

14,000 lb. ( 6350 kg )      Open Front Four Post

**Models TLS414ALORR1  
TLS414ALOXR1 (extended)**

# Installation / Operation & Service Parts Manual

READ the Manual Thoroughly Before Installing,  
Operating, Servicing, or Maintaining the Lift

SAVE this MANUAL      and ALL INSTRUCTIONS

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

## **TABLE of CONTENTS**

1. Unloading Procedure and Lift Package Contents	page 3
2. Warranty and Safety	page 4 - 6
3. General Requirements and Lift Specifications	page 7
4. Tools Required and Pre Installation Procedures	page 8 - 9
5. Installation Procedures	page 10 - 20
6. Operating Instructions and Lift Maintenance	page 20 - 22
7. Troubleshooting	page 22 - 23
8. Lift Installation Diagrams and Parts Lists	page 24 – 34

**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.**

## **UNLOADING PROCEDURE and LIFT PACKAGE CONTENTS**

### **For your information:**

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

### **UNPACKING PROCEDURE:**

When the lift arrives on site:

- If possible have lift unloaded in the installation area and on two 4"x 4" x 24" Wooden Blocks (required for unpacking)
- Check for freight damage and report immediately to the trucking 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 pc  
Runway Assemblies – 2 pc  
Crossmembers – 3 pc (2 front – 1 rear)  
Approach Ramps – 2pc  
Accessory and Hardware Box (see list below)

### **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:**

Powerpack – 1 pc  
Lifting/Equalizing cables – 4 pc  
Hydraulic Hose – 1 pc  
Front Wheel Stops – 2 pc  
Turnplate Pocket Fillers (2 pc 3¾" and 2 pc 15" per runway)  
Wheel Chocks – 2pc  
WL 200 Series Safety Information Label Kit  
ALI - " Lifting It Right " Manual  
ALI - " Vehicle Manufacturer's Lifting Point Guide" (CD)  
Automotive Lift Safety Tips Hang Card  
Automotive Lift, Operation, Inspection and Maintenance Manual  
Owner's Manual

**Hardware Box includes:** fittings, bolts, washers, nuts, anchor bolts, etc.

## **WARRANTY and SAFETY**

**Warranty:** The four post lift models identified in this manual have the following warranty from date of purchase:

**Structural Components - 1 year**  
**Hydraulic and Other Components - 1 year**

**Accessory Items - 90 days**  
**Labor - 1 year**

The above items are warranted to be free of defects in material and workmanship to the original owner of the lift as follows: During the first year (90 days for accessories), those parts proven after inspection to be defective shall be repaired or replaced at the option of the manufacturer. This warranty does not extend to defects caused by ordinary wear, misuse, abuse, improper maintenance, shipping damage or where repairs have been attempted or made by anyone other than the manufacturer or a manufacturer certified technician. This warranty is exclusive and in lieu of all other warranties express or implied. In no event shall the manufacturer be liable for special, incidental or consequential damages for any breach or delay in performance of the warranty. The manufacturer reserves the right to change specifications, designs or add improvements to its product line without incurring any obligation to make such changes to products sold previously.

## **IMPORTANT SAFETY INSTRUCTIONS**

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

1. Read all instructions
2. Care must be taken as burns can result from touching hot parts
3. Do not operate equipment with a damaged cord or if equipment has been dropped or damaged – until it has been examined by a qualified service person
4. Do not let a cord hang over the edge of the table, bench, or counter or come in contact with hot manifolds or moving fan blades
5. Let equipment cool completely before putting away. Loop cord loosely around equipment when storing
6. To reduce risk of fire, do not operate equipment in the vicinity of open containers of flammable liquids (gasoline)
7. Adequate ventilation should be provided when working on operating internal combustion engines
8. Keep hair, loose clothing, fingers, and all parts of body away from moving parts
9. To reduce the risk of electric shock, do not use on wet surfaces or expose to rain
10. Use only as directed in this manual. Use only manufacturer's recommended attachments
11. ALWAYS WEAR SAFETY GLASSES. Everyday eyeglasses only have impact resistant lenses, they are not safety glasses

## **SAVE THESE INSTRUCTIONS**

**safety cont'd on page 5**

## **Safety Continued:**

Basic common sense safety precautions should always be followed when installing, operating and maintaining the lift as a risk of fire, electric shock, injury or death may be present.

### **In addition:**

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/](http://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 manufacturer's 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.

**Safety continued on page 6 .....**

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

### Automotive Lift Institute, Inc.

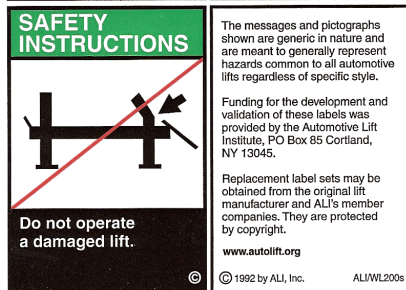


The messages and pictographs shown are generic in nature and are meant to generally represent hazards common to all automotive lifts regardless of specific style.

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. ALI/WL200c



### WL200 Series Label Kit



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.

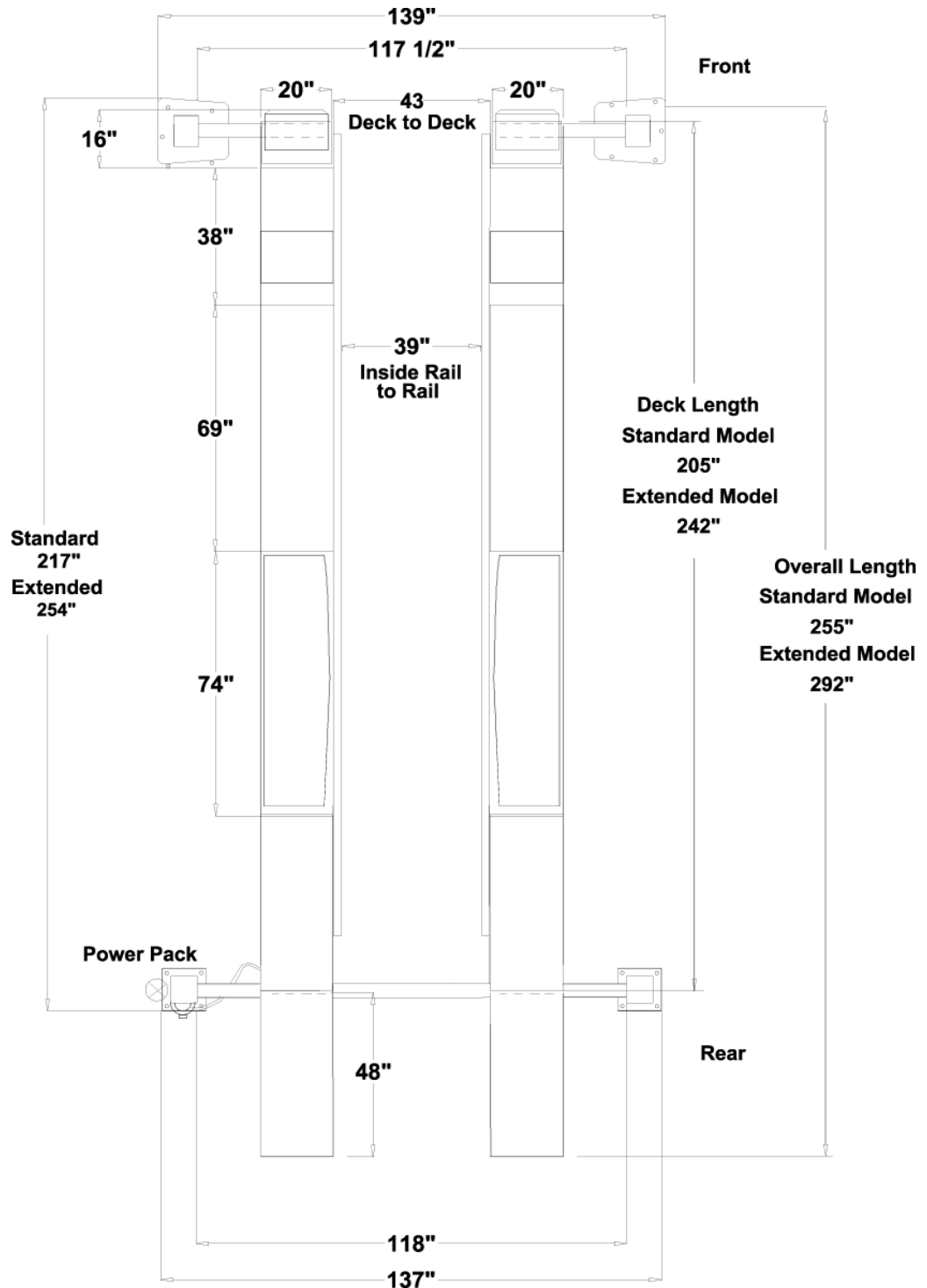
www.autolift.org ©1992 by ALI, Inc. ALI/WL200w

**Review all safety information daily with all lift operators**

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

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

## **GENERAL REQUIREMENTS and LIFT SPECIFICATIONS**

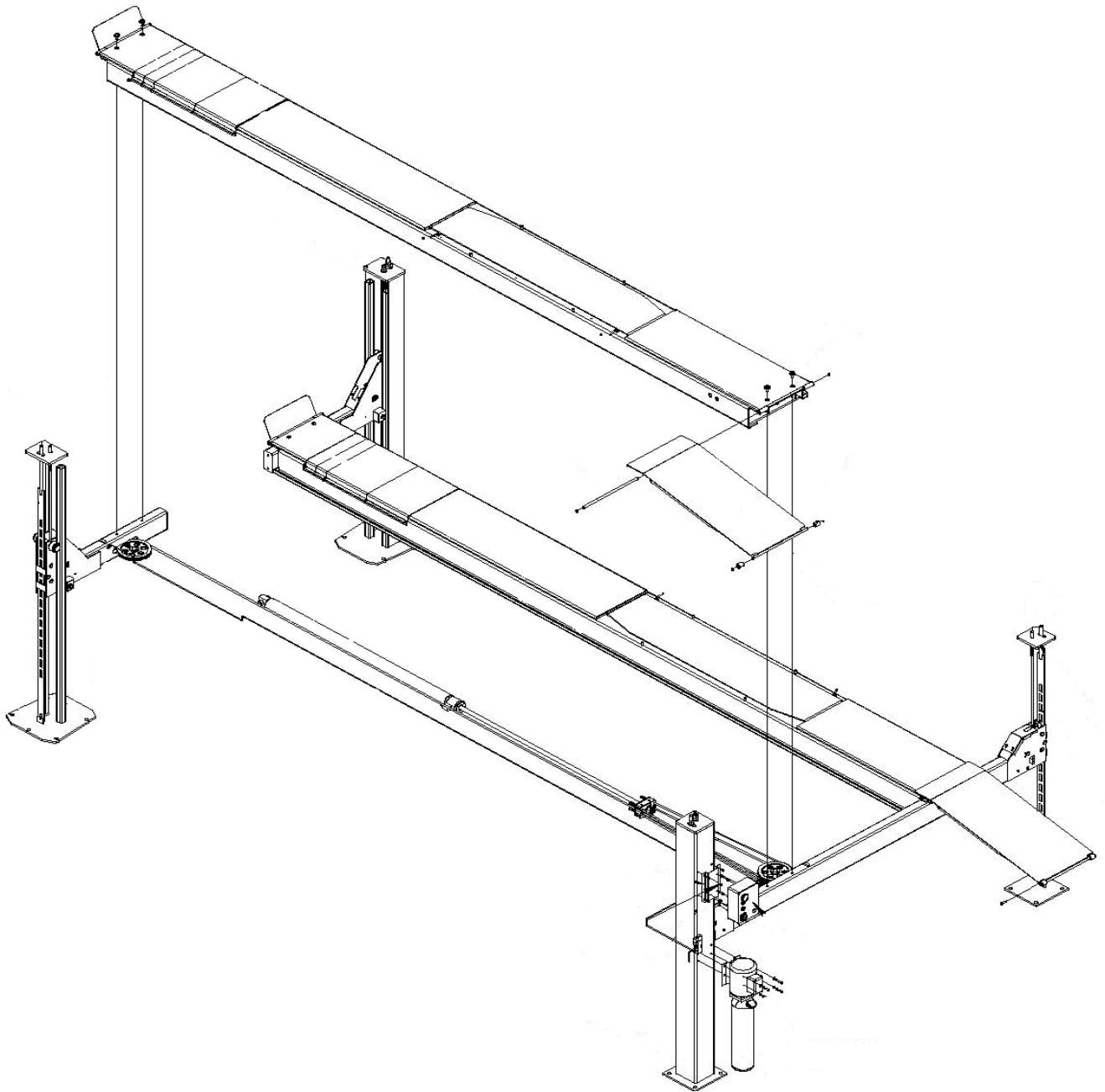


**14,000 lb. (6,350 kg) Capacity - 7,000 lbs. (3,175 kg) each Runway**

**Lift should only be installed on level concrete floors with no more than 3° of slope and a minimum of 4 inches (102mm) and 3000 psi (20.7MPa) concrete that has been aged a minimum of 30 days. Do not install the lift on asphalt or outdoors.**

