15,000 LB. (6,818 KG)

OPEN FRONT 4 POST LIFT

DOUBLE WALL RUNWAYS WITH "Z" RAILS, BUILT-IN RADIUS PLATE POCKETS & REAR SLIP PLATE

4T415OSAR1 (Standard Alignment)

4T415OXAR1 (Extended Alignment)

4T415OSSR1 (Standard Service)

4T415OXSR1 (Extended Service)

INSTALLATION MANUAL
OPERATION MANUAL
SERVICE PARTS MANUAL

TOTAL AUTOMOTIVE LIFTING SOLUTIONS INC.

2300 SPEER ROAD, OAKVILLE, ON L6L 2X8

(877) 799-LIFT (5438) www.tlslifts.com

11/2021

READ the manual thoroughly before installing, operating, servicing or maintaining the lift.

SAVE this manual and all instructions.

Your new lift will provide years of dependable service if installed, operated and maintained properly. Follow all safety, installation, operation, and maintenance instructions in this manual before installing and operating the lift. In addition, follow all safety and other information included on and with the lift before operating the lift. Keep this manual in a secure place for future reference, training and service part identification.

TABLE OF CONTENTS

IMPORTANT: It is the shop owner's responsibility to provide a satisfactory installation area for the lift. Lift should only be installed on level concrete floors with no more than 3^{o} of slope and with a minimum of 4 inches (102mm) and 3000 psi (20.7MPa) concrete that has been aged a minimum of 30 days. Please consult a qualified individual if any doubt exists concerning proper installation and subsequent safe operation of the lift. Do not install the lift on asphalt or outdoors. Failure to comply with these minimum standards could result in personal injury or death.

Prior to installation, it is the shop owner's responsibility to provide constant electrical power in the correct voltage, phase, etc., and all wiring for electrical hook-up of the lift. The shop owner must insure that the electrical installation conforms to local building and safety codes. Where required, the shop owner will provide an electrical isolation switch located in close proximity to the lift. This switch will have an emergency stop capability and isolate electrical power from the lift for servicing requirements.

Hydraulic oil cannot be shipped with the lift and will be supplied by either the shop owner or the installer. ISO 32 hydraulic oil (10W non detergent hydraulic oil) must be used to fill the reservoir tank before operating the lift.

It is the shop owner's responsibility to train all operators in lift operation and lift safety.

IMPORTANT SAFETY INSTRUCTIONS

When using your garage equipment, basic safety precautions should always be followed, including the following:

1. Read and follow all safety instructions and decals included with the lift. Read and follow all safety instructions in this manual. Read and follow the ALI "Lifting It Right" manual (included with the lift). Always use the "Vehicle Lifting Points" reference guide when lifting a vehicle. Insure all materials stay up to date »» www.autolift.org/.
2. Only trained and authorized personnel should position a vehicle and operate the lift. Do not allow customers or bystanders to operate the lift or be in the lift area.
3. Inspect the lift daily. Do not operate if potential problems have been identified or lift malfunctions. Do not operate if lift has damaged or broken components. Never walk or work under the lift unless all safety locks are completely engaged.
4. Never overload the lift. The rated capacity decal is located on the powerpack column. The hydraulic system on this lift is not designed to be a load holding device. Mechanical safety locks must be engaged before proceeding under the lift for vehicle servicing or lift maintenance. Never override operating controls. This is unsafe and will void the warranty.
5. Before driving a vehicle onto the lift, insure that both slip plates and turn plates have all lock mechanisms securely in place. Also insure that the lift and lift area is clear of all debris and that all oil and grease has been cleaned from runway surfaces.
6. Before raising or lowering the lift, always totally secure the vehicle with wheel chocks.
7. When using a jack(s) to raise a vehicle, position jack lifting pads to contact vehicle manufacturers recommended lifting points. Raise jack slowly until all pads contact the vehicle. Confirm that the vehicle is stable on the jack(s) before raising to desired working height.
8. Some pickup trucks may require optional truck adapters to clear running boards and other installed accessories. Special care must be exercised with pick-up trucks to insure safe lifting. Always use vehicle manufacturers lifting points and insure the contents of the cargo box will not affect vehicle balance while on the jack(s).
9. Important: Removal or installation of heavier parts can change the vehicle's center of gravity on the jack(s) resulting in a critical load shift. The vehicle may then be unstable. Plan ahead for this possibility to insure continued safety and refer to the vehicle manufacturer’s service manual for recommended procedures.
10. Always keep the lift area free of obstructions and debris. Grease and oil spills should be cleaned up immediately.
11. Never raise a vehicle on the lift with passengers inside. Before lowering, check the lift and lift area and remove all obstructions. Before removing vehicle from the lift or lift area, confirm an unobstructed exit.
12. DO NOT PERFORM ANY MAINTENANCE OR INSTALLATION OF ANY COMPONENTS WITH OUT FIRST ENSURING THAT ELECTRICAL POWER HAS BEEN DISCONNECTED AT THESOURCE OR PANEL AND CANNOT BE RE-ENERGIZED UNTIL ALL MAINTENANCE AND/OR INSTALLATION PROCEDURES ARE COMPLETED (ANSI 244.1).

SAVE THESE INSTRUCTIONS

SAFETY INSTRUCTION AND INFORMATION DECAL KIT

Review all safety information daily with all lift operators

LIFT SAFETY and LIFT MAINTENANCE MUST BE PART OF YOUR DAILY ROUTINE

IMPORTANT:

Insure Safety Instruction Decals and Hang Card are affixed to the lift immediately following installation and before the lift is used

OWNER/EMPLOYER RESPONSIBILITY

The Owner/Employer shall ensure that all lift operators are qualified and that they are trained in the safe use and operation of the lift using the manufacturer's operating instructions; ALI/SM 93-1, ALI SAFETY Tips card; ANSI/ALI ALOIM-1994, American National Standard for Automotive Lifts-Safety Requirements for Operation, Inspection and Maintenance; ALI/WL Series, ALI Uniform Warning Label Decals/Placards; and in the case of frame engaging lifts, ALI/LP-GUIDE, Vehicle Lifting Points/Quick Reference Guide for Frame Engaging Lifts.

The Owner/Employer shall establish procedures to periodically inspect the lift in accordance with the lift manufacturer's instructions and ANSI/ALI ALOIM-1994, American National Standard for Automotive Lifts-Safety Requirements for Operation, Inspection and Maintenance. The owner/employer shall also ensure that lift inspectors are qualified and that they are adequately trained in the inspection of the lift.

The Owner/Employer shall establish procedures to periodically maintain the lift in accordance with the lift manufacturer's instructions and ANSI/ALI ALOIM-1994, American National Standard for Automotive Lifts-Safety Requirements for Operation, Inspection and Maintenance. The owner/employer shall also ensure that lift maintenance personnel are **qualified** and that they **are adequately trained** by factory in the maintenance of the lift.

The Owner/Employer shall maintain the periodic inspection and maintenance records recommended by the manufacturer or ANSI/ALI ALOIM-1994, American National Standard for Automotive Lifts-Safety Requirements for Operation, Inspection and Maintenance.

The Owner/Employer shall display the lift manufacturer's operating instructions; ALI/SM 93-1, ALI Lifting it Right safety manual; ALI/ST-90 ALI Safety Tips card; ANSI/ALI ALOIM-1994, American National Standard for Automotive Lifts-Safety Requirements for Operation, Inspection and Maintenance; and in the case of frame engaging lifts, ALI/LP-GUIDE, Vehicle Lifting Points/Quick Reference Guide for Frame Engaging Lifts in a conspicuous location in the lift area convenient to the operator.

The Owner/Employer shall provide necessary lockout/tagout means for energy sources per ANSI Z244.1-1982 (R1993), Safety Requirements for the Lockout/Tagout of Energy Sources, before beginning any lift repairs.

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

LOCKOUT/TAGOUT PROCEDUGRE

This procedure establishes the **minimum** requirements for the lockout of energy that could cause injury to personnel by the operation of lifts in need of repair or being serviced. All employees shall comply with this procedure.

The responsibility for assuring that this procedure is followed is binding upon all employees and service personnel from outside service companies (i.e., Authorized Installers, contactors, etc.). All employees shall be instructed in the safety significance of the lockout procedure by the facility owner/manager. Each new or transferred employee along with visiting outside service personnel shall be instructed by the owner/manager (or assigned designee) in the purpose and use of the lockout procedure.

Employees authorized to perform lockout shall ensure that the appropriate energy isolating device (i.e., circuit breaker, fuse, disconnect, etc.) is identified for the lift being locked out. Other such devices for other equipment may be located in close proximity of the appropriate energy isolating device. If the identity of the device is in question, see the shop supervisor for resolution. Assure that proper authorization is received prior to performing the lockout procedure.

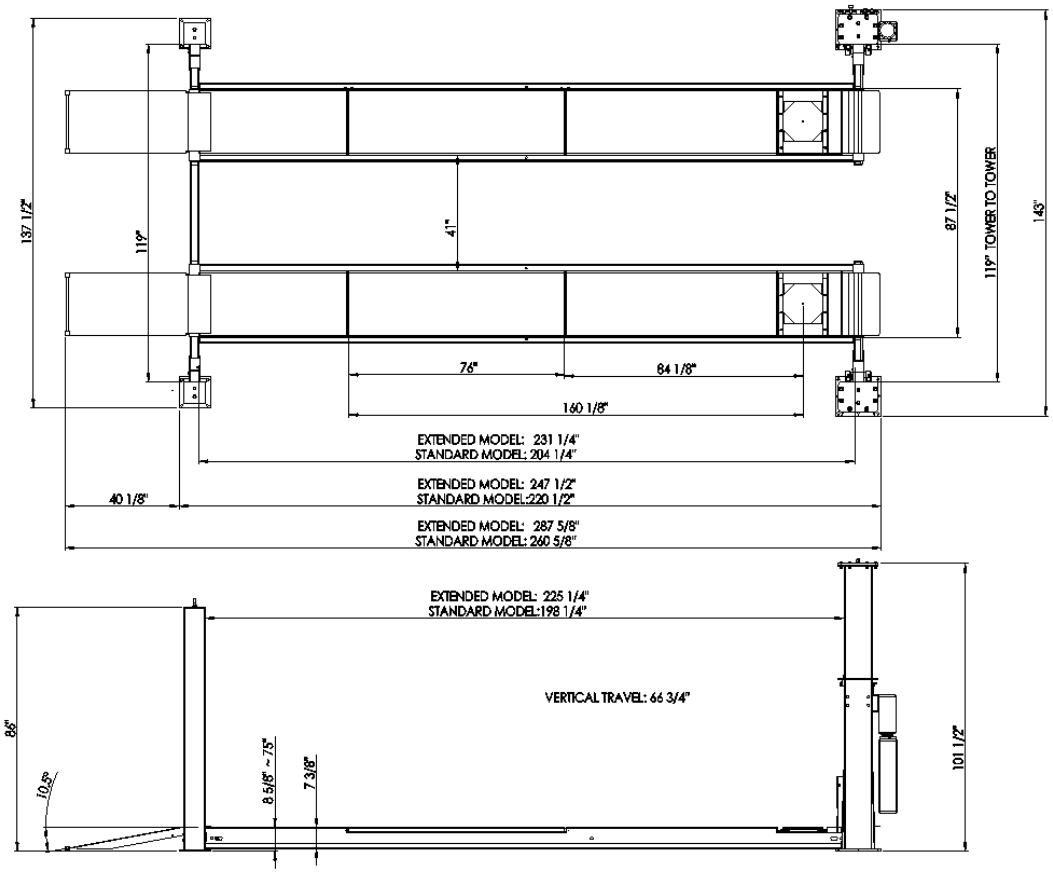
Lockout Procedure

1. Notify all affected employees that a lockout is being performed and the reason for it.
2. Unload the subject lift. Shut it down and assure the disconnect switch is "OFF" if one is provided on the lift.
3. The authorized lockout person operates the main energy isolation device removing power to the subject lift. • If this is a lockable device, the authorized lockout person places the assigned padlock on the device to prevent its unintentional reactivation. An appropriate tag is applied stating the person's name, at least 3" x 6" in size, an easily noticeably color, and states not to operate device or remove tag. • If this device is a non-lockable circuit breaker or fuse, replace with a "dummy" device and tag it appropriately as mentioned above.
4. Attempt to operate lift to assure the lockout is working. Be sure to return any switches to the "OFF" position.
5. The equipment is now locked out and ready for the required maintenance or service.

Restoring Equipment to Service

1. Assure the work on the lift is complete and the area is clear of tools, vehicles, and personnel.
2. At this point, the authorized person can remove the lock (or dummy circuit breaker or fuse) & tag and activate the energy isolating device so that the lift may again be placed into operation.

GENERAL REQUIREMENTS AND LIFT SPECIFICATIONS



Max. 15,000 lb. (6,818 kg) Capacity - 7,500 lbs. (3,409 kg) each Runway

Capacity	Wheelbase
Min. Wheelbase @ Rated Capacity	180″
Min. Wheelbase @ 75% Capacity	140″
Min. Wheelbase @ 50% Capacity	100″
Min. Wheelbase @ 25% Capacity	60″

Motor: 4HP, 230VAC 1PH. **Rise Time:** 58 sec. **Max. Operating Pressure (full load):** 2,800psi

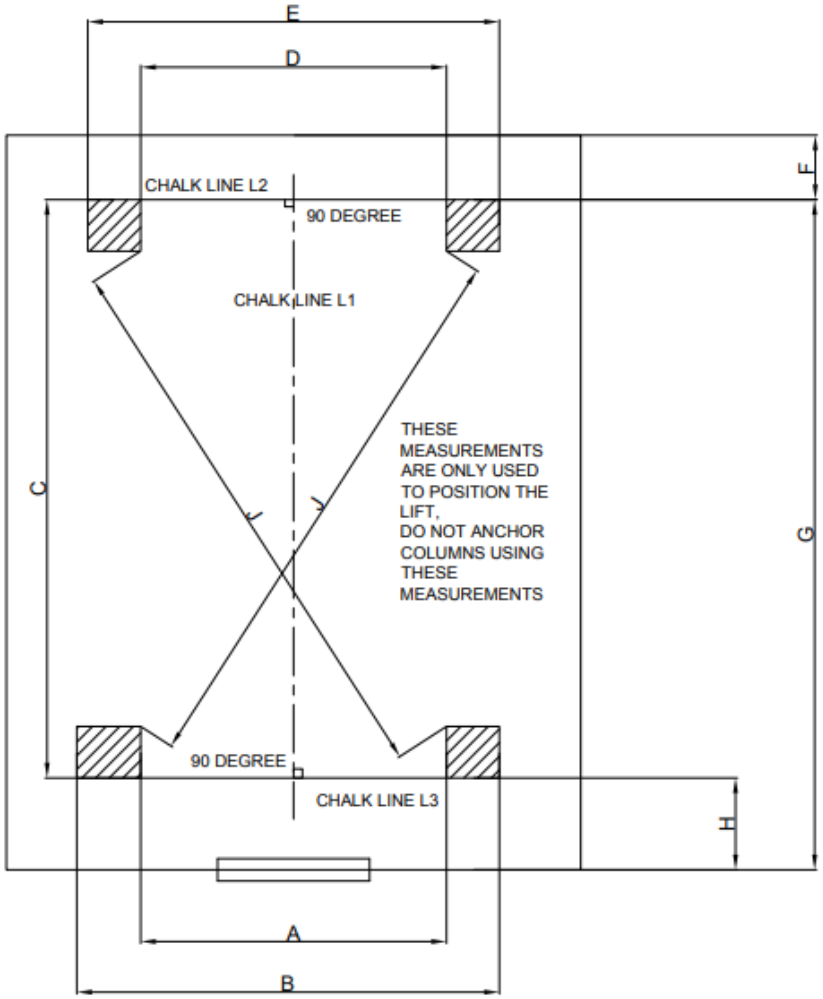
Lift should only be installed on level concrete floors with a minimum of 4 inches and 3000 psi (20.7MPa) concrete that has been aged a minimum of 30 days. A qualified person should be consulted to address seismic loads and other local or state requirements.

A constant supply of 230VAC, 1PH, 60Hz, 25A, electrical power and a constant supply of 100~125 psi dry compressed air is required for this lift.

This lift is designed for INDOOR use only, outdoor installation is prohibited.

Ongoing design modifications and quality improvements may change specifications listed in this manual without notice

RECOMMENDED BAY DIMENSSIONS



	DESCRIPTION	Extended Models	Regular Models
A	Rear outer baseplate to baseplate	115.5″	115.5″
B	Rear inner baseplate to baseplate	137.5″	137.5″
C	Front baseplate to rear baseplate	247.5″	220.5″
D	Front inner baseplate to baseplate	115″	115″
E	Front outer baseplate to baseplate	143″	143″
F	Front baseplate to obstacle	Min. 60″	Min. 60″
G	Front baseplate to door	Min. 307.5″	Min.280.5″
H	Rear baseplate to door	Min. 60″	Min. 60″
J	Diag. measurement	EQUAL	EQUAL

Note: Each column must have at least 2ft clearance to obstacles (or consult local building code). Minimum ceiling height H=75″+Greatest Vehicle Height.

UNLOADING PROCEDURE AND LIFT PACKAGE CONTENTS

All lift components are packaged together in one module held together by steel frames

Optional accessories (rolling jacks and turnplates) are packaged separately.

When the lift arrives on site:

- ✓ If possible have lift unloaded in the installation area and on two 4"x4"x24" Wooden Blocks (required for unpacking)
- ✓ Check for freight damage and report immediately to shipping company who delivered the lift
- ✓ Check for missing parts and report immediately to the factory 1-877-799-LIFT(5438) or (905)847-1198

Main Components include:

- ✓ Columns – 4 pcs
- ✓ Runway Assemblies – 2 pcs
- ✓ Crossmember – 1 pcs (1 rear)
- ✓ Front Arm – 2 pcs
- ✓ Approach Ramps – 2pcs
- ✓ Accessory and Hardware Box (see list below)
- ✓ Powerpack – 1 pc

Optional Accessories: (included only if ordered)

- ✓ Rolling Air/Hydraulic Jacks (1 jack per box c/w coiled air line)
- ✓ Turn-plates (1 turn-plate per box c/w retainer brackets)

Accessory Box includes:

- ✓ Hydraulic Hose – 1 pc
- ✓ Wheel Stops - 2
- ✓ WL 200 Series Safety Information Label Kit – 1pc
- ✓ ALI - "Lifting It Right " Manual – 1pc
- ✓ ALI - "Vehicle Manufacturer's Lifting Point Guide" (CD) – 1pc
- ✓ Automotive Lift Safety Tips Hang Card – 1pc
- ✓ Automotive Lift, Operation, Inspection and Maintenance Manual – 1pc
- ✓ Owner's Manual – 1pc

Hardware Box includes:

- ✓ Fittings, bolts, washers, nuts, anchor bolts, etc.

Important Notice

Krown Rust Proofing has been applied to specific areas of your new lift to ensure protection from corrosion.

- Please do not be alarmed if fluid is noticed dripping from openings of the Drive on Runways. This is normal.

- The application of the Krown Rust Proofing is completed in the final stage of the lift assembly process. To ensure protection and coverage, a generous amount is sprayed and may still be in a more fluid phase of its setup when your new lift is put into service. This will diminish over time, while maintaining protection of areas that are unable to be otherwise protected with paint coating.

