

MANUAL

14,000 POUND FOUR-POST AUTOMOTIVE LIFT

Model: PRO-14F and PRO-14F(A)

TOOLS REQUIRED

Concrete Rotary Hammer drill with $\frac{3}{4}$ " carbide bit

12" Crescent Wrench

Open Wrench set

Phillips and flat head screwdriver

Hammer

Retainer Ring Pliers

Electrical Pliers

Level

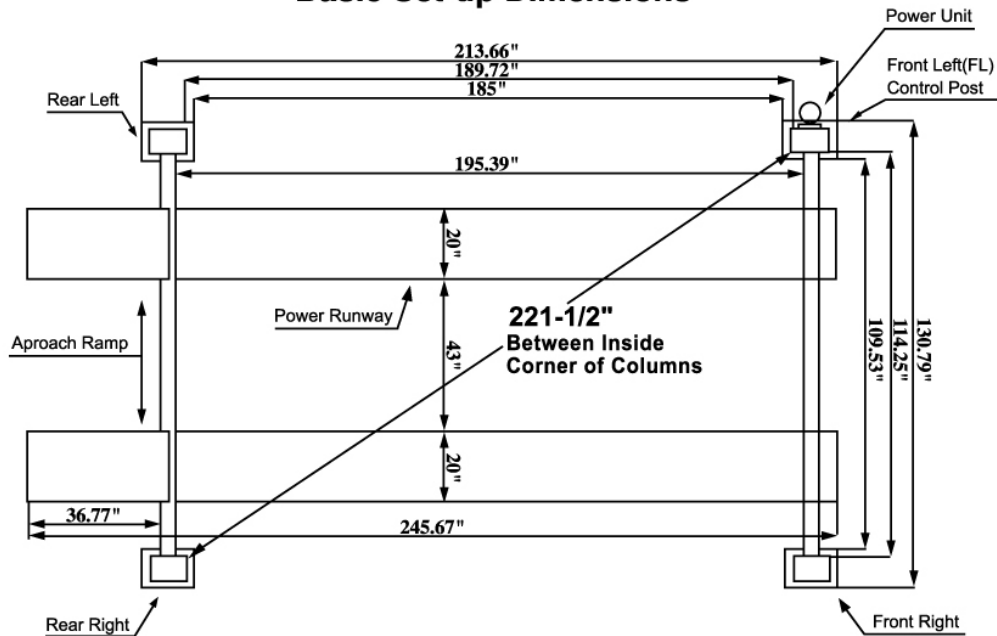
25' Tape Measure

Step Ladder

3 Gallons of hydraulic oil, SAE-10 or equivalent

THIS INSTALLATION WILL TAKE MINIMUM 4 MEN. IT WILL MAKE THE INSTALLATION EASIER IF A FORK LIFT IS AVAILABLE.

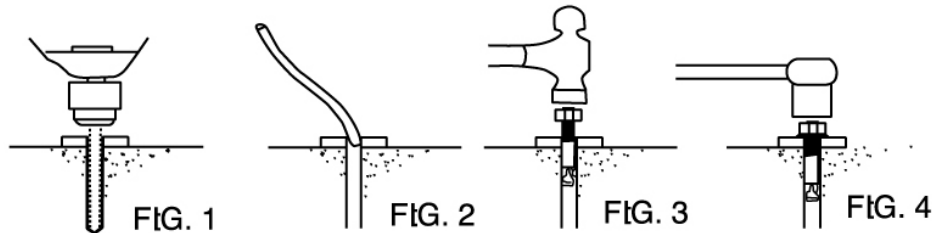
**FIG.1
Basic Set-up Dimensions**



General Specifications

Max. Wheelbase	180"
Max. 2 Wheel Align (PRO-12FA)	171"
Max. 4 Wheel Align (PRO-12FA)	150"
Rise	76", 73-3/4" on last lock
Length Overall	246"
Width Overall	137-1/4" with Pump
Inside of Columns	114-1/4"
Between Columns	189-1/4"
Height of Columns	88-3/4"
Width of Runways	20"
Height of Runways	7"
Width Between Runways	43"
Lifting Capacity	14000 lbs
Motor	2 HP
Voltage	208-230 VAC, 1 PH
Time of full Rise	65 Sec.

ANCHORING TIP SHEET



1. Use a concrete hammer drill with a carbide tip, the same diameter as the anchor, 3/4". Do not use excessively worn bits or bits which have been incorrectly sharpened.
2. Keep the drill in a perpendicular line while drilling.
3. Let the drill do the work. Do not apply excessive pressure. Lift the drill up and down occasionally to remove residue to reduce binding.
4. Drill the hole to depth equal to the length of anchor.
5. For better holding power blow dust from the hole.
6. Place a flat washer and hex nut over threaded end of anchor, leaving approximately 1/2 inch of thread exposed carefully tap anchor. Do not damage threads. Tap anchor into the concrete until nut and flat washer are against base plate. Do not use an impact wrench to tighten. Tighten the nut, two or three turns on average concrete (28-day cure). If the concrete is very hard only one or two turns may be required

INSTALLATION INSTRUCTIONS

STEP 1. Unpack the lift by remove all wrapping film.

STEP 2. While runway is upside down, remove all plastic ties securing cables. Extend cable ends through runway ends. Remove cylinder rod shipping block. Tighten all hydraulic fittings.

STEP 3. Place runways in predetermined location, the recommended bay area is 15' x 26'. The control post and hydraulic pump will be located on the front left as shown on FIG. 1, the power runway will also be on the left side. The control post is located in the front left corner. At this time, there are no other configurations available for this lift. NOTE: ELEVATE RUNWAYS OFF FLOOR WITH BLOCKS OF WOOD.

STEP 4. Place front and rear crossbeams on each ends of the runways. NOTE: AIR SUPPLY LINE "T" FITTINGS NEED TO BE CLOSEST TO POWER SIDE OF LIFT.

STEP 5. Install cables thru crossbeams. It is easier to slide cable thru crossbeam with covers on. See FIG. 10 for Cable Routing Diagram. NOTE: There are 4 total cable ends, each are a different length. Follow the diagram for cable routing.

STEP 6. Now remove all covers on crossbeams. They will be reinstalled later in the installation.

STEP 7. Install crossbeams to runways with the provided hardware. Make sure the cables are on correct rollers in runway.

STEP 8. Remove cable security shaft from each end on crossbeam. Removing this shaft will allow you to install cable.

STEP 9. Install cable over pulley then reinstall security shaft under cable.

STEP 10. Mount control post. This control post has the hydraulic pump bracket attached. Use all 4 mounting bolts on base of post. Do not tighten the post at this time. The other posts will be mounted later

STEP 11. Make sure the control post is plumb. Use shims provided in hardware kit if needed. Once post is level, tighten the 4 anchor bolts to 85 foot per pounds of torque each.

STEP 14. Install air valve on control post with provided hardware. There will be 2 small holes on the control post for mounting screws.

STEP 12. Install power unit with provided hardware on the bracket located on the control post. Hydraulic oil is not provided, Use SAE 10 or equivalent. The pump will require approximately 3 gallons of fluid.

STEP 13. Install hydraulic fitting and hose. The hydraulic pump has a plastic cap protecting the hose fitting. Remove and discard the cap. See FIG. 12 for hydraulic routing.

STEP 14. Install air valve on control post with provided hardware. There will be 2 small holes on the control post for mounting screws.

STEP 15. Most tubing is pre-installed. Connect front and rear "T" fittings. To connect air tubing, push air tubing into hole on fitting. The blue lock rings will lock the air tubing in place when you insert tube. Use air tubing supplied in the hardware kit to connect the air valve control located on the control post, to the "T" fitting under the front power runway next to the hydraulic fitting. See Fig.17 for Air routing and connections.

STEP 16. Install nylon guides on crossbeams with provided hardware. One guide installs on each side of the crossbeams. There are 8 total nylon guides.

STEP 17. Note offset of cable mounting hole in the top of posts. Position the 3 remaining posts in proper corners with cable mounting holes closest to center of lift. **DO NOT ANCHOR POSTS AT THIS TIME!!!!!!**

STEP 18. Make sure posts are next to nylon blocks on cross beams.

STEP 19. When installing cables, verify the cable is on the safety lock roller.

STEP 20. Push the end of the cables through the cable mounting holes located on the top of posts.

STEP 21. Use the provided lock nut to secure the cable to the top of the post. Tighten lock nut until the threads of the cable are even with the nylon lock ring in the nut. Further adjustments will be made later in installation.

STEP 22. Connect the electrical power to the hydraulic pump. Raise unit about 2 feet. Connect air supply to air valve located on the control post. While lowering the lift to the floor, check the nylon guide on the crossbeam to make sure it is against the control post. If not, pull the crossbeam to the control post as you lower the lift and hold crossbeam in position until lift comes to rest on blocks of wood. This will align the control post to the lift.

STEP 23. Level and anchor the remaining posts to the floor with the provided hardware. Torque all anchor bolts to 85 foot pounds of torque. Remember,

the nylon block must rest against the post. **NOTE: LOCATE AND POUMB THE REMAINING 3 POST BEFORE DRILLING ANY HOLES IN FLOOR. THEN ANCHOR TO FLOOR.**

STEP 24. After all of the post have been anchored and leveled, raise unit and set on the locks. Place level on crossbeam.

STEP 25. Tighten lock rod nut located on the top of each post, this will raise the corner of the lift to adjust for leveling. Each post has this adjustment. Adjust the proper posts to level out the lift. Place level on each runway and crossbeam and check level. **NOTE: YOU MAY HAVE TO LOOSEN NUT UNDER TOP PLATE TO MAKE ADJUSTMENTS.**

STEP 26. After leveling is complete, tighten the nut on the lock rod underneath the top plate on each post.

STEP 27. Raise lift off all locks until cables are supporting the lift. Adjust the cable lock nut located on the top of each post until lift is level on crossbeams and runways. **NOTE: YOU MAY NEED TO USE LOCKING PLIERS TO HOLD THE CABLE FROM TURNING WHEN ADJUSTING THE LOCKING NUT.**

STEP 28. Reinstall all crossbeam covers.

STEP 29. Install front tire stops as shown with provided hardware.

STEP 30. Install the ramps with shafts.

PLEASE LUBRICATE ALL CABLE SHEAVES, BEARINGS, AND SHAFTS WITH A GREASE GUN PRIOR TO OPERATIING THE LIFT.

STEP 31. Connect the air supply to the air valve mounted on the control post with max. pressure of 100 PSI. The lift is now ready to use.

Notice the numbers next to the ends of each cable. These numbers represent the longest and shorted cables. 1 would be the shortest and 4 being the longest. This routing remains the same no matter where you locate the control post.

RAISE LIFT

I. Press button on power unit

The safety latch mechanism will 'trip over' when the lift raises and drop into each latch stop. To lock the lift you must press the Lower lever to relieve the hydraulic pressure and let the latch set tight in a lock position.

Note: It is normal for an empty lift to lower slowly - it may be necessary to add weight.

LOWER LIFT

1. Raise the lift until the latches clear the safety racks inside each column.
2. Switch the air valve to release the safety lock.
3. Press the lowering lever at the power unit to lower the lift.

PAY ATTENTION TO THE LOWERING SPEED OF ALL FOUR CORNERS. MAKE SURE THEY ARE MOVING DOWN IN A SAME SPEED. STOP LOWERING THE LIFT BY RELEASE THE LOWERING LEVEL ON THE POWER UNIT AND SWITCHING THE AIR VALVE TO LOCK POSITION IF ANY CORNER STOP MOVING OR SLOWER IN DESENT.

ALWAYS LOCK THE LIFT BEFORE GOING UNDER THE VEHICLE. NEVER ALLOW ANYONE TO GO UNDER THE LIFT WHEN RAISING OR LOWERING.

SAFETY PROCEDURES

- **Never allow unauthorized persons to operate lift. Thoroughly train new employees in the use and care of lift.**
- **Caution - the power unit operates at high pressure.**
- **Remove passengers before raising vehicle.**
- **Prohibit unauthorized persons from being in shop area while lift is in use.**
- **Total lift capacity is 14,000-lbs. Do not exceed this capacity.**
- **Prior to lifting vehicle, walk around the lift and check for any objects that might interfere with the operation of lift and safety latches; tools, air hoses, shop equipment.**
- **When approaching the lift with a vehicle, make sure to center the vehicle between the columns. Slowly drive the vehicle up with some one outside the vehicle guide the driver.**
- **Prior to lowering vehicle, walk around the lift and check for any objects that might interfere with the operation of lift and safety latches; tools, air hoses, shop equipment. Slowly drive the vehicle on and off of the lift. Have some one outside the vehicle guide the driver.**

MAINTENANCE SCHEDULE

The following periodic maintenance is the suggested minimum requirements and minimum intervals; accumulated hours or monthly period, which ever comes sooner. If you hear a noise not associated with normal lift operation, or, if there is any indication of impending lift failure - **CEASE OPERATION IMMEDIATELY** - inspect, correct and/or replace parts as required.

