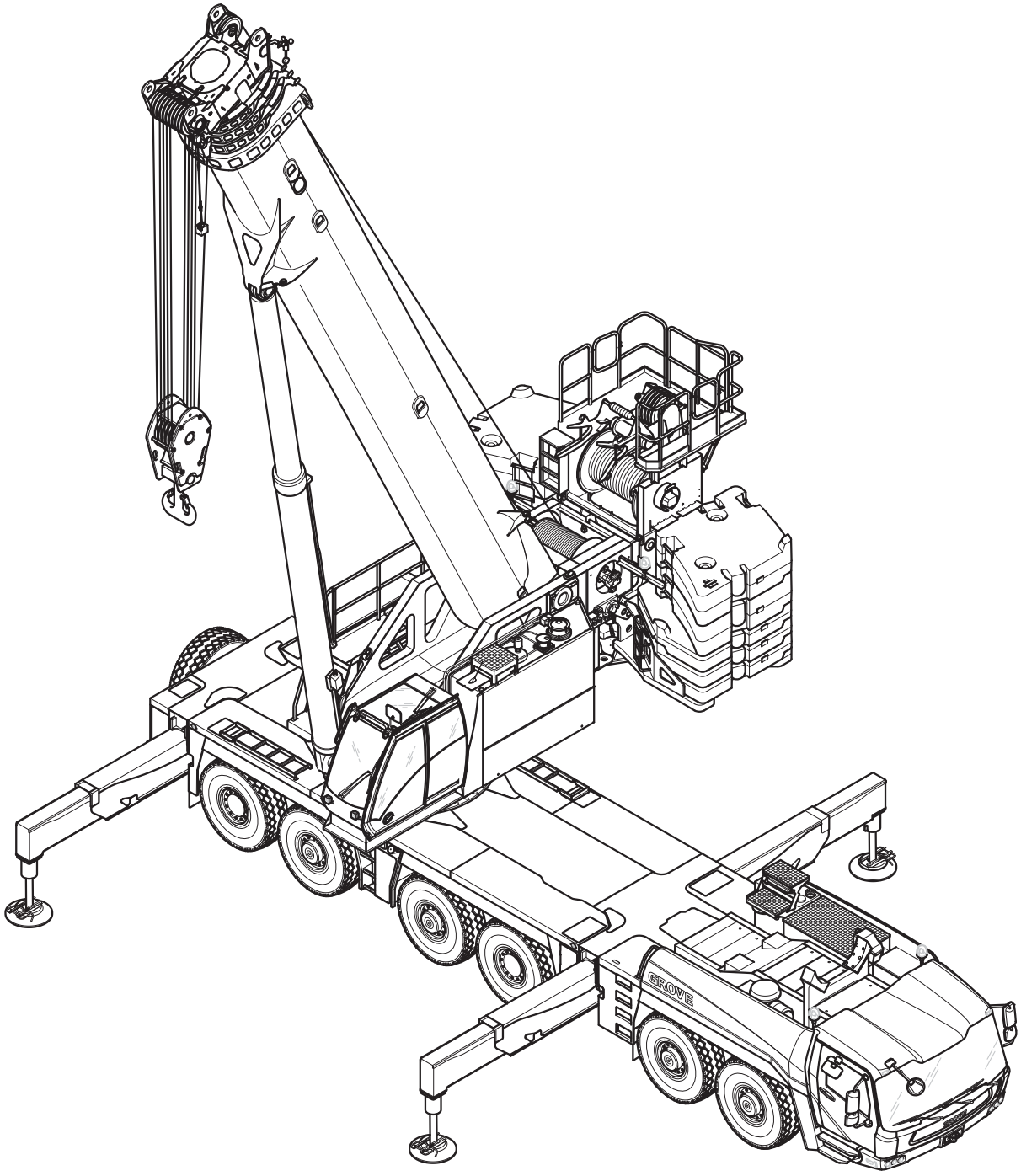
Grove GMK 6400

Operating Instructions
Mega Wing Lift (MWL)



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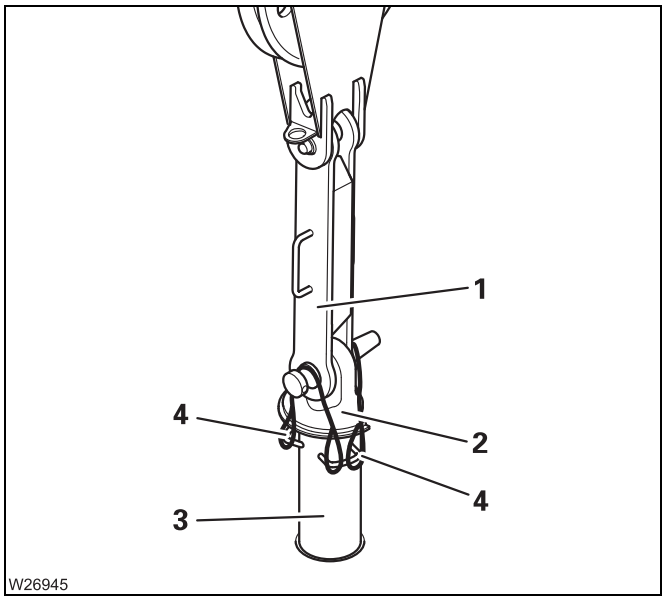

- Clean any old grease and dirt from the extension (**2**).
- Grease the slide faces of the extension (**2**) to prevent corrosion.
- Place the guard tube (**3**) on top of the extension (**2**).
- Fasten the guard tube (**3**) to the extension (**2**) with the ropes (**4**) so that it cannot come loose.

To install the extension:

- Loosen the ropes (**4**) and remove the guard tube (**3**).

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On the truck crane

1 – Extensions for the lower head sheave axle
2 – Hydraulic and electrical connections
3 – Front guide
4 – Rest A
5 – Rear guide
6 – Rest B
7 – Rest C
8 – Rest D
9 – Extension for the main boom pivot
10 – Rear pendant links

[1)] Only if additionally equipped with boom extension or luffing jib

1.6.3 Addition to operations planning

Thresholds for the use of the main hoist

Use of the MWL makes it possible to lift heavier loads with longer boom lengths. This requires a corresponding increase in the falls of the hoist rope and more hoist rope is needed than for operation without MWL.

This means that when using the main hoist (hoist rope length 380 m), you cannot reach the ground with the hook block or with the load at certain threshold ranges, with the boom in its steepest position.

In these instances, you can use the auxiliary hoist (hoist rope length 690 m) or, if the use allows it, you can make use of correspondingly longer lifting gear.

The following table provides an overview of the minimum hook heights for use of the main hoist at the threshold ranges.

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Crane work carried out in the vicinity of live electrical cables as well as oil, gas or other supply lines is dangerous and requires that special precautionary measures be taken. Please observe the instructions in the section titled *Crane operation under special operating conditions* in the *Safety manual* and the respective national regulations.

Always secure the pins both in the connecting points and in the holders using retaining pins. This prevents unsecured pins from coming loose, falling out and causing injuries.

Observe the centre of gravity information when slinging and use suitable slinging material.
In this way, you prevent the attached sections from slipping out, falling and causing injury during installation or removal.

Adhere to the transport condition described for the MWL as the information is the basis for the following.

