

INSTALLATION MANUAL

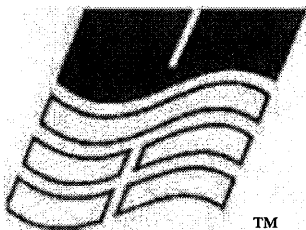
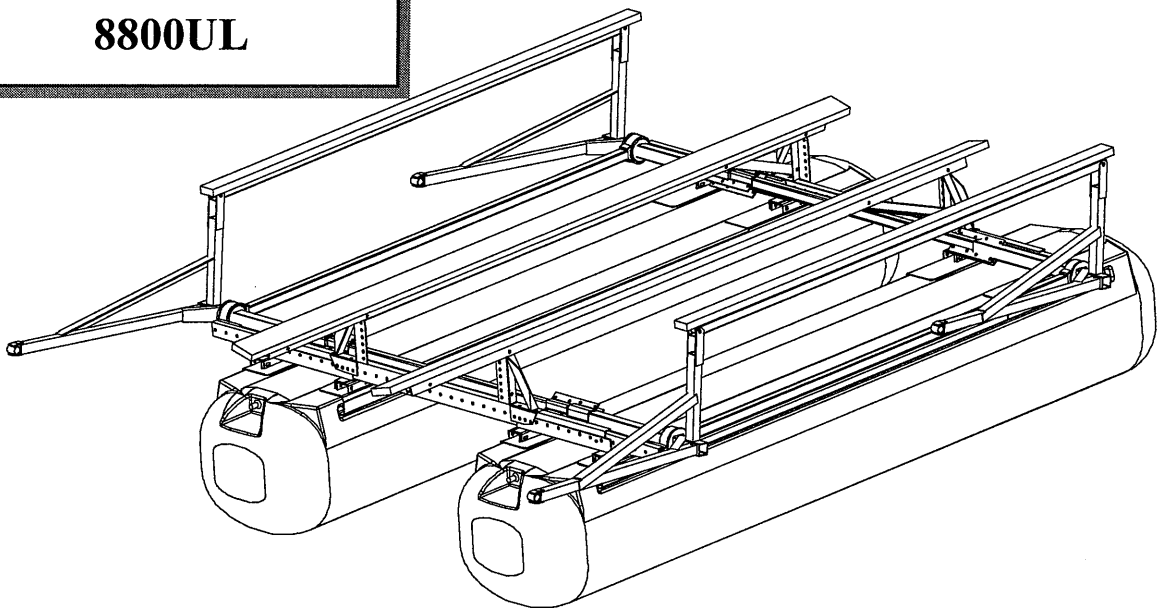
UltraLift UL

MODELS

4400UL

6600UL

8800UL



TM

HydroHoist® Boat Lifts

HydroHoist International, Inc.

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Getting Started

Assembly Platform

Assembly should be done on a flat, level surface.

A flat-bed trailer is preferred, but a boat trailer with planks across the frame will work, provided that the assembly surface is flat and level

Tools

A list of tools needed for hoist assembly is given below. In addition to these, tools for boat dock preparation, dock bumper removal, etc. may also be required.

- ◆ 1/2" Drive Ratchet (minimum 9 inch handle length for leverage)
- ◆ Electric Drill
- ◆ 3/4" Deep Well Socket
- ◆ 9/16" Deep Well Socket
- ◆ (2) 15/16" Open-end or Combination Wrenches
- ◆ 3/4" Open-end or Combination Wrenches
- ◆ 9/16 Open-ended or Combination Wrenchs
- ◆ (2) Come-A-Longs
- ◆ 5/16" Nut Runner or medium blade Slotted Screwdriver
- ◆ Medium Phillips Screwdriver
- ◆ Drift Pin or other hole aligning tool
- ◆ Large Hammer (3 or 4 lb. shop hammer is best)
- ◆ Knife or tool for cutting 1" rubber hose
- ◆ Measuring Tape

Symbols & Conventions

All references to the LEFT or RIGHT are considered to be facing forward, as if driving a boat into the slip. Left is Port side, Right is Starboard side.

Parts are occasionally described as LEFT or RIGHT to identify their opposing construction, not location on the hoist.

All numbers in brackets [] after part names refer to the item numbers on the assembly illustrations within the manual.

Site Preparation

Verify

<p>The Boat Stall or Mooring Location.</p> <ul style="list-style-type: none"> ◆ If the hoist is being installed in a commercial marina or multi-slip boat dock, confirm the correct mooring location for hoist and boat.
<p>The boat specifications.</p> <ul style="list-style-type: none"> ◆ Make _____ ◆ Model _____ ◆ Length _____ ◆ Beam _____ ◆ Dry Weight of boat _____ lbs. ◆ Fuel: _____ gal. @ 6.6 lbs./gal. = _____ lbs. ◆ Water: _____ gal. @ 7.5 lbs./gal. = _____ lbs. ◆ Gear estimated @ 8% of boat's dry weight _____ lbs. ◆ Other equipment or weight _____ lbs. ◆ TOTAL LIFTING WEIGHT _____ LBS.

Inspect

<p>The boat slip, dock or seawall to which the hoist will be installed.</p>
<ul style="list-style-type: none"> ◆ The structure should be of good, sturdy construction capable of maintaining a secure mooring for the hoist.
<ul style="list-style-type: none"> ◆ The Dock Brackets, which will be mounted on the dock to provide hoist mooring, have a minimum gripping distance of 5 inches and a maximum gripping distance of 19 inches. Confirm that there is sufficient dock structure for the Dock Brackets.
<ul style="list-style-type: none"> ◆ The UltraLift requires a minimum water depth of 33" + hull draft for the UL4400 and a minimum of 38" + hull draft for the UL6600 . Confirm that there is sufficient water depth at all times of the year.
<ul style="list-style-type: none"> ◆ Check for underwater obstructions, such as structural braces, cables, rocks, or sunken objects which will interfere with the hoist's operation.
<ul style="list-style-type: none"> ◆ Check for overhead obstructions and confirm that sufficient clearance exists for the lifting of the boat. Boats vertical rise will be 24" - 36"
<ul style="list-style-type: none"> ◆ Confirm that electrical supply is available and sufficient for hoist operation. The control unit requires 115V and 11 amps.
<ul style="list-style-type: none"> ◆ Confirm that sufficient dock space is available for mooring the hoist and boat.
<ul style="list-style-type: none"> ◆ CONFIRM THE BOAT HULL CONFIGURATION - Boats with a stepped hull design, or with through-the-hull apparatus, may require special positioning or alteration to the Hull Support Pads. Contact HydroHoist Engineering Department if proper hull support is in question.

Assembly Instructions

Description The assembly instructions presented within this section represent the steps for assembling the UltraLift 4400 & 6600 HydroHoist Boat Lift. It is recommended that before assembling the components, you read and understand each procedural step to become familiar with how all parts are assembled.

Tightening of Fasteners In the assembly procedures, DO NOT TIGHTEN fasteners until directed to do so. Insert bolts with appropriate washers, lock washers and nuts, but, unless otherwise instructed, leave the fasteners loose to allow movement of the parts for adjustment during assembly. Tighten all bolts at finish of assembly - proper torque specifications for bolts are listed below:

BOLT SIZE	FOOT POUNDS OF TORQUE
1/4-20	5 FT. LBS.
5/16-18	11 FT. LBS.
3/8-16	18 FT. LBS.
7/16-14	28 FT. LBS.
1/2-13	39 FT. LBS.
9/16-12	51 FT. LBS.
5/8-11	83 FT. LBS.

Quick Reference Guide To Slip Width And Dependant Parts

SLIP WIDTH	8'	8' to 10'	10'	10' to 12'	12'	12' to 14'	14'	14' to 16'
UL4400								
Keel Spanner x 4	NO	37 1/2"	NO	37 1/2"	NO	37 1/2"	37 1/2"	37 1/2"
End Channel x 2	5' 11"	5' 11"	7' 11"	7' 11"	9' 11"	9' 11"	11' 11"	11' 11"
Reinforcement Channel x 2	NO	NO	NO	NO	NO	NO	NO	5' 11"
Torsion Bar x 2	5' 11"	5' 11"	7' 11"	7' 11"	7' 11"	7' 11"	10'	11' 2" EXT
UL6600								
Keel Spanner x 4	NO	37 1/2"	NO	37 1/2"	NO	37 1/2"	37 1/2"	37 1/2"
End Channel x 2	5' 11"	5' 11"	7' 11"	7' 11"	9' 11"	9' 11"	11' 11"	11' 11"
Reinforcement Channel x 2	NO	NO	NO	NO	NO	NO	5' 11"	5' 11"
Torsion Bar x 2	5' 11"	5' 11"	7' 11"	7' 11"	7' 11"	7' 11"	10'	11' 2" EXT
UL8800								
Keel Spanner x 4	NO	37 1/2"	NO	37 1/2"	NO	37 1/2"	NO	37 1/2"
End Channel x 2	5' 11"	5' 11"	7' 11"	7' 11"	9' 11"	9' 11"	11' 11"	11' 11"
Reinforcement Channel x 2	NO	NO	NO	NO	3' 11"	3' 11"	5' 11"	5' 11"
Torsion Bar x 2	5' 11"	5' 11"	7' 11"	7' 11"	7' 11"	7' 11"	10'	11' 2" EXT

