

LOGO TO COME

PLEASE PROVIDE

# Ballast & Tower Operator's Manual

# INTRODUCTION

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## INTRODUCTION

Toyota Marine Sports is proud of the advanced engineering and quality construction of each boat we build.

This owner's manual Supplement explains the special features of our X22 and SX wakeboard models. The Owner's Manual serves as a guide for safe operating procedures, general boating regulations and proper maintenance techniques. **Be sure that all operators read both this supplement and the owner's manual and follow the instructions carefully, before operating the craft, so that you may enjoy many years of safe boating.**

If this is your first time owning or operating an inboard wakeboard ski boat, we recommend that you ask your dealer for instructions and enroll in a local boater safety course prior to taking to the water.

When it comes to service and parts, remember that your Authorized Toyota Marine Dealer knows your boat best, has certified technicians on staff, genuine parts and accessories in stock and most of all is interested in your complete satisfaction.


Please keep this supplement and the owner's manual in your boat for quick reference and remember to pass them along should you decide to sell your craft. The next owner will need this information.

All information and specifications in this supplement are current at the time of printing. However, because of the Toyota policy of continual product improvement, we reserve the right to make product and design changes at any time without notice. Also please note that this manual applies to all equipment, including options available on the Epic series. Therefore, **you may find explanations for equipment not installed on your boat.**

## SAFETY

### Safety Warnings

Danger, Warning, Caution and Notice symbols point out important safety and operational instructions, which if not followed could endanger life and or damage equipment. Read and follow all instructions in this supplement and the owner's manual before attempting to operate this boat, trailer or any equipment or accessories.

 The safety alert symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED.

#### **DANGER**

Indicates an imminently hazardous situation, which, if not avoided, will result in death or serious injury.

#### **WARNING**

Indicates a potentially hazardous situation which, if not avoided, could result in death, serious injury or damage to your boat, trailer or equipment.

#### **CAUTION**

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or damage to your boat, trailer or equipment.

#### **NOTICE**

Use of the word "NOTICE" will alert you to key information.

### Medical Emergency

In an emergency, you may be far from professional medical assistance. Be prepared. Take a first aid course and carry a first aid kit. Be aware of any special conditions that may affect anyone on board.

### Reporting Accidents

The U.S. Coast Guard requires the owner or operator of a boat involved in an accident to report the incident to the proper marine enforcement agency for the State in which the accident occurred. Immediate notification to the nearest State boating authority is required if a person dies or disappears as a result of a recreational boating accident. If a person dies or injuries requiring more than first aid are involved, a formal report must be filed within 48 hours of the accident. A formal report must be filed within 10 days exceeding \$500 dollars in property damage or complete loss of boat.

#### **DANGER**

Adding ballast changes the operating characteristics of the boat and could result in a serious accident, injury or death. The increased weight of the boat will affect starting, turning, stopping and docking operations. Be sure all operators practice with the increased mass of the boat in an open body of water, well away from others. Avoid making high-speed maneuvers with the tank(s) full.

#### **DANGER**

Do not trailer the boat or load on a boat lift with ballast aboard; drain the ballast system completely before loading. The extra weight of the ballast will make loading difficult and will overload the maximum weight capacity of the trailer or boat lift causing a potential roadway hazard or structural damage to the lift.

#### **WARNING**

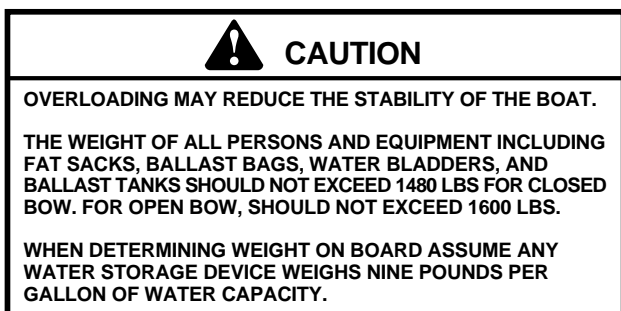
The Epic SX with internal ballast tanks does not provide Basic Flotation. If the boat should become swamped, the boat may sink. Instruct passengers to exit a swamped boat, with PFDs on.