Only use the delivered slinging tackle with spreaders *I* and *II* to lift the MWL. This is the only way to ensure that the MWL is suspended in the correct position when installed.

Never lift the MWL if spreaders *I* and *II* are not installed. This will seriously damage the MWL.

The crane cab must not be tilted when the MWL is installed and the main boom is set down. The cabin collides with the rear pendant link. If the windscreen is opened, be aware of any holders in the pivoting range. The windscreen may become damaged. The same applies when the MWL is unrigged but the rear rear pendant links are still rigged up.

When unrigging, the guy rope pulleys must not be pulled into the end positions. This could damage the guy rope.

Only rig the MWL as specified. A different sequence could cause malfunctions.

Do not put the truck crane with the MWL into operation if a fault message is displayed. Do not start operation until the cause of the malfunction has been eradicated.

2.6 Information on transporting persons

Make sure that you follow the instructions for transporting persons in the *Operating Instructions GMK 6400*.

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4 Additional operating and display elements

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4.2 Function of the additional operating and display elements

In the following sections, the only symbols shown are those that are to be found in the corresponding menu. When reference is made to pressing a button, the button which is referred to is always the one next to or under the displayed symbol.

4.2.1 In the main menu and in the luffing jib submenu

Submenu Operation – MWL

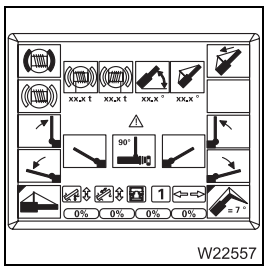
The button is only active if the MWL is electrically connected. The colour of the symbol indicates whether the button is active:

Symbol is light grey: The button is not active.

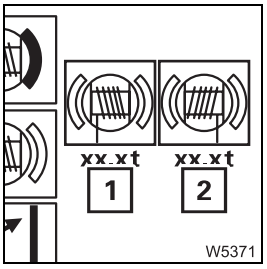
Symbol in black: The button is active.
The *Operation-MWL* submenu appears after pressing the button.

If the symbol is not displayed in the main menu, then the truck crane is not equipped for operation with MWL.

4.2.2 In the Operation-MWL submenu



All elements described in this section can be found in the *Operation-MWL* submenu. To open this menu, press the button next to the ☑ symbol in the main menu.



Displays for left-hand current rope force and right-hand current rope force

Shows the current force (**1**) in the rope on the left-hand winch and the current force (**2**) in the rope on the right-hand winch. The value displayed corresponds to the value measured by the load cell on the associated winch. The value is displayed in tonnes (**t**), to one decimal place.
The actual force present on the lateral head sheaves is double the value displayed, due to the two-fall reeving.

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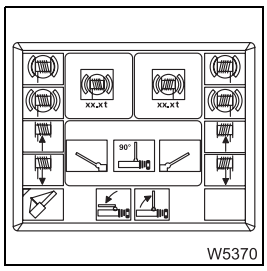
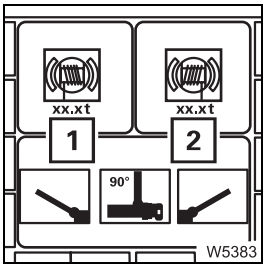
4.2.3 In the submenu Rigging-MWL



All elements described in this section can be found in the *Rigging-MWL* submenu. The submenu is opened in two steps:

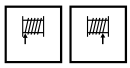
– First press the button in the main menu next to the symbol .
The display switches to the *Operation-MWL*.

– In the *Operation-MWL* submenu, press the button next to the symbol .



Displays for left-hand current rope force and right-hand current rope force

These show the current force (**1**) in the rope on the left-hand winch and the current force (**2**) in the rope on the right-hand winch. The value displayed corresponds to the value measured by the load cell on the associated winch. The value is displayed in tonnes (**t**), to one decimal place.
The actual force present on the lateral head sheaves is double the value displayed, due to the two-fall reeving.



Wind left-hand winch and wind right-hand winch

These are used for winding in the left-hand winch and the right-hand winch. The winches can be wound in independently of one another.
The buttons next to the symbols are only active when the winch in question has been unlocked. The colour of the symbol indicates whether the button is active:

Symbol is light grey: The button is not active.

Symbol in black: The button is active.
When the button is pressed, the winch in question is wound in and the guy rope is wound onto the drum.

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– When the red LED in the selector switch *Raise/set down MWL* lights up, the indicator lamp monitors the position of the MWL:

 **Green diode lit up:**	The MWL has been raised to 90°.
 **Both LEDs flashing in rotation:**	The MWL is positioned between 5° and 90°.
 **Red diode lit up:**	The procedure to set down the MWL has been interrupted in the 5° position and the movement is disabled. After pressing the *F1* button (F1), the movement *set down MWL* is enabled again.
 **Red diode lit up:**	The MWL is positioned under 5°.
 **Both LEDs flashing simultaneously:**	The crane control system has detected an error (e.g. both proximity switches displaying simultaneously).

F1 button

This button is only active when red diode in the button is lit.
When the F1 button is pressed, the diode in the button goes out.

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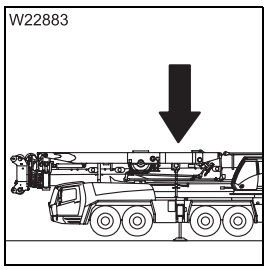
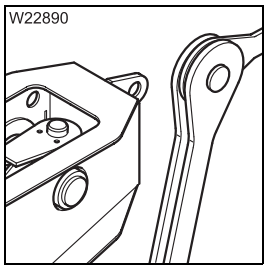
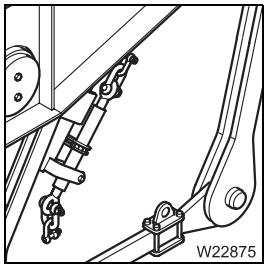


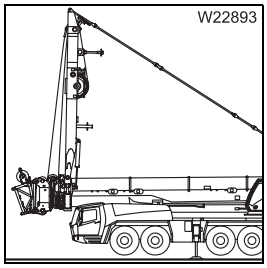
23. Set down the MWL; ➠ p. 5 - 53.
The rear pendant links rest in the folded out rests *A* and *B* on both sides. Guide the rear pendant links by hand as necessary.



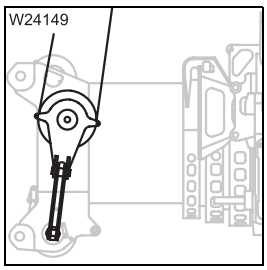
24. Connect the rear pendant links; ➠ p. 5 - 36.



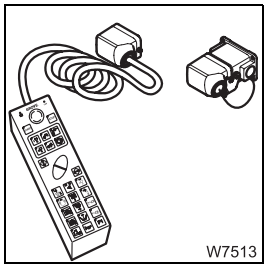
25. Move the turnbuckle into the *Operation* position; ➠ p. 5 - 40.



