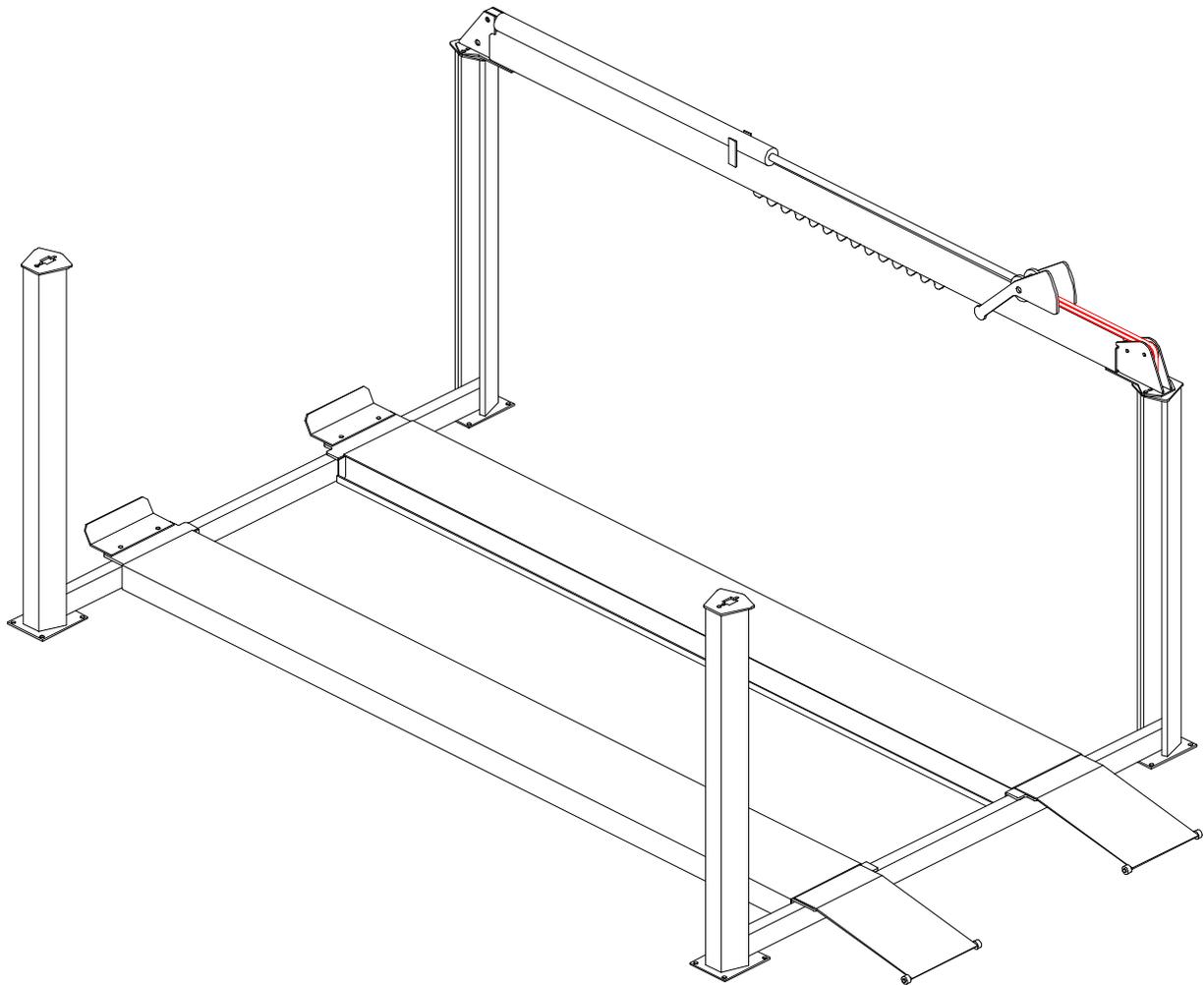


**MODEL 12000 SAR/LAR/SWT/EWT
FOUR POST DRIVE ON LIFT, 12000 POUND CAPACITY
INSTALLATION AND OPERATOR'S MANUAL**

December 2002
IMAN 991002



IMPORTANT NOTICES:

1. The floor in which this lift is to be installed must be four (4) inch minimum thickness concrete, with a minimum compressive strength of 3000 PSI, and reinforced with steel mesh or bar per commercial practice. Pads must be two (2) feet by two (2) feet by one (1) foot thick, reinforced with steel per commercial practice.
2. Failure by the purchaser to provide the recommended mounting surface could result in unsatisfactory lift performance, property damage, or personal injury.
3. Read this instruction manual before installing the lift.
4. Read the anchor bolt instruction page before drilling and installing the concrete anchor bolts.
5. Do not raise a vehicle on the lift until the lift has been correctly installed and adjusted as described in this manual.
6. Refer to Figure 1, General Arrangement. The lift is to be installed with the top rail on the passenger side as shown. The standard mounting positions for the power unit is also shown. If it is necessary to mount the power unit in another position, the installer must reroute the hydraulic lines to the pump. The installer must use 3/8 diameter hydraulic hose or stainless steel tubing with a rated working pressure of 2500 PSI and a recommended rated burst pressure of 6000 PSI. The routing of the hydraulic lines should clear the safety latch mechanism of the top rail.
 1. Never use this lift to raise just one end of any vehicle. Property damage or personal injury could result.

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TOOLS FOR INSTALLATION

CONCRETE HAMMER DRILL WITH 3/4" DIAMETER SOLID DRILL BIT WITH CARBIDE TIP.

OPEN END WRENCHES: 1/2", 9/16", 11/16", 3/4"

HEX ALLEN WRENCHES: 3/16"

RATCHET DRIVE WITH SOCKETS: 3/8, 1/2" DEEP SOCKET

12" CRESCENT WRENCH

HAMMER

NEEDLE NOSE PLIERS

CARPENTER'S LEVEL, 3'

PULL WIRE

CHALK LINE

SMALL PUNCH

ALSO REQUIRED FOR INSTALLATION

3 GALLONS OF DEXTRON III ATF or PETROLEUM BASE HYDRAULIC OIL, NONDETERGENT, NON- FOAMING, 10 WEIGHT, SUCH AS MOBIL DTE 24 OR TEXACO HD 32.