TOOLS REQUIRED AND PRE INSTALLATION PROCEDURES

Tools Required:

- ✓ 30ft. Measuring Tape - Chalk Line and Chalk
- ✓ 4"x 4" x 24" Wooden Blocks
- ✓ Fork Lift - Floor Jacks (2) - or engine crane
- ✓ Work Stands - 4 (runway set-up and installation)
- ✓ Metric and SAE Wrenches and Ratchet Sets
- ✓ Metric and SAE Allen Key Sets
- ✓ Crow Bar - Hammer - Screwdrivers
- ✓ 2 x 4 ft. Level (laser level also suggested)
- ✓ Rotary Hammer Drill c/w ¾ inch diameter Masonry Drill Bit
- ✓ Step Ladder

PRE-INSTALLATION PROCEDURE

Before proceeding with installation, read the installation manual and insure all instructions are fully understood and all component parts listed are accounted for.

Follow the diagram on page 8 and draw chalking lines on the floor for each colum. **These locations will be used to initially position each column, however, the 4 most critical measurements will be inside column to inside column measurements confirmed later in the installation process.*keep 24" min. space or follow local safety/building code.**

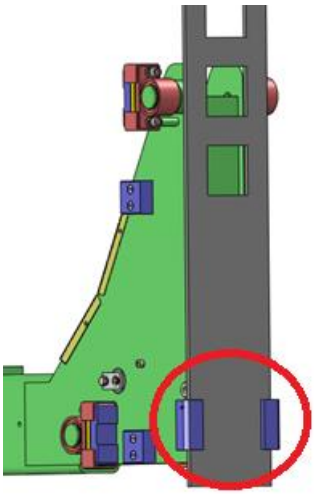
Confirm that the column baseplate locations you have marked are a minimum distance of six (6) inches from any floor seam. Do not install if floor has cracks or deterioration that could affect lift stability. The shop owner is responsible for confirming there are no obstructions in the installation area like floor drains, under floor piping or electrical conduit that could be damaged or prevent safe lift installation and secure lift anchoring. Check ceiling for beams or heating ducts and walls for protruding structures, etc. Insure that the lift can be safely installed in the position you have marked out on the bay floor.

INSTALLATION PROCEDURE

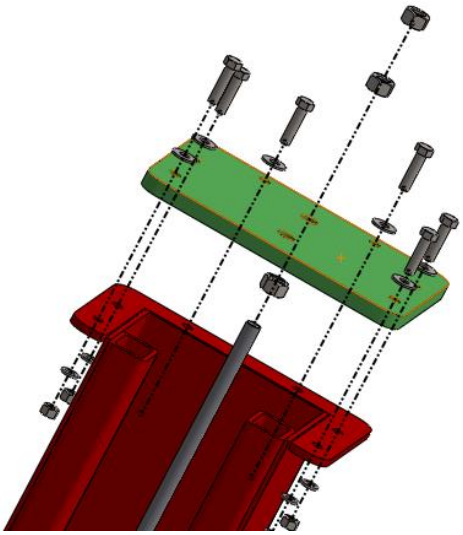
Insure the lift installation complies with ANSI/ALI/ALIS, Safety Requirements for Installation and Service of Automotive Lifts.

FRONT BEAM AND TOWER INSTALLATION

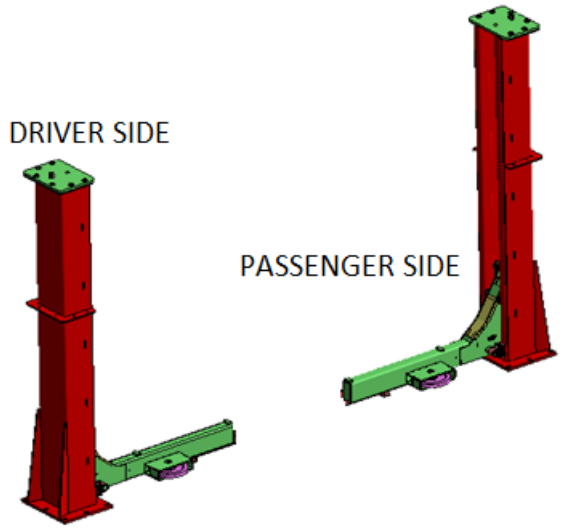
1. Unload the two front beams and towers from the package. Slide the two locking ladders with longer threaded rods (about 29") into the front towers. Make sure the ladder goes in the plastic slots at the bottom of the beam.



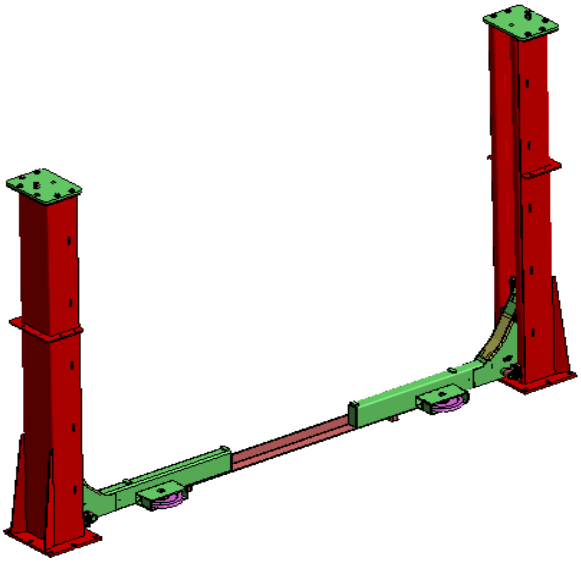
2. Using hardware provided. Install the top plates of each front tower. One nut must be use underneath the plate to secure the locking ladder.



3. Follow the chalk lines stand two towers up facing each other.

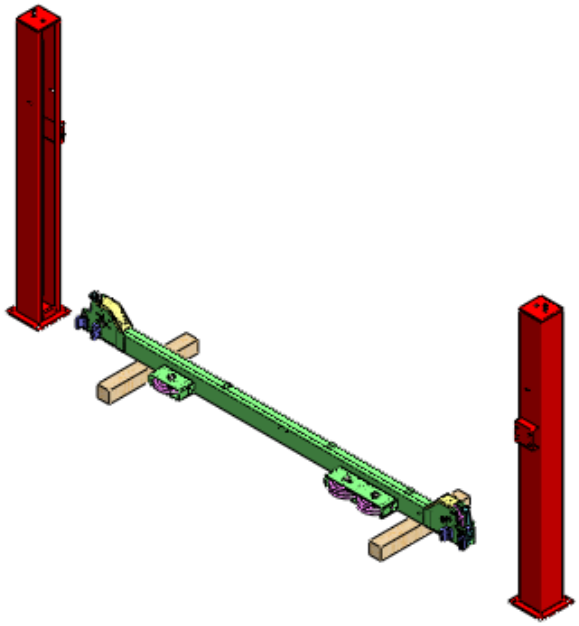


4. Use the provided installation jig to fix the two cross beam together.

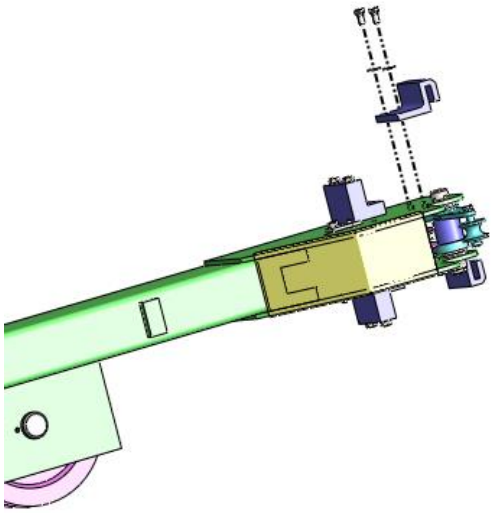


REAR CROSS-BEAM AND TOWER ASSEMBLIES

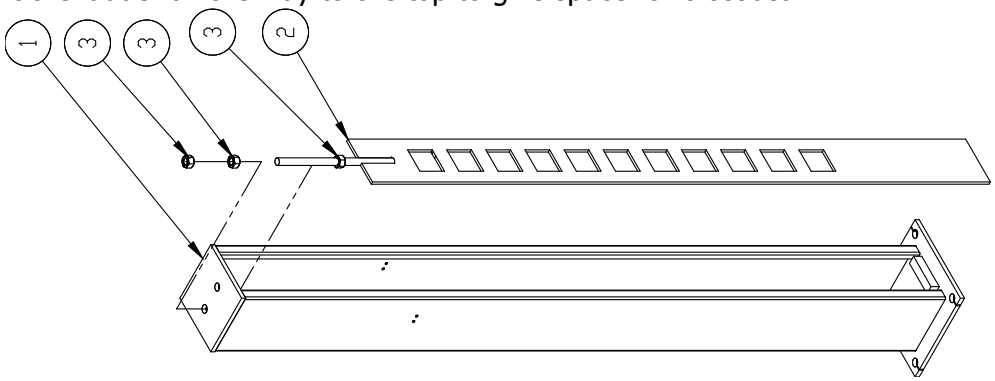
5. Carefully lift rear cross-beam and set it securely on top of the rear work stands. See **Fig.8**.Insure the end with 2 double pulleys is on the same side as the powerpack (driver side) column and inline with the front cross-beam single pulley.



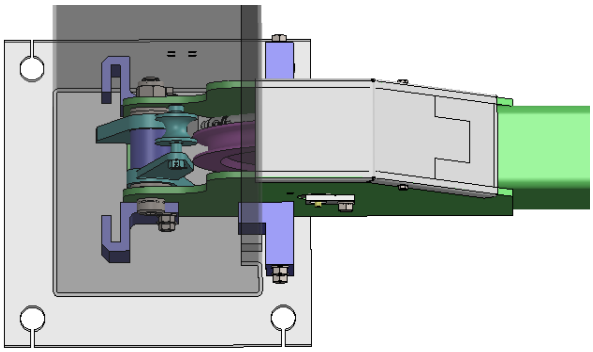
6. Remove driver and passenger rear side sliders from the rear beam.



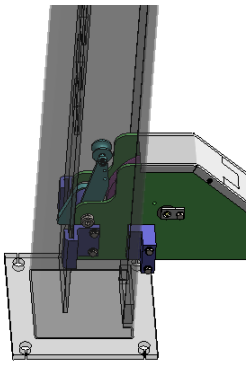
7. Put safety ladders into both rear towers. Leave a nut at bottom of the threaded rod and two nuts at the top. Lift the ladder all the way to the top to give space for crossbeam.



7. Slide two rear towers into the cross-beams.



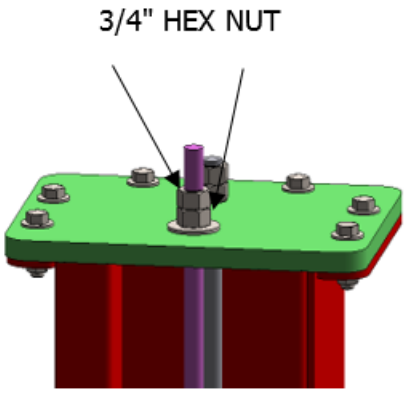
8. Slide the safety ladder down into the slots of the safety ladder guide blocks. Reap this for both rear towers.



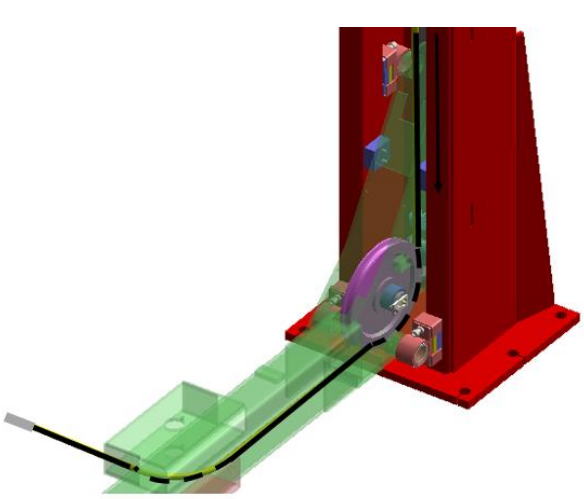
CABLE INSTALLATION (PART I)

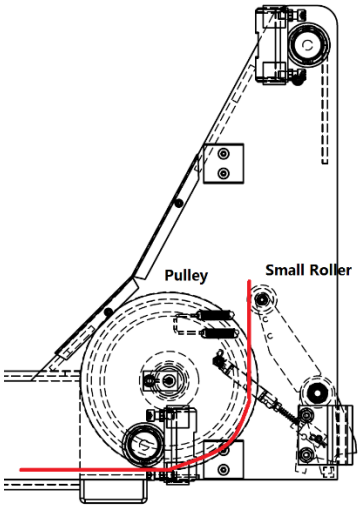
9. Refer to Diagram #9 and label each cable.

10. Anchor threaded end of the **driver front side** cable into the top plate of the front driver side tower by using one 3/4" flat washer and two 3/4"-10 UNF hex nuts.



11. Run the cable down into the beam's carriage, pay attention to the small cable safety roller position. Cable must run in between the smaller roller and the 9" pulley.

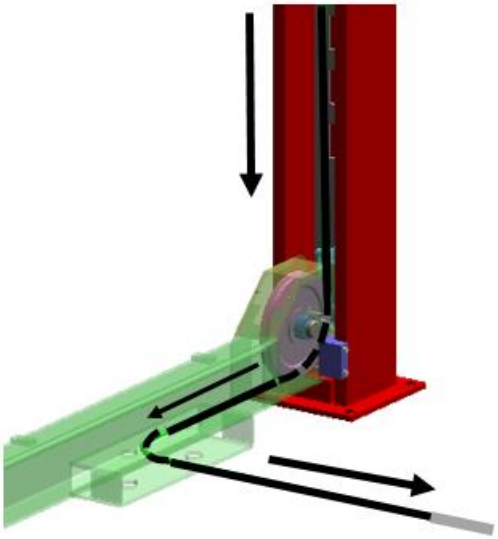




Mark ① on non-threaded terminal.

12. Anchor threaded end of the **driver rear side** cable into the top plate of the front driver side tower by using one 3/4" flat washer and two 3/4"-10 UNF hex nuts.

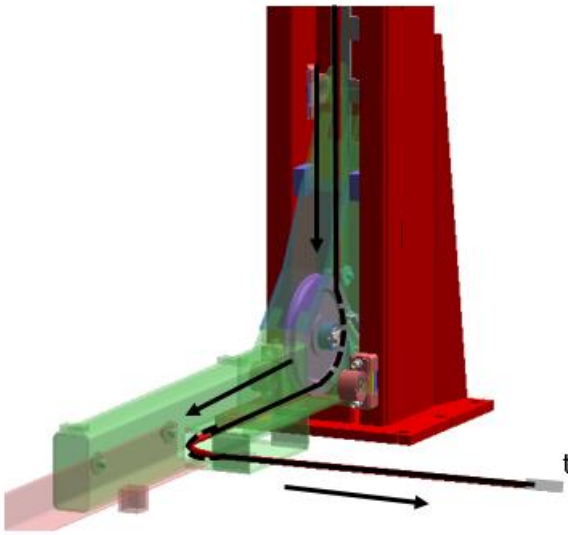
13. Run the cable down into the beam's carriage, pay attention to the small cable safety roller position. Cable must run in between the smaller roller and the 9" pulley.



Mark ② on non-threaded terminal..

14. Anchor threaded end of the **passenger front side** cable into the top plate of the front driver side tower by using one 3/4" flat washer and two 3/4"-10 UNF hex nuts.

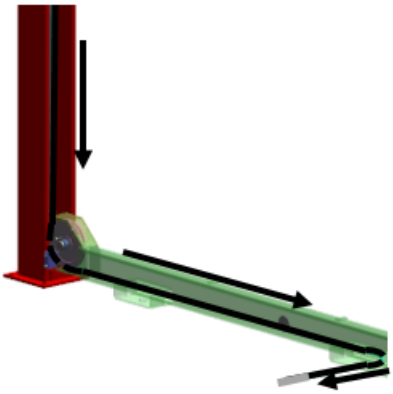
15. Run the cable down into the beam's carriage, pay attention to the small cable safety roller position. Cable must run in between the smaller roller and the 9" pulley.



Mark ③ on non-threaded terminal.

16. Anchor threaded end of the **passenger rear side** cable into the top plate of the front driver side tower by using one 3/4″ flat washer and two 3/4″-10 UNF hex nuts.

17. Run the cable down into the beam's carriage, pay attention to the small cable safety roller position. Cable must run in between the smaller roller and the 9″ pulley.



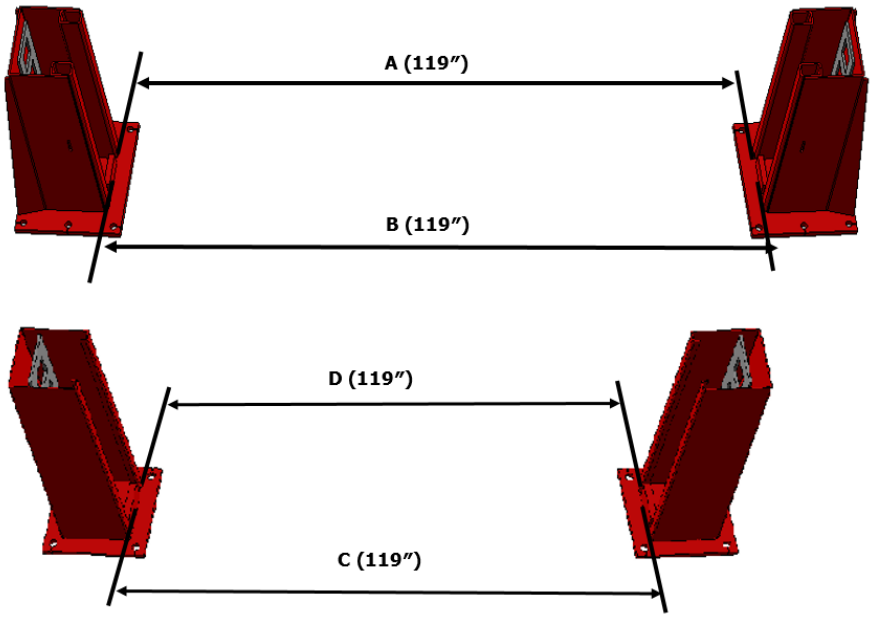
WARNING: DO NOT CROSS CABLES IN SIDE THE PULLY BOX!

Mark ④ on non-threaded terminal.

DECK (Runway) INSTALLATION

18. Raise the two front cross-beams and rear cross-beam to the same level on a desired working height (3 feet to 4 feet from the ground). Lower beams down to the closest safety lock.

19. Check the square of lift. Measure the distance A, B, C, D between the bottom of the tower, make sure lengths are about 119″.



20. Carefully lift the driver side runway and set it securely on top of both front and rear cross-beams. Confirm this runway has the hydraulic cylinder underneath. Double check driver side runway has the hydraulic hose connection located at the front next to the powerpack column. Alignment turn plates pockets are always at the front. Make sure that both the front and rear of the runway is seated properly on both cross-beams.

