WARRANTY REGISTRATION

Model	LA-WS12
Serial Number	
Name of Distributor	
Date of Installation	
Installation Address Street	
City	
State	
Zip Code	
Phone	
Fax	
Email	

Important Notice: Warranty registration must be received by U.S. Postal Service or via email to: sales@whipindustries.com within two weeks of install date.

WHIP INDUSTRIES, INC.

WS12
12,000 LBS CAPACITY

STD. & 33” EXT. LIFTS

INSTALLATION INSTRUCTIONS & MANUAL

TWO POST ABOVE GROUND OVERHEAD LIFT

WHIP INDUSTRIES, INC
3010 S MAIN ST.
FORT WORTH, TEXAS 76110
PH (800) 256-7391 FAX (817) 289-1412
E-MAIL: WhipInd@whipindustries.com

Rev. A

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IMPORTANT INFORMATION

1. **WARNING – Two Post Lifts are designed to pickup vehicles with all four lifting pads engaging the frame of the vehicle or designated lifting point. It is very dangerous to pick up a vehicle using less than the four lifting pads. Lifting a vehicle incorrectly regardless of the weight or the height may cause bodily injury to the operator or damage the lift and vehicle.**

2. The floor where the lift is to be installed must be a minimum of 6" thickness of concrete. Concrete must be reinforced with steel rebar with a minimum compressive strength of 3,000 PSI . Failure by the purchaser to provide the recommended mounting surfaces could result in personal injury, property damage and/or unsatisfactory lift performance.

3. **Read the installation manual before installing the lift.**

4. This lift is an overhead lift and requires a ceiling height of a minimum 12'-0" for a standard lift (14'-8" for an extended lift).

5. Read anchoring tips information before drilling and installing the anchor bolts.

6. **Bleed air from hydraulic cylinders before raising vehicle with lift. Air in cylinder may damage seal.**

7. Do not raise a vehicle with the lift until the lift has been correctly installed and adjusted as described in this manual.

8. Do not remove a suspension assembly, transmission or other heavy item from the front of a front wheel drive vehicle unless the vehicle is adequately supported in the rear.

CAUTIONS AND WARNINGS

MOTORS AND ELECTRIC CONTROLS ARE NOT – SEALED AGAINST WEATHER OR MOISTURE. DAMAGE OR ELECTRICAL SHOCK MAY OCCUR IF INSTALLED UNPROTECTED OUTDOORS.

FACTORY MUST BE NOTIFIED WITHIN 30 DAYS OF DELIVERY IF THERE ARE ANY PARTS MISSING FROM SHIPMENT.

RECOMMENDED OIL: HYDRUALIC MEDIUM OIL SAE-10 OR EQUIVALENT. MAY USE TRANSMISSION FLUID DEXRON II OR III ATF.

ALL BOLTS PLACED IN THE COLUMN MUST BE PLACED FROM THE INSIDE FACING OUTWARD.

ANCHORING TIPS

1. Anchor must be at least 6” from the edge of the slab or any seam.
2. Use a concrete hammer drill with a 3/4” carbide bit.
3. Do not use a worn bit.
4. Drill in a perpendicular line with the hole.
5. Do not apply excessive pressure to the drill. Let the drill do the work.
6. Lift the drill up and down occasionally to remove residue and to reduce binding.
7. Drill the hole depth equal to the length of the anchor, or completely through the slab.
8. For better holding power, blow all dust and residue from the hole before driving anchor into hole.

Place a flat washer over threaded end of anchor. Spin nut 1/4” down past end of anchor. Carefully tap anchor into the concrete until nut and flat washer are against base plate. Do not use an impact wrench to tighten. Tighten ¾”-10UNC x 7” anchors to 125 ft-lbs. of torque.

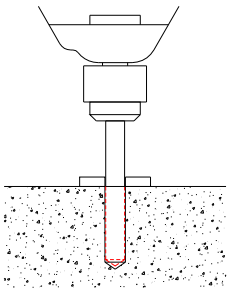


FIG. #1

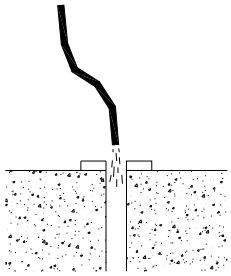


FIG. #2

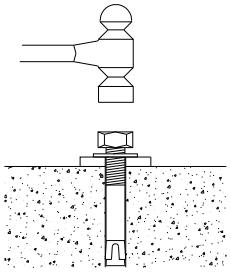


FIG. #3

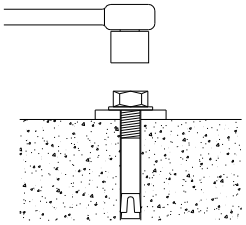


FIG. #4

TOOLS REQUIRED

Concrete rotary hammer drill with ¾" carbide bit

Open End Wrenches: 7/16", 1/2", 5/8", 11/16", 3/4", & 1 1/8"

Ratchet Driver

Sockets: 11/16", 3/4" X 1/2" deep

12" Crescent Wrench

3/16 Allen Wrench

Hammer

Needle Nose Pliers

Electrical Pliers

Level

Fish Tape

25' Tape Measure

Chalk Line

Small Drift Punch

Ladder

4 gallons of hydraulic medium oil SAE-10 or Dexron II or III ATF.

INSTALLATION REQUIREMENTS

1) Standard lift requires a minimum of 12'-0" Std. (14'-8" Ext.) ceiling height. If ordering lift with extension, then add addition length of extension.

2) Minimum distance required beyond either side of the lift to the nearest obstacle is 6"

3) Minimum of 10'-0" is required in front of the lift to the nearest obstacle.

4) Minimum of 15'-0" is required in the rear of the lift to the nearest obstacle.

5) The floor where the lift is to be installed must be a minimum of 6" thickness of concrete. Concrete must be reinforced with steel rebar with a minimum compressive strength of 3,000 PSI .

6) Leg assemblies should be mounted on a maximum slope not to exceed 1/16" per foot.

7) Before installing see FIG. #1 for lift specifications.

INSTALLATION INSTRUCTIONS

1) After unpacking lift, inspect and check shipping list.

2) Steps #3 thru #5 are pre-assembly before standing and installing lift.

3) Assemble the overhead cross bridge assembly with the hardware and parts as shown in FIG. #2. If one person is installing the lift then Shut Off Bar Assy. and Switch Assy. may be installed after bolting Cross Bridge to lift.

4) Assemble the Carriage Stops ALIF-215-015-XX to the Mainside and Offside Leg ALIF-215-020L/R using (4) ½-13UNC x 1 ½ bolts and (4) ½-13UNC nylon locknut as shown in FIG. #5A & #5B. **IMPORTANT: NYLON LOCKNUTS MUST BE ON THE OUTSIDE OF LIFT. IF NYLON LOCKNUTS ARE ASSEMBLED TO THE INSIDE OF LIFT THEY WILL INTERFERE WITH CARRIAGE.

5) Locate the (2) 3/8" x 30'-10" Std (36'-5" Ext.) equalizing cables. While the legs are laying horizontal install one end of the 3/8" cables in the carriage. Slide the carriage about 36" from the bottom of the leg up towards the top and thread the cable to the appropriate gusset. (The three gussets with holes inside each carriage are adjustment for the cable depending on the height of the lift. For the maximum height of lift use lower gussets on carriages). Turn the nylon lock nut half way down the threaded stud of the cable and pull the slack. Run the other end of the cable down and under pulley located at the base of the leg. Repeat the same procedure for the other leg assembly.

6) Next while the lift is laying down bolt the leg extensions to the leg assemblies as shown in FIG. #3A & #3B. Maximum height of lift is 12'-9" for Std and 14'-6" & minimum is 13'-6" for Ext. Lift moves in at 6" increments on an extended lift. To bolt extensions use (6) 5/8-11UNC x 1 1/2" bolts, (12) 5/8 flat washers, (6) 5/8 lock washers and (6) 5/8-11UNC hex nuts on each leg assembly.

7) Layout lift location using FIG. #1.

8) Leg assemblies should be mounted on a CONCRETE FLOOR ONLY with a minimum thickness of 4 inches and a maximum slope not to exceed 1/16" per foot.

9) Stand leg assemblies up and position as shown in FIG. #1.

10) Make sure the 10'-6" inside measurement leg to leg is maintained. DO NOT ANCHOR AT THIS TIME.

11) **NOTE:** One leg has a power unit bracket. This is the leg (Mainside) that the pumping unit will mount to and the electrical service will be wired to. FACTORY RECOMMENDED LOCATION IS TO THE REAR PASSENGER SIDE OF VEHICLE.

12) Check leg (with pump mount bracket) for plumpness using a good spirit level in both directions. Use shims (1/16" x 1 x 2 ½" and ¼" x 1" x 2 ½") provided as necessary for proper leveling. (Do not exceed ½" total shim height). DO NOT ANCHOR NON-POWER COLUMN AT THIS TIME.

13) Drill and set ¾" anchor bolts. (Ref. Anchoring Tips) Use washers when final tightening is done. Make sure all bolts are properly set and meet 125 ft. lbs of torque. DO NOT USE AN IMPACT.

14) Check inside measurements between both columns at top and bottom to insure they are parallel.

15) Lift Cross Bridge Assembly as shown in FIG. #2 to the top of the leg assemblies with Switch Box assembly on the side of the power unit. Secure assembly as shown in FIG.#3A & #3B using the (4) 1/2-13UNC x 1 1/4" bolts, (8) 1/2 flat washers, (4) lock washers and (4) 1/2-13UNC hex nuts. Bolts heads are to be placed on the outside with the nuts on the inside.

16) Next assemble and install the Single Point Release Pulley Bracket as shown in FIG.#3A & #3B with the LH/RH Single Point Rel. Weldm't., (4) ¼ flat washer, (2) Pulley Sheave, (2) 1/16" Cotter Pin, (2) 7/16-14UNC x 1 1/2" bolts, (4) 7/16 flat washers, (2) lock washers and (2) 7/16-14UNC hex nuts.

17) Attach the power unit to the main side leg using the (4) 5/16-18UNC x 1" bolts, (8) 5/16-18UNC hex nuts, and (4) 5/16 lock washers.

18) Next locate lock release handle, 1" retainer rings, 1/16" wire rope 26'-5 ½"for Std. (32'-0"for Ext.), 1/16" wire rope clip and (1) 1/16" oval sleeves. Switch out shipping pin with handle on safety latch bracket, which is located on the back of the main side leg. Secure in place with 1" retainer ring see FIG. #5D. Install 1/16" wire rope on the offside legs single point release by looping wire rope through one of the holes in the 3/8" clevis pin, which ever holes lines up best and securing it with oval sleeve see FIG. #4. Crimp oval sleeve. Run wire rope to other side, connect it to lock release handle (hole farthest away from the leg) and clamp using 1/16" wire rope clip see FIG. #4. Wire rope should not have any slack but locks on both legs should also touch leg backsides in their normal position. If cable is loose, adjust wire rope using wire rope clip.

19) Locate and install the 53", 363 ½"for Std. (430" for Ext.) and 13 ½" hydraulic hoses see FIG. #6. Manually raise both carriage assembly about 18" for hose installation. The 53" hydraulic hose connect the 90 deg. adapter at the bottom of the mainside leg to the bulk head tee. Next attach the Hose Bracket (ALIF-209-275-XX) with the Grommet (2772-BLK) to the MS & OS Leg assemblies as shown in Fig. #3. Now thread hose through pipe loops in leg assembly. The 363 ½" (430") hydraulic hose connects the 90 deg. adapters at the bottom offside leg to the bulkhead tee on the mainside leg. Thread hydraulic hose through pipe loops of offside leg, hose brackets, cross bridge and mainside leg. Leave the hose bracket loose and adjust the bracket to take up the slack of the hydraulic hose. Use 3/8 JIC nut to secure bulkhead tee to main side leg. The 10 1/4" hydraulic hose connects the straight adapter of the power unit to the bulk head tee. Do not lower carriage assemblies. Leave carriage raised to install equalizer cables.

20) Next route the two 3/8" equalizing cables x 30'-10 ½" (36'-5") as shown in FIG. #4. (The three gussets with holes inside each carriage are adjustment for the cable depending on the height of the lift. For the maximum height of lift use lower gussets on carriages.) Run the cable down and under pulley located at the base of the leg. Next run cable back up through the carriage to the top of leg over the pulley (at the top of leg) and across to the other leg, over pulley and down through the bracket located at the top left side of carriage see FIG. #4. Secure in place with nylon lock nut.

21) Repeat step 20 for installing cable on the other leg.

22) Adjust nuts evenly until cables are tight.

23) Next installing swing arm, rotate & slide swing arms to the center of lift to see if lift pads are at the same height. If pads are not at the same height then shim lift forward, backward or sideways to level lift pads. Leg of lift may become out of plumb. If lift pads are more than 1" from being level call manufacture for further instructions.

24) Fill pumping unit with hydraulic medium oil SAE-10 or equivalent. It will take approximately 4 US gallons. Automatic transmission fluid may be substituted.

25) Use plastic ties to secure slack in hydraulic hose and electrical cable. Slack of the hydraulic hose is where the cross bridge and legs are connected.

26) Power requirements: 230 Volt, single-phase power, 12-amp. Use separate circuit for each unit and protect each circuit with 30-amp time delay fuse or circuit breaker. Install electricity to lift coming from snap action switch to power unit. Use FIG. #11 for wiring diagram.

27) Before operating lift visually inspect lift to make sure the cable and hoses are not rubbing or in the way of hardware or lift parts. Especially in cross bridge or legs.

28) Next purge air from hydraulic lines. Raise lift until carriages rise off of safety locks. Crack bleeder plug located at the top of cylinder. Listen for air to escape and tighten when hydraulic fluid starts coming out. Now raise lift to the top and lower. Repeat cycle until no air is in the hydraulic system..

29) The above procedure may have to be repeated several times to ensure all the air has been bled from the system.

30) Refill tank with hydraulic oil.

31) Raise lift and make sure that safety locks are synchronized as lift goes up. If locks re not synchronized then tighten the cable on the side that is lagging.

30 DAY MAINTENANCE

1) Inspect the (6) cable pulleys and shaft for wear.

2) Grease bearing surfaces in leg assembly minimum every 30 days or as required depending use of lift.

3) Check equalizer cables regularly for proper tension and adjustment. Locks must be synchronizes as lift goes up.

4) Inspect adapters and pads for damage or wear. Replace if necessary.

5) Grease swivel arm pins to insure ease of operation.

6) Inspect all hydraulic lines and fittings for leaks and tighten if necessary.

7) Check locking latches and releases for proper operation.

8) Check arm lock device for proper operation.

9) Check hydraulic fluid level in power unit.

10) Torque anchor bolts to 125 ft. lbs.

TROUBLE SHOOTING GUIDE

POSSIBLE PROBLEM	POSSIBLE CAUSE & SOLUTIONS
1. MOTOR DOES NOT RUN	A) Breaker tripped or fuse blown B) Check micro-switch on shut off bar. C) Check thermal overload in starter. D) Defective control switch, replace E) Faulty wiring connections. Call electrician.
2. MOTOR RUNS BUT THE LIFT WILL NOT RAISE OR HOLD A LOAD	A) A foreign object under check valve. Push handle down and push "raise" switch. Foreign matter should release under pressure. B) Remove check valve. Clean and replace. B) Oil level low: check oil reservoir. With carriage in the down position, pump reservoir should be full.
3. MOTOR RUNS BUT THE LIFT PICKS UP PARTIAL LOAD ONLY.	A) Relief valve setting is too low. Remove back hexcap on pump and and adjust valve clockwise. B) Hydraulic seals damaged (call factory for instructions) C) Check voltage must have a minimum of 208 volts.
4. OIL BLOWS OUT BREATHER	A) Oil reservoir overfilled B) Lift lowered too quickly while under heavy load.
5. LIFT MAKES A GROANING SOUNDING WHEN RAISING OR LOWERING.	A) Bleed cylinder manually. B) Add an ounce of oil to the air side of the piston.
6. LIFT RAISES UNEVENLY	A) Cables are not properly adjusted or tightened. B) Use lighter weight oil in the pump.

