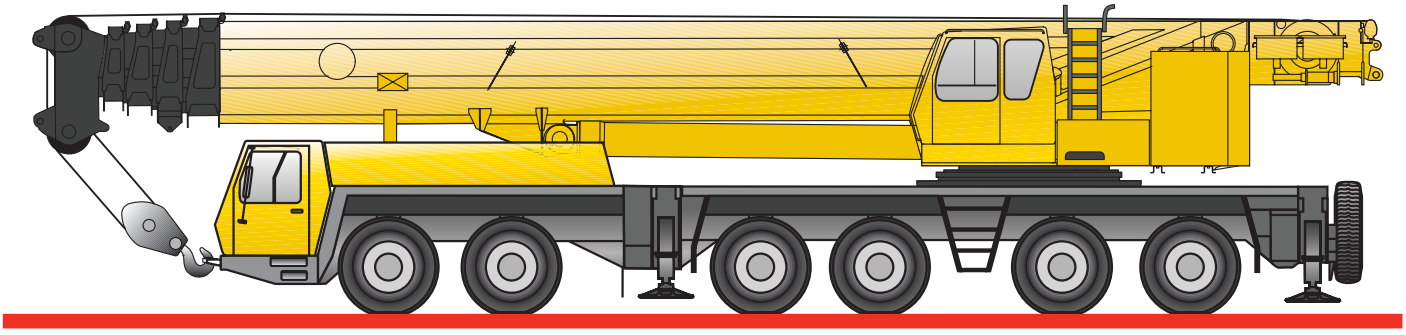
GROVE

GMK 6300

Lattice extension operating manual



Serial number

3 112 446 en
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Manitowoc Crane Group

A Manitowoc Company

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Improper use includes:

- Transporting loads on the carrier.
- Pushing, pulling or lifting loads with the level adjustment system, beams or outrigger cylinders.
- Pushing or pulling loads or lifting them off the ground using the slewing gear, derricking gear or telescoping mechanism.
- Pulling off fixed objects with the crane.
- Two-hook operation with the boom extension and two-hook operation on the main boom head without additional equipment.
- Setting RCL codes that do not correspond to the actual rigging mode.
- Working with an overridden RCL or overridden lifting limit switch.
- After RCL shutdown, increasing the working radius by pulling the raised load at an angle (e.g. with a chain hoist).
- Misuse of the outrigger pressure indicator as a safety function to prevent the crane from overturning after an RCL shutdown (outrigger pressure greater than 0 t).
- On-road driving in impermissible driving mode (axle load, dimension).
- Moving the rigged crane in an impermissible driving mode.
- Using equipment that is not permitted for the crane.
- Transporting people in any way with the lifting tackle, on the load, or in the crane cab while driving.
- Transporting passengers outside the driver's cab.
- Loading and unloading work, i.e. continuous operation without a sufficiently long break.
- Usage for any kind of sport or recreation event, especially for “Bungee” jumping.

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2.1.5 Heavy load lattice extension

Designation	Length x width x height in m	Weight in kg
Head	3.18 x 1.47 x 2.00	850
1 m section	2.30 x 1.50 x 1.20	350
Angle piece	3.62 x 1.47 x 2.18	950

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3.2.2 The functions of the additional operating and display elements

Warning lamp Danger of collision[1)]

Lights up, when the rigged telescopic swing-away lattice extension is not in the *Driving* position.
In this position the telescopic swing-away lattice extension juts out sideways from the width of the carrier and exceeds the vehicular width stated in the technical data for the truck crane.

Goes out, when the telescopic swing-away lattice extension is in the Driving position.

The telescopic swing-away lattice extension's position is electrically registered via a proximity switch.

1) With additional equipment with telescopic swing-away lattice extension and *Boom not set down* warning lamp, this warning lamp takes over both functions.

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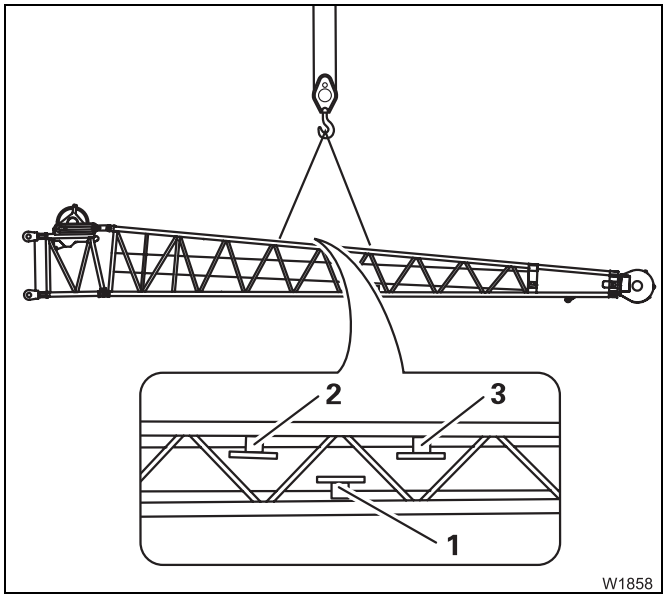
3.7 Slinging points

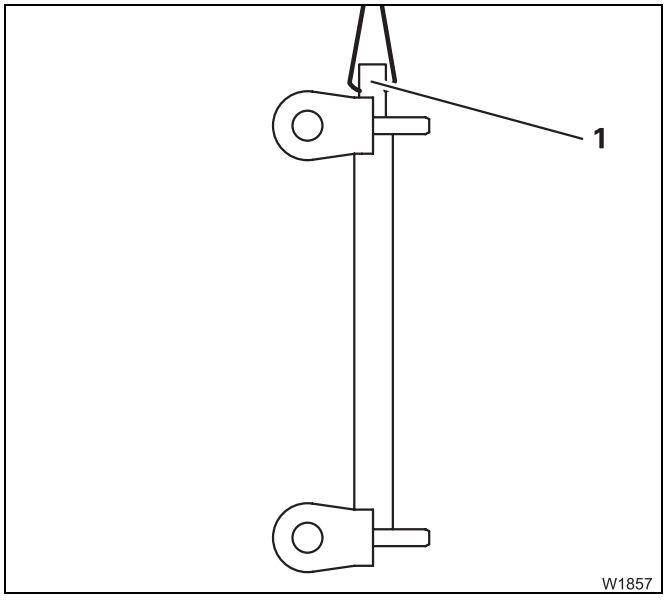
The following diagrams show the slinging points of the telescopic swing-away lattice extension and the adapter unit.
Sling the sections to these slinging points only, as they then automatically have the correct centre of gravity. Only use sling gear with sufficient load bearing capacity; ➠ *dimensions and weight* ➠ p. 2 - 1.



Slinging points for telescopic swing-away lattice extension

There are three slinging points on the telescopic swing-away lattice extension.

- Sling the retracted telescopic swing-away lattice extension **without the adapter unit** onto slinging points (**1**) and (**3**).
- Sling the retracted telescopic swing-away lattice extension **with** a locked **adapter unit** onto slinging points (**1**) and (**2**).



Slinging points for the adapter unit

There is a slinging eye (**1**) at the top of the adapter unit.

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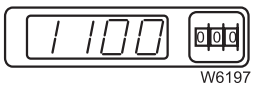
3.8.5 CHECKLIST: Unrigging the telescopic swing-away lattice extension

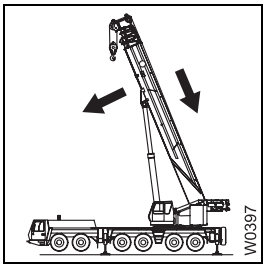
This checklist is not a complete operating manual. There are accompanying operating instructions which are indicated by cross-references. **Observe the warnings and safety instructions specified there.**

1. Prepare the truck crane for unrigging; ➠ *Preparing the truck crane for rigging*, p. 3 - 31.

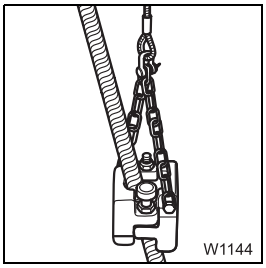


W6197

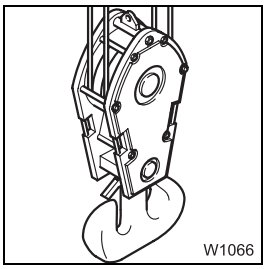
2. RCL code according to the *Lifting capacity table* for the actual rigging mode of the truck crane with the telescopic swing-away lattice extension.


W0397

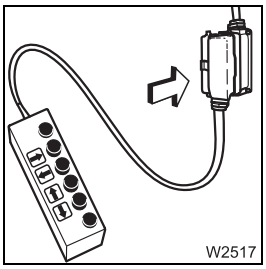
3. Retract the main boom completely and lower it only far enough so that the head sheave does not touch the ground.


W1144

4. Removing the lifting limit switch weight.


W1066

5. Reeve out hoist rope from the hook block; ➠ p. 3 - 54.


W2517

6. Connecting the mobile switch unit; ➠ p. 3 - 63.

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Rigging modes with lattice extension folded at the side

- Check if the following connections are made or disconnected.

– The connection between lattice extension and main boom in the front area is engaged and the locking pin is inserted (**1**); p. 3 - 40.

– The tilt cylinder is attached to the lattice extension (**2**); p. 3 - 38.

– The adapter unit is removed from the main boom head (**8**); p. 3 - 32.

– The lattice extension is secured with a retaining rope on the main boom **(5**); p. 3 - 59.

For the driving position

– The lattice extension is engaged on the run-up rail in the position for driving (**3**); p. 3 - 37.

– The warning lamp *Telescoping main boom blocked* lights up.

– The indicator lamp *Lattice extension in driving position* lights up.

