

# Car Frame WCS60

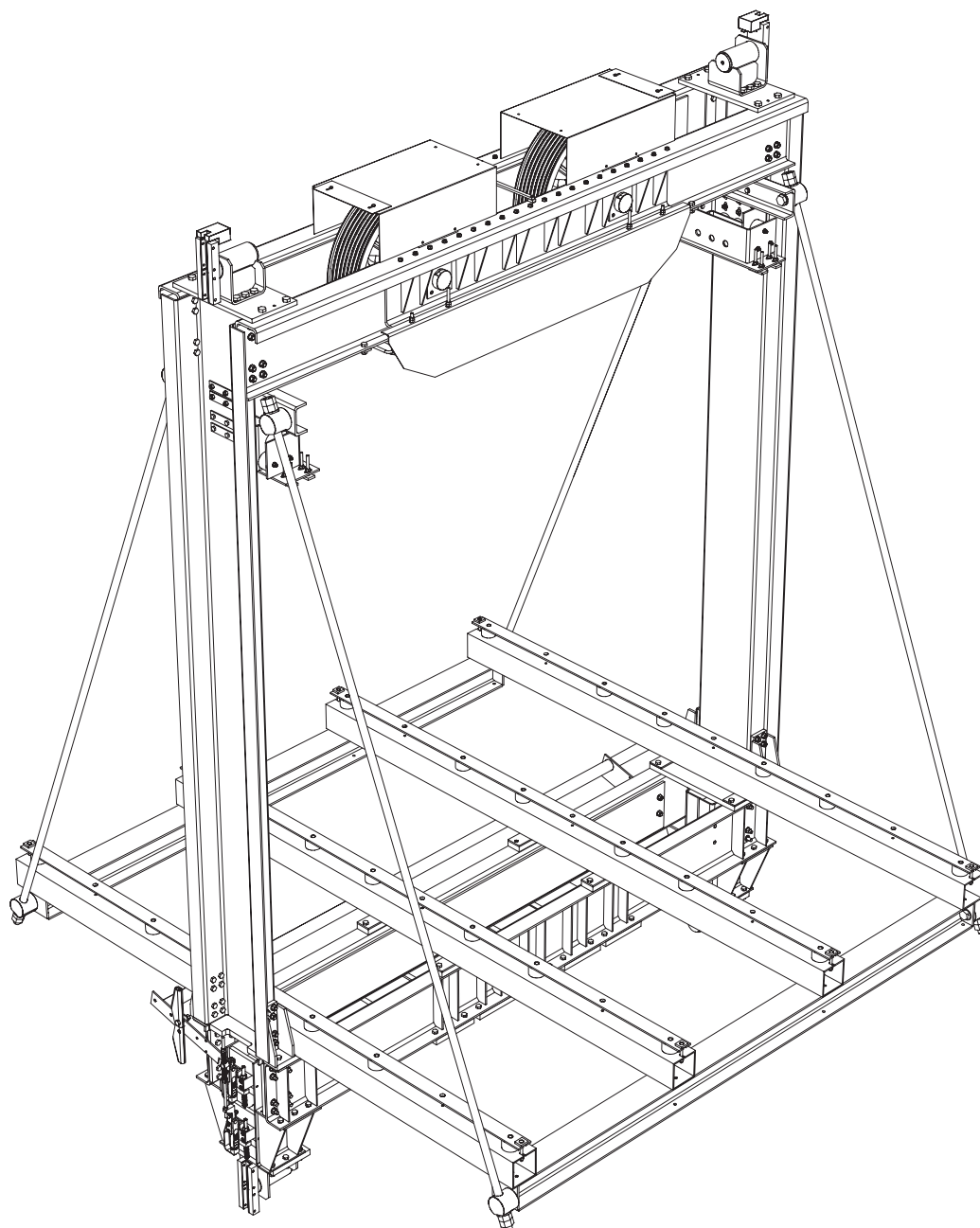
## Suspension 2:1 / 4:1

Operating instructions

Blatt/sheet D389MGB.000  
Datum/date 11.02.2002  
Stand/version C-23.07.2015  
Geprüft/approved WAT/FLE



## Car Frame WCS60 Suspension 2:1 / 4:1



D389MGB 07.2015

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# Car Frame WCS60

## Suspension 2:1 / 4:1

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# Car Frame WCS60

## Suspension 2:1 / 4:1

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Blatt/sheet D389MGB.002  
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## 1 General information prior to installation

### 1.1 Description and functions

The car frame WCS60 is a car frame used for passenger-goods and freight elevators with nominal load up to 6000kg.

The car frame operating range is defined as follows:

#### WCS60:

- All up load  $\leq 17000 \text{ kg}$  ( $Q \leq 6000 \text{ kg}$ )
- Car depth  $\leq 6500 \text{ mm}$
- Car width  $\leq 6290 \text{ mm}$
- Rated speed  $\leq 2.0 \text{ m/s}$

#### General:

- Safety gear: Roller type SG  
Progressive type SG
- Sliding guide shoe (SLG4, SLG4A)
- Suspension: 2:1 and 4:1 with 2 pulleys above car

#### Further options:

- Load weighing system
- Platform support beams
- Compensation chain hanger
- Travelling cable hanger

The built-in safety devices are set, synchronized 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.

### 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.

Unless stated otherwise, the following are not permissible due to technical safety reasons:

- 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
- Frame modification
- Modification of the actuating mechanism
- Readjustment of settings have been made ex-works
- 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

# Car Frame WCS60

## Suspension 2:1 / 4:1

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### 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 emphasized 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. machine 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 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

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
- the rope pulley diameter, the number of rope grooves and rope groove diameter are suited to the ropes

# Car Frame WCS60

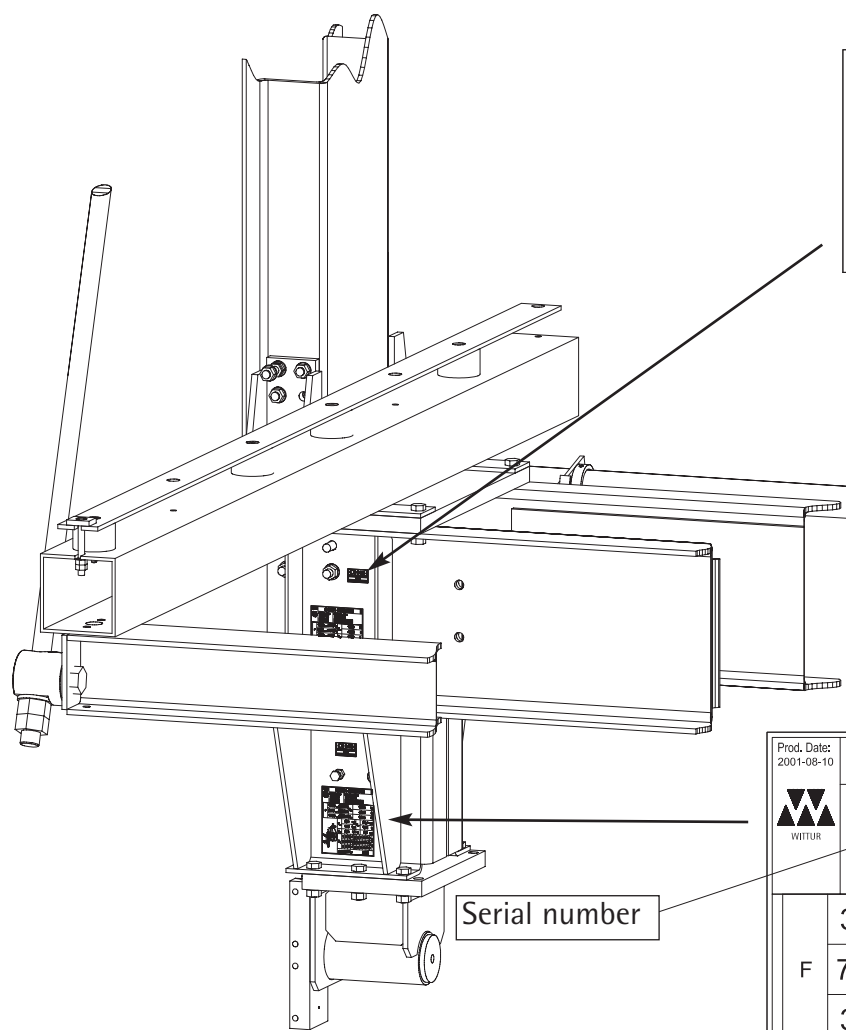
## Suspension 2:1 / 4:1

### Operating instructions

Blatt/sheet D389MGB.004  
 Datum/date 11.02.2002  
 Stand/version 11.02.2002  
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## 1.5 Safety gear name plate

The safety gear device identification indicators are located near the safety block. These consist of a name plate and a identification sticker.



