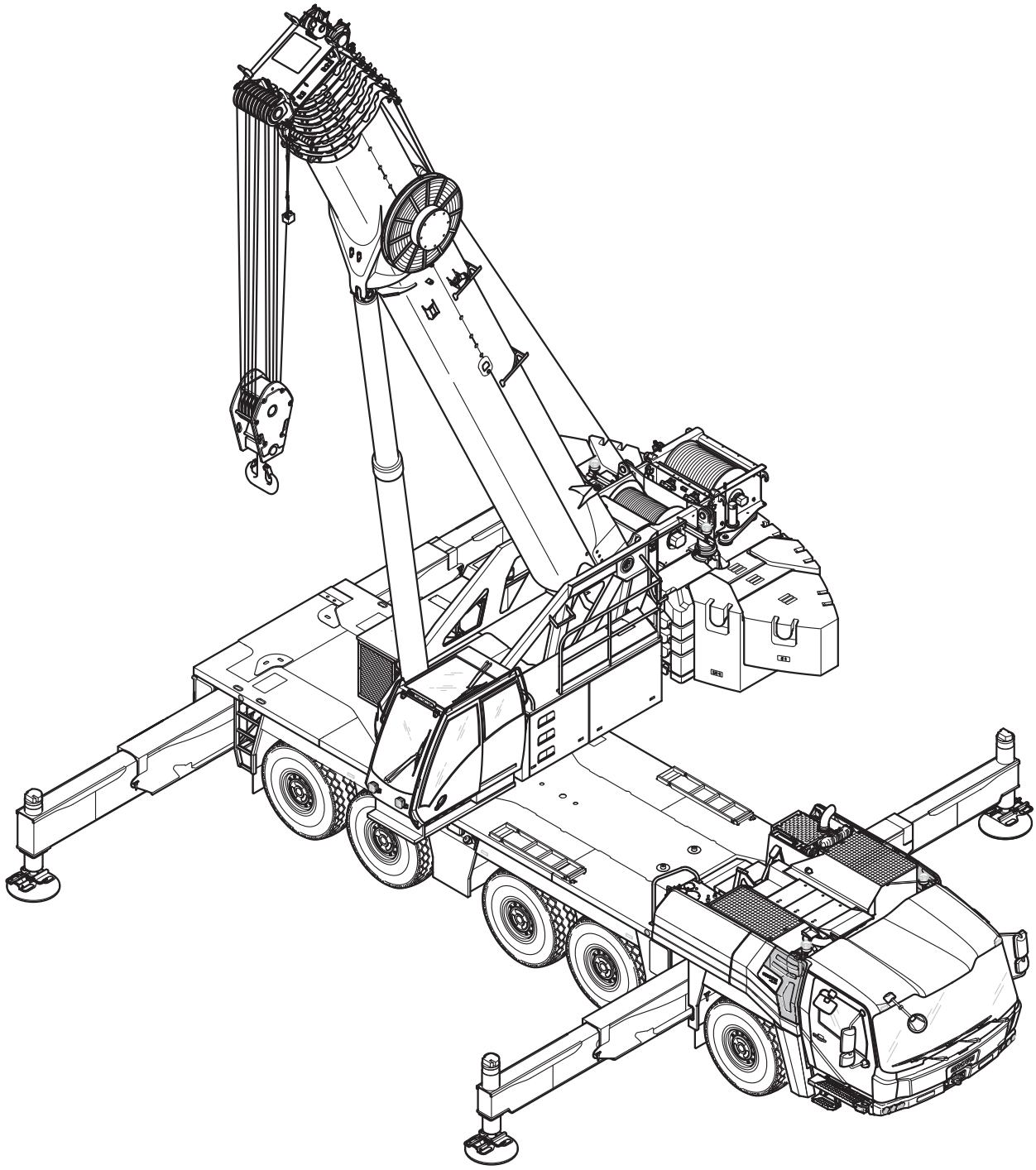
GROVE GMK 5250XL-1

Lattice extension operating manual



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Manitowoc®

4 Rigging work on the main boom

16.01.2020

8 Auxiliary single-sheave boom top 1

16.01.2020

1 Overview

1.1 Validity of this operating manual

Validity of this operating manual

This operating manual applies only to lattice extensions supplied by **Manitowoc Crane Group Germany GmbH**.

Prerequisites for installation and operation

The lattice extensions described in this operating manual may only be operated together with a GROVE truck crane GMK5250XL-1 whose serial number is identical with the serial number marked on the lattice extensions.

References to other operating manuals

Cross references to other operating or maintenance manuals are shown, for instance, in the form: ➠ *Operating manual GMK5250XL-1*.

- The subject that is referenced can be found in the index or table of contents of the document to which reference is made.

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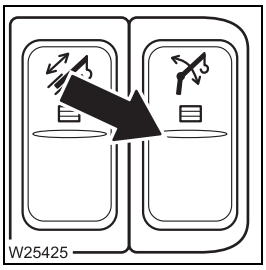
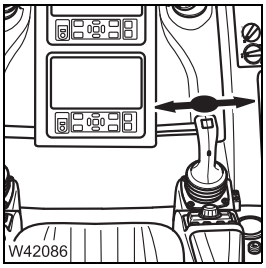
3.2.2 At the control console, right



Lattice extension derricking gear on/off

There is a lamp in the button.

– **Press once:** – Bright lamp – *Lattice extension* derricking gear on
– Dim lamp – *Lattice extension* derricking gear off

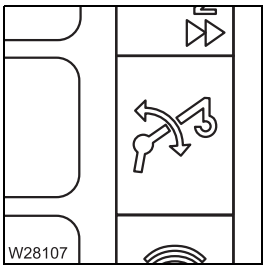


Control lever configuration

– **To the left:** – Raise – Lift the lattice extension
– **To the right** – Lower – Lower the lattice extension

3.2.3 On the CCS control unit

Menu with independent displays



Display lattice extension derricking gear

– **Green:** *Lattice extension* derricking gear on
– **Red:** *Lattice extension* derricking gear off

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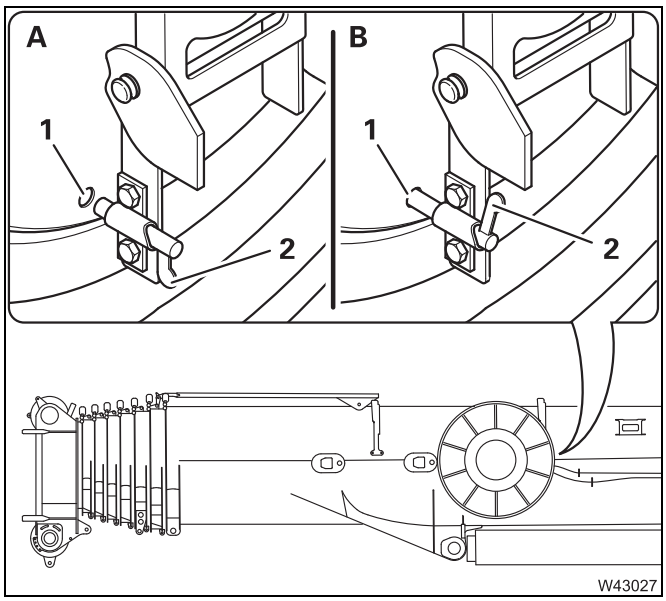
4.2.2 Engaging/releasing the locking device on the hose drum

The locking device must be released for operation with a swing-away lattice.
The locking device must be engaged before removing the hose drum.

Risk of damage to the hoses!
Always check that the locking device is released before starting operation with the swing-away lattice.
This prevents the hoses from being torn off when telescoping.

Risk of accidents from uncontrolled rotation of the hose drum!
The locking device must always be engaged before the hose drum is removed. Otherwise the hose drum will rotate in an uncontrolled manner against the holder and could injure you.



Bores (**1**) are distributed on the inner face of the hose drum.

A – Releasing the locking device

- Turn the spring latch (**2**) so that it is **not** engaged in a bore (**1**).

B – Inserting the locking device

- Turn the hose drum so that the spring latch (**2**) is aligned with a bore (**1**).
- Turn the spring latch (**2**) so that it engages in the bore (**1**). The hose drum is now secured against rotation.

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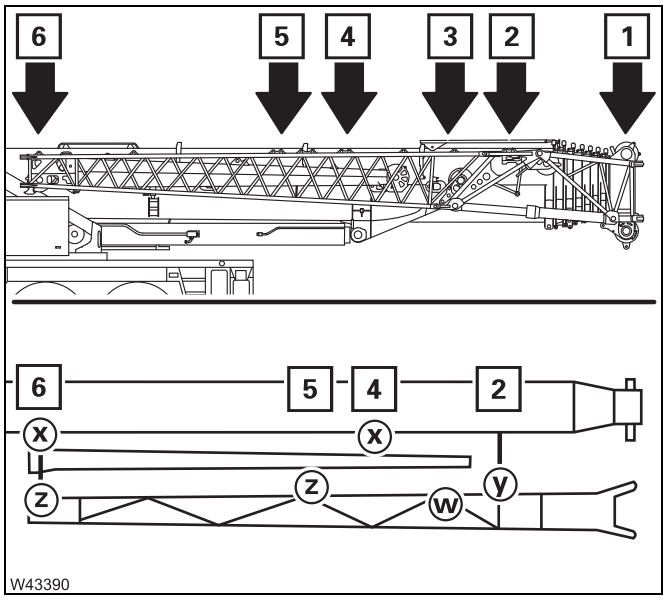
5.3 Transport conditions

5.3.1 Overview



There are the rigging ranges 1 to 6;
Overview of the rigging ranges, p. 5 - 76.

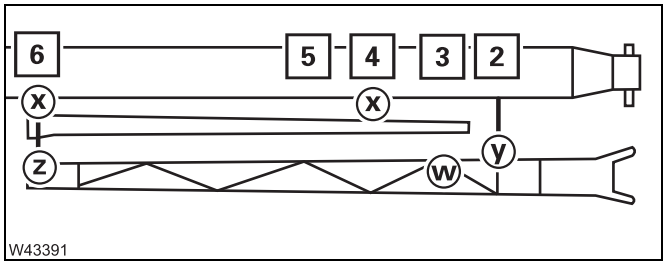
Various connections for transport can be established in the ranges 2 to 6.

	Connection between
x	Section 1/main boom
y	Section 2/main boom
z	Section 1/Section 2
w[1)]	Section 2A/Section 2B

[1)] Only with version 2 and version 3

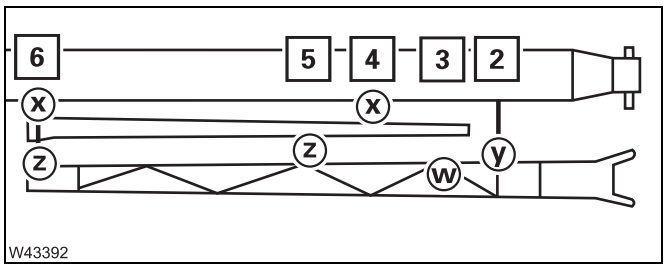
The connections that need to be established depend on the transport condition.

If installing/removing or rigging are carried out as described in the checklists in this operating manual, that will result in the transport conditions shown here and the connections displayed are established.



Swing-away lattice 17.8 m

– After unrigging the swing-away lattice 11.2 m.



– After unrigging the swing-away lattice 17.8 m.

