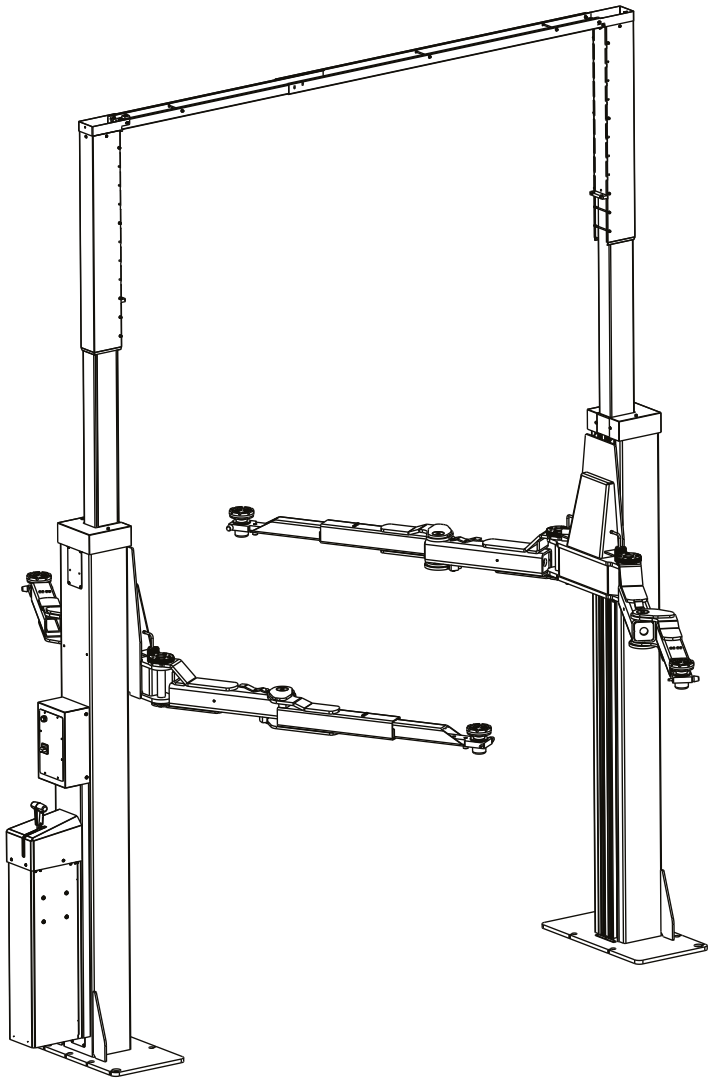


Operating manual | Inspection book

including spare parts list
Version: USA
Manual date: 13.01.2020

POWER LIFT HF 3S 12000

Serial No.:

Made in Germany

OPI-POWER LIFT HF 3S 12000-V1.0-EN

1 General informations

Important safety instructions – Save these instructions

1.1 Lift purpose

Nussbaum lifting systems are the result of over 35 years' experience in the automotive lifting industry. The high quality and superior concept ensures reliability, a long Lift lifetime, and a strong economic business solution for your automotive lifting needs. The HF 3S 12000 are a hydraulic asymmetric two-post Lift with a lifting capacity of 12000 pounds. The Lift features a powerful integrated power unit and hard-chromed cylinders. The maximum load distribution is 3000 lbs per arm.

1.2 Liability

To avoid unnecessary damage, injury or death, read all operating instructions carefully. Nussbaum is not liable for any damages, injuries, or deaths resulting from misuse of the Lift. The user carries the risk alone.

There will be no guarantee or liability for incidents involving injuries, death, or damage to equipment if these incidents are the result of one or more of the following:

- Inappropriate use of the Lift to include: Inappropriate installation, operation, and maintenance of the Lift.
- Use of the Lift while security devices are inoperative, not working properly, or are installed incorrectly.
- Failure to follow the operating instructions regarding transport, storage, installation, initiation, operation, and maintenance of the Lift.
- Unauthorized changes to the design and operation of the Lift.
- Wrong or incorrect maintenance practice.
- Catastrophes, acts of God, or external reasons.
- Nussbaum Lifts are warranted with the use of Nussbaum original or replacement parts. Use only replacement parts approved by the original equipment manufacturer or parts meeting original manufacturer specifications. Use of unauthorized parts may void the warranty. For parts, call Nussbaum at 1-704-864-2470.
- It should be recognized that any piece of equipment can be dangerous when operated improperly.

1.3 Owner/Employer responsibilities

Automotive lift institute safety requirements for operation, inspection and maintenance (ANSI/ALI ALOIM)

The Owner/Employer shall insure that lift operators are qualified and that they are trained in the safe use and operation of the lift: ALI SM10-1 safety manual; AL-ST-17; ANSI/ALOIM:2008 (R2013), American National Standard for Automotive Lifts-Safety Requirement for Operation, Inspection and Maintenance; ALI/WL Series, ALI Uniform Warning Label Decals/Placards; and in case of frame engaging lifts, ALI/LP-GUIDE, Vehicle Lifting Points/Quick Reference Guide for Frame Engaging Lifts and SAE J2184, Vehicle Lifting Points for Service Garage Lifting.

The Owner/Employer shall establish procedures to periodically inspect the lift in accordance with the lift manufacturer's instructions or ANSI/ALOIM:2008 (R2013), American National Standard for Automotive Lifts-Safety Requirements for Operation, Inspection and Maintenance; and the employer shall insure that the lift inspectors are qualified and that they are adequately trained in the inspection of the lift.

The Owner/Employer shall establish procedures to periodically maintain the lift in accordance with the lift manufacturer's instructions or ANSI/ALOIM:2008 (R2013), American National Standard for Automotive Lifts-Safety Requirements for Operation, Inspection and Maintenance; and the employer shall insure that the lift maintenance personnel are qualified and that they are adequately trained in the maintenance of the lift.

The Owner/Employer shall maintain the periodic inspection and maintenance records recommended by the manufacturer or ANSI/ALOIM:2008 (R2013), American National Standard for Automotive Lifts-Safety Requirements for Operation, Inspection and Maintenance.

The Owner/Employer shall display the lift manufacturer's operating instructions; ALI SM10-1 safety manual; AL-ST-17; ANSI/ALOIM:2008 (R2013), American National Standard for Automotive Lifts-Safety Requirement for Operation, Inspection and Maintenance; ALI/WL Series, ALI Uniform Warning Label Decals/Placards; and in case of frame engaging lifts, ALI/LP-GUIDE, Vehicle Lifting Points/Quick Reference Guide for Frame Engaging Lifts; in a conspicuous location in the lift area convenient to the operator.

Additional owner/employer responsibilities

- Shall require that Personal Protective Equipment (PPE) be used according to the appropriate regulations.
- Shall display the "Safety Regulations" and adhere to them closely.
- Shall ensure that all safety- and danger signs on and around the Lift are observed and followed!
- Shall follow the specified time intervals between the recommended inspection and maintenance procedures and tests.

- Shall use only spare parts that comply with the technical requirements specified by the manufacturer.
- Shall ensure that loose screws, nuts, and bolts are firmly tightened after maintenance.
- Shall not modify the Lift without written consent of Nussbaum.
- Shall ensure that these instructions are maintained and available to all personnel that install, use or maintain the lift. This document contains important information about installation, operation, and maintenance of the automotive Lift. Any changes to the installation and or location of the automotive Lift must be documented.

1.4 Lift operator responsibilities

- Shall read and understand all safety and warning instructions in the manual or affixed to the lift.
- Shall be trained to operate and use the HF 3S 12000 Lift for its designed use.
- Shall be familiar with accident prevention and basic labor safety regulations.
- Shall not allow unauthorized personnel to operate the Lift.

Information of warning

Pay close attention to the danger and important information symbols shown below. Carefully read all marked passages throughout this manual.

Danger! This sign indicates danger to life. Improper handling of the described operation may cause serious injury or death.

Caution! This sign warns against possible damage to the automotive Lift or other material defects in case of improper handling.

Attention! This sign indicates an important function or note.

1.5 Safety regulations

The Safety Regulations must be observed and strictly adhered to while working with the automotive Lift. Read the safety regulations and the ANSI/ ALI ALOIM manual included with the lift documentation carefully before working with the Lift!

Important safety instructions – read all instructions

- The total weight of the lifted vehicle must not exceed 12000 pounds.
- The automotive Lift must be in its lowest position, and the Lift Carry Arms must be swung out before a vehicle can be driven into the Lift area.
- Total load must be distributed evenly on all arms.
- The Lift must not be installed in a hazardous location or in washing bays.
- The Lift must be checked by a service technician after initial installation and after repairs or changes have been made to the Lift.
- The operating and maintenance instructions must be followed while working with the Lift.
- Pre-check low clearance or specially equipped vehicles for ample clearance to avoid damage to the vehicle and/or Lift.
- Only trained personnel are to operate the Lift.
- No one is to stand within the working area (danger area) during vehicle lifting and lowering operations.
- No one is to occupy a vehicle during any phase of Lift operation.
- No one is to climb onto the automotive Lift when in a raised position.
- For unusual vehicles you may choose to instruct the user to contact Nussbaum for lifting advice.
- The main electrical switch must be switched off and locked out or tagged out according to OSHA Regulations before maintenance or repair work is performed on the Lift.
- The operator must continue to observe the vehicle and Lift throughout the lifting or lowering operation.
- Check the center of gravity of the vehicle if heavy parts, such as the engine are removed.
- If heavy parts such as the engine must be removed, the center of gravity will change. Secure the vehicle before removing parts to avoid the possibility of the vehicle becoming insecure.
- **Read all instructions** before operating lift.
- Care must be taken as burns may occur from touching hot parts.
- Do not operate the Lift with a damaged cord or if the Lift has been damaged – until it has been examined by a qualified service person.
- To reduce the risk of fire, do not operate Lift in the vicinity of open containers of flammable liquids (gasoline).
- Adequate ventilation should be provided when working on operating internal combustion engines.
- Keep hair, loose clothing, fingers, and all parts of body away from moving parts.
- Use only as described in this manual. Use only manufacturer's recommended attachments.
- **Always wear safety glasses.** Everyday eyeglasses only have impact resistant lenses, they are not safety glasses.
- The proper positioning of the carrier plate below the vehicle is to be checked again after the vehicle has been raised slightly.

- After each set down of the vehicle, check the lifting arm positions below the fixture points again and adjust as required.
- When disassembling heavy, consider any possible centre of mass shifts. The vehicle is to be appropriately secured using suitable materials (e.g. tensioning belts, beams, etc.) against falling.
- After design and maintenance on load bearing parts the lift must be inspected by a technical expert.
- Vehicles may only be attached at fixture points approved by the vehicle manufacturer.
- The entire lifting and lowering process is to be continuously observed.
- Initial access to the lift is only permitted after the main switch has been turned off and secured, and the operating lever is additionally secured against unauthorised use.

Save these instructions!

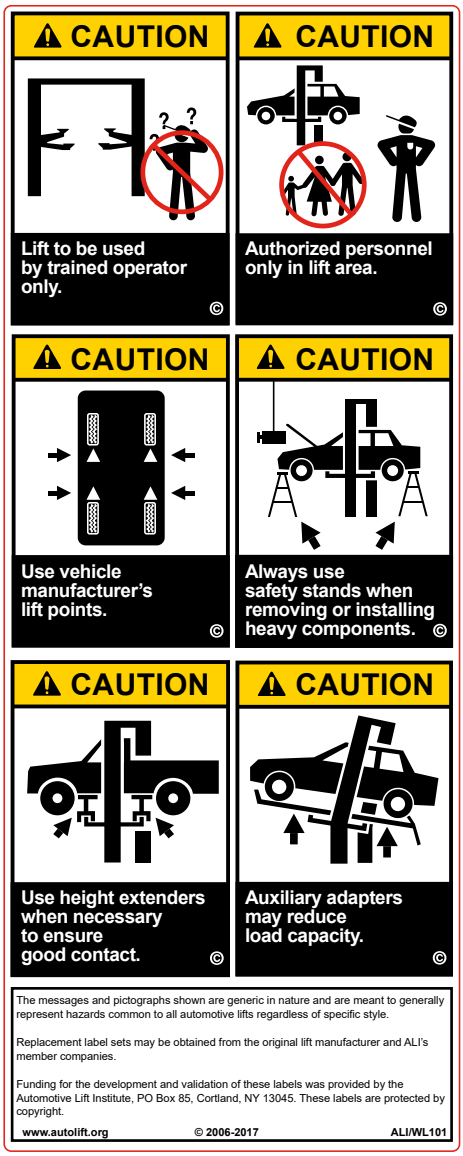
1.6 Safety devices

Nussbaum has designed several saftety features into each Lift to ensure safe and efficient operations under a variety of conditions. Warranties will be voided and dangerous working conditions exist if any of the listed devices are altered or disabled.

- **Over-pressure valve**
  Hydraulic system fuse against over-pressure.
- **Check valve**
  Secure the vehicle against unauthorised lowering.
- **Main switch with curtain lock device**
  Fuse to prevent unauthorised use.
- **Command / downstream system with latch**
  Secure against unauthorised lowering of the lift.
- **Deadman controls**
  Lift movement stops when the operating lever is released.
- **Lifting arm block**
  Secures the lifting arm against horizontal movement in a lifted condition.

1.7 Safety labels affixed to lift

Warning Label pictographs used with permission of Automotive Lift Institute.



Read all labels and verify that all authorized users fully understand the meaning of each caution / warning / safety instruction. Do not remove or deface safety labels from the lift.

1.8 Protocols

Technical documentation contains important information for safe operation and for retaining functional safety of the lift.

- To verify lift set up, the assembly protocol form is to be completed, signed and sent to the manufacturer.
- Forms are available in this inspection book for use in verifying single, regular and extraordinary safety checks. Use the forms to document inspections and leave the completed forms in the inspection book.
- The lift master forms must record changes to the construction or changes to set up location.

1.9 Set up and test the lift

Safety relevant work on the lift and safety inspections may only be done by personnel specifically trained to carry it out. They are designated in general and in this documentation as technical experts and specialists (competent people).

- Technical experts are people (freelance expert engineers, TÜV specialists) that may inspect and assess due to their education and experience with lifts. They are knowledgeable in the appropriate work safety and accident prevention regulations.
- Specialists (competent people) are people who have sufficient knowledge and experience with lifts and have participated in a special factory training by the lifts manufacturer.

Set up protocol

After successful set up, complete this form fully, sign it, make a copy and send the original to the manufacturer within a week. The copy remains in the inspection book.

Nussbaum Automotive Solutions, LP
1932 Jordache Court
Gastonia, NC 28052
Fax: 1-704-864-2476
Email: warranty@nussbaum-usa.com

The lift with serial number _____ was set up on (date) _____

at (company name) _____ in (town, city) _____

checked for function and safety and put into operation.

The set up was done by the operating company / specialist (score out the one that does not apply).
After successful inspection of function and safety by a trained assembler, the lift is transferred without electrical connection (e.g. plug) to on-site power supply An on-site electrical connection between the lift and the power supply is to be done by a qualified electrician (see details in the electrical plan).

The operating company confirms proper lift set up, has read and will comply with all information contained in this operating manual and inspection book, and will keep this document accessible to trained operators at all times.

The specialist confirms proper lift set up, has read all information in this operating manual and inspection book, and has transferred the documents to the operating company.

_____	_____	_____
Date	*Name, operating company and company stamp*	*Operating company signature*
_____	_____	_____
Date	*Name, specialist*	*Signature of specialist*

Service partner: _____
Stamp

*) *See enclosed anchor manufacturer sheet*

Transfer protocol

The lift with serial number _____ was set up on (date) _____

at (company name) _____ in (town, city) _____

checked for function and safety and put into operation.

The following listed people (operators) were trained to handle the lift after it was set up by a trained assembler of the manufacturer or a contract partner (specialist).

(Date, name, signature, empty lines must have a scored out)

_____	_____	_____
Date	*Name*	*Signature*
_____	_____	_____
Date	*Name*	*Signature*
_____	_____	_____
Date	*Name*	*Signature*
_____	_____	_____
Date	*Name*	*Signature*
_____	_____	_____
Date	*Name*	*Signature*
_____	_____	_____
Date	*Name, specialist*	*Signature of specialist*

Service partner: _____

Stamp

2 System master sheet

2.1 Manufacturer

Otto Nussbaum GmbH & Co. KG
Korker Straße 24
D-77694 Kehl-Bodersweier

2.2 Purpose

The lift is a lifting tool for raising motor vehicles in normal workshop operation. A total weight of max. 12000 lbs (5000 kg). Single loading of the carrier arm may not occur.

Set up of the standard lift in explosion endangered workshops and humid spaces (e.g. washing halls) is prohibited. This is only possible with custom equipment.

Lift operation is done directly on the operating column.

After construction and maintenance changes on load carrying parts the lift must be inspected afterwards by a specialist who approves the changes. If the set up location is changed, the lift must be checked again by a specialist and changed approved.

Carrier arm variants	**POWER LIFT HF 3S 12000**
Double swivel arm (DG)	max. 1825 mm

2.3 Changes to the design / construction

Inspections by a technical expert are required before recommissioning (date, type of change, technical expert signature).

_____

_____

Name, address of technical expert

_____ _____

Location, date *Technical expert signature*

2.4 Changing the assembly location

Inspections by a technical expert are required before recommissioning (date, type of change, specialist signature).

