

Assembly and Installation

SHORESTATION® HYDRAULIC PERMANENT LIFT

Patent Pending

Models: LTPM408HS, LTPM608HS, LTPM808HS



**WARNING**

DO NOT INSTALL OR OPERATE A LIFT WITHOUT STUDYING THIS MANUAL AND INFORMATION ON LABELS INCLUDED WITH THE LIFT. FAILURE TO DO SO CAN LEAD TO IMPROPER INSTALLATION RESULTING IN SERIOUS PERSONAL INJURY AND/OR PRODUCT DAMAGE. IF YOU HAVE FURTHER QUESTIONS AFTER REVIEWING THIS INFORMATION, CONTACT A SHORESTATION REPRESENTATIVE AT (800) 859-3028.

Safety Definitions

Safety messages are presented throughout this document and labels affixed to the product. The messages alert you to potential hazards to you and/or property. The signal words **DANGER**, **WARNING**, and **CAUTION** are preceded by an alert symbol  and communicate the severity of potential hazard. The severity of each type of message is defined as follows:

- **DANGER** indicates a hazardous situation which, if not avoided, will result in death or serious injury.
- **WARNING** indicates a hazardous situation which, if not avoided, could result in death or serious injury.
- **CAUTION**, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

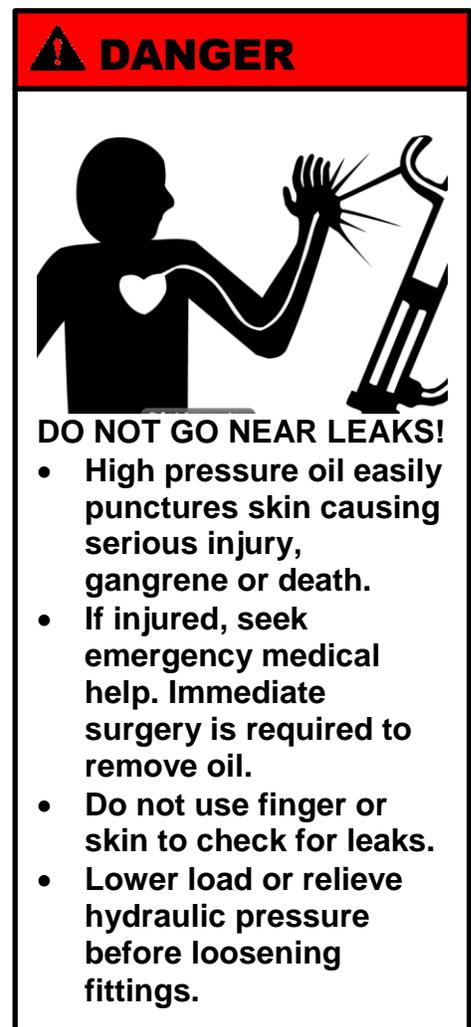
Safety Instructions

Working with electrical equipment and installations over the water present many potential hazards to the installer. Every installation presents unique conditions that the installer should evaluate before installing or servicing the equipment. The following instructions must be followed, but may not encompass all potential hazards:

 WARNING

- Never use this equipment to lift people. People must exit the boat prior to lifting it out of the water.
- Never use this equipment to lift overhead. Install the platform so it remains at or below the dock level.
- This equipment is designed to lift boats. Never use it to lift other items.
- Do not allow children to operate or play on the equipment.
- Do not install or use the lift if there are any signs of damage.
- The wireless control system should only be operated if the operator has clear vision of the lift equipment and its surrounding location.
- Never install or work on the equipment without first verifying that the A/C power supply (if present) is protected by a functioning Ground Fault Circuit Interrupt (GFCI) in accordance with National Electric Code section 210.8 and any additional local code requirements.

- Review all operating instructions with the user(s) before allowing them to operate the lift. Disable the lift by disconnecting the battery power to the motor until you have an opportunity to train the user.
- Disconnect all A/C power from the dock before installing or working on the equipment.
- Do not exceed the recommended capacity of the equipment.
- Do not modify the equipment unless you have received direct written approval from the manufacturer (ShoreStation).
- Remove any metallic objects from your person before working with DC or AC electrical components.
- Always wear proper personal protective equipment such as safety glasses, gloves, hardhats, and clothing.
- Installation may require entering the water. Never enter the water without a proper personal floatation device. Disconnect any power to the lift and dock before entering the water.
- Never work alone and observe safe lifting practices such as team lifting and proper lifting posture.



Pre-Installation

NOTICE: A licensed & insured marine contractor must install and rate the pilings used for this lift. Permitting may be required from your local authority before construction of the lift. Consult a local marine contractor before purchasing and installing the piling system.

