

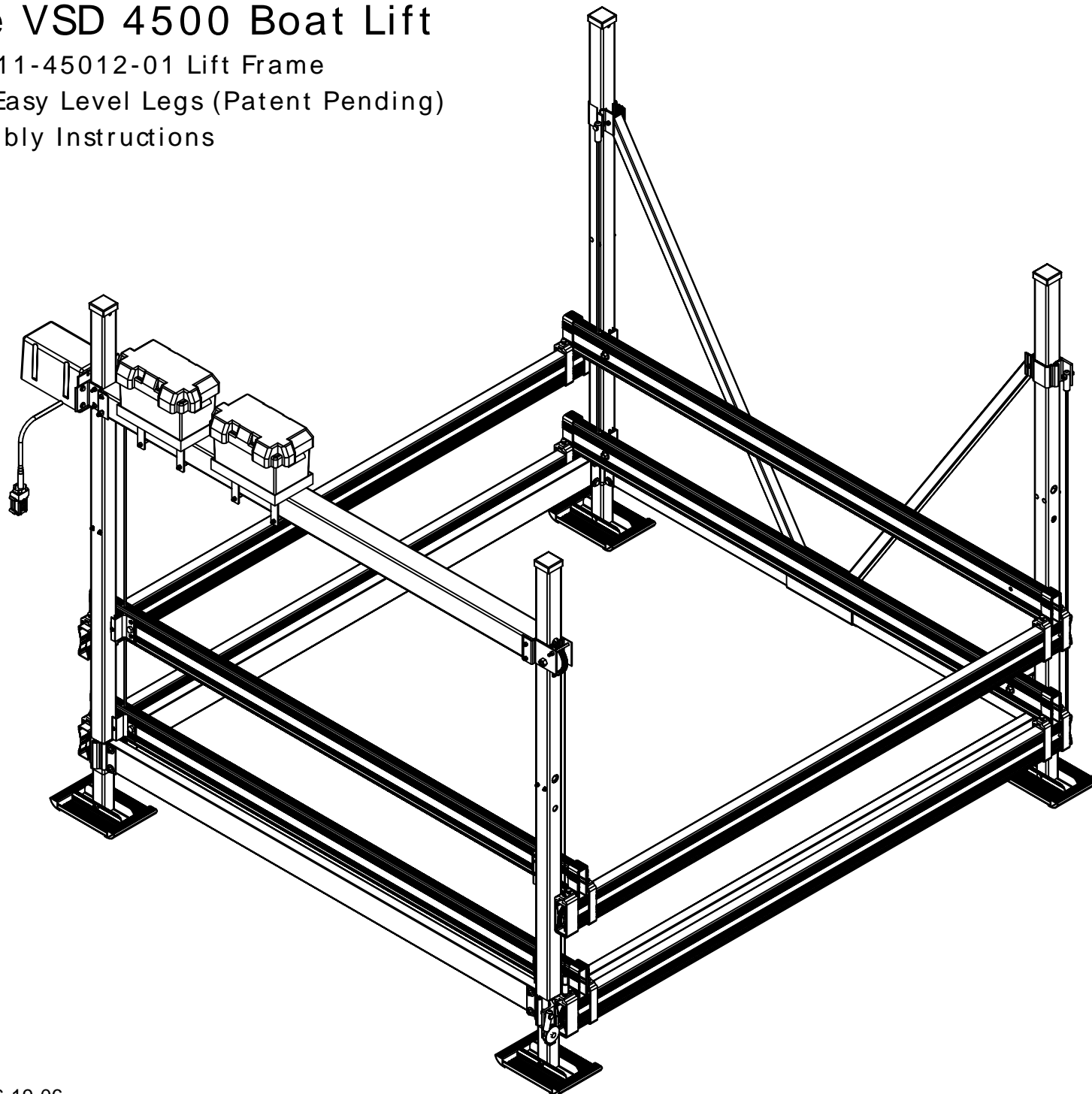


Floe VSD 4500 Boat Lift

P/N 511-45012-01 Lift Frame

With Easy Level Legs (Patent Pending)

Assembly Instructions



TOOLS REQUIRED

(2) 9/16" SOCKETS OR
WRENCHES

(2) 3/4" SOCKETS OR
WRENCHES

FRAMING SQUARE

TORQUE WRENCH

LOCKING PLIERS

VSD-4500 FRAME EXPLODED VIEW

LIFT P/N 511-45012-01

DESCRIPTION							
NO.	PART NO.	QTY.		NO.	PART NO.	QTY.	DESCRIPTION
1	002-04015-00	7	CRADLE CLAMP 1.5"	60	001-70217-00	14	HHCS, 1/2-13 x 3 1/2" ss 18-8
2	002-04012-00	2	SIDE FRAME BEAM 96" (.100)	61	001-70218-00	4	HHCS, 1/2-13 x 3 3/4" ss 18-8
3	002-04017-00	1	CRADLE LIFT CLAMP 2.5"	62	001-70221-00	2	HHCS, 1/2-13 x 4 1/2" ss 18-8
4	002-04020-00	2	F/R FRAME BEAM 116" (.125)	63	001-70215-00	4	HHCS, 1/2-13 x 3" ss 18-8
5	002-04022-00	2	V-BRACE 77"	64	001-70227-00	1	HHCS, 1/2-13 x 7" ss 18-8
6	002-04031-00	4	CRADLE GUIDE	65	001-70310-00	2	HHCS, 5/8-11 x 1 3/4" ss 18-8
7	002-04034-00	2	UPPER CLAMP 1	66	001-70313-00	4	HHCS, 5/8-11 x 2 1/2" ss 18-8
8	002-04036-00	1	UPPER CLAMP 3	67	001-23933-00	1	SHCS, 3/4-16 x 1 3/4"
9	002-04038-00	1	UPPER CLAMP 2	68	001-70817-00	2	NUT, JAM 3/4-10 ss 18-8
10	002-04040-00	2	SIDE CRADLE 109"	69	001-70816-00	6	NUT, JAM 5/8-11 ss 18-8
11	002-03106-00	2	BATTERY BOX	70	001-70861-00	8	NUT, 5/16-18 ALUMINUM NYLOCK
12	002-04048-00	1	FRONT CRADLE BEAM 121" (.125)	71	001-71017-00	8	3/8" SAE FLAT WASHER
13	002-04064-00	1	V-BRACE CLAMP (FEMALE)	72	001-71021-00	27	1/2" FLAT WASHER SAE ss 18-8
14	002-04066-00	1	V-BRACE CLAMP (MALE)	73	001-71022-00	32	1/2" FLAT WASHER USS ss 18-8
15	002-04513-00	4	FRAME BEAM CLAMP (INNER)				
16	002-04532-00	3	FRAME BEAM CLAMP (OUTER)	75	001-26969-00	4	5/32" x 15/16" COILED GROOVE PIN
17	002-04533-00	1	FRAME BEAM WINCH CLAMP	76	001-26911-00	4	3/16" x 7/8" DOWEL PIN
18	002-04140-00	1	CABLE HOLDER	77	001-74402-00	8	CARRIAGE BOLT, 5/16-18 x 3 1/2" ss 18-8
19	002-04314-00	4	LEVEL LEG BRACKET (3")	78	001-75125-00	4	NUT, 1-8 ACME - BRASS
20	002-04320-00	1	CORNER POST 89.5" LIFTING (.125)	79	001-76071-00	16	NUT, 3/8-16 ALUMINUM NYLOCK
21	002-04321-00	1	CORNER POST 89.5" MOTOR (.125)	80	001-76072-00	47	NUT, 1/2-13 ALUMINUM NYLOCK
22	002-04322-00	2	CORNER POST 89.5" (.125)	81	111-00248-00	1	BALL NUT BLOCK ASSEMBLY
23	111-00238-01	1	BALL SCREW TUBE WELDMENT	82	001-73454-00	1	SHCS 10-32 x 1 3/4" ss 18-8
24	002-04306-01	1	3" BALL SCREW CLAMP	83	001-76073-00	1	NUT, 10-32 ALUMINUM NYLOCK
25	002-04307-00	1	3" PULLEY CLAMP (OUTER)	84	001-93524-00	1	NUT, SLOTTED M24 x 1.5
26	002-04308-00	1	3" PULLEY CLAMP (INNER)	85	001-70244-00	1	HHCS, 1/2-20 x 1 1/2" ss 18-8
27	111-00000-00	4	SAND PAD	86	511-45018-01	1	24 VDC VSD DRIVE TRAIN
28	111-00129-01	4	INNER SCREW LEG WELDMENT	87	001-75210-00	8	1/2" FLAT WASHER - BRASS
29	911-07402-00	1	REAR CRADLE BEAM 121" (.125)	88	002-04251-00	1	BEARING BLOCK 3200/4500 VSD
30	911-10901-00	4	CRADLE U-CLAMP 2.125"	89	007-05223-00	1	RIGID COUPLER
31	006-10202-00	4	CRADLE GUIDE WEAR PAD	90	007-05242-00	1	3/16" SQ. x 2" KEY
32	006-10206-00	8	SIDE CRADLE SHEAVE SPACER	91	111-00212-01	1	4500# LIMIT SWITCH ASS'Y
33	006-11001-00	4	UHMW - 3/16" x 1/2" x 5" LG.	92	001-70203-00	2	HHCS, 1/2-13 x 3/4" ss 18-8
34	006-15200-00	4	3" CORNER POST CAP	93	007-05126-00	1	M8 x 1 GREASE ZERK (FLUSH)
35	007-04154-00	1	3/4" SHEAVE PIN	94	001-70210-00	8	HHCS, 1/2-13 x 1 3/4" ss 18-8
36	007-05251-00	1	32/45 THRUST BEARING	95	001-71023-00	16	FLAT WASHER, .5 ID x .75 OD ss
37	007-05013-00	1	BALL SCREW END STOP PLATE	96	911-04201-00	1	ADJUSTABLE INSERT
38	007-05023-00	4	TOP BEVEL GEAR - 1:1	97	006-15017-00	1	CAP, VINYL - SM WINCH POST
39	007-05024-00	4	BOTTOM BEVEL GEAR - 1:1	98	111-00014-00	2	BATTERY TRAY
40	007-05079-00	4	BEVEL GEAR ADJUSTMENT SCREW				
41	007-06201-00	1	3" CLAMP SHEAVE				
42	007-07630-00	1	6" LIFTING SHEAVE				
43	007-07700-00	4	SPACER TUBE - 1.297"				
44	007-07703-00	2	SPACER TUBE - .860"				
45	007-09000-00	2	SIDE LEVELING CABLE - 166.875"				
46	007-09300-00	1	FRONT LEVELING CABLE - 200 1/2"				
47	007-09126-00	1	LIFTING CABLE 102.75"				
48	011-15005-00	1	1727mm BALL SCREW 40-10mm w/NUT				
49	111-00107-00	6	5" SHEAVE W/BUSHING				
50	001-47514-00	4	1-8 ACME THREADED ROD - 34"				
51	001-23876-00	1	SHCS, 1/2-20 x 1 1/4" BLACK				
52	001-33018-00	1	3/4" USS FLAT WASHER ZINC				
53	001-70109-00	4	HHCS, 3/8-16 x 1 1/2" ss 18-8				
54	001-70115-00	4	HHCS, 3/8-16 x 3" ss 18-8				
55	001-70121-00	3	HHCS, 3/8-16 x 4 1/2" ss 18-8				
56	001-70124-00	6	HHCS, 3/8-16 x 5 1/2" ss 18-8				
57	001-70126-00	1	HHCS, 3/8-16 x 6 1/2" ss 18-8				
58	001-70207-00	8	HHCS, 1/2-13 x 1 1/4" ss 18-8				
59	001-70211-00	4	HHCS, 1/2-13 x 2" ss 18-8				

