WARRANTY REGISTRATION

Model	LA-WFP50R
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.

WFP50R-SS, WFP50R-S, WFP50R & WFP50R-E

SUPER-SHORT, SHORT, STD. & EXT.

50,000 LBS CAPACITY

FOUR POST ABOVE GROUND LIFT

INSTALLATION INSTRUCTIONS & MANUAL

WHIP INDUSTRIES, INC
3010 S MAIN ST.
FORT WORTH, TEXAS 76110
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Rev. -

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IMPORTANT INFORMATION

1. The floor where the lift is to be installed must be a minimum of 5" 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.

2. Read the installation manual before installing the lift.

3. The four different size lifts referenced in this manual are sized according to the Track lengths inside the Cross Rails. The different lifts are as follows:

   - Super Short Lift has a track length of 20'.
   - Short Lift has a track length of 25'.
   - Standard Lift has a track length of 30'.
   - Extended Lift has a track length of 35'.

4. This lift is a four post lift which requires a minimum (SUPER-SHORT) 26'-1" x 37'-4", (SHORT) 26'-1" x 42'-4" (STD.) 26'-1" x 47'-4" or (EXT.) 26'-1" x 52'-4" bay area.

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

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

7. Maximum floor variation between any two posts is 2 inches.

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.

RECOMMENDED OIL: HYDRUALIC MEDIUM OIL AW-32 OR EQUIVALENT.

TOOLS REQUIRED

Concrete rotary hammer drill with ¾" carbide bit

Open End Wrenches: 7/16", 1/2", 9/16", 3/4", 15/16", 1 1/8", 1 11/16" & 1 7/8"

Ratchet Driver

Sockets: ¼", 1/2", 3/4", 15/16", 1 1/8", 1 11/16" Deep Socket X 1/2"

Allen Wrenches: 3/16", 1/4" & 5/16"

8" and 15" Crescent Wrench

Phillip and Slotted Screw Driver

Hammer

Needle Nose Pliers

Retainer Ring Pliers

Electrical Pliers

Level

50' Tape Measure

Chalk Line

Small Drift Punch

30" Pry Bar

Nylon Lifting Sling

Step Ladder

21 gallons of hydraulic medium oil AW-32 or equivalent

¼" Pneumatic Hose

4 x 4 Wood Blocks

#19 Steel Drill (0.166 Dia.)

ANCHORING TIPS

1. Anchor must be at least 5” 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 1/2” 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.

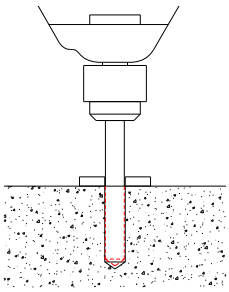


FIG. #1

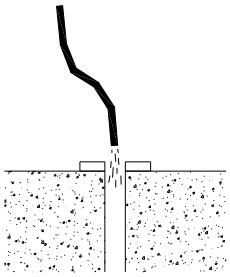


FIG. #2

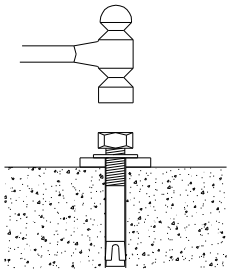


FIG. #3

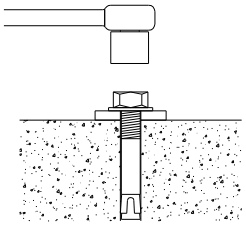


FIG. #4

INSTALLATION INSTRUCTIONS

1. Determine the location for the lift. Keep in mind overhead clearances. Sixteen feet is the minimum recommended ceiling height. A higher ceiling may be required depending the height of the vehicles. Standard dimension required for four post lift is a minimum (SUPER-SHORT) 26'-1" x 37'-4", (SHORT) 26'-1" x 42'-4", (STD.) 26'-1" x 47'-4" or (EXT.) 26'-1" x 52'-4" bay area.

2. Unpacking lift, inspect lift for any damages due to transportation and check shipping list for missing parts.

3. Determine which side of the lift the Control Console is to be installed. This is called the MAINSIDE. The other side is referred to as the OFFSIDE. Ease of entry and exit from vehicles, type of work being done and required placement of the console to the lift are all considerations.

4. Step #1 Using the chalk line layout a rectangle were the leg assemblies will be located (SUPER-SHORT) 17'-1 1/4" x 23'-5 ¾", (SHORT) 17'-1 1/4" x 28'-5 3/4", (STD.) 17'-1 1/4" x 33'-5 3/4" or (EXT.) 17'-1 1/4" x 38'-5 3/4" bay area (see Layout & Installation Specification sheet). This should give the lift 4" clearance in front of the ramps and 7'-6 1/4" from the side of the any leg.

5. Step #2 After determining the Mainside, stand the two Mainside Legs upright inside the chalk lines, with each leg facing inside. The two legs comes with two holes in the bottom of the legs they should be facing the Control Console. (See Fig. #1 Layout Drawing and Fig. #2.) Next level and anchor the Mainside Legs per the anchor tips shown above.

6. Step #3 Unpack the inside of the leg by removing the wood blocks and chain straps. Next run the hydraulic hose and ¼ airline tube thru the two holes with rubber grommets in the legs. Do both legs the same way.

7. Step #4 Locate the LH and RH Cross Rails. Position the Cross Rail about 12" to 18" from the Mainside Leg as shown in Fig. #2 and Fig. #10. Mainside end of the Cross Rail in front of the Mainside Leg. Set each Cross Rail on two 4 x 4 blocks of wood. Next connect the Cross Rail chains to the chain connector located at the base of the Mainside Leg. There are two 2 ½" long dowel pins and one 3" long dowel pin inside the chain connector held in place by dowel pin holders (See Fig. #2 & Fig. #13). Remove the holders and slide the pins out. Connect the center chain first using the 3" dowel pin then the outer chains using the 2 ½" dowel pins. Then bolt the RH/LH dowel pin holders on the connector. Repeat procedure the other Mainside Leg.

8. Step #5 Slide the Cross Rail towards the Mainside Leg (See Fig. #3 & Fig. #10B). The Cross Rail tube should be flush with the front part of the latch bar on the leg weldment. Next connect the cylinder chain to the Cross Rail chain connector. There should be two 4" long dowel pins in Cross Rail chain connector. Remove the holders and slide the pins out. First connect the outside chain then the center chain. Then bolt

the RH/LH dowel pin holders on the connector to secure the dowel pins. Repeat procedure the other Mainside Leg.

9. Step #6 Move the Offside Legs in front of the Offside end of the Cross Rail (See Fig. #4, Fig. #10A). The end of the Cross Rail should be flush with the base plate of the leg weldment. Next **remove one at a time** the safety latch pin keepers and replace it with the safety rods. Next slide the Offside Leg into position. Look at your chalk line layout. Once the leg is in position, pull the two safety rods thru the two holes. The rods should stick out about 2" past the top plate (See Fig. #12). Screw and tighten the 1 ¼" Lock Washer and 1 ¼-7UNC Hex Nut. Repeat procedure the other Offside Leg. Note the rectangular tube of the Cross Rail should be flush with the edge of the latch bar welded on the Offside Leg.

10. Step #7 Locate the six round threaded chain connectors, 3/8" shoulder bolt and 5/16-18UNC Nylon Hex Nut (See Fig. # 5 & Fig. #12). Attach the chain connector to the chain and pull each thru the three holes on the top plate. Use vice grip pliers to hold the bottom of the chain connector in place and a deep 1 11/16" **deep socket** to tighten the jam nut. There should be about 1 ½" worth of threads past the first jam nut. May have to adjust the chain connector depending on how level the lift is from side to side with weight on the lift. Repeat procedure the other Offside Leg.

11. Step #8 Level and anchor the both Offside Leg. Anchor the Offside per the anchor tips shown above.

12. Step #9 Locate and attach the rub block bracket as shown in Fig. #6. The rub block brackets are also shown in Fig. #10, #10A & #10B. Raise Cross Rail about 24", this makes it easier to attach the brackets to Cross Rails. Mainside Leg uses the Single Rub Block Bracket. The Offside Leg uses the Double Rub Block Bracket. Slide the brackets in from the bottom and attach them using the 5/8 bolts, 5/8 lock washers and the 5/8 flat washers.

13. Step #10 Locate and position the two Tracks in between the Cross Rail (See Fig. #1, Fig. #7 & Fig. #11). Both jack rails on each Track should be facing each other. The Track should be centered on the Cross Rail and should have a spacing of 3'-0" to 4'-10" depending on the customer's preference.

14. Step #11 Locate and position the two Ramps at the end of the Tracks (See Fig. #1, Fig. #7 & Fig. #11). The Ramps can be placed on either end. The spacing between the end of the Track plate and the Ramp should be about 3/8". Next anchor Ramps using the ½ anchor bolts.

15. Step #12 Locate and position the two Stops at the end of the Tracks (See Fig. #1, Fig. #7 & Fig. #11). The Stops can also be placed on either end of the Tracks unless Ramps are already anchored. Use ¾ bolts, ¾ flat washers, ¾ lock washers and ¾ nuts to bolts Stops to the end plates of the Tracks.

16. Step #13 Locate and position the Control Console at centered between the two Mainside Legs and a minimum of 2'-0" from the outside of the base plate (See Fig.

#1). Remove Top Console cover and attach hydraulic hoses and pneumatic tube as shown in Fig.# 9.

17. Step #14 Next attach the 5/32" diameter coiled tube on the top tube connector in each Mainside Leg to the pneumatic cylinders on the Cross Rails.

18. Step #15 Locate and position the hydraulic hose protectors as shown in Fig. #6. Anchor protectors per anchor tips. Use 3/8 anchor bolts to secure hose protectors.

19. Step #16 Fill the power unit tank with AW-32 or equivalent hydraulic oil. Reservoir has a 20-gallon capacity.

20. Step #17 Wire motor starter and motor (See power unit manual for installation).

21. Step #18 Raise lift and level Cross Rails side to side by adjusting the Threaded Chain Connector on the Offside Legs. Cross Rails may have to re-adjust chain when load is on the lift.

22. Step #19 Purge trapped air in hydraulic lines by raising and lowering lift repeatedly. Refill tank with hydraulic oil and lift is ready to operate.

30 DAY MAINTENANCE

1) Check all bolts and nuts to make sure they are tight.

2) Check equalizer chains regularly for proper tension and adjustment.

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

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

5) Check locking latches and releases for proper operation.