The ShoreStation Hydraulic permanent lift is designed to be mounted to four pilings. The size and depth of the piling installation must be determined by a qualified marine contractor. In general, an 8" diameter pile or greater should be used with the systems described by this document. Piling placement specifications are provided in the specification documents for your model.

The lift tubes can be mounted to accommodate a number of conditions. The most common method is to install the lift tubes on top of the piling using the included mounting brackets. If you have a finished dock around the piling, then the side-mount (HK-PLSM) can be used to place the lift tubes inside the slip. In all cases, the lift tubes should be installed so the lift cables hang vertically under load. The lift tubes should also be positioned high enough to not be affected by waves or water level changes.

The geometry of the boat should be considered before installing the pilings. The pilings must be installed so that the boat's center of gravity can be centered on the lift. The load must be distributed equally across and along the structure.

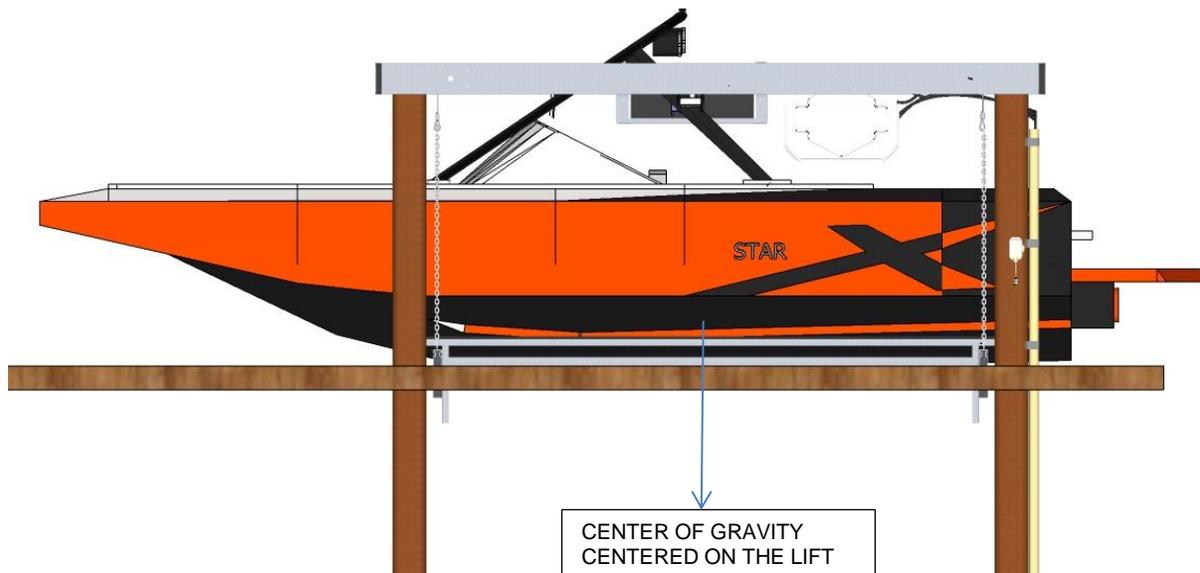


Figure 1 - Correct Boat Placement

Preparation

Tools Required

Due to the variation in the design of boat slips, it is impossible to address all requirements. Be sure to survey the installation site and note any additional requirements. Each lift tube weighs 160 lbs. Installing the lift tubes requires lifting the tubes up to the support beams placed in the ceiling. Scaffolding may be required to create a work platform for mounting lift tubes.

Common tools required for installation include:

- 3/8 through 3/4 SAE wrenches
- 1/4 through 3/4 SAE ratcheting sockets and drives
- Cordless drill
- 1/2, 5/8 diameter spade drill bit
- Bolt cutter or hack saw for cutting chain
- Banding cutters
- GFCI outlet tester
- Personal protective equipment (safety glasses, hard hats, gloves, etc.)

Additional equipment will be required based on your installation site requirements.

Survey the Boat

You will need to know the length, width, weight, and center of gravity for the boat that is to be lifted. If the lift is to replace an existing lift, it is good to note the boat's placement on the old lift before removing. Also note the distance of the platform from the top of piling.

If this is a new piling mount installation, you will need to measure the geometry of the boat to prepare for the lift setup. Use the Boat Setup Chart included in this document to record important measurements.

WARNING

NEVER WORK ALONE.

ALWAYS WEAR PERSONAL FLOATATION DEVICES WHEN WORKING IN AND OVER WATER.

ALWAYS WEAR PERSONAL PROTECTIVE DEVICES WHEN ASSEMBLING AND INSTALLING EQUIPMENT.

OBSERVE ALL SAFETY REQUIREMENTS FOR ALL EQUIPMENT USED FOR INSTALLATION.

