LAUNCH TECH USA INC.

LAUNCH

Installation, Operation & Maintenance Manual

Two Post Surface Mounted Lifts

TLT210-A	TLT210-AS	TLT210-XT	TLT211-AS
10,000 lb. Capacity	10,000 lb. Capacity	10,000 lb. Capacity	11,000 lb. Capacity
2,500 lbs. per Arm	2,500 lbs. per Arm	2,500 lbs. per Arm	2,750 lbs. per Arm

*Model **TLT210-AS** pictured*

IMPORTANT: **READ THIS MANUAL COMPLETELY BEFORE INSTALLING OR OPERATING YOUR LIFT**

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OWNER / EMPLOYER OBLIGATIONS

1. The Owner/Employer shall ensure that 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 Lifting it Right safety manual**; ALI/ST-90 **ALI Safety Tips card**; ANSI/ALI ALOIM-2008, **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**.

2. The Owner/Employer shall establish procedures to periodically inspect the lift in accordance with the lift manufacturer's instructions or ANSI/ALI ALOIM-2008, **American National Standard for Automotive Lifts - Safety Requirements for Operation, Inspection and Maintenance**; and the Employer shall ensure that the lift inspectors are qualified and that they are adequately trained in the inspection of the lift.

3. The Owner/Employer shall establish procedures to periodically maintain the lift in accordance with the lift manufacturer's instructions or ANSI/ALI ALOIM-2008**, American National Standard for Automotive Lifts - Safety Requirements for Operation, Inspection and Maintenance**; and the Employer shall ensure that the lift maintenance personnel are qualified and that they are adequately trained in the maintenance of the lift.

4. The Owner/Employer shall maintain the periodic inspection and maintenance records recommended by the lift manufacturer's instructions or ANSI/ALI ALOIM-2008, **American National Standard for Automotive Lifts - Safety Requirements for Operation, Inspection and Maintenance**.

5. 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-2008, **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** in a conspicuous location in the lift area convenient to the operator.

6. The Owner/Operator shall provide necessary lockout/tagout means for energy sources per ANSI Z244.1-1982 (R1993), **Safety Requirements for the Lockout/Tagout of Energy Source**s, before beginning any lift repairs and maintenance.

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

IMPORTANT SAFETY INSTRUCTIONS

1. **When using this lift, basic safety precautions should always be followed, including the following:**

2. Read all instructions in this manual and on the lift thoroughly before installing, operating, servicing or maintaining the lift.

3. Care must be taken as burns can occur from touching hot parts.

4. Do not operate equipment with a damaged cord or if the equipment has been dropped or damaged - until it has been examined by a qualified service person.

5. 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.

6. If an extension cord is necessary, a cord with a current rating equal to or more than that of the equipment should be used. Cords rated for less current than the equipment may overheat. Care should be taken to arrange the cord so that it will not be tripped over or pulled.

7. Always unplug equipment from electrical outlet when not in use. Never use the cord to pull the plug from the outlet. Grasp plug and pull to disconnect.

8. Let equipment cool completely before putting away. Loop cord loosely around equipment when storing.

9. To reduce the risk of fire, do not operate equipment in the vicinity of open containers of flammable liquids (gasoline).

10. Adequate ventilation should be provided when working on operating internal combustion engines.

11. Keep hair, loose clothing, fingers, and all parts of body away from moving parts.

12. To reduce the risk of electric shock, do not use on wet surfaces or expose to rain.

13. Use only as described in this manual. Use only manufacturer's recommended attachments.

14. **ALWAYS WEAR SAFETY GLASSES**. Everyday eyeglasses only have impact resistant lenses, they are not safety glasses.
15. Inspect lift daily. Do not operate if it malfunctions or problems have been encountered.

16. Never attempt to overload the lift. The manufacturer's rated capacity is shown on the identification label on the power side column. Do not override the operating controls or the warranty will be void.

17. Before driving vehicle between the towers, position the arms to the drive-through position to ensure unobstructed clearance. Do not hit or run over arms as this could damage the lift and/or vehicle.

18. Only trained and authorized personnel should operate the lift. Do not allow customers or bystanders to operate the lift or be in the lift area.

19. Position the lift support pads to contact the vehicle manufacturers recommended lifting points. Raise the lift until the pads contact the vehicle. Check pads for secure contact with the vehicle. Check all arm restraints and insure they are properly engaged. Raise the lift to the desired working height.

20. Some pickup trucks may require an optional truck adapter to clear running boards or other accessories.

21. **NOTE**: Always use all 4 arms to raise and support vehicle.

22. **Caution!** Never work under the lift unless the mechanical safety locks are engaged.

23. Note that the removal or installation of some vehicle parts may cause a critical load shift in the center of gravity and may cause the vehicle to become unstable. Refer to the vehicle manufacturer's service manual for recommended procedures.

24. Always keep the lift area free of obstruction and debris. Grease and oil spills should always be cleaned up immediately.

25. Never raise vehicle with passengers inside.

26. Before lowering check area for any obstructions.

27. Before removing the vehicle from the lift area, position the arms to the drive-thru position to prevent damage to the lift and /or vehicle.

28.Do not remove hydraulic fittings while under pressure.

WARNING! Failure by purchaser to provide the recommended mounting surface could result in unsatisfactory lift performance, property damage, or personal injury.

LOCATION

This lift has been evaluated for ***indoor use only*** with an operating ambient temp. range of 5 - 40°C (41-104°F)

For additional safety instructions regarding lifting, lift types, warning labels, preparing to lift, vehicle spotting, vehicle lifting, maintaining load stability, emergency procedures, vehicle lowering, lift limitations, lift maintenance, good shop practices, installation, operator training and owner/employer responsibilities, please refer to "Lifting It Right" (ALI/SM) and "Safety Tips" (ALI/ST) and vehicle lift points for service garage lifting SAE J2184.

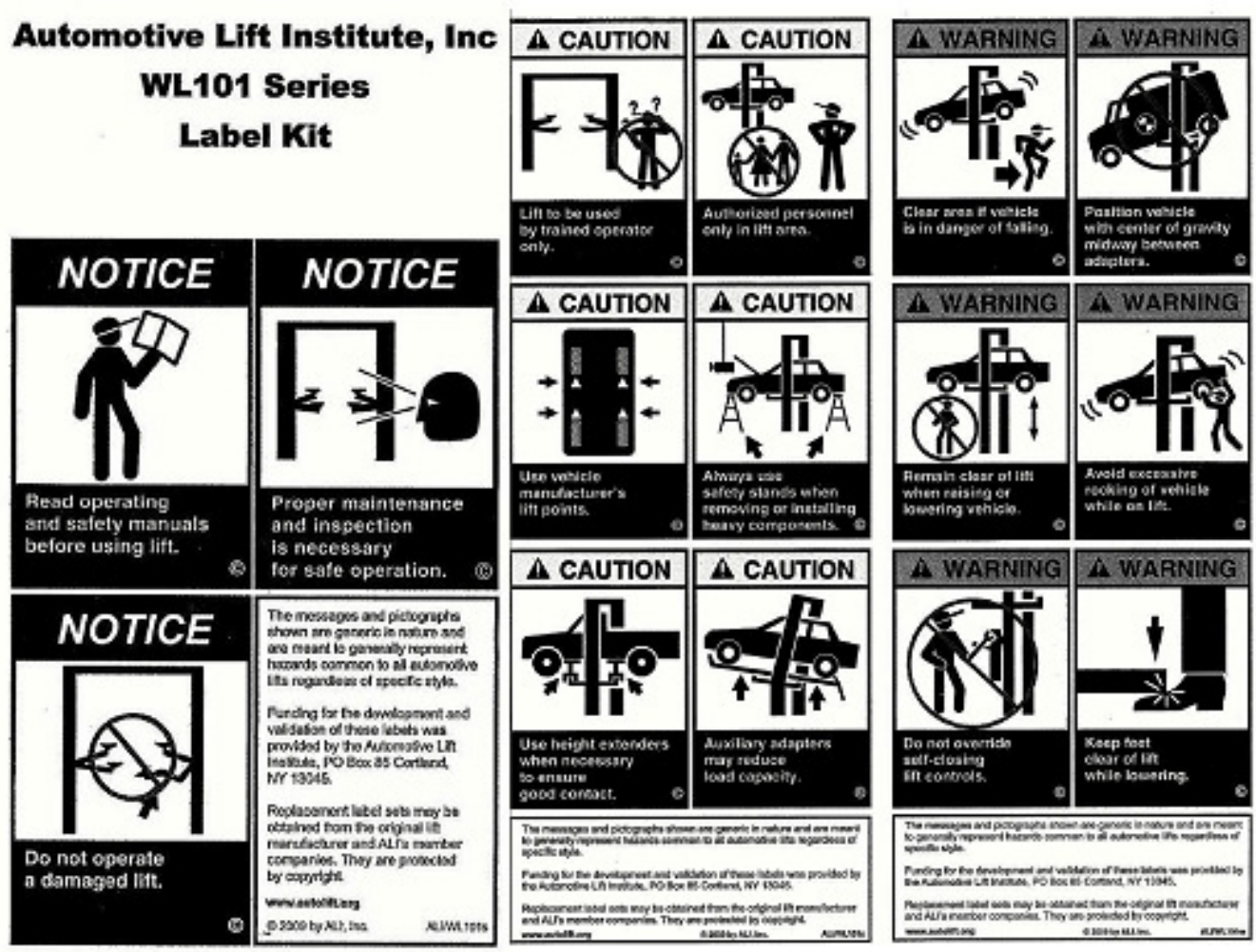
For additional instruction on general requirements for lift operation, please refer to "Automotive Lift-Safety Requirements for Operation, Inspection and Maintenance" (ANSI/ALI ALOIM).

Installation shall be performed in accordance with ANSO/ALI ALIS, Safety Requirements for Installation and Service of Automotive Lifts.

ATTENTION! This lift is intended for indoor installation only. It is prohibited to install this product outdoors. Operating environment temperature range should be 41 - 104 °F (5 - 40 °C). **Failure to adhere will result in decertification, loss of warranty, and possible damage to the equipment.**

SAFETY AWARENESS

REFERENCE: AUTOMOTIVE LIFT INSTITUTE (ALI)



SAVE THESE INSTRUCTIONS

Note: *<u>Some images in this manual are generic and may not resemble the lift you have purchased.</u>*

SPECIFICATIONS

LAUNCH TECH USA ***TLT Series Specifications***

	TLT211-AS 11,000 lb. Capacity	**TLT210-AS / XT** 10,000 lb. Capacity	**TLT-210-A / XT** 10,000 lb. Capacity
A . Maximum Lifting Height	75.6" (1920mm)	76.4" (1940mm)	76.4" (1940mm)
B. Minimum Column Height	143" (3634mm)	143" (3634mm)	143" (3634mm)
C. Cylinder Full Height	145.2" (3688mm)	145.2" (3688mm)	145.2" (3688mm)
D . Total Width	137.8" (3500mm)	136.6" (3470mm)	137.9" (3502mm)
E. Drive-Thru Clearance	96" (2438mm)	98.4" (2500mm)	92" (2338mm)
F . Floor to Overhead Switch	140" (3556mm)	140" (3556mm)	140" (3556mm)
G . Front Arm Reach (min / max)	23.6"(600mm) / 39.4" (1000mm)	23.6"(600mm) / 43.5" (1105mm)	23.6" (600mm) / 43.5" (1105mm)
H. Rear Arm Reach (min / max)	38.6" (980mm) / 61.8" (1570mm)	38.6" (980mm) / 61.8" (1570mm)	38.6" (980mm) / 61.8" (1570mm)
I . Screw Pad Height	4.3" (110mm) to 7.5" (190mm)	4.3" (110mm) to 7.5" (190mm)	4.3" (110mm) to 7.5" (190mm)
J . Inside Column Width	108" (2742mm)	110.2" (2800mm)	101.9" (2588mm)
Electric Hydraulic Power Unit	2 HP	2 HP	2 HP
Voltage	208-230Volt/60hz./Single Phase	208-230Volt/60hz./Single Phase	208-230Volt/60hz./Single Phase
Rise Speed	54 Seconds	54 Seconds	54 Seconds
Max. Load Per Arm	2750 Lbs. (1247 Kilos)	2500 Lbs. (1134 Kilos)	2500 Lbs. (1134 Kilos)
Minimum Ceiling Height Required	143.9" (3655mm)	143.5" (3644mm)	143.5" (3644mm)
Narrow Bay Setting	Non-Adjustable	Deduct 5.9" (149mm)	Deduct 5.9" (149mm)
Maximum Column Height	149" (3784mm)	149" (3784mm)	149" (3784mm)
Power Unit Operating Pressure	2750 PSI	2700 PSI	2750 PSI

Figure 1

Rise height measured with footpads in the highest position.

Lift capacity rating is based on loads equally distributed on all four arms.

Lifting and lowering speeds may vary depending on the weight of the vehicle.

PACKING LIST

The complete lift is contained in two (2) packages:
1. The **main structural components and parts** are packed in a steel frame.
2. Power Unit Box including Shutoff Switch and all Documents

Main Structural Components and Parts

1pc. - Power side tower and carriage assembly
1pc. - Slave side tower and carriage assembly
1pc. - Overhead Beam
1pc. - Actuator Bar w/ foam
1pc. - Power side column extension
1pc. - Slave side column extension
2pc. - Two front arm assembles (Three piece design)
2pc. - Two rear arm assembles (Two piece design)
2pcs. - Safety Covers w/Decals
1pc. - Hardware Package w/Packing List
1pc. - Actuator Extension
1pc. - Actuator Mounting Bracket
1pc. - Safety Release Cable
2pc. - Hydraulic Hose (Long)
2pc. - Hydraulic hose (Short)
2pcs. - Equalizing Cable w/Hex Nuts
1pc. - ALI manual "Lifting It Right"
1pc. - Automotive Lift Safety Tips
1pc. - Automotive Lift, Operation, Inspection and Maintenance Manual
1pc. - ALI" Quick Reference Guide
1pc. - Owner's manual
1pc. - Warranty Statement and Warranty Registration Instructions

1pc. - Power Unit Box with Microswitch and Document Package

INSTALLATION REQUIREMENTS AND TOOLS

FOUNDATION

IMPORTANT: It is the user's responsibility to provide a satisfactory installation area for the lift. Lifts should only be installed on level concrete floors with a minimum thickness of four inches (4") or 102 mm. Concrete must have a minimum strength of 3500 psi should be aged thirty (30) days prior to installation. Please consult the architect, contractor or engineer if doubt exists as to the strength and feasibility of the floor to enable proper lift installation and operation.

A qualified person should be consulted to address seismic loads and other local or state requirements.

It is the user's responsibility to provide all wiring for electrical hook-up prior to installation and to insure that the electrical installation conforms to local building codes. Where required, it is the user's responsibility to provide an electrical isolation switch located in close proximity to the lift that will enable emergency stop capability and isolate electrical power from the lift for any servicing requirements.

TOOLS

a. 16ft. Measuring Tape
b. Chalk Line
c. Rotary Hammer Drill
d. 3/4" diameter or 19mm diameter Masonry Drill Bit
e. Hammer
f. SAE Wrenches and Ratchet Set
g. Metric Wrenches and Ratchet Set
h. 2ft. Level
i. 4ft. Level
j. Pry Bar
k.12ft. Step Ladder
l. Side Cutters
m. Screwdrivers
n. 4" x 4" Wooden Blocks (for unpacking)
o. 4 gal. ISO 32 Hydraulic Fluid
p. Torque Wrench
q. Hydraulic Fitting Sealant Compound (DO NOT USE TEFLON TAPE) ***Launch***
****Tech USA recommends Permatex brand part number 54540***

OR Loctite brand 545 thread sealant

INSTALLATION INSTRUCTIONS

When the lift arrives on site:

Read the owner's manual and make sure the installation instructions are fully understood.