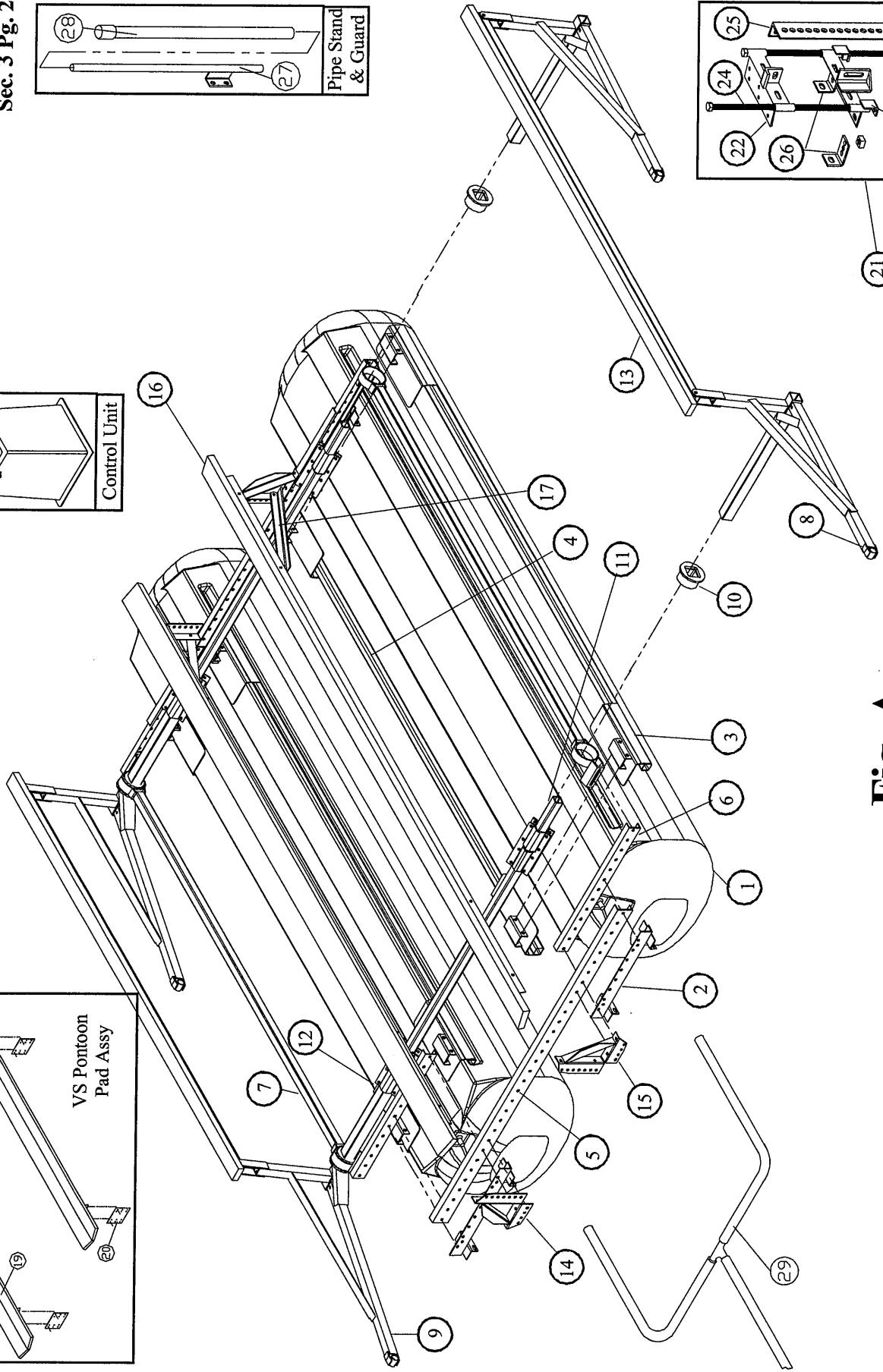
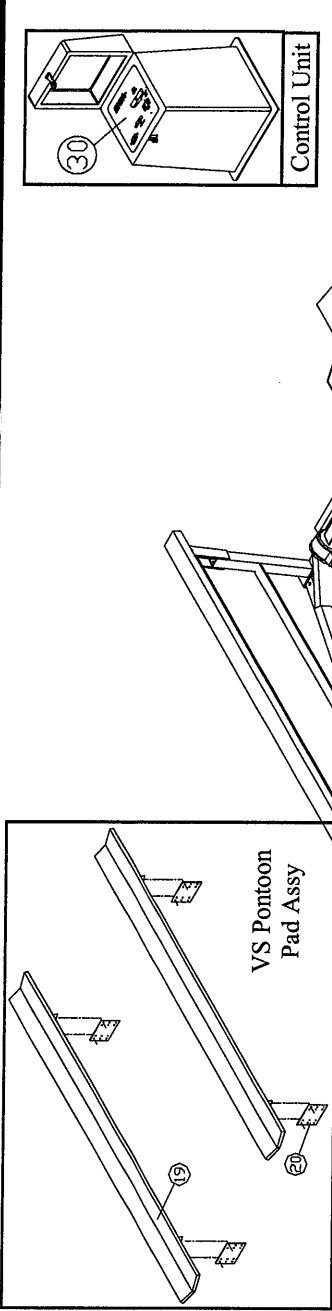
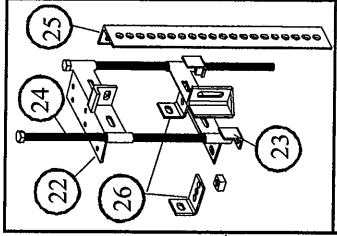
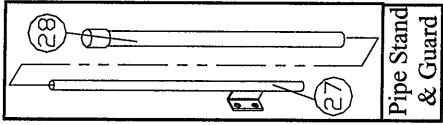
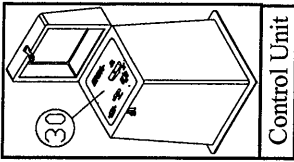
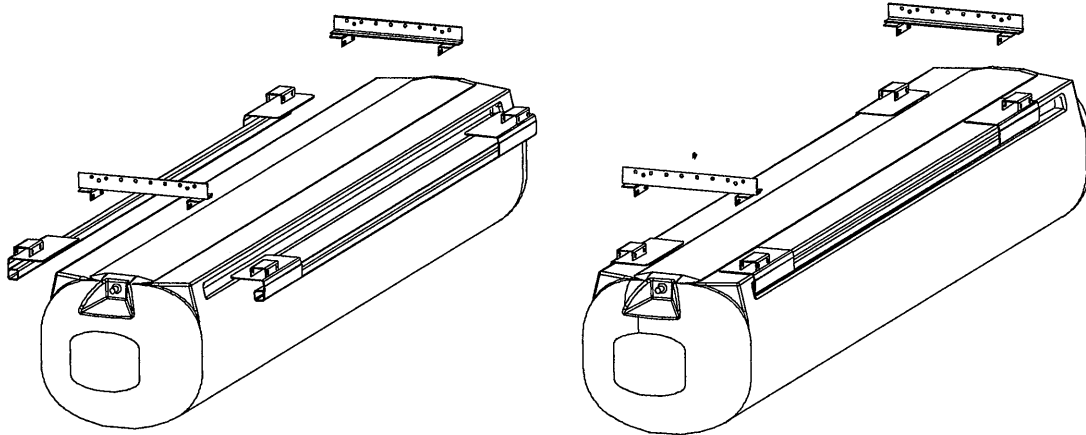


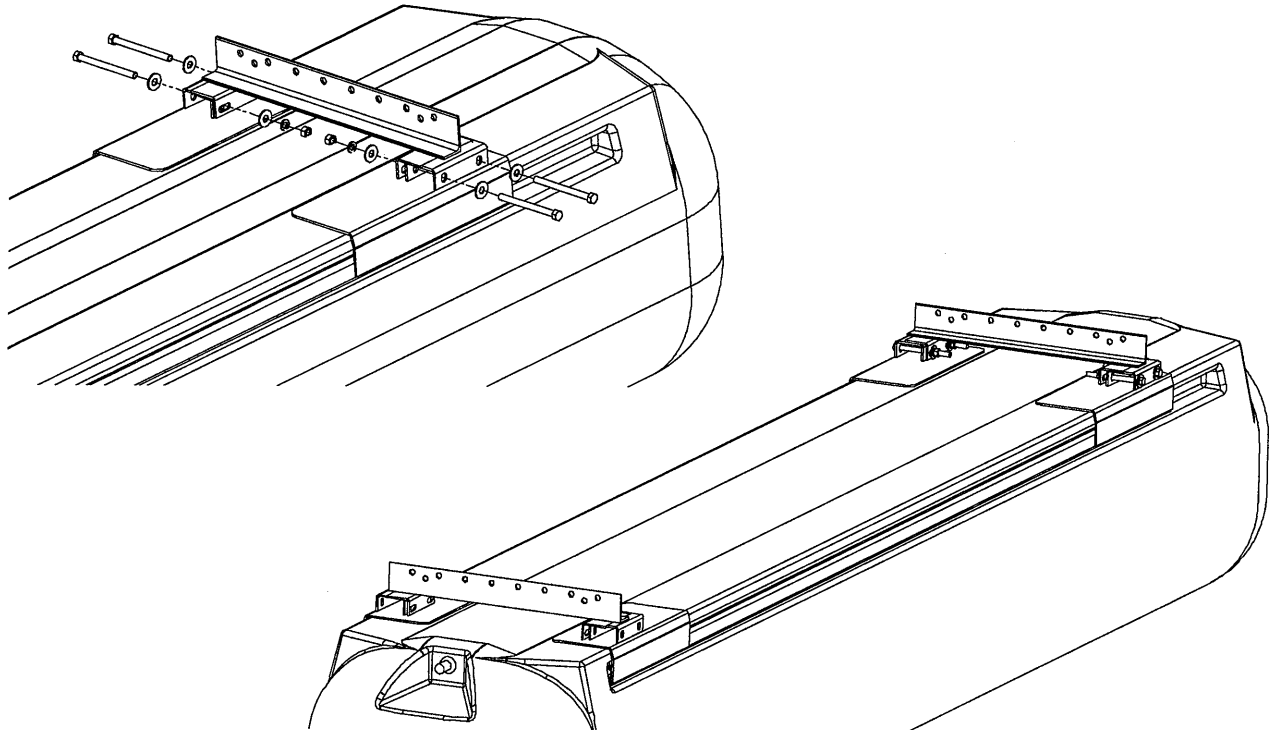
Fig. A

Tank Bracket Assembly
Fig. B

Step	Procedure
1.1 <i>Fig C</i>	Place the tube brackets [3] into the grooves on each side of the tank. The tube brackets need to be as far to the front of the tank as possible. Use a rubber or plastic hammer to drive the tube brackets all the way into the groove.