DANGER

AVOID ELECTROCUTION. DO NOT WORK ON OR NEAR THE DOCK WITHOUT FIRST VERIFYING THAT A FUNCTIONING GFCI IS PRESENT ON ANY A/C SUPPLY TO THE DOCK & BOAT HOUSE. NEVER ASSUME – VERIFY THE FUNCTION OF GFCI USING A GFCI OUTLET TESTER.

BOAT SETUP CHART

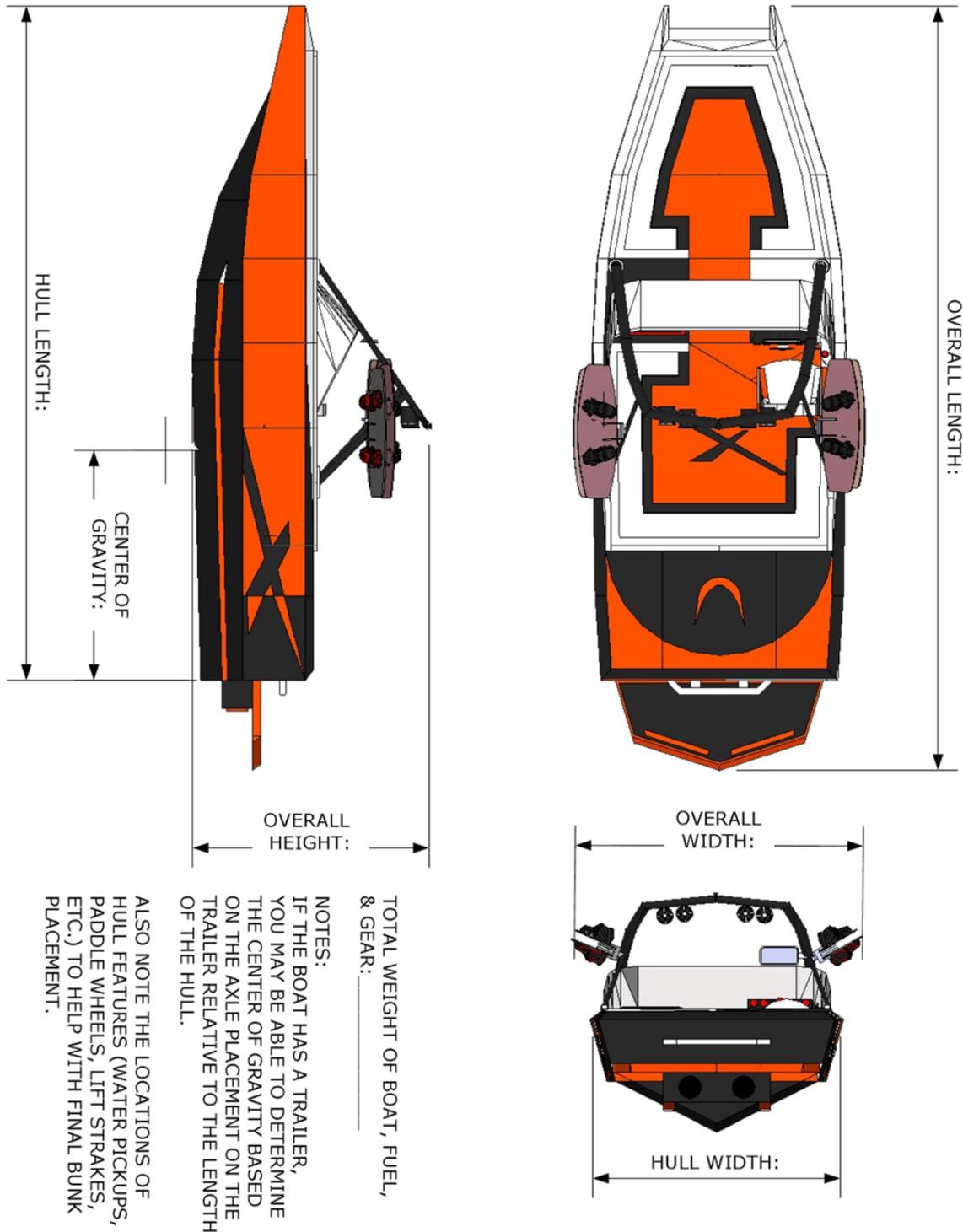


Figure 2 - Boat setup measurements

The boat measurements should be used to determine the location of the pilings for lift. Figure 1 shows an example of a correct setup. The boat has been placed on the lift so there is sufficient room for the bow of the boat. The pilings have been placed so the load is equally distributed across the two platform members. The extension chains have been adjusted so the platform does not rise higher than the deck of the dock.

