

OWNER'S MANUAL V-1600

Boat Lift Systems

Watch our customized boat lift setup and installation video: www.floeintl.com/manuals-information



MANUAL WINCH OR DC WINCH WITH ELECTRONIC CONTROL SYSTEM

ATTENTION ATTENTION ATTENTION

Read and follow all safety rules and operating instructions carefully before attempting to install or operate lift system.

Visit our website at www.floeintl.com

Congratulations on the purchase of your new FLOE Boat Lift!

Like you, I enjoy many kinds of waterfront activities, and I know that to have fun I need to keep my boat secure, protected, and accessible. Through my years of experience, I've learned how boat lifts should not only protect your watercraft



investment, but also be convenient and easy to use - and I have developed them accordingly. The fact that you purchased a FLOE boat lift tells me that you research a product thoroughly. You will find a FLOE boat lift has many innovative features that will ensure years of dependable service, satisfaction, and enjoyment. Because your FLOE boat lift is engineered to lift and support a tremendous amount of weight, it is critical that you operate it safely. Anyone who operates this lift must read the entire owner's manual before operating the lift to make sure they are able to operate it properly and enjoy all of its features to the fullest. See you on the water!

Wayne Floe , CEO - FLOE International

Wayne the

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IMPORTANT SAFETY INFORMATION

Your safety and the safety of others is very important. We have provided many important safety messages in this manual and on your lift system. Always read and obey all safety messages.

If you do not understand any of these instructions, please ask your dealer.

This is the safety alert symbol. This symbol alerts you to



hazards that can cause serious injury or potential death to you and others, plus damage to the dock system. All safety messages will be preceded by the safety alert symbol and the word "DANGER", "CAUTION" or "WARNING."

DANGER

You will be killed or seriously injured if you don't follow instructions.

CAUTION

You can be killed or seriously injured if you don't follow instructions.

Failure to take appropriate action could result in mechanical failure, product damage and/or cause serious injury or potential death.

All safety messages will identify the hazard and tell you how to reduce the chance of injury.

WARNING

IMPORTANT SAFEGUARDS

Read and follow all safety rules and operating instructions carefully before attempting to install dock system.

🚹 DANGER

- ▲ Never allow anyone under this lift system, especially while it is being operated, or it is supporting the weight of a watercraft.
- ▲ Stay clear of boat lift when someone if entering or exiting the lift with a boat. Never try to assist the boat's direction while it is in motion (either from inside or outside the boat).
- \wedge

Never work on or make adjustments to boat, boat lift, or boat lift accessories while the lift is supporting the weight of the boat.

This manual includes the latest information at the time it was printed. We reserve the right to make changes in the product after that time without notice. Keep this manual so it will be available to who ever is using this product.

- M While operating the lift, keep all body parts, long hair, loose clothing, and jewelry away from all moving parts, including (but not limited to) the drive-train mechanism, cables, pulleys, and lift platform.
- ▲ Be sure the lift cradle is completely lowered before any adjustments or repairs are made to the winch.
- Always keep all people clear of the boat lift support structure and lifting cradle. Never swim or play near a boat lift, even if it's not being operated.
- ▲ Make sure the boat lift is completely clear of people or other obstructions prior to operating. Do not operate a boat lift with people inside the boat.
- ▲ Never operate a boat lift with protective cover removed from drive train system.

If the boat lift system is not assembled, installed, or operated properly, mechanical failure, as well as serious injury or death, could result. See to it that all users understand that this lift system is a piece of heavy equipment that requires the use of good judgement and the knowledge of its dangers and limitations.

WARNING

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- ▲ Lift must be assembled and installed properly or mechanical failure and possible injury may occur.
- Never overload a boat lift. See capacities/ specifications for important information regarding the boat's actual weight and boat lift capacity limitations.
- Neveroperate aboat lift that is not level. Under normal conditions a boat lift operates under extreme force. When the lift is not level, these forces are greatly multiplied and bodily injury or damage to the lift can result.
- Perform all inspections and maintenance on a regular basis. Replace any worn parts immediately to avoid potential lift failure. Ensure all pulleys are operating properly and that all cables and their attach points are secure and free of excessive wear and fraying. See Inspections & Maintenance section for all important details.
- Bodily injury or damage to lift system may result if installation or removal of this lift is attempted without first reading and understanding the installation and removal section of this manual.

- ▲ If this unit is equipped with a canopy, severe wind damage may occur if the lift is not securely held down to the lake bottom by screw anchors or by some other means.
- ▲ FLOE lift systems have not been tested in brackish or salt water conditions. Lift failures due to installations in brackish or salt water locations will not be covered by FLOE's warranty. FLOE will not be responsible for incidental or consequential damages resulting from these installations.
- Never install the lift system in a body of water whereas either the rising water or wave action will not always flow under the main lift beam. For example, do not install lift in bodies of water with significant water fluctuation or large water bodies that have excessive wave action.

This manual is intended to serve as an owner's use and maintenance guide for a lift that has been properly assembled by a qualified, trained professional. Detailed assembly instructions are packaged with the lift systems.

All dealers should have reviewed the checklist below with retail customers upon purchase of a boat lift. If they did not cover this, retail customers must review thoroughly and understand the statements below.



Certificate of Boat Lift Pre-Delivery

Date of Purchase _____/____ Boat Lift Model _____

Customer Delivery: Each item must be initialed by the selling dealer upon sale.