6) During first week check and tighten anchor bolts daily and check concrete for stress cracks

TROUBLE SHOOTING GUIDE

POSSIBLE PROBLEM	POSSIBLE CAUSE & SOLUTIONS
1. MOTOR DOES NOT RUN	A) Breaker tripped or fuse blown B) Motor thermal overload tripped. Wait for overload to cool. C) Check thermal overload in starter box (three phase only). Push to reset. 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. Turn P/U on and push lowering handle down. Foreign matter should release under pressure. B) Remove check valve. Clean and replace. C) Oil level low: check oil reservoir. With tracks 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. Loosen hex nut on pump and adjust valve clockwise. B) Hydraulic seals damaged (call factory for instructions)
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.
6. LIFT RAISES UNEVENLY	A) Chain are not properly adjusted or tighten. B) Use lighter weight oil in the pump.

For other possible problems reference Power Unit Owners Manual

PARTS & SHIPPING LIST

PART NUMBER	DESCRIPTION	QTY.	
	Control Console	**1**	
2772-BLK	Rubber Grommet	4	
2404-06-06	3/8MJIC x 3/8MNPT Straight Adapter	2	
2404-08-08	1/2MJIC x 1/2MNPT Straight Adapter	2	
2404-08-12	1/2MJIC x 3/4MNPT Straight Adapter	1	
2405-06-04	3/8MJIC x 1/4FNPT Straight Adapter	2	
2406-12-08	3/4FJIC x 1/2MNPT Straight Adapter	1	
4272731	Hydraulic Pressure Gage	2	
47865K21	1/4NPT Brass Ball Valve	1	
5406-04P	1/4NPT Plug	1	
5485K22	1/4NPT Brass Nipple	1	
60115K39	F/L/R Air System	1	
6410-10-06	5/8MORB x 3/8FORB Straight Reducer	2	
6801-08-12	1/2MJIC x 3/4MORB 90 Deg. Adapter	4	
6803-08-08-12	1/2MJIC x 1/2MJIC x 3/4MORB Tee	1	
6804-06-06-06	3/8MJIC x 3/8MORB x 3/8MJIC Run Tee	2	
6804-06-08-06	3/8MJIC x 1/2MORB x 3/8MJIC Run Tee	1	
90126A030	5/16 SAE Flat Washer	10	
90272A148	#6-32 x ½ Pan Head Phillip Screw	6	
90272A247	#10-24UNC x 1 Pan Head Phillip Screw	9	
90272A546	¼-20UNC x 1 ½ Pan Head Phillip Screw	6	
90480A007	#6-32 Mach. Screw Nut	6	
90480A011	#10-24 Mach. Screw Nut	9	
91102A007	#6 Lock Washer	6	
91102A011	#10 Lock Washer	9	
91102A030	5/16 Lock Washer	10	
91102A031	3/8 Lock Washer	8	
91251A623	3/8-16UNC SHCS x 7/8 Lg.	4	
91309A624	3/8-16UNC HHCS x 1 Lg.	10	
91578A304	½-13UNC x 4 ½ Wedge Anchor w/nut & washer	2	HK
92865A581	5/16-18UNC HHCS x ¾ Lg.	10	
ALIF-440-106-XX	Top Panel Cover	1	
ALIF-440-112-XX	Bottom Panel Cover	1	
ALIF-440-113-XX	Control Panel	1	
ALIF-440-119	#10MORB x #6FORB w/0.188 Orifice	2	
A0-120-T3-J-S	Tandem Center Spool Valve	2	
DA15371-H	15 Hp Power Unit, 20 Gal Capacity	1	
K02	Pneumatic Control Valve	1	
PT24006BK	3/8 O.D. Black Tube	3 Ft.	
P23	50/50 Flow Divider	1	
SPB-4002-B	¼ ID x 1/4MNPT Push-On Branch Tee	1	
SPC-6002	3/8 ID x 1/4MNPT Push-On Straight	2	

Cross Rail Assy. 1/1

6498K43	1 1/16 Cyl. Clevis	4	
6498K72	¾" Pivot Bracket	4	
6498K337-3.00	1 1/16 Air Cylinder x 3.0 Stroke	4	
90126A035	5/8 Flat Washer	16	HK
90126A040	1 ¼ SAE Flat Washer	8	
90126A041	1 3/8 SAE Flat Washer	12	
91102A029	¼ Lock Washer	4	
91102A035	5/8 Lock Washer	16	HK
92865A537	¼-20UNC HHCS x ½" Lg.	4	
92865A798	5/8-11UNC HHCS x 1 ½ Lg.	16	HK
98381A683	7/16 Dowel Pin x 4" Lg.	4	
98410A139	1 ½ Ext. Retainer Ring	12	
98410A249	1 3/8 Ext. Retainer Ring	4	
ALIF-440-036L/R-X	MS Safety Latch Bar	1/1	
ALIF-440-037L/R-X	OS Safety Latch Bar	1/1	
ALIF-440-038-XX	Safety Latch Bracket	2	
ALIF-440-054-XX	Safety Latch Weldm't.	4	
ALIF-440-061	MS Cross Rail Pin	2	
ALIF-440-063	Safety Latch Pin	2	
ALIF-440-066	Safety Latch Pin	4	
ALIF-440-067	Chain Anchor Stud	6	PKG
ALIF-440-068	3-Chain Sheave	4	
ALIF-440-069	Safety Latch Plate	2	
ALIF-440-079-XX	Double Rub Block Bracket	4	PKG
ALIF-440-080-XX	Single Rub Block Bracket	4	PKG
ALIF-440-100	Safety Latch Spring, 1.968 OD x 0.225W x 8.00 Comp.	4	
ALIF-440-101	Safety Latch Spring, 0.687 OD x 0.105W x 7.25 Ext.	4	
ALIF-440-102	Cross Rail Chain	6	
ALIF-440-064	MS Chain Connector Pin	2	
ALIF-440-104L/R-X	LH/RH Dowel Pin Holder	4/4	
ALIF-460-026L-XX	LH Cross Rail Weldm't.	1	
ALIF-460-026R-XX	RH Cross Rail Weldm't.	1	
ALIF-460-055	CR Chain Connector	2	
CUHC10500ZTAP727E	#10-24 STS x ½" Lg.	16	
GL-09-057	Rub Block	12	
PT23003BK	5/32 O.D. Black Tube	31 Ft.	
SPE-25	5/32 ID Push-On Union Tee	2	
SPL-2501-B	5/32 ID x 1/8MNPT Push-On 90 Deg. Conn.	4	

LH/RH Mainside Leg Assy. 1/1

1U571	3/8NPT Breather Plug	2	
2404-06-08	3/8MJIC x 1/2MNPT Straight Adapter	2	
2772-BLK	Rubber Grommet	10	

28900-504-25	25 GPM Velocity Fuse	2	
5040K34	5/32 OD x 12"/96" Extendable Tube	2	
5406-08P	1/2NPT Plug	2	
91102A029	¼ Lock Washer	8	
91578A502	¾-10UNC x 7 Wedge Anchor w/nut & washer	12	HK
92865A537	¼-20UNC HHCS x ½" Lg.	8	
98381A683	7/16 Dowel Pin x 4" Lg.	4	
98381A634	3/8 Dowel Pin x 2 ½" Lg.	4	
98381A636	3/8 Dowel Pin x 3" Lg.	2	
98410A249	1 3/8 Ext. Retainer Ring	4	
AA8040001	8" Dia. Bore Cylinder	2	
ALIF-440-059	Cylinder Clevis Pin	4	
ALIF-440-075-XX	Cylinder Clevis	2	
ALIF-440-082-XX	Hose Protector Bracket	2	
ALIF-440-104L/R-X	LH/RH Dowel Pin Holder	4/4	
ALIF-460-015L/R-X	LH/RH Main Side Leg Weldm't.	1/1	
ALIF-460-081	4 3/4" Chain Sheave	12	
ALIF-460-103	Cylinder Chain	6	
CUHC10500ZTAP727E	#10-24 STS x ½" Lg.	4	
PT24004BK	1/4 O.D. Black Tube	56 Ft.	
SPL-2502-B	5/32 ID x 1/4MNPT Push-On 90 Deg. Conn.	2	
SPL-4002-B	1/4 ID x 1/4MNPT Push-On 90 Deg. Conn.	2	

Offside Leg Assy. 2

91102A040	1 ¼ Lock Washer	8	
91259A626	3/8 Shoulder Bolt x 1 1/4 Lg.	6	HK
91578A502	¾-10UNC x 7 Wedge Anchor w/nut & washer	12	HK
94846A558	1 1/8-12UNF Jam Nut Grd. 5	12	HK
95462A559	1 ¼-7UNC Hex Nut Grd. 5	8	
95615A160	5/16-18UNC Nylon Hex Nut Grd. 5	6	HK
ALIF-440-016-XX	Offside Leg Weldm't.	2	
ALIF-440-067	OS Threaded Chain Connector	6	PKG
ALIF-440-071	Safety Rod	4	

Track, Ramp & Stop Assy. 2/2/2

90126A036	¾ Flat Washer	16	
90473A237	¾-10UNC Hex Nut	8	
91102A036	¾ Lock Washer	8	
91247A847	¾-10UNC x 3 Lg. HHCS Grd. 5	8	
91578A304	½-13UNC x 4 ½ Wedge Anchor w/nut & washer	8	HK
ALIF-440-053-XX	Ramp Weldm't.	2	
ALIF-440-054-XX	Track Stop	2	PKG
ALIF-460-346-XX	S-SHORT-20' Track Weldm't.	2	
ALIF-460-046-XX	SHORT-25' Track Weldm't.	2	
ALIF-460-146-XX	STD.-30' Track Weldm't.	2	
ALIF-460-246-XX	EXT.-35' Track Weldm't.	2	

Misc. Parts

ALIF-440-096-XX	30’ Hose Protector Ext. Weldm’t.	2	
ALIF-440-097-XX	30’ & 35’ Hose Protector Weldm’t.	2	
ALIF-440-098-XX	25’ Hose Protector Weldm’t.	2	
ALIF-440-398-XX	20’ Hose Protector Weldm’t.	2	
91578A202	3/8-16UNC x 3 ½ Wedge Anchor w/nut & washer	14	HK
GL-09-056	1/16” Steel Shims	32	HK
GL-09-112	¼” Steel Shims	16	HK

Optional Parts

WAJ20	20K Air Roller Jack	1	PKG
WAJ25	25K Air Roller Jack	1	PKG

*** Note: All hardware unless specified is grade 2. All hardware is zinc coated unless specified. Parts with PKG at the end are packed on the lift and parts with HK at the end are packaged in a box and put on the lift.

