

Multi-Level Parking Lift

Installation and Operation Manual

Manual P/N 5900076 — Manual Revision B2 — January 2021

Model:

- HD-973P
- HD-973PX



Designed and engineered by BendPak Inc. in Southern California, USA. Made in China.

 **DANGER**

Read the **entire** contents of this manual **before** using this product. Failure to follow the instructions and safety precautions in this manual can result in serious injury or death. Make sure all other operators also read this manual. Keep the manual near the product for future reference.

By proceeding with installation and operation, you agree that you fully understand the contents of this manual and assume full responsibility for product use.

Manual. HD-973P Series Multi-Level Parking, *Installation and Operation Manual*, Manual P/N 5900076, Manual Revision B1, Released January 2021.

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Limitations. Every effort has been made to make sure complete and accurate instructions are included in this manual. However, product updates, revisions, and/or changes may have occurred since this manual was published. BendPak reserves the right to change any information in this manual without incurring any obligation for equipment previously or subsequently sold. BendPak is not responsible for typographical errors in this manual. You can always find the latest version of the **manual for your product on the BendPak website**.

Warranty. The BendPak warranty is more than a commitment to you: it is also a commitment to the value of your new product. Contact your nearest BendPak dealer or visit www.bendpak.com/support/warranty for full warranty details. Go to bendpak.com/support/register-your-product/ and fill out the online form to register your product (be sure to click **Submit**).

Safety. Your product was designed and manufactured with safety in mind. However, your safety also depends on proper training and thoughtful operation. Do not install, operate, maintain, or repair the unit without reading and understanding this manual and the labels on the unit; **do not use your Lift unless you can do so safely!**

Owner Responsibility. In order to maintain your product properly and to ensure everyone's safety, it is the responsibility of the product owner to read and follow these instructions:

- Follow all installation, operation, and maintenance instructions.
- Make sure product installation conforms to all applicable local, state, and federal codes, rules, and regulations, such as state and federal OSHA regulations and electrical codes.
- Read and follow all safety instructions; keep them readily available for operators.
- Make sure all operators are properly trained, know how to safely operate the unit, and are properly supervised.
- Do not operate the product until you are certain that all parts are in place and operating correctly.
- Carefully inspect the product on a regular basis and perform all maintenance as specified.
- Service and maintain the unit with approved replacement parts only.
- Keep instructions permanently with the product and make sure all labels are clean and visible.
- **Only use the Lift if it can be used safely!**

Unit Information. Enter the Model Number, Serial Number, and the Date of Manufacture from the label on your unit. This information is required for part or warranty issues.

Model: _____

Serial: _____

Date of Manufacture: _____

BP BendPak		Santa Paula, CA USA www.bendpak.com	
MODEL NUMBER			
DESCRIPTION			
LIFT CAPACITY		DATE OF MFG.	
ROLLING JACK MAX CAP.		MAX PSI / BAR	
VOLTAGE		SERIAL NUMBER	
<input type="checkbox"/> 110-240V, 50-60 Hz, 1 Ph <input type="checkbox"/> 208-240V, 50-60 Hz, 1 Ph <input type="checkbox"/> 380-415V, 50-60 Hz, 3 Ph <input type="checkbox"/> 208-440V, 50-60 Hz, 3 Ph			
		UPC	
DANGER! Disconnect Power Before Servicing		CE EAC WARRANTY VOID IF DATA PLATE IS REMOVED PN 5905953	

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Introduction

This manual describes the following BendPak Parking Lift:

- **HD-973P**: Multi-Level Parking Lift that can raise Vehicles up to 7,000 lbs (3,175 kg) on the Upper Platform and up to 9,000 lbs (4,082 kg) on the Lower Platform.
- **HD-973PX**: A taller version of the HD-973P with **higher rise** and **extended Runways**.

This manual is mandatory reading for all users of the HD-973P series, including anyone who installs, uses, maintains, repairs, or wants to know more about them.

 **DANGER** Use care when installing, operating, maintaining, or repairing this equipment; failure to do so could result in property damage, product damage, injury, or (in very rare cases) death. Make sure only authorized personnel operate this equipment. All repairs must be performed by an authorized technician. Do not make modifications to the unit; this voids the warranty and increases the chances of injury or property damage. Make sure to read and follow the instructions in this manual and on the labels on the unit.

Keep this manual on or near the equipment so that anyone who uses or services it can read it.

If you are having issues, refer to the **Troubleshooting** section of this manual for assistance.

Technical support and service is available from your dealer, on the Web at bendpak.com/support, by email at support@bendpak.com, or by phone at **(800) 253-2363**, extension 196. You may also contact BendPak for parts replacement information at **(800) 253-2363**, extension 191; please have the model and serial number of your unit available.

Shipping Information

Your equipment was carefully checked before shipping. Nevertheless, you should thoroughly inspect the shipment **before** you sign to acknowledge that you received it.

When you sign a bill of lading, it tells the carrier that the items on the invoice were received in good condition. **To protect yourself, do not sign until after you have inspected the shipment.** If any of the items listed on the bill of lading are missing or are damaged, do not accept the shipment until the carrier makes a notation on the bill of lading that lists the missing and/or damaged goods.

If you discover missing or damaged goods **after** you receive the shipment and have signed the bill of lading, notify the carrier at once and request the carrier to make an inspection. If the carrier will not make an inspection, prepare a signed statement to the effect that you have notified the carrier (on a specific date) and that the carrier has failed to comply with your request.

It is difficult to collect for loss or damage after you have given the carrier a signed bill of lading. If this happens to you, file a claim with the carrier promptly. Support your claim with copies of the bill of lading, freight bill, invoice, and photographs, if available. **Our willingness to assist in helping you process your claim does not make us responsible for collection of claims or replacement of lost or damaged materials.**

Safety Considerations

Read this entire manual carefully before installing or using the product. Do not install or operate the product until you are familiar with all operating instructions and warnings. Do not allow anyone else to operate it until they are familiar with all operating instructions and warnings. Keep this manual on or near the product for future reference.

Read and follow the warnings and instructions on the labels on the product. Contact BendPak at **(800) 253-2363** or support@bendpak.com if you need replacement labels or a replacement manual.

Safety Information

The following safety information applies to the HD-973P:

- **The product is a Multi-Level Parking Lift;** this Lift may be different from other Parking Lifts you have installed or used. Use it only for its intended purpose.
- BendPak recommends referring to the ANSI/ALI ALIS Standard (R2015) *Safety Requirements for Installation and Service* for more information about safely installing, using, and servicing your Lift.
- You must wear OSHA-approved (publication 3151) personal protective equipment at all times when installing, using, maintaining, or repairing the Lift: leather gloves, steel-toed work boots, eye protection, back belts, and hearing protection are **mandatory**.
- The product may only be operated by authorized, trained persons.
- When the Lift is in use, keep all body parts well away from it.
- Do not make any modifications to the Lift; this voids the warranty and increases the chances of injury or property damage.
- Make sure all operators read and understand this *Installation and Operation Manual*. Keep the manual near the Lift at all times.

-
- Make an inspection of the Lift **before** using it. Check for damaged, worn, or missing parts. Do not use it if you find any of these issues. Instead, take it out of service, then contact an authorized repair facility, your dealer, or BendPak at **(800) 253-2363** or support@bendpak.com.
 - BendPak recommends making a **thorough** inspection of the product at least once a year. Replace any damaged or severely worn parts, decals, or warning labels.

Symbols

Following are the symbols used in this manual:



DANGER

Calls attention to an immediate hazard that **will** result in death or severe injury.



WARNING

Calls attention to a hazard or unsafe practice that **could** result in death or severe personal injury.



CAUTION

Calls attention to a hazard or unsafe practice that could result in minor personal injury, product damage, or property damage.

NOTICE

Calls attention to a situation that, if not avoided, could result in product or property damage.



Tip

Calls attention to information that can help you use your product better.

Liability Information

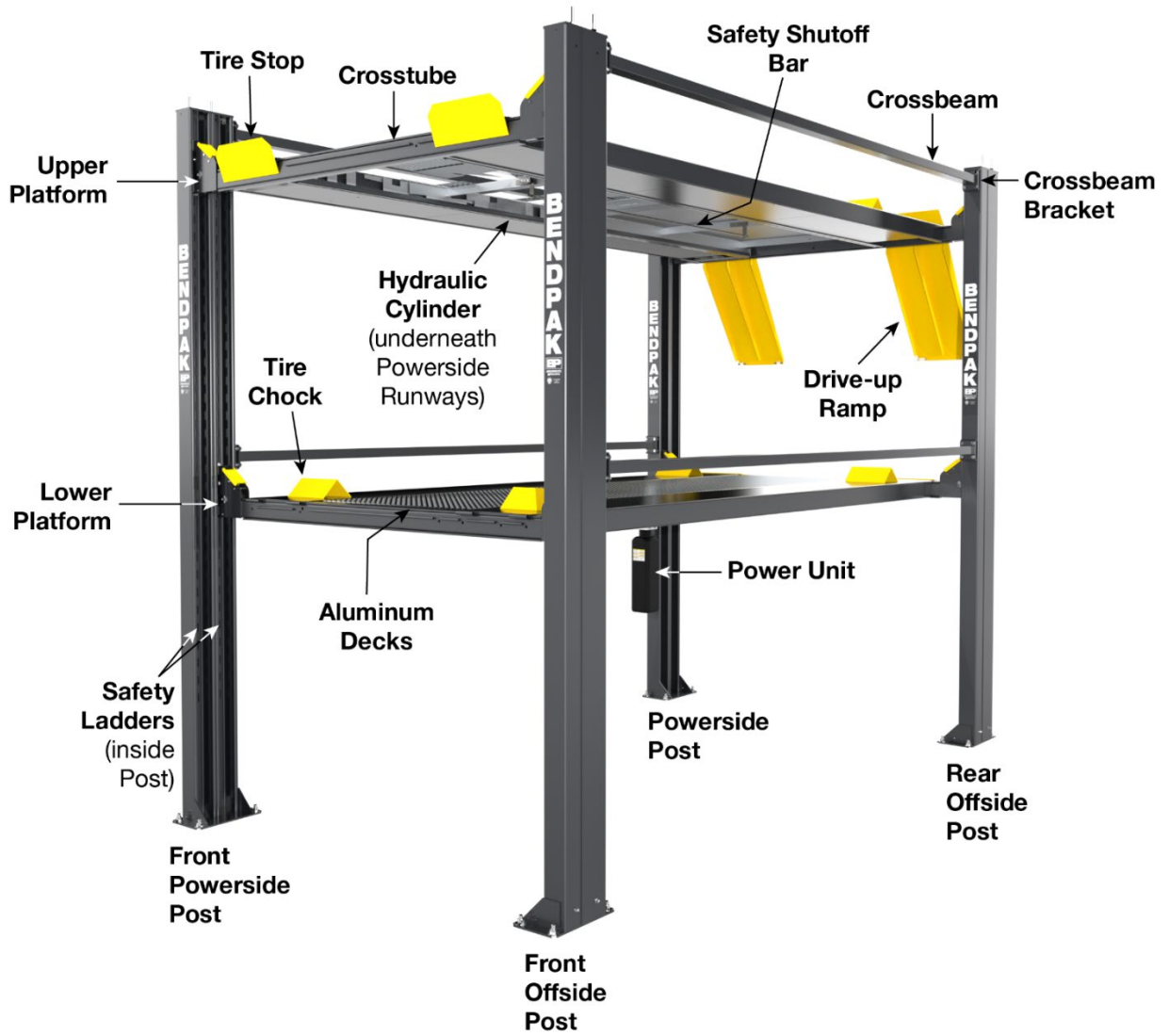
BendPak Inc. assumes **no** liability for damages resulting from:

- Use of the equipment for purposes other than those described in this manual.
- Modifications to the equipment without prior, written permission from BendPak.
- Injury or death caused by modifying, disabling, overriding, or removing safety features.
- Damage to the equipment from external influences.
- Incorrect operation of the equipment.

Components

The main components of your Lift include:

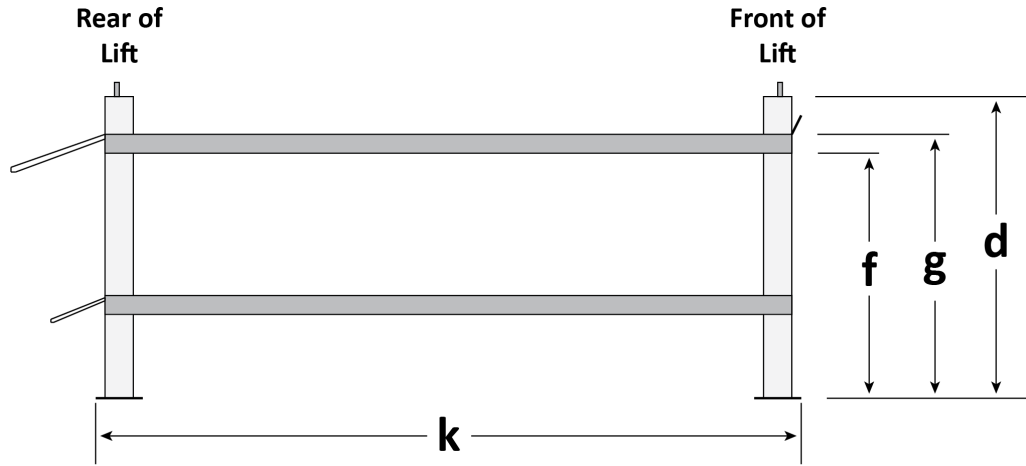
- **Power Post.** The Post that holds the Power Unit. Mount the Power Unit on one of the two Mounting Brackets.
- **Power Unit.** An electric/hydraulic unit that connects to an electric power source and then provides Hydraulic Fluid to the Hydraulic Cylinder that raises and lowers the Runways.
- **Flex Tubes.** *Not shown.* A flexible, black tube that attaches to an opening on the Powerside Runway on one end and to the Power Unit on the other end. Used for protecting the Return Line, Air Line, and Hydraulic Hose (and Microswitch Cable for Upper Platform) as they are routed to the Power Unit. One Flex Tube per Platform.
- **Upper Platform.** Can hold Vehicles up to 7,000 lbs (3,175 kg).
- **Lower Platform.** Can hold Vehicles up to 9,000 lbs (4,082 kg).
- **Powerside Runway.** On the same side as the Power Post (holds the Power Unit). The Powerside Runway has the Hydraulic Cylinder and the Cables under it. Same for both Platforms.
- **Offside Runway.** The other Runway. It does not have a Hydraulic Cylinder or Cables under it. Same for both Platforms.
- **Aluminum Decks.** Sits in between the two Runways. Protects any leakage from falling onto the Vehicle below. Two per Platform.
- **Safety Shutoff Bar.** Located on the underside of the Upper Platform. The Safety Shutoff Bar stops upward movement of the Lift. If you are raising a Vehicle on the Lower Platform and it hits the Safety Shutoff Bar, the Lift immediately stops moving.
- **Crosstubes.** Each Platform has one at each end of the Lift. The Crosstubes are hollow; the Cables that raise and lower the Runways are routed through the Crosstubes. The Crosstubes are *not* interchangeable: Each Crosstube has an opening (called a ‘Window’) that faces the inside. ***Windows open to the inside of the Lift only.***
- **Crossbeams.** Extra structural stability for your Lift. Two Crossbeams connect the Powerside Posts and another two connect the Offside Posts.
- **Crossbeam Brackets.** Holds the Crossbeams in place, two per Post. Brackets ***must*** face the inside of the Lift.
- **Drive-up Ramps.** The Upper Platform uses a longer set of Ramps, and the Lower Platform uses a shorter set of Ramps. Use them to drive onto and off of the Runways. Two per Platform.
- **Tire Stops.** Located at the Front of the Lift, Tire Stops prevent the Vehicle’s Front Tires from going any further forward. Additionally, we recommend that you chock the Vehicle’s Rear Tires. Two per Platform.
- **Safety Locks.** Once engaged, they hold the Runways in position, even if the power goes out or there is a leak in the Hydraulic Hoses. Your Lift has two columns of Safety Locks per post, spaced every four inches. This lets you lock the Runways at just the right height for what you want to do. ***Only leave your Lift on the ground or engaged on a Safety Lock.***
- **Platform Selector Valve.** Controls which Platform is in operation; only ***one*** Platform can be raised or lowered at a time.
- **Pushbutton Air Valve.** Moves the Safety Locks away from the Ladder so that they do not engage as you lower the Lift. Used to lower the Runways.
- **Ladders.** Pieces of steel that gets installed at the back of each Post; these are part of the Safety Lock system.



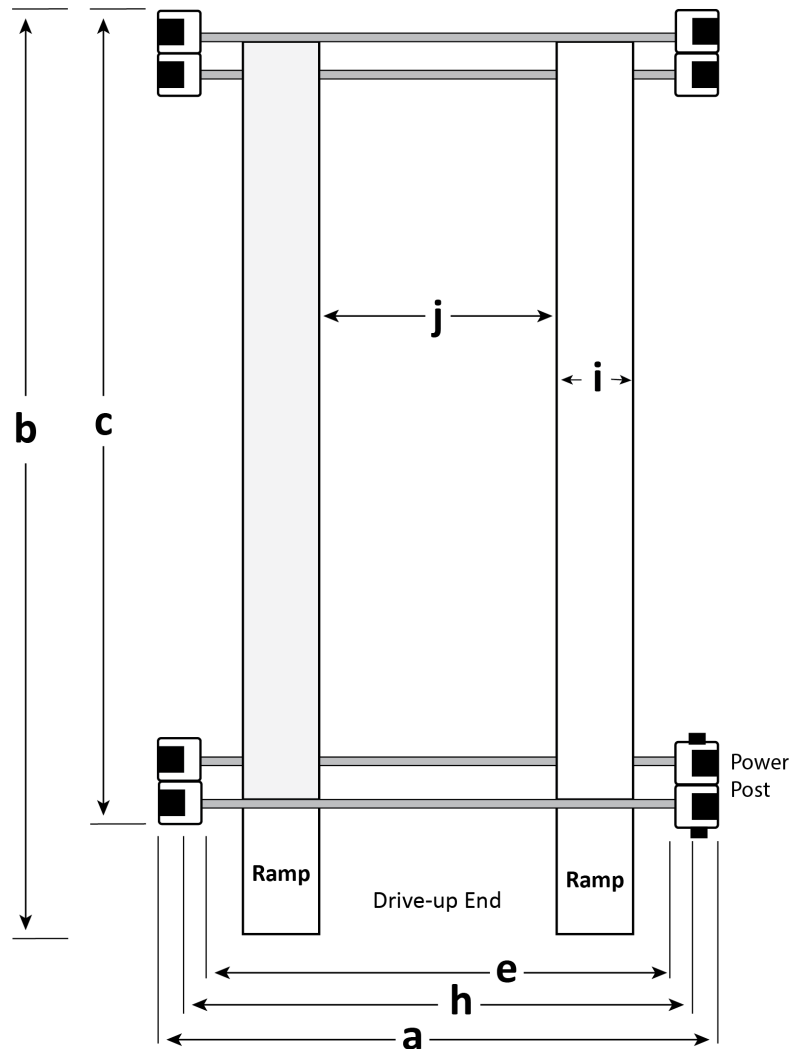
The Front of the Lift is the end opposite the Drive-up Ramps. Front view.

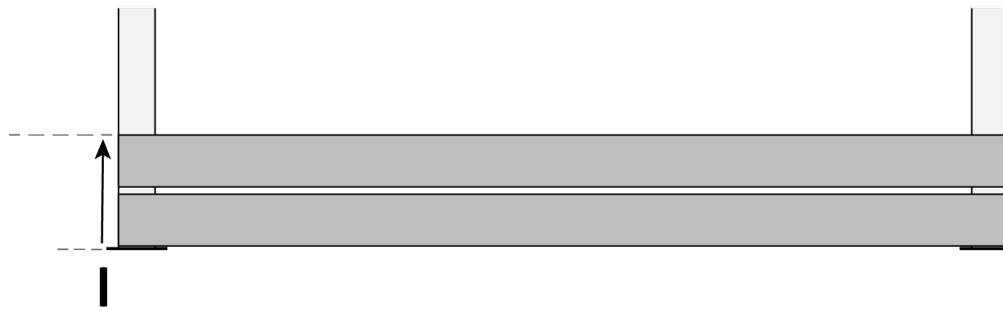
Specifications

Side View



Top View





Notes:

Drawing is a side view of the Lift.

Not all components are shown. Not to scale.

HD-973P	Upper Platform	Lower Platform
Lifting capacity	7,000 lbs / 3,175 kg	9,000 lbs / 4,082 kg
a Total width	110.5" (9.3 feet) / 2,806 mm	
b Total length (includes Ramps)	242" (20.2 feet) / 6,137 mm	200" (16.8 feet) / 5,080 mm
c Outside length	198" (16.6 feet) / 5,024 mm	
d Height of post	158" (13.2 feet) / 4,010 mm	
e Drive-thru clearance	87" (7.3 feet) / 2,201 mm	
f Maximum rise	139.5" (11.8 feet) / 3,544 mm	67.5" (5.8 feet) / 1,713 mm
g Maximum lifting height	145" (12.1 feet) / 3,681 mm	75" (6.3 feet) / 1,906 mm
h Distance between posts	100" (8.4 feet) / 2,541 mm	
i Runway width	19" / 482 mm	
j Width between runways	35" – 41" / 887 – 1,045 mm	
k Runway length	188.5" (15.8 feet) / 4,786 mm	176" (14.8 feet) / 4,474 mm
l Height of Platform when lowered	10.75" / 270 mm	5" / 127 mm
Top Safety Lock	144" (12 feet) / 3,656 mm	72" (6 feet) / 1,839 mm
Min. wheelbase @ rated capacity ¹	135" (11.3 feet) / 3,429 mm	125" (10.5 feet) / 3,175 mm
Min. wheelbase @ 75 capacity ¹	115" (9.7 feet) / 2,921 mm	105" (8.9 feet) / 2,667 mm
Min. wheelbase @ 50 capacity ¹	95" (7.11 feet) / 2,413 mm	85" (7.1 feet) / 2,159 mm
Min. wheelbase @ 25 capacity ¹	80" (6.8 feet) / 2,032 mm	70" (5.10 feet) / 1,778 mm
Safety Locks	31 Spaced every 4" / 102 mm	13 Spaced every 4" / 102 mm
Lifting time	90 seconds	50 seconds
Motor	220 VAC, 60 Hz, 1 Ph (<i>special voltages available upon request</i>)	

¹ The Runways supports less weight than its rated capacity if the Vehicle's wheelbase is shorter because the wheels of such a Vehicle are closer to the middle of the Runways, where there is less strength. For example, the maximum weight allowed on the Top Platform for a Vehicle with a wheelbase of 95" is 50 percent of the Top Platform's rated capacity (or 3,500 lbs when the rated capacity is 7,000 lbs).

Specifications subject to change without notice.

HD-973PX	Upper Platform	Lower Platform
Lifting capacity	7,000 lbs / 3,175 kg	9,000 lbs / 4,082 kg
a Total width	110.5" (9.3 feet) / 2,806 mm	
b Total Length (w/ Drive-up Ramps)	252.25" (21 feet) / 6,409 mm	
c Outside length	208.5" (17.4 feet) / 5,294 mm	
d Height of post	170" (14.2 feet) / 4,315 mm	
e Drive-thru clearance	87" (7.3 feet) / 2,201 mm	
f Maximum rise	151.5" (12.8 feet) / 3,849 mm	79.5" (6.8 feet) / 2,021 mm
g Maximum lifting height	157" (13.1 feet) / 3,986 mm	87" (7.3 feet) / 2,211 mm
h Distance between posts	100" (8.4 feet) / 2,544 mm	
i Runway width	19" / 482 mm	
j Width between runways	35" – 41" / 887 mm – 1,045 mm	
k Runway length	199" (16.7 feet) / 5,056 mm	186.75" (15.7 feet) / 4,744 mm
l Height of Platform when lowered	10.75" / 270 mm	5" / 127 mm
Top Safety Lock	156" (13 feet) / 3,964 mm	84.5" (7 feet) / 2,147 mm
Min. wheelbase @ rated capacity ¹	140" (11.8 feet) / 3,556 mm	135" (11.3 feet) / 3,429 mm
Min. wheelbase @ 75 capacity ¹	120" (10 feet) / 3,084 mm	115" (9.7 feet) / 2,921 mm
Min. wheelbase @ 50 capacity ¹	100" (8.4 feet) / 2,540 mm	95" (7.11 feet) / 2,413 mm
Min. wheelbase @ 25 capacity ¹	80" (6.8 feet) / 2,032 mm	75" (6.3 feet) / 1,905 mm
Safety Locks	34 Spaced every 4" / 102 mm	16 Spaced every 4" / 102 mm
Lifting time	90 seconds	50 seconds
Motor	220 VAC, 60 Hz, 1 Ph (<i>special voltages available upon request</i>)	

¹ The Runways supports less weight than its rated capacity if the Vehicle's wheelbase is shorter because the wheels of such a Vehicle are closer to the middle of the Runways, where there is less strength. For example, the maximum weight allowed on the Top Platform for a Vehicle with a wheelbase of 100" is 50 percent of the Top Platform's rated capacity (or 3,500 lbs when the rated capacity is 7,000 lbs).

Specifications subject to change without notice.

Frequently Asked Questions

Question: What kinds of Vehicles can I put on my Parking Lift?

Answer: Cars, trucks, SUVs; anything that fits on the Upper Platform, up to 7,000 lbs (3,175 kg). The Lower Platform holds up to 9,000 lbs (4,082 kg).

Q: What is the difference between the HD-973P and the HD-973P**X**?

A: The HD-973PX is a taller Lift with a *higher rise* and *extended Runways*.

Q: Can any of the four Posts be the 'Power Post'?

A: No; the only two possible locations for the Power Post are either the *Front Driver-Side* or the *Rear Passenger-Side*. This will be explained later.

Q: Does the Lift have to be anchored in place?

A: Yes; you **must** anchor the Lift.

Q: How high does the ceiling have to be?

A: It depends on the height of the Vehicles you are putting on the Runways and how high you raise the Platforms. If you are going to put a tall Vehicle on the Lift and raise it all the way up, you should check to make sure there is enough room.

Q: Does it matter if I drive my Vehicles in front first or back them in?

A: We strongly recommend driving your Vehicle in front first, because that makes it easier to center the Vehicle's wheels on the Runways. Also, remember to put the front wheels up against the Tire Stops and chock the Rear Wheels.

Q: Will the Cables really hold my Vehicles?

A: Yes. Your Lift has 4/10 inch thick, aircraft-quality **wire rope** that runs through oversized sheaves, reducing friction on them and extending their life with minimal maintenance.

Q: How long can I leave a Vehicle on a raised Runway?

A: As long as you want; once the Lift is engaged on a Safety Lock, gravity holds it in position, so a loss of power does not impact it; it is going to stay where you left it. Always leave the Platforms either fully lowered or engaged on a Safety Lock.

Q: Can I install my Lift outside?

A: Your Lift is approved for indoor installation and use only. **Outdoor installation is prohibited.**

Q: How long does it take to raise the Platforms?

A: The Upper Platform takes about 90 seconds; the Lower Platform takes about 50 seconds.

Installation Checklist

Following are the steps needed to install your Lift. Perform them in the order shown.

- 1. Review the installation safety rules.
- 2. Make sure you have the necessary tools.
- 3. Plan for electrical work.
- 4. Select the installation location.
- 5. Decide the Lift Orientation.
- 6. Create Chalk Line Guides.
- 7. Unload and unpack the Lift components.
- 8. Move the Posts into position.
- 9. Install the Crosstubes.
- 10. Install the Ladders and Top Cap.
- 11. Raise the Crosstubes.
- 12. Raise the Posts.
- 13. Remove the Sheaves.
- 14. Secure the Ladders.
- 15. Install the Runways.
- 16. Route the Lifting Cables.
- 17. Install the Air Lines.
- 18. Install the Return Lines.
- 19. Install the Hydraulic Hoses.
- 20. Install the Safety Shutoff Bar and the Microswitch.
- 21. Install the Power Unit.
- 22. Install the Flex Tube Bracket Plate and Angle Plate.
- 23. Install the Flex Tubes.
- 24. Install the Pushbutton Air Valve and connect the Air Lines.
- 25. Connect the Return Lines.
- 26. Install the Platform Selector Valve and connect the Hydraulic Hoses.
- 27. Contact the Electrician.
- 28. Connect to a power source (***Electrician required***).
- 29. Connect the Microswitch (***Electrician required***).
- 30. Install the Power Disconnect Switch and Thermal Disconnect Switch (***Electrician required***).
- 31. Anchor the Posts.
- 32. Perform final leveling.
- 33. Install the Accessories.
- 34. Install the Crossbeams.
- 35. Lubricate the Lift.
- 36. Bleed the Hydraulic Cylinder.
- 37. Test the Lift.
- 38. Review the final checklist.
- 39. Leave the manual for the owner/operator.

Installation

The installation process takes multiple steps. Perform them in the order listed. **Read the entire *Installation section before beginning the install***, this gives you a better understanding of the process as a whole.

⚠ WARNING **Only use the factory-supplied parts that came with your Lift.** If you use parts from a different source, you void your warranty and compromise the safety of everyone who installs or uses the Lift. If you are missing parts, visit bendpak.com/support or call **(800) 253-2363**, extension 191.

Safety Rules

While installing this equipment, your safety depends on proper training and thoughtful operation.

⚠ WARNING Do not install this equipment unless you have automotive Lift installation training. Always use proper lifting tools, such as a Forklift or Shop Crane, to move heavy components. Do not install this equipment without reading and understanding this manual and the safety labels on the unit.

Only fully trained personnel should be involved in installing this equipment. Pay attention at all times. Use appropriate tools and lifting equipment. Stay clear of moving parts.

BendPak recommends referring to the latest version of the ANSI/ALI ALIS Standard (R2015) *Safety Requirements for Installation and Service* for more information about safely installing, using, and servicing your Lift.

⚠ WARNING You must wear OSHA-approved (publication 3151) personal protective equipment at all times when installing, using, maintaining, or repairing the Lift: leather gloves, steel-toed work boots, eye protection, back belts, and hearing protection are **mandatory**.

You may need some or all of the following tools:

- Rotary hammer drill or similar
- 3/4 inch carbide bit (conforming to ANSI B212.15)
- Hammer and crow bar
- Two 2 x 4 pieces of Wood (52 inches or shorter)
- Zip ties
- Four-foot level
- Open-end wrench set, SAE and metric
- Socket and ratchet set, SAE and metric
- Hex key wrench set
- Medium crescent wrench, torque wrench, pipe wrench
- Chalk line
- Medium-sized flat screwdriver and needle-nose pliers
- Tape measure (25 feet or above)
- Forklift, Shop Crane, or heavy-duty rolling dolly, Lifting Straps, and two sawhorses
- 12-foot ladder

Planning for Electrical Work

You will need to have a licensed, certified Electrician available at some point in the installation.

 **DANGER** All wiring *must* be performed by a licensed, certified Electrician.

Notify your Electrician in advance so that they come prepared with an appropriate Power Cord with a Plug for connecting to the power source, a Power Disconnect Switch, and a Thermal Disconnect Switch. Refer to [Contacting the Electrician](#) for more information.

Your Electrician needs to:

- **Connect the Power Unit to a power source.** Replace the pigtail that comes with your Power Unit with the appropriate Power Cord and Plug or wire directly to the facility's electrical system.
- **Install the Microswitch.** Shuts off electric power in the event that a Vehicle on the Lower Platform comes too close to contacting the underside of the Upper Platform. Goes on the underside of the Aluminum Decks on the Upper Platform. UL Cable included.
- **Install a Power Disconnect Switch.** Ensures you can quickly and completely interrupt electrical power to the Lift in the event of an electrical circuit fault, emergency situation, or when equipment is undergoing service or maintenance. Put it within sight and reach of the Lift operator.
- **Install a Thermal Disconnect Switch.** Ensures the equipment shuts down in the event of an overload or an overheated motor.

Selecting a Location

When selecting the location for your Lift, consider:

- **Architectural plans.** Consult the architectural plans for your desired installation location. Make sure there are no issues between what you want to do and what the plans show.
- **Available space.** Make sure there is enough space for the Lift: front, back, sides, and above. Refer to [Specifications](#) for measurements.
- **Overhead Clearance.** Check for overhead obstructions such as building supports, heaters, electrical lines, low ceilings, hanging lights, and so on. ***You do not want the Vehicles on the Lift hitting obstructions.*** There's a formula for figuring out how much height you need, based on the Vehicles you want to park on the Upper Platform:

Height of Vehicle on the Upper Platform + 7 inches + height of Safety Locks

Add these together; your location height needs to be higher than the sum of these values.

The 7 inch figure includes the height of the Upper Platform plus the height needed to raise the Lift off of the Safety Locks. Note this figure is a rough estimate, for calculation purposes only.




Tip

To find the "height of Safety Lock", raise the Platform and lock it on its Safety Lock position, then measure from the ground to the bottom of the raised Platform. Note that the maximum rise height listed in [Specifications](#) is how high the mechanism can go before stopping; the Safety Locks height is not the same as maximum rise.

- **Side Clearances.** You must leave room around the Lift. Leave at least three feet (36 inches) clear on the sides of the Lift.
- **Front and Rear clearances.** You must leave room around the Lift. Leave at least two feet (24 inches) clear on the Front of the Lift, and no obstructions at all at the Rear of the Lift so you can safely drive Vehicles on and off the Runways.

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- **Power.** You need a power source for the Power Unit.
 - **Outdoor installations.** Your Lift is approved for indoor installation and use only. Outdoor installation is prohibited.
 - **Floor.** Only install the Lift on a flat, concrete floor; do not install on asphalt or any other surface. The surface must be level; do not install if the surface has more than three degrees of slope.


 **WARNING** Installing your Lift on a surface with more than three degrees of slope could lead to injury or even death; only install the Lift on a level floor. If your floor is not level, consider making the floor level or using a different location.

- **Shimming.** If your concrete floor is not completely level, you can use Shims under the Base plates, as needed, to level the Lift.


To estimate your Shim requirements, use a transit level and targets to check for flatness. Use the provided Shims as necessary.

NOTICE Do not shim a Post more than half an inch using the provided Shims and Anchor Bolts. A maximum shim of 2 inches is possible by ordering optional Shim Plates. Contact BendPak at **(800) 253-2363**, extension 191 to order. Please have the model and serial number of your Lift available.


- **Concrete specifications.** Do not install the Lift within 6 inches of cracked or defective Concrete. Make sure the concrete is at least 6 inches thick, 3,000 PSI, and cured for a minimum of 28 days.

 **CAUTION** BendPak lifts are supplied with installation instructions and concrete anchors that meet the criteria set by the American National Standard “Automotive Lifts – Safety Requirements for Construction, Testing, and Validation”, ANSI/ALI ALCTV. You are responsible for any special regional structural and/or seismic anchoring requirements specified by any other agencies and/or codes such as the Uniform Building Code (UBC) and/or International Building Code (IBC).

Be sure to check your floor for the possibility of it being a **post-tension slab**. In this case, you must contact the building architect before drilling. Using ground penetrating radar may help you find the tensioned steel.

 **WARNING** Cutting through a tensioned cable can result in injury or death. Do not drill into a post-tension slab unless the building architect confirms you are not going to hit tensioned steel or you have located it using ground penetrating radar. **If colored sheath comes up during drilling, stop drilling immediately.**

- **Multi-Lift Installations.** For a Multi-Lift setup, there must be a *minimum* spacing of 5 inches from the edge of the Baseplate to the edge of the Baseplate on the next Lift.