Check for any freight damages. The shipment should be thoroughly inspected as soon as it is received. The signed bill of lading is acknowledgement by the carrier of receipt in good condition of shipment covered by our invoice .If any of the goods called for on your bill of lading are shorted or damaged, do not accept them until the carrier makes a notation on the freight bill of the missing or damaged goods. Do this for your own protection. Check the contents of the accessory and hardware boxes to make sure no parts are missing.

NOTE: *IT IS DIFFICULT TO COLLECT FOR LOSS OR DAMAGE AFTER YOU HAVE GIVEN THE CARRIER A CLEAR RECEIPT. THE LIFT MANUFACTURER IS NOT RESPONSIBLE FOR ANY FREIGHT DAMAGE.*

UNPACKING PROCEDURE

Important! Place the main structural components on wooden blocks so that the steel shipping frames can be removed.

Remove Power Unit Box.

Remove the plastic wrapping.

Remove the cross member, and the actuator bar.

Remove the arms and parts boxes

Unbolt the steel shipping frames.

Lay each tower on the floor with the carriage side up.

Check the installation area for obstructions. (Lights, Heating Ducts, Ceiling, Floor Drains, etc.)

BAY LAYOUT

IMPORTANT: Always wear PPE (Personal Protection Equipment) when installing or servicing a vehicle lift.

Prepare the bay by selecting the location of the lift relative to the walls.

Clear the installation area of all packaging materials to avoid trip hazards.

Measure midpoint of door.

Using measuring tape, scribe two arcs, equal distance from the midpoint.

The centerline of the lift occurs between the intersection of the arcs and the midpoint of the door.

Note: Leave any additional room for any desired aisle or work area. Recommended minimum clearance around lift is three feet (3 ft.) and above lift is four inches (4"). Ensure clearance conforms to local building and fire codes.

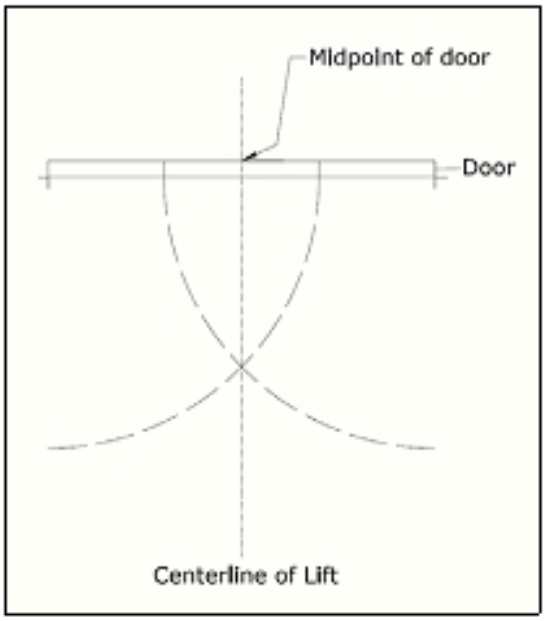


Figure 2

Measure the specified distance to draw a second chalk line at 90° for locating the lift towers. Refer to Figure 3 and Figure 4 and Figure 5 below for correct measurements.

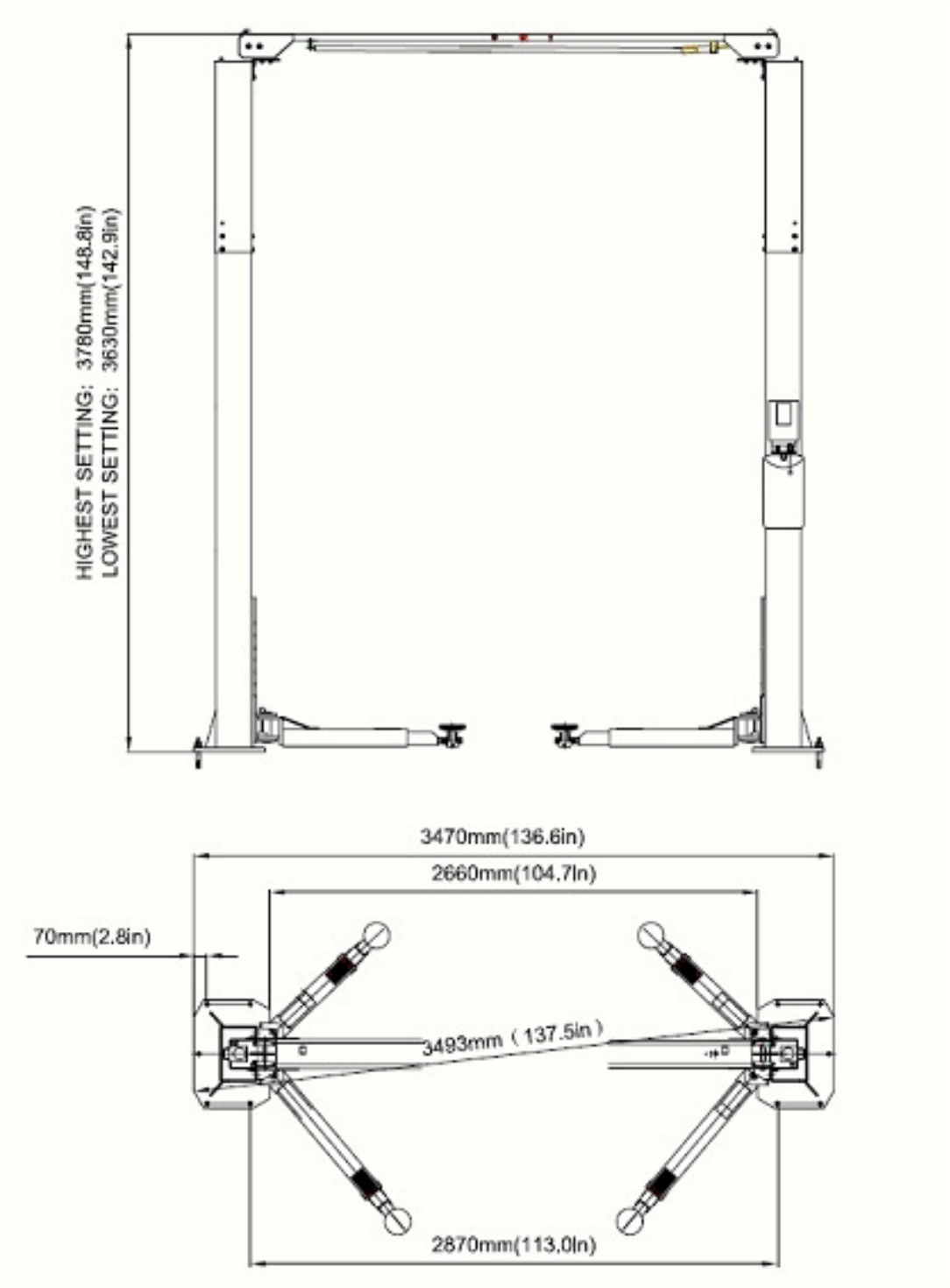
The lift is centered between the door and the walls of the area.

Mark chalk lines at the exact position of each baseplate to show that when installing the columns each baseplate will be position properly.

All the dimensions are based on the external border of the base plate.
The lift layout is very important. If not done properly, problems may occur during the final assembly and operation

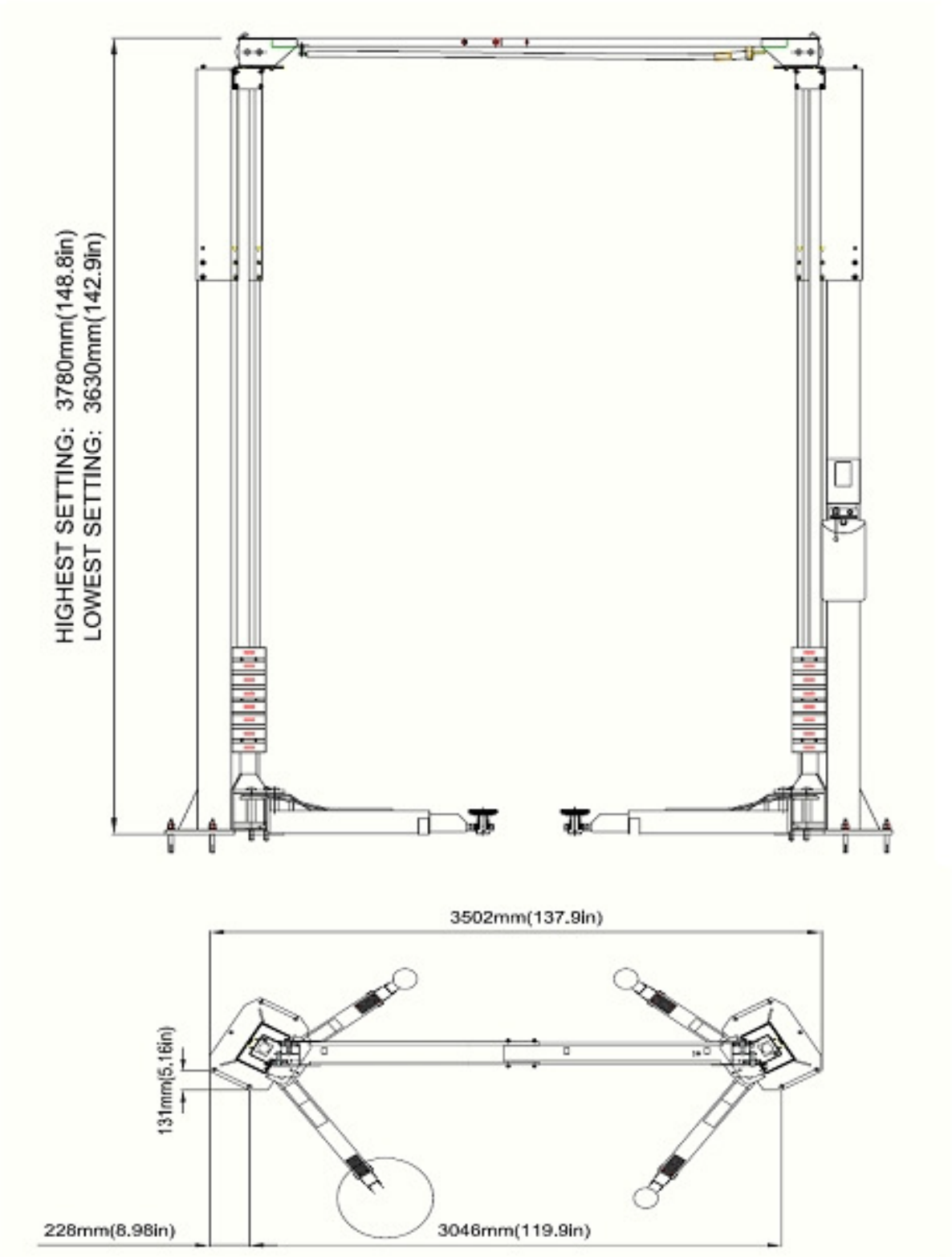
Important Notice: For narrow bay installation, deduct 5.9" (150 mm) from the width layouts.

Figure 3
TLT210-AS or TLT210-XT Bay Layout



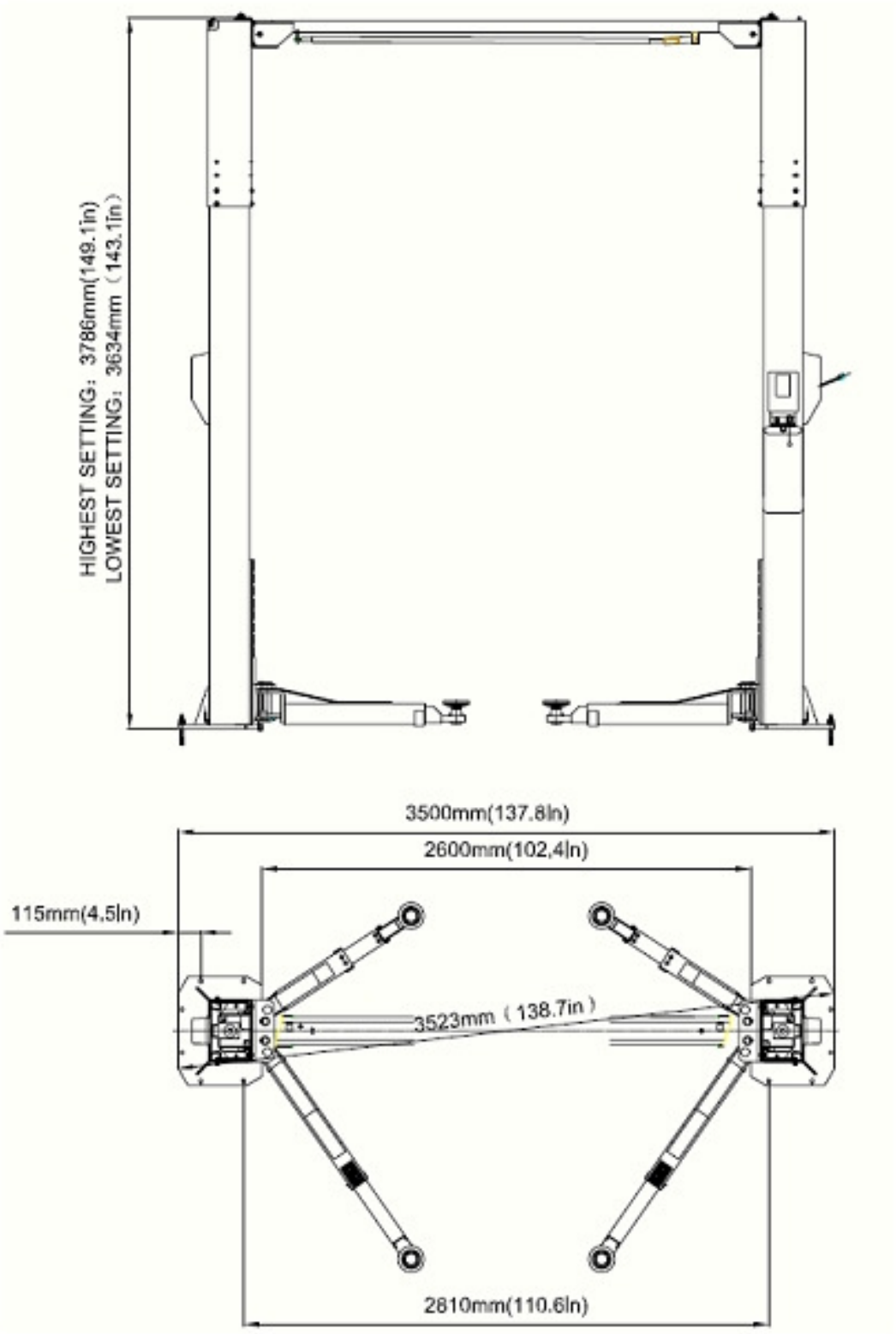
<u>Deduct</u> 150mm/5.9 in. from the width dimensions for the narrow installation