I understand that the boat lift must be properly assembled and must be tested prior to use with a boat. I understand that a serious injury or death could occur if a boat lift is overloaded, not correctly assembled, installed, maintained or not used properly.
I was given an owner's manual and I promise to read and understand it before using the boat lift. I understand that it is my responsibility to get clarification on anything in the owner's manual that I don't fully understand before using the lift system.
 I understand that I must educate all persons who will be around or using my boat lift as to how to do so safely. I understand that people must stay clear of the boat lift when it is supporting the weight of the boat. No one should ever swim under it, be on it, in the boat, or in any position that could cause harm to them if the lift were to suddenly drop.
 I understand safe operation of the lift requires people to stay clear of moving parts and pinch points. I understand that a boat lift should never be overloaded under any circumstance. A boats published dry weight is usually substantially lower than its actual loaded weight. Your boat should be weighed with fuel, water, batteries and contents in order to know its actual weight.
I understand the total capacity of the boat lift is equal to the combination load limit of the two main end lift beams. For instance, a lift with a 5,000 pound capacity has a load limit of 2,500 per lift end beam.
 Funderstand that a 5,000 pound total boat weight could easily over-load one of the main int beams on a 5,000 pound capacity lift. For instance, if the boat was positioned so that one main lift beam supported 3,000 pounds and the other only supported 2,000 pounds, the lift would be over-loaded. For this reason, FLOE recommends that your total loaded boat weight doesn't exceed 85% of the lifts rated capacity and that you locate and place the boat's center of gravity (balance point) in the center of the two lift beams. I understand that the boat lift needs to be installed level and must be kept level while it is in use. A lift that isn't level will have a reduced lifting capacity of 5% per 1" of being out of level.
I understand that I need to pull the drain plug on my boat if it is subject to water accumulation as this could easily overload the boat lift.
I understand that I should never lift my boat if it has been swamped or has any significant additional water weight in it that will overload the boat lift's capacity.
I understand that if my lift is equipped with a canopy it must be properly secured or it could blow over and cause damage not covered under warranty.
I understand that I must discontinue using the lift immediately and contact my FLOE dealer if any unusual sounds or functionality are present.
I understand I must follow all inspection and maintenance procedures as outlined in my owner's manual.
Selling Dealership Name

SellingDealershipSignature_____

Print Name

Customer Signature_

Specifications and models may change without notice due to continuous improvements to our products

LIFT DIMENSIONAL SPECIFICATIONS - V1600

MODEL/	WINCH	BUNKS	BED	INSIDE	OUTSIDE WIDTH	FRAME LENGTH
Capacity	OPTIONS		TRAVEL	WIDTH	(Sandpad to Sandpad)	(SANDPAD TO SANDPAD)
V-1600 lb.	36" Crank Wheel 12V DC	Full Length Bunks (Standard)	51"	60"	73.5"	73.125"

MODEL/ Capacity	LEVELING LEG TRAVEL	CANOPY Option	GUIDE-IN Options	MAX INSIDE WIDTH WITH GUIDE-INS	WEIGHT (Does not include weight of winch or accessories & options)
V-1600 lb.	24"	14'	single vertical	55"	155 lbs.

* Deep water extensions available. ** Does not include the weight of the bunks, guides, or other accessories.

LIFT DIMENSIONAL SPECIFICATIONS - V1600 PWC MODEL



WINCH SELECTION & USE

You can customize your FLOE vertical lift with the winch style that best fits your needs and budget. The DC battery-powered winch offers an effortless way to raise and lower the cradle lift beams and boat by simply pushing a button. Another option is the manual winch. Although you supply the power with a manual winch, FLOE's gear-reduced winch system, combined with a large crank wheel and speed knob, makes it easy to raise and lower your boat.

DC WINCH



FIG. 3 DC Winch

The DC Winch (Fig. 3), is a 12 Volt DC StrongArm winch manufactured by Dutton-Lainson Company. With the DC Winch, you can raise or lower your boat by pushing the up or down buttons on the standard wired remote (Fig. 4). The wired remote's 10' cord enables you to place the winch opposite your



Fig.4 Remote

dock, and still have the controls within easy reach of your dock or boat.

SELECTING THE BATTERY

Before assembling or using the DC Winch, you need to select and purchase a suitable battery. The following sections give you guidelines for selecting the correct battery, and keeping it properly charged. The recommended battery is a 12-Volt, AGM 35 amp battery.



If you are leaving your battery in an unheated area for seasonal storage, ensure they are fully charged according to the manufacturer's instructions.

When charging batteries, it is important to follow the manufacturer's instructions for both the battery and charging systems to ensure that batteries are not damaged by improper or over-charging.

Batteries that are improperly connected can cause damage to the lift system, batteries, and may cause a potential explosion.

You must weigh your boat fully loaded, including fuel, gear, etc. to get its accurate weight. It is common for published dry weights to be considerably lower than actual loaded weights. Lift and/or boat damage due to overloading is not covered by your warranty.

CONNECTING THE BATTERY



The DC Winch comes standard with an aluminum battery tray, plastic battery box, and the cabling to connect the battery to the electronic control panel. Attach the ring connector on the red power cord with the automatic overload circuit breaker to the positive side of the battery, and the black cord to the negative, as shown in **Fig.5.** The circuit breaker will trip if an excessive amount of current is drawn through it. If this occurs, refer to the section on Troubleshooting the DC Winch on page 10 of this manual.

All battery and motor connections must be corrosion free and tight. If not maintained properly, excessive heat will be generated which can melt the connections.

Never exceed the lift's rated capacity. Doing so could cause structural/mechanical failure and serious injury or death.

If watercraft is open to the accumulation of rain water, be sure boat's drain plug is pulled. Additional water weight may cause the maximum lift capacity to be exceeded, resulting in potential lift damage or bodily injury.

CHARGING THE BATTERY

In order to achieve peak lift performance and maximum battery life, the batteries must be properly charged and maintained. If the batteries are run down or faulty, the lift system will either move very slowly or not at all.



Two Charging Options:

Option #1: Access the battery posts and charge the battery as you would normally. Charge the battery per manufacturer's instructions for both the battery and the charger.

Option #2: To maintain a battery charge with the optional FLOE 12-Volt solar panel (**Fig. 6**). mount panel per included instructions and wire it to the battery as shown in **Fig. 7**. Be sure the panel faces the sun during peak daylight hours. A solar panel provides continuous charging on sunny days.



IMPORTANT INFORMATION & GENERAL MAINTENANCE

- When used on a Floe Vertical Boat Lift, this winch must be properly assembled.
- Maximum winch capacity, in all configurations, is 1600 lbs.
- It is normal to hear cable noise, such as pinging and popping, as the winch is lifting the boat.
- The winch will smell hot and possibly smoke until the brake is broken in.