**A constant supply of 230 volt – 1 phase – 60 Hz – 30 amp electrical power is required for this lift.**

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



## **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 3/4 inch diameter Masonry Drill Bit
- ✓ Step Ladder

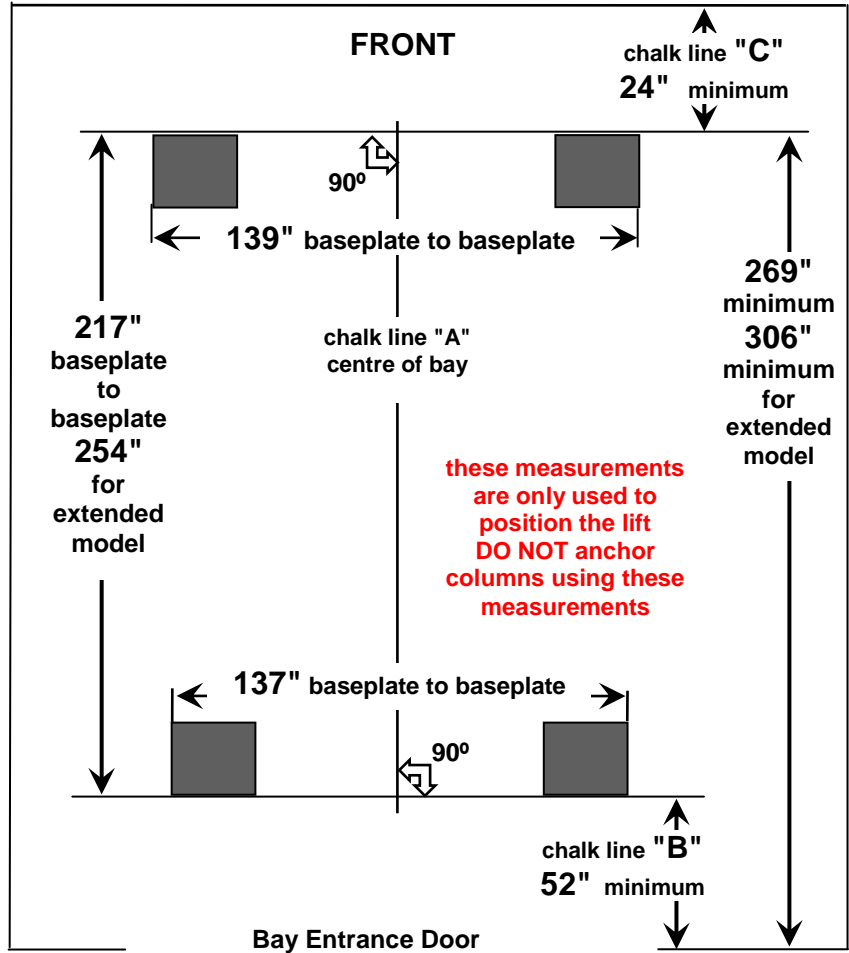
**Pre Installation continued on page 9**



## 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.**



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.

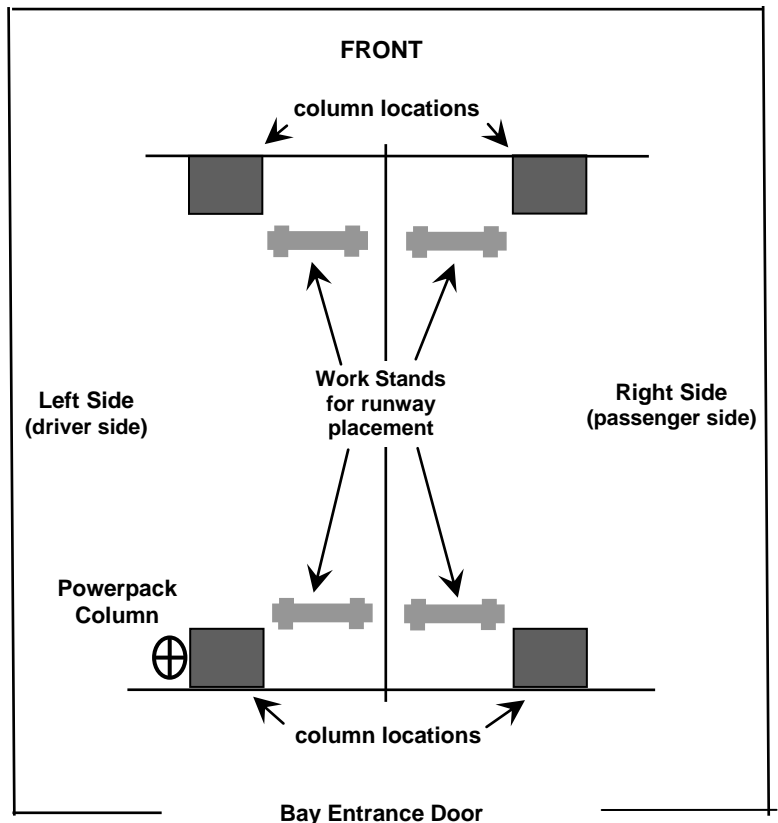
## INSTALLATION PROCEDURE

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 top runway (left driver side has cylinder underneath - right passenger side has no cylinder). Carefully move top runway to the appropriate two work stands (or wooden blocks) and set it securely on top. **Insure left (driver side) runway has hydraulic hose connection at the rear.** **Alignment turnplate pockets are always at the front.** Carefully remove all 4 columns and lay them off to one side on the floor. Carefully remove front carriages, rear crossmember, approach ramps, powerpack and accessory box and lay them off to one side on the floor. Move the remaining runway to the appropriate two work stands (or wooden blocks) and set it securely on top.

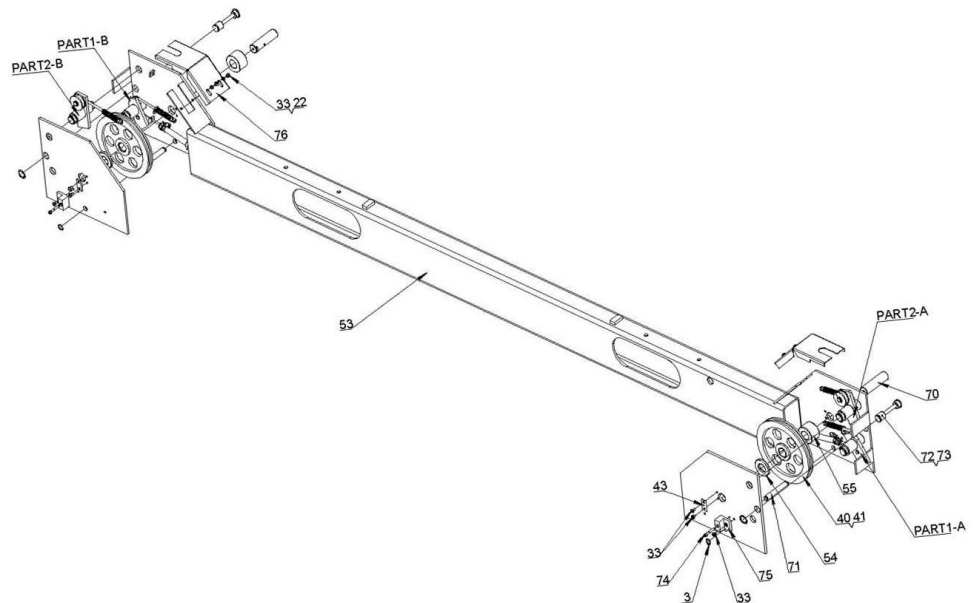


4. The two front columns are taller and designed for a two post style single carriage. The rear columns are designed for a single connecting crossmember. The rear left (driver side) column is also designed for powerpack mounting. Locate front columns on the floor carriage side up with the baseplate end near its position when column is raised. Similarly position the rear columns with the powerpack column at the left (driver side) rear.

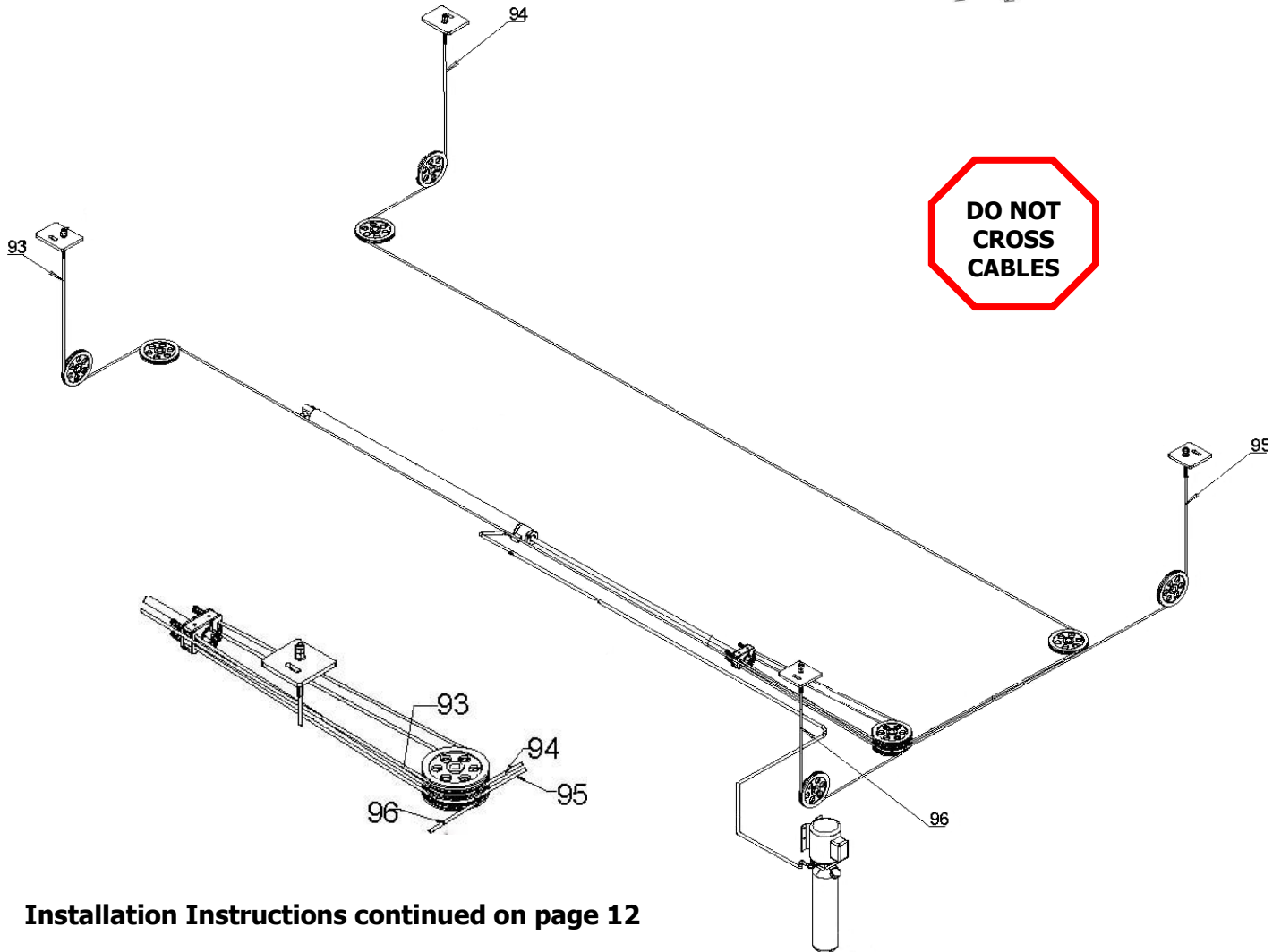
5. Cables and sheaves are preassembled in the left (driver side) runway. Remove shipping restraints from cable ends and cylinder rod. Pull cables out ready for assembly. Sheaves are preassembled in the right (passenger side) runway.

**Installation Instructions continued on page 11**

6. Position rear crossmember at rear of both runways. Remove cable sheaves from both ends of crossmember and both ends of right (passenger side) runway. Line up openings in rear crossmember with openings in runway ends. Feed cables through rear crossmember and runways to their proper destination. Re-install cable sheaves in runway and rear crossmember. Ensure all cables are completely seated in the proper sheave groove. (see diagrams below)

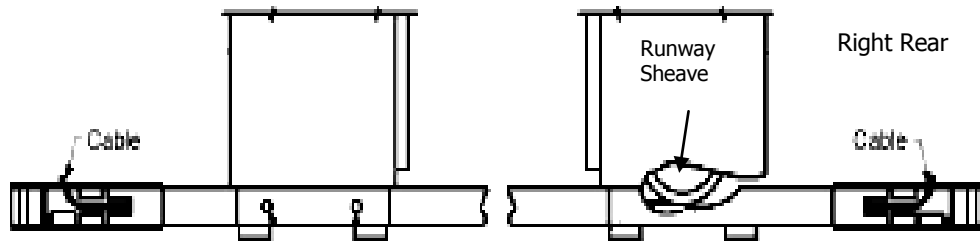


**DO NOT  
CROSS  
CABLES**



Installation Instructions continued on page 12

- With openings in the rear crossmember lined up with both rear runway ends, align the four (4) holes in top of the rear crossmember with slots in runway end plates. Bolt each runway to the rear crossmember using two (2) each 1/2"x 1 1/4" hex flange bolts.



