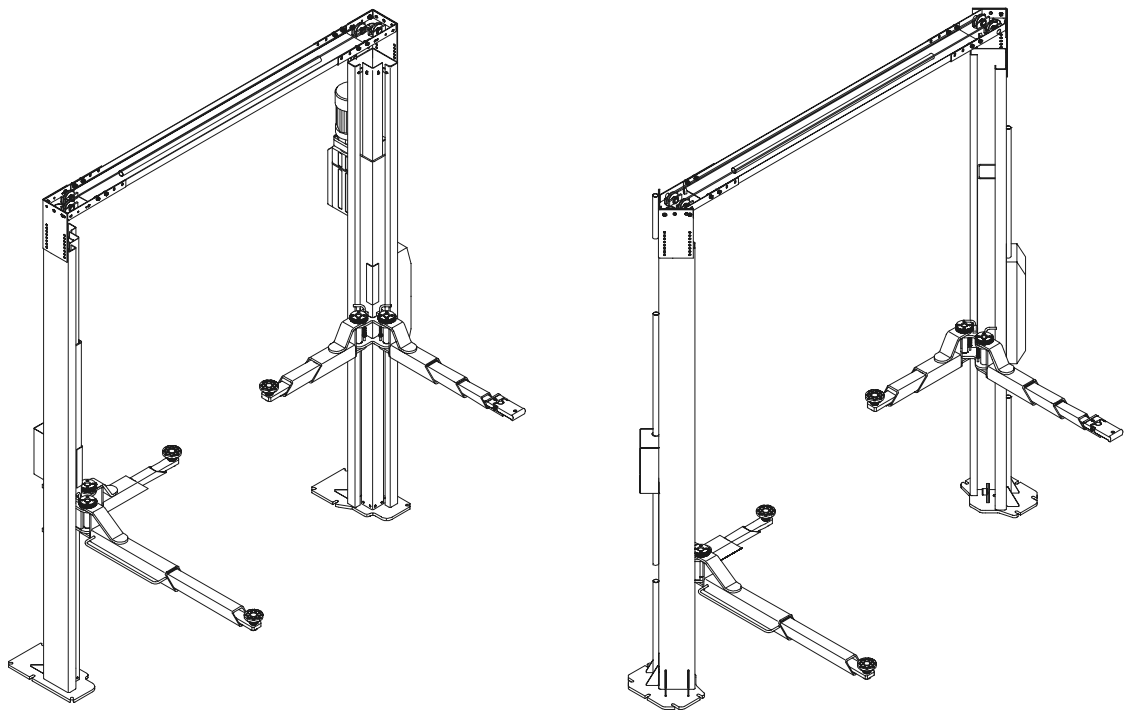


Two Post Lift

HL 9000 A / HL 9000 S

for vehicles up to 4,000 kg gross weight



Operation Manual

English

EDITION

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D1 3615BA1-GB03

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The contents of this edition have been checked with great care. However, errors cannot be fully excluded. Please contact MAHA should you find errors of any kind.

These instructions are intended for users with previous knowledge in the field of automotive vehicle service lifts.

Subject to technical change without notice.

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1 Description

1.1 Standard Delivery

1.1.1 HL 9000 A

- ◆ 2 columns including control unit
- ◆ Overhead crossbeam
- ◆ 2 long and 2 short, telescopic support arms
- ◆ Operation manual

1.1.2 HL 9000 S

- ◆ 2 columns including control unit
- ◆ Overhead crossbeam
- ◆ 4 long, telescopic support arms
- ◆ Operation manual

1.2 Options and Accessories

- ◆ Short support arms, double telescopic, for HL 9000 A
- ◆ Increased lifting height, 2020 mm max. (column extension required)
- ◆ Column extension, up to 4080 mm, 4480 mm or 4680 mm overall height

1.3 Noise Emission

The sound pressure level caused by the lift is lower than 70 dB(A) in the range of the operator.

1.4 Installation Requirements

Lift installation by qualified service personnel only. See Technical Handbook.



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

1.4.1 Location

Do not use the lift in the vicinity of explosives or open containers of flammable liquids. An appropriate splash protection is necessary for superstructure and electrical equipment of lifts installed in a carwash or other moist rooms.



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 MAHA recommendations. Minimum concrete thickness: 175 mm reinforced.



Always use the latest foundation plans available through MAHA.



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

1.4.3 Power and Air Supply

1.4.3.1 Three Phase Motor

3~ + N + PE 400 V, 50 Hz. 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 9000 A	2.2	16	14.6
HL 9000 S	2.2	16	14.6

1.4.3.2 Compressed Air

Use hose diameter, delivery rate and working pressure appropriate for lift model.

