WARRANTY REGISTRATION

Model	LA-WFP12R-EE
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.

MANUAL FOR

WFP12R-EE

EXT. 4 POST

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. -

INTRODUCTION

The four post lift consists of four vertical posts with runway tracks between the posts. The lifting is done by a hydraulic cylinder coupled to heavy duty leaf chains, which roll over sealed roller bearings. A 2 H.P. power unit supplies up to 2,500 p.s.i. to the cylinder for the lifting. Each post is equipped with a spring loaded safety latch that is activated only when there is slack in the chains. There is also a safety latch on the cylinder in case of a hydraulic failure.

The installation is a relatively simple task that can be accomplished by 2 men in just a few hours. A forklift or a fourth man will be helpful while raising the toprail into place and installing the runways.

TO PREVENT MISTAKES AND SAVE TIME, PLEASE READ THIS MANUAL COMPLETELY BEFORE BEGINNING THE INSTALLATION.

LIFT LOCATION

Choose your installation site carefully. Keep in mind doors, power supply, and overhead obstructions. These are all important considerations that will help make the lift the most valuable tool in your shop.

The most important thing to look for is a good concrete floor. It should be a minimum of 4" thick and 3,000 p.s.i. with steel reinforcement. Pads must be at least 30"x 30"x 4" thick with steel reinforcement.

There must be adequate overhead clearance to raise vehicles 6 feet above the ground. The recommended minimum ceiling height is 10 feet.

The toprail can be placed on the left or right side.

TOOLS REQUIRED

Concrete rotary hammer drillwith 3/4” carbide bit

Open end wrenches: 1/2”, 9/16”, 11/16”, 3/4”

Ratchet driver

Sockets: 3/4”, 1/2” deep

12” crescent wrench

Hammer

Needle nose pliers

Level

Fish tape

25’ tape measure

Chalk line

Small drift punch

Step ladder

4 wooden blocks (2 x 4’s)

4 gallons non-detergent hydraulic fluid 10 wt.
(example: Mobil DTE 25, Texaco HD 46, or Dextron II & III ATF)

ANCHORING TIP SHEET

1. Anchors 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 to a depth equal to the length of the anchor, or completely through the slab.

8. For better holding power, blow all dust and residue from hole before driving anchor into hole.

9. 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.

INSTALLATION

1. Determine the location for the lift. Keep in mind overhead clearances. Ten feet is the minimum recommended ceiling height. Allow 4 in. for approach ramp.

2. Determine which side of the lift the toprail and power unit are to be on. 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 power unit on the toprail side are all considerations.

3. After determining the location, and remembering to allow for the approach ramp, chalk a rectangular square using the appropriate dimensions given in **Fig.1**. Measure diagonally to check for squareness. The four chalked corners represent the outside leg base corners of each post.

4. After determining the mainside (the side the toprail is to be placed on), stand the two mainside legs upright inside the chalk lines, with each leg facing inside. One of the two legs comes with a factory installed power unit mount. This leg is to be placed as follows:

If toprail/mainside is to be on the left as you approach, this post must be at the left front corner. **See Fig 2.**

If toprail/mainside is to be on the right as you approach, this post must be a the right rear corner. **See Fig 2a.**

This manual will show the toprail/mainside being on the left side. **See Fig 3.**

5. With both mainside legs on the chalk lines, lay both legs down toward the inside as shown in **Fig. 4.**

6. Lay toprail on 2 x 4 blocks in front of mainside legs as shown in **Fig. 5.** Align holes on toprail plate with holes on top of mainside leg as shown in **Fig. 6.**

7. Bolt the toprail to the mainside legs using the 1/2 x 1 ¾" NC bolts, washers, lock washers, and nuts as shown in **Fig. 7.** These were used in

shipping. **NOTE:** The set of holes nearest the safety rod hole will not take a flat washer.

8. Raise toprail/leg assembly by pressing and walking the unit into the upright position. Make sure the safety rod holes referred to in **Fig. 7** are still aligned. Make sure both legs are still on the chalk lines.

9. Read the anchoring tip sheet before anchoring. Using the 3/4 carbide bit, drill through the 4 holes in the base plate to a minimum depth of 4-1/2". As soon as you complete drilling a hole, set and drive an anchor bolt into the drilled hole. **DO NOT TIGHTEN ANCHOR BOLTS YET !!**

10. After drilling and setting all 4 anchors in the first post only, plumb the post so that it is perpendicular. Use the level to check the post from side to side, and front to back. You should also check distance measurements from top of one leg to the top of the other leg, and from bottom to bottom. Adjust legs to within 1/8". Use shims sent in the packaging for shimming lift. Keep shims as close to anchors as possible. Now you may tighten the anchor bolts on first leg only. **Do not use an impact wrench.** Recheck for plumbness and adjust if necessary.

11. After anchoring the first mainside leg, align the other mainside leg in the chalk line. The leg may vary from the chalk line slightly. It is most important that the legs be perpendicular and parallel with the other leg. Check measurements at leg tops and bottoms again. Drill, set, and anchor the other mainside leg. Level and plumb leg as before, then tighten anchors on 2nd leg.

DO NOT DRILL OR ANCHOR OFFSIDE LEGS YET.

12. Set crossrails on 2 x 4 blocks in front of mainside legs, with the machined crossrail connector towards the mainside leg as shown in **Fig. 8.**

13. Use a fish tape to pull the crossrail chain through the crossrail tube. The chain runs under the roller on the offside and over the roller on the mainside. Repeat with the other crossrail. Feed the fish tape through the crossrail starting from the mainside by going over the mainside roller and through the crossrail tube, then under the offside roller and straight up. **See Fig. 8.**

14. Position both crossrails in front of a mainside leg, with the machined connector towards the mainside leg. Using the Master Link provided, connect the crossrail chain to the chain anchor welded to the base plate of the mainside leg. **See Fig. 9.**

******* IMPORTANT *******

THE MASTER LINK MUST HAVE THE CENTER LINK, AND IT MUST BE IN A **VERTICAL POSITION**. IT CAN NOT BE COCKED TOWARDS THE FRONT OF THE CHAIN ANCHOR. **SEE FIG. 10.**

15. Starting with the safety latch ear towards the mainside legs, place a 2 x 4 block under the latch as shown in **Fig. 11.**

16. Take a safety rod and remove one of the two nuts. Turn down the remaining nut to the bottom of the threads. Remove packing dowel pin from the crossrail safety latch. Insert safety rod (where packing dowel was removed) into top of cross rail safety latch.

17. Each safety rod corners with 2 nuts on one end. Remove the top nut, turn the other nut down to bottom of threads. Guide the free threaded end of safety rod into the rear hole at the top of the mainside leg. Tighten the nut just removed until the safety rod is flush with the top of the nut. Tighten the bottom nut against the leg top. Remove the 2 x 4 block. Repeat steps 15, 16 and 17 on the other mainside leg and crossrail.

18. Position each offside leg 6" from the end of each crossrail, but do not drill or anchor. Place 2 x 4 blocks under each safety latch. Repeat steps 16 and 17 for the offside legs. **DO NOT ANCHOR OFFSIDE LEGS YET.**

19. Assemble threaded chain connector to free end of chain. Run threaded chain connector into the inside hole at top of offside leg. Run 1" nut all the way down until connector is into the nylon. Repeat on other crossrail.

20. Stand up cylinder reset on toprail. Remove the fitting or plug from rear of the cylinder. Extend cylinder rod by either pulling on rod or by applying air to cylinder port where fitting or plug was removed. Make sure long chain is not twisted inside toprail tube. Attach loose end of chain to each crossrail connector using 5/16 x 3 1/2" Shoulder bolt and nuts. **Do not**

substitute this bolt!!!! Repeat on other crossrail. Replace fitting on cylinder.

21. Attach the power unit at its location on the mainside leg with supplied hardware.

22. Before connecting the hydraulic hoses from the power unit to the cylinder you must first install two 90 deg. fittings (2501-06-06) on the cylinder and two 90 deg. fittings with o-rings (6801-LL-06-06) on the power unit. Now the pressure and return hoses can be attached. The 108" pressure hose (ALIF-412-029) goes from the fitting on the cylinder next to the rod to the fitting of the power unit on the side of the handle (pressure port). The 48" return hose (ALIF-412-030) goes from the fitting of the cylinder next to the power unit to the fitting of the power unit on the opposite side of the handle (return port).

23. Have electricity hooked up to the power unit -220 single phase. We recommend a 30 amp breaker and a 30 amp twist lock plug be installed near the power unit.

24. Remove breather cap from power unit. Place a funnel into hold. Fill reservoir with 14 qts of non-detergent 10 wt. hydraulic fluid or ATF transmission fluid. Install breather cap.

OFFSIDE LEGS ARE NOT ANCHORED YET.

25. Position tracks on the cross rails. Raise the lift up about 12". Place a level on the crossrail and level the crossrail by adjusting the nut on the crossrail connector.

26. After leveling cross rails, adjust and plumb the offside legs so that the cross rail chains in the offside legs hang straight. Use a level. Cycle the lift all the way up and down making sure that each corner is running freely. The offside legs may vary from the chalk line slightly. It is more important that the legs are square and plumb, and that the lift moves up and down freely.

27. Raise the lift to the top of its travel. Check the positioning of the cross rails in the legs as the lift is raised. The single point toprail safety latch will move across the rack at the bottom of the toprail. At the top of the lift's

travel, pull down the toprail safety latch banjo until the Reset locks it open. Adjust and plumb cross rails and legs as necessary. When you are positive the lift is moving freely, you may finally drill and install the anchor bolts in the offside legs.

28. The next phase is to locate and install the tracks, ramps and stops on the lube rack lift. See Track, Ramp & Stop Assy. drawing. Step #1 is make sure the tracks are centered on the cross rails and are 36" apart on the holes where the bridge mounts. See Fig. #13. Secure track using ½" U-bolts.

29. Step #3 & #4 is to raise the lift about 30" and bolt the Long and Short Walkway on the tracks using the 1/2-13UNC x 1¼" bolts, ½ flat washers and ½ lock washer as shown in Fig. #14.

30. Now that the lift is fully assembled, cycle the lift to it's maximum height and back to the ground at least 3 full cycles without any load to remove air from the hydraulic system.

SAFETY AND OPERATING PROCEDURES

Before attempting to operate this lift, be familiar with it is basic operational and safety procedures.

1. Prior to lifting a vehicle, walk around the lift and check for any objects that might interfere with the operation of the lift and it's safety latches such as: tools, air hoses, shop equipment, etc.

2. Slowly drive the vehicle fully onto the tracks. Have someone outside the vehicle guide the vehicle down the tracks.

3. After vehicle is secured, begin raising lift by pressing the UP button on the power unit. UNDER NO CIRCUMSTANCES SHOULD ANY PERSONNEL RIDE THE LIFT UP OR DOWN.

4. Pay close attention to the locking mechanism as the unit rises. The operator should be able to listen for the safety locks acting against the latch rack as the unit goes up.

5. To back vehicle off the lift: Slowly drive vehicle fully off the lift.

PERIODIC MAINTENANCE

1. Anchor bolts: During the first week of use, check and tighten anchors daily. **Do not use an impact wrench.** After first week, check anchors once a month.