Figure 4
TLT210-A or TLT210-XT Bay Layout



***Deduct* 150mm/5.9 in. from the width dimensions for the narrow installation**

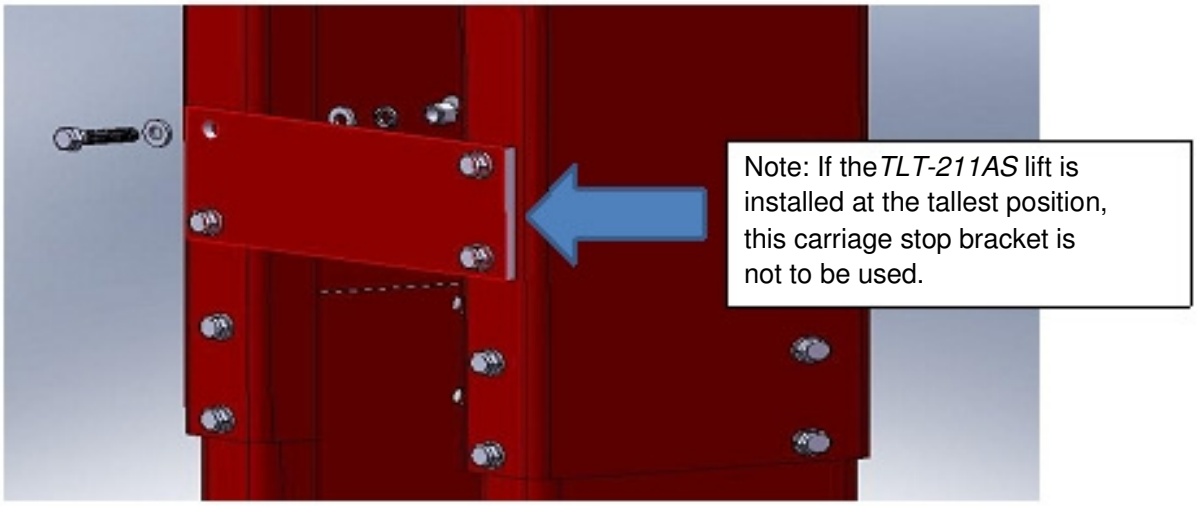
Figure 5
TLT211-AS Bay Layout



Note: *There is no narrow bay setting on the TLT211-*

COLUMN ASSEMBLE

Assemble the column extensions and the positive carriage stop brackets to each column using 12 sets of 12x35 hex bolts, flat washers, lock washers and nuts. Repeat for opposite column and extension. Determine if the lift will be in the tallest or lowest position at this time. *Note that the TLT211-AS column extensions are already assembled and may be preassembled at either the short or tallest position. It is recommended that the TLT211-AS lift be installed at the tallest position to accommodate large and taller vehicles. Recheck the bolt tightness on the TLT211-AS as the bolts may have loosened from shipping and handling. See illustration below for reference. (Tallest position shown below)*



INSTALLING THE COLUMNS

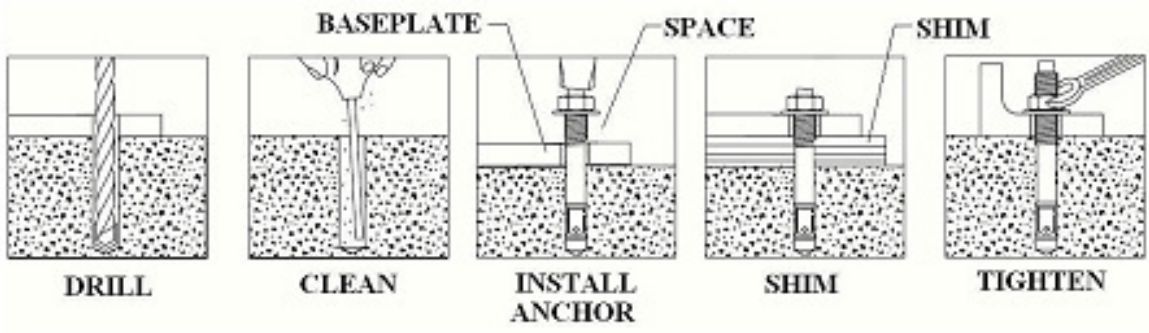
Raise the completed power side column upright to the chalked location. Align the baseplate of column with the chalk line layout. Using the baseplate as a template, drill holes into the concrete slab and use the five concrete anchor bolts to attach the column to the floor. (*Note: the TLT211-AS lift uses six (6) anchor bolts*) During the drilling process, do not allow any movement of the column from the chalk line.

Note: Power side column should always be installed first. After the power side column is installed the slave column is raised into position but not anchored to the floor. Installing the overhead beam must be completed before the slave side column is anchored to the floor.

Use a four foot level on both sides of the column and use shims under baseplate to level the column in both directions. Ensure that the base plate is completely supported by shims including near the center where it does not contact the floor.

Refer to Bay Layout Figures about to ensure that the column is still in the proper position before the anchor bolts are installed

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



Using a ¾" concrete drill bit and rotary hammer drill, drill ¾" holes for the anchor bolts on the power side column. Drill through the concrete floor. (In case longer anchors are required, supplied anchors can be hammered through concrete).

Clean out the drilling dust from the holes and place anchor bolts into the hole. Add the washers and nut to the so that the top of the anchor bolt and top of the nut are flush with each other then hammer in the anchor bolts until they make contact with the baseplate. **Hand tighten all anchor bolts.**

Check that the column is level front to rear and side to side. Adjust shims as required.

Torque all anchor bolts to 125 ft.-lbs. continually checking that the column is level as you proceed.

***USE ONLY A TORQUE WRENCH TO TIGHTEN THE ANCHOR BOLTS DO NOT USE AN IMPACT GUN TO INSTALL OR TIGHTEN THE ANCHOR BOLTS*.**

If anchor bolts do not tighten to 125 ft.-lbs. OR project more than 2 ¼" above the concrete surface due to floor slope, the concrete should be replaced by an appropriate concrete pad. (Consult Product Manufacturer Supplier for further details).

At this time the slave column should be raised into position and aligned with chalk marks on the floor. ***DO NOT ANCHOR THE SLAVE COLUMN AT THIS TIME.*** Use caution to not move the slave column as is may tip over.

INSTALLING THE OVERHEAD BEAM

After positioning the slave column at the designated chalk location; assemble the overhead beam on the shop floor to either the narrow or widest lift width hole positions as determined by the chalk line measurements. *See the photo below for illustration.*

While the overhead beam is still on the shop floor install the provided 4 pulleys (sheaves). Two (2) pulleys on each side of the overhead beam using the parts shown below. Note: Asymmetric installation (rotated column position as shown in figure 5) requires the pulleys to be installed offset to each other using two (2) axles and related parts. Symmetric installation (as shown in figure 4) requires the pulleys to be installed on a common axle using the related parts. *See related photos below.*

Note: *Some TLT210 series models may already have the pulleys installed. The TLT211-AS model has the pulleys pre-installed at the factory. If this is case, disregard the instructions below and proceed to the next phase of installation.*

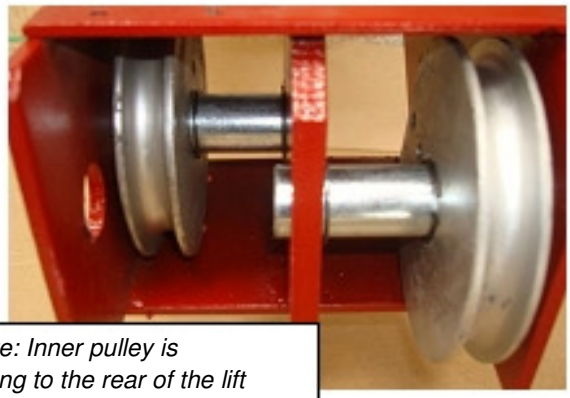
ASYMMETRIC PULLEY INSTALLATION

Use the 4 pulleys (sheaves) located in the parts packaging combined with the parts in the packet marked "Asymmetric Installation" to install the pulleys for an Asymmetric configuration. Below is what is contained in the asymmetric parts packet.

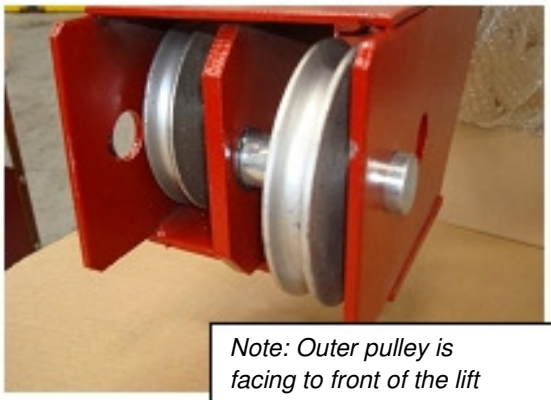
No.	Name and Specs	Part Number	Qty.	Picture
1	Asymmetric shaft	103200966	4	
2	Spacer Ⅱ (Wide)	201011257	2	
3	Spacer Ⅰ (Narrow)	201011258	2	
4	Retainer Ring 25	103050035	8	

Asymmetric Pulley Configuration Continued….

The photo below illustrated the proper alignment and placement of the pulleys into the overhead beam. Note that the outer pulley is positioned on the overhead beam in the outer most axle holes and that it is closest to the front of the lift. The inner pulley is positioned in the inner most axles holes and is mounted toward the rearward area of the lift. When installing the opposite set of pulleys they must correspond exactly as the first set of pulleys that you installed.



Note: Inner pulley is facing to the rear of the lift



Note: Outer pulley is facing to front of the lift

Symmetric Pulley Assemble shown on the following page

SYMETRIC PULLEY INSTALLTION

Use the 4 pulleys (sheaves) located in the parts packaging combined with the parts in the packet marked "Symmetric Installation" to install the pulleys for a Symmetric configuration. Below is what is contained in the symmetric parts packet.

No.	Name and Specs	Part Number	Qty.	Picture
1	Symmetric shaft	103200967	2	
2	Spacer Ⅱ (Wide)	201011257	2	
3	Spacer Ⅰ (Narrow)	201011258	2	
4	Cotter Pin 5x40	103060349	4	
5	Retainer Ring #25	103050035	4	

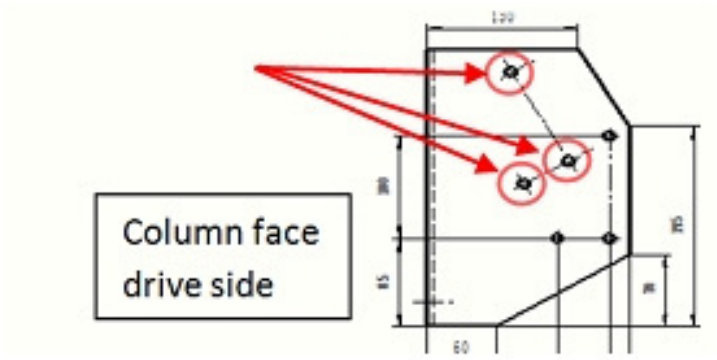
Symmetric Pulley Installation Continued…

The photos below illustrate the proper alignment and placement of the pulleys (sheaves) into the overhead beam. Note that both pulleys are positioned on the overhead beam sharing a common axle and the axle is positioned in the outer most axle holes and that is closest to outer most area of the overhead beam. Install both sets of pulleys on each end of the over beam to exactly match each other.

ASYMETRIC OVERHEAD BEAM INSTALLATION

Lift the overhead beam to the level of the column tops and use the provided fasteners to attach it to the upper columns and the transitional brackets. If you are installing for an Asymmetric configuration the column mounting bolts must be aligned as show below. ***IMPORTANT: HAND TIGHTEN THE BOLTS ONLY AT THIS TIME***

The drawing below outlines where the overhead beam bolt positions are used on the transitional brackets



Figure

SYMETRIC OVERHEAD BEAM INSTALLATION

Lift the overhead beam to the level of the column tops and use the fasteners to attach it to the upper columns and the transitional brackets. If you are installing for a Symmetric configuration the column mounting bolts must be aligned as show below.

IMPORTANT: HAND TIGHTEN THE BOLTS ONLY AT THIS TIME

The drawing below outlines where the overhead beam bolt positions are used on the transitional brackets

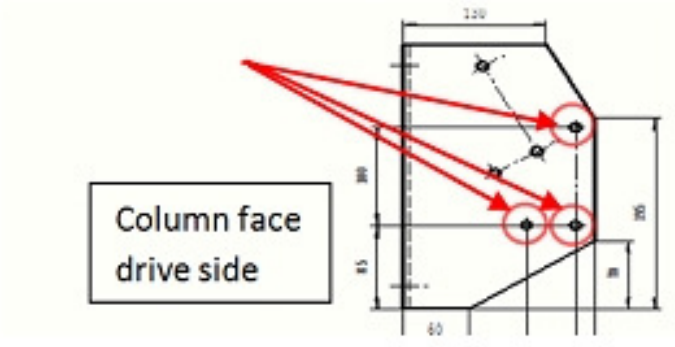


Figure 6

When installing the overhead beam, ensure the microswitch support *(It is the U-shaped bracket welded to the bottom of the overhead beam)* is adjacent to the power side column location. This will allow you to route the microswitch cord through the end of the overhead beam and down the outside of the power unit column.

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Note: *Since the idler column is not secured to the floor by the bolts at this stage, be careful to not move the idle column as it is not anchored to the floor.*

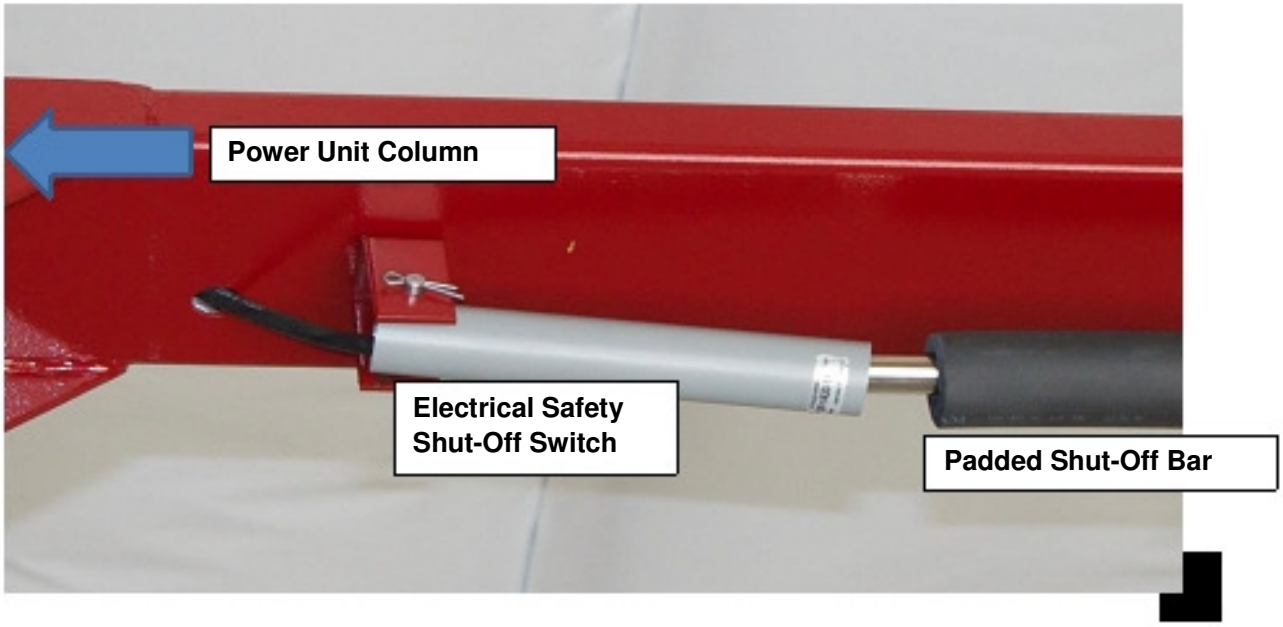
SLAVE SIDE COLUMN INSTALLATON

Measure the distance between the top and bottom of each column to insure the columns are parallel to each other. Finish leveling, anchor bolt drilling, shimming if needed and the anchor bolt installation of the slave side column at this time as instructed above for the power unit column..