SUB-ASSEMBLIES

101

111-00045-00

SIDE CRADLE ASSEMBLY (RIGHT)
INCLUDES ITEMS 6,10,31,32,33,43,45,49,66,69

102

111-00046-00

SIDE CRADLE ASSEMBLY (LEFT)
INCLUDES ITEMS 6,10,31,32,33,43,45,49,66,69

103

111-00259-00

FRONT CRADLE ASSEMBLY (.125)
INCLUDES ITEMS 12,44,46,49,65,69

104

111-00344-01

V4500 CORNER POST ASSY (RF)
INCLUDES ITEMS 17,18,20,25,26,34,35,41,42,55,68,70,77,79,108

105

111-00345-01

V4500 CORNER POST ASSY (RR)
INCLUDES ITEMS 21,24,34,36,55,79,108

106

111-00346-01

V4500 CORNER POST ASSY (LF)
INCLUDES ITEMS 5,22,34,54,108

107

111-00347-01

V4500 CORNER POST ASSY (LR)
INCLUDES ITEMS 5,22,34,58,72,80,96,108

108

111-00148-01

INNER SCREW LEG ASSEMBLY
INCLUDES ITEMS 19,28,38,39,40,72,75,76,87

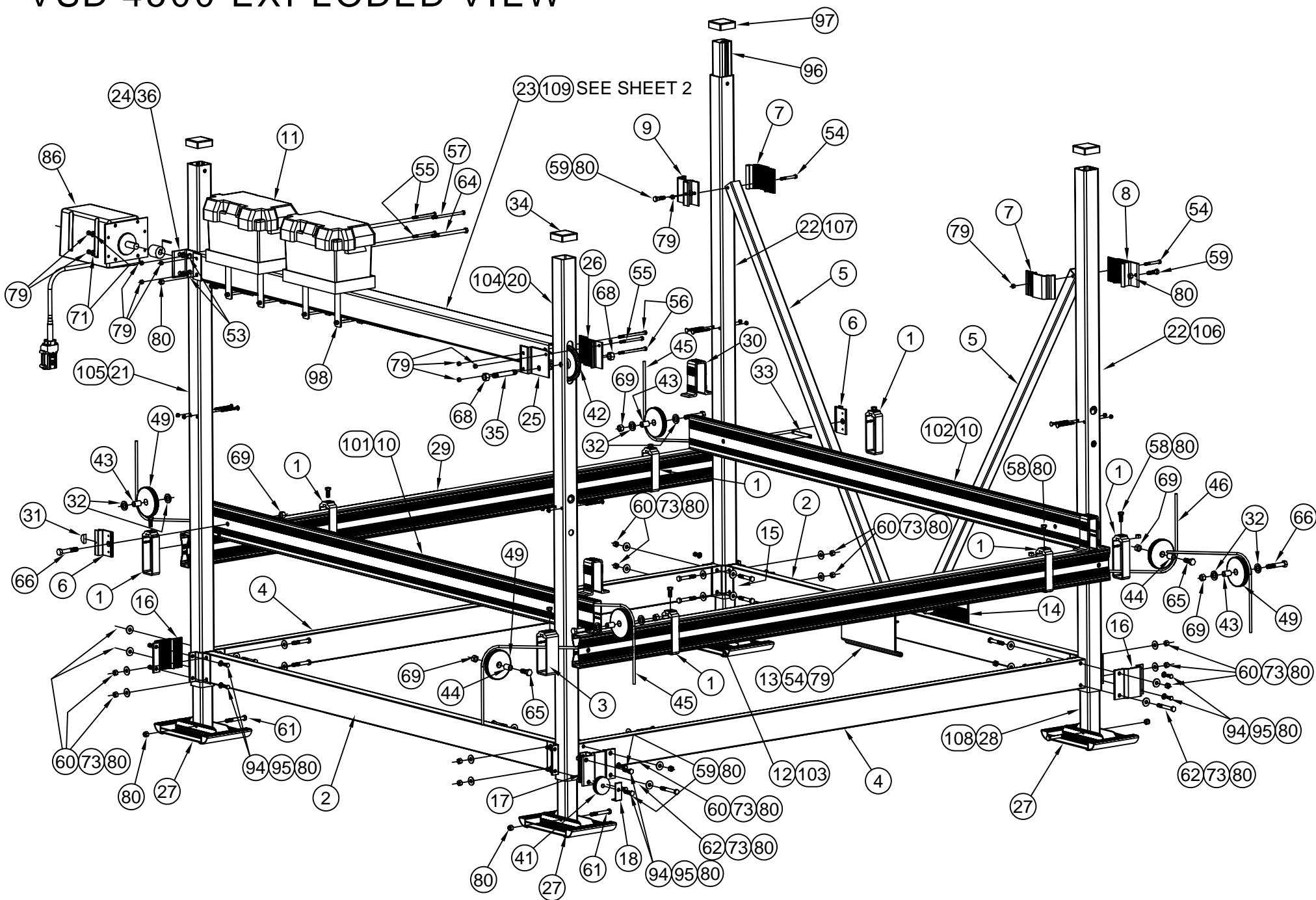
109

111-00149-01

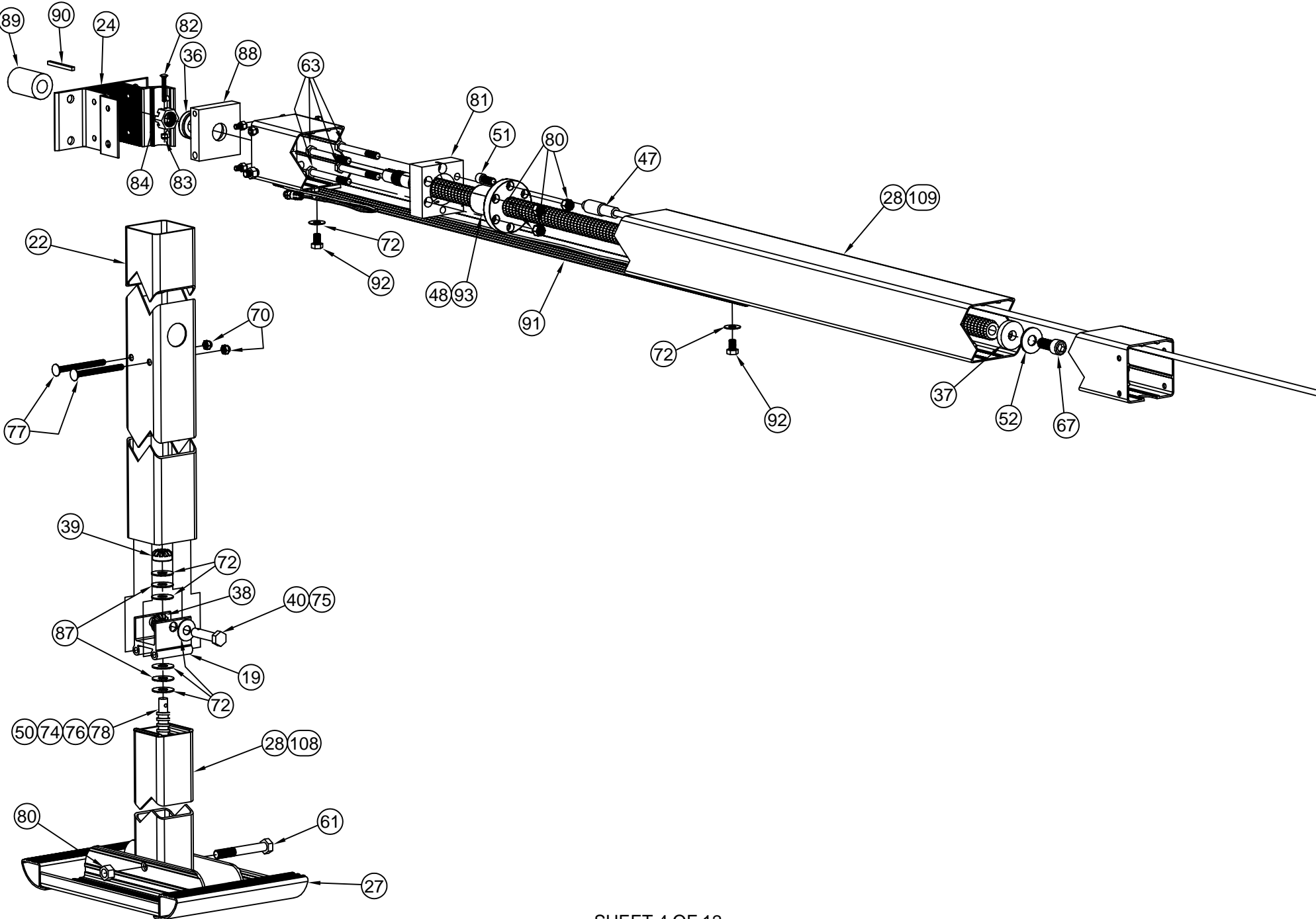
4500# BALL SCREW TUBE ASSEMBLY
INCLUDES ITEMS 23,36,37,47,48,51,52,63,67,80,81,84,88,89,90,91,92,93,94

SHEET 2 OF 12

VSD-4500 EXPLODED VIEW



VSD-4500 FRAME EXPLODED VIEW



STEP 1

- ❑ Attach sand pads to all four corner posts assemblies using 1/2" x 3 3/4" bolts and nylock nuts. Torque to 25 ft/lbs. See Fig 1A.
- ❑ Arrange corner posts as shown to the right and in Fig. 1B thru Fig. 1E
- ❑ Attach the ball screw clamp to the motor post using (2) 3/8" x 4 1/2" bolts and (2) 3/8" nylock nuts as shown in Fig. 1B. Torque to 40 ft/lbs.