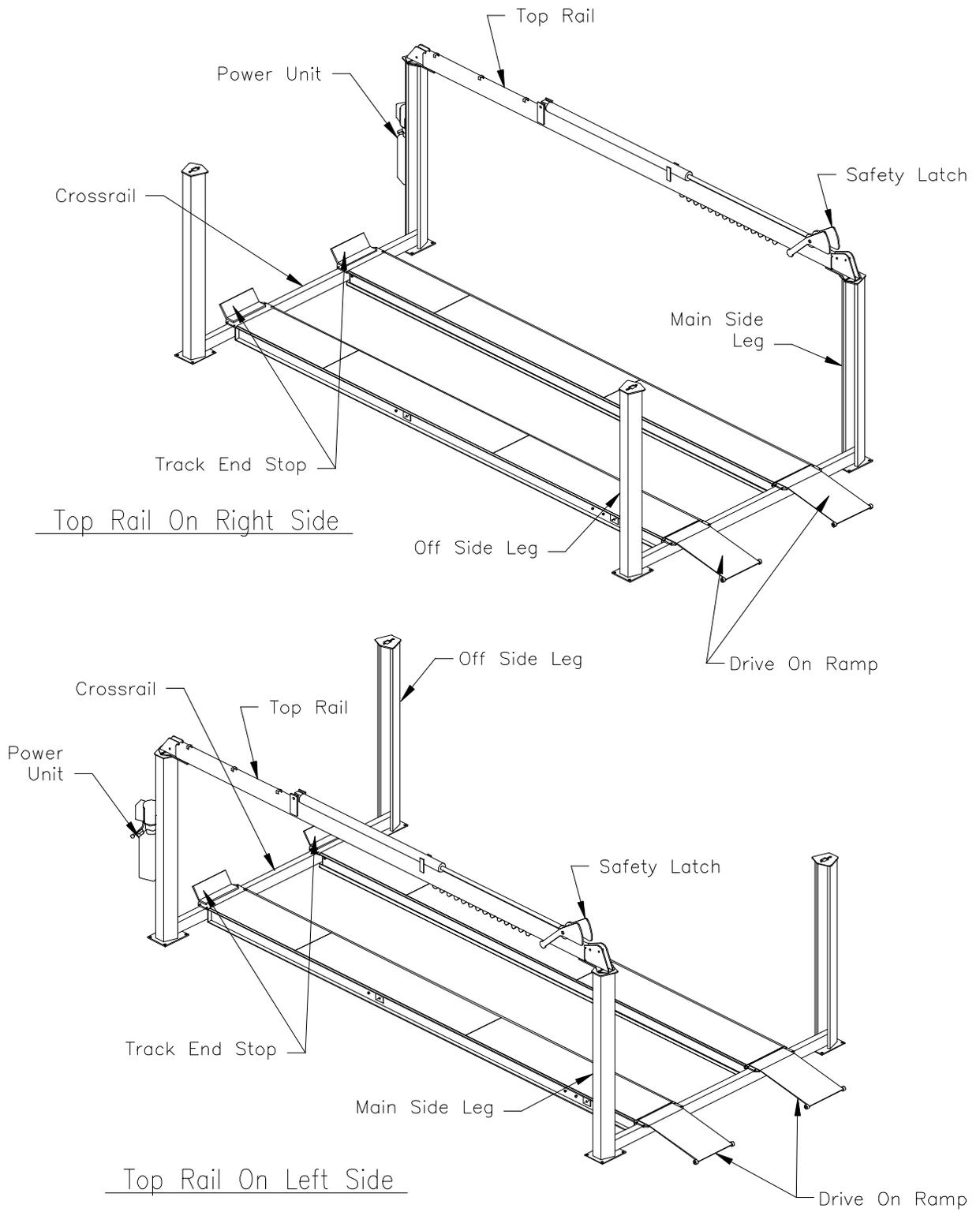


Figure 1. General Arrangement

INSTALLATION

Determine the location for the lift installation. Fig. 2 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 vehicles.

- There must be enough overhead clearance to raise the vehicles 6 feet above the floor. 13 feet is the recommended ceiling height.
 - The floor must be concrete with a minimum thickness of 4 inches and steel reinforced per commercial practice. If pads are used, they must be 2 feet square with a minimum thickness of 12 inches and steel reinforced per commercial practice. Fig. 3 gives the pad layout dimensions.
2. Refer to Figure 1, General Arrangement. For muffler work it is satisfactory to erect the lift with the top rail on the left or driver's side. For alignment and work that requires access to the front seat of the car, the top rail can be positioned on the right or passenger's side so that it is out of the way.
 3. Refer to Figure 3 for the dimensions for the leg foot location. Refer to Figure 2 to determine where to locate the sides and ends of the leg foot rectangle with respect to walls and other obstacles at the installation. Include additional clearance where required near walls and obstacles.
