

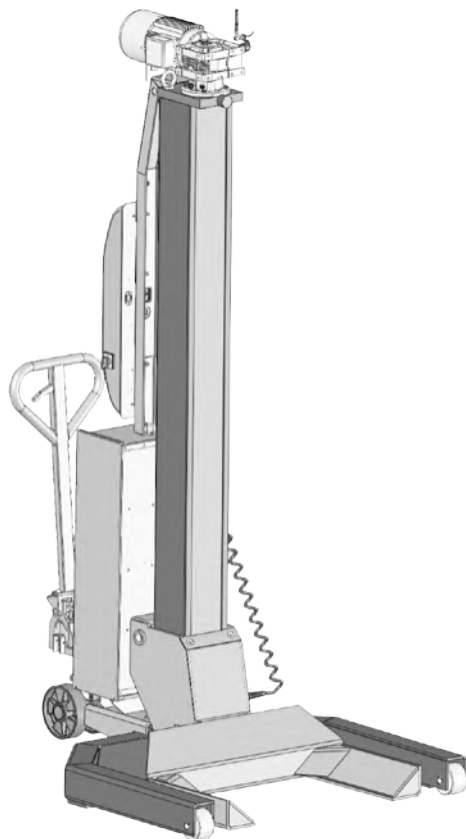


# RGA

Mobile Column Lift

## Original Operating Instructions

BA491901-en



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# 1 Safety

## 1.1 Introduction

Thoroughly read this manual before operating the equipment and comply with the instructions. Always display the manual in a conspicuous location.

Personal injury and property damage incurred due to non-compliance with these safety instructions are not covered by the product liability regulations.

## 1.2 Symbols

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Important safety instructions. Failure to comply with instructions could result in personal injury or property damage.

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Important information.

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## 1.3 Intended Use

- This lift is to be used exclusively for the safe lifting of commercial and agricultural vehicles such as trucks, buses, tractors etc. Observe the rated load capacity.
- The lift may not be modified without the express written consent of the manufacturer. In case of non-compliance the declaration of conformity becomes void.

## 1.4 Inappropriate Use

Any use other than described is inappropriate, for example:

- Climbing on the lift supports
- Transporting persons on the lift supports
- Usage as mobile work platform or for other lifting operations

## 1.5 Requirements on Operating and Service Personnel

All persons employed in the operation, maintenance, installation, removal and disposal of the device must

- be at least 18 years old,
- be trained and instructed in writing,
- have read and understood this manual
- be on record as having been instructed in safety guidelines.

## 1.6 Safety Instructions for Commissioning

- Use the lift on a hard, level surface only.
- The standard lift version may not be installed and commissioned in the vicinity of explosives or flammable liquids.

## 1.7 Safety Instructions for Operation

- Read the detailed operating manual.
- Lift operation by trained personnel over 18 years only.
- Do not exceed the rated load capacity per column as indicated on the lift nameplate.
- Ensure an unobstructed movement of lift and vehicle.
- After raising the vehicle briefly, stop and check the lift supports for secure contact with the vehicle.
- Closely watch lift and vehicle during raising and lowering cycles.
- The working area which cannot be overviewed by the operator should be monitored by a second person.
- When operating the lift in single or group mode, make sure the vehicle is not tilted.
- Do not allow anyone to stay in lift area during raising and lowering cycles.
- Do not allow anyone to climb on lift or inside raised vehicle.
- Keep lift and vehicle free of tools and parts.
- When using the lift outdoors, lower the vehicle and stop operation when the wind velocity exceeds 6 m/s.
- Push the support forks completely under the wheels or lift points of the vehicle to be raised.
- Do not drive over or pinch electrical cables.

## 1.8 Safety Instructions for Servicing

- Service work may be done by authorized service technicians only.
- Turn off and padlock the main switch before doing any repair, maintenance or setup work.
- Disconnect the mains plug before opening the control box.
- Work on the electrical equipment may be done by service technicians or certified electricians only.
- Ensure that ecologically harmful substances are disposed of only in accordance with the appropriate regulations.
- Do not use high pressure or steam jet cleaners. Use of caustic cleaning agents may damage the lift.
- Do not replace or override the lift safety devices.

## 1.9 What to Do in the Event of Defects or Malfunctions

- In case of defects or malfunctions such as uncontrolled lift movement or deformation of the superstructure, support or lower the lift immediately.
- Turn off the main switch and secure it against unauthorized usage. Contact service.

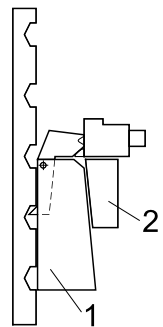
## 1.10 What to Do in the Event of an Accident

- The injured person is to be removed from the danger area. Find out where dressing and bandages are kept. Seek first-aid.
- Provide first-aid (stop bleeding, immobilise injured limbs), report the accident and seal off the accident site.
- Immediately report any accident to your supervisor. Make sure a record is kept of every occasion first-aid is provided, e.g. in an accident book.
- Remain calm and answer any questions that may arise.

## 1.11 Safety Features

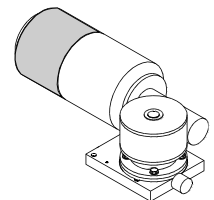
### 1.11.1 Locking Device

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



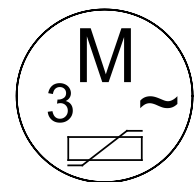
### 1.11.2 Braking Motor

The motors are equipped with AC spring pressure brakes. Once the motors are switched off, the brakes prevent any further movements.



### 1.11.3 Thermal Overload Protection

Overload protection via electronically monitored thermostwitches.



### 1.11.4 Safety Shutdown after Motor Overload

The motor load is permanently monitored by the control PCB. If an overload of  $\geq 15\%$  occurs, the system will switch off automatically. In this case the lift cannot be raised any more, but it can be normally lowered to bottom position.

### 1.11.5 Warning and Information Labels

Do not change or remove the warning and information labels. Order replacement for defective labels.

## 2 Description

### 2.1 Design and Operating Principle

- **Complete System**

The complete system of the Mobile Column Lift consists of individual columns, which can be interconnected (e.g. 4, 6, 8 columns) and used to raise commercial vehicles. A maximum number of 8 columns per lift system can be logically interconnected.

A maximum number of 8 lift systems can be operated parallel, with information exchange on different radio channels.

The complete system can be operated from each individual column. The columns interact via radio communication, with each lift system using its own channel.

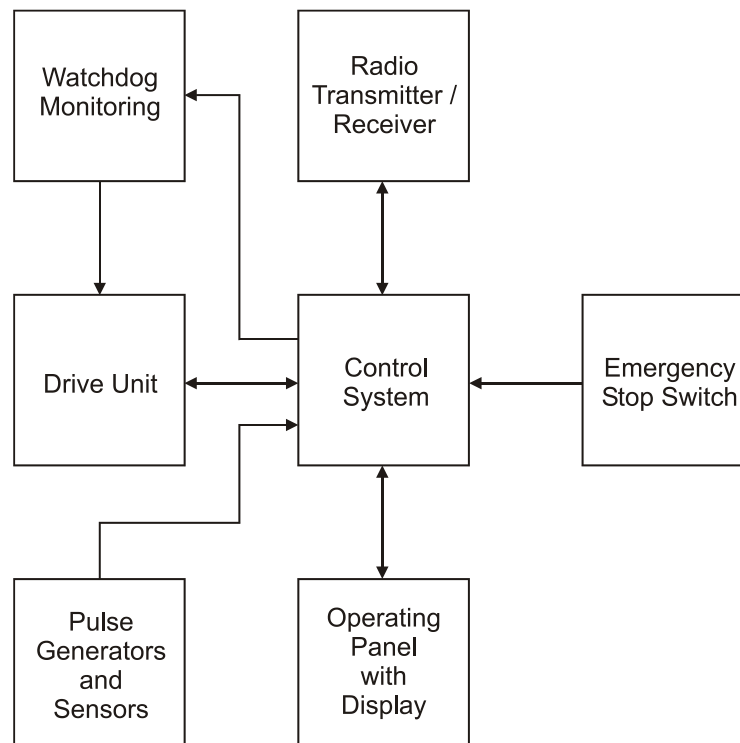
- **Column**

The columns are mechanically designed for engaging the wheels of commercial vehicles. They are all identical and interchangeable from system to system. Power supply is effected via a standard three-phase connection.