26. Raise the MWL; ➠ p. 5 - 52.



27. Connect the deflection sheaves to the lower head sheave axle; ➠ p. 5 - 50.



28. Disconnect the hand-held control unit; ➠ *Operating Instructions*.

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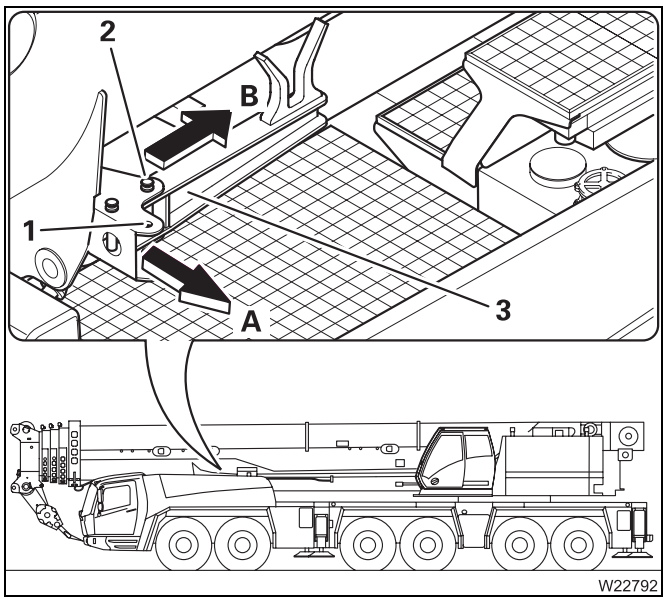
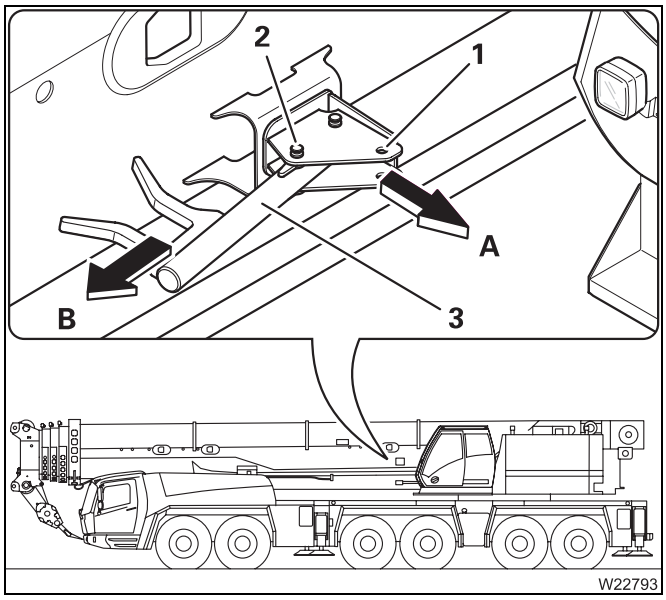
Folding in rests The rests *A*, *B* and *D* are folded out. Rest *C* cannot be folded.



Folding in rest *A*

- Remove the pin from the bearing point (**1**).
- Fold the rest (**3**) into position **B**.
- Insert the pin in the bearing point (**2**) and secure it with a spring cotter.



Folding in rest *B*

- Remove the pin from the bearing point (**1**).
- Fold the rest (**3**) into position **B**.
- Insert the pin in the bearing point (**2**) and secure it with a spring cotter.

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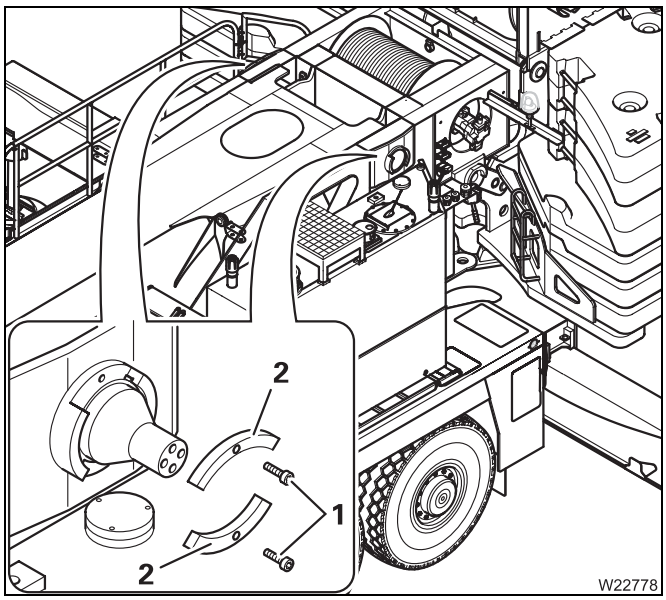
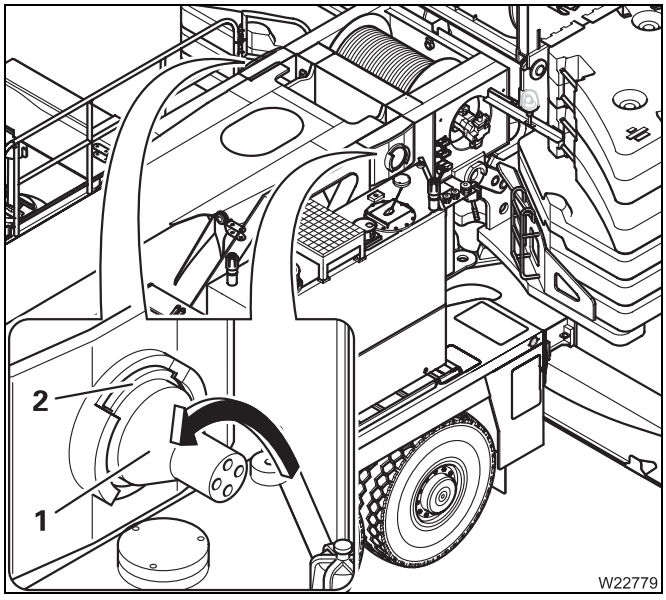
Removing the extension

You will require an auxiliary crane for removal.

The rear pendant links have been removed.

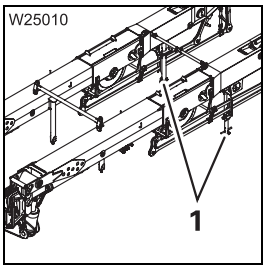


- Remove the bolts (**1**).
- Remove the locking bars (**2**).



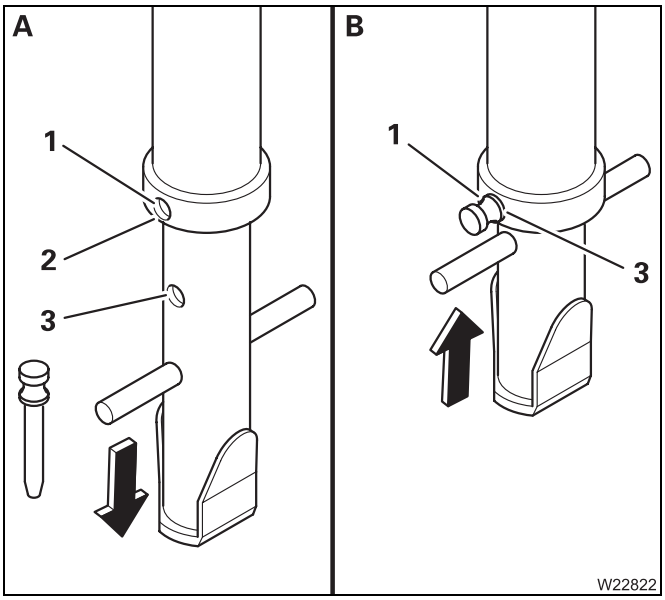
- Turn the extension (**1**) 90° to the left. In the process turn the raised edge (**2**) out of the groove.

