

Four-Post Lifts

Installation and Operation Manual

Manual P/N 5900251 — Manual Revision A2 — Released January 2022

Models:

- D4-9
- D4-9X



Model D4-9 shown.

DANGER

IMPORTANT SAFETY INSTRUCTIONS, SAVE THESE INSTRUCTIONS!

Read the contents of this manual thoroughly **before** installing, operating, servicing, or maintaining this lift. Failure to follow the instructions and safety precautions in this manual can result in serious injury or death. Make sure all operators 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. D4-9 and D4-9X Four-Post Lifts, *Installation and Operation Manual*, Manual P/N 5900251, Manual Revision A2, released January 2022.

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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 Dannmar website**.

Warranty. The Dannmar warranty is more than a commitment to you: it is also a commitment to the value of your new product. Visit the **Dannmar website** for full warranty details.

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 the 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: _____

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Introduction

This manual describes the following Dannmar Four-Post Lifts:

- **D4-9**: Four-post Lift that can raise Vehicles up to 9,000 pounds (4,082 kg). ALI Certified.
- **D4-9X**: Four-post Lift with **extended length and height** that can raise Vehicles up to 9,000 pounds (4,082 kg). ALI Certified.

This manual is mandatory reading for all users of these Lifts, including anyone who installs, uses, maintains, or repairs them. **Keep this manual on or near the equipment so that anyone who uses or services it can read it.**

 **DANGER** Be *very* careful when installing, operating, maintaining, or repairing the unit; failure to do so could result in property damage, product damage, injury, or (in rare cases) death. Make sure only authorized personnel operate the unit. 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. Read and follow the instructions in this manual and on the labels on the unit.

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 dannmar.com/support, by email at support@dannmar.com, or by phone at **(877) 432-6627**. You may also contact Dannmar for parts replacement information at **(877) 432-6627**; 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 to make an inspection.

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

Refer to ANSI/ALI ALIS Standard *Safety Requirements for Installation and Service of Automotive Lifts* for more information about safely installing your Lift.

 **WARNING** **California Proposition 65.** This product can expose you to chemicals including styrene and vinyl chloride which are on the list of over 900 chemicals identified by the State of California to cause cancer, birth defects, or reproductive harm. Always use this product in accordance with BendPak Dannmar's instructions. For more information, visit [www. P65warnings.ca.gov](http://www.P65warnings.ca.gov).

Important Safety Instructions

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

1. Use only as described in this manual.
2. Use only manufacturer's recommended attachments.
3. Read all instructions.
4. Do not touch hot parts; you could be burned. Always use care with the equipment.
5. Do not operate equipment with a damaged cord or if the equipment has been dropped or damaged—until it has been examined by a qualified service person.
6. Do not let a cord hang over the edge of a table, bench, or counter or come in contact with hot manifolds or moving fan blades.
7. If an extension cord is necessary, a cord with a current rating equal to or greater than that of the equipment should be used. Cords rated for less current than the equipment may overheat. Care should be taken to arrange the cord so that it will not be tripped over or pulled out.
8. Always unplug equipment from electrical outlets when not in use. Never use the cord to pull the plug from the outlet. Grasp plug and pull to disconnect.

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9. Let equipment cool completely before putting away. Loop cord loosely around equipment when storing.
 10. To reduce the risk of fire, do not operate equipment in the vicinity of open containers of flammable liquids (gasoline).
 11. Adequate ventilation should be provided when working on operating internal combustion engines.
 12. Keep hair, loose clothing, fingers, and all parts of your body away from moving parts.
 13. To reduce the risk of electric shock, do not use the unit on wet surfaces or expose to rain.
 14. Use only as described in this manual. Use only manufacturer's recommended attachments.
 15. Always wear safety glasses. Everyday glasses only have impact resistant lenses, they are not safety glasses.
 16. To reduce the risk of injury, close supervision is necessary when this product will be used around children.
 17. To reduce the risk of injury, never overload drawers or shelves. Refer to loading instructions.
 18. To reduce the risk of electric shock or fire, never overload receptacles. Refer to markings for the proper load on receptacles.

Save these instructions!

Additional Safety Information

The following safety information applies to all D4-9 models:

- **The product is a four-post Lift.** Use it only for its intended purpose.
- The product may only be operated by authorized, trained persons.
- 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***.
- ***Never*** exceed the rated capacity of the Lift.
- When the Lift is in use, keep all body parts well away from it.
- Clear the area immediately if a Vehicle is in danger of falling off the Lift.
- 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.
- The Lift uses electrical energy; if your organization has Lockout/Tagout policies, make sure to implement those policies after connecting the Lift to a power source.
- While handling a Hydraulic Cylinder or a Hydraulic Hose, always wear gloves. In rare cases, a needle-like stream of hydraulic fluid (even at low pressure) can penetrate fingers, hands, or arms; such a puncture can feel like a bite, electric shock, or a prick. While it may seem like a minor issue, any amount of Hydraulic Fluid injected into the human body is a serious issue. Anyone suffering such a puncture wound should be ***immediately*** taken to a hospital emergency room to determine the extent of the injury. Explain the circumstances of the injury to the attending physician, including what kind of Hydraulic Fluid was involved. Do not assume a puncture wound that could have been caused by Hydraulic Fluid is a minor issue; it could be life threatening.
- 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 Dannmar at **(877) 432-6627** or support@dannmar.com.

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- 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.

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.
- Modifying, disabling, overriding, or removing safety features.
- Damage to the equipment from external influences.
- Incorrect operation of the equipment.

Optional Accessory

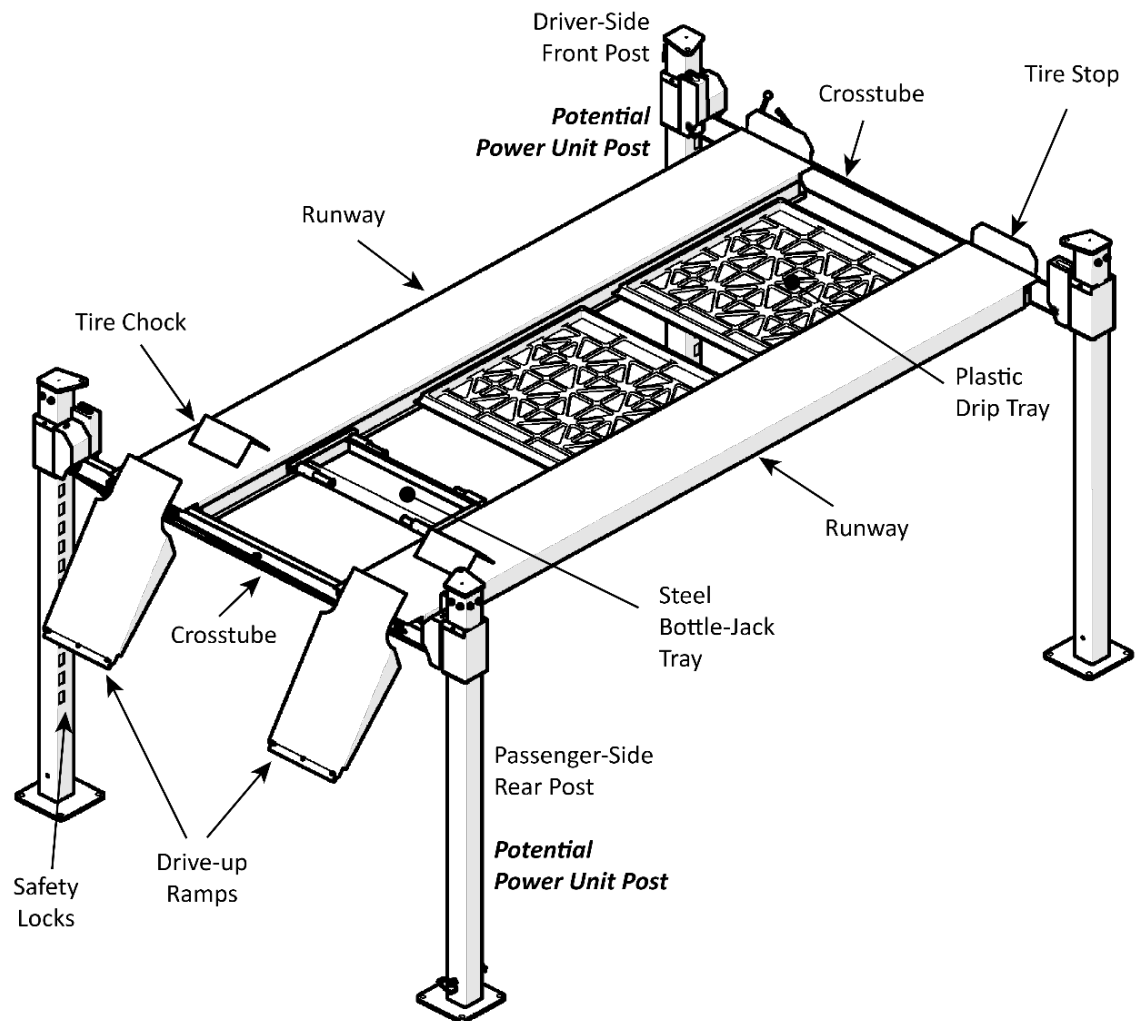
There is an additional accessory you can purchase for use with your Lift:

- **Rolling Jack.** A Rolling Jack raises the wheels of a Vehicle off the Runways of a Lift, making it much easier to perform service such as brake jobs and suspension work while the Vehicle is still on the Lift.

You can raise two wheels off the Runways if you have one Rolling Jack. It takes two Rolling Jacks to raise all four wheels off the Runways at the same time.

D4-9 models take 4,500 lb. capacity Rolling Jacks. Refer to the [Rolling Jack pages on the Danmar website](#) for more information.

Components



The main components of your Lift include:

- **Power Post.** The Post that holds the Power Unit. The Power Post can only be at the Driver-Side Front or the Passenger-Side Rear of the Lift. More on this later.
- **The other three Posts.** The locations of the Safety Lock Holes are different from each other. Make sure to orient them correctly.
- **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. The standard
- **Powerside Runway.** The Runway next to the Power Post. The Powerside Runway has the Hydraulic Cylinder and the Lifting Cables under it.
- **Offside Runway.** The other Runway. It does **not** have a Hydraulic Cylinder or Lifting Cables under it.
- **Utility Rails.** Part of each Runway, they hold the Drip Trays and Bottle-Jack Trays. Utility Rails must be positioned on the inside of the Lift.
- **Crosstubes.** They connect the two Posts at the Front of the Lift together and connect the two Posts at the Rear of the Lift together.
- **Ramps.** One for each Runway. Use them to drive onto and off of the Runways.
- **Safety Locks.** Once engaged, they hold the Runways up, even if the power goes out or there is a leak in the Hydraulic Hoses. ***Only leave your Lift either fully lowered or engaged on Safety Locks.***
- **Tire Stops.** Located at the Front of the Lift (also called the non-approach side), Tire Stops prevent the Vehicle's front Tires from going any further forward.
- **Caster Kit.** Raises the bases of the Posts up off the ground so that the entire Lift can be moved. If you plan on using the Caster Kit, do not anchor the Lift.
- **Drip Trays.** Position them between the two Runways to catch dripping oil.
- **Tire Chocks.** When put in place behind a Vehicle's Tires, they prevent the Vehicle from moving backwards.
- **JP45 Bottle-Jack Tray.** Holds one or two Bottle Jacks (not included), which let you raise a Vehicle's wheels up off the Runways. Refer to the *JP45 Quick Start Guide* or the [BendPak website](#) for more information.
- **Rolling Jack.** A Rolling Jack raises the wheels of the Vehicle on the Lift off the Runways, making certain types of work easier to perform while the Vehicle is on the Lift. You would use 4,500 lb. capacity Rolling Jacks on both D4-9 Lift models; refer to the [Dannmar website](#) for more information.

Frequently Asked Questions

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

Answer: Cars, trucks, SUVs; anything that fits on the Runways and under the ceiling, up to 9,000 lbs (4,082 kg) each. See **Specifications** and **Usable Area** for Wheelbase restrictions.

Q: How long does it take to raise or lower my Lift?

A: From 45 to 60 seconds.

Q: Do I have to put my Power Unit in a particular location?

A: Yes. The Power Post (the Post that holds the Power Unit) must be located at either the Driver-Side Front or the Passenger-Side Rear of the Lift. More on this later.

Q: How high does the ceiling have to be?

A: It depends on the height of the Vehicles and how high you raise the Lift. If you are going to put a tall Vehicle on the Lift and raise it all the way up, you should measure the Vehicle you want to raise. From there, carefully raise the Vehicle on the Lift and check to make sure there is enough room. For a rough estimate, assume you will need 88 in / 2,235 mm plus the height of the tallest Vehicle you are going to raise.

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

A: We recommend driving your Vehicles in front first, because that makes it easier to center the Vehicle's Wheels on the middle of the Runways.

Q: What accessories come with the Lift?

A: Both models come with Drip Trays, a Bottle-Jack Tray, Aluminum Drive-up Ramps, a Caster Kit, Steel Tire Stops, and Wheel Chocks.

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

A: As long as you want. Once the Lift is **engaged** on its Safety Locks, gravity holds it in position, so a loss of power or a Hydraulic Fluid leak does not impact it; it is going to stay where you left it.
Always leave your Lift either fully lowered or engaged on Safety Locks.

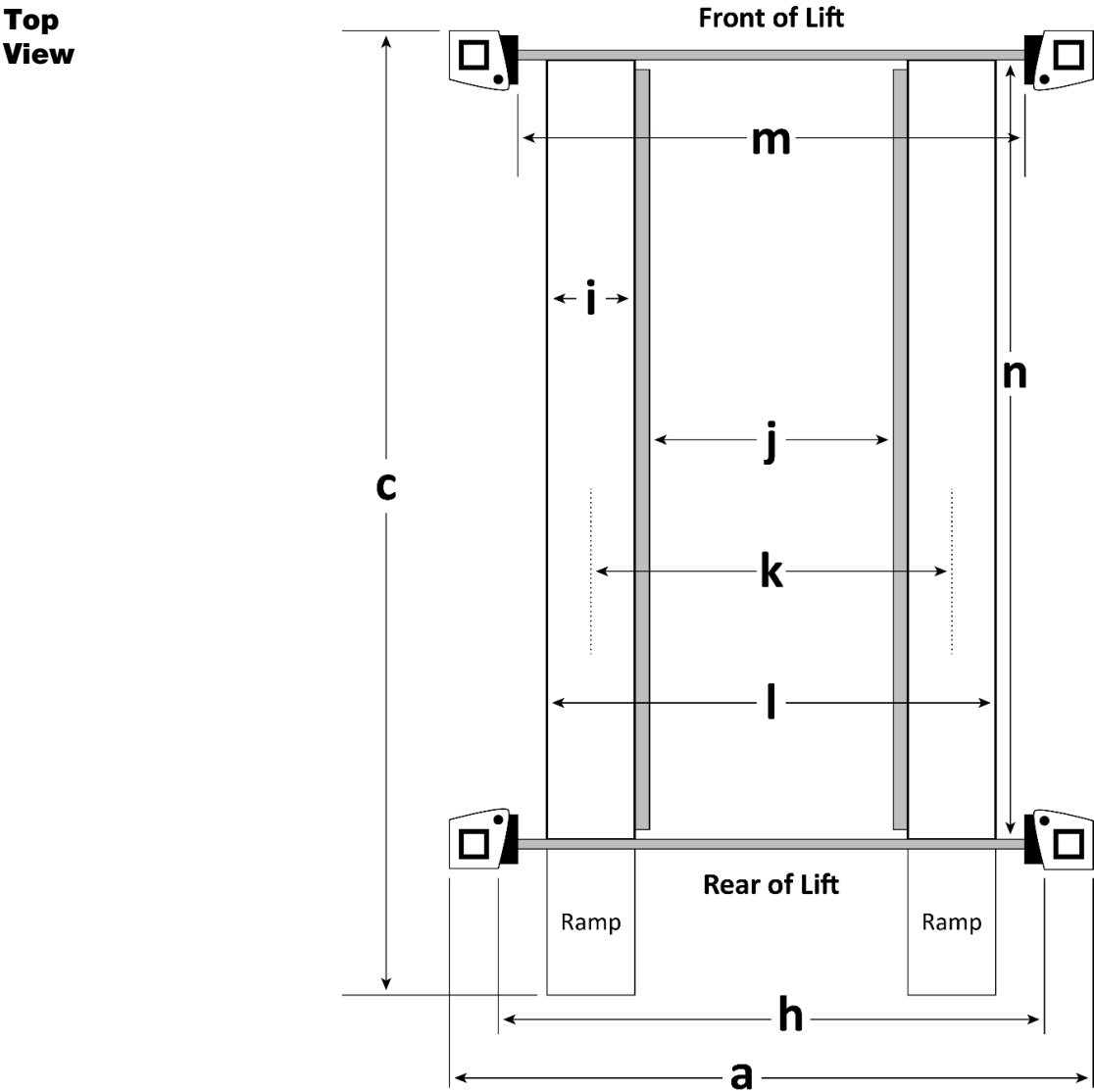
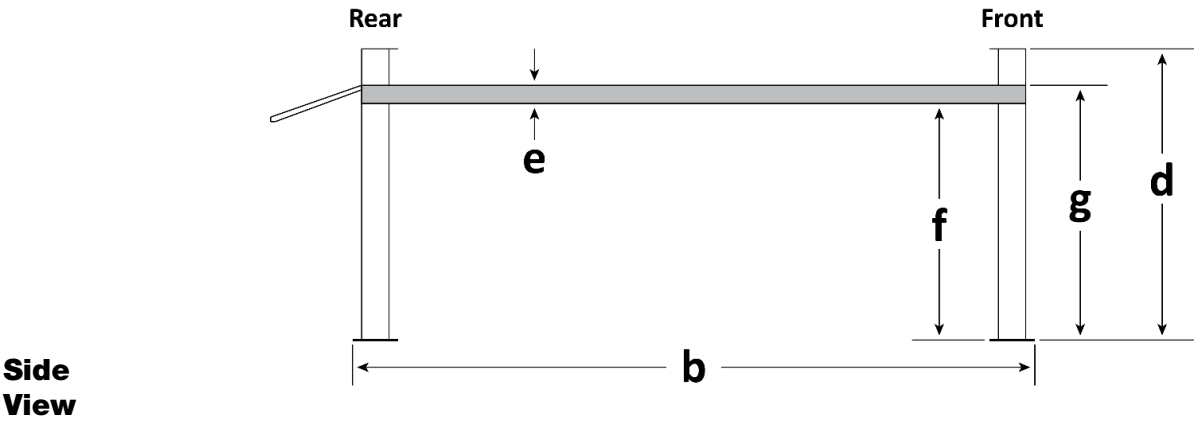
Q: Can I install my Lift outside?

A: No. Your Lift is approved for indoor installation and use. ***Outdoor installation is prohibited.***

Q: What optional components are available?

A: A **Rolling Jack** can get the Tires of Vehicles on the Lift up off the Runways, making automotive service such as brake jobs and suspension work easier to accomplish.

Specifications



Model	D4-9	D4-9X
Lifting capacity	9,000 lbs / 4,082 kg	
Maximum capacity front axle	4,500 lbs. / 2,041 kg	
Maximum capacity rear axle	4,500 lbs. / 2,041 kg	
a Total width ¹	113 in. / 2,865 mm	
a1 Total width (with Power Unit)	125 in. / 3,175 mm	
b Outside Posts length	176.5 in. / 4,482 mm	200.5 in. / 5,092 mm
c Total length (includes Ramps)	203 in. / 5,153 mm	227 in. / 5,763 mm
d Post height	89 in. / 2,262 mm	99 in. / 2,516 mm
e Runway thickness	5 in. / 118 mm	
f Maximum rise	70 in. / 1,724 mm	82 in. / 2,012 mm
g Maximum lifting height	75 in. / 1,908 mm	87 in. / 2,215 mm
h Distance between Posts	98 in. / 2,490 mm	
i Runway width	18.75 in. / 476 mm	
j Width between Runways	35 in. / 888 mm	
k Runway centerline	53.75 in. / 1,365 mm	
l Outside edge of Runways	72.5 in. / 1,842 mm	
m Drive-through clearance	86 in. / 2,184 mm	
n Length of Runways	165.5 in. / 4,208 mm	189.75 in. / 4,818 mm
Min. wheelbase @ rated capacity ²	115 in. / 2,921 mm	135 in. / 3,429 mm
Min. wheelbase @ 75% capacity ²	100 in. / 2,540 mm	115 in. / 2,921 mm
Min. wheelbase @ 50% capacity ²	85 in. / 2,159 mm	95 in. / 2,413 mm
Min. wheelbase @ 25% capacity ²	70 in. / 1,778 mm	80 in. / 2,032 mm
Locking positions	13; every 4 inches / 102 mm	16; every 4 inches / 102 mm
Lifting time to maximum rise	60 seconds	60 seconds
Motor	110 VAC, 60 Hz, 1 Ph standard; 208-240 VAC available	
Sound (when raising/lowering)	<70 dBA	

¹ Make sure to use **A** value for creating chalk lines, not **A1** value.

² The Lift supports less weight than its full rated capacity if a Vehicle's wheelbase is shorter because the Wheels of the Vehicle are closer to the middle of the Runways, where there is less strength. For example, if you put a Vehicle with a wheelbase of only 84.5 inches on a D4-9, the shorter wheelbase puts more weight in the middle of the Runways, reducing the Lift's capacity to 4,500 lbs (50% of its full rated capacity of 9,000 lbs).

Specifications subject to change without notice.

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. Check for clearances around the Lift.
- ☐ 4. About the usable area of the Lift.
- ☐ 5. Select the Lift location.
- ☐ 6. Plan for electrical work.
- ☐ 7. Unload and unpack the Lift components.
- ☐ 8. Choose the Power Post location.
- ☐ 9. Understand the orientation issues.
- ☐ 10. Create Chalk Line guides.
- ☐ 11. Move the Posts into position.
- ☐ 12. Install the Crosstubes.
- ☐ 13. Raise the Crosstubes.
- ☐ 14. Install the Runways.
- ☐ 15. Learn about Safety Locks.
- ☐ 16. Install the Safety Lock Release Mechanism.
- ☐ 17. Learn about the Pivot Pieces
- ☐ 18. Install the Top Caps.
- ☐ 19. About Cables Sheaves.
- ☐ 20. Lubricate the Cable Sheaves
- ☐ 21. Route the Lifting Cables.
- ☐ 22. Install the Power Unit.
- ☐ 23. Install the Flex Tube.
- ☐ 24. Learn about Hydraulic Fluid Contamination and Liquid Thread Sealant.
- ☐ 25. Install the Flex Tube.
- ☐ 26. Install the Hydraulic Hoses.
- ☐ 27. Install the Return Line.
- ☐ 28. About Compression Fittings and Tubing.
- ☐ 29. Contact the Electrician.
- ☐ 30. Connect to a power source (***Electrician required for 220 VAC operation***).
- ☐ 31. Install the Power Disconnect Switch and Thermal Disconnect Switch (***Electrician required***).
- ☐ 32. Add Hydraulic Fluid to the Power Unit reservoir.
- ☐ 33. About Embedment.
- ☐ 34. Anchor the Posts.
- ☐ 35. Perform final leveling.
- ☐ 36. Install the accessories.
- ☐ 37. Perform an operational test.
- ☐ 38. Review the final checklist.

Installation

The installation process includes multiple steps. Perform them in the order listed.

Read the **entire** Manual **before** beginning the install; this gives you a better understanding of the installation and operation requirements.

 **WARNING** **Only use the manufacturer-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 dannmar.com/support or call **(877) 432-6627**.

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 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 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** during installation: leather gloves, non-skid steel-toed work boots, eye protection, back belts, and hearing protection are **mandatory**.

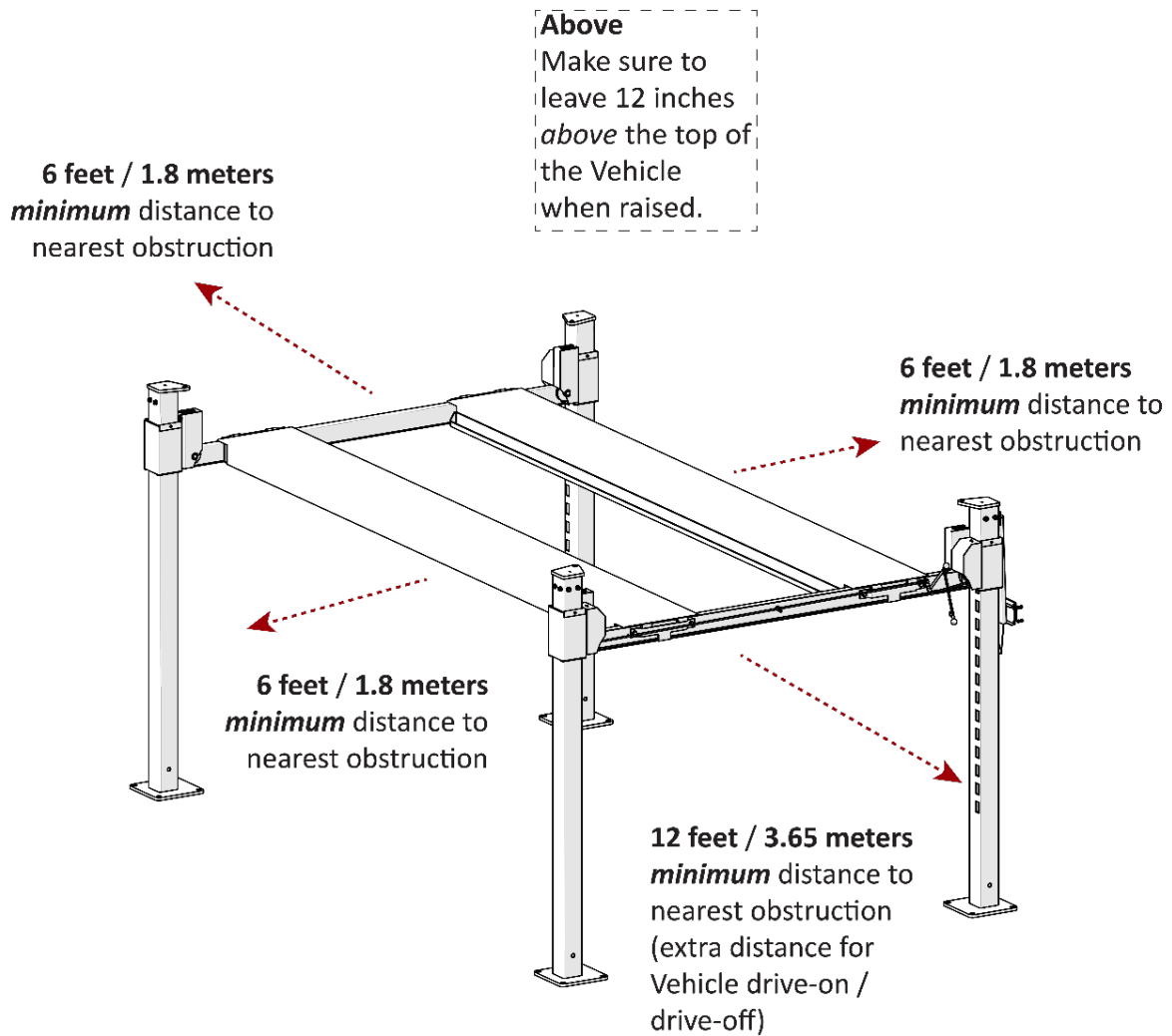
Using Tools

You may need some or all of the following tools:

- Rotary hammer drill
- 3/4 inch carbide bit (conforming to ANSI B212.15)
- Hammer and crow bar
- 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 slot screwdriver and needle-nose pliers
- Tape measure (25 feet or above)
- Forklift, Shop Crane, or heavy-duty Rolling Dolly
- 12-foot ladder

Clearances

For safety purposes, a specific amount of clear space around the Lift is **required**.



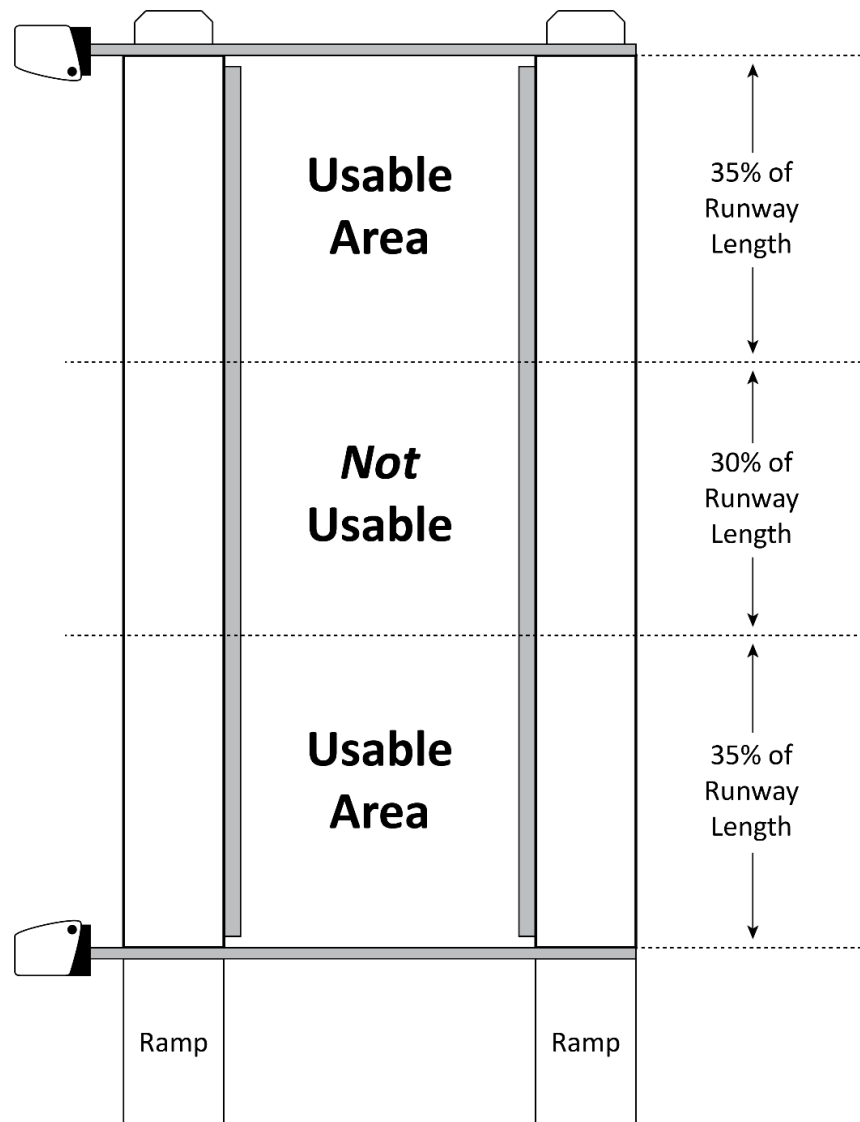
Top view. Drawing not necessarily to scale. Not all components shown.

