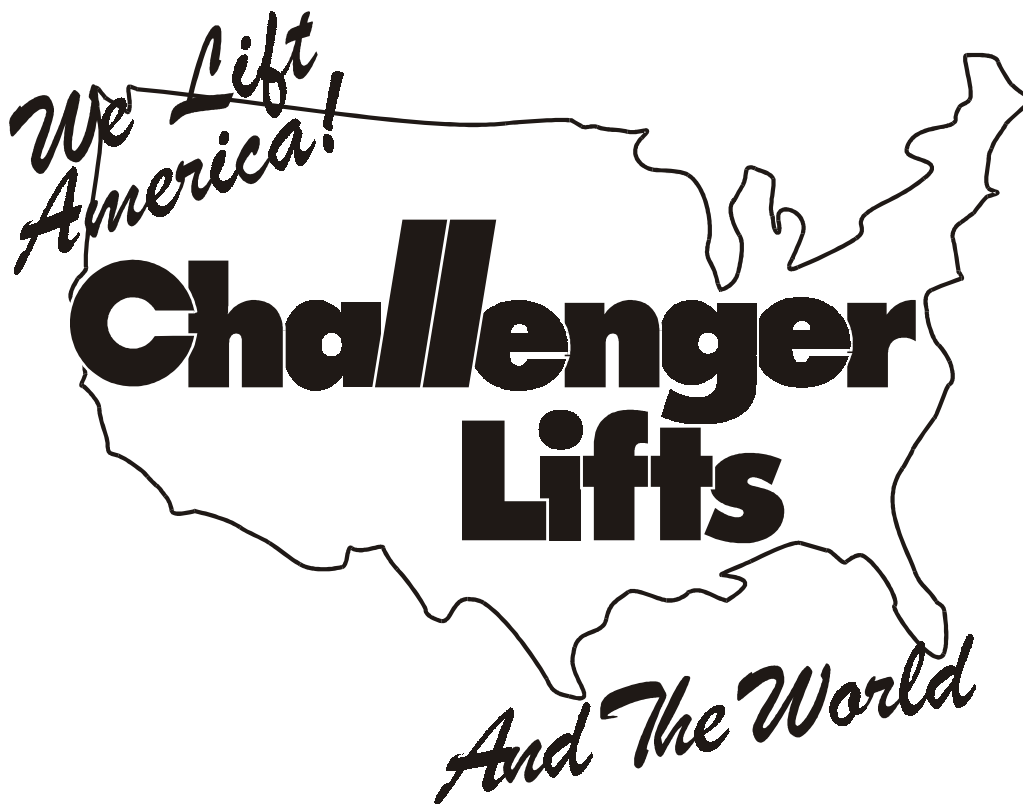


Challenger Lifts, Inc.

Model's 24012*

*(E, W, EW, XL, LR, AR)

FOUR POST SURFACE MOUNTED LIFT OPERATION, INSTALLATION & MAINTENANCE MANUAL



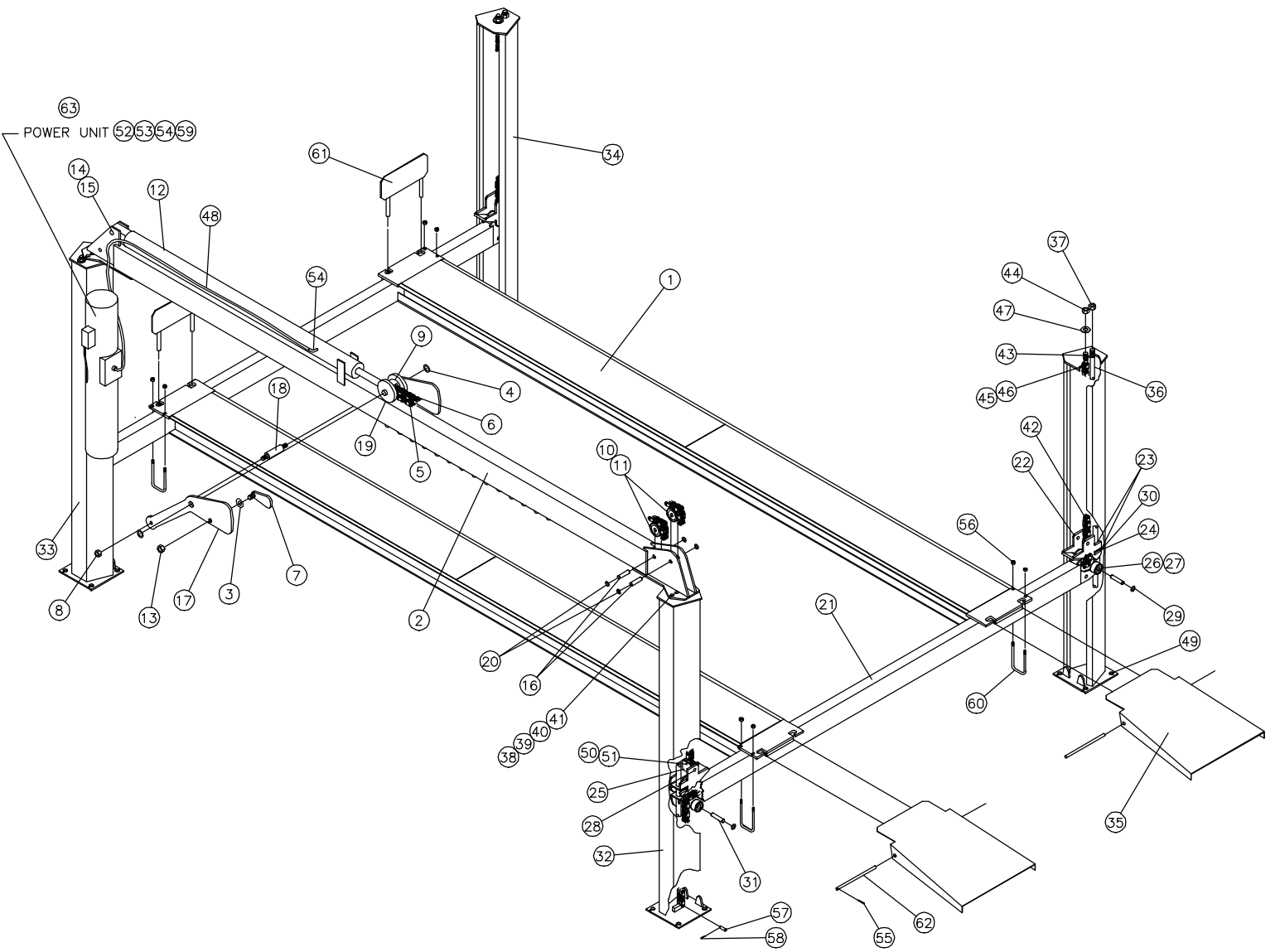
IMPORTANT!!!