- **Control**

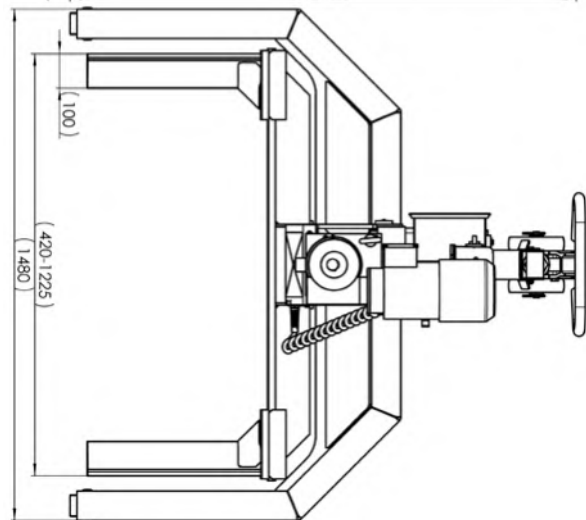
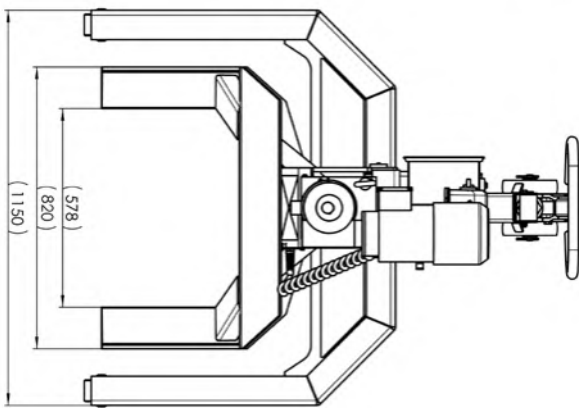
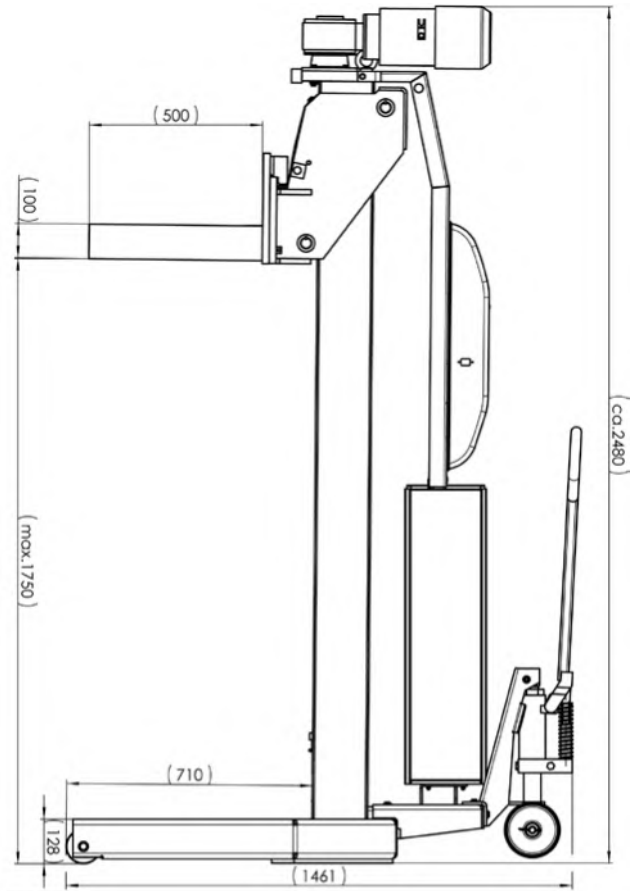
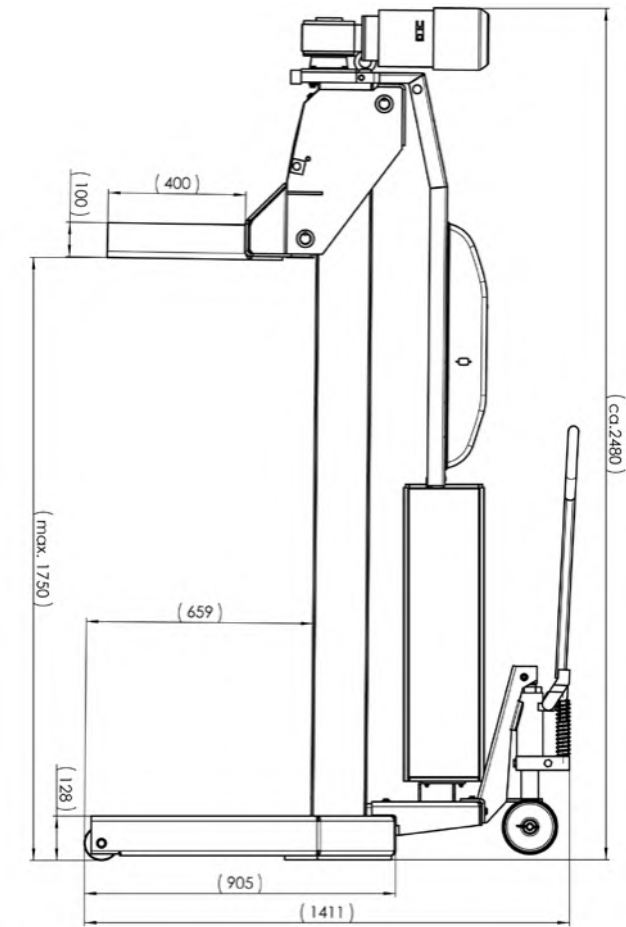
Each column is equipped with a control unit made up of the following components:

- Operating panel with display
- Microprocessor
- Pulse generators and sensors
- Watchdog monitoring
- Radio transmitter / receiver
- Drive unit
- Emergency stop switch





## 2.2 Specifications



RGA

RGA T

	RGA	RGA T
Load capacity per column	7500 kg	5000 kg
Full travel	1750 mm	1750 mm
Raising / Lowering time	113 s	113 s
Tyre diameter	900...1250 mm	600...2000 mm
Motor power	1.5 kW	1.5 kW
System of protection	IP 54	IP 54
Control voltage	48 V	48 V
Charging voltage	230 V	230 V
Net weight per column	545 kg	637 kg
Surface load	0.5 N/mm <sup>2</sup>	0.5 N/mm <sup>2</sup>



The properties indicated apply to lifts running at operating temperature.  
Specifications are subject to change without notice.

## 2.3 Sample Nameplate



## 2.4 Noise Emission

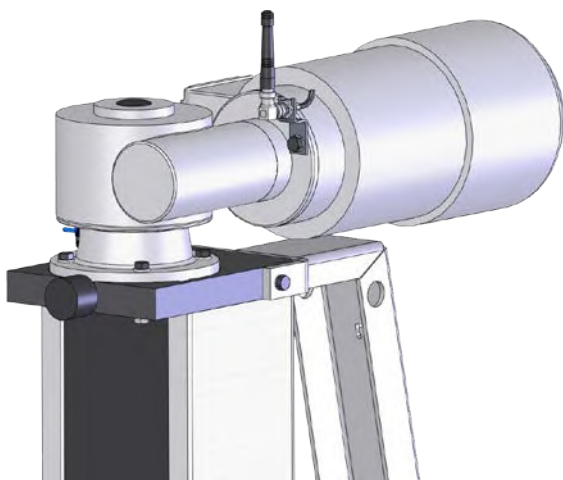
The sound pressure level is lower than 70 dB(A) in the working area of the operator.

## 3 Operation

### 3.1 Initial Operation



Place the receiving antennae in an upright position before operating the columns.

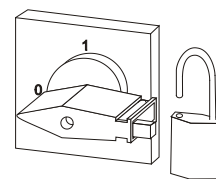


### 3.2 Main Switch



The main switch is used as emergency switch. 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
- When in position 0, the main switch can be protected against tampering by means of a padlock.



### 3.3 Control Unit

**A LED Display: Operating Status**

Red, yellow and green LEDs indicate the operating status. See also section "Troubleshooting".

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**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.

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**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.

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**E Button: Open/Close Column Unit**

Use this button to open a closed column unit or to close an open unit.

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**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).

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**G LED Display: Channel Number**

LED lighting up indicates current channel number.

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**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.

