

COATS®

15,000 lb. (6,818 kg)

Closed Front Four Post Lifts

Double Wall Runways with "Z" Rails, Built-in
Radius Plate Pockets & Rear Slip Plate

4T415CSAR1 (Standard Alignment)

4T415CXAR1 (Extended Alignment)

4T415CSSR1 (Standard Service)

4T415CXR1 (Extended Service)



Installation Manual Operation Manual Service Parts Manual

READ the manual thoroughly before installing, operating, servicing, or maintaining the lift. SAVE this MANUAL and ALL INSTRUCTIONS.

HENNESSY
INDUSTRIES

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HENNESSY INDUSTRIES INC. Manufacturer of AMMCO®, COATS® and BADA® Automotive Service Equipment and Tools.

Manual Part No.: 85611171 00

Revision: 6/17

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

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

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

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

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

IMPORTANT SAFETY INSTRUCTIONS

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

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

SAVE THESE INSTRUCTIONS

Safety Instruction and Information Decal Kit (included with the lift)



Review all safety information daily with all lift operators

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

IMPORTANT:

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

OWNER/EMPLOYER RESPONSIBILITY

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

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

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

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

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

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

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

LOCKOUT/TAGOUT PROCEDURE

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

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

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

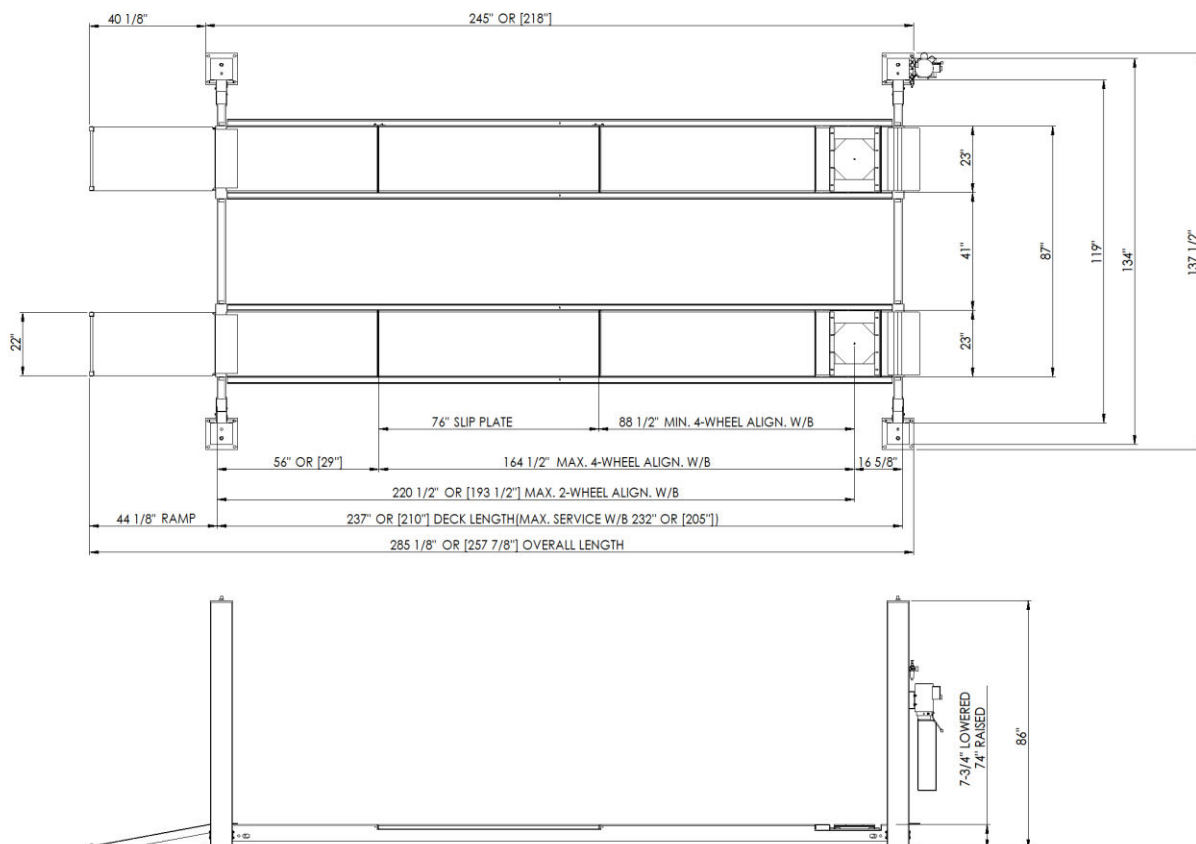
Lockout Procedure

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

Restoring Equipment to Service

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

GENERAL REQUIREMENTS AND LIFT SPECIFICATIONS



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

Capacity	Wheel Base
Min. Wheelbase @ Rated Capacity	180"
Min. Wheelbase @ 75% Capacity	140"
Min. Wheelbase @ 50% Capacity	100"
Min. Wheelbase @ 25% Capacity	60"

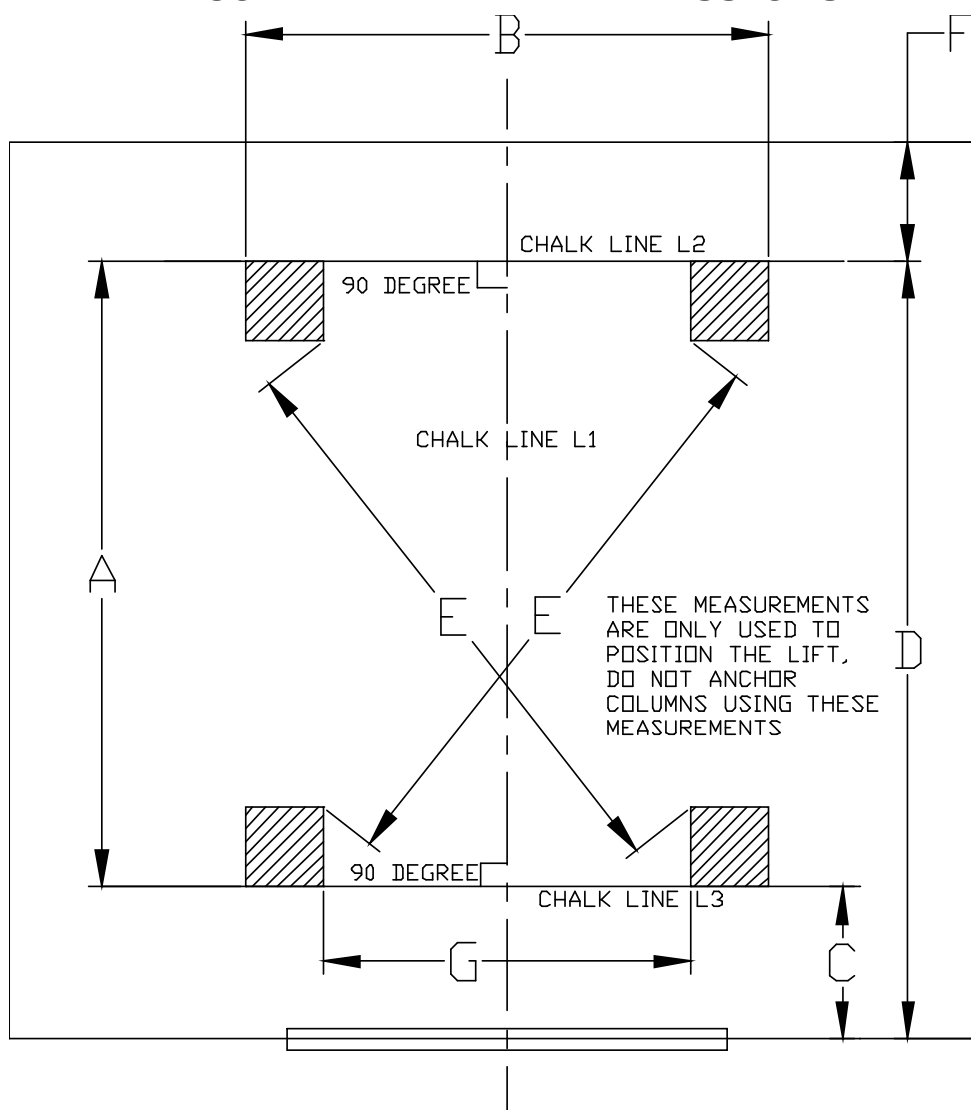
Lift should only be installed on level concrete floors with a minimum of 4 inches and 3000 psi (20.7MPa) concrete that has been aged a minimum of 30 days. A qualified person should be consulted to address seismic loads and other local or state requirements.

A constant supply of 230 volt – 1 phase – 60 Hz – 25 amp electrical power and a constant supply of 100~125 psi dry compressed air is required for this lift.

