

# Table of Contents

<b>1</b>	<b>About this document.....</b>	<b>7</b>
1.1	Purpose of the present operating instructions.....	7
1.2	Applicability.....	7
1.3	Further applicable documents.....	7
1.4	Copyright.....	7
1.5	Symbols in this document.....	7
<b>2</b>	<b>Safety.....</b>	<b>9</b>
2.1	Using the machine.....	9
2.1.1	Intended use.....	9
2.1.2	Improper use.....	9
2.2	In an emergency.....	9
2.2.1	Stopping the machine in an emergency situation.....	9
2.2.2	Emergency operation.....	9
2.3	The operating company's obligations.....	9
2.4	Staff competency.....	10
2.5	Personal protective equipment.....	10
2.6	Condition of the machine.....	10
2.7	Safety during operation.....	11
2.7.1	Crushing.....	11
2.7.2	Operation in the event of poor visibility.....	11
2.7.3	Electric shock caused by overhead power lines.....	12
2.7.4	Risk of falling.....	13
2.7.5	Burns.....	14
2.7.6	Noise.....	14
2.7.7	Inhaling exhaust fumes.....	14
2.7.8	Heavy lifting when retooling.....	14
2.8	Safety during maintenance.....	14
2.9	Safety bar for inspection (option).....	14
2.10	Signs on the machine.....	15
2.10.1	Safety signs.....	15
2.10.2	Operating signs.....	17
2.10.3	Type plates.....	17
2.10.4	Service labels.....	18
2.11	Safety equipment and warning devices.....	18
2.11.1	Control system.....	18
2.11.2	Transport position monitoring.....	18
2.11.3	Monitoring the articulated boom (option).....	18
2.11.4	Warning horn.....	19
2.11.5	Warning light.....	19
2.11.6	Seals.....	19
<b>3</b>	<b>Product description.....</b>	<b>21</b>
3.1	Overview of the machine and how it works.....	21
3.1.1	Articulated boom.....	22

---

3.1.2	Overview of operating levers.....	22
3.1.3	Container locking system.....	23
3.1.4	Vehicle stabilization system.....	24
3.2	Controls.....	26
3.2.1	Cabin control.....	27
3.2.2	Remote control.....	30
3.3	Technical data.....	34
3.3.1	Ambient conditions during operation.....	34
3.3.2	Noise emission.....	34
3.3.3	Storage temperature for batteries.....	34
<b>4</b>	<b>Preparing for operation.....</b>	<b>35</b>
4.1	Inspecting vehicle before setting off.....	35
<b>5</b>	<b>Basic operation.....</b>	<b>37</b>
5.1	Charging the remote control's batteries.....	37
5.1.1	Changing the remote control's battery.....	38
5.2	Pulling on a container.....	38
5.2.1	Rules for loading containers.....	38
5.2.2	General procedure for pulling on a container.....	39
5.2.3	Check working area.....	39
5.2.4	Check container type and carry out a visual inspection around it.....	40
5.2.5	Sealing off danger zone.....	43
5.2.6	Making a visual inspection of the machine.....	44
5.2.7	Position vehicle for pulling on a container.....	45
5.2.8	Starting the machine.....	45
5.2.9	Switching on the remote control.....	46
5.2.10	Pull container onto the vehicle.....	46
5.2.11	Switch off the machine.....	60
5.3	Rolling a container off.....	60
5.3.1	Rules for rolling off containers.....	60
5.3.2	General procedure for rolling a container off.....	61
5.3.3	Position vehicle for rolling off a container.....	61
5.3.4	Rolling a container off the vehicle.....	62
5.4	Tipping a container.....	75
5.4.1	Rules for tipping containers.....	75
5.4.2	General procedure for tipping a container.....	76
5.4.3	Position vehicle for tipping a container.....	76
5.4.4	Tipping a container.....	76
5.5	Transferring a container.....	82
5.5.1	Rules for transferring containers.....	83
5.5.2	General procedure for transferring a container.....	83
5.5.3	Position vehicle for transferring containers.....	83
5.6	Changing the movements' speeds.....	84
5.6.1	Changing speed via cabin control.....	84
5.6.2	Changing speed via remote control.....	85
5.7	Starting machine after EMERGENCY STOP.....	85
5.8	Slew articulated boom in the safe area (option).....	86
5.9	Slew articulated boom in the critical area (option).....	86
5.10	Suspending operation.....	87