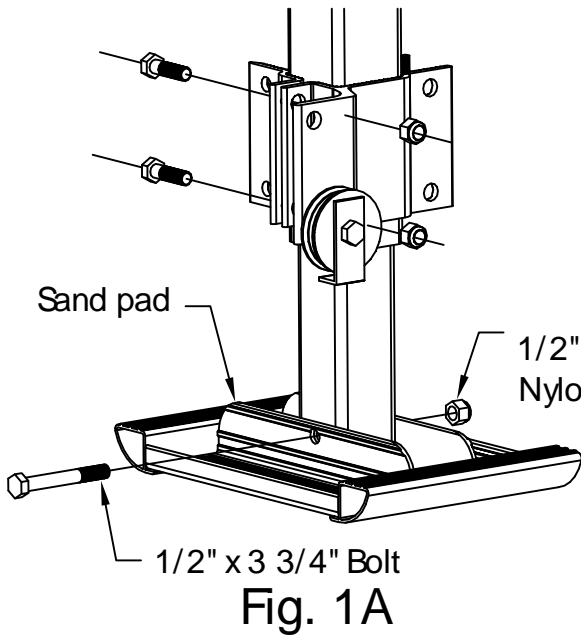


Fig. 1A

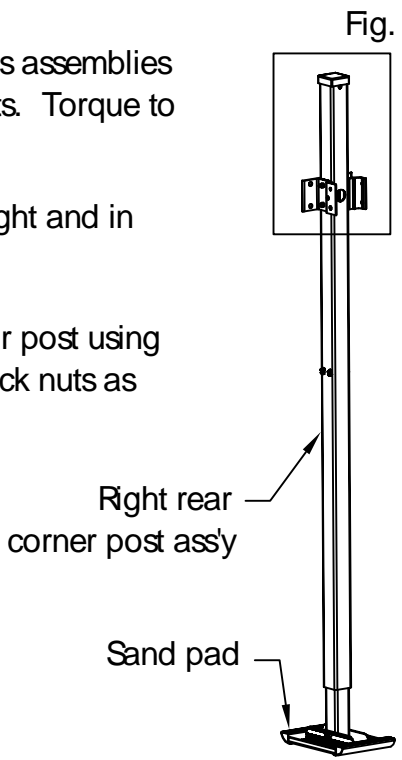


Fig. 1B

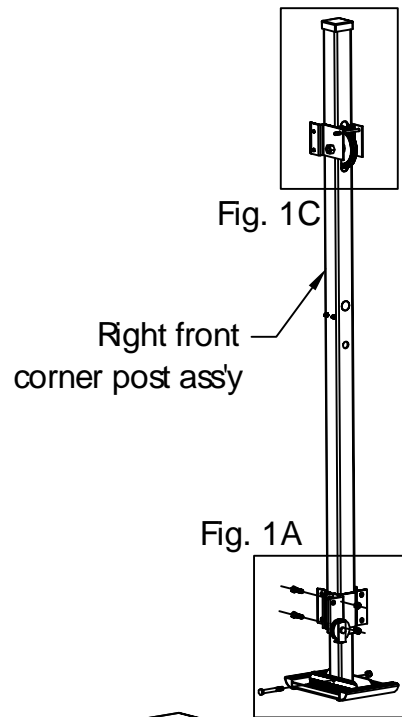


Fig. 1C

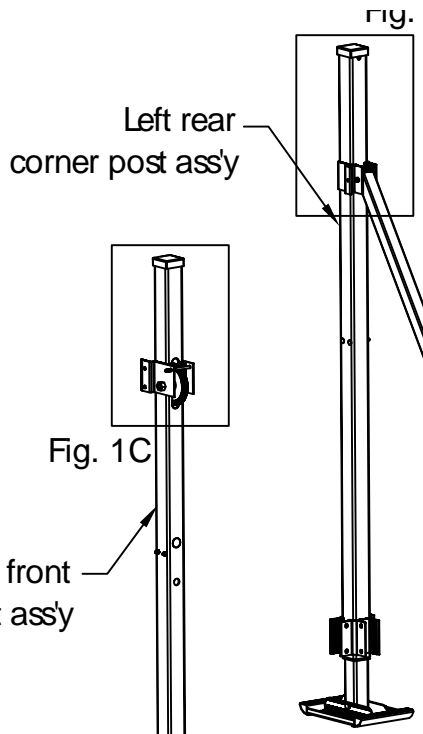


Fig. 1D

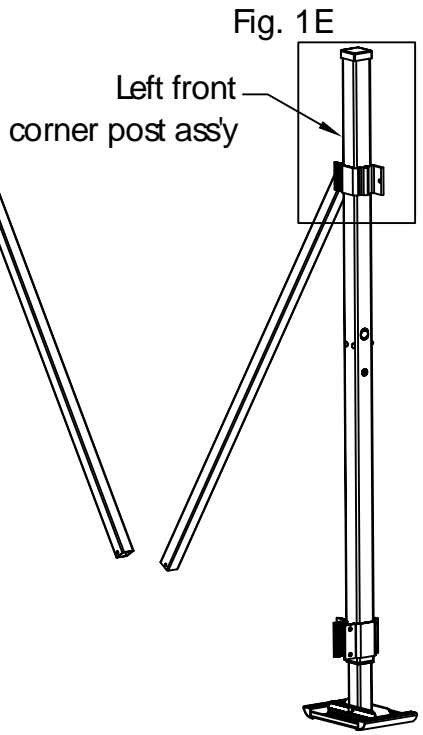


Fig. 1E

STEP 2

- ❑ Frame beams are fastened to the corner posts using the lower clamps. See clamp layout top view in Fig. 2D. The clamps must be 1" from the bottom of all corner posts.
- ❑ For ease of assembly, attach the 116" front and rear frame beams first. Lay the rear corner posts down and fasten to the frame beam using (6) 1/2" x 3 1/4" bolts, (16) large flat washers and (8) nylock nuts on the frame ends of the clamp and (8) 1/2" x 1 3/4" bolts, (16) small flat washers, and (8) nylock nuts on the outside flats of the clamps. The front frame beam is attached the same as the rear but use (2) 1/2" x 4 1/2" bolts on the bottom holes. Do not tighten the nuts on the 4 1/2" bolts at this time. See Fig 2A and 2B.
- ❑ The 96" side frame beams are attached using (8) 1/2" x 3 1/4" bolts, (16) flat washers and (8) aluminum nylock nuts on each beam. See fig. 2B.
- ❑ To help keep the frame square while assembling, gradually tighten each bolt a little at a time, and alternate between each side of the clamp. Torque all 3 1/4" and 1 3/4" bolts to 100 ft/lbs.