 4. Refer to Figure 4. Once the location is determined, use a chalk line to mark base line A-B to locate one side of the lift. Use the width dimension to measure off the dimension A-D and B-C. Draw the arcs as shown. Draw the chalk line D-C tangent to the 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 leg foot rectangle as determined from Figures 2 and 3. From points 1 and 2 measure diagonally to the opposite parallel line to determine points 3 and 4. Draw the chalk line between points 1 and 4 and points 2 and 3. These four lines determine the outside corners of the leg foot rectangle.
 6. Position the top rail and the two mainside legs as shown in Figure 5. The mainside leg that has the drilled hole pattern on side is the power unit leg. Bolt the top rail to the mainside legs using $\frac{1}{2}$ x 1-3/4 bolts, washers and nuts provided. Use two bolts per leg.
 7. Lift the assembled top rail and legs to the upright position. Place the leg feet into their corners of the chalk line rectangle. Check the centering of the bolting slots of the top rail and mainside leg tops. Correct as necessary and tighten the nuts.
 8. Review the Concrete Anchor Bolt Instructions near the back of this manual. Drill, install, but do not tighten the four anchor bolts for the rear leg. **Do only the rear mainside leg at this time.**

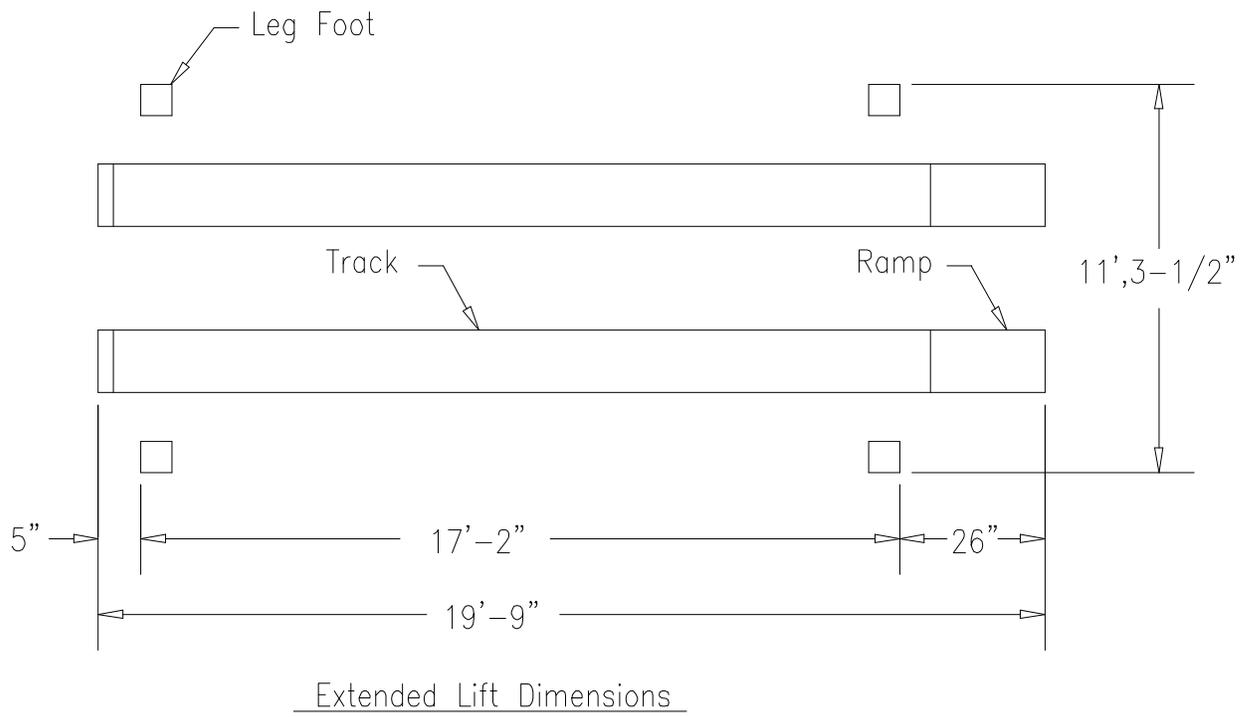
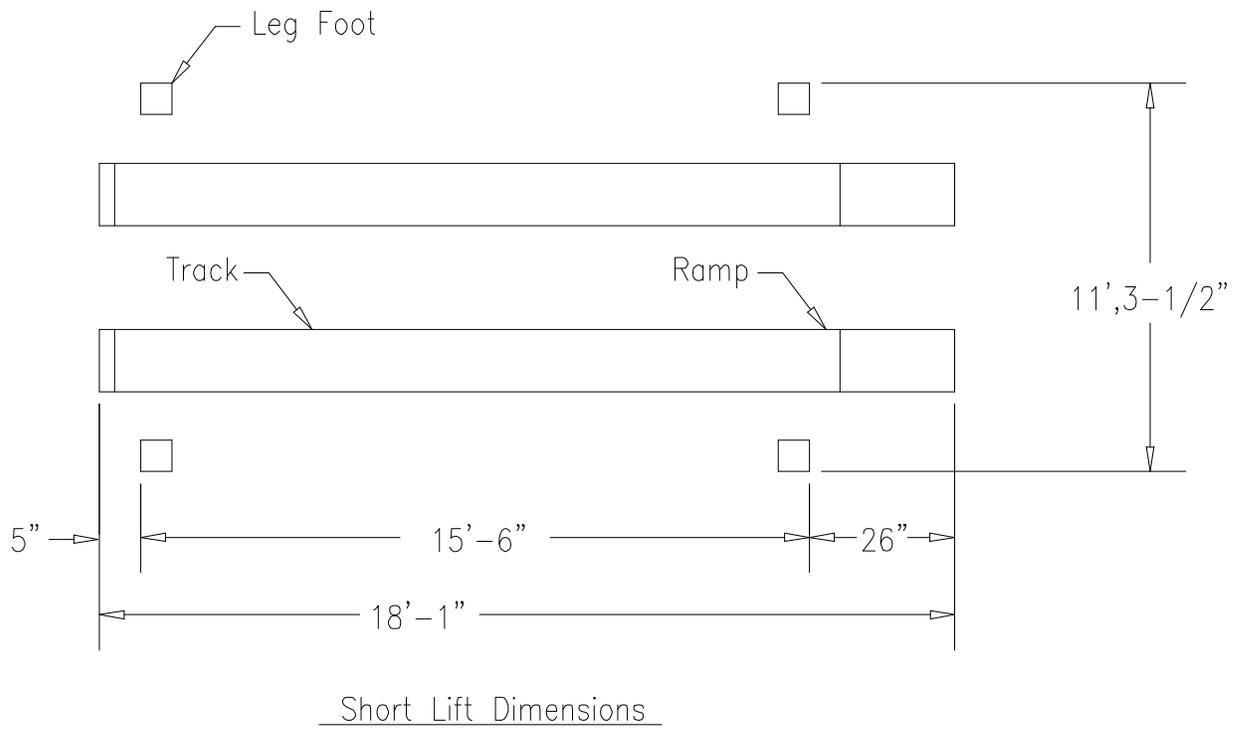