– The *Danger of collision* warning lamp in the driver's cabin is not lit.

For working with the working with the main boom position

– The lattice extension is engaged on the run-up rail in the position for working with the main boom (**4**); p. 3 - 37.

– The warning lamp *Telescoping main boom blocked* has gone out.

– The indicator lamp *Lattice extension in driving position* has gone out.

– The plug for the lattice extension's electrical connection is in the dummy socket (**7**) on the right-hand side of the main boom; p. 3 - 47.

– The hydraulic connection between the lattice extension and the main boom is disconnected (**6**); p. 3 - 46.

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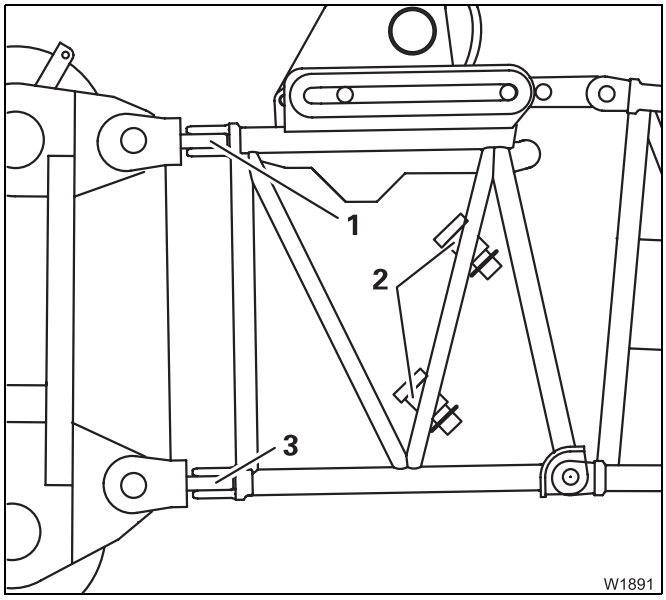


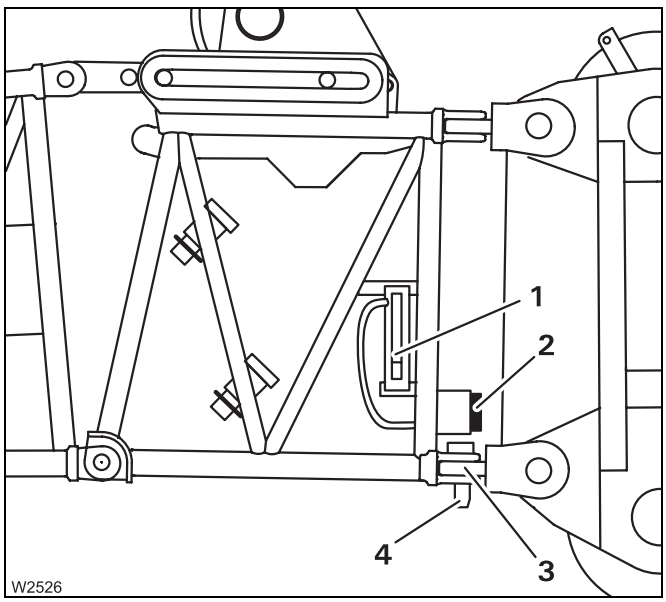
Disconnecting the lock between foot section and adapter

- If necessary, release the hoist rope from the lattice extension.
- First release the pins on the right side, knock them out of the bearing points (**1**) and (**3**) and insert them in the holders (**2**).
- Then release the pin on the upper left side, knock it out of the bearing point and insert it in the holders (**2**).
- Relieve pressure on the lower pins on the left side, if necessary; ➠ *Align the lower bearing points*, p. 3 - 45.
- Release the pin on the lower left side, knock it out of the bearing point and insert it in the holders (**2**).
- Secure all pins with retaining pins.

Leave the swivel pins inserted in the bearing points.

Align the lower bearing points

If the lower bearing points on the left side do not align or if the pins are under pressure, you can align them.



For that, there is a hand pump (**1**) on the foot section of the lattice extension, with which pins (**2**) can be extended.

- Extend the pins so far that, depending on the rigging, the bearing points (**3**) align, or until the pin (**4**) is relieved.

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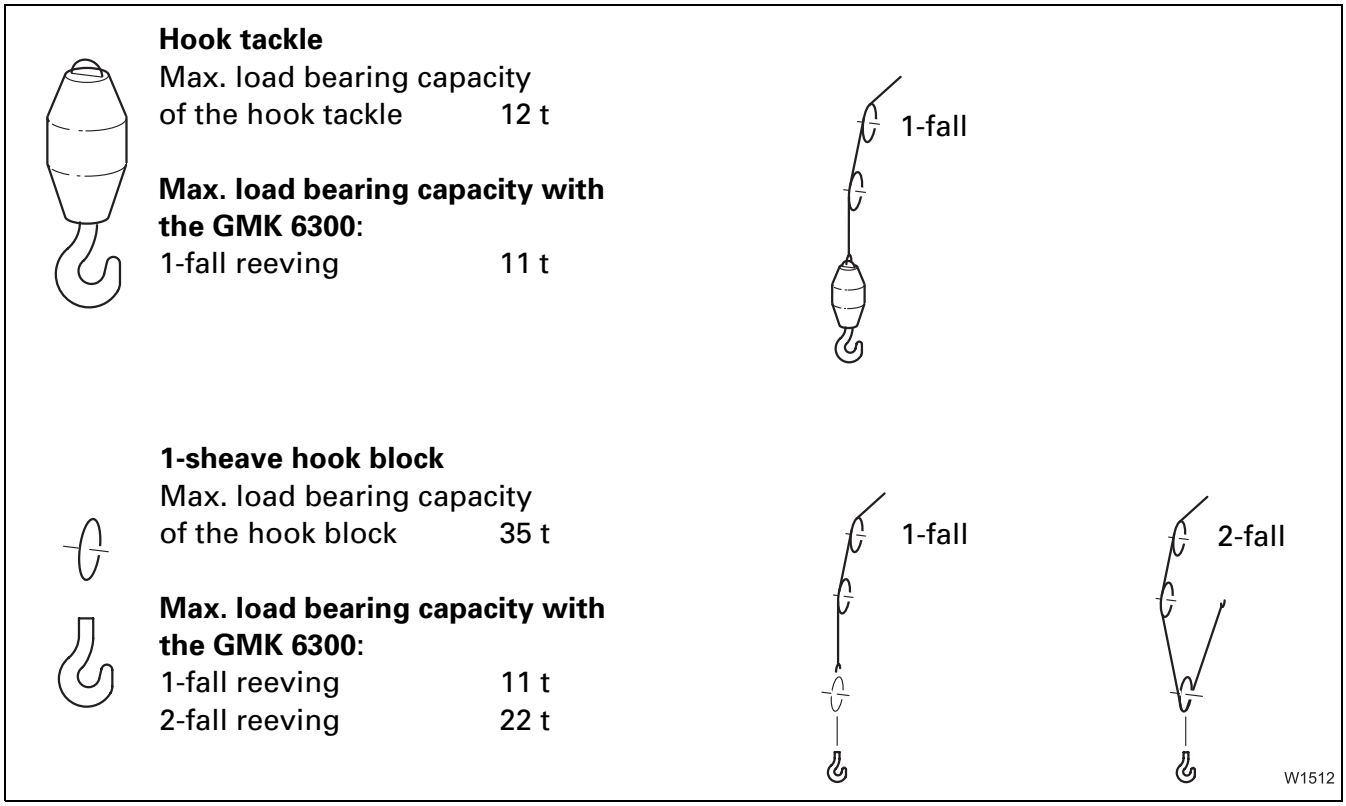
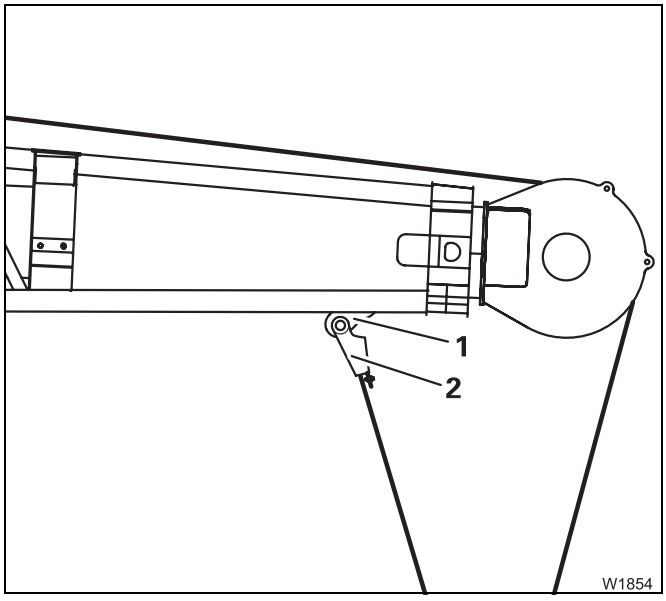
Reeving the hoist rope

The hoist rope may be reeved once or twice depending on the length of the lattice extension. The following diagram shows the possible reeving methods.





The reeving on the hook block and the hook tackle is done in the same way as for working with the main boom; ➠ *Operating manual* ➠ *Operating Instructions GMK 6300, Part 2 Superstructure- rigging work*.

- On the 11 m telescopic swing-away lattice extension **with a 2-fall reeving**, secure the rope end clamp **(2)** on the shackle (**1**) at the front on the head section.

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3.11 Turning loads with the lattice extension

Two-hook operation is required to turn loads.

The only type of two-hook operation technically possible and protected by the RCL is described in this chapter using the turning of loads as an example.

