KREBS

Read the entire manual before installing, operating, or maintaining the equipment. Before operating the Automotive Lift, operators must be familiarized with all control locations and functions as well as the machine characteristics, instructions and warnings stated in the manual. Operators must also be supervised accordingly. The correct equipment functionality and reliability depend on meeting all information requirements herein.

INSTALLATION AND OPERATION MANUAL- VERSION 0.96-REV 2.0-AUG 2024

KB10 SERIES

TWO-POST AUTOMOTIVE LIFT

MODEL KB10R/KB10H

KREBS

KREBS KB10 SERIES-TWO POST AUTOMOTIVE LIFT
Installation and Operation Manual v0.96

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EDITION CONTROL

Name:	Date:
• Manual do Elevador MF 2022 v1;	• 16/11/2022
• Manual Elevador MF 2022 v2 (PDF INTERATIVO); MF 2022 v2 User's Manual;	• 02/12/2022
• Manual Elevador MF 2022 v3;	• 20/06/2023
• MF10 Two-Post Automotive Lift User's Manual- v4; MF10 Two-Post Automotive Lift User's Manual- v5;	• 25/07/2023
• MF10 Two-Post Automotive Lift Installation and Operation Manual-v1;	• 28/07/2023
• MF10 Two-Post Automotive Lift Installation and Operation Manual-v2;	• 04/08/2023
• MF10 Two-Post Automotive Lift Installation and Operation Manual-v3;	• 19/09/2023
• MF10 Two-Post Automotive Lift Installation and Operation Manual-v4; MF10 Two-Post Automotive Lift Installation and Operation Manual-v4.1;	• 27/09/2023
• MF10 Two-Post Automotive Lift Installation and Operation Manual-v4.1 PT-BR MF10 Two-Post Automotive Lift Installation and Operation Manual-v4.2 EN; MF10 Two-Post Automotive Lift Installation and Operation Manual-v4.2 PT-BR	• 25/10/2023
• MF10 Two-Post Automotive Lift Installation and Operation Manual-v0.9 EN;	• 10/11/2023
• MF10 Two-Post Automotive Lift Installation and Operation Manual-v0.91 EN;	• 24/11/2023
• MF10 Two-Post Automotive Lift Installation and Operation Manual-v0.92 EN;	• 22/12/2023
• MF10 Two-Post Automotive Lift Installation and Operation Manual-v0.93 EN;	• 15/04/2024
• MF10 Two-Post Automotive Lift Installation and Operation Manual-v0.94 EN;	• 10/05/2024
• MF10 SERIES-Two-Post Automotive Lift Installation and Operation Manual-v0.94-rev2.0-May 2024 EN.	• 13/05/2024
• MF10 SERIES-Two-Post Automotive Lift Installation and Operation Manual-v0.95-rev1.0-Jun 2024 EN.	• 26/06/2024
• KB10 SERIES-Two-Post Automotive Lift Installation and Operation Manual-v0.96-rev1.0-Jul 2024 EN.	• 31/07/2024
• KB10 SERIES-Two-Post Automotive Lift Installation and Operation Manual-v0.96-rev2.0-Aug 2024 EN.	• 13/08/2024

INTRODUCTION

Welcome to KREBS

We are happy to provide you with one more product with KREBS quality and technology.

By aiming to offer you the best use of your equipment, we have drawn up this manual containing all its characteristics and basic safety regulations, how to operate it, and some additional information.

Before starting up your Automotive Lift, this manual must be fully read and understood since the correct equipment functionalities and durability depend on meeting all information requirements in this manual.

As you read through this manual, you will find some terms regarding the Automotive Lift. To fully understand them, the Automotive Lift list of components has been normalized according to the model described and shown below.

KREBS, aiming at improving its products, reserves the right to alteration on any Automotive Lift part or accessory whenever needed, regardless of whether those modifications to previously manufactured goods.

KB10 SERIES®: A Two- post Automotive Lift that is symmetric and raises Vehicles up to 10,000 pounds (4,536 kg). It is also available with extender adapters (for taller Vehicles), sport swing arms, and both.

The model used in this manual and represented in the figures is the KB10R (retangular swing arms), with the 2 and 3 stages swing arms (the last stage have the threaded arm, to be used with the threaded adapter) and the hydraulic power unit model is YZB6.

Symbols

This manual uses graphic symbols to catch attention to areas that present information on potentially dangerous situations or that require special attention, as well as other signs.

It shows severely hazardous situations that, if not avoided, will result in severe injury or life-threatening risks.

It shows a potentially hazardous situation that must be avoided in order to prevent injuries.

It is used to present additional information regarding maintenance or instructions to use and may be deepened or checked upon by other means or manuals.

It means crushing hazard. This equipment has movable parts that may cause severe injuries. Keep your hands and feet away.

Risk of electrical shock. The equipment is connected to electricity, so switch it off and unplug it whenever some repair or maintenance is needed.

Some objects may fall. Make sure the carriage is tightly connected and the vehicle is completely lowered to ground level.

This symbol means any irregular equipment handling may cause it to overturn.

This symbol means a component is moving.

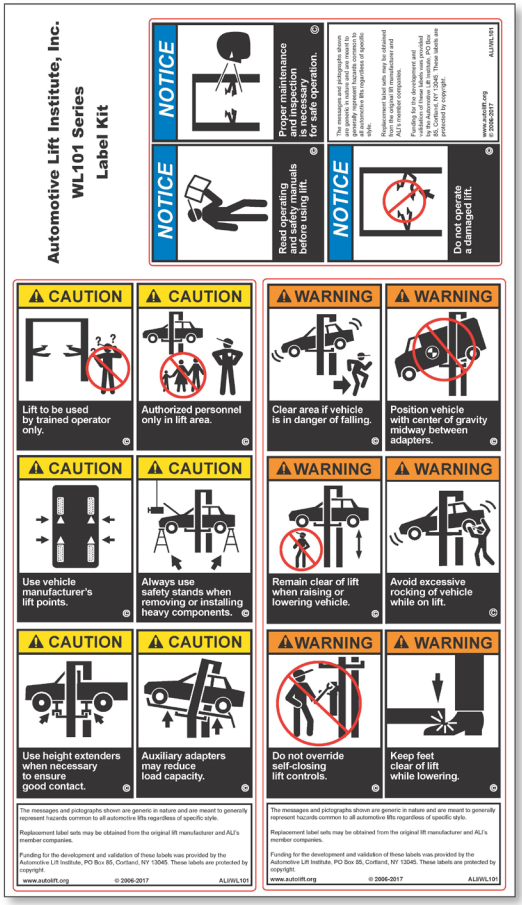
This symbol means stages (step-by-step).

This symbol refers to an indication.

Summary

SAFETY RULES

Keep these instructions for future reference



Pictographs and Warning Labels used with permission of Automotive Lift Institute www.autolift.org

Important safety instructions

1. Read the entire manual before installing, operating, or maintaining the equipment. Please read all the instructions below and keep them for future reference.

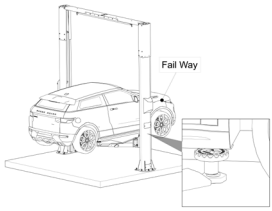
2. Follow all instructions and warnings for using the equipment carefully.

3. Every maintenance, whether mechanical or electric, must be carried out with the equipment shut off and by authorized capable personnel.

4. When the equipment is on, do not get closer to moving areas such as sheaves, wire ropes, or carriages, and, most importantly, never remain under the equipment while it is traveling! Do not try to clean, climb on, touch it, or carry out any maintenance while the machine is moving. Therefore, since accidents are likely to happen, keep a safe distance of 14' 10" (4.52m) away from the equipment while it is in operation (except the operator, who must be next to the column).

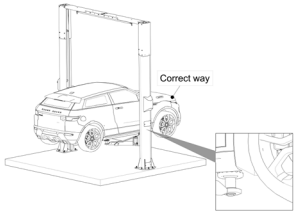
5. Do not operate a damage Two- Post lift.

6. Watch out for the vehicle positioning on the Automotive Lift.



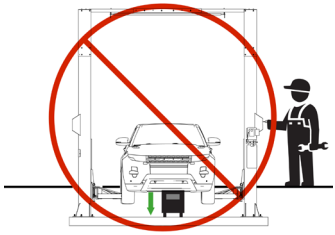
7. Keep the vehicle gravity center well spread between the columns.

8. Place the pads in their right places as stated by the manufacturer on the vehicle frame.



Always refer to the Quick Reference Guide, Vehicle Lifting Points for Frame Engaging Lifts (ALI/LPG) and ANSI/SAE J2184 for proper vehicle lifting points.

9. Never set the vehicle



unevenly loaded; which may cause severe accidents.

10. Never lift a vehicle with its trunk loaded.

11. Before operating the Automotive Lift, operators must be familiarized with all control locations and functions as well as the machine characteristics, instructions, and warnings stated in the manual. Operators must also be supervised accordingly.

Item mentioned in the “Safety requirements for construction, testing, and validation” chapter of the ANSI/ALI ALCTV manual. Always refer to the latest version.

12. Only manufacturer’s qualified personnel from AUTHORIZED DEALERSHIPS or SERVICE CENTERS shall be allowed to lift, transport, adjust, calibrate, configure, maintain, revise, assemble, and disassemble the Automotive Lift.

Item mentioned in the “Safety Tips” chapter of the ANSI/ALI ALCTV manual. Always refer to the latest version.

13. This manual is an integrated part of the equipment; if such equipment is resold, it must accompany it. Keep it free from moisture and other factors that may damage it. Always keep it near the equipment, easily accessible to be available for reference and emergency procedures.

14. Make sure all stickers are clean and easily visible.

Replacement stickers are available from the manufacturer.

15. The equipment owner shall provide all necessary signaling/ blocking sources of energy shutoff (Lock- out Tag out) as in ANSI Z244.1 and CSA Z460, as well as the necessary training for operators. Safety Rules for Energy Source Block/ Signaling (Lock- out Tag out) prior to carrying out any repair or maintenance in the Automotive Lift.

Item mentioned in the UL201 and CSAC22.2 nº 68-18.

16. The installation location shall not be near painting workbenches, solvent or enamel storage and washing areas. Its installation near rooms where explosions may take place is strictly forbidden.

17. 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.

18. 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 ensure the cord will not become a trip hazard.

19. Allow the equipment to cool down completely before storing it. Loop cord loosely around equipment when storing.

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

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

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

23. ALWAYS WEAR SAFETY GLASSES. Everyday usage eyeglasses only have impact-resistant lenses, they are not safety glasses.

24. To reduce the risk of injury, close supervision is necessary when this product is used around children. (Pertains to cabinets only).

25. To reduce the risk of electric shock or fire, never overload receptacles. Refer to markings and specifications for the proper load on receptacles.

KB10 SERIES INTRODUCTION

Description of the Automotive Lift

The KB10 SERIES-Two-Post Automotive Lift contains 2 columns, the motor column (1), which contains the hydraulic power unit (50) and the driven column (1.1). Each one comes with a moving carriage (2), which has 2 swing-arms (64 and 66) with the lift pads system (72). The carriages travel by means of pressing the switch in the hydraulic power unit, thus providing the hydraulic fluid to the cylinders assembly (6) in each of the columns, actuating the synchronizing wire rope system (30) and sheaves, through the travel of the carriages. When it comes downwards, a hydraulic power unit lowering lever, jointly with the load-holding device (41) of the motor column, will carry out the task.
The wire ropes synchronize travels, and the swing arms have placement restraints and can be of 2 and/or 3 stages of reach (for the retangular swing arm), in addition can be threaded.

Model KB10R/KB10H Characteristics

- Heavy- duty Construction.
- Powder epoxy coating for corrosion prevention.
- Cylinder assembly direct drive technology.
- Lift pad system.
- Swing arms restraints.
- Load-holding devices -- each 2 3/4” (70mm) apart;
- Two configurations width: standard and wide;
- Overhead limit switch;
- Indoor use only;
- Symmetric.

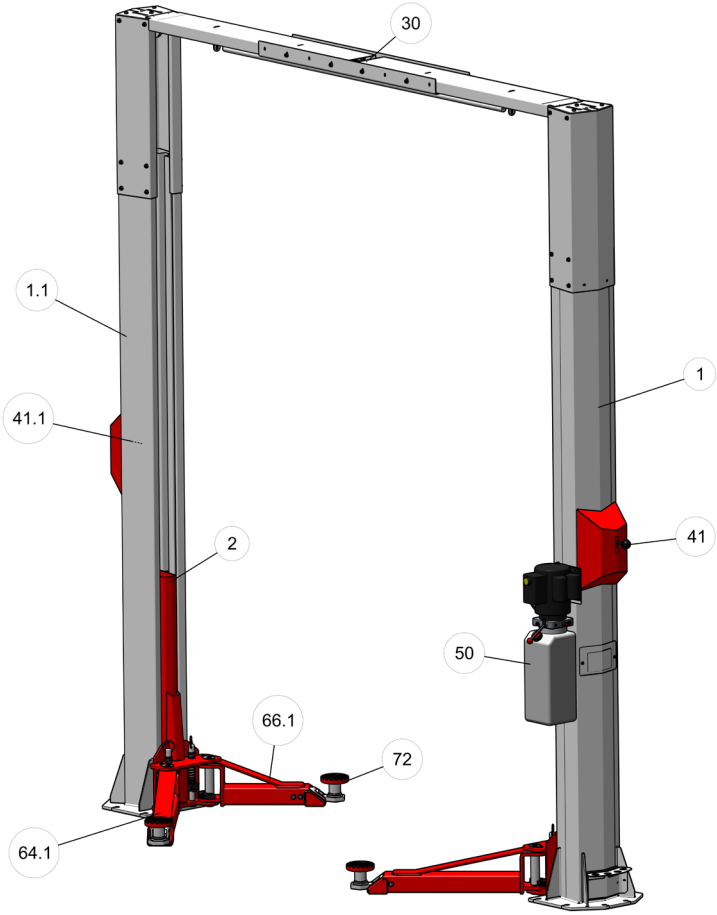


Figure 1

Specifications

KB10R

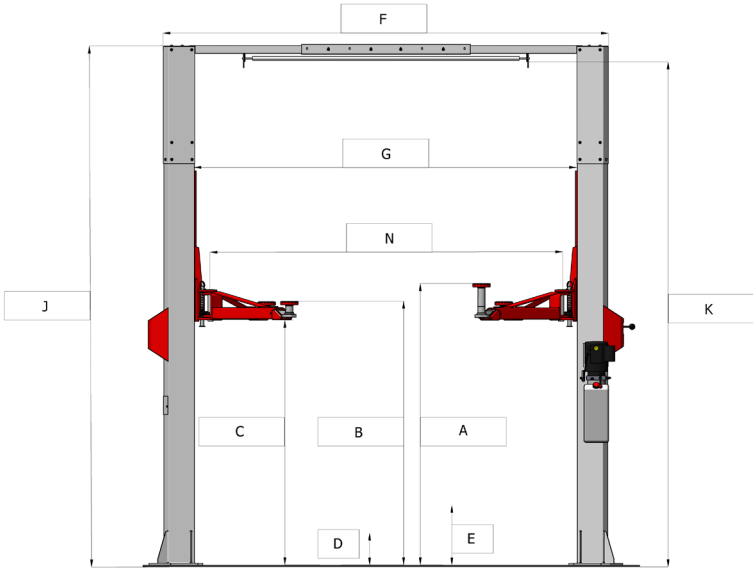


Figure 2

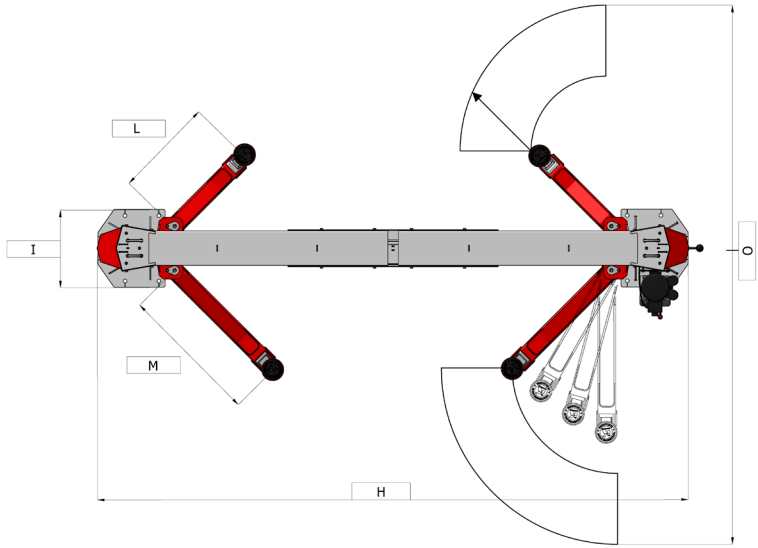


Figure 3

	MEASUREMENTS DESCRIPTIONS	KB10R	KB10H
	RATED LOAD CAPACITY	10000lb (4535 kg)	
A	MÁX. LIFTING HEIGHT	6’ 5 1/8” (1960mm)	6’ 5 5/16” (1966mm)
		6’ 3” (1905mm)*	6’ 3 1/4” (1911mm)*
B	LIFTING HEIGHT WITH LIFT PAD (RAISED CARRIAGE)	6’ (1830mm)	6’ 1/4” (1836mm)
		5’ 9 3/4”(1775mm)*	5’ 10” (1781mm)*
C	LIFTING HEIGHT WITHOUT LIFT PAD (RAISED CARRIAGE)	5’ 7 5/8” (1719mm)	5’ 7 7/8” (1725mm)
D	MIN. LIFTING HEIGHT	5 5/8” (144mm)	6 ” (150mm)
		3 1/2” (89mm)*	3 5/8” (95mm)*
E	LIFTING HEIGHT WITH LIFT PAD (LOWERED AUTOMOTIVE LIFT)	10 5/8” (274mm)	11 ” (280mm)
		8 5/8” (219mm)*	8 3/4” (225mm)*
F	COLUMN OUTSIDE (WIDE)	11’ 3 3/8” (3438mm)	
	COLUMN OUTSIDE (STANDARD)	10’ 3 5/8” (3138mm)	
G	COLUMN INSIDE (WIDE)	9’ 9 7/8” (2994mm)	
	COLUMN INSIDE (STANDARD)	8’ 10 1/8” (2694mm)	
H	TOTAL WIDTH (WIDE)	11’ 11 5/16” (3640mm)	
	TOTAL WIDTH (STANDARD)	10’ 11 1/2”(3340mm)	
I	DEPTH	1’ 5 5/16” (439mm)	
J	TOTAL HEIGHT	12’ 5/16” (3667mm)	
K	INTERN HEIGHT	11’ 7 1/2” (3545mm)	
L	3-STAGE SWING ARM REACH (CLOSED)	1’ 9 7/8” (558mm)	2’ 2 3/8” (675mm)
	3-STAGE SWING ARM REACH (EXTENDED)	3’ 6 7/8” (1088mm)	4’ 3 7/8” (1320mm)
M	2-STAGE SWING ARM REACH (CLOSED)	1’ 10 7/16” (569mm)	-
M	2-STAGE SWING ARM REACH (EXTENDED)	4’ 3/4” (1238mm)	-
N	CENTER-TO-CENTER SWING ARM (WIDE)	9’ 3/4” (2763mm)	
N	CENTER-TO-CENTER SWING ARM (STANDARD)	8’ 1 7/8” (2463mm)	
O	FRONT SWING ARM TO REAR SWING ARM REACH (EXTENDED)	8’ 9” (2667mm)	10’ (3049mm)
	FRONT SWING ARM TO REAR SWING ARM REACH (CLOSED)	4’ 9 5/8” (1468mm)	5’ 2 3/4” (1596mm)
	LIFTING TIME	50 sec	
	LOWERING TIME	27 sec	
	WEIGHT	1278.68 lb (580 kg)	1384.5 lb (628 kg)
	DIMENSIONS (STANDARD)	10’11 1/2” X 1’5 5/16” X 12’ (W X D X H)	
	DIMENSIONS (WIDE)	11’ 11 5/16” X 1’5 5/16” X 12’ (W X D X H)	

The measurements marked with asterisks are possible with the use of the low profile lift pad on the swing arms without threads. The extender adapter used in Figure 2 for measuring dimensions is the 130 mm one.