50K 4-POST LIFTS

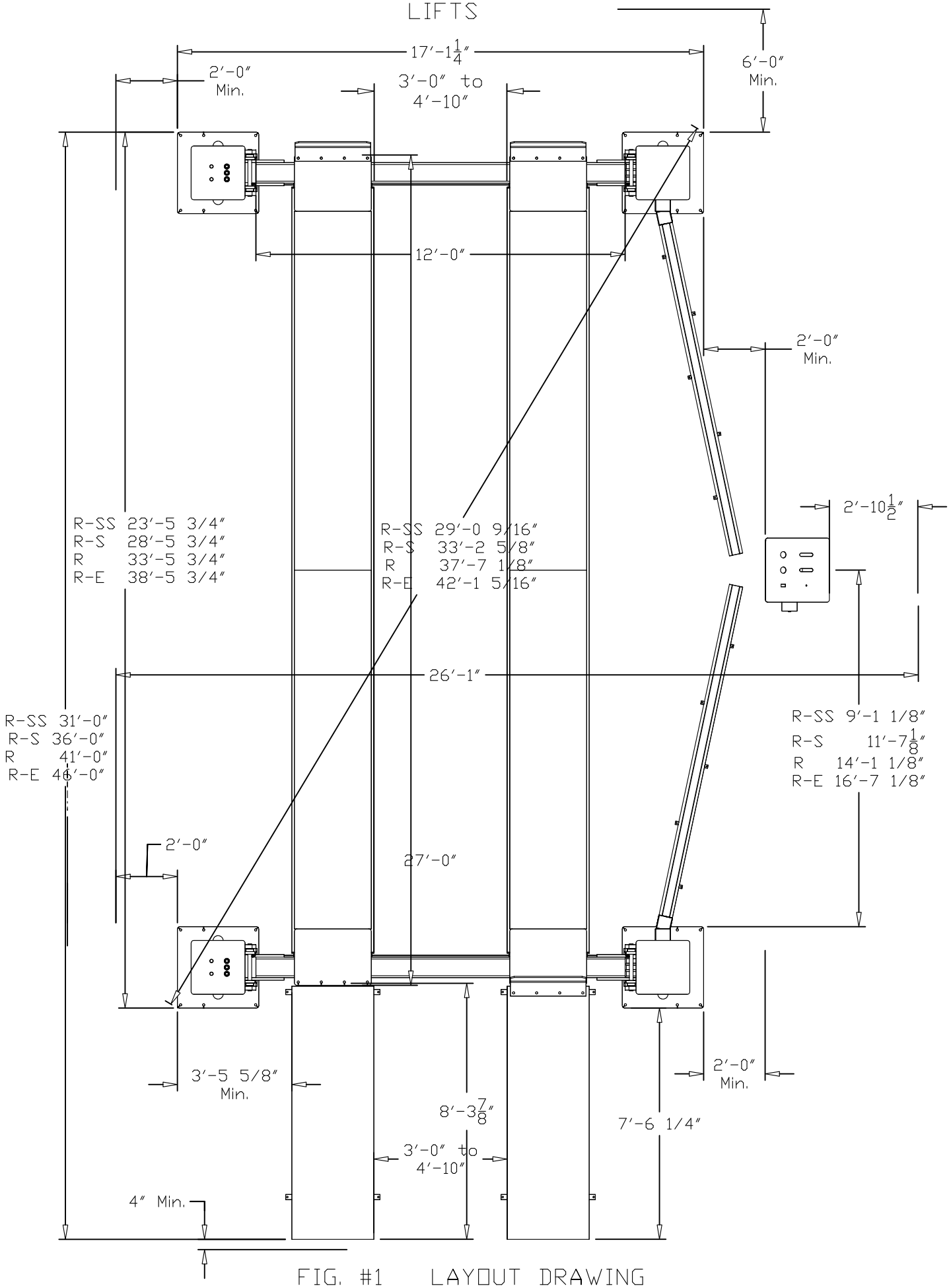


FIG. #1 LAYOUT DRAWING
20′, 25′, 30′ & 35′ LIFT

LIFT LAYOUT & ASSEMBLY

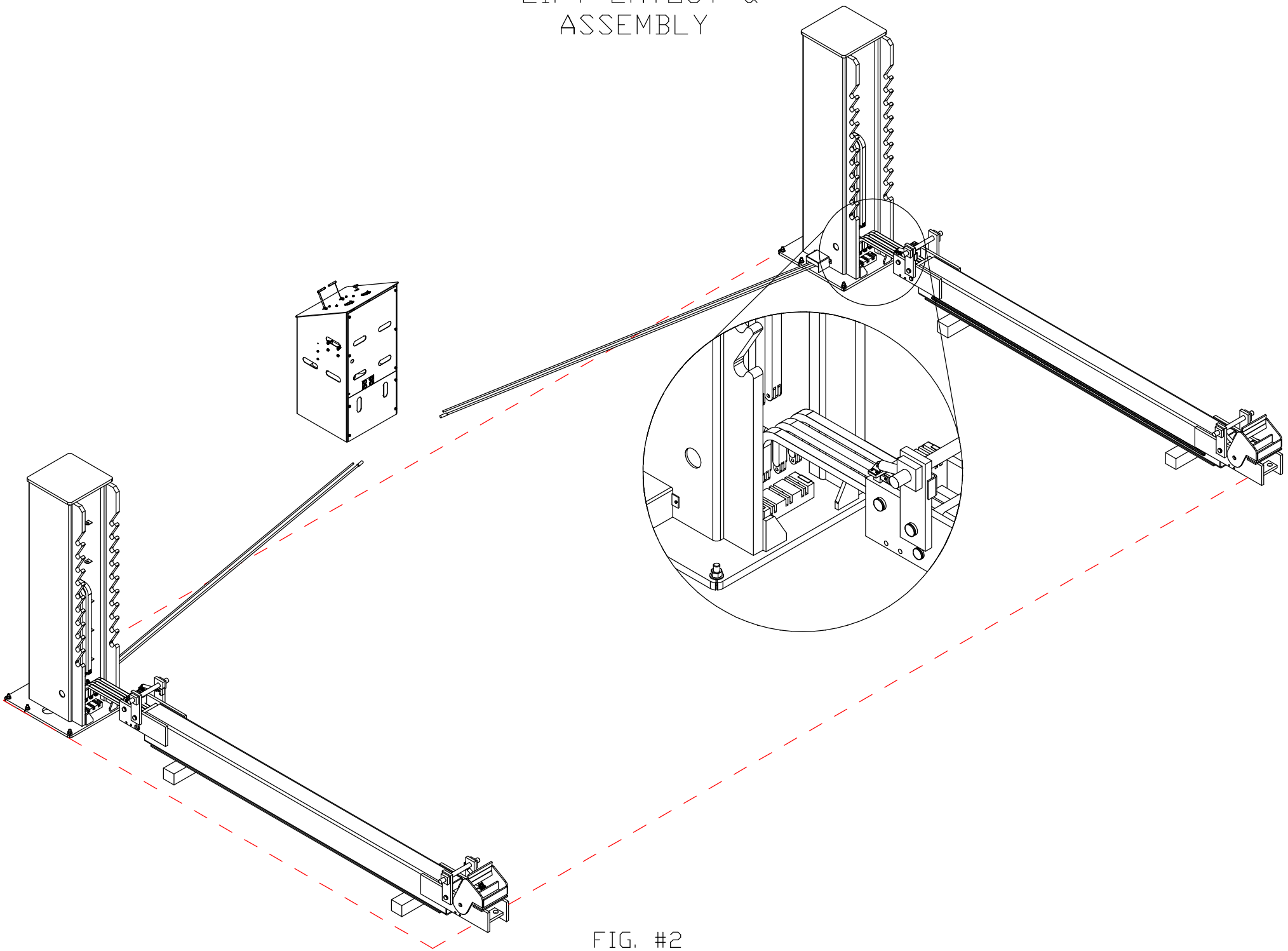


FIG. #2

MAINSIDE LEG & CROSS RAIL ASSEMBLY

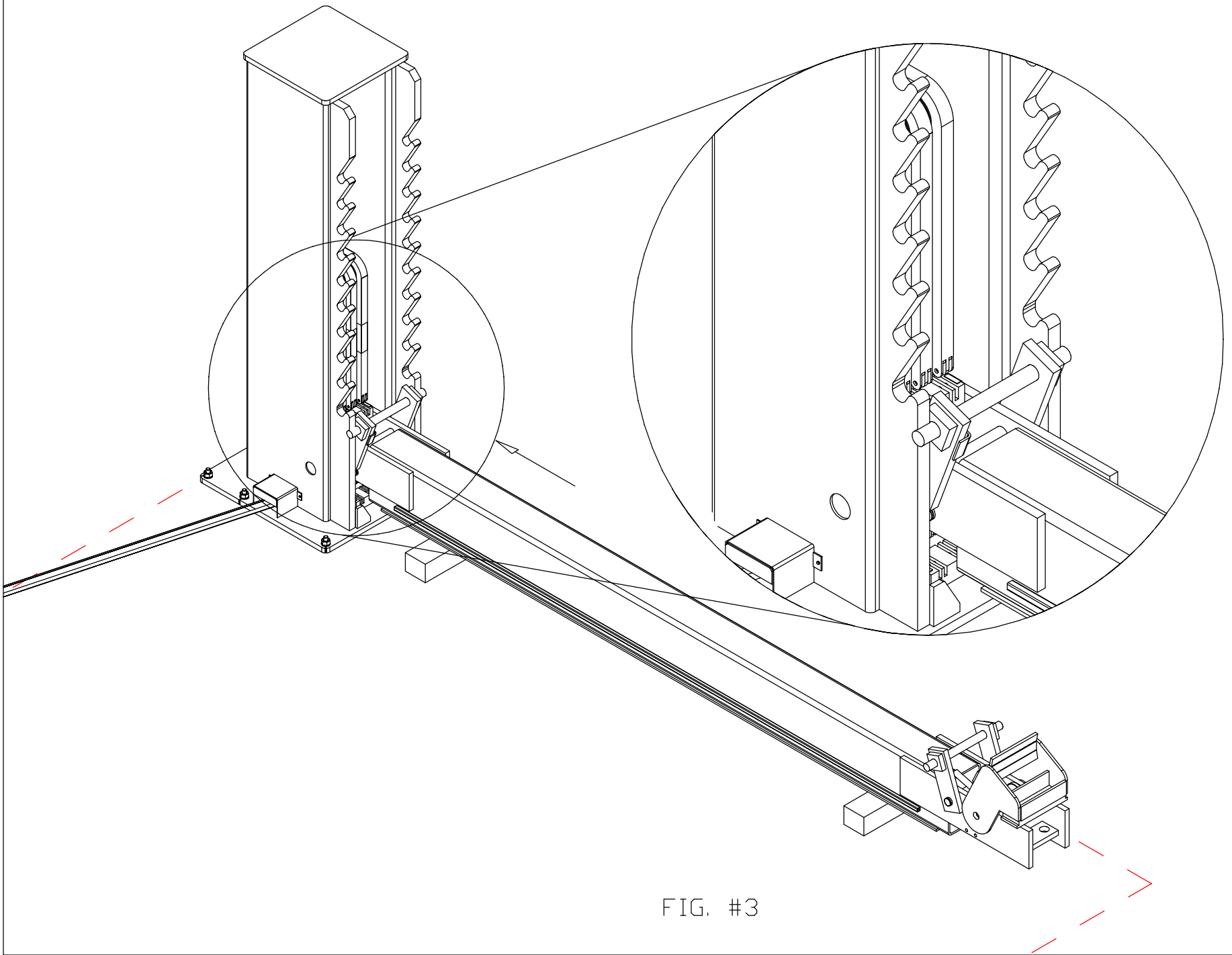