2. Concrete: Check concrete for stress cracks daily for the first two weeks of use. Thereafter, check monthly.

3. Check all bolts and nuts monthly.

4. If your lift will raise all the way to the top, your lift has enough oil. Hydraulic oil should be changed and the suction filter cleaned once a year. If the lift environment is outside or dusty, change hydraulic oil and clean suction filter every six months.

5. Chain: Check chain every 3 months for any sign of rust or wear, especially if lift is located outside. Lubricate with a chain lube spray.

6. Bearings: The bearings on your lift are sealed roller bearings, which do not require any additional lubrication. Check bearings every 3 months for
excessive wear between the chain and roller.

PARTS & SHIPPING LIST

PART NUMBER	DESCRIPTION	QTY.	
2501-06-06	3/8MNPT x 3/8MJIC 90 Deg. Adapter	2	HK
5304ZZ	DS Bearings	4	HK
6801-LL-06-06	0.375M x 0.375F 90 Deg. NPT Adapter w/O-ring	2	HK
7130K55	11” Black Ties	6	HK
80050	BL634 Master Link	4	HK
90126A033	½ SAE Flat Washer	6	HK
90473A036	¾-10UNC Hex Nut Grd. 2	4	HK
90473A223	½-13UNC Hex Nut Grd. 2	20	HK
90640A130	5/16-18UNC Hex Nylon Lock Nut Grd. 2	4	HK
91102A033	½ Lock Washer	4	HK
91102A036	¾ Lock Washer	4	HK
91247A583	5/16-18UNC x 1 HHCS Grd. 5	4	HK
91578A501	¾-10UNC x 5 ½ Wedge Anchor Set	16	HK
92865A718	½-13UNC x 1 3/4 Lg. (Full Thrd) HHCS Grd. 5	4	HK
92865A841	¾-10UNC x 1 3/4 Lg. (Full Thrd) HHCS Grd. 5	4	HK
95462A538	¾-10UNC Hex Nut Grd. 5	8	HK
95462A555	1-14UNF Hex Nut Grd. 5	4	HK
95473A030	5/16-18UNC Hex Nut Grd. 2	4	HK
98338A140	3/32 x 1 Cotter Pin	8	HK
98410A128	¾ “ Retainer Ring	6	HK
AH-1008	Power Unit	1	PKG
ALGF-412-031-XX	Ramp Weldm’t.	2	PKG
ALGF-412-034	Ramp Pivot Pin	2	PKG
ALIF-412-001-XX	Front Stop	2	PKG
ALIF-412-029	0.375FJICS x 0.375FJICS Hose x 108”	1	PKG
ALIF-412-030	0.375FJICS x 0.375FJICS Hose x 48”	1	PKG
ALIG-412-099	Sq. U-Bolts	8	PKG
ALRK-412-412-XX	Track Weldm’t.	2	PKG
GL-9-056	1/16 x 1 x 2 ¾ Steel Shim	16	PKG
GL-9-112	¼ x 1 x 2 ¾ Steel Shim	12	PKG
GL-12-002-XX	Mainside Leg Weldm’t.	1	PKG
GL-12-003-XX	Mainside Leg Weldm’t. with P/U Mount	1	PKG
GL-12-004-XX	Offside Leg Weldm’t.	2	PKG
GL-12-049	Offside Leg Chain Connector	2	PKG
GL-12-052	Safety Latch Rod	4	PKG
ALRK-412-BHDWE	**Lube Rack Bolt Box Kit**	**1**	**HK**
90126A033	½ SAE Flat Washer	22	HK
90126A036	¾ SAE Flat Washer	2	HK
90473A223	½-13UNC Hex Nut Grd. 2	22	HK
90640A133	½ -13UNC Hex Nylon Lock Nut Grd. 2	2	HK
91102A030	5/16 Lock Washer	4	HK

91102A033	½ Lock Washer	22	HK
92865A583	5/16-18UNC x 1 Lg. (Full Thrd) HHCS Grd. 5	4	HK
98410A128	¾ " Retainer Ring	2	HK
ALIF-C412-203	**Top Rail Assy.**	**1**	**PKG**
AA-3515001	3.50 Dia. 72" Stroke Hyd. Cylinder	1	
90126A036	¾ SAE Flat Washer	2	
94945A235	¾-16UNF Thin Nylon Lock Nut	3	
98410A133	1.000 Dia. Retainer Ring	1	
98410A249	1.375 Dia. Retainer Ring	5	
98381A593	0.313 Dia. x 2.5 Lg. Dowel Pin	2	
ALIF-C412-205-X	Top Rail Weldm't.	1	
GL-12-030-XX	Safety Latch Banjo	2	
GL-12-046-XX	Top Rail Reset	1	
GL-12-048	Latch Pin	1	
GL-12-050	Cylinder Chain Connector	1	
GL-12-053-XX	5.5 Dia. Top Rail Wheel	2	
GL-12-056	4.0 Dia. Pulley		3
ALIF-C412-295	BL646, 199 Pitch Male Ends, Short Top Rail Chain	1	
ALIF-C412-295	BL646, 491 Pitch Male Ends, Long Top Rail Chain	1	
GL-12-100	1 Dia. Cylinder Pin	1	
GL-12-101	1 3/8 Dia. Pulley Pin	3	
GL-12-104	**Cross Rail Assy.**	**2**	**PKG**
90108A036	¾ USS Flat Washer	8	
97801A104	1/8 x 2 Lg. Nail	8	
98410A128	0.750 Dia. Retainer Ring	10	
ALIF-412-012	Packing Pin	4	
C1100-112-4500M	1.10 O.D. x 4 ½" Safety Latch Spring	4	
GL-12-006-XX	Cross Rail Weldm't.	2	
GL-12-055	2.25 Dia. Pulley	4	
GL-12-057	Cross Rail Chain Connector	2	
GL-12-078	Safety Stop Plate	4	
GL-12-089-XX	Safety Latch	4	
GL-12-098	Safety Latch / Bearing Pin	2	
GL-12-099	Safety Latch Pin	6	
GL-12-094	BL634, 271 Pitch Male Ends, Cross Rail Chain	2	PKG
91259A587	0.313 Dia. 1.50 Lg. Shoulder Bolt	2	HK
90640A129	¼-20UNC Nylon Lock Nut	2	HK

