



Operation and Maintenance Manual for Hook-Lifts Hookmaster

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JOAB

Contents

Introduction	V
About The Hookmaster	1
Correct Usage	2
Main Components	3
Optional Locking Mechanisms	4
Manufacturer Plate	4
Design	4
Body Standard	7
Safety	9
Emergency Operation	10
Operation – Electrical Systems	11
CBW Controller	11
User Interface	12
Icons	12
Page Set-Ups	13
Function Buttons	14
Background Light	15
Warnings	15
Control Stick Functions	16
Continuous Hydraulic Supply	17
Emergency Stop	18
Operation – Air Systems	19
Cab Mounted Control Unit	19
LED Display And Buttons	20
Trailer Warning Lights	21
Emergency Stop	21
Radio Controllers	23
Before Operation	23
Operation – Electrical Systems	23
Display	24
LEDs	24
Emergency Stop	24
Function Mode	25
Start The Radio Controller	25
Axle Weight Reading	26
Charging	26

Operation – Air Systems27

 LEDs27

 Emergency Stop27

 Function Mode27

 Start The Radio Controller28

Distributing A Load On A Body29

Loading A Body31

Tipping A Body35

Shunting A Body37

Unloading A Body39

Service And Maintenance41

Daily Maintenance41

Washing The Hook-Lift42

Lubrication Points43

Service Of The Hook-Lift44

 Service-Reminder Sticker44

 Service Packets And Warranty44

Working On The Hook-Lift45

Safety Warnings47

Technical Data49

Fault Tracing The Hook-Lift51

Contact Information53

Service And Warranty53

Introduction

This manual covers the operation and maintenance of your Hookmaster. It contains important information for your own safety and the surrounding environment.

JOAB's products are characterised by a high level of safety, reliability, and long service-life. To get the best out of your Hookmaster, we recommend reading this manual carefully.

This manual also contains information regarding fault tracing, lubrication, and servicing of your Hookmaster. This manual is based on the original mounted equipment only. Refer to the relevant supplier's manuals for all other optional or auxiliary equipment.

JOAB accepts no liability for the consequences that occur due to work carried out by non-professionals. Do not make modifications to your Hookmaster, this can affect its structural integrity. If a modification is necessary, seek advice from JOAB first.

When your Hookmaster is delivered, check that it is undamaged and functions correctly. If not, contact JOAB, your dealer, or other supplier.

The technical data, designs and illustrations found in this manual are not binding. JOAB AB retains the right to make changes without prior notice.

The general delivery regulations apply to all hook-lifts sold in Sweden.

For certain deliveries a CD with training material is provided. It is intended to give an overall description of handling JOAB's products, such as hook-lifts, skip loaders, and Hookmaster.

Always bare in mind that it is the operator that is responsible for handling the Hookmaster.

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About the Hookmaster

JOAB's hook-lifts are multipurpose. They can be used with all vehicle manufacturers. However, it is important that the vehicle has been built specifically for the purpose of bearing a hook-lift.

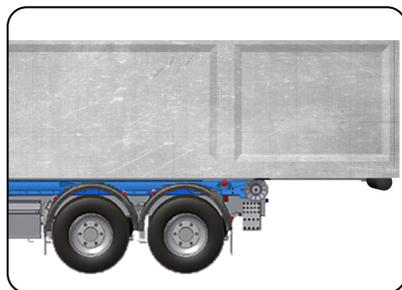
It is important to verify that the vehicle has the correct axle distance and wheelbase.

JOAB's Hookmaster is designed to transport different types of bodies that have been manufactured according to the Swedish standard SS-3021.

Type examples are skip bodies, flat beds and tanks, as illustrated.



Mounting the hook-lift onto a vehicle that has not been specifically designed for the purpose of carrying a hook-lift will increase the risk of an abnormal load on the vehicle. This in turn can lead to serious injury or damage.



Correct Usage

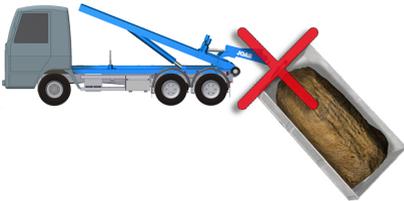
Incorrect use of JOAB's products can lead to material fatigue and cause excessive wear to the hydraulics and its components. The service life of the product can be reduced and in the worst-case lead to breakdown.



Do not drive the vehicle with the hook lift extended. It must be fully retracted.



Do not use the Hookmaster for any other purpose than its intended use.



Make sure to reverse straight towards the body. Do not reverse at an angle.



Do not force the Hookmaster to lift in excess of the given specifications.

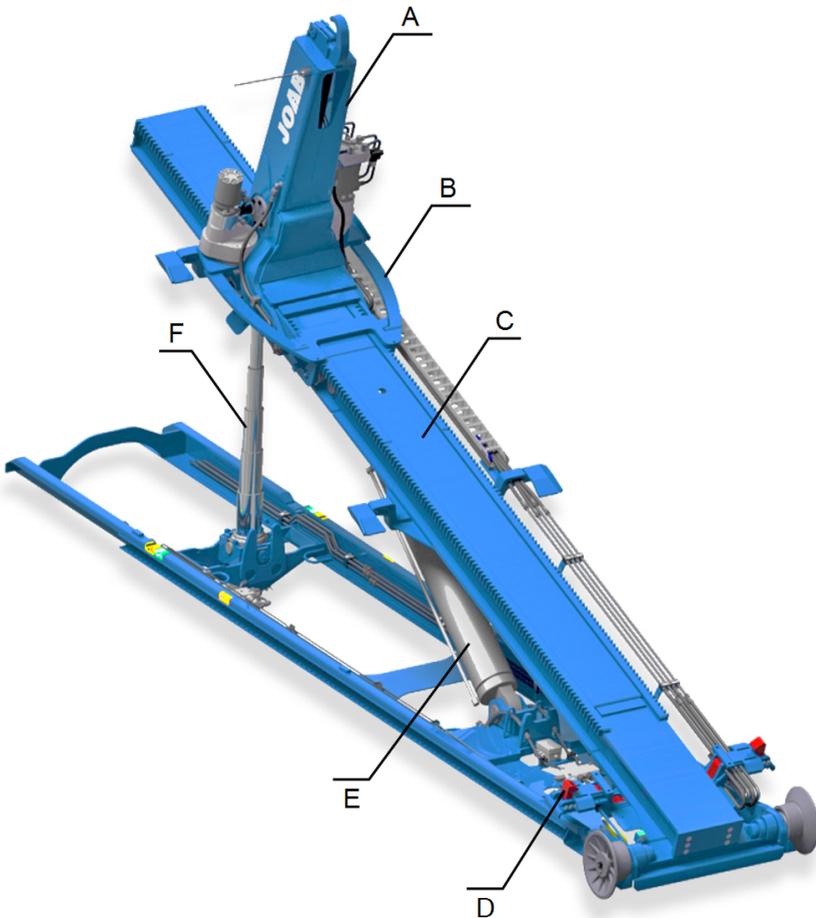


If the body is stuck, observe caution!
The Hookmaster can easily be damaged.

Main Components

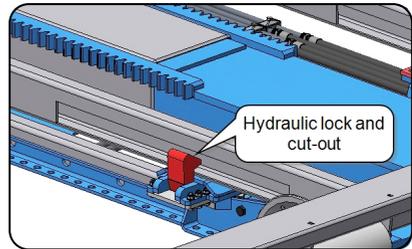
The Hookmaster consists of a sledge, tip-frame, hook-post, tip cylinder, and lifting-hook made of high tensile steel. A auxiliary lifting cylinder is also used to facilitate tipping.