FIG. #3

MAINSIDE, CROSS RAIL AND OFFSIDE LEG ASSEMBLY

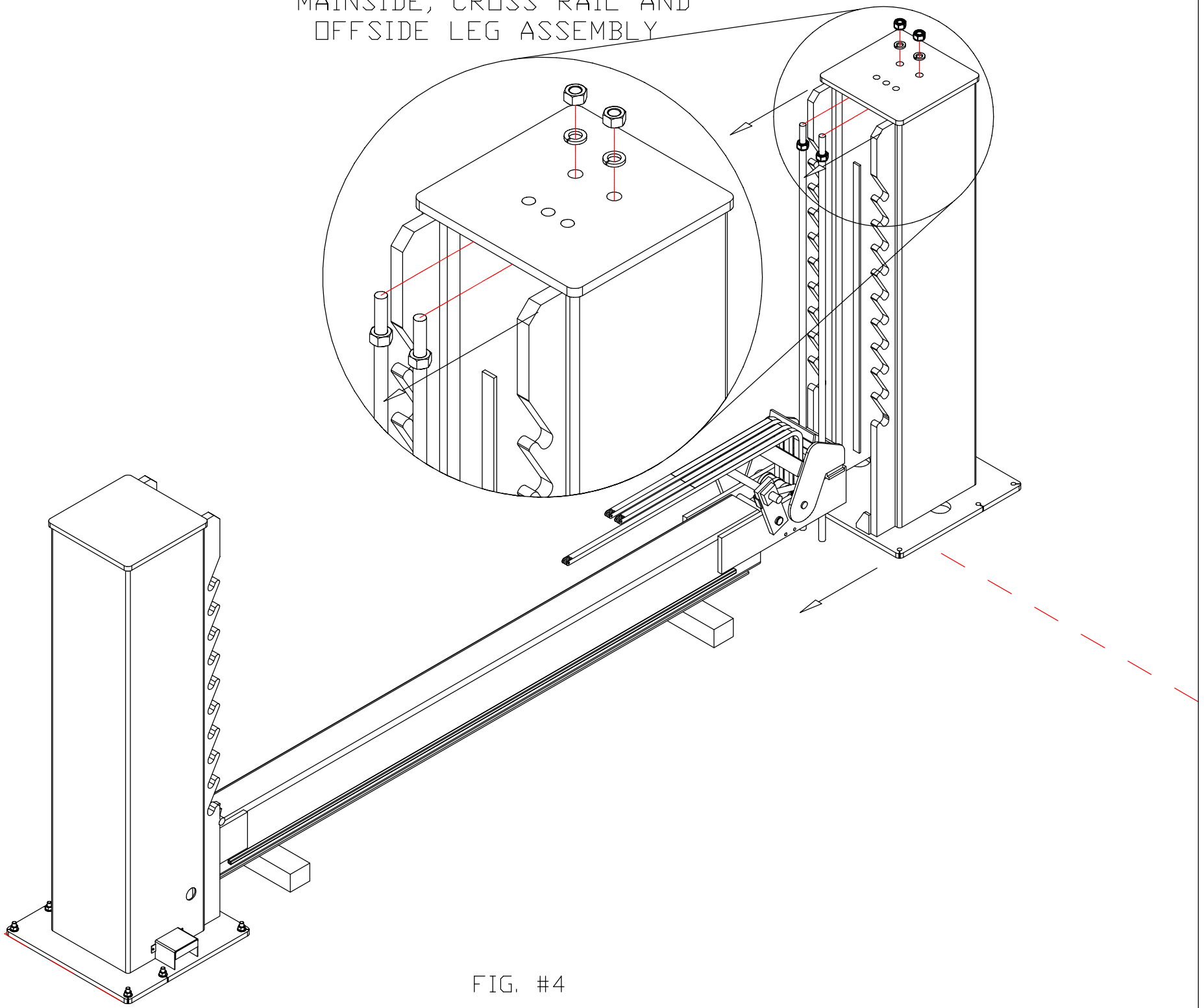


FIG. #4

MAINSIDE, CROSS RAIL AND
OFFSIDE LEG ASSEMBLY

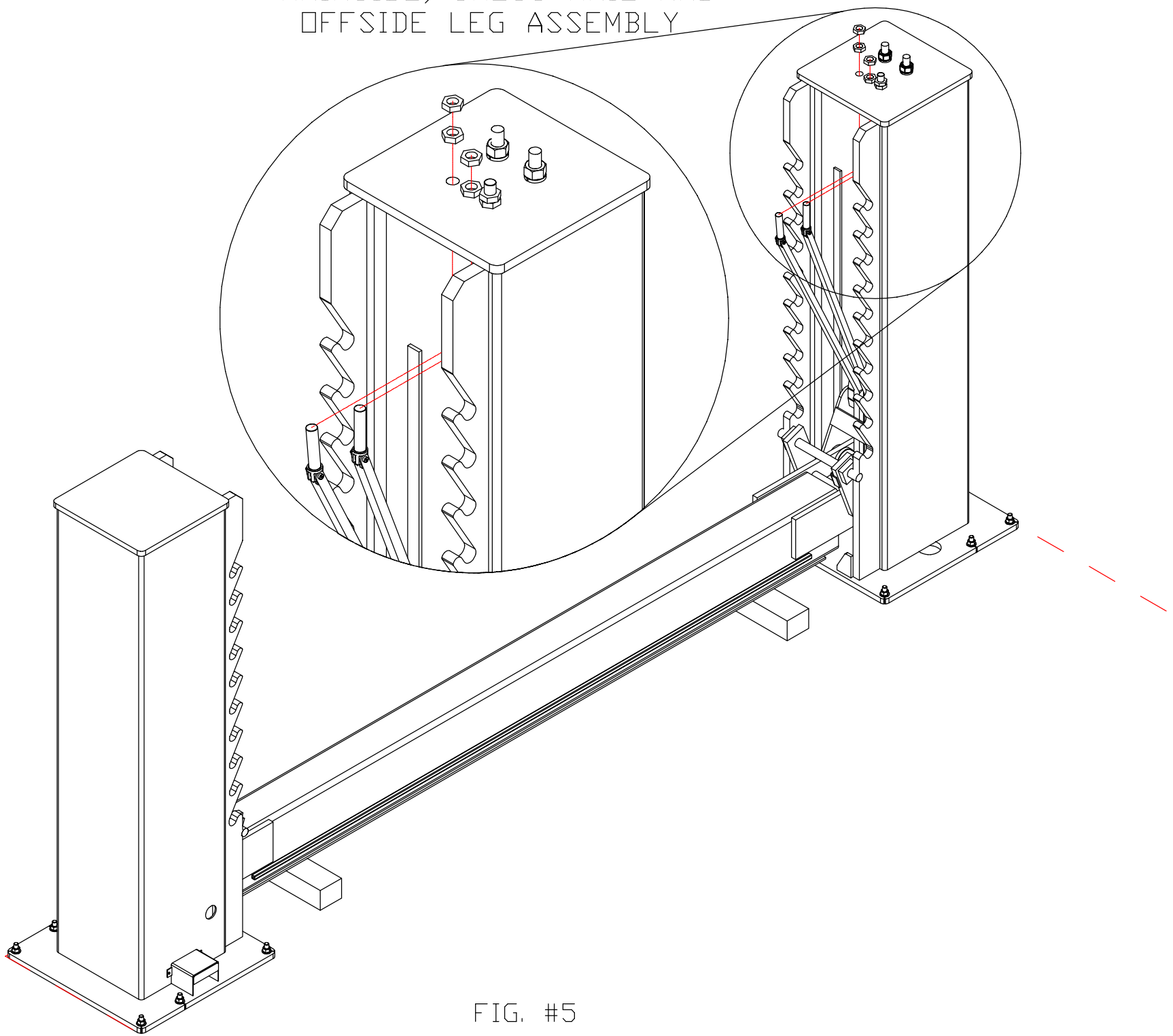


FIG. #5

LIFT ASSEMBLY