READ THIS MANUAL COMPLETELY BEFORE INSTALLING OR OPERATING THE LIFT

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Office (502) 625-0700

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REF	QTY	DESCRIPTION	PART NUMBER
1	2	RUNWAY WELDMENT	601-40-0383,0384,0385,0386
2	1	OVERHEAD BEAM WELDMENT	601-40-0400,0401
3	4	3/4" FLAT WASHER	320-03-0057
4	2	1-3/8" EXT. RETAINER RING	317-01-0011
5	1	261", 301" 4 X 6 CHAIN	443-02-0982,0984
6	1	97", 117" 4 X 6 CHAIN	443-02-0983,0985
7	1	LATCH RELEASE WELDMENT	601-40-0410
8	2	3/4-16 NYLON LOCK NUT	314-03-0059
9	2	5/16" DIA X 2-1/2" DOWELL PIN	315-03-0002
10	3	SHEAVE, 3-3/4" DIA.	423-01-0013
11	6	BEARING FOR SHEAVE	301-01-0022
12	1	4 POST CYLINDER	591-01-1271
13	1	3/4-10 CENTER LOCK	314-03-0075
14	2	1/4" X 1-1/2" COTTER PIN	315-02-0020
15	1	CYLINDER MOUNT PIN	443-02-0879
16	3	SHEAVE PIN	443-02-0880
17	2	LATCH PLATE	443-02-0852
18	1	LOCK PIN	443-02-0886
19	2	WHEEL ASSEMBLY	443-02-0887
20	6	3/4" EXT. RETAINER RING	317-01-0012
21	2	CROSSBEAM WELDMENT	601-40-0412
22	4	LATCH WELDMENT	601-40-0416
23	12	3/4" FLAT WASHER	320-03-0057
24	4	SPRING	429-02-0039
25	2	LOCK BLOCK	443-02-0977
26	4	SHEAVE, 2.38" DIA.	423-01-0011
27	8	BEARING FOR SHEAVE	301-01-0023
28	6	LATCH PIN	443-02-0882
29	16	3/4" EXT. RETAINER RING	317-01-0012
30	4	ACTUATOR PLATE	443-02-0909
31	2	SHEAVE PIN	443-02-0880
32	1	POST WELDMENT	601-40-0418
33	1	POST WELD., POWER UNIT	601-40-0422
34	2	POST WELD., STANDARD	601-40-0423
35	2	RAMP WELDMENT	601-40-0438
36	4	SAFETY ROD	443-02-0863
37	8	3/4-10 HEX NUT	314-02-0014
38	18	1/2-13 X 2 HEX HEAD BOLT	302-02-0123
39	36	1/2" FLAT WASHER	320-03-0052
40	18	1/2" LOCK WASHER	320-04-0007
41	18	1/2-13 HEX NUT	314-02-0012
42	2	206" 3 X 4 CHAIN	443-02-0913
43	2	THREADED END	443-02-0862
44	2	1"-14 LOCK NUT	314-03-0021
45	2	3/4" 3 X 4 MASTER LINK	304-05-0005
46	2	1/8" X 1-1/2" COTTER PIN	315-02-0002
47	2	1" FLAT WASHER	320-03-0024
48	1	3/8" HOSE ASS'LY, 110.5" LONG	601-40-0428
49	16	ANCHOR BOLT ASS'LY	302-15-0002
50	2	1/4-20 LOCK NUT	314-03-0050
51	2	SHOULDER BOLT	319-22-0015
52	4	5/16-18 NYLON LOCK NUT	314-03-0083
53	4	5/16 X 1 HEX HEAD BOLT	302-02-0115
54	2	90 ELBOW, #6MO X #6MJ	312-01-0104
55	4	1/8" X 1-1/2" COTTER PIN	315-02-0002
56	8	1/2" JAM NUT	314-04-0023
57	2	5/16" X 1-1/4" HEADED PIN	443-02-0874
58	2	1/8" X 3/4" COTTER PIN	315-02-0021
59	4	5/16" FLAT WASHER	320-03-0035
60	8	U-BOLT	443-02-0875
61	2	FRONT STOP	601-40-0643
62	2	RAMP MOUNT PIN	443-02-0914
63	1	POWER UNIT	367-01-0079

Installation Procedure

1. Determine the location for the lift installation. Fig. 1 gives the overall dimensions of the lift, including the drive on ramps. The area must be level and there must be free access to load and unload the vehicles.

There must be enough overhead clearance to raise vehicles six feet above the floor. Thirteen feet is the recommended ceiling height.

The floor must be 3000 psi concrete with a minimum thickness of four inches and steel reinforced per local commercial practice. If pads are used, they must be two feet square with a minimum thickness of twelve inches and steel reinforced per local commercial practice. Fig. 2 gives the pad layout dimensions.

2. Refer to Fig. 3, General Arrangement. For muffler work, it is satisfactory to erect the lift with the cylinder beam on the left, or drivers side. For alignment and work, which require access to the front seat of the car, the top rail can be positioned on the right side so it is out of the way.
3. Refer to Fig. 2 to get the dimensions for the post base locations. Refer to Fig. 1 to determine where to locate the sides and ends of the post base plate with respect to walls and other obstacles at the installation. Include additional clearance where required near walls and obstacles.
4. Once the location is determined, use a chalk line to mark base line A-B to locate one side of the lift, refer to Fig 4. Use the width dimension from Fig 2 to measure off the dimensions A-D and B-C. Draw arcs as illustrated in Fig. 4. Draw a chalk line D-C tangent to the two arcs to establish the other side of the lift.
5. Mark on one of the two parallel lines the points 1 and 2 to establish the ends of the post base plate as determined from Figs. 1 and 2. From points, 1 and 2 measure diagonally to the opposite parallel line to determine points 3 and 4. Draw a chalk line between points 1 and 4 and points 2 and 3. The four lines locate the four outside corners of the post base plates.
6. Position the cylinder beam and the two main side posts as shown in Fig. 5. The main side post which has the drilled hole pattern on one side is the power unit post. Bolt the cylinder beam to the main side posts using $\frac{1}{2}$ -13 x 1 $\frac{3}{4}$ bolts, washers, and nuts (use shipping bolts). Use 2 bolts on the power post and 3 on the other main side post.
7. Lift the assembled cylinder beam to the upright position. Place the post base plate into their corners of the chalk line rectangle. Check the centering of the bolting slots of the top rail and main side leg tops. Correct as necessary, the main side post must be plumbed before tightening.
8. Review the concrete anchor bolt instructions near the back of this manual. Drill, install, but do not tighten the 4 anchor bolts for the rear leg. **DO ONLY THE REAR MAIN SIDE POST AT THIS TIME.**

9. Plumb the post so that it is perpendicular. Use the level and check both side-to-side and front to rear. Use shims, 3/4" steel flat washers or 1/16 or 1/8 thick by 1" wide steel flat, strips are recommended for shims. Tighten the anchor bolts and recheck for plumb. Adjust if necessary.
10. After anchoring the rear MAIN SIDE post, align the front post with the chalk lines. Check and adjust plumb of the front post. The base plate may vary from the measured dimensions slightly, but it is more important that the post be plumb and parallel with the other post. Install the anchor bolts in the front main side post. After completion of steps 8 & 9 tighten cylinder beam mounting bolts.

IMPORTANT

DO NOT DRILL OR SET OFF SIDE POST ANCHOR BOLTS AT THIS TIME. THE LIFT MUST BE CORRECTLY ALIGNED AND CYCLED BEFORE THE ANCHOR BOLTS ARE INSTALLED.

11. Position cross rails in their approximate locations. **Note: The tapped holes on the cross tube must be facing out for proper anti-sway installation.** The lifting chain connector must be at the MAIN SIDE post location. See Fig. 6.
12. Use a pull wire to pull the cross rail chain through the cross rail tube. The chain runs over the sheave at the main side end and under the sheave at the off side end. See Fig. 7. Repeat for the other cross rail.
13. Attach the cross rail chain to the main side post chain anchor with a 5/16 headed pin and cotter key. Repeat for the other cross rail. See Fig. 6.