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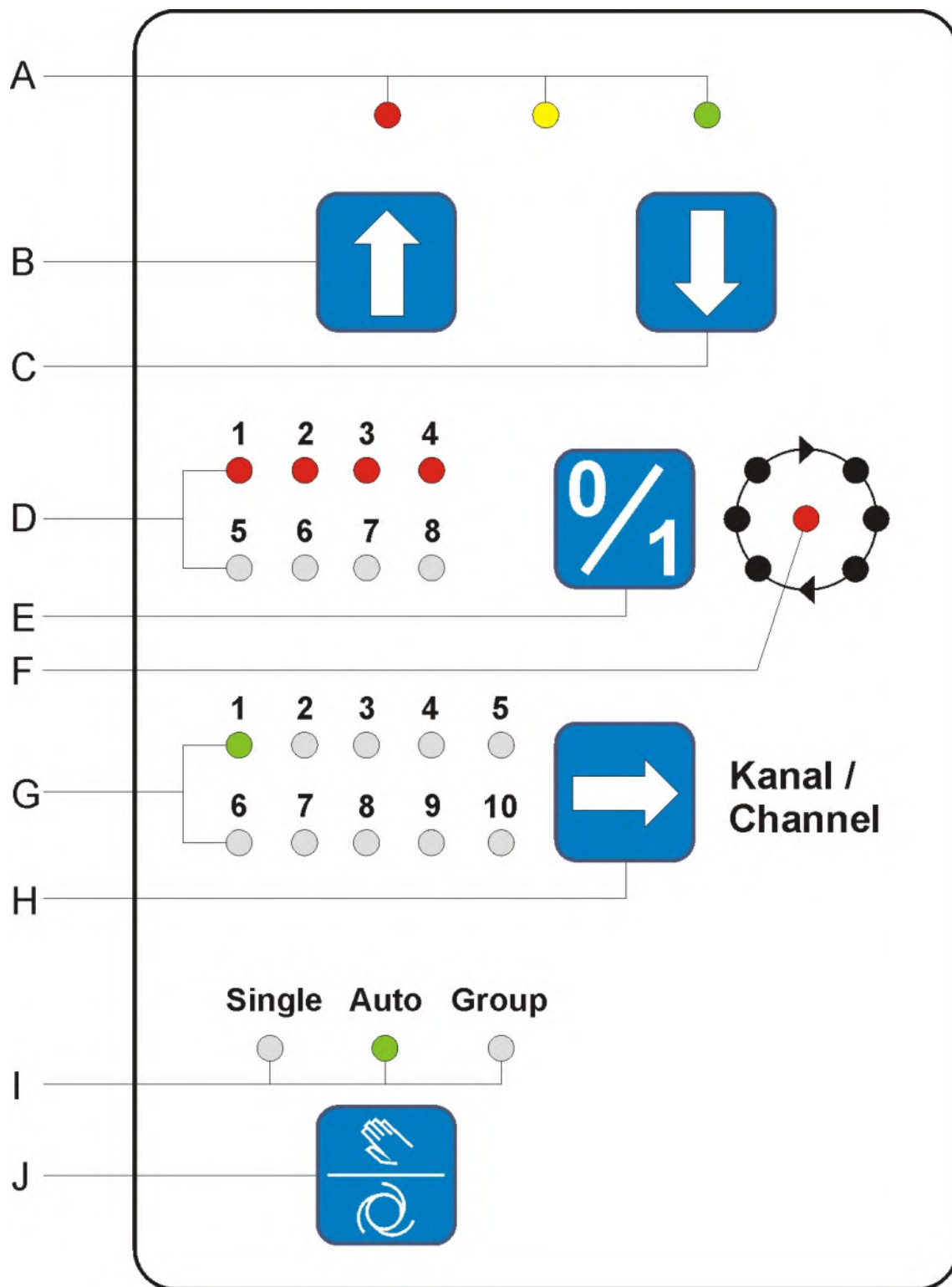
**I LED Display: Operating Mode**

Current operating mode is indicated by LED.

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**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.



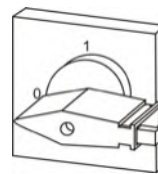
## 3.4 Positioning, Logging in and Interconnecting the Columns

- 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 Connect all columns to be used with the power supply.



It is possible to plug in either each column separately or a combination of not more than four columns.

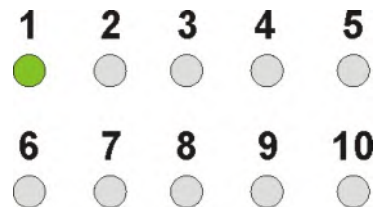
- 3 Turn the main switch to position 1.  
→ LED "Auto" flashes.



**Single**   **Auto**   **Group**



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



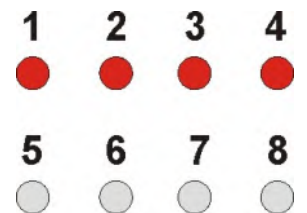
- 5 Confirm using the operating mode button.  
→ LED "Auto" lights up permanently.



**Single**   **Auto**   **Group**



- 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.



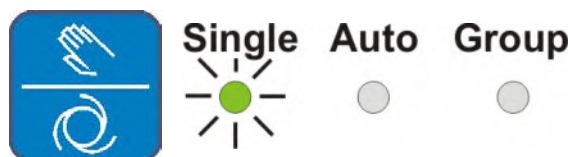
### 3.5 Switching over to Group Mode

- 1 Switch to Group mode using the operating mode button on the desired columns.  
→ LED "Group" lights up permanently.



### 3.6 Switching over to Single Mode

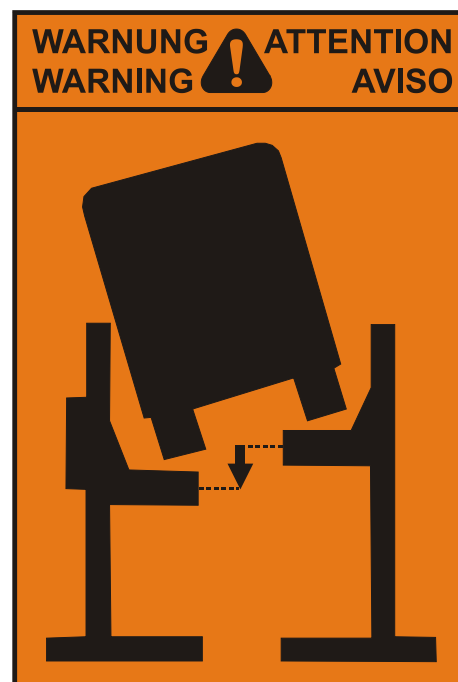
- 1 Switch to Single mode using the operating mode button on the desired column.  
→ LED "Single" lights up permanently.



### 3.7 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.
- When operating the lift in Single or Group mode, make sure the vehicle is not tilted. Otherwise the vehicle may fall off the lift!



- 1 Press "Raise" or "Lower" button.  
→ Lift stops once button is released or end position is reached.



### 3.8 Shutdown

- 1 Before shutting down the lift, open the column unit using button "0/1".
- LED "Column unit" goes off.
- 2 Turn main switch to position 0.



### 3.9 Emergency-down Function, Mechanical



Authorized personnel only! Do not restart the lift before the error has been remedied.

In case of power failure or defects the lift can be lowered manually.

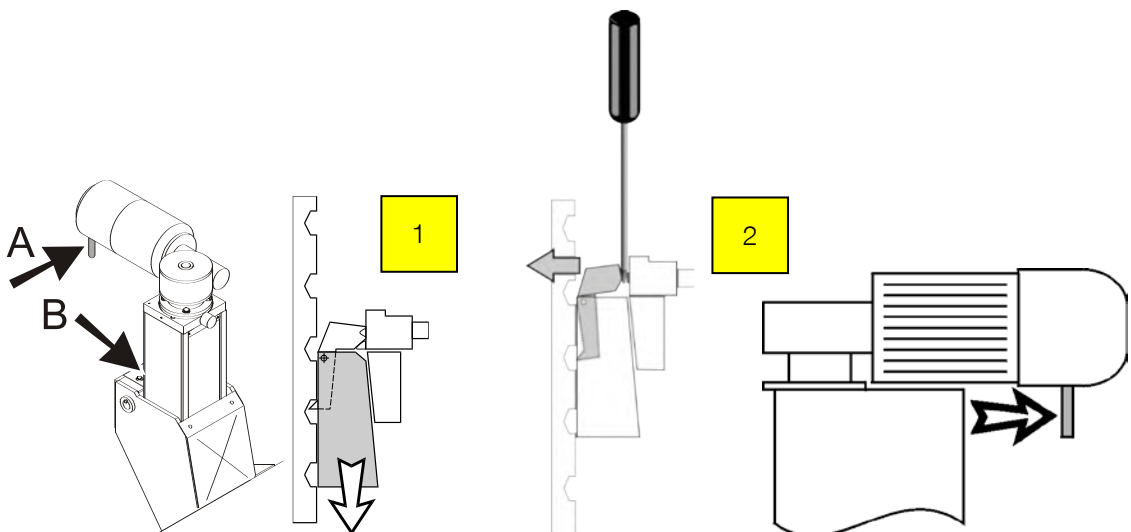


Once the locking device is in engagement, manual lowering is no longer possible.