Figure 2. 12000 lb. Lift, Overall Dimensions

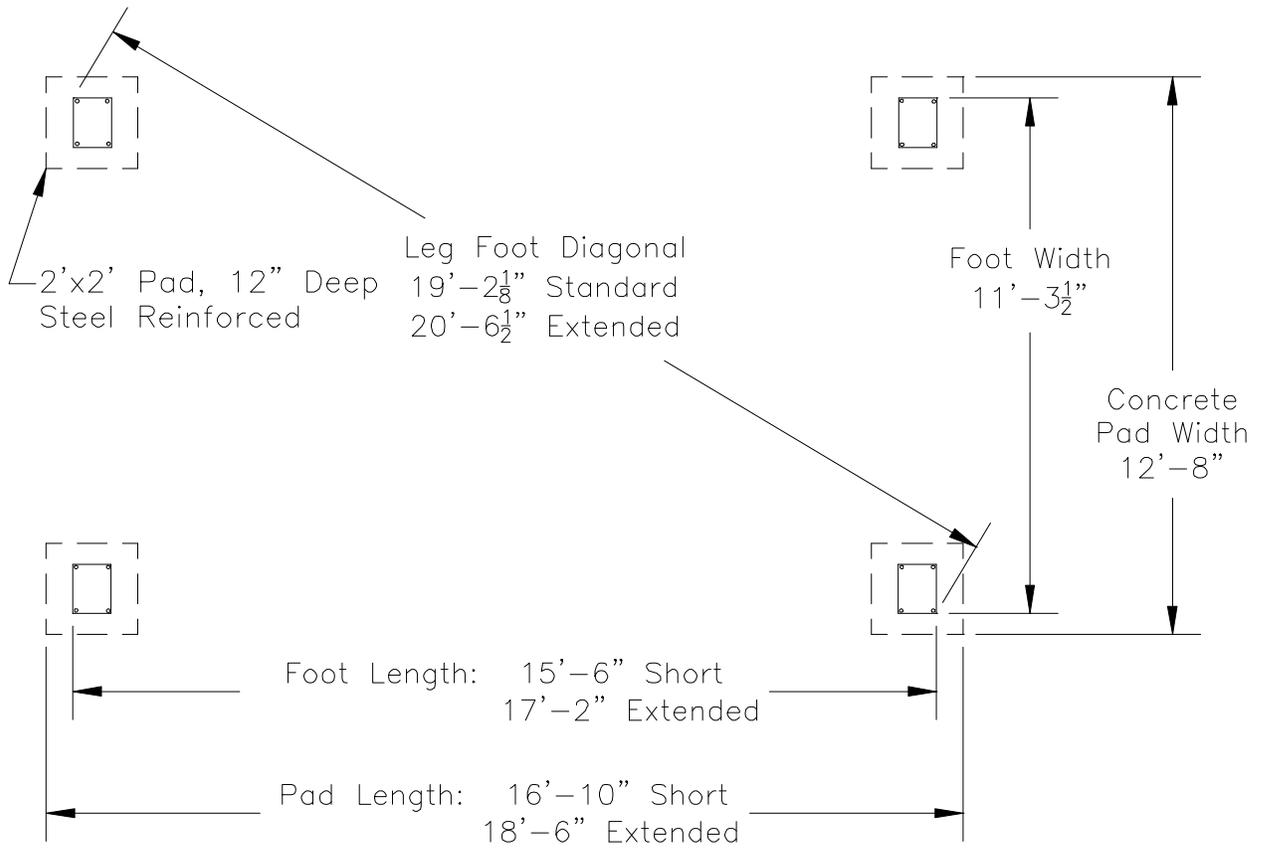


Figure 3. 12000 lb Lift, Leg Foot Location

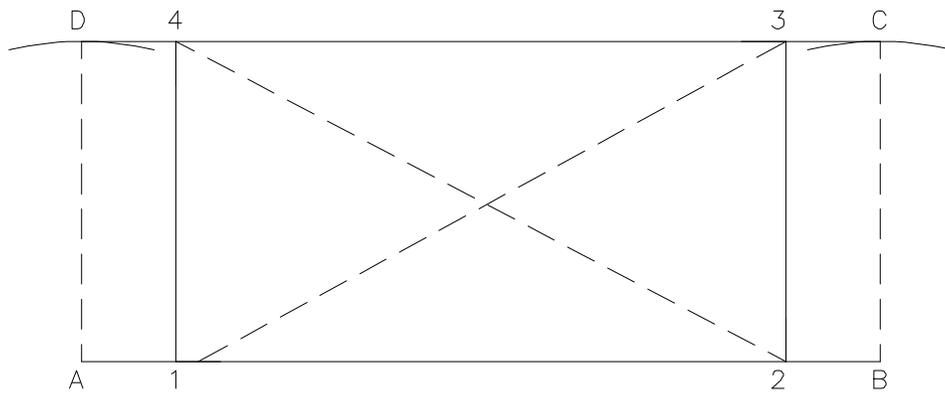
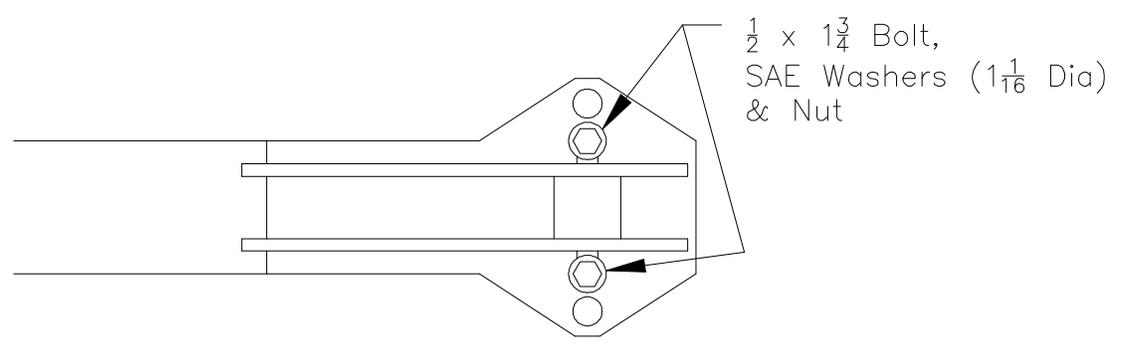
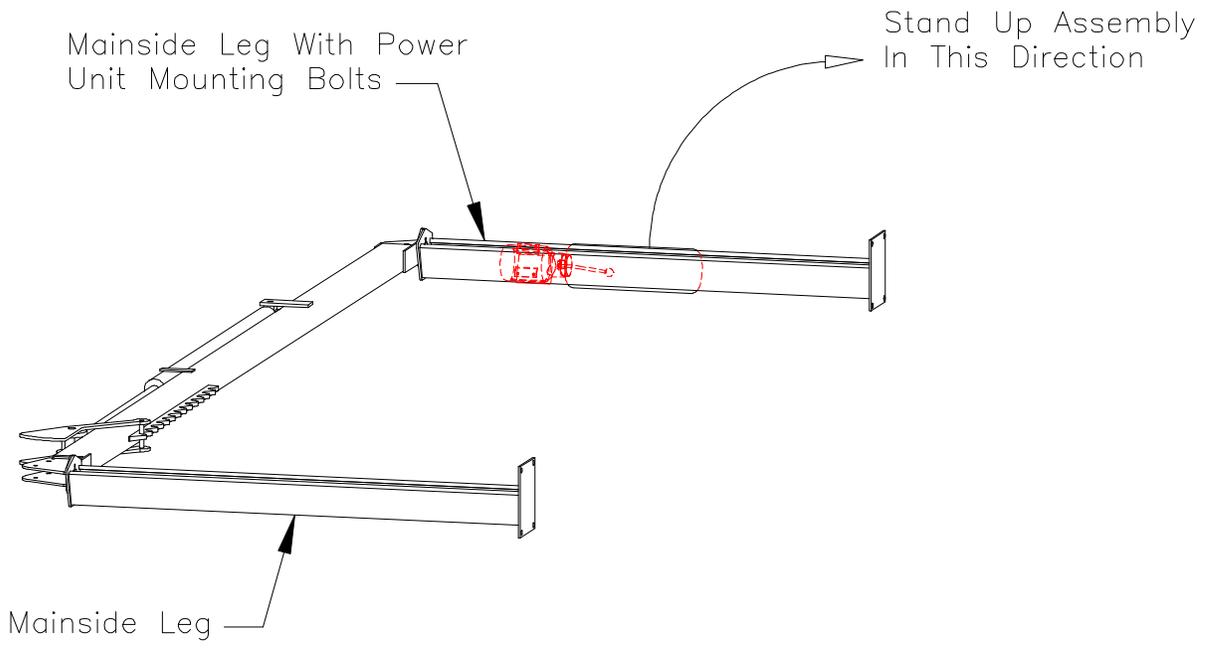


Figure 4. 12000 lb Lift, Chalk Line Layout



Assembly Detail

Figure 5. 12000 lb. Lift, Top Rail / Mainside Leg Assembly

9. Plumb the post so that it is perpendicular. Use the level and check both side to side and front to rear. Use the shims provided. Also, $\frac{3}{4}$ ID steel washers or $\frac{1}{16}$ or $\frac{1}{8}$ thick by 1" wide steel flat strips are recommended for shims. Tighten the anchor bolt nuts and recheck the plumbness. Adjust if necessary.
10. After anchoring the rear mainside post, align the front post with the chalk lines. Check and adjust the plumbness of the front leg. The foot may vary from the measured dimension slightly, as it is more important that the leg be perpendicular and parallel to the other leg. Plumb the leg and install the anchor bolts for the front leg.

IMPORTANT

Do not drill or set offside leg anchor bolts at this time. The lift must be correctly aligned and cycled up and down before the bolts are installed.

11. Position the cross rails in their appropriate locations as shown in Figure 1. The lifting chain connector must be at the mainside leg location. See Figure 7.
12. Use the pull wire to pull the cross rail chain thru the cross rail tube. The chain runs over the roller at the mainside leg and under the roller at the offside leg. See Figure 6. Repeat for the other end.
13. Check the chain anchor in the base of the mainside leg. If it is a narrow anchor with one slot, attach the cross rail chain to the mainside chain anchor with a 634 chain master link. See Figure 7. If it is a wide anchor with two slots, insert the four link end of the chain into the slots and secure with the $\frac{5}{16}$ x 1- $\frac{1}{4}$ " shoulder bolt and $\frac{1}{4}$ NC nut. Repeat for the other cross rail.

IMPORTANT

The master link 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 mainside end of the cross rail as shown in Figure 7. Install a $\frac{3}{4}$ nut on the safety rod and turn it down to the end of its threads. Remove the nail from the top end of the packing pin in the cross rail. Push the pin down and out using the safety rod, leaving the safety rod in the latch mechanism. While pulling up on the safety latch as shown in Figure 7, and while a helper pulls on the other end of the cross rail chain, insert the top end of the safety rod into the rear hole at the top of the mainside leg. Secure the top of the safety rod with a $\frac{3}{4}$ nut. The top $\frac{3}{4}$ nut should be flush with the end of the safety rod and the bottom nut should be tightened against the leg top. Remove the wooden block. Repeat for the other cross rail.
15. Attach the power unit to the mainside leg using four $\frac{5}{16}$ x 1- $\frac{1}{4}$ bolts and nuts. Install the bolts thru the bracket and secure with $\frac{5}{16}$ plain nuts. Install the power unit and secure with $\frac{5}{16}$ nylock nuts.