Type test designation and CE-label

CE 0408  
 TÜV-A-AT-1/99/103 CEFV  
 SGB03  
 WITTUR GmbH / yyyy-mm-dd

Date of manufacture

Type term

Order number (refer to delivery or order sheet)

Serial number

Mass to be gripped  $F_{max} = (kg, lb)$

Tripping speed  $v_{max} = (m/s, fpm)$

Prod. Date: 2001-08-10

Serial - No.: 459112

Elevator - No.: K41543

3380 ... 8940 kg  $F_{MAX}$  7491 kg

7451 ... 19709 lb  $F_{MAX}$  16503 lb

3380 ... 8940 kd  $F_{mokr}$  7491 kd

$V_{MAX}$  0,8 m/s  $X_w$  38,4 mm

156 fpm 1,51 in

$V_{mokr}$  0,8 m/r a 26,0 mm

1 2 3 4 5 6 7 8 9 0 mm

$X_f$  1, 2, 3, 4, 5, 6 7, 8, 9, 0 in

1 2 3 4 5 6 7 8 9 0

Assembled by: 3328

# Car Frame WCS60

## Suspension 2:1 / 4:1

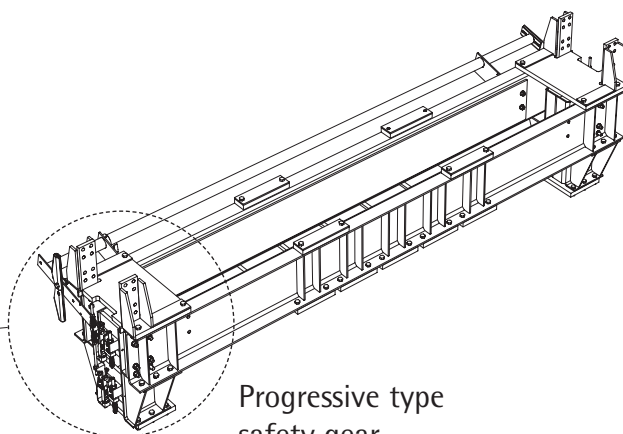
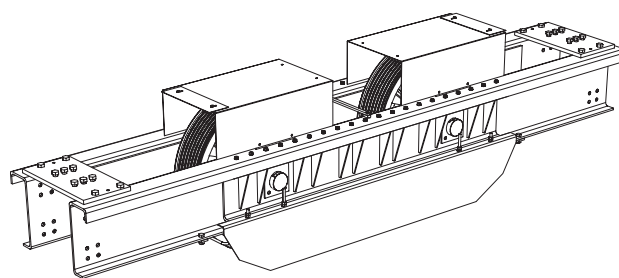
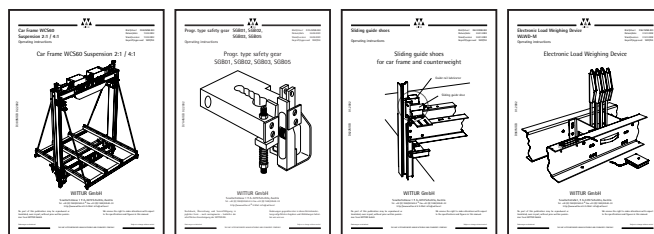
### Operating instructions

Blatt/sheet D389MGB.005  
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Geprüft/approved WAT/FLE

## 1.6 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
- Guide shoe operating instructions manual
- Load weighing dev. operating instr. manual
- Crosshead beam incl. rope pulleys (pre-assembled)
- Bottom Cross beam incl. safety gear and synchronization (pre-assembled and pre-adjusted)

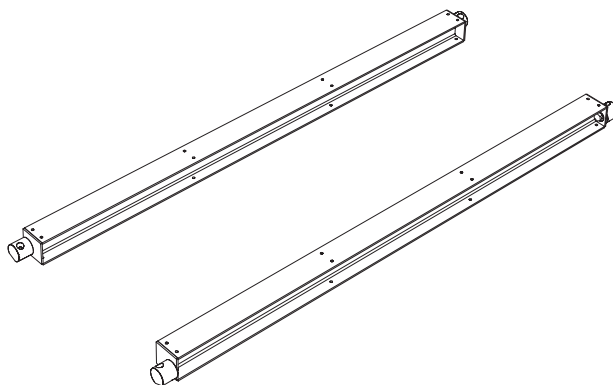


Instantaneous  
type safety gear

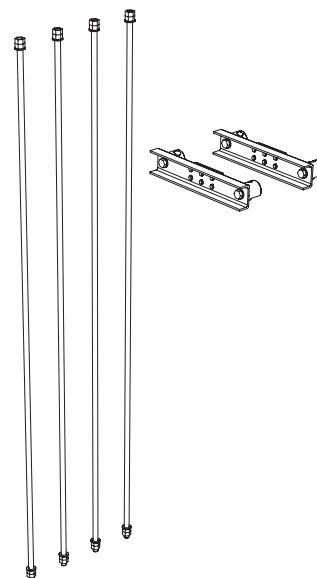
or

Progressive type  
safety gear

- Ringbeams



- Diagonals and fixing brackets



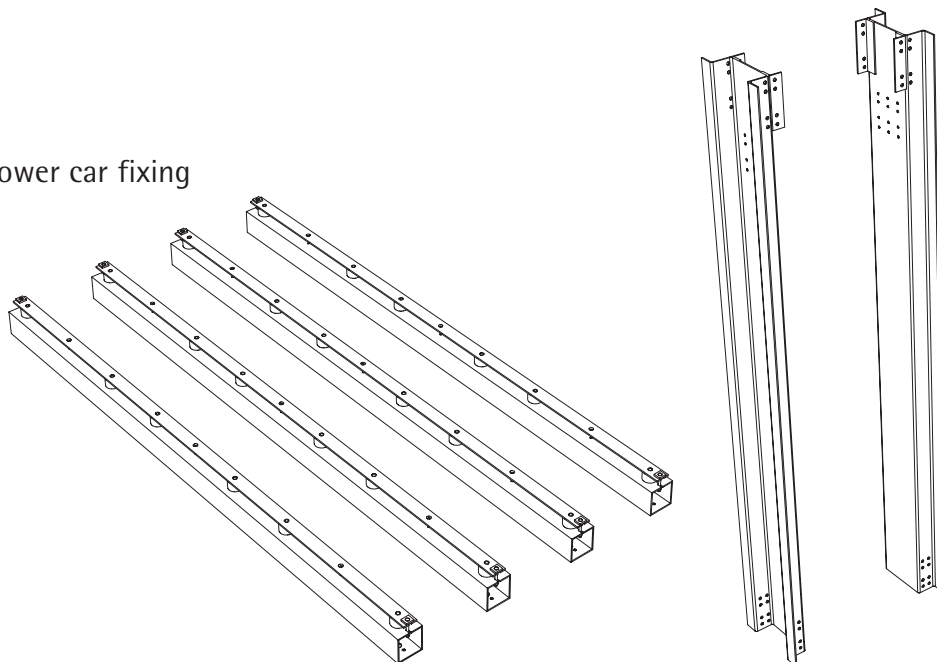
# Car Frame WCS60

## Suspension 2:1 / 4:1

### Operating instructions

Blatt/sheet D389MGB.006  
Datum/date 11.02.2002  
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Geprüft/approved WAT/FLE

- Uprights
- Platform supports incl. lower car fixing material (optional)



#### Accessories:

- Upper car fixing (incl. isolation buffer)

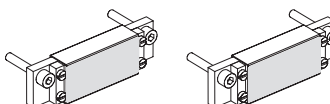


- Guide shoes
- Screw packages

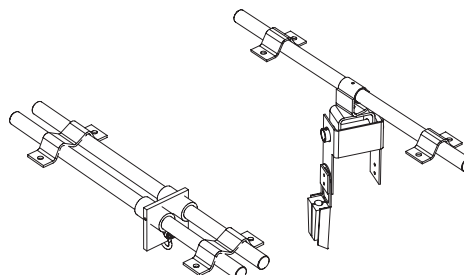


#### Optional parts:

- Load weighing sensors (incl. amplifier box)



- Compensation chain fixing
- Travelling cable hanger





# Car Frame WCS60

## Suspension 2:1 / 4:1

### Operating instructions

Blatt/sheet D389MGB.007  
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## 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 synchronization and the buffer plates. The safety gear is bolted and synchronized.

- (1) If WCS60 is delivered with duplex (double) safety gear, remove one guide rail. Mark the location of the guide before removing.
- (1a) If WCS60 is delivered with progressive type safety gear, set the 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) Re-install the guide rail
- (5) 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.

- (6) Fix the guide shoe to the safety gear housing (for setting refer to operating instruction manuals of guide shoes)



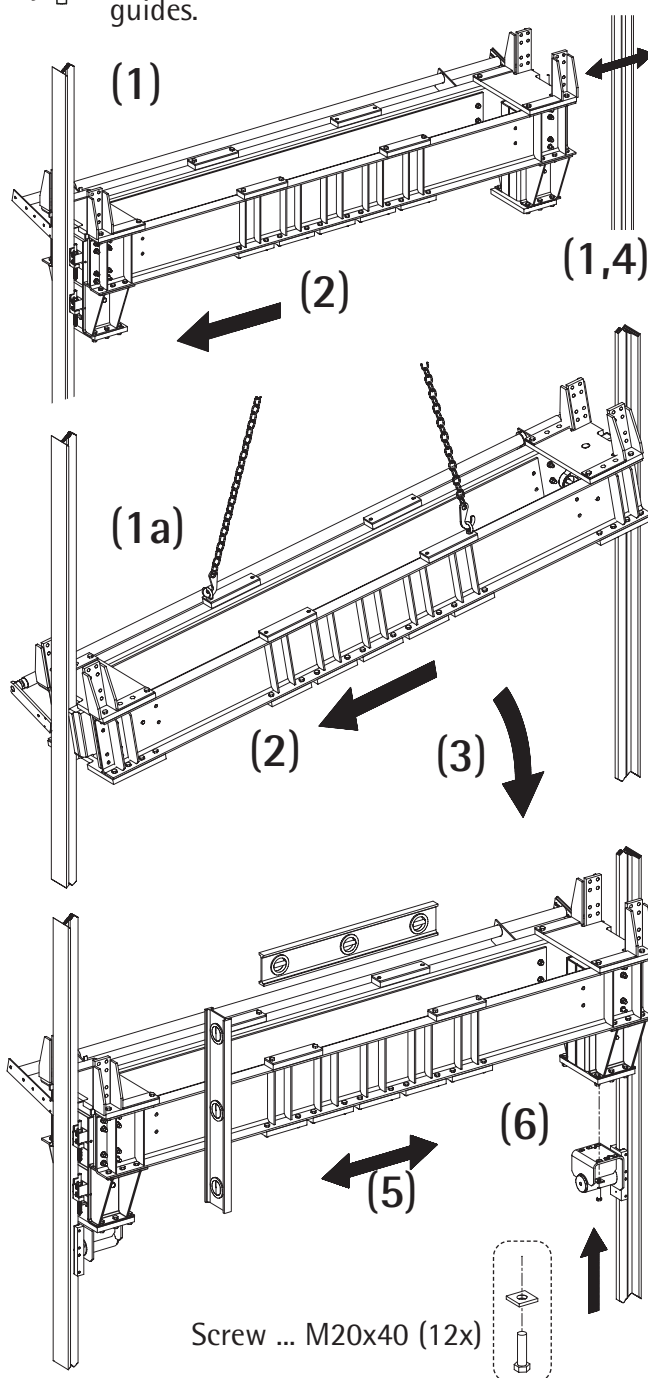
Take care of tightening torque  
Screw M20: 385Nm