- Move rear columns in toward the cross beam. Unlock nuts on top of the column and pull the safety rack up above the cross beam ends. Move column in so that crossmember end rests on safety lock rack. ( Fig 1)
- Line the cable up to the top of the column. Make sure the slack cable lock is pushed by the cable. Tighten nut on the cable end and rack end.( Fig. 2)
- Mount plastic slide blocks on the crossbeam.( Fig. 3)
- Fix the lower end of the safety rack by a bolt. (Fig 4)

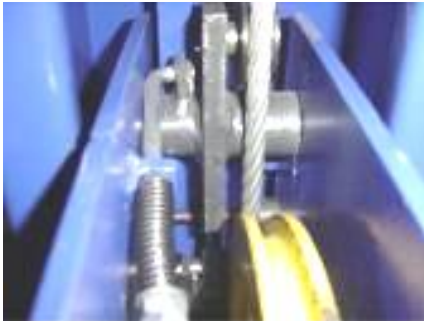


Fig 1



Fig 2



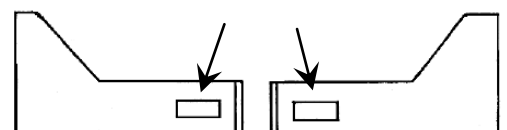
Fig 3



Fig 4

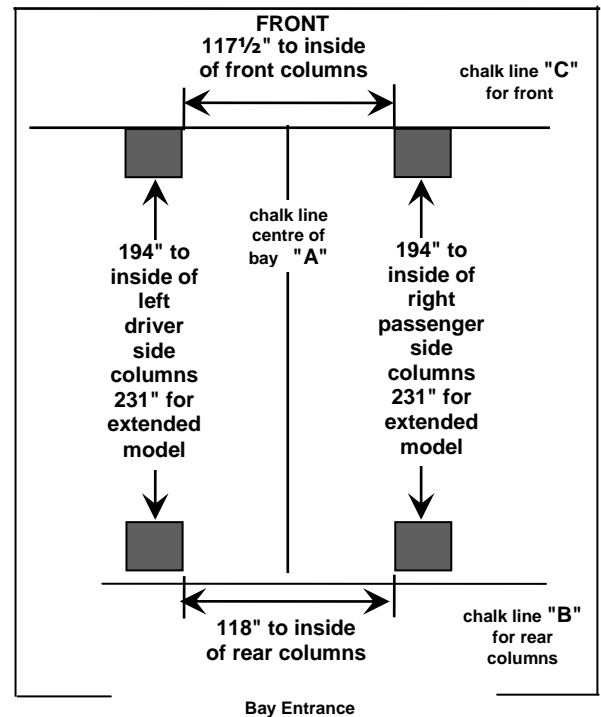
- With front columns laying on the floor carriage side up, remove both safety racks.
- Remove cable sheaves from both front carriages.
- Slide both front carriages into their respective columns (open hole toward the runway – see diagram at right).
- Insert safety racks through each carriage (same as rear crossmember).

Left Front Carriage - Right Front Carriage (cable / sheave openings facing rear)



**Installation Instructions continued on page 13**

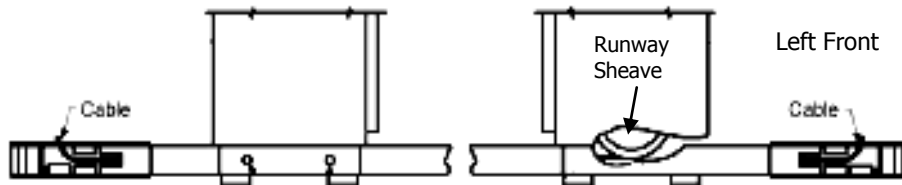
16. Carefully raise (stand up) left driver side column so that the front corner of the widest baseplate end is located on the floor marking you made earlier. Support it to prevent carriage and column from falling. Reposition left runway so that its sheave opening lines up with carriage sheave opening. Complete the same procedure with the right passenger side column, carriage and runway. **IMPORTANT: Always measure between columns to confirm accurate column positioning from the centerline. Do not measure between baseplates (see diagram at right) Confirm 117½" between front columns.** Adjust column and runway positions to achieve this.



17. Raise front carriage to be level with the runway and resting on a mechanical safety lock.

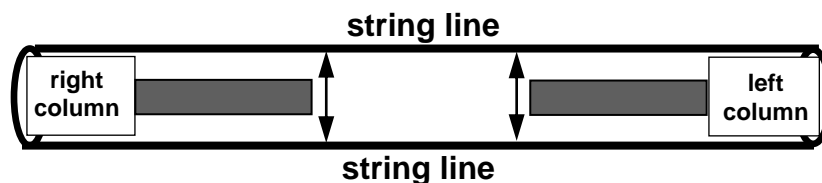
**Insure column and carriage are well supported and do not fall.**

18. Feed cable ends from left and right runways through front carriage openings (confirm cable routing with diagram on page 11). Also see diagrams below. Align bolt holes in top of each carriage with the slots in each runway. Attach each runway to front carriages using ½" x 1¼" hex bolts.



19. Fix the lower end of each safety rack by a bolt. (Fig 4 page 12)

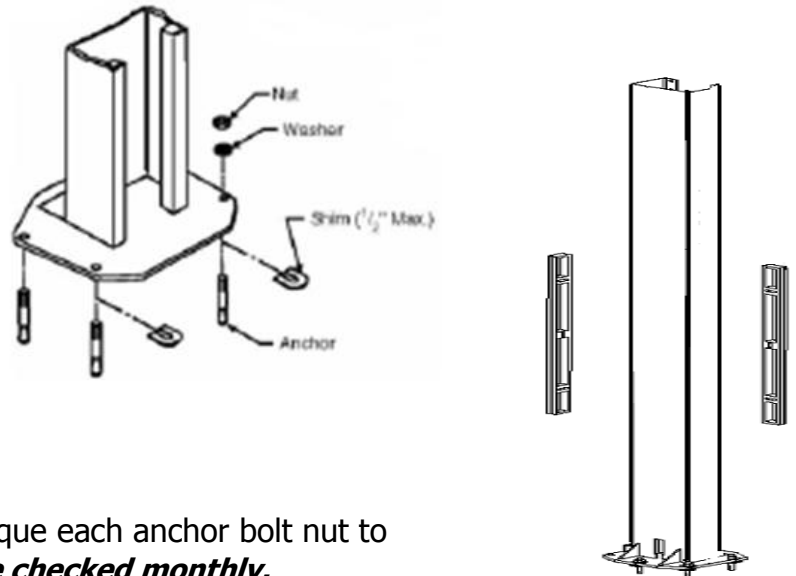
20. Wrap a string line around both front columns at the height of the carriages. Use this string as a plumb line to insure that both front carriages are parallel (in line) with each other. **This is very important. Lift operation and component parts life will be negatively affected if these carriages are not parallel (in line) with each another.**



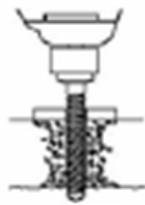
**Installation Instructions continued on page 14**

21. Level both front columns using shims provided. **IMPORTANT: DO NOT** use more than 1/2 inch (13 mm) of shims under any area of the baseplate when leveling each column. Use two 4 ft. levels to confirm that all sides of the column are perfectly vertical. Maintain inside column measurement of 117 1/2" and always confirm that front carriages are parallel (in line) with each other (see diagrams above).

22. After leveling both columns, use a 3/4" concrete drill bit to carefully drill each anchor bolt position to a minimum of 4 1/2" deep. Secure both front baseplates with anchor bolts provided. **Note:** hand tighten anchor bolts at this time. (reference diagrams on next page) Anchors must have a minimum embedment of 3 1/4". If the top of the anchor exceeds 2 1/4" above floor grade, you DO NOT have the required embedment. After reconfirming column level, torque each anchor bolt nut to 150 ft-lbs (204Nm). ***This should be checked monthly.***



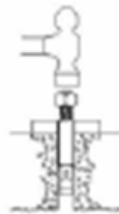
**1. DRILL**



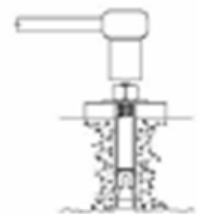
**2. CLEAN**



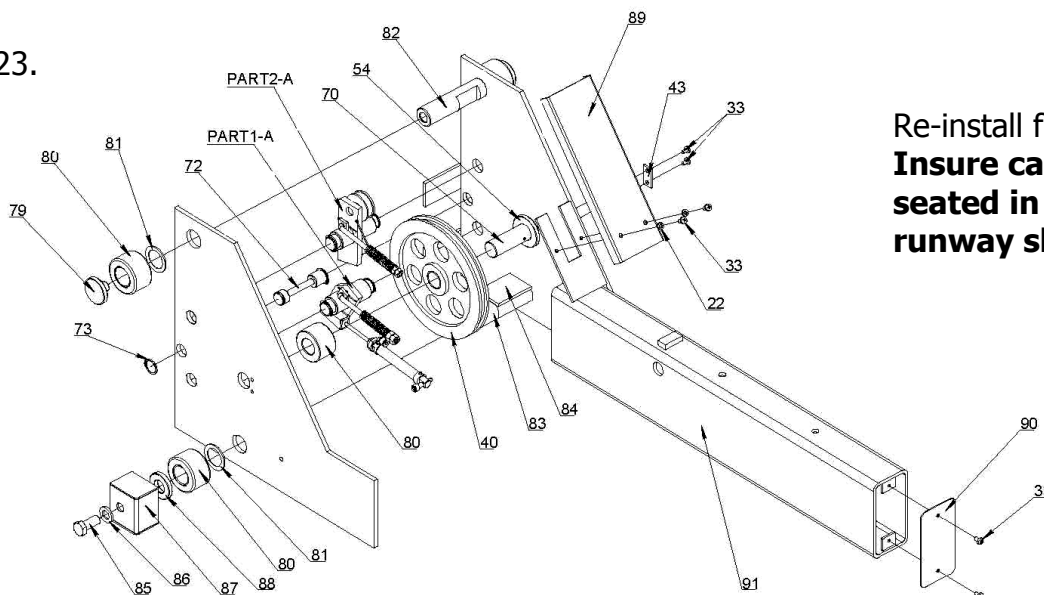
**3. INSTALL**



**4. TIGHTEN**



23.

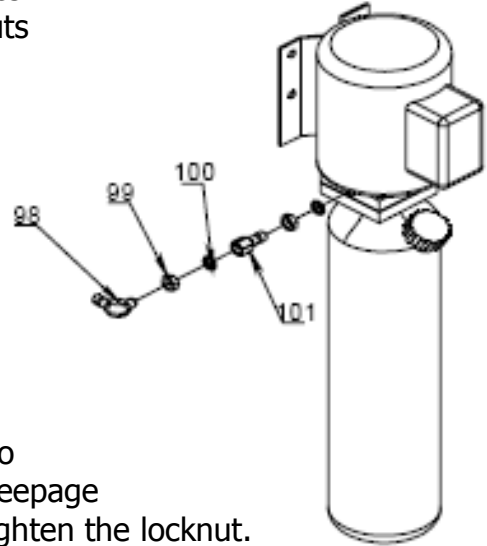


Re-install front carriage sheaves. **Insure cables are properly seated in both carriage and runway sheave groove.**

**Installation Instructions continued on page 15**

24. Line the cable up to the top of the column. Make sure the slack cable lock is pushed by the cable. Tighten nut on the cable end and rack end. ( Fig. 2 – page 12)
25. Install four 5/16" x 11/2" hex bolts through appropriate holes in the powerpack column bracket using push nuts to hold them in place. When mounting powerpack to column bracket, also mount air release valve bracket with lock washers and nuts provided.

26. Install and hand tighten elbow to powerpack pump output port until "O" ring is seated and elbow is oriented down at a 45° angle. DO NOT use Teflon tape on hydraulic line connections. Continue to tighten the locknut (10-15 ft. lbs.) or until nut and washer bottom out against pump manifold. Note: You may still be able to rotate the elbow which is acceptable unless there is seepage at the "O" ring. If this happens continue to slightly tighten the locknut.

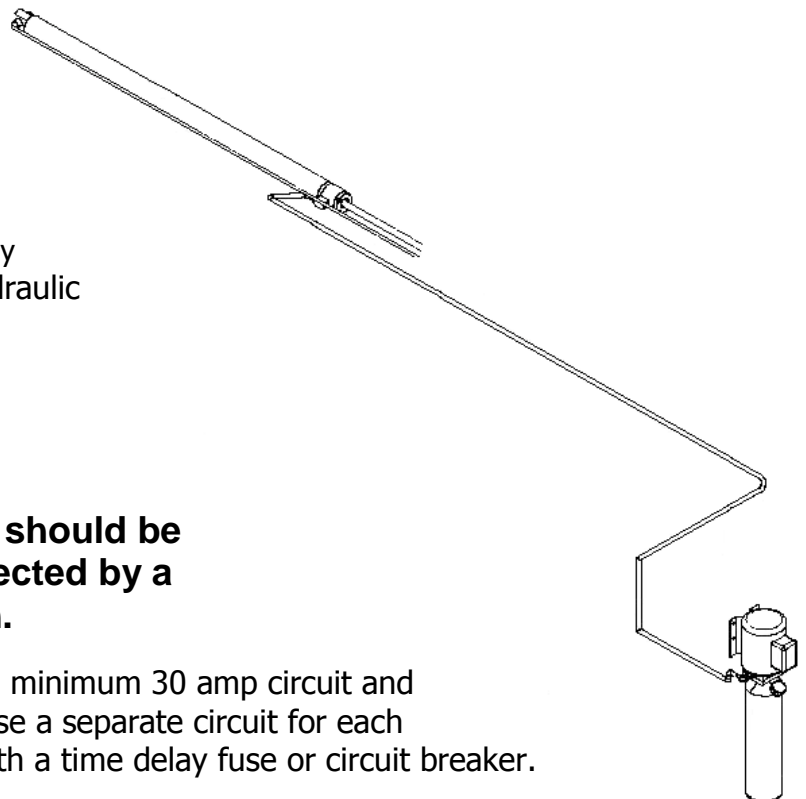


Flared Fitting Tightening Procedure: Screw fittings together finger tight.