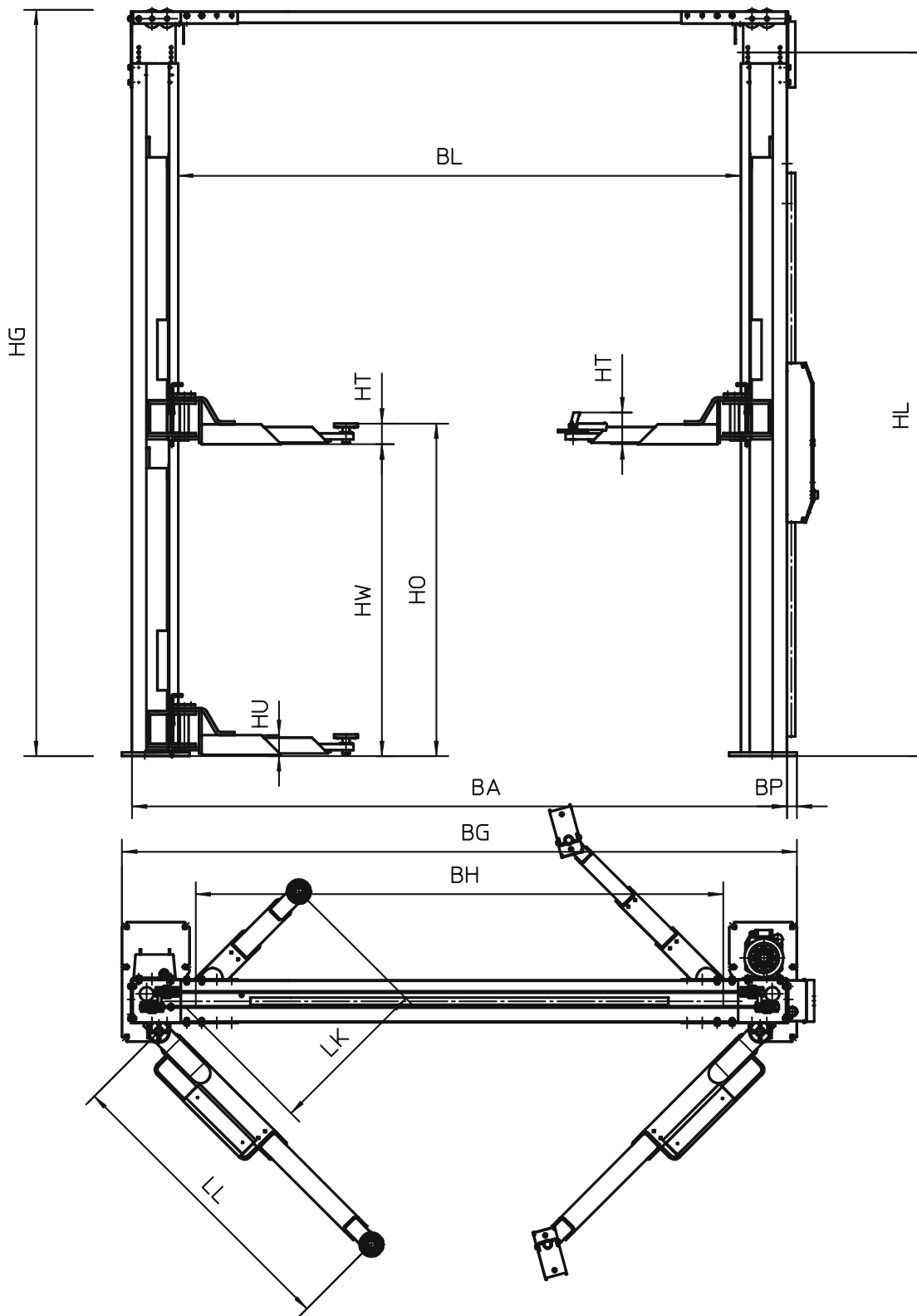
1.5 Specifications

See following pages.



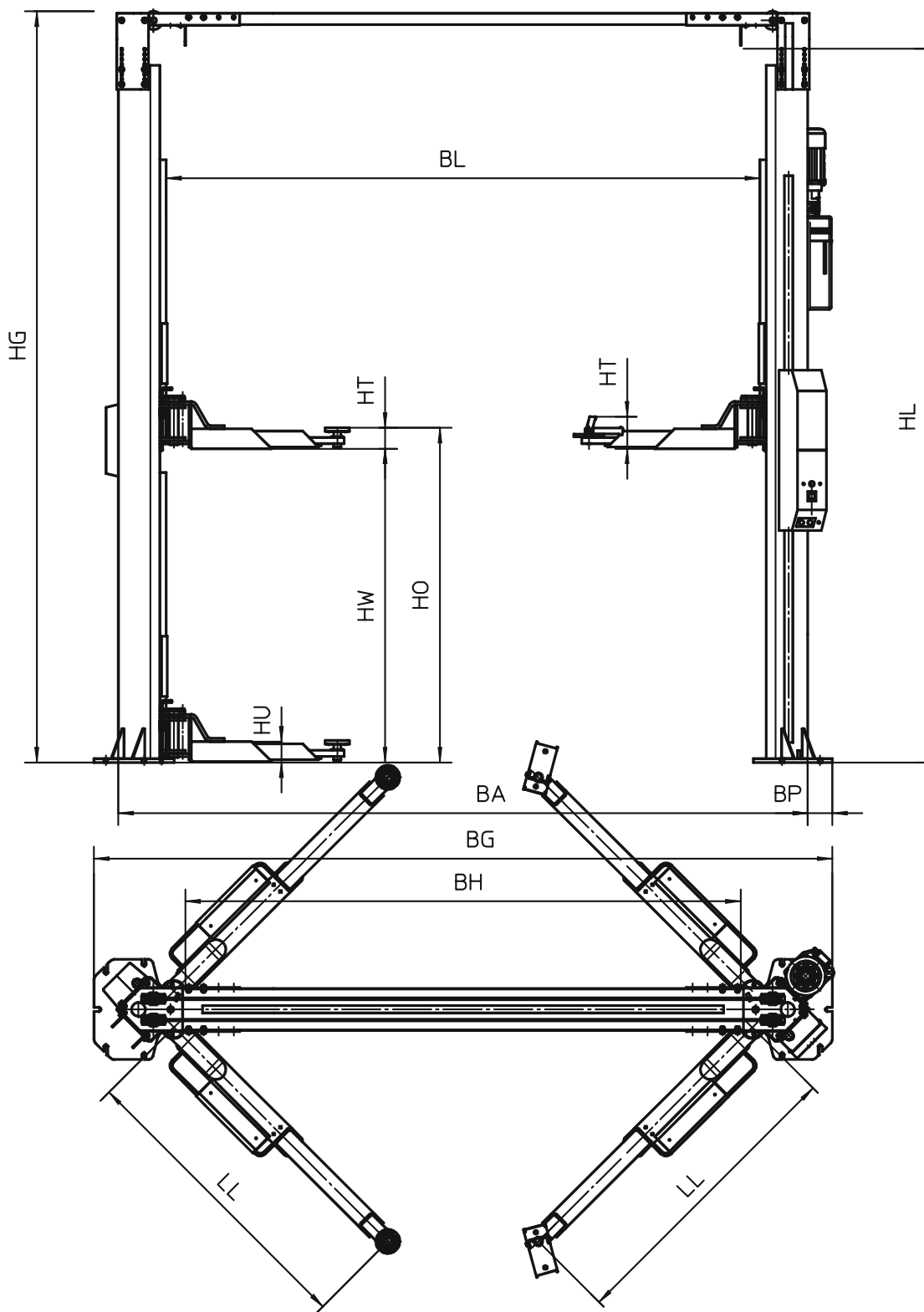
Specifications are subject to change without notice.

1.5.1 HL 9000 A



	HL 9000 A			
Height overall HG	3650...3750 mm	4050...4150 mm	4180...4280 mm	4580...4680 mm
Overhead clearance HL	3460...3560 mm	3860...3960 mm	3990...4090 mm	4390...4490 mm
Full travel (Stroke) HW	1700 mm	1700 / 1900 mm		
Lifting height max. HO	1920 mm	1920 / 2120 mm		
Raising / Lowering time	32 s	32 s / 35 s		
Lifting height min. HU	105 mm			
Adjustment range, disk HT	85...110 mm			
Adjustment range, flip-up HT	150 / 220 mm			
Arm reach LK	570...815 mm / 590...1181 mm			
Arm reach LL	927...1510 mm			
Inside columns BL	2530 / 2680 / 2830 mm			
Outside columns BA	2995 / 3145 / 3295 mm			
Baseplate projection BP	50 mm			
Outside baseplates BG	3100 / 3250 / 3400 mm			
Drive-thru width max. BH	2350 / 2500 / 2650 mm			
Rated load capacity	4000 kg			
Shipping weight	approx. 900 kg			
Anchoring	10 heavy-duty anchors MKT VA M16 or UPAT-UKA 3 M16			
Motor power	2.2 KW, 50 Hz			
Supply voltage	3~ 400 V + N + PE			
Fuse	16 A delay			
Reservoir capacity	approx. 12 l			