Hydraulic Power Unit

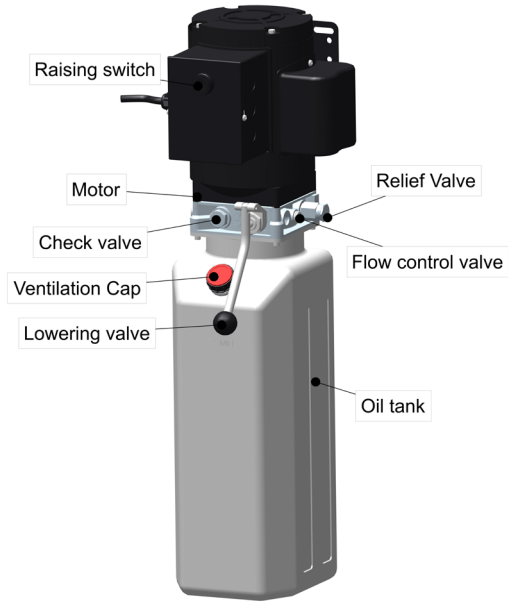


Figure 4

VOLTAGE	208-240V SINGLE PHASE	
FREQUENCY	60Hz	
POWER	3hp (2206.5W)	
OIL	2.6 galons (10 liters)	
CODES	YZB6	YZB5
	23030850	23030851

Pumping

TYPE OF PUMPING	GEARED
FLOW RATE	0.03 ft^3/lb
CONTINUOUS PRESSURE	200 bar/ 2900 psi
PRESSURE PEAK	220 bar/ 3190 psi

Hydraulic Distribution Chart

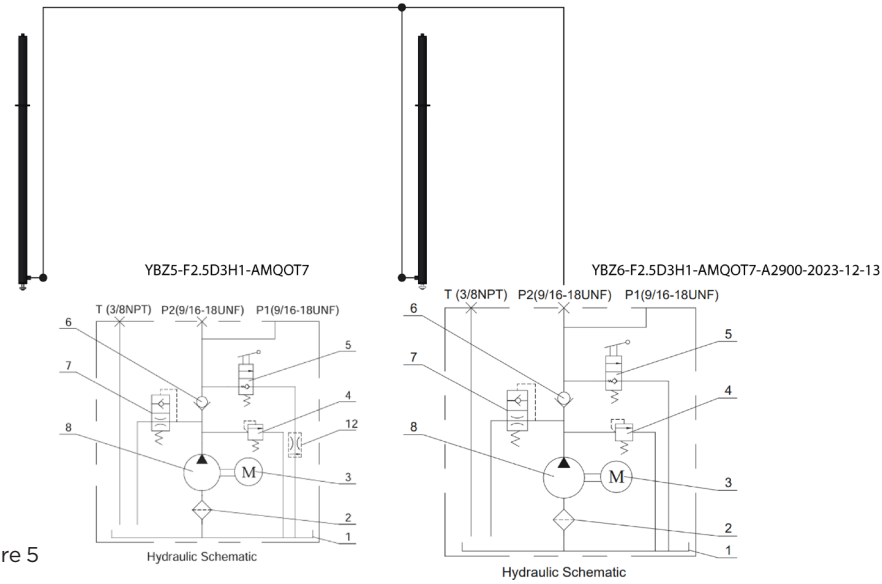


Figure 5

	YBZ6
1	OIL TANK
2	SUCTION FILTER
3	MOTOR
4	RELIEF VALVE
5	LOWERING VALVE
6	CHECK VALVE
7	BUFFER VALVE
8	PUMP
	YZB5
12	PRESSURE COMPENSATED VALVE

Equipment safety system

Hydraulic power unit relief valve

To prevent over-pressurizing and likely damage to the equipment, the following safety device is used:
A built-in relief valve of the hydraulic power unit keeps it from being overloaded.
This relief valve has been pre-set by the manufacturer up to a suitable pressure level. DO NOT try adjusting it.

Anti-burst valve

Mounted on the cylinder outlet, it works by limiting the oil fluid into the cylinder outlet, if in case of hose rupture or leakages at the hydraulic connections.

Load-holding devices

The KB10 SERIES-Two post Automotive Lift incoporates an automatic load-holding devices in both columns.
Such load-holding devices engage at every 2 3/4" (70 mm).

Swing arm restraint

Each swing arm has a bigger arm restraint that, while working with the smaller arm restraint, ensures swing arm location. It's important to highlight that when the vehicle is fully lowered, the arm restraints are not engaged. Just as the rubber pads touch the vehicle appropriately and they start going up, the arms restraints should be locked.

By no means should you change any safety device.
Always keep all safety devices well-maintained and in proper order.

LIST OF COMPONENTS

KB10R

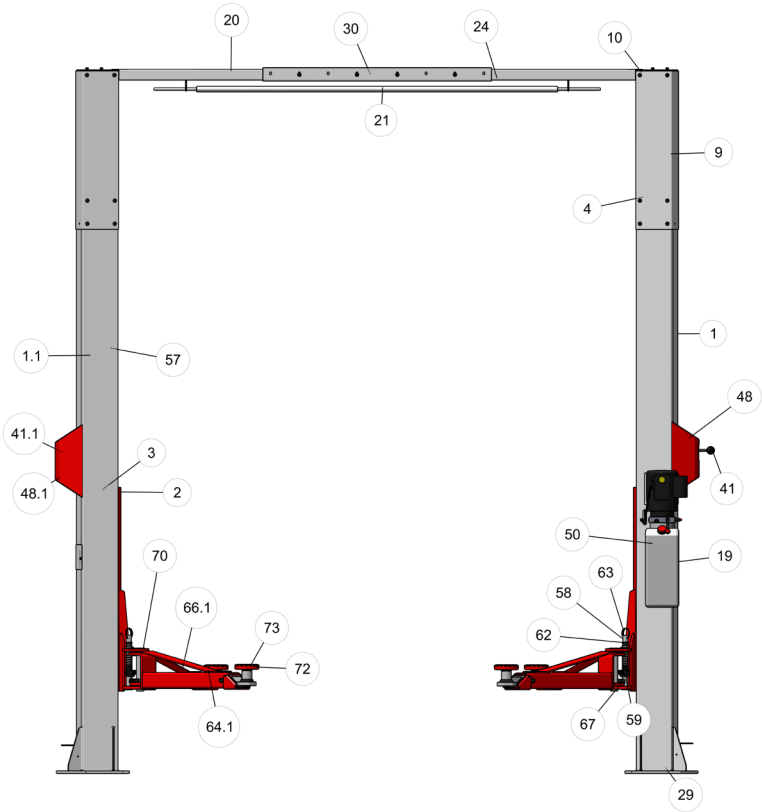


Figure 6

ITEM	DESCRIPTION	CODES
1	MOTOR COLUMN	12800000
1.1	DRIVEN COLUMN	12800010
2	CARRIAGE	12800200
3	SLIDER BLOCK	13800900
4	COLUMN COVER	12800590
6	CYLINDER ASSEMBLY	12800450
9	COLUMN EXTENSION	13800630
10	COLUMN EXTENSION COVER	12800430
16	LOWER COLUMN COVER	12800600
19	WIRE ROPE LEVELER COVER	13845200
20	OVERHEAD	12800380
21	SAFETY SHUTOFF BAR	12800120
22	COTTER PINS	23101032
23	MICRO SWITCH	23220561
24	MICRO SWITCH CABLE	23210003
29	LOWER SHEAVE	12800280
30	WIRE ROPE	12800551
41	LOAD-HOLDING DEVICE MOTOR COLUMN	12800081
41.1	LOAD-HOLDING DEVICE DRIVEN COLUMN	12800080
48	LOAD-HOLDING DEVICE MOTOR COLUMN COVER	12800090
48.1	LOAD-HOLDING DEVICE DRIVEN COLUMN COVER	12800100
50	HYDRAULIC POWER UNIT	12800460
57	HYDRAULIC HOSE 3185MM	23340088
58	ARM RESTRAINT PIN	12800220
59	SMALLER ARM RESTRAINT	23030805
62	ARM RESTRAINT PIN SPRING	23030806
63	ARM RESTRAINT LOCK RING PIN	23030807
64.1	LEFT 2-STAGE SWING ARM THREADED	12800313
66.1	RIGHT 3-STAGE SWING ARM THREADED	12800132
67	BIGGER ARM RESTRAINT	23030808
70	SWING ARM PIN	12800170
72	LOW PROFILE LIFT PAD	12800411
73	RUBBER PAD	23500506

RECEIVING

Packaging

The Automotive Lift shown below is an KB10 SERIES type; it is sent in one volume, with columns, swing arms, overhead assembly, hydraulic power unit, load-holding covers, lower column covers and kits.

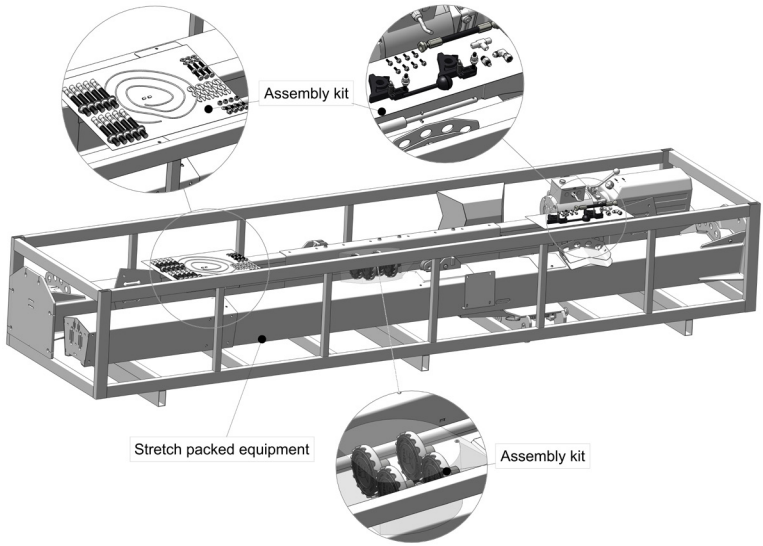


Figure 7

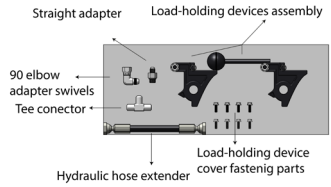
When contacting dealership or manufacturer, to facilitate warranty claims, have the lift serial number (year of manufacture, production series and identification) at hand for ease of Assistance. The same is for the purchase of spare parts or accessories. Removing warrants plate will void the warranty.

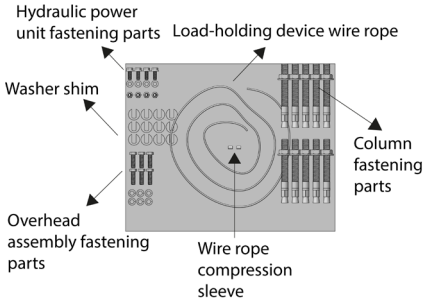
Assembly Kit

All the necessary assembly parts are in the assembly kit; make sure no parts are lost lest you harm the installation process.

Only use manufacturer-supplied parts. For any issue or concern, please contact the manufacturer or distributor.

Description	Codes	Qty
Assembly Kit (figure 8)	12800570	1
Tee conector 9/16" x 9/16"	22500331	1
90 Elbow adapter swivels 9/16" x 9/16"	23340082	1
Straight adapter 9/16" x 9/16" jic	22500342	1
Hydraulic hose extender 300mm	23340086	1
Wire rope compression sleeve	23100024	2
Load-holding device wire rope	23100024	1
Low profile lift pad assembly	12800401	4
Load-holding devices assembly		
Load-holding device motor column	12800081	1
Load-holding device spring	23010115	2
Hex nut 5/16"	23120140	2
Hex locknut 5/16"	23120230	2
Washer 5/16"	23130070	4
Load-holding device knob	24000185	1
Load-holding device driven column	12800080	1
Overhead assembly fastening parts		
Hex head bolt 3/8" x 1"	23110070	6
Split lock washer 3/8"	23130300	6
Hydraulic power unit fastening parts		
Hex head locknut m8	23111012	4
Flanged hex head bolt m8 x 20mm	23111335	4
Washer m8	23130992	4
Column fastening parts		
Anchor 3/4" x 5 1/2"	23100018	12
Washer shim		
Load-holding device cover fastening		
Flanged hex head bolt m5 x 20mm	23111336	8





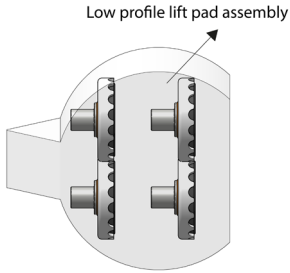


Figure 8

Delivery

As you receive the equipment, make sure all items stated in the Check-list are accounted for and are not damaged. Do not sign your product delivery receipt if there is something wrong. If you notice any breaks or damage during shipping, which has not been carried out by Krebs itself, contact your distributor at once to notify of such damaged goods claim. Claims of component shipment shall only be acknowledged up to 72 hours after the component has been received. Before installing it or starting using it, read this manual.

Packages must be opened carefully not to cause damage to people (keep a safe distance from potentially hazardous parts) and lift parts (do not let objects fall from the package as you open it).

Transport

As you load/unload or transport the equipment to its final place, make sure you use suitable means of carrying and lifting it (for example, crates, trucks, forklift trucks) and, if needed, ask people for help.
In addition, make sure you lift and transport all components safely so that they do not fall. Take the size of the package, weight, gravity center, and fragile parts into consideration.

Storage

The packages must be stored away from direct sunlight, in a covered, dry area with temperatures between -10°C (14°F) and +40°C (104°F).

INSTALLATION REQUISITES

Tools needed

- Combination wrench/ Open- End wrench

  - » 1.1/8”
  - » 3/4”
  - » 9/16”
  - » 1/4”
  - » 13mm
  - » 8mm

- Ratchet wrench and sockets

  - » 1.1/8”
  - » 3/4”
  - » 9/16”
  - » 1/4”
  - » 13mm
  - » 8mm

- Allen key

  - » 4mm
  - » 8mm

- Screwdriver and sockets

  - » 1.1/8”
  - » 3/4”
  - » 9/16”
  - » 1/4”
  - » 13mm
  - 8mm

- Hammer drill and drill bit

» 3/4” (19mm)

- Flat and phillip bits

- Rubber Mallet

- Sledgehammer

- Measuring Tape

» 26ft (8m)

- Chalk line

- Lever

- Pliers

- Phillps screwdriver

- Flathead screwdriver

- Hammer drill steel brush

- Ladder

» Mín 10ft (3m)

- Forklift truck

Concrete Flooring Conditions

Concrete flooring conditions must be set according to the following specifications. If they are not met, the warranty shall be void.

1. Conventional concrete type FCK (Feature Compression Known) 31 MPa (4,500 psi), minimum thickness 6" (15cm) (Z), 11 13/16" x 11 13/16" (30 x 30 cm) block on each side of the basis (W) and 6" x 6" (15.2 x 15.2 cm) mesh with length (X) 11' 11 1/4" and width (Y) 2' 4 1/2" .

2. The concrete must be well-conditioned, floor must be leveled, with no cracks, and thoroughly dried prior to installation, fully cured for at least 28 days.

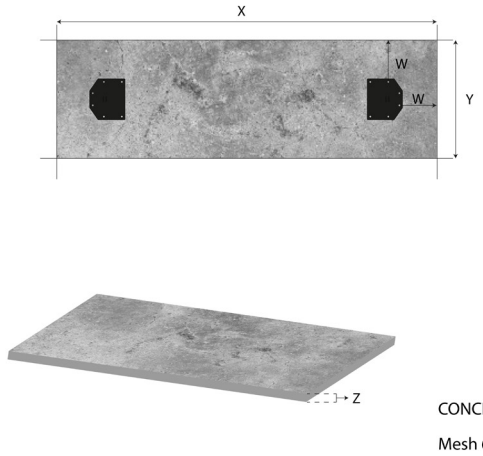


Figure 9

Follow IBS code and ACI institute, building code requirements for structural concrete. Always refer to the latest version.

Do not install the Automotive Lift if there is more than 3° inclination; this may lead to injuries or death.

Check if the floor may be a post-tension slab. If so, get in contact with the architectural building engineering personnel prior to drilling it.

Anchor		Min anchor embedment	Min hole depth	Min concrete thickness	Torque ft-lbs.	Maintenance torque ft-lbs.
SUPPLIED						
P	Q	R	S	T	110	65
3/4" (19mm)	5 1/2" (139.7mm)	3 1/4" (83mm)	5 1/2" (139.7mm)	6" (152.4mm)		
OTHER OPTION						
3/4" (19mm)	4 3/4" (114mm)	3" (77.3mm)	4 3/4" (114mm)	6" (152.4mm)	258	-

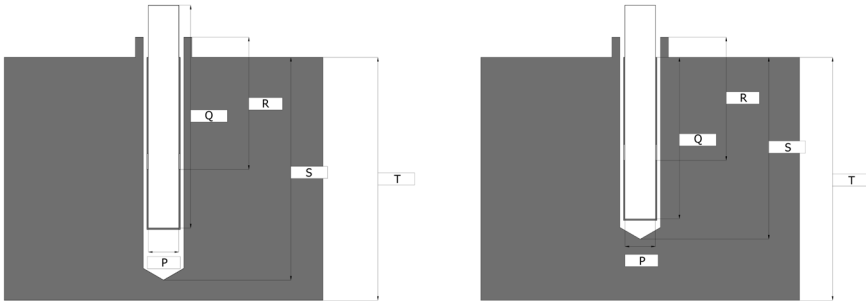


Figure 10

If you are installing a seismic area, consult with a structural engineer and manufacturer's representative for concrete and anchoring requirements (varies by location). Fig. 10 apply to non-seismic areas only.

Energy sources

The power source for the KB10 SERIES-Two- post Automotive Lift must be at least 4 cv (4hp). The supply cable must be a 3- way, 2,5mm^2 (12 AWG).

ASSEMBLY AND INSTALLATION

Where to Install

1. Make sure the installation location (concrete flooring, ventilation, room size) is suitable to install the Automotive Lift. For the room size, refer to "Specifications" and "Concrete Conditions", to check on such dimensions. We recommend the clearance of 300 mm from the top of the lift to the roof.

2. This Automotive Lift has been made to be indoor use only and free from aerial obstructions. Outdoor use is prohibited.

3. The installation location shall not be near painting workbenches, solvent or enamel storage and washing areas. Its installation near rooms where explosions may take place is strictly forbidden. Relevant Labor Safety and Security Rules, for instance, on minimal distance from walls or other pieces of equipment, exits or the like, must be met.

4. DO NOT USE in or around washing areas! If your workshop/ establishment contains areas for washing vehicles or any other components, do not let the Automotive Lift come in contact with water.

Follow Standard IEC 60529. It classifies the protection factor of equipment against solid objects and liquids. Always refer to the latest version.

5. The location must be 14" (355mm) free to the left and to the right of each column, and 14' 10" (4.52m) to the front and rear of the Automotive Lift to ensure clearance for the vehicle to get in and out of it. Check figure 11 for details.

Follow the IBC code. If your state is covered by the IBC code, you should follow what is explicit in the new code comment, which generally states that all automotive lifts must conform to the safety standard in the "Safety requirements for construction, testing, and validation" chapter of the ANSI/ALI ALCTV manual.
Also check ASCE code 24 for building in established flood risk areas. Always refer to the latest version of the books, manuals and codes.

Local codes regarding installation location must be followed.