- A. Hook post
- B. Sledge
- C. Tip frame
- D. Hydraulic lock
- E. Tip cylinder
- F. Auxiliary cylinder



Optional Locking Mechanisms

If the Hookmaster is equipped with external hydraulic locking devices, it is important that the body has cut-outs, as shown. If not – the body will be transported unsecured!



Manufacturer Plate

All hook-lifts have a manufacture-plate. The information on the manufacture-plate must be provided in the event of making a claim or when ordering spare parts from JOAB.

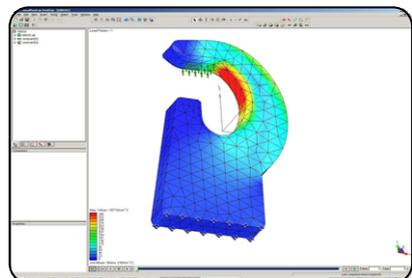


The hook-lift's serial number is not just on the manufacturer's plate, but is also stamped on the cylinder cross-member, see image.



Design

JOAB's products are exposed to high stresses and must therefore be very well thought out and of very high quality. All JOAB's components and designs undergo comprehensive testing. We use computer simulation to find and eliminate weak points and to establish the load capacity and service life of all components.



All development and design work and all manufacturing is carried out by JOAB. We are ISO 9001 and ISO 14001 certified.



A large proportion of our production is automated. This ensures high quality in the manufacturing process.



JOAB's paint facility meets all applicable environmental requirements.



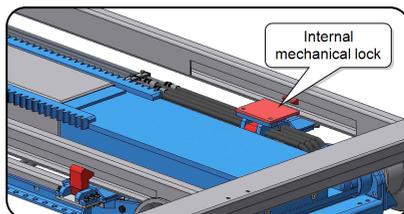
Body Standard



The use of bodies that are not designed in accordance with the standard SS 3021 can lead to personal injury or environmental damage. JOAB accepts no responsibility for the use of bodies that do not conform to the standard: SS 3021.

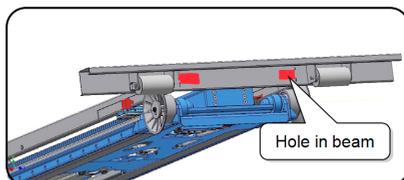
JOAB's hook-lifts are intended for handling bodies that meet the Swedish standard SS 3021. The following are the most important requirements of the SS 3021.

Internal mechanical lock that locks the body onto the hook-lift. This is optional equipment.

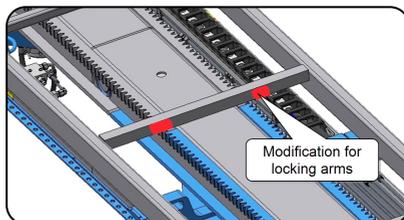


Cut-outs in the body's frame. These are used to hydraulically lock the body onto the hook-lift.

Holes in the body's rear beam. These are used to secure the body onto a trailer.

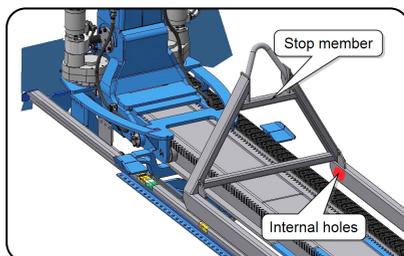


Modification in the body that allows the hook-lift to lock the body onto the hook-lift with the use of locking arms (optional).



The body must have a stop member that prevents the body from moving forwards and into the cab of the vehicle.

Internal holes located in the body's frame members are used to lock the body onto a trailer.



Safety

Observe all safety warnings. Failure to do so can lead to serious injury or damage to equipment. For further information regarding warning labels placed on the vehicle, refer to "Safety Warnings", on page 47.

All personnel operating the hook-lift must read and follow all warnings provided in this manual and on the hook-lift.

Before the start of each working day the hook-lift must be inspected to ensure that no foreign objects are between the hook-lift's moving parts.

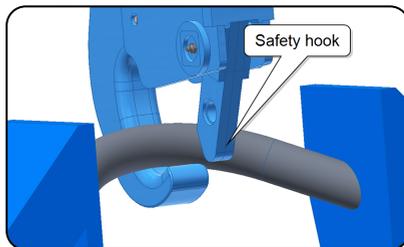
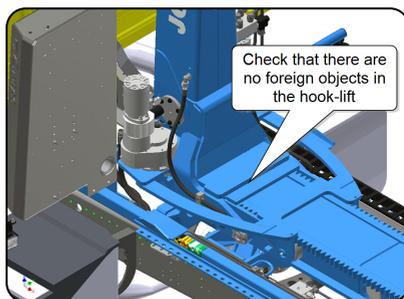
Always make sure that the vehicle is on a level and firm surface before operating the hook-lift. Failure to do so can cause the vehicle to become unevenly loaded and lead to it tipping over.

If the vehicle leans two or more degrees there is a risk that it will tip over.

Before collecting a body, make sure that its body-bracket is undamaged.

Make sure that the hook on the hook-lift engages the body's bracket properly, as shown opposite. Always lock the safety hook.

Do not drive the vehicle with the Hookmaster raised. There is a serious risk of colliding with overhead electrical wiring or similar. In addition, there is a risk of toppling over.



Do not tip, load, or unload bodies when the vehicle's axles are raised.

Do not make any modifications to the hook-lift as this can effect its structural properties. If a modification is required, contact JOAB for advice before making a modification to the hook-lift.



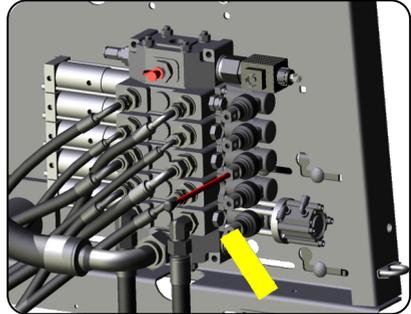
Emergency Operation



NOTE! when using the emergency operating system, the hook-lift's safety system is disengaged. Caution must be taken! When the safety system is disengaged it is possible to damage the hook-lift or cause injury. Before using the emergency override make sure that you are fully aware of its operation.

In the event of a failure in the hook-lift's control system it is possible to operate the hook-lift via the hydraulic block, as shown opposite. An emergency operating lever is supplied with the hook-lift for this purpose. This is normally placed in the driver's door.

If in any doubt about the use of the emergency override, contact JOAB for advice before using it.



Operation – Electrical Systems

This chapter describes the operation of hook-lifts that are **electrically controlled**. For information about pneumatically controlled hook-lifts, see *"Operation – Air Systems"*, on page 19.

The hook-lift can be controlled by a cab mounted controller or a radio controller. Radio controllers are an extra option. For further information see *"Radio Controllers"*, on page 23.

Electrically controlled systems have a control panel with integrated control stick, called the CBW control unit. In pneumatic systems, indication is via an LED display and the control stick is a separate unit. For more information about the CBW control unit, see below. For more information about pneumatic systems, see *"Operation – Air Systems"*, on page 19.

CBW Controller

The CBW controller has both a display and control stick, as shown, and is used to control all functions of the hook-lift.

Certain functions, such as the operation of the hydraulic pump, can be installed on the cab instrument panel, either in addition or separate from the CBW controller, as required.

