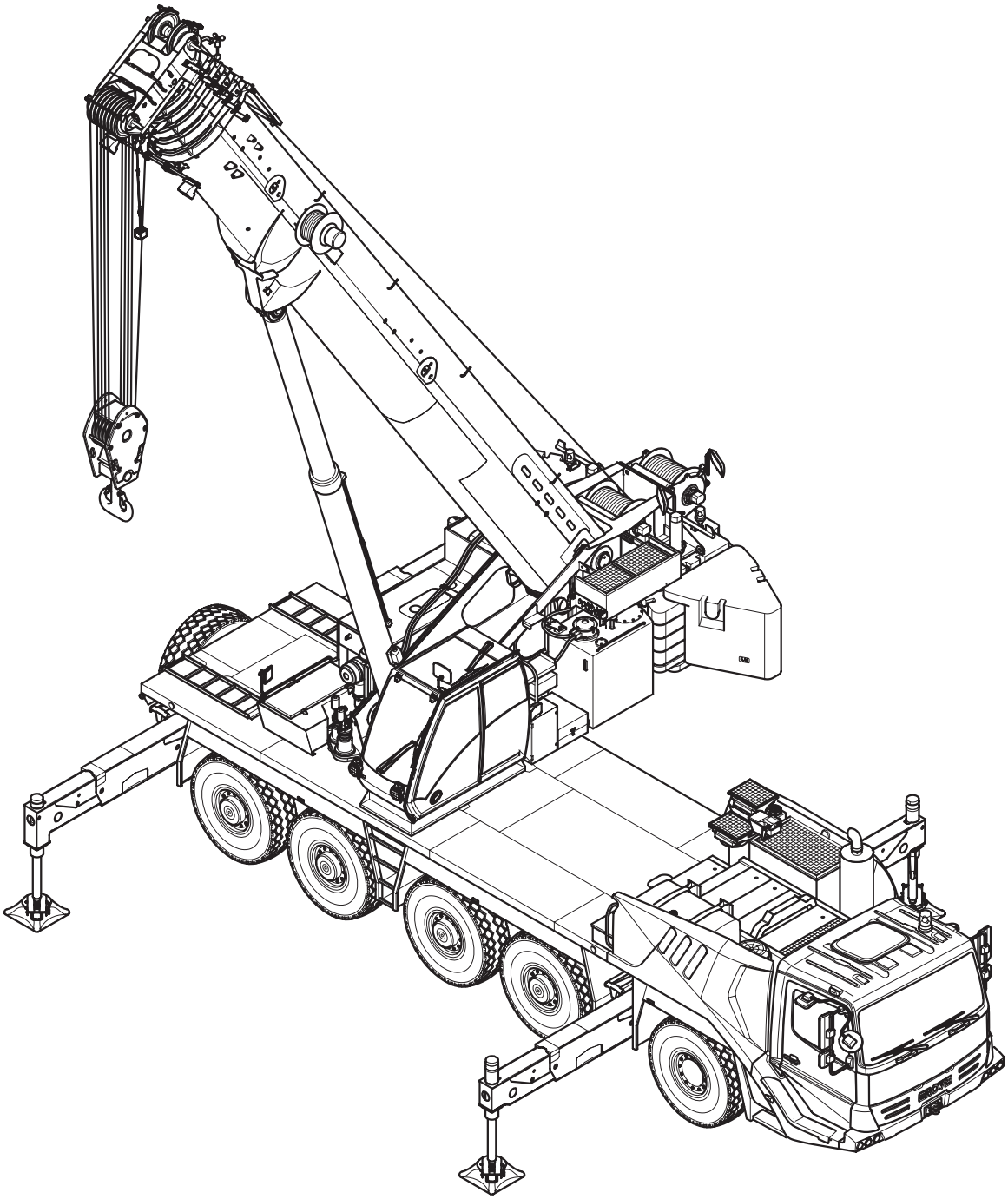
Grove GMK 5110-1/5130-2

Operating instructions lattice extension



3 112 783 en
26.02.2011

Grove Manitowoc National Crane Potain

Manitowoc

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1.4 Notes about the lattice extension operating manual

1.4.1 What do the symbols used mean?

The signs and symbols used in this operating manual for especially important information are given in the *GMK 5130-2/5110-1 operating manual Notes on the operating manual.*

1.4.2 Deviations in case of figures

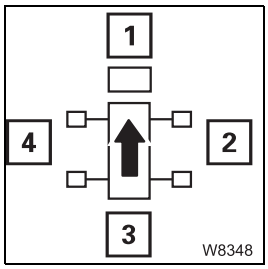
This lattice extension operating manual is applicable for GMK 5130-2 and GMK 5110-1. The crane types are different from each other because GMK 5130-2 has one telescopic section more than GMK 5110-1.
5130-2 is shown in the figures. If the difference is relevant for the operation, it is specified in the text or a type-relevant figure is provided.

1.4.3

Basic rule

Directions always depend on whether the carrier or the superstructure is being operated.

On the carrier



The driver's cab is always at the front, which means that:

1: Front **2:** Right
3: **4:** Left

Forwards
Backwards

2.4 Personnel qualifications

Requirements

These operating instructions are not a training manual for beginners. All descriptions are written explicitly for crane operators who have been trained to operate truck cranes.

Personnel in training may only operate the truck crane under supervision.

Only reliable personnel may operate or carry out work on the truck crane.

The prerequisites which you, as crane operator, must fulfil are described in the *GMK 5130-2/5110-1 operating manual* and in the *Safety manual*.

Only experienced personnel who are familiar with the valid accident prevention regulations are authorised to sling loads and instruct the crane operator.

Only trained personnel may be used to maintain the truck crane.

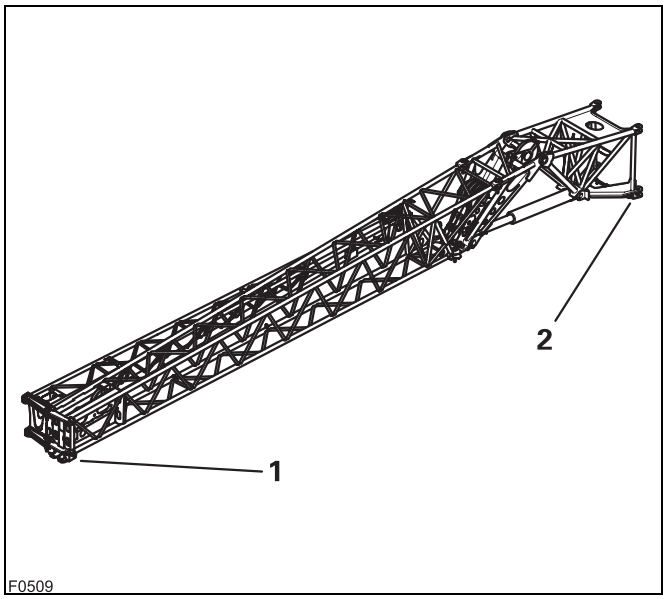
Training courses

Manitowoc Crane Group Germany GmbH conducts general and type-specific crane operator courses and technical courses; ➠ *Operating instructions GMK 5130-2/5110-1* Section *Training information*.

