



# **SARDINE BOAT OPERATORS/OWNERS MANUAL**





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## **CAPTAIN'S WELCOME**

**Dear Sardine owner**

**Congratulations on the purchase of one of the smallest fiberglass center console boat in the world. It has been proudly designed with the features of a big boat in order to give you many years of boating pleasure. Pride of craftsmanship is your assurance that you've bought the very best. All Sardine models meet or exceed U.S. Coast Guard safety standards relating to load and horsepower capacity, flotation, electrical, steering, ventilation, and fuel systems, in effect the date of manufacture.**

**However, for us the most important thing is your safety and not the boat; therefore, now that you have become on a new Captain for this vessel, it is your own responsibility to order everyone to wear lifesavers at all times.**

**Always keep in mind that:**

***"You and your crew may be great swimmers but... for how long?"***

**Mel Freire**

A handwritten signature in blue ink, appearing to read "Mel Freire", with a large, stylized flourish above the name.

**Product engineer**





## **INTRODUCTION:**

This Owner's Manual is intended to help you become familiar with your new boat. While this manual contains information to assure safe and enjoyable boating, it does not provide everything you need to know. Above all, take time to know your boat. Read the material supplied by the manufacturer of your engine. This owner's manual does not supersede or change any of their specifications, operation, or maintenance instructions. Also read all literature supplied with your boat by the manufacturers of the various accessories which are used on your boat. Sardine Marine Boats recommends that you read the boating literature published by your State Boating Agency and the U.S. Coast Guard.

Use your owner's manual as a guide to familiarize yourself with all the systems and components on board your Sardine boat. The procedures in this manual will assist you with safe and proper operation, and maintenance of your boat. The level of information may be general in some cases and more detailed in others. Suppliers of the more complex components such as engine, electronics, bilge pumps, supply their own instructional manuals delivered to you when you purchased your boat. These suppliers maintain their own manufacturer's warranty and service facilities. It is essential that you fill out each warranty card and mail them to each manufacturer informing that you are a registered owner of their product(s). Record all information regarding these products. Keep the Boat records in a safe place at home and never on board the boat. Your owner's manual is designed with the boat owner/operator in mind. The intent of the manual is to provide sufficient information to allow the user to safely operate and maintain your new Sardine boat.





## LET'S START WITH SAFETY CONSIDERATIONS FIRST!!

**BOATING SAFETY** Your owner's manual uses three levels of advisory and hazard statements to alert you to special information, operating procedures or safety precautions. All statements begin with a signal word to identify the importance of the statement. Statement levels follow this order (increasing importance). **Advisory Statements:** Advisory statements forewarn conditions that effect equipment operation, maintenance and servicing practices and occur in 3 levels:

### **Level 1 - NOTE (CAUTION)**

Signals a general advisory statement that clarifies or highlights a particular section of text.

### **Level 2 - IMPORTANT (WARNING)**

Used to signal the possibility of damage to equipment or associated components.

### **Level 3 - URGENT (DANGER)**

Used to signal the possibility of severe injury or maybe Death.

## **Hazard Statements**



Your Sardine boat has 3 labels with special safety indications. This symbol means "pay attention!" Here is important information for your safety. If you don't follow these instructions, you can damage your boat, hurt yourself or someone else or, even worse, have a fatal accident. The use of hazard statements is determined by the likely consequence of the warning with regard to severity (minor injury, severe injury, death), and the probability of severity (COULD result in, WILL result in).





## CAUTION

This symbol and signal word indicate a potentially hazardous situation. If you ignore this safety message, **property damage or minor or moderate personal injury MAY or CAN result.**



## WARNING

This symbol and signal word indicate a potentially hazardous situation. If you ignore this safety message, **personal injury CAN result.**



## DANGER

This symbol and signal word indicate a potentially hazardous situation. If you ignore this safety message, **personal Severe injury or death WILL result.**





**10 BASIC SAFETY RULES**

**CAUTION**

Boating safety and the safety of your passengers is YOUR responsibility. You should fully understand and become familiar with the following basic safety rules before launching your Sardine boat.

- 1.** Never operate a boat while under the influence of drugs or alcohol. Doing so is a Federal offense. Make sure only qualified drivers operate your boat.
- 2.** Your boat and equipment should be kept in safe operating condition. Regularly inspect the hull, engine, fuel lines, safety equipment and all other boating components.
- 3.** Use extreme CAUTION while fueling your boat. Become familiar with the capacity of your boat's fuel tank and fuel consumption for commonly used RPMs. Avoid fueling at night except under well-lit conditions. Gas spills are hard to see in the dark.
- 4.** Keep enough fuel on board for your planned cruising requirements as well as for changes in your plans due to adverse weather or other situations. We recommend the 1/3 rule: use 1/3 of your fuel to reach your destination, use 1/3 to return, and keep 1/3 in reserve.
- 5.** All regulation lifesaving and fire extinguishing equipment on board, must easy to find unrestricted and in safe operating condition. All passengers should become familiar with the operation and location of all equipment.
- 6.** Keep an eye on the weather. Be aware of possible changing conditions by monitoring local weather broadcasts prior to departure. Strong winds and electrical storms should be personally monitored.
- 7.** At least one other passenger aboard should be indoctrinated on the basic operating procedures for handling your boat, in the event you unexpectedly become unable to do so.
- 8.** Never allow passengers to ride on areas of your boat other than designated seating area and all passengers should remain seated while the boat is moving.
- 9.** Never overload or improperly load to unbalance your boat.
- 10.** Never attempt to climb to the boat from the water or jump from the boat to the water while the engine is running.





## CAUTION

**There are other rules for safety boating, this are called "General Rules of Seamanship" which are:**

1. Always cross waves at right angles.
2. When caught in heavy water, head your boat either directly into the waves or at a slight angle. Reduce your speed but maintain enough power to maneuver your boat safely.
3. Keep your speed under control. Respect the rights of boats engaged in fishing, swimming, water skiing, or diving. Give them a "wide berth".
4. When meeting a boat head-on, keep to the right whenever possible.
5. When two boats cross, the boat to the right or starboard has the right of way. So, you must reduce speed and let it pass first.
6. When overtaking or passing, the boat being passed has the right of way and you should be aware of other boat changing course at last minute.
7. If a bigger boat at high speed passes you nearby, reduce speed immediately to reduce wave jumping left behind.
8. At night if a boat is coming head on, navigation lights should be aligned the same "green-green" on both boats sides.
9. When entering a port at night, check entrance buoys colors "red-green" and keep your boat navigation lights aligned the same color with buoys lights side by side.





**FIRE PREVENTION:**  **WARNING**

- Check the bilge for fuel smell and possible leaks.
- Check fuel lines for cracks and possible leaks.
- Check cleaning products for flammability.
- Ventilate when cleaning, painting or filling fuel.
- Disconnect electrical system from power source when performing any type of maintenance.
- Use extra caution when using exposed flame around urethane foam or resins.
- Extinguish smoking materials carefully.
- Ensure ventilation systems are not obstructed, you have pair on the center console for battery fumes and another one on the back of pilot seat for gasoline tank vapors.
- Keep flammable materials in approved containers.
- Replace circuit breaker fuse with one of the same amperage.
- A qualified marine electrician to service the electrical system.

**IMPORTANT:** All persons aboard should know the location and proper operation of the fire extinguishers.



**VERY DANGEROUS:**  **DANGER**

- Carbon monoxide (CO) can be harmful or fatal if inhaled. Brain damage or death can occur if exposed to carbon monoxide. Dangerous levels of carbon monoxide can also accumulate around the outside of the boat when the engine is running. Do not run the engine when anyone is in the water around your boat or is located near the exhaust outlets.
- Do not expose an open flame or any spark near the gasoline gas tank. If you need to remove the gasoline tank for filling, turn off the engine first and then turn off the main battery power switch of the boat. If a gasoline explosion occurs this may cause a fatal accident.
- Do not allow anyone to swim or going into the water near a running engine even if it is in neutral position because somebody could accidentally move the throttle shifter and engage it into run position. A rotating propeller that has sharp blades may cause a fatal accident.
- Always attach the emergency ignition interrupter cable or lanyard around your left wrist or clicked to a strong piece of clothing such as a belt loop. (An even better alternative would be to keep the lanyard attached to your life jacket as a reminder). This should be done before running your boat. The emergency ignition interrupter switch must never be removed or modified and must always be kept free from obstructions that could interfere with its operation. The using of this safety device is for just in case you lose control of the boat and fall into the water, the engine immediately will stop avoiding the boat to go around in circles without any control while you are exposed to rotating propeller.





## BASIC COMPONENTS OPERATION

Like all the features of a big boat, Your Sardine has many components and accessories integrated into different operational systems:

**Electric, Instrumentation, Control, Safety, Power-Fuel and Anchoring.**

### A.-ELECTRIC SYSTEM

**Your boat's 12-Volt DC system** obtains its power from a battery. The battery is charged through the engine-driven alternator and/or an AC battery charger. The voltmeter on the helm dash instrument panel indicates the charging level of the battery. Some boats are equipped with a battery switch and the operation of this switch is described later in this section. Depending on which Sardine Marine Boat model you own, there could be fuses and/or circuit breakers (with indicator lights) on either the distribution panel or instrument panel, that control the operation of DC equipment on your boat.