Risk of accidents due to overloading.
Lifting a load with two hooks is permitted only if the following instructions and illustrations are observed.
If these instructions are not observed, accidents can occur due to individual parts of the truck crane being overloaded. The RCL then no longer provides protection.
Two-hook operation with the boom extension is not permitted.

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

The position and function of the operating instruments required are given in the *Operating manual* for GMK 6300.

3.11.1 Preconditions

The following description requires that:

– The main hoist rope is reeved on the main boom.

– The auxiliary hoist rope is reeved on the lattice extension and

– The lifting limit switches for both hoists are connected.

Risk of accidents due to overloading.
The reeving on the main boom must be equal to or greater than that on the lattice extension.
The main hoist rope and the main hoist will become overloaded if this condition is not met.

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- Switch on transmission mode **1**; ➠ *Operating Instructions GMK 6300 – Operating the automatic transmission*.
- Drive as slowly as possible.
- 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.

When the surface is uneven, the truck crane must be raised with the outrigger cylinders, horizontally aligned and then re-lowered; ➠ *Operating Instructions GMK 6300 – Retracting the outriggers* and *switching over the suspension locking system*.

Extending the outriggers

The truck crane must be on outriggers before beginning work with the crane; ➠ *Operating Instructions GMK 6300 – Outrigger.*

Risk of overturning.
The truck crane must be raised until none of the wheels touch the ground.

After driving with heavy counterweights, the truck crane could be in a rigging mode in which the front outrigger cylinders cannot lift the truck crane.

Risk of damage due to axle loads being too high.
Do **not** lower the main boom as long as the truck crane is on wheels. If you lower the boom, the rear axle lines will be overloaded and damaged.

To put the truck crane on outriggers, proceed as follows:

- Move all outrigger beams to the span required for the crane operations.
- Extend the outrigger cylinders until the wheels of the rear axle lines no longer touch the ground.
- Extend the front outrigger cylinders out as far as the cylinder force allows.
- Set the RCL code for the crane job planned.

The load is now taken off the rear axle lines, and you can lower the main boom.

- If necessary, slew the superstructure to the rear and lower the completely retracted main boom to 30°.
- Extend the front outrigger cylinders until none of the wheels are touching the ground.
- Level the truck crane with the outriggers.

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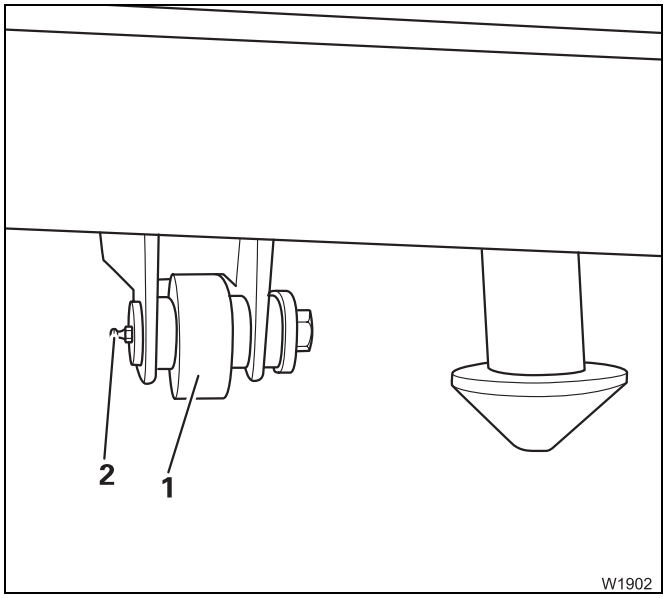
3.16.3 Lubricating support rollers M 1

When lubricating, use only grease specified in the *Maintenance plan*; ➠ p. 3 - 79.

Two support rollers must be lubricated on the telescopic swing-away lattice extension:

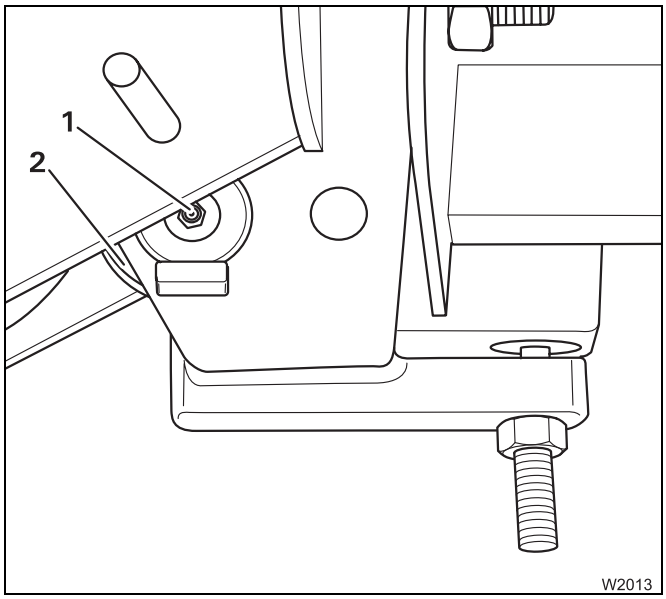
– The support roller for the lattice extension and

– The support roller for the telescopic section.



The **support roller (1) for the lattice extension** is on the underside of the telescopic swing-away lattice extension and is lubricated via a lubricating nipple (**2**).

- Clean the lubricating nipple and press grease into the lubricating nipple with a grease gun.



The **support roller (2) for the telescopic section** is at the front on the telescopic swing-away lattice extension and is lubricated via a lubricating nipple (**1**).

- Clean the lubricating nipple and press grease into the lubricating nipple with a grease gun.

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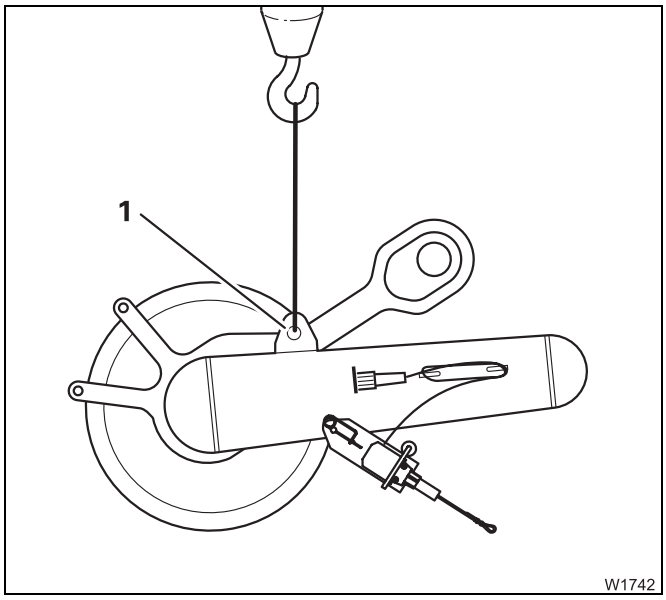
4 Auxiliary single-sheave boom top

4.1 Slinging point

The slinging point of the auxiliary single-sheave boom top is shown in the following drawing. Sling the auxiliary single-sheave boom top to this slinging point only, as it will then automatically have the correct centre of gravity.
Only use lifting gear of sufficient lifting capacity;
➠ *Auxiliary single-sheave boom top*, p. 2 - 1.



There is a connection eye (**1**) at the auxiliary single-sheave boom top.

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4.5 Turning loads with the auxiliary single-sheave boom top

Two-hook operation is required to turn loads. Two-hook operation is only permitted with an auxiliary single-sheave boom top or a heavy load lattice extension (additional equipment).
The only type of two-hook operation technically possible and protected by the RCL is described in this chapter using the turning of loads as an example.

Risk of accidents due to overloading.
Lifting a load with two hooks is permitted only if the following instructions and illustrations are observed.
If these instructions are not observed, accidents can occur due to individual parts of the truck crane being overloaded. The RCL then no longer provides protection.
Two-hook operation with the boom extension (additional equipment) is not permitted.

Risk of accidents due to overloading.
The load must always be lifted completely with the weakest part (auxiliary single-sheave boom top) first.

For information on the position and function of the operating elements required; ➠ *Operating instructions GMK 6300 – Functional description of the display and operating elements.*

Preconditions

The following description requires that:

- The main hoist rope is reeved on the main boom and
- The auxiliary hoist rope is reeved on the auxiliary single-sheave boom top.

Risk of accidents due to overloading.
The reeving on the main boom must be the equal to or greater than the reeving on the auxiliary single-sheave boom top.
The main hoist rope and the main hoist will become overloaded if this condition is not met.