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



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



Screw ... M20x40 (12x)



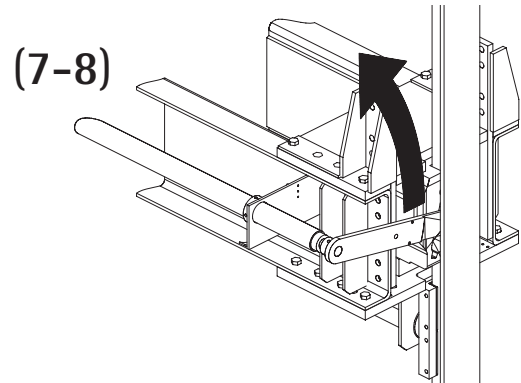
# Car Frame WCS60

## Suspension 2:1 / 4:1

### Operating instructions

Blatt/sheet D389MGB.008  
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- (7) Lift OSG-lever by hand and
- (8) ... secure it with a rope or wire around nearest guide fixing




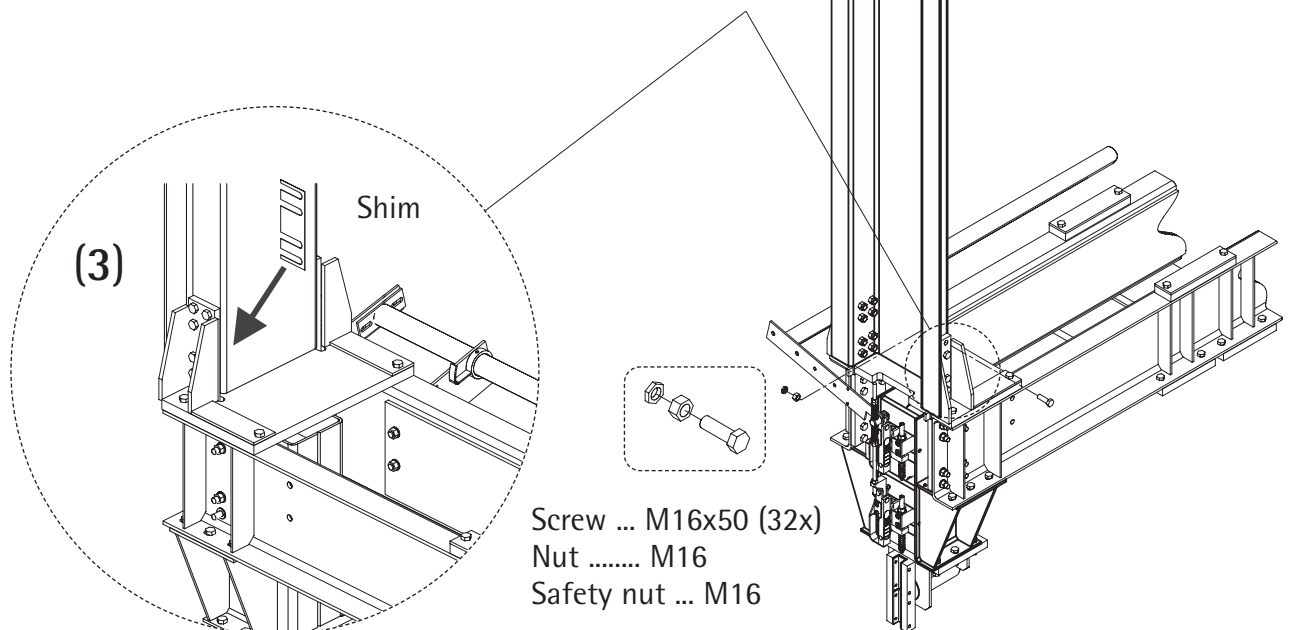
## 2.2 Securing the uprights to lower cross beam

- (1) Install the uprights to the bottom cross beam

 Tighten the screw joints loosely only!

- (2) Adjust the uprights in plumb and in centre to the guide rails.
- (3) Before tightening the screw joints, pack out the spaces between upright and cross beam with the shims if necessary.

 Take care of tightening torque  
Screw M16: 195Nm



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## Suspension 2:1 / 4:1

### Operating instructions

Blatt/sheet D389MGB.009  
Datum/date 11.02.2002  
Stand/version 09.09.2003  
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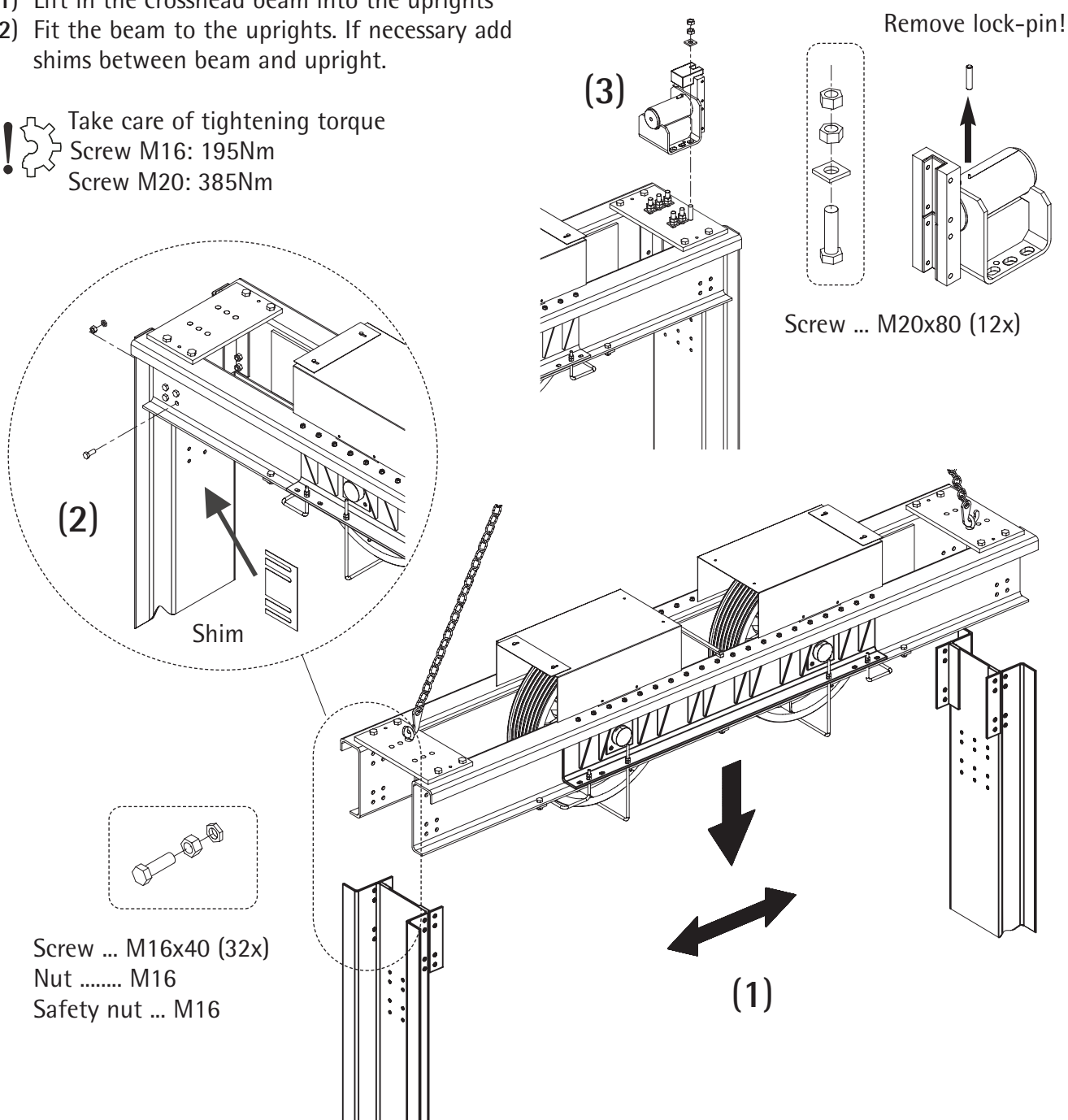
## 2.3 Installing Crosshead beam

The crosshead beam is delivered pre-assembled. It contains the beams, the rope suspension pulleys and adapter plates for the guide shoes.