IMPORTANT

THE CROSS RAIL CHAIN MUST HAVE THE CENTER LINK AND IT MUST BE IN A VERTICAL POSITION, NOT COCKED TO THE FRONT OF THE CHAIN ANCHOR. FAILURE TO FOLLOW THIS REQUIREMENT COULD RESULT IN PERSONAL INJURY OR PROPERTY DAMAGE.

14. Position a 2 x 4 block under the safety latch on the main side end of the cross rail as shown in Fig. 6. Remove the packing pin from the cross rail end assembly. Install a 3/4 nut onto the safety rod. Turn down the nut to the bottom of the thread on the rod. Insert the safety rod into the space previously occupied by the packing pin in the cross rail end assembly. Insert the threaded end of the rod into the rear hole at the top of the main side post. Secure the top of the safety rod with a 3/4 nut. The top 3/4 nut should be flush with the end of the safety rod and the bottom nut should be tightened against the post top cap. Remove the wooden block. Repeat at each post.
15. Remove the cap from the front cylinder port. Manually extend the cylinder ram. Attach the lifting chains to each cross rail chain connector using a 5/16 x 3 grade 8 shoulder bolt and lock nut. See Fig. 6.

IMPORTANT

THIS BOLT MUST BE THE SHOULDER BOLT SUPPLIED WITH THE LIFT OR MEET THE SPECIFICATIONS ABOVE. FAILURE TO FOLLOW THIS

REQUIREMENT COULD RESULT IN PERSONAL INJURY OR PROPERTY DAMAGE.

16. Install the bolt end of the cross rail chain into the hole at the top of the off side posts. Attach the 1" washer and nylon lock nut to the bolt. Hold the chain with a crescent wrench and tighten the nut to remove most of the slack from the chain. Repeat for the other cross rail.
17. Attach the power unit to the front main side post using the 5/16" hardware provided.
18. Attach the hydraulic hose between the fitting at the rod end of the cylinder and the fitting just above the power unit tank. Secure the hose to the cylinder with the tie wraps.
19. Connect the power unit to a dedicated 30 amp electrical branch circuit, using wiring methods prescribed by local codes. Refer to Fig. 8 for wiring schematic.
20. Using a funnel in the breather cap fitting on the power unit reservoir, fill the reservoir with 11 quarts of clean petroleum or vegetable based hydraulic oil.

DO NOT OVERFILL THE RESERVOIR. The oil level should be no higher than 2 inches below the mounting flange of the tank. Check by removing the screw just below the reservoir cap, and filling until oil comes out of the hole. Replace the screw.

21. Using the power unit, raise the cross rails about 6 inches. Level the cross rails by adjusting the cross rail chain tension at the top of the off side posts. Use a level to check the cross rails.
22. Position the runways on the cross rails. Place the runways equal distance from the center of the cross rails. 36 ½" Between the runways is suggested for model 24012LR, 38 ½" for all other models. Install the "U" bolts provided to each outside corner of the runways, but **DO NOT** tighten at this time. If an oil pan or jacking beam is to be installed, do not install the "U" bolts at the end the jack or oil pan will be rolled on from until the equipment is installed.
23. Position the off side posts and plumb so that the cross rail chain in the off side posts hangs straight, the lifting chains in the main side posts hang straight, the cross rails hang in the center of the post openings and the runways are positioned correctly on the cross rails.

DO NOT AT THIS TIME DRILL OR INSTALL THE ANCHOR BOLTS FOR THE OFF SIDE POSTS. THE LIFT MUST BE CYCLED UP AND DOWN AND CHECKED FOR CORRECT ALIGNMENT BEFORE THE BOLTS ARE INSTALLED.

THE OFFSIDE POSTS MAY VARY SLIGHTLY FROM THE CHALK LINE LAYOUT POSITIONS. IT IS MORE IMPORTANT THAT THE POSTS BE SQUARE AND PLUMB AND THE LIFT CYCLES FREELY.

24. Raise the lift to the top of its travel. Check the positioning of the cross rails in the posts as the lift is raised. The single point safety release will move across the rack at the bottom of the cylinder beam. At the top of the lifts travel, pull down the safety release until the cam locks it in this position. Lower the lift. Check the operation and positioning of the lift as it is being lowered. Correct any problems by adjusting the position and plumb of the offside posts. If the cylinder beam safety latch does not operate properly refer to the Trouble Shooting Section of this manual.
25. When the lift is operating correctly, drill and install the anchor bolts for the off side posts.
26. Complete the installation of Models 24012, W, E, EW, and XL by installing the runway end chocks and the approach ramps. The chocks are installed by dropping the pins on the chock into the holes on the runway ends. The ramps are installed with a hinge pin and cotter pins provided.
27. Cycle the lift fully three times to bleed the air from the hydraulic system.
28. After completing the general installation, and confirming that all columns are plumb and square. The anti-sway devices can be installed.
29. Each anti-sway assembly consists of (1) bracket, (1) nylon slide block, (2) 3/8-16 x 1 hex head capscrews, (2) 3/8" split lock washers and (2) 3/8" flat washers.
30. Raise the lift to a comfortable working height. Install each assembly at the outside corner of each cross rail with the hardware supplied. The cross rails are pre-drilled and tapped. Only hand tighten the assemblies at this time.
31. With the lift in the completely lowered position set each assembly so that contact is made between the slide block and the column. Cycle the lift to full stroke to insure that the slide blocks are set to the widest point encountered during travel. Finish the installation by tightening all the hardware.
32. Demonstrate the operation of the lift to the owner and review correct and safe lifting procedure, using the "Lifting It Right " booklet as a guide.
33. Complete the installation Checklist/Warranty Validation Questionnaire with the owner. Review the terms of the warranty with the owner. Complete the warranty registration card, and return the card and a copy of the questionnaire to Challenger Lifts Inc.

Continued Installation for Alignment Rack (24012AR)

1. After completing the general installation, activate the alignment rack slip plates by raising the slip plates and installing the ball bearings into the holes in the spacer plates. Each spacer plate will accept ten ball bearings.

2. Attach the “L” pins to their locking blocks on the outside of the tracks using the cables and clamps provided.
3. The alignment lift is supplied with leveling legs. To install these legs raise the lift to a comfortable working height, and attach the leveling leg assemblies at each outside corner of the lift using the ½-13 bolts and nuts provided. Lower the lift onto the leveling legs and level by adjusting the foot at each leg.
4. Install ½-13 bolt and nut (shipping hardware) in the hole in the jack rail at the front (turn plate) end. This bolt will act as a stop for the rolling oil drain pan or bridge jack.

Continued Installation for Lube Rack 24012LR

1. Locate and install the center walk platform between the runways at the front end using the 3/8-16x1 1/4 bolts provided. Attach gate lock to center platform using 3/8-16x1 1/4 bolts provided.
2. Install gate post at front end of rack using 3/8-16 x 3/4 hex bolts provided. Install gates and lock rod. Check the gate swing for proper operation, some shimming of the gate post may be necessary for proper gate swing.
3. Assemble wheels to the ladder using the axle, 5/8” washers and 1/8 x 1 1/4 cotter keys provided. Attach the ladder assembly to the rack using the axle, 5/8” washers and 1/8 x 1 1/4 cotter keys provided.
4. Install walkway railing in pockets and shim as needed. Assemble ladder railing to ladder using 3/8-16 x 2 1/4 bolts and nylon lock nuts provided. Install 12 plastic square tube caps.
5. For drive through applications remove front wheel chocks and install drive through ramps using axles and 1/8 x 1 ½ cotter keys provided.