*** 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.

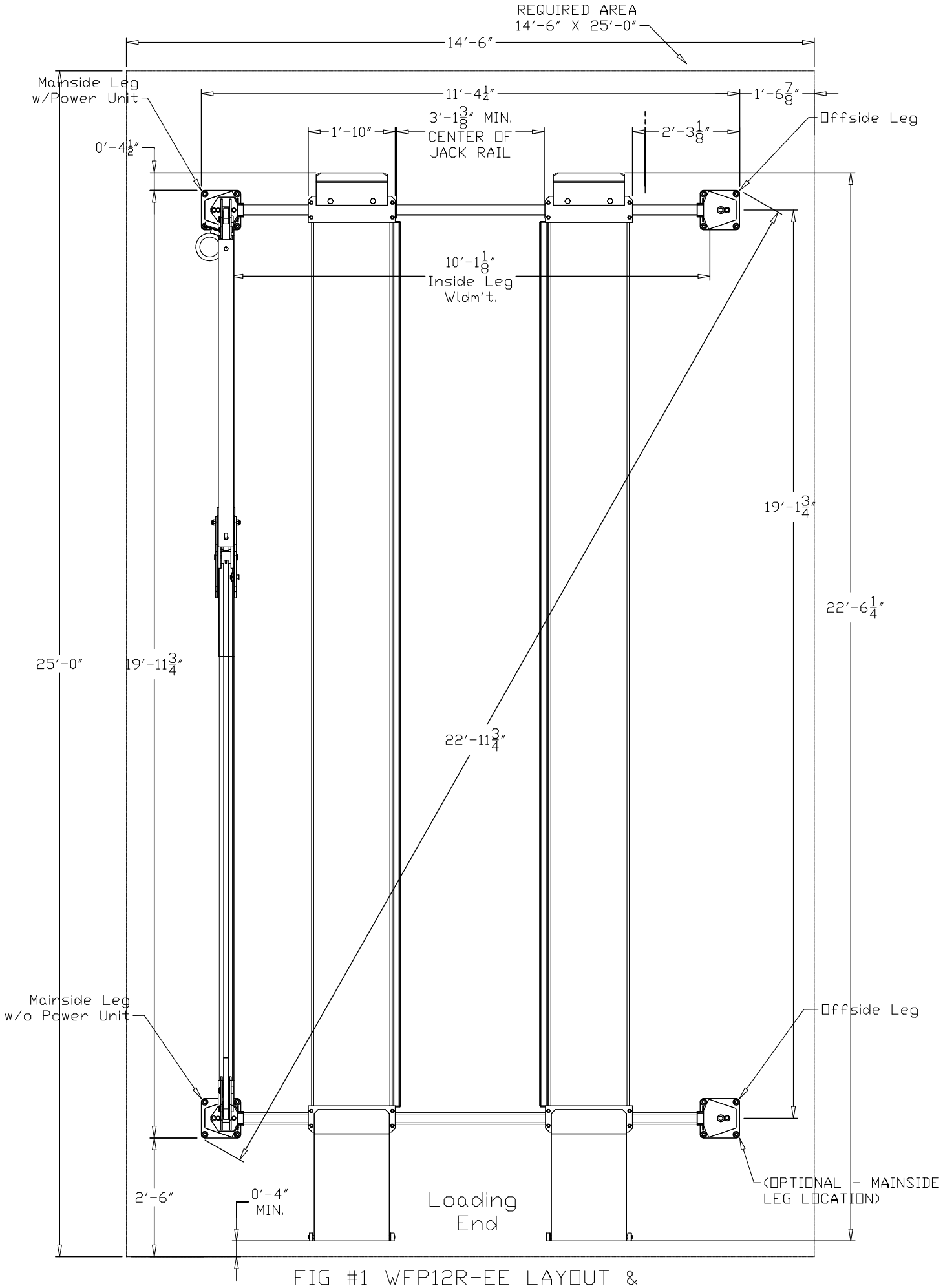


FIG #1 WFP12R-EE LAYOUT &
INSTALLATION SPECIFICATION

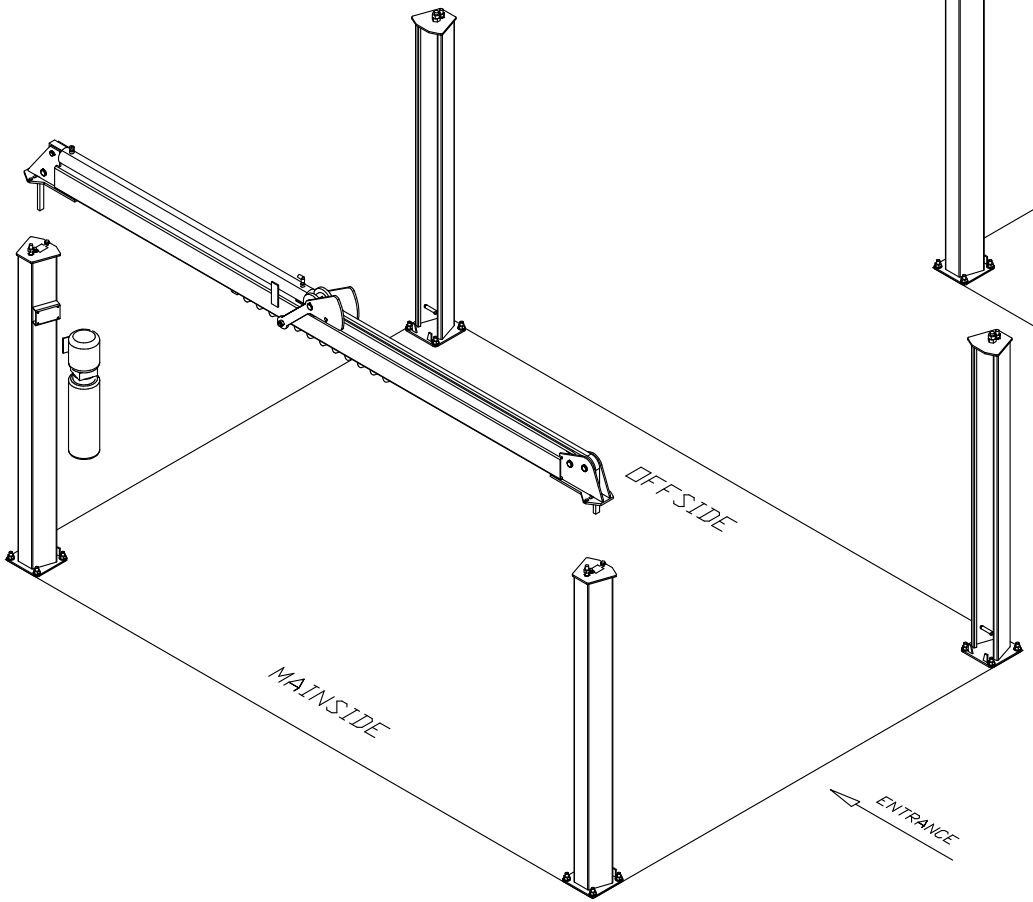


FIG. #2

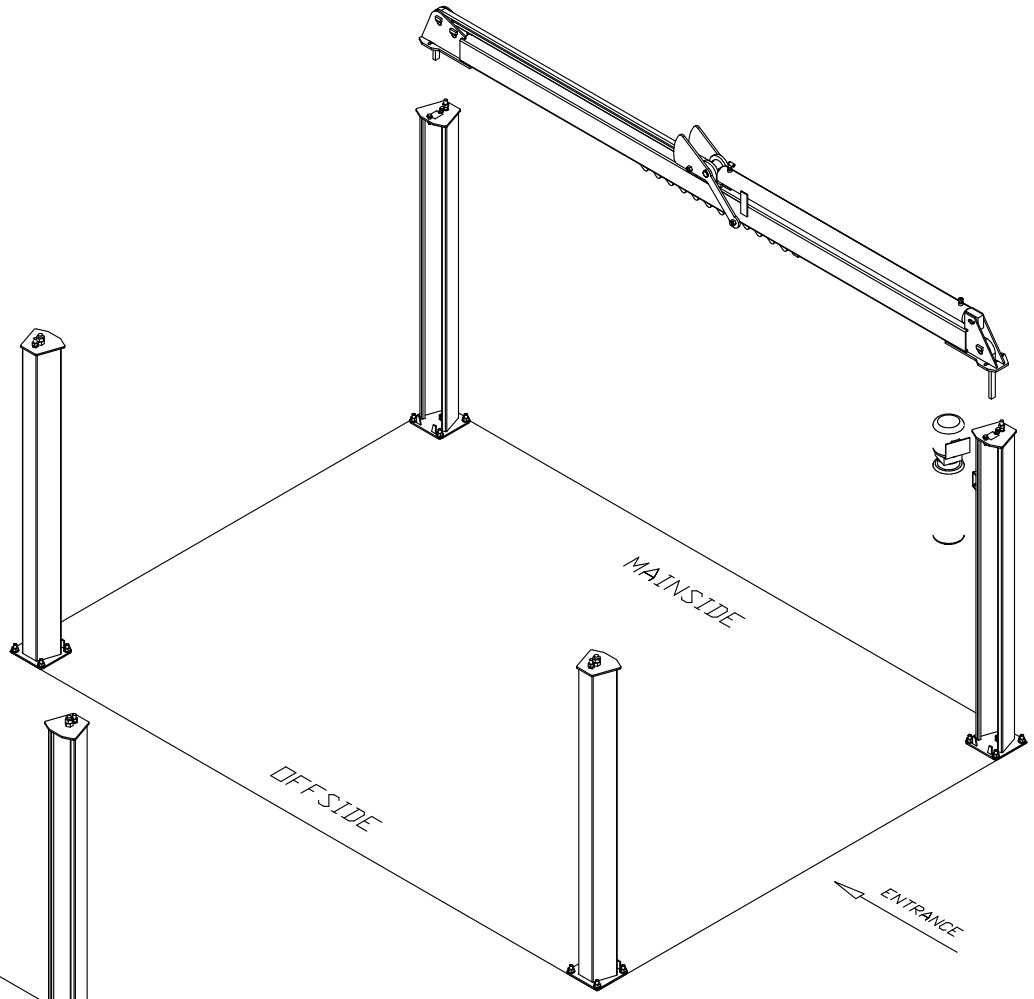


FIG. #2A

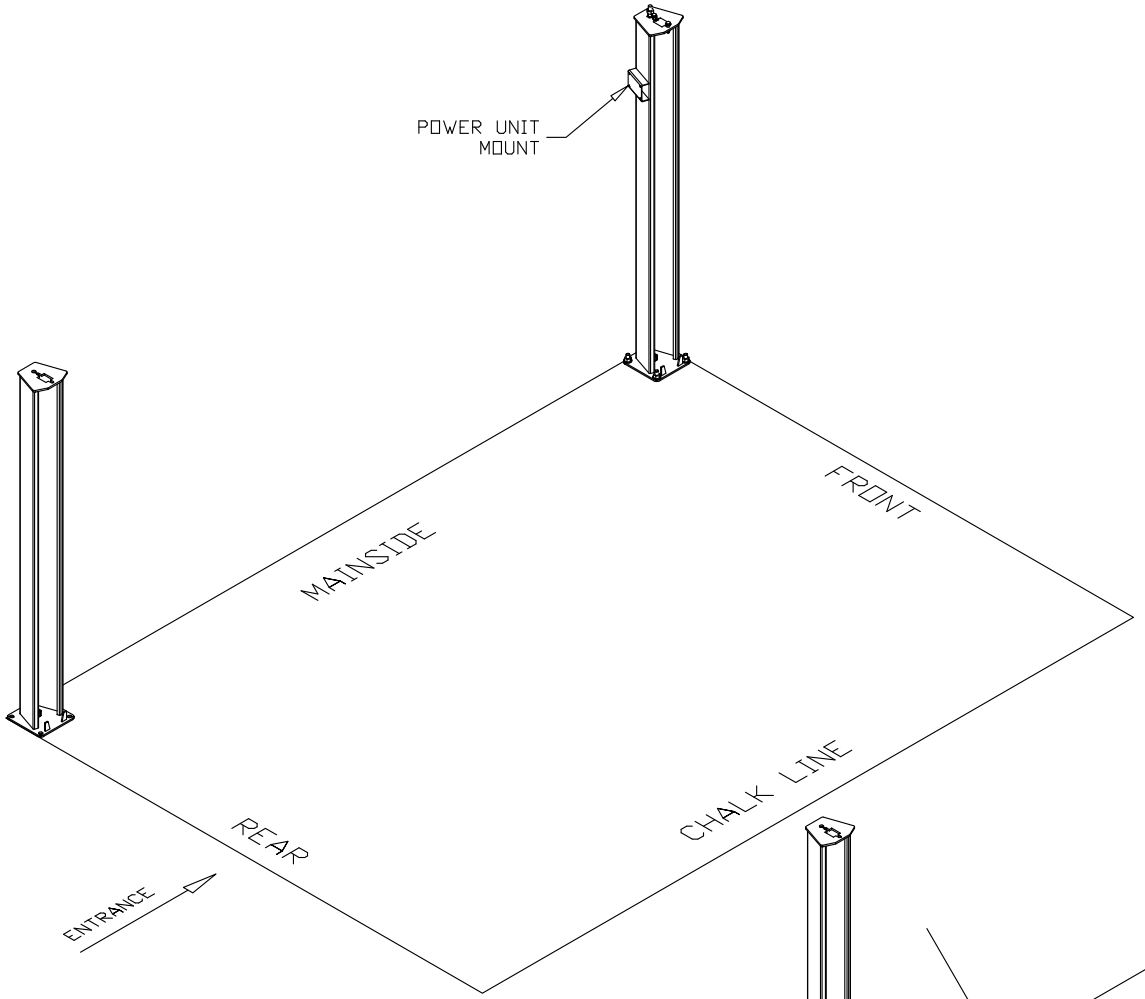

POWER UNIT
MOUNT
MAINSIDE
FRONT
REAR
CHALK LINE
ENTRANCE

FIG. #3

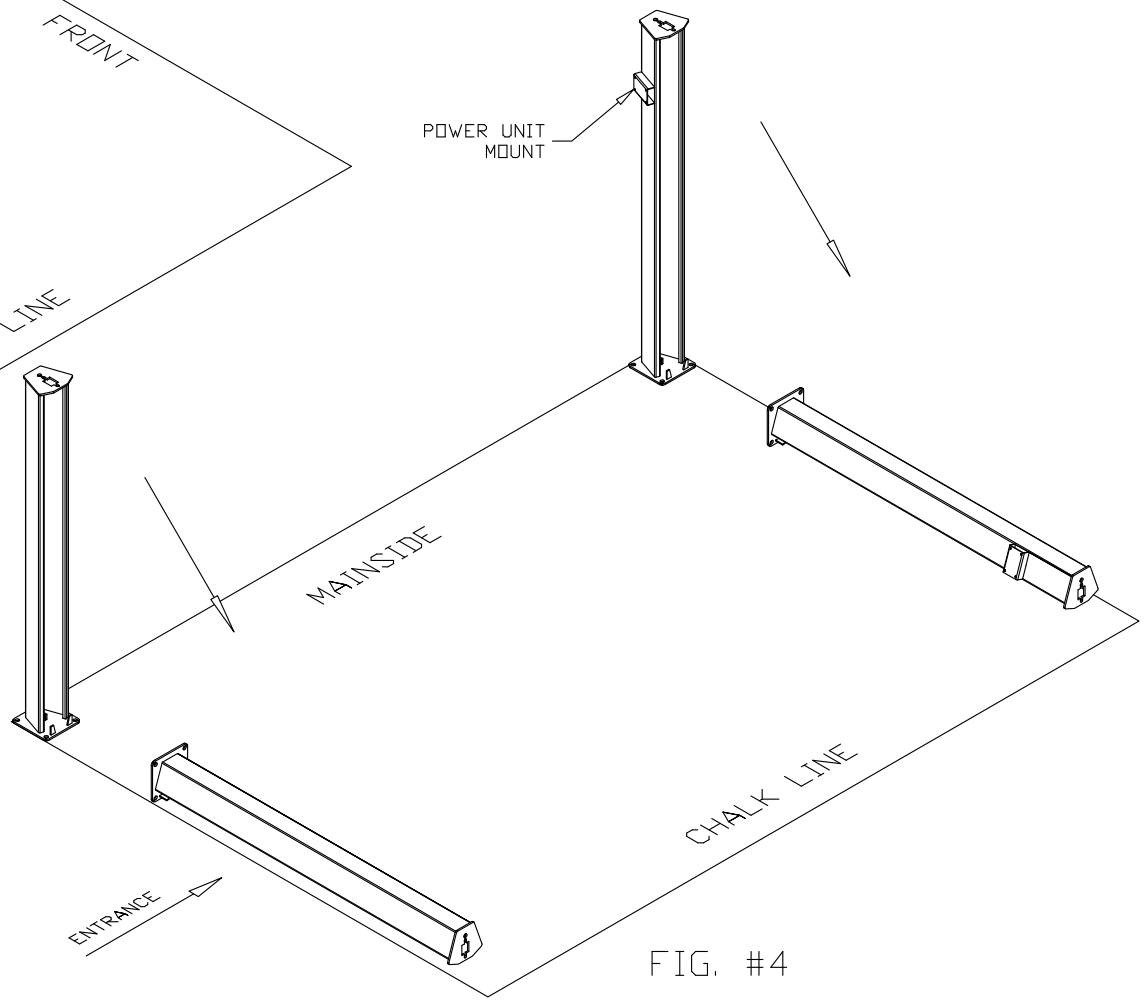