---

## Table of Contents

---

5.11	Emergency operation.....	87
5.11.1	Operating in the event of sensor failure via cabin control.....	87
5.11.2	Operating in the event of sensor failure via remote control handset.....	88
<b>6</b>	<b>Operating items of auxiliary equipment.....</b>	<b>91</b>
6.1	Stabilization.....	91
6.1.1	Extend stabilizer(s) via cabin control.....	91
6.1.2	Extend stabilizer(s) via remote control.....	91
6.1.3	Retract stabilizer(s) via cabin control.....	92
6.1.4	Retract stabilizer(s) via remote control.....	92
6.2	Hook safety latch.....	93
6.2.1	Working with the mechanical hook safety latch.....	93
6.2.2	Working with the pneumatic hook safety latch.....	94
6.3	Underride protection.....	95
6.3.1	Retract underride protection.....	95
6.3.2	Extend underride protection.....	97
6.4	Adjustable hook height.....	99
6.4.1	Adjust hook height mechanically.....	99
<b>7</b>	<b>Ending operation.....</b>	<b>101</b>
7.1	Ensure transport position.....	101
<b>8</b>	<b>Troubleshooting.....</b>	<b>103</b>
8.1	Retrieve saved status codes.....	103
8.2	Warning messages on the cabin control.....	104
8.2.1	Overview of the warning messages.....	104
8.3	Information messages on the cabin control.....	111
8.4	Error messages on the cabin control.....	111
8.5	Remedying machine malfunctions.....	111
8.6	Show software version.....	112
<b>9</b>	<b>Maintenance.....</b>	<b>115</b>
9.1	Maintenance schedule.....	115
9.1.1	Operating hours counter.....	115
9.2	Cleaning.....	118
9.2.1	Cleaning the sensors.....	119
9.3	Visual inspection.....	122
9.3.1	Hydraulic oil inspection.....	123
9.3.2	Compressed air filter check.....	124
9.4	Lubrication.....	124
9.4.1	Lubricating points.....	125
9.5	Lubricants and operating fluids.....	126
9.5.1	Grease.....	126
9.5.2	PALFINGER Teflon spray.....	126
9.5.3	PALFINGER Teflon grease.....	127
9.5.4	Hydraulic oil.....	127
<b>10</b>	<b>Decommissioning.....</b>	<b>129</b>
10.1	Mothballing.....	129
10.2	Disposal.....	129

11 Index.....131

# 1 About this document

## 1.1 Purpose of the present operating instructions

This document is intended for the operating company's users and maintenance personnel and contains important information relating to safe working with the machine.

The document belongs to the machine and must always be kept in the cab of the vehicle.

Everybody working with or on the machine must have read these operating instructions and must follow the guidance they contain.

## 1.2 Applicability

This document is part of the entire operating instructions for the machine mentioned on the front page.

Some sections of this document do not apply to all specification variants. The same applies to a few illustrations and details.

## 1.3 Further applicable documents

The following documents and information belong to the machine's entire operating instructions:

- The present operating instructions
- Inspection log book for hand-over, maintenance and servicing
- Operating instructions of any additional features and equipment
- Third-party manufacturers' operating instructions
- The assembler's additional documents

Further information about the machine:

- Spare parts list
- Installation guidelines for mounting the machine on the vehicle

## 1.4 Copyright

© Copyright by PALFINGER






Reproduction, including in partial form, only with the written consent of the manufacturer.

Android, Google Play and Google Play logo are registered trademarks of Google LLC.



iOS, App Store and App Store logo are registered trade marks of Apple Inc.

## 1.5 Symbols in this document

The following symbols are used in this document:

Symbol	Meaning
 480	Danger for people
 480 DANGER	Situation that leads to death or serious injury
 480 WARNING	Situation that can lead to death or serious injury
 480 CAUTION	Situation that can lead to minor injuries
NOTICE	Situation that can lead to damage
 486	Important information

---

Symbol	Meaning
 <small>620</small>	Permitted action
 <small>621</small>	Prohibited action

---

## 2 Safety

### 2.1 Using the machine

#### 2.1.1 Intended use

The machine is fitted as a fixed unit on the vehicle and is used to pull on, roll and tip suitable containers.

The following applications are allowed:

- To pull up and roll off containers
- To tip containers
- Transferring containers onto the vehicle trailer

Any other uses are deemed improper use.

