

**LSV20100
2000 LB
Vertical Boatlift**

By Lakeshore Products, Inc.

**Instruction Sheet.
Read carefully. Failure to
follow the instructions and
safety rules could result in
severe injury or death!!!**

Thank you for purchasing a Lakeshore Lift. With proper care, this lift will provide you with years of trouble-free use. Please read all instructions before beginning assembly, and if you have any problems do not hesitate to call us.

WARNING!!!

The following may void your warranty.

Lakeshore Products, Inc. produces this 2000# Vertical Lift to be the best in the market. Among the benefits you will come to enjoy is the unrestricted access to your boat that only we offer. This is due to our exclusive design that only braces the lift below the waterline. In order to assure proper operation of this more complex design, there are several installation procedures that are critical, and failure to accomplish these may result in problems that will not be covered under warranty.


1. Square mainframe as in step 6) of Mainframe Assembly.
2. Square the cradle as in step 4) of Cradle Assembly.
3. Level the lift as in step 2) of Water Positioning.

Also, be careful not to over-tighten the nuts and bolts on your lift. Over-tightening bolts may severely damage the structural integrity of your lift. When tightening a regular nut against an aluminum tube, tighten only until the surface of the tube dimples slightly (1/8"). All lock nuts should be tightened until at least one to one and a half threads of the bolt are showing through the nut. If you crush the tube, it can crack and fail under pressure.

Lay out all of the parts of the lift and identify them using the parts list. Sort the nuts and bolts by size and identify them using the fasteners list. Find a level area on which to work and gather the following tools:

- 2 - 1/2 Wrenches - Open end (for 5/16 bolts)
- 2 - 9/16 Wrenches - Open end (for 3/8 bolts)
- 1 - 15/16 Wrench or Adjustable Wrench
- 1 - Tape Measure
- 1 - Tin snips (for cutting metal banding)
- 1 - Step Ladder
- 1 - Slotted Screwdriver
- A Small Amount of Grease

Parts List

- 4 - Legs
- 4 - Mainframe Posts--#1, #2, #3, #4
- 4 - Mainframe Spreader Tubes
- 8 - Mainframe Backer Plates
- 4 - 56" Side Angle Braces
- 4 - 40" Front/Rear Angle Braces
- 1 - Front Cradle Assembly (1 Cable)
- 1 - Rear Cradle Assembly (2 Cables)
- 2 - Cradle Spreader Tubes with Forks
- 1 - Winch with Wedge
- 1 - 41" Wheel
- 8 - Poly Rollers
- 4 - Bunk Sockets
- 4 - Bunk Backer Plates
- 2 - Carpeted Wood Bunk Assemblies
- 2 - Motor Stop Brackets
- 1 - Motor Stop (3 pieces)  Optional
- 1 - Winch Cover
- 4 - 3 x 3 Red Plastisol Caps
- 3 - 1-1/2 x 2 Red Plastisol Caps
- 2 - Aluminum Winch Washers (2" Round Flat)

Fasteners List

- 8 - 5/16 x 3/4 Hex Bolts
- 44 - 5/16 x 2-1/2 Hex Bolts
- 8 - 5/16 x 5-1/2 Hex Bolts
- 24 - 3/8 x 2-1/2 Hex Bolts
- 8 - 3/8 x 3-3/4 Hex Bolts
- 2 - 3/8 x 4-1/2 Hex Bolts
- 60 - 5/16 Hex Lock Nuts
- 34 - 3/8 Hex Lock Nuts
- 24 - 5/16 Flat washers
- 20 - 3/8 Flat washers
- 5 - 1/2 Flat washers
- 8 - 1/8 Hairpin Cotter
- 4 - 3/8 x 3-1/2 Clevis Pin
- 4 - 3/8 x 2-1/2 Clevis Pin
- 5 - 1/2 Galvanized Nuts

Mainframe Assembly

1) Insert the (4) Legs into the (4) Posts and fasten with (4) 3/8 x 3-1/2 clevis pins and (4) hairpin cotters.

2) Stand the Posts as pictured in Figure #1. At the top of each Post, there is a number. Place the appropriate Post in each position by matching the numbers to the figure. Make certain that the welded stubs at the top of the Posts are pointed in the proper directions.