_____

_____

Name, address of technical expert

_____ _____

Location, date *Signature of Technical Expert of Safety inspections*

3 Technical information

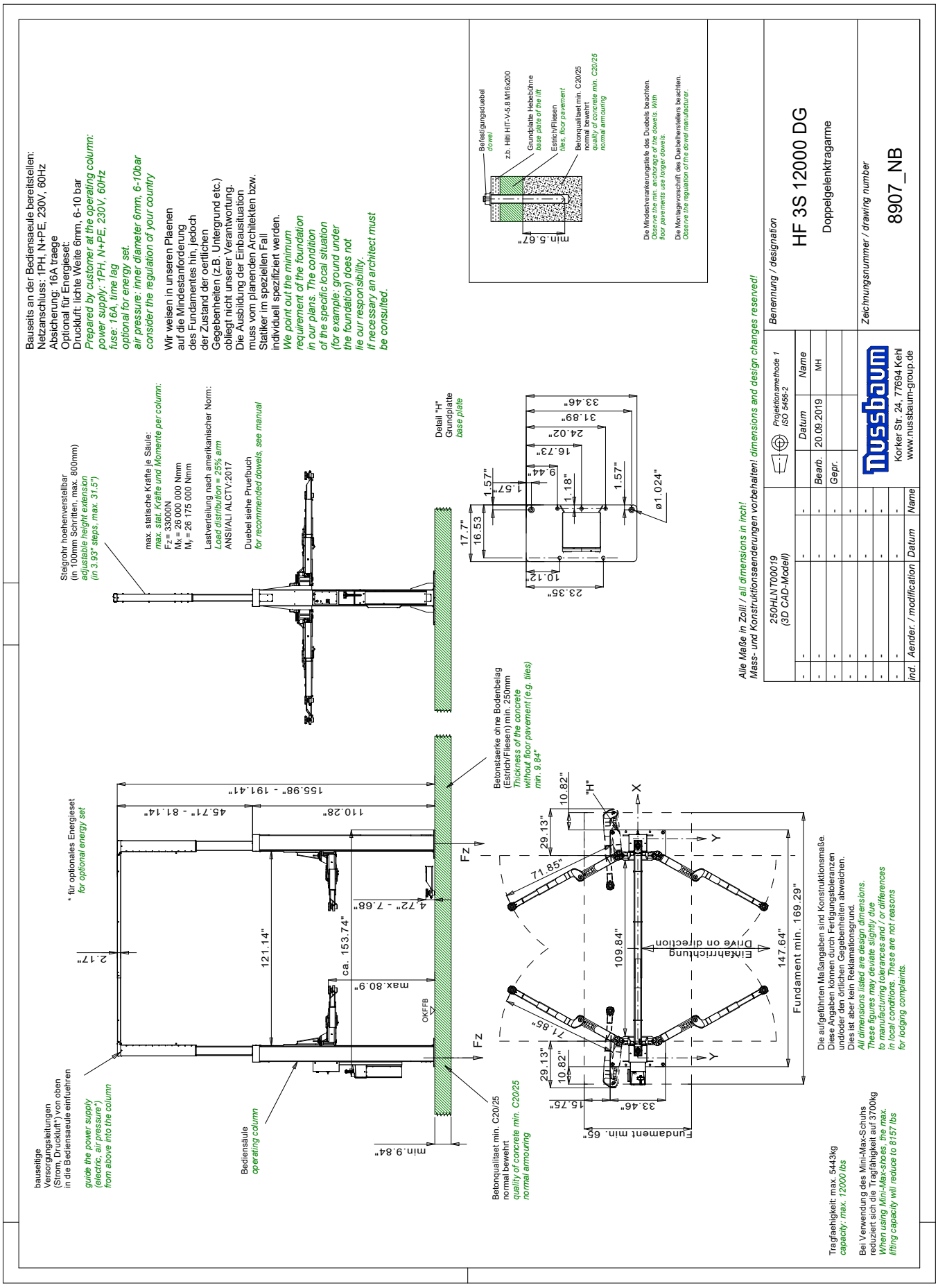
3.1 Technical data

Load carrying capacity	12000 lbs (5000 kg)
Lift time	approx. 40 sec with nominal load
Lowering time	approx. 19 sec with nominal load
Lifting height	approx. 1865 mm
Operating voltage	1 ~/N+PE, 230 V, 60 Hz
Motor capacity	3 HP
Motor speed	3450 rpm
Oil pump conveying power	1.5 GPM (≈5.6l / min.)
Operating pressure	approx. 240 bar with nominal load
Pressure relief valve	approx. 250 bar with nominal load
Oil container filling colume	approx. 2,6 GAL
Noise level L_{PA}	≤70 dB
On-site connection	Fuse 16 Amps slow-blow/5x2.5 mm² according to VDE regulations

3.2 Sicherheitseinrichtungen

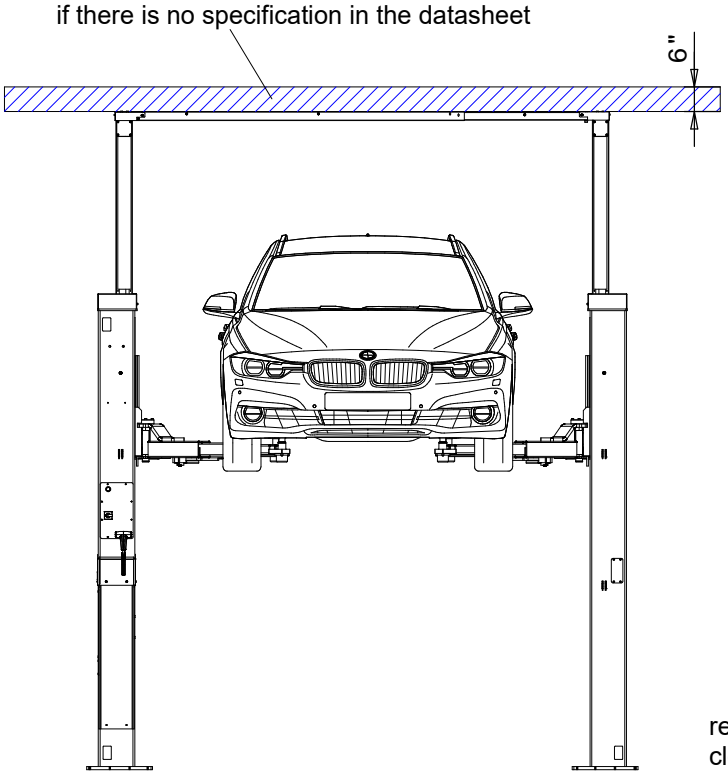
- **Deadman controls**
  Lift movement stops when the operating lever is released.
- **Main switch with curtain lock device**
  Fuse to prevent unauthorized use.
- **Over-pressure valve**
  Hydraulic system fuse against over-pressure.
- **Check valve**
  Secure the vehicle against unauthorized lowering.
- **Two independent cylinder systems**
  Each with a command, follow system. Secure against unauthorized lowering of the lift.
- **Lifting arm block**
  Secures the lifting arm against horizontal movement in a lifted condition.
- **Operating lever with curtain lock device**
  Fuse to prevent unauthorized use.

3.3 Data sheet

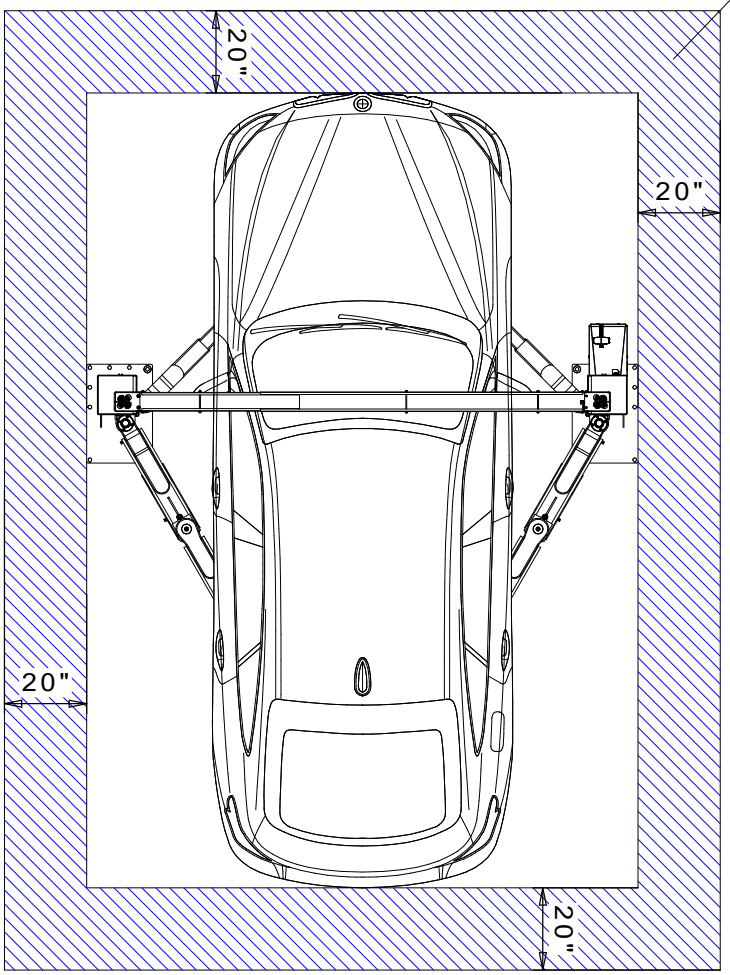


Clearance around the lift

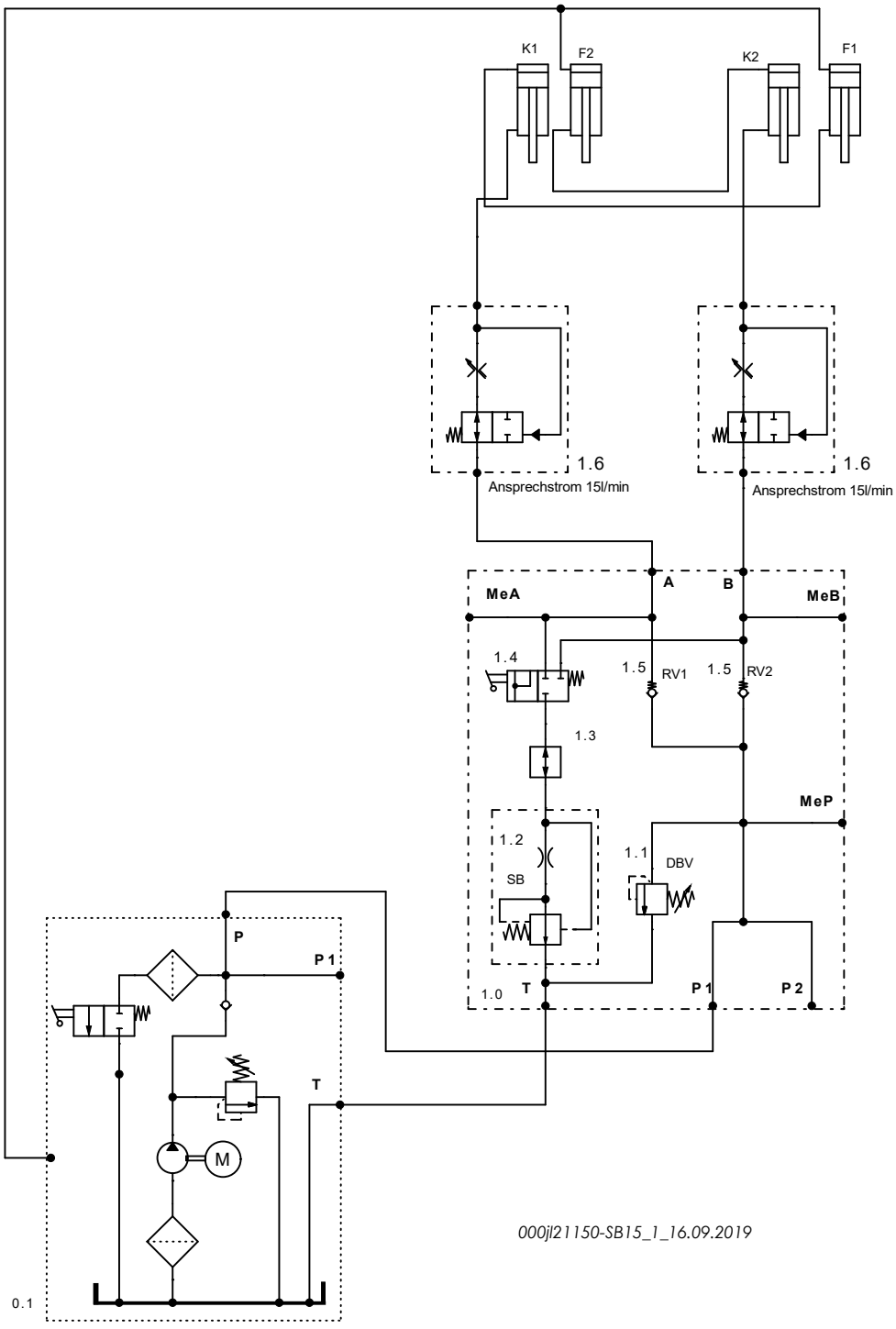
recommended clearance above the lift,
if there is no specification in the datasheet



recommended
clearance around the lift

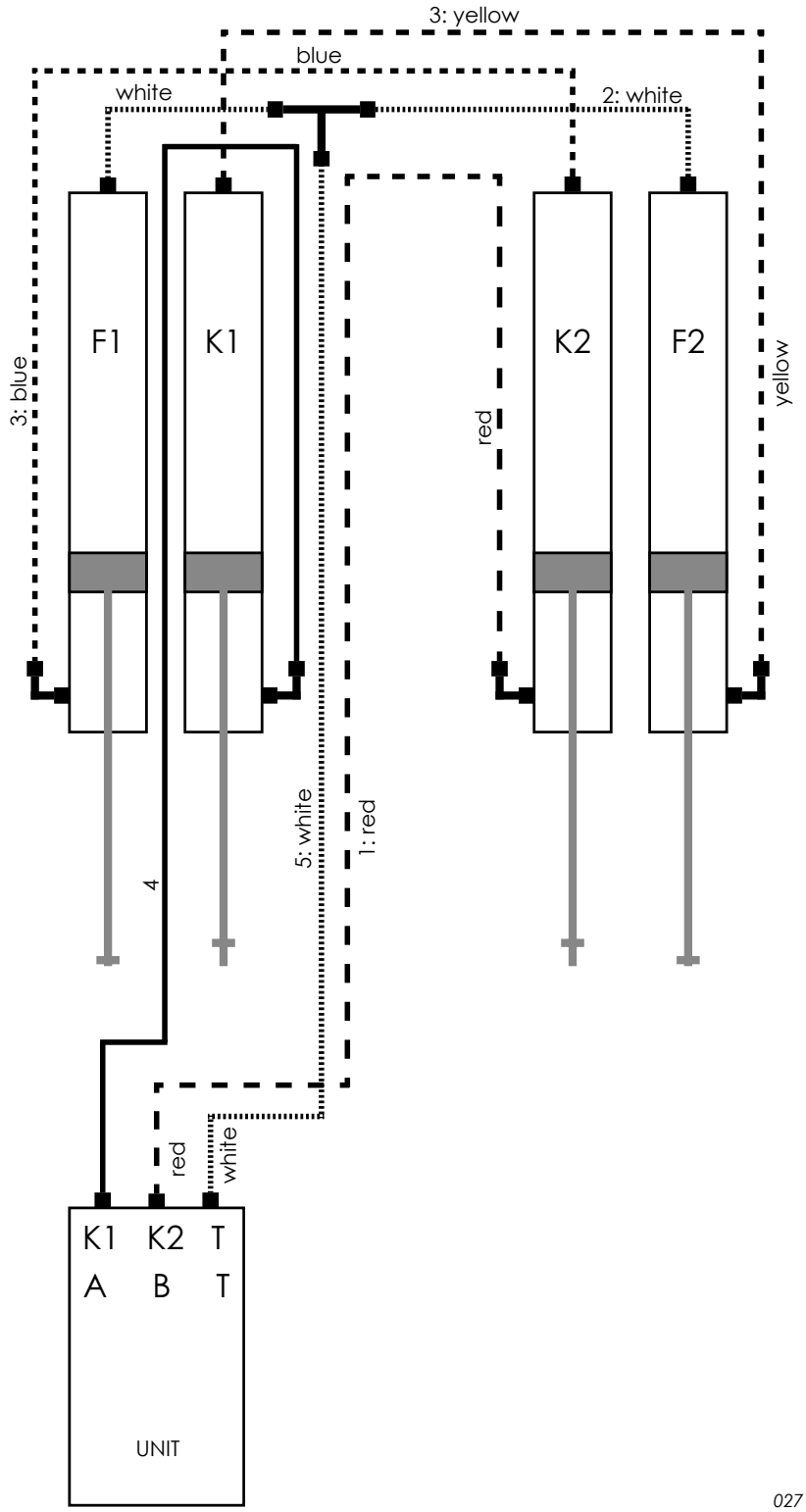


3.4 Hydraulic plan



0.1	BOSCH USA	AC UNIT	1.4	974820	BALL VALVE
			1.5	983700	CHECK VALVE
1.0	000JL21150-SB15	JL NT BLOCK ASSY.	1.6		LINE BREAK SAFETY DEVICE
1.1.	155211	PRESSURE RELIEF VALVE			
1.2	983629	LOWERING BRAKE 15L/MIN ¼"	K1/K2	230HL22301	CYLINDER K
			F1/F2	230HL22351	CYLINDER F
1.3	117874	CLOSING SCREW			

3.5 Hydraulic connection plan



1	1 PC	982189.1	HOSE 2SC DN06X9880, DKOL STRAIGHT, DKOL90	4	1 PC	982177.1	HOSE 2SC DN06X2650, DKOL STRAIGHT, DKOL90
2	1 PC	982192.1	HOSE 2SC DN06X5100, DKOL BOTH STRAIGHT	5	1 PC	981505.1	HOSE 2SC DN06X3100, DKOL BOTH STRAIGHT
3	2 PCS	982190.1	HOSE 2SC DN06X7050, DKOL BOTH STRAIGHT				

3.6 Electrical circuit diagram

Grounding according to local regulations

Before commissioning check whether the nominal motor current matches the motor protection relay. Check all terminal points for proper connection and that all contact screws are tight.
Before commissioning, check all wiring and controls for proper function. Do not permit commissioning from the unauthorised side.

These plans were generated on a CAD system. To keep plans to the current state, we ask that you request Nussbaum to make the changes.

These circuit diagrams are intellectual property. They may not be given to third parties or reproduced without our permission!

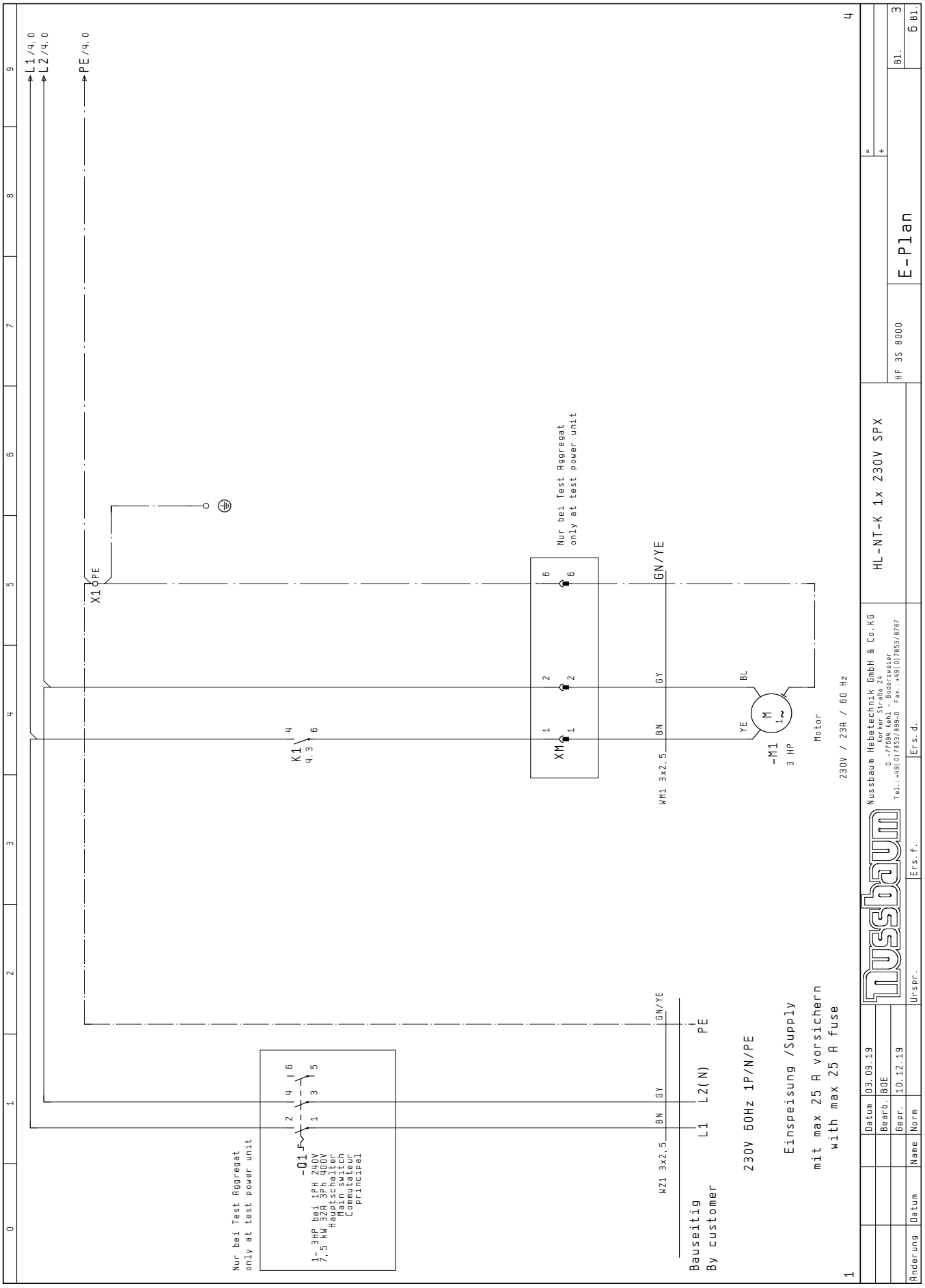
Rights to make changes are retained.