**IMPORTANT:** Flare seal must not rotate when tightening. Only the nut should be turned. Using the proper wrench size, rotate the fittings 2½ hex flats. Back the fitting off one full turn. Again tighten the fittings finger tight. Using the wrench, tighten the fittings 2½ hex flats. This completes the tightening procedure and develops a pressure tight seal.

**CAUTION: Over tightening will damage fittings and result in a fluid leak.**

Connect hydraulic line to cylinder under runway.  
Route opposite end through slot opening in the runway to 45° elbow at powerpack output port. Fill powerpack reservoir to minimum line on tank (approximately 13 quarts - 15 litres) with ISO 32 hydraulic oil (10W non detergent hydraulic oil).  
Replace breather cap.



**NOTE :** All electrical wiring should be installed and connected by a certified electrician.

27. Confirm electrical wire is sized for a minimum 30 amp circuit and supplying a minimum 208 volts. Use a separate circuit for each power unit. Protect each circuit with a time delay fuse or circuit breaker.

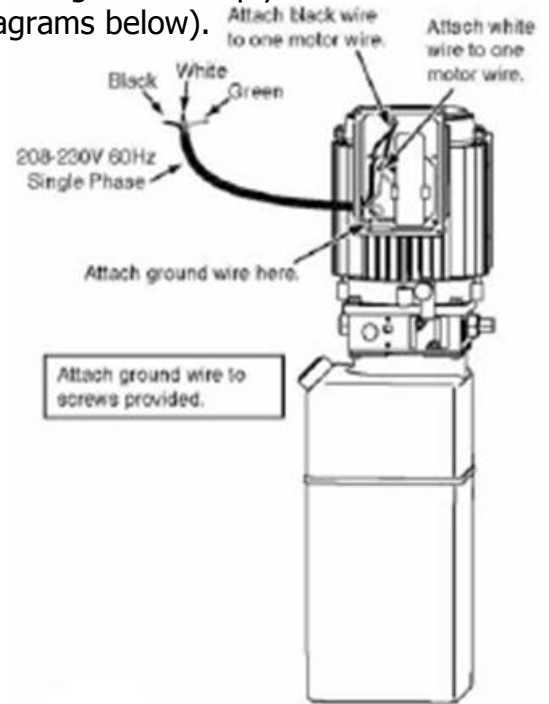
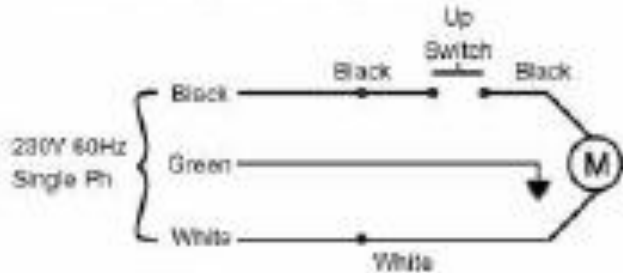
**Installation Instructions continued on page 16**

For single phase power use a 20 amp fuse - for three phase power use a 15 amp fuse (for three phase 400 volt and above use a 10 amp fuse). All wiring must comply with national and local codes. Have electrician wire the motor (see diagrams below).

### Single Phase Power Unit

MOTOR OPERATING DATA TABLE - SINGLE PHASE	
LINE VOLTAGE	RUNNING MOTOR VOLTAGE RANGE
208-230V 50Hz.	197-253V
208-230V 60Hz.	197-253V

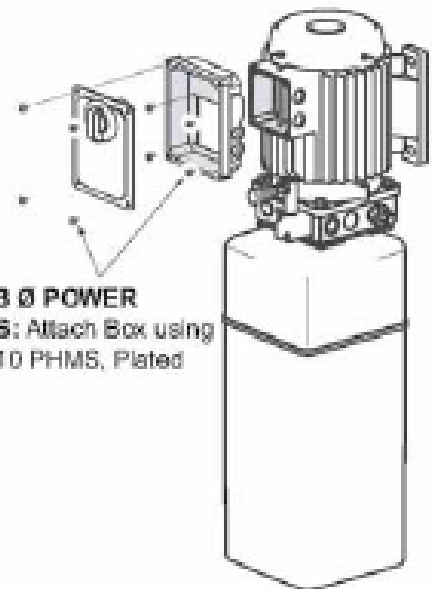
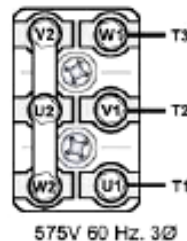
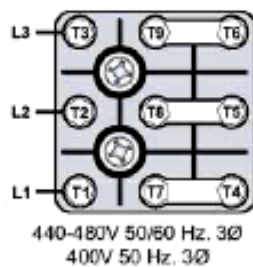
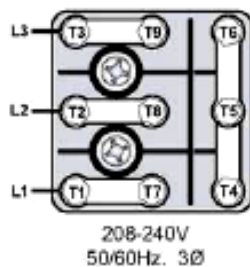
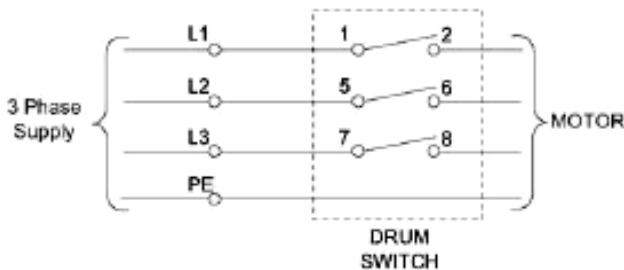
**Note:** 60Hz. Single phase motor CAN NOT be run on 50Hz. line without a physical change in the motor.



MOTOR OPERATING DATA TABLE - THREE PHASE	
LINE VOLTAGE	RUNNING MOTOR VOLTAGE RANGE
208-240V 50/60Hz.	197-253V
400V 50Hz.	360-440V
440-480V 50/60Hz.	396V-528V
575V 60Hz.	518V-632V

#### NOTES:

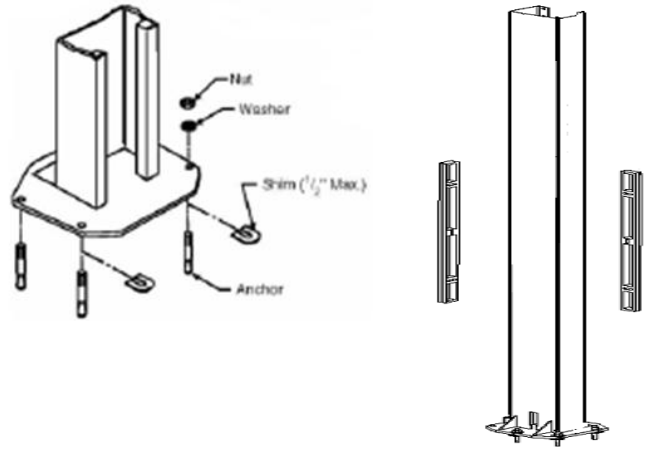
- Unit not suitable for use in unusual conditions. Contact Rotary for moisture and dust environment duty unit.
- Control Box must be field mounted to power unit.
- Motor rotation is counter clockwise from top of motor.



**Installation Instructions continued on page 17**

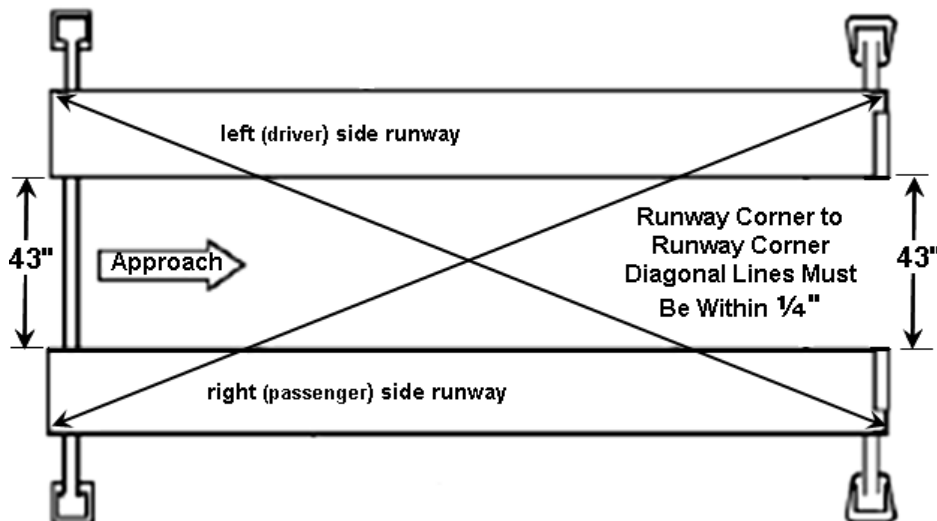
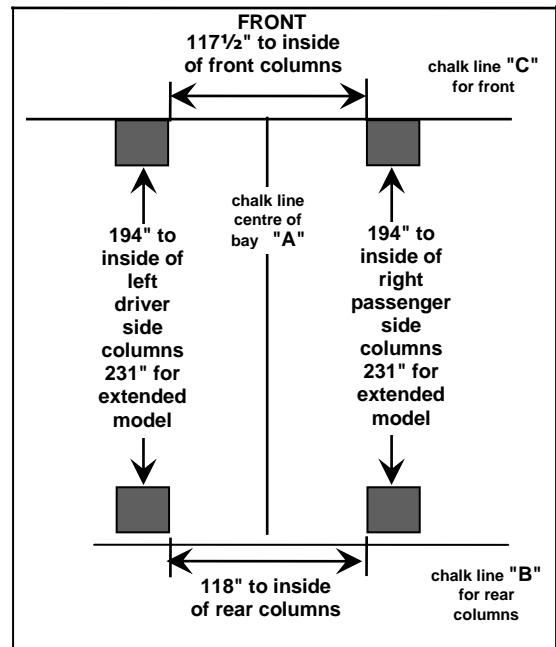


28. Level both rear columns using shims provided. **IMPORTANT: DO NOT** use more than 1/2 inch (13 mm) of shims under any area of the baseplate when leveling each column. Use two 4 ft. levels to confirm that all sides of the column are vertical. Maintain inside column to inside column measurements during the leveling process. Use the diagrams below to confirm set up and installation accuracy. When adjusting positions of rear columns, insure that the rear crossmember maintains its free floating position in the columns. Only after all measurements have been checked and confirmed, use a 3/4" concrete drill bit to carefully drill each anchor bolt position to a minimum of 4 1/2" deep. Secure both rear baseplates with anchor bolts provided. **Note:** hand tighten anchor bolts at this time.



(reference diagrams page 14) Anchors must have a minimum embedment of 3 1/4". If the top of the anchor exceeds 2 1/4" above floor grade, you DO NOT have the required embedment. After reconfirming column level, torque each anchor bolt nut to 150 ft-lbs (204Nm).

***This should be checked monthly.***



See dimension diagram page 7 for additional information

**Installation Instructions continued on page 18**

29. It is recommended that a locally purchased in-line filter/regulator/lubricator be installed on the lift. Run  $\frac{3}{8}$ " air line from facility air supply to the filter/regulator/lubricator. Run  $\frac{3}{8}$ " air line from the filter/regulator/lubricator to reducing tee. Connect reducing tee to air valve. Attach air valve to air valve bracket. Attach enclosed NP280 decal > "Actuate To Release Latches" on air valve bracket or column. Run  $\frac{1}{4}$ " air line from air valve through slot in left (driver side) runway. Attach a tee fitting underside of the runway. Cut to length and run a  $\frac{1}{4}$ " air line to front left locking cylinder. Cut to length and run a  $\frac{1}{4}$ " air line to rear of left (driver side) runway. Install a tee fitting. Cut to length a  $\frac{1}{4}$ " air line and connect the left rear locking cylinder. **Note : Insure all air lines will never come in contact with sheaves or lifting cables.** Cut to length and run a  $\frac{1}{4}$ " air line through rear crossmember to the right (passenger side) runway. Install a tee fitting. Cut to length  $\frac{1}{4}$ " air lines and connect front and rear locking cylinders. Safety locking latches require a minimum of 100 psi. to a maximum of 120 psi.