 **CAUTION** Installing a Lift closer than 5 inches to the edge of the Baseplate on the next Lift compromises the holding strength of the Anchor Bolts, which puts anyone near the Lifts in danger.

Deciding the Lift Orientation

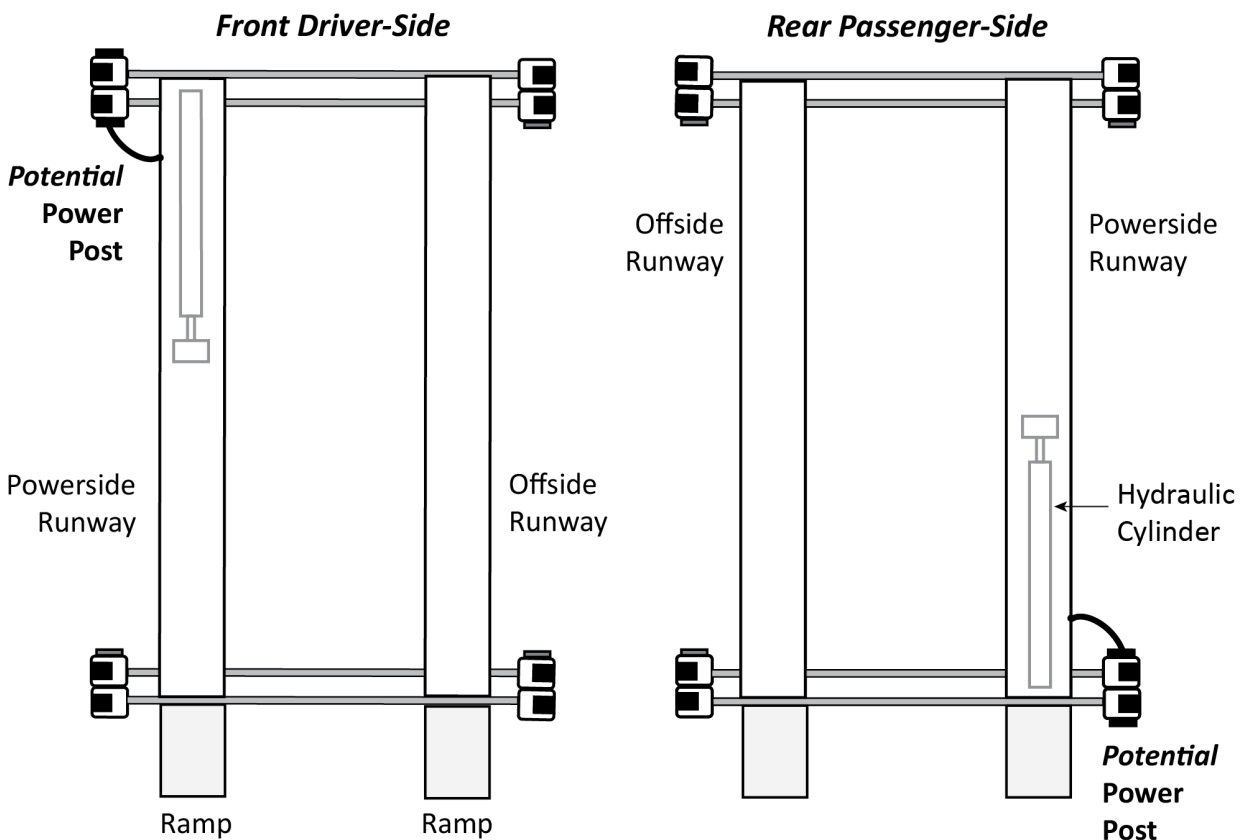
Before going any further, decide how you want to orient your Lift. This decision affects where you will place your Power Post and also the positioning of the Runways, which are *not* interchangeable.

On each level, one Runway, called the Powerside Runway, has the Hydraulic Cylinder underneath it and is the starting point for the Lifting Cables; it **must** be installed next to the Power Post (which holds the Power Unit). The other runway, call the Offside Runway, does not have anything underneath and none of the Lifting Cables are routed through it.

You can position your Power Post at either the **Front Driver-Side** or the **Rear Passenger-Side**.

The drawings in this manual show the Power Post at the **Rear Passenger-Side**, but that does not mean you have to.

In many cases, the main factor is the location of the power source; many customers prefer to place their Power Post (which holds the Power Unit), near the power source. If power is not an issue, choose the option below that best fits your setup.



Top view. Hydraulic Cylinder is underneath the Runway. The Drive-up Ramps are not affected by the Power Post location. Drawing not to scale. Some components not shown.

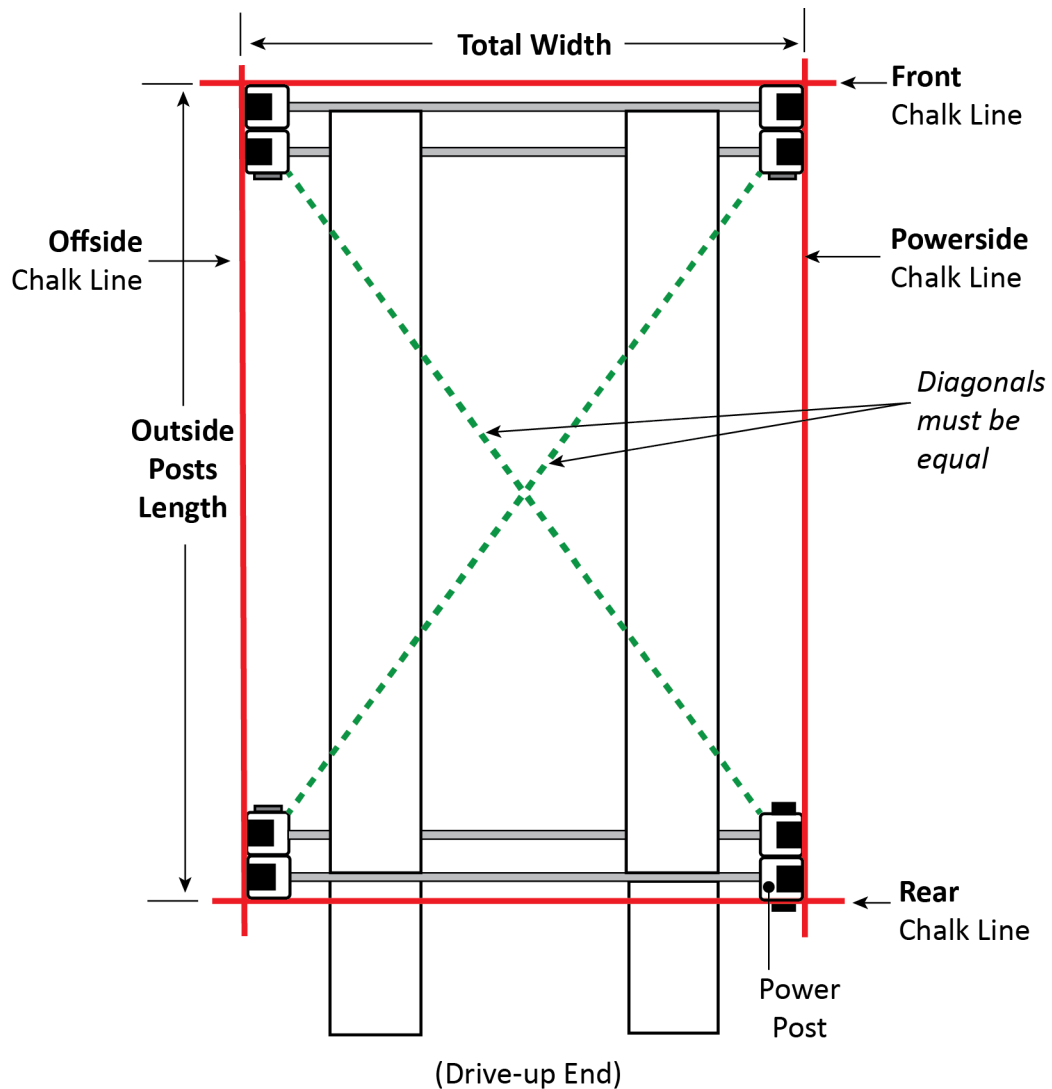
Creating Chalk Line Guides

Use Chalk Line Guides to ensure that the Posts get installed correctly.

Create the Chalk Line Guides so that the outside edges of all four Posts fit into the four corners created by the Chalk Line Guides.

See **Specifications** to determine the **Total Width** and **Outside Posts Length** for your Lift.

Note: *Do not use the Total Length value*; this includes the Ramps, which are not taken into consideration for creating Chalk Line Guides.



Top view. Not drawn to scale. Not all components shown.

To create Chalk Line Guides:

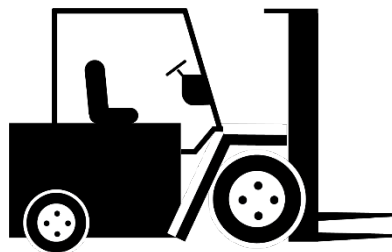
1. Create the Front Chalk Line where you want the Front of the Lift.
Make the Front Chalk Line *longer* than the Total Width setting for your Lift.
2. Create the Powerside and Offside Chalk Lines at 90° angles to the Front Chalk Line and parallel to each other. Make the Powerside and Offside Chalk Lines longer than the Outside Posts Length setting for your Lift model.
The Powerside and Offside Chalk Lines must be parallel to each other.
3. Create the Rear Chalk Line parallel to the Front Chalk Line. Make the Rear Chalk Line longer than the Total Width setting for your Lift model.
The Front and Rear Chalk Lines must also be parallel to each other.
4. Before moving the Posts into position, measure ***diagonally*** to make sure the two diagonal measurements are the same. This ensures your layout is correct.
Do not forget to check the diagonals.
5. When you move the Posts into position, put the corners of the Base Plates inside the corners created by the four Chalk Lines.

Unloading and Unpacking

Once the components are unloaded, they are your responsibility to move around. As the Lift includes a number of heavy pieces, the closer you unload them to the installation location, the better off you are.

⚠ CAUTION Some Lift components are very heavy; if handled incorrectly, they can damage materials like tile, sandstone, and brick. Try to handle the Lift components twice: once when delivered and once when moved into position. You must have a Forklift or Shop Crane to move them into position. Use care when moving them.

⚠ WARNING The Posts and Runways are delivered with stabilizing structures on each end. Be very careful when removing these stabilizing structures; the Posts and Runways can shift or even fall. If they fall on a person, they could cause serious injury.



Moving the Posts into Position

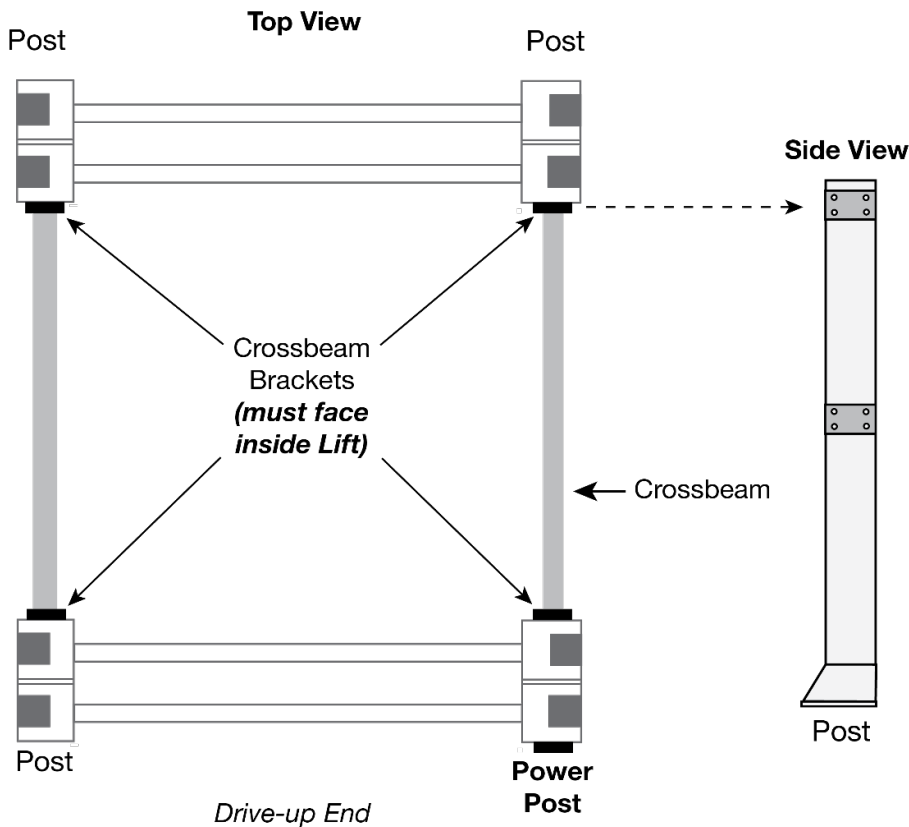
Once you have created the Chalk Line Guides, move the Posts into position.

Each Post has two Brackets used for attaching the Crossbeams; the Crossbeams add structural stability to the Lift; **the Crossbeam Brackets must face the inside of the Lift.**

The Power Post has two Crossbeam Brackets that face the inside of the Lift, and an extra two Brackets (one facing the inside of the Lift, the other facing the Drive-up End) used for mounting the Power Unit.

Important: Position the Power Post at your chosen location. Remember, the Power Post can only go in two possible locations: the **Front Driver-side** or the **Rear Passenger-side**. Refer to **Lift Orientation** for more information.

The following drawing shows how to position the four Posts.



Drawing combines Top View and Side View. Drawing positions the Power Post in the Rear-Passenger Side Not drawn to scale. Some components not shown.

To move the Posts into position:

1. Orient the Posts in their required positions, with the Post Brackets facing the inside of the Lift.
2. Using a Forklift or Shop Crane, carefully move each Post to the inside corners of the Chalk Line Guides.

Do not stand up the Posts yet, some of the following procedures are easier to complete if the Posts are laying on the ground.

Installing the Crosstubes

Your Lift has a total of four Crosstubes, two per Platform:

Upper Platform:

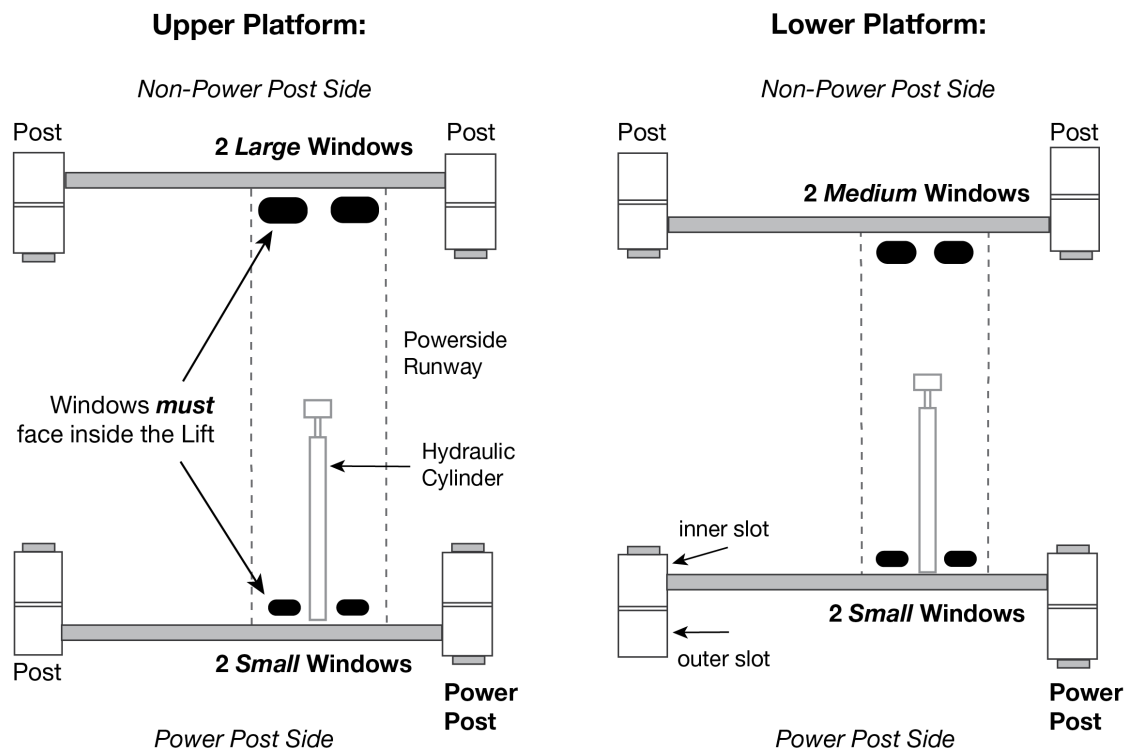
- **Crosstube with *Large Windows*:** holds two *Large* Double Cable Sheaves, on the Non-Power Post Side of the Lift.
- **Crosstube with *Small Windows*:** holds two Cable Sheaves, perpendicular to the Power Post.

Lower Platform:

- **Crosstube with *Medium Windows*:** holds two *Medium* Double Cable Sheaves, on the Non-Power Post Side of the Lift.
- **Crosstube with *Small Windows*:** holds two Cable Sheaves, perpendicular to the Power Post.

Important It is possible to install the Crosstubes **incorrectly** in several different ways. Take your time and get it right the first time.

The following drawing shows both Crosstubes for each Platform.



To install the Crosstubes:

1. Decide which Platform you want to start with, then find the two Crosstubes that go with that Platform.

NOTICE The Crosstubes with Small Windows are the same for both Platforms, so it does not matter what Platform they go to; the other two Crosstubes are **not** interchangeable.

Make sure you have the correct Crosstubes for the Platform you are working on.

2. With the Posts on the ground, slide the Crosstubes into place.

Both Windows **must** be on the ends of the Powerside Runway and facing the inside of the Lift.

3. Perform Step 2 for the other two Crosstubes.

About Safety Locks

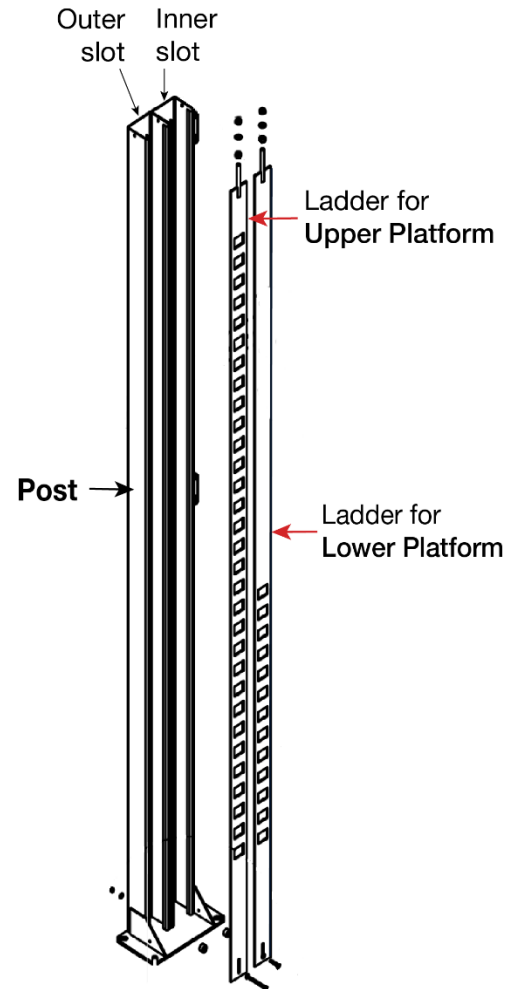
Safety Locks hold the Runways in place. Once engaged, Safety Locks hold the Runways in place, even if the power goes out or the Hydraulic Lines break or leak.

Important: Simply raising the Runways does not necessarily engage them on the Safety Locks. You must back the Runways down onto the Safety Locks to engage them.

⚠ WARNING Safety Locks are dependent on correct installation of the 'Ladders'. Pay careful attention when installing the Ladders, thus ensuring correct operation of the Safety Locks on your Lift.

The Ladders, two per Post, are steel pieces with holes spaced every four inches. As you raise the Runways, the Safety Locks move into the holes in the Ladder. When you move the Runways back down a little after passing a Safety Lock, the Safety Lock engages. Once they are engaged, Safety Locks stay engaged until you are ready to lower the Runways.

⚠ WARNING Always leave the Runways either fully lowered or engaged on their Safety Locks. When you engage the Safety Locks at a desired height, check to make sure that all four Safety Locks for that Platform are engaged.



So how do the Runways come down if the Safety Locks are engaged? To lower the Runways, you raise them a few inches (to get them off the Safety Locks), then **press and hold down** the pushbutton on the Pushbutton Air Valve. While you hold down the pushbutton, the Safety Locks are moved away from the Ladders; they cannot engage, which allows the Runways to be lowered.

Out of an abundance of caution, your Lift has a second, independent Safety Lock system called the Slack Safety. In total, your Lift has two Safety systems:

- **Safety Locks:** The primary system to hold up the Runways on your Lift are the Safety Locks. When you move the Runways up, you can hear clicks as the Safety Locks go into the holes in the Ladders. When you want to keep the Runways at a certain height, you go slightly past the height you want, then back the Safety Locks down in to the holes in the Ladders, which engages them.
- **Slack Safety:** The Slack Safeties are next to the Safety Locks on the ends of the Crosstube Gussets. They are different from the Safety Locks in that when the Cables are taut (which they are during normal operation), they hold the Slack Safeties away from the Ladder so that the Slack Safeties cannot engage. However, if a Cable were to break (which very rarely happens), the Slack Safety for the broken Cable immediately engages, preventing the Runways from falling.

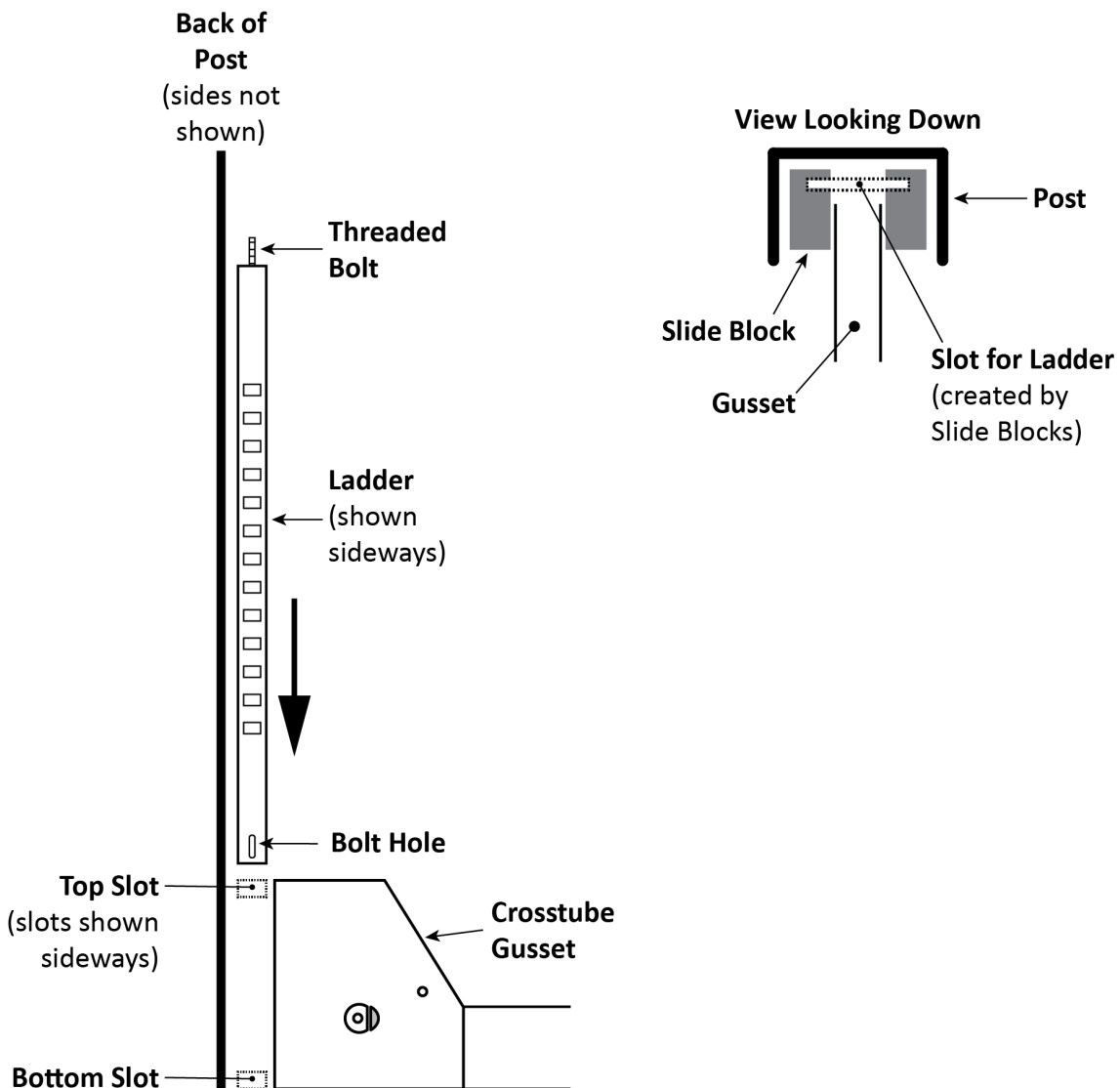
Installing the Ladders and Top Cap

Each Post has two Ladders, each gets installed on the inside back of a Post; Ladders are secured at the top and the bottom. Note that these Ladders are **not** interchangeable and must go in the correct slots. The four Ladders with 31 holes go in the outer slots of the Post, and the other four Ladders with 13 holes go to the inner slots.

The Top Caps secure the Ladder at the top of each Post and hold the ends of the Cables.

Note: It is much easier to secure the bottom of the Ladders once the Crosstubes have been raised, so that portion of installing the Ladders is described in **Securing the Ladders**.

⚠ WARNING Make sure to install the Ladders correctly. If they are not installed correctly, the Safety Locks on your Lift may not hold the weight of a Vehicle, putting anyone under the Platform in danger.



Slots are created by the Slide Blocks on the Crosstube Gusset. Front and Side views combined. Not to scale. Not all components are shown.

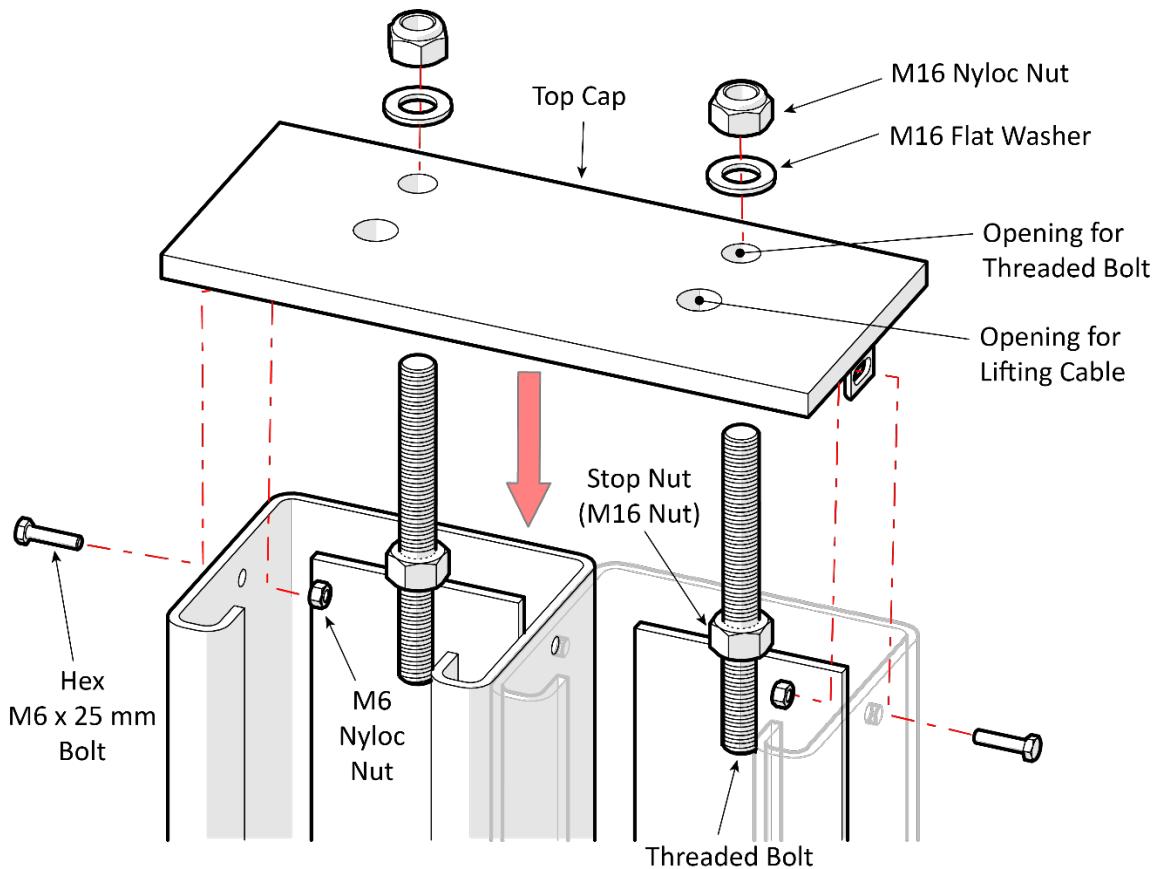
To install the Ladders and the Top Caps:

1. Take a Ladder and slide it down the back of the Post, Bolt Hole end at the bottom.

Make sure the Ladder goes through both Slots on each Gusset. There is a Slot at the top of the Gusset and another Slot at the bottom of the Gusset, formed by the Slide Blocks.

⚠ WARNING It is easy to see the top Slot created by the Slide Blocks. It is difficult to see the bottom Slot, but it is **required** that the Ladder goes through both Slots. If the Ladder misses a Slot or the Slide Blocks were not installed correctly, your Safety Locks will **not** function correctly.

2. Install the remaining Ladders the same way.
3. **Moving to the top of the Ladders**, put a Stop Nut on the Threaded Bolt at the top; move it down half an inch from the top of the Post.



Front View. Not all components shown.

4. Put the Top Cap onto the top of the Post, securing it on the sides with a Hex Head Bolt and a Nyloc Nut on each side of the Top Cap.
5. Move the Stop Nut up until it contacts the underside of the Top Cap, then add a Flat Washer and Nyloc Nut to the top of the Top Cap and tighten it.

Only hand tighten at this point, with about an inch of thread above the top of the Top Nut.

Note: The other hole in the Top Cap is for the Lifting Cable that is routed to the top of the Post, which is done later in the installation.

6. Install the remaining Top Caps the same way.

Raising the Crosstubes

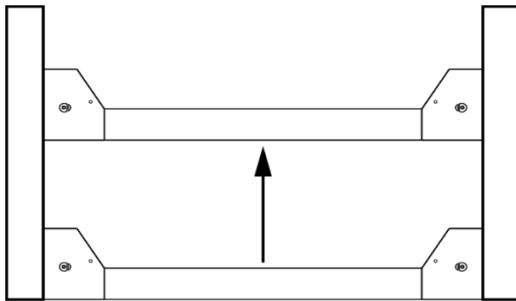
You need to manually raise the Crosstubes for each Platform, which makes it easier to complete the rest of the installation tasks.

The Front and Rear Crosstubes need to be raised the same height, to the same Safety Lock. For example, if the Front Crosstube of the Upper Platform is raised to the sixth Safety Lock, then the Rear Crosstube for the Upper Platform also needs to be placed on the sixth Lock.

To raise the Crosstubes:

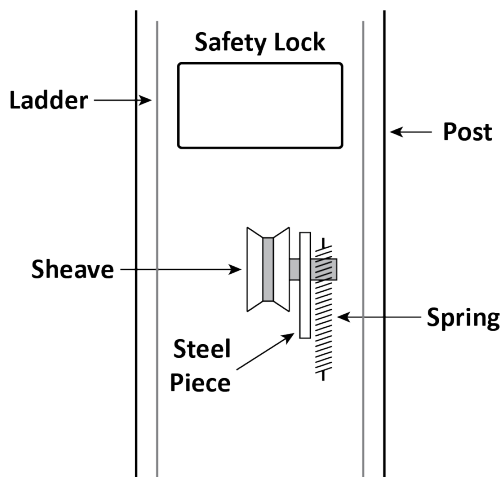
1. Using a Forklift or Shop Crane, carefully raise each Crosstube.

You want to raise the Crosstubes for the Upper Platform at least two feet higher than the Lower Platform, to have enough room to work under it, making it easier to route the Cables and Lines.



Important: The Slack Safeties cannot be engaged as you continue with the installation. Because the Cables are not in place yet, the Slack Safeties are going to engage when you manually raise the Crosstubes. You need to disengage them after you have raised the Crosstubes. The Primary Safeties are not impacted; they will engage normally when you manually raise each Crosstube, which is what you want.

2. To disengage the Slack Safeties after raising a Crosstube, press the Sheave and/or the Steel Piece (they are connected and will move together) back towards the Ladder and the back of the Post.



3. Once both Crosstubes are in position, **all Primary Safeties are engaged**, and the Slack Safeties have been disengaged, you can continue with the installation.
4. Repeat Steps 1 through 3 for the other Platform.

Securing the Ladders

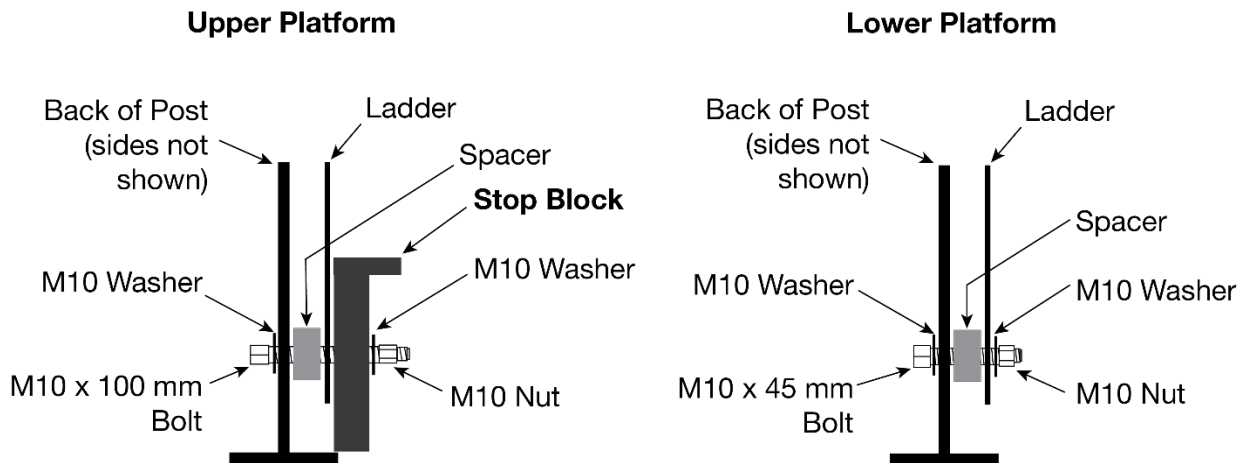
After the Crosstubes have been raised, secure the Ladders at the bottom of the Post. The following procedure assumes that the Ladders are in place and secured at the top. If this is not the case, return to [Installing the Ladders](#).

The procedure for securing the Ladders is mostly the same for both Platforms, except the Upper Platform has one additional component to secure; the Upper Platform uses **Stop Blocks** near the bottom of the Ladders. They prevent the Safety Shutoff Bar and the Microswitch (on the underside of Upper Platform) from contacting the Lower Platform when fully lowered.