Anchor Bolt Installation

1. Insure the concrete has had sufficient time to cure - 28 days minimum.
2. Always wear safety glasses.
3. Follow the drill manufacturers safety instruction.
4. Use only solid carbide-tipped drill bits meeting ANSI B94 tip diameter standards.

5. Drill the anchor bolt holes perpendicular to the work surface. To assure full holding power, do not ream the hole or allow the drill to wobble.
6. Drill the hole at least as deep as the full length of the anchor, completely through the slab if possible.
7. Clean the hole, using compressed air and a wire brush. A clean hole is necessary for proper performance.
8. Assemble the washer and nut on the anchor bolt so that the anchor protrudes slightly beyond the nut.

The anchor should drop easily into the hole, requiring no more than a slight tap to seat it fully.

9. Tap the anchor through the fixture (lift base plate) and into the hole, making sure that the nut rests solidly against the fixture.
10. Tighten the nut to 150 ft-lbs for 3/4 inch diameter bolts and to 75 ft-lbs for 3/8 inch diameter bolts.

Lift Operation Instructions:

Notice: This Challenger Model 24012* surface mounted automotive lift has been designed and constructed in accordance with ANSI/ALI B153.1-1990 standard to insure that it is safe to use. The standard applies to lift owners and employers, as well as to lift manufacturers. The owner/employer's responsibilities, as prescribed by ANSI/ALI B153.1-1990 are summarized below. For the exact wording, refer to the actual standard included in the literature pack.

The Owner/Employer shall ensure that the lift operators are instructed in the safe use and operation of the lift using the manufacturer's instructions and the "Lifting It Right" and "Safety Tips" literature supplied with the lift.

The Owner/Employer shall display the operating instructions and “Lifting It Right” and “Safety Tips” Literature supplied with the lift in a conspicuous location in the lift area convenient to the operator.

The Owner/Employer shall establish procedures to periodically maintain, inspect, and care for the lift in accordance with the manufacturer’s recommended procedures to ensure its continued safe operation.

The Owner/Employer shall provide necessary lockout/tagouts of energy source per ANSI Z244.1-1982 before beginning any lift repairs.

The Owner/Employer shall not modify the lift in any manner without the prior written consent of the manufacturer.

Raising Vehicles:

1. Drive the vehicle onto lift. Set the parking brake.
2. Push the power button on the power unit to raise the vehicle to the desired height.
3. Depress the lowering valve handle on the power unit to lower the lift onto the safety latch.
4. **Before walking under the lift, verify that the safety latch locking pin is positioned in the latch rack under the top rail tube.**

Lowering Vehicles:

1. Raise the lift off the safety latch by pushing the raise button on the power unit.

2. Release the safety latch by pulling down on the latch until the cam sets to hold this position.
3. Lower the lift by depressing the lowering valve handle on the power unit.

IMPORTANT

DO NOT WORK OR WALK UNDER THE LIFT WHEN THE SAFETY LATCH IS IN THE RELEASE POSITION. IF IT IS NECESSARY TO RETURN UNDER THE VEHICLE, RESET THE LEVER BY LOWERING THE LIFT SLIGHTLY, THEN RAISING IT AGAIN. VERIFY THAT THE SAFETY LATCH LOCK PIN IS ENGAGED IN THE LATCH RACK.

IMPORTANT

THE SAFETY LATCH WILL AUTOMATICALLY RESET WHEN THE LIFT IS RAISED OF THE GROUND. ALWAYS VERIFY THAT THE LATCH IS OPERATING WHEN THE LIFT IS BEING USED. CORRECT ANY PROBLEM BEFORE USING THE LIFT.

Maintenance:

The following maintenance points are suggested as the basis of a preventive maintenance program. The actual maintenance program should be tailored to the installation site.

Daily

Inspect the lift for loose anchor bolts (if loose tighten to 70-80 ft-lbs), fluid leaks and loose connections.

ALL ANCHOR BOLTS SHOULD TAKE FULL TORQUE

Weekly

Check fluid level in the power unit reservoir.

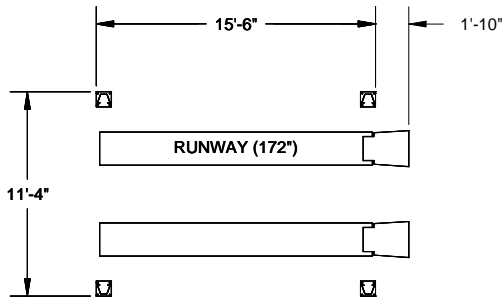
Monthly

Check cross rail and lift chains for wear and tension, adjust if necessary. Lubricate chain with light oil to reduce drag.

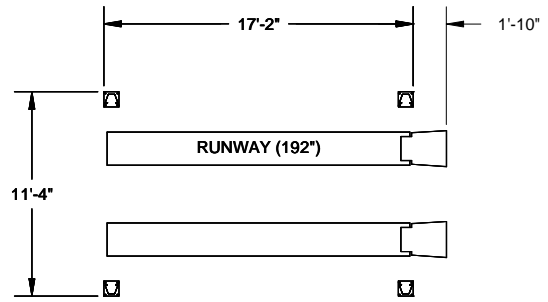
Trouble Shooting Guide:

1. Lift will not rise when button is pushed.
 - a. Blown Fuse - Replace fuse
 - b. Crushed hydraulic line - replace line
 - c. Micro switch not operating - call factory for replacement
 - d. Oil supply is low - fill reservoir with proper oil
 - e. Lift overload - remove load.
2. Lift will not lower.
 - a. Lift is obstructed by foreign body - remove object
 - b. Lock has not been released - raise lift and release latch.
3. Lift will drift down when upward travel stops.
 - a. Debris is lodged in lowering valve - depress lowering valve handle and energize pump at the same time. This will purge the valve.
4. Lift will not lift vehicle to top position.
 - a. Low on oil - Fill reservoir with proper oil

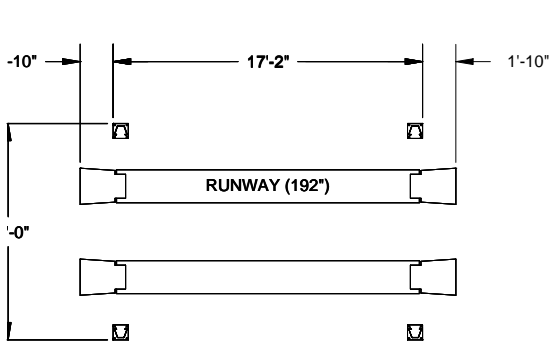
Figure 1



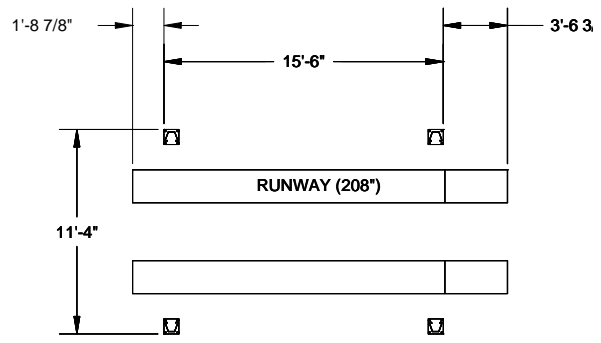
STANDARD LIFT DIMENSIONS
 (24012, 24012W)