POWER UNIT
MOUNT
MAINSIDE
CHALK LINE
ENTRANCE

FIG. #4

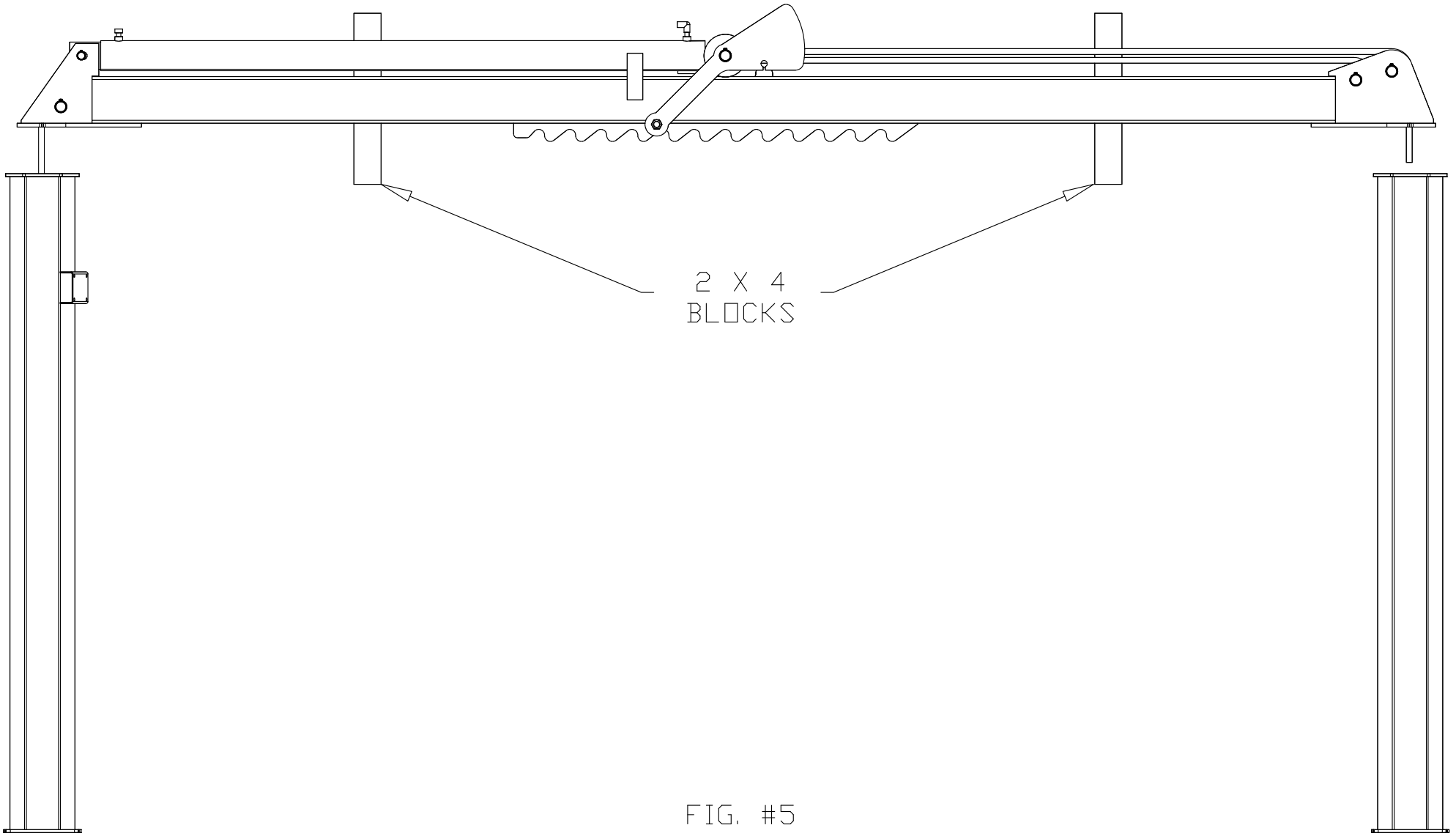


FIG. #5

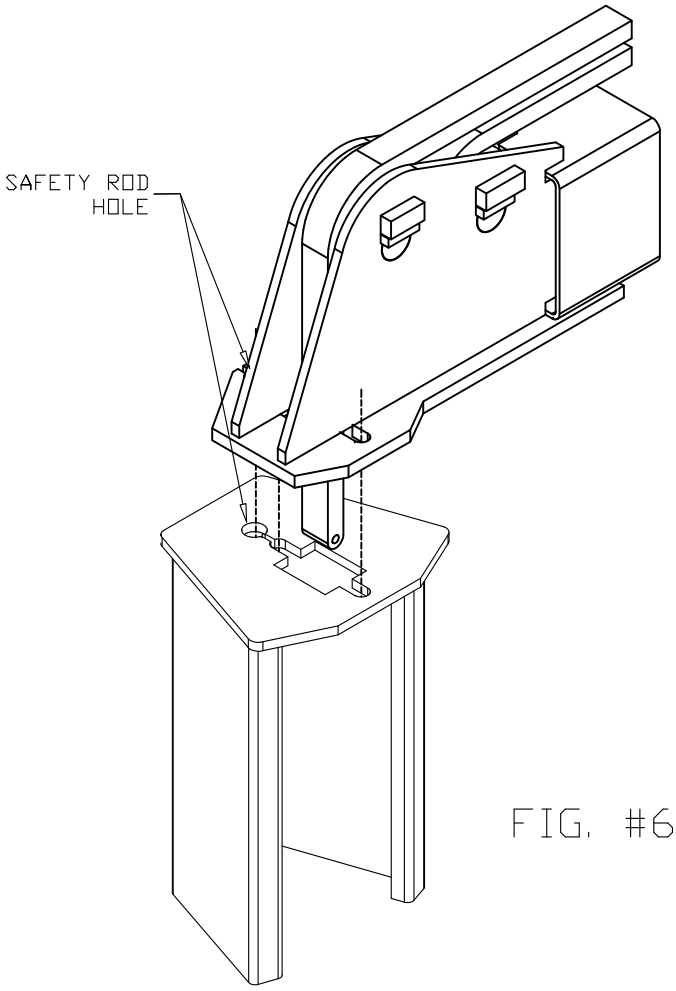

SAFETY ROD
HOLE

FIG. #6

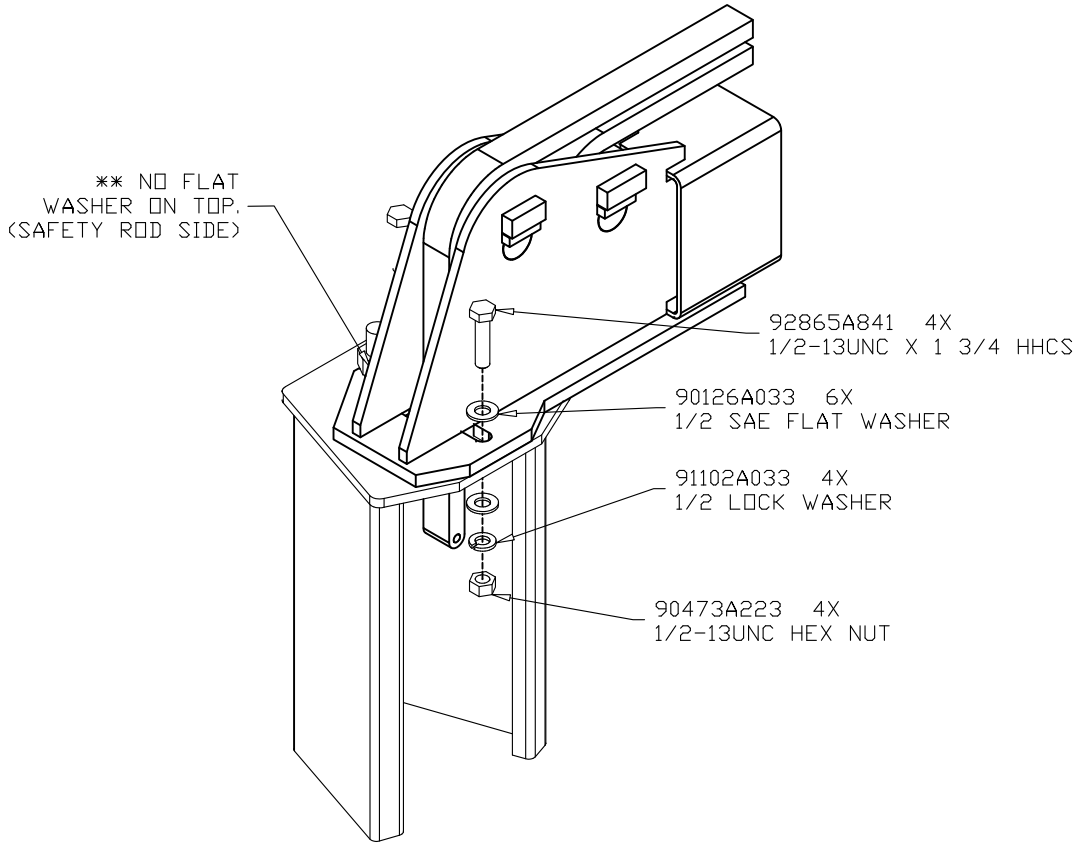

** NO FLAT
WASHER ON TOP.
(SAFETY ROD SIDE)
92865A841 4X
1/2-13UNC X 1 3/4 HHCS
90126A033 6X
1/2 SAE FLAT WASHER
91102A033 4X
1/2 LOCK WASHER
90473A223 4X
1/2-13UNC HEX NUT