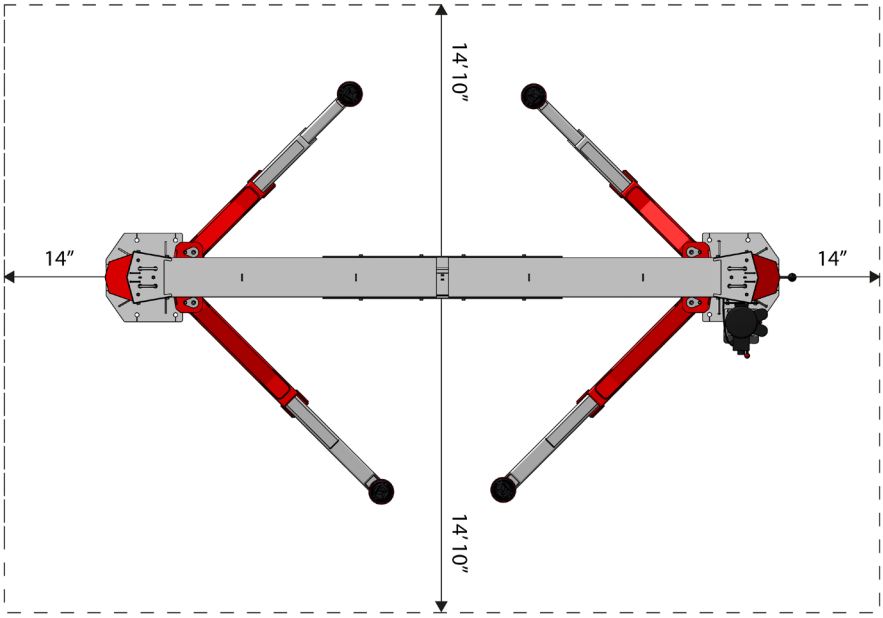


Figure 11

Lighting

1. Lighting must be set according to actual local building codes requirements.

2. All areas near the Automotive Lift must be well, evenly lit.

Foundation Layout

1. After the concrete is laid, place the Automotive Lift according to figure 12. Use the chalk line to draw the place for the column locations.

2. With the help of crates, elevation devices or 2 people, pick up the motor column (hydraulic power unit) and place the column powering side according to the final installation location; thus, the motor column side will depend on the location structure. Make sure the column remains aligned to the chalk line during this process.

H	TOTAL WIDTH (WIDE)	11’11 5/16” (3640mm)
H	TOTAL WIDTH (STANDARD)	10’11 1/2” (3340mm)
I	DEPTH	1’5 5/16” (439mm)
U	CENTER-TO-CENTER PER HOLE	1’2 1/2” (370mm)
V	CENTER-TO-CENTER PER HOLE	8’8 1/4” (2650mm)
W	CENTER-TO-CENTER PER HOLE	5 1/8” (130mm)
X	COLUMN BASE INSIDE (WIDE)	9’5 5/16” (2880mm)
X	COLUMN BASE INSIDE (STANDARD)	8’5 1/2” (2580mm)
Y	COLUMN BASE WIDTH	1’ 2 7/8” (380mm)
Z	CENTER-TO-CENTER PER HOLE	7 1/2” (192mm)

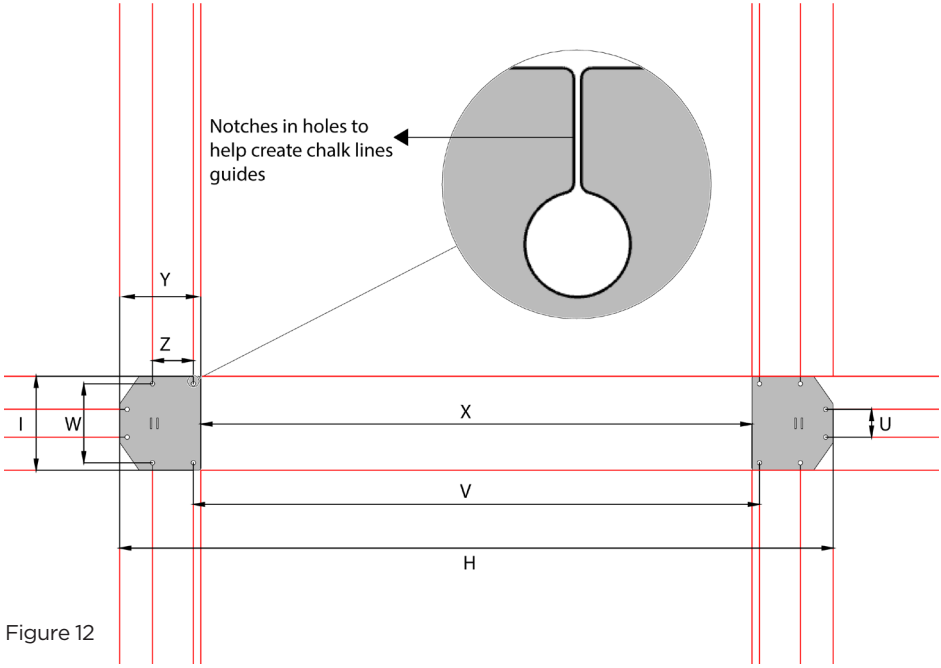


Figure 12

Installation Steps

Placing the columns

Front view definition: the front view is considered the motor column on the right side, where you can see the hydraulic power unit fixing plate. It is the recommended vehicle approach area.
Rear view definition: the rear view is considered with the driving column on the right side. This way when the swing arms are installed, the 3-stages arm will be the rear one. Prior to any procedure, column placing is extremely important. To decide it, you must to know how to differ what the front and the rear of the Automotive Lift are. If your workshop has a back wall and an entry access (common in garages), the Automotive Lift rear will face the back wall and its front facing the entry.
If the location has access from both sides, the choice of where the vehicle will come into the workshop depends on the customer.
By following the parameters above, as one gets in with the vehicle (not in reverse), the vehicle headlights will be facing the Automotive Lift rear.
So, the determining factor to guiding the columns is the location layout, taking the local power source position into account, which was stated in the step # 2 of "Foundation Layout", and the vehicle access. Notice that, if there is a back wall in your location and an access area as aforementioned, the local power supply factors and the frontal Automotive Lift placement may conflict, not allowing them to follow concomitantly. Take the electrical installation into consideration before installing.
See figure 13 to understand the ideal scenario.

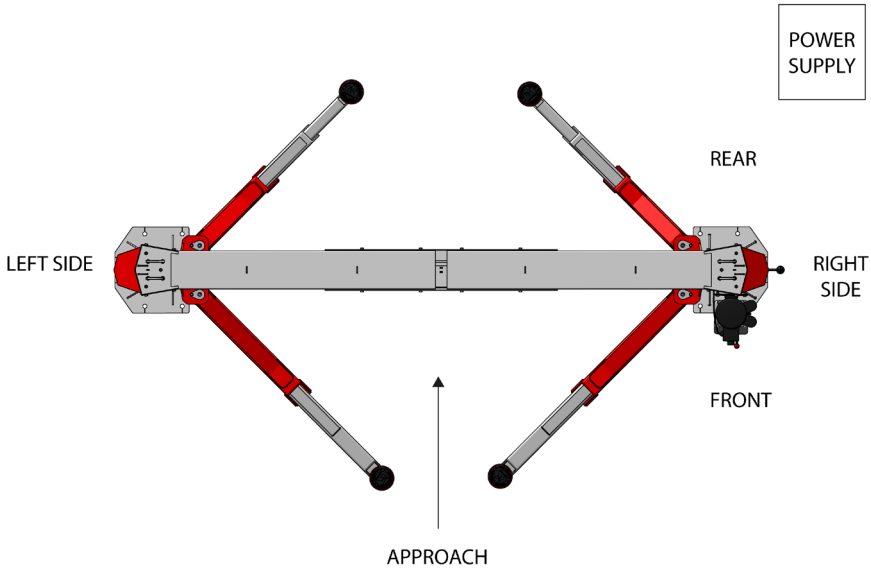


Figure 13

Passing the synchronization system

Both Automotive Lift columns will have their wire ropes passed to the top and the connections placed on both edges, as shown in figure 14, but you must keep extending the wire rope up to the point shown in figure 15, pull the wire rope end as towards the column extension, passing along the upper sheaves. This will ensure the passage of the wire ropes. Use a rope or any object able to tie and pull the wire rope to go through upper sheaves easier.

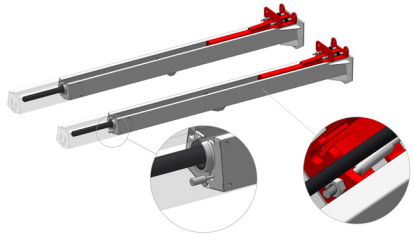


Figure 14

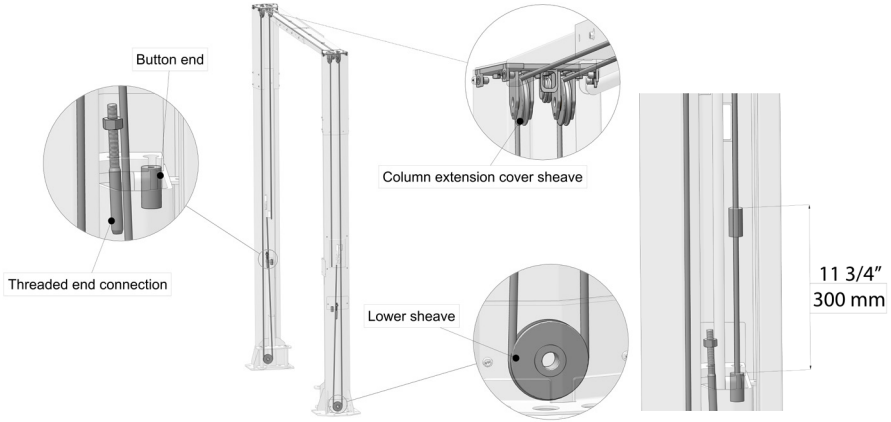


Figure 15

The carriage center hole is where the threaded-end connection is located. If you face at the equipment frontally, considering the motor column, the back hole is just a through hole, while the frontal one is the button end of wire rope. A carriage through hole must be parallel to the button end hole of the other carriage.
We then see that the passed wire ropes are mirrored. The threaded-end connection is the beginning of synchronizing wire rope system, and the other connection is its end.

Perform these steps only after "Overhead assembly installation".
The following steps are shown in case you need to carry out maintenance and to get to know the way the wire ropes go, except the explanation of the passage of the button end, which must be done when installing the Automotive lift.

1. Place the columns laid on a rack, horse or a shim. Assure they do not scratch the equipment painting. Place them so that you can see its interior, so you are able to pass the wire ropes through.

2. Move the carriage with your hands about 15" (380mm) above the column base, thus making the assembly job easier.

Spread industrial Vaseline or grease mp2 onto column inner tubes. Especially on first use, to facilitate the movement of the carriage.

The carriages must have the same distance from the column base proceeding.

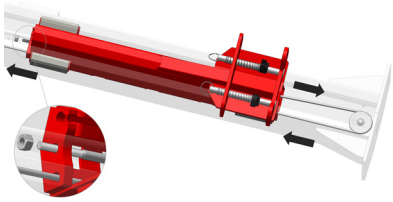
In case you want to pass the wire ropes through with the column lifted, use a suitable elevation device to lift the carriage up to the first lock, or ask 2 people for help.

Make sure the carriage is tightly attached to the load-holding device before trying to pass the wire ropes.

3. With the carriages leveled, fit the wire rope threaded-end connection through the carriage small holes. The carriage has 3 holes, so the central hole will be left for tightening the wire rope, and one of the wire rope end will be the center hole. Start fixing it by this wire rope end. After that, pass it through the lower sheave and finally through the passage hole. You must remove the lower sheave to pass the wire rope. Untie the bolts of the lower column cover to access the sheave, take it out, pass the wire rope and tighten it back by driving its axle bolt.

4. Use the threaded-end connection to even wire rope tension by alternating the nut tightening intensity.

Figure 16



If a carriage threaded-end connection has the thread sample a bit larger than the one in the other carriage, set both connections tightened to the same torque in order to ensure wire rope synchronization.

Column foundation

1. Turn the motor column back to its initial position, as decided on "Placing the columns".
2. Mark the holes center-to-center by checking the figure 12 again if needed.
3. After the column places are duly marked, use the chalk line to draw a contour of the columns on the floor in each place by using the column base as a model.
4. Remove the column off the concrete and use its drawn base as the guide, then drill each hole into the concrete, with 4.8" deep (124mm) with the hammer drill and the 3/4" (19mm) drill bit.
5. To ensure total retention power, do not widen the holes.
6. After drilling to one column, remove the dust carefully out of each hole by using compressed air or a steel brush.
7. Place the motor column into the concrete after the latter is cured, then set the washers and nuts into the anchor bolts, using a mallet to insert them until the washer lays onto the column base.
8. Check if a shim is needed. If so, insert them under the column base in such a way that when the anchor is tightened, the column is even. Use the Kit-supplied shims.
9. As the shims and anchor bolts are placed accordingly, tighten the nut to the base (the needed torque is 90 lb.ft/122 N.m).

DO NOT use an impact wrench to this procedure.

Anchor bolts do come together in the Automotive Lift kit.
Type of bolt: 3/4" (19mm) x 5. 1/2" (139.7mm). Quantity: 12 units.

If you are installing a seismic lift, consult with a structural engineer and manufacturer's representative for concrete and anchoring requirements (varies by location).

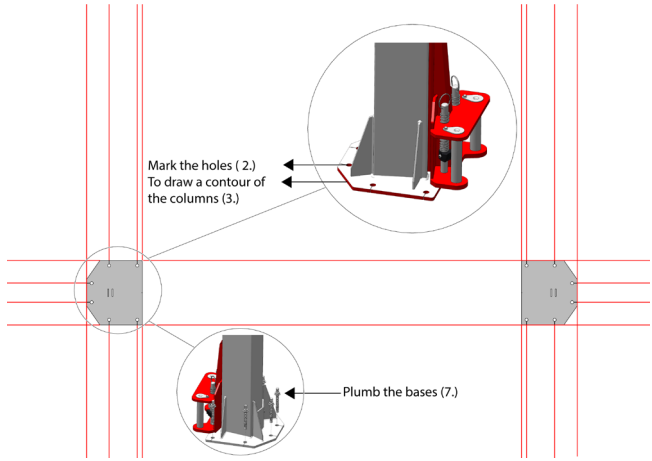


Figure 17

Do not raise columns nor apply load onto the Automotive Lift if it is not bolted. If you initially choose not to fully tighten components, make sure they are all fitted and leveled. At least the columns HAVE TO have their bolts in a fixed position, with washers onto the base and minimal tightening. Remember to tighten the bolts fully after the other processes.

See the column tightening order below.

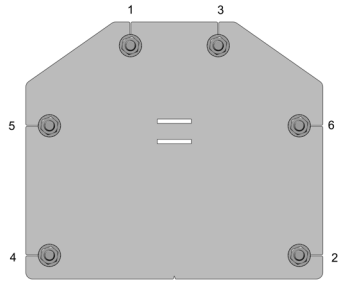


Figure 18

10. Before anchoring the driven column, make use of the overhead assembly as reference. Check the dimensions and the "Column alignment" before drilling.

11. Anchor the driven column as stated in previous steps.

The anchor bolts meet the North American Standard to Automotive Lift and their building and safety requirements as well as the ALI Validation Tests. Any other anchoring that meets other requirements will be under the customers' responsibility along with any the legal fees according to local codes. For easy reference to local codes, use autolift.org

Columns aligment

1. Align the columns, leaving the side faces of the bases of the columns coincident (facing each other).

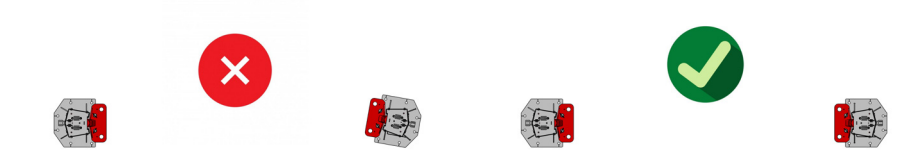


Figure 19

Overhead assembly Installation

The overhead assembly is responsible for ensuring better column stability. Besides, it contains the wire ropes, load-holding device wire rope, hydraulic hoses, the safety shutoff bar, and the micro switch and its wiring. If a vehicle bumps into the safety shutoff bar, it will switch the Automotive Lift power off, and the micro switch will receive such information and transmit it to the hydraulic power unit.

Choosing version

The equipment is shipped covering both installation versions; however, at this step, it is necessary to decide which version to install. The wider version increases 11 3/16" (300mm), providing more room for wider vehicles to get in, so if there is enough room in the workshop, choose this option. However, if your workshop is more cramped, the standard version is perfect for you. Your choice will affect the wire rope and hydraulic hose length.

Standard overhead assembly view

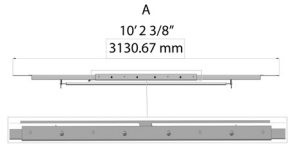


Figure 20

Wide overhead assembly view

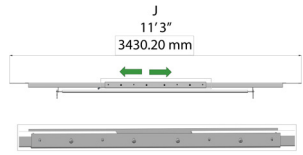


Figure 21

1. Attach the overhead assembly between the columns with the 6 bolts and washers, 3 to each column (hex head bolt 3/8" x 1").

The safety shutoff bar and the micro switch are already assembled. However, please check the steps below to better understand the process.

2. Pass the safety shutoff bar through the lower hole of the overhead assembly welded supports.

3. Lock them with both cotter pins.

4. Attach the micro switch with the smaller bolts (philips oval head bolt m4 x 35mm).

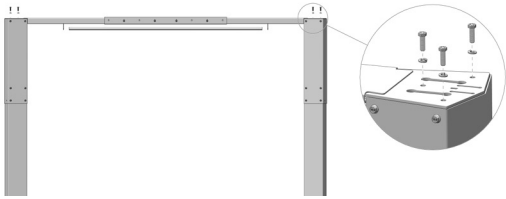


Figure 22

The overhead assembly and the safety shutoff bar are supplied assembled in the standard version. If you choose the wider version, loosen the bolts, the cotter pins and carry out the extension process as in figure 20 and 21.

Passing the synchronization system - continuation

1. Use some suitable raising equipment to elevate the carriage up to 25" (635mm) off the floor, ensuring easier labor. Or ask the help of 2 people.

Make sure the carriage is fully attached before trying to pass the wire ropes.

The carriages must have the same height from the floor before you proceed.

2. Choose which wire rope will continue to pass.

Return to figure 15 for better understanding.

3. By passing the wire rope through the overhead assembly, as you get to the other column, make use of the column extension cover to pass it through the overhead sheave. Pass it through the first hole shown in the image below upwards, then pull the wire rope downwards from the sheave by the second hole, making the passage easier.

4. Use some suitable raising equipment to elevate the carriage up or ask the help of 2 people to engage the button end.

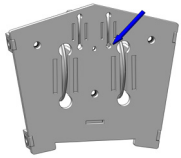


Figure 23

Load-holding devices Installation

1. See how the load-holding device is assembled. Tighten the load-holding device lock nuts and close the system with the load-holding device cover only after you pass the load-holding device wire rope through it.

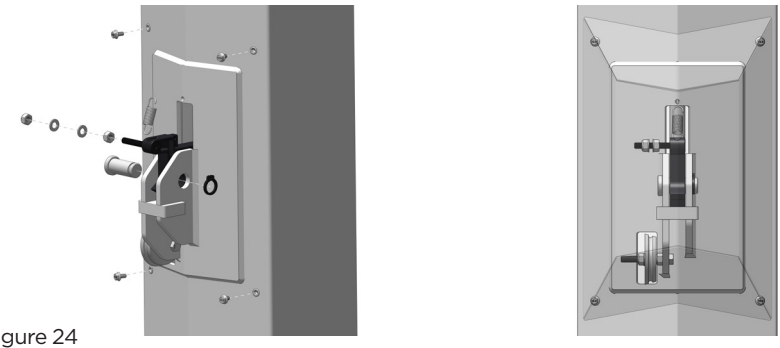


Figure 24

Passing the load-holding device wire rope

1. Pass the load-holding device wire rope through the columns according to figure 25.

2. As you have done with the synchronization system, use the opening in the column extension cover, but this time use the smaller opening. The 4 overhead assembly openings represent the sheaves. The 2 large ones are for the synchronization system, and the 2 smaller ones are for the load-holding device wire rope. To pull the wire rope down towards the load-holding devices, you must pass it through the column cover. Tighten the nuts in the load-holding device bolts.

