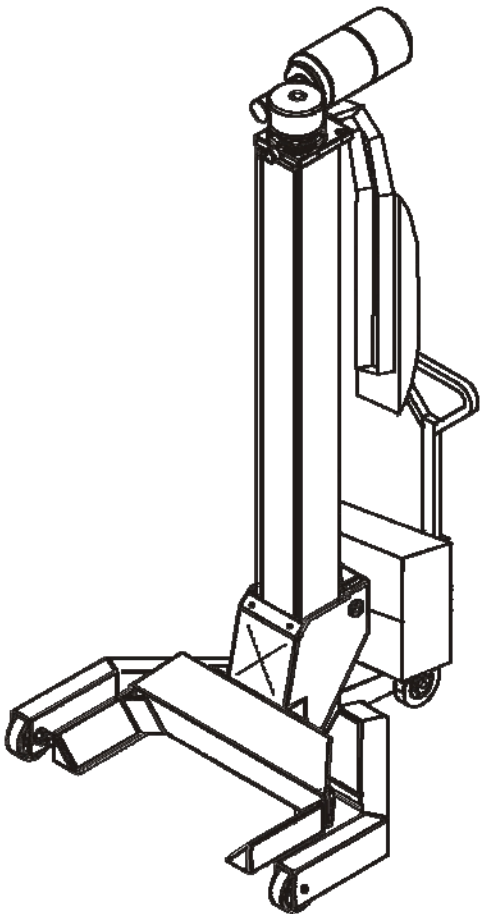
Mac Tools

Installation, Operation & Maintenance Manual

MOBILE COLUMN LIFT



MODELS LFCLM16B & LFCLM18B

16,000 LBS. & 18,000 LBS. CAPACITY PER COLUMN

200 Cabel Street, P.O. Box 3944 Louisville, Kentucky 40201-3944
Email:*sales@challengerlifts.com* Web site:www.challengerlifts.com

Office 800-648-5438 / 502-625-0700 Fax 502-587-1933

IMPORTANT: **READ THIS MANUAL COMPLETELY BEFORE INSTALLING or OPERATING LIFT**

8/25/10

Safety

IMPORTANT SAFETY INSTRUCTIONS

1. **Thoroughly read all decal and manual instructions before installing, operating or maintaining the lift.** They are provided to prevent personal injury and property damage. Replace any decal unreadable or missing on your lift.
2. Care must be taken as burns can occur from touching hot parts.
3. Do not operate equipment with a damaged cord or if the equipment has been dropped or damaged – until it has been examined by a certified service technician.
4. To reduce the risk of fire, do not operate equipment in the vicinity of open containers of flammable liquids.
5. Adequate ventilation should be provided when working on operating internal combustion engines.
6. Keep hair, loose clothing, fingers, and all parts of body away from moving parts.
7. To reduce the risk of electric shock, do not use on wet surfaces or expose to rain.
8. Only use your lift as described in this manual. **ONLY** use manufacturer's recommended attachments.
9. Only use genuine CHALLENGER replacement parts.
10. Always wear safety glasses. Everyday eyeglasses only have impact resistant lenses, they are not safety glasses.
11. Inspect your lift daily.
12. Only permit qualified personnel to operate, maintain or repair the lift.
13. Only a CHALLENGER certified installer or technician is allowed to install the lift.
14. Do not allow anyone to climb on lift, stay inside or under vehicle during lift operations.
15. Always keep lift and lift area clean and free of tools, parts, debris, grease etc.
16. Never overload your lift. The rated load capacity is indicated on the lift nameplate.
17. Always use vehicle manufacturer's recommended lift points.
18. Only have Certified CHALLENGER Service Technicians or certified electricians (with prior written consent of CHALLENGER LIFT, INC.) maintain or repair the electrical equipment.
19. Carefully observe all national and international health and safety regulations.

SAVE THESE INSTRUCTIONS

Safety Instructions

SAFETY INSTRUCTIONS

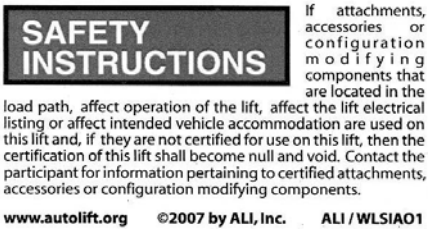
Read operating and safety manuals before using lift.

SAFETY INSTRUCTIONS

Proper maintenance and inspection is necessary for safe operation.

SAFETY INSTRUCTIONS

Do not operate a damaged lift.



SAFETY INSTRUCTIONS

If attachments, accessories or configuration modifying components that are located in the load path, affect operation of the lift, affect the lift electrical listing or affect intended vehicle accommodation are used on this lift and, if they are not certified for use on this lift, then the certification of this lift shall become null and void. Contact the participant for information pertaining to certified attachments, accessories or configuration modifying components.

Cautions

CAUTION

Lift to be used by trained operator only.

CAUTION

Authorized personnel only in lift area.

CAUTION

When moving lift, be careful to avoid tipping.

CAUTION

Check for overhead obstructions before raising vehicle.

Warnings

WARNING

Clear area if vehicle is in danger of falling.

WARNING

Remain clear of lift when raising or lowering vehicle.

WARNING

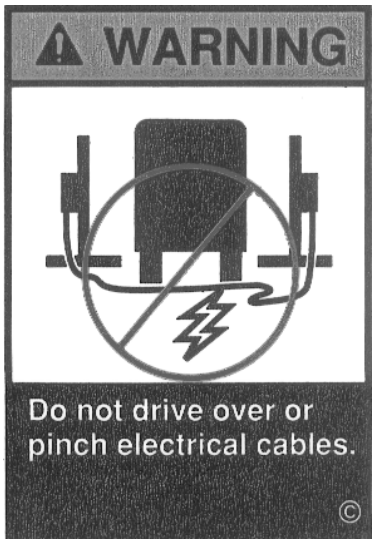
Locate lift on firm, level surface, preferably concrete.

WARNING

Be sure intended lifts are moving together evenly.

WARNING

All lifting forks must properly engage vehicle tires or supports.



WARNING

Do not drive over or pinch electrical cables.

WARNING

Keep feet clear of lift while lowering.

OWNER/EMPLOYER RESPONSIBILITIES

Lift Operator Qualifications and Training

The owner/employer shall ensure that all lift operators have the appropriate qualifications and that they are trained in the safe operation of the lift by making use of the following materials: manufacturer supplied operation & maintenance manual; ALI/SM 93-1, ALI Lifting It Right safety manual; ALI/ST 90 Safety Tips card; ANSI/ALI ALOIM-1994, American National Standard for Automotive Lifts – Safety Requirements for Operation, Inspection and Maintenance; ALI/WL series, ALI Uniform Warning Label Decals/Placards; and, if required, ALI/LP-Guide, Vehicle Lifting Points/Quick Reference Guide for Frame Engaging Lifts.

Operator training shall be appropriately documented in accordance with ANSI/ALI ALOIM-1994.

Display of Information Materials

The owner/employer shall display the following information materials in a conspicuous location in the lift area: manufacturer supplied operation & maintenance manual; ALI/SM 93-1, ALI Lifting It Right safety manual; ALI/ST 90 Safety Tips card; ANSI/ALI ALOIM-1994, American National Standard for Automotive Lifts – Safety Requirements for Operation, Inspection and Maintenance; ALI/WL series, ALI Uniform Warning Label Decals/Placards; and, if required, ALI/LP-Guide, Vehicle Lifting Points/Quick Reference Guide for Frame Engaging Lifts and ANSI/SAE J2184-May2000, Vehicle Lift Points for Service Garage Lifting.

Periodic Inspection

The owner/employer shall establish a periodic inspection procedure in accordance with the lift manufacturer's recommendations or ANSI/ALI ALOIM-1994.

The owner/employer shall ensure that all lift inspectors have the appropriate qualifications and that they are trained in the inspection of the lift.

Periodic inspections shall be appropriately documented in accordance with the manufacturer's recommendations or ANSI/ALI ALOIM-1994.

Periodic Routine Maintenance

The owner/employer shall establish a routine maintenance procedure in accordance with the lift manufacturer's recommendations or ANSI/ALI ALOIM-1994.

The owner/employer shall ensure that all routine maintenance personnel have the appropriate qualifications and that they are trained in the routine maintenance of the lift.

Periodic routine maintenance shall be appropriately documented in accordance with the manufacturer's recommendations or ANSI/ALI ALOIM-1994.

Repair Maintenance

The owner/employer shall perform repair maintenance procedures whenever considered necessary by lift operator, lift inspector or routine maintenance personnel. Repair maintenance shall be performed in accordance with the lift manufacturer's recommendations or ANSI/ALI ALOIM-1994.

The owner/employer shall ensure that all repair maintenance personnel have the appropriate qualifications and that they are trained in the repair maintenance of the lift.

Repair maintenance shall be appropriately documented in accordance with the manufacturer's recommendations or ANSI/ALI ALOIM-1994.

The owner/employer shall provide appropriate lockout/tagout means for all energy sources in accordance with ANSI Z 244.1-1982 (R 1993), Safety Requirements for the Lockout/Tagout of Energy Sources. This shall be done before any repair work is performed.

Modifications

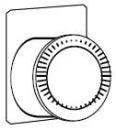
The owner shall not modify or reconstruct any lift without the manufacturer's express written consent.

Safety Features

WARNING **Do not use the lift with any safety devices inoperative !!!**

Emergency Stop Button

Serves to disconnect the lift in case of emergency.



Main Switch

Serves to turn the lift ON and OFF.

When in position 0 the switch can be padlocked (also see Lockout/Tag out Procedure in Maintenance Instructions).

Control Elements

DEAD MAN TYPE CONTROL

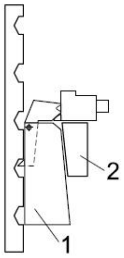
The operator is required to hold the switch/button in the engaged position to raise/lower the lift.

CABLE REMOTE CONTROL BUTTONS

The buttons are flush mounted to avoid inadvertent actuation.