Periodically check the drum of the winch, (the cylinder that the lifting cable winds onto), by lowering the cradle lift platform so that most of the cable is unwound. Visually inspect the drum for any excessive wear, or channeling. See the section on Inspections and Maintenance of this manual, for more information about how to inspect and maintain the cables on the lift and the gears of the DC winch.

- · Grease the cable and the winch gears annually.
- This winch is intended for intermittent use only. Continuous running in excess of three minutes can damage winch motor. After maximum run time the motor must cool for a minimum of five minutes.

Submerging of the electronic components including the electric motor in water may cause lift failure that is not covered by warranty. When properly installed, the wave action will flow under the main lift beams and not break against them. This will ensure that the integrity of the lift frame and electrical system will not be compromised.

🚯 WARNING

Do not operate winch without reading and understanding this warning and all other warnings on this lift and in the owners manual. (1) Do not exceed the winch's rated capacity. (2) Inspect the winch cable often to ensure it is not frayed. Replace as necessary. (3) Inspect the winch gears often to ensure they are not dangerously worn. Replace as necessary. (4) Grease the cable and the winch gears annually. (5) Do not rely on the safety limit switch to stop the upward bed travel.

DC WINCH ROTATION

When using a DC winch the winch drum must always rotate from the inside to the outside when raising your boat. When wound correctly, the cable will go up the back of the winch, or the side closest to the corner post on which it is mounted.

If the cable is wound the wrong direction on the drum of the DC winch, the weight on the lift will fight the brake, so that the cradle lift beams may slowly lower, dropping your boat gradually back into the water. To correct this, simply use the wired remote to lower the lift and let it continue to run until the lift cradle beam raises again.



🚯 WARNING

When raising your lift the winch cable must wrap around the drum from the inside to the outside or severe damage to winch and it's brake system may occur. It may also cause your boat to slowly lower to the water. If your winch is wound up backwards, simply lower the lift and continue running the winch until the lift platform raises.

RAISING AND LOWERING LIFT MANUALLY

If there is no power to the DC winch, the lift bed can be manually lowered with the emergency handcrank packaged with the winch. Make sure battery power to the lift is disconnected before attempting to lower



or raise the cradle lifting platform manually. Remove the plug on the side of the winch housing and insert the crank handle (Fig. 8). Turn counterclockwise to lower the lift. Continue turning until the cradle is fully lowered and there is slack in the cable. Turning clockwise will raise the lift.

Make sure battery power to the DC winch is disconnected before attempting to lower or raise lift manually.

Never allow anyone on or under this lift system, especially while it is being operated or supporting the weight of a watercraft.

DC WINCH TROUBLESHOOTING LIFT WON'T GO UP OR DOWN

Check battery(s) condition and that it is properly charged. Each battery should have between 12.7 and 13.8 volts. Check to see that all battery connections are corrosion free and tight.

Check the auto reset circuit breaker or fuse. If the breaker has tripped, it should reset after a couple of minutes when it cools down. If not sure it is working, you can bypass it.

- If circuit breaker is tripped or fuse is blown, chances are the motor is drawing too much current and it could blow the fuse or trip the breaker again. Check the following:
- a. Is the lift overloaded or has it exceeded its max run/cycle on time?
- b. Is the brake improperly engaged?
 - With the winch units, the brake will drag if the cable is wound up backwards on the drum. Refer to decal on winch corner post.
- c. Additionally, there may be something causing friction in the system, such as a problem in the drive train, or the cable/pulley system has an issue.

MANUAL 36" WINCH CRANK WHEEL

FLOE includes a 36" wheel with a speed knob attachment that makes using the manual winch easy. (Fig. 9) The speed knob is easy to grasp

and allows you to turn the wheel with one hand. See manual winch instructions for assembly. The brake style winch is manufactured by Dutton-Lainson. It operates by maintaining pressure on the brake pad



Fig. 9 Crank Wheel with Speed Knob

any time the winch is being cranked to raise the cradle lift beams. As the "dog" catches each cog of the sprocket, you will hear a clicking sound. This indicates that the brake is working properly, and that the drum is turning while the brake prevents the cable from unwinding uncontrollably. When you "back the wheel off" by turning it in a counterclockwise direction, the pressure on the brake is reduced, allowing the smooth lowering of the cradle lift beams and boat.

RAISING AND LOWERING THE MAIN CRADLE LIFT BEAMS

Before raising or lowering the main cradle lift beams, it is important that you understand how to operate the remote, what to do should the remote fail, and how to ensure that the lift is both level and in adequate water depth. Please read the safety statements and information in this section carefully before connecting power to the lift and operating it for the first time. If the lift is equipped with a canopy, it is important to stop raising the boat before it or or any accessories make contact with the canopy frame or fabric.

NOTE: Many boats have plug-in style bow and stern lights that while plugged in are higher than the rest of the boat. Be sure these are removed when entering or exiting the lift or lowered prior to lifting the boat to its normal raised position.

When the main cradle lift beams are in their lowered position on a properly leveled lift in adequate water depth, the boat floats free of the bunks as it enters or leaves the lift. (See **Figs. 10a & 10b**). When determining required water depth, take wavy conditions into consideration. There should be no chance of the boat hull lifting up on a wave and dropping down onto the bunks.

WARNING

When raising lift a clicking sound should be heard indicating proper rotation and brake function. If no sound is heard a fast uncontrollable spin-down could occur. Attempting to stop the crank wheel during an uncontrollable spin-down could result in severe injury.



Fig. 10a: Properly Leveled Lift in Adequate Water Depth (no friction from hull hitting bunks).



Lift Platform has not been raised sufficiently. Water is hitting the rear cradle lifting beam. DO NOT let cradle lift beam act as a wave-break!

The main cradle lift beams should never act as a wave-break. Make sure that the cradle lift platform is always either raised high enough so that the waves pass under it, or lowered completely beneath the water. Waves breaking against the cradle lift beam will cause unnecessary wear on the lift's frame.

WARNING

Keep all body parts and clothing away from cables and moving parts. Do not attempt to stop the wheel if an uncontrollable spin-down should occur.

Never work on or make adjustments to boat, boat lift, or boat lift accessories while the lift is supporting the weight of the boat.

DANGER

Stay clear of boat lift when someone is entering or exiting the lift with a boat. Never try to assist the boat's direction while it is in motion (either from inside or outside the boat).