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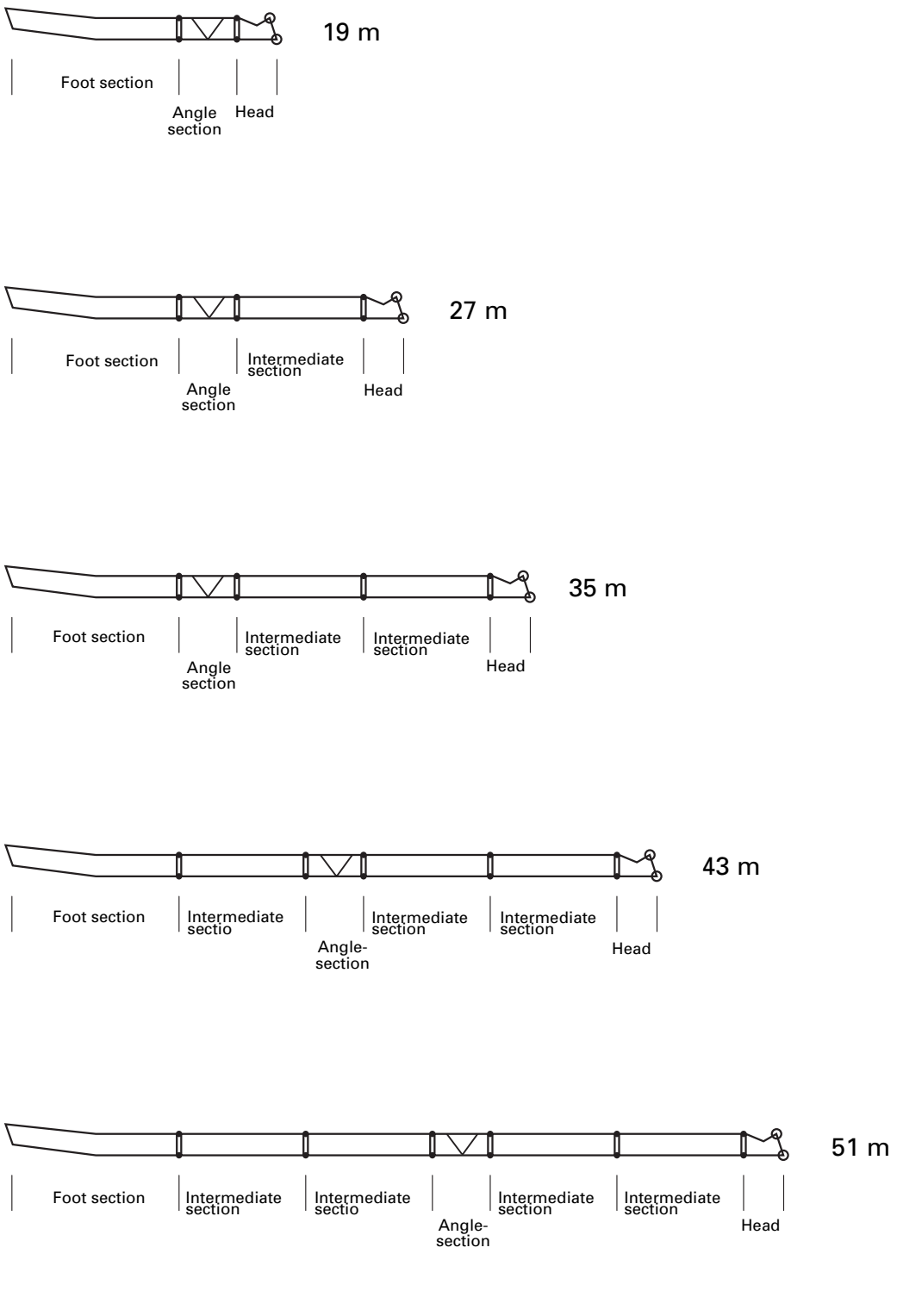
5.2 Possible combinations



The guy piece of the luffing jib is not to be used as an intermediate section.

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5.5 Description of the rigging work

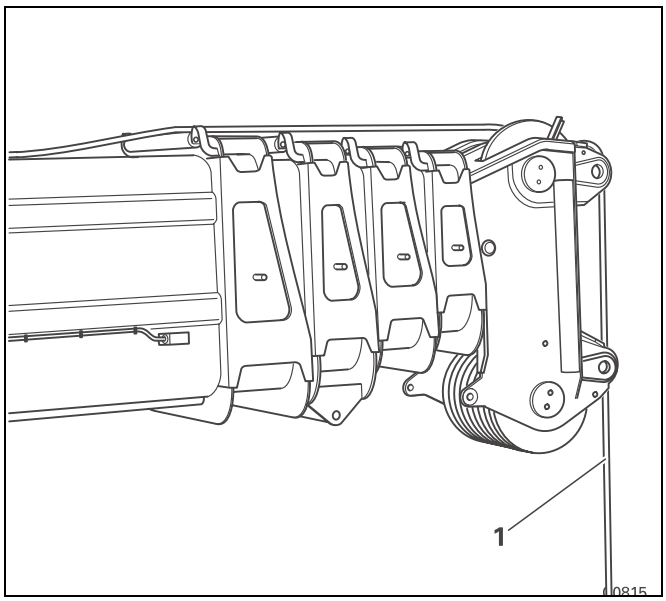
5.5.1 Truck crane rigging mode during installation of the boom extension

Risk of overturning.
The boom extension may only be mounted with the span and counterweight indicated in the *Lifting capacity table*.
These values apply both to rigging and operation of the boom extension.

Risk of accidents.
Use only authorized lifting gear with sufficient lifting capacity. Use the supplied two-piece extendable ladder when installing the boom extension.

The following preparatory work must be done when installing or removing the boom extension on the truck crane in order to bring the truck crane into the prescribed rigging mode.

- Support the truck crane; ➠ *Operating Instructions GMK 6300 – Outrigger.* The prescribed outrigger span can be found in the *Lifting capacity tables*.
- Install the counterweight necessary for operation with the boom extension to be rigged; ➠ *Operating Instructions GMK 6300 – Counterweight*. Information concerning the required counterweight can be found in the *Lifting capacity tables*.



- Fully retract all telescopic sections and lower the main boom until it is horizontal; ➠ *Operating Instructions GMK 6300 – Telescoping mechanism*.
- Unreeve the hook block; ➠ *Operating Instructions GMK 6300 – Reeving and unreeving the hoist rope*.
  Lay the main hoist rope (**1**) on the head sheave of the main boom.

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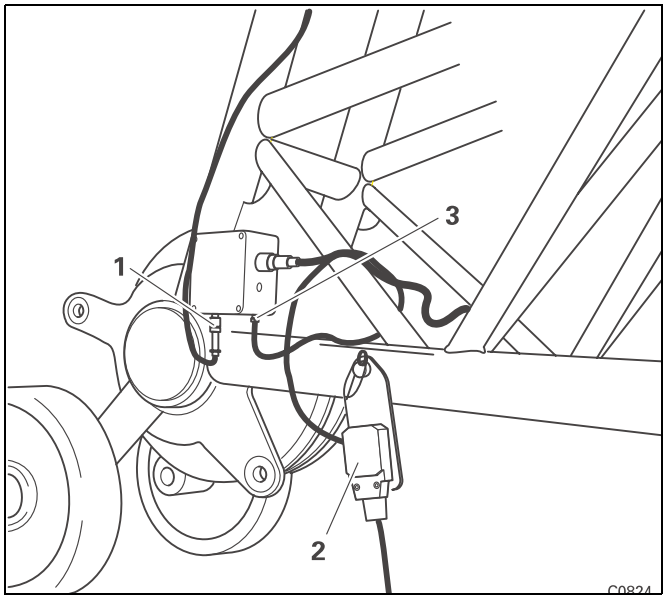
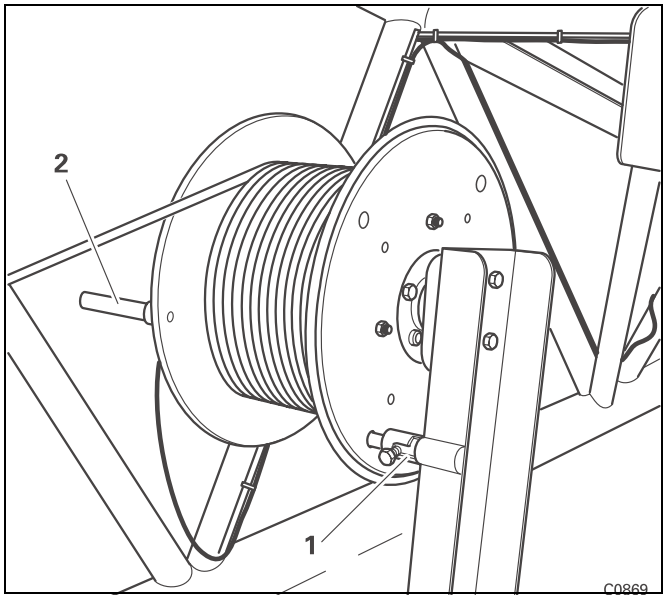


- Secure the lifting limit switch (**2**) on the head section of the boom extension.
- Screw the lifting limit switch connecting plug into the socket (**3**) of the distribution box.
- Screw the anemometer connecting plug into the socket (**1**) of the distribution box.

5.5.8 Establishing/disconnecting the electrical connection

Connecting cable The RCL connecting cable is wound onto a cable drum in the head.



- For transport, the cable drum is secured with the spring cotter (**1**).
- To reel and unreel the connecting cable you have to unlock the cable drum. To do this, pull out the spring cotter and tilt it into the lock.
- For operation and transport, secure the drum with the spring cotter.

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19 m boom extension

The following table is only valid for a 19 m boom extension. There are extra tables for other boom extensions in this section.

Counter-weight in t	Telescoping Tele. I/II/III/IV	Main boom angle in °	Angle of the boom extension in °	Main boom position[1]	Axle load[2] in t		Axle load[2] x 1000 lbs	
					front	rear	front	rear
22	0.5 / 0 / 0 / 0	25	3	front	20.0	15.5	44.1	34.2
	0 / 0 / 0 / 0	82		rear	11.0	20.0	24.2	44.1
	0 / 0 / 0 / 0	25	25	front	11.5	19.5	25.3	43.0
	0 / 0 / 0 / 0	82		rear	11.0	20.0	24.2	44.1
36	0.5 / 0 / 0 / 0	25	3	front	15.0	21.5	33.1	47.4
	0 / 0 / 0 / 0	82		rear	14.5	21.5	32.0	47.4
	0.5 / 0 / 0 / 0	25	25	front	15.0	21.5	33.1	47.4
	0 / 0 / 0 / 0	82		rear	14.5	22.0	32.0	48.5
50	1.0 / 0 / 0 / 0	25	3	front	19.0	23.0	41.9	50.7
	0 / 0 / 0 / 0	82		rear	18.0	23.5	39.7	51.8
	1.0 / 0 / 0 / 0	25	25	front	19.0	23.0	41.9	50.7
	0 / 0 / 0 / 0	82		rear	18.0	23.5	39.7	51.8
80	1.0 / 1.0 / 0.5 / 0	25	3	front	25.5	27.0	56.2	59.5
	0 / 0 / 0 / 0	82		rear	25.5	27.0	56.2	59.5
	1.0 / 1.0 / 0.5 / 0	25	25	front	26.0	27.0	57.3	
	0 / 0 / 0 / 0	82		rear	25.5	27.0	56.2	59.5
100	Not permissible							

[1] Boom position to the rear = 0° position, boom over rear edge of truck crane

Boom position to the front = 180° position, boom over driver's cab

[2] Axle load front: On the first and second axle line

Axle load rear: On the third, fourth, fifth and sixth axle lines

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Effect of wind when operating the boom extension

Strong winds can result in the truck crane becoming overloaded. You can find the maximum permissible wind speeds for the respective rigging modes in the *Lifting capacity tables*. Also note the information in the section *Effect of wind on crane operation* in the Operating manual of the GMK 6300.