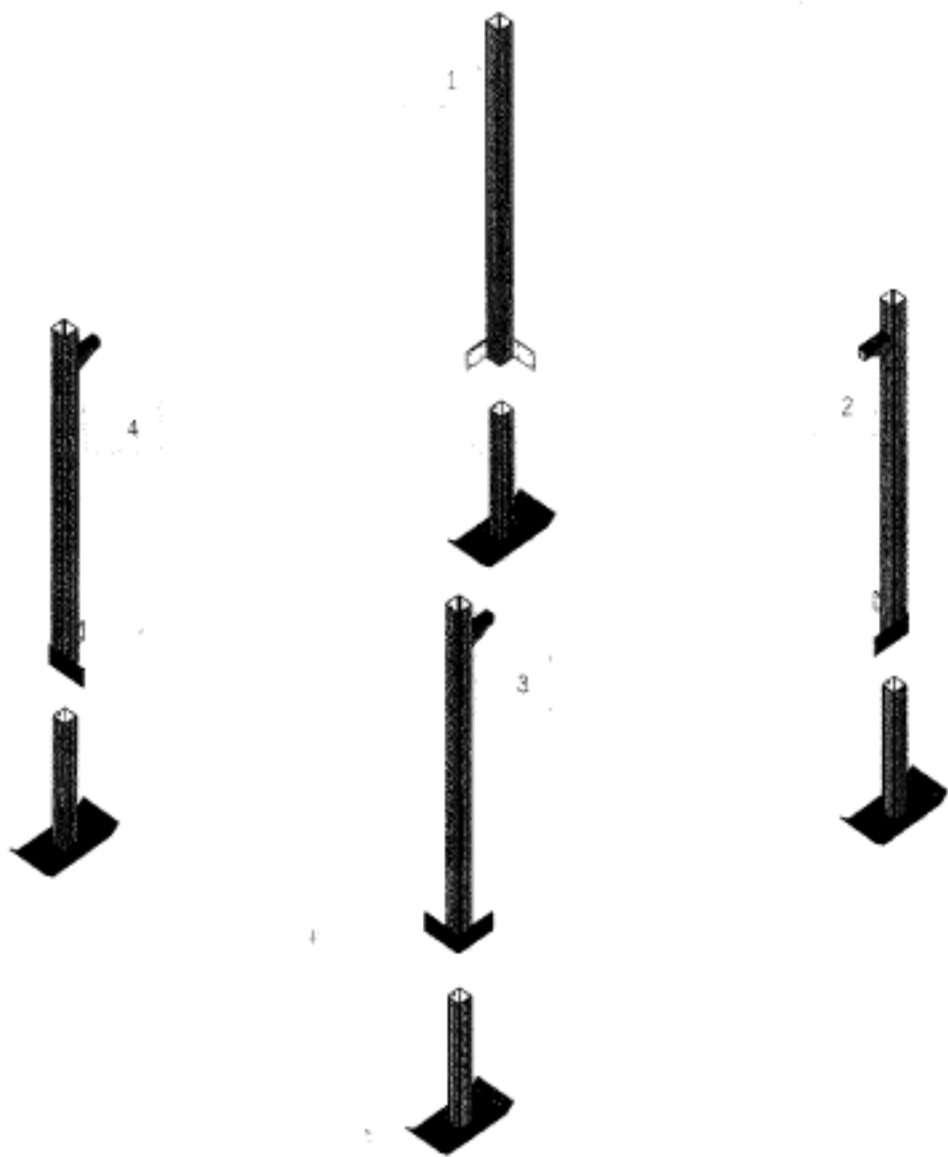


Figure #1

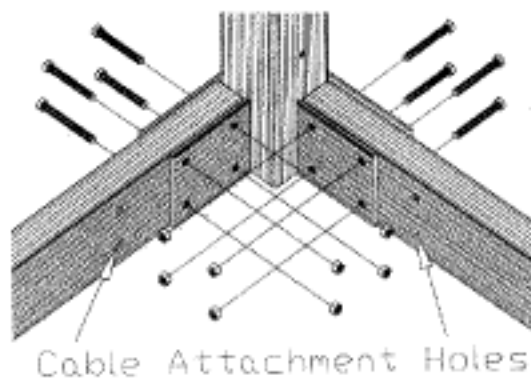


Figure #2

to attach each Brace to each Post with (1) 3/8 flat washer against the tube and (1) 3/8 hex lock nut. Use (1) 5/16 x 2-1/4 hex bolt to attach each brace to each Spreader Tube. Put the heads of the bolts on the inside of the lift with (1) 5/16 flat washer underneath both the nut and the bolt and (1) 5/16 hex lock on the outside of the lift. See Figure #3.

5) Attach the 40° Front/Rear Angle Braces between the Posts and the Spreader Tubes connecting Posts #1 and #2 and Posts #3 and #4, with the angle facing the outside of the lift. Use (1) 3/8 x 3-3/4 hex bolt to attach each Brace to each Post with (1) 3/8 flat washer against the tube and (1) 3/8 hex lock nut. Use (1) 5/16 x 2-1/4 hex bolt to attach each brace to each Spreader Tube. Put the heads of the bolts on the inside of the lift with (1) 5/16 flat washer underneath both the nut and the bolt and (1) 5/16 hex lock on the outside of the lift. See Figure #3.

6) Square the mainframe by measuring the diagonals. See Figure #4. The diagonals must be equal. If they are not, adjust the mainframe until they are. Once this is accomplished, tighten all of the bolts.