DANGER

The operator should always watch the lift bed and stop before exceeding the stop limit and "Stop Here" decals. Failure to do so can result in serious bodily injury.

VERTICAL LIFT - CABLING

As its name indicates, the vertical lift's cradle beams raise and lower vertically, or straight up and down, as opposed to the pivot or cantilever style lift which has a cradle that pivots back from the main frame. The advantage of the vertical lift style is that the cradle lift beams drop lower, thus requiring less water depth to float the boat onto the lift and the cradle lift platform also raises your boat much higher for greater protection. The winch cable winds or unwinds onto the winch drum which raises or lowers the lift. One end of the front leveling cable attaches to the front corner post leg, passes over a sheave inside the front cradle beam, through the beam itself, and then under a sheave at the opposite end of the front cradle lift beam. The cable is attached at its opposite end near the top of the other front corner post. As the winch cable raises or lowers the lift, the pulleys allow the cradle platform to travel up and down along the leveling cables. The front leveling cable, working with two corresponding cables in the side cradle beams, keeps the cradle platform both square as it travels up and down.

With the exception of the winch cables, all of FLOE's vertical lift cables are made of aircraft-quality stainless steel. Because stainless steel cables are not flexible enough to wind on a winch drum, FLOE uses the highest aircraftquality galvanized cables available for the winches.

PROPER HEIGHT "STOP HERE" DECAL

Never exceed the recommended height when raising the lift. A "Stop Here"

arrow decal is located on the winch corner post (See **Fig. 8**). It is especially important to remember this when using a DC winch



Fig. 8 "Stop Here" Decal

because, if there is a limit switch failure, the winch will continue to try to raise the boat. Going beyond the recommended height can cause damage to the winch, cables, accessories, or lift frame.

A WARNING

Do not raise the cradle lift beam platform beyond the "Stop Here" arrow decal on the corner post of the lift frame. Exceeding the maximum height can cause severe damage to the corner post and lift frame, winch, and cables, as well as your boat and accessories. See **Fig. 11**.

When positioning the lift it is important that it is placed in adequate water depth (Fig. 7a on page 13). The cradle must be lowered far enough for the boat to easily float on and off without touching the lift bunks. If the boat hull rubs on the bunks when entering or exiting the lift, the horizontal forces can cause severe damage to the lift and will void the warranty on affected components.



Fig. 12

LEVELING BOAT LIFT INSTALLING AND LEVELING LIFT

As you prepare to install and level the lift, keep in mind how crucial it is to prevent a boat hull from rubbing or hitting the bunks or lifting beams and causing undue pressure on the lift frame. Read the warning below, and refer back to **Fig. 10a** on page 11, which diagrams a properly leveled lift in adequate water depth.

The decal pictured in **Fig. 12** has a useful measuring tape so that you can see the water level on each corner post. It is important that the water level reads the same on all four corner posts. Once you determine what leg extension measurement works best for your boat and lift, you can use a waterproof marker to draw a line at that point on the tape of one corner post. This will be very helpful in following seasons, either for you or especially for a hired installer who may be unfamiliar with your boat, shoreline, and lift.

Be sure people and objects are clear of the lift and the leveling leg during adjustment. As the lift is leveled, the entire lift frame will move, causing the potential creation of pinch points between the lift and dock system as well as the sand pad and lake bottom.

WARNING

Never adjust leveling legs (up or down) with a boat on the lift. The added weight of the boat will apply extreme pressure to the adjustment system causing potential mechanical failure and/or serious bodily injury.

Never operate a boat lift that is not level. Under normal conditions a boat lift operates under extreme force. When the lift is not level, these forces are greatly multiplied and bodily injury or damage to the lift can result.

BOAT LIFT INSTALLATION & REMOVAL OPTIONS

If the lift is in a climate where the lakes freeze during the winter months, it may need to be installed and removed on a seasonal basis. FLOE has a boat lift wheel kit designed to make this easier.

BOAT LIFT WHEEL KITS

If the lift is in a location where it can be rolled straight in and out, we recommend using two pair of optional wheel kits (Fig. 13). Attach wheel kits to lift frame according to wheel kit assembly instructions included in your boat lift wheel kit.



SEASONAL STORAGE

There is no need to cover the DC winch for winter storage. If you choose to do so, do not close or seal the bottom of the cover as this will trap moisture and encourage internal corrosion. For battery care, disconnect the ring connectors and fully charge the battery according to manufacturer's instructions.

WARNING

The wheels must not touch the lake bottom once the lift has been installed. The weight of the boat and lift must be supported by the sand pads only.



Fig. 15

Lift being pulled into lake by boat - OR- being pulled into shore by ATV to remove.



Do not attatch anything to pull from here.

CABLE & PULLEY SYSTEM

Boat lift wheel kits can be combined with the optional Cable & Pulley System to enable you to harness the power of a boat alone, or use in combination with an ATV, winch, or other similar means, to install and remove your lift. This system consists of "Y" harness cable assemblies, which can be added to each side of the lower lift frame (Fig. 14).

The "Y" harness will distribute the weight on the frame of the lift, so that you can then attach a cable, chain, or rope of appropriate length from the harness to your power source and pull the lift without damaging it (Fig 15).

WARNING

Never tie a rope, chain or cable to the center of a lift's frame beam. This can bend or break the beam. Always use a "Y" cable harness set-up to more equally distribute the pressure on the frame.

WARNING

1

When using any of the installation and removal accessories with a power source (such as a boat, winch, or ATV), if the lift does not move easily, do not force it. Structural damage to the lift could result.



Fig. 16 - Ideal bunk placement - Note that the bunks are spread out to the widest position on the boat hull. They sit nicely into the contour of the hull and the keel has plenty of clearance above the main lift beam.

FULL-LENGTH BUNKS

Full length bunks are excellent for stabilizing and providing superior support for most V-hull, Trihull, and tunnel-hull boats. Detailed instructions for setting up and adjusting the bunks are included with the bunk system. Ideal bunk placements are shown in **Fig. 16.**

DETERMINING THE PROPER WIDTH

The proper width of the bunk system depends on the contour of the boat hull. As a rule of thumb, the bunks should be spread as wide as possible. If the boat is on a trailer, measure the width that will provide optimal support and hull fit. The setup of the trailer bunks may provide a helpful guide.



