UPLIFTING COMPANY

AUTOP STENHOJ

Maestro

32/35 M

Operation and maintenance instructions

(TRANSLATED VERSION)

ALWAYS KEEP operating instructions ready to hand on the unit

Read the operating instructions before working with the unit

Manual no.: T61916-GB
Date: 30.06.2021

Before taking into operation check system components, control, emergency stop and safety equipment for condition, damage and correct function!

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Table of contents

1 General

1.1 Information about the operating manual

This operating manual describes the installation, operation and maintenance of the machine.
Strict compliance with all the specified notes on safety and instructions is essential for safe working and proper handling of the equipment.

Apart from that, all accident prevention instructions valid at the place of use and the general safety regulations must also be adhered to.

This operating manual is part of the product and should always be kept in the immediate vicinity of the machine, accessible for the personnel entrusted with installation, operation, maintenance and cleaning.

For better representation of the explanations, the graphical artwork in this manual is not strictly according to scale, but may slightly vary from the actual design of the machine.

The operating manuals of the supporting components apply alongside this operating manual.
Please observe the notes contained therein - especially the safety notes.

1.2 Explanation of symbols

Important safety and machine-technical notes in this operating manual are marked with symbols. The notes must be adhered to in order to avoid accidents, personal injuries and damage to property.

 **WARNING!**
This symbolizes dangers that can lead to adverse effects on health, injuries, permanent physical damage or to death.
Adhere at all costs to the notes specified regarding work safety, and be particularly careful in these cases.

 **WARNING! Danger of electric current!**
This symbol draws attention to dangerous situations involving electrical currents. There is a danger of serious injury or death if the safety notes are not complied with. The work may only be carried out by qualified electricians.

 **ATTENTION!**
This symbolizes notes, which if not complied with, can lead to damages, malfunctions and/or breakdown of the machine.

 *NOTE!*
This symbol highlights tips and information that are to be observed for efficient and disruption-free operation of the machine.

1.3 Warranty and liability

All information and notes in this operation manual are provided under due consideration of valid regulations, the latest technical status of development as well as our years of expertise and experience.
The translation of this operation manual has also been made to the best of our knowledge.
We do not accept any liability for errors in translation. The version marked of the operation manual marked with “Original version” on the front page of the operation manual supplied with the lift shall be binding.
For optional design versions, the use of additional ordering options or the implementation of the latest technical modifications the actual scope of delivery may differ from the descriptions and illustrations in this manual. If you have any questions please contact the manufacturer.

NOTE!
This operation manual must be thoroughly read before starting any work with the equipment, especially before commissioning ! The manufacturer assumes no liability for damages or disruptions that occur as a result of non-compliance with the operation manual.

This operation manual must be kept at the lift and accessible for all persons working on or with the lift. Handing over the manual to third party is not permitted and is subject for compensation. Further rights remain reserved.

We reserve the right to technical changes to the product within the framework of improving the usability and further development.

This lift is guaranteed, covering faults due to manufacturing or material defects, provided that the installation, operation and maintenance instructions are observed. The warranty implies that during the warranty period the manufacturer is committed either to repair or to replace – after own decision - defective spare parts fitted in the lift. No other warranty claim can be put in under warranty.

1.4 Spare parts

IMPORTANT: Spare parts used in the lifts are quality tested and comply with the criteria laid down in DS/EN 1493:2010. Please note that the use of safety spare parts or other essential components which do not fulfill these criteria may result in the type approval becoming void and the lift will thereby no longer keep the safety regulations defined by the manufacturer together with the relevant authorities.

The manufacturer’s product/deficiency liability and warranty cannot be claimed if concrete damages or failures are a result of the use of spare parts not originating from the factory.

1.5 Copyright protection

This operating manual is to be treated as confidential. It is solely intended for persons having to work on or with the equipment. Passing this operating manual on to third parties without a written confirmation is not permitted. If this should be required, please contact the manufacturer.

NOTE!
Contents, texts, drawings, pictures and other representations are protected by copyright law and are subject to further commercial protection rights. Any misuse is punishable.

Reproduction of any kind - even in form of excerpts - as well as the utilization and/or disclosure of its content without the written consent of the manufacturer is not permitted.
Violations oblige to compensation. Further rights remain reserved.

1.6 Waste disposal

If no agreement concerning take-back or waste disposal has been made, disassembled components must be passed on for recycling after correct dismantling:

- Metal material residues must be scrapped
- Plastic elements must be forwarded for recycling of plastics
- Other components must be sorted by material properties

ATTENTION!
Electric scrap, electronic components, lubricants and other auxiliary materials must be treated as hazardous waste and must only be disposed of by specially approved waste disposal companies!

Consumables like greases, oils, conserving and cleansing agents must be removed from the device in a type specific and environmental manner. Use suitable and approved storage containers for the repective consumables. Mark these containers according to their content, filling level and data and store them until final waste disposal in such a way, that any accidental use is ruled out.

2 Safety

This section offers an overview of all important safety aspects for an optimal protection of personnel against danger and ensures safe and disruption-free operation of the machine.
In addition to this, concrete notes on safety to avert danger are provided and marked with symbols in the individual chapters. Furthermore, any pictograms, signs and labels on the machine are to be observed and kept legible at all times.

2.1 General

At the time of development and manufacture the equipment complies with the valid and established technical rules and regulations and is safe to operate. However, danger may arise from this machine if it is used unprofessionally by untrained personnel, or if it is used improperly or not for the purpose it is intended for. Each person entrusted with work on or with the machine must have read and understood the operating manual before starting work.
The customer is advised to demand a written confirmation that all relevant persons have read the operating manual.
Changes of any kind as well as attachments or conversions to the machine are prohibited.

Safety, warning and operation related decals on the machine must always be kept in legible condition. Damaged decals or stickers must be immediately replaced.
Specified settings and adjustment ranges must be strictly complied with.

On the following page you can find an example of the EC Certificate of Conformity.
The original certificate is part of the technical documentation supplied with the lift.

UPLIFTING COMPANY
AUTOP STENHOJ

Declaration of Conformity

in accordance with the Machine Directive 2006/42/EC, Annex II A

Maestro

Manufacturer: AUTOPSTENHOJ GmbH
Sandkampstraβe 90
D-48432 Rheine

Tel. (DE) +49 5971 / 860202
Tel. (DK) +45 76 82 13 30

We hereby declare that the below mentioned machine, by its design and construction and equivalent with the version put on the market by us, complies with the essential fundamental health and safety requirements. In case of any modification in the machine unapproved by us this certificate becomes void.

Type: 2-post surface-mounted lift

Name plate:
(Duplicate)

Relevant EC-Directives:
- Machinery Directive 2006/42/EC
- Electromagnetic Compatibility Directive 2014/30/EU
- Low Voltage Directive 2014/35/EU
- RoHS2 2011/65/EU

Harmonized standards applied:
- EN 1493:2010
- EN ISO 12100: 2013
- EN 60204-1:2019
- EN ISO 138491: 2016

Responsible for documentation:
CEO for AUTOPSTENHOJ GmbH, Sandkampstraβe 90, D-48432 Rheine

Place, date: Barrit,

Signature: i.V.