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

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

RECOMMENDED BAY DIMENSIONS



	DESCRIPTION	Extended Models	Regular Models
A	Baseplate to baseplate	245"	218"
B	Baseplate to baseplate	137.5"	137.5"
C	Rear baseplate to door	Min. 60"	Min. 60"
D	Front baseplate to door	Min. 305"	Min. 278"
E	Diag. measurement	EQUAL	EQUAL
F	Baseplate to obstacle	Min. 60"	Min. 60"
G	Baseplate to baseplate	115.5"	115.5"

Note: Each column must have at least 2ft clearance to obstacles (or consult local building code). Minimum ceiling height $H=74''$ +Greatest Vehicle Height.

UNLOADING PROCEDURE AND LIFT PACKAGE CONTENTS

All lift components are packaged together in one module held together by steel frames. Optional accessories (rolling jacks and turnplates) are packaged separately.

When the lift arrives on site:

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

Main Components include:

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

Optional Accessories: (included only if ordered)

- ✓ Rolling Air/Hydraulic Jacks (1 jack per box c/w coiled air line)
- ✓ Turnplates (1 turnplate per box c/w retainer brackets)

Accessory Box includes:

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

Hardware Box includes:

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



Important Notice

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

- Please do not be alarmed if fluid is noticed dripping from openings of the Drive on Runways. This is normal.
- The application of the Krown Rust Proofing is completed in the final stage of the lift assembly process. To ensure protection and coverage, a generous amount is sprayed and may still be in a more fluid phase of its setup when your new lift is put into service. This will diminish over time, while maintaining protection of areas that are unable to be otherwise protected with paint coating.

TOOLS REQUIRED AND PRE INSTALLATION PROCEDURES

Tools Required:

- ✓ 30ft. Measuring Tape - Chalk Line and Chalk
- ✓ 4"x 4" x 24" Wooden Blocks
- ✓ Fork Lift - Floor Jacks (2) - or engine crane
- ✓ Work Stands - 4 (runway set-up and installation)
- ✓ Metric and SAE Wrenches and Ratchet Sets
- ✓ Metric and SAE Allen Key Sets
- ✓ Crow Bar - Hammer - Screwdrivers
- ✓ 2 x 4 ft. Level (laser level also suggested)
- ✓ Rotary Hammer Drill c/w $\frac{3}{4}$ inch diameter Masonry Drill Bit
- ✓ Step Ladder

PRE-INSTALLATION PROCEDURE

Before proceeding with installation, read the installation manual and insure all instructions are fully understood and all component parts listed on page 3 are accounted for.

Identify bay center line near the front and mark the floor. Also mark center of the bay entrance. Connect these two points with a chalk line "A". Refer to diagram at right for minimum clearance from bay entrance door and draw a second chalk line "B" at 90° to the centerline. Refer to diagram at right and mark approximate locations of two rear columns. Refer to the diagram at right for measurements and minimum clearance from front wall or work bench and draw a third chalk line "C" at 90° to the centerline. Refer to diagram at right and mark the locations of all four columns. **These locations will be used to initially position each column, however, the 4 most critical measurements will be inside column to inside column measurements confirmed later in the installation process.*keep 24" min. space or follow local safety/building code.**

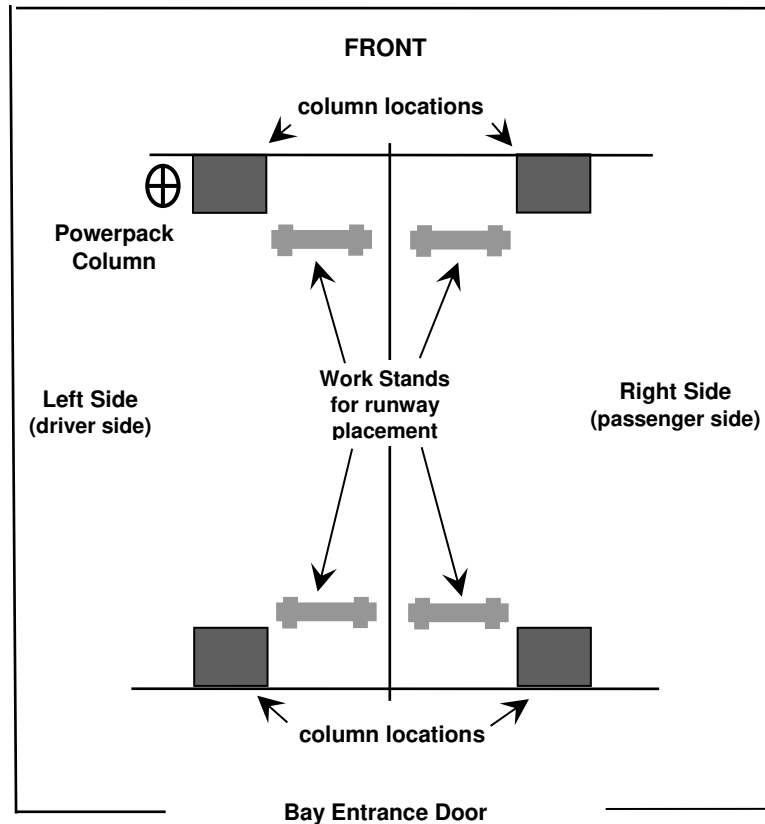
Pre Installation continued

Confirm that the column baseplate locations you have marked are a minimum distance of six (6) inches from any floor seam. Do not install if floor has cracks or deterioration that could affect lift stability. The shop owner is responsible for confirming there are no obstructions in the installation area like floor drains, under floor piping or electrical conduit that could be damaged or prevent safe lift installation and secure lift anchoring. Check ceiling for beams or heating ducts and walls for protruding structures, etc. (overhead clearance must be 84 inches plus the height of the tallest vehicle you want to lift). Insure that the lift can be safely installed in the position you have marked out on the bay floor.

INSTALLATION PROCEDURE

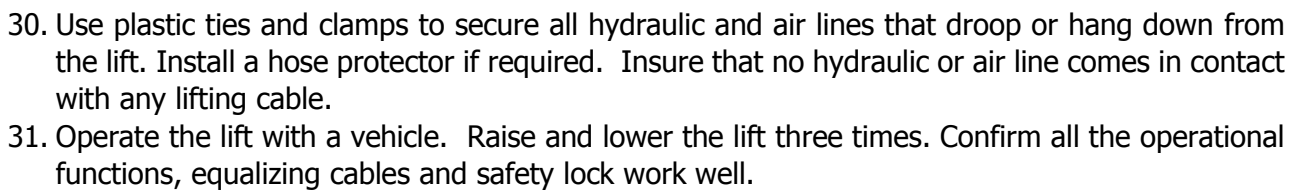
Insure the lift installation complies with ANSI/ALI/ALIS, Safety Requirements for Installation and Service of Automotive Lifts.

1. Remove protective wrapping from the lift and clear installation area of packaging materials. Place two 4"x4"x 24 " wooden blocks under the lift to enable fork lift or other access and to allow for removal of shipping frames. Unbolt steel shipping frames and remove from installation area. Take adequate precautions when working with runways, columns and other components.



2. Work stands are recommended for safety and ease of runway and carriage assembly. As an alternative, use wooden blocks to raise runways off the floor. Position work stands (or wooden blocks) as shown in the diagram to the right.
3. Identify front crossmember and set it securely on top of front work stands. Insure the end with 2 single pulleys is next to the powerpack (driver side) column.
4. Place one front column into each end of the front crossmember insuring the guide blocks are centered in the column walls.
5. Carefully lift rear crossmember and set it securely on top of the rear work stands. Insure the end with 2 double pulleys is on the same side as the powerpack (driver side) column and inline with the front crossmember single pulley (reference diagram #5 - cable routing).
6. Place one rear column into each end of the rear crossmember insuring the guide blocks are centered in the column walls.
7. Carefully lift the left (driver side) runway and set it securely on top of both front and rear crossmembers. Confirm this runway has the hydraulic cylinder underneath. Also confirm this runway has the hydraulic hose connection located at the front next to the powerpack column. Alignment turnplate pockets are always at the front. Insure that both the front and rear of the