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3.2.5 Transport

Observe the instructions regarding *Transport* and regarding *Slinging points*; ➠ p. 3 - 2.



- Check whether all the required connections for transport condition are established; ➠ *Transport condition with removed swing-away lattice*, p. 4 - 39.
- For transportation, place the lattice extension on the skid (**1**) at the front and onto the lower connecting points (**2**) at the rear.
- Always secure the lattice extension on the transport vehicle with belts to prevent slipping and overturning.

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4 Swing-away lattice

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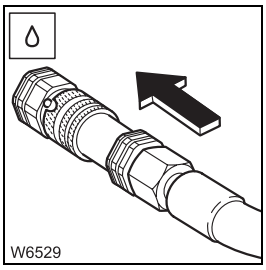
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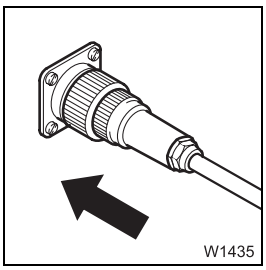
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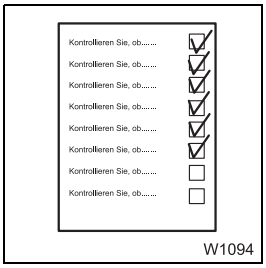
Risk of crushing due to swinging swing-away lattice
Always secure the swing-away lattice against swinging with the guide ropes before you establish the hydraulic or electrical connection.
This will prevent the swing-away lattice from swinging inadvertently to the side of the main boom and possibly crushing you.



5. Establish the hydraulic connection; ➠ p. 4 - 45.

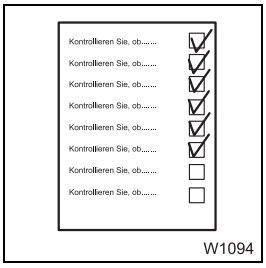


6. Establish the electrical connection; ➠ p. 4 - 73.



7. For further folding of:

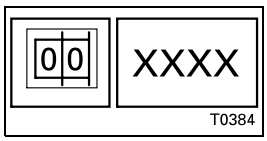
11 m (36 ft) swing-away lattice:	*CHECKLIST: Unrigging 11 m (36 ft) swing-away lattice* from **point 8.** ➠ p. 4 - 28.
18 m (59 ft) swing-away lattice:	*CHECKLIST: Unrigging 18 m (59 ft) swing-away lattice* from **point 13.** ➠ p. 4 - 33.



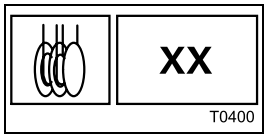
8. For further rigging of:

11 m (36 ft) swing-away lattice:	*CHECKLIST: Rigging the 11 m (36 ft) swing-away lattice* from **point 14.** ➠ p. 4 - 17.
18 m (59 ft) swing-away lattice:	*CHECKLIST: Rigging the 18 m (59 ft) swing-away lattice* from **point 15.** ➠ p. 4 - 23.

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24. Enter the current rigging mode with the rigged swing-away lattice; ➠ *Setting the SLI*, p. 4 - 91.

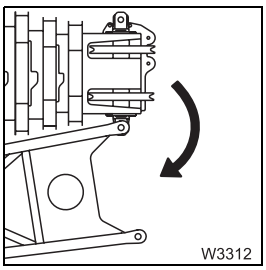


25. Enter current reeving; ➠ *Setting the SLI*, p. 4 - 91.

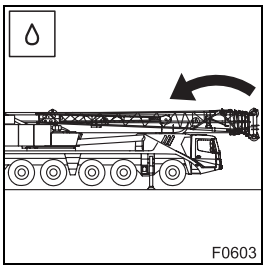
Further steps with swing-away lattice:

- Raise main boom; ➠ p. 4 - 93.
- Telescope main boom; ➠ p. 4 - 94.

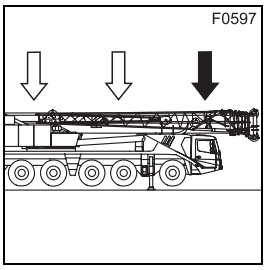
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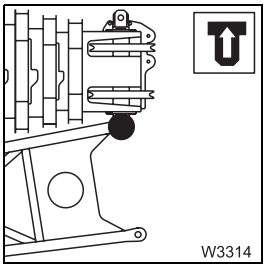
12. Swing the lattice extension on to the side of the main boom with the guide rope; ➠ *When unrigging – section 1*, p. 4 - 68.



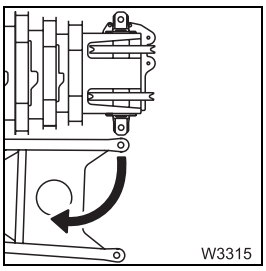
13. Lower the swing-away lattice so that it is positioned on the run-up rail.



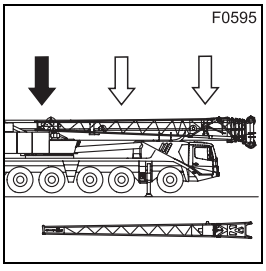
14. Establish the connection in the *Front* area; ➠ *Establishing a connection*, p. 4 - 48.



15. Disconnect the connection between section 1 and the main boom head at the right of the main boom head; ➠ *Right-hand connection*, p. 4 - 60.



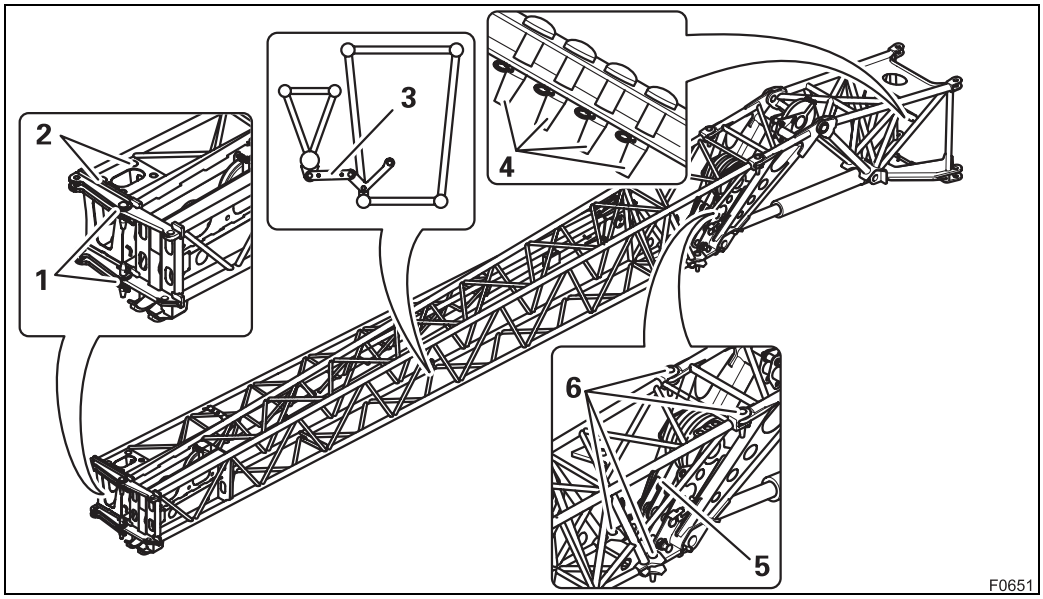
16. Swing the lattice extension on the run-up rail on to the main boom; ➠ *When unrigging – section 1*, p. 4 - 68.