#### 2.1.2 Improper use

The following uses of the machine are forbidden:

- Carrying people
- Using the machine to pull containers and other objects at an angle, to push them or to drag them free
- Loading containers that are not suitable for the machine
- Loading containers that are not lined up with the vehicle
- Attaching and locking containers onto places not designed for the purpose
- Moving containers with dangerous cargo
- Working in potentially explosive atmospheres
- Carrying out operations that do not comply with the specifications in operating instructions and technical data

### 2.2 In an emergency

#### 2.2.1 Stopping the machine in an emergency situation

For stopping in an emergency, the machine is equipped with a *STOP button* and an *EMERGENCY STOP button*. When pressed, all movements stop immediately.

- The *STOP button* is on the cabin control (see page 27).
- The *EMERGENCY STOP buttons* (option) are located at the following panels:
  - On the side of the vehicle (optionally on both sides) (see page 22)
  - Remote control (optional) (see page 30)

#### 2.2.2 Emergency operation

In order to bring the machine into a safe position in case of sensor failure, activate emergency operation. (see page 87)

### 2.3 The operating company's obligations

The company operating the machine has the following tasks and duties:

- ▶ To charge only trained personnel with the jobs described in this manual.
- ▶ To ensure that the personnel have read and understood this manual.
- ▶ To ensure that the personnel are not under the influence of any mind-altering substances, such as alcohol or drugs.
- ▶ In particular to differentiate the levels of training for the following groups of people:
  - ▶ Operators
  - ▶ Signalers
  - ▶ The operating company's maintenance staff
- ▶ To ensure that the personnel adhere to country-specific regulations.
- ▶ To define for every job what protective equipment and protective clothing is required.

- ▶ To define responsibility for all activities.
- ▶ To induct and regularly train personnel.
- ▶ To ensure that personnel are of the prescribed minimum age and meet the mental and physical requirements.
- ▶ To have prescribed inspections of the machine carried out.
- ▶ To ensure that the machine is in technically perfect condition.
- ▶ To ensure that all signs are in place on the machine and are legible.

## 2.4 Staff competency

Unsuitable personnel are not able to recognize risks and thus put themselves and others in danger.

### Operators

Operators have been instructed in the operation of the machine and the applicable hand signals and observe in particular the rules for working with the machine described in this manual.

### Signalers

Signalers help the operator in situations lacking clear sightlines. They know the applicable hand signals for communicating with the operator.

### The operating company's maintenance staff

The members of the operating company's maintenance staff are allowed to carry out maintenance jobs on the machine. They have the necessary specialist knowledge.

## 2.5 Personal protective equipment

When working on and with the machine there is a risk of injury.

- ▶ Wear the following personal protective equipment when working on and with the machine:
  - Reflective vest / high-visibility clothing
  - Hard hat
  - Safety boots
  - Protective gloves
  - Ear protectors
  - Protective goggles, depending on job
  - Respiratory protection mask, depending on job
- ▶ Ensure that the personal protective equipment is in perfect condition.
- ▶ Before every job, check what protective equipment of which protection class is required.

## 2.6 Condition of the machine

If the machine is operated in less than perfect condition, its safety and proper working order are no longer assured.

- ▶ Operate the machine only in technically perfect condition.
- ▶ Have the prescribed inspections and maintenance performed.
- ▶ Check the *STOP button* for proper function every day before starting to work.
- ▶ Remedy any faults immediately.
- ▶ Do not modify or alter the machine without authority.
- ▶ Use only original PALFINGER replacement parts.
- ▶ Have the machine fitted and taken off only by specially trained personnel.

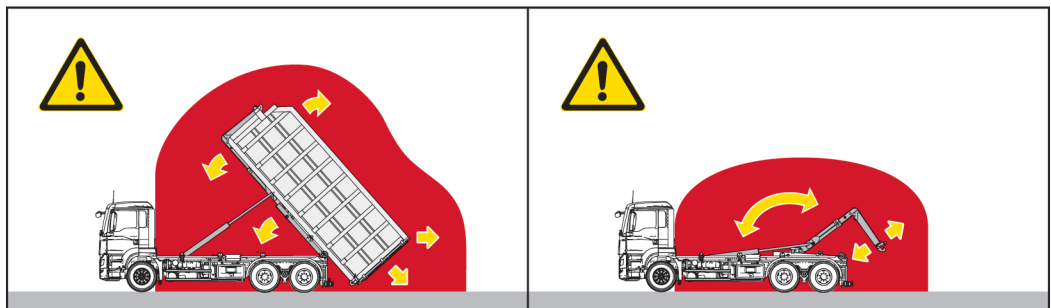


## 2.7 Safety during operation

### 2.7.1 Crushing

Unexpected machine movements or working with the machine incorrectly can lead to limbs getting crushed.