- runway is seated properly on both crossmembers. If the runway does not seat properly on both crossmembers, carefully move one or both crossmember and column assemblies slightly to fit on its crossmember support.
8. Carefully lift the right (passenger side) runway and set it securely on its support on top of both front and rear crossmembers.
 9. Route the lifting/equalizing cables as shown in diagram #5. Insure that no cable is crossed during this process. IMPORTANT: Insure all cables are completely contained and properly seated in each sheave groove.
 10. Secure each of the four cables in the wire rope anchor located at the shaft end of the hydraulic cylinder.
 11. Attached each cable to the proper column top plate using a washer, $\frac{3}{4}$ " nut and jam nut (reference diagram #4).
 12. Use a 4 ft. level to insure each column is vertically plumb and at a 90° angle to the crossmember. Also insure opposite columns for each crossmember are symmetrical in configuration. Make only minor adjustments to accomplish this.
 13. Reconfirm column level and symmetric position relative to crossmember and opposite column. Starting with the left front (powerpack) column, drill anchor bolt holes and install anchor bolts (reference diagram #6).
 14. Reconfirm column level and symmetric position relative to crossmember and opposite column for each of the three remaining columns. Drill and install anchor bolts (reference diagram #6).
 15. Install runway approach ramps and wheel stops.
 16. Install powerpack (reference diagram # 8 and #9).
 17. Route and connect hydraulic hose (reference diagram #10).
 18. Route airline and connect to air valve (reference diagram #10).
 19. Fill powerpack reservoir with ISO grade 32 hydraulic oil.
 20. Confirm electrical wire is sized for a minimum 30 amp circuit and supplying 208/230 volts. Use a separate circuit for each powerpack. Protect each circuit with a time delay fuse or circuit breaker. For single phase power use a 20 amp fuse. For three phase power use a 15 amp fuse. For 400 volt service and above use a 10 amp fuse. All wiring must comply with national and local codes. NOTE: All electrical wiring should be installed and connected by a certified electrician.
 21. Connect powerpack to shop electrical system.
 22. Connect air valve to shop air system.
 23. Press the manual over-ride button on the air valve and confirm that all four safety latches are working properly. Confirm there are no leaks in the air system.
 24. Raise the lift 2 - 3 ft. while checking for proper direction of rotation on the electric motor. Confirm there are no leaks in the hydraulic system.
 25. Lower the lift (you may first have to raise the lift slightly to disengage the mechanical safety locks). When lowering, continuously hold down both the air valve and hydraulic lowering valve.
 26. Raise and lower the lift several times to remove any air from the hydraulic system.
 27. Raise the lift 3 ft. and confirm that all four safety latches engage and disengage completely.
 28. Refer to diagram at bottom. Commence adjusting the level of both runways by tightening or loosening the wire rope (cables) using the $\frac{3}{4}$ " NC Hex Nut at the top of each column.
 29. FINAL TEST: Raise the lift to its highest limit and continue to hold the "UP" switch on the powerpack for about four (4) seconds. This will test the lifting system for maximum load capacity. Following this test, check for leaks and tighten any loose connections.



PRE-OPERATION CHECK LIST

Trained Lift Operator

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

Absence of All Obstructions

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

Visual Inspections

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

"No Load" Performance Check

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

Previous Operator's Report

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

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

OPERATING INSTRUCTIONS

To Load a Typical Vehicle

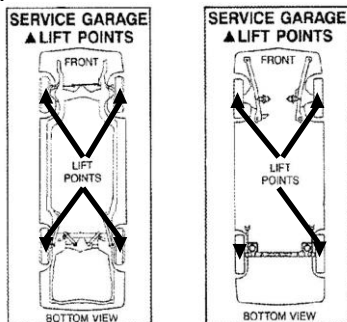
- ✓ Identify vehicle wheelbase and refer to page 8 to determine the capacity of the lift, the gross weight of the vehicle must not exceed the capacity shown in the table.
- ✓ Check the **flip-up style wheel stop** at the front are developed in place.
- ✓ Position vehicle on the lift runways by using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

To Load a unusual Vehicle

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

To Raise the Lift

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



Typical Label Drawings
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To Lower the Lift

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

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

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

MAINTENANCE INSTRUCTIONS

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

Important: Regularly inspect the hydraulic pressure developed upon the rated capacity, and make sure the pressure doesn't exceed the operating pressure (2,750 psi).

LIFT MAINTENANCE: The following is a minimum maintenance schedule:

DAILY:

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

WEEKLY:

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

MONTHLY:

- ✓ Check that all anchor bolts are torqued to 75 ft-lbs (102Nm).
- ✓ Clean and lubricate moving parts (diagram 18).

EVERY YEAR:

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

EVERY TWO YEARS:

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

LUBRICATION SPECIFICATIONS:

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

WARNING:

FAIL TO LUBRICATE MAY CAUSE PERMENENT DAMAGE TO THE LIFT

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

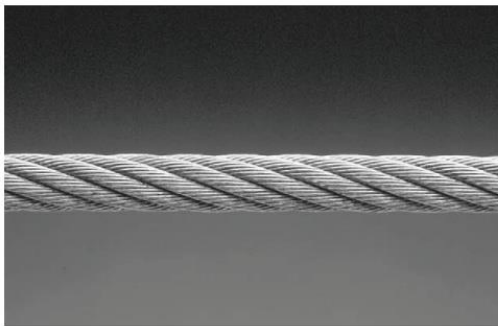
- ✓ 12 randomly distributed broken wires in one lay or four broken wires in one strand in one lay in running ropes
- ✓ one outer wire broken at the contact point with the core of the rope, which has worked its way out of the rope structure and protrudes or loops out from the rope structure
- ✓ wear of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

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

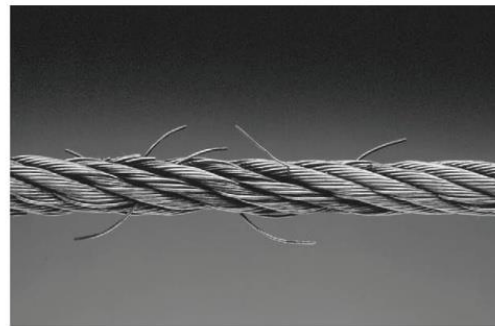
Rope Diameter (inch)	Maximum allowable reduction from Nominal Diameter (inch)
Less than or equal to 5/16	1/64
More than 5/16 to 1/2	1/32
More than 1/2 to 3/4	3/64

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

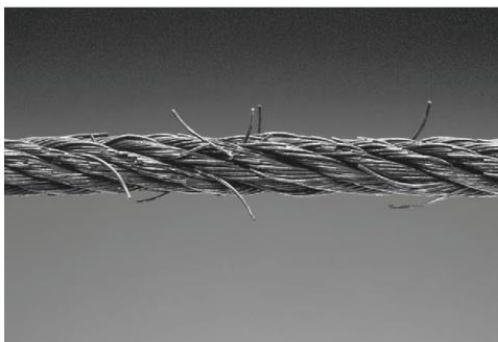
If any of the cable is as shown in the following pictures, do not use.