If internal air is required for rolling air jacks and/or air power tools, remove plug in reducing tee and run a  $\frac{3}{8}$ " air line through slot in runway. Install a tee fitting. Cut to length and run a  $\frac{3}{8}$ " air line to the front runway air outlet and a second  $\frac{3}{8}$ " air line to the rear runway air outlet. Connect air lines to each outlet fitting. Install coiled air lines to runway air outlets. Confirm that all air lines have been properly connected (or plugged) before turning on the air supply. Turn on air supply and check for leaks (repair if required). Confirm that locking latches pull in or retract to clear the latch bars on all four columns.

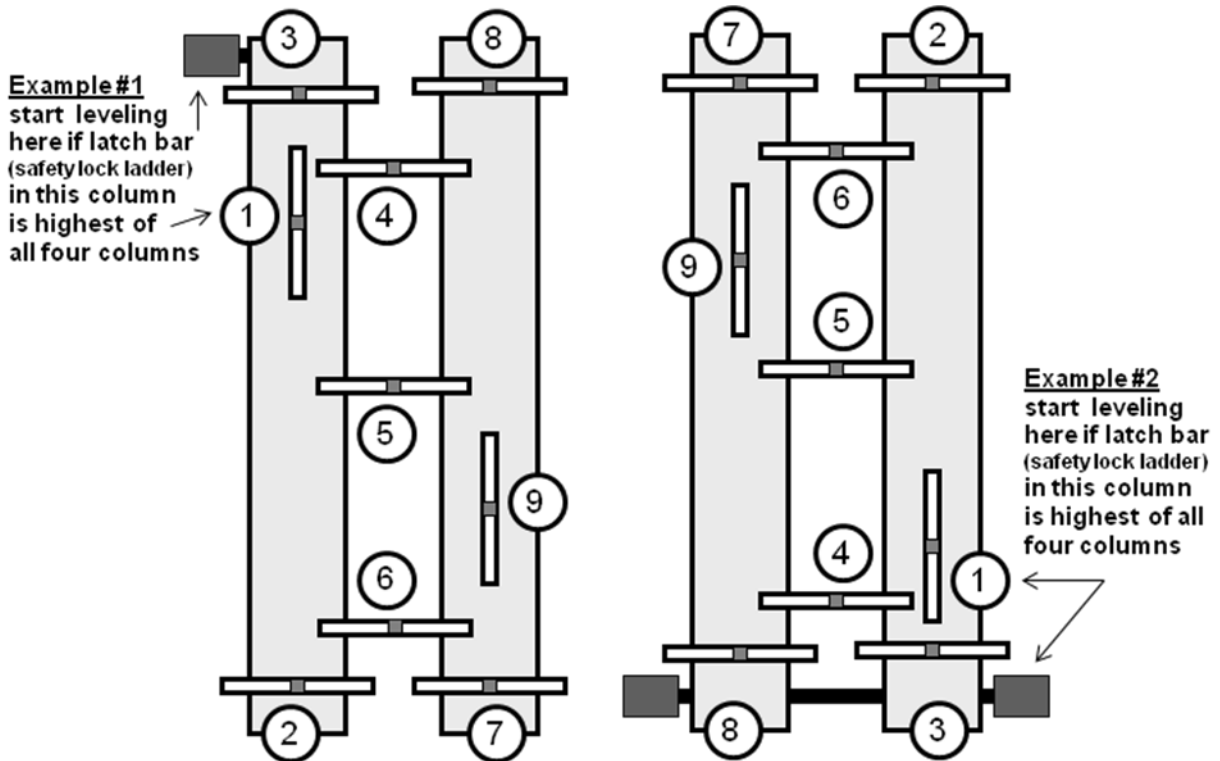
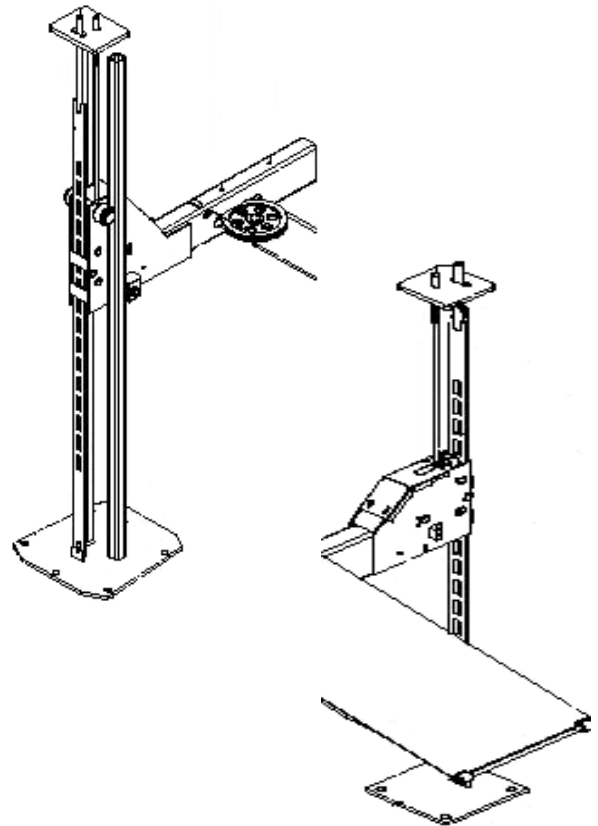
Use cable ties to secure air line to hydraulic hose from powerpack to lift. Use cable ties to secure hydraulic hose and air lines under the lift. Insure they do not come in contact with any moving parts.

30. Raise the lift slightly by pressing the "up" button on the powerpack. Check for any hydraulic leaks. Disengage all four safety locks and lower lift to the ground.
31. Adjust cables with lift fully lowered. Loosen jamb nut and tighten cable stud nut on top of column until carriage or crossmember raises  $\frac{1}{4}$ ". Back off nut one turn. Retighten jamb nut. Repeat process for all four cables. Insure that all cables are engaged in slack cable arm roller.
32. Hydraulic fluid may be added or changed only when lift is fully lowered. To bleed air from hydraulic line and cylinder, raise and lower the lift six times. **Do Not Allow Anyone Under the Lift During This Procedure.** The cylinder is self bleeding. Note: a small amount of hydraulic fluid may spill from the breather vent during the bleeding process. After bleeding the system, fluid level in the reservoir may be down. Fill powerpack reservoir to minimum line on tank with ISO 32 hydraulic oil (10W non detergent hydraulic oil). Replace breather cap. Pressure test hydraulic system by raising lift to upper limit and continue to run motor for five (5) seconds. Stop and check all fittings and hose connections. Lower lift.
33. Install approach ramps to the rear of both runways using hinge pins and cotter pins. Install wheel stops to the front of both runways using hinge pins and cotter pins.

**Installation Instructions continued on page 19**

34. To ensure that the lift is level and that all four safety lock positions are engaging correctly, complete the following two procedures:

1. Slowly raise the lift until all safety locks engage a latch bar (safety lock ladder).  
**Important** – identify the last safety lock to engage (this will be the highest column and starting point for the leveling process). Check the latch bars (safety lock ladder) in the other three columns and insure that all safety locks are located in the same latch bar opening. The leveling process will raise the three lower latch bars to match (or be level with) the highest latch bar you identified. See diagram below for leveling sequence. Loosen jam nut in the first latch bar to be adjusted. Tighten latch bar adjustment nut until latch bar raises to firmly engage the safety lock. (see diagrams at right) Tighten jam nut and proceed to next column as per the diagram below. After leveling all latch bars, recheck front to back and side to side runway levels and make necessary adjustments to insure a level runway surface.



Installation Instructions continued on page 20

2. Drive a vehicle onto the lift and secure it with wheel chocks. Jog the power unit allowing two (2) seconds between jogs until one or more latches are heard engaging. Check all four columns to see which latch(s) have engaged. Columns where the latch has engaged will not be adjusted. Proceed to a column where the latch has not engaged and loosen the cable jam nut. Hold the square end of the threaded portion of the cable firm and turn the cable adjustment nut clockwise until you hear the safety lock engage. Lock down the adjustment with the jam nut. Proceed to the other columns until all four safety locks are engaged. Raise and lower the lift several times to confirm that all four safety locks are engaging and disengaging properly. All four safety locks should engage at the same time. Make the necessary adjustments to insure all safety locks engage at the same time.

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

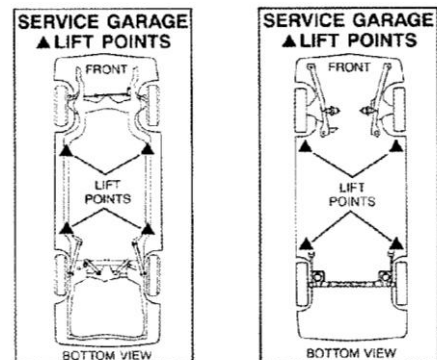
**LIFT OPERATION: Before lifting a vehicle, insure all operators are qualified, have been trained and are following all safety instructions. Read and follow the ALI "Lifting It Right" manual included with the lift. Always use the "Vehicle Lifting Points" reference guide when lifting a vehicle. Insure all materials stay up to date >>> [www.autolift.org/](http://www.autolift.org/) (see example of SAE J2184 standard below)**

Insure that every vehicle will be securely positioned on the lift (use wheel chocks). When using air/hydraulic rolling jacks, always use vehicle manufacturer's recommended lifting points. **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.**

Lift operation controls on the powerpack and powerpack column perform the following functions:

- "UP BUTTON" on powerpack motor raises the lift.
- "DOWN HANDLE" on powerpack pump manifold lowers the lift. Note: Before lowering the lift you should raise it slightly to remove pressure from safety locks allowing them to disengage.
- "AIR LOCK RELEASE BUTTON" retracts or releases safety locks at all four columns. This button (along with the "DOWN HANDLE") must be pressed and held during the entire lowering procedure

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



Typical Label Drawings  
Reprinted with permission from SAE J2184  
©2000 Society of Automotive Engineers, Inc.

## **MAINTENANCE INSTRUCTIONS**

**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.

**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 )

**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:

**Lifting Cable Criteria continued on page 22**

<b>Rope Diameter (inch)</b>	<b>Maximum allowable reduction from Nominal Diameter (inch)</b>
Less than or	1/64
More than 5/16	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.

## **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.

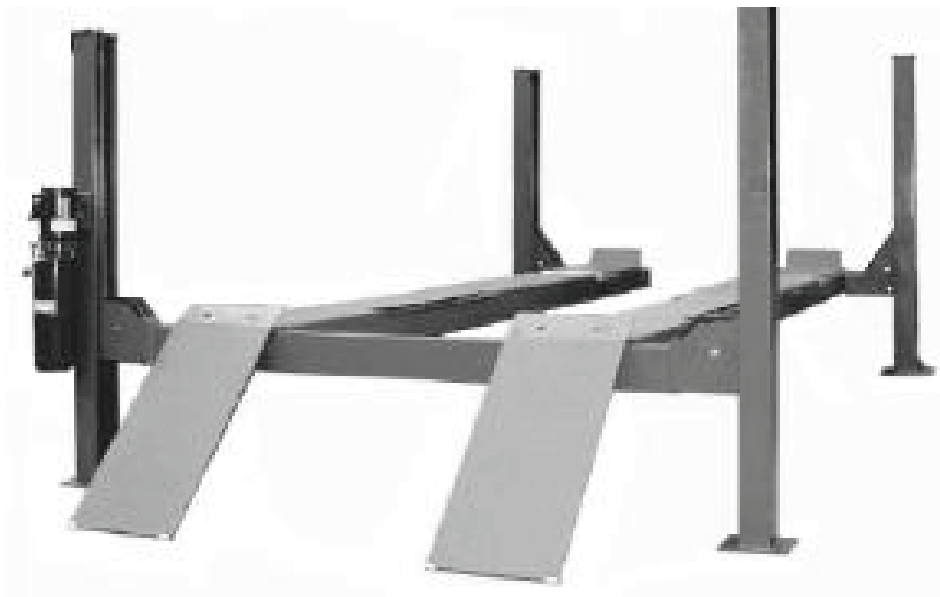
Problem	Cause	Solution
Lift Will Not Raise or Lower	<ol style="list-style-type: none"> <li>1. Blown fuse or circuit breaker</li> <li>2. "Emergency Stop" button engaged</li> <li>3. Tripped thermal overload</li> <li>4. Incorrect voltage to motor</li> <li>5. Bad wiring connections</li> <li>6. "UP" switch burned out</li> <li>7. Motor windings burned out</li> <li>8. Side to side synchronization has exceeded maximum limits</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace fuse or reset/replace circuit breaker</li> <li>2. Release button or replace</li> <li>3. Reset thermal overload</li> <li>4. Supply correct voltage to motor</li> <li>5. Repair and insulate all connections</li> <li>6. Replace switch</li> <li>7. Replace motor</li> <li>8. Call service technician for assistance</li> </ol>
Lift Will Not Raise	<ol style="list-style-type: none"> <li>1. Air in oil or low oil level</li> <li>2. Lowering Valve leaks</li> <li>3. Motor runs backward</li> <li>4. Pump damaged</li> <li>5. Pump will not prime</li> <li>6. Relief Valve leaks</li> <li>7. Voltage to motor incorrect</li> <li>8. Lift overloaded</li> </ol>	<ol style="list-style-type: none"> <li>1. Check fluid level, oil seal, bleed system</li> <li>2. Clean valve or replace</li> <li>3. Check for correct wiring</li> <li>4. Repair or replace pump</li> <li>5. Check fluid level and pick-up tube - replace pump</li> <li>6. Clean Relief Valve (replace if necessary)</li> <li>7. Supply correct voltage to motor</li> <li>8. Verify that loaded vehicle weight does not exceed rated lift capacity</li> </ol>
Lift Will Not Lower	<ol style="list-style-type: none"> <li>1. Faulty lowering solenoid valve</li> <li>2. Obstruction under lift or in roller tracks</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace valve</li> <li>2. Carefully remove obstruction</li> </ol>
Lift Will Not Hold Pressure	<ol style="list-style-type: none"> <li>1. Contamination in system</li> <li>2. Internal Cylinder leaks</li> <li>3. Lowering Valve leaks</li> <li>4. Check Valve leaks</li> <li>5. External leaks</li> </ol>	<ol style="list-style-type: none"> <li>1. Check oil level - bleed cylinders - remove contamination - replace oil seal</li> <li>2. Check fitting, replace cylinder</li> <li>3. Contaminated fluid, handle binds, clean valves</li> <li>4. Clean check valve (replace if necessary)</li> <li>5. Check all fittings and repair leaks</li> </ol>

