore-power or generator), the unit can charge both the house battery bank and the engine start battery. The inverter breaker (on the AC panel) should normally be ON. If no source of AC power is available, the inverter when ON can use DC power from the house bank to create AC power, used for items on AC Panel. If AC power becomes available, either from shore-power or the generator, the inverter/charger transfers this power to the AC panel. Your batteries will not

be used to create AC power if either the generator or shore-power is active and the inverter breaker is ON.

INVERTING

To use AC power when no generator or shore-power is available, make sure the inverter breaker is ON. AC power should now be supplied to the AC Panel, which includes those items which may be run from the inverter alone...although not necessarily all at the same time for very long. The inverter can only be powered by the house bank. When finished using AC power through the inverter turn the inverter switch OFF.

CHARGING

Turn the CHARGE switch ON to activate the charger when SHORE POWER is applied to AC Panel or when GENERATOR is on.

⚠ CAUTION DO NOT LEAVE THE INVERT SWITCH "ON" IF YOU ARE NOT INVERTING AS THIS MAY DRAW 10-12 AMPS EVEN IF NO AC DEVICE IS TURNED ON. OR, YOU MAY END UP WITH DEAD BATTERIES.

6.10. FUSE LOCATIONS & SPECIFICATIONS

CIRCUIT	TYPE	MFG	PN	AMPS	LOCATION
HOUSE BANK	ANL	ANCHOR	606250	250	PORT BULKHEAD
MAIN DC PANEL	ANL	ANCHOR	606100	100	STARBOARD ENGINE ROOM BULKHEAD
CHARGER					
SIDEPower THRUSTER	ANL	IMTRA	SMANL250	250	STARBOARD HULL BEHIND INVERTER
BATTERY SENSE	AGC	ANCHOR	601030	3	TERMINAL STRIP HOUSE BATTERY
SEALAND VACUFLUSH	AGC	ANCHOR	601030	3	VACUFLUSH HOLDING TANK
RADIO MEMORY	AGC	ANCHOR	301200	20	TERMINAL STRIP HOUSE BATTERY
BILGE PUMPS	AGC	ANCHOR	601075	7.5	ON HELM DASHBOARD

7.1 GENERAL

Your boat incorporates a pressurized freshwater system. A single 30-gallon tank supplies a pump which supplies pressure when turned on by demand.

7.2 FILLING

A deck fill is provided on the starboard side boarding step and is labeled WATER. As the tank is filled, air escapes thru the vent.

7.3 USING & MAINTAINING

The freshwater pump is turned on at the DC breaker panel. If the pump is heard running continually, check that no faucet has been left open. If this is not the case, turn off the pump and check that the tank has not been emptied. The freshwater system is not a perfectly sealed circuit and it is not uncommon to hear the pump cycle, but if this short cycling occurs more than once per hour, the system and/or pump should be checked for leaks. The pump is protected from sediment by an in-line strainer mounted adjacent to the pump. The strainer should be checked periodically and cleaned if necessary if the stream of water is diminished.

7.4 HOT WATER

Water in the six gallon hot water tank is heated in one of 2 ways (1) whenever the engine is operating or when the engine is not running, by turning on the "Water Heater" breaker on the optional AC Electrical Panel. It is part of the freshwater system and does not need to be filled separately. There is virtually no need for maintenance, but the connections at the tank should be visually inspected occasionally.

The coolant lines from the engine to the tank have shut-off valves, located on the forward face of the engine. These need to open in order for the engine to heat the water in the tank. For service, or in case of a ruptured line, these valves can be closed to stop this water loop.

7.5 WATER PURIFIER (Option)

[See also *Seagull owner's manual*] The galley is fitted with a water purifier. This purifier has a cartridge (in stainless pressure vessel under sink) that should be replaced annually or when reduced water flow indicates that it has become plugged with sediment. It is best to clear the pressure water system of any winter anti-freeze before running water through the cartridge. The filter is rated for 1000 gallons, which is approximately 15 water tanks' worth.

