WITTUR

# Hydraulic Car Frame
# WHF35 Direct and Indirect

Operating instructions

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Stand/*version* A-30.11.2005
Geprüft/*approved* WAT/FLE

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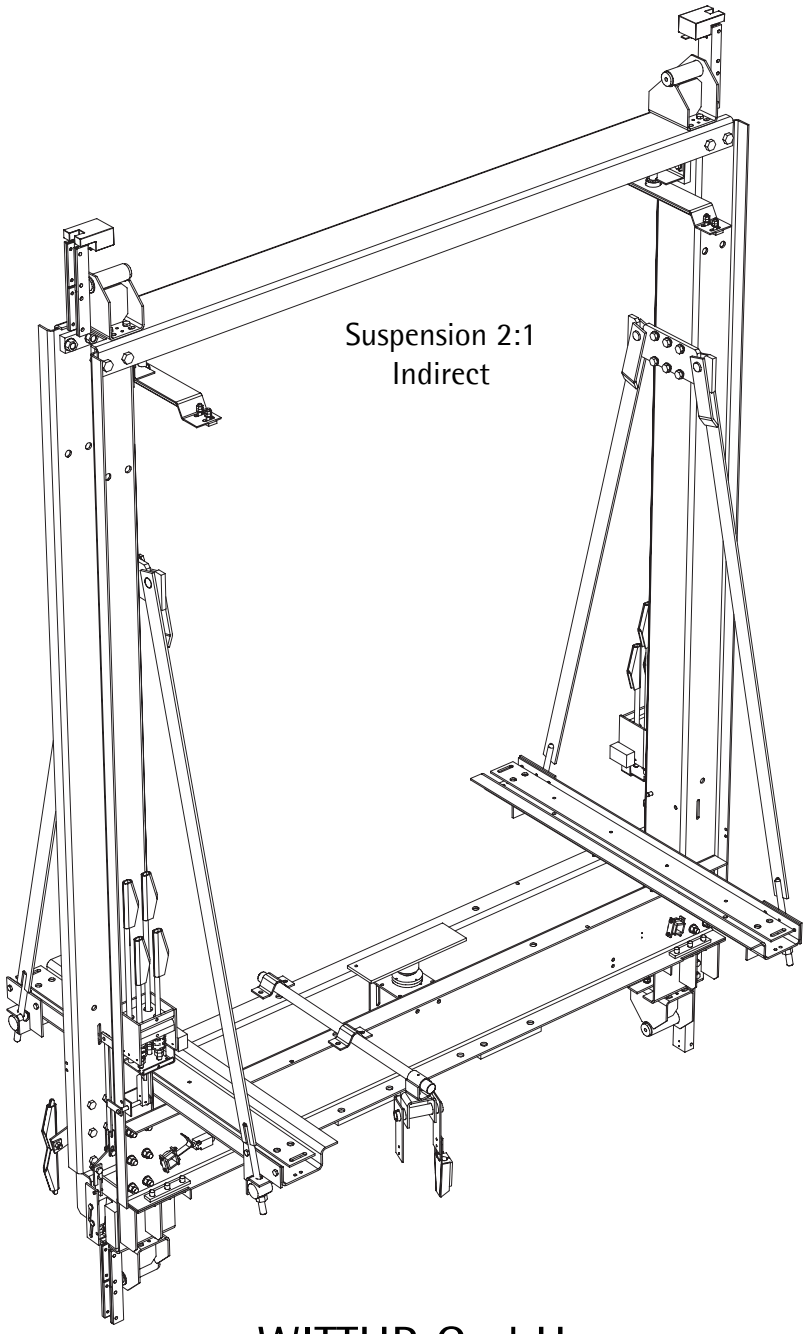
# Hydraulic Car Frame WHF35 Direct and Indirect




D388MGB 11.2005

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## 1 General information prior to installation

### 1.1 Description and functions

The car frame WHF35 is a car frame used for passenger-goods and freight elevators.

The frames are available for 1:1 (direct) suspension as well as for 2:1 rope hydraulic suspensions (all adequate accessories - guide rail brackets, cylinder brackets, ... could be delivered with the car frame package).

The WHF35 car frames can be equipped with fully isolated car platform supports (optional) which guarantees excellent ride comfort.

The built-in safety devices (for indirect suspended WHF35) are set, synchronised and lead sealed ex-works, according to the order. For reasons of safety, it is forbidden to readjust these settings once they have been made.

The car frame operating range is defined as follows:

- Nominal speed ≤ 1.0 m/s
- All up load ≤ 6500 kg (Q ≤ 3500 kg)
- Distance between guides DBG ≤ 3340 mm
- Car depth ≤ 3600 mm
- Safety gear devices: Roller type SG, Progressive type SG
- Guide: Sliding guide shoe SLG3

Further options:
- Load weighing system
- Balancing beams
- Travelling cable hanger

### 1.2 Liability and guarantee

This instruction handbook is written for people who are familiar with lift servicing and installation. Sufficient knowledge of lifts is essential.
WITTUR accept no responsibility for damage caused by improper handling, or for damage caused as a result of actions other than those stated in these operating instructions.
The WITTUR guarantee may be voided if parts other than those described in these instructions are installed, or if the component has been used other than described in these instructions.

Unless stated otherwise, the following are not permissible due to technical safety reasons:
*... in connection with safety gear devices*
- The use of safety gear devices or brake components other than those installed
- Carrying out modifications, of any kind, on brake components
- Destroying of seals
- Modification of the actuating mechanism
- Readjustment of settings have been made ex-works

*... in connection with the overspeed governor*
- installing a model either of the wrong type of manufacture or one not in compliance with specifications
- undertaking alterations of any type

*... in connection with the slack rope device*
- to use it together with a safety gear device other than the specified
- to modify its construction

*... furthermore*
- Car frame modifications
- Carrying out faulty or improper maintenance, maintenance or inspection checks
- using unsuitable accessories, spare parts or operating material which has neither been released by the WITTUR Company nor consists of original WITTUR spare parts

## 1.3 Safety precautions

WITTUR machine installation or repair engineers are chiefly responsible for the safe operation of machinery.

It is essential to comply with and keep abreast of all safety rules and legal obligations in order to avoid personal / product damage during installation, maintenance and repair work.

Important safety advice and danger warnings are emphasised with the following symbols:


General danger warning


High danger risk warning (i.e. crushing edge, cutting edge etc.).


Risk of damage to machinery parts (i.e. due to incorrect installation, or such like).


Important information sign

These operating instructions belong with the whole installation and must be kept in a safe place at all times (i.e. drive room).

The proper assembly and installation of WITTUR car frames requires correspondingly well trained fitting engineers. The responsibility of training lies with the company appointed to carry out the work.

**Before starting installation work:**


Only properly trained personnel may carry out work, or be allowed access to the installation site.

- Attach safety devices to guard against falling (platform or harnesses)
- Cover any floor openings
- Secure installation tools or objects against accidental falling
- Lift shaft openings should be cordoned off and suitable warning signs should be erected when working in shaft openings
- Work involving electrical equipment should only be carried out by an electrical engineer or qualified personnel.

## 1.4 Work instructions

### 1.4.1 Hydraulic Components

Basic instructions are given in the following section which are always to be observed without fail during work on hydraulic installations. It will be assumed in later chapters that these instructions are already known, and for that reason they will not as a rule be given again.

**Work safety**
Work which is improperly carried out can lead to serious accidents, as can inattention.

- For your own safety, never work with greasy hands
- Remove immediately all oil spots on the floor and on any tools
- Never loosen threaded joints or screwed connections as long as the installation is standing under pressure
- Lower lift car to the contact buffers
- Secure installation against involuntary startup or switching-on by placing a padlock over the main switch
- It is particularly important to remember when doing welding work that hydraulic oil is also a flammable mineral oil

**Cleanliness**
Impurities in hydraulic systems lead to increased wear, installation disruptions or even to damages. For that reason, it is important to practice the greatest possible level of cleanliness!

- Before loosening screwed connections or threaded joints, clean their external surroundings
- Close oil connections with protection covers in order to prevent dirt from entering
- Protection covers, protective pipes, packing made of oiled paper, and similar things should not be removed until immediately before installation work commences
- Use no waste cotton or wool for cleaning oil tanks, pipes, flanges or similar things due to the possibility of leaving fibre residues
- Clean pipes of any soiling (chips, forge scales, sand, etc.) before installation. Welded pipes in particular should be sprayed out or subjected to a caustic rinse.
- Take care to ensure clean sealing surfaces prior to installation
- Cover all elastic packings, bearings of moveable components as well as sliding joint surfaces (such as for example piston rods) prior to lacquering and painting. This is of particular importance when working with lacquers containing nitrocellulose or when masonry or welding work is planned.
- Use a filter screen when filling with oil

**Installation**
During installation work or when replacing components, the following are to be observed as general principles:

- Use only operating material which has been re-leased by the WITTUR Company (such as hydraulic oils) and only original WITTUR spare parts. Sealing materials such as silicone, hemp, Teflon tape or putty are not allowed, because particles shed by them could enter the hydraulic system.
- When selecting pipes (only seamless precision steel pipes), hoses, screwed connections, threaded joints and similar things, note proper pressure levels

- Install components and pipes according to regulations and free from stresses. Take into account possible heat expansion and noise transmission.
- Lay hose lines only with authorised bending radii
- Convince yourself prior to installation that sealing surfaces are undamaged, level and clean
- Lightly oil packings prior to installation and ensure that they sit properly
- Tighten mounting bolts of valves or sealing surfaces equally with the prescribed torque

**Maintenance**
For inspection and maintenance, the following apply as fundamental principles:

- Replace damaged pipes and hose lines immediately
- Eliminate leakages and/or their causes without delay
- Be aware of strange or excessive noise development in pumps, at clutches, suspensions, etc.
- Keep the installation free of dirt and clean it regularly. That way, damage, leakages, etc. can be recognised more easily.

**Other**

Dispose of waste oil and wastes containing oil in an environmentally-responsible manner.


Waste Oil


Oily cloths

### 1.4.2 Safety components

The following are numbered among the group of safety components:

- Overspeed governor
- Slack rope device
- Safety gear device
- Contact buffer
- Pipe rupture valve

It is absolutely mandatory that the standards and instructions belonging to these components be observed, including those specified in the respective operating instructions.

For that reason, the respective operating instructions must be read and understood before commencing work on these components.

### 1.4.3 Electrical safety devices

Electrical safety devices require special care. Their perfect functioning is a precondition for the danger-free operation of the overall installation.

For electrical safety devices which cannot be adjusted until after installation, adjustment must take place immediately following their installation.

If electrical safety devices are already preadjusted at the factory, their function must be checked immediately.

If the disassembly of electrical safety devices is necessary for maintenance or maintenance operations, then they are to be reassembled immediately following completion of these tasks and checked accordingly.

## 1.5 Preparation

Before beginning installation work it is in your own interest to ascertain the constructional and spatial conditions. Where (workshop or on site) and when which installation operations can or must be carried out.

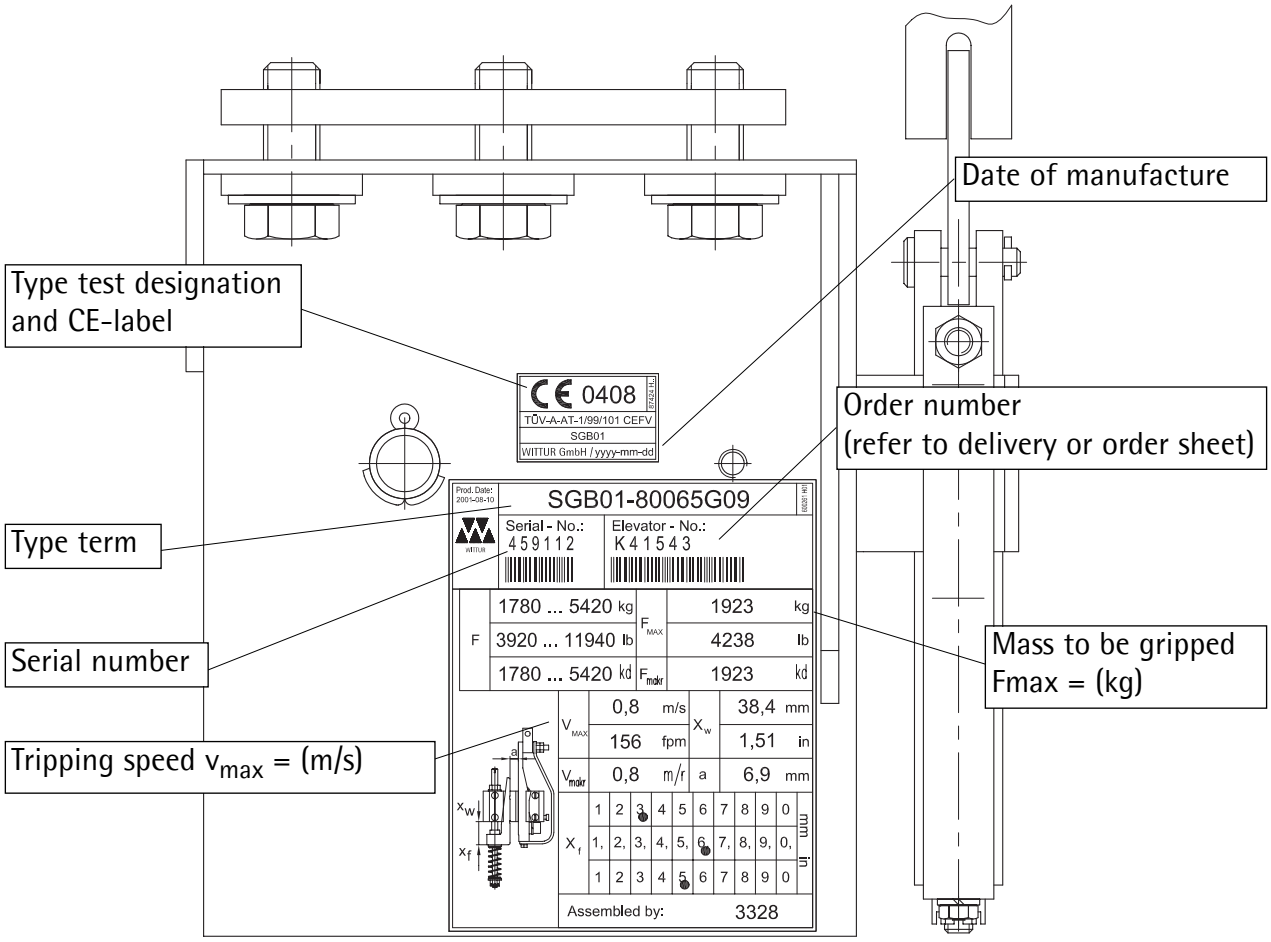
It is recommended therefore, taking into account all the given circumstances, to plan the various operational sequences in advance, rather than carrying them out prematurely and in an unconsidered manner.

On receipt of the delivery, the goods or components should be checked for correctness and completeness with the order sheet.

## 1.6 Safety gear name plate

If the WHF car frame is delivered with safety gear, the identification indicators are located on the side of the safety block. These consist of a name plate and a identification sticker.