5.2.8 Pushing in/pulling out the supports



The rear supports (**1**) can be set to two lengths:

– For transport: retracted
– For rigging: extended



- Remove the pin from the bearing point (**1**).

(A) – Pulling out

- Pull the support out so that the bore (**2**) aligns with the bearing point.

(B) – Pushing in

- Push the support in so that the bore (**3**) aligns with the bearing point (**1**).

- Insert the pin into the bearing point (**1**) and secure it with a retaining pin.

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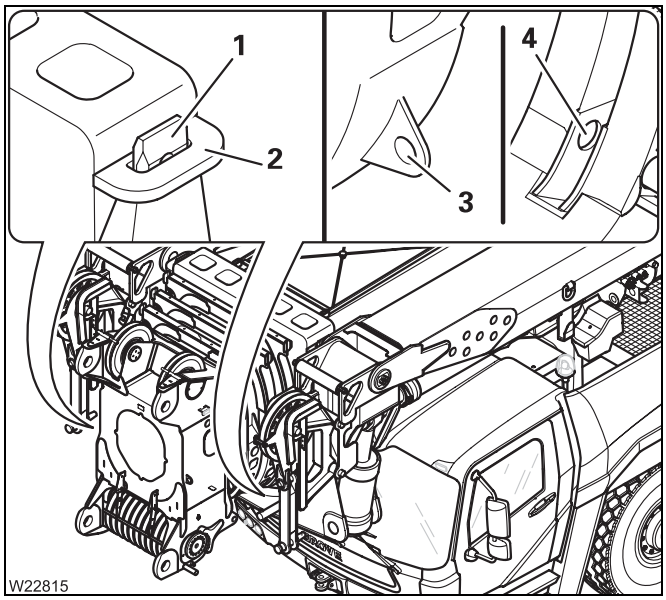
5.2.15 Setting the main boom down in the holding frame

- Slew the superstructure forwards.

So that the superstructure can be adjusted freely:

- **Do not** lock the superstructure.
- **Do not** switch off the slewing gear.
- **Do not** operate the service brake.

Risk of crushing when setting down the main boom.
In the area of the holding frame and the main boom there is a risk of crushing (for arms and hands) when setting down. Warning any personnel in the vicinity and request them to leave the danger area.



- Carefully set down the main boom on the boom rest.
  - In the process, the main boom and the holding frame should **not** come into contact with each other.
  - The guide (**2**) slides over the peg (**1**).
- Only lower the main boom enough so that the main boom rests on the boom rest. The bore (**3**) then aligns with the locking pins (**4**).

  Do not derrick any further; do not apply pressure to the boom rest. Malfunctions when locking the MWL on the main boom would otherwise be caused.

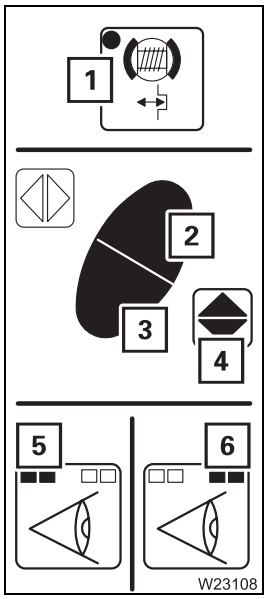
5.2.20 Locking/unlocking the winch

In order to wind a winch, it has to be unlocked. It is locked again after winding.

Prerequisites

– The hydraulic and electrical connections have been established.
➠ *Establishing/disconnecting the hydraulic connections*, p. 5 - 41
➠ *Establishing/disconnecting electrical connections*, p. 5 - 42.
– The hand-held control unit is connected; ➠ p. 4 - 26.

Locking/unlocking the winch



- Press the button (**1**). When the button is pressed, the red lamp in the button will light up.
- Press the switch (**4**) and keep it held down.
- In addition, press on of the movement buttons (**2**) or (**3**).

  Locking the winch: Movement button (**2**)

  Unlocking the winch: Movement button (**3**)

  Press and hold it until the end position has been reached.

The movement continues till the end position is reached or you release one of the two buttons.

– When the other end position has been reached, respective diode lights up.
  Final position locked: **green** lamp (**6**)

  Final position unlocked: **red** lamp (**5**)

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6 Operation with the main boom and the MWL

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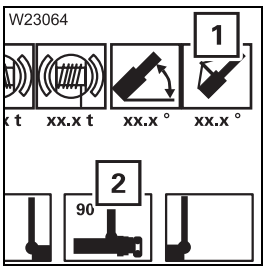
6.1.6 Folding the gantry masts out/in

It is only possible to lift loads if both gantry masts are folded out and the boom system is braced.

Prerequisites

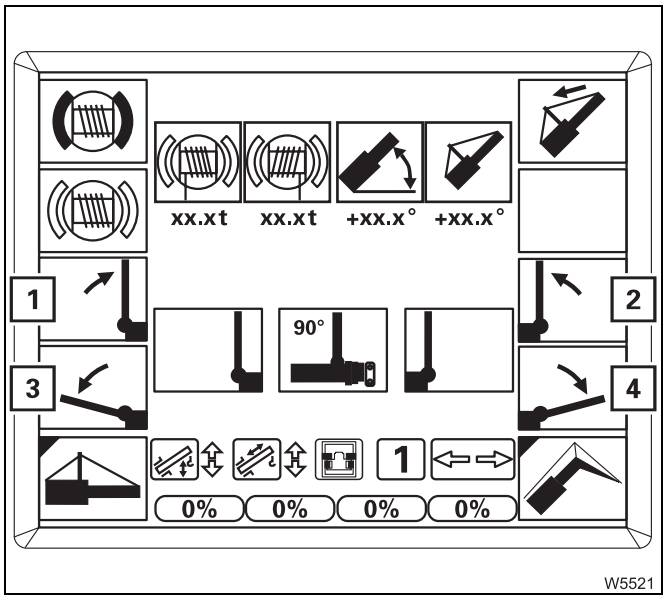
Folding the gantry masts in and out is only enabled when the following prerequisites are fulfilled:



- the *Operation-MWL* submenu is open; ➠ p. 6 - 6,
- the boom system is not braced, the symbol (**1**) is shown in **grey**,
- the MWL is raised to 90°, the **green** symbol is shown on the display (**2**),
- There is no load raised other than the hook block.

Folding in/folding out

When all the prerequisites are fulfilled, folding in and out is enabled.



The following symbols are shown in **black**:

- *Fold in the left-hand gantry mast* (**1**),
- *Fold out the left-hand gantry mast* (**3**),
- *Fold in the right-hand gantry mast* (**2**),
- *Fold out the right-hand gantry mast* (**4**).

The buttons are active.

As soon as any of the prerequisites fails to be fulfilled, the symbols are shown in **light grey**. The buttons are not active in this case.

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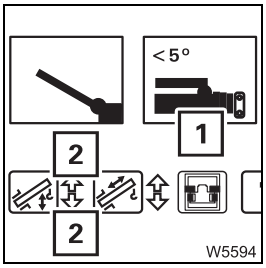
Telescoping

Telescoping with the MWL set down is carried out in the same way as for operation with the main boom.