8.1 GENERAL

Raw water (seawater) is used to cool the engine and the generator. It is also used in the saltwater washdown and air-conditioning options. Other than the engine, where the water enters through the stern drive, raw water enters the boat through a seacock, which is a valved thru-hull penetration.

8.2 RAW WATER FILTERS

The generator (if fitted) uses a separate seacocks and strainers. Before using the generator, make sure its seacock is in the INTAKE position. While you are checking this, visually inspect the strainer to insure that it is not fouled. *Using any engine with restricted raw water flow can cause over-heating and damage to the engine.* When you start any engine, it is advisable to check the exhaust as it exits the boat to make sure water is being mixed into the exhaust gas. You should see a surge of water every few seconds. (It may take more than a few seconds for the first surge.)

8.3 ADDITIONAL RAW WATER USERS

In addition to the engine and genset, other options may use raw water supplies. These include the air-conditioning, and saltwater washdowns. Each of these will have a seacock and a strainer that need to be open and clear for the proper operation of equipment.

9.1 GENERAL

Gray water is liquid that can legally be pumped overboard, generally from sink drains, shower drains, and bilges. Your boat also directs deck run-off to of all gray water through common drains (port & starboard) in the transom.

9.2 GRAY WATER SUMP

The gray water sump box aboard your boat is located in the bilge under the bottom companionway step. This collects water from the shower drain, the refrigerator drain, and the air-conditioning condensate (if fitted). The sump pump switch on the DC panel operates a bilge pump with normal float switch to empty the sump when any of the above systems are in use. Periodically, the cover of the tank can be removed and the contents cleaned.

9.3 BILGE PUMPS

There are three bilge pumps fitted on your boat.

The manual bilge pump under the starboard helm station is operated by opening the plastic cover, inserting the handle, and pumping up and down. There is a noticeable difference when the bilge has run dry. This pump is most often used as a back-up system to the two automatic pumps. Its capacity is 15 gal/min.

The automatic pumps, located forward of the engine and under the companionway steps, are wired directly to the house battery bank. This means that even when the main battery switches are OFF, the bilge pump can continue to function properly. A three-way switch controls the pumps. When held in the manual position, the pump will work regardless of whether there is water in the bilge or not. In the OFF position, the pump will not turn on. In the AUTO position operates if the water level rises. If water is detected, the pump continues to run until the water is gone. Generally, the pump should be left in the AUTO position.

9.4 COMMON DRAINS

To eliminate unnecessary thruhull penetrations in the topsides, a common drain system is utilized both port and starboard to pick up the cockpit hatch drains and side-deck run-off drains.



10.1 GENERAL

Although all the exterior equipment on your boat was selected with marine service in mind, it is helpful to rinse the boat with freshwater after exposure to saltwater.

10.2 ANCHOR WINDLASS (Optional)

Refer to the manual that came with your windlass for specific operating instructions.

The windlass draws power from the engine start battery. It is therefore advisable to only use the windlass when the engine is running, and to allow time for the battery to recharge after windlass use. Never try to move the boat forward with the windlass- it is sized to retrieve the anchoring gear, not to pull the boat forward. If the windlass bogs down, use the boat's engine to move directly over the anchor. If the anchor has become firmly lodged, use the boat's engine to free it, then commence retrieval with the windlass. Note: always let the windlass come to a stop before reversing direction; otherwise, the windlass fuse/breaker may blow.

To use the windlass, the engine start battery switch and house battery switch must both be ON and the windlass breaker on the panel must be ON.

⚠ CAUTION To avoid chafe on the anchor rode when anchoring, it is advisable to remove the rode from the anchor chute by grabbing it below the roller, then pulling it up directly from the anchor, feeding it through a bow chock to a mooring cleat. Never rely on the windlass itself to hold the anchor rode- the chain stopper or a cleat should be used to take the load so as to avoid damaging the windlass' gears.

⚠ CAUTION When not using the windlass or when underway, we recommend securing the anchor and chain with the anchor hook and line provided as standard to one of the mooring cleats. This prevents the anchor and rode from inadvertently running free underway and fouling the prop.