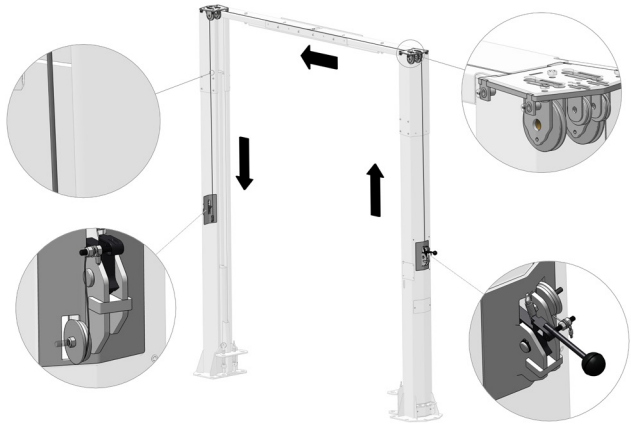


Figure 25

Hydraulic power unit and hydraulic hose Installation

1. After lifting the columns, attach the hydraulic power unit to the motor column plate with its respective bolts and nuts.

2. Before connecting the hydraulic hoses to the hydraulic power unit and cylinders assembly, make sure both the hydraulic hoses and their connectors/ spurs are clean.

3. Also check if the hydraulic hose pathway is free from equipment moving parts and external factors which may damage the hydraulic hose.

4. Tighten connections to avoid leakage.

5. Follow the hydraulic hose pathway as shown in figure 28. Also check figure 5 (hydraulic distribution diagram) for understanding of fluid management. Connect the hydraulic hoses just as you have done with the cylinder assembly hydraulic hoses.

Dirt, water or any other drawback to hydraulic hoses and connectors MUST BE ELIMMINATED, otherwise the Automotive Lift may not be used. All hydraulic components are packed clean at the manufacturer's premises.

The Tee connector is attached to the hydraulic power unit hydraulic hose. Simply take the driven and motor column cylinder assembly hydraulic hose up to the overhead assembly, like the hydraulic power unit hydraulic hose, which will pass by the column opening, as shown in figure 28.

If you choose to use the wide version, connect the 11 3/4" (300 mm) hydraulic hose extender.

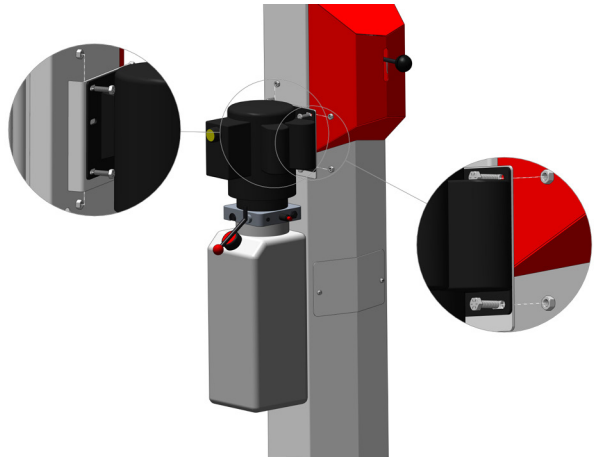


Figure 26

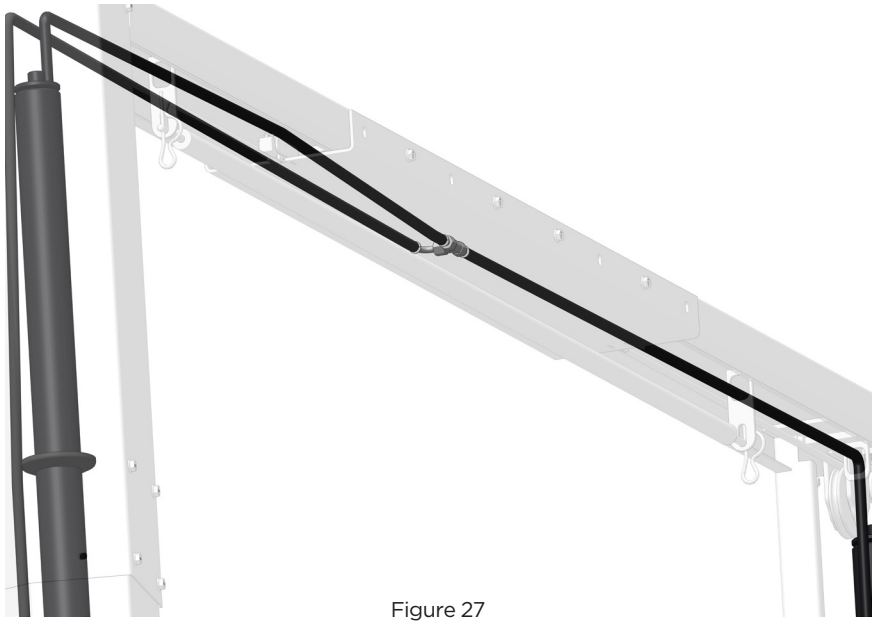


Figure 27

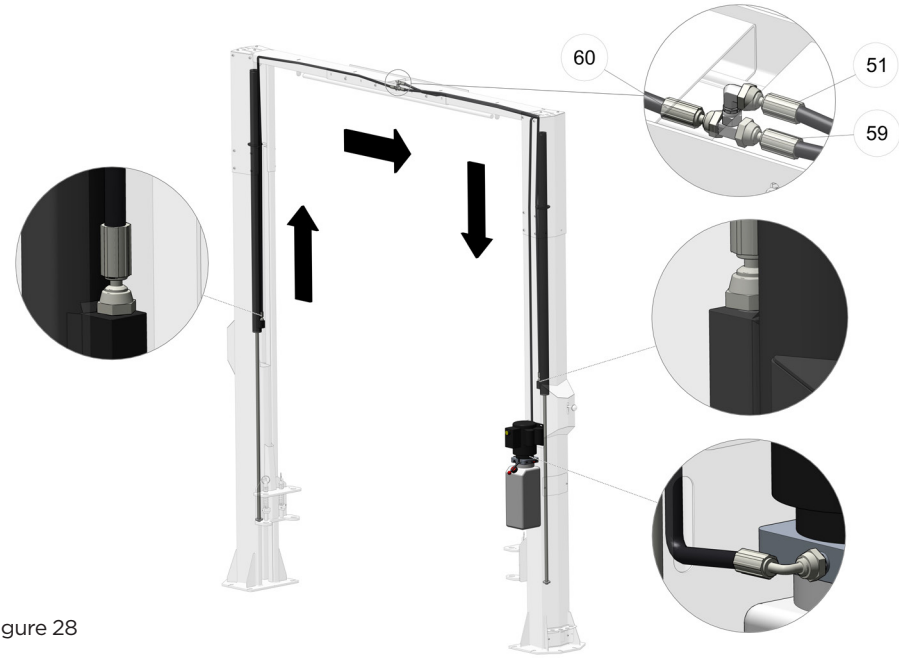


Figure 28

Swing Arm installation

To define the right and left arms, see figure 29. The 2-stages swing arm bolts are placed outside the Automotive Lift, while the 3-stages swing arm bolts are located inside.
As stated in "Characteristics", the 3-stages swing arms are optional, so for those who did not opt for this arm, the 3-stages swing arm in the text below is understood as the rear swing arm and the 2- stages swing arm is understood as the front.

The bigger arm restraint (B), according to the position of the bolts to tighten the swing arm, defines the bigger arm restaint of both right and left swing arms. If the bigger arm restraint is placed as defined as right in the 3-stages swing arm, the system is incorrect, considering the motor column. The bigger arm restraint is taken as the right one in the motor column, it must be in the 2-stages swing arm, and the bigger arm restraint taken as the left one in the motor column, must be in the 3-stages swing arm. For the driven column the system is opposite, the swing arm defined as right will be the 3-stages swing arm and the left will be the 2-stages swing arm.
Do not fully tighten the arm restraints; not only will they lock the swing arm position, but they will also need a little backlash to move.

The bigger arm restraints are already assembled; as well as, the SWING ARM PINs, so the step #1 is for acknowledging the installation. However, as you place the swing arm, you must take out the SWING ARM PIN and place it again by tightening its bolt.

1. Fit the bigger arm restraint (B) to the swing arm. The swing arm has 4 holes. The bigger arm restraint position in the holes will determine whether the swing arm is the right or the left one. For an easy assembly, place the 4 swing arms parallel to each other and fit the bigger arm restraint with the bolts, but do not tighten them yet.

2. Lift the carriages to ease swing arm installation.

3. Pick up the swing arm and attach it into the carriage with the pins. If the SWING ARM PINs are not fitted, use the arm restraint lock ring pin to lift the arm restraint pin and allow some backlash for the swing arm to move in the carriage, enabling easier, correct installation. Lift the arm restraint pin to allow entering with the bigger arm restraint, then release it to lower it. Check if, when placed, the bigger arm restraint (B) aligns with the smaller arm restraint (C). If so, tighten the bolts. You should only tighten them when they are aligned and geared together.

4. Extend the swing arms to their farthest stage and test the arms restraints with 150 lb. weigh. Make sure the swing arm does not move sideways and the arm restraints remains in its place; otherwise, review the prior processes.

5. Repeat steps 3 and 4 with the 3 remaining swing arms.

6. With the carriages in the engaged first position, same height, check if the swing arms are leveled (see figure 31). If they are not, you will have to adjust the wire ropes. Loosen or release the threaded-end connection nut to make it go up or down respectively. Notice: you adjust the nut of a carriage to move the other one.
Also, check if the carriage floor clearance is the same on both carriages.

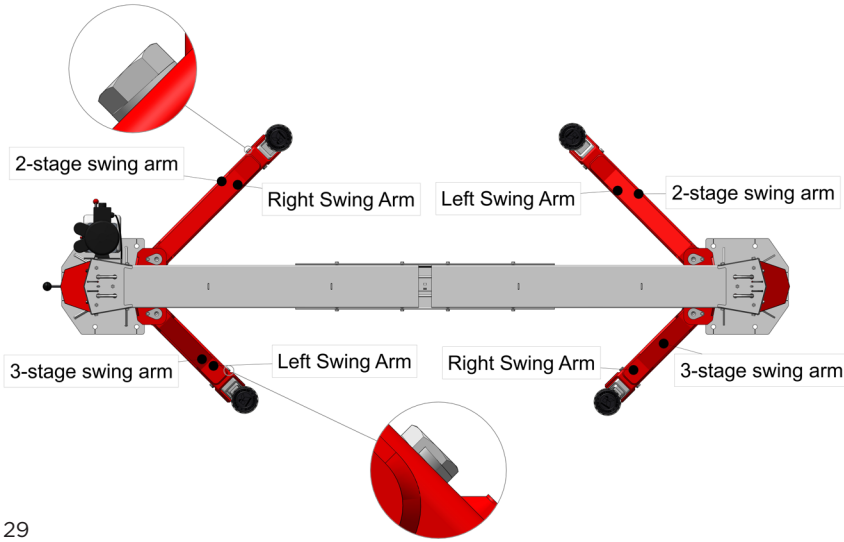


Figure 29

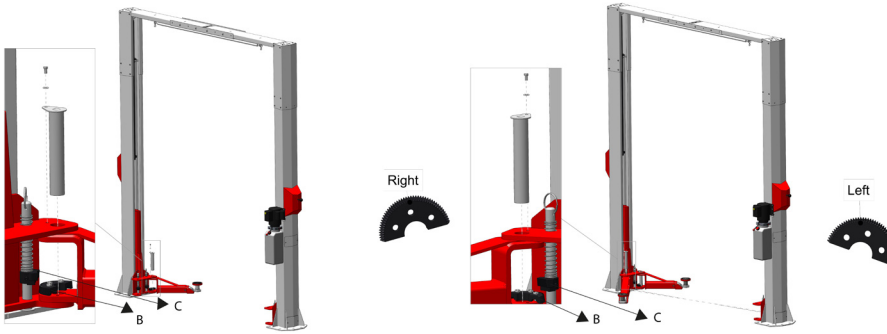


Figure 30

The position of the arm restraint gears considers a 45° of the arms from a top view.

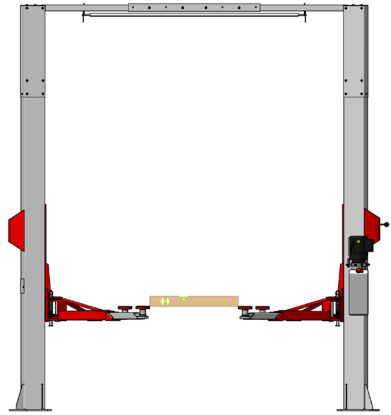


Figure 31

Leveling

With a level, see if columns are leveled as in image. G and g distances must be the same. If they are not so, use shims, as previously mentioned. If you have chosen not to tighten the bolts until the parts are fitted and leveled, tighten them right after leveling.

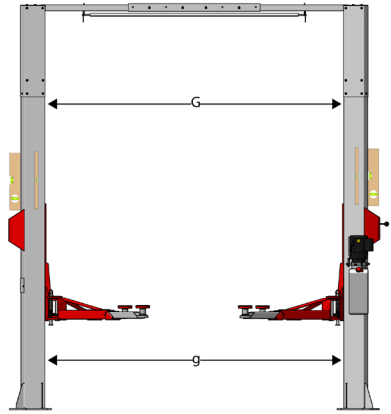


Figure 32

Unleveled columns are risky when operating the Automotive Lift.

Electricity

The electrical connections must be carried out by a qualified electrician.
Make sure the phase connections are right.
Make sure the power source is the right one.
Make sure you meet the federal and state applicable rules and codes.
Make sure the Automotive Lift is grounded correctly.
You shall not use a 60Hz hydraulic power unit in a 50Hz source. Do not operate the hydraulic power unit with lower power supply than 208V. That may damage the hydraulic power unit.
An improper electrical connection may damage the hydraulic power unit, and it's not covered under warranty.

Before any connection, turn power off.

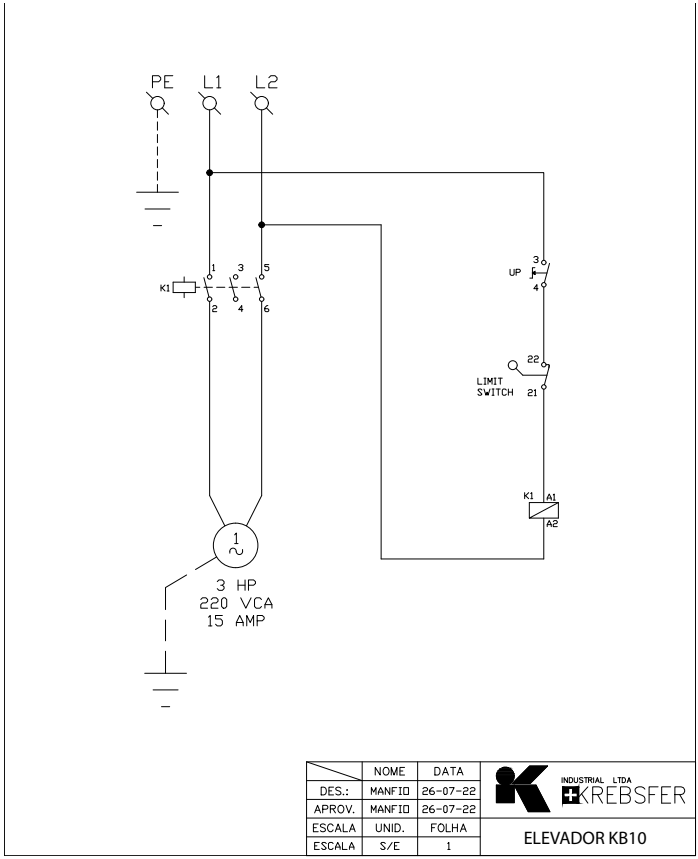
1. Match the electrical connection to the hydraulic power unit as in figure 33.

The hydraulic power unit rotation direction is shown in the label placed in the hydraulic power unit. Before using the Automotive Lift, make sure you check if the hydraulic power unit specification shown in its identification label conforms to local electricity power provision. If there is more than 10% tension variation in the power source, we suggest using a tension stabilizer to protect electrical components and the relief valve.

2. Remember to install a suitable power disconnect switch onto the circuit (DZ47-63/ D32A/2P). The recommended model is monophasic 208-220V. If it is not installed, warranty is voided. The power disconnect switch does not come with the equipment. If there is more than one piece of equipment on the site, a power disconnect switch must be installed onto each power source. The power disconnect switch must be easily accessed in case there is an emergency.
   The cable that joins the power source to the hydraulic power unit does not come together with the equipment either. You will need a cable and a connector to attach it to the power source, or a cable with a plug if it is attached to an indirect outlet.

3. Switch on the Micro Switch that was installed on the overhead assembly to the power unit with its respective cable.

ANSI/ NFPA 70, National Electrical Code. Mentioned in the chapter "Safety requirements for installation and service" of the ANSI/ALI ALIS manual.
Always refer to the latest version.


PE
L1
L2
K1
1
3
5
2
4
6
UP
3
4
22
LIMIT
SWITCH
21
K1
A1
A2
1
3 HP
220 VCA
15 AMP
NOME
DATA
DES.:
MANFIO
26-07-22
APROV.
MANFIO
26-07-22
ESCALA
UNID.
FOLHA
ESCALA
S/E
1
INDUSTRIAL LTDA
KREBSFER
ELEVADOR KB10

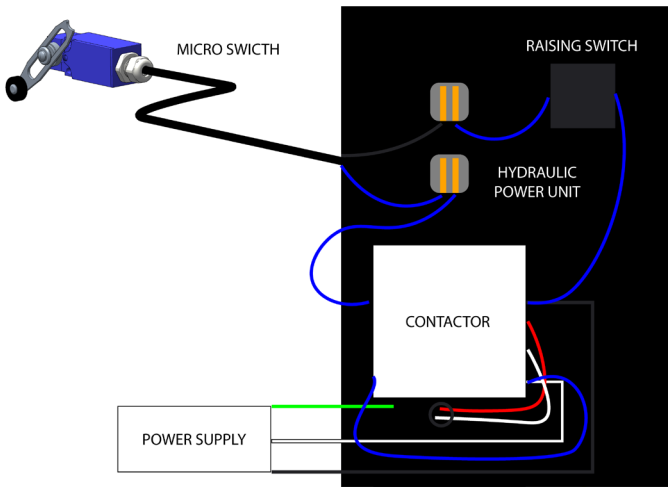

MICRO SWICTH
RAISING SWITCH
HYDRAULIC
POWER UNIT
CONTACTOR
POWER SUPPLY

Figure 33

Oil Filling

DO NOT operate the hydraulic power unit without oil. The gear pump may be damaged.
If the hydraulic power unit is too hot or makes an odd sound, shut it down at once and recheck the power source.

If the ventilation cap gets lost or broken, request its replacement. The oil hydraulic tank must be well aired.
As you pour oil into the unit by means of a passage mean or any other channel, check if they are clean because any impurity must be avoided. Keep the oil clean.

1. We recommend using the ISO-32/ISO-46 oil to fill up the hydraulic tank.

2. Take the hydraulic tank ventilation cap out and fill it with 2.6 galons (10 liters) of ISO-32/ ISO-46 oil.

3. Turn the Automotive Lift on and bring carriage go up and down several times to make sure the load-holding device are active, and all the air is removed from the system (pump priming). To lower the carriage, lower both the hydraulic power unit lever and the column load-holding device handle at the same time.

FIRST TEST

General Checks

- Make sure both columns are well bolted and leveled;
- Assure the load-holding devices act at the same time, working simultaneously. If this does not happen, stop the Automotive Lift and tighten the wire rope of the column that triggers last, out of synchrony;
- Check if the power wiring is correct to the figure 33 diagram and correctly grounded;
- As the shims and anchor bolts are placed accordingly, tighten the nut to the base (the needed torque is 90 lb.ft/122 N.m).

Hydraulic System

- Check if the cylinder assembly is centered in the column;
- Check if the oil hydraulic tank has suitable oil and refill it if needed;
- Raise the carriage to its maximum height and keep the hydraulic power unit on for 5 seconds while you check all connections to make sure there is no leakage;
- Tighten the connections or reconnect them if needed.

Do not keep the raising switch pressed. If the oil hydraulic tank has little or no oil, the hydraulic power unit may be harmed or burned, thus damaging the internal gear pump. If there is enough oil for fluid management, keeping the switch pressed may tear the hydraulic hoses. RESPECT THE COURSE END OF THE EQUIPMENT AND THE CYLINDER ASSEMBLY OPENING/CLOSING.