21. Lift the passenger side runway and set it securely on top of both front and rear cross-beams.

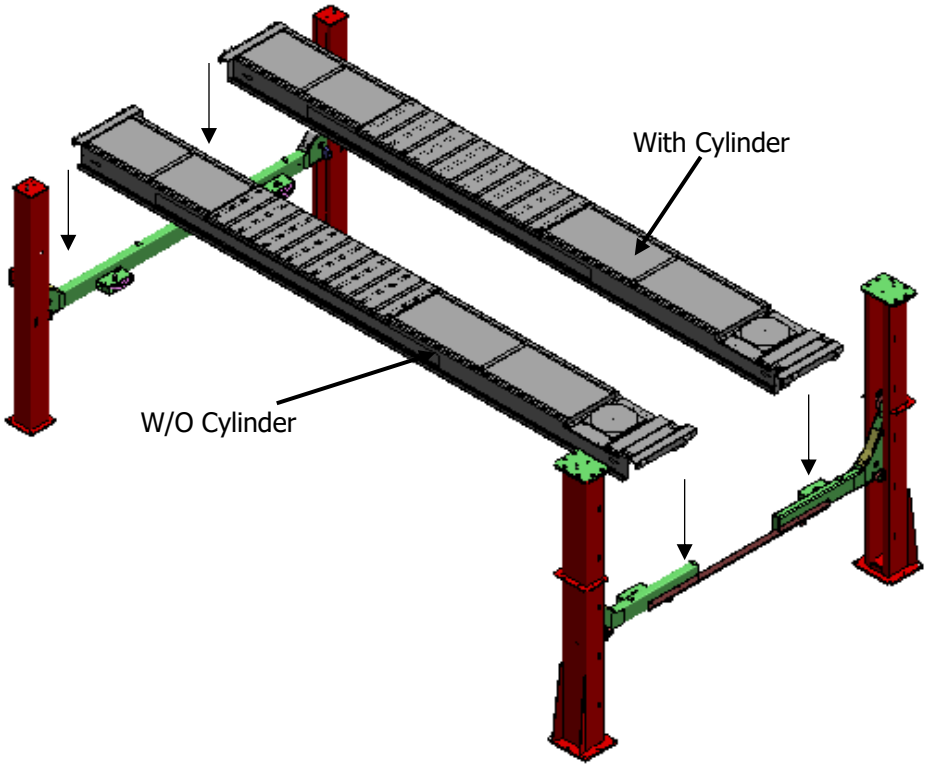


Figure 20

CABLE INSTALLATION (PART II)

22. Run cable ③ pass the passenger side runway, insert in to the rear beam from the rear beam smaller pulley box and go towards the larger pulley box.
23. Run cable ① pass the driver side runway similar as cable ③.

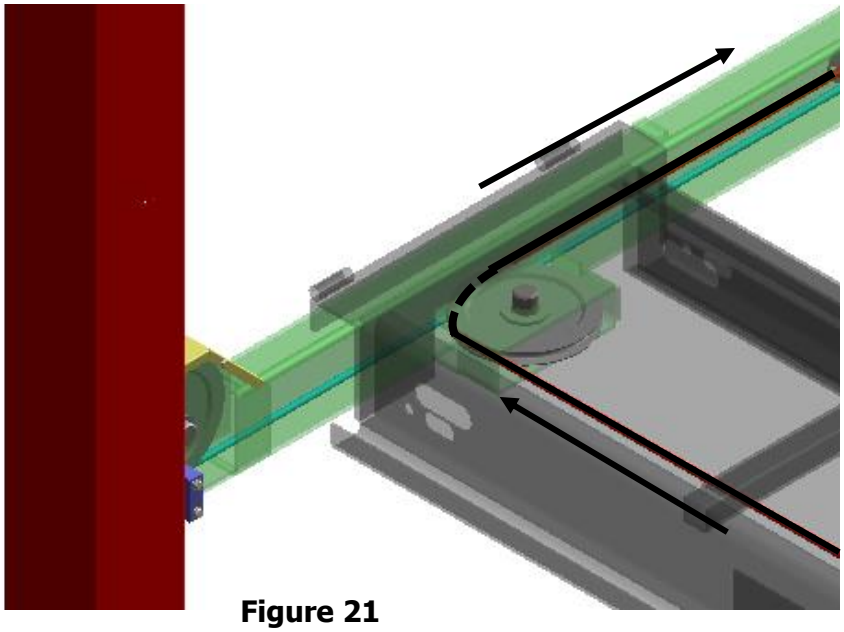
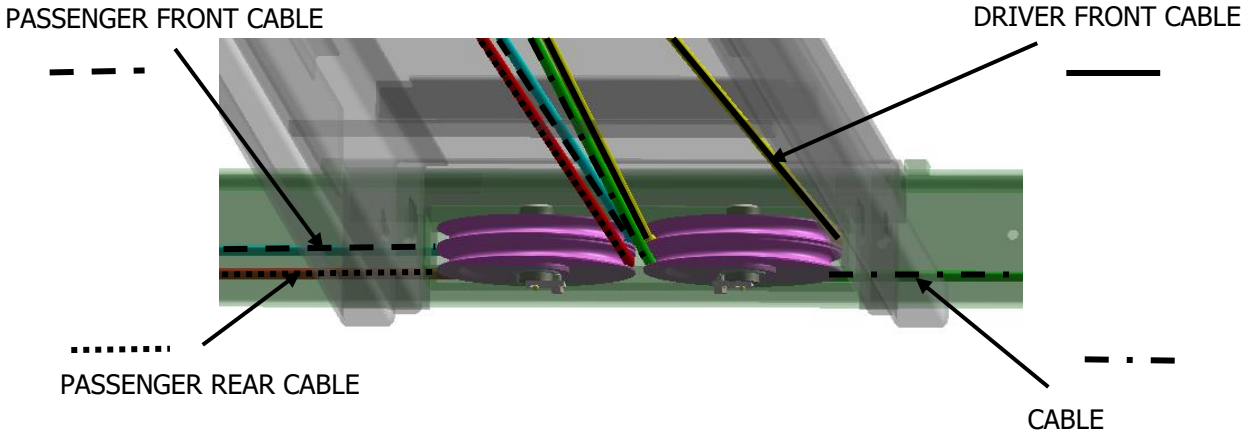
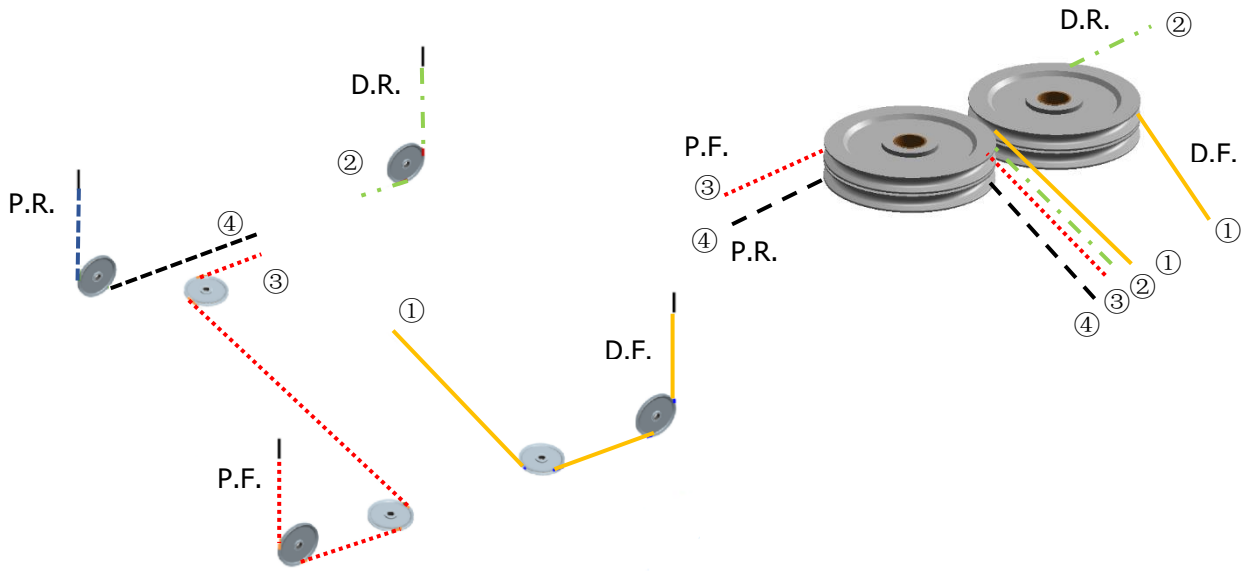


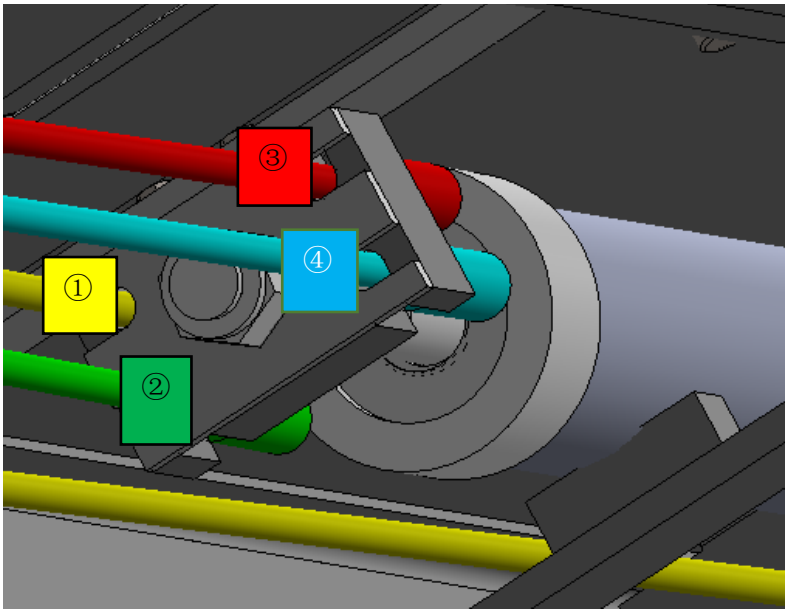
Figure 21

24. Install 4 pulleys in larger box and ensure the cable is on the right position.





25. Remove the hex nut retaining the anti-rotation bar to the cable flange at the threaded end of the hydraulic cylinder. Insert non-threaded terminal of the cables into the cable flange and fix the hex nut.



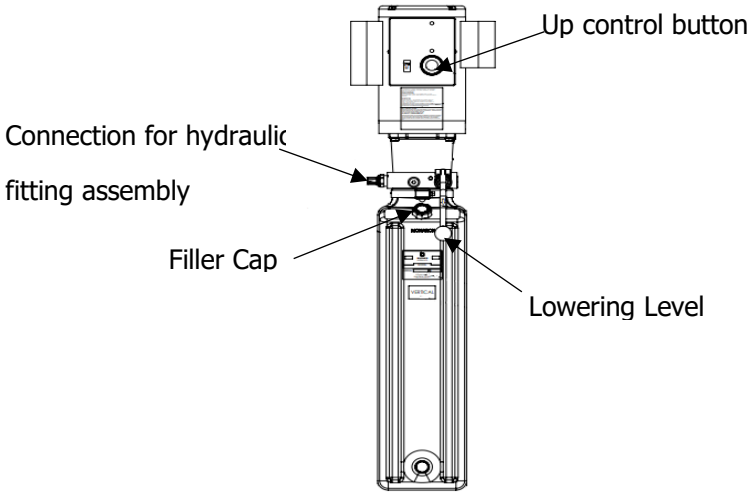
The Cylinder rod must be extended in order to attach the non-threaded ends (sleeves) of the cables to the cable flange on cylinder rod. Use compressed air in the shop and an air nozzle at the breather end to extend the cylinder rod. Use caution and protective equipment when working with compressed air.

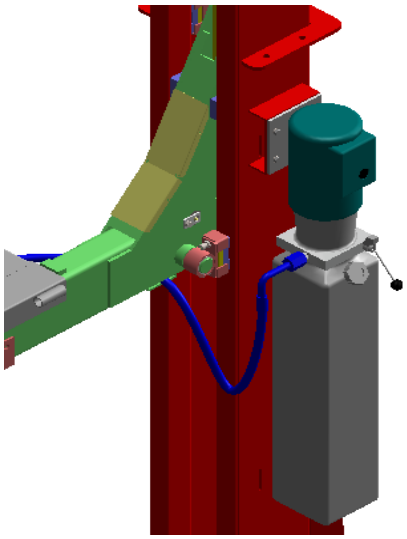
POWER PACK AND HYDRAULIC HOSE INSTALLATION

26. Install the power pack to the mounting bracket on the front face of the driver side front post using the 5/16"-18UNC × 1"LG. hex head bolts and 5/16" lock washers and hex nuts (**Fig.26**).

27. Fill the tank on the power unit with 4.5 Gallon ISO grade 32 hydraulic fluid.

28. Fasten one hose end to the hydraulic power pack take the hose cross the driver side front cross-beam bottom bracket and the other end to the flow control on the hydraulic cylinder.

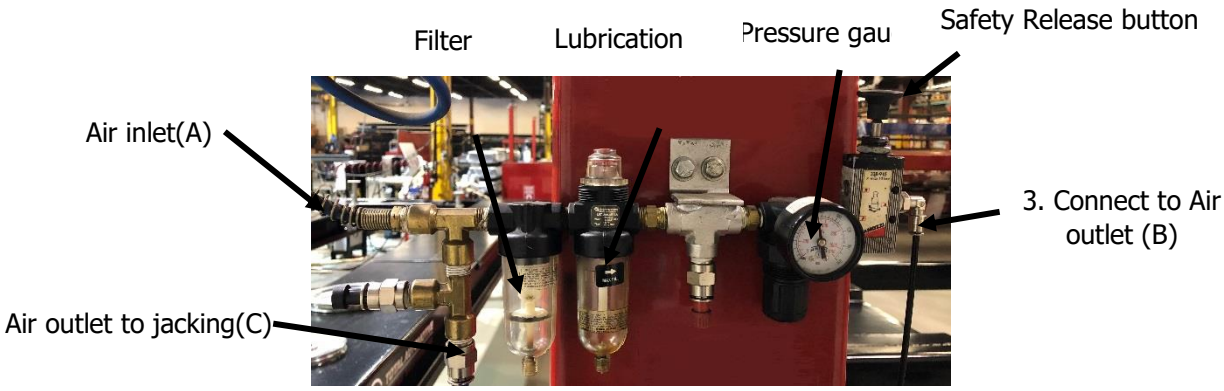




WARNING: DO NOT OVER-TIGHTEN HYDRAULIC FITTINGS!

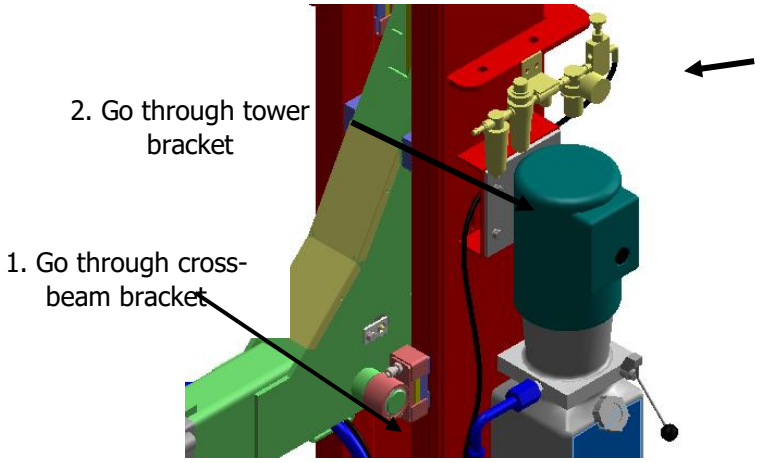
AIR LINE INSTALLATION

29. Install the pneumatic system onto the front driver side tower

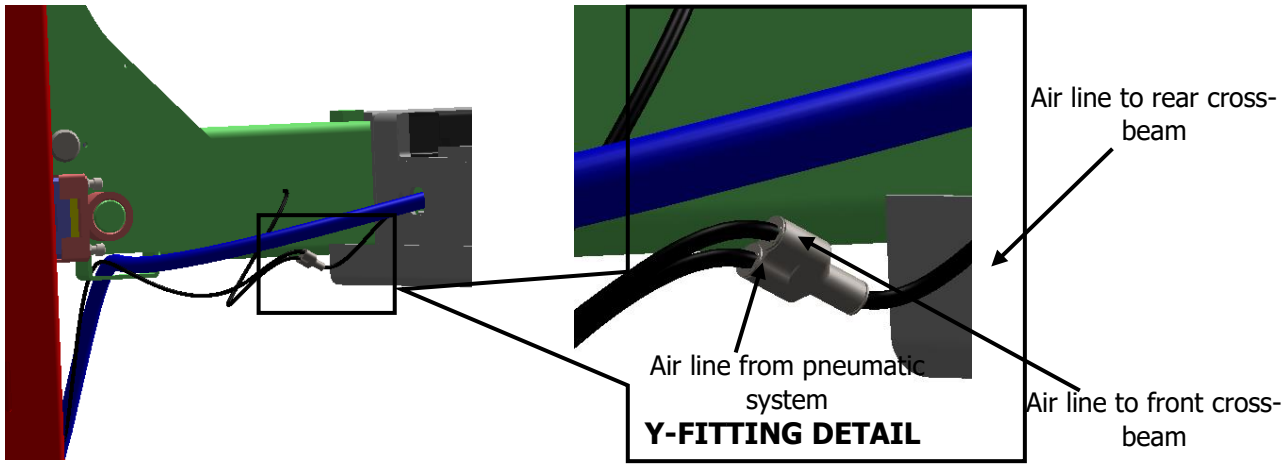


Pneumatic System

30. Take out the air line from the driver side deck go through the bracket of driver side cross-beam and connect to Air outlet(B).



31. Connect the Y-shape fitting with the air line from the cross-beam and insert into the deck.

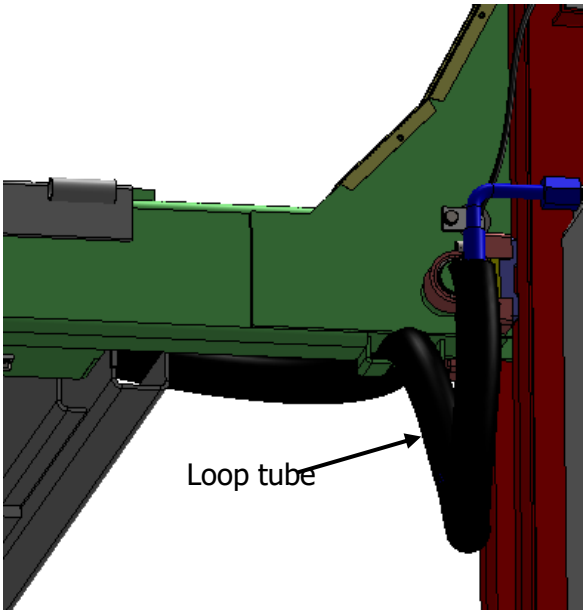


32. Connect other three air lines between tower and cross-beam.

33. Connect the air supply to the inlet on pneumatic system.

34. Test the pneumatic system to insure the safety release is available.

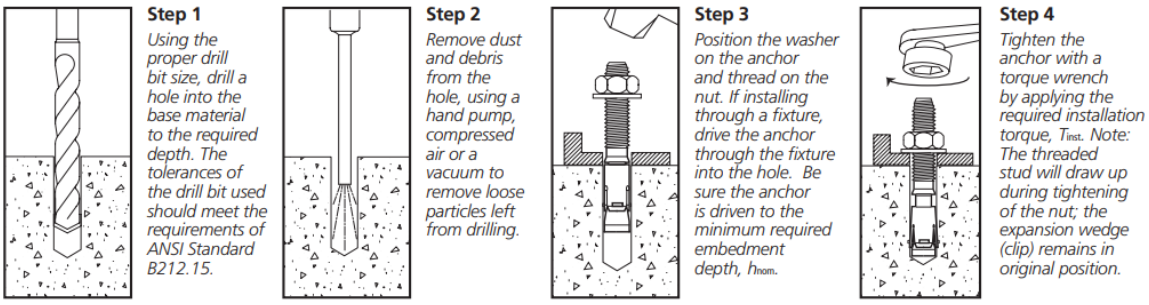
35. Route loop tube between the power unit and deck to protect the hydraulic hose and air line.