Risk of damage to the deflection sheaves and guy ropes.
Make sure that the deflection sheaves are disconnected at the side fastening points and have been pulled into the guides before you telescope the main boom with the MWL set down. This way you prevent damage to the deflection sheaves or the guy ropes when telescoping.

Derricking



When the MWL is set down, derricking is only enabled if the MWL is set down so far that the symbol (**1**) is displayed. Otherwise derricking is disabled and the arrows (**2**) in the derricking gear display are shown in red.

Main boom operation

Operation of the power units when working with the main boom with the set down is the same as for working with the main boom without MWL; ➠ *Operating Instructions*.

6.2.2 Putting the boom system into rigging mode

Operation of the power units when the MWL is set down is the same as for working with the main boom without MWL; ➠ *Operating Instructions*.

This section assumes the following:

– the truck crane is supported with the outrigger span required for the previous operation, and is aligned horizontally and

– the actual rigging mode for operation with the main boom has been entered on the RCL.

- Set down the load.
- Fully retract the main boom.
- Rotate the superstructure for unrigging into the the 180° position and set the main boom down in the boom rest.

For further unrigging of the MWL; ➠ *CHECKLIST: Unrigging the MWL* point 2 p. 5 - 7.

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6.5 Driving

Before driving

- Check the tyre pressure and the wind speed; ➠ *Operating Instructions.*
- Check whether
  – the slewing gear is switched off; ➠ *Operating Instructions.*
  – the superstructure is locked; ➠ *Operating Instructions.*
- Place the truck crane on the wheels; ➠ *Operating Instructions.* The suspension is switched off.
- For reasons of safety, extend the outrigger beams in accordance with the available space. The outrigger pads may not touch the ground while driving the crane.

Driving from the driver's cab

- Engage the lowest starting gear; ➠ *Operating Instructions.* In this way you prevent the gears changing up and ensure that the speed is kept to a minimum.
- Switch on the separate steering; ➠ *Operating Instructions.*

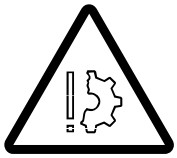
If required, you can

– switch on the longitudinal differential locks,

– switch on the transverse differential locks.

While driving

- Drive only at the lowest possible speed, **maximum 1.5 km/h**.
- The turning radius should be as large as possible when driving around corners!
- Steer the truck crane only when it is rolling and avoid sudden steering movements.



Risk of damage to the steering linkage!
The steering linkage can be damaged if the steering is operated while the vehicle is stationary.

Danger of overturning when switching on the suspension!
The suspension must be deactivated (locked) as long as the rigged truck crane is on wheels.
When switching on the suspension, the suspension cylinders would suddenly be pressed together and damaged, and the truck crane could overturn.

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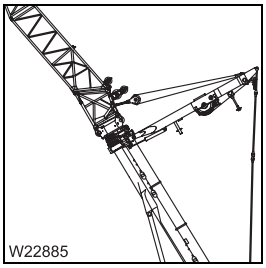
7.2 Operation with braced boom system

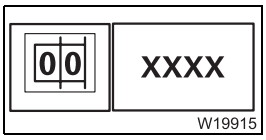


This section describes operation with the boom extension and a braced boom system, which enables increased lifting capacity.

For operation with the **MWL rigged but not raised**; ➠ *Operation with MWL set down*, p. 7 - 19.

7.2.1 CHECKLIST: Putting the boom system into the operating condition

This checklist is not equivalent to the complete operating instructions. It is accompanied by operating instructions which are referred to in cross-references.
Observe the warnings and safety instructions contained.



1. Enter the current rigging mode for operation with the boom extension and MWL; ➠ *Setting the RCL*, p. 7 - 9.

2. Telescope the main boom to the telescope status required for operation according to the *Lifting capacity table*. Telescoping is performed in the same way as for operation with the main boom without boom extension; ➠ *Telescoping with rigged MWL*, p. 6 - 7.

3. Fold out both gantry masts. Folding out is performed in the same way as for operation with the main boom without boom extension; ➠ *Folding the gantry masts out/in*, p. 6 - 9.

4. Derrick the main boom to the bracing angle required and brace the boom system. Derricking and bracing is performed in the same way as for operation with the main boom without boom extension; ➠ *Bracing the boom system*, p. 6 - 11.

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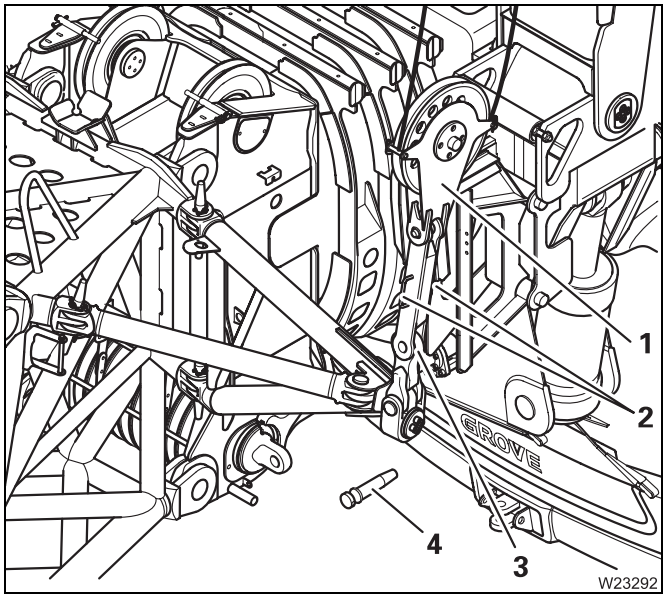
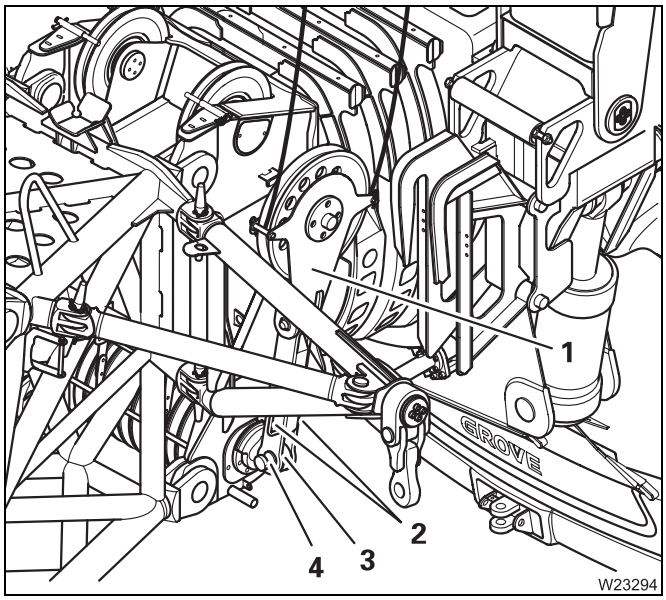
From the bracing arm onto the main boom

Risk of accidents when winding the guy rope.
The rotating deflection sheave and the running guy rope can trap parts of the body and injure you. You must therefore keep at a distance from the sheave and the rope. In the process, have a helper help you as necessary.



- Wind off the winch a little; ➠ p. 5 - 63.
- Hold the deflection sheave (**1**) by the handles (**2**).
  In the process, have a helper help you as necessary.
- Remove the pin (**4**) form the connecting point (**3**).