To secure the Ladders:

1. Locate a Bolt, Washer, Spacer, second Washer, and Nut.

If you are working on the Upper Platform, locate the four Stop Blocks.



Side view of the Post. Not all components are shown.

2. Put a Washer next to the Bolt head, then insert the Bolt through the hole in the Post.
Make sure the Ladders for the Upper Platform go in the Outer Slots of the Post.
3. Put the Spacer into position between the Ladder and the back of the Post, push the Bolt through the Spacer, and then through the back of the Post.
For the Upper Platform, push the Bolt through the Spacer, Ladder, Stop Block, and then through the inside of the Post.
4. Take the second Washer and the Nut and install them on the end of the Bolt; secure the Nut.
5. Perform the same procedure to secure the remaining Ladders on the Lift.

Note: Do not securely tighten the Top Nut at the top of the Top Cap at this point. The Top Nut and the Stop Nut will be used later to make sure the Lift is level. They can be securely tightened after you do the final leveling of the Lift; See [Final Leveling](#) for additional information.

⚠ WARNING Make sure that all eight Ladders are correctly installed and secured. If the Ladder misses a Slot, your Safety Locks will **not** function correctly, which is a danger to anyone under the Platform that is holding a Vehicle or around it.

Raising the Posts

Because your Lift has taller Posts than most Parking Lifts, it is better to delay raising the Posts into position until after the Upper Crosstube has been raised and all eight Ladders have been secured.

⚠ WARNING The Posts are very heavy; you **must** have a Forklift or Shop Crane to move them into position. Use care when moving them, if they fall on a person, they could cause serious injury.

To raise the Posts into position:

1. Raise the Upper Crosstube so that it is raised just past the halfway mark of the Posts.

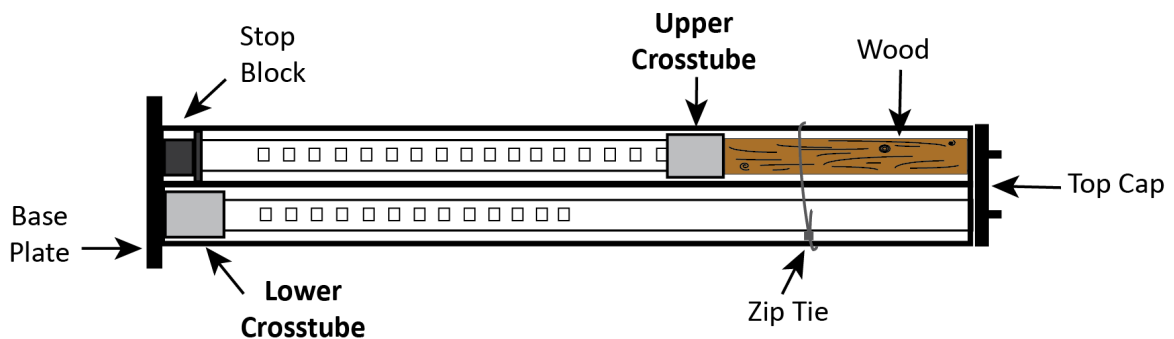
The Lower Crosstube remains lowered.

2. Take two wood blocks, **2 x 4** in **width** and maximum **52 inches** in **length**, and place them in the spaces above the Upper Crosstubes.

The wood blocks are used so that the Crosstubes cannot slide upward when the Posts are raised.

⚠ CAUTION We recommend wrapping zip ties around the entire width of the Post near the blocks of wood; this is so when the Posts are raised, the blocks do not fall out.

Why these specific measurements? Anything wider than 2 x 4 risks touching the Slack Safety Sheave in the Crosstube; anything longer than 52 inches places the Crosstube lower down the Post, which forces most of the weight towards the Bottom of the Post, losing the equal distribution of weight.



Drawing shows the Post on its side. Not all components are shown. Not to scale.

3. Wrap two Industrial Straps around the Upper Crosstube, then using a Forklift in the widest setting, carefully stand up the Posts.

You must have *at least* two people work together to stand up the Posts; one controlling the Forklift, and the other positioning the Posts.

⚠ CAUTION Make sure the Industrial Straps are the same length, or the Posts may not raise evenly if one Strap has more slack than the other.

4. Repeat the same process for the other two Posts, inserting the wood block above the Crosstubes.
5. Use a Transit Level to estimate the Shim requirements: use a target to find the difference in height between the Posts. The difference is the estimated amount of Shim thickness you will need.

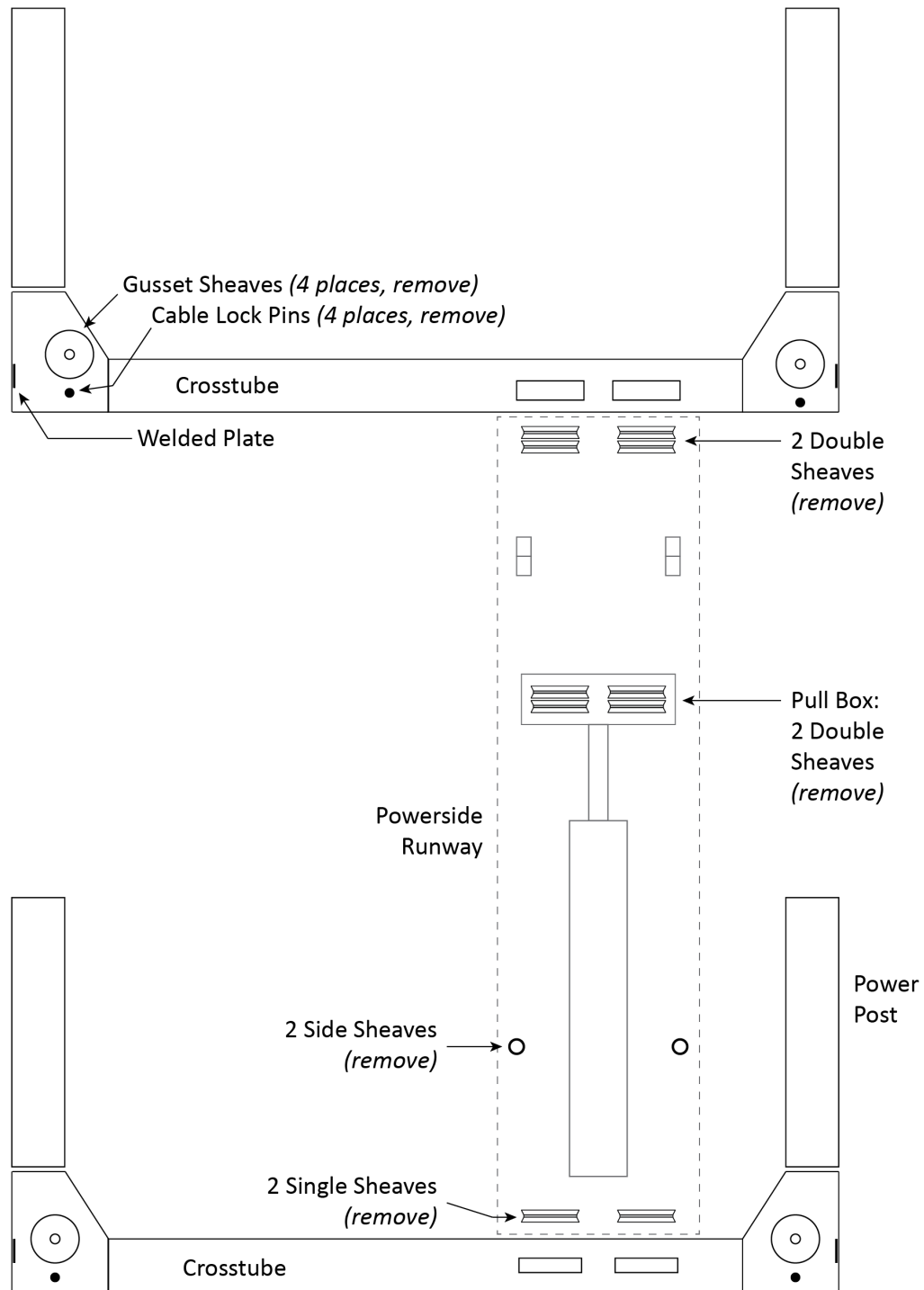
Do not use Shims and/or Anchor Bolt to Shim more than 1/2 an inch. You can order 2 inch Shim Plates for extreme cases.

Do not anchor the Posts at this point.

Removing the Sheaves

In order to route the Lifting Cables, you need to first remove the Cable Sheaves and Gusset Sheaves.

When you remove the Sheaves, **keep all the components together**. You will be reinstalling them at the same location, using the same components; do not mix the components for each Platform.



Pull Box and Side Sheaves are for Upper Platform only. Not to scale. Not all components shown.

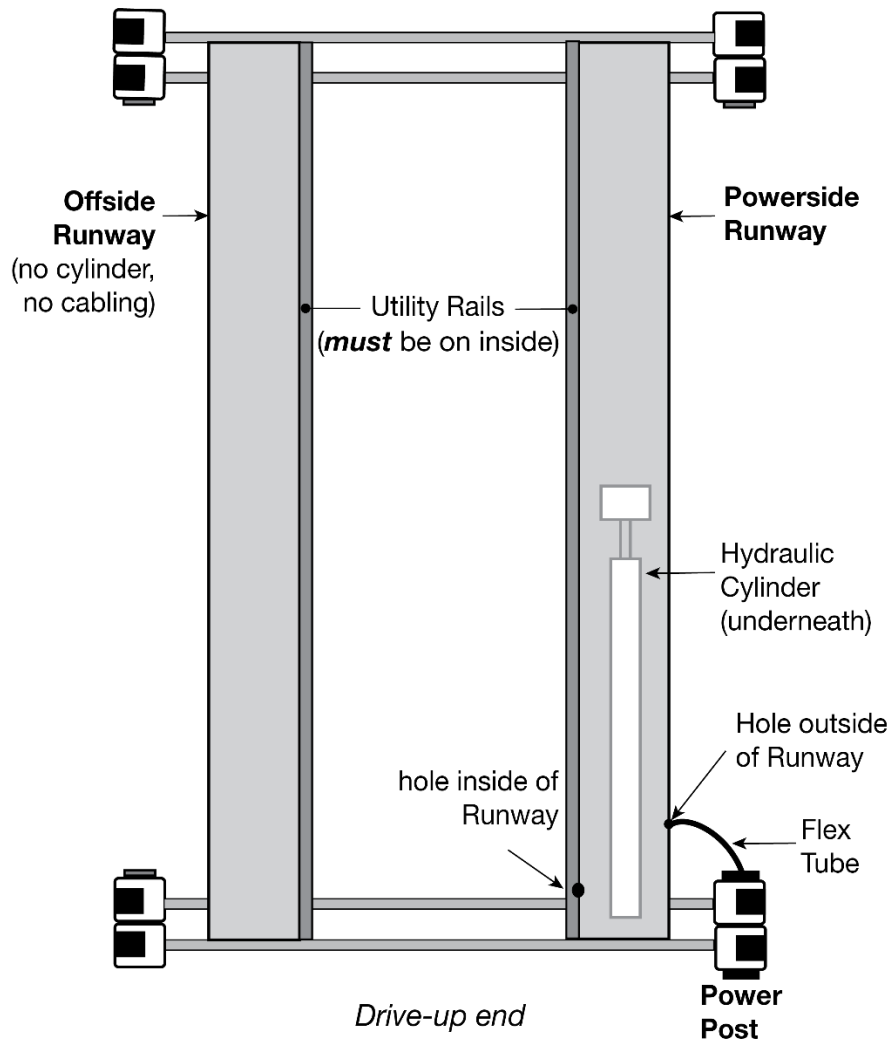
Installing the Runways

Your Multi-Level Lift has two sets of Runways. Each Platform has a:

- **Powerside Runway:** Holds the Hydraulic Cylinder underneath it. Has a hole on the outside that lets you route the Hydraulic Hose, Air Lines, and Return Line, (also a Microswitch for the Upper Platform only) to the Power Unit. Cable routing starts under the Powerside Runway.
- **Offside Runway:** The Offside Runway does not have a Hydraulic Cylinder under it, nor are there any Cables under it.

You can double check this by:

- Looking under the Runways. Only the Powerside Runways have a Hydraulic Cylinder underneath.
- Finding the ~1.5-inch wide hole in the side of the Powerside Runway at the Power Post for the Flex Tube (which holds the Air, Return, and Hydraulic Hoses).



Top View. The opening on the inside of the Powerside Runway is for the Upper Platform only. Not to scale. Not all components shown.

Use a Forklift or Shop Crane to raise the Runways and move them into position.

⚠ WARNING Pay close attention when moving the Runways into position; they are very heavy and very long, and could shift position or fall, potentially causing serious injury.

To install the Runways:

We recommend to start with the Lower Platform and then continue with the Upper Platform.

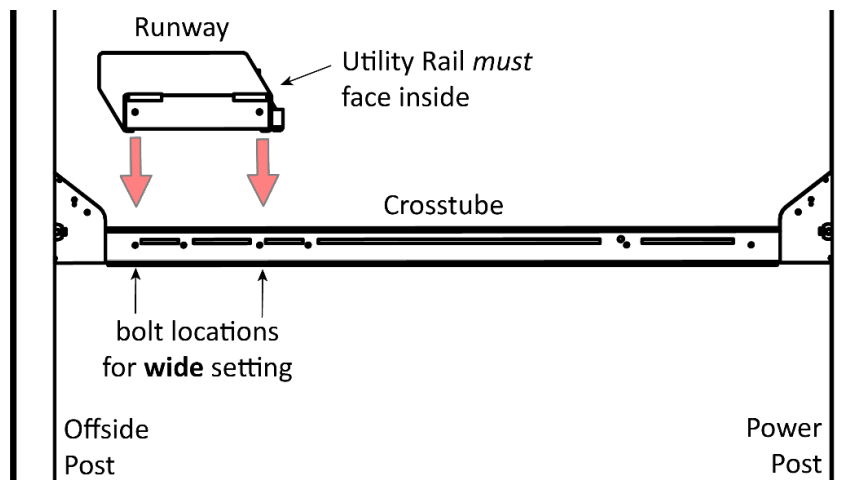
1. Correctly orient the Powerside Runway and the Offside Runway.
2. On the underside of the Powerside Runway, make sure the Sheaves have been removed.

See **Removing the Sheaves** for more information.

3. Use a Forklift or Shop Crane to pick up the Powerside Runway and move it into place on the Powerside of the Lift.

Make sure the Utility Rail is on the inside.

4. Bolt the Powerside Runway into place, two M12 x 1.75 x 90 mm Bolts on each end going into the Crosstubes.
5. Using a Forklift or Shop Crane, pick up the Offside Runway and position it in the wide setting.



Front view. Not all components are shown.

6. Bolt the Offside Runway into place, using two more M12 x 1.75 x 90 mm Bolts.
7. Make sure the Primary Safety Locks are engaged.

You do not want anyone going under the Runways unless the Safety Locks are engaged.

8. Repeat Steps 1 through 7 for the Upper Platform.

⚠ WARNING Do not continue with the installation until you have visually confirmed that all four Safety Locks are engaged on each Platform. If they are not engaged, the Runways could move or fall, possibly causing personal injury or product damage.

Routing the Lifting Cables

Before routing the Lifting Cables on your Lift, you need to know the following:

- Each Platform has four Lifting Cables. All Cables have varying lengths and can only make one connection.
- All Lifting Cables have a Button end and a Threaded end. The Threaded end has a label on it that identifies the Lift model the Cable is designed for (and **must** be used with), the part number (if you need to replace it), and its length (in millimeters).



Button end.

Attaches at
Tie Plate or
Anchor Plate

Threaded end.

Attaches at
top of Post

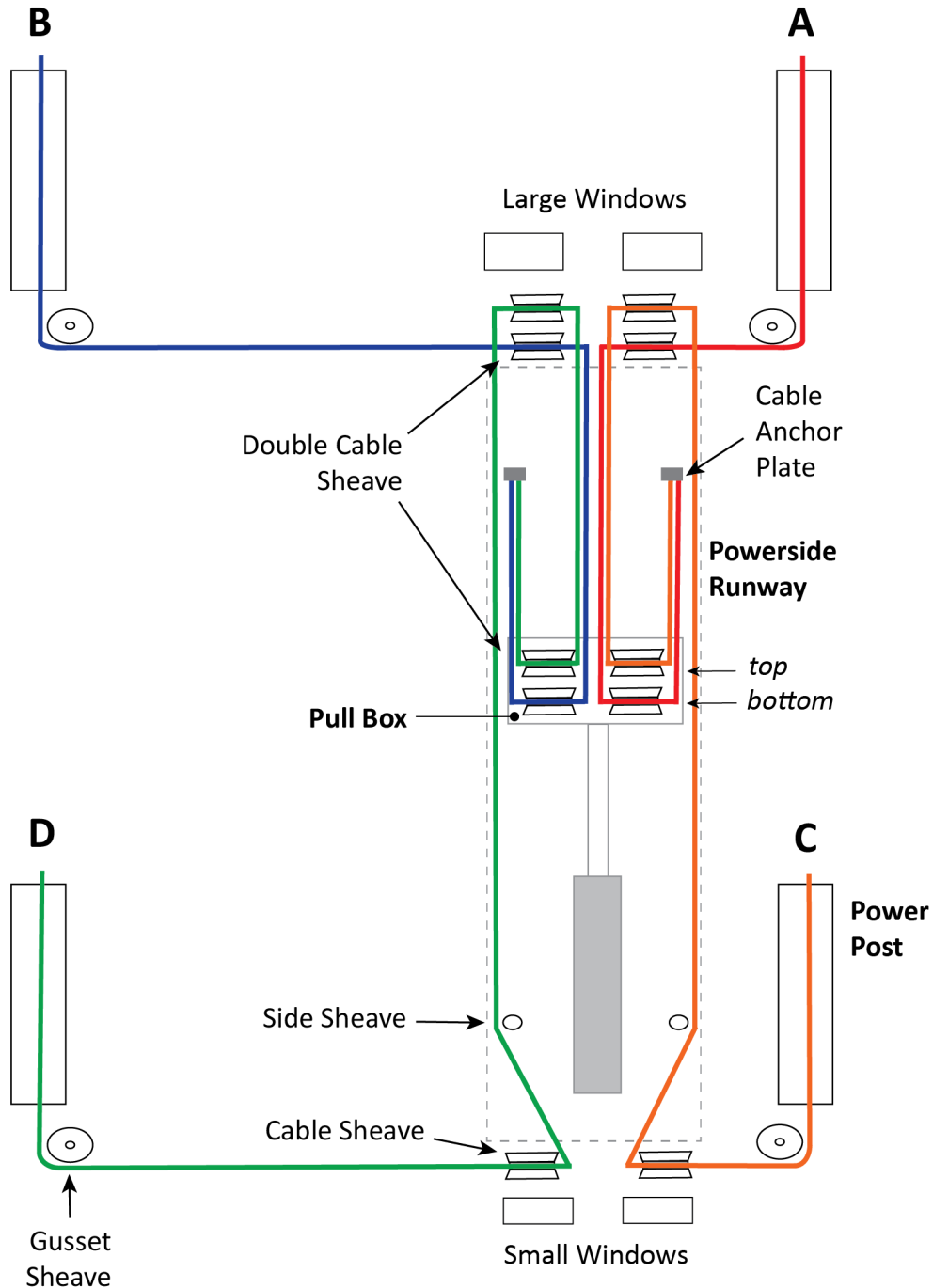
- The Threaded end of each Lifting Cable goes to its paired Cable Sheave (or Sheaves) and then gets routed to a Post; there are two kinds of Sheaves: Cable Sheaves and Gusset Sheaves.
- Cable Sheaves and Gusset Sheaves come installed but must be removed prior to putting the Runways in place. They are put into place as you route each Lifting Cable.
- Each Platform has a set of Double Cable Sheaves in the Crosstube with Large Windows (also inside the Pull Box for the Upper Platform).
- The two Lifting Cables that share a Double Cable Sheave (Lifting Cables A and C, then Lifting Cables B and D) are routed around the same time in order to reinstall the Double Cable Sheaves.
- Each Crosstube Gusset has a Cable Lock Pin underneath the Gusset Sheave. Each Cable Lock Pin needs to be removed when routing the Cable to its Post. Reinstall the Cable Lock Pin once the Cable is in place.
- The Cable Lock Pin prevents the Cable from coming out later; there is not enough space between the bottom of the Gusset Sheave and the Cable Lock Pin for the Cable to slip out.
- In the following drawings, the Lifting Cables and Cable Sheaves are labeled A, B, C, and D. These letters are **not** on the label on the Threaded end. You have to match the Cable letter with the length information.
- The Lifting Cables for the **HD-973P** are:
 - Upper Platform:
 - **A: 5,704** mm / 19 feet / 224.5 in.
 - **B: 7,301** mm / 24 feet / 287.5 in.
 - **C: 10,484** mm / 34.5 feet / 412.75 in.
 - **D: 12,072** mm / 39 feet / 472.25 in.
 - Lower Platform:
 - **A: 5,050** mm / 17 feet / 199 in.
 - **B: 6,670** mm / 22 feet / 262.75 in.
 - **C: 9,492** mm / 31 feet / 373.75 in.
 - **D: 11,104** mm / 36.5 feet / 437 in.
- The Lifting Cables for the **HD-973PX** are:
 - Upper Platform:
 - **A: 5,940** mm / 19.5 feet / 234 in.
 - **B: 7,538** mm / 25 feet / 296.75 in.
 - **C: 10,990** mm / 36 feet / 432.75 in.
 - **D: 12,578** mm / 41 feet / 495.25 in.
 - Lower Platform:
 - **A: 5,012** mm / 16.5 feet / 197 in.
 - **B: 6,638** mm / 22 feet / 261.25 in.
 - **C: 9,726** mm / 32 feet / 383 in.
 - **D: 11,315** mm / 37 feet / 445.5 in.

Routing the Lifting Cables on the Upper Platform

The Upper Platform uses two Cable Anchor Plates along the sides of the Powerside Runway to hold the Button ends of the Lifting Cables.

Lifting Cables A and B go through two Cable Sheaves and then one Gusset Sheave; Cables C and D go through three Cable Sheaves, one Side Sheave, and one Gusset Sheave.

The following drawing shows the routing for all four Lifting Cables on the **Upper Platform**.



Cable Sheaves separated from Windows for clarity. Crosstubes not shown. Not to scale.

Before routing the Lifting Cables, extend the Piston on the Hydraulic Cylinder.

To extend the Piston:

1. Remove the Shipping Plug from the Return Line Connector.
The Return Line Connector is on the Cylinder end closest to where the Power Unit will be.
2. Attach an air pressure source to the Return Line Connector.
3. Use the air pressure to extend the Hydraulic Cylinder's Piston.

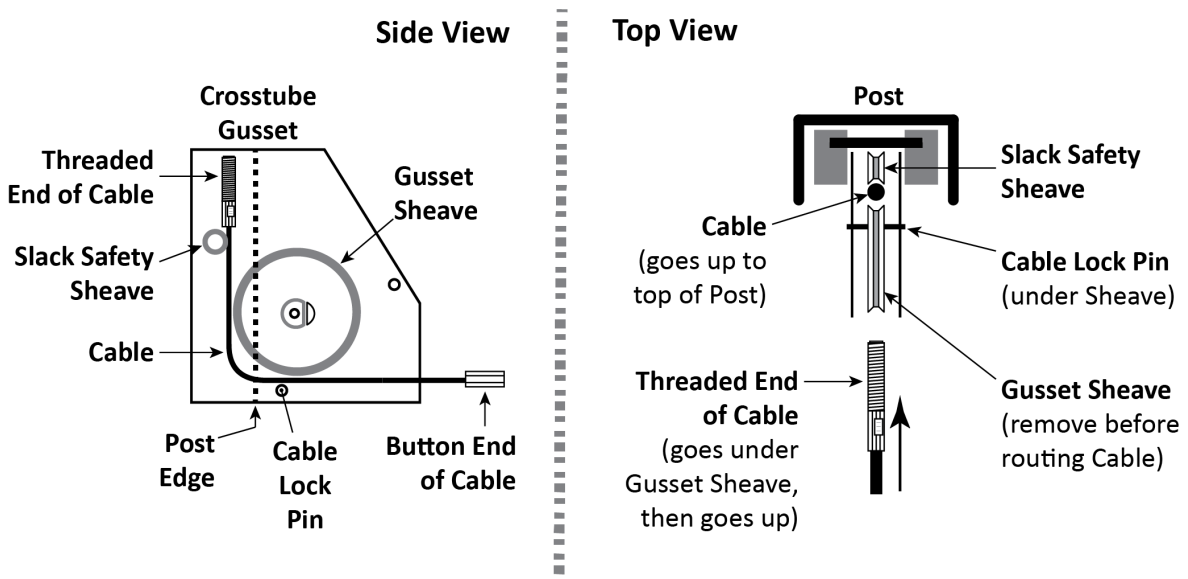
Do not exceed 50 psi.

4. If the Cylinder does not move, stop using air pressure; instead use a pulling device (such as a Come Along Tool) to extend the Piston; be careful not to damage the Piston.
5. Reinstall the Shipping Plug to the Return Line Connector.

To route Lifting Cables A and C:

1. Make sure you have nearby the four Lifting Cables and Sheaves you removed earlier.
2. **Starting with Lifting Cable A**, move the entire thing to just under the Large Window it goes through, near the bottom of Post A.
Check the label to make sure you have the correct Cable.
3. Remove the Nut and Washer from the Threaded end (but keep it nearby, you will need it soon).
4. Route the Threaded end of Lifting Cable A into its Large Window in the Crosstube, push it towards Post A, and then pull the Threaded end out of the Crosstube at the bottom of the Gusset.
5. Route the Threaded end of Lifting Cable A **under** where the Gusset Sheave will go when it is reinstalled, then route it up towards the top of the Post past the top of the Crosstube Gusset.

When you start routing the Cable up, it **must** be between the Gusset Sheave and Slack Safety Sheave, as shown below.



Important: When routing a Lifting Cable in its Post, it must go **under** where the Gusset Sheave will go when the Gusset Sheave is reinstalled and then, when it heads up towards the top of the Post, it must be between where the Gusset Sheave will go and where the Slack Safety Sheave already is. If the Cable is **not in this exact location**, the Slack Safeties will **not** work correctly later on.

6. With the Cable in place, reinstall the Gusset Sheave and the Cable Lock Pin in Post A.
7. Push the Threaded end of Lifting Cable A up to and through the Top Cap (at the top of Post A) and **hand tighten** it in place with the Nut and Washer you removed earlier.

You only want to hand tighten the Nut at this point so that there is little play in the cabling. We will securely tighten all four Nuts later in the installation.

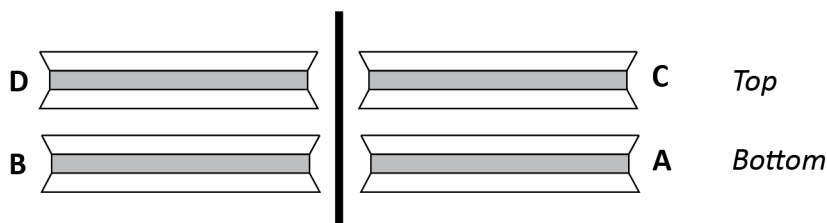
Note: The Threaded end of the Lifting Cable A should just go a little bit through the Top Cap. If it is way too long or way too short, you probably have the wrong Lifting Cable. If it is just a few inches short, then the Piston on the Hydraulic Cylinder may not have been pulled out far enough.

8. Make sure the Button end and the unrouted part of Lifting Cable A is under the Large Window, near the bottom of Post A.
9. **Switching to Lifting Cable C**, repeat Steps 1 through 7 for Lifting Cable C, starting at the Small Window near the bottom of Post C (Power Post).
10. Once the Threaded end of Lifting Cable C is secured at its Top Cap, return to the Small Window at the bottom of Post C.
11. Under the Powerside Runway, move the rest of Lifting Cable C towards where the Side Sheave goes on the Post C side of the Runway.
12. Return to the Small Window and reinstall the Cable Sheave.

Make sure Lifting Cable C is correctly positioned in the Cable Sheave in the Small Window.

13. Position the Button end of Cable C between the Runway and where the Side Sheave will be once it is reinstalled, and with the Cable in place, reinstall the Side Sheave.
14. Route the Button end of Cable C towards the Crosstube with Large Windows, where Lifting Cable A is.
15. Gather the Button ends of Lifting Cables A and C, making sure to position Lifting Cable A *below* Lifting Cable C.
16. Push Lifting Cables A and C into the Large Window where the Double Cable Sheave goes and pull the Button ends towards the Pull Box.
17. With the Cables in place in the Large Window, reinstall the Double Cable Sheave.

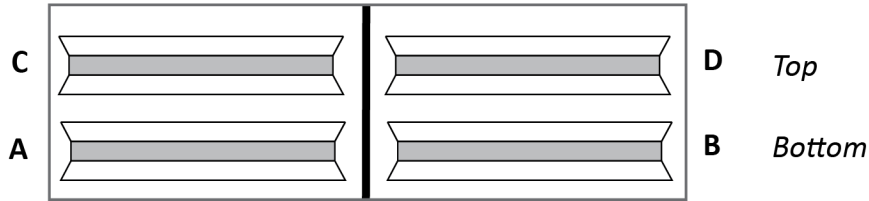
The following drawing shows the Cable/Cable Sheave Pairs in the Large Windows.



Front view of the Crosstube with Large Windows. Not all components shown. Not to scale.

18. Pull the two Lifting Cables towards the Pull Box and double check that Cable A remains *below* Cable C.
19. Position the Lifting Cables on the correct side of the Pull Box, with the Button ends of both heading back out of the Pull Box.
20. With the Cables in place, reinstall the Double Cable Sheave in the Pull Box.

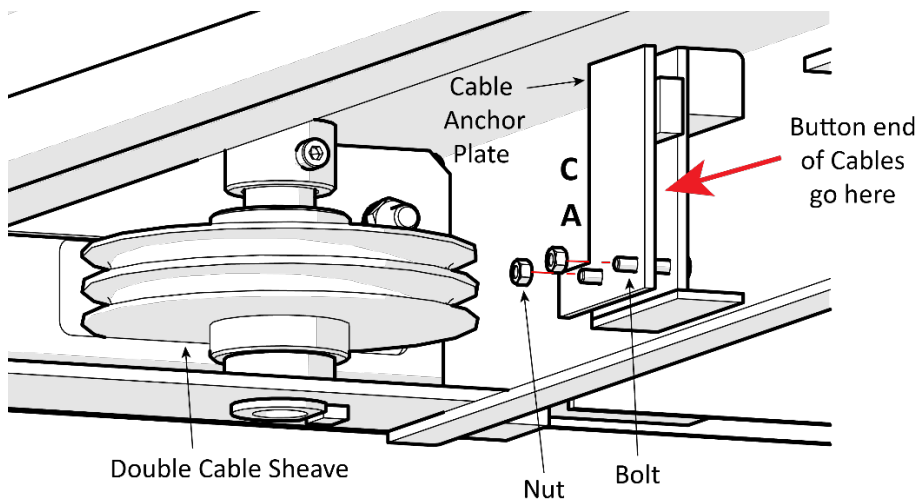
The following drawing shows the Cable/Cable Sheave pairs in the **Pull Box**.



Front view of the Pull Box, looking back towards the Hydraulic Cylinder. Not to scale.

21. Pull the Button ends of both Cables towards the Cable Anchor Plate on the side of the Runway.
22. Unscrew the Bolts from the Cable Anchor Plate so that the Button ends of the Cables may slip through the slot from underneath, then reinstall the Bolts.

The following drawing shows the Cable Anchor Plate closest to Post A.



Not to scale. Not all components are shown.

Note If Lifting Cables A and C are stretched tight and you cannot get the Button ends secure in the Cable Anchor Plate, you can temporarily remove the Double Cable Sheave in the Pull Box to get a little slack. This issue does not happen often; there is usually slack in the Lifting Cables, depending on how far the Piston was extended.

23. If you see slack in the Lifting Cables, this is normal. It will go away once you start using the Lift.

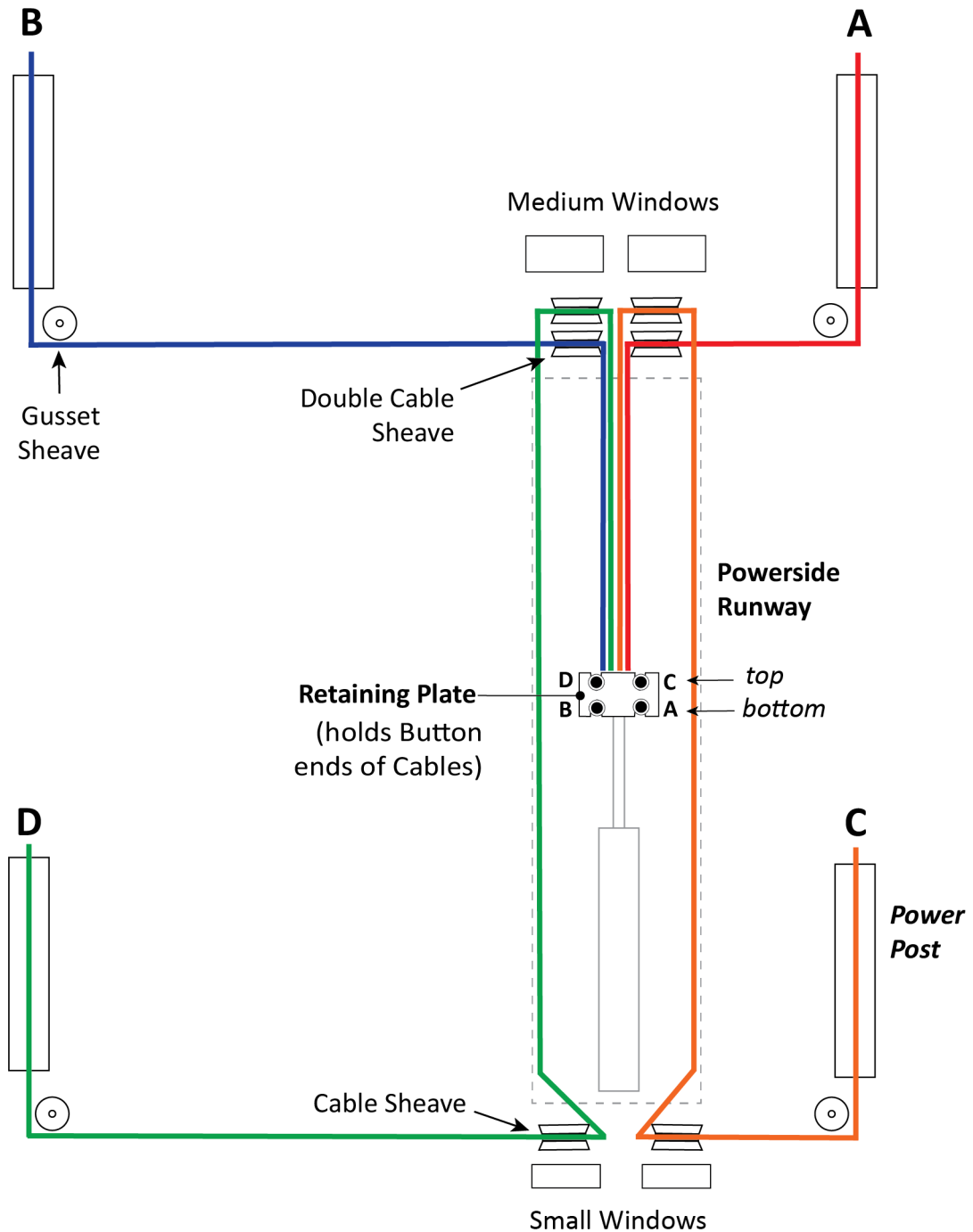
Note Routing Lifting Cables B and D is the same process as routing Lifting Cables A and C, just to the other two Posts and using a different set of Sheaves. Refer to the drawings in the previous section.