The following components are required for manual lowering:

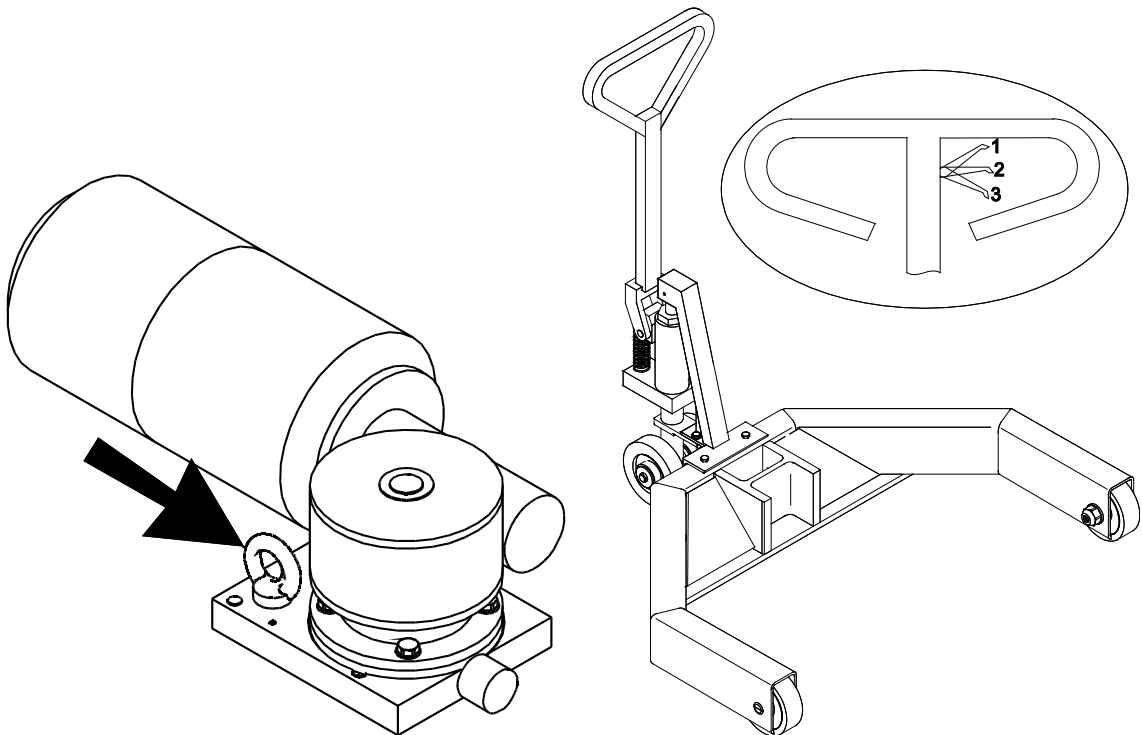
- |                        |                  |
|------------------------|------------------|
| A Lever at brake motor | B Locking device |
|------------------------|------------------|

- 1 Pull or shake the safety wedge downward on each column.
- 2 First push onto the latch using a long screw driver, then additionally push the manual release lever (in arrow direction).  
Intermittently lower the columns in increments of approx. 50 mm (2 in), until the lift is in bottom position.





### 3.10 Handling / Moving the Columns



Screw a lifting-eye bolt M16 into the tap hole on the motor plate of the column. Insert a chain or strap through the ring and lift the column using a hoist or forklift.

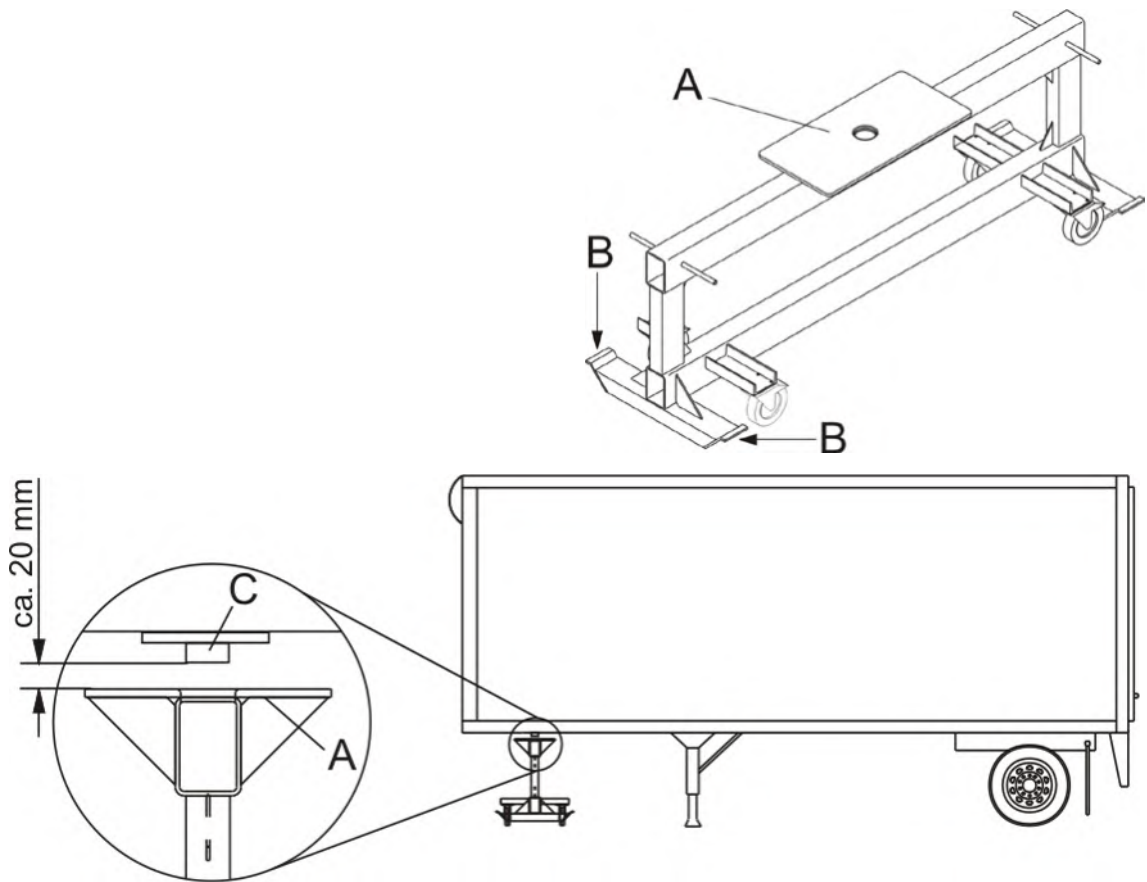
Close hydraulic valve by putting valve lever in position 3.

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.

## 3.11 Transverse Beam for Semitrailers



A Support plate with location hole for central pivot of semitrailer

B Lift points for support forks

- 1 Position transverse beam under central pivot (C) of semitrailer.
- 2 Lower semitrailer until central pivot is approx. 20 mm above support plate (A).  
Do not load the rollers of the transverse beam with the weight of the semitrailer.
- 3 Check for alignment of central pivot and location hole. Adjust if required.
- 4 Position the columns.
- 5 Raise the semitrailer being sure the central pivot engages the location hole.

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## 4 Maintenance

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Danger! Electric shock hazard!

Before doing any maintenance work, turn off the main switch and protect it against tampering.