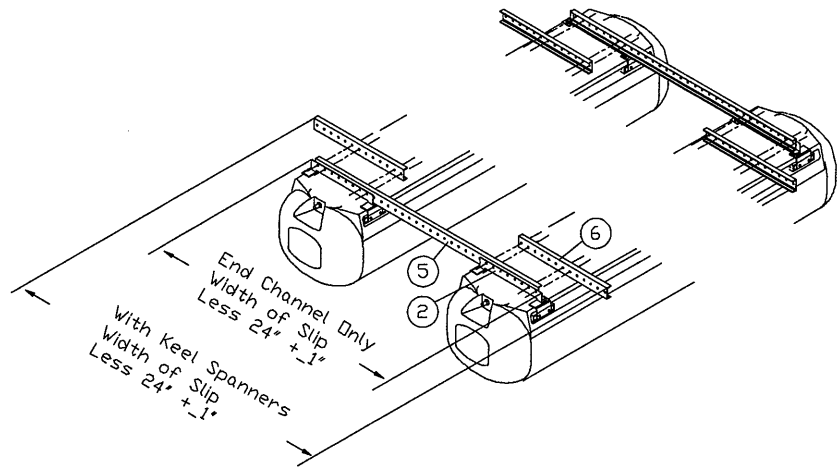
Step	Procedure
1.2 <i>Fig D</i>	Install the angle tabs [2] so they sit in between the tube brackets at each end. The angles should face inwards, so they face each other. The components are slotted to allow adjustment if installing with keel spanners. Fasteners per angle tab: (4ea.) 1/2" x 5" Hex Head bolts, nuts and lock washer. (8ea.) 1/2" Flat Washers.



**End Channel
 Keel Spanner
 Assembly**
Fig. F

Step	Procedure
5.1	Attach End Channels [5] to Tank Brackets [2] with the End Channel Flanges facing to <i>the center</i> of lift as shown in Fig. D. Align the outer holes in the Tank Brackets with the outer holes in the End Channels AS SHOWN IN FIG. D. Fasteners per Tank Band: (2 ea.) 1/2 x 1-1/2 bolt, nut & lockwasher.
5.2	Install Keel Spanners [6] (if used) to Tank Brackets [2] with the Keel Spanner Channel Flanges facing to <i>center</i> of the lift as shown in Figs. E&F. Overall width of the Channel assembly should be 24 inches (+-1 inch) <i>less</i> than the width of the boat slip. Fasteners per Keel Spanner: (1 ea.) 1/2 x 1-1/2 bolt, nut & lockwasher <i>with</i> existing Tank Bracket to End Channel bolts.

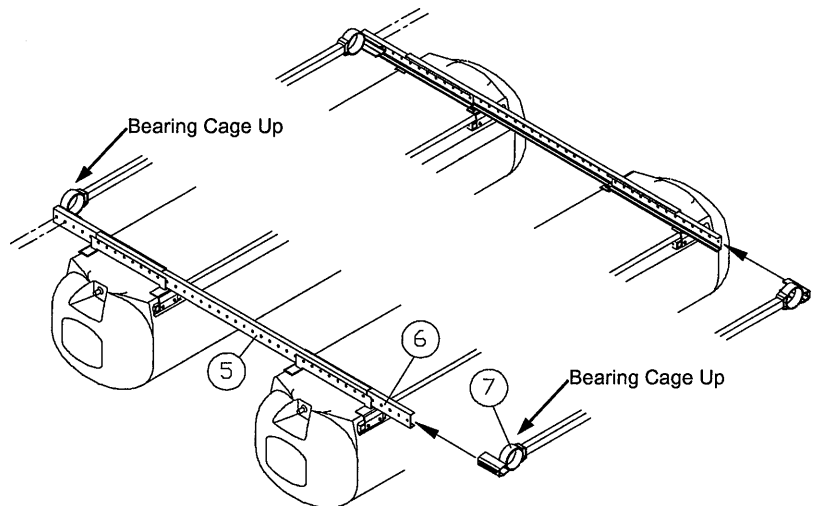
Fig. F



Side Stiffener
Fig. G

Step	Procedure
6.1	Install Side Stiffeners [7] (with the bearing cage/ring up) to each side of the lift between the Front & Rear End channels [5] or Keel Spanners [6] if used. <i>Measure the distance from outside edge to outside edge of Side Stiffeners at the front and rear to make sure both are the same width and 24\" (+-1 inch) narrower than the slip width.</i> Fasteners per Side Stiffener: (4ea.) 1/2\" x 1-1/2\" bolt, nut, flatwasher & lockwasher. NOTE: <ul style="list-style-type: none"> • Use flatwasher over slotted holes.

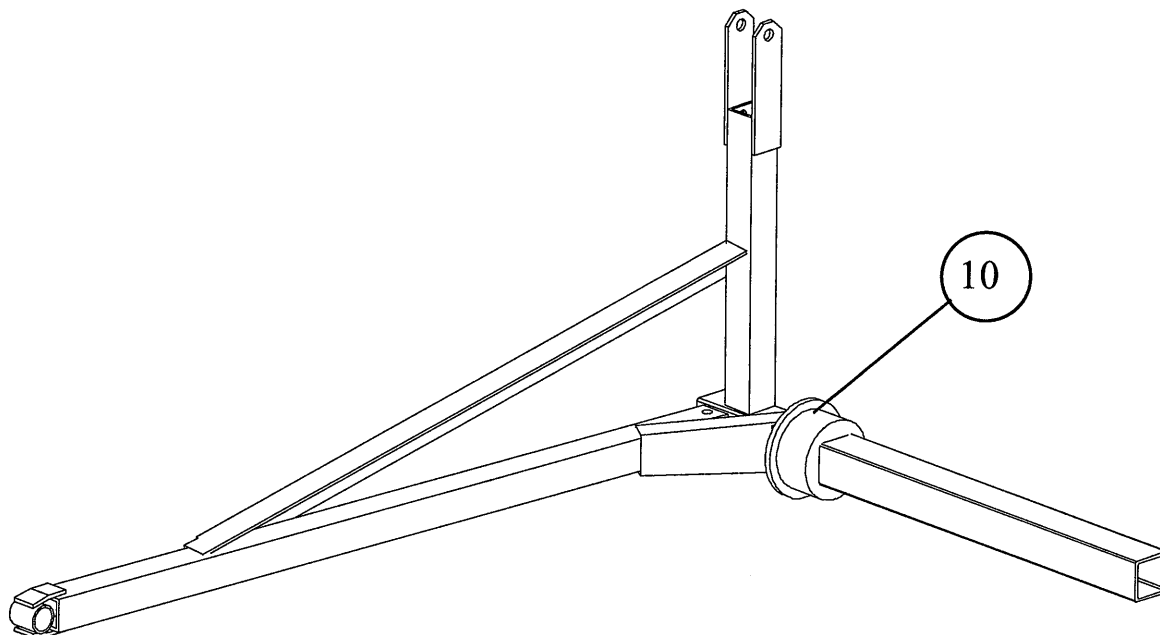
Fig. G



**Stabilizer Arm
Assembly**
Fig. 1

Step	Procedure
8.1	Install Square Hole Bushing [10], <u>flange side first</u> , over Torsion Leg of Stabilizer Arm [8-9]. Slide Bushing fully against Corner Brace of Stabilizer Arm.

Fig. 1



**Stabilizer Arm
 Assembly**
 Figs. J-1 thru J-4

Step	Procedure
9.1	Insert each Stabilizer Arm [8-9] through the Bearing Cage (Ring) of the Side Stiffener [7]. For part numbering and reference, the Stabilizer Arms [8-9] are identified as Right and Left. The Right Arm [9] is identified with a welded dot placed on the inside face of the corner brace. The Left Arm [8] has no welded dot. The Arms are universal and either right or left can be used on either side of the lift - see note below.

NOTE

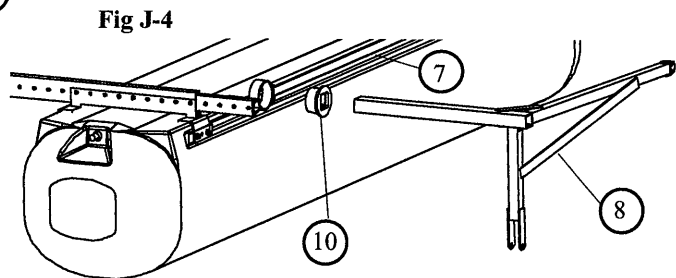
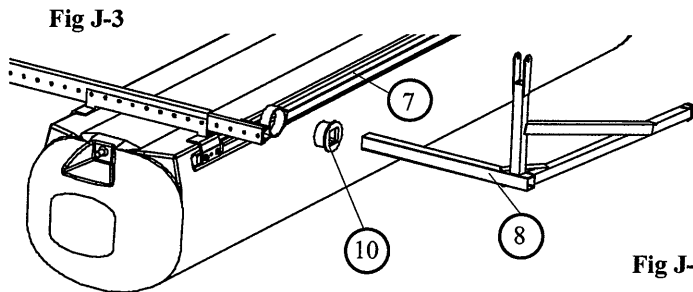
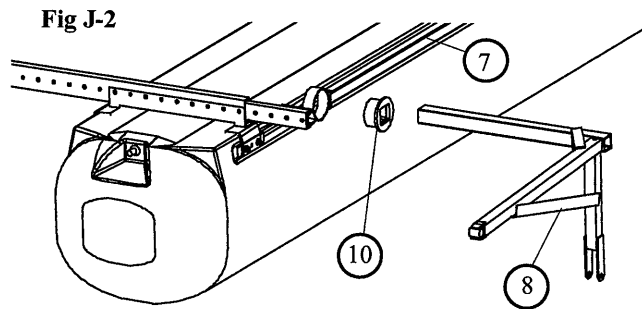
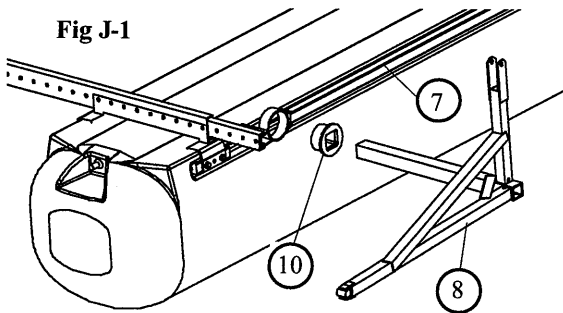
Stabilizer Arms [8-9] may be assembled in FOUR POSITIONS:

Fig. J-1 Arms FORWARD, Pitmans BOATSIDE - Most common installation.

Fig. J-2 Arms FORWARD, Pitmans TANKSIDE - For installations where the boat beam is greater than the slip width less 24", or when decking or walkways are installed on hoist frame.