Risk of accidents due to excessively high wind speeds.
If the wind speed exceeds the maximum permitted values according to the *Lifting capacity table*, crane operation and rigging work must be stopped and the truck crane must be placed in the rigging mode prescribed by the following table. This also applies if the wind surface of the load is smaller than the permissible specific wind surface A_{per};
➠ *Operating Instructions GMK 6300 – Effect of wind on crane operation – Permitted wind load*.

If the maximum permitted wind speed according to the lifting capacity table is exceeded during operation with the boom extension, proceed in the following manner:	
At a wind speed of up to 20 m/s	**At a wind speed of over 20 m/s**
• Set down the load. • Completely retract the main boom. • Slew the superstructure so that the main boom and the boom extension offer as little wind resistance as possible.	• Set down the load. • Completely retract the main boom. • Slew the superstructure to the rear (0° position) and lock the superstructure. • Enter the corresponding rigging code on the RCL. • Lower the main boom until the sheave on the boom extension's head section touches the ground.

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6 Luffing jib

6.1 Additional operating and display elements in the crane cab

If the GMK 6300 is equipped with the luffing jib, further operating and display elements are installed in the crane cab additionally to the ones described in the GMK 6300 operating manual.

All additional operating and display elements which are installed when a luffing jib is retrofitted are described in this chapter.

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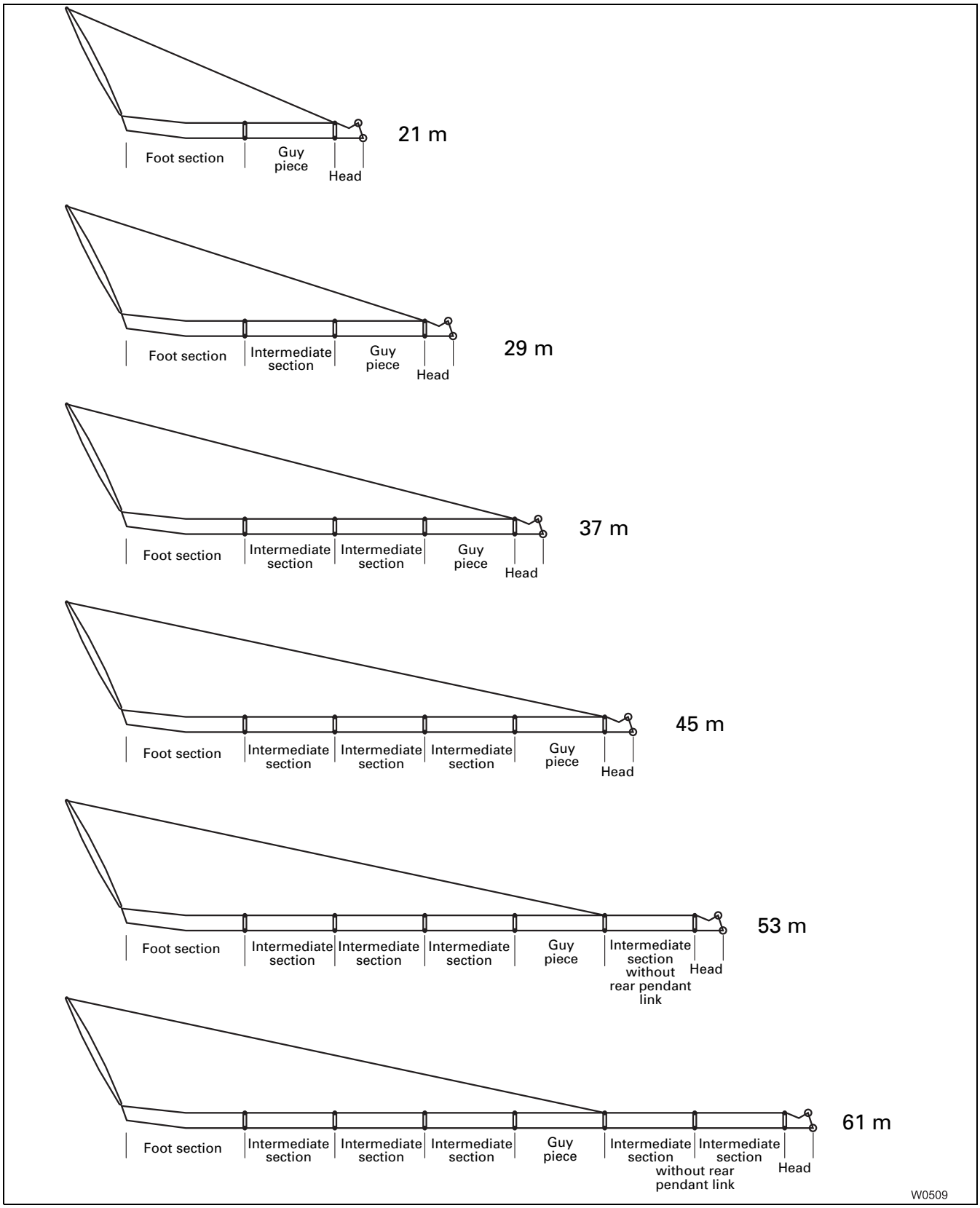
6.3 Possible combinations



When calculating the luffing jib length, the 2.5 m adapter piece of the foot section is not included.

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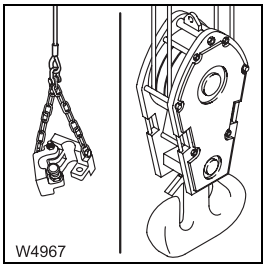
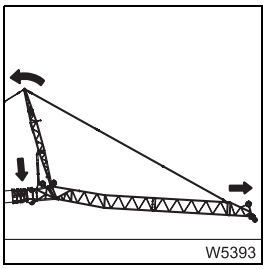
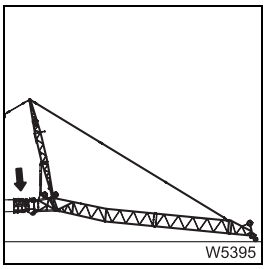


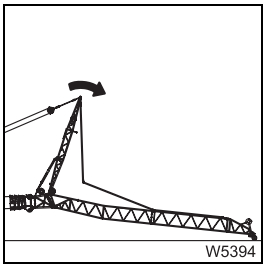
6. Set down the hook block, open the lifting limit switch weight and unreeve the hook block.



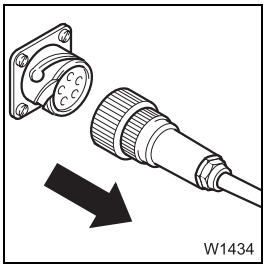
7. Move the head forwards without touching the ground (interplay between lowering the main boom and raising the luffing jib), until the RCL display *Lattice extension angle* shows approx. 7° (in this position, the luffing jib is almost at its *steepest position*); ➠ *Preparing the luffing jib for unrigging*, p. 6 - 68.



8. By lowering the main boom, set the luffing jib onto the ground using the rollers on its head. Then lower the main boom further until the *steepest position* warning lamp lights up (the lowering is switched off); ➠ *Preparing the luffing jib for unrigging*, p. 6 - 68.

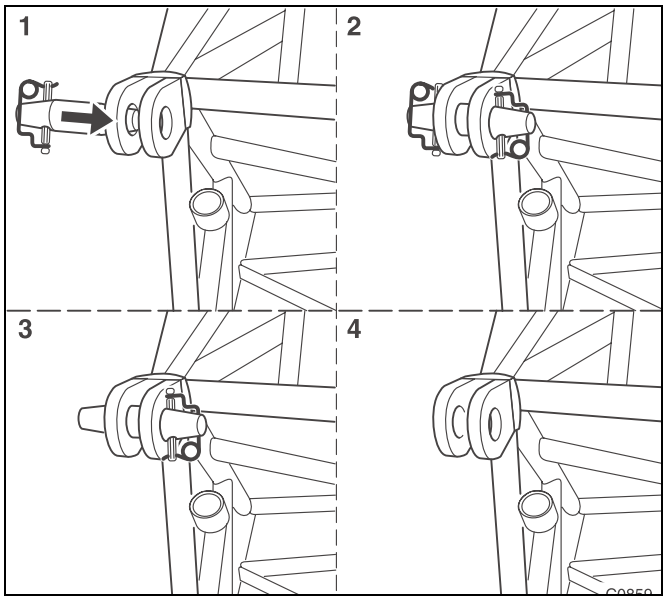


9. Lower the luffing control arm until the *Luffing control arm raised* indicator lamp goes out. Then lower the main boom further until the locking points for the transport pins align with one another; ➠ *Preparing the luffing jib for unrigging*, p. 6 - 68.