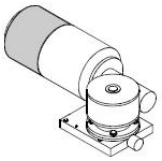
Locking Device

The locking device serves to prevent inadvertent lowering motions of the lift caused by gear, load nut or lifting screw failures. The carriage is blocked by safety wedge (1) and counterwedge (2).



Electric Drive Motor

The motors are equipped with electrically actuated brakes (plus manual override). Once the motors are turned off, the brakes engage and prevent any further lift movements.



Thermal Overload Protection

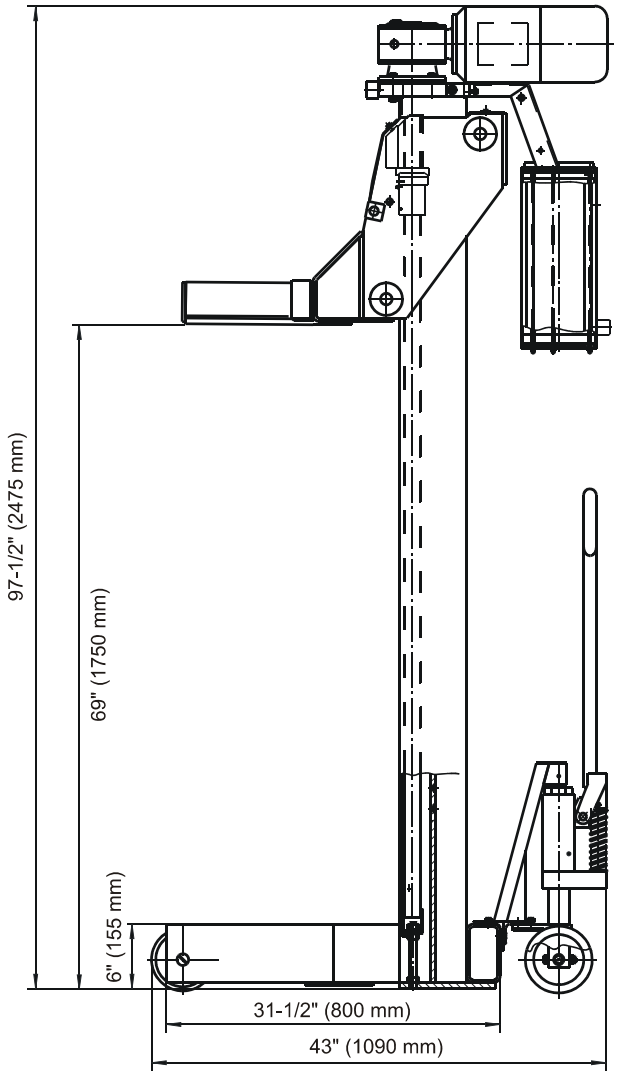
Overload protection via electronically monitored thermo-switches.

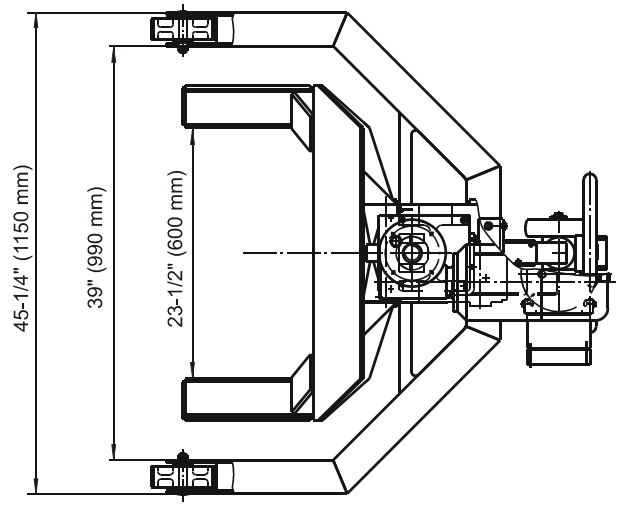
Warning and Information Labels

SAFETY INSTRUCTIONS

Do not change or remove the warning and information labels. Order replacement if damaged, missing or illegible !!!

Specifications





	Standard	Metric
◆ Rated load capacity (per column)	16,000 lbs / 18,000 lbs	7,272 kg / 8,181 kg
◆ Raising / Lowering time	120 s	
◆ Supply voltage	1~115V, 60 Hz	
Control voltage	24 V	
Fuse protection (per column)	15 A @ 115V	
Motor power	2.5 hp	1.8 kW
Weight (per column)	1,078 lbs	490 kg

Specifications are subject to change without notice.

Recommended minimum clearance from lift system including vehicle to nearest obstruction/wall is five (5) ft.
Ensure adequate clearance above lift to prevent vehicle from making contact with overhead obstructions.

Installation

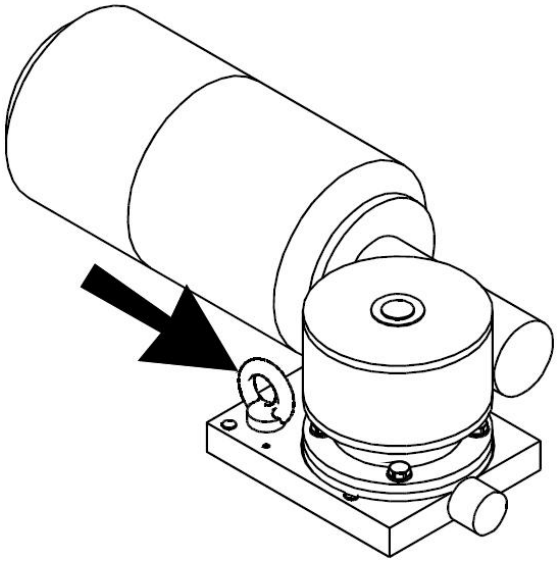
Handling / Location

CAUTION

Make sure the columns are lifted properly by the structure and NOT by the carriage.

Make sure all items in use to lift the column are rated for at least the weight shown in the specifications.

Screw an eye bolt M16 into the threaded hole on top of the motor plate of the column. Insert a chain or strap through the eye and lift the column using a hoist or forklift.



CAUTION Lift installation by qualified personnel only.

IMPORTANT NOTE:

Lift may be used for both indoor and outdoor applications!

ATTENTION Floor Slope

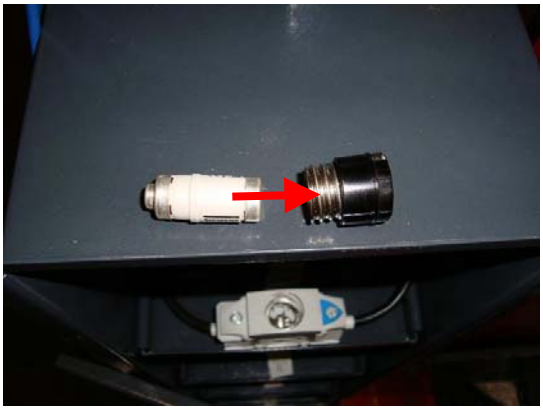
Ensure that area where columns are installed/used the floor does not slope more than two (2) degrees in any given direction !!!

ATTENTION Important Information

For further installation information, please refer to ANSI/ALI ALIS, Safety Requirements for Installation and Service of Automotive Lifts !!!

ATTENTION Main Fuse

After receiving the MAHA Battery MCLs and prior to usage, the Main Fuse which is included with the connection cables, needs to be installed ! The Fuse Holder is located inside the battery compartment !!!

	Insert the Fuse in the top part of the Fuse Holder. Ensure that the little nob on one end of the fuse is pointing away from the top part of the fuse holder!
	Screw the top part of the Fuse Holder into the bottom part and hand-tighten! Close the battery enclosure!

ATTENTION Important Information

For further installation information, please refer to ANSI/ALI ALIS, Safety Requirements for Installation and Service of Automotive Lifts !!!

Charging Mode

⚠ CAUTION

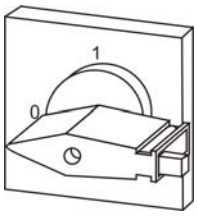
DO NOT use the battery-powered MCL with the charging cable plugged in! Always unplug charging cable prior to use of lift!

Main Switch

⚠ Attention!

The main switch is used as emergency switch also. In case of emergency turn it to position 0.

- Main switch in position 0: Power supply is interrupted
- Main switch in position 1: Lift is ready for operation
- The main switch is used as emergency switch also. In case of emergency turn it to position 0.



Final Checkout Procedure

- Visually check the columns for shipping damage.
- Run the lift through several full cycles.
- Ensure that all controls are operating correctly.
- Ensure that carriages are synchronized during the up and down movements.

Operational Test

- Load the lift with a vehicle appropriate for this lift.
- Run the lift through several full cycles.
- Ensure that all controls are operating correctly.

Ensure that carriages are synchronized during the up and down movements.

Operation

WARNING

In case of defects or malfunctions such as jerky lift movement or deformation of the superstructure, support or lower the lift immediately !!!

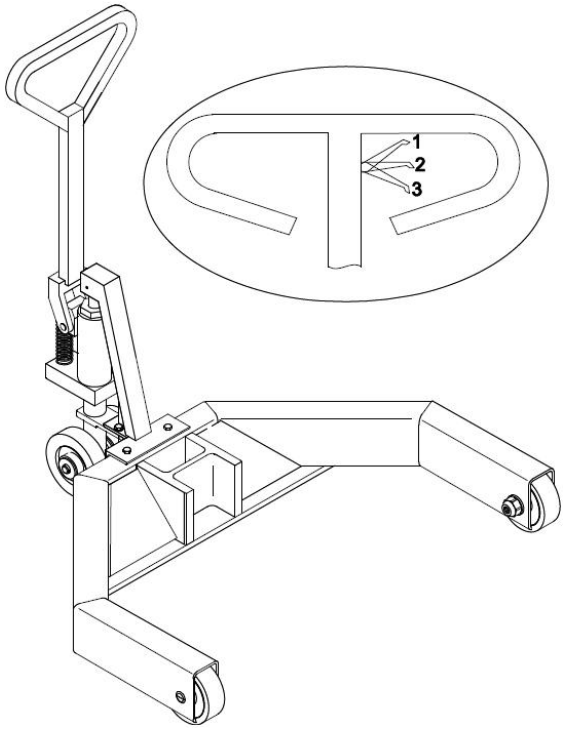
Turn off and lock the main switch. Contact CHALLENGER LIFTS, INC. Immediately !!!