Signer information: Wolfgang Naber, Engineering Manager

2.2 Customer's responsibility

This operating manual should always be kept in the immediate vicinity of the machine, accessible for the personnel entrusted with installation, operation, maintenance and cleaning.
The machine must only be operated in technically perfect and safe condition.
Always ensure free access to all safety features and check these at regular intervals.

Details concerning industrial safety refer to directives of the European Union valid at the time the machine was manufactured. The customer is obliged to determine compliance of work safety measures specified with the current status of legal statutes and to observe any new regulations over the entire period in which the machine is used. Outside of the European Union, the laws on industrial safety and regional directives and regulations valid at the place of use of the machine are to be complied with.
The generally valid notes on industrial safety and accident prevention instructions as well as the valid environmental protection regulations applicable at the place of use are to be observed and adhered to alongside the notes on industrial safety in this operating manual.

The customer and personnel authorized by him/her are responsible for the disruption-free operation of the machine as well as for unambiguous determination of responsibilities during installation, operation, maintenance and cleaning of the machine.

Details of the operating manual are complete and must be adhered to without limitation!

Furthermore, the customer must also ensure that:
- Other dangers that result from special working conditions at the place of use are determined in a risk assessment.
- All other instructions and notes on safety that result from the risk assessment of workplaces on the machine are summarized in operating instructions.

2.3 Intended use

Operational safety is only guaranteed when adhering to the intended use of the device.

This lifting device is specially developped to lift motor cars and we strongly recommend not to lift any other equipment with this automotive lift.

The lifting platform has been designed and built for the use inside workshops.
Use of the lift for undersealing of cars and car wash is not allowed.
Riding, climbing and/or standing on the lifting platform as well as using it for lifting or lowering loads other than the ones specified above or installing and operating it outside in an unprotected environment is prohibited.

! ATTENTION!
Any other use of the device that differs from this or exceeds this is prohibited and is not considered unintended use!

Claims of any kind against the manufacturer and/or his authorized representatives resulting from damage caused by unintended use of the device are excluded. The customer is solely liable for any damage occurring during unintended use.
Intended use also includes correct adherence to assembly, operating, maintenance and cleaning instructions.

2.4 Work safety

Compliance with the notes on safety can help to avoid personal injury and material damage when working on the machine. Failure to comply with these notes will cause a considerably risk of injury for persons and danger of damage or destruction of the machine.
Non-compliance with the safety regulations causes the exclusion of any liability or compensation claims against the manufacturer or his representative.

2.5 Personal safety equipment

In principle, the following is to be worn when working on or with the machine:

Protective working clothes
Tight fitting work clothing (minimal tear strength, no wide sleeves, no rings or other jewelers etc.)
Safety gloves

Safety boots
for protection against heavy falling down objects and slipping on non-skid proof ground

2.6 Dangers which may arise from the machine

The machine was subjected to a risk analysis. The resultant construction and design of the machine corresponds to the current status of technology.
However, certain remaining risks cannot be avoided!

This device works with electrical voltage.

WARNING! Danger of electric current!
Electrical power can cause severe injuries. There is a danger to life caused by electric current if the insulation or individual components are damaged.

Switch off the main switch and secure against switching on again before maintenance, cleaning or repair work.
Switch off the power supply before starting work in the electrical system and make sure that the system is dead.
Do not remove any safety features or do not modify such installations in a way that would adversely affect their function.

2.7 Operating personnel

The device must only be operated and serviced by authorized, trained and instructed expert persons who:
- are at least 18 years of age and
- have been thoroughly instructed in operation and
- can provide evidence of their suitability to operate lifting platforms and
- have been entrusted in writing by the operating company to operate the lifting platform

An instructed person is someone who has been trained and, if necessary, instructed practically in the tasks entrusted to him/her and the possible dangers resulting from improper actions; and who has been instructed both about the necessary protective features and about protective measures.

Qualified personnel include those who can assess the work entrusted to them and recognize potential dangers based on their specialist training, knowledge and experience as well as their knowledge of appropriate conditions.

If personnel do not have the necessary knowledge, then they are to be trained accordingly.
The equipment must only be operated and serviced by persons who are able to perform their work in a reliable manner. For this purpose, any mode of operation that adversely affects the safety of persons, the environment or the machine is to be avoided. Persons who are under the influence of drugs, alcohol or medication that affects their responsiveness may under no circumstances carry out work on or with the machine.

The employment of personnel must be based on the applicable regulations concerning age and qualification.

The responsibilities concerning operation and maintenance must be clearly specified in order to avoid uncertainties in competence.

The operator must ensure that unauthorized persons keep a sufficient clearance to the equipment.

The operator is obliged to report immediately any changes to the equipment which adversely affect the safety to the operator.

2.8 Behavior in case of danger or accidents

2.8.1 Preventive measures

- Always be prepared for accidents or fire !
- Keep first aid equipment (first aid kit, blankets, etc.) and firefighting equipment close to hand.
- Make personnel familiar with the location and use of safety, accident reporting, first aid and rescue equipment and have this training confirmed.
- Clear access routes for rescue vehicles.

2.8.2 If the worst comes to the worst: Do the right things!

- Shut down the machine immediately.
- Inform the responsible person at the place of use.
- Alarm a physician and the fire brigade.
- Rescue persons from the danger zone, start first aid measures.
- Keep access routes for rescue vehicles clear.

3. Technical data

3.1 Type designation

Example: Maestro 35 M F 400/3/50

- 400/3/50 — Mains voltage
- F — Type of pads: F = Flex pad; CF = Combiflex pad; CF-08 = Combiflex pad
- M — M = Mechanical
- 35 — Capacity: 32 = 3.200 kg; 35 = 3.500 kg
- Maestro — Series designation: Maestro

3.2 Name plate

The name plate is located on the control post and contains following information:

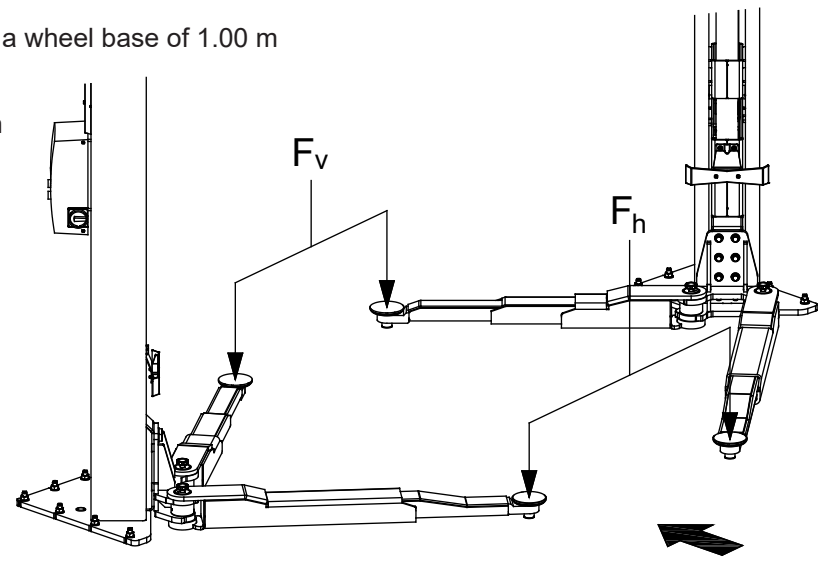
- Manufacturer
- Serial no.
- Model no.
- Year of manufacturing
- Max. capacity

