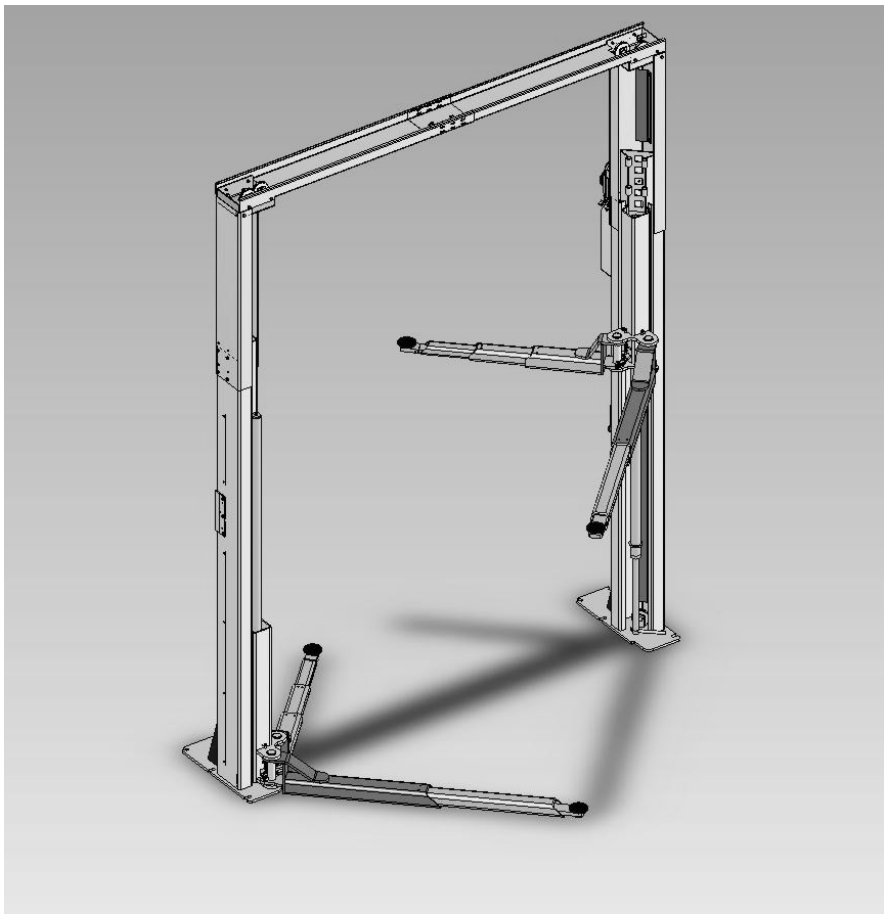
Two Post Lift

HL 4.0 A

for vehicles up to 4,000 kg gross weight



Technical Handbook

D1 3615TH1-GB03

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1 General Information

1.1 Standard Delivery

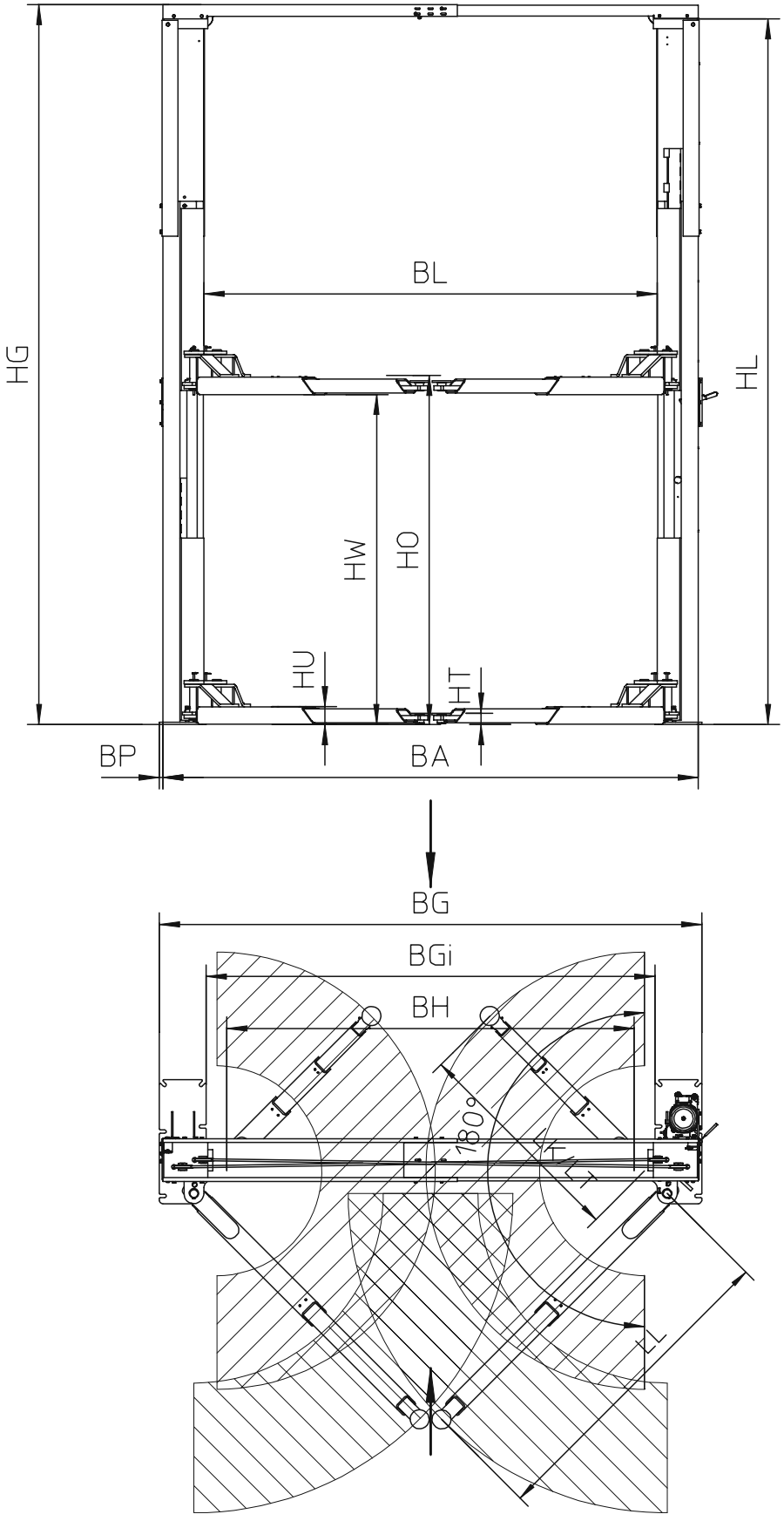
- 2 columns with control unit
- Cross member
- 2 long and 2 short telescoping support arms with disk adapters
- Operating manual

1.2 Options and Accessories

See our current price list.

1.3 Specifications

See following pages.


HG
BL
HL
HW
HO
HU
HT
BP
BA
BG
BGi
BH
180°
LT
LL

	HL 4.0 A		
Height overall HG	3750 mm	4100…4150 mm	4630…4680 mm
Floor to cross member HL	3680 mm	4030…4080 mm	4560…4610 mm
Full travel HW	1700 mm	1700 mm / 1900 mm	
Raising and Lowering time	approx. 45 s	approx. 45 s / approx. 50 s	
Lifting height max. HO	1810 mm	1810 mm / 2010 mm	
Lifting height min. HU	105 mm		
Disk adjustment range HT	85…110 mm		
Support arm reach LK	605…1260 mm		
Support arm reach LL	1092…1840 mm		
Inside columns BL	2620 mm		
Outside columns BA	3090 mm		
Outside baseplates BG	3130 mm		
Inside baseplates BGi	2590 mm		
Drive-through clearance max. BH	2350 mm		
Load capacity	4000 kg		
Net weight	ca. 900 kg		
Anchoring	10 heavy-duty anchors MKT VA M16		
Motor power	2.2 kW		
Rated current	14.6 A		
Fuse protection	16 A time delay		
Power supply	3~ 400 V + N + PE		
Sound pressure level	≦ 75 dB(A)		

Specifications are subject to change without notice.