WARNING: OSHA AND ANSI REQUIRE USERS TO INSPECT LIFTING EQUIPMENT AT THE START OF EVERY SHIFT. THESE AND OTHER PERIODIC INSPECTIONS ARE THE RESPONSIBILITY OF THE USER.

DAILY PRE-OPERATION CHECK (8 HOURS)

The user should perform daily check, **ATTENTION!** Daily check of safety latch system is very important - the discovery of a potential device failure could prevent expensive property damage, lost production time, serious personal injury, and even death.

- Check safety lock audibly and visually while in operation
- Check safety latches for free movement and full engagement with rack.
- Check hydraulic connections, and hoses for leakage.
- Check cables connections- bends, cracks-and looseness.
- Check for frayed cables in both raised and lowered position.
- Check snap rings at all rollers and sheaves.
- Check bolts, nuts, and screws and tighten if needed.
- Check wiring & switches for damage.
- Check floor for stress cracks near anchor bolts.
- Lubricate the cable sheave shaft by using grease gun at least once a year after the lift is in service.

WEEKLY MAINTENANCE (40 HOURS)

- Check for any loose anchor bolts. Retighten them if necessary. Torque anchors to 50 ft-lbs. Do not use impact wrench.
- Check floor for stress cracks near anchor bolts
- Check hydraulic oil level.
- Check and tighten bolts, nuts, and screws.
- Check all cable sheaves/assembly for free movement or excessive wear on cable sheave shaft.

YEARLY MAINTENANCE

- Lubricate cable sheaves and shafts.
- Check for excessive wear of cable. Replace them if necessary.
- Change the hydraulic fluid - good maintenance procedure makes it mandatory to keep hydraulic fluid clean. No hard fast rules can be established; - operating temperature, type of service, contamination levels, filtration, and chemical composition of fluid should be considered. If operating in dusty environment shorter interval may be required.

The following items should only be performed by a trained maintenance expert.

- Replace hydraulic hoses.
- Replace cable sheaves and shafts.
- Replace or rebuild air and hydraulic cylinders as required.
- Replace or rebuild pumps / motors as required.
- Check hydraulic cylinder rod and rod end (threads) for deformation or damage.

Relocating or changing components may cause problems. Each component in the system must be compatible; an undersized or restricted line will cause a drop in pressure. All valve, pump, and hose connections should be sealed and/or capped

until just prior to use. Pressured air can be used to clean fittings and other components. However, the air supply must be filtered and dry to prevent contamination. Most important - cleanliness - contamination is the most frequent cause of malfunction or failure of hydraulic equipment.

TROUBLESHOOTING

1. **Motor does not operate:**
 - A. **Breaker or fuse blown.**
 - B. **Motor thermal overload tripped. Wait for overload to cool.**
 - C. **Faulty wiring connections; call electrician.**
 - D. **Defective up button call electrician for inspection.**

2. **Motor functions but lift will not rise:**
 - A. **A piece of trash is under check valve. Push handle down and push the up button at the same time. Hold for 10-15 seconds. This should flush the system.**
 - B. **Check the clearance between the plunger valve of the lowering handle. There should be 1/16".**
 - C. **Remove the check valve cover and clean ball and seat.**
 - D. **Oil level to low. Oil level should be just under the vent cap port when the lift is down!!!**

3. **Oil blows out breather of power unit:**
 - A. **Oil reservoir overfilled.**
 - B. **Lift lowered too quickly while under a heavy load.**

4. **Motor hums and will not run:**
 - A. **Impeller fan cover is dented. Remove cover and straighten.**
 - B. **Faulty wiring..... call electrician**
 - C. **Bad capacitor..... call electrician**
 - D. **Low voltage..... call electrician**
 - E. **Lift overloaded remove excessive weight from lift**

5. **Lift jerks going up and down:**

Air in hydraulic system. With half of capacity load, raise lift all the way to top and return to floor. Repeat 4-6 times. Do not let this overheat power unit

6. **Oil leaks**
 - A. **Power unit: if the power unit leaks hydraulic oil around the tank-mounting flange check the oil level in the tank. The level should be two inches below the flange of the tank. A screwdriver can be used as a "dipstick" .**
 - B. **Rod end of the cylinder: the rod seal of the cylinder is out. Rebuild or replace the cylinder.**
 - C. **Breather end of the cylinder: the piston seal of the cylinder is out. Rebuild or replace the cylinder.**

7. **Lift makes excessive noise/vibrates**
 - A. **Cross beam ends are rubbing the columns.Readjustment needed.**
 - B. **Cylinder too tight,load lift half capacity and cycle up and down a few times to break in the cylinder.**
 - C. **May have excessive wear on cable sheaves or shafts.Replace them.**

OWNER / EMPLOYER RESPONSIBILTIES

The Owner / Employer:

Shall established procedures to periodically maintain, inspect and care for the lift in accordance with the manufactures recommended procedures to ensure its' continued safe operations.

Shall provide necessary lockout / tagouts of energy sources per ANSI Z244.1 - 1982 before beginning any lift repairs.

Shall not modify the lift in any manner without prior written consent of the maunfacturer.

Shall insure that lift operators are instructed in the proper and safe use and operation of the lift using the manufacturer's instructions.

The Owner/Employer:

- **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-2000, American National Standard for Automotive Lifts-Safety Requirements for Operation, Inspection and Maintenance; ALI/WL Series, ALI Uniform Warning Label Decals/Placards; and in the case of frame engaging lifts, ALI/LP-GUIDE, Vehicle Lifting Points/Quick Reference Guide for Frame Engaging Lifts.
- **The Owner/Employer shall** establish procedures to periodically inspect the lift in accordance with the lift manufacturer's instructions or ANSI/ALI ALOIM-2000, American National Standard for Automotive Lifts-Safety Requirements for Operation, Inspection and Maintenance; and The Employer Shall ensure that lift inspectors are qualified and that they are adequately trained in the inspection of the lift.
- **The Owner/Employer shall** establish procedures to periodically maintain the lift in accordance with the lift manufacturer's instructions or ANSI/ALI ALOIM-2000, American National Standard for Automotive Lifts-Safety Requirements for Operation, Inspection and Maintenance; and The Employer Shall ensure that lift maintenance personnel are qualified and that they are adequately trained in the maintenance of the lift.
- **The Owner/Employer shall** maintain the periodic inspection and maintenance records recommended by the manufacturer or ANSI/ALI ALOIM-2000, American National Standard for Automotive Lifts-Safety Requirements for Operation, Inspection and Maintenance.
- **The Owner/Employer shall** display the lift manufacturer's operating instructions; ALI/SM 93-1, ALI Lifting it Right safety manual; ALI/ST-90 ALI Safety Tips card; ANSI/ALI ALOIM-2000, American National Standard for Automotive Lifts-Safety Requirements for Operation, Inspection and Maintenance; and in the case of frame engaging lifts, ALI/LP-GUIDE, Vehicle Lifting Points/Quick Reference Guide for Frame Engaging Lifts; in a conspicuous location in the lift area convenient to the operator.
- **The Owner/Employer shall** provide necessary lockout/tagout means for energy sources per ANSI Z244.1-1982 (R1993), Safety Requirements for the Lockout/Tagout of Energy Sources, before beginning any lift repairs.
- **The Owner/Employer shall** not modify the lift in any manner without the prior written consent of the manufacturer.

<p>⚠ CAUTION</p>	<p>⚠ CAUTION</p>
	
<p>Lift to be used by trained operator ONLY.</p>	<p>Authorized personnel only in lift area.</p>


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

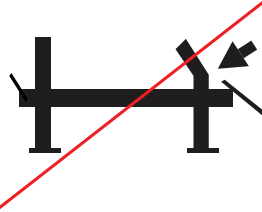
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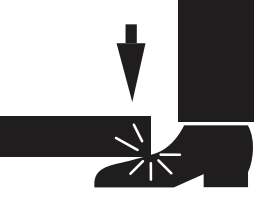
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ALI/WL200c

<p>SAFETY INSTRUCTIONS</p>	<p>SAFETY INSTRUCTIONS</p>
	
<p>Read operating and safety manuals before using lift.</p>	<p>Proper maintenance and inspection is necessary for safe operation.</p>

<p>SAFETY INSTRUCTIONS</p>	<p>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.</p>
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<p>Do not operate a damaged lift.</p>	<p>© 1992 by ALI, Inc. ALI/WL200s</p>

<p>⚠ WARNING</p>	<p>⚠ WARNING</p>
	
<p>Clear area if vehicle is in danger of falling.</p>	<p>Remain clear of lift when raising or lowering vehicle.</p>

<p>⚠ WARNING</p>	<p>⚠ WARNING</p>
	
<p>Keep clear of pinch points when lift is moving.</p>	<p>Keep feet clear of lift while lowering.</p>

<p>⚠ WARNING</p>	<p>⚠ WARNING</p>
	
<p>Do not override self-closing lift controls.</p>	<p>Chock wheel to prevent vehicle movement.</p>

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ALI/WL200w

LIFT LOCKOUT/TAGOUT PROCEDURE

Purpose

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

Responsibility

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

Preparation

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

Sequence of Lockout Procedure

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

Restoring Equipment to Service

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

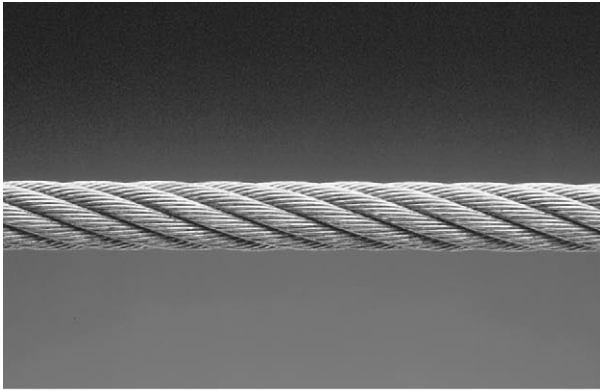
Rules for Using Lockout Procedure

Use the Lockout Procedure whenever the lift is being repaired or serviced, waiting for repair when current operation could cause possible injury to personnel, or for any other situation when unintentional operation could injure personnel. No attempt shall be made to operate the lift when the energy isolating device is locked out.

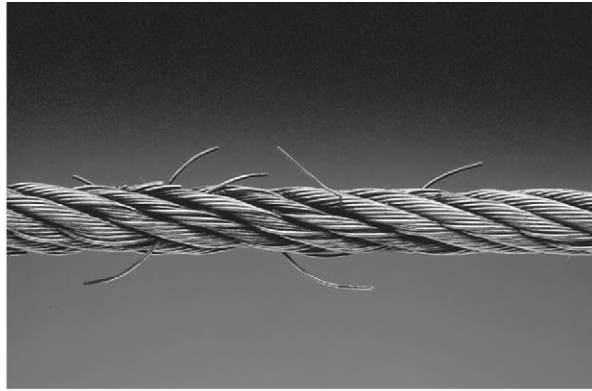
OPERATING CONDITIONS

Lift is not intended for outdoor use and has an operating ambient temperature range of 41°-104°F (5°-40°C).

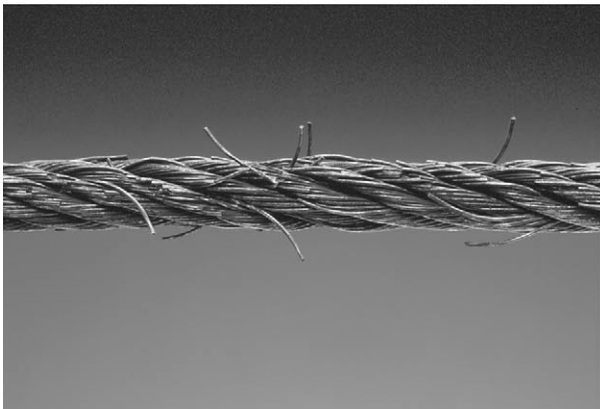
Maximum Allowable Cable Necking	
Nom. Cable Diameters	Max. Reduction in Diameter
Up to 5/16"	1/64"
3/8" to 1/2"	1/32"
9/16" to 3/4"	3/64"
7/8" to 1-1/8"	1/16"
1-1/4" to 1-1/2"	3/32"



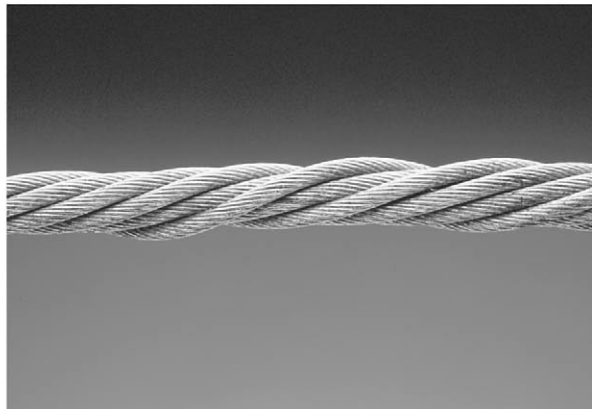
Typical Good Cable



Cable With Broken Wires



Cable With Severe Corrosion



Cable With Necking

Daily Inspection & Maintenance

1. Cleanliness: Cables, Columns, Runways and other lift parts should be kept free of corrosive agents, solvents, and road salts. If such agents are spilled or splashed on any lift component, immediately rinse thoroughly with water and wipe down with a clean rag. Spray wire rope cables as required with Penetrating Oil and wipe down.