**Troubleshooting continued on page 23**

Lift Going Up Out of Level	<ol style="list-style-type: none"> <li>1. Lift installed on un-level floor</li> <li>2. Linear Transducer Cables at the lift have changed position relative to one another</li> </ol>	<ol style="list-style-type: none"> <li>1. Reinstall on level surface</li> <li>2. Adjust (rotate) one cable to match the position of the opposite cable. Call service technician if problem persists</li> </ol>
Anchors Will Not Stay Tight	<ol style="list-style-type: none"> <li>1. Holes drilled oversize</li> <li>2. Concrete floor thickness or holding strength not sufficient</li> </ol>	<ol style="list-style-type: none"> <li>1. Relocate lift using the correct bit to drill holes</li> <li>2. Break out old concrete and re-pour new foundation per lift installation instruction</li> </ol>
Locking Mechanisms Do Not Engage / Disengage	<ol style="list-style-type: none"> <li>1. Safeties are binding</li> <li>2. Faulty air cylinder</li> <li>3. Damaged air line</li> <li>4. Safety locks do not latch properly</li> <li>5. Safety locks do not disengage</li> </ol>	<ol style="list-style-type: none"> <li>1. Lubricate mechanism</li> <li>2. Replace air cylinder</li> <li>3. Repair/replace air line</li> <li>4. Adjust mechanisms per lift installation instructions</li> <li>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. Call service technician</li> </ol>

**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**



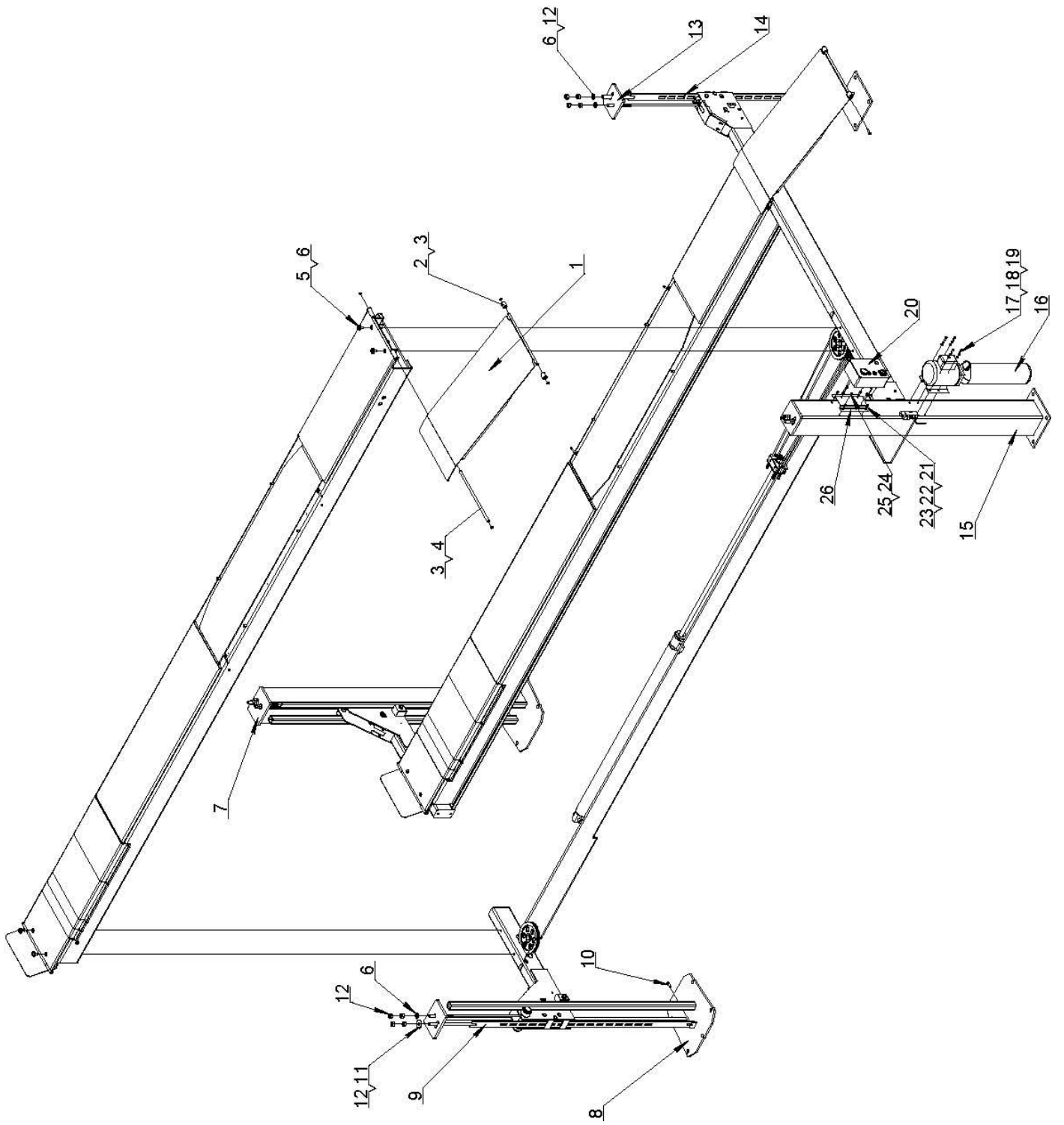
14,000 lb. ( 6350 kg )      Open Front Four Post

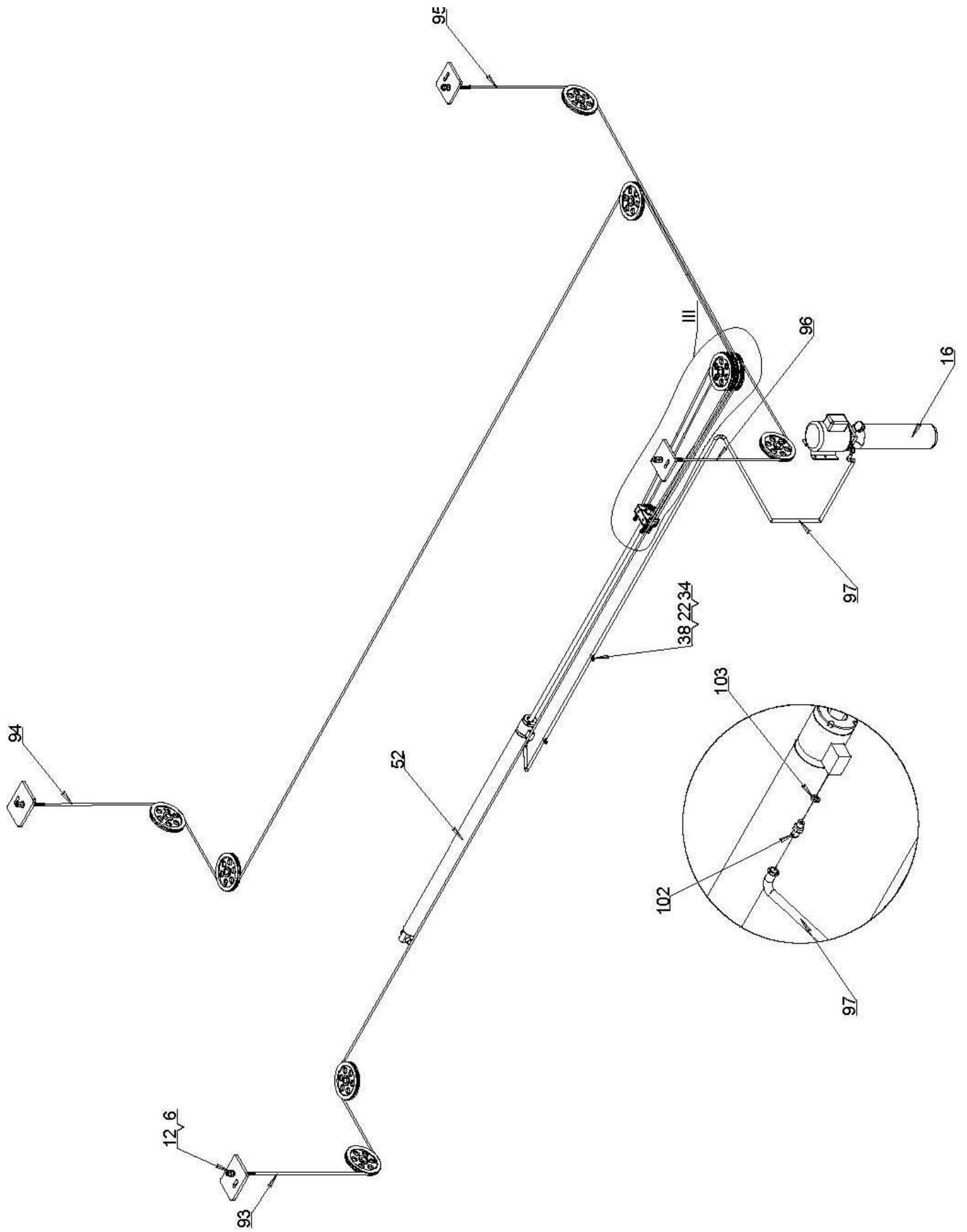
**Models**    **TLS414ALORR1**  
**TLS414ALOXR1 (extended)**