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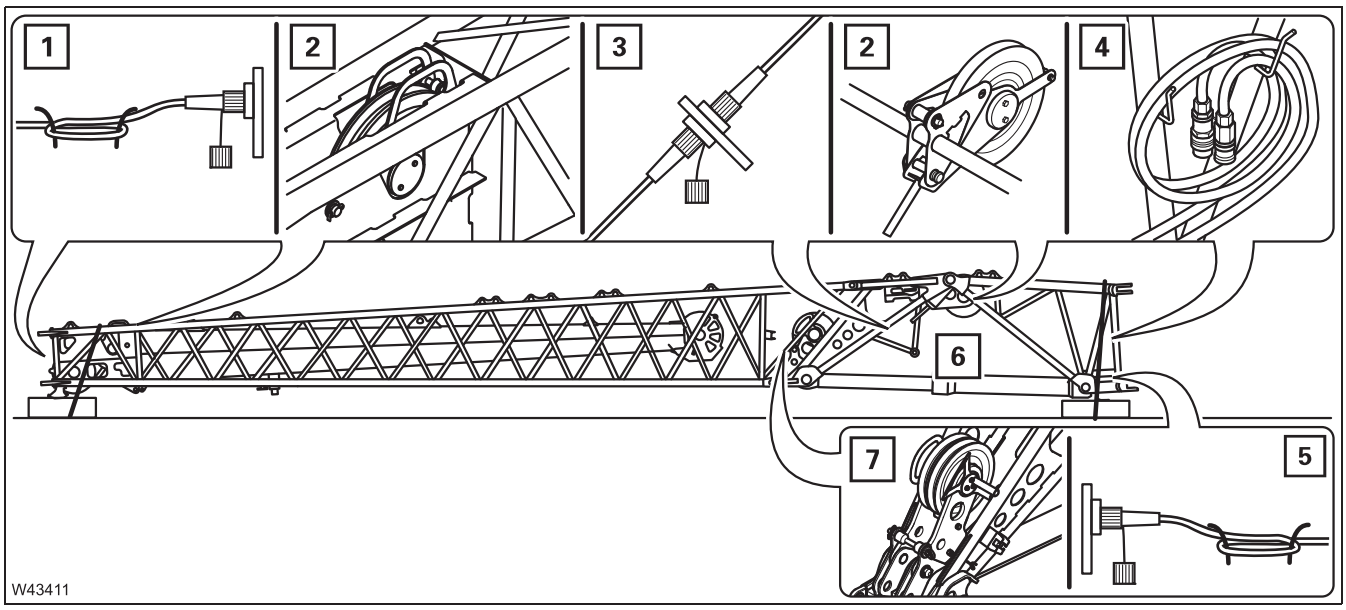

Folded-in sheaves		
2	Section 2 – Deflection sheave	➠ p. 5 - 71
7[2)]	Section 2 – Head sheave	➠ p. 7 - 31

Secured cables		
1	Section 1	➠ p. 5 - 118
5	Section 2	➠ p. 5 - 116

Secured hoses		
4	Section 2	➠ p. 5 - 113

Electrical connection established		
3[1)]	Section 2A/Section 2B	➠ p. 5 - 120

Angle of the lattice extension set to 0°		
6		➠ p. 5 - 137

Securing against falling down and slipping
The swing-away lattice is tied on to the separate vehicle.

1) Only with version 2 and version 3

2) Only for version 3

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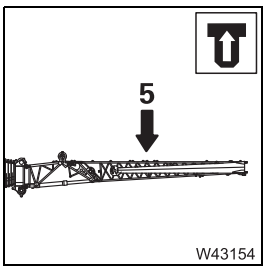
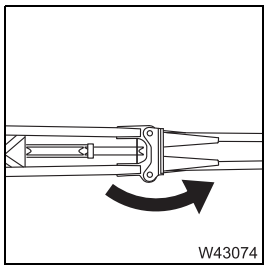
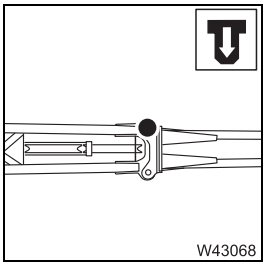


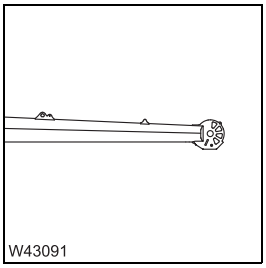
– In range 5 – Section 1/Section 2 – Disconnect the connection; ➠ p. 5 - 98.



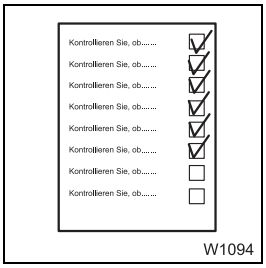
– Swing section 1 in front of section 2; ➠ p. 5 - 112.



– In range 6 – Section 1/Section 2 – Establish the connection; ➠ p. 5 - 103.



– Remove the guide rope.



– Perform subsequent necessary rigging work; ➠ p. 5 - 51.

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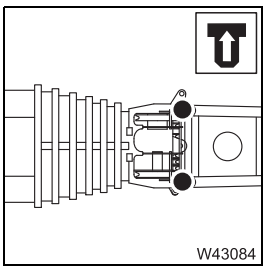
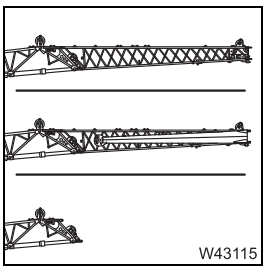
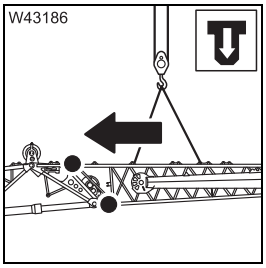


10. In range 1 – Main boom/Section 2 – Disconnect the connection;
➠ p. 5 - 81.



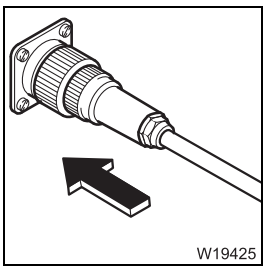
11. – Lift and set down the installed swing-away lattice or section 2B depending on the rigging mode.
➠ *Dimensions and weights*, p. 5 - 4
➠ *Slinging points*, p. 5 - 65

– Remove the guide rope.

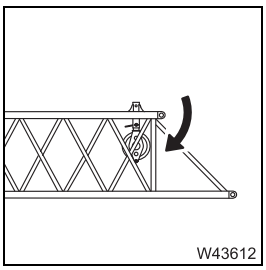


12. For swing-away lattice 25.8 m

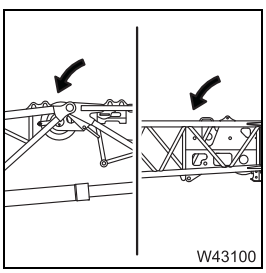
– In range 3 – Section 2A/Section 2B – Establish the connection;
➠ p. 5 - 88.



– In range 3 – Establish the electrical connection;
➠ *Section 2A/Section 2B*, p. 5 - 120.



– Section 3 – Bring the deflection sheave into the transport position;
➠ p. 5 - 73.



13. Section 2 – Fold in the deflection sheave; ➠ p. 5 - 71.

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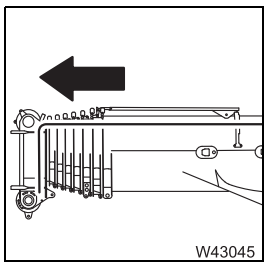
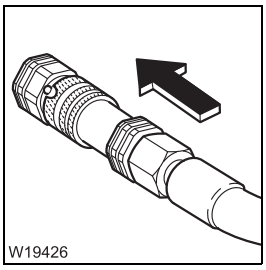
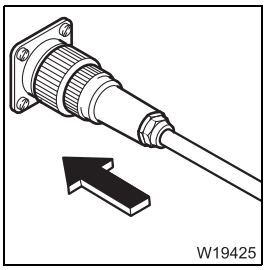


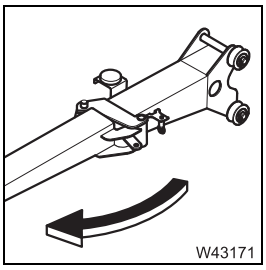
– Move the hoses into the position for working with the lattice extension;
➠ p. 4 - 8.



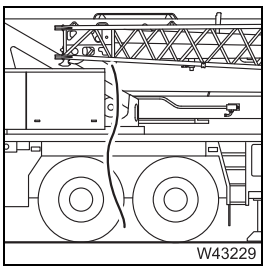
4. Establish the hydraulic connection; ➠ p. 5 - 113.



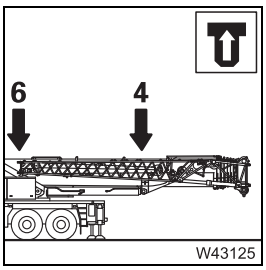
5. In range 1 – Establish the electrical connection;
➠ *Main boom/Section 2*, p. 5 - 116.



6. Fold out the run-up rail; ➠ p. 5 - 69.



7. Fasten the guide rope to section 2 and secure section 2 with the guide rope;
➠ p. 5 - 67.



8. – In range 4 – Main boom/Section 1 – Disconnect the connection;
➠ p. 5 - 94.

– In range 6 – Main boom/Section 1 – Disconnect the connection;
➠ p. 5 - 99.

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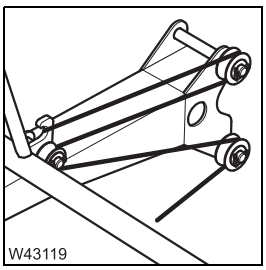
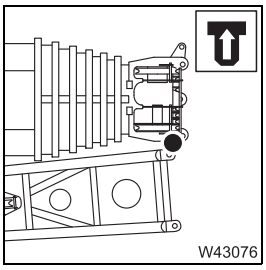
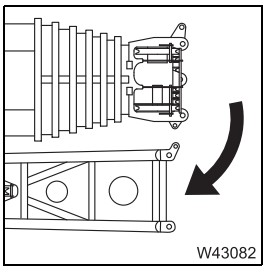


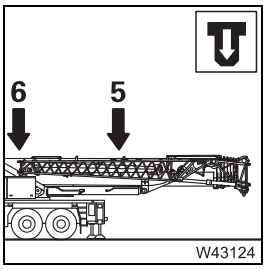
11. Reeve the guide rope in the run-up rail; ➠ p. 5 - 70.



12. In range 1 – Slewing connection – Disconnect the connection; ➠ p. 5 - 77.

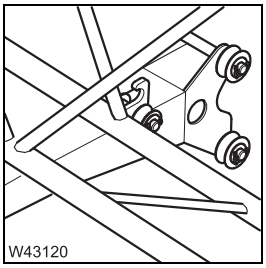


13. Swing the swing-away lattice onto the main boom using the guide rope so that the connection is established in range 6; ➠ p. 5 - 111.

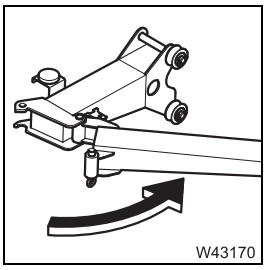


14. – In range 6 – Section 1/Section 2 – Establish the connection; ➠ p. 5 - 102.

– In range 5 – Section 1/Section 2 – Establish the connection; ➠ p. 5 - 97.



15. Remove the guide rope; ➠ p. 5 - 70.



16. Fold in the run-up rail; ➠ p. 5 - 69.

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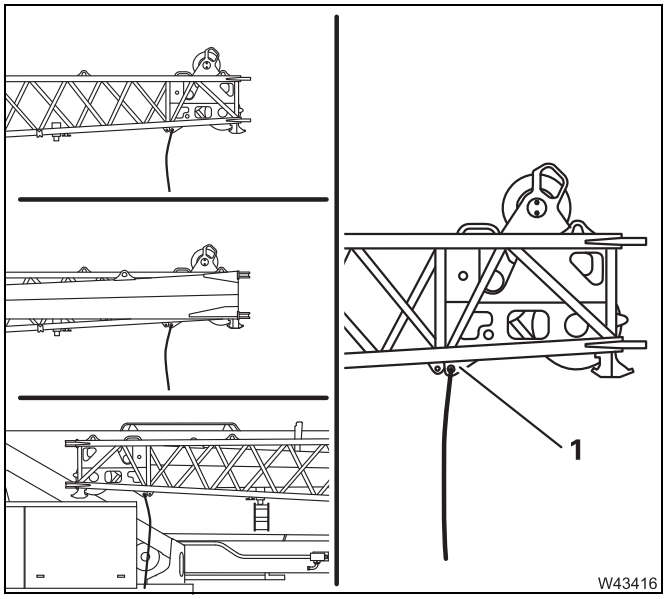
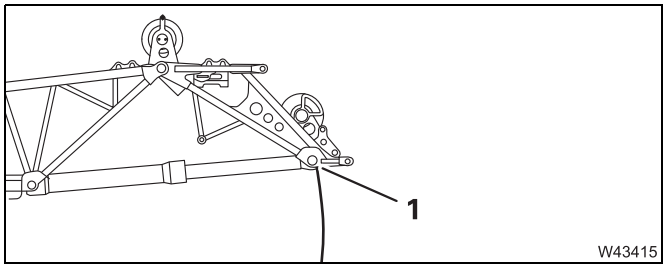
5.5.2 Securing the swing-away lattice with the guide rope

Risk of accidents due to sections swinging of their own accord!
Always fasten a guide rope to the sections being swung before you disconnect the required connections.
An helper must keep the guide rope tightly tensioned or you must fasten the guide rope so that the sections cannot swing unintentionally when the necessary connections are unlocked or separated.