The details on the name plates should be compared with the order sheet and also check:
- that the factory and order number correspond
- the rail head width and model
- the total load (G)
- the tripping speed
- for 2:1 suspension: the rope pulley diameter, the number of rope grooves and rope groove diameter are suited to the ropes



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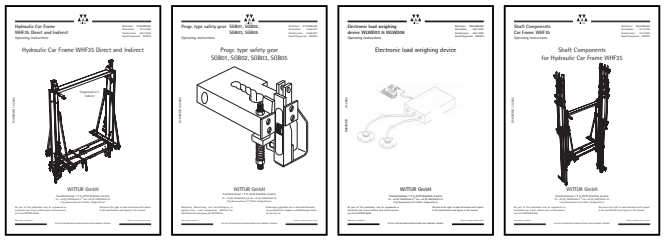
## 1.7 Content of supply

After delivery, check the lift car frame for damage and for full delivery of parts. The content of supply covers:

- Car frame operating instructions manual
- Safety gear operating instructions manual
- Load weighing device operating instr. manual
- Shaft components operating instructions manual



### 1.7.1 The condition of pre-assembly

- Upper and lower cross beam assembled with safety gear and Synchronisation
- uprights preassembled
- all other parts which belong to car frame like diagonals, platform support beam, guide shoes ... are separately put into the package

### 1.7.2 Notes on storage

For best possible storage keep in a room which is:

- lockable
- heatable
- dry and
- free of dust (especially cement dust)

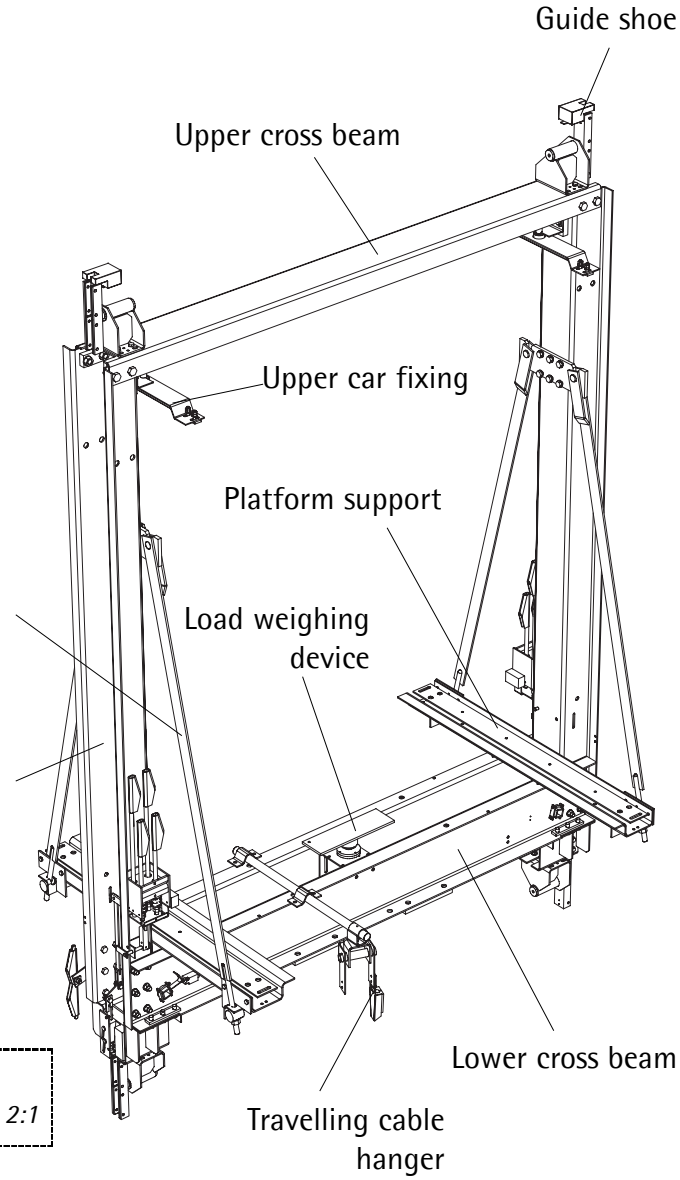



*Fig. 1: WHF35 Suspension 2:1*

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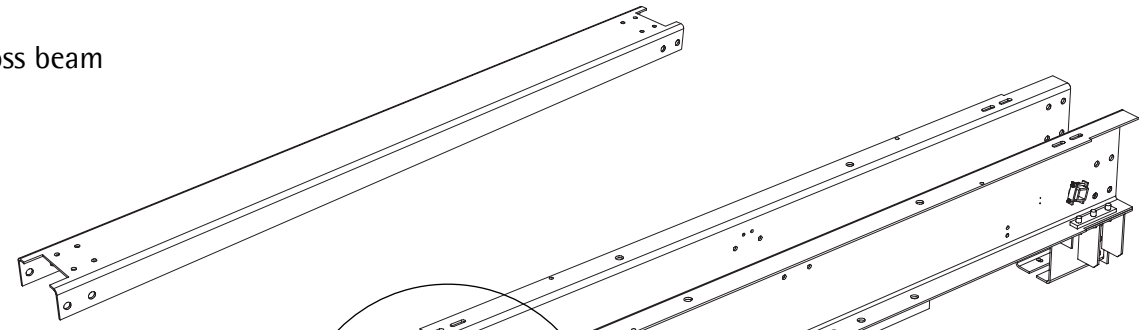
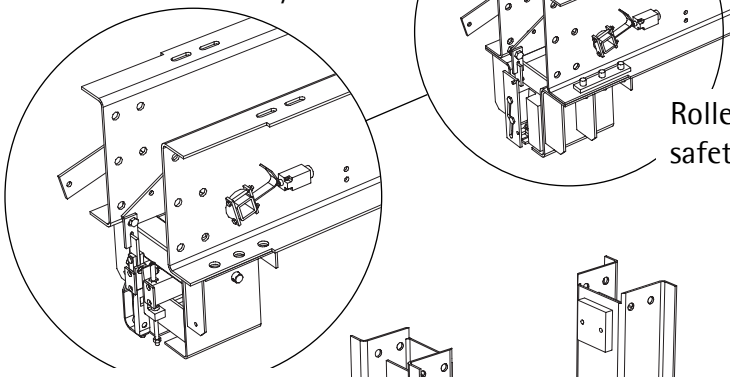
- Upper cross beam



- Lower cross beam ass'y

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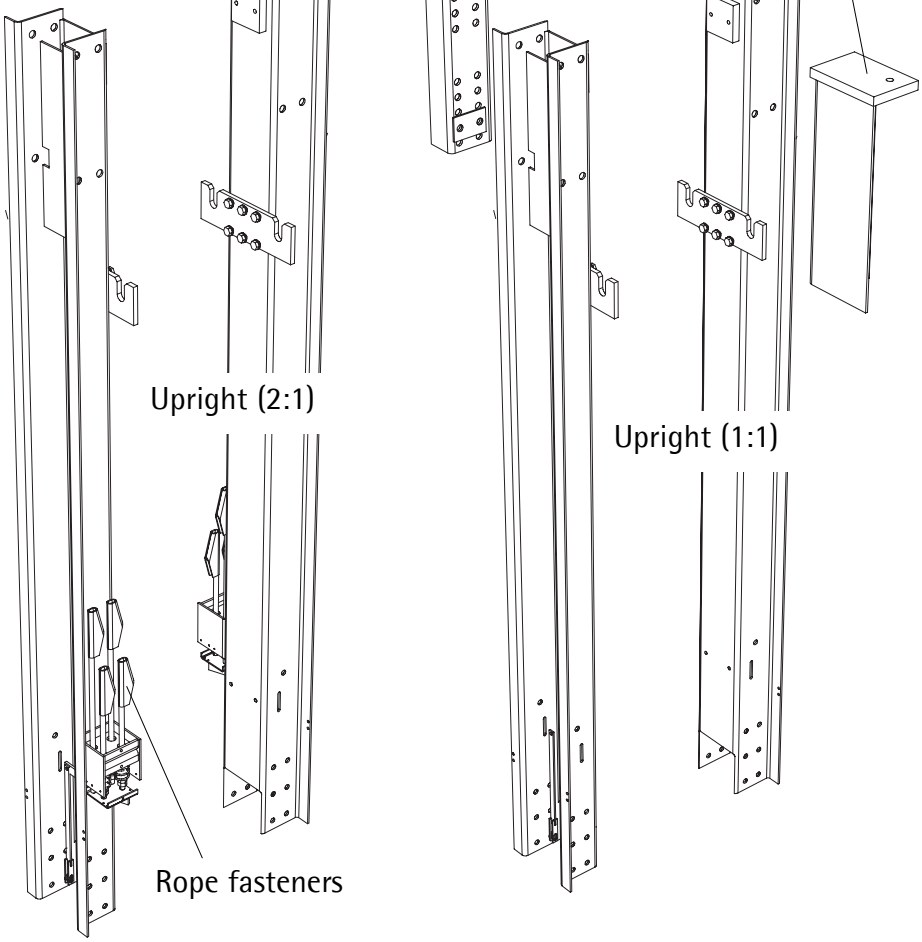
- Upright ass'y




- Cylinder console
(direct 1:1 susp.) or

- Rope fastenes
(indirect 2:1 suspension)

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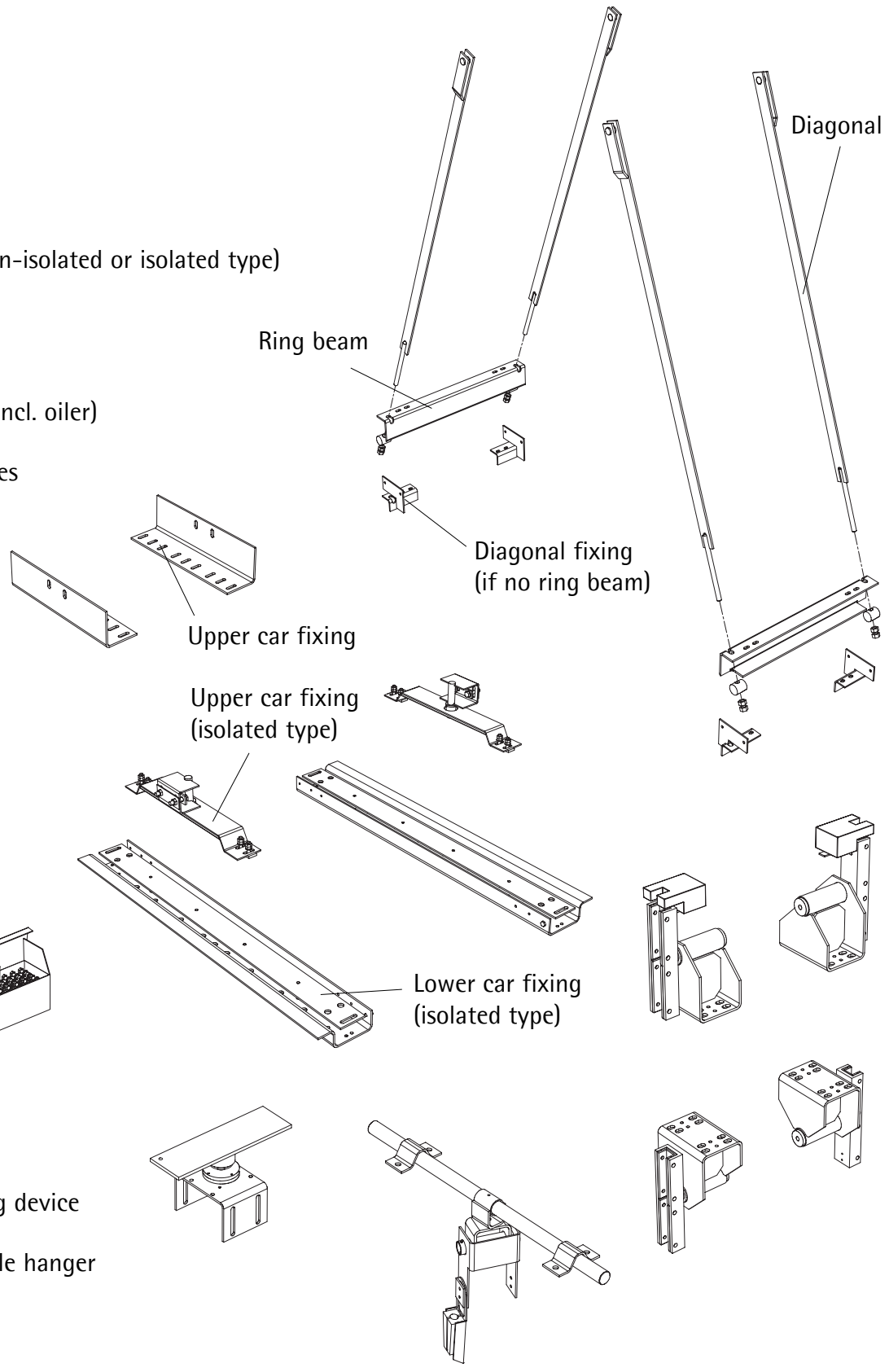
**Accessories:**

- Diagonals
- Ring beams
- Car fixing (non-isolated or isolated type)
- Guide shoes (incl. oiler)
- Screw packages




**Optional parts:**

- Load weighing device
- Travelling cable hanger

## 2 Installation

Car frame installation can either be carried out at the bottom of the lift shaft or on a stable installation platform in the lift shaft (also guide clamps could be used which can take the total load of frame and car)!

The guide rails should have been already properly set. The distance between the guide rails should be checked before installing the car frame.

### 2.1 Placing the bottom cross beam between the rails

The bottom cross beam is delivered pre-assembled. It contains the safety gear, the Synchronisation and the buffer plate. The safety gear device is bolted and synchronised.

Note the correct position of the lower cross beam in relationship to the governor rope position (check layout drawing).

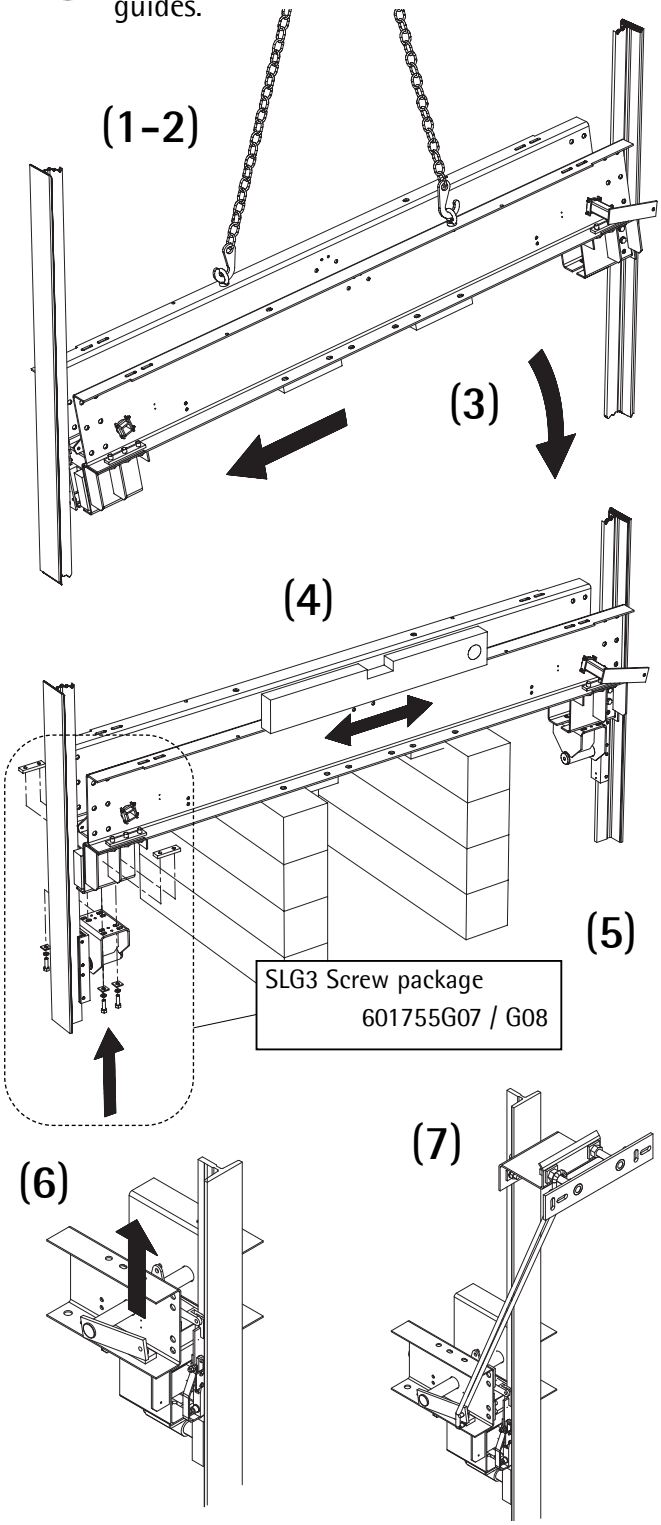
**Procedure:**

**(1)** Set cross beam at an angle (see Fig.)
**(2)** Clip one safety gear head onto the rail
**(3)** Turn Cross beam back into the horizontal position, pushing the second safety gear device onto the rail
**(4)** Adjust the cross beam in the middle of the guide rails (safety gear gripping wedge must overlap guide rail blade)

Check that the beam is horizontal in the lateral direction.