- Check if the Automotive Lift reaches its top height;
- If needed, repeat the air release procedure as shown on page 49, step #3.

When you first use the equipment, the carriage may raise a little irregularly or even make a little noise. However, it is normal at first since air tends to leave the system automatically as you use the equipment.

Safety System

- Check if the load-holding device is on and correctly comes back as you release the Automotive Lift manually. For better understanding, please read carefully the section on equipment "Operation" below and return to that investigation to ensure correct inspection;

- Assure the load-holding devices act at the same time, working simultaneously. If this does not happen, stop the Automotive Lift and tighten the wire rope of the column that triggers last, out of synchrony;

Synchronization system tension

The wire ropes must be checked on a weekly basis regarding their tension. If not, irregular raising may take place.

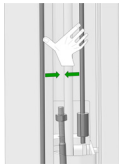


Figure 34

- Press the wire rope with your hands to check if there is such an equal tension;

- If needed, adjust the wire rope tension by tightening the threaded-end connection hex nut of the loosen wire rope.

We recommend that the torque of 6 N.m (4.425 ft.lb) be applied to the tightening nut of this synchronization system.

Automotive Lift with applied load

Follow all Automotive Lift, operator and the lifting vehicle safety rules accordingly.

After 2 or 3 vehicle raising cycles, raising and lowering the carriage:

- Repeat the above checking on the "Hydraulic System" topic;

- Check for odd noises as you raise and lower the carriage.

Overhead limit switch

1. With the vehicle off the Automotive Lift, press and hold the switch (C) of the hydraulic power unit. Figure 35.

2. With the help of someone else, ask them to push the shutoff bar until it turns the micro switch rod on.

3. If the carriage does not stop going up, even with the micro switch on, the power installation may be incorrect and/or the micro switch may be misplaced.

Do not use the equipment if the overhead limit switch is not working accordingly.

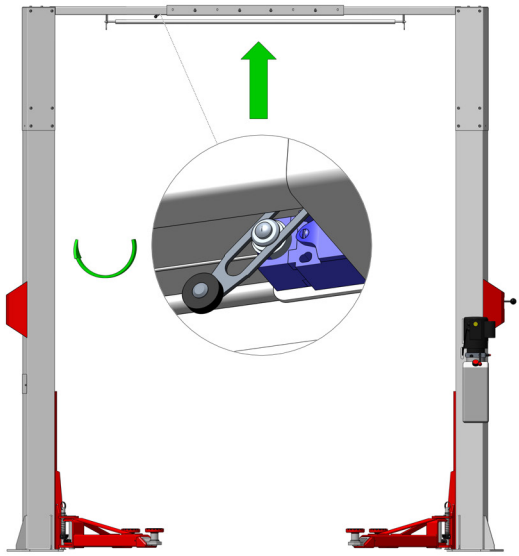


Figure 35

ASSEMBLY AND INSTALLATION CHECKLIST

Getting back to all the previous assembly and installation steps, make sure all steps have been followed thoroughly. Check if the task description is checked off. After such inspection, fill out the final task checklist below in order to conclude all said procedures.

- ☐ Check if both columns are upright, stable and with shims, if they needed to be shimmed.
- ☐ Check if all bolts are fully tightened.
- ☐ Check the hydraulic fluid hydraulic tank. It should topped off with approved hydraulic fluid. You may damage the hydraulic power unit if you use it without enough fluid.
- ☐ Make sure the hydraulic power unit receives power from the power source.
- ☐ Check for leakage in the Hydraulic System.
- ☐ Make sure both carriages threaded-ends connection are at place.
- ☐ Make sure all wire ropes are correctly placed onto their sheave.
- ☐ Make sure all pins, cotter pins, elastic rings and sheaves are secure.
- ☐ Make sure both load-holding devices system are connected and working normally.
- ☐ Make sure all load-holding device are free.
- ☐ Make sure all cylinder assembly clamps are set and tight in both cylinder assemblies.
- ☐ Make sure you have carried out an first test.
- ☐ Leave the User's Manual with the Automotive Lift owner/operator.

OPERATION

Always assure the arm restraints are engaged before any attempt to address a vehicle or around it.
If any Automotive Lift component is defective or loosen, DO NOT USE THE AUTOMOTIVE LIFT until maintenance is carried out. If there is a problem, get in contact with your dealership or by the manufacturer's support email address: support@krebsindustries.com.
The Automotive Lift area is only for the lift and its operator while it is operating. Maintain yourself near the Automotive Lift until both raising and lowering movements are over.
Read all the procedures below. Do not skip any steps.

The operator must be trained and must have read the entire manuals pertaining to this equipment and the stickers attached to it. Customers are the ones responsible to ensure operators are qualified. It is the Owner/employer responsibility to assure that ONLY trained, qualified and those who thoroughly read the Installation and Operation Manual is allowed to operate this equipment.

Learning about raising points

The raising points are where the vehicle will be raised from. These places are located on the vehicle frame, and the lift pads will get in contact with such points. By placing the vehicle between the pads, the wheels are free standing, and the vehicle is raised from the floor.
The raising points in some vehicles may be seen in their undercarriage parts. If there are no raising points in your vehicle, follow the tips in this manual or contact the vehicle manufacturer.
The Automotive Lift comes with standardized round rubber pads and lift pads size 4 1/2" (115mm)- total height, including the welded pad. As an optional accessory, we have 2 3/4" (70mm) threaded adapter ,3 1/2" (90mm) and 5 1/4" (130mm) extender adapters. We also have the low profile lift pad.

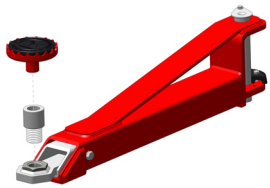
Item mentioned in the chapter "Vehicle lifting points for frame engaging lifts" of the ANSI/ALI ALCTV manual and in the ANSI/SAE J2184. Always refer to the latest versions of the documents and codes.

Do not use more than one extender adapter.

For special vehicles such as limousines, vehicles with a long or short wheelbase, pay attention to the following instructions:

- Check that the automotive lift capacity can accommodate the special vehicle;
- Check the positioning of the vehicle, with its load evenly distributed and the appropriate center of gravity;
- Check whether the maximum height of the lift is suitable for the height of the special vehicle;
- Use the arm stages and adapters to get a good lift while keeping the vehicle aligned.

Description	Codes
Left 2-stage swing arm threaded	12800313
Left 2-stage swing arm	12800312
Right 2-stage swing arm threaded	12800311
Right 2-stage swing arm	12800310



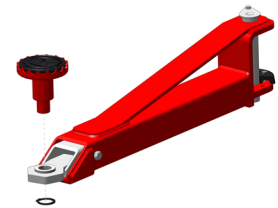
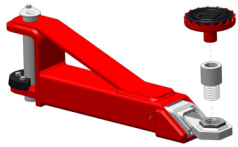


Figure 36

Description	Codes
Left 3-stage swing arm threaded	12800133
Left 3-stage swing arm	12800131
Right 3-stage swing arm threaded	12800132
Right 3-stage swing arm	12800130



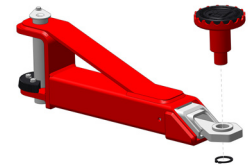


Figure 37

Description	Codes
3-stage swing arm threaded	12800136
3-stage swing arm	12800135
3-stage swing arm threaded zinc-plated	12800138
3-stage swing arm zinc-plated	12800137

Figure 38

KB10H – is a Two Post Automotive Lift supplied with hexagonal 3-stages swing arms. KREBS also provides another model, KB10R, which is supplied with rectangular 2 and 3-stage swing arms, as shown in previous figures in this manual. Both models can come with the last stage of the arms as threaded, to be used with the threaded adapter, or regular, to be used with the regular adapter. For the rectangular arms only, KREBS provides left and right sides. Please, when ordering spare parts, make sure to refer to the correct model.

Action

Commands

- Raising switch (D). Figure 39;

When pressed, the hydraulic power unit is turned on and the carriage starts going up until the switch is released.

- Hydraulic power unit lowering lever (E).

- Load-holding device handle (F).

If the load-holding device handle are not released, the carriage will go down to the nearest slot of its position.
For an effective lowering, both the hydraulic power unit lowering lever and the column load-holding device must be released (lowered). Such lowering movement will take place until the they are no longer lowered, and the load-holding device handle will get back to its original position.

Pressure peak is 220 bar/ 3190 psi.

Do not let the carriage raised without the load-holding device being correctly placed in the carriage bottom slot, then check whether the load-holding device is back to its position automatically. Both the hydraulic power unit lowering lever and the load-holding device handle must be pressed at the same time.

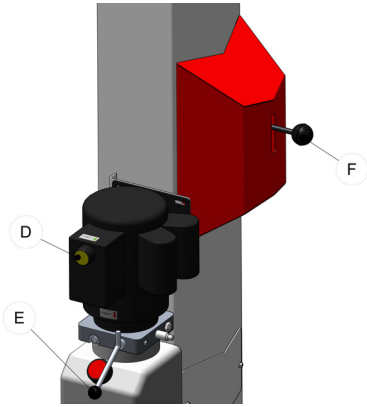


Figure 39

Before raising the vehicle

Vehicles must not exceed the equipment maximum load capacity.

Keep the lift free of any object but the vehicle, and always use the vehicle empty. There is a risk of said objects or vehicle load to fall onto people or animals; thus, leading to severe injuries.

Make sure the raising area is free of people, animals or objects.

1. Keep the area near the Automotive Lift clean.
2. Place the swing arm as low as possible.
3. Open the swing arms and the overhead assembly perpendicularly for the vehicle to go through.
4. Be careful not to touch or bump into any equipment piece.

5. As the vehicle is centered between the columns, pull the vehicle handbrake.

6. Assure there is nobody inside the vehicle and open its doors carefully. Check whether the vehicle trunk is empty.

7. Move the swing arms to the raising point. The vehicle manufacturer indicates the vehicle frame raising points. Adjust the swing arms so the vehicle is placed with its gravity center between the rubber pads.

Raising the vehicle

Never allow the vehicle to be raised with people or animals inside it.

Make sure there is nobody, no animals nor objects in the lift path.

Only the operator must be close to the equipment.

1. Place yourself next to the Automotive Lift, near the hydraulic power unit by keeping a safe distance from the movable part travel path.

2. Raise the carriage by pressing the raising switch until the rubber pads get in touch with the vehicle bottom. There must be solid contact. Check the 4 arm restraints to make sure they are connected. If they are not, move the arms forward and backward until they match.

The 4 swing arms must be in contact with the vehicle raising spot at the same time, so regulate the auxilary adapters height accordingly and in such a way that the vehicle is not inclined but aligned to the floor. If needed, use the threaded adapters to gain some height.

3. Make sure the vehicle is safe.

4. Keep pressing the raising switch up to the desired height and ensuring vehicle balance.

5. As you raise the vehicle, the column load-holding devices will get in contact with the carriage slots and make a noise; this is not problem of any sort, just the equipment normal operation. Listen to the carriage going through the load-holding devices and notice if the noise is simultaneous in both the columns. If not, you will have to adjust the wire ropes by tightening or loosening the threaded-end connection nut to make it go up or down, respectively. Notice that you adjust one carriage nut to move the other one.

6. When the vehicle reaches the desired height, go to the next load-holding devices position (there will be some noise then). With that step completed, stop pressing the

raising switch. Then lower the lever by using only the hydraulic power unit lever. The carriage will come down until it attaches to the load-holding device.

7. Make sure both columns are attached onto the same level of the load-holding device.

The distance between carriage slots is 2 7/10" (70mm), i.e, load-holding devices act at every 2 7/10" (70mm).

The carriage cannot be engaged with the load-holding device in different positions, nor with one lock on and the other one off.

Raising movement

See how the carriage goes through the load-holding device in the images below.

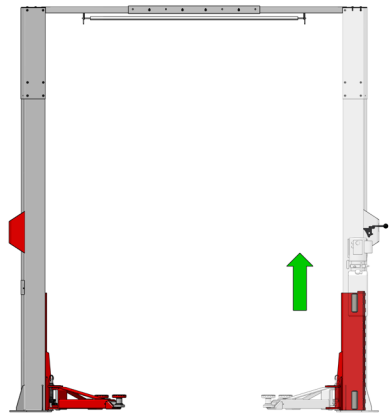


Figure 40

When the vehicle reaches the desired height, go to the next load-holding device slot (G- figure 41) and stop pressing the raising switch.

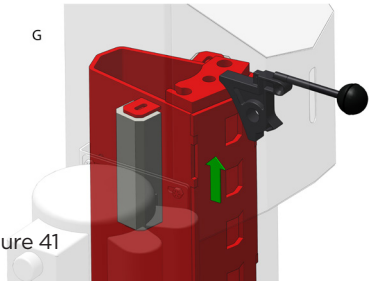


Figure 41

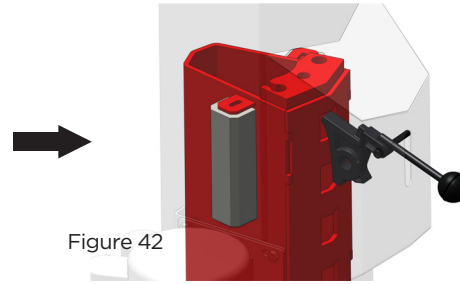


Figure 42

The load-holding device will automatically get back to its previous position. After that, lower the lever by using only the hydraulic power unit lever (H- figure 43).
The carriage will come down until it attaches to the load-holding device (I- figure 44).

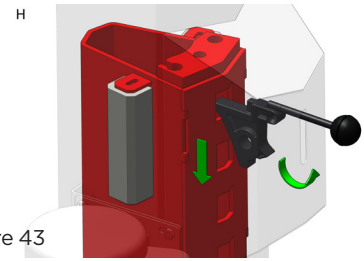


Figure 43

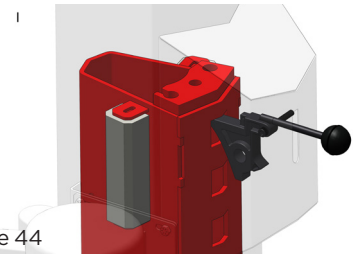


Figure 44

Raised vehicle

1. If the carriage slot does not coincide with the load-holding device when you reach the desired height, press the hydraulic power unit lever to attach to the nearest slot.

2. Always check if both column load-holding devices are placed correctly. If not, do not use the Automotive Lift nor stand near it.

Do not walk away from the controls if the carriages are not engaged onto the load-holding devices or completely lowered.

Vehicle lowering operation

1. Raise the carriage a bit by pressing the raising switch to clear the load-holding devices.

2. Lower the load-holding device handle and the hydraulic power unit lever at same time.

3. Before removing the vehicle from the raising area, place the swing arms and the rubber pads to provide an unobstructed removal.

4. NEVER transit the swing arms.

Operation Tips

Read this chapter fully and carefully because it has relevant information on operator and maintenance personnel safety. The manufacturer is not responsible for likely hazard to people, vehicles or objects due to Automotive Lift improper or unauthorized operation.

1. Do not raise the equipment unloaded. The system has been made to operate with a vehicle on it.

2. Never put objects on the Two-post lift corners and openings because they may interfere in the equipment's correct operation.

3. Respect the load capacity.

4. Be extra careful as you drive a vehicle onto the equipment to prevent bumping and harm both to the vehicle and the equipment.

5. Never leave the hydraulic power unit lowering lever lowered when the equipment is not in use.

6. Remember that the MF® Two- post Automotive Lift KREBS is a safe piece of equipment, developed to perform a specific task, so do not let children play or climb onto the equipment. Keep them at a safe distance. Also, do not use the Automotive Lift for other purposes. It has been developed to lift cars.

7. To ensure safety both to the operator and other people, a rectangular space for a safety area of at least 12 feet away from the Automotive Lift must be free during raising and lowering operations. The Automotive Lift must be operated only from the operator's hydraulic power unit safety area.
   The operator's presence under the vehicle during the job is only allowed when the vehicle is lifted and the load-holding device is activated.

8. If any Automotive Lift component is defective or loosen, DO NOT USE THE AUTOMOTIVE LIFT until maintenance has been carried out. Turn power off and leave it inactive.

PREVENTIVE MAINTENANCE

Maintenance	Frequency				
	Daily	Weekly	Monthly	Quarterly	Every 6 months
Column Lubrication			●		
Check wire ropes (wearing, diameter reduction, fanning out)	●				
Check connections, bolts and pins tightening			●		
Check oil level			●		
Check hydraulic hoses	●				
Check electrical cables				●	
Check if arm restraints are engaging	●				
Check if SWING ARM PINs are tight			●		
Check the load-holding device	●				
Check synchronization system tension		●			

Lift lockout/ tagout procedure

Object

This procedure establishes the minimum requirements for blocking energy that could cause personal injury when operating automotive lifts requiring repairs or maintenance. All employees must comply with this procedure.

Responsibility

The operator must be trained and must have read all the manuals pertaining to the equipment and the stickers attached to it. Customers are the ones responsible for ensuring operators are qualified. It is the Owner/employer responsibility to assure that ONLY trained, qualified and those who read thoroughly the Installation and Operation Manual is allowed to operate this equipment.

The equipment owner shall provide all necessary signaling/blocking means of energy shutoff as in ANSI Z244.1 and CSA Z460, as well as the necessary training for operators. Safety Rules for Energy Source Lockout/Tag out prior to carrying out any repair or maintenance in the Automotive Lift are mandatory.

BEFORE ANY MAINTENANCE, SHUT ALL POWER SUPPLY OFF!

Preparation

Employees authorized to perform the lockout must ensure that the appropriate energy isolation device (i.e., circuit breaker, fuse, disconnect switch, etc.) is identified for the automotive lift being locked out. Other similar devices for other equipment may be located near the appropriate energy isolation device. If the identity of the device is in question, consult the workshop supervisor for resolution. Ensure that the proper authorization is received before performing the lockout procedure.

Lockout Procedure Sequence

1. Notify all employees that a lockout is being performed and the reason for it.

2. The authorized person for the lockout operates the main energy isolation device by removing power from the hydraulic power unit.

- If this is a lockable device, the authorized person performing the lockout places the assigned padlock on the device to prevent its inadvertent reactivation. A proper tag is applied, indicating the person's name, with dimensions of at least 3" x 6" (76 x 152 mm), in a easily noticeable color, and a warning not to operate the device or remove the tag;

- If this device is an unlockable circuit breaker or fuse, replace it with a "dummy" device and mark it appropriately as mentioned above.

3. Attempt to operate the automotive lift to ensure that the locks are functioning (Verify blocked operation state). Make sure to set all switches to the "off" position.

4. The equipment is now locked and ready for the necessary maintenance or service.

For suitable, high-end maintenance, follow the instructions below:

- Replace worn, damaged or broken parts with only genuine spare parts and tools for maintenance;
- Follow the preventive maintenance and checking timetable, which will also be reinforced in the "Revision Chronogram";
- Focus on finding out the cause of possible failure and due maintenance so that, if it is due to inadequate use, this malpractice should be addressed at once.

Restoring Equipment for Service

1. Ensure that work on the automotive lift is complete and that the area is free from tools, vehicles and people.
2. At this point, the authorized person can remove the lock (or dummy circuit breaker or fuse) and tag and activate the energy isolation device so that the automotive lift can be put back into operation.

Rules for Using the Lockout/ Tagout Procedure

Use the Lockout/ Tagout Procedure: 1- whenever the automotive lift is under repair or maintenance while waiting for repair in current operation which could potentially cause harm, 2-this also applies for any other situation whenever unintentional operation could injure personnel. No attempt should be made to operate the automotive lift when the energy isolation device is locked out.

Cleaning

Keep the equipment free from the elements, such as rain and wind. For equipment cleaning and conservation, do not use excessive water since that may cause component corrosion. If you choose to clean it with chemical products, dry clean the applied area well. A good cleaning, which will not oxide the equipment, can be achieved with solvents such as removers.

Figure 45

Wire rope

Wire rope inspection must be done daily prior to lift use, by visually checking for any damage or corrosion.
See figure 46 to better understand how the wire ropes are made up.

Such wire ropes must be inactivated whenever there are three broken wires in a rope, which are in a torsion segment, or six randomly distributed broken wires in torsion segments (ropes).

The wire ropes must also be replaced for reasons of cut, diameter shrinking or wearing.