ANCHOR THE TOWER

36. Before anchor the tower, run the lift two cycles from bottom to top. It will help the lift to release the installation effect.

37. Prior to installing anchors, assemble the nut and washer onto anchors. A minimum of six threads must be visible below the surface of the nut. Refer to the **Figure 31** while reading through the following instructions.



38. If shop floor is not level, use the shim to adjust the level insure all tower is level.

39. Using a 3/4" concrete drill bit and rotary hammer drill, drill 3/4" holes for the anchor bolts on the high side column. Drill completely through the concrete floor. In case longer anchors are required, supplied anchors can be hammered through concrete.

- Clean out the drilling dust from the holes and hammer in the anchor bolts until they make contact with the base plate. Hand-tighten all anchor bolts.
- Check that the column is level front to rear and side to side (Fig 32). Adjust shims as required. See Fig. 33.
- If excessive shimming (greater than 5/16") is required, grout or additional support is required under the towers.
- Torque all anchor bolts to 110 ft-lbs.(150Nm), continually checking that the column is level as you proceed. See Fig. 34.

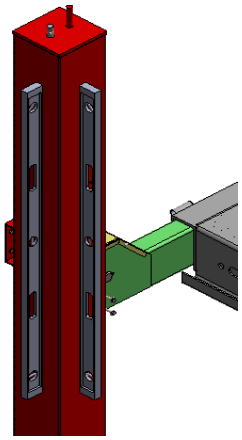


Figure 32

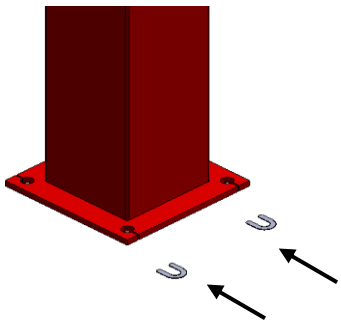


Figure 33

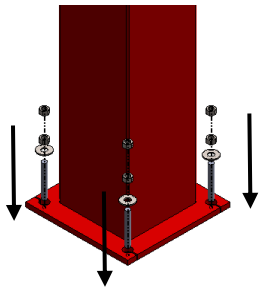
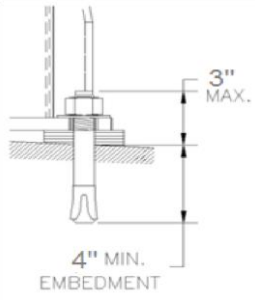


Figure 34



NOTICE The 3/4" ×7" lg. wedge anchor bolts supplied must have a minimum embedment of 4" into the concrete floor.

If anchors do not tighten to required torque, or project more than 3" above the concrete surface, the concrete under the towers may not be sufficient and need to be replaced by an appropriate pad.

In cases where the floor is extremely out of level, the mechanical safety latches may not engage on the same lock

DO NOT use more than 1/2" (13mm) of shims, Anchor bolts supplied allow for a maximum of 1/2" (13mm) of shim.

Refer to Fig.1 and Fig.2 to ensure that the column is still in the proper position.

- Repeat procedure for other towers.

REMOVE JIG AND ADJUST OPEN BEAM ANGLE

- Remove the front cross-beam jig.
- Adjust open beam angle use the out side slider. Screw the bolt clockwise on the slider and use the level to check the run way level until the run way in horizon position, see Fig.34.

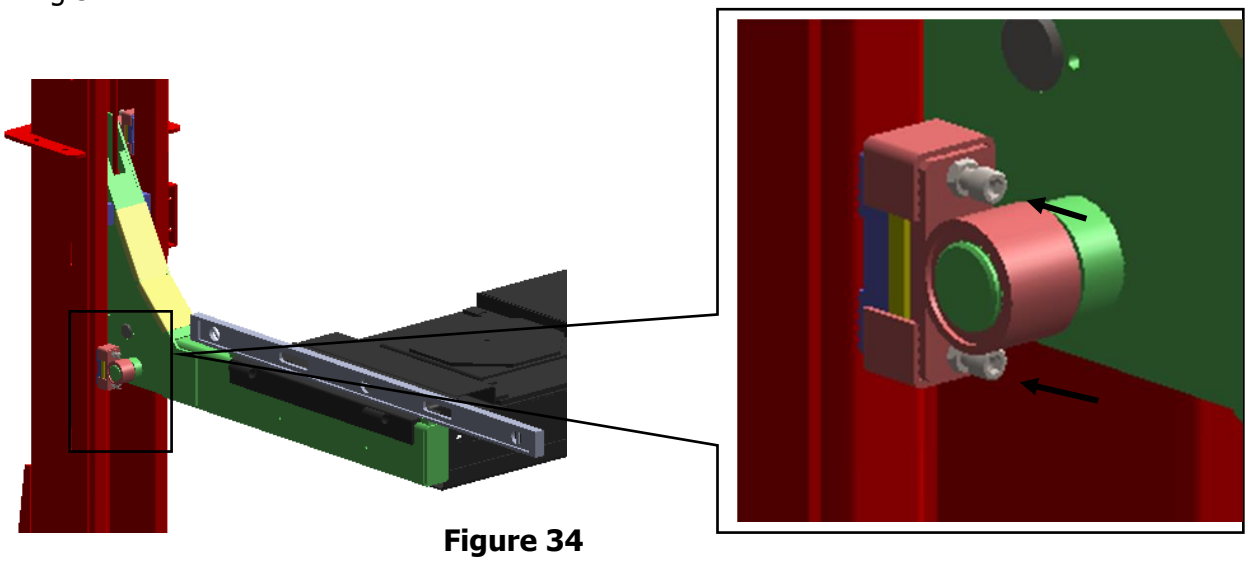
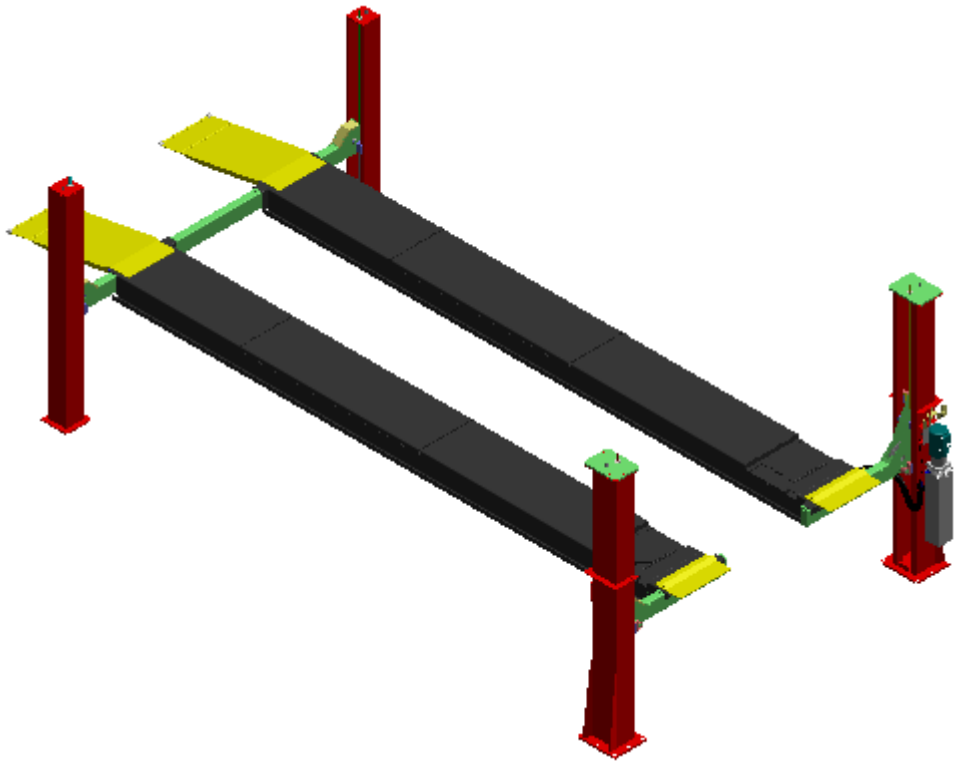


Figure 34

NOTICE

INSTALLER: PLEASE RETURN THE JIG TO LIFT OWNER/OPERATOR AFTER COMPLETING INSTALLATION.

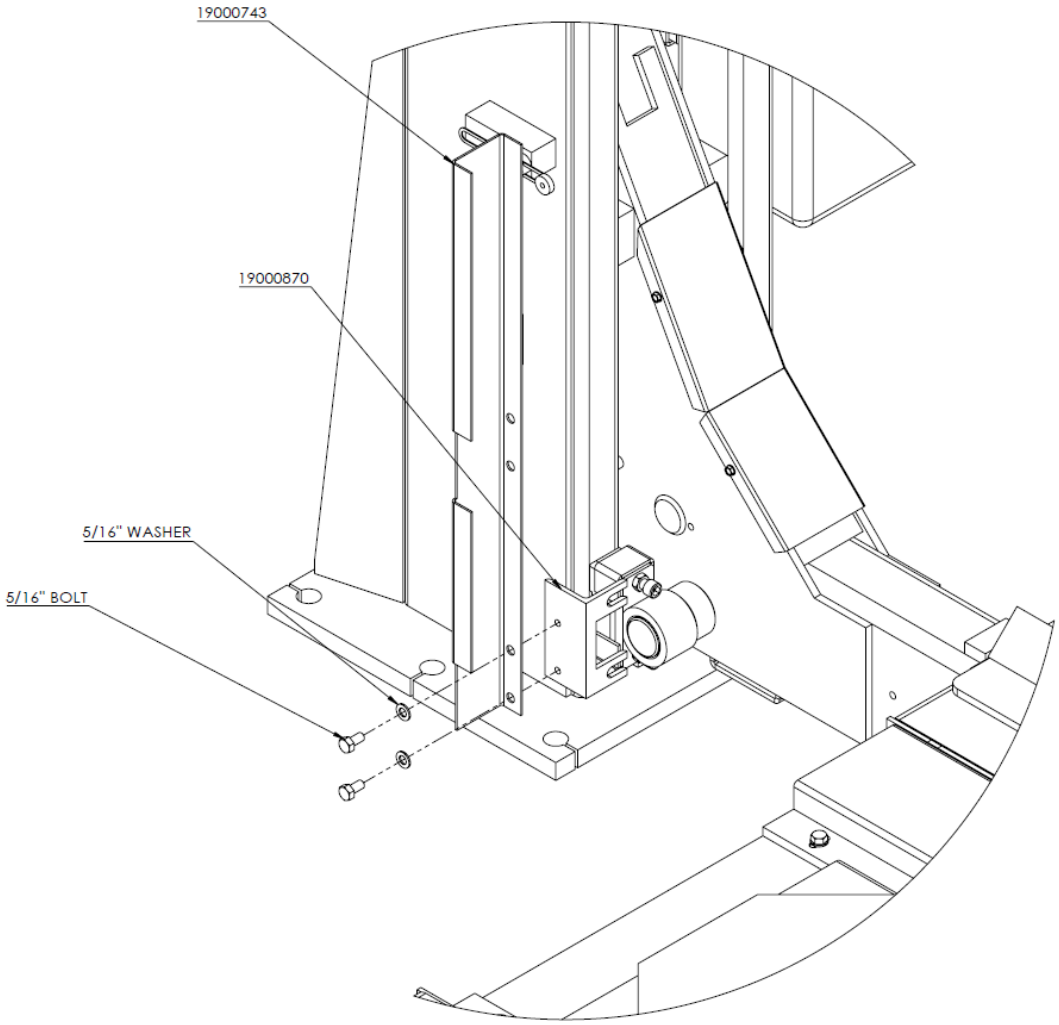
APPROACH RAMPS, WHEEL STOPS



30. Follow diagrams in part-list to install approach ramps and wheel stops.

LED Light (Optional):

If the lift equipped with led lights on the runway, please use the following diagram to install the bracket for the limit switch. The bracket and limit switch work together to make sure the lights are turned off when the lift is lowered below 24”. Please refer to diagram#19 and diagram# 20 for the electrical connections of the lights.



PRE-OPERATION CHECK LIST

Trained Lift Operator

- ✓ All lift operators must be fully trained and qualified to safely and effectively operate the lift described and covered in this manual.

Absence of All Obstructions

- ✓ The total work area must be free of any and all obstructions and be generally clean of oil and debris.

Visual Inspections

- ✓ Every lift operator must thoroughly inspect the lift noting any problem area. An inspection of the floor area and anchor bolts must also be completed. Report any questionable item.

"No Load" Performance Check

- ✓ All mechanical safety locks are operating properly and consistently
- ✓ No External Fluid Leaks
- ✓ No Lift "Bleed Down".
- ✓ Effortless and Simultaneous Movement
- ✓ Level Lifting
- ✓ All Controls Function Properly
- ✓ Safety Mechanisms all functional

Previous Operator's Report

- ✓ Verify with previous operator and/or supervisor that there is no problem with the lift. If problems have been reported, insure all necessary repairs have been completed.

Insure this manual along with all operation, inspection and maintenance instructions are delivered to the owner, user and employer.

OPERATING INSTRUCTIONS

To Load a Typical Vehicle

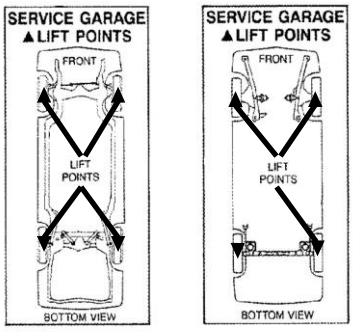
- ✓ Identify vehicle wheelbase and refer to page 8 to determine the capacity of the lift, the gross weight of the vehicle must not exceed the capacity shown in the table.
- ✓ Check the **flip-up style wheel stop** at the front are developed in place.
- ✓ Position vehicle on the lift runways by using the approaching ramp. Make sure the center of gravity is located evenly between the columns. The individual axle weight should not exceed 50% of the lift capacity.
- ✓ Set vehicle parking brake and chock tires.
- ✓ Make sure vehicle is neither front nor rear heavy.

To Load a unusual Vehicle

- ✓ Call factory for technical support with vehicle spec before loading.

To Raise the Lift

- ✓ Push "up" at the motor button to raise the lift by about 10".
- ✓ Check for the vehicle movement and weight distribution. Raise to desired height if secure.
- ✓ Press "down" handle to lower lift on to the mechanical safeties. Make sure all safety locks sit on the same position of the safety ladders.
- ✓ When using air/hydraulic rolling jacks, always use vehicle manufacturer's recommended lifting points



Typical Label Drawings
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To Lower the Lift

- ✓ Inspect the lifting area to insure all personnel and debris have been cleared away.
- ✓ Raise the lift slightly and then disengage all safety locks by pulling the air operated safety release handle.
- ✓ Press the lowering lever on the power unit to begin lowering. Safety locks must be all disengaged during the lowering.
- ✓ Lower lift completely to the floor and carefully drive off the vehicle from the lift runways.

Warning: Never allow anyone under the lift when raising or lowering. Always insure mechanical safety locks are completely engaged on all four columns before proceeding under the lift or a vehicle.

Note: Always lock both slip plates and turnplates following alignment adjustments and before removing vehicle from the lift.

MAINTENANCE INSTRUCTIONS

The maintenance is to be performed by factory trained lift service personnel only.

Important: Regularly inspect the hydraulic pressure developed upon the rated capacity, and make sure the pressure doesn't exceed the operating pressure (2,800 psi).

LIFT MAINTENANCE: The following is a minimum maintenance schedule:

DAILY:

- ✓ Raise and lower the lift (with no vehicle) at the beginning of each shift to verify the runways are level, safety locks are engaging, and the lift is operating properly.
- ✓ Check all hydraulic fittings and lines for damage and leaks. Check electrical wiring for damage. Check all moving parts for uneven or excessive wear. Repair or replace all damaged, worn, or broken components immediately.
- ✓ Clean all debris from the base frame area
- ✓ Remove oil/grease on runways and rolling jack lift pads.

WEEKLY:

- ✓ Check hydraulic fluid in reservoir and top up if required.
- ✓ Check cables, cable pulleys and lifting cylinder.

MONTHLY:

- ✓ Check that all anchor bolts are torqued to 110 ft-lbs (150Nm).
- ✓ Clean and lubricate moving parts (diagram 18).

EVERY YEAR:

- ✓ Have a certified lift technician inspect and certify all aspects of the lift as per "Automotive Lift Operation, Inspection and Maintenance" (ALOIM) guidelines.

EVERY TWO YEARS:

- ✓ Change and replace hydraulic oil in cylinders and powerpack reservoir.

LUBRICATION SPECIFICATIONS:

- ✓ Where grease is required use a multi-purpose lithium grease
- ✓ Where lubricating oil is required use a SAE 30 oil
- ✓ Where hydraulic oil is required use ISO 32 hydraulic oil (10W non detergent)

WARNING:

FAIL TO LUBRICATE MAY CAUSE PERMENENT DAMAGE TO THE LIFT

The following criteria will determine when a lifting cable is no longer acceptable for service:

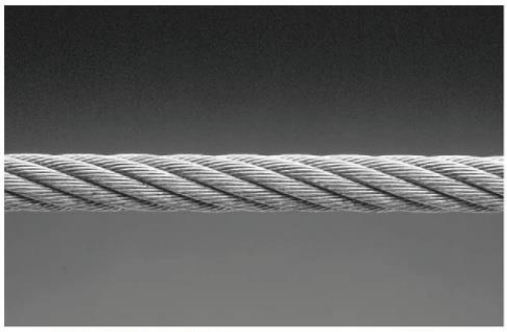
- ✓ 12 randomly distributed broken wires in one lay or four broken wires in one strand in one lay in running ropes
- ✓ one outer wire broken at the contact point with the core of the rope, which has worked its way out of the rope structure and protrudes or loops out from the rope structure
- ✓ wear of one-third the original diameter of outside individual wires
- ✓ kinking, crushing, birdcaging, or any other damage resulting in distortion of the rope structure
- ✓ evidence of heat damage from any cause

Reduction from nominal diameter greater than those listed in the following table:

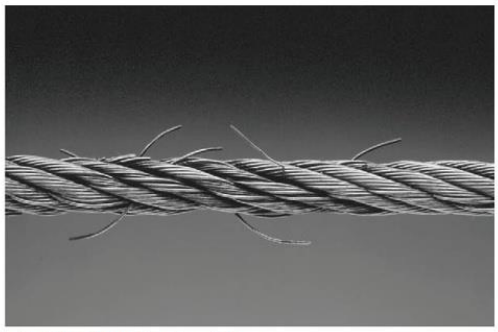
Rope Diameter (inch)	**Maximum allowable reduction from Nominal Diameter (inch)**
Less than or equal to 5/16	1/64
More than 5/16 to 1/2	1/32
More than 1/2 to 3/4	3/64

Note: Attention shall be given to end connections. Upon development of two broken wires adjacent to socket end connections, the rope shall be resocketed or replaced. Resocketing shall not be attempted if the resulting rope length will be insufficient for proper operation.

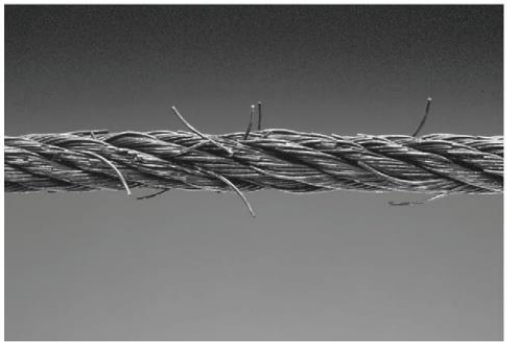
If any of the cable is as shown in the following pictures, do not use.