10. Disconnecting the electrical connection; ➠ p. 6 - 52.

6.6.4 Handling the pins



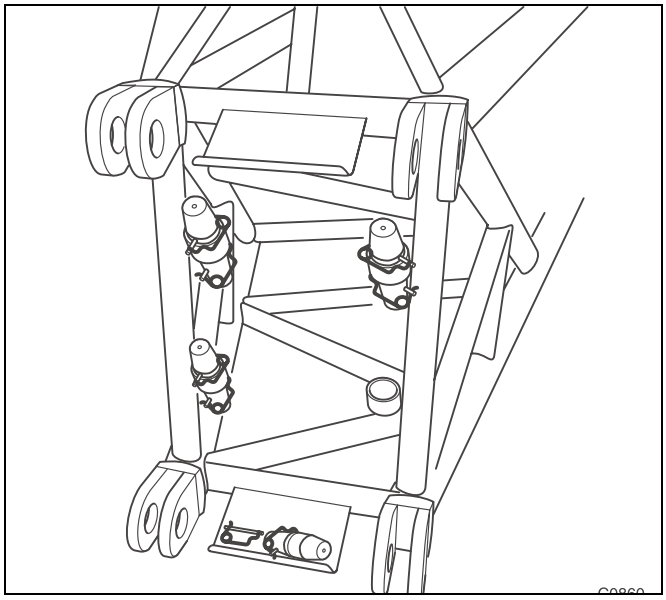
The connecting pins of the luffing jib are tapered on both sides and are each is secured with two retaining pins. Only one retaining pin must be removed when rigging.

When rigging (**1** and **2**), you must loosen the inner retaining pin and drive the pins as far as possible into the outer retaining pin. Then secure the inner retaining pin again.

When unrigging (**3** and **4**), you have to release the outer retaining pin and drive the pin inwards through the connecting point.

Unlike all other parts, there are two pin collecting pans attached to the foot section (see diagram below), into which the pins fall when they have been driven through the connecting points. While driving in the pins on the foot section, note that the retaining pins can be inserted to the front. If you insert the retaining pins from the top (as in Fig. 3 above), the pins collide with the pin collecting pan and damage it when they are being driven out.

For all other positions, a removable pin collecting pan is also delivered, which is attached at the corresponding position on the boom part.



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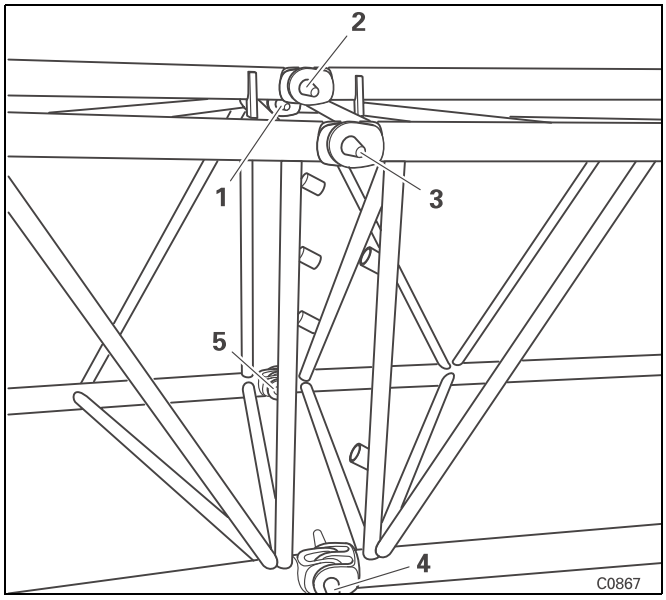
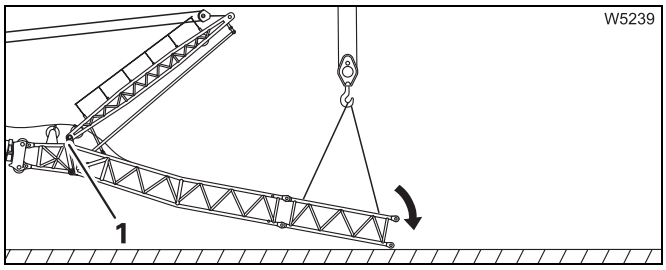
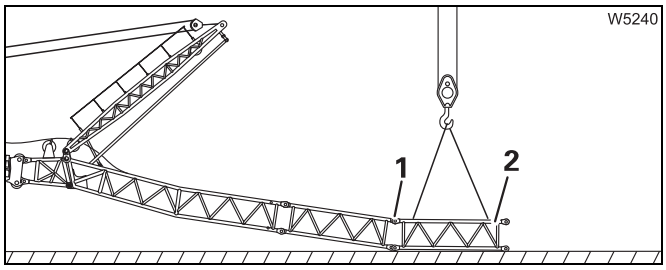


- Align the boom section in such a way that the upper connecting points (**1**), (**2**) and (**3**) line up first.
- Lock the upper connecting points and secure the pins with retaining pins.
- Align the bottom connecting points (**4**) and (**5**).
- Lock the lower connecting points and secure the pins with retaining pins.
- Remove the transport protection on the rear pendant links; ➠ *Rear pendant link transport protection*, p. 6 - 44.

Only the installation procedure is described for the following sections. The actual locking is carried out in the same way as for the first boom section.

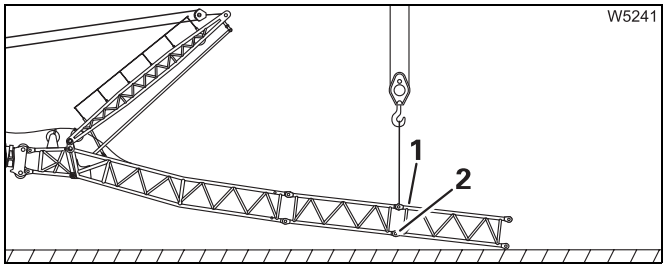


- Draw the lifting gear somewhat tight and remove the transport pins (**1**) in the foot section; ➠ p. 6 - 46.
- Lower the luffing jib using the auxiliary crane until it is on the ground in front.



Sling the next boom section (**2**) to the auxiliary crane and align the connecting points (**1**) in the top chord.

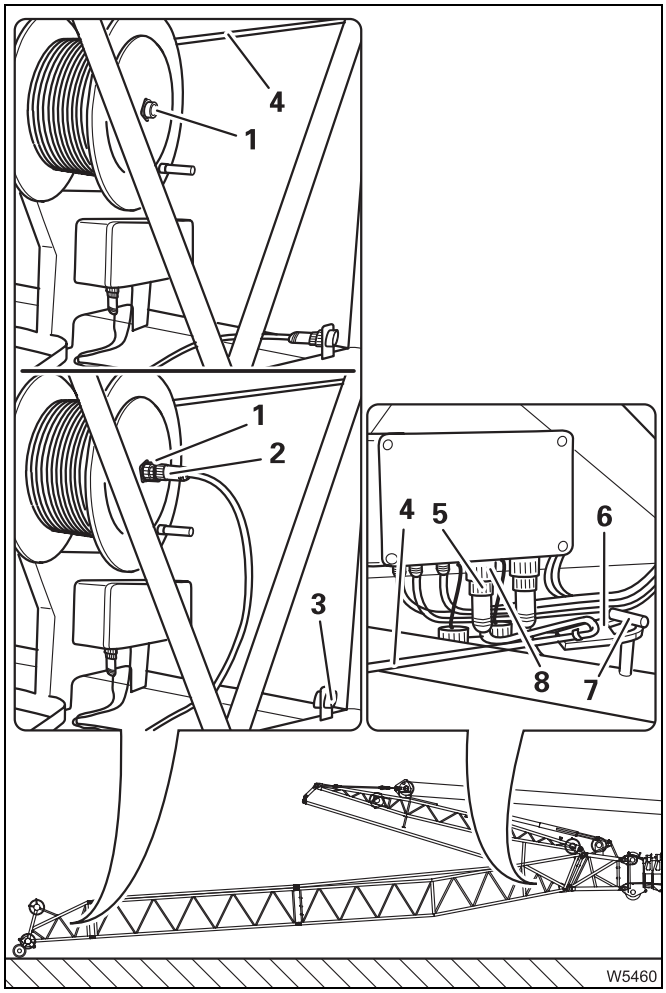
- Establish the connections in the top chord.



- Attach the lifting gear to the connecting pins (**1**) in the top chord.
- Raise the luffing jib until the connecting points (**2**) in the bottom chord align.
- Connect the points in the bottom chord.

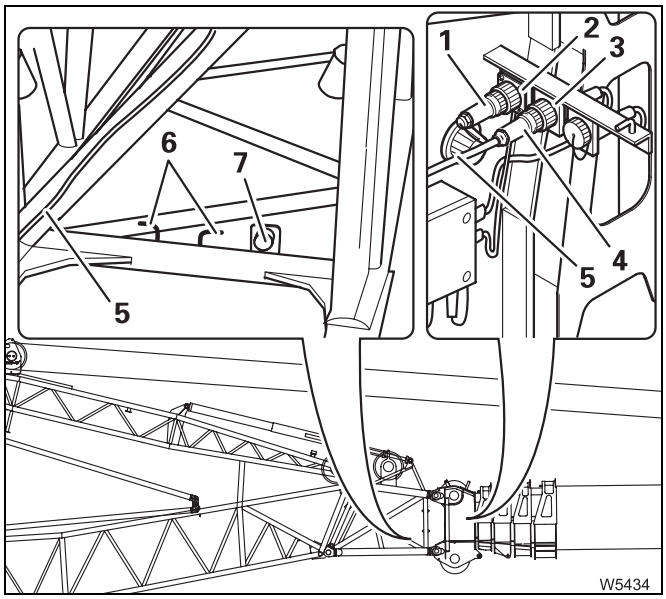
Install all further boom sections and the head section in the same way.