- (1) Lift in the crosshead beam into the uprights
- (2) Fit the beam to the uprights. If necessary add shims between beam and upright.

! Take care of tightening torque  
Screw M16: 195Nm  
Screw M20: 385Nm

- (3) Fit the guide shoe to the adapter plate (for setting refer to operating instruction manuals of guide shoe)



# Car Frame WCS60

## Suspension 2:1 / 4:1

### Operating instructions

Blatt/sheet D389MGB.010  
Datum/date 11.02.2002  
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Geprüft/approved WAT/FLE

## 2.4 Installing isolated platform supports


If the WCS60 is delivered with isolated platform support beams ...

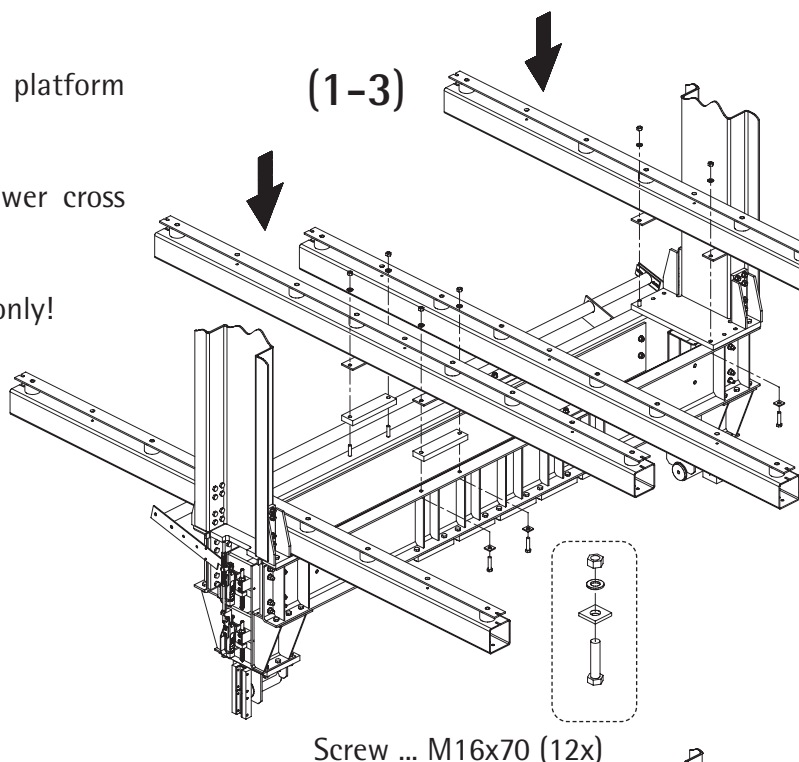
- (1) Fit the platform support to the lower cross beam

 Tighten the screw joints loosely only!

- (2) Check that the support beams are in horizontal position.

- (3) Tighten then all screw joints

 Take care of tightening torque  
Screw M16: 195Nm




## 2.5 Installing "non-isolated" platform supports

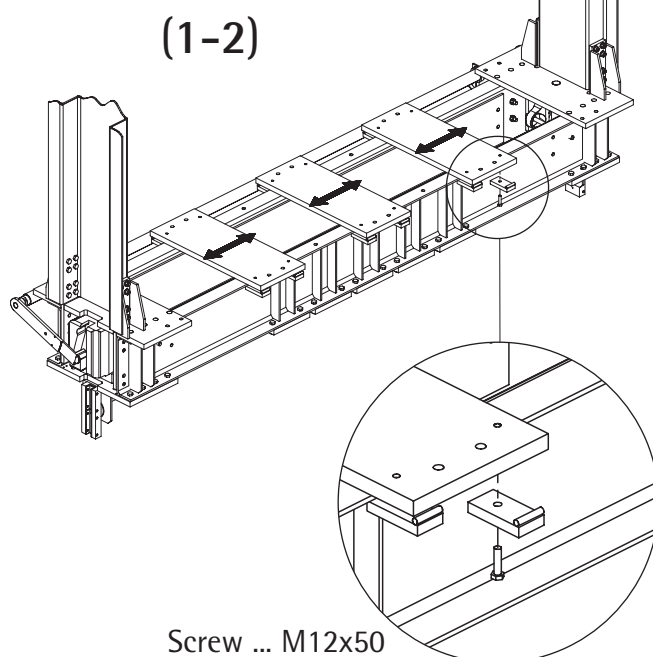
If the WCS60 is delivered without isolated platform support beams ...

- (1) Fit the platform support to the lower cross beam (adjust according car platform needs)

 Tighten the screw joints loosely only!

- (2) Check that the support beams are in horizontal position.

 Tighten screw joints after car platform is adjusted!



# Car Frame WCS60


## Suspension 2:1 / 4:1


### Operating instructions

Blatt/sheet D389MGB.011  
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## 2.6 Installing the diagonal rods


(1) Bolt the fixing brackets to the uprights


 Use upper fixing holes in the upright (lower group is used for upper car isolation).

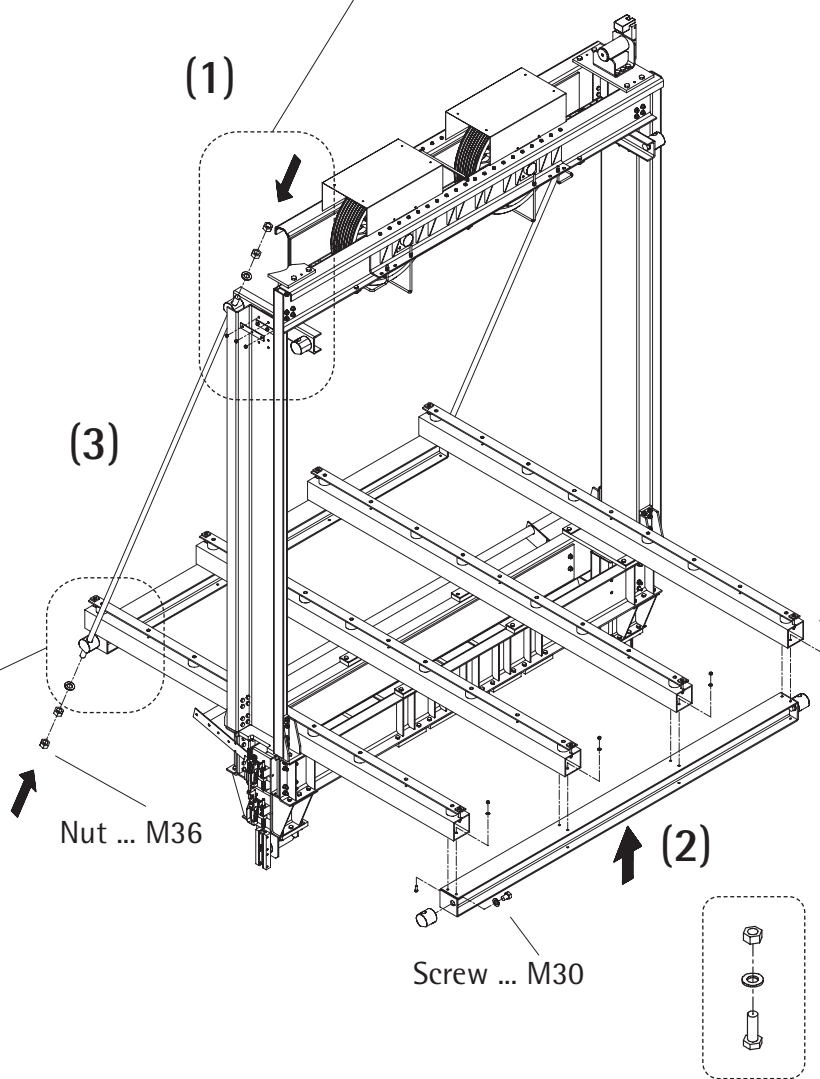
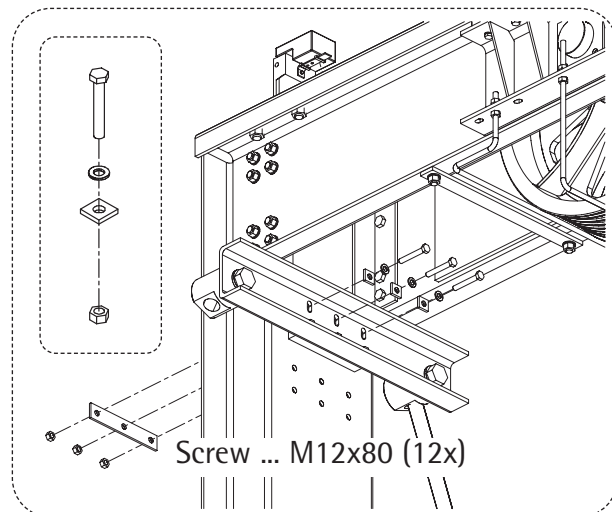
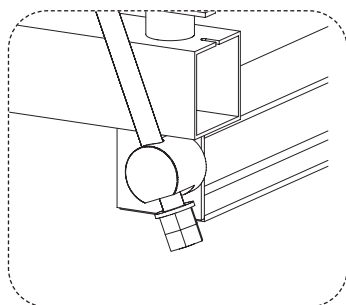
 If car frame is delivered without isolated platform support beams go on with car platform installation section 2.9.

(2) Install the ring beams below the platform support beams

(3) Install the diagonal rods

 Take care of tightening torque  
Screw M12: 80Nm

 Do not tighten the 4 nuts at the lower ends of the support now (refer to section 2.11)!