1.4 Installation

Lift installation and commissioning by authorized service personnel only.

Provision of handling means such as forklifts etc. is the owner's responsibility.

1.4.1 Location

The standard lift version may not be installed outdoors, in moist rooms, at hazardous locations, or in the vicinity of explosives or flammable liquids.

Choice of a suitable lift location is the owner's responsibility.

1.4.2 Foundation

Prior to installation a sufficiently stable foundation and level lift bay floor shall be completed in accordance with manufacturer recommendations.

Lift Version	*Minimum Concrete Thickness*
HL 4.0 A	175 mm (reinforced)

Always use the current foundation plans.

Proof of safe floor load capacity is the owner's responsibility.

1.4.3 Power and Air Supply

Power Supply

3~ 400 V + N + PE.

Select a wire size appropriate for lift model and cable length.

	Motor power in kW	Time-delay fuse in A	Rated current in A
HL 4.0 A	2,2	16	14,6

Air Supply

Lift versions using compressed air require an additional compressed-air hose.

2 Installation

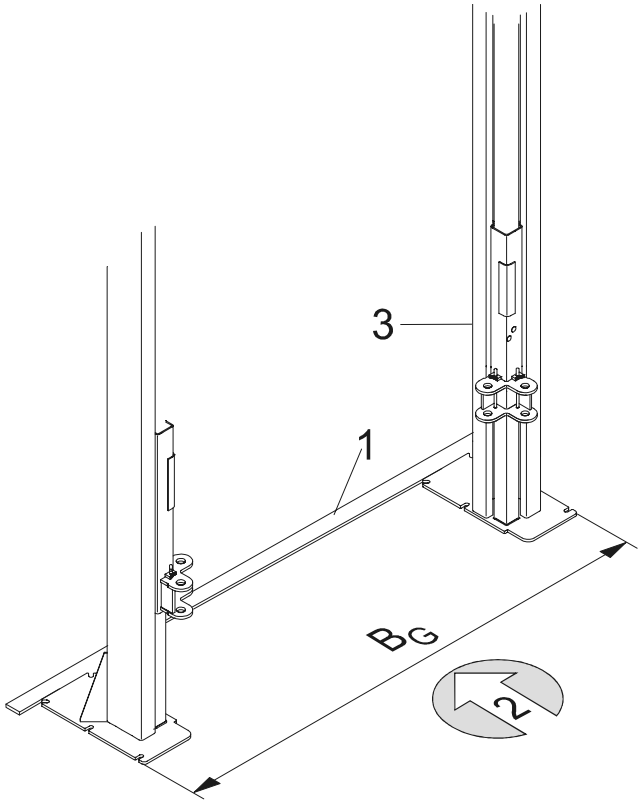
2.1 Positioning the Columns

For details and dimensions see applicable data sheet.

1 Remove the packaging material.

2 Stand the columns upright and position them using the dimensions indicated in the applicable data sheet.
Place the control column (3) on the right side as seen from approach direction (2).
The clearance between the colums may be determined e.g. by using dimension B_G (Outside baseplates).

3 Align the columns using a levelling board (1).

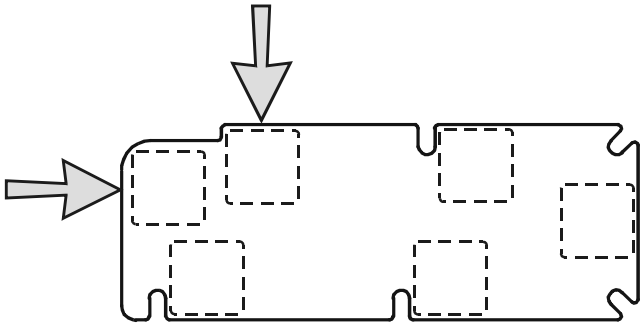


2.2 Plumbing the Columns

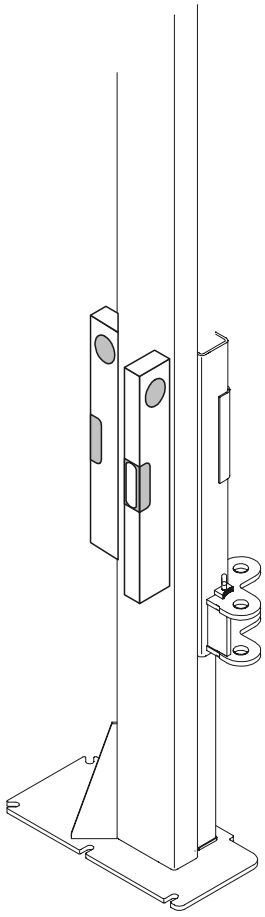
1 Level and plumb each column using a contractor's level.

Measure at the same height on all sides, e.g. at eye level.

2 If required, shim the column base until each column is plumb.



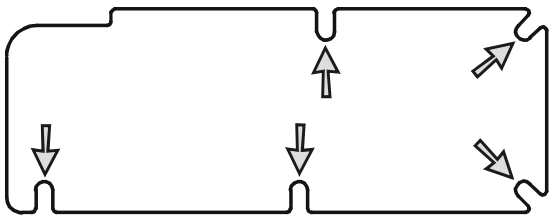
The baseplate corner without anchor must be also shimmed to avoid tilting movements of the column when under load.



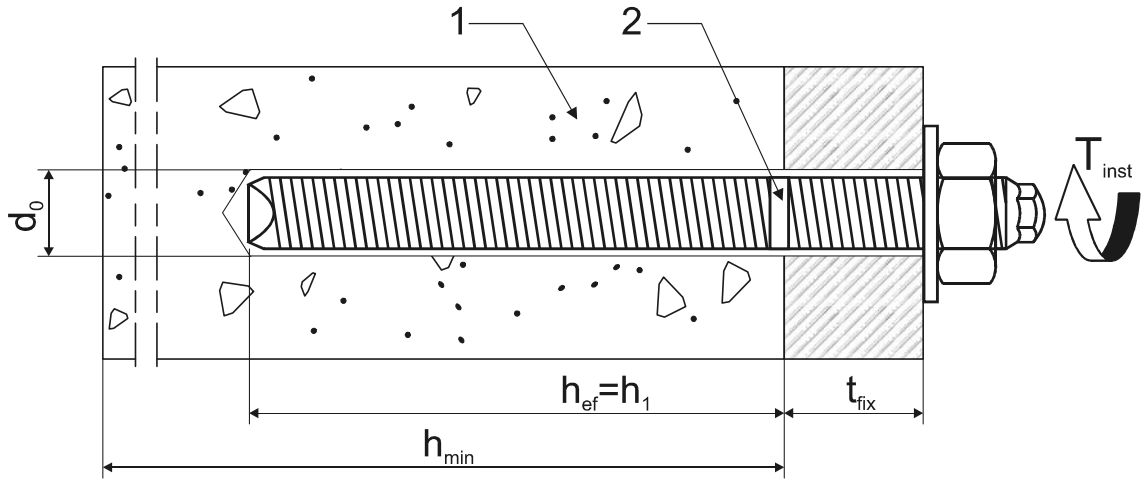
2.3 Anchoring the Columns

Read the anchor manufacturer's installation instructions.