The CBW control unit has the following main components.

1. Emergency Stop
2. User Interface
3. Control stick
4. Mounting bracket
5. Screen lock screw



The emergency stop button is used in case of an emergency. Once pressed, all functions of the hook-lift that could cause injury are disabled. To restore operation the system must be restarted.

The user interface of the CBW controller has a 2.8 inch colour display. It is configurable. It is possible to display one of five different page set-ups. Each page set-up can have six user defined functions, such as turning lights on. For further information see *"Page Set-Ups"*, on page 13.

The control stick is used to control the basic functions of the hook-lift, such as tipping. For detailed information regarding its function, refer to *"Control Stick Functions"*, on page 16.

The mounting bracket is used to mount the unit inside the cab. Normally it is mounted onto the driver's A-post. However, it is also possible to mount it onto the driver's right arm rest. This is ideal for snow ploughs.

User Interface

Shown opposite is an overview of the user interface.

The areas marked with a white rectangle on the screen are programmable. The user can set which functions are placed there. These functions are activated by pressing the corresponding buttons: F1–F4 and the UP/DOWN arrows. For further information on how to set these functions, refer to "Function Buttons", on page 14 below.



The function icons (F1–F4 and the UP/DOWN arrow buttons) that are displayed in the user interface is dependent upon which page set-up is selected. There are four different page set-ups. To switch between these press either the left or right arrow button located below the screen. For more information see "Page Set-Ups", on page 13.

All other icons that are displayed on the screen (not the user defined functions) simply provide feedback to the user regarding the status of the hook-lift, which page set-up is active, and active functions, such as lights on etc.

Icons

Provided below is a list of the functions available in the user interface and their meaning. Note, not all functions listed below are activated for all installations. Some of the functions are optional extras, these are marked with an asterisk (*).

Functions that can be selected for the programmable areas (F1–F4 and the UP and DOWN buttons) are coloured white. All other buttons (orange and green) simply provide feedback to the user as to whether or not they are active.

Table 1: User interface – icon description

Icon	Function	Icon	Function
	Night mode		Spreader flap – VEHICLE*

Table 1: User interface – icon description (continued)

Icon	Function	Icon	Function
	Load light – ON		Automatic flap – VEHICLE*
	Reversing light – ON		Tip trailer – UP*
	Flashing light – ON		Tip trailer – DOWN*
	Red light – ON		Draw bar*
	Safety hook is OPEN*		Hydraulic lock – LOCK
	Hydraulic lock is OPEN		Hydraulic lock – OPEN
	Hydraulic pump (start/stop)		Automatic flap – VEHICLE*
	Skip loader – TRAILER*		Continuous hydraulic supply (start/stop)*
	Axle lift – TRAILER*		Axle lift – TRAILER*
	Automatic flap – TRAILER*	--	

* Option: Not standard equipment.

Page Set-Ups

The user interface can display four different page set-ups, with different user defined functions. The page set-ups are described in Table 2 below. Which page set-up is shown is indicated in the display's lower right hand corner with one of the icons below (see "User Interface", on page 12).

Table 2: Page set-ups

Icon	Description	Icon	Description
	Vehicle setup_1		Trailer setup
	Vehicle setup_2		Lighting setup

To switch between these page set-ups, simply press either the left or right arrow button below the display.

The number of page set-ups that are accessible via the left and right arrow buttons can be configured as required (1–4 page set-ups). In the example shown below, three page set-ups are selected, these are shown with a green rectangle below them. The three active page set-ups will be visible when the left/right arrow buttons are pressed.

To configure which of the page set-ups are available when the left and right arrow buttons are pressed, follow the procedure below:

1. Press and hold down the OK button and press either the left or right arrow button at the same time for a few seconds.

The screen will then display the menu page options as shown.



2. Select the desired page set-up from those displayed and then press the OK button to either activate it or deactivate it (active page set-ups have a green rectangle below them).
3. Press and hold down the OK button for a few second to save the new settings.

Function Buttons

Each of the four page set-ups in the user interface can be configured with six personal functions. The icons for the selected functions are placed at the bottom of the user interface (shown in white rectangles, see *"User Interface", on page 12*). These functions are activated by pressing the corresponding function buttons below the screen: F 1–F4 and the UP/DOWN arrow buttons.

To set the desired function associated with the function buttons, follow the procedure below:

1. Press and hold the OK button while simultaneously pressing the function button that is to be changed.
2. The current icon set for that function will be displayed with a green rectangle around it, as shown below.



3. Use the UP/DOWN arrow buttons to select the desired function.
4. Press the OK button.

Background Light

The background light for the user interface can be adjusted as required. This function allows the user to quickly adjust the background light so that it is possible to read the display, when for example there is a lot of sun shining on the display.

To adjust the background light simply press the OK button with a short press repeatedly to switch between 100%, 20%, and 0% background light.

The display will automatically turn off whenever the hydraulic pump is off. It will only remain on if there is a warning to display, as listed under "*Warnings*" below.

Warnings

The user interface will display warnings whenever the hydraulic pump is not in operation. These warnings display an icon indicating the following states:

Table 3: Warning icons on the display

Icon	Meaning
	The hydraulic lock is open.
	The safety hook is open.

Control Stick Functions

Listed below are the various functions that the control stick has.

Table 4: CBW control stick functions

Tip UP	Fast operation sledge UP	Sledge DOWN
 <p>Pull backwards</p>	 <p>Press the lower button and turn the control stick clockwise</p>	 <p>Turn the control stick anti-clockwise.</p>
Tip DOWN	Fast operation sledge DOWN	Sledge UP
 <p>Push forward</p>	 <p>Press the lower button and turn the control stick anti-clockwise</p>	 <p>Turn the control stick clockwise.</p>
Folding hook-post UP	Folding hook-post DOWN	--
 <p>Push the control stick to the right</p>	 <p>Push the control stick to the left</p>	

Continuous Hydraulic Supply

The CBW controller can be used to set and adjust a constant hydraulic feed to a tip-trailer. This is not standard, it must be ordered as an extra option.

The hydraulic supply is not the same as tipping or lowering a trailer. When the trailer is simply lowered or tipped, a hydraulic feed is provided only during the time the function is activated. In contrast, the hydraulic supply is constantly fed to the tip-trailer and can be either increased or decreased as required.

The hydraulic supply to a tip trailer is normally fed from the hook-lift's connector on the back of the vehicle.

The CBW controller is used to control the flow of hydraulic fluid to the tip-trailer. The flow is initially set at 0L/min and must be set to the required value by the driver using the tip trailer icons. Refer to Table 5.

Once a value for the hydraulic supply has been set, using the tip-trailer icons, it is saved. If the unit or power supply is turned off, the value is still saved. It can be changed again, if desired, at any time. To reset the value, activate the function and use the icons to reset it.

After setting the continuous-hydraulic-supply, it can be started by simply selecting its icon, as shown below. The hydraulic supply will flow at the saved rate of flow.

There is no hydraulic flow sensor in the supply line to the tip trailer. Therefore, an external flow sensor will be required if the hydraulic flow is to be measured.

To operate the hydraulic supply to the tip trailer use the functions listed below.

