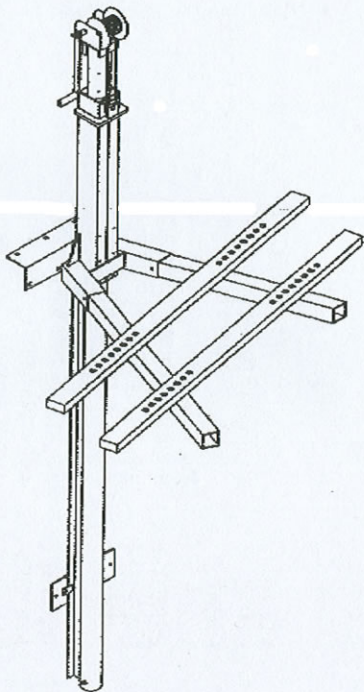


# MISTER LIFTER

Personal Watercraft Lift



Patent #123456

**Installation and Assembly  
Instructions**

## Parts List

Item No.	Qty.	Item Code	Description
1	1	FML-15W	Clutch Brake Winch
2	1	FML-C	3/16"x14' Galvanized Cable
3	1	FML-WMH	Winch Mounting Head
4	1	FML-CP	Cable Pulley
5	1	F-CP1	1/2"x1 1/2" Clevis Pin w/Hitch Pin
6	1	FML-PT	Pipe Track
7	1	FML-10UMB	Upper Mounting Angle Bracket
8	1	FML-10LF	Lifting Frame
9	2	FML-10LA	Lifting Arm
10	4	FML-WR	Wooden Rail
11	4	FML-SMB	Slotted Mounting Angle Bracket
12	4	F-UB38	3/8" U bolt
13	4	FML-IA	Installation Angle
14	2	FML-C12	Galvanized Chain
15	2	FML-WW	Wedge Washer
16	1	FML-LMP	Lower Mounting Plate
18	4	F-SFTSH	3/8"x1" Stainless flat tapered socket head bolt, w/ nylon lock nut
19	4	F-HB38	3/8"x1" Hex head bolt, flat washer, lock washer & nut
20	12	F-HB3815	3/8"x1 1/2" Hex head bolt, (2) flat washers, lock washer & nut
21	2	F-SHB3815S	3/8"x1 1/2" Stainless hex head, (2) flat washers, nylon lock nut
22	2	F-SHB3815FW	3/8"x1 1/2" Stainless hex head bolt and flat washer
23	6	F-CB38	3/8" x2 1/2" Carriage bolt, flat washer, lock washer & nut
24	2	F-HB4FW	3/8"x4" Hex head bolt, (2) flat washers, lock washer & nut
25	8	F-LB4H	3/8"x4" Lag bolt w/ flat washer
26	8	F-CB45H	1/2"x4 1/2" Carriage bolt, flat washer, lock washer & nut

## STEP ONE (CONT.)

Attach the 3/8"x1 1/2" (Item #21) stop bolt at the bottom of the track as seen in **Diagram D**. Also attach the lower mounting plate with the wedge washers (Item #15) and two 3/8"x 1/2" (Item #22) hex head stainless steel bolt with flat washer as seen in **Diagram D**. The brass inserts of the lower mounting plate (Item #16) face away from pipe track. The lower mounting plate must be snug so it does not slide off the pipe track, but the lower mounting plate will need to be adjusted before finally being attached.

The lower mounting plate should be mounted close to the bottom of the track. If your Mister Lifter is being mounted in a tidal area or in a location where water levels fluctuate, the lower mounting plate should be installed at low tide or at the low water point. The mounting plate should be 24" to 56" below the top of the upper mounting angle bracket.

To fasten the upper mounting angle bracket, use (8) 1/4"x4 1/4" (Item #26) carriage bolts, (8) 3/8" x 4" (Item #25) lag bolts, or concrete anchors (drill 9/16" hole for 1/4" carriage bolts or 1/4" pilot hole for 3/8" lag bolt). You may need help to place the assembled upper mounting angle bracket and track on the installation point.

Begin to tighten the fasteners of the upper mounting angle bracket. Make sure that the pipe track is perfectly plumb. It is critical that the track is in correct vertical alignment for your Mister Lifter to work properly and safely. A track that is not mounted properly will void the warranty. Once everything is in proper alignment, tighten all the fasteners.

If your Mister Lifter is being mounted on top of a pile, the lower mounting plate must be mounted 24" to 56" below the top of the upper mounting angle bracket with the chain clamp hardware as seen in **Diagram E**, or some other means that will resist the forces that will be applied during the operation of your Mister Lifter.

If no lower mounting point is available or for added strength, a 2 1/2" O.D. pipe (not included) can be placed inside the pipe track and driven into the subsurface. The pipe should be driven in a minimum of 2ft. into the subsurface with a minimum of six feet remaining in the pipe track.