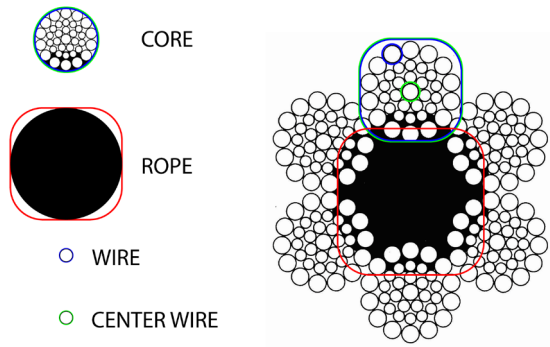


Figure 46

Inoperative (idle) Lift in the raised position

If for any reason there is a power outage while there is a vehicle on the lift, and if the power takes a long time to return, or the hose breaks, proceed as follows:

If a hose breaks, the anti-burst valve will come into action. If the carriage high is between load-holding device range, it will engage in the next available position. If it is out of its range, the carriage will lower completely to the ground at a safer speed, due to the anti-burst valve action. With the lift fully lowered or properly engaged, change the hoses and, if necessary, top off the oil. Only with new hoses will it be possible to raise the carriage to clean the load-holding device and descend safely.
If the power source goes out and the vehicle needs to be lowered urgently, it is important to have a power generator, as only with power will it be possible to raise the carriage to clear the load-holding device and then lower it. Otherwise, wait for the power to return and then lower the vehicle.

Pressure peak is 220 bar/ 3190 psi.

Lubrication

Oil change

1. Change oil once a year or at every 5,000 working hours, whichever comes first. It may vary according to use intensity.
2. Always maintain the oil level and refill it whenever needed.
3. Use 2.6 galons (10 liters) of ISO-32/ISO-46 oil.

As you fill it up with new oil, filter it. Avoid future issues with preventive care.

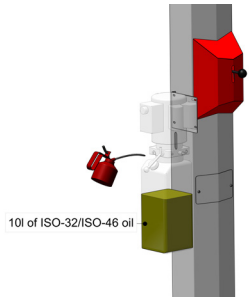


Figure 47

Columns

1. Spread industrial Vaseline or grease mp2 onto column inner tubes.

2. Use WD-40 or akin to lubricate the wire rope sheave pin.

Make sure the cylinder assembly plunger is always clean and not damaged, since that may lead to sealing leakage and consequent damage.

3. Pour 90- WT oil onto the sheaves. This oil can be apllied to the wire ropes as well, just as specified oil to wire ropes. The oil must flow into the wire rope nucleus and in the wires around the wire ropes.

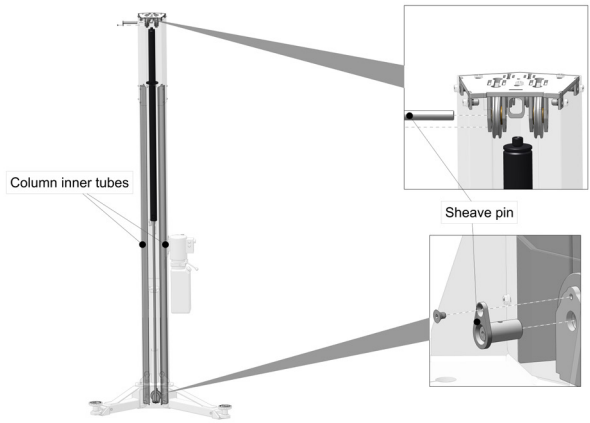


Figure 48

Load-holding devices

The load-holding devices are also another lubrication point for the equipment, since they are articulated parts. Use WD-40 or akin to lubricate the pin responsible for the joint.

Figure 49

Maintenance owner x Maintenance-trained lift service personnel

Maintenance of an automotive lift has tasks that can be performed by both professionals and equipment owners. The distinction between task competence is related to its complexity.

Tasks that can be done by the owner:

- Regular cleaning;
- Visual check;
- Lubrication.

Tasks that can be done by the maintenance-trained service personnel:

- Periodic Inspections;
- Calibration and Adjustments;
- Repairs and Replacement of Parts;
- Training and Certification;
- Preventive Maintenance.

Cylinder Assembly

1. Extend the plunger with your hands, or if possible, insert air in the connectors.

If the cylinder assembly is extended with your hands, remove the nipples and the back of the cylinder assembly to avoid vacuum.

2. Insert the cylinder assembly into the column. While inserting it, incline it a bit downwards so the plunger goes through the carriage, then pull the cylinder assembly back to a straight position so the plunger edge attaches to the carriage lower opening. You will have to loosen one of the carriage bolts to let the plunger pass through. Do not forget the cylinder assembly internal retaining ring and to reinstall the removed bolt.

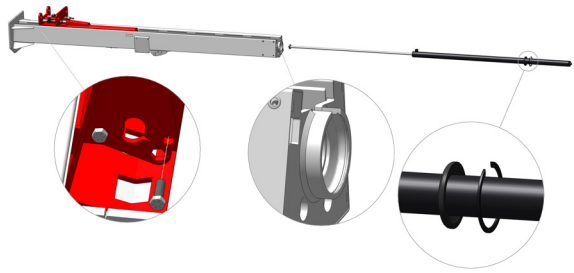


Figure 50

Replacement parts

	DESCRIPTION	CODES
	HYDRAULIC POWER UNIT	12800460
	CYLINDER ASSEMBLY	12800450
	HYDRAULIC HOSE 3185MM	23340088
	HYDRAULIC POWER UNIT HOSE 3930MM	23340087

	LOW PROFILE LIFT PAD	12800411
	LIFT PAD	12800410
	THREADED ADAPTER	13800871
	130mm EXTENDER ADAPTER	13800860
	90mm EXTENDER ADAPTER	13800870
	RUBBER PAD	23500506
	SLIDER BLOCK	13800900
	WIRE ROPE SHEAVE	12800280
	LOAD-HOLDING DEVICE WIRE ROPE	23150051
	SYNCHRONIZING WIRE ROPE	23150052
	BIGGER ARM RESTRAINT	23030808
	SMALLER ARM RESTRAINT	23030805

TROUBLESHOOTING

Please see below the likely events that may interfere in the equipment operation as well as how to identify their causes and solutions.

Consequences	Possible causes	Remedy
Automotive Lift carriages are raised, they do not travel	1. Not enough oil in the hydraulic power power hydraulic tank	Fill up the hydraulic tank up to the level, and if there is no oil, fill it up to 2.6 galons (10 liters) of ISO-32/ISO-46 oil
	2. Impure fluid	Replace the dirty oil with clean oil. Wash the reservoir before filling it with new oil and use a filter
	3. Hydraulic hose leakage	Tighten the connections that are loosen
	4. Air in the Hydraulic System	Move the carriage up and down a few times until all the air remaining in the system flows out
	5. Overload	Respect the Automotive Lift rated load capacity and make sure there is no extra load in the vehicle
	6. No energy in the hydraulic power unit	1. Check the power disconnect switches Make sure the power source provides enough power required for the hydraulic power unit
Automotive Lift will not stop	1. Do not let the Automotive Lift engaged to its load-holding device	Engage the Automotive Lift to the load-holding devices as shown on pages 55 and 56
	2. Hydraulic fluid leakage	Tighten the connections that are loose
Vehicle is unleveled between the swing arms	1. Carriages engaged in different load-holding devices	Engage the Automotive Lift to the load-holding devices as shown on “raising the vehicle” section, page 57
	2. Only one carriage is engaged	
Carriages are grinding or moving irregularly	1. Air in the hydraulic system	Move the carriage up and down a few times until all the air remaining in the system flows out
	2. Badly synchronized system	Synchronized wire ropes as described on step #6 on page 44
	3. No lubrication in column drives	Lubricate columns as shown on page 66

DISCLAIMER

On the KB10 SERIES-Two- Post automotive lift there are some responsibilities and observations to be made and fulfilled, and the manufacturer is not responsible for future effects related to failure to comply.
Here are some of your obligations, care, observations, and responsibilities as an owner of the equipment:

- By no means should you change any safety device. Always keep all safety devices well-maintained and in proper order. Any problem related to failure to do so is not the manufacturer's responsibility;

- An improper electrical connection may damage the hydraulic power unit, and warranty will not cover it. The connections must be carried out by a qualified electrician.

- Check the positioning of the vehicle, with its load evenly distributed and the appropriate center of gravity. Any problem related to failure to do so is not the manufacturer's responsibility;

- The manufacturer is not responsible for likely hazard to people, vehicles or objects due to Automotive Lift improper or unauthorized operation;

- The KB10 SERIES-Two- Post automotive lift has been made for indoor use only. If used other than specified above, the warranty is considered void, and the result of this misuse is your (the owner's) responsability.

- It is possible to use the equipment in the wide version, but there is currently no certification.

In general, any inadequate maintenance, operation, transportation, loading and unloading that does not follow the obligations and recommendations contained in the manuals and stickers means that the manufacturer is exempt from responsibilities related to occurrences due to misuse or nonobservance of information.

STICKERS

- J

Figure 51

- K

Figure 52

- L

Figure 53

- M

Figure 54

- N

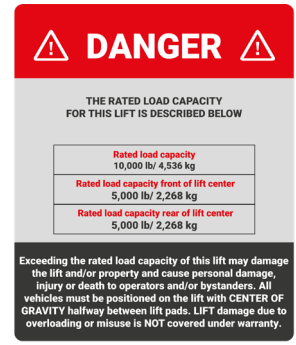


Figure 55

- O

Figure 56

- P

Figure 57

- Q

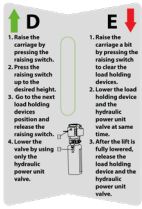


Figure 58

- R

Figure 59

- S

Figure 60

- T

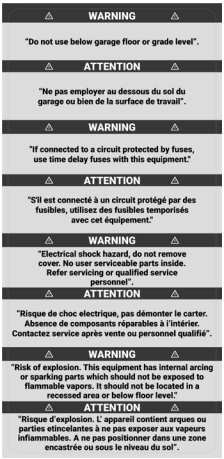
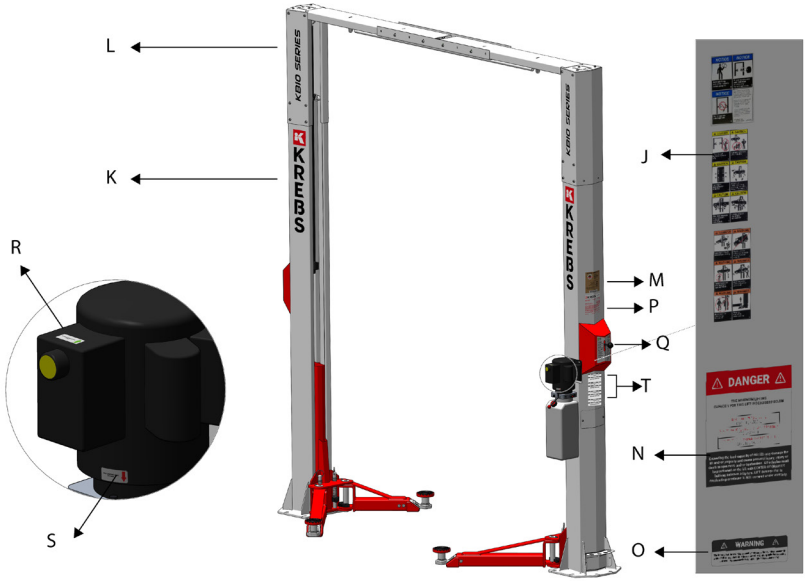


Figure 61


L
K
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KRES SERIES
KREBS
KREBS
DANGER
WARNING

Figure 62

INSTRUCTIONAL MATERIALS

Along with your automotive lift, some materials were provided in addition to the operation and installation manual. The instructional materials are an integrated part of the equipment. If such equipment is resold, it must remain with the equipment. Keep it free from moisture and other factors that may damage it. The 'safety tips' should be placed near to the equipment. The images below show what was provided. For more information, visit the site: www.autolift.org/shop/

Pictographs and Warning Labels used with permission of Automotive Lift Institute www.autolift.org

AUTOMOTIVE LIFT

SAFETY TIPS

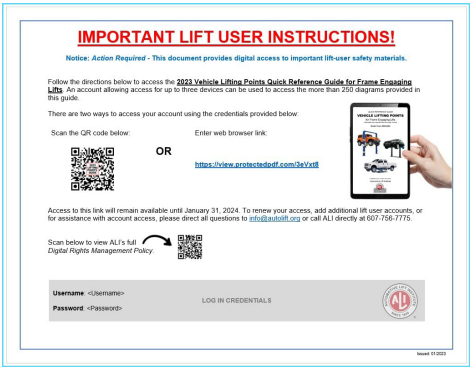
Post these safety tips where they will be a constant reminder to all lift operators. For information about a specific lift, always refer to its operation manual.

1. **Only trained and authorized people should position vehicles and operate the lift.** Training should be documented by the owner/employer.
2. **Examine your lift daily.** Never operate the lift if it malfunctions, makes unusual noises, or has broken or damaged parts. Repairs should be made with original equipment parts.
3. **Do not tamper with, bypass, or otherwise override operating controls.** Operating controls are designed to return to the neutral, or off, position when released.
4. **Never overload your lift.** The lift's rated load capacity is required to be listed on its nameplate.
5. **Never lift one end, side, or corner of a vehicle.** Always lift the entire vehicle unless authorized in writing by the lift manufacturer.
6. **Never raise or lower an occupied vehicle.** Unescorted customers or by-standers should not be in the lift area.
7. **Always keep the lift area clean.** Prepare the service bay by making sure the lift area is free of grease and oil, tools, hoses, trash and other debris.
8. **Provide unobstructed clearance to and from the lift.** Do not hit or run over lift arms, adapters, or axle supports when moving a vehicle into or out of the service bay. This could damage the lift or the vehicle. Check for obstructions and adequate overhead clearance.
9. **Carefully load the vehicle onto the lift.** Position lift supports or adapters to contact the vehicle manufacturer's recommended lifting points. Raise the lift until the supports or adapters contact the vehicle securely. Visually check the lifting points again. Raise until tires clear the floor, and shake the vehicle to confirm stability. After a final visual confirmation, raise the lift to the desired working height.
10. **Always use the load-holding device (sometimes known as a lock or latch).** After the vehicle is raised to the desired working height, lower the lift onto its load-holding device(s), and visually check all vehicle contact points once more to make sure each adapter or support is securely in position before going under the vehicle.
11. **Use vehicle support stands for stabilizing the load.** The removal or installation of components may cause the raised vehicle to become unstable. Use support stands for long vehicles or any service that could change the vehicle's center of gravity.
12. **Remove anything that could block the lowering process.** Before releasing the load-holding device to lower the lift, remove tool boxes, jacks, oil drain systems, and anything else from under the lift.
13. **Have all lifts inspected at least annually by a qualified automotive lift inspector.** To find a qualified lift inspector in your area, contact the lift manufacturer or visit www.autolift.org.

AUTOMOTIVE LIFT INSTITUTE

These safety tips, along with general lift safety materials, are presented as an industry service by the Automotive Lift Institute. Learn more at www.autolift.org.

ALI-ST-10



IMPORTANT LIFT USER INSTRUCTIONS!

Notice: ***Action Required*** **- This document provides digital access to important lift-user safety materials.**

Follow the directions below to access the **2023 Vehicle Lifting Points Quick Reference Guide for Frame Engaging Lifts**. An account allowing access for up to three devices can be used to access the more than 250 diagrams provided in this guide.

There are two ways to access your account using the credentials provided below:

Scan the QR code below:

OR

Enter web browser link:

https://view.protectedpdf.com/3eVxt8

Access to this link will remain available until January 31, 2024. To renew your access, add additional lift user accounts, or for assistance with account access, please direct all questions to info@autolift.org or call ALI directly at 607-756-7775.

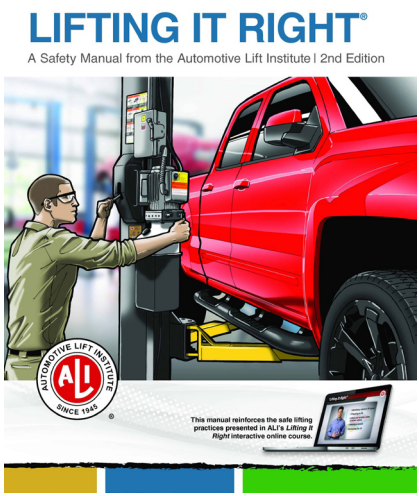
Scan below to view ALI's full *Digital Rights Management Policy.*

Username <Username>

Password <Password>

LOG IN CREDENTIALS

Issued: 01/2023

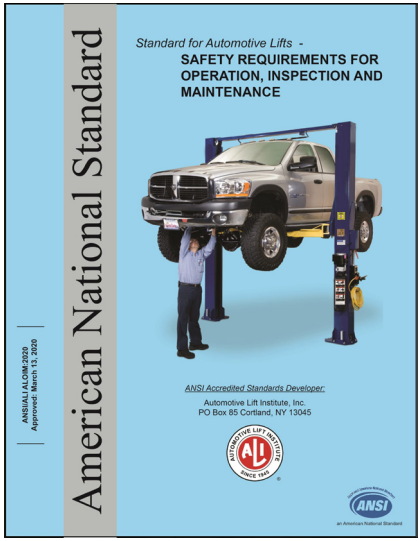


LIFTING IT RIGHT®

A Safety Manual from the Automotive Lift Institute | 2nd Edition

AUTOMOTIVE LIFT INSTITUTE SINCE 1945

This manual reinforces the safe lifting practices presented in ALI's *Lifting It Right* interactive online course.



American National Standard

ANSI/ALI ALCTV-2020
Approved: March 13, 2020

Standard for Automotive Lifts -

SAFETY REQUIREMENTS FOR OPERATION, INSPECTION AND MAINTENANCE

ANSI Accredited Standards Developer:

Automotive Lift Institute, Inc.
PO Box 85 Cortland, NY 13045

AUTOMOTIVE LIFT INSTITUTE SINCE 1945

ANSI

an American National Standard

EXPLODED VIEW

Model KB10R

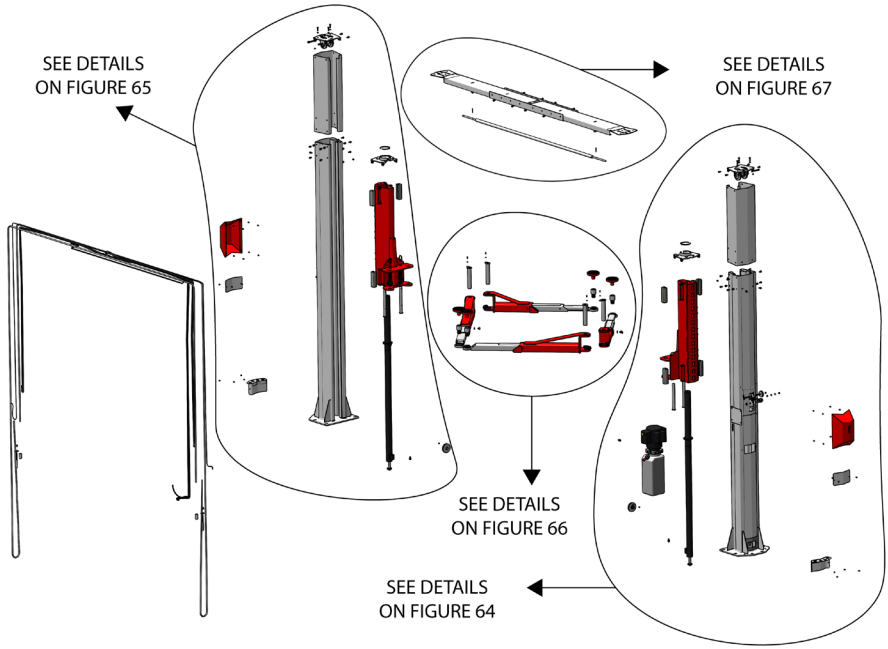


Figure 63

Motor column

Turn the manual over to view the figure.