Screw ... M12x35 (16x)

# Car Frame WCS60

## Suspension 2:1 / 4:1

### Operating instructions

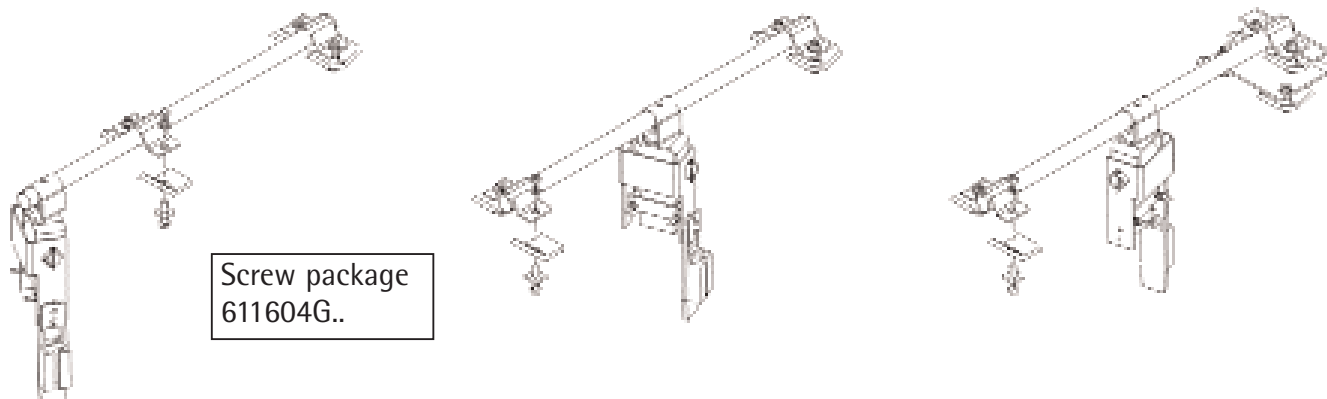
Blatt/sheet D389MGB.012  
Datum/date 11.02.2002  
Stand/version 11.02.2002  
Geprüft/approved WAT/FLE

## 2.7 Travelling cable hanger and compensation chain fixings

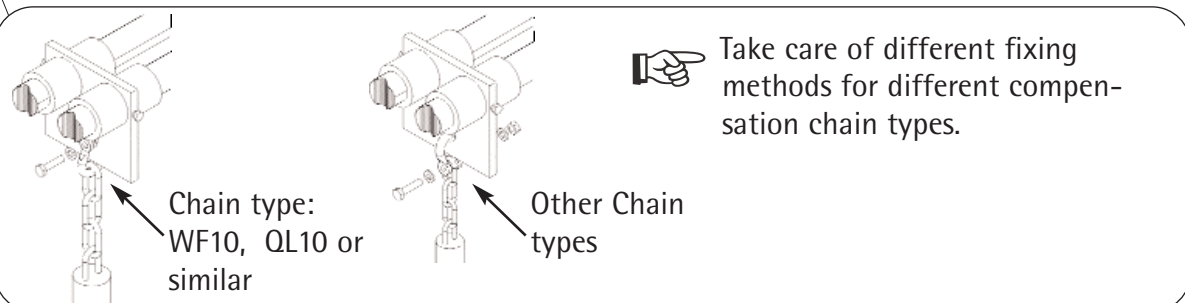
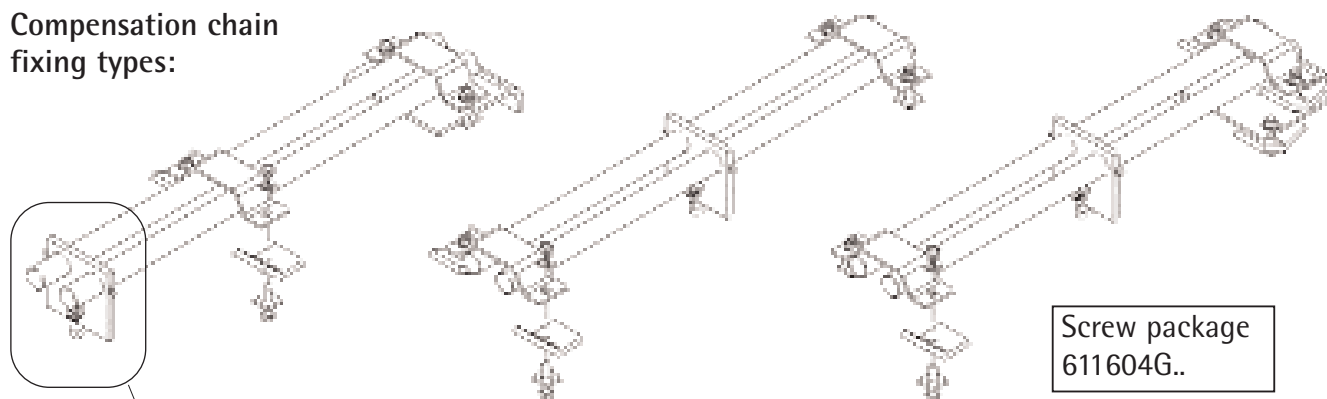
Before installing the car, fix the cable hanger and chain fixings to lower cross beam (for position refer to layout drawing).

! Take care of tightening torque  
Screw M12: 80Nm

Travelling cable hanger types:



Compensation chain fixing types:



# Car Frame WCS60

## Suspension 2:1 / 4:1

### Operating instructions

Blatt/sheet D389MGB.013  
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Geprüft/approved WAT/FLE

## 2.8 Car installation (isolated platform support)

- (1) Lift the car floor (A) onto the fixing plates (B) of the platform support beams. Adjust the floor to its place.



The car floor must not touch the uprights.

- (2) Fit the T-bolt (D) to the car floor channel (E) and move them to the opening at the fixing plates.

- (3) Fasten the car floor against the fixing plates so that the disk washer (F) becomes fully compressed.



Make sure that the T-bolts are hanging freely from the openings of the platform supports!

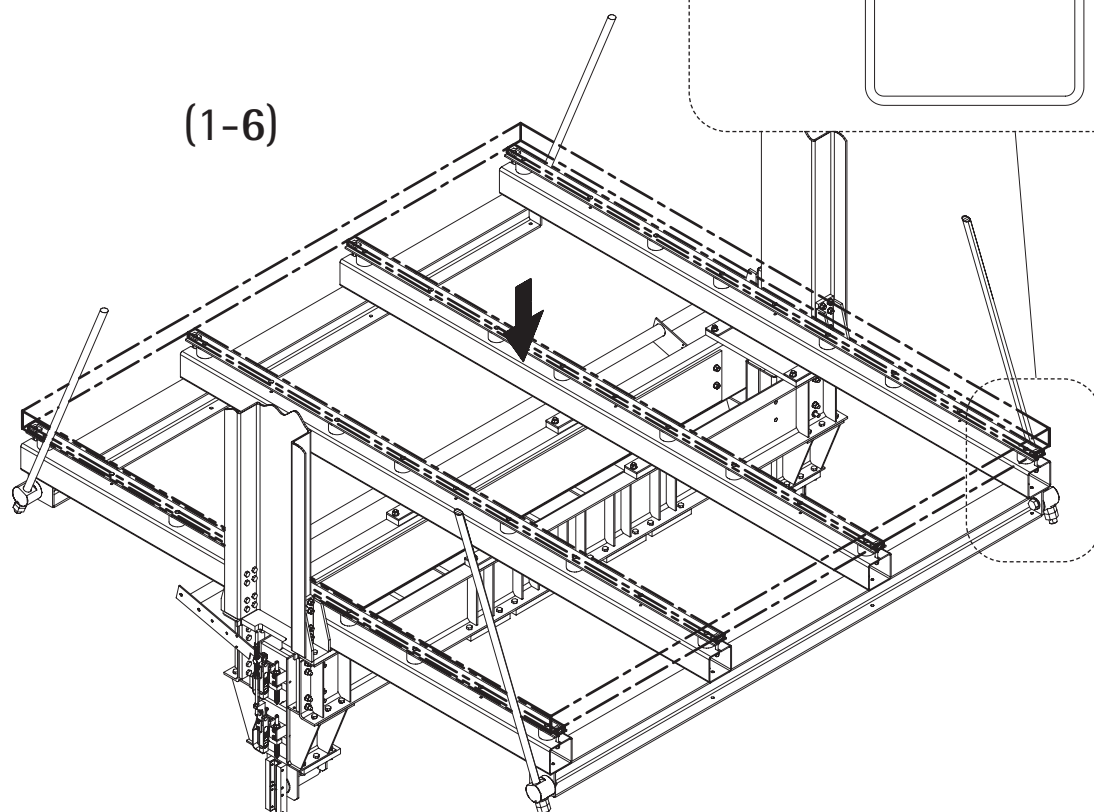
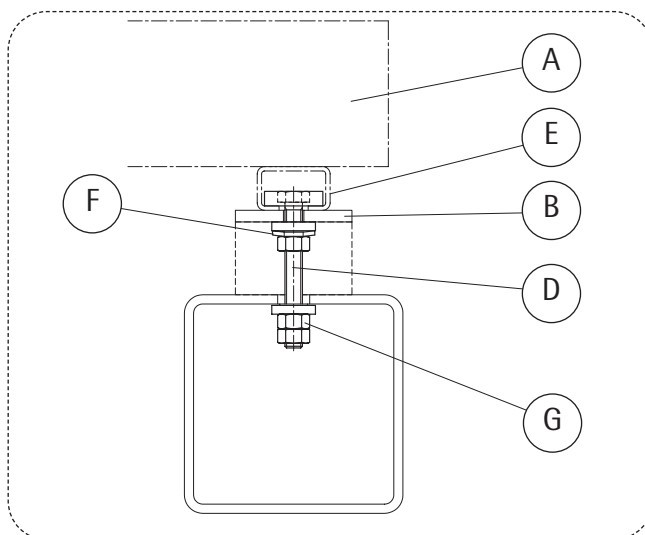
- (4) Adjust the car floor horizontally



Secure the car by means of wooden supports at the front and rear edges.