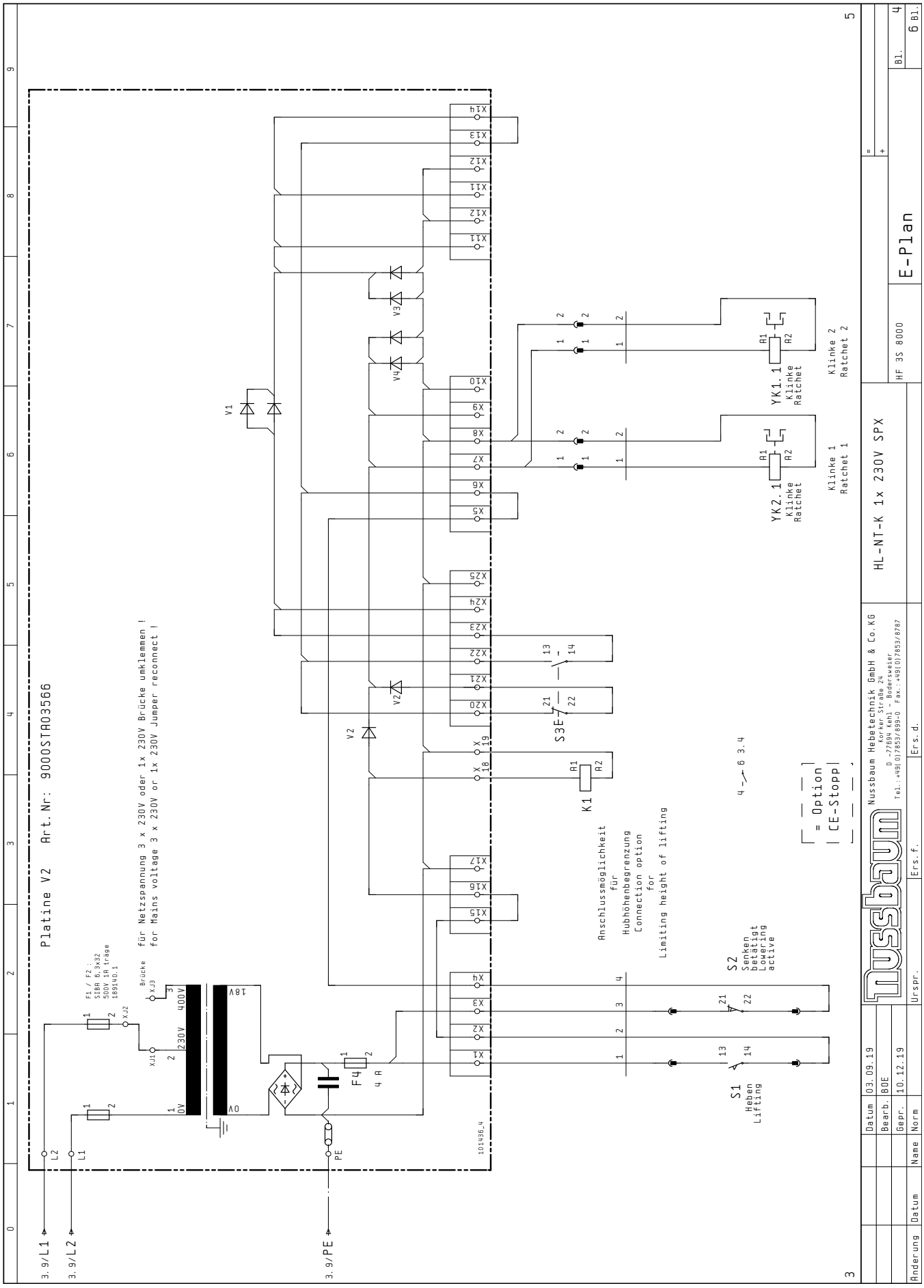
Circuit diagram and switch documents

Circuit diagrams were made to the best of our knowledge.
No guarantee is made for the accuracy of enclosed circuit diagrams and switch plans contained in this document. This is particularly relevant for switches that were completed by us according to third party plans. This was done by us from purchaser provided manufacturer documentation.

Functional test of switch systems

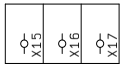
Circuit diagrams are not standard documents. When checking the control cabinet at the factory, field devices such as sensors, thermostats and motors cannot be included. For this reason, even with careful inspection, functional and switch errors cannot always be prevented.
Deficiencies are removed within the scope of guarantee during commissioning. During commissioning, if our services are not used, then no deficiency liability is accepted. Rework, including informing of circuit diagrams of switch systems not commissioned by us are therefore only done to an invoice according to our service terms and conditions. Costs for rework by third parties cannot be honoured.


L1 / 4.0
L2 / 4.0
PE / 4.0
X1 PE
Nur bei Test Aggregat
only at test power unit
-Q1
1~ 3HP bei 1PH 240V
7,5 kW 32A 3Ph 400V
Hauptschalter
Main switch
Commutateur
principal
K1
4.3
XM
WZ1 3x2,5
WM1 3x2,5
GN/YE
GY
BN
BL
YE
-M1
3 HP
Motor
230V / 23A / 60 Hz
Bauseitig
By customer
L1 L2(N) PE
230V 60Hz 1P/N/PE
Einspeisung /Supply
mit max 25 A vorsichern
with max 25 A fuse
HL-NT-K 1x 230V SPX
HF 3S 8000
E-Plan
Nussbaum Hebetechnik GmbH & Co.KG
Korker Straße 24
D -77694 Kehl - Bodersweier
Tel.:+49(0)7853/899-0 Fax.:+49(0)7853/8787
Datum 03.09.19
Bearb. BOE
Gepr. 10.12.19
Urspr.
Ers.f.
Ers.d.
Änderung Datum Name Norm
Bl. 3
6 Bl.


Platine V2 Art.Nr: 9000STA03566
für Netzspannung 3 x 230V oder 1x 230V Brücke umklemmen !
for Mains voltage 3 x 230V or 1x 230V Jumper reconnect !
Brücke
X J3
F1 / F2 :
SIBA 6,3x32
500V iR träge
189140.1
XJ2
XJ1
400V
230V
0V
18V
F4
4 A
L2
L1
PE
3.9/L1
3.9/L2
3.9/PE
V1
V2
V3
V4
X14
X13
X12
X11
X10
X9
X8
X7
X6
X5
X25
X24
X23
X22
X21
X20
X19
X18
X17
X16
X15
X4
X3
X2
X1
S3E
13
14
21
22
K1
A1
A2
YK1.1
YK2.1
Klinke
Ratchet
Klinke 1
Ratchet 1
Klinke 2
Ratchet 2
Anschlussmöglichkeit
für
Hubhöhenbegrenzung
Connection option
for
Limiting height of lifting
= Option
CE-Stopp
S2
Senken
betätigt
Lowering
active
S1
Heben
Lifting
1014436_4
Nussbaum Hebetechnik GmbH & Co. KG
Korker Straße 24
D -77694 Kehl - Bodersweier
Tel.: +49(0)7853/899-0 Fax.: +49(0)7853/8787
HL-NT-K 1x 230V SPX
HF 3S 8000
E-Plan
Datum 03.09.19
Bearb. BOE
Gepr. 10.12.19
Name
Norm
Urspr.
Ers. f.
Ers. d.
Änderung
Datum
B1.
4
6 B1.

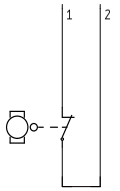
0	1	2	3	4	5	6	7	8	9

Option Hubhöhenbegrenzung
Option Limiting height of lifting

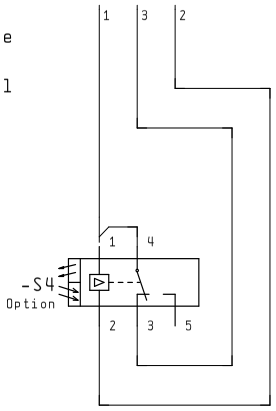


Option
Oben-Aus
Option
Above-Off

oder
or



Option
Fotozelle
Option
Photocell



4 6

			Datum	03.09.19	Nussbaum Hebetechnik GmbH & Co.KG Korker Straße 24 D -77694 Kehl - Bodersweier Tel.: +49(0)7853/899-0 Fax.: +49(0)7853/8787		HL-NT-K 1x 230V SPX		=
			Bearb.	UB1					+
			Gepr.	10.12.19				HF 3S 8000	E-Plan	Bl. 5
Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.			6 Bl.

Stückliste Bill of materials Liste de matériel

NUSTÜCK2 16.11.2004

Bauteilbenennung Component design. Désign. composant	Menge Amount Qté.	Bezeichnung Designation Descripption matériel	Typen nummer Model number Numéro de type	Lieferant Supplier Fournisseur	Artikelnummer Article number N° d'article
J1	1	Platinen Halteblech Bl. 2x67,7x257 DX51 D+Z	000STA03564		000STA03564
J1	1	Universalsteuerplatine V2	PLATINE FÜR UNIVERSALSTEUERUNG	Hauss Elektronik GmbH	9000STA03566
J1	1	Schutzhaube für Elektrosteuerung	SCHUTZHAUBE FÜR ELEKTROSTEUERU	Kerft	9232SL03026
J1	2	Perfect Kabelverschraubung M16x1,5	KABELVERSCHRAUBUNG M16X1,5	Jacob GmbH	9951969
J1	1	Perfect Kabelverschraubung M32x1,5	KABELVERSCHRAUBUNG M32X1,5	Jacob GmbH	9951971
J1	1	Dichtung für 6 Leitungen (6mm) für	MEHRFACH DICHTUNG	Jacob GmbH	996875
-Q1	1	Hauptsch. Not-Aus 3p 32A 7,5kW	A151/6.1050	Merz GmbH	991032
S1	1	Micro Geräteschalter Ö + S	1115.0101	Marquardt GmbH	990322
S2	1	Micro Geräteschalter Ö + S	1115.0101	Marquardt GmbH	990322
K1	1	Relaissockel für Leisungsrelais G7L	P7LF-06D	Omron	995926
K1	1	Leisungsrelais 24VDC	G7L -1A -T 24VDC	Omron	995927
S3	1	Drucktaste (D22mm) ohne Einlegeschild	LPXB0	Lovato electric	996883
S3	1	Tastenplatte Start (-) (22mm)	LPXB103	Lovato electric	996886
S3	1	Kontaktelement 1Ö (22mm)	LPXC01	Lovato electric	996881
S3	1	Kontaktelement 1S (22mm)	LPXC10	Lovato electric	996885
S3	1	Befestigungsbasis (D22mm)	LPXAU120n	Lovato electric	996884
YK2.1	1	Ventilstecker C182 9 N21 schwarz	GERÄTESTECKER	Seehausen	118620
YK2.1	1	Klinkenmagnetventil 24VDC,1,29 A ;100% ED	HUBMAGNET	Nussbaum	00MNG603160
YK1.1	1	Ventilstecker C182 9 N21 schwarz	GERÄTESTECKER	Seehausen	118620
YK1.1	1	Klinkenmagnetventil 24VDC,1,29 A ;100% ED	HUBMAGNET	Nussbaum	00MNG603160
-S4	1	Reflexions-Lichtschranke WL280-S230	REFLEXIONS-LICHTSCHRANKE WL280	SICK	992299
WZ1	6	LAPP Kabel-Halogenfrei Ölflex 150, 3G2,5	ÖLFLEX 150	LAPP	0015403
WM1	1	LAPP Kabel-Halogenfrei Ölflex 150, 3G2,5	ÖLFLEX 150	LAPP	0015403
WYK1	1	Steuerleitung mit num. Adern (2 x1,0mm²)	PVC-STEUERLEITUNG FLEX	Kabel Wächter GmbH & Co.KG	995577
WYK2	1	Steuerleitung mit num. Adern (2 x1,0mm²)	PVC-STEUERLEITUNG FLEX	Kabel Wächter GmbH & Co.KG	995577

5

			Datum	28.10.19	Nussbaum Hebetechnik GmbH & Co.KG Korker Straße 24 D -77694 Kehl - Bodersweier Tel.: +49(0)7853/899-0 Fax.: +49(0)7853/8787	HL-NT-K 1x 230V SPX		=
			Bearb.	BOE				+
			Gepr.	10.12.19			HF 3S 8000	Stückliste
Änderung	Datum	Name	Norm		Urspr.	Ers.f.	Ers.d.	Bl. 6 / 6 Bl.

POS	BMK	QTY.	DESIGNATION 1	TYPE NUMBER	MANUFACTURER	ITEM NUMBER
1	J1	1	CIRCUIT BOARD HOLDING PANEL BL. 2X67.7X257 DX51 D+Z	000STA03564		000STA03564
2	J1	1	UNIVERSAL CONTROLS CIRCUIT BOARD V2	CIRCUIT BOARD FOR UNIVERSAL CONTROLS	NB_UNVERSALCIRCUITBOARD	9000STA03566
3	J1	1	SAFETY HOOD FOR ELECTRICAL CONTROLS	SAFETY HOOD FOR ELECTRICAL CONTROLS	KERFT	9232SL03026
4	J1	2	PERFECT CABLE SCREW FITTING M16X1,5	CABLE SCREW FITTING M16X1,5	JACOB GMBH	9951969
5	J1	1	PERFECT CABLE SCREW FITTING M32X1,5	CABLE SCREW FITTING M32X1,5	JACOB GMBH	9951971
6	J1	1	SEAL FOR 6 LINES (6MM) FOR	MULTIPLE SEALS	JACOB GMBH	996875
7	-Q1	1	MAIN SW. EMERGENCY STOP 3P 32A 7.5KW	A151/6.1050	MERZ GMBH	991032
8	X1	1	GROUND WIRE CLAMP D 2,5/6.P.ADO FAST-FAST	D 2,5/8.P.ADO	ENTRELEC	990185
9	S1	1	MICRO DEVICE SWITCH O + S	11.150.101	MARQUARDT GMBH	990322
10	S2	1	MICRO DEVICE SWITCH O + S	11.150.101	MARQUARDT GMBH	990322
11	K1	1	RELAY SOCKET FOR POWER RELAY G7L	P7LF-06D	OMRON	995926
12	K1	1	POWER RELAY 24 VDC	G7L -1A -T 24VDC	OMRON	995927
13	S3	1	PUSH BUTTON (D22 MM) WITHOUT INSERT SIGN	LPXB0	LOVATO ELECTRIC	996883
14	S3	1	PUSH PLATE START (-) (22 MM)	LPXB103	LOVATO ELECTRIC	996886
15	S3	1	CONTACT ELEMENT 1Ö (22MM)	LPXC01	LOVATO ELECTRIC	996881
16	S3	1	CONTACT ELEMENT 1S (22MM)	LPXC10	LOVATO ELECTRIC	996885
17	S3	1	FASTENING BASE (D22 MM)	LPXAU120´	LOVATO ELECTRIC	996884
18	YK2.1	1	VALVE PLUG C182 9 N21 BLACK	DEVICE PLUG	SEEHAUSEN	118620
19	YK2.1	1	LATCH SOLENOID VALVE 24 VDC, 1.29 A : 100% ED	LIFTING MAGNET	NUSSBAUM	00MNG603160
20	YK1.1	1	VALVE PLUG C182 9 N21 BLACK	DEVICE PLUG	SEEHAUSEN	118620
21	YK1.1	1	LATCH SOLENOID VALVE 24 VDC, 1.29 A : 100% ED	LIFTING MAGNET	NUSSBAUM	00MNG603160
22	-S4	1	REFLECTION LIGHT CURTAIN WL280-S230	REFLECTION LIGHT CURTAIN WL280	SICK	992299
23	WZ1	6M	LAPP CABLE HALOGEN FREE, ÖLFLEX 150, 3G2.5	ÖLFLEX 150	LAPP	15403
24	WM1	1 M	LAPP CABLE HALOGEN FREE, ÖLFLEX 150, 3G2.5	ÖLFLEX 150	LAPP	15403
25	WYK1	1 M	CONTROL LINE WITH NUM. WIRES (2 X1,0MM²)	PVC CONTROL LINE FLEX	KABEL WÄCHTER GMBH & CO.KG	995577
26	WYK2	10 M	CONTROL LINE WITH NUM. WIRES (2 X1,0MM²)	PVC CONTROL LINE FLEX	KABEL WÄCHTER GMBH & CO.KG	995577

4 Installation

The installation of the Lift is performed by manufacturer trained technicians or by the manufacturer's distribution partner. The Lift owner may use their trained mechanics to install the Lift. The installation must be performed according to the following regulations:

- Use architectural plans, if available, to determine Lift location.
- Lift is intended for indoor installation only. Installation in an outdoor application is prohibited and will void the warranties of the product.
- Always consult a qualified person regarding local regulations for seismic requirements. The owner has to consult a qualified person to address any local or state requirements (per the ALCTV standard: "a qualified person should be consulted to address any seismic loads and other local or state requirements")
- Do not install Lift in hazardous locations, pit or depression areas, or washing stalls.
- Concrete must have compression strength (see chapter 8).
- Mount on a foundation deeper than the local external frost line.
- Be sure to read the ANSI/ALI ALIS prior to installation.
- The installer has to return the instructional materials furnished with the lift back to the owner.

Shiping / parts list

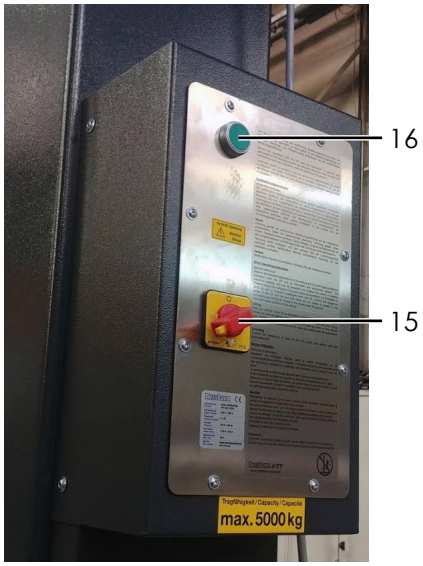
POS	ITEM NAMES	ITEM CODES	QUANTITY	LOCATION
1	COLUMN MASTER WITH LIFTING CARRIAGE, CYLINDERS, POWER UNIT		1	BOX
2	COLUMN SLAVE WITH LIFTING CARRIAGE, CYLINDERS		1	BOX
3A	LIFTING ARM DJ MASTER	250SLH08401	2	BOX
3B	LIFTING ARM DJ SLAVE	250SLH08451	2	BOX
4	RAISER	250HLNT05471	2	BOX
5	CROSS BEAM	250HLNT09330	1	BOX
6	COVER	000STA01500	1	BOX
7	CIRCLIP D40 FOR SHAFTS	9471D040X1.75	4	BOX
8	MANUAL	975538	1	PLASTIC BAG

5 Operating manual

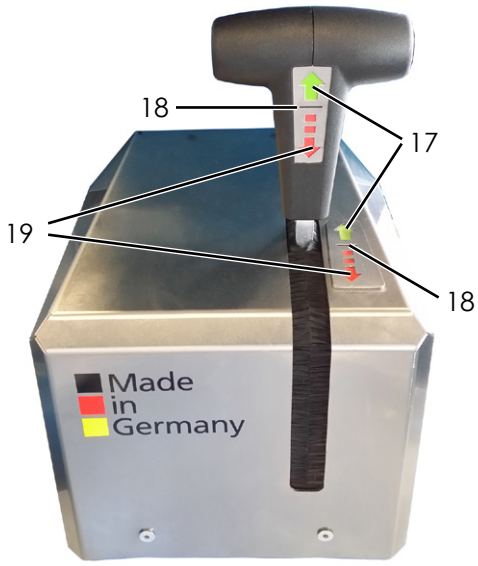
When handling the lift, it must absolutely comply with safety regulations. Carefully read the safety regulations in Section 1.5 before first operation!