17. If only **Section 1** is installed:
- In the *Middle* area, move the connection section A/main boom into the position *On-road driving*; ➠ p. 4 - 54.
- Disconnect the connection between section 1 and the main boom in the *Rear* area; ➠ p. 4 - 57.
- See **point 19.**

Transport condition with removed swing-away lattice

The transport condition is established when all of the following connections have been made.

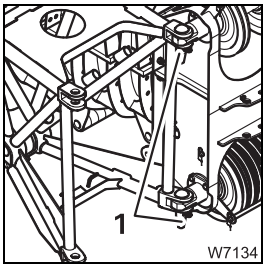


- Check the following connections and establish them if necessary.
  - In the *Rear* area, the connection (**1**) between section 1 and section 2 is established; ➠ p. 4 - 59.
    The unneeded pins (**2**) are secured in the retaining sheet.
  - In the *Middle* area, the connection (**3**) is in the position *Section 1/ Section 2*; ➠ p. 4 - 52.
  - The pins (**4**) on section 1 are secured with retaining pins.
  - In the *Middle* area, the connection (**6**) is established between section A and ISS, ➠ p. 4 - 54.
  - The roller lever (**5**) is folded in; ➠ p. 7 - 39.

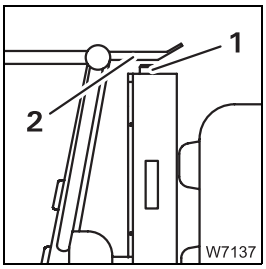


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Releasing the connection



- Check if section 1 is locked to the main boom head at the front right with both pins (**1**); ➠ p. 4 - 60.
- Secure the lattice extension with a guide rope; ➠ p. 4 - 37.



- Fully raise the lattice extension; ➠ p. 4 - 87.
- The connection is released only when the holder (**2**) has fully moved out of the slewing axis (**1**).

  If the slewing axis is still partly in the holder, then you must pull it in as described below.

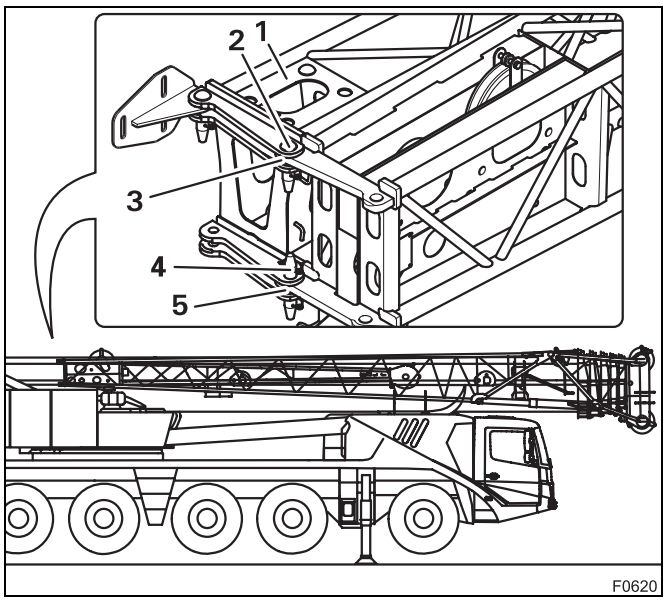


Risk of accidents due to falling swing-away lattice
Before releasing the connection, ensure that section 1 is pinned at the right of the main boom head.
This will prevent the swing-away lattice from falling when the connection is removed and causing injury to you or other persons.



Risk of accidents due to the swing-away lattice swinging of its own accord
Always secure the lattice extension with a guide rope on the main boom before retracting the slewing axis.
This will prevent the lattice extension from slipping off the run-up rail, swinging around and knocking you off the carrier or injuring other persons in the slewing range.





Establishing a connection

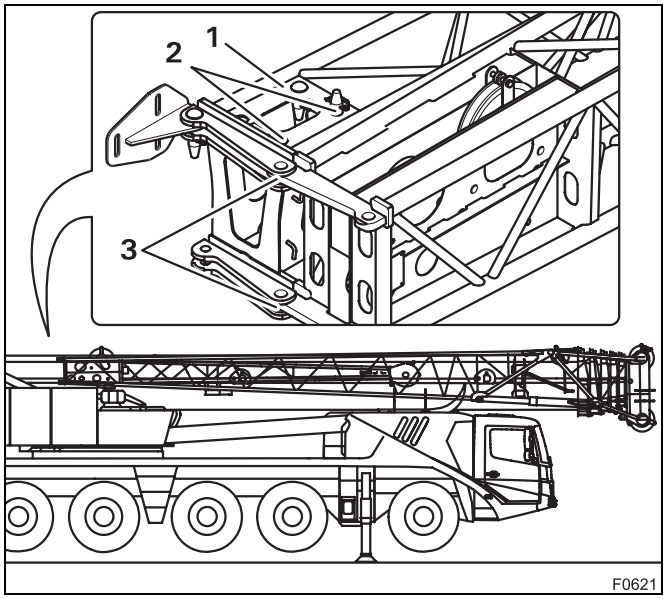
- Pull the taper pin (**4**) and one other pin (**2**) from the holder (**1**).
- Insert the pin (**2**) into the upper connecting point (**3**).
- Insert the conical pin (**4**) into the lower connecting point (**5**).
- Secure the pins (**2**) and (**4**) using the retaining pins.

Releasing the connection

- Before releasing the connection, check that
  - the connection is established in the *Front* area; ➠ p. 4 - 48,
  - the connection in the *Middle* area is in the position *Section 2/main boom*; ➠ p. 4 - 53.
  - Release the connection between section 2 and the main boom in the *Rear* area; ➠ p. 4 - 57.



Risk of accidents due to falling parts!
Before undoing the connection, make sure all of the aforementioned connections have been established.
In this way you will prevent either section 2 or section 1 or both falling down when the connection is released.



- Pull the pins (**2**) out of the connecting points (**3**).
- Insert the pins into the holder (**1**).
- Secure the pins using the retaining pins.