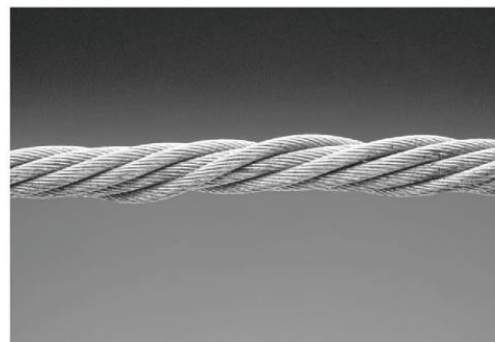
Typical Good Cable



Cable With Broken Wires



Cable With Severe Corrosion



Cable With Necking

TROUBLESHOOTING GUIDE

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

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

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

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

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

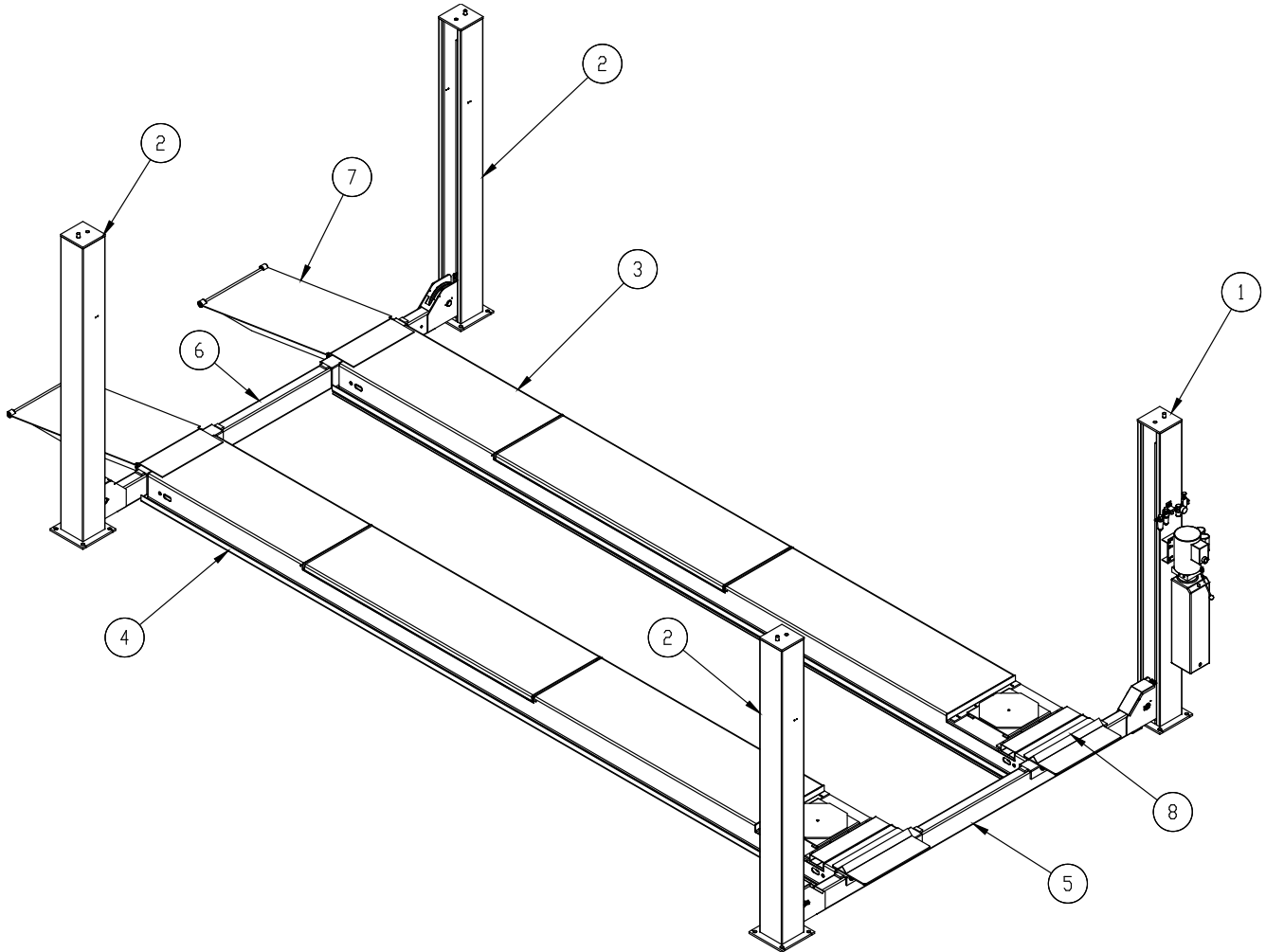
Replacement parts may be purchased from your local lift supplier or the manufacturer at 1-877-799-LIFT (5438) or (905) 847-1198

LIFT ILLUSTRATIONS AND PARTS LISTS

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

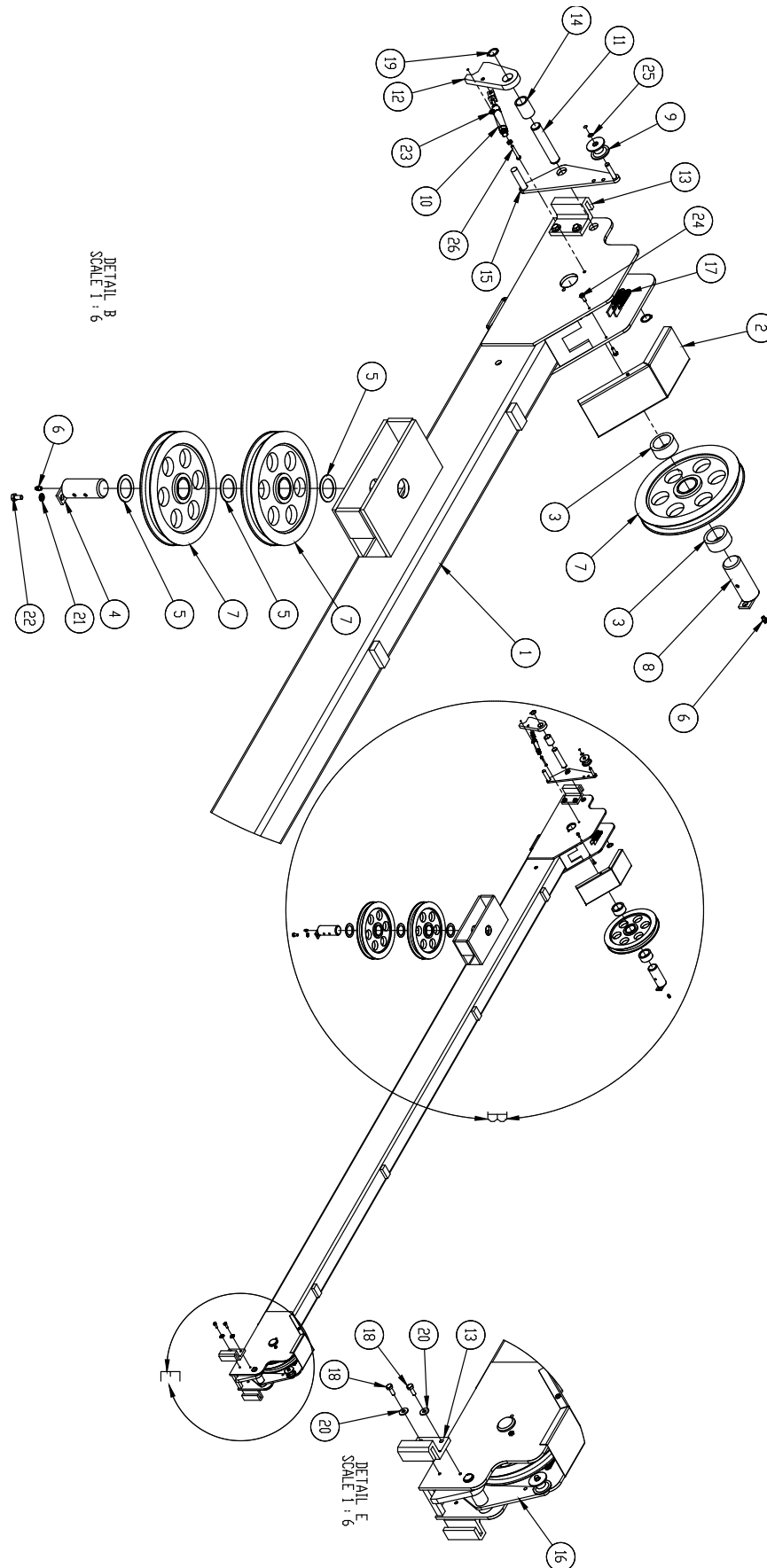
Diagram #1	Lift Assembly	page 24
Diagram #2	CROSSMEMBER (FRONT)	page 25
Diagram #3	Tower Assembly	page 27
Diagram #4	Power pack Tower Assembly	page 28
Diagram #5	Lifting (Equalizing) Cable Routing	page 29
Diagram #6	Anchor Bolt Installation	page 30
Diagram #7	Runway (Deck) Assembly	page 31
Diagram #8	Cylinder Guide Assembly	page 33
Diagram #9	Passenger (right) Side Runway Assembly	page 34
Diagram #10	Pneumatic Controls	page 35
Diagram #11	Wheel Stop Assembly	page 37
Diagram #12	Ramp Assembly	page 38
Diagram #13	Safety Instruction	page 39
Diagram #14	Wiring Diagram	page 40

Diagram #1: LIFT ASSEMBLY



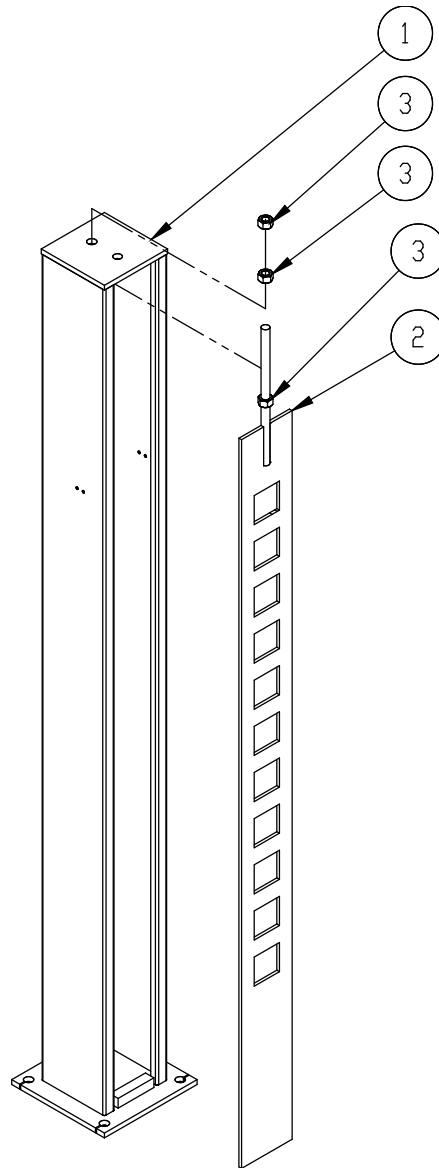
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	44147002	TOWER ASSEMBLY (WITH POWER UNIT)	1
2	44147002	TOWER ASSEMBLY (WITHOUT POWER UNIT)	3
3	44147001	CYLINDER SIDE DECK ASSEMBLY	1
4	44147006	NON CYLINDER SIDE DECK ASSEMBLY	1
5	44147003	FRONT CROSSBEAM ASSEMBLY	1
6	44147004	REAR CROSSBEAM ASSEMBLY	1
7	44147007	APPROCHING RAMP ASSEMBLY	4
8	44180012	WHEELSTOP ASSEMBLY	4