10.3 STANDARD PILOTHOUSE CURTAINS

To prevent the outside curtain straps from flapping against clear vinyl, double the ends over and poke them back up between the window frame and curtain, then with a twist snapping them again from the inside onto the same extended post used to secure the curtain when in the UP position. There are 3 options with aft curtains (1) the most common is to roll up the center section with screen/window and secure with 2 straps, leaving the side aft curtains in place. (2) roll up all 3 aft curtains by keeping all 3 zipped together and rolled up as a single unit. (3) roll up just the clear window of the center section, leaving the screen in place.

Do not use any chemicals or brushes to clean, only mild soap. If the curtains become scratched a mild polishing compound (a white cream similar to what is used on Awlgrip) can be applied by hand to remove them. Test a small, unobtrusive area first.

These curtains are easier to snap on when they expand in the heat than when they shrink in the cold. So, it's best to secure them when it's still reasonably warm. Always store curtains rolled (usually several together and not folded) in a dry place to prevent creasing or shrinking.

10.4 COCKPIT OPTIONS

This option is available as a simple Bimini that extends the hardtop over the cockpit seating. To fold down, simply slide the genoa cars forward, unzip under the hard top, roll up the canvas and store in a protective boot on the afterdeck.



SLEEPING PORCH OR WATER TAXI VERSION

This is created with the addition of side and aft curtains. The center-aft curtain doubles as a screen for ventilation at night. The curtains are rolled up in a designated storage bag.



OPEN COCKPIT STERNDRIVE

This model features a transom door and the engine box with a padded seat in lieu of wrap-around cockpit seating.



11.1 MARINE VACUFLUSH HEAD SYSTEM

NOTICE Waste discharge regulations vary by location. Check with local authorities.

The waste system aboard your boat employs freshwater and a vacuum generator. The freshwater pump breaker and Vacuflush breaker must both be on (DC panel) for the system to work. Further controls are located on a panel in the head (shown).



Refer to the manufacturer's manual for more details.

When the foot-pedal of the toilet is depressed, waste is drawn through the vacuum generator to the waste tank. Tank capacity is 10 gallons, which may seem small, but since each flush requires about a cup full of fresh water compared to the several quarts of sea-water using a conventional marine pump-head, the capacity is more than adequate and there's no odor. Waste can be discharged two ways:



(a) Via the shore-side pump-out fitting on deck labeled WASTE using marina facilities. To effectively remove all the waste from the holding tank, be sure to first turn OFF the vacuum pump system and step on the head flush pedal to remove all vacuum.

(b) Offshore beyond restricted waste disposal zones by (1) OPENING the large waste thru-Hull discharge valve, accessible to starboard and aft in the cockpit lockers then (2) TURN & HOLD the switch in the Head to the right to activate overboard pumping using the macerator pump. The control panel lights indicate the level of waste in the holding tank which is in the compartment outboard of the engine. The level can be double-checked by viewing the dark waste line through the side of the semi-transparent holding tank.

WARNING Before activating this discharge, check to insure compliance with local regulations.

11.2 DC REFRIGERATION (Optional)

The top-opening refrigeration unit utilizes a cold-plate within the refrigerator enclosure which is chilled by a DC powered unit mounted in the machinery space on the port side. The refrigerator breaker on the DC panel must be on for the unit to work. The thermostat for the system is located in the icebox. Once on, the unit will self-regulate. For further information and troubleshooting procedures, refer to the SeaFrost operating manual.

The partitions in the refrigerator are designed to create freezing temperatures next to the cold plate where the ice-trays are located.



THERMOSTAT

11.3 COOKTOP (Optional)

The galley cooktop aboard your boat is powered by AC electricity. To use it, make sure the cooktop breaker on the AC panel is ON and that a supply of AC power is present.

⚠ CAUTION Do not leave the cooktop ON while unattended.