10 heavy-duty anchors (5 for each baseplate), model MKT VA M16, are required.



2.3.1 Heavy-Duty Anchor MKT VA M16



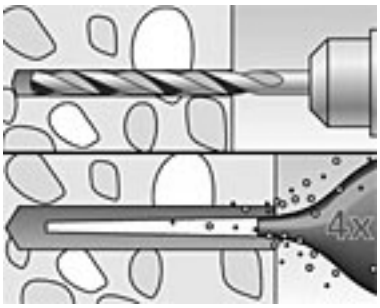
1	Base material	**h_{ef}**	Embedment depth
2	Minimum embedment depth mark	**d_0**	Drill bit nominal diameter
h_1	Hole depth	**T_{inst}**	Installation depth
h_{min}	Mindeststärke des Ankergrunds	**t_{fix}**	Fixture thickness (including floor tiles)

Select an anchor model appropriate for dimension t_{fix}.

Ankertyp→			**MKT VA M16**	
			VA-A 16x165	VA-A 16x250
h_1	=	[mm]	125	
h_{min}	≧	[mm]	175	
h_{ef}	=	[mm]	125	
t_{fix}		[mm]	20	105
d_0	=	[mm]	18	
T_{inst}	=	[Nm]	80	

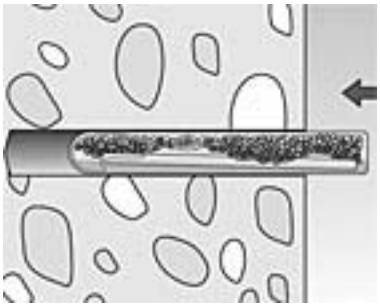
2.3.2 Anchor Setting

1



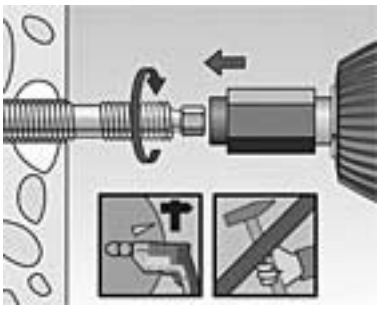
Drill a hole into the base material as per anchor manufacturer's recommendations.
Blow the hole clean of dust and other material.

2



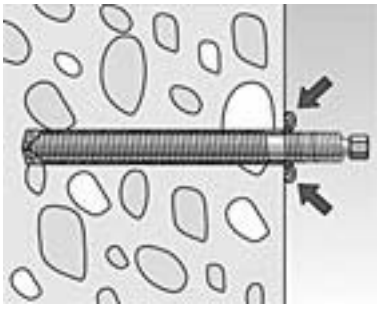
Carefully lower the resin capsule into the anchor hole.

3 a



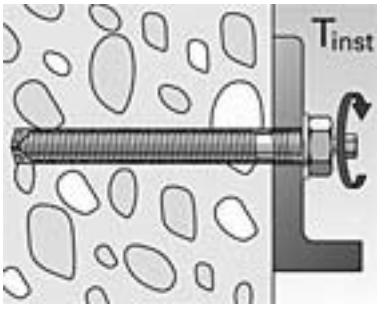
Using an impact driver, screw in the anchor bolt with 250 to 750 rpm until the setting mark is on surface level. Immediately switch off the impact driver.

3 b



Check for resin coming out of the anchor hole.

4



Let the resin cure (see table below), then tighten the nut using a torque wrench.

2.3.3 Curing Time

Allow for adequate curing time before loading the columns.

Temperature of base material	Curing time of resin
> +20 °C	10 minutes
+10 °C…+20 °C	20 minutes
0 °C…+10 °C	60 minutes

2.4 Installing the Cross Member

1 Install the column extensions to both columns.
Depending on the lift version, the column height can be adapted to the ceiling height (± 50 mm).

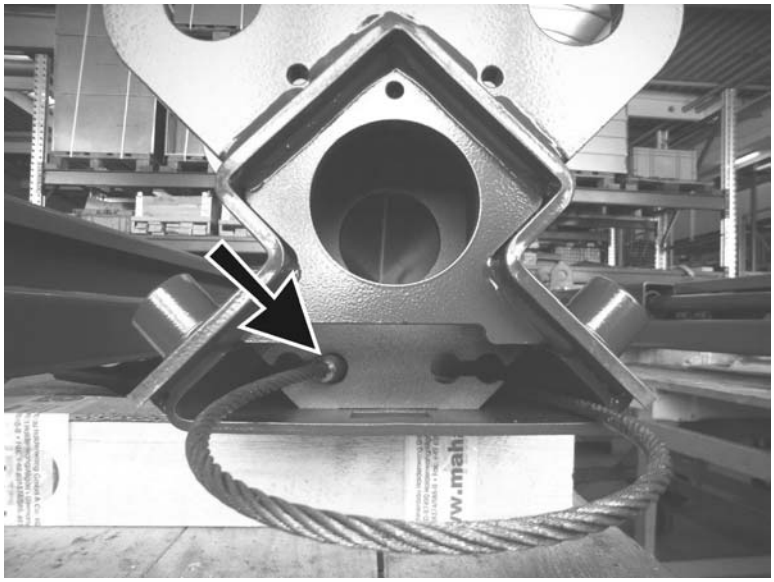
2 Lift the cross member onto the columns and bolt it in place.

If using a forklift or other lifting device, consider installing an eye bolt to the top of the column.

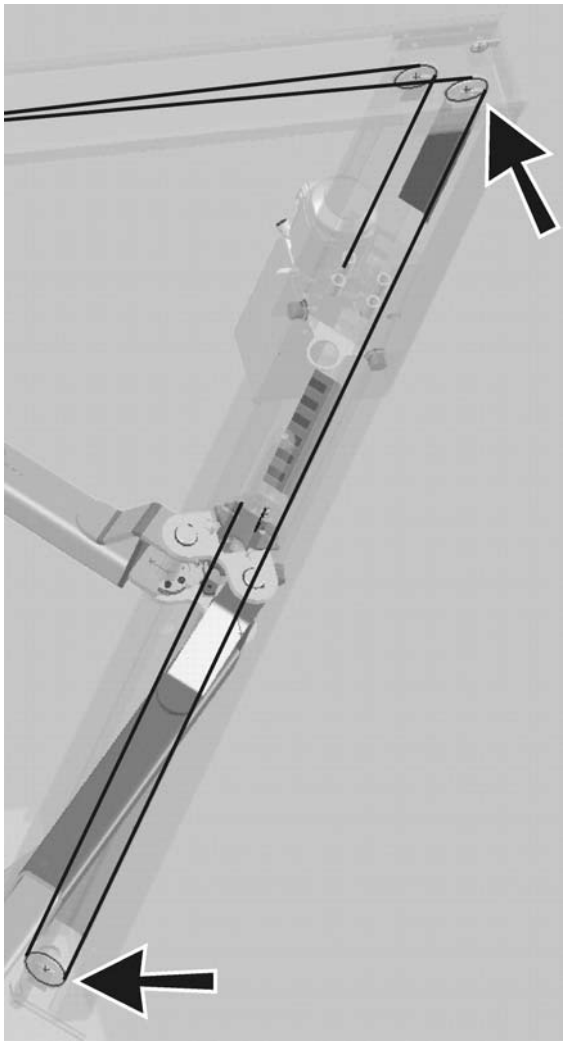
Height overall HG	3750 mm	4100…4150 mm	4630…4680 mm