1.5.2 HL 9000 S



	HL 9000 S			
Height overall HG	3650...3750 mm	4050...4150 mm	4180...4280 mm	4580...4680 mm
Overhead clearance HL	3460...3560 mm	3860...3960 mm	3990...4090 mm	4390...4490 mm
Full travel (Stroke) HW	1700 mm	1700 / 1900 mm		
Lifting height max. HO	1920 mm	1920 / 2120 mm		
Raising / Lowering time	32 s	32 s / 35 s		
Lifting height min. HU	105 mm			
Adjustment range, disk HT	85...110 mm			
Adjustment range, flip-up HT	150 / 220 mm			
Arm reach LL	927...1510 mm			
Inside columns BL	2660 / 2810 / 2960 mm			
Outside columns BA	3140 / 3290 / 3440 mm			
Baseplate projection BP	123 mm			
Outside baseplates BG	3385 / 3535 / 3685 mm			
Drive-thru width max. BH	2470 / 2620 / 2770 mm			
Rated load capacity	4000 kg			
Shipping weight	approx. 900 kg			
Anchoring	10 heavy-duty anchors MKT VA M16 or UPAT-UKA 3 M16			
Motor power	2.2 KW, 50 Hz			
Supply voltage	3~ 400 V + N + PE			
Fuse	16 A delay			
Reservoir capacity	approx. 12 l			

2 Safety

Thoroughly read the operation manual before operating the lift 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 instructions are not covered by the product liability regulations.



Failure to comply with instructions could result in personal injury.



Failure to comply with instructions could result in property damage.



Important information.

Carefully observe all safety instructions. They are provided to warn of dangers and help prevent personal injury and property damage.

It is the operator's responsibility to comply with all accident prevention regulations pertaining to his work station.

2.1 Safety Instructions for Commissioning

- ♦ The lift may only be commissioned by authorized service personnel.
- ♦ The standard lift version may not be installed in hazardous locations or in the vicinity of flammable liquids. Lifts with explosion protection are available on request.

2.2 Safety Instructions for Operation

- ♦ Lift operation by trained personnel over 18 years only.
- ♦ Always keep the lift and lift area clean and free of tools, parts, debris etc.
- ♦ Once the adapters contact the lift points, check the arm restraints for engagement.
- ♦ After raising the vehicle briefly, stop and check the adapters for secure contact.
- ♦ Closely watch the vehicle and the lift during raising and lowering cycles.
- ♦ Make sure the vehicle doors are closed during raising and lowering cycles.
- ♦ Do not allow anyone to stay in lift area during raising and lowering cycles.
- ♦ Do not allow anyone on lift or inside raised vehicle.
- ♦ Only use the lift for its intended purpose.
- ♦ Do not overload the lift. The rated load capacity is indicated on the lift nameplate.
- ♦ Only use the vehicle manufacturer's recommended lift points.
- ♦ After positioning the vehicle apply the parking brake.
- ♦ The main switch serves as emergency switch. In case of emergency turn to position 0.
- ♦ Protect all parts of the electrical equipment from humidity and moisture.
- ♦ Protect the lift against unauthorized usage by padlocking the main switch.
- ♦ Provide adequate ventilation when working on operating internal combustion engines.

2.3 Safety Instructions for Service Work

- ♦ Servicing of lift by authorized personnel only.
- ♦ Turn off and padlock the main switch before servicing the lift.
- ♦ Work on pulse generators or proximity switches by trained personnel only.
- ♦ Work on the electrical equipment by certified electricians only.
- ♦ Ensure that ecologically harmful substances are disposed of only in accordance with the appropriate regulations.

2.4 Further Information

- ♦ Take precautions against soil contamination by hydraulic fluid.
- ♦ The use of high pressure or steam jet cleaners could result in equipment damage.
- ♦ The use of cleansing agents which attack coatings or sealing materials could result in equipment damage.

2.5 Safety Features

2.5.1 Deadman's Type Controls

The operator is required to hold the controls in the engaged position to raise or lower the lift.

2.5.2 Equalizing Cables

The synchronization system ensures level movement of both carriages.

2.5.3 Light Barrier

To prevent the vehicle from contacting the overhead assembly.

2.5.4 Locking Latches

To prevent uncontrolled lowering of lift in case of hydraulic system leakage or failure.

2.5.5 Pinch Point Protection

The swing arms are equipped with protection bars.

2.5.6 Automatic Arm Restraint

To prevent swinging motions of arms when vehicle is on lift.

2.5.7 Pipe Break Valves

Pipe break valves at the hydraulic cylinders prevent sudden lowering movements in case of rapid pressure drop due to line break.

2.5.8 Pressure Control Valve

To limit the hydraulic working pressure to 180 bar max.

3 Operation



Lift operation by trained personnel over 18 years only.



Apply the parking brake after positioning vehicle on lift.



Do not allow anyone to stay in lift area during raising and lowering cycles.



Closely watch the vehicle and the lift during raising and lowering cycles.



Make sure the vehicle doors are closed during raising and lowering cycles.



Observe the rated load capacity.



Do not allow anyone to climb on lift or raised vehicle.



After raising the vehicle briefly, stop and check adapters for secure contact at vehicle manufacturer's recommended lift points.



Once the disk adapters contact the lift points, check arm restraints for engagement.

3.1 Defects / Malfunctions



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 padlock the main switch. Contact qualified service personnel.

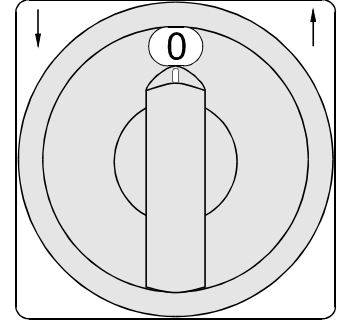
3.2 Controls

3.2.1 Main Switch

To raise the lift turn and hold the switch to the right side.

To lower the lift turn and hold the switch to the left side.

Release the switch to disconnect the lift (Position 0).
In this position the main switch can be padlocked to protect it against unauthorized usage.



The main switch serves as emergency switch. In case of emergency turn it to position 0.

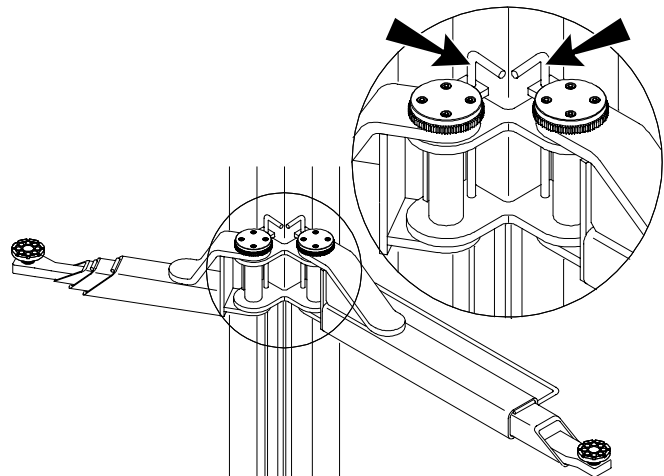
3.2.2 Arm Restraint



Never unlatch the arm restraint while the lift is loaded.