- ▶ In case of remote control operation, the operator must be outside the danger zone.
- ▶ When working with cabin control do not exit the driver's cab.
- ▶ Make sure nobody is in the danger zone.
- ▶ Keep a sufficient safe distance between persons and moving machine parts or loads.
- ▶ Before exiting the cab, secure the vehicle against rolling away.
- ▶ When retooling the machine wear personal protective equipment.
- ▶ Take hold of items of auxiliary equipment by the handles provided.
- ▶ Always monitor the machine's movements.



### 2.7.2 Operation in the event of poor visibility

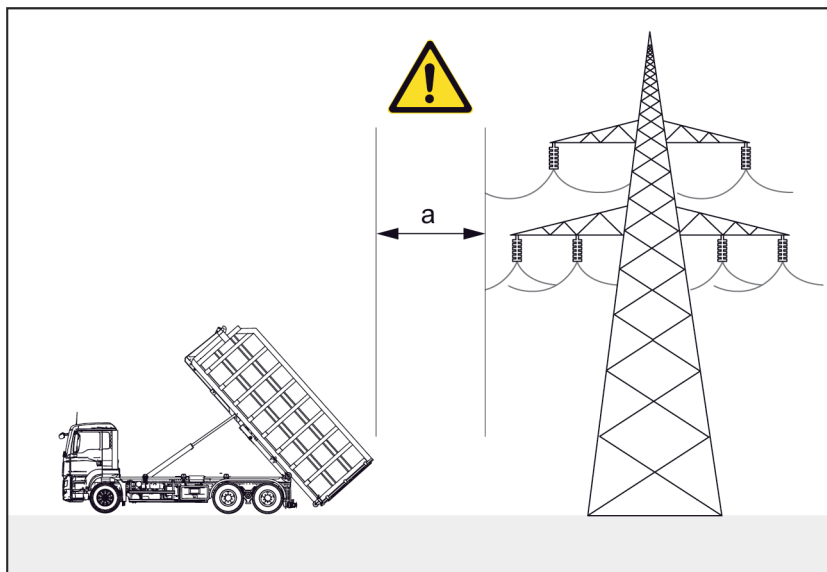
Poor visibility can lead to dangerous situations and put people's lives at risk.

- ▶ Illuminate dangerous area.
- ▶ If visibility is inadequate, stop working.

### 2.7.3 Electric shock caused by overhead power lines

When working near to overhead power lines there is a risk of fatal injury.

- ▶ Maintain safe distances (a) as per table.



NOTE: Comply with any differing national regulations.

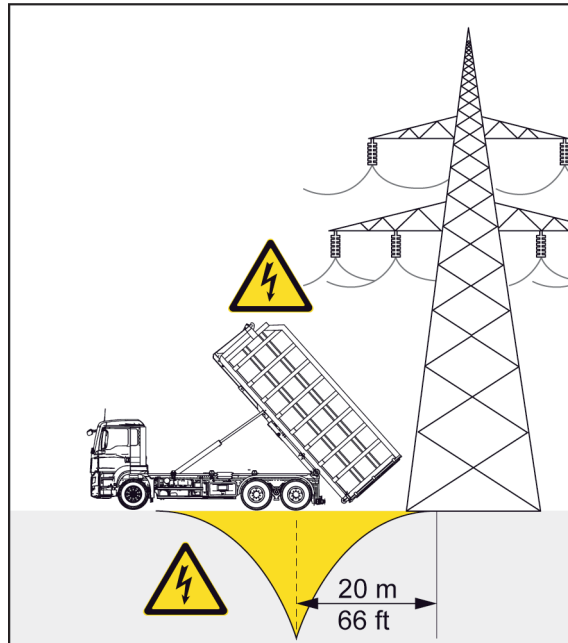
- ▶ In windy conditions increase safe distance, as overhead power lines sway.
- ▶ Reduce safe distances only if overhead power lines have been turned off and secured against being turned back on.