The negative terminal of the battery is connected to the grounding studs of the main engine. This type of negative ground system is the approved system for marine DC electrical systems. If additional equipment is to be installed, it must be adaptable to the negative ground system. When installing additional equipment, ensure that each item's current supply is taken from the main DC distribution panel. All required additional circuit protection must also be added at the DC distribution panel.

**NOTE:** Power feeds for accessory equipment must NOT be taken from the voltmeter terminals.



**CAUTION:** READ ALL literature materials supplied with your boat prior to operating any of the systems and components. Any electrical accessories you would like to add to your boat should be installed by your dealer or a qualified electrician. Improper installation could result in damage to your boat's electrical system and/or cause a fire.

**IMPORTANT:** Operation, maintenance, and safety information is outlined by the manufacturer of most installed equipment. Properly operating and maintaining the equipment on your boat will help you to enjoy many years of trouble-free.



## A1.-BATTERY



The battery is located inside the Center Console compartment and should be Marine type and #24 size in order to enter through Center Console only hatch.

Always check that your battery is firmly strapped down or secured to its base, check the positive (+) and negative (-) post to be clean and cable connections to be tight. When boat is not in use, turn off the main breaker switch located on side of the center console, this action will reduce battery drain along the boat's electric circuit. When the boat is stored, connect a battery maintainer or charger to keep battery fully charged ready for next trip. This also helps on the battery life span performance.



**WARNING: POISON!** Batteries contain sulfuric acid which can cause severe burns. Avoid contact with skin, eyes or clothing. In case of contact, flush with water at least 15 minutes. If swallowed, drink large quantities of water or milk. Follow with Milk of Magnesia, beaten egg or vegetable oil. Get medical attention immediately.



**WARNING:** During charging, batteries produce gases which can explode, if ignited. Explosion can shatter a battery. Acid can cause severe personal injury such as blindness. Keep flame, spark and smoking materials away from battery while charging. Charge battery in a well-ventilated area.



**DANGER:** Do Not disconnect or reconnect battery cables if gasoline fumes are present.

## A2.-BATTERY CUT OFF SWITCH



This Sardine has a battery cut-off switch located at the center console port side; this convenient feature enables you to cut the power without the need to disconnect the electric terminals from the battery post when the boat is not used or at storage. When the switch is placed on OFF position, it avoids voltage drainage or discharge from battery along the boats electric circuit.



### A3.- MAIN THERMAL BREAKER



To protect all the integrity of your Sardine's electric circuit a main thermal 40-amp breaker (Push to reset) was installed below the center console instruments panel on the port side. This breaker is Trip Free" design cannot be held "ON" during fault current condition. If there is a short circuit condition above 40 amps load, the breaker would disconnect the whole electric circuit to protect it against melting cables or possible fire.



**CAUTION:** It is important to find out what is causing this fault condition if your main breaker keeps tripping after pushing it to reset, there must be a big short circuit and if you do not pay attention to it, your boat would be unable to operate causing it to be adrift on the sea in a dangerous situation.

### A4.- EMERGENCY IGNITION INTERRUPTER SWITCH



The emergency ignition interrupter switch is a safety device which automatically stops the engine if the operator falls from the helm. A lanyard attached to the ignition interrupter must always be attached to a strong piece of clothing on the driver such as a belt loop. (An even better alternative would be to keep the lanyard attached to your life jacket as a reminder to you and your passengers to wear PFDs when the boat is underway.) If the driver leaves the helm station, and the lanyard is attached to the driver, the lanyard will pull a fork off the ignition interrupter and the engine will stop. To replace the fork, press the button on the ignition interrupter, and slide the fork into position over the button.

This component is supplied by the engine manufacturer. Complete operating instructions can be found in the engine operator's manual.

### A5.-ELECTRIC WIRING



Your Sardine boat is equipped with marine grade copper-tinned electric cable to withstand the salty marine environment. All wiring connections are water proof with thermal shrinking terminals to give you many years of operation without failure or short circuit problems.

### A7.-NAVIGATION LIGHTS



The Navigation Lights of your Sardine are designed from the ground up based on the modern mounting concept of our Flush Mount LED Bolts. Anodized aluminum housing has high resistance to corrosion on the splash zone and the flush mount design makes the LED not noticeable. They are completely sealed and watertight and installed on the Sardine's bow sides by side. The **Red** one is located on **Port** side, and the **Green** is on **Starboard** side.



## A8.-ANCHOR LIGHT/NAVIGATION



On the starboard side close to the pilot back rest you have what is called the anchor/navigation light. It has a white LED light for multiple uses explained as follows: When navigating at night it must be fully extended and it should be turned on together with the pair front bi-color navigation lights. When you are adrift or anchored at night you must turn it on alone for other vessels to see your boat position and avoid possible collision and to have 360° view all around illumination on your boat.

## A9.-COURTESY LIGHTS



Your sardine Boat is equipped with 3 "Cool depth Blue Color LEDs" courtesy lights, these lights are located: Two on both sides of the bilge transom drain and the other one at the Center console. These lights give your Sardine a Cool contemporary look and a non-glare vision at night.

## A10.-CUP HOLDER



For convenience your boat is equipped with a flush mounted stainless-steel cup holder located on the starboard of pilot's back rest, in addition it is lighted with "Cool depth Blue Color LEDs" that match and light up at the same time of the courtesy lights.

## A11.-BILGE PUMP



All Sardine Marine Boats are furnished with a Bilge Pump, which has a built in automatic float switch. This is engaged when the water level rises in the bilge and the float rises in the pump causing the pump to turn on.

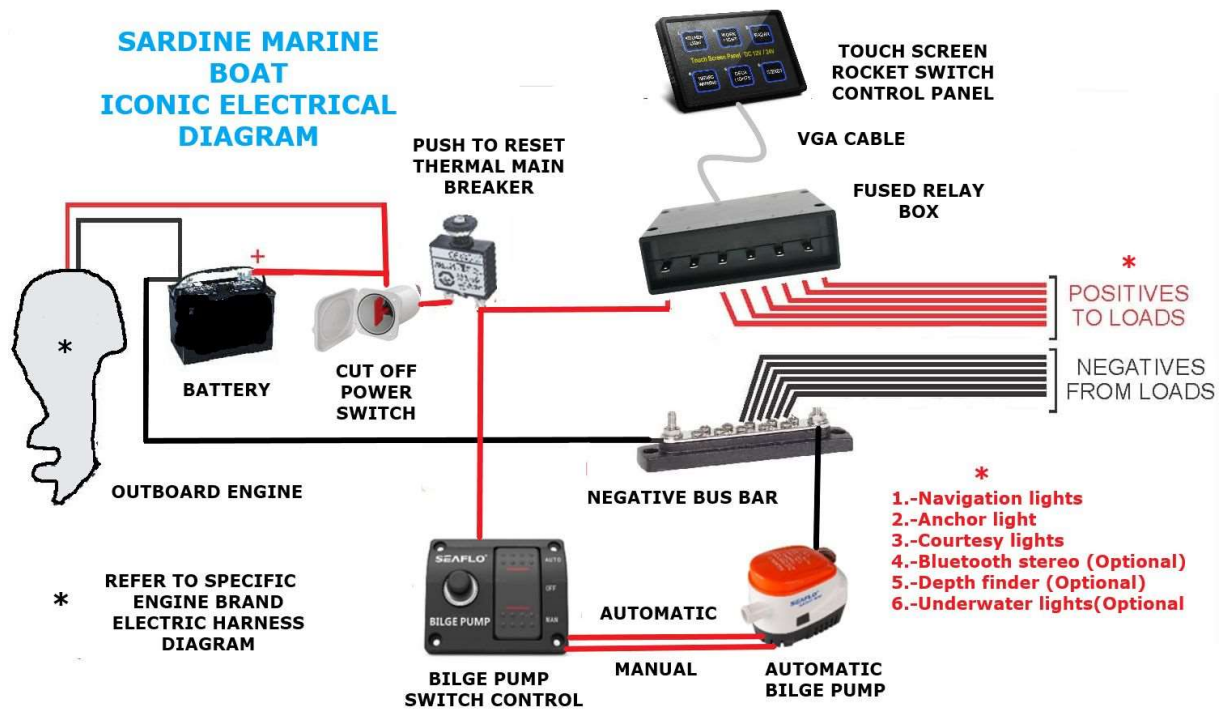
The pump can be tested by turning them upside down, the pump should turn on, and once it is turned back over, it will run for a few more seconds and then shut off. The pump also has a manual switch function on the center console panel to by-pass the float. This pump is wired into your boat bypassing the battery switch so that they have power at all times; this allows the automatic feature to work while you are away from the boat no matter if the engine is turned off. Check pump's instruction manual for further information.



## A12.-ELECTRIC DIAGRAM

A typical 12-Volt DC cabin schematic is shown below. This typical diagram is provided to explain how electric components on your boat are connected to the DC power source. These schematics are for general reference only and are not model specific.

Consult your Sardine Marine dealer for additional DC power requirements on your boat model





## B.-INSTRUMENTATION SYSTEM

On your Sardine's console panel, you may have several instruments depending on your boat model and options.