- Unwind the winch; ➠ p. 5 - 63.
  In the process, guide the deflection sheave (**1**) by the handles (**2**) onto the connecting point (**3**) on the lower head sheave axle.
- Insert the bolt (**4**) into the connecting point (**3**) and secure it with a spring cotter.
- Shift the deflector roller on the other side in the same way.

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- If necessary, use an auxiliary crane to unrig to the required counterweight combination; ➠ *Operating Instructions*.
- Slew the superstructure into the required position (0° or 180°).
- Switch off the slewing gear; ➠ *Operating Instructions.*
- Lock the superstructure; ➠ *Operating Instructions.*
- Derrick the main boom to the required angle for telescopic extension. You can find the required main boom angle in the *Lifting capacity tables*, in chapter *Rigging table boom extension*).
- Telescope the main boom to the required telescope status and lock the telescopic sections.
- Derrick the main boom to the position required.

8.1 Further rigging work

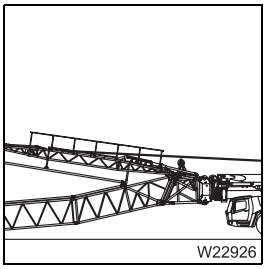
8.1.1 CHECKLIST: Rigging for operation with luffing jib

This checklist is not equivalent to the complete operating instructions. It is accompanied by operating instructions which are referred to in cross-references.
Observe the warnings and safety instructions contained.

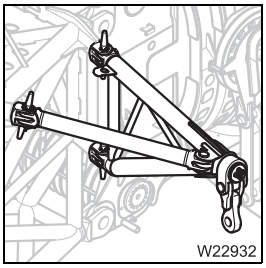
1. The MWL has been rigged as described in the chapter *Rigging and unrigging the MWL*; ➠ *CHECKLIST: Rigging the MWL*, p. 5 - 1.

2. The auxiliary hoist has been rigged; ➠ *Operating Instructions*.

3. Check on the relevant lifting capacity table whether the rigging mode to be set can only be rigged with the superstructure positioned to the rear; ➠ p. 1 - 15. Turn the superstructure to the position 0° to the rear if necessary.


W22926

4. If the MWL has been set down, rig the luffing jib as described in the *lattice extension operating manual*.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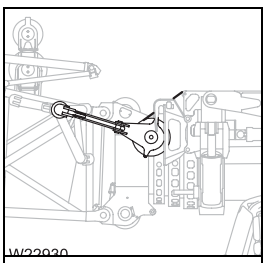
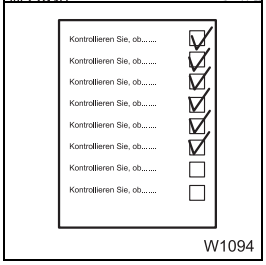
5. Fold down the bracing arm; ➠ p. 7 - 14.
Install the bracing arm beforehand as necessary; ➠ p. 7 - 11.



6. Shift the deflection sheaves from the lower head sheave axle onto the bracing arm; ➠ p. 7 - 16.



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7. Bring the boom system into the operating condition required:
   – For operation with braced boom system; ➠ p. 8 - 5,
   – For operation with MWL set down; ➠ p. 8 - 19.

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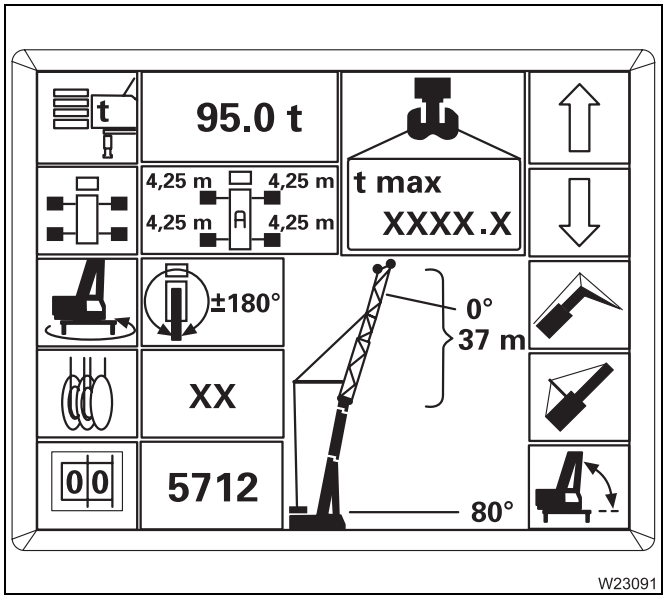
8.2.3 Setting the RCL

The current rigging mode for operation with the luffing jib is entered on the RCL. The MWL is then entered into this rigging mode.



The *Enter rigging mode* submenu shows the rigging mode entered, e.g.:

– Counterweight combination 95 t,

– Luffing jib 37 m
without angle, 0°,

– Main boom angle 80°,

– Outrigger span of 8.70 x 8.50 m,

– Slewing range ±180°.

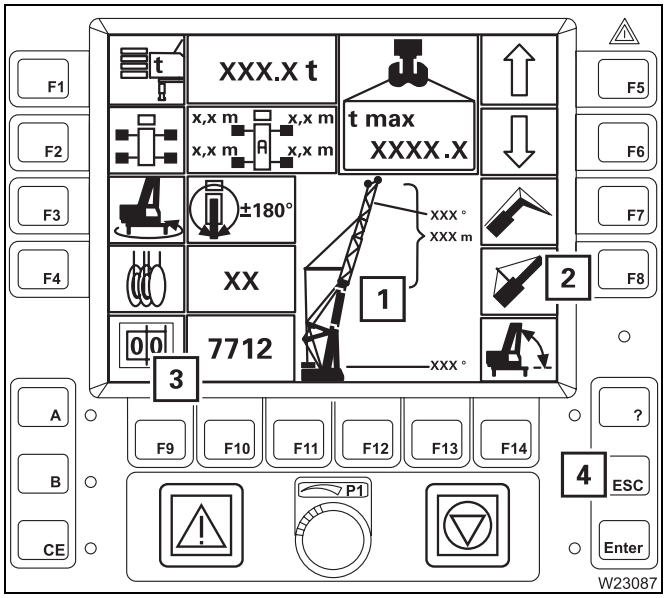
The display (**3**) shows the corresponding RCL code, e.g. **5712**.

The display (**1**) shows a truck crane with luffing jib.

• Press the button (**2**) once.

The button is only active when the MWL is in the *raised to 90°* position:

If it is not permissible to operate the MWL with the rigging mode shown, there is no change on the display.



If operation with the MWL is permissible with the rigging mode shown:

– the symbol (**2**) is shown in **green**,

– the display (**1**) shows a truck crane with luffing jib and MWL,

– the display (**3**) indicates the corresponding RCL code for operation with MWL, e.g. **7712**.

• Confirm the selected rigging mode (Press button (**4**) 2x).

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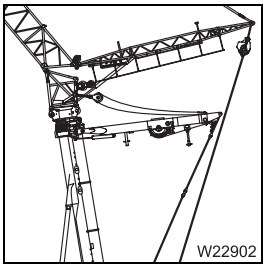
8.4 Rigging mode with unbraced boom system and raised MWL



The rigging mode with rigged luffing jib, raised MWL and unbraced boom system is not for use when telescoping.