PARTS LIST for
WS12

PART NUMBER	DESCRIPTION	QTY.
ALIF-215-086	Mainside Leg Final Assy.	1
2502-06-04	#6MJIC X #4FP Adapter Fitting	1
4550K138	1/4 x 4 1/2 Nipple Sch 80	1
5315	7/16” Dia. x 1 ¼” Ext. Spring	1
5933	1/2 “ Dia. x 2 1/8” Ext. Spring	1
7130K55	11 x .18 Nylon Cable Ties	1
90126A038	1” SAE Flat Washer	4
91102A029	¼” Lock Washer	1
92865A537	¼-20UNC x ½ Hex Head Bolt Grd 5	1
92865A716	½-13UNC x 1 ½ Hex Head Bolt Grd5	2
98330A190	5/16” Dia. x 3 1/2” Adj. Clevis Pin	1
98330A250	3/8” Dia. x 3” Adj. Clevis Pin	1
98338A140	3/32” x 1 Cotter Pin	3
98410A133	1” Ext. Retainer Ring	4
AA2517504	2 1/2” Bore x 69” Stroke Hyd. Cyl.	1
ALIF-209-162	7 ¾ Lg. Rubber Edging	2
ALIF-215-039	Carriage Assy.	1
90177A225	2 ¼ Dia Split Ring	2
98555A213-1.0	1 Dia. C-Retainer Ring	6
ALIF-209-107	Upper Arm Lock	2
ALIF-215-040-XX	Carriage Weldm’t.	1
ALIF-215-069	1 Dia. Arm Lock Pin	2
ALIF-215-158	1 ¼ x 1/8 Comp. Spring x 9 ¼	2
ALIF-215-017-XX	Safety Latch (Mat’l. A514)	1
ALIF-215-018-XX	Single Point Release Cover	1
ALIF-215-020R-XX	Mainside Leg Weldm’t.	1
ALIF-215-071	Lower Pulley Pin	1
ALIF-215-080	Nylon Rub Blocks	8
ALIF-215-081-XX	Single Point Rel. Handle	1
ALIF-DECL-C/S/W	Caution, Safety & Warning Decal	1
ALIF-DECL-XXCAP	Lift Capacity Sticker	1
GL-09-009	6” Pulley Assy.	1
GL-09-144	Lift Instruction Sticker	1
ALIF-215-087	Offside Leg Final Assy.	1
2502-06-04	#6MJIC X #4FP Adapter Fitting	1
4550K138	1/4 x 4 1/2 Nipple Sch 80	1
5933	1/2 “ Dia. x 2 1/8” Ext. Spring	1

7130K55	11 x .18 Nylon Cable Ties	1
8901T11	¾” Delrin Sheave	1
90126A038	1” SAE Flat Washer	4
91090A111	5/16” x 1 ¼ Fender Washer	2
91102A029	¼” Lock Washer	1
91145A180	5/16” x ¼ Nylon Spacer	1
91259A580	5/16” x 5/8 Shoulder Screw	1
92865A537	¼-20UNC x ½ Hex Head Bolt Grd 5	1
92865A716	½-13UNC x 1 ½ Hex Head Bolt Grd5	2
98330A190	5/16” Dia. x 3 1/2” Adj. Clevis Pin	1
98330A250	3/8” Dia. x 3” Adj. Clevis Pin	1
98338A140	3/32” x 1 Cotter Pin	3
98410A133	1” Ext. Retainer Ring	4
AA2517504	2 1/2” Bore x 69” Stroke Hyd. Cyl.	1
ALIF-209-162	7 ¾ Lg. Rubber Edging	2
ALIF-215-039	Carriage Assy.	1
90177A225	2 ¼ Dia Split Ring	2
98555A213-1.0	1 Dia. C-Retainer Ring	6
ALIF-209-107	Upper Arm Lock	2
ALIF-215-040-XX	Carriage Weldm’t.	1
ALIF-215-069	1 Dia. Arm Lock Pin	2
ALIF-215-158	1 ¼ x 1/8 Comp. Spring x 9 ¼	2
ALIF-215-017-XX	Safety Latch (Mat’l. A514)	1
ALIF-215-019-XX	Single Point Release Cover	1
ALIF-215-020L-XX	Offside Leg Weldm’t.	1
ALIF-215-068	Single Point Rel. Pin	1
ALIF-215-071	Lower Pulley Pin	1
ALIF-215-080	Nylon Rub Blocks	8
Gl-09-009	6” Pulley Assy.	1
ALIF-215-064	One-Piece Cross Bridge Assy.	1
90126A038	1 SAE Flat Washer	4
98410A133	1 Ext. Retainer Ring	2
GL-09-009	6” Pulley Assy.	2
ALIF-215-063-XX	Cross Bridge Weldm’t.	1
ALIF-215-065-XX	1 Spacer	2
ALIF-215-074	Upper Pin	2
ALIF-215-056	Sym. Swing Arm Assy.	4
91251A626	3/8-16UNC Socket Head Screw	12
ALIF-215-028-XX	Sym. Swing Arm Wldm’t.	4
ALIF-209-082A	Lower Swing Arm Lock	4

LOOSE PARTS & HARDWARE

ALIF-2P15K-HW	Hardware Box Kit	1
0306-06	3/8 JIC Lock Nut	1
2703-06-06-06	Bulk Head Tee	1
2772-BLK	1 3/16 Grommet	2
30325T23	1/16 Wire Rope Clip	1
3434T36	Pulley Sheave	2
3896T1	1/16 Oval Sleeve Ferrule	2
6046K33	1” Dia. Ball Handle Knob	1
6400-06-06	3/8 O-ring x 3/8 JIC Straight Adapter	1
6921-0036	SPDT, 25 AMP, A/C Limit Switch	1
7130K55	11” x 3/16 Nylon Cable Ties	3
90126A029	1/4 SAE Flat Washer	4
90126A032	7/16 SAE Flat Washer	8
90126A033	1/2 SAE Flat Washer	8
90190A144	#6 x ¼ Phillip Head Pan Screw	4
90473A029	¼-20UNC Hex Nut	4
90473A030	5/16-18UNC Hex Nut	8
90473A217	7/16-14UNC Hex Nut	4
90473A223	½-13UNC Hex Nut	4
90640A129	¼-20UNC Nylon Lock Hex Nut	1
90640A133	½-13UNC Nylon Lock Hex Nut	8
91102A029	1/4 Lock Washer	5
91102A030	5/16 Lock Washer	4
91102A032	7/16 Lock Washer	4
91102A033	1/2 Lock Washer	4
91247A583	5/16-18UNC x 1 Hex Head Bolt	8
92865A537	¼-20UNC x ½ Hex Head Bolt Grd 5	2
91309A540	¼-20UNC x 3/4 Hex Head Bolt	2
91309A554	¼-20UNC x 3 TAP Hex Head Bolt	1
91578A501	¾-10UNC x 5 ½ Wedge Anchor Sets	12
92865A671	7/16-14UNC x 1 1/4 Hex Head Bolt	4
92865A714	½-13UNC x 1 1/4 Hex Head Bolt	4
92865A716	½-13UNC x 1 ½ Hex Head Bolt	4
98355A010	1/16 Dia. x 1/2 Cotter Pin	2
AT527M	M12 x 1mm Thin Nut	2
ALIF-215-015-XX	Carriage Stop Weldm’t.	2
ALIF-209-074-XX	Swing Arm Pad Adapter	4
ALIF-209-076-XX	2” Swing Arm Pad Extension	4
ALIF-209-077-XX	4” Swing Arm Pad Extension	4
ALIF-209-086	Swing Arm Pad Assy.	4
90126A029	¼ SAE Flat Washer	8

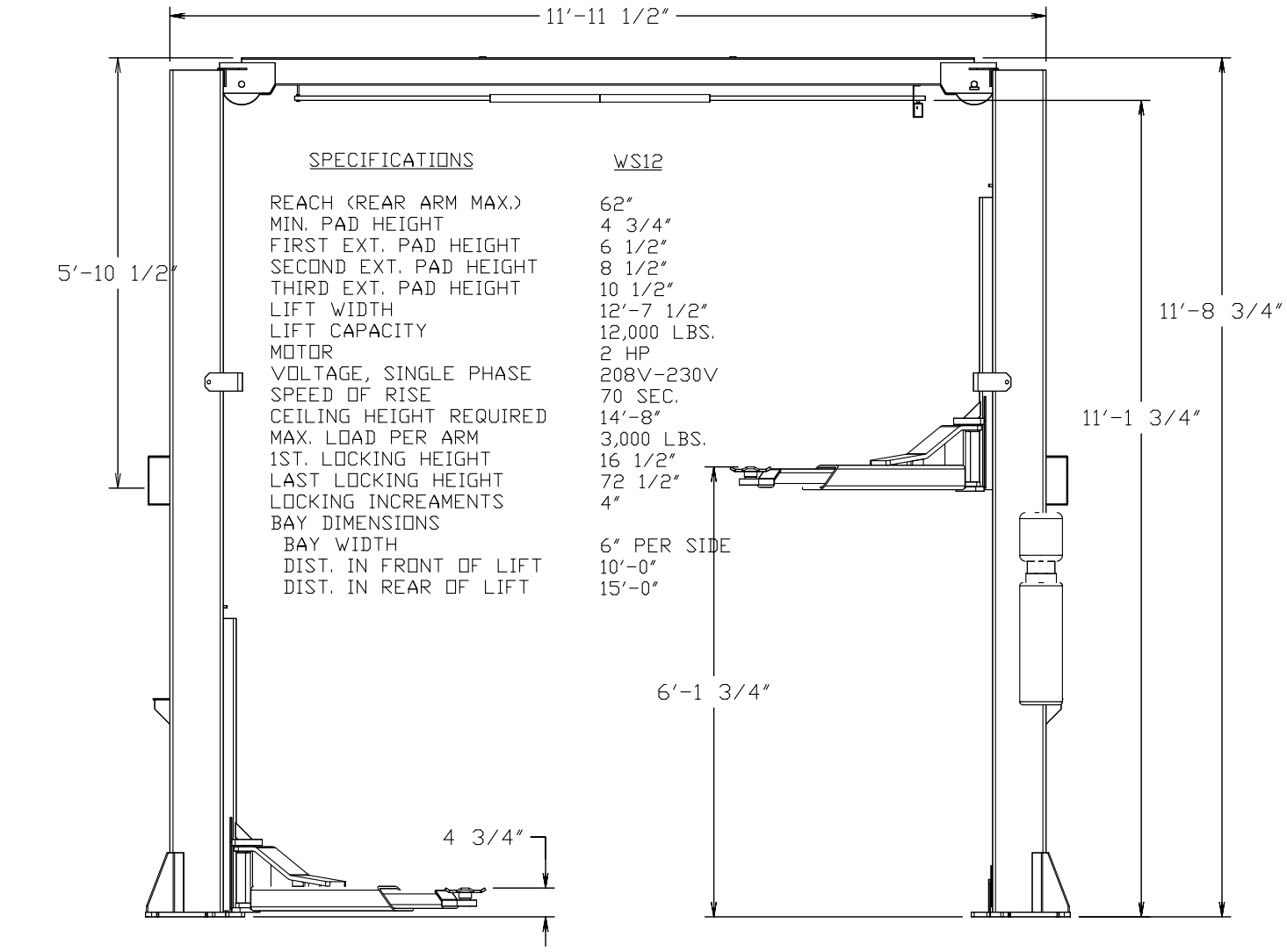
90473A029	¼-20UNC Hex Nut	8
92670A744	¼-20UNC Elevator Bolts	8
ALIF-209-080-XX	Pad Wldm't.	4
GL-09-013	Rubber Pad	4
ALIF-209-102	3/8 Hyd. Hose x 53" 6FJICS E/E	1
ALIF-209-104	Silicone Foam Pad	1
ALIF-209-184-XX	Switch Box Cover	1
ALIF-209-185-XX	Switch Box Bracket	1
ALIF-209-186-XX	Shut Off Bar	1
ALIF-209-190L/R	Single Point Rel. Weldm't.	1/1
ALIF-209-191	3/8 Hyd. Hose x 13 ½" 6FJIC90 E/E	1
ALIF-209-275-XX	Hose Bracket	2
ALIF-215-076	Swing Arm Pins	4
ALIF-215-081-XX	Handle Wldm't.	1
ALIF-215-100	3/8 Hyd. Hose x 363.5" 6FJICS E/E	1
ALIF-215-101	1/16 Dia. x 317.5"Lg. Wire Rope	1
ALIF-215-102	3/8 Dia. x 370.5" Lg. Steel Cable	2
AH-1006	3 ½ Gal., 2 HP, 2800psi Power Unit	1
GL-09-056	1/16 Shims, 1 1/16 x 2 ¾	16
Gl-09-112	¼ Shims, 1 1/16 x 2 ¾	8

*** Note: All hardware unless specified is grade 2.
All hardware is zinc coated unless specified.

EXTENDED & OPTIONAL EQUIPEMENT

90126A035	5/8 SAE Flat Washer	24
90473A233	5/8-11UNC Hex Nut	12
91102A035	5/8 Lock Washer	12
92620A798	5/8-11UNC x 1 ½ Hex Head Bolt	12
ALIF-215-003-XX	Formed Extension	2
ALIF-215-082	3/8 Hyd. Hose x 430" 6FJICS E/E	1
ALIF-215-083	1/16 Dia. x 384"Lg. Wire Rope	1
ALIF-215-084	3/8 Dia. x 437" Lg. Steel Cable	2
ALIF-209-148	Truck Adapters (Frame Grabber)	4
ALIF-209-205-XX	10" Pad Extension.	4
GL-09-095-3	3" Heavy Duty Adapter	4
GL-09-095	6" Heavy Duty Adapter	4

LIFT SPECIFICATIONS FOR THE WS12 FOR STANDARD LIFT



SPECIFICATIONS	WS12
REACH (REAR ARM MAX.)	62″
MIN. PAD HEIGHT	4 3/4″
FIRST EXT. PAD HEIGHT	6 1/2″
SECOND EXT. PAD HEIGHT	8 1/2″
THIRD EXT. PAD HEIGHT	10 1/2″
LIFT WIDTH	12′-7 1/2″
LIFT CAPACITY	12,000 LBS.
MOTOR	2 HP
VOLTAGE, SINGLE PHASE	208V-230V
SPEED OF RISE	70 SEC.
CEILING HEIGHT REQUIRED	14′-8″
MAX. LOAD PER ARM	3,000 LBS.
1ST. LOCKING HEIGHT	16 1/2″
LAST LOCKING HEIGHT	72 1/2″
LOCKING INCREAMENTS	4″
BAY DIMENSIONS	
BAY WIDTH	6″ PER SIDE
DIST. IN FRONT OF LIFT	10′-0″
DIST. IN REAR OF LIFT	15′-0″