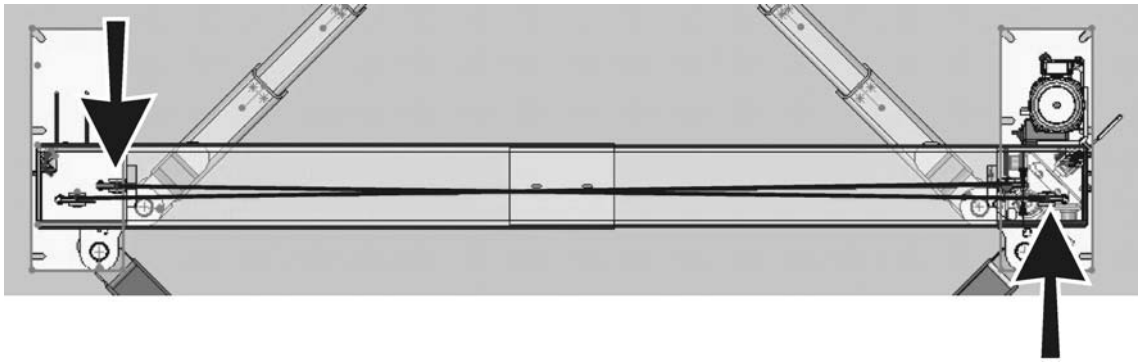
2.5 Installing the Equalizing Cables

1 Introduce the sleeve with the equalizing cable through the inner hole in the carriage of the operating column.

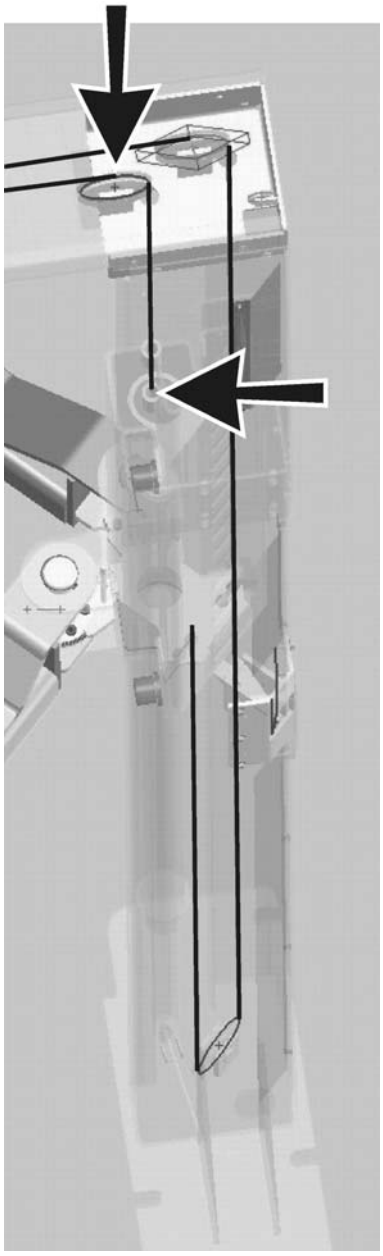


2 Run the cable down and around the sheave at the bottom of the column, then up and around the outer sheave onto the cross member.





3 Run the cable from the outer sheave over the cross member to the inner sheave on top of the opposite column.



4 Run the cable to the carriage of the opposite column and fasten it, but pretension it only slightly.

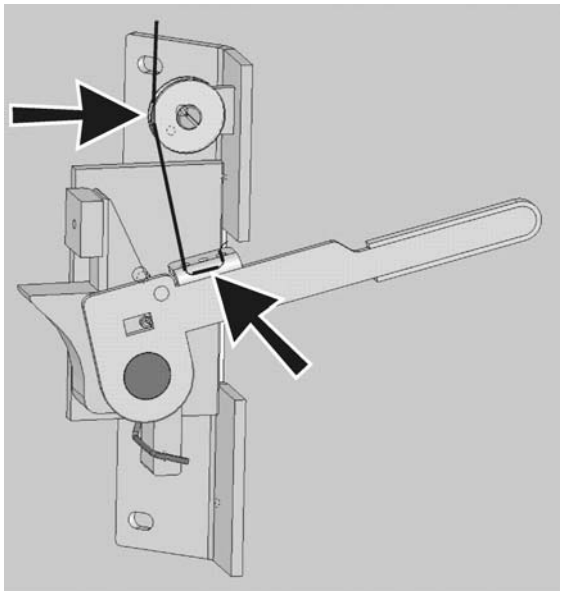
5 Run the second cable from the opposite to the operating column and fasten it, but pretension it only slightly.

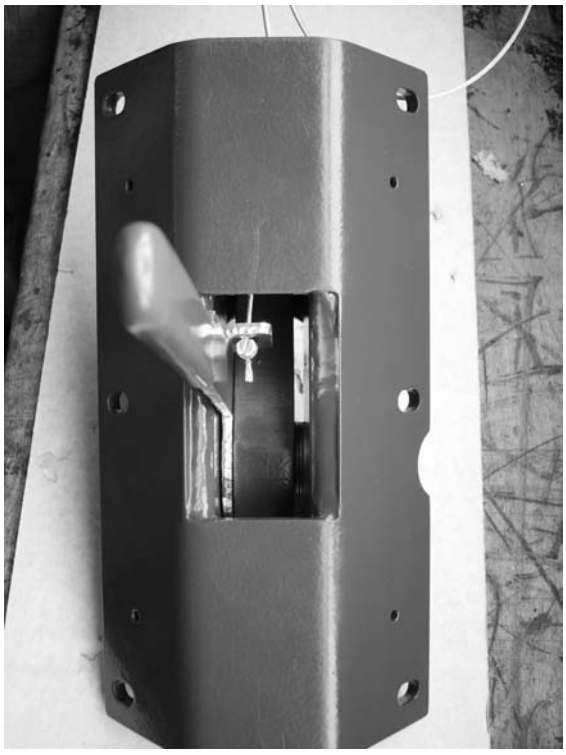
When adjusting the equalizing cables be sure the carriages are in their upper end position.