3.3 Load distribution

Front load ratio (Fv) : rear load ratio (Fh)
FV : Fh = 3 : 2 and 2 : 3

This assumption is base on a vehicle with a wheel base of 1.00 m

= Recommended drive-on direction



3.4 Technical specifications

	Maestro 32 M:	Maestro 35 M:
Max. lifting capacity	3.200 kg	3.500 kg
Lifting time	43 sec. (400V)	43 sec. (400V)
Lowering time	43 sec. (400V)	43 sec. (400V)
Max. lifting height	1900 mm	1900 mm
Operation temperature range	÷10°...60°	÷10°...60°
Sound level (measured at control unit at 1 m height)	< 70dB (A)	< 70dB (A)
Mains voltage Power Revolutions/min	400/3/50 +N +PE 2,8kW 1400 o/min	400/3/50 +N +PE 2,8kW 1400 o/min
Fuses	25A Class C (slow)	25A Class C (slow)

4. Structure and function

4.1 Description

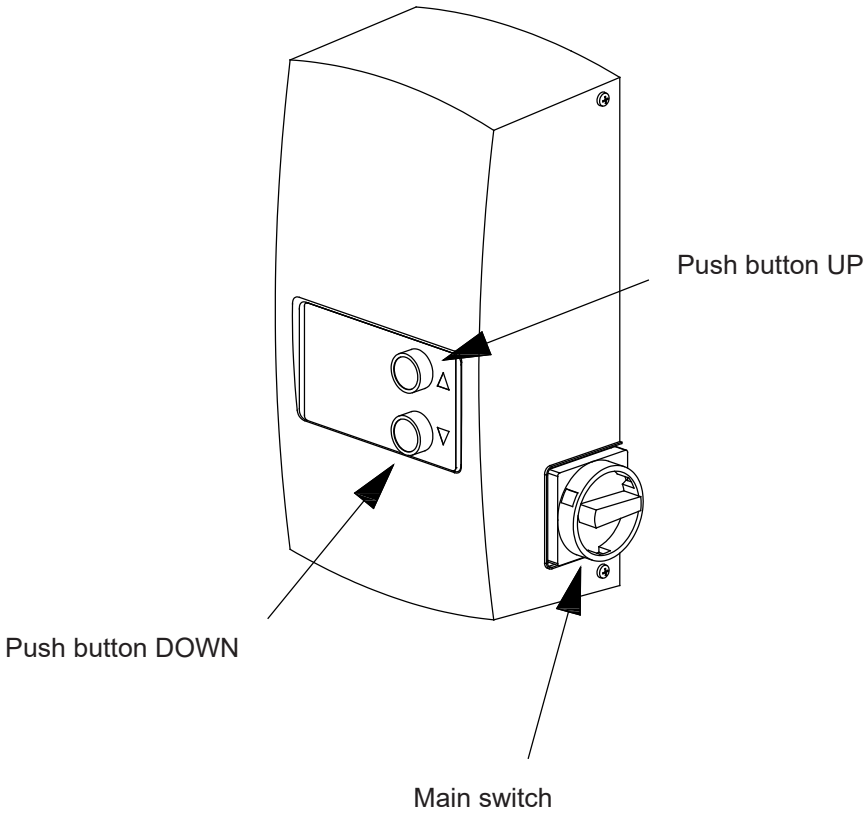
This MAESTRO is a 2-post surface-mounted electro-mechanical lift with 2 motors and automatic synchronization system.

The lift is available in 2 versions:
- the safety and electrical connections run through a portal
- in-ground model with connections recessed in the floor between the posts.

The lifts are easy to install and require only minimum maintenance.

As mentioned the lift is fitted with an automatic synchronization which means that the post which is ahead stops and waits for the other. This happens when there is a difference between posts of approx. 15 mm. Should this system not function there is a back-up system, where the lift goes into “safety stop” at a difference of approx. 80 mm. The lift can now neither go up nor down. Call authorized engineer to repair the lift.

Easy and simple operation by means of "dead-man controlled" pushbuttons placed on the control box.

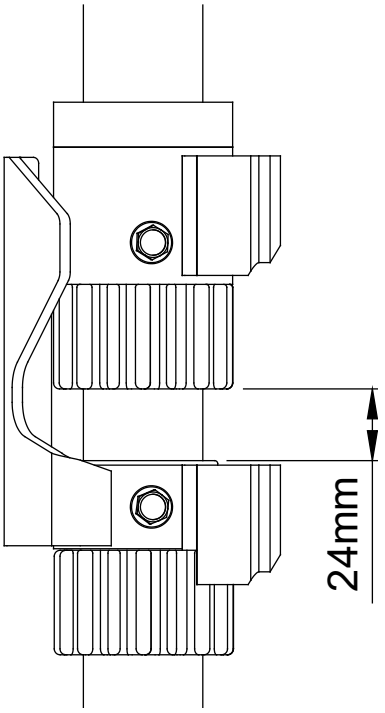


4.2 Double security system

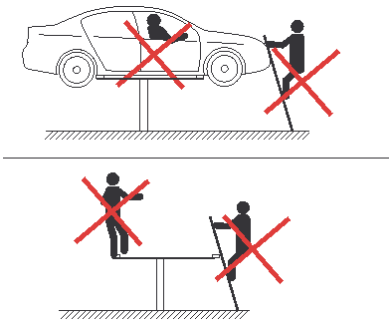
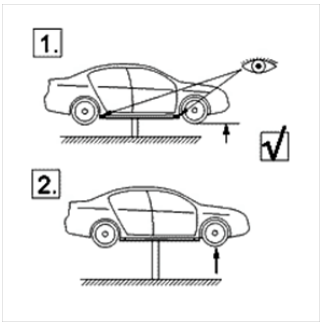
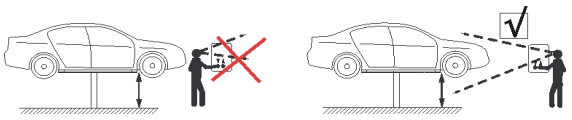
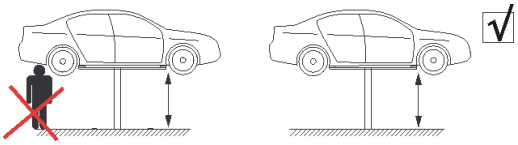
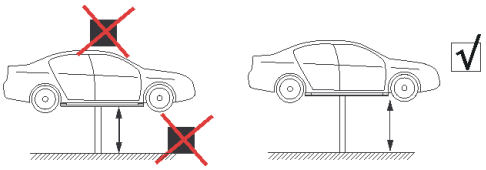
1. The primary system is activated in case of irregularities in nut and spindle system. Each spindle is equipped with 2 nuts: a weighted main nut and a safety nut. The distance between the two nuts has been adjusted from the factory to 24 mm. When this distance has been reduced to 22.5 mm, both nuts must be replaced; i.e. the distance should be checked according to relevant national regulations. Use the test tools from accessory kit to check the distance. If the main nut is worn out, it will fall approximately 22 mm and the safety nut will automatically take over the load and the lift will stop instantly. (The lift can be raised one time).
   Call authorized engineer to repair the lift.