Table 5: Hydraulic supply to the tip trailer

Icon	Function
	Start the continuous-hydraulic-supply. The power-take-of must be active.
	Increase the continuous-hydraulic-supply
	Decrease the continuous-hydraulic-supply
	Stop the continuous-hydraulic-supply

Emergency Stop

In case of an emergency, such as a hydraulic leak or risk of injury, an emergency stop button is fitted to the CBW controller (see *"CBW controller", on page 11*). Pressing the emergency stop button will stop all functions of the hook-lift immediately. To reset the emergency stop function, turn the pump off, reset the emergency stop button, and then restart the pump.

Operation – Air Systems

The hook-lift can be operated using a control unit in the vehicle cab, or using a remote control unit (radio control). The remote control unit is an option. For more information, see "Radio Controllers", on page 23.

The Hookmaster is operated using a controller, which is located on the left-hand side of the driver's seat. A description of the different functions follows.



Cab Mounted Control Unit

The operation of the seven button controller and the functions that its buttons have is described below. Note, two of the buttons are located on the underside of the controller.

Table 6: Pneumatic systems – control unit with 7 buttons

Tip up	Tip DOWN	Sledge backwards
 <p>Pull the control unit upwards</p>	 <p>Push the control unit down</p>	 <p>Press the inner green button</p>
Sledge forwards	Hook-post forwards	Hook-post backwards
 <p>Press the inner yellow button</p>	 <p>Press the outer yellow button</p>	 <p>Press the outer green button</p>

Table 6: Pneumatic systems – control unit with 7 buttons (continued)

Fast operation of the sledge	The red button has no function.	
 <p>Use the two buttons on the underside of lever¹.</p>	 <p>--</p>	

1. Fast operation mode must only be used with minimal load.

LED Display and Buttons

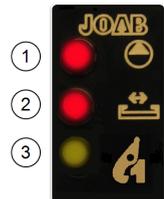
Operation of the hydraulic-pump and the hydraulic-lock is controlled using the installed buttons as shown opposite (left and right button, respectively). These are JOAB's standard buttons. However, it is possible that the vehicle's own buttons are used instead of those shown. The driver should familiarize themselves with which buttons are actual for the operation of the hook-lift.



The buttons are normally installed on the driver's dashboard. Depending on options ordered, there may also be more buttons installed for the additional options.

The status of the hook-lift is displayed inside the vehicle using JOAB's own LED display. The display is normally mounted on the drivers dashboard and has three warning LEDs, as follows:.

1. Hydraulic pump is active – RED.
2. Hydraulic lock is open – RED.
3. No function.



Some vehicles are equipped with a hydraulic pump lamp that will also illuminate whenever the hydraulic pump is active. This is not JOAB equipment. Read the vehicle's manual and make sure that you are aware of the relevant equipment for the vehicle being operated.

Trailer Warning Lights

For vehicles with auxiliary equipment such as a tow hitch for trailers, an additional display will also be fitted, as shown. The red LED indicates that the tow-hitch is OPEN. The green LED indicates that it is closed.



Some manufacturers, such as Scania, have a reset button for the coupling device's servo. This button must be pressed in for the warning for the coupling device to be deactivated after coupling. If the reset is not carried out, the warning remains active on the LED display and/or driver's

display.



Emergency Stop

In case of an emergency, such as a hydraulic leak or risk of injury, an emergency stop button is fitted to all vehicles.



Pressing the emergency stop button will stop all functions of the hook-lift immediately. The button is usually placed below the steering wheel, in the cab.

To reset the emergency stop function, pull the button out, reset all functions to neutral, then switch off and restart the vehicle's engine.

Radio Controllers

A radio operated controller can be bought as an option for all hook-lifts. These allow for operation of the hook-lift remotely. The operator does not need to be in the vehicle to operate the hook-lift.

The use of a radio controller allows the operator to have a good visual overview of the lifting operation. This can be beneficial in many aspects.

When the radio controller is active, the cab-controller, mounted inside the cab, can not be operated.

There are two types of radio controllers. One for electrical controlled hook-lift systems, see "*Operation – Electrical Systems*", on page 23. And one for air controlled hook-lift systems, see "*Operation – Air Systems*", on page 27.

Before Operation



Personnel must be trained in the use of radio controllers before being allowed to use them. Serious injury or damage to the environment can result if a radio controller is operated incorrectly.

The operator must make sure that they are fully aware of the surrounding environment and equipment.

The operator must be fully focused on the operation of the controller and lifting equipment. Do not operate the radio-controller when performing other tasks.

Make sure that a safe working distance of at least four meters exists around the lifting equipment. Failure to do so can lead to serious injury.

Do not leave a radio controller unattended. When the controller is not in use, make sure it is turned off.

Operation – Electrical Systems

Provided below is an overview of the radio controller for electrical controlled hook-lift systems only. For information regarding radio controllers for air controlled systems, see "*Operation – Air Systems*", on page 27.

Operation of the hook-lift is made using the main control buttons 1-12, as shown opposite.



Information regarding operation is displayed in the controller's display, located at the top of the controller.

Buttons 1–8 are analogue. Pressing these buttons harder will cause the operation that it controls to happen faster. Alternatively, these buttons can be set to simply have an ON/OFF function.

Buttons 9–12 are digital and used for simple functions, such as the operation of a spreader flap.

The buttons 1–12 are multifunctional. That is, they can have more than one function assigned to them. See "*Function Mode*", on page 25 below.

Display

The display at the top of the controller displays information regarding the current function mode selected and the function currently activated. In the example shown, the truck symbol indicates that function mode_1 is selected and that the current function being operated is the hydraulic-lock.

LEDs

Each button has an LED located to the left or right of it. In the example shown, the LED to the left of button 2 is illuminated green. These LEDs are used to provide information regarding current status of the active operation. Listed below is table describing what each relevant LED means.

Table 7: Indicator lamps and their meaning

Indicator lamp for button	Meaning green indicator lamp
2	Tip DOWN completed. Lock or unlock the hydraulic lock.
4	The sledge is at the rear most point of the Hookmaster.
8	Hydraulic lock is OPEN. The body cannot be tipped UP.
12	Function mode 2 selected.
11 and 12	Function mode 3 selected.

Emergency Stop

The large red emergency STOP button located at the bottom of the controller is used to stop the hook-lift in an emergency. To activate it, simply push it in. It must be pulled out to start the controller.

Function Mode

Buttons 1–12 are multifunctional. They can have three functions assigned to them. These are related to the function mode selected for the controller (Function_1, Function_2, or Function_3).

To select the desired function mode, simply press button 12 after start-up of the controller. By default, function mode_1 is operative at start-up. The LEDs next to buttons 11 and 12 indicate which function mode is operative, see Table 8. If function mode 1 is active the LEDs for buttons 11 and 12 are not illuminated.

Listed below is an overview of the buttons and their functions in relation to which function mode has been selected.

Table 8: Remote control functions for electrically controlled systems

Button	Function mode 1	Function mode 2	Function mode 3 [*]
1	Tip – UP	Trailer tip – UP	..
2	Tip – DOWN	Trailer tip – DOWN	..
3	sledge – OUT	Extra 1 [*]	..
4	sledge – IN	Extra 2 [*]	..
5	Folding hook-post – UP	Extra 3	..
6	Folding hook-post – DOWN	Extra 4 [*]	..
7	Hydraulic lock – LOCK	Spreader flap – trailer [*]	..
8	Hydraulic lock – OPEN	Extra 6 [*]	..
9	Spreader flap	Start motor [*]	Extra 7 [*]
10	Automatic flap	Stop motor [*]	Extra 8 [*]
11	Safety hook	--	--
12	Switch function mode	Switch function mode	Switch function mode

* Option: Not standard equipment.