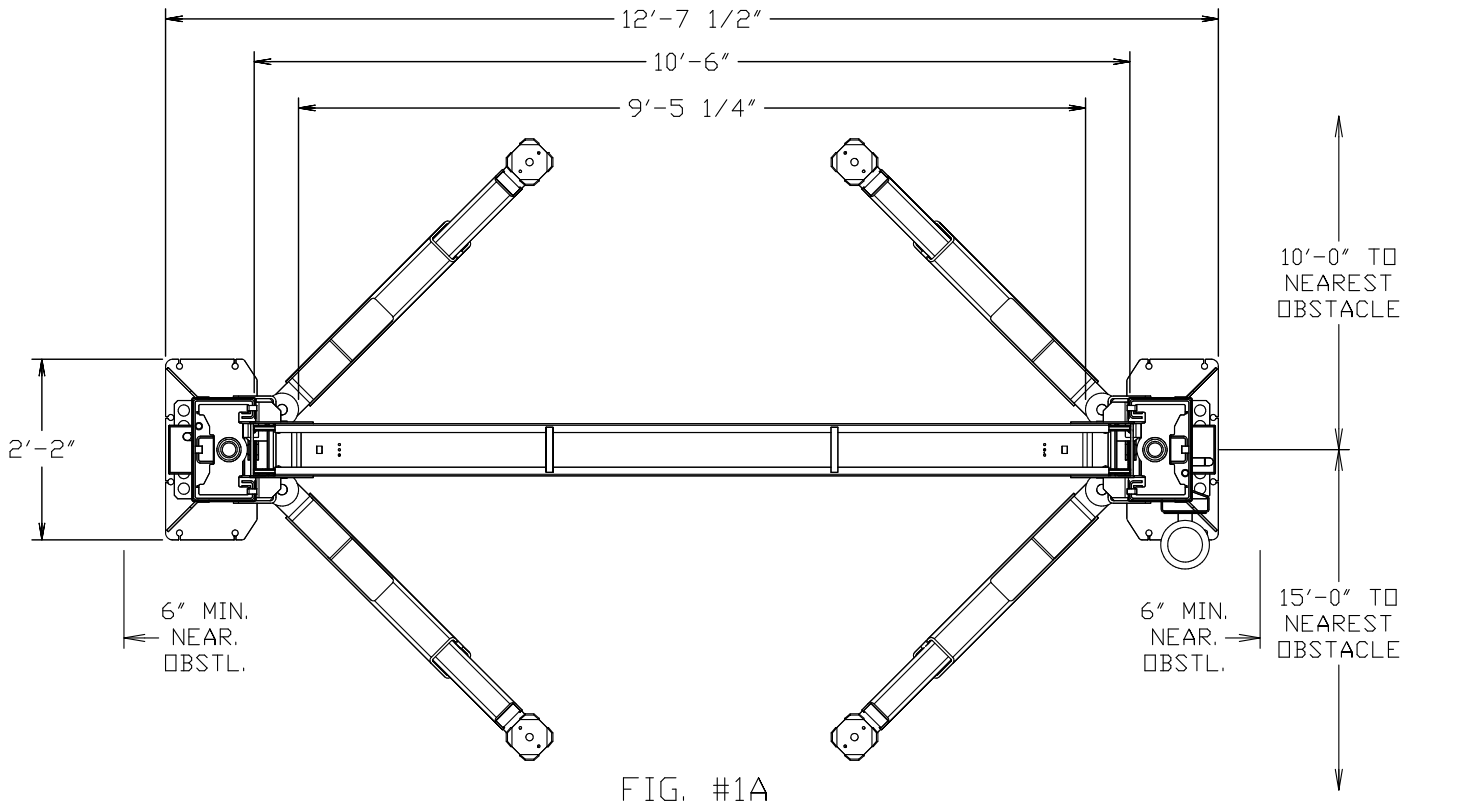
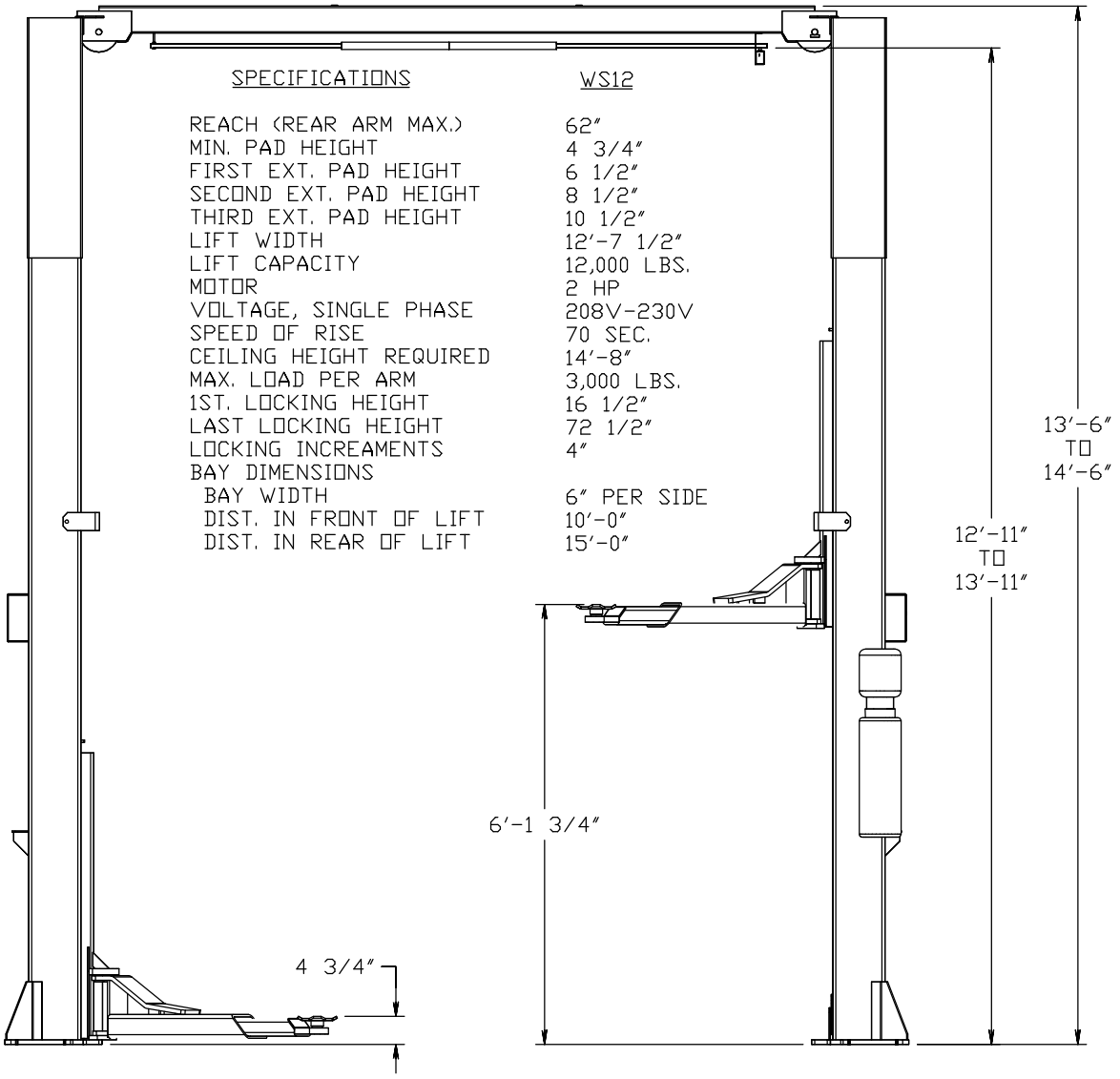