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### 4.1 Annual Inspection

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- The maintenance interval prescribed by the manufacturer is **12 (twelve) months**. This maintenance interval refers to normal workshop usage. If the equipment is used more frequently or under severe operating conditions (e.g. outdoors), the interval must be reduced accordingly.



- Maintenance work shall be done only by authorized and trained service technicians provided by the manufacturer, licensed dealers or service partners.
  - In case of non-compliance the manufacturer's warranty becomes void.
- 

### 4.2 Care Instructions

- Periodically clean the equipment and treat it with a care product.
  - Repair damage to the paintwork immediately to prevent corrosion.
  - Usage of caustic cleaning agents or high pressure and steam jet cleaners may lead to equipment damage.
- 



Regular care and maintenance is the key condition for functionality and long life expectancy of the equipment!

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### 4.3 Lubrication

#### 4.3.1 Lubricants

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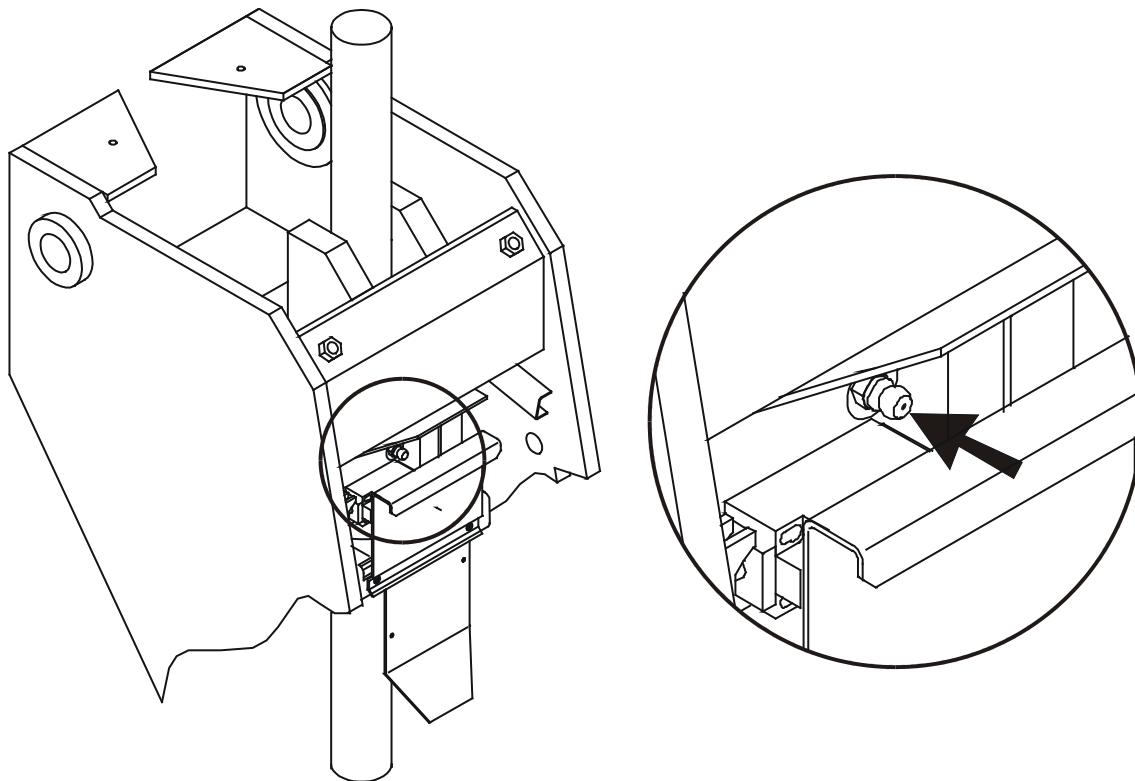
For lubrication use a mineral-oil based grease which is suitable for rolling bearings.

Do not use greases containing solid lubricants (such as graphite or MoS<sub>2</sub>).

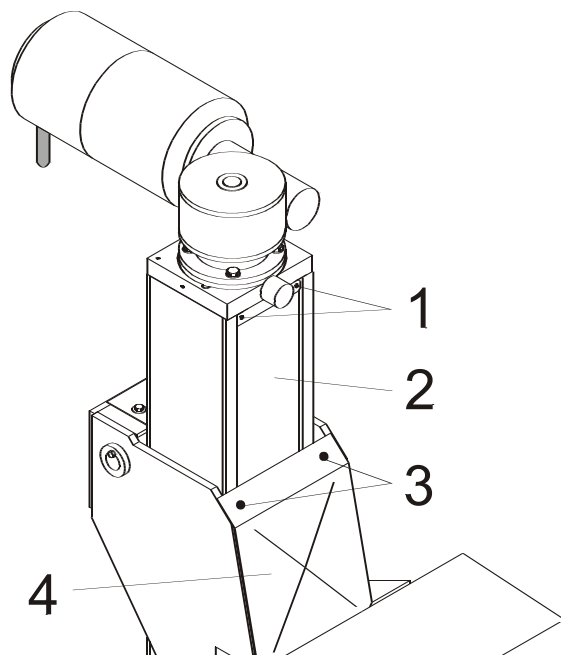
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### 4.3.2 Recirculating Ball Nut

Twice a year grease the recirculating ball nut with 4...7 strokes from a grease gun. The lubricator is located at the recirculating ball nut inside the carriage.

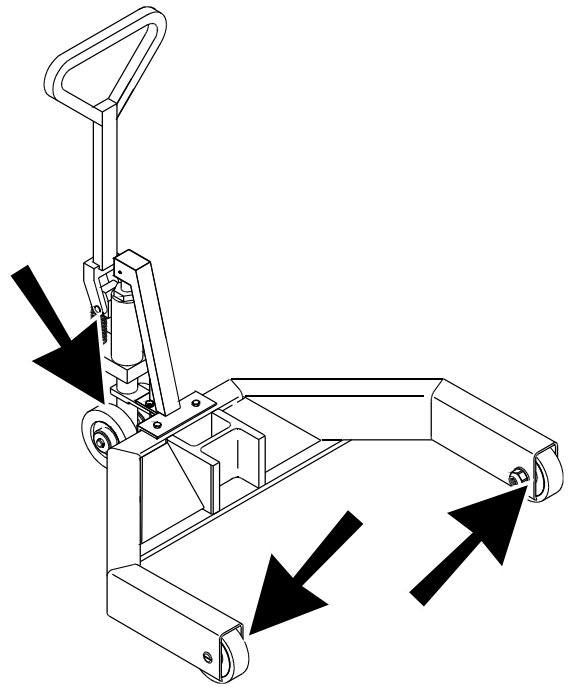


To make the lubricator accessible, remove the screws (1 and 3). Then remove cover plate (4) and fastening strip of rubber cover (2). Fold down the rubber cover.

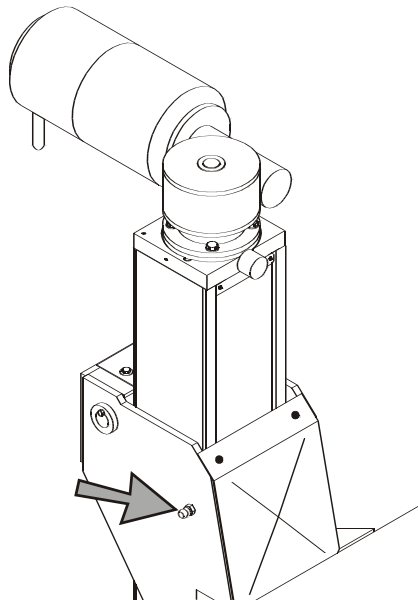


### 4.3.3 Moving Gear

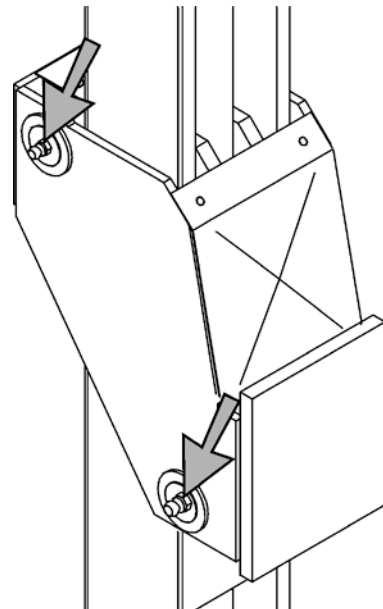
Periodically oil the rollers of the moving gear. If they are equipped with lubricators, lubricate using a grease gun.