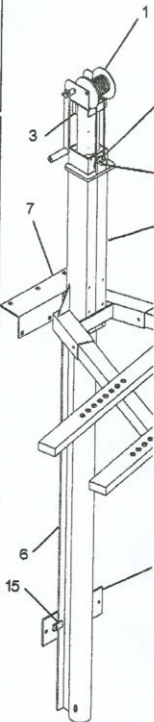
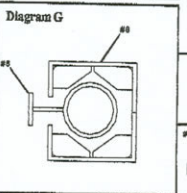
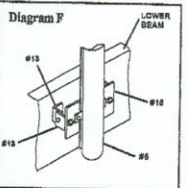
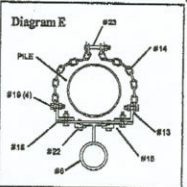
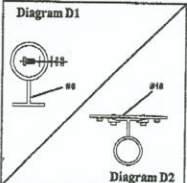
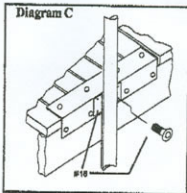
If your Mister Lifter is being mounted on a beam, a lower beam may need to be installed 24" to 56" below the top of the upper mounting angle bracket as seen in **Diagram F**. Two installation angles (Item No. 13) will bolt together, with 3/8" X 1" (Item #19) bolts then one is bolted to the support beam with 3/8" x 2 1/2" (Item #23) carriage bolt and one is bolted to the lower track mounting plate (Item 16). This is done on each side of the track. There is some play in the installation angles to allow for adjustment of the bottom of the track to be moved either closer or further from the structure to which the lower mounting plate is to be attached.

For lower attachment to a seawall, the lower mounting bracket will attach directly to the seawall without the installation angles 24" to 56" below the top of the upper mounting angle bracket. Some shimming may be needed for proper vertical alignment.

## STEP TWO

**LIFTING FRAME INSTALLATION IS NEXT, ... Read and understand all of the instructions. DO NOT rotate the lifting frame until it is properly secured. If the frame is rotated before it is secured, the frame will fall when the slot in the lifting frame comes in alignment with the web of the track, see **Diagram G**.**

Pick up the lifting frame (Item No. 8) with the lifting arm sleeves facing you. Slide the lifting frame down until the frame rests on the dock. Use the olevis pin (Item No. 5) and cotter key to install the cable pulley (Item No. 4) as shown in **Diagram H**. Again, **DO NOT** rotate the frame until it is properly secured.



## STEP THREE

**ASSEMBLING THE WINCH...** is your next step. Attach the winch (Item No. 1) to the winch mounting head (Item No. 3) using two 3/8"x 1 1/2" (Item #20) hex head bolts, flat washers, lock washers and nuts. Slide the winch mounting head into the top of the pipe. See **Diagram I**.

With the winch mounting head in place, the 3/16" cable loop (Item No. 2) can be installed. Use one 3/8"x1 1/4" stainless hex bolt, two flat washers and lock nut (Item #21) to attach the cable to the winch and winch mounting head as seen in **Diagrams J1 & J2**. Pass the free end of the cable under the pulley of the lifting frame. The free end of the cable is attached to the winch cable drum as directed by the enclosed winch instructions.

After the cable is properly attached to the winch, wind the loose cable onto the winch so that the cable is in tight layers on the winch cable drum. Wind the cable enough to raise the lifting arm slightly. Rotate and lower the frame to be sure your Mister Lifter operates properly. The lifting frame slot must line up with the web of the track.

## STEP FOUR

**ATTACHING THE LIFTING ARMS...** is your last step. The arms (Item No. 9) are easily installed by sliding them into the sleeves if the lifting frame. Line up the holes of the arms and the sleeves and install the 3/8"x4" (Item # 24) hex head bolts, flat washers, lock washers, and nuts as shown in **Diagram K**.

Your water craft will sit on the wooden rails (Item No. 10) that mount across the lifting arms. The wooden rails are attached to slotted mounting angle bracket (Item No. 11). The brackets are mounted to the lifting arms with U-bolts (Item No. 12), see **Diagram L**. Before the U-bolts are fully tightened, adjust the wood rails along the lifting arms to support your water craft as recommended by the water craft manufacturer. When your watercraft is properly positioned on the rails, the side of your craft should just touch the lifting frame (Item # 8). The two slotted mounting angle brackets on the same lifting arm can be tilted towards each other this will allow the rails to better fit the contour of your craft. The wood rails are fastened with 3/8"x 2 1/2" (Item #23) carriage bolt set. If you purchased the optional vinyl rail and blue lifting frame covers, you can install them at this time.

**NOTE:** Not all parts will not be used due to the different methods of mounting your Mister Lifter.

**Regular maintenance...** is essential for long term, safe operation of your Mister Lifter. Before each use, inspect the lifting cable wear for any frays or broken strands. Replace the cable as soon as the cable begins to fray or as soon as any damage is seen. Keep the cable well lubricated to protect it from excessive wear. Lubrication will also prolong the life of the cable. Inspect the fasteners that hold your Mister Lifter to the dock or seawall. If any fasteners have loosened, stop using your Mister Lifter until the loose fasteners are properly secured. A small amount of silicone lubricant should be periodically applied to the track to allow the lifting frame to travel easily. Simple maintenance and safe operation of your Mister Lifter will give you many years of reliable service. If you have any questions about the installation or operation of your Mister Lifter, or if you need replacement parts, call Follansbee Dook Systems at 800-292-2986 or your local dealer.