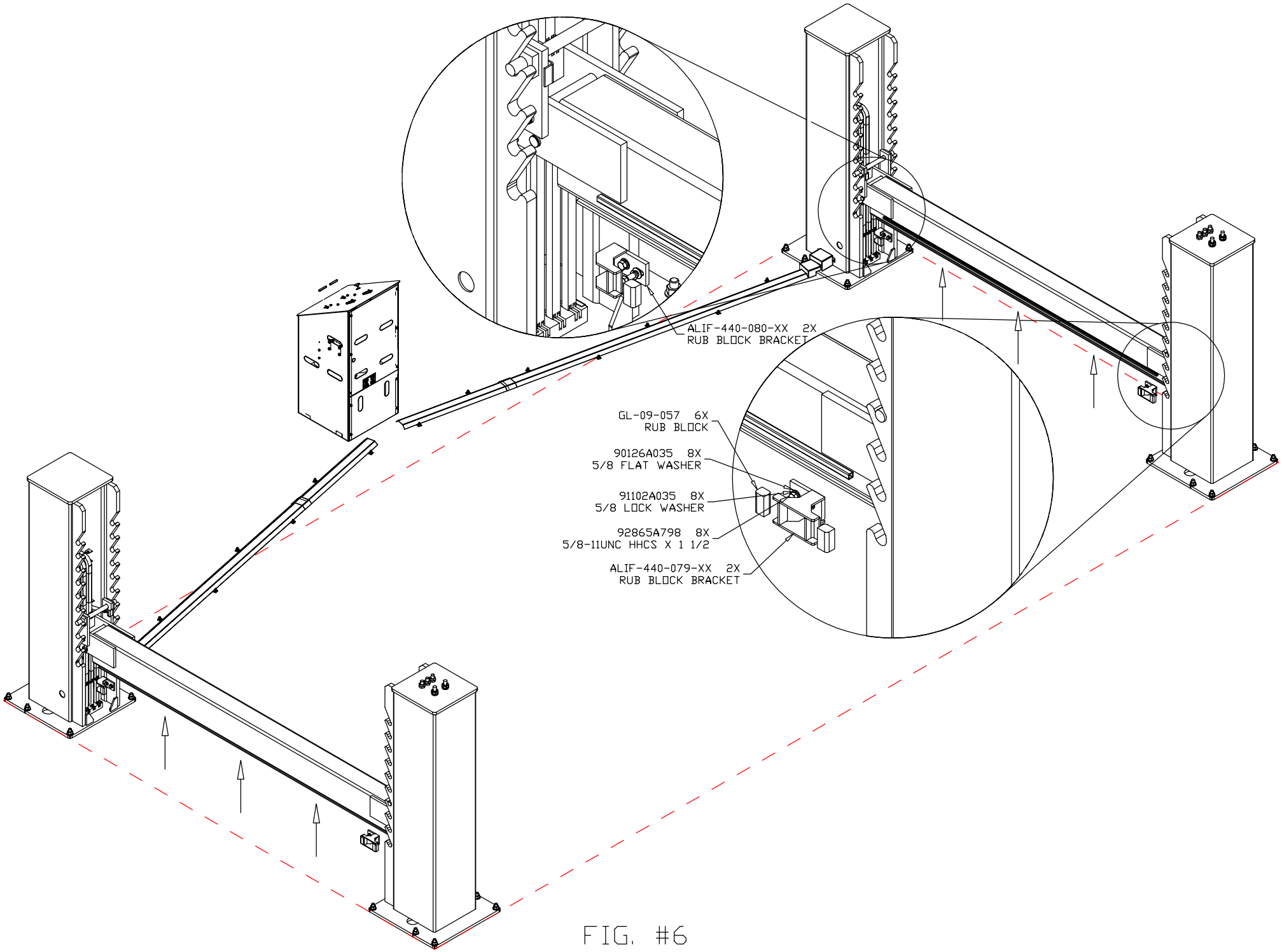


FIG. #6

FINAL LIFT ASSEMBLY

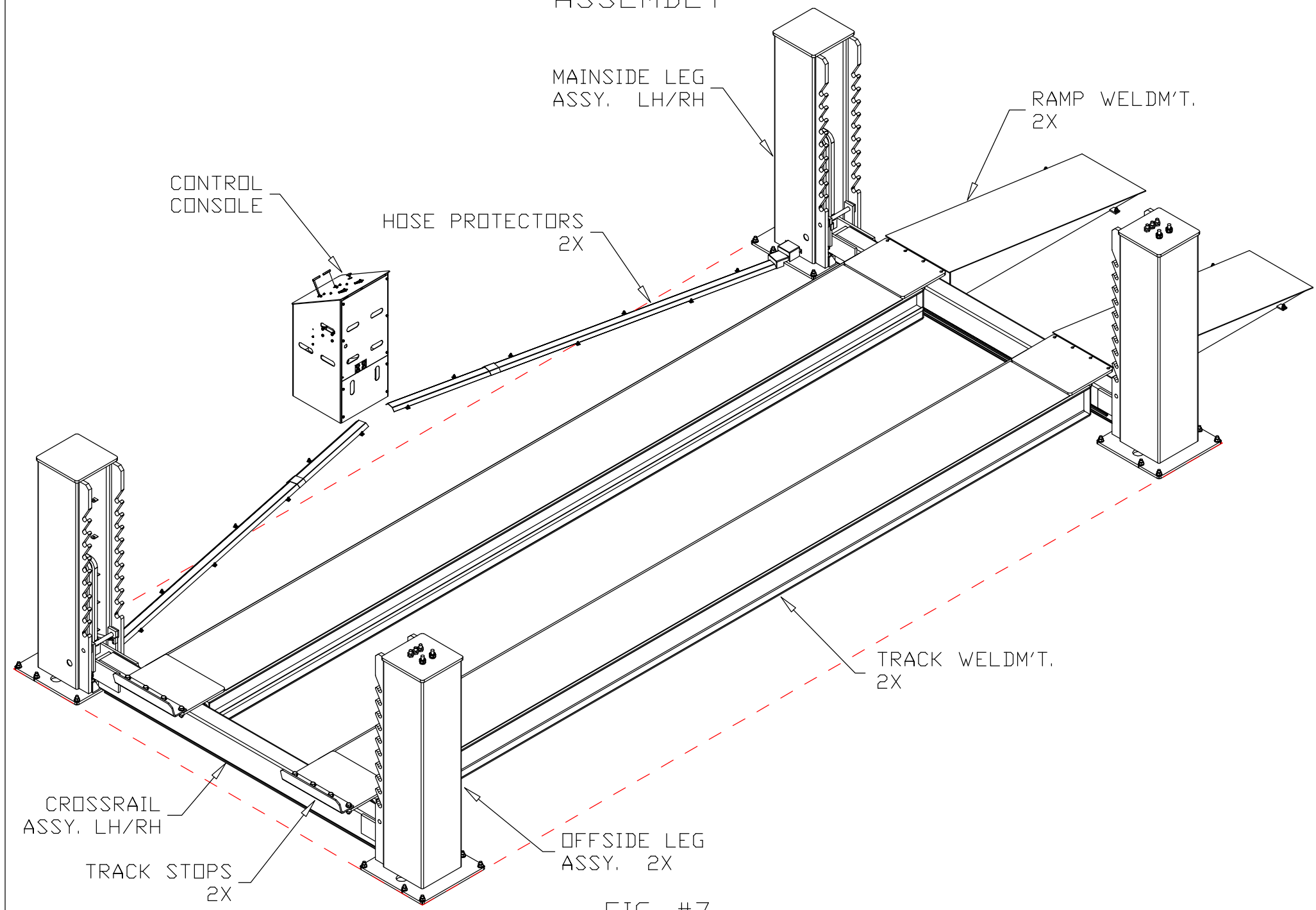


FIG. #7

CONTROL PANEL ASSEMBLY

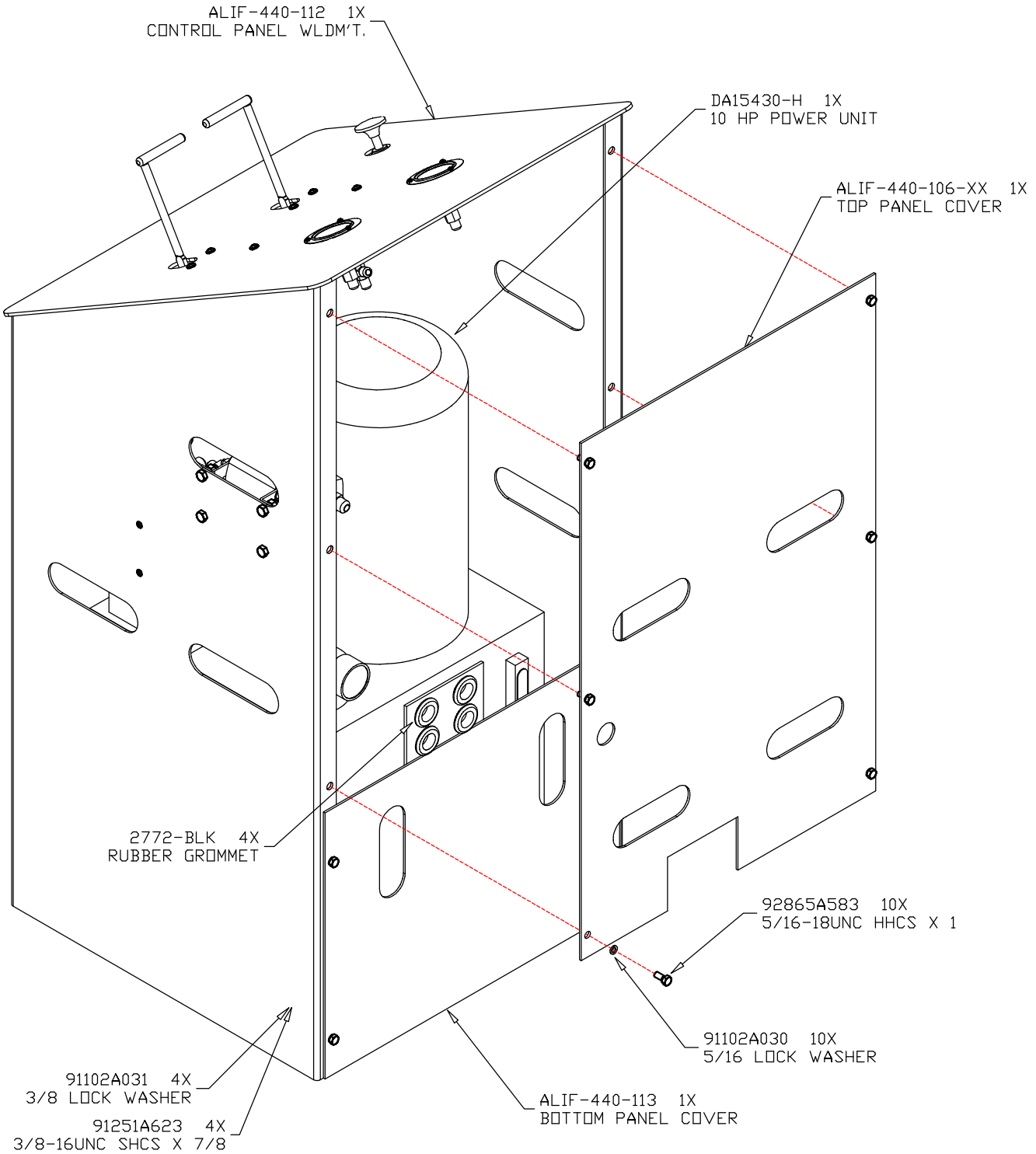


FIG. #8

CONTROL PANEL
AIRLINE & HYDRUALIC
CONNECTIONS