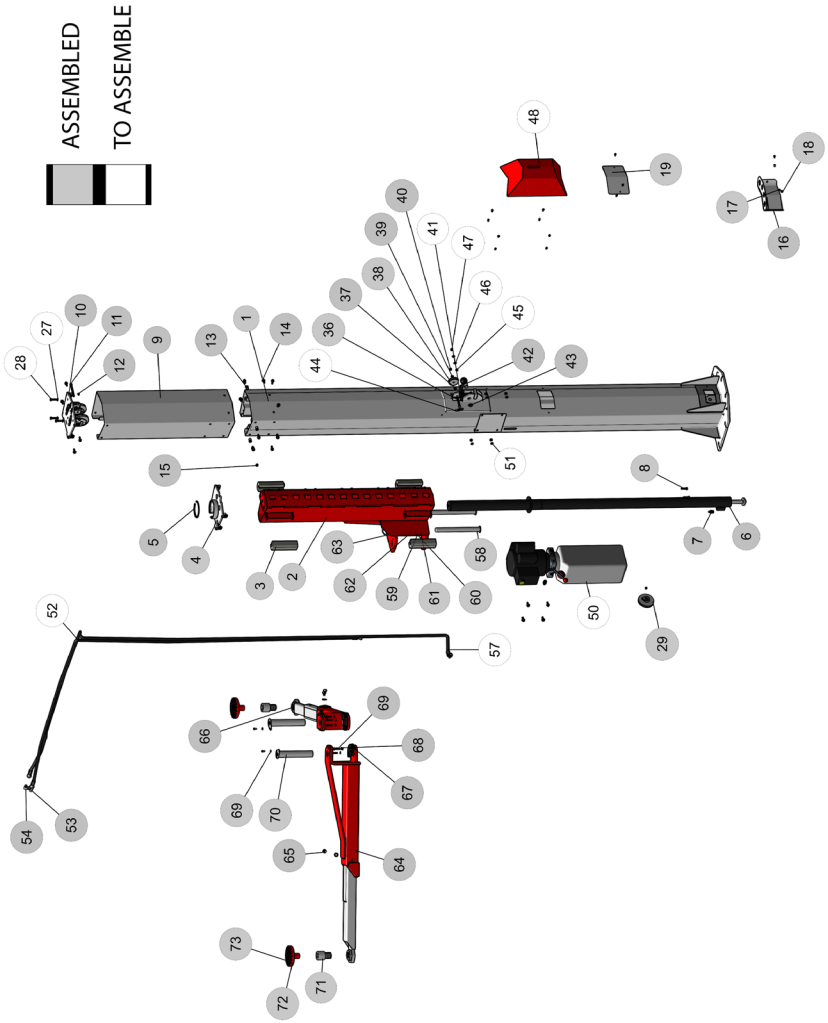


Figure 64

ITEM	DESCRIPTION	CODES	QTY
1	MOTOR COLUMN	12800000	1
2	CARRIAGE	12800200	1
3	SLIDER BLOCK	13800900	4
4	COLUMN COVER	12800590	1
5	INTERNAL RETAINING RING Ø 100	23100716	1
6	CYLINDER ASSEMBLY	12800450	1
7	STRAIGHT ADAPTER 1/4" BSP X 9/16" JIC	22500330	1
8	HEX HEAD BOLT 3/8" X 1 1/4"	23110080	1
9	COLUMN EXTENSION	13800630	1
10	COLUMN EXTENSION COVER	12800430	1
11	SOCKET HEAD BOLTS 3/8" X 3 1/2"	23420025	1
12	SOCKET HEAD BOLTS 1/4" X 3/8"	23420024	2
13	RIVET HEX NUT M8	23100206	6
14	FLANGED HEX HEAD BOLT M8 X 20MM	23111335	20
15	HEX HEAD LOCKNUT M8	23111012	6
16	LOWER COLUMN COVER	12800600	1
17	RIVET HEX NUT M5	23100205	8
18	FLANGED HEX HEAD BOLT M5 X 20MM	23111336	8
19	WIRE ROPE LEVELER COVER	13845200	1
27	SPLIT LOCK WASHER 3/8"	23130300	6
28	HEX HEAD BOLT 3/8" X 1"	23110070	3
29	WIRE ROPE SHEAVE	12800280	1
36	SOCKET HEAD BOLTS 3/8" X 2 1/4"	23420030	1
37	HEX HEAD NUT 3/8"	23120150	1
38	SMALLER SHEAVE	13800840	1
39	WASHER 3/8"	23130220	3
40	HEX LOCKNUT 3/8"	23120120	1
41	LOAD-HOLDING DEVICE MOTOR COLUMN	12800081	1
42	LOAD-HOLDING DEVICE PIN	13800270	1
43	EXTERNAL RETAINING RING 19MM	23100601	1
44	LOAD-HOLDING DEVICE SPRING	23010115	1
45	HEX HEAD NUT 5/16"	23120140	1
46	WASHER 5/16"	23130070	2
47	HEX LOCKNUT 5/16"	23120230	1

48	LOAD-HOLDING DEVICE MOTOR COLUMN COVER	12800090	1
50	HYDRAULIC POWER UNIT	12800460	1
51	WASHER M8	23130992	4
52	HYDRAULIC POWER UNIT HOSE 3930MM	23340087	1
53	TEE CONNECTOR 9/16"JIC X 9/16"JIC X 9/16"JIC	22500331	1
54	90º ELBOW ADAPTER SWIVELS 9/16" X 9/16" JIC	23340082	1
56	STRAIGHT ADAPTER 9/16"JIC X 9/16"JIC	22500342	1
57	HYDRAULIC HOSE 3185MM	23340088	1
58	ARM RESTRAINT PIN	12800220	2
59	SMALLER ARM RESTRAINT	23030805	2
60	SOCKET HEAD BOLTS M5 X 50MM	23420023	2
61	HEX HEAD LOCKNUT M5	23120635	2
62	ARM RESTRAINT PIN SPRING	23030806	2
63	ARM RESTRAINT LOCK RING PIN	23030807	2
64	RIGHT 2-STAGE SWING ARM THREADED	12800311	1
65	HEX HEAD BOLT 3/8" X 1/2"	23110072	5
66	LEFT 3-STAGE SWING ARM THREADED	12800133	1
67	BIGGER ARM RESTRAINT	23030808	2
68	SPLIT LOCK WASHER 5/16"	23130999	6
69	HEX HEAD BOLT 5/16" X 1 1/4"	23110050	6
70	SWING ARM PIN	12800170	2
71	THREADED ADAPTER	13800871	2
72	LOW PROFILE LIFT PAD	12800411	2
73	RUBBER PAD	23500506	2

Driven column

Turn the manual over to view the figure.

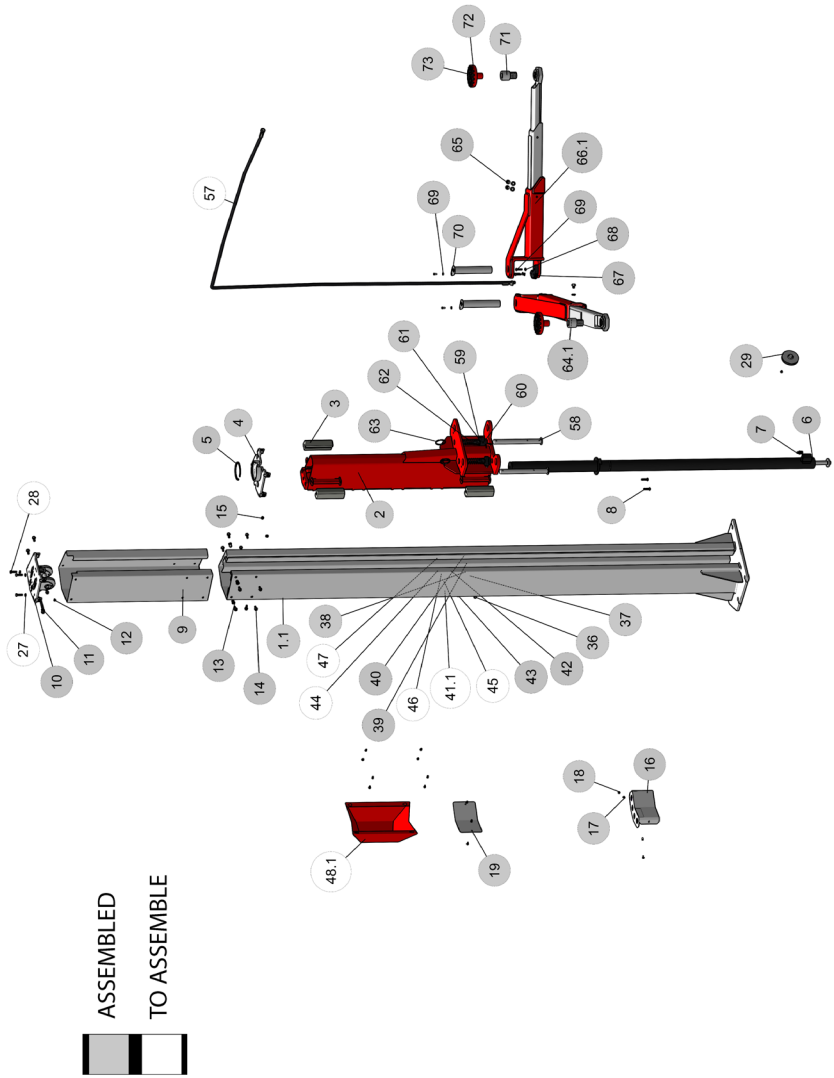


Figure 65

ITEM	DESCRIPTION	CODES	QTY
1.1	DRIVEN COLUMN	12800010	1
2	CARRIAGE	12800200	1
3	SLIDER BLOCK	13800900	4
4	COLUMN COVER	12800590	1
5	INTERNAL RETAINING RING Ø 100	23100716	1
6	CYLINDER ASSEMBLY	12800450	2
7	STRAIGHT ADAPTER 1/4" BSP X 9/16" JIC	22500330	1
8	HEX HEAD BOLT 3/8" X 1 1/4"	23110080	2
9	COLUMN EXTENSION	13800630	1
10	COLUMN EXTENSION COVER	12800430	1
11	SOCKET HEAD BOLTS 3/8" X 3 1/2"	23420025	1
12	SOCKET HEAD BOLTS 1/4" X 3/8"	23420024	2
13	RIVET HEX NUT M8	23100206	6
14	FLANGED HEX HEAD BOLT M8 X 20MM	23111335	16
15	HEX HEAD LOCKNUT M8	23111012	2
16	LOWER COLUMN COVER	12800600	1
17	RIVET HEX NUT M5	23100205	8
18	FLANGED HEX HEAD BOLT M5 X 20MM	23111336	8
19	WIRE ROPE LEVELER COVER	13845200	1
27	SPLIT LOCK WASHER 3/8"	23130300	6
28	HEX HEAD BOLT 3/8" X 1"	23110070	3
29	WIRE ROPE SHEAVE	12800280	1
36	SOCKET HEAD BOLTS 3/8" X 2 1/4"	23420030	1
37	HEX HEAD NUT 3/8"	23120150	1
38	SMALLER SHEAVE	13800840	1
39	WASHER 3/8"	23130220	3
40	HEX LOCKNUT 3/8"	23120120	1
41.1	LOAD-HOLDING DEVICE DRIVEN COLUMN	12800080	1
42	LOAD-HOLDING DEVICE PIN	13800270	1
43	EXTERNAL RETAINING RING 19MM	23100601	1
44	LOAD-HOLDING DEVICE SPRING	23010115	1
45	HEX HEAD NUT 5/16"	23120140	1
46	WASHER 5/16"	23130070	2
47	HEX LOCKNUT 5/16"	23120230	1

48.1	LOAD-HOLDING DEVICE DRIVEN COLUMN COVER	12800100	1
57	HYDRAULIC HOSE 3185MM	23340088	1
58	ARM RESTRAINT PIN	12800220	2
59	SMALLER ARM RESTRAINT	23030805	2
60	SOCKET HEAD BOLTS M5 X 50MM	23420023	2
61	HEX HEAD LOCKNUT M5	23120635	2
62	ARM RESTRAINT PIN SPRING	23030806	2
63	ARM RESTRAINT LOCK RING PIN	23030807	2
64.1	LEFT 2-STAGE SWING ARM THREADED	12800313	1
65	HEX HEAD BOLT 3/8" X 1/2"	23110072	5
66.1	RIGHT 3-STAGE SWING ARM THREADED	12800132	1
67	BIGGER ARM RESTRAINT	23030808	2
68	SPLIT LOCK WASHER 5/16"	23130999	6
69	HEX HEAD BOLT 5/16" X 1 1/4"	23110050	6
70	SWING ARM PIN	12800170	2
71	THREADED ADAPTER	13800871	2
72	LOW PROFILE LIFT PAD	12800411	2
73	RUBBER PAD	23500506	2

Swing arm

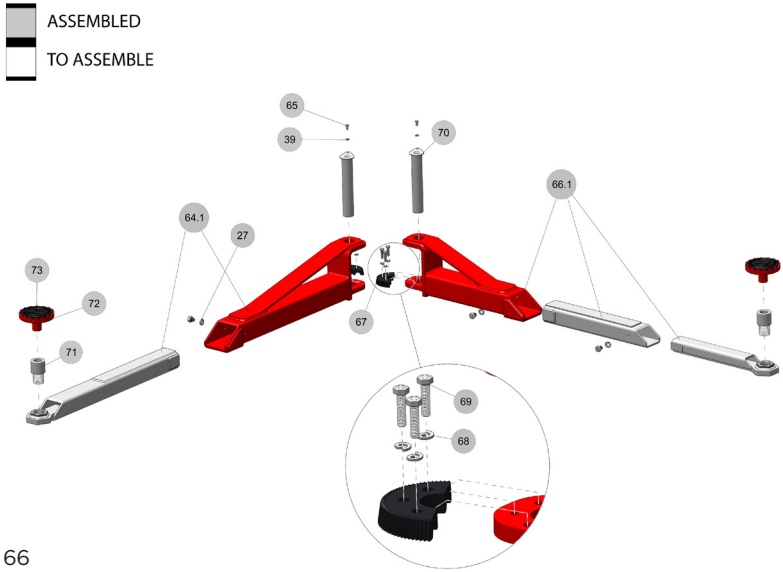


Figure 66

ITEM	DESCRIPTION	CODES	QTY
27	SPLIT LOCK WASHER 3/8”	23130300	3
39	WASHER 3/8”	23130220	2
64.1	LEFT 2-STAGE SWING ARM THREADED	12800313	1
65	HEX HEAD BOLT 3/8” X 1/2”	23110072	5
66.1	RIGHT 3-STAGE SWING ARM THREADED	12800132	1
67	BIGGER ARM RESTRAINT	23030808	2
68	SPLIT LOCK WASHER 5/16”	23130999	6
69	HEX HEAD BOLT 5/16” X 1 1/4”	23110050	6
70	SWING ARM PIN	12800170	2
71	THREADED ADAPTER	13800871	2
72	LOW PROFILE LIFT PAD	12800411	2
73	RUBBER PAD	23500506	2

Overhead assembly

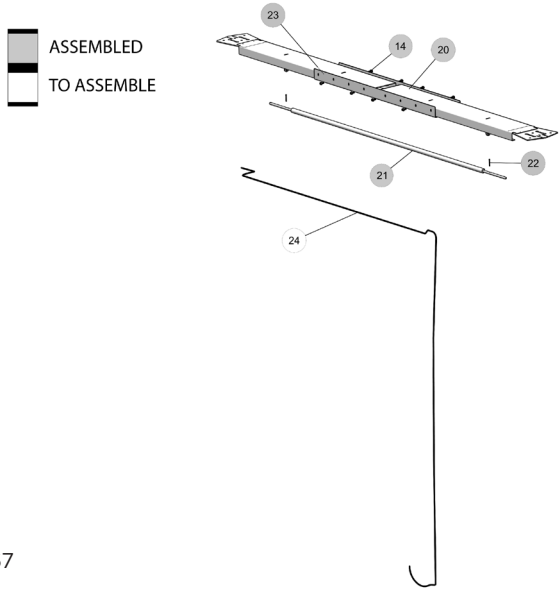


Figure 67

ITEM	DESCRIPTION	CODES	QTY
*	OVERHEAD	12800380	2
14	FLANGED HEX HEAD BOLT M8 X 20MM	23111335	8
21	SAFETY SHUTOFF BAR	12800120	1
22	COTTER PINS	23101032	2
23	MICRO SWITCH	23220561	1
24	MICRO SWITCH CABLE	23210003	1
25	PHILIPS OVAL HEAD BOLT M4 X 35MM	23110036	2
26	HEX HEAD NUT M4	23111014	2

Load-holding device wire rope

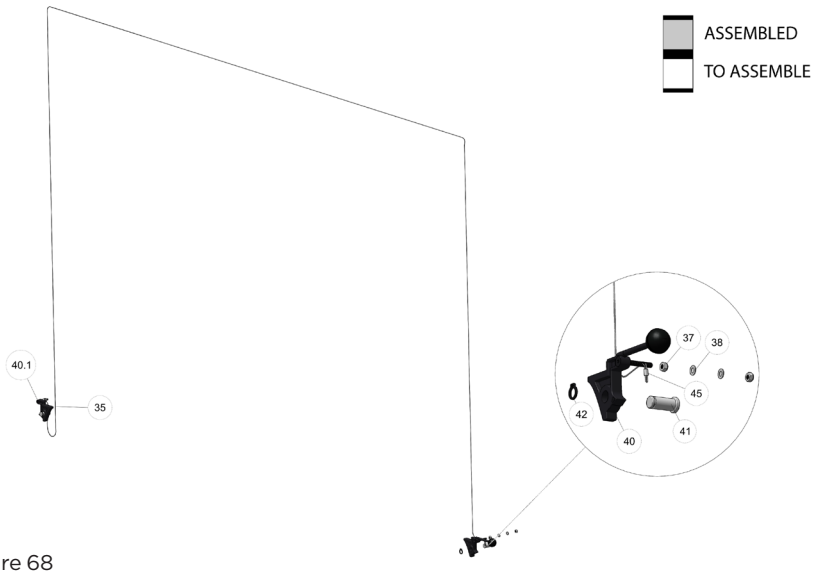


Figure 68

ITEM	DESCRIPTION	CODES	QTY
35	LOAD-HOLDING DEVICE WIRE ROPE	23150052	1
41	LOAD-HOLDING DEVICE MOTOR COLUMN	12800081	1
41.1	LOAD-HOLDING DEVICE DRIVEN COLUMN	12800080	1
42	LOAD-HOLDING DEVICE PIN	13800270	2
43	EXTERNAL RETAINING RING 19MM	23100601	2
44	LOAD-HOLDING DEVICE SPRING	23010115	2
45	HEX HEAD NUT 5/16"	23120140	2
46	WASHER 5/16"	23130070	2
47	HEX LOCKNUT 5/16"	23120230	2
49	WIRE ROPE COMPRESSION SLEEVE	23100024	2

Model KB10R

ITEM	DESCRIPTION	CODES	QTY
*	MODEL KB10R TWO- POST AUTOMOTIVE LIFT	11800000	1
1	MOTOR COLUMN	12800000	1
1.1	DRIVEN COLUMN	12800010	1
2	CARRIAGE	12800200	2
3	SLIDER BLOCK	13800900	8
4	COLUMN COVER	12800590	2
5	INTERNAL RETAINING RING Ø 100	23100716	2
6	CYLINDER ASSEMBLY	12800450	2
7	STRAIGHT ADAPTER 1/4" BSP X 9/16" JIC	22500330	2
8	HEX HEAD BOLT 3/8" X 1 1/4"	23110080	4
9	COLUMN EXTENSION	13800630	2
10	COLUMN EXTENSION COVER	12800430	2
11	SOCKET HEAD BOLTS 3/8" X 3 1/2"	23420025	2
12	SOCKET HEAD BOLTS 1/4" X 3/8"	23420024	4
13	RIVET HEX NUT M8	23100206	20
14	FLANGED HEX HEAD BOLT M8 X 20MM	23111335	44
15	HEX HEAD LOCKNUT M8	23111012	8
16	LOWER COLUMN COVER	12800600	2
17	RIVET HEX NUT M5	23100205	16
18	FLANGED HEX HEAD BOLT M5 X 20MM	23111336	16
19	WIRE ROPE LEVELER COVER	13845200	2
20	OVERHEAD	12800380	1
21	SAFETY SHUTOFF BAR	12800120	1
22	COTTER PINS	23101032	2
23	MICRO SWITCH	23220561	1
24	MICRO SWITCH CABLE	23210003	1
25	PHILIPS OVAL HEAD BOLT M4 X 35MM	23110036	2
26	HEX HEAD NUT M4	23111014	2
27	SPLIT LOCK WASHER 3/8"	23130300	12
28	HEX HEAD BOLT 3/8" X 1"	23110070	6
29	WIRE ROPE SHEAVE	12800280	2
30	WIRE ROPE	12800551	2