**(5)** Fix the guide shoe to the safety gear housing (for setting refer to operating instruction manuals of guide shoes)
**(6)** Lift OSG-lever by hand and
**(7)** ... secure it with a rope or wire around nearest guide fixing

During installation the frame must be supported so that it does not rest on the guides.



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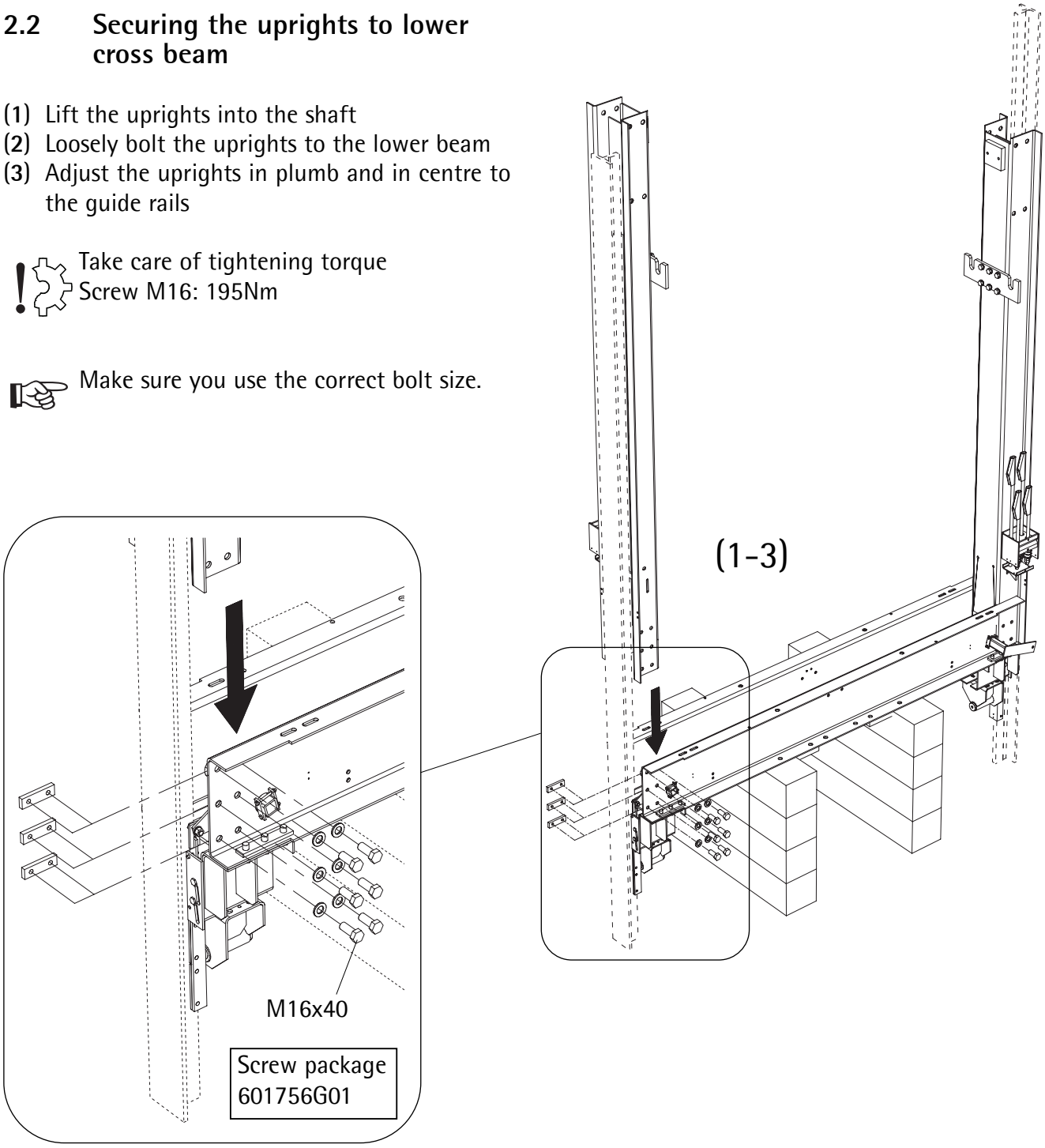
## 2.2 Securing the uprights to lower cross beam

**(1)** Lift the uprights into the shaft
**(2)** Loosely bolt the uprights to the lower beam
**(3)** Adjust the uprights in plumb and in centre to the guide rails

Take care of tightening torque
Screw M16: 195Nm

Make sure you use the correct bolt size.



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## 2.3 Installing isolated platform support beams (optional)

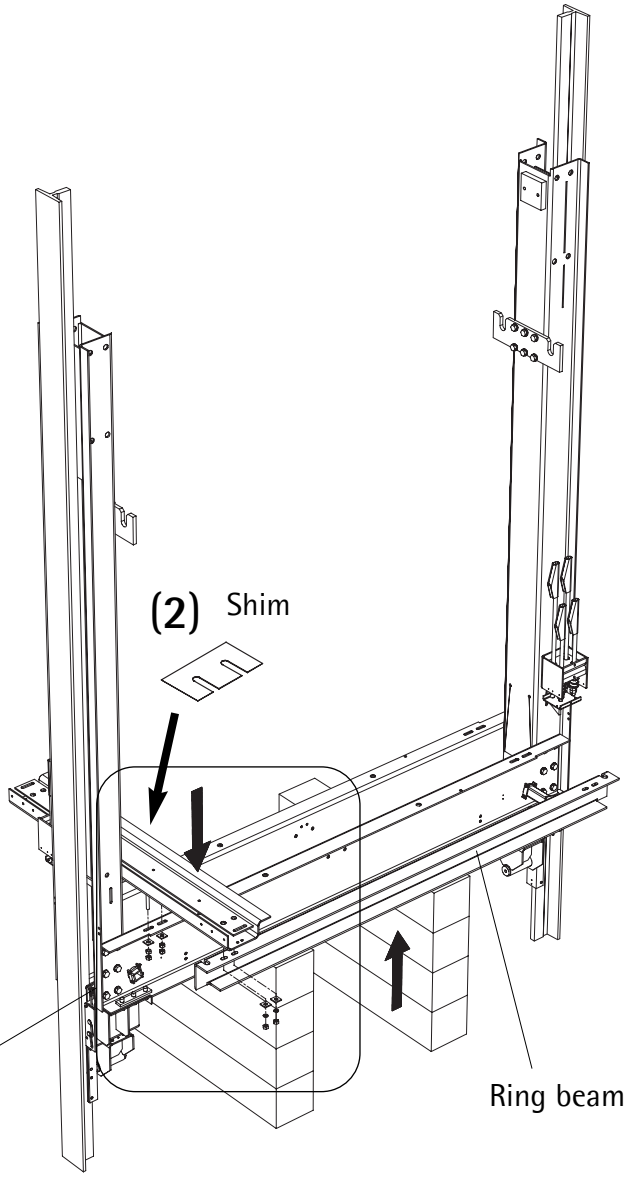
The platform support is delivered pre-assembled. It contains a beam including isolation springs and car fixing plates.

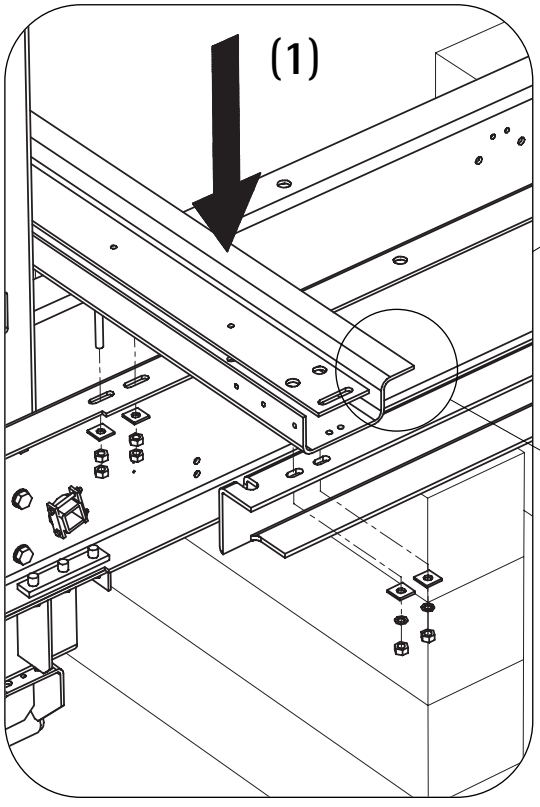
(1) Fit the platform support to the lower cross beam (if ring beams are delivered, do not tighten the screw joint)
(2) Check that the profiles are horizontal. If necessary, add shims between profile and beam

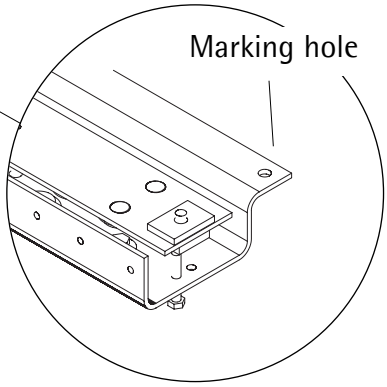
Take care of tightening torque
Screw M12: 80Nm

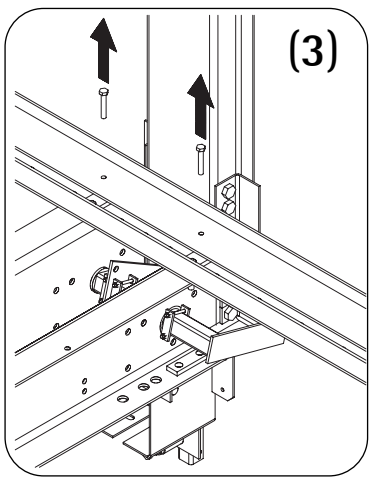
If asymmetrical platform is used, the marking hole must be on the main door side (see layout drawing).

(3) Remove the lock screws



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### 2.3.1 Ring beams installation (optional)

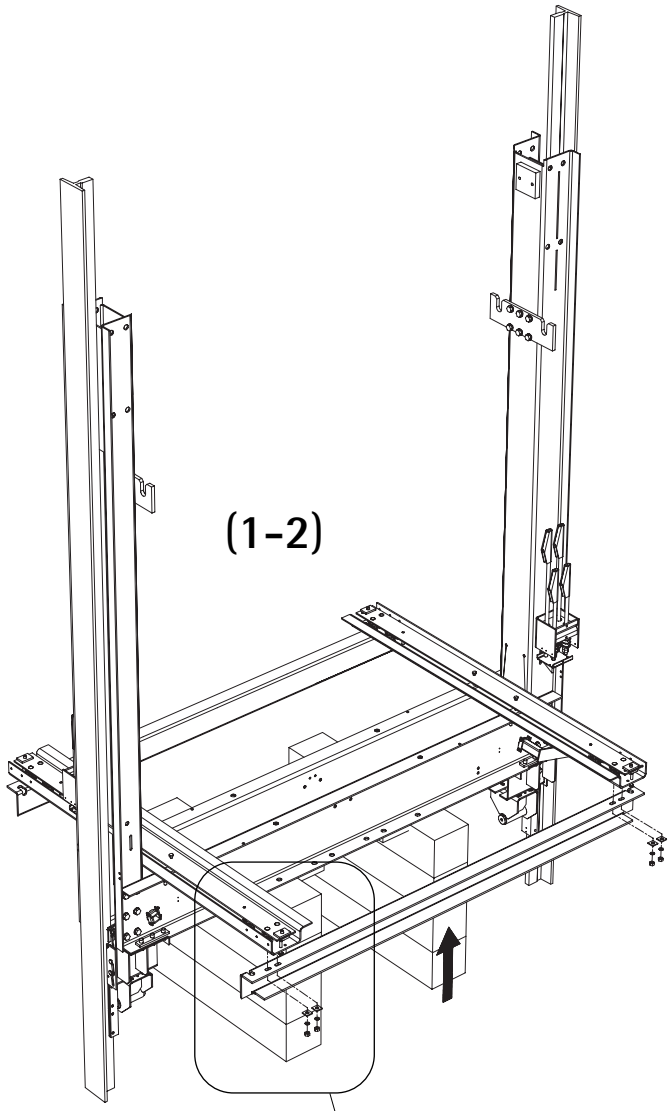
**(1)** Remove the nuts and washers at the end of the platform support beams

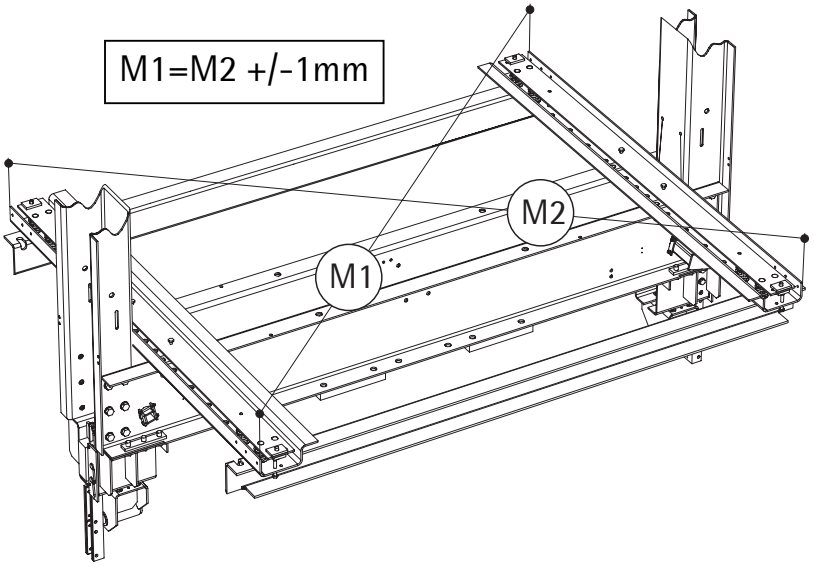
**(2)** Install the ring beams
(tighten the screw joint slightly)

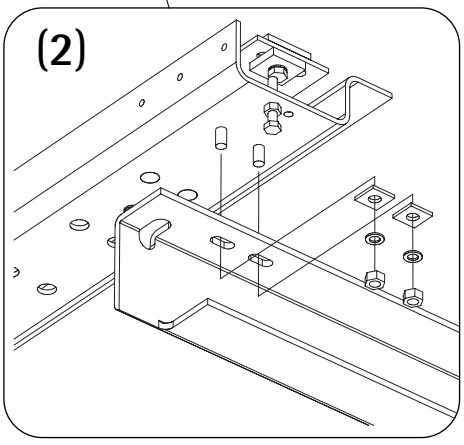
**(3)** Check the square by cross measurement and adjust as necessary

**(4)** Tighten all platform support screw joints

Take care of tightening torque
Screw M10: 46Nm
Screw M12: 80Nm



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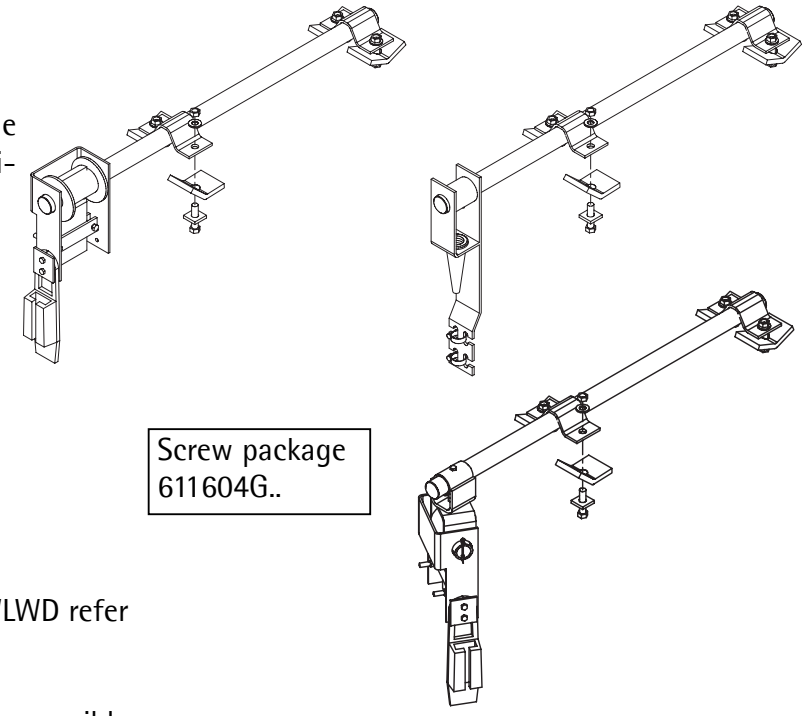
## 2.4 Travelling cable hanger

Before installing the car fix the cable hanger to the lower cross beam (for position refer to layout drawing).