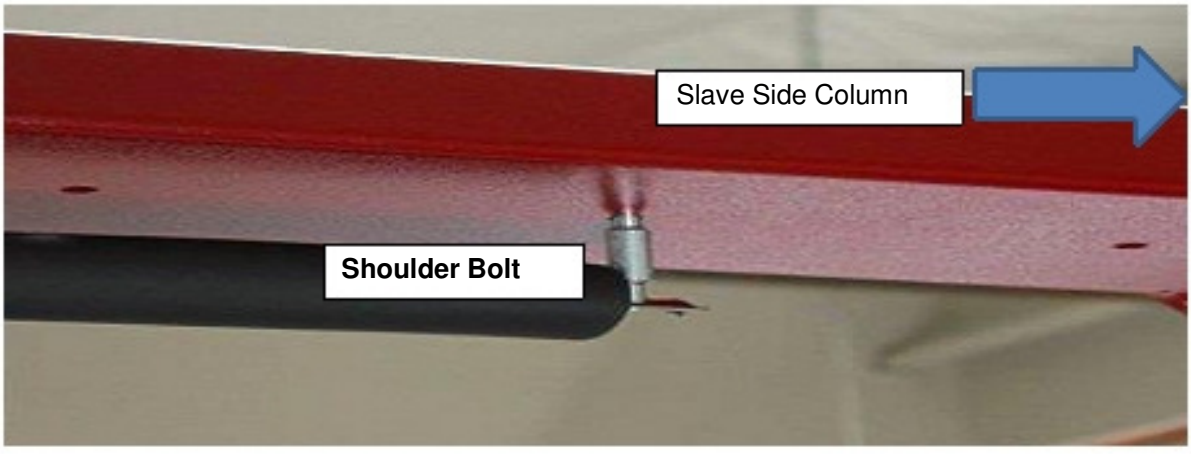
After the slave side column has been installed proceed back to the overhead beam section and tighten all connection bolts and nuts of the overhead beam and the transitional brackets before proceeding to the next section.

INSTALLING THE PADDED SAFETY BAR AND SHUTOFF SWITCH

Install the safety shut-off electrical switch to the bracket on the underside of the overhead beam adjacent to the power unit column. Use the provided shoulder bolt and cotter pin to attach to the bracket and then route the electrical cord up into the overhead beam via the small hole next to the bracket. When this is done the shut-off switch will be in a vertical position. When the shut-off bar is installed shut off bar will protrude into the open end of the safety switch as *shown in the photo below*.



After inserting the rounded end of the shut off bar into the electrical switch *(as shown above)* connect the flatted end of the padded shut off bar to the underside of the overhead beam adjacent to the slave side column using the provided should bolt and nut. *See photo below for reference*.

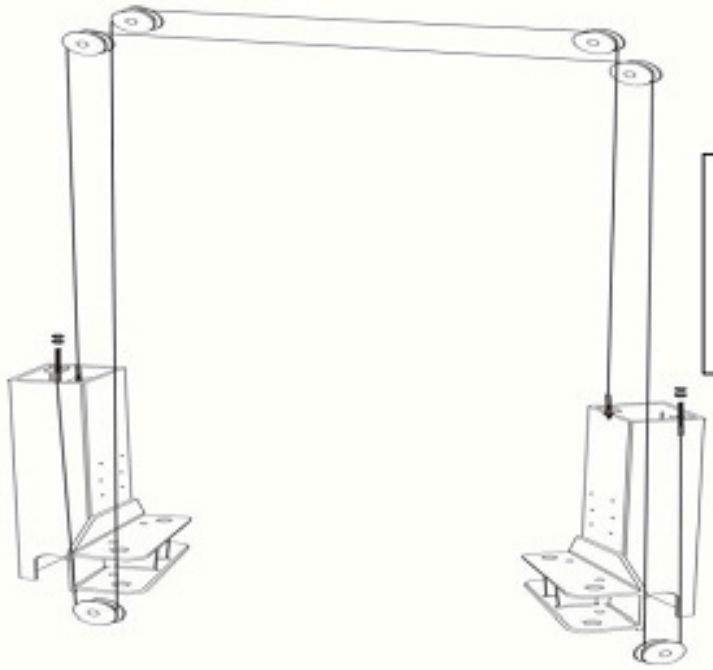


Note: The Electrical Shutoff Switch cord will be connected when the power unit is installed.

INSTALLING THE EQUALIZATION CABLES

INSTALLATION AND ADJUSTMENT OF EQUALIZING CABLES

1. Raise the two carriages to the first safety locking position (make sure that the safety locks on each column are fully engaged before attempting to install cables), and the two carriages are in equal position from the floor (same height).
2. Remove the equalizing cables from the accessory kit box, and nuts from the hardware kit.
3. Refer to **Figure 21** as you read this section.



Key points for assembly: the two steel cables shall be adjusted to equal tension in order to verify the simultaneous movement of the two carriages.

Figure 21: Equalizing Cable Installation

4. Route the short threaded stud end of the cable up through bottom of the carriage then through the hole at the top.
5. Assemble a nut to the middle of the treaded end, then firmly tighten a second nut up against it using two wrenches.
6. Pull the cable back down until the nuts contact the top of the carriage.
7. At the bottom of the column find the assembled pulley (sheave). Notice that the pulley has a small half-moon shaped section removed from the pulley. After you have slid the cable under the beveled section of the pulley, use the provided metal disc and bolt and attach it to the pulley. See **Figure 22**.

Note: For the widest and tallest configuration the cables must be connected to the lowest innermost hole inside the carriage. For *either* the narrow or shortest configuration the cables must be connected to the middle hole inside the carriage. For *both* the narrow and shortest configuration the cables must be connected to the top hole inside the carriage and you must use the cable tube extensions (They look like a 1"x6" diameter pipe) so the cable bolts can be tightened.

Figure 22: Lower Pulley install

Route the equalizing cable up to the corresponding overhead pulley and across to the pu
on the opposite side of the overhead.
Then route the cable down and through the hole at the top of the carriage.
. Assemble one nut to the treaded end and tighten until all visible slack in the cable is rem
Then firmly tighten a second nut up against it using two wrenches.
. Repeat these steps for the other cable.
. The steel cables should be tight in equal tension..

⚠**Note: Before operating the lift checks the steel cables and verify they are not intersected and are properly installed. Make sure that the steel cables are still on the sheaves.**

HYDRAULIC HOSE INSTALLATION

Refer to the drawing below for the hydraulic hose location.
Please reference the hydraulic hose instructions preceding the drawing.

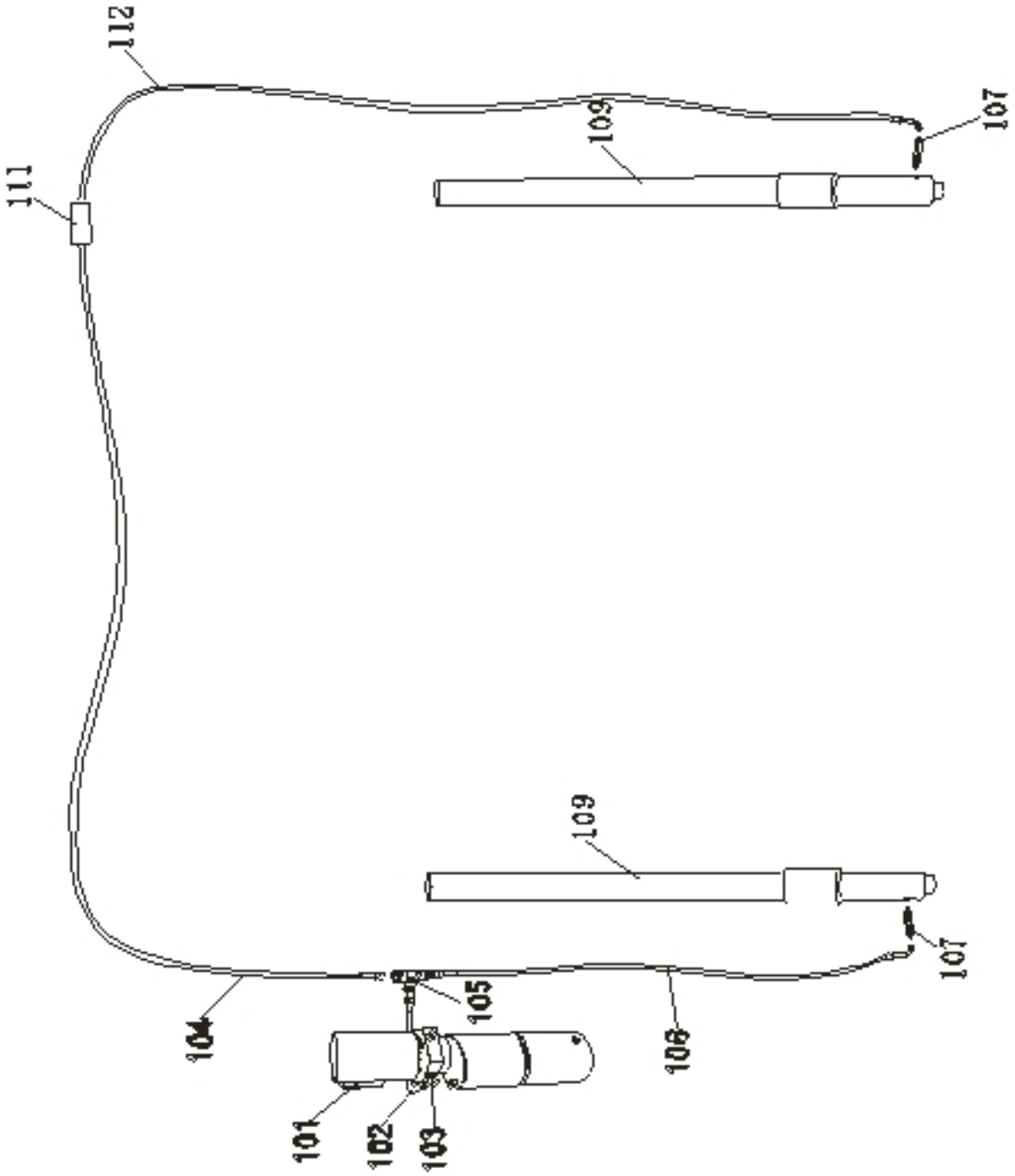


Figure 7

Hydraulic Hose Installation continued…

After referring to the drawing above install the hydraulic hoses in this sequence.

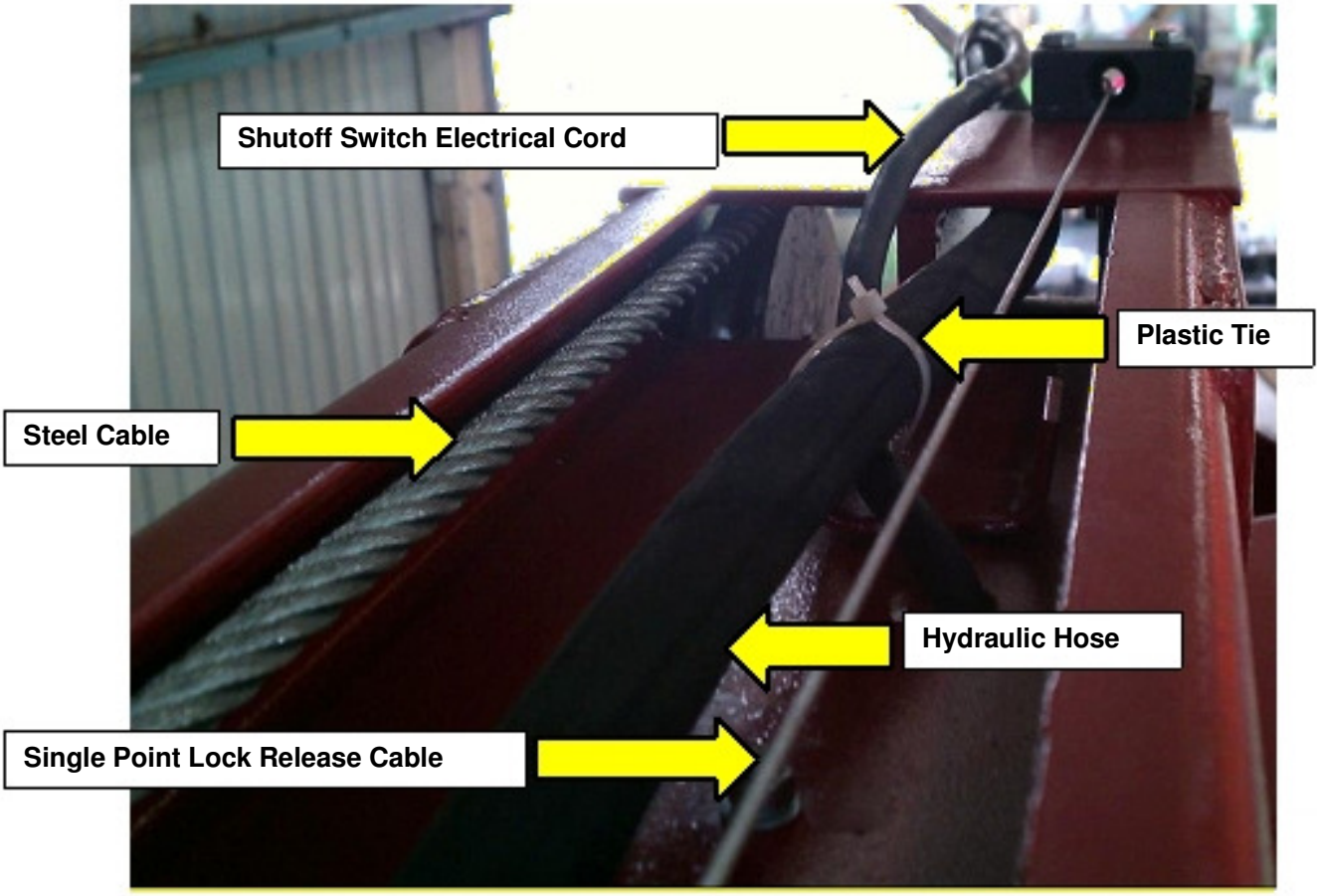
Notice: ***DO NOT USE TYFLON TAPE ON ANY HIGH PRESSURE FITTTINGS. THIS ABOVE GROUND TWO POST LIFT UTILIZATES ONLY HIGH PRESSURE HYDRAULIC OIL FITTINGS. TYFLON TAPE IS ONLY DESIGNED FOR LOW PRESSURE WATER PIPE.*** Use only high pressure oil sealant compound to the male and female threads. Failure to properly seal the hydraulic lines and fittings could result in hydraulic leaks and or hydraulic failure. Hydraulic leaks due to improper installation will not be covered by warranty or any manufacturer liability.

1. Remove the plastic pugs from the base of the hydraulic cylinders and attach the two (2) flow control valves. (Item #107 above) Use a high pressure oil sealant when installing these valves to prevent leakage. Be careful to not over tighten these threads.
2. Install the short hydraulic hose (Item # 106 above) to the power side column cylinder connecting at the flow control valve.
3. Install the "T" fitting to the short hydraulic hose. (Item 105 above)
4. Connect the long hydraulic hose (Item #104 above) to the "T" fitting.
5. Connect the medium length hose (Item #112) to the long hydraulic hose using the hose connector (Item # 111) midpoint inside of the overhead beam assemble.
6. Connect the medium length hydraulic hose to the flow control valve (Item #107) on the slave side column.

Note: The hydraulic hose that go through the overhead beam must be positioned inside the hose brackets mounted in the base of the overhead beam to protect the hoses from rubbing on the equalizing cables. Use the provided plastic zip ties to attach the hose to the three (3) brackets to prevent movement. *See photo below for reference*.

SAFETY SHUTOFF SWITCH

It is very important to keep proper clearance between shutoff switch electrical cord and the steel cable. Use the provided plastic ties to connect the electrical cord and hose together to avoid any possible damage caused by interference between the electrical cord and the steel cable.



The electrical cord will route over the outer edge of the overhead beam as shown above and downward to the power unit junction box.

POWER UNIT INSTALLATION

1) Remove the power unit from the shipping box.
2) Remove the red plastic plug on the oil tank.
3) Remove the black breather cap on the lower section of the oil tank.
4) Install the black breather cap into the fill hole at the top of the tank.
5) Install the red plastic plug into the hole at the bottom of the tank.
6) After removing the plastic plug on the side of the power unit valve body install the 90 degree hydraulic fitting using high pressure sealant compound. DO NOT USE TEFLON TAPE.
7) Use the provided bolts and washers to secure the power unit to the power unit mounting bracket.
8) Use 5/16x18 bolts and washers (see fig. 8) to secure the power unit.