To prevent operation by unauthorised personnel, secure the main switch (15) after the working height is reached.

Operating element



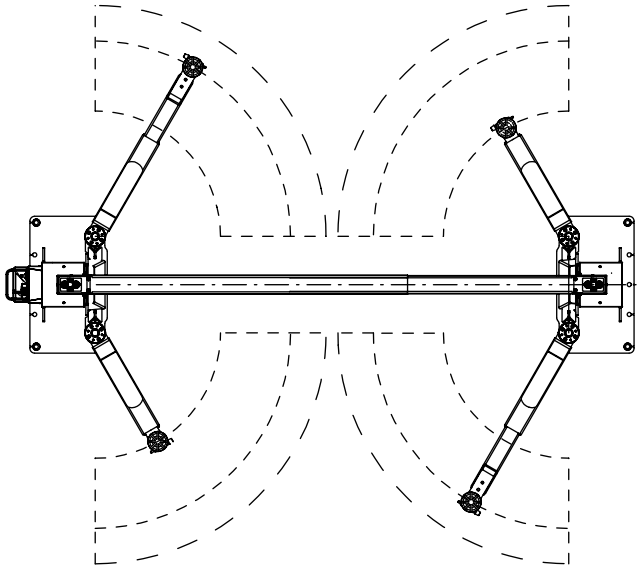
Operating elements *009*
15 Main switch
16 Button for placing in the handle, alternative CE-Stop button



Operating lever *010*
17 Push = LIFT
18 Home position
19 Pull = LOWER

5.1 Positioning the vehicle

The lift must be completely lowered before the vehicle is driven on, and it may only be done in the intended direction.



Lifting arm start position *028*

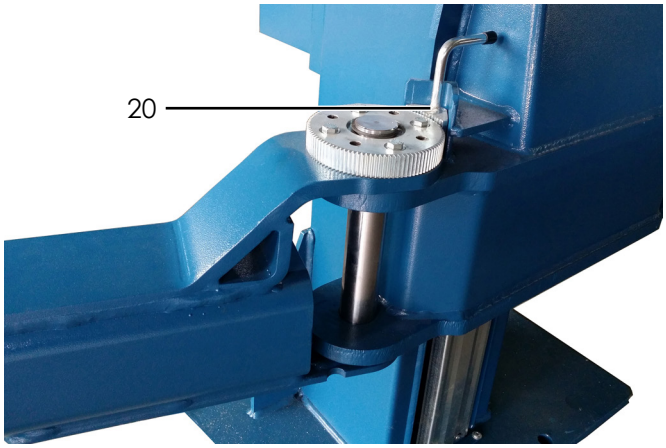
- Swivel in the carrier arm and pull out properly to the desired length. The adjustable receiving plates must be placed at the points specified by the vehicle manufacturer.
- Vehicles with low floor clearance or fitted with custom devices are to be checked to see whether damage could occur before positioning the lifting arm and raising the vehicle.
- The lifting arm block (20) must be ratcheted in after the fixture point has been reached.

5.2 Lifting the vehicle

- Lift the vehicle until the wheels are off the ground. Push the operating lever (9) slowly forwards = “LIFT” (17).
- The proper positioning of the lifting arm is to be checked again after the vehicle has been raised slightly.
- Similarly check whether the lifting arm blocks (20) are ratcheted in. Otherwise, lower the lift and reposition the vehicle.
- After setting down the vehicle, check the lifting arm positions for proper seating below the fixture points before the vehicle is lifted again.
- During lifting or lowering, the work area of the lift should be clear or people and objects.
- Afterwards, lift the vehicle to the desired working height.

Ensure secure vehicle placement on the carrier plate, otherwise there is a danger of the vehicle dropping.

See to it that the lifting arm blocks (20) are ratcheted in after the vehicle has been accepted.



20 Lifting arm block *025*

5.3 Lift synchronization

- The command, downstream cylinder system excludes any unsynchronous running when operated properly.
- However, if the lift must be equalized it is sufficient to move it to the upper end position. Push the operating lever (9) for another 10 seconds.
- During this procedure the lift rails are equalized to each other as hydraulic oil flows to the tank as an overflow from the command cylinder via the downstream cylinder to the tank (HyperFlow).
- Release the operating lever. The lift rails then lower a few millimetres and then block the overflow opening of the cylinders.
- Both lift rails are now at the same height.

5.4 Lowering the vehicle

Check that there are no people or objects in the hazardous area of the lift.

- Lower the vehicle to the desired working height. Pull the operating lever (9) slowly backwards = "LOWER" (19).

For heavier vehicles, lift it slightly before lowering to prevent an "sticking" and any corresponding jolt during lowering.

- The entire lowering process must be observed.
- Lowering speed can be seamlessly adjusted.
- Once the lift is detected in the lowest position, swing out the lifting arms to the start position (see image 028).
- Move the vehicle out of the lift.

Putting down into the locking mechanism: Press button (16) Fig. 009 and simultaneously pull the operating lever (19).

CE Stop:

When the lift is lowered, it stops at a height of approx. 20 cm above the floor. To lower the lift completely, press button (16) and simultaneously pull the control lever (19).

6 Behaviour in cases of error

Defective operational readiness of the lift may be due to a simple error. Check the lift for the listed sources of error.
If the error cannot be removed after an inspection to the named causes, then inform customer service or your dealer.

Independent repair work on safety devices of the lift and checking the electrical system may only be done by specialists.

Problem: The lift cannot be raised

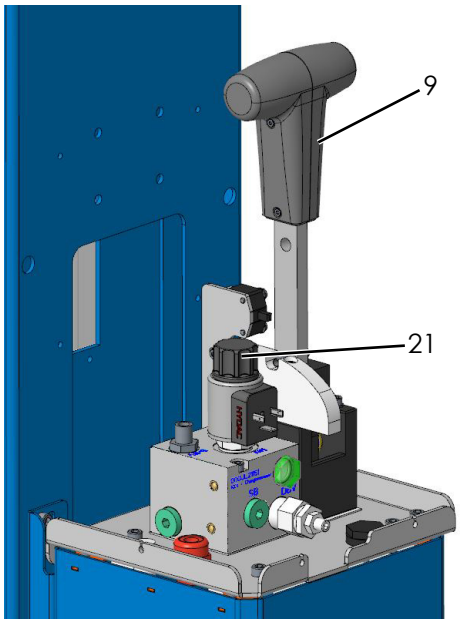
Possible causes:	*Remedy:*
No power supply	Check the power supply
Only 2 phases active	Do an on-site check with a qualified electrician
The main switch is not switched on, or is defective	Check the main switch
Defective fuse	Check fuses
Operating lever defective	Check function; Inform customer service
Motor has overheated	Let motor cool (cooling time dependent on ambient temperature)
Motor defective	Do an emergency discharge (see Section 7.2); Inform customer service
Insufficient hydraulic oil available	Refill new hydraulic oil
The vehicle is too heavy	Unload vehicle

Problem: The lift cannot be lowered

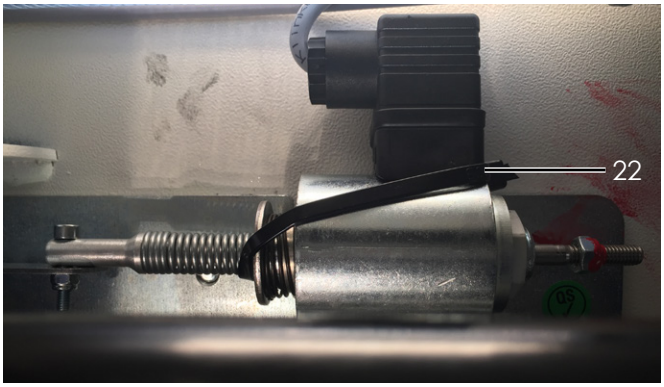
Possible causes:	*Remedy:*
The lifting arm has moved onto an obstacle	Raise the lift and remove the obstacle
Operating lever defective	Check function; Do an emergency discharge (see Section 6.1); Inform customer service
CE stop valve is defective	Inform customer service
CE stop switch is active	Push button (16) and pull the lever (19)

6.1 Emergency discharge

An emergency discharge is an access into the lift controls and may only be done by experienced specialists. The emergency discharge must be done in the following described sequence, otherwise it can lead to damage and hazard to life and limb. People may not stand in the hazardous area around the lift.



9 Operating lever *012*
21 Emergency discharge valve



Preparation

- Loosen and remove the plastic part (T-piece) of the operating lever (9) at both screws on the side.
- Loosen and remove the stainless steel cover of the unit.
- After the lift has been set down into the latch then the lift must first be lifted (using a forklift, electrical pallet truck or similar) out of the latch so that it moves freely again. Then tie back the latch using, e.g. a cable tie.

Emergency discharge:

- Push on the black cap (21) of the valve and at the same time slowly pull the operating lever (9). The lowering procedure begins immediately. Lowering speed can be varied by the lever position.
- The lowering process must be continuously observed.
- Release the operating lever (9) to stop or if there is a danger.
- Lower the lift to the lowest position.
- Release the latch again (remove cable tie)
- Only operate the lift if it is in seamless condition from a safety point of view.
- If required, firstly inform customer service.

6.2 Moving onto an obstacle

If the lift moves onto an obstacle during lowering, then it remains in position due to the mechanical resistance. In this case, move the lift upwards by pushing the operating lever (9) o “LIFT” (17) on the operating panel until the obstacle can be removed. Afterwards the lift is in a normal work condition and can continue to be operated as described in the operating manual.

7 Maintenance and care of the system

Before a service, all preparations must be made so that during maintenance and repair work there is no danger to the life and limbs or potential to damage objects.

Value is placed on long lifetimes and safety in the development and production of Nussbaum products. To guarantee the safety of the operator, product reliability, low running costs, keep the warranty and also the long-lifetime of the product, proper set up and operation is just as important as regular maintenance and sufficient care.

Our platforms fulfil or exceed all safety standards of the countries we supply to. For example, European regulations require a service by qualified experts every 12 months of work of the platform. To guarantee the largest possible availability and functional capacity of the lift system, ensure the list of any cleaning, care and maintenance work is done.

The lift system is to be serviced at regular intervals according to the following plan. For intensive operation and higher degree of contamination shorten the service interval.

The complete function of the lift system is to be observed during daily use. Customer service must be informed of any malfunctions or leaks.

To simplify maintenance work, follow instructions on the maintenance sticker that is found somewhere on the unit, depending on the lift design.

1 = Lubricate with multi-purpose grease

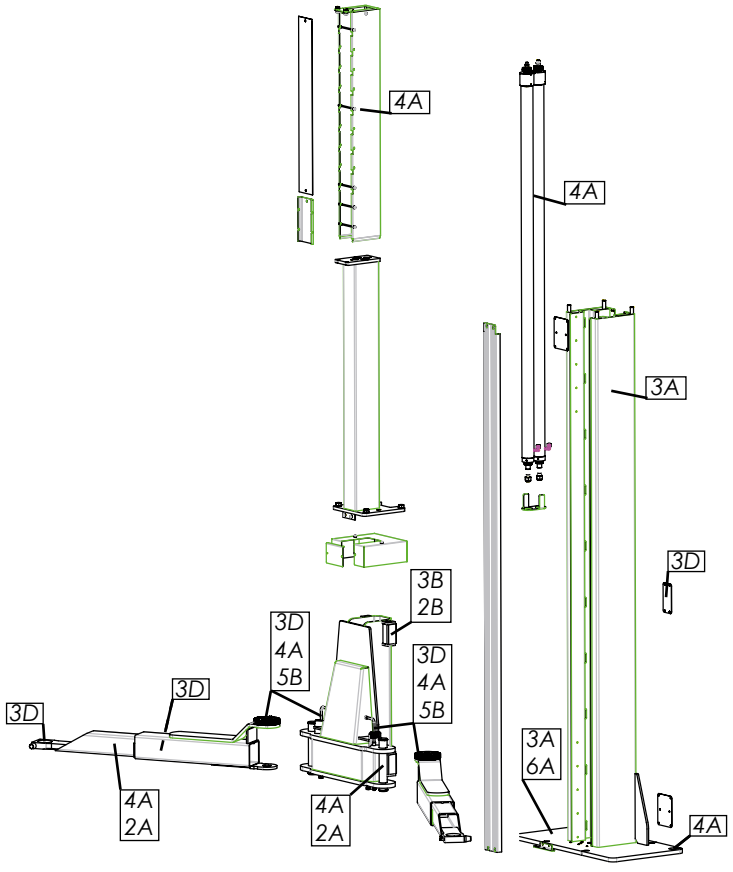
2 = Oil

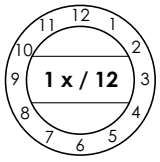
3 = Visual inspection

4 = Inspect

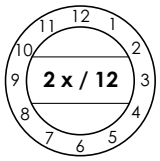
5 = Clean with compressed air

6 = Clean

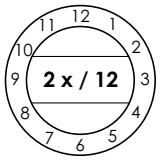




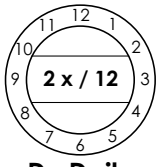
A = Annually



B = Semi-annually



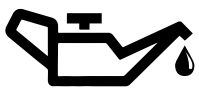
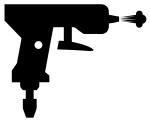
C = Monthly

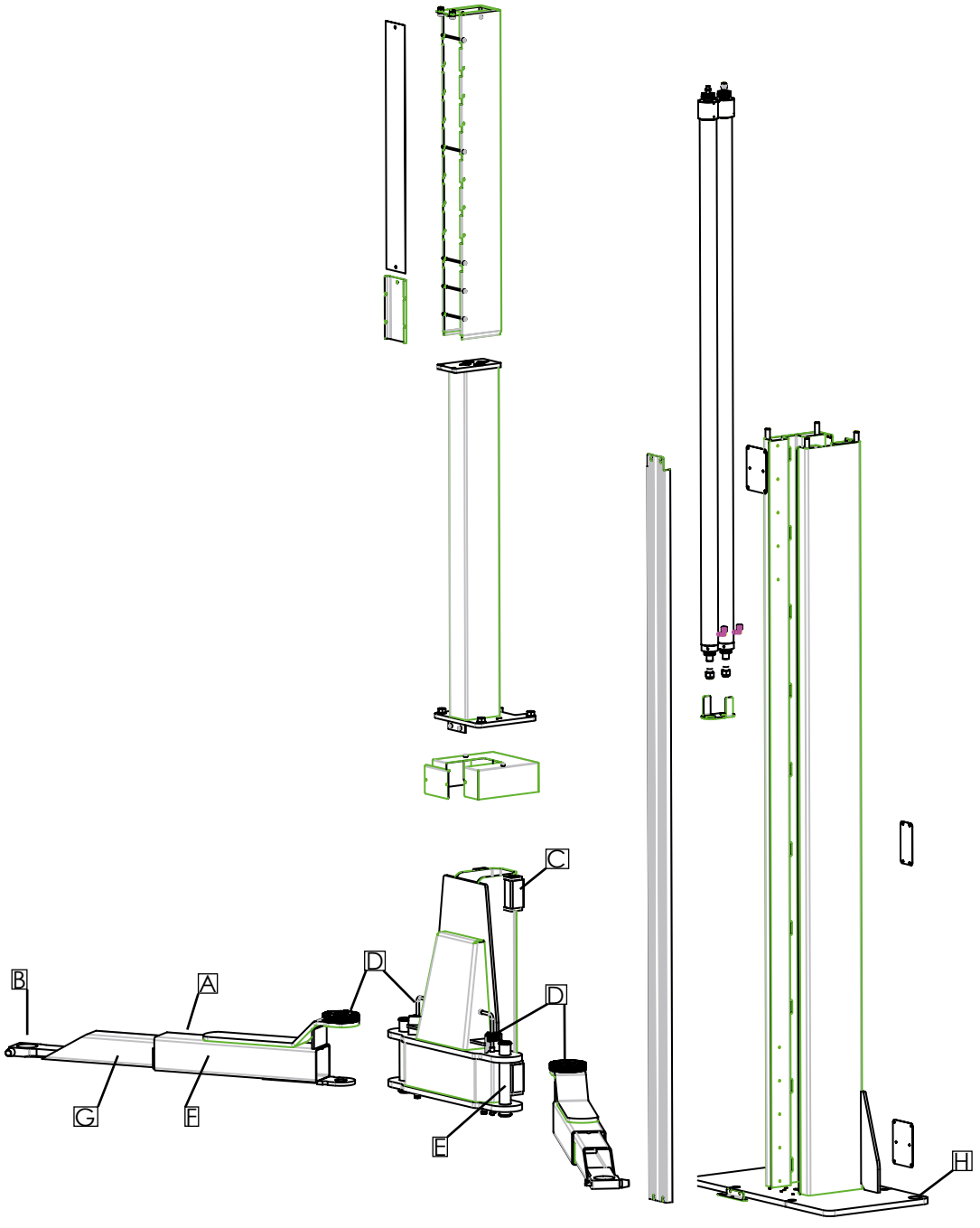


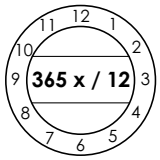
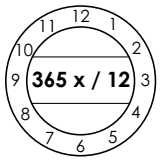
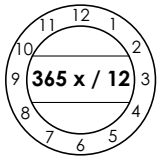
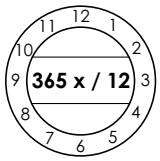
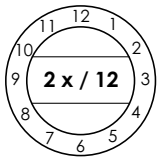
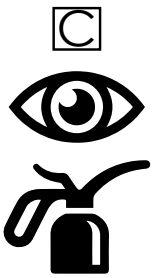
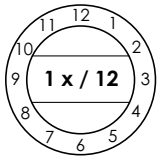
D = Daily

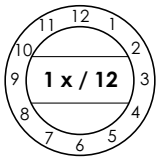
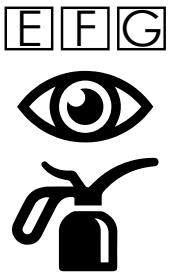
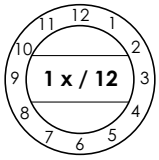
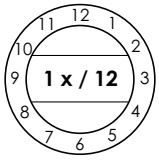
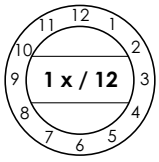
7.1 System maintenance plan

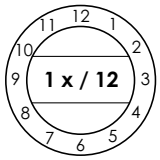
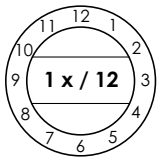
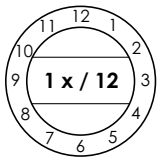
Before beginning service, disconnect from power. The system is to be secured against unintentional lowering and unauthorized access.
During assembly and maintenance always check the condition of electrical lines. All cables and lines must be secured so they cannot be crushed, kinked or contact any moving assembly.