11.4 MICROWAVE OVEN (Optional)

The Microwave may be operated without shorepower by utilizing the inverter for AC power and turning ON the switch on the AC panel. Please refer to the Users Manual for operating instructions and precautions. The manual is stored inside the oven when the boat is initially delivered.

11.5 MARINE-AIR AIR-CONDITIONING (Optional)

If installed, the MarineAir 7,000 BTU air-conditioning system can help keep the interior of the boat cool. It also has a reverse cycle to act as a heater. For a full explanation of the A/C controls, see the manufacturer's user's manual.

Outlet airflow louvers of interior and pilothouse grills maybe be adjusted by small levers to put more air either below or on deck. This is intended primarily to provide cool/warm air to the helm chairs only. However, with the curtains all closed (and even better when privacy curtains are in place), the pilothouse air temperature can be reasonably controlled. The capacity of the unit is designed to efficiently cool interior cabin and can help make the pilothouse cooler in very hot weather, The heat works particularly well to warm both the interior and pilothouse if the sea temperature is above 40 degrees.

To adjust fan speed range so that the lowest setting "1" is hardly noticeable and high-speed setting "6" is sufficient, see the Operating Manual.

Push the Fan Control button until "P1" shows. Then Press Star to select "P2"

Press Up or Down Arrow until reading "65"

Press Star to get to "P3"

Press Up or Down Arrow until reading "40"

The A/C system uses raw water, much like the engine, for heat exchange. There is an intake seacock, strainer & pump located under the bottom companionway step. These should be checked frequently, and are the first things to check if the unit fails to deliver cold air.

11.6 WALLAS DIESEL HEATER (Optional)

This heater is DC powered, controlled by a thermostat on the forward side of the entertainment center and draws diesel fuel from the starboard fuel tank. Please read the manual for instructions

⚠ CAUTION Do not use the Circuit Breaker Switch to Turn off the Heater when it is operating. Before turning off the breaker switch, be sure to turn the control panel from heat to vent until the heating element has a chance to cool off.

11.7 CLARION XMD3-RET STEREO w/MP3 PLAYER (Optional)

This multi-media unit over the electrical panel operates on DC power. The STEREO breaker on the DC panel must be ON before you can turn on the unit. To select the functions, whether "Tuner" for AM/FM stations, "CD" for CD control functions, "Sirius" for satellite radio, "Aux" for surround sound when the TV is playing, etc., press the "Power" button repeatedly. The fore and aft volume balance between interior and pilothouse speakers is controlled by the "Fade" function. See the instruction manual for further operating details.

11.8 SIRIUS SATELLITE RADIO ACTIVATION (Optional)

To activate Sirius Satellite Radio services on the Clarion XMD4, you will need the serial number:

- (1) Push the "MENU" button in the upper right set...
- (2) Using the right or left arrow scroll to "SID DISP".
- (3) The first 6 digits of the serial number will be displayed.
- (4) Turn the rotary dialing knob counter-clockwise to display the last 6 digits of the SID



- (5) Call Sirius at 1-888-539-7474 to activate, conveying the 12 digits of the Serial Number of the unit.
- (6) Tell them that you just purchased an MJM 29z motorboat with Sirius installed and that you understand that Sirius is offering a 1 year free subscription to new boat owners. Be ready to give them the HIN # which is etched into the upper right corner of the transom. Note: The promotion may be over by the time you do this, but worth a shot in any case.

Subscribers to Sirius also get free PC music programming at home. Works great, hooked up to a couple of SONY SRS-Z750 speakers or similar. Music plays while doing Email.

CHAPTER 12

ROUTINE MAINTENANCE

12.1 Refer to the following chart for routine maintenance actions. Refer to the excellent Maintenance Schedule and instructions beginning on page 63 of the D4/D6 VOLVO engine manual for complete instructions on each item. Perform all maintenance once a year even if hour levels have not been reached. Some of the items you may choose to leave to professionals, but many you can do yourself. In particular, it is a good idea to have a certified mechanic perform check-ups from time to time on the engine, generator, and any other key equipment installed onboard. Volvo & Northern Lights engines are assumed – check your manuals if your brands differ.