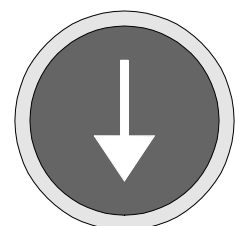
Arm restraint is released automatically once lift reaches bottom position.

Pull release pin (see arrows) to disengage restraint while arms are in a raised position.



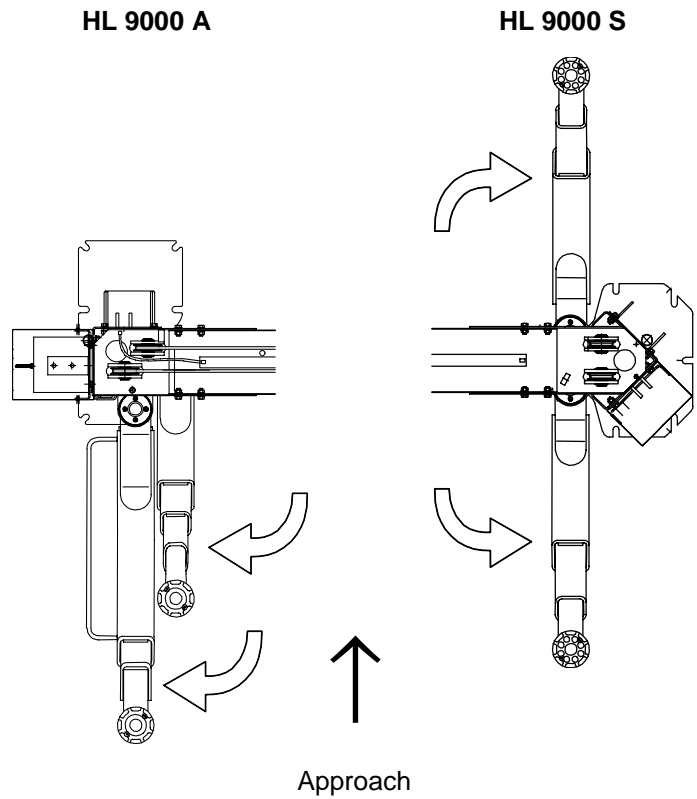
3.2.3 Locking Button

Press this button to set the lift on the mechanical locks.



3.3 Preparations

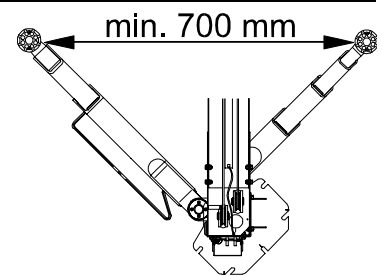
- ◆ Fully lower lift and swing arms to full drive-thru position.



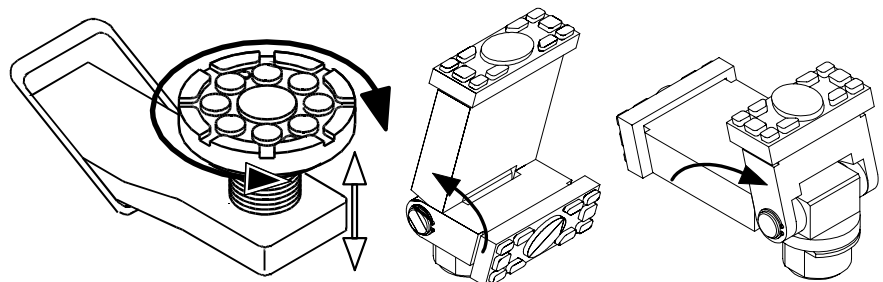
- ◆ Slowly position vehicle midway between adapters. Make sure approximate center of gravity is on center line of lift. Apply the parking brake.
- ◆ Swing and telescope arms as required to position adapters under vehicle manufacturer's recommended lift points.



Allow for a minimum distance of 700 mm between adapters.



- ◆ The disk and flip-up adapters are height-adjustable. Make sure they evenly engage the vehicle frame.





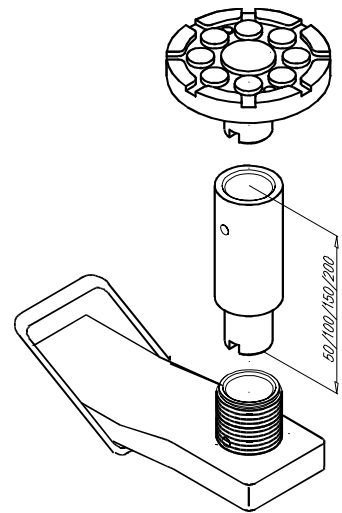
ALWAYS use all four swing arms to lift the vehicle.

- ◆ Leave vehicle and remain clear of lift.

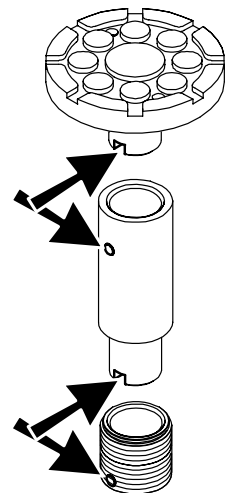
3.3.1 Extenders

The height of the disk adapters can be increased by means of extenders. For fine adjustment turn the disk adapters as required.

The extenders are optionally available in heights of 50, 100, 150 and 200 mm.



Make sure the locking mechanism snaps into place.



Use ONE extender only for each disk adapter.

3.4 Raising



**Closely watch the vehicle and the lift during raising and lowering cycles.
Do not allow anyone to stay in lift area.
Make sure the vehicle doors are closed during raising and lowering cycles.**

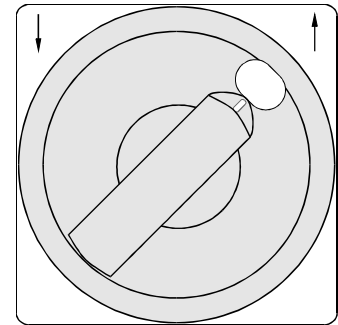


Once the disk adapters contact the lift points, check arm restraints for engagement.

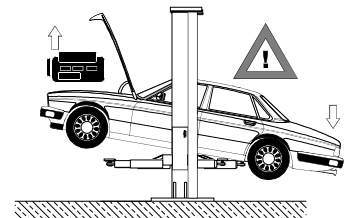


After raising the vehicle briefly, stop and check adapters for secure contact at vehicle manufacturer's recommended lift points.