2. A safety wire ensures that the two carriages do not get out of level because of an obstruction. In case of an obstruction under arms or carriages the safety wire activates a switch and the lift will stop immediately. The obstruction can be removed by pushing UP-button.

3. EC-Stop**:**. When lowering the lift stops approx. 300 mm from bottom position and an acoustic warning signal is heard. Before continuing the lowering the operator has to check once again that no person can be injured. Then the lift can be lowered to bottom position by releasing and re-activating the Down-button, the acoustic warning will be heard until bottom position has been reached.



4.3 Symbols of short operating instructions

	The lifting platform must only be operated by authorized persons. Strict compliance with the comprehensive operating manual is mandatory, especially in case of faults
	Climbing up or standing on lifted load or load bearing device is strictly prohibited.
	After slight initial lifting the operator must check that the load is correctly positioned on the load bearing device. Only then the load may be lifted further.
	Always keep an eye on load bearing device and load when moving the lifting platform.
	No persons must be in the movement range of load bearing device or load while the lifting platform is in motion.
	The movement range of load and load bearing device must be kept clear of any obstructions.

5 Transport, packing and storage

5.1 Safety notes

WARNING! Danger of injury!
There is a danger of injury from falling parts when lifting, swinging and lowering.
The machine can be damaged or destroyed by improper transporting.

For this reason, fundamentally observe the following safety notes:

- Only use permissible lifting tackle and sling gear with sufficient bearing capacity.
- Only secure the machine on the fastening points provided; do not fasten onto projecting machine parts or eyelets of attached components. Make sure the sling gear is secure !
- Ropes and chords must be equipped with safety hooks. Do not use any torn or worn ropes. Do not lay ropes and chords on sharp edges and corners, do not knot and do not twist. Pay attention to the centre of gravity of the machine when fastening tackle.
- Never lift, swing or lower loads over people.
- Always move the machine with the greatest of care and attention.

WARNING! Danger of life!
Suspended loads can fall down and lead to severe injuries. Do not stand or pass under suspended loads when transporting with lifting tackle!

5.2 Transport inspection

Check delivery immediately on receipt for completeness and transport damage.
Do not accept delivery or only accept under proviso if there is externally recognizable transport damage. Note the scope of damage on the transport documents/delivery note of the carrier. Start complaints procedure. Complain about hidden deficiencies as soon as they are discovered as compensation claims can only be asserted within the applicable complaints period.

5.3 Packaging

If there is no returns agreement for the packaging, separate materials according to type and size and direct to further use or re-cycling.

ATTENTION!
Always dispose of packaging materials in an environmentally friendly manner and in accordance with the applicable, local disposal guidelines. If necessary, commission a re-cycling company.

NOTE! Good for environmental protection!
Packaging materials are valuable raw materials and can continue to be used in many cases or sensibly reconditioned and re-cycled.

5.4 Storage

Keep packed goods packed up until installation and store such items as specified on the externally attached installation and storage information.
Store packing units only under the following conditions:

- Do not keep in the open-air.
- Store in a dry and dust-free environment.
- Do not subject to aggressive media.
- Protect against direct sunlight.
- Avoid mechanical vibrations.
- Storage temperature: 15 to 25 °C
- Relative humidity: max. 60 %
- For longer periods of storage (> 3 months), check the general condition of all parts and the packaging at regular intervals. If necessary touch up or renew the conservation.

6 Installation and start-up

6.1 Installation

In order to come up to your expectations now and in the future the lift must be installed in strict accordance with the installation instructions and maintained according to our recommendations.

As agreed, the equipment will be installed by employees of the manufacturer or by authorized partner companies.
Unauthorized assembly or installation work is not permitted.


WARNING! Danger of injury!
Improper installation and assembly can lead to severe personal injury and/or material damage. Installation and assembly work may only be carried out by trained technical staff while observing the safety instructions.

Contact your distributor for the name and address of the nearest authorized service shop.

6.2 Start-up

As agreed, initial start-up of the equipment will be carried out by employees of the manufacturer or by authorized partner companies.
Unauthorized initial start-up is not permitted.
The machine is handed over to the customer following set-up, initial start-up and implementation of test runs by the manufacturer. After this the machine can be operated in strict compliance with the information in the operating instructions.


WARNING! Danger of injury!
Start-up may only be carried out by qualified technical personnel while observing the safety instructions.

7 Operation

7.1 Safety

Please read the paragraphs “Work safety”, “Personal safety equipment” and “Operating personnel”.

WARNING! Danger of injury!
During lifting and lowering movements the lifting platform generates dangers which could lead to severe injury, such as crushing or shearing off of limbs or by heavy objects slipping off or falling down.

In order to avoid accidents the following should be noted when operating lifting platforms:

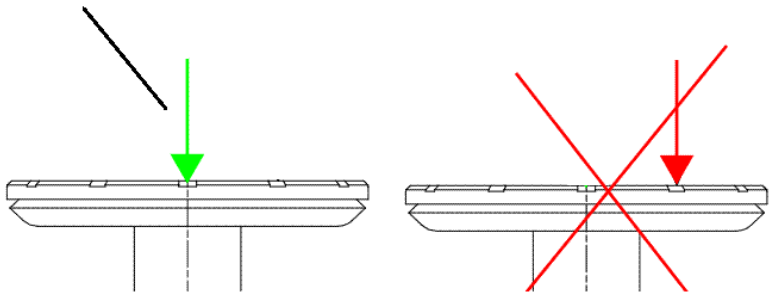
- During the up or down movement of the lifting platform the danger zone and the immediate vicinity of the lifting platform should be free of persons. The distance between persons and the lifting platform should be at least 2 m.
- Accessing the load bearing devices, riding on, climbing onto and standing on the lifted platform is strictly prohibited.
- Do not load the lifting platform beyond the max. permitted load bearing capacity.
- Observe the permitted load distribution (see section “Technical Data”).
- Load the lifting platform evenly. Possible shifting of the vehicle’s centre of gravity caused by the disassembly of vehicle components must be taken into account.
- Do not initiate any vibration of the lifting platform while performing assembly work on the vehicle.
- Always keep the main switch locked to avoid unauthorized operation and unintended switching on.

7.2 Operation:

Positioning of vehicle:
Drive the vehicle in between the 2 posts and turn the 4 telescopic arms under the vehicle.

Lifting:
Position the adjustable arms in order that the skid-proof pick-up pads are placed under the supporting parts of the vehicle.
Place the pick-up pads carefully in order to prevent the car from slipping off. The lifting pad must be loaded centrically ! The load distribution permitted between front and rear arms of 2:3 respectively 3:2 must not be exceeded.

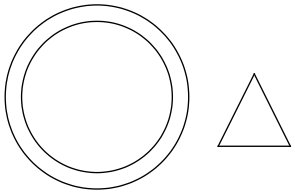
Center of lifting point



RIGHT ! WRONG !