# SAFETY

**⚠ CAUTION**

Overloading may reduce the stability of the boat. The weight of all persons and equipment including fat sacks, ballast bags, water bladders and ballast tanks should not exceed the Maximum Capacity of the boat. When determining weight on board, assume any water storage device weighs nine pounds per gallon of water capacity.

### Boat Capacity Chart



**Figure 1. Capacity Warning Label**

The maximum number of persons must never be exceeded even if the total weight of the persons and gear is less than the maximum weight capacity. The maximum weight capacity includes all persons, equipment, gear and ballast. Use the following chart as a quick reference when loading the boat; as the weight of the ballast increases, the maximum capacity, maximum gear and maximum number of persons decreases accordingly; see Table 1. When determining the weight of ballast, calculate water at nine pounds per gallon, see Figure 1.

**Table 1. Maximum Capacity for Ballast**

Ballast (Weight)	Maximum Capacity	
	Epic SX	Epic X22
10 gal. (90 lbs.)	1610 lbs.	1510 lbs.
20 gal. (180 lbs.)	1520 lbs.	1420 lbs.
30 gal. (270 lbs.)	1430 lbs.	1330 lbs.
40 gal. (360 lbs.)	1340 lbs.	1240 lbs.
50 gal. (450 lbs.)	1250 lbs.	1150 lbs.
60 gal. (540 lbs.)	1160 lbs.	1060 lbs.
70 gal. (630 lbs.)	1070 lbs.	970 lbs.
80 gal. (720 lbs.)	980 lbs.	880 lbs.

## TOWER

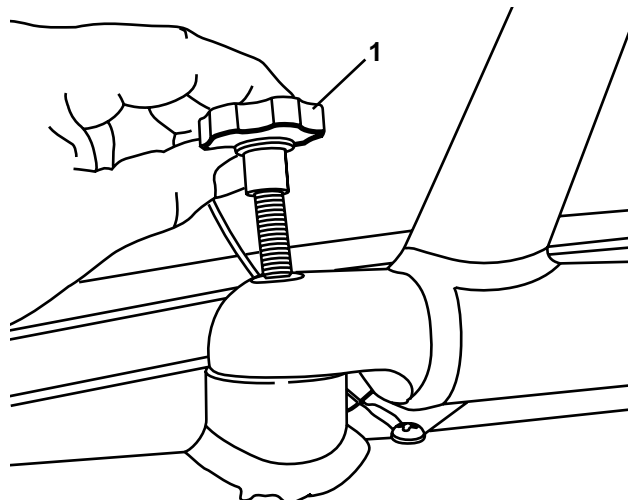
The custom integrated, full-height aluminum tow tower (Figure 2) is finished for durability and weather resistance. The sturdy tower can be fitted with ski brackets, bimini top and optional tower mounted speakers. The tower can be quickly folded to reduce the boat's height when trailering, using a boat lift or storing.

### Lowering & Raising

#### **WARNING**

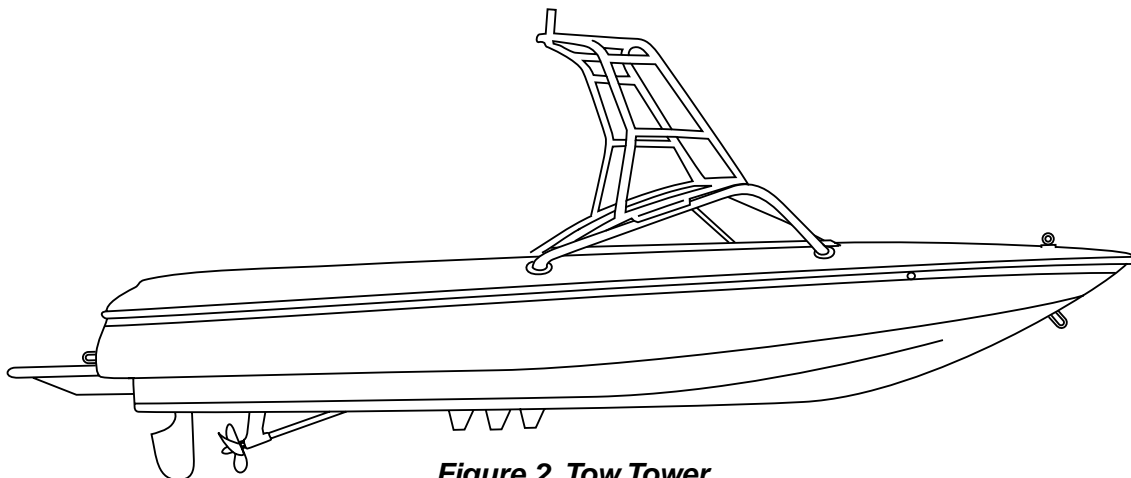
**Use caution when trailering with the tower in the raised position. Always check overhead clearances when trailering and be certain sufficient clearance exists between the highest point of the tower and overhead wires, trees and structures.**