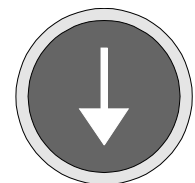
To raise the lift turn and hold the switch to the right side.
Lift stops once switch is released or upward travel limit is reached.



- ◆ Observe all accident prevention regulations.
- ◆ Do not allow unauthorized persons to stay under the raised vehicle.
- ◆ Avoid rocking of vehicle.
- ◆ Keep lift free of tools, parts, etc.
- ◆ Fasten the vehicle using safety straps when removing or installing heavy components.



Press this button to set the lift on the mechanical locks.



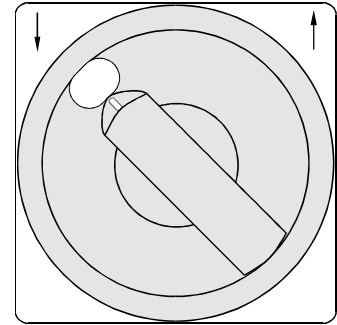
3.5 Lowering



**Closely watch the vehicle and the lift during raising and lowering cycles.
Do not allow anyone to stay in lift area.
Make sure the vehicle doors are closed during raising and lowering cycles.**

Remove tools, stands or other objects from lift bay.

To lower the lift turn and hold the switch to the left side.
Lift stops once switch is released or upward travel limit is reached.
Swing arms to full drive-thru position and remove vehicle.



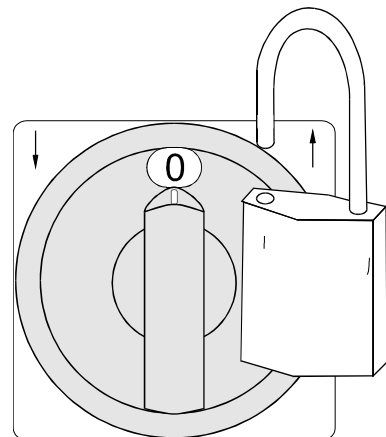
To disengage the locking latches briefly raise the lift.



Fully lower the lift before removing the vehicle.

3.6 Switch Protection

The switch can be padlocked to protect it against unauthorized usage.



3.7 Bleeding

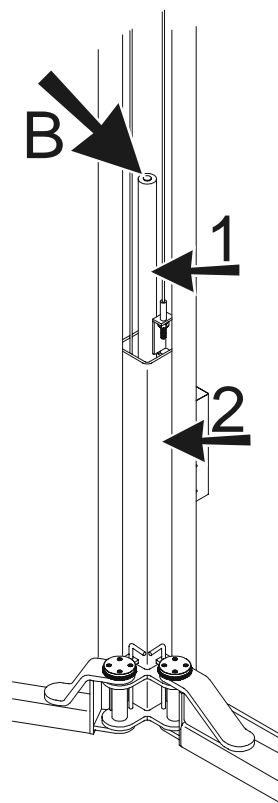


Never bleed the hydraulic system while the lift is loaded.



Do not completely remove the bleeder screws.

- ◆ Fully lower the lift.
- ◆ Remove the column covers to make the cylinders (1) inside the carriages (2) accessible.
- ◆ Open the bleeder screws (B).
- ◆ Raise the lift until fluid streams without bubbles.
- ◆ Close the bleeder screws and reinstall the column covers.



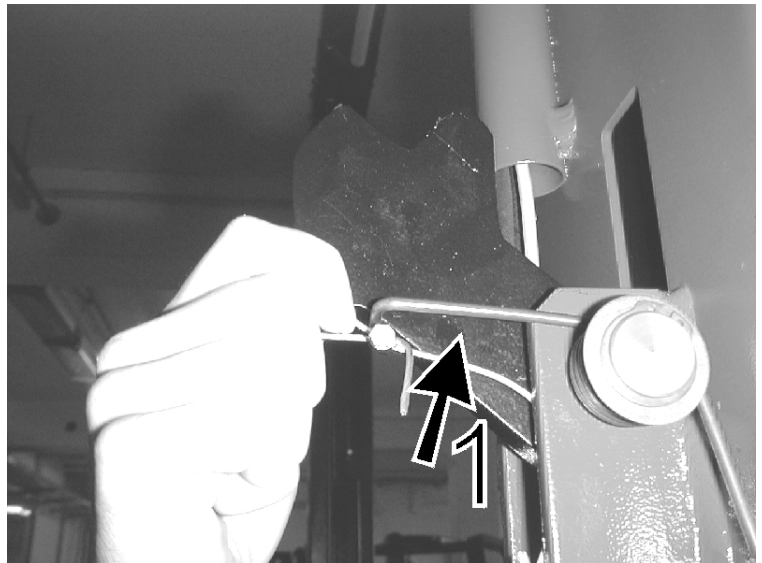
After bleeding the system check the fluid level!

3.8 Manual Lowering



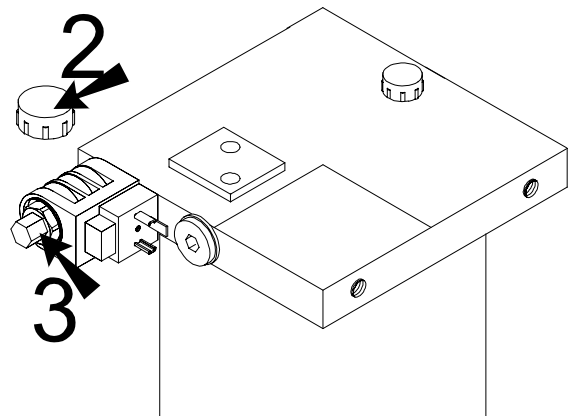
Authorized personnel only! Do not restart the lift before the error has been remedied!

- ◆ Remove power unit cover and latch cover from slave column.



- ◆ Hold latches (1) at both columns in disengaged position until lift is in bottom position.

- ◆ Remove protection cap (2) from solenoid valve at power unit.
- ◆ Cautiously open lowering screw (3) until lift begins to lower.



- ◆ After fully lowering the lift, close the lowering screw finger tight and reinstall the protection cap to the solenoid valve.
- ◆ Swing arms to full drive-thru position and remove vehicle.