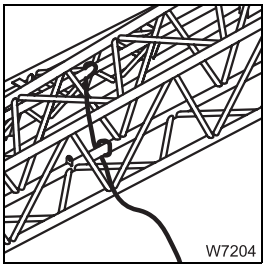


When rigging – section 2

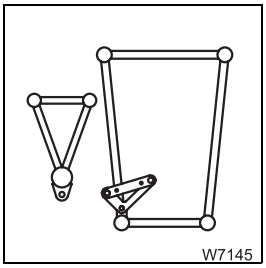
When rigging the 18 m (59 ft) swing-away lattice you must also swing out section 2 in front of section 1.



Risk of accidents through section 2 swinging of its own accord
Always secure section 2 with a guide rope before you release the connection between section 1 and section 2 and only position the ladder on the left at section 1.
In this way you prevent section 2 from swinging round of its own accord when the connection is released and knocking you off the ladder.



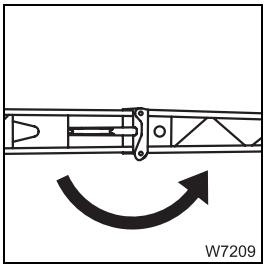
- Fasten a guide rope to the front at section 2.
- Secure section 2 against swinging round.
  Get a helper to hold the guide rope taut, or fasten it to the bottom of section 1.



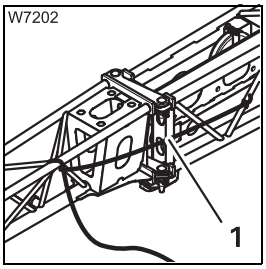
- In the *Middle* area, move the connection into the position *Section 1*;
  ➠ p. 4 - 53.



Risk of accidents through section 2 swinging round
Make sure that there are no people or objects in the slewing range of the swing-away lattice and always swing out the swing-away lattice with a guide rope from the ground.



- Swing section 2 in front of section 1 using the guide rope.
- Secure section 2 against swinging round.
  Get a helper to hold the guide rope taut.



- If you are working alone, secure section 2 from swinging round on the left-hand side at section 1 using a second guide rope (**1**).
- Establish the left-hand connection between section 2 and section 1;
  ➠ p. 4 - 71.



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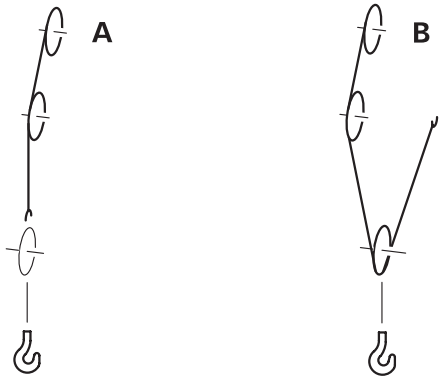
Possible reeving methods on the swing-away lattice

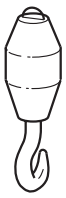


1 sheave hook block
Max. lifting capacity of the hook block 20 t (44,000 lbs)
Max. lifting capacity with the GMK 5130-2/5110-1:

A for 1 x reeving 7.1 t (16,000 lbs)

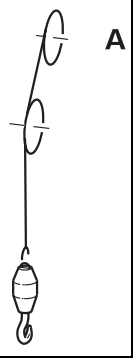
B for 2 x reeving 14.2 t (31,800 lbs)



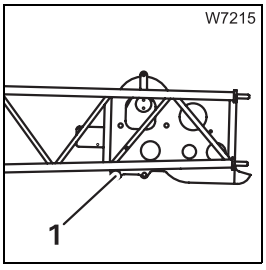


Hook tackle
Max. lifting capacity of the hook tackle 8 t (17,600 lbs)
Max. lifting capacity with the GMK 5130-2/5110-1:

A for 1 x reeving 7.1 t (16,000 lbs)



W6601



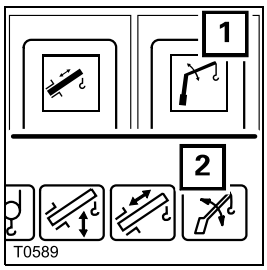
- With a 2 x reeving, fasten the rope end clamp to the attachment plate (**1**).

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During operation

Switching on the derricking gear

All power units are switched off and the lamps in the corresponding buttons light up only dimly after the ignition is switched on.



- Press the button (**1**) once.
  - The lamp in button (**1**) lights up brightly.
  - The symbol (**2**) is **green** if the derricking gear is switched on.

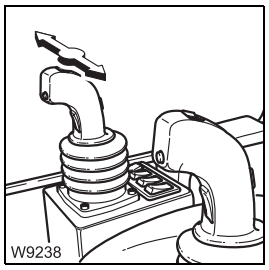
If the control lever is assigned more than one function, all other power units which are assigned the same control lever operation are switched off.

Raising and lowering

You can adjust the sensitivity of the control levers to the operating conditions; ➠ *Operating instructions GMK 5130-2/5110-1*.



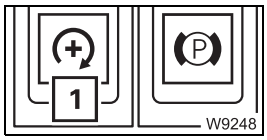
Risk of accidents due to unexpected crane movements!
In the case of multiple configuration, check whether the control lever function *Derricking* is switched on before you move the control lever for derricking.
This way, you avoid accidents due to unexpected crane movements.



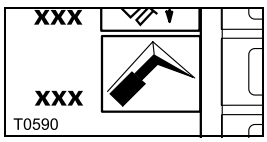
To lower: Push the control lever to the right – the swing-away lattice is lowered.

To raise: Push the control lever to the left – the swing-away lattice is raised.

The maximum derricking speed is automatically reduced as the system length is increased. If you now reduce the working radius (e.g. by retracting the telescoping), the derricking speed is automatically increased again.



You can set the desired engine speed (idling speed) with the button (**1**); ➠ *Operating instructions GMK 5130-2/5110-1*.



You can limit the maximum derricking speed; ➠ *Operating instructions GMK 5130-2/5110-1.*



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4.6 Tracing and eliminating malfunctions

Malfunction	Cause	Remedy
Lifting limit switch switches off (lamp lights up)	Lifting limit switch not connected	Connect the lifting limit switch; ➠ p. 4 - 80.
	The connection for the lifting limit switch on the main boom head is not overridden. There is a second lifting limit switch connected to the main boom and it is not locked.	Override the lifting limit switch on the main boom head; ➠ p. 4 - 80.
	For 11 m (36 ft): Electrical connection between main boom head and section 1 is not established. The bridging plug is not inserted in the socket to the front of section 1. Electrical connection between ISS and section A is not established.	Establish the electrical connection; ➠ p. 4 - 73. Change over the bridging plug; ➠ p. 4 - 74. Establish electrical connection; ➠ p. 4 - 73.
	For 18 m (59 ft): Electrical connection between main boom head and section 1 is not established. The connection for the lifting limit switch on the ISS is not overridden. Electrical connection between section 1 and section 2 is not established. Electrical connection between ISS and section A is not established.	Establish the electrical connection; ➠ p. 4 - 75. Override the lifting limit switch on the ISS; ➠ p. 7 - 41. Establish the electrical connection; ➠ p. 4 - 75. Establish the electrical connection; ➠ p. 4 - 73.
The main boom cannot be telescoped with the rigged lattice extension	The main boom is at an impermissible angle	Derrick the main boom to the required angle; ➠ p. 4 - 94.