1. Remove the two Release Fasteners (1, Figure 3) from each side of the tower.

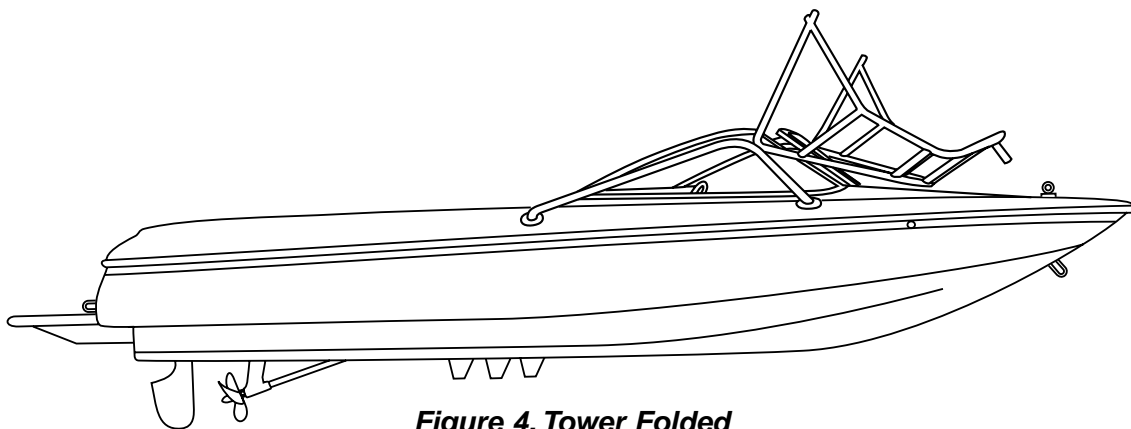


**Figure 3. Release Fasteners**

2. Fold the upper half of the tower toward the bow of the boat (Figure 4).

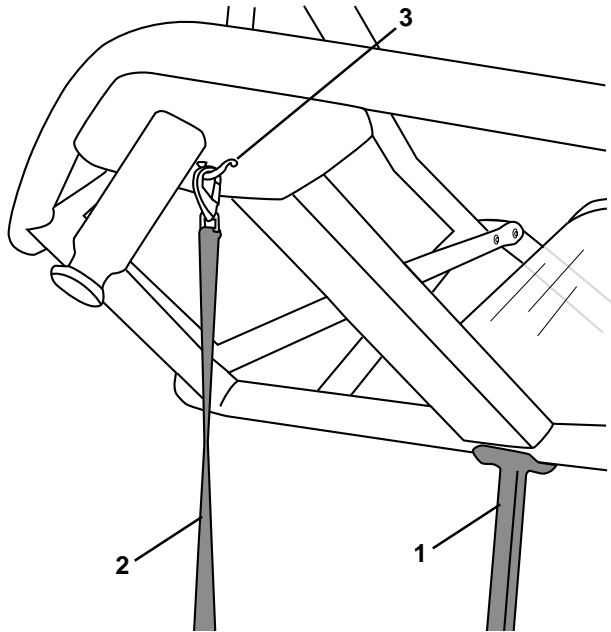


**Figure 2. Tow Tower**



**Figure 4. Tower Folded**

# BALLAST SYSTEM



**Figure 5. Tower Support**

3. Support the tower with the Tower Support (1, Figure 5).
4. Attach the tower Trilatering Strap (2, Figure 5) between the eyelets on the tower (3) and on the boat. Tighten strap securely.
5. If the tower is equipped with a bimini top, remove the top for trailering.

Reverse the lowering procedure to raise the tower. Be sure to install the Release Fasteners completely; you may have to exert pressure to the tower to align the holes.