Improper weight distribution on the main lift beams can cause the majority of the boat's weight to be supported by only one beam. This could cause an overload situation which could result in lift failure and potential bodily injury. If you do not know where your boat's balance point is, consult your dealer. If the lift is in shallow water, and after final adjustment these tubes stick too far below the main lift beam, they may need to be cut off flush so that they do not hit the lake bottom and prevent the lift from lowering completely.



To adjust the width, loosen the bolts on the lower part of the clamp and slide it into position. Torque to 35 ft. lbs.

Never attempt to adjust the bunk system (or any boat lift component) with the weight of the boat on it. Doing so could kill or cause serious bodily injury due to a fast dropping boat.

To adjust the height, loosen the clamp bolt and raise the tube to the proper location. Torque to 45 ft. lbs.

PROPER CANOPY FRAME POSITIONING

The FLOE canopy system is adjustable vertically and horizontally. Detailed instructions on how to make these adjustments are included with the canopy system. Once the boat's proper position is known, follow the simple steps below to ensure proper canopy placement as shown in Fig. 18.

1. With the boat in place, determine how far the canopy needs to extend beyond the rear of the lift. Remove boat and position the frame accordingly. Do not tighten at this point.

Note: It is recommended to allow at least 6" of extra coverage in both the front and rear of the boat and outdrive. When adjusting the horizontal position of a canopy frame, the frame will extend further off the front of the lift than off the rear. This depends on the length of the canopy and the position needed to cover the rear of the boat.

2. Raise the boat to its maximum height and determine how high the canopy framework needs to be in order to clear the tallest point of the boat.

3. Remove the boat before making adjustments. Set the canopy frame height by adjusting the four vertical tubes and tightening each set bolt to 60-ft. lbs. See Fig. 19.

4. Tighten the horizontal adjustment bolts to 60-ft. lbs.





Fig. 18 - As you can see, the watercraft is completely covered from front to back and the fabric hangs down vertically over the boats side walls. This is the optimum canopy placement.



END FRAME ADJUSTMENT

All canopy frames are equipped with the adjustable end frame feature. This feature makes installation and removal easier and pulls the canopy fabric tight for a great looking fit.

To adjust prior to installing or removing fabric:

- 1. Loosen center rail adjustment knob by turning it counterclockwise (See **Fig. 20**). This will allow the center rail to retract.
- 2. Using a 9/16" socket with either a wrench or a cordless drill, spin main rail adjustment bolts clockwise to retract each side (See **Fig. 21**).
- 3. Follow canopy fabric installation instructions.





Center rail adjustment knob.

Canopy main rail adjustment bolt.

Do not adjust canopy frame with fabric attached. When the bolts are loose or removed, a sudden wind could cause the entire frame structure to blow off the lift and damage it.

CANOPY FABRIC INSTALLATION

1. Place fabric over the frame system and adjust where necessary for a uniform fit.

2. Attach canopy ends to frame by wrapping the Velcro around the bottom of the end hoops as shown in **Fig. 56.**

3. Use a 9/16" socket with either a wrench or a cordless drill, spin main rail adjustment bolts counterclockwise to extend each side until the fabric is snug. Do not over extend as too much pressure on the fabric can tear the seams or bend end hoops.

4. Push the top center of the end-hoop outward until the fabric is snug and tighten the center rail adjustment knob.

5. Attach all elastic belts by placing the *Quick* $Clip^{TM}$ onto frame rail as shown in **Figs. 22 & 23**.

Before attaching the quick clips to the frame, check each one to ensure that the elastic strap has been woven through the clip properly (see **Fig. 22**) and that a "tail" of at least one inch of strap material extends beyond the end of the clip.

When attaching the quick clips, alternate from one side of the frame to the other, and follow the three simple steps shown in **Fig. 24.** Once installed, the straps should be fairly taut, with an approximate tension of 20 lbs.

WARNING

Do not attempt to install or remove canopy fabrics in windy conditions. Strong winds or wind gusts can make fabric handling extremely difficult and can cause a potentially dangerous situation.

When adjusting the main rail bolts, be especially careful when using a cordless drill. The drill has so much power that it would be easy to overextend the rails, which could cause the canopy fabric to overstretch or tear.

Do not adjust canopy frame with boat on lift. If lift failure were to occur, there is potential for serious bodily injury or even death. Damage may also result from the loosened framework making contact with the boat.





Fig. 22





CANOPY WIND PRECAUTION

If the lift has a canopy, it is possible for strong winds to move the lift system or blow it over. This is especially true if the lift does not have a boat on it. Even with a boat's weight, extreme winds can possibly move a boat lift causing potential damage. The possibility of wind damage to the lift or canopy may be reduced by anchoring the lift to the lake bottom with a screw-auger anchor system. Mesh end canopies are available for high wind areas (Fig. 25). Screw-auger anchors are commonly used to secure mobile homes and can be purchased at most hardware stores. They can also be purchased from a FLOE boat lift dealer.



Fig 25: Optional Screw-Auger Anchor System - must be used if canopy is on lift Part #511-03800-00 (two per set)

CANOPY FABRIC REMOVAL

 Detach all elastic belts and Velcro end straps.
 Loosen the center rail adjustment knob so the end-hoop can retract.

3. Using a 9/16" socket with either a wrench or a cordless drill, spin main rail adjustment bolts clockwise to fully retract each side.

4. Remove fabric from frame.

If the lift will be left without a boat on it for any extended amount of time, the canopy fabric should be removed to reduce the possibility of wind damage.

In winter climates where the potential for snow accumulation exists, the fabric must be removed or the weight of the snow may cause damage to the canopy frame and/or canopy fabric. Canopy fabric should be stored clean and dry. This will help prevent the growth of mildew and fungus.