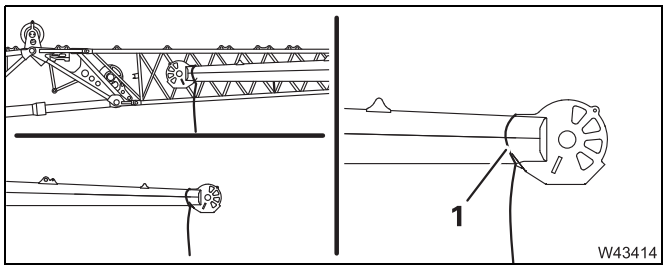
Fastening a guide rope to section 2

- Fasten the guide rope e.g. to the rope attachment point (**1**).



Fastening the guide rope to section 2B

- Fasten the guide rope e.g. to the rope attachment point (**1**).



Fastening a guide rope to section 1

- Fasten the guide rope (**1**) behind the head of section 1.

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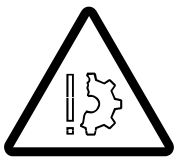
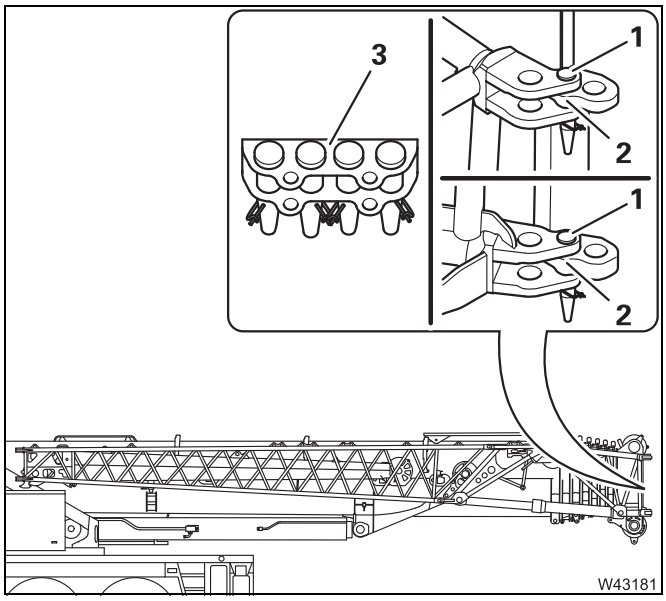
5.6.3 Range 1 – Folded – Slewing connection



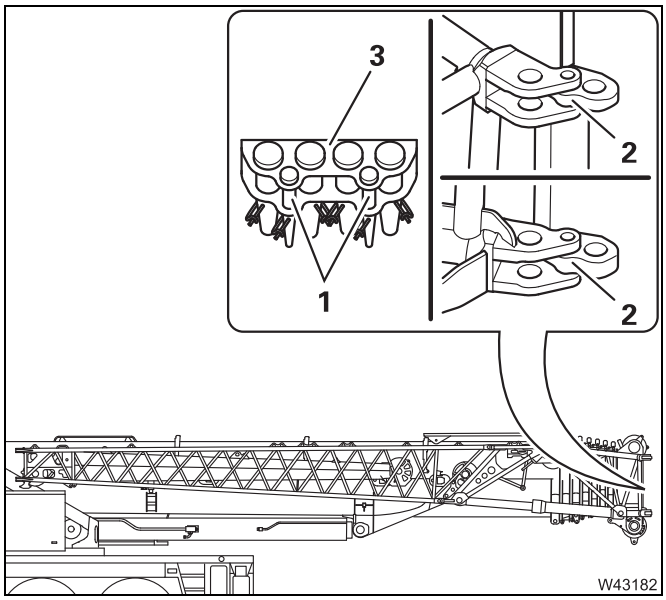
Risk of damage due to requirements not being met!
This section only describes one part of the rigging process. Only start this rigging work after all the required, previous rigging work has already been carried out according to the checklist used.

Risk of accidents due to swinging sections!
Always secure the sections with a guide rope from the ground before establishing or separating connections.
This prevents you from being caught or crushed by sections.



Establishing

- Remove the pins (**1**) from the clamp (**3**) and plug them into the connecting points (**2**).
- Secure the pins.



Separating

- Make sure that the connection is established in range 2; ➠ p. 5 - 85.
- Remove the pins (**1**) from the connecting points (**2**) and plug them into the holders (**3**).
- Secure the pins.

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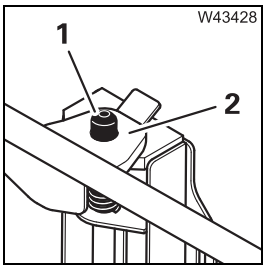
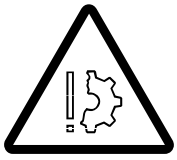
5.6.9 Range 2 – Folded down/removed – Engage position

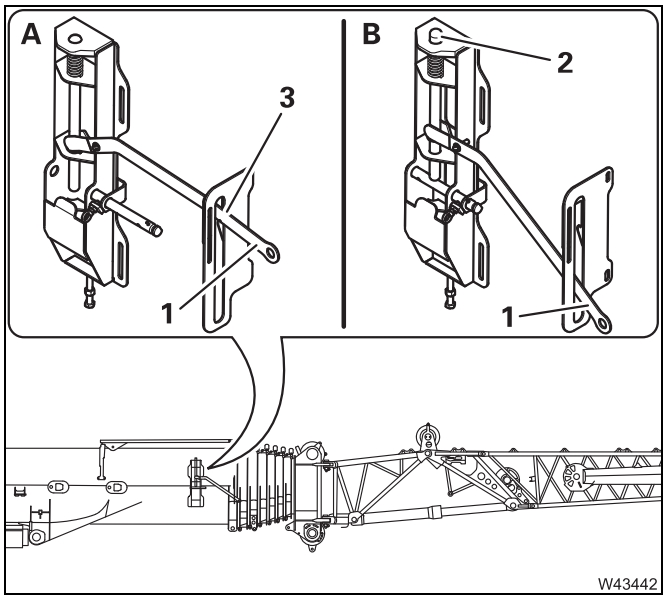


In the *engage* position, the *top* connection (**1**) is established between the main boom and the swing-away lattice (**2**) if you swing the swing-away lattice on to the main boom up to the stop.



Risk of damage due to requirements not being met!
This section only describes one part of the rigging process. Only start this rigging work after all the required, previous rigging work has already been carried out according to the checklist used.

Risk of injury due to unexpected lever movement!
The lever is pressed down by the spring force.
Hold the lever up firmly and slowly relieve the spring force. This prevents you from being injured by the sudden lever movement.



Establishing the *engage* position

- (**A**) – Lift the lever (**1**) out of the storage compartment (**3**).
- (**B**) – Release the spring force until the lever (**1**) reaches the bottom end stop – the pin (**2**) is pushed out.

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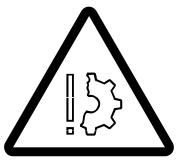
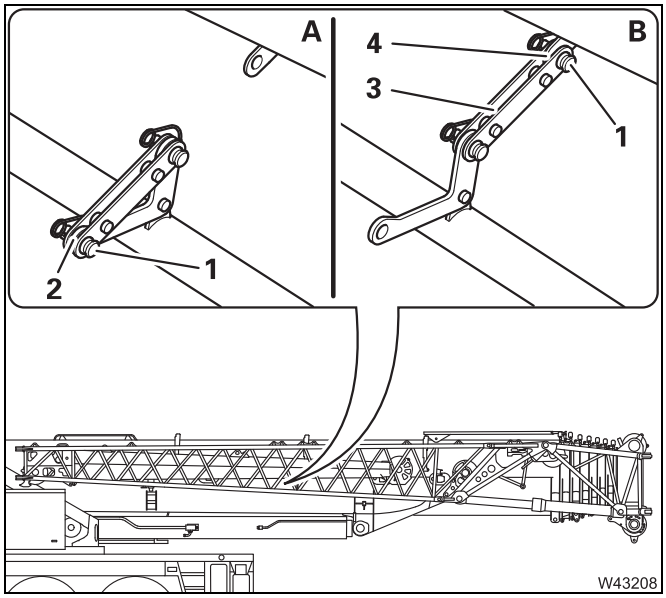
5.6.14 Range 5 – Folded – Section 1/Section 2



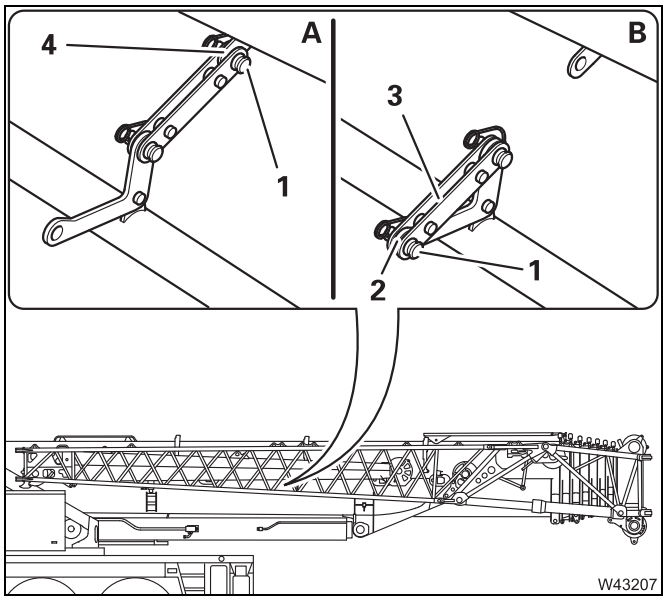
Risk of damage due to requirements not being met!
This section only describes one part of the rigging process. Only start this rigging work after all the required, previous rigging work has already been carried out according to the checklist used.

Risk of accidents due to swinging sections!
Always secure the sections with a guide rope from the ground before establishing or separating connections.
This prevents you from being caught or crushed by sections.



Establishing

- (**A**) – Remove the pin (**1**) from the connecting point (**2**).
- (**B**) – Fold the locking bar (**3**) upwards – The connecting point (**4**) must be aligned.
- Insert the pin (**1**) into the connecting point (**4**) and secure it.



Disconnecting

- (**A**) – Remove the pin (**1**) from the connecting point (**4**).
- (**B**) – Fold the locking bar (**3**) downwards – The connecting point (**2**) must be aligned.
- Insert the pin (**1**) into the connecting point (**2**) and secure it.