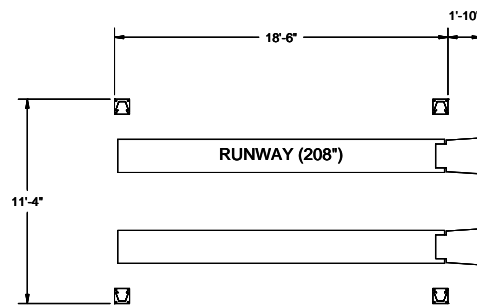
EXTENDED LIFT DIMENSIONS
 (24012E, 24012EW)



LUBE LIFT DIMENSIONS
 (24012LR)



ALIGNMENT LIFT DIMENSIONS
 (24012AR)



EXTRA EXTENDED LIFT DIMENSIONS
 (24012XL)

Overall Lift Dimensions

Models 24012 (E, W, EW, XL, LR, AR)
 Installation, Operation and Maintenance

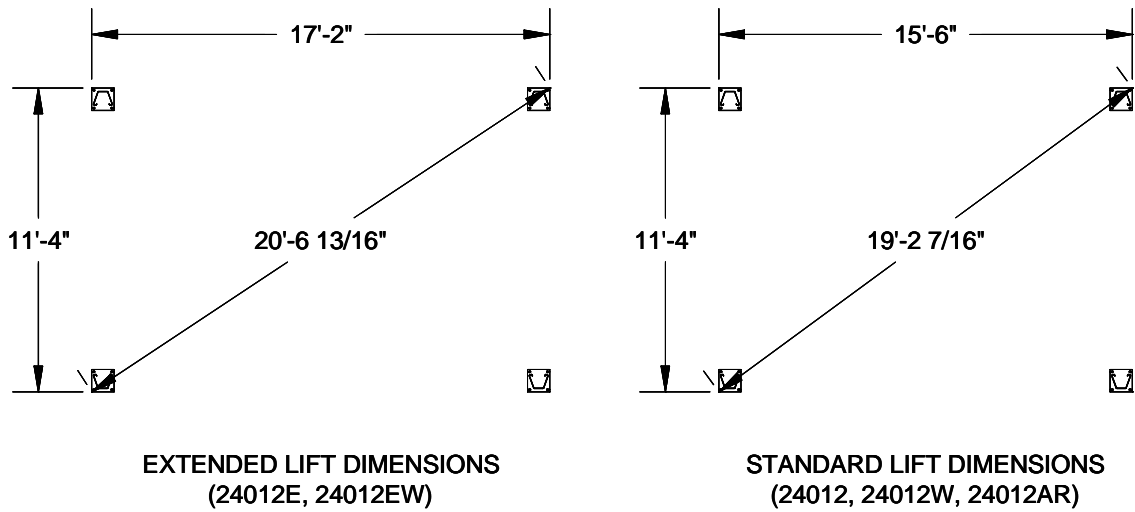
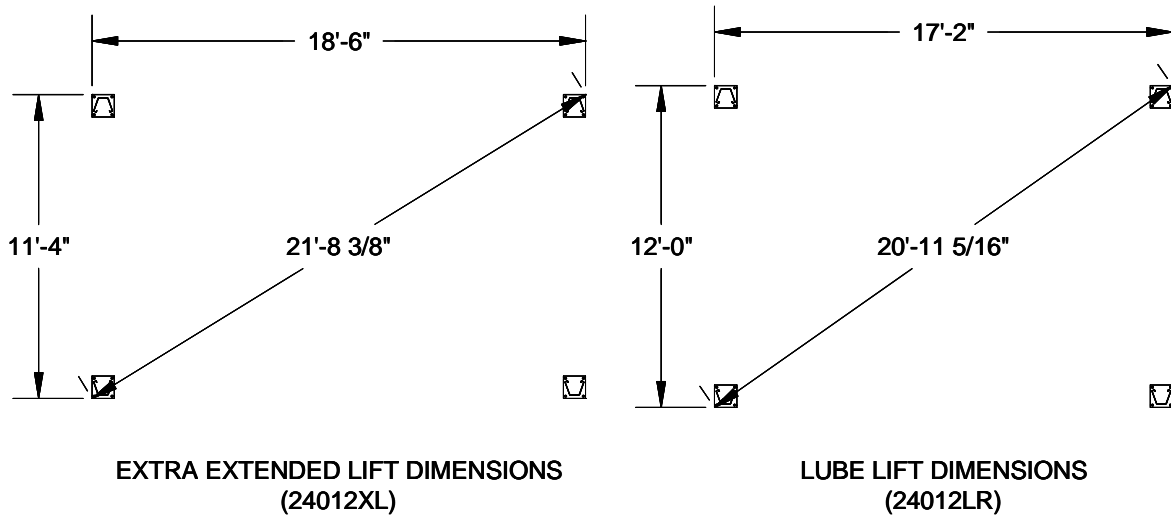
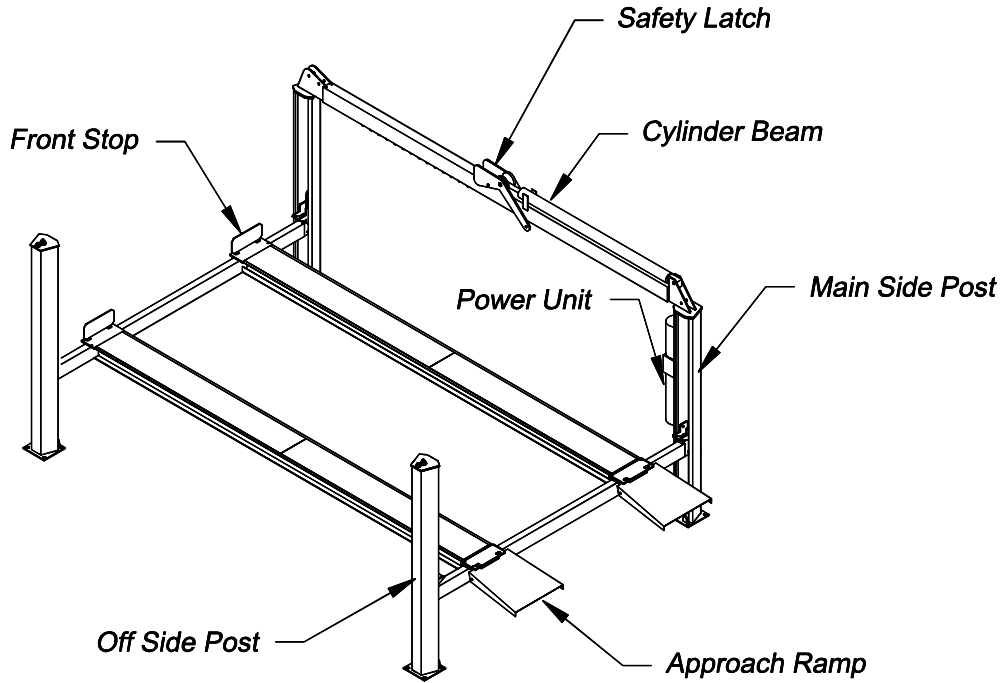
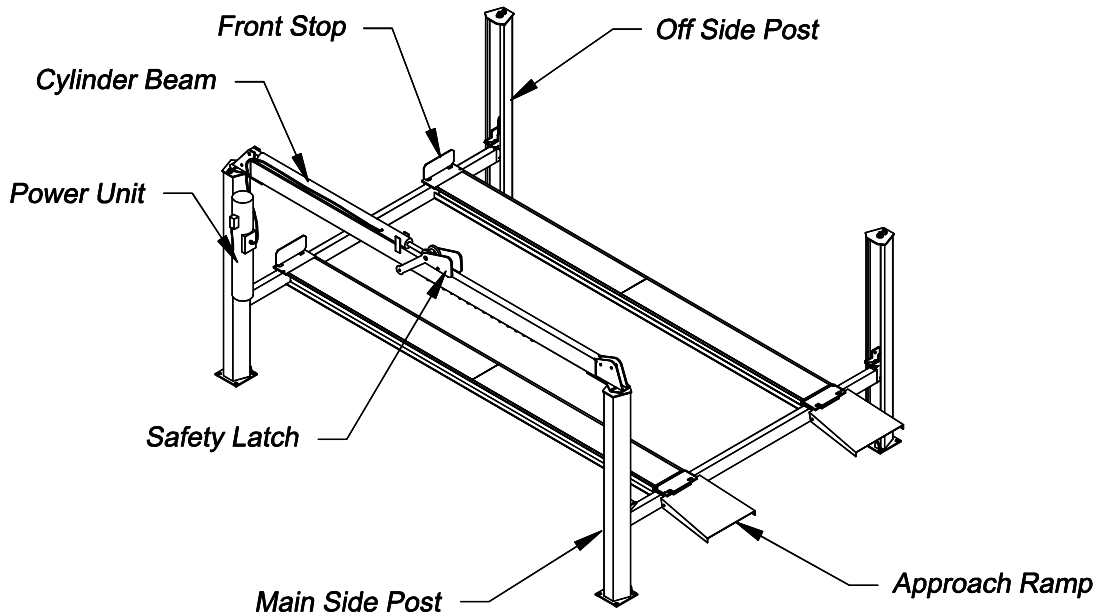