Usable Area

The strength of the Runways is reduced in the middle, so you **must not** put the Wheels of a Vehicle you are raising in this area. The same restriction applies to Rolling Jacks and Bottle-Jack Trays; they must **not** be used in this middle section of the Runways.

⚠ CAUTION Do not load Vehicles so the Wheels of the Vehicle are in the middle of the Runways or use Rolling Jacks or Bottle-Jack Trays in that area; it could permanently damage the Runways. Damage caused by this **unsupported** use of the Lift is **not** covered by the warranty.

This will not impact your use of the Lift in the vast majority of cases, as the length of the wheelbases of the Vehicles you are raising put the Wheels in the Usable Areas.



Top view. Drawing not necessarily to scale. Not all components shown.

Selecting a Location

When selecting the location for your Lift, consider:

- **Overhead obstructions.** 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 as the Lift rises.***
- **Clearances.** You must leave room around the Lift. Leave at least six feet (1.8 meters) clear on each side and the front, and 12 feet (3.65 meters) at the Rear of the Lift. Refer to **Specifications** and **Clearances** for more information.
- **Power.** You need a 110 or a 220 VAC power source available for the Power Unit, depending on what Power Unit you ordered.
- **Outdoor installations.** Your Lift is approved for indoor installation and use only. ***Outdoor installation is prohibited.***
- **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.
- **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 on a surface with 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 level and you are anchoring it, you can use Shims under the bases of the Posts, 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. A maximum shim of 2 inches is possible by ordering optional Shim Plates. Contact Dannmar at **(877) 432-6627** to order. Please have the model and serial number of your Lift available.

- **Concrete specifications.** Do not install the Lift on cracked or defective Concrete. Make sure the Concrete is at least 4.25 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.***

Planning for Electrical Work

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

⚠ DANGER All wiring **must** be performed by a licensed, certified Electrician in accordance with local and national electrical codes.

Notify your Electrician in advance so that they come with a Power Disconnect Switch and a Thermal Disconnect Switch. If you ordered a 220 VAC Power Unit, they will also need to bring appropriate components.

Your Electrician needs to:

- **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.
- **Connect an electric power source to the Power Unit for 220 VAC Power Units.** If you are using a 220 VAC Power Unit—instead of the standard 110 VAC Power Unit—your Electrician will need to bring and install appropriate components. Refer to **Contacting the Electrician** for more information.

Important: The standard 110 VAC Power Units come with a power cord and appropriate plug. Just plug it in to a 110 VAC outlet.

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 Lift is 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.

Important Note:

Before removing the Powerside Runway (the Runway with the Hydraulic Cylinder and the Lifting Cables under it), remove the four Runway Sheaves on one end of the Powerside Runway and the two Runway Sheaves on the other end.

Pay attention to the order in which the Runway Sheaves come off; later in the installation you will need to put them back into place in the reverse order from how you took them off.

Selecting your Power Post Location

The two options for the Power Post Location are **Driver-Side Front** or **Passenger-Side Rear**.

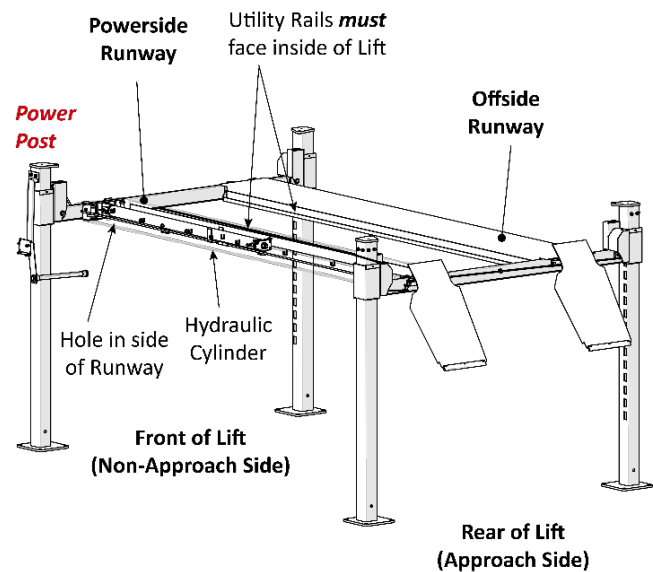
As you can see from the drawing below, the Power Post location choice does not change the approach direction for the Vehicles you will be driving onto the Lift nor which end is the Front and which is the Back. It does, however, change the placement of the Runways.

Note: The Runway on the Power Post side (the Powerside Runway) **must** be the Runway with the Hydraulic Cylinder under it.

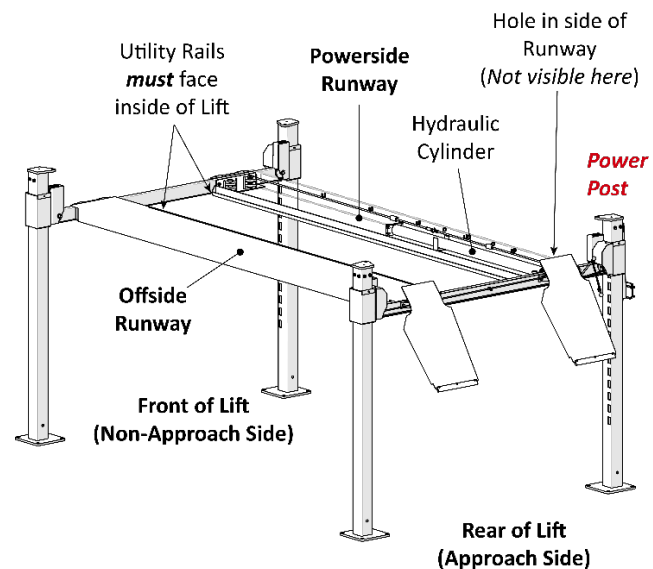
The drawings in this manual show the Power Post at the **Rear Passenger-Side**, but that does not mean you have to. In many cases, the main factor is the location of the power source; many customers prefer to put the Power Post, which holds the Power Unit, near the power source. If power is not an issue, choose the location that works best for your installation.

The following drawings show the two valid Power Post Locations.

Power Post: Front Driver-Side



Power Post: Rear Passenger-Side



Drawings are Top views of the Lift. Not all components shown.

Orientation Issues

Important: Before continuing with the next section, you must decide how you want to position the Runways, as that affects the orientation for the Posts and Top Caps.

Before installing your Lift, you need to understand three orientation issues:

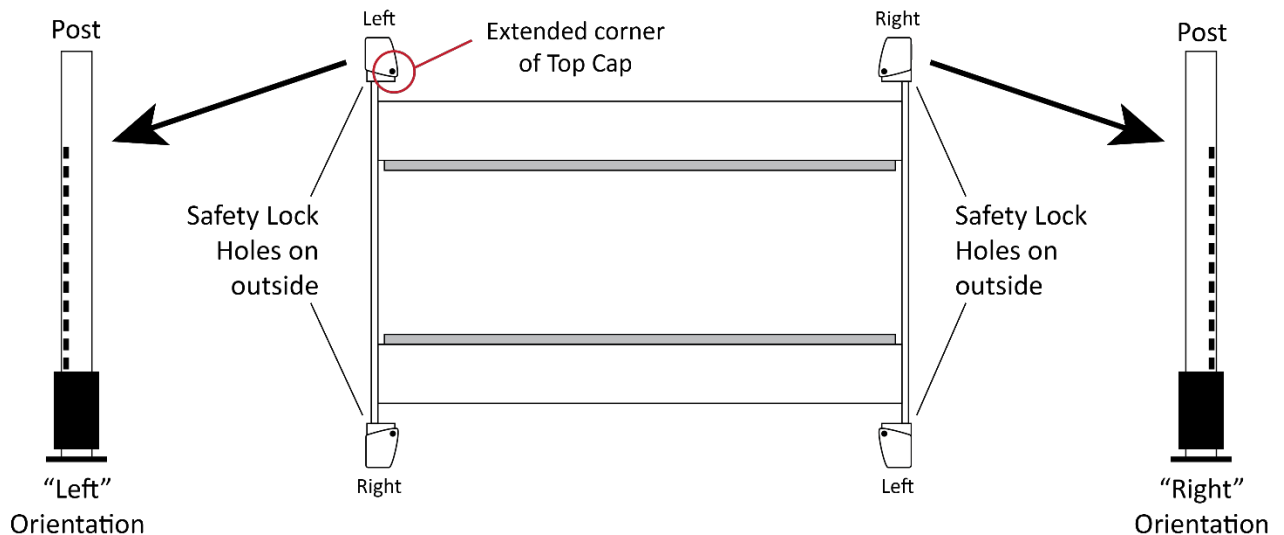
- **Runways.** The two Runways are **not** the same. One has a Hydraulic Cylinder under it and is the starting point for the Lifting Cables. The Runway with the Hydraulic Cylinder under it is the Powerside Runway and **must** be installed next to the Power Post.

If you have not already chosen your Power Post location, return to **Selecting your Power Post Location** and make the choice.

- **Posts.** The four Posts are **not** the same; two have their Safety Lock Holes on the left, the other two have their Safety Lock Holes on the right (when you are looking at them straight on).

Each D4-9 comes with two “Right” Posts and two “Left” Posts.

When you put the Posts into position, make sure that all four Posts are oriented so that the Safety Lock holes are on the **outside** of the Lift.



View of Posts is from between the two Runways; view of Lift is from above. Not all components shown. Not necessarily to scale.

This orientation is **required** so that the Safety Locks in the Crosstubes line up with the Safety Lock Holes in the Posts.

NOTICE The Power Post must be a “Right” Post, but you can use either “Right” Post as the Power Post.

- **Top Caps.** All four Top Caps must be oriented so that the extended corner is angled in towards the middle of the Lift. The “right” Top Caps must be installed on the “right” Posts and the “left” Top Caps must be installed on the “left” Posts.

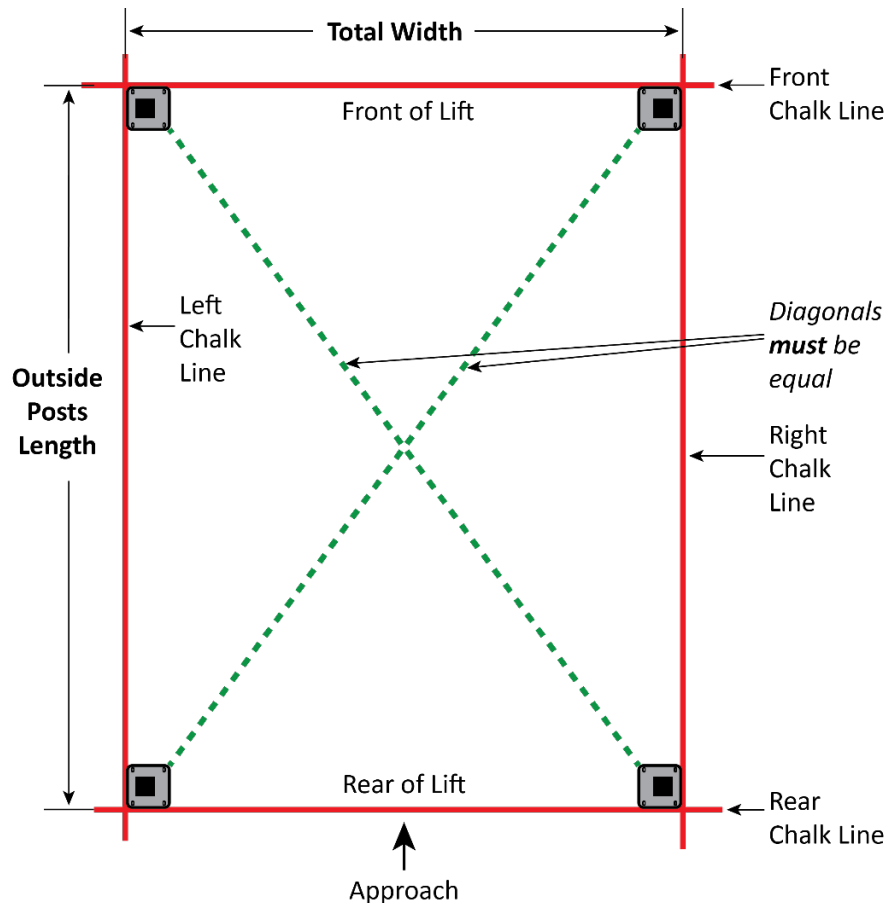
Important: The four Top Caps look very similar but they are **not the same**.

The drawing in **Installing the Top Caps** shows and describes how to determine if a Top Cap is a right or a left.

Creating Chalk Line Guides

Create the Chalk Line Guides so that the outside edges of all four Post bases fit into the four corners when it is time to put the Posts into place.

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



To create Chalk Line Guides:

1. Write down the **Total Width** and **Outside Posts Length** values for your model, which you can find in **Specifications**.
2. Create the Front Chalk Line where you want the Front of the Lift (The Front of the Lift is the end *opposite* the Approach Ramps).
Make the Front Chalk Line **longer** than the Total Width setting for your Lift model, but make notations that indicate the length of the Total Width setting.
3. Create the Left and Right Chalk Lines at 90° angles to the Front Chalk Line and parallel to each other; the Left and Right Chalk Lines **must** be parallel to each other.
4. Create the Rear Chalk Line parallel to the Front Chalk Line; the Front and Rear Chalk Lines **must** also be parallel to each other.
5. With all four Chalk Lines created and **before** moving the Posts into position, measure **diagonally** to make sure the two diagonal measurements are the same.
6. When you move the Posts into position, put the outside edges of the Bases inside the four corners created by the Chalk Line Guides.

Moving the Posts into Position

The four Posts are not the same; two have their Safety Lock Holes on the left, the other two have their Safety Lock Holes on the right (when you are looking at them straight on).

When you put the Posts into position, make sure the Safety Lock holes are on the **outside**. This orientation is **required** so that the Safety Locks in the Crosstubes line up with the Safety Lock Holes in the Posts.

The Power Post must be a “right” Post, but you can use either “right” Post as the Power Post.

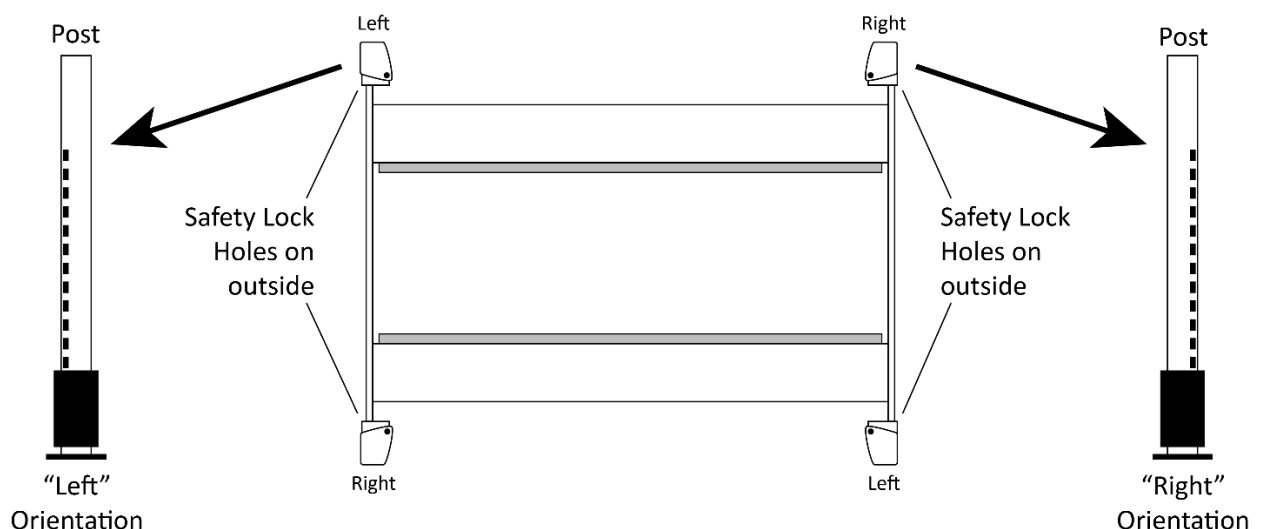
⚠ DANGER The Posts are heavy and awkward; be very careful when handling them. If they fall on a person, they will cause injury.

To move the Posts into position:

1. Using a Forklift or Shop Crane, move the four Posts, one at a time, to the inside corners of the Chalk Line Guides.

Important: Position the Power Post at one of its two allowed locations, then move the other three Posts into appropriate locations.

Position all Posts so that the Safety Lock Holes are on the outside of the Lift when you are looking at the Post from between where the Runways will go.



Not all components shown. Not necessarily to scale.

2. Stand up each Post. Have at least two people work together to stand up a Post.

⚠ CAUTION Use caution when walking around the Posts. They are **not** anchored down at this point, so it is possible to knock them over, which could cause injury.

3. When all four Posts are standing up, check all four to make sure the Safety Lock Holes are on the outside of the Lift.
4. Use a Transit Level to estimate the Shim requirements, if anchoring the Lift.

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 Bolts to Shim more than half an inch. You can order 2 inch Shim plates for extreme cases.

5. Do **not** anchor the Posts at this point, even if you plan on anchoring them.

Installing the Crosstubes

Your Lift has two Crosstubes; each one goes between two Posts at one end of the Lift.

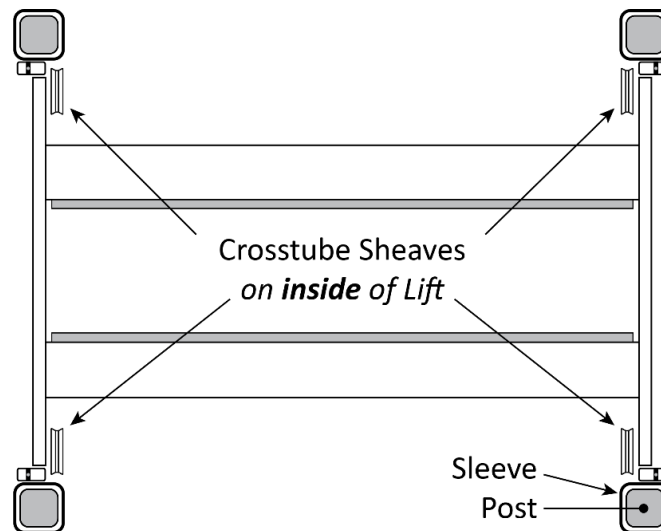
Crosstubes have a Sleeve on each end; Sleeves go over the top of the Posts (before you install the Top Caps) and then slide down the Post.

There are two ways to get Sleeves over the tops of the Posts:

- with the Posts standing up, raise the Crosstube (with Sleeves on each end) over the tops of the Posts and slide them down around the Post
- lay the two Posts down, put the Sleeves over the tops of the Posts and slide them down, then raise the Posts back up

⚠ WARNING Use caution when handling the Crosstubes and Posts. The Posts are not anchored at this point; if they fall on a person, they will cause injury. You must use a proper Lifting Device or at least two people when laying the Posts down.

The two Crosstubes must be oriented correctly. the side with the Crosstube Sheaves *must* go on the ***inside*** of the Lift.



Top view. Runways not installed. Bases not shown. Not to scale. Not all components shown.

⚠ WARNING If you install either Crosstube backwards, the Lifting Cables will not align with the Crosstube Sheaves and the Safety Locks will not align with the Safety Lock Holes in the Posts.

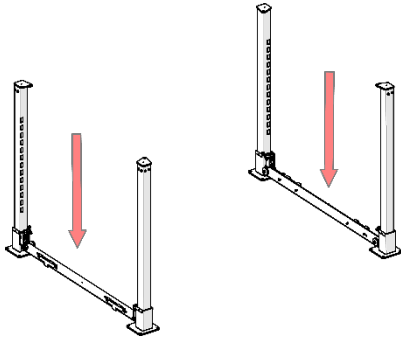
To install the Crosstubes:

1. Locate the two Crosstubes, four Inside Slide Blocks (5716075), and four Outside Slide Blocks (5716076).
2. Orient both Crosstubes so that the Crosstube Sheaves are on the **inside** of the Lift.

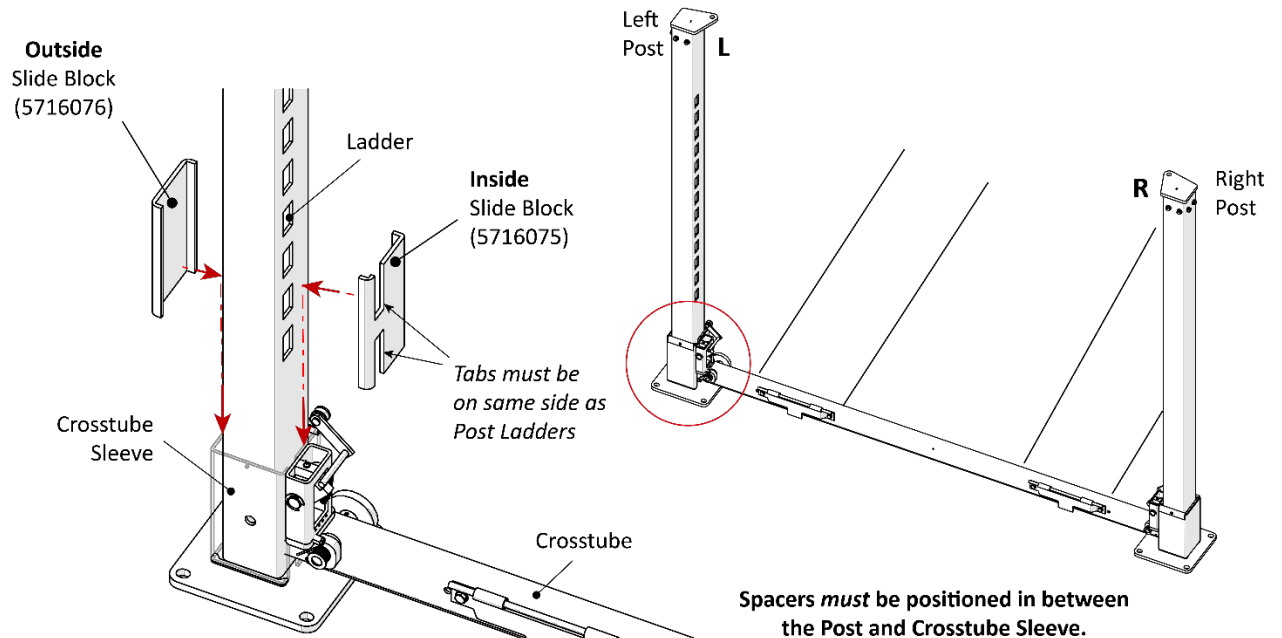
Important: It does not matter which Crosstube goes on which end of the Lift, as long as the Crosstube Sheaves are on the **inside** of the Lift.

3. Bend over the two Posts on one end of the Lift and slide the Sleeves of the Crosstubes over the tops of the Posts. Make sure the Safety Locks on the Crosstubes do not engage on the Safety Lock Holes in the Posts as you lower the Crosstubes down.

- Stand the Posts back up again and carefully move the Sleeves all the way to the ground.



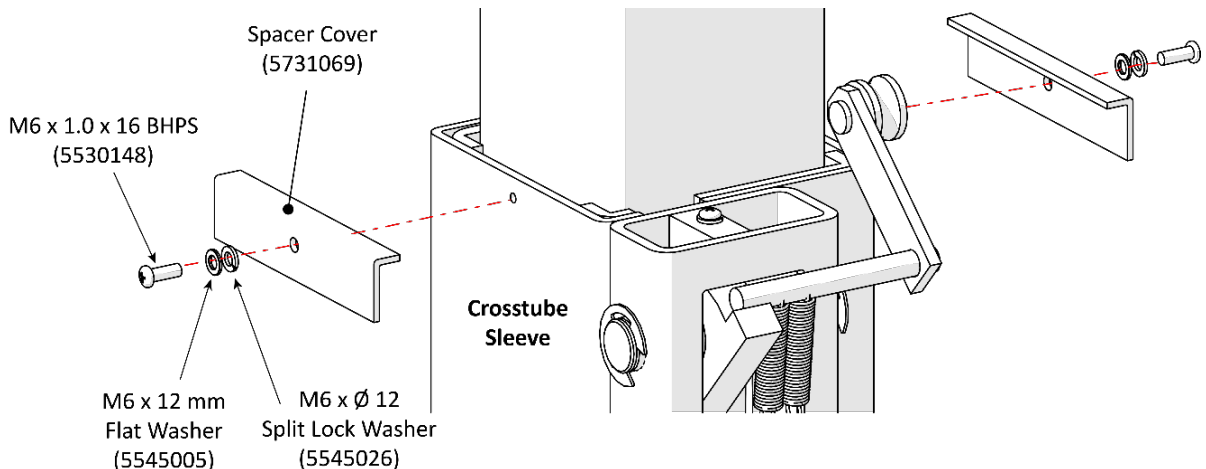
- Insert the Slide Blocks in between the Posts and the Sleeve; slide them down from above.



Top view. Top Caps not installed at this point. Sleeves partially shown. Not all components shown.

Important: The **Inside** Slide Blocks go on the **inside** of the Posts, and the **Outside** Slide Blocks go on the **outside** of the Posts.

- Once the Slide Blocks are properly installed on the Posts, screw the Spacer Covers into place.

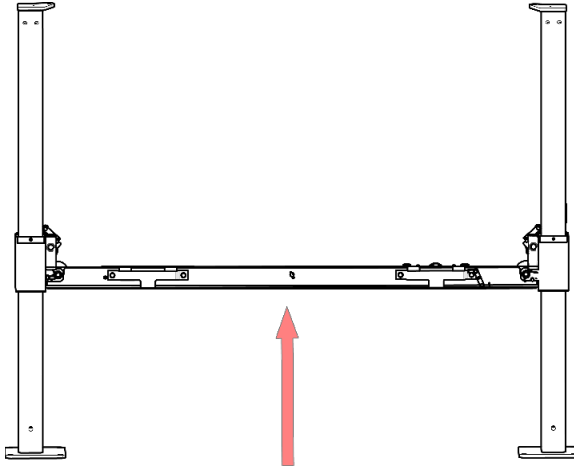


Raising the Crosstubes

After installing the Crosstubes, you need to manually raise them. This makes it easier to complete the rest of the installation. The two Crosstubes need to be raised to the exact same height and they must be engaged on the same Primary Safety Lock.

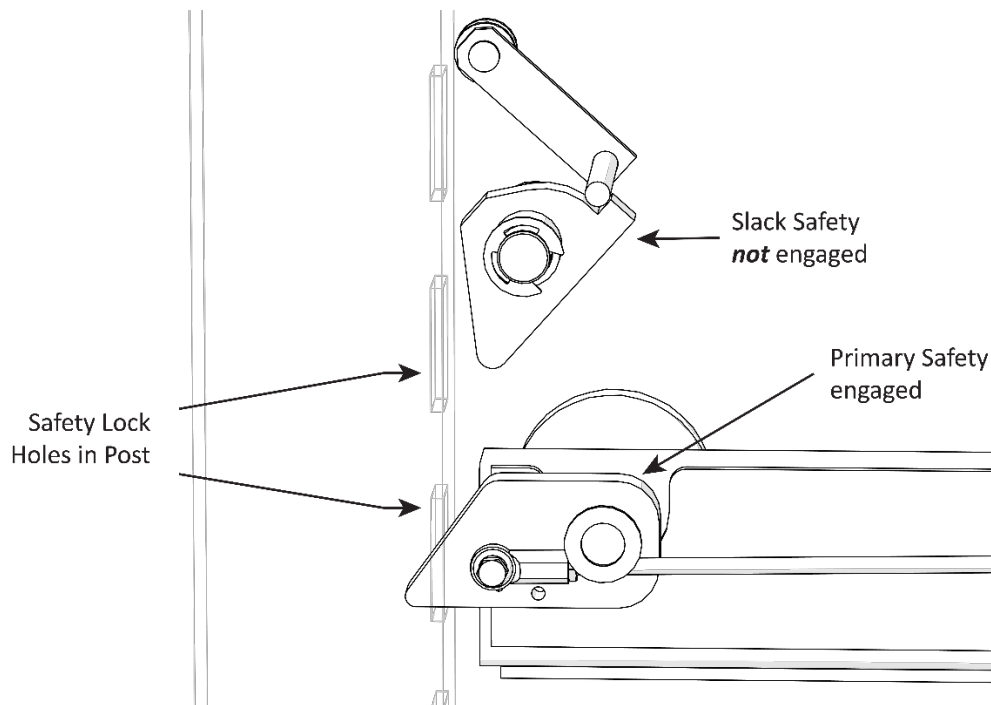
To raise the Crosstubes:

1. Use a Forklift or Shop Crane to carefully raise each Crosstube at least two feet off the ground, which gives you enough room to work under it.



Important: The Slack Safeties **cannot** be engaged as you continue with the installation.

2. Visually confirm that the Safety Locks on all four Posts are engaged on the **Primary** Safety Locks.



3. Once both Crosstubes are raised to the same height, all four **Primary Safeties are engaged**, and all four Slack Safeties are **disengaged**, you can continue with the installation.