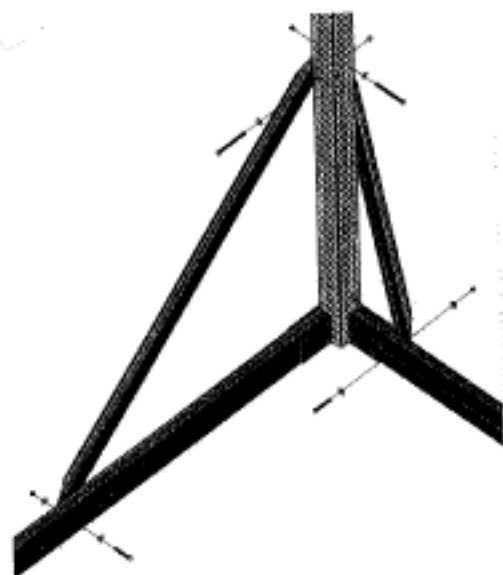


Figure #3

3) Place one of the (4) Spreader Tubes between each of the Posts. Use the Backer Plates on the opposite side of the plates attached to the bottom of the posts. Use (4) 5/16 x 2-1/2 hex bolts at each end. The heads of the bolts should be on the outside of the lift, and the 5/16 hex lock nuts on the inside.

4) Attach the 56° Side Angle Braces between the Posts and the Spreader Tubes connecting Posts #1 and #4 and Posts #2 and #3, with the angle facing the outside of the lift. Use (1) 3/8 x 3-3/4 hex bolt



Figure #4

Cradle Assembly

The Cradle may be assembled either inside the Mainframe or outside of it. Assembly outside is easier because it allows more room for setting up and moving the parts around. However, the Cradle must then be carried into the Mainframe for final assembly.

1) Place the (1) Front Cradle Assembly, the (1) Rear Cradle Assembly, and the (2) Spreader Tubes with Forks as shown in Figure #5. The welded tubes on the Cradle Assemblies should face out. The longer leg of the fork on the Spreader Tubes should be towards the inside.

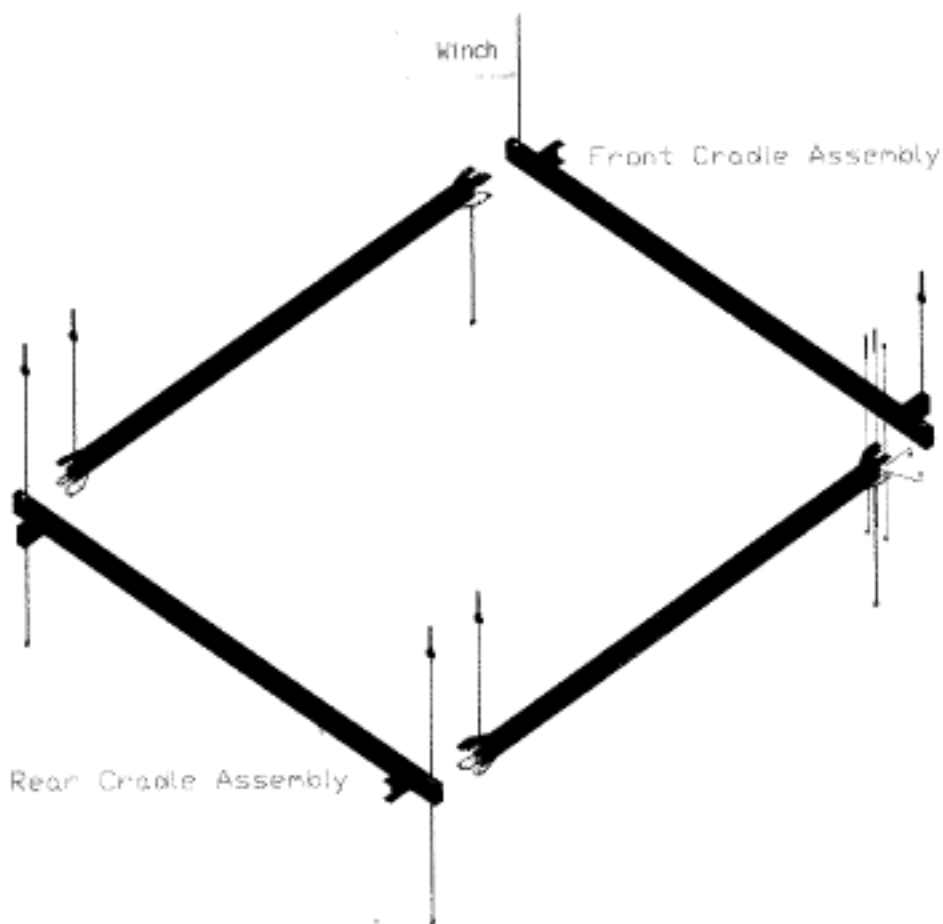


Figure #5

2) Attach the Spreader Tubes to the Front Cradle Assembly with (2) 5/16 x 3/4 hex bolts, (2) 5/16 x 5-1/2 hex bolts, and (4) 5/16 hex lock nuts at each corner. The cable in the Front Cradle Assembly has an eyebolt on one end and both ends should exit through the top of the assembly. One end of the Spreader Tube cables exits on the top and the other end exits on the bottom. The side that attaches to the Front Cradle Assembly should have a loop in the end and exit on the bottom side. Make certain during assembly that the cable is in the fork groove and all cables are running on the pulleys.