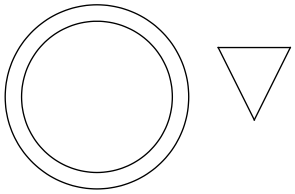
Adjust the pick-up pads in height so as to catch the 4 lifting points simultaneously.

Push UP -button ↑. Lift the vehicle approximately 10 cm, check once more that the pick-up pads are correctly placed and make sure that the arm locks are engaged by pulling the arms backwards and forwards.
Lift the vehicle to required working position. Watch vehicle and lift during the entire lifting movement.



Lowering:
Check that the working area of the lift is vacant.
Check that all objects have been removed from the working area of the lift.

Activate Down-button ↓ until the required position has been reached. Watch vehicle and lift carefully during the whole lowering movement.
EC-Stop: When lowering the lift stops approx. 300 mm from bottom position and an acoustic warning signal is heard. Before continuing the lowering the operator has to check once again that no person can be injured. Then the lift can be lowered to bottom position by releasing and re-activating the Down-button, the acoustic warning will be heard until bottom position has been reached.



7.3 Description of light-emitting diodes

Diode:	Function when light with lift in standby:	Function when light with lift stopped:	Function with flashing light:
LED1 - Green	Lift stopped - "Power ON"	Lift within the synchronization area	Constant light: ready for work Slow flash: push button active when power-up Fast flash: error on lift. Secures that the circuit board never looks inactive
LED2 - Yellow	Lift in balance	Lift in balance	
LED3 - Red	Lift blocked for operation. This happens immediately after push button is released and secures that lift calms down before it can be restarted.	Error output together with beeper, see trouble shooting chart	

The moment the lift stops and the counter values are going to be saved in the memory the three status diodes will briefly estinguish. When they are alight again the counter values have been memorized.

Fuses: see wiring diagram.

7.4 Automatic height limit switches

It is possible to program two automatic height limit switches on the lift.
When the automatic height limit switches have been memorized the lift will only stop at these heights when raised.

Programming of lower automatic height limit switch:
1. Raise lift to the appropriate height.
2. Cut off main switch. **Wait approx 10 sec.**
3. Push both UP- and DOWN buttons, and keep them pushed while the main switch is activated.
4. The lift now begins to beep.
5. Release DOWN-button: the lower automatic limit switch is hereby memorized. Note: when both buttons are released the controls are back to normal operation.

Programming of upper automatic height limit switch **(serves as top limit switches)**:
Raise lift to the appropriate height.
Repeat step 2 - 5; in this case however release the UP-button to memorize the upper automatic limit switch.

Cancellation of lower automatic height limit switch:
6. Lower lift until the automatic anti-toe signal is activated.
7. Cut off main switch. **Wait approx. 10 sec.**
8. Push both UP- and DOWN buttons, and keep them pushed while the main switch is activated.
9. Release DOWN-button. Lower automatic height limit switch is now cancelled.

Cancellation of upper automatic height limit switch:
Lower lift until the automatic anti-toe signal is activated.
Repeat step 7-9; in this case however release the UP-button first to cancel the upper automatic limit switch.

8 Maintenance

8.1 Safety

WARNING! Danger of injury!
Improperly performed maintenance work can lead to severe physical injury or damage to property. Any work related with care and maintenance must only be carried out by qualified and authorized expert personnel.

Strictly observe when performing maintenance work:
- Switch off the system and secure against switching on again.
- Perform work only with the device stopped.
- Secure movable parts against unintended movement.
- See paragraph “Personal safety equipment”

WARNING! Poisoning hazard!
Lubricants are harmful to health! Skin damage (rashes, inflammation, allergies, etc.) can occur on contact of skin with oils and lubricating greases.

Therefore:
- Please observe instructions and safety data sheets from the manufacturer !
- Lubricants are not to be consumed or swallowed. In case of unintended consumption seek medical advice immediately (bring along the packing).
- When handling lubricants, use suitable skin protective and skin-care products or oil-resistance gloves.
- Rinse any spatters in the eye immediately with a lot of water!
- If the skin is dirtied by any lubricants, wash off immediately with soap and water.

WARNING! Danger of injury!
Lubricants which fall on the ground are a source of danger as they present a risk of slipping. Lubricants are to be adsorbed and removed by spreading sawdust or oil adsorption and afterwards scrapped according to local environment regulation.

8.2 Maintenance

Spindles and nuts:
Due to the fine and precise tolerances of spindles and nuts, these must be carefully maintained. They must be kept absolutely clean and should always be well lubricated (cp. lubrication instructions below). If these instructions are ignored, there is a risk that the spindles will be damaged.

Due to the construction of the safety system they do not require maintenance, however, we recommend that the movable parts on the top of the posts are greased once every 6 months.

Belts:
These must be re-adjusted once a year to correct tension – see instructions T81898.

Expansion bolts:
These must be re-tightened once a year with the following torque:

Model:	Torque:
Maestro 32 M	110Nm
Maestro 35 M	110Nm

8.3 Lubrication

The lift only needs inspection every 6 months where al movable parts are to be lubricated as described:

	Where ?	How ?	With what ?	Recommended products:
1.	Sliding blocs	Remove steel bands from front edges of posts	Lithium grease: Lithium soap grease with high pressure additives, consistence NLGI 2 (apply with brush)	- Castrol APS 2* - Shell Retinax EP 2 - Q8 Rembrandt Moly
2.	Spindles/nuts	Remove steel bands from front egdes of posts	Long-life lithium grease (apply with brush)	- Multi-Plex 152 EP* - Mobil Infinitec 152 - Renolit LX-PEP 2
3.	Top bearing housing	Remove top cover	Lithium grease	- see item 1
4.	Arm suspension		Lithium grease	- see item 1
5.	Arm locks		Lubricating oil	
6.	Bushing at bottom of spindle	Remove steel bands from front edges of posts	Lithium grease	- see item 1

*) Lubricated/greased from manufacturer with these products

8.4 Cleaning:

Cleaning of lifts to prevent corrosion damages.

Corrosive fluids as brake fluid, oil, fuel or other solvents must be wiped off immediately, otherwise damage will occur to the coating.
Special attention must be paid to the corrosive effect of salt in fall and winter periods.
The cleansing agents must not have any abrasive effect, nor contain solvents.

The lift must be cleaned at least once a week.

The lift must be cleaned with a non-corrosive cleansing agent.
Clean and wipe the lift according to the following scheme:

When ?	Where ?	How ?	Remarks:
Every week	Pads	Clean and wipe	
	Arms		
	Carriage		
	Post		

The manufacturer does not accept any claim concerning the paint peeling off or corrosion damages caused by missing or insufficient cleaning or maintenance.

Repair of damages:
Repair of damages on the coating must be carried out immediately in order to minimize the extent of the repair.

The damages will typically be:
Damages which do not affect the metal surface but affects the coating itself
Damages going down into the metal surface.

Repairs:
Contact the manufacturer for guidance.

Please state RAL number of paint.