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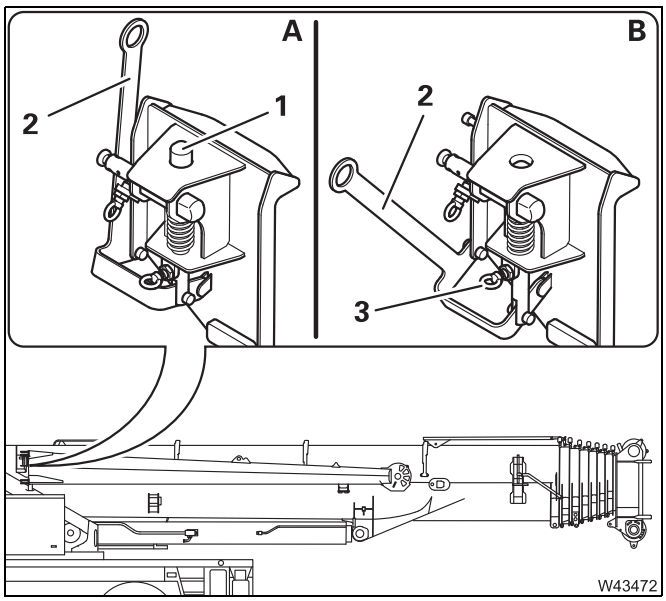


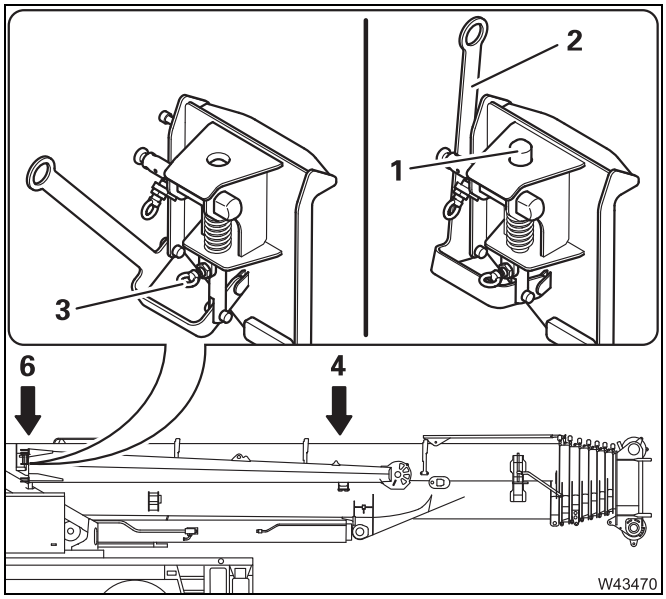
***Top* connection**

- (**A**) – Pull the lever (**2**) downwards, this pull the pin (**1**) in.
- (**B**) – Pull the lever (**2**) far enough so that the spring latch (**3**) engages.

Establishing

Risk of damage due to requirements not being met!
This section only describes one part of the rigging process. Only start this rigging work after all the required, previous rigging work has already been carried out according to the checklist used.

Risk of accidents due to swinging sections!
Always secure the section from the ground with a guide rope.
This prevents you from being caught or crushed by sections.



- Lift section 1 onto the main boom so that the connecting points on range 6 and range 4 are aligned.

***Top* connection**

- Unlock the spring latch (**3**) – Pull.
- The lever (**2**) spring upwards and the pin (**1**) is pushed out.

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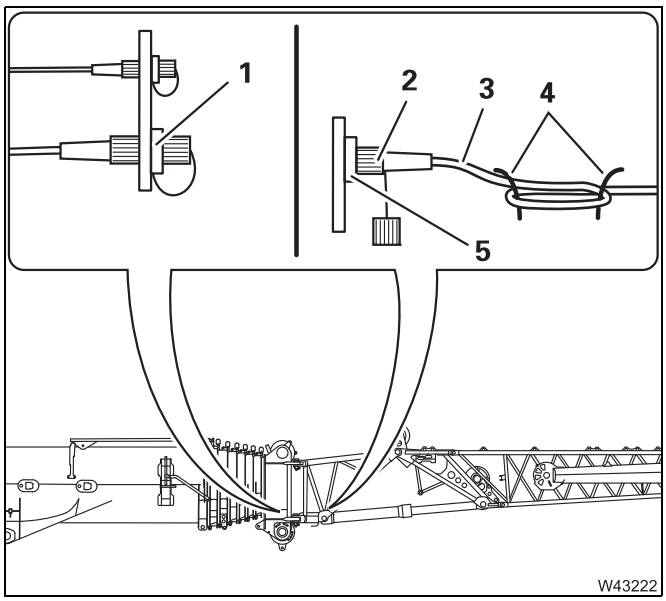
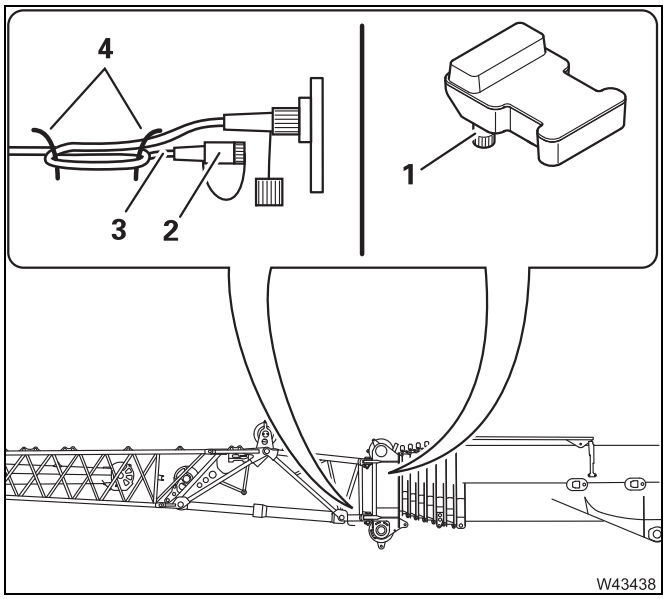


Disconnecting – For the electrical system

- Remove the plug (**2**) from the socket (**1**) and plug it into the dummy socket (**5**).
- Wind the cable (**3**) onto the holder (**4**).
- Seal the socket (**1**) with the cap.



Disconnecting – for the camera

- Remove the plug (**2**) from the socket (**1**).
- Wind the cable (**3**) onto the holder (**4**).
- Seal the plug and socket with the caps.

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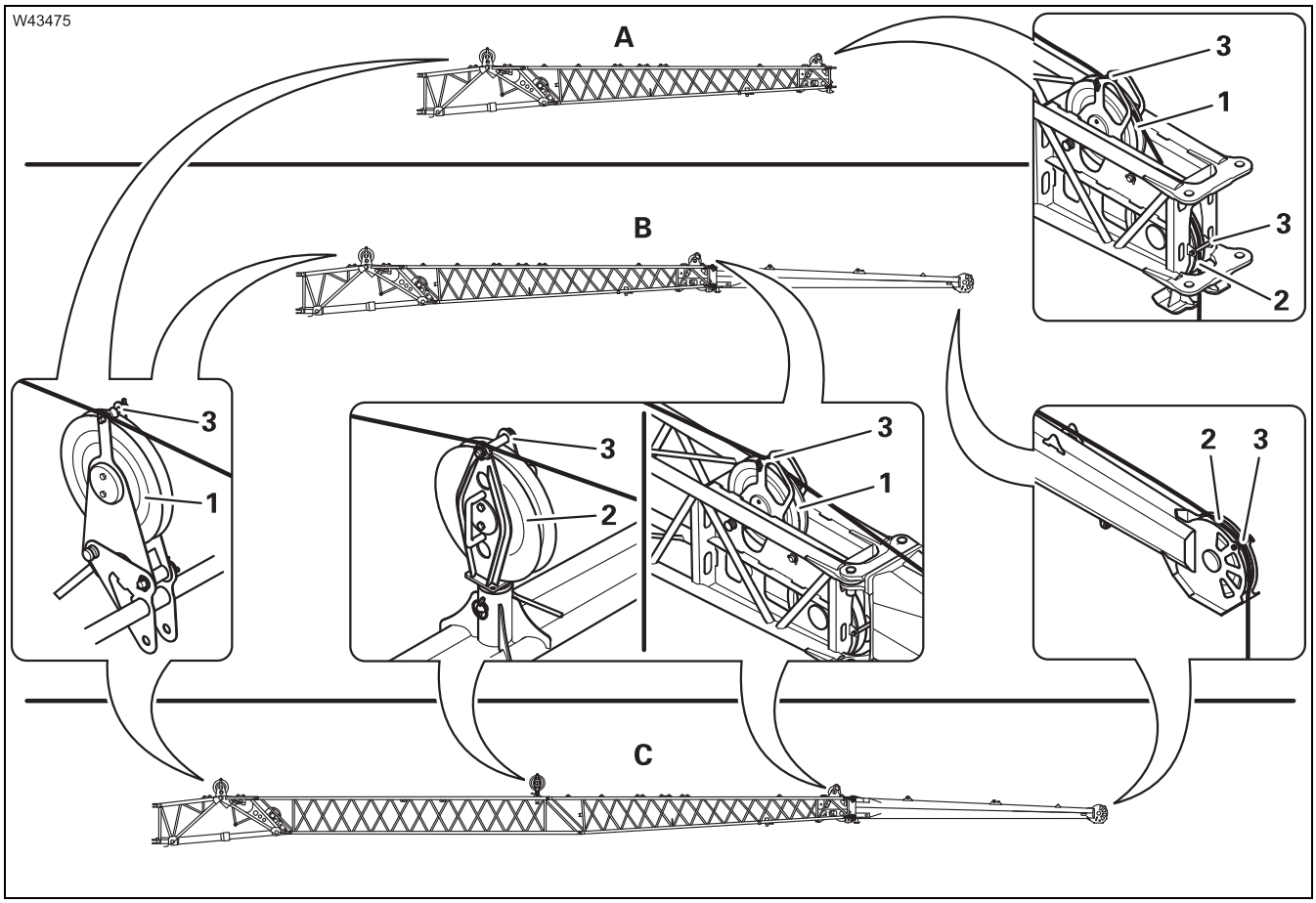
5.10 Further rigging work

5.10.1 Fitting/removing the hoist rope

Risk of accidents due to falling parts!
Secure the securing elements (rods/sheaves) of the hoist rope with retaining pins.
This prevents elements from coming loose or falling and causing injuries.



Fitting

(**A**) – Swing-away lattice 11.2 m/(**B**) – swing-away lattice 17.8 m
(**C**) – Swing-away lattice 25.8 m

- Remove the rods (**3**).
- Guide the hoist rope over the deflection sheaves (**1**) and over the head sheave (**2**).
- Insert all rods (**3**) and secure them.

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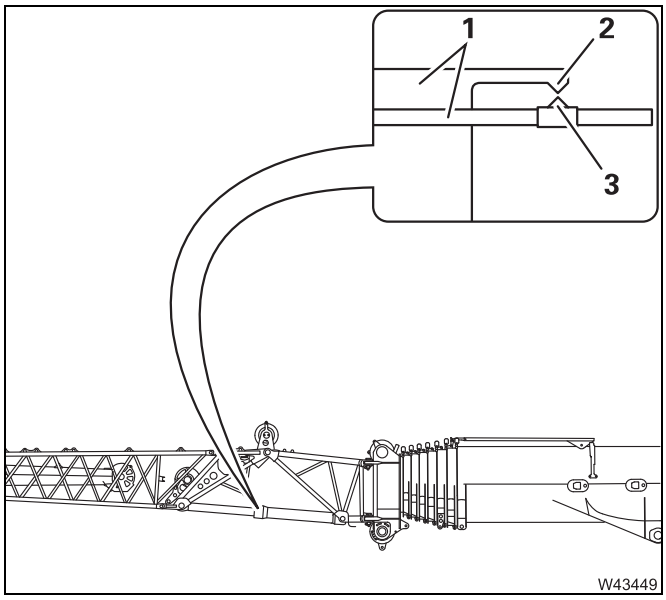
5.11 Rigging work – Derricking the swing-away lattice

5.11.1 Display on the derricking cylinder



The display (**1**) defines the position **A**.

Derricking the swing-away lattice into position A

- Derrick the swing-away lattice so that the pointer (**2**) lines up with the marking (**3**).

In position **A**, the slewing connection is unloaded or the connecting points for the slewing connection line up, depending on the rigging step.

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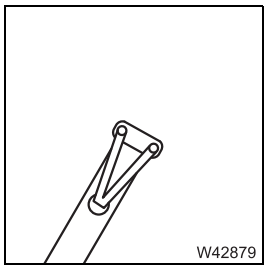
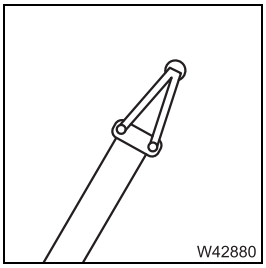
5.12.6 Information on main boom operation when the swing-away lattice is installed



In the transport position

During main boom operation with a folded swing-away lattice, the loads specified in the *lifting capacity table* are reduced and displayed on the *maximum load* RCL display.