### B1.-PANEL SWITCHES



Your Sardine comes equipped with a next generation marine LED switch panel, 6 Gang Capacitive Touch Screen DIY LED Rocker Switch with Circuit Control Box (Accessories relays and reset fuse) connected by a 15-Pin VGA Cable. Now you can activate just with the touch of your finger your electrical accessories.

The standard Sardine model uses only the first three switches (Starting from the top left to right) and leave the rest for future additional accessories.

1. Navigation Lights + Anchor light
2. Anchor Light
3. Courtesy Lights

### B2.-BILGE PUMP CONTROL SWITCH



Below the center console instrument panel, you have the Bilge Pump control switch which has 3-Position Toggle Switch: Automatic activating your pump float, Manual By-passing the float and Off. It also has a Built-In 15A Circuit Breaker so there is no need to have a spare fuse around and there is LED Indicator when any of the Switches are ON.

### B3.-IGNITION SWITCH



The ignition switch is designed to start your boat engine like a car with a clockwise turn operation using a key, it is located on the Center console panel.

The ignition switch comes with 2 exact keys, keep one in a safe handy place just in case of losing the operating one. It is also highly recommended to have the operational key always attached to a floating key chain holder to avoid sinking it in the water.



**CAUTION:** Do not continuously operate starter for more than 15 seconds without pausing. Allow starter to cool at least three (3) minutes between start attempts otherwise you can overheat the battery cranking cables.

### B4.-TACHOMETER GAUGE



It is an instrument that displays the number of revolutions per minute (RPM) that the engine is running. The gauge displays increments of 100. This instrument also has warning lights for temperature and low oil. Consult with your outboard manual if you require additional information. Do not exceed maximum engine RPM according to manufacturer's guidelines.





## **B5.-VOLMETER GAUGE (Optional)**



It is an instrument that displays battery voltage. Under normal engine running conditions (1000 RPMs or higher), the voltage will range between 11 and 15 volts. With the engine OFF and ignition key or switch ON a fully charged battery is indicated between 12 to 12.8 voltmeter reading. Displaying below that voltage range readings after stopping engine shows a bad battery or heavy load on the battery. Significantly higher than 15 volts or below 13 volts shows an alternator or voltage regulator malfunction. You should check the charging system and battery system for these higher or lower readings. An oscillating reading shows a faulty voltage regulator or loose battery terminals connection. Refer to your engine owner's manual for proper gauge readings.

## **B6.-TEMPERATURE GAUGE (Optional)**



It is an instrument that displays the temperature of the engine water cooling system. This gauge should always be checked right after starting the engine. Marine engines draw external water, circulate it through the heat exchanger on the engine, and expel it overboard through the exhaust system. If the temperature gauge shows a hot condition, stop the engine immediately. Refer to your engine owner's manual for instructions and corrective action.

## **B7.-OIL PRESSURE GAUGE (Optional)**



It is an instrument that will reflect most, if not all, serious problems that may occur within your engine. A pre-set valve in the oil pump controls the maximum oil pressure. If a complete loss of oil pressure occurs, stop the engine immediately. Serious damage to the engine can result after loss of oil pressure if the engine continues to run. Check the engine oil level and fill if low. If oil level is full and gauge reading is low, contact your Sardine dealer or a qualified mechanic to rectify the problem. Do not restart the engine until correcting the problem. See engine manufacturer's specifications for correct pressure ranges.

## **B8.-TILT/TRIM POSITION GAUGE (Optional)**



It is used to see the actual Tilt position angle of the engine; if it is Up or Down or perhaps some degrees in between. The main purpose to have this gauge is to avoid the pilot's distraction every time he needs to turn his head in the direction of the outboard to check its tilted angle instead of looking where he is going.



## **B9.-GASOLINE LEVEL GAUGE (Optional)**



Displays the amount of fuel contained within the fuel tank. Its location would depend on your boat model and gasoline tank option (portable or permanent).

If your gas tank is permanent the gas level gauge will be on your center console instruments panel but if it is portable you may read the gas level directly from the gas tank cap. The most accurate reading of the fuel gauge is at idle speed when your boat maintains an approximately level position. Underway, the fuel gauge will usually indicate a higher fuel level than is actually in the tank due to the bow of the boat being higher than at rest. Since gauge readings are approximate, they should be compared to the hours of use versus known fuel consumption, or gallons per hour (GPH). The most common practice of good fuel management is the one-third rule. You use one-third of your total fuel on board to travel to your destination and one-third in returning. The remaining one-third in the fuel tank should be reserved for emergencies.

## **B10.-DEPTH SOUNDER (Optional)**



The depth sounder can be used to determine how deep the water is underneath your boat. The depth sounder is connected to a transducer installed in the hull. After turning ON the unit, it automatically starts searching for the bottom. Once it's found, it will automatically adjust the sensitivity to keep the bottom depth displayed. Specific operating instructions for the various depth sounder functions can be found in the manufacturer's literature supplied with your boat.

Many factors can affect the accuracy of the depth sounder. Do not rely only on the depth sounder, check visually whenever possible color changes of the water. This may indicate the presence of coral, rocks, sand banks or shallow water.

## **B11.-SPEEDOMETER (Optional)**



Indicates boat speed in miles per hour (MPH) and Knots (Nautical miles per hour). The accuracy of this instrument depends on the placement and cleanliness of the pickup tube (pitot probe) as well as sea current direction and intensity. The pickup tube should be tilted up for trailering or shallow water, and down while underway. These days with the popular use of GPS which not only indicates global positioning but also travel direction and speed, this instrument is far away more accurate for measuring speed than the pitot probe instrument, so actually a boat speedometer is almost not in use but used just as a reference only.



## C.-CONTROL SYSTEM

### C1.-STEERING MECHANICAL CONTROL



It is important that you get the “feel” of your boat’s steering system. Steering does vary from boat to boat depending on hull shape, engine type, water, wind condition, and load. Turn wheel from full left to full right and make certain the engine or drive unit is turning correctly. The system should run freely and smoothly. If your Sardine is equipped with (Optional) power steering. Check the fluid level and belt tension before starting. The cable output end of the steering system should be kept clear of fuel lines, control cables, electrical wiring, and other on-board gear when the engine is moved through its full operating range.

### C2.-THROTTLE/SHIFT CONTROL



Allow the engine to warm up before engaging the shift control. Monitor all instruments while engine is idling during warm up. See the engine manufacturer’s specifications for proper operating ranges. Place the throttle/shift control handle in the NEUTRAL position. The engine should not start unless the control is in NEUTRAL, or the NEUTRAL safety switch is activated by pulling the entire handle or knob out toward the center-line of the boat.



**CAUTION:** The throttle on a hand operated remote control does not return to idle as on an automobile when the pressure is released. Make sure you can reach the control lever quickly at all times when the engine is running. The throttle/shift control regulates the RPM of the engine. Forward movement of the throttle increases the RPM of the engine. It also increases boat speed through the water when the engine is in either forward or reverse gear. The throttle control also acts as the gear shift lever to control the forward and aft movement of the boat. Moving the throttle forward from the neutral position engages the shifting mechanism causing the boat to move forward. Continuing the forward movement of the throttle will increase engine RPM and cause the boat to move faster in a forward direction. Moving the throttle aft from the neutral position reverses the shift mechanism causing the boat to move backward. Continuing the aft movement of the throttle will increase engine RPM and cause the boat to move faster in a backward direction. When maneuvering at low speeds you can reverse (move throttle backwards or aft) the shift mechanism. This will result in a braking action.



**CAUTION:** When shifting between forward and reverse, always pause in neutral for a few seconds before reversing the rotation of the propeller(s). This will prevent unnecessary damage to the drive system.



**CAUTION:** Before moving the gear shift lever, make sure the throttle is in the idle position. Failure to do so could cause loss of boat control, injury to occupants, and engine and drive system damage.





**CAUTION:** Never pull the knob or handle out while the engine is in gear. This can cause jamming of the control, possible improper control, or gear selection.



**WARNING:** High speed acceleration in reverse can create a wake that could wash over the transom and flood the boat.

**NOTE:** For optional or dealer installed controls, see the information supplied by the manufacturer of the control.

### C3.-TILT/TRIM CONTROL



The TILT/TRIM switch is located on throttle/shift control lever, it has two variable positions: Going UP or going DOWN. You can TILT the engine (outboard up from the bow of the boat by toggling the switch to the UP position). Operating your boat in shallow water will require tilting the engine up. If for any reason your engine stops working and your boat must be towed, it will be easier to steer with the engine raised.

This switch also controls the "TRIM" of your boat under various conditions, loads, and uses. Proper trim is very important in boating. Trim refers to the angle of the lower unit in relation to the bottom of the boat.