FIG. #1A

LIFT SPECIFICATIONS FOR THE WS12-33 FOR EXTENDED LIFT



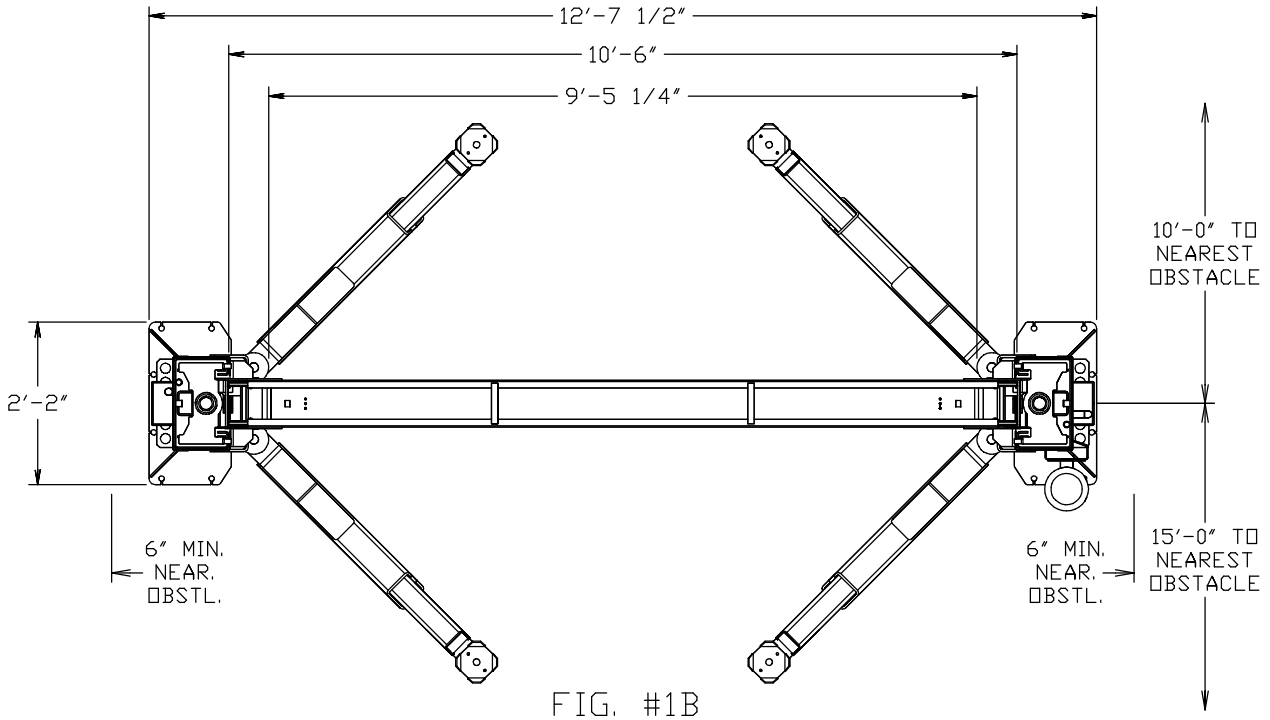


FIG. #1B

WS12 CROSS BRIDGE ASSEMBLY

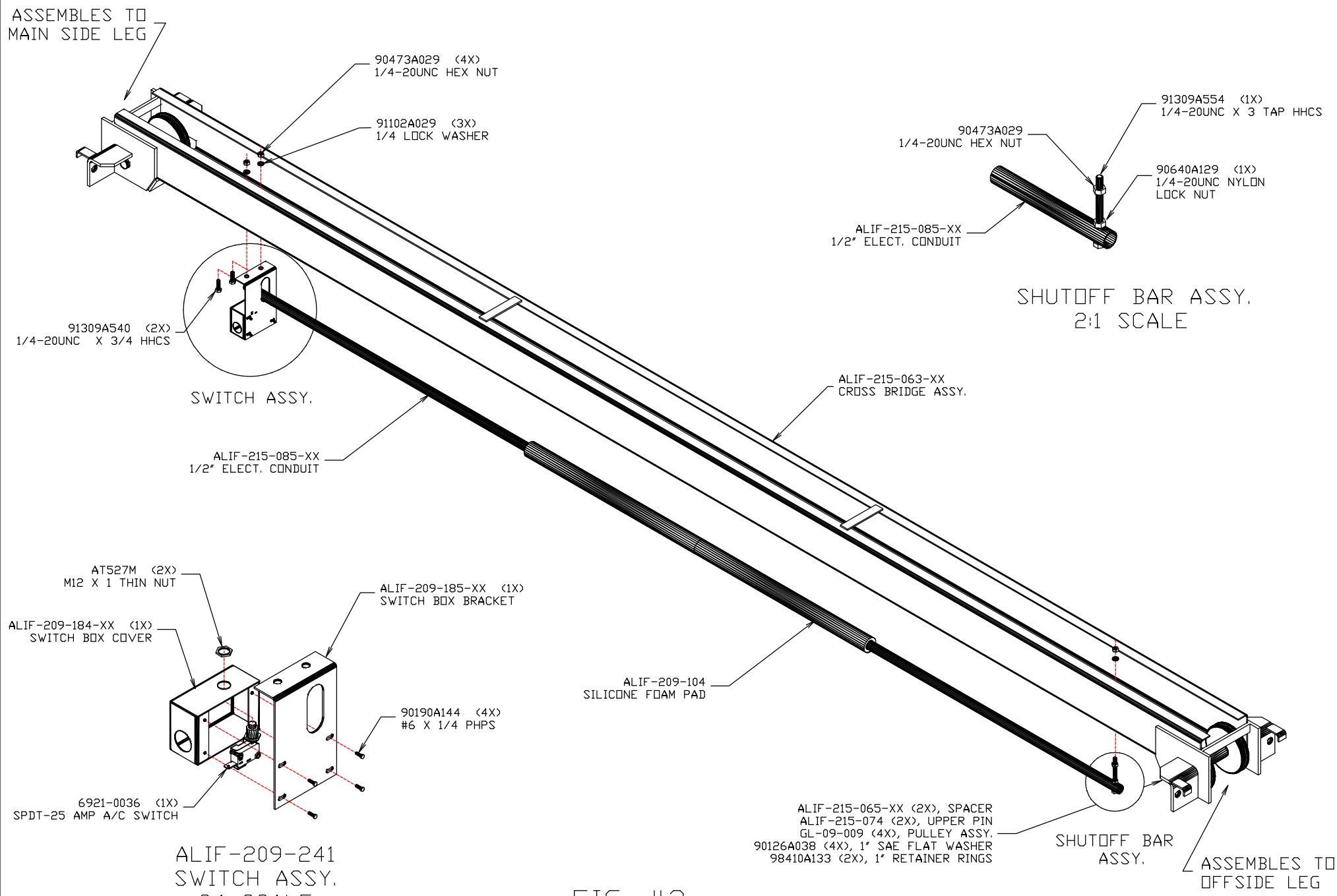


FIG. #2

CROSS BRIDGE ASSY.
TO LEG ASSY. DRAWING
FOR STANDARD LIFT

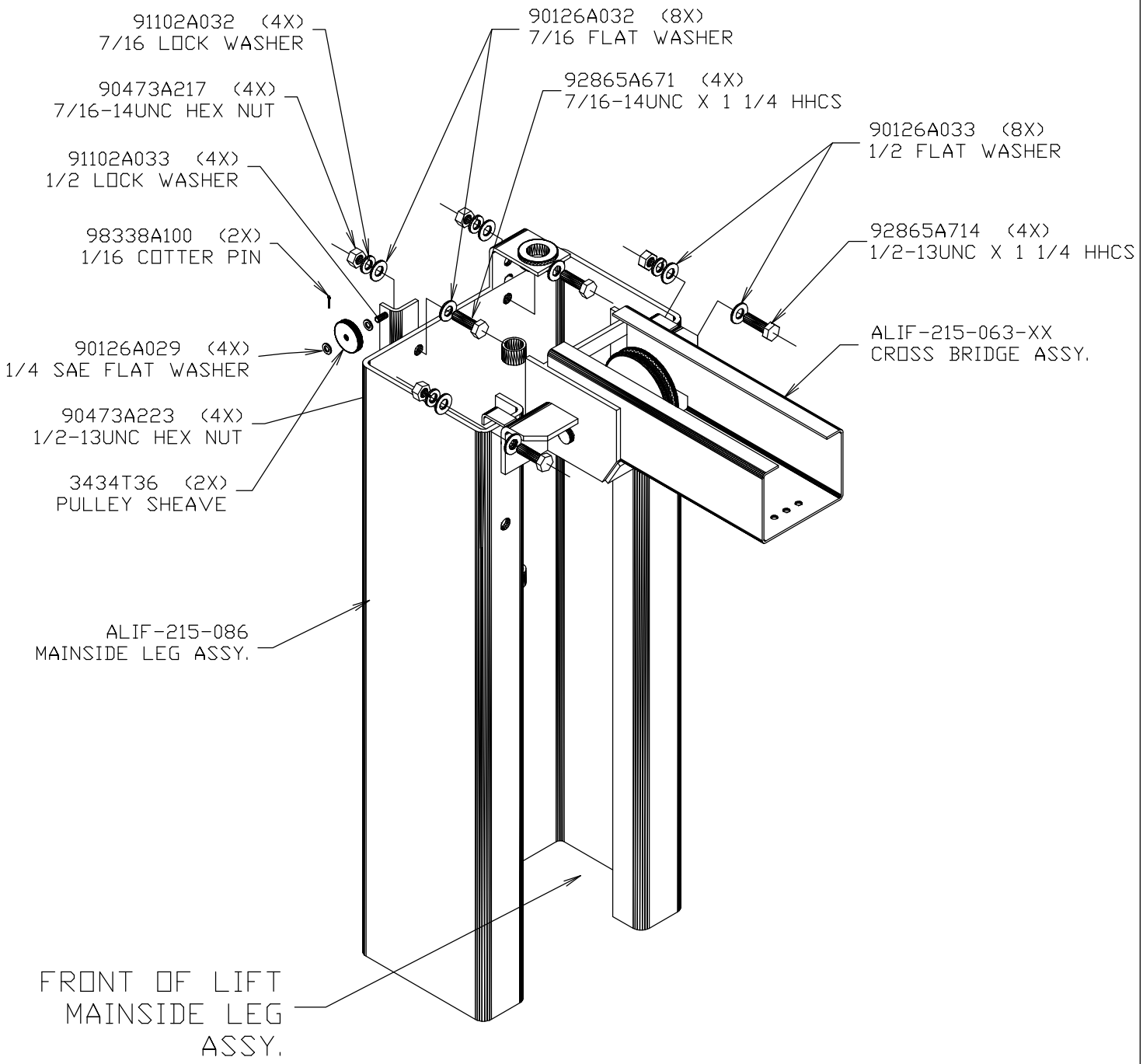


FIG. #3A

CROSS BRIDGE ASSY.
TO LEG ASSY. DRAWING
FOR STANDARD LIFT

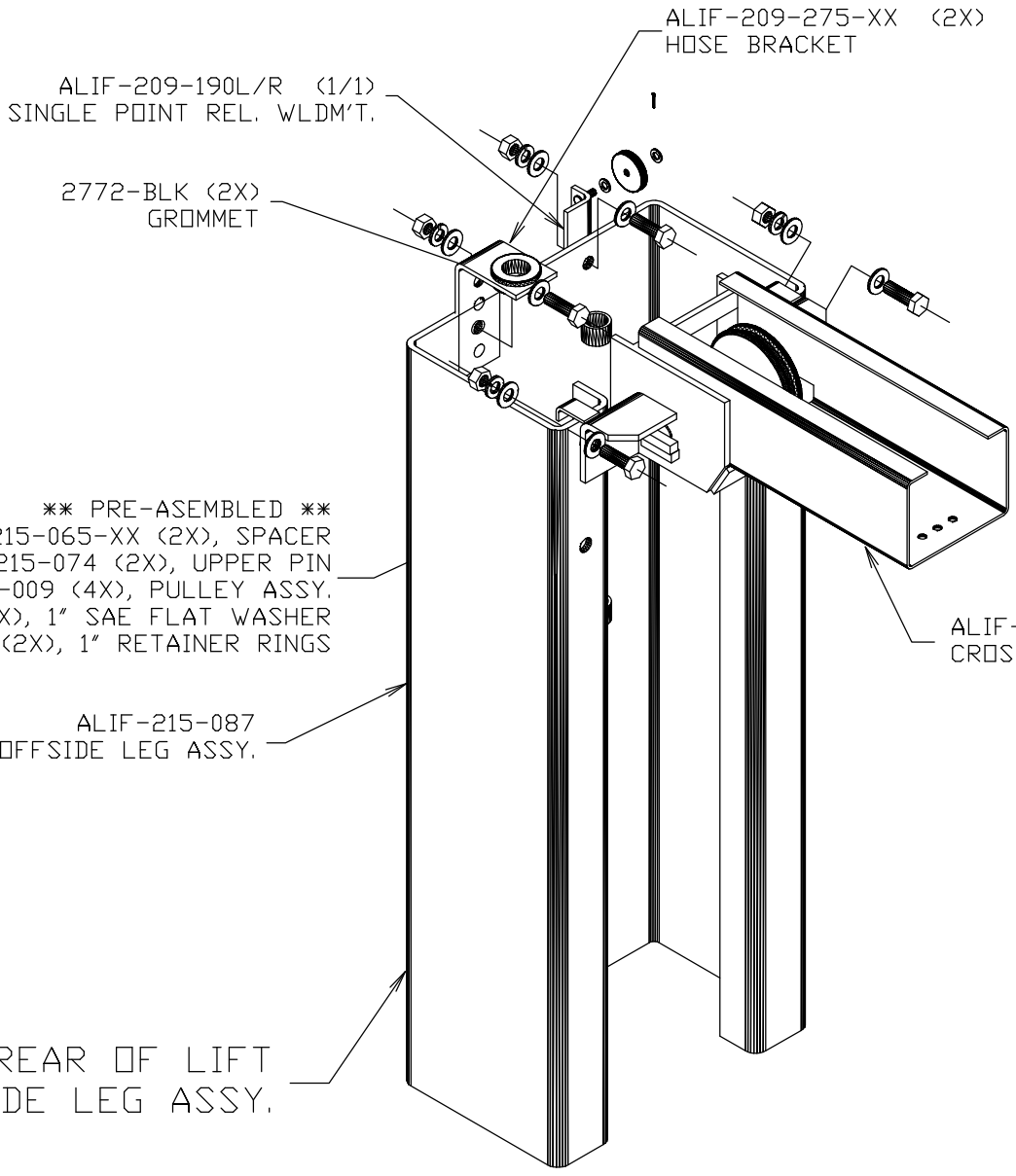


FIG. #3B

CROSS BRIDGE ASSY. & EXTENSION TO LEG ASSY. DRAWING FOR EXTENDED LIFT

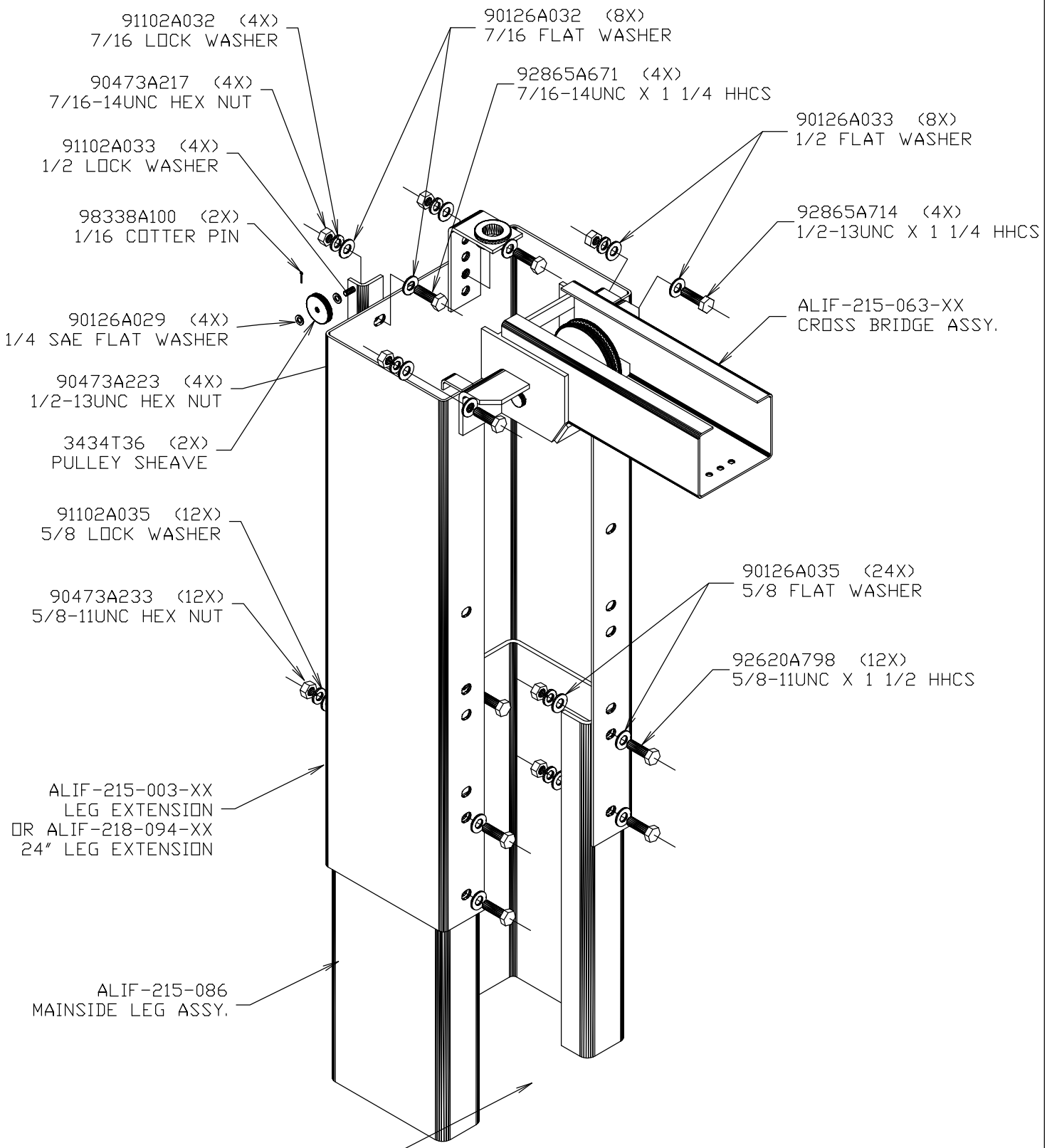


FIG. #3C

CROSS BRIDGE ASSY. & EXTENSION TO LEG ASSY. DRAWING FOR EXTENDED LIFT

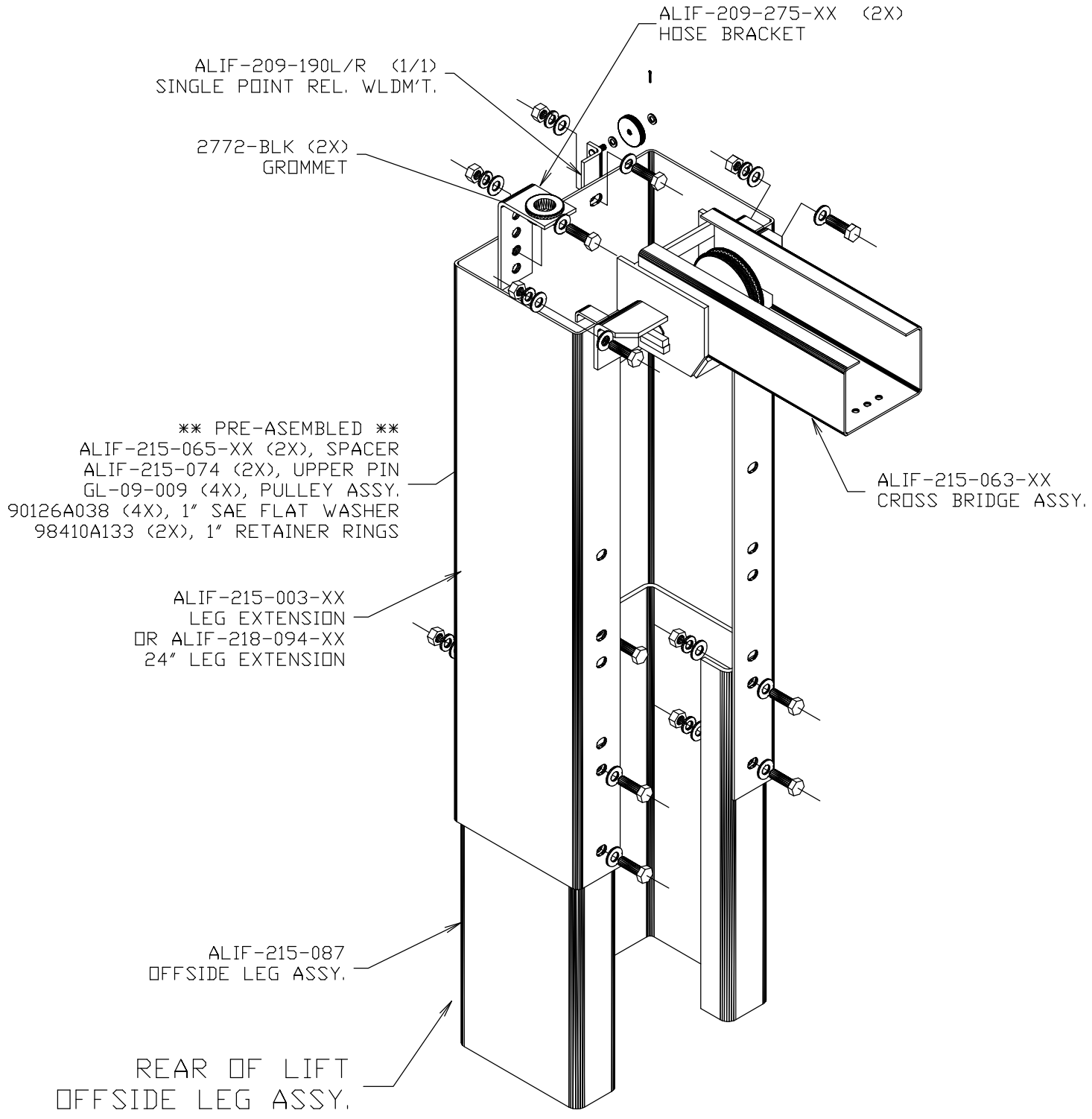


FIG. #3D

WS12, CABLE ROUTING

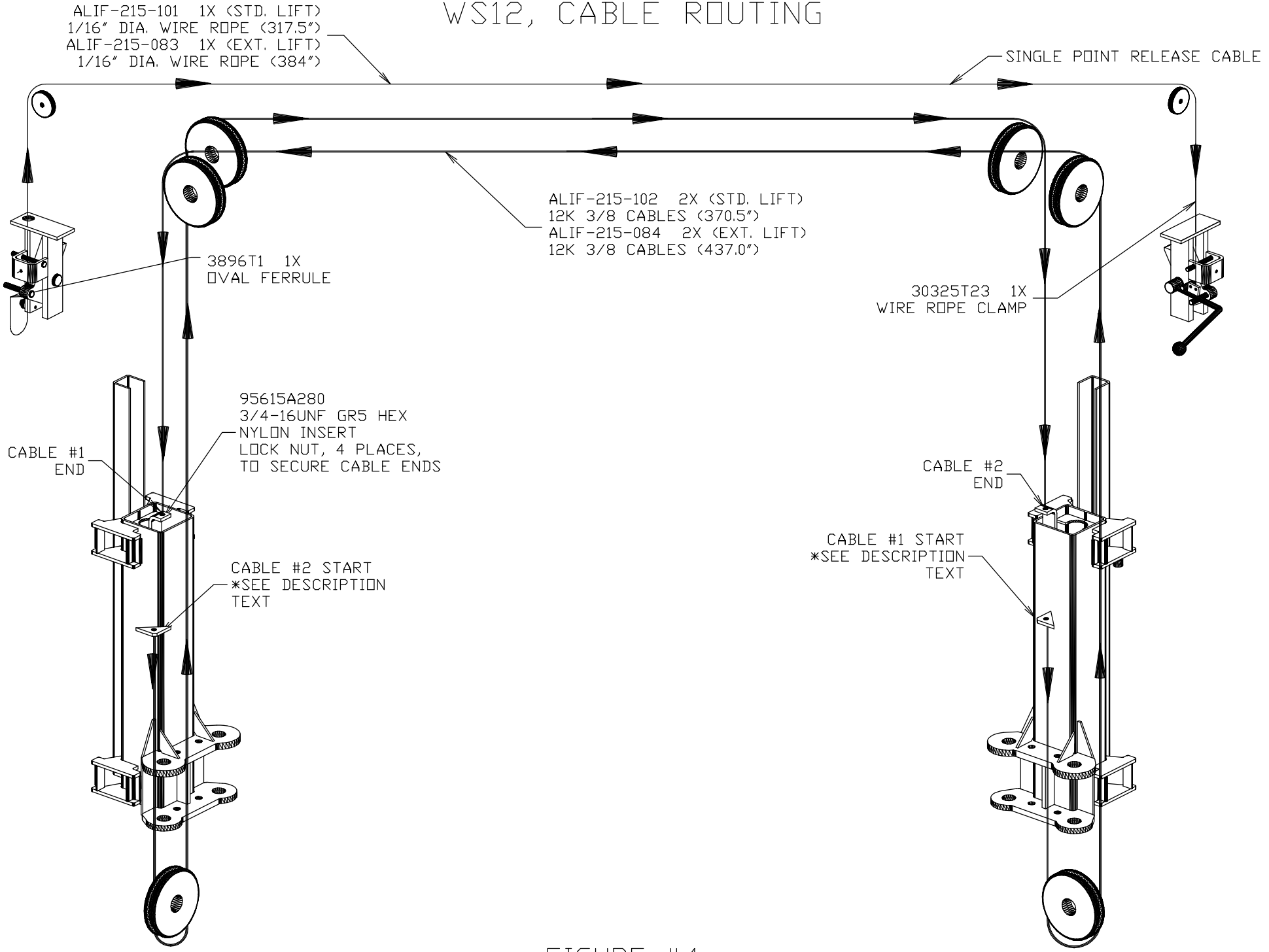


FIGURE #4

ALIF-215-086 - MAINSIDE LEG ASSY.