CANOPY FOLDING INSTRUCTIONS

1. Lay can-114" opy on а FOLD clean, flat 32" surface with the top facing up. 2. Fold the sides of the Fig 26 canopy on the seam. Fold one 16" end of the canopy to Fig 27 20"/ PROX 20" APPROX. seam. the 9" See Fig. 26. 3. Start at Fig 28 the end that

is folded, measure in 16", fold the canopy toward opposite end and continue folding until you reach the other side. The canopy should now be approximately 20" wide and resemble **Fig. 27.** 4. At one side, measure in 16", fold the canopy until you reach the opposite end. The canopy should now resemble **Fig. 28.**

CANOPY FABRIC CARE & CLEANING

SOLUTION DYED POLYESTER (SDP)

SDP is a woven fabric and will not support the growth of mildew. Mold and mildew needs "food" to grow on and polyester isn't a desirable substance for mold. Dirt or dust on the fabric is a perfect "food" for mildew growth, which makes regular cleaning important. There is no set time for when a fabric should be cleaned. The local environment has a great deal to do with determining cleaning frequency. Cleaning is required less frequently in a dry environment than in a humid one with heavy foliage cover. SDP has a finish applied to the fabric to deter mold and mildew growth, but does not make it mold-proof. Keeping the fabric free of dirt is important to deter mold growth.

FLOE SDP fabrics will provide excellent protection to your boat from harmful sun exposure. Also, the combination of heat-sealed seams and the water repellent fabric will minimize rain from entering the boat. Heavy and/or persistent rainfall can increase the likelihood that a limited amount of water could pass through the fabric. It is recommend that the canopy be kept taut using FLOE's horizontal fabric tensioner and Quick-Clip with elastic tension belt system. A taut canopy fabric promotes water runoff and will minimize water penetration. Also, applying water repelling fabric treatments such as 303 may increase the water repellency further.

Cleaning: One of the best ways to keep SDP looking good and to delay the need for deep cleanings is to hose fabric off on a monthly basis with clean water. This practice will help prevent dirt from becoming deeply embedded in the fabric. In most environments, a thorough cleaning will be needed every two to three years.

To thoroughly clean SDP fabric, follow these simple steps:

- 1. Brush off loose dirt.
- 2. Hose down.

Ŧ

20" APPROX

3. Prepare a cleaning mixture of water and mild natural soap (no detergents).

- 4. Use a soft bristle brush to clean.
- 5. Allow soap to soak in.
- 6. Rinse thoroughly.
- 7. Air dry completely before storage.

Re-Treating the Fabric: SDP fabrics are treated with a fluorocarbon finish which enhances water repellency. This finish is designed to last for years but will need to be replenished when you notice that water is not beading up as well as it usually does. The fabric manufacturer recommends 303 High Tech Fabric Guard[™] as the preferred re-treatment product. Reapply as needed. 303 High Tech Fabric Guard[™] can be purchased at most marine supply stores or online at 303-products.com.

If a canopy fabric has any build-up of dust or dirt in the pores and it is in a moist environment where it cannot dry out regularly, it may cause mildew to grow on the fabric. Although this mildew can be removed, it can be very difficult or even impossible to remove the stain on the fabric left by the mildew. With darker colored fabrics, even if such a stain occurred it is much less visible to see.

INSPECTIONS & MAINTENANCE

· Check all structural fasteners annually to ensure that they are tight.

• Inspect all cables at least annually. Any frayed, deteriorating or visibly stressed cables must be replaced before the lift is used.

• Check all six pulleys (sheaves) annually to make sure they are turning free and true. Ensure that the cables are running properly in the grooves or channels of the pulleys. Check the bushings or any signs of wear. If there is too much vertical play at the top and bottom of a pulley on its axis, (more than an 1/8"), replace the bushing, and if necessary, the sheave itself. See **Figs. 29 & 30**.

• Visually inspect lift frame annually for cracks or damage. Replace any cracked or damaged parts before using lift.

• If the lift receives wind damage or is moved or blown over by the wind, a full inspection (preferably by a trained FLOE dealer or other knowledgeable professional) must be completed before the lift is used.

• Grease lift as outlined in this manual. See Fig. 28 on the following page.

Pulleys with worn bushings can cause damage to the beam where they are located and cause excessive friction while the lift is being operated. This can also severely damage other components such as the drive train and cables.

Do not use a boat lift with cables that show any abnormalities. If a cable breaks under pressure, the boat will drop suddenly causing potential damage to the boat, the boat lift, and can cause serious injury or death.

INSPECTIONS & MAINTENANCE continued





Fig. 29 Pulley with proper vertical orientation on its axis

Fig. 30 Pulley with too much side-to-side play (not vertically aligned)



Fig. 31 Side Cradle Lift Beam Pulleys

While Fig. 32 shows the location of all seven pulleys, this figure (31) specifically identifies the location of the side cradle lift beam pulley, which is a little more difficult to access. It can still be checked from the open end of the beam by using a long pry bar or flat screwdriver and pushing against the side of the top and bottom of the pulley to test for excessive side-to-side play (see Fig. 30).

WARNING

Pulleys with worn bushings can cause damage to the beam where they are located and cause excessive friction while the lift is being operated. This can also severely damage other components such as the drive train and cables.

Fig. 32 Sheave Locations (Total of Seven)

There is one sheave that comes with the winch in a double-pull system. In the lift itself there is one sheave at each end of the two side cradle lift beams and one at each end of the front cradle lift beam.



Note: Pulley Block (comes with winch on V2002, V3400 & V4200)

Always remove the boat and lower the lift bed completely before attempting any maintenance or repairs.

GREASING THE DC WINCH

Although the DC winch does not need to be covered for seasonal storage you should grease the gears at least once a year. Access the gears from the opening on the top of the winch housing. Apply a high guality lithium grease to the topmost gear and then run the winch enough so that the grease is distributed to the other gears. (See Fig. 33)



Fig. 33

LEVELING THE LIFT/LEG ADJUSTMENT

To level the lift, loosen the bolt from the leveling legs. Pull the inner leg out until it is at the proper depth. Tighten the bolt. Repeat for all 4 legs. For proper operation of the lift, it is important that the lift is level. 21

FLOE INTERNATIONAL, INC. BOAT LIFT SYSTEM 15 YEAR LIMITED WARRANTY

FLOE INTERNATIONAL, INC. warrants, to the original purchaser, the FLOE boat lift system to be free from original defects in materials and workmanship under conditions and loads for which designed as outlined in the owner's manual from date of purchase as follows:

NEW WARRANTY GUIDELINES EFFECTIVE SEPTEMBER 1, 2004

TWO-YEAR PARTS AND LABOR WARRANTY

FLOE International, Inc. will repair or replace, at their option, any portion of the lift system which fails as a result of a defect in material or workmanship during the first two years after the date of purchase. FLOE INTERNATIONAL, INC. reserves the right to inspect and perform repairs at its main facility (F.O.B.) McGregor, Minnesota. Any failure due to product assembly by a FLOE dealer or consumer is not covered by this warranty. This full two-year warranty includes parts and labor on the boat lift system and accessories including the following: (warranty does not cover paint, plated surfaces, or finish).