FIG. #7

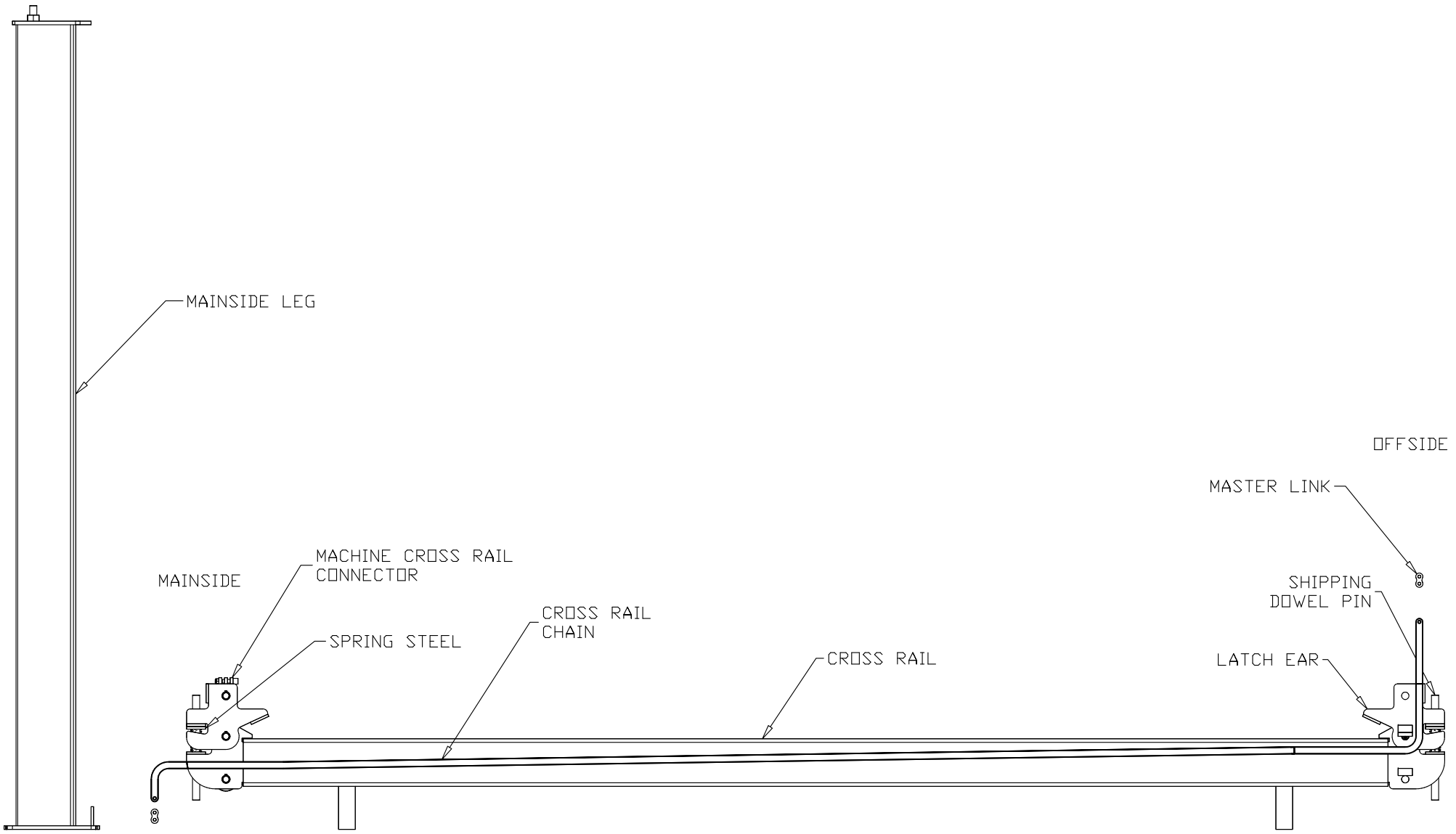

MAINSIDE LEG
OFFSIDE
MASTER LINK
MACHINE CROSS RAIL
CONNECTOR
MAINSIDE
SHIPPING
DOWEL PIN
CROSS RAIL
CHAIN
SPRING STEEL
CROSS RAIL
LATCH EAR

FIG. #8

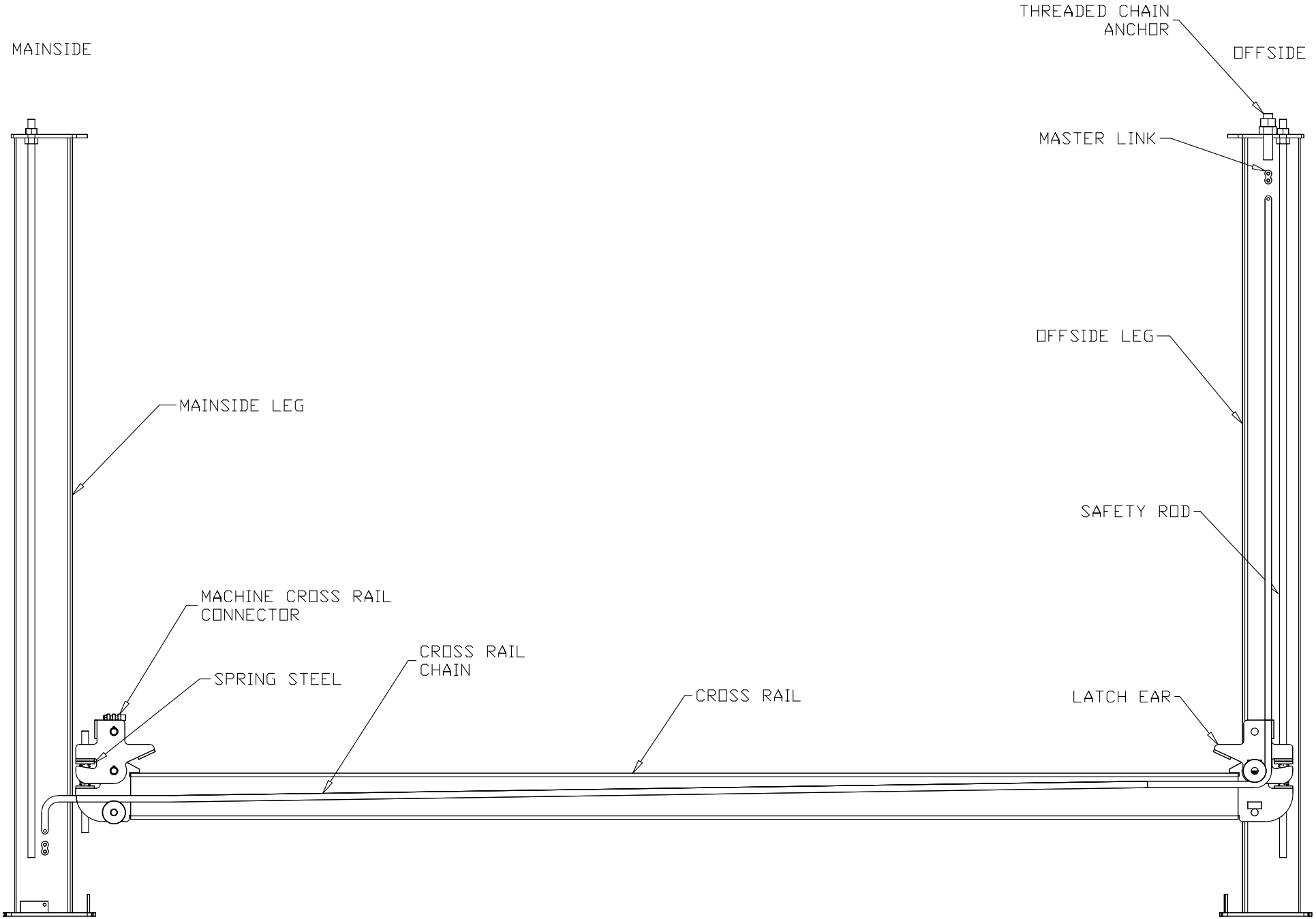

MAINSIDE
THREADED CHAIN ANCHOR
OFFSIDE
MASTER LINK
OFFSIDE LEG
MAINSIDE LEG
SAFETY ROD
MACHINE CROSS RAIL CONNECTOR
CROSS RAIL CHAIN
SPRING STEEL
CROSS RAIL
LATCH EAR