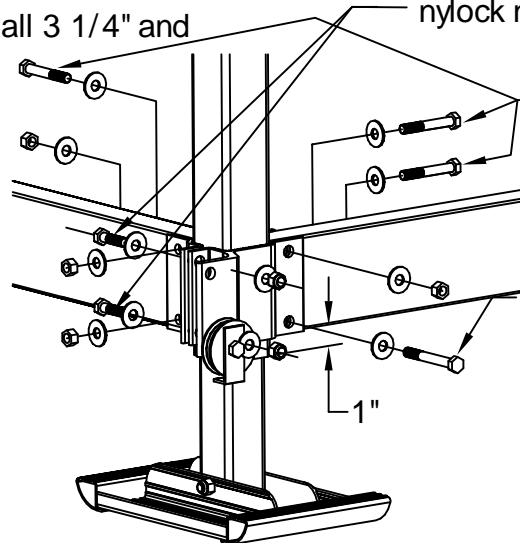


Fig. 2B

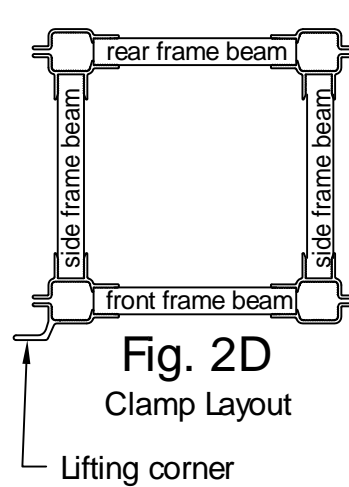
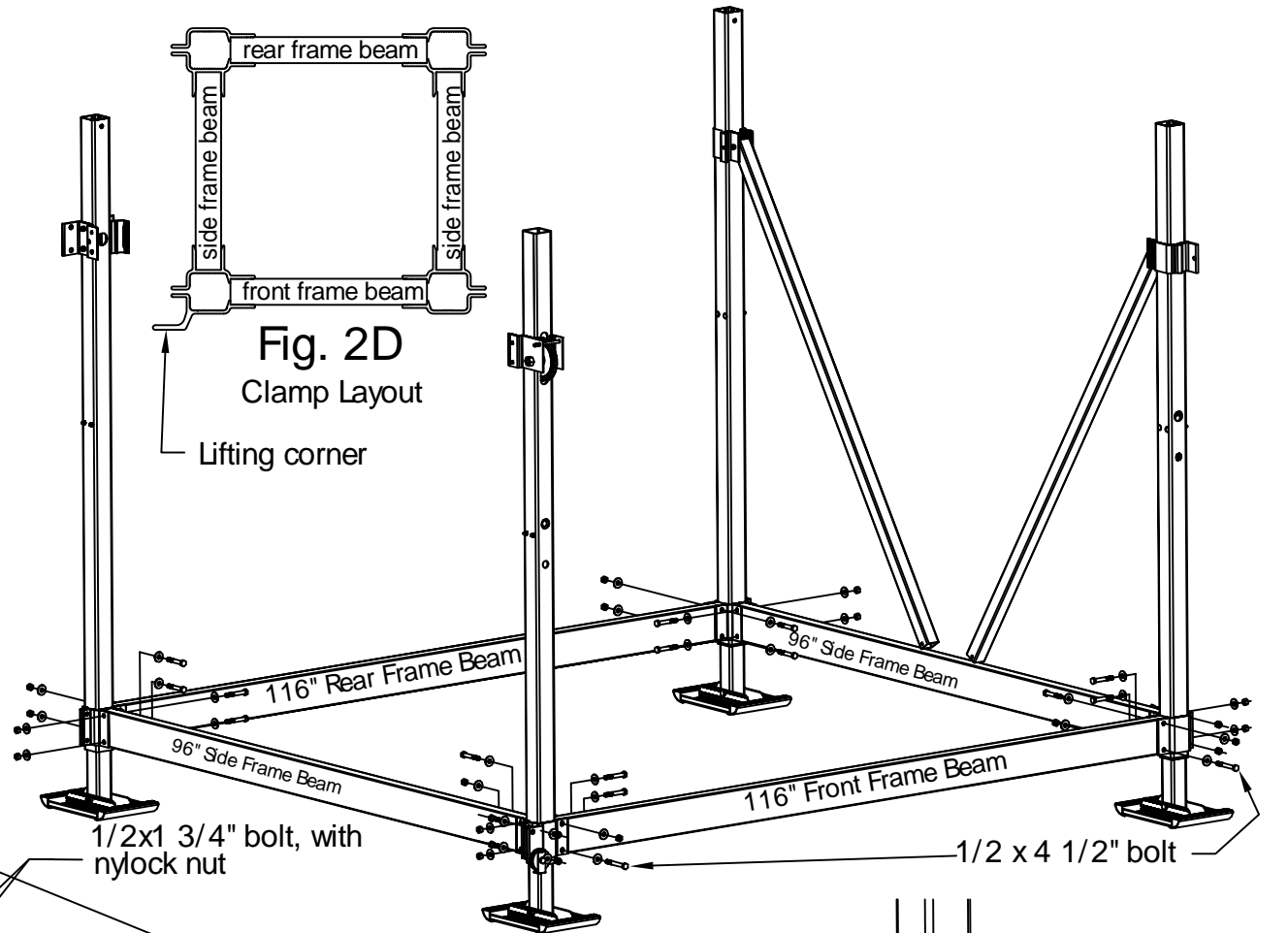


Fig. 2D

Clamp Layout

Lifting corner



1/2 x 3 1/4" bolt, nut and washers installed from inside of lift. Torque to 100 ft/lbs.

1/2 x 4 1/2" bolt, nut & washers installed from outside of lift. Do not tighten at this time

1/2 x 3 1/4" bolt, nut and washers. Torque to 100 ft/lbs.

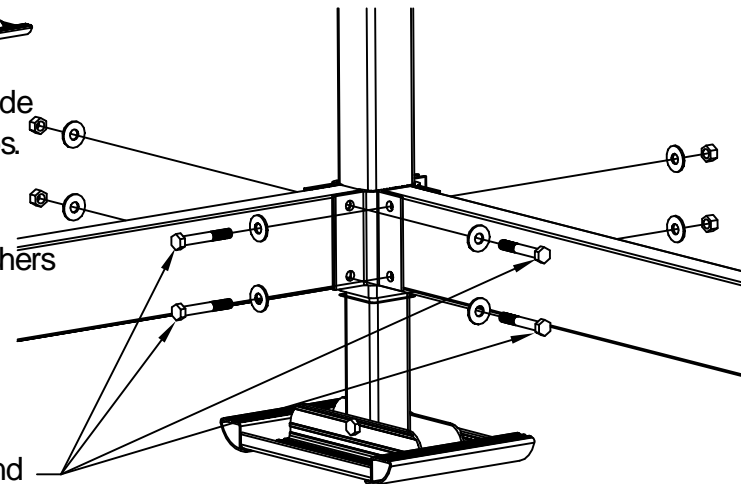
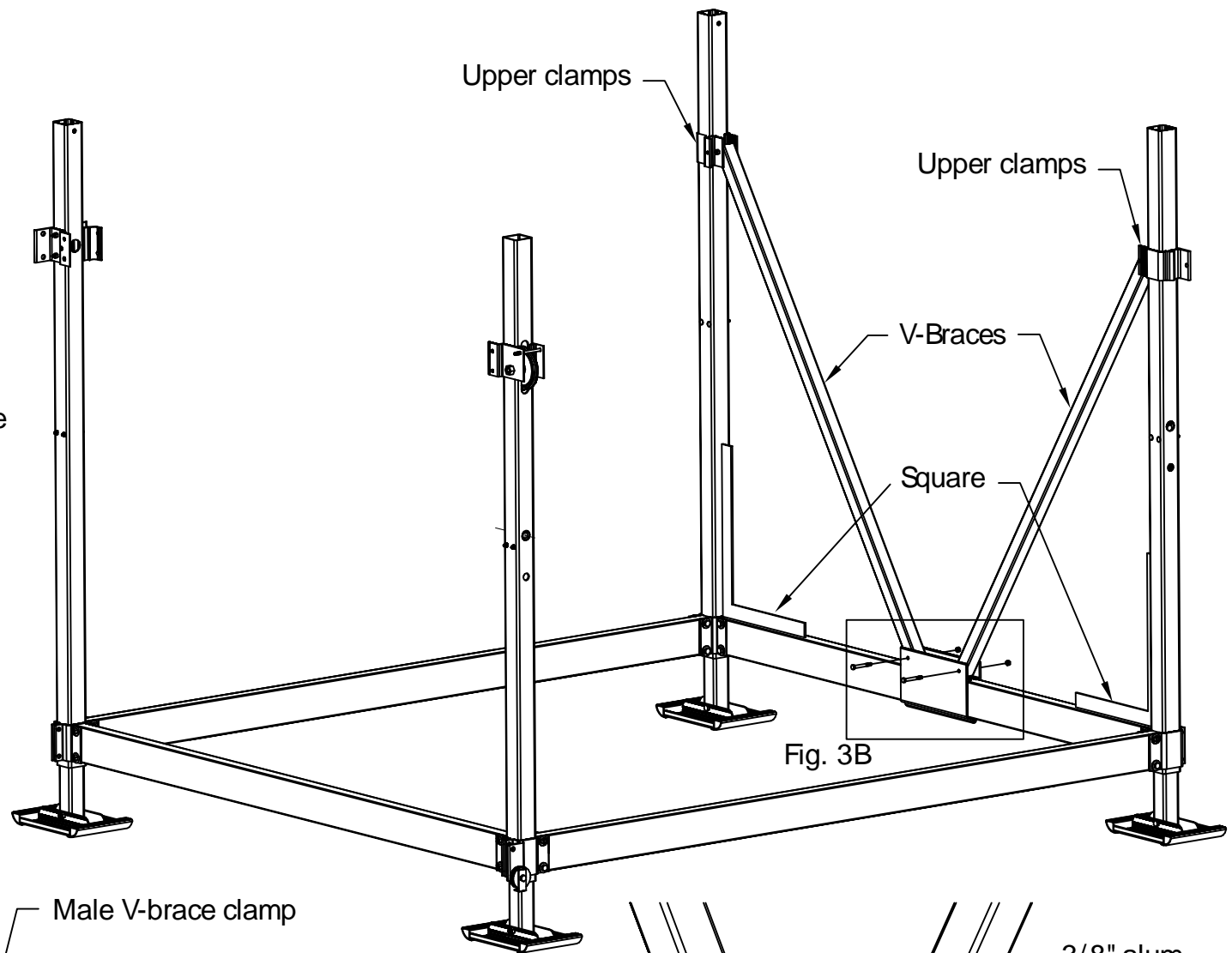