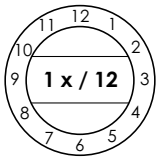
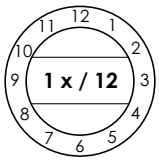
						
Visual inspection	**Spray**	**Oil**	**Lubricate**	**Clean with compressed air**	**Clean**	**Inspect**



Time frame		Maintenance type position	Person in charge	Maintenance plan
As required			Lift owner / employer	The lift cylinder can sweat and small oil droplets can form on the base plate, this is however, not a leak.
Daily			Lift owner / employer	Model and information signs, labels, brief operating instructions, safety stickers and warning information are to be cleaned and exchanged if damaged.
Daily			Lift owner / employer	The rubber acceptance plate is to be checked for wear and replaced if necessary.
Daily				Optional: Check the CE stop and warning signal for condition and function. Exchange if damaged. The CE stop must switch a min. of 120 mm from the hazard.
Daily				During assembly and maintenance always check the condition of electrical lines. All cables and lines must be secured so they cannot be crushed, kinked or contact any moving assembly.
Semi-annual			Lift owner / employer	Check the tracks and the lift rail equalization parts for wear. After cleaning, grease with a multi-purpose grease.
Annually			Trained service personnel	Check the lifting arm block and gear for wear. Exchange both components if there is visible damage.

Time frame		Maintenance type position	Person in charge	Maintenance plan
Annually			Trained service personnel	The booms and bolts of the lifting arm and the threaded bolts of the carrier plate are to be checked for ease of running. If required, lightly grease with a multi-purpose grease. Do not over-lubricate.
Annually			Trained service personnel	• Check the torque of the fastening anchor. See the data sheet for the relevant anchor manufacturer. • Check the torque of the fastening screws. Also see the assembly protocol. Torque (Nm) for shaft screws *Fastening class 8.8* *0,08* 0,12** 0,14**** *M8 17,9 23,1 25,3* *M10 36 46 51* *M12 61 80 87* *M16 147 194 214* *M20 297 391 430* *M24 512 675 743* *Fastening class 10.9* *0,08* 0,12** 0,14**** *M8 26,2 34 37,2* *M10 53 68 75* *M12 90 117 128* *M16 216 285 314* *M20 423 557 615* *M24 730 960 1060* ** Lubricated slide friction number 0.8 MoS2* *** Lightly oiled slide friction number 0.12* **** Ensured slide friction number 0.14 screw with micro-encapsulated plastic*
Annually			Trained service personnel	All weld seams must have a visual inspection. Stop the system and contact the manufacturer if there are cracks or breaks in weld seams..
Annually				Check all available safety devices for function.

Time frame		Maintenance type position	Person in charge	Maintenance plan
Annually			Trained service personnel	• Check the powder coating and improve if required. Damage by external influences is to be treated immediately after detection. If these points are not treated, infiltration of deposits of all kinds can cause wide-ranging and permanent damage. These points are to be lightly sanded (120 grit), cleaned and degreased. Afterwards, rework with a suitable touch up paint (note the RAL No.). • Check galvanized surfaces and touch up as needed. White rust is fostered by permanent humidity, poor ventilation. • Rust is brought out by mechanical damage, wear, aggressive deposits (de-icing salt, leaking operating fluids) cleaning that is not done or incomplete. The affected areas can be treated by using a sanding cloth (A 280 grit). If required, the parts are to be treated with a suitable, resistant material (paint etc).
Annually			Trained service personnel	Electrical components (plug, electrical lines, cable, operating lever, button, etc.) are to be checked for function. The components are to be exchanged if there are defects or damage. Optional energy set: Check the condition and function of electrical sockets and the pneumatic connections.
Annually			Trained service personnel	According to manufacturer instructions, the hydraulic oil should be changed every two years in normal operations. Various environmental influences e.g. location, temperature swings, intensive operation etc, can have an influence on the quality of the hydraulic oil. For this reason, the oil must be checked during annual safety inspections and maintenance. The oil is used if it has a milky colour or if the hydraulic oil smells unpleasantly. To change oil, lower the lift is to its lowest position then suction the oil out of the oil container and replace the contents. The manufacturer recommends a high-quality clean hydraulic oil. The required oil volume and type is to be taken from the technical data. After filling, the hydraulic oil must be between the upper and lower marking on the oil dipstick, or approx. 2,5 cm below the oil filling opening. Dispose of the old oil according to regulations to the intended location (district offices, environmental protection office or commercial regulatory office has the obligation to disclose about disposal points).

Time frame		Maintenance type position	Person in charge	Maintenance plan
Annually			Trained service personnel	Hydraulic hose lines Storage and duration of use Excerpt from DIN20066:2002-10 • For permitted loading, hoses undergo a natural change. This limits the duration of use. • Improper storage, mechanical damage and unpermitted loads are the most frequent cause of breakdowns. • The duration of use of a hose line including any storage time should not exceed six years. Hose lines are to be replaced if/when, • damage to the outer coating up to the insert (chafe marks, cuts, cracks) • the outer coating becomes brittle (crack formation) • deformation from the natural shape in the depressurized and pressurized conditions • leakage • damage or deformation of the mounting fixture • meandering of the mounting fixture • the lifetime has been exceeded Repair of the hose line using the implemented hose / mounting fixture is not permitted. Extending the replacement intervals given in the guideline is possible if the inspection for safe-work condition is done in adjusted, shortened time frames, if required and by competent personnel. If there is an extension of the replacement interval, no situation may occur which could result in injury of employees or other personnel.
Annually			Trained service personnel	Excerpt from BGR237: Specifications for the hydraulic hose lines. Normal specification: Recommended exchange intervals: 6 years (operation duration including max. 2 years storage time). Increased demands e.g. by • Increased usage times e.g. multi-shift, short cycle times and pressure impulses. • Increased exterior and interior (due to media) influences which significantly reduce the lifetime of the hose lines. Recommended exchange intervals: 6 years (operation duration including max. 2 years storage time)

7.2 Cleaning and care of the lift

A regular and expert clean helps retain the value of the lift.
Additionally, it can also be a pre-requisiste for the preservation of guarantee claims for any eventual corrosion damage.
The best protection for the lift is regular removal of contaminants of any kind.
This includes above all:

- De-icing salt
- Sand, pebbles, earth, stone chips etc.
- Industrial dust of all types
- Water, also in connection with other environmental influences
- Aggressive deposits of all types
- Permanent humidity due to insufficient ventilation
- If fluid is sitting in the system grooves

The longer road dust, salt, and other aggressive deposits remain caked onto the system, the more damage they will have.

The frequency of lift cleaning depends, among other things on the frequency of use, of lift handling, of workshop cleanliness, and the location of the lift.
Furthermore, the degree of contamination depends on the time of year, the weather conditions and workshop ventilation.
Under adverse circumstances, weekly lift cleaning might be required, however a monthly cleaning may be sufficient.

Do not use and aggressive and abrasive materials for cleaning, rather use mild cleaners, e.g. a commercially available detergent and luke warm water.

Be sure that electric parts of the system, cables, hoses, etc. do not come into contact with water.

- For cleaning, do not use high pressure washers (e.g. steam cleaners).
- Carefully remove all contamination with a sponge, or if required with a brush.
- Make sure that there is no residue of the cleaner on the lift.
- Dry the lift with a cloth and spray it with a spray wax or oil.
- Moving parts (bolts, bearing zones) are to be lubricated or oiled according to instructions.
- When cleaning the workshop floor ensure that no aggressive cleaning materials come into contact with lift surfaces. Permanent contact with any kind of liquid is prohibited. This is also true for the fastening anchors.

Before switching on the main switch (15), carefully check that humidity has not penetrated into powered components.

8 Assembly and commissioning

8.1 Set up guidelines

- Lift set up is done by trained manufacturer personnel or a contract partner. If the operating company has appropriately trained assemblers, the lift can also be set up by them. Set up is to be done according to the assembly instructions.
- A standard lift may not be set up in explosion endangered spaces or wash halls.
- Before setting up, verify that there is a sufficient foundation or make it according to the guidelines in the foundation plan. The set up location must be level and even. Foundations in open air and spaces where winter storms or frost are to be expected, must have a foundation to frost depth.
- An on-site standard electrical connection of 1 ~/N + PE, 230 V, 60 Hz is to be provided.
  The supply is to be secured according to VDE0100 with 16 ampere fuses. The minimum line cross-section is 2.5 mm².
- To protect the electrical cable all cable conduits are to be fitted with cable sleeves or flexible plastic pipes.
- The lines can be fed through the cross-beams. In all cases, prevent kinks or tensional loads on the lines.
- After successful lift installation and before first commissioning, the operating company must have the lift grounding conductors inspected on-site according to IEC regulation (60364-6-61). An insulation resistance test is also recommended.

8.1.1 Set up and anchoring the lift

On-site provision of suitable auxiliary materials (e.g. forklifts, crane, etc) are to be made available for unloading the lift and for assembly.

Before setting up the lift, the operating company must ensure or make a sufficient foundation. For this, a normal reinforced concrete floor with a value of a min. C20/25 is required.
The minimum foundation thickness (without screed and floor tiles) is to be taken from the foundation plan in this document.
In our plans, we inform of the minimum specifications for the foundation, however local conditions (e.g. underground, floor quality, etc.) are outside of our responsibility.
In special cases, the design of the installation location must be individually specified by planning architects and statics experts.
Open air foundations must be made to frost depth.

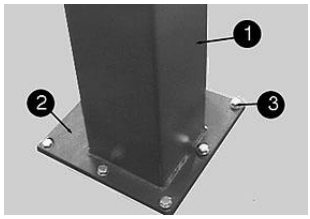
The operating company of the lift is solely responsible for the set up location.

If the lift is to be assembled on an existing concrete floor, cement quality and strength are to be checked beforehand. In case of doubt, make a test bore and insert a heavy-duty anchor. Then tighten the anchor to the manufacturer recommended torque.
After inspection within the anchor zone of influence (see technical data sheet of the anchor manufacturer), if there is visible damage (hairline cracks, cracks or similar), or if the required torque cannot be applied then the set up location is unsuitable.
The following preparation and work steps are to be done:

- To reach a higher level of protection against humidity from the workshop floor, a thin PE foil should be put between the workshop floor and column base plate (2) before anchors are placed. Also, the gap between the base plate and workshop floor should be silicone sprayed after anchoring.
- Set up and position the lift.
- Fasten cross-beams above on the lifting columns.
- Holes for floor anchoring (3) are to be made through the holes in the base plates (2).
- Clean the bore holes by blowing them out with air. Insert safety anchors into the holes (also see 8.6 Selecting anchor).
- Connect colour marked hydraulic lines (see Section 3.5).
- Before anchoring the lift, check whether the concrete is of quality C20/25 up to the finishing level of the completed floor. In this case, take the anchor length from the anchor manufacturer's data sheet.

! If there is a floor covering (tiles, screed) on the weight bearing concrete, the thickness of this covering must be determined. Afterwards, take the anchor length from the anchor manufacturer's data sheet.

- Position and align the lift and lift columns using a bubble level.



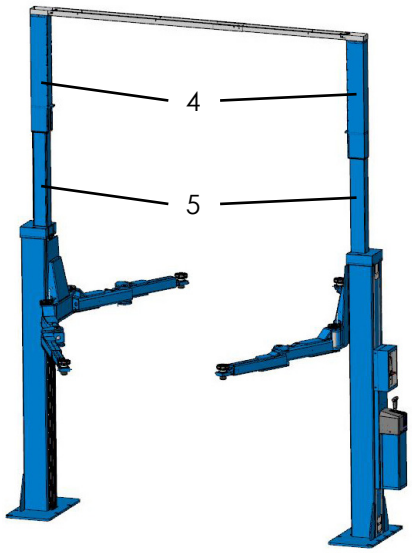
Anchoring (symbol picture) *023*

1 Column
2 Base plate
3 Positioning the fastening anchor

- The base plates (2) are also to be supported with suitable underlays (thin metal strips) to ensure precise vertical set up and contact between the base plate and the floor.
- Tighten the anchors using a torque wrench.

! Each anchor must be able to be tightened to the torque specified by the manufacturer. Safe operation of the lift is not guaranteed with a lower torque.

8.1.2 Riser extension (optional)



4 Riser extension (optional) 001
5 existing riser

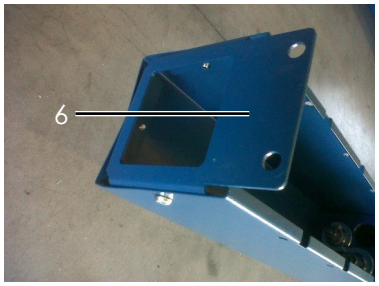
Riser extension (4) is set on the existing riser (5). The open side faces inwards.

4 Riser extension (optional) *003*

- Set to the desired height (from 100 mm to 900 mm in 100 mm steps).

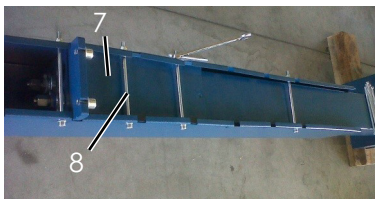
Please consider the maximum ceiling height!

- Guide the 4 hydraulic lines that are fastened to the operating columns upwards out of the riser.
- Afterwards, fasten the cover (6).



6 Cover for riser extension (optional) *004*

- After setting up the lift columns, lift the cross-connection to the opposite side and fasten it. The hydraulic lines are placed in the cross-connection.
- Guide the lines from above into the riser of the opposite side and connect to the colour marked positions.
- Fasten the extension using the long screws (8) after the tensioning plate (7) has been placed.



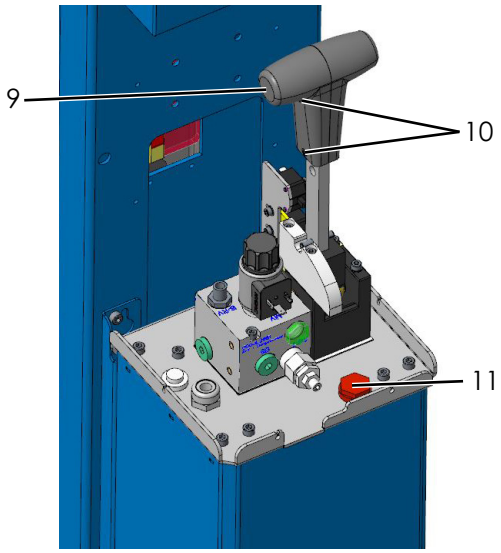
7 Tensioning plate *005*
8 Fastening screws

8.1.3 First filling

When filling the hydraulic system, identify already filled cylinders (with the sticker "first filling" on the system) and unfilled cylinders (no sticker on the system).
Lifts with this sticker already have hydraulic oil in the hydraulic cylinders.

First filling with sticker

Required oil volume 9 l (HLP 32).
Lifts with this sticker already have hydraulic oil in the hydraulic cylinders.
After setting up the electrical connection to the lift, the hydraulic system can be filled.



9 Operating lever *006*
10 Allen key operating lever
11 Oil filling opening

- Loosen and remove the plastic part of the operating lever (9) of both Allen screws (10).
- Loosen and remove the unit cover.
- Unscrew the oil filling opening (11).
- Fill with 9 L of hydraulic oil (HLP 32).
- Raise the lift approx. 1 m by pushing the operating lever (9).
- The lift rails can be lifted at different times!
- Hang in the lifting arms and secure them (see 8.2).
- Push the operating lever forwards and raise the lift to its uppermost end position.

- Push and hold the operating lever for another 60 seconds so air can escape from the system and the overflow procedure equalises the lift to each other.

! For first commissioning, it is normal to have a different start up and a large "shaking" in the uppermost position. Air trapped in the system must be completely removed first.

- Afterwards lower the lift to its lowest position. Pull the operating lever (9) and hold it until the lifting arm is completely lowered.

! The oil level should be approx. 30-40 mm below the oil fill opening. Do not fill the oil tank up to the upper edge, as otherwise during lowering the oil return line can pull oil out of the line and afterwards result in a very slow lifting at the upper range.

- After commissioning, the sticker (first filling) can be removed.

First filling without sticker.

Required oil volume, 14 (HLP 32).
9 L for system and 5 L for hoses and cylinders.

- After setting up the electrical connection to the lift, the hydraulic system can be filled.
- Loosen and remove the plastic part of the operating lever (9) of both Allen screws (10).
- Loosen and remove the unit cover.
- Unscrew the oil filling opening (11).
- Fill with 9 L of hydraulic oil (HLP 32).
- Raise the lift approx. 1 m by pushing the operating lever (9).
- The lift rails can be lifted at different times!
- Hang in the lifting arms and secure them (see 4.9).
- Push the operating lever (9) forwards and raise the lift to its uppermost end position.

- **Now fill the oil tank with 5 L hydraulic oil (HLP 32)**

- Afterwards hold the operating lever another 60 seconds so air can escape from the system and the lift rails can be equalised by the overflow procedure.

! For first commissioning, it is normal to have a different start up and a large "shaking" in the uppermost position. Air trapped in the system must be completely removed first.

- Afterwards lower the lift to its lowest position. Pull the operating lever (9) and hold it until the lifting arm is completely lowered.

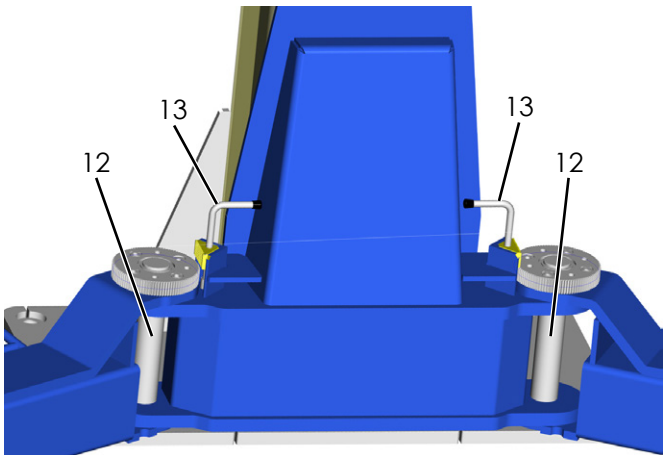
! The oil level should be approx. 30-40 mm below the oil fill opening. Do not fill the oil tank up to the upper edge, as otherwise during lowering the oil return line can pull oil out of the line and afterwards result in a very slow lifting at the upper range.

8.2 Lifting arm assembly

Hang in the standard lifting arm and then place an acid-free multi-purpose grease into the joint bolts (12) in each case from above into the hole and then insert the enclosed locking ring.

The lifting arm bolts must be secured on both sides as otherwise a reliable connection is not given between the lift rails and lifting arm.

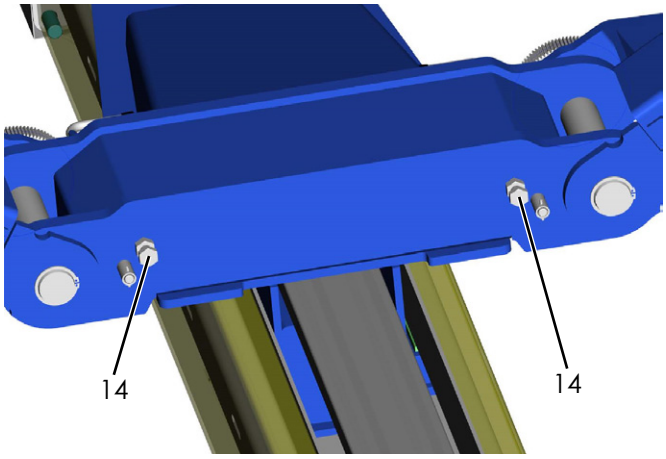
! See to it that the lifting arm blocks (20) are ratcheted in after the vehicle has been accepted.



12 Joint bolts *007*
13 Drawbar with lifting arm block

8.3 Lifting arm alignment

After lift assembly, it may be the case that the lifting arm is at the lowest position on the base plate (2) and is difficult to move.



View from below *007*
14 Set screws

There is an option of setting two set screws (14) on the bottom of the lift rails to a certain height so the carrier arms are free and are easier to move.

8.4 Commissioning

Before commissioning, a single safety inspection must be done (use the "single safety inspection" form).

If the lift set up is done by a specialist (factory trained assembler) then he can also do the safety inspection. If the set up is done by the operating company then a specialist must be tasked with the safety inspection. The specialist confirms seamless operation of the lift on the set up protocol for single safety inspection and releases the lift for use.