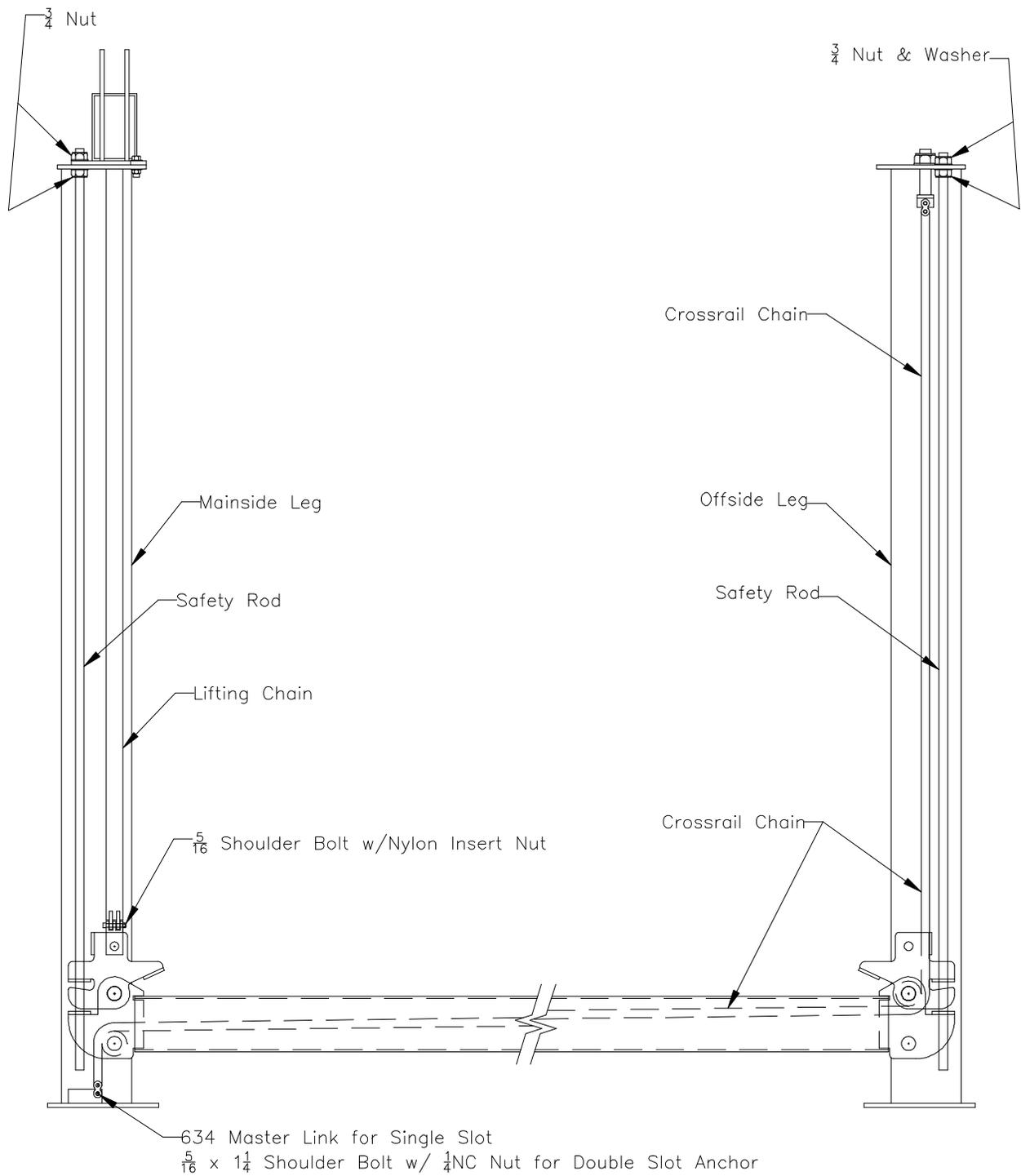


Figure 6. 12000 lb Lift, Crossrail Chain Arrangement

IMPORTANT

16. It is advisable to use compressed air to extend the cylinder Ram. Remove the port caps from the cylinder carefully and gradually apply compressed air to the cylinder port near the rear or pin end of the cylinder. Do not allow the cylinder ram to shoot out of the cylinder. It is necessary to pull down on the lifting chains as the ram extends.

- If compressed air is not available, the cylinder ram can be pulled out manually.

17. Refer to Figure 12, Hose Connections. The port immediately to the right of the lowering handle is the high pressure port. Install the O-Ring to 3/8 male JIC adapter into the power unit pressure port.

18. Install the 90 degree JIC adjustable fitting onto the adapter. Install the 3/8 male pipe to 3/8 JIC 90 fitting into the front or rod end cylinder ports. Use teflon pipe tape on the pipe threads of the fittings.

19. Install the 3/8NPT to 1/4NPT adapter and 1/4NPT to 1/4 Tube 90 degree elbow to the rear or pin end port of the cylinder.

20. Remove the screw in the tank just below the tank mounting flange. Using a funnel in the breather port, fill the reservoir until oil appears at the screw hole. Use approximately 3 gallons of Dexron III ATF or petroleum base (mineral) oil, non foaming, non detergent, such as Mobil DTE 24 or Texaco HD 46. Install the breather cap and replace the screw.

- **DO NOT OVERFILL THE TANK.** The oil level should be no higher than 2 inches below the mounting flange of the tank.

21. Make the electrical hook-up to the power unit, 220 V single phase. Refer to Figure 11, Electrical Diagram.

22. Attach the lifting chains to each cross rail chain connector using a 5/16 x 1-1/2" Grade 8 shoulder bolt and nut. See Figure 7.

IMPORTANT

This bolt must be the shoulder bolt supplied with the lift or a Grade 8 hardened bolt, 5/16 diameter by 1-1/2" long. Failure to follow this requirement could result in personal injury or property damage.

23. Refer to Figure 12, Hydraulic Hose connections. Install the long hydraulic hose routing from the pressure port on the GHS power unit to the front or rod end of the cylinder. Install the 1/4 plastic tube routing from the back or pin end of the cylinder to the fitting on the back of the power unit tank.