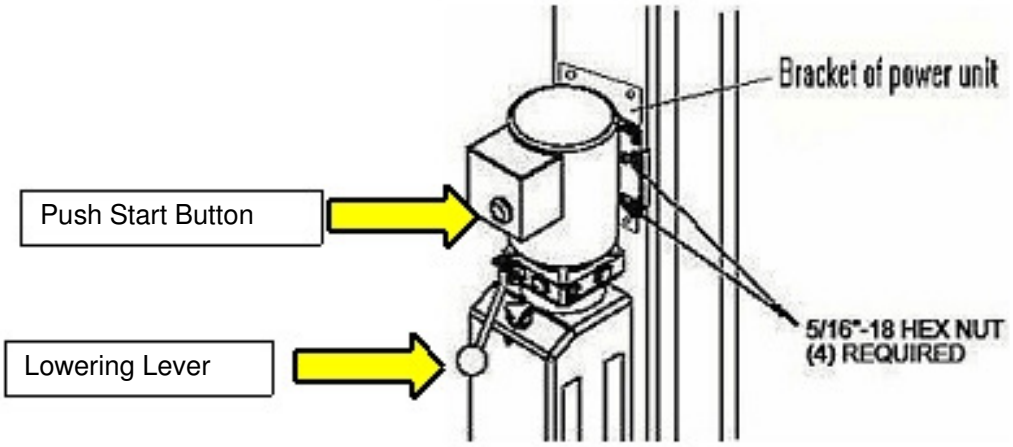


Figure 8

After the securing the power unit to the column, remove the black breather cap and fill the reservoir with approx. 4.5 gallons (18 liters) of ISO-32 hydraulic oil (10 weight hydraulic oil) DO NOT USE TRANSMISSION FLUID or reclaimed hydraulic oil. Use of transmission fluid or reclaimed hydraulic oil will void the manufacturer's warranty.

Note: *Use caution to avoid dust and other pollutants mixing with the hydraulic oil while filling the power unit by using a clean funnel and clean paper strainer.*

After the power unit has been mounted, install and connect the one remaining short hydraulic hose to the 90 degree elbow and connect to the "T" fitting.

For lifts that have an SPX brand power unit, review the wiring diagram that is attached to the inside cover of the push button junction box.

CONNECTING THE POWER SUPPLY

1) A **certified electrician** must connect the 230Volt/1Ph power unit and the overhead Shutoff Switch to the electrical supply.
2) Remove the sealed cover on the electrical junction box on the power unit and connect the wiring according to the wiring diagram. See Figure 9
3) A power supply switch is required to be installed near the lift for rapidly disconnecting the electrical power supply during maintenance or in case of emergency.

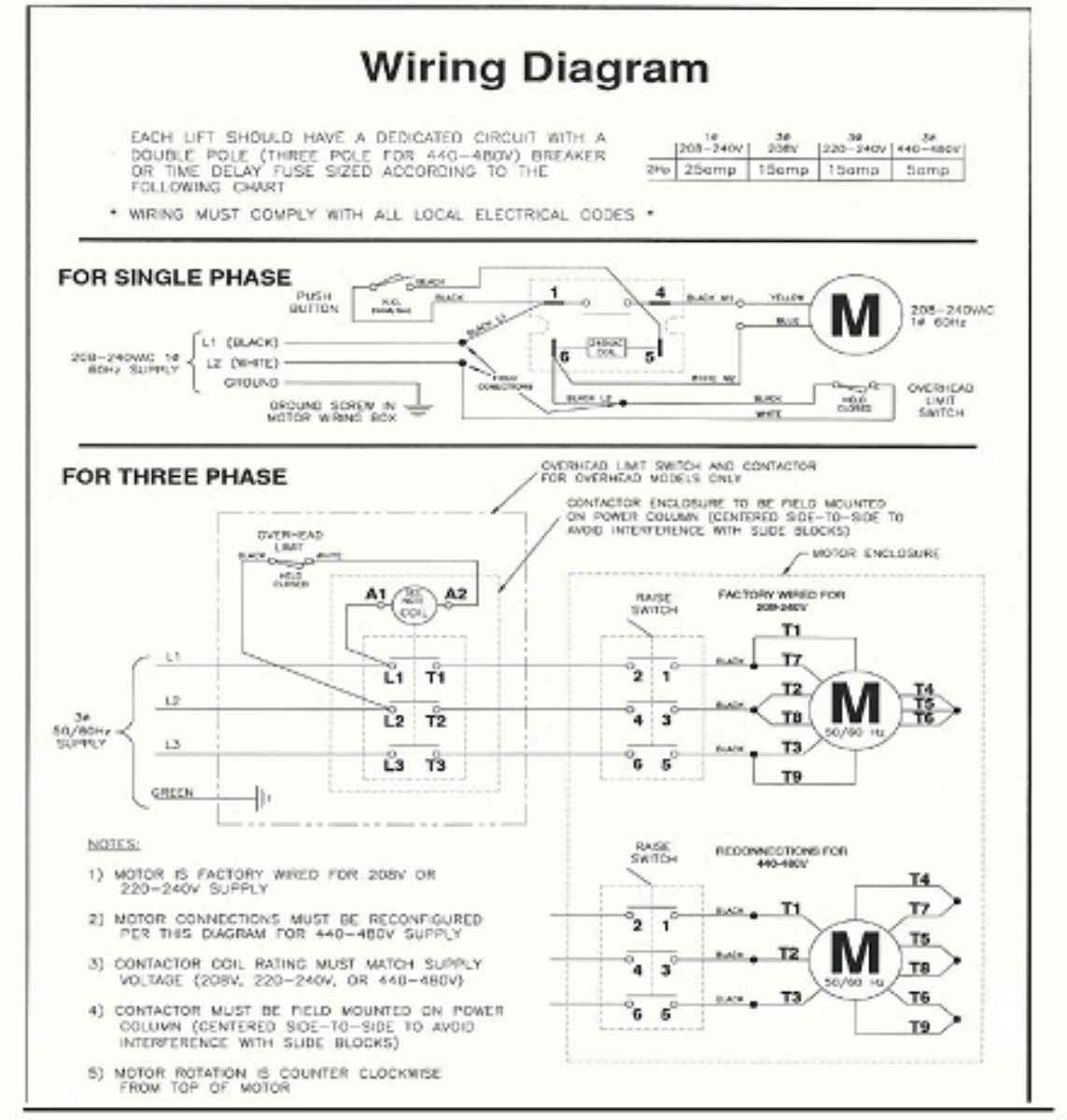
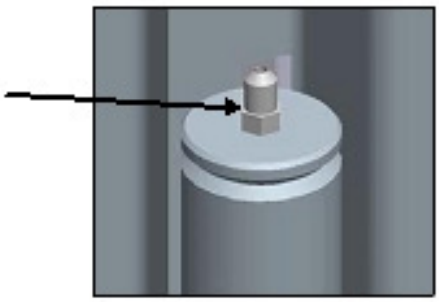


Figure 9

Note: ***Motor damage due to improper wiring is not warranted.*** **Verify if the oil tank is full; do not operate if there is no oil. After pressing the up button, if the power unit does not run or makes unusual noises or has excessive heat stop the power unit immediately and check of proper electrical connections.**

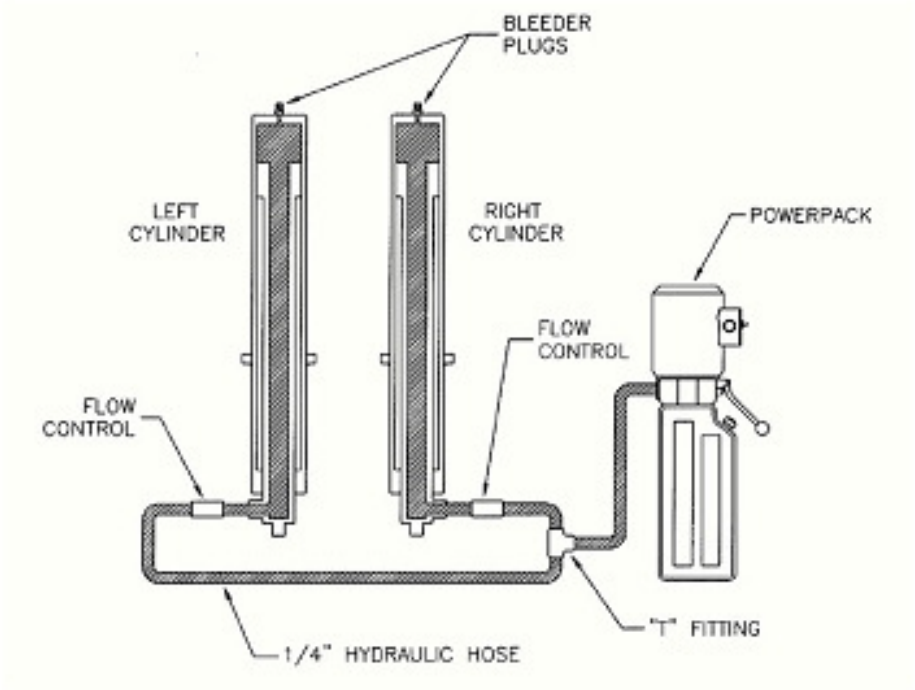
HYDRAULIC SYSTEM BLEEDING

Crack the bleeder valve located at the top of both cylinders (approx. ¼ turn)

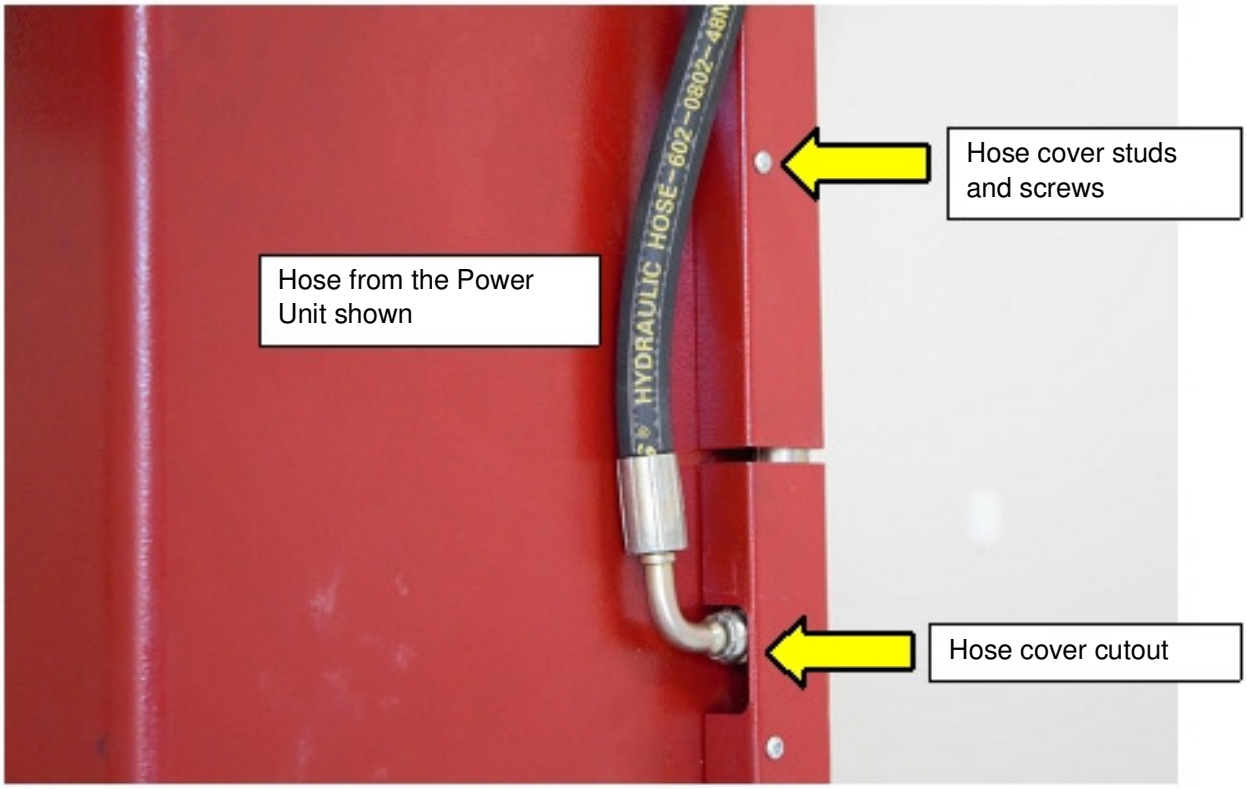


Power up 2"-3". You should hear air escaping around the bleeder valve. Repeat 3 - 4 times or until only oil is coming out of the bleeder valve.

Tighten the bleed screw and lower the lift and recheck oil tank level.



After bleeding the hydraulic system and checking for leaks, install all of the metal hose covers. In the parts box you will find small threaded bolts with the top of the bolt drilled and taped. Install these bolts into the predrill holes on the side of each column. On the power unit side at the hydraulic "T" fitting a special hose cover with a cutout to allow for the "T" connectors shall be used. Cover each section of the hose and then use the marching bolts to attach the hose covers to the special predrilled bolts. Reference the photo below that shows the "T" fitting and hose covers.

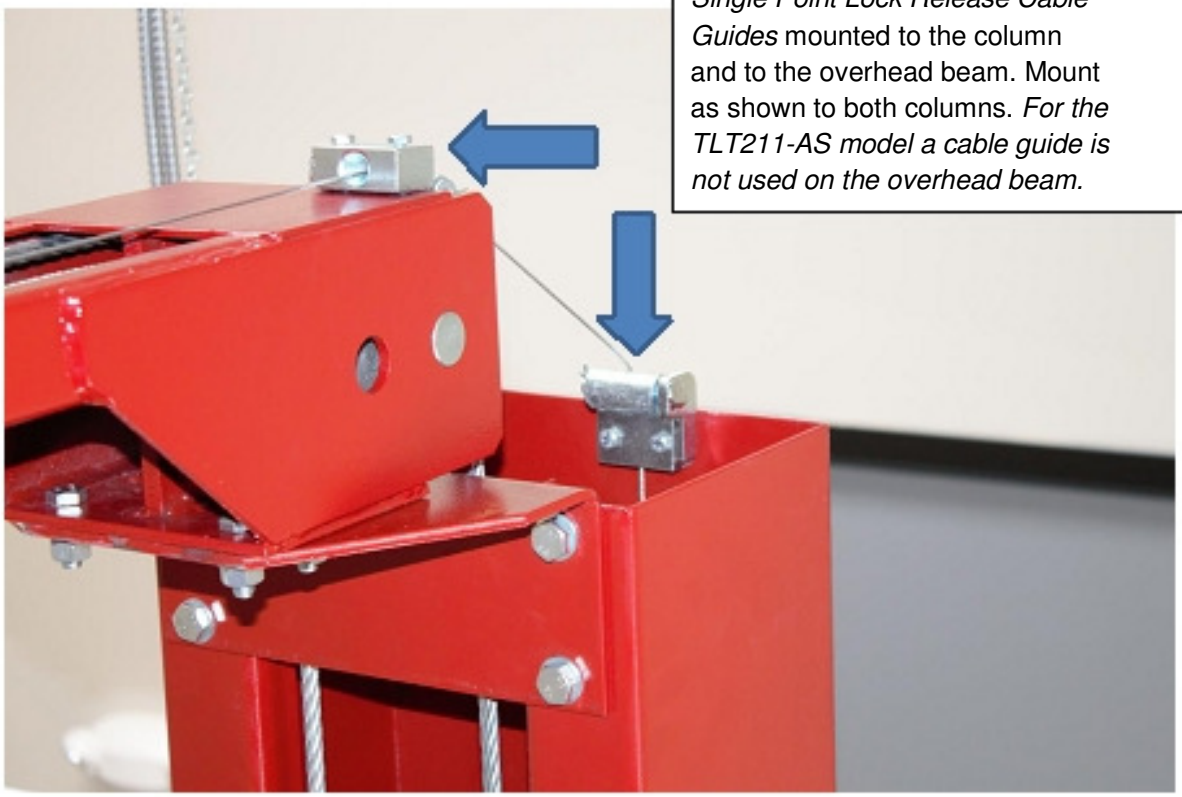


SAFETY RELEASE CABLE ROUTING AND ADJUSTMENT

The mechanical safety automatically engages. To release the mechanical safety, you must first raise the lift approximately 2", and then pull the safety release lever down. This disengages the power side safety locks and activates the safety cable to release the slave side safety lock.