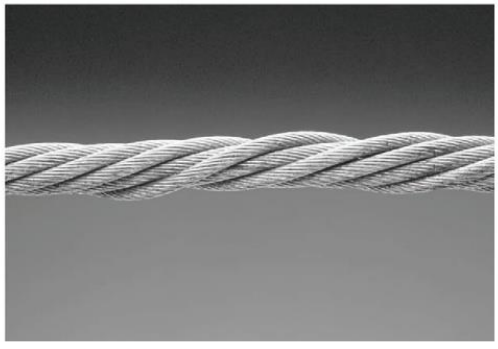
Typical Good Cable



Cable With Broken Wires



Cable With Severe Corrosion



Cable With Necking

TROUBLESHOOTING GUIDE

The following are suggestions to consider if you have problems with the lift. Please call a qualified lift technician and/or a qualified electrician for further clarification and information.

Problem	Possible Cause	Solution
Lift Will Not Raise or Lower	1. Blown fuse or circuit breaker 2. Tripped thermal overload 3. Incorrect voltage to motor 4. Bad wiring connections 5. "UP" switch burned out 6. Motor windings burned out	1. Replace fuse or reset/replace circuit breaker 2. Reset thermal overload 3. Supply correct voltage to motor 4. Repair and insulate all connections 5. Replace switch 6. Replace motor
Lift Will Not Raise	1. Air in oil or low oil level 2. Lowering Valve leaks 3. Motor runs backward 4. Pump damaged 5. Pump will not prime 6. Relief Valve leaks 7. Voltage to motor incorrect 8. Lift overloaded	1. Check fluid level, oil seal, bleed system 2. Clean valve or replace 3. Check for correct wiring 4. Repair of replace pump 5. Check fluid level and pick-up tube replace pump 6. Clean Relief Valve (replace if necessary) 7. Supply correct voltage to motor 8. Verify that loaded vehicle weight does not exceed rated lift capacity
Lift Will Not Lower	1. Mechanical locks are engaged 2. Obstruction under lift or in glide block tracks 3. Faulty lowering valve 4. No air pressure in air valve	1. Raise unit slightly and disengage mechanical locks 2. Carefully remove obstruction - clean glide block tracks 3. Replace valve 4. Confirm airline is connected and has required pressure
Lift Will Not Hold Pressure	1. Contamination in system 2. Internal Cylinder leaks 3. Lowering Valve leaks 4. Check Valve leaks 5. External leaks	1. Check oil level; bleed cylinders; remove contamination; replace oil seal 2. Check fitting, replace cylinder 3. Contaminated fluid, handle binds, clean valves 4. Clean check valve (replace if necessary) 5. Check all fittings and repair leaks

Problems	Possible Cause	Solution
Lift will Not Raise A Vehicle	1. Low hydraulic fluid 2. Malfunction of pressure relief valve 3. Insufficient electrical voltage 4. Lift overload 5. Motor is running backwards 6. Air in hydraulic oil 7. Pump will not prime 8. Pump is damaged 9. Faulty lowering valve	1. Lower lift. Using ISO 32 hydraulic oil, fill the powerpack reservoir to 1" below the top 2. Clean pressure relief valve, if problem continues, call a service technician 3. Confirm a volt power supply to the lift 4. Check the vehicle weight is evenly distributed and not exceed full capacity. 5. Confirm proper motor rotation, rewire if required 6. Check oil seal and bleed hydraulic system 7. Check hydraulic oil level and pick-up tube. Replace pump if required 8. Repair or replace pump 9. Clean or replace valve
Slow Drift Down	1. Mechanical safety locks not engaged 2. Powerpack lowering valve contamination 3. Hydraulic system leaks	1. Raise lift to engage all safety locks then lower lift and confirm all safety locks are engaged 2. Back flush powerpack by opening manual over-right valve. Engage "up" switch and down lever at the same time and run approximately 10 seconds 3. Check cylinder and all fittings for any hydraulic oil leak
Lift Going Up Out of Level	1. Lift installed on un-level floor 2. Cable(s) out of adjustment	1. Reinstall on level surface 2. Adjust cable tension. Call service technician if problem persists
Locking Mechanisms Do Not Engage or Disengage	1. Safeties are binding 2. Faulty air cylinder 3. Damaged air line 4. Safety locks do not latch properly 5. Safety locks do not disengage	1. Lubricate mechanism 2. Replace air cylinder 3. Repair/replace air line 4. Adjust mechanisms per lift installation instructions 5. Check air supply and air cylinder – replace if required. Reset electronic circuit by pressing "Emergency Stop Button" for 15 seconds and then release it.
Anchors Will Not Stay Tight	1. Holes drilled oversize 2. Concrete floor thickness or holding strength not sufficient	1. Relocate lift using the correct bit to drill holes 2. Break out old concrete and re-pour new foundation per lift installation instruction

Call factory for technical assistance if lift becomes inoperative in the raised position.

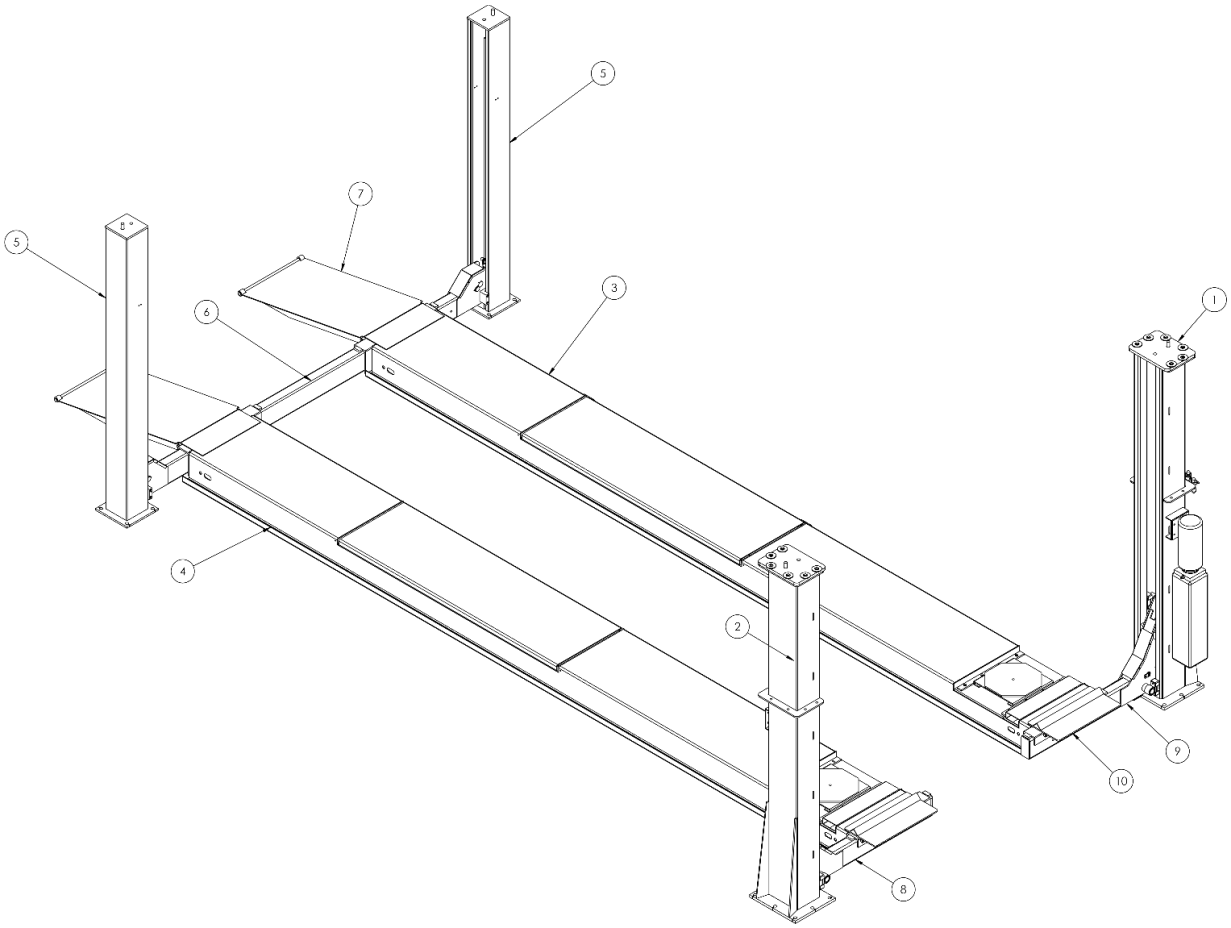
Replace all worn or broken parts and components only with manufacturer approved/supplied parts and components

Replacement parts may be purchased from your local lift supplier or the manufacturer at 1-877-799-LIFT (5438) or (905) 847–1198

LIFT ILLUSTRATIONS AND PARTS LISTS

The diagrams listed below, along with related parts lists, will assist you when installing and servicing this lift. Please ensure these lift diagrams and parts lists are kept in a secure place for quick reference.

Diagram #1: LIFT ASSEMBLY

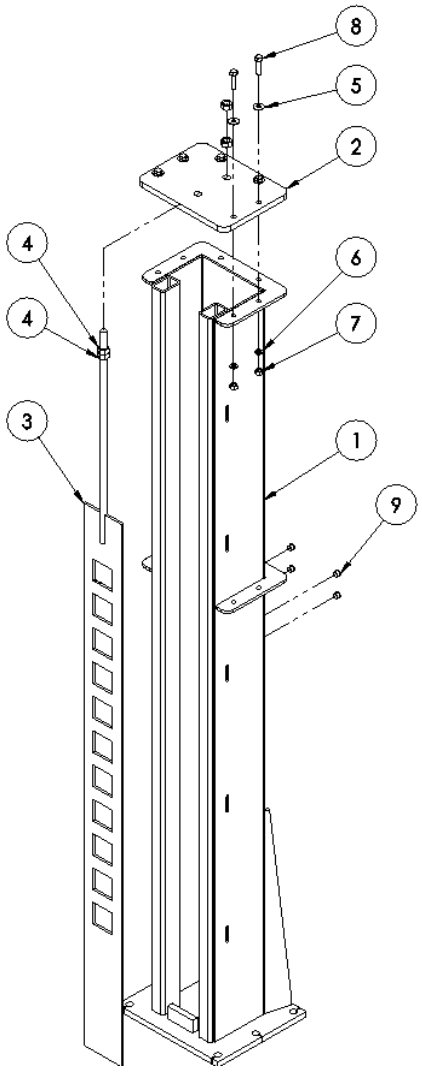


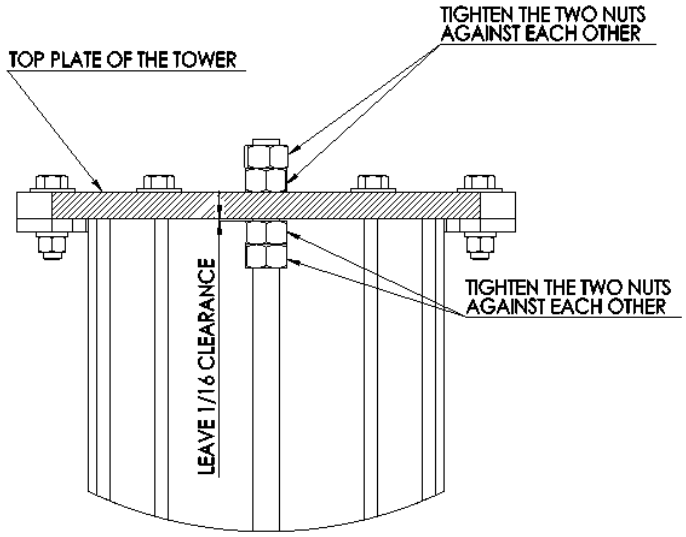
ITEM	PART NUMBER	DESCRIPTION	QTY.
1	44148004	FRONT TOWER ASSEMBLY (DRIVER SIDE)	1
2	44148002	FRONT TOWER ASSEMBLY (PASSENGER SIDE)	1
3	44147001	EXTENDED ALIGNMENT DECK ASSEMBLY, DRIVER SIDE	1
4	44147006	EXTENDED ALIGNMENT DECK ASSEMBLY, PASS. SIDE	1
5	44147002	REAR TOWER ASSEMBLY	2
6	44147004	REAR CROSSBEAM ASSEMBLY	1
7	44147007	APPROCHING RAMP ASSEMBLY	4
8	44148008	FRONT ARM ASSEMBLY (NON POWER SIDE)	1
9	44148005	FRONT ARM ASSEMBLY (POWER SIDE)	1
10	44180012	WHEELSTOP ASSEMBLY	4

Deck Part Number for Other Models

ITEM	PART NUMBER	DESCRIPTION	QTY.
3	44147022	REGULAR ALIGNMENT DECK ASSEMBLY, DRIVER SIDE	1
4	44147023	REGULAR ALIGNMENT DECK ASSEMBLY, PASS. SIDE	1
3	24147020	EXTENDED SERVICE DECK WELDMENT, DRIVER SIDE	1
4	24147021	EXTENDED SERVICE DECK WELDMENT, PASS. SIDE	1
3	24147024	REGULAR SERVICE DECK WELDMENT, DRIVER SIDE	1
4	24147025	REGULAR SERVICE DECK WELDMENT, PASS. SIDE	1

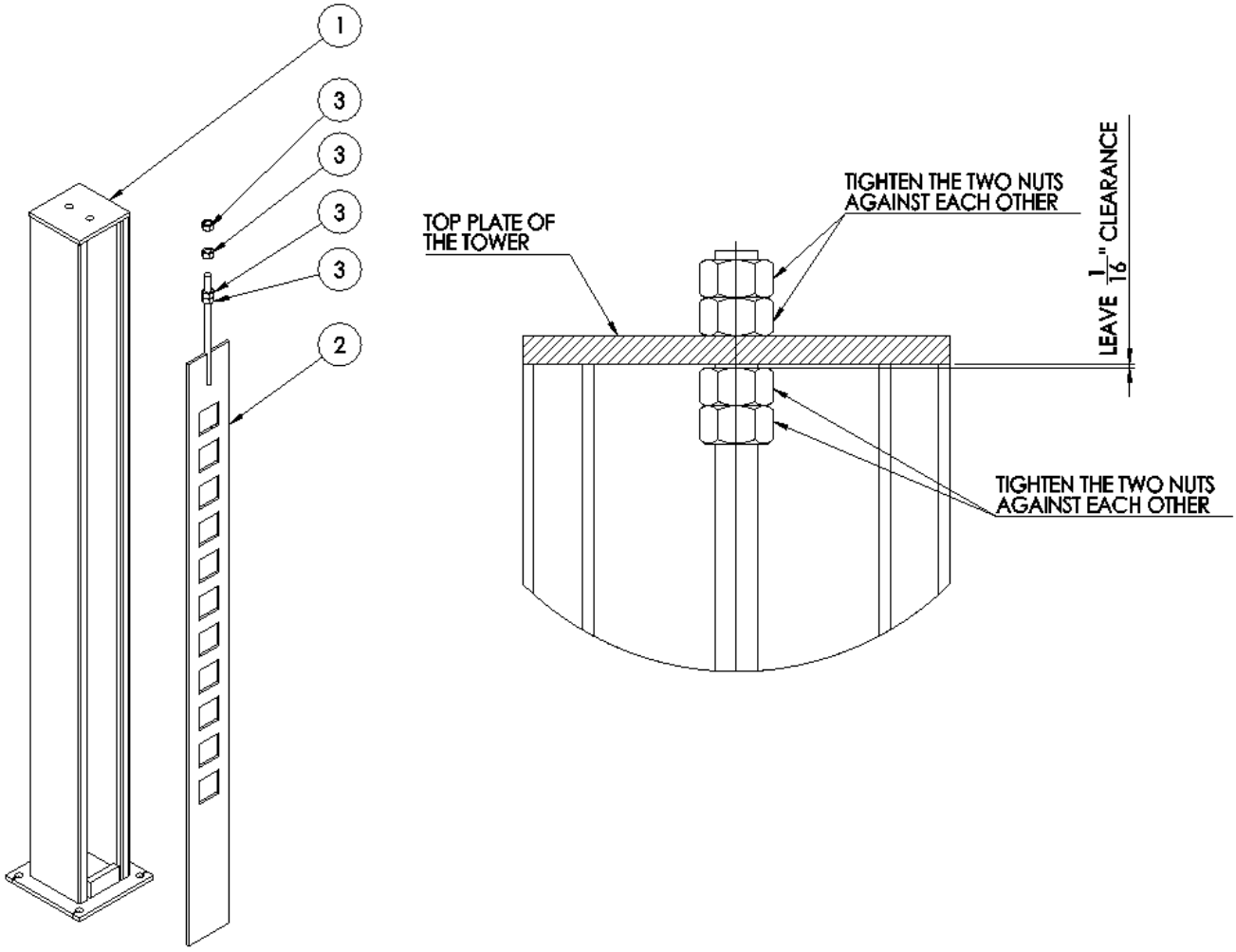
Diagram #2: FRONT TOWER ASSEMBLY





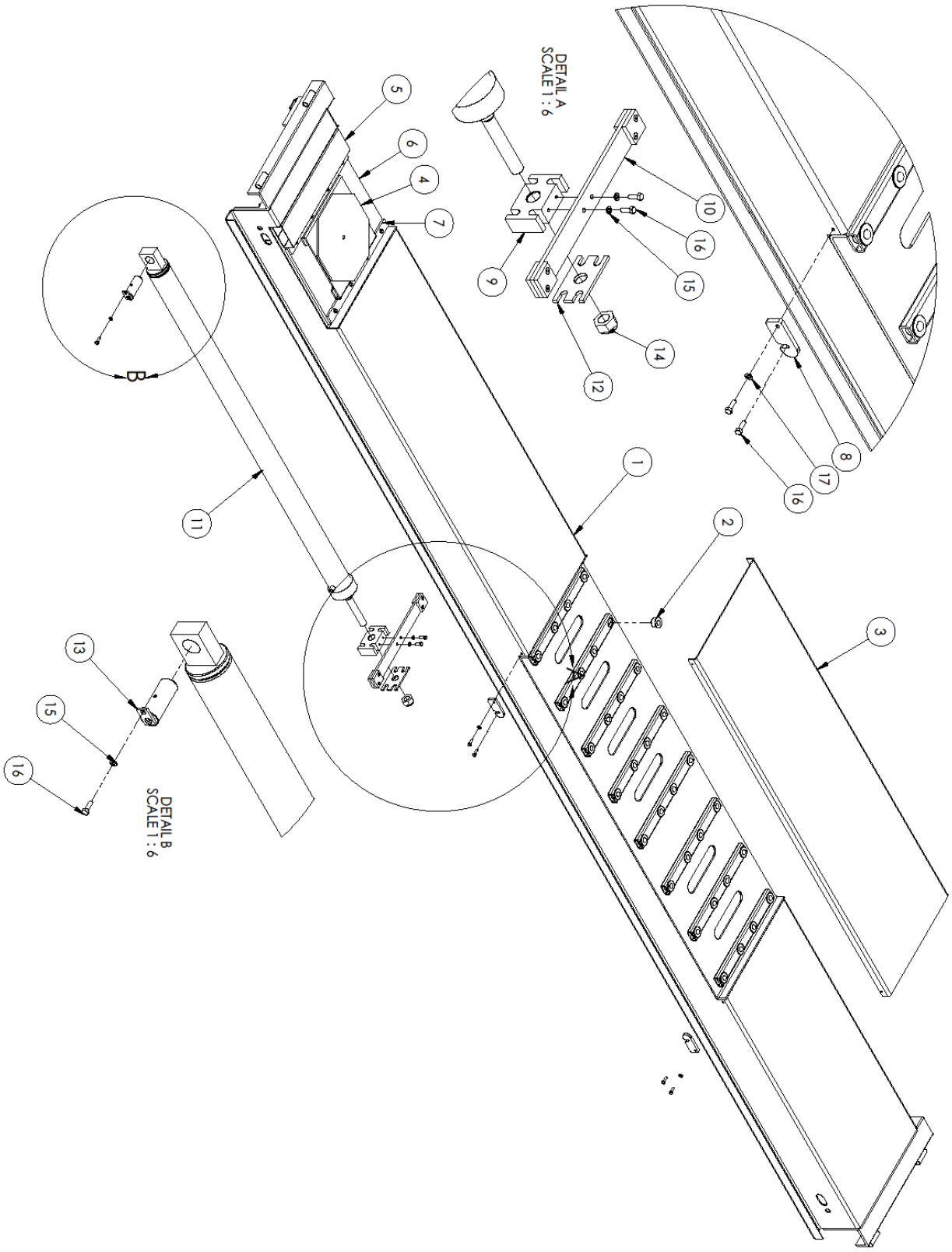
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	24148002	FRONT TOWER WELD. (NON-POWER SIDE)	1
	24148013	FRONT TOWER WELD. (POWER SIDE)	
2	14148015	TOWER TOP PLATE	1
3	24148006	FRONT SAFETY LADDER WELDMENT	1
4	3C100042	¾" NUT	4
5	3C100010	½" FLAT WASHER	6
6	3C100007	½" LOCK WASHER	6
7	3C100026	½-13 NUT	6
8	3C100051	½-13X2 HEX BOLT	6