ShoreStation platforms are available in three widths. The cross members can be trimmed to match the slip width. The cable attaching brackets are easily adjusted within the extruded t-slots in the cross members.

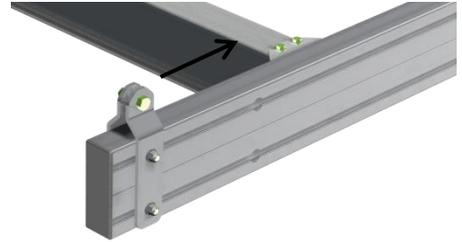


Figure 3 - Cable attaching bracket adjustment

Installation Instructions

Unpack Equipment

Carefully remove banding and other packaging from the bundled components. Try to keep bundled components organized to avoid mixing components from other equipment. Sort all hardware by size. You may be able to complete most of the assembly on the shoreline if a clear path exists into the dock.

Mount the Lift Tubes

The individual lift tubes weigh over 150 lbs. (68 kg). Take the weight of the tubes into consideration when deciding on a method to lift the tubes. Be sure the lifting equipment used is rated to safely lift and hold the lift tubes in place while fastening.

Note: Both lift tubes should be installed with the hydraulic hoses on the same end of the boat slip.

When mounting to the top of the piling, make sure the piling is cut so the top is flat and each top is within 2" of the same height. Mount the bracket to the piling so the face contacting the tube is flush with the top of the pile. Drill 2 1/2 inch holes through the piling and mount the bracket using 2 1/2 galvanized or stainless steel bolts. **Place a barrier material (plastic) between the top of the piling and the lift tube to protect against corrosion.**



Route the Hoses

Route the extension hoses and connect to the short hoses connected to the lift tube. **NOTE: Extension Hoses provided by ShoreStation are pre-bled with hydraulic fluid. If you are providing your own extension hoses, be sure to purge all air out of the hoses BEFORE connecting to the lift tube.** If air is introduced into the system, it will cause the two lift tubes to run down at different rates.

If routing the hoses under water, they must be installed inside 2 inch or larger conduit (PVC or Metal) so that the hoses are contained and protected.

Connect the Power Unit

Refer to the instructions provided with the hydraulic power unit for connection. Connect each pair of hoses to the correct pair of hoses or fittings on the power unit as instructed.

Check System Functions

Now that the system is operational, check the system functions before installing the power unit enclosure. Refer to the Operating Instructions for instructions on operating the rocker switch and wireless remote.

The following system checks should be made:

- The system will run up and down with the rocker switch
- The system will run up and down with both wireless key fobs

Care and Maintenance

Cable and Chain Inspection

Operators must inspect the lift for any cable and chain wear at every operation. Any noticeable fraying or wear on the lift should be replaced by a qualified technician before use.

Batteries and Electrical

On average, a well-maintained battery should last 4 years. The use of the Battery Tender system or the ShoreStation Solar panel ensures the battery performs. Periodic maintenance and inspection will ensure that these systems maintain the battery's health.

The batteries should be inspected for terminal corrosion and damage. Look for signs of corrosion on or around the battery, signs of leakage, a cracked case or top, and missing caps. Loss of water and terminal corrosion can cause permanent damage to the battery and is the main cause of premature battery failure.

Technicians should become familiar with correct battery maintenance and testing. Your battery supplier should be able to provide you with the training resources required. There are also many online resources that cover this topic.

If the system includes the Battery Tender, refer to the instruction manual included with it. This manual provides specifications and troubleshooting information.

Pulley Sheaves

All ShoreStation lifts include pulleys with non-metallic filament wound bearings. The pulleys do not require lubrication. Pulleys should be inspected for wear annually.

In rare circumstances a 'squeal' may develop in the lift tube. This is usually caused by the debris accumulating on the plastic pulley and/or guides inside the tube. This situation does not cause mechanical issues, but can be annoying. If a squeal develops, a spray lubricant such as WD-40 can be sprayed into the tube to clean the debris and eliminate the noise.

Hydraulic Fluid

This hydraulic system is filled with Environmentally Friendly, Biodegradable Hydraulic Oil. The normal change interval for this oil is five (5) years. This period can vary depending on use. Contaminants, if introduced, will also accelerate the need for an oil change. If you notice a change in the oil color (yellow or white) it could be evidence of water or other contaminate. Contaminated oil must be changed to avoid permanent system damage.

Remove oil from the tank using the procedure of changing oil below and refill with **Environmentally Friendly Biodegradable Marine Hydraulic Oil AW46**. The original oil from the factory is **Jax Marine-Guard Blue Series** brand oil. See your **ShoreStation** dealer for availability. **Never use vegetable-based oil in this system.**

NOTE: Always dispose of contaminated oil properly at a reclaim station.