Use lift only as indicated by the supplied instructions !!! Should you have further questions, please contact CHALLENGER LIFTS, INC. !!!

Moving the Columns

Hydraulic Dolly

Close hydraulic valve by putting valve lever in position 3.
Pump with handle to raise the moving gear.
Move column to desired position.
To lower the moving gear, open the hydraulic valve by putting the valve lever in position 1.
The column is ready for operation.
Position 2 is the neutral position.



Controls

Control Unit

A LED Display: Operating State
Red, yellow and green LEDs indicate the operating state. See also section "Troubleshooting".

B Button: Raise
When button is pushed, lift raises until button is released or upper end position is reached.

C Button: Lower
When button is pushed, lift lowers until button is released or lower end position is reached.

D LED Display: Number of Columns
Number of LEDs represents number of columns in a column unit. Flashing LED indicates next free column number in an open column unit.

E Button: Open/Close Column Unit
Use this button to open a closed column unit or to close an open unit.

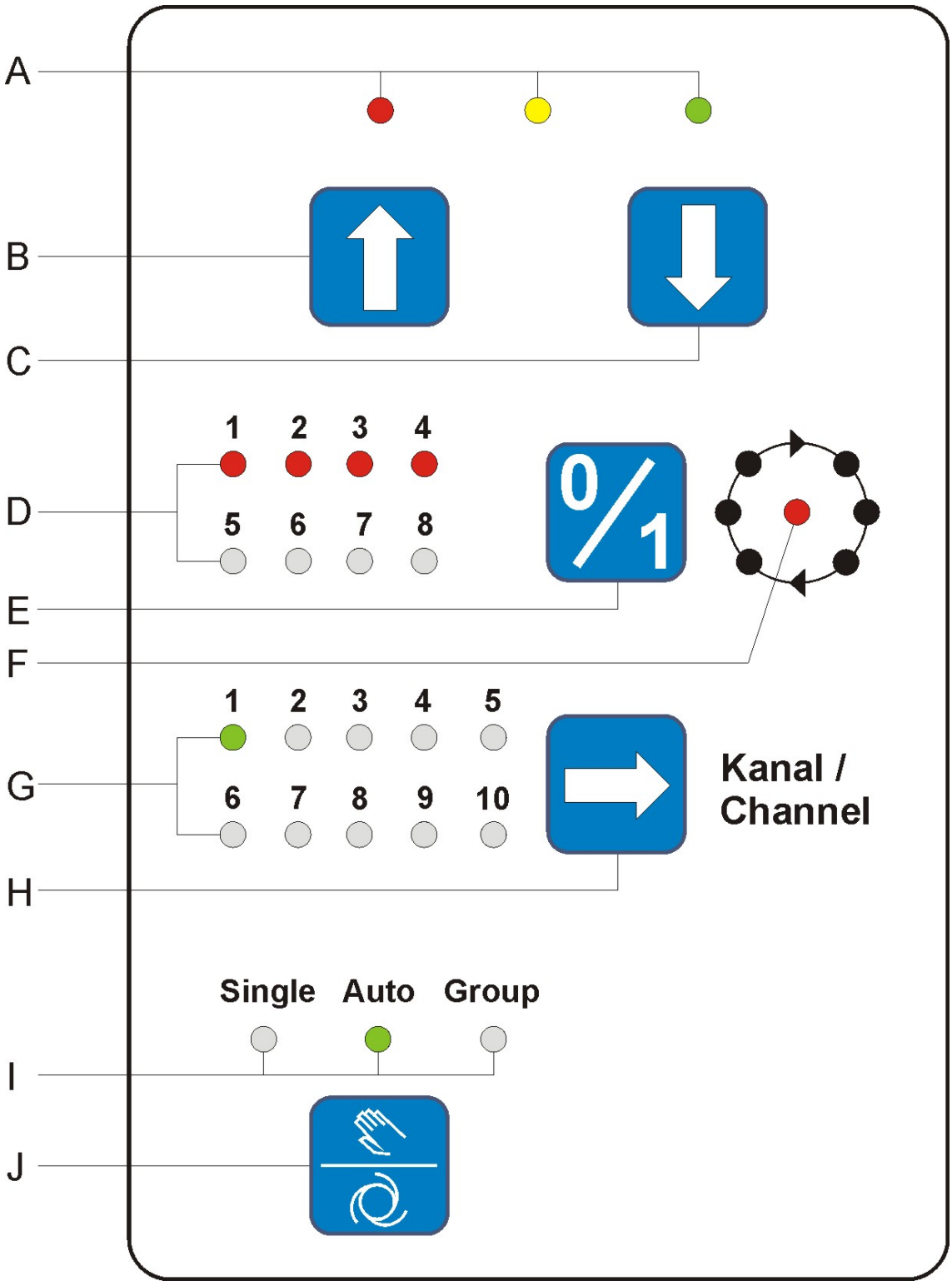
F LED Display: Column Unit
LED lighting up indicates that the column unit is closed. LED also lights up when operating mode is changed (see below).

G LED Display: Channel Number
LED lighting up indicates current channel number.

H Button: Select Channel Number
Use this button to switch on to the next available channel. Occupied channels are skipped, channel 10 is followed by channel 1 and so on.

I LED Display: Operating Mode
Current operating mode is indicated by LED.

J Button: Select Operating Mode
Use this button to switch on to the next mode. "Single" (one column), "Auto" (all columns of a column unit) and "Group" (several columns) can be selected.


A
B
C
D
E
F
G
H
I
J
1 2 3 4
5 6 7 8
0/1
1 2 3 4 5
6 7 8 9 10
Kanal /
Channel
Single Auto Group

Positioning, Logging in and Interconnecting the Columns

1 Push the support forks completely under the wheels or lift points of the vehicle to be raised. Use the lift on a hard, level surface only.

2 Interconnect all columns to be used in the set with each other. To do so, please follow the following instructions, all plugs are of the Twist-Lock kind:

<table>
<tr><td>  </td><td>Plug the first connection cable into column 1.</td></tr>
<tr><td>  </td><td rowspan="2">Plug a T-connector into column 2 and plug the connection cable originating at column 1 into one end of the T-connector.</td></tr>
<tr><td>  </td></tr>
</table>

Plug the second connection cable into the other end of the T-connector.

Plug a T-Connector into column 3 and plug the connection cable originating at column 2 into one end of the T-connector.

Proceed with all the other columns in your system as described above.

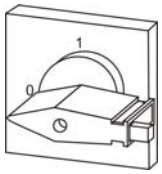
At the last column, plug the End Resistor into the other end of the T-connector.

3 “Sync” all columns to be used in one set.

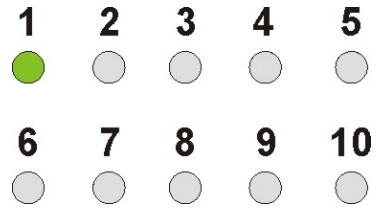
It is possible to use either each column separately or a combination of up to eight (8) columns.

3 Turn the main switch to position 1.

⇒ LED "Auto" flashes.



4 Select the transmission channel. All columns belonging to the same unit must be set to the same channel.

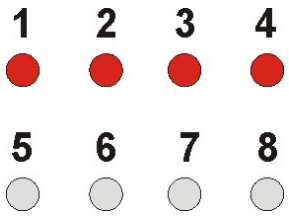


5 Confirm using the operating mode button.

⇒ LED "Auto" lights up permanently.

6 Repeat the procedure for all columns.

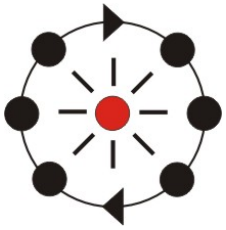
⇒ Number of columns within the unit is displayed.



Before closing the unit check the number of logged-in columns. After closing verify that it corresponds with the number of columns appearing on the display.

7 Once all columns are logged in, close the unit using button "0/1".

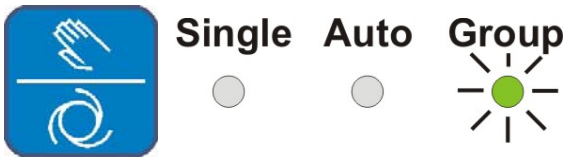
⇒ LED "Column unit" lights up, lift is ready for operation.



Switching over to Group Mode

Switch to Group mode using the operating mode button on the desired columns.

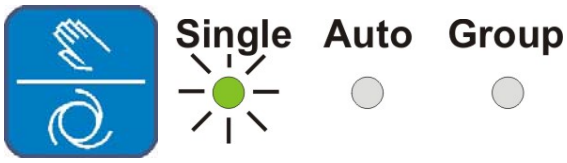
⇒ LED "Group" lights up permanently.



Switching over to Single Mode

Switch to Single mode using the operating mode button on the desired column.

⇒ LED "Single" lights up permanently.



Raising and Lowering

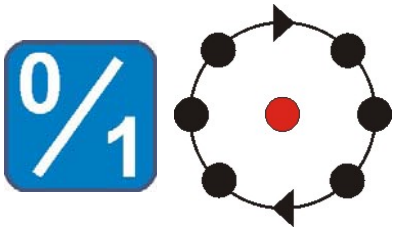
- Before operating the lift check that the number of columns appearing on the display corresponds to the number of columns actually logged in.
- All columns belonging to the same unit must be set to the same channel.
- If the unit is opened there may be interference problems with other transmission channels.

1 Press "Raise" or "Lower" button.

⇒ Lift stops once button is released or end position is reached.

Once any column from a closed network is unplugged, the complete unit is opened and the column settings are deleted.

Before shutting down the lift, open the column unit using button "0/1". LED "Column unit" goes off.