Diagram #3: REAR TOWER ASSEMBLY



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	24147009	REAR TOWER	1
2	24147010	SAFETY LADDER (REAR TOWER)	1
3	3C000042	3/4" NUT	4

Diagram #4: CYLINDER SIDE ALIGNMENT DECK ASSEMBLY (EXTENDED MODEL, PART# 44147001)



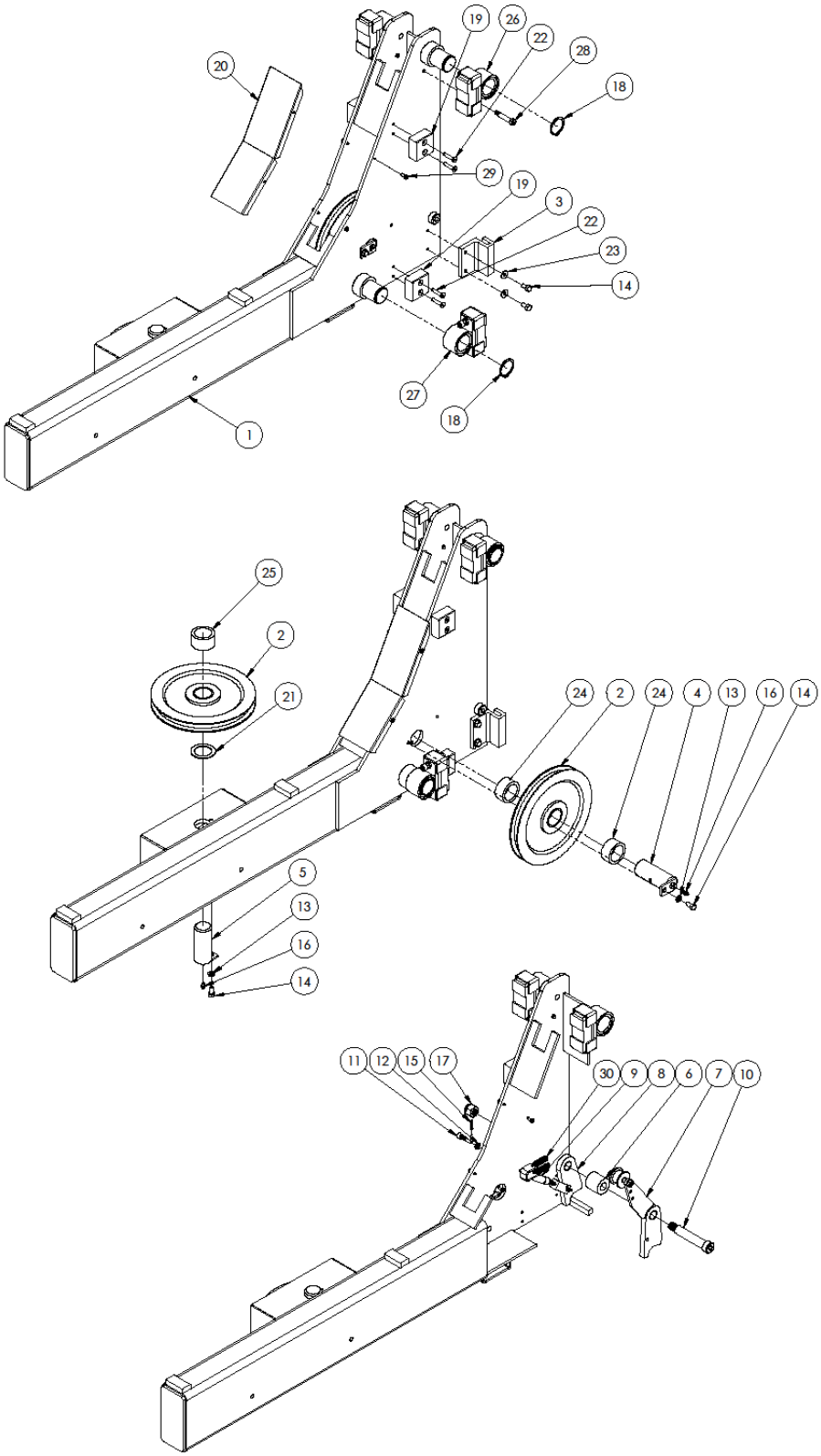
ITEM	PART NUMBER	DESCRIPTION	QTY.
1	24147001	EXTENDED ALIGNMENT DECK WELDMENT DRIVER SIDE	1
	24147003	EXTENDED ALIGNEMENT DECK WELDMENT PASS. SIDE	1
2	31140005	7/8" BALL TRANSFER	32
3	24147008	FLOATING DECK COVER WELDMENT	1
4	TLSSTP	TURNPLATE	1
5	21140300	ALIGNMENT PAN MOUNTING SPACER	1
6	11140302	PLASTIC PLATE	1
7	11140300	SLOTTED PLATE	1
8	11140002	SLIP PLATE LOCK	2
9	14147059	CABLE HOLDER	1
10	44147012	GUIDE BLOCK ASSEMBLY	1
11	44147019	CYLINDER ASSEMBLY	1
12	14147092	TRUNNION SAFETY PLATE	1
13	24180009	VERT PULLEY PIN WELDMENT	1
14	3C200041	M27X2 NYLOCK NUT	1
15	3C100008	5/16 LOCK WASHER	3
16	3C100031	5/16-18 BOLT	7
17	3C100011	5/16 FLAT WASHER	18
18	3C100033	5/16X1 1/2 BOLT	8
19	3C100012	5/16-18 HEX NUT	8

NOTE: Cylinder Assembly at Driver Side Deck Only

Deck Weld. Part Number for Other Models

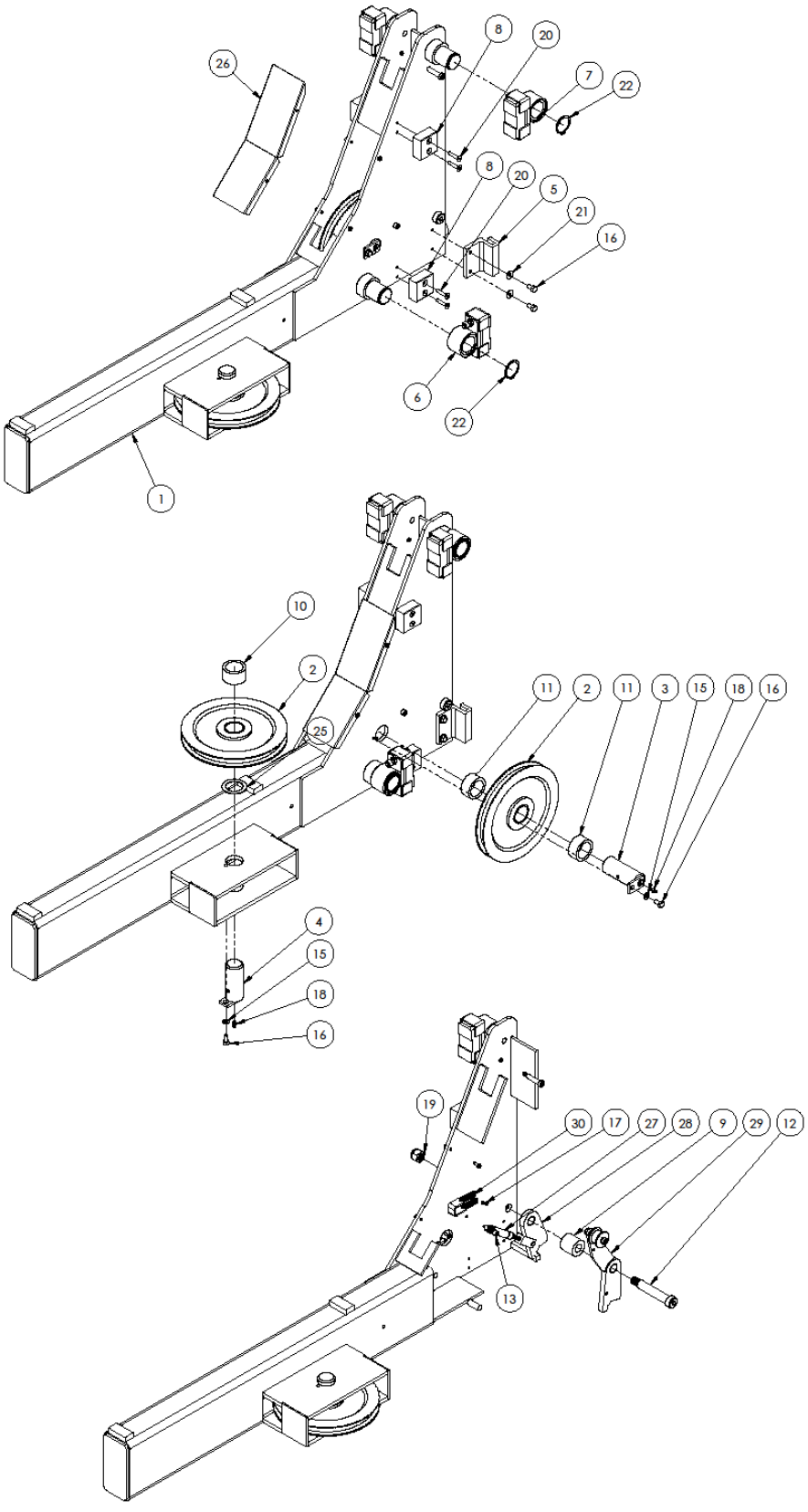
ITEM	PART NUMBER	DESCRIPTION	QTY.
1	24147020	EXTENDED SERVICE DECK WELDMENT, DRIVER SIDE	1
	24147021	EXTENDED SERVICE DECK WELDMENT, PASS. SIDE	1
1	24147022	REGULAR ALIGNMENT DECK WELDMENT, DRIVER SIDE	1
	24147023	REGULAR ALIGNMENT DECK WELDMENT, PASS. SIDE	1
1	24147024	REGULAR SERVICE DECK WELDMENT, DRIVER SIDE	1
	24147025	REGULAR SERVICE DECK WELDMENT, PASS. SIDE	1

Diagram #5: FRONT ARM ASSEMBLY (DRIVER SIDE)



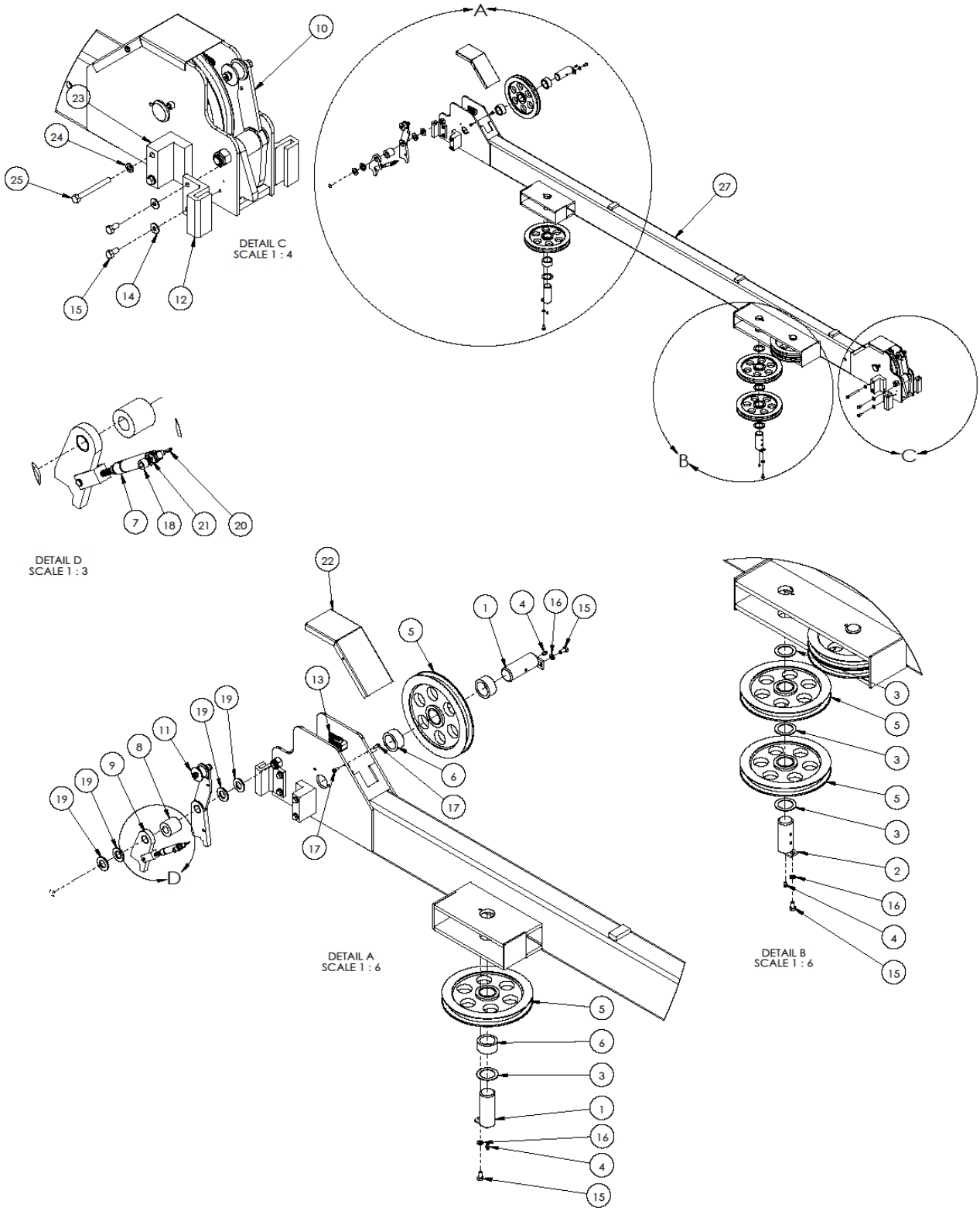
ITEM	PART NUMBER	DESCRIPTION	QTY.
1	24148005	DRIVER SIDE FRONT BEAM WELDMENT	1
2	44180010	PULLEY W/ BUSHING	2
3	14147011	LOCKING LADDER SLIDE BLOCK	2
4	24147006	VERT PULLEY PIN WELDMENT	1
5	24148004	PIN WELDMENT	1
6	14147024	LOCK SPACER	1
7	4414809-A	CABLE LOCK ASSEMBLY D.F.	1
8	44147008	SAFETY LOCK	1
9	44147020	AIR CYLINDER ASSEMBLY	1
10	3C100072	3/4X3-1/2 SHOULDER BOLT	1
11	14147091	AIR CYLINDER MOUNTING BOLT	1
12	3C100064	5/16 JAM NUT	1
13	3C100008	5/16 LOCK WASHER	2
14	3C100050	5/16-18X0.625 HEX BOLT	6
15	3C100063	HAIR PIN SPEAENAUR# CP-69H	1
16	31140013	GREASE FITTING 1/4-20 UNC	2
17	3C100073	5/8 NYLOCK NUT	1
18	3C100086	1-1/2 EXTERNAL RETAINING RING	3
19	14148029	FRONT BEAM SIDE UHMW SPACER	4
20	14148033	FRONT BEAM COVER	1
21	14180050	SHIM	1
22	3C100084	SHCS BLT 1/4-20X1-1/4	8
23	3C100029	1/4 FLAT WASHER	4
24	14147036	NYLON PULLEY SPACER	2
25	14148035	UHMW DECK PULLY SPACER	1
26	44148006-B	BACK SLIDER ASSEMBLY	2
27	44148006-F	FRONT SLIDER ASSEMBLY	2
28	3C100087	3/8X1 SHOULDER SCREW	2
29	3C100059	SELF TAPPING SCREW	4
30	34147005	SPRING	2

Diagram #6: FRONT ARM ASSEMBLY (PASSENGER SIDE)



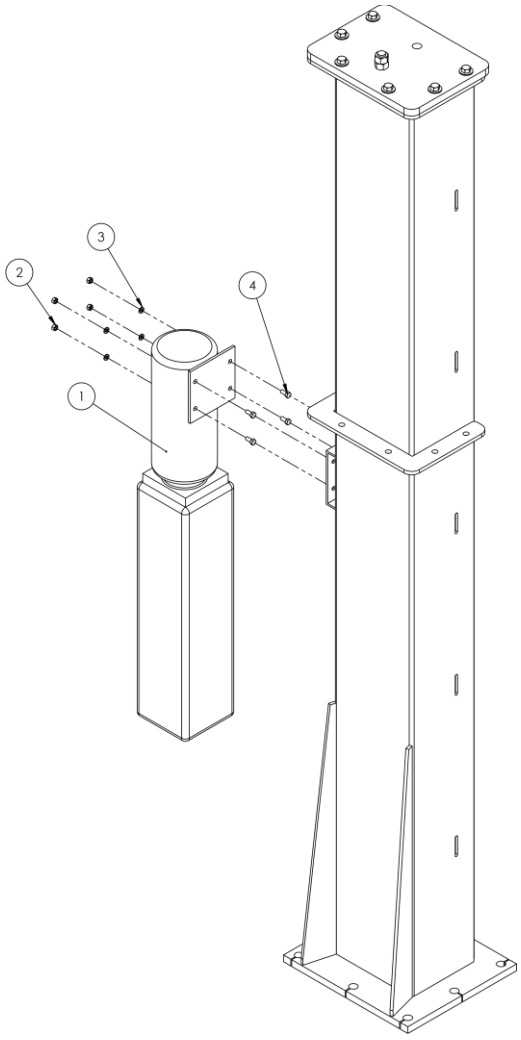
ITEM	PART NUMBER	DESCRIPTION	QTY.
1	24148009	PASSENGER SIDE FRONT BEAM WELDMENT	1
2	44180010	PULLEY W/ BUSHING	2
3	24147006	VERT PULLEY PIN WELDMENT	1
4	24148004	PIN WELDMENT	1
5	14147011	LOCKING LADDER SLIDE BLOCK	2
6	44148006-F	FRONT SLIDER ASSEMBLY	2
7	44148006-B	BACK SLIDER ASSEMBLY	2
8	14148029	FRONT BEAM SIDE UHMW SPACER	4
9	14147024	LOCK SPACER	1
10	14148035	UHMW DECK PULLY SPACER	1
11	14147036	NYLON PULLEY SPACER	2
12	3C100072	3/4X3-1/2 SHOULDER BOLT	1
13	14147091	AIR CYLINDER MOUNTING BOLT	1
14	3C100064	5/16 JAM NUT	1
15	3C100008	5/16 LOCK WASHER	2
16	3C100050	5/16-18X0.625 HEX BOLT	6
17	3C100063	HAIR PIN SPEAENAUR# CP-69H	1
18	31140013	GREASE FITTING 1/4-20 UNC	2
19	3C100073	5/8 NYLOCK NUT	1
20	3C100084	SHCS BLT 1/4-20X1-1/4	8
21	3C100029	1/4 FLAT WASHER	4
22	3C100086	1-1/2 EXTERNAL RETAINING RING	4
23	3C100087	3/8X1 SHOULDER SCREW	2
24	3C100059	SELF TAPPING SCREW	4
25	14180050	SHIM	1
26	14148033	FRONT BEAM COVER	1
27	44147020	AIR CYLINDER ASSEMBLY	1
28	44147008	SAFETY LOCK	1
29	44148009-B	CABLE LOCK ASSEMBLY P.F.	1
30	34147005	SPRING	2