3) Attach the Spreader Tubes to the Rear Cradle Assembly with (2) 5/16 x 3/4 hex bolts, (2) 5/16 x 5-1/2 hex bolts, and (4) 5/16 hex lock nuts at each corner. The cables in the Rear Cradle Assembly have eyebolts on the top side and loops on the bottom. One end of the Spreader Tube cables exits on the top and the other end exits on the bottom. The side that attaches to the Rear Cradle Assembly should have an eyebolt in the end and exit on the top side. Make certain during assembly that the cable is in the fork groove and all cables are running in the pulleys.

4) Square the cradle by measuring the diagonals. See Figure #4. The diagonals must be equal. If they are not, adjust the cradle until they are. Once this is accomplished, tighten all of the bolts.

5) If you have assembled the cradle outside of the mainframe, move it into the mainframe. The Front Cradle Assembly belongs between legs #1 and #2.

*****Attach the Winch*****

1) Using a ladder, attach the winch to the inside of leg #1 using (2) 3/8 x 4-1/2 hex bolts. The large drum inside the winch on which the cable winds should be on the bottom. Put the head of the bolts with (1) 3/8 flat washer on the inside of the winch and place the aluminum winch washers and 3/8 flat washers under the 3/8 hex lock nuts on the outside of the leg tube. Tighten these nuts tightly.

2) Remove the jam nut and small washer from the winch thread. Carefully thread the wheel onto the winch and then replace the washer and jam nut. Do not overtighten this nut or the winch will not work properly. The end of the shaft should be flush with the outside of the jam nut. See Figure #6.

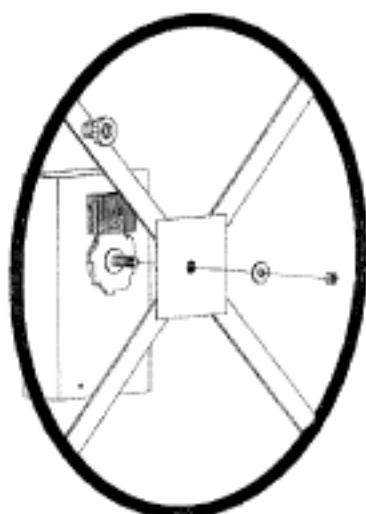


Figure #6

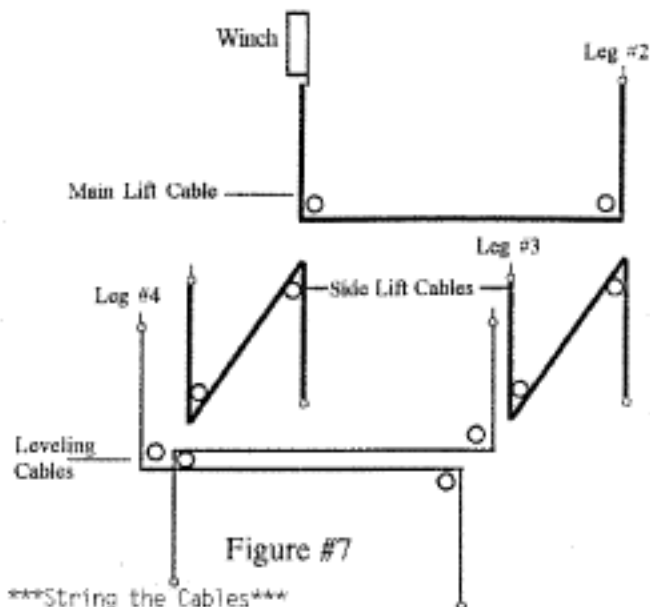


Figure #7

String the Cables

1) Verify that your cables are in the right position by comparing with Figure #7.

2) Find the eyebolt attached to the cable that runs through the Front Cradle Assembly. Put this eyebolt up through the welded stub in Post #2. Hold it in place with (1) 1/2 flat washer, and (1) 1/2 galvanized hex nut. See Figure #8. Thread the eyebolt so that several threads show. Do not tighten the nut all the way.