Fig. J-3 Arms AFTWARD, Pitmans BOATSIDE - Lift will swing *forward* (toward front of slip). For installations where slip length requires maximum inclusion of tanks inside slip, and to provide minimum distance between dock header and boat stern for stern loading boats - See Section 8 Supplement

Fig. J-4 Arms AFTWARD, Pitmans TANKSIDE - Same as note #3 with the boat beam greater than the slip width less 24", or when decking or walkways are installed on lift frame -See Section 8 Supplement



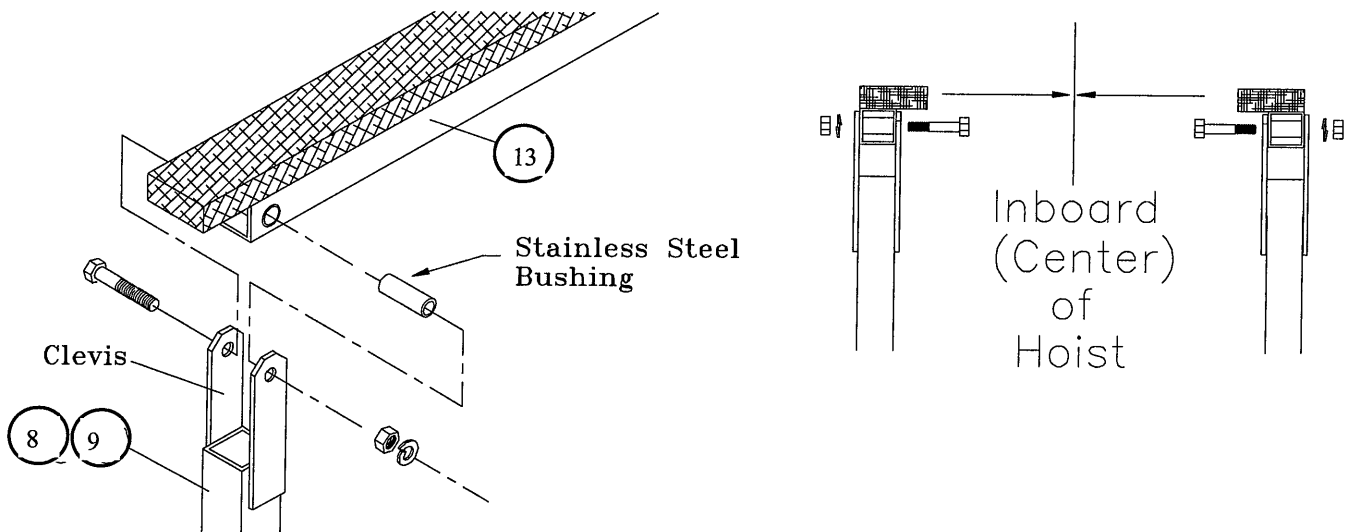
Torsion Bars
 Fig. A.

Step	Procedure
10.1	Slide each Torsion Bar [12] inside the Torsion Leg of each Stabilizer Arm [8-9] at the front and rear of the hoist, making sure that it is an equal distance inside each Leg. <i>Tip: Mark the Center of the Torsion Bar (Example: 5' on a 10' Bar), mark the Center of the End Channel, then align the Center marks.</i> Note: External Torsion Bars (3 inch square tubing) install <i>over</i> the Torsion Leg.
10.2	Temporarily chain the Rear* Stabilizer Arms to a slightly raised position: <ol style="list-style-type: none"> 1. Raise one Rear Stabilizer Arm to horizontal. 2. Using a Chain from Dock Bracket Parts Bag, form a loop around the Side Stiffener [7] and the end of the Stabilizer Arm. 3. Fasten the loop by bolting the chain links together with a 3/8" x 2-1/4" bolt, <u>double-nuts and double flatwashers</u>. 4. Repeat on opposite side Rear Arm, making the two Arms parallel to each other. <i>This is a temporary attachment, used to assist in further assembly and to transport the lift to the boat dock - Although it is temporary, it must be secure enough to prevent the arms from lowering accidentally.</i> *Chain Front Stabilizer Arms if installed AFTWARD.

Pitman Assembly
 Fig. K.

Step	Procedure
11.1	<ul style="list-style-type: none"> • Follow this step, one end at a time for each Pitman. • The Carpeted Board OVERHANGS steel on one side of the Pitman—THIS OVERHANG SHOULD BE INSTALLED INBOARD (CENTER) OF THE LIFT. <p>Insert Stainless Steel Bushing into Bushing Sleeve at end of Pitman [13]. Place Pitman [14], with Bushing inserted, into clevis of Stabilizer Arms [8-9] rotate Stabilizer Arm into position if necessary to mate parts. Connect assembly with bolt inserted from inboard side. Fasteners per Pitman: (2) 5/8" x 3-1/2" bolt, nut & lockwasher. Tighten NOW to 83 ft.-lbs. of torque.</p>

Fig. K



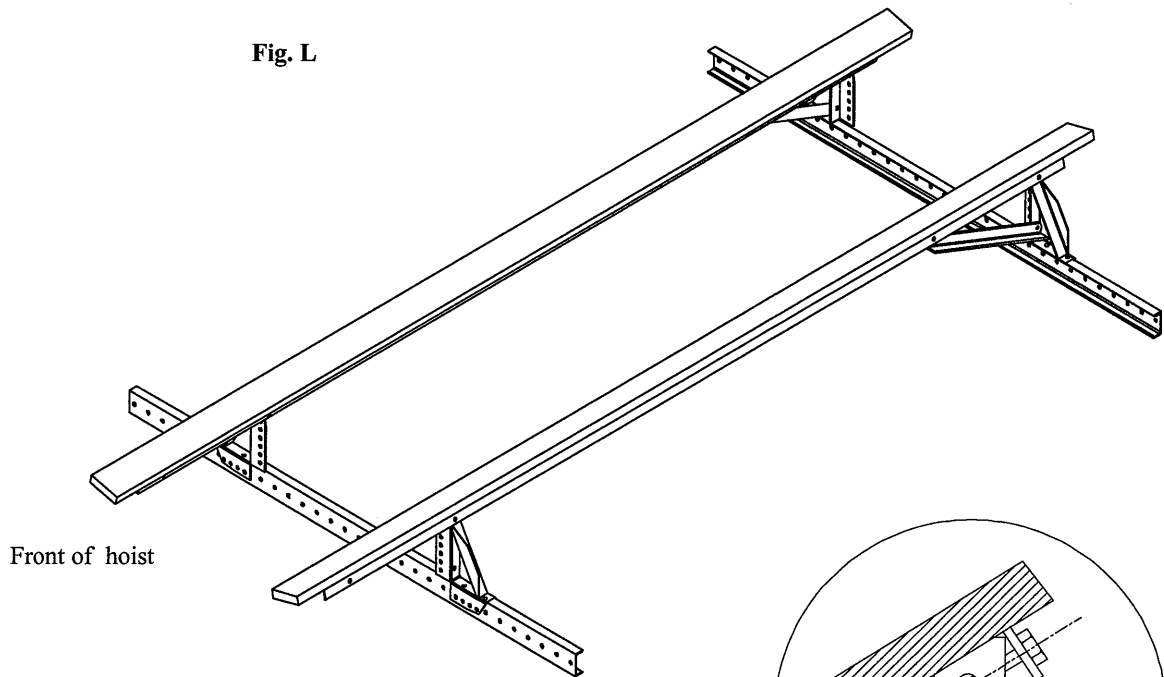
Note... The parts installed in the next steps may have to be moved to better fit the bottom of the boat after it has been lifted. Accurate measurements of the boat's hull before assembly and careful attention to these steps may prevent repositioning the parts over the water.

Positioning... If the boat hull is unable to be measured prior to hoist assembly, space the rear Hull Support Columns [15-16] 36" to 42" apart, and the front Column 3" narrower than the rear. Typically, the longer leg of the column is positioned vertically to lift the boat higher above the water, however the shorter leg of the column may be positioned vertically to accommodate a boat with a deeper draft or shallow water applications.

**Hull Support
 Assembly**
 Figs. L

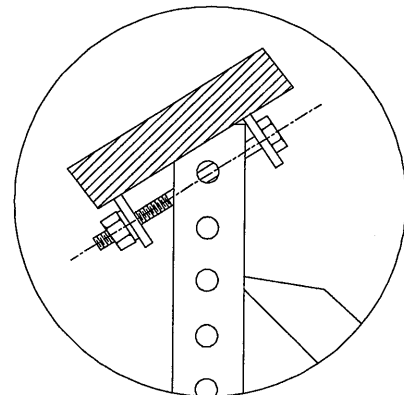
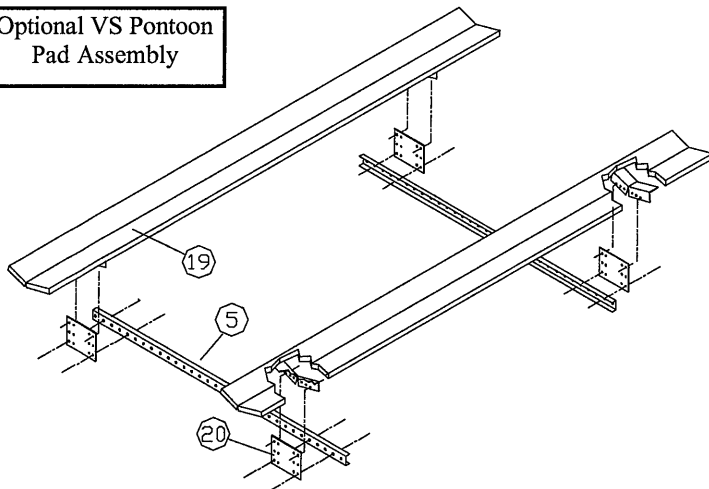
Step	Procedure
12.1	Attach two Hull Support Columns [15-16] to front End Channel [5] and two Hull Support Columns to the rear End Channel. Attach the columns with the flat side of the angles opposite each other, and the brace angle of the column <u>outboard</u> . Fasteners per Column: (2ea) 1/2" x 1-1/2" bolt, nut & lockwasher.
12.2	Attach Hull Support Pads [17] to the tops of the front and rear Hull Support Columns [14-15]. The pad's long angle iron frame member should be <i>inboard</i> so that its weight keeps the pad tilted inboard, following the boat hull. Fasteners per Pad: (2ea) 1/2" x 5" bolt, nut & lockwasher. Pad extension typically to front of lift.
12.3	Install the Hull Support Pad Braces [18] between the Hull Support Pads [17] and the Hull Support Columns [14-15]. <i>The flat side of the braces face inboard</i> . Fasteners per Brace: (1ea) 1/2" x 1-1/2" bolt, nut & lockwasher at Column; (1ea) 1/2" x 5" bolt, nut & lockwasher at Hull Support Pad.
12.4	Tighten the 5" Hull Support Pad bolts only enough to flatten the lockwashers. Do not tighten any other bolts at this time.