Included in the parts packaging you will find the extra-long steel single point lock release cable, cable clamps and four (4) metal cable guides and two (2) white nylon cable guides with two (2) small retaining rings.

Using the provided bolts attach one metal cable guide to the inner edge at the top of each column. Attach another metal cable guide to the outer inside edge of the overhead beam. *See the photo below for reference*.

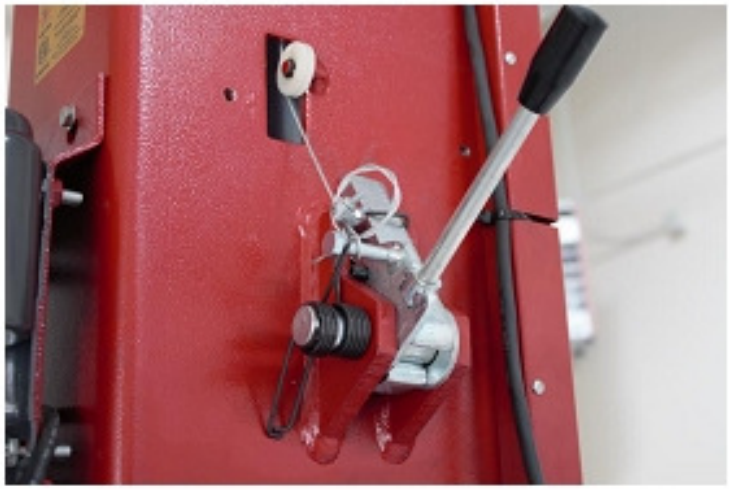


Single Point Lock Release Cable Guides mounted to the column and to the overhead beam. Mount as shown to both columns. *For the TLT211-AS model a cable guide is not used on the overhead beam.*

Attach the two (2) provided white nylon cable guides using the retaining rings onto the horizontal metal post just above the carriage locking mechanism on the slave side column. Inspect the metal post for any paint overspray and clean with sandpaper if necessary. Use a small amount of general purpose grease on the metal post prior to installing these cable guides. Attach the steel cable to the large metal post on the slave side column side using the provided cable clamps. *See the photo below for reference.*

Slave Side Column

Next route the steel cable under the nylon cable guide as shown above on the inside of the column and up into the bottom hole of the metal cable guide on the mounted on top of the column. Continue to route the cable over the top of the metal roller wheel on the metal cable guide and over the top of the metal cable guide mounted on the overhead beam and exit on the metal cable guide hole as shown in the metal cable guide photo above. Complete the routing of the cable across the overhead beam and down the power unit column repeating the same route used on the slave side column. Route the steel cable through the white nylon cable guide ABOVE the carriage release on the power unit side and then connect the cable as shown below.



Power Unit Column

Adjust the slack in the single point lock cable at the power unit side so that when the release lever is pulled down both carriage locks will disengage. Tighten the cable clamps and install the carriage lock covers on each side with the four (4) provided screws. *(Factory tip: Adjust the cables to release the locks just before the lock release lever has reached maximum travel…this prevents overstretching the cable).* At this time install the carriage lock covers and install the release lever on the power unit column.

INSTALLING THE LIFT ARM ASSEMBLES

All four (4) arms come completely assembled. The long 2-piece arms are mounted to the rear of the lift and the shorter 3-piece arms are mounted to the front of the lift.

Insert the arm assembles in the correct gaps in the carriage. Align the holes in the carriage with the holes in the carriage and insert the metal arm pivot pins. Repeat for all arms. When the arms pivot pins have been installed use the provided metal retaining rings and attach them to the grooves in the bottom edge of the arm pivot pins to prevent these pivot pins from moving upward. *See photo below for reference.*

FOOTPAD EXTENSION STORAGE

Attach the two (2) footpad extension storage brackets one to each column using the two (2) metal screws. *Store the footpad extensions as show in the photo below.*

At this time operate the lift up and down 2-3 times and re-adjust the equalization cables if needed so the carriage locks engage equally.

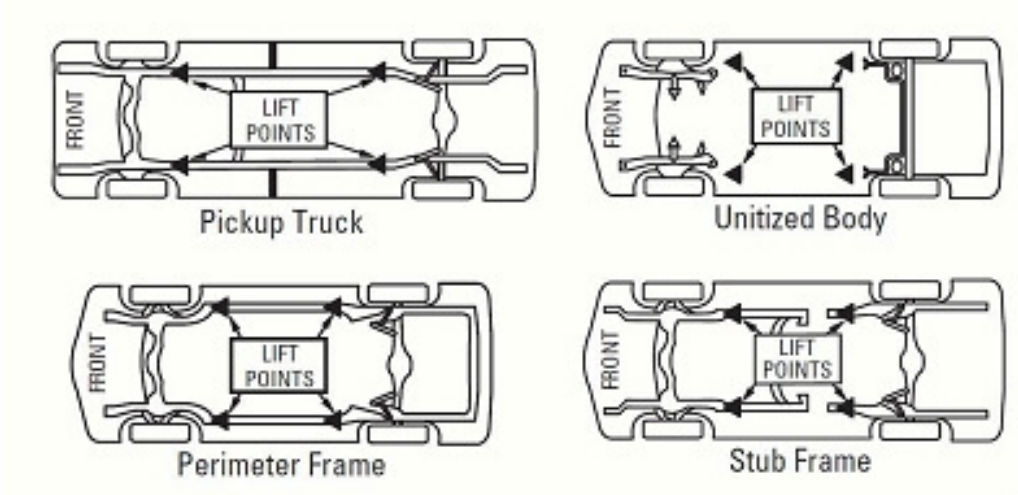
FINAL CHECK OF ASSEMBLED LIFT

1. Final dimension check after anchoring	
2. Check for hydraulic leaks.	
3. Ensure cables are properly routed and free from obstructions.	
4. Check jam nuts on cables are tightened.	
5. Check for oil leaks.	
6. Check adjustment of safety release cable to ensure both sides are working properly.	
7. Re-check level of towers.	
8. Check torque of anchor bolts.	
9. Check all fasteners, tighten if necessary.	
10. Check shut off at top of stroke to ensure lift shuts off.	
11. Check proper operation of arm restraints.	
12. Operate lift to full stroke then lower to ground while checking for proper functionality.	
13. Check proper operation of arm restraints.	
14. Ensure all documents listed below are given to the owner.	
15. Operation Manual	
16. ANSI / ALI Lift It Right Manual	
17. ANSI / ALI Safety Tip Card	
18. ANSI / ALI ALIS Safety Requirements for Installation	
19. ANSI / ALI Quick Reference Guide	
20. Train end user on operation of lift.	

OPERATING INSTRUCTIONS

Read and understand all safety and operation labels on the lift. Refer to the "**Lifting it Right**" manual and "**Safety Tips**" card supplied to you for additional important instructions and information.

NOTE: Some vehicles may have the manufacturer's Service Garage Lift Point locations identified by triangle shape marks on its undercarriage (reference SAE J2184). Also, there may be a label located on the right front door lock face showing specific vehicle lift points. If the specific vehicle lift points are not identified, refer to the "Typical Lift Points" figure below or the ANSI/ALI **Lift Point Guide** included with your lift.



1. Position arms to drive-thru position.
2. Refer to supplied literature prior to loading vehicle. Center the vehicle between the lift posts.
3. Only lift the vehicle on the manufacturers recommended lift points. Refer to supplied lift points guide (reference ANSI/SAE J2184-1992).
4. Locate lift pads on auto manufacturer's recommended lift points. Once you have correctly positioned the lift arms, ensure that all arm restraints are properly engaged.
5. Raise the vehicle by pushing the "UP" button on the power pack until the vehicle's suspension has left the ground.
6. Inspect to make sure there is no interference with any objects and for proper engagement of the lifting pads.
7. Shake vehicle moderately by pushing on either the front or rear bumper. Visually inspect the lifting pads again. If the vehicle starts slipping on the lifting pads, or otherwise appears unstable on the lift, you have positioned the swing arms and adapters incorrectly. Carefully lower the lift and start over.
8. When satisfied, continue lift the vehicle to the desired working height, lower onto the mechanical safety using the lowering lever.
9. Once vehicle is ready to be removed, raise lift so that the mechanical safety can be released. Pull down and hold the mechanical safety release lever, then press the hydraulic lowering lever until the lift has fully collapsed to the grounds and the arm restraints are disengaged.
10. Swing the lift arms to the drive-thru position prior to moving the vehicle.

OPERATION TEST WITH VEHICLE

Prior to starting this section, please refer to Section 2 of this manual for important safety instructions.

1. Lower lift to ground.
2. Drive vehicle on to lift and locate the arms as per the "Lift it Right" manual.
3. Raise lift to and lower onto 3-4 lock positions during full rise to ensure all locks are working correctly.
4. Re-adjust cables if necessary while vehicle is on.
5. Check lowering speed and smooth decent rate.
6. Lower lift to ground and drive vehicle off lift.

If any problems occur during the final checkout or operation of the lift please contact your lift distributor, sales representative or the manufacturer.

MAINTENANCE GUIDELINES

SAFETY INSTRUCTIONS

Refer to Section 2 for more Safety Instructions.

Read operating and safety manuals before using any lift.
Do not operate a lift that has been damaged or is in disrepair.
Proper inspection and maintenance is necessary for safe operation.

PERIODIC MAINTENANCE

DAILY:

1. Check all hydraulic lines and fittings for pinch points , damage , cracks or leaks
2. Check all electrical wiring for pinch points , cracks or damage
3. Check all moving parts for uneven or excessive wear
4. Repair or replace all damaged, defective, worn or broken components immediately.
5. Check the telescopic arms for movement. Clean any grease or oil from the lifting adapters.
6. Raise and lower the lift at the beginning of each shift, without a vehicle on, to verify the lift is leveled and operating properly.

EVERY TWO MONTHS:

1. Clean and re-grease slide block channels inside of both columns
2. Grease arm pins
3. Lubricate safety dogs and check safety release cable adjustment
4. Check arm restraints and lubricate
5. Check anchor bolts and re-torque if required

EVERY FOUR MONTHS:

1. Dismantle and clean inner arms
2. Lubricate cable pulleys
3. Check equalizing cable adjustment

EVERY YEAR:

1. Inspect lift as per Automotive Lift Operation, Inspection and Maintenance (ALOIM)

EVERY TWO YEARS:

1. Change hydraulic fluid

LUBRICATION:

Where grease is required > multi-purpose lithium grease
Where lubricating oil is required > multi-purpose SAE 30 lubricating oil
Where hydraulic oil is required > ISO 32 10W - non detergent hydraulic oil

NOTE: **If the lift locks, while in the fully raised position this will indicate that the hydraulic system has not been inspected or maintained as recommended. This is a safety back-up system. If you are unclear call your local representative immediately.**

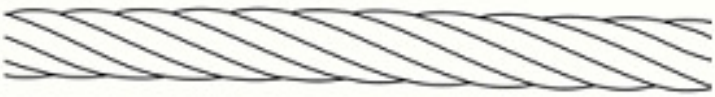
WIRE ROPES

⚠WARNING

Wire ropes are critical to safe and reliable performance of your lift.
Cables are expendable items and should be replaced as a set.

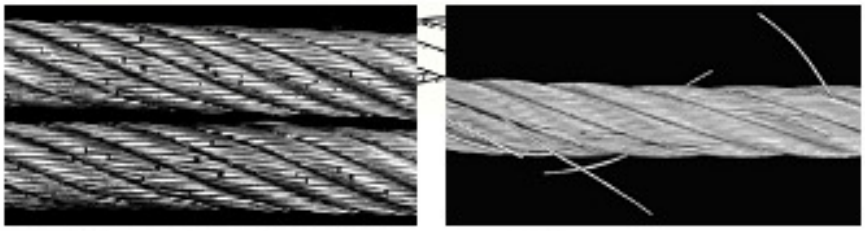
WIRE ROPE CONDITION GUIDE

Typical good cable

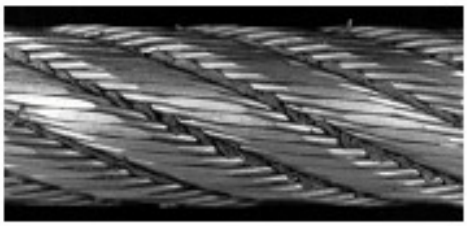


Cable with necking

Broken wires



Excessive wear of wires



Rust on sheave stack and ropes

Corrugated sheave groove

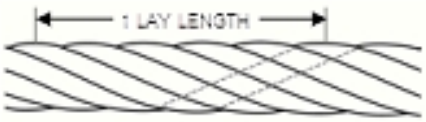
(Pictures above are of a 4-Post Lift, conditions still apply to 2-Post Lifts)

WIRE ROPE REPLACEMENT CRITERIA:

⚠WARNING If any cable is found to be in need of replacement, the entire cable set, pulleys and safety rollers must be replaced immediately.

See cable conditions guide.

In the following table, "lay" means the distance measured along a line parallel to the axis of the rope in which the strand makes one complete turn about the axis of the rope, or the wires make a complete turn about the axis of the strand.



The wire rope must be removed from service if one or more of the following criteria are met:
1. More than six randomly distributed broken wires in one rope lay or 6 d length.
2. More than three broken wires in one strand in one rope lay or 6 d length.
3. Three or more broken wires at rope terminations.
4. One outer wire broken at the point of contact 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
5. Heavy rusting, corrosion, or pitting. A light surface corrosion on outer wires is normal.
6. Wear or scraping of one-third of the original diameter of outside individual wires
7. Excessive stretch. It is normal for new cable to require adjustment during "break-in", after which small periodic adjustments may be required. However, if a cable that has been in service for 6 months should suddenly require frequent adjustments or has used all the cable adjustment available, all cables must be replaced immediately.
8. Deformed strands, kinking, crushing, bird-caging, or any other damage or distortion of wire rope structure
9. Variations in diameter (necking) or any change from normal appearance
10. Reductions from nominal diameter of more than 1/32" (for cables 3/8" to 1/2" dia. inclusive)
11. End attachments cracked, worn or deformed.

WIRE ROPE INSPECTION

Inspect wire rope cables for wear and damage. Wipe cables with a rag to detect hard to see small broken or frayed cable strands. See chapter **9.2**, **Fig.75** and ANSI/ALI ALOIM standard.

WIRE ROPE LUBRICATION

Lubricate wire ropes with lift in both lowered and raised position, by spraying them with wire rope lubricant (i.e. 2001 MONOLEC®) and wiping the cable down.

WIRE ROPE ADJUSTMENT

Adjust cables if lifting is uneven or lift is not level (See chapter 7.15.3). Never make adjustments with weight on lift. If running out of adjustment threads, cables need to be replaced. Do not add washers or other spacers to re-use previously used adjustment threads.

Wire rope tension adjustment should be performed when installing the lift and every three months.