Aluminum structure, guide-ins, bunk systems, motor stops, crank wheels, canopy frames, canopy fabrics (excluding color fading or matching separate canopy fabrics), solar chargers, wheel kits, adjustable leveling legs, VSD drive train and electrical components, DC winches, corded and wireless remotes, cables, pulleys and installation and removal accessories.

Labor charges and mileage are covered within 40 miles from FLOE or the authorized FLOE dealership performing the repairs. Additional mileage/travel charges will apply if travel over 40 miles is required. If this charge applies, it is determined by the repairing dealer and must be paid by the customer to the dealer performing the repairs. Warranty does not cover damage, including broken welds, caused by improper installation or removal, or any damage of any sort caused by the use of power equipment.

EXTENDED PARTS WARRANTY

In addition to this two-year parts and labor warranty, additional warranty coverage applies to specific parts of the lift and accessories. <u>All warranty coverage</u> <u>beyond two years is for parts only</u>. Labor and mileage costs for any warranty claim are not covered past two years.

ALUMINUM STRUCTURE — 15-YEAR LIMITED WARRANTY

Defects in material and workmanship of structural components of the lift frame are covered fully for 10 years from the date of purchase. FLOE will provide replacement parts, on a non pro-rated basis, for ten years for these items if they are found to be defective. The lift frame consists of the aluminum framework making up the boat lift structure, including the lift cradle which is the portion of the lift frame that moves up and down as the boat lift is operated. It does not include the bunks or other accessories that are listed below. After this 10-year parts warranty, an additional five-year pro-rated warranty covers these components as shown below.

Year After Purchase	Consumer Portion of Current Retail Price	Year After Purchase	Consumer Portion of Current Retail Price
11	40%	14	70%
12	50%	15	90%
13	60%		

ACCESSORIES AND COMPONENTS — 10-YEAR LIMITED WARRANTY

Defects in material and workmanship of certain accessories and components of FLOE lift systems are covered under a 10-year pro-rated warranty. This pro-rated parts warranty begins after the two year parts and labor warranty. Items covered in this 10-year pro-rated warranty include lift bunks (excluding vinyl covering), guide-ins, motor stops and the canopy frame.

The pro-rated schedule on these items is as follows:

Year After Purchase	Consumer Portion of Current Retail Price	Year After Purchase	Consumer Portion of Current Retail Price
3	20%	7	60%
4	30%	8	70%
5	40%	9	80%
6	50%	10	90%

Boat Lift warranty page 1 of 2

ACCESSORIES AND COMPONENTS FIVE-YEAR LIMITED WARRANTY

Defects in material and workmanship of certain accessories and components of FLOE lift systems are covered under a five-year pro-rated warranty. This pro-rated parts warranty begins after the two-year parts and labor warranty. Items covered in this five-year pro-rated warranty include canopy fabrics (excluding color fading or matching separate canopy fabrics), manual winches, cables, adjustable leveling legs, drive trains, DC winches, wheel kits, corded remotes, limit switches, wireless systems and solar panels.

The pro-rated schedule of these items is as follows:

Year After Purchase	Consumer Portion of Current Retail Price
3	50%
4	55%
5	60%

On these items, it is important to note the following exceptions:

- Warranty is void on all winches and drive-trains if they are submersed into water (including the initial two-year warranty).
- Warranty is void on ball-screws and ball nuts, winch gears, adjustable leveling legs, or any other item that failed due to improper maintenance or lubrication as noted in owner's manual.

All canopies are date coded. Date tag must be attached to canopy or warranty is void. Canopy fabric warranty does not cover valance or trim, as delamination may occur in high wind areas. If returning canopy for warranty repair, canopy must be cleaned prior to returning or a \$100 cleaning charge will be applied.

This warranty covers only the cost for replacement of materials due to defects in materials or workmanship, and represents the only warranty authorized by us. In order to receive performance under this warranty, all warranty repairs must be authorized in advance by FLOE INTERNATIONAL, INC.

ADDITIONAL WARRANTY INFORMATION INCLUDING EXCLUSIONS AND OWNER'S RIGHTS

FLOE International, Inc. (manufacturer) will not be responsible for any costs incurred for, or as the result of, unauthorized repairs or improper assembly. Unauthorized repairs may void the warranty on the repaired part(s). This warranty does not cover damage, malfunction or faulty operation resulting from overload, misuse, wind, storms, ice, salt/brackish water applications, negligence, being hit by watercraft of any kind and any other 'Act of God'. Manufacturer's warranty coverage extends to private use only and is not applicable to commercial or rental use. Manufacturer is not responsible for damage or in-operability due to repairs made by unauthorized service personnel. Parts purchased by the manufacturer are warranted by the company that manufactured the part under the warranty schedule associated with the part in question. Manufacturer's warranty is extended to the original owner only and is non-transferable. Manufacturer reserves the right, at its own discretion, to inspect and perform repairs at its main facility in McGregor, MN. The customer is responsible for any and all freight charges incurred to transport the product to and from McGregor, MN, with the exception of claims covered by the manufacturer's two-year parts and labor warranty which has provisions for service work to be completed up to 40 (forty) miles away from a FLOE dealership. Manufacturer's warranty claim process, specifications and pro-rate scheduling may change without notice and/or obligation.