Fig. 2C

STEP 3

- ❑ Slide the two V-brace clamps together and center on the side frame beam. See Fig. 3A.
- ❑ Attach the diagonal V-braces to the V-brace clamps and the upper clamps using (4) 3/8" x 3" bolts and (4) nylock nuts as shown in Fig. 3B.
- ❑ Confirm that the corner posts are square with the frame beams. Install and adjust the location of the V-brace clamps as required. Torque to 40 ft/lbs.



Female V-brace clamp

Male V-brace clamp

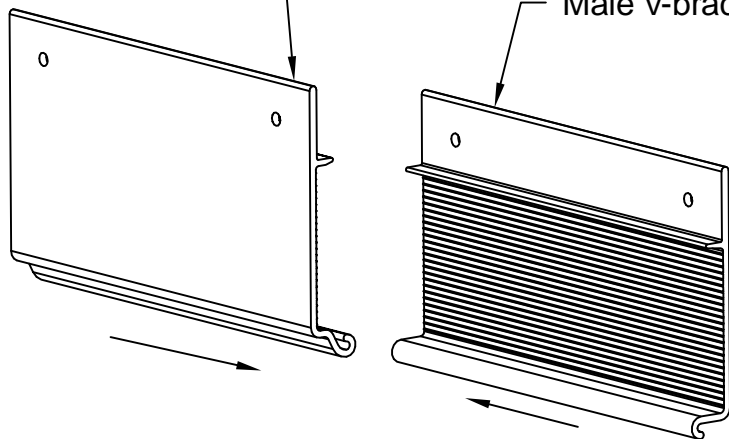


Fig. 3A

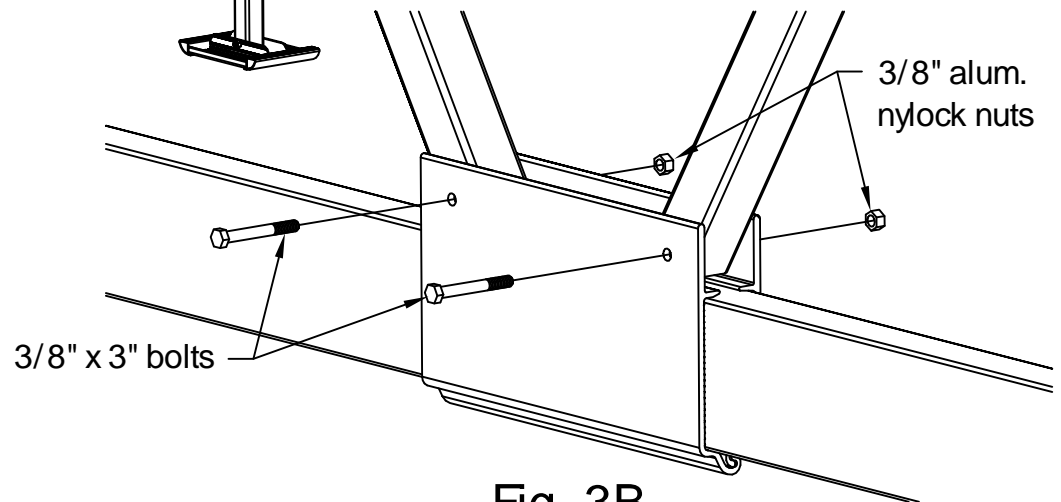
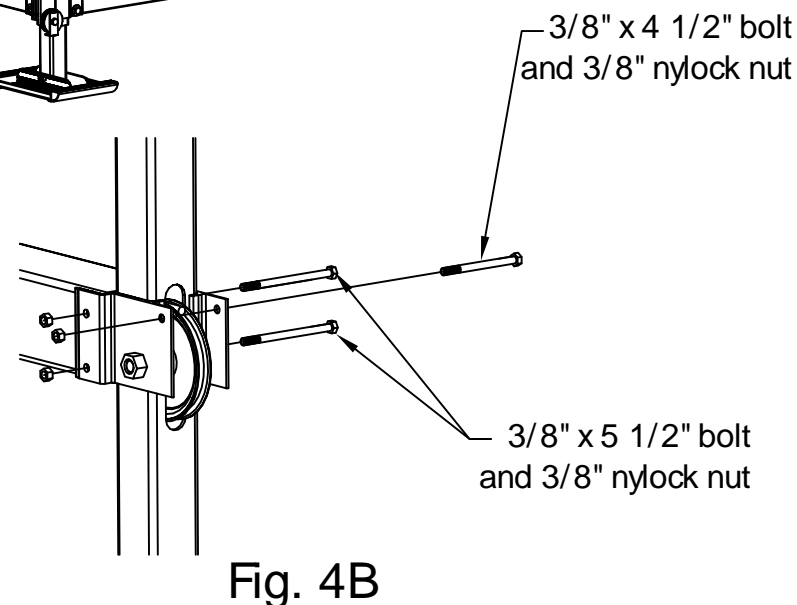
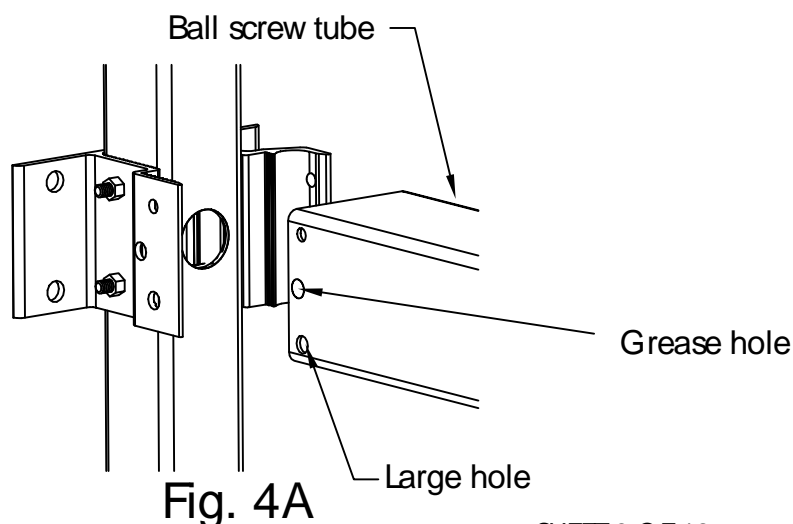
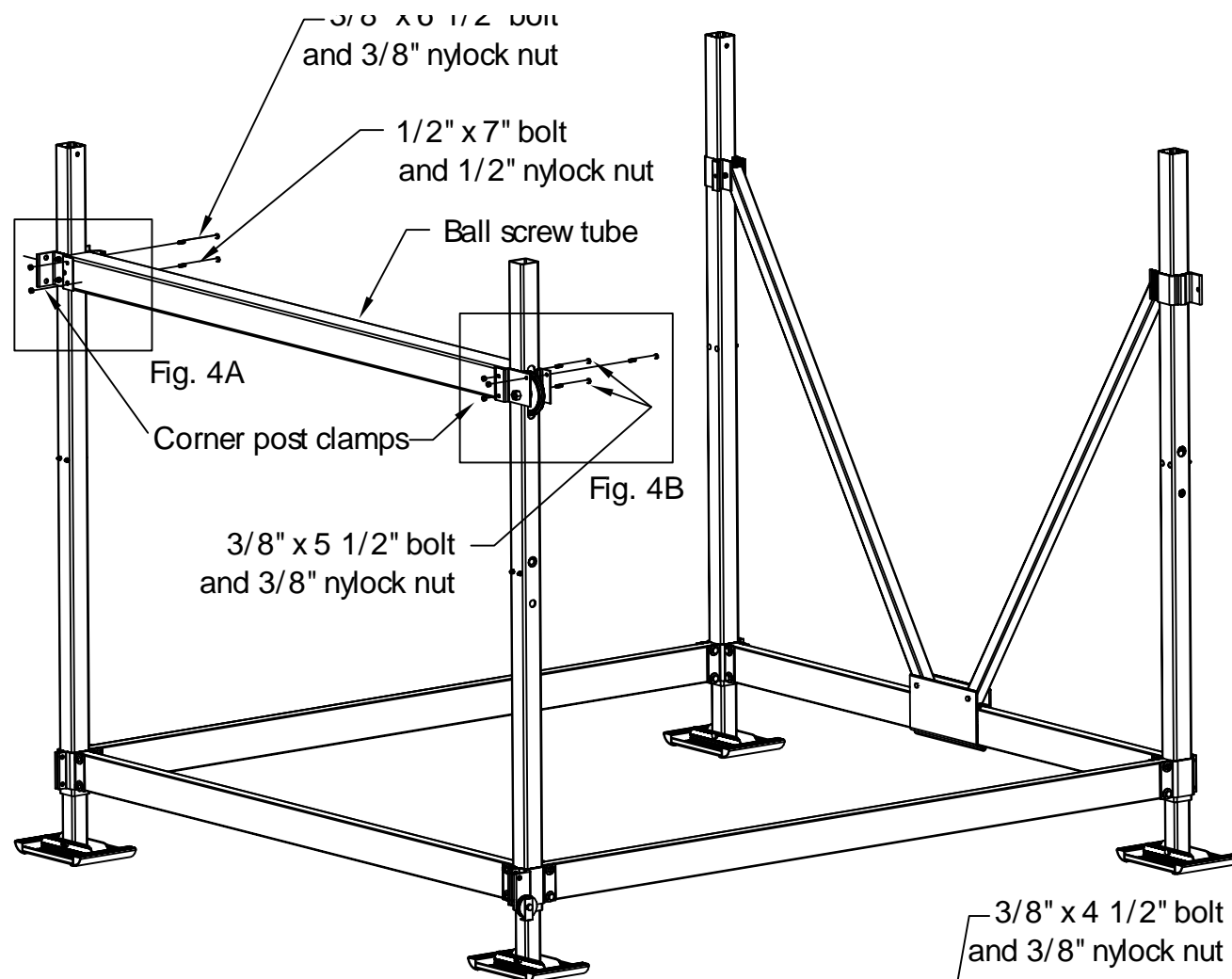