Failure to keep lift free of corrosive agents and solvents will lead to reduced component service life, cable failure, etc., which could result in property damage and/or personal injury.

2. Fasteners: Check all the attaching bolts and nuts for tightness.

3. Cables: Check wire rope cables for wear or damage. Any cable with broken wires, severe corrosion, excessive stretch, deformed strands, variations in diameter (necking), or any change from its normal appearance, must be replaced. If any cable is found to be in need of replacement, the entire cable set must be replaced immediately. Refer to figures below.

4. Sheaves: Check sheaves (pulleys) for wear or damage, i.e. wobble (tilt), cracks, loose on pin, or excessive noise during operation.

5. Sheave Pins: Check for loose or missing sheave (pulley) pins.

6. Locking Latches and Slack Cable Devices: Watch locking latches and slack cable devices during lift operation to ensure that latches work properly and line up with slots in latch plate located in columns.

Monthly Inspection & Maintenance

1. Cables

1.1 Clean wire rope cables with lift in both lowered and raised position by spraying with Penetrating Oil and wiping the cable down.

1.2 Adjust cables using procedures on following pages.

2. Slack Cable Device: Inspect slack cable devices using procedure on page 5.

3. Column Anchor Bolts: Check column anchor bolts for tightness. Re-torque anchors bolts to 65 ft/lbs. If anchors do not tighten to the required installation torque, replace concrete under each column base per installation instructions. Let concrete cure before installing lifts and anchors.

4. Columns: Look for corrosion, giving special attention to the area at the base of the column. Check severely corroded areas by pecking with an awl or welder's chipping hammer. If column is corroded through at any point it must be replaced immediately. If not corroded through, remove old paint and rust scale, then coat with a high quality corrosion resistant paint.

NOTE

A thorough inspection of the lifting system must be performed quarterly by qualified lift service personnel; more frequently (monthly) under extreme service conditions such as outside installations or high usage (10 or more cycles per day, etc.).

Quarterly Inspection & Maintenance

1. Cables

1.1 Inspect cables in both lowered and raised position. The cables may also be viewed through various inspection holes and openings in yokes and runways. Check all the following:

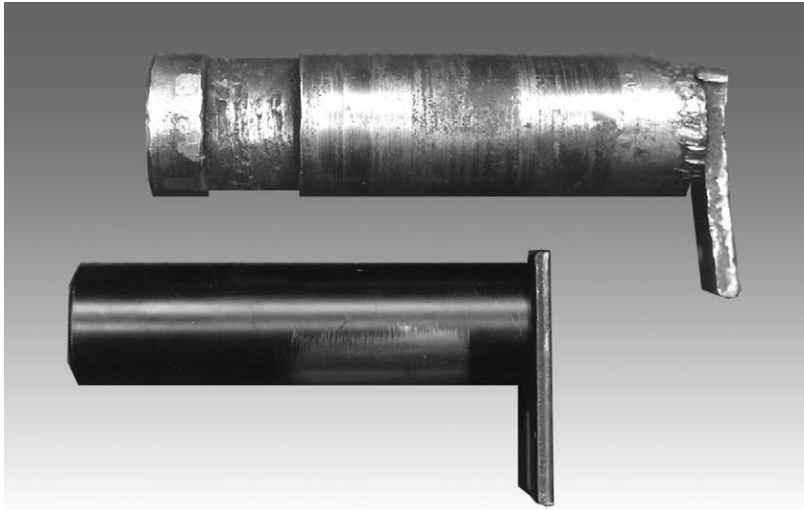
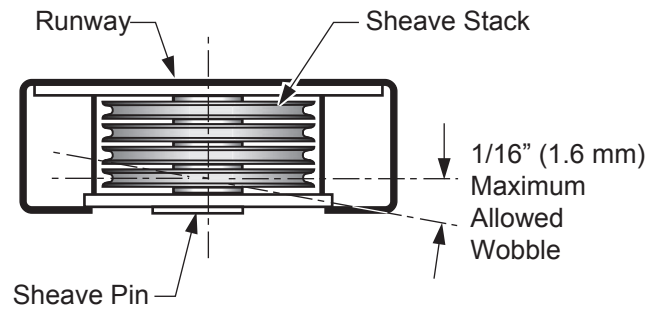
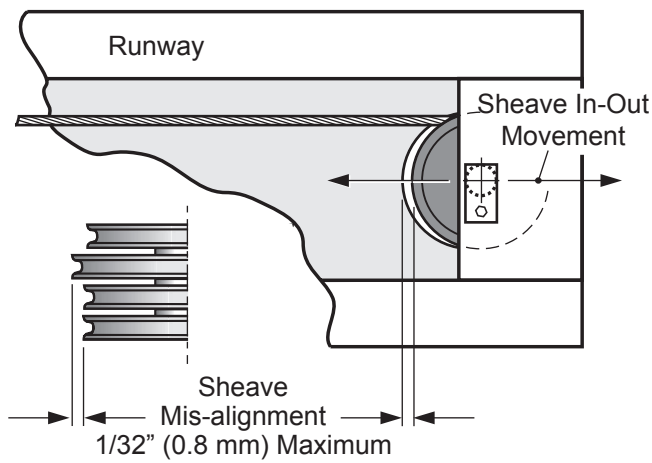
- a. That cables have no broken wires visible, reference Daily Inspection & Maintenance.
- b. That cables are free of severe corrosion and pitting, reference Daily Inspection & Maintenance. A light surface corrosion on exposed outer wires is normal. Penetrating Oil should be applied during monthly periodic inspection.
- c. That there are no areas on the cable that have a greatly reduced diameter or "necking", reference Daily Inspection & Maintenance. When any cable is found with excessive necking, all cables must be replaced immediately.
- d. That cables do not have 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.
- e. If any cable is found to be in need of replacement, the entire cable set must be replaced immediately.
- f. Cables are expendable items and should be replaced as a set every 20,000 cycles (estimated) or every 6 years, unless earlier replacement is indicated during inspection.

2. Sheaves and Pins

Inspect sheaves and pins in yokes and runways. Sheaves are expendable items. Sheaves and pins should be replaced when worn. Use of sheaves and pins with excessive wear will lead to reduced service life of cables.

2.1 Inspect sheaves (pulleys) in yoke ends with lift in lowered position or resting on the locking latches.

- a. Hold lowering handle down and pull on cable in column to create slack in cables.
- b. Check for excessive side to side wobble. Grasp rim of sheave and attempt to wobble (tilt) side to side. If sheaves wobble (tilt) more than 3/16" (4.8 mm) side to side or move up and down on shaft more than 1/32" (0.8 mm), the sheave and pin (shaft) should be replaced, refer figures below.
- c. Check sheaves and replace if cracks are found.
- d. Check for ease of rotation. If sheaves do not turn freely, the sheave and sheave pin should be removed, inspected, lubricated, and reinstalled or replaced.

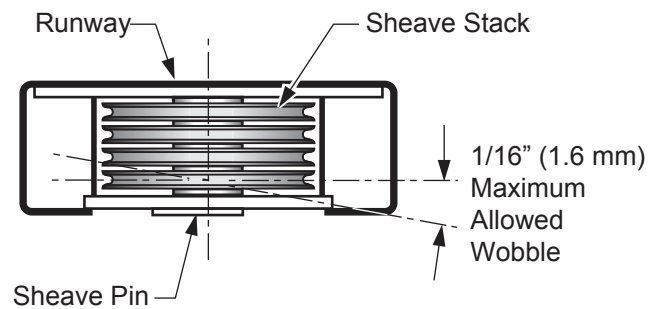
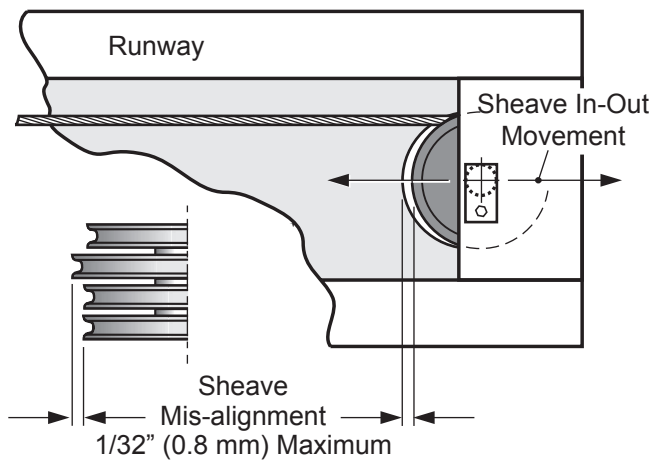


TOP PIN With Excessive Scoring and Wear

BOTTOM PIN With Normal Wear

2.2 Fully raise lift. Inspect sheaves (pulleys) in runway ends with lift in raised position.

- Visually inspect alignment of sheaves, see figure above. Misalignment of sheave(s) indicates excessive wear; the sheave(s) and sheave pin should be removed and inspected. Replace as required.
- Hold lowering handle down to lower lift onto latches. Pull on cables under runway to create cable slack.



- Check for excessive side to side wobble. Grasp rim of sheave and attempt to wobble (tilt) side to side, refer to figures above. If sheaves wobble (tilt) more than 1/16" (1.6 mm) side to side, or move in and out more than 1/32" (0.8 mm), the sheave and sheave pin (shaft) should be replaced, refer to figures above.

3. Hydraulic Cylinder

Inspect the hydraulic cylinder mounting to the runway. Inspect cylinder and hydraulic hoses for leaks. Repair or replace as required.

- 1 Check and tighten the hydraulic cylinder rod nuts holding the cable pull bar.

4. TRACKS for Rolling Jack and Oil Drain Pan

Inspect rolling jack/oil drain pan tracks for cleanliness, corrosion, excessive wear or damage. Clean dirty tracks.

WARNING!

Worn or damaged tracks must be repaired immediately.

Failure to do so will lead to reduced service life which could result in property damage and/or personal injury.

5. Latch Inspection and Adjustment

Check locking latches for proper operation. Inspect for worn or missing parts. Replace worn or damaged parts and adjust as required.

1. Latches

Check latch operation on all four corners.

2. Latch and Latch Bar Line-Up

Observe locking latches during lift operation to ensure that all latches line up with slots in latch bar located in all four columns. If not, relocate and/or re-shim columns.

1. Check slack cable devices for proper operation. Inspect for worn or missing parts. Replace worn or damaged parts as required.
2. Observe both locking latches and slack cable devices during lift operation to ensure that all latches line up with slots in latch bar located in all four columns.

Cable Adjustment

1. Initial Adjustment

Adjust cable with lift fully lowered. Loosen jam nut and tighten nut on cable stud on top of column until yoke end is raised 1/4" (6.4 mm) and back off nut one turn. Retighten jam nut. Repeat for all four cables.

2. Final Adjustment

- a. Load a vehicle such as a 3/4 ton pickup or van on lift.
- b. Raise lift as high as it will travel (full height). You should hear the locking latches click through all latch slots simultaneously.
- c. Lower lift onto top latch position.
- d. Check clearance:
- e. Starting with the right front column, use a straight edge to mark the position of the yoke bottom on the column.
- f. Raise lift to full height again. Mark second position. If gap between two marks is less than 2", adjust locking latch bar to reach clearance of 2". Repeat for the other three columns.
- g. Adjust locking latch bar adjusting nut so that the bottom of the topmost latch bar slot is at least 2" below locking latch. After adjustment, tighten jam nut underneath column top plate, Fig. 11.
- h. If entire 2" clearance cannot be attained by adjusting the locking latch bar, adjust the cable. Turn cable adjusting nut to raise the locking latch 2" above bottom of latch bar slot. Tighten cable jam nut.
- i. Lower lift and remove vehicle.
- j. Raise the lift to full height. LISTEN and WATCH as the first locking latch clicks into place. Synchronize the other three columns with this column by adjusting their cables so all four latches click at same time. Tighten jam nuts.

When making changes to adjustment nuts on cable end or latch bar stud, always leave at least two threads showing between nut and stud end.

Latches may not click in at the same time when vehicle is being raised. They should be close. Be sure all four corners have passed the locking latch bar slot before lowering lift on locking latches.