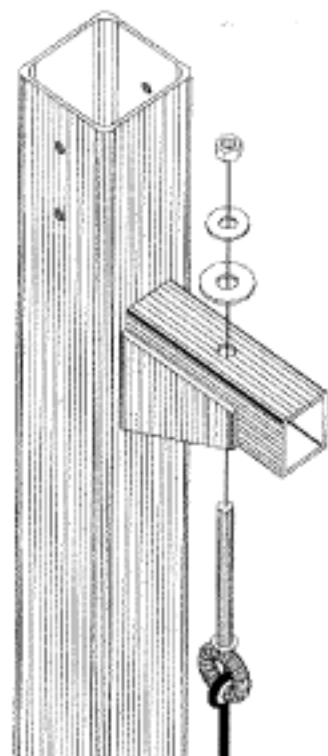


Figure #8

3) Find the other end of the same cable and grease the last two feet of this end of the cable. Find the wedge taped to the winch. Wrap the cable around the winch drum clockwise from the outside of the lift, and insert the end through the small end of the welded channel on the side of the drum. Make a loop and push the end back through the welded channel. Insert the steel wedge provided into the center of the loop you just made with the cable. Now pull the main cable down to draw the loop and the wedge into the welded channel. This will secure the cable to the drum. See Figure #9. Take up the slack in the cable by turning the wheel clockwise. Make sure the cable winds evenly as in Figure #10. Do not put any tension on the cable.

Note: If you happen to lose the wedge, a standard 3/8 nut will work just as well.

4) Find the loops in the ends of the cables that run through the Rear Cradle Assembly. Attach these loops using 5/16 x 2-1/2 hex bolts to the Spreader Tubes between Posts #1 and #4 and Posts #2 and #3. Place the bolt through the bottom hole near to the Mainframe Backer Plate with a 5/16 flat washer under its head; put the cable against the Tube; put a 3/8 flat washer against the cable; put another 5/16 flat washer on and then tighten with a 5/16 hex lock nut. You may now tighten these nuts.



Figure #9

5) Attach the eyebolts on the at the other end of the rear cradle cables through the holes nearest the Post in the welded stubs on Posts #3 and #4. Use

(1) 1/2 flat washer, and (1) 1/2 galvanized hex nut for each eyebolt. Do not thread the bolts into the nut more than a few threads.

6) Find the loops on the bottom-end cables that run through the Spreader Tubes. Attach these using 5/16 x 2-1/2 hex bolts as you did with the cable loops that are attached to the Rear Cradle Assembly.

7) Attach the eyebolts on the other end of these cables through the remaining holes in the welded stubs on Posts #3 and #4. Use

(1) 1/2 flat washer, and (1) 1/2 galvanized hex nut for each eyebolt. Do not thread the bolts into the nut more than a few threads.

*****Level the Cradle*****

Before proceeding, check that there are no loose cable ends. All cables should be attached at this point.

1) Turn the wheel clockwise until the cradle is supported solely by the cables.

2) Only the eyebolts on Posts #3 and #4 need to be tightened in order to level the cradle:

-Front to back level: tighten the eyebolts farthest from the posts to raise the back of the cradle. Loosen these eyebolts to lower the back of the cradle. These two eyebolts should be threaded the same amount. Initially, you should only have to tighten these eyebolts.

-Side to side level: tighten the eyebolts closest to the posts evenly until there is slight tension in the cables. If the cradle is then uneven, loosen the eyebolt on the side that is higher, and then tighten the opposite side. Repeat this procedure until the cradle is level. Make certain there is only SLIGHT tension on these cables.

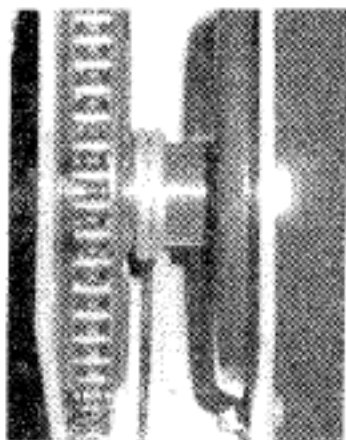


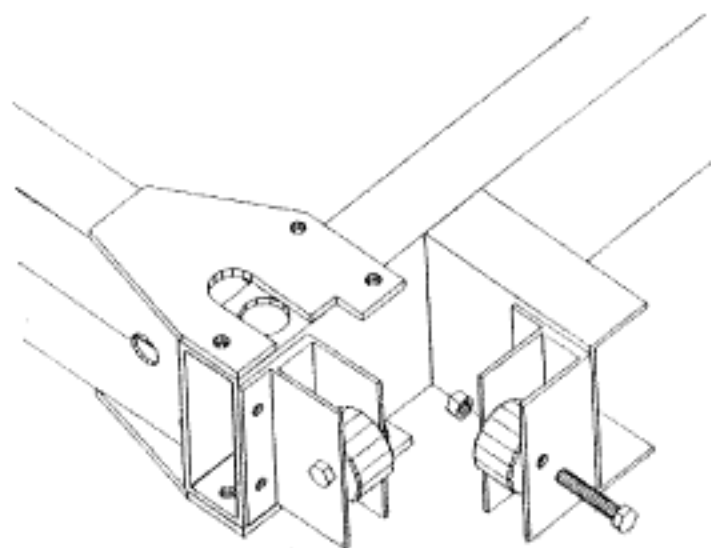
Figure #10

*****Cradle Rollers*****

Install the (8) Poly Rollers at the corners of the cradle assembly using:

(1) 3/8 x 2-1/2 Hex Bolt

(1) 3/8 Center Lock Nut per Roller



Check your Lift

Raise and lower the cradle several times while looking for any problems. Now is a much better time to fix these than after the lift is in the water. Here are some general guidelines:

The cradle should move smoothly up and down.

All cables should ride in pulleys.

No two cables should cross outside of a tube.

No cable should ride directly on a tube.

Carpeted Bunks

1) Attach the Bunk Brackets directly to the Front and Rear Cradle Assemblies using the Bunk Backer Plates, and (4) 3/8 x 2-1/2 hex bolts and (4) 3/8 hex lock nuts for each assembly. See Figure #12. The Sockets should be on the _____ of the cradle. Do not tighten these now as they will need to be adjusted to fit your boat.

2) Slide the Carpeted Wood Bunks down into these sockets and fasten in place with the (4) 3/8 x 2-1/2 clevis pins and the (4) hairpin cotters.

Optional

Motor Stop

1) This lift is designed so that it can be placed on either side of your dock without moving the wheel). Determine which side of the lift you will be driving your boat into and that is the side on which you want to install the motor stop.

2) Slide the Motor Stop Brackets over the Cradle Assembly on that side of the lift and fasten with (2) 3/8 x 2-1/2 hex bolts and (2) 3/8 hex lock nuts for each Bracket.

3) Slide the Motor Stop PVC Tube over the ends of the Aluminum L Tubes. One leg of the L Tubes is longer than the other. Use them either way as best fits your boat, but make sure that they are both used the same.

Figure #12

4) Slide the Motor Stop into the Motor Stop Brackets and tighten the set screws to hold it in place. This will also have to be adjusted to fit your boat. See Figure #13.

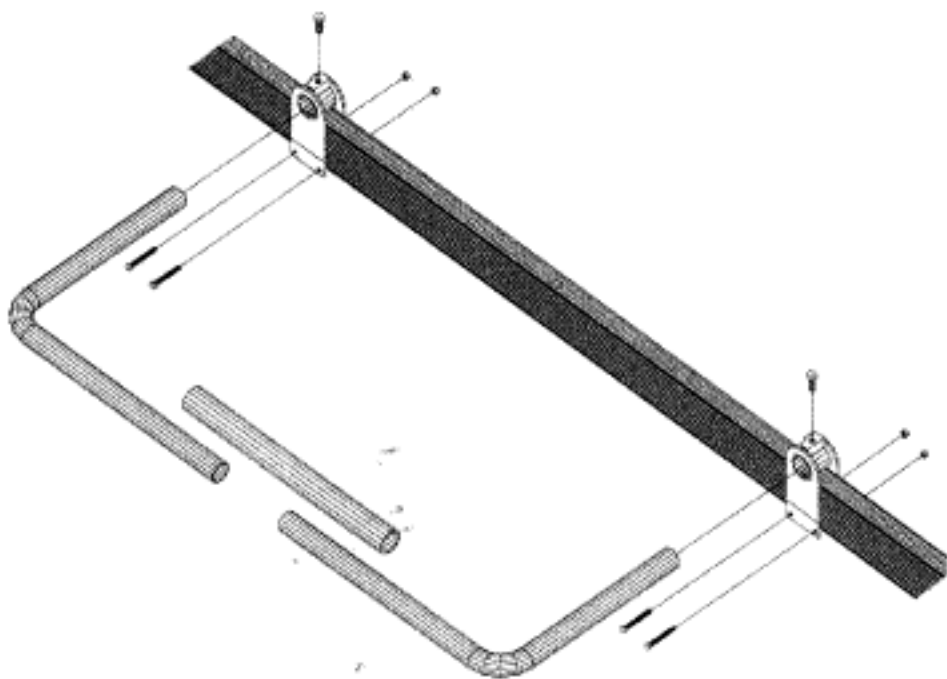


Figure #13

Final Touches

- 1) Place the Winch Cover on the winch.
- 2) Place the 3 x 3 Red Plastisol Caps on the tops of the Posts.
- 3) Place the 1-1/2 x 2 Red Plastisol Caps on the welded stubs that the cable eyebolts attach to.