Establishing a connection



Connection to the head section/foot section

- Loosen the plug (**5**) of the connecting cable (**4**) from the socket (**1**).
- Unlock the cable drum.
- Pull the connecting cable (**4**) through the intermediate section to the foot section.
- Insert the strain relief (**6**) into the holder (**7**).
- Remove the protective cap from the socket (**8**).
- Connect the plug (**5**) to the socket (**8**).
- Lock the cable drum.
- Remove the plug (**2**) from the dummy socket (**3**).
- Insert the plug (**2**) into the socket (**1**).



Connection to the foot section/main boom

- Remove the bridging plug (**1**) from the sokket (**3**) and plug it into the dummy socket (**2**).
- Remove the plug (**4**) from the dummy socket (**7**).
- Unwind the connecting cable (**5**) from the holders (**6**).
- Guide the connecting cable (**5**) to the left side of the main boom.
- Connect the plug (**4**) to the socket (**3**).

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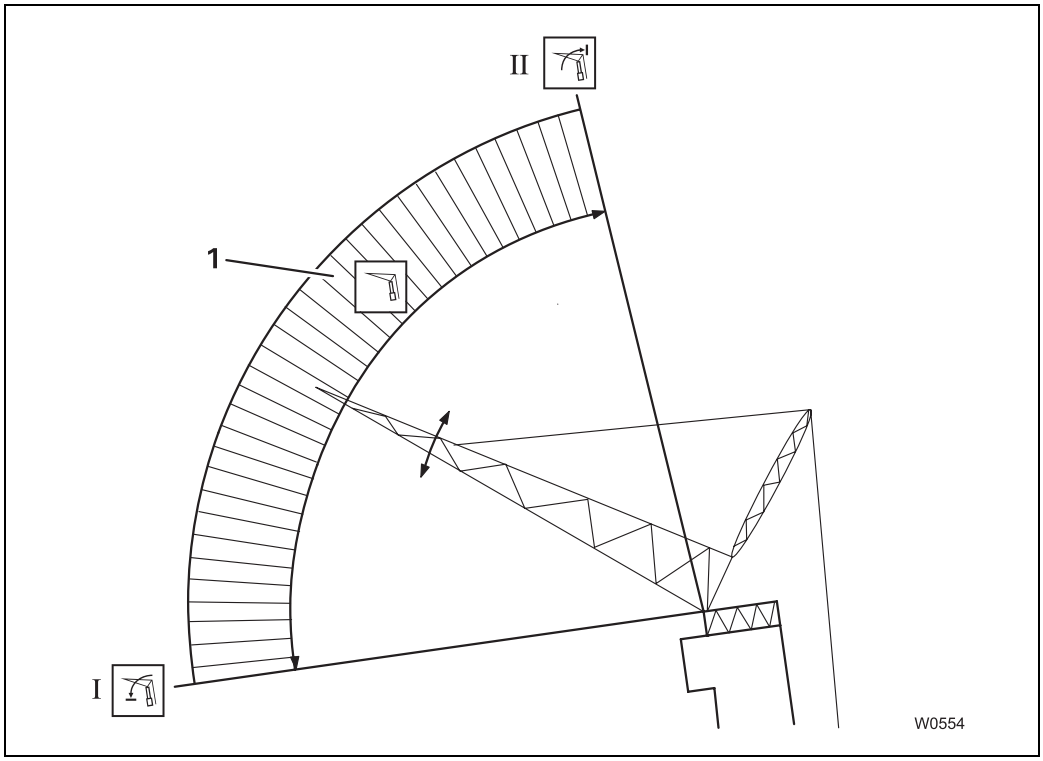
6.6.16 Derricking luffing jib when rigging

The derricking of the luffing jib is released only when there is no load attached on the luffing jib.



As long as the *operating mode selector switch* is in position **1** for rigging, the *Rigging range* indicator lamp lights up and you can derrick the luffing jib within the rigging range (**1**) using the auxiliary hoist. The auxiliary hoist is operated here in the same way as the main boom; ➠ *Operating Instructions GMK 6300 – Auxiliary hoist*.

When the luffing jib is being operated, high-speed mode is blocked for the auxiliary hoist.

If you leave the telescoping range during telescoping a warning light will also light up and crane functions are blocked. There are two shutdowns:

– Flattest position shutdown (I)

– Steepest position shutdown (II)

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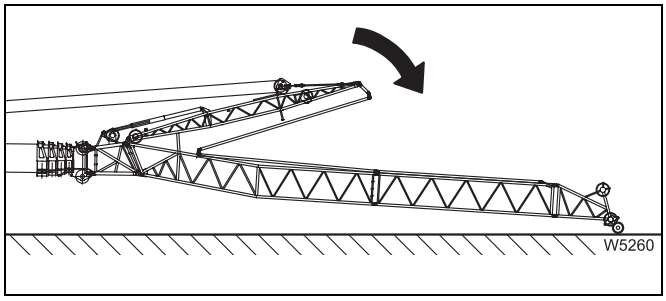
Risk of accidents if the main boom is lowered too far.
Only lower the main boom so far that the locking points for the transport pins align with one another. This position can be exceeded when lowering the boom to horizontal, especially with long luffing jibs.
The inclinable part of the foot section is pressed against the fixed part; this causes tension. This tension is released when the pins are driven out, and the unexpected slippage of the luffing jib which then occurs can injure you or others.



- Set the luffing control arm down onto the rigging supports.

Now the luffing jib is ready for further rigging operations.

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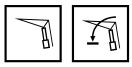
Flattest position shutdown (I)



If you derrick the luffing jib out of the bottom of the working range (**1**), the *Flattest position* warning lamp also lights up.

The crane control now locks all movements which would lead the luffing jib further into the shutdown range. These are the crane movements:

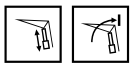
– Lower auxiliary hoist and

– Raise the main boom.

• Leave this shutdown range by lifting the auxiliary hoist, thus raising the luffing jib back into the working range.

You have left the shutdown range when the *Flattest position* warning lamp goes out and only the *Working range* indicator lamp lights up again.

Steepest position shutdown (II)



If you derrick the luffing jib out of the top of the working range (**1**), the *Steepest position* warning lamp also lights up.

The crane control now locks all movements which would lead the luffing jib further into the shutdown range. These are the crane movements:

– Lift auxiliary hoist and

– Lower the main boom.

• Leave the shutdown range by lowering the auxiliary hoist, thus lowering the luffing jib back into the working range.

You have left the shutdown range when the *Steepest position* warning lamp goes out and the *Working range* warning lamp lights up again.

6.7.4 RCL shutdown

In the event of overload, the RCL switches off and the two warning lamps *RCL early warning* and *RCL shutdown* light up on the RCL insert.
The RCL shuts down all movements which increase the load moment, i.e. the following crane movements:

– Lower the auxiliary hoist

– Lift main hoist.

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53 m luffing jib The following table is only valid for a 53 m luffing jib. There are extra tables for other luffing jib lengths in this section.

Counter-weight in t	Telescoping Tele. I/II/III/IV	Main boom angle in °	Luffing jib angle in °	Main boom position[1]	Axle load [2] in t		Axle load [2] x 1000 lbs	
					front	rear	front	rear
36	0 / 0 / 0 / 0	40	40	front	21.0	20.5	46.3	45.2
	0 / 0 / 0 / 0	82	10	rear	8.5	27.0	18.7	59.5
50	0.5 / 0 / 0 / 0	45	45	front	23.0	23.5	50.7	51.8
	0 / 0 / 0 / 0	82	10	rear	12.5	28.0	27.6	61.7
80	1.0 / 0.5 / 0 / 0	45	45	front	27.5	28.0	60.6	61.7
	–	–	–	rear	Not permissible			
100	Not permissible							

[1] Boom position to the rear = 0° position, boom over rear edge of truck crane

Boom position to the front = 180° position, boom over driver's cab

[2] Axle load front: On the first and second axle line

Axle load rear: On the third, fourth, fifth and sixth axle lines

The axle loads specified refer to a driving mode with the basic unit including the **35 t** hook block.

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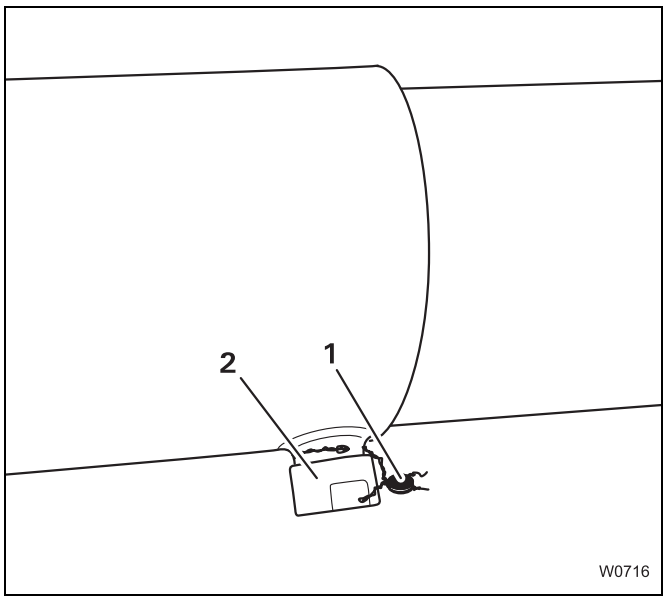
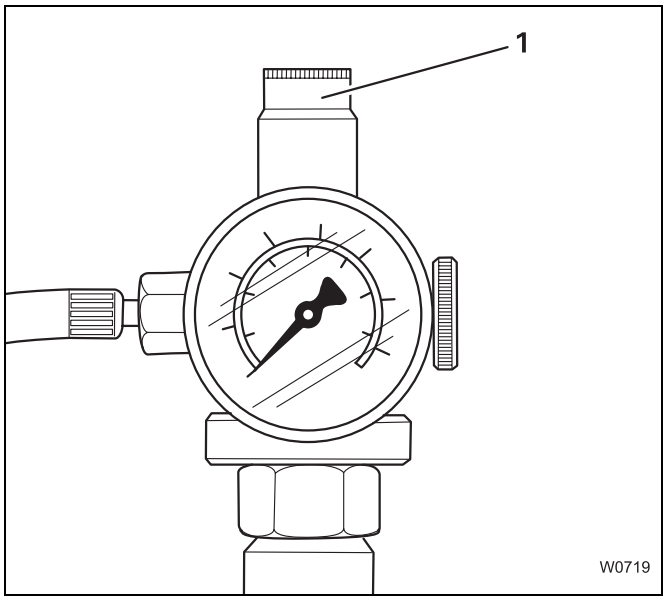
Check the nitrogen pressure and the oil pressure in the fall-back guard strut simultaneously. The two maintenance tasks are described separately only for reasons of clarity.