Start the Radio Controller

Follow the instructions below to start the remote control unit.

1. Ensure that the stop button is pulled out.
2. Hold buttons 11 and 12 pressed in together until an audible signal is heard.

3. Check that the display is activated.

Axle Weight Reading

The radio controller can be used to provide an **approximate** value for the weight on an axle(s). Note, this is not a precise value and must be seen as an indication of the actual weight only.

JOAB AB disclaims all responsibility if a vehicle is over weight, even if the radio controller displays a value that is lower than the maximum allowed for the vehicle.

The value displayed in the radio controller will normally be within ± 150 kg.

To activate the axle weight mode, press button 12 repeatedly, until a weight scale is shown. To select which axes are included in the measurement, press the respective buttons: 2, 4, 6, and 8 corresponding to the axle(s) that are to be measured.

Each of the buttons (2, 4, 6, and 8) have two LEDs above them. These are used to show which axes are selected and the status of the axes. The right LED is illuminated red for axes that are selected, as shown. The left LED will blink red whenever an axle is 0–500 kg less than the maximum allowed weight. The left LED will constantly illuminate if an axle is over its allowed weight.

The LED above button 9 is used to indicate that it is the net weight that is displayed in the screen. When the net weight is displayed, the LED is lit red. To change between the net weight and the gross weight press button 9.

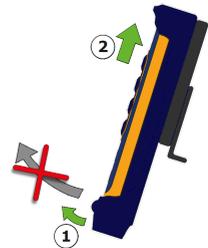


Charging

The charger for the radio controller is normally mounted next to the driver's A-post inside the cab. Alternatively, it is mounted in the driver's side toolbox, behind the door.

When not in use, always place the radio controller in its charger. This will ensure that it is always fully loaded and ready for operation.

To remove the radio controller from the charger, first pull the bottom out a *small amount*, approximately 10 mm, and then push the controller up, as shown.



Do not pull the controller out from the bottom. This will cause damage.

Operation – Air Systems

Provided below is an overview of the radio controller for air controlled hook-lift systems.

Operation of the hook-lift is made using the main control buttons 0-9, as shown opposite.



LEDs

There are three LEDs at the top of the controller. Two yellow (1 and 2) and one green (3). LEDs 1 and 2 indicate which function mode is selected, refer to "Function Mode", on page 27 below.

LED 3 is lit green when the controller is active and red when the battery is low.

Emergency Stop

The large red emergency STOP button located at the bottom of the controller is used to stop the hook-lift in an emergency. To activate it, simply push it in. It must be pulled out to start the controller.

Function Mode

LEDs 1 and 2 (yellow) indicate which mode the controller is in. Either Function_1 or Function_2.

Buttons 5–9 have the numbers 1 and 2 written on them and have two functions. These are related to the function mode selected for the controller (Function_1 or Function_2).

To select the desired function mode, simply press button 0 after start-up of the controller, until LED 1 or LED 2 is illuminated.

Listed below are the radio controller's buttons and their functions in relation to which function mode has been selected.

Table 9: Remote control functions for pneumatically controlled systems

Button	Function mode 1	Function mode 2
1	Tip UP	Tip UP
2	Tip DOWN	Tip DOWN
3	Sledge backwards	Sledge backwards
4	Sledge forwards	Sledge forwards
5	Hook-post – UP	Trailer tip – UP

Table 9: Remote control functions for pneumatically controlled systems (continued)

Button	Function mode 1	Function mode 2
6	Hook-post – DOWN	Trailer tip – DOWN
7	Hydraulic lock – OPEN	Spreader flap truck – UP*
8	Hydraulic lock – LOCK	Spreader flap truck – DOWN*
9	Safety hook	Automatic flap, truck
0	Select function mode	Select function mode

* Option: Not standard equipment.

Start the Radio Controller

To start the radio controller, follow the procedure listed below:

1. Make sure that the STOP button is pulled out.
2. Press buttons 9 and 0 in for at least one second and then release them.
3. Verify that LED 3 is lit green. When lit the controller is active.

Distributing a Load on a Body

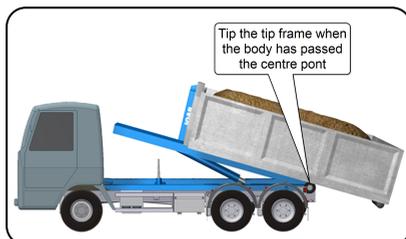


The operator of the hook-lift is responsible for handling it. Care must be taken to avoid injury or damage. Before operating the hook-lift make sure that you have read and are fully aware of the warnings in this manual and on the hook-lift.

Before lifting a body with a load, make sure that:

- The load does not exceed the hook-lift's lifting capacity.
- The load is evenly distributed.
- The lift is carried out on a flat surface.
- The body's support rollers rotate.

When unloading a body with a full load make sure that it has passed the middle point before tipping. If the body is tipped before it has reached the middle point there is a danger that the tip frame is overloaded.



Load capacity is negatively affected if the load is unevenly distributed. If, for example, the load is positioned a long way forward on the vehicle, the lifting capacity can be reduced by 40%.



Another important factor is the length of the body. The length of the body and the load on the body affect the lifting capacity of the hook-lift.



A short overhang causes an abnormal load. Bodies that are adapted for the chassis distribute the load correctly.

The body must be covered if it contains loose material. There is a risk that loose material will be thrown off the vehicle if it is not covered.



Loading a Body

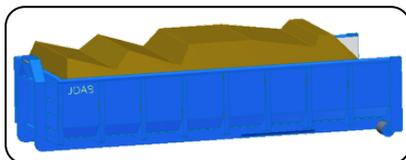


The operator of the hook-lift is responsible for handling it. Care must be taken to avoid injury or damage. Before operating the hook-lift make sure that you have read and are fully aware of the warnings in this manual and on the hook-lift.

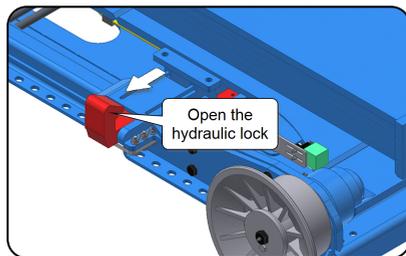
Read the information under "Distributing a Load on a Body", on page 29 before loading the body.

Follow the instructions below to load the body.

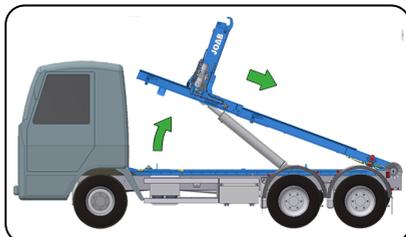
1. Visually check that the load is evenly distributed on the body.
2. Make sure that there is nobody within the working area of the vehicle and the body.
3. Start the hydraulic pump.
 - CBW controller – the pump icon is displayed at the top of the screen. See "User Interface", on page 12.
 - LED display – the pump LED will illuminate. See "LED Display and Buttons", on page 20.



4. Open the hydraulic lock.
 - CBW controller – the icon for open hydraulic lock is displayed on the screen. See "User Interface", on page 12.
 - LED display – the indicator lamp for the hydraulic lock lights red. See "LED Display and Buttons", on page 20.



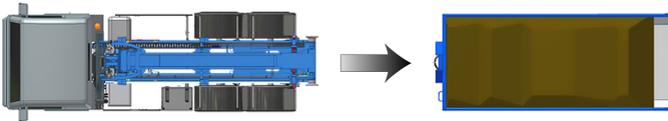
5. Tip the tip frame and run the sledge back.
6. Open the safety hook.