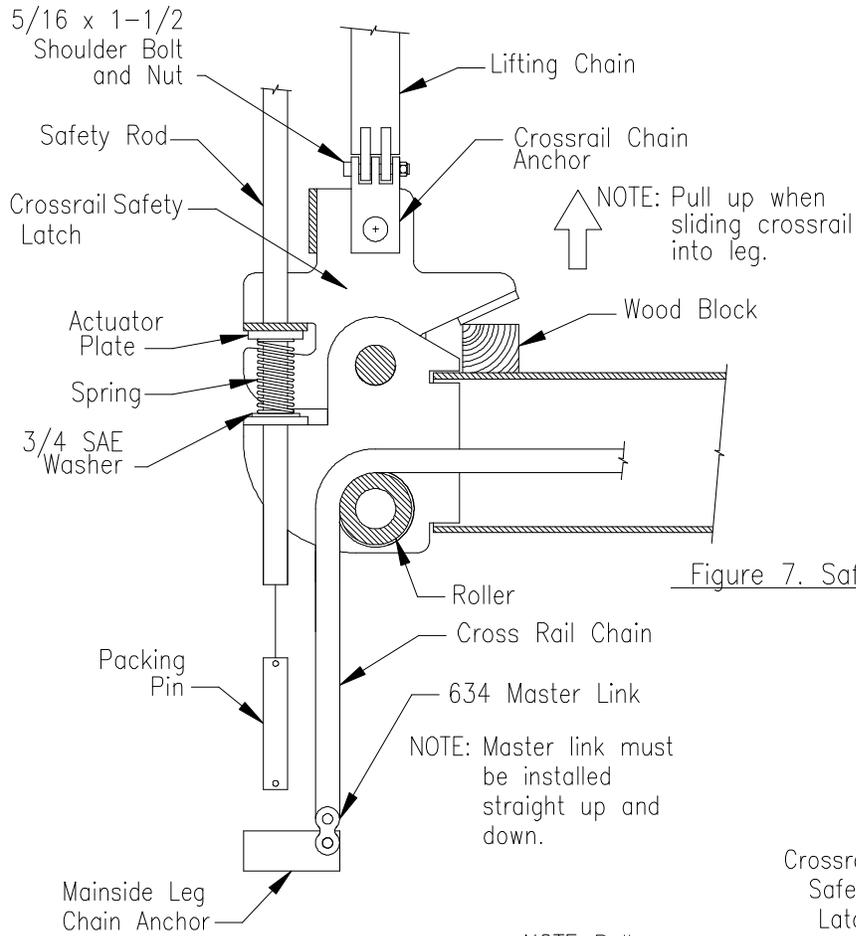


Figure 7. Safety Rod Installation, Mainside

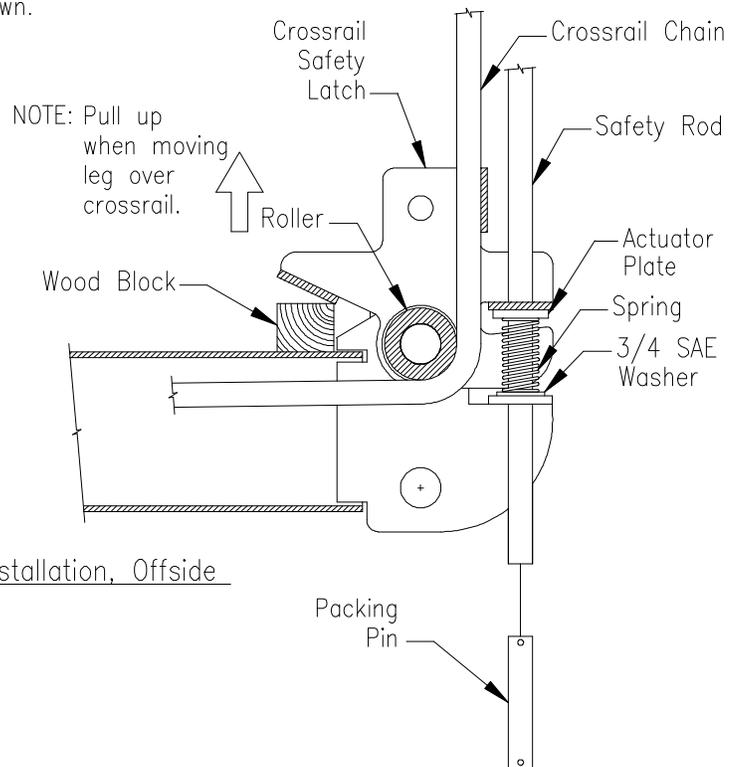


Figure 8. Safety Rod Installation, Offside

24. Refer to Figure 8, Offside Safety Rod Installation. Thread a 3/4 nut onto a safety rod, position the wood block, and remove the nail from the packing pin. Insert a safety rod into the cross rail end assembly as described above in Step 14. While pulling up on the safety latch, guide the safety rod end into the rear hole of the offside leg top and position the leg over the end of the end of the cross rail. Secure the top end of the safety rod with a 3/4" nut as described in Step 14. Remove the wooden block. Repeat for the other cross rail.
- DO NOT AT THIS TIME DRILL OR INSTALL THE ANCHOR BOLTS FOR THE OFFSIDE LEGS.
25. Install the bolt end of the cross rail chain into the hole at the top of the offside leg. Attach the 1" washer and nyloc nut to the bolt. Hold the chain with the crescent wrench while tightening the nut to remove most of the slack from the chain. Repeat for the other cross rail.
26. Using the power unit, raise the cross rails about 6". Level the cross rails by adjusting the cross rail chain tension at the anchor bolt nut at the top of the offside legs. Use a level to check the cross rails.
27. Position the tracks on the crossrails. The tracks overhang the crossrail at the front of the lift. The tracks should be centered on the rails and there should be 38-1/2" between the jack rails of the tracks for correct jack operation. For alignment lifts, install 2 U-bolts at the ends of each track. For general service lifts, install 1 U-bolt at the ends of each track to the outboard side. Secure the U-bolts with washers and nuts.
28. Adjust and plumb the offside legs so that the cross rail chains in the offside legs hang straight, (use the level), the lifting chains in the mainside legs hang straight, the cross rails hang in the center of the leg opening, the legs are plumb, and the tracks are positioned correctly on the cross rails.
- DO NOT AT THIS TIME DRILL OR INSTALL THE ANCHOR BOLTS FOR THE OFFSIDE LEGS. THE LIFT MUST BE CYCLED UP AND DOWN AND CHECKED FOR CORRECT ALIGNMENT BEFORE THE ANCHORS ARE INSTALLED.
 - THE OFFSIDE LEGS MAY VARY SLIGHTLY FROM THE CHALK LINE LAYOUT POSITIONS. IT IS MORE IMPORTANT THAT THE LEGS BE SQUARE AND PLUMB AND THAT THE LIFT MOVE UP AND DOWN FREELY.
29. 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 safety release will move across the rack at the bottom of the top rail. At the top of the lift's travel, pull down the safety release until the cam locks it down.

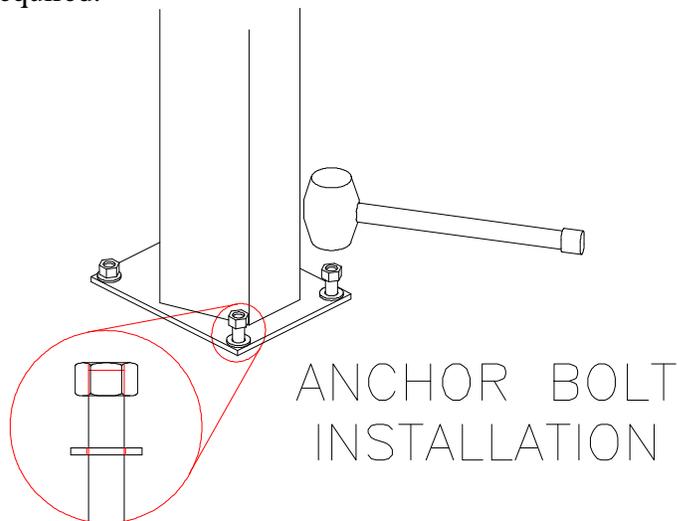
30. Lower the lift. Check the operation and positioning of the lift as it is being lowered. Correct any problems by adjusting the position and plumbness of the offside legs. If the toprail safety latch mechanism does not work correctly, refer to the Troubleshooting section of this manual.
31. When the lift is operating correctly, drill and install the anchor bolts for the offside legs.
32. Complete the installation of the 20" or 22" wide service tracks by installing the track end stops and ramps. Attach the ramps using the 3/4" diameter pins. Secure each pin with 2 cotter pins. The track end stops are installed by bolting the stops to the track ends using the 3/4" diameter bolts and nuts provided.
33. If **Alignment Tracks** are installed on the lift, continue with step 34. If using the other tracks, cycle the lift to its maximum height and back to the ground three times to remove air from the hydraulics.
34. Install the front track stops using 2 each 3/4" x 2 bolts, nuts, and washers per track. Install the rear ramp supports using 2 each 3/4" x 2 bolts, nuts, and washers per track. Attach the ramps using the 3/4" diameter pins. Secure each pin with 2 cotter pins.
35. Activate the Alignment Track slip plates by raising the slip plates and installing the balls into the holes in the spacer plates. Apply wheel bearing grease to the balls. 10 balls go under each slip plate. See Figure 14.
36. Attach the "L" pins to their locking blocks on the outside of the tracks using the cables and clamps provided. Attach the pins using 2 loops as illustrated. Using only 1 loop will not allow the pins to work correctly. See Figure 14.
37. The Alignment lift has a leveling mechanism at each leg. Refer to Figure 13. Raise the lift above the stands and swing the lock bars underneath. Adjust the leveling stands so that the tracks are level when lowered onto the stands. Tighten the lock nuts on the stands.
38. Cycle the lift to its maximum height and back to the ground 3 times to remove air from the hydraulic system.

DRILLING PROCEDURE:

1. The anchor bolts must be installed at least 5” from any edge of the concrete or any seam.
2. Use a CARBIDE TIP, SOLID DRILL BIT the same diameter as the anchor, 3/4”. TIP DIAMETER TO ANSI STANDARD B94.12-1977 (.775” to .787” diameter).
3. Use a concrete hammer drill.
4. Do not use excessively worn bits or bits that have been incorrectly sharpened.
5. Keep the drill in a perpendicular line while drilling.
6. Let the drill do the work. Do not apply excessive pressure.
7. Lift the drill up and down to remove dust and reduce binding.
8. Drill the hole to a depth equal to the full length of the fastener or completely through the slab.
9. Blow the dust from the hole. This increases the holding power.

INSTALLATION:

1. Assemble the washer and nut onto the anchor bolt. Thread the nut so that the top of the nut is slightly above the top of the bolt. Using a hammer on the nut, CAREFULLY tap the anchor bolt into the concrete. Do not damage the nut or the threads.
2. Insert the bolt so that the washers rest against the base of the lift.
3. Tighten the nut, two or three turns on average concrete, 28 day cure. If concrete is very hard only one or two turns may be required.