#### Trimming tips:

- In the case of low or heavy bow attitude, the lower unit is normally trimmed too far under or forward. Trim the unit out or up to correct this situation.
- If the bow is too high, your drive unit is trimmed up or out too far. Trim IN to correct.
- A good practice is to get underway (especially when fully loaded or pulling a skier) with the unit trimmed all the way under or IN. After the boat is on plane, adjust the trim out slightly to obtain the proper bow attitude and engine RPM.
- Trim also affects propeller selection and fuel efficiency. All models should be "propped" to be in the upper half of the maximum RPM range with the boat lightly loaded and the drive trimmed up to maximum. This configuration will allow the engine to operate within the recommended RPM range with a heavy load.
- The outboard should never be trimmed up to a point where the propeller cavitates (or slips). A rapid increase in engine RPMs is evidence of cavitation. If this occurs accidentally while running at full throttle, immediately lower the drive trim and reduce the throttle until the slipping stops. Have your dealer reset the trim limit switch to avoid over trimming in the future.
- If the prop slips at lower planning speeds, the drive may be trimmed too high. Immediately lower the drive unit until the prop "grabs" again to restore efficiency.



**WARNING:** Excessive trim will decrease maneuverability, change steering characteristics, and may cause "porpoising" (bow oscillates up and down) or "chine walking" (rocking from side to side). USE POWER TRIM WITH CARE.



## D.-SAFETY SYSTEM

### D1.-FIRE EXTINGUISHER



According to the law: All Class 1 (16 to 26 feet) powerboats are required to carry one (1) B-I type hand portable fire extinguisher, however even that if your boat is below 16 feet and does not need one, Sardine Marine provides a fire extinguisher as a standard equipment like a big boat.

As the owner of the boat, you are responsible for maintaining and supplying a fire extinguisher approved by the U.S. Coast Guard and all other required safety equipment. Check state and local regulations and call the U.S. Coast Guard Boating Safety Hotline at 1-800-368-5647 for information about required safety equipment.

### D2.-PERSONAL FLOTATION DEVICES (PFDs)



United States Coast Guard (USCG) approved wearable personal flotation devices of Type I, II, III or IV must be on board your boat. The PFDs must be of a suitable size for each person aboard and shall be in serviceable condition and readily accessible. Sardine Marine provides at least a pair of PFDs as a standard equipment on all its boats models.

### D3.-FIRST AID KIT



Your Sardine has as a standard equipment a First Aid Kit into a floating hermetic plastic case. If you or one of your passengers gets a minor injury while boating, this First Aid Kit will be conveniently located inside you center console for handy access and use.

### D4.-STAINLESS STEEL TRANSOM LADDER



- For your convenience and safety your Sardine is equipped with a ladder located at the transom port side. It stows upright against transom wall, before using remove security Velcro® strap and unfold the ladder down to the water. When climbing back to the boat **Do Not Step on the Engine Outboard's Leg** because the propel is sharp and if you slip, it may cut your foot even if the engine is not running. When the ladder is not going to be used anymore put it back to its upright position and strap it securely before starting navigation.



**DANGER:** Never attempt to climb to the boat from the water or jump from the boat to the water while the engine is running.





## E.-POWER-FUEL SYSTEM

### E1.-ENGINE



Follow the manufacturer's owner's manual of your specific brand installed on your Sardine boat.



**CAUTION:** Acceleration at full throttle is not recommended before the engine "break-in period" has been completed. Therefore, full throttle acceleration should not be attempted until your engine has surpassed this usage time recommended by the manufacturer.

### E2.-GASOLINE TANK



A portable or permanent gasoline tank could be in your Sardine. If your gas tank is permanent it should be located below the deck in a concealed space and the middle of the boat's center line for proper weight distribution and from the half part of the boat to the back.



If your tank is portable type, the tank should be located below the pilot's seat by opening the back main hatch. On the other hand, if your tank is permanent type, check the deck floor to look for an access hatch. This access hatch indicates the location where your tank is and this access hatch is also needed for servicing gas tank's connections such as vent, fill and feed hose. If your boat has a gas level gauge on you console, the tank must also have a level sending sensor unit located in the hatch.



**DANGER:** Gasoline vapors are highly explosive. To prevent possible explosion and fire, open the compartment where the portable gas tank is and keep it open for at least 2 minutes before each engine start for the accumulation of fumes or fuel leakage. **NEVER FILL THE PORTABLE FUEL TANK WHEN IT IS INSIDE THE BOAT.** This is to prevent possible fuel spillage inside the bilge area that may cause dangerous fuel vapors.

### E3.-FUEL FILTER/WATER SEPARATOR



Your Sardine boat comes with an installed fuel water separator, this is a device that works to ensure clean fuel is delivered to the engine. The separator removes water and solid contaminants from the fuel before it reaches the fuel pump. When the fuel contains a lot of water, it wears off the lubricants from the fuel injectors. By removing contaminants, the device prevents the engine from getting clogged up with solid material. Clean fuel enables the engine to run more efficiently. It also prevents engine failure. Every 20 engine-hours operation (also depending on humidity conditions), check the plastic bowl for water presence; if water is found, put a recipient below the drain and turn the valve clockwise. Be careful not to spill any fuel on the boat; if so, clean it immediately



**WARNING:** Do not drain the fuel filter separator with the engine running and when doing this operation keep the area ventilated.



## E4.-FUEL LINE



A fuel line is a hose that goes from the tank to the engine. It is very important always to check the hose for cracks or wear and change it before leaking. When substituting it for a new one, check that the hose complies with the regulation **EPA USCG Type A1-15, A2 or B1.**

The original hoses supplied in your boat meets that regulation.



**WARNING:** Do not use a hose for gasoline in your boat that is not labeled according to the USCG regulation it is against the law and if a fire occurs due to A non-certified hose leakage you will be responsible for this action and its consequences.



**DANGER:** Gasoline vapors are highly explosive. To prevent possible explosion and fire, open the compartment where the portable gas tank is and keep it open for at least 2 minutes before any fuel line repair. This operation will vent the accumulation of fumes from a fuel leakage.

## E5.-MANUAL GASOLINE PRIMING RUBBER BULB PUMP



This device is used to fill (prime) the gasoline hose that goes from the tank to the engine. It operates manually when you squeeze the rubber bulb continuously using your hand. For an easy engine start, always squeeze the rubber bulb before putting the ignition switch on all the way. Doing this, the internal gasoline pump from the engine does not operates empty which would made to wear its seals sooner and this also would help on the battery life span performance.



**DANGER:** Gasoline vapors are highly explosive. Follow all safety precautions before, during, and after fueling

## E6.- LOUVERED VENT FOR FUEL VAPORS



Your Sardine boat has a marine grade stainless steel louvered vent to allow fuel vapors to scape from the tank compartment to the atmosphere. It is located on the pilot back rest facing to the engine



**WARNING:** Always keep this vent free of obstructions to avoid fuel vapor accumulations that may result in a fire or explosion.



**WARNING:** Vapor from spilled fuel is heavier than air and will flow to the lowest part of the boat. Ventilate before starting



## F.-ANCHORING SYSTEM

The anchoring is an important system, it is like your car park and manual brake system and it consist of the following components:

### F1.-ANCHOR (Optional)



It is a forging or casting shaped to grip the sea bottom and, by means of a cable or rope, hold a boat in a desired position. It is made of corrosion resistance metals such as galvanized steel, stainless steel, bronze or high strength aluminum alloy.

### F2.-SWIVEL (Optional)



It is a mechanical device that allows the anchor to turn freely avoiding rope tangling or twisting, it is installed between the anchor and chain.

### F3.-SHACKLE (Optional)



It is a mechanical metal device that allows the anchor to be linked to the chain or rope without the need of using a knot.

### F4.-CHAIN (Optional)



It is a series of metal links connected each other by means of welding or forging to form a chain. Anchors must have a chain before being linked to a rope. Using a chain avoids rope abrasion when the anchor is set on rocky or coralline bottoms and it also helps the anchor to set faster due to the additional chain weight.

### F5.-CLEAT



Your sardine boat comes with three retractable stainless-steel cleats, one at the bow and two at the astern of the boat. These places are where you tie your anchor rope or mooring lines. Never tie your anchor rope to handrails and grabrails they are not designed to withstand the rope tension

### F6.-ANCHOR BOW ROLLER



Your sardine boat comes with a stainless-steel anchor bow roller like a big boat, this device allows you to launch the anchor in an easier way and also it is designed to hold the anchor instead of putting it inside the anchor compartment where it could be tangled with the chain and rope.







### **BOAT ANCHORING TIPS:**

- The weight of the anchor and diameter of anchor line should be governed by the size and weight of your boat. Obtain advice from us before purchasing an anchor.
- Keep anchor secure while underway to prevent damage or injury due to sudden shifting in the boat's attitude.
- Make sure the anchor line is secured to the bow eye or deck cleat. Never tie to a rail, rail fitting, or other hardware which is not meant to support this stress.
- Use two or more anchors if anchoring overnight or for extended periods. If not using two anchors, make certain there is sufficient clearance for your boat to swing in a full circle to prevent damage in case of shifting winds.
- Make certain you have enough anchor line (or scope) for the depth of water. Your anchor line should be 6 to 7 times the depth of water anchored in. For example, you are in 20 feet of water, so use 120 to 140 feet of anchor line.
- Dropping Anchor**
- Have a crew member carefully lower the anchor. Keep slight tension on the anchor while lowering and maintain your tension after anchor reaches bottom.
- Maneuver the boat backwards slowly until the proper length of anchor line is handed out.
- Fasten the anchor line around the bow eye or deck cleat. Anchor flukes should dig in and catch.
- Watch for anchor drag by checking shoreline landmarks at the time the anchor is dropped and one-half hour later. If the boat has drifted away from these reference marks, the anchor is dragging and must be reset.
- Weigh (pull in) Anchor**
- It is recommended to have the engine running when you pull in anchor.
- Slowly maneuver the boat forward to reduce tension on the line and make retrieval of the anchor line easier.
- Pull in the length of anchor line until the line is vertical. Pull firmly to lift the anchor's shank and free the flukes from the bottom.
- If the anchor becomes stuck, attach the vertical line to the mooring cleat. Wave action on the bow may lift flukes from the bottom and free the anchor. If the anchor is still stuck, feed out a few feet of line and attach it to the bow cleat. Maneuver the boat around the anchor, keeping the line firm. Locate an angle that will pull the anchor free.