Charging Condition of the Batteries

The charging condition of the batteries is indicated by an LED located on the control unit:

Green = OK

Orange = Critical

Red = Exhaustive discharge

Storage of Connection Cables

A hook is provided on each column for easy and safe storage of the connection cables.

Overload Protection:

The lift control is equipped with an automatic overload protection device, shutting the lift off, in case the rated load capacity is exceeded. In such case, the control only allows the lowering of the lift.
Always ensure that the operator observes the maximum rated load capacity.

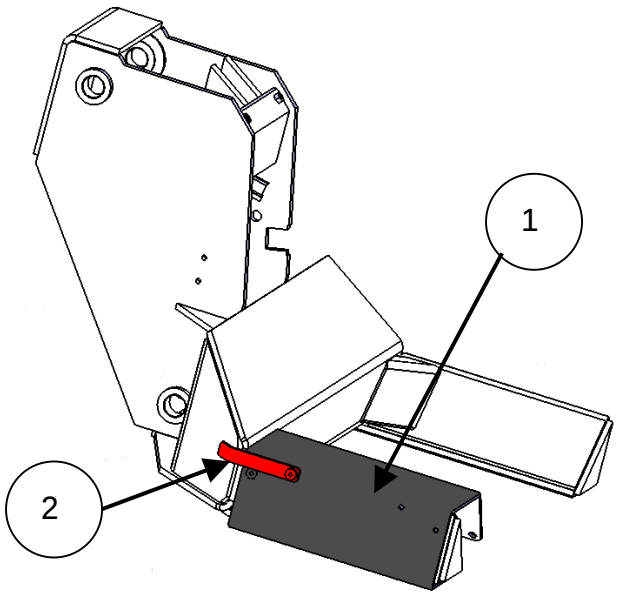
Small Wheel Adapter Usage

⚠ CAUTION

Please read the following information carefully before using your lifting system !!!
Use the following tables to determine which carriage combined with which Small Wheel Adapter best fits the size tire on the vehicle you intend to lift!!!
If you still have questions, please call the Challenger Lifts Customer Service Line: 1-800-648-5438

Installation of Small Wheel Adapters:

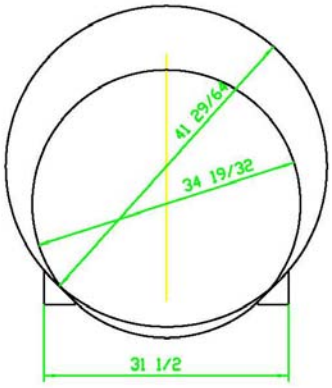
a) Slide Small Wheel Adapter (1) over MCL Lifting Fork.
b) Engage SMA Safety Latch (2) to ensure Small Wheel Adapter cannot slide off during positioning and operation of lift.
c) Failure to engage SMA Safety Latch properly may lead to equipment and/or vehicle/tire damage and/or personal injury.
d) Ensure that the applicable SMAs are used for the tire sizes on the vehicle to be lifted and/or MCL model in use.

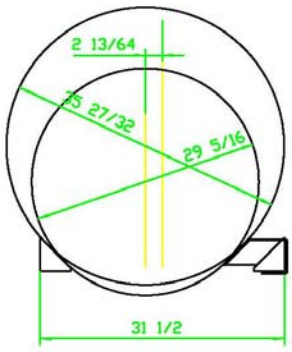


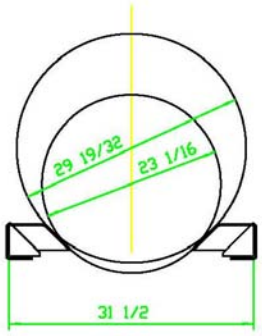
(1) Small Wheel Adapter (SMA)
(2) SMA Safety Latch

SMA-2H (incl. L-Models)

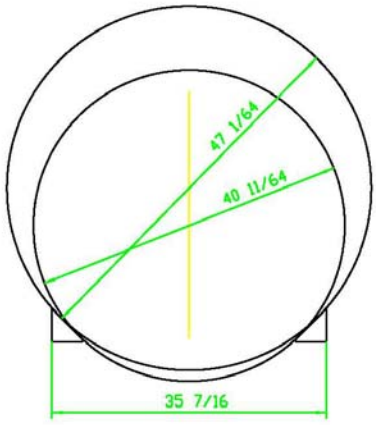
Standard Carriage

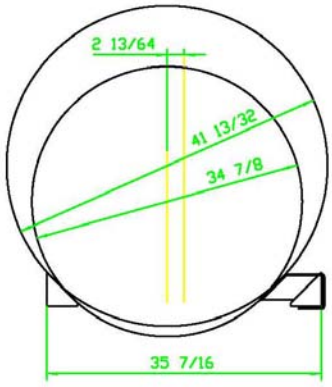


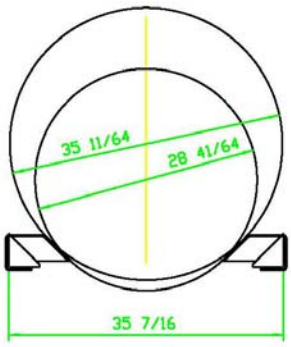




Wide Body Carriage

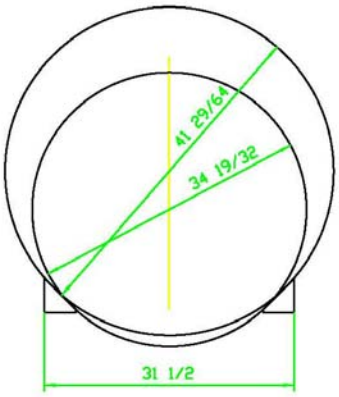


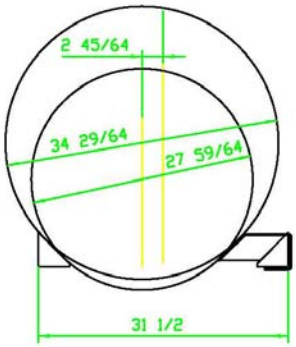


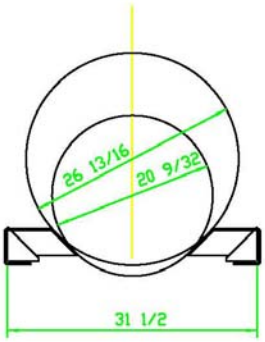


SMA-2 (incl. L-Models)

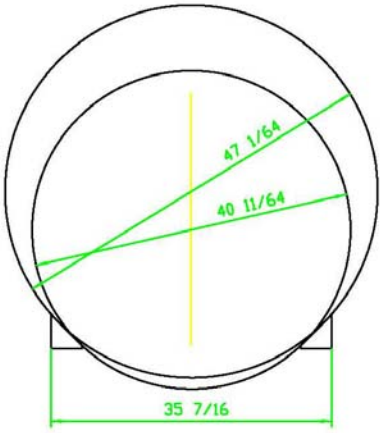
Standard Carriage

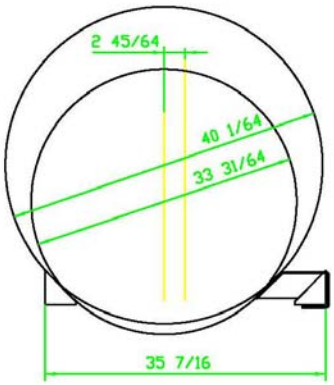


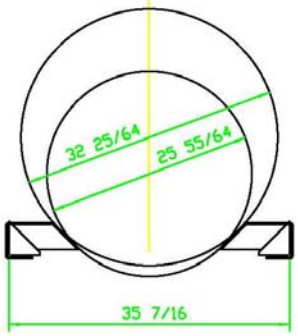




Wide Body Carriage

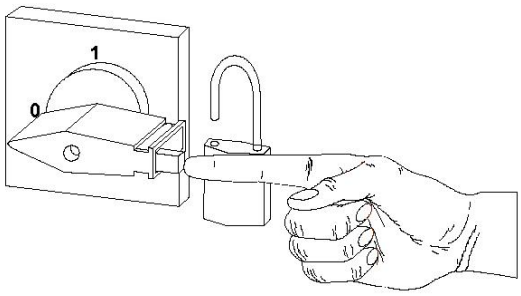






Locking the Main Switch

Use a padlock to protect the lift against unauthorized usage.
In addition to locking the main switch, it is also possible to remove the End Plug from the system in order to make the lift system in operational.

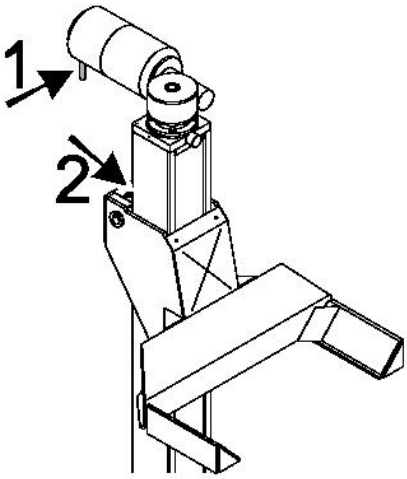


Manual Lowering

NOTE:
Once the locking device is in the engaged position, manual lowering is no longer possible.

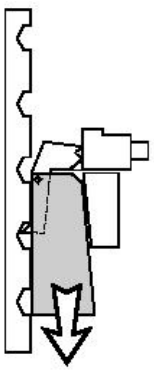
WARNING

AUTHORIZED PERSONNEL ONLY! DO NOT RESTART LIFT BEFORE ERROR HAS BEEN RESOLVED !!!



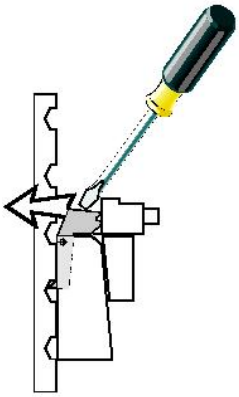
1 Manual release lever
2 Locking device (between column and carriage)

- Pull or wiggle the safety wedge downward on each column.