OPERATING INSTRUCTIONS

RAISING VEHICLES

1. Drive vehicle onto lift. Set parking brake.
2. Push button on power unit to raise lift to desired height.
3. Use lever on power unit to lower the tracks onto safety latch.
4. Before walking under lift, verify that the safety latch pivot pin is positioned in the latch rack under the top rail tube.

LOWERING VEHICLES

1. Raise the tracks off the safety latch using the push button switch on the power unit.
2. Release the safety latch by pulling down on the latch until the cam sets to hold it down.
3. Lower the lift using the valve lever on the power unit.

IMPORTANT NOTE

Do not work under the lift when the safety latch is in the release position. If it is necessary to return under the lift, reset the lever by lowering the lift slightly, then raising it again. Verify that the safety latch pivot pin is engaged in the latch rack. The safety latch will automatically reset when the lift is raised off the ground. Always verify that the latch is operating when the lift is being used. Correct any problem before using the lift.

ALIGNMENT TRACKS

1. The alignment lift has a leveling mechanism located at each leg. Refer to Figure 13. At installation adjust the leveling stand of each lock bar to level the alignment tracks. Tighten the lock nut on the stand to hold the adjustment. For alignments the lock bars are swung under the crossrails and the lift is lowered onto the stands.

MAINTENANCE

1. **WEEKLY:** Check operation of the safety latch mechanism. Correct alignment of legs and crossrails as required. Correct linkage problems as required.
2. **MONTHLY:** Lubricate lifting and crossrail chains with a quality chain lubricant. If the lift is operated outdoors, lubricate chain more often in wet weather.
3. **YEARLY:** Disassemble, clean and regrease the slip plate assemblies. Do this as often as required under severe conditions of moisture and dirt.
4. Use only petroleum based hydraulic oil, approximately 10 weight, such as Mobil DTE 25 or Texaco HD 32.

TROUBLE SHOOTING INSTRUCTIONS

1. **LIFT WILL NOT RAISE OR RAISES PART WAY**
 - Not enough oil in reservoir.

- The electrical hook up is not 220V or voltage is not adequate for the pump motor. Check for a minimum of 208V at the power unit while the motor is running.
 - Foreign matter in valving. Hold lowering control in and run motor with push button switch to flush system.
2. LIFT WILL NOT PICK UP A HEAVY VEHICLE
- Lift is overloaded. The lift is rated to lift 12,000 pounds. The relief valve setting will not allow overloading.
 - Voltage at the power unit is not adequate. Check for a minimum of 208V at the power unit while the motor is running.
 - Piston seal of cylinder is damaged. Raise the lift to full height. Disconnect the short hose at the power unit and place the hose end in a bucket. Run the power unit for one minute at the full relief valve bypass setting. A flow of oil from the hose indicates a bad piston seal.
3. LIFT DRIFTS DOWN WHEN PUSH BUTTON IS RELEASED
- Foreign matter in valving. Lower lift. Hold the lowering valve in while pressing push button to run pump to flush system.
4. TOP RAIL SAFETY LATCH DOES NOT WORK SMOOTHLY
- Latch ear drags on one side of the top rail tube. Adjust cylinder position by bending the cylinder locating ears on top of the tube near the chain connector end of the cylinder. If problem is not solved this way, loosen the attachment nuts on the latch pivot pin. See Figure 10.
 - Latch will not stay up for reset and lowering. Check the cam for free operation, Figure 10. If latch drops during lowering, see above step.
5. OIL LEAKS
- POWER UNIT: If the power unit leaks hydraulic oil around the tank mounting flange, check the oil level in the tank. The level should be two inches below the flange of the tank. Check by removing the screw just below the top of the tank.
 - CYLINDER: Some seepage from the rod end of the cylinder is normal. Oil in minute quantities adheres to the rod when the lift is lowered. The oil is removed by the rod wiper when the lift is raised. This oil will seep down and collect on the top rail. To check for a leak condition, raise the lift until the cylinder bottoms out. Wipe the end of the cylinder clean. Hold the power unit run button for one minute. The system pressure at this time will be the maximum and the cylinder will leak if the seals are bad.