Diagram H

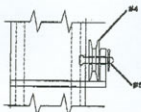


Diagram I

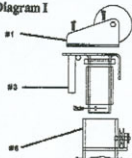


Diagram J1



Diagram J2

Diagram K

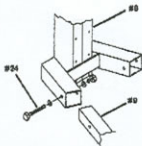
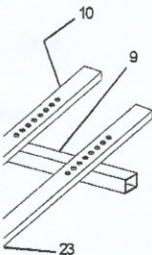
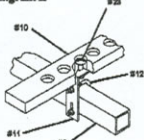


Diagram L



16

	#5	
#20	#21	
#25	#26	
#12	#11	

## Mister Lifter Personal Watercraft Lift

Thank You ... for purchasing a Follansbee Dock Systems Mister Lifter, the only patented watercraft lift that rotates 360°. For over 20 years, Follansbee Dock Systems has been manufacturing docks and dock accessories that are used throughout the world. Your new Mr. Lifter is just one of the many products that has helped Follansbee Dock Systems become a leader in the industry.

**Before You Start...** installing your Mister Lifter, read all of the installation instructions thoroughly. Get familiar with the parts and review all diagrams (See parts list on back page).

**Next...** Evaluate the location where you plan to install your Mister Lifter. The structure on which you will mount your Mister Lifter must be able to bear the weight of the watercraft plus the weight of the Mister Lifter. If you plan to install your Mister Lifter on a pile driven stationary dock, the strongest and easiest installation point is typically directly above one of the piles. Installing your Mister Lifter on a seawall can generally be done at any point along the seawall. Also, make sure your installation point has a mounting surface 24" to 56" below for proper attachment of the lower mounting bracket. **DO NOT** install your Mister Lifter in any location that will not adequately support your Mister Lifter with a load on it. If you do not feel you are able to properly evaluate the installation location, seek qualified help.

**Note:** Check with your local authorities to determine if permits or other pre-installation requirements must be met.

After you have determined the location on the structure which will properly support your Mister Lifter, plan how you will properly attach your Mister Lifter, and plan how you will use your Mister Lifter. Look around the area and make sure that:

- No obstructions will be above, below or along the operating path of the Mister Lifter, including below the water surface.
- After your Mister Lifter is raised, the Mister Lifter and your PWC has enough clearance to rotate 360°.
- No Utility lines are below the mounting area that may interfere with the installation of your Mister Lifter.

**TOOLS NEEDED:** ... to install your Mister Lifter. You will need the following tools.

- ❖ Drill with 3/8" and 1/2" bits
- ❖ 7/32" Hex wrench
- ❖ Socket Wrench w/ 3/4 & 9/16 sockets
- ❖ Level and plumb vial (vertical)
- ❖ Power Sander, or Rasp, and Circular Saw, or Hand Saw

Installing your Mister Lifter will consist of four steps:

1. Mounting the pipe track
2. Installing the Lifting Frame
3. Assembling the Winch.
4. Attaching the lifting arms

## STEP ONE

Before starting, be sure the work area is clear of debris and other obstructions.

**MOUNTING THE PIPE TRACK...** begins with mounting the upper mounting angle bracket (Item No. 7). This angle bears the entire weight of your Mister Lifter plus any load your Mister Lifter carries.

On a pile driven dock, the upper mounting angle bracket will bolt to the top and side of the dock. If the pile or beam sits back from the edge of the deck, then shimming may be required to allow the upper mounting angle bracket to be attached flush with the top and front of the structure. You may want to trim the deck overhang as seen in Diagram A. This will reduce or eliminate the amount of shimming needed.

With a power sander or rasp round the top edge of the dock where the upper mounting angle bracket will be attached. This will provide a better fit for the bracket. Use the upper mounting angle bracket as a template to layout and drill the holes as shown in Diagram B. Through bolt whenever possible. If through bolting is not possible, use lag bolts.

On a concrete seawall, the upper mounting angle bracket will fasten to the top and front surface of the wall. There are a variety of good concrete anchors (not included) that will securely fasten the upper mounting angle bracket and later the lower mounting plate (Item No. 16). If you are not sure which type of anchor best fits your type of seawall construction, refer to a qualified contractor or an individual familiar with the different types and applications of concrete anchors.

Before bolting the upper mounting angle bracket, attach the pipe track (Item No. 6) to the bracket using (4)  $3/8" \times 1"$  flathead tapered stainless hex wrench head bolt as seen in Diagram C (see centerfold), but do not fully tighten the bolts to the upper mounting bracket angle. These bolts must remain slightly loose so that the track can later be adjusted for proper vertical alignment.