- (5) Tighten the nut (G) by hand

- (6) Install the car walls and the roof.



# Car Frame WCS60

## Suspension 2:1 / 4:1

### Operating instructions

Blatt/sheet D389MGB.014  
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## 2.9 Car installation (non-isolated platform support)

- (1) Lift the car floor (A) onto the support plates (C). Adjust the floor and the plates to its place.



The car floor must not touch the uprights.

- (2) Adjust the car floor horizontally

- (3) Fasten the car floor against the support plates (fasten all the screw joints)

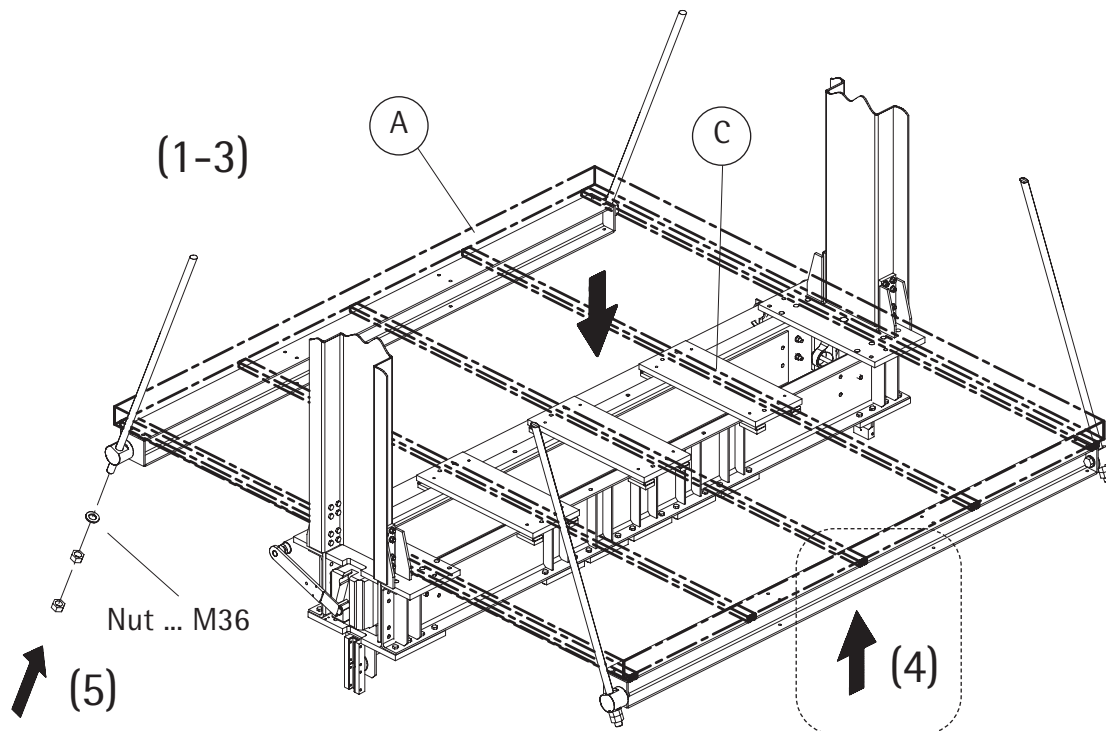
- (4) Install the ring beams below the car floor. Needed holes (D=18mm) must be drilled into the ring beam!

- (5) Install the diagonal rods

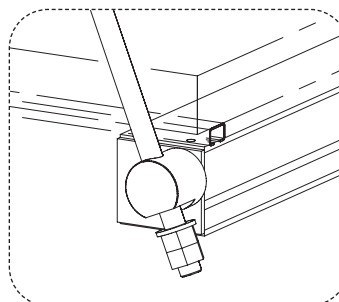


Take care of tightening torque  
Screw M12: 80Nm

- (6) Install the car walls and the roof.



Do not tighten the 4 nuts at the lower ends of the support now (refer to section 2.11)!





# Car Frame WCS60


## Suspension 2:1 / 4:1

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Blatt/sheet D389MGB.015  
Datum/date 11.02.2002  
Stand/version 11.02.2002  
Geprüft/approved WAT/FLE


## 2.10 Finalizing Car installation

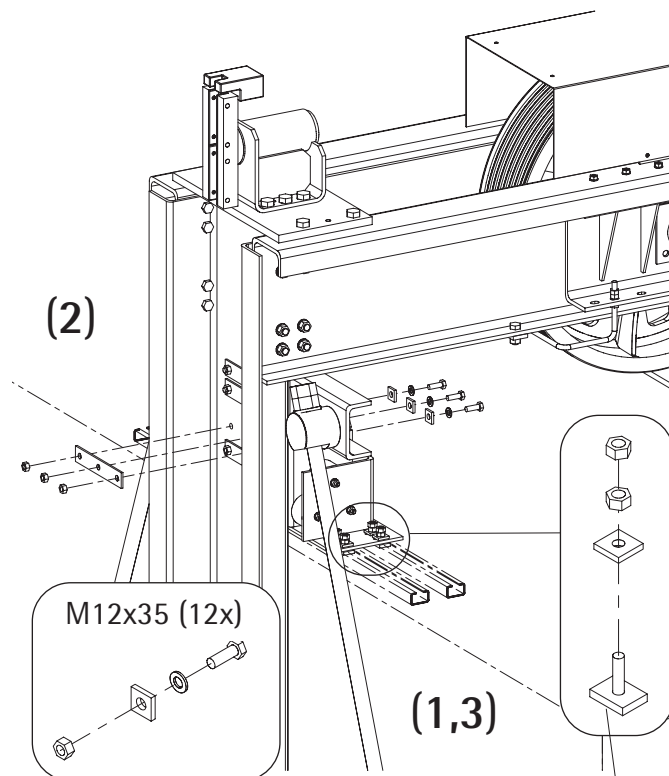
- (1) Fix the upper car isolation to the car roof channel (handtighten T-bolts)
- (2) Fix the upper car isolation to the upright

 Take care of tightening torque  
Screw M12: 80Nm

- (3) Tighten the T-bolts

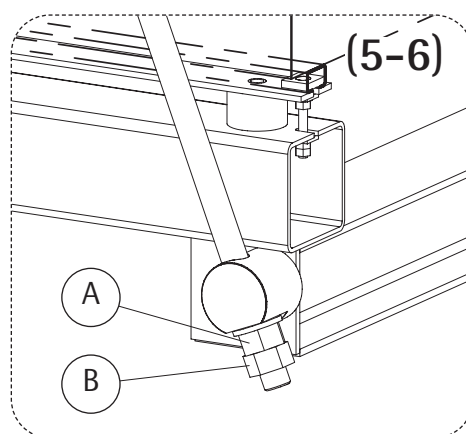
 Take care of tightening torque  
Screw M10: 46Nm

 Remove the wooden supports under the car floor!



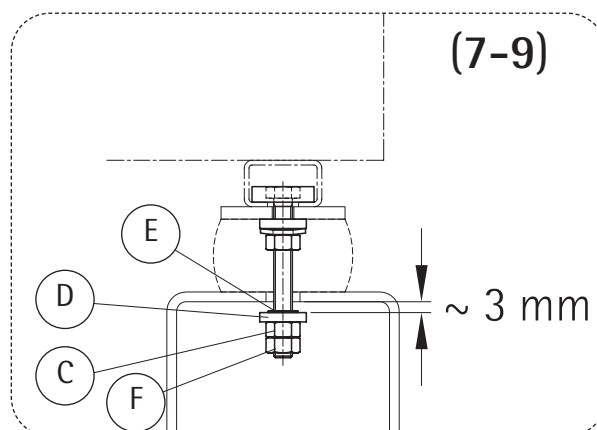
## 2.11 Tightening of diagonal rods

- (5) Tighten the nuts (A) of all diagonals by hand against the bottom fixing
- (6) Tighten then the nuts (A) half a turn more, and lock the fixing with the nut (B)



## 2.12 Car fixing bolts (isolated platform support)

- (7) Adjust the nut (C) so that the square washer (D) has a distance of approx. 3mm to the support beam profile edge
- (8) Push the square washer (D) against the nut by means of the rubber ring (E)
- (9) Lock the fixing with the nut (F)



# Car Frame WCS60

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Blatt/sheet D389MGB.016  
Datum/date 11.02.2002  
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### 2.13 Roping of the car frame

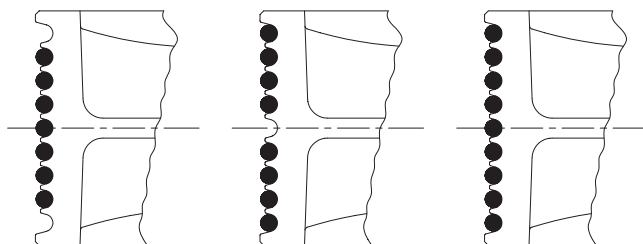
- (1) Check that the diverter pulley is exactly in the middle between the cross head beam profiles. If necessary, loosen the lower nuts (A) of the isolations a little and adjust the diverter pulley in lateral direction.