Diagram #2: CROSSMEMBER (FRONT)



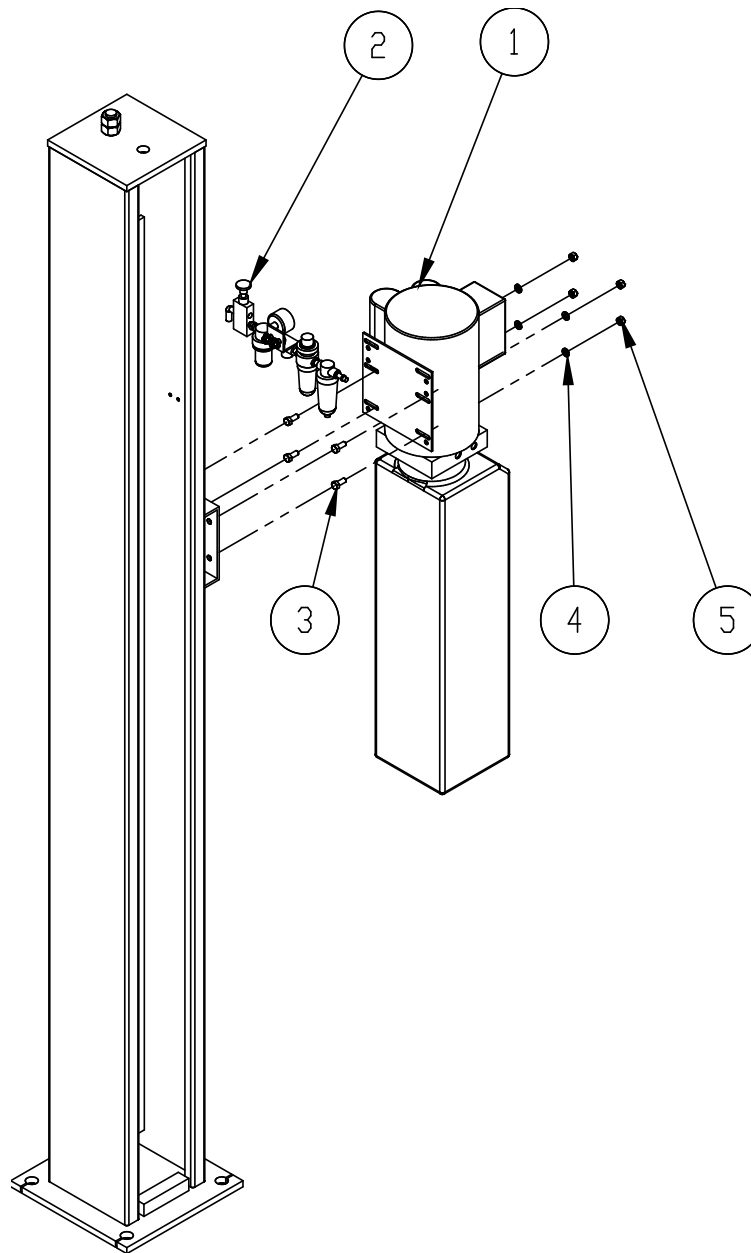
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	24147002	CROSSBEAM WELDMENT FRONT	1
2	14147029	COVER	4
3	14147036	NYLON PULLEY SPACER	8
4	24180004	PIN WELDMENT	3
5	14180050	SHIM	9
6	31140013	GREASE FITTING 1/4-20 UNC	7
7	44147005	PULLEY W/ BUSHING	10
8	24147006	VERT PULLEY PIN WELDMENT	4
9	44180007	BACK-UP LATCH ROLLER W/ BEARINGS	4
10	44147020	AIR CYLINDER ASSEMBLY	4
11	14147028	SAFETIES PIN	4
12	44147008	SAFETY LOCK	4
13	14147011	UHMW SLIDE BLOCK	8
14	14147024	LOCK SPACER	4
15	24147005-A	SAFETY PULL BOARD	2
16	24147005-B	SAFETY PULL BOARD	2
17	34147005	CABLE SPRING	8
18	3C100055	1/4-20X3/4 Hex Bolt	16
19	3C100018	3/4" SNAP RING	8
20	3C100029	1/4 FLAT WASHER	16
21	3C100008	5/16 LOCK WASHER	7
22	3C100050	5/16-18X0.625 HEX BOLT	7
23	3C100060	#10 NUT	8
24	3C100059	SELF TAPPING SCREW	8
25	3C100058	5/16 SNAP RING	4
26	3C100061	#10 SCREW	4

Diagram #3: Tower Assembly



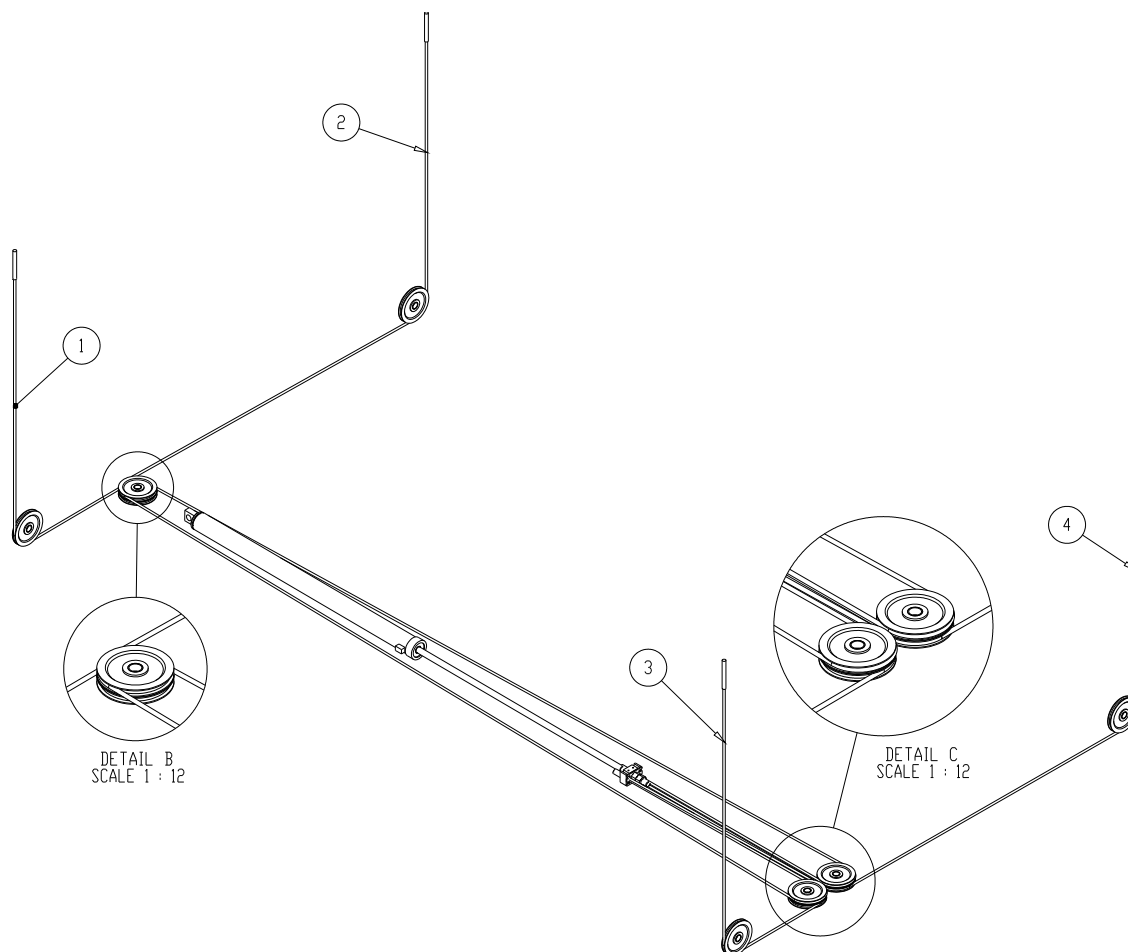
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	24147009	TOWER	1
2	24147010	SAFETY LADDER	1
3	3C000042	3/4" NUT	3

Diagram #4: Power pack Tower Assembly



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	34180009	POWER UNIT	1
2	44180011	PENUMATIC CONTROL KIT	1
3	3C100009	5/16 BOLT	4
4	3C100008	5/16 LOCK WASHER	4
5	3C100012	5/16 NUT	4