Take care of tightening torque
Screw M12: 80Nm

**Travelling cable hanger types:**



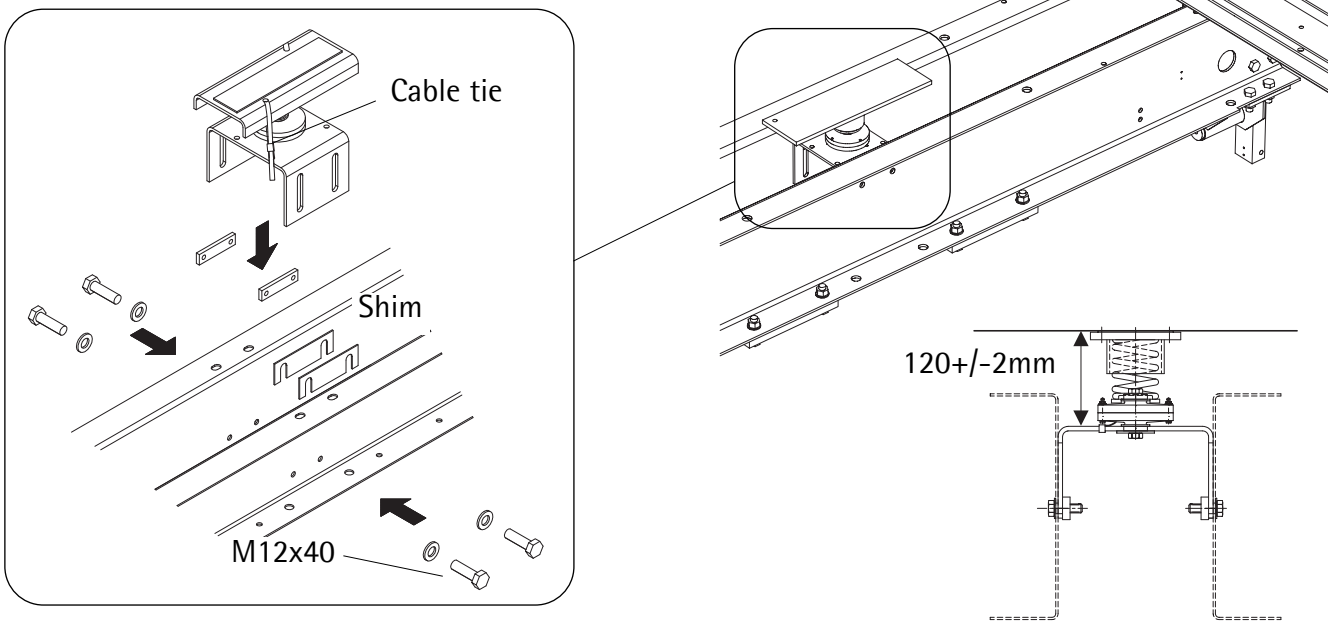
Screw package
611604G..

## 2.5 Load weighing device

For setup of the load weighing device WLWD refer to the operating instruction manual.

**(1)** Fit the load weighing device as low as possible in the lower cross beams
**(2)** If necessary add shims between beams and fixing channel.

Do not undo the cable ties at this stage.



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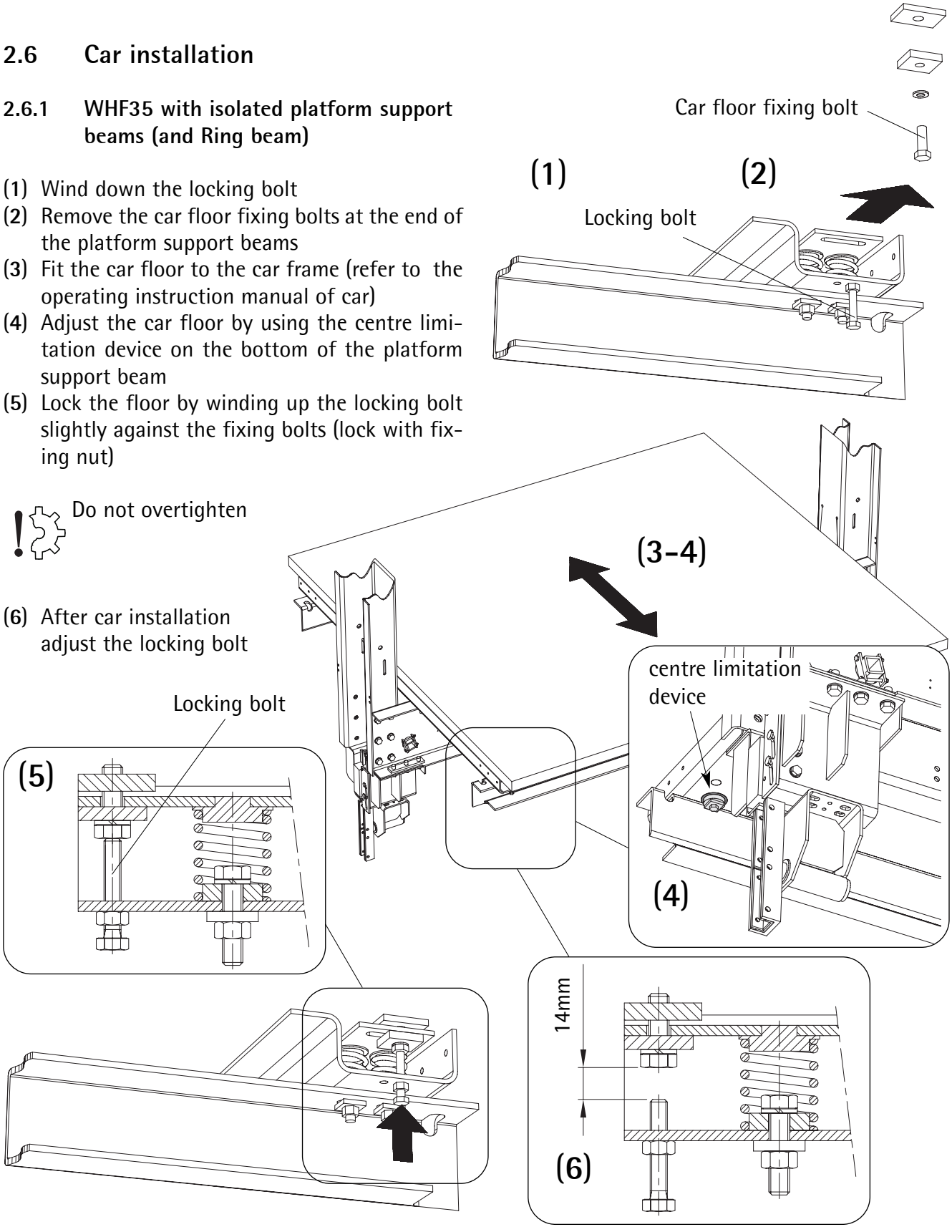
## 2.6 Car installation

### 2.6.1 WHF35 with isolated platform support beams (and Ring beam)

**(1)** Wind down the locking bolt
**(2)** Remove the car floor fixing bolts at the end of the platform support beams
**(3)** Fit the car floor to the car frame (refer to the operating instruction manual of car)
**(4)** Adjust the car floor by using the centre limitation device on the bottom of the platform support beam
**(5)** Lock the floor by winding up the locking bolt slightly against the fixing bolts (lock with fixing nut)

! Do not overtighten

**(6)** After car installation adjust the locking bolt



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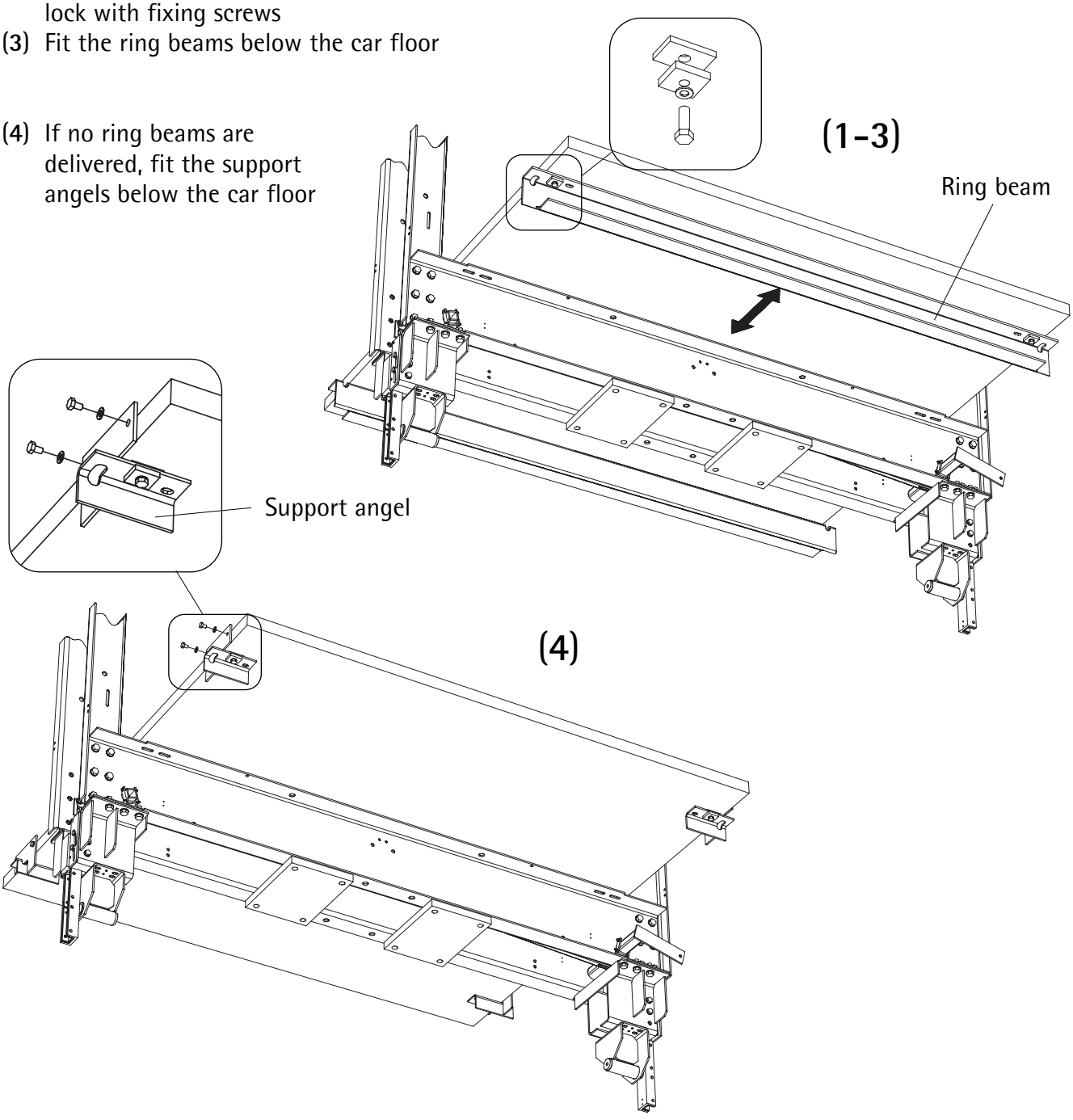
### 2.6.2 WHF35 without platform support beams (Ring beam optional)

(1) Fit the car floor to the car frame lower cross beam (refer to the operating instruction manual of car)
(2) Adjust the car floor to its final position and lock with fixing screws
(3) Fit the ring beams below the car floor

(4) If no ring beams are delivered, fit the support angels below the car floor

! Take care of tightening torque
Screw M10: 46Nm
Screw M12: 80Nm

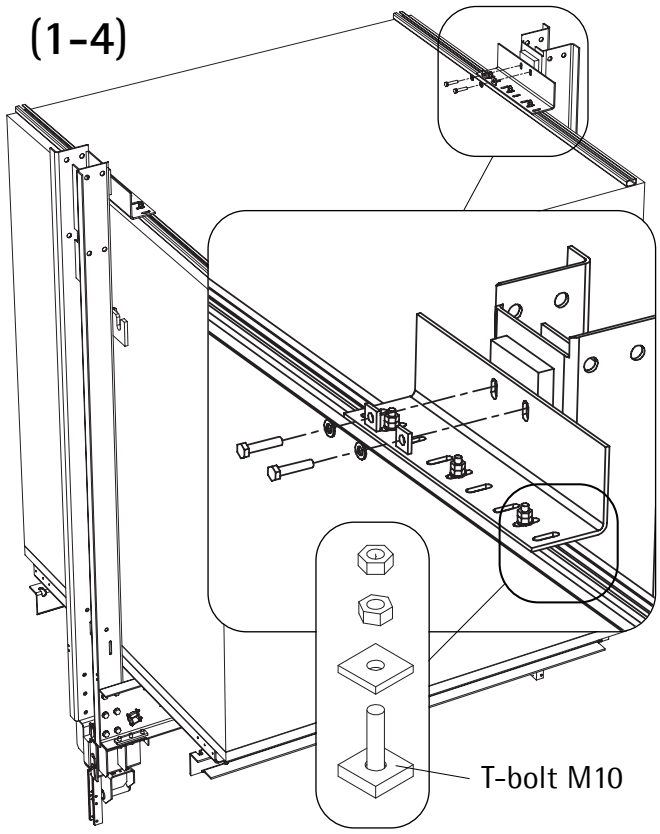


## 2.7 Installing of Upper car fixing and Crosshead beam

**Non isolated upper car fixing**

**(1)** Fix the upper fixing L-profile to the car roof channel (handtighten T-bolts)
**(2)** Fix the L-profile to the upright (tighten the T-bolts)

Take care of tightening torque
Screw M10: 46Nm




**Isolated upper car fixing**

**(5)** Fix the upper isolation to the car roof channel (handtighten T-bolts)

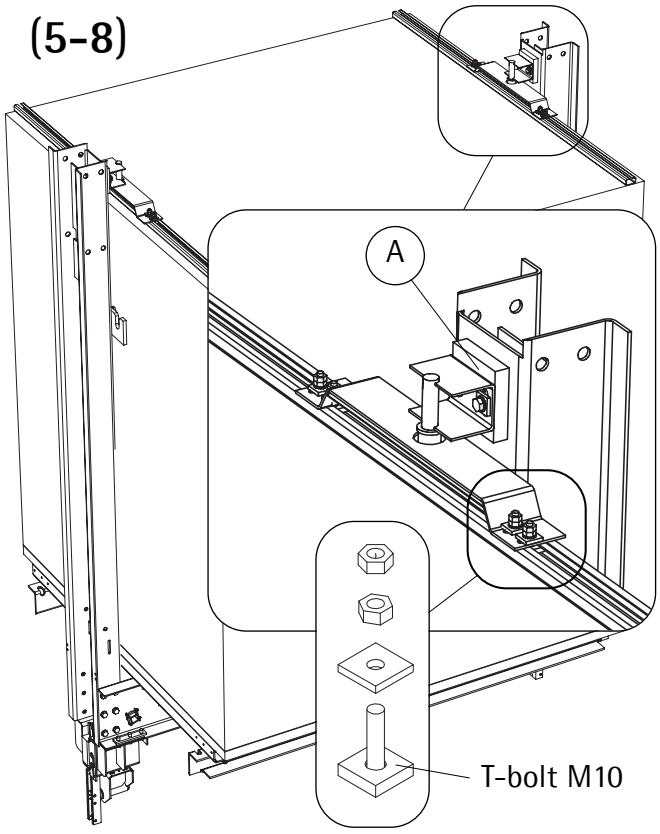
Take care of tightening torque
Screw M10: 46Nm

**(6)** Fit the upper car isolation to the upright (tighten T-bolts)
**(7)** Push the body (A) approx. 4 mm downwards (against the rubber bushing).