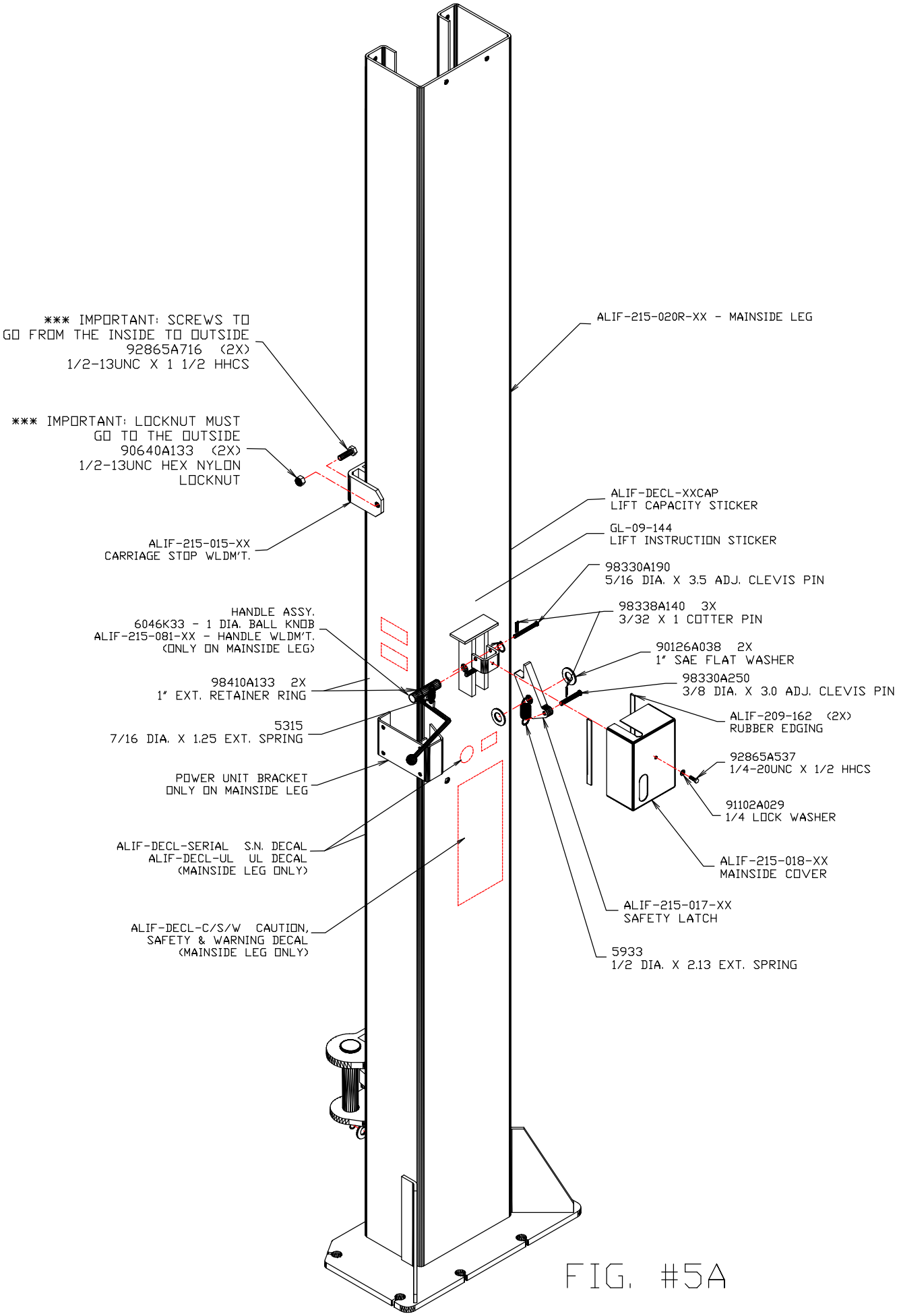


FIG. #5A

ALIF-215-087 - OFFSIDE LEG ASSY.

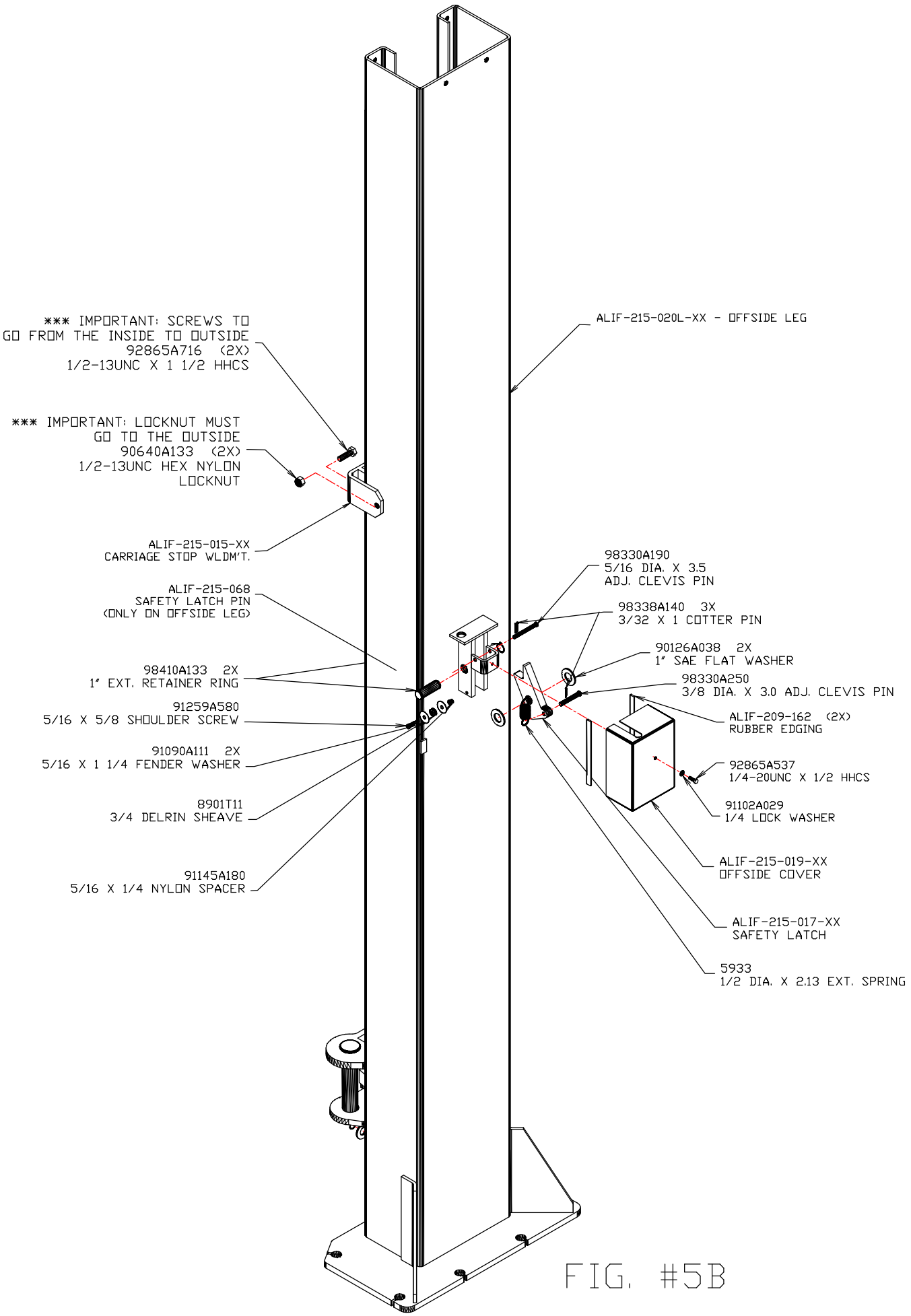


FIG. #5B

ALIF-215-086 - MAINSIDE LEG ASSY.
ALIF-215-087 - OFFSIDE LEG ASSY.

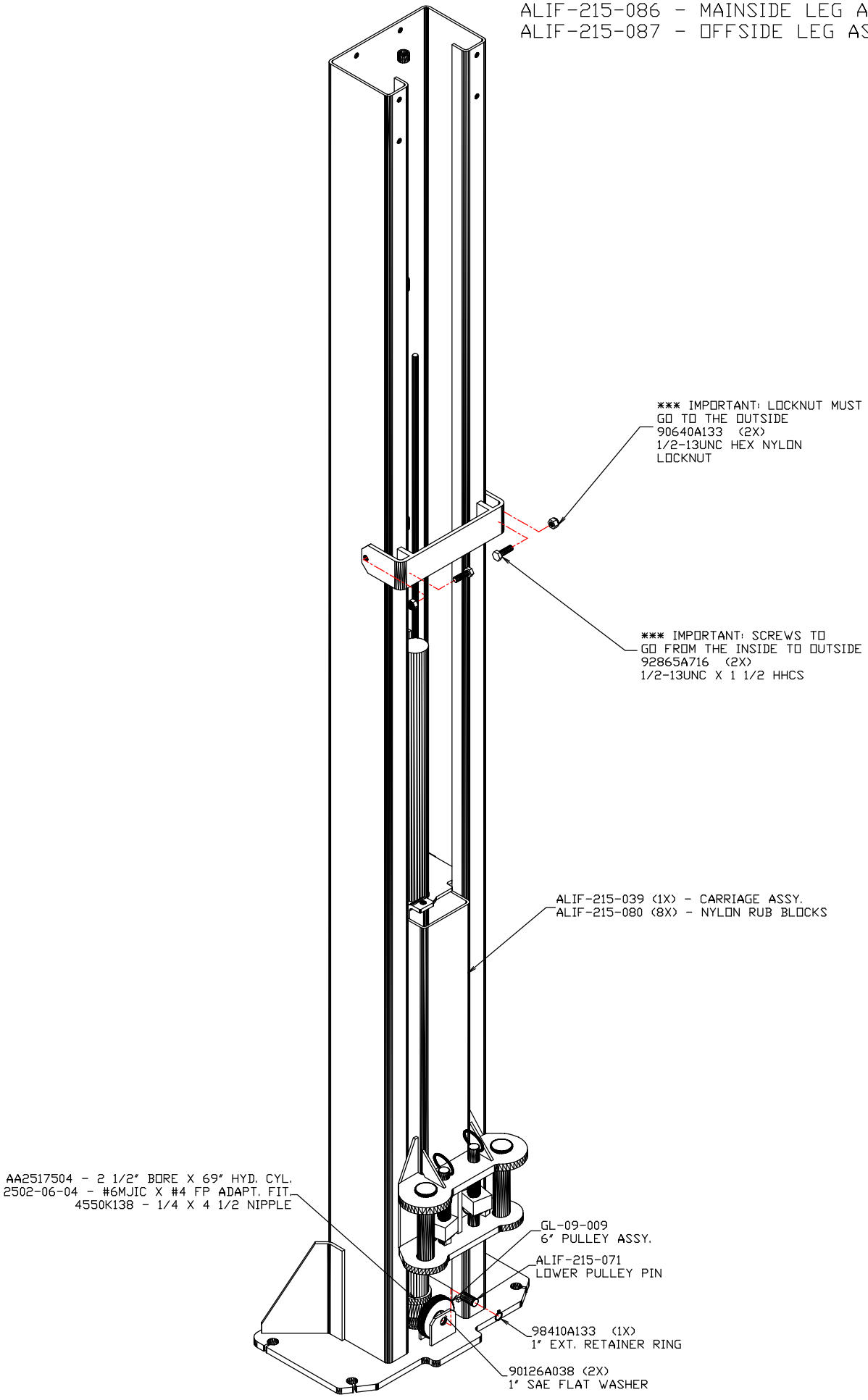


FIG. #5C

SINGLE POINT RELEASE ASSY.
ALIF-215-086 - MAINSIDE LEG ASSY.