ITEM	FREQUENCY	ACTION
ENGINE		
Engine & Engine Room	Daily bef. Start	General Inspection
Leakage	Daily	Identify Source, Correct & Clean-Up
Engine Oil Level	Daily Check	Change after 1 st 50 hrs, then ea. 200 hrs/1 per year
Lube Oil Filters		Replace after 1 st 50 hrs, then ea. 200 hrs/1 per year
Air Cleaner/Filter	Check ea. 50 hrs	Clean if necessary and replace oil. Change at 200 hrs.
V-Belt Tension	Every 14 Days	Tension if necessary, Change every
Remove Zincs & Check	Every 100 hrs	At each oil change or 6 months
Check Valve Clearances		Check after 1 st 50 then ea. 500 hrs
Turbo Charger	Every 200 hrs	Clean Blower
Mounts	Annually	Tighten
Exhaust Elbow	Weekly Check	Check for leaks.
Transmission/Rvrs Gear Oil	Every 14 Days	Add if necessary, Change every 200 hours.
Valve Clearance & Injectors	Check	500 hrs.
Compressor	Check Oil Level	Every 200 hours
Crankcase Ventilation Filter	Every 200 hrs	
FUEL SYSTEM		
Tanks/Valves/Connections	Monthly	Inspect for leaks and ease of valve operation
Racor Primary Fuel Filter	Daily	Clean if necessary. Change ea. 200 hrs.
Secondary Engine Filter		Change ea. 200 hrs. or when necessary.
Fuel System	When necessary	Bleed
Injectors	Check ea. 500 hrs	
Fuel Injection Pump	Check	Every 2400 hrs.
GENERATOR		
Oil Level	Daily or ea 8 hrs.	Check and add if necessary
Oil	Ea. 100 hrs.	Change (1 st time after 50 hrs.)
Fuel Filter/Water Separator	Daily or ea 8 hrs.	Check for contamination and clean
Fuel Filter	Ea 100 hrs.	Check Drain and replace filter ea 100 hrs.
Engine Hoses	Weekly	Check that they are hard & tightly secured
Exhaust System	Weekly	Inspect for leaks. Check ant-siphon.
RAW WATER COOLING		
Coolant Reservoir	Daily Check	Add coolant if necessary, Change every 2 years
Heat Exchanger	Every 2400 hrs	Check & clean
Raw Water Strainer	Daily Check	Clean screen & bowl if necessary
Cooling System	Every 500 hrs.	Check & Flush
Sea Water Pump	Every 200 hours	Check Impeller.
FRESH WATER SYSTEM		
Water Tank	Annually	Flush clean & disinfect.
Water Pump Strainer	Monthly or Less	Remove & clean
Hoses & Valves	Daily	Observe leaks or note recycling of pressure system
Seagull Purifier Cartridge	Annually	Replace cartridge more frequently if reduced flow)
GRAY WATER SYSTEM		

Sump	Annually	Under Companionway – Open & Clean
Automatic Bilge Pump	Daily Check	Test with manual switch
Manual Bilge Pump	Monthly	Check operation
Bilge Area	Daily Check	Inspect and clean as needed
ELECTRICAL SYSTEM		
Batteries	Monthly	Remove Lids, check for loose cables, clean
House & Engine Batteries	Daily Check	Voltage
Connections	Annually	Inspect all connections
Transom & Shaft Zinc	Quarterly	Inspect and replace if necessary
MISCELLANEOUS		
Trim Tabs	Daily	Check Operation
Trim Tabs & Bow Thruster	Monthly	Inspect & remove barnacles for proper operation
Hydraulic Steering Fluid	Monthly or Less	Check fluid level (console), add or purge air.
Bow Thruster	Annually	See manufacturers recommendations
Bottom Paint	Monthly or Less	Remove growth with diver to sustain performance

12.2 FLUIDS

Engine lube oil - use 15W40 (SAE viscosity) meeting Volvo Drain Specification and API CH-4. Between MAX and MIN marks on dip stick there are 0.9 US Gallons for a D6. Do not fill above MAX level.