Fig. L



Front of hoist

Optional VS Pontoon
 Pad Assembly




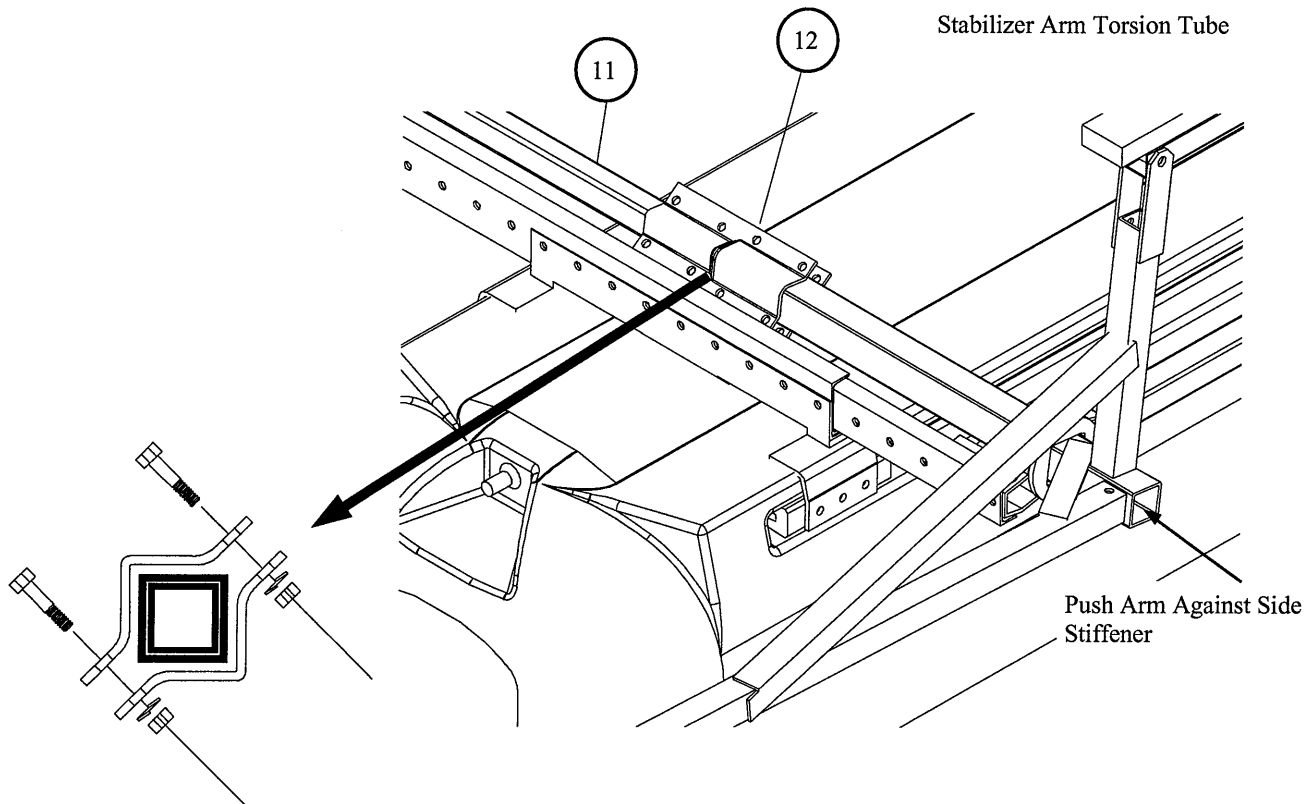
Leveling the Hoist

Step	Procedure
15.1	THIS STEP IS VERY IMPORTANT Stand at the rear of the hoist and sight across the rear End Channel to the front End Channel to make sure the front and rear are parallel and that there is no twist or warp in the hoist. If one corner appears to be low, place a block under that corner to level the lift. Repeat sighting, and continue adjusting until lift is level.
15.2	With the lift level, tighten all remaining 1/2" bolts to 40 ft-lbs of torque, tighten all 5/8" bolts to 83 ft-lbs of torque.

Tightening All Fasteners

Torsion Bar Clamps
 Fig. M

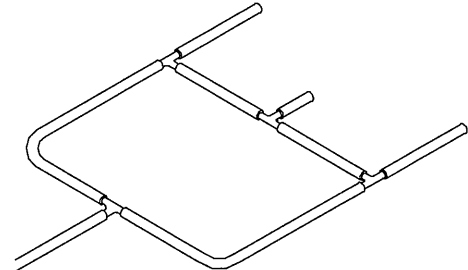
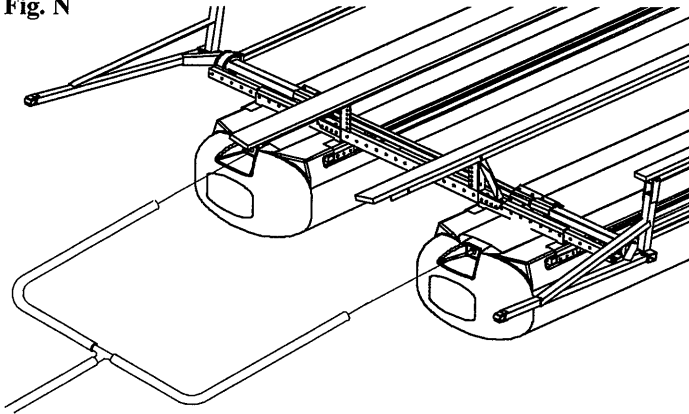
Step	Procedure
16.1	Push all four Stabilizer Arms [8-9] fully against the Side Stiffener [7] so that there is no lateral clearance between Side Stiffener, Square Hole Bushing, and Stabilizer Arm. IMPORTANT, all four stabilizer arms must be parallel with each other to insure level operation.
16.2	Assemble two halves of Torque Manager [12] at each end of each Stabilizer Arm Torsion Tube placing 1/2 of the Torque Manager over the Stabilizer Arm Torsion Tube and 1/2 over the Torsion Bar [11]. - see Fig. M. Fasteners per Torsion Bar (8 ea) 1/2" x 2-  bolt, nut & lockwasher.
16.3	With the Stabilizer Arms parallel to each other, TIGHTEN THE TORQUE MANAGER BOLTS AS TIGHT AS POSSIBLE (APPROX. 40 FT.-LBS. TORQUE)



Hose Assembly
Fig. N

Step	Procedure
17.1	Attach Hoses to Tanks and to Control Unit [19] using Hose Clamps.

Fig. N



3 Tank Models

Final Steps

Step	Procedure
18.1	Using a Ratchet Puller ("Come-A-Long") connected near the ends of the front Stabilizer Arms [8-9], pull the front Stabilizer Arms inboard approximately three inches total. <i>Note: Attach the hooks of the Come-A-Long near the end of the Arm, but NOT through the mounting hole at the Arm's end. In assembling the hoist, the Arms are slightly WIDER than the Dock Bracket attachment points, the purpose of pulling the Arms inboard, is to allow the Arm ends to position between the Dock Bracket.</i>
18.2	Repeat Step 13.1 above with the rear Stabilizer Arms. <i>Note: The cable of the Come-A-Long should extend <u>under</u> the Side Stiffener.</i>
18.3	Secure the Control Unit [30] to the Hull Support Pads and make sure all Valves are closed in the Dry-Dock position.
18.4	Attach a towing line to the rear End Channel. Tank Plugs are recommended for all tows. (Tank Plug Part No. 2095400).
18.5	Slowly tow the hoist to its mooring location.

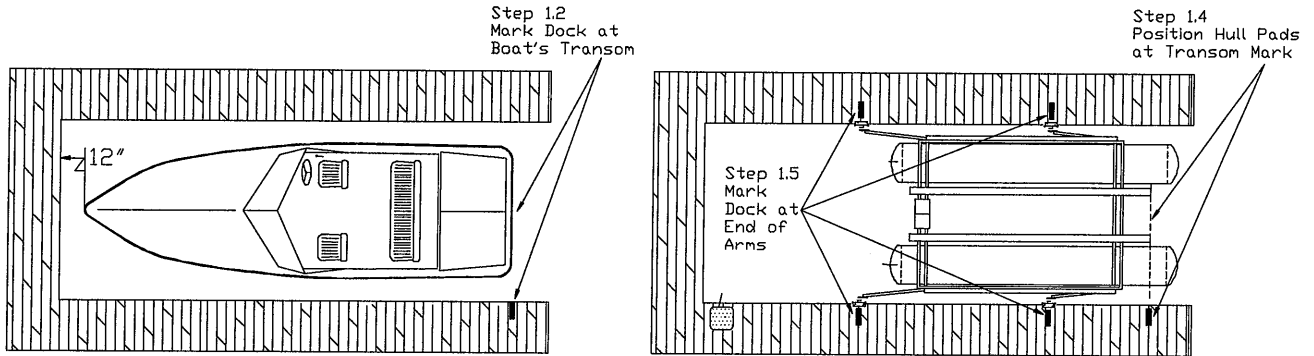
Installation

Selecting Position for Boat & Hoist (BOW FIRST LOADING)

Fig. O

Step	Procedure
1.1	BOW FIRST LOADING ONLY - For STERN LOADING instructions See Section 8 Supplement. Pull the <i>boat</i> into the boat stall so that the bow can be easily reached from the front of the slip, and allow at least 12 inches of space at the dock level between the dock and the boat in the event the boat may need to be later moved in final positioning.
1.2	With the boat in the desired location, place a mark on the dock where the boat's transom is positioned. <i>Note: Do not include extensions to the hull such as swim platforms; the transom mark should reflect the location of the the end of the bottom of the hull.</i>
1.3	Remove the boat and pull the hoist into the berth.
1.4	Position the hoist along side the dock and align the rear end of the Hull Support Pads with the transom mark on the dock.
1.5	With the hoist held stationary at this position, place marks on the dock at the location of the Stabilizer Arm attachment points .