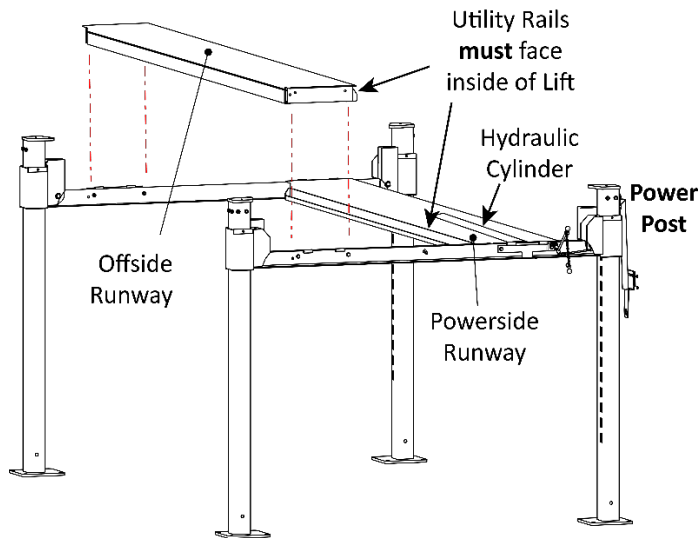
Installing the Runways

Your Lift has two Runways:

- **Powerside Runway:** Has the Lift's Hydraulic Cylinder underneath it. Lifting Cable routing starts under the Powerside Runway.
- **Offside Runway:** The Offside Runway does not have a Hydraulic Cylinder under it, nor are there any Lifting Cables or Runway Sheaves under it.

⚠ 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. Only let trained personnel move the Runways and only use appropriate tools, such as a Forklift or Shop Crane.

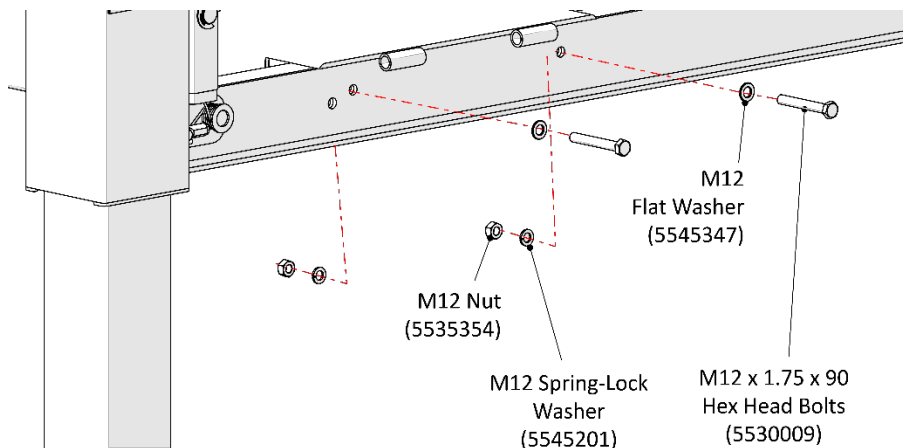
The following drawing shows the correct orientations of the Runways.



Not all components are shown. Powerside Runway must go next to the Power Post.

To install the Runways:

1. Make sure all six Sheaves have been removed from under the Powerside Runway.
2. Using a Forklift or Shop Crane, carefully move the Runways, *one at a time*, to their **required** positions with two Bolts and Washers on each end going into the Crosstubes.

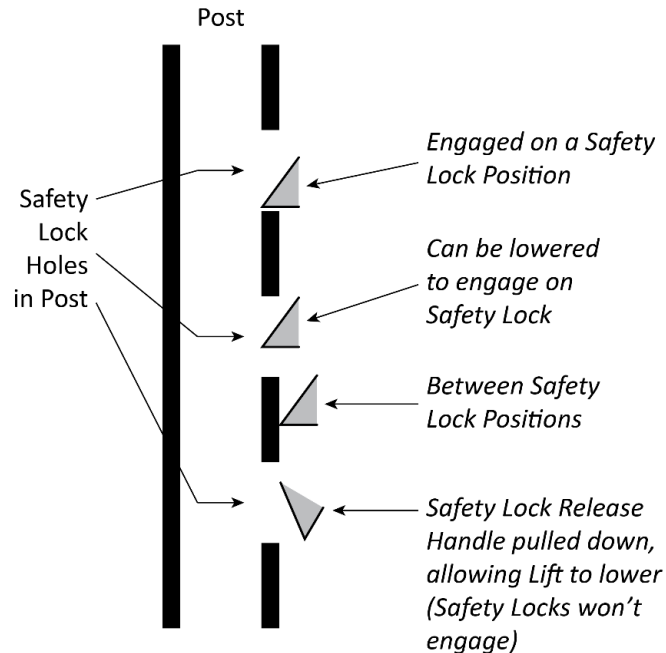


About Safety Locks

Once engaged, Safety Locks hold the Runways in place, even if the power goes out or the Hydraulic Hoses leak or break. Your Lift has multiple Safety Locks positions, spaced every four inches.

Important: Simply raising the Runways does **not** 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 orientation of the Posts. The Posts must be oriented so that the Safety Lock Holes are on the far outside of the Lift. If the Posts are **not** oriented correctly, this could lead to product or Vehicle damage, human injury, or even (in rare cases) death.



Side view. Side of Post removed for clarity. Not necessarily to scale. Not all components shown.

⚠ WARNING Only leave the Runways either fully lowered or engaged on their Safety Locks. Do not go under a Lift until you are certain that all four Safety Locks 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 **push down and hold down** the Safety Lock Release Handle and the Lowering Handle. While you hold down the Safety Lock Release Handle, the Safety Locks are moved away from the Safety Lock Holes; they cannot engage, which allows the Runways to be lowered.

Out of an abundance of caution, your Lift has **two** Safety Lock systems:

- **Primary Safety:** The primary system to hold up the Runways are the Safety Locks. When you move the Runways up, you can hear clicks as the Safety Locks move into and then past the Safety Lock Holes. When you want to keep the Runways at a certain height, go slightly past the height you want, then back the Safety Locks down into the Safety Lock Holes, which engages them.
- **Slack Safety:** The Slack Safeties are above the Safety Locks on the ends of the Crosstube Sleeves. They are different from the Safety Locks in that when the Lifting Cables are taut (during normal operation), they hold the Slack Safeties away from the Safety Lock Holes so that they cannot engage. However, if a Lifting Cable were to break (which is extremely rare), the Slack Safety for the broken Lifting Cable immediately engages, which prevents the Runway from falling very far.

Installing the Safety Lock Release Mechanism

The Safety Lock Release Mechanism goes to all four Posts. To get from one end of the Lift to the other, it is routed *under the Powerside Runway*.

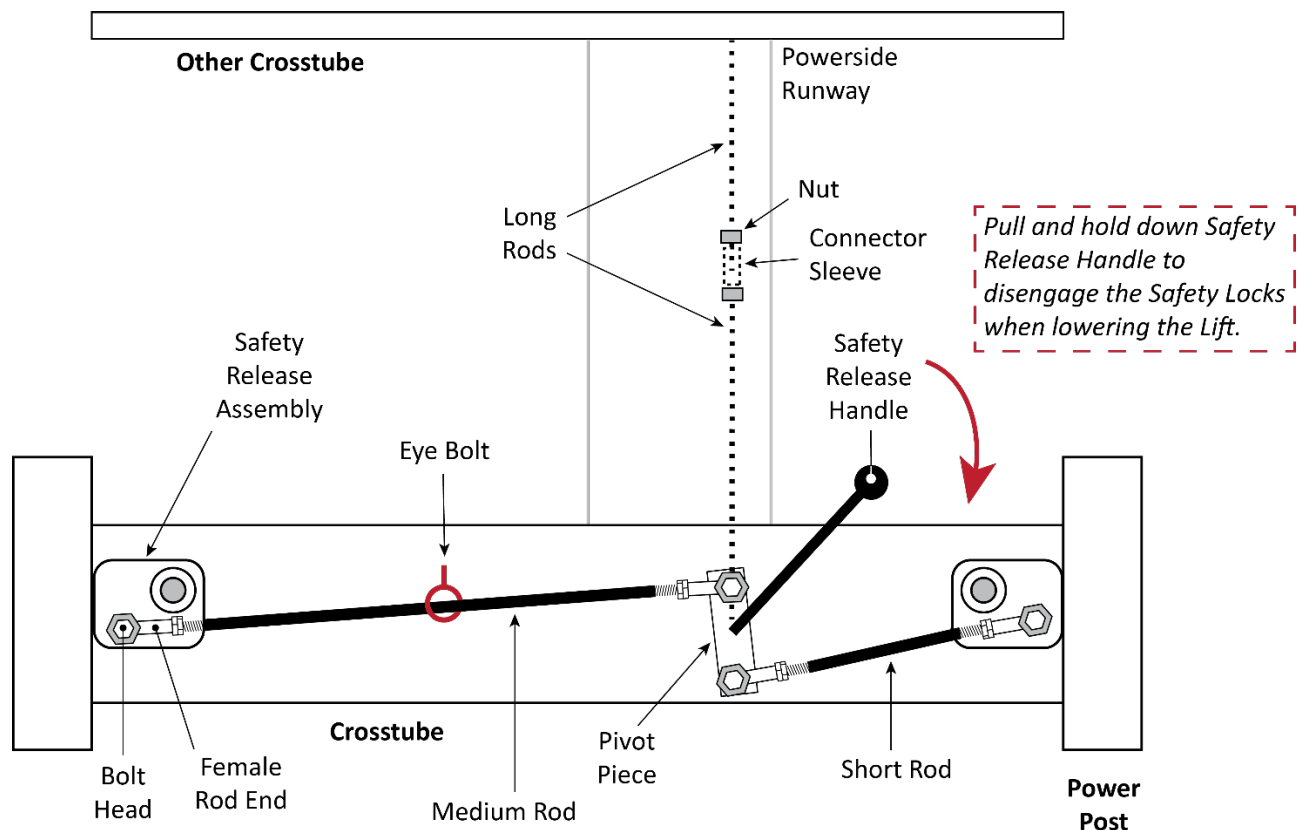
The Release Handle **must** be installed next to the Power Post because you have to hold down the Release Handle and the Lowering Handle on the Power Unit in order to lower the Runways.

The Safety Lock Release Mechanism is made up of multiple pieces that connect at many locations:

- **2 Pivot Pieces**. Pivot Piece attached to a Long Rod. One with the Handle attached, and one with no Handle. Each Pivot Piece connects a Short Rod to a Medium Rod on the outside of each Crosstube. *PN varies based on model.*
- **2 Short Rods** (5755076). Connect the Safety Release Assemblies on each Crosstube to the Pivot Pieces on the ends of the Powerside Post only.
- **2 Medium Rods** (5755074). Connect to the other side of the Pivot Pieces and go to the Safety Release Assembly.
- **8 Female Rod Ends** (5505066). Make the connections to the Rods, four per each Crosstube.
- **8 Hex Head Bolts** (5530011, 5530010). Used to secure the Female Rod Ends.
- **2 Safety Spacers** (5755169). Go between the Pivot Piece and the Crosstube.
- **1 Connection Sleeve** (5601318). Connects the two Long Rods to each other under the Powerside Runway.
- **2 Eye Bolts** (5530351). Hold the two Medium Rods in place along the outside of the Crosstube.

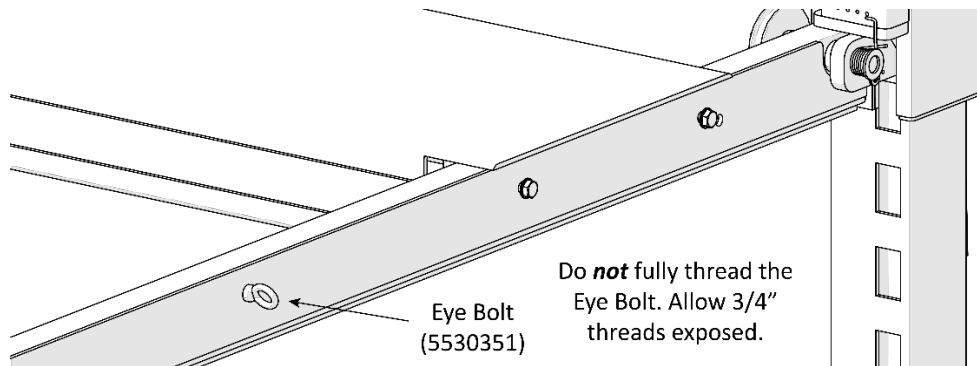
NOTICE The other Crosstube has the same Safety Lock Release Mechanism components, but without a Handle. The Safety Release Handle **must** be installed next to the Power Unit.

The following graphic shows an overview of the Safety Lock Release system.

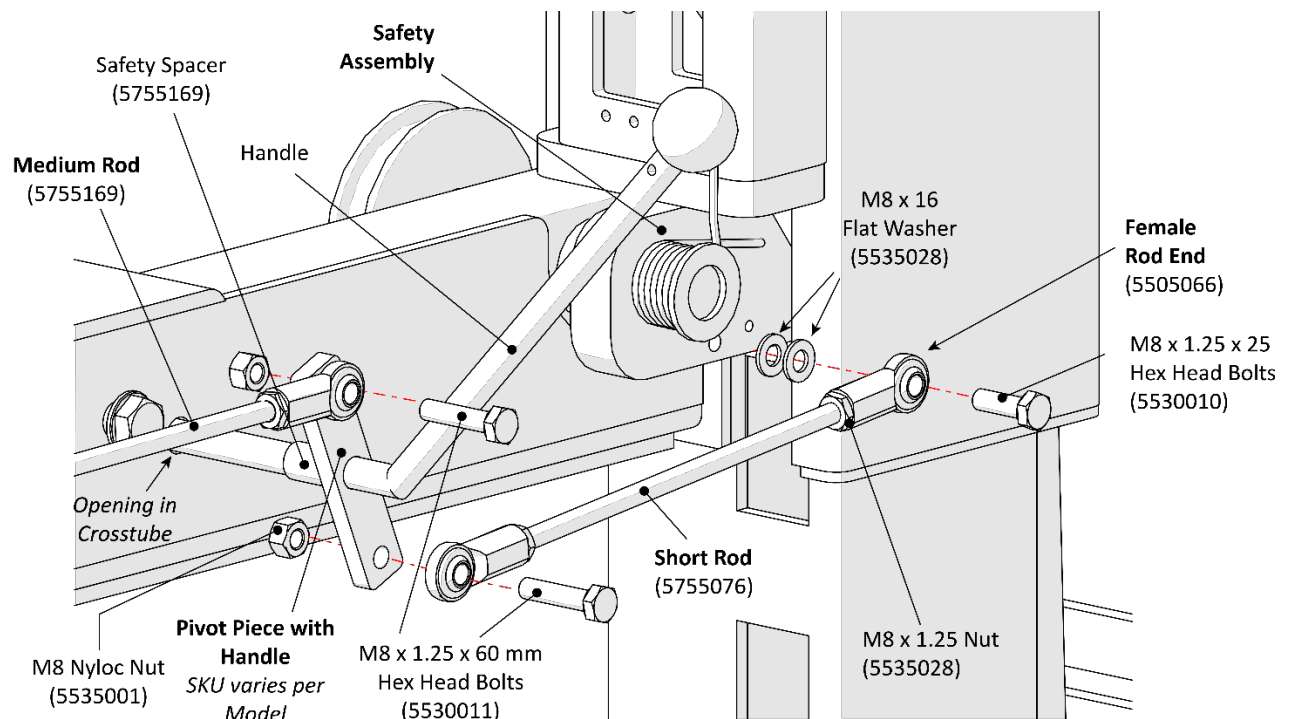


To install the Safety Lock Release Mechanism:

1. With the components described above nearby, **starting on the Crosstube adjacent to the Power Post**, thread an Eye Bolt into the middle opening of the Crosstube, as shown below.



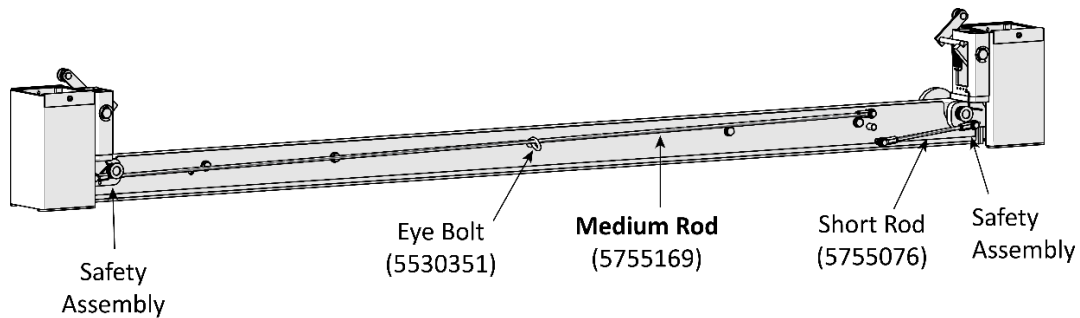
2. Attach the Female Rod Ends to the Pivot Pieces and the Short and Medium Rods.



Drawing is a close up of the connections to make to the Pivot Piece with the Handle. Not all components are shown.

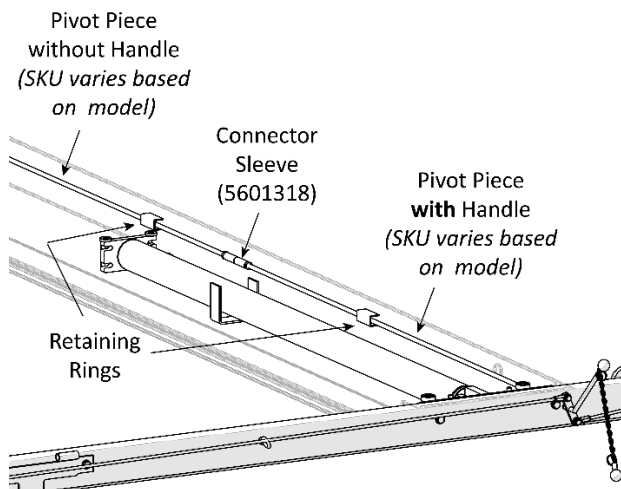
3. Place a Safety Spacer next to the Pivot Piece with the Handle, and then route the Rod end through the opening in the Crosstube, as shown in the drawing above; do this for the other Pivot Piece (**see illustration above**).
4. Connect the Short Rod to the appropriate Female Rod Ends that connects to the Power Post (**see illustration above**).
5. For the Female Rod Ends that connect to the Safety Assemblies, place two Flat Washers between the Female Rod End and the Safety Assembly (**see illustration above**); do this for each Safety Assembly.
6. Attach one end of the Medium Rod to the Pivot Piece with the Handle (**see illustration above**).

7. On the other end of the Medium Rod, unscrew the Female Rod End, Slide the Rod through the Eye Bolt, and then reinstall the Female Rod End you just removed onto the Safety Assembly.

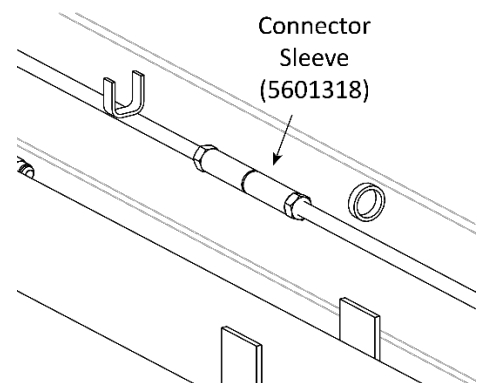


Posts removed for clarity. Front view of the Crosstube. Not all components are shown.

8. Complete Steps 1 through 7 for the other Crosstube with the Pivot Piece (without a Handle).
9. **Under** the Powerside Runway, put the two Rods into place in the Retaining Rings, put a Nut on the end of each Rod, and then connect the Rods in the middle with the Connector Sleeve.

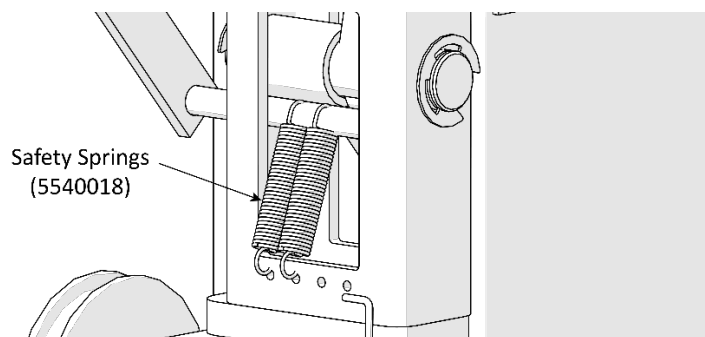


Close up of Connector Sleeve:



Not all components shown. Top of Runway removed for clarity.

10. Verify that the Safety Springs are in place on the Safety Assemblies; if not, then add them.

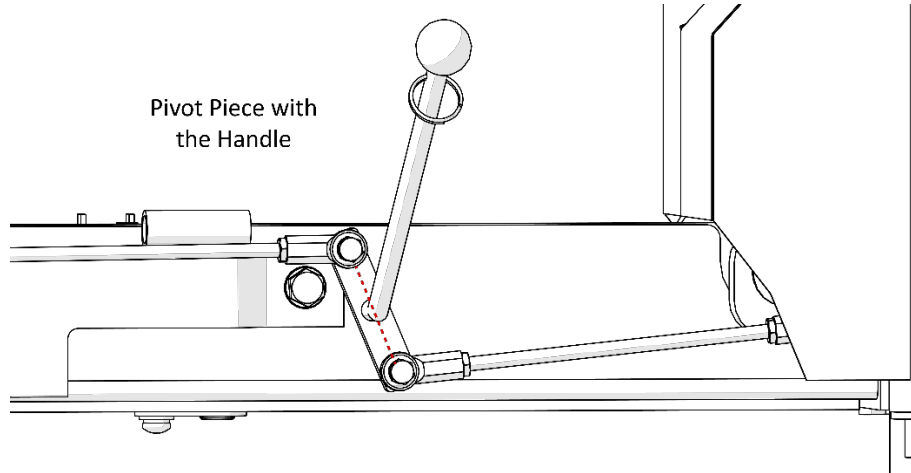


11. Re-check all of the connections you have made; tighten any loose connections.
12. Carefully push down the Handle on the Pivot Piece near the Power Unit.
13. Check to make sure that all parts of the Safety Lock Release Mechanism move correctly when you push down on the Handle.

About the Pivot Pieces

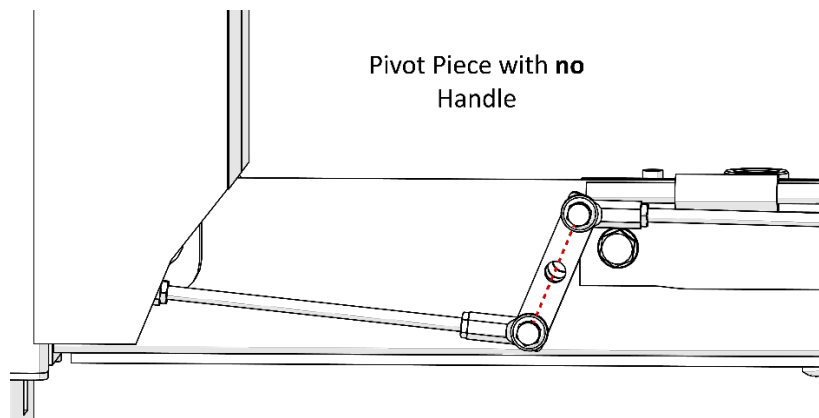
Once the Medium and Short Rods of the Safety Lock Release Mechanism are installed on both ends of the Lift, you need to check the Pivot Pieces to see that they are angled correctly:

- **The Pivot Piece with the Handle.** Make sure this Pivot Piece is angled a little bit to the left as you are looking at it, as shown below.



Front view of the Crosstube. Not all components shown.

- **The Pivot Piece with no Handle.** This Pivot Piece should be oriented the opposite of the other Pivot Piece, so it should be angled a little to the right, as shown below.



Front view of the Crosstube. Not all components shown.

If the Pivot Pieces are *not* oriented correctly (for example, if they are both oriented straight up and down), the Safety Locks may not catch on the Safety Lock Holes when you try to lower the Lift onto its Safety Locks. If this issue occurs, adjust the angle of the Pivot Pieces until all Safety Locks engage in the Safety Lock Holes.

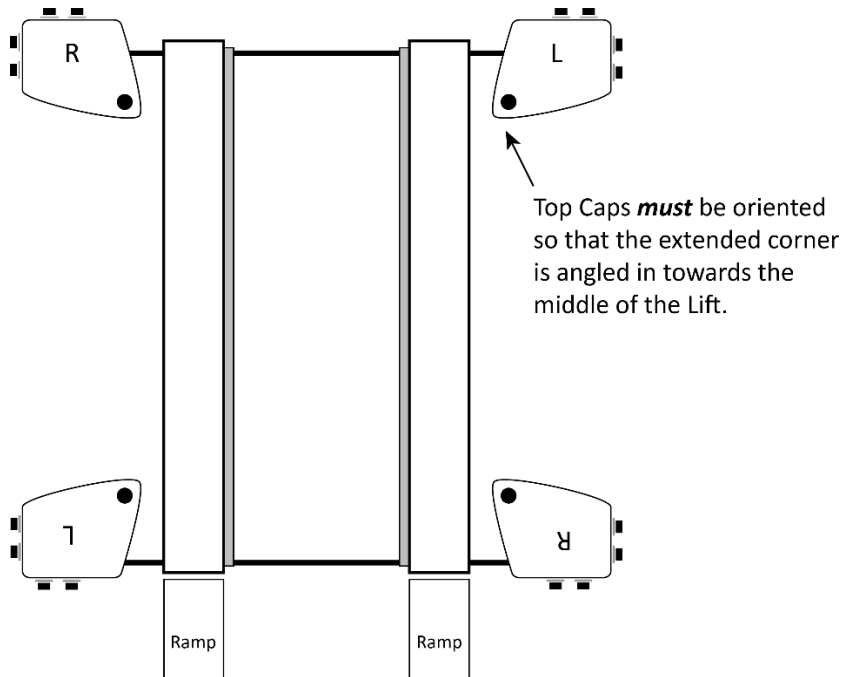
Installing the Top Caps

The Lift comes with four Top Caps, one for the top of each Post. Each Top Cap holds one end of a Lifting Cable.

There are two Left Top Caps and two Right Caps; the top plates are marked with an **L** or an **R**.

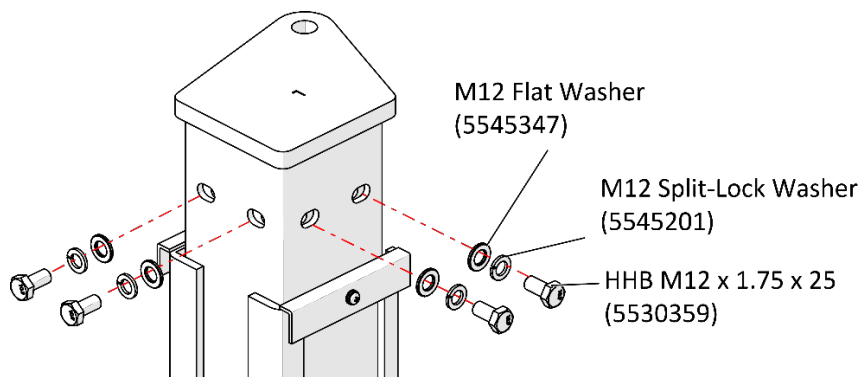
To install the Top Caps:

1. Take a Top Cap, pick the corresponding Post you want to install it onto, orient it correctly, and then push the Top Cap down into the top of the Post.



Top View of the Lift. Not drawn to scale. Size of Top Caps exaggerated for clarity.

2. Secure the Top Cap in place using four Bolts and Washers.



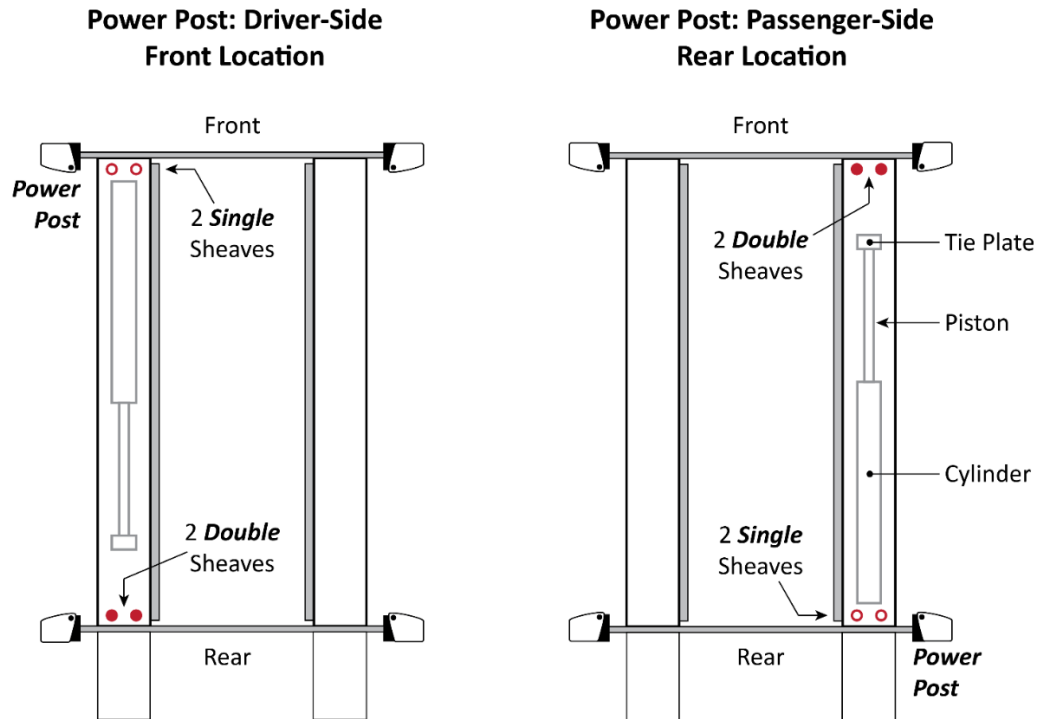
3. Install the other three Top Caps the same way.

⚠ WARNING Make sure all four Top Caps are firmly bolted into place.