See section *Adjusting the Equalizing Cables.*

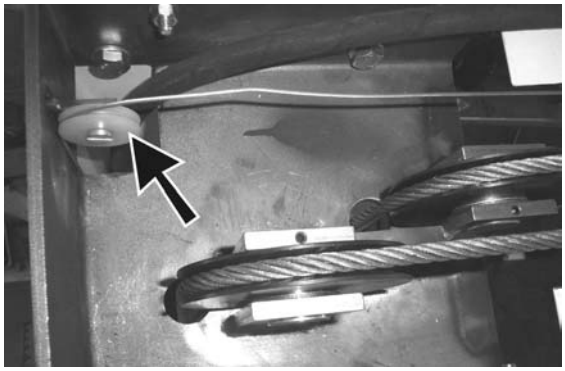
2.6 Installing the Latch Cable

1 Fasten the latch cable to the handle using a clamping screw. Then run it around the sheave and upward.



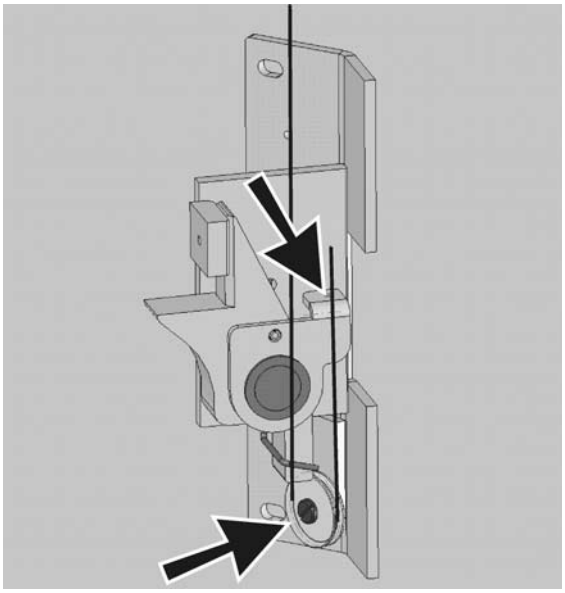


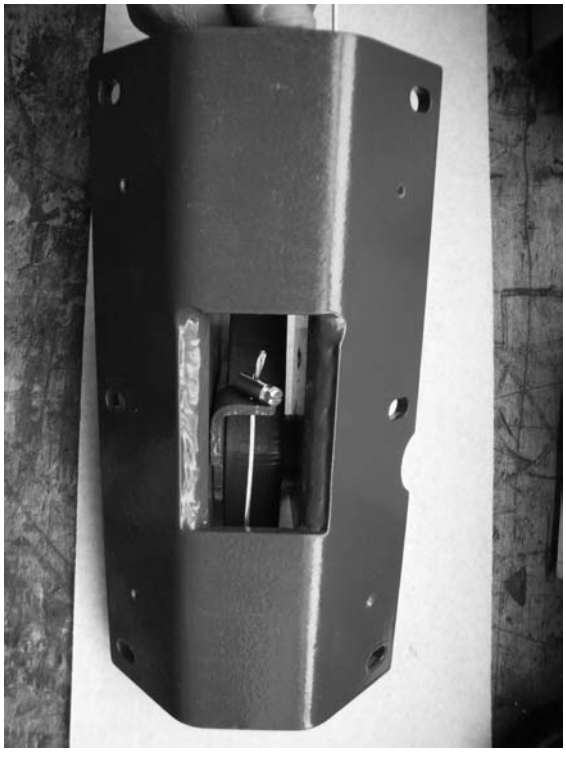
2 Run the cable around the sheaves on top of the cross member and down to the latch of the opposite column.

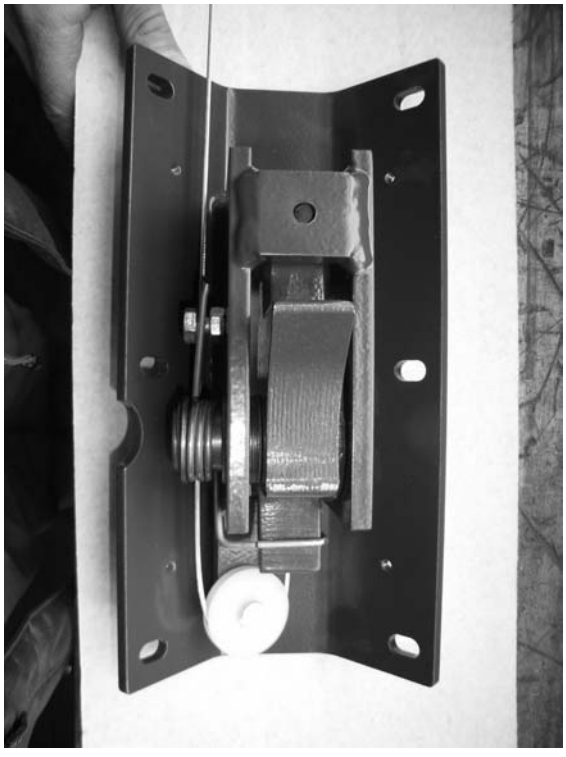


3 Run the cable around the sheave and fasten it to the opposite latch using a clamping screw.

4 Perform an operational check. If required, adjust the latch cable using the clamping screws.



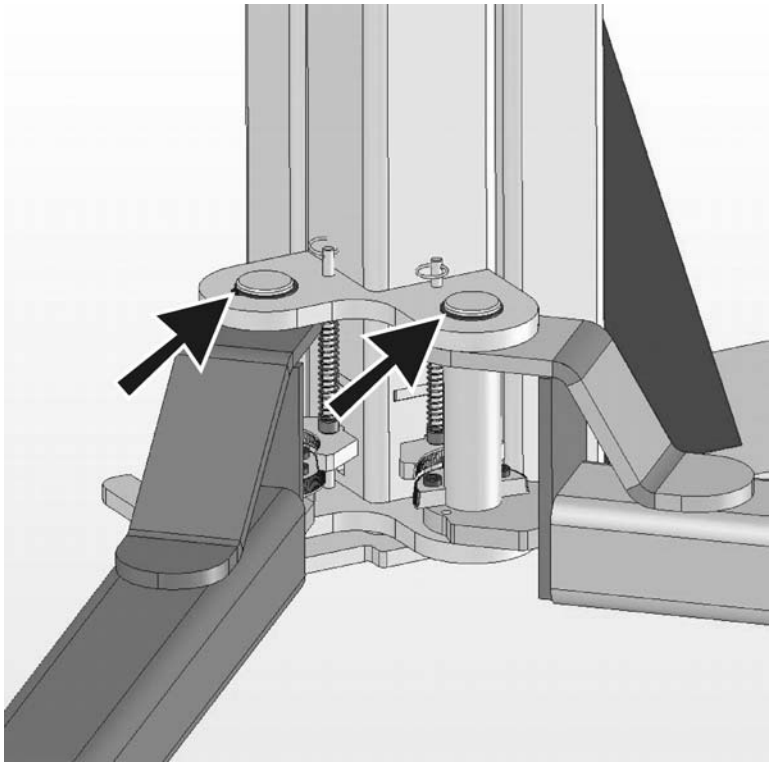




2.7 Installing the Support Arms

1 Install the support arms using screws that meet the specifications of property class 8.8. The tightening torque is 42 Nm.

2 Secure the arm pins at the top and the bottom using snap rings.



2.8 Connecting the Hydraulic and Electric System

Connect the hydraulic and electric system using the circuit diagrams provided.
The electric system may be installed by authorized personnel or certified electricians only.

Install the supply cords and hoses inside the cable channels or fasten them using cable clips. Avoid contact with the equalizing cables and the locking latches.

2.8.1 Hydraulic System

- Fill the power unit reservoir with approx. 12 l (type 1) or 10 l (type 2) of fluid (see section *Maintenance Schedule / Hydraulc System*).

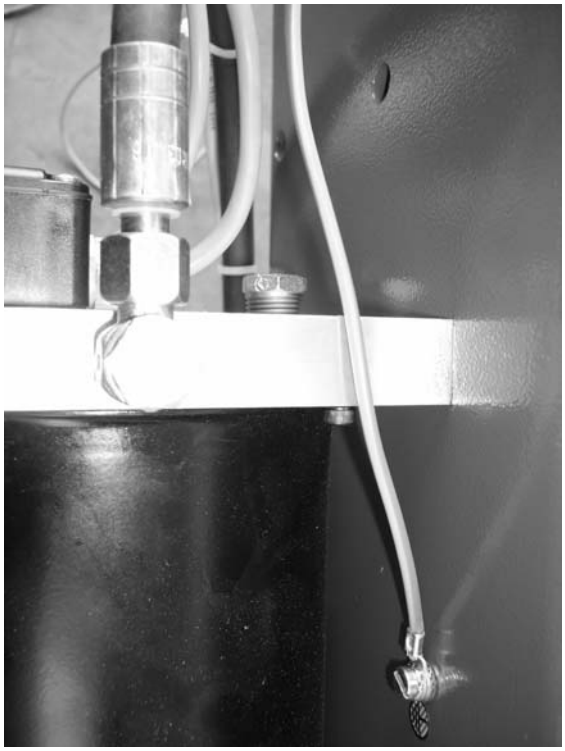
Petroleum-based fluid should meet HLPD 32 specifications (MAHA part # 999005).