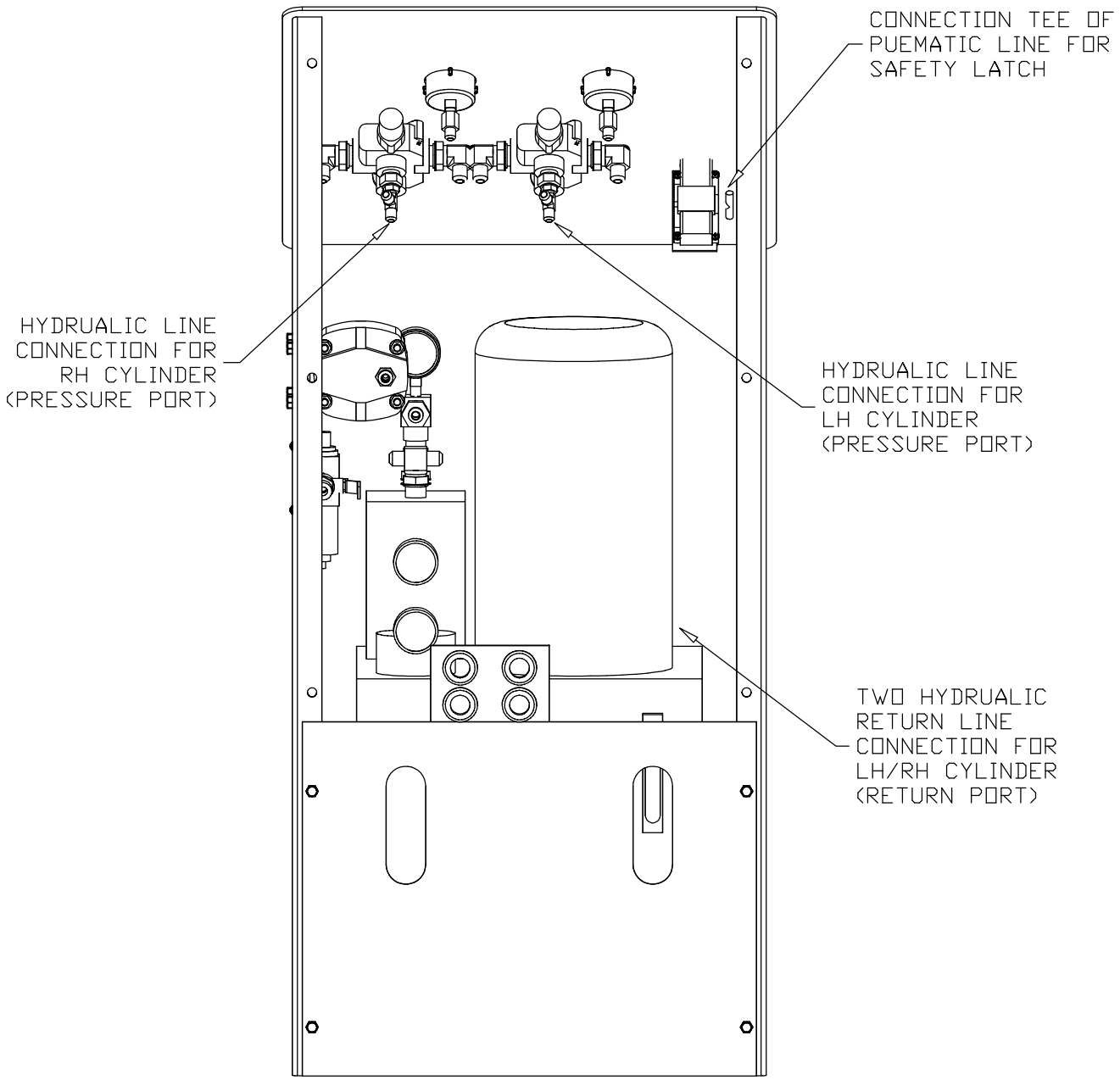


FIG. #9

50K CROSS RAIL ASSEMBLY

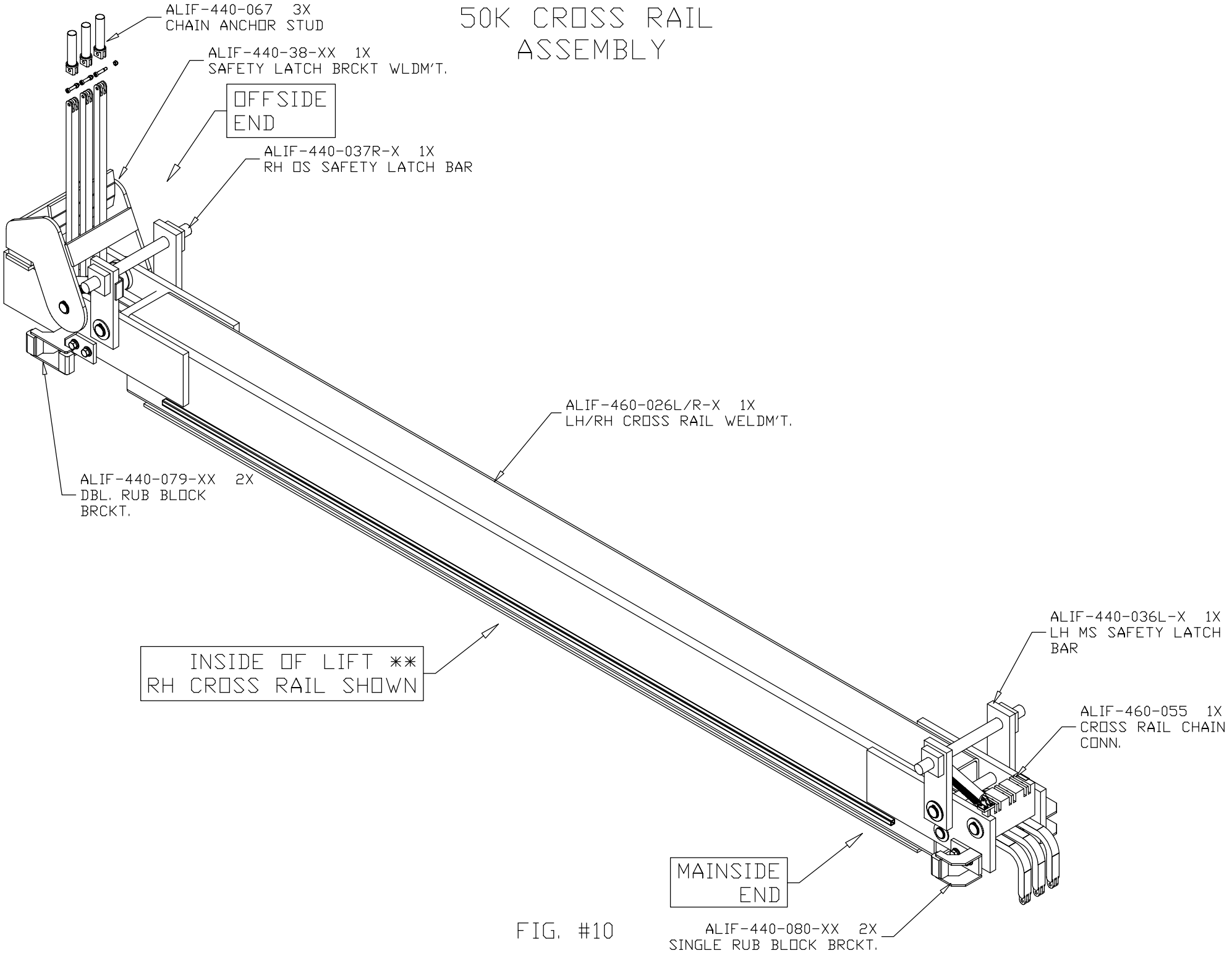


FIG. #10

50K CROSS RAIL
ASSEMBLY (MAINSIDE)

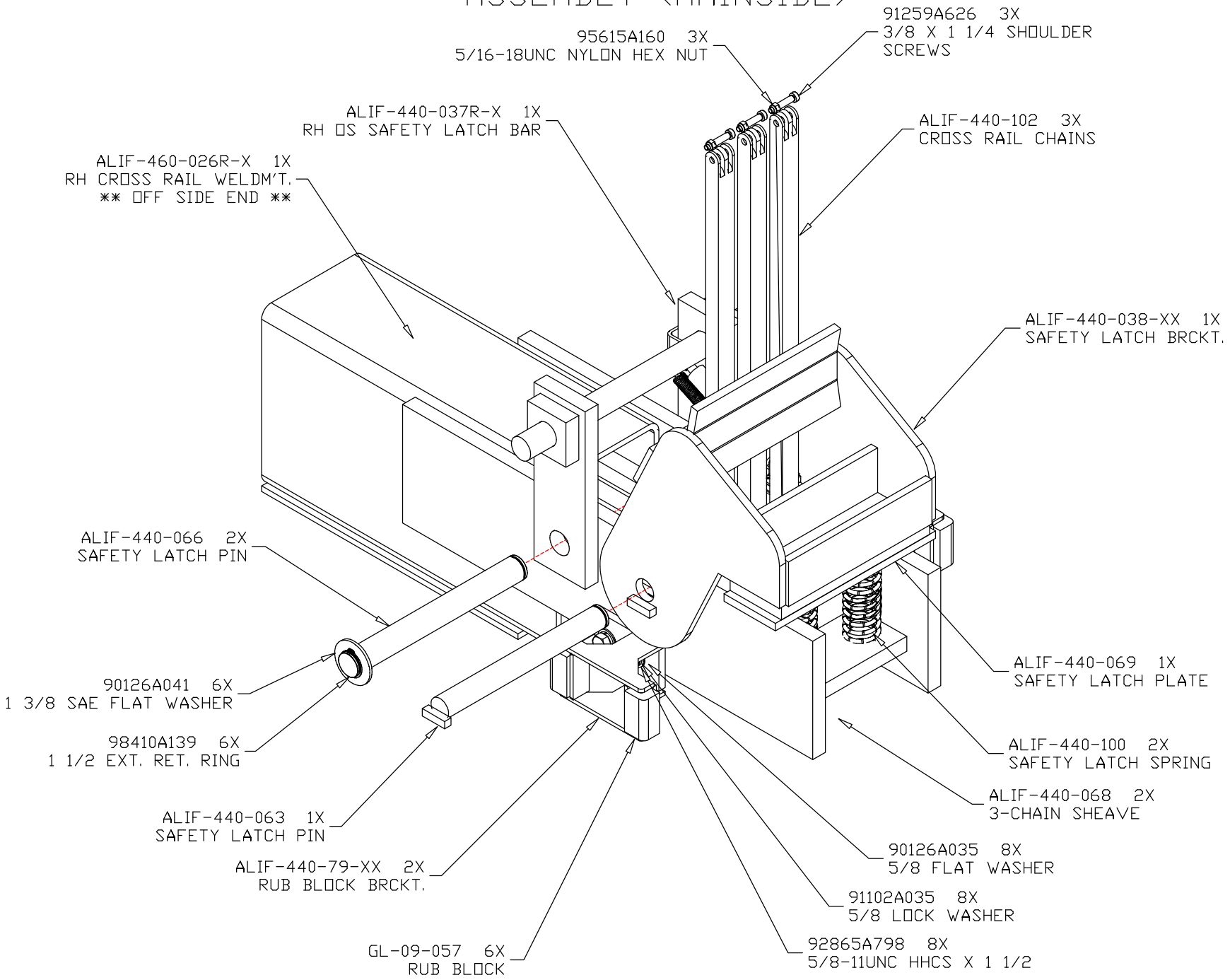


FIG. #10A

50K CROSS RAIL
ASSEMBLY (OFFSIDE)