Diagram #7: CROSSMEMBER ASSEMBLY (REAR)



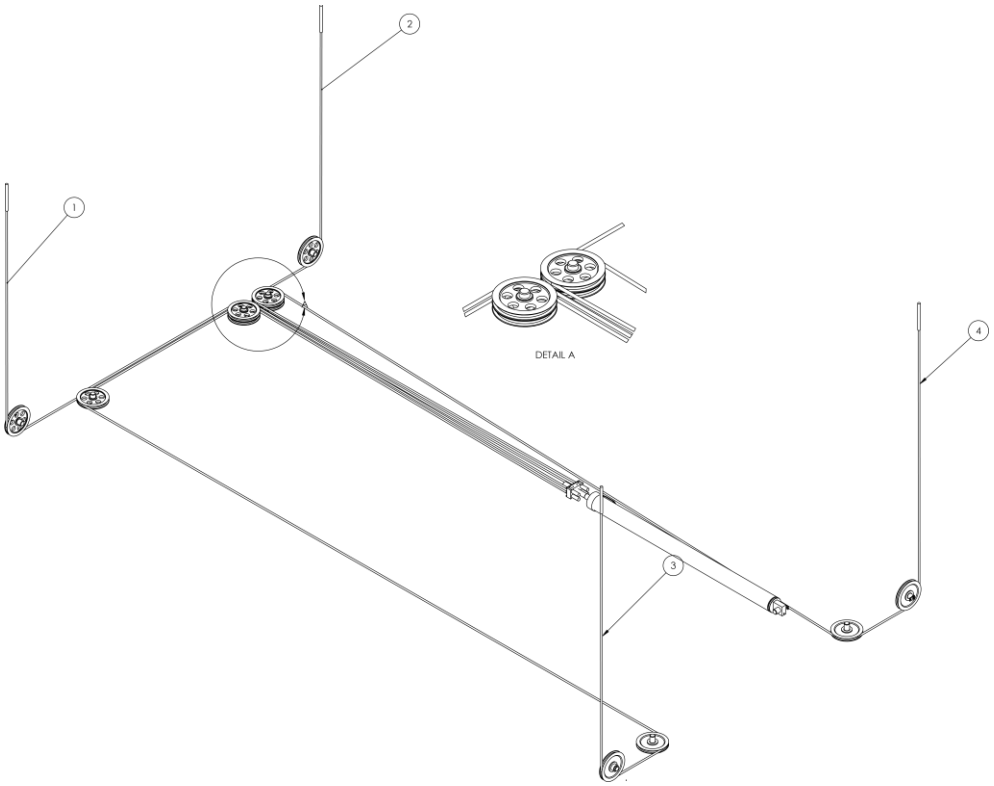
ITEM	PART NUMBER	DESCRIPTION	QTY.
1	24147006	VERT PULLEY PIN WELDMENT	3
2	24180004	PIN WELDMENT	2
3	14180050	SPAENAUR SHIM 1.5ID 2.125OD 0.062TH	7
4	31140013	GREASE FITTING 1/4-20 UNC	5
5	44147005	PULLEY W/ BUSHING	7
6	14147036	NYLON PULLEY SPACER	5
7	44147020	AIR CYLINDER ASSEMBLY	2
8	14147024	LOCK SPACER	2
9	44147008	SAFETY LOCK	2
10	44147021-B	CABLE LOCK ASSEMBLY	1
11	44147021-A	CABLE LOCK ASSEMBLY	1
12	14147011	UHMW SLIDE BLOCK	4
13	34147005	SPRING	4
14	3C100029	1/4 FLAT WASHER	8
15	3C100050	5/16-18X0.625 HEX BOLT	13
16	3C100008	5/16 LOCK WASHER	5
17	3C100059	SELF TAPPING SCREW	4
18	14147091	AIR CYLINDER MOUNTING BOLT	2
19	3C100062	3/4 FLAT WASHER PREFERED	8
20	3C100063	HAIR PIN SPEAENAUR# CP-69H	2
21	3C100064	5/16 JAM NUT	2
22	14147029	COVER	2
23	14180049	SLIDER BLOCK	4
24	3C100011	5/16 FLAT WASHER	8
25	3C100047	5/16X3 HEX BOLT	8
26	3C100072	3/4X3-1/2 SHOULDER BOLT	2
27	24148008	CROSSMEMBER WELDMENT BACK	1
28	14148035	UHMW DECK PULLY SPACER	1
29	3C100073	5/8 NYLOCK NUT	2

Diagram #8: POWER PACK TOWER ASSEMBLY



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	34160009	POWER UNIT	1
2	3C100012	5/16” NUT	4
3	3C100008	5/16” LOCK WASHER	4
4	3C100009	5/16” BOLT	4

Diagram #9: LIFTING(EQUALIZING) CABLE ROUTING



Extended Model

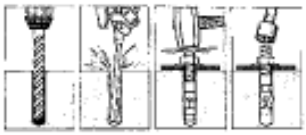
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	34148001	DRIVER SIDE FRONT CABLE, 429” LONG	1
2	34148002	PASSENGER SIDE FRONT CABLE, 488” LONG	1
3	34147001	DRIVER SIDE REAR CABLE, 178” LONG	1
4	34147002	PASSENGER SIDE REAR CABLE, 242” LONG	1

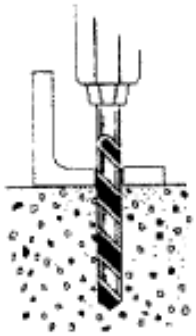
Standard Model

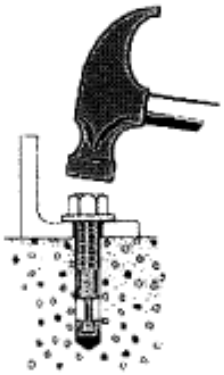
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	34148003	DRIVER SIDE FRONT CABLE, 375” LONG	1
2	34148004	PASSENGER SIDE FRONT CABLE, 434” LONG	1
3	34147011	DRIVER SIDE REAR CABLE, 151” LONG	1
4	34147012	PASSENGER SIDE REAR CABLE, 215” LONG	1

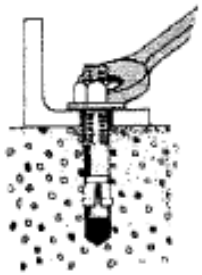
Diagram #10: ANCHOR BOLT INSTALLATION

Wedge Anchor Installation









1.
Drill hole in concrete (hole diameter same as thread diameter) maximum depth of hole could be any depth beyond minimum recommended depth. Clean the hole with compressed air.

2.
Drive wedge anchor into drilled hole through fixture so that nuts is flush with fixture

3.
Tighten nut until wrench resistance is felt (approximately 3 to 4 turns of the nut after first resistance) anchorage is now complete

MORE HELPFUL INSTRUCTIONS

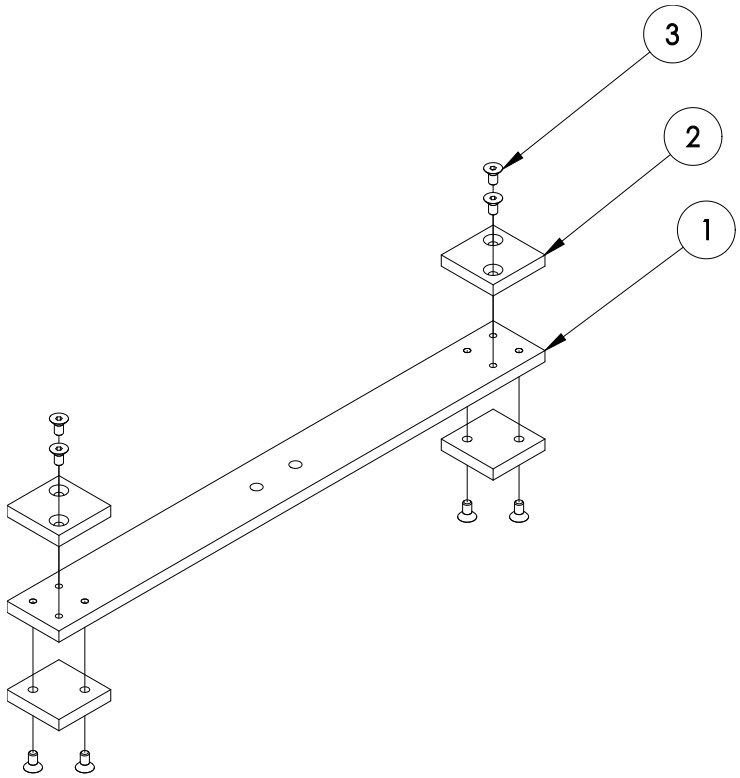
1. Always wear safety glasses.
2. Follow the drill manufacturer's safety instructions.
3. Use only solid carbide-tipped bits meeting the ANSI B94-12 tip diameter as shown below in bottom Table.
4. Drill the hole perpendicular to the work surface. To assure full holding power, do not ream the hole or allow the drill to wobble.
5. Drill the hole as deep as the full length of the anchor, but not close then two anchor diameters to the bottom (opposite surface of the concrete)
6. Clean the hole using compressed air and a wire brush. A clean hole is necessary for proper performance.
7. Assemble the washer and nut on the anchor so the nut is recessed slightly below the head of the anchor.
8. Tap the anchor thought the fixture (must be 1/8" larger then diameter of the anchor) and into the hole making sure the nut and washer rest solidly against the fixture or tap the anchor into the hole and then place bracket over the anchor.
9. Tighten the nut with a torque wrench to proper toque according to the table
10. If spinning occurs, pull up on the anchor using the claw end of a hammer and then torque.

DRILL TOLERANCE – ANSI B-94-12 AND TORQUE REQUIREMENT

Anchor Diameter	Minimum	Maximum	Torque Range
¼"	.260"	.268"	5-10ft-lbs
3/8"	.390"	.398"	25-30ft-lbs
½"	.520"	.530"	50-60ft-lbs
5/8"	.650"	.660"	75-90ft-lbs
¾"	.775"	.787"	150-175ft-lbs
7/8"	.905"	.917"	200-250ft-lbs
1"	1.030"	1.042"	250-300ft-lbs
1 ¼"	1.285"	1.300"	400-450ft-lbs

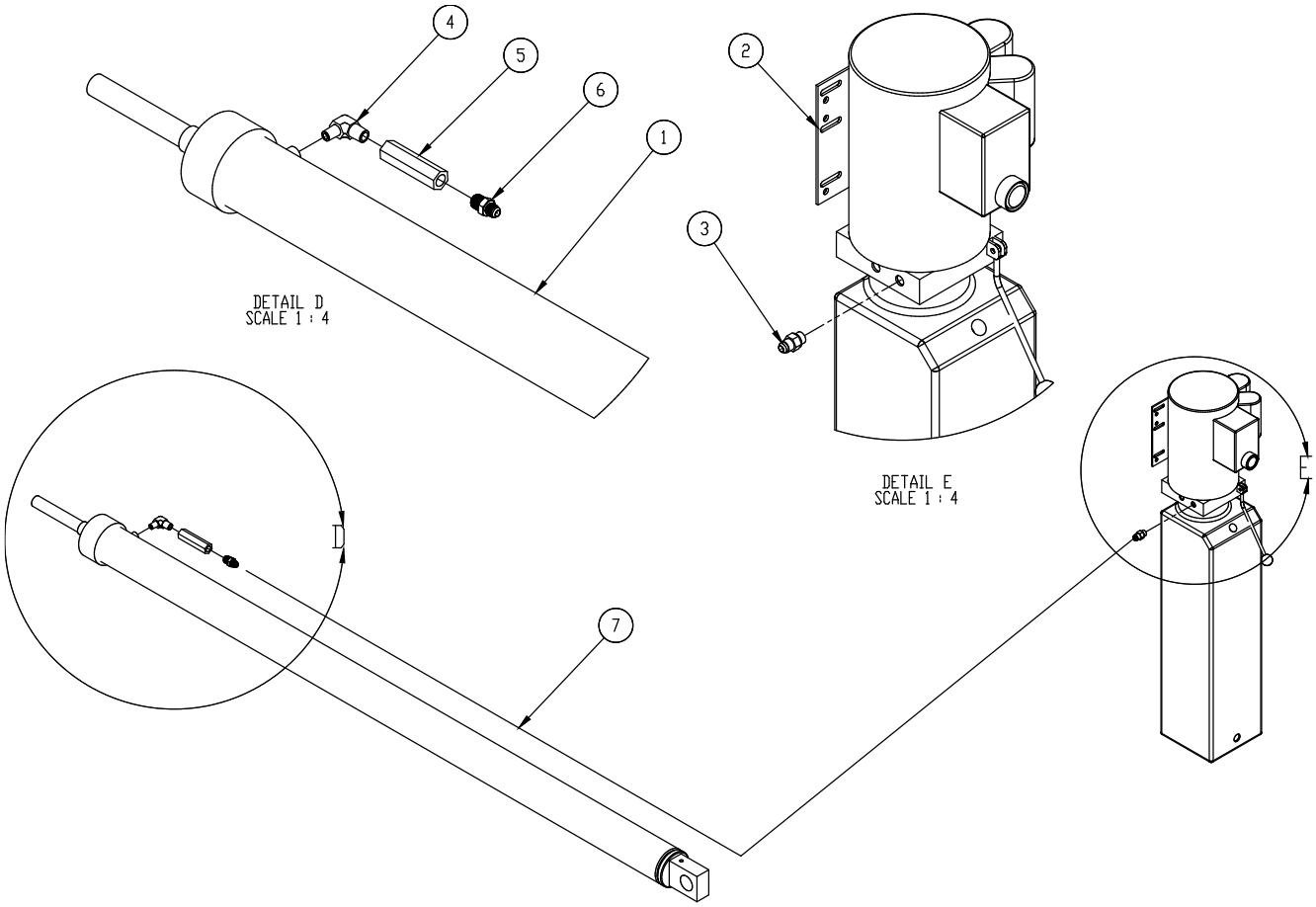
Wedge-All Dia (in)	1/4	3/8	1/2	5/8	3/4	7/8	1	1 1/4	1 1/2
Bit Size (in)	1/4	3/8	1/2	5/8	3/4	7/8	1	1 1/4	1 1/2
Fixture Hole (in)	5/16	7/16	9/16	11/16	7/8	1	1 1/8	1 3/8	1 5/8
Wrench Size (in)	7/16	9/16	3/4	15/16	1 1/8	1 5/16	1 1/2	1 7/8	2 1/4

Diagram #11: CYLINDER GUIDE ASSEMBLY



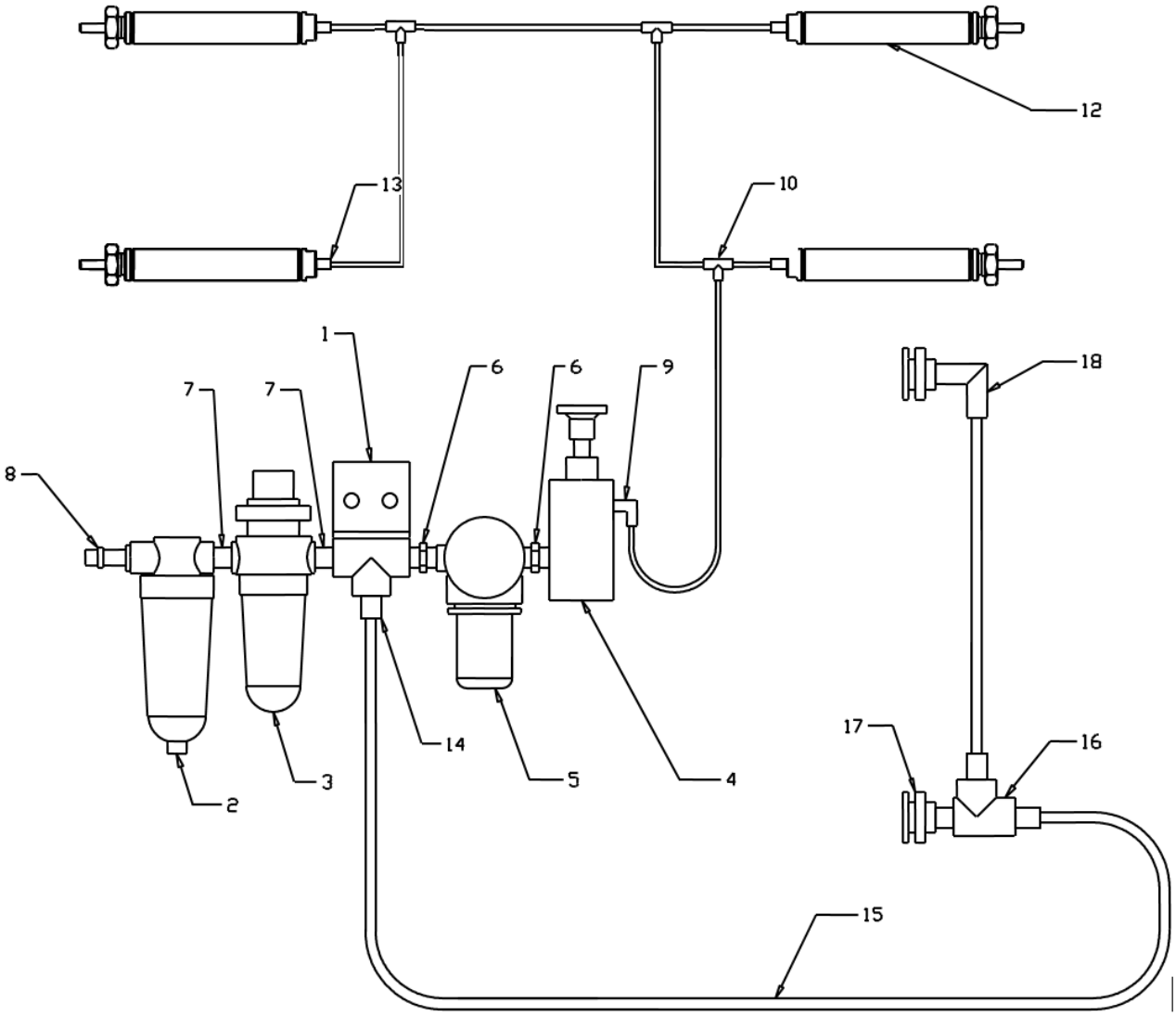
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	14147058	TRUNNION GUIDING PLATE	1
2	14180076	TRUNNION GUIDE BLOCK	4
3	3C000015	SOCKET COUNTERSUNK SCREW	8