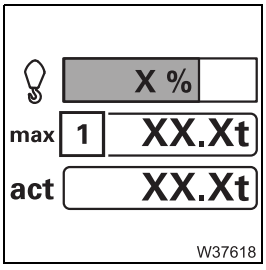
The *lifting capacity tables* contain operational planning information specifying the values that must be subtracted from the specified maximum load bearing capacities for certain rigging modes; ➠ *Remarks about working with the swing-away lattice*.



In working position

You must enter an RCL code for the main boom without a swing-away lattice in order to operate in this mode. This operating mode is only permissible under certain specific rigging modes.
More information on the permissible rigging modes and the swing-away lattice lengths is provided in the *lifting capacity tables*; ➠ *Remarks on working with the swing-away lattice*.

The lifting capacities specified in the *lifting capacity table* are reduced for main boom operation with rigged swing-away lattice. The *lifting capacity tables* contain operational planning information specifying the values that must be subtracted from the specified maximum load bearing capacities for certain rigging modes; ➠ *Remarks about working with the swing-away lattice*.



The RCL display does not display the reduced values correctly.
This means that the displayed value can deviate from the value that was previously calculated during operations planning.

If this is the case, the RCL is not faulty. Do not override the RCL. Even if the displayed value is higher than the calculated value.

Risk of accidents if the RCL is overridden!
Do not under any circumstances override the RCL.
If the RCL is overridden, crane operation is not monitored and the truck crane will overturn if it moves outside the permissible working range.

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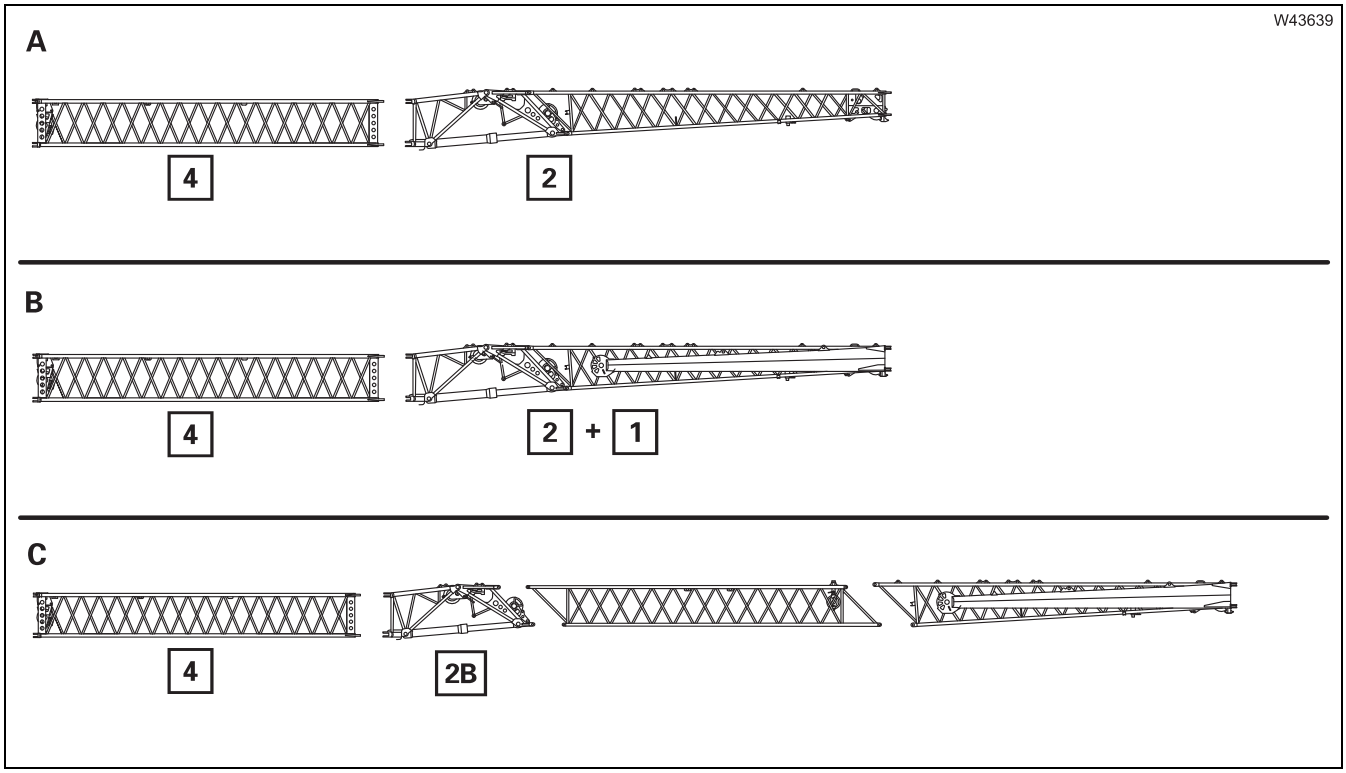
6 Boom extension

6.1 Notes



To assemble a boom extension, you require section 4 and different sections **A**, **B** or **C** of the swing-away lattice, depending on the boom extension.

This chapter only describes the installation and removal of section 4 and the sections directly mounted on section 4.

Further rigging is performed in the same manner as installation of the swing-away lattice. Reference is therefore made to the *Swing-away lattice* chapter where appropriate.

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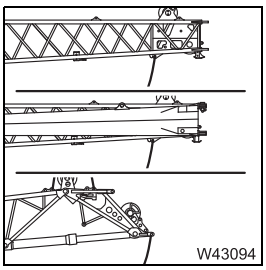
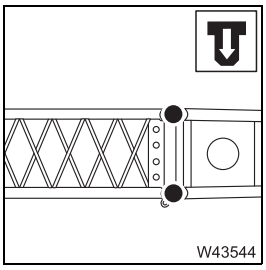
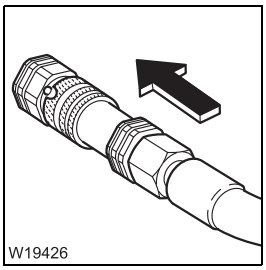


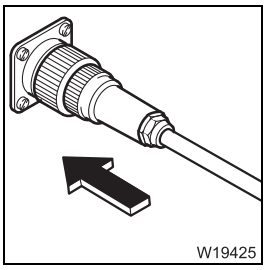
11. Fasten the guide rope; ➠ p. 6 - 18.



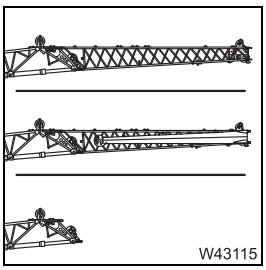
12. Section 4/Section 2 – Establishing the connections; ➠ p. 6 - 26.



13. Disconnect the hydraulic connection; ➠ p. 6 - 31.

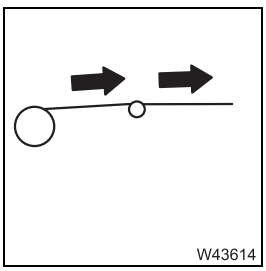


14. Establish the electrical connection.
➠ *Main boom/section 4*, p. 6 - 33
➠ *Section 4/section 2B*, p. 6 - 35



15. – Remove the sling gear.

– Remove the guide rope.



16. Fit the hoist rope; ➠ p. 6 - 39.

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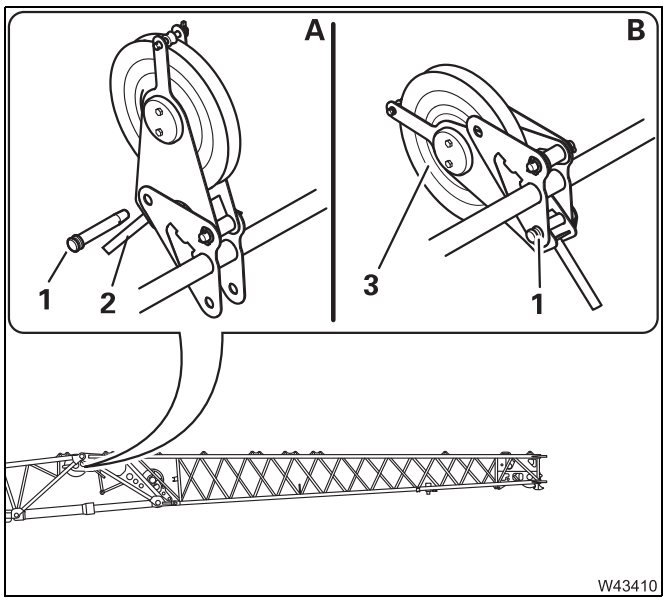
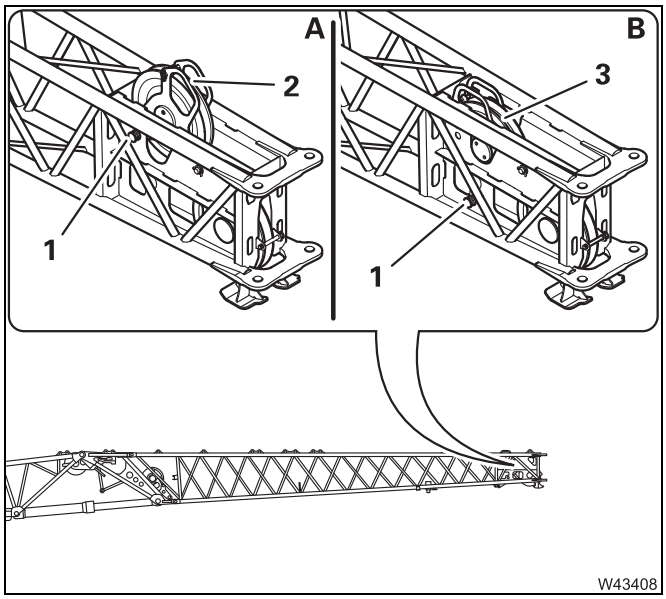


Folding in – Rear

- (**A**) – Hold the deflection sheave tightly by the handle (**2**) and pull out the pin (**1**).
- (**B**) – Fold the deflection sheave (**3**) down and fasten it in this position with the pin (**1**).
- Secure the pin (**1**).



Folding in – Front

- (**A**) – Hold the deflection sheave tightly by the handle (**2**) and pull out the pin (**1**).
- (**B**) – Fold the deflection sheave (**3**) down and fasten it in this position with the pin (**1**).
- Secure the pin (**1**).

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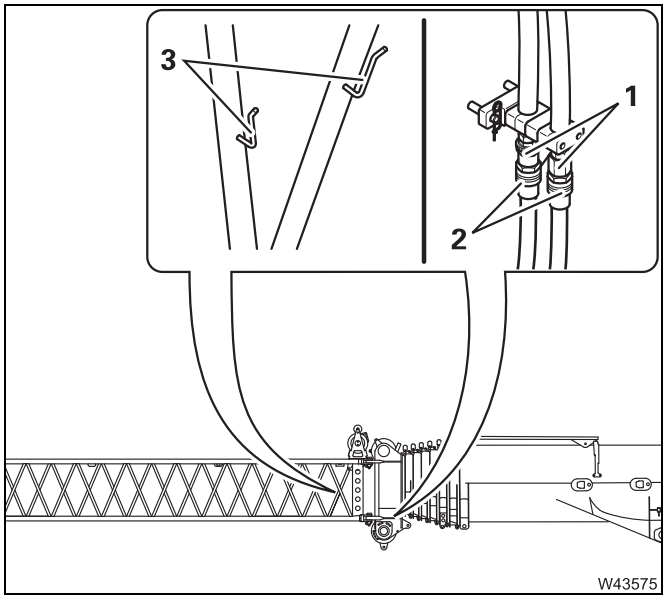
6.7 Rigging work – Hydraulic connection

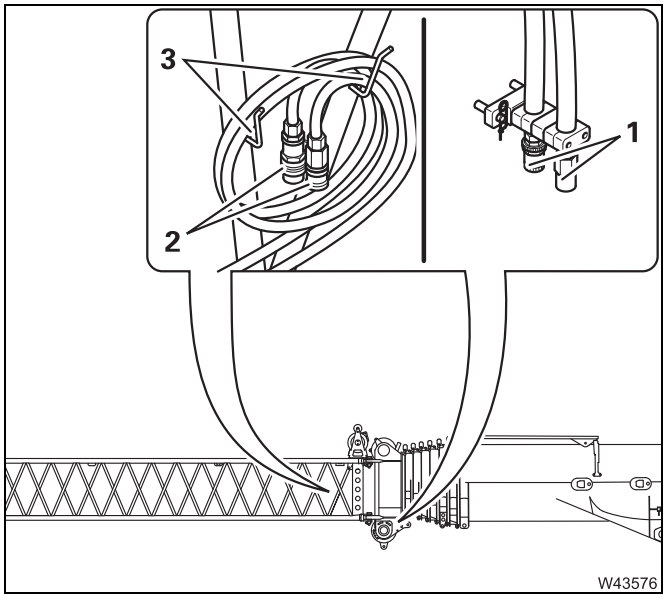
6.7.1 Main boom/section 4

Risk of crushing due to swinging sections!
Make sure that all joints have been carried out according to the corresponding checklist before starting this rigging work.
This prevents you from being caught or crushed by a swinging section.