Routing the Lifting Cables on the Lower Platform

Unlike the Upper Platform, the Lower Platform uses a Retaining Plate and Tie Plate to hold the Button ends of each Lifting Cable.

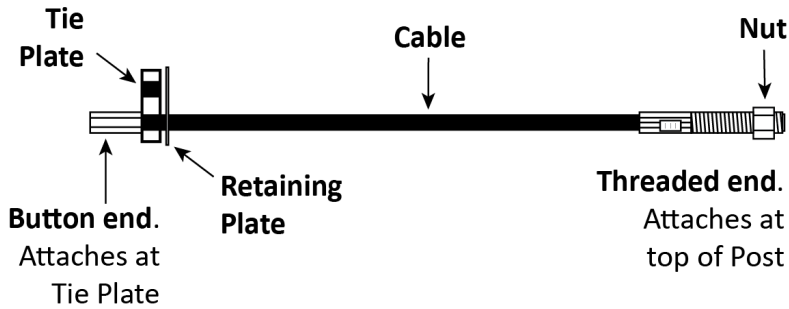
The Retaining Plate holds the Button ends of the Cables in place after all four Cables are installed. **Do not take the Tie Plate off to install the Cables**, instead, loosen it so that you can slip the Button end of the Cable into the correct slot.

The following drawing shows the routing for all four Cables on the **Lower Platform**.



Cable Sheaves separated from Windows for clarity. Crosstubes not shown. Not to scale.

The following drawing shows the Tie Plate and Retaining Plate.

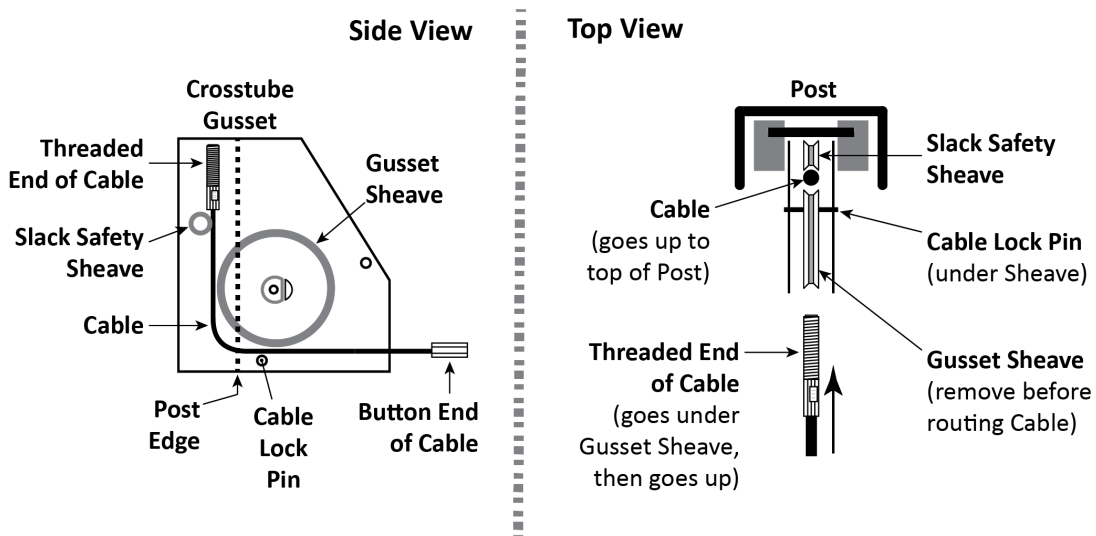


Before routing the Cables, extend the Hydraulic Cylinder's Piston and Retaining Plate. See the previous procedure for more information.

To route Lifting Cables A and C:

1. **Starting with Lifting Cable A**, move the entire thing to just under the Medium Window it goes through, near the bottom of Post A.
Check the label to make sure you have the correct Lifting Cable.
2. Remove the Nut and Washer from the Threaded End (but keep it nearby, you will need it soon).
3. Route the Threaded End of Lifting Cable A into its Medium Window on the Crosstube, push it towards Post A, and then pull the Threaded End out of the Crosstube at the bottom of the Gusset.
4. Route the Threaded End of Lifting Cable A **under** where the Gusset Sheave will go when it is reinstalled, then route it up towards the top of the Post past the top of the Crosstube Gusset.

When you start routing the Cable up, it must be between the Gusset Sheave and Slack Safety Sheave, as shown below.



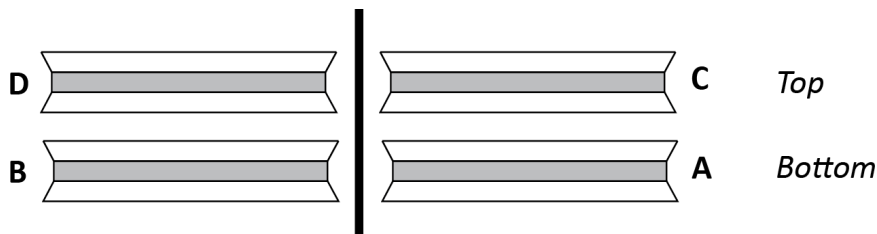
Important: When routing a Lifting Cable in its Post, it must go **under** where the Gusset Sheave will go when the Gusset Sheave is reinstalled and then, when it heads up towards the top of the Post, it must be between where the Gusset Sheave will go and where the Slack Safety Sheave already is. If the Cable is **not in this exact location**, the Slack Safeties will **not** work correctly later on.

5. With the Lifting Cable in place, reinstall the Gusset Sheave and the Cable Lock Pin in Post A.

6. Make sure Lifting Cable A is correctly positioned: in between the Gusset Sheave and the Slack Safety Sheave, with the Cable Lock Pin **under** it.
7. Push the Threaded End of Lifting Cable A up to and through the Top Cap (at the top of the Post) and **hand tighten** it in place with the Nut and Washer you removed earlier.
You only want to hand tighten the Nut at this point so that there is little play in the cabling. We will securely tighten all four Nuts later in the installation procedure.
8. **Switching to Lifting Cable C**, repeat Steps 1 through 7 for Lifting Cable C, starting at the Small Window near the bottom of Post C (the Power Post).
9. Reinstall the Cable Sheave and then make sure Lifting Cable C is correctly positioned in the Cable Sheave in the Small Window.
10. Under the Powerside Runway, move the rest of Lifting Cable C back towards the Crosstube with Medium Windows.
11. Push Lifting Cables A and C into the Medium Window where the Double Cable Sheave goes and pull the Button ends towards the Tie Plate.
12. With the Cables in place in the Medium Window, reinstall the Double Cable Sheave.

Make sure Lifting Cable A sits in the bottom Sheave, and Cable C is in the top Sheave.

The following drawing shows how to route the Lifting Cables around the Double Cable Sheaves.



Drawing shows a front view of the Cable/Cable Sheave pairs in the Crosstube with Medium Windows. Not all components shown. Not to scale.

13. By the Hydraulic Cylinder, loosen the Retaining Plate enough to give you room to slip the Button End of each Cable into its spot on the Tie Plate.
Do not take the Retaining Plate off, just loosen the Retaining Plate enough to give you enough room to slip the Button End of each Lifting Cable into place.
14. Pull the Button Ends of Lifting Cables A and C back towards the middle of the Runway, past the Retaining Plate, and into its slot on the Tie Plate.



Drawing shows a front view of the Tie Plate, facing towards the Crosstube with Medium Windows.

Note Routing Lifting Cables B and D is the same process as routing Lifting Cables A and C, just to the other two Posts and using a different set of Sheaves. Refer to the drawings in the previous section.

Working with Compression Fittings and Tubing

Your Lift comes with a roll of ¼ inch, black, polyethylene Tubing (also called Poly-Flo® Tubing) that is used with Compression Fittings in two ways: for the Return Line and for the Air Lines on each Platform.

Important: While both lines use Tubing and Compression Fittings, the Return Line and Air Lines are used for completely separate purposes; do not connect the two together.

Note: Compression Fittings are different from Hydraulic Fittings. This section covers Compression Fittings only.

The components involved with Compression Fittings include:

- **¼ inch, black, polyethylene Tubing.** You use a single piece of Tubing for the Return Line. The Air Lines require multiple Tubing pieces. Create the Tubing pieces for both the Return Line and the Air Lines by cutting lengths from the long roll of Tubing supplied with your Lift.
- **Elbow Compression Fittings.** Each Return Line uses an Elbow Compression Fitting on the Hydraulic Cylinder and then another Elbow Compression Fitting on the Power Unit.
- **Tee Compression Fittings.** Each Platform requires three Tee Compression Fittings for the Air Lines.
- **Nuts, Ferrules, Rods, and Threads.** Each connector on Elbow and Tee Compression Fittings have a Nut, Ferrule, Rod, and Threads. The Nut holds the Tubing and Fitting together. The Ferrule compresses when you tighten the Nut on the Threads to make a secure connection. The Rod goes inside the Tubing so that nothing leaks out.

The following drawing shows the components of a connector on a Tee Compression Fitting.



Important: *Ferrules can only be tightened once.* When you tighten the Nut on the Threads, the Ferrule gets compressed; it literally changes shape and **cannot** be used again.

To connect Tubing to a Compression Fitting:

1. Push the Tubing through the Nut and over the Rod.

Do not push hard; you only need the Tubing to go a little way over the Rod. You cannot see the Ferrule at this point, but the Tubing must go through the Ferrule and over the Rod.

2. Slide the Nut on the Tubing **away from the Fitting**, if the Nut is still on the Threads, unscrew it from the Threads and then slide it away from the Fitting. See the drawing above.
3. Slide the Ferrule over the Tubing, away from the Fitting and towards the Nut.
4. With the Nut and the Ferrule out of the way, push the Tubing further over the Rod until it stops.
5. Slide the Ferrule and the Nut back to the Threads on the Fitting.

The Ferrule goes around the Rod and under the Threads. The Nut goes onto the Threads.

6. Tighten the Nut.

Remember that the Ferrule can only be used once; do not tighten the Nut until everything is ready.

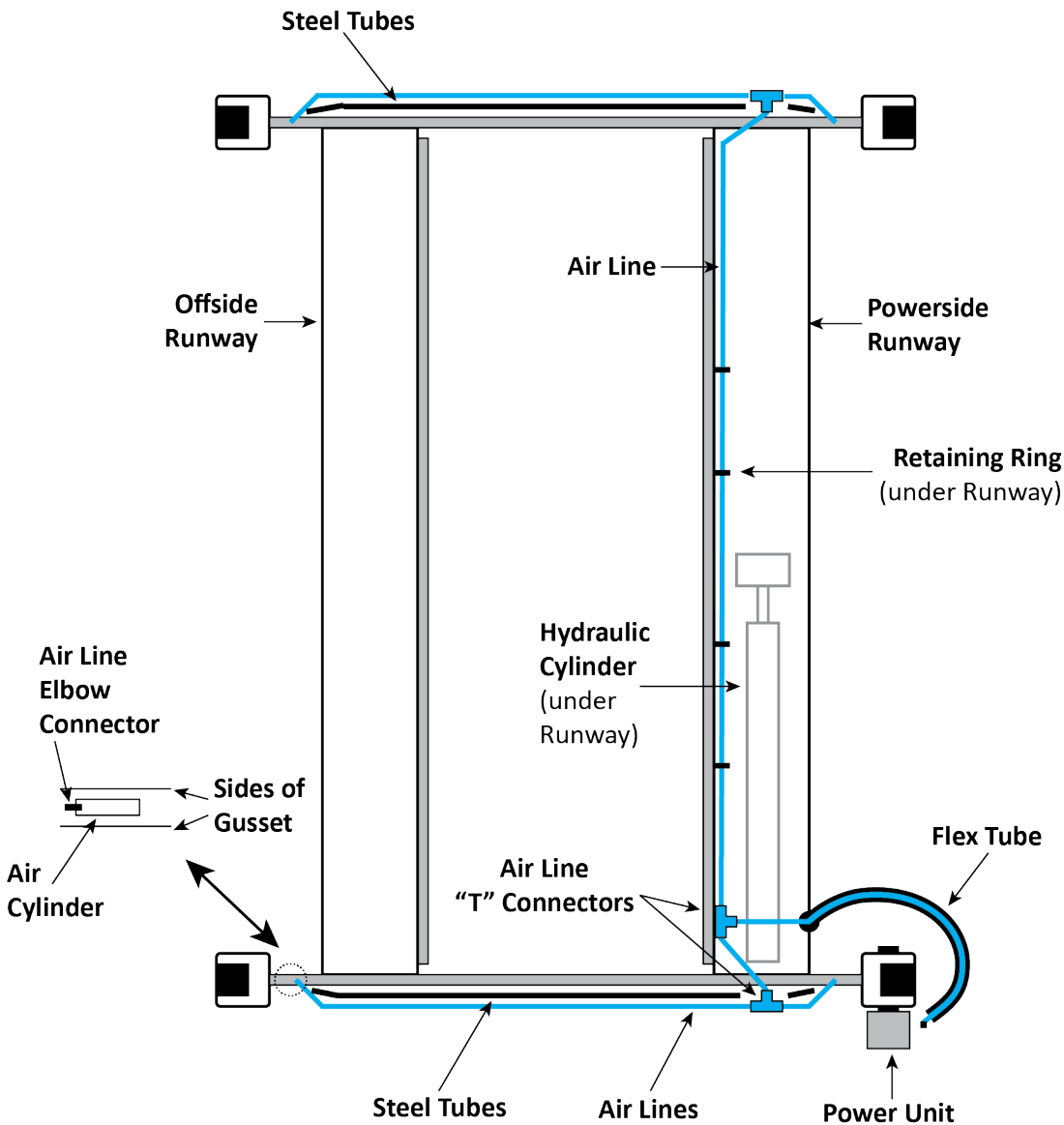
Installing the Air Lines

The Air Lines use air pressure to disengage the Safety Locks in each Post so that you can lower the Runways. **It is your responsibility to supply the air pressure (minimum of 75 PSI).** Installing the Air Lines is the same for both Platforms.

You will need more of the ¼ inch, black, polyethylene Tubing that came with the Lift and three Air Line Tee Compression Fittings to install the Air Lines on each Platform.

⚠ CAUTION Do **not** confuse the Air Lines with the Return Line. They use the same Tubing and similar-looking connectors, but they are used for completely different things; the two systems cannot be connected to each other.

The Air Line Elbow Connectors on the Crosstube Gussets come installed from the factory.



Drawing not to scale. Some components not shown. Air Lines shown outside Steel Tubes for clarity.


To install the Air Lines:

1. Find the roll of supplied ¼ inch, black, polyethylene Tubing and three Tee Compression Fittings.
2. Pick a Platform to start with, then measure the distances for each of the seven (7) Tubing pieces you will need for the Air Lines.

Important: Make sure to cut the Tubing piece that will go through the Flex Tube on the Upper Platform long enough so it will not pull taut when the Platform is raised.

3. Cut seven pieces of Tubing to the measured lengths from the roll of Tubing.
4. Connect the various pieces of Tubing to the Tee Compression Fittings on the Lift, making sure to route the route Tubing piece through the Retaining Rings along the inside of the Runway.

Make sure to position the Tee Compression Fittings as shown in the drawing.

 **WARNING** Make sure to route the Tubing pieces on the **outside** ends of the Front and Rear Crosstubes through the Steel Tubes on the ends of the Crosstubes. This keeps the Tubing and the Tee Connectors from being disturbed as you use the Lift. This is important, because if the Air Lines are disturbed, the Safety Locks on the Lift may not work correctly. If you notice that Tubing has become disconnected from a Tee Fitting, take the Lift out of service and get the Air Lines fixed.

Refer to [Working with Compression Fittings and Tubing](#) for more information about connecting the Tubing to the Tee Compression Fittings.

5. Leave the Power Unit end of the Air Line hanging out of the Flex Tube opening for now.
It will be connected to a Tee Fitting and the Pushbutton Air Valve later.
6. Repeat Steps 1 through 5 for the other Platform.

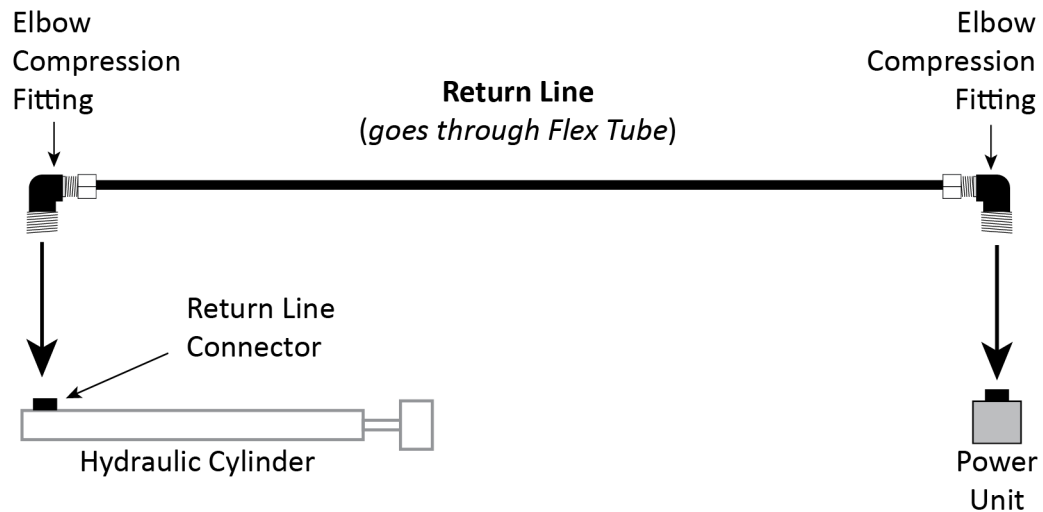
Installing the Return Lines

Each Platform has its own Return Line; the Return Line takes excess Hydraulic Fluid coming out of the Hydraulic Cylinder and sends it back into the Fluid Reservoir on the Power Unit.

The Return Line is a single piece of ¼ inch, black, polyethylene Tubing with Elbow Compression Fittings on each end. You need to cut off a piece of the supplied Tubing of the right length to create the Return Line for each Platform.

Important: The Return Line uses the same ¼ inch, black, polyethylene Tubing as the Air Lines. Be sure not to confuse the two; **the Return Line and the Air Lines do completely different things and must be kept separate from each other.**

The following drawing shows where the Return Line connects on the Lift.



Drawing not to scale. Some components not shown or exaggerated for clarity.

1. Measure the distance from the Return Line connector on the Hydraulic Cylinder to the Hydraulic Return Port on the Power Unit.

Important: When measuring for the Upper Platform, make sure to cut the Return Line long enough so it will not pull taut when the Platform is raised.

2. Cut a piece of Tubing to the measured length from the roll of Tubing that comes with the Lift. It is better to cut the Tubing a little too long rather than a little too short.
3. Route the Tubing from the Hydraulic Cylinder through the Flex Tube opening, and out next to where the Power Unit will be installed. Let the Tubing hang out of the opening for now.
4. Remove the Shipping Plug from the Return Line Connector on the Hydraulic Cylinder.
5. Connect and tighten the Elbow Compression Fitting to the Hydraulic Cylinder.
6. Connect one end of the Return Line to the Elbow Compression Fitting you just installed. Refer to **Working with Compression Fittings and Tubing** for instructions.
7. Leave the Power Unit end of the Return Line hanging out of the Flex Tube opening for now. It will be connected to a Tee Fitting and then to the Power Unit later in the installation.
8. Repeat Steps 1 through 8 for the other Platform.



IMPORTANT! PLEASE READ NOW



Hydraulic Fluid Contamination

Hydraulic Fluid Contamination poses a serious issue for your Lift; contaminants such as water, dirt, or other debris can get into the Hydraulic Hoses and Fittings on the Lift, making your new Lift inoperable.

Your Lift is shipped with clean components; however, BendPak strongly recommends that you take secondary precaution and clean all Hydraulic Hoses and Fittings prior to making connections. It is better and less costly to take these extra steps now so that you do not need to take your Lift out of service later to fix issues that could have been prevented at the time of installation.

There are several ways to clean Hydraulic Hoses and Fittings:

- **Compressed Air.** Use an air compressor to blow out contaminants from each Hydraulic Hose and Fitting prior to installation. Clean, dry air is preferred. Wear eye protection (safety glasses, goggles, or face shield) when using compressed air for cleaning. Never point an air hose nozzle at any part of your body or any other person.
- **Fluid Flushing.** As long as the Hydraulic Fluid is clean and compatible with the system fluid, you can flush Hoses and Fittings to create turbulent flow and remove particulates. Always ensure that the fluid itself is contaminant-free.

Some additional steps that will help keep the Hydraulic Fluid clean:

- **Remove old thread seal tape.** Some ports on the Hydraulic Cylinders are shipped with temporary plugs secured with thread seal tape, so make sure to thoroughly remove any leftover thread seal tape that may inadvertently enter the Hydraulic System.
- **Use a liquid thread sealant only.** Teflon paste-type thread sealant or Loctite™ 5452 thread sealant is recommended for all NPT Fittings. Do not over tighten NPT Fittings or they may crack. Never use thread seal tape on JIC Fittings or ORB O-Ring Fittings.
- **Always use clean equipment.** If you use a dirty bucket or funnel to transfer the Hydraulic Fluid into the Hydraulic Fluid Reservoir, the contaminants will likely be introduced into the Fluid. When using cleaning rags, use a lint-free rag.
- **Proper storage.** Keep the Hydraulic Fluid sealed in its container until ready for use; store the Fluid in a clean, dry, and cool area.
- **Cover the Hoses and Fittings.** Before installation, do not leave the ends of the Fittings exposed; the same applies for the Hydraulic Hoses. As a general rule, keep the Hydraulic Hoses and Fittings capped and kept clean in a clean area until ready for use.
- **Filter the new Hydraulic Fluid.** Just because it is new does not necessarily mean it is *clean*. Use an offline filtration cart or kidney loop system to make sure the Hydraulic Fluid is clean before being transferred into the Hydraulic Fluid Reservoir (even using a heavy duty nylon mesh screen is better than trusting what is left at the bottom of the barrel).
- **Avoid mixing different types of Hydraulic Fluid.** If Hydraulic Fluid needs to be replaced, make sure to flush the Hydraulic System of the old Hydraulic Fluid before you add the replacement Fluid; do not mix the two together.

About Thread Sealants

We recommend using a Liquid Thread Sealant (like Loctite™ 5452 or similar PTFE Thread Sealant) to seal the Hydraulic components on your Lift.

Liquid Thread Sealant lubricates and fills the gaps between the Fitting threads, and leaves no particles that could contaminate the Hydraulic Fluid. Other types of sealants (like Teflon Tape) can shred during installation or maintenance and eventually enters the Hydraulic System.

Thread Sealant can be used with most Hydraulic Fittings, although you probably only need it for Hydraulic Fittings with NPT connectors.

To apply Thread Sealant:

1. Make sure the Fittings and connectors you are going to use are clean and dry.
If you are adding Thread Sealant to a Fitting or connector that has already been used with a different Sealant, use a wire brush to thoroughly remove the old Sealant before adding more.
2. Apply a small amount of Thread Sealant to the first four threads of the Fitting.

 **WARNING** Make sure to wear the proper protective equipment when using Thread Sealant.

You only need a small amount because the Sealant will spread to the other threads as the Fitting is tightened into place.

If you put too much, the excess liquid will be pushed out when the Fitting is tightened; use a rag to wipe the excess.

3. Tighten the Fitting into the connector; do **not** over tighten the Fitting.
4. Allow the manufacturer-recommended curing time before pressurizing the system.

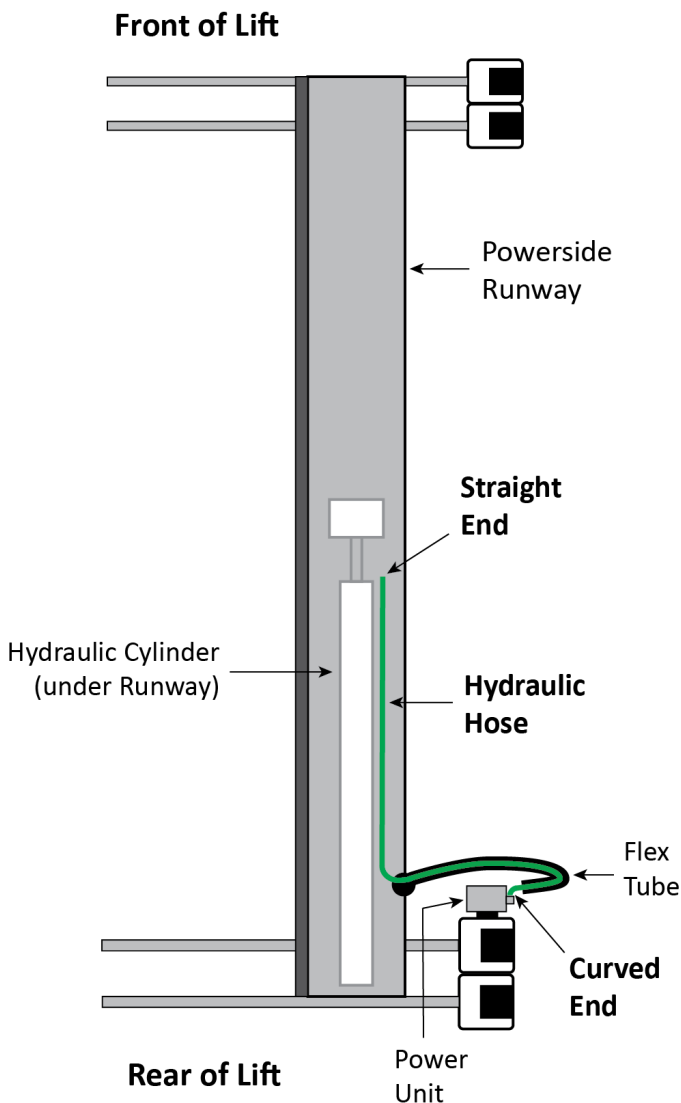
Installing the Hydraulic Hoses

The Hydraulic Hose moves Hydraulic Fluid from the Power Unit to the Hydraulic Cylinder, which raises the Runways. Your Lift comes with two Hydraulic Hoses: one **longer** (Upper Platform), and one **shorter** (Lower Platform).

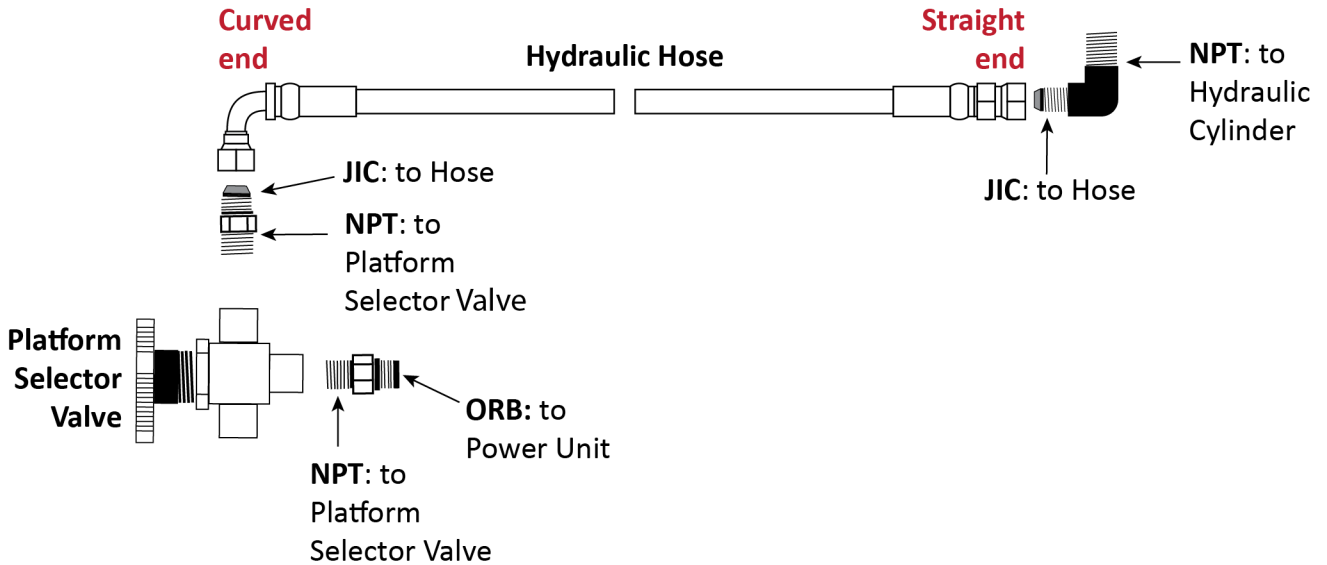
To install the Hydraulic Hoses, you will need:

- **The Hydraulic Hose.** The Straight end attaches at the Hydraulic Cylinder and the Curved end attaches to the Platform Selector Valve (on the Power Unit). One Hydraulic Hose per Platform.
- **JIC x NPT Elbow Fittings** (P/N 5550106). The JIC end attaches to the Straight end of the Hydraulic Hose and the NPT end to the Hydraulic Cylinder. One Fitting per Platform.
- **JIC x NPT Nipple Fittings** (P/N 5550147). The JIC end attaches to the Curved end of the Hydraulic Hose and the NPT end to the Platform Selector Valve. One Fitting per Hydraulic Hose.
- **NPT x ORB Nipple Fitting** (P/N 5550093). The NPT end attaches to the Platform Selector Valve and the ORB end attaches to the Power Unit. One Fitting total.

The following drawing shows where the Hydraulic Hose goes on the Lift.



The following drawing shows the Hydraulic Hose and its connectors in more detail.



Front view. Not all components are shown. Not to scale.

To install the Hydraulic Hoses:

1. Clean the Hydraulic Components using the information in [Hydraulic Fluid Contamination](#).
2. Pick a Platform to begin with, then find the appropriate Hose length and a Hydraulic Elbow Fitting.
3. Take the Curved end of the Hydraulic Hose and, starting at the Hydraulic Cylinder, route the Curved end through the Retaining Rings and the Flex Tube opening.
When you are done, the Curved end should be coming out of the Flex Tube opening near the Power Unit.
4. On the Hydraulic Cylinder, remove the Shipping Plug from the connector at the Piston Rod end.
5. Attach the NPT connector on the JIC x NPT Elbow Fitting to the connector on the Hydraulic Cylinder.
6. Attach the Straight end of the Hydraulic Hose to the JIC connector of the same Fitting.
7. Leave the Curved End of the Hydraulic Hose coming out of the Flex Tube opening; do not connect it to the Power Unit at this point.
8. Repeat Steps 2 through 7 for the other Platform.

After all connections have been made, make sure all connections are securely tightened.

Note: The JIC x NPT Nipple Fittings and NPT x ORB Nipple Fitting will be connected to the Power Unit later in the installation.

Installing the Safety Shutoff Bar and Microswitch

The Safety Shutoff Bar and the Microswitch go on the underside of the Aluminum Decks on the Upper Platform; together, they prevent a Vehicle from contacting the underside of the Upper Platform.

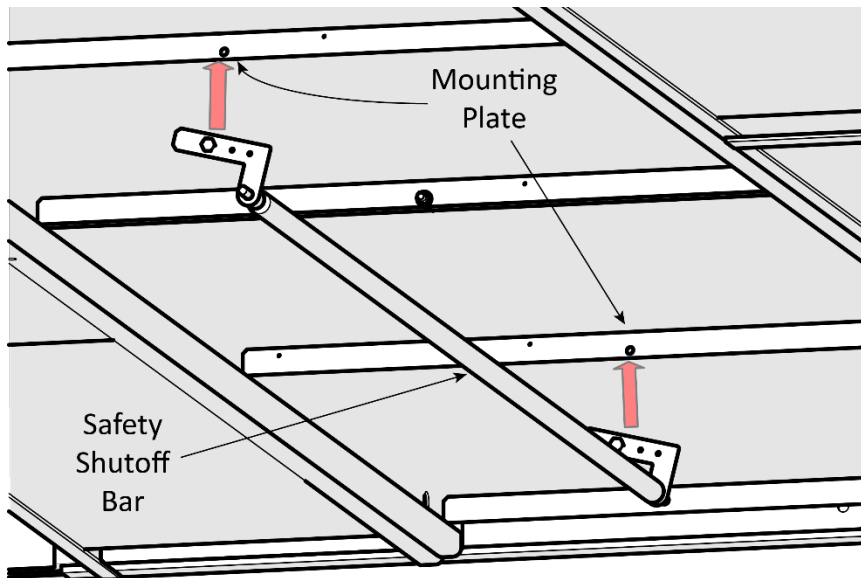
The following steps describes how to **install**, but not make the connections to, the Microswitch for your Lift. An Electrician is **not** needed to install the Microswitch, only to connect the Microswitch to the Power Unit. That will be covered later in the installation process.



Side View. Not drawn to scale. Not all components shown.

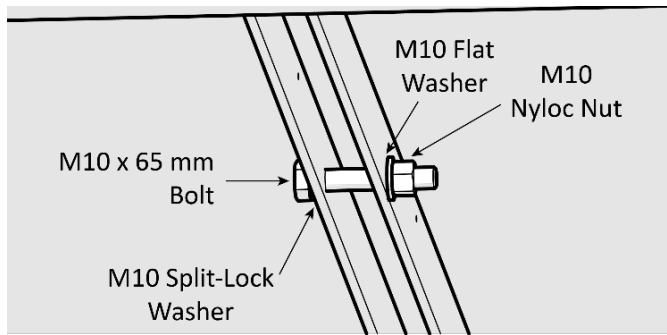
To install the Safety Shutoff Bar:

1. Locate one short and long Aluminum Deck, then orient the Decks so that the Deck with the opening (used for routing the Microswitch cable to the Power Unit) is next to the Power Post. Refer to [Installing the Runways](#) for more information about Runway placement.
2. Lower the Decks onto the Utility Rails between the Runways.
3. Find the Safety Shutoff Bar, then align the marked holes on the Safety Bar Mounting Bracket with the Mounting Plates underneath the Deck.



4. Attach the Safety Shutoff Bar to the Mounting Plate using a M10 x 38 mm Hex Bolt and a M10 x 1.5 Nylock Nut on each end.
5. Go to the middle of the Runways, underneath where the two Aluminum Decks meet.

- To lock the two Decks together, use a double-threaded Rod and secure it in place with a Washer and Nut on each end.

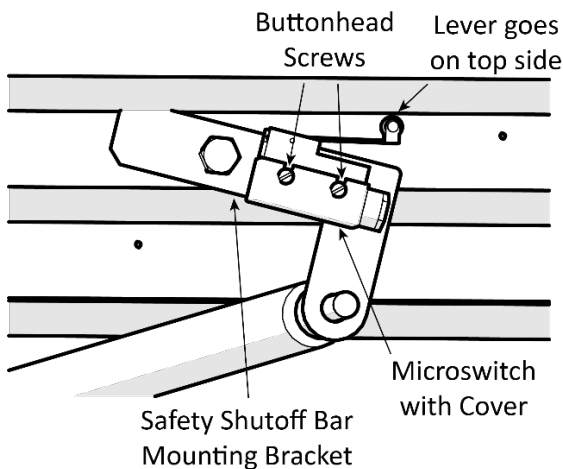


Tip

There is no Safety Shutoff Bar to install under the Lower Platform, so you can hold off installing the Aluminum Decks (two shorter Decks) if you want, whatever works best for your installation process.