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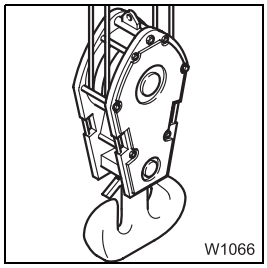
CLICK HERE TO DOWNLOAD THE COMPLETE MANUAL

- Thank you very much for reading the preview of the manual.
- You can download the complete manual from: www.heydownloads.com by clicking the link below

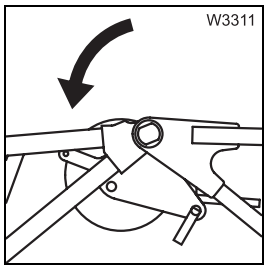


- Please note: If there is no response to CLICKING the link, please download this PDF first and then click on it.

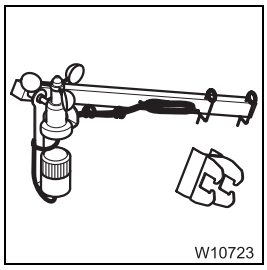
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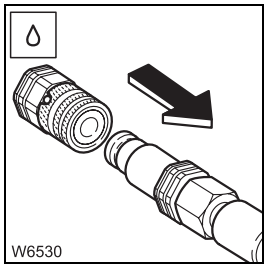
5. Unreeve the hoist rope from the hook block and remove it from the lattice extension; ➠ *Positioning/removing the hoist rope*, p. 5 - 23.



6. Take off the hoist rope, and fold the deflection sheaves on to the swing-away lattice; ➠ *Positioning/removing the hoist rope*, p. 5 - 23, ➠ *Folding in the deflection sheaves*, p. 4 - 77.



7. Remove anemometer; ➠ *Installing/removing the anemometer*, p. 4 - 83.

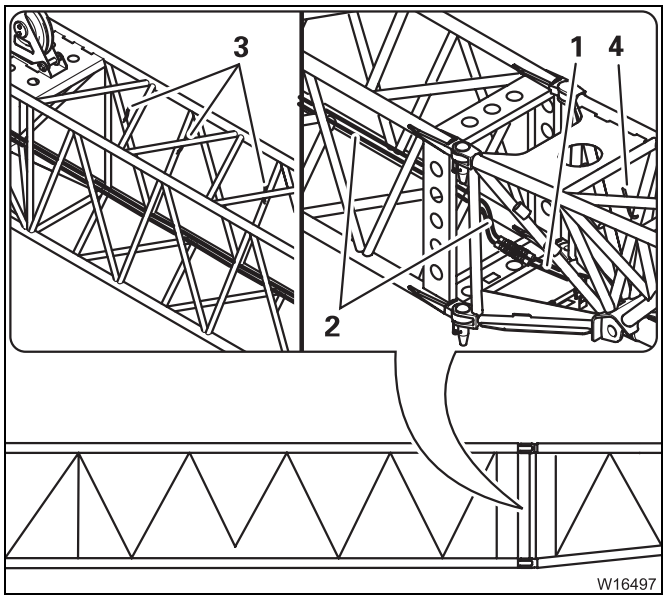


8. Only applies for the inclinable swing-away lattice.

– Disconnecting the hydraulic connection:

Connection	Boom extension in m (ft)		
	26 m (85 ft)	32 m (105 ft)	38 m (125 ft)
Main boom/section 3	➠ p. 5 - 15		
Section 4/section 5			➠ p. 5 - 16
for swing-away lattice	➠ p. 5 - 17		

Connection to the swing-away lattice



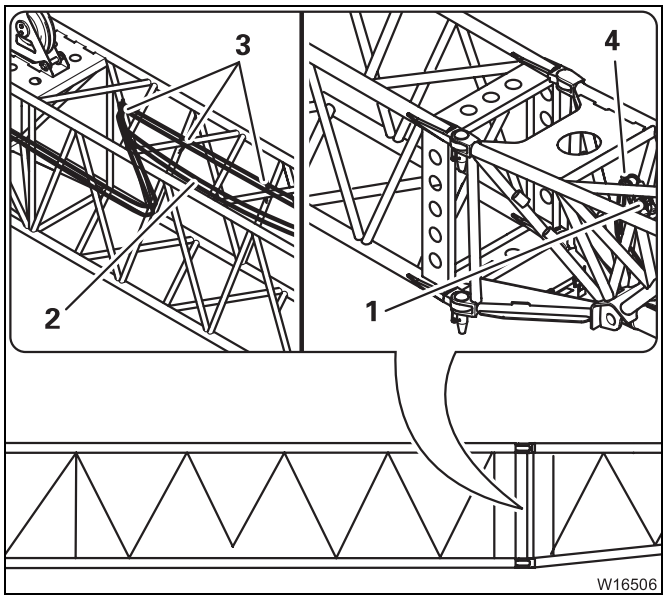
Establishing a connection

Only in case of **26 m (85 ft)** boom extension:

- Remove the long ends (**2**) from the clamps (**3**) in section 3.
- Feed the long ends (**2**) through section 3 as far as possible forward to section 1.

In case of **32 m (105 ft) and 38 m (125 ft)** boom extension:

- Remove the hoses (**1**) from the clamp (**4**) in section 1.
- Remove the protective caps and connect the hoses (**2**) to the hoses (**1**).



Disconnecting

In case of **32 m (105 ft) and 38 m (125 ft)** boom extension:

- Disconnect the hoses (**1**) from the long ends (**2**).
- Close the short ends and the hoses with the protective caps.
- Attach the hoses (**2**) to the clamp (**1**) in section 1.

Only in case of **26 m (85 ft)** boom extension:

- Guide the long ends (**2**) to the rear through section 3.
- Attach the long ends (**2**) to the clamps (**4**) in section 3, so that they cannot protrude during transportation.

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5.3.4 Information about the SLI shutdown

Operation with the boom extension is monitored by the SLI.

When operating with the boom extension, SLI shutdowns may occur for the same reasons as when operating with the main boom; ➠ *Operating instructions GMK 5130-2/5110-1*.

If the derricking swing-away lattice is rigged during operation with the boom extension, there are additional reasons that can lead to switching off a SLI; ➠ p. 4 - 95.

5.3.5 Procedure if permissible wind speed is exceeded



Risk of accidents due to excessively high wind speeds!
If the current wind speed is higher that the maximum permissible wind speed, stop crane operation immediately and restore the corresponding rigging mode.
This prevents the truck crane from overturning due to overloading.