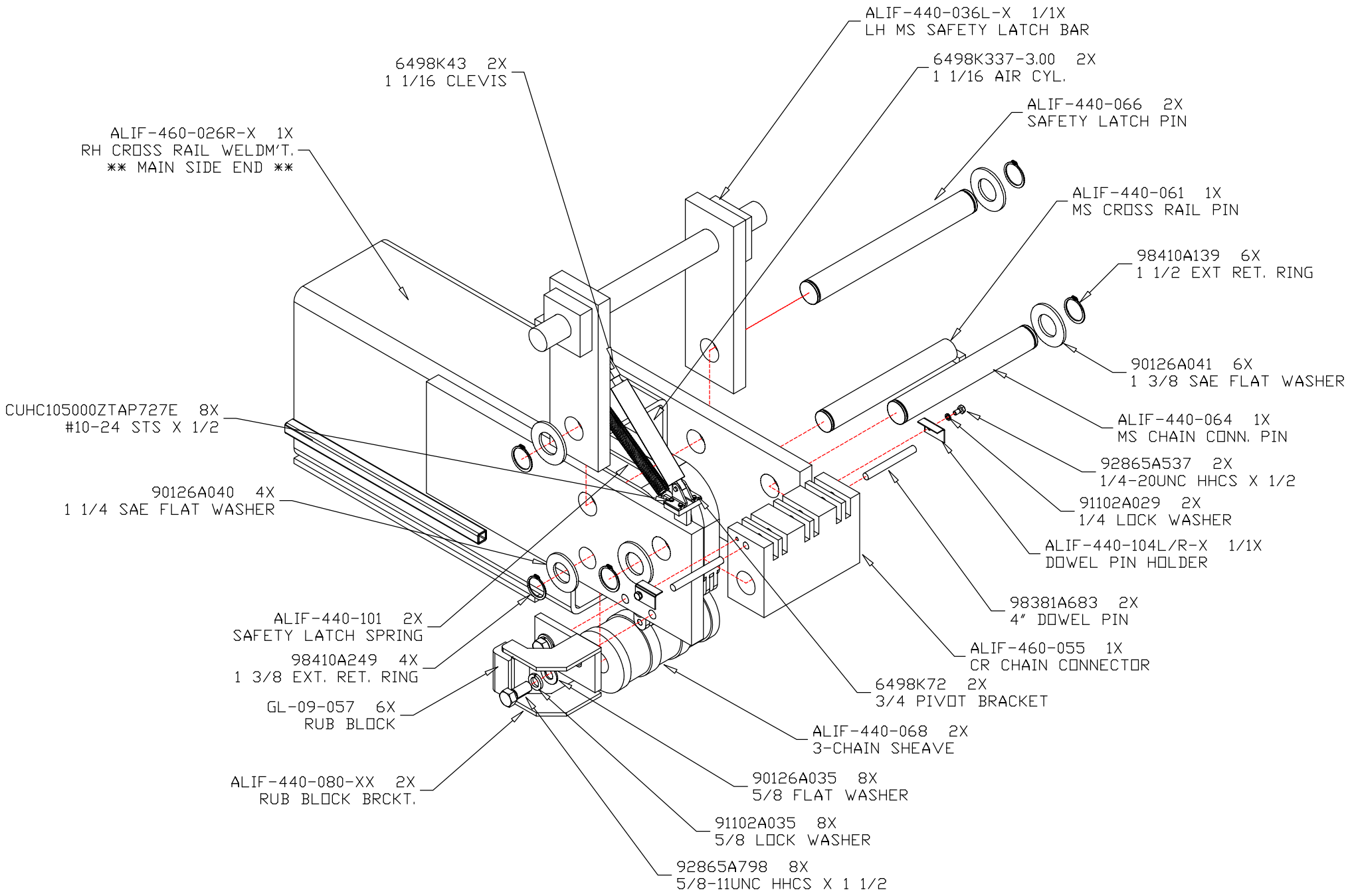


FIG. #10B

50K TRACK & RAMP ASSEMBLIES

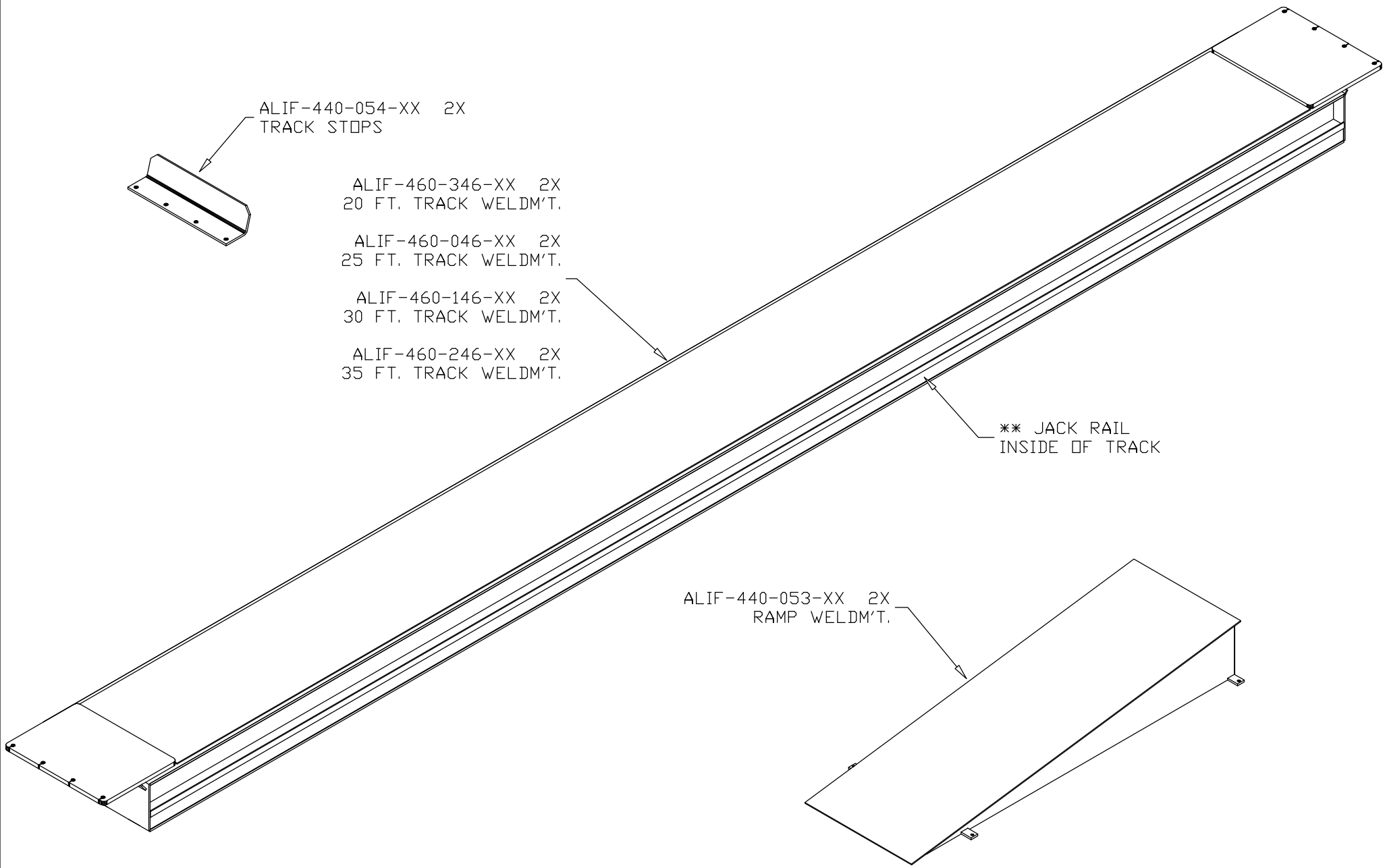
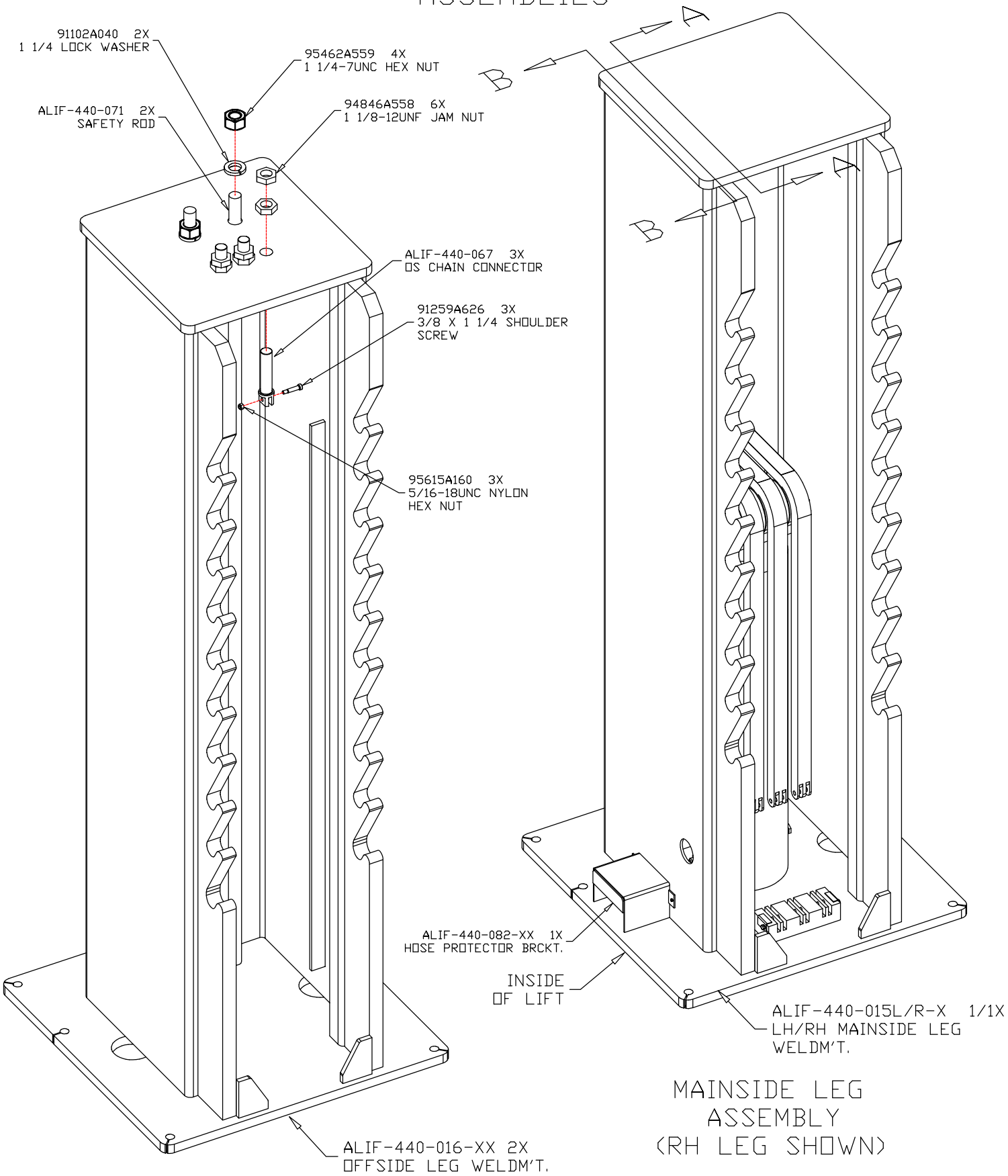