To attach the Microswitch:

- Locate the Microswitch device, add the Microswitch Cover, then go to the Safety Mounting Bracket closest to the Power Unit.
- Orient the Microswitch with the Lever on the top side, facing the right, as shown below.



View underneath Rear of the Lift, looking towards the Front. Not all components shown.

- Align the marked holes on the Mounting Bracket with the guides marked on the Microswitch, then tighten it to the Mounting Bracket using two button head screws.
- Make sure the Microswitch is snug against the Mounting Plate.


The Microswitch will be connected to a cable that goes to the Power Unit later in the installation.

Installing the Power Unit

This section describes how to *install*, but not make the connections to, the Power Unit for your Lift. An Electrician is *not* needed to install the Power Unit; one is required to connect the Power Unit to its power source.

The Power Unit *must* be installed on the Power Post; attach it to one of the two Mounting Brackets, whichever is more convenient for the installation.

Important: Many people install the Flex Tube Bracket Plate and/or the Zero Angle Bracket at the same time as they install the Power Unit. Refer to [Installing the Flex Tube](#) and [Installing the Pushbutton Air Valve](#) for more information to see if this makes sense for your installation.

 **DANGER** Risk of explosion: The Power Unit has internal arcing or parts that may spark and should not be exposed to flammable vapors. Never expose the Power Unit motor to rain or other damp environments. Damage to the motor caused by water is *not* covered by the warranty.

The Hydraulic Fluid reservoir on the Power Unit must be filled with Hydraulic Fluid or automatic transmission fluid before you begin normal operation of the Lift. **When you receive the Lift, the fluid reservoir is empty.** The Power Unit will not work correctly until it is filled with approved Hydraulic Fluid.

Approved fluids are any general purpose ISO-32, ISO-46, or ISO-68 hydraulic fluid, approved automatic transmission fluids such as Dexron III, Dexron VI, Mercon V, Mercon LV, or any synthetic multi-vehicle automatic transmission fluid.

 **WARNING** Do not run your Power Unit without Hydraulic Fluid; you will damage it.

Even though you are not connecting the Power Unit at this point, you can fill the Hydraulic Fluid reservoir with fluid.

To install the Power Unit:

1. Find the four supplied Hex Head Bolts, Flat Washers, and Nyloc Nuts.
2. Line up the holes on the Power Unit Back Plate with the four holes in the Mounting Bracket you want to use.

If you are going to install the Flex Tube Bracket Plate and/or the Zero Angle Bracket at the same time as the Power Unit, now is the time to put those into place.



Tip The Power Unit is heavy. BendPak recommends having one person hold the Power Unit while another person bolts it into place.

3. Connect the Power Unit to the desired Mounting Brackets on the Power Post.
4. Fill the Hydraulic Reservoir on the Power Unit with approved fluids.

The Hydraulic Reservoir holds approximately 7 gallons (26.5 liters). Use care to keep the fluid clean when filling the reservoir.

Approved fluids are any general purpose ISO-32, ISO-46, or ISO-68 hydraulic fluid or approved automatic transmission fluids such as Dexron III, Dexron VI, Mercon V, Mercon LV, or any synthetic multi-vehicle automatic transmission fluid.

Do not connect the Power Unit to a power source at this point.

Connecting the Flex Tube Bracket Plate and Angle Plate

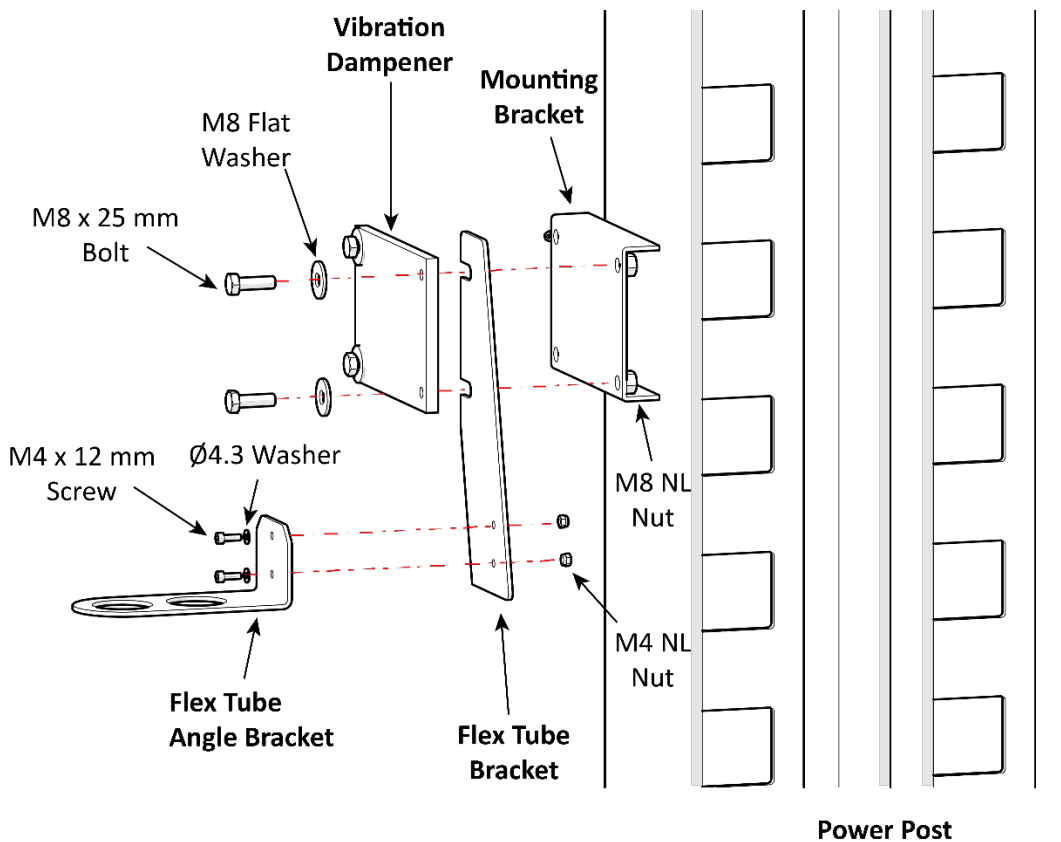
To connect the Flex Tubes to the Power Unit, you first need to connect the Flex Tube Bracket Plate and the Flex Tube Angle Plate. That procedure is described here.

To connect the Flex Tube Bracket and Angle Bracket:

1. Find the Flex Tube Bracket and the Flex Tube Angle Bracket.
2. Install the Flex Tube Bracket Plate.

Note: It is common to install the Flex Tube Bracket between the Mounting Bracket and the Back Plate. This allows the Zero Angle Bracket (which holds the Pushbutton Air Valve and is described in the next section) to be installed between the Back Plate and the retaining Nut. This configuration is common, but not required.

The following drawing describes how to position the Flex Tube Bracket between the Mounting Bracket and Back Plate.



Side view. Power Unit not shown.

3. Connect the Flex Tube Angle Plate to the Flex Tube Bracket so that the holes for the Flex Tubes are best positioned for connecting the Return Line, the Air Line, and the Hydraulic Hose.

Installing the Flex Tubes

Each Platform has its own Flex Tube; the Flex Tube is a flexible, black tube that attaches to a hole on the Powerside Runway on one end and to the bottom of the Flex Tube Bracket.

Your Lift comes with two Flex Tubes, one longer (Upper Platform) and one shorter (Lower Platform).

The Flex Tube consolidates and protects four different cables that come out from under the Powerside Runway. These cables are:

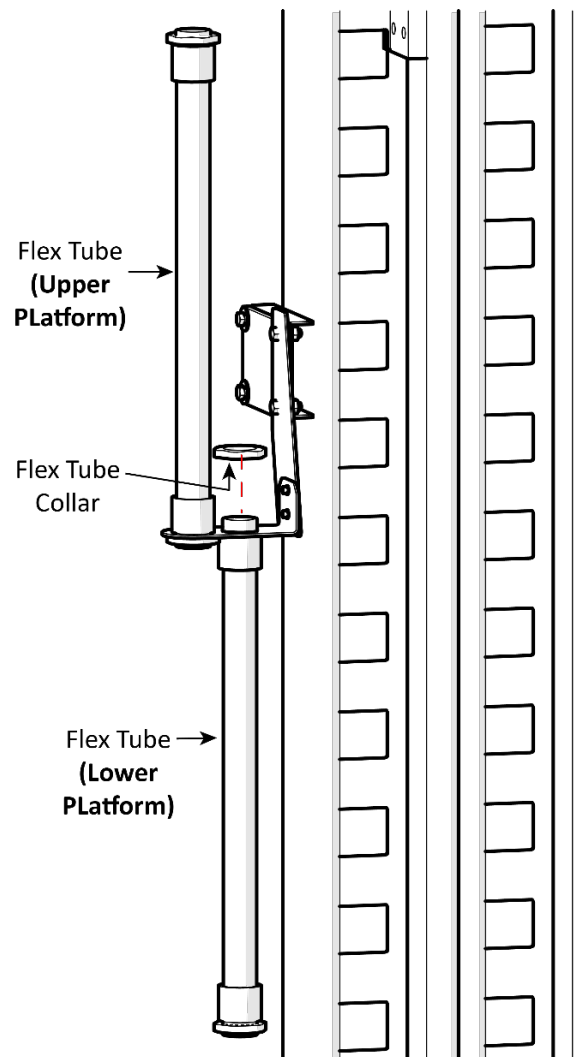
- **Return Line.** A thin, black tube that returns extra Hydraulic Fluid to the Hydraulic Fluid Reservoir.
- **Air Line.** Also a thin, black tube, the Air Line provides air pressure that is used to disengage the Safety Locks so that the Runways can be lowered.
- **Hydraulic Hose.** A heavy, black cable that routes Hydraulic Fluid from the Power Unit to the Hydraulic Cylinder.
- **Microswitch Cable** (Upper Platform only). A thin cable that connects to a Microswitch underneath the Upper Platform.

To install the Flex Tubes to the Powerside Runways:

1. Pick the Platform you want to begin with, then unscrew the Plastic Nut from one end of the Flex Tube designated for that Platform; it does not matter which end you use.

CAUTION Do not use the Shorter Flex Tube for the Upper Platform; it will **not** be long enough to reach the Power Unit when the Platform is raised.

2. Holding the Flex Tube by the Plastic Collar, put the Threads on the end of the Flex Tube whose Plastic Nut you just removed through the hole on the Powerside Runway.
3. On the inside of the Powerside Runway, screw the Plastic Nut back onto the Threads of the Flex Tube and tighten it.
4. Holding the Flex Tube by the Plastic Collar, put the Threads through the hole on the Flex Tube Angle Plate, making sure to orient the Flex Tube as shown in the drawing.
5. Screw the Plastic Nut back onto the Threads and tighten.
6. Once in place, push the Hydraulic Hose, Return Line, and Air Line through the Flex Tube.
7. Repeat Steps 1 through 6 for the other Platform.



Drawing shows Flex Tubes being attached to the Power Post. Flex Tubes not drawn to scale.

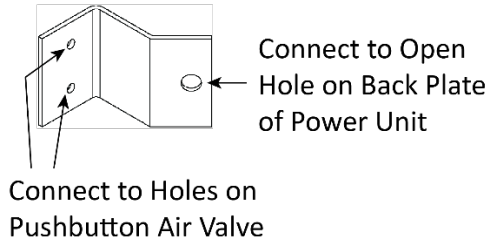
Installing the Pushbutton Air Valve

The Pushbutton Air Valve is used to lower the Runways. It can go on either side of the Power Unit, but we recommend placing it on the side facing away from the Lift to be out of the way.

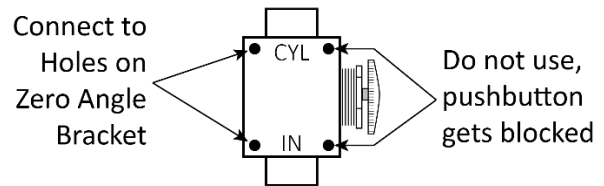
Once the pushbutton is in place, you need to connect it to the Air Line on one end and the customer-supplied air pressure on the other end. **A minimum air pressure of 75 PSI / 3 CFM is required.**

The following drawing shows the Zero Angle Bracket and where it connects.

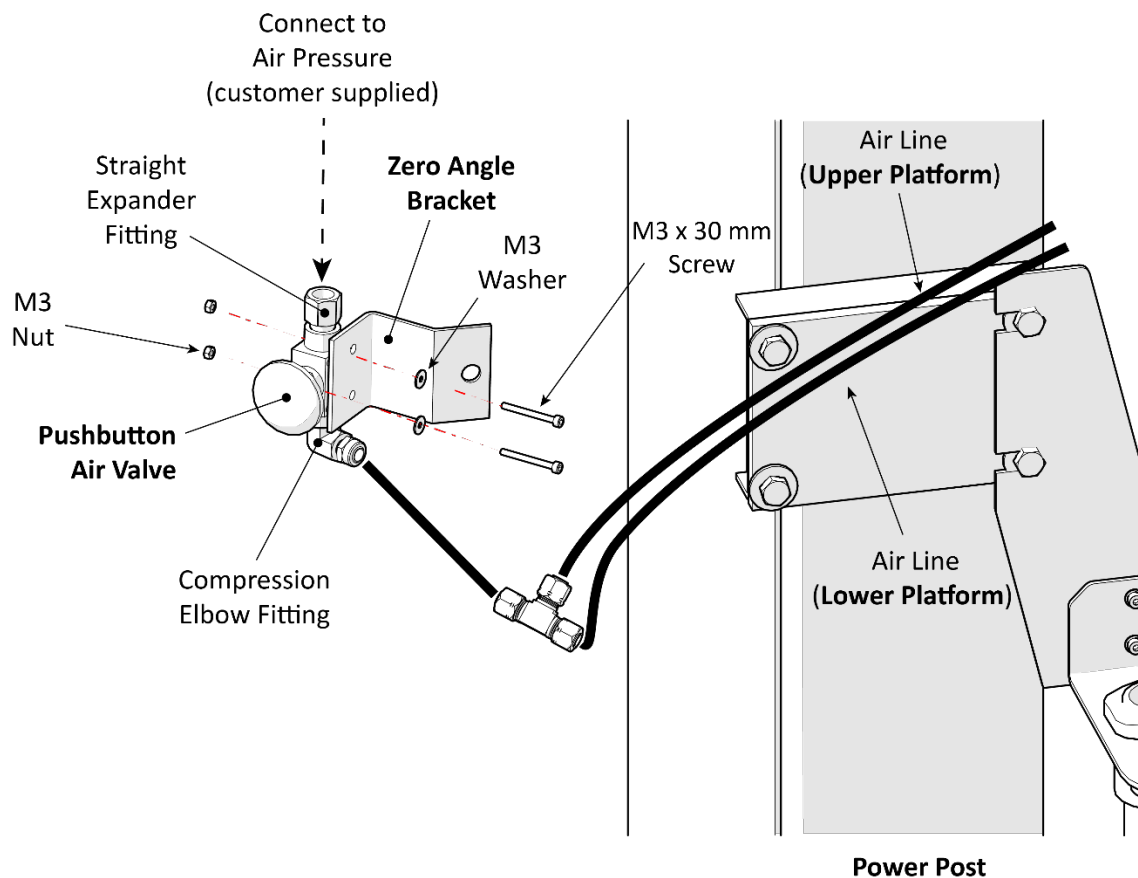
Zero Angle Bracket



Pushbutton Air Valve



The following drawing shows the Pushbutton Air Valve and its connections.



Power Unit not shown. Front view.

The components involved include:

- **Zero Angle Bracket.** Attaches at the Mounting Bracket on the Power Post or to other available holes on the Back Plate of the Power Unit. Holds the Pushbutton Air Valve, so be sure to orient the Zero Angle Bracket so that the Pushbutton Air Valve can be easily reached by the Lift operator.
- **Pushbutton Air Valve.** Used to lower the Platforms.
- **Tee Compression Fitting** (P/N 5550395). Connects the Air Line coming from each Platform.
- **Compression Elbow Fitting** (P/N 5550087). Connects the Pushbutton Air Valve to the Air Line coming from the Tee Fitting.
- **Straight Fitting** (P/N 5550486). Connects the Pushbutton Air Valve to the customer-supplied air pressure. A minimum air pressure of 75 PSI / 3 CFM is required.

To install the Pushbutton Air Valve:

1. Find the necessary components: the Zero Angle Bracket, Pushbutton Air Valve, Compression Elbow Fitting, Tee Compression Fitting, and Straight Fitting.

2. Connect the Zero Angle Bracket at the desired location (if it has not already been connected).

It can attach to an available hole on the Back Plate of the Power Unit or to one of the Bolts that connect the Power Unit to the Mounting Bracket on the Power Post.

The best location is one that is visible and easily reached by the Lift operator.

3. Connect the Pushbutton Air Valve to the Zero Angle Bracket.
4. Connect the Compression Elbow Fitting and the Straight Fitting to the appropriate locations on the Pushbutton Air Valve.

The Elbow Fitting connects to the opening labelled **CYL**. The Straight Fitting to the opening labelled **IN**.

5. Attach a Tee Compression Fitting to connect the Air Lines coming out of each Flex Tube.

There is one Air Line per Platform.

6. Cut another Air Line to attach to other end of the Tee Fitting, then connect it to the Compression Fitting on the Elbow Fitting and the customer-supplied air to the Straight Fitting.

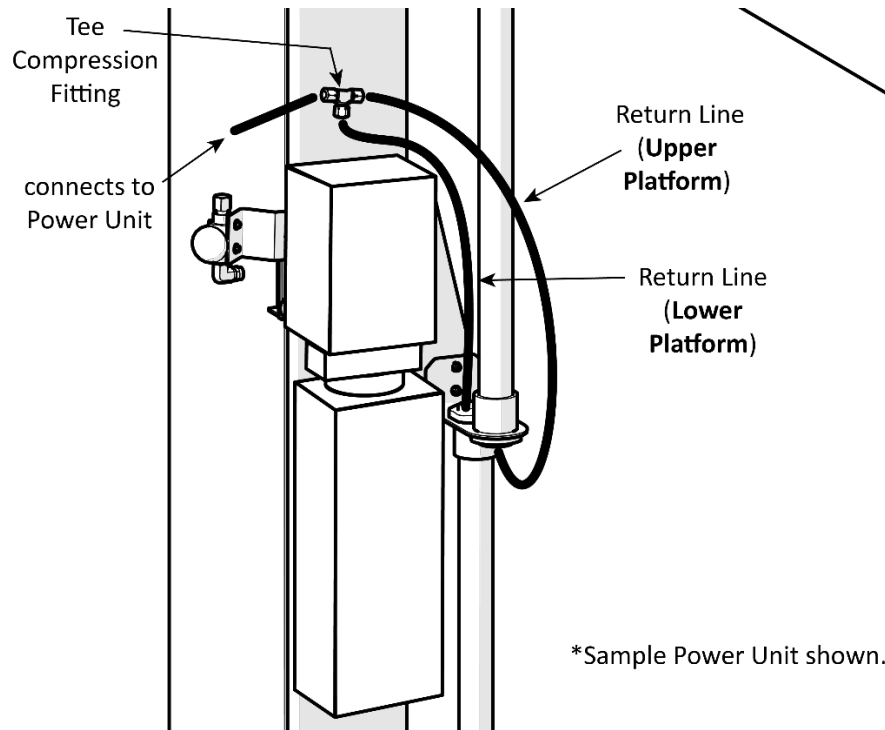
Important: The Return Line also comes out of the Flex Tube and is the same kind of tubing as the Air Line. ***Do not attach the Return Line to the Pushbutton Air Valve by mistake.*** Double check to make sure you are attaching the Air Line to the Pushbutton Air Valve.

For the customer-supplied air pressure, a minimum of 75 PSI.

Connecting the Return Line

The Return Line connects to the Hydraulic Return connector on the Power Unit.

On each Platform, one end of the Return Line is already connected to the Hydraulic Cylinder; the other end should be coming out of the Flex Tube.



To attach the Return Line to the Power Unit:

1. Take each Return Line (one per Platform) and securely connect them to a Tee Compression Fitting.
2. Pick the Hydraulic Return Port on the Power Unit you want to use and remove the Shipping Plug.
3. Attach a Compression Elbow Fitting (P/N 5550089) to the Hydraulic Return Port.

See [Connecting the Power Source](#) to identify the Port locations on your Power Unit.

4. Cut another piece of Tubing to attach to the other end of the Tee Fitting, then connect the other end of the Tubing to the COMP end of the Compression Elbow Fitting already connected to the Hydraulic Return Port.

For information about connection compression fittings, refer to [Working with Compression Fittings and Tubing](#).

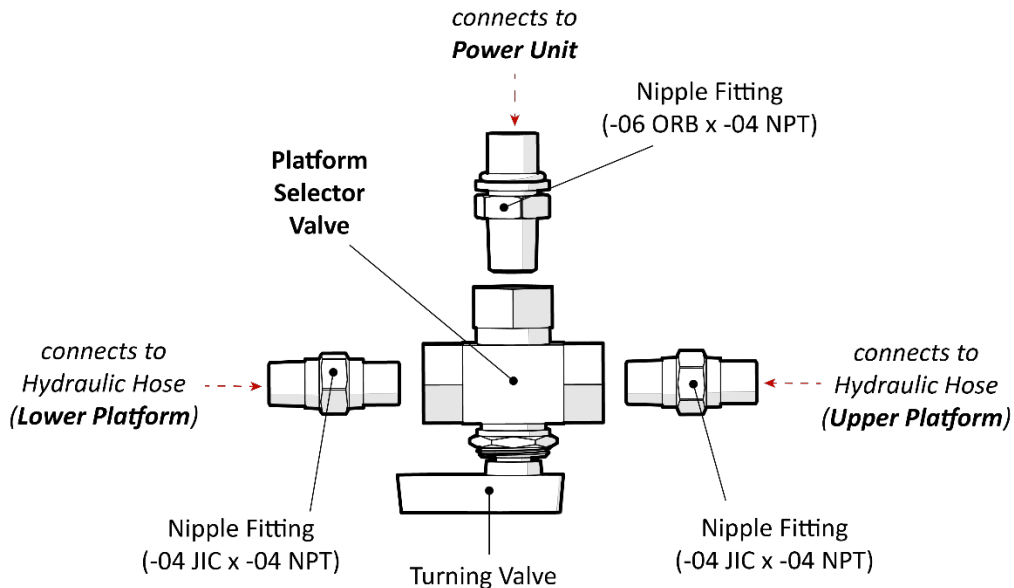
Important: The Air Line, at one point, was also coming out of the Flex Tube and it uses the same kind of tubing as the Return Line. The Air Line should have been connected in the previous section, but if it was not, make sure you are attaching the Return Line to the Power Unit and not the Air Line. **Do not attach the Air Line to the Power Unit by mistake.**

Installing the Platform Selector Valve

The Platform Selector Valve lets you control which Platform you are raising or lowering. The Curved end of each Hydraulic Hose connects to the Platform Selector Valve; that procedure is described here.

The Hydraulic Hose for the Upper Platform connects to the **Right** side of the Platform Selector Valve; the Hydraulic Hose for the Lower Platform connects to the **Left** side of the Valve.

The following drawing shows the connections to make to the Platform Selector Valve.



Top View. Not all components are shown.

To install the Platform Selector Valve and connect the Hydraulic Hoses:

1. Find the necessary components from the Parts Bag: the Platform Selector Valve, two JIC x NPT Nipple Fittings and an ORB x NPT Nipple Fitting.
2. Decide which Hydraulic Pressure Out on the Power Unit you want to use and remove the Shipping Plug.



Tip

There is a Hydraulic Out Port on either side of the Power Unit; we recommend to use the Hydraulic Port facing away from the Lift, to be out of reach from all Lines coming out of the Flex Tubes.

3. Take the ORB x NPT Nipple Fitting and attach the ORB end to the Hydraulic Pressure Out on the Power Unit, and attach the Platform Selector Valve to the NPT end.
4. Attach the JIC x NPT Nipple Fittings to each end of the Platform Selector Valve.
5. Gather the Hydraulic Hoses coming out from the Flex Tubes and bring them towards the Power Unit.
6. Find the Hydraulic Hose for the Upper Platform and connect it to the **Right** side of the Valve. Double check that you have the correct Hydraulic Hose.
7. Find the Hydraulic Hose for the Lower Platform and connect it to the **Left** side of the Valve.

Contacting the Electrician

As mentioned previously, there are installation tasks that **require** a certified Electrician.

⚠ DANGER All wiring **must** be performed by a licensed, certified Electrician. If someone who is not a certified Electrician attempts these tasks, they could damage the Lift or be electrocuted, resulting in serious injury or even death.

The Electrician needs to:

- **Connect a power source to the Power Unit.** A power source is required. Refer to **Connecting the Power Source** for more information.
- **Connect the Microswitch.** Ensures you can quickly and completely interrupt electrical power to the Lift in the event that a Vehicle's roof on the Lower Platform comes to close to contacting the underside of the Upper Platform. UL cable included.
- **Install a Power Disconnect Switch.** Ensures you can quickly and completely interrupt electrical power to the Lift in the event of an electrical circuit fault, emergency situation, or when equipment is undergoing service or maintenance. You must put it within sight and easy reach of the Lift operator. Refer to **Install a Power Disconnect Switch** for more information.
- **Install a Thermal Disconnect Switch.** Ensures the equipment shuts down in the event of an overload or an overheated motor. Refer to **Install a Thermal Disconnect Switch** for more information. ***The motor on the Power Unit that comes with the Lift is not thermally protected.***

The Electrician is responsible for providing:

- an appropriate plug to attach to the Power Unit
- an appropriate Power Cord that goes from the power source to the plug on the Power Unit
- a Power Disconnect Switch
- a Thermal Disconnect Switch

⚠ DANGER Risk of explosion: This equipment has internal arcing or parts that may spark and should not be exposed to flammable vapors. The Power Unit's motor should not be located in a recessed area or below floor level. Never expose the motor to rain or other damp environments; damage to the motor caused by water is **not** covered by the warranty.

Connecting the Power Source

The standard Power Unit for your Lift is 220 VAC, 60 Hz, 1 Ph. The Power Unit must be connected to an appropriate power source.

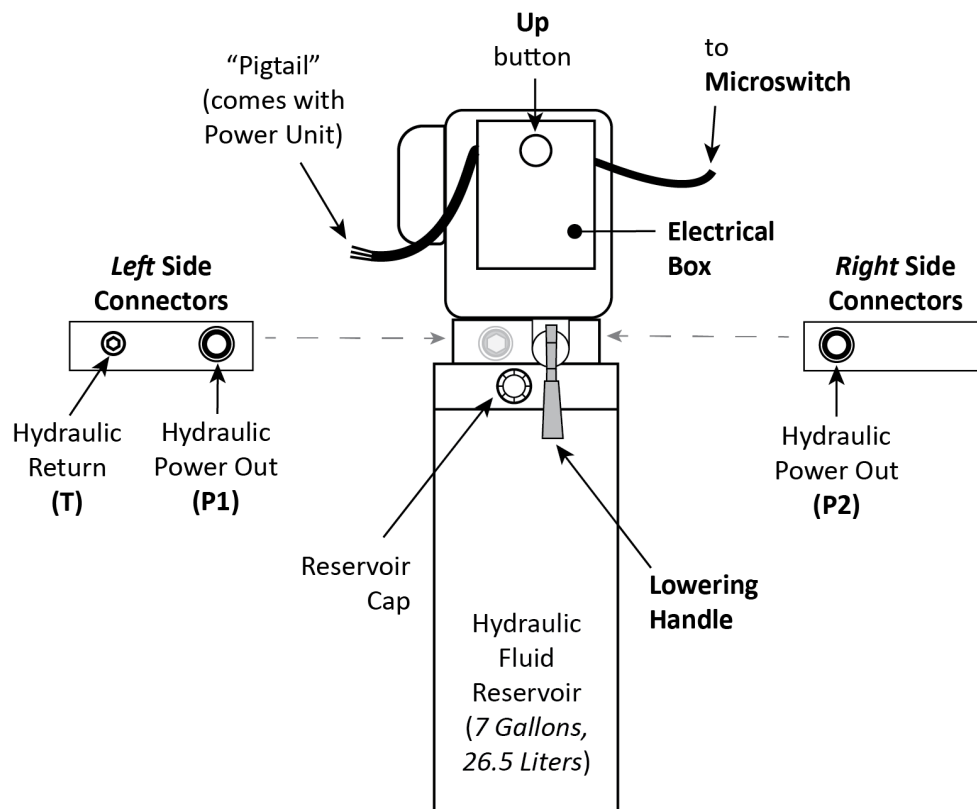
Refer to **Wiring Diagrams** for wiring information.

⚠ DANGER All wiring **must** be performed by a licensed, certified Electrician. Do not perform any maintenance or installation on the Lift without first making sure that main electrical power has been disconnected from the Lift and **cannot** be re-energized until all procedures are complete. If your organization has Lockout/Tagout policies, make sure to implement them after connecting to a power source.

Important electrical information:

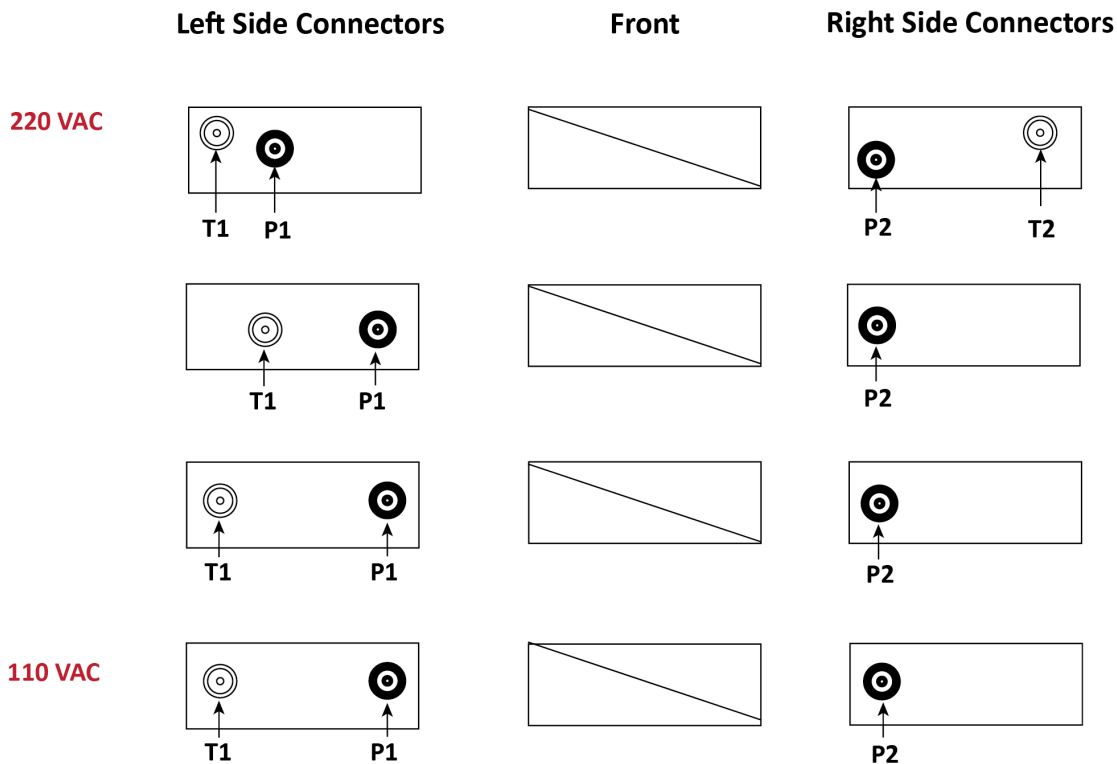
- Improper electrical installation can damage the motor; this is not covered under warranty.
- Use a separate circuit breaker for each Power Unit.
- Protect each circuit with a time-delay fuse or circuit breaker. For a 220 VAC, single phase circuit, use a 25 amp or greater fuse.

The following drawing shows the configuration for the Power Unit. **P1/P2** represents the Hydraulic Power Out; **T1/T2** or **CV1/CV2** commonly represents the Hydraulic Return.



Depending on your Power Unit, the connector locations may be different. Use the drawing below to identify your layout and then attach your Hydraulic Hoses and Return Line appropriately.

P1/P2 most commonly stands for the Hydraulic Power Out, while **T1/T2** commonly represents the Hydraulic Return.



To connect the Lift to a power source:

1. Have a certified, licensed Electrician remove the pigtail and connect an appropriate plug to the wiring, coming out of the Power Unit (called the "Pigtail" in the drawings above).

The plug is **not** supplied with the Lift.

2. Connect the power source cable to the plug you just connected.

Refer to **Wiring Diagrams** for proper wiring information.

The power source cable is **not** supplied with the Lift.

3. Wire the Microswitch(es) to the incoming power source.

Refer to **Wiring Diagrams** for proper wiring information.

4. Double check to make sure the Hydraulic Fluid Reservoir has an adequate supply of fluid.

⚠ WARNING Do not run the Lift without an adequate supply of Hydraulic Fluid; you will damage the Power Unit.

Installing a Power Disconnect Switch

⚠ WARNING A main Power Disconnect Switch is **not** provided with this equipment.

A Power Disconnect Switch is a National Electrical Code (NEC) requirement. They are designed to interrupt electrical power in the event of an electrical circuit fault, emergency situation, or when equipment is undergoing service or maintenance.

BendPak strongly recommends that you install a Power Disconnect Switch that is properly rated for the incoming power.

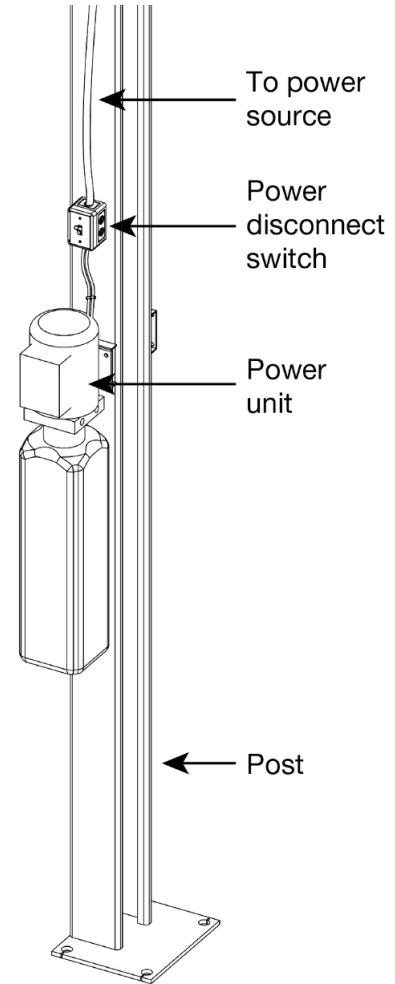
⚠ DANGER All wiring **must** be performed by a licensed, certified Electrician.

Your Power Disconnect Switch must be readily accessible and installed so that it is in easy reach of the Lift operator. It must be clearly and legibly marked to indicate its purpose.

The drawing to the right shows a toggle Power Disconnect Switch between the Lift's power source and its Power Unit. A quick flip of the switch immediately cuts power to the Lift.

Make sure to have a certified Electrician install the Power Disconnect Switch.

Make sure the electrician selects a **UL-listed** Power Disconnect Switch.



Installing a Thermal Disconnect Switch

⚠ WARNING The Lift's motor does **not** have thermal overload protection.