**STRONG POINT**

According to ABYC (American Boat and Yacht Council) A Strong Point must be installed as indicated on the boat. On Sardine Marine boats the strong point is the Bow's Stainless steel retractable Cleat located in the center line of boat's bow. (See picture)



**TABLE I - DESIGN LOADS FOR SIZING DECK HARDWARE (From ABYC Standards H-40)**

LOA See Notes ft. (m)	Beam See Notes		Permanent Mooring lbs. (kN)	Storm Anchor lbs. (kN)	Working Anchor lbs. (kN)
	Sail ft. (m)	Power ft. (m)			
10 (3.0)	4 (1.2)	5 (1.5)	480 (2.1)	320 (1.4)	160 (0.7)
15 (4.5)	5 (1.5)	6 (1.8)	750 (3.3)	500 (2.2)	250 (1.1)
20 (6.1)	7 (2.1)	8 (2.4)	1080 (4.8)	720 (3.2)	360 (1.6)
25 (7.6)	8 (2.4)	9 (2.7)	1470 (6.5)	980 (4.4)	490 (2.2)
30 (9.1)	9 (2.7)	11 (3.4)	2100 (9.3)	1400 (6.2)	700 (3.1)
35 (10.7)	10 (3.0)	13 (4.0)	2700 (12.0)	1800 (8.0)	900 (4.0)
40 (12.2)	11 (3.4)	14 (4.3)	3600 (16.0)	2400 (10.7)	1200 (5.3)
50 (15.2)	13 (4.0)	16 (4.9)	4800 (21.4)	3200 (14.2)	1600 (7.1)
60 (18.3)	15 (4.6)	18 (5.5)	6000 (26.7)	4000 (17.8)	2000 (8.9)

**NOTES:**

1. When using this table with the length overall or beams, use whichever gives the highest load, assuming freedom to oscillate is permitted and moderate shelter from seas proportionate to hull size.





2. Boats with canvas and large superstructure, use the load one category higher than that determined by using the powerboat column.
3. These values include the effects of wind, current and wave action.

**TABLE II - WORKING LOAD LIMIT FOR ANCHOR RODES**

Nominal Diameter in.(mm)	Nylon See Notes 2 & 3		Galvanized Chain See Note 4			Shackles Weldless Drop Forged lbs. (kN)
	3 and 8 Strand lbs. (kN)	Double Braided lbs. (kN)	BBB lbs. (kN)	Proof Coil lbs. (kN)	High Test lbs. (kN)	
¼ (6)	186 (.82)	208 (.93)	1300 (5.8)	1300 (5.8)	2600 (11.6)	1000 (4.4)
5/16 (8)	287 (1.3)	326 (1.5)	1900 (8.5)	1900 (8.5)	3900 (17.3)	1500 (6.7)
3/8 (10)	405 (1.8)	463 (2.1)	2650 (11.8)	2650 (11.8)	5400 (24)	2000 (8.9)
7/16 (11)	557 (2.5)	624 (2.8)	-	-	-	3000 (13.3)
½ (12)	709 (3.2)	816 (3.6)	4500 (20)	4500 (20)	9200 (41)	4000 (17.8)
9/16 (14)	888 (4)	1020 (4.5)	5875(26.1)	-	-	-
5/8 (16)	1114 (5)	1275 (5.7)	6900 (30.7)	6900 (30.7)	11500 (51.2)	6500 (29)
¾ (18)	1598 (7.1)	1813 (8.1)	10600 (47.2)	10600 (48.1)	16200 (72)	9500 (42.3)
7/8 (22)	2160 (9.6)	2063 (9.2)	-	12800 (57)	-	12000 (53.4)
1 (24)	2795 (12.4)	3153 (14)	-	13950 (62)	-	15000 (66.7)
1 ¼ (30)	4345 (19.3)	4838 (22)	-	-	-	23000 (102.3)
1 ½ (36)	6075 (27)	6875 (30.6)	-	-	-	-
2 (48)	10575 (47)	12363 (55)	-	-	-	-

**NOTES:**

1. Only nylon rope is shown in Table II because of its elasticity and ability to absorb shock loads. Working loads for nylon rope are based on factors of safety, line strength loss due to knots and splices and additional factors including abrasion and aging. Chains other than proof coil or high test are suitable for anchor rode. Size according to manufacturer's working load ratings.
2. Thimbles used shall be those designated for use with the particular size of rope required.
3. Rope - 3 and 8 strand or braided (plaited)
  - a. Breaking test figures used to determine the working loads are "average." Minimum will be 10% below "average."
  - b. Design (safety) factors of 8 are used for 3 strand, 8 strand and double braid rope. These strengths are based on data supplied for new and unused rope of current manufacture in accordance with Cordage Institute standards.
4. Check with manufacturers' recommendations for materials not listed in AP Table I.
5. Strengths vary by manufacturer, check with manufacturer regarding actual strengths.





## **BOAT MAINTENANCE**

### **GEL COAT (Fiberglass)**

Always wash your boat after use with a mild detergent to avoid soil build-up and staining. The soil to your gel coat is the result of regular use and environmental pollutants such as soot and smog. Normal maintenance of your gel coated fiberglass boat is similar to the care you would give your car. Overall, automotive cleaners and waxes work fine, as well as the marine cleaners and waxes.

Never use caustic or (high pH) cleaners or those containing ammonia. These types of cleaners may darken white or off-white weathered gel coat surfaces.

A chemical reaction producing staining occurs if these types of cleaners are used on weathered gel coat. If your boat surface gets stained, it may be removed with a rubbing compound or by lightly sanding with 400 grit sandpaper followed by an application of rubbing compound and a thorough waxing.

### **WINDSHIELD (At center console)**

Never use glass cleaning solutions or dry cloth to clean Plexiglas.

Never use acetone, benzene, carbon tetrachloride, or lacquer thinner.

The only acceptable cleaners are a small amount of denatured alcohol, clean water, or a commercially available plastic polisher specific for the purpose.

Use a soft rag and wash off the plastic windshield first with lukewarm water to avoid scratching the surface.

### **STAINLESS STEEL (Hardware)**

Polish the stainless steel with commercially available metal polishes.

The use of a boat or car wax periodically applied will offer extra protection against the elements and keeps the boat shining like new.

If your boat is going to be for extended periods on the water, put some DW-40 on a cloth and wipe all stainless-steel parts. MURIATIC ACID SHOULD NEVER BE USED

### **VINYL (Seats)**

Use a simple soap or any specialized vinyl cleaner on all your boat seats.

Certain household cleaners, powdered abrasives, steel wool, and industrial cleaners can cause damage and discoloration and are not recommended.

Dry cleaning fluids and lacquer solvents should not be used as they will remove the gloss. Waxes should be used with caution as many contain dyes or solvents that can permanently damage the protective UV coating.

\*Suntan lotion, tree pollen, wet leaves, and some other products can contain dyes that stain permanently. When the boat is stored, remove all the seats and put them in the shadow away from dust, rain and falling leaves

If someone is covered with \*Suntan lotion and is going to lie on the seats, put a towel in between to avoid staining the vinyl

### **ENGINE**

Follow the manufacturer's owner's manual of your specific brand installed on your Sardine boat.





## TRAILERING

Sardine Marine has an optional specially designed trailer for your Sardine boat, however you are free to purchase one from somebody else.

### **GROSS VEHICLE WEIGHT RATING (GVWR)**

Selection of a trailer for your Sardine boat is extremely important. Your trailer should be able to accommodate the weight of the boat, engine, and any other equipment that will normally be carried. Check the certification label on the frame of the trailer for the Gross Vehicle Weight Rating (GVWR). The total weight of your boat, engine, fuel, gear, and trailer should not exceed the GVWR.

For older or used trailers, proper adjustment of the side support pads is critical each time your boat is loaded. Newer trailers feature side supports that are self-adjusting. Periodically inspect your trailer to make sure the side supports are in adequate working condition.

**IMPORTANT:** The side supports should only be tight enough to keep the boat from leaning side to side. Any unnecessary pressure will damage the hull.

If your towing vehicle is equipped with a weight-distribution hitch, it must be capable of handling the GVWR.