## Care & Cleaning

When cleaning the tower, do not use abrasives, solvents or acetone; use only marine boat wash and water and a soft towel. Do not lubricate the tower pivot point. Check the tower mounting hardware once each season and tighten if necessary.

## BALLAST SYSTEM

There are two types of ballast systems used, the Epic X22 uses a factory installed hard tank system and the Epic SX uses a tank system integrated into the hull. Both types are controlled by a high speed push-button filling and draining system and use the water outside of the boat. If the system is used in salt, brackish or polluted waterways move the boat to a body of clean, fresh water and flush the system by completely filling and draining the tank(s) twice.

### **⚠ WARNING**

**Do not fill the ballast unattended. An operator must always be present during the filling procedure. A system failure could swamp the boat if unnoticed.**

### **⚠ CAUTION**

- **Do not attempt to fill the ballast system while underway above planing speed. Filling the system at planing speeds could introduce air into the system causing an incomplete fill.**
- **Do not operate the ballast system with the boat out of the water.**

Both systems allow the operator to adjust the amount of ballast (water) in the tank depending on a number of factors including the weight of the people and gear in the boat or the rider's wake preference. System fill/drain time is approximately 10 minutes.

# BALLAST SYSTEM

## Epic X22

The Epic X22 ballast system (Figure 6) consists of a trunk mounted 60 gallon hard tank (soft tank on previous years models), a dash mounted push-button pump control, bottom mounted through hull fitting for system raw water, fill/drain

pump and interconnecting hoses and wiring. The ballast system can be filled while the boat is moored or while underway below planing speed and drained at any time. It is not recommended to fill the ballast system while beached to prevent sand and debris from entering the system.