- Prior to and during crane operation, check whether the actual wind speed is lower than the maximum permissible wind speed.
- Make sure that you follow the instructions for checking the wind speed; ➠ *Lifting capacity table* and *Operating instructions GMK 5130-2/5110-1.*

If the maximum permitted wind speed is exceeded

No automatic shutdown occurs if the maximum permissible wind speed is exceeded.

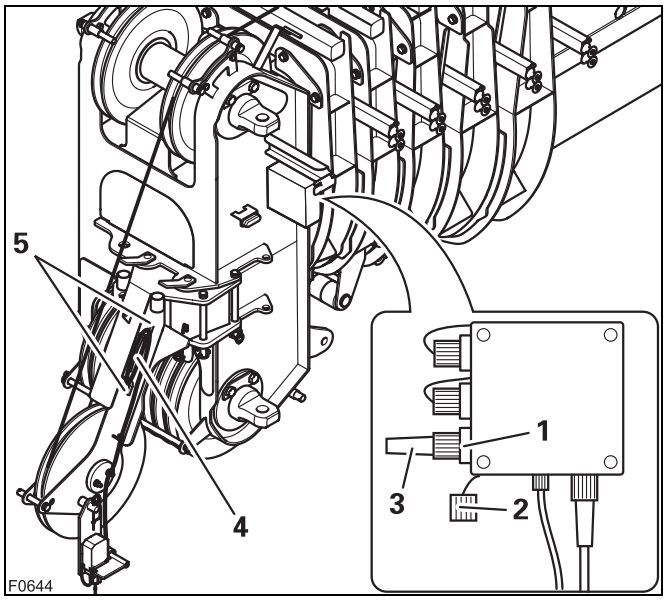
- Immediately stop crane operation.
- Bring the truck crane into the rigging mode specified for the current wind speed in the *Lifting capacity table*.

5.3.6 Notes on two-hook operation

Notes on two-hook operation; ➠ *Turning loads*, p. 8 - 1.

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For removal



On the left side

- Remove the plug (**4**) from the socket (**1**).
- Wind the connecting cable of the plug (**4**) onto the holder (**5**).
- Change over the bridging plug (**3**) from the dummy socket (**2**) and to the socket (**1**).

On the right side

If no hook block is reeved on the main boom, the bridging plug must be plugged into the socket that is not used; ➠ *Operating instructions GMK 5130-2/5110-1*.

Anemometer

Installation and removal

You must install the anemometer for operation with the auxiliary single-sheave boom top.

You must remove the anemometer for driving on-road.

It is installed and removed in the same way as for operation with the main boom; ➠ *Operating instructions GMK 5130-2/5110-1*.



Risk of damage to the anemometer
Remove the anemometer for on-road driving.
This prevents the anemometer from being damaged by wind (e.g. by suction currents caused by oncoming traffic in tunnels).

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7.1 Checklists for rigging work

7.1.1 Overview of the required rigging work

For rigging the ISS

There are different initial states for rigging the ISS, depending on whether:

– ISS-A or ISS-B was delivered,

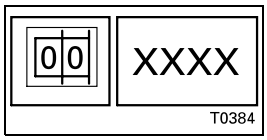
– the ISS is folded at the side of the main boom or

– the ISS was transported separately.

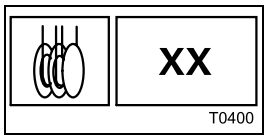
The following table shows you which checklist describes the required rigging work for your initial state.

Initial state		**Corresponding checklist for ...**	
ISS-A (with swing-away lattice)	**Before** crane operation	– ISS on the side of the main boom	➠ Rigging; p. 7 - 8
		– ISS is removed	➠ Installation; p. 7 - 4
	After crane operation	– ISS should be folded in front of the swing-away lattice	➠ Unrigging; p. 7 - 15
		– ISS must be removed for on-road driving	➠ Removal; p. 7 - 6
ISS-B (without swing-away lattice)	**Before** crane operation	– ISS folded on the side of the main boom	➠ Rigging; p. 7 - 21
		– ISS is removed	➠ Installation; p. 7 - 4
	After crane operation	– Must be folded to the side of the main boom	➠ Unrigging; p. 7 - 25
		– ISS must be removed for on-road driving	➠ Removal; p. 7 - 6

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27. Enter the current rigging mode with the rigged ISS; ➠ *Setting the SLI*, p. 4 - 91.

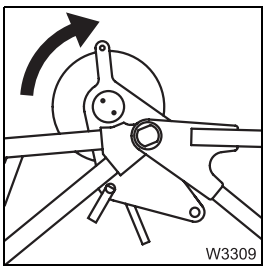


28. Enter current reeving; ➠ *Setting the SLI*, p. 4 - 91.

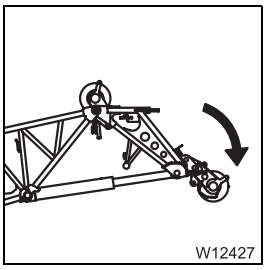
Further steps with ISS:

- Raise main boom; ➠ p. 7 - 52.
- Telescope main boom; ➠ p. 4 - 94.
- Setting the inclination of the ISS; ➠ *Derricking the ISS*, p. 7 - 50.

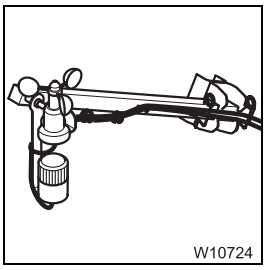
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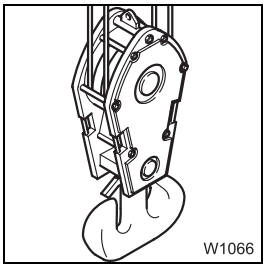
12. Folding out the deflection sheave; ➠ p. 4 - 76.



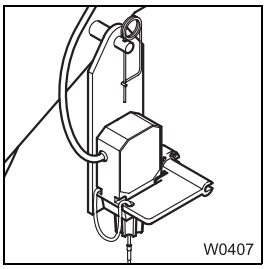
13. Fold out the roller lever; ➠ p. 7 - 39.



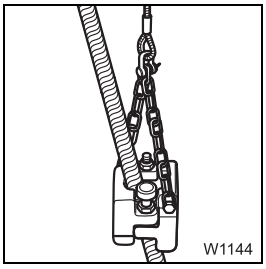
14. Install the anemometer and if necessary establish an electrical connection for the air traffic control light;
➠ *Installing/removing the anemometer*, p. 7 - 42,
➠ *Air traffic control light – electrical connection*, p. 7 - 43.



15. Place on and reeve the hoist rope; ➠ p. 7 - 44.



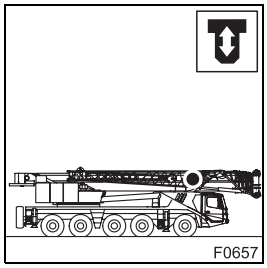
16. Install the lifting limit switch; ➠ p. 7 - 42.