**TONGUE WEIGHT:** The weight on the trailer should be evenly distributed and can be checked by determining the tongue weight which is measured as a percentage of the total weight of the loaded trailer on its tongue. Ideal tongue weight is not less than five percent (5%) and not more than ten percent (10%) of the GVWR. For example, if the weight of the loaded trailer is 3000 pounds, the weight on the tongue should be more than 150 pounds but less than 300 pounds. Excessive tongue weight will cause the front end of the towing vehicle to sway. Insufficient tongue weight will cause the trailer to sway or fishtail.



**WARNING:** Improper trailer size and improper weight distribution can cause swaying and fishtailing that can result in extensive damage to the trailer, the boat, and the towing vehicle. Swaying and fishtailing are especially dangerous at higher speeds where they can become uncontrollable. Damage caused as a result of improper trailering is not covered under the Sardine Marine Warranty.

Boat ownership carries with it certain responsibilities to yourself as well as your passengers and the general public. Safety, common sense operation, careful maintenance, and compliance with the law will not hamper your boating pleasure but will make boating more enjoyable.

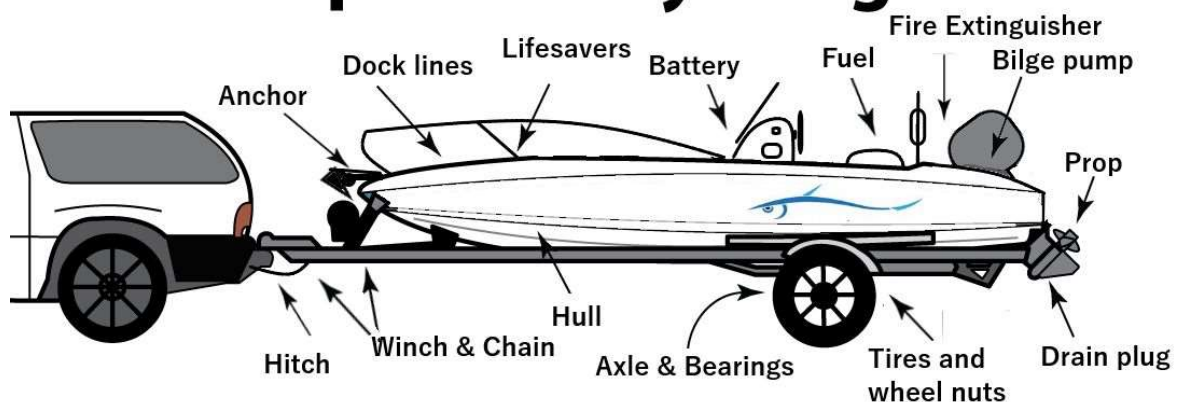
**NOTE:** If you do not have experience driving with and in backing up with a trailer, Practice. Take your trailer to an open area and master using it before you get into the street a confined public or private launch site.



## TRAILERING TIPS:

- Be sure that the rollers or bunks displace a large amount of hull surface and be sure the boat and equipment distribute evenly on the trailer.
- Make sure your boat is properly tied down and a safety chain is used.
- Check local and state laws concerning any trailer requirements.
- Do not trailer with your boat's Bimini top up or exposed to wind. It will be severely damaged. Use a mooring cover for extended trips.
- You are required by State and Federal laws to equip boat trailers with functional taillights and turn signals.
- Some states require registration of boat trailers and license plates. Check with the Department of Motor Vehicles for regulations governing your particular state.

## Before Leaving & Before Launching... **Inspect Everything!**







## NOW LET'S BE GREEN

If you have a boat that means you like the sea, the beaches, the breeze, the swimming, the fishing and all marine activities you may get involved; well, in order to keep enjoying all these natural gifts from our mother earth, you must contribute on keeping the ocean as natural as possible, like another living creature as you are in this world, you must respect the rights of other living creatures out there, remember that it is their habitat or home not yours so you have to behave the same as you are on somebody's home, therefore do not pollute the ocean and its beaches because in some way you are also contaminating your home. Keep in mind that the ocean is the heart of the planet. Water covers more than two-thirds of the Earth's surface. Marine plants produce most of the oxygen we breathe, it's often thought that rainforests are the primary source of our oxygen on our planet, but it is the ocean that provides us with the most oxygen we breathe. It doesn't matter how far you live from the sea, almost 50% of your breaths are ocean dependent. The phytoplankton is responsible for that. These tiny little sea weeds act in the same way in the sea as tree leaves do on land. Plankton absorbs carbon dioxide and releases oxygen. You don't see them, so we tend to forget about them if we even know about them in the first place. They are one of the tiniest beings on the planet, but one of the most important, keeping us alive.

In many ways, the ocean also regulates our climate. It absorbs up heat and transports warm water from the equator to the poles, and cold water from the poles to the tropics. Without these currents, the weather would be extreme in some regions, and fewer places would be habitable.

The ocean is a big source of fresh water. "It sounds wrong, right?" Ocean is Salty water you are thinking; how could it be? Well, Ocean regulates rain and droughts and holds 97% of the water of our planet, almost all rain that drops on land comes from the ocean. The ocean absorbs CO<sub>2</sub>, to keep the carbon cycle, and temperatures on earth. It makes the ocean our global climate control system acting as a buffer.

The ocean also feed us because it is the number one source of protein for more than a billion people and finally:

The ocean carries us to new lands. As sailors or ship builders, we also serve as educators, ambassadors and promoters of a lifestyle on the water. Together we share a passion for the ocean, so we need to have mystical desire to keep our playground clean and safe forever.

***"Oceans are our Nemesis and the key to our future generations survival as well as our eternal inspiration on this Planet."***





## **ENVIROMENTAL PROTECTION LAWS**

The U.S. Coast Guard has issued regulations to implement Annex V of the International Convention for the Prevention of Pollution from Ships, 1973, commonly known as Annex V of the MARPOL (Marine Pollution) Treaty 73/78. They apply to all U.S. vessels wherever they operate (except waters under the exclusive jurisdiction of a State), and foreign vessels operating in U.S. waters out to and including the Exclusive Economic Zone (200 miles).

**In this case concerning the size of your Sardine boat these are the most important environmental protection laws:**

### **Discharge of Oil**

The Federal Water Pollution Control Act prohibits the discharge of oil or oily waste into or upon the navigable waters of the United States or the waters of the contiguous zone if such discharge causes a film or sheen upon or a discoloration of the surface of the water or causes a sludge or emulsion beneath the surface of the water. **Violators are subject to a penalty of \$5,000.**

### **Disposal of Plastics & Other Garbage**

Plastic refuse dumped in the water can kill fish and marine wildlife and can foul vessel propellers and cooling water intakes. Other forms of waterborne garbage can litter our beaches and make people sick. U.S. Coast Guard regulations completely prohibit the dumping of plastic refuse or other garbage mixed with plastic into the water anywhere and restrict the dumping of other forms of garbage within specified distances from shore.

### **INSIDE 3 MILES (and in U.S. Lakes, Rivers, Bays and Sounds)**

- Plastic
- Dunnage, lining and packing materials that float
- Any garbage except dishwater/ graywater/fresh fish parts

### **3 TO 12 MILES (From shore)**

- Plastic
- Dunnage, lining and packing materials that float
- Any garbage not ground to less than one square inch

### **12 TO 25 MILES (From shore)**

- Plastic
- Dunnage, lining and packing materials that float

### **OUTSIDE 25 MILES (From shore)**

- Plastic







## LAUNCHING YOUR SHIP

Now that you have read your operators/owner's manual, it is time to launch your ship. Here are some tips to remember when putting your boat in the water.

- Check that the drain plug is correctly on its place.
- Get loose all the straps that ties your boat to the trailer
- Have an individual at the launch ramp to give you directions.
- Back slowly down the ramp. If the trailer needs to be maneuvered to the right, turn the towing vehicle's steering wheel to the left. If trailer movement to the left is required, turn the steering wheel to the right. Always remember to launch your boat at a right angle to the shoreline.

### **When the boat's transom is in several inches of water:**

- STOP the towing vehicle.
- Leave manual transmission in gear or place automatic transmission in park.
- Turn off the engine.
- Set the hand brake.
- As additional safe tip Place blocks behind the vehicle's back wheels.
- Do not unclasp the winch cable from the bow eye until a mooring line has been secured.
- To keep the boat from drifting, the other end of the mooring line must be secured by an individual or a mooring element (i.e., dock cleat, etc.)
- Launch the boat; move it down and OFF the trailer into the water.
- Make sure the boat is still secured to the mooring element.
- Rewind the winch cable.
- Pull your towing vehicle away from the launch ramp.
- Park only in designated areas. When parking, be sure your towing vehicle and trailer do not block other boaters from approaching the launch ramp or hinder their ability to maneuver a boat and trailer when launching.

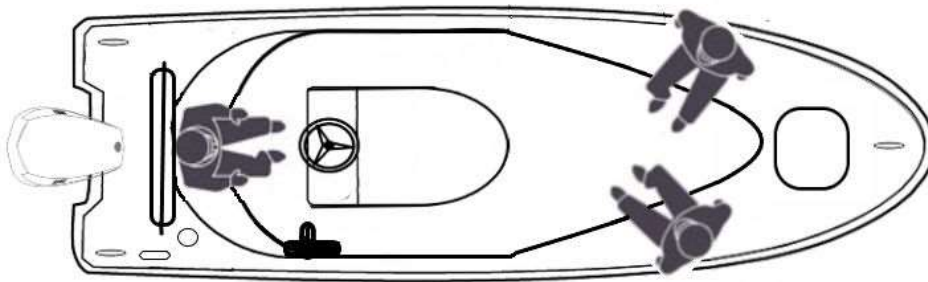


## LOADING YOUR SHIP:

Boats over 26 feet in length are not subject to U.S. Coast Guard safe loading or labeling requirements.