Transmission oil - use Automatic Transmission Fluid (ATF). A complete list of acceptable brands is included in Chapter XI of the transmission manual.

Coolant – Never use water alone as the coolant. Use either Volvo Penta Coolant, Ready Mixed or Volvo Penta Coolant mixed with pure water according to spec. Coolant should contain ethylene glycol of a good quality. Anti-corrosion additive exclusively is not permitted in Volvo engines.

13.1 LAYING UP/LAUNCHING

See pages 97-99 of Volvo Owner's Manual for Care of Outdrive.

Most facilities will not require additional information before hauling the boat with a Travelift or crane.

The end of the season is a good time to have the bottom power-washed and to check all thruhulls and seacocks for growth. Careful inspection of all underwater hardware at this point may avoid a potential problem in the future. This is also a good time to check the zincs of the boat and replace as necessary.

If the boat is to be stored in a place where the ambient temperature may fall below the freezing point, it must be winterized. Plumbing lines need to be emptied and anti-freeze added where applicable. Consult also the engine operator's manual.

CHAPTER 14 – TRAILER LOADING CHECKLIST

1. Check that bilges are clean and dry
 2. Check that all cabinet door & drawer latches are pushed shut to the lock position.
 3. Remove ensign and burgee
 4. Leave the bilge pump switch in on position
 5. Do not apply adhesive tape to any part of the boat, especially the Ultra leather cushions.
 6. Lock all hatches and portlights
 7. Cover louvers in companionway door and instrument console.
 8. If necessary, remove radar from hard top and waterproof loose connection.
 9. Roll side and back curtains together with paper between and store in cardboard tube in pilothouse
 10. Secure VHF antenna with wire ties in “down” position.
 11. Remove all-round light on hardtop and install protective cap.
 12. Fuel tanks must have minimum of 20 gallons each
 13. Are all systems winterized if trip is to freezing weather
 14. Check to see that all Battery Switches are OFF
 15. Secure and pad all loose gear against movement in transit
 16. Wrap piloting chairs in shrinkwrap or plastic, avoiding get tape on Ultraleather
 17. Do not stack any gear on tables.
 18. Do not under any circumstances load boat stern first on trailer – You’ll be cleaning for weeks.
 19. Shrink wrap is not desirable and can cause more trouble to the hull paint job than it protects.
 20. Be sure that the boat is properly blocked and rides level so the cockpit will drain underway.
 21. Be sure that the topmost part of the boat is less than 13’6” over the road.
 22. Take digital photographs of hull, port, starboard and transom and attach copies to the Bill of Lading
 23. Have driver sign off on Bill of Lading with a notation that there is no damage (or indicate existing damage) so as to eliminate arguments upon arrival as to what damage the driver did or did not cause. Retain a copy.
 24. Provide driver with detailed contact information of receiving yard and schedule for unloading.
 25. Padlock installed with combo given to driver and to receiving yard.
 26. Attach a copy of this check list to the BOL, marked, and signed off on.
- Note:** In addition to aft and midship supports, the boat should be supported under the bow as well to counteract the downward pressure of bow tie-downs.



Manufacturer's Sole and Limited Warranty for Pleasurecraft

- A. **General.** This document sets forth the sole and limited warranty, which Boston BoatWorks ("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, 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.
- 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 will not blister when the Vessel is Properly Used for a period of ten (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 does not 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 thirty (30) days of discovering it, 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, 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 or components will not 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 designated marina in the State of Massachusetts 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. 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 out a Warranty Registration Card.
- L. **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 WARRANTIES INCLUDING WARRANTIES 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.
- M. **Limitation of Damages.** THE MANUFACTURER 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.
- N. **Whole Agreement.** This warranty is the sole warranty given to you by the Manufacturer. Authorized Dealers are not 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.