Diagram #5: Lifting (Equalizing) Cable Routing



Extended Model

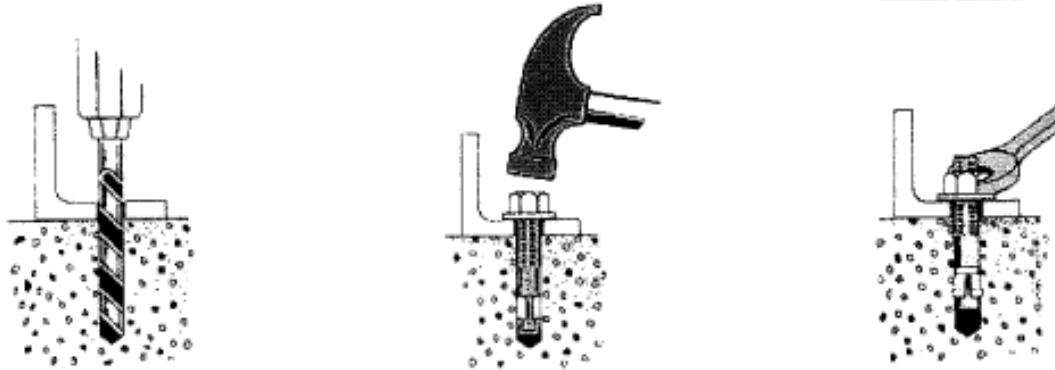
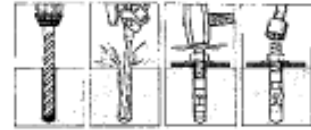
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	34147003	DRIVER SIDE FRONT CABLE, 421.5" LONG	1
2	34147004	PASSENGER SIDE FRONT CABLE, 485.5" LONG	1
3	34147001	DRIVER SIDE REAR CABLE, 178" LONG	1
4	34147002	PASSENGER SIDE REAR CABLE, 242" LONG	1

Standard Model

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	341470013	DRIVER SIDE FRONT CABLE, 367.5" LONG	1
2	341470014	PASSENGER SIDE FRONT CABLE, 431.5" LONG	1
3	341470011	DRIVER SIDE REAR CABLE, 151" LONG	1
4	341470012	PASSENGER SIDE REAR CABLE, 215" LONG	1

Diagram #6: Anchor Bolt Installation

Wedge Anchor Installation



- | | | |
|--|--|---|
| 1.
Drill hole in concrete (hole diameter same as thread diameter) maximum depth of hole could be any depth beyond minimum recommended depth. Clean the hole with compressed air. | 2.
Drive wedge anchor into drilled hole through fixture so that nuts is flush with fixture | 3.
Tighten nut until wrench resistance is felt (approximately 3 to 4 turns of the nut after first resistance) anchorage is now complete |
|--|--|---|

MORE HELPFUL INSTRUCTIONS

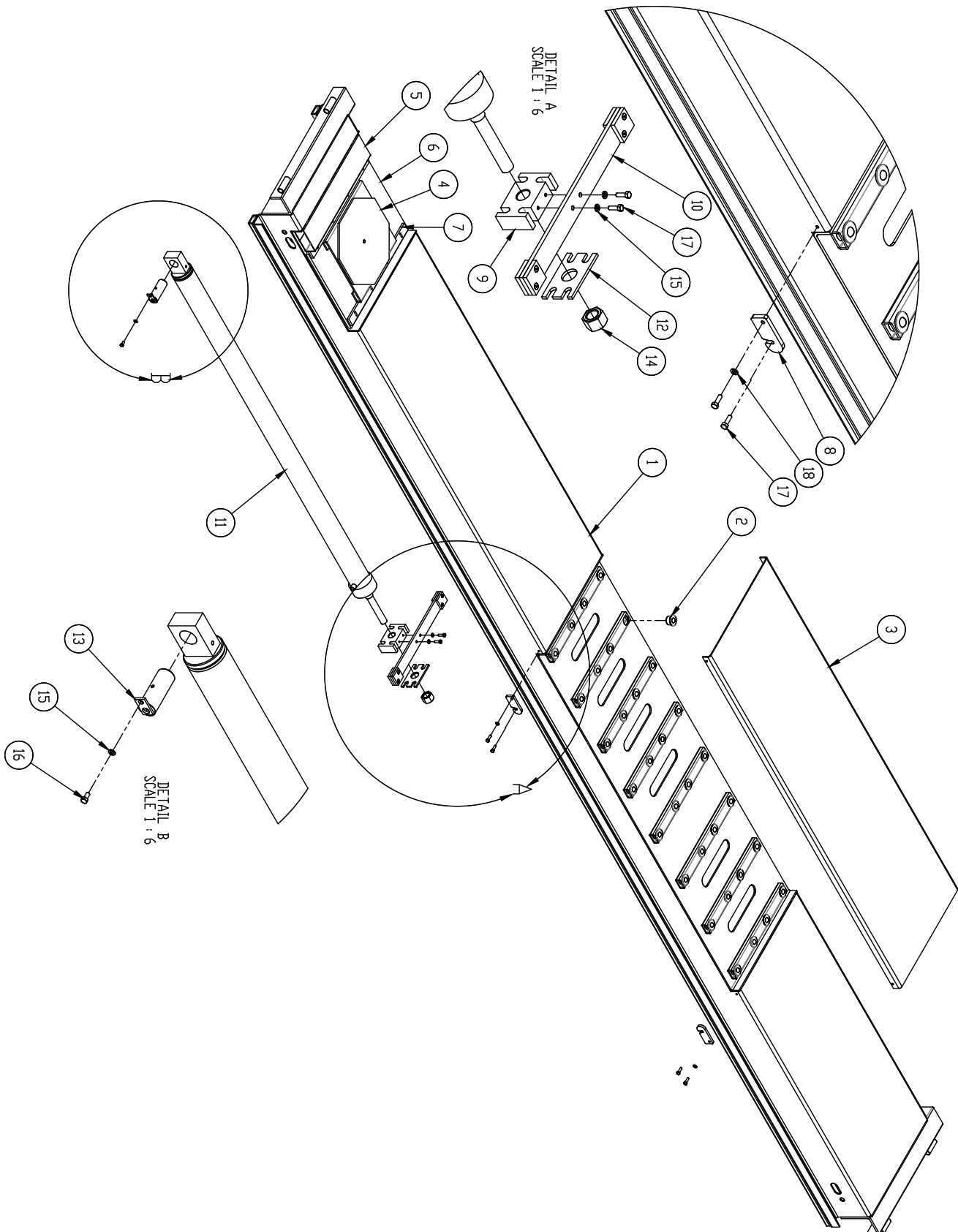
1. Always wear safety glasses.
2. Follow the drill manufacturer's safety instructions.
3. Use only solid carbide-tipped bits meeting the ANSI B94-12 tip diameter as shown below in bottom Table.
4. Drill the hole perpendicular to the work surface. To assure full holding power, do not ream the hole or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

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

Anchor Diameter	Minimum	Maximum	Torque Range
1/4"	.260"	.268"	5-10ft-lbs
3/8"	.390"	.398"	25-30ft-lbs
1/2"	.520"	.530"	50-60ft-lbs
5/8"	.650"	.660"	75-90ft-lbs
3/4"	.775"	.787"	150-175ft-lbs
7/8"	.905"	.917"	200-250ft-lbs
1"	1.030"	1.042"	250-300ft-lbs
1 1/4"	1.285"	1.300"	400-450ft-lbs

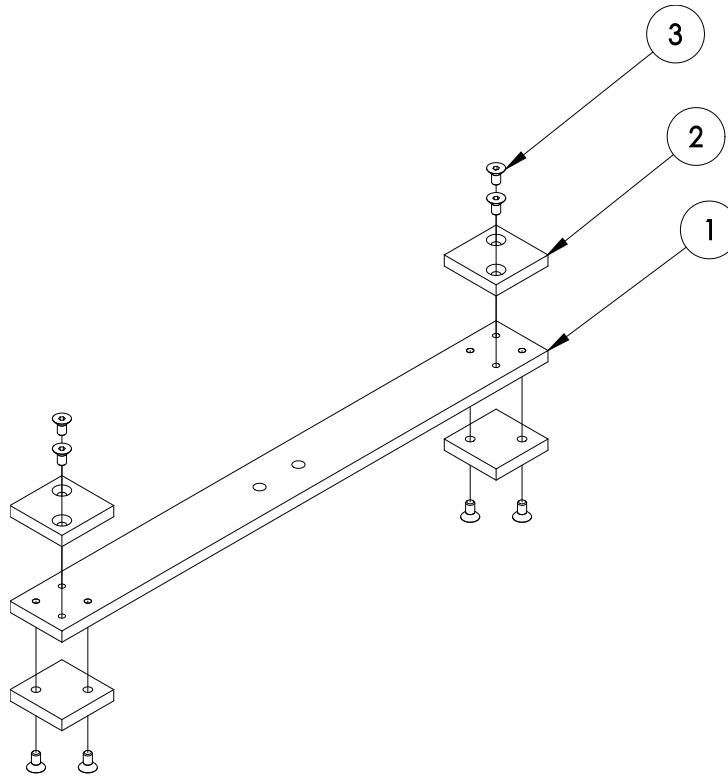
Wedge-All Dia (in)	1/4	3/8	1/2	5/8	3/4	7/8	1	1 1/4	1 1/2
Bit Size (in)	1/4	3/8	1/2	5/8	3/4	7/8	1	1 1/4	1 1/2
Fixture Hole (in)	5/16	7/16	9/16	11/16	7/8	1	1 1/8	1 3/8	1 5/8
Wrench Size (in)	7/16	9/16	3/4	15/16	1 1/8	1 5/16	1 1/2	1 7/8	2 1/4