Cleaning of CF-08 pad:

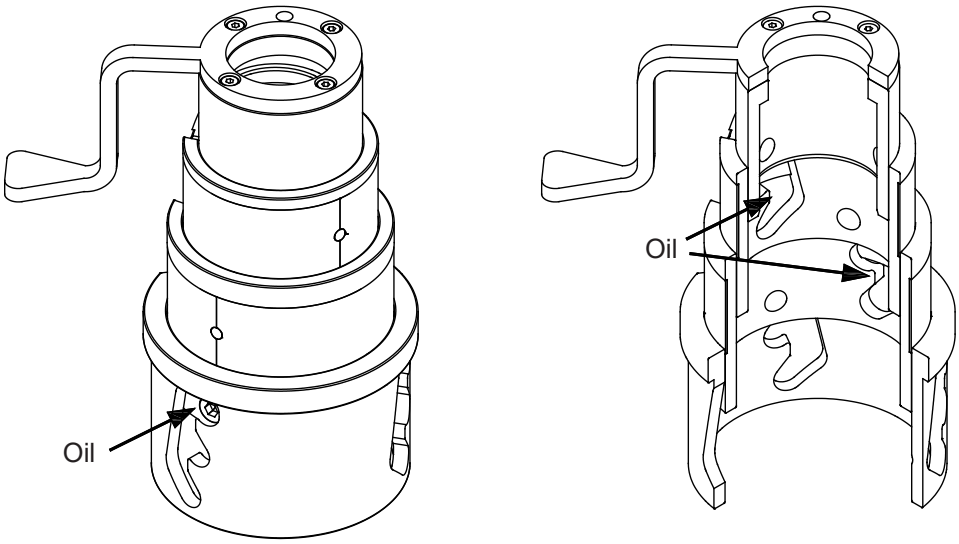
A possible reduced functionnality can be due to presence of dirt between the differents parts and the pad has then to be cleaned as described below.

Dismantling:
Dismantle the F-pad.
Dismantle the 2 M4x8 screws in the bottom of the outer arm.
Lift carefully the pad and the spring out of the outer arm.

Cleaning:
If the pad is only slightly dirty, it only has to be blown clean.
Lubricate slots and notches for bolts (see fig. 1) with lubricating oil (order No. 221234).

Note !! The pad must never be lubricated while it is fitted in the outer arm.

Fig. 1



If the pad needs a stronger cleaning it has to be disassembled.
New plastic covers – order no. 511507 and 511509 – must be provided before starting the cleaning procedure.

Remove the plastic covers by means of a small screwdriver.
Clean each pad member with petroleum and blow them clean afterwards.
Reassemble the pad members and fit new plastic covers.
Lubricate slots and notches for bolts (see fig. 1) with lubricating oil (order No. 221234).

Fitting:
Place the spring in the ø3 mm hole of the pad.
To achieve the necessary initial stress pad and spring must be placed together above the outer arm in such a way that the lever of the pad must be turned 90° clockwise to reach its final position (see fig. 2).
Note : after the final ftting the lever always has to be positioned on the outer side of the arm.
Now place the lower pin of the spring in the nearest hole of the outer arm. Lower pad and spring and turn the pad 90° clockwise until the lever reaches the wished position (see fig. 3).
Re-fasten the pad by means of the 2 M4x8 screws.
Fit the F-pad.
After fitting move the Combiflex pad up and down a couple of times and wipe off any possible grease from the outerside of the pad.

Fig. 2

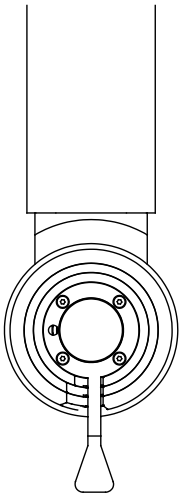
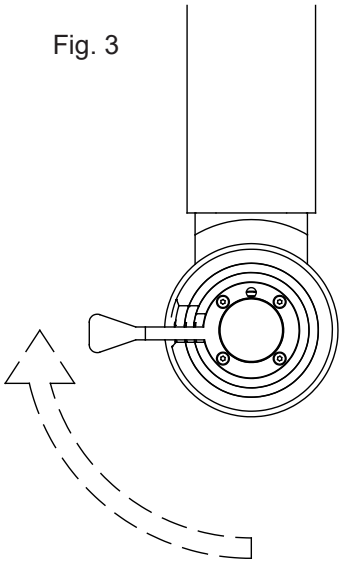


Fig. 3



Test of the initial stress in the spring:
If the initial stress is too small the pad will not go satisfactorily up into the wished positions.
If the initial stress is too large the pad will not go to bottom position.
In both cases the pad has to be loosened again and the reassembling procedure must be repeated until the correct stress has been achieved.

9 Inspections

Before commissioning the lift must be inspected according to the local national health and safety regulations.

Operational safety and reliability can only be guaranteed when the condition and function of the lift are inspected at regular intervals – still according to the local national safety regulations.

10. Malfunctions

10.1 Actions in case of malfunctions

In case of breakdown check the following points:

1. Electricity cut
2. Main fuses
3. Electric motor(s)
4. Cable breakage
5. Obstruction under lift

If these points are found in order but the lift is still not working, the safety system has probably been activated, and the lift must not be started or repaired by unqualified staff. Contact the nearest authorized service shop.

Do not start repairing the lift until the main switch has been cut off.
Do not disconnect the safety system and do not operate the lift after breakdown and prior to repair.

10.2 Trouble shooting chart

Symptom:	Cause:	Remedy:
The lift can neither raise nor lower	Electricity cut	Check fuses. Call authorized electrician
	Overload	Remove load and re-start
	Defective electronic sensor	Call for authorized fitter
	Fault in the electrical system	Call for authorized electrician
Thel ift cannot lower	Obstruction under arms or carriages	Push UP-button and remove obstruction
	Main nut broken	Lifting carriage is supported solely by the safety nut. Do not use lift before damage has been repaired. Call for authorized fitter
	Snapped safety wire	Replace wire
Lift unusually noisy / or spindle is warm	Unsufficiant greasing of spindles	Grease spindles
	Worn top/bottom bearing	Call for authorized fitter

10.3 Error indication - acoustic signals

If an error occurs preventing the lift from moving any operation will result in an error signal in the form of a specific number (8) of short and long acoustic signals; i.e. an error code which by means of the chart mentioned below or contact to the service personel can be translated into a real error description or service instructions, whereafter correction of the error can be started.

When the sequence of acoustic signals occurs the error itself will be indicated with one long signal – several errors can be indicated simultaneously, via a sequence of short and long acoustic signals.

Example: _ _ _ _ _ _ ——— _

In this case there are first 6 short acoustic signals, followed by one long and ending with one short (total 8). So the long acoustic signal (no. 7) indicates error no. 7 in the below sequence chart.

Note! Here it is important that no power-off is made, as the error then will be cancelled and there is no possibility of idenfication and remedy.

The sequence can be repeated at every activation of push-buttons for error identification.

10.3.1 Trouble shooting

Activate UP briefly.
Decode the sequence of beeps given or observe the pattern of flashes on LED 3.
The sequence consists of a total of 8 beeps/flashes. A short signal indicates OK-state, a long signal indicates error.

Error 1 to 4 – Common:
Check that supply voltage lies within the prescribed voltage area, both during operation and when lift is stopped. If supply voltage drops when lift is working it will often be registrated as a pulse error.