Fig. 3B

STEP 4

❑ Orient the ball screw tube so the large hole is on the bottom. Pull the cable out the other end so there are no kinks in the cable. Hoist the ballscrew tube up and insert the end of the ball screw into the hole in corner post. See Fig. 4A. Insert the cable from the other end in the corner post slot and over the pulley and install the $\frac{3}{8}$ " x 4 $\frac{1}{2}$ " bolt and nylock nut. See Fig. 4B. Torque to 40 ft. lbs.

❑ Attach the ball screw tube to the corner post clamps using (1) $\frac{1}{2}$ " x 7" bolt, (1) $\frac{1}{2}$ " nylock nut, (2) $\frac{3}{8}$ " x 5 $\frac{1}{2}$ " bolts, (1) $\frac{3}{8}$ " x 6 $\frac{1}{2}$ " bolt, and (3) $\frac{3}{8}$ " nylock nuts. Do not tighten the 7" bolt at this time, you will be referred back to it at a later time. Torque the $\frac{3}{8}$ " bolts to 40 ft/lbs.



STEP 5

- ❑ Attach the cradle lift clamp to the lifting cable using a 1/2-20 x 1 1/2" bolt (fine thread). Make sure the bolt is seated in the slot of the clamp and screw onto lifting cable end. See Fig. 5A.
- ❑ Place the 109" side cradle beams as shown with holes on top in the rear. The 121" front cradle beam should be placed so the cable runs over the top of the pulley on the lifting side. See front cable orientation to the right.
- ❑ Side (1) cradle clamp over each end of the front and rear cradle beams. Place (1) cradle U-clamp over each side cradle so it is flush with the end. Attach the 121" rear cradle beam by sliding the cradle clamps over the cradle U-clamps. Side a cradle clamp over each end of the rear cradle beam and U-clamp. See Fig. 5B and 5D.
- ❑ Cradle is fastened together using (8) 1/2" x 1 1/4" bolts and (8) 1/2" nylock nuts. Allow 1/4" gap between the side cradle wear pad and corner post as shown in Fig. 5C. Torque to 100 ft/lbs.