BOSTON BOATWORKS
Pre-Approval for Warranty

Please Fax Claim to: (617) 561-9222 Date _____

Boat Model _____ Boat Name _____ Hull # _____

Dealer _____ Contact Person _____

Phones _____ Fax _____ Email _____

Description of Problem: _____

Description of Resolution: _____

Estimated Completion Date: _____

Labor Rate \$ _____ Total Materials Cost \$ _____

Total Labor Hours _____ Total Estimated Cost \$ _____

AMOUNT APPROVED: \$ _____ **APPROVED BY:** _____

Warranty Claim Application Form

Boston BoatWorks, LLC

256 Marginal Street, East Boston MA 02128

Phone: (617) 561-9111 Fax: (617)561-9222

Date: _____ Boats Name: _____ 29z Hull # _____

Dealer/Service _____ Boat Owner: _____

Address: _____ Address: _____

Phone: _____ Phone # _____

Fax: _____ Boat Location: _____

Contact Person: _____ Delivery Date: _____

Description of Defect (please include photos)

Description of Corrective Action (include invoices)	Labor Hrs:
	Labor Rate:
	Labor Cost:
	Material Cost:
Total amount of claim	\$

All claims require prior approval by BBW Customer Service using the Pre-Approval Form

Date Approved: _____ **Amount Approved:** _____ **Approved by:** _____

1 - Disconnect Shore-side Connections

To disconnect the shore power cord, turn off all AC loads on the boat and make sure the main AC breaker on the AC panel (the double breaker) are all OFF. Then disconnect the cord *at the dock end first*. Disconnect the cord at the boat and close the shore power inlet cover.

2 - Set Battery Switches

The battery selector switches are under the companionway step. Turn the engine start switch and the house battery switch to the ON position. If the engine start battery is low, the spring-loaded parallel switch can be held on until the engine starts.

Remember to turn them all OFF when leaving the boat.

3 - Check Engine

It is advisable to check the engine fluid levels before starting the engine. Refer to the Owner's Manual for instructions on checking the oil and coolant levels.

4 - Visually Inspect the Engine Room

While doing other checks, it is a good idea to take a look around the engine for loose belts, wires, oil drips or water in the bilge or anything else that may be out of order.

5 - Check DC Panel

Check the DC panel to insure that the house bank has a reasonable charge (12.2V or greater). If there is any problem, now is the time to learn of it. Make sure the DC main breaker is ON, as well as any other circuits that you might need in the course of your trip. If you need the searchlight in a hurry, for instance, it's better to have the breaker already on.

6 - Turn On Navigation Instruments

Make sure the depth sounder is ON, then turn on the chart-plotter, VHF, radar etc. Some instruments do not have power switches and are turned on at the panel. It is always a good idea to bring paper copies of applicable charts and to check your compass periodically.

7 - Check Lights

If the boat is to be operated after sunset or in reduced visibility or fog, check that the running/anchor lights and searchlight are all functioning. Switches for the running lights and the masthead/anchor light must be turned on when operating the boat, as the masthead does not automatically turn on when “running lights” are switched on.

8 - Start Engine & Activate Power Trim Control

⚠ CAUTION See Chapter 3 of this Owner’s Manual for specific instructions on operating the new electronic controlled engine and sterndrive. It is different.

9 - Check Maneuvering Aids

Turn ON the bow-thruster and, after waiting for the engine voltmeter to begin charging, test the thruster toggle with a brief tap, insure that it is functioning.

⚠ CAUTION Make sure that no one is on the foredeck or handling a dock-line when this test is performed. Check that steering turns smoothly from lock to lock.

10 - Final Checks

Before departing, make sure the engine and house batteries are being charged. (Note: by design, there is a delay between starting the engine and alternator charging.) Make sure your navigation plans have been prepared and that all equipment is functioning (even that which you don’t necessarily intend to use). Be sure the anchor is secured.

When you are confident that everything is in order, cast off all dock lines and *bon voyage!* Remember first when maneuvering that short bursts of idle throttle are usually sufficient to move the boat.