MAINTENANCE SCHEDULE

Maintenance and Training Performed	Date	By	Notes

TROUBLESHOOTING GUIDE

PROBLEM	REASON	SOLUTION
Power Unit (Motor) not running.	Bad Fuse or Circuit breaker.	Replace bad fuse or reset circuit breaker.
	Incorrect voltage to motor.	Provide proper voltage to motor.
	Improper wiring.	Have certified electrician check wiring.
	Power Unit up switch not functioning.	Replace Power Unit up switch.
	Overhead Microswitch not functioning.	Replace overhead Microswitch.
	Power Unit motor burned out.	Replace motor.
Power Unit (Motor) runs but lift does not go up.	Low oil level.	Fill reservoir with proper hydraulic oil.
	Lowering valve remains open.	Repair or replace oil valve.
	Pump sucking air.	Tighten all fittings and suction lines.
Lift goes up slowly or oil coming out from filler cap.	Air in hydraulic fluid lines	Bleed hydraulic lines (Call installer).
Lift doesn't come down.	Dirt in directional valve	Call installer to clean valve. (Do not attempt to open hydraulic lines unless vehicle is secure)
Safety Locks do not engage.	Safety lock jammed.	Oil or replace pin to free Safety Lock. Check or replace spring.
Safety Lock does not disengage.	Safety lock is being limited	Check for any obstructions.
Lift goes up unlevel.	Equalizing cables are loose.	Adjust equalizing cables to correct tension.
	Floor unlevel.	Shim lift to make towers level. (Do not exceed ½" of shimming).
Lift goes up with chatter or does not fully rise.	Low oil level.	Fill reservoir to correct level with proper hydraulic oil.
	Air in hydraulic fluid lines/cylinder.	Bleed hydraulic lines. (Call installer).
Anchor bolts do not stay tight.	Holes are too large.	Relocate lift using proper size drill bit.
	Incorrect concrete floor specification (Thickness and holding strength).	Break existing floor and pour new pad for lift.
Noticeable Deflection of Arm or arm dragging on floor.	Lift out of plumb.	Plumb columns.
	Unlevel floor.	Replace floor of shim columns.
	Worn arm or carriage holes.	Replace parts.
	Worn carriage slide blocks.	Replace side blocks.
	Bent arm (Overloaded).	Replace arm. Also check damage to carriage.

LOCK OUT AND TAG OUT INSTRUCTIONS

IMPORTANT: This machine does not have integral devices that will isolate the electrical, pneumatic, stored and hydraulic energy source. Appropriate isolation or blocking devices must be used that have the provisions to be switched in the off position and locked in that position.

ALL MAINTANANCE AND SERVICE MUST BE PERFORMED BY A QUALIFIED PERSON.

ALL MAINTANANCE AND SERVICE MUST BE PERFORMED WITH THE LIFT UNLOADED.

IT IS THE SHOP OWNERS RESPONSIBILITY TO ENSURE ENERGY ISOLATING DEVICES ARE:

Accessible
Conveniently located to facilitate the application of lockout devices during service and maintenance
Located outside any hazardous area.
At a convenient manipulating height (i.e. not overhead, on ladders or under machinery)
Adequately labeled or marked. Identification shall include machine ID, energy type and magnitude.
Capable of being locked or otherwise secured in an effective isolating position.

Effective hazardous energy control procedures will protect employees during machine and equipment servicing and maintenance where the unexpected energization, start up or release of stored energy could occur and cause injury, as well as while working on or near exposed de-energized electrical conductors and parts of electrical equipment. Hazards being guard against include being caught in, being crushed by, being struck by, being thrown from, or contacting live electrical circuits/parts.

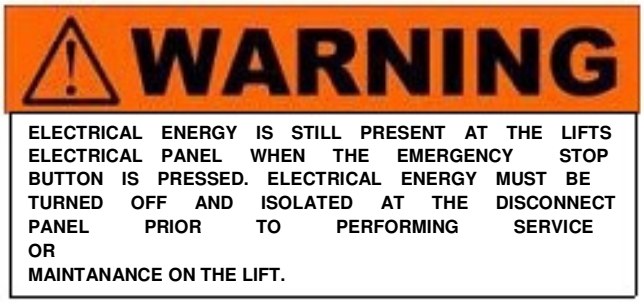
In preparation for lockout, an initial survey must be made to locate and identify all energy isolating devices to be certain which switch, valve, or other energy isolating devices apply to the machine / equipment to be locked out. More than one energy source (electrical, hydraulic, pneumatic, or others) may be involved.

SHUT DOWN PROCEDURE

Notify all affected employees that a lockout or tagout system is going to be utilized and the reason for. The authorized employee shall know the type

and magnitude of energy that the lift utilizes and shall understand the associated hazards.

ELECTRICAL: Located at the user control panel, press the "E-STOP" button to disconnect the raise and lower functions.



ISOLATION AND VERIFICAITON PROCEDURES:

Table 1: ISOLATION AND VERIFICATION PROCEDURES:

ENERGY TYPE AND SOURCE	LOCKOUT LOCATION (TO BE COMPLETED BY END USER)	PROCEDURE FOR LOCING OUT AND OR RELEASING ENERGIES	VERIFY PROCEDURES
STORED ENERGY **AND** **HYDRAULIC PRESSURE 3000-5000 PSI**		LOWER THE LIFT TO ITS LOWEST REST POSTION. IF THE LIFT MUST BE SERVICED OR MAINTAINED IN THE RAISED POSITION, ENSURE THAT THE LIFT IS PLACED ON THE MECHANICAL LOCKS. FOR SCISSOR LIFTS, ADDITIONAL SUPPORT WITH SUPPLEMENTARY JACK STANDS, BLOCK AT THE SLIDERS AND A COME ALONG SECURED BETWEEN THE SCISSORS. FOR 4-POST LIFTS, ADDITIONAL SUPPORT WITH SUPPLEMENTARY JACK STANDS.	VERIFY THAT THE LIFT IS (IF APPLICABLE): CONTACTING THE MECHANICAL LOCKS, RESTING ON THE SUPPLEMENTARY JACK STANDS, BLOCKS ARE SECURLY PLACED COME ALONG IS SECURED BETWEEN THE SCISSORS.

ELECTRICAL 240VOLTS		AT THE LIFT, PRESS THE EMERGENCY STOP BUTTON COMPLETELY TO DE-ENERGIZE THE CONTROL BUTTONS (IF APPLICABLE). AT THE DISCONNECT PLANEL, PLACE THE DISCONNECT HANDLE IN OFF POSITION. ATTACH A MULTIPLE LOCUOUT DEVICE. LOCK AND TAG. **DANGER: LINE SIDE OF DISCONNECT REMAINS ENERGIZED**	ATEMPT TO RESTART THE SYSTEM, THE SYSTEM MUST NOT START. VISUALLY VERIFY OPEN DISCONNECTS AND LOCKING DEVICE INSTALLED.
PNEUMATIC UPTO 160PSI		SLOWLY CLOSE LOCKOUT VALVE TO RELEASE AIR PRESSURE GRADUALLY. ATTACH MULTIPLE LOCKOUT DEVICE, LOCK AND TAG. **DANGER: LINE SIDE OF DISCONNECT REMAINS PRESSURIZED**	VERIFY THE VALVE IS CLOSED AND LOCKOUT DEVICE IS PROPERLY ATTACHED. OPERATE THE PNEUMATIC SYSTEM TO ENSURE THE SYSTEM IS DE-ENERGIZED. IT MAY BE NECESSARY TO BLEED THE SYSTEM OF REMAINING COMPRESSED AIR, THIS CAN BE PERFORMED AT THE BASE OF THE WATER SEPARATOR BOWL.

RETURNING TO SERVICE:

Check the lift and the immediate area around the lift to ensure that nonessential items,, tools and parts are removed and that the lift components are operationally intact.

Check the work area to ensure that all employees have been safely positioned or removed from the work area.

Notify all employees that the lockout/tagout is going to be removed and the lift is going to restarted.

Remove the lockout/tagouts in the reverse order as the installation.

Verify the proper operation of the equipment.

Notify affected employees that the maintenance/service is completed and the machine is ready for operation.

EMERGENCY OPERATION:

If the lift becomes inoperative in the raised position, it is best to wait until the electrical power is restored before lowering the vehicle. However, if it's critical to safety that the lift be lowered, the following steps should be taken.

WARNING: DO NOT LOOSEN OR REMOVE HYDRAULIC CONNECTIONS OR FITTINGS UNDER PRESSURE. SERIOUS INJURY OR DEATH COULD OCCUR.

NOTE: Safely performing this process requires 3 people. All personnel should stay clear of the path of the lift. All tools and other non-secured items should be removed from the surface of the runways.

1) Survey the area surrounding the lift; remove any items and personnel from area before proceeding with this procedure.
2) Perform the appropriate lockout/tag out procedure on the electrical energy.
3) Use a second person standing at a safe distance away from the lift to keep watch on the area, lift, vehicle and other personnel throughout the process. This person should signal the person performing the procedure to stop if necessary.
4) Use a caution tape or similar to barrier the area around the lift to avoid personnel from accidently entering the area while this process is being performed.
5) Do not proceed with this procedure if you are unfamiliar with the lift or its function.

IF THE MECHANICAL LOCKS ARE NOT ENGAGED:

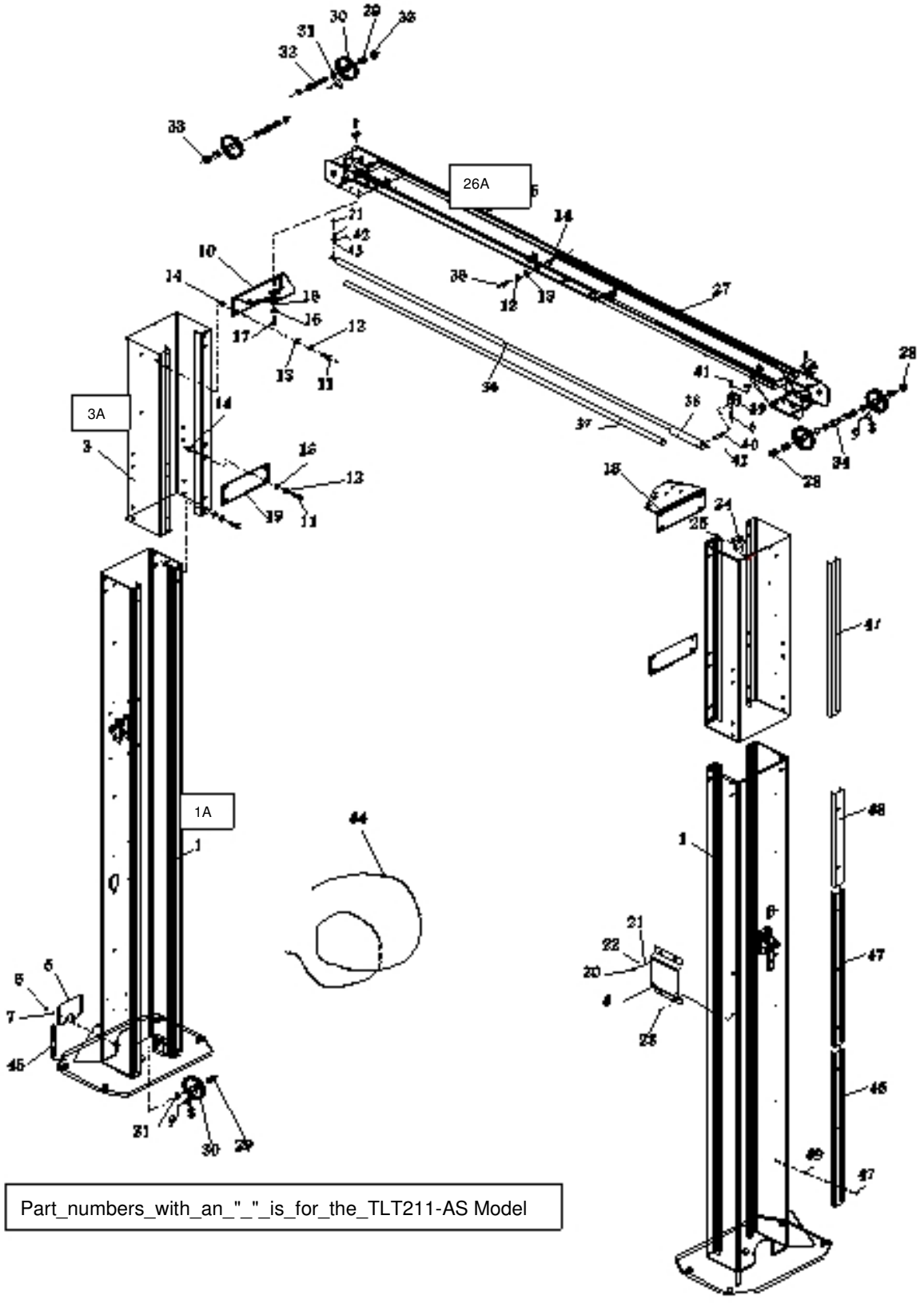
1) Pull safety release lever simultaneously pressing the descent lever on the power pack.
2) Keep a close eye on the movement of the lift and the position of the vehicle; release descent lever if any abnormal movement is detected.
3) Continue until the lift is fully lowered.
4) Once power is restored follow the lockout/tag out procedure to return the lift back into service.

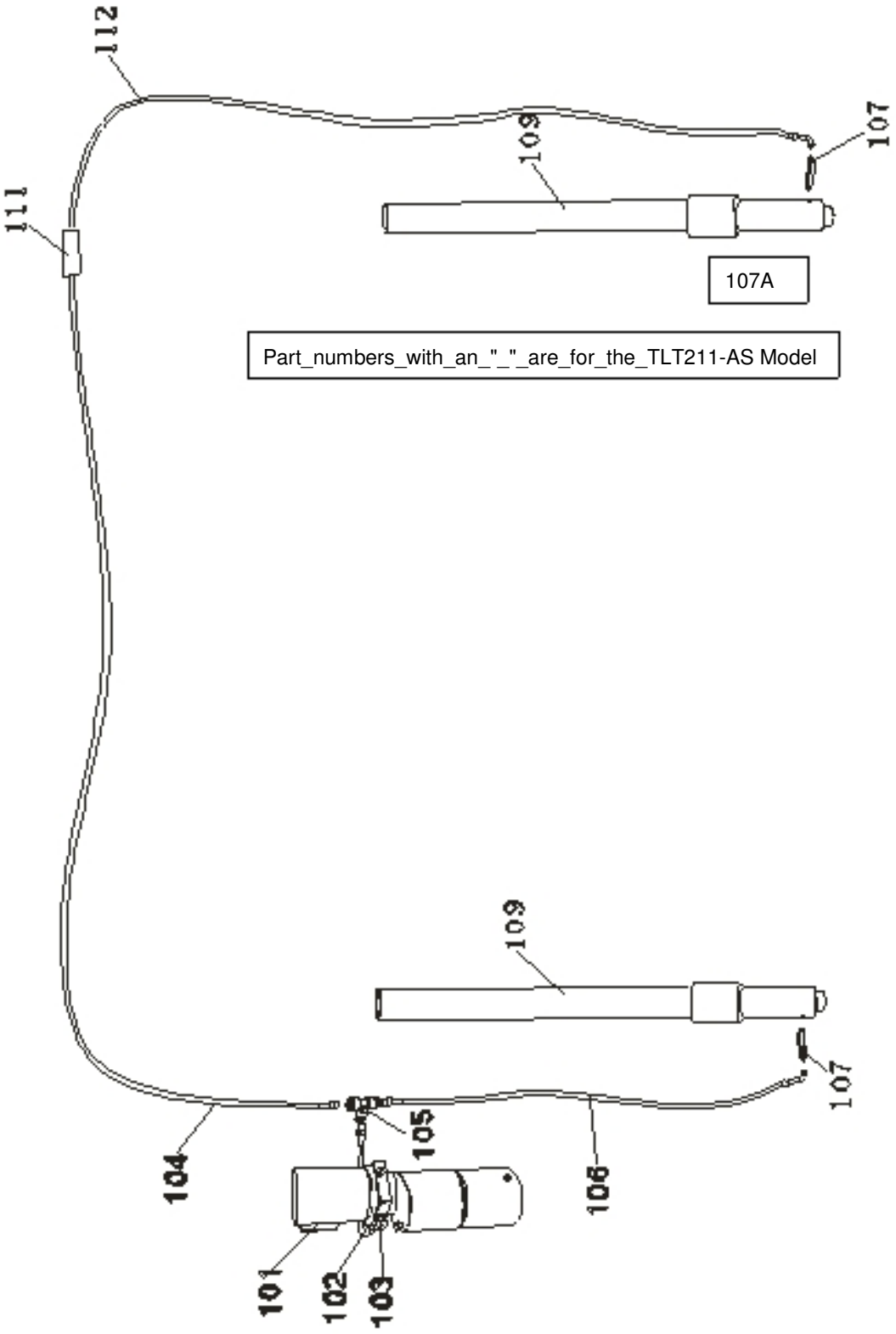
IF THE MECHANICAL LOCKS ARE ENGAGED:

Various methods can be used to raise the lift in order to get sufficient clearance to disengage the mechanical locks. The safest method would employ temporary electrical power to the lift using a portable power generator. Any electrical connections should be done by a licensed electrician; lockout/tag out procedures should also be employed at this time.