About Cable Sheaves

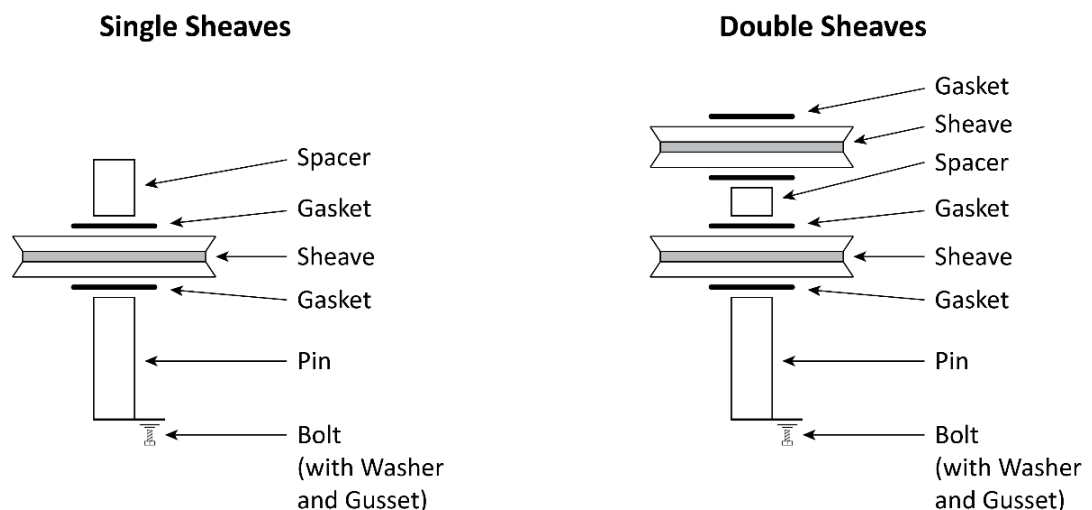
Cable Sheaves route the Lifting Cables towards the appropriate Post. There are six Cable Sheaves under the Powerside Runway, four on one end (two stacks of two Sheaves) and two on the other end (two stacks of single Sheaves). Additionally, there is a Cable Sheave on each end of the Crosstubes, 4 four total.

Because the Lift can be installed with the Power Post and the Powerside Runway in either of two locations, the Runway Sheaves can also be at either of two locations. The two double Runway Sheaves are always on the Piston end of the Powerside Runway, as shown in the following drawing.



Top view. Drawing not necessarily to scale. Not all components shown.

All Runway Sheaves should have been removed when unpacking the Lift. The following drawing shows how to reinstall the Runway Sheaves when it comes time to do so.

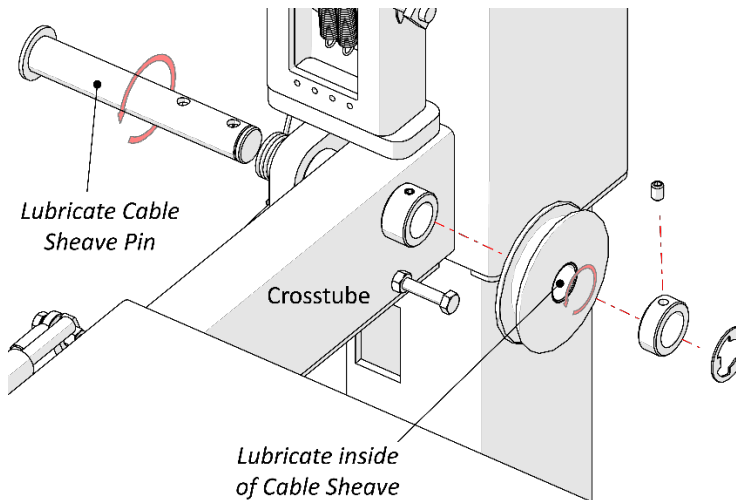


Lubricate the Cable Sheaves

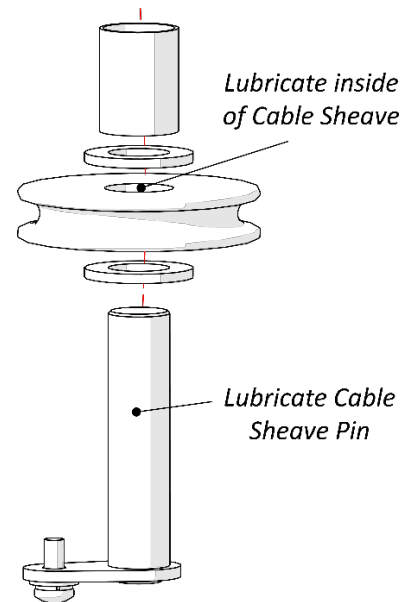
Before reinstalling the Cable Sheaves (removed earlier in installation process) when routing the Lifting Cables, now is a good time to lubricate the Cable Sheaves to ensure the Lift raises and lowers smoothly during operation.

Use white lithium grease or similar to lubricate the six Cable Sheaves (and Sheave Pins) underneath the Powerside Runway, plus the Cable Sheaves at the ends of the Crosstubes four total).

Crosstube Cable Sheaves:



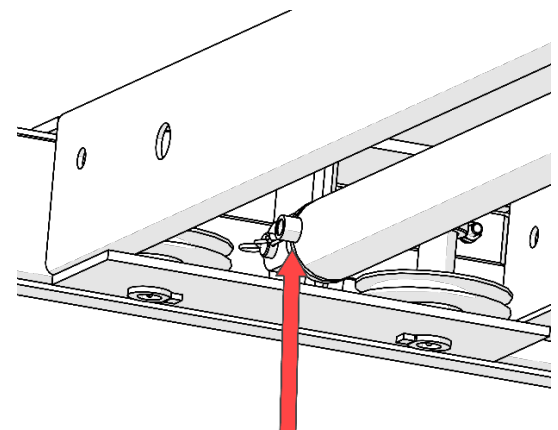
Runway Cable Sheaves:



Before routing the Lifting Cables, you also need to extend the Piston on the Hydraulic Cylinder.

To extend the Piston:

1. Remove the Shipping Plug from the Return Port.
The Return Line Port is on the Cylinder end closest to where the Power Unit will be.
2. Attach an air pressure source to the Return Line Port.
3. Use the air pressure to extend the Hydraulic Cylinder's Piston and Retaining Plate.
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 and Retaining Plate; be care not to damage the Piston.
4. Reinstall the Shipping Plug to the Return Line Port.

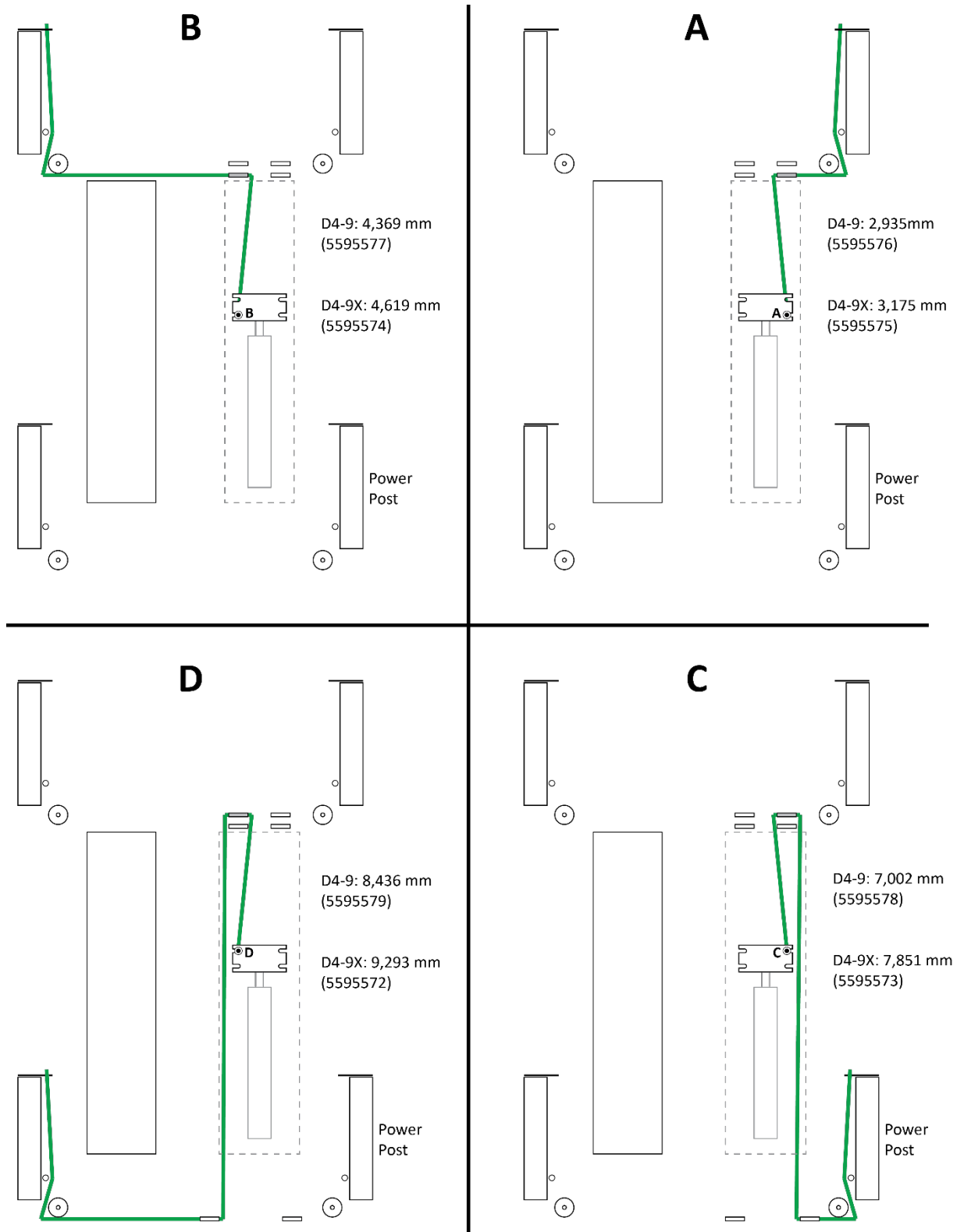


Do not exceed 50 psi.

Routing the Lifting Cables

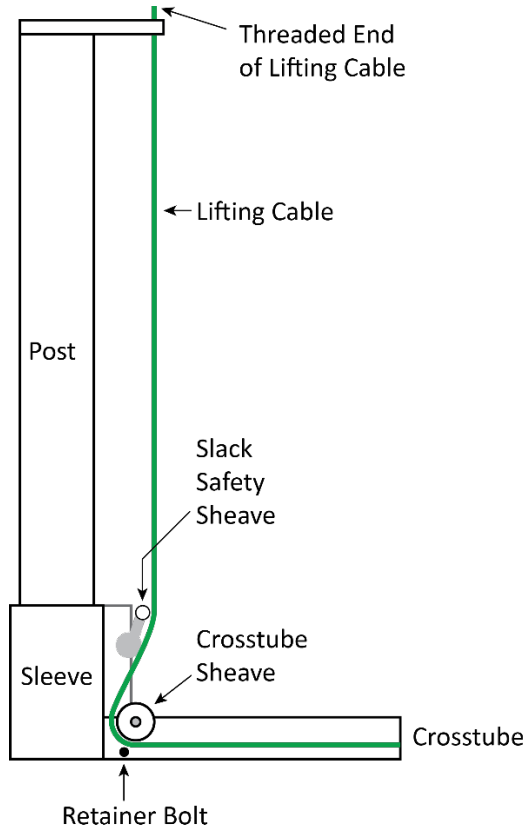
Important We strongly recommend using gloves when working with Lifting Cables.

The following drawing should the routing for all four Lifting Cables.



Important: Make sure to route each Lifting Cable correctly. If you route a Lifting Cable to the wrong Post, it will either be too short or too long. If this happens, check to see where the Lifting Cable is supposed to go and then route it there. As a general rule, there should be about **1 inch** of threads above the Top Cap when you put the Lifting Cable in place. If there is significantly less or more, you have the wrong cable.

The following drawing shows how Lifting Cables are routed to the top of their Posts.



View is from the inside of the Lift. Not to scale. Not all components shown.

We recommend routing Cables A and C together first, and then Cables B and D.

To route the Lifting Cables:

1. Locate the shortest Lifting Cable, Cable A, and the second longest Lifting Cable, Cable C.
Check the label to make sure you have the correct Lifting Cable.
2. Make sure the Nut has been removed from the Threaded end of both Lifting Cables (the Nut cannot be on during routing, but keep it nearby, you will need it again soon).
3. **Starting with Cables A and C**, attach the Button ends of Cables A and C to the Tie Plate.
As shown in the drawing on the previous page, A goes on the bottom, C above it.
4. Route Cables A and C towards where the double sheaves are going to be re-installed.
Put both cables into position such that when the double sheaves are re-installed, Cables A and C will both be going around the Sheaves.
5. Reinstall the double sheave for Cables A and C.
Refer to **About Cable Sheaves** for a drawing of how to reinstall the double sheave.
6. **Switching to just Cable A**, remove the Retainer Bolt under the Crosstube Sheave.

7. Route Cable A over to its Crosstube Sheave, under it, up and past the Slack Safety Sheave, and then up to the Top Cap and through the hole in the Top Cap.

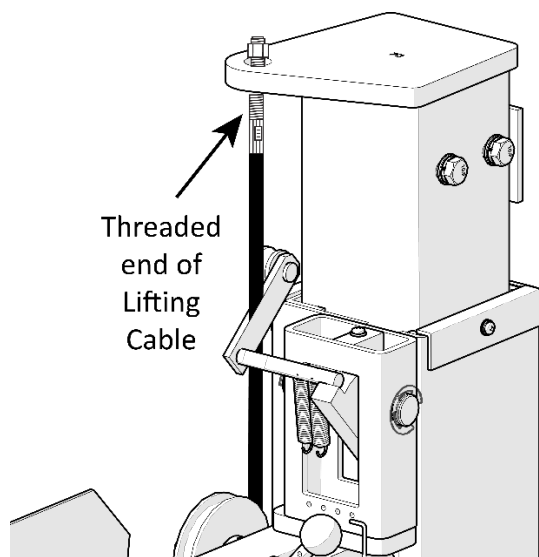
Make sure to route the cable on the correct side of the Slack Safety Sheave.

The Threaded end of the cable should go through the hole in the Top Cap about an inch. However, if the cable is way too short or long, check to make sure you have the correct cable.

8. Put a Washer and Nut into place above the Top Cap, then finger tighten the Nut to hold Cable A in place.

You only want to finger tighten the Nut at this point so that there is a little play in the cabling.

9. Re-install the Retainer Bolt under the Crosstube Sheave.
10. **Switching to just Cable C**, route it all the way around the Double Sheave and then back towards the other end of the Powerside Runway.
11. When you get to the other end of the Runway, route it around the single sheave and then towards its Crosstube Sheave.
12. Remove the Retainer Bolt under the Crosstube Sheave.
13. Route Cable C under the Crosstube Sheave, up and past the Slack Safety Sheave, and then up to the Top Cap and through the hole in the Top Cap.
14. Put a Washer and Nut into place above the Top Cap, then finger tighten the Nut to hold Cable C in place.



Not drawn to scale. Not all components shown. Springs not fully connected in graphic.

15. Re-install the Retainer Bolt under the Crosstube Sheave.
16. Perform Steps 1 through 15 again, but this time for Cables B and D.

NOTICE: Routing Cables B and D is the same process as routing Cables A and C, just to the other two Posts and using a different set of Sheaves.

17. When all Lifting Cables are correctly routed, securely tighten all four Nuts above the Top Caps.

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.

Because the Top Caps are held in place on two sides of the Power Post, you can install the Power Unit on either of those two sides. Most customers choose to install their Power Units on the end of the Lift, as that is closer to the Safety Lock Release Handle.

⚠ 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.

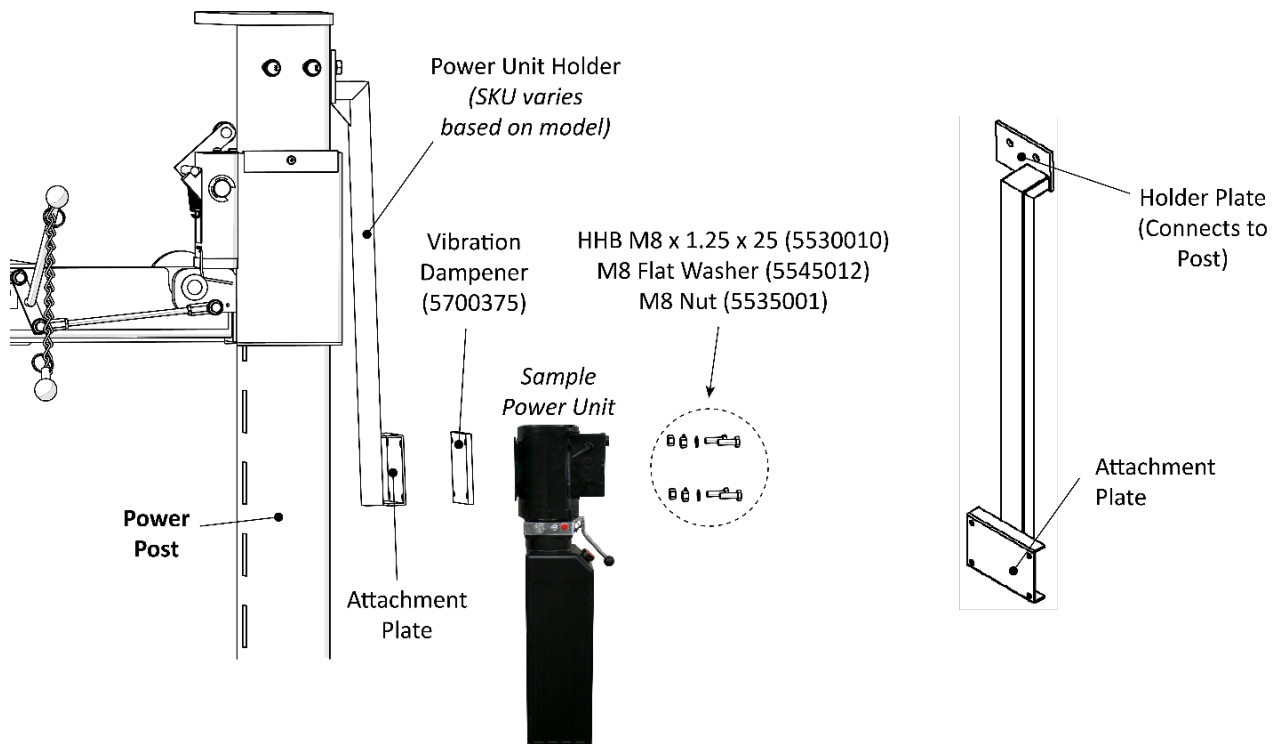
⚠ CAUTION The Power Unit is heavy. We recommend having one person hold the Power Unit while another person secures it in place.

To install the Power Unit:

1. Determine which side of the Power Post you want to install the Power Unit.
2. **Starting with the Power Unit Holder.** At the top of the Post, remove the two Hex Head Bolts (5530359) and Washers (5545347, 5545201) holding the Top Cap on the side you want the Power Unit.

Note: You can leave in place the Top Cap Bolts on the other side.

3. Put the Power Unit Holder into place, with the holes in the Holder Plate going over the holes where you just removed the Bolts and Washers at the top of the Post.
4. Replace the Hex Head Bolts and Washers, then securely tighten the Bolts.



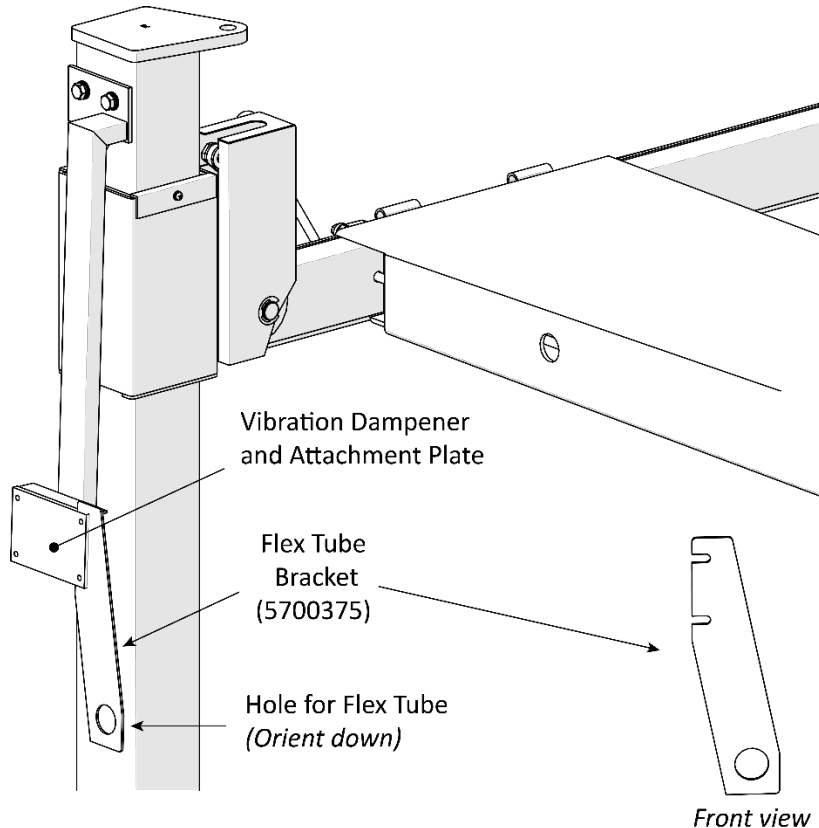
Drawing not necessarily to scale. Not all components shown.

5. **Switching to the Attachment Plate and the Power Unit.** Put the Vibration Dampener into place, and then secure the Power Unit using four Hex Head Bolts (5530010), M8 Flat Washers (5545012), and M8 Nuts (5535001).

Hand tighten the Bolts and Nuts.

6. Find the Safety Placard and Zip Tie from the Parts Box, then use the Zip Tie to attach the Safety Placard to one of the unused holes on the Power Unit Plate.
7. Slide the Flex Tube Bracket over the two Bolts that are closest to the side of the Powerside Runway.

The Bracket can go on either side of the Vibration Dampener.



Not necessarily to scale. Not all components shown.

8. **Securely tighten** the Bolts and Nuts.

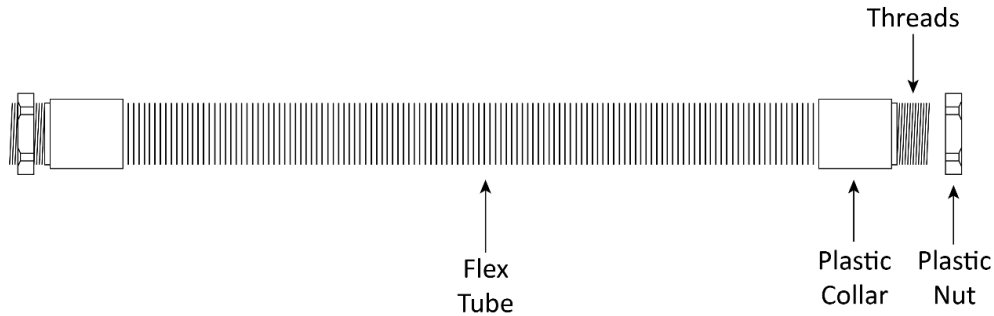
Do not connect the Power Unit to a power source at this point.

Installing the Flex Tube

The Flex Tube is a flexible, black plastic tube that attaches to the bottom of the Flex Tube Bracket (next to the Power Unit) on one end and to a hole on the Powerside Runway on the other end.

The Flex Tube protects the Hydraulic Hose and the Return Line as they go from the Power Unit to underneath the Powerside Runway.

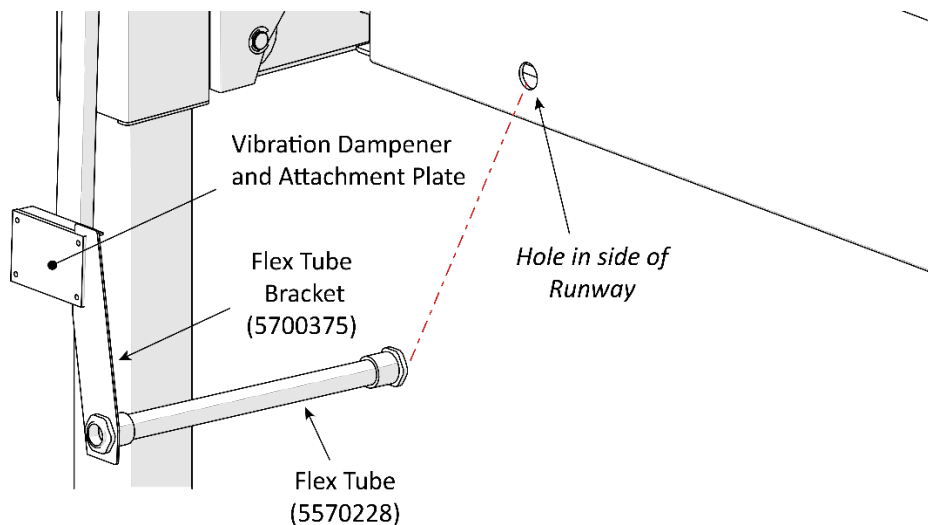
The following drawing shows the Flex Tube.



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

To install the Flex Tube to the Flex Tube Bracket:

1. Make sure the Flex Tube Bracket has been installed next to the Power Unit.



2. Unscrew the Plastic Nut from one end of the Flex Tube. It does not matter which end.
3. Holding the Flex Tube by the Plastic Collar, put the Threads on the end of the Flex Tube through the hole at the bottom of the Flex Tube Bracket.
The Threads go through the hole until they are accessible from the other side, while the rest of the Flex Tube stays outside.
4. Screw the Plastic Nut back onto the Threads of the Flex Tube and tighten it.
5. Unscrew the Plastic Nut from the unconnected end of the Flex Tube.
6. Holding the Flex Tube by the Plastic Collar, push the Threads through the hole on the side of the Powerside Runway.
7. Screw the Plastic Nut back onto the Threads on the Flex Tube and tighten it.



IMPORTANT! PLEASE READ NOW



Hydraulic Fluid Contamination

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

Your Lift is shipped with clean components; however, BendPak strongly recommends that you 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

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

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

 **WARNING** Always wear the proper protective equipment when handling Thread Sealant.

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. Skipping the top thread, apply a small amount of Thread Sealant to the first four threads of the Fitting.

You only need a small amount because the sealant spreads to the other threads as it is tightened into place.

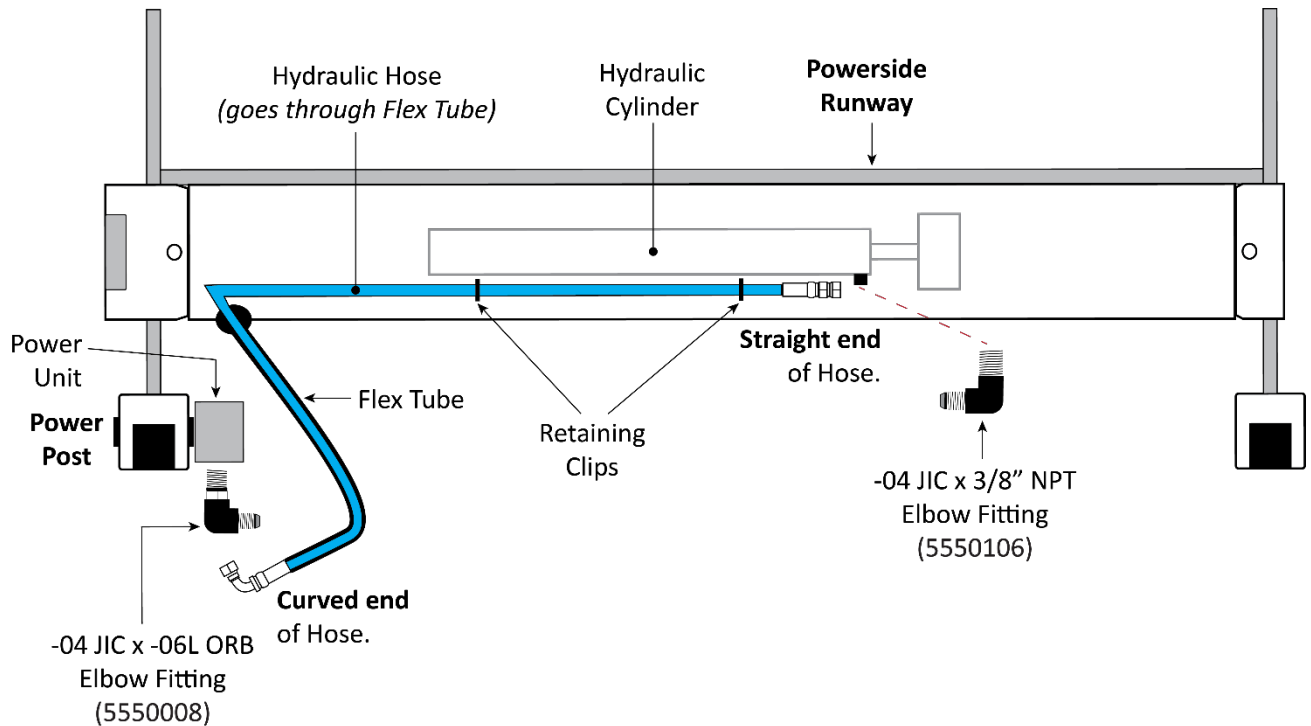
If you put too much, the excess liquid will be pushed out when the Fitting is tightened; use a rag to wipe the excess.

3. Tighten the Fitting into the connector; do **not** over tighten the Fitting.
4. Allow the manufacturer-recommended **24 hours** of curing time before pressurizing the system.

Installing the Hydraulic Hose

The Hydraulic Hose moves Hydraulic Fluid from the Power Unit to the Hydraulic Cylinder.

The following illustration shows how to route the Hydraulic Hose from the Hydraulic Cylinder to the Power Unit.



Top View of Powerside Runway. Drawing not to scale. Some components exaggerated for clarity.

To install the Hydraulic Hose:

1. Prepare the Hydraulic Components as described in [About Hydraulic Fluid Contamination](#).
2. Locate the Hydraulic Hose (in Parts Box) and the two Hydraulic Fittings (in Parts Bag).
3. Route the Hydraulic Hose through the Flex Tube; keep the Curved end at the Power Unit.
4. Remove the Shipping Plug from the Hydraulic Out Port on the Power Unit, install the ORB end of the JIC x ORB Elbow Fitting to the Hydraulic Port, while the JIC end attaches to the Hydraulic Hose.

NOTICE The Hydraulic Out Ports on the Power Unit are commonly labeled **P**, **P1**, or **P2**.

5. Remove the Shipping Plug from the Hydraulic Cylinder Port and install the NPT end of the JIC x NPT Elbow Fitting to the Port, then connect the JIC end to the other end of the Hydraulic Hose.

Use Liquid Thread Sealant on NPT Threads only.