Fig. O



Dock Bracket Attachment

Fig. P

Step	Procedure
2.1	Attach Dock Brackets with the holes of the Vertical Angles [25] aligned with the marks on the dock. <i>Note: Grip Tabs [26] must be installed to reduce inboard movement of the Lower Dock Bracket Angle [23]. If Grip Tabs are not applicable, it will be necessary to (later) through-bolt the Dock Bracket to the dock structure to eliminate inboard movement. Fasteners: 2 Grip Tabs per Dock Bracket - 2 ea 1/2" x 1" Carriage Bolt & nut. Tighten to 40 ft. lbs. of torque.</i>
2.2	Tighten the 20" Dock Bracket Bolts [24] just enough that the Dock Brackets will stay in position - <i>do not fully tighten at this time, further horizontal adjustment may be needed later.</i>

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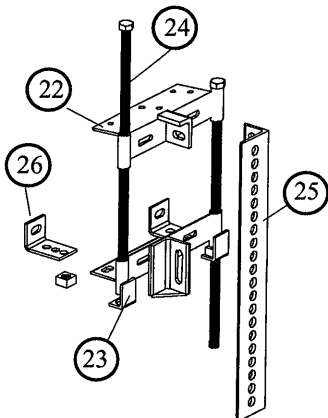
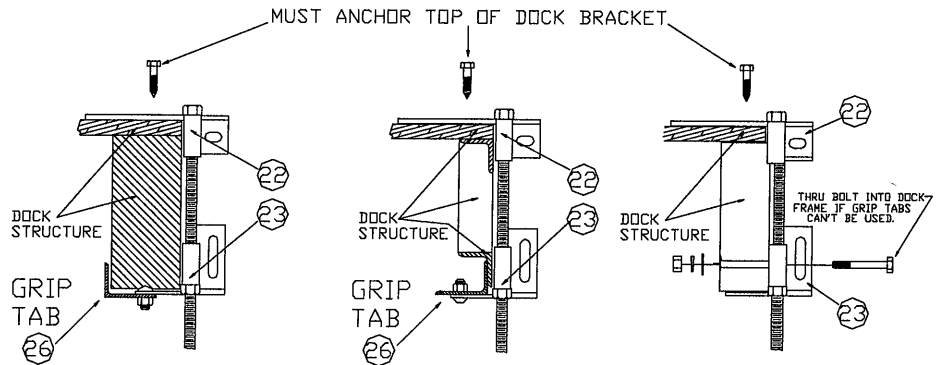


Fig. P

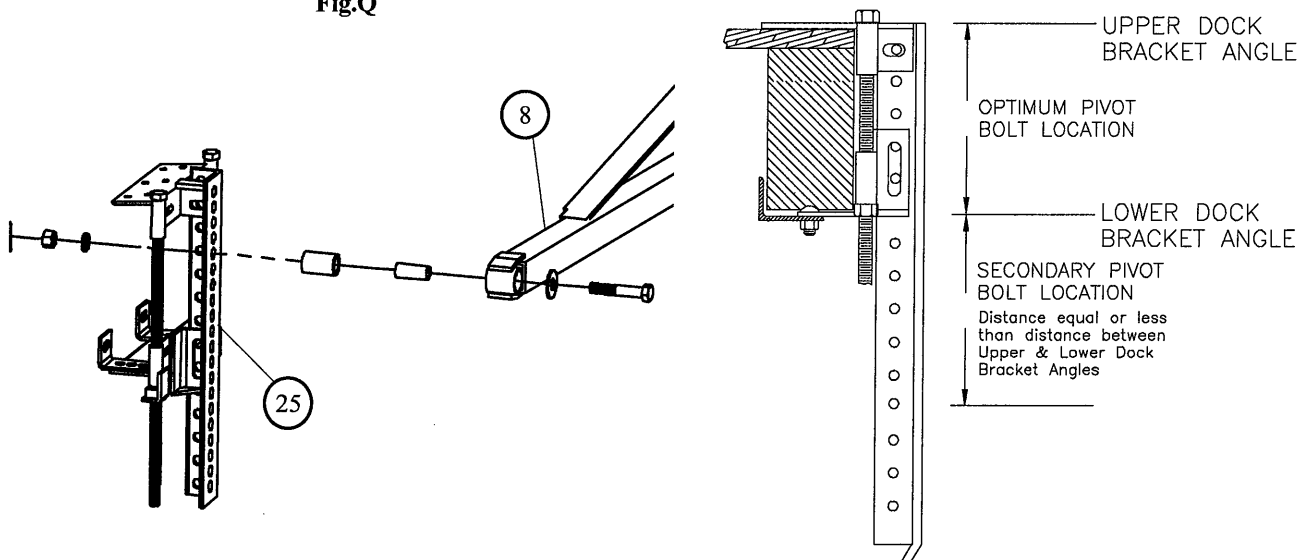


Lift Attachment

Fig. Q

Step	Procedure
3.1	Float hoist into position with the arms lined up with the Dock Brackets.
3.2	Loosen <i>front</i> "come-a-long" <u>only enough</u> to allow the <i>front</i> Stabilizer Arms [8-9] to touch the Vertical Angles [25] of the Dock Brackets.
3.3	SELECT PIVOT BOLT HEIGHT: The optimum Pivot Bolt location is any point between the Upper and Lower Dock Bracket Angle. At no time should the Pivot Bolt be located below the Lower Dock Bracket Angle a distance greater than the distance between the Upper and Lower Dock Bracket Angles. See Fig Q
3.4	FRONT ARMS ONLY - Insert Urethane & Stainless Steel Pivot Bushings into the Pivot End of one front Stabilizer Arm [8-9]. Attach Stabilizer Arm to Vertical Angle [25] of Dock Bracket - <i>it may be necessary to push down or lift up on the Arm to access the selected pivot location.</i> Fasteners per Arm: (1 ea) 5/8" x 3-1/2 bolt, flatwasher, lockwasher, & nut. TIGHTEN AS TIGHT AS POSSIBLE (ABOUT 83 FT-LBS).
3.5	MEASURE THE DISTANCE FROM THE PIVOT BOLT TO THE WATER - THIS DISTANCE WILL BE REPEATED FOR THE OTHER THREE ARMS - ALL PIVOT BOLTS MUST BE AN EQUAL DISTANCE ABOVE THE WATER.
3.6	Repeat Step 3.4 with opposite <i>front</i> Stabilizer Arm [8-9]. (Do Not loosen or remove come-a-longs at this time). TIGHTEN AS TIGHT AS POSSIBLE (ABOUT 83 FT-LBS).
3.7	REAR ARMS ONLY - Insure hoist is square in the slip by measuring the distance between the right and left Stabilizer Arms [8-9] and the Vertical Angles [25] of their Dock Brackets. If the distances are <u>not equal</u> , correct by moving one of the front Dock Brackets forward or backward until the hoist is square in the slip.
3.8	Loosen <i>rear</i> "come-a-long" <u>only enough</u> to allow the <i>rear</i> Stabilizer Arms [8-9] to touch the Vertical Angles [25] of the Dock Brackets. Attach Arms [8-9] to Vertical Angles [25] as in Step 3.4. TIGHTEN AS TIGHT AS POSSIBLE (ABOUT 83FT-LBS). (Do Not loosen or remove come-a-longs at this time). NOTE- <i>It may be necessary to stand on the rear of the hoist with the Control Unit Valve open (Launch) until hoist lowers enough to connect the rear Arms at the selected pivot locations....</i> CAUTION - <i>Maintain at least 4" of tank above the water, and be sure to <u>close the Valve</u> when position is achieved.</i>

Fig.Q



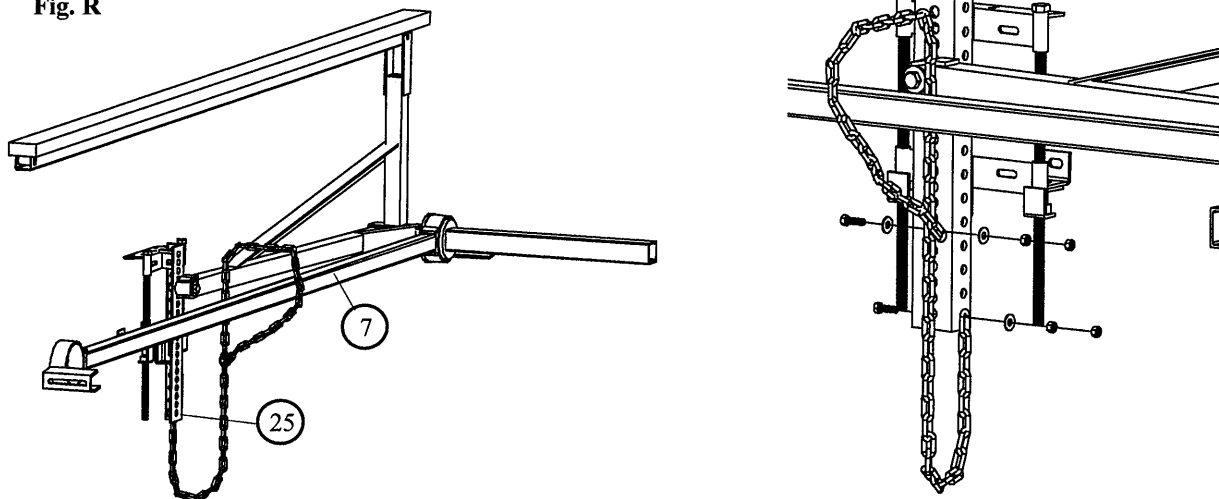
**Anchoring Dock
 Brackets**
Fig. P & Q

Step	Procedure
4.1	With the Come-a-longs still attached, the Pivot Ends of the Arms [8-9] in contact with the Vertical Angles [25], and the Dock Brackets fully against the dock structure, TIGHTEN the 20" Dock Bracket Bolts [24] to about 35 ft-lbs of torque.
4.2	With the Come-a-longs still attached, ANCHOR the <i>top</i> Dock Bracket Angles [22] to the dock to prevent inboard movement. See Fig. P. Fasteners: Installer's option, depending on dock construction material.
4.3	Remove the Come-a-longs. As the Come-a-longs are released, the Arms must exert additional "out-pressure" against the Dock Brackets. <i>If there is no out-pressure, double check original slip measurements and hoist assembly width. Two inches of out-pressure may be gained by loosening the Torsion Bar Clamps and Side Stiffeners and forcing the Side Stiffeners outboard. If greater than two inches of adjustment is necessary, the hoist must be rebuilt by changing the End Channel and Keel Spanners.</i>
4.4	If Grip Tabs [26] were not used, ANCHOR the <i>bottom</i> Dock Bracket Angles [23] to the dock by thru-bolting the Angles to the dock. See Fig. P. Fasteners: Installer's option, depending on dock construction material.