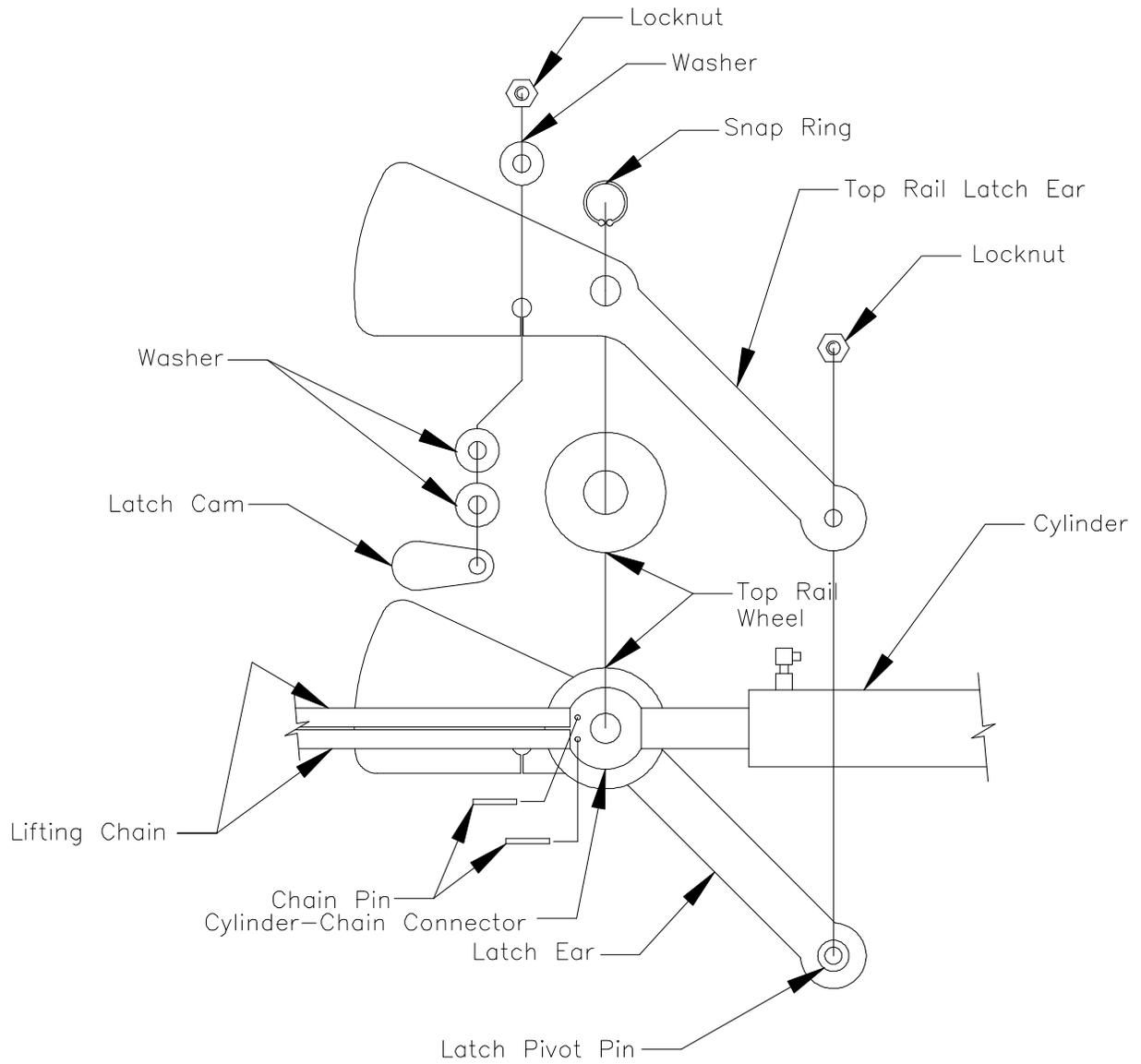


Figure 10. 12000 lb Lift, Single Point Safety Latch

PUSHBUTTON
RUN SWITCH

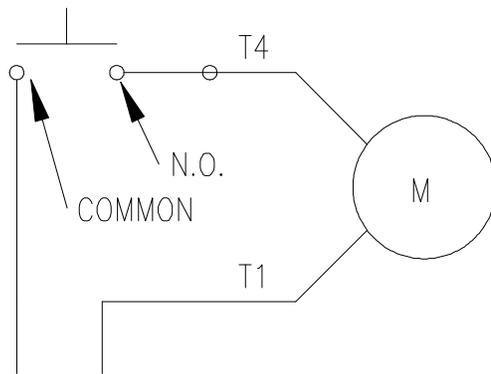


FIGURE 11. GHS Power Unit Electrical Diagrams

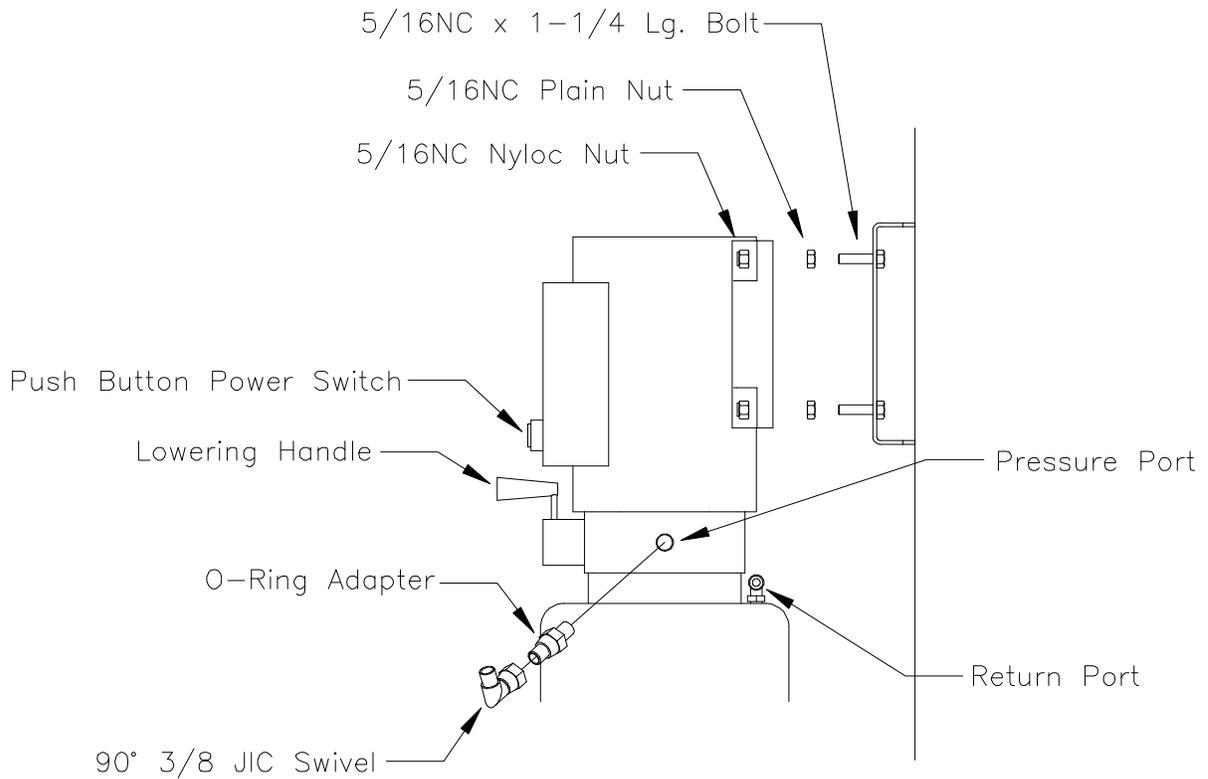


FIGURE 12. GHS Power Unit Installation

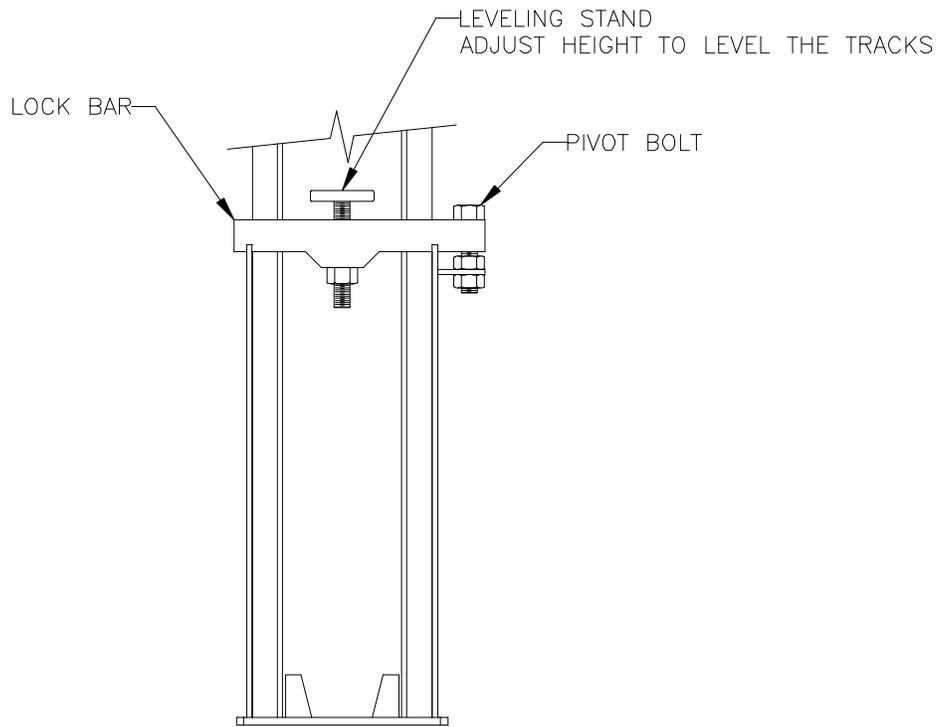


FIGURE 13. ALIGNMENT LIFT LEVELING SYSTEM

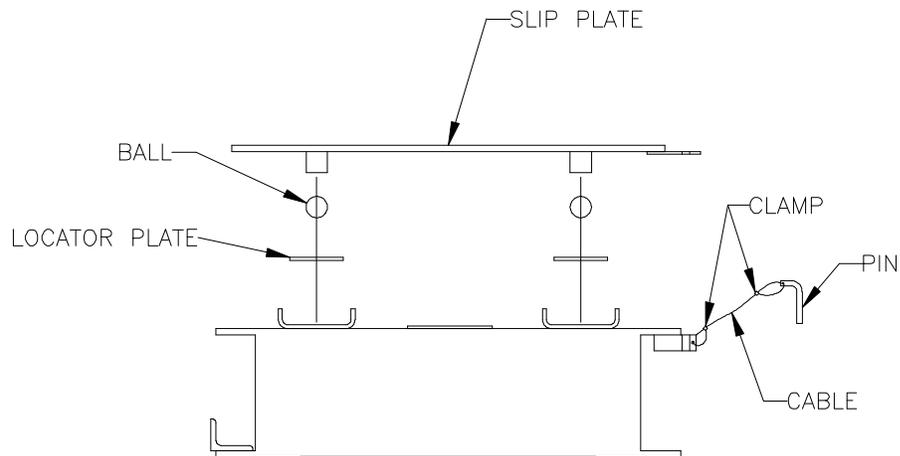


FIGURE 14. SLIP PLATE ASSEMBLY