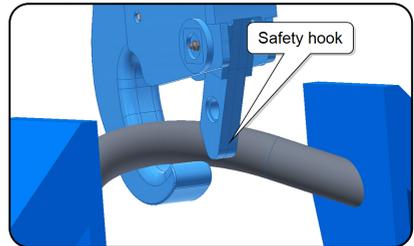
- 7. Fold the hook-post down toward the lifting bracket on the body.



- 8. Reverse the vehicle towards the body so that the hook-post moves towards the centre of the body's lifting bracket. Reverse straight towards the body. If the vehicle is not reversed straight towards the body there is a risk of missing the rollers when pulling the body onto the Hookmaster.

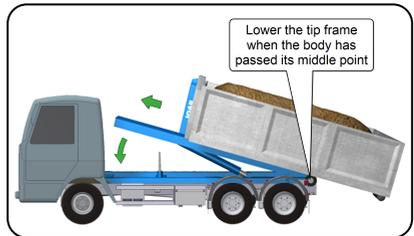


- 9. Operate the hook-post so that it engages with the body's lifting bracket.



- 10. Lock the safety hook.

- 11. Run the sledge forward and lower the tip frame when the body has passed its centre point.



It is strictly forbidden to force or push the body up, particularly with heavy loads. Do not use the ground surface to force the body onto the vehicle.



Fast operation mode must only be used with minimal load.

12. Visually check that the body is loaded correctly.
13. Lock the hydraulic lock.
14. Check that the hydraulic lock has locked the body correctly on the hook-lift and that the warning lamp/icon for the hydraulic lock is no longer lit in the cab.
15. Switch the hydraulic pump off.



Tipping a Body



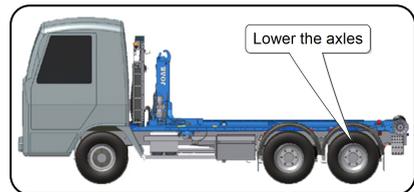
The operator of the hook-lift is responsible for handling it. Care must be taken to avoid injury or damage. Before operating the hook-lift make sure that you have read and are fully aware of the warnings in this manual and on the hook-lift.

To tip a body follow the procedure listed below:

1. Make sure that there is nobody within the working area of the vehicle and the body.
2. Make sure that the vehicle is on a level and firm surface.

Failure to do so, can lead to the vehicle being unevenly loaded and tipping over. If the vehicle leans two or more degrees there is a risk that it will tip over.

3. If the vehicle has retractable axles, make sure that they are lowered before tipping.

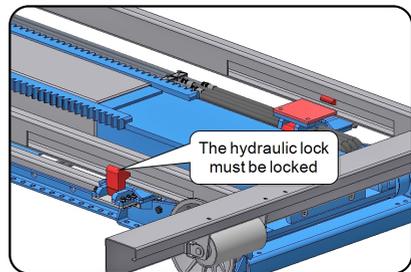


4. Start the hydraulic pump.

- CBW controller – the pump icon is displayed at the top of the screen. See "User Interface", on page 12.
- LED display – the pump LED will illuminate. See "LED Display and Buttons", on page 20.

5. Inspect and make sure that the body is secured with the hydraulic lock. The hydraulic lock must be closed.

Verify that the warning indicator for open hydraulic lock, inside the cab, is not activated.



6. Use the cab mounted control unit and tip the load.



7. After tipping, lower the body to the retracted position.

To prevent wear, do not drive the vehicle with the body raised. This also applies to short journeys.



8. Switch off the hydraulic pump.

Shunting a Body

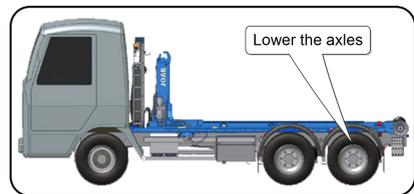


The operator of the hook-lift is responsible for handling it. Care must be taken to avoid injury or damage. Before operating the hook-lift make sure that you have read and are fully aware of the warnings in this manual and on the hook-lift.

To shunt a body follow the procedure listed below:

1. Make sure that there is nobody within the working area of the vehicle and the body.

2. If the vehicle has retractable axles, make sure that they are lowered.

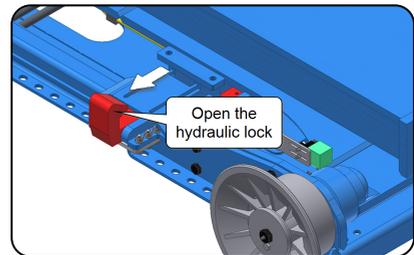


3. Start the hydraulic pump.

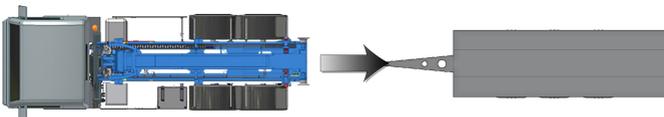
- CBW controller – the pump icon is displayed at the top of the screen. See "User Interface", on page 12.
- LED display – the pump LED will illuminate. See "LED Display and Buttons", on page 20.

4. Open the hydraulic lock.

- CBW controller – the icon for open hydraulic lock is displayed on the screen. See "User Interface", on page 12.
- LED display – the indicator lamp for the hydraulic lock lights red. See "LED Display and Buttons", on page 20.



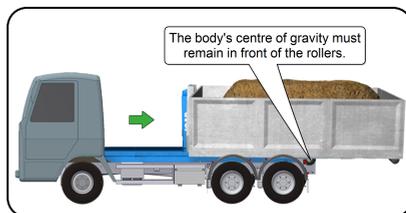
5. Reverse the vehicle as straight and as close as possible towards the trailer. Make sure not to damage to the trailer's tow-bar.



6. Move the hook-post backwards but not fully. Make sure the body's centre of gravity remains in front of the Hookmaster's rollers.



Fast operation mode must only be used with minimal load.



7. Transfer the body to the trailer using the sledge and hook-post.
8. During the final part of the transfer, the tip frame can be used to push the body further onto the trailer.



Unloading a Body



The operator of the hook-lift is responsible for handling it. Care must be taken to avoid injury or damage. Before operating the hook-lift make sure that you have read and are fully aware of the warnings in this manual and on the hook-lift.

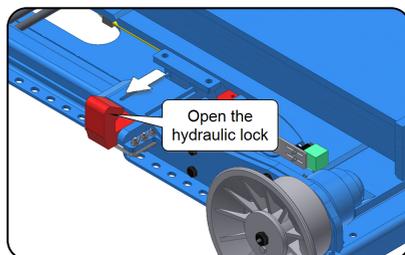
Read the information under "*Distributing a Load on a Body*", on page 29 before unloading the body.

To unload a body, follow the procedure listed below:

1. Make sure that there is nobody within the working area of the vehicle and the body.
2. Start the hydraulic pump.
 - CBW controller – the pump icon is displayed at the top of the screen. See "*User Interface*", on page 12.
 - LED display – the pump LED will illuminate. See "*LED Display and Buttons*", on page 20.

3. Open the hydraulic lock.

- CBW controller – the icon for open hydraulic lock is displayed on the screen. See "*User Interface*", on page 12.
- LED display – the indicator lamp for the hydraulic lock lights red. See "*LED Display and Buttons*", on page 20.