Diagram #7: Runway (Deck) Assembly



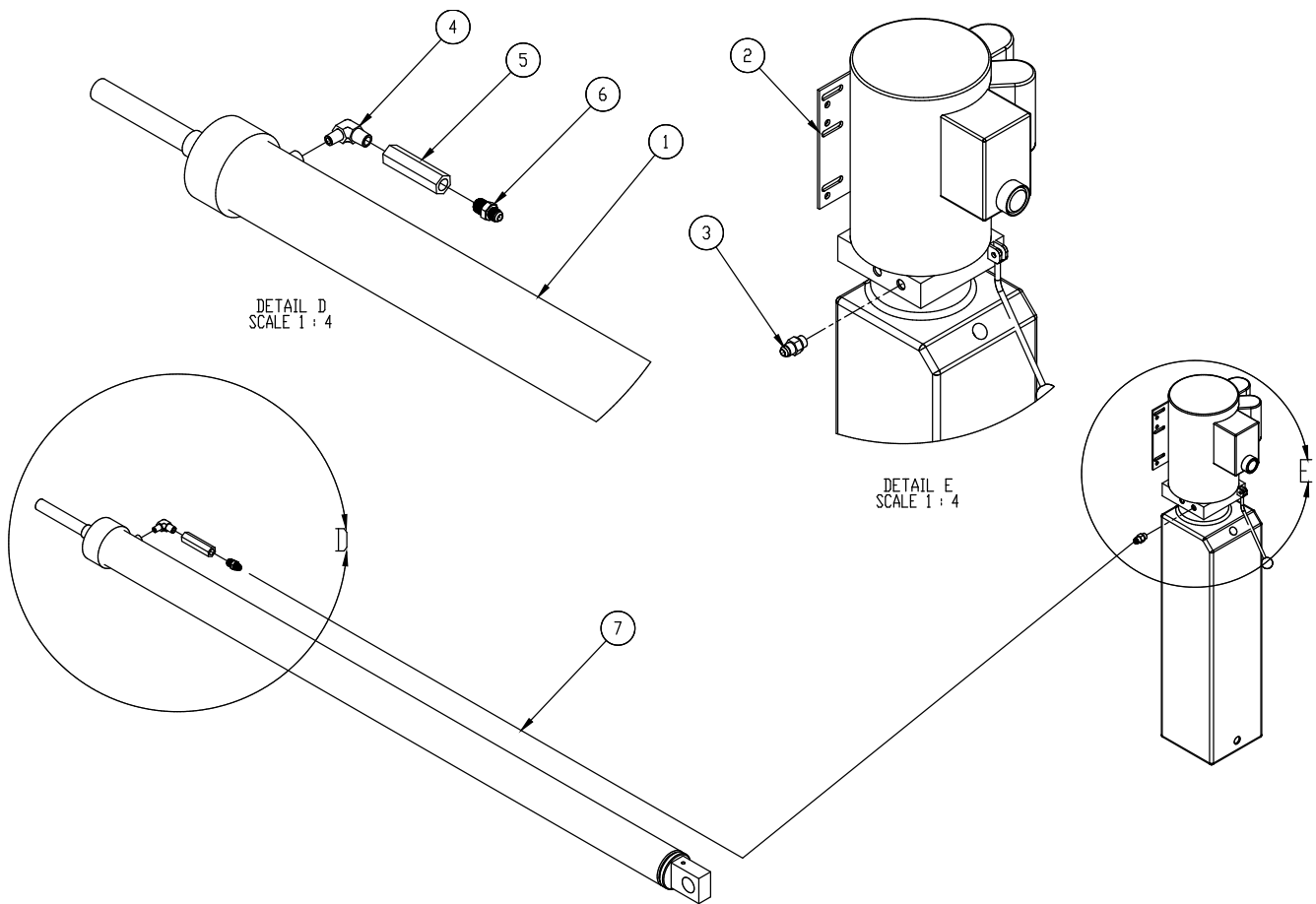
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	24147001	DECK WELDMENT DRIVER SIDE	1
	24147003	DECK WELDMENT PASSENGER SIDE	1
2	31140005	7/8" BALL TRANSFER	64
3	24147008	FLOATING DECK COVER WELDMENT	2
4	TLSSTP	STAINLESS STEEL TURN PLATE (OPTIONAL)	2
5	21140300	ALIGNMENT PAN MOUNTING SPACER	2
6	11140302	17" x 22.75" PVC BOARD	2
7	11140300	SLOTTED PLATE	2
8	11140002	SLIP PLATE LOCK	4
9	14147059	CABLE HOLDER	1
10	44147012	Guide Block Assembly	1
11	44147018	CYLINDER ASSEMBLY	1
12	14180067	TRUNNION SAFETY PLATE	1
13	24180009	VERT PULLEY PIN WELDMENT	1
14	3C200001	M27 NUT	1
15	3C100008	5/16 LOCK WASHER	3
16	3C100050	5/16-18X0.625 HEX BOLT	1
17	3C100031	5/16-18 BOLT	6
18	3C100011	5/16 FLAT WASHER	2

Diagram #8: Cylinder Guide Assembly



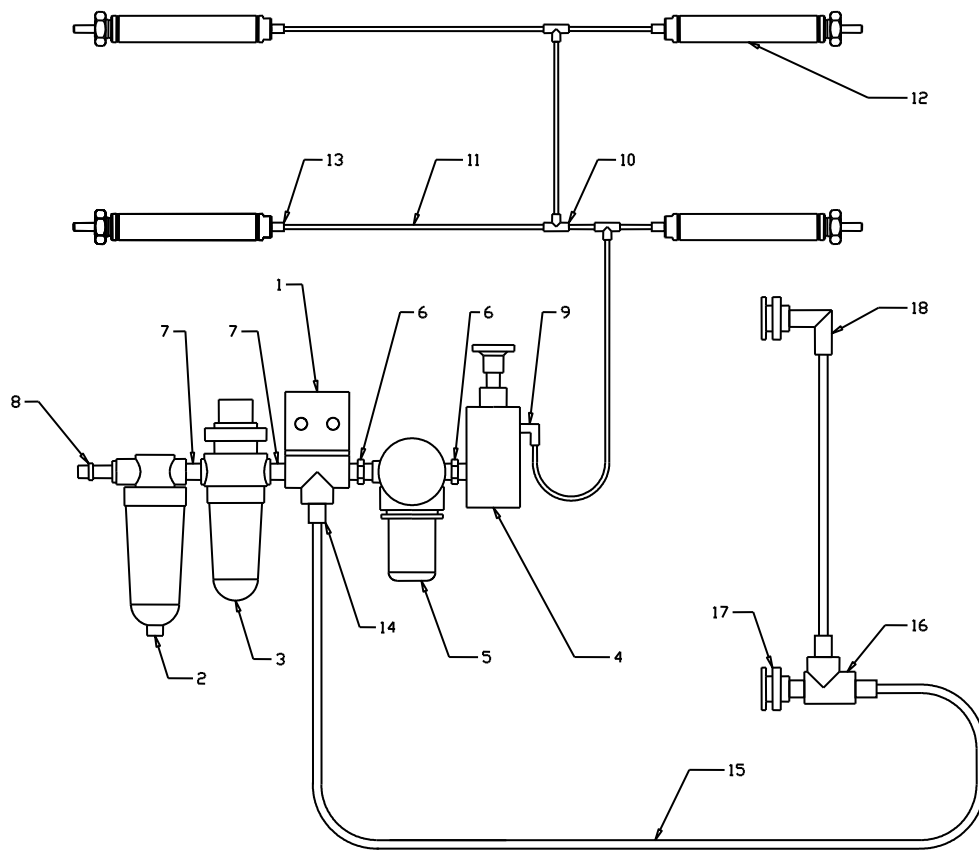
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	14147058	TRUNNION GUIDING PLATE	1
2	14180076	TRUNNION GUIDE BLOCK	4
3	3C000015	SOCKET COUNTERSUNK SCREW	8