FIG.2

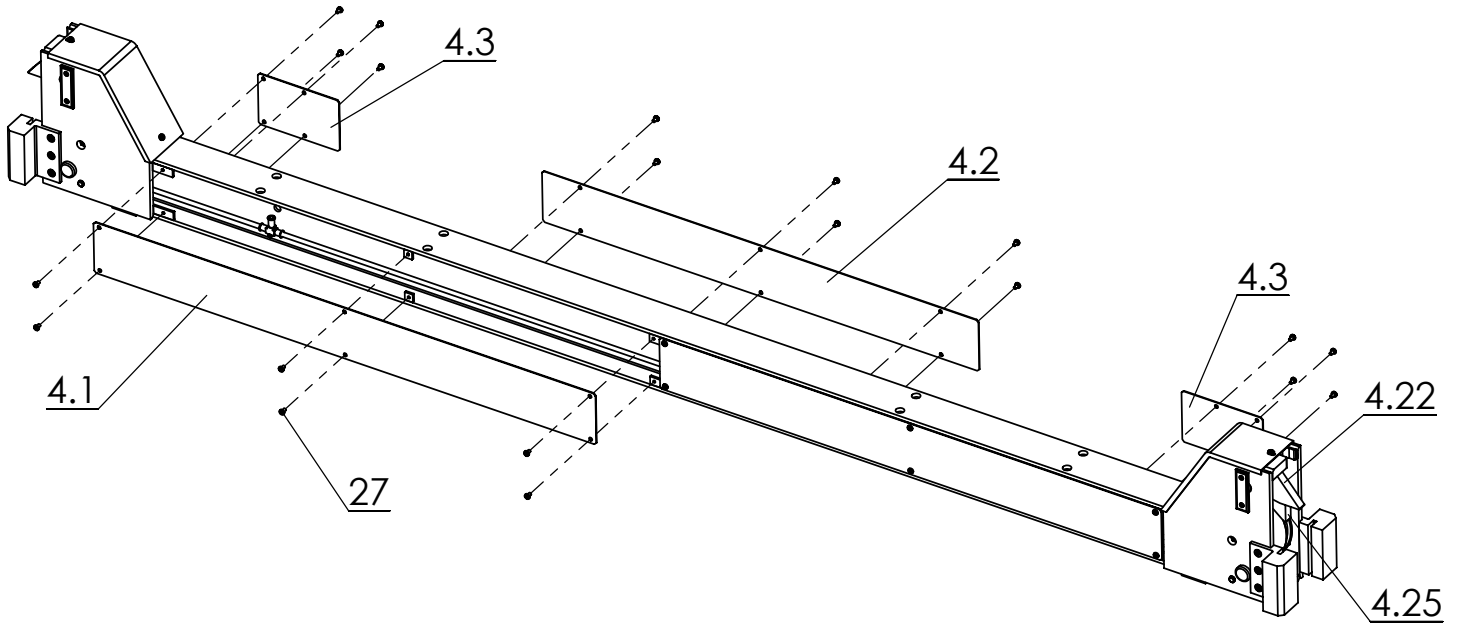


FIG.3 Cross Beam End Assembly

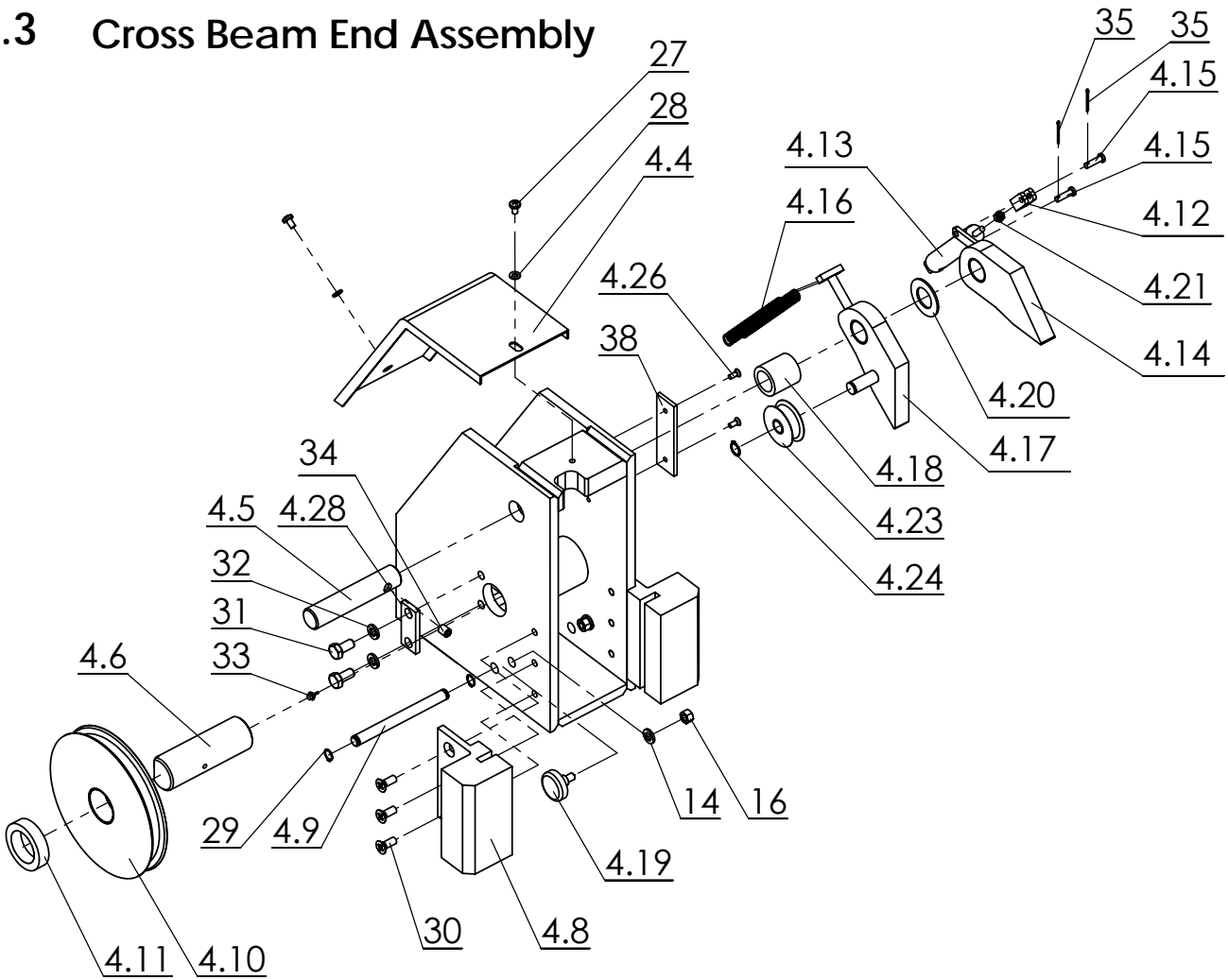


FIG.4 Driving Ramp,Cable Pully Assembly

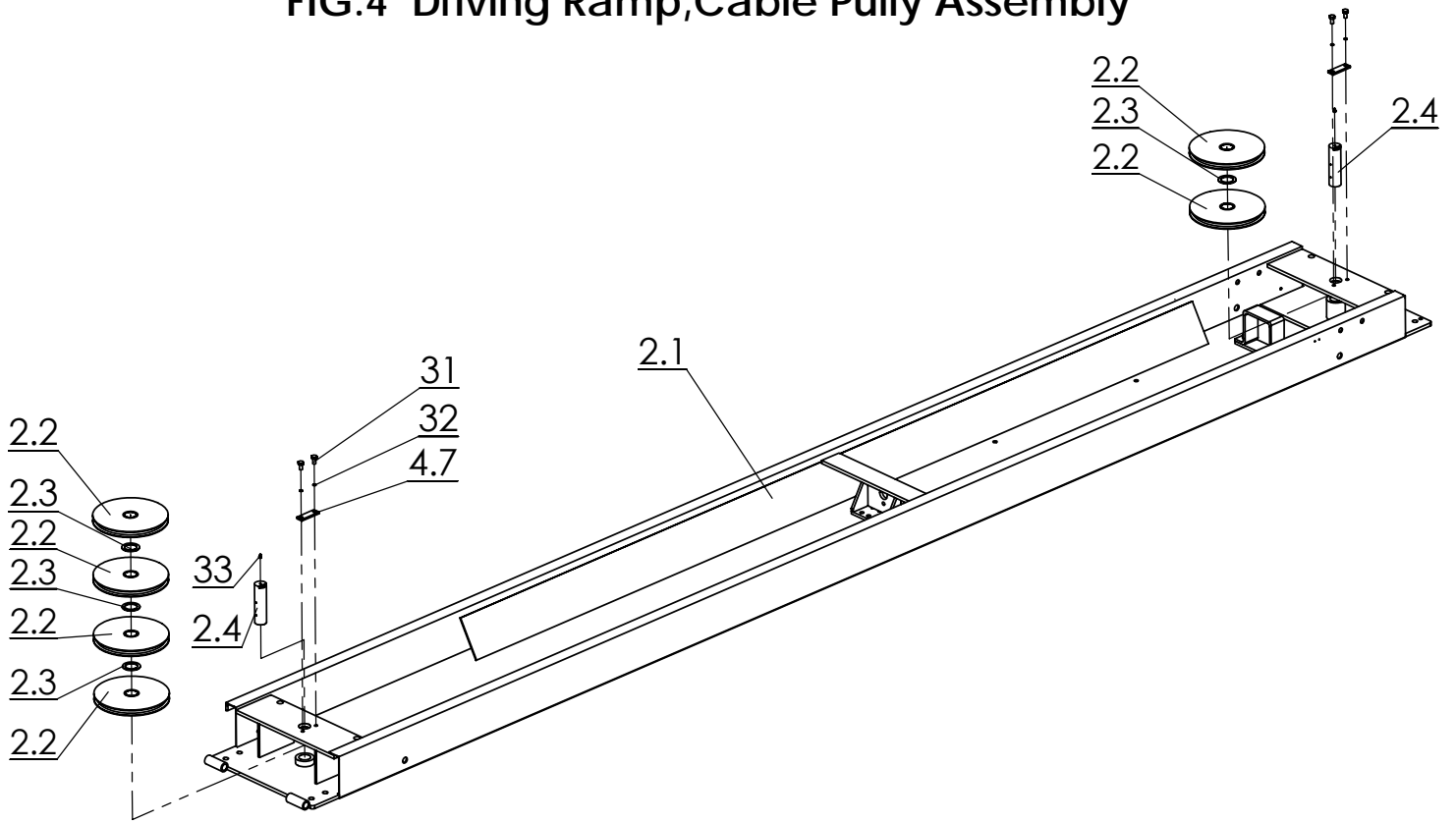