This process should only be performed by a trained professional. Contact customer service or a local service professional for further assistance.

PARTS VIEW AND IDENTIFICATION

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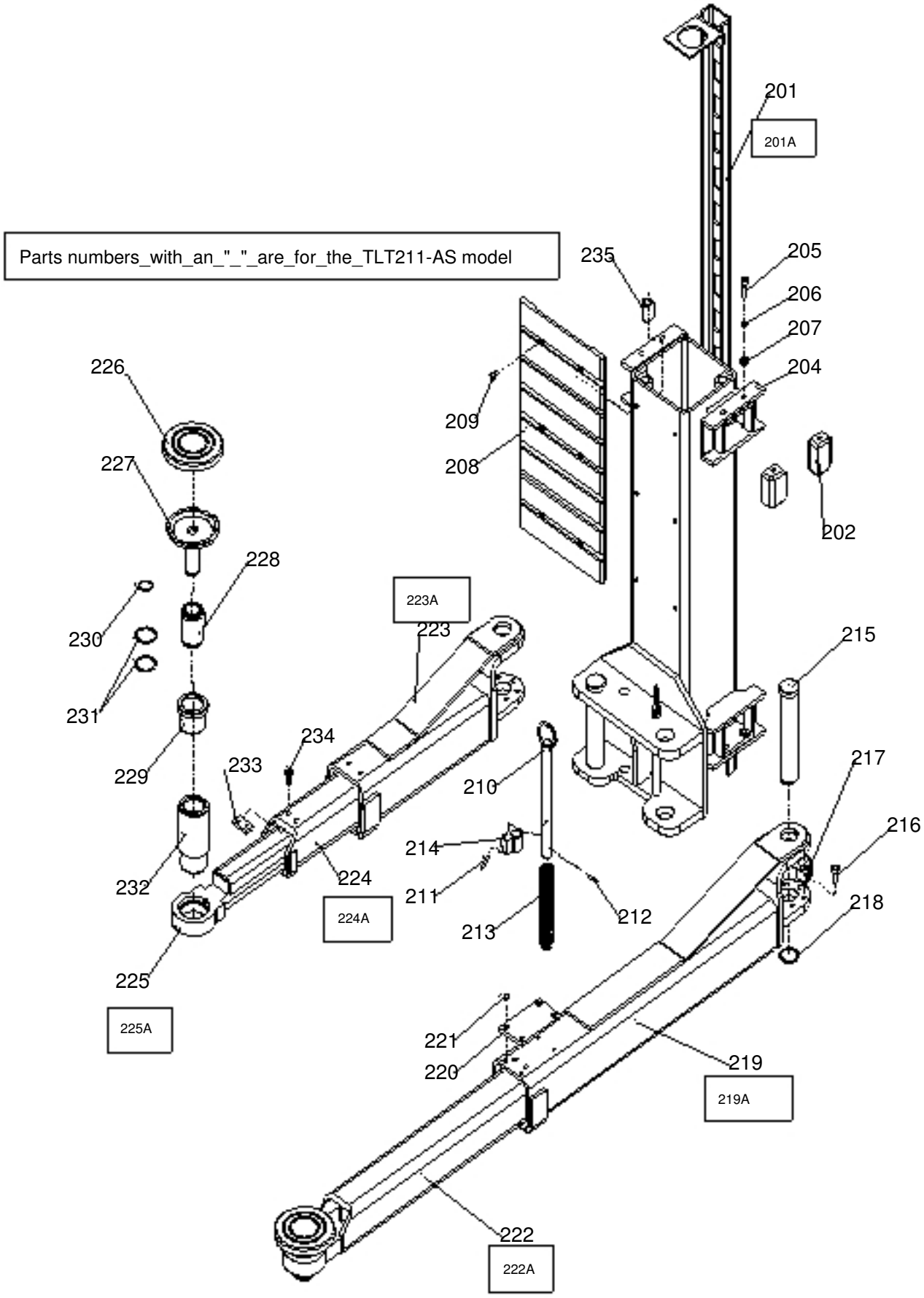

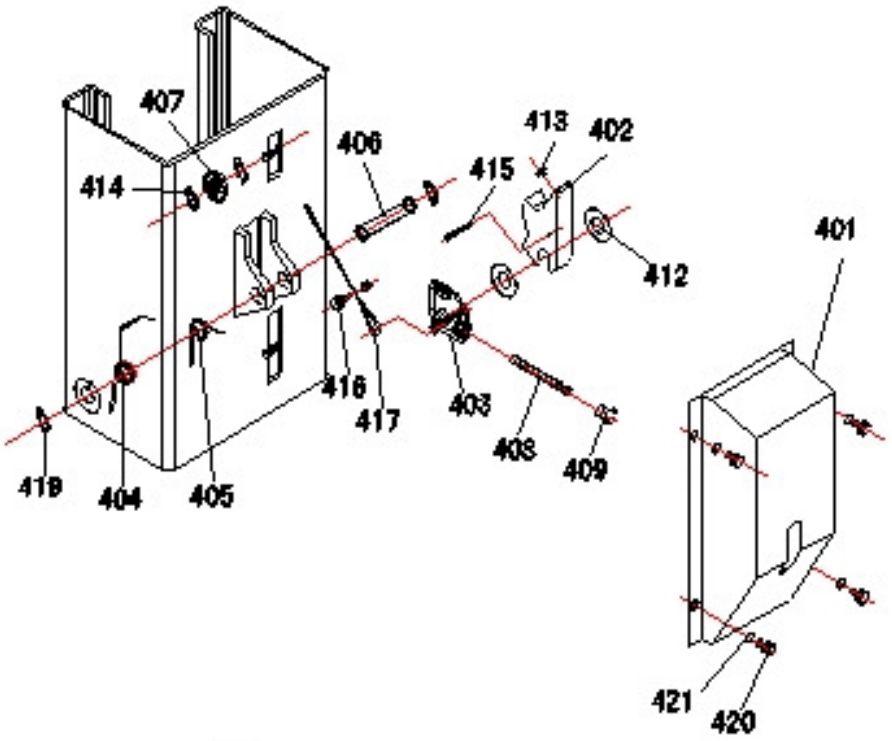
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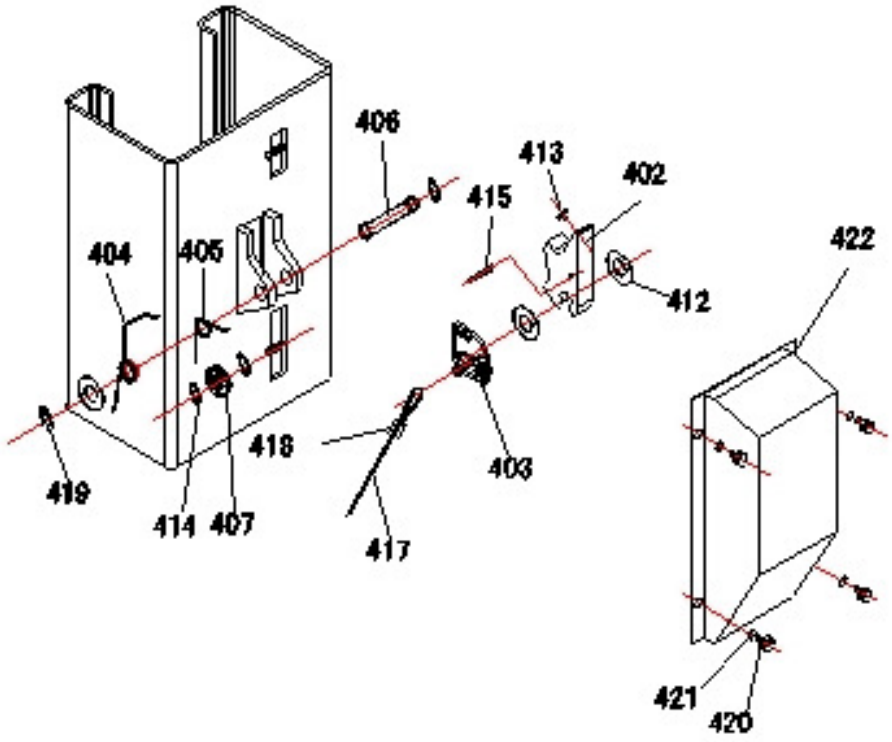
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No.	Part Number	Part Number Updated	Part Description
1	201024604	201024604	Column for TLT210-AS Power Unit Side
		201024785	Column for TLT210-AS Idler
	201624622	201024622	Column for TLT211-AS Idler
	201624620	201024620	Column for TLT211-AS Power Unit Side
3	201014670	201014670	Column extension
	201024624	201024624	Column extension for TLT211- AS
4	201024608	201024608	Power unit bracket
6	103010432	103010432	screw M5*12
7	103040132	103040132	Flat washer
8	201013268	103203019	Lateral positioning plate
9	103020188	103020188	Bolt M5×10
10	201011739	201011739	Connection bracket Ⅰ
11	103020164	103020164	Bolt M12×35
12	103040044	103040044	Spring washer
13	103040110	103040110	Flat washer
14	103030129	103030129	Nut M12
15	103040123	103040123	Flat washer 10
16	103040122	103040122	Spring sealer, GB/T93-1987 11
17	103020207	103020207	Bolt M10×20
18	201011740	201011740	Connection bracket Ⅱ
19	201011154	201011154	Reinforcement plate
20	103020100	103020100	Bolt M8X25
21	103040134	103040134	Flat washer 8
22	103040141	103040141	Spring washer, 8
23	103020171	103020171	Bolt M6×12
24	201024606	201024606	Cable guide block
25	103020163	103020163	Bolt M6X25
26	201021179	201021179	Outer overhead beam bracket
	201624629	201024629	Overhead Beam for the TLT211-AS
27	201020809	201020809	Inner overhead beam bracket
28	201011257	201011257	Sheave Spacer, Power Side, 8mm
29	103200699	103200699	Bush, SF-2 2520
30	201013282	103203017	Sheave
31	103050035	103050035	Elastic ring, 25,GB/T894.1- 1987
32	103200966	103200966	Asymmetric shaft
33	201011258	201011258	Spacer I
34	103200967	103200967	Symmetric shaft
35	103020126	103020126	Bolt M12*25

36	201014671	201014671	Shutoff bar
	201014680	201014680	Shutoff Bar for the TLT211-AS
37	104130196	104130196	Sleeve(inner holeΦ22),L=1.8M
38		102100206	Limit switch TS-10 Limit switchSP-1403-14
39	201014672	201014672	Switch bracket
40	201014673	103202751	Switch shaft
41	103030018	103030018	Nut M5
42	103060342	103060342	Cotter pin 3*26,GB91-87
43	201011477	201011477	Shutoff shaft
44	103260260	103260341	Cable assembly
	103260341	103260341	Use this # after August 2013
45	103020117	103020117	Anchor bolt M19*140
46	201014674	201025080	Column long hood at three-way fitting
		201025177	TLT210-AS Idler column bottom hood
47	201014675	201025081	Column long hood
48	201014676	201025082	Column short hood
49	201014685	103202748	Shaft for Hose hood
101		M-4509-0200 AC-10AH RV21	Bucher Power Unit SPX Power Unit
102	104120132	104120132	Power unit hose L=880
		104120159	TLT211-AS hose
103	103202113	103202113	Adjustable right angle fitting
104	104120134	104120134	Overhead beam hose, L=5370
105	103100294	103100294	Three-way fitting
106	104120133	104120133	Hose, L=930
107	103100322	103100322	Flow control fitting assembly
	103100327	103100327	Use # this after August 2013 Flow control fitting assembly
	103100323	103100323	Flow control fitting for the TLT211-AS
	10300328	103100328	Use this # after August 2013 Flow control fitting for the TLT211-AS
109	103202112	103202112	Cylinder
111	103100295	103100295	Straight fitting
112	104120135	104120135	Idler column hose L=4250
		104120160	TLT211-AS Idler column hose L=4130
		104120161	TLT211-AS high setting hose,TLT211-AS-50-03-A,L=270
201	201024611	201024611	Carriage
		201021093	TLT211-AS Carriage
202	104990132	104990132	Slide block, strengthen nylon

202	104990132	104990132	Slide block, strengthen nylon
	104990135	104990135	TLT211-AS slide block Ⅰ
	104990134	104990134	TLT211-AS slide block Ⅱ
204	201011855	201025138	Top board
		201025139	TLT211-AS Top board
205	103010473	103010473	Screw M10x30
206	103040122	103040122	Spring sealer, GB/T93-1987 11
207	103040123	103040123	Ring GB/T95-1985 11
208	104130191	104130192	TLT series Anti Shock Pad
		104130372	N/A
209	103010539	103010539	Screw M8×12
210	103202184	103202184	Restraint shaft assembly
211	103060376	103060376	Pin 5*32
212	103060355	103060355	Cotter pin,3.2*30
213	103201914	103201914	Spring
214	103201744	103201744	Small gear block
215	201010982	103202280	Pin shaft
		103202778	TLT211-AS Pin shaft
216	103010443	103011102	Bolt M10x25
217	103201771	103201771	Big gear block
218	103050030	103050030	Retaining ring 40
219	201021763	201021763	Long female arm
	201624631	201024631	Long female arm for TLT211- AS
220	104130186	104130186	Arm rubber pad
221	103010608	103010608	Bolt M6x10
222	201021532	201021532	Long male arm
	201024632	201024632	Long male arm for the TLT211- AS
223	201024616	201024616	Front female arm
	201624634	201024634	Front female arm for the TLLT211-AS
224	201024645	201024645	Front middle arm
	201024632	201024635	Front middle arm for the TLT211-AS
225	201024646	201024646	Front male arm
	201024636	201024636	Front male arm for the TLT211-AS
226	104130315	104130315	Rubber pad
227	201021561	201021561	Threaded rod assembly
228	103202107	103202107	Dual-threaded adjustment sleeve
229	103202106	103202106	Support bracket
230	103050091	103050091	Retaining ring,30

231	103050090	103050090	Retaining ring,45
232	201014690	103203210	Long extension tube(optional)
	201014691	103203209	Short extension tube(optional)
233	201011475	201011475	Positioning plate
234	103010586	103010586	Bolt M8×12-12.9
235	201011741	103203213	Asymmetric adjustable bushing for asymmetric installation
	201011742	201011742	Adjustable bushing for narrow style installation
401	104090074	104090074	Lock release mechanism hood
402	201012086	103203057	Lock release plate
403	201020584	103203056	Cam (Power side)
404	103201450	103201450	Torsion spring Ⅰ
405	103201451	103201451	Torsion spring Ⅱ
406	103201455	103201455	Lock release plate shaft
407	202010074	103203055	Lock Release roller
408	103201454	103201454	Lock release latch
409	103260186	103260186	Latch cover BM10×50（black）
412	201011156	103203061	Adjustment washer I
413	104130210	104130210	Small rubber pad
414	103050021	103050021	Retaining ring 9
415	103060333	103060333	Pin, 6*40
416	103260179	103260179	Cable Clamp 3
417	101060019	101060019	Cable,F1.4,L=8901 Cable,ϕ1.6mm,L=8300mm
418	103201478	103201478	Cable clamp f2
419	103050025	103050025	Retaining ring 20
420	103010393	103010393	Screw,M8*12
421	103040134	103040134	Washer C,8
422	104090073	104090073	Idler lock release mechanism hood