The car must not be loaded during the adjustment.

**(8)** Tighten the screws of the body

Take care of tightening torque
Screw M12: 80Nm



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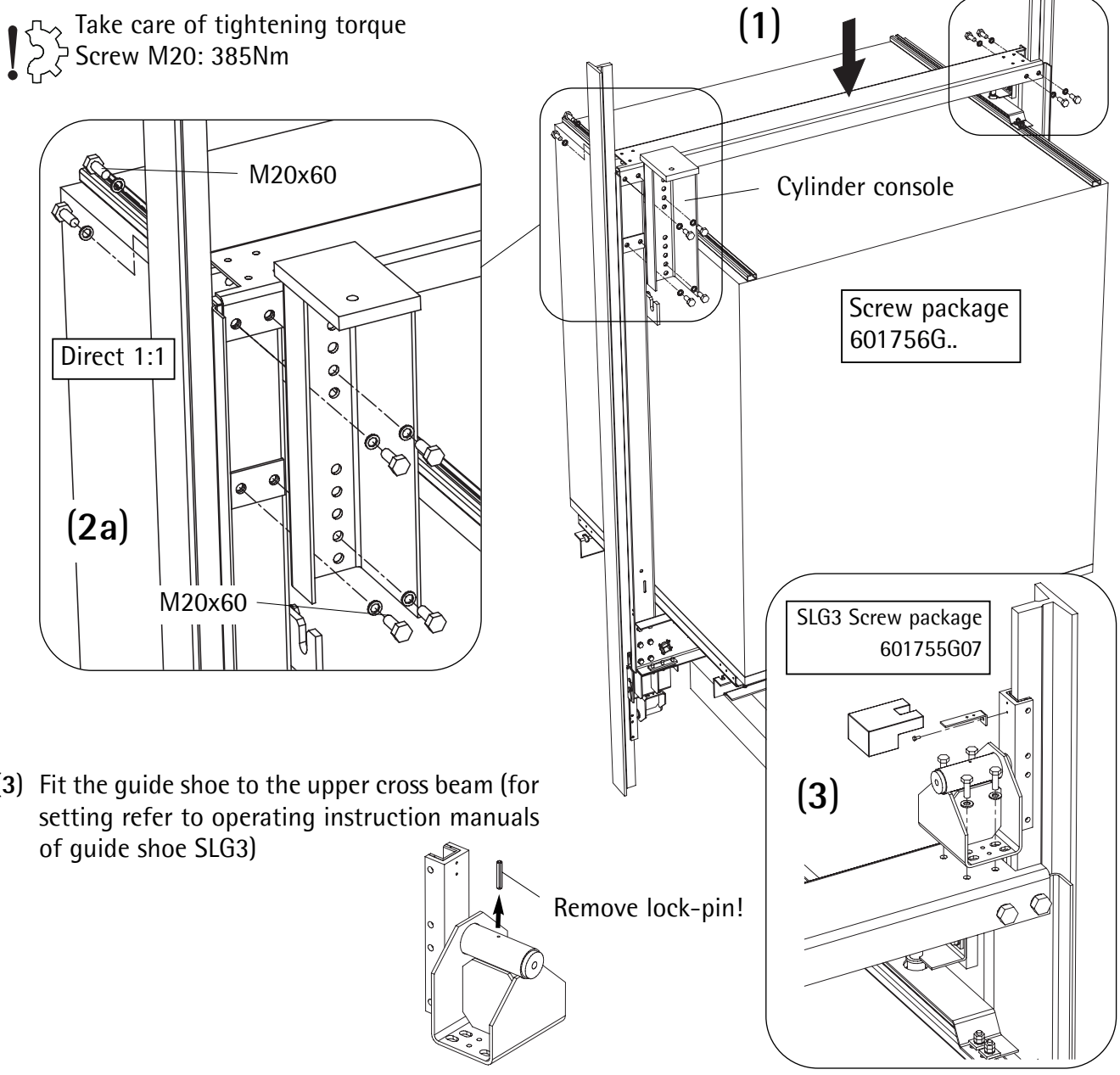
**Upper cross beam and Cylinder console (direct car frame only)**

**(1)** Lift in the crosshead beam onto the uprights
**(2)** Fit the beam to the upright.
**(2a)** Screw cylinder console and upper cross beam together with uprights.




Take care of tightening torque
Screw M20: 385Nm

**(3)** Fit the guide shoe to the upper cross beam (for setting refer to operating instruction manuals of guide shoe SLG3)

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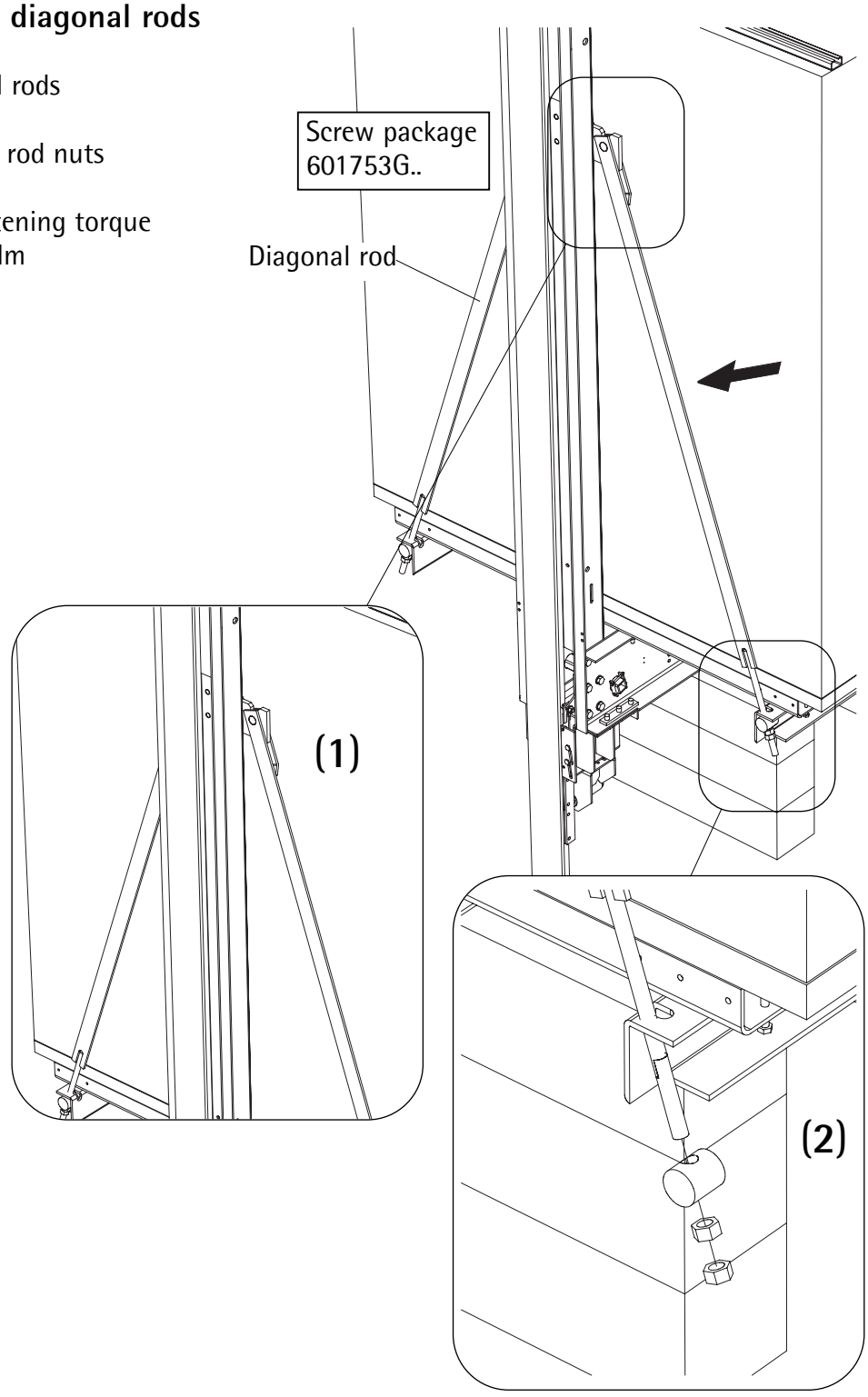
## 2.8 Installing the diagonal rods

(1) Hang in the diagonal rods

(2) Tighten the diagonal rod nuts

Take care of tightening torque
Screw M20: 385Nm



## 2.9 Roping of Indirect 2:1 Suspension

The ropes run over a roller on top of the cylinder to the car frame. For details refer to shaft components operating instructions manual.

The ropes can be put into place once the rope pulley and the car frame is installed.

### 2.9.1 Routing the ropes

- Fix the first end of the ropes to the cylinder pillar - remove the rope guards of the pulleys for roping.
- Route ropes one by one around the pulleys

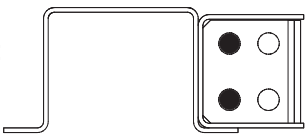
☞ If there is only 3 ropes used, leave the groove in the middle of the rope pulley empty.

- Lower the car frame side ends of the ropes down to the shaft pit
- Reinstall the rope guards of the pulleys

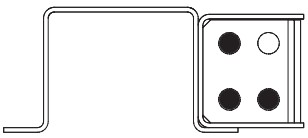
☞ The ropes are not permitted to overlap one another!

**Arrangement of the rope fixings:**

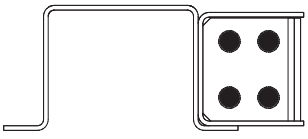
Number / side:
2 pcs.



3 pcs.



4 pcs.



### 2.9.2 Fastening the ropes to the car frame

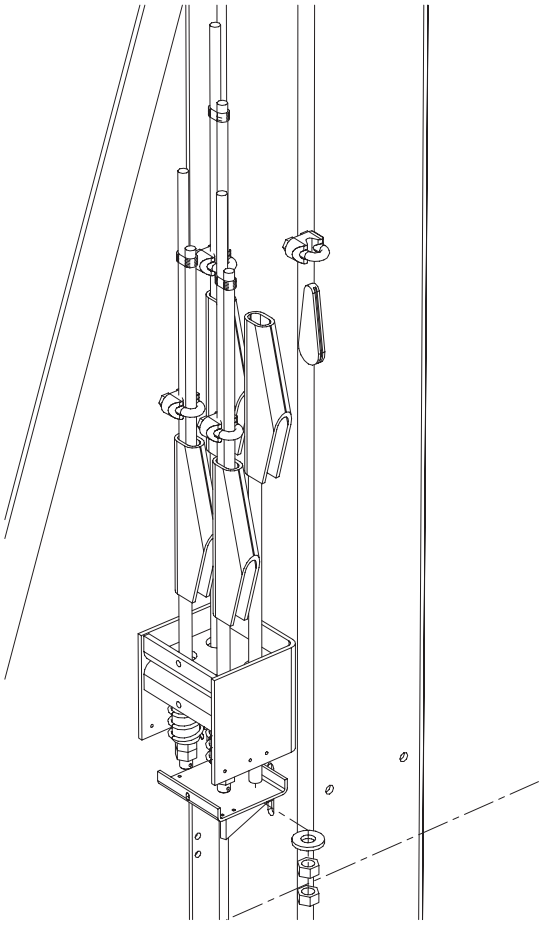
- Slide the rope fixings into position

⚠ The car must be parked and secured

- Secure the rope fixings to the car frame using 2 nuts, washers and a securing pin

☞ Secure the rope locks with anchoring wire against twisting and making contact (noise generation).Check the rope hitch for solid placement!

⚠ For correct rope anchor assembly see figure.



# Hydraulic Car Frame
# WHF35 Direct and Indirect

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**Fasten the ropes to the rope anchor:**

a) Make a loop on the rope by feeling the end of the rope through the socket and then feed it back. Do not twist the rope, just turn it back.
b) Insert the wedge and pull the loop into the socket
c) Simultaneously with an other person pulling the ends of the rope, secure proper seating by hammering the wedge with wooden block.

**Equalize the tension of ropes:**

After all ropes are installed as described above, let the weight of the car and/or counterweight rest on ropes to seat the wedges and ropes into the socket firmly. If any rope is tighter than the others, it can be equalized as follows:

d) Tap the wedge outwards until the rope slides, using a hammer and a drift pin, which is inserted into the top of the rope socket between

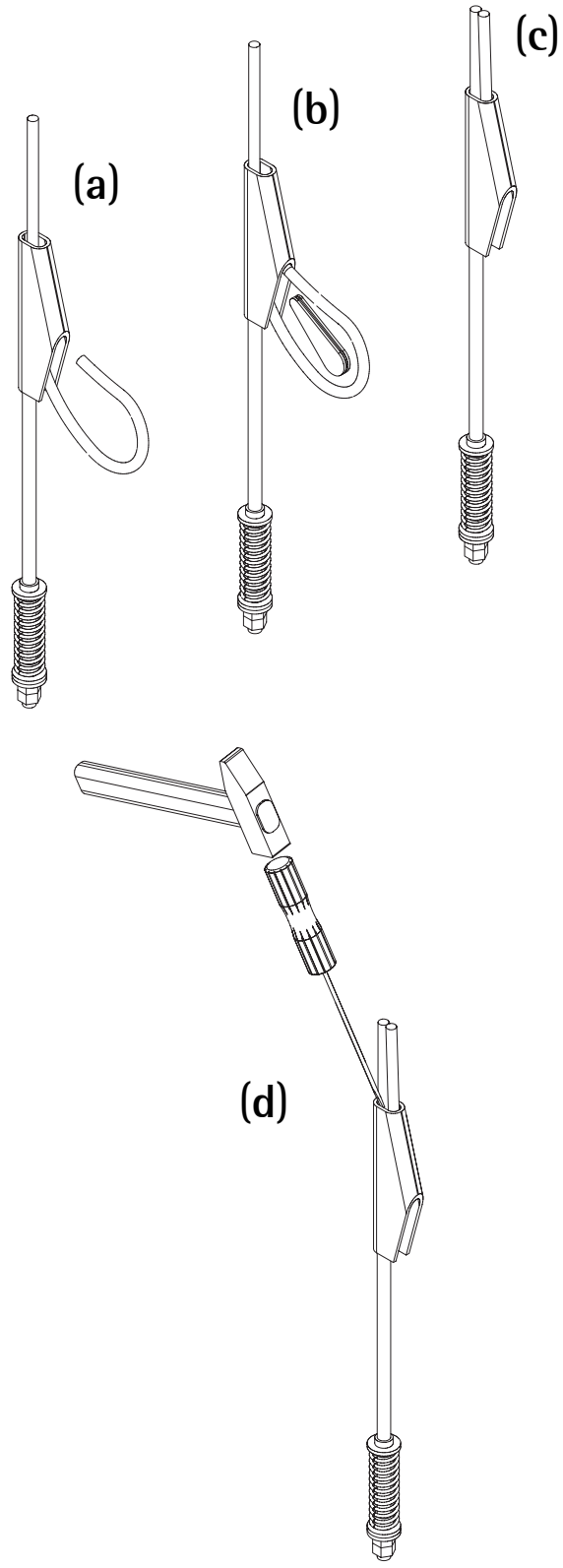
**Secure the rope tail-end:**

Properly made tail-end securing will prevent wedge from falling out if rope suddenly get loose.