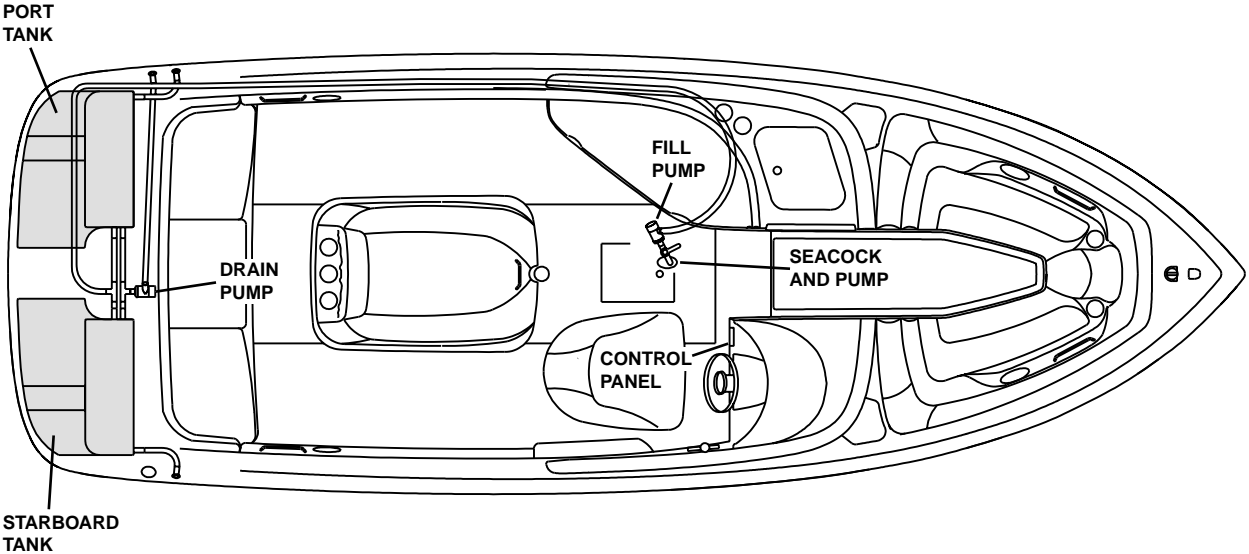


Figure 6. Epic X22 Hard Tank Ballast System Component Layout

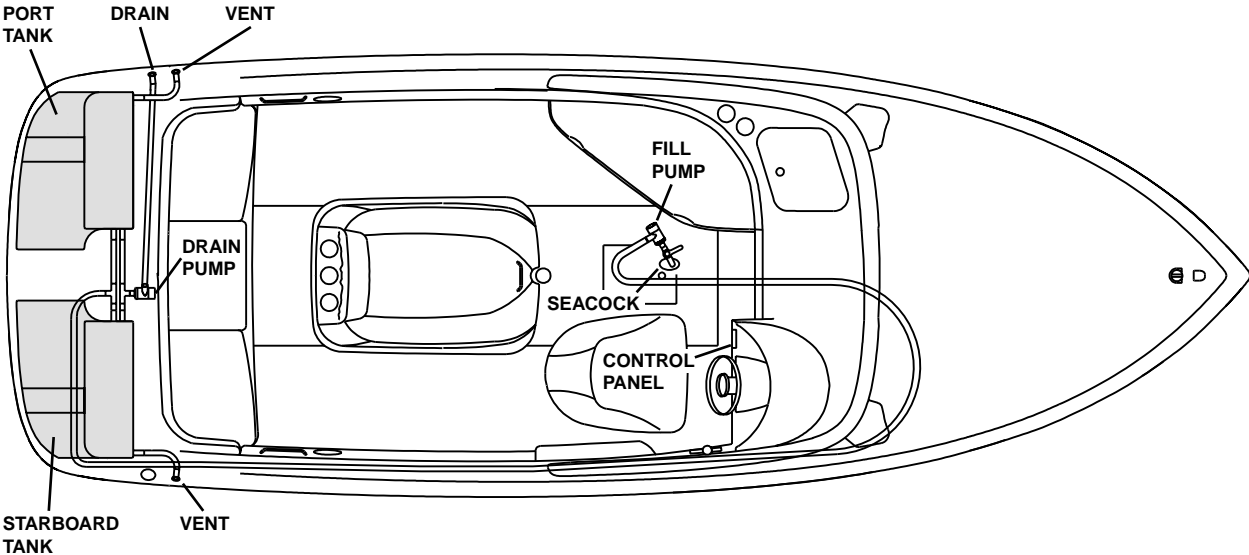
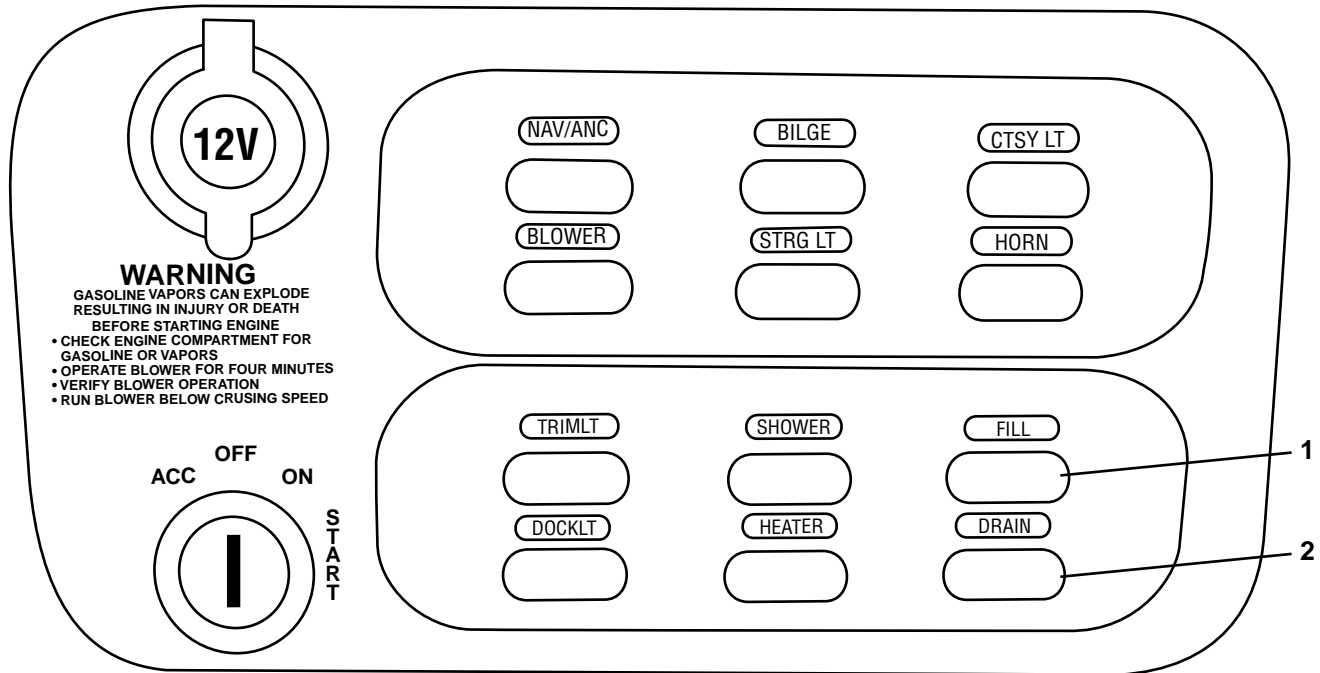