31	THREADED-END CONNECTION	13800991	2
32	WASHER 5/8"	23130100	2
33	HEX LOCKNUT 9/16"	23111008	2
34	BUTTON END	13800990	2
35	LOAD-HOLDING DEVICE WIRE ROPE	23150052	1
36	SOCKET HEAD BOLTS 3/8" X 2 1/4"	23420030	2
37	HEX HEAD NUT 3/8"	23120150	2
38	SMALLER SHEAVE	13800840	1
39	WASHER 3/8"	23130220	3
40	HEX LOCKNUT 3/8"	23120120	2
41	LOAD-HOLDING DEVICE MOTOR COLUMN	12800081	1
41.1	LOAD-HOLDING DEVICE DRIVEN COLUMN	12800080	1
42	LOAD-HOLDING DEVICE PIN	13800270	2
43	EXTERNAL RETAINING RING 19MM	23100601	2
44	LOAD-HOLDING DEVICE SPRING	23010115	2
45	HEX HEAD NUT 5/16"	23120140	2
46	WASHER 5/16"	23130070	2
47	HEX LOCKNUT 5/16"	23120230	2
48	LOAD-HOLDING DEVICE MOTOR COLUMN COVER	12800090	1
48.1	LOAD-HOLDING DEVICE DRIVEN COLUMN COVER	12800100	1
49	WIRE ROPE COMPRESSION SLEEVE	23100024	1
50	HYDRAULIC POWER UNIT	12800460	1
51	WASHER M8	23130992	4
52	HYDRAULIC POWER UNIT HOSE 3930MM	23340087	1
53	TEE CONNECTOR 9/16"JIC X 9/16"JIC X 9/16"JIC	22500331	1
54	90º ELBOW ADAPTER SWIVELS 9/16" X 9/16" JIC	23340082	1
55	HYDRAULIC HOSE EXTENDER 300MM	23340086	1
56	STRAIGHT ADAPTER 9/16"JIC X 9/16"JIC	22500342	2
57	HYDRAULIC HOSE 3185MM	23340088	2
58	ARM RESTRAINT PIN	12800220	4
59	SMALLER ARM RESTRAINT	23030805	4
60	SOCKET HEAD BOLTS M5 X 50MM	23420023	4
61	HEX HEAD LOCKNUT M5	23120635	4
62	ARM RESTRAINT PIN SPRING	23030806	4
63	ARM RESTRAINT LOCK RING PIN	23030807	4

64	RIGHT 2-STAGE SWING ARM THREADED	12800311	1
64.1	LEFT 2-STAGE SWING ARM THREADED	12800313	1
65	HEX HEAD BOLT 3/8" X 1/2"	23110072	10
66	LEFT 3-STAGE SWING ARM THREADED	12800133	1
66.1	RIGHT 3-STAGE SWING ARM THREADED	12800132	1
67	BIGGER ARM RESTRAINT	23030808	4
68	SPLIT LOCK WASHER 5/16"	23130999	6
69	HEX HEAD BOLT 5/16" X 1 1/4"	23110050	12
70	SWING ARM PIN	12800170	4
71	THREADED ADAPTER	13800871	4
72	LOW PROFILE LIFT PAD	12800411	4
73	RUBBER PAD	23500506	4

Pre- assembled parts

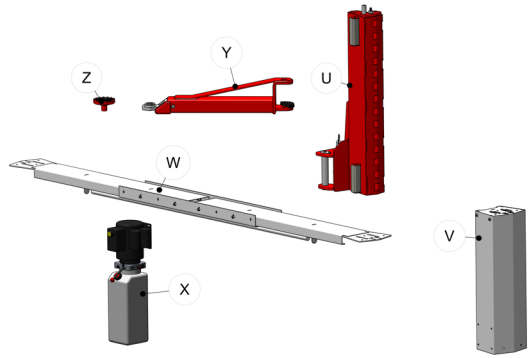


Figure 69

ITEM	DESCRIPTION	CODES	QTY
U	CARRIAGE ASSEMBLY	12800200	2
V	COLUMN EXTENSION ASSEMBLY (4 RIVET HEX NUT AND FLANGED HEX HEAD BOLT)	12800420	2
W	OVERHEAD ASSEMBLY (8 RIVET HEX NUT AND FLANGED HEX HEAD BOLT)	12800380	1
X	HYDRAULIC POWER UNIT ASSEMBLY	12800460	1
Y	LEFT 2-STAGE SWING ARM THREADED	12800313	1
Z	LOW PROFILE LIFT PAD ASSEMBLY	12800401	4

ITEM	DESCRIPTION	CODES	QTY
U	CARRIAGE ASSEMBLY	23130220	2
*	ARM RESTRAINT PIN ASSEMBLY	12800180	4
*	CYLINDER ASSEMBLY LOCKER	12800230	2
2	CARRIAGE	12800200	2
3	SLIDER BLOCK	13800900	8
28	HEX HEAD BOLT 3/8" X 1"	23110070	4
30	WIRE ROPE	12800551	2
32	WASHER 5/8"	23130100	2
33	HEX LOCKNUT 9/16"	23111008	2
38	WASHER 3/8"	23130220	4
60	SOCKET HEAD BOLTS M5 X 50MM	23420023	4
61	HEX HEAD LOCKNUT M5	23120635	4
70	SWING ARM PIN	12800170	4

V	COLUMN EXTENSION ASSEMBLY	12800420	2
9	COLUMN EXTENSION	13800630	2
10	COLUMN EXTENSION COVER	12800430	2
14	FLANGED HEX HEAD BOLT M8 X 20MM	23111335	8

W	OVERHEAD ASSEMBLY	12800380	1
*	OVERHEAD JUNCTION	12800290	1
*	POLYETHYLENE SAFETY SHUTOFF	23000832	1
*	OVERHEAD	12800380	2
14	FLANGED HEX HEAD BOLT M8 X 20MM	23111335	8
21	SAFETY SHUTOFF BAR	12800120	1
22	COTTER PINS	23101032	2
23	MICRO SWITCH	23220561	1
24	MICRO SWITCH CABLE	23210003	1
25	PHILIPS OVAL HEAD BOLT M4 X 35MM	23110036	2
26	HEX HEAD NUT M4	23111014	2

X	HYDRAULIC POWER UNIT ASSEMBLY	12800460	1
7	STRAIGHT ADAPTER 1/4" BSP X 9/16" JIC	22500330	1
50	HYDRAULIC POWER UNIT	12800460	1

Y	LEFT 2-STAGE SWING ARM THREADED	12800313	1
*	LEFT ADJUSTABLE SWING ARM	12800333	1
*	NUT 1 1/2"	13800730	1
8	HEX HEAD BOLT 3/8" X 1/2"	23110072	1
27	SPLIT LOCK WASHER 3/8"	23130300	1
64	2-STAGE SWING ARM	12800320	1
67	BIGGER ARM RESTRAINT	23030808	1
69	HEX HEAD BOLT 5/16" X 1 1/4"	23110050	3

Z	LOW PROFILE LIFT PAD ASSEMBLY	12800401	4
72	LOW PROFILE LIFT PAD	12800411	4
73	RUBBER PAD	23500506	4

WARRANTY TERMS

KREBS Brothers

Krebs Brothers, LLC ("Seller") provides a limited warranty for the automotive lift products sold to and purchased by the original purchaser (the "Product or Products"). This warranty may not be transferred and shall extend only to the original Buyer. Seller does not represent or guarantee any other matter written or implicit, regarding Products, their adequacy for any purpose, or any other matter whatsoever.

1. PRODUCTS: The Seller's limited warranty shall apply to the following Products:

a. KB10 Series Two- post Automotive lift, KB4 Series Four-post Automotive lift and Tell 6000.

2. DURATION: Seller's limited warranty herein shall commence on the installation completion date, or within 6 months of shipment by Seller, whichever happens first, and will provide a limited warranty period of:

a. Five years (60 months) warranty for the lift structure.

b. One year (12 months) warranty for cylinder(s) assembly and hydraulic power unit.

c. One year (12 months) warranty for the electric motor.

d. One year (12 months) warranty for operational components.

e. One year (12 months) warranty for electrical components (except the hydraulic power unit).

3. SELLER'S RESPONSIBILITIES under this warranty:

a. Repair or replace the defective and/or non-conforming part within the warranty period.

b. Account for reasonable manpower expenses approved in advance by Seller only within the first 12 months from the commencement of the warranty period.

c. Seller shall repair or replace the component in its sole discretion.

d. In no event shall Seller be responsible for any claims for damages more than the purchase price paid by Buyer for the Product.

e. No onsite labor is covered by this warranty unless approved in advance by Seller.

f. Seller reserves the right to make further improvements, enhancements, design changes or other improvements to the Products it designs and sells without any obligation to update previously sold Products.

4. EXCEPTIONS: Seller will not be responsible for the following:

a. Any failure due to abuse, negligence or incorrect product operation, maintenance or service according to the instructions stated in the manual(s) provided with the product to all users.

b. Any damage caused by product overload.

c. Services or materials usually needed to maintain the product.

d. Items generally taken as wearable parts such as sheaves, wire ropes, etc., unless such wear or failure is due to a manufacturer's direct failure from material and/or manpower.

e. Any component damaged during shipment, or any failure caused by installation or operation which is not according to the installation and operation guidelines, or damage due to contact with tools or surroundings.

f. Hydraulic power unit or electric motor failure due to rain, excessive moisture, corrosive areas, or other contaminants.

g. Rusty components due to inadequate maintenance or corrosive areas.

h. Cosmetic damage which will not interfere with product functionality.

i. Damage due to incorrect tension or wiring.

j. Any failure resulting from inadequate installation or non-conforming use to the specifications.

k. Damage caused by disasters such as fire, flooding, wind, lightning and acts of God.

l. Damage caused by unauthorized accessories or modifications.

5. Response Time and Service Obligations:

Day	Time Frame	Attendance Time
Monday - Friday	09:00 AM – 05:00 PM	Up to 4 hours
Monday - Thursday	05:01 PM – 09:00 PM	Next Morning
Friday	05:01 PM – 09:00 PM	Next Morning
Saturday	09:00 AM – 05:00 PM	Up to 4 hours
Saturday	05:01 PM – 09:00 PM	Next Morning
Sunday & Holidays	09:00 AM – 05:00 PM	Up to 12 hours
Sunday & Holidays	05:01 PM – 09:00 PM	Next Morning

a. When Seller carries out the repair or replacement job under this warranty, the part repair or replacement will be scheduled and provided according to the normal workflow in the maintenance local and depending on the spare part availability.

b. Seller shall respond to service requests and begin addressing any issues causing space unavailability according to the following response times:

c. Seller shall resolve the issue at no charge to the Buyer within fifteen (15) business days of being notified of the problem or present a resolution schedule plan in the case of a third-party supplier's viability necessary. The fifteen (15) day allowance applies only to situations where ordering replacement parts is necessary.

d. The Buyer must ensure that the machines are operated and maintained in accordance with Seller's instructions and operation manual. Failure to do so will relieve Seller of its obligations.

6. BUYER's RESPONSIBILITIES under this warranty:

a. Provide dated purchase receipts and maintenance records.

b. Be reasonably careful while operating and maintaining the Products according to the user's manual(s) statements.

c. Freight expenses, after 12 months, when components need to be sent to the nearest Seller designated location.

d. Immediately after the Product is received, the Buyer shall inspect it. Any further complaint about missing parts must be made within three days after the Buyer has received it. All other complaints, including defective product claims, must be made within fifteen days after the Buyer has become aware of the facts on which such complaint is based, but in no case after the applicable warranty period for the component(s).

e. Regarding any defects that are impossible to be discovered until the Product is used, all claims for any damage or losses resulting from such defects shall be discarded, unless written and received by Seller within fifteen days after the Buyer

has become aware of the supposed failure which led to the complaint and after the referred periods are expired, but in no case after the applicable warranty period for the component(s). The Buyer assumes express responsibility for such damage or losses, regardless of any use that may take place if the claimed failure happened or was discovered prior to the warranty period expiration.

7. Additional Limitations:

a. Seller has no obligation whatsoever, according to this warranty, onto the product that, by its own criteria, has been altered, damaged, abused, misused, lost, or inadequately maintained or damaged due to an act of God, power or electrical grid failure.

b. This warranty is null and ineffective if any person who is not a Seller authorized representative has carried out any maintenance or modification attempt to the Product prior to its return to Seller under this warranty.

c. The products are provided and sold "as they are", with no expressed nor implicit guarantees, including trade guarantees or adequacy to any specific purposes. No warranty, whether expressed or implicit, shall be applied after the duration mentioned above.

d. SELLER HAS NO RESPONSIBILITY FOR ANY LOSSES AND DAMAGE TO THE BUYER, BY ANY CIRCUMSTANCES, INCLUDING SELLER'S NEGLIGENCE, SUPPOSEDLY DAMAGED OR DEFECTIVE, REGARDLESS OF SUCH DAMAGE HAS BEEN DISCOVERED OR LATENT, AND IN NO CIRCUMSTANCE WILL IT EXCEED THE PURCHASE PRICE OF PRODUCTS TO WHICH DAMAGE OR LOSSES ARE CLAIMED, OR, AT SELLER'S ELECTION, THE REPAIR OR REPLACEMENT OF DEFECTIVE OR DAMAGED PRODUCT.

e. THE DAMAGE EVENTS THAT SELLER WILL NOT BE RESPONSIBLE FOR INCLUDE, BUT ARE NOT LIMITED TO, ARE AS FOLLOWS: FINANCIAL LOSS, SAVINGS OR INCOME LOSS; PRODUCT USE LOSS OR OF ANY ASSOCIATED PIECE OF EQUIPMENT; COST OF CAPITAL; COST OF ANY PIECE OF EQUIPMENT, SUBSTITUTE INSTALLATION OR SERVICES; INACTIVITY TIME; THIRD-PARTY CLAIMS, INCLUDING CUSTOMERS; AND PROPERTY DAMAGE.

This term allocates the product failure risks between Seller and the Buyer. Such attribution is acknowledged by both parties and concerns the price of goods. The Buyer acknowledges that this term has been read, understood and it is bound to its terms. No employee or any other party is authorized to grant any warranty that is not stated here. Therefore, the Buyer is warned to verify this term carefully to check whether it does reflect Buyer's relevant points correctly. Seller may alter these terms and conditions at any time, provided a written note is sent to the Buyer or publicized on www.krebsindustries.com. Such revised terms will be effective within thirty days from the day the written form is released. Some states do not allow limitations to implicit warranties, so the above limitation may not apply to you. This warranty does not give the Buyer any specific legal rights, and you may also have other rights that may vary from state to state.

ATTENTION – TO REGISTER YOUR WARRANTY, PLEASE FORWARD THE PROOF OF RECEIPT TO: support@krebsindustries.com

Manual Proof of Receipt

Owner: _____

Equipment installation address: _____

_____

_____

City: _____ State: _____

Model: _____ Invoice number: _____ Date: _____

I declare, herein, that I have received, read and agreed to the terms stated in this KREBS KB10 SERIES-Two-post Automotive Lift Installation and Operation Manual and to the Warranty Terms. I declare also that I received the instructional materials furnished with the lift.

_____

Company Stamp and Signature

Equipment Technical Data

Model: _____

Invoice number: _____

Serial Number: _____

Notes: _____

_____

_____

_____

CHECKUP TIMETABLE

Always keep your KB10 SERIES® Two- post Automotive Lift KREBS checkup timetable records updated to ensure its correct performance and safety. Furthermore, the equipment structural warranty is based on the checkups carried out by a KREBS authorized technician. Please check the programmed checkups days as of the technical hand over.

Warranty Checkup 5 days

Date: _____

Technician: _____

Signature: _____

- ☐ Check hydraulic hoses
- ☐ Check oil level
- ☐ Check power cables
- ☐ Check wire ropes
- ☐ Check load-holding devices

Stamp

Warranty Checkup 30 days

Date: _____

Technician: _____

Signature: _____

- ☐ Check hydraulic hoses
- ☐ Check oil level
- ☐ Check power cables
- ☐ Check wire ropes
- ☐ Check load-holding devices

Stamp

Warranty Checkup 6 months

Date: _____

Technician: _____

Signature: _____

- ☐ Check hydraulic hoses
- ☐ Check oil level
- ☐ Check power cables
- ☐ Check wire ropes
- ☐ Check load-holding devices

Stamp

Warranty Checkup 1 year

Date: _____

Technician: _____

Signature: _____

- ☐ Check hydraulic hoses
- ☐ Check oil level
- ☐ Check power cables
- ☐ Check wire ropes
- ☐ Check load-holding devices

Stamp

Warranty Checkup 18 months

Date: _____

Technician: _____

Signature: _____

- ☐ Check hydraulic hoses
- ☐ Check oil level
- ☐ Check power cables
- ☐ Check wire ropes
- ☐ Check load-holding devices

Stamp

Warranty Checkup 24 months

Date: _____

Technician: _____

Signature: _____

- ☐ Check hydraulic hoses
- ☐ Check oil level
- ☐ Check power cables
- ☐ Check wire ropes
- ☐ Check load-holding devices

Stamp

Warranty Checkup 30 months

Date: _____

Technician: _____

Signature: _____

- ☐ Check hydraulic hoses
- ☐ Check oil level
- ☐ Check power cables
- ☐ Check wire ropes
- ☐ Check load-holding devices

Stamp

Warranty Checkup 36 months

Date: _____

Technician: _____

Signature: _____

- ☐ Check hydraulic hoses
- ☐ Check oil level
- ☐ Check power cables
- ☐ Check wire ropes
- ☐ Check load-holding devices

Stamp

Warranty Checkup 42 months

Date: _____

Technician: _____

Signature: _____

- ☐ Check hydraulic hoses
- ☐ Check oil level
- ☐ Check power cables
- ☐ Check wire ropes
- ☐ Check load-holding devices

Stamp

Warranty Checkup 48 months

Date: _____

Technician: _____

Signature: _____

- ☐ Check hydraulic hoses
- ☐ Check oil level
- ☐ Check power cables
- ☐ Check wire ropes
- ☐ Check load-holding devices

Stamp

Warranty Checkup 54 months

Date: _____

Technician: _____

Signature: _____

- ☐ Check hydraulic hoses
- ☐ Check oil level
- ☐ Check power cables
- ☐ Check wire ropes
- ☐ Check load-holding devices

Stamp

Warranty Checkup 60 months

Date: _____

Technician: _____

Signature: _____

- ☐ Check hydraulic hoses
- ☐ Check oil level
- ☐ Check power cables
- ☐ Check wire ropes
- ☐ Check load-holding devices

Stamp

Warranty Checkup 66 months

Date: _____

Technician: _____

Signature: _____

- ☐ Check hydraulic hoses
- ☐ Check oil level
- ☐ Check power cables
- ☐ Check wire ropes
- ☐ Check load-holding devices

Stamp

Warranty Checkup 72 months

Date: _____

Technician: _____

Signature: _____

- ☐ Check hydraulic hoses
- ☐ Check oil level
- ☐ Check power cables
- ☐ Check wire ropes
- ☐ Check load-holding devices

Stamp

Warranty Checkup 78 months

Date: _____

Technician: _____

Signature: _____

- ☐ Check hydraulic hoses
- ☐ Check oil level
- ☐ Check power cables
- ☐ Check wire ropes
- ☐ Check load-holding devices

Stamp

Warranty Checkup 84 months

Date: _____

Technician: _____

Signature: _____

- ☐ Check hydraulic hoses
- ☐ Check oil level
- ☐ Check power cables
- ☐ Check wire ropes
- ☐ Check load-holding devices

Stamp

www.krebsindustries.com