Water Positioning

- 1) Move the lift to where it is to be used.
- 2) Adjust the leg height so that the lift is level. Do this by removing the clevis pin of the lowest leg, lifting that corner of the lift to level and replacing the clevis pin. Don't forget the hairpin cotter.
- 3) Adjust the positions of the Carpeted Wood Bunks and the Motor Stop to fit your boat.

IMPORTANT

Occasionally check the cables for fraying and make certain that all cables are riding properly. This will guarantee years of trouble-free operation.

When transporting the lift assembled, tie the cradle unit to the lower mainframe and use the winch to put tension on the cables. Once you've reached your destination, check that all of the cables are still riding in their pulleys.

At the beginning of each season, you should check your lift before entrusting your boat to it:

- Check that your winch turns easily without any weight on it.
- Check that the braking mechanism works with weight on the lift.
- Check your cables for fraying.
- Check that your pulleys turn freely.
- Check that the cables are riding in pulleys and not against aluminum.

Accessories

Lakeshore Products offers a full line of accessories to add to your Vertical Lift.

Canopy to provide your boat protection from the sun is available in both blue and grey.

Walk-on side guides to help guide your boat into the lift and give you an intermediate step between your dock and boat are available.

Electric Power Assist to turn your wheel using an electric motor.

Front Bow Stop to aid you in aligning your boat on the lift when docking.

Adjustable Leg Extensions up to 6' for deeper lakes.



LAKESHORE PRODUCTS

TEN YEAR LIMITED WARRANTY

Lakeshore Products, Inc. (Seller) warrants the aluminum structure on docks and lifts of its manufacture to be free from defects caused by faulty material or poor workmanship. Seller will at its option, repair or replace any such goods found on examination by Seller, to be defective under normal use and service within ten years from date of purchase. Upon discovery of any such defect, Buyer must notify Seller in writing of defect and provide proof of purchase. Seller warrants cast aluminum parts, mechanical components and hardware for one year.

Seller shall not be held responsible for repairs or modifications to its docks or lifts unless authorization has been obtained from Seller. This warranty does not cover damage caused by incorrect assembly or adjustments, overloading, improper use, neglected maintenance, alterations or damage caused by accident, ice, saltwater or acts of God.

Components obtained from other manufacturers and used in Sellers products will be covered under the manufacturers warranty and shall not be the responsibility of the Seller.

Sellers responsibility under this warranty shall be the repair or replacement of defective items. Seller is not liable for incidental or consequential damages of any kind.

LSV2010 Parts List

Ref.	Part No.	Part Name	Qty	Ref.	Part No.	Part Name	Qty
1	KNOB	Spinner Knob	1	19	20197	Cradle Spreader Tube-Left	1
2	Y756	5/8 Jam Nut	1	20	CRA	Cradle Roller Assembly	8
3	41W	41" Wheel	1	21	20182	Mainframe Post #4	1
4	WC2	Small Winch Cover	1	22	MSTUBE	Motor Stop L Tube	2
5	WL5	Winch Locking Sprocket	1	23	20222	Bunk Post Socket Assy	4
6	WINCHBP1	Winch Brake Pad	1	24	MSPVC	Motor Stop PVC Tube	1
7	20039	Winch Wedge	1	25	20202	Rear Cradle Assembly	1
8	W2	Small Winch (#2)	1	26	20230	Motor Stop Bracket	2
9	W952	Bronze Thrust Washer	1	27	20198	Cradle Spreader Tube-Right	1
10	WSC	Small Winch Sprocket Cover	1	28	20191	Mainframe Spreader Tube	4
11	DEM33	3 X 3 Plastisol Cap	4	29	20193	Side Angle Brace -- 56"	4
12	20179	Mainframe Post #1	1	30	20208	Leg	4
13	20196	Front Cable	1	31	20195	Side Cable	2
14	20180	Mainframe Post #2	1	32	20181	Mainframe Post #3	1
15	DEM12	1 1/2 X 2 Plastisol Cap	3	33	20192	F/R Angle Brace -- 40"	4
16	20201	Front Cradle Assembly	1	34	15DP	Double Pulley Assembly	2
17	BUNK1500	Carpeted Wood Bunk Assy	2	35	15SP	Single Pulley Assembly	6
18	20190	Mainframe Backer Plate	8	36	20194	Rear Cable	2