FIG. #9

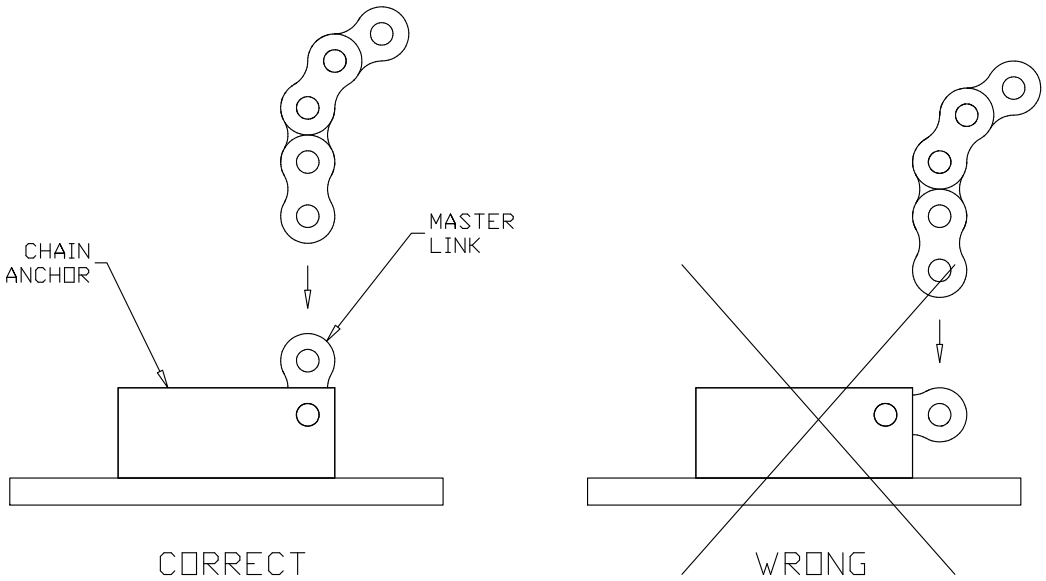

CHAIN
ANCHOR
MASTER
LINK
CORRECT
WRONG

FIG. #10

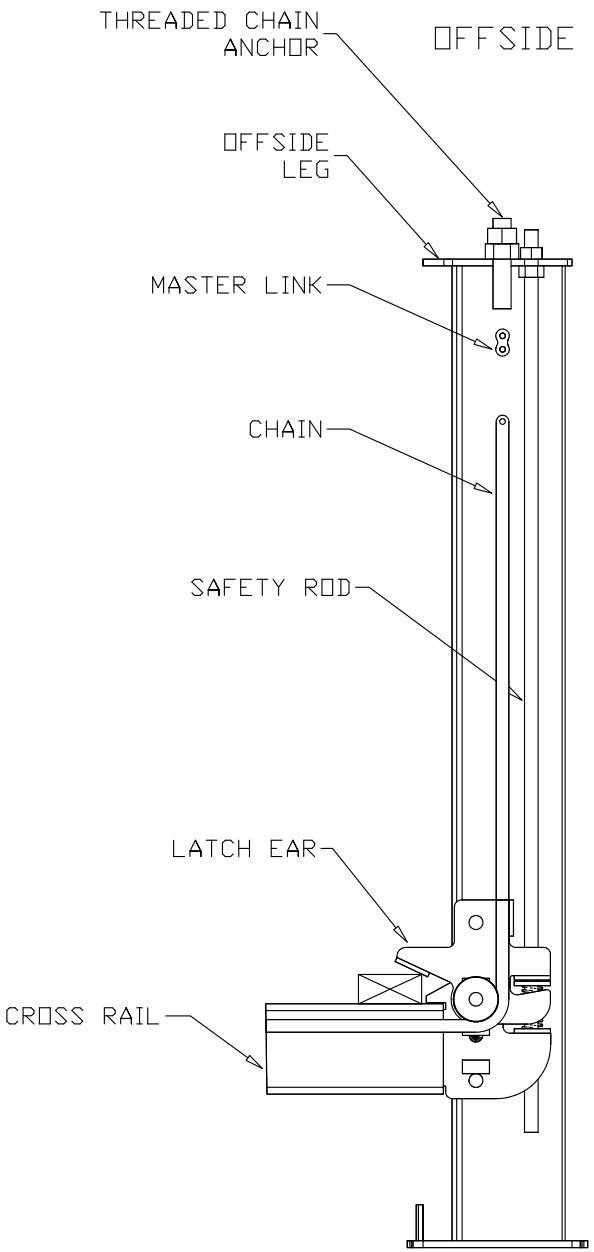

THREADED CHAIN
ANCHOR
OFFSIDE
OFFSIDE
LEG
MASTER LINK
CHAIN
SAFETY ROD
LATCH EAR
CROSS RAIL

FIG. #11

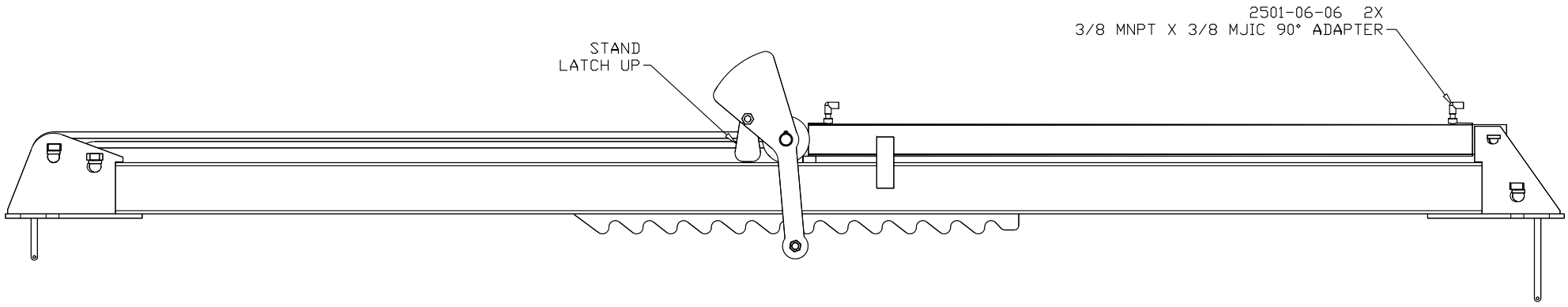
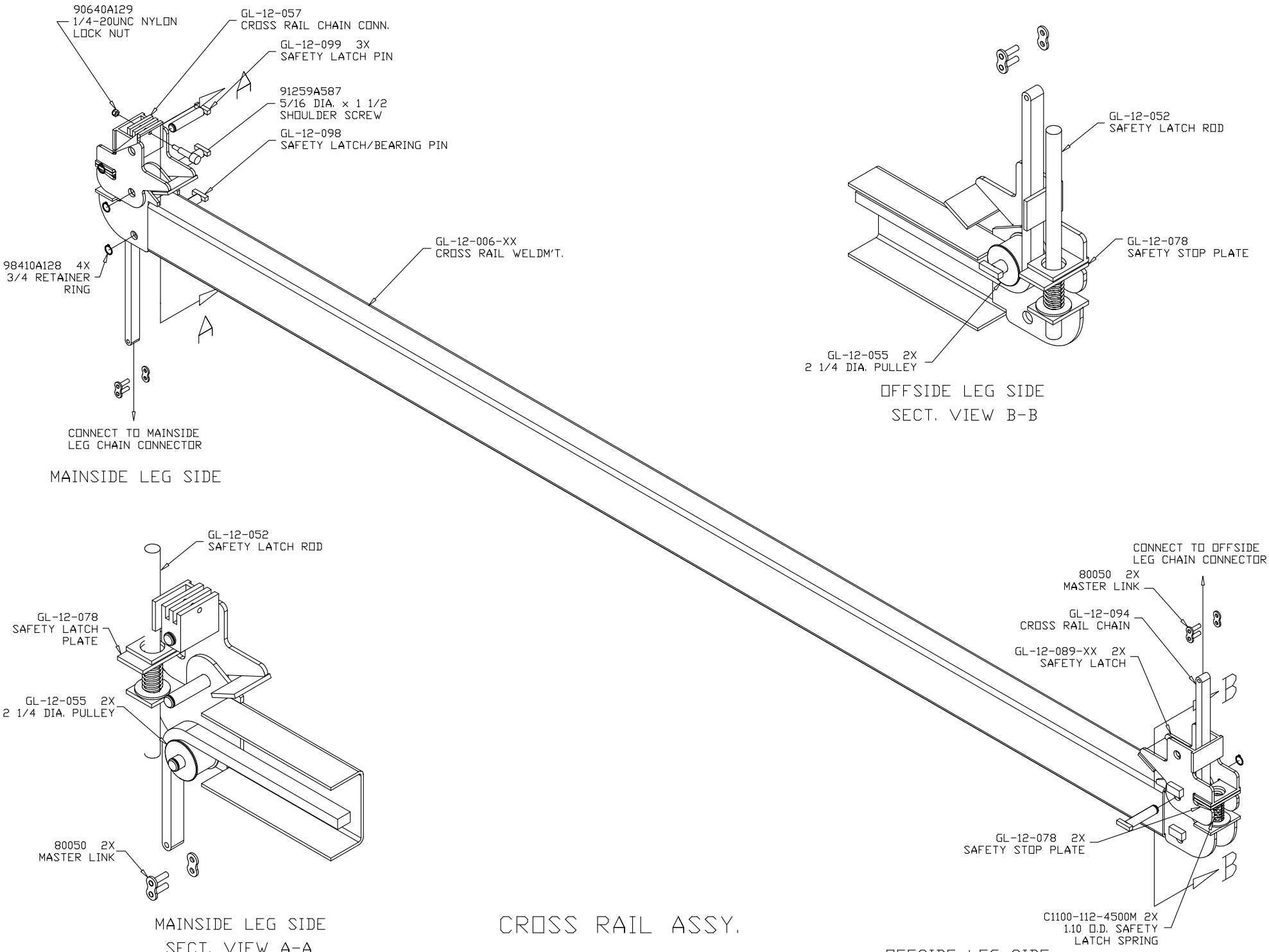
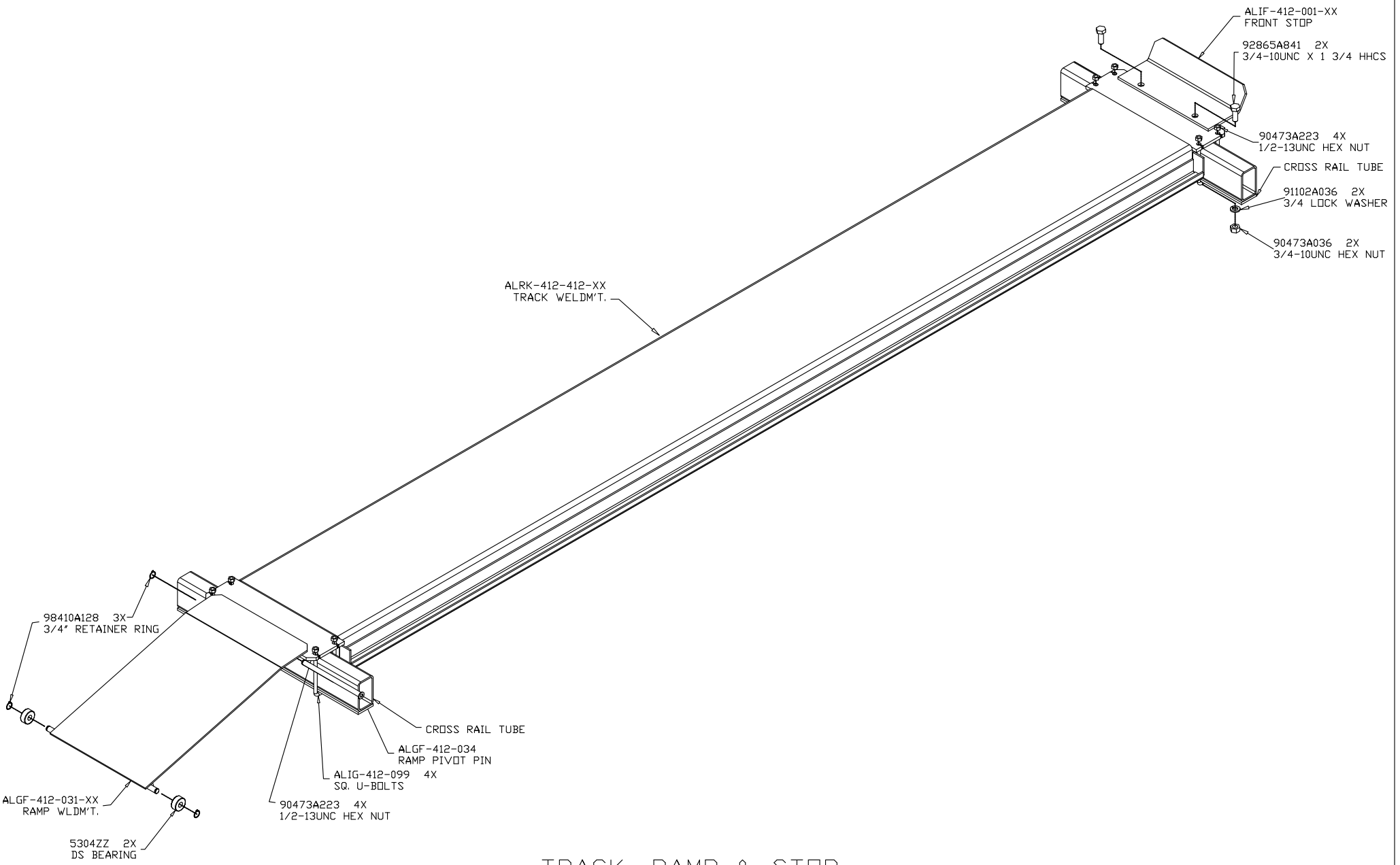