Establishing

- Remove the hoses (**2**) from the holder (**3**) and guide them under the main boom.
- Connect the hoses to the connections (**1**) – the assignment is defined by the version of the connections.



Disconnecting

- Remove the hoses (**2**) from the ports (**1**).
- Wind the hoses on to the holder (**3**).
- Close off the hoses and connections with the caps.

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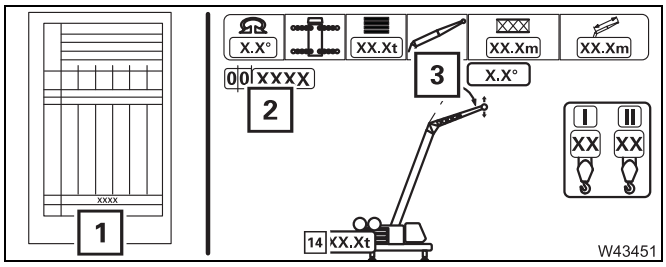
6.10 Operation with boom extension

The raising, lowering, slewing, derricking and telescoping movements of the main boom are carried out in the same way as when operating with the main boom. This section only contains information that you will need additionally for a rigged boom extension.

6.10.1 Setting the RCL

Input

- Enter the current rigging mode for operation with a rigged **boom extension**.



Use either the corresponding RCL code (**2**) in accordance with the *lifting capacity table* (**1**).

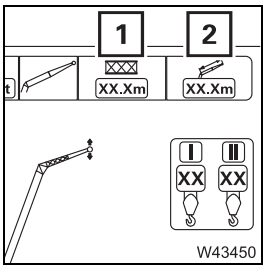
or via individual components (**3**) – Select and conform the *lattice extension* boom system.

If you enter the current rigging mode via the individual components then you must also additionally enter the designation of the length of the boom extension from the *lifting capacity table*. The length is entered there in this form.

Z + Y

Z = length before setting the angle/**Y** = length after setting the angle

Length of the boom extension	Z + Y
19.2 m	9.8 + 9.4 m
25.8 m	9.8 + 16 m
33.8 m	9.8 + 24 m



- Enter the values for the rigged boom extension.
  - **1** Length **Z** – e.g. 9.8 m
  - **2** Length **Y** – e.g. 9.4 m

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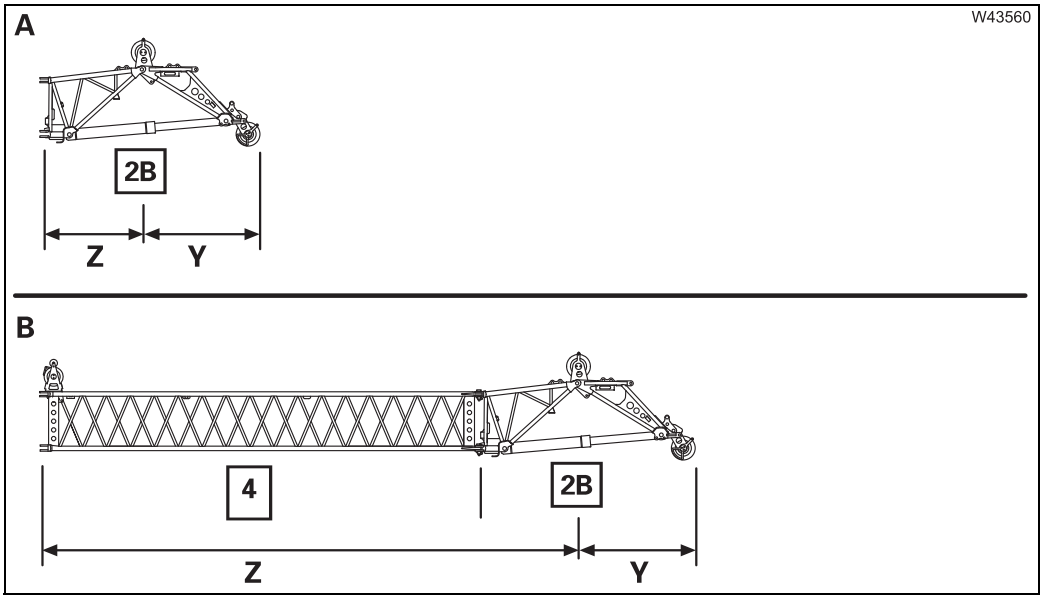
7.2 Operations planning

7.2.1 Permissible combination



Designation		Z + Y [1]	Sections used
A	Heavy load lattice extension 3.8 m	1.8 + 2.0 m	**2B**[2]
B	Heavy load lattice extension 11.8 m	9.8 + 2.0 m	**4 + 2B**[2]

[1] Designation in the *lifting capacity table*
Z = length before setting the angle
Y = length after setting the angle

[2] Depending on the version, this is supplied as a separate part or as an integral part of the swing-away lattice version 3; ➠ *Swing-away lattice versions*, p. 5 - 1.

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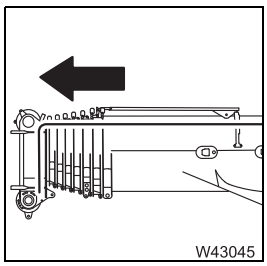
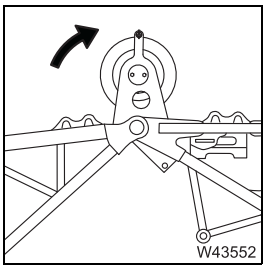
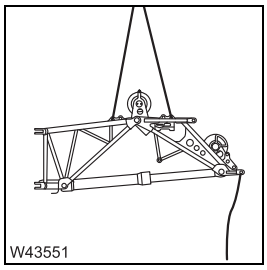


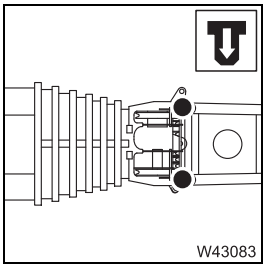
– Move the hoses into the position for working with the lattice extension; ➠ p. 4 - 8.



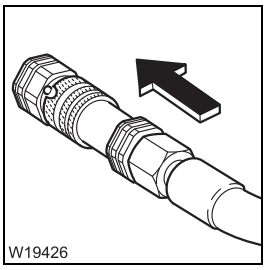
4. Fold out the deflection sheave; ➠ p. 7 - 29.



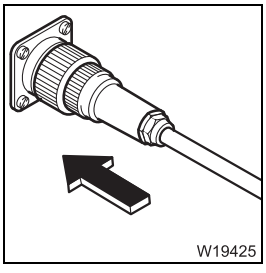
5. Fasten slings to section 2B and attach a guide rope.
➠ *Identification*, p. 7 - 5
➠ *Dimensions and weights*, p. 7 - 4
➠ *Slinging points*, p. 7 - 27
➠ *Securing the heavy load lattice extension with a guide rope*, p. 7 - 28



6. Main boom / Section 2B – Establish the connections; ➠ p. 7 - 34.



7. Establish the hydraulic connection; ➠ p. 7 - 41.



8. Establish the electrical connection; ➠ p. 7 - 46.

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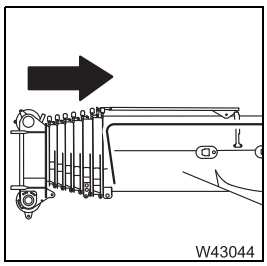
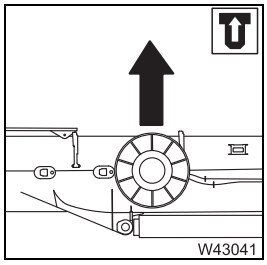
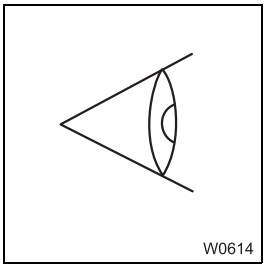


11. If the next operation is planned without a heavy load lattice extension or If the hose drum is to be removed

Move the hoses into the position for main boom operation; ➠ p. 4 - 9.



12. If the hose drum is to be removed; ➠ p. 4 - 3.



13. Check the transport condition; ➠ p. 7 - 9.

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7.6 Rigging work – Establishing / separating connections

7.6.1 Preparing the truck crane

- Make sure that the following prerequisites listed here are met before starting rigging work.
  - The truck crane is on outriggers.
  - The appropriate counterweight for the crane operation must be rigged; ➠ *Operating manual GMK5250XL-1*.
  - The superstructure is turned to the side or to the rear.
  - The main boom must be fully retracted.
  - All telescopic sections have been set down and locked.
  - The main boom is lowered to the horizontal position; ➠ *Operating manual GMK5250XL-1*.
  - An auxiliary crane with sufficient load bearing capacity is provided for installation and removal.

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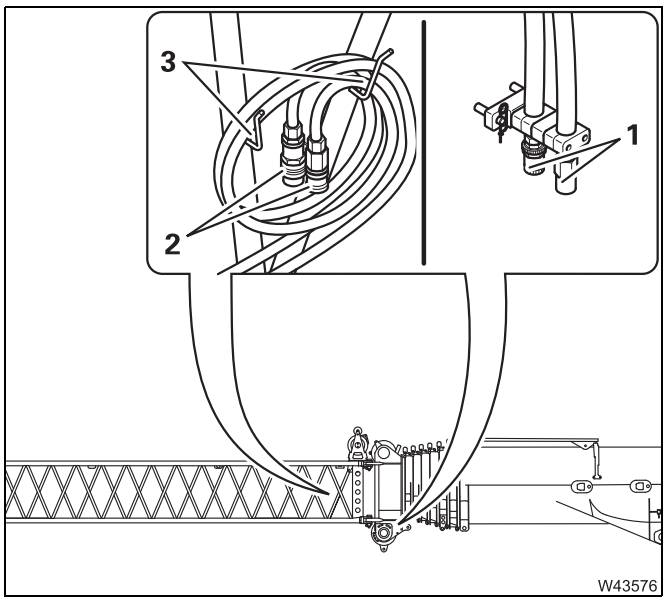
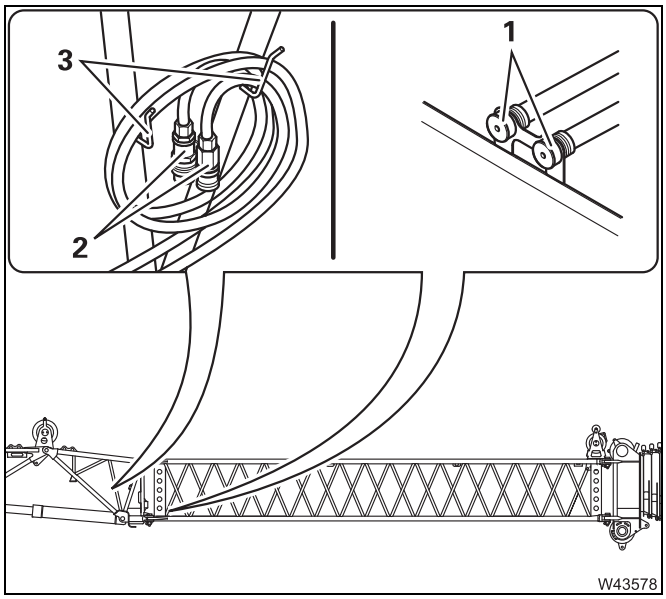


Disconnecting – Main boom / section 4

- Remove the hoses (**2**) from the ports (**1**).
- Wind the hoses on to the holder (**3**).
- Close off the hoses and connections with the caps.