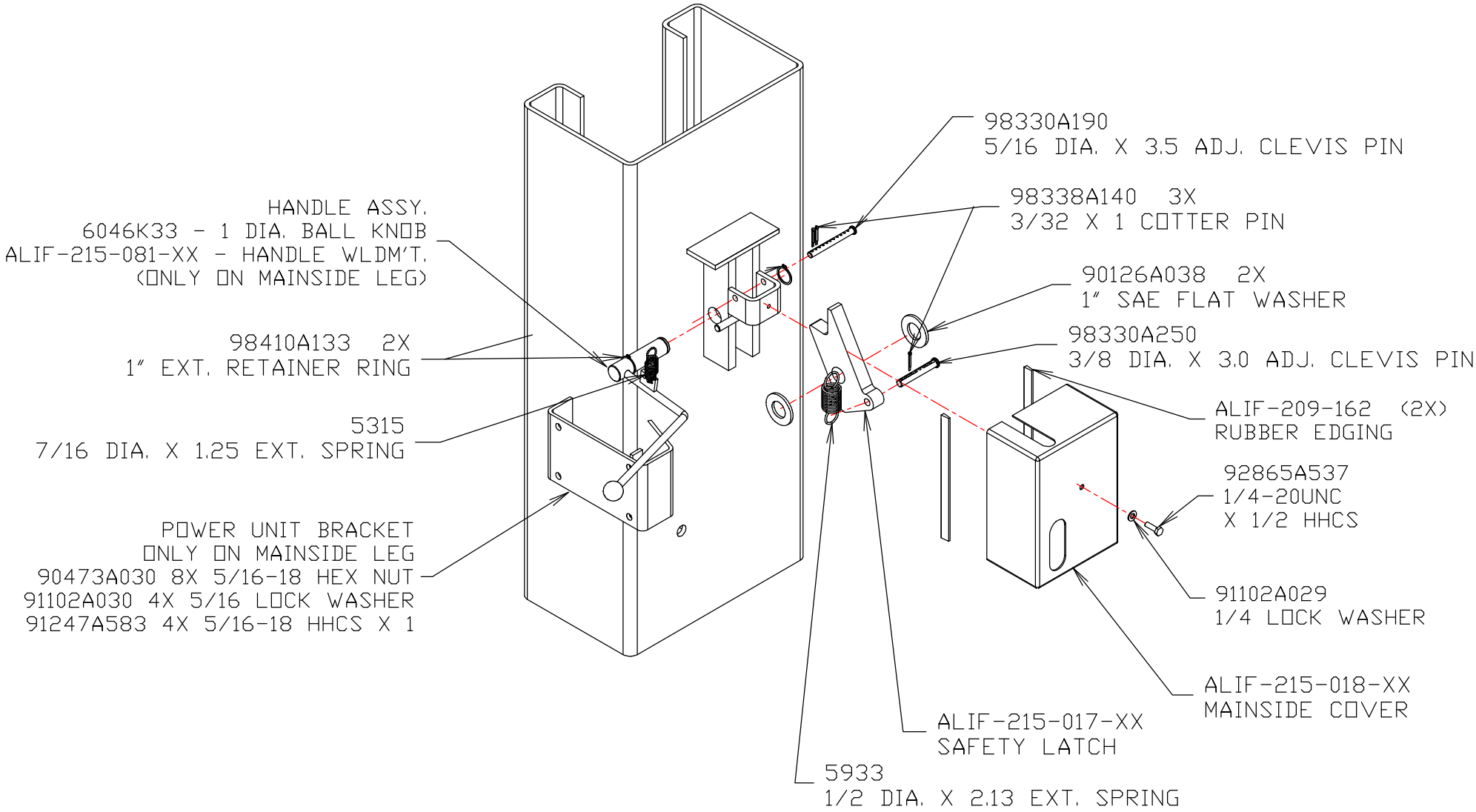


FIG. #5D

SINGLE POINT RELEASE ASSY.
ALIF-215-087 - OFFSIDE LEG ASSY.