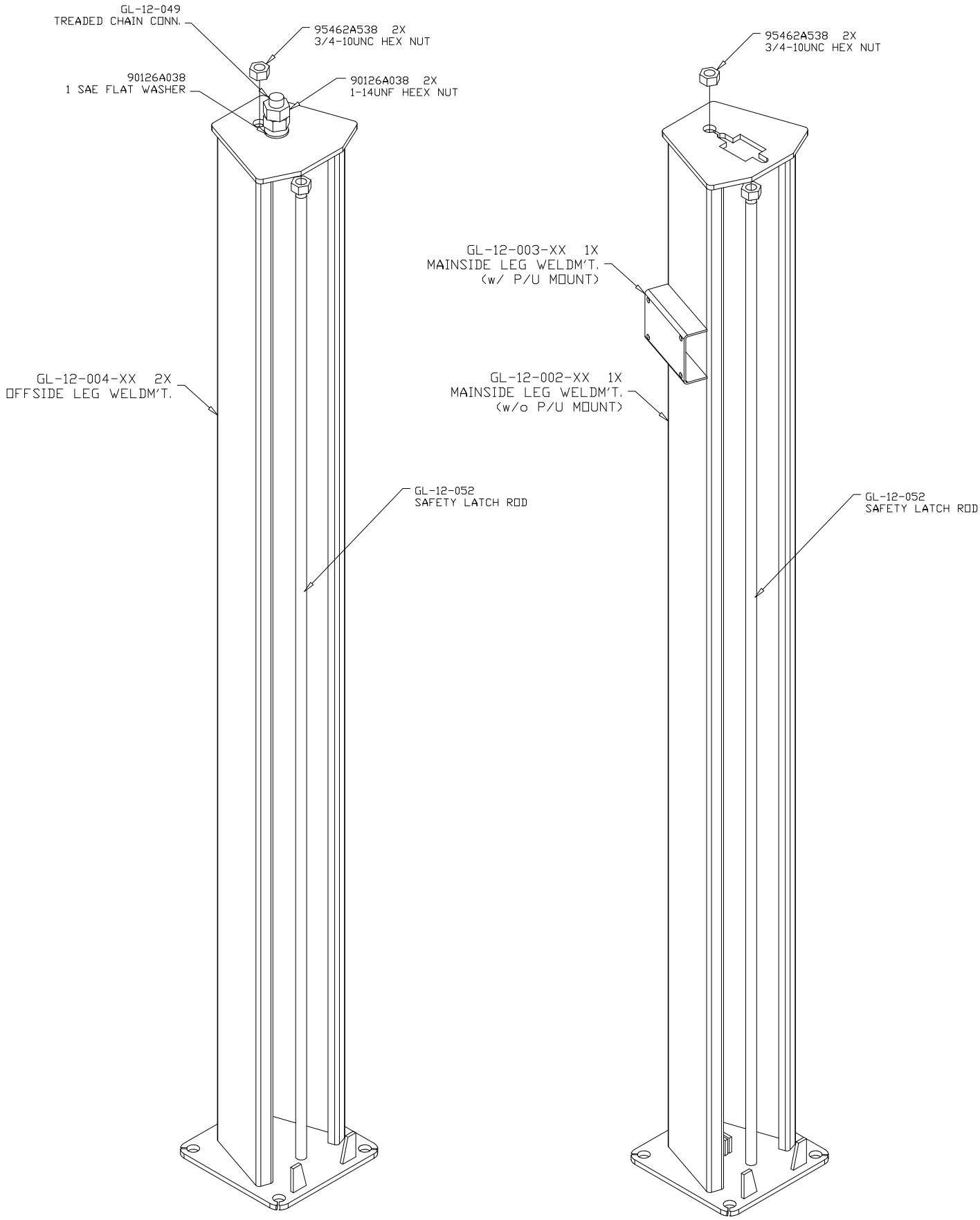
FIG. #12



CROSS RAIL ASSY.



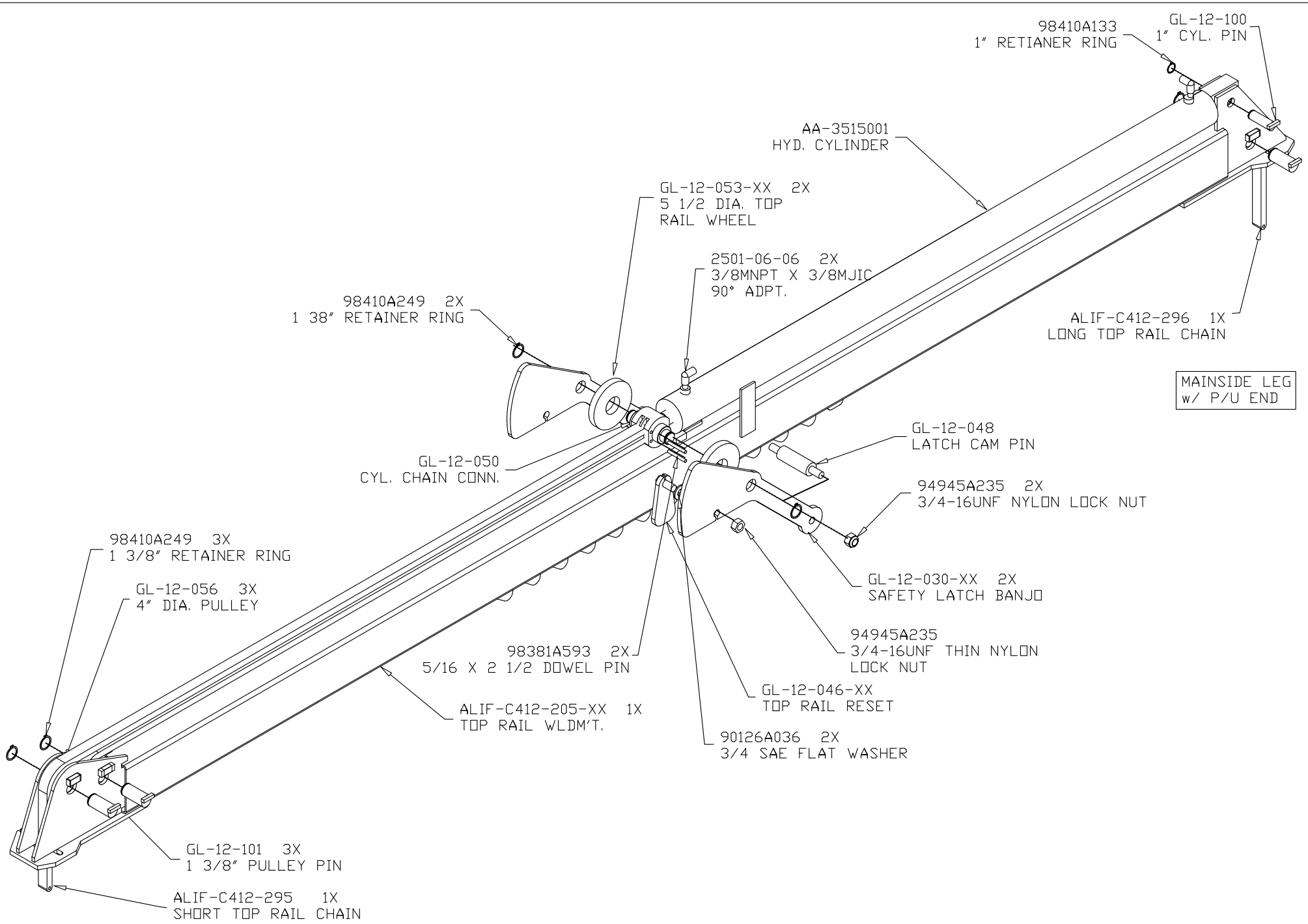
TRACK, RAMP & STOP ASSEMBLY



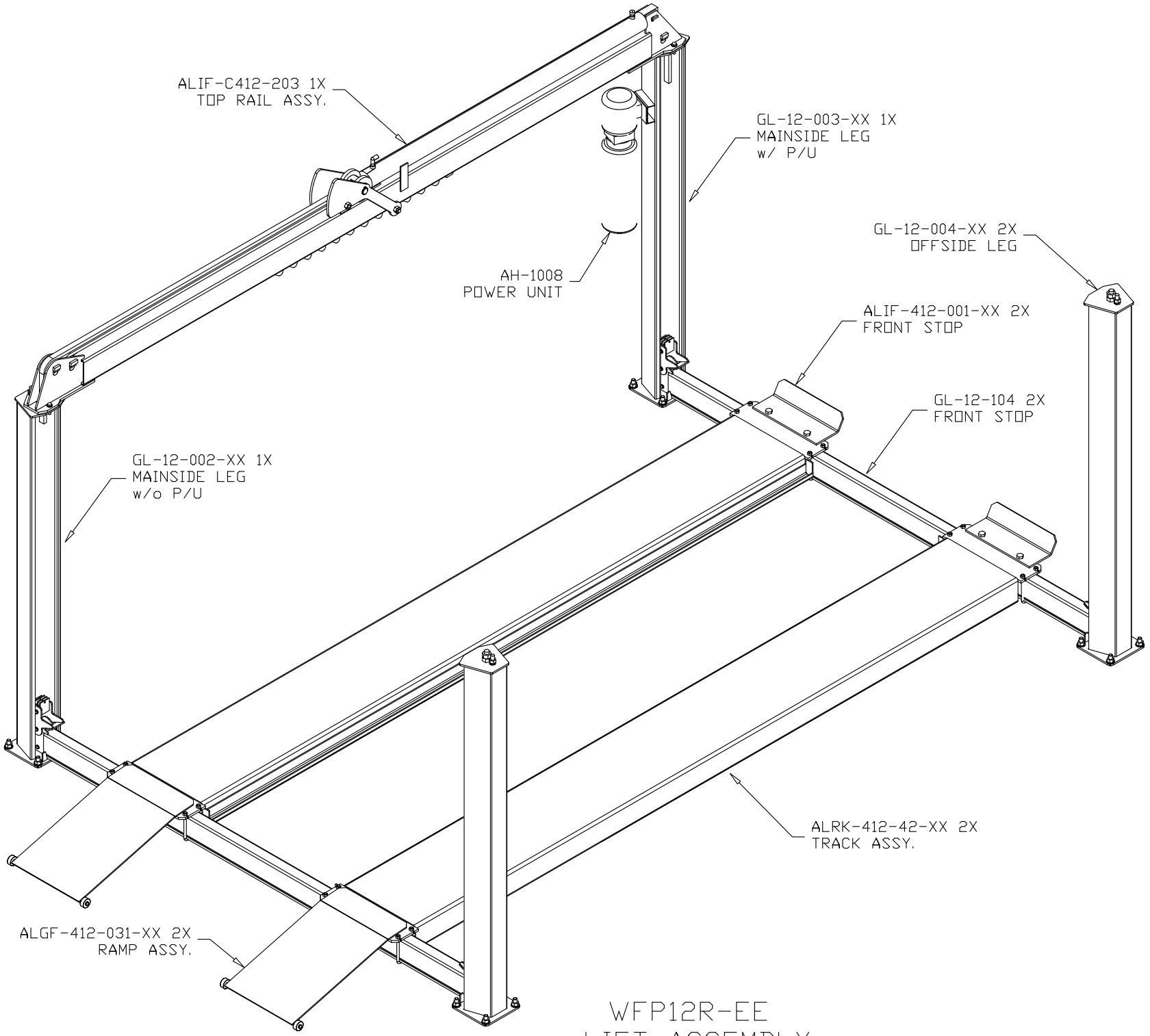
OFFSIDE LEG ASSY.

MAINSIDE LEG ASSY.
w/P/U MOUNT SHOWN

LEG ASSEMBLIES



TOP RAIL ASSY.