Figure 7. Epic E21 Ballast System Option Component Layout

# BALLAST SYSTEM

To fill the ballast system, push the FILL button (1, Figure 8) on the dash mounted switch panel until the desired amount of ballast is achieved or until full; push the button again to stop the pump. Do not overload the boat by exceeding the Maximum Weight Capacity.

To drain the ballast system or to lessen the amount of water in the tank, push the DRAIN button (2, Figure 8) until the desired amount of ballast is achieved or until empty; push the button again to stop the pump.



*Figure 8. Epic X22 Ballast Controls*



# BALLAST SYSTEM

## Epic SX

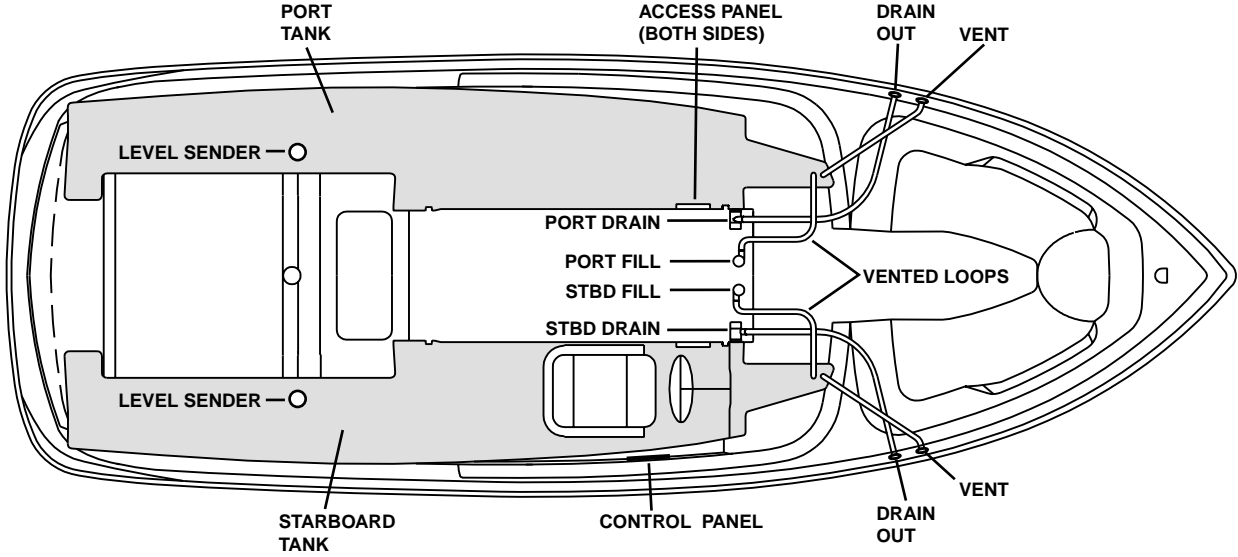


Figure 9. Epic SX Quad Pump Integrated Ballast System Component Layout

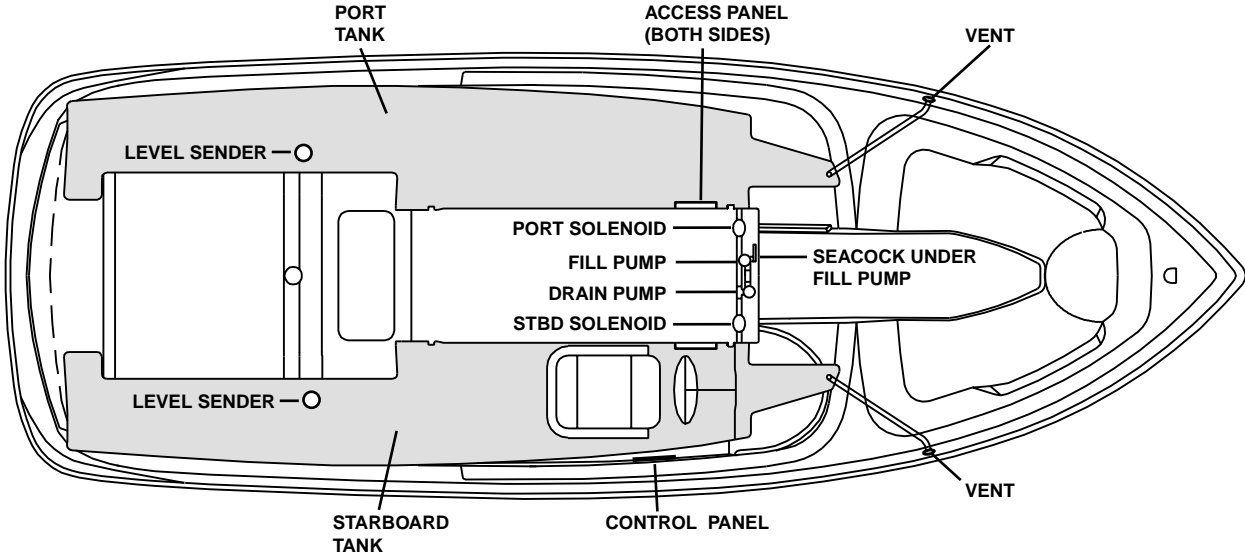
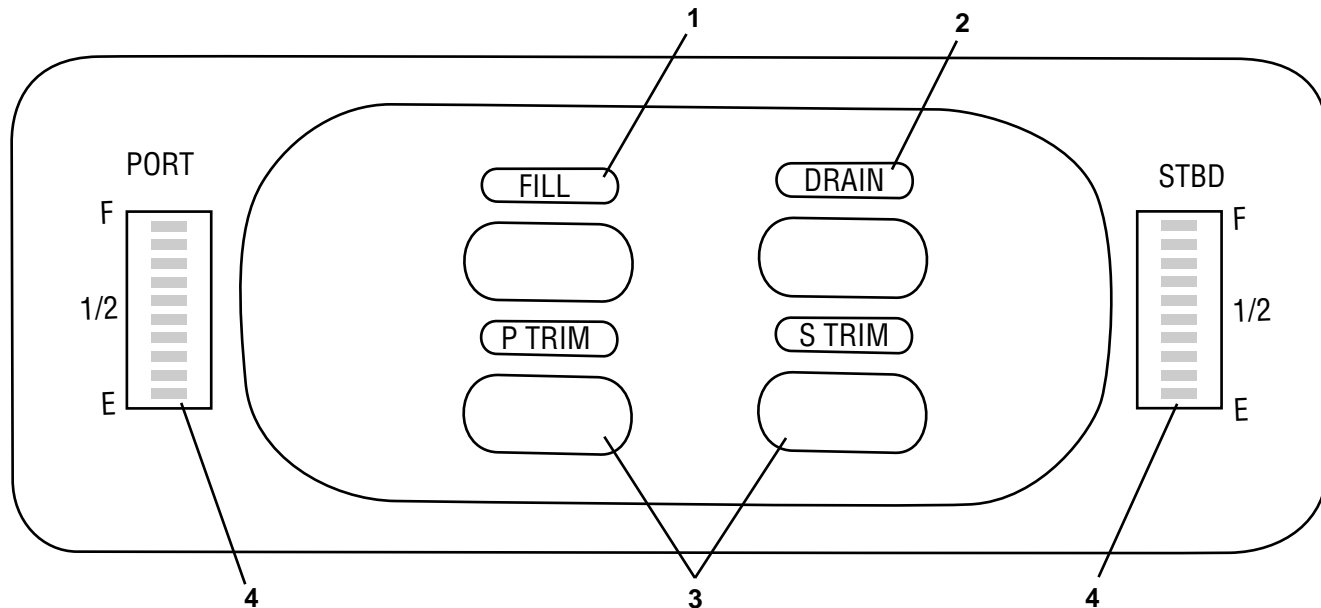