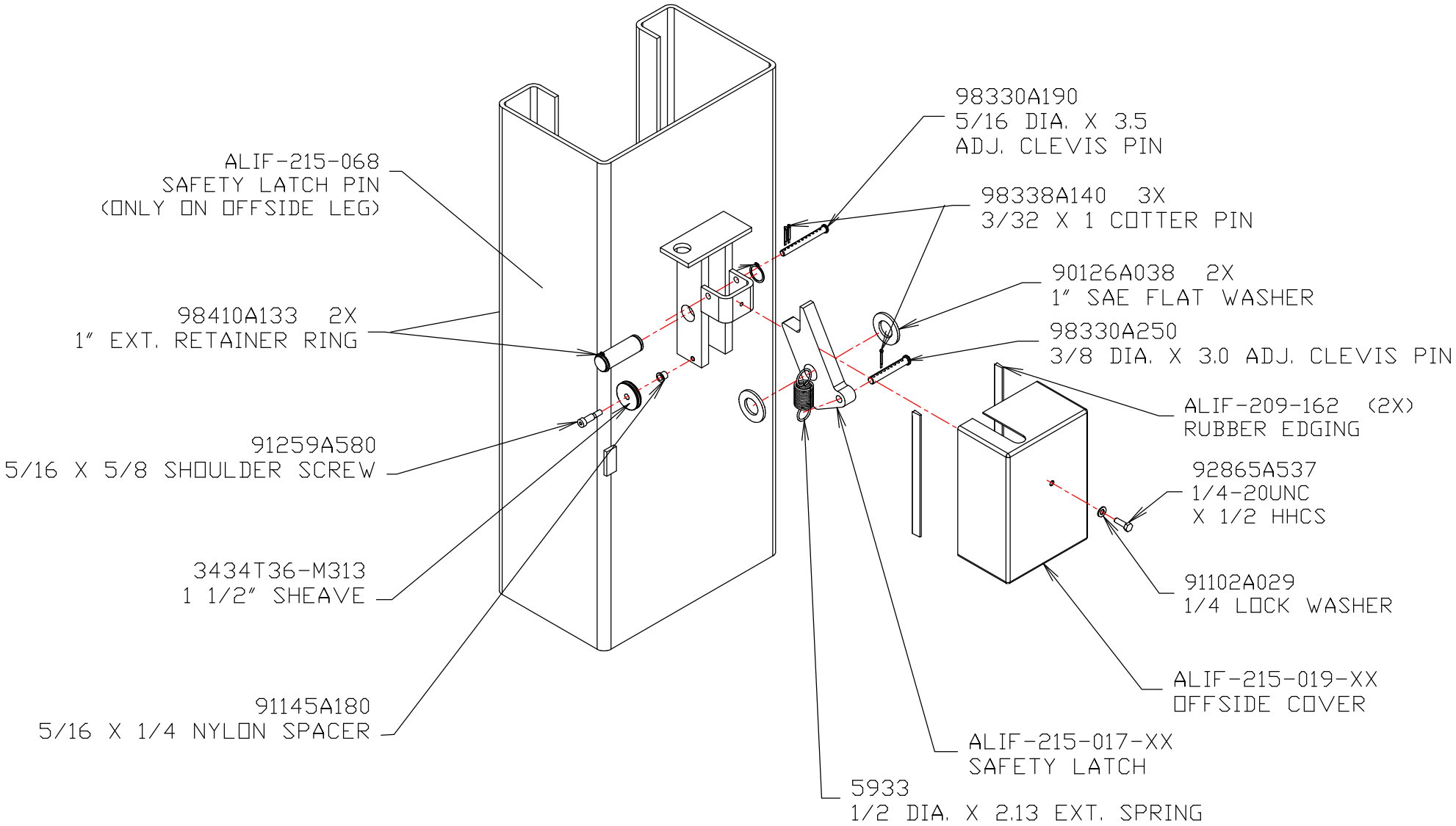


FIG. #5E

12K HYDRUALIC DRAWING & PARTS

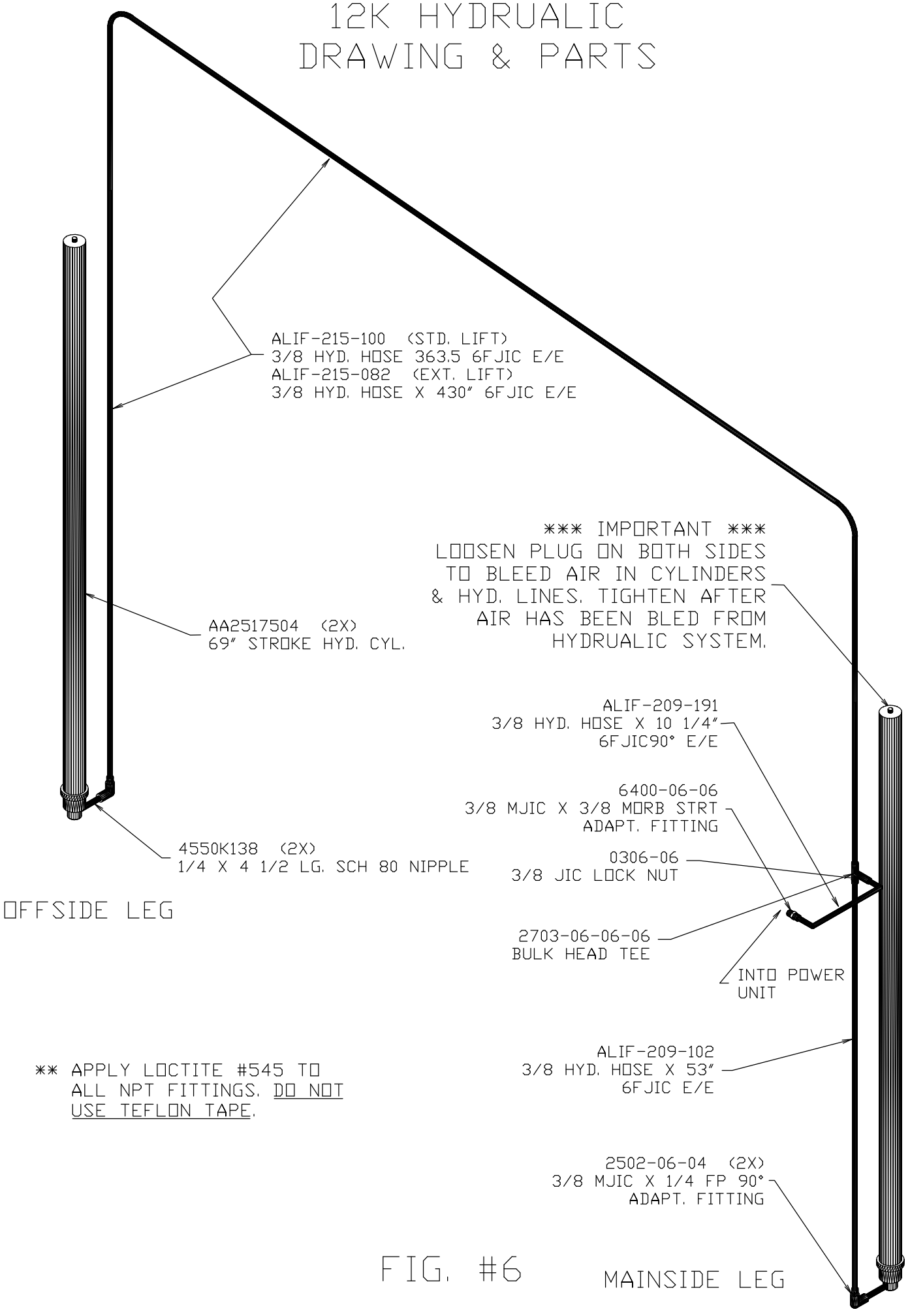


FIG. #6

12K FINAL CARRIAGE ASSY.
ALIF-215-039

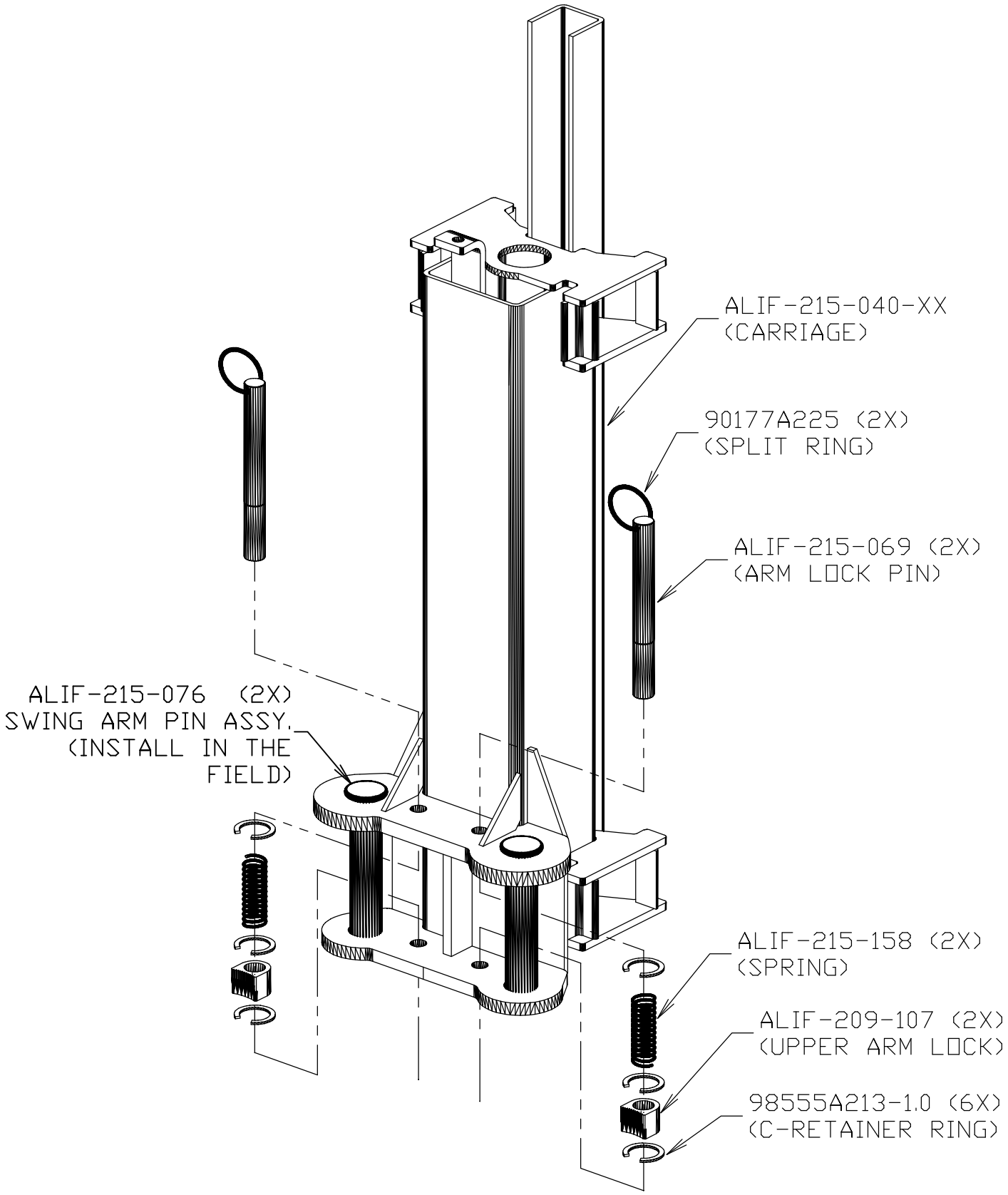


FIG. #7

12K FINAL SYM. SWING ARM ASSY.
ALIF-215-056

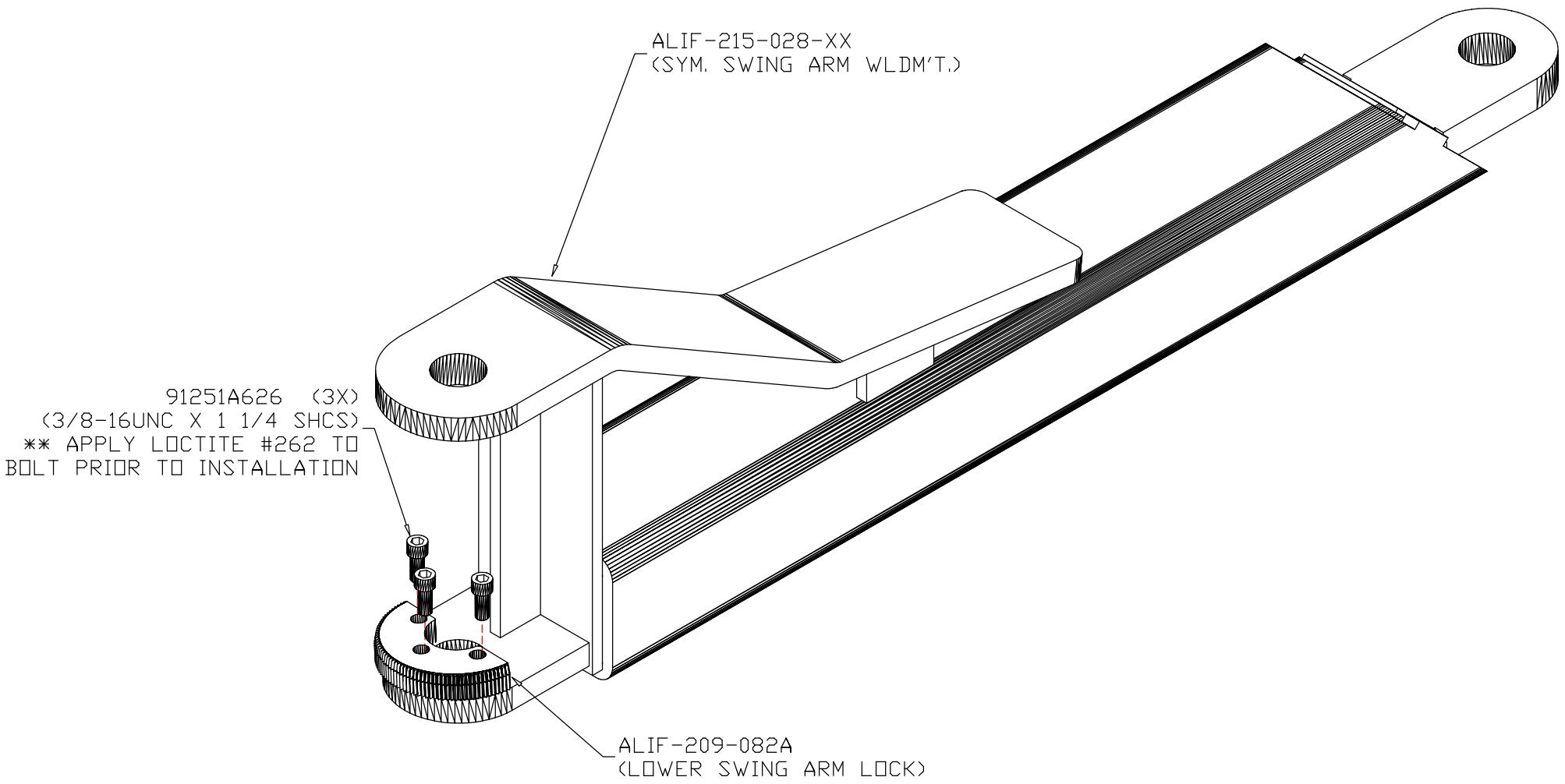
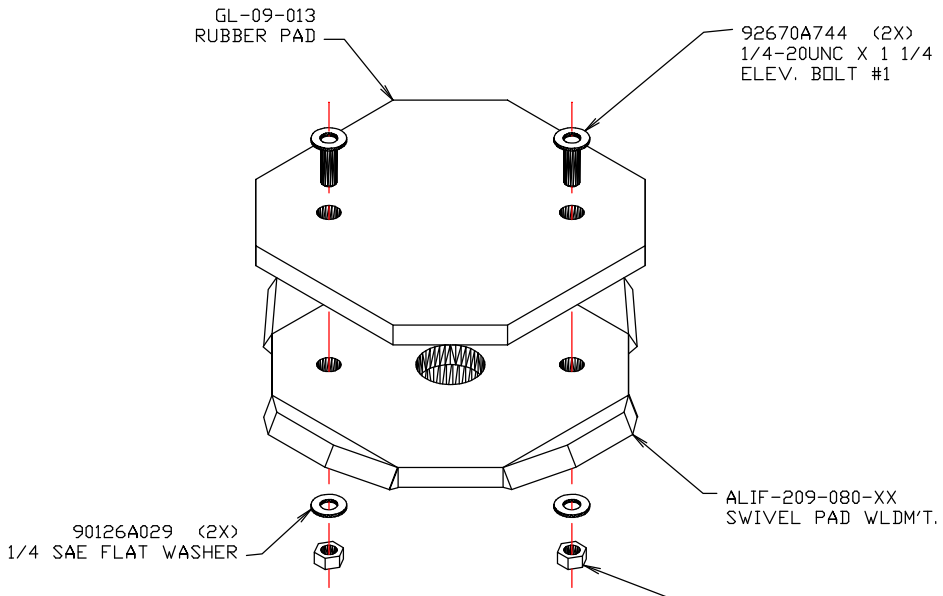
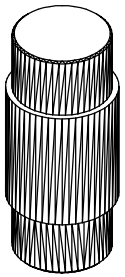


FIG. #8

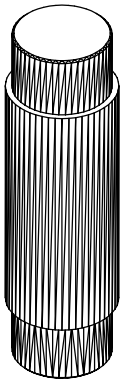
LIFT PAD ASSY.
& EXTENSIONS



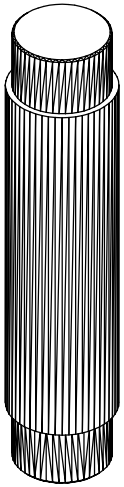
ALIF-209-086
4 PER ASSY.



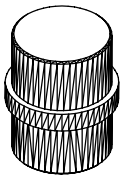
ALIF-209-076-XX
2" EXTENSION
4 PER ASSY.



ALIF-209-077-XX
4" EXTENSION
4 PER ASSY.



ALIF-209-078-XX
6" EXTENSION
4 PER ASSY.



ALIF-209-074-XX
4 PER ASSY.

STANDARD PARTS
WITH EACH LIFT

FIG. #10

Snap Action Switch
Wiring Diagram

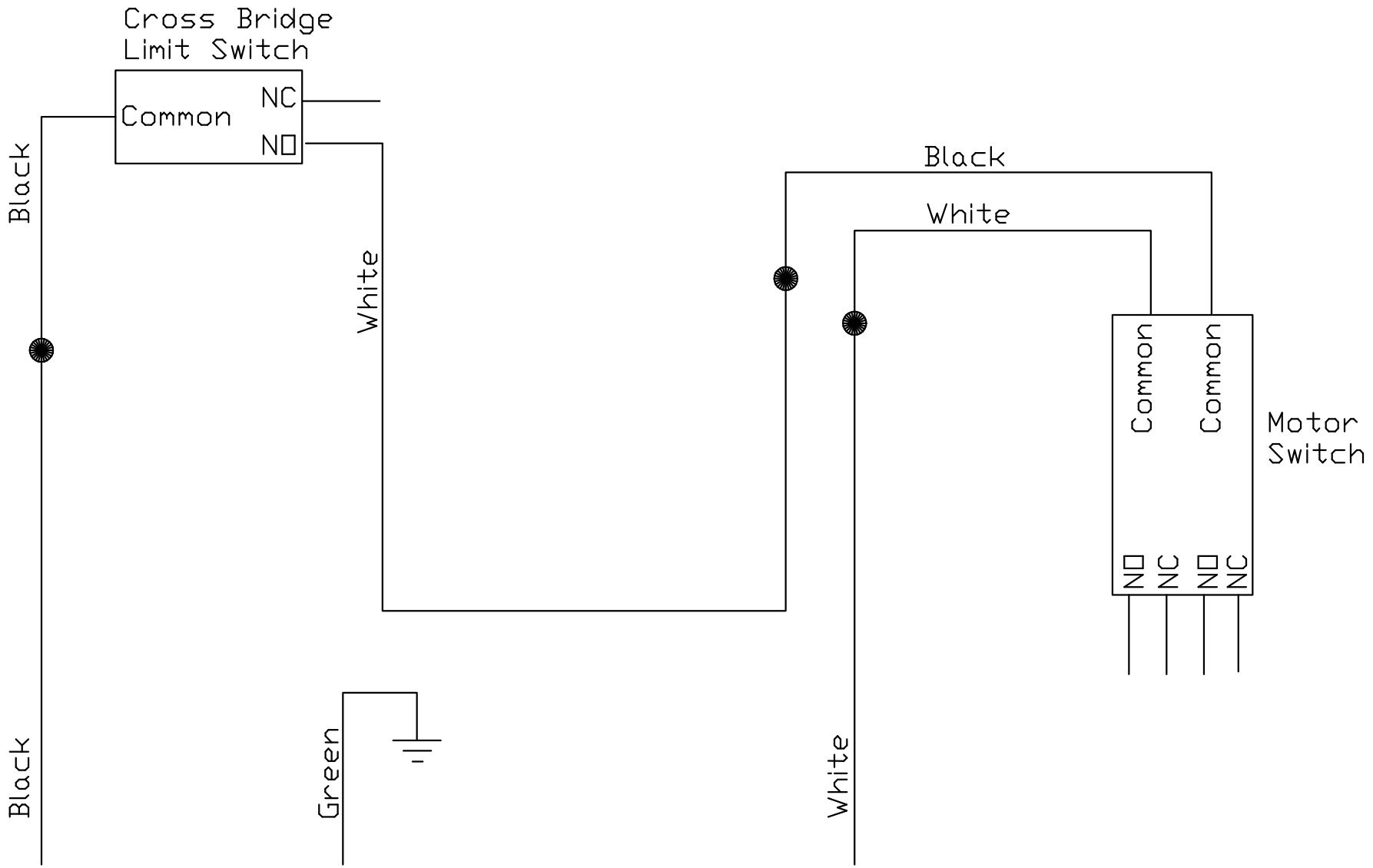


FIG. #11

WHIP INDUSTRIES, INC.

Automotive Lift Safety Guidelines

WHIP Industries
3010 S. Main St.
Fort Worth, Texas 76110
Ph (800) 256-7390
Fax (817) 289-1412

Notice:

This document is designed to help you use your automotive lift safely. This document may not cover all possible scenarios so users are encouraged to take all appropriate precautions to avoid injury or property damage.

For more safety information please see the OSHA Safety and Health Standards 29 CFR1910, ANSI/ALI ALCTV-1998 and ANSI Z244.1. You can also find information on their web site at: www.osha.gov.

Please note that these standards apply only to use of lifts in the United States, Anyone operating these lifts outside the US needs to consult their own government standards organization.

Rev B 4/16

About this Document

Whip Industries has provided this document to help you use your automobile lift safely. In this case, safely means without injury to you or damage to the automobile.

If you operate an automotive lift on the job, or manage a shop where one is used this document is for you! We'll cover types of lifts, general lift use and safety tips to keep you, your employees, and your lift equipment in top shape.

Revised: April 2002

Table of Contents

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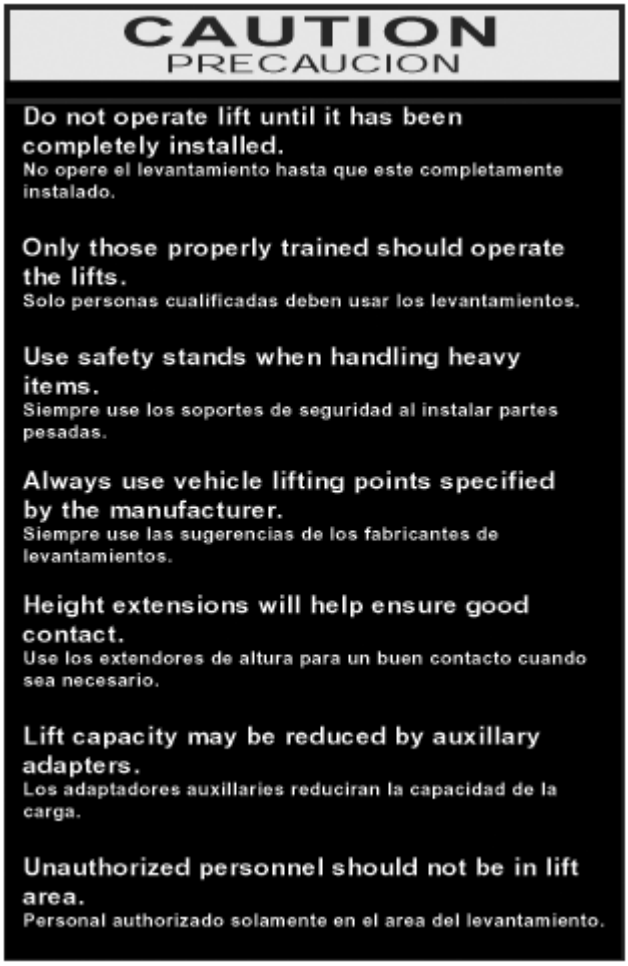
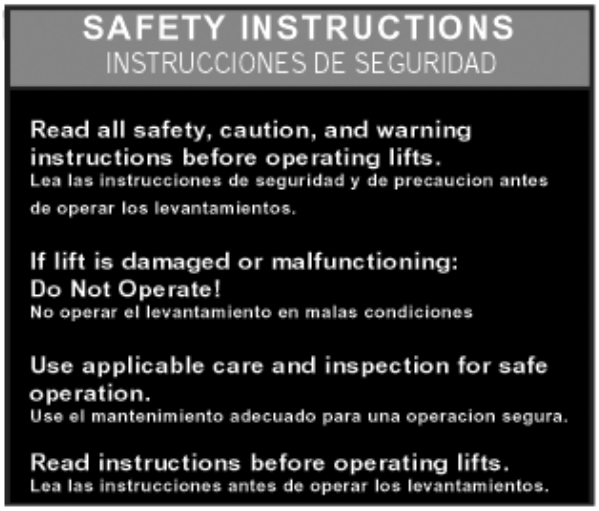
The Signs of Safety

Labels convey very important messages in simple, straightforward ways. You should receive a complete set of Safety, Caution and Warning labels with your new lift. Be sure to adhere the appropriate labels to the lift itself and place any placards in easy sight of the lift. Review the information on your labels often. You can contact your manufacturer for more labels if replacements are needed.

Caution, Safety, and Warning Stickers





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How to Lift & Lower

Pre Lift

Make sure that you and your employees are fully trained on the operation of your lift. The lift is a complex tool that should be respected for it's potential danger. Don't "rig" your lift if it is not working properly. If something is wrong just don't use it until a repair is made. Remember that your lift was built to lift vehicles only and not used for any other purpose. A lift is not a toy to be ridden or hung on for fun. Using it for anything other than a vehicle can cause wear that was not anticipated by the manufacturer and can lead to costly repairs later.

Keep all non- employees out of the lift area. There is no reason to have unauthorized and untrained people in the lift area especially when it is in operation. Consider this area a danger zone and treat it accordingly.

Check the area for obstacles or debris before driving a vehicle onto the lift. Hoses, tools, oil and trash should be removed before lift use.

The Load

Do not overload your lift. The rated load capacity for your lift should appear on the lift itself. Contact your manufacturer for a replacement if required. Make sure the lift is all the way down before trying to load and all lift parts are clear of the vehicle's tires. Running over a lift arm may damage the car as well as the lift.	**Capacity in Lbs.** **6,000**

Spotting

The most important thing about spotting the vehicle is finding its center of gravity. This is the point between the front and rear where the weight of the vehicle is evenly distributed. Many factors can affect the exact location on a given vehicle. These include the wheelbase, drive train location, cargo and general weight distribution.

Here is a good rule of thumb:

Passenger Car Type	Location of center of gravity
FWD or Front Wheel Drive	Just in front of the driver's seat
RWD or Rear Wheel Drive	Just below the driver's seat

Frame-engaging Lifts

A frame-engaging lift uses the vehicle's frame to lift it. This type of lift has many components that need to be inspected and cared for to ensure that the lift will work properly.

Lift Points and Extenders

Always consult the manufacturer's information on lift points for the vehicle. Make sure the contact pads are in the correct position per this information as well. Also make sure these points on the vehicle are in good condition without rust, dirt or other damage. Do not lift a vehicle if this damage exists. You may also need lift adapters at each point to protect the

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undercoating. Damage of the undercoat at these points can lead to rust damage later and may void the owner's rustproofing warranty.
Extenders may be required for vehicles like vans and pickup trucks. If you need them use extenders from the manufacturer and do not substitute blocks, wood or other homemade shortcuts.

Contact Pads

The frame-engaging type lift uses contact pads that swivel or drop in place at the end of each lift arm. The pads may be adjusted by screwing in or out to the proper height. It is important to make sure they are placed evenly to avoid making the vehicle unstable. Keep your pads clean and in working condition with proper maintenance. If you see cracking or any damage on the pads do not attempt to operate the lift and have the lift serviced before any other use.