When loading your Sardine boat, remember to distribute the load evenly. Keep the load low and do not overload. The capacity plate/decal affixed to your Sardine boat states the maximum load capacity. The plate/decal shows persons and gear in pounds that the boat will safely handle under normal conditions. The U.S. Coast Guard establishes these load capacity ratings.

When loading always step onto the boat, never board by jumping. Have someone on the dock pass your gear aboard. Secure all gear firmly so it will not move or interfere with operation of the boat.



**REFERENTIAL BOAT SEATING POSITION**

## STARTING YOUR SHIP:

The operation and maintenance manual supplied with your engine provides pre-start, starting, and cold-starting instructions. The following information is merely a guide and not intended to explain in detail all starting procedures and instructions. Refer to your engine owner's manual.

### Preliminary Checks:

- Secure boat to the dock before attempting to start engine. The boat should be kept secure until the engine is running and warmed up.
- Check engine oil level, power steering and power trim fluid levels.
- Check fuel supply to ensure you have enough fuel for your expected travel plan.
- Open the engine compartment. Inspect for fuel odors and visible leaks in the fuel. See your dealer for repairs if any leaks are found, or if there is an accumulation of fuel or oil in the bilge.



- **DANGER:** Gasoline vapors are highly explosive. To prevent possible explosion and fire, check the engine and keep fuel compartments open before each engine start for the accumulation of fumes or fuel leakage
- If your boat's bilge has collected any water (but not gas or oil) operate the bilge pump until the pump will not pump out any more water.
- Make sure the throttle/shift control is in the neutral position.



- Make sure passengers seated in the bow area do not obstruct the driver's vision.
- Turn on your main battery switch (Red key must be in vertical position). However, if your boat is equipped with an optional dual battery selector switch, turn the battery switch to 1, 2, or ALL position.
- Check all electrical systems and navigational lights. Make sure ignition interrupter lanyard is connected to the driver and switch.
- When cold starting your boat, squeeze the prime bulb rubber, advance the throttle several times and leave it in the SLOW/START position. This will actuate the carburetor accelerator pump and feed fuel to the engine. Turn ignition key to START position.

**NOTE:** Engine will not turn over if throttle/shift control is not in the neutral position. Check the shift control to be vertically in neutral slot.

- If engine fails to start, wait approximately three (3) minutes. Move throttle only once to the maximum position and back. Try again.



**CAUTION:** Do not continuously operate starter for more than 15 seconds without pausing. Allow starter to cool at least three (3) minutes between start attempts.

- If engine fails to start, wait approximately three (3) minutes.
- Move throttle only once to the maximum position then back to the neutral position and try to start engine again.
- When engine is cold, run engine approximately one (1) to two (2) minutes at fast idle speed (1200 to 1500 RPM).
- Once engine has warmed up, check temperature gauge or look for any light or alarm to ensure engine temperature stays within optimum range. If temperature reading is abnormally high, stop engine immediately, and inspect for cause of high reading.
- With engine running, voltmeter should show a reading between 11 and 14 volts. In case of having a tachometer with warning lights check if the low voltage warning lights up
- Check steering operation. Turn steering wheel to full port and to full starboard while observing outdrive movement.
- Inspect for fuel odors and visible leaks from the fuel lines or water filter fuel separator.
- Make sure boat is still securely moored to the dock and engine is idling at 600 to 800 RPM. Then move the throttle forward and then aft, and back to neutral to check for proper operation of the shifting motion.



**WARNING:** Engine and generator exhaust systems produce carbon monoxide (CO), a poisonous gas which is odorless, colorless, and heavier than air. Direct prolonged exposure can result in CO poisoning that may be harmful or fatal. Indications of excessive exposure to CO concentrations may include nausea, dizziness, and drowsiness.



## **ACCELERATING YOUR SHIP:**

Before bringing your boat "on plane," check the entire area to make sure you have a clear, safe path. As you throttle up and accelerate, your boat's angle of trim increases and causes the boat to ride bow-high. From a maximum angle, the boat will level out to its planing attitude as you continue to accelerate.

The maximum angle is commonly known as the "hump". It is advised to get over the "hump" as quickly as possible due to limitations in visibility, handling, and performance in reaching the maximum angle. It should only take a few seconds at full throttle to get over the "hump". At that point, the boat reaches its planing attitude. After getting over the "hump", accelerate until reaching a comfortable plane, then throttle down to cruising speed. This also will provide for better fuel efficiency.



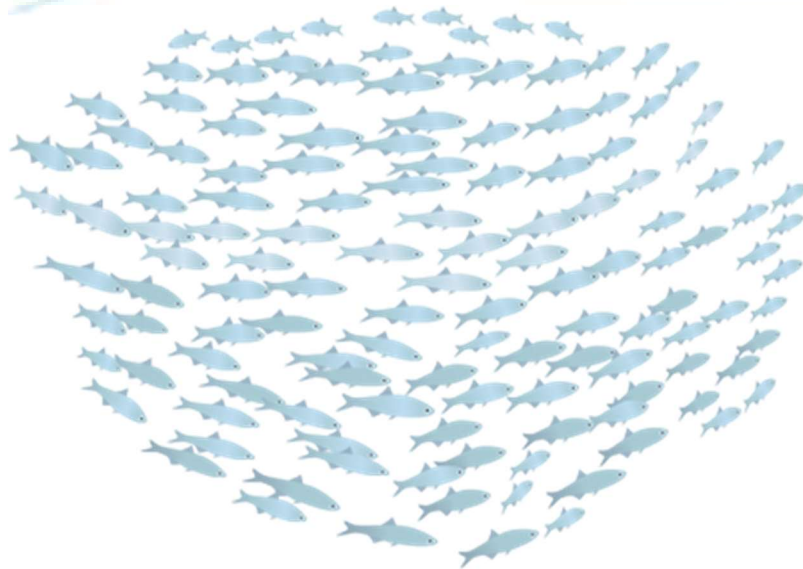
**WARNING:** Check behind you before coming off plane. Many accidents occur each year as a result of a driver coming off plane ahead of a boat that is unable to slow down in time to avoid collision.

(Always remember that boats do not have stop lights neither brakes)



**CAUTION:** Acceleration at full throttle is not recommended before the engine "break-in period" has been completed. This "break-in period" also coincides with the engine "twenty (20) hour check-up". Therefore, full throttle acceleration should not be attempted until your engine has surpassed this usage time.

***"Now that you are all set, shift it up and enjoy your sardine ride"***





## DICTIONARY OF NAUTICAL TERMINOLOGY

- **Abaft** Toward the stern.
- **Abeam** Amidships, at a right angle to the keel.
- **Aboard** On, in, or into a boat.
- **ABYC** American Boat and Yacht Council, Inc., the organization that sets voluntary safety and construction standards for small craft in the USA.
- **Adrift** Without motive power and without anchor or mooring.
- **Afloat** On the water.
- **Aft** Describing the after section of a vessel, or things to the rear of amidships and near the stern.
- **Aground** Touching bottom.
- **Amidships** In the center, the center portion of a vessel.
- **Anchor** A forging or casting shaped to grip the sea bottom and, by means of a cable or rope, hold a boat in a desired position.
- **Anchorage** A customary, suitable and (usually) designated harbor area in which vessels may anchor.
- **Astern** Toward the stern. An object that is aft of a boat is said to be astern of the boat.
- **Athwart** Across.
- **Aweigh** Off the bottom, said of an anchor.
- **Aye** Yes, while aboard a boat or ship. Means "I understand."
- **Bail** (Bale) To remove water from a boat by pump or bailer.
- **Ballast** Heavy material such as iron, lead, or stone placed in the bottom of the vessel.
- **Beacon** A post or buoy placed over a shoal or bank to warn vessels, also a signal mark on land.
- **Beam** Imaginary line amidships at right angles to keel of vessel. Also vessel's width amidships.
- **Bearing** The direction or point of the compass in which an object is seen.
- **Belay** To make fast to a cleat or belaying pin; to cancel an order.
- **Below** Beneath, or under, the deck. One goes below when going down into the cabin.
- **Bend** To fasten by means of a bend or knot.
- **Berth** A position, as a place to sleep or in which a vessel may be made fast; a margin of safety, as "a wide berth."
- **Bilge** The lower internal part of a boat's hull.
- **Bollard** A strong post for holding lines fast.
- **Bow** The forward part or front of the boat.
- **Breakers** Waves cresting as they reach shallow water, as at or on a beach.
- **Breakwater** A structure, usually stone or concrete, built to create a harbor or improve an existing one.
- **Bulkhead** Vertical partition in a boat.
- **Burdened** Former term for the vessel which must Vessel stay clear of vessels with the right of way.
- **Calking** Forcing filler material into the seams of (Caulking) the planks in a boat's deck or sides, to make them watertight.
- **Camber** The arch of a deck, sloping downward from the center toward the sides.
- **Capsize** To turn over.
- **Cardinal Points** The four main points of a compass; north, east, south, and west.
- **Ceiling** The inside lining of the hull.
- **Certificate** Government paper, such as a boat's license.
- **Chart** A map of a body of water that contains piloting information.
- **Chine** The intersection of sides and bottom of a boat.
- **Cleat** A piece of wood or metal with projecting ends to which lines are made fast.