Nitrogen pressure



- Use the supplied test manometer to check the nitrogen pressure in the fall-back guard strut.
- Remove the seal (**1**) from the cap nut in the middle of the test connection and unscrew the cap nut (**2**).



- Screw the test manometer onto the test connection.
- Open the test connection valve. To do this unscrew the screw plug (**1**) anticlockwise with a torque wrench.
- Read the nitrogen pressure on the test manometer. The pressure measured must correspond to the values specified in the following table:

Temperature (°C)	Gas pressure (bar)
–40 °C	31
–20 °C	33.5
0 °C	36
20 °C	39
40 °C	41.5

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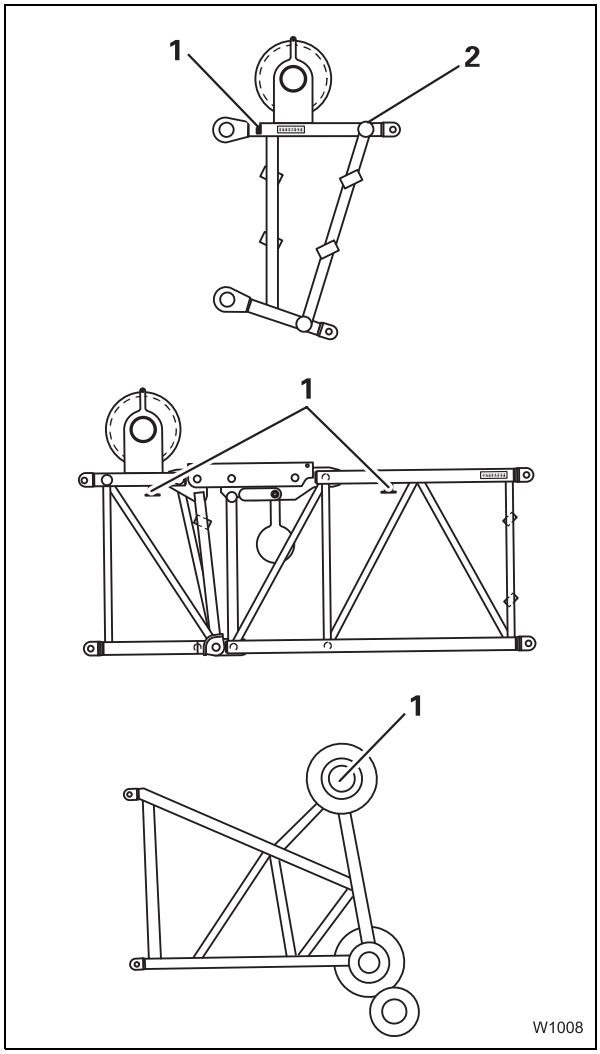
7.3 Slinging points

The slinging points of all heavy load lattice extension parts can be seen in the following diagram. Attach the boom sections to these slinging points only, as they then automatically have the correct centre of gravity.
Only use lifting gear of sufficient lifting capacity;
➠ *Transport dimensions and weights,* p. 2 - 1.



1 m section

The 1 m section, slung on the welded slinging points (**1**) and (**2**).

Angle piece

The angle piece has two slinging points (**1**) (one on each side, not exactly aligned).

Head

The head has two slinging points (**1**) (one on each side).

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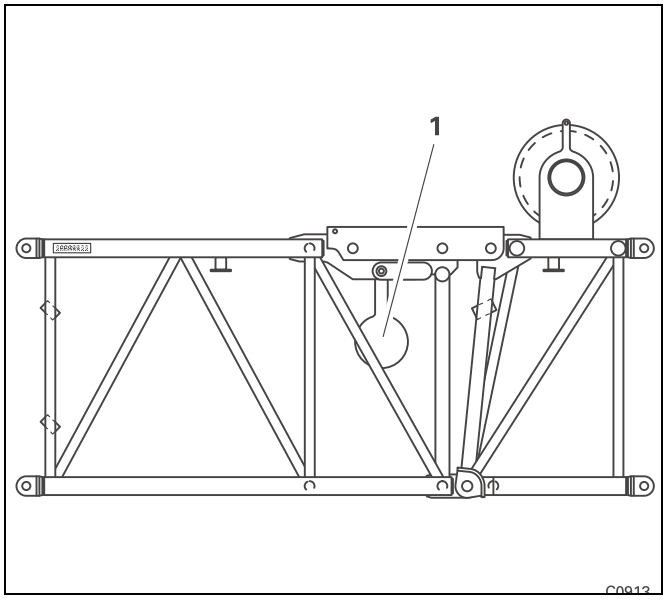
7.5.4 Angle piece

The 7 m heavy load lattice extension can be operated at angles of 18° or 40° to the main boom. For this the pins on both sides of the angle piece must be removed from the bores.

The 18° angle comes from the shape of the 1 m section. For the 18° angle, the angle piece has to be folded up completely.

Risk of accidents because of faulty fall-back guard strut.
The pendulums of the fall-back guard strut on both sides of the angle piece have to be freely mobile through out their entire slewing range.
If the pendulums are not able to move freely over the entire slewing range, the heavy load lattice extension will not be supported to the rear.



- Check if the pendulums (**1**) of the fall-back guard struts on both sides of the angle piece can move freely.

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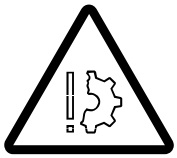
7.6 Operating the heavy load lattice extension

Risk of overturning due to excessively high wind speeds.
If the maximum permissible wind speed according to the *Lifting capacity table* is reached, you must put down the load.
Observe the information in the section *Effect of wind when operating the heavy load lattice extension* (further on in this chapter) and, if necessary, lower the main boom into a horizontal position.

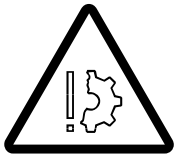


Risk of the main boom buckling.
Accelerate and brake the crane movements in such a way that the load does not sway.

Telescoping with rigged heavy load lattice extension

The RCL enables telescoping only when there is no load other than the hook block hanging from the heavy load lattice extension.

Telescoping with rigged heavy load lattice extension, depending on the length of the heavy load lattice extension, is only released between approx. 70° and 82°. For exact specifications, see the respective *Lifting capacity table*.
The RCL enables telescoping only when the main boom is raised up to an angle at which safe telescoping is possible with the rigged heavy load lattice extension.



The main boom may buckle during simultaneous slewing.
While you are telescoping the main boom with the rigged heavy load lattice extension, you may not simultaneously slew the superstructure. If you do slew it at the same time, the unlocked telescopic section will be subjected to additional lateral forces. This sideways force can be so great that the telescopic section can become overloaded and may buckle.

The telescoping mechanism is operated in the same way as the main boom; ➠ *Operating Instructions GMK 6300 – Auxiliary hoist*.

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Heavy load lattice extension 3.5 m

The following table applies to the rigged 3.5 m heavy load lattice extension, for the 7 m heavy load lattice extension there is an extra table in this section.

All the axle loads specified in the following table apply to a driving mode with the basic unit and a single sheave **35 t hook block** (weight: 620 kg) reeved on the heavy load lattice extension. Larger hook blocks must be unreeved.

Counter-weight in t	Telescoping Tele. I/II/III/IV	Angle of main boom in °	Angle of heavy load lattice extension in °	Main boom position[1)]	Axle load[2)] in t		Axle load[2)] x 1000 lbs	
					front	rear	front	rear
8.0	0 / 0 / 0 / 0	15	18 or 40	front	11.5	15.0	25.5	33.0
	0 / 0 / 0 / 0	82	18 or 40	rear	8.0	17.0	18.0	37.5
22.0	0.5 / 0 / 0 / 0	15	18 or 40	front	14.0	17.5	31.0	39.0
	0 / 0 / 0 / 0	82	18 or 40	rear	12.0	18.5	26.5	41.0
36.0	1.0 / 0 / 0 / 0	15	18 or 40	front	17.5	19.5	39.0	43.0
	0 / 0 / 0 / 0	82	18 or 40	rear	15.5	20.5	34.5	45.5
50.0	1.0 / 0.5 / 0 / 0	15	18 or 40	front	17.5	23.0	39.0	51.0
	0 / 0 / 0 / 0	82	18 or 40	rear	19.0	22.0	42.0	48.5
80.0	1.0 / 1.0 / 1.0 / 1.0	15	18 or 40	front	24.5	27.0	54.0	60.0
	0 / 0 / 0 / 0	82	18 or 40	rear	26.5	26.0	58.5	27.5
100.0	Not permissible							

1) Boom position to the rear = 0° position, boom over rear edge of truck crane
Boom position to the front = 180° position, boom over driver's cab

2) Axle load front: On the first and second axle line
Axle load rear: On the third, fourth, fifth and sixth axle lines

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