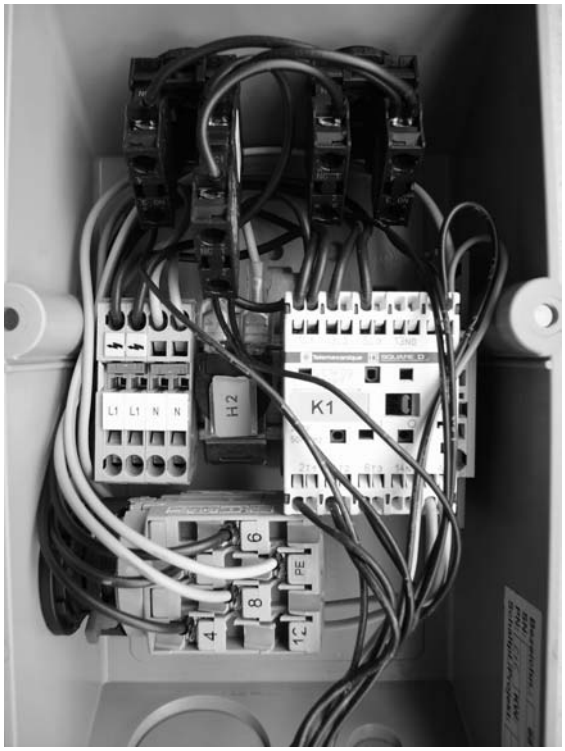
Biodegradable fluid: Only use MAHA HLP 32 (MAHA part # VM 999014).

2.8.2 Electric System

1 Attach the ground wires to the grounding screws provided at the columns (potential equalization).

2 Connect the control unit as per circuit diagram.

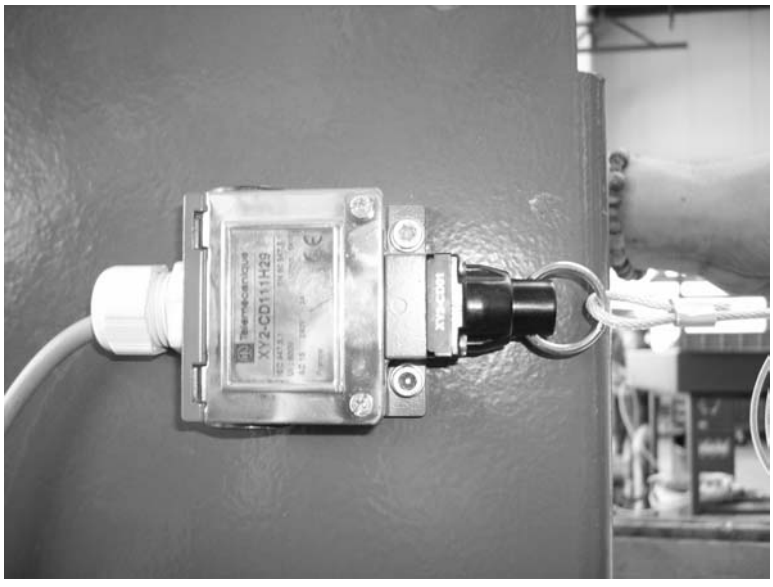




2.9 Adjusting and Checking the Collision Prevention Switch

1 Tension the cutoff cable and adjust it in such a way that the pull switch is actuated once the cable is contacted.

2 Perform an operational check. If required, adjust the cutoff cable.



2.10 Checking the Motor Rotation

When checking the motor rotation, press the RAISE button only briefly. Prolonged operation with wrong phase sequence could result in damage to the power unit.

When commissioning the lift check the motor for correct phase sequence.

1 At completion of lift installation turn on the main switch.

2 Briefly press the "Raise" button.

⇒ The lift raises.

3 If the lift does not raise, rectify the phase sequence by interchanging two phases.

2.11 Bleeding the Hydraulic System

Do not bleed the hydraulic system when under load.

Do not completely remove the bleeding screws.

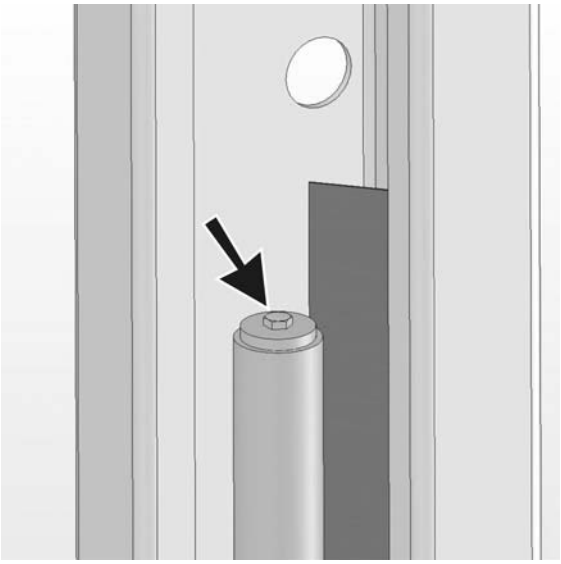
1 Position the lift at a height of 200 mm.

⇒ The hydraulic cylinders are located inside the carriages.

2 Open the bleeding screw on both cylinders.

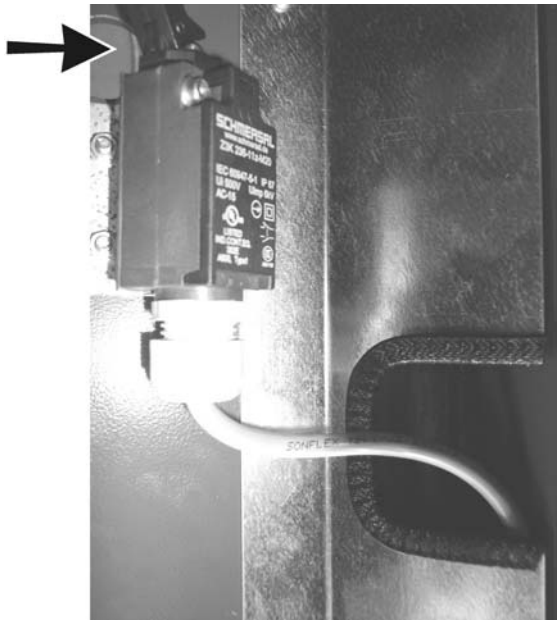
⇒ The carriages are lowered by the lift's own weight.

3 Once fluid comes out without bubbles, close the bleeding screws.



After bleeding the hydraulic system check the fluid level inside the hydraulic unit.

2.12 Adjusting and Checking the Pinch Point Protection

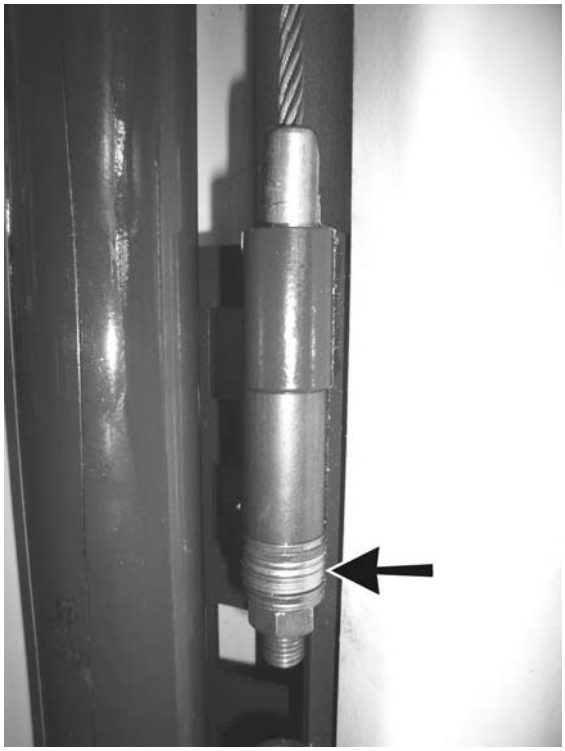


1 Adjust the pinch point protection in such a way that the proximity switch is actuated when the carriage is lowering.

2 Perform an operational check with loaded and unloaded lift.

2.13 Adjusting the Equalizing Cables

When adjusting the equalizing cables be sure the carriages are in their upper end position.