17. Attach the lifting limit switch weight and place it around the hoist rope;
➠ *Operating instructions GMK 5130-2/5110-1,* Part 2 *Superstructure – Rigging work.*

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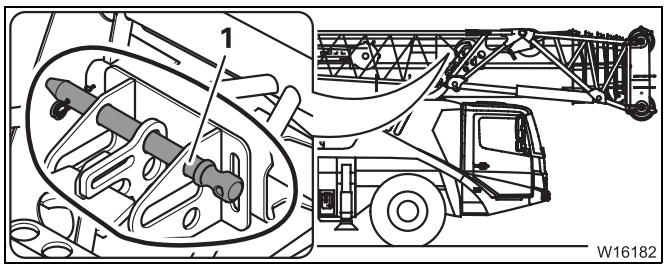
7.2.5 (Only ISS-A) Electrical connection between Section A – main boom



There are three possible positions for this connection.



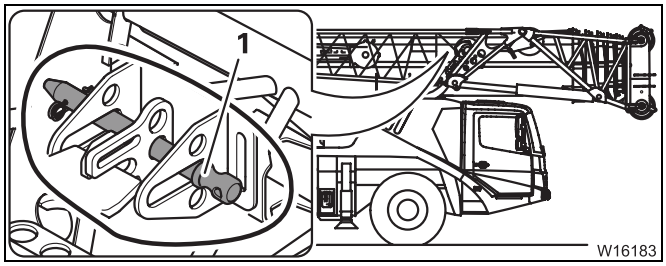
Risk of accidents from a falling lattice extension
Do not insert the pin in the *Pin disengaged* position until the connection between the ISS and section A has been established; ➠ p. 7 - 34.
When the connection between the ISS and section A is broken, the swing-away lattice will fall down.



On-road driving **position**

Section A and the main boom are connected to one another.

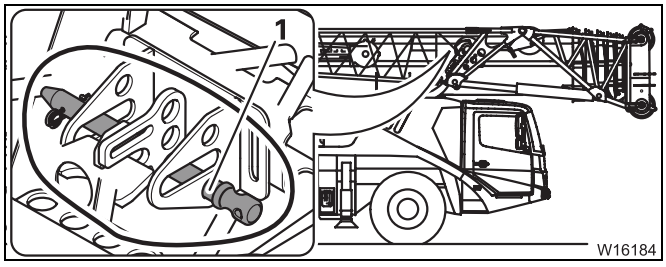
- Insert the pin in the bore hole (**1**) and secure it with a spring cotter.



Slewing **position**

Section A and the main boom are connected to one another. But the swing-away lattice can still be swung on to the main boom head.

- Insert the pin in the slotted hole (**1**) and secure it with a spring cotter.



Pin disengaged **position**

Section A and the main boom are not connected to one another.

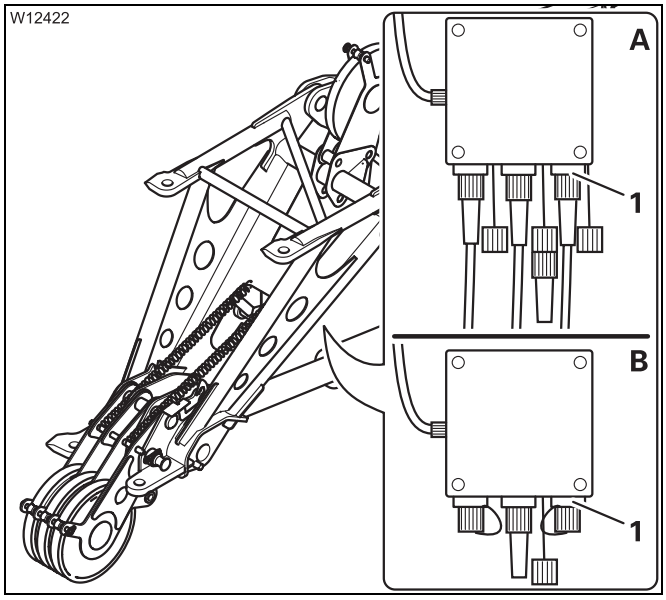
- Insert the pin in the bore hole (**1**) and secure it with a spring cotter.

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7.2.12 Air traffic control light – electrical connection

The air traffic control light (additional equipment) is mounted on the grip of the anemometer.

- Switching the air traffic control light on and off ➠ *Operating instructions GMK 5130-2/5110-1.*



(A) – Establishing

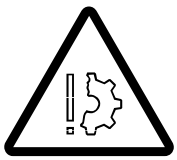
- Install the anemometer; ➠ p. 7 - 42.
- Loosen the protective cap on the socket (**1**).
- Insert the plug of the air traffic control light into the socket (**1**).
- Turn on the air traffic control light.

(B) – Disconnecting

- Switch off the air traffic control light.
- Remove the plug of the air traffic control light from the socket (**1**).
- Cover the socket (**1**) with the protective cap.
- Remove the anemometer; ➠ p. 7 - 42.

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7.3.3 Telescoping with rigged ISS



Risk of overloading of the main boom!
If you are telescoping the main boom with the rigged ISS, you may not simultaneously slew the superstructure.
This prevents the main boom being subjected to additional side forces and increased vibration and becoming overloaded.

Telescoping will only be enabled by the SLI if the main boom is derricked to a certain angle and a maximum permissible load is not exceeded.

The required angle (between 70° and 80°) depends on the rigging mode of the truck crane.

You will find the required main boom angle and the maximum permissible load (weight of the hook block) in the *Lifting capacity tables*, in Chapter *Rigging tables of the heavy load lattice extension*.

If the main boom angle is too small for telescoping with the ISS, the SLI displays an appropriate error message.

7.3.4 Information about the SLI shutdown

Operation with the ISS is monitored by the SLI.

When operating with the ISS, SLI shutdowns may occur for the same reasons as when operating with the main boom; ➠ *Operating instructions GMK 5130-2/5110-1*.

Additional reasons for a shutdown

During operation with ISS:

- Different lifting capacities are released for the angles 0°, 0 - 20° and 20 - 40°. Lowering the ISS can lead to the SLI shutting down when the currently raised load is not permitted in the newly reached angle range.
- For the above-named angles, the ISS can be derricked under load. If the current load is greater than permitted for the angle range, the lowering of the ISS is stopped by the SLI.
- When the SLI has shut down, the *Lower ISS* movement as well as all other movements which increase the load moment are blocked.
- If the main boom is raised at an angle larger than 76°, the SLI will switch off the “Raise ISS” movement at an angle smaller than 20°.
- If the ISS is raised at an angle less than 20°, the SLI will switch off raising the main boom at an angle of 76°.

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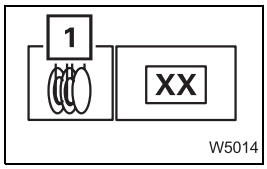
8.2 Setting the SLI

For two-hook operation, on the SLI you must:

– enter the current reeving for the main and auxiliary hoist.
The values are stored and opened directly when switching hoists.