Be aware of local laws and regulations concerning tail-end handling methods.

The rope clip is not delivery content of the car frame!

The rope clips should be used and tighten to torque recommended by the manufacturer.



# Hydraulic Car Frame
# WHF35 Direct and Indirect

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Datum/*date* 09.12.2002
Stand/*version* 09.12.2002
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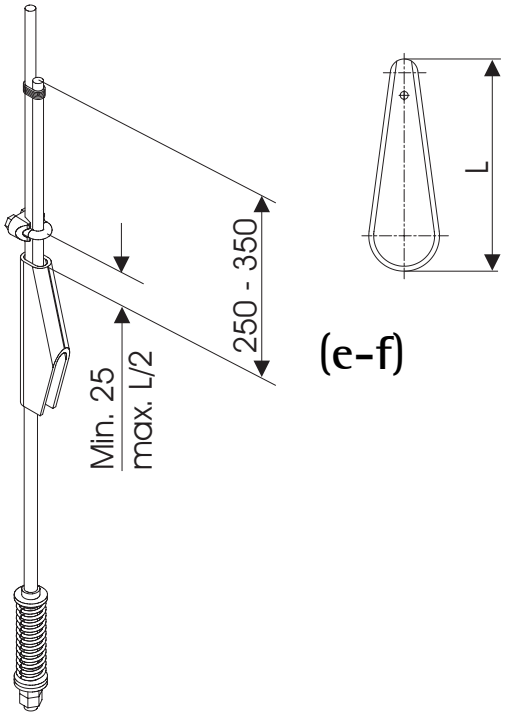
One main method is described below but any other acceptable local method can be used.

e) Secure the tail-end of the rope to the live-end with a rope clip from 25mm to L/2 of the wedge. The U-bolt must be fitted to the dead-end of the rope and the saddle must be fitted to the load bearing end of the rope.

f) Tie the tail of the dead-end to the live rope using soft steel wire or bundle binder

If the wedges are not enough close to each other to prevent full rotation, tie the terminations together using e.g. soft wire. Do not prevent equalization springs working.



# Hydraulic Car Frame
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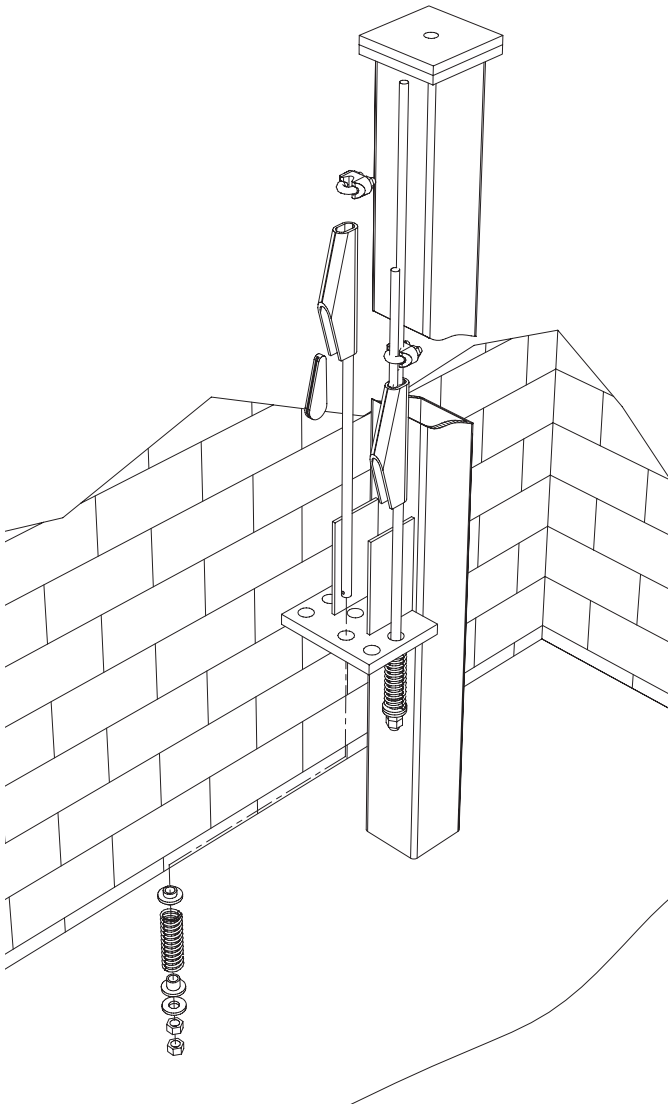
### 2.9.3 Fastening the ropes to the rope thrust block

- The car frame rests on its installation supports
- The piston rod of the jack needs to have traveled at least 100 mm from the lower limit stop
- Mount ropes and rope fasteners as shown in the drawing
- The ropes should be subjected to equal tension as much as possible
- The surplus rope length can be fastened with tape to the stretched suspension rope until the final adjustment is made

☞ Secure the rope locks with anchoring wire against twisting and making contact (noise generation).Check the rope hitch for solid placement!

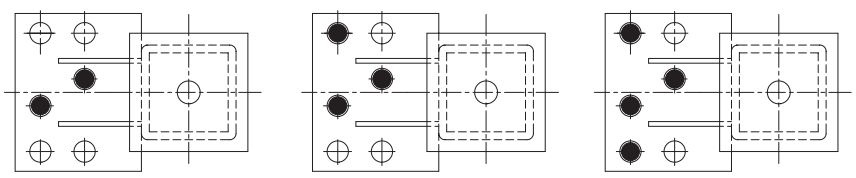
☞ After final adjustment of the rope length, set the rope tension to equal levels with the aid of a testing instrument.



**Arrangement of the rope fixings:**

Number / side:

2 pcs. 3 pcs. 4 pcs.



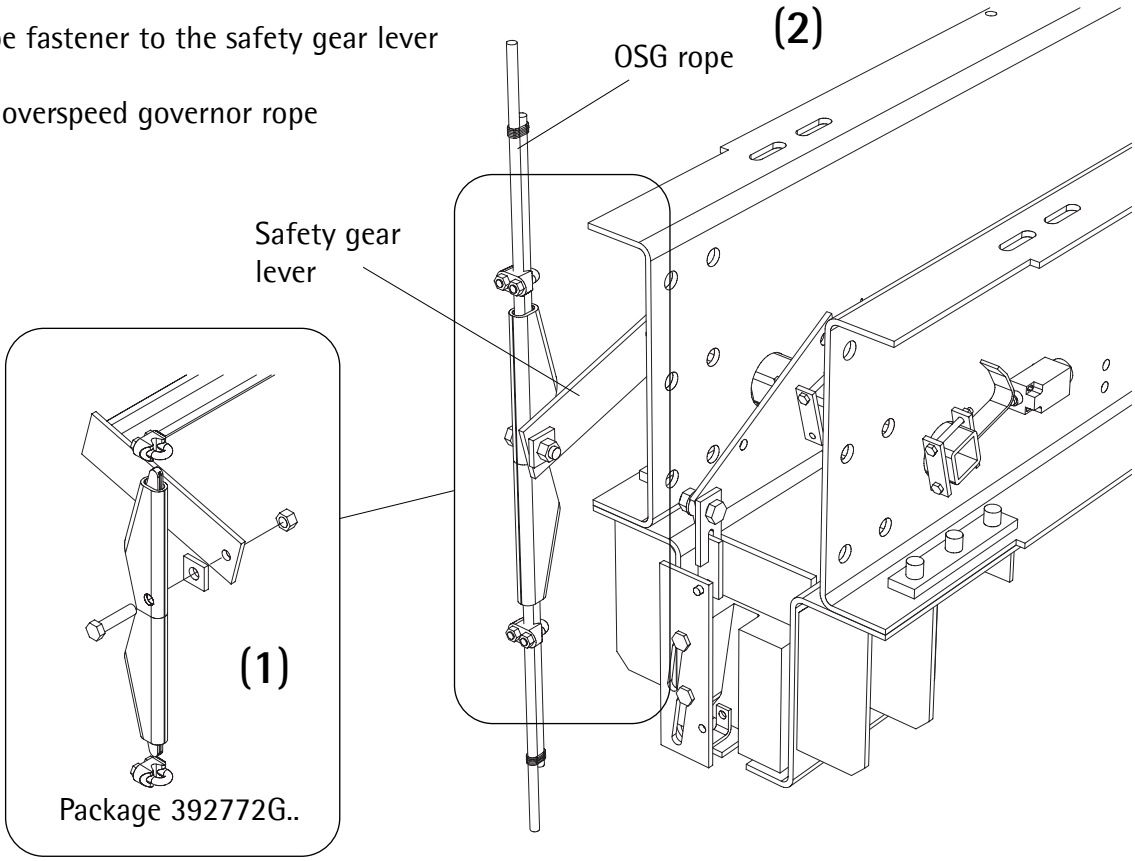
# Hydraulic Car Frame
# WHF35 Direct and Indirect
Operating instructions



## 2.10 Overspeed governor rope fixing

**(1)** Fix the rope fastener to the safety gear lever

**(2)** Install the overspeed governor rope



## 2.11 Adjustment of safety gear

The safety gear device (safety gear, Synchronisation, safety gear contact) is delivered pre-adjusted. Therefore no additional assembling of the safety gear device is needed.

**(1)** Operate the safety gear lever by hand and check that both safety gears begin gripping at the same time

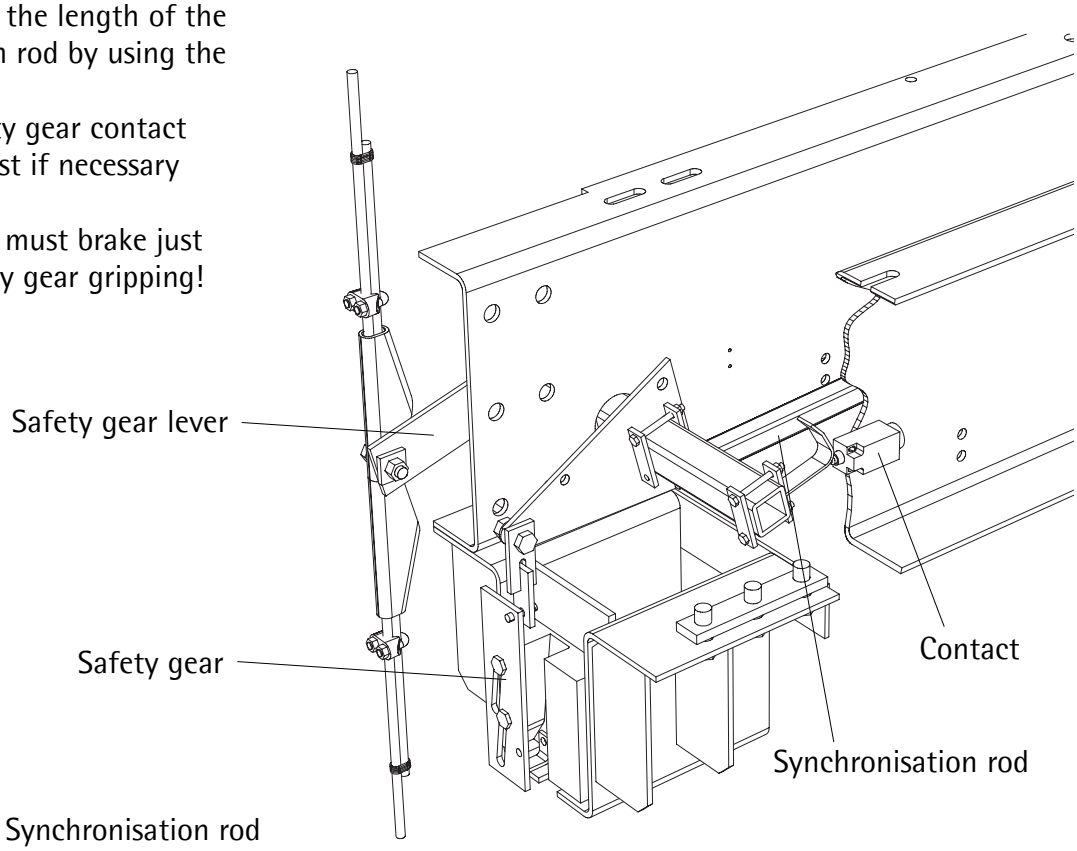
**(2)** ... If not, adjust the length of the Synchronisation rod by using the adjustment nut

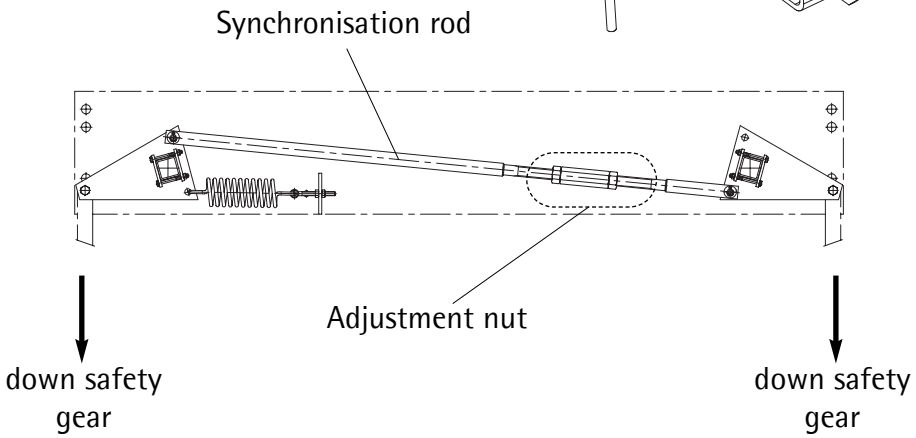
**(3)** Check the safety gear contact function - adjust if necessary

☞ The contact must brake just before safety gear gripping!

**(4)** Adjust the safety gear in accordance with the operating instruction manual of the corresponding safety gear

! Take care of required safety gear running clearance (referring also to the type of guide shoe used)



## 2.12 Electrical installation

Work involving electrical equipment should only be carried out by an electrical fitter or qualified personnel.

Before carrying out work, switch off all voltage to installation equipment.

### 2.12.1 Safety gear switch

(1) Connect the safety gear contact
(2) Test the switch function - adjust if necessary
(3) Adjust the switch horizontally on its fixing bracket

Adjusting dimension: 3-5 mm from the guard peak

The contact must break just before safety gear gripping!