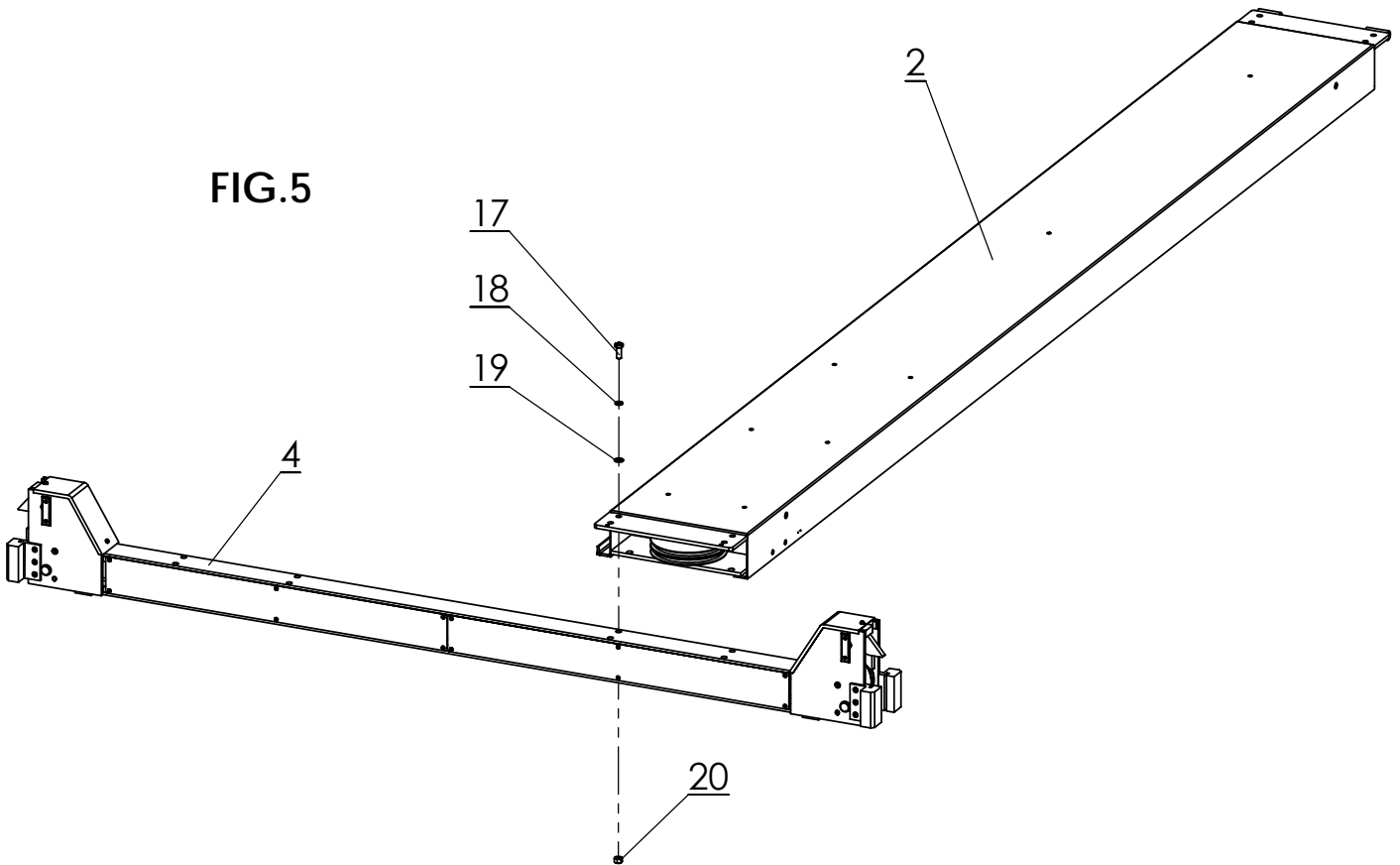
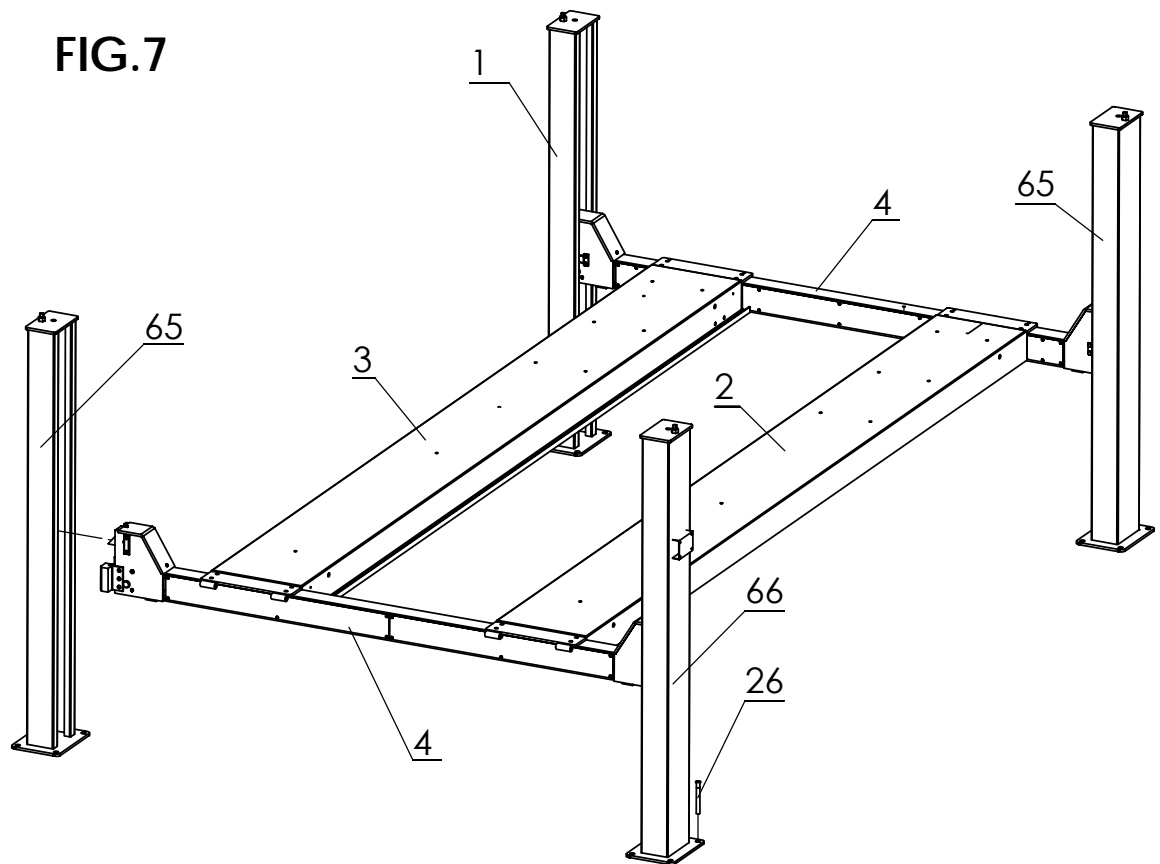
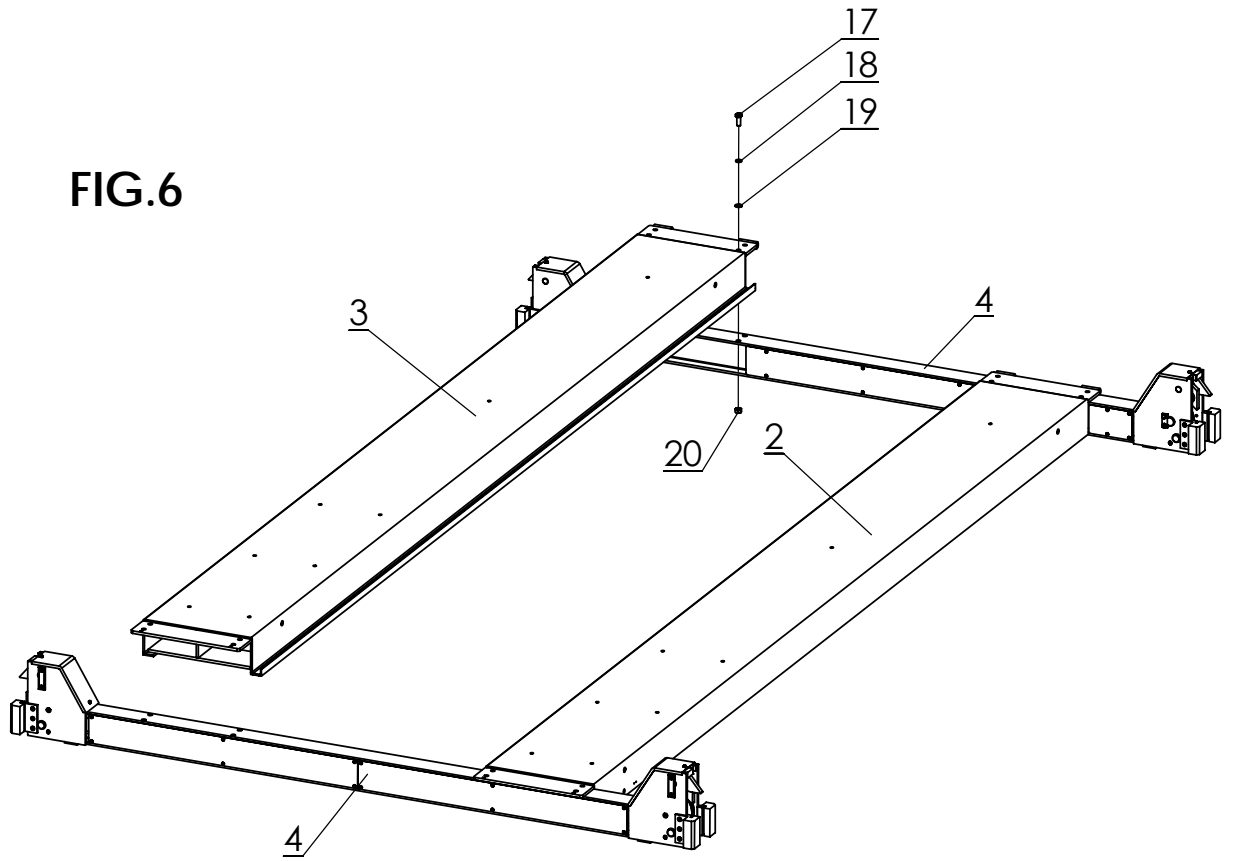


FIG.5





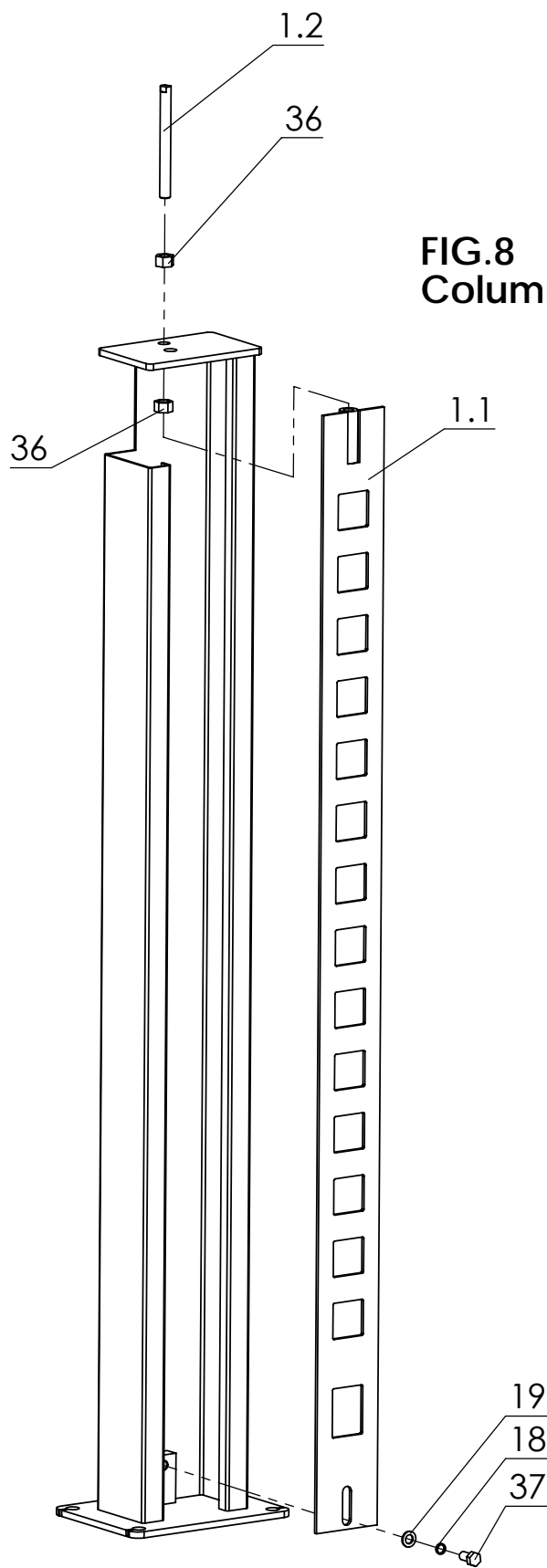


FIG.8
Column Assembly

FIG.9

A (1 : 10)