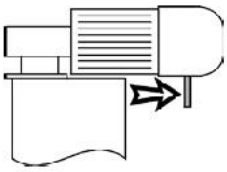


⚠ WARNING

Intermittently lower the columns in increments of approx. 2" !!!



+



- **Simultaneously**
  – push the latch inward (arrow) using a long screw driver
  and
  – Carefully pull the manual release lever outward (arrow). **(Use extreme caution to ensure safe lowering speed!)**

  The lowering speed will vary depending on the weight of the raised vehicle.

NOTE:
The latch must be pushed first. Otherwise the safety wedge will engage and lock the carriage.

Maintenance

WARNING

Turn off the main switch before performing any maintenance, repair or setup work, and protect it against unauthorized usage. (Lock-out / Tag-out) !!!

DO NOT SERVICE THE ELECTRICAL PORTION OF THE LIFT AT ANY TIME WITHOUT PRIOR AUTHORIZATION FROM CHALLENGER LIFTS, INC PLEASE REFER TO THE MAINTENANCE INSTRUCTIONS FOR THE PROPER LOCKOUT / TAGOUT PROCEDURE !!! FOR MORE INFORMATION REFER TO THE LOCKOUT / TAGOUT PROCEDURE IN THE MAINTENANCE INSTRUCTIONS AND ANSI Z244.1 !!!

Annual Inspection

Once annually have your lift inspected by Trained Lift Service Personnel only!!!.

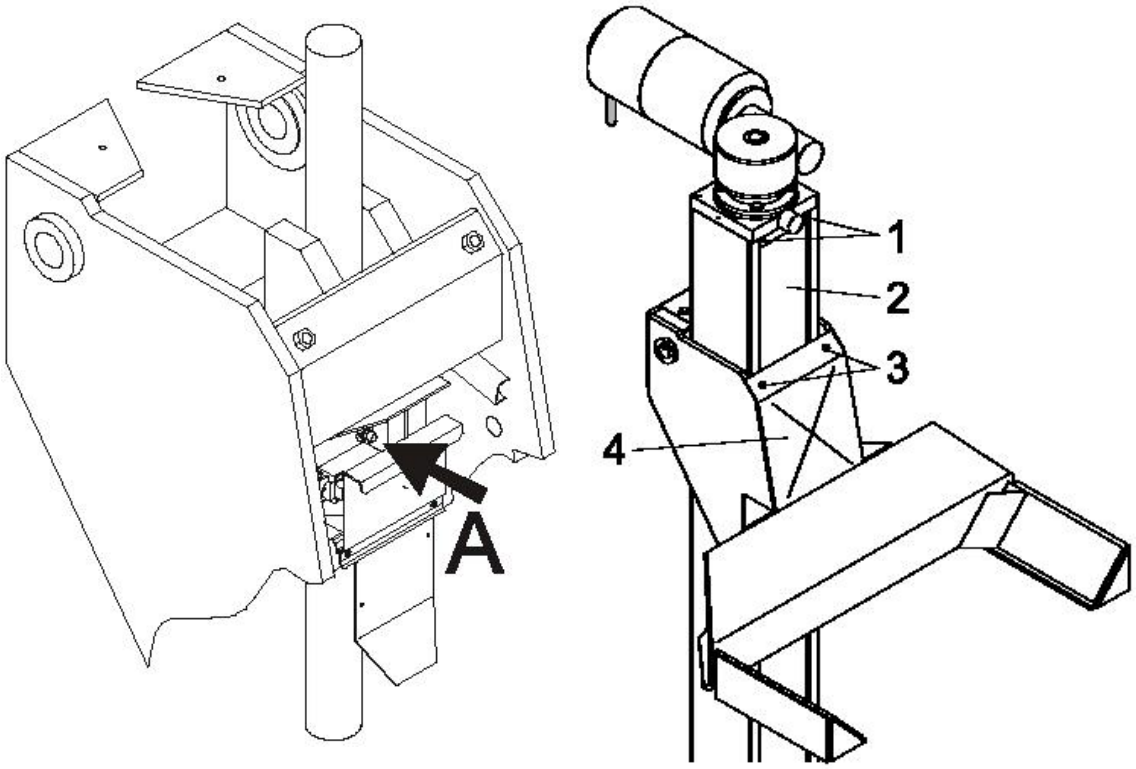
Maintenance by the Operator

Establish a periodic preventive maintenance procedure to ensure trouble free operation and long service life.

Servicing of safety devices and electrical equipment by authorized and trained personnel only.

Re-circulating Ball Nut

Grease the re-circulating ball nut with 4 to 7 strokes from a grease gun at least every six months. Use MAHA ball screw grease #2 (substitute Shell Retinax #2 All Purpose Grease) only.

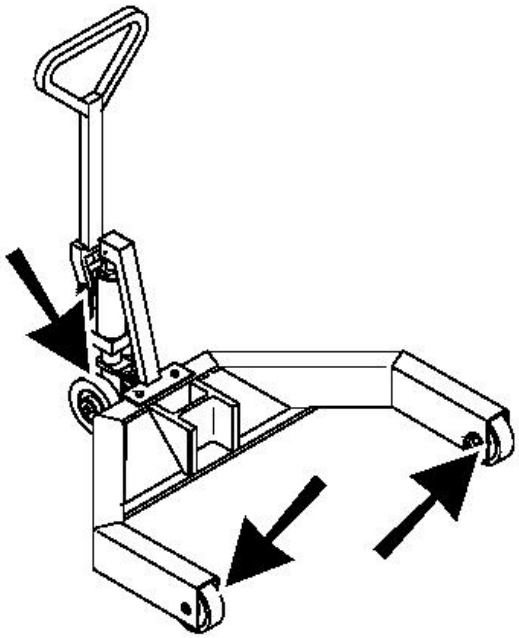


- To make the grease fitting (A) accessible, remove screws (1 and 3). Then remove cover plate (4) and fastener of rubber cover (2).

- Fold down the rubber cover.

Moving Gear

Regularly oil or grease the rollers of the moving gear (e.g. WD-40).



Other Lubrication

The following areas listed do not require additional lubrication:
- Gear Box
- Upper Spindle Bearing
- Carriage Rollers and Shafts
- Hydraulic Dolly Pivot Point
- Any areas of the Safety Wedge
- Any areas on the column (e.g. Flanges)

Cleaning

⚠ CAUTION

Caustic cleaning fluids, salt water and brake fluid attack coatings and sealing materials. Wash these substances off the lift immediately. Do not use high pressure or steam jet cleaners !!!

Lockout Procedure

A) Purpose

This procedure establishes the minimum requirements for the lockout of energy isolating devices whenever maintenance or servicing is done on machines or equipment. It shall be used to ensure that the machine or equipment is stopped, isolated from all potentially hazardous energy sources and locked out before employees perform any servicing or maintenance where the unexpected energization or start-up of the machine or equipment or release of stored energy could cause injury.

B) Compliance With This Program

All employees are required to comply with the restrictions and limitations imposed upon them during the use of lockout. The authorized employees are required to perform the lockout in accordance with this procedure. All employees, upon observing a machine or piece of equipment which is locked out to perform servicing or maintenance shall not attempt to start, energize, or use that machine or equipment.

C) Lockout Procedure

a) Sequence of Lockout

(1) Notify all affected employees that servicing or maintenance is required on a machine or equipment and that the machine or equipment must be shut down and locked out to perform the servicing or maintenance.

b) Owner/Responsible Party, please identify Name(s)/Job Title(s) of affected employees and how to notify per your company policy here.

(2) Type and magnitude of the energy:
- Electrical: 208/230V/440/480V-Three Phase, secured with 15A/30A/50A breakers respective to MCL system in use, Lockable Main Switch

(3) If the machine or equipment is operating, shut it down by the normal stopping procedure:
- Lower lift to bottom position and remove vehicle from lifting area.

Type(s) and location(s) of machine or equipment operating controls.

(4) De-activate the energy isolating device(s) so that the machine or equipment is isolated from the energy source(s):

Type(s) and location(s) of energy isolating devices.

(5) Lock out the energy isolating device(s) with assigned individual lock(s).
- Turn off Main Switch and switch the applicable breaker to the OFF-Position.

(6) Stored or residual energy (such as that in capacitors, hydraulic systems, etc.) must be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc.
- Check again that lift is in fully lowered position.

Type(s) of stored energy - methods to dissipate or restrain.

(7) Ensure that the equipment is disconnected from the energy source(s) by first checking that no personnel are exposed, then verify the isolation of the equipment by operating the push button or other normal operating control(s) or by testing to make certain the equipment will not operate.

(8) The machine or equipment is now locked out.

Restoring Equipment to Service.
When the servicing or maintenance is completed and the machine or equipment is ready to return to normal operating condition, the following steps shall be taken.

(1) Check the machine or equipment and the immediate area around the machine to ensure that nonessential items have been removed and that the machine or equipment components are operationally intact.

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

(3) Verify that the controls are in neutral.