Check that signal cables from posts are connected to the right plugs on the control board. If X3 and X4 have been interchanged it will give a pulse error when lift is synchronizing, or goes unlevelled to the bottom limit switch.

Acoustic signal no.:	Cause:	Remedy
1	**Starting error, motor post** Time during which contactor is pulling and until pulses are ok is too long	Switch off lift during 30 sec and re-start (to cancel the error). Activate UP. Does motor start up shortly ? **Yes**: Check V-belt and pulse system; check that cable from pulse system is not damaged and is connected correctly. **No**: Check motor and contactor. Motor must be able to start easily, otherwise there is a mechanical defect, or the lift is overloaded. Contactor must pull when LED5 is alight, otherwise either contactor or circuit board is defective.
2	**Impulse error, motor post** Time between single pulses is not within the zone	Check that all magnets on V-belt pulley activate pulse sensor on upper plate. Check V-belt and pulse system; check that cable from pulse system is not damaged and is connected correctly.

Acoustic signal no.:	Cause:	Remedy:
3	**Starting error, post opposite motor post** Time during which contactor is pulling and until pulses are ok is too long	Switch off lift during 30 sec and re-start (to cancel the error). Activate UP. Does motor start up shortly ? **Yes:** Check V-belt and pulse system; check that cable from pulse system is not damaged and is connected correctly. **No:** Check motor and contactor. Motor must be able to start easily, otherwise there is a mechanical defect, or the lift is overloaded. Contactor must pull when LED7 is alight, otherwise either contactor or circuit board is defective.
4	**Pulse error, post opposite motor post** The time between single pulses is not within the zone	Check that all magnets on V-belt pulley activate pulse sensor on upper plate. Check V-belt and pulse system; check that cable from pulse system is not damaged and is connected correctly.
5	**Obstruction / unbalance during lowering**	Is cancelled when UP-button is activated, so that UP still has the priority and the obstruction can be left. Check that there is no obstruction under the lift hindering it from lowering. If necessary activate UP to remove wedged objects. Check state of bearing and safety nuts, and their mutual distance. Check obstruction switches and cable connections to match if above measures do no help.
6	**Unbalance during raising – K1/ Safety not drawn** The lift has run out the synchronization area and the safety supervision has stopped the lift	Turn off main switch (see below) and operate the two carriages manually to total balance – lower the lift to bottom position to reset the impulse values – follow the instructions in the chapter “precautions concerning manual operation of lift”. Check the re-starting procedure below and check that synchronization happens correctly. If lift still does not work after the re-starting procedure check if LED4 gets alight when lift is operated. If this is the case but lift still gives error 6 then circuit board is defective and has to be replaced.
7	**Error in safety circuit** The safety system is not functional and the lift cannot work	Turn off main switch (see below) and operate the two carriages manually to total balance – lower the lift to bottom position to reset the impulse values – follow the instructions in the chapter “precautions concerning manual operation of lift”. Try the re-starting procedure below. If this does not help, then replace the control circuit board.
8	**Memory error** The position of the lift has not been memorized correctly since the last run	Turn off main switch (see below) and operate the two carriages manually to total balance – lower the lift to bottom position to reset the impulse values – follow the instructions in the chapter “precautions concerning manual operation of lift”. Try the below re-starting procedure. If lift is running subsequently check that all cable connections have not been damaged and that they are not in contact with movable parts of lift which could cause wearing damages on cables. Error 8 often occurs because of short circuits in the electrical system of the lift.

10.4 Re-starting procedure

Switch off lift.
Get both carriages to bottom position and in balance. Is this already done, wait 30 sec.
Switch on lift. Both bottom sensors must now be alight.

The lift should now work and the trouble shooting can be continued.

When replacing a circuit board the document T81701 ”Return note for circuit boards” has to be filled out and packed with the defective circuit board to be returned to the sub-supplier.

10.5 Supervision of sensors / motor starter

Check during raising and lowering that the distance between pulses does not exceed a preset time. If one of the three magnets in the V-belt pulley is missing, or a sensor is defective or if for one reason or another the scanning is not correct the time will be exceeded and the lift will stop.
Also a big drop in speed of the motor (number of revolutions), for instance because of a missing phase, will make the lift stop.
To make the motor reach full speed it has been allowed that the above requirements to pulses should not be fulfilled during the first approx. ½ second after start of each motor. In practice this means that one of the above errors will be registrered within less than one second.

10.6 Precautions concerning manual operation of lift

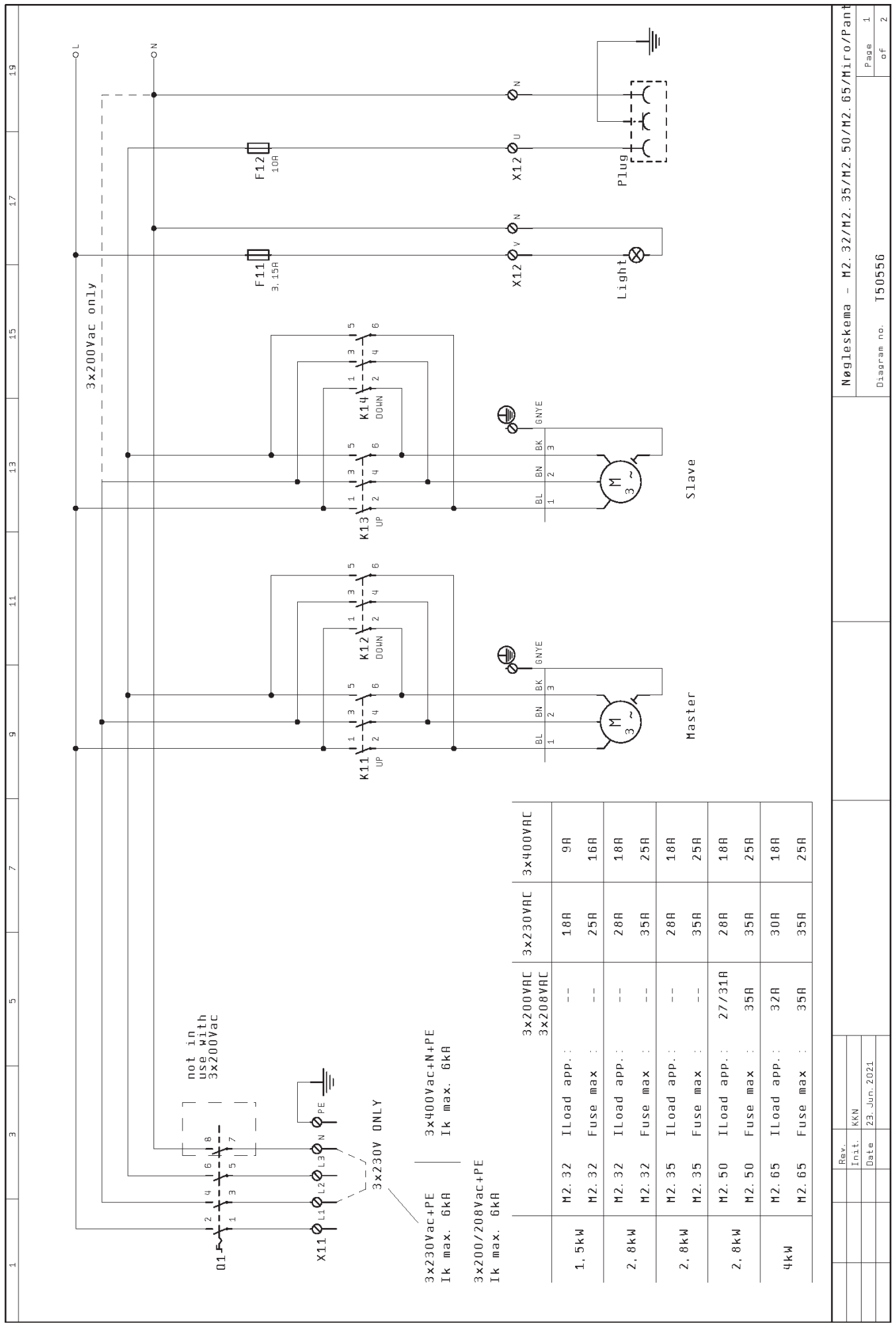
Always disconnect the power supply to the control unit before turning the V-belt pulleys of the spindles manually. Before reconnecting the control unit check that the carriages are placed above and in front of the bottom position sensors and that they are in the same height. This can be checked by observing that the indicator lamps on top of the posts.