1 Raise the carriages to their upper end position.

2 Tension and adjust the equalizing cables. If required, use shim rings between cable sleeve and fastening nut.

3 Supplementary Information

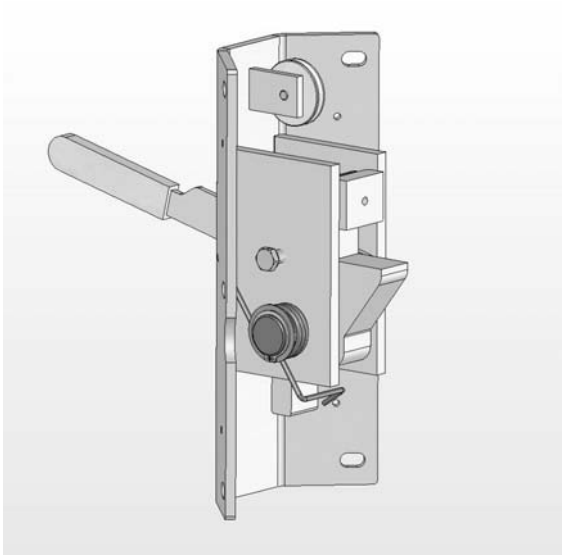
3.1 Manual Lowering

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

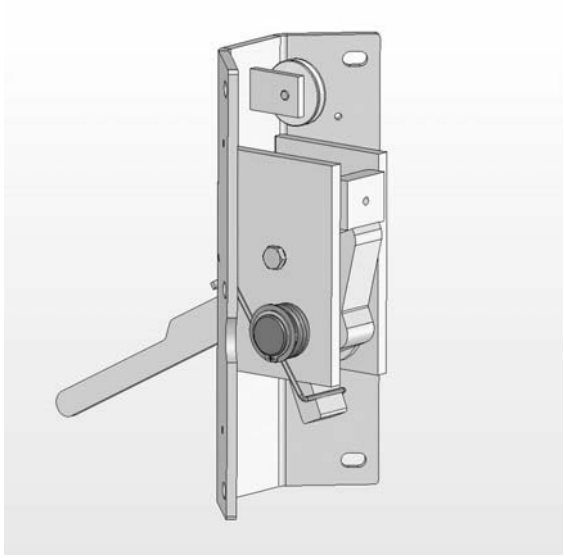
Authorized personnel only! Do not restart the lift before the error has been remedied.

If the lift load lies fully on the safety latches, manual lowering is not possible.

Latch in engaged position



Latch in disengaged position



1 Push the handle of the safety latch at one column.

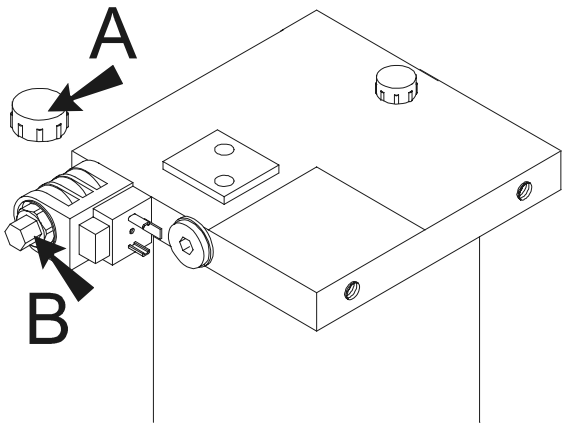
⇒ The latch at the other column is released automatically.

2 Remove the protective cap (A) from the solenoid valve at the power unit.

3 Cautiously open the manual lowering screw (B), until the lift begins to lower slowly.

4 Once lift is in bottom position, close the lowering screw finger tight and reinstall the protective cap to the solenoid valve.

5 Swing arms to full drive-through position and drive the vehicle off the lift.



3.2 Maintenance Schedule

Turn off and lock the main switch before servicing the lift.

Interval	Maintenance to be performed on	Items
1 week	Support arms / Disk adapters	◆ Check rubber pads for wear. ◆ Check arm restraints for engagement.
6 months	Greasing points	◆ Check and lubricate as required: − Slide tracks − Arm extensions − Threads of disk adapters
	Nuts of anchor bolts	◆ Check all nuts for correct torque and retighten them as required.
12 months	Hydraulic system	◆ Check fluid level. ◆ Check tightness of hoses and fittings.

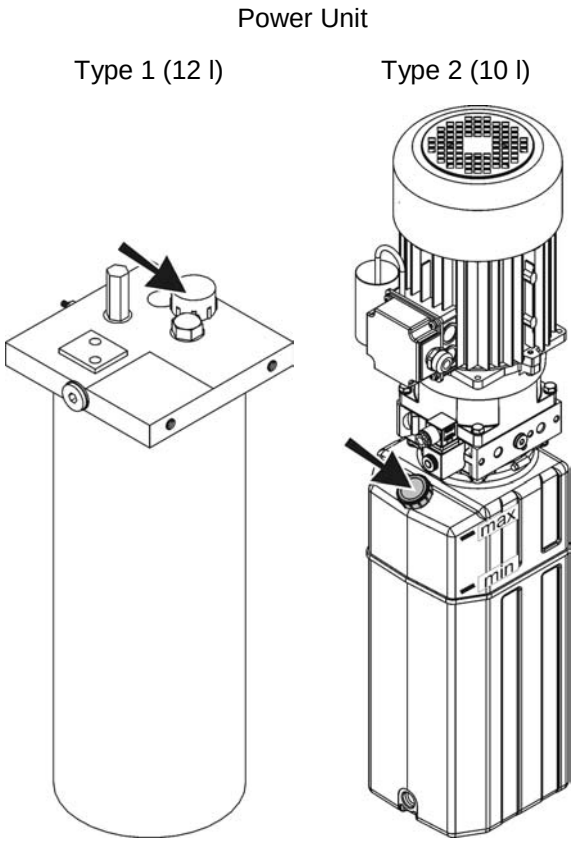
3.2.1 Hydraulic System

1 Once a year check the fluid level (see below) with the lift fully lowered and add fluid as required.

⇒ Reservoir capacity is 12 l (type 1) or 10 l (type 2).

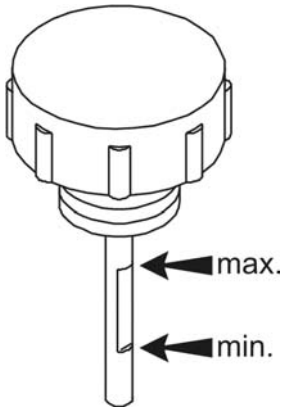
2 Add fluid through the filler neck (arrow). Use fluid that meets HLPD 32 specifications (MAHA part # 999005).

3 Visually check all hydraulic hoses for tightness.



Periodically replace hydraulic fluid depending on aging, soiling and water absorption.