- (2) Remove the rope guards (B)

- (3) Pass the rope round the diverter pulleys



When used number of ropes is less than the number of grooves on the diverter pulley, the ropes are placed according to the figure below.



- (4) Re-fit and adjust the rope guards (B) and the rope pulley cover plates (C)

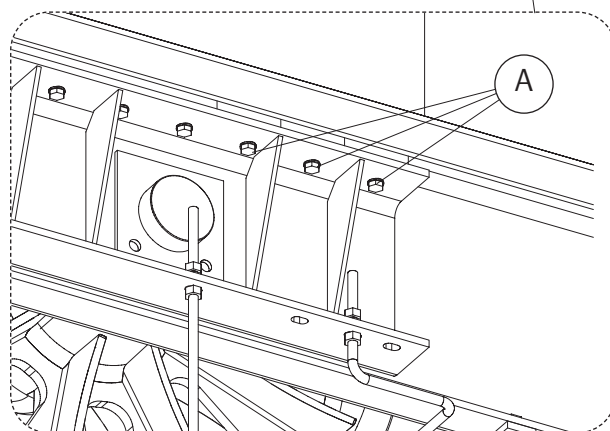
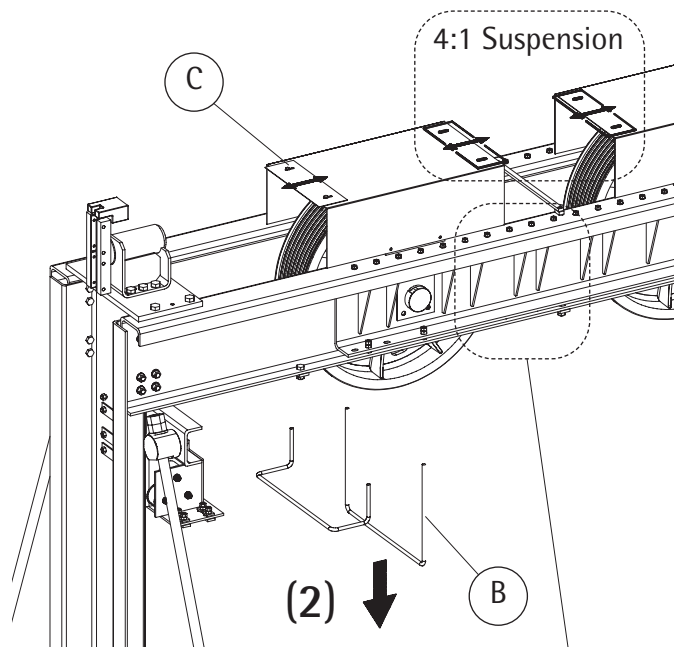
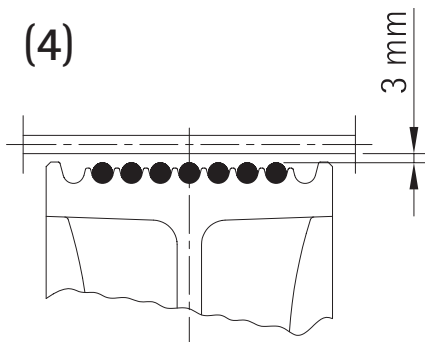


Ensure 3mm gap between rope guard and ropes.

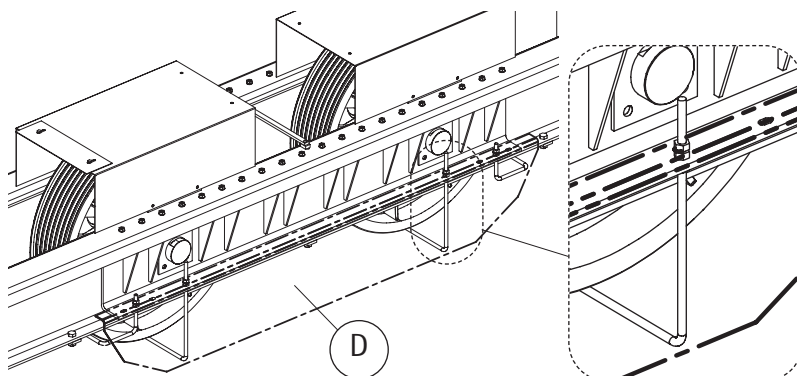


The car must be in the topmost floor when adjusting the cover plates.

(4)



- (5) If WCS60 is delivered with pulley safety cover (D), mount it together with fixing nuts of the rope guards (B).



# Car Frame WCS60


## Suspension 2:1 / 4:1

### Operating instructions

Blatt/sheet D389MGB.017  
Datum/date 11.02.2002  
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#### 2.14 Overspeed governor rope fixing

- (1) Install the rope housing to the safety gear lifting lever.

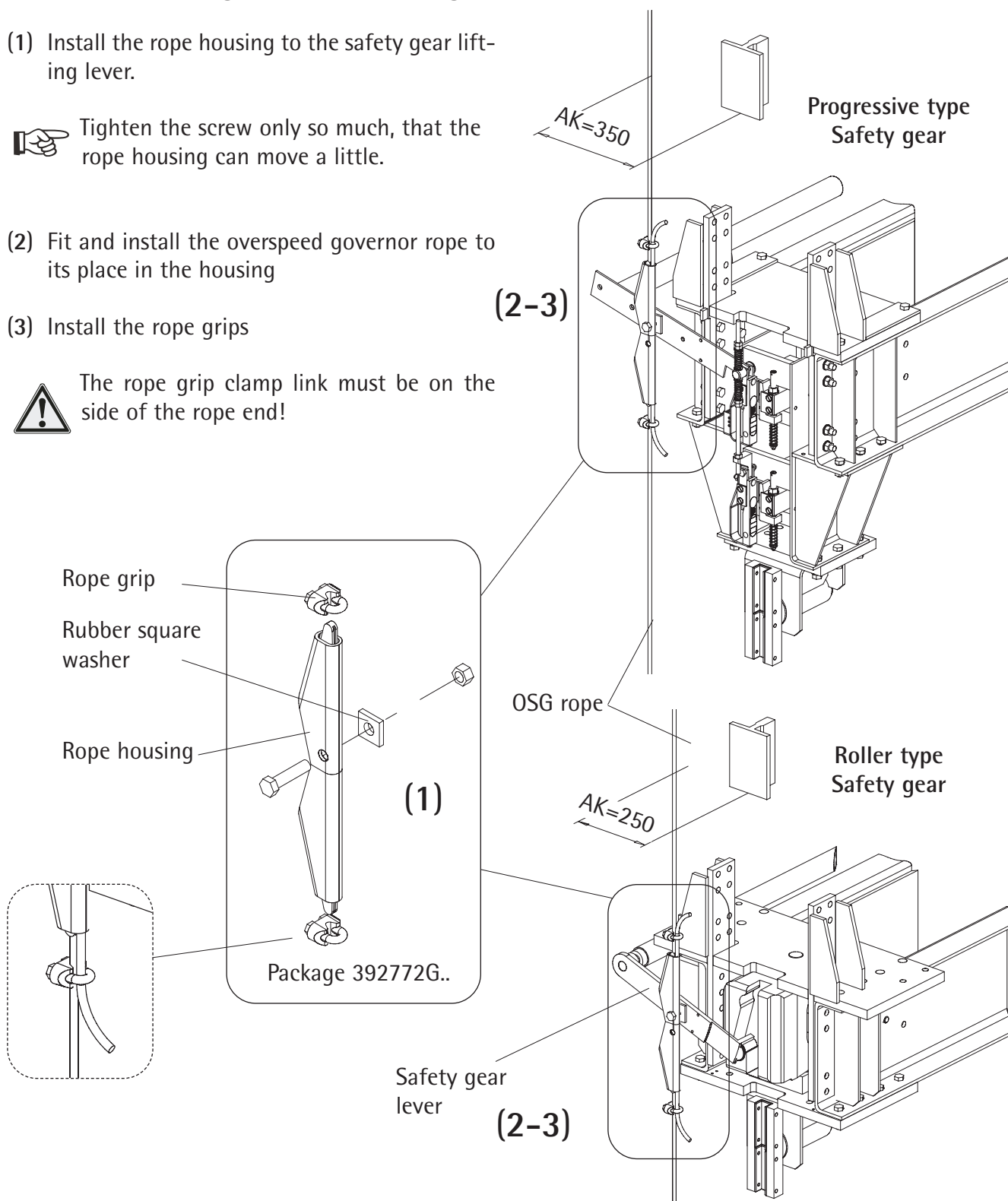
 Tighten the screw only so much, that the rope housing can move a little.

- (2) Fit and install the overspeed governor rope to its place in the housing

- (3) Install the rope grips



The rope grip clamp link must be on the side of the rope end!



# Car Frame WCS60

## Suspension 2:1 / 4:1

### Operating instructions

Blatt/sheet D389MGB.018  
Datum/date 11.02.2002  
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Geprüft/approved WAT/FLE

## 2.15 Adjustment of safety gear synchronization


The safety gear device (safety gear, synchronization, 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

... If not (with progressive type safety gear):

- (2) Loosen the screw joint (A) a little
- (3) Pull the safety gear wedges on both sides down so that the fixing links (B) are against the spring block (C).
- (4) Tighten the screw joints again without changing the location of the safety gear wedges.

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

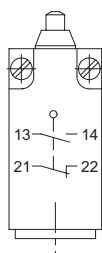
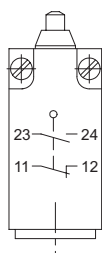
 The contact must break just before safety gear gripping!