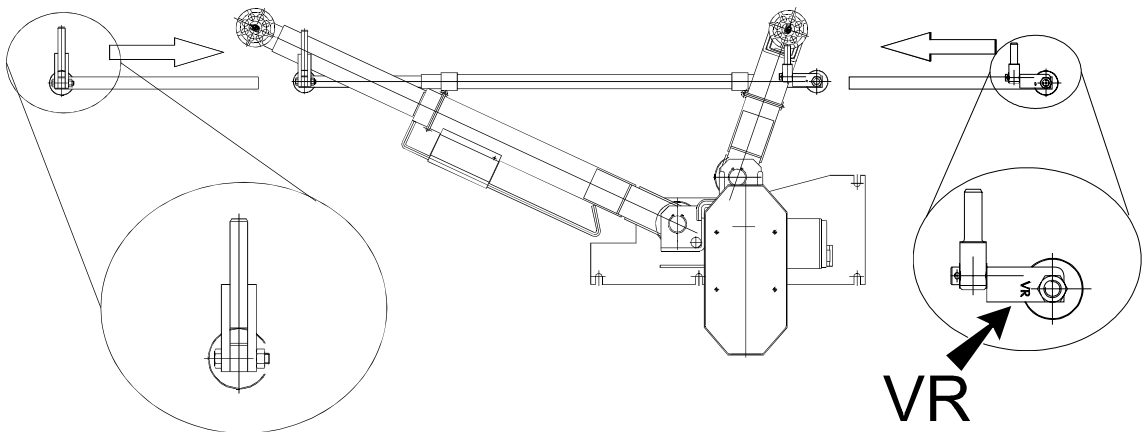
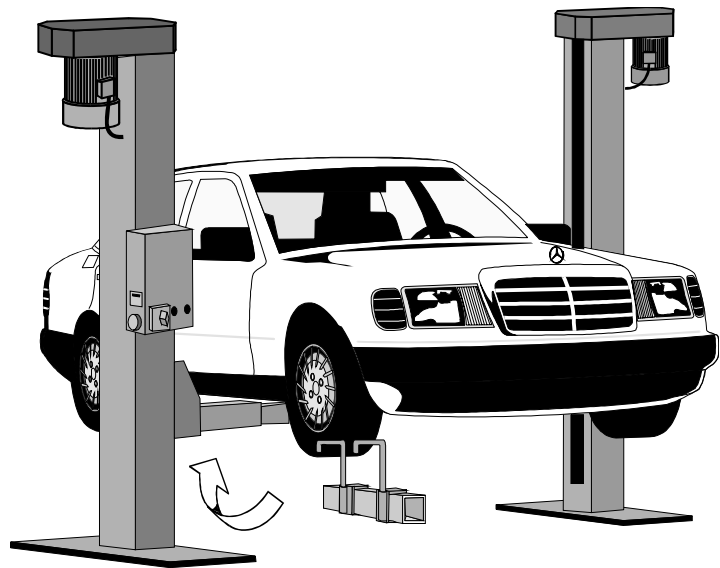
3.9 Securing the Vehicle



Always use fastening straps when removing or installing heavy components such as engine, transmission or axles.

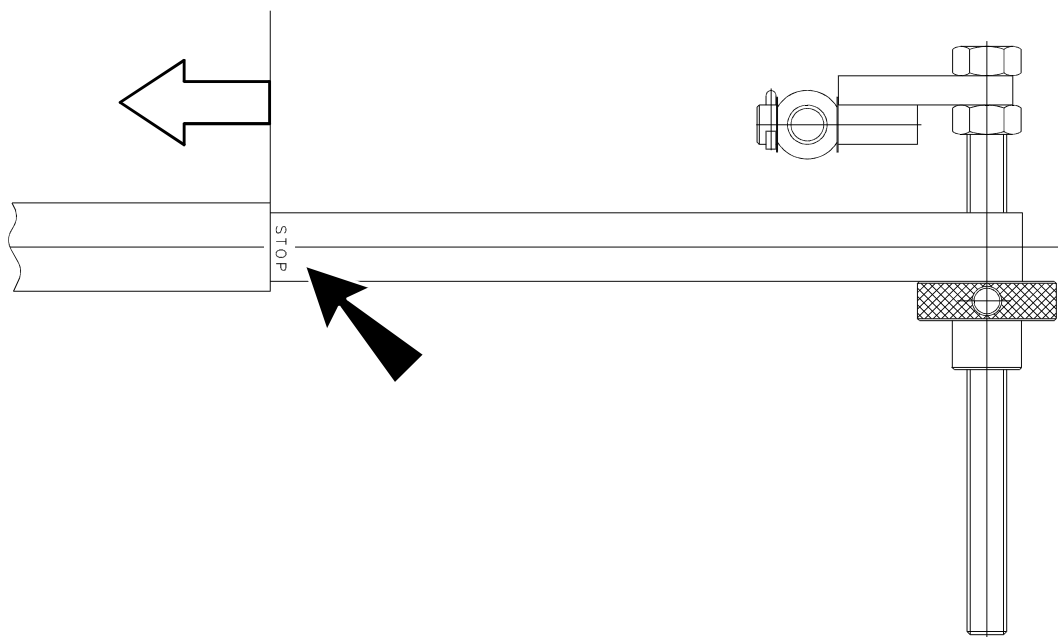
3.9.1 Safety Adapters for Mercedes-Benz Passenger Cars

Raise the lift to a convenient height (approx. midpoint of travel). Then attach adapters to swing arms as shown opposite.

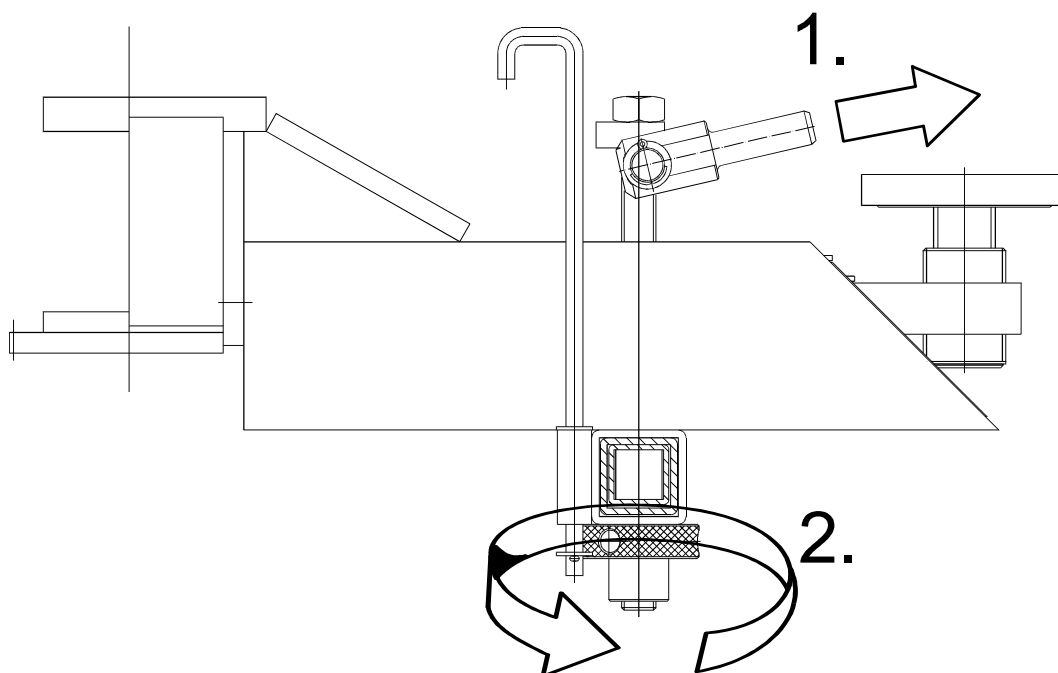


Insert extensions into tube. The right front extension is marked VR, the left front extension correspondingly VL. The rear extensions are identical and unmarked.