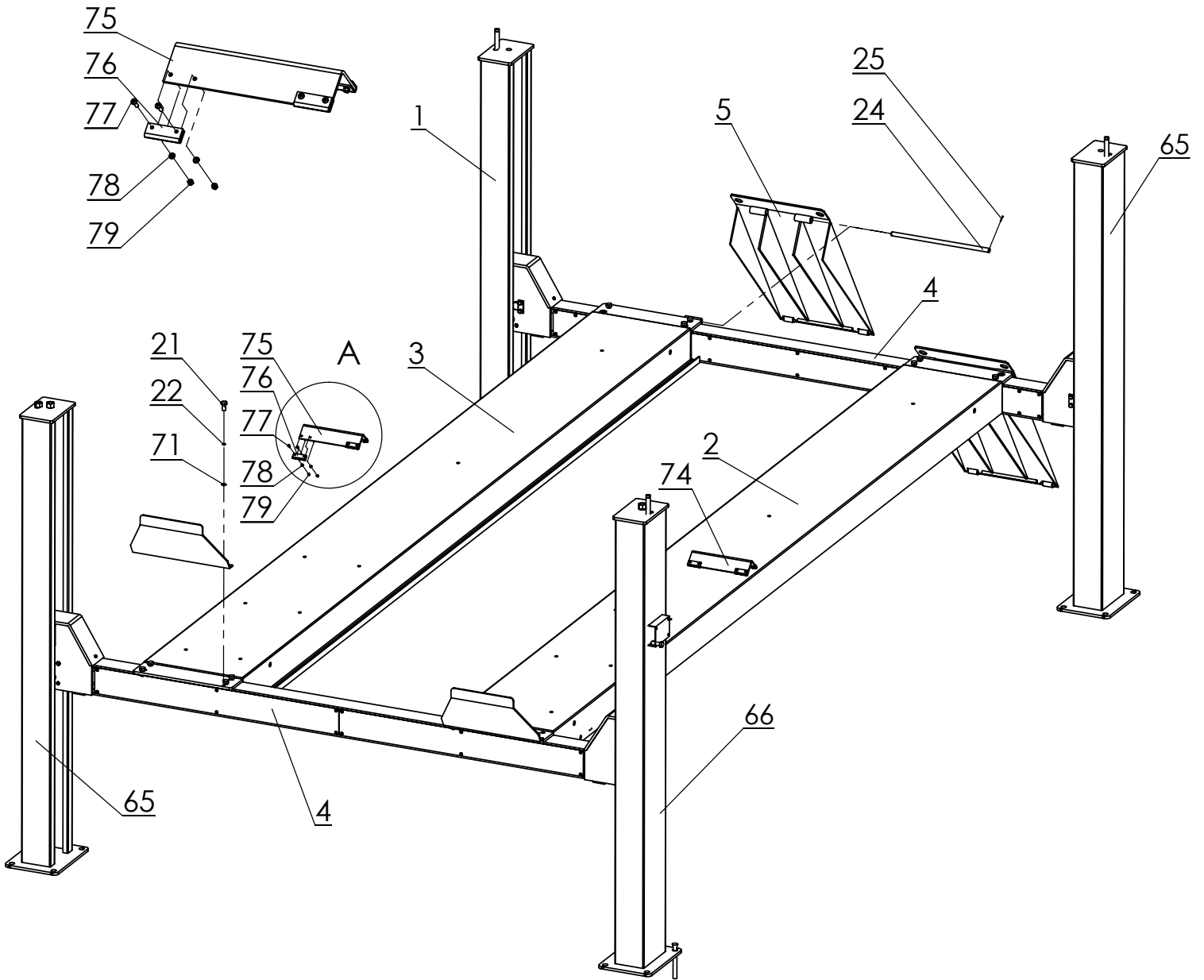
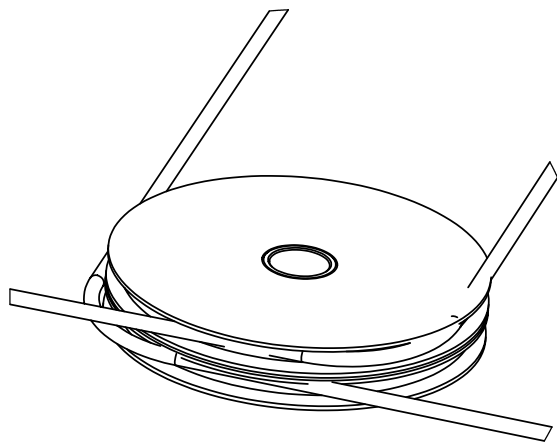
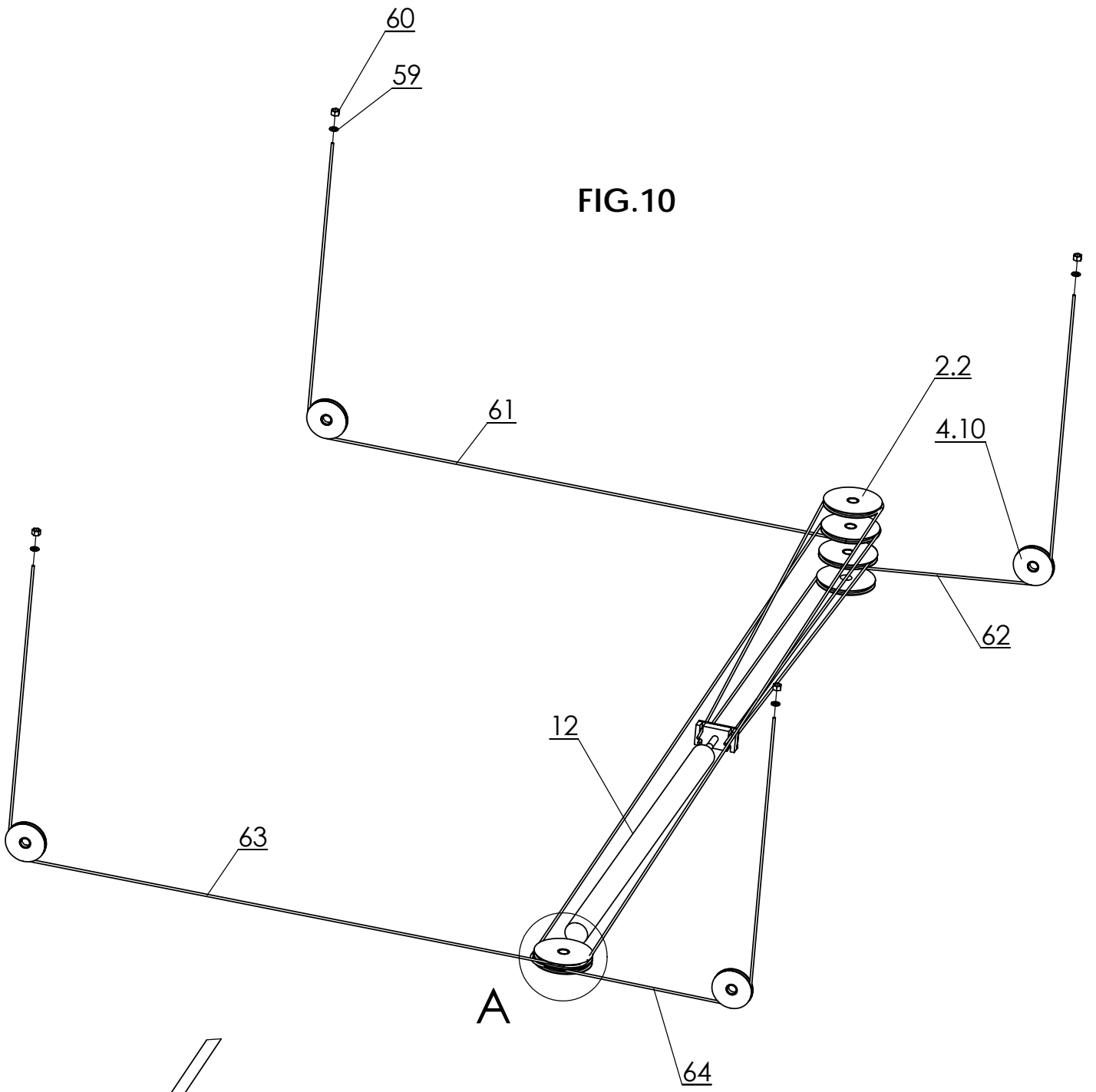