6. Securely tighten both connections on the Power Unit and Hydraulic Cylinder.

Working with Compression Fittings and Tubing

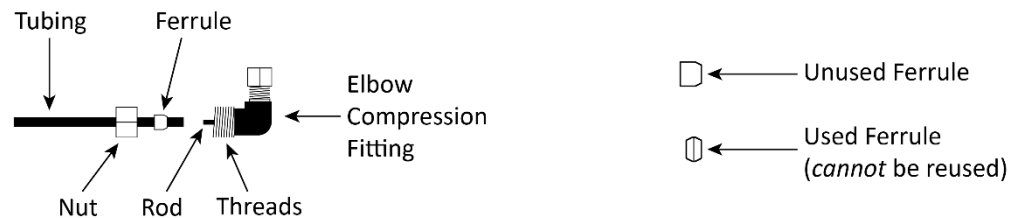
Your Lift comes with a roll of ¼ inch, black, polyethylene Tubing (also called Poly-Flo® Tubing) that is used with Compression Fittings for the Return Line.

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.
- **Elbow Compression Fittings.** One on the Power Unit and one on the Hydraulic Cylinder.
- **Nuts, Ferrules, Rods, and Threads.** Each connector on an Elbow Compression Fitting has a Nut, Ferrule, Rod, and Threads (see drawing below). 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 an Elbow 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:

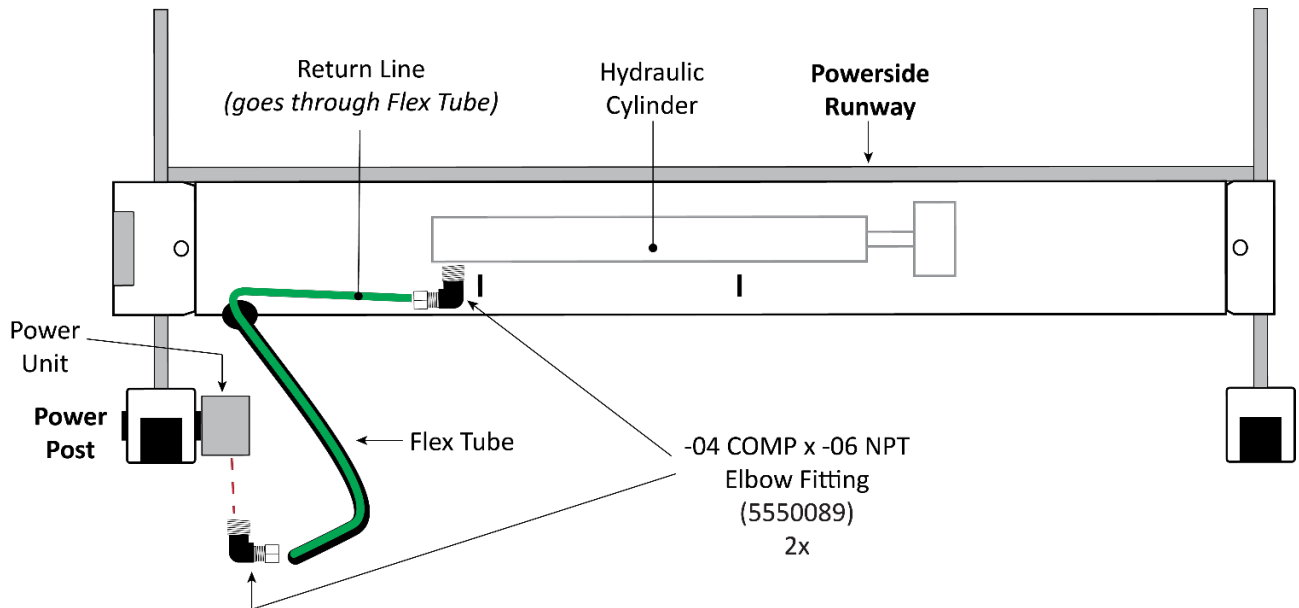
1. Push the Tubing through the Nut and Ferrule and over the Rod.
Do not push hard; you only need the Tubing to go a little way over the Rod. You may not be able to see the Ferrule at this point, but the Tubing must go through the Ferrule and over the Rod.
2. Slide the Nut on the Tubing **away from the 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. Do not push hard.
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 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 Tubing with a Compression Elbow Fitting (5550089) on each end. You need to cut a piece of the supplied Tubing to create the Return Line.

The following illustration shows how to route the Return Line from the Hydraulic Cylinder to the Power Unit.



Top View of the Powerside Runway. Drawing not to scale. Some components exaggerated for clarity.

To install the Return Line:

1. Measure from the Hydraulic Return Port on the Hydraulic Cylinder to the Hydraulic Return Port on the Power Unit, then cut a piece of Tubing of appropriate length from the supplied roll of Tubing.

NOTICE The Return Line is going to be routed through the Flex Tube, so take that into account. It is better to make the Tubing piece a little too **long** rather than a little too short.

2. Route the Tubing through the Flex Tube.
3. Locate the Hydraulic Return Port on the Power Unit and remove the Shipping Plug.

NOTICE The Hydraulic Return Port is commonly labeled either **T1/T2** or **CV1/CV2**.

4. Connect the NPT end of the Compression Elbow Fitting to the Power Unit, then connect the other end of the Elbow Fitting to the Return Line coming out of the Flex Tube.

Use Liquid Thread Sealant on NPT Threads only.

Refer to **Working with Compression Fittings and Tubing** for instructions.

5. Remove the Shipping Plug from the Hydraulic Return Port on the Hydraulic Cylinder.
6. Connect the NPT end of the second Compression Elbow Fitting to the Hydraulic Return Port, then connect the other end to the Return Line.

Use Liquid Thread Sealant on NPT Threads only.

Contacting the Electrician

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

⚠ DANGER All wiring **must** be performed by a licensed, certified Electrician in accordance with local and national electrical codes.

All installations need an Electrician to:

- **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 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. The Power Unit that comes with the Lift is **not** thermally protected. Refer to **Install a Thermal Disconnect Switch** for more information.

Additionally, if your Lift came with a 220 VAC Power Unit, you will need the Electrician to:

- **Connect the 220 VAC Power Unit to an appropriate power source.** Have the Electrician wire the Power Unit either to a 220 VAC Power Cord and Plug or directly to the facility's power system.

NOTICE If your Lift came with a 110 VAC Power Unit, it already has a power cord and appropriate plug. Just plug it in to a 110 VAC outlet.

The Electrician needs to provide the following components for all installations:

- a Power Disconnect Switch
- a Thermal Disconnect Switch
- an appropriate Power Cord and Plug if you want to attach the Power Cord to a 220 VAC Plug (and then plug it in to an appropriate 220 VAC outlet) or just a Power Cord if you want to wire the Power Unit directly into the facility's power system.

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

Connecting to a Power Source

The standard Power Unit for your Lift is 110 VAC, 50/60 Hz, single phase.

An Electrician is not required to connect a 110 VAC Power Unit to a power source. But an Electrician is required to install the Power Disconnect Switch and Thermal Disconnect Switch.

A 220 VAC Power Unit is also available.

An Electrician is required to connect a 220 VAC Power Unit to a power source and to install the Power Disconnect Switch and Thermal Disconnect Switch.

Whichever Power Unit you ordered, it must be connected to an appropriate power source and protected by an appropriate circuit breaker.

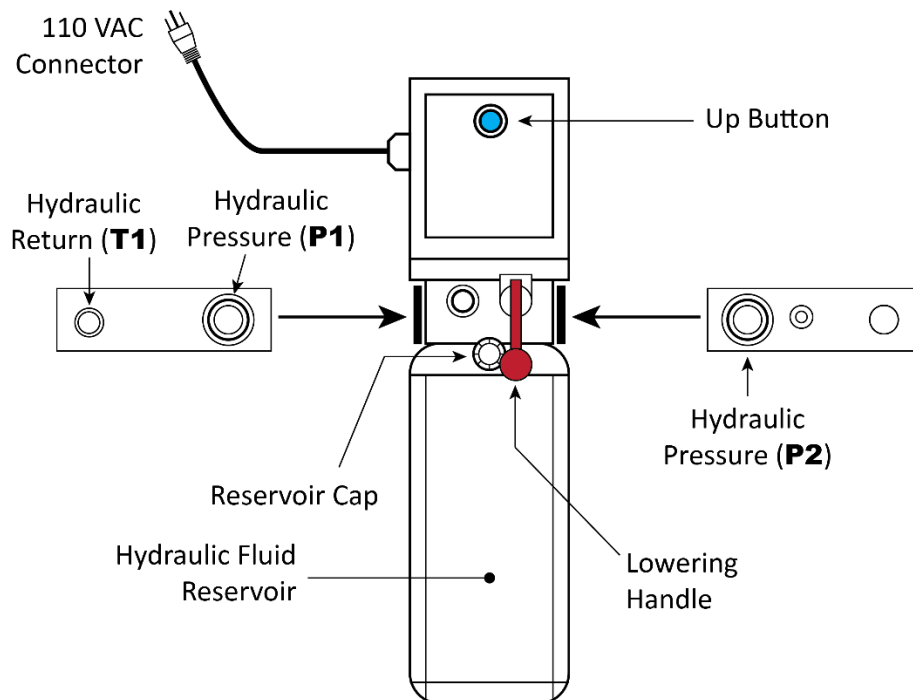
⚠ DANGER All wiring **must** be performed by a licensed, certified Electrician. Do not perform any maintenance or installation on the Lift without first making sure that main electrical power has been disconnected from the Lift and **cannot** be re-energized until all procedures are complete.

Important electrical information:

- Improper electrical installation can damage the Power Unit; 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 110 VAC, single phase circuit, use a 20 amp or greater circuit breaker. For a 220 VAC, single phase circuit, use a 25 amp or greater circuit breaker.

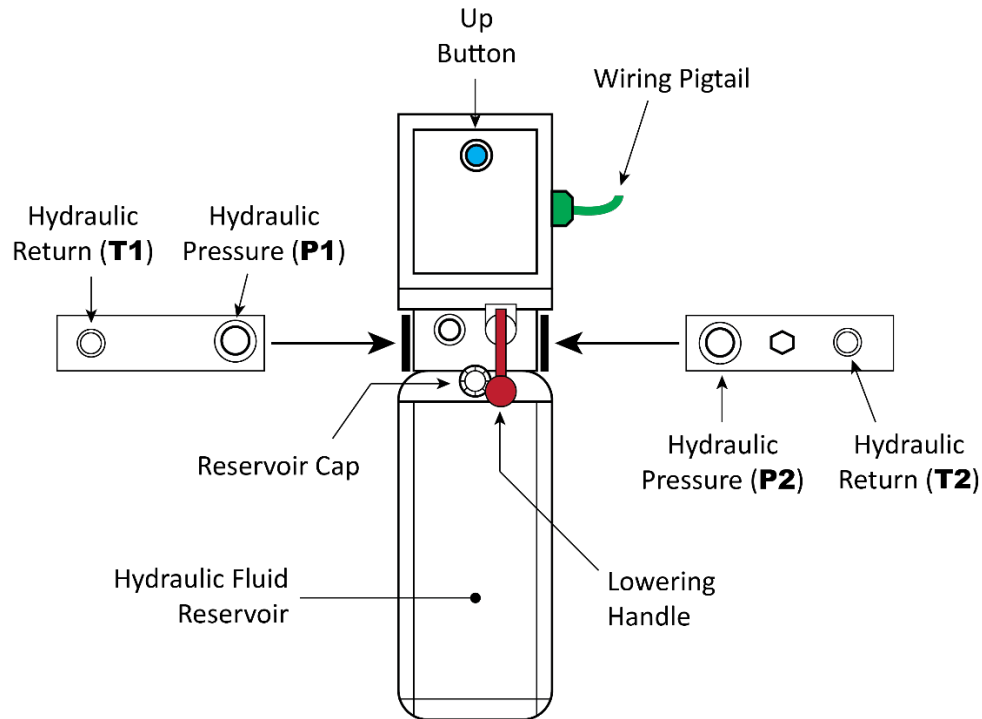
⚠ DANGER The Lift uses electrical energy; if your organization has Lockout/Tagout policies, make sure to implement them as soon as the Lift is connected to a power source.

The following drawing shows the standard **110 VAC** Power Unit.



Not drawn to scale. Not all components of the Power Unit are shown.

The following drawing shows the **220 VAC** Power Unit.



Not drawn to scale. Not all components of the Power Unit shown.

To connect the Lift to a power source:

1. If you have the standard 110 VAC Power Unit, plug it in to 110 VAC power source.
2. If you have the optional 220 VAC Power Unit, ***you must have an Electrician prepare it for connection to a power source.***
3. Have the Electrician locate the Pigtail coming out of the Electrical Box on the Power Unit.
4. Open the Electrical Box, note where the Pigtail wires are connected, remove the Pigtail, and then either:
 - Wire the Power Unit directly into the facility's electrical system, ***or***
 - Wire a power cord with appropriate plug inside the Electrical box where the Pigtail was wired.

Do not use the Pigtail.

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

5. Close the Electrical Box.
6. If you have a 220 VAC Power Unit and your Electrician wired a power cord and plug, plug it in to a 220 VAC power source.

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. It is designed to interrupt electrical power in the event of an electrical circuit fault, emergency situation, or when equipment is undergoing service or maintenance.

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

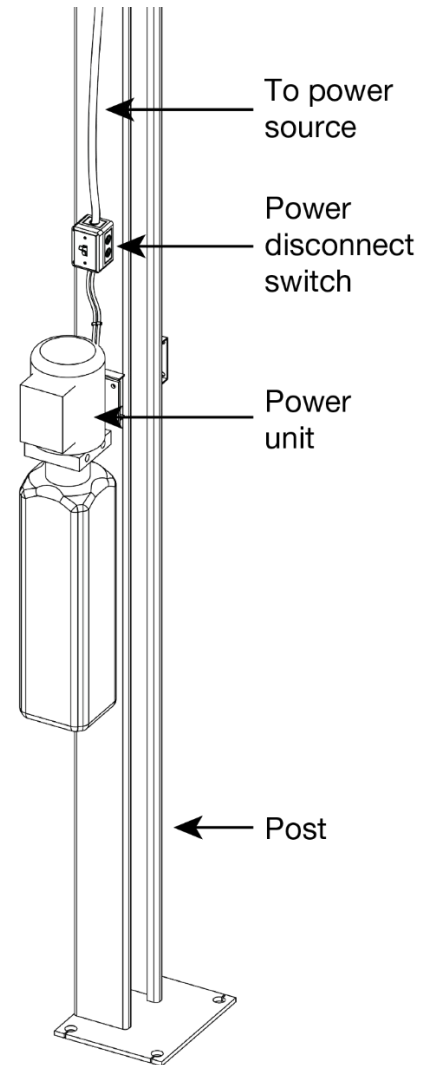
⚠ DANGER All wiring **must** be performed by a licensed, certified Electrician in accordance with local and national electrical codes.

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 in accordance with local and electrical codes.

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

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

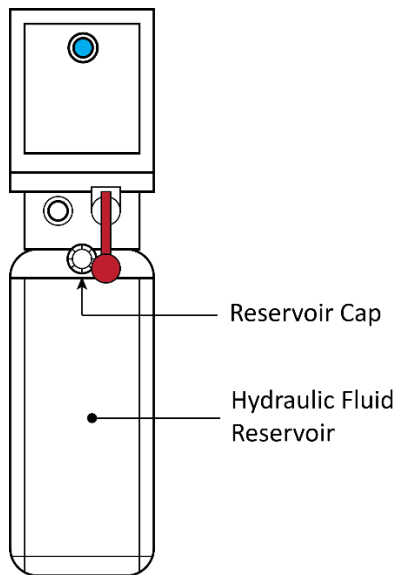
Adding Hydraulic Fluid

The Hydraulic Fluid reservoir on the Power Unit must be filled with approved fluid before you begin normal operation of the Lift. ***When you receive the Lift, the fluid reservoir is empty.***

⚠ CAUTION 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.



Hydraulic Fluid Reservoir is in the same location for all Power Units. Standard 110 VAC Power Unit shown. Not drawn to scale. Not all components shown.

To fill the Hydraulic Fluid Reservoir:

1. Remove the Reservoir Cap from the top of the Reservoir.
2. If the Reservoir is empty, fill it with approved fluid.

The Reservoir holds approximately **3.6 gallons / 13.5 liters**. *Use care to keep the fluid clean when filling the reservoir.*

3. If the Reservoir is low but not empty, carefully add approved fluid until the fluid level is about half an inch under the Reservoir Cap.
4. When the reservoir is full, put the Reservoir Cap back on.

About Embedment

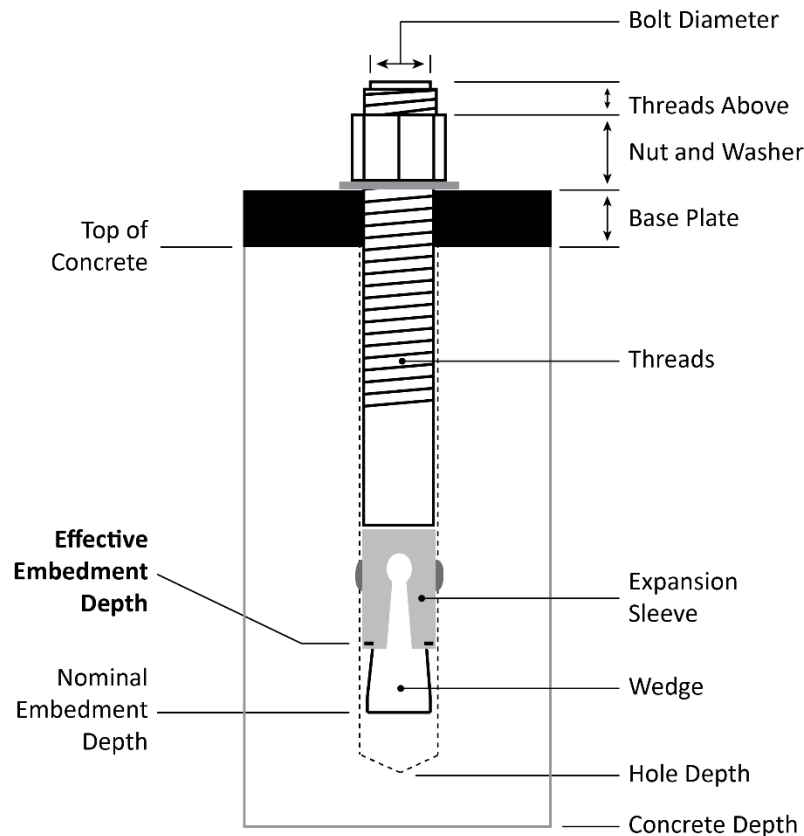
Anchor Bolts (also called Wedge Anchors) get their holding strength from how far down into the Hole the Anchor Bolt is installed (called embedment) and how forcefully the Expansion Sleeve presses into the Concrete (based on how much torque is applied).

To get *enough* embedment, you have to understand *Effective* Embedment, which means the location in the Hole where the Expansion Sleeve presses into the Concrete. This is where the Anchor Bolts create holding strength; the further down into the Hole, the greater the holding strength.

(The technical definition of Effective Embedment is the distance from the surface of the base material to the deepest point at which the load is transferred to the base material; the “base material” in our case being the Concrete into which the Anchor Bolts are being installed.)

Some people confuse Effective Embedment with Nominal Embedment, which is how far down into the Hole the bottom of the Anchor Bolt is.

As shown below, the two are not the same. Nominal Embedment does not tell you anything about the holding strength of the Anchor Bolt.



Not necessarily to scale.

The Anchor Bolts shipped with your product have letters stamped into their tops, indicating how long they are.

For example:

- 4.75 in / 120 mm long Anchor Bolts are stamped with a **G**.
- 6.3 in / 160 mm long Anchor Bolts are stamped with a **J**.

Anchoring the Posts

Install one Anchor Bolt in each of the holes in each Base Plate, four Anchor Bolts per Post, 16 Anchor Bolts total.

Concrete specifications are:

- **Depth:** 4.25 inches thick
- **PSI:** 3,000 PSI, minimum
- **Cured:** 28 days, minimum

Anchor Bolt specifications are:

- **Length:** 4 $\frac{3}{4}$ inches
- **Diameter:** $\frac{3}{4}$ inch
- **Effective embedment:** 2.75 inches, minimum
- **Anchor torque:** 85 – 95 pound feet (not less than 80 or more than 105)

 **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 a tensioned cable or you have located it using ground penetrating radar. ***If colored sheath comes up during drilling, stop drilling immediately.***

 **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 loss of life.

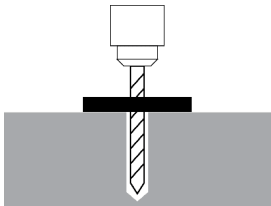
Dannmar Lifts are supplied with installation instructions and concrete fasteners meeting the criteria as prescribed by the American National Standard “Automotive Lifts – Safety Requirements for Construction, Testing, and Validation” ANSI/ALI ALCTV.

 **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 **4 inch** deep holes for the Anchor Bolts—one hole in each corner of the Base Plate, so four holes total per Base Plate.



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

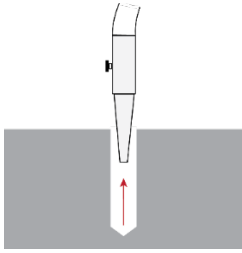
Use a carbide bit (conforming to ANSI B212.15).

The diameter of the drill bit **must** be the same as the diameter of the Anchor Bolt. So if you are using a $\frac{3}{4}$ inch diameter Anchor Bolt, for example, use a $\frac{3}{4}$ inch diameter drill bit.

3. Vacuum each hole clean.



CAUTION Proper protective eye protection and safety gloves are **required**.



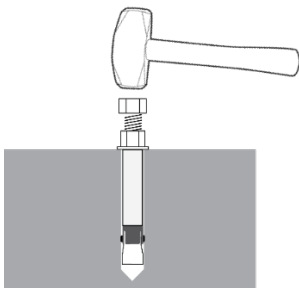
You can also use a wire brush, hand pump, or compressed air; just **make sure to thoroughly clean each hole**.

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

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.

4. Make sure the Washer and Nut are in place (the top of the Nut should be flush with the top of the Bolt), 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.



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.

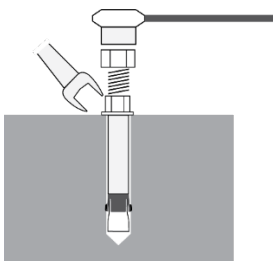
Once past the hole in the Base Plate, the Anchor Bolt eventually stops going down into the hole as the Expansion Sleeve contacts the sides of the hole; this is normal.

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 Dannmar at **(877) 432-6627** 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 as 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.

To perform final leveling on the Lift:

1. Raise your Lift to the first Safety Lock position.
2. Use a transit level or other leveling mechanism to evaluate how level the Posts and Runways are.
3. 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).
4. Raise the Lift to full 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.

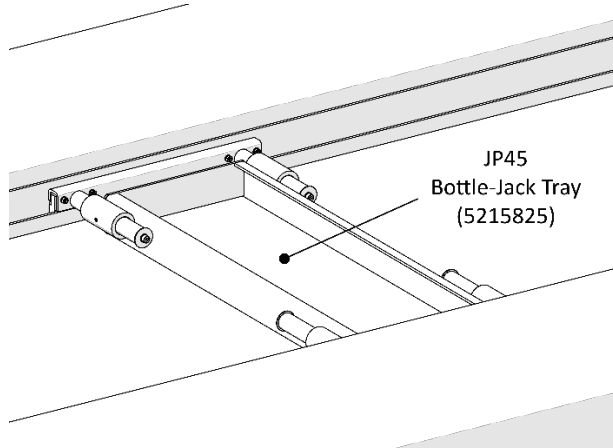
5. When you are satisfied the Lift is level, firmly secure the Nuts at the top of each Post.

Installing Accessories

The accessories available for your Lift include:

JP45 Bottle-Jack Tray

Holds one or two Bottle Jacks (not included), which let you get a Vehicle's wheels up off the Runways.

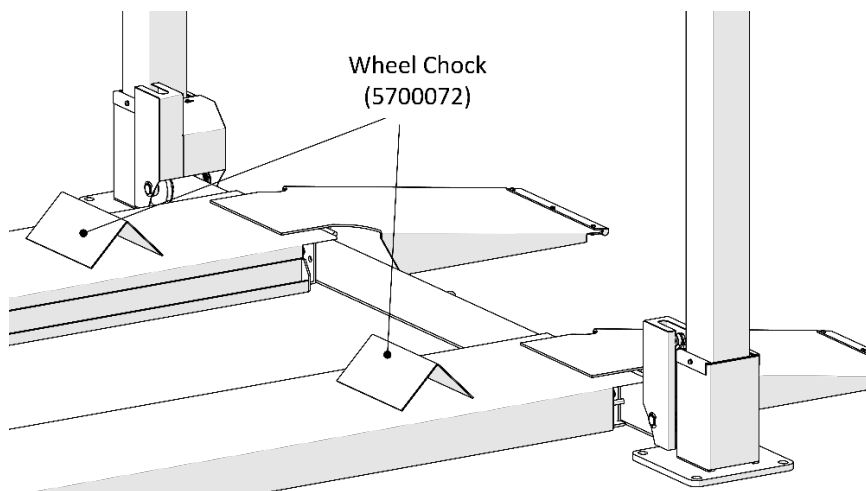


The JP45 Bottle-Jack Tray comes with its own manual. Refer to the **JP45 Quick Start Guide** for installation and usage instructions.

Tire Chocks

Tire Chocks go behind the back Tires of a Vehicle to make sure it stays where you put it. Tire Chocks are included with the Lift.

To use the Tire Chocks: wedge them in behind the rear Tires of a Vehicle when it is in the desired location on the Lift, then remove them when you want to take the Vehicle off the Lift.

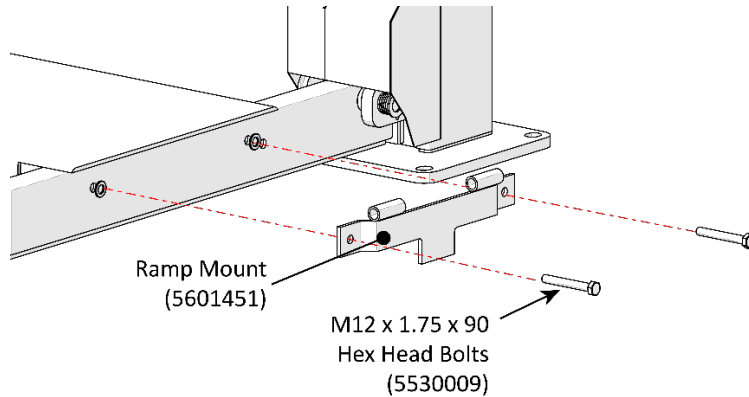


Drive-up Ramps

Your Lift comes with two Ramps, which are installed onto the Rear of the Lift so that Vehicles can drive onto and off of the Runways.

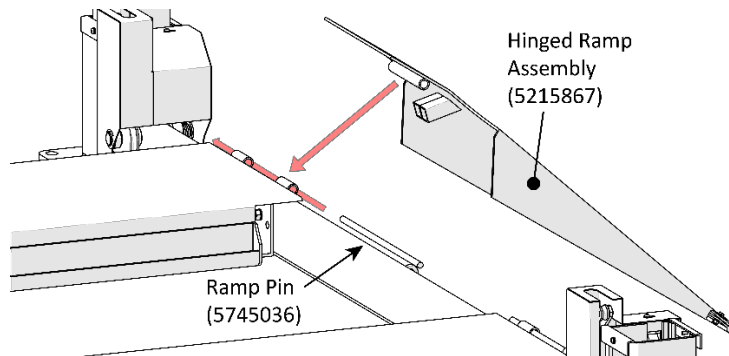
To install the Drive-up Ramps:

1. Install the four Ramp Mounts, one on each end of both Runways **with the same hardware** used earlier to bolt the Runways to the Crosstubes.

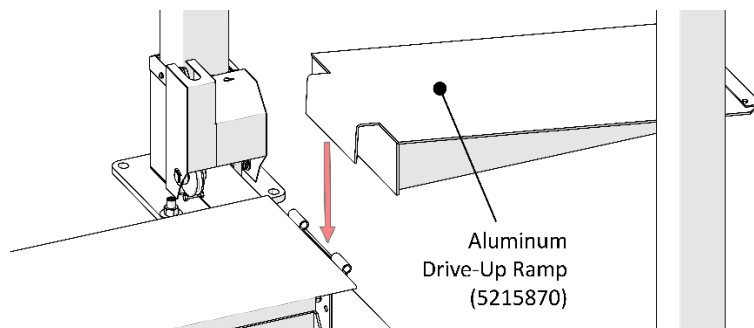


Important: Be careful **not** to disturb the Safety Release mechanism when you install the four Ramp Mount Pieces.

2. To install the Hinged Ramp Assembly, put it into place next to the Ramp Mount, align the holes on the Ramp with the holes on the Ramp Mount, then slide the Ramp Pin through the holes. Attach a rotor clip to either side of the Rod.
3. Repeat the same process for the other Ramp.



4. To install a silver, aluminum Ramp, slip the end into place in the gap between the end of the Runway and the Ramp Mount. Repeat for the other silver, aluminum Ramp.

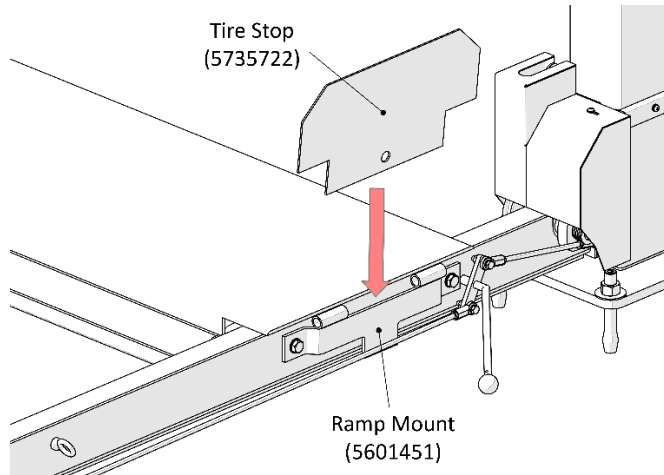


Tire Stops

Tire Stops are put into place on the Front of the Lift. They prevent the Tires of the Vehicle on the Lift from going too far forward.