As long as the MWL is not braced, the RCL only enables the lifting capacity of the empty hook curve.

Risk of overturning in an impermissible operating mode when RCL is overridden.
Operation with the luffing jib is not permitted with the MWL raised and the boom system unbraced.
Do not under any circumstances override the RCL in this mode in order to raise loads the weight of which exceeds the values of the empty hook curve.
This way you prevent the truck crane from overturning.

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55 m luffing jib

Adhere to the information on the foot notes in the section *Information about the tables*; ➠ p. 8 - 30.

Luffing jib with angle 0°
Data not available yet.

61 m luffing jib

Adhere to the information on the foot notes in the section *Information about the tables*; ➠ p. 8 - 30.

Data not available yet.

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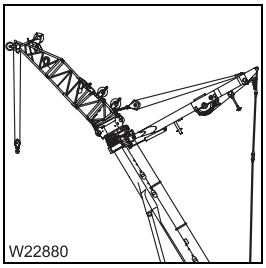
9.2 Operation with braced boom system

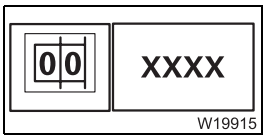


This section only describes operation with heavy load lattice extension and braced boom system, which enables increased lifting capacity.

For operation with the **MWL rigged but not raised**; ➠ *Operation with MWL set down*, p. 9 - 9.

9.2.1 CHECKLIST: Putting the boom system into the operating condition

This checklist is not equivalent to the complete operating instructions. It is accompanied by operating instructions which are referred to in cross-references.
Observe the warnings and safety instructions contained.



1. Select the actual rigging mode for operation with heavy load lattice extension and MWL on the RCL or set the corresponding RCL code as per the *lifting capacity table*; ➠ *Setting the RCL*, p. 9 - 7.

2. Telescope the main boom to the telescoping required for operation according to the *lifting capacity table*. Telescoping is performed in the same way as for operation with the main boom without heavy load lattice extension; ➠ *Telescoping with rigged MWL*, p. 6 - 7.

3. Fold out both gantry masts. Folding out is performed in the same way as for operation with the main boom without heavy load lattice extension; ➠ *Folding the gantry masts out/in*, p. 6 - 9.

4. Derrick the main boom to the bracing angle required and brace the boom system. Derricking and bracing is performed in the same way as for operation with the main boom without heavy load lattice extension; ➠ *Bracing the boom system*, p. 6 - 11.

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9.5 Turning loads with the heavy load lattice extension

For turning loads; ➠ *lattice extension operating manual*.

Risk of accidents due to overload.
You must only lift a load with two hooks if you adhere to the following specifications and the instructions and figures in the *lattice extension operating manual*.
If these instructions are not adhered to, accidents may occur due to individual components of the truck crane being overloaded. The RCL then no longer provides protection.
Two-hook operation when operating with the MWL is also permitted in conjunction with the heavy load lattice extension.

Risk of accidents due to overload.
The load must always be lifted completely with the weakest part (heavy load lattice extension) first.

In two-hook operation, the loads given in the *lifting capacity table* are reduced by the weight of both reeved hook blocks.

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7.5 m-heavy load lattice extension

The specified axle loads apply for reeved **32 t hook blocks** (weight 620 kg).

Rigged counterweight in t	Lattice extension inclination in °	Position of the MWL	Telescoping Telescopic section I/II/III/IV	Main boom angle in °	Main boom position[1]	Axle load[2] in t	
						front	rear
Data not available yet.							

[1] Rear: indicated slewing angle 0°
Front: indicated slewing angle 180°

[2] Front: on each the first and second axle line
Rear: on each of the 3rd to 6th axle line

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Error	Cause	Remedy
The main boom cannot be derricked, the *derricking gear* display shows red arrows	The MWL is in an intermediate position (). ( ) ( )	MWL Move into the *raised to 90°* position ( ) or the *set down below 5°* position ( ) ➠ p. 5 - 58, ➠ p. 5 - 59.
MWL cannot be braced.	The main boom is in an impermissible telescope status.	Move the main boom into a telescoping position which is permitted for operation with the MWL; ➠ *lifting capacity table*.
	The main boom is not at the required bracing angle.	Derrick the main boom to the bracing angle shown on the *Bracing angle set value* display; ➠ p. 6 - 11.
	The telescoping mechanism does not meet all the requirements for bracing	Check the following and correct if necessary: The telescopic sections are locked. The telescoping cylinder is locked. The telescopic section has been set down.
	The MWL is not raised to the end position 90°.	MWL Raise the MWL to the end position 90°; ➠ p. 5 - 58.
	The gantry masts are not folded in or out completely.	Fold out the gantry masts completely; ➠ p. 6 - 9.
	Operation with MWL has not been selected on the RCL.	Select operation with MWL on the RCL; ➠ p. 6 - 4.
The bracing procedure was not completed. The bracing status display shows the error symbol in purple ( ).	During the bracing procedure an error was detected, and the procedure was aborted as a result.	Unlock the winches and repeat the bracing procedure. If the error occurs again, contact **Manitowoc Crane Care**.
The RCL shuts down due to overload even though the maximum lifting capacity according to the *load capacity chart* has not been exceeded.	Operation with MWL has not been selected on the RCL .	Select operation with MWL on the RCL; ➠ p. 6 - 4.
	The MWL is raised but the boom system is not braced.	Brace the boom system; ➠ p. 6 - 11.
	During operation with MWL set down, operation with MWL is still selected on the RCL.	Select operation without MWL on the RCL; ➠ p. 6 - 4.

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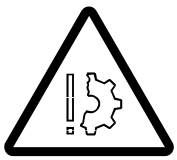
10.3.2 Telescoping in the emergency programme with a rigged MWL



Risk of damage when emergency programme is switched on
All the specifications and safety instructions in the operating manual (included in the scope of delivery) are authoritative for operation of the telescoping mechanism in the emergency programme; ➠ *Operating Instructions GMK 6400* chapter *Emergency operations and programmes*.
This section only contains additional information which must be observed when the MWL is rigged before telescoping in the emergency programme.

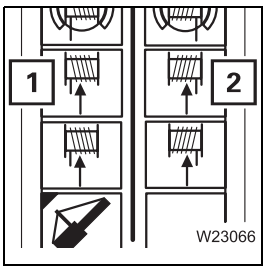
The *telescoping* emergency programme is switched on in the same way as when operating without MWL; ➠ *Switching on the emergency programme*, p. 10 - 11.

- Adhere the following points about the specifications in the Operating Instructions (included in the scope of delivery) before telescoping in the emergency program.

When retracting

When retracting in the emergency programme, the winches on the gantry masts do not automatically follow. Thus the guy ropes sag.

Danger due to slack rope!
Pay attention that the guy ropes do not slacken to the point where there is slack rope when winding.



- When retracting, pay attention to the guy ropes. Stop the retraction process in good time and wind the winches so that the guy ropes are taut (buttons (**1**) and (**2**)).

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11.3 Lubricants

The list of lubricants in the maintenance instructions applies.

The **GROVE part numbers** for lubricants which you requires for maintenance of the MWL are shown in the respective sections.

Using the **GROVE part number** you can find the specification of the lubricant in the lubricant list in the maintenance manual.