Connect a motor Thermal Disconnect Switch or overload device that will make sure the equipment shuts down in the event of an overload or an overheated motor.

⚠ DANGER All wiring **must** be performed by a licensed, certified Electrician.

High running amps that exceed the motor's full load amps (FLA) rating may result in permanent damage to the motor.

BendPak strongly recommends you **not** exceed the rated duty cycle of the Lift's motor.

Anchoring the Posts

You **must** anchor the Lift's four Posts. Install one Anchor Bolt in each corner of each Base Plate, 4 per Post, 16 Anchor Bolts total.

Concrete specifications are:

- **Depth:** 6 inches thick
- **PSI:** 3,000 PSI, minimum
- **Cured:** 28 days, minimum

Anchor Bolt specifications are:

- **Length:** 6.3 inches
- **Diameter:** .75 inch
- **Anchor torque:** 85 – 95 pound feet

⚠ WARNING Your Concrete and Anchor Bolts **must** meet these specifications. Only install your Lift on a Concrete surface. If you install a Lift on asphalt or any other surface, or your Concrete or Anchor Bolts do not meet these specifications, it could lead to product damage, Vehicle damage, personal injury, or even death.

BendPak Lifts are supplied with installation instructions and concrete fasteners meeting the criteria as prescribed by the American National Standard "Automotive Lifts – Safety Requirements for Construction, Testing, and Validation" ANSI/ALI ALCTV.

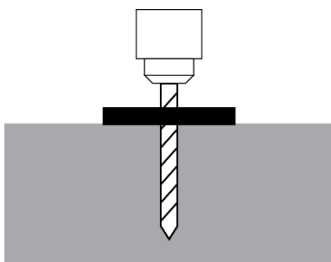
⚠ WARNING Use only the Anchor Bolts that came with your Lift. If you use components from a different source, you void your warranty and compromise the safety of everyone who installs or operates the Lift.

Lift buyers are responsible for conforming to all regional, structural, and seismic anchoring requirements specified by any other agencies and/or codes, such as the Uniform Building Code and/or International Building Code.

To anchor the Posts:

1. Locate the hardware you will need: four Anchor Bolts, four Nuts, and four washers **per Post**.
2. Using the Base Plates as guides, drill the holes **4 ½ inches deep**—one hole in each corner of the Base Plate, so four holes total per Base Plate.

Important: **Do not drill all the way through the concrete;** if you punch completely through the slab, you compromise the holding strength of the Anchor Bolt once put into place.



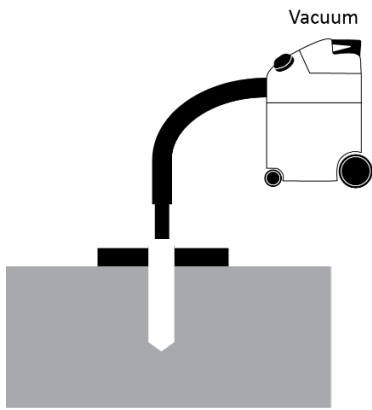
Go in straight, in the center of the hole; do not let the drill wobble.

Use a carbide bit (conforming to ANSI B212.15).

The diameter of the drill bit must be the same as the diameter of the Anchor Bolt. So if you are using a ¾ inch diameter Anchor Bolt, for example, use a ¾ inch diameter drill bit.

3. Vacuum each hole clean.

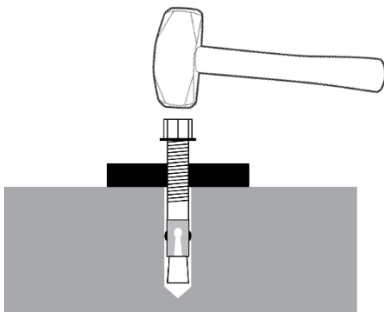
Important: The holding strength of an Anchor Bolt is partially based on the how cleanly the Expansion Sleeve presses against the Concrete. If the hole is dirty, the Expansion Sleeve does not press as cleanly, which means less holding strength. If the hole is too wide, the Expansion Sleeve does not press against the Concrete with as much force, again resulting in less holding strength.



BendPak recommends using a vacuum to clean the hole. You can also use a wire brush, hand pump, or compressed air; just **make sure to thoroughly clean each hole.**

Do **not** ream the hole. Do **not** make the hole any wider than the drill bit made it.

4. Make sure the Washer and Nut are in place, then insert the Anchor Bolt into the hole.
5. Hammer or mallet the Anchor Bolt the rest of the way down into the hole.
Stop when the Washer is snug against the Base Plate.



The Expansion Sleeve of the Anchor Bolt may prevent the Anchor Bolt from passing through the hole in the Base Plate; this is normal. Use a hammer or mallet to get the Expansion Sleeve through the Base Plate and into the hole.

Even using a hammer or mallet, the Anchor Bolt should only go into the hole part of the way; this is normal. If the Anchor Bolt goes all the way in with little or no resistance, the hole is too wide.

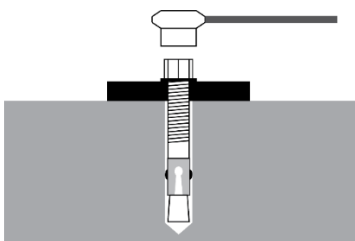
Once past the hole in the Base Plate, the Anchor Bolt eventually stops going down into the hole as the Expansion Sleeve contacts the sides of the hole; this is normal.

6. Plumb each Post; install any needed Shims.

Do not shim a Post more than half an inch using the provided Shims. A maximum of 2 inches is possible by ordering optional Shim Plates. Contact BendPak at **(800) 253-2363**, extension 191 to order. Please have the model and serial number of your Lift available.

Take your time while plumbing and shimming the Posts; **it is important to make the Lift level as possible.**

7. Wrench each Nut **clockwise** to the recommended installation torque, 85 – 95 pound feet, using a Torque Wrench.



Important: Do **not** use an impact wrench to torque the Anchor Bolts.

Wrenching the Nut forces the Wedge up, forcing out the Expansion Sleeve and pressing it tightly against the Concrete.

Final Leveling

The following procedure describes how to fine tune how level your Lift is. The goal is that the four Safety Locks on each Platform engage at the same time.

To do final leveling on the Lift:

1. Make sure the Platform Selector Valve is turned on for the Upper Platform.
2. Raise the Upper Platform to the first Lock position (the primary Safety Locks, not the Slack Safety Locks).
3. Use a transit level or other leveling mechanism to evaluate how level the Posts and Runways are to each other.
4. If you need to adjust a Runway, use the Top Nut and Stop Nut on the Top Cap of each Post to make adjustments to the Ladder in that Post (which impacts the levelness of the Runway and when the Safety Locks engage).
5. Raise the Platform to about mid height, listening as the Safety Locks engage.
If the Safety Locks are engaging at the same time, no further adjustments are necessary.
If the Safety Locks are *not* engaging at the same time, check the leveling, make necessary adjustments, and then raise the Lift again and listen as the Safety Locks engage.
6. Leave the Upper Platform engaged on a Safety Lock, then switch the Platform Selector Valve on for the Lower Platform.
7. Repeat Steps 1 through 5 for the Lower Platform.

When you are satisfied the Lift is level, firmly secure the Nuts at the top of each Post.

Installing Accessories

The accessories available for your Lift include

- **Runway Covers.** Installed underneath the Runways. Covers the Cables and Hydraulic Cylinder.
- **Tire Stops.** Installed at the Front of the Lift. Holds the front Tires of the Vehicle in position.
- **Drive-up Ramps.** Installed at the Rear of the Lift. Allows Vehicles to be easily driven onto the Runways.

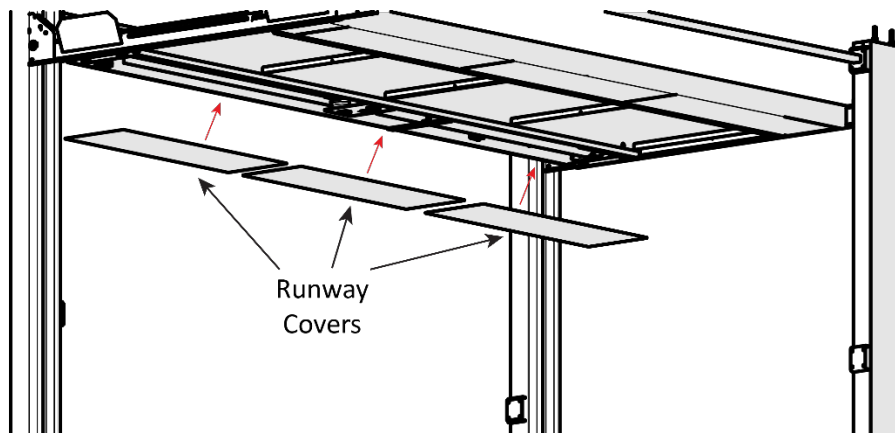
Runway Covers

Each Runway has three Covers that go on the underside. They cover the Lifting Cables and Hydraulic Cylinder on the Powerside Runways; there is nothing underneath the Offside Runways.

Note: The longer Runway Covers go with the Upper Platform, and the shorter Covers with the Lower Platform.

To install the Runway Covers:

1. Locate the Runway Covers, then push the Covers up into place so that they sit on the inside Rails of the Powerside Runway.



Side view. Runway Covers are pushed up into place under the Runway.

2. Adjust the Covers until the Lifting Cables and the Hydraulic Cylinder are covered.
3. Repeat Steps 1 and 2 for the remaining Runways.

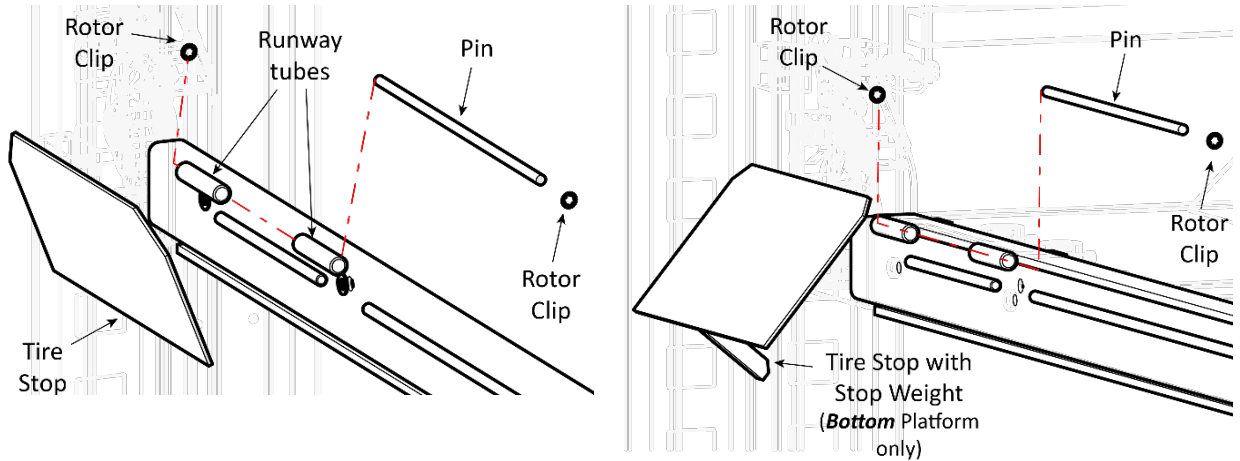
Tire Stops

Each Platform has two Tire Stops that go at the Front of the Lift. They prevent the Tires of your Vehicle from going too forward.

To install the Tire Stops:

1. Locate the two Tire Stops, Pins, and Rotor Clips needed.
2. Put a Tire Stop in position in between the Runway tubes, then put the Pin through the Tire Stop and Runway tubes, and secure the Tire Stop in place with a Rotor Clip on each end of the Pin.

The following graphics show how to install the Tire Stops for both Platforms.



Side view. Some components not shown.

3. Repeat Steps 1 and 2 for the remaining three Tire Stops.

Make sure to chock the Vehicle's Rear Tires when you position it in place on the Runways.

Drive-up Ramps

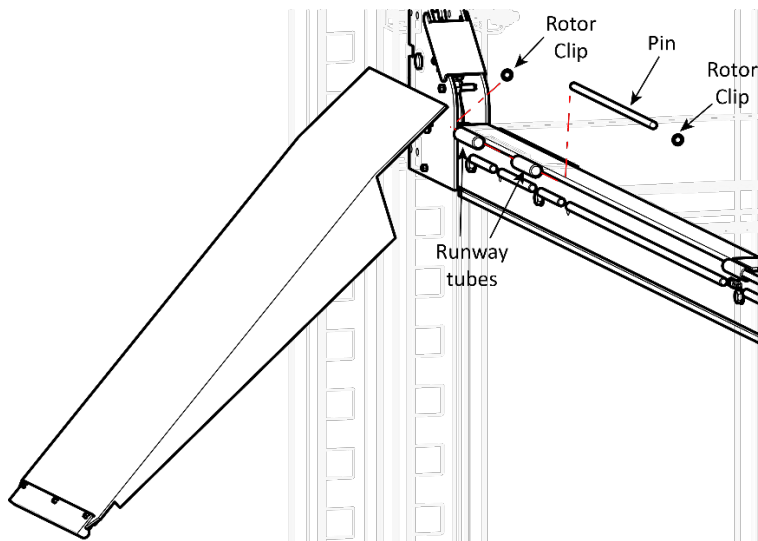
Each Platform has two Drive-up Ramps that go at the Rear of the Runways, allowing for easy drive-up onto the Platforms.

The longer Drive-up Ramps go with the Upper Platform, and the shorter Drive-up Ramps go with the Lower Platform.

Note: The Ramps are heavy and awkward, so you may want to consider having two people install them; one to hold the Ramp, the other to put the components into place.

To install the Drive-up Ramps:

1. Find the required components for the Upper Platform: two Ramps, two Pins, and four Rotor Clips.
2. Put a Drive-up Ramp in position in between the Runway tubes, then put the Pin through Drive-up Ramp and Runway tubes, and secure the Drive-up Ramp in place with a Rotor Clip on each end of the Pin; repeat for the other Drive-up Ramp.

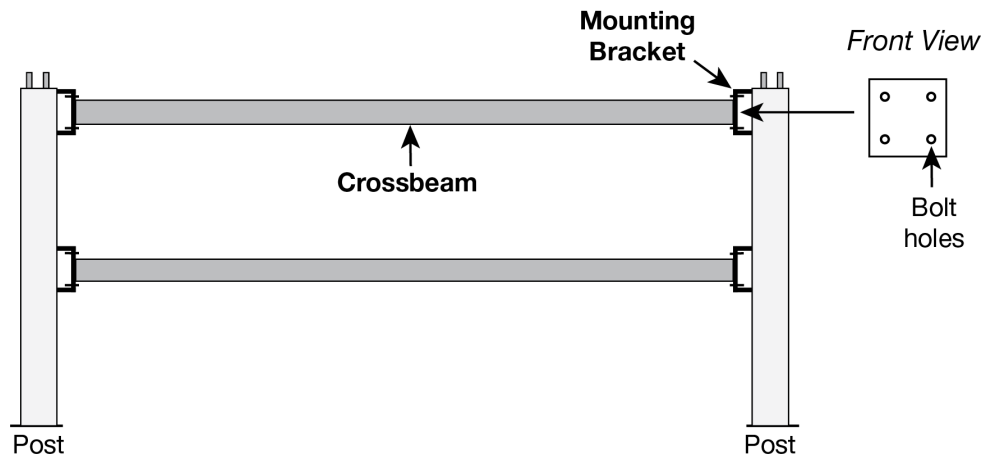


Installing the Crossbeams

To prevent from interfering with some of the other procedures in your Lift setup, installing the Crossbeams is one of the last steps to complete before you begin operating your Lift; that procedure is described here.

Your Lift comes with four Crossbeams: two Crossbeams connect the Offside Posts and the other two connect the Powerside Posts. The Crossbeams add extra structural stability to your Lift.

The following drawing shows the orientation of the Crossbeams.



Side view. Runways not shown. Not drawn to scale. Not all components shown.

To install the Crossbeams:

1. Pick a Crossbeam to start with, then align the Crossbeam holes on either end to the Mounting Brackets on the Post.

⚠ WARNING The Crossbeams are heavy; you will need at least one person hold a Crossbeam while another person bolts it into place.

2. Connect the Crossbeam on both ends to the Mounting Brackets using a Bolt, Washer and Nut for each hole, then tighten until secure.
3. Repeat Steps 2 and 3 for the remaining Crossbeams.

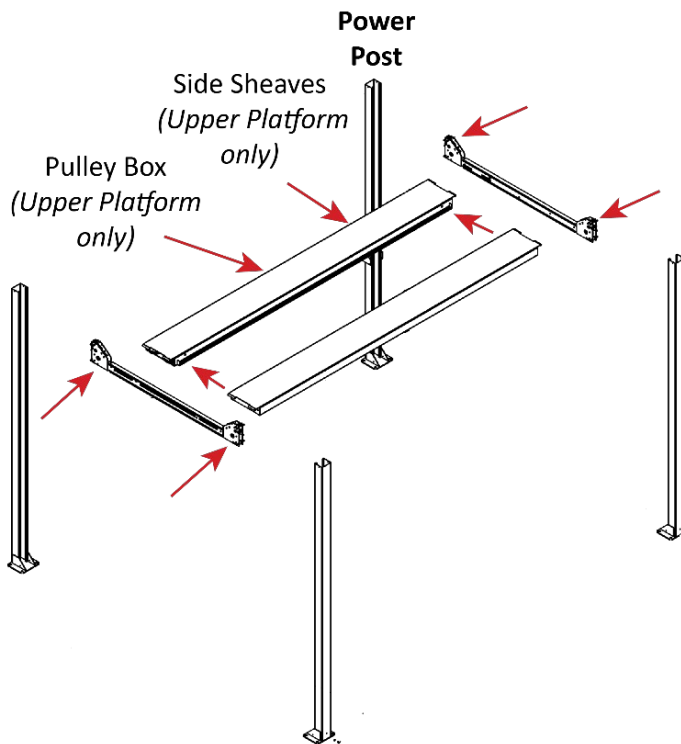
Lubricating the Lift

There are several lubrication points on each Platform. Find the Grease Fittings from the Parts Bag and install them where all the Sheaves are located:

- **Outside of the Gusset Sheaves.** One on the outside of each Gusset Sheave, for a total of eight.
- **Under the Cable Sheaves.** Under the Double Cable Sheaves in the Crosstube with Large Windows and under the two Cable Sheaves in the Crosstube with Small Windows.


To lubricate the Grease Fittings on the Lift: remove the Screw from the Sheave, pull out the Sheave Pin, and then lubricate as necessary; replace the Sheave Pin and Screw when you are done.

The following drawing shows the lubrications points on the Lift.



Bleeding the Hydraulic Cylinder

The Hydraulic Cylinders on the Lift are self-bleeding, which means that in most cases any air in the system can be removed by raising and lowering each Platform a few times; “bleeding” the Hydraulic System of the unwanted air.

 **WARNING** Before performing any maintenance on your Lift (for example, bleeding the Hydraulic Cylinder or adding Hydraulic Fluid), make sure both Platforms are fully lowered (the Lower Platform on ground level and the Upper Platform fully resting on the Stop Blocks) and the power source has been completely disconnected. If your organization has Lockout/Tagout policies, make sure to implement them after connecting to the power source.

Symptoms of air in the Hydraulic System include Runways moving erratically and/or making odd noises. These could be caused by other situations; refer to **Troubleshooting** for more information.

To bleed the Hydraulic System:

1. Raise and lower the Runways up to six times; ***pause for at least one minute between each cycle***; the Lift’s motor cannot run continuously; it is designed for regular use, but not continuous use.
2. Watch the Runways as you raise and lower them, one Platform at a time; when the Lift stops moving erratically or stops squeaking, you can stop the bleeding process.
3. Check the Hydraulic Fluid reservoir on the Power Unit; bleeding the Hydraulic System may significantly lower the amount of Hydraulic Fluid in the reservoir.
4. Add additional Hydraulic Fluid if necessary; you can damage your motor by running it without enough Hydraulic Fluid in the reservoir.

If your Lift is still moving erratically or making odd noises after bleeding the Hydraulic System, refer to **Troubleshooting** for more information.

Test the Lift


BendPak strongly recommends doing an Operational Test of your Lift with a standard Vehicle on each Platform before starting normal service (a typical Vehicle is not required, but is recommended).

During the Operational Test, watch the Lift and its components and check for proper installation and operation. If you run into an issue that does not go away, refer to [Troubleshooting](#).


Note: Residual air in the Hydraulic Systems can cause the Lift to shake, move erratically, or squeak when you start using it; this is normal. If it happens, do not worry; it will go away as the Hydraulic System is self-bleeding. If it does not go away soon, try bleeding the Cylinder of air. If it still does not go away, refer to [Troubleshooting](#) for additional information.

To test your Lift:

1. Before you start using your Lift, make sure to check for people, pets, or objects that might be in the path of the Lift as you raise and lower it.
2. Drive the Vehicle onto the Platform; try to center the Vehicle's Tires in the middle of each Runway. Put the Vehicle into park, put on the parking brake, put it in gear if it is a manual transmission, and chock the wheels.
3. Make sure the Turning Knob on the Platform Selector Valve is turned on for the Platform you want to operate.
4. Press and hold the **Up** button.
5. After the Runways pass three or four Safety Locks (you will hear them), release the **Up** button.
6. Press and hold the pushbutton on the Pushbutton Air Valve, then press and hold the Lowering Handle; the Runways back down onto the Safety Locks they just passed.

 **CAUTION** *Never leave the Lift without making sure that all four Safety Locks have engaged on locking positions at the same height.* If one of the four Safety Locks do not fully engage, the Platform will not be level and you could risk damaging any Vehicles sitting on or underneath the Platforms.

7. Press the **Up** button for a few seconds to disengage the Runways from the Safety Locks, then release the **Up** button.
8. Press and hold the Pushbutton Air Valve **and** the Lowering Handle *at the same time*.
9. When the Platform gets to the ground, release the Lowering Handle.
10. Wait for one minute.

 **CAUTION** Always take a break between cycles. The Power Unit's motor is **not** constant duty; it cannot be run continuously.

11. Repeat the process, this time raising the Platform to a higher Safety Lock.
12. If the Lift is working without shaking, moving erratically, or squeaking, there is no need to repeat the procedure.

If the Lift is shaking, moving erratically, or squeaking (which is normal during the start-up period), repeat the procedure a couple more times, with at least a one-minute break between cycles.

If you continue to have issues, refer to [Troubleshooting](#) for assistance.

Final Checklist

Make sure these things have been done **before** putting the Lift into service:

- Review the **Installation Checklist** to make sure all steps have been performed.
- Make sure the Power Unit is getting power from the power source.
- Check the Hydraulic Fluid reservoir on the Power Unit; it must be full of approved Hydraulic Fluid or automatic transmission fluid. **You can damage the motor by running it without enough fluid.**
- Check the Hydraulic System for leaks.
- Make sure all four Posts are properly anchored, shimmed, level, and stable.
- Make sure all Lifting Cables are properly seated in their Sheaves.
- Make sure all Safety Locks are operating normally.
- Make sure the backup Slack Safety Locks are **not** engaged.
- Make sure a copy of the *Installation and Operation Manual* is left with the Lift.
- If it has not been done already, perform an Operational Test of the Lift with a typical Vehicle. Refer to **Performing an Operational Test**.

Operation

This section describes how to operate your Lift.

Safety Considerations

Do the following every time **before** you raise a Vehicle on your Lift:

- **Check the Lift.** Walk all the way around the Lift, checking for any missing, heavily worn, or damaged parts. Do not operate the Lift if you find any issues; instead, take it out of service, then contact your dealer, email support@bendpak.com, or call **(800) 253-2363**.
- **Check the area.** Keep the area around and under the Lift clean and free of obstructions; anything that could cause a problem. Do not forget to check **above** the Lift. If you find an obstruction, move it out of the way. If you find any other issues, resolve them before using the Lift. Do not allow any people or animals within 30 feet of the Lift while it is in motion.
- **Check the operators.** Make sure everyone who is going to operate the Lift has been trained in its use, has read the labels on the unit, and has read the manual. Only the operator at the Controls should be within 10 feet of the Lift when it is in motion.

Do not allow children to operate the Lift. Do not allow anyone under the influence of drugs, alcohol, or medication to operate the Lift. Do not allow any unauthorized personnel to operate the Lift.

- **Check for safety.** Make sure everyone who is going to be walking near the Lift is aware of its presence and takes appropriate safety measures. Only put Vehicles on the Runways.

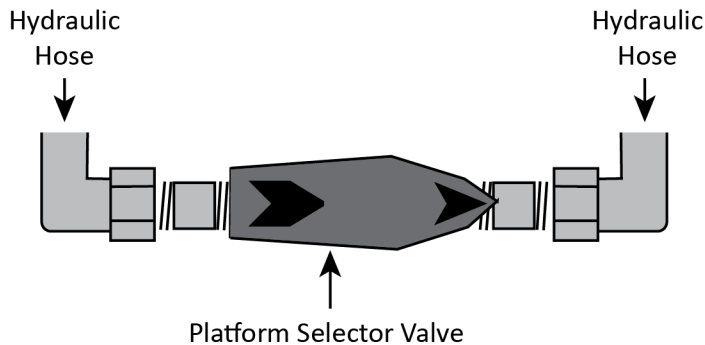
When raising a Vehicle, do not leave it until the Platform is engaged on a Safety Lock. When lowering the Lift, do not leave it until it is on the ground.

- **Check the vehicle.** Never exceed the Lift's weight rating. Do not allow people inside a Vehicle you are going to raise. Double check you have everything you need out of the Vehicle before raising the Lift. Make sure the Vehicle is not overbalanced on either end or either side.

Using the Controls

The Controls for the Lift include:

- **Platform Selector Valve.** Turn the Knob to control the Platform you want to move. Goes on the Hydraulic Out Port on the Power Unit, with a Hydraulic Hose on either end.



To activate the desired Platform. If you want to move the Upper Platform, turn the Knob so that the arrows are facing the **Right**; if you want to move the Lower Platform, turn the Knob so the arrows are facing the **Left**.

Before you begin to raise or lower one of the Platforms, always double check that you have the Knob turned correctly for the Platform you want to move.

- **Up button.** Press and hold to raise the Runways. Located near the top of the Power Unit.

To put Runways onto a Safety Lock position. Raise the Runways a little above where you want them, then press and hold the Lowering Handle to back the Runways down onto the Safety Locks position (do not press and hold the pushbutton on the Pushbutton Air Valve). When the Runways stop going down, they are engaged on a Safety Lock.

Before leaving the Lift, make sure all four corners are engaged on their Safety Locks.

- **Lowering Handle.** Press and hold to lower the Runways. Located in the middle of the Power Unit, the Lowering Handle is long and has a ball at the end.

To lower raised Runways down to the ground: press and hold the pushbutton on the Pushbutton Air Valve first, then **press and hold** the Lowering Handle.

Watch the Runways as they go down to make sure they are coming down evenly. If they are not, stop lowering the Lift and troubleshoot the problem.


⚠ WARNING Only leave your Platforms either engaged on a Safety Lock position or fully lowered.

- **Pushbutton Air Valve.** Press and hold the pushbutton on the Pushbutton Air Valve as part of the process to lower the Runways. Located on one side or the other of the Power Unit (depending on where it was installed). Pressing and holding the pushbutton on the Pushbutton Air Valve disengages the Safety Locks, which is needed to lower the Runways.

Raising and Lowering Vehicles

Keep the following in mind when operating your Lift:

- **Be safe.** Make sure to check for people, pets, and objects that might be in the path of the Lift as you raise or lower it. If there is something in the way, stop the Lift and move it out of the way. Watch the Lift carefully as it raises and lowers.


 **DANGER** Pay careful attention when you are raising or lowering your Lift. If a person or pet gets stuck under the Lift, they could be injured or, in rare cases, killed.

- **Platforms operate independently.** Each Platform on the Lift operates independently; be sure to double check that the Knob on the **Platform Selector Valve** is turned in the direction of the Platform you want to move.
- **Get what you need out of the Vehicle before lifting it.** It is frustrating to raise a Vehicle and then realize you left something inside. ***Never raise your Lift with people in the Vehicle.***
- **Make sure the Vehicle is balanced.** If there is extra weight on one end or the other, remove it or balance it before raising the Vehicle.
- **Center the Vehicle's wheels on the Runway.** Centered wheels keep the Vehicle balanced. Do not leave a Vehicle with its Tires on the Aluminum Decks that sit between the Runways.


To raise a Vehicle on the *Upper Platform*:

1. Make sure the Platform Selector Valve is turned on for the Upper Platform; turn the Knob so that the arrows are facing to the ***Right***.
2. Make sure the Platform is fully lowered. If they are not, move them down onto the Stop Blocks.
3. Drive a Vehicle onto the Runways.

Make sure all four wheels are fully on the Runways, as close to the center of the Runways as possible.

 **CAUTION** The Runways and Drive-up Ramps can be slippery when wet; use care driving your Vehicles onto the Runways.

4. Put the Vehicle into park and put on the parking brake. If your Vehicle has a manual transmission, place the transmission in first gear.
5. Chock the tires.

 **WARNING** Do not raise or lower the Platform until you have confirmed that the Vehicle's Tires have been chocked.

6. Walk around the Lift to make sure no obstructions will interfere with the Vehicle being lifted.
7. Press the **Up** button on the Power Unit.

NOTICE As the Platform raises, you will hear clicking sounds, which are the sounds of the Safety Locks hitting the locking positions and then passing them by; these sounds are normal.

8. When the Platform gets to the desired height, go up a little bit more, then release the **Up** button and press and hold the Lowering Handle.

The Platform backs down onto the most recently passed Safety Lock.

Important: How do you know if one of the four Safety Locks has, for some reason, not engaged? If this happens, the non-engaged corner of the Lift will continue to go down, while the others stay where they are. This results in a Platform that is not flat. Always check to make sure that all four Safety Locks are engaged on locking positions of the same height; you know they are if the Platform is level.

⚠ WARNING Only leave the Platform either engaged on the same Safety Locks or fully lowered.

9. With the Platform engaged on a Safety Lock, check around the Lift to make sure that everything looks good.

If you see anything wrong, fix it before anyone gets near the Runways or goes under them.

To raise a Vehicle on the *Lower Platform*:

1. Before driving a Vehicle onto the Lower Platform, make sure the Upper Platform is engaged on a locking position.

⚠ CAUTION Make sure you have enough underclearance for the Vehicle going on the Lower Platform; you do not want to accidentally scrape or damage your Vehicle's roof by contacting the underside of the Upper Platform.

2. Turn the Switch on the Platform Selector Valve to control the Lower Platform; turn the Knob so that the arrows are facing to the **Left**.
3. Drive the Vehicle onto the Runways.

⚠ WARNING The Runways and Drive-up Ramps can be slippery when wet; use care driving your Vehicles onto the Runways.

Make sure all of the Tires are on the Platform; do not leave a Vehicle with its Tires resting on the Aluminum Decks that sit between the Runways.

4. Put the Vehicle into park and put on the parking brake. If your Vehicle has a manual transmission, place the transmission in first gear.
5. Chock the Tires.

⚠ WARNING Do not raise or lower the Platform until you have confirmed that the Vehicle's Tires have been chocked.

6. Walk around the Lift to make sure no obstructions will interfere with the Vehicle being lifted.
7. Press and hold the **Up** button.

Important: Make sure to leave enough overhead clearance between your Vehicle and the Safety Shutoff Bar (on the underside of the Upper Platform); when you are ready to lower your Vehicle, you will first need to **raise** the Lower Platform to disengage off the Safety Locks. If there is not enough room, it may be difficult for the Platform to disengage from the Safety Locks without your Vehicle contacting the Safety Shutoff Bar.

8. When the Lower Platform is just past the desired locking position, release the **Up** button, then Press and hold the Lowering Handle.
9. Once downward movement stops, release the Lowering Handle.

Make sure that the Lower Platform is on a Locking position before driving a Vehicle under it.

⚠ WARNING Never walk under raised Platforms—always walk around and stay clear at all times.

Lowering both Platforms:

1. Double check that no one except the Lift operator is within 10 feet of the Lift.
2. Check that the Platform Selector Valve is turned on for the Lower Platform, then press the **Up** button to disengage the Platform from the Safety Locks.

After a second or two, release the **Up** button.

3. Press and hold the Pushbutton Air Valve **and** the Lowering Handle *at the same time*.


The Lower Platform lowers while the Upper Platform stays in place.

CAUTION

Never lower a Platform if there is anything underneath it. Always double check that the area underneath the Platform you are lowering is completely free of all obstructions.


4. Lower the Lower Platform all the way to the ground, then release the Pushbutton Air Valve and the Lowering Handle.
5. Remove the Tire Chocks, then carefully drive the Vehicle off the Lower Platform.
6. Turn the Knob on the Platform Selector Valve to control the Upper Platform, then press and hold the **Up** button to lift the Platform off of its Safety Locks.
7. After a second or two, release the **Up** button.
8. Press and hold the Pushbutton Air Valve **and** the Lowering Handle *at the same time*.
The Upper Platform lowers.
9. Lower the Upper Platform all the way down until it rests on the Stop Blocks.
10. When the Upper Platform is fully resting on the Stop Blocks, release the Pushbutton Air Valve and the Lowering Handle.
11. Remove the Tire Chocks, then carefully drive the Vehicle off of the Runways.

Maintenance


 **DANGER** Before performing any maintenance on your Lift, make sure it is completely disconnected from power. If your organization has Lockout/Tagout policies, make sure to implement those procedures after connecting to the power source.

To maintain your Lift:

- **Daily:** Keep the Lift clean. Wipe up any spills, clean any dirt.
- **Daily:** Make a visual inspection of all moving parts and check for damage or excessive wear. Replace any damaged or worn parts before using the Lift.

 **DANGER** Do not use the Lift if the Cables are damaged or extremely worn. If a vehicle is raised when you notice the damage or extreme wear, very carefully lower the vehicle to the ground. When the Lift is on the ground, take it out of service, disconnect it from power, and make arrangements to fix the damage or wear.

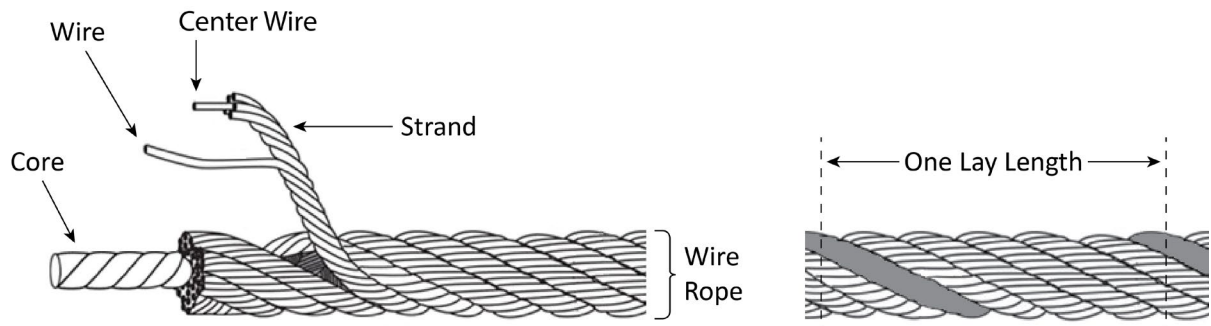
- **Daily:** Make sure all Safety Locks are in good operating condition. Do not use your Lift if the Safety Locks are damaged or excessively worn.
- **Monthly:** Check all labels on the Lift. Replace them if they are illegible or missing.
- **Monthly:** Grease all lubrication points on the Lift.
- **Monthly:** Check Hydraulic Fluid levels. Refill if low.
- **Monthly:** Lubricate the wire rope (Cables). Use a wire-rope lubricant such as 90-WT gear oil or ALMASOL® Wire Rope Lubricant.
- **Monthly:** Check Cable connections, Bolts, and Pins for proper mounting and torque.
- **Every two months:** Check all Anchor Bolts to make sure they are properly torqued. If they are loose, tighten them.
- **As needed.** Take the Lift out of service and then replace the Cables if there are signs of damage or extreme wear.