### 4.3.4 Options



Recirculating ball nuts with outside lubricator (option) should be greased every six months with four to seven strokes from a grease gun.

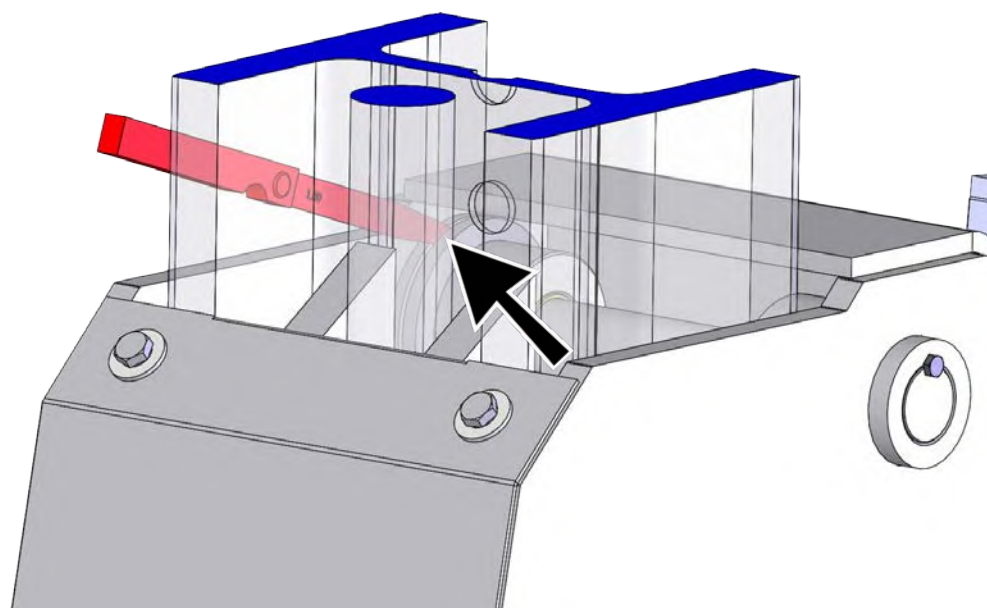
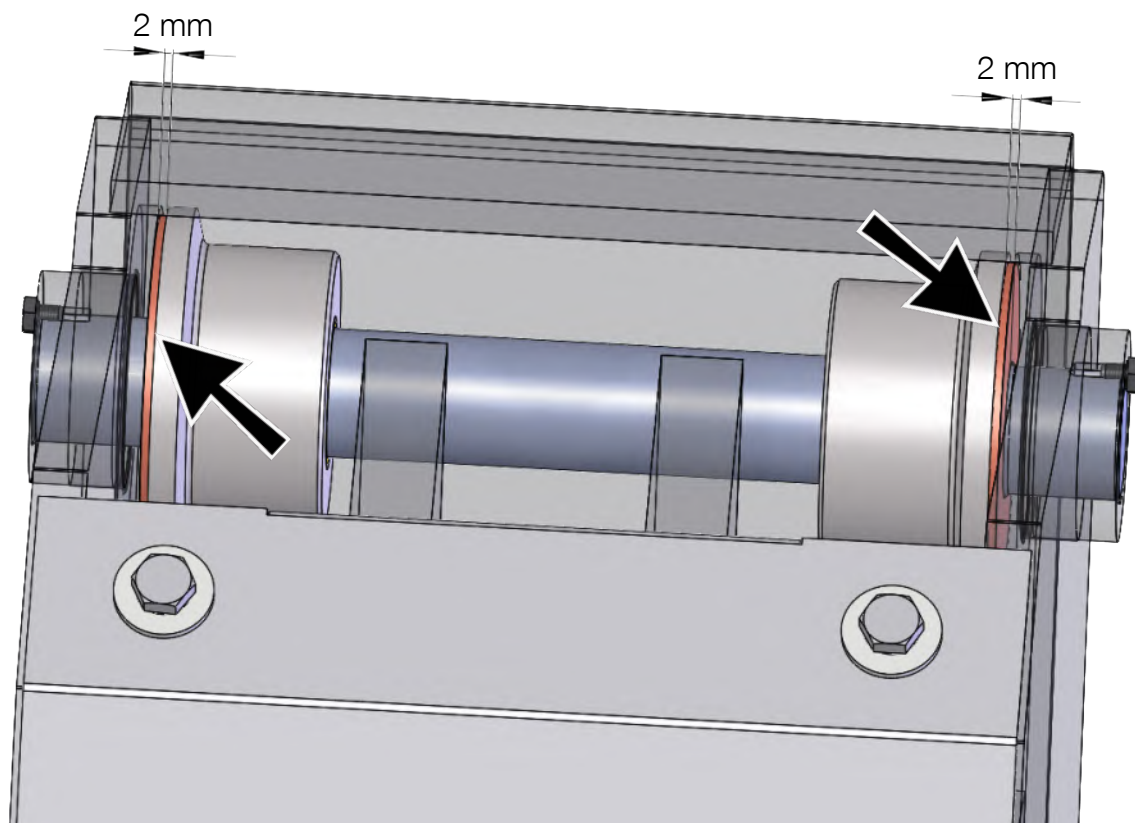


Carriage axles equipped with a lubricator (option) should be periodically greased using a grease gun.

### 4.3.5 Thrust Washers

#### Visual Inspection with Feeler Gauge

Once a month check the bronze thrust washers for wear using a feeler gauge (see illustration). New thrust washers have a thickness of 2 mm. Once a single washer shows signs of excessive wear (more than 1 mm), it must be replaced.



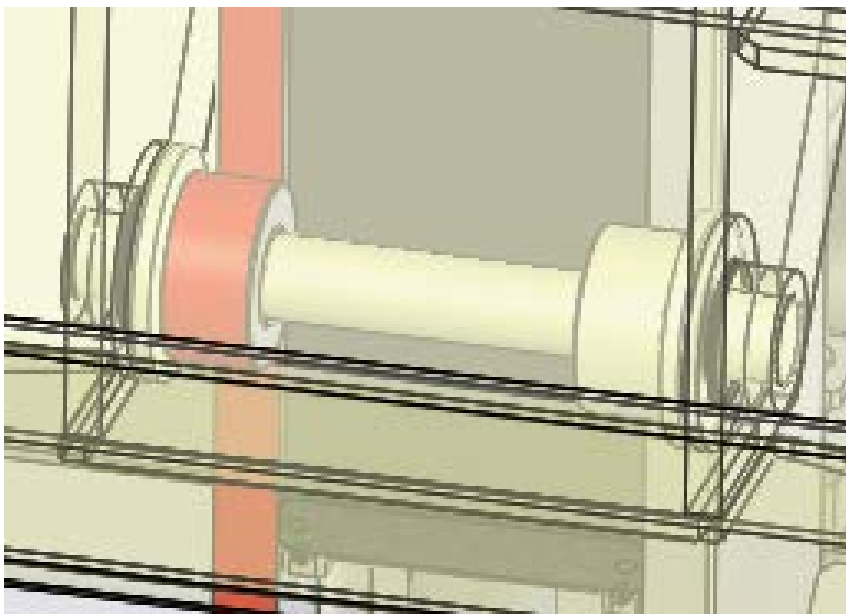
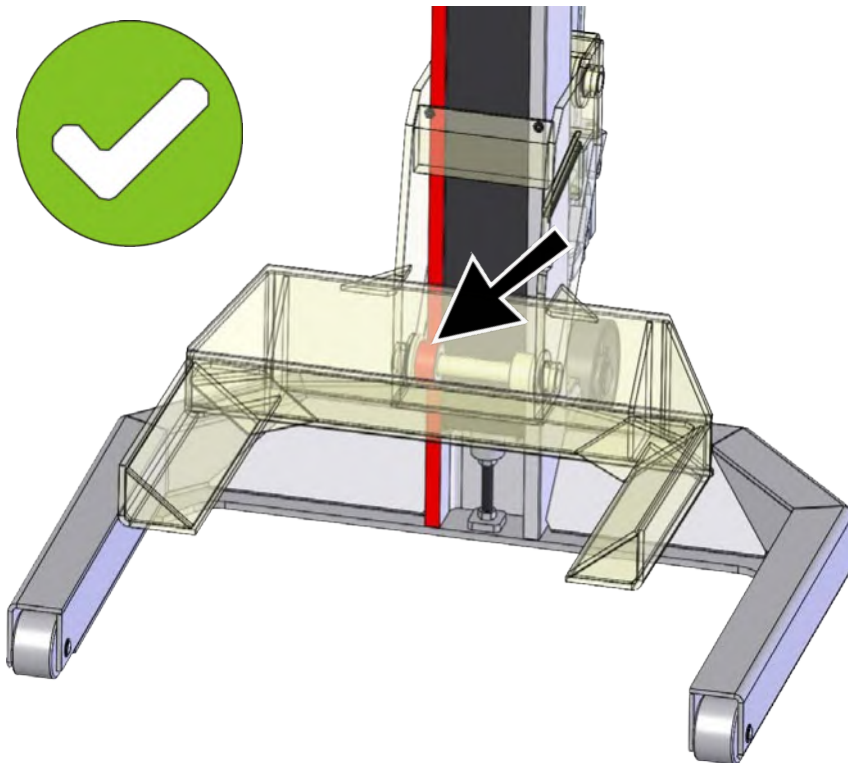
### Shaking Test on Lifting Carriage