FIG. #11

40K LEG ASSEMBLIES

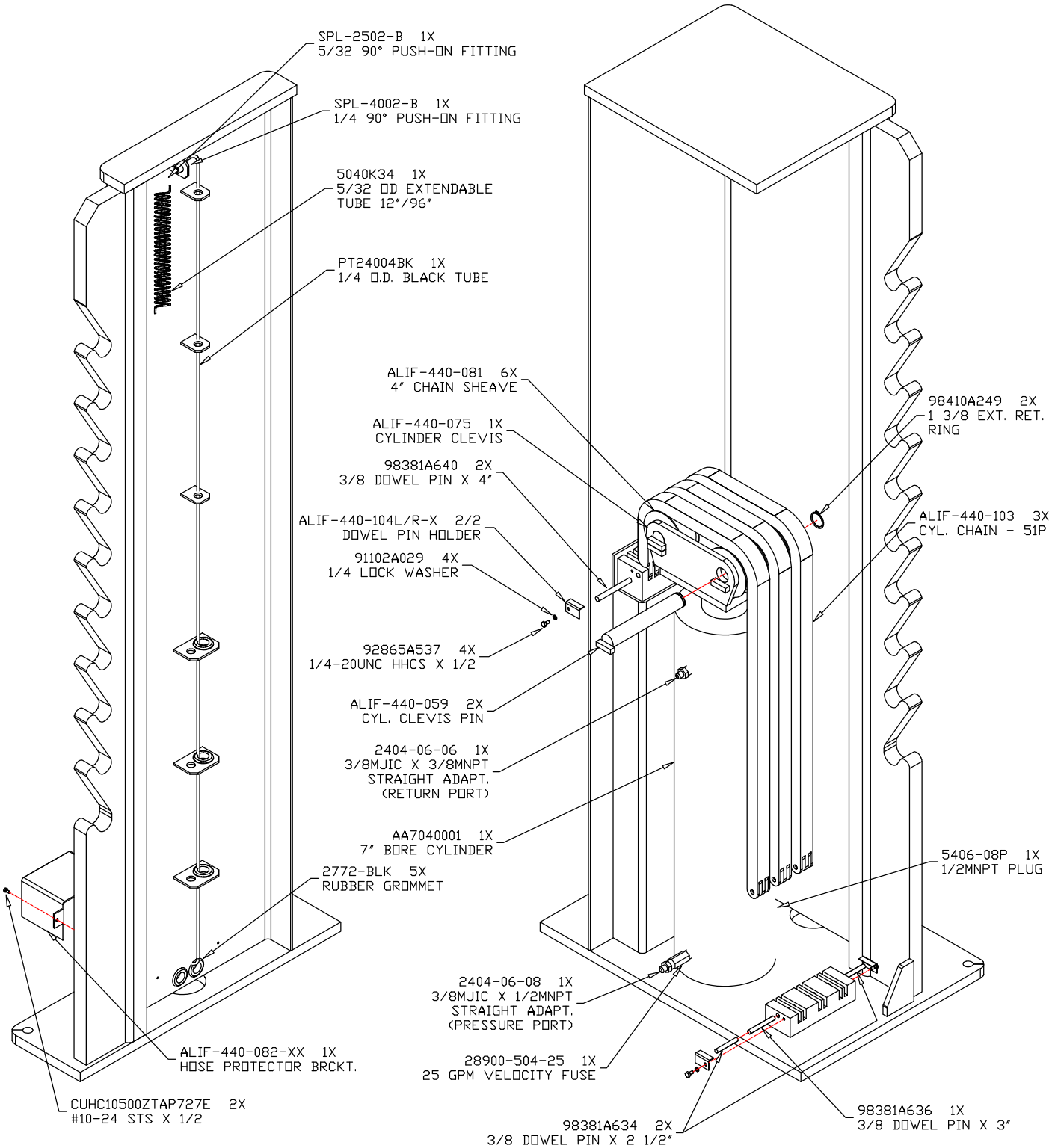


OFFSIDE LEG ASSEMBLY

MAINSIDE LEG ASSEMBLY (RH LEG SHOWN)

FIG. #12

MAINSIDE LEG ASSEMBLY



SECT. B-B

SECT. A-A

FIG. #13

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

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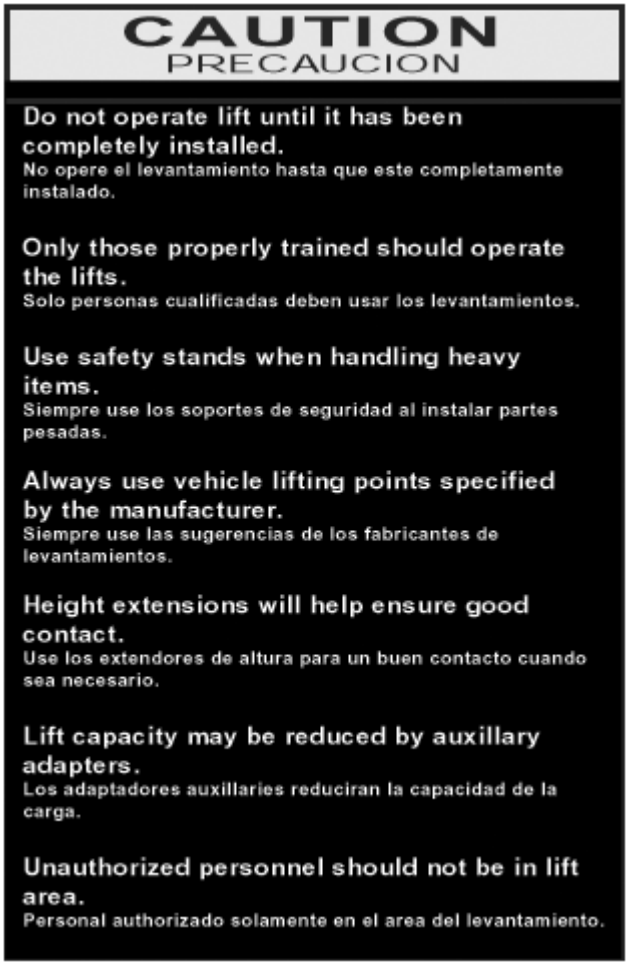
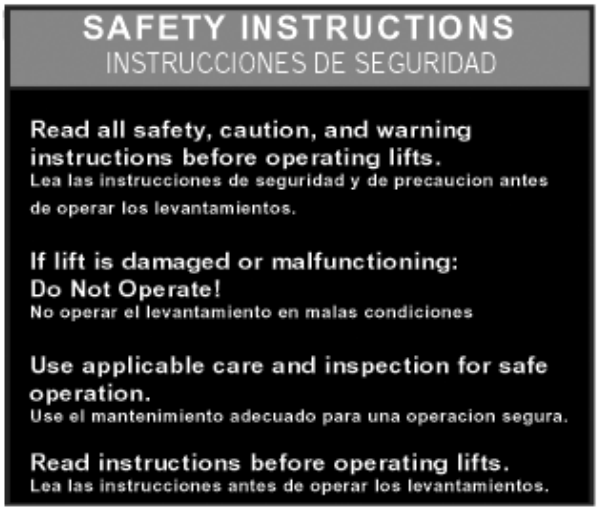
The Signs of Safety

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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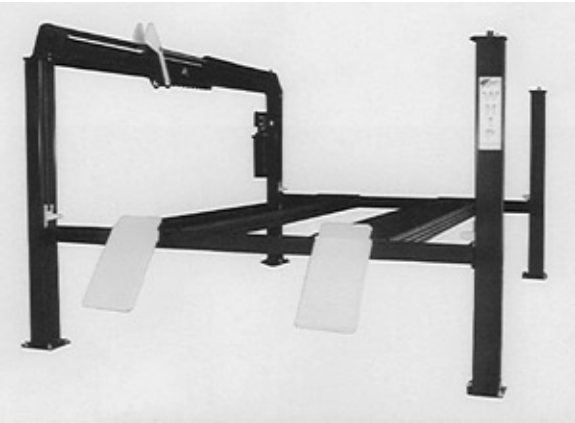
Four Post Lifts



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.

Revised: April 2002