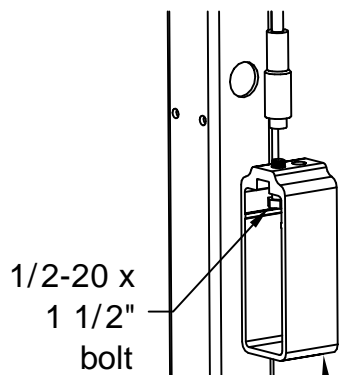


Fig. 5A

Cradle lift clamp

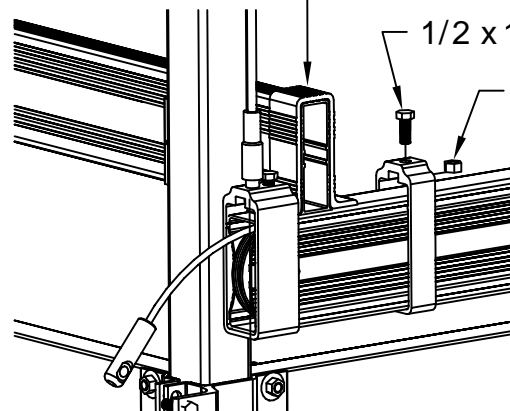


Fig. 5B

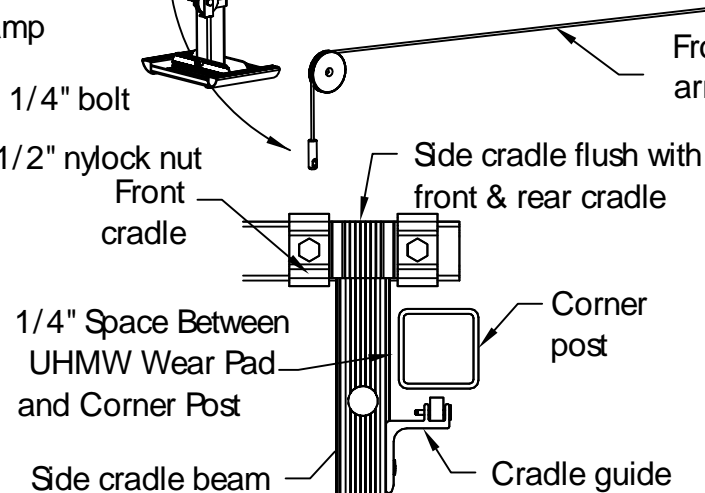


Fig. 5C

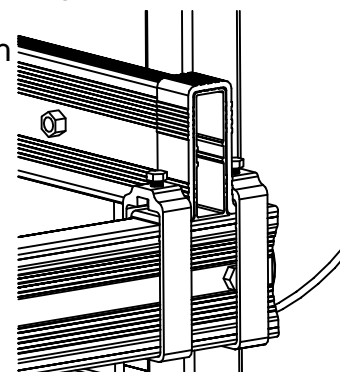
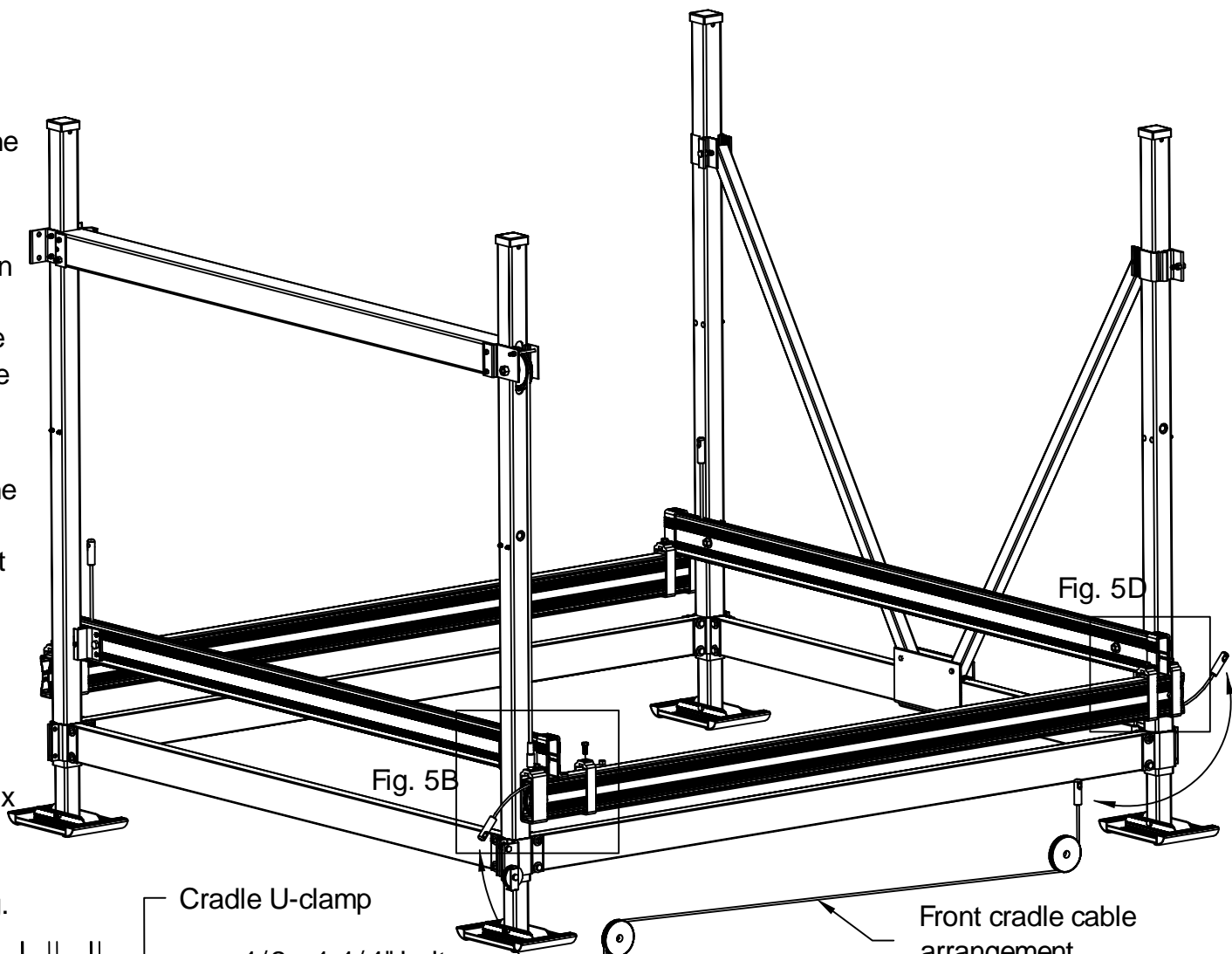


Fig. 5D



STEP 6

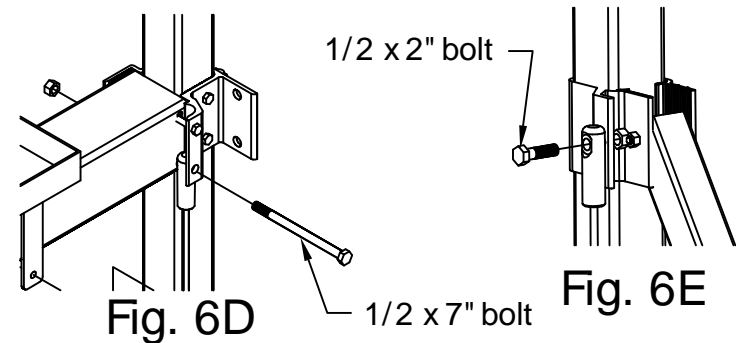
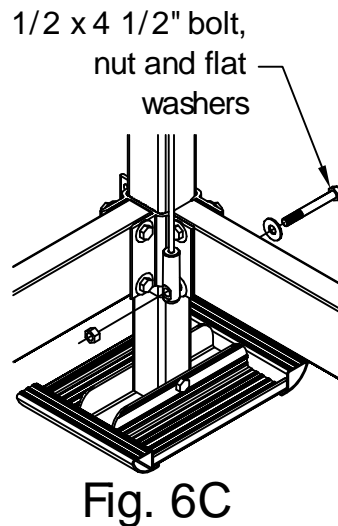
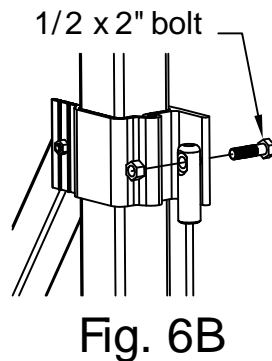
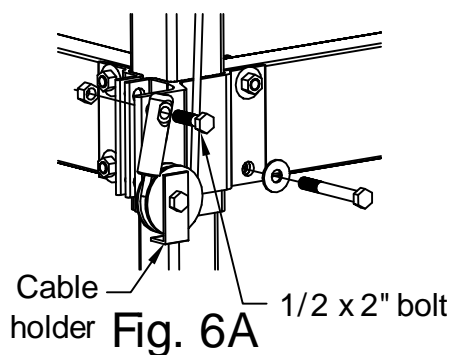
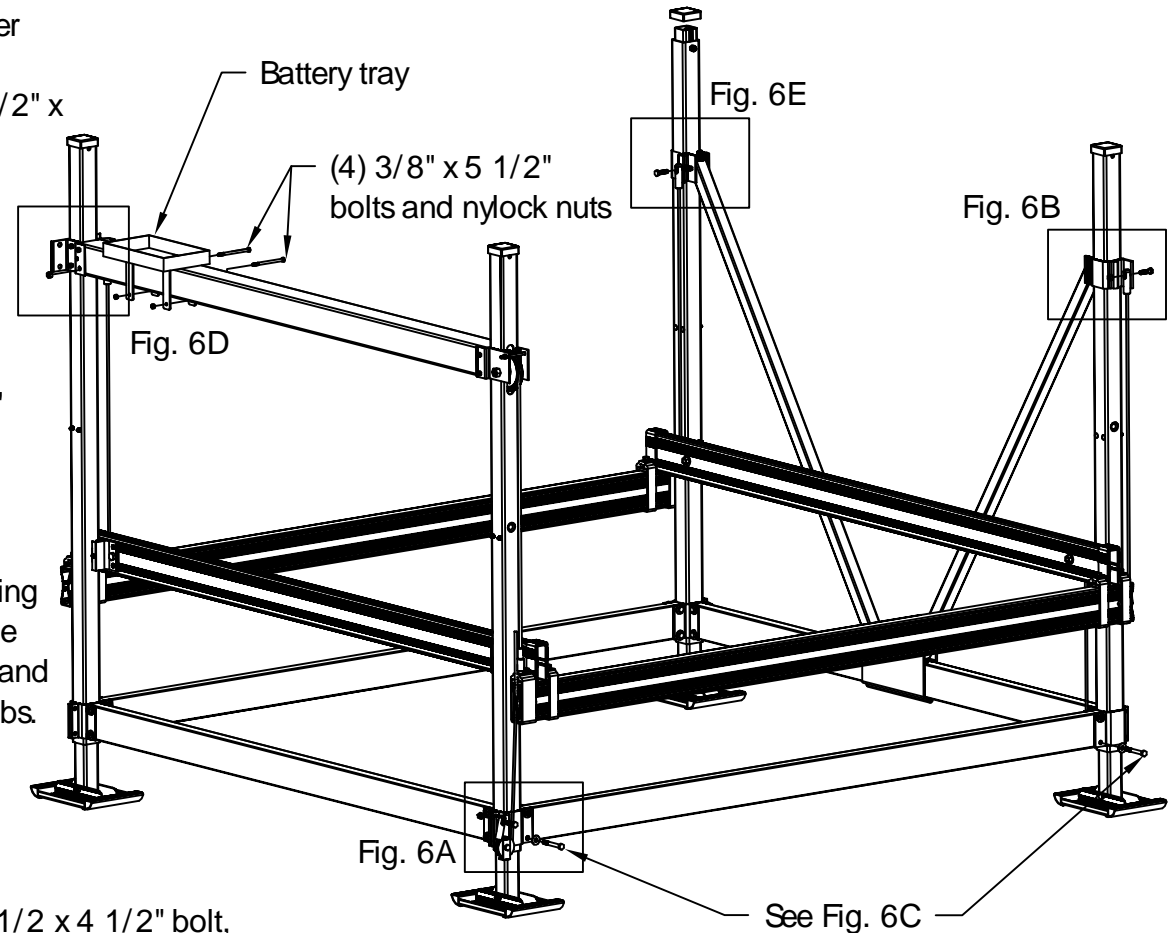
❑ Remove the 3" sheave and the cable holder from the fastener card. Wrap the cable around the sheave, place the cable holder over the sheave as shown in Fig. 6A and insert the 1/2" x 2" bolt and nylock nut. Torque to 60 ft/lbs.