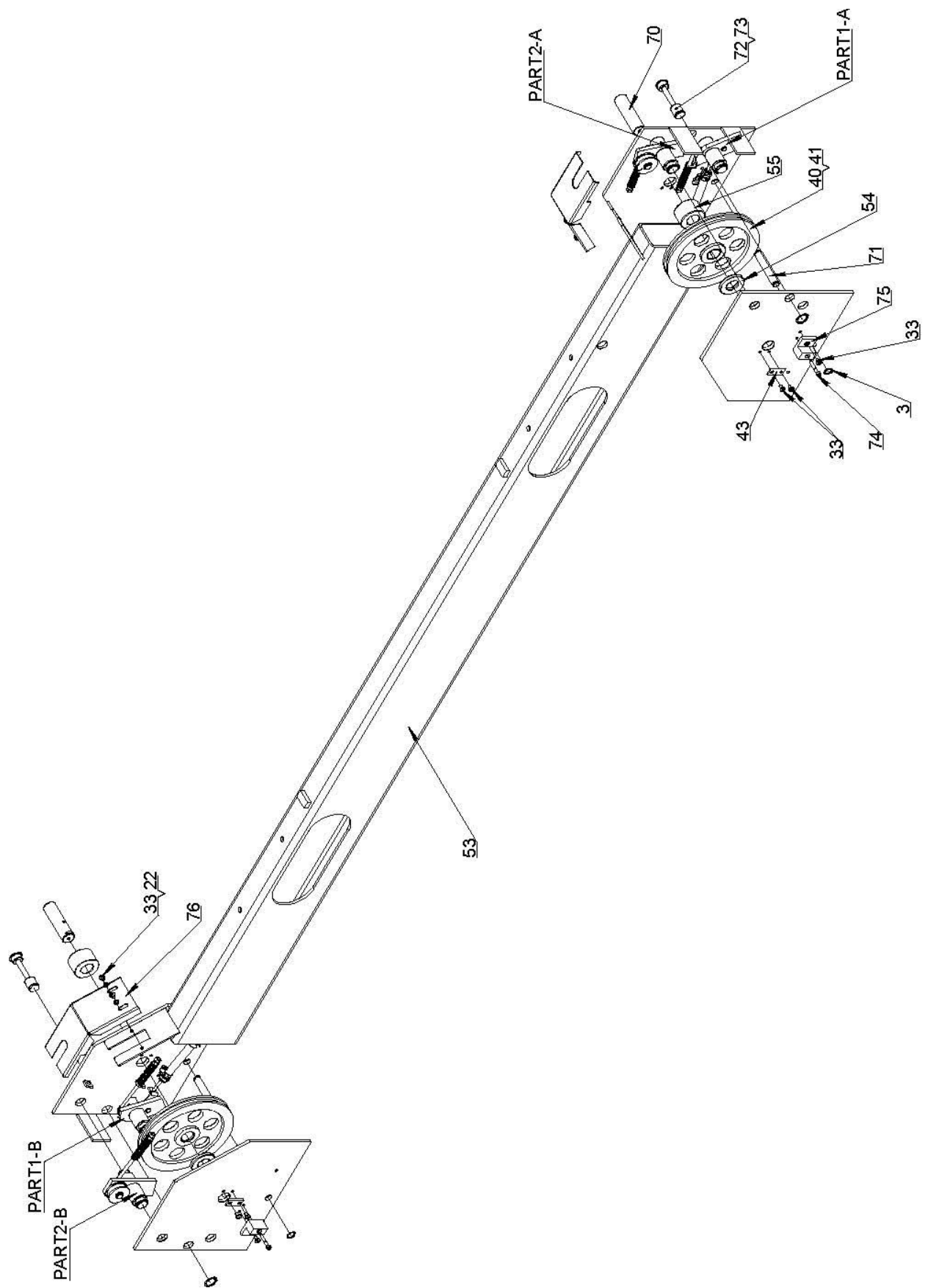
# Lift Illustrations & Parts Lists

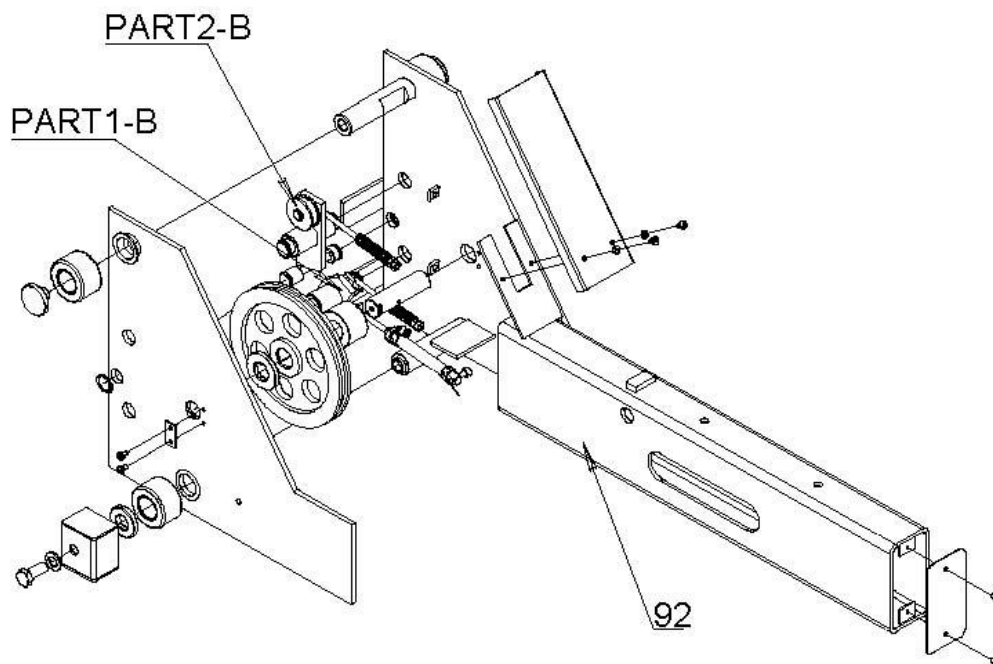
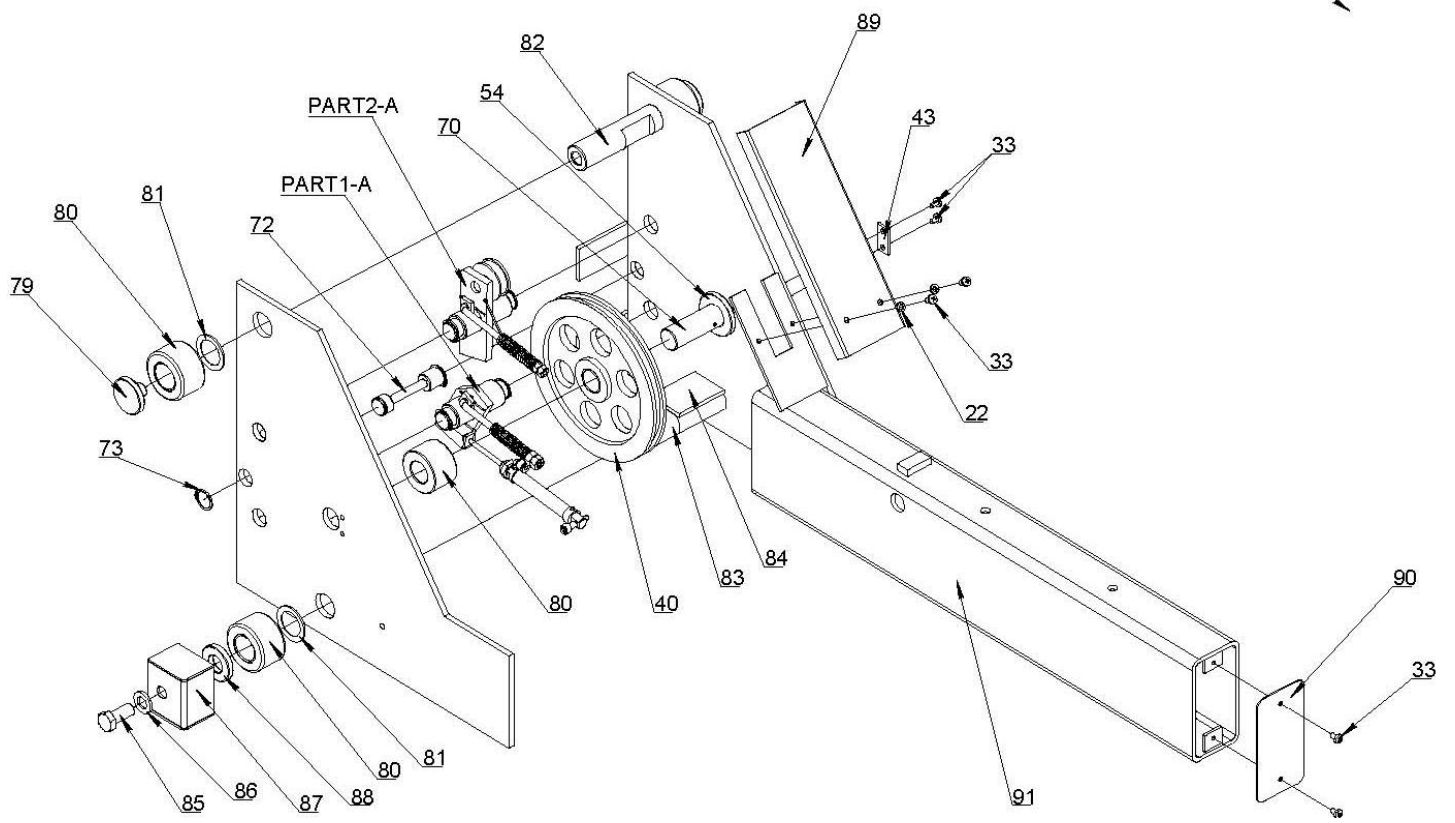
for installation & service part reference  
SAVE this MANUAL      and ALL INSTRUCTIONS