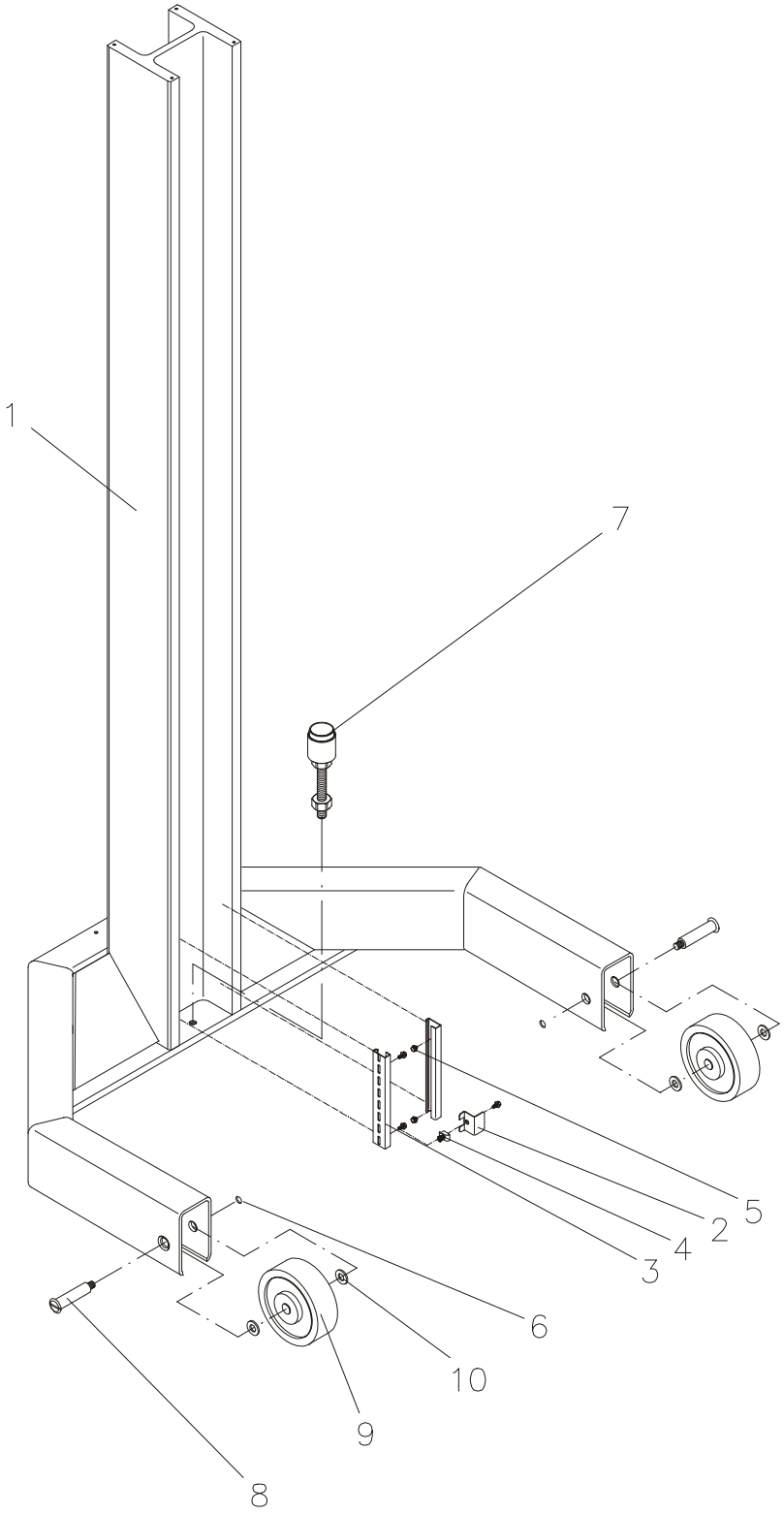
(4) Remove the lockout devices and reenergize the machine or equipment.

(5) Notify affected employees that the servicing or maintenance is completed and the machine or equipment is ready for used.

!!! For more information please refer to ANSI Z244.1 !!

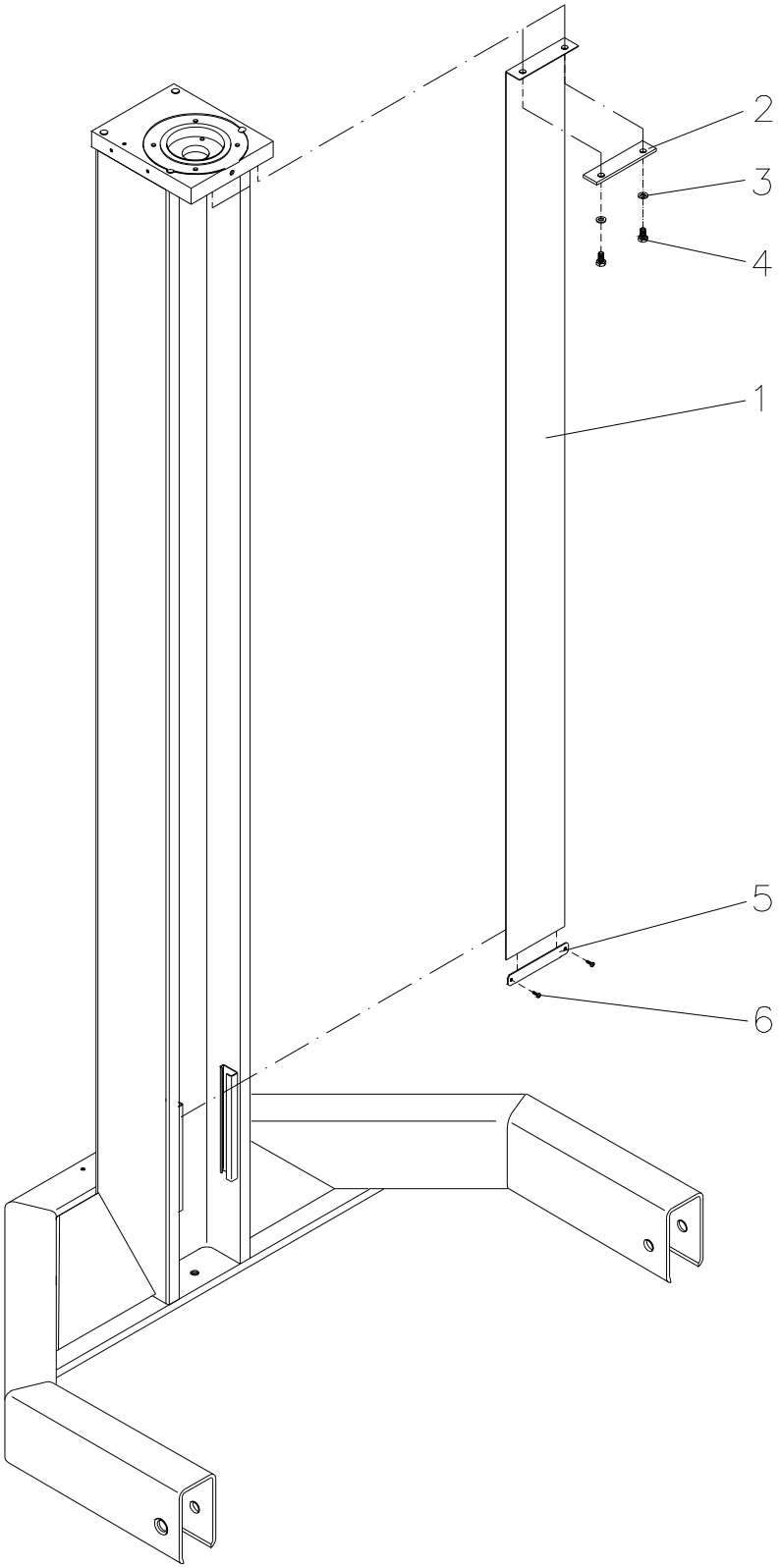
Columns

Column, Base Frame Height 160 mm (6 1/4")



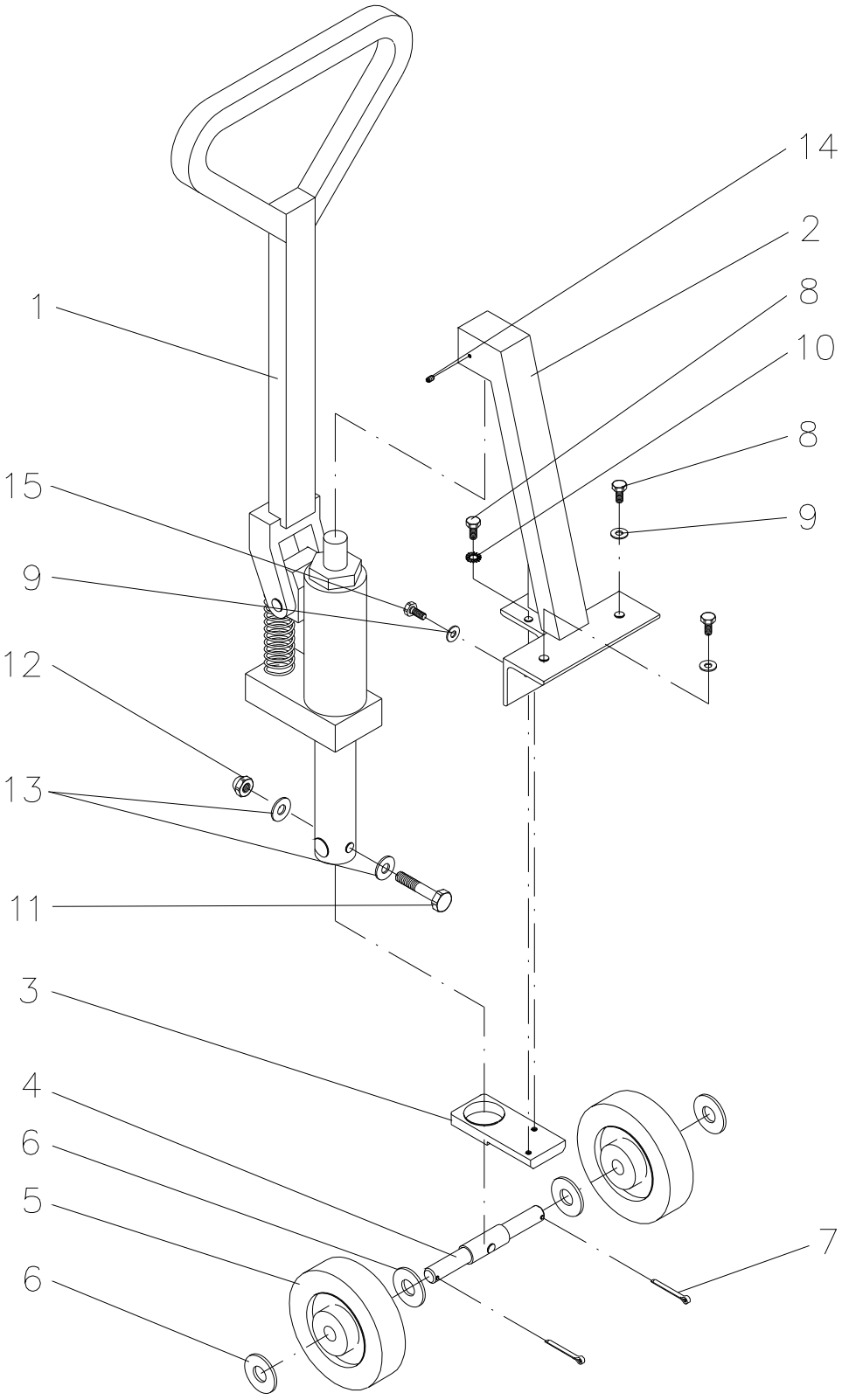
Item	Part #	Description	Specification
1	030490 00045 0	Base Frame	128 mm (5")
2	02 49 0185	Switch-off Angle	
3	02 49 1290	Mounting Rail, Asymmetrical	
4	23 1900	Slider Block Clamp	M6x15
5	22 7500 05008 1	Tapping Screw	M5x8
6	22 0471 020	Snap Ring	A20x1.2
7	03 49 0385	Lifting Screw Bearing	
8	020490 00110 0	Axle	
9	020490 00109 0	Heavy Load Wheel	
10	22 0988 202820	Shim Ring	20x28x2