Figure 2
 Post Base Locations

Figure 3



Cylinder Beam On Right Side



Cylinder Beam On Left Side
General Arrangement

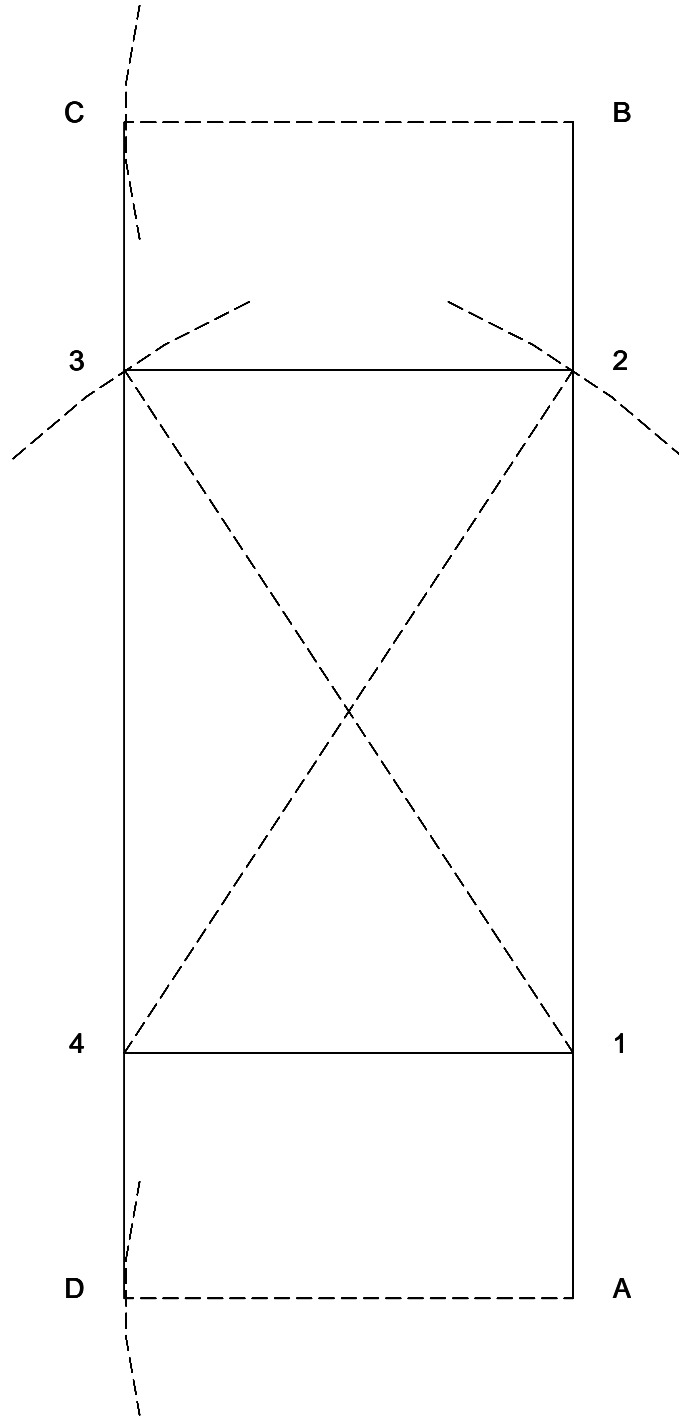


Figure 4

Chalk Line Layout

Models 24012 (E, W, EW, XL, LR, AR)
Installation, Operation and Maintenance

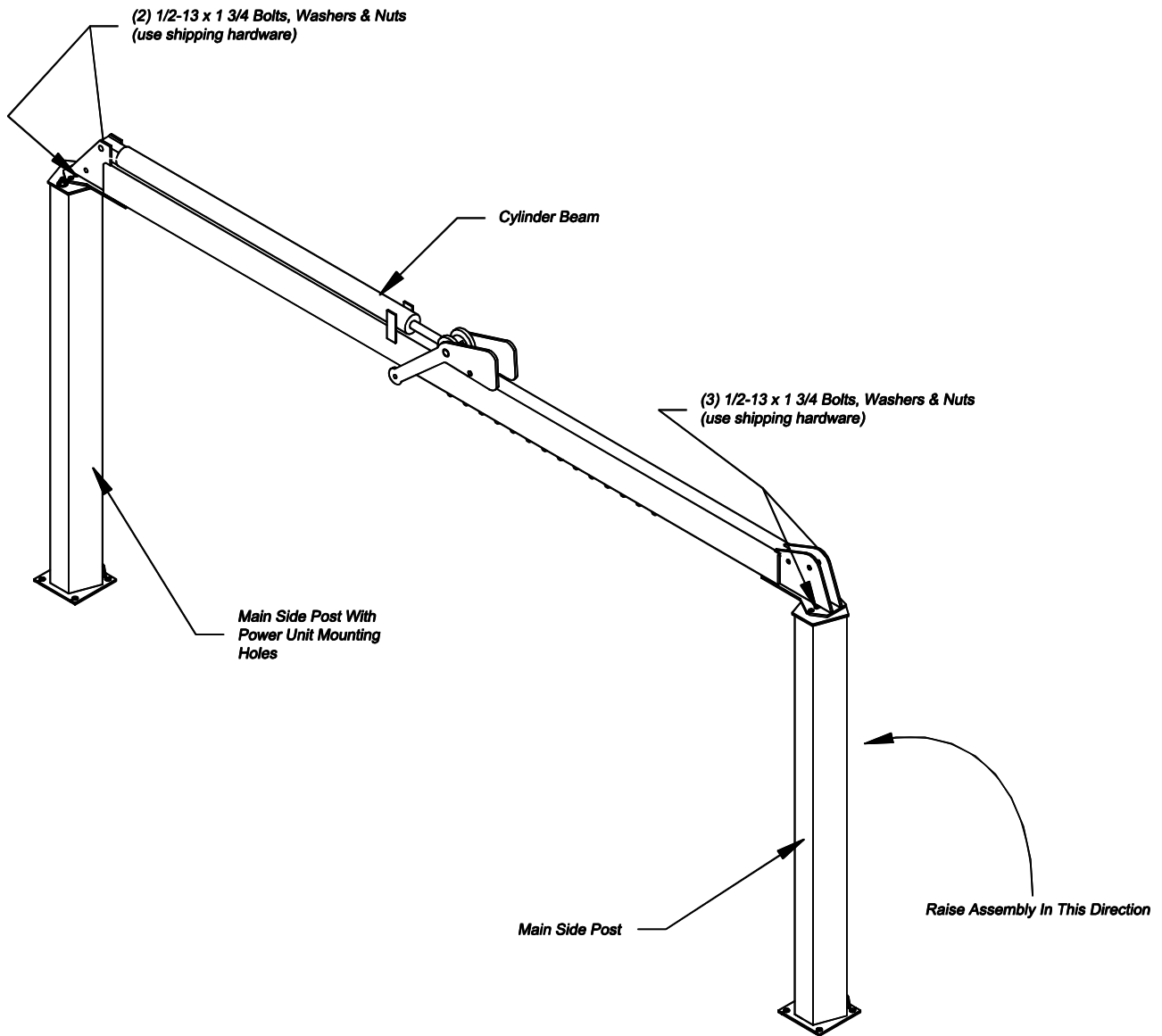


Figure 5
Cylinder Beam/Main Side Post Assembly

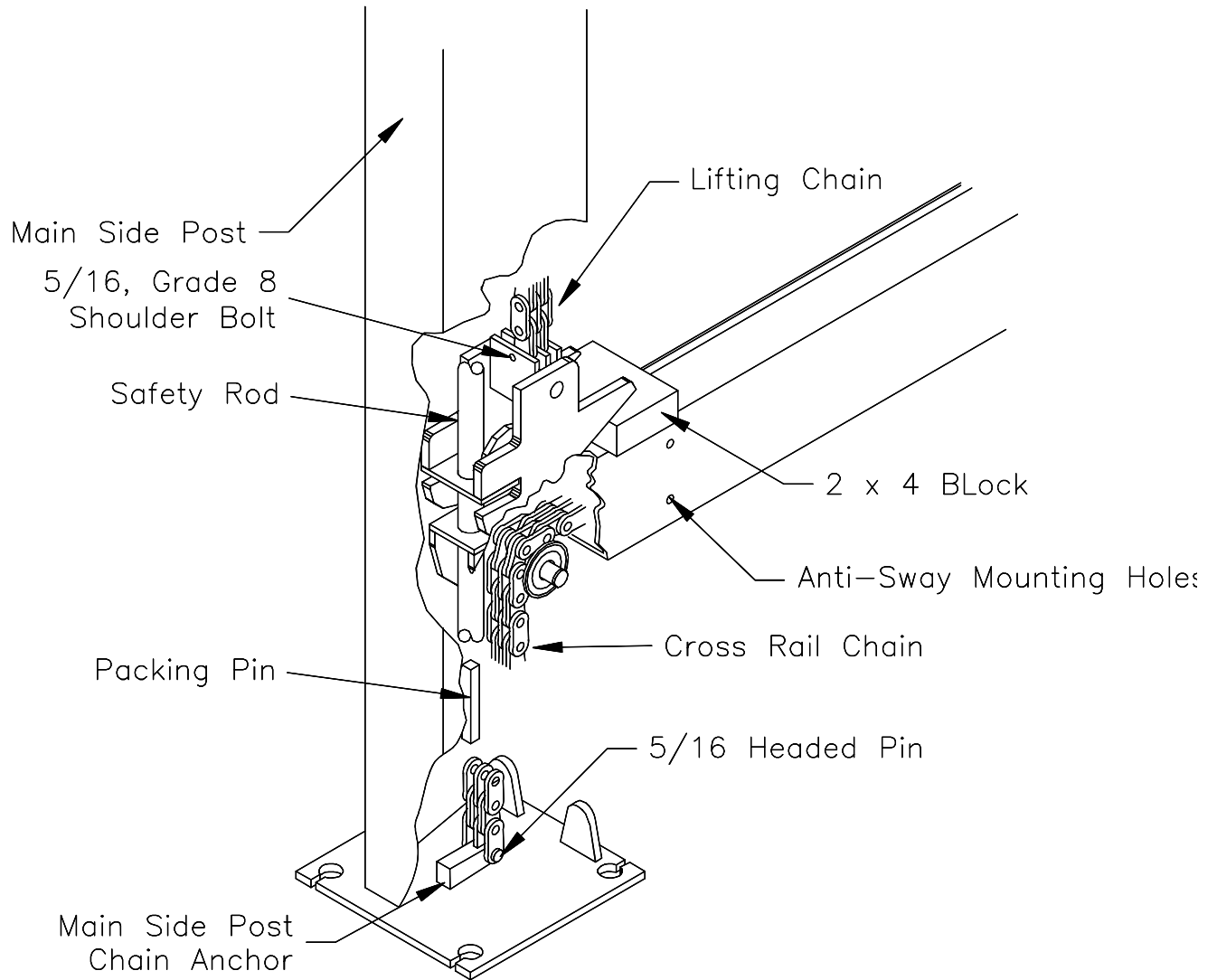


Figure 6
Safety Rod Installation Main Side

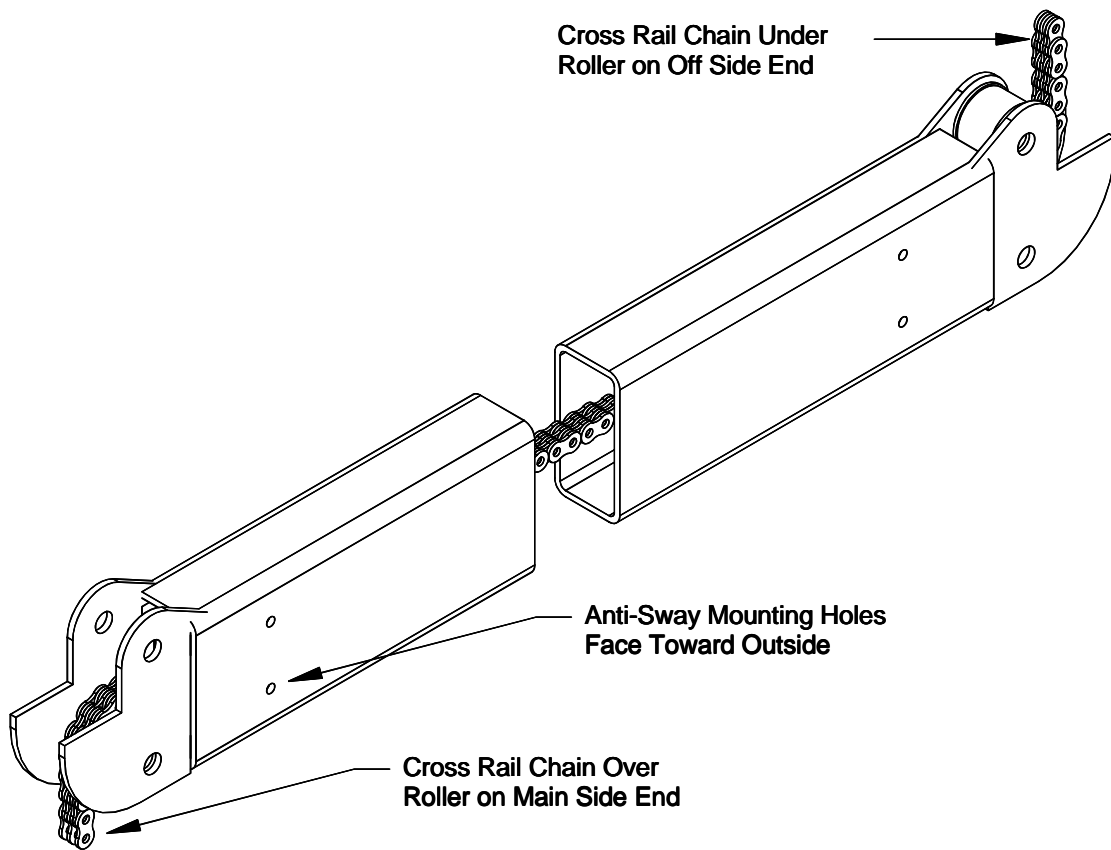