WFP12R-EE
LIFT ASSEMBLY

ANTI-SWAY KIT FOR
12K FOUR POST LIFTS
P/N: ALIF-412-028

INSTALLATION INSTRUCTIONS:

1. Insert the nylon Rub Block onto the Sway Guide Weldment. Tap the block on with a hammer. It is very important that the block be fully seated on the fixture.
2. Raise the lift 2 feet.
3. Place the Rub Block end of the Sway Guide up into the corner of the leg.
4. Push the Sway Guide up onto the Cross Rail. Make sure the Sway Guide is in contact with the bottom of the Cross Rail. NOTE: The kit must be installed as shown in FIG. #1 with the bolt on top of the Cross Rail.
5. Once the fixture is fully seated begin securing the Sway Guide with the hardware provide. Make sure the Rub Block is fully seated in the corner of the leg before tightening down.
6. FIG. #2 shows the placement of the Sway Guide on one ends of the Cross Rail.

IMPORTANT:

The Rub Block MUST BE securely seated into the corner of the leg for the Sway Guide to work properly. If not, the Cross Rail Latch weldment will hit the bolt.

PARTS LIST

PART NO.	DESCRIPTION	QTY.
ALIF-412-021-XX	Sway Guide Weldm't.	4
ALIF-412-026	Rub Block	4
90126A033	½ Flat Washer	8
90640A133	½-13UNC Nylon Lock Nut	4
91247A730	½-13UNC HHCS x 4 ½ Lg.	4

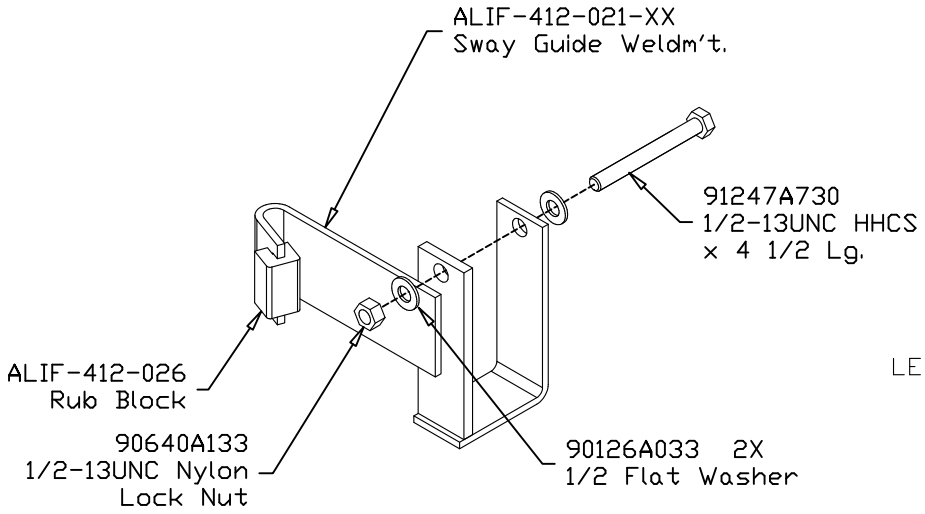

ALIF-412-021-XX
Sway Guide Weldm't.
91247A730
1/2-13UNC HHCS
x 4 1/2 Lg.
ALIF-412-026
Rub Block
90640A133
1/2-13UNC Nylon
Lock Nut
90126A033 2X
1/2 Flat Washer

FIG. #1

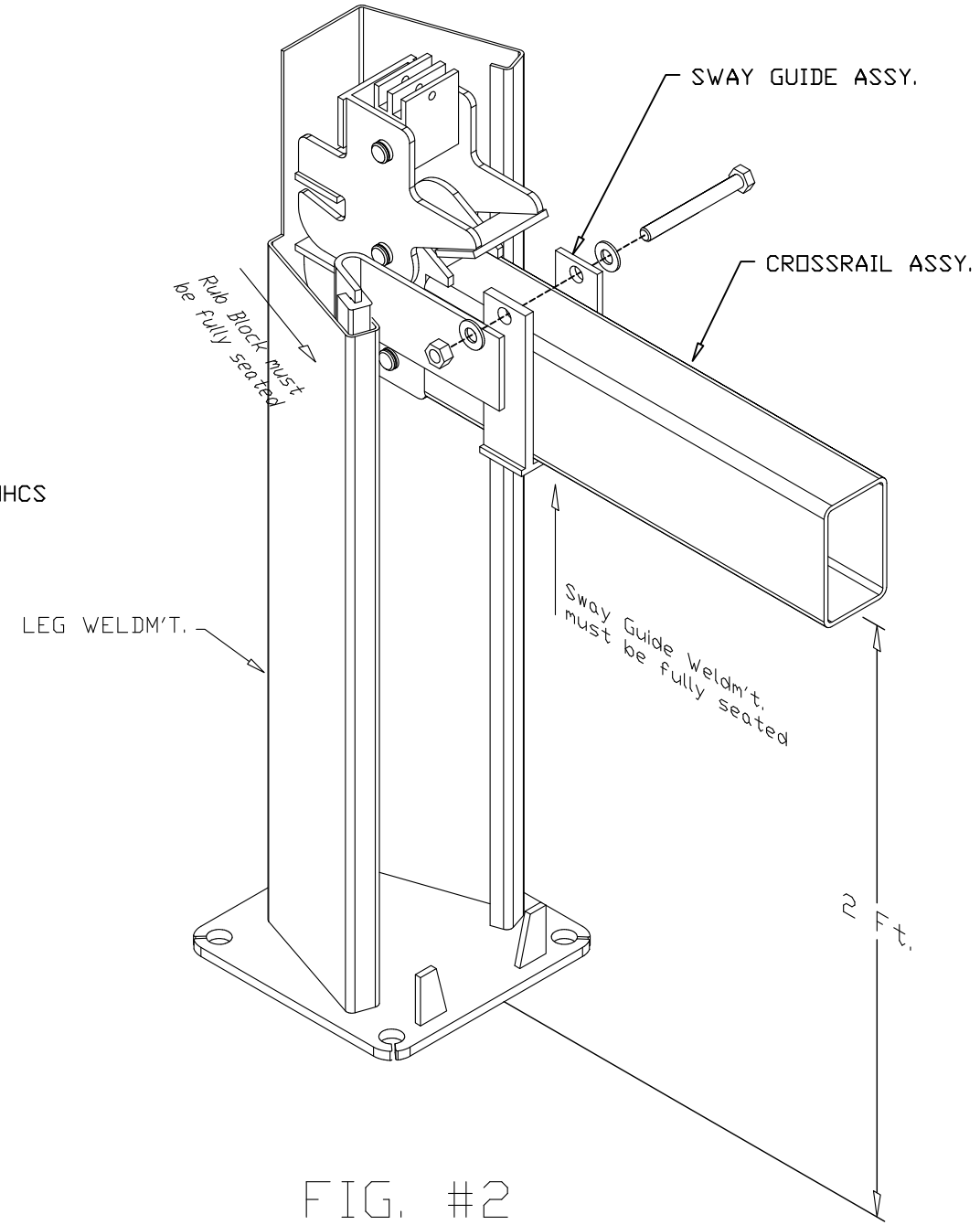

SWAY GUIDE ASSY.
CROSSRAIL ASSY.
Rub Block must be fully seated
LEG WELDM'T.
Sway Guide Weldm't. must be fully seated
2 Ft.

FIG. #2

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.

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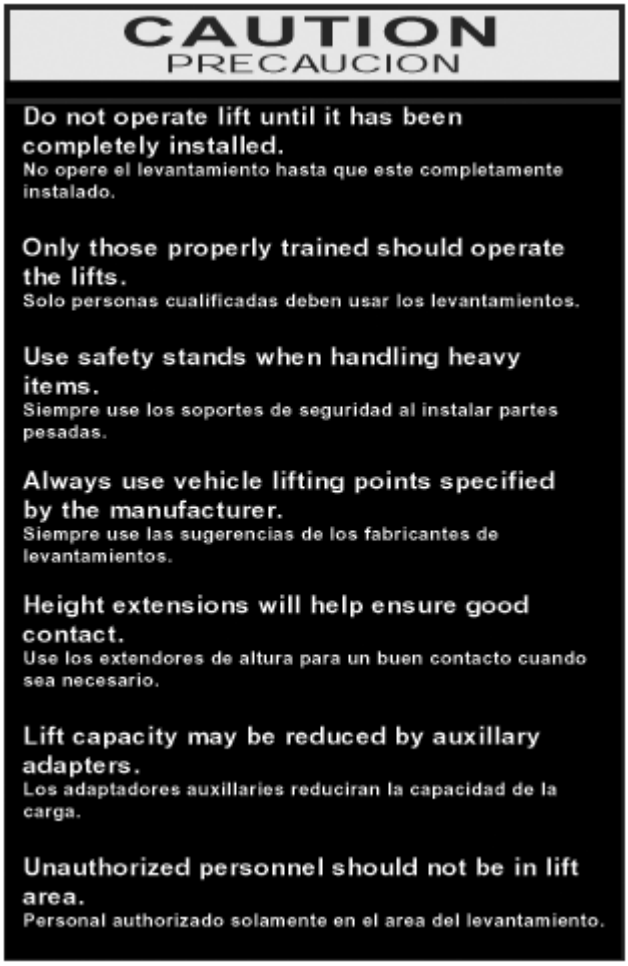
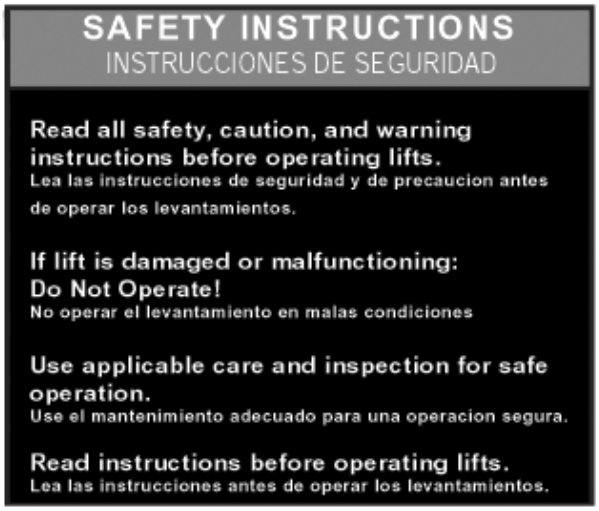
The Signs of Safety

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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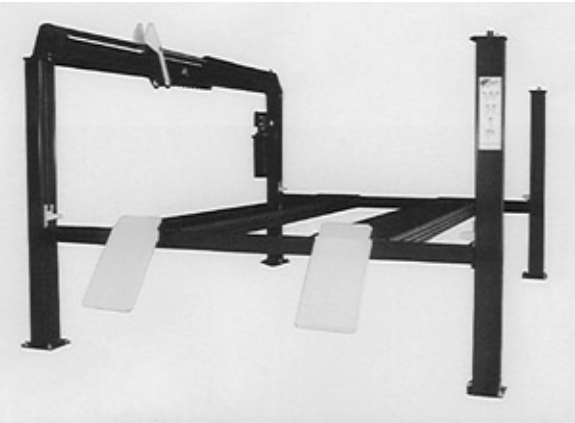
Four Post Lifts



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