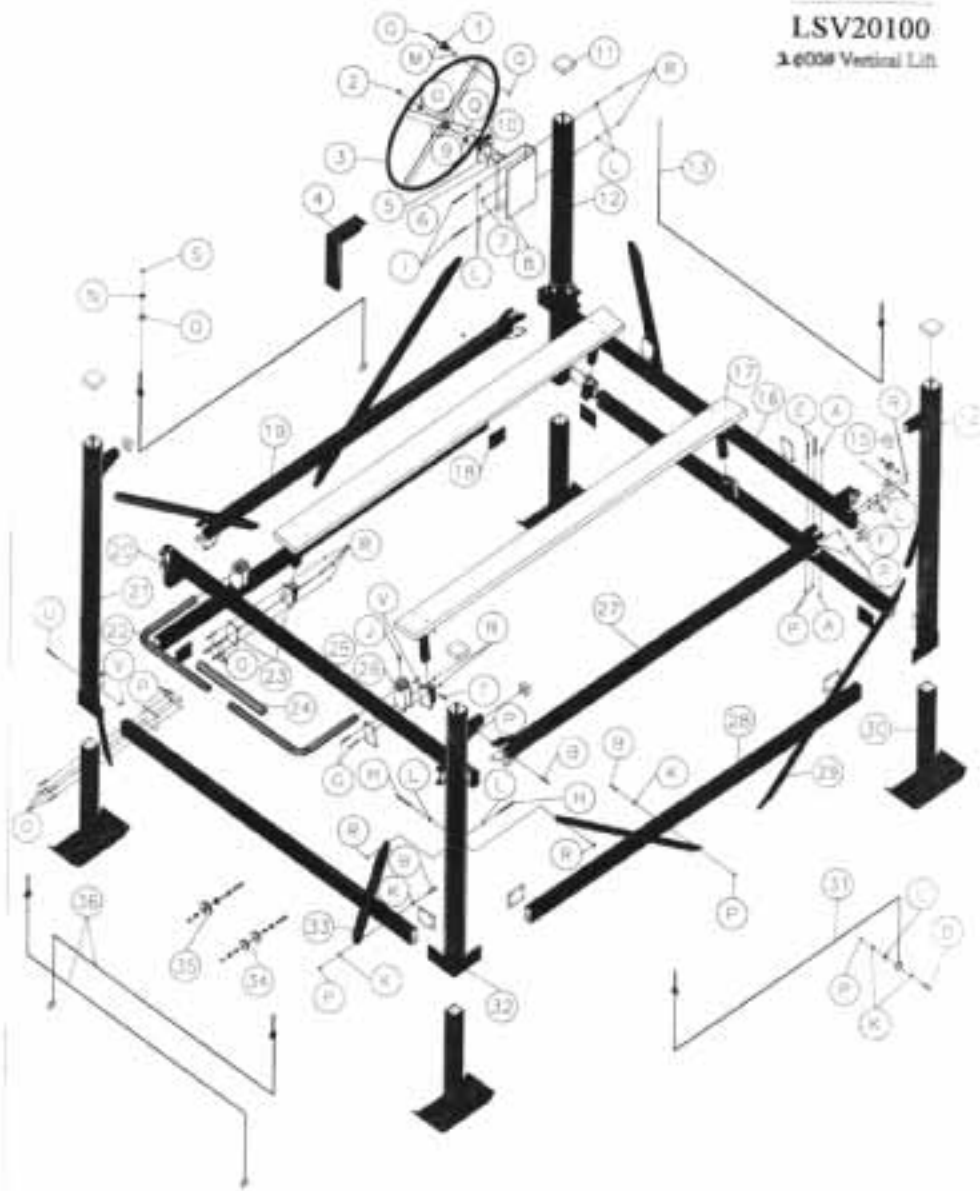
LSV2010 Bolts List

* Available locally

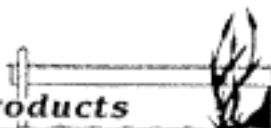
A	Y303	* 5/16 x 3/4 Hex Bolt	8
B	Y308	* 5/16 x 2 Hex Bolt	4
C	Y309	* 5/16 x 2 1/4 Hex Bolt	8
D	Y310	* 5/16 x 2 1/2 Hex Bolt	36
E	Y322	* 5/16 x 5 1/2 Hex Bol	8
F	Y404	* 3/8 x 1 Hex Bolt	16
G	Y410	* 3/8 x 2 1/2 Hex Bolt	21
H	Y415	* 3/8 x 3 3/8 Hex Bolt	8
I	Y418	* 3/8 x 4 1/2 Hex Bolt	2
J	Y507	* 1/2 x 1 3/8 Hex Bolt	2
K	Y352	* 5/16 Flat Washer	24
L	Y452	* 3/8 Flat Washer	28
M	X452	* 3/8 Stainless Flat Washer	2
N	Y552	* 1/2 Flat Washer	5
O	Y752	* 5/8 Flat Washer	6
P	Y351	* 5/16 Hex Lock Nut	64
Q	Y450	* 3/8 Hex Nut	2
R	Y451	* 3/8 Hex Lock Nut	46
S	G550	1/2 Galvanized Hex Nut	3
T	CP	3/8 x 2 1/2 Clevis Pin	4
U	CP2	3/8 x 3 1/2 Clevis Pin	4
V	HPC	Hairpin Cotter	8

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LSV20100
3,000# Vertical Lift



Lakeshore Products



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