Figure 10. Epic SX22 Integrated Ballast System Component Layout

The Epic SX ballast system (Figure 10) consists of twin 40 gallon ballast tanks integrated into the hull stringer system, push-button pump control buttons and LED tank level meters located in the ballast control panel next to the driver, through-hull fittings for system raw water fill and drain, sea cock, fill pump, drain pump, tank solenoid valves, tank overflow/vents and interconnecting

hoses and wiring. The ballast system can be filled while the boat is moored or while underway below planing speed and drained at any time. It is not recommended to fill the ballast system while beached to prevent sand and debris from entering the system. For accurate trim gauge reading, the indicators should be checked while the boat is at rest.

# BALLAST SYSTEM



**Figure 11. Epic SX Ballast Control Panel**

The Ballast Control Panel contains the following controls:

**Fill Button** – The fill button (1, Figure 11) fills the ballast system. Push to start filling both tanks at once; push the button again to stop the pump.

**Drain Button** - The drain button (2, Figure 11) drains the ballast system. Push to drain both tanks at once; push the button again to stop the pump.

**Trim Buttons** - The trim buttons (3, Figure 11) are used to adjust the port/starboard trim (balance) of the boat. Push the P TRIM button to drain the port tank, which will lower the starboard side of the boat. Push again to stop. Push the S TRIM button to drain the starboard tank, which will lower the port side of the boat. Push again to stop. While underway, the trim function will only drain 12-15 gallons of ballast. To trim further, operate trim feature with the boat at rest. For accurate trim gauge reading, the indicators should be checked while the boat is at rest.

**Tank Meters** – The port and starboard tank meters (4, Figure 11) indicate the approximate level of water in each tank. It is normal for the meter levels to fluctuate while underway.

To operate the ballast system:

1. Turn the Battery Disconnect Switch to the ON position.
2. Open the ballast system Sea Cock.
3. Push the FILL button until the desired amount of ballast is achieved or until water comes out of both overflows. Do not overload the boat by exceeding the Maximum Weight Capacity.
4. Load passengers and gear into the boat and determine if boat is listing (leaning) to one side or the other. If so, activate the appropriate TRIM button until the boat is level. Push again to stop.
5. Use the FILL or DRAIN buttons as appropriate to adjust the wake characteristics to the riders' preference.
6. To drain the ballast system, press the DRAIN button until the desired amount of ballast is achieved or until the pump stops; push again to turn drain pump off.

# TROUBLESHOOTING AND MAINTENANCE

## TROUBLESHOOTING AND MAINTENANCE

The following chart will assist you in finding and correcting minor ballast system problems. Problems are listed in the order of most-likely event to the least likely. To correct a problem, first

determine what the problem is. Start with the first cause and eliminate the possibility of each until the problem is corrected.

Symptom	Possible Cause	Solution
<b>Ballast system will not operate.</b>	Battery switch OFF. Ballast system circuit breaker tripped. Sea cock closed. Battery terminals corroded. Battery weak or worn out. Electrical system problem.	Turn battery switch ON. Reset ballast system circuit breaker. Open sea cock. Clean and tighten battery terminals. Remove battery and charge or replace battery. See your Dealer.
<b>Ballast system fills slowly.</b>	System performing normally. Sea cock partially open. Fill through-hull fitting plugged with debris. Obstruction in system.	Time filling and draining with stopwatch. Normal fill/drain time is approximately 10 minutes. Open sea cock fully. Remove debris from through-hull fitting. See your Dealer.
<b>Boat leaning to one side.</b>	Boat loaded incorrectly. Tanks not properly trimmed (SX only).	Adjust passengers and/or load so boat is even. Trim tank on lower side until boat is even.

### Maintenance

The ballast system requires no routine maintenance however, it is very important to completely empty the system during storage, especially if the ambient temperature will reach 32 degrees Fahrenheit or lower. Because of the serious damage that can be caused by freezing water, winterizing is best accomplished by your Dealer.

To drain the system for winter storage:

1. While the boat is still in the water, push the DRAIN button until the pump stops.
2. With the boat removed from the water, loosen the hose clamps from the pump(s) and disconnect the hoses.
3. Using an air compressor, blow air through the lines until the water is removed.

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