Then insert arbors into lateral recesses of car.



Insert extensions to STOP mark at least. Adjust tube if required.



Insert arbors (1) into lateral recesses of car and tighten knurled nuts (2).

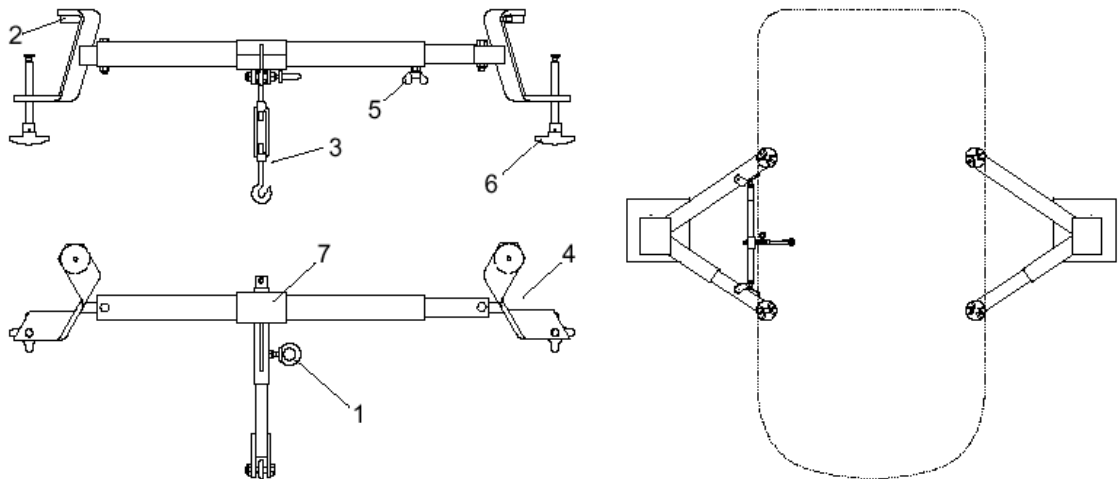


Check the safety adapters for tight fit after each raising or lowering cycle.

3.9.2 Safety System for Mercedes-Benz A-Class Passenger Cars



Suitable only for Mercedes-Benz A-class passenger cars.



Installation:

- ◆ Remove the fixing lug (1) from the safety system and screw it into thread provided on vehicle.
- ◆ Position rubber pads (2) on lift arms.
- ◆ Hook the turnbuckle (3) into the fixing lug (1) on the vehicle.
- ◆ Extend the safety system and fasten the clamping devices (4) to both lift arms.
- ◆ Tighten the fastening screw (5).
- ◆ Tighten both threaded spindles (6) finger tight.
- ◆ Adjust the slider (7) at right angles to the turnbuckle.
- ◆ Tighten the turnbuckle (3).
- ◆ Check the complete safety system for tightness.

Removal:

- ◆ Remove the safety system in reverse installation order (see above).
- ◆ Be sure to remove the fixing lug from the vehicle and reinstall it to the safety system.

4 Maintenance



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

4.1 Maintenance by the Operator

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

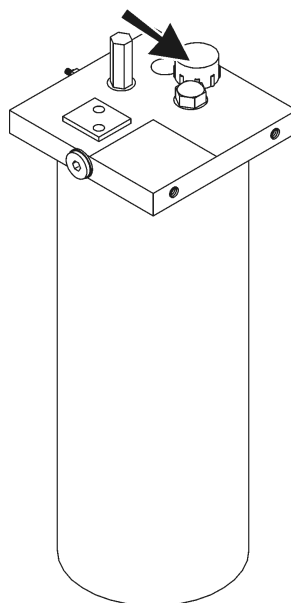
4.1.1 Hydraulic System

Once a year check the fluid level and add fluid as required. Make sure the lift is fully lowered.
Use fluid that meets HLPD 32 specifications (MAHA part # 999005).

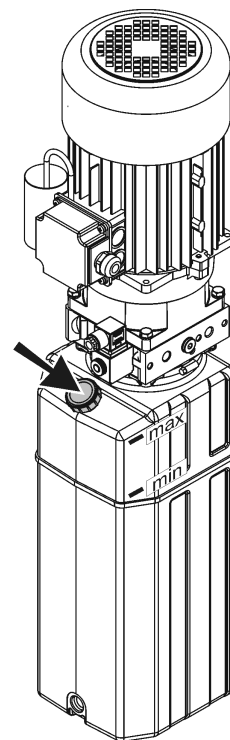
Reservoir capacity is approx. 12 l.

Also check the hydraulic system for leakage.

Power unit type 1



Power unit type 2

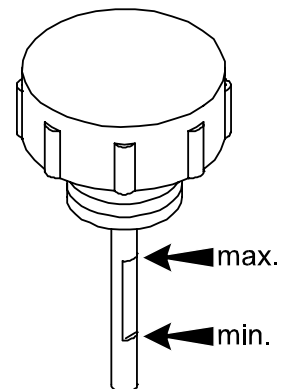


Replace

- ◆ fluid periodically, depending on aging, soiling and water absorption characteristics.
- ◆ hoses every six years unless earlier replacement is indicated by service inspection.

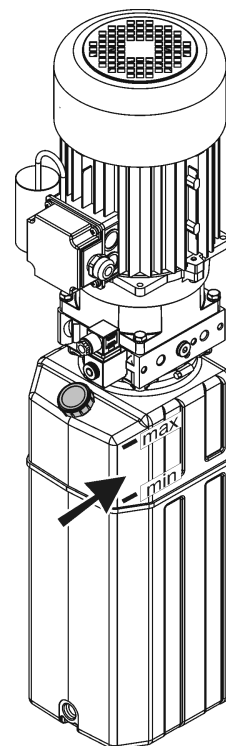
4.1.1.1 Fluid Level Check with Power Unit Type 1

Remove the filler screw including dipstick.
Fluid level should be between top- and bottom-level marks.



4.1.1.2 Fluid Level Check with Power Unit Type 2

Check the fluid level through the transparent reservoir.
Fluid level should reach top-level mark when lift is in bottom position.