After commissioning, the set up protocol must be completed and sent to the manufacturer.

8.5 Changing the assembly location

To change the assembly location the pre-conditions must be met according to the assembly guidelines. The location change is to be done according to the following sequence:

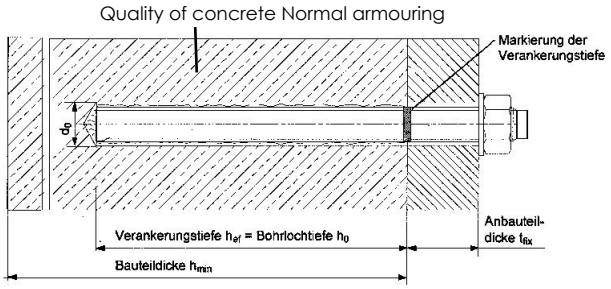
- Move the lift rails to about half height.
- Remove the lifting arm (remove the safety ring of the lifting arm pin, pull out the lifting arm pin and remove the lifting arm).
- Disconnect electrical supply lines to the lift from mains power.
- Replace the cable harness.
- Remove hydraulic lines above on the opposite side and seal them off with blind stoppers.
- Remove cross-beams.
- Suction off hydraulic oil.
- Loosen the anchor fastenings.
- Carefully transport the lift column using appropriate auxiliary means (e.g. crane, forklift, etc) to the new assembly location.
- Assemble the lift according to the procedure during assembly and anchoring before first commissioning.

Use new anchors. The old anchors are no longer fit for purpose!

Before re-commissioning, a safety inspection must be done by a specialist (use the regular safety inspection form).

8.6 Selection of anchors

8.6.1 Hilti injection anchor



subject to alterations!

Hilti injection anchor		**POWER LIFT HL 2.50 NT**
concrete floor		without floor pavement (tiles)
type of dowel		HIT-V-5.8 M16x200 Art.Nr.956437
drilling depth (mm)	h_o	144
min.anchorage depth (mm)	h_{ef}	144
component thickness (mm)	h_{min}	min.180
diameter of bore (mm)	d_0	18
attachment thickness (mm)	t_{fix}	23
turníng moment (Nm)	T_{inst}	80
Total length (mm)	l	200
Thread	M	16
piece number	a	4
	b	8
	c	10
	d	12
	e	14
	f	16
	g	28

Observe necessarily the installation description of the dowel manufacturer.
Use longer dowels with version with floor pavement and tiles.

It is possible to use equivalent injections dowels (with license) of other manufacturer but observe their regulations.

9 Safety inspection

The safety inspection is required to guarantee operational safety of the lift. It is to be done:

1. Before first commissioning after setting up the lift use the “single safety inspection” form

2. After first commissioning, check regularly at least once per year.
   Use the “regular safety inspection” form

3. After changes to the lift construction.
   Use the “extraordinary safety inspection” form

ℹ *Single and regular safety inspections must be done by a specialist. It is recommended to do maintenance at the same time.*

ℹ *After a change in construction (for example changing the load carrying capacity or changing the lifting height) and after significant maintenance on load carrying parts (e.g. welding work), inspection by a technical expert is required (extraordinary safety inspection)*

This inspection book contains forms with a detailed inspection plan for safety inspections.
Please use the appropriate form, record the condition of the inspected lift and leave the completed form in this inspection book.

9.1 Single safety inspection before commissioning

Copy, complete and leave in the inspection book Serial number: _____

Test step	OK	Defect missing	Reinspect	Remarks
Model plate	☐	☐	☐	_____
Brief operating instructions on the column	☐	☐	☐	_____
Operating manual	☐	☐	☐	_____
Load capacity details on the system	☐	☐	☐	_____
Condition / function operating lever and button	☐	☐	☐	_____
Function button “LIFT, LOWER”	☐	☐	☐	_____
Condition, lockable main switch	☐	☐	☐	_____
General system condition	☐	☐	☐	_____
Condition of covers	☐	☐	☐	_____
Check the play of sliding parts on the lift columns	☐	☐	☐	_____
Condition/ function lifting arm	☐	☐	☐	_____
Condition/ function lifting arm block	☐	☐	☐	_____
Condition/ function lifting arm movement	☐	☐	☐	_____
Condition/ function carrier plate / support parts	☐	☐	☐	_____
Condition / function of foot bumper (optional)	☐	☐	☐	_____
Condition/ function latch	☐	☐	☐	_____
Securing the lifting arm bolts	☐	☐	☐	_____
Load bearing construction (deformations, cracks)	☐	☐	☐	_____
Condition, function riser extension	☐	☐	☐	_____
Condition of cross-beam	☐	☐	☐	_____
Condition of concrete floor (cracks)	☐	☐	☐	_____
Fastening anchor torque	☐	☐	☐	_____
Fastening screw torque	☐	☐	☐	_____
Condition, hydraulic unit	☐	☐	☐	_____
Paint condition	☐	☐	☐	_____
Cylinder condition	☐	☐	☐	_____
Condition wiper cylinder	☐	☐	☐	_____
Hydraulic system leak-tightness	☐	☐	☐	_____
Hydraulic oil filling level	☐	☐	☐	_____
Condition of hydraulic lines incl. screw fittings	☐	☐	☐	_____
Functional test “overflows”	☐	☐	☐	_____
Condition electrical lines	☐	☐	☐	_____
Condition / function energy set (optional)	☐	☐	☐	_____
Condition of weld seams	☐	☐	☐	_____
Functional test, system with load	☐	☐	☐	_____

**) Place a checkmark in the relevant, if a retest is required then check it again!*

Safety inspection done on: _____

Performed by company: _____

Name, address of specialist: _____

Result of inspection:

☐ Continued operation questionable, reinspection required
☐ Continued operation possible, remove defects by _____
☐ No deficiencies, continue to operate

_____ _____

Signature of specialist *Operating company signature*

If requested to take care of deficiencies

Deficiency removed on: _____ _____

Operating company signature

(Use a new form for reinspection!)

9.2 Regular safety inspection and maintenance

Copy, complete and leave in the inspection book Serial number: _____

Test step	OK	Defect missing	Reinspect	Remarks
Model plate	☐	☐	☐	
Brief operating instructions on the column	☐	☐	☐	
Operating manual	☐	☐	☐	
Load capacity details on the system	☐	☐	☐	
Condition / function operating lever and button	☐	☐	☐	
Function button "LIFT, LOWER"	☐	☐	☐	
Condition, lockable main switch	☐	☐	☐	
General system condition	☐	☐	☐	
Condition of covers	☐	☐	☐	
Check the play of sliding parts on the lift columns	☐	☐	☐	
Condition/ function lifting arm	☐	☐	☐	
Condition/ function lifting arm block	☐	☐	☐	
Condition/ function lifting arm movement	☐	☐	☐	
Condition/ function carrier plate / support parts	☐	☐	☐	
Condition / function of foot bumper (optional)	☐	☐	☐	
Condition/ function latch	☐	☐	☐	
Securing the lifting arm bolts	☐	☐	☐	
Load bearing construction (deformations, cracks)	☐	☐	☐	
Condition, function riser extension	☐	☐	☐	
Condition of cross-beam	☐	☐	☐	
Condition of concrete floor (cracks)	☐	☐	☐	
Fastening anchor torque	☐	☐	☐	
Fastening screw torque	☐	☐	☐	
Condition, hydraulic unit	☐	☐	☐	
Paint condition	☐	☐	☐	
Cylinder condition	☐	☐	☐	
Condition wiper cylinder	☐	☐	☐	
Hydraulic system leak-tightness	☐	☐	☐	
Hydraulic oil filling level	☐	☐	☐	
Condition of hydraulic lines incl. screw fittings	☐	☐	☐	
Functional test "overflows"	☐	☐	☐	
Condition electrical lines	☐	☐	☐	
Condition / function energy set (optional)	☐	☐	☐	
Condition of weld seams	☐	☐	☐	
Functional test, system with load	☐	☐	☐	

**) Place a checkmark in the relevant, if a retest is required then check it again!*

Safety inspection done on: _____

Performed by company: _____

Name, address of specialist: _____

Result of inspection:

☐ Continued operation questionable, reinspection required
☐ Continued operation possible, remove defects by _____
☐ No deficiencies, continue to operate

_____ _____

Signature of specialist *Operating company signature*

If requested to take care of deficiencies

Deficiency removed on: _____ _____

Operating company signature

(Use a new form for reinspection!)

Regular safety inspection and maintenance

Copy, complete and leave in the inspection book Serial number: _____

Test step	OK	Defect missing	Reinspect	Remarks
Model plate	☐	☐	☐	_____
Brief operating instructions on the column	☐	☐	☐	_____
Operating manual	☐	☐	☐	_____
Load capacity details on the system	☐	☐	☐	_____
Condition / function operating lever and button	☐	☐	☐	_____
Function button “LIFT, LOWER”	☐	☐	☐	_____
Condition, lockable main switch	☐	☐	☐	_____
General system condition	☐	☐	☐	_____
Condition of covers	☐	☐	☐	_____
Check the play of sliding parts on the lift columns	☐	☐	☐	_____
Condition/ function lifting arm	☐	☐	☐	_____
Condition/ function lifting arm block	☐	☐	☐	_____
Condition/ function lifting arm movement	☐	☐	☐	_____
Condition/ function carrier plate / support parts	☐	☐	☐	_____
Condition / function of foot bumper (optional)	☐	☐	☐	_____
Condition/ function latch	☐	☐	☐	_____
Securing the lifting arm bolts	☐	☐	☐	_____
Load bearing construction (deformations, cracks)	☐	☐	☐	_____
Condition, function riser extension	☐	☐	☐	_____
Condition of cross-beam	☐	☐	☐	_____
Condition of concrete floor (cracks)	☐	☐	☐	_____
Fastening anchor torque	☐	☐	☐	_____
Fastening screw torque	☐	☐	☐	_____
Condition, hydraulic unit	☐	☐	☐	_____
Paint condition	☐	☐	☐	_____
Cylinder condition	☐	☐	☐	_____
Condition wiper cylinder	☐	☐	☐	_____
Hydraulic system leak-tightness	☐	☐	☐	_____
Hydraulic oil filling level	☐	☐	☐	_____
Condition of hydraulic lines incl. screw fittings	☐	☐	☐	_____
Functional test “overflows”	☐	☐	☐	_____
Condition electrical lines	☐	☐	☐	_____
Condition / function energy set (optional)	☐	☐	☐	_____
Condition of weld seams	☐	☐	☐	_____
Functional test, system with load	☐	☐	☐	_____

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Safety inspection done on: _____

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Name, address of specialist: _____

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_____ _____

Signature of specialist *Operating company signature*

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Operating company signature

(Use a new form for reinspection!)

Regular safety inspection and maintenance

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Test step	OK	Defect missing	Reinspect	Remarks
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Operating manual	☐	☐	☐	_____
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Condition / function operating lever and button	☐	☐	☐	_____
Function button "LIFT, LOWER"	☐	☐	☐	_____
Condition, lockable main switch	☐	☐	☐	_____
General system condition	☐	☐	☐	_____
Condition of covers	☐	☐	☐	_____
Check the play of sliding parts on the lift columns	☐	☐	☐	_____
Condition/ function lifting arm	☐	☐	☐	_____
Condition/ function lifting arm block	☐	☐	☐	_____
Condition/ function lifting arm movement	☐	☐	☐	_____
Condition/ function carrier plate / support parts	☐	☐	☐	_____
Condition / function of foot bumper (optional)	☐	☐	☐	_____
Condition/ function latch	☐	☐	☐	_____
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Condition of cross-beam	☐	☐	☐	_____
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Condition, hydraulic unit	☐	☐	☐	_____
Paint condition	☐	☐	☐	_____
Cylinder condition	☐	☐	☐	_____
Condition wiper cylinder	☐	☐	☐	_____
Hydraulic system leak-tightness	☐	☐	☐	_____
Hydraulic oil filling level	☐	☐	☐	_____
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Functional test "overflows"	☐	☐	☐	_____
Condition electrical lines	☐	☐	☐	_____
Condition / function energy set (optional)	☐	☐	☐	_____
Condition of weld seams	☐	☐	☐	_____
Functional test, system with load	☐	☐	☐	_____

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Safety inspection done on: _____

Performed by company: _____

Name, address of specialist: _____

Result of inspection:

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_____ _____

Signature of specialist *Operating company signature*

If requested to take care of deficiencies

Deficiency removed on: _____ _____

Operating company signature

(Use a new form for reinspection!)

Regular safety inspection and maintenance

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Test step	OK	Defect missing	Reinspect	Remarks
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Condition, lockable main switch	☐	☐	☐	_____
General system condition	☐	☐	☐	_____
Condition of covers	☐	☐	☐	_____
Check the play of sliding parts on the lift columns	☐	☐	☐	_____
Condition/ function lifting arm	☐	☐	☐	_____
Condition/ function lifting arm block	☐	☐	☐	_____
Condition/ function lifting arm movement	☐	☐	☐	_____
Condition/ function carrier plate / support parts	☐	☐	☐	_____
Condition / function of foot bumper (optional)	☐	☐	☐	_____
Condition/ function latch	☐	☐	☐	_____
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Load bearing construction (deformations, cracks)	☐	☐	☐	_____
Condition, function riser extension	☐	☐	☐	_____
Condition of cross-beam	☐	☐	☐	_____
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Fastening anchor torque	☐	☐	☐	_____
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Condition / function energy set (optional)	☐	☐	☐	_____
Condition of weld seams	☐	☐	☐	_____
Functional test, system with load	☐	☐	☐	_____

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Performed by company: _____

Name, address of specialist: _____

Result of inspection:

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_____ _____

Signature of specialist *Operating company signature*

If requested to take care of deficiencies

Deficiency removed on: _____ _____

Operating company signature

(Use a new form for reinspection!)

Regular safety inspection and maintenance

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Brief operating instructions on the column	☐	☐	☐	_____
Operating manual	☐	☐	☐	_____
Load capacity details on the system	☐	☐	☐	_____
Condition / function operating lever and button	☐	☐	☐	_____
Function button "LIFT, LOWER"	☐	☐	☐	_____
Condition, lockable main switch	☐	☐	☐	_____
General system condition	☐	☐	☐	_____
Condition of covers	☐	☐	☐	_____
Check the play of sliding parts on the lift columns	☐	☐	☐	_____
Condition/ function lifting arm	☐	☐	☐	_____
Condition/ function lifting arm block	☐	☐	☐	_____
Condition/ function lifting arm movement	☐	☐	☐	_____
Condition/ function carrier plate / support parts	☐	☐	☐	_____
Condition / function of foot bumper (optional)	☐	☐	☐	_____
Condition/ function latch	☐	☐	☐	_____
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Load bearing construction (deformations, cracks)	☐	☐	☐	_____
Condition, function riser extension	☐	☐	☐	_____
Condition of cross-beam	☐	☐	☐	_____
Condition of concrete floor (cracks)	☐	☐	☐	_____
Fastening anchor torque	☐	☐	☐	_____
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Functional test "overflows"	☐	☐	☐	_____
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Condition / function energy set (optional)	☐	☐	☐	_____
Condition of weld seams	☐	☐	☐	_____
Functional test, system with load	☐	☐	☐	_____

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Name, address of specialist: _____

Result of inspection:

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☐ No deficiencies, continue to operate

_____ _____

Signature of specialist *Operating company signature*

If requested to take care of deficiencies

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Operating company signature

(Use a new form for reinspection!)

Regular safety inspection and maintenance

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Test step	OK	Defect missing	Reinspect	Remarks
Model plate	☐	☐	☐	_____
Brief operating instructions on the column	☐	☐	☐	_____
Operating manual	☐	☐	☐	_____
Load capacity details on the system	☐	☐	☐	_____
Condition / function operating lever and button	☐	☐	☐	_____
Function button “LIFT, LOWER”	☐	☐	☐	_____
Condition, lockable main switch	☐	☐	☐	_____
General system condition	☐	☐	☐	_____
Condition of covers	☐	☐	☐	_____
Check the play of sliding parts on the lift columns	☐	☐	☐	_____
Condition/ function lifting arm	☐	☐	☐	_____
Condition/ function lifting arm block	☐	☐	☐	_____
Condition/ function lifting arm movement	☐	☐	☐	_____
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Condition / function of foot bumper (optional)	☐	☐	☐	_____
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Functional test “overflows”	☐	☐	☐	_____
Condition electrical lines	☐	☐	☐	_____
Condition / function energy set (optional)	☐	☐	☐	_____
Condition of weld seams	☐	☐	☐	_____
Functional test, system with load	☐	☐	☐	_____

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Name, address of specialist: _____

Result of inspection:

☐ Continued operation questionable, reinspection required
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☐ No deficiencies, continue to operate

_____ _____

Signature of specialist *Operating company signature*

If requested to take care of deficiencies

Deficiency removed on: _____ _____

Operating company signature

(Use a new form for reinspection!)

Regular safety inspection and maintenance

Copy, complete and leave in the inspection book Serial number: _____

Test step	OK	Defect missing	Reinspect	Remarks
Model plate	☐	☐	☐	_____
Brief operating instructions on the column	☐	☐	☐	_____
Operating manual	☐	☐	☐	_____
Load capacity details on the system	☐	☐	☐	_____
Condition / function operating lever and button	☐	☐	☐	_____
Function button "LIFT, LOWER"	☐	☐	☐	_____
Condition, lockable main switch	☐	☐	☐	_____
General system condition	☐	☐	☐	_____
Condition of covers	☐	☐	☐	_____
Check the play of sliding parts on the lift columns	☐	☐	☐	_____
Condition/ function lifting arm	☐	☐	☐	_____
Condition/ function lifting arm block	☐	☐	☐	_____
Condition/ function lifting arm movement	☐	☐	☐	_____
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Signature of specialist *Operating company signature*

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Operating company signature

(Use a new form for reinspection!)

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Condition of covers	☐	☐	☐	_____
Check the play of sliding parts on the lift columns	☐	☐	☐	_____
Condition/ function lifting arm	☐	☐	☐	_____
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Operating company signature

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☐ Continued operation questionable, reinspection required
☐ Continued operation possible, remove defects by _____
☐ No deficiencies, continue to operate

_____ _____

Signature of specialist *Operating company signature*

If requested to take care of deficiencies

Deficiency removed on: _____ _____

Operating company signature

(Use a new form for reinspection!)

Regular safety inspection and maintenance

Copy, complete and leave in the inspection book Serial number: _____

Test step	OK	Defect missing	Reinspect	Remarks
Model plate	☐	☐	☐	
Brief operating instructions on the column	☐	☐	☐	
Operating manual	☐	☐	☐	
Load capacity details on the system	☐	☐	☐	
Condition / function operating lever and button	☐	☐	☐	
Function button "LIFT, LOWER"	☐	☐	☐	
Condition, lockable main switch	☐	☐	☐	
General system condition	☐	☐	☐	
Condition of covers	☐	☐	☐	
Check the play of sliding parts on the lift columns	☐	☐	☐	
Condition/ function lifting arm	☐	☐	☐	
Condition/ function lifting arm block	☐	☐	☐	
Condition/ function lifting arm movement	☐	☐	☐	
Condition/ function carrier plate / support parts	☐	☐	☐	
Condition / function of foot bumper (optional)	☐	☐	☐	
Condition/ function latch	☐	☐	☐	
Securing the lifting arm bolts	☐	☐	☐	
Load bearing construction (deformations, cracks)	☐	☐	☐	
Condition, function riser extension	☐	☐	☐	
Condition of cross-beam	☐	☐	☐	
Condition of concrete floor (cracks)	☐	☐	☐	
Fastening anchor torque	☐	☐	☐	
Fastening screw torque	☐	☐	☐	
Condition, hydraulic unit	☐	☐	☐	
Paint condition	☐	☐	☐	
Cylinder condition	☐	☐	☐	
Condition wiper cylinder	☐	☐	☐	
Hydraulic system leak-tightness	☐	☐	☐	
Hydraulic oil filling level	☐	☐	☐	
Condition of hydraulic lines incl. screw fittings	☐	☐	☐	
Functional test "overflows"	☐	☐	☐	
Condition electrical lines	☐	☐	☐	
Condition / function energy set (optional)	☐	☐	☐	
Condition of weld seams	☐	☐	☐	
Functional test, system with load	☐	☐	☐	

**) Place a checkmark in the relevant, if a retest is required then check it again!*

Safety inspection done on: _____

Performed by company: _____

Name, address of specialist: _____

Result of inspection:

☐ Continued operation questionable, reinspection required
☐ Continued operation possible, remove defects by _____
☐ No deficiencies, continue to operate

_____ _____

Signature of specialist *Operating company signature*

If requested to take care of deficiencies

Deficiency removed on: _____ _____

Operating company signature

(Use a new form for reinspection!)