❑ Attach the other end of the cable by lifting the opposite side of the front cradle and fastening with a 1/2" x 2" bolt and nylock nut as shown in Fig. 6B. Torque to 60 ft/lbs.

❑ Fasten the side cables to the lower frame clamps using 1/2" x 4 1/2" bolts and nylock nuts as shown in Fig. 6C. Check front corner posts for square and torque to 100 ft/lbs.

❑ The ball screw side cable is attached to the upper clamp using a 1/2" x 7" bolt and nylock nut. See Fig. 6D. The other side cable is attached to the upper clamp using a 1/2" x 2" bolt and nylock nut as shown in Fig. 6E. Torque both bolts to 60 ft/lbs.

❑ If you purchased the 24 Volt VSD Drive, attach the battery trays to the ball screw tube using (4) 3/8" x 5 1/2" bolts and nylock nuts. The offset side of the tray should go to the outside of lift to provide clearance for the inside of lift.



STEP 7

- The drive train can now be attached to the lift. Note that the rigid coupler on the drive train and ball screw mate together. With the drive train being held in place, attach it to the lift using 3/8" x 1 1/2" bolts, nylock nuts and flat washers as shown in Fig 7A. See Note:

NOTE: Apply a generous amount of Anti-Seize from the small packet included to the inside of the Rigid Coupler and to the Motor Shaft before attaching the Drive Unit to the Lift Frame.

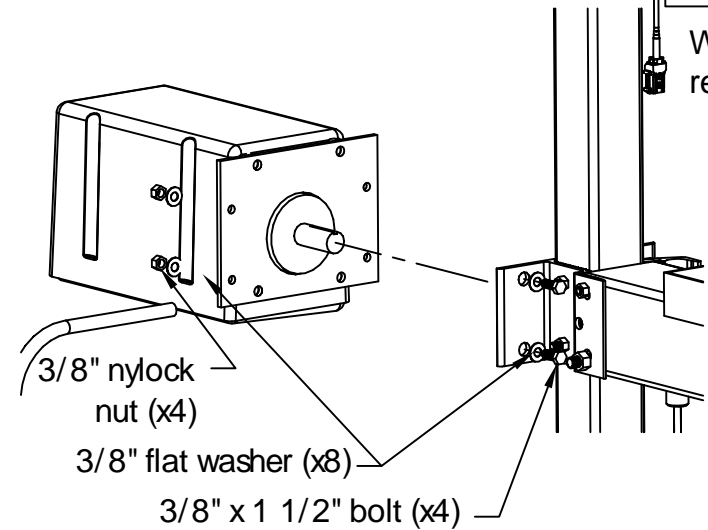


Fig. 7A

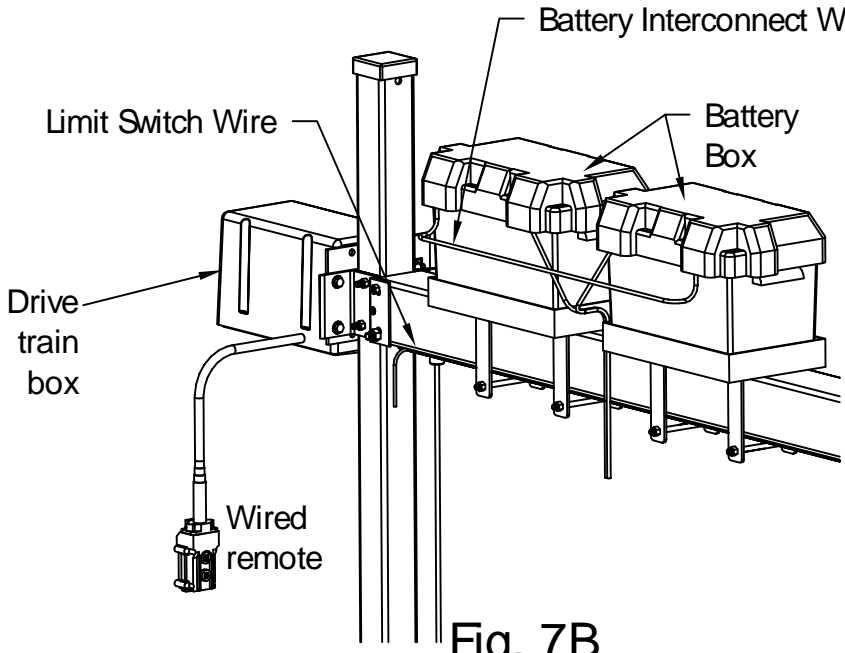
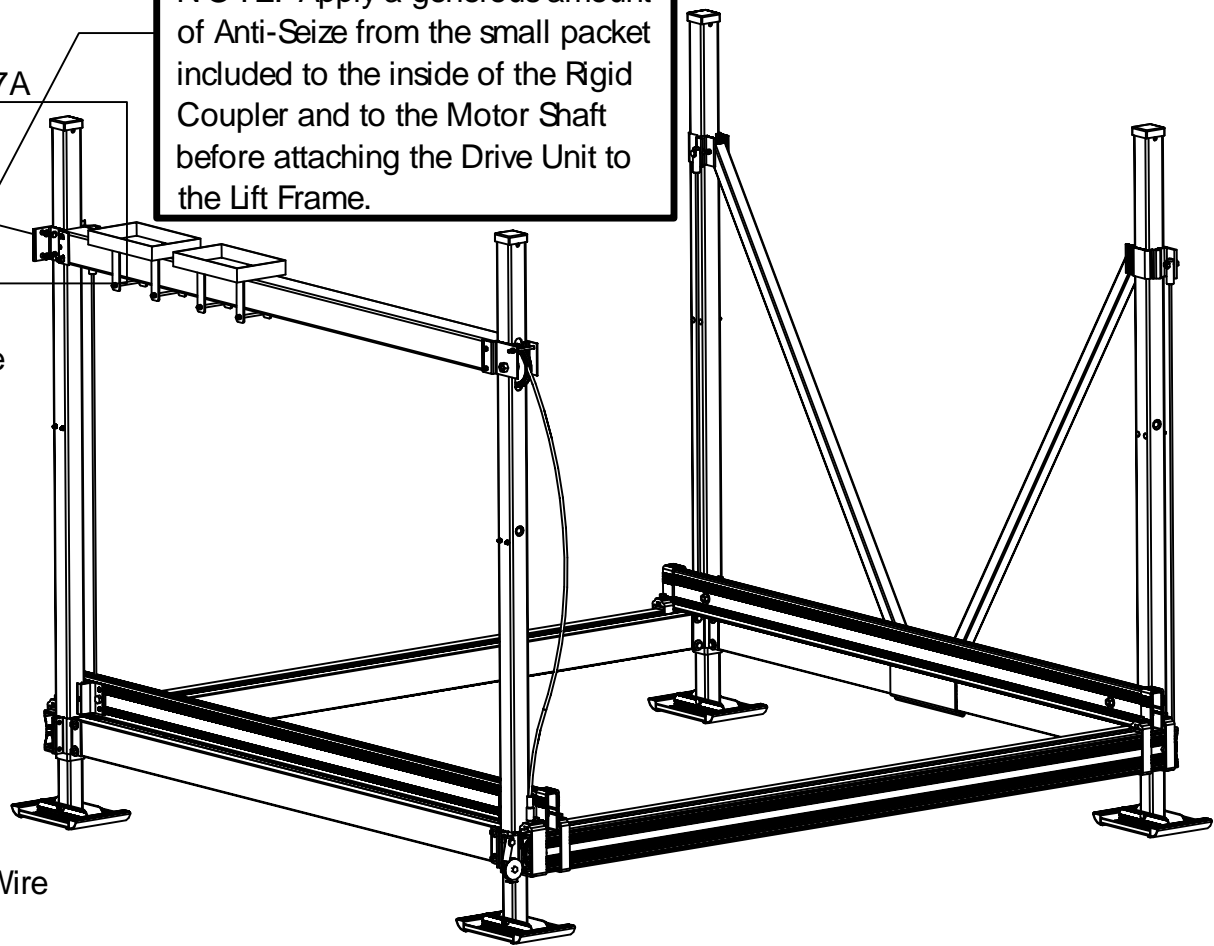


Fig. 7B

- Insert a 12 volt battery into each battery box. Plug the wired remote into the socket on the control panel socket labeled "Wired Remote". Plug the limit switch wire into the control panel socket Labeled "Limit Switch". See Fig. 7B. Secure all wires using the supplied Velcro. If canopy is to be installed on the lift, the wired remote can be strung along a canopy hoop and hung next to the dock and secured to the canopy hoop with Velcro.

Optional Wireless Remote

- If you purchased the optional wireless remote, the receiver box must be installed. Plug the wire into the "radio remote" plug on the control panel. Using the supplied adhesive Velcro, attach the box to the corner post or canopy frame.



Fig. 7C

4500# VSD Boat Lift

24 Volt Battery Connection Diagram

1. Connect the red wire from the drive train to the positive post of one battery. Connect the black wire from the drive train to the negative post of the other battery.
 2. Connect the 32" white battery interconnect wire to the negative post of the first battery and the positive post of the other battery.
- See diagram below. Place the covers on the battery boxes and strap it through the slots on the battery tray.