To install the Tire Stops:

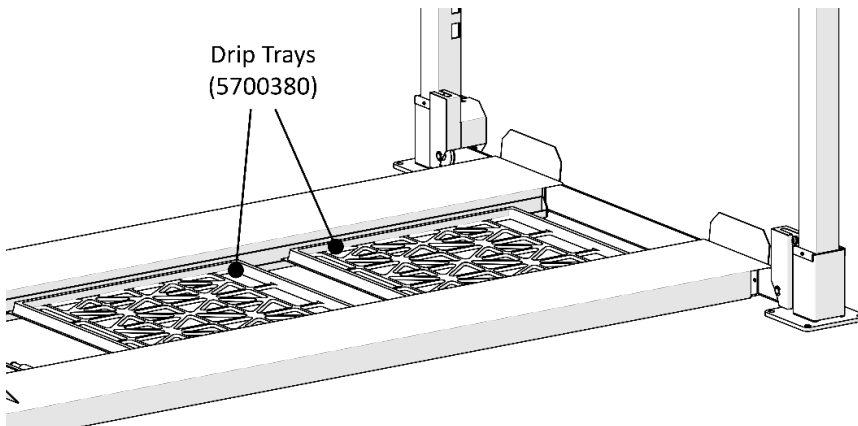
1. Slide the bottom of the Tire Stop into place in the gap between the end of the Runway and the Ramp Mount piece; repeat for the other Tire Stop.



Drip Trays

Drip Trays are black, plastic, freestanding trays that go between the two Runways and catch leaking fluids.

To use the Drip Trays: position them between the two Runways so that the Utility Rails hold them. Remove them when you are done with them.



Rolling Jack

A Rolling Jack lets you raise the Wheels of the Vehicle on the Lift off the Runway. It takes a pair of Rolling Jacks to get all four Wheels off the Runway. Brake jobs and suspension work, for example, are much easier to do to the Vehicle on the Lift if the wheels are off the Runways.

Rolling Jacks are a separate purchase. See [Rolling Bridge Jacks on the Dannmar Website](#).

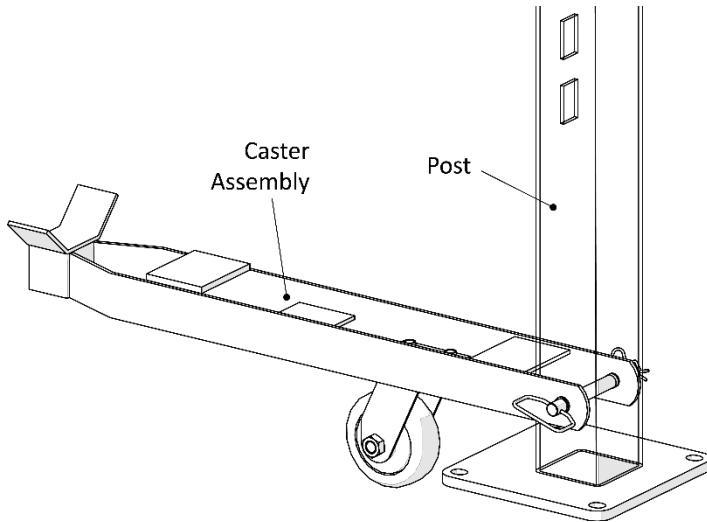
The Rolling Jack comes with its own manual; refer to that manual for installation and operation instructions.

Caster Kit

The Caster Kit includes four assemblies, one per Post. When the Lift is raised by the Caster Kit assemblies, you can move it to a different location.

Important: Only put the Caster Kit into position to move the Lift. When you are done moving the Lift, remove the Caster Kit.

⚠ WARNING Do **not** attempt to raise a Vehicle on the Runways while the Lift is on the Caster Kit.

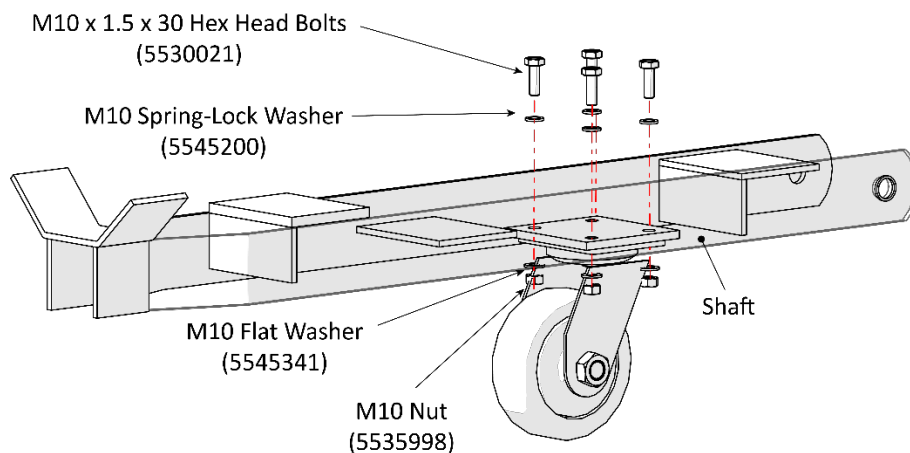


To move your Lift with the Caster Kit:

1. Raise the Lift to the first lock and engage it there.

⚠ WARNING Do not proceed until you have confirmed that the Lift is securely on a Safety Lock.

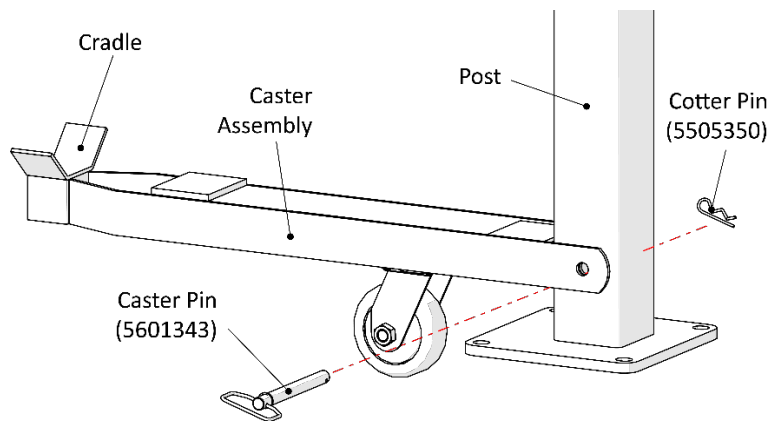
2. Locate the components of the four Caster Kit assemblies.
3. Using the supplied hardware, bolt all four Casters to the four holes in each of the Caster Assembly.



4. Put the open end around the Post, with the Caster Assembly on the inside of the Lift.

Important: The Cradle of the Shaft needs to be directly below the Crosstube above it.

5. Put the Pin through the holes in the Caster Kit assembly and the Post, then secure it on the other side with a Cotter Pin.



6. Repeat Steps 3 through 5 for the other three Caster Kit Assemblies.
7. Lower the Lift down all the way to the ground.

Make sure the Crosstubes are going into all four Cradles on all four Caster Kit Shafts; this is what pushes the Bases of the Posts off the ground so that you can move it.

8. Move the Lift to the desired location, then raise the Lift to a locking position — off the Caster Kit assemblies — and engage it there.

⚠ WARNING Do not proceed until you have confirmed that the Lift is securely on a Safety Lock.

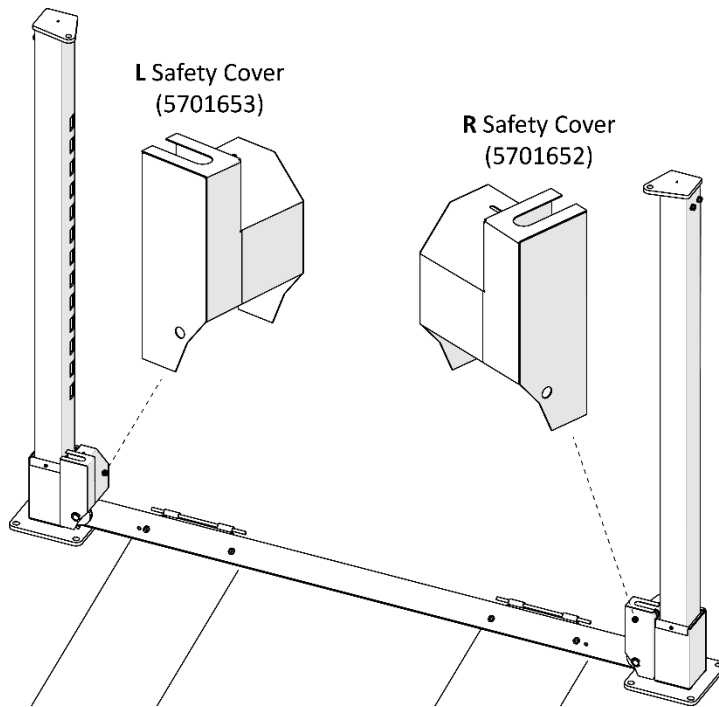
9. Take off all four Caster Kit Assemblies.

Installing the Safety Covers

To help protect the Safety Locks and Crosstube Sheaves components, the Lift comes with four Safety Covers for these locations.

Like the Posts, the Safety Covers have “left” and “right” orientations.

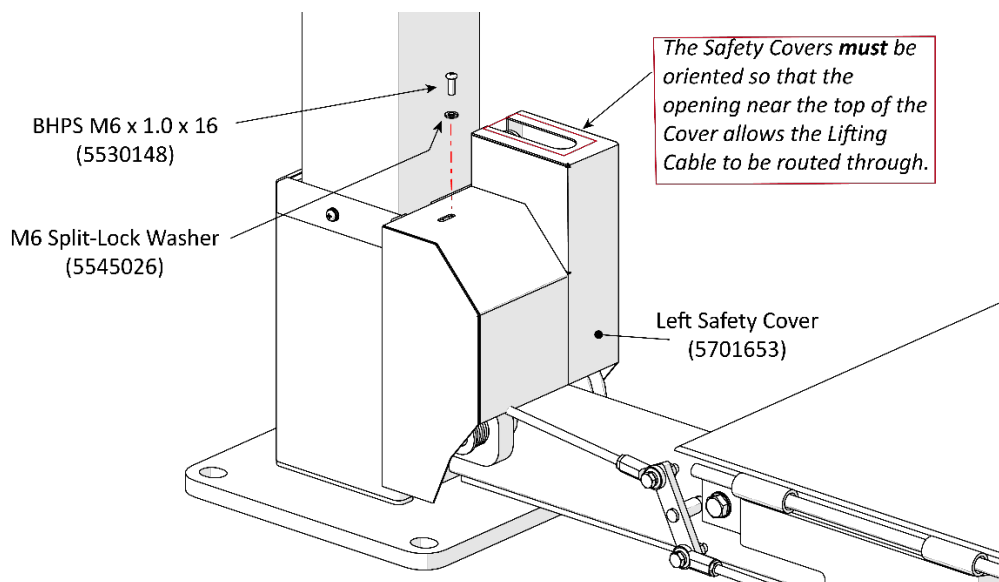
The following drawing shows the correct orientation for the Safety Covers.



View is from the inside of the Crosstube. Not all components are shown.

To install the four Safety Covers:

1. Find a Safety Cover and put it over the Crosstube Sheave from above.
2. Tighten a screw into the hole in the top of the Safety Cover to secure it.



Final Checklist Before Operation

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

- 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 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. Verify all Hydraulic Hose connections, Hydraulic Fittings, and Auxiliary Port Plugs on the Lift and Power Unit are tight.
- Make sure all four Posts are properly anchored, shimmed, level, and stable, if you anchored them.
- Make sure all Lifting Cables are taut, seated in their Sheaves, and lubricated.
- Make sure that all Lifting Cables are straight between the Top Cap and the Slack Safety Sheave. If any two are more angled than straight, then the Top Caps may have been installed incorrectly. If so, they must be fixed. Refer to **Installing the Top Caps** for additional information.
- Make sure all Safety Locks are operating normally.
- Make sure the backup Slack Safety Locks are **not** engaged.
- If it has not been done already, perform an Operational Test of the Lift with a typical Vehicle. Refer to **Performing an Operational Test**.
- Leave the *Installation and Operation Manual* with the Lift.

Performing an Operational Test

We strongly recommend doing an Operational Test of your Lift with a typical Vehicle before starting normal service.

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** for more information.

NOTICE Residual air in the Hydraulic System can cause the Lift to shake, move erratically, or squeak when you start using it; this is normal. If it does not go away after raising and lowering the Lift two or three times, try bleeding air from the Hydraulic Cylinder. If it still does not go away, refer to **Troubleshooting** for additional information.

To test your Lift:

1. Check the area around, above, and under the Lift for obstructions; move them if you find any.
2. Drive the Vehicle onto the Lift.
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 rear Wheels.
3. Check all four Lifting Cables from the Top Cap down to the Slack Safety Sheave.
Verify that each Lifting Cable is straight between those two points. If any two are angled (not quite straight), then the Top Caps may have been installed incorrectly. If so, they must be fixed. Refer to **Installing the Top Caps** for additional information.
4. Press and hold the **Up** button.
5. After the Runways pass one or two Safety Locks (you will hear them), release the **Up** button.
6. **Pull down and hold down** the Safety Lock Release Handle (next to the Crosstube), then **press and hold** the Lowering Handle (on the Power Unit).
7. When the Runways are fully lowered, release both handles.
8. Wait for one minute.

 **CAUTION** Always take a break between cycles. The Power Unit's motor is **not** constant duty. If you run it continuously, you will damage it, which is **not** covered by the Warranty.

9. Repeat the process, this time raising the Runways higher.
10. 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 a one-minute break between cycles.

If you continue to have issues, refer to **Troubleshooting** for assistance.

Operation

This section describes how to operate your Lift.

 **DANGER** When you even hear the words “automotive lift,” your brain should automatically remember that lifting a Vehicle is a serious endeavor with life-threatening risks. Focus on what you are doing. Automotive Lifts are dangerous tools when used by inexperienced or impaired operators. ***Do not assume you are going to be safe this time because nothing happened last time.***

Safety Considerations

Do the following **every time prior** to raising or lowering a Vehicle; really, **every time**:

- **Check the Lift.** Walk all the way around the Lift, checking for any missing, heavily worn, or damaged parts. Always verify that all Hydraulic connections including Hydraulic Hoses, Hoses, and Auxiliary Port Plugs are secured. Do not operate the Lift if you find any issues; instead, take it out of service, then contact your dealer, email support@dannmar.com, or call **(877) 432-6627**.
- **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 moving.
- **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 should be within 30 feet of the Lift while it is moving.

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

When the Lift is moving, the Operator must be paying full attention to the Lift and the area around it. The Operator must **not** be looking at a smart phone, talking to a co-worker, or be distracted in any other way.

- **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. When raising a Vehicle, do not leave the Controls until it is engaged on Safety Locks. When lowering the Lift, do not leave the Controls until it is on the ground.
- **Check the Vehicle.** Never exceed the Lift’s rated capacity. Do not allow people inside a Vehicle you are going to raise. Take out of the Vehicle anything you might need while it is up on the Lift. Make sure the Vehicle is not overbalanced on either end or either side. Make sure the Wheels of the Vehicle are **completely** on the Runways; Vehicles with long wheelbases cannot be on the Ramps or past the Tire Stops. When driving a Vehicle onto the Runways, make sure to position the Wheels in the center of the Runways.

Using the Controls

The Controls for the Lift include:

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

To engage Lift on its Safety Locks: 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 (do **not** pull down and hold the Safety Lock Release Handle).

Before leaving the Lift, make sure all four Posts are engaged on Safety Locks at the same height.

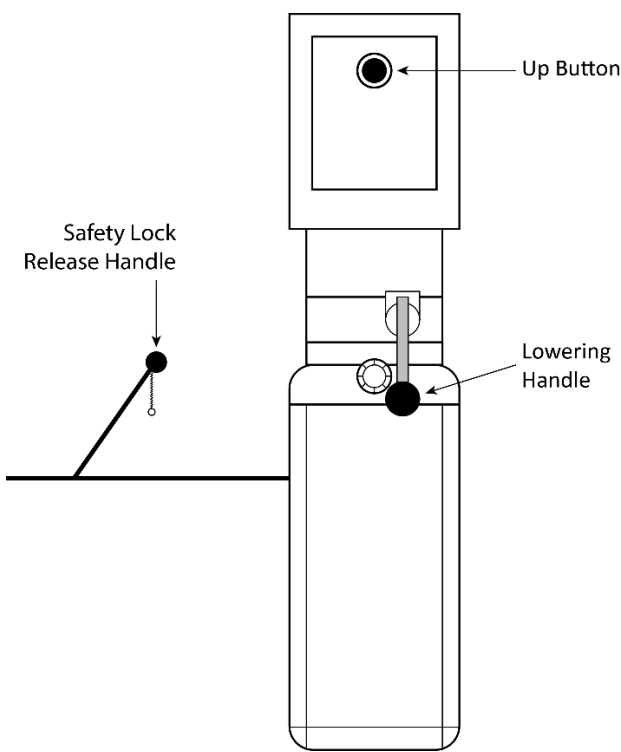
- **Lowering Handle.** Press and hold to lower the Runways. Located in the middle of the Power Unit, the Lowering Handle is long and has a ball at the end.

To lower raised Runways all the way to the ground: Press and hold the Up button to remove the Lift from the Safety Locks, then pull down and hold the Safety Lock Release Handle first, then **press down 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 Lift either engaged on Safety Locks or fully lowered.

- **Safety Lock Release Handle.** Pull down and hold the Safety Lock Release Handle as part of the process to lower the Runways. The Safety Lock Release Handle is always installed next to the Power Unit. Pulling down and holding the Safety Lock Release Handle disengages the Safety Locks, which is needed to lower the Runways.

To raise Runways to a Safety Lock: 1. Press and hold the Up Button. 2. When just past desired height, release Up Button. 3. Press and hold Lowering Handle. 4. Runways stop going down when engaged on Safety Locks; release Lowering Handle several seconds after Runways stop moving. Do not pull down and hold the Safety Lock Release Handle to engage Safety Locks.	 The diagram shows a vertical control panel. At the top is a circular 'Up Button'. Below it is a 'Safety Lock Release Handle' which is a lever that can be pulled down. At the bottom is a 'Lowering Handle' which is a long vertical rod with a ball at the end. A horizontal line indicates the level of the runways.	To lower Runways: 1. Press and hold Up Button for a second or two to get Lift off the Safety Locks. 2. Pull down and hold the Safety Lock Release Handle. You must hold down the Safety Lock Release Handle to lower the Runways. 3. Also press down and hold the Lowering Handle. The Runways begin lowering. 4. When the Runways are fully lowered, release both Handles.
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Raising and Lowering Vehicles

This section includes instructions for raising and lowering a Vehicle.

To raise a Vehicle:

1. Make sure the Runways are on the ground. If they are not, move them down to the ground.
2. Drive a Vehicle onto the Runways.

Make sure all four wheels are **fully** on the Runways, in the center of the Runways.

Put the Vehicle into park and put on the parking brake. Leave manual transmissions in gear.

3. Chock the Wheels.
4. Press and hold the **Up** Button on the Power Unit.
5. When the Runways get to the desired height, go up a little bit higher, then release the **Up** Button and press and hold the Lowering Handle.

Do **not** pull down and hold the Safety Lock Release Handle; this prevents the Lift from engaging on its Safety Locks.

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. The result is a Runway that is not flat. Always make sure all four Safety Locks are engaged; you know they are if both Runways are flat.

 **WARNING** Only leave your Lift either engaged on Safety Locks or fully lowered.

6. With the Runways engaged on the Safety Locks, check around the Vehicle to make sure everything is secure and safe.

Do not go under the Lift until you are sure it is engaged on all four Safety Locks.

To lower a Vehicle:

1. Make sure there are no obstructions under the Runways you are about to lower.
If there are, move them out of the way **before** lowering the Runways.
2. Press and hold the **Up** Button for two or three seconds.
Moving the Lift **up** gets it off the Safety Locks, which is required for lowering the Lift.
3. Pull down and hold the Safety Lock Release Handle, then press and hold the Lowering Handle.
4. When the Runways are fully lowered, release both handles.
5. Remove the wheel chocks.
6. Make sure it is safe to drive the Vehicle off the Lift.
7. Drive the Vehicle off the Lift.

Maintenance

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

If you need to replace worn, damaged, or broken parts, you **must** use parts from (or approved by) the original equipment manufacturer (OEM) or parts that meet the OEM's specifications.

 **WARNING** If you use parts **not** from, approved by, or meeting the specifications of the original equipment manufacturer, you void your warranty and compromise the safety of everyone who installs or uses the Lift.

Unless stated otherwise, all maintenance can be performed by the owner/employer and does not require trained lift service personnel.

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 Lifting 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 if this can be done safely; if it cannot be done safely, evacuate the area and make arrangements with trained lift service personnel to lower the Vehicle. When the Lift is on the ground, take it out of service, disconnect it from power, and make arrangements with trained lift service personnel to fix the damage and/or wear.

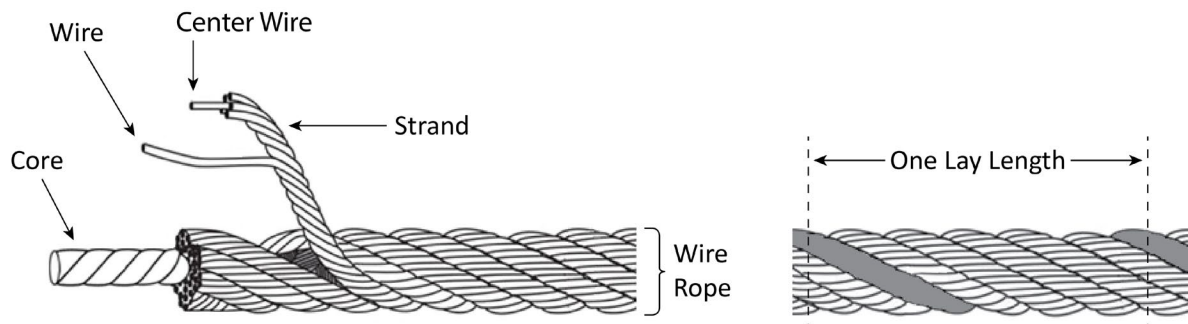
- **Daily:** Make sure all Safety Locks are in good operating condition. Do not use your Lift if the Safety Locks are damaged or excessively worn. If a Vehicle is engaged on its Safety Locks when damage or excessive wear is noticed, and the Vehicle cannot be lowered, evacuate the area and make arrangements with trained Lift service personnel to come and lower the Lift.
- **Monthly:** Check all labels on the Lift. Replace them if they are illegible or missing.
- **Monthly:** Grease the Cable Sheaves on the Lift. Use white lithium grease or similar.
- **Monthly:** Check Hydraulic Fluid levels. Refill if low.
- **Monthly:** Lubricate the wire rope (Lifting 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.
- **Monthly:** Check electrical connections. Requires a licensed, certified Electrician.
- **Every two months:** Check all Anchor Bolts to make sure they are properly torqued (if your Lift is anchored). If they are loose, tighten them.

 **WARNING** Do not operate your Lift if you find maintenance issues; instead, take the Lift out of service, then contact your dealer, trained lift service personnel, visit dannmar.com/support, email support@dannmar.com, or call (877) 432-6627.

Wire Rope Inspection and Maintenance

Your Lift's Lifting 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 Lifting 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 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 (where a single strand makes a full turn around the rope) 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

If your Lift is not functioning correctly, you must take it out of service until it is fixed.

Important: All repair work **must** be done by qualified personnel.

 **WARNING** The Lift uses electrical energy; if your organization has Lockout/Tagout policies, make sure to implement them **before** performing any Troubleshooting.

Runways do not raise or do not lower, once raised.	Make sure there is sufficient Hydraulic Fluid in the reservoir. Make sure there is no air in the Hydraulic System. See Bleeding the Hydraulic Cylinder for more information. Make sure none of the Hydraulic Hoses are pinched or leaking. Make sure the Power Unit is getting power. Make sure Lift is not overloaded.
One corner of the Lift is lower than the other three corners.	The Safety Lock on the low corner is not engaged. Raise the Runways, then lower them down onto Safety Locks. Make sure all four Safety Locks are engaged at 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 a full minute between cycles.
Runways do not stay up.	Check for leaking Hydraulic Fluid. Make sure the Runways were left engaged on Safety Locks.
Motor not running.	Check the connection to the power source; make sure it is plugged in and of the appropriate voltage. Check the wiring diagram.
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 Sheaves 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.
Lift becomes inoperative with Vehicle on it in a raised position.	If Safety Locks are engaged, Vehicle will stay raised. To lower the Lift: 1. Use Jacks and Jack Stands to raise the Vehicle up off the Runways a few inches. 2. Press the Up Button to raise the Lift until it makes contact with the Vehicle, taking the load off of the Jack Stands and Jacks. 3. Carefully remove the Jack Stands and Jacks.

	4. Disengage the Safety Locks, then lower the Vehicle back down onto the Runways; the weight of the Vehicle will lower it to the ground.
--	--

If you continue to have issues with your Lift, take it out of service, then contact your dealer, go to dannmar.com/support, email support@dannmar.com, or call **(877) 432-6627**.

Bleeding the Hydraulic Cylinder

The Hydraulic Cylinder on the Lift is self-bleeding, which means that in most cases any air in the Hydraulic System gets removed automatically simply by using the Lift.

In rare cases, it may be necessary to *manually* bleed the Hydraulic System of any extra air.

 **WARNING** Before performing any maintenance on your Lift (for example, bleeding the Hydraulic Cylinder or adding Hydraulic Fluid), make sure both Runways are on the ground and the power source has been disconnected and cannot accidentally be re-connected.

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

To bleed the Hydraulic System:

1. Raise the Lift to maximum rise and then lower it all the way back down again.

 **CAUTION** Pause for at least a full minute between each cycle. The Lift's motor cannot run continuously; it is designed for regular use, but not continuous use.

2. Raise the Lift again to maximum rise; watch the Runways as you raise it.

If the Lift does **not** move erratically, squeak, or jerk as it moves, the Hydraulic System has been purged of air. You can return the Lift to normal operation.

3. If the Lift **does** move erratically, squeak, or jerk as it moves, perform Step 2 again.

When the Lift is raising and lowering smoothly, you can return it to normal operation.

If your Lift is still moving erratically or making odd noises after bleeding the Hydraulic System, take it out of service, go to bendpak.com/support, email support@bendpak.com, or call **(800) 253-2363**.

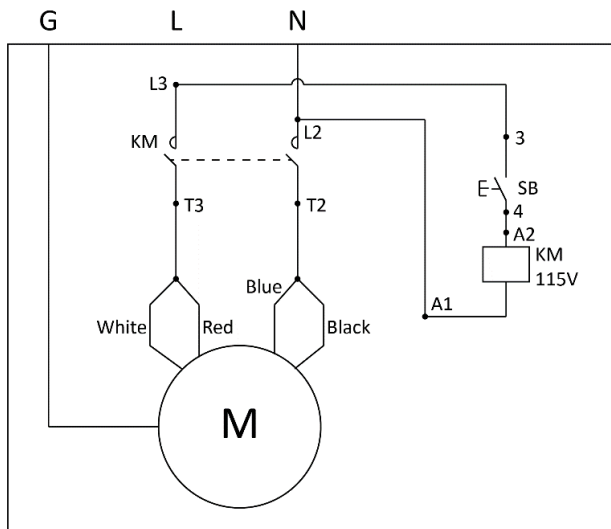
4. Check the Hydraulic Fluid reservoir on the Power Unit.

NOTICE Bleeding the Hydraulic System may lower the amount of Hydraulic Fluid in the reservoir.

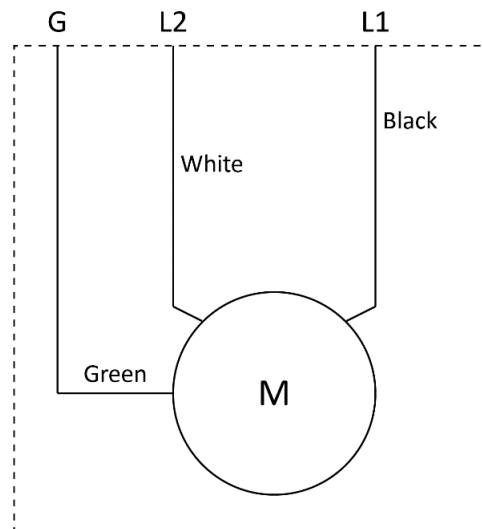
5. Add additional Hydraulic Fluid if necessary.

Wiring Diagrams

115 VAC



208 – 230 VAC



These wiring diagrams use the United States color codes for the three wires in the Pigtail that comes out of the Electrical Box on the Power Unit:

- **Black:** Live
- **White:** Live
- **Green:** Ground

If you are using the unit in a European country, the Black – White – Green colors correspond to:

- **Brown:** Live
- **Blue:** Neutral
- **Green/Yellow:** Ground

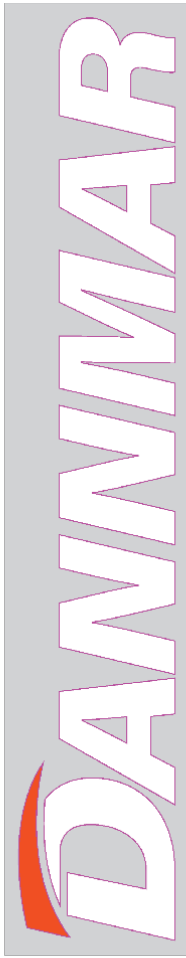
Information about color code conventions in other regions and countries is available online.

WARNING

All electrical work, such as hard-wiring the unit or attaching a Plug to the Power Cord, **must be done by a licensed, certified Electrician** in accordance with all applicable local and national electrical codes. Damage caused by improper electrical installation may void your warranty.

Labels

A



B



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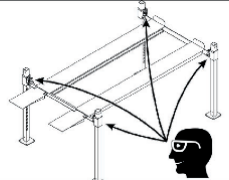
1645 Lemonwood Drive
Santa Paula, CA 93060
805-933-9970
www.dannmar.com



PN 5905701

C

⚠ DANGER



VISUALLY CONFIRM THAT ALL PRIMARY SAFETY LOCKS ARE ENGAGED BEFORE ENTERING WORK AREA

Suspension components on this lift are intended to raise and lower lift: they are NOT load-holding devices. Do not go under an elevated lift until visual confirmation is made that the lift is engaged on its Safety Locks. Refer to the manual for proper Safety Lock procedures and additional instructions.