COMPLETING AND SUBMITTING YOUR WARRANTY CLAIM

To receive performance under this warranty, contact your authorized FLOE dealer. Be prepared to provide the following information so that the dealer can complete a warranty claim form: receipt and date of purchase; your name, address and telephone numbers; the serial or vehicle identification numbers; and a detailed description of the problem.

THERE ARE NO OTHER EXPRESSED OR IMPLIED WARRANTIES

Our obligations under this warranty are limited to repair or replacement at our discretion and FLOE SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND.

This Warranty gives you specific legal rights and you may have other rights which may vary from state to state.

Boat Lift warranty page 2 of 2

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ON	PART NUMBER	DESCRIPTION	QTY.
1	001-70105-00	HHCS, 3/8-16 x 1" 18-8 ss	6
2	001-70111-00	HHCS, 3/8-16 x 2″ 18-8 ss	11
m	001-70112-00	HHCS, 3/8-16 x 2 1/4" 18-8 ss	17
4	001-70114-00	HHCS, 3/8-16 x 2 3/4" 18-8 ss	5
5	001-70203-00	HHCS, 1/2-13 x 3/4" 18-8 ss	4
9	001-70205-00	HHCS, 1/2-13 X 1" SS 18-8	4
7	001-70207-00	HHCS, 1/2-13 x 1 1/4" 18-8 ss	4
8	001-70213-00	HHCS, 1/2-13 x 2 1/2" 18-8 ss	1
6	001-70223-00	HHCS, 1/2-13 x 5" 18-8 ss	4
10	001-71017-00	Flat Washer, 3/8" SAE ss 18-8	30
11	001-71021-00	FLAT WASHER, 1/2" 18-8 SS	8
12	001-71022-00	Flat Washer, 1/2" USS ss	4
13	001-71217-00	WASHER, 3/8" X 1.5" Fender ss	9
14	001-73823-00	BHCs, 3/8-16 x 1.25" SS W/Patch	2
15	001-73834-00	BHCS, 1/2-13 x 1" SS W/Patch	4
16	001-76071-00	NUT, NYLOCK 3/8-16 ALUM.	22
17	001-76072-00	NUT, NYLOCK 1/2-13 ALUM.	6
18	001-76349-00	NUT, 3/8-16 ALUM.	21
19	001-76350-00	NUT, 1/2-13 ALUM.	8
20	002-03018-00	Bracket, Corner Post B	1
21	002-03025-00	Sand Pad, V1600 PWC	4
22	002-03026-00	Tube, Bunk PWC - 13"	4
23	006-15018-00	Cap, Vinyl - 2.375" ID x 1" L	4
24	006-15220-00	Cap, Vinyl 2.592" Sq. Lfft Corner	4
25	007-00025-00	Sheave, PWC 2-1/2"	9
26	002-00030-00	Guide support PWC	8
27	007-05355-00	FLAT WASHER, 1/2" × .25" NYLON	-
28	007-07715-00	Spacer, V1600 Pulley	12
29	007-09400-00	Cable, Front Leveling	1
30	007-09401-00	Cable, Side Leveling V1600	2
31	011-01703-00	Pipe, 2" Schedule 40 PVC x 38"	4
32	111-00482-00	Weld't, V1600 Guide In	4
33	111-00483-00	Weid't, Bunk ADJ PWC	4
34	111-00484-00	Ass'y, V1600 PWC Bunk - 82"	2
35	111-11320-00	Weld't, Frame PWC	-
36	111-11321-00	Weld't, Corner Post " B" V1600 PWC	-
37	111-11322-00	Weld't, Inner Leg V1600 PWC	4
88	111-11323-00	Weid't, Cradle Beam PWC	-
65	111-11324-00		
40	111-11325-00		-
4	111-11326-00		-
44	111-1132/-00	Ass 3, cradie Beam Pvv (include 2, 4, 11, 17, 20, 21, 33, 39, 34) Mutur Commendance 8 - 11, 11, 20, 21, 33, 39, 34)	
43	111-11330-00		7
44	111-11332-00		
t 1	111-11333-00		-
46	111-11334-00	Ass Y, Corner Post Signe "D" PUC (INCLORES 6, 43, 50)	- ,
4/	111-11335-00		- ,
48	511-02762-00	Ass y, Bunk Clamps V 160 PVC (3, 4, 7, 13, 19, 20, 23, 39)	
9 9 0	511-UZ/63-UU		-
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LIFT P/N 511-16080-00





FLOE MANUFACTURES AN EXTENSIVE LINE OF OTHER PRODUCTS



MODULAR SECTIONAL DOCKS – FLOE's Sectional Docks are a great value and ideal for lake lots with minimal space or hilly terrain where roll-in systems won't work. The docks sections break down in seconds with no tools for easy stacking storage.



FLOE open and enclosed trailers are available in many styles and sizes to accommodate your needs. FLOE trailers have an aluminum frame that resists corrosion and never rusts. Aluminum construction allows for a light trailer while still offering the strength you need.



The Cargo Max XRT Trailer is a world-class combination of style, durability and simplicity. The trailer is engineered with a highstrength extruded aluminum frame and an ultra-rugged high-density polyethylene trailer body. It can haul and be towed by ATVs, and is great for yard work, hunting, camping, cabin travel, construction, rental, shopping and almost any other use imaginable.



Surfing, absolutely! Wake boarding and skiing, you better believe it. Tubing, of course. A martini cruise at sunset or a quick trip to your favorite restaurant – whatever you decide to do, the Varatti Z22 delivers. Our philosophy is, we build the boat, you decide what to do with it. The Varatti Z22 has no restrictions on fun.



The Afina 3950 is the ultimate expression of our challenge to the status quo. Instead of simply following a checklist, we decided to completely reimagine what your boat should be. From unique features like power windows and a retractable roof providing integrated climate control to a hull that planes quickly coupled with easy maneuverability, this elevates boating into an art form. Thank you for purchasing a quality FLOE boat lift. Understanding the information in this manual should help you to keep your boat lift in optimal working condition for many years of worry-free enjoyment.

Please take the time to record this important information for future reference:

Model Number:	_
Serial Number:	_
Date of Purchase:	

NOTE: All boat lifts are identified with a serial number. It is a good idea to save your receipt from the dealer.

(Your authorized FLOE Dealer:	
	_	
-		



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