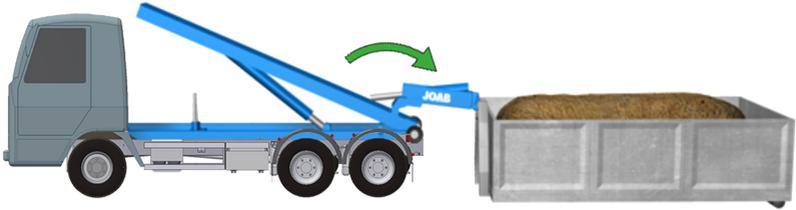
4. Raise the tip frame and run the sledge back.



Fast operation mode must only be used with minimal load.

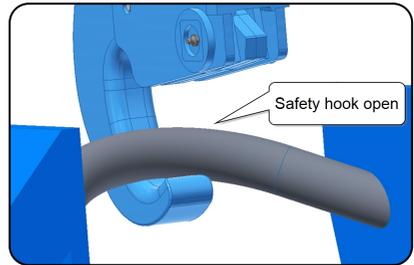


5. Use the hook and lower the load onto the ground.



6. Open the safety hook and retract the Hook-master.

7. Switch the hydraulic pump off.



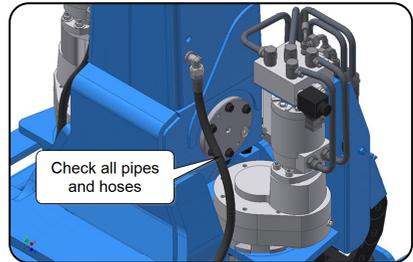
Service and Maintenance

To prevent unnecessary wear, it is important to maintain the hook-lift continuously. Provided below is information regarding daily maintenance and servicing.

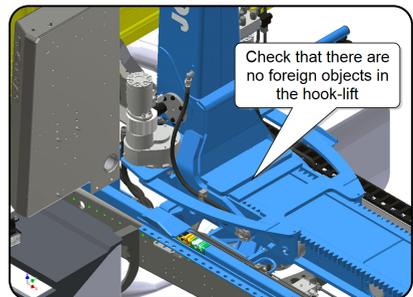
Daily Maintenance

Daily care, which only takes a few minutes, can prolong the service life of the hook-lift. Carry out the following checks each day to keep the hook-lift in good condition.

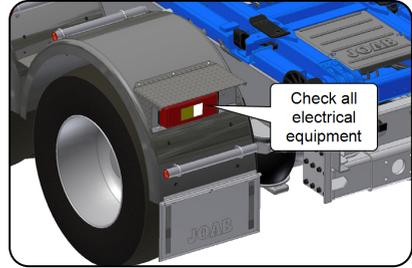
1. Check the oil level.
2. Make sure that there are no trapped pipes or hoses. And that they are free from damage or leaks..



3. Make sure that there are no fallen objects in between the hook-lift's different parts.
4. Check that the hook-lift is free from deformation and cracks



5. Verify that all lighting and other electrical equipment functions correctly.



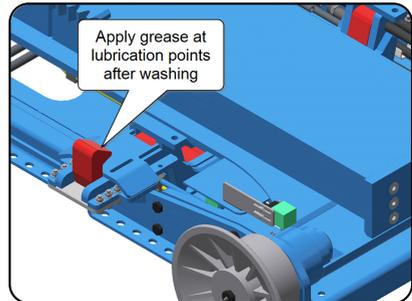
6. Check the hydraulic pump. If damage is found, contact your JOAB workshop immediately.



Washing the Hook-Lift

Newly lacquered surfaces must be cleaned using detergent and a sponge only. Do not use a high pressure washer. A high pressure washer should only be used after at least three weeks following treatment of surfaces.

Detergents contain acids. Make sure that the cleaning fluid used to clean surfaces contains less than 9pH. The maximum temperature of the cleaning fluid must not exceed 50 °C above the ambient temperature. After washing, make sure to rinse all surfaces thoroughly.



Cleaning the hook-lift with a high pressure washer entails risks. All electrical components, even enclosed, are sensitive to water under high pressure.

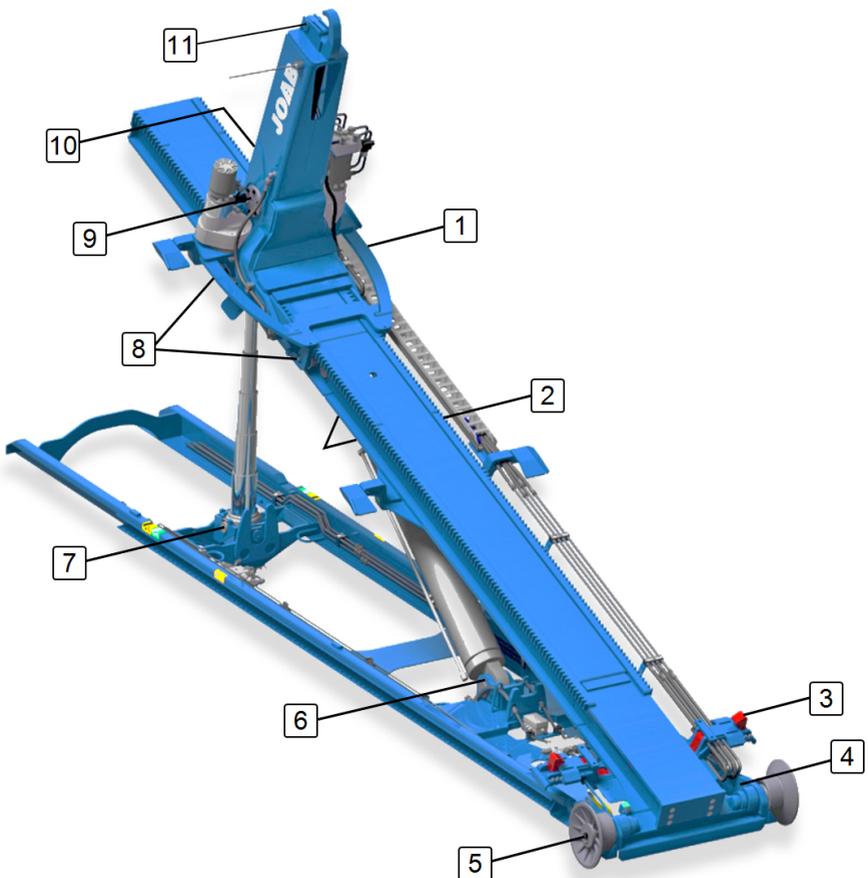
When using a high pressure washer, make sure to hold the nozzle at least 45 cm from all lacquered surfaces. Use a standard nozzle only, do not use a turbo nozzle.

Always apply fresh grease around lubrication points after washing. For more information regarding the hook-lift's lubrication points, refer to below.

Lubrication Points

The image below displays the hook-lift's lubrication points.

1. Sledge
2. Tip cylinder, tip frame mounting.
3. Hydraulic lock
4. Tip axle
5. Rollers
6. Tip cylinder, sub-frame mounting.
7. Auxiliary cylinder
8. Sledge wheels
9. Hook-post axle
10. Hook cylinder and piston rod
11. Safety hook



Service of the Hook-Lift

During normal operation the oil changes are carried out as follows.

- Mineral oil – every other year
- Environmentally-friendly oil – every year

JOAB recommends changing the oil in the autumn. Hydraulic oil class 32 – cst/40 is the recommended mineral oil.

If environmentally-friendly oil is used, always use the same type of oil and from the same manufacturer.