Disconnecting – Section 4 / section 2B

- Remove the hoses (**2**) from the ports (**1**).
- Wind the hoses on to the holder (**3**).
- Close off the hoses and connections with the caps.

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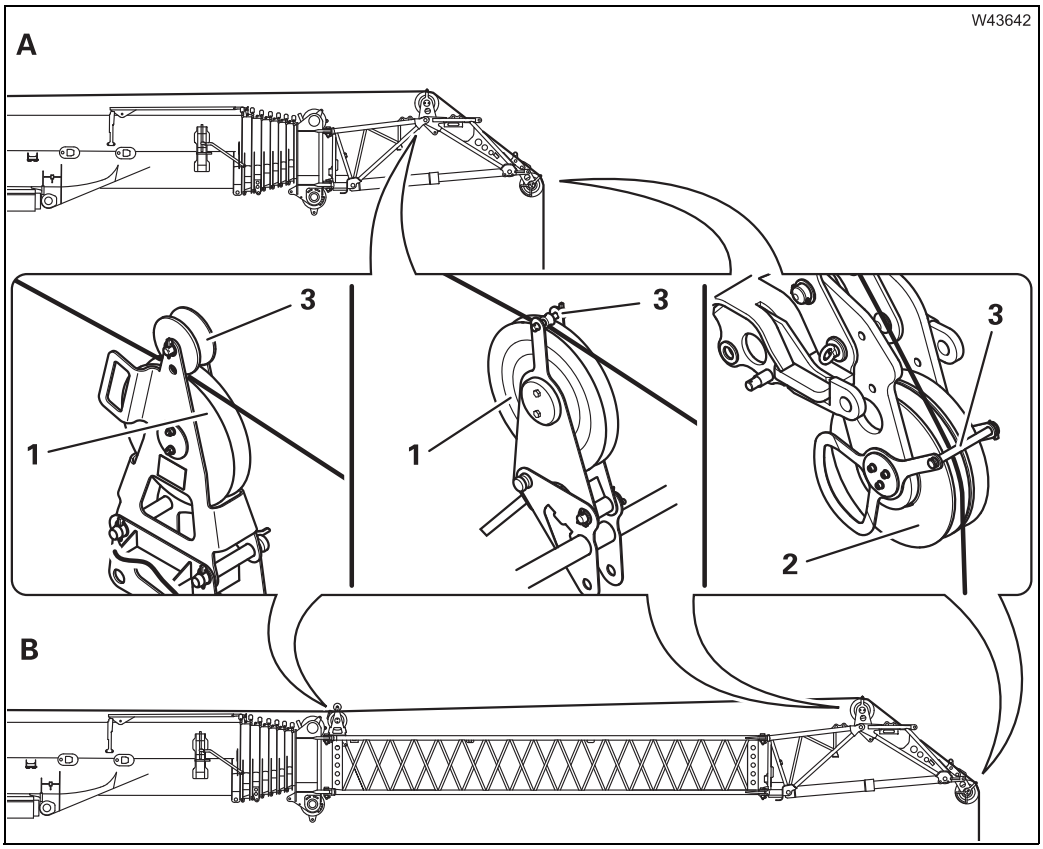
7.9 Further rigging work

7.9.1 Fitting / removing the hoist rope

Risk of accidents due to falling parts!
Secure the securing elements (rods/sheaves) of the hoist rope with retaining pins.
This prevents elements from coming loose or falling and causing injuries.

Fitting



(**A**) – Heavy load lattice extension 3.8 m / (**B**) – Heavy load lattice extension 11.8 m

- Remove the rods (**3**) and the sheave (**3**).
- Guide the hoist rope over the deflection sheaves (**1**) and over the head sheave (**2**).
- Reeve the hoist rope.
  ➠ *Notes for reeving and unreeving*, p. 7 - 55
  ➠ *Possible reeving methods*, p. 7 - 56
- Insert all rods (**3**) and the sheave (**3**) and secure them.

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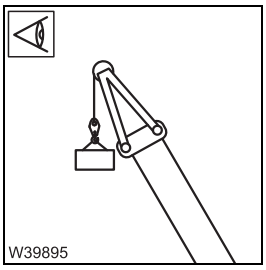
7.11.2 Derricking the main boom

Risk of accidents if the RCL is overridden!
Do not override the RCL when lowering the boom into the horizontal position. If the RCL is overridden, crane operation is not monitored and the truck crane will overturn if it moves outside the permissible working range.

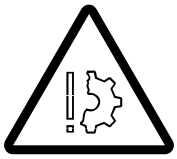
The prerequisites for permitting raising and lowering of the main boom with a rigged heavy load lattice extension over a slewing range of 360° are monitored by the RCL. Further information on the permissible angle ranges and lifting capacities is provided in the *lifting capacity table*; ➠ *Rigging tables – heavy load lattice extension*.



Note that the hook block or load can hit the heavy load lattice extension or the main boom when using large boom angles, 0° angle and short lifting gear.

The RCL switches off the raising of the boom when the minimum permissible working radius has been reached.

7.11.3 Telescoping with a rigged heavy load lattice extension



Risk of overloading the main boom!
If you are telescoping the main boom with the rigged heavy load lattice extension, you must not simultaneously slew the superstructure.
This prevents the main boom from being overloaded by additional lateral forces and increased vibration.

Telescoping of the main boom with a rigged heavy load lattice extension (in the operating position) is monitored by the RCL.

Telescoping is only enabled at specific main boom and lattice extension angles when a maximum permissible load is not exceeded. Further information on the permissible angles and the maximum permissible load is provided in the *lifting capacity tables*. This also provides information on the telescoping paths for rigging the heavy load lattice extension; ➠ *Rigging tables – heavy load lattice extension*.

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7.12.8 Lubricating joints M 12

Grease

Grease [1]	Designation as per DIN 51502	Specification Classification	GROVE part no.[1]
Grease	KP - 1K - 50	DIN 51825	03233369

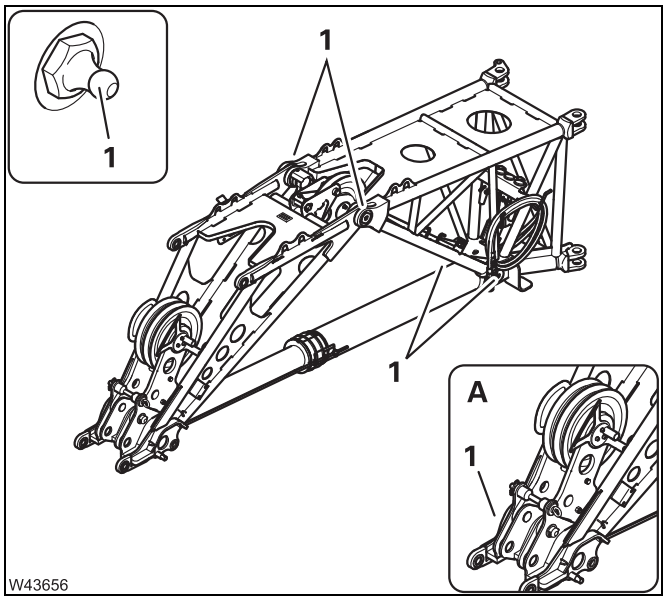
[1] ➠ *Maintenance manual*

Prerequisite

– The truck crane must be secured to prevent unauthorised use; ➠ *Maintenance manual*.

or

– The heavy load lattice extension is removed.



Lubricating joints

- Clean the grease nipples (**1**).
- Press grease into the grease nipples (**1**) until new grease comes out at the lubricating point.

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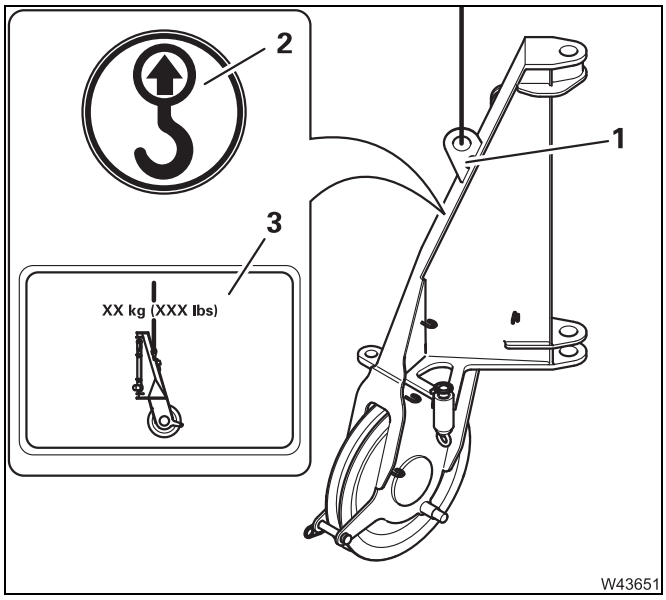
8.3 Rigging work – General information

8.3.1 Slinging points

Risk of accidents if used improperly!
Only fit slings to the auxiliary single-sheave boom top at the slinging points provided. Use only lifting gear and joining elements of sufficient load bearing capacity.



The slinging point (**1**) is marked with a sticker (**2**).

The sticker (**3**) gives data on the weight and on slinging.

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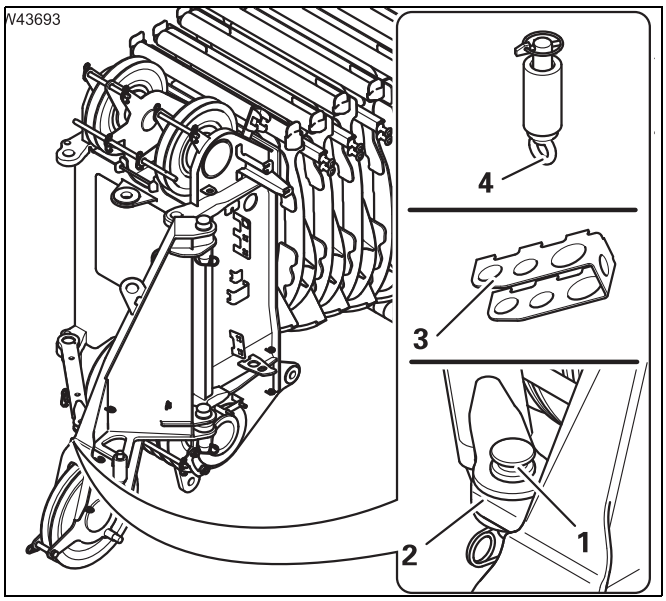

- Remove the pin (**1**) from the holder (**3**) and insert it into the connecting point (**2**).
- Secure the pin.
- Fasten the linchpin to the spring latch (**4**).
- Remove the guide rope.

For operation with an auxiliary single-sheave boom top

- Position the hoist rope; ➠ p. 8 - 19.
- Install the lifting limit switch and the lifting limit switch weight; ➠ p. 8 - 21.

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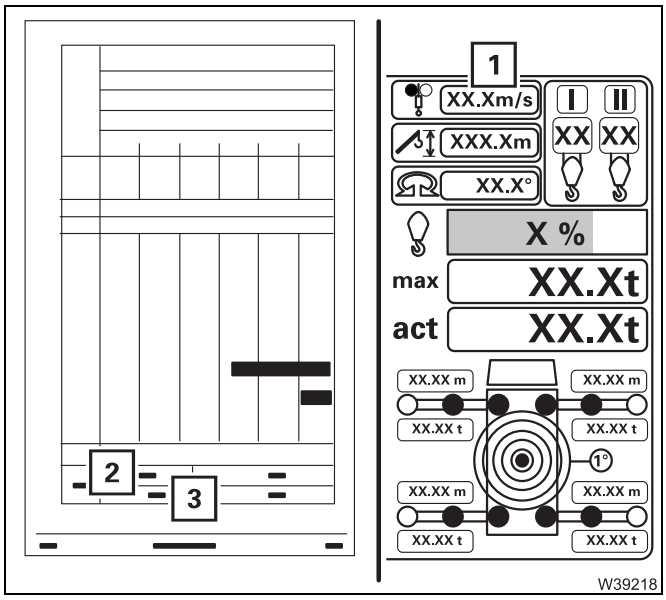
8.7.3 Checking the wind speed

Strong winds can result in the truck crane becoming overloaded.