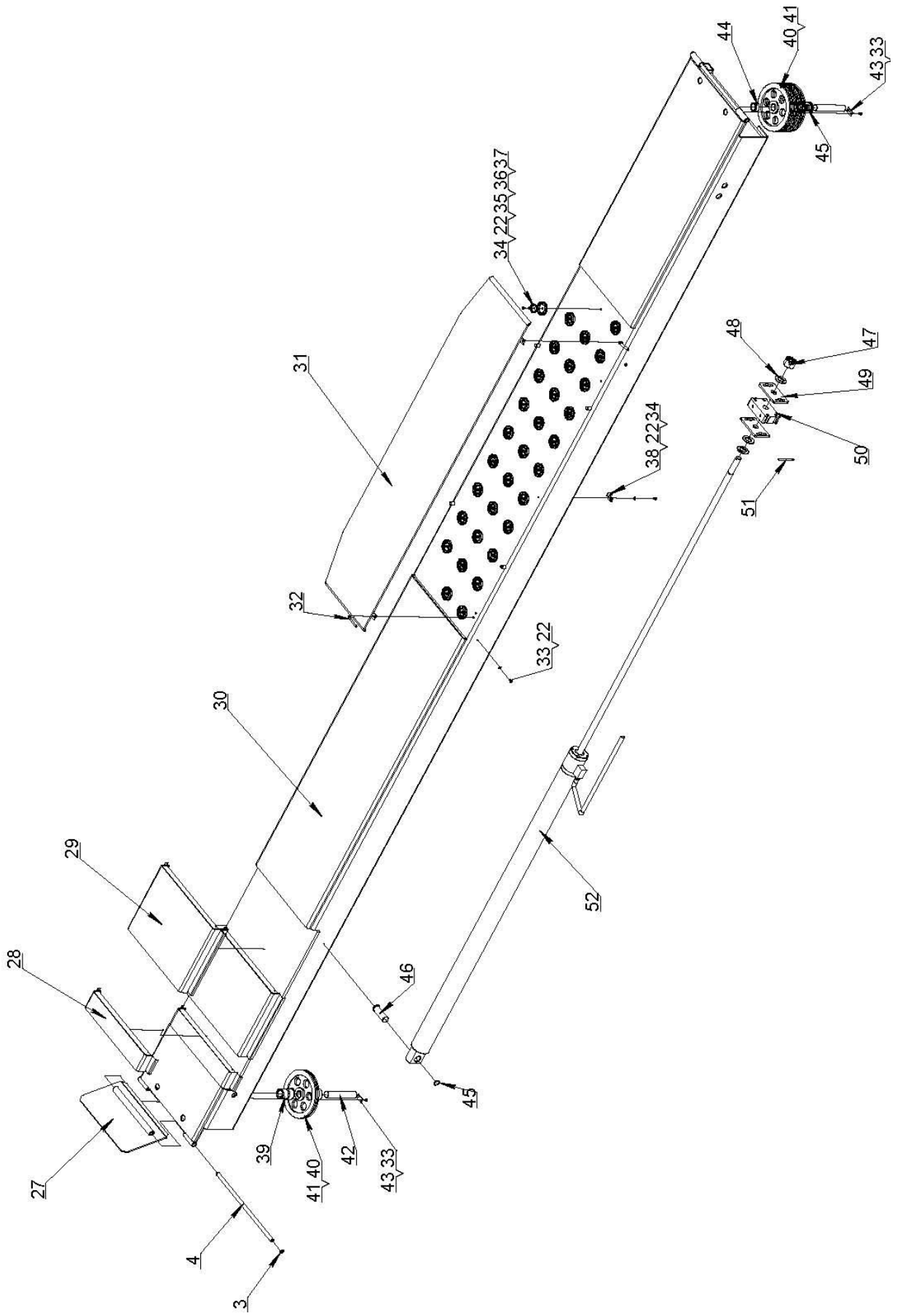


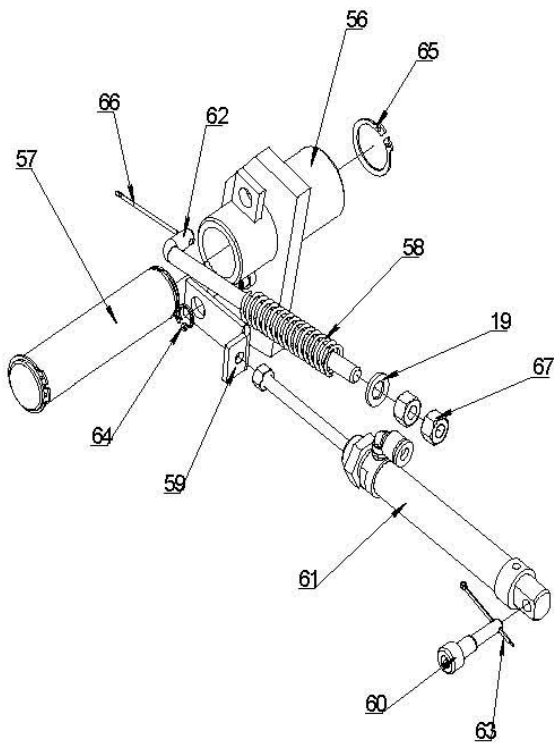




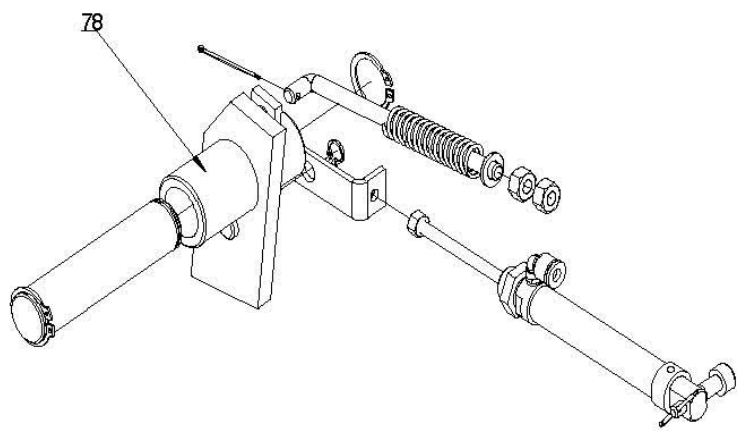




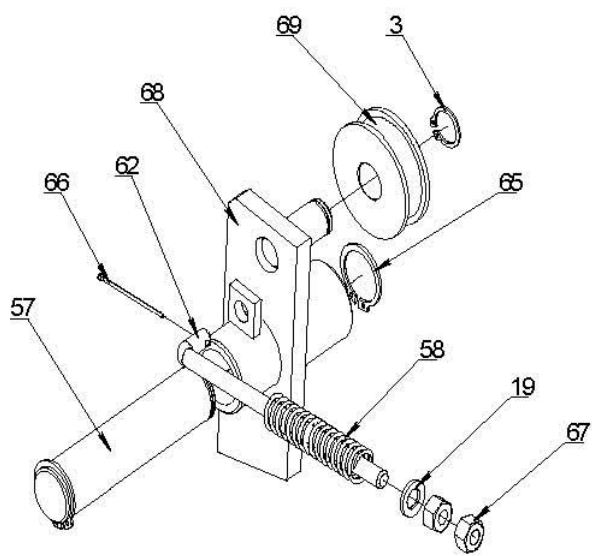




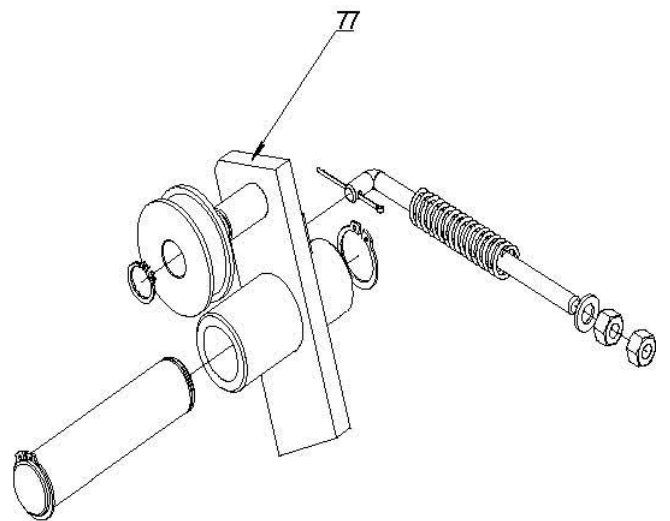
PART1-A



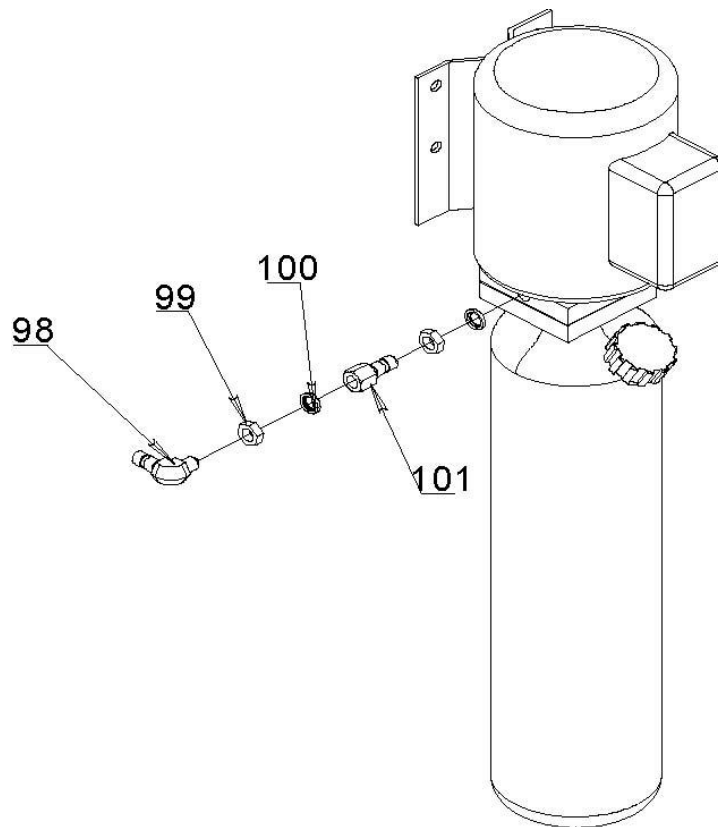
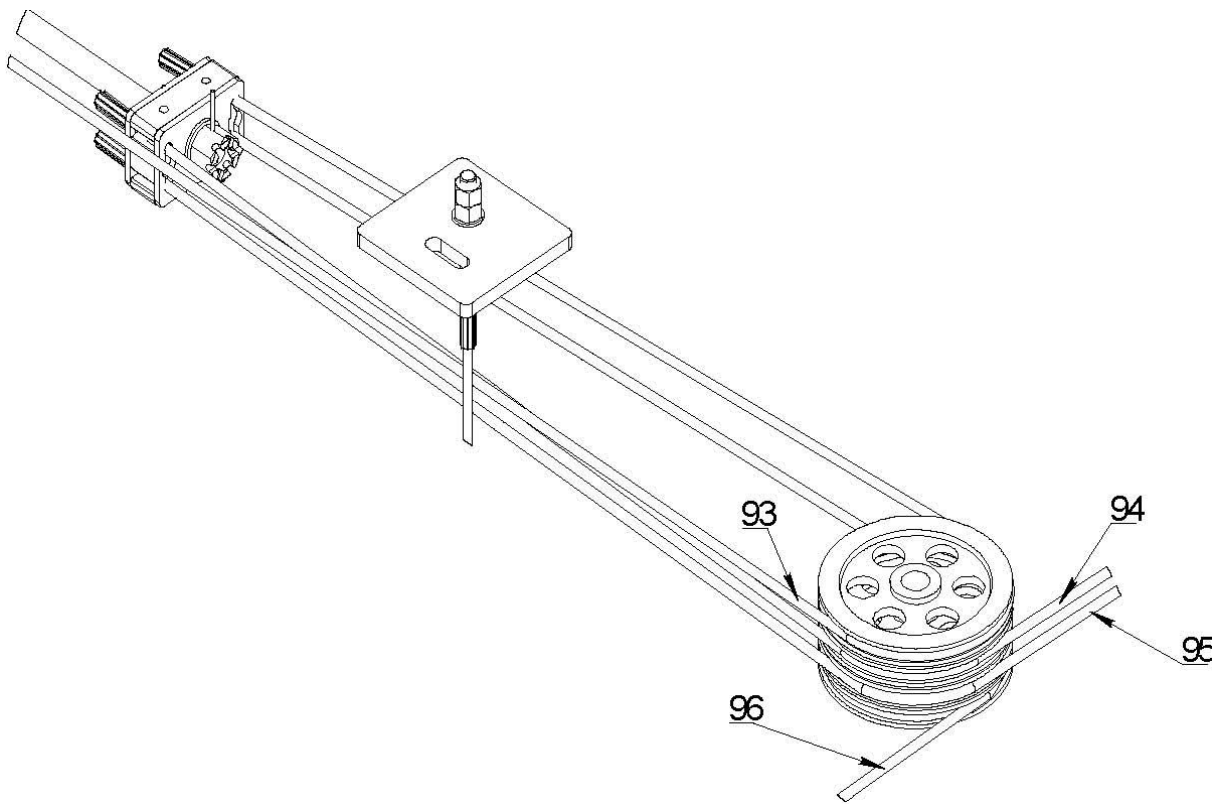
PART1-B



PART2-A



PART2-B



## **PARTS LIST**

ITEM	FACTORY CODE	DESCRIPTION	QTY	NOTE	
1	TT5D-400-01-00	pull blade	2	weld assembly	
2	TT5D-400-02	idler wheel	4	nylon	
3	D16_GB894.1	snap spring	20		D16
4	TT5D-100-05	spindle	5		
5	M12x35_GB70	Inner hexangular bolt	8		M12
6	D20_GB95	flat washer	14	steel	D20
7	TT5D-200-01B-00	Column	1	weld assembly	
8	TT5D-200-01A-00	Column	1	weld assembly	
9	TT5D-200-02-00	safety block	2	weld assembly	
10	M10x35_GB5781	hexangular bolt	4		M10X35
11	D20_GB96	big washer	2	steel	D20
12	M20_GB41	hexangular nut	14		M20
13	TT5D-300-01B-00	Column	1	weld assembly	
14	TT5D-300-02-00	safety block	2	weld assembly	
15	TT5D-300-01A-00	Column	1	weld assembly	
16		hydraulic pump	1		
17	M8x25_GB5781	hexangular bolt	4		M8X25
18	D8_GB93	spring washer	4		D8
19	D8_GB95	flat washer	12	steel	D8
20		Control box	1		
21	M6x20_GB5781	hexangular bolt	4		M6X20
22	D6_GB95	flat washer	84	steel	D6
23	D6_GB93	spring washer	4		D6
24	M6X16_GB818	Cross screw	4		M6X16
25	M6_GB41	hexangular nut	12		M6
26	QYS-100-02-07	motor base	1		
27	TT5D-100-16-00	Limited stand	2	weld assembly	
28	TT5D-100-01-00	tressel1	4	weld assembly	
29	TT5D-100-02-00	tressel2	4	weld assembly	
30	TT5DL-100-04A/04B-00	Runway 1/2	1 each	weld assembly	
31	TT5D-100-03-00	Cover	2	weld assembly	
32	SGM-803-16-01	raw pin	4		
33	M6x10_GB818	cover plate	36		M6X10



ITEM	FACTORY CODE	DESCRIPTION	QTY	NOTE	
34	M6x10_GB70	inner hexangular bolt	65		M6*10
35	TT5D-100-10-01	inner washer	62		
36	TT5D-100-10-03	steel ball	992	steel	
37	TT5D-100-10-02	spring pad	62		
38	TT5D-100-07	hose tie rack	3		
39	TT5D-100-09	cover	9	nylon	
40	TT5.5F4-300-17	wheel4	11	nodular cast iron	
41	FB090-3025	multiple bush	11		
42	TT5D-100-13	spindle	3		
43	SGM-802-08	locking plate	8		
44	TT5D-100-12	cover	1	round steel	
45	D30_GB894.1	snap spring	1		
46	TT5D-100-06-02	cylinder pin	1		
47	M27_GB6179	hexagon slotted nuts	1	steel	
48	D30_GB95	flat washer	3		D30
49	TT5D-100-06-03	clip1	2		
50	TT5D-100-06-04	clip2	1		
51	D5X80_GB91	snap ring	1		D5X80
52	TT5D-100-06-01	cylinder	1		
53	TT5D-500-01-00	cross beam	1	weld assembly	
54	TT5.5F4-200-01-10	cover2	4	nylon	
55	TT5.5F4-200-01-07	cover1	4	nylon	
56	TT5D-500-03-01A-00	safety A	1	weld assembly	
57	TT5.5F4-200-01-02	spindle	10		
58	SGM-804-14	compression spring	8		
59	SGM-804-07	pull handle	4	steel plate	
60	TT5D-500-03-03	cylinder cover	4		
61	SNS-02-00	safety cylinder	4		
62	SGM-804-04	tie rod spring	8		
63	D2x35_GB91	snap ring	4	carbon steel	D2X35
64	D10_GB894.1	snap spring	4		D10
65	D25_GB894.1	snap spring	8		D25
66	D2x40_GB91	snap ring	8	carbon steel	D2X40
67	M8_GB41	hexangular nut	22		M8
68	TT5D-500-03-01A-00	safety with cable steel A	1	weld assembly	
68	TT5D-500-02-01A-00	safety with cable steel A	1	weld assembly	

ITEM	FACTORY CODE	DESCRIPTION	QTY	NOTE	
69	TT5.5F4-200-01-19	safety idler wheel	4		
70	TT5D-500-04	spindle	4		
71	TT5.5F4-200-01-05	spindle	2		
72	TT5.5F4-200-01-03	spindle	8		
73	D24_GB894.1	snap spring	8		D24
74	M6X40_GB70.1	inner hexangular bolt	4		M6X40
75	TT5.5F4-200-01-04	nylon sliders	6	nylon	
76	TT5D-500-09	protective motherboard	4		
77	TT5D-500-02-01B-00	safety with cable steel B	1	weld assembly	
78	TT5D-500-03-01B-00	safety B	1	weld assembly	
79	TT5D-600-07	carriage block	4	nylon	
80	TT5D-600-03-01	pulley	8		
81	TT5D-600-05	cover	8	nylon	
82	TT5D-600-01-05	spindle	2		
83	TT5D-600-01-04	spindle	2		
84	TT5D-600-01-06	steel cable plate	2		
85	M16x35_GB5781	hexangular bolt	4		M16X35
86	D16_GB95	flat washer	4	steel	D16
87	TT5D-600-04-01	protective motherboard	4		
88	TT5D-600-06	cover	4	nylon	
89	TT5D-600-08	protective motherboard	2		
90	TT5D-600-02	back plate	2		
91	TT5D-600-01A-00	cross beam	1	weld assembly	
92	TT5D-600-01B-00	cross beam	1	weld assembly	
93	TT5DL-100-20	Steel Cable C	1		
94	TT5DL-100-20	Steel Cable D	1		
95	TT5DL-100-20	Steel Cable B	1		
96	TT5DL-100-20	Steel Cable A	1		
97		hydraulic hose	1		
98	TPF4-500-05	elbow fitting	1		
99	TPF4-500-09	nut	2		
100	TPF4-500-08	washer	2		
101	TPF4-500-07	hydraulic pump fitting	1		
102	SGM-805-20	hydraulic cylinder fitting	1		
103	JB982_77	sealing ring	1		D14