The oil filter must be changed after 50 operating hours and then every year.

The air filter must be replaced at least every other year, more frequently if required.

Service-Reminder Sticker

A JOAB service sticker is placed on the inside of the drivers door to indicate when the hook-lift is due for its next service. In the example shown opposite, the numbers around the outside represent the months January to December.



As the month numbered 1 (January) is missing from the sticker, this indicates that the next service is due during the month of January. Make sure that the hook-lift is serviced in accordance with the sticker.

Service Packets and Warranty

Service packets can be ordered from JOAB using the information provided below. Always have the information provided on the hook-lift's manufacture plate ready before making contact. Refer to "Manufacturer Plate", on page 4.

Table 10: Service package

Department	Contact details
Service workshop	031-7050 687
Replacement parts	031-7050 686
Technical support	031-7050 688
Warranty	031-7050 717
Bodybuilder support	031-7050 705

Visit our website www.joab.se to order replacement parts and find your nearest JOAB authorised workshop.

Working on the Hook-Lift

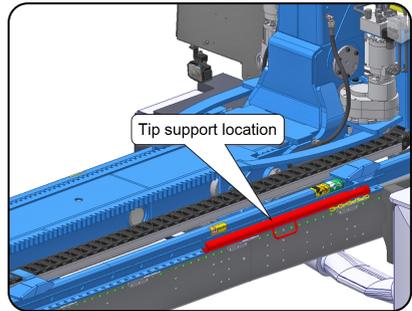


Before working on a raised hook-lift the body must be removed from the hook-lift. And the tip-support must be in place to support the hook-lift. Failure to do so, can lead to serious injury or death.

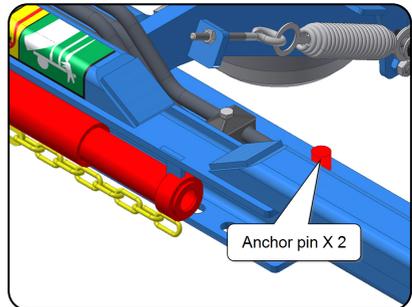
The hook-lift has a tip-support, as illustrated and described below.

This is used when working on the hook-lift. It support the hook-lift when it is raised and act as a safety measure in the event there is a hydraulic failure.

The adjacent image shows where the tip-support (red) is stored.



The tip-support is anchored onto the hook-lift using two red anchor points, as shown opposite. Locate these on the hook-lift and place the tip-support between them before working on a hook-lift.



Safety Warnings



The operator is responsible for learning all applicable safety measures. Failure to do so can result in serious injury, damage to property, or environmental damage.

The hook-lift has a number of safety labels attached to it, as shown below. It is important to read and adhere to these warnings. Failure to do so can lead to serious injury or damage to equipment.

Make sure that the labels are in good condition. If necessary, new safety labels can be ordered from JOAB.

Safe Working Distance

Make sure that there are no unauthorised persons in close proximity of the hook-lift's working area. The risk zone is 8 metres in all directions of the hook-lift and body.



Working on the Hook-Lift

Never work under a hook-lift without the use of the tip-supports. Make sure that the body is removed from the hook-lift and that the tip-supports are mounted correctly so that they support the hook-lift, before carrying out any work.



Park the Hook-Lift before driving the Vehicle

Make sure the hook-lift is parked before driving the vehicle. Failure to do so can lead to serious injury or damage. There is a serious risk that the hook will make contact with the environment if it is not parked.



Risk of Slipping

Be aware when operating the hook-lift that there may be a risk of slipping, that could lead to injury.



Suspended Loads

Do not stand or walk underneath a suspended load. If a suspended load breaks free it can lead to serious injury or death.



Risk of being Trapped

Be aware that there is a serious risk of becoming trapped when operating the hook-lift. Always verify that there is no risk of anyone becoming trapped or injured before operating the hook-lift.



Technical Data

Specifications of the hook-lift are provided below..

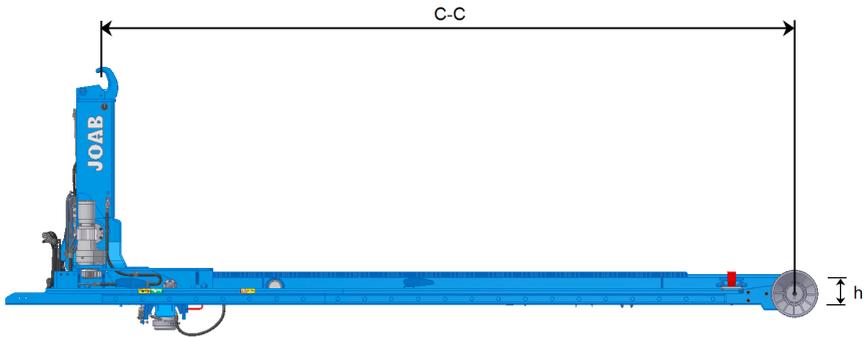


Table 11: Technical data

Specification	Value
Oil pressure	250 bar
Recommended oil flow	100 l/min
Max. load capacity	20 to 25 tonnes*
Max. tip angle	55° to 93°*
Superstructure height	178 mm *
Weight in kg*	model dependent.
Distance (C-C) between hook and rear roller*	model dependent.
Total length of hook-lift*	model dependent.

Fault Tracing the Hook-Lift

Provided below is a simple troubleshooting guide that can help to identify the most common faults with a hook-lift.

Table 12: Fault tracing the hook-lift

Problem	Cause	Action
<ul style="list-style-type: none"> Noise from pump. 	<ol style="list-style-type: none"> Pump draws air. Insufficient oil volume. The pump is defective. 	<ol style="list-style-type: none"> Check connections. Adjust the amount of oil. Replace pump.
<ul style="list-style-type: none"> Nothing works. 	<ol style="list-style-type: none"> Emergency stop has been activated. Fuse/relay has tripped. 	<ol style="list-style-type: none"> Switch off the engine, pull out the emergency stop button and restart. Replace fuse/relay.
<ul style="list-style-type: none"> Noise from cylinders. Jerky hydraulic movement. Oil sprays from the tank. 	<ol style="list-style-type: none"> The piston rod is damaged. Air in the hydraulic system. Valve or piston fault in pump. Oil level in the tank too high or too low. Pump draws air. The tank's air filter is blocked. 	<ol style="list-style-type: none"> Replace the piston rod. Check that the suction line is sealed. Service or replace the pump. Adjust the oil level. Service or replace the pump. Replace filter.
<ul style="list-style-type: none"> Poor lifting capacity. 	<ol style="list-style-type: none"> Insufficient amount of oil to the pump. Oil pressure too low. Leaking cylinder gaskets. 	<ol style="list-style-type: none"> Check the oil level. Contact JOAB. Replace the cylinder gaskets.
<ul style="list-style-type: none"> Controller or levers jam 	<ol style="list-style-type: none"> Chain lock/lever jams. Spring set for air cylinder broken. Solenoid jams. 	<ol style="list-style-type: none"> Remove, lubricate and re-stall. Replace spring set. Clean solenoid. Replace it, if necessary.

Contact Information

Table 13: Contact details

Information	Contact details
Address	JOAB Försäljnings AB Östergårde Industriområde 417 29 Göteborg Sweden
Tel.:	031-705 06 00
Fax:	031-705 06 09
E-mail:	info@joab.se
Website:	www.joab.se

Service and Warranty

For information regarding service and warranty, see "Service Packets and Warranty", on page 44.