- Make sure to follow the instructions for checking the wind speed; ➠ *Lifting capacity table*, ➠ *Operating manual GMK5250XL-1*.
- Prior to and during crane operation, check whether the current wind speed is lower than the maximum permissible wind speed.



The display (**1**) shows the current wind speed.

The maximum permissible wind speed (**2**) or the reduced wind speed (**3**) specified in the *lifting capacity table* applies to the confirmed rigging mode.

The display (**1**) flashes in colour in the vicinity of the maximum permissible value v_{max} (**2**) or (**3**).

– **Yellow:** about 90 - 100% of v_{max} reached

– **Red:** v_{max} exceeded

If the maximum permissible wind speed is exceeded

An automatic shutdown does not occur if the maximum permissible wind speed is exceeded.

- Immediately stop crane operation.
- Bring the truck crane into the rigging mode specified in the *lifting capacity table* for the current wind speed.

Risk of accidents due to excessively high wind speeds!
If the current wind speed is higher than the maximum permissible wind speed, cease crane operation immediately and set up the corresponding rigging mode. This will prevent the truck crane from overturning due to overload.

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9.2 Transport conditions

9.2.1 Transport conditions – Notes on checking

A correctly established transport condition is important for several operations.

- **For safe rigging**
- **For safe transport**
- **For safe main boom operation**

- Make sure that the corresponding transport condition is always established for the current operation.
- Always check the transport condition before driving the truck crane with a folded auxiliary single-sheave boom top.
- Always check the transport condition before using the main boom with a folded auxiliary single-sheave boom top.
- Always check the transport condition before transporting the removed auxiliary single-sheave boom top with a separate vehicle.
- Observe the safety instructions in this section.

Risk of accidents due to falling parts!
Always make sure that the corresponding transport condition has been established before driving the truck crane with a folded auxiliary single-sheave boom top or main boom operation.
This prevents the sections of the auxiliary single-sheave boom top from falling down and injuring or even killing persons.

Risk of injury if the pins are not secured!
Before transport, ensure that all pins are securely fastened in the holders and cannot come loose during driving.
This prevents the sections from falling down while driving and injuring or even killing persons.

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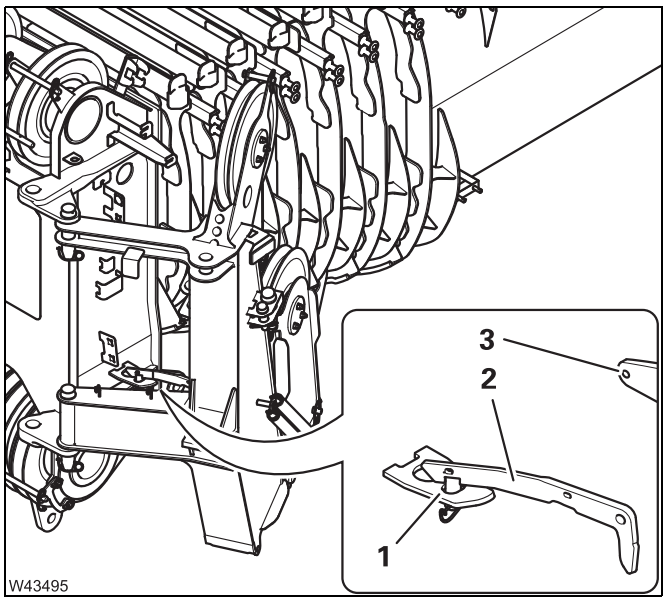
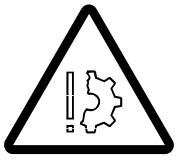


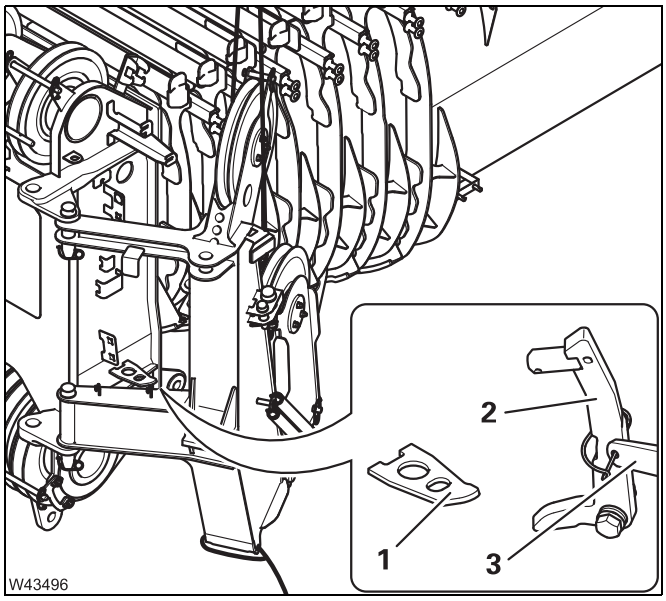
- Swing the auxiliary single-sheave boom top on to the main boom.
- Remove the locking bar (**2**) from the holder (**3**).
- Fold the locking bar (**2**) down so that it engages in the holder (**1**).
- Secure the locking bar.
- Remove the lifting gear.
- Remove the guide rope.
- Establish the electrical connection for the marker lights; ➠ p. 9 - 21.
- Check the transport condition; ➠ p. 9 - 7.

Removal

- Ensure that the transport condition is established; ➠ p. 9 - 7.



Risk of damage to the electrical connection!
Always disconnect the electrical connection.
This prevent the cable from being severed during removal.



- Disconnect the electrical connections; ➠ p. 9 - 21.
- Sling the auxiliary single-sheave boom top to an auxiliary crane; ➠ p. 9 - 9.
- Secure the auxiliary single-sheave boom top with a guide rope; ➠ p. 9 - 10.
- Remove the locking bar (**2**) from the holder (**1**).
- Fold the locking bar (**2**) upwards.
- Secure the retaining bar in the holder (**3**).

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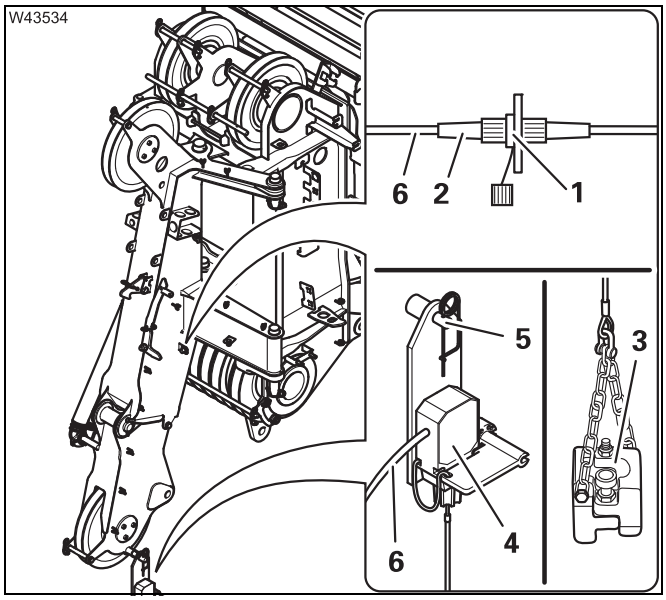
9.6.5 Installing/removing the lifting limit switch

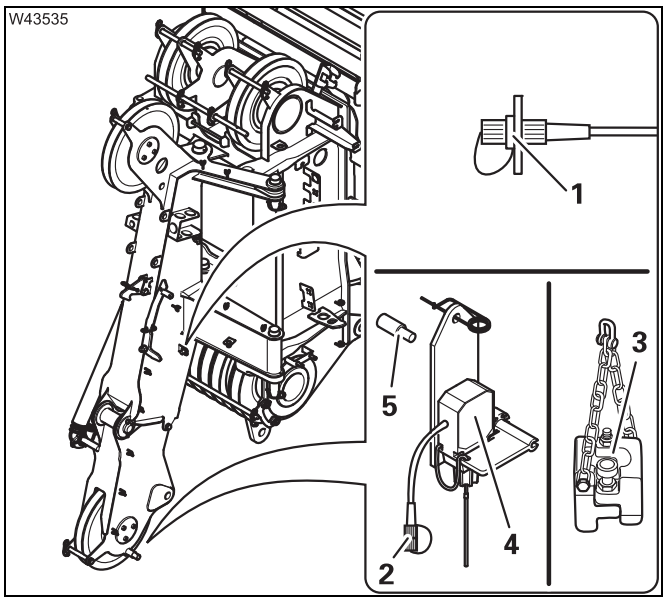
If only a single lifting limit switch is available you must use the lifting limit switch belonging to the main boom; ➠ *Operating manual GMK5250XL-1*.

If several lifting limit switches are available, all those lifting limit switches on the main boom from which no lifting limit switch weight is suspended must be overridden; ➠ *Operating manual GMK5250XL-1*.



Installing

- Fit the lifting limit switch (**4**) on the holder (**5**) and secure it.
- Insert the plug (**2**) into the socket (**1**).
- Lay the cable (**6**) so that it is not damaged during crane operation.
- Install the lifting limit switch weight (**3**) and lay it around the hoist rope; ➠ *Operating manual GMK5250XL-1.*



Removal

- Remove the lifting limit switch weight (**3**); ➠ *Operating manual GMK5250XL-1*.
- Remove the plug (**2**) from the socket (**1**).
- Seal the socket (**1**) and plug (**2**) with the caps.
- Remove the lifting limit switch (**4**) from the holder (**5**).

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10 Turning loads over

Turning loads over is permitted only using
– Auxiliary single-sheave boom top 1,
– Auxiliary single-sheave boom top 2,
– Derrickable heavy load lattice extension,
– Inclinable heavy load lattice extension,
– Swing-away lattice up to a maximum length of 17.8 m.

Risk of accidents due to incorrect procedure!
Before turning loads, observe all the prerequisites specified in this section and proceed exactly as described. This avoids accidents due to overloading.

Prerequisites

– The main hoist rope must be reeved on the main boom.
– The auxiliary hoist rope must be reeved on the lattice extension.
– The main hoist rope must be reeved with at least the same number of lines as the auxiliary hoist rope.

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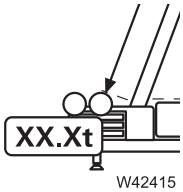
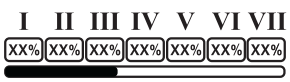
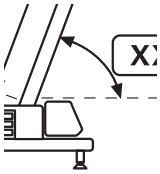
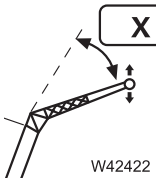
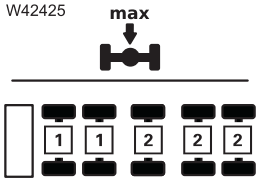
 W42415	 W42410	 W42416	 W42422	 W42414	 Max. in t
in t	**in %**	**in °**	**in °**	**in °**	1 | 2
65.5	not permitted				-- | --
	0-0-0-0-0-0-0	60 - 60	0 - 50	0°	25.5 | 26.5
70	not permitted				-- | --
	0-0-0-0-0-0-0	55 - 55	0 - 50	0°	25.5 | 28.0
80	not permitted				-- | --
	not permitted				-- | --

1), 2) ➠ *Notes on the tables*, p. 11 - 4

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11.3.4 Auxiliary single-sheave boom top 1 and auxiliary single-sheave boom top 2

- When driving with a rigged auxiliary single-sheave boom top, proceed in the same way as for driving with a rigged truck crane; ➠ *Operating manual GMK5250XL-1*.

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