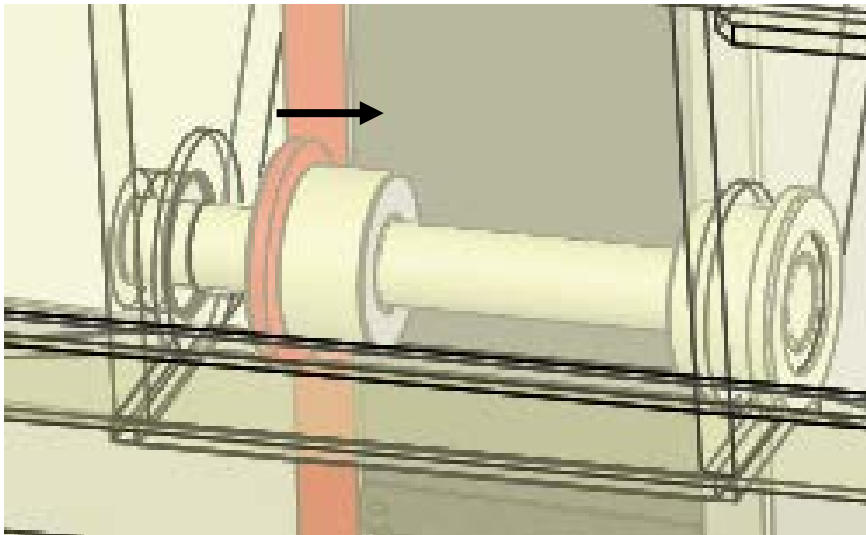
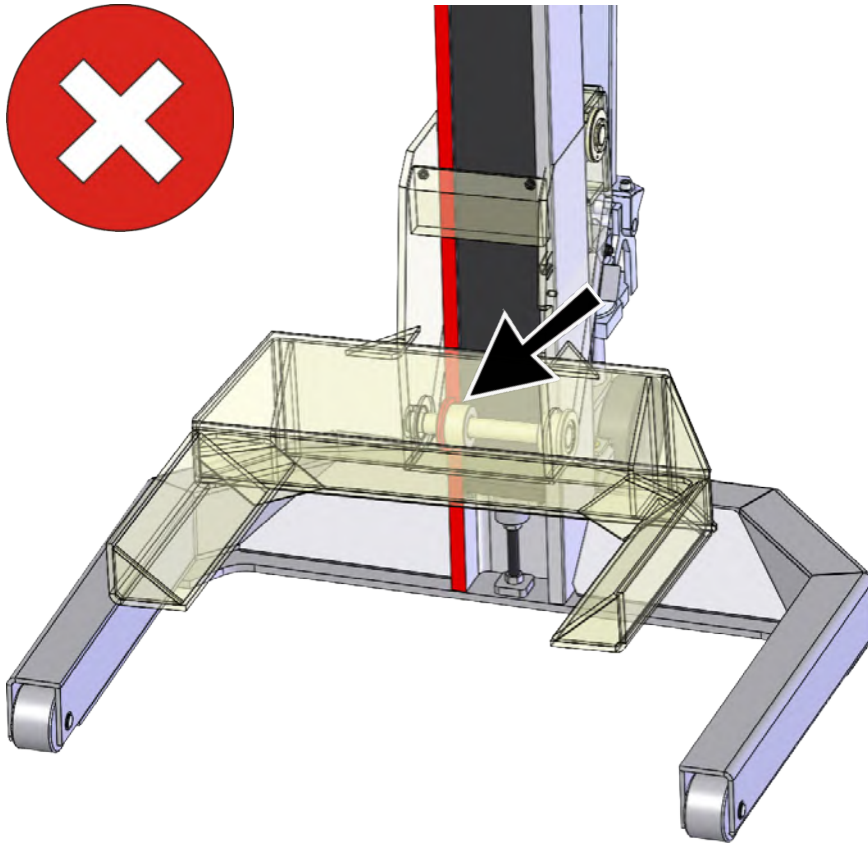
In addition to the visual inspection, perform a shaking test on the lifting carriage every three months. To do this, hold the carriage firmly by the support fork, then pull it forward making a twisting movement.



#### WARNING

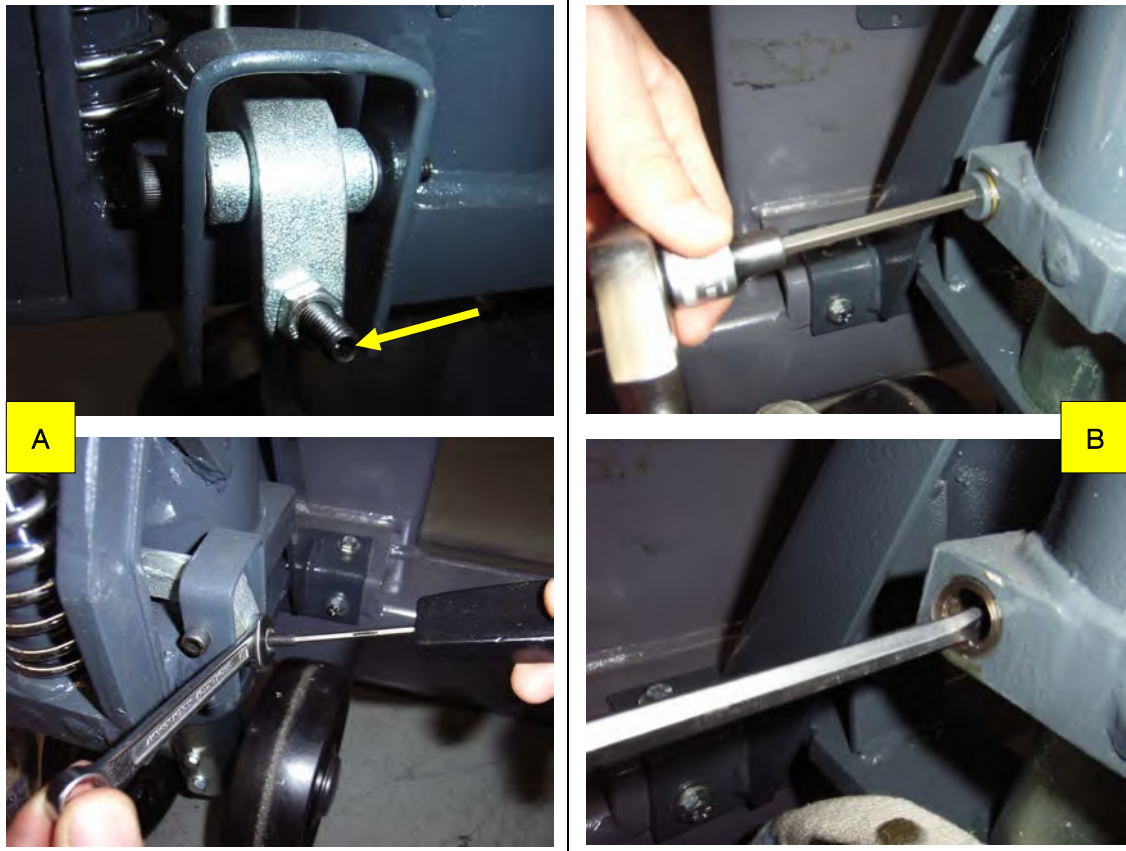
If the guide rollers jump out of the guide track during the shaking test, the lifting column must be shut down until the thrust washers have been replaced.