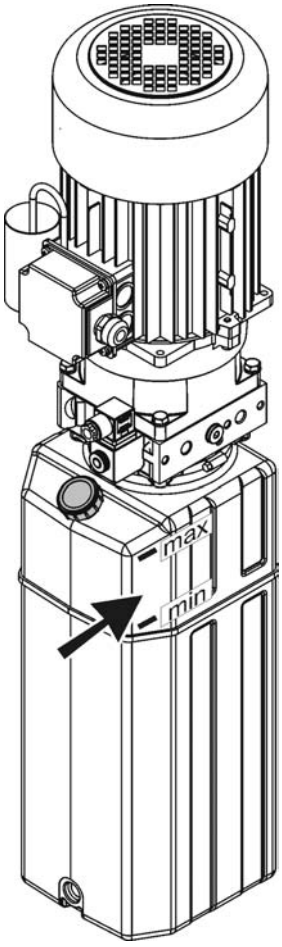
Checking the Fluid Level with Power Unit Type 1



The filler cap is provided with a dipstick.

The permissible minimum and maximum fluid levels are indicated by the reference mark. Add fluid once the level falls below the bottom-level mark.

Checking the Fluid Level with Power Unit Type 2



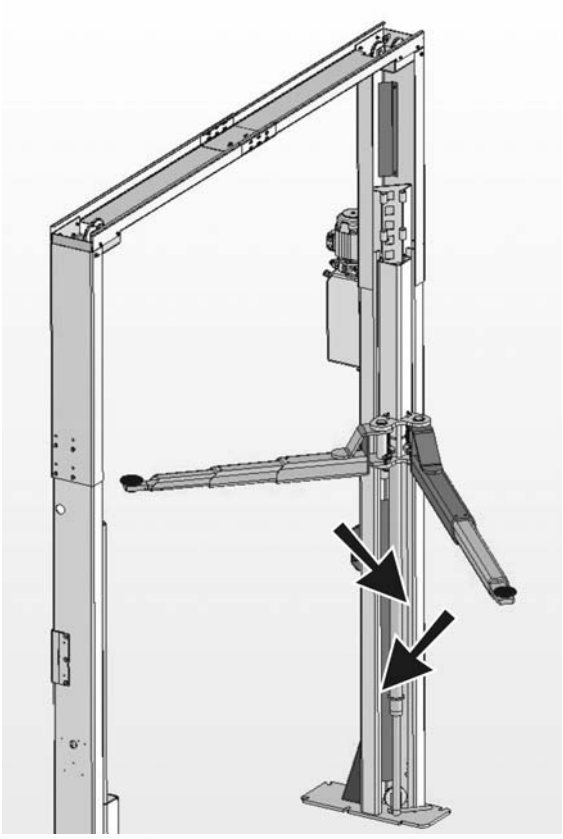
The fluid level can be read through the transparent reservoir at the power unit.
With the lift fully lowered, the fluid level must reach the top-level mark of the reservoir.

3.2.2 Greasing Points

Slide Tracks

The slide tracks inside the columns should be greased every six months (or more frequently in case of noise generation).

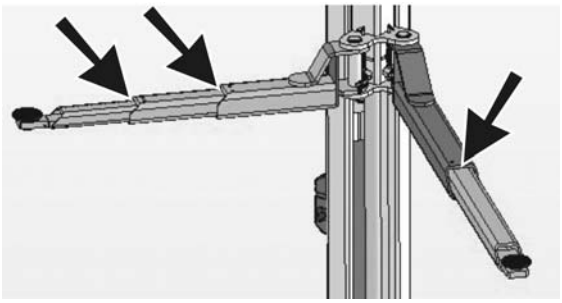
1 Slightly grease the slide tracks over their whole length using a brush.



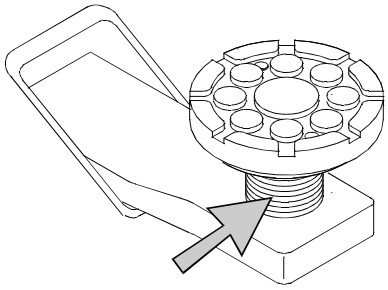
Arm Extensions

1 Every six months check the support arm extensions for smooth operation.

2 Grease as required.



Threads of Disk Adapters

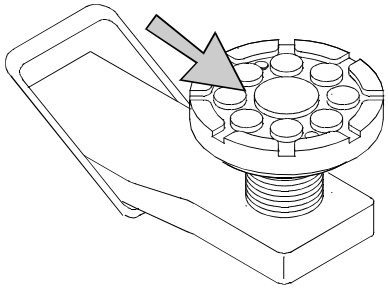


1 Every six months check the threads of the disk adapters for smooth operation.

2 Grease as required.

3.2.3 Operational and Wear Checks

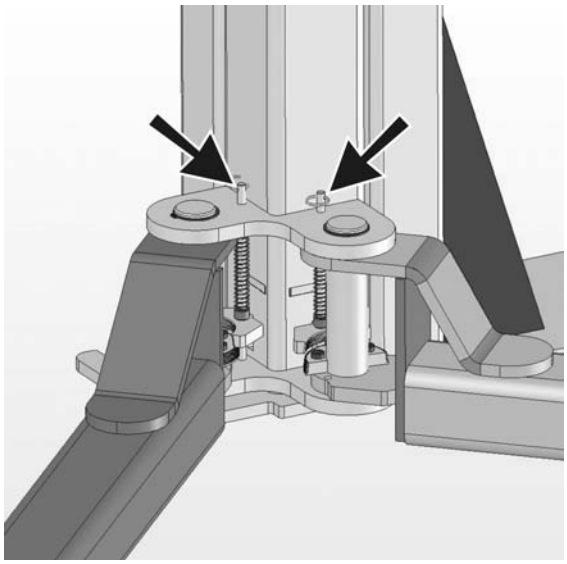
Rubber Pads of Disk Adapters



1 Weekly check the rubber pads for wear.

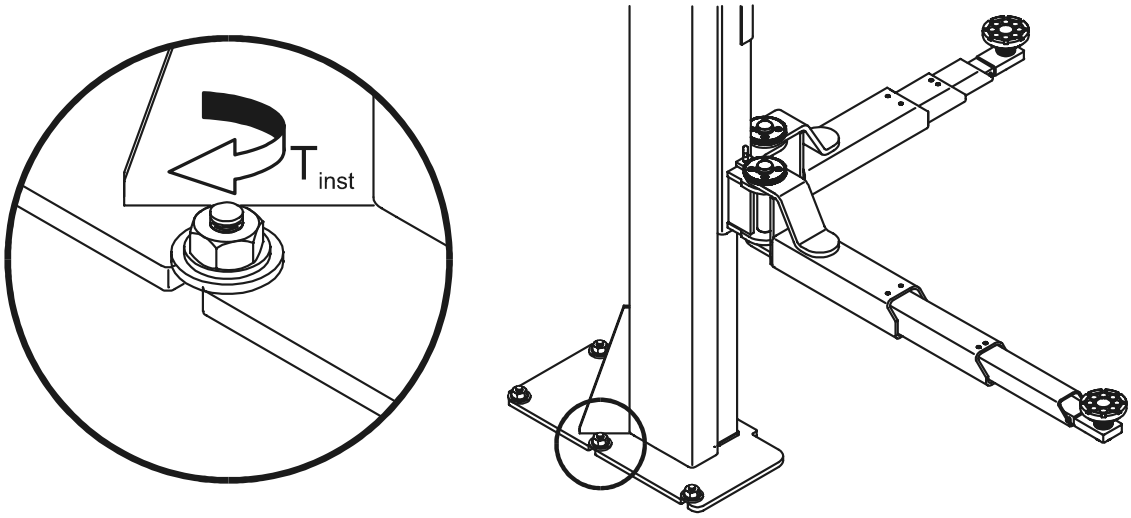
2 Replace them as required.

Arm Restraints



1 Weekly check the arm restraints for secure engagement.

3.2.4 Stability



1 Every six months check the nuts of all anchor bolts for correct installation torque T_{inst}.

2 Retighten them as required.

Lift Version	Installation Torque $\mathbf{T}_{inst}$
HL 4.0 A	80 Nm