- **Clinker** A method of planking in which the lower edge of each strake overlaps the upper edge of the strake next below. (Also called lapstrake.)
- **Coaming** A raised edge, as around part or all of a cockpit, that prevents seawater from entering the boat.
- **Coast Guard** The federal marine law enforcement and rescue agency in the US.
- **Cockpit** A well or sunken space in the afterdeck of a small boat for the use of the helmsman and crew.
- **Companionway** A hatch or entrance, from deck to cabin.
- **Compass** The instrument which shows the heading of a vessel.
- **Cowls** Hooded openings used for ventilation.
- **Cradle** A frame used to support a vessel on land.
- **Current** The movement of the water in a horizontal direction.
- **Deadrise** The rise of the bottom of a midships frame from the keel to the bilge.
- **Deck** Any permanent covering over a compartment.
- **Deep-six** To discard or throw overboard.
- **Depth Sounder** An electronic depth-finding instrument, measuring the time a sound wave takes to go from the vessel to the bottom and return, then displaying the result in feet, fathoms, or meters.
- **Dinghy** A small, open boat.
- **Displacement** Type of hull that plows through the Hull water even when more power is added.
- **Dock** An enclosed or nearly enclosed water area; all the port installations; a place where vessels can moor, as a pier, wharf, or floating dock.
- **Documented Vessel** Registered with the U.S. Coast Vessel Guard.
- **Dolphin** A small group of piles, in the water, generally used for mooring or as a channel marker.
- **Draft** The depth of the vessel below the water line, measured vertically to the lowest part of the hull.
- **Dunnage** Mats, boughs, pieces of wood, or other loose materials placed under or among goods carried as cargo in the hold of a ship to keep them dry and to prevent their motion and chafing; cushioning or padding used in a shipping container to protect fragile articles against shock and breakage; baggage or personal effects.
- **Ebb** An outgoing tide.
- **Estuary** An inlet or arm of the sea.
- **Fathom** Six feet.
- **Fenders** Objects placed along the side of the boat to protect the hull from damage.
- **Flare** The outward spread of the boat's sides from the waterline to the rail at the bow. Also, a pyrotechnic signaling device that can indicate distress.
- **Fore** Used to distinguish the forward part of a boat or things forward of amidships. It is the opposite of aft or after.
- **Forward** Toward the bow.
- **Frame** Ribs of the hull, extending from the keel to the highest continuous deck.
- **Freeboard** The vertical distance measured on a boat's side from the waterline to the gunwale.
- **Galley** The kitchen area of a boat.
- **Gimbals** Swivels used to keep equipment level.
- **Give-Way** The one which must stay clear of vessels with sails which have the right-of-way.
- **Grab Rail** A convenient grip, on a cabin top or along a companion ladder.
- **Gunwale** The upper edge of a boat's side. (pronounced gunnel.)
- **Harbor** A safe anchorage, protected from most storms; may be natural or man-made, with breakwaters and jetties; a place for docking and loading.
- **Hatch** An opening in a boat's deck for persons or cargo to go below.
- **Head** A marine toilet.
- **Headway** Forward motion of a vessel through the water.
- **Helm** The wheel or tiller by which a ship is steered.



- **Holding Tank** Storage tank for sewage, so that it will not be pumped overboard into the water.
- **Hull** The body of a boat.
- **Hypothermia** A physical condition where the body loses heat faster than it can produce it.
- **Inboard** More toward the center of a vessel; inside; a motor fitted inside the boat.
- **Inland Rules** Rules of the road that apply to vessel operation in harbors and certain rivers, lakes, and inland waterways.
- **Intracoastal (ICWs)**: bays, rivers and canals along Waterways the coasts (such as Atlantic and Gulf of Mexico coasts), connected so that vessels may travel without going into the open sea.
- **Jetty** A structure, usually masonry, projecting out from the shore; a jetty may protect a harbor entrance.
- **Keel** The permanently positioned, fore and aft backbone member of a boat's hull.
- **Knot** To bend a line. Also, a unit of speed equal to one nautical mile (6,076.10 feet) an hour.
- **Launch** (1) To put a vessel into the water; (2) a small open powerboat, mainly used for transportation between a vessel and shore.
- **Lee** The side opposite to that from which the wind blows.
- **Leeward** Situated on the side turned away from the wind. (Opposite of windward.)
- **Leeway** The amount a boat is carried sideways by the wind's force or current.
- **Limber Holes** Drainage holes in the bilge timbers of a vessel, allowing water to run to a low point for pumping out.
- **List (1)** A continuous leaning to one side, often caused by an imbalance in stowage or a leak into one compartment; (2) A light list is a printed listing of aids to navigation, in geographical order, or inclining of a vessel toward the side.
- **LOA** Length overall; the maximum length of a vessel's hull, excluding projecting spars or rudder.
- **Locker** A storage place, a closet.
- **Log** A record or diary of a vessel's journey.
- **Lubber's Line** A mark or permanent line on a compass that shows the course of the boat.
- **Making Way** Making progress through the water.
- **Marina A place**, essentially a dock area, where small recreational craft are kept; usually floats or piers, as well as service facilities, are available.
- **MAYDAY** A radio distress call, from the French m'aidez (help me); SOS in Morse Code.
- **Mooring** Commonly, the anchor chain, buoy, pennant, etc., by which a boat is permanently anchored in one location.
- **Motor** A source of mechanical power.
- **Motorboat** Any watercraft 65 feet or less in length propelled by machinery, whether or not such machinery is the principal source of propulsion.
- **Navigation** The art of conducting a ship from port to port.
- **Nautical Mile** 6076.12 feet, or 1852 meters, an international standard; the geographical mile, the length of one minute of latitude at the equator, is 6087.20 feet.
- **Nun Buoy** A conical, red buoy bearing an even number and marking the starboard side of a channel from seaward.
- **Oar** A long, wooden instrument with a flat blade at one end, used for propelling a boat.
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- **Outboard** (1) a propulsion unit for boats, attached at the transom; includes motor, drive shaft, and propeller; fuel tank and battery may be integral or installed separately in the boat; (2) outside or away from a vessel's hull; opposite of inboard.
- **Outdrive** A propulsion system for boats, with an inboard motor operating an exterior drive, with drive shaft, gears, and propeller; also called stern-drive and inboard/outboard.
- **Overall Length** The extreme length of a vessel, excluding spars or rigging fittings. See LOA.
- **Painter** A rope attached to the bow of a boat for making it fast.
- **PFD** Personal Flotation Device. (1) a propulsion unit for boats, attached at the transom; includes motor, drive shaft, and propeller; fuel tank and battery may be integral or installed separately in the boat; (2) outside or away from a vessel's hull; opposite of inboard.
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- **PFD** Personal Flotation Device.
- **Pier** A structure, usually wood or masonry, extending into the water, used as a landing place for boats and ships.
- **Pile** A vertical wooden or concrete pole, driven into the bottom; may be a support for a pier or floats; also used for mooring.
- **Piling** A structure of piles.
- **Pitch** (1) The up and down movement as the bow and stern rise and fall due to wave action; (2) The theoretical distance advanced by a propeller in one revolution.
- **Planing** Hull Type of hull that is shaped to lift out of the water at high speed and ride on the surface.
- **Port** The left side of a boat when you are facing the bow, also a destination or harbor.
- **Privileged** Former term for the vessel with the Vessel right-of-way.
- **Propeller** Wheel or screw. Mechanism that pushes water aft to propel the boat.
- **Rigging** The general term for all lines(ropes) of a vessel.
- **Roll** The sideward motion of a boat caused by wind or waves.
- **Rules of The Road** nautical traffic rules for preventing the Road collisions on the water.
- **Scope** The length of the anchor rope or chain. 6 to 1 scope means that the length of the anchor rope from the boat to the anchor is 6 times the depth of the water.
- **Scupper** A hole allowing water to run off the deck.
- **Sea Anchor** A floating canvas cone, held open by wire rings, with an opening in the smaller end, and a rope bridle at the larger end attached to a line leading to the vessel; used in storm conditions to (a) keep the bow of the boat to the wind, and (b) slow downwind drift of the boat.
- **Seacock** A thru-hull valve, a shut-off on a plumbing or drain pipe between the vessel's interior and the sea.
- **Slip** (1) a berth for a boat between two piers or floats; (2) The percentage difference between the theoretical and the actual distance that a propeller advances when turning in water under load.
- **Sole** The cabin or cockpit floor.
- **Spar** Buoy A channel marker that looks like a tall, slender pole.





- **Stand-On** The vessel with the right-of-way. Vessel
- **Starboard** The right side of a boat when you are facing the bow.
- **Stern** The after end or back of the boat.
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