Catch Chains
Fig. R

Step	Procedure
5.1	Remove the 3/8" x 1-1/4" bolt, double nuts and double flatwashers from the chains previously looped around the Side Stiffeners and Arms. Make a small but loose loop of chain around (each) Side Stiffener [6] only. Fasteners per Chain: (1 ea) 3/8" x 1-1/4" bolts, double nuts, and double flatwashers.
5.2	Attach other end of Chain to Vertical Angle [25] at a point BELOW the Pivot Bolt. Fasteners per Chain: (1 ea) 3/8" x 1-1/4" bolts, double nuts, and double flatwashers. Tighten to 18 ft. lbs. torque. IMPORTANT: <ol style="list-style-type: none"> Chain length must be equal length on each side of hoist - unequal length may cause hoist to lift high and launch low on one side. Length of Chain (attachment point) is determined by: <ul style="list-style-type: none"> The height of the attachment point above the water. The draft of the boat. The Ideal length allows the hoist to lower just enough to allow the boat to easily pass over hoist when boat is loaded with crew and gear, and in rising and falling waves. The Chains must never be loose when the hoist is in the fully down position - this indicates that the hoist is too low and the Stabilizer Arms are binding against the Pitmans causing damage to parts.

Fig. R



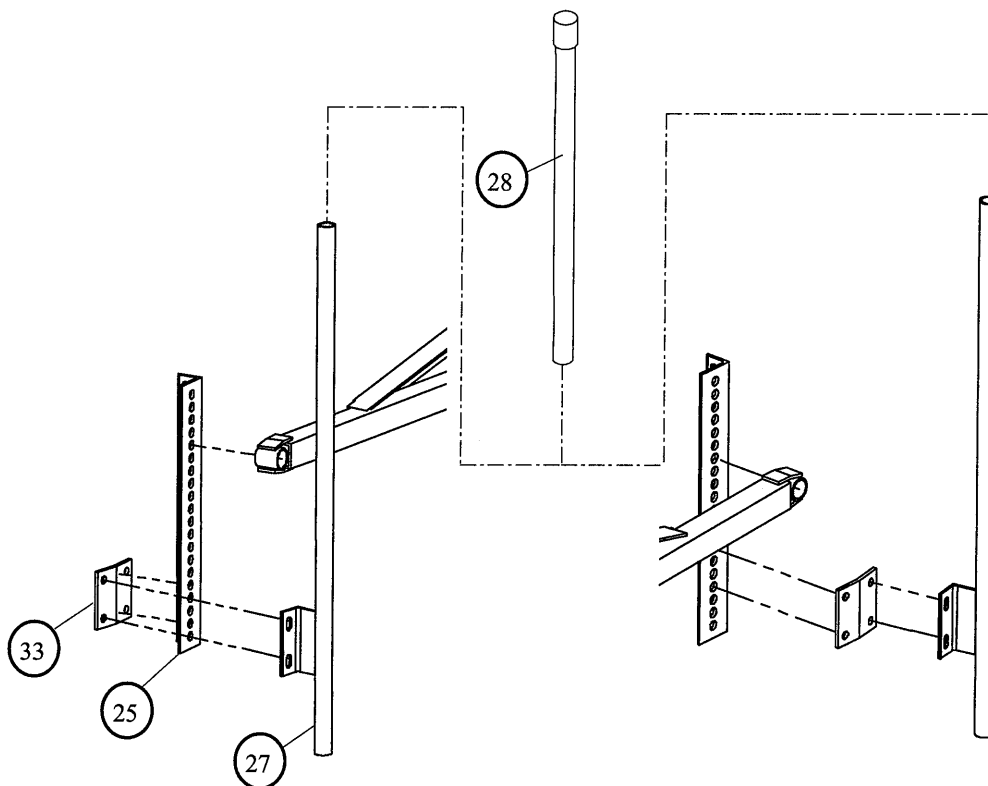
Adjustments

Step	Procedure
6.1	CHECK ALL DOCK BRACKET BOLTS FOR TIGHTNESS. CHECK ALL OTHER BOLTS FOR TIGHTNESS.
6.2	Attach the Control Unit to the dock in the desired location and connect the power cord to proper power source. Test the motor switch to ensure operation.
6.3	Remove Tank Plugs if used.
6.4	Lower the hoist according to the OPERATING INSTRUCTIONS (inside Control Unit). With the hoist submerged, check to see if the Catch Chains are tight - if not, shorten the Chains to the point that hoist is suspended by the chains.
6.5	Raise the hoist to the point the frame (front and rear End Channels and Side Stiffeners) are just above the water. The frame should be equal height (within 3 inches) above the water at all four corners - if not, measure from the Pivot Bolts to the waterline. <i>Note: If all Pivot Bolts are correct, and the hoist is still uneven, the hoist was assembled uneven. See Section 6 - Trouble Shooting</i>

Pipe Stands
Fig. S

Step	Procedure
7.1	Attach Pipe Stands [27], with Covers [28] and adaptors [33] to the Dock Bracket Vertical Angles [25] where they will best protect the boat. Fasteners per Pipe Stand: (2 ea) 1/2" x 1-1/2" bolt, nut and lockwashers. Tighten to 40 ft. lbs.

Fig. S



Trouble Shooting

CONDITION:	Hoist will not completely lift boat from water or stern remains low.
CAUSE:	A Water or equipment in boat creating additional weight. B Boat weight exceeds lifting capacity of hoist.
CORRECTION:	A Remove water or equipment. B Install correct size hoist to accommodate the boat's true weight.
CONDITION:	Hoist tips to side when lifting or launching.
CAUSE:	A Restricted air flow to one of the lifting tanks. B Hoses not of equal length. C Hoist is not square, frame is twisted. D Catch Chains not of equal length.
CORRECTION:	A Remove kinks or water-lock from hoses. B Correct hose length. C Loosen Tank Bands, Torsion Bar Clamps level hoist. D Adjust length of Catch Chains.
CONDITION:	Hoist leans to one side.
CAUSE:	A Torsion Bar not properly adjusted. B Pivot Bolts not equal height above waterline.
CORRECTION:	A Loosen Torsion Bar Clamps , level hoist. B Correct height of Pivot Bolts.
CONDITION:	Hoist leaks down on one side.
CAUSE:	A Leak in valve, tank, or hose.
CORRECTION:	A Locate leak and repair.

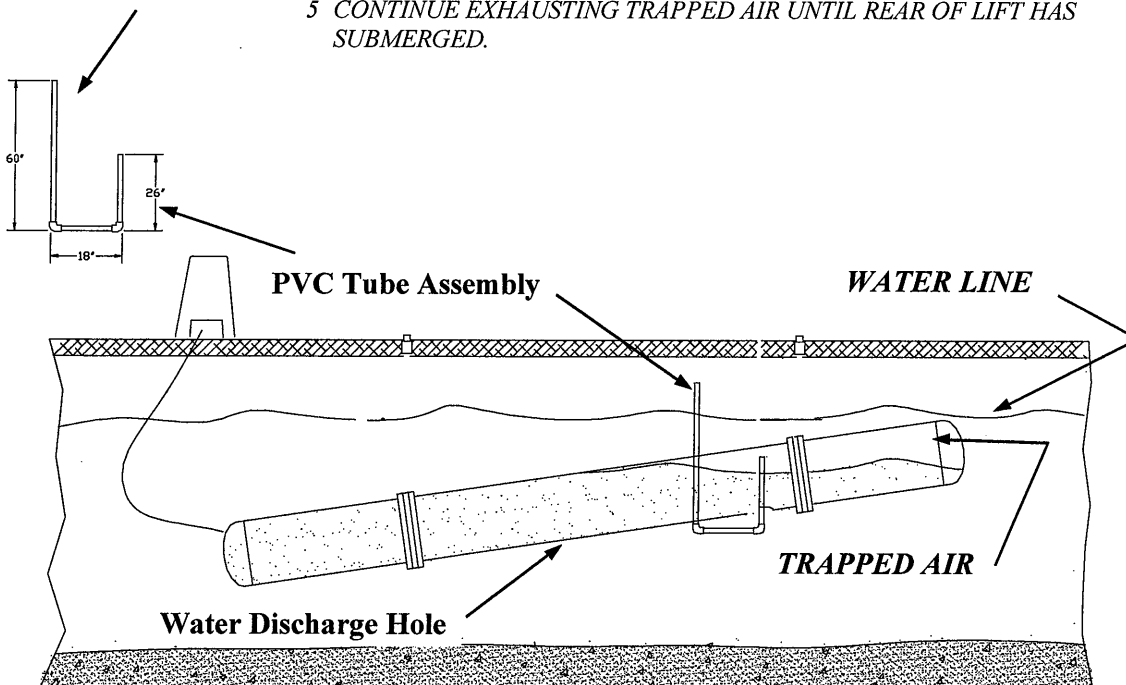
CONDITION:	Control Unit Blower not working.
CAUSE:	A GFCI circuit open. B Switch or Blower Motor malfunctioning. C Power service to dock not on.
CORRECTION:	A Reset GFCI switch. B Replace Switch or Blower Motor. C Turn on service to dock.

CONDITION: **Air trapped in tanks.** Front of hoist below water, rear of hoist above water.

TO MANUALLY EXHAUST AIR FROM TANKS:

- 1 INSERT PVC TUBE ASSEMBLY INTO TANK AT WATER DISCHARGE HOLE.
- 2 BLOW INTO PVC TUBE ASSEMBLY TO PURGE WATER IN TUBE.
- 3 EXHAUST TRAPPED AIR IN TANK THROUGH PVC TUBE ASSEMBLY.
- 4 MAINTAIN SIDE TO SIDE STABILITY BY ALTERNATING FROM ONE TANK TO OTHER.
- 5 CONTINUE EXHAUSTING TRAPPED AIR UNTIL REAR OF LIFT HAS SUBMERGED.