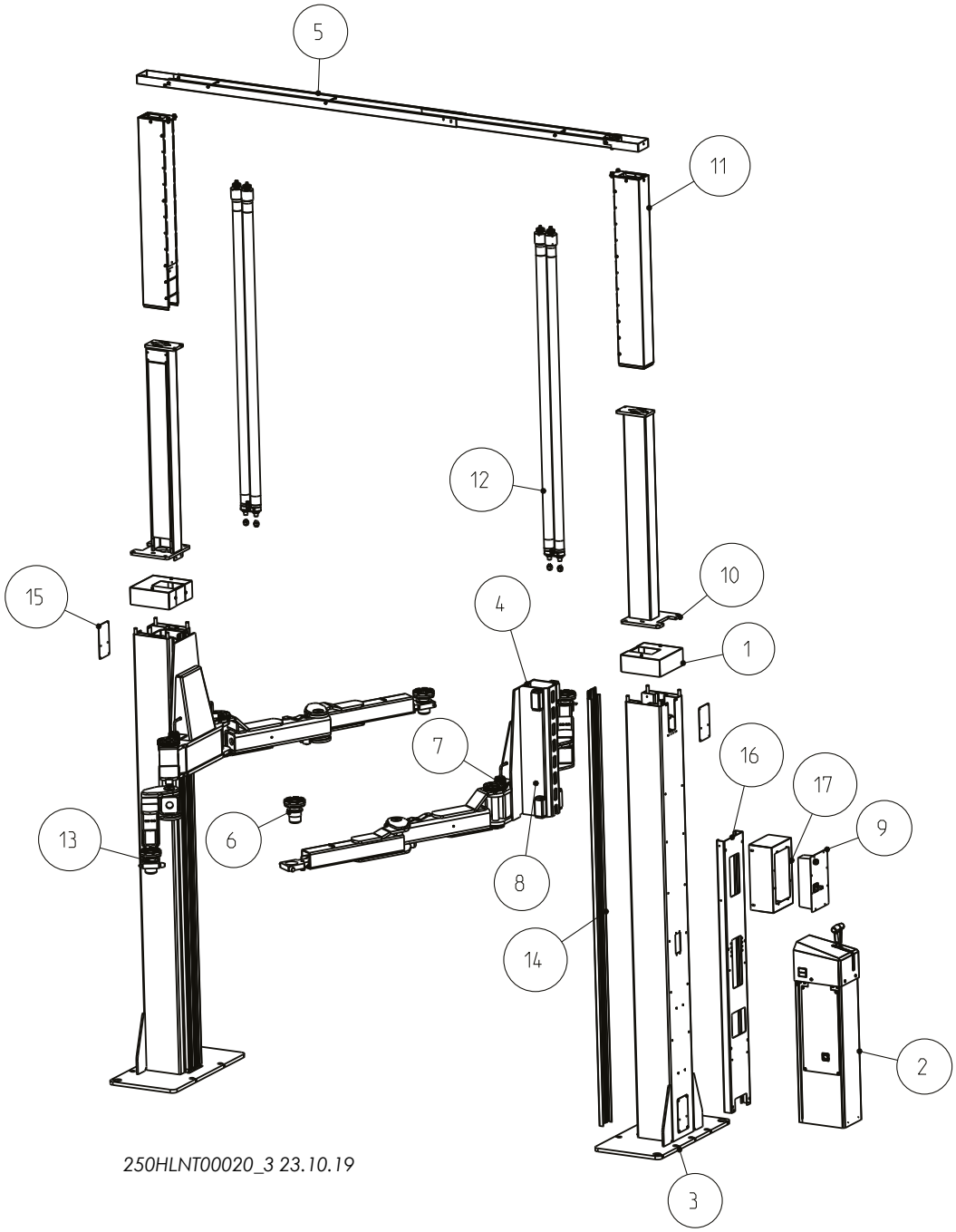
Nussbaum

Spare parts list

POWER LIFT HF 3S 12000

Made in Germany

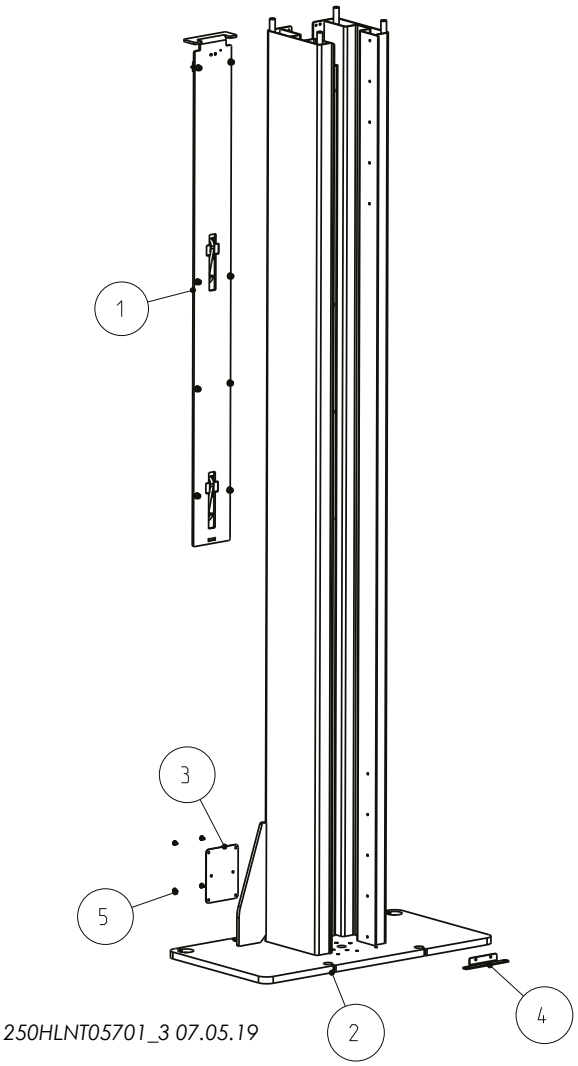
10.xx Lift



250HLNT00020_3 23.10.19

1	250HLNT09345	COMPLETE HOOD
2	240HLNT21570	LEVER UNIT USA/BOSCH 320
3	250HLNT05701	LIFT COLUMN COMPLETE
4	250HLNT06901	COMPLETE LIFT RAILS
5	250HLNT09330	CROSS-BEAM COMPLETE
6	235TTKAS08055	TELESCOPE MOUNT COMPLETE
7	250SLH08401	LIFTING ARM 1 COMPLETE
8	250SLH08451	LIFTING ARM 2 COMPLETE
9	000STA03600	UNIVERSAL CONTROL WITH CIRCUIT BOARD (HLNT)
10	250HLNT05641	EXTENSION
11	250HLNT05471	INDIVIDUAL EXTENSIONS
12	250HLNT02500	CYLINDER COMPLETE (USA)
13	225SL09021	COVER PANEL FOR E-SET
14	250HLNT21103	COVER
15	260HL25042	COVER
16	250HLNT05048	BRACKET (USA)
17	250HLNT03751	CONTROL BOX

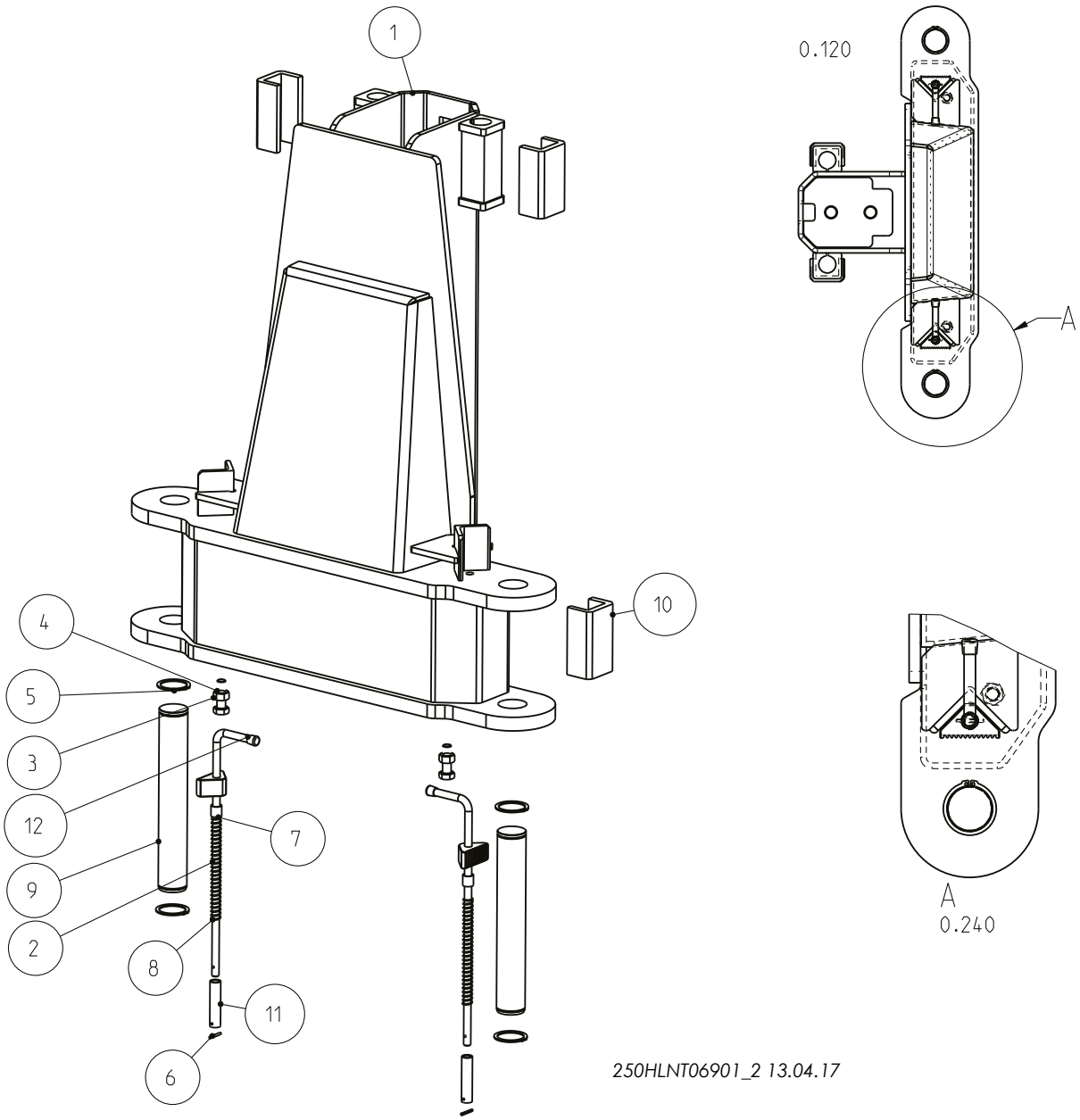
20.xx Lift column



250HLNT05701_3 07.05.19

1	260SHL05030	INSERT ASSY.	4	250HLNT05541	HOLDER
2	250HLNT05703	LIFT COLUMN, WELDED PART	5	9SEM05X010ZN	FLANGED BUTTON HEAD SCREW
3	260HL05042	COVER			

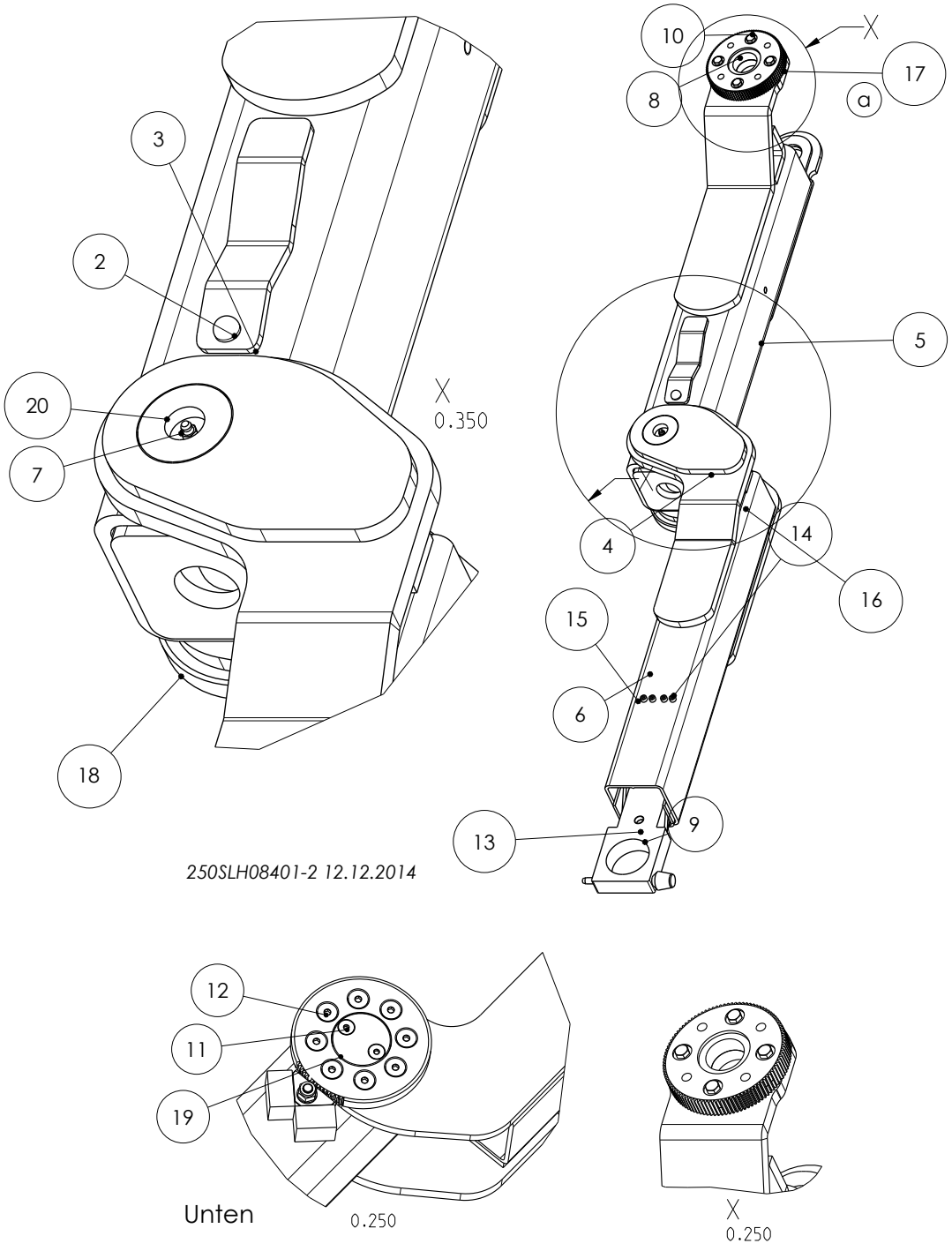
30.xx Lift rails



250HLNT06901_2 13.04.17

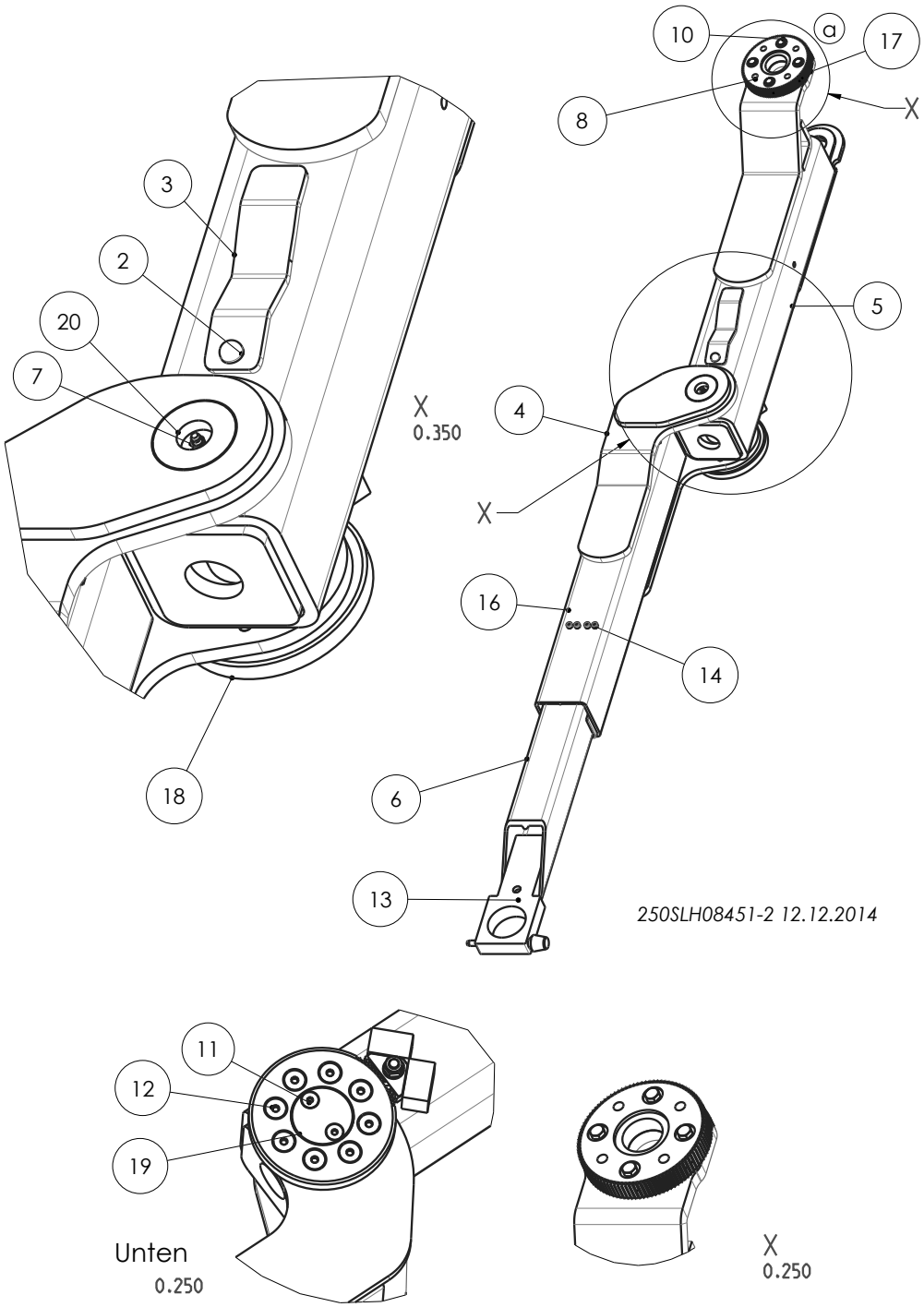
30.1	250HLNT06903	LIFT RAIL WELDED PART	30.7	250HL06388	SPACER SLEEVE
30.2	250HL06383	DRAW BAR WELDED PART	30.8	9DFD-222SL02ZN	PRESSURE SPRING 165MM
30.3	9934-M12	HEXAGONAL NUT	30.9	250SL08050	JOINT BOLTS
30.4	9933-M12X40	HEXAGONAL SCREW	30.10	250HDL06013	SLIDING PART
30.5	9471-40X1_75	SAFETY RING	30.11	250HLNT06088	SLEEVE
30.6	91481-3X24	TENSIONING PIN	30.12	970008	SAFETY CAP