11.3.1 Use of lubricant

Consec. No.[1)]	Lubrication type	Application	Fill quantity in litres	Maintenance interval
8	Grease	other lubricating points		M3
		Winch gear		M3
		Locking units		M12
9	Adhesive lubricating grease	Gear rims for the winches		M3
6	Gear oil	Winch gear	Approximately 1.0	M12

1) The consecutive number is identical to the consecutive number from the list of lubricants in the maintenance manual.

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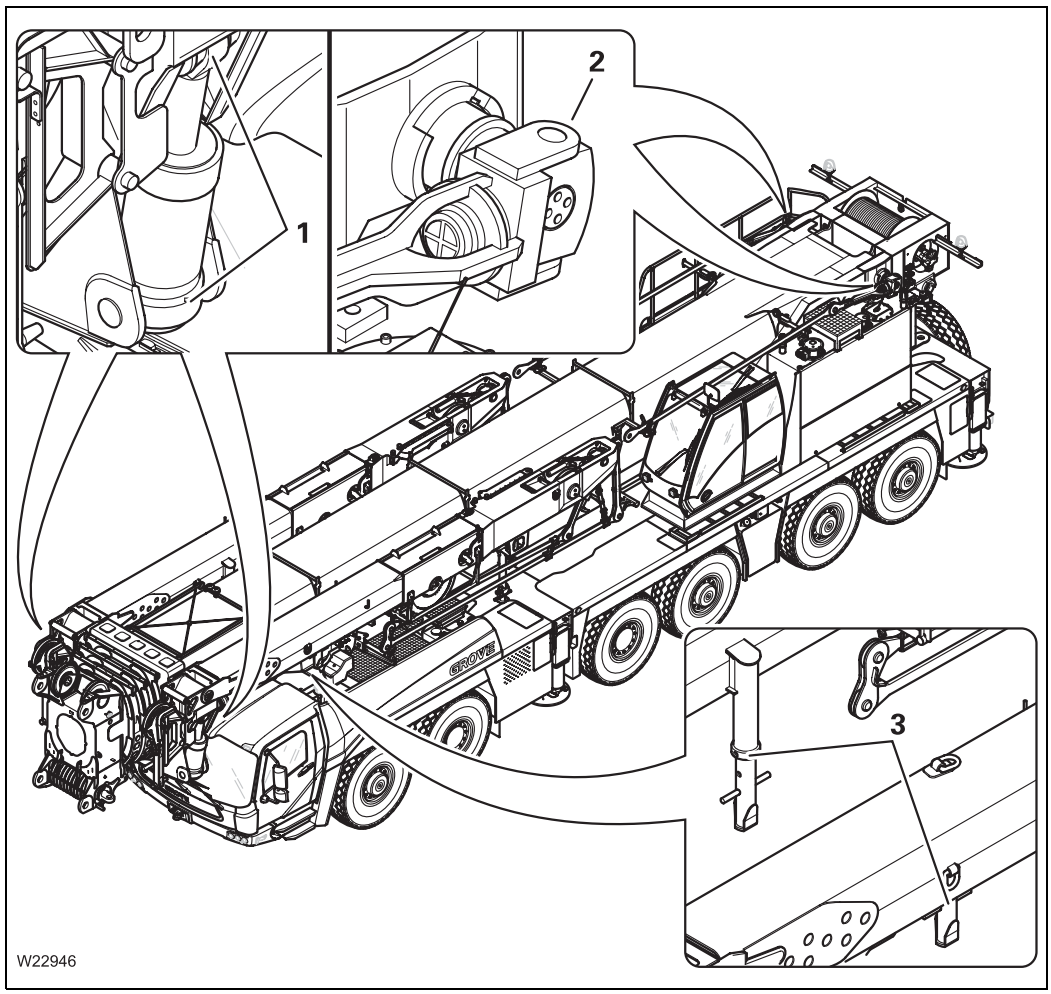

1 on the swivel ram

2 on the extension for the boom pivot pin

3 on the rear support

- Clean the lubricating nipples on the lubricating points (**1**) to (**3**).
- Lubricate until fresh grease is expelled from the lubricating point.
- Remove the excess grease.
- Lubricate the lubricating points on the other side of the MWL in the same way.

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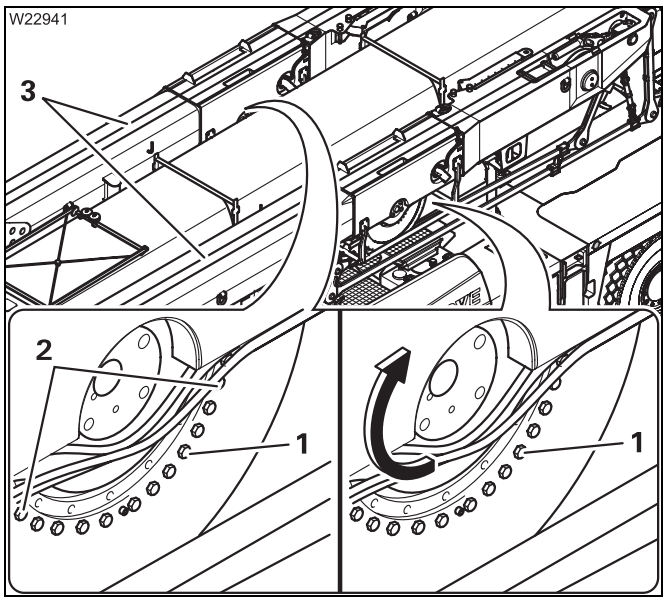
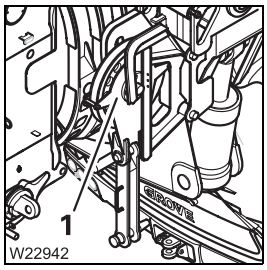


Only loosen the locking screws (**1**). Do **not** loosen the fixing bolts (**2**).

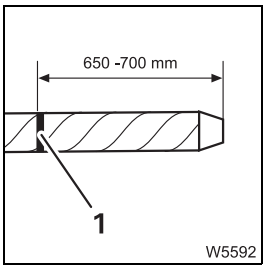
- Turn the winch drums until the locking screws (**1**) are visible.
- Perform the *wind winch on* movement in order to loosen the last locking screws (**1**).
- Completely unwind the guy rope and pull the guy rope (**3**) out from the clamping device.



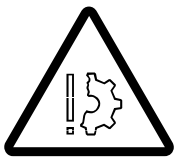
- Remove the guy rope from the deflection sheave (**1**).

Attaching a new guy rope

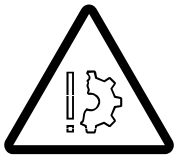
On the winch drum



- Mark the new guy rope (**1**) for the required clamp length of 650 to 700 mm.
- Align the reel with the new guy rope in such a way that you can wind the guy rope onto the winch drum without kinks.



Risk of accidents from slipping rope clamp
Always push the guy rope up to the designated clamp length in the clamping device.
In this way you prevent the guy rope from slipping out of the clamping device, the main boom becoming overloaded and the load falling.



Risk of damage to the guy rope
After you have pushed the guy rope into the clamping device, you should only carry out the movement *Wind winch* in order to reach all the locking screws. In this way you prevent damage to the guy rope from its becoming clamped between the winch drum and the winch frame.

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