### Safety switch (manual- or 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

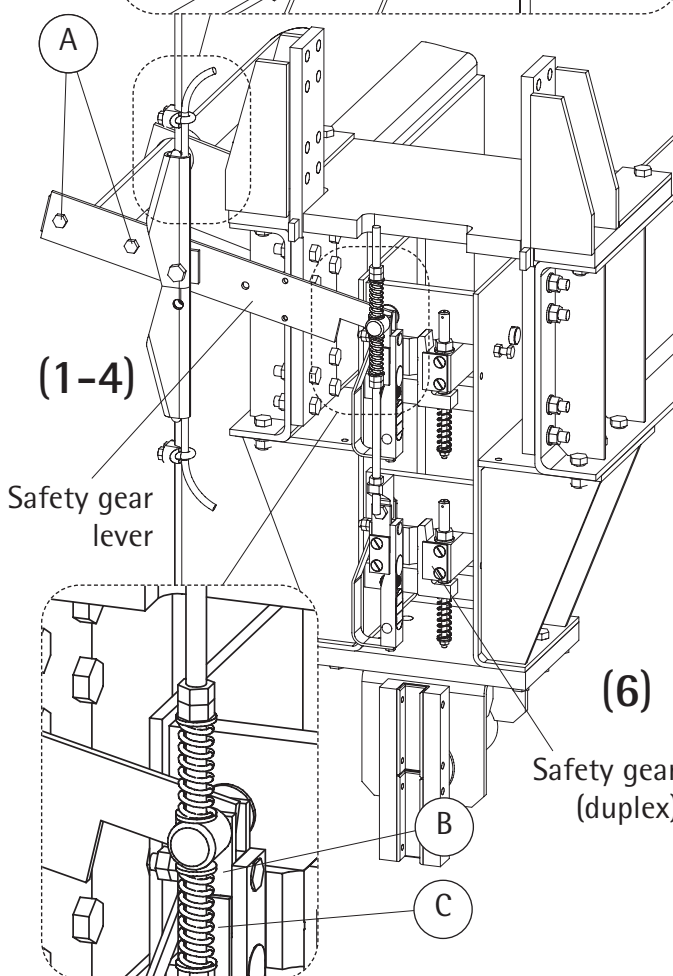
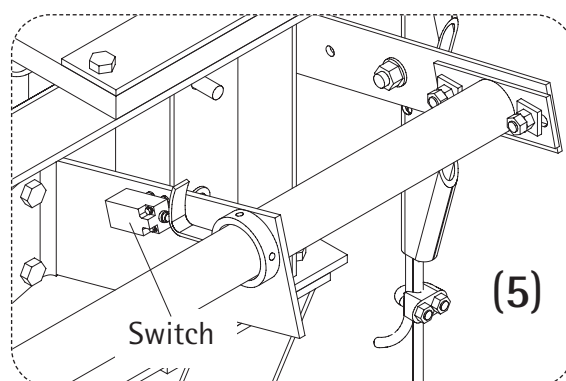
self reset

manual reset



- (6) Adjust the safety gear in accordance with the operating instruction manual

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



# Car Frame WCS60

## Suspension 2:1 / 4:1

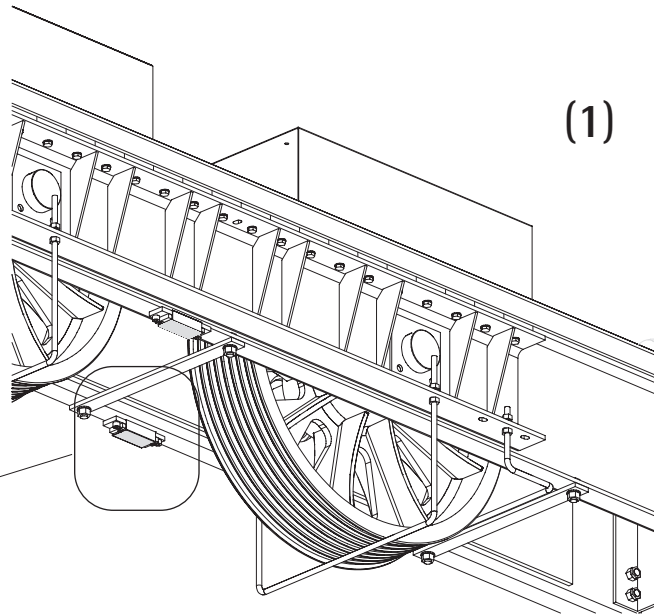
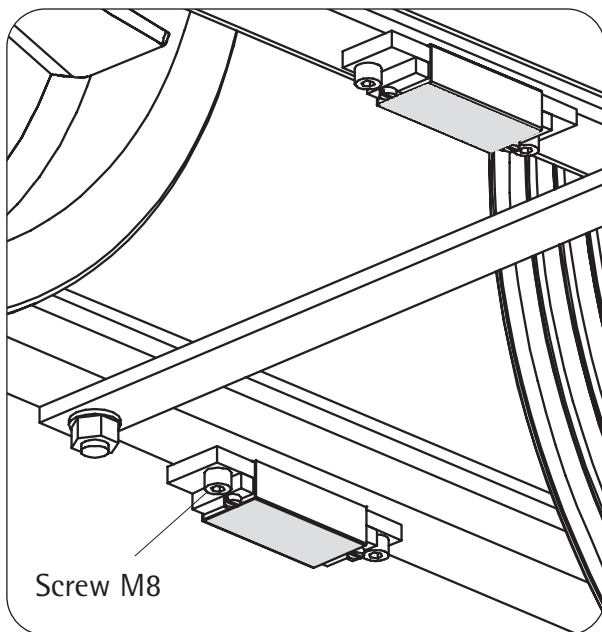
Operating instructions

Blatt/sheet D389MGB.019  
Datum/date 11.02.2002  
Stand/version 11.02.2002  
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### 2.16 Load weighing device WLWD-M

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

- (1) Fit the load weighing device to the upper cross beams



# Car Frame WCS60

## Suspension 2:1 / 4:1

### Operating instructions

Blatt/sheet D389MGB.020  
Datum/date 11.02.2002  
Stand/version 11.02.2002  
Geprüft/approved WAT/FLE

## 3 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):

- Check the following distances between the shaft floor, after descending the shaft passage:
  - Distance between guide - floor
  - Distance between cross beam - floor
- Check the following distances to the shaft ceiling, on completion of ascension of the lift shaft:
  - Distance between guide - ceiling
  - Distance between rope pulleys - ceiling
  - Distance between cross beam - ceiling

### Static & dynamic function testing

Refer to the operating instructions of the relevant safety device.



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



There must not be anybody in the lift car when carrying out test runs or functions tests!

# Car Frame WCS60

## Suspension 2:1 / 4:1

### Operating instructions

Blatt/sheet D389MGB.021  
Datum/date 11.02.2002  
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## 4 Maintenance, inspection and repair

### 4.1 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 lifetime.

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

#### Lubricator:

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

#### Guide shoes:

- Check sliding inlays at every service call. Replace the sliding inlays by new one if the running clearance is more than 2mm (refer to the Chapter "Carrying out repairs")

#### Safety gears:

- Check the operation of the safety gear 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

#### 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")

#### Platform support (isolation beams):

- Check visually that the platform support is not twisted (release diagonal rods to untwist)



# Car Frame WCS60

## Suspension 2:1 / 4:1

### Operating instructions

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## 4.2 Carrying out repairs



As a rule, damage or deformation of a car frame (i.e. as result of bending or heating) cannot be repaired or straightened. The damaged parts should be replaced. Only use WITTUR spare parts.



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.
- Changing the guides / guide shoe inserts
- Changing the rope pulleys



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

### 4.2.1 Changing the guides/inserts

The components for the guides which are subject-to-wear (sliding inlays) 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 inlays and remounting.

### 4.2.2 Changing 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
- Safeguard the counterweight against falling
- Release the ropes
- Unscrew the complete rope pulley / axle / axle bracket unit
- Dismantle rope pulley / axle / axle bracket unit
- Replace the rope pulley, and remount the parts following the instructions above in reverse order

# Car Frame WCS60

## Suspension 2:1 / 4:1

### Operating instructions

Blatt/sheet D389MGB.023  
Datum/date 11.02.2002  
Stand/version 11.02.2002  
Geprüft/approved WAT/FLE

## 4.3 Spare parts list

Component	Type	Spare part			Number...	Art. No.
Sliding guide shoe	SLG4	Guide shoe	rail width	29 mm	1	473004G29
				32 mm	1	473004G32
	SLG4A	Guide shoe	rail width	29 mm	1	473004G29A
				32 mm	1	473004G32A
	Guide rail lubricator		rail width	29 mm	1	89870G29
				32 mm	1	89870G32
	Sliding inlay "white" colored (SLG4)			29 mm	1	433371H29
				<i>Note: Fixing material to be ordered separately</i> 32 mm	1	433372H32
	Sliding inlay "green" colored (SLG4A)			29 mm	1	433373H29
				<i>Note: Fixing material to be ordered separately</i> 32 mm	1	433374H32
Rope pulley (incl. bearings)	DR=656mm	Rope	DL=13mm	NR <sub>max</sub> =9	1	471341G02
		Rope	DL=16mm	NR <sub>max</sub> =8	1	471341G03
	DR=780mm	Rope	DL=13mm	NR <sub>max</sub> =9	1	471343G02
		Rope	DL=16mm	NR <sub>max</sub> =8	1	471343G01
	DR=895mm	Rope	DL=13mm	NR <sub>max</sub> =9	1	471342G04
		Rope	DL=16mm	NR <sub>max</sub> =9	1	471342G03