FIG.10



A

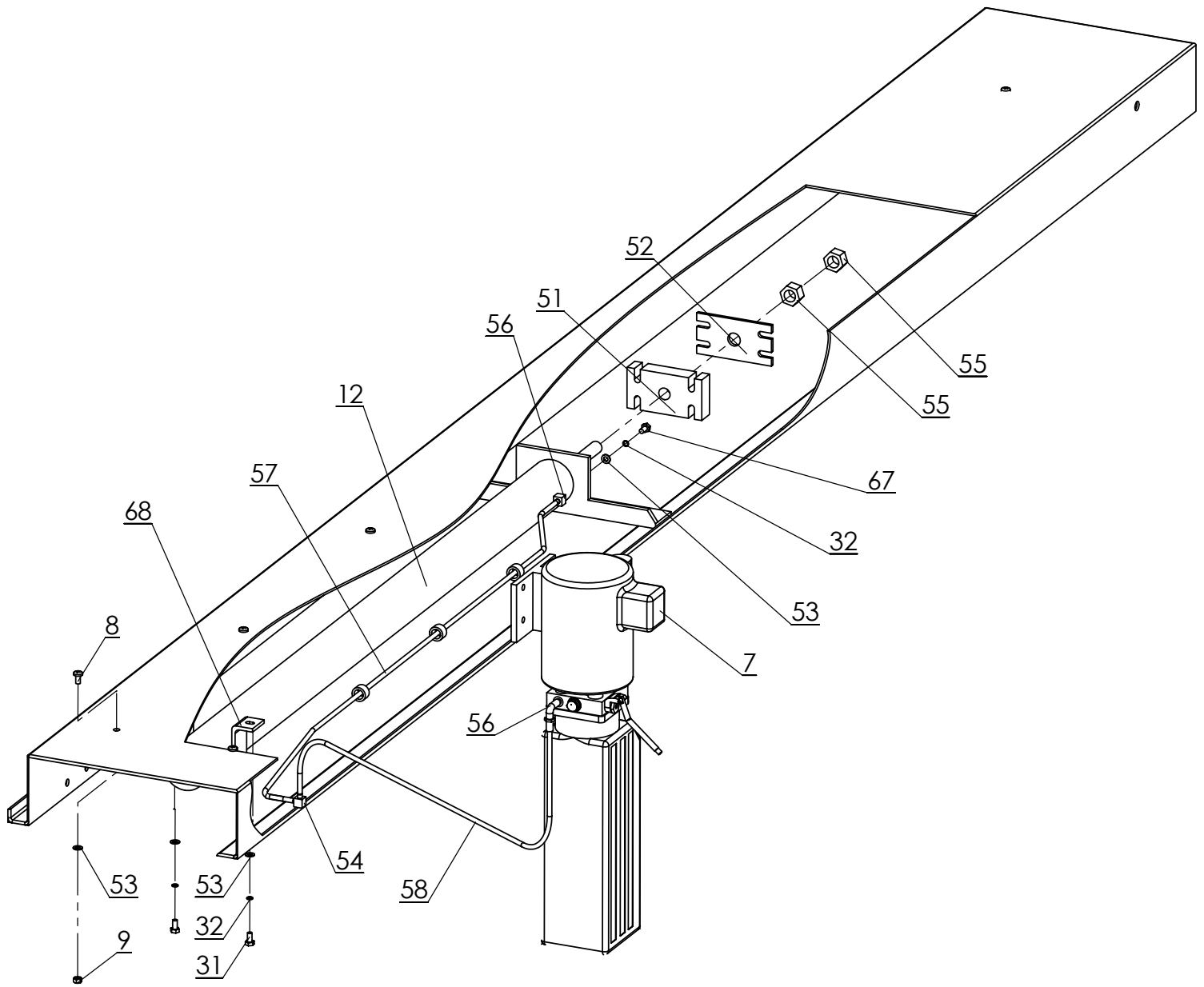


FIG. 13

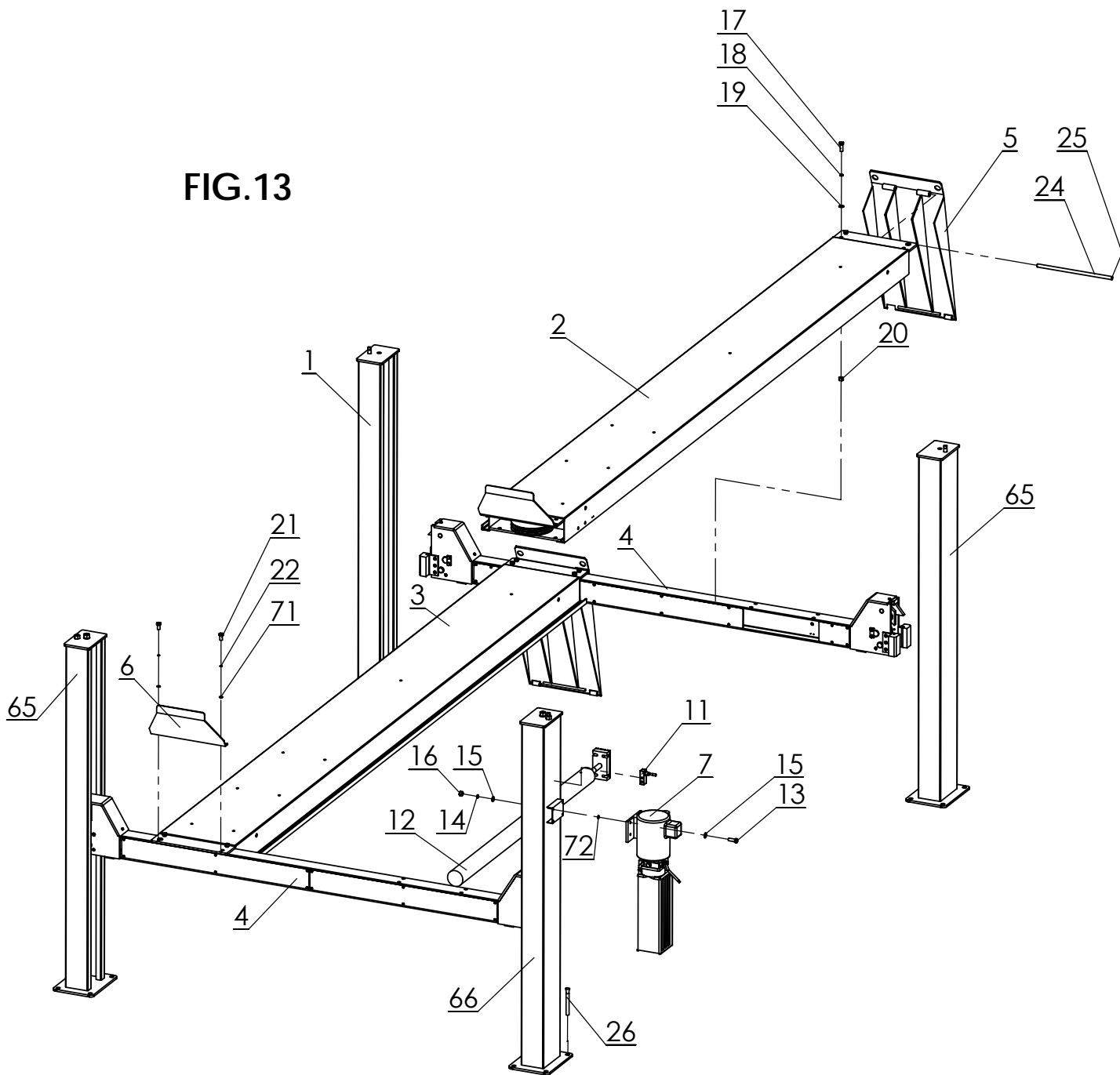


FIG. 14 Turn Table Assembly

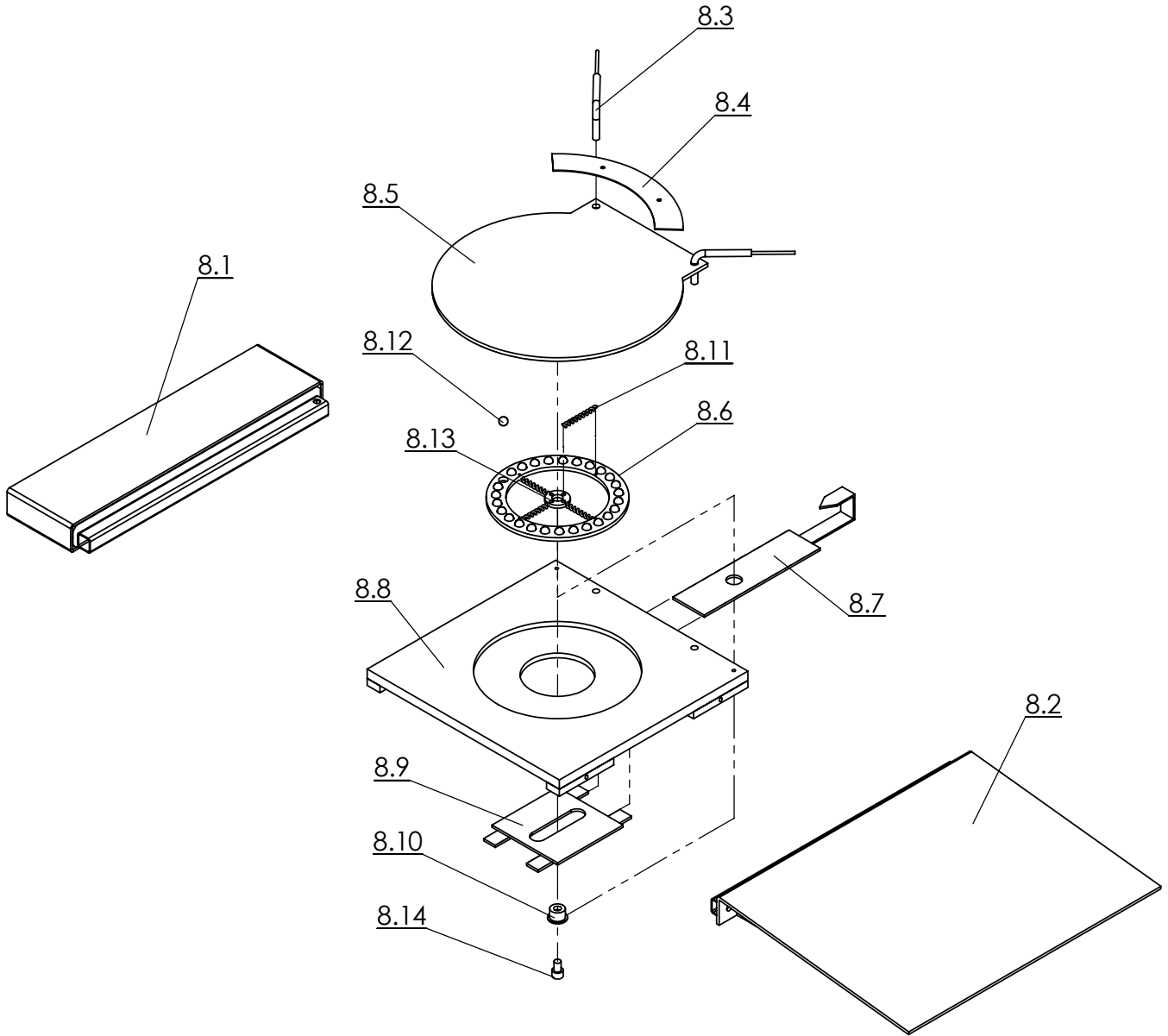


FIG. 15 Rolling Jack Assembly

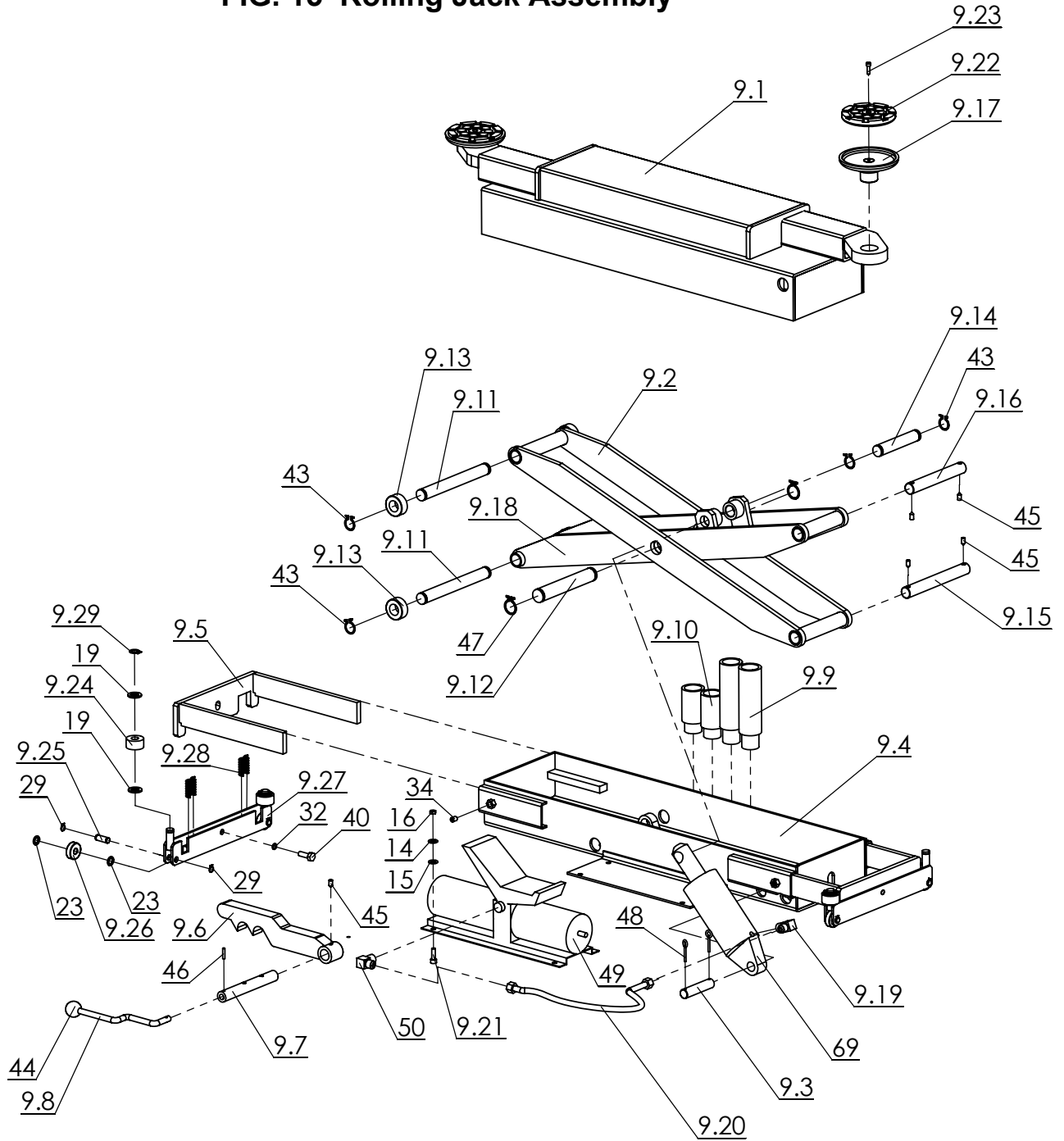


FIG16

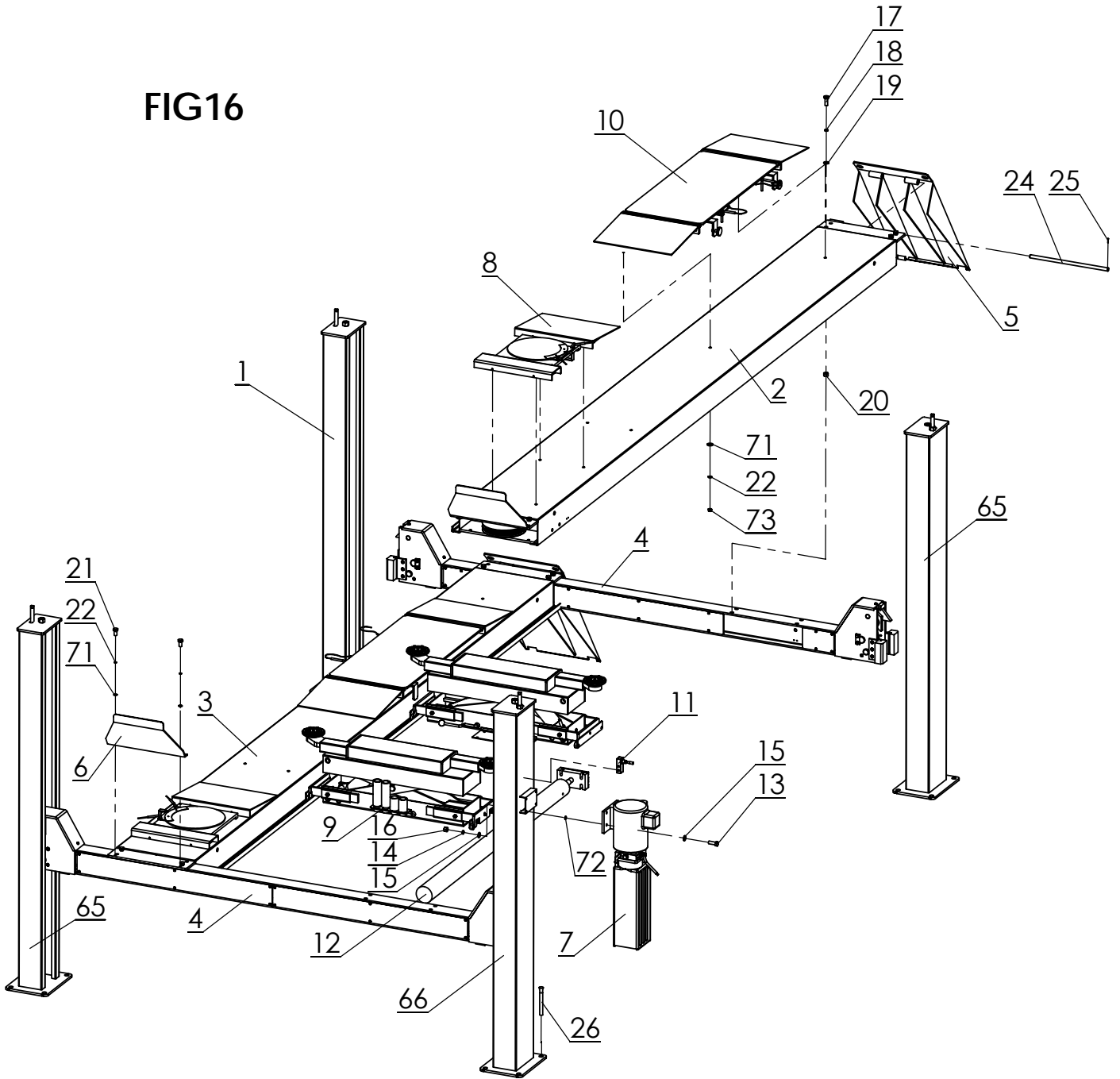
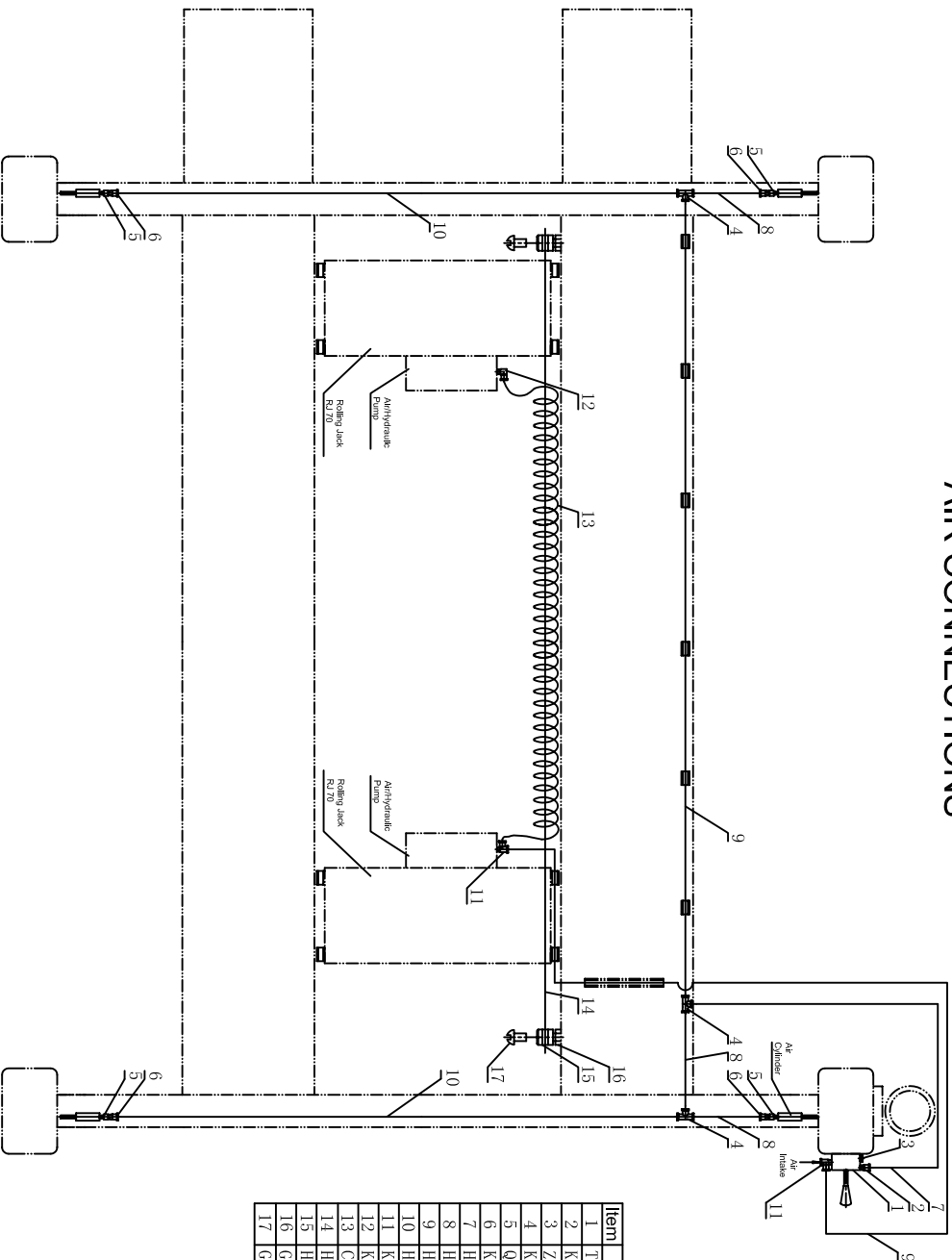