40.xx DG-lifting arm 1



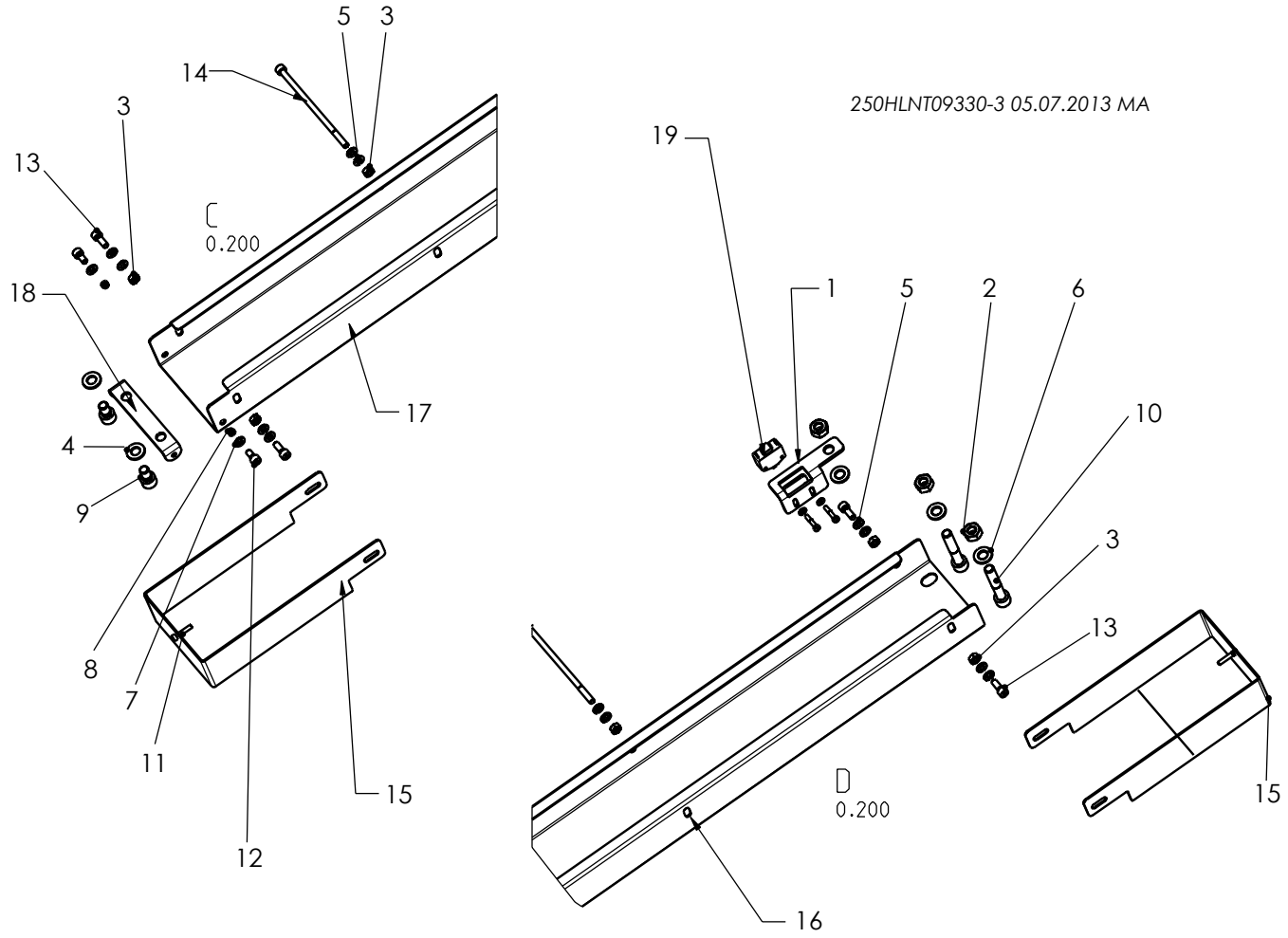
.1	250HDL48119	BLOCKING PIN	.11	97991-M8X25	COUNTERSUNK SCREW
.2	250SLH08093	PRESSURE ROD	.12	97991-M10X25	COUNTERSUNK SCREW
.3	250SLH08091	LEVER 2	.13	9912-M16X30	CYLINDER SCREW
.4	250SLH08223	CARRIER PIECE WELDED PART	.14	9912-M6X10	CYLINDER SCREW
.5	250SLH28253	CARRIER PIECE WELDED PART	.15	250SLH08221	STOP PLATE 1
.6	250SLH08243	PUSHER	.16	250SLH08246	STOP PLATE 1
.7	971412-AM8X1	BALL LUBRICATION NIPPLE	.17	250SL28039	GEARED BLOCK
.8	91-10X32	TAPER PIN	.18	250SLH08197	GEARED BLOCK
.9	9125_1-A17	WASHER	.19	250SLH08176	LOCKING WASHER
.10	9933-M8X30	HEXAGONAL SCREW	.20	250SLH08274	CARRYING ARM STUD FRONT

40.xx DG-lifting arm 2



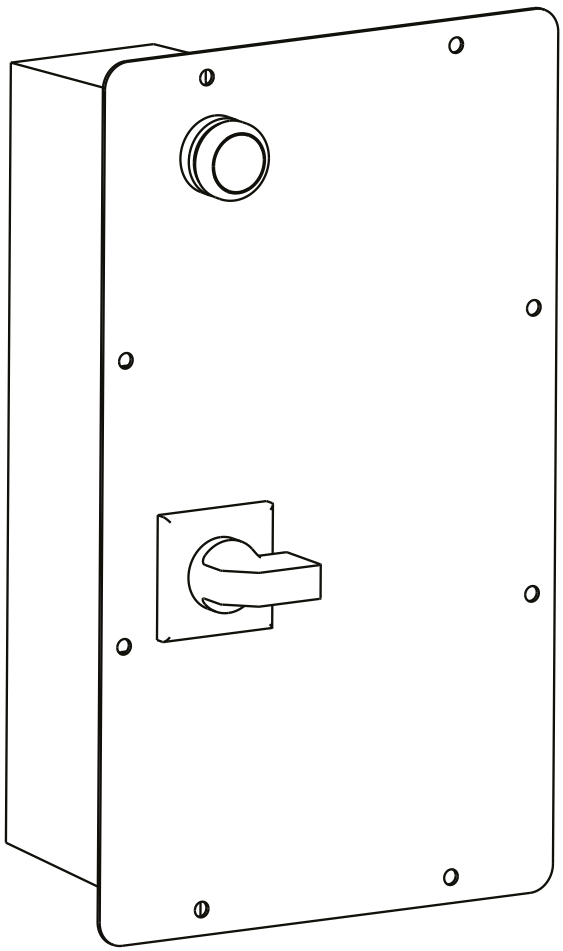
.1	250HDL48119	BLOCKING PIN	.11	97991-M8X25	COUNTERSUNK SCREW
.2	250SLH08093	PRESSURE ROD	.12	97991-M10X25	COUNTERSUNK SCREW
.3	250SLH08091	LEVER 2	.13	9912-M16X30	CYLINDER SCREW
.4	250SLH08253	CARRIERPIECEWELDEDPART	.14	9912-M6X10	CYLINDER SCREW
.5	250SLH28253	CARRIERPIECEWELDEDPART	.15	250SLH08221	STOP PLATE 1
.6	250SLH08243	PUSHER	.16	250SLH08246	STOP PLATE 1
.7	971412-AM8X1	BALL LUBRICATION NIPPLE	.17	250SL28039	GEARED BLOCK
.8	91-10X32	TAPER PIN	.18	250SLH08197	GEARED BLOCK
.9	9125_1-A17	WASHER	.19	250SLH08176	LOCKING WASHER
.10	9933-M8X30	HEXAGONAL SCREW	.20	250SLH08274	CARRYING ARM STUD FRONT

50.xx Cross-beam



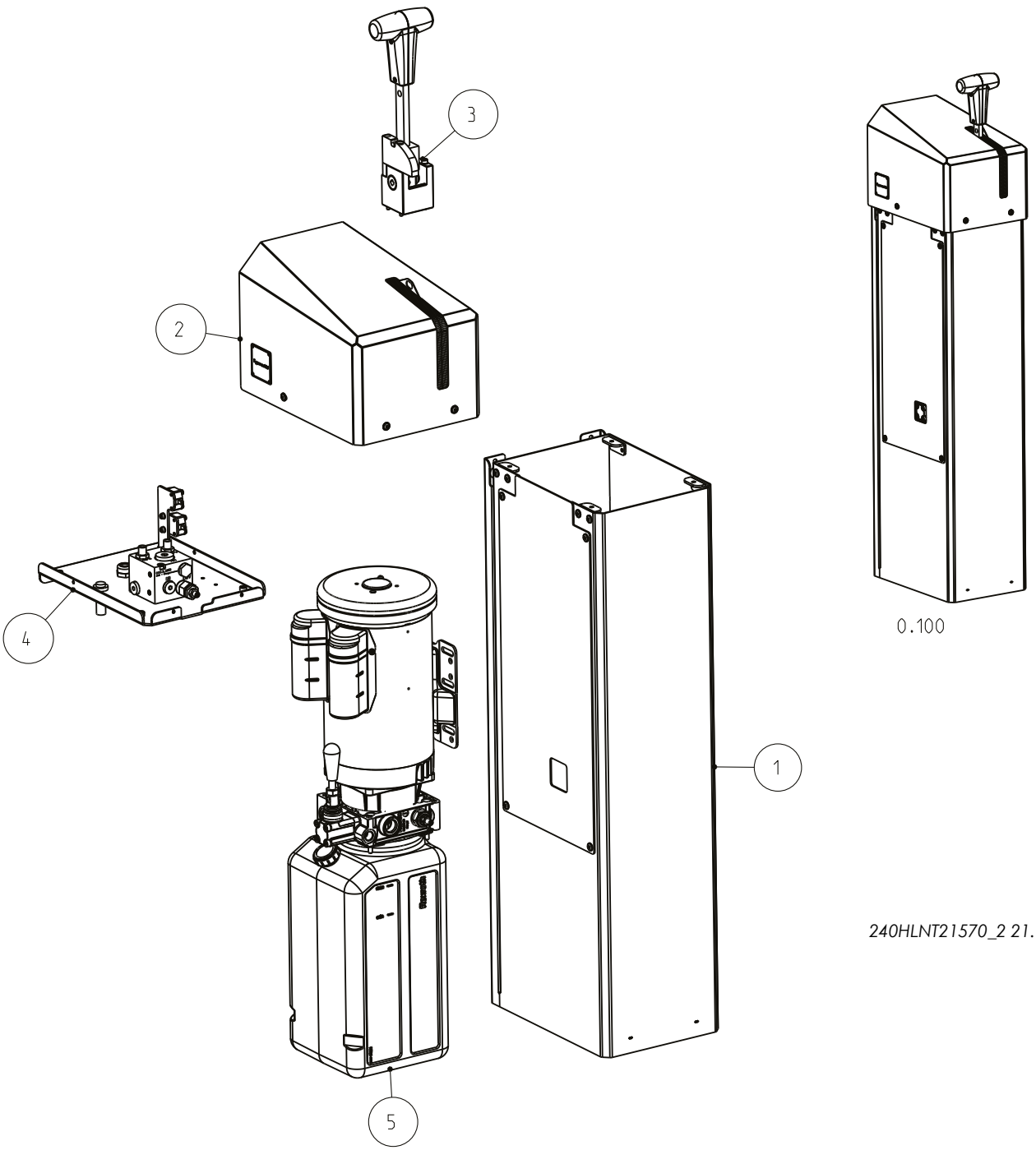
50.1	230HLNT05733	COMPLETE SWITCH
50.2	9934-M10	HEXAGONAL NUT
50.3	9934-M6	HEXAGONAL NUT
50.4	9125_1-A10_5	WASHER
50.5	9125_1-B6_4	WASHER
50.6	9125_2-A10_5	WASHER
50.7	9125_1-A6_4	WASHER
50.8	9985-M4	HEXAGONAL NUT DIN 985
50.9	9912-M10X16	CYLINDER SCREW
50.10	9912-M10X16	CYLINDER SCREW
50.11	9912-M4X20	CYLINDER SCREW
50.12	9912-M6X12	CYLINDER SCREW
50.13	9912-M6X16	CYLINDER SCREW
50.14	9912-M6X130	CYLINDER SCREW
50.15	250HLNT09334	COVER
50.16	230HLNT05722	CROSS-BEAM
50.17	250HLNT09331	CROSS-BEAM
50.18	230HLNT05719	HINGE
50.19	990322	BUTTON

60.xx Switch box



000STA03600-2 05.07.19

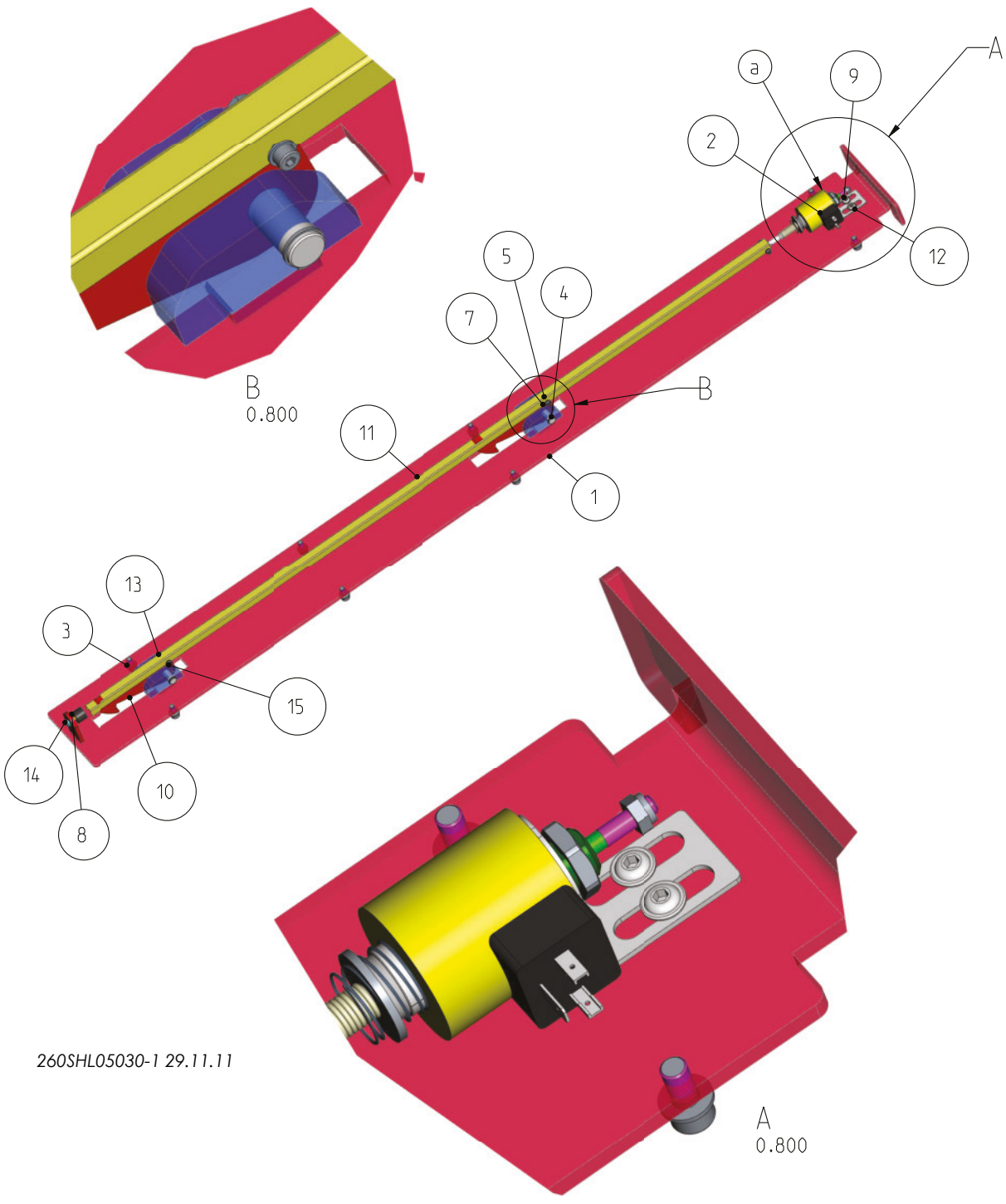
70.xx Unit



240HLNT21570_2 21.10.19

1	240HLNT21560	CASE ASSY.	4	240HLNT01580	HYDRAULIC INSERT ASSY.
2	240HLNT01582	HOOD USA ASSY.	5	240SLK01100	BOSCH UNIT USA (LEVER)
3	000STA11580	LEVER ASSY.			

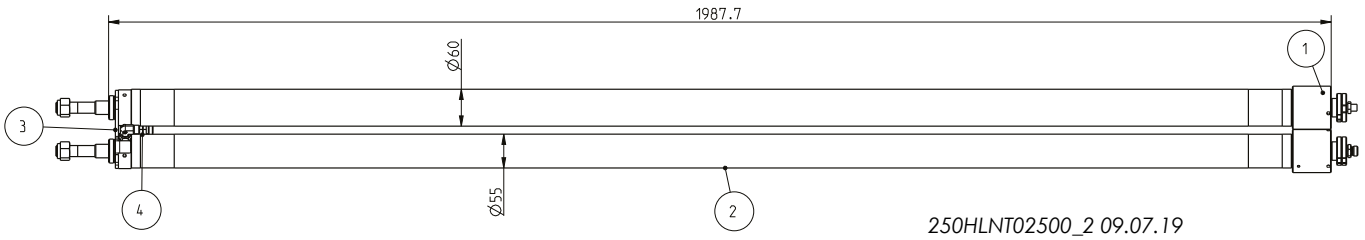
Insert assy.



260SHL05030-1 29.11.11

1	260SHL05033	INSERT WELDED PART.
2	00MNG603160	MAGNET NG6
3	9125_ 1-A8_4	WASHER
4	94 71-10X1	CIRCLIP
5	9912-M4X25	CYLINDER SCREW
6	9912-M8X1X16	CYLINDER SCREW
7	260SHL05038	BOLTS
8	972938	RUBBER BUFFER
9	00MNG403024	MOUNTING BRACKET
10	250SLH06019	LATCH
11	260SHL05037	RATCHET LEVER
12	9SEM06X008ZN	FLANGED BUTTON HEAD SCREW
13	9934M4ZN	HEXAGONAL NUT
14	9934M6ZN	HEXAGONAL NUT
15	9125_4_3ST	U-WASHER

Cylinder complete



250HLNT02500_2 09.07.19

1	250HLNT02502	CYLINDER F ASSY. (USA)	3	250HLNT32370	ANTI-TWIST SAFETY
2	250HLNT02501	CYLINDER K ASSY. (USA)	4	982253	SCREW FITTING

Dealer address/phone:

Nussbaum Automotive Solutions, LP • 1932 Jordache Court • Gastonia, NC 28052
www.nussbaum-usa.com • E-Mail: warranty@nussbaum-usa.com

Fax: 1-704-864-2476
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