 **WARNING** Do not operate your Lift if you find maintenance issues; instead, take the Lift out of service, then contact your dealer, visit bendpak.com/support, email support@bendpak.com, or call **(800) 253-2363**.

Wire Rope Inspection and Maintenance

Your Lift's Cables, which are wire rope, should be inspected regularly:

- Wire rope should be replaced when there are visible signs of damage or extreme wear. *Do not use the Lift if it has damaged or worn Cables; **take it out of service!***



- Wire rope should be maintained in a well-lubricated condition at all times.

Wire rope is only fully protected when each wire strand is lubricated both internally and externally. Excessive wear shortens the life of wire rope. Use a wire-rope lubricant that penetrates to the core of the rope and provides long-term lubrication between each individual strand, such as 90-WT gear oil or ALMASOL® Wire Rope Lubricant. To make sure that the inner layers of the rope remain well lubricated, lubrication should be done at least every three months during normal operation.

- All Sheaves and guide rollers that contact moving wire rope should be given regular visual checks for surface wear and lubricated to make sure they run freely. This should be done every three months during normal operation.

For all sheave axles, use standard wheel bearing grease. For all Sheaves and/or guide rollers, use 90-WT gear oil or a similar heavy lubricant, applied by any method including pump/spray dispensing, brush, hand, or swabbing.

- How often should you inspect?

Wire rope should be visually inspected at least once each day when in use, as suggested by American Petroleum Institute's Recommended Practice 54 guidelines. Any wire rope that meets the criteria for removal must be immediately replaced.

- **When should you replace wire rope due to broken wires?**

Wire rope should be removed from service if you see six randomly distributed broken wires within any one lay length or three broken wires in one strand within one lay length.

- **Are there other reasons to replace your wire rope?**


Yes. Corrosion that pits the wires and/or connectors, evidence of kinking, crushing, cutting, bird-caging, or a popped core, wear that exceeds 10% of a wire's original diameter, or heat damage.

- **How do you find broken wires?**

- a. Relax your rope to a stationary position and move the pick-up points off the Sheaves. Clean the surface of the rope with a cloth — a wire brush, if necessary — so you can see any breaks.
- b. Flex the rope to expose any broken wires hidden in the valleys between the strands.
- c. Visually check for any broken wires. One way to check for crown breaks is to run a cloth along the rope to check for possible snags.
- d. With an awl, probe between wires and strands and raise any wires that appear loose.

Troubleshooting

This section describes how to troubleshoot your Lift.

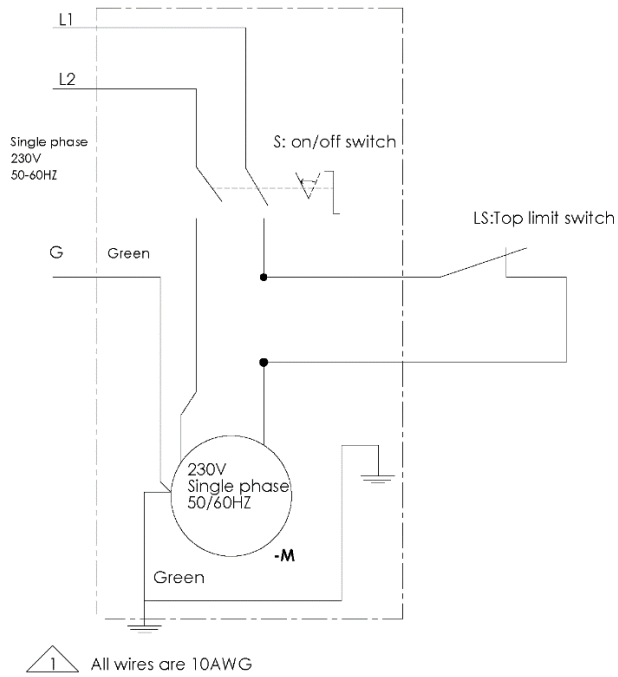
 **WARNING** If your Lift is not functioning correctly, you must take it out of service until it is fixed.
All repair work must be done by qualified personnel.

Runways do not raise or do not lower, once raised.	<p>Make sure there is sufficient Hydraulic Fluid in the reservoir. If the Hydraulic Fluid is dirty, replace it with clean fluid.</p> <p>Make sure there is no air in the Hydraulic System.</p> <p>Make sure none of the Hydraulic Hoses are pinched or leaking.</p> <p>Make sure the Power Unit is getting power.</p> <p>Make sure Lift is not overloaded.</p>
Runways do not lower past the nearest Safety Lock even when pressing and holding the pushbutton.	Problem with the Air Lines; check to make sure all sections of the Air Line are connected and not leaking.
One corner of a Platform is lower than the other three corners.	The Safety Lock on the lower corner is not engaged. Raise the Runways up, then lower them down onto the Safety Locks. Check to make sure all four Safety Locks are engaged on Safety Locks of the same height.
Runways move erratically or squeak when in use.	Move the Runways up and down a few times to flush any residual air from the Hydraulic System. Make sure to pause for at least 2 minutes between cycles.
Runways do not stay up.	<p>Check for leaking Hydraulic Fluid.</p> <p>Make sure the Runways are left on their Safety Locks.</p>
Motor not running.	<p>Check the connection to the power source; make sure it is plugged in and of the appropriate voltage.</p> <p>Check the wiring diagram.</p>
Hydraulic Fluid is dirty.	Replace the dirty fluid with clean, approved Hydraulic Fluids, such as Dexron III, Dexron VI, Mercon V, Mercon LV, Shell Tellus S4 / S3 / S2, or comparable.
Runways make odd noises.	Lubricate the bushings on the sheaves on the sides of the Crosstubes using white lithium grease. If the Lift is new, a break-in period may be needed; run the Lift several times each day. If the noises persist, contact BendPak Support.

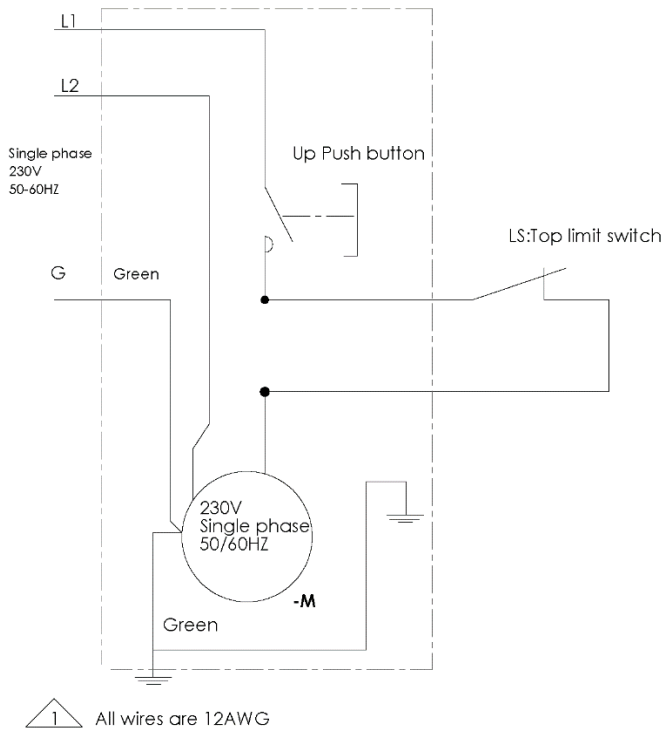
If you continue to have issues with your Lift, take it out of service, then contact your dealer, go to bendpak.com/support, email support@bendpak.com, or call **(800) 253-2363**.

Wiring Diagrams

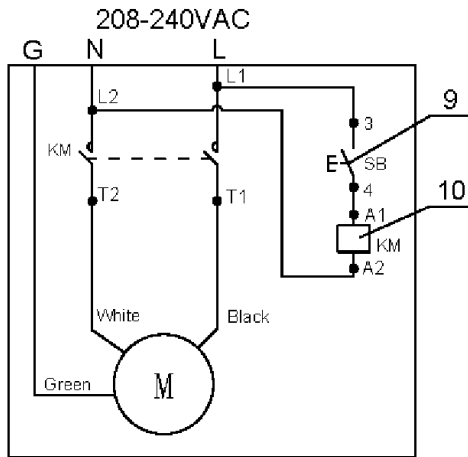
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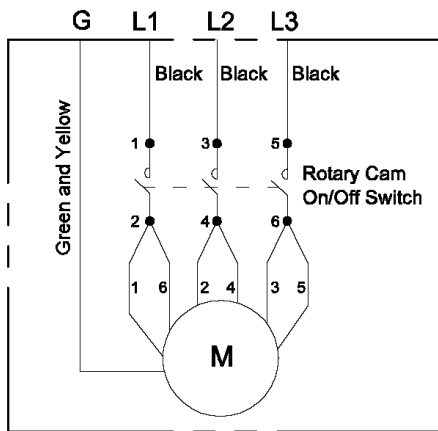
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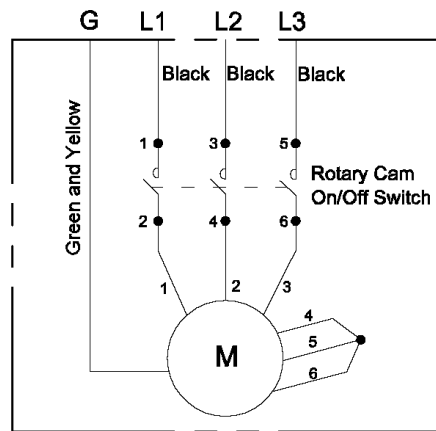
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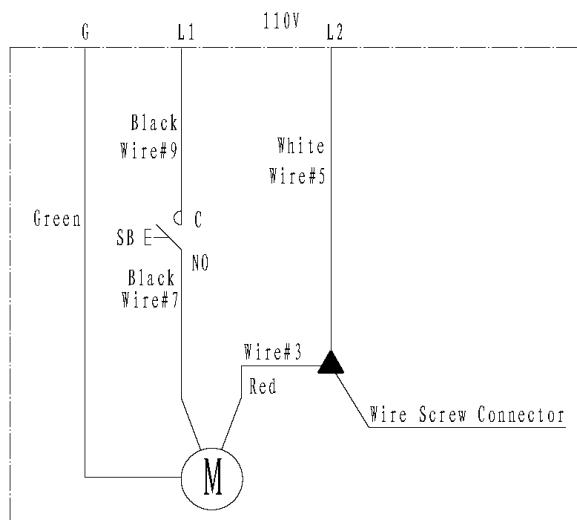


Wiring for 208-230V



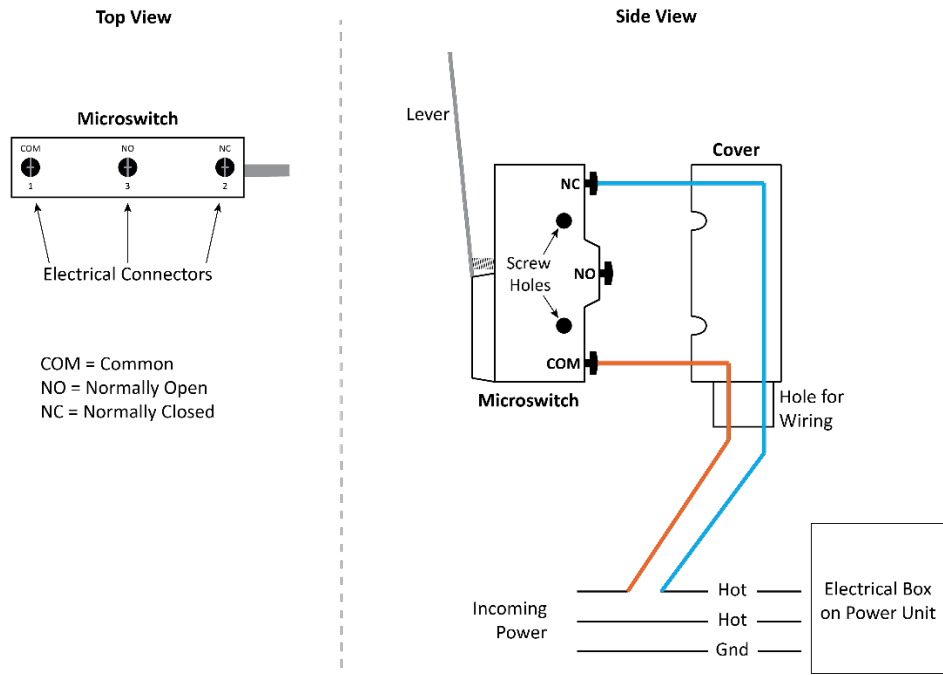
Wiring for 400/460V

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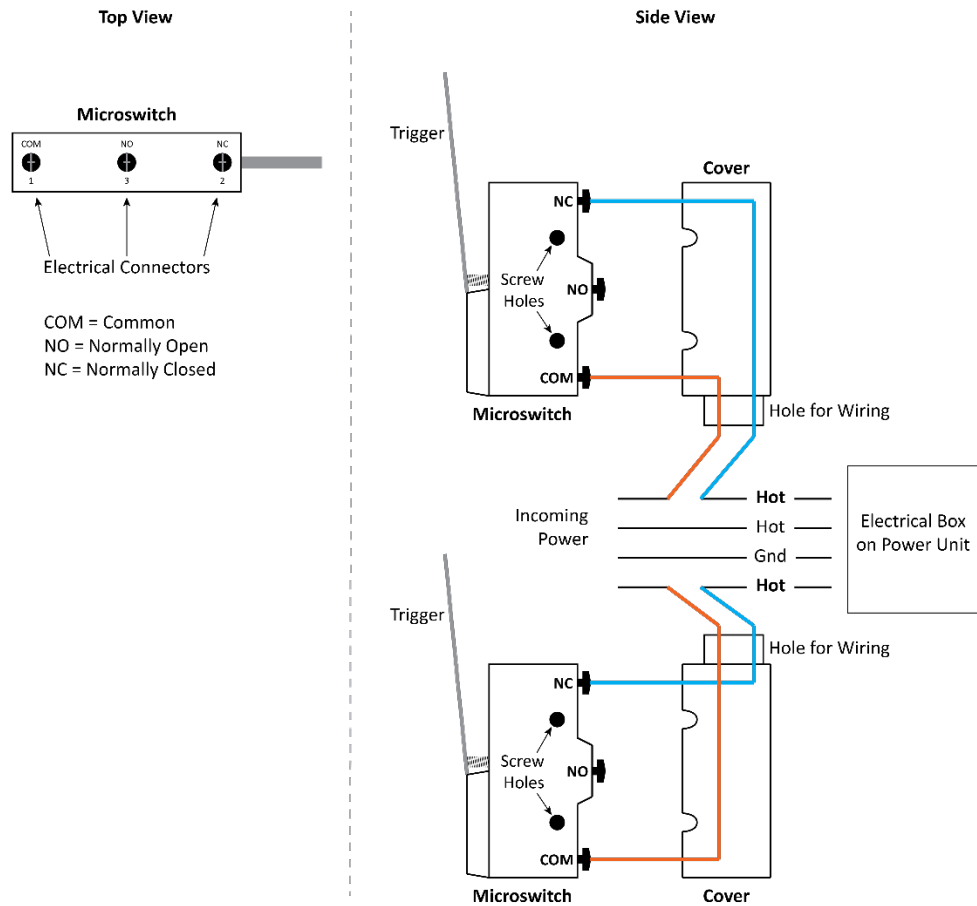


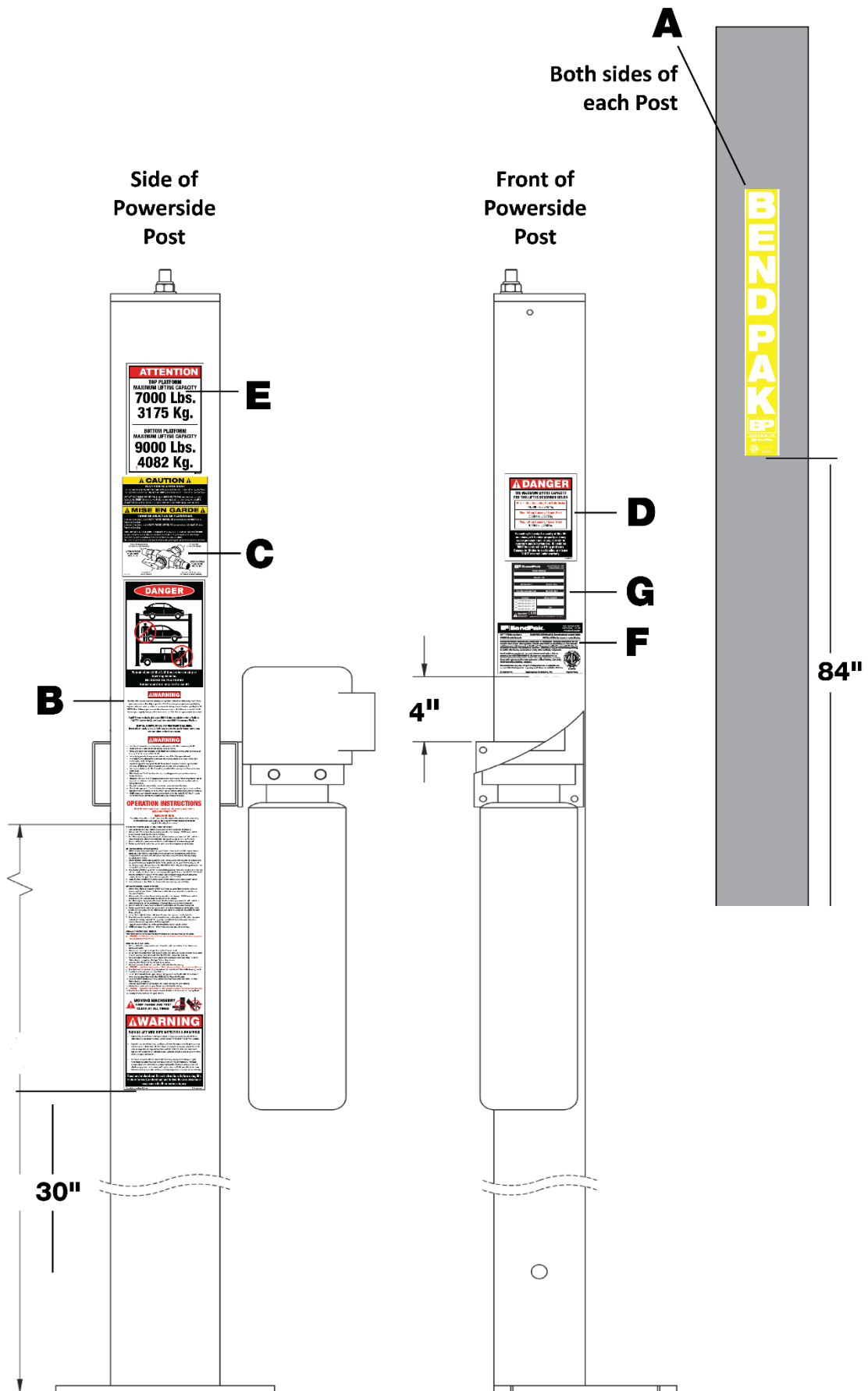
This section describes wiring details for the Microswitch(es), depending on your chosen Power Unit.

Single Phase:

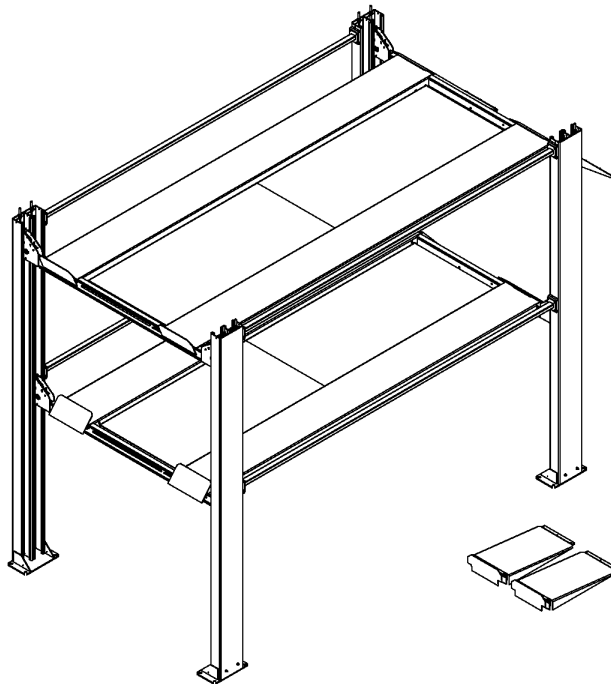
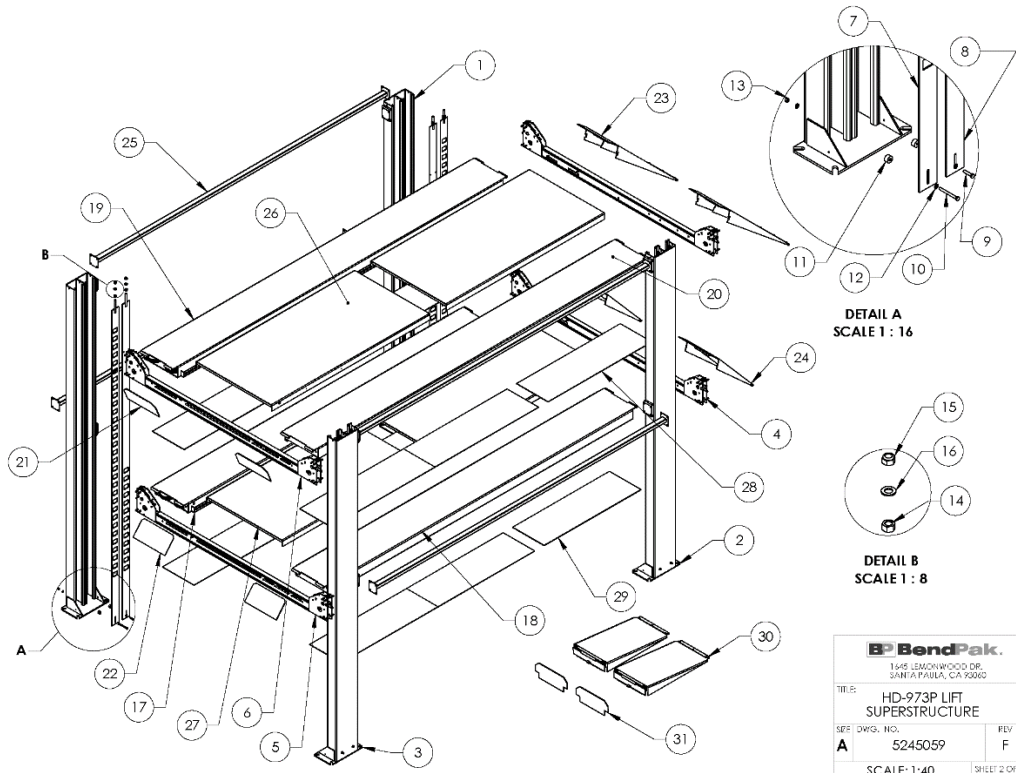


Three Phase:





Parts Drawings

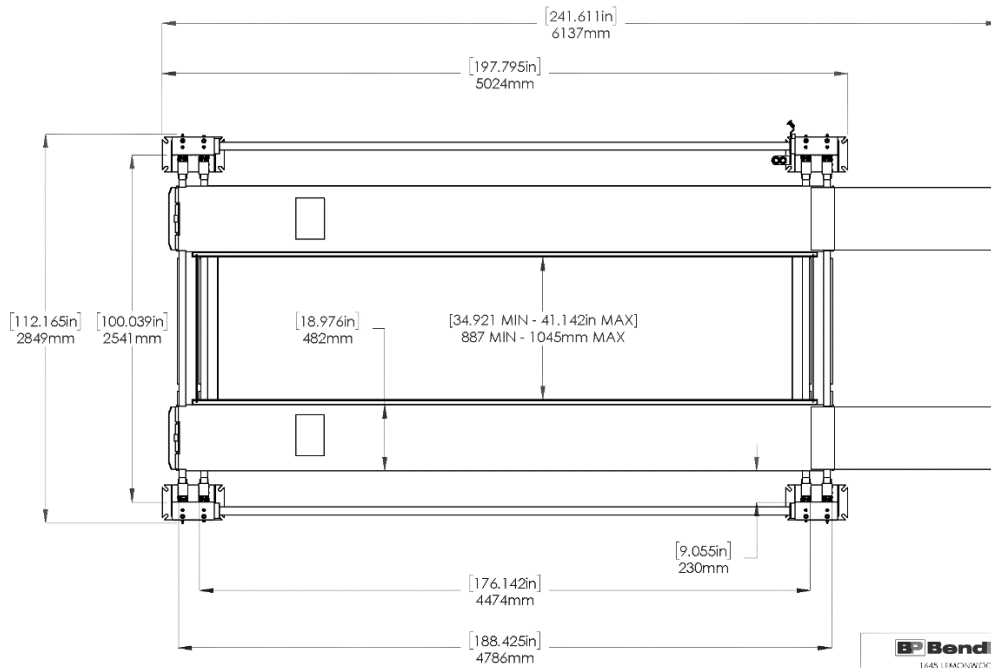


ITEM NO.	PART NUMBER	DESCRIPTION	QTY	REV
1	5601274	HD-973P POWER SIDE POST WELDMENT	1	C
2	5601275	HD-973P OFF SIDE POST WELDMENT	2	C
3	5601299	HD-973P OFF SIDE POST WELDMENT, L.H.	1	B
4	5215621	HD-7W/9/9X1/XW CROSSTUBE ASSEMBLY, SMALL WINDOW	2	R
5	5215622	HD-9/9X1/XW CROSSTUBE ASSEMBLY, LARGE WINDOW	1	Q
6	5215624	HD-7W SERIES CROSSTUBE ASSEMBLY, LARGE WINDOW	1	Q
7	5600921	HD-7PX SERIES SAFETY LADDER WELDMENT	4	B
8	5601281	HD-973 LOWER RAMP SAFETY LADDER WELDMENT	4	B
9	5530167	HHB M10 x 1.5 x 45mm	4	--
10	5530748	HHB M10 x 1.5 x 100mm	4	--
11	5746381	HD-7/7500/9 SPACER, SAFETY LADDER, 17.5mm LG	8	B
12	5545341	WASHER M10 x Ø20 FLAT	16	--
13	5535013	NUT M10 x 1.5 NL	8	--
14	5535021	NUT M16 x 2.0	8	--
15	5535008	NUT M16 x 2 NL	8	--
16	5545025	WASHER M16 x 30mm FLAT	8	--
17	5215787	HD-973P LOWER POWER SIDE RAMP ASSEMBLY	1	D
18	5601271	HD-973P LOWER OFF SIDE RAMP WELDMENT	1	C
19	5215817	HD-973P UPPER POWER SIDE RAMP ASSEMBLY	1	D
20	5601295	HD-973 UPPER OFF SIDE RAMP WELDMENT	1	A
21	5600890	HD-7/7500/9 SERIES TIRE STOP PLATE WELDMENT	2	F
22	5601356	HD-973 TIRE STOP WELDMENT	2	B
23	5215131	HD-7/9 EXTENDED DRIVE UP RAMP ASSEMBLY	2	H
24	5215193	HD-7500BL/BLX, 9/ST/SIX/XW DRIVE UP RAMP ASSEMBLY	2	G
25	5601296	HD-973P STIFFENER TUBE WELDMENT	4	B
26	5601293	HD-973P ALUMINUM LONG SOLID DECK WELDMENT	3	C
27	5601273	HD-973P ALUMINUM SHORT SOLID DECK WELDMENT	1	D
28	5701560	HD-973 UPPER RAMP PLASTIC COVER	6	A
29	5701558	HD-973 LOWER RAMP PLASTIC COVER	6	A
30	5174220	HD-9' ALUMINUM APPROACH RAMP ASSEMBLY	2	G
31	5735728	HD DROP IN TIRE STOP	2	A

DO NOT SCALE DRAWING

NAME	DATE	
DRAWN TM	06/28/2018	
CHECKED CA	11/22/2019	1645 LEMONWOOD DR. SANTA PAULA, CA 93060
THIRD ANGLE PROJECTION		TITLE: HD-973P LIFT SUPERSTRUCTURE
SIZE	DWG. NO.	REV
A	5245059	F
SCALE: 1:45		SHEET 1 OF 2

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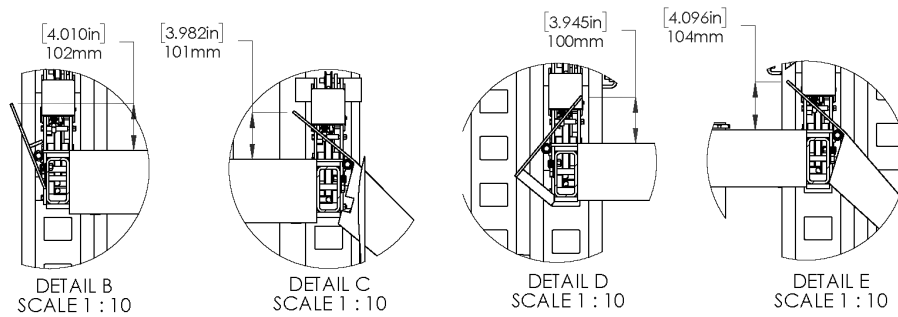
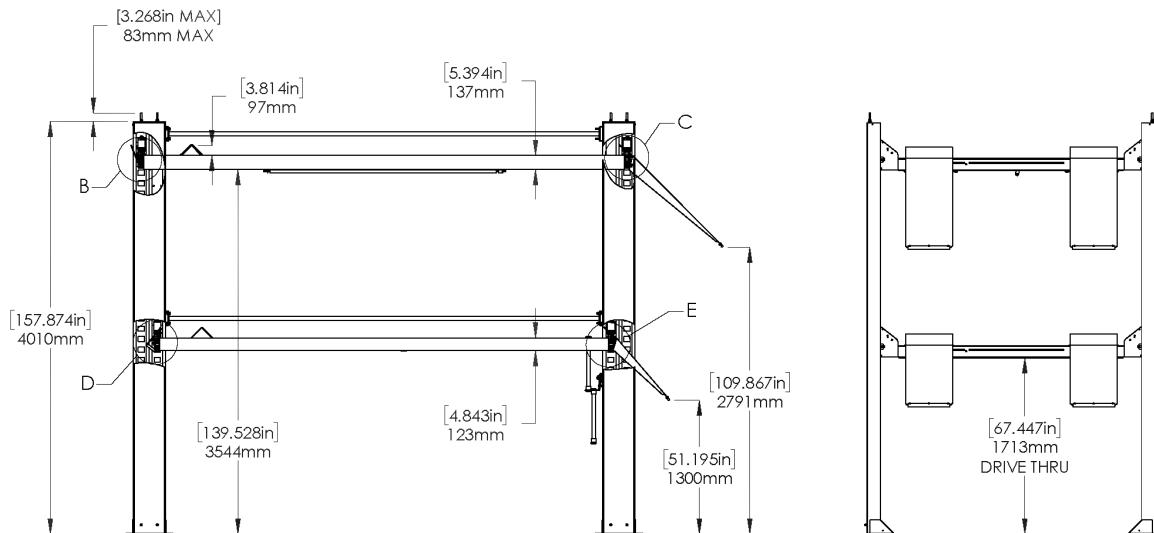


BendPak.
 1645 LEMONWOOD DR.
 SANTA PAULA, CA 93060

TITLE:
 HD-973P PRODUCTION
 LIFT VER A

REV	DWG. NO.	REV
A	5260242	F

SCALE: 1:30 SHEET 2 OF 4

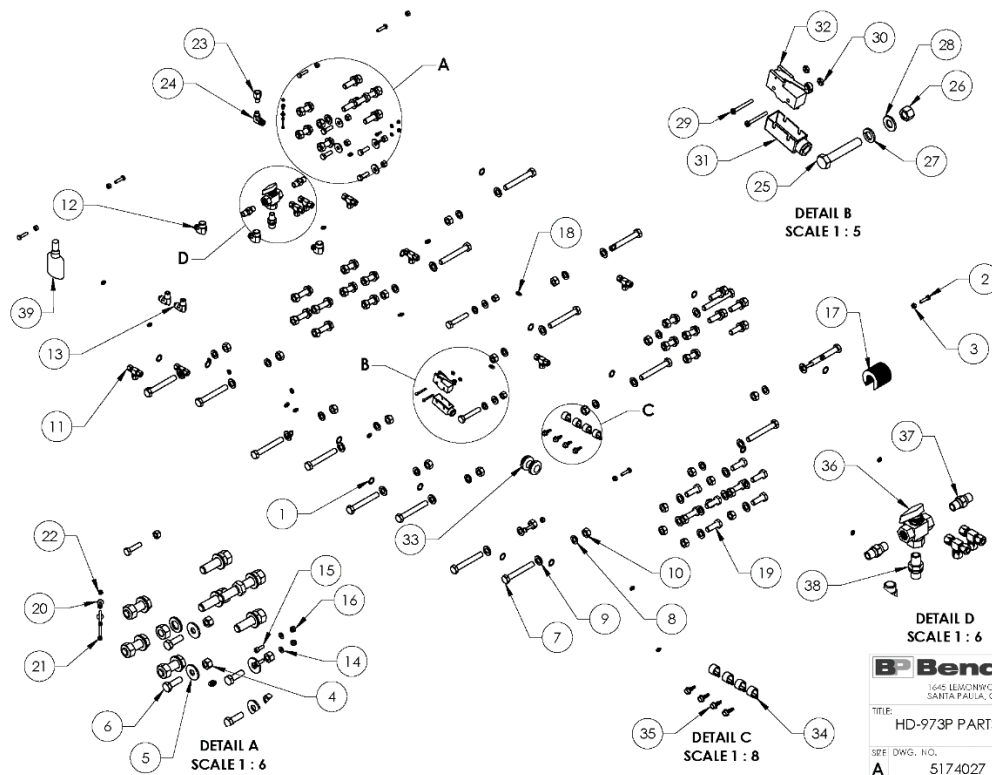


BendPak.
 1645 LEMONWOOD DR.
 SANTA PAULA, CA 93060

TITLE:
 HD-973P PRODUCTION
 LIFT VER A

REV	DWG. NO.	REV
A	5260242	F

SCALE: 1:45 SHEET 3 OF 4



BendPak
 1645 LEMONWOOD DR.
 SANTA PAULA, CA 92360

TITLE: HD-973P PARTS BAG

SIZE	DWG. NO.	REV
A	5174027	D

SCALE: 1:10 SHEET 2 OF 2



ITEM NO	PART NUMBER	DESCRIPTION	QTY	REV
1	5303031	ROTOR CLIP 12mm SS	16	--
2	5330736	HHB M6 x 1 x 25	8	--
3	5335357	NUT M6 x 1.0 NL	8	--
4	5333001	NUT M8 x 1.25 NL	4	--
5	5445340	WASHER M8 x 24 FLAT	4	--
6	5330010	HHB M8 x 1.25 x 25	4	--
7	5330009	HHB M12 x 1.75 x 90 C18.8	16	--
8	5445201	WASHER M12 SPRING LOCK	16	--
9	5445347	WASHER M12 FLAT WASHER	48	--
10	5335334	NUT M12 x 1.75	48	--
11	5335325	FIG 1EE -04 COMP x-04 COMP x-04 COMP	8	--
12	5330089	FIG ELB -04 C OAL x -06 NPT	3	--
13	5330106	FIG ELB -04 JIC x 3/8" NPT	2	--
14	5445009	WASHER, Ø4.3 x Ø9mm x 0.8mm	2	--
15	5330008	SHCS M4 x 0.7 x 12 BOC	2	--
16	5335010	NUT M4 x 0.7 NL	2	--
17	5445335	C WASHER SHIM FOR LIFTS	19	--
18	5330025	FIG GR5 M6 x 1.0	20	--
19	5330076	HHB M12 x 1.75 x 35mm	32	--
20	5445024	WASHER M3 x 9mm	2	--
21	5330043	SHCS M3 x 0.3 x 30	2	--
22	5335020	NUT M3 x 0.3 NL	2	--
23	5330486	FIG NPT -02 NPT x -04 F NPT	1	--
24	5330087	FIG ELB -04 COMP x -02 NPT	1	--
25	5330217	HHB M10 x 1.5 x 38	2	--
26	5335013	NUT M10 x 1.5 NL	2	--
27	5445200	WASHER M10 x Ø18 SL	2	--
28	5345341	WASHER M10 x Ø20 FLAT	2	--
29	5330115	BHS 6-32 x 1.25	2	--
30	5335190	HN 6-32	2	--
31	5325112	MICRO SWITCH COVER:5PA2	1	--
32	5325023	SPDT MICRO SWITCH W/ ROLLER:25A@125VAC	1	--
33	5420001	RUBBER GROMMET: 3/4 I.D.	2	--
34	5330064	16mm CUSHIONED LOOP STRAP	4	--
35	5330749	HSDS M6.3 x 1.8 x 20	4	--
36	5330068	FIG -04 NPT x -04 NPT x -04 NPT DIR VLV	1	--
37	5330147	FIG NPT -04 JIC x -04 NPT	1	--
38	5330093	FIG NPT -06 ORB x -04 NPT	1	--
39	5380012	LIQUID PTFE THREAD SEALANT 50ml	1	A