⚠ WARNING

Wire Rope Inspection and Maintenance

- Replace lifting cables if wear or damage is evident, such as excessive broken strands, kinks, deformities, or areas of heavy abrasion.
- Keep wire rope 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 wire rope lubricant that penetrates to the core of the rope and provides long-term lubrication between individual strands. Lubrication should be done at least every three months during normal operation.
- All sheaves and guide rollers in contact with the moving wire rope should be given regular visual checks for surface wear and lubricated to make sure they run freely. This should be done at least every three months during normal operation. For sheave axles, use standard wheel-bearing grease. For all sheaves and guide rollers, use 30-WT gear oil or similar heavy lubricant applied by any method including pump/spray dispensing, brush, hand, and/or scrubbing.

Read and understand these instructions before using lift. Failure to read, understand, and follow these instructions may cause serious injury or death.

IMPORTANT OPERATION / MAINTENANCE INSTRUCTIONS

TO RAISE LIFT

- Position vehicle tires at the center of each Platform.
- Set parking brake or use wheel chock to hold vehicle in position.
- Before raising vehicle, be sure all personnel are clear of lift and surrounding area. Pay careful attention to overhead clearances.
- Raise lift to desired height by pressing pushbutton on power unit.
- Maintain visual contact with vehicle and surrounding area at all times while raising lift.
- STOP IMMEDIATELY** if load shifts or becomes unlevel.
- After vehicle is raised to desired height, lower lift onto the nearest Safety Lock. Do not allow cables to become excessively slack.
- Always make sure all Primary Safety Locks are engaged before entering work area.

TO LOWER LIFT

- Make sure all personnel, tools, and equipment are clear of lift and surrounding area.
- Raise lift by pressing pushbutton on power unit. Elevate lift at least two inches to allow adequate clearance for locks to clear.
- Press and hold the safety lock release handle.
- Lower vehicle by also pressing and holding Lowering Handle.
- When lowering lift, make sure that all personnel and objects are kept clear.
- ALWAYS** keep a visual line of sight on lift while lowering.
- ALWAYS** make sure safety locks are disengaged. If one of the locks inadvertently engages on descent, lift and/or vehicle may dislodge causing personal injury or death.

REQUIRED MONTHLY MAINTENANCE

- Consult operation manual for factory recommended maintenance.
- Adjust lift cables to ensure lift raises level and Safety Locks engage simultaneously.
- Check all chainable connections, bolts and pins to ensure proper mounting.
- Visually inspect Safety Locks for proper operation.
- Visually inspect concrete. Do not use lift if concrete shows signs of breakage or other deterioration.
- Inspect all anchor bolts; retighten as necessary.
- Check posts for squareness and plumb.
- Inspect all bolts and other fasteners to make sure they are properly secured.
- Make a visual inspection of all moving parts and check for signs of excessive wear.
- Replace all faulty parts before lift is put back into operation.

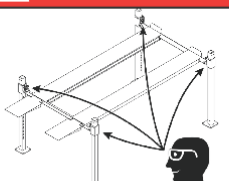
⚠ WARNING

- WARNING:** If anchor bolts are loose, or any component of the lift is defective, do not use lift! It is not safe under these conditions.
- NEVER** operate the lift with people or equipment under it. **NEVER** exceed rated capacity.
- ALWAYS** ensure Safety Locks are engaged before any attempt is made to work on or near vehicle.
- Do not have lift elevated unless engaged on Safety Locks.
- Do not permit the electric motor to get wet! Motor damage caused by dampness is not covered by the warranty.

P/N 5905701

English
(Front)

⚠ DANGER



VÉRIFIER VISUELLEMENT QUE TOUS LES VERROUS DE SÉCURITÉ PRIMAIRES SONT ENGAGÉS AVANT D'ENTRER DANS LA ZONE DE TRAVAIL

Les composants de suspension de cet élévateur sont destinés à élever et abaisser l'ascenseur; ce ne sont PAS des dispositifs de maintien de la charge. Ne passez pas sous un ascenseur surélevé avant d'avoir obtenu la confirmation visuelle que l'ascenseur est engagé sur ses verrous de sécurité. Reportez-vous au manuel pour connaître les procédures de verrouillage de sécurité et les instructions supplémentaires.

⚠ ATTENTION

Inspection et maintenance des câbles

- Remplacez les câbles de levage si l'un ou des deux câbles sont défectueux, s'ils ont des bris ou des cassures, des bris, des déformations ou des zones de forte abrasion excessive.
- Gardez les câbles lubrifiés à tout moment. Le câble lubrifié n'est véritablement protégé que lorsque chaque brin est lubrifié, à la fois à l'intérieur et à l'extérieur. Une mauvaise lubrification raccourcit la durée de vie du câble. Utilisez un lubrifiant pour câbles véritablement pénétrant dans le cœur du câble et assurez une lubrification à long terme entre les brins. La lubrification doit être effectuée au moins tous les trois mois en fonctionnement normal.
- Tous les poulies et les rouleaux en contact avec le câble doivent être régulièrement inspectés et lubrifiés à l'aide d'un lubrifiant approprié. Pour les axes de poulies, utilisez une graisse standard pour roulements. Pour les rouleaux, utilisez une huile de viscosité moyenne. Pour les poulies et les rouleaux de guidage, utilisez de l'huile pour engrenages 30-WT ou une huile lourde similaire, appliquée à l'aide d'une brosse à dents, d'un pinceau ou d'un pulvérisateur. Ne laissez pas l'huile s'accumuler sur le sol.

Lisez et comprenez ces instructions avant d'utiliser l'ascenseur. Ne pas lire, comprendre et suivre ces instructions peut provoquer des blessures graves, voire mortelles.

IMPORTANT INSTRUCTIONS D'UTILISATION / DE MAINTENANCE

POUR SOULEVER

- Placez les pneus du véhicule au centre de chaque plateforme.
- Serrer le frein de stationnement ou utiliser la cale de roue pour maintenir le véhicule en position.
- Avant de soulever le véhicule, assurez-vous que tout le personnel est libre de l'élevateur et des environs. Portez une attention particulière aux dénivelés en hauteur.
- Soulever l'élevateur à la hauteur désirée en appuyant sur le bouton-poussoir du bloc d'instruction.
- Maintenez le contact visuel avec le véhicule et la zone environnante à tout moment pendant le montage.
- ARRÊTEZ IMMÉDIATEMENT** la charge si elle se déplace ou s'inclina.
- Une fois le véhicule élevé à la hauteur souhaitée, abaissez le point élévateur sur le verrou de sécurité le plus proche. Ne laissez pas les câbles devenir trop mous.
- Assurez-vous toujours que tous les verrous de sécurité primaires sont engagés avant d'entrer dans la zone de travail.

POUR ABASSER LE LÉVATEUR

- Assurez-vous que tout le personnel, les outils et l'équipement sont éloignés de l'ascenseur et des environs.
- Lisez le manuel d'utilisation pour l'abaissement de l'ascenseur en appuyant sur le bouton de la centrale. Soulevez l'ascenseur d'un mètre deux pouces pour permettre un engagement suffisant des verrous.
- Appuyez sur la poignée de déverrouillage de sécurité et maintenez-la enfoncée.
- Abaissez le véhicule en appuyant également sur la poignée d'abaissement.
- Lors de l'abaissement de l'ascenseur, assurez-vous que tout le personnel et les objets sont gardés à l'écart.
- TOUTJOURS** garder une ligne de mine visuelle sur l'ascenseur pendant l'abaissement.
- TOUTJOURS** garder à l'esprit les zones de travail et les pièces mobiles et rechercher des signes d'usure excessive ou de détresse. L'ascenseur et ses câbles peuvent être endommagés et causer des blessures ou la mort.

ENTRETIEN MENSUEL REQUIS

- Consultez le manuel d'utilisation pour la maintenance recommandée par l'usine.
- Ajustez les câbles de levage pour vous assurer que les ascenseurs sont à niveau et que les verrous de sécurité s'engagent simultanément.
- Vérifiez toutes les connexions de la chaîne d'entraînement, les câbles, les boulons et les broches pour assurer un montage correct.
- Inspectez visuellement les serrures de sécurité pour vous assurer qu'elles fonctionnent correctement.
- Inspecter tous les boulons d'ancrage, resserrer si nécessaire.
- Inspecter tous les boulons et autres fixations pour vous assurer qu'ils sont correctement fixés.
- Effectuez une inspection visuelle de toutes les pièces mobiles et recherchez des signes d'usure excessive.
- Remplacez tous les pièces défectueuses avant que l'élevateur ne soit remis en service.

⚠ AVERTISSEMENT

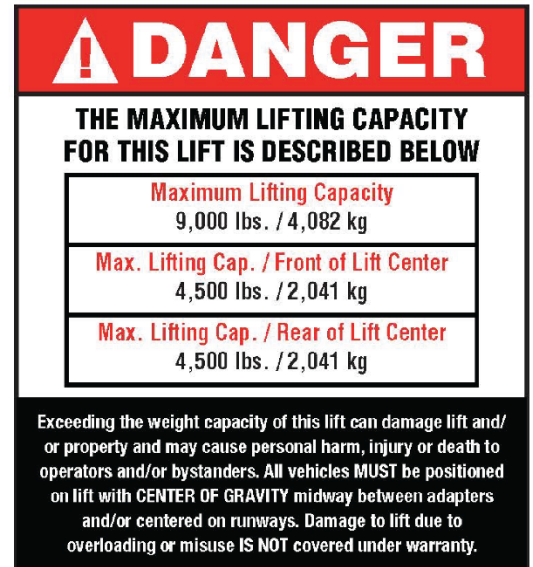
AVERTISSEMENT: si les boulons d'ancrage sont desserrés ou si l'un des composants de l'élevateur est défectueux, n'utilisez pas d'élevateur! Ce n'est pas sûr dans ces conditions.

NE JAMAIS laisser l'ascenseur fonctionner avec des personnes ou des équipements dessous. Ne JAMAIS laisser à l'usage d'un enfant.

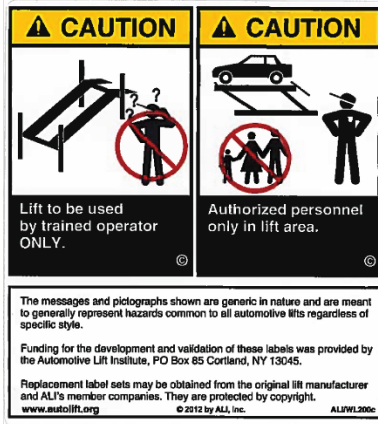
- Assurez-vous toujours que les serrures de sécurité sont abaissées avant toute tentative de travail sur ou à proximité du véhicule.
- Ne laissez pas le moteur électrique se mouiller. Les dommages au moteur causés par l'humidité ne sont pas couverts par la garantie.

P/N 5905701

French
(Rear)

D**E****F****G****I****J**

K



L



O



P



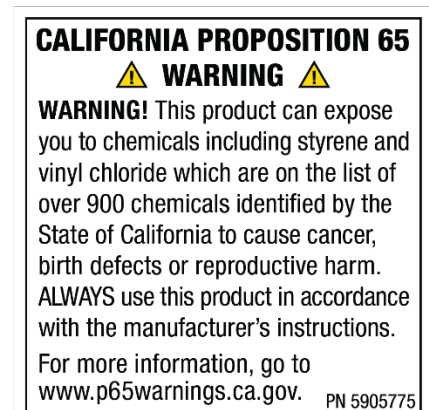
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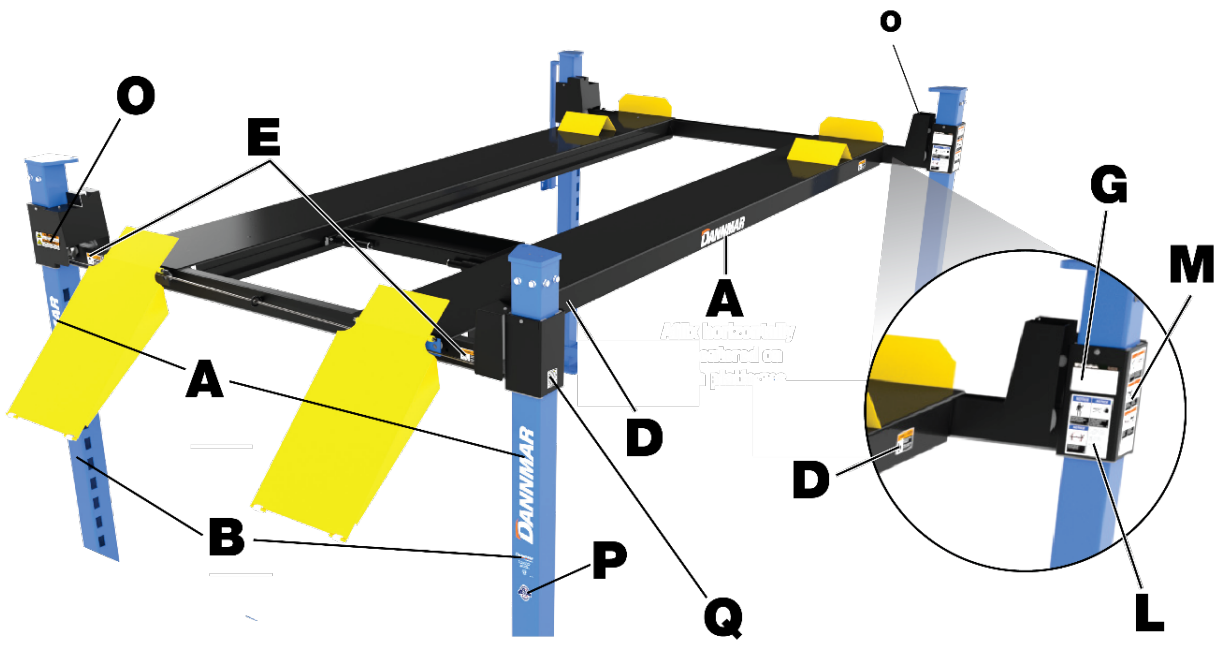
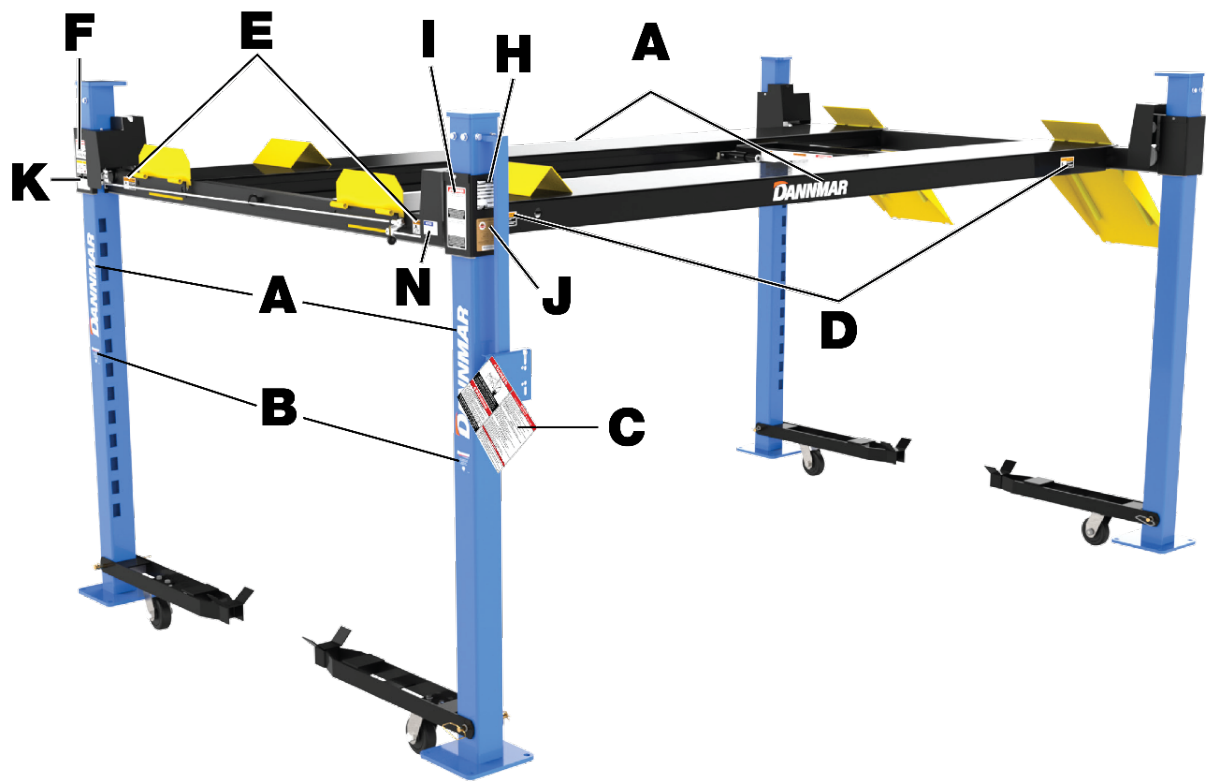


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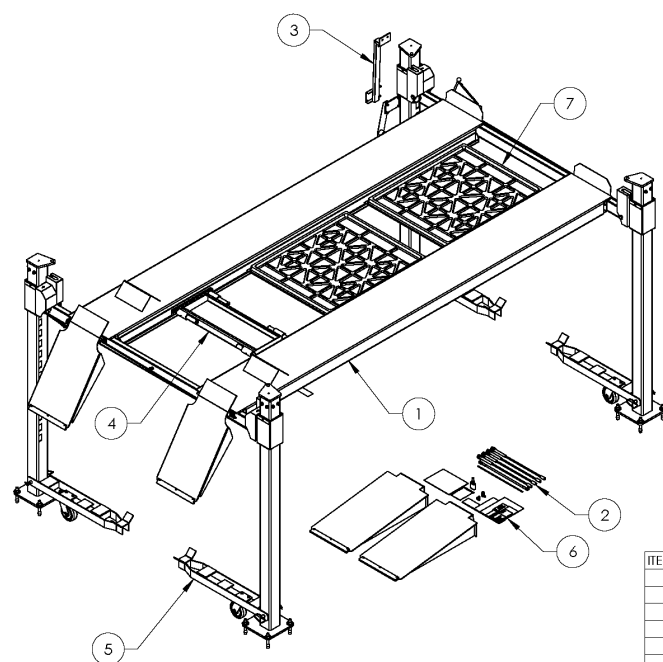


Q





Parts Drawings



ITEM NO	PART NUMBER	DESCRIPTION	QTY	REV
1	5245115	D4-9 SUPERSTRUCTURE	1	F
2	5250319	D4-9 PARTS BOX	1	D
3	5601567	D4-9 POWER UNIT HOLDER WELDMENT	1	A
4	5215825	JP45 JACK PLATFORM	1	D
5	5215832	D4-9, GP-9 CASTER KIT ASSEMBLY	4	D
6	5905717	D4-9 LABEL PACKAGE	1	D
7	5700380	POLYETHYLENE DRIP TRAY	2	C

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THIRD ANGLE PROJECTION

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BendPak

1645 LEMONWOOD DR.
SANTA PAULA, CA 93060

TITLE:

D4-9 PRODUCTION
LIFT VER A

SIZE

DWG. NO.

REV

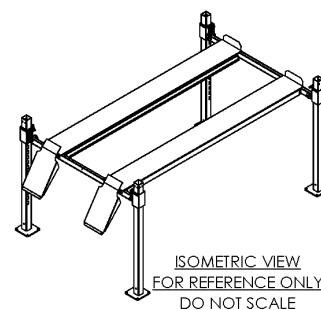
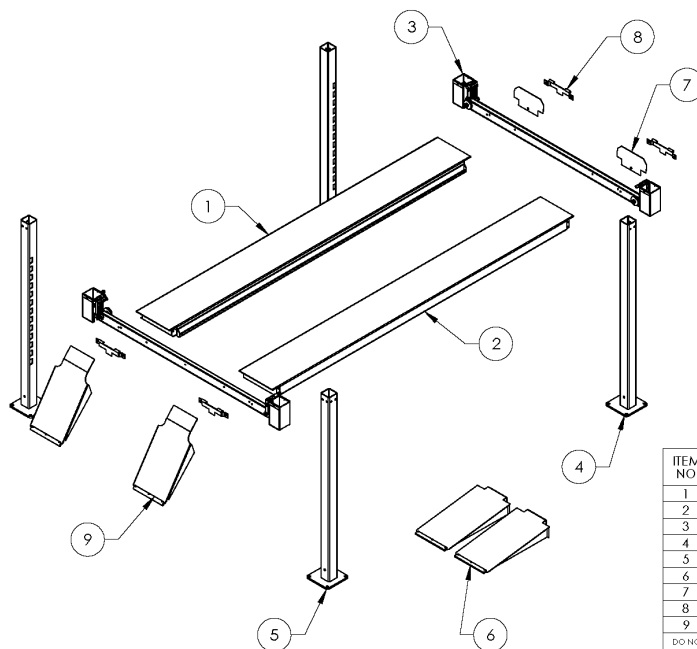
A

5260634

G

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SHEET 1 OF 3



ITEM NO	PART NUMBER	DESCRIPTION	QTY	REV
1	5215830	D4-9, GP-9F POWER SIDE RUNWAY ASSEMBLY	1	G
2	5601347	D4-9, GP-9F OFF SIDE RUNWAY WELDMENT	1	C
3	5215826	D4-9, GP-9 CROSS TUBE ASSEMBLY	2	H
4	5601574	D4-9 LEFT POST WELDMENT	2	A
5	5601575	D4-9 RIGHT POST WELDMENT	2	A
6	5215870	D4-9, GP-9 ALUMINUM APPROACH RAMP ASSEMBLY	2	B
7	5735722	D4-9, GP-9 TIRE STOP PLATE	2	A
8	5601451	D4-9, GP-9 APPROACH RAMP MOUNT WELDMENT	4	A
9	5215867	D4-9, GP-9 APPROACH RAMP ASSEMBLY HINGED	2	C

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SANTA PAULA, CA 93060

TITLE:

D4-9 SUPERSTRUCTURE

SIZE

DWG. NO.

REV

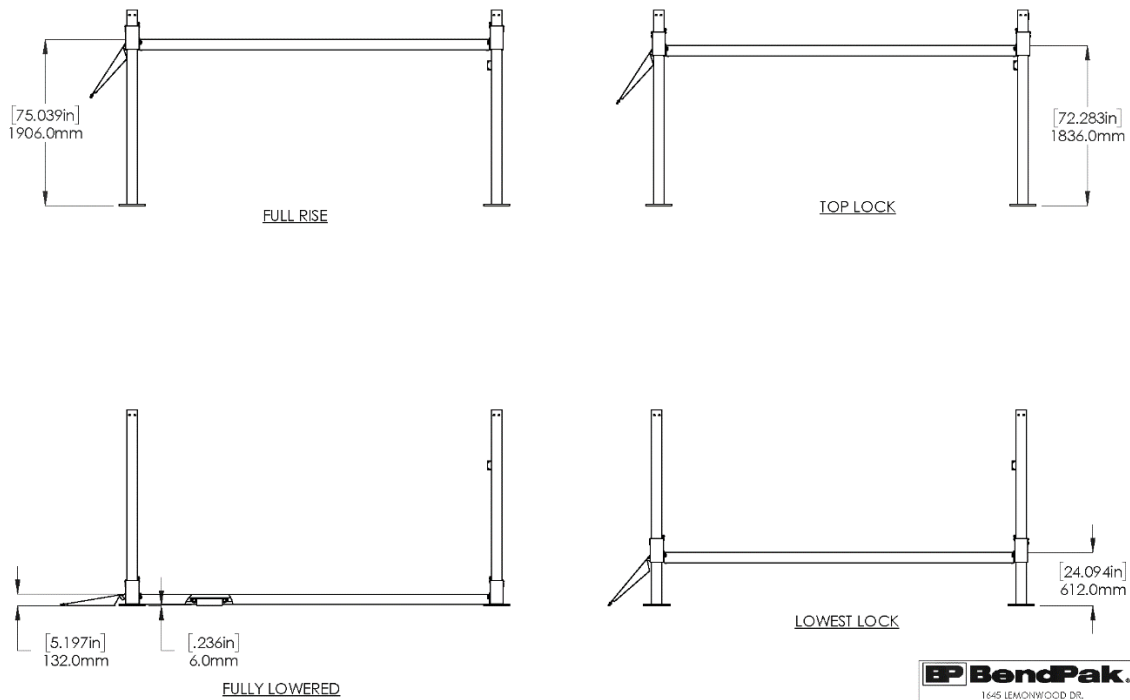
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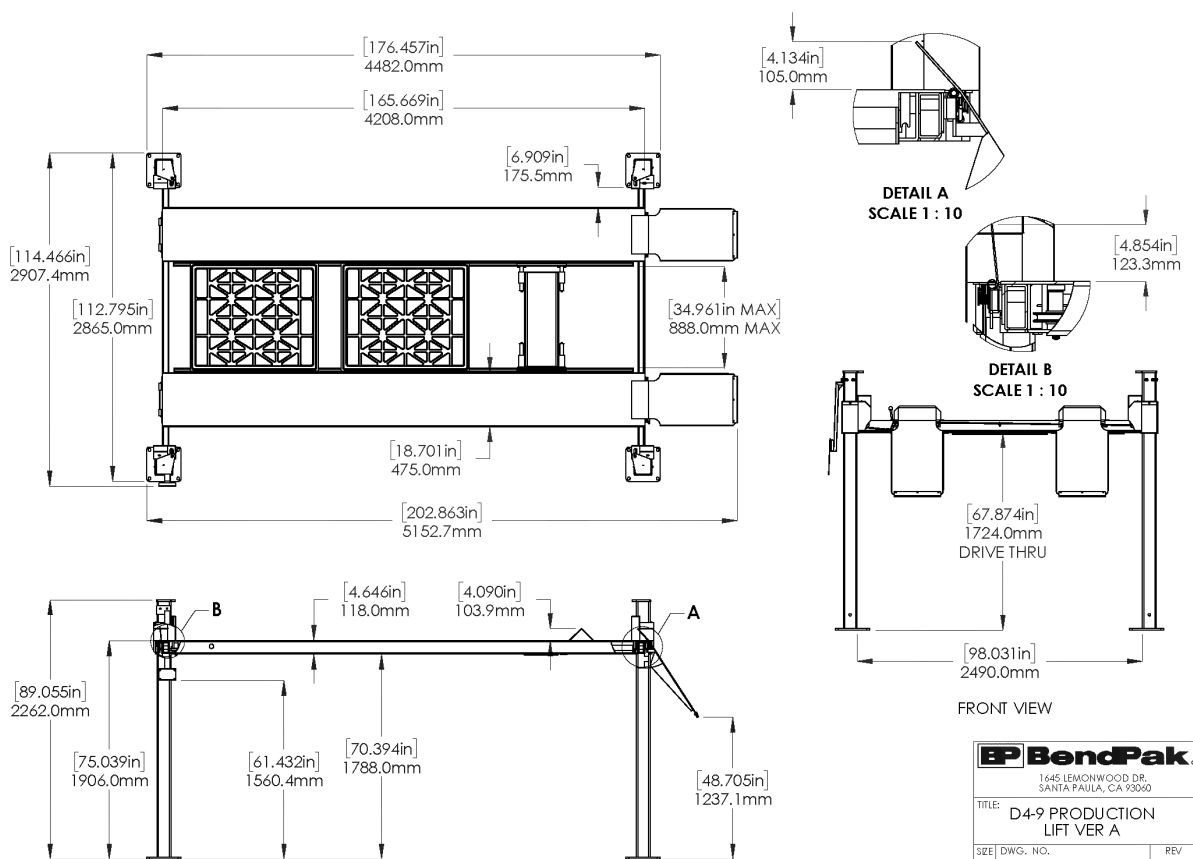
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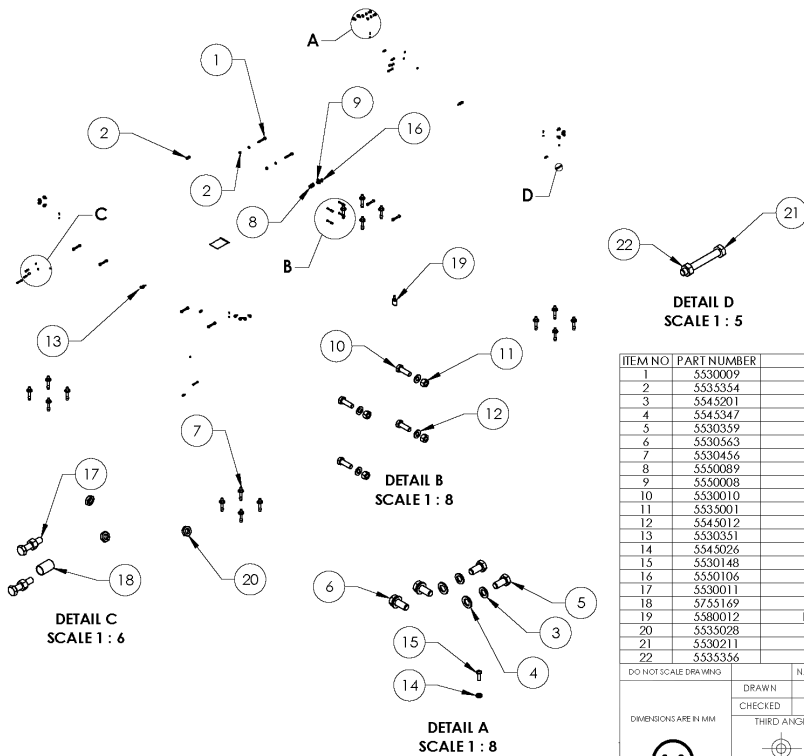
SHEET 1 OF 1



EP BendPak. 1645 LEMONWOOD DR. SANTA PAULA, CA 93060		
TITLE: D4-9 PRODUCTION LIFT VER A		
SIZE	DWG. NO.	REV
A	5260634	G
SCALE: 1:50		SHEET 3 OF 3



EP BendPak. 1645 LEMONWOOD DR. SANTA PAULA, CA 93060		
TITLE: D4-9 PRODUCTION LIFT VER A		
SIZE	DWG. NO.	REV
A	5260634	G
SCALE: 1:40		SHEET 2 OF 3