During the first run after start a possible small unbalance will be equalized when the lift reaches bottom position. A bigger unbalance will make the lift stop when the first carriage reaches bottom position and it is then necessary to turn off/turn on the lift again to be allowed to run the second carriage down to bottom position – perhaps several times depending on the initial difference in height.

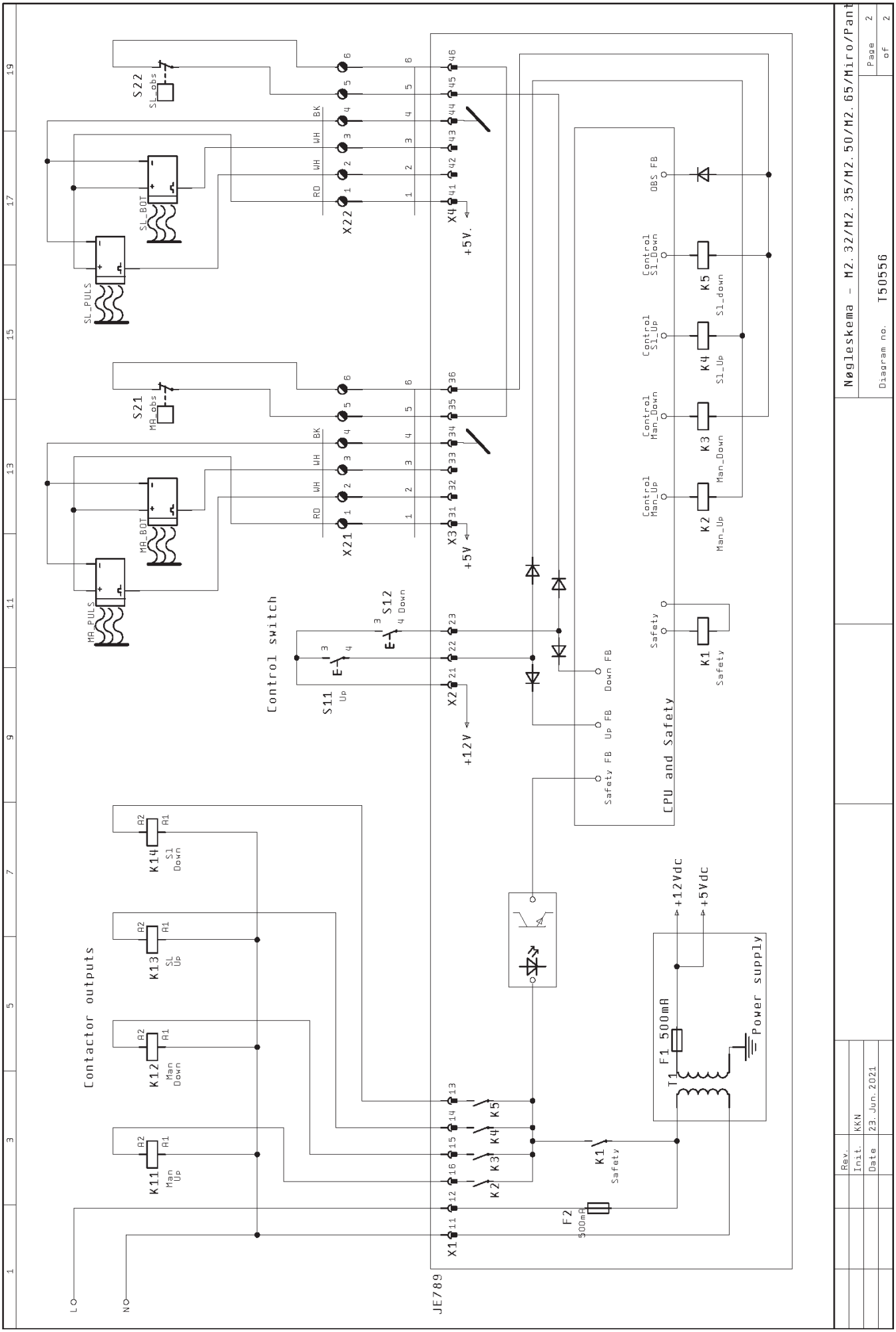
11. Service

11.1 Spare parts ordering

To ensure correct deliveries of spare parts orders, please always state the following information:
part number, designation, quantity (in the spare parts list) and serial number and year of manufacturing (on the name plate) of the lift.



		3x200VAC 3x208VAC	3x230VAC	3x400VAC
1,5kW	M2.32 Iload app.:	--	18A	9A
	M2.32 Fuse max :	--	25A	16A
2,8kW	M2.32 Iload app.:	--	28A	18A
	M2.32 Fuse max :	--	35A	25A
2,8kW	M2.35 Iload app.:	--	28A	18A
	M2.35 Fuse max :	--	35A	25A
2,8kW	M2.50 Iload app.:	27/31A	28A	18A
	M2.50 Fuse max :	35A	35A	25A
4kW	M2.65 Iload app.:	32A	30A	18A
	M2.65 Fuse max :	35A	35A	25A


Nøgleskema – M2.32/M2.35/M2.50/M2.65/Hiro/Pant
Diagram no. T50556
Page 2 of 2
Rev.
Init. KKN
Date 23.Jun.2021
JE789
CPU and Safety
Control switch
Contactor outputs
Power supply
S22 SL_obs
S21 MA_obs
SL_BOT
SL_PULS
MA_BOT
MA_PULS
S11 Up
S12 Down
K1 Safety
K2 Man_Up
K3 Man_Down
K4 S1_Up
K5 S1_down
K11 Man Up
K12 Man Down
K13 SL Up
K14 S1 Down
F1 500mA
F2 500mA
T1
+12Vdc
+5Vdc
+5V.
+12V
OBS FB
Down FB
Up FB
Safety FB
Control S1_Down
Control S1_Up
Control Man_Down
Control Man_Up
Safety
L
N