Diagram #12: HYDRAULIC LINE ASSEMBLY



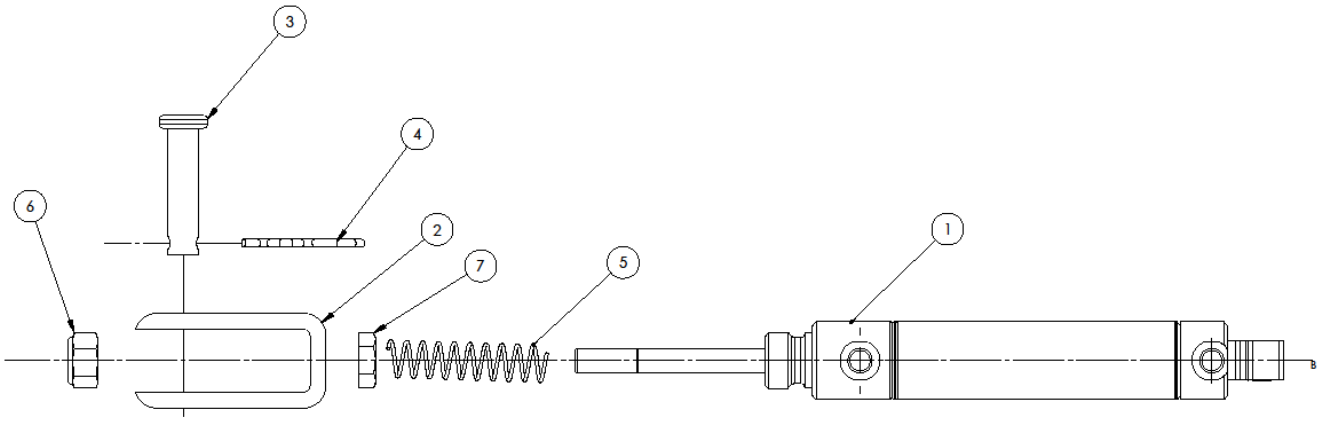
ITEM NO.	PART NUMBER	Description	QTY.
1	44147019	CYLINDER ASSEMBLY	1
2	34180009	POWER UNIT	1
3	3H000001	MALE #6 SAE X FEMALE 3/8” JIC FITTING	1
4	3H000002	ELBOW FITTING, 1/4” NPT X 3/8” NPT	1
5	3H000003	FLOW CONTROL FITTING, 3/8” NPT PORT	1
6	3H000004	MALE 3/8” NPT X 3/8” JIC	1
7	34147026	HYDRAULIC HOSE	1

Diagram #13: PNEUMATIC CONTROLS



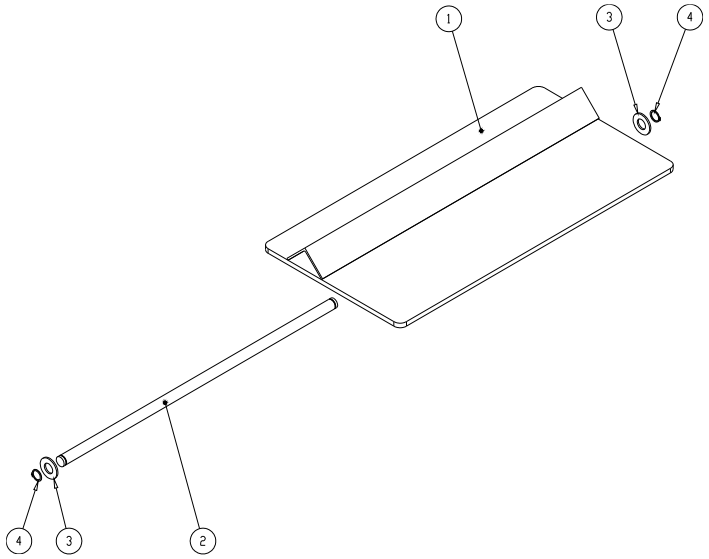
ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	24180013	PNUEMATIC CONTROLS WELDMENT	1
2	34180013	FILTER	1
3	34180012	LUBRICATER	1
4	34180011	VALVE	1
5	34180010	REGULATOR	1
6	34180015	FITTING	2
7	34180016	FITTING	2
8	34180017	AIR INTAKE FITTING	1
9	31140119	ELBOW 5/32” POLY – 1/8” NPT	1
10	31141063	TEE FITTING	3
11	31140120	POLYTUBE 5/32" DIA. BLUE	46’
12	34147025	AIR CYLINDER	4
13	31140122	STRAIGHT 5/32" POLY - 1/8" NPT	4
14	31141062	POLY FITTING 3/8" x 1/4" NPT STRAIGHT	3
15	31141056	POLYTUBE 3/8" DIA. BLUE	40’
16	31141061	BRASS FORGED STEEL TEE	1
17	31141060	TERMINAL BOLT (STEEL)	2
18	31140023	Poly Elbow swivel 3/8" x 1/4" NPT	1

Diagram #14: Air Cylinder Assembly (44147020)



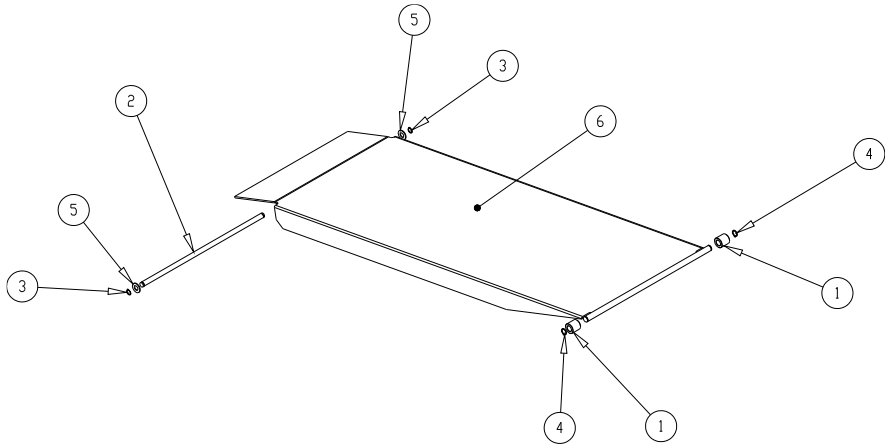
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	34147025	AIR CYLINDER	1
2	14147093	AIR CYLINDER CLEVIS	1
3	34147015	CLEVIS PIN	1
4	3C000063	PIN CLIP	1
5	34147016	SPRING	1
6	3C100099	#10-32 LOCK NUT	1
7	3C100060	#10 HEX NUT	1

Diagram #15: WHEEL STOP ASSEMBLY



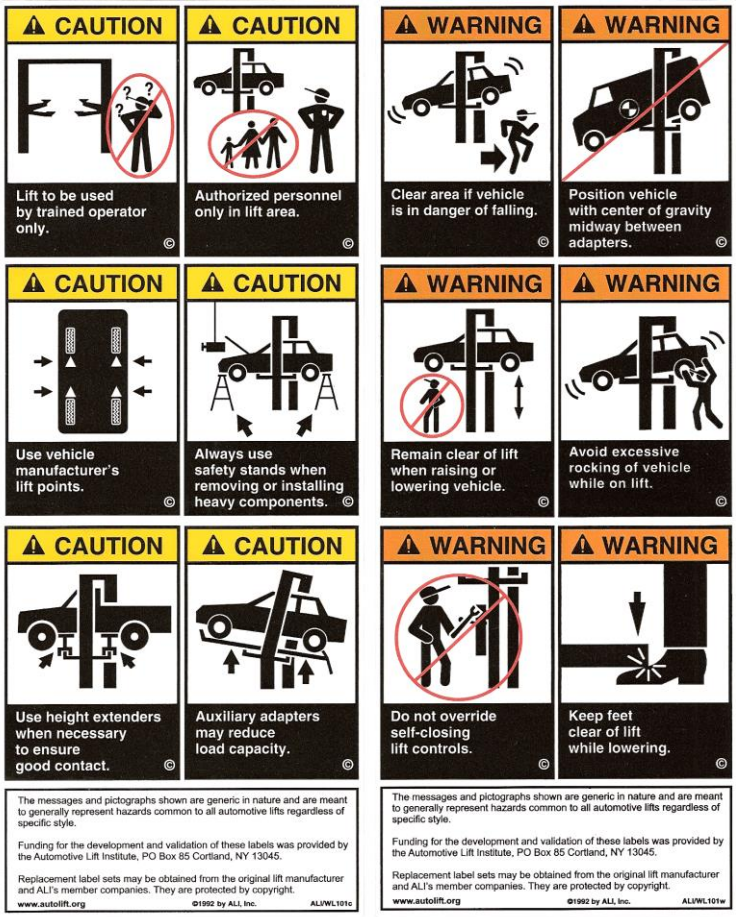
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	24180014	WHEELSTOP WELDMENT	1
2	11140128	PIVOTING PIN	1
3	3C000030	5/8 REGULAR WASHER	2
4	3C000028	5/8 RETAINING RING	2

Diagram #16: RAMP ASSEMBLY



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	14147043	ROLLER	2
2	11140128	PIVOTING PIN	1
3	3C100017	5/8 RETAINING RING	2
4	3C100018	3/4 RETAINING RING	2
5	3C000030	WASHER	2
6	24147011	RAMP WELDMENT	1

Diagram #17: SAFETY INSTRUCTIONS



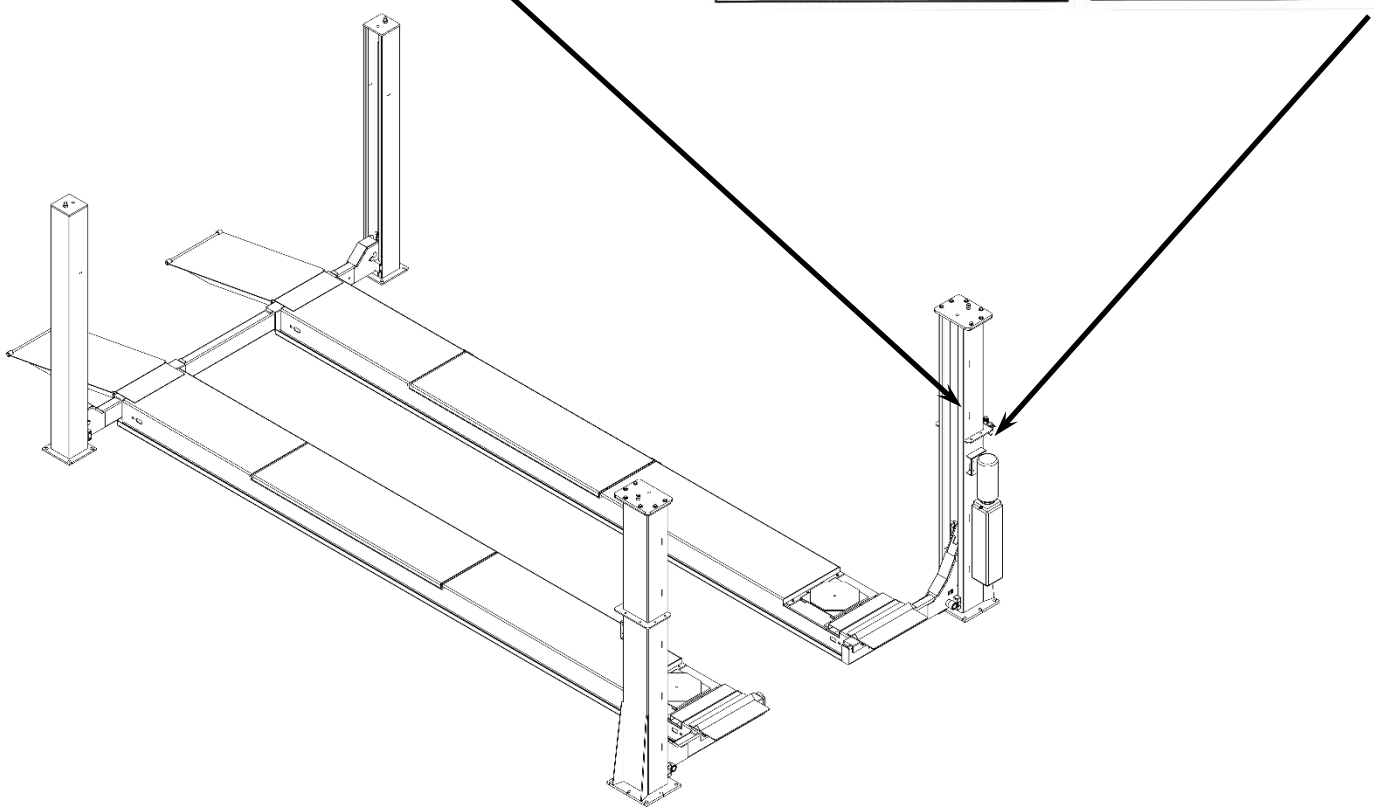


Diagram #18: POWER UNIT WIRING DIAGRAM

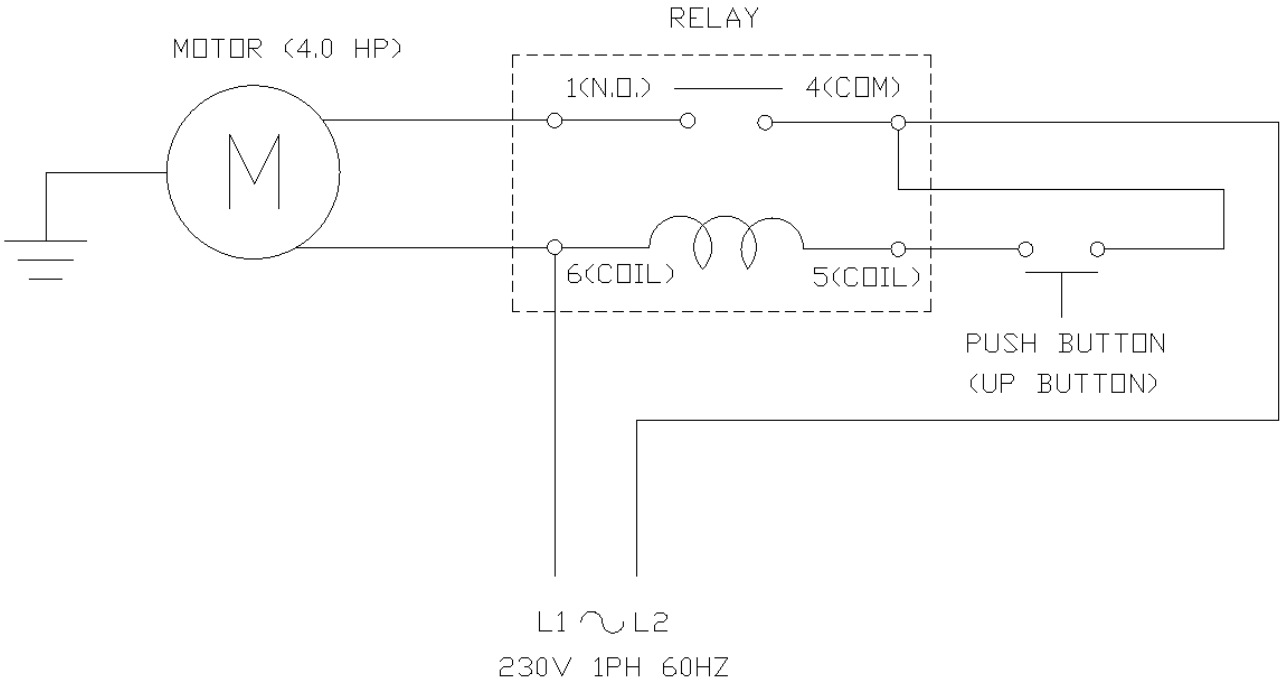


Diagram #19: LED COMPONENTS LOCATIONS

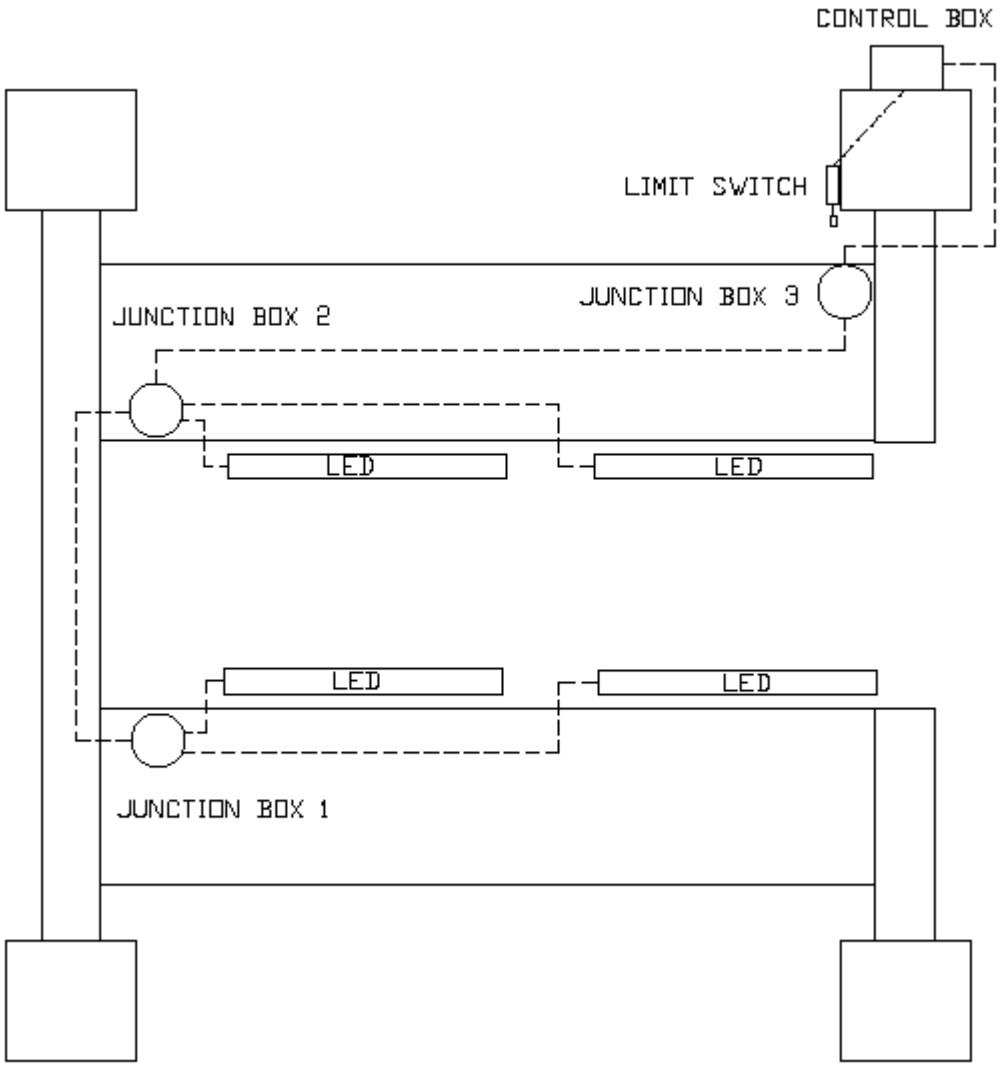


Diagram #20: LED WIRING DIAGRAM