4.1.2 Greasing Points

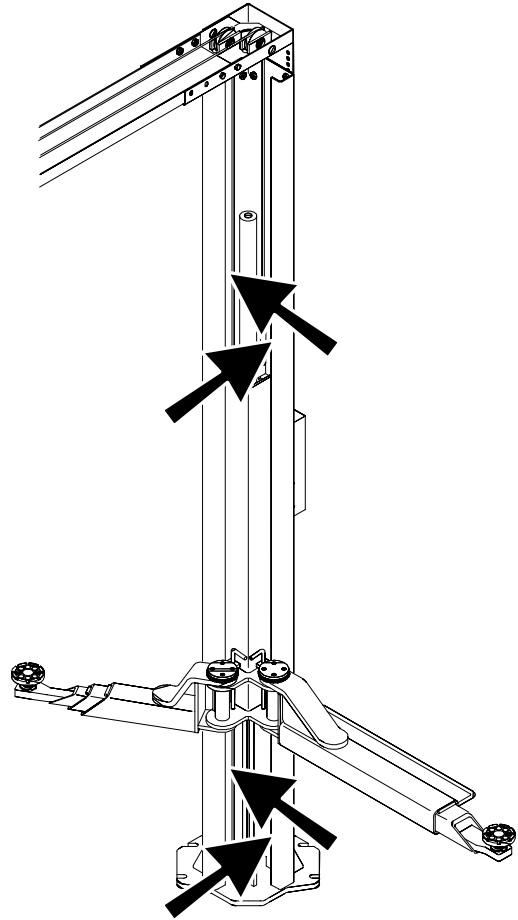


Use commercial multipurpose grease.

4.1.2.1 Slide Tracks

Grease the slide tracks as required.

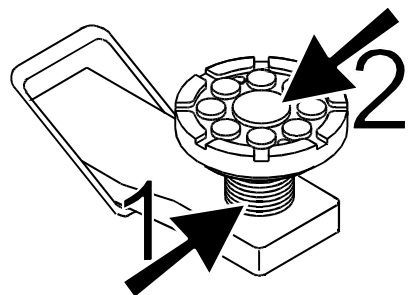
- ◆ Remove the column covers.
- ◆ Slightly grease the tracks using a brush.
- ◆ Reinstall the covers.



4.1.2.2 Disk Adapters

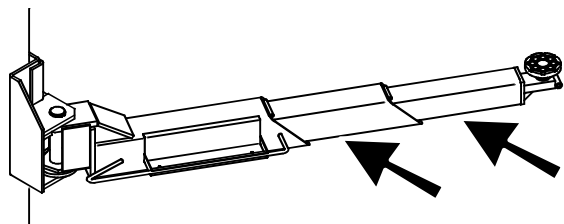
Periodically grease the threads (1) of the disk adapters.

Periodically check the rubber pads (2) for wear and replace them as required.



4.1.2.3 Swing Arms

Periodically grease the arm extensions.



4.1.3 Cleaning



Caustic cleansing agents, 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.

Periodically treat the lift with oil or wax spray. Repair damage to the paintwork immediately to prevent corrosion. The RAL number is available through MAHA.

4.2 Annual Inspection

Once a year have your lift inspected by qualified service personnel.

4.3 Troubleshooting

Trouble		
	Possible Cause	Remedy
Lift does not respond.		
	Main switch off.	Turn on main switch.
	Power fuse defective.	Replace fuse.
	Light barrier defective.	Contact MAHA service.
Motor running, but pressure build-up insufficient to raise load.		
	Lowering screw open.	Close screw.
	Lowering valve open.	Contact MAHA service.
	Hydraulic system leakage.	Remove leakage.
	Low fluid level.	Check fluid level, refill as required.
	Vehicle too heavy.	Reduce load.
Level difference between carriages too big.		
	Equalizing cables maladjusted.	Contact MAHA service.
Lift cannot be lowered.		
	Fuse of solenoids defective.	Replace fuse.



**Konformitätserklärung
Declaration of Conformity**
Nr. 463102DG



Hiermit erklärt **MAHA Maschinenbau Haldenwang GmbH & Co. KG.** als Hersteller, in alleiniger Verantwortung, dass nachstehend bezeichnete Maschine in Konzeption und Bauart den grundlegenden Sicherheits- und Gesundheitsanforderungen den hier genannten EG-Richtlinien entspricht.

Bei Änderungen an der Maschine, die nicht mit uns abgestimmt und genehmigt wurde, verliert diese Erklärung ihre Gültigkeit.

Sämtliche von oben genannter Firma produzierten Maschinen gleichen Typs entsprechen dem geprüften Baumuster. Die Baumusterprüfung erfolgte durch die unten aufgeführte Stelle.

Herewith **MAHA Maschinenbau Haldenwang GmbH & Co. KG.** declares as a manufacturer its sole responsibility to ensure that the equipment named hereafter meets the safety and health regulations both in design and construction required by the EC Guidelines stated below.

This declaration becomes invalid if any change is made to the equipment that was not discussed and approved by MAHA beforehand.

All products of the same model manufactured by MAHA comply with the approved prototype. The type test was carried out by the authority mentioned below.

Bezeichnung

HL 9000 A / HL 9000 S

Maschinentyp

Zweisäulen-Hebebühne
zulässige Traglast 4,0 t

EG-Richtlinien:

- ♦ 98/37/EG für Maschinen
- ♦ 89/336/EG für Elektromagnetische Verträglichkeit
- ♦ 73/23/EG für Niederspannung

DIN EN-Normen:

- ♦ EN 1493 „Fahrzeughebebühnen“
- ♦ EN 292 Teil 1 und 2, EN 294, EN 349, EN 418
- ♦ EN 60204 Teil 1
- ♦ EN 50081 Teil 1, EN 50082 Teil 2

Technische Dokumentation:

- ♦ Entwicklungs- und Konstruktionsunterlagen
- ♦ Gefahren- und Risikoanalyse
- ♦ Handbuch des Qualitätsmanagements
- ♦ Zertifikat nach DIN EN ISO 9001
- ♦ Sicherheitsgerechte Bedienungsanleitung
- ♦ Montage- und Installationsanleitung

Model:

HL 9000 A / HL 9000 S

Type of equipment:

Two-Post Lift
up to 4.0 t load capacity

EC Guidelines:

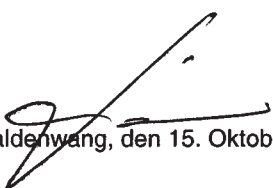
- ♦ 98/37/EEC for machines
- ♦ 89/336/EEC for electro-magnetic compability
- ♦ 73/23/EEC for low voltage

EN Standards:

- ♦ EN 1493 „Mobile or movable jacks and associated lifting equipment“
- ♦ EN 292 Part 1 and 2, EN 294, EN 349, EN 418
- ♦ EN 60204 Part 1
- ♦ EN 50081 Part 1, EN 50082 Part 2

Technical Documentation:

- ♦ Design and construction documents
- ♦ Danger and risk analysis
- ♦ Quality Management Handbook
- ♦ Certificate in accordance with EN ISO 9001
- ♦ Operating manual based on established safety regulations
- ♦ Assembly and installation instructions


Haldenwang, den 15. Oktober 2002

Betriebsleitung / Operations Manager