Lifting Screw Cover



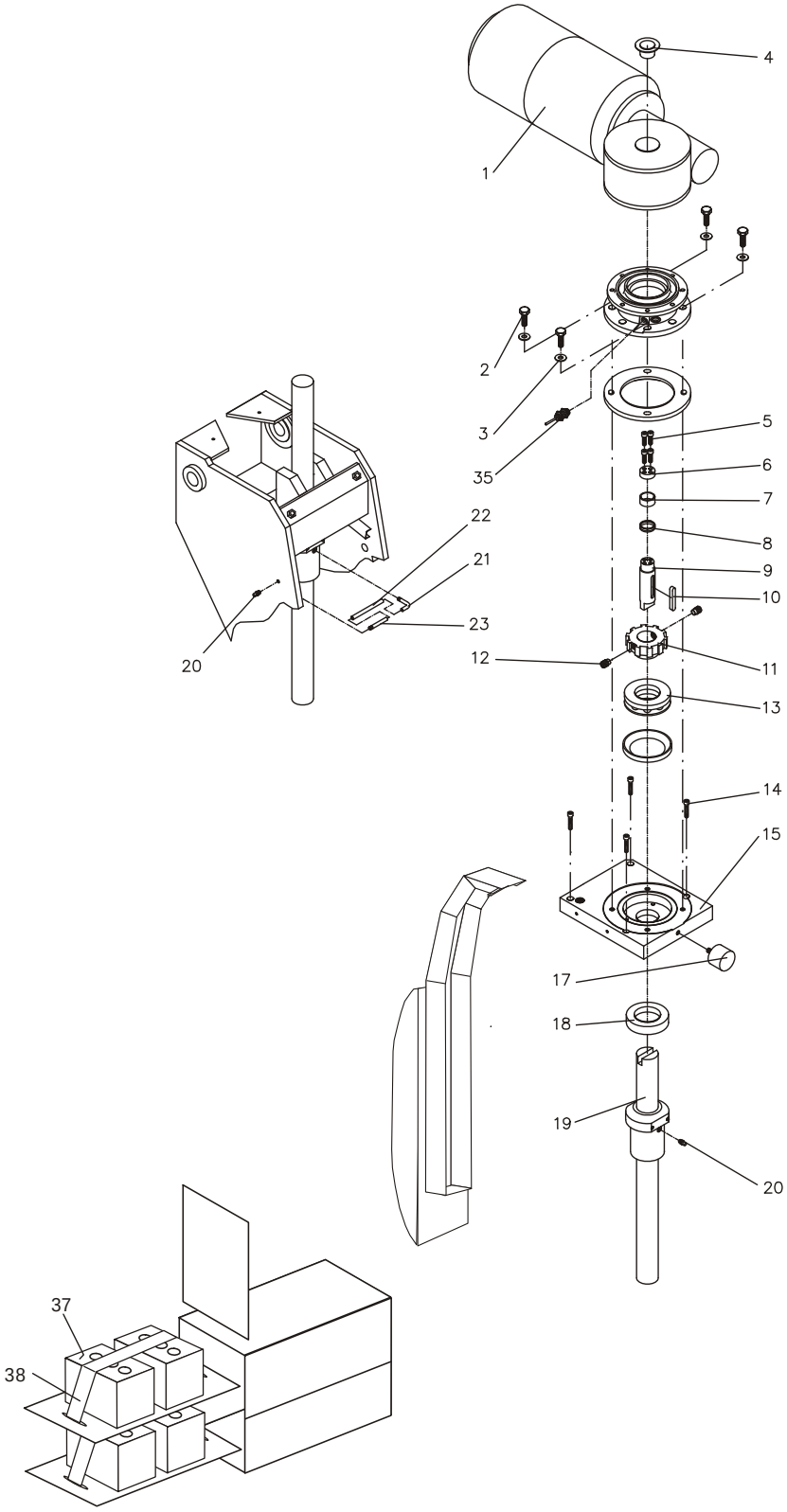
Item	Part #	Description	Specification
1	17 2201	Cover Band	1990 mm
	17 2202	Cover Band	2120 mm
	17 2203	Cover Band	2390 mm
2	02 49 0990	Cover Band Holder	
3	22 0125 08 1	Washer	A8.4
4	22 0933 08016 1	Hex Head Cap Screw	M8x16
5	02 49 0175	Clamping Piece	
6	22 7981 035013	Tapping Screw	Ø3.5x13

Hydraulic Dolly



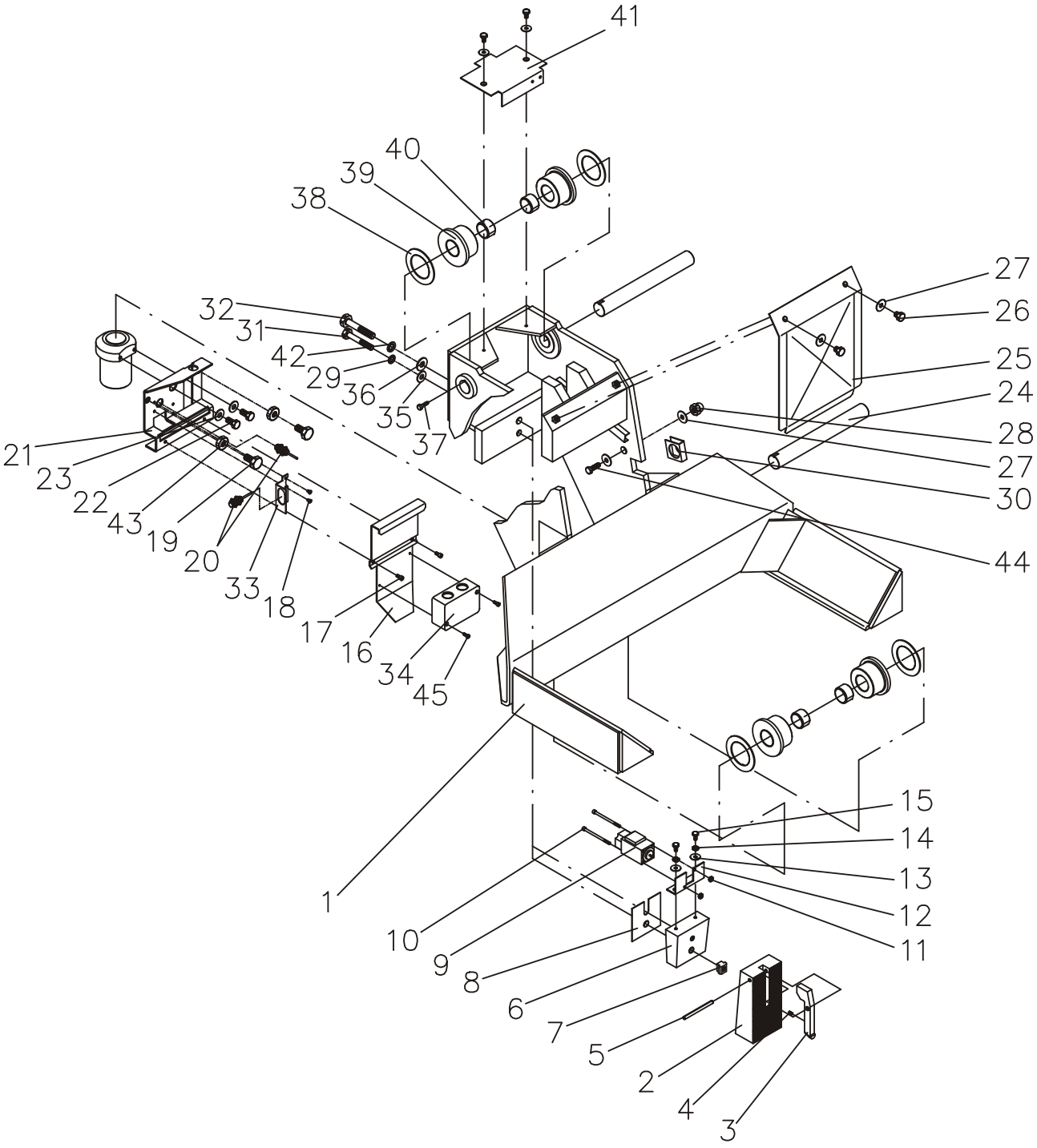
Item	Part #	Description	Specification
1	20 5810	Hydraulic Lifting Gear	
2	03 49 0511	Moving Gear	
3	02 49 1180	Lifting Gear Support	
4	02 49 1190	Axle	
5	21 0310	Plastic Wheel	
6	22 0125 20 1	Washer	A21
7	22 0094 05050	Cotter Pin	Ø5x50
8	22 0933 08020 1	Hex Head Cap Screw	M8x20
9	22 0125 08 1	Washer	A8.4
10	22 6798 084 1	Serrated Lockwasher	A8.4
11	22 0931 12070 1	Hex Head Cap Screw	M12x70
12	22 0985 12 1	Hex Nut, Self-locking	M12
13	22 0125 12 1	Washer	A13
14	22 0913 06012	Setscrew	M6x12
15	22 0933 08012 1	Hex Head Cap Screw	M8x12