Asymmetrical Lift Arms

A lift with different arm lengths in the front and back is an asymmetrical lift. Always follow the manufacturer's instructions when using these lifts.

Spotting

When using any frame- engaging lift the spot points will vary depending on the type of vehicle. The manufacturer of your lift will provide you vehicle spotting specifications so always check this information before you lift. Once lifted, do not move the vehicle forward or back for any reason as this will cause you to loose the center of gravity and the vehicle can fall.

A few standard tips are:

- Using a two post drive through surface mounted lift always put the center of gravity between the two posts
- Using a two post drive through surface mounted lift always center your vehicle from side to side.

Drive-On Lifts

A drive-on or runway lift will lift the vehicle by its tires instead of its frame. Make sure the tires are the same distance from the ramp edges on each side to make sure the vehicle is stable. Check your manufacturer's specifications when lifting a truck with dual wheels. You may be able to engage the inside tires and keep the truck perfectly stable but always check the specs before you lift.

Spotting

When using any frame- engaging lift the spot points will vary depending on the application.

A few standard tips are:

- Using a two post drive through surface mounted lift, always put the center of gravity between the two posts
- Using a four post lift put the center of gravity at the runway midpoint.
- Using a wheel alignment runway put the front wheels on the swivel plates and the rear wheel on the slip plate, if any.

Avoiding Roll Offs

Make sure to chock the vehicle on the drive-on lift in same fashion. Most drive-on or runway lifts come with some type of roll off protection. Often the ramps lock into place to be used as chocks. If not, use manual chocks sent by the manufacturer instead of bricks or wood blocks.

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Free-Wheeling Jacks

There are air or hydraulic jacks that may be used to lift the vehicle off the runways of a drive-on lift. Be sure the jack is lowered all the way before driving onto the ramps. As with any lift, check the center of gravity so you know the vehicle is stable. Make sure any contact areas between the jack and lift are clean and damage free. Consult the vehicle's manufacturer's info for the appropriate lifting points for that vehicle.

Lifting

1. When you are sure the vehicle is stable and spotted correctly you may now operate the lift.

2. Stop and check the contact points when the lift and the vehicle initially meet. Look at the each point to make sure the supports are contacting the correct lifting points.

3. Lift about a foot and check the vehicle for stability. This can be done easily by pushing one of the bumpers. Look at the contact points again and make sure nothing has slipped before completing the lift. Avoid uneven surfaces as contact points since they tend to slip easily.

4. If any contact has slipped or appears unstable lower the lift, reposition the supports, and start again

5. If the vehicle is secure, lift it up to the height you need to do the work.

6. Look at the contact points one more time to be sure all is well before you start. Be sure the lift is locked and lower the vehicle immediately if the lock doesn't work. If the lift does not have locks put 4 jack stands under the frame.

Always use 4 jack stands to support the vehicle when using the movable type wheel engaging lifts. Make sure these stands can support 2 times the weight capacity of the lift. Vehicles with air bag suspensions should not be supported on stands alone. Use lifts and four jack stands any time you must lift one of these vehicles.

Don't remove or override the safety features of the lift. These were placed there for your protection so make sure they are in working order.

Stability

Once the vehicle is lifted make sure it is stable enough for you to do the work safely. Many things can cause a dangerous shift to occur.

Possible Cause	To Avoid
Using a cheater bars to loosen fasteners	Use an impact wrench instead
Energy released by springs or loaded bolts	Use caution and pay attention to the vehicle's center of gravity
An unequal load like a truck with cargo	Use four jack stands to support and do not lift if the cargo is unstable and likely to shift
Removing large components like rear axles and differentials, transmissions, engines, and body, frame or suspension components. Removing any item of great weight can change the center of gravity drastically.	Use four jack stands if you need to remove any of these major components. Also check the vehicle manufacturer's information for the recommended process for component removal. Do not use engine or transmission supports instead of jack stands.

Any time you are using jack stands be sure the supports are secure and do not try to lower the vehicle onto the stands.

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In Case a Vehicle Falls

Once it is lifted, pay attention to the vehicle at all times. If it begins to fall get out of the way as quickly as possible. Remember to warn others in the area and do not try to catch the vehicle. When escaping a falling vehicle get as far away as possible but make sure you are not in a position to be pinned against a wall or rack. No one enjoys damaging property but injury to yourself or your employees would be far worse.

Lowering

Make sure the area beneath the vehicle is clear before lowering it. Check carefully for jacks, tools, or anything else you have used while working on the vehicle. If using a scissors lift stray tools can get caught damaging the lift and causing a possible projectile danger.

Make sure no one is in the area when you lower the vehicle. It is best to have the area clear of people when operating the lift. While the lift is in motion the lift operator must control it. Be sure the lift is not blocked open by any debris. Also, don't override the self-closing features of the lift controls. For wheel-engaging lifts, make sure to lower each lift at the same pace.

Before pulling the vehicle off the lift, make sure it is all the way down and all the arms and pads are out of the way. Running over lift parts will damage the lift and possibly the vehicle. Remove any frame contact extenders before you move the vehicle as well.

Your Lift as A Tool

Your lift is a tool you designed to help you do your work easier. Treat it like any tool you rely upon and take care of it. Learn the limitations of your lift as you might any tool. Your lift must function properly to be useful to you. If your lift has been damaged or may be malfunctioning, have it serviced before you use it again. Use qualified service people and parts to make any needed repairs.

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There are several parts of your lift that may require maintenance. Here is a quick key to some of them:

Component	Maintenance Requires
Telescoping lift arms Used mostly on two post surface-mounted lifts.	▪ Lubricate the swivel points ▪ Check all adapters and extenders before using the lift ▪ Check over-travel stops for wear ▪ Look for breaks or stress cracks in welds and castings ▪ Inspect arms for permanent bending- Do not rebend or reweld ▪ Replace worn or defective parts with original equipment
Chains & Cables Used mainly on frame contact lifts, they adjust for different vehicles. To maintain the arms:	▪ Lubricate chains and cables ▪ Check for wear and stretch ▪ Look at end connections for wear, hole elongation, deformation, corrosion or fatigue ▪ Check slack sensors ▪ Check pulley and sprockets for damage or wear. Keep lubricated so they roll freely ▪ Inspect cables sheaths and coatings for wear ▪ Watch for rust ▪ Keep salt, sand, water, dirt etc. away from all lift parts ▪ Replace any damaged parts using qualified service people **Replace chain if:** ▪ They are rusted, bent, deformed or broken ▪ The end connectors have damage or wear ▪ They are contaminated with foreign materials ▪ There is an increase in slack ▪ You see excessive wear on links, pins, guides or side of sprockets **Replace cables if:** ▪ Any wires are crushed, bent, cut or broken ▪ There is an increase of slack ▪ End connectors are damaged or worn ▪ The cables comes apart or un-stranded ▪ They are contaminated with foreign materials ▪ The cable is kinked, deformed, corroded or excessively worn ▪ The cable diameter is reduced
Load bearing components	Check and lubricate load bearings, rollers and side blocks per the manufacturer's instructions. Look there also for info on care of your floor bolts as well.
Surface mounted systems These systems can be electrically powered hydraulic cylinders.	▪ Have a qualified service man replace any parts. ▪ Check hydraulic oil levels. ▪ Don't exceed the lifts load capacity. If this information should appear on the lift's nameplate. Replace the nameplate if it is missing. ▪ Don't block or override the self-closing feature of the lift controls.

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Lift Types

Surface Mounted

One of the most commonly seen lifts is the surface mounted lift. Surface-mounted lifts are bolted to the floor and powered by an electric motor. The motor runs either a screw drive or a hydraulic pump and cylinders. The drive and synchronization systems can be located across the floor or overhead.

Two Post Lifts

Pictured below is a typical two-post drive through frame engaging lift with asymmetric arms. A hydraulic pump with lines internal to the lift powers this particular model. The power unit may also positioned on either side of the lift.

The lift arms ride up each column and may be synchronized:

- Hydraulically
- Electronically using synchronized motors
- Mechanically with steel roller chains or cables

Lifting power comes from the hydraulic pump and cylinders often using cable systems or leaf chains. Rotating screw pillars lift the arms of the screw type lift.

Low Rise Lifts

The Low Rise or Short Rise lift is another common surface mounted lift. Compressed air or an electric hydraulic power unit powers this drive on lift. Commonly used for brake, tire and body work, these lifts usually engage the vehicle frame.

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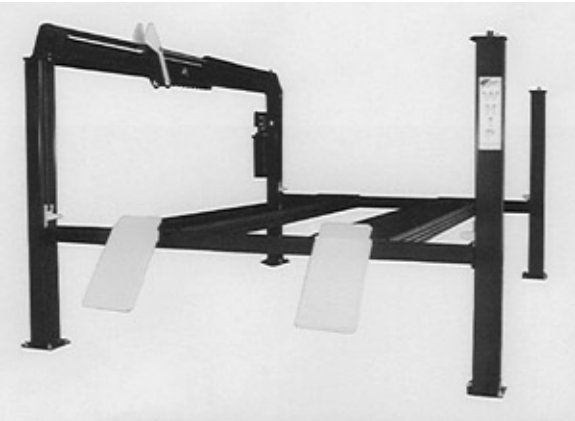
Four Post Lifts



The four post surface mounted lift is most often used for oil changes, muffler and transmission work and wheel alignment. The vehicle is driven up the ramps and lifted so work can be done beneath it.

Scissors Lift

This lift may be either a drive-on or frame engaging lift. Unlike a parallelogram-style lift, this one raises and lowers the vehicle straight up and down without a shift either forward or backward.

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The Human Factor

Personal Safety

Heavy Lifting

Make sure you know how to lift heavy object so you do not injure your back. If an object is too heavy for one person to lift stop and get more people to help. The more people the better the weight is distributed between them. Lift using your leg muscles instead of those in your arms or back. Carry the object in the area between your shoulders and waist and keep the weight as close to you as possible. Do not snap or jerk the weight but lift it smoothly. If the weight is on the floor lift from a bent knee position and do not be afraid to set the object on a table or bench mid way up. Before you pick up the object make sure you have a clear path to your destination and the floor is not slippery or slick. For long objects carrying on your shoulder is fine as long as you are aware of your height clearance before you start. The bottom line is don't take chances with your safety.

Gear

Simple gear like safety glasses, shoes, caps, gloves, and earmuffs can help you avoid many accidents in your shop. Safety glasses can keep your eyes clear of anything that may come from the vehicle above you. Non-slip shoes can help you keep you footing while working around various liquids that may be on the floor. The cap will keep you from hitting your head on protruding parts of the car as you work underneath it and gloves protect your hands from heat, sharp objects, and caustic liquids. Earmuffs will protect your ears from noise damage that might be produced by tools like air chisels.

Hazardous Chemicals

Working around autos and other complex mechanical devices can also expose you to some very dangerous substances. Hazardous chemicals must be clearly labeled and information sheets on each must be maintained. The OSHA Hazard Communication Standard explains in depth the training and information required on working with or just around hazardous chemicals. You should know how to handle and identify these chemicals as well as any health risks associated with working their use. Make sure this information is available to all your shop employees.

Accidents

You and your employees are, after all, only human. People make mistakes and get hurt but you can minimize these accidents by paying attention and having safety in mind. Are there hoses strewn about that anyone could trip over? Are people trained in use of protective gear? Is there a plan for how to deal with burns, sprains or abrasions that happen on the job? Are emergency phone numbers posted someplace accessible? A First Aid kit is only useful if everyone knows where it is located and that it is kept well stocked. Thinking through these scenarios before you need them can be a life saver-literally!

Your Lift Site

If you are having a lift installed, use someone you trust and can communicate with freely. Check the installer's references or talk to other shops around you to see whom they use. Just as word of mouth can help you find a good installer it can save you dealing with an inferior one as well.

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Spaces and Floors

Before your lift is installed there are several factors you need to think about. Carefully review the specifications for the lift and make sure the lift and its load will be clear of any obstructions. Pay particular attention to the space above the lift. Within a shop this means things like ceilings, lamps, overhead doors, beams, ductwork, pipes or other structures that might get in the way of a vehicle at the top the lift.

Consider also the space beneath your lift. What is the quality of your floor? Pay attention to the manufactures' instructions on the anchor bolts, floor thickness and concrete strength to make sure you comply from the start.

If your shop contains several lifts be sure you have enough workspace around each one for your employees workstation. Also make sure the lift controls are labeled clearly so there can be no confusion about which controls go to which actual lift.

The bottom line here is pay attention to the lift site before and after the install. Plan for the space issues beforehand and check for cracks or leaks afterwards. Keeping a close eye out can help you spot the small things that can be big trouble later.

The Last Word

The Basics

As soon as you say, "That won't happen to me" it usually does. The best way to make sure trouble doesn't find you is to remember the basics.

Take care of your lift as you would any other tool you use. Spotting possible trouble can save you much time and expense. Make sure you maintain, inspect and repair your lift so it will be in tip-top shape. The better you care for your tools the better they care for you.

Know how to use your lift before you begin. Make sure you and your employees have spent enough time training before you start using your lift. You wouldn't want a mechanic working on your automobile if he only had a vague idea of how it worked. The time you take now could save you more time and money later.

Use basic safety around your lift. Remember that the lift may be holding tons of metal right over your shop and your employees. Respect that danger and don't play games near the lift.

Operation Safety Requirements "OSR"

Here is a list of Operation Safety Requirements that you can reference, to ensure a safe lift workplace for yourself or fellow employees:

1. Proper training is required of the operator prior to operating lift. Proper positioning of the support points onto the lifting points of the vehicle is mandatory. Never operate the lift with out proper training.
2. As true on most equipment, electric switches and hydraulic valve controls on vehicle lift are designed in a "dead man mode". Releasing the controls will cause operations to cease. Never override controls by tying the controls in place or rerouting wire.
3. Vehicle lift should be inspected daily, and maintained in accordance with the manufacture's recommended procedures. If a malfunction occurs discontinue use of the equipment immediately. Misplaced accessories and spare parts are available from the manufacturer.

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4. Prior to positioning vehicle into the lifting area, ensure that lifting arms have been pulled back to their full drive thru dimension. Confirm that the area is clear of any foreign obstacles, lubricants, refuse, tools or mobile equipment. Damage to the automobile or lift will likely occur if the automobile comes into contact with any portion of the lift or foreign object.
5. The manufactures' recommended lifting locations allow for the proper positioning of the center of gravity of the specific vehicle. Never remove or add anything from a vehicle that may cause a drastic relocation of the center of gravity. It is possible that a change in the center of gravity could create a hazardous situation. Check with the vehicle manufacturer for specific information.
6. Lift is never to be overloaded. Rated lift capacity is posted to the lift. When lifting trucks or service vehicles be certain that the total weight of the vehicle and any cargo. Do not exceed the rate capacity.
7. Prior to raising the vehicle, confirm that the vehicle is not occupied. Check the area immediately surrounding the lift for unauthorized personnel and have them vacate the area prior to operation.
8. Exercise caution when placing the lifting arms or support brackets against the vehicle frame. Follow the vehicle manufactures' recommendations for the proper contact locations on the frame. After initial contact with the vehicle, walk around the vehicle and check all points of contact prior to raising the vehicle off the floor. Never place any part of your body underneath the lift until the lift has been raised to the minimum locking height and you have engaged the safety locks. No one should ever work underneath the lift at any time without the lift in the fully locked position.
9. When preparing to remove the vehicle from the lift, check again for unauthorized personnel or items that may have been left under the lift. Follow the manufactures' instructions for releasing any locking devises.
10. Before final drive away, return lifting arms back to their full drive thru dimension. Clear drive path of any obstruction and be aware of any unauthorized personnel that may step into the vehicle path.

Note: "OSR" should always be kept in mind when lift operators are around lift areas or operating lifts.

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