**Switch spec's (self reset type)**

| | | |
|---|---|---|
| - | use category: | AC 15, A300 |
| | | $U_e/I_e$ 240V (3A) |
| - | thermal current: | $I_{the}$ = 10A |
| - | insulation voltage: | $U_i$ = 250V AC |
| - | protection type: | IP 43 |
| - | approved in accordance: | VDE 0470 |
| | | IEC/EN 60947-5-1 |

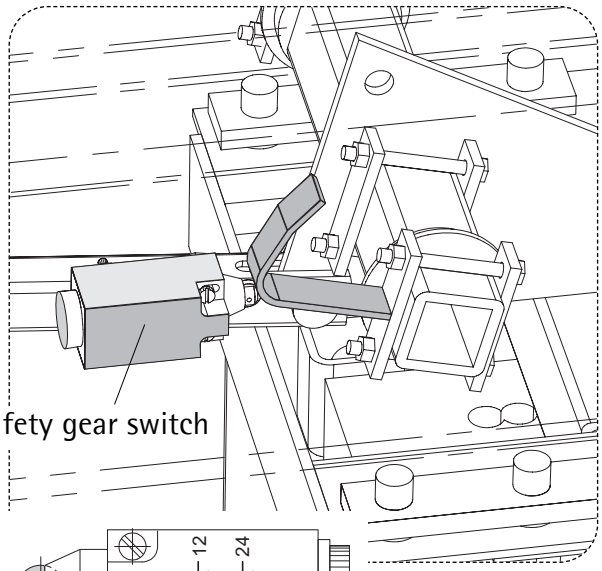
### 2.12.2 Slack rope switch (if OSG-activation)

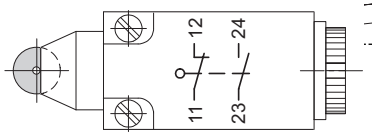
The switch is pre-wired with 1.5m cable and MOLEX plug type 3191-6R1 (NC pin 1 & 2, ground pin 5).

Take note of the following when laying the connection cable:

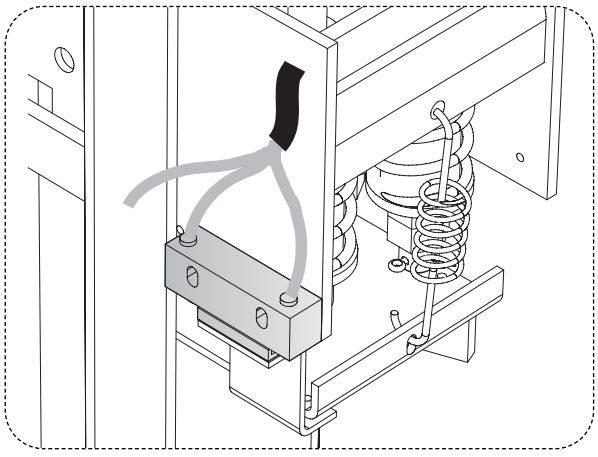
- that the single polarity cables have double insulation
- the use and laying of cables is governed by the EMC

The safety gear contact opens the lift installation's remotely controlled safety circuit.




**(1-3)**



# 3 Adjustment tasks

## 3.1 Safety gear device and Synchronisation

The WHF35 is delivered pre-assembled - the safety gear device (safety gear, Synchronisation, safety gear contact) is delivered pre-adjusted. Therefore no additional assembling of the safety gear device is needed.

Refer to chapter 2.11 "Adjustment of safety gears"

- Operate the safety gear lever by hand and check that both safety gears begin gripping at the same time
- Check the safety gear switch contact function - adjust if necessary

The contact must break just before safety gear gripping!

- Adjust the safety gear in accordance with the operating instruction manual of the corresponding safety gear

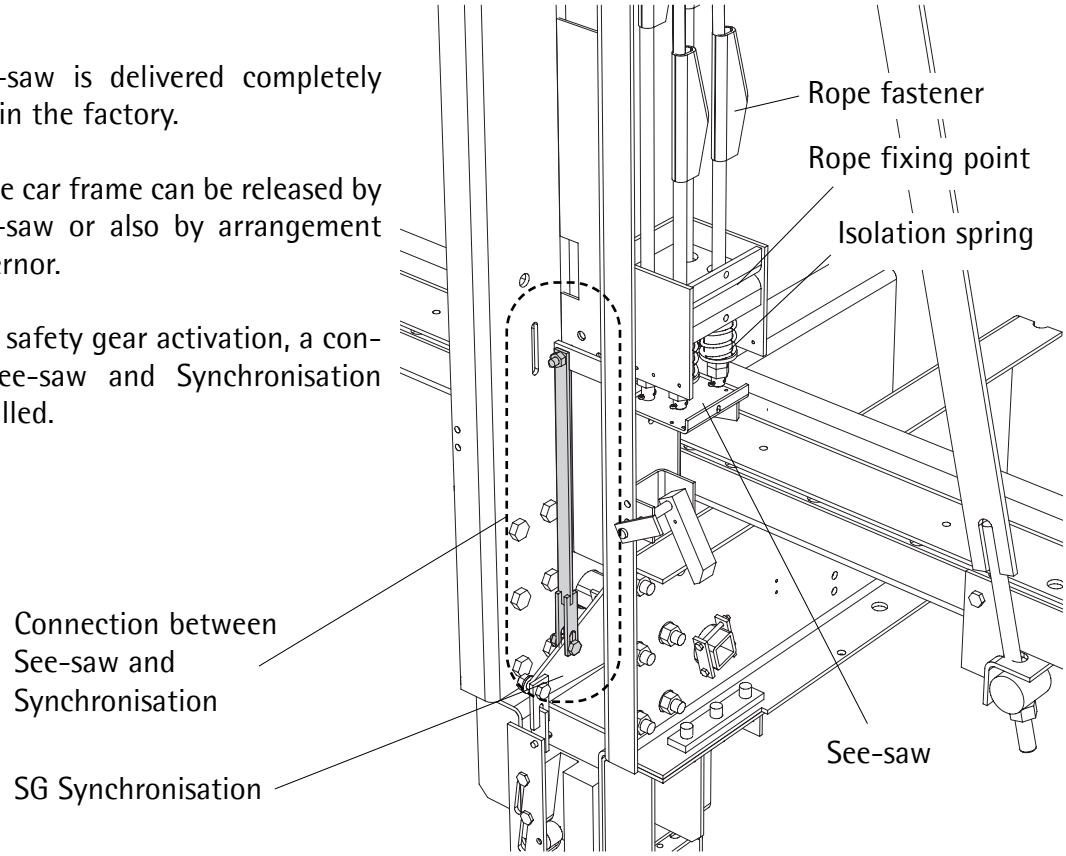
Take care of required safety gear running clearance.

## 3.2 Slack rope see-saw

The slack rope see-saw is delivered completely installed and preset in the factory.

The safety gear of the car frame can be released by that slack rope see-saw or also by arrangement with overspeed governor.

In case of slack rope safety gear activation, a connection between see-saw and Synchronisation shaft has to be installed.



# Hydraulic Car Frame
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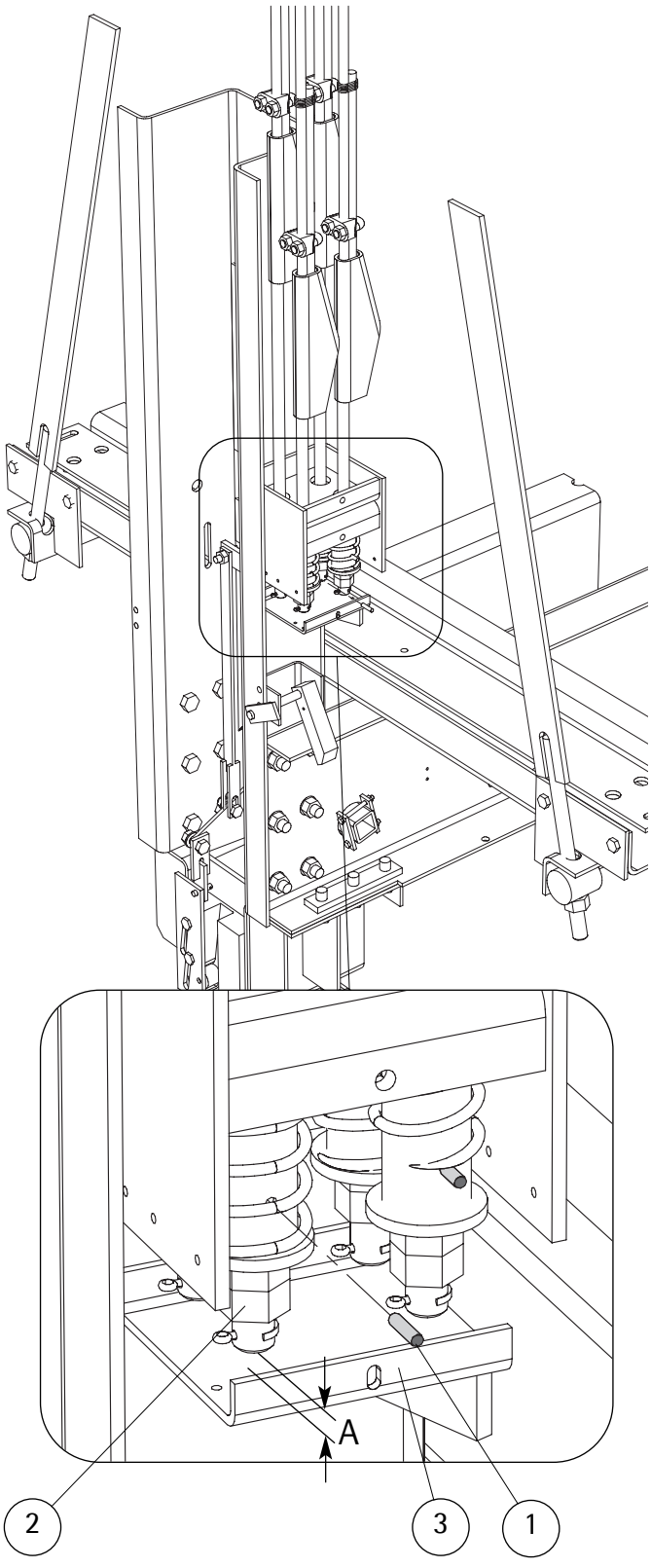
- Operate the see-saw by hand and check that both safety gears begin gripping at the same time.
  ... If not, adjust the Synchronisation accordingly

- Check the slack rope switch contact function - adjust if necessary

☞ The contact must break just before safety gear gripping!

⚠ **Remove lock pins (1) below slack rope activation - isolation springs!**

- Check if with tensioned ropes the distance (A) between rope fastener and the see-saw (3) is so adjusted, that a getting untensioned rope will activate the see-saw by means of the isolation spring.
  - If required, adjust the gap using the adjustment nuts (2) of the rope fastener
  - Lock the nut with the counter-nut and secure with the pin



## 3.3 Adjustment of underrun and overtravel

Prior to the first test run:
**Clean the guide rails!**

No individuals are permitted to be in either the shaft or the lift car during test runs.
**Risk of crushing !!**
Clear all objects from the shaft. Screw projections and other dangerous narrow points should be located and eliminated in advance as much as possible.

Wait to carry out adjustments after **all** lift components has been installed completely.

**Overtravel:**

- Set limit switch at the top
- Carefully move the jack to the piston end limit

For the last 300 mm of the height of the lift, pay close attention to the clearance A between the upper edge of the car frame (guide rail lubricator) and the lower edge of the rope pulley yoke guide. In case of collision, loosen the rope as much as needed until clearance A measures at least 50 mm in the uppermost position of the piston.

**Afterwards, inspect the following:**

- The upper overtravel must have been travelled through (for 1:1 = 160 mm, for 2:1 = 200 mm).
- The limit switch must have responded
- The prescribed safety space must be present above the lift car roof (EN81-2: 1000 mm + 0.035 $v^2$).

**Adjust rope length as needed.**

Afterwards, effect a rope tension which is as equalised as possible.

**Underrun:**

- Lower piston until the frame comes into contact with the buffer. The piston must now be able to arrive at a level which is still at least around 90 % of the buffer height (1:1 suspension) - or 45 % of the buffer height (2:1 suspension).

Installations according to EN 81-2: If the lift car rests on the buffer while loaded with rated load, then the clearance between the threshold of the lowermost stop and the lift car floor may not measure more than 120 mm.

- Check lower safety space

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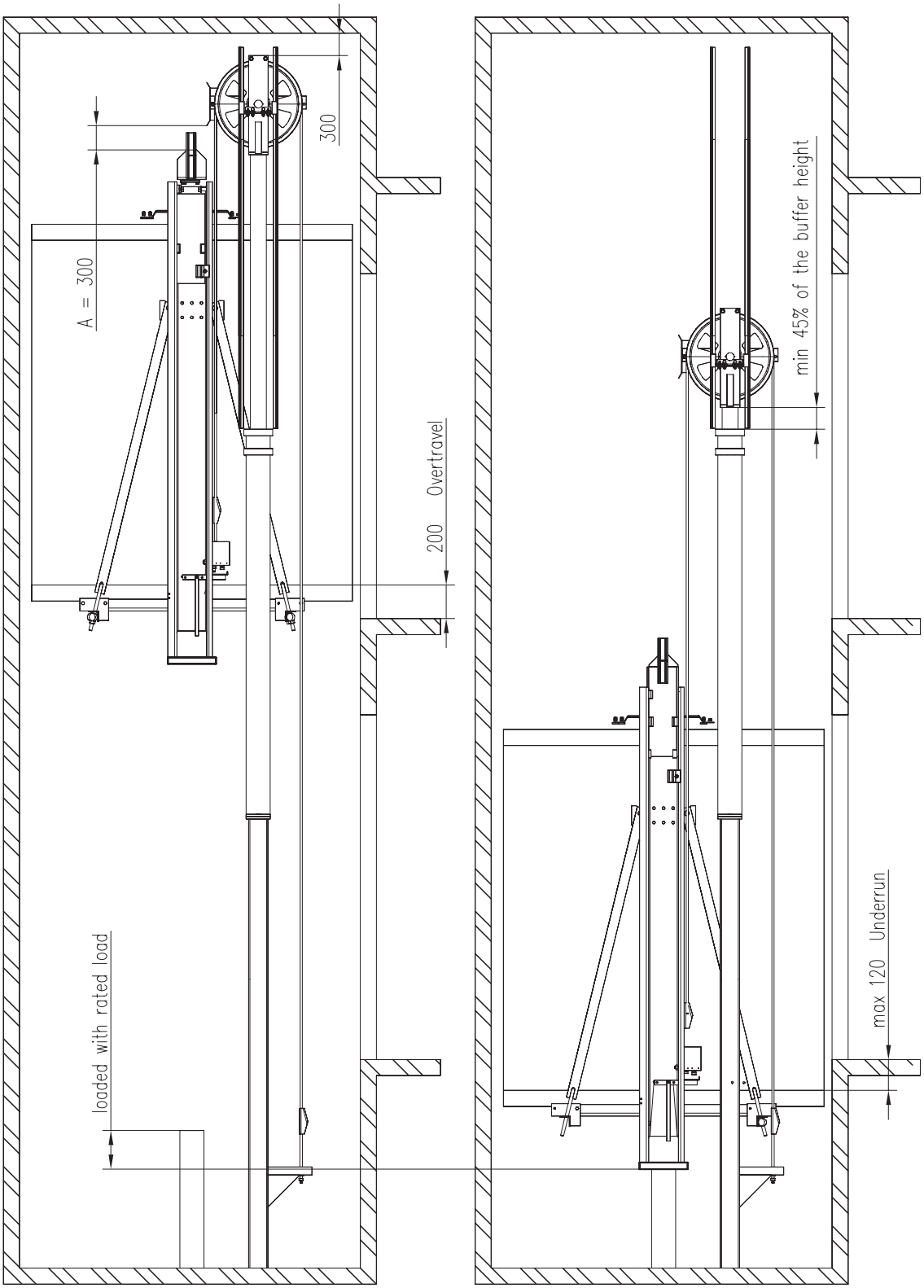


# 4 Function testing

Operational reliability of the installation is assured, assuming that all guide lines were adhered to during proper installation. The quality and function of individual components are subject to thorough inspection and is checked before dispatch from our works. Once installation fitting is complete, the lift car frame system should undergo an operational test before commissioning or before possible inspection from a technical institute.