Diagram #9: Hydraulic Line Assembly



ITEM NO.	PART NUMBER	Description	QTY.
1	44147018	CYLINDER ASSEMBLY	1
2	34180009	POWER UNIT	1
3	3H000001	MALE #6 SAE X FEMALE 3/8" JIC FITTING	1
4	3H000002	ELBOW FITTING, 1/4" NPT X 3/8" NPT	1
5	3H000003	FLOW CONTROL FITTING, 3/8" NPT PORT	1
6	3H000004	MALE 3/8" NPT X 3/8" JIC	1
7	34185010	HYDRAULIC HOSE	1

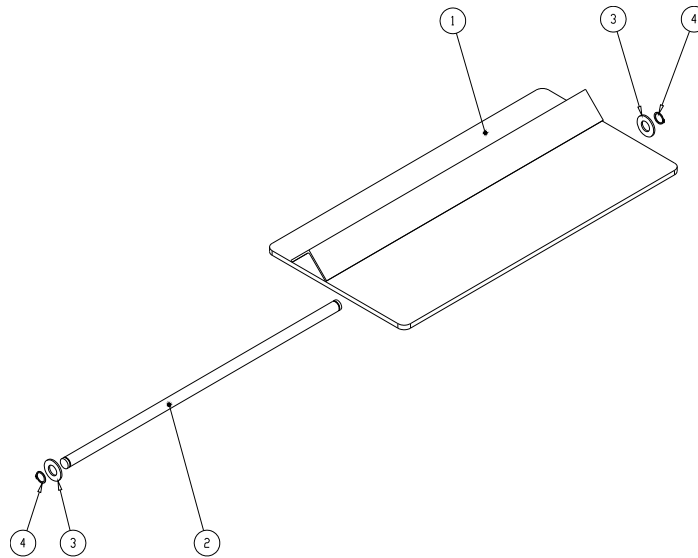
Diagram #10: Pneumatic Controls



ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	24180013	PNUEMATIC CONTROLS WELDMENT	1
2	34180013	FILTER	1
3	34180012	LUBRICATER	1
4	34180011	VALVE	1
5	34180010	REGULATOR	1
6	34180015	FITTING	2
7	34180016	FITTING	2
8	34180017	AIR INTAKE FITTING	1
9	31140119	ELBOW 5/32" POLY – 1/8" NPT	1
10	31141063	TEE FITTING	3
11	31140120	POLYTUBE 5/32" DIA. BLUE	46'
12	34180000	AIR CYLINDER	4

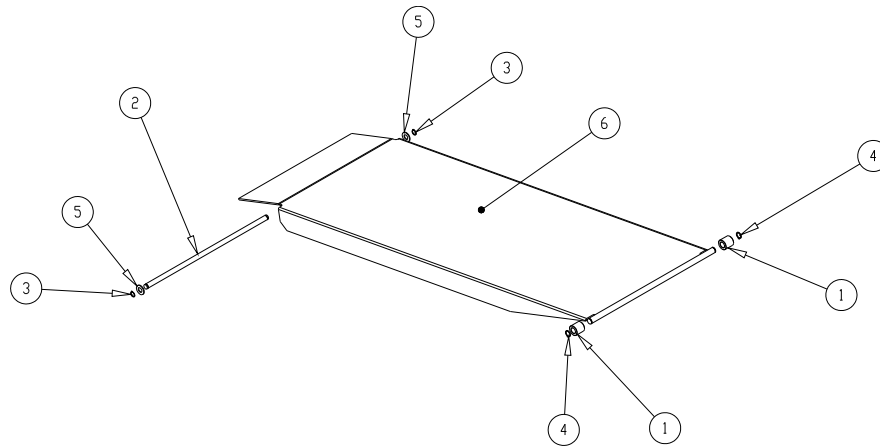
13	31140122	STRAIGHT 5/32" POLY - 1/8" NPT	4
14	31141062	POLY FITTING 3/8" x 1/4" NPT STRAIGHT	3
15	31141056	POLYTUBE 3/8" DIA. BLUE	40'
16	31141061	BRASS FORGED STEEL TEE	1
17	31141060	TERMINAL BOLT (STEEL)	2
18	31140023	Poly Elbow swivel 3/8" x 1/4" NPT	1

Diagram #11: Wheel Stop Assembly



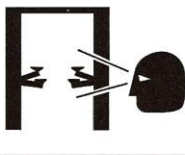
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	24180014	WHEELSTOP WELDMENT	1
2	11140128	PIVOTING PIN	1
3	3C000030	5/8 REGULAR WASHER	2
4	3C000028	5/8 RETAINING RING	2

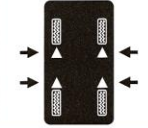
Diagram #12: Ramp Assembly



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	11140126	ROLLER	2
2	11140128	PIVOTING PIN	1
3	3C000028	5/8 RETAINING RING	2
4	3C000029	RETAINING RING	2
5	3C000030	5/8 REGULAR WASHER	2
6	21140100	RAMP WELDMENT	1

Diagram #13: SAFETY INSTRUCTIONS

SAFETY INSTRUCTIONS  Read operating and safety manuals before using lift.	SAFETY INSTRUCTIONS  Proper maintenance and inspection is necessary for safe operation.
SAFETY INSTRUCTIONS  Do not operate a damaged lift.	The messages and pictographs shown are generic in nature and are meant to generally represent hazards common to all automotive lifts regardless of specific style. Funding for the development and validation of these labels was provided by the Automotive Lift Institute, PO Box 85 Cortland, NY 13045. Replacement label sets may be obtained from the original lift manufacturer and ALI's member companies. They are protected by copyright. www.autolift.org © 1992 by ALI, Inc. ALIWL101s

CAUTION  Lift to be used by trained operator only.	CAUTION  Authorized personnel only in lift area.	WARNING  Clear area if vehicle is in danger of falling.	WARNING  Position vehicle with center of gravity midway between adapters.
CAUTION  Use vehicle manufacturer's lift points.	CAUTION  Always use safety stands when removing or installing heavy components.	WARNING  Remain clear of lift when raising or lowering vehicle.	WARNING  Avoid excessive rocking of vehicle while on lift.
CAUTION  Use height extenders when necessary to ensure good contact.	CAUTION  Auxiliary adapters may reduce load capacity.	WARNING  Do not override self-closing lift controls.	WARNING  Keep feet clear of lift while lowering.

The messages and pictographs shown are generic in nature and are meant to generally represent hazards common to all automotive lifts regardless of specific style.

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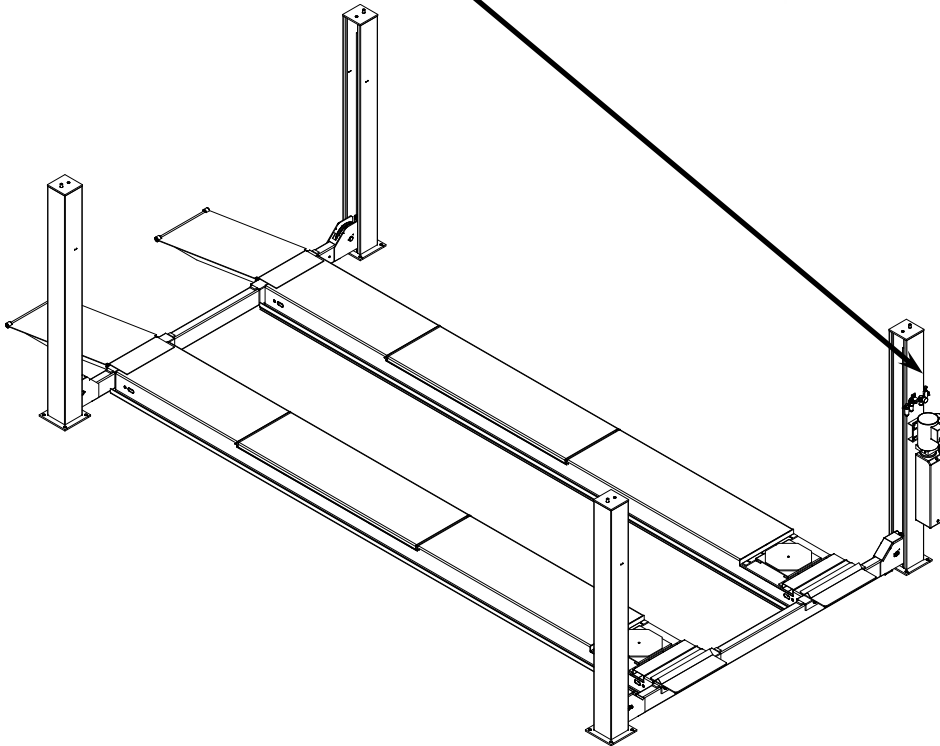


Diagram #14: POWER UNIT WIRING DIAGRAM