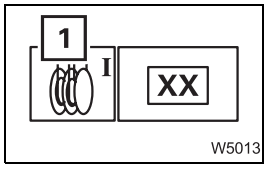
– Switch on operation with both hoists in such a way that the digit for the auxiliary hoist lights up on the *Hoists* display.

Entering the reeving

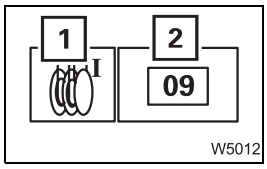


If the symbol (**1**) is shown without digits on the *Reeving* input, you must switch input mode on:

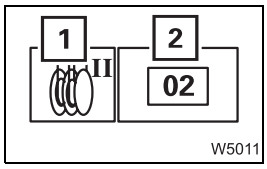
• Press the button next to symbol (**1**) once.



Input mode is switched on if symbol (**1**) is highlighted in green. A digit that displays which hoist the reeving applies to appears next to symbol (**1**).
Digit **I**: Main hoist
Digit **II**: Auxiliary hoist



• Enter the current number of lines (**2**) of the reeved hoist rope for the displayed hoist (⇧⇩), e.g. **09**, for the main hoist.



• Press the button next to the symbol (**1**) repeatedly until the digit for the other hoist is displayed (e.g. **II** for the auxiliary hoist).

• Enter the current number of lines (**2**) of the reeved hoist rope for the displayed hoist (⇧⇩), e.g. **02** for the auxiliary hoist.

Now the reeving has been entered for both hoists.

Setting the SLI to the auxiliary hoist

The SLI always takes the reeving entered for the hoist that is displayed at the *Hoists* indicator lamps into account. For turning loads, the SLI must take the auxiliary hoist and its reeving into account and both hoists must be switched on. To access this SLI setting, proceed as follows:

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9.6 Tables with boom positions and axle loads

Information about the tables

The axle loads specified in the following tables:

– refer to a driving mode with the basic unit, and

– are valid both for the derricking swing-away lattice as well as for the inclinable swing-away lattice.



The maximum axle load specified in the table is reached at a main boom angle of either 0° or 45°. When the maximum axle load is reached e.g. to the front, the axle load to the rear is under the specified maximum axle load.

At main boom angles between 0° and 45°, the axle loads are under the specified maximum axle loads.

The following applies to the foot notes in the table:

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)	Front axle load:	on the first and second axle line
	Rear axle load:	on the 3rd to 5th axle lines

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Counter-weight in t (lbs)	Telescoping Telescopic section I-II-III-IV-V	Main boom angle (°)	Lattice extension inclination (°)	Main boom position[1)]	Maximum axle load[2)] in t (x 1,000 lbs)	
					Front	Rear
16,0 (35 200)	0.5 - 0 - 0 - 0 - 0	20 – 40	0 – 20	Front	12,0 (26,4)	17,0 (37,5)
	0 - 0 - 0 - 0 - 0	50 – 80	20 – 40	Rear	15,0 (33,1)	17,0 (37,5)
18,5 (40 800)	0.5 - 0 - 0 - 0 - 0	20 – 35	0 – 20	Front	11,0 (24,2)	18,0 (39,7)
	0 - 0 - 0 - 0 - 0	45 – 80	20 – 40	Rear	16,0 (35,4)	17,5 (38,6)
21,0 (43 200)	0.5 - 0.5 - 0 - 0 - 0	20 – 40	0 – 20	Front	14,0 (30,8)	17,5 (38,6)
	0 - 0 - 0 - 0 - 0	40 – 80	20 – 40	Rear	16,5 (36,4)	18,5 (40,8)
23,5 (51 800)	0.5 - 0.5 - 0 - 0 - 0	20 – 35	0 – 20	Front	13,0 (28,6)	18,5 (40,8)
	0 - 0 - 0 - 0 - 0	40 – 80	20 – 40	Rear	17,5 (38,6)	18,5 (40,8)
26,0 (57 400)	0.5 - 0.5 - 0 - 0 - 0	20 – 30	0 – 20	Front	12,0 (26,4)	19,0 (41,9)
	0 - 0 - 0 - 0 - 0	40 – 80	20 – 40	Rear	18,5 (40,8)	18,5 (40,8)
28,5 (62 800)	0.5 - 0.5 - 0.5 - 0 - 0	20 – 35	0 – 20	Front	14,0 (30,8)	19,5 (43,0)
	0 - 0 - 0 - 0 - 0	40 – 80	20 – 40	Rear	19,5 (43,0)	19,0 (41,9)
40,1 (88 400)	0.5 - 0.5 - 0.5 - 0 - 0	5 – 20	0	Front	13,5 (29,7)	23,0 (50,7)
	0 - 0 - 0 - 0 - 0	40 – 80	20 – 40	Rear	24,0 (52,9)	20,0 (44,1)

1), 2) ➠ *Information about the tables*, p. 9 - 5

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Counter-weight in t (lbs)	Telescoping Telescopic section I-II-III-IV	Main boom angle (°)	Lattice extension inclination (°)	Main boom position[1)]	Maximum axle load[2)] in t (x 1,000 lbs)	
					Front	Rear
28.5 (62,800)	0.5 - 0 - 0 - 0	20 – 40	0 – 20	Front	16.5 (36.4)	19.5 (43.0)
	0 - 0 - 0 - 0	60 – 80	0 – 40	Rear	18.5 (40.8)	20.0 (44.1)
40.1 (88,400)	Not permitted!			Front		
	0 - 0 - 0 - 0	50 – 80	0 – 40	Rear	23.0 (50.7)	23.0 (50.7)

1), 2) *Information about the tables*, p. 9 - 5

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10.3 Description of maintenance work

10.3.1 Lubricating pins

M 1

Grease, spare parts and tools

Grease[1)]	Designation according to DIN 51502	Specification Classification	GROVE part no.[1)]
Grease	KP - L2K	DIN 51825	00554201

1) ➠ *Maintenance manual*, Lubricant list and lubricant use

– Brush.

Designation	Quantity	GROVE part no.
No spare parts		

Lubricate the pins additionally after every high-pressure cleaning in order to avoid corrosion.

On the swing-away lattice

Requirements

– The truck crane must be secured to prevent unauthorised use; ➠ *Maintenance manual*, or:
– swing-away lattice is removed; ➠ p. 4 - 11.

Lubricating the pins:

Lubricate all pins:

– Pins for the connections with folded swing-away lattice; ➠ p. 4 - 47,
– The pins for the connections on the left and right of the main boom head; ➠ p. 4 - 60,
– Pins for the section 1 and section 2 connections; ➠ p. 4 - 71,
– Pins for the connection of ISS with section A,
– Pins of the deflection sheave; ➠ p. 4 - 76,
– Spring latch on the hose drum; ➠ p. 4 - 43.

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