**First test run after installation**

Before the first test run:
Clean the guide rails!

Clear all people and objects from the lift shaft before commencing the test run
Risk of crushing injuries!

The entire lift travel path should be slowly travelled (in inspection mode) before the functions tests. Attention should be paid to the clearance of all fastened parts, especially with regards to the guide brackets/safety gear devices. Find and remove any protruding bolts or other dangerous restrictions well in advance.

Safety clearance inspections at the bottom of the shaft and shaft head (observe the applicable regulations/guidelines):

## 4.1 Safety gear testing (2:1 suspension)

Nobody should be in the lift car when carrying out test runs or functions tests!

Examine the lift car frame for changes after carrying out the safety gear test:
- deformation of components
- that the screws are firmly in place
- signs of damage or wear on the rope pulleys, guides and suspension points

### 4.1.1 SG Testing with overspeed governor

**Static and dynamic function testing**

The procedures differ according to the safety gear device. For details refer to the operating instructions of the relevant safety gear device.

### 4.1.2 SG Testing with slack rope device

The slack rope device replaces the overspeed governor and fulfils item 9.10.3 of the EN 81-2.

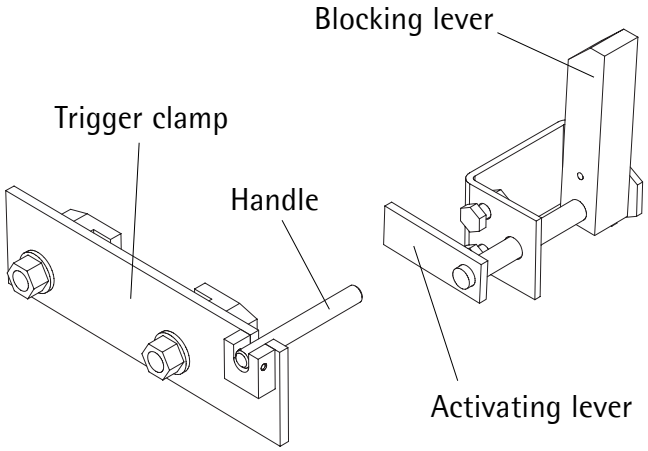
This device has been developed to ensure a safe working procedure when testing safety gears which are operated by a "slack rope" system.

It is used to activate the safety gear by releasing one of the hoist ropes. WHF35 car frames can be equipped with this permanent test tool, which is mounted to the upright near the rope fixing point.

You must never work beneath a lift car when the safety gear is de-activated.

This device must be set by fitter rotating the blocking lever in the vertical position: for safety reasons car frame is delivered with this blocking lever fixed by a cable tie in horizontal position, to avoid the risk of stopping the slack rope device see-saw during normal running.

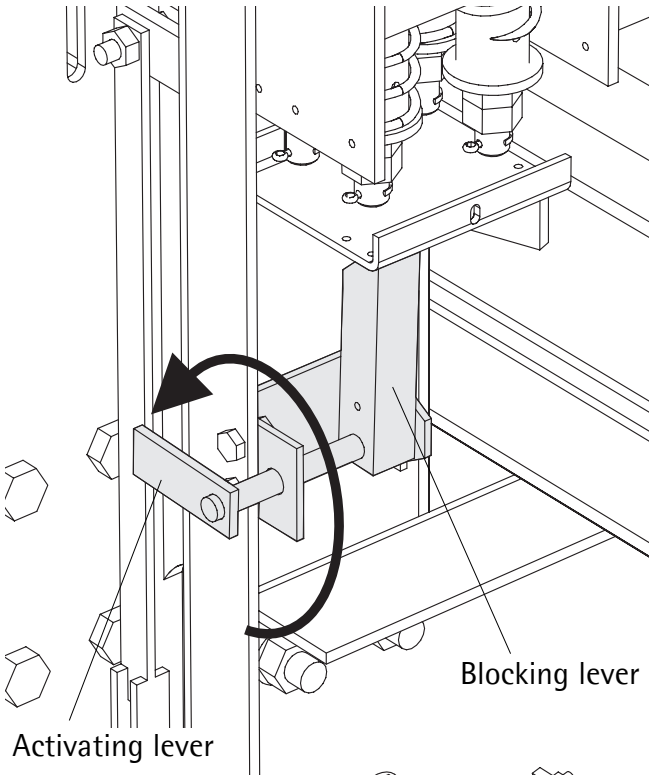
**Remember to replace the cable tie after the test.**




**Test procedure:**

To perform the test you can use the following procedure; two people required:

**(1)** One person goes into the pit and installs pit-prop
**(2)** Second person carefully lowers car
**(3)** Person in pit sets blocking lever to vertical position (to lock the see-saw, the activating lever is in horizontal position).




**(4)** The car is driven up in service mode
**(5)** Fit the trigger clamp on the guide-rail (between first and second floor)
**(6)** Loosen one rope and tie it back to stop it catching - afterwards the person leaves the pit!
**(7)** Drive the lift further up the shaft

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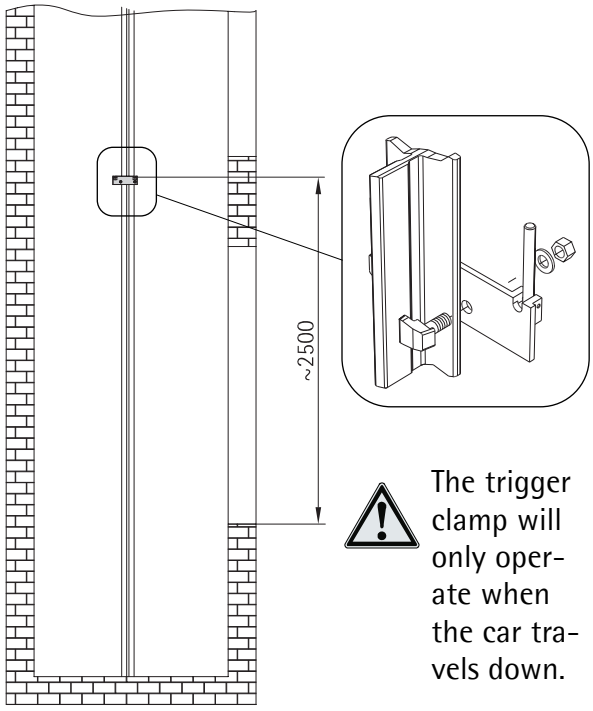
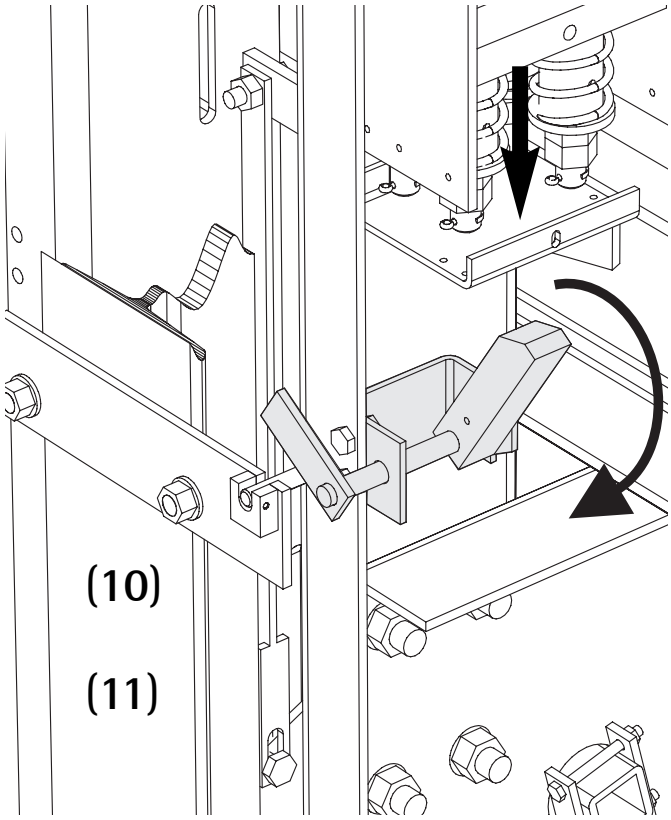
**(5)**




The trigger clamp will only operate when the car travels down.

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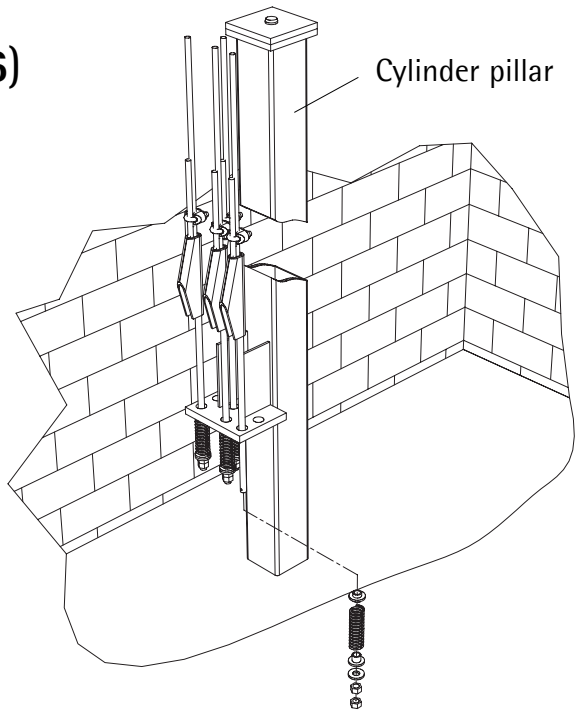


**(8)** Get off the car top and set the lift to normal drive

**(9)** Lift should automatically reset to ground floor in normal drive mode

**(10)** Lower the car until the trigger handle activates the test equipment

**(11)** When slack rope device has been triggered the car should have stopped quite near the fixing point (the compensation / equalization springs of the rope fixing pushes down the slack rope see-saw and activates the safety gear)

**(12)** Check that the safety gear has engaged correctly

**(13)** Lower the ram to make all ropes slack (the rope connection will be easier to remake)

**(14)** Reassemble the rope fixing

**(15)** Carefully pump up the ram until the ropes are in tension

**(16)** Go back to the car roof

**(17)** Drive the car up to disengage the safety gear

**(18)** One fitter returns to the pit and re-installs the pit prop

**(19)** One fitter drives the car carefully down to the pit so that the blocking lever can be set to its original position (remember to refit the cable tie)

**(20)** Always remove the trigger clamp from the guide rail after tests!

## 4.2 Additional testing positions

- Rail surface (traces of safety operation)
- Equalised rope tension
- Parallel rope action (for example proper position of the suspension ropes in the grooves of the diverter pulley)
- Condition of rope suspensions in accordance with regulations
- Guide characteristics (it is possible that an adjustment of the guides is required)
- Tension of the frame diagonals at the car (the two frame diagonals should be equally stressed)
- Prescribed safety clearance
- Testing of the load weighing device (see corresponding operating instructions)

# 5 Maintenance, inspection and repair

## 5.1 Maintenance and inspection

The WITTUR lift car frame requires little servicing. Inspection checks must be carried out at regular intervals (minimum twice a year with each service) to guarantee safe operation. Alterations, damage or other irregularities should be reported, and repaired if possible. Frequent servicing and control checks not only make operation of the installation safer, but also ensure long and reliable service life.

It is recommended that control checks and servicing be carried out before legally prescribed functional tests (e.g. before TÜV tests).

The lift installation must be immediately taken out of use should any damage or irregularities to the lift car frame arise which could possibly impair operational safety.

Please contact us at WITTUR if you have any problems or queries.

Maintenance work should be expertly carried out with utmost care in order to guarantee safe installation operation.

### WITTUR car frame maintenance and inspection check list

**General:**
- Visual inspection for general irregularities (i.e. dirt build up, corrosion, deformation, fracturing etc.)
- Check the screw connections

**Lubricators:**
- Replenish
- Check the felt inserts for damage, replace if necessary

**Guides:**
- Check inserts or rollers at every service call. Replace the sliding inlays by new one if the running clearance is more then 2mm (refer to the Chapter "Carrying out repairs"). The surface of the roller has to be clean & not broken.

**Rope pulley:**
- Signs of wear on the rope pulley; replace if necessary
- Check the condition of the rope pulley bearings by listening to the running noise (refer to the Chapter "Carrying out repairs")

**Safety gear devices:**
- Check the operation of the safety gear device at every service call. Refer to the operating instructions of the installed safety device.
- The surface of the wedge area has to be clean. Wedge and roller must not be cracked.
- Check the overspeed governor rope fixing

**Synchronisation:**
- Check the operation - the safety gear must grip at the same time on both ends

**Rope fixings and slack rope device:**
- Check ropes and rope fixings
- Check the springs of the rope fixing are not broken
- Check the function of the see-saw

**Hydraulic Components:**

See operating instructions of hydraulic components.

## 5.2 Carrying out repairs

As a general rule, damage to and/or warping of the car frame may not be repaired and/or straightened out under any circumstances (as for example by applying heating and bending). The damaged components are to be replaced. Use only WITTUR spare parts when doing so.

Repairs should be expertly carried out with utmost care in order to guarantee safe installation operation.

Follow all the local safety instructions during the maintenance work.

The following repairs should be carried out on site by qualified fitters/service personnel:

- The sanding down of rust (i.e. caused as result of damage to the undercoat) and application of a suitable paint sealant
- Replacing the guides / guide shoe inserts
- Replacing the rope pulleys
- Replacing of ropes

Please contact WITTUR if for any reason something is unclear, or you encounter damage that cannot be repaired with the help of these instructions.

### 5.2.1 Replacing the guides/inserts

The components for the guides which are subject-to-wear (sliding guides: inserts; roller guides: rollers) can be delivered individually as spare parts: (see Chapter "Spare parts").

The distance (play) to the rails (distance between guides) must be readjusted after replacement of the inserts and remounting. In addition, the rail lubricator are to be replenished in the presence of a sliding guide.

### 5.2.2 Rope replacement

See operating instructions of "Lift wire rope".

Observe correct rope passage!

### 5.2.3 Replacing the rope pulley

The rope pulleys can be delivered individually as spare parts (refer to "Spare parts" chapter).

Procedures for changing a rope pulley:

- Lower the lift car onto its contact buffer
- Relieve tension from ropes
- Erect scaffolding in the shaft
- Unscrew cladding plates on the rope pulley yoke
- Secure pulleys against falling
- Dismantle rope pulley / axle / axle bracket unit
- Replace the rope pulley, and remount the parts following the instructions above in reverse order

Make sure that no kinks occur while restoring tension to the ropes!

## 5.3 Spare parts list

| Pos. | Component | Type | Spare part | | | Number... | Art. No. |
|---|---|---|---|---|---|---|---|
| 1 | Sliding guide shoe | SLG3A | Guide shoe | rail width | 16 mm<br>19 mm | 1<br>1 | 430365G16A<br>430365G19A |
| | | Guide rail lubricator | | rail width | 16 mm<br>19 mm | 1<br>1 | 86375G16<br>86375G19 |
| | | Sliding inlay SLG3A *)<br>*Note: Fixing material to be ordered separat* | | | 16 mm<br>19 mm | 2<br>2 | 85119H16<br>85119H19 |
| 2 | Rope anchor | Rope fastener (excl. isolation spring) | | Rope | DL=13mm | 1 | 600242G07<br>600242G08 |
| | | Rope clip | DIN1142 | Rope diam. 13-15 mm | | 1 | 252459 |
| 3 | Safety gear switch | Bernstein | 88-U1Z Riwk | | | 1 | 258453 |
| 4 | Slack rope switch | | AZ06T-Spez1736 | | | 1 | 255217 |