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CHECKED	OR	4/20/2020

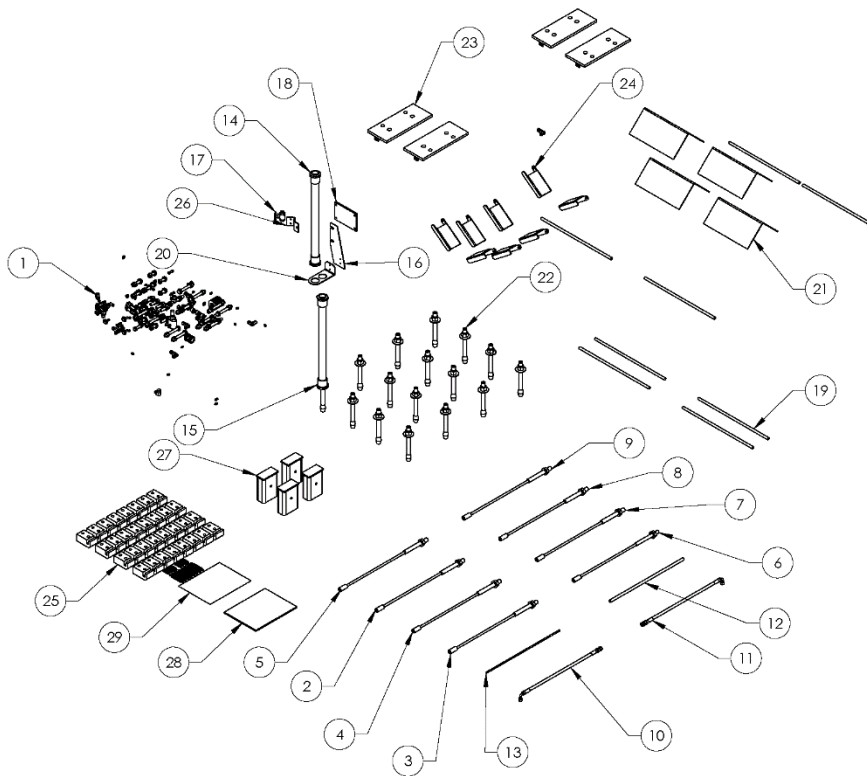
THIRD ANGLE PROJECTION

BendPak
 1645 LEMONWOOD DR.
 SANTA PAULA, CA 92360

TITLE: HD-973P PARTS BAG

SIZE	DWG. NO.	REV
A	5174027	D

SCALE: 1:15 SHEET 1 OF 2

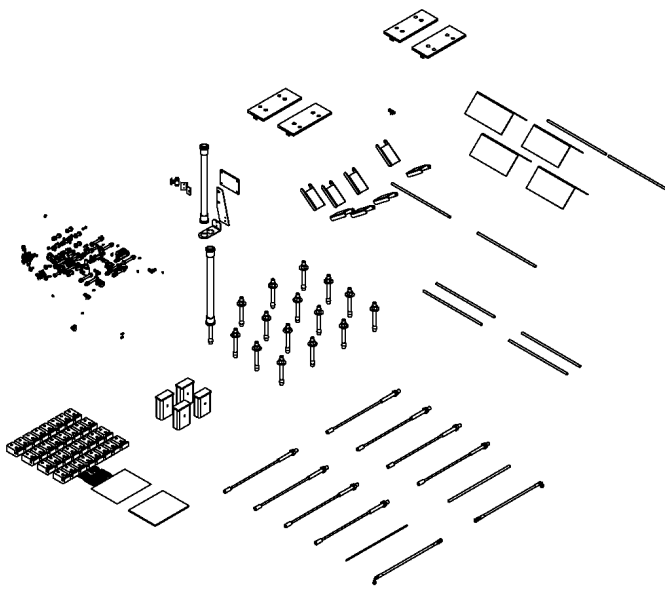


BendPak
 1645 LEMONWOOD DR.
 SANTA PAULA, CA 93060

TITLE: HD-973P PARTS BOX

SIZE: DWG. NO. **A** 5250081 REV **F**

SCALE: 1:20 SHEET 2 OF 2



ITEM NO	PART NUMBER	DESCRIPTION	QTY.	REV
1	5174027	HD-973P PARTS BAG	1	D
2	5595467	HD-7PXW CABLE ASSEMBLY Ø10 x 5704mm ST	1	C
3	5595453	HD-7PXW CABLE ASSEMBLY Ø10 x 7301mm ST	1	F
4	5595469	HD-7PXW CABLE ASSEMBLY Ø10 x 10484mm ST	1	C
5	5595055	HD-7PXW CABLE ASSEMBLY Ø10 x 12072mm ST	1	F
6	5595567	CABLE ASSEMBLY Ø10 x 5050mm ST	1	B
7	5595568	CABLE ASSEMBLY Ø10 x 6670mm ST	1	B
8	5595561	CABLE ASSEMBLY Ø10 x 9492mm ST	1	C
9	5595569	CABLE ASSEMBLY Ø10 x 11104mm ST	1	B
10	5570871	HDS-14L/HDSO-14 SERIES HOSE ASSY Ø6.4 x 4166mm	1	B
11	5570022	HYDRAULIC HOSE ASSEMBLY Ø6.4 x 3380mm	1	G
12	5570032	WIRE, AWG# 14, CAROL, 2C	5800*mm	-
13	5570795	1/4" POLYFLO TUBING	40000*mm	-
14	5570239	FLEX TUBE ASSEMBLY 1400mm	1	A
15	5570055	HD-7PXW SERIES FLEX TUBE ASSEMBLY 2440mm	1	D
16	5700381	HD-973 FLEX TUBE BRACKET PLATE	1	A
17	5590175	PUSH BUTTON AIR VALVE	1	B
18	5715003	POWER UNIT VIBRATION DAMPENER	1	B
19	5745014	HD-7/7500/9 SERIES DRIVE UP RAMP PIN	8	B
20	5700365	DOUBLE FLEX TUBE ANGLE	1	A
21	5700072	WHEEL CHOCK	4	B
22	5530337	AD 3/4" x 6-3"	1	D
23	5601272	HD-973 POST TOP PLATE WELDMENT	4	D
24	5716630	HD-9 SERIES CROSSTUBE COVER, PLASTIC	8	A
25	5716005	D4-12, HD-7/7500/9/14/HDSO-14 POLYETHYLENE SLIDE BLOCK	32	M
26	5700031	ZERO ANGLE MTG BRACKET	1	C
27	5601305	HD-973 POST BASE PLATE TOP CROSSTUBE LANDING PAD WELDMENT	4	A
28	5900076	HD-973 INSTALLATION AND OPERATION MANUAL	1	-
29	5210243	HD-973 CE PARTS BAG	1	A

DO NOT SCALE DRAWING

DRAWN TM 07/10/2018
 CHECKED OR 8/28/2020

DIMENSIONS ARE IN MM

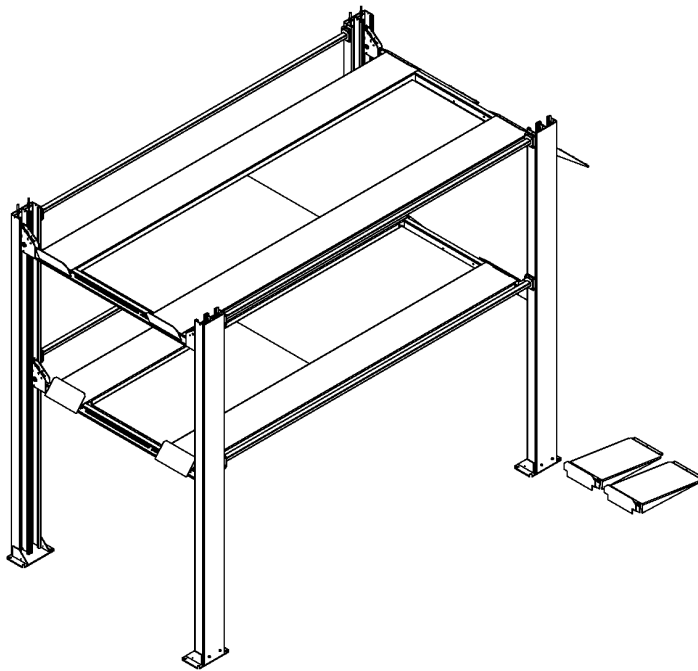
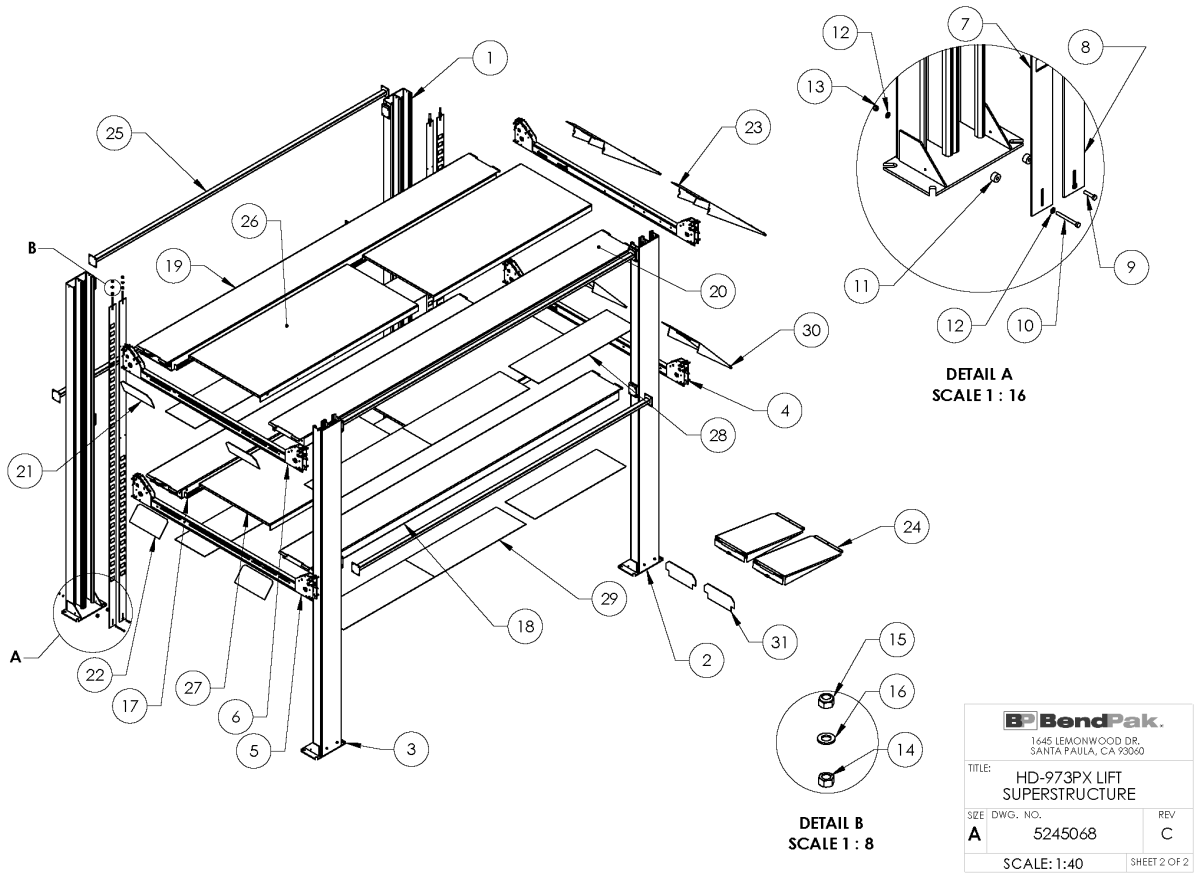
THIRD ANGLE PROJECTION

BendPak
 1645 LEMONWOOD DR.
 SANTA PAULA, CA 93060

TITLE: HD-973P PARTS BOX

SIZE: DWG. NO. **A** 5250081 REV **F**

SCALE: 1:30 SHEET 1 OF 2



ITEM NO	PART NUMBER	DESCRIPTION	QTY	REV
1	5601386	HD-973PX POWER SIDE POST WELDMENT	1	B
2	5601387	HD-973PX OFF SIDE POST WELDMENT	2	B
3	5601392	HD-973PX OFF SIDE POST WELDMENT, L.H.	1	B
4	5215621	HD-7W/9/9XL/XW CROSSTUBE ASSEMBLY, SMALL WINDOW	2	R
5	5215622	HD-9/9XL/XW CROSSTUBE ASSEMBLY, LARGE WINDOW	1	Q
6	5215624	HD-7W SERIES CROSSTUBE ASSEMBLY, LARGE WINDOW	1	Q
7	5601380	HD-973PX TOP RAMP SAFETY LADDER WELDMENT	4	B
8	5601381	HD-973PX LOWER RAMP SAFETY LADDER WELDMENT	4	B
9	5530167	HHB M10 x 1.5 x 45mm	4	--
10	5530748	HHB M10 x 1.5 x 100mm	4	--
11	5746381	HD-7/7500/9 SPACER, SAFETY LADDER, 17.5mm LG	8	B
12	5545341	WASHER M10 x Ø20 FLAT	16	--
13	5535013	NUT M10 x 1.5 NL	8	--
14	5535021	NUT M16 x 2.0	8	--
15	5535008	NUT M16 x 2 NL	8	--
16	5545025	WASHER M16 x 30mm FLAT	8	--
17	5215850	HD-973PX LOWER POWER SIDE RAMP ASSEMBLY	1	B
18	5601383	HD-973PX LOWER OFF SIDE RAMP WELDMENT	1	A
19	5215851	HD-973PX UPPER POWER SIDE RAMP ASSEMBLY	1	C
20	5601389	HD-973PX UPPER OFF SIDE RAMP WELDMENT	1	A
21	5600890	HD-7/7500/9 SERIES TIRE STOP PLATE WELDMENT	2	F
22	5601356	HD-973 TIRE STOP WELDMENT	2	B
23	5215131	HD-7/9 EXTENDED DRIVE UP RAMP ASSEMBLY	2	H
24	3174220	HD-9 ALUMINUM APPROACH RAMP ASSEMBLY	2	G
25	5601390	HD-973PX STIFFENER TUBE WELDMENT	4	A
26	5601385	HD-973PX ALUMINUM LONG SOLID DECK WELDMENT	3	B
27	5601384	HD-973PX ALUMINUM SHORT SOLID DECK WELDMENT	1	B
28	5701560	HD-973 UPPER RAMP PLASTIC COVER	6	A
29	5701558	HD-973 LOWER RAMP PLASTIC COVER	6	A
30	5215193	HD-7500BL/BLX, 9/ST/STX/XW DRIVE UP RAMP ASSEMBLY	2	G
31	5735728	HD DROP IN TIRE STOP	2	A

DO NOT SCALE DRAWING

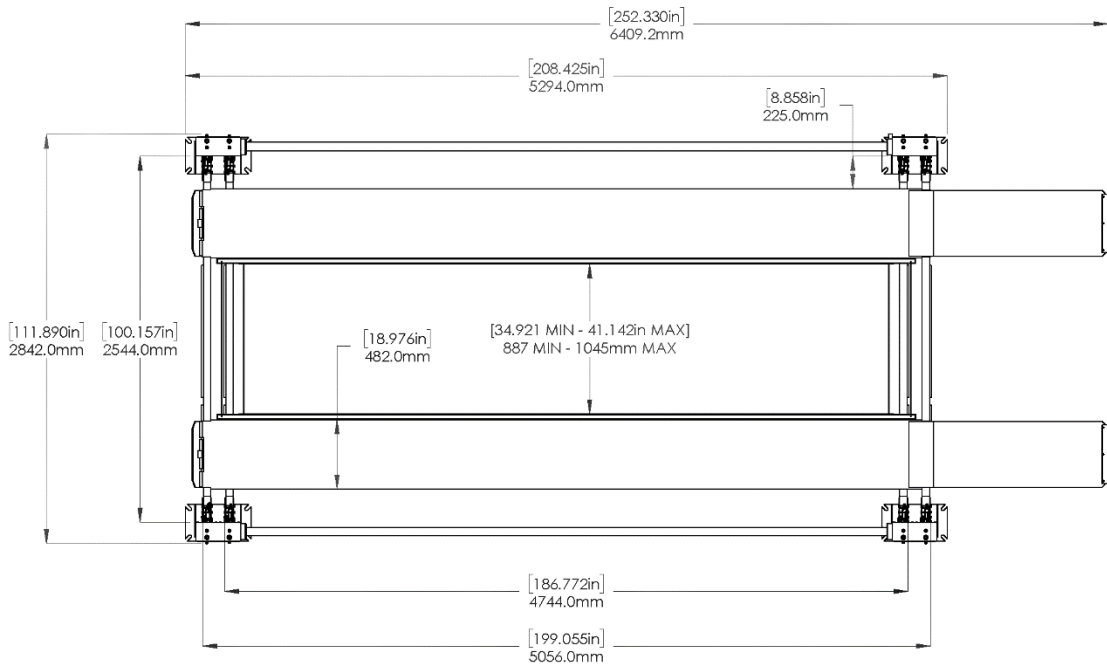
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DIMENSIONS ARE IN MM

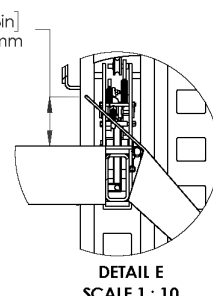
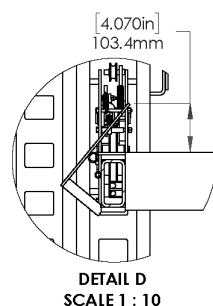
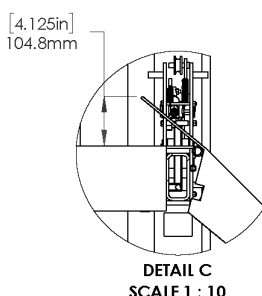
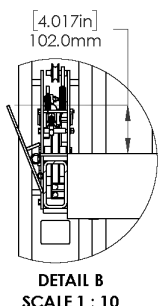
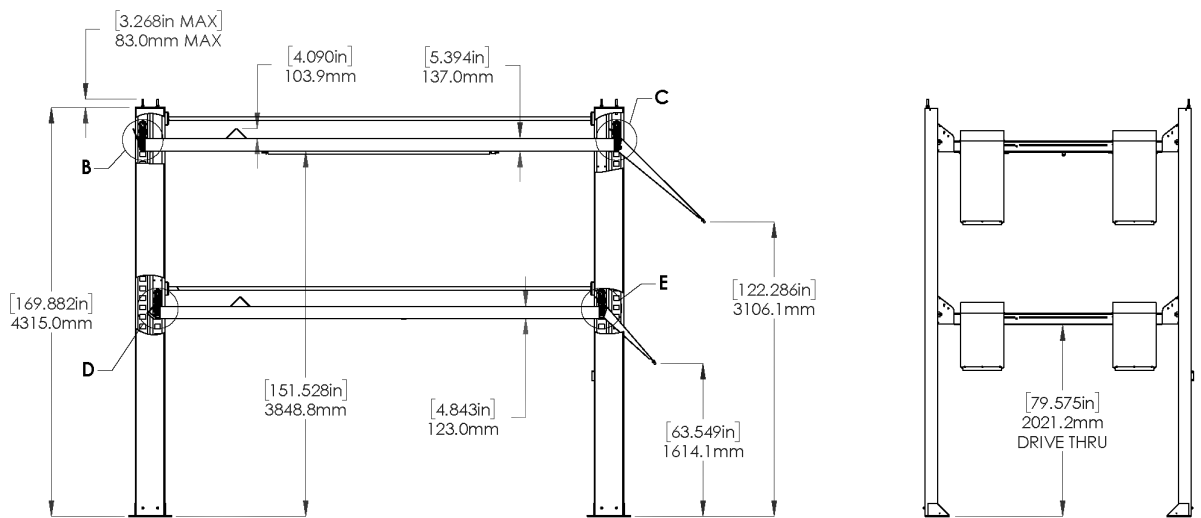
THIRD ANGLE PROJECTION

TITLE: HD-973PX LIFT SUPERSTRUCTURE
SIZE DWG. NO. A 5245068 REV C
SCALE: 1:45 SHEET 1 OF 2

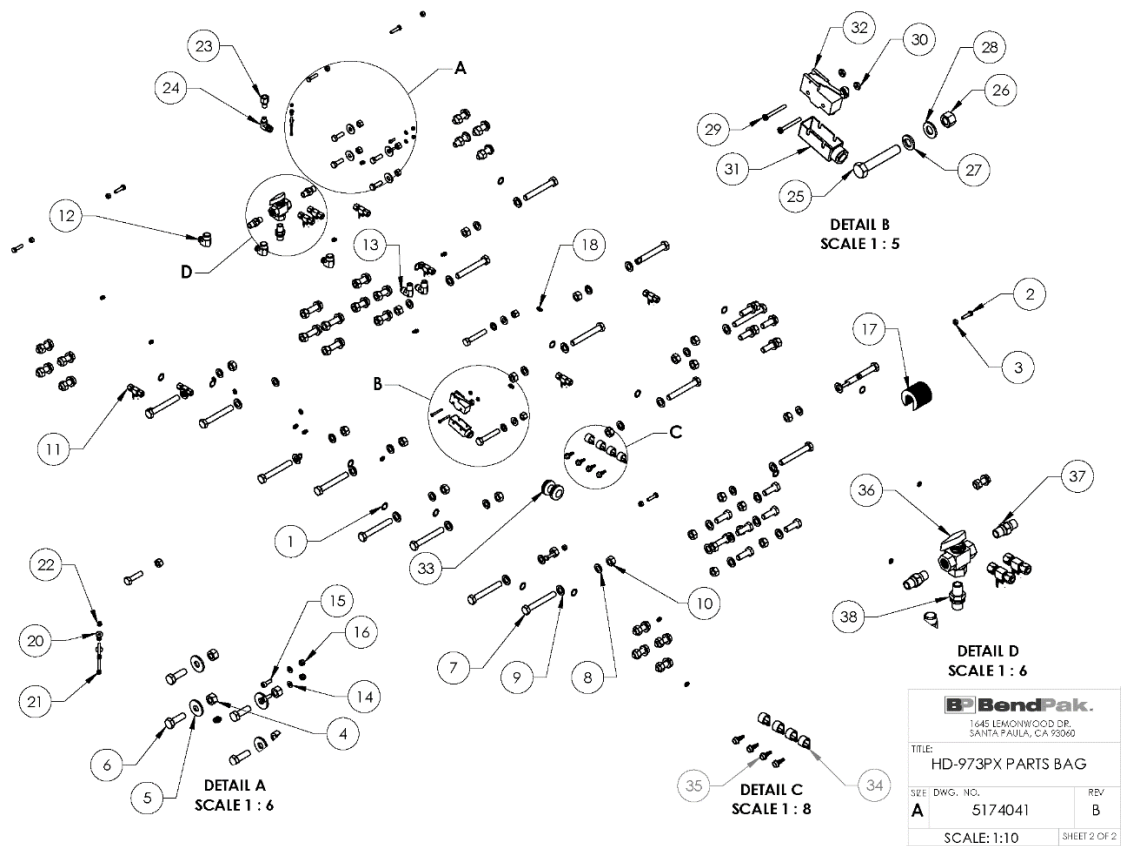
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TITLE: HD-973PX PRODUCTION LIFT VER A	
SIZE	REV
DWG. NO. A 5260362	C
SCALE: 1:30 SHEET 2 OF 4	



BendPak.	
1645 LEMONWOOD DR. SANTA PAULA, CA 93060	
TITLE: HD-973PX PRODUCTION LIFT VER A	
SIZE	REV
DWG. NO. A 5260362	C
SCALE: 1:50 SHEET 3 OF 4	



BendPak.
1645 LEMONWOOD DR.
SANTA PAULA, CA 93060

TITLE:
HD-973PX PARTS BAG

SIZE	DWG. NO.	REV
A	5174041	B

SCALE: 1:10 SHEET 2 OF 2



ITEM NO	PART NUMBER	DESCRIPTION	QTY	REV
1	5550301	ROTOR CLIP 12mm SS	16	-
2	5550756	HHB M6 x 1 x 25	8	-
3	5553357	NUT M6 x 1.0 NL	8	-
4	5553001	NUT M8 x 1.25 NL	4	-
5	5543340	WASHER M8 x24 FLAT	4	-
6	5553010	HHB M8 x 1.25 x 25	4	-
7	5550009	HHB M12 x 1.75 x 90 C18.8	16	-
8	5545201	WASHER, M12 SPRING LOCK	16	-
9	5543347	WASHER, M12 FLAT WASHER	48	-
10	5553354	NUT M12 x1.75	48	-
11	5553095	FIG TEE -04 COMP x-04 COMP x-04 COMP	3	-
12	5550089	FIG ELB -04 COMP x-06 NPT	3	-
13	5550106	FIG ELB -04 JIC 06-NPT	2	-
14	5545009	WASHER, Ø4.3 x Ø9mm x 0.8mm	2	-
15	5550008	SHCS M4 x 0.7 x 1.2 ROC	2	-
16	5553010	NUT M4 x 0.7 NL	2	-
17	5545535	C WASHER SHIM FOR LIFE'S	19	-
18	5550025	FIG GRS M6 x 1.0	20	-
19	5550076	HHB M12 x 1.75 x 35mm	32	-
20	5543074	WASHER M3 x 9mm	2	-
21	5550043	SHCS M3 x 0.5 x 30	2	-
22	5553020	NUT M3 x 0.5 NL	2	-
23	5550486	FIG NPT -02 NPT x-04 F NPT	1	-
24	5550087	FIG ELB -04 COMP x-02 NPT	1	-
25	5550217	HHB M10 x 1.5 x 38	2	-
26	5553013	NUT M10 x 1.5 NL	2	-
27	5545200	WASHER M10 x Ø18 SL	2	-
28	5545341	WASHER M10 x Ø20 FLAT	2	-
29	5550115	BHS 6-32 x 1.25	2	-
30	5553190	HN 6-32	2	-
31	5525112	MICRO SWITCH COVER-5PA2	1	-
32	5525093	SPDT MICRO SWITCH w ROLLER;25A@125VAC	1	-
33	5550001	RUBBER GROMMET, 3/4 ID.	2	-
34	5550064	16mm CUSHIONED LOOP STRAP	4	-
35	5550749	HSDS M6.3 x 1.8 x 20	4	-
36	5550068	FIG -04 NPT x-04 NPT x-04 NPT DIR VLV	1	-
37	5550147	FIG NPT -04 JIC x-04 NPT	2	-
38	5550093	FIG NPT -06 ORB x-04 NPT	1	-

DO NOT SCALE DRAWING

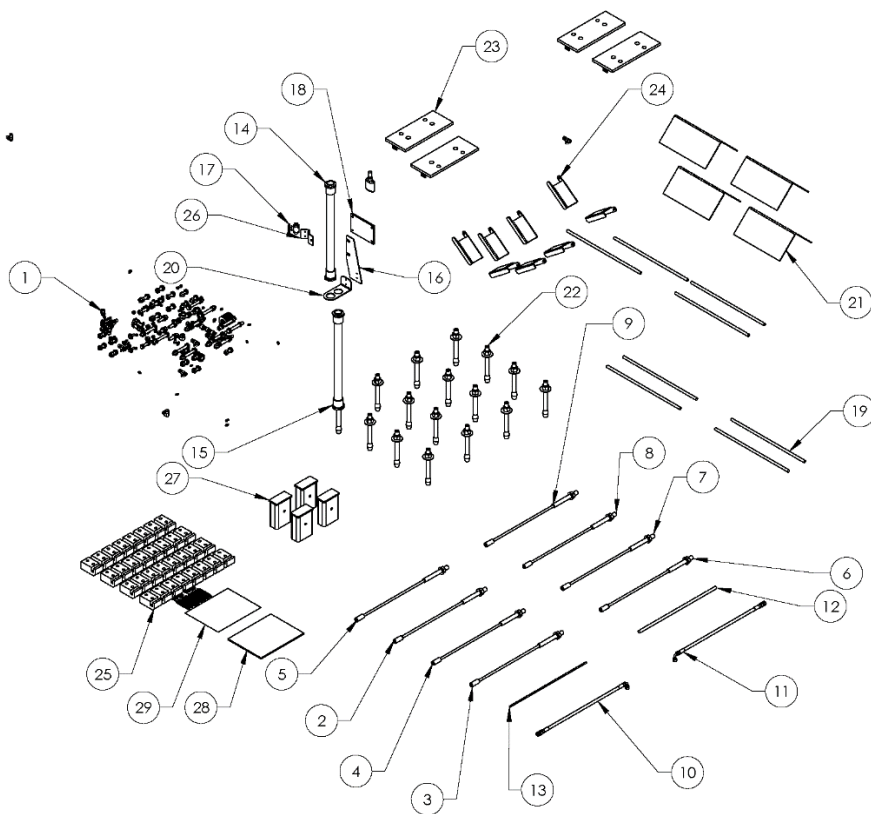
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BendPak.
1645 LEMONWOOD DR.
SANTA PAULA, CA 93060

TITLE:
HD-973PX PARTS BAG

SEE DWG. NO.	REV
A	B

SCALE: 1:15 SHEET 1 OF 2

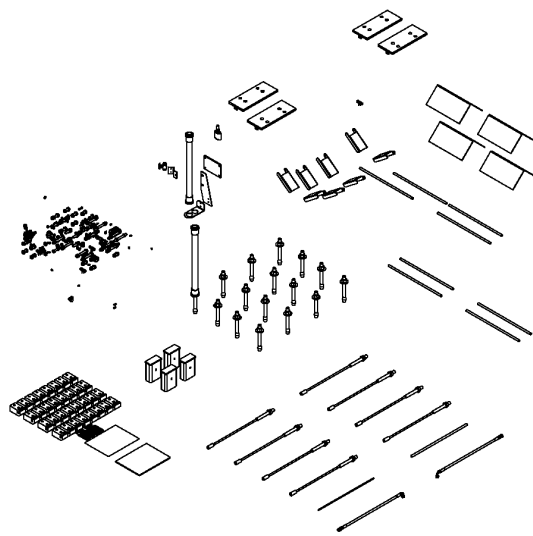


BendPak
 1645 LEMONWOOD DR.
 SANTA PAULA, CA 93060

TITLE:
HD-973PX PARTS BOX

SIZE DWG. NO. REV
A 5250278 E

SCALE: 1:20 SHEET 2 OF 2



ITEM NO	PART NUMBER	DESCRIPTION	QTY.	REV
1	5174041	HD-973PX PARTS BAG	1	B
2	5595590	CABLE ASSEMBLY Ø10 x 5940mm ST	1	C
3	5595591	CABLE ASSEMBLY Ø10 x 7538mm ST	1	C
4	5595592	CABLE ASSEMBLY Ø10 x 10990mm ST	1	C
5	5595593	CABLE ASSEMBLY Ø10 x 12578mm ST	1	C
6	5595594	CABLE ASSEMBLY Ø10 x 5012mm ST	1	D
7	5595595	CABLE ASSEMBLY Ø10 x 6638mm ST	1	C
8	5595596	CABLE ASSEMBLY Ø10 x 9726mm ST	1	C
9	5595597	CABLE ASSEMBLY Ø10 x 11315mm ST	1	D
10	5570232	HYDRAULIC HOSE ASSEMBLY Ø6.4 x 44059mm SB	1	B
11	5570231	HYDRAULIC HOSE ASSEMBLY Ø6.4 x 3820mm	1	A
12	5520032	WIRE, AWG 14, CAROL, 2C	5800*mm	-
13	5570795	1/4" POLY-FLO TUBING	40000*mm	-
14	5570239	FLEX TUBE ASSEMBLY 1400mm	1	A
15	5570055	HD-7PXW SERIES FLEX TUBE ASSEMBLY 2440mm	1	D
16	5700381	HD-973 FLEX TUBE BRACKET PLATE	1	A
17	5590175	PUSH BUTTON AIR VALVE	1	B
18	5715003	POWER UNIT VIBRATION DAMPENER	1	B
19	5745014	HD-7/7500/9 SERIES DRIVE UP RAMP PIN	8	B
20	5700365	DOUBLE FLEX TUBE ANGLE	1	A
21	5700072	WHEEL CHOCK	4	B
22	5530337	AB 3/4" x 6.3"	16	-
23	5601272	HD-973 POST TOP PLATE WELDMENT	4	D
24	5716630	HD-9 SERIES CROSSTUBE COVER, PLASTIC	8	A
25	5716005	D4-12, HD-7/7500/9/114/HDSO-14 POLYETHYLENE SLIDE BLOCK	32	M
26	5700031	ZERO ANGLE MITG BRACKET	1	C
27	5601305	HD-973 POST BASE PLATE TOP CROSSTUBE LANDING PAD WELDMENT	4	A
28	5900076	HD-973 INSTALLATION AND OPERATION MANUAL	1	-
29	5210243	HD-973 CE PARTS BAG	1	A

DO NOT SCALE DRAWING

NAME DATE
 DRAWN TS 06/04/2019
 CHECKED OR 12/02/2020

BendPak
 1645 LEMONWOOD DR.
 SANTA PAULA, CA 93060

DIMENSIONS ARE IN MM

THIRD ANGLE PROJECTION

TITLE:
HD-973PX PARTS BOX



SIZE DWG. NO. REV
A 5250278 E

SCALE: 1:30 SHEET 1 OF 2



1645 Lemonwood Drive
Santa Paula, CA, 93060 USA