## 4.4 Setting the Hydraulic Jack



Note that the jack must be mounted to the column when making any settings.

### A: Setting the Lowering Speed

The lowering valve is located on the right-hand side of the cylinder. To set the lowering speed, adjust the threaded pin using an Allen key while holding the lock nut firmly with an open-end wrench. Check for correct setting by carefully lowering the jack.

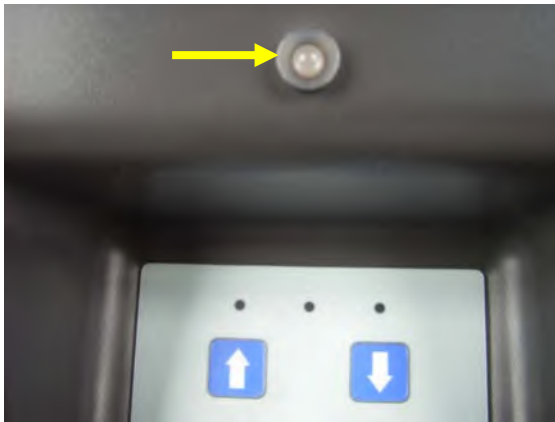
Threaded Pin	↻ OPEN	↗ INCREASE	Lowering Speed
	↻ CLOSE	↘ REDUCE	








### B: Setting the Responsiveness of the Automatic Lowering Function

The automatic lowering valve is located on the left-hand side of the cylinder. Remove the screw plug using an Allen key, then insert a flat-tip screwdriver to set the adjusting screw. Soak up leaking fluid with a rag. Reinstall the screw plug.

Adjusting Screw	↻ OPEN	↘ REDUCE	Responsiveness
	↻ CLOSE	↗ INCREASE	





## 4.5 Battery Charge Condition




Indication	Charge Condition	Action
 RED	Battery flat, only lowering possible.	Charge at once.
 ORANGE/YELLOW	Battery weak, operation may be continued.	Charge as soon as possible.
 GREEN	Battery fully charged or partly discharged.	---
 →  →  Flashing RED, ORANGE, GREEN	Battery being charged.	---
→  Switching to GREEN during charging process	Battery fully charged.	Disconnect mains plug.

- The batteries may be charged at any time regardless of the control unit being on or off. Do not operate unit while charging.
- To charge the batteries connect the mains plug.
- The charging process takes approx. 12 h with a flat battery. Overcharging is not possible.
- To prevent the batteries from discharging unnecessarily, each control unit should be disabled completely when the lift is not in use.
- The batteries should be occasionally charged even when not in use. This is to ensure that their full capacity is available during lift operation and to compensate for any self-discharge losses.
- To avoid exhaustive discharge, any column with undervoltage will switch off automatically.
- For a long life expectancy the batteries should not be fully discharged.
- The batteries should not be fully charged while the lift is loaded with a vehicle, as this may result in current feedback and battery overcharge when the lift is lowered. Should this case occur, the lift will lower very slowly to avoid equipment damage.

## 4.6 Troubleshooting

Status Indication			Diagnosis	Remedy
 Red	 Yellow	 Green		
OFF	OFF	OFF	If no other LEDs are ON: Radio system switched off after 30 sec.	Briefly press any button to enable the radio system.
OFF	OFF	OFF	If other LEDs are ON: Radio interference (e.g. Channel, Mode...). Possible cause: Devices in the vicinity transmitting on the 433 MHz band (such as garage door opener, radio set...).	Wait until radio interference has stopped.
OFF	OFF	OFF	Battery undervoltage	Charge batteries using power cord.
OFF	OFF	OFF	and control can be enabled only briefly or not at all.	
OFF	OFF	OFF	Fuse blown, hardware error.	Contact service.
OFF	OFF	ON	and control cannot be enabled at all.	
OFF	OFF	ON	If no other LEDs are ON: Emergency-stop actuated.	Enable emergency-stop button.
OFF	FLASH	OFF	Lift is not yet referenced, when a new column with new control is being connected after final assembly.	Lower lift with emergency-down function.
			Level difference between columns too great.	
OFF	ON	OFF	Lift has contacted obstruction or floor.	Raise lift until yellow LED goes off.
OFF	ON	OFF	and lift stops while lowering.	
OFF	ON	OFF	Lift overloaded.	Release button, try again. Reduce load if necessary.
OFF	ON	OFF	Sluggish operation. Possible causes: Long standing under load, insufficient lubrication...	Release button, try again. Contact service if required.
OFF	ON	OFF	Upper sensor maladjusted.	Contact service.
ON	OFF	OFF	and lift stops while raising.	
ON	OFF	OFF	Hardware error occurred.	Press and hold  for 4 seconds ⇒ control goes off. Switch on again. If error persists, contact service.
ON	OFF	OFF	EEPROM / Flash error occurred.	Contact service.

Status Indication			Diagnosis	Remedy
 Red	 Yellow	 Green		
FLASHING 1 x	OFF	OFF	Check RPM sensor	Contact service.
2 x	OFF	OFF	---	---
3 x	OFF	OFF	Check Limit switch	Contact service.
4 x	OFF	OFF	Check Safety switch	Contact service.
5 x	OFF	OFF	---	---
6 x	OFF	OFF	Thermal switch Motor open	Let motor cool down.
7 x	OFF	OFF	I2T monitoring	Let motor cool down.
8 x	OFF	OFF	---	---
9 x	OFF	OFF	Hardware overcurrent	Contact service.
10 x	OFF	OFF	Battery overcurrent	Contact service.
11 x	OFF	OFF	Motor overcurrent	Only lowering possible.
12 x	OFF	OFF	Short circuit to earth	Contact service.
13 x	OFF	OFF	Interruption/Short circuit Safety wedge	Contact service.
14 x	OFF	OFF	Interruption/Short circuit Brake	Contact service.
15 x	OFF	OFF	Error Voltage enable 15 V Converter, Power board defective	Contact service.
16 x	OFF	OFF	Memory error, e.g. height	Contact service.
17 x	OFF	OFF	Error Voltage enable 15 V Control, check PCB if required	Contact service.
18 x	OFF	OFF	CPU error, Control PCB defective	Contact service.
19 x	OFF	OFF	Check Limit switch	Contact service.
20 x	OFF	OFF	Check Safety switch	Contact service.
21 x	OFF	OFF	Connection error between converter and control; check 4-pole cable (X8)	Contact service.
ON	ON	ON	Error occurred (Watchdog).	Turn off main switch and turn on again after approx. 5 sec. If error repeats, contact service.

## 4.7 Spare Parts

To ensure safe and reliable operation, only use original spare parts supplied by the equipment manufacturer.

## 5 Service Lifetime

In its standard version, this product is designed for 22,000 load cycles based on EN 1493. The maximum period of normal use in relation to the possible product life expectancy shall be evaluated and scheduled by a qualified person during the annual safety inspection.

## 6 Dismantling

Decommissioning and dismantling of the equipment may be done only by specially authorized and trained personnel provided by the manufacturer, licensed dealers or service partners.

## 7 Disposal

If you want to dispose of the equipment, please contact your MAHA dealer or the following address, indicating equipment type, date of purchase and serial number:

MAHA Maschinenbau Haldenwang GmbH & Co. KG  
Hoyen 20  
87490 Haldenwang  
Germany

Phone: +49 (0) 8374 585 0  
Fax: +49 (0) 8374 585 500  
Email: altgeraete@maha.de

Alternatively, you may take the equipment to a specialised waste management plant to ensure that all components and operating liquids are properly disposed of.

## 8 Contents of the Declaration of Conformity

**MAHA Maschinenbau Haldenwang GmbH & Co. KG**

herewith declares as a manufacturer its sole responsibility to ensure that the product named hereafter meets the safety and health regulations both in design and construction required by the EC directives stated below.

This declaration becomes void if any change is made to the product that was not discussed and approved by named company beforehand.

**Model:** RGA / RGA T  
**Designation:** Mobile Column Lift; Rated Load Capacity per Column 7500 / 5000 kg  
**Directives:** 2006/42/EC; 2014/30/EU  
**Standards:** EN 1493; EN 60204-1

## 9 Company Information

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The contents of this edition have been checked with great care. However, errors cannot be fully excluded. Subject to technical change without notice.

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