FIG.17
AIR CONNECTIONS



Item	Drawing#	Description/ QTY
1	TSV86522S	Air Valve 1
2	KQ2108-02S	Air Fitting 1
3	Z1/4"	Plug 1
4	KQ2108-00	T Fitting 3
5	0601-9105	Air Fitting 4
6	KQ2108-01	Air Fitting 4
7	H4P-9030	Air Hose 1
8	H4P-6002	Air Hose 3
9	H4P-6001	Air Hose 2
10	H4P-6003	Air Hose 2
11	KQ2108-02S	T Fitting 1
12	KQ2108-02S	Air Fitting 1
13	CL-0860 (NC8-9)	Air Hose 1
14	H4P-3008	Guide Cable 1
15	H4P-3007	Coupler 2
16	GB41-86-M8	Nut 2
17	GB818-85-M6*10	Screw 2

PRO-14F、PRO-14FA PARTS LIST

Items	Drawing #	Description	QTY/PRO-14F	QTY/PRO-14FA
1	H4P-2100G	Column B	1	1
1.1	H4P-2300GHJ	Safety Ladder Weldment	4	4
1.2	H4P-2304	Bolt, Safety Adjustment	4	4
2	H4P-3000	Runway, Driving Side	1	1
2.1	H4P-3100	Runway Weldment, Driving Side	1	1
2.2	H4P-3003	Cable Sheave	6	6
2.3	H4P-3001	Bearing	4	4
2.4	H4P-3005	Shaft, Cable Sheave	2	2
3	H4P-3200	Runway, Slave Side	1	1
4	H4P-1100G	Cross Beam Weldment	2	2
4.1	H4P-1157	Cover A	4	4
4.2	H4P-1159	Cover C	2	2
4.3	H4P-1158	Cover B	4	4
4.4	H4P-1001	Top Cover, Cross Beam Ends	4	4
4.5	H4P-1005	Shaft, Safety Latch	4	4
4.6	H4P-1009	Shaft, Cable Sheave, Cross Beam Ends	4	4
4.7	H4P-3006	Locker, shaft	2	2
4.8	H4P-1021	Slide Block, Cross Beam	8	8
4.9	H4P-1012	Shaft	4	4
4.10	H4P-1007	Cable Sheave	4	4
4.11	H4P-1008	Spacer C	4	4
4.12	H4P-1016	Connector, Air Cylinder	4	4
4.13	QG01-9100	Air Cylinder	4	4
4.14	H4P-1002	Safety Latch	2	2
4.15	B53-6 × 22	6 × 22Pin	8	8
4.16	H4P-1015	Spring	8	8
4.17	H4P-1003G	Safety Latch, Slack Cable	2	2
4.18	H4P-1006	Spacer B	4	4
4.19	H4P-1011	Spacer	8	8
4.20	H4P-1004	Spacer A	4	4
4.21	B30-6	M6 Nut	4	4
4.22	H4P-1002DC	Safety Latch	2	2
4.23	H4P-1014	Roll Sleeve	4	4
4.24	B60-14	14 Snap Ring	4	4
4.25	H4P-1003DCG	Safety Latch, Slack Cable	2	2
4.26	B24-5 × 12	M5 × 12 Screw	8	8
4.28	H4P-1020	Locker,shaft	4	4

5	H4P-R2000	Approach Ramp	2	2
6	H4P-4100	Tire Stopper	2	2
7	P/U	Power Unit	1	1
8	H4P-8000	Turn Table Assembly		2
8.1	H4P-8200	Front Block, Turn Table		4
8.2	H4P-8100	Approach Ramp, Turn Table		4
8.3	55000-11	Lock Pin, Turn Table		4
8.4	55000-3	Scale, Turn Table		2
8.5	55000-2A	Turn Table Top Plate		2
8.6	55000-8	Bearing Frame, Turn Table		2
8.7	55000-4	Scale Needle		2
8.8	55000-1	Base Plate, Turn Table		2
8.9	55000-5	Slot Plate		2
8.10	55000-10	Pin		2
8.11	55000-9	Retaining Spring		8
8.12	B83-1/2	1/2" Steel Ball		54
8.13	55000-13	Washer		2
8.14	B20-10 × 16	M10 × 16 Screw		2
9	H4P-9000	Rolling Jack,RJ70		2
9.1	H4P-9100	Top Cover		2
9.2	H4P-9300W	Outer Scissor		2
9.3	H4P-9007	Pin, Cylinder Bottom		2
9.4	H4P-9200	Bottom Tray		2
9.5	H4P-9420	Roller Structure		4
9.6	H4P-9500	Safety Lock		2
9.7	H4P-9003	Shaft, Safety Lock		2
9.8	H4P-9004	Handle, Safety Lock		2
9.9	H4P-9011	6 Truck Adapters		4
9.10	H4P-9010	3 Truck Adapter		4
9.11	H4P-9002	Roller Shaft		4
9.12	H4P-9005	Shaft, Scissor		2
9.13	H4P-9001	Rollers		8
9.14	H4P-9006	Pushing Pin, Cylinder		2
9.15	H4P-9009	Long Shaft, Scissor		2
9.16	H4P-9008	Short Shaft, Scissor		2
9.17	30400-6005-2	Swivel Lifting Pads		4
9.18	H4P-9300N	Inner Scissor		2
9.19	30400-9054(B)YZ	Fitting, Elbow		2
9.20	2WB-16	Hydraulic Hose		2
9.21	B10-8 × 16	M8 × 16 Bolts		8
9.22	PV-6003	Rubber Pad		4

9.23	B20-6 × 20	M6 × 20 Screw		4
9.24	H4P-9402	Roll Wheel		8
9.25	H4P-9403	Spring		8
9.26	B70-6301	Bearing		8
9.27	H4P-9410	Moving Structure		4
9.28	H4P-9401	Spring		16
9.29	B60-16	16 Snap Ring		8
10	H4P-7000	Rear Slip Plate		2
10.1	H4P-7100	Ramp		4
10.2	H4P-7300	Top Plate		2
10.3	H4P-7200	Bottom Plate		2
10.4	H4B-7110A	Locking pin		4
10.5	H4B-7108	Washer		4
10.6	H4B-7107	Spring		8
11	TSV86522S	Air Valve	1	1
12	YG18-9100G	Hydraulic Cylinder	1	1
13	B10-8 × 25	M8 × 25Bolts	4	4
14	B40-8	8 Lock Washer	12	20
15	B41-8	8 Flat Washer	8	16
16	B30-8	M8 Nuts	12	20
17	B17-16 × 50	M16 × 50Bolts, 12.9 Grade	16	16
18	B40-16	16 Lock Washer	20	20
19	B41-16	16 Flat Washer	20	36
20	B31-16	M16 Nuts	16	16
21	B10-12 × 20	M12 × 20 Bolts	4	4
22	B40-12	12 Lock Washer	4	16
23	B45-12	12 Small Flat Washer		16
24	H4P-4006	Hinge Pin	2	2
25	B52-3 × 40	3 × 40 Cotter Pin	4	4
26	B14-3/4 × 140	3/4 × 140 Anchor Bolts	16	16
27	B23-6 × 10	M6 × 10 Screw	60	60
28	B41-6	6 Flat Washer	8	8
29	B60-12	12 Snap Ring	8	24
30	B24-8 × 20	M8 × 20 Screw	24	
31	B10-10 × 20	M10 × 20 Bolt	14	14
32	B40-10	10 Lock Washer	17	19
33	B85-6	M6 Oil Zerk	6	6
34	B21-10 × 16	M10 × 16 Screw	4	12
35	B52-2 × 25	2 × 25 Cotter Pin	8	8
36	B30-20	M20 Nuts	8	8
37	B10-16 × 30	M16 × 30 Bolt	4	4

38	CH4-2003	Bracket	4	4
39	B20-10 × 25	M10 × 25 Screw		8
40	B20-10 × 30	M10 × 30 Bolt		6
41	B23-6 × 8	M6 × 8 Screw		8
42	B73-1B	Floating Bearing		88
43	B60-25	25 Snap Ring		12
44	B84-35	35 × M10 Plastic Ball		2
45	B22-8 × 16	M8 × 16 Screw		12
46	B51-5 × 24	5 × 24 Row Pin		2
47	B60-30	30 Snap Ring		4
48	B52-4 × 45	4 × 45 Cotter Pin		4
49	A/P	Air/Hydraulic Pump		2
50	SW-003(H4D-Y004)	Fitting, Elbow	0	2
51	H4P-5003	Cable Connector A	1	1
52	H4P-5004	Cable Connector B	1	1
53	B41-10	10 Flat Washer	5	21
54	H4D-Y003	Fitting, Elbow	1	1
55	B30-27 × 1.5	M27 × 1.5 Nuts	2	2
56	30400-9053YZ	Fitting, Elbow	1	1
57	1WB-11	Hydraulic Hose	1	1
58	1WB-05	Hydraulic Hose	1	1
59	B41-22	22 Washer	4	4
60	B33-22 × 2.5	M22 × 2.5 Lock Nuts	4	4
61	H4P-5002-2	Cable L=5559	1	1
62	H4P-5002-1	Cable L=3959	1	1
63	H4P-5002-4	Cable L=10733	1	1
64	H4P-5002-3	Cable L=9133	1	1
65	H4P-2200G	Column C	2	2
66	H4P-R1100G	Column A	1	1
67	B11-10 × 25	M10 × 25 Screw	3	3
68	H4P-3002	Bracket	1	1
69	YG28-9100	Cylinder, Rolling Jack		2
71	B41-12	12 Flat Washer	4	16
72	30400-1999	Washer	4	4
73	B30-12	M12 Nuts		12
74	H4P-R3100	Wheel Stop	2	2
75	H4P-R3101	Angle Iron	2	2
76	H4P-R3102	Rubber	8	8
77	B23-5 × 16	M5 × 16 Screw	16	16
78	B41-5	5 Washer	16	16
79	B30-5	M5 Nut	16	16