Construct a PVC Tube Assembly as shown

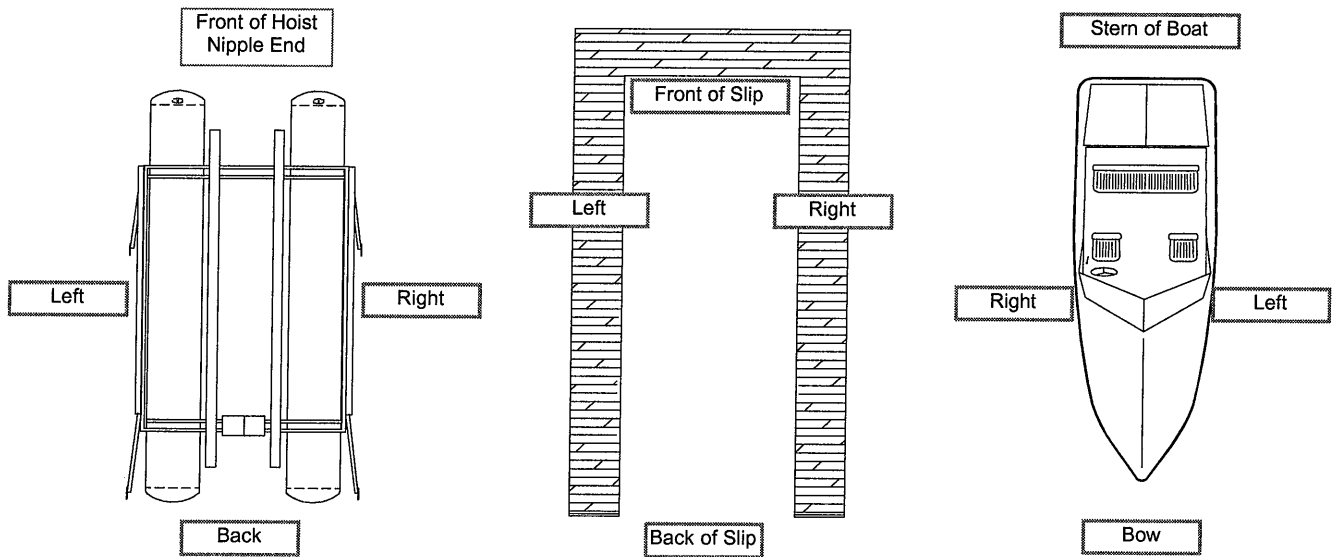


STERN LOADING

Symbols & Conventions

To avoid confusion in direction, all references for Left & Right / Bow & Stern / Front & Back are explained in the diagram below:

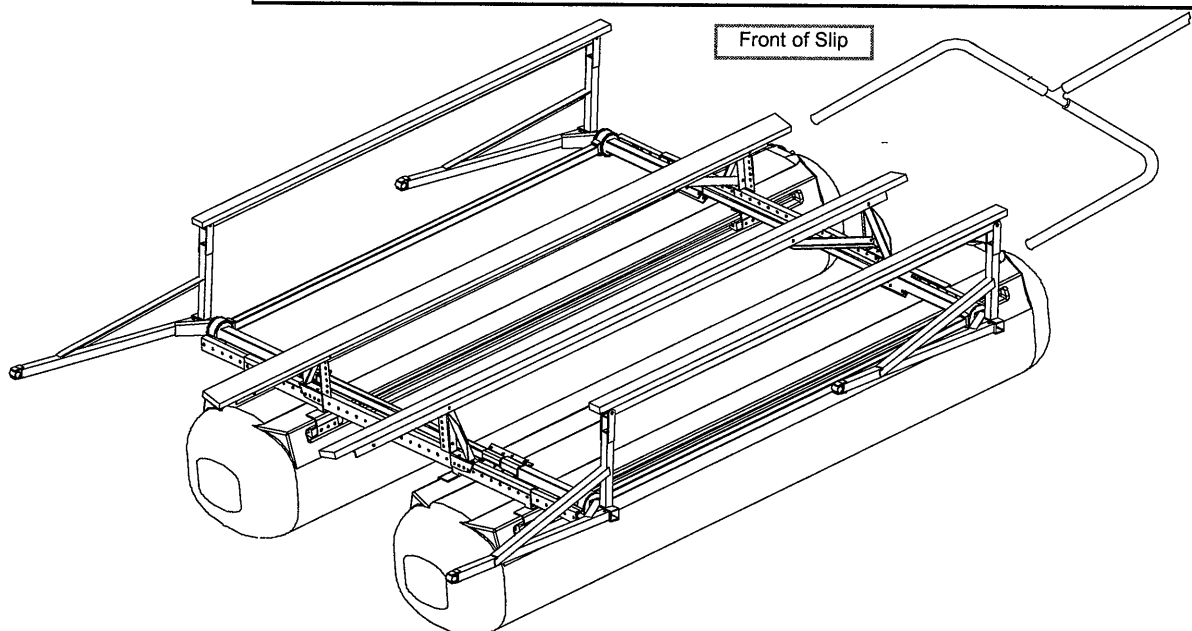
All numbers in brackets [] refer to the parts shown in SEC. 3, PG. 2, FIG A.



Tank Band Assembly

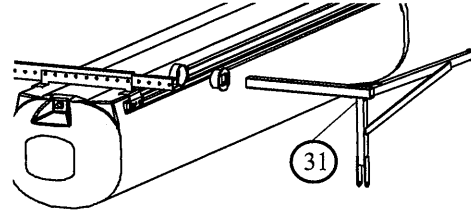
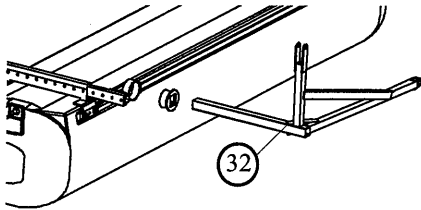
Procedure

In STERN LOADING installations, the Frame is assembled 180 degrees OPPOSITE of Bow First installations, so that the Hoses and Control Unit are to the FRONT of the slip. Refer to figure below.



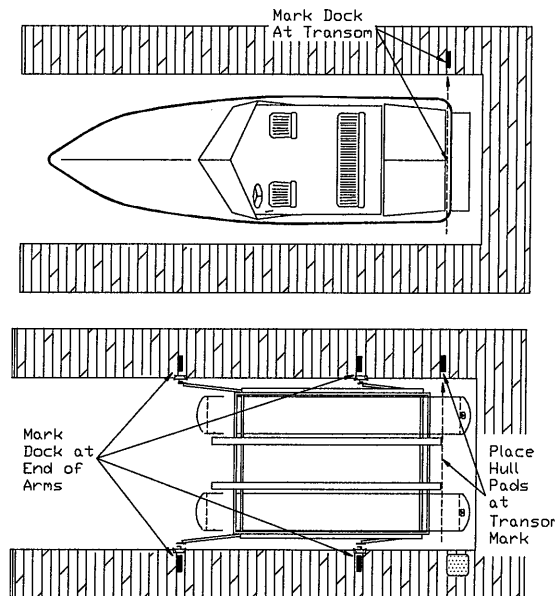
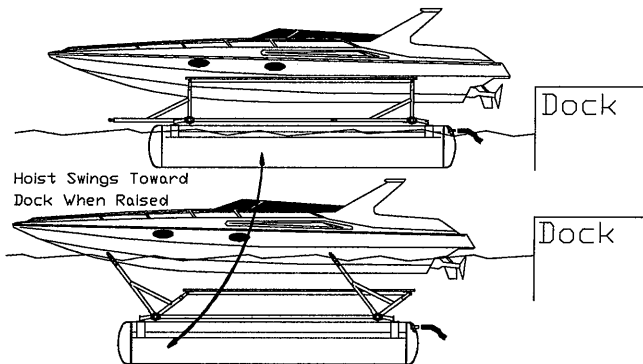
Stabilizer Arm Assembly

Procedure	
In STERN LOADING installations, the Stabilizer Arms are assembled with the Pivot Ends to the BACK of the hoist and slip. This allows the stern of the boat to position nearest the dock header for passenger access.	
Refer to drawing below for Stabilizer Arm assembly.	



Selecting Position for Boat & Hoist (STERN FIRST LOADING)

Step	Procedure
1.1	STERN FIRST LOADING ONLY - Pull the <i>boat</i> into the boat stall so that the STERN can be easily reached from the front of the slip, allowing a minimum of 12"-18" inches of space at the dock level between the front of the slip (dock header) and the boat or out-drives. IMPORTANT - The space allowed between boat and dock is needed for: 1. Any repositioning of the boat for proper balance on the hoist. 2. Horizontal travel of the hoist and boat as the hoist is raised. See diagram below.
1.2	With the boat in the desired location, place a mark on the dock where the boat's transom is positioned. <i>Note: Do not include extensions to the hull such as swim platforms; the transom mark should reflect the location of the end of the bottom of the hull.</i>
1.3	Remove the boat and pull the hoist into the slip.
1.4	Position the hoist inside the slip and align the Hull Support Pads with the transom mark on the dock. IMPORTANT - Ensure there is enough space between the Tanks and the front of the slip (dock header) to allow for Hoses and clearance of any obstacles (underwater braces etc.) to the travel of the hoist as it is operated; if necessary, move the hoist toward the back of the slip to provide this distance.
1.5	With the hoist held stationary at the correct position, place marks on the dock at the location of the <i>Stabilizer Arm attachment points</i> .



Guide Ropes

Step	Procedure
2.1	With hoist, Hull Support Pads and boat correct, lower hoist until boat is almost free floating and place Control Unit Valve in Dry Dock position.
2.2	Tie a small loop (about 6 inches in diameter) in one end of each Guide Rope and place the loops over the BOW cleats of the boat.
2.3	Tie the Ropes (tight, no slack) to a roof support post and 6 to 7 feet <i>above</i> the deck of the dock. NOTE: If no overhead structure is available, the forward end of the Guide Ropes may be tied to (only) the most distant End Channel of the hoist. DO NOT attach Ropes to any other structure or component of the hoist.