Drive Assembly



Item	Part #	Description	Specification
1	20 7740	Worm Gear Motor	
2	22 0933 08030 1	Hex Head Cap Screw	M8x30
3	22 0125 08 1	Washer	A8.4
4	53 2023	Dummy Plug	
5	22 0912 06030 1	Allen Screw	M6x30
6	02 49 0384	Clamping Plate	
7	02 49 0383	Ring	
8	20 3180	Clamping Element	
9	02 49 0382	Drive Pin	
10	22 6885 080750	Feather Key	A8x7x50
11	20 5806 1	Castle Nut	
12	02 49 1620	Setscrew	M12x18
13	24 5500	Deep-Groove Thrust Ball Bearing	53 309 U309
14	22 0912 06020 10	Allen Screw	M6x20
15	02 49 0395	Top Plate	
17	17 1054	Rubber Buffer	
18	22 6319 49	Conical Socket	
19	20 5805 1	Recirculating Ball Nut and Screw	
20	22 71412 36	Lubricator	H3-M6
21	02 49 1500	Pipe Bend	
22	28 7008 3	Hose	
23	02 49 1510	Hydraulic Pipe	
35	51 3001	Proximity Switch	M12
37	52 0317	Battery	12 V
38	23000234	Fastening Strap for Battery	

Carriage

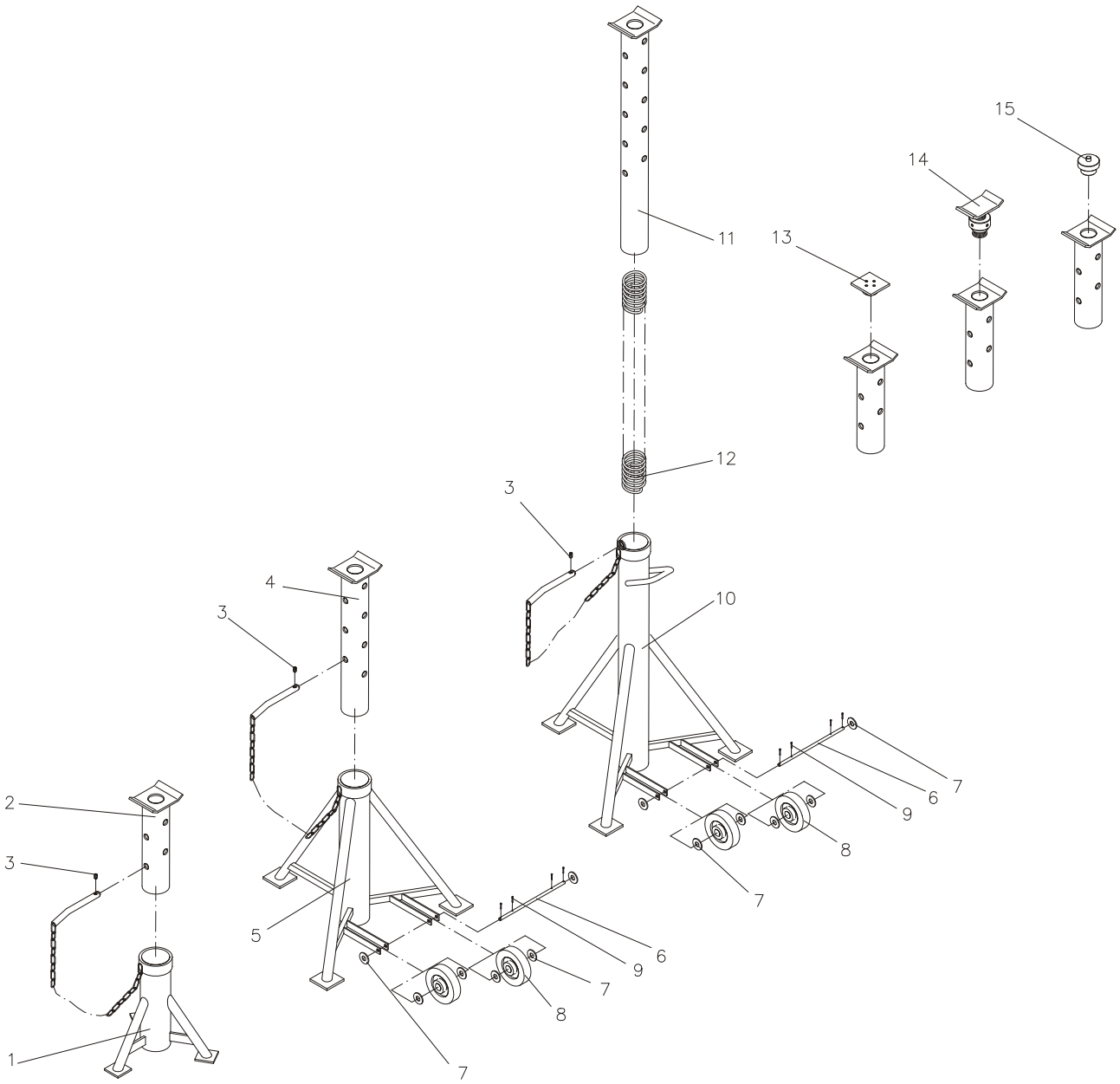


Item	Part #	Description	Specification
1	030490 00048 0	Carriage	
2	02 49 0150	Wedge	
3	02 49 0145	Latch	
4	23 9204 005 016	Compression Spring	0.4x5x16
5	22 1481 06080	Dowel Pin	6x80
6	02 49 0210	Counterwedge	
7	22 0508 10	T-Nut	M10
8	02 49 0190	Spacer Plate	1 mm

Item	Part #	Description	Specification
	02 49 0195	Spacer Plate	0.5 mm
	02 49 0200	Spacer Plate	2 mm
9	26 0000	Solenoid with Flange	
10	22 0912 04070 1	Allen Screw	M4x70
11	22 0985 04 1	Hex Nut, Self-locking	M4
12	02 49 0950	Solenoid Support	
13	22 9021 06 1	Washer	A6.4
14	22 6798 064 1	Serrated Lockwasher	A6.4
15	22 0933 06012 1	Hex Head Cap Screw	M6x12
16	02 49 0170	Distributor Box Holder	
17	22 0912 05010 1	Allen Screw	M5x10
18	22 7985 04006 1	Phillips Screw	M4x6
19	22 0933 12020 K	Hex Head Cap Screw	M12x20
20	51 3008	Proximity Switch	M18
21	02 49 0165	Limit Switch Bracket	
22	22 0933 08016 1	Hex Head Cap Screw	M8x16
23	22 0125 08 1	Washer	A8.4
24	02 49 0205	Axle	
	02 49 0206	Axle (Car Wash)	
25	020490 00171 0	Cover	
26	22 0933 08010 1	Hex Head Cap Screw	M8x10
27	22 9021 08 1	Washer	A8.4
28	22 1587 08	Hex Cap Nut	M8
29	22 0127 10 1	Spring Washer	A10
30	53 5959	Cable Support	
31	22 0933 10065 1	Hex Head Cap Screw	M10x65
32	22 0933 12070 1	Hex Head Cap Screw	M12x70
33	02 49 6210	Switch-off Angle	
34	53 4147	Terminal Box	
35	22 0125 10 1	Washer	A10.5
36	22 0125 12 1	Washer	A13
37	22 7500 05008 1	Tapping Screw	M5x8
38	24 1850	Thrust Washer	GLY.PXG 527802 F
39	02 49 0140	Roller	
40	24 1733 1	Plain Bearing	GLY.PG 303440 F
41	02 49 0160	Cover	
42	22 0127 12 1	Spring Washer	A12
43	22 0439 12 1	Hex Nut	M12
44	22 0933 08025 1	Hex Head Cap Screw	M8x25
45	22 0912 04010 1	Allen Screw	M4x10

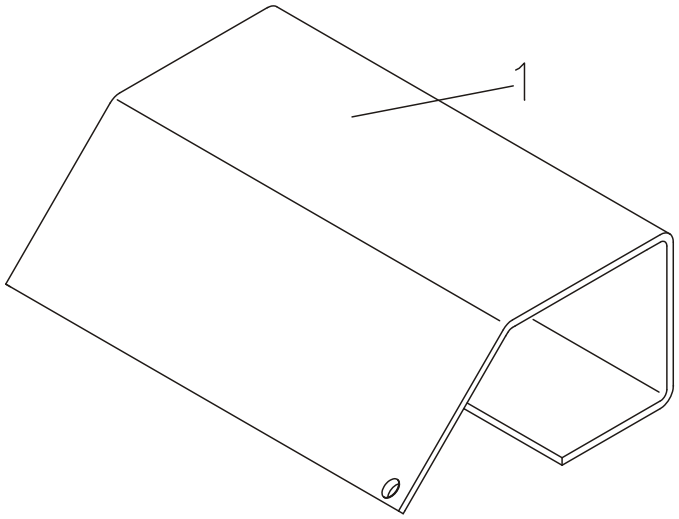
Accessories

Stands



Item	Part #	Description	Specification
1	03 49 0552	Tripod	
2	03 49 0560	Support, Adjustable	
3	23 1511	Resilient Thrust Piece	M12
4	03 49 0590	Support, Adjustable	
5	03 49 0580	Tripod	
6	02 49 1060	Shaft	
7	22 0125 12 1	Washer	A13
8	21 0320 1	Wheel	VPP 165x32/12
9	22 0094 032020	Cotter Pin	Ø3.2x20
10	03 49 0600	Tripod	
11	03 49 0610	Support, Adjustable	
12	23 9270 0881100	Compression Spring	7x88x1100
13	03 49 0740	Support Plate	
14	03 49 0750	Support, Adjustable	
15	02 49 0720	Support Disc	

Reduction Sleeves



Item	Part #	Description	Specification
1	03049S 00015 0	Reduction Sleeve EP5	