Figure 7
Cross Rail Chain Arrangement

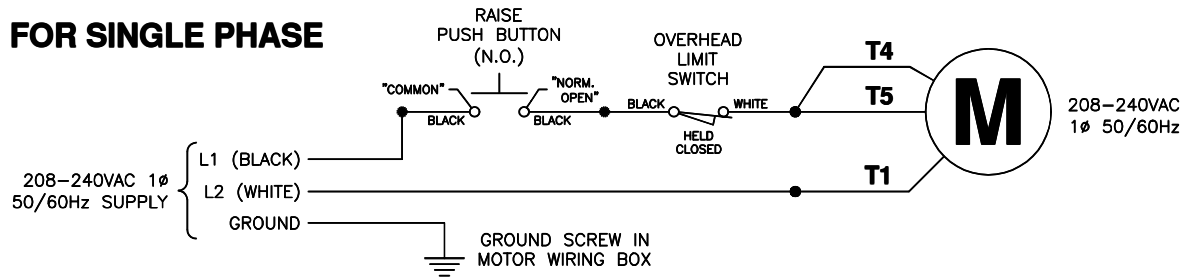
Models 24012 (E, W, EW, XL, LR, AR)
Installation, Operation and Maintenance

EACH LIFT SHOULD HAVE A DEDICATED CIRCUIT WITH A DOUBLE POLE (THREE POLE FOR 440-480V) BREAKER OR TIME DELAY FUSE SIZED ACCORDING TO THE FOLLOWING CHART

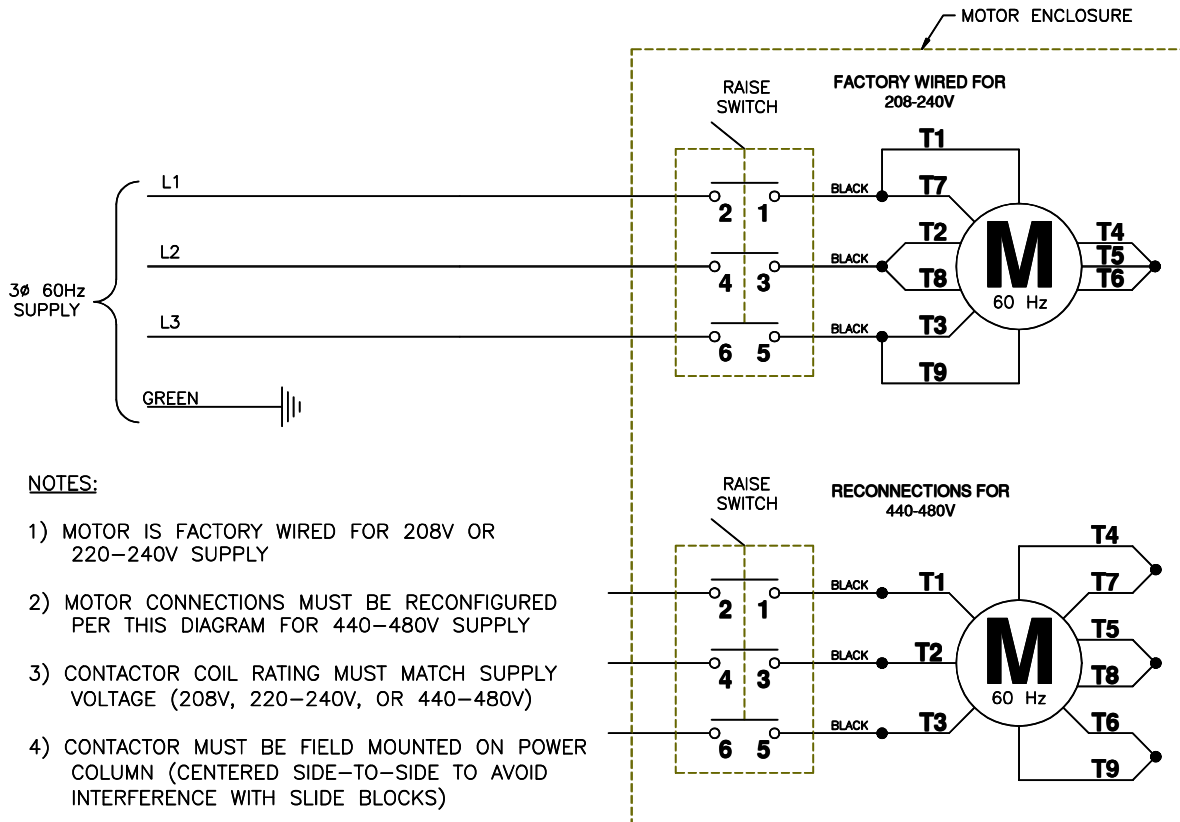
	1 ϕ 208-240V	3 ϕ 208V	3 ϕ 220-240V	3 ϕ 440-480V
2Hp	25amp	15amp	15amp	5amp

* WIRING MUST COMPLY WITH ALL LOCAL ELECTRICAL CODES *

FOR SINGLE PHASE



FOR THREE PHASE



NOTES:

- 1) MOTOR IS FACTORY WIRED FOR 208V OR 220-240V SUPPLY
- 2) MOTOR CONNECTIONS MUST BE RECONFIGURED PER THIS DIAGRAM FOR 440-480V SUPPLY
- 3) CONTACTOR COIL RATING MUST MATCH SUPPLY VOLTAGE (208V, 220-240V, OR 440-480V)
- 4) CONTACTOR MUST BE FIELD MOUNTED ON POWER COLUMN (CENTERED SIDE-TO-SIDE TO AVOID INTERFERENCE WITH SLIDE BLOCKS)
- 5) MOTOR ROTATION IS COUNTER CLOCKWISE FROM TOP OF MOTOR

Figure 8
Wiring Schematic