ITEM NO	PART NUMBER	DESCRIPTION	QTY	REV
1	5530009	HHB M12 x 1.75 x 90 CL18.8	8	--
2	5535354	NUT, M12 x1.75	10	--
3	5545201	WASHER, M12 SPRING LOCK	24	--
4	5545347	WASHER, M12 FLAT WASHER	24	--
5	5530359	HHB M12 x 1.75 x 25 CL 10.9	14	--
6	5530363	HHB M12 x 1.75 x 30 CL10.9	2	--
7	5530456	AB 3/4" x 4 - 3/4"	16	--
8	5550089	FTG ELB -04 COMP x-06 NPT	2	--
9	5550008	FTG ELB -04 JIC -06L ORB	1	--
10	5530010	HHB M8 x 1.25 x 25	8	--
11	5535001	NUT M8 x 1.25 NL	8	--
12	5545012	WASHER, M8x16x1.6mm FLAT	12	--
13	5530351	EYE BOLT M8 x 1.5 x 20 ID	2	--
14	5545026	WASHER M6 x Ø12 SL	4	--
15	5530148	BHPS M6 x 1.0 x 16	4	--
16	5550106	FTG ELB -04 JIC x 3/8" NPT	1	--
17	5530011	HHB M8 x 1.25 x 35	4	--
18	5755169	GP-9 SAFETY HANDLE TUBE	2	A
19	5580012	LIQUID PTFE THREAD SEALANT 50ml	1	--
20	5535028	NUT M8 x 1.25 TH	8	--
21	5530211	HHB M8 x 1.25 x 60mm	4	--
22	5535356	NUT M8 x 1.25	4	--

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THIRD ANGLE PROJECTION

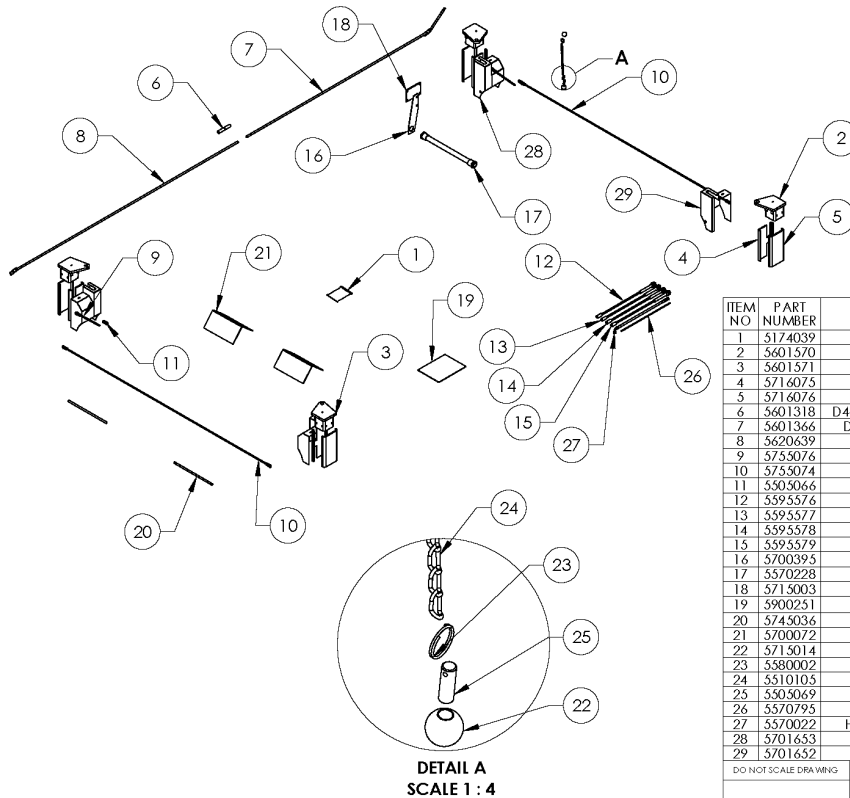
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NAME DATE
BendPak
1645 LEMONWOOD DR.
SANTA PAULA, CA 93060

TITLE: D4-9, GP-9 PARTS BAG

SIZE DWG. NO. REV
A 5174039 D

SCALE: 1:40 SHEET 1 OF 1



ITEM NO	PART NUMBER	DESCRIPTION	QTY	REV
1	5174039	D4-9, GP-9 PARTS BAG	1	D
2	5601570	D4-9 LEFT TOP PLATE WELDMENT	2	B
3	5601571	D4-9 RIGHT TOP PLATE WELDMENT	2	B
4	5716075	D4-9, GP-9 CARRIAGE SLIDE BLOCK, INSIDE	4	A
5	5716076	D4-9, GP-9 POST SLIDE BLOCK, OUTSIDE	4	A
6	5601318	D4-9, GP-9 SAFETY CONNECT SLEEVE WELDMENT	1	A
7	5601366	D4-9, GP-9F SAFETY HANDLE ROD WELDMENT	1	C
8	5620639	D4-9, GP-9F SAFETY WELDMENT	1	B
9	5755076	D4-9, GP-9 ADJUST SAFETY BAR 216mm	2	A
10	5755074	D4-9, GP-9 ADJUST SAFETY BAR 2089mm	2	A
11	5505066	FEMALE ROD END M8 x 47.125mm	8	--
12	5595576	CABLE ASSEMBLY Ø10 x 2935mm ST	1	C
13	5595577	CABLE ASSEMBLY Ø10 x 4369mm ST	1	C
14	5595578	CABLE ASSEMBLY Ø10 x 7002mm ST	1	C
15	5595579	CABLE ASSEMBLY Ø10 x 8436mm ST	1	C
16	5700395	D4-9 FLEX TUBE BRACKET	1	--
17	5570228	FLEX TUBE ASSEMBLY 1675mm	1	A
18	5715003	POWER UNIT VIBRATION DAMPENER	1	B
19	5900251	D4-9 INSTALLATION MANUAL	1	--
20	5745036	D4-9, GP-9 DRIVE UP RAMP PIN	2	A
21	5700072	WHEEL CHOCK	2	B
22	5715014	Ø32mm PLASTIC BALL - M12 x 1.75	2	A
23	5580002	KEYRING 27mm x 2mm	2	--
24	5510105	#4 LINK CHAIN, LIFT HEAD PIN	1	C
25	5505069	M12 PLASTIC BALL CHAIN PIN	1	B
26	5570795	1/4" POLY-FLO TUBING	3380mm*	--
27	5570022	HYDRAULIC HOSE ASSEMBLY Ø6.4 x 3380mm	1	C
28	5701653	D4-9, GP-9 SAFETY COVER L.H.	2	C
29	5701652	D4-9, GP-9 SAFETY COVER R.H.	2	C

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DRAWN TM 08/20/2020
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THIRD ANGLE PROJECTION

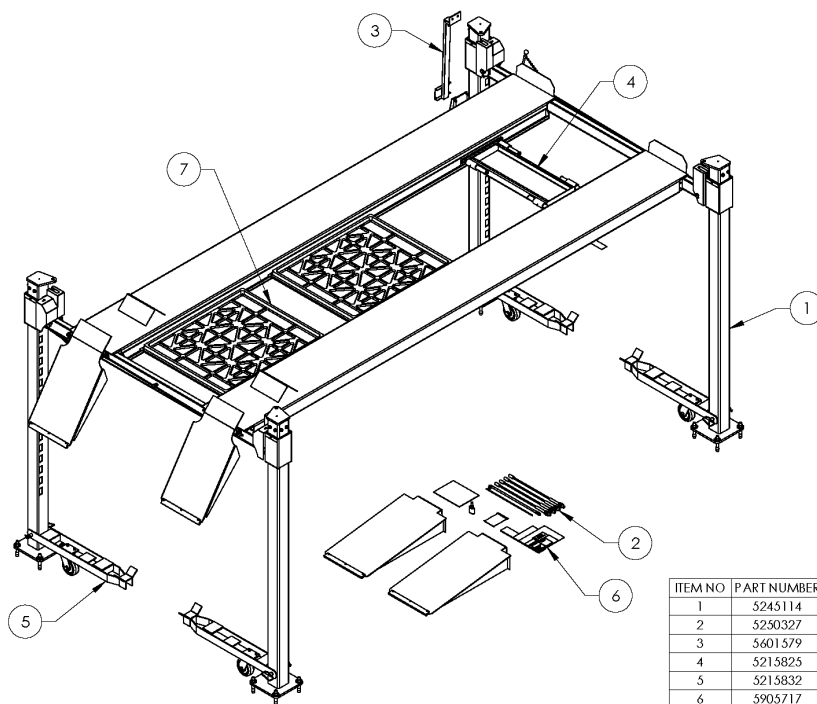
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NAME DATE
BendPak
1645 LEMONWOOD DR.
SANTA PAULA, CA 93060

TITLE: D4-9 PARTS BOX

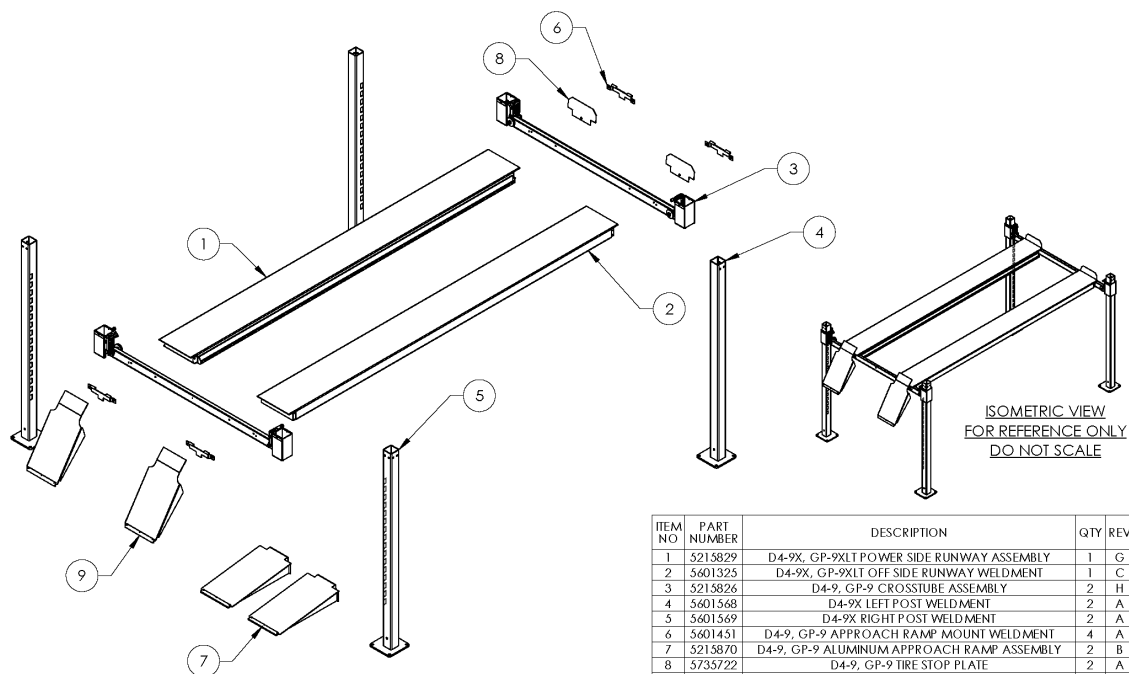
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A 5250319 D

SCALE: 1:35 SHEET 1 OF 1



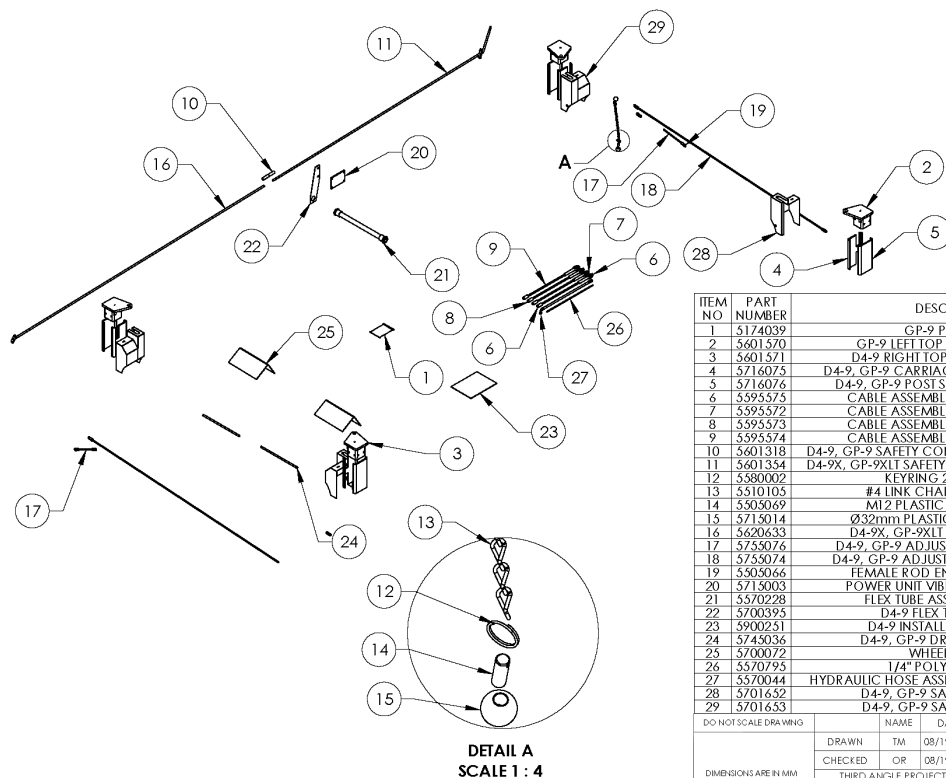
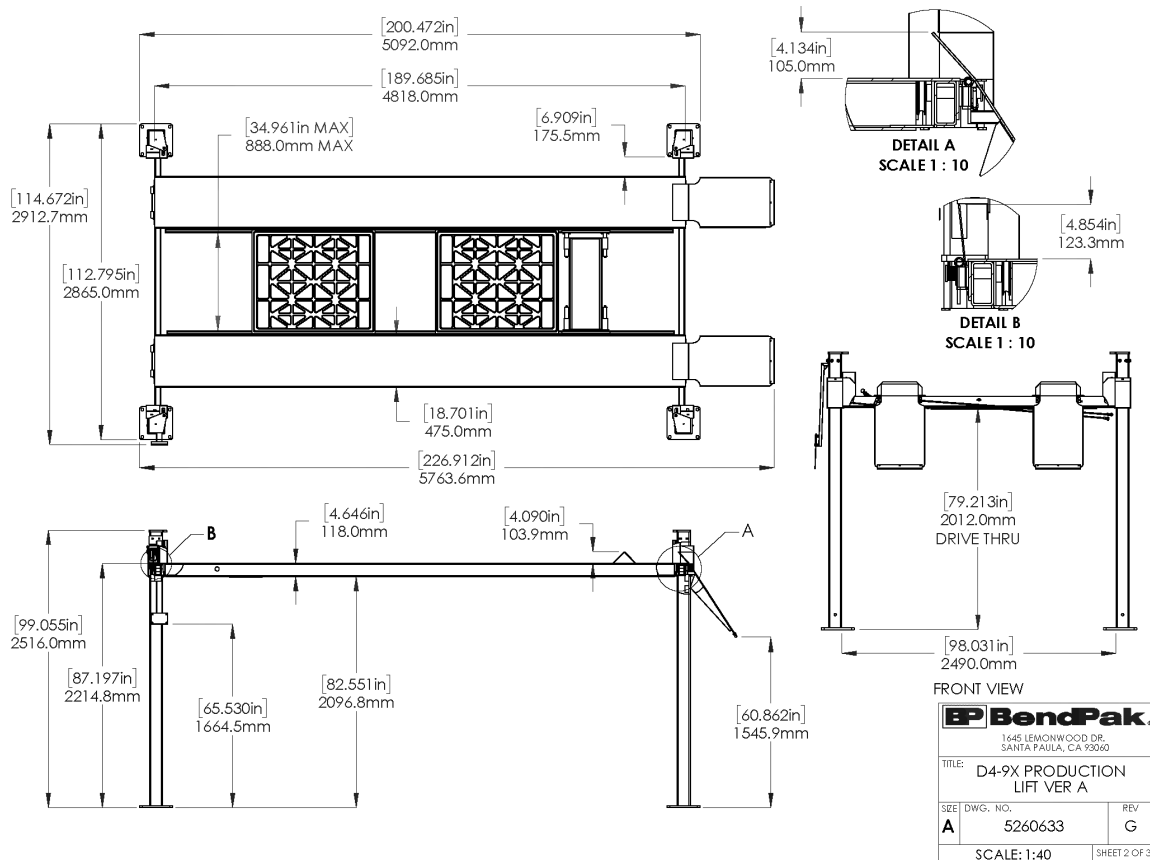
ITEM NO	PART NUMBER	DESCRIPTION	QTY	REV
1	5245114	D4-9X SUPERSTRUCTURE	1	F
2	5250327	D4-9X PARTS BOX	1	D
3	5601579	D4-9X POWER UNIT HOLDER WELDMENT	1	A
4	5215825	JP45 JACK PLATFORM	1	D
5	5215832	D4-9, GP-9 CASTER KIT ASSEMBLY	4	D
6	5905717	D4-9 LABEL PACKAGE	1	D
7	5700380	POLYETHYLENE DRIP TRAY	2	C

DO NOT SCALE DRAWING		NAME	DATE	BendPak. 1645 LEMONWOOD DR. SANTA PAULA, CA 93060
DRAWN		TM	08/19/2020	
CHECKED		OR	08/19/2021	
THIRD ANGLE PROJECTION		TITLE: D4-9X PRODUCTION LIFT VER A		
SIZE		DWG. NO.		REV
A		5260633		G
SCALE: 1:35		SHEET 1 OF 3		



ITEM NO	PART NUMBER	DESCRIPTION	QTY	REV
1	5215829	D4-9X, GP-9XT POWER SIDE RUNWAY ASSEMBLY	1	G
2	5601325	D4-9X, GP-9XT OFF SIDE RUNWAY WELDMENT	1	C
3	5215826	D4-9, GP-9 CROSSTUBE ASSEMBLY	2	H
4	5601568	D4-9X LEFT POST WELDMENT	2	A
5	5601569	D4-9X RIGHT POST WELDMENT	2	A
6	5601451	D4-9, GP-9 APPROACH RAMP MOUNT WELDMENT	4	A
7	5215870	D4-9, GP-9 ALUMINUM APPROACH RAMP ASSEMBLY	2	B
8	5735722	D4-9, GP-9 TIRE STOP PLATE	2	A
9	5215867	D4-9, GP-9 APPROACH RAMP ASSEMBLY HINGED	2	C

DO NOT SCALE DRAWING		NAME	DATE	BendPak. 1645 LEMONWOOD DR. SANTA PAULA, CA 93060
DRAWN		TM	08/19/2020	
CHECKED		OR	08/19/2021	
THIRD ANGLE PROJECTION		TITLE: D4-9X SUPERSTRUCTURE		
SIZE		DWG. NO.		REV
A		5245114		F
SCALE: 1:45		SHEET 1 OF 1		



ITEM NO	PART NUMBER	DESCRIPTION	QTY	REV
1	5174039	GP-9 PARTS BAG	1	D
2	5601570	GP-9 LEFT TOP PLATE WELDMENT	2	B
3	5601571	D4-9 RIGHT TOP PLATE WELDMENT	2	B
4	5716075	D4-9, GP-9 CARRIAGE SLIDE BLOCK, INSIDE	4	A
5	5716076	D4-9, GP-9 POST SLIDE BLOCK, OUTSIDE	4	A
6	5595575	CABLE ASSEMBLY Ø10 x 3175mm ST	1	C
7	5595572	CABLE ASSEMBLY Ø10 x 9293mm ST	1	C
8	5595573	CABLE ASSEMBLY Ø10 x 7851mm ST	1	C
9	5595574	CABLE ASSEMBLY Ø10 x 4619mm ST	1	C
10	5601318	D4-9, GP-9 SAFETY CONNECT SLEEVE WELDMENT	1	A
11	5601354	D4-9X, GP-9XLT SAFETY HANDLE ROD WELDMENT	1	C
12	5590002	KEYRING 27mm x 2mm	2	--
13	5510105	#4 LINK CHAIN, LIFT HEAD PIN	1	C
14	5505069	M12 PLASTIC BALL CHAIN PIN	1	B
15	5715014	Ø32mm PLASTIC BALL - M12 x 1.75	2	A
16	5620633	D4-9X, GP-9XLT SAFETY WELDMENT	1	B
17	5755076	D4-9, GP-9 ADJUST SAFETY BAR 216mm	2	A
18	5755074	D4-9, GP-9 ADJUST SAFETY BAR 2089mm	2	A
19	5505066	FEMALE ROD END M8 x 47.125mm	8	--
20	5713003	POWER UNIT VIBRATION DAMPENER	1	B
21	5570228	FLEX TUBE ASSEMBLY 1675mm	1	A
22	5700395	D4-9 FLEX TUBE BRACKET	1	--
23	5900251	D4-9 INSTALLATION MANUAL	1	--
24	5745036	D4-9, GP-9 DRIVE UP RAMP PIN	2	A
25	5700072	WHEEL CHOCK	2	B
26	5570795	1/4" POLY-FLO TUBING	3700mm*	--
27	5570044	HYDRAULIC HOSE ASSEMBLY Ø6.4 x 3700mm SB	1	D
28	5701652	D4-9, GP-9 SAFETY COVER R.H.	2	C
29	5701653	D4-9, GP-9 SAFETY COVER L.H.	2	C

DO NOT SCALE DRAWING

NAME DATE

DRAWN TM 08/19/2020

CHECKED OR 08/19/2021

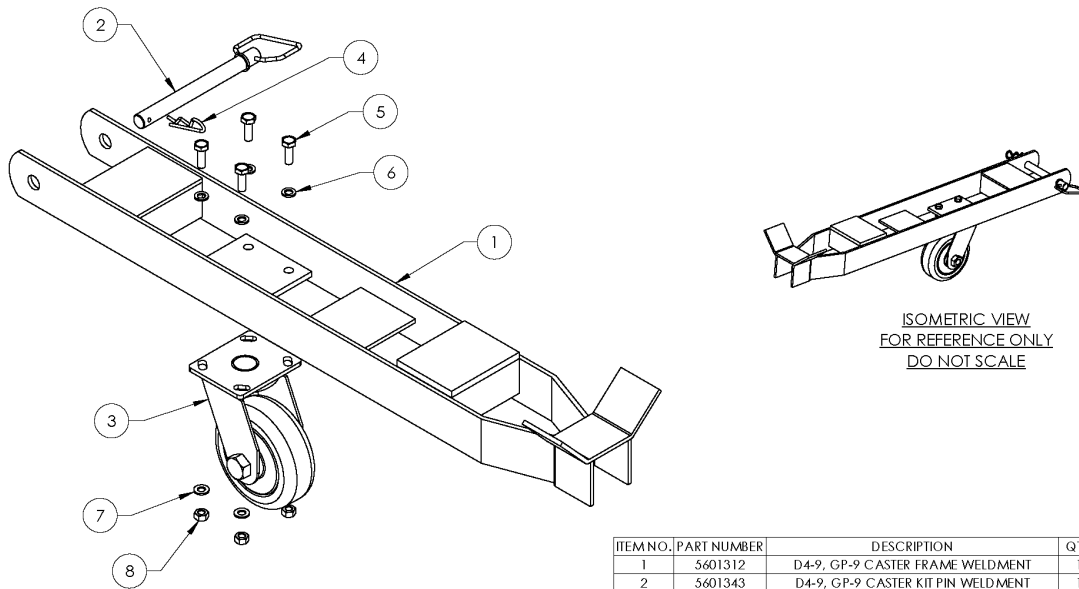
THIRD ANGLE PROJECTION

BendPak.
1645 LEMMONWOOD DR.
SANTA PAULA, CA 93060

TITLE: D4-9X PARTS BOX

SIZE DWG. NO. 5250327 REV D

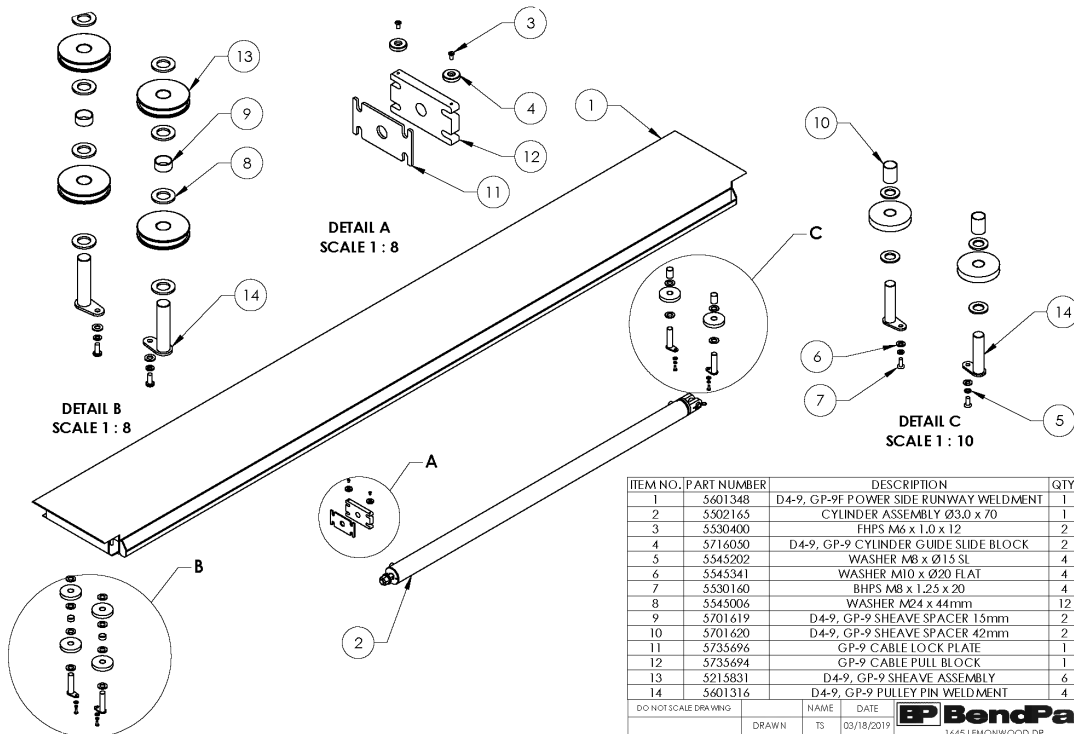
SCALE: 1:35 SHEET 1 OF 1



ISOMETRIC VIEW
FOR REFERENCE ONLY
DO NOT SCALE

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.	REV
1	5601312	D4-9, GP-9 CASTER FRAME WELDMENT	1	C
2	5601343	D4-9, GP-9 CASTER KIT PIN WELDMENT	1	A
3	5575056	D4-9, GP-9 SWIVEL CASTER	1	--
4	5505350	MODEL#211 HAIR PIN/ LARGE	1	--
5	5530021	HHB, M10 x 1.5 x 30	4	--
6	5545200	WASHER M10 x Ø18 SL	4	--
7	5545341	WASHER M10 x Ø20 FLAT	4	--
8	5535998	NUT M10 x 1.5	4	--

DO NOT SCALE DRAWING		NAME	DATE	EP BendPak. 1645 LEMONWOOD DR. SANTA PAULA, CA 93060
DRAWN	TS	03/21/2019		
CHECKED	OR	01/11/2021		
THIRD ANGLE PROJECTION		TITLE:		
		D4-9, GP-9 CASTER KIT ASSEMBLY		
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		A	5215832	D
		SCALE: 1:6		SHEET 1 OF 1



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.	REV
1	5601348	D4-9, GP-9F POWER SIDE RUNWAY WELDMENT	1	E
2	5502165	CYLINDER ASSEMBLY Ø3.0 x 70	1	N
3	5530400	FHPS M6 x 1.0 x 12	2	--
4	5716050	D4-9, GP-9 CYLINDER GUIDE SLIDE BLOCK	2	A
5	5545202	WASHER M6 x Ø15 SL	4	--
6	5545341	WASHER M10 x Ø20 FLAT	4	--
7	5530160	BHPS M8 x 1.25 x 20	4	--
8	5545006	WASHER M24 x 44mm	12	--
9	5701619	D4-9, GP-9 SHEAVE SPACER 15mm	2	A
10	5701620	D4-9, GP-9 SHEAVE SPACER 42mm	2	A
11	5735696	GP-9 CABLE LOCK PLATE	1	B
12	5735694	GP-9 CABLE PULL BLOCK	1	B
13	5215831	D4-9, GP-9 SHEAVE ASSEMBLY	6	A
14	5601316	D4-9, GP-9 PULLEY PIN WELDMENT	4	D

DO NOT SCALE DRAWING		NAME	DATE	EP BendPak. 1645 LEMONWOOD DR. SANTA PAULA, CA 93060
DRAWN	TS	03/18/2019		
CHECKED	OR	08/18/2021		
THIRD ANGLE PROJECTION		TITLE:		
		D4-9, GP-9F POWER SIDE RUNWAY ASSEMBLY		
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		A	5215830	G
		SCALE: 1:20		SHEET 1 OF 1

Maintenance Log

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Maintenance Log

[illegible]

Maintenance Log

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

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You probably checked the **ALI's Directory of Certified Lifts** (www.autolift.org/ali-directory-of-certified-lifts/) before making your most recent Lift purchase, but did you know the **ALI Store** (www.autolift.org/ali-store/) offers a wide variety of professional, easy-to-use, and reasonably priced training and safety materials that will make your garage a safer place to work?

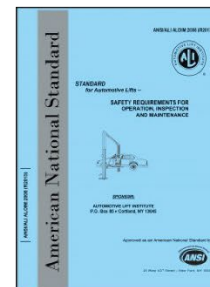
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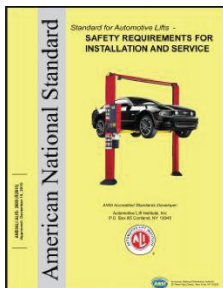
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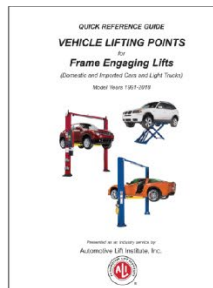
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ANSI/ALI ALOIM Standard for Automotive Lifts. Safety Requirements for Operation, Inspection, and Maintenance.



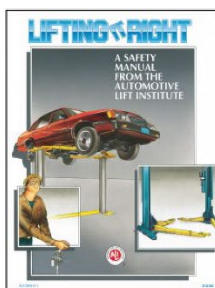
ANSI/ALI ALIS Standard. Safety Requirements for Installation and Service.



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