Overhead line voltage	Safe distance (a)
< 1000 V	1.0 m (3.3 ft)
≥ 1000 V	5.0 m (16.5 ft)
unknown	5.0 m (16.5 ft)

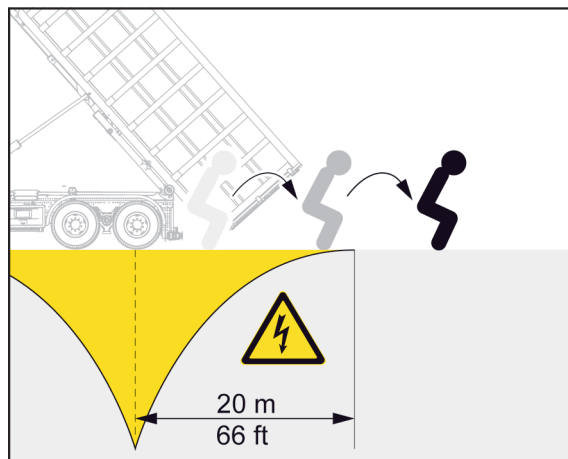
### Procedure in the event of an electrical accident

If overhead power lines get touched or minimum distances undershot this leads to voltage flash over and creates a potential gradient, which presents a risk of fatal injury.

- ▶ Warn anyone standing nearby and tell them to keep a safe distance.
- ▶ Maintain a safe distance of 20 m (66 ft) from the center of the potential funnel.



- ▶ Do not leave the driver's cab and do not touch any controls or metal parts.
- ▶ Leave the area of the potential gradient only by jumping with both feet. Keep your legs closed to avoid the step voltage.



- ▶ Have overhead power lines shut off.

### 2.7.4 Risk of falling

Climbing up on the machine presents a risk of fatal injury from falling.

- ▶ If platforms are installed on the vehicle, use climbing aids and grab handles when entering and exiting them.
- ▶ Use all guard rails.
- ▶ Step only on the treads provided.
- ▶ Do not climb up on the machine.

### 2.7.5 Burns

Hot machine parts such as hoses and hydraulic cylinders can cause burns.

- ▶ Do not touch any hot machine parts such as hydraulic components or working lights.
- ▶ Avoid contact with any escaping oil or hydraulic fluid.
- ▶ Keep an adequate distance from the vehicle's exhaust system.

### 2.7.6 Noise

Noise exposure comes mainly from the vehicle motor or the auxiliary units. Low noise exposure over a longer period or high noise exposure for a short period may endanger health.

- ▶ Observe the noise exposure information. (see page 34)
- ▶ Pay attention to the body builder's documents.
- ▶ Keep the engine rpm low.
- ▶ Keep the greatest possible distance to the source of noise.
- ▶ Wear appropriate ear protectors.

### 2.7.7 Inhaling exhaust fumes

Inhaling exhaust fumes can cause poisoning.

- ▶ In enclosed spaces, guide exhaust fumes out into the open.
- ▶ When operating with remote control, keep an adequate distance from the exhaust system.

### 2.7.8 Heavy lifting when retooling

When doing retooling work, lifting heavy items can lead to back injuries.

- ▶ Items of equipment weighing 25 kg or more (20 kg or more for women) should be lifted by more than one person.

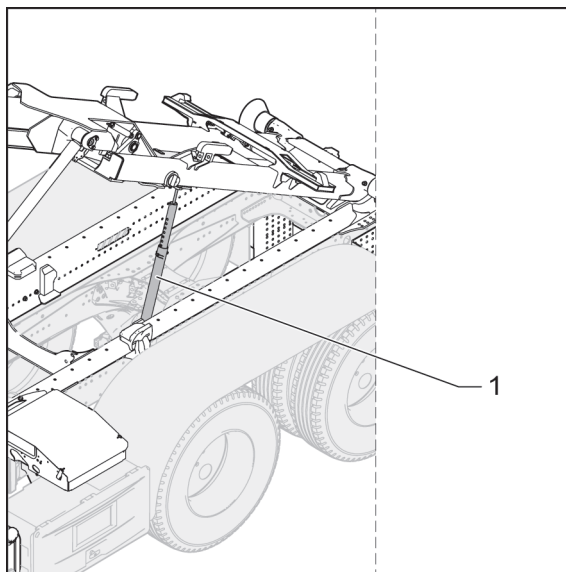
## 2.8 Safety during maintenance

If maintenance jobs are not done properly, the safety of the machine is no longer assured.

- ▶ Have maintenance jobs done only by trained personnel.
- ▶ Have servicing work and repairs carried out by a PALFINGER service partner.

## 2.9 Safety bar for inspection (option)

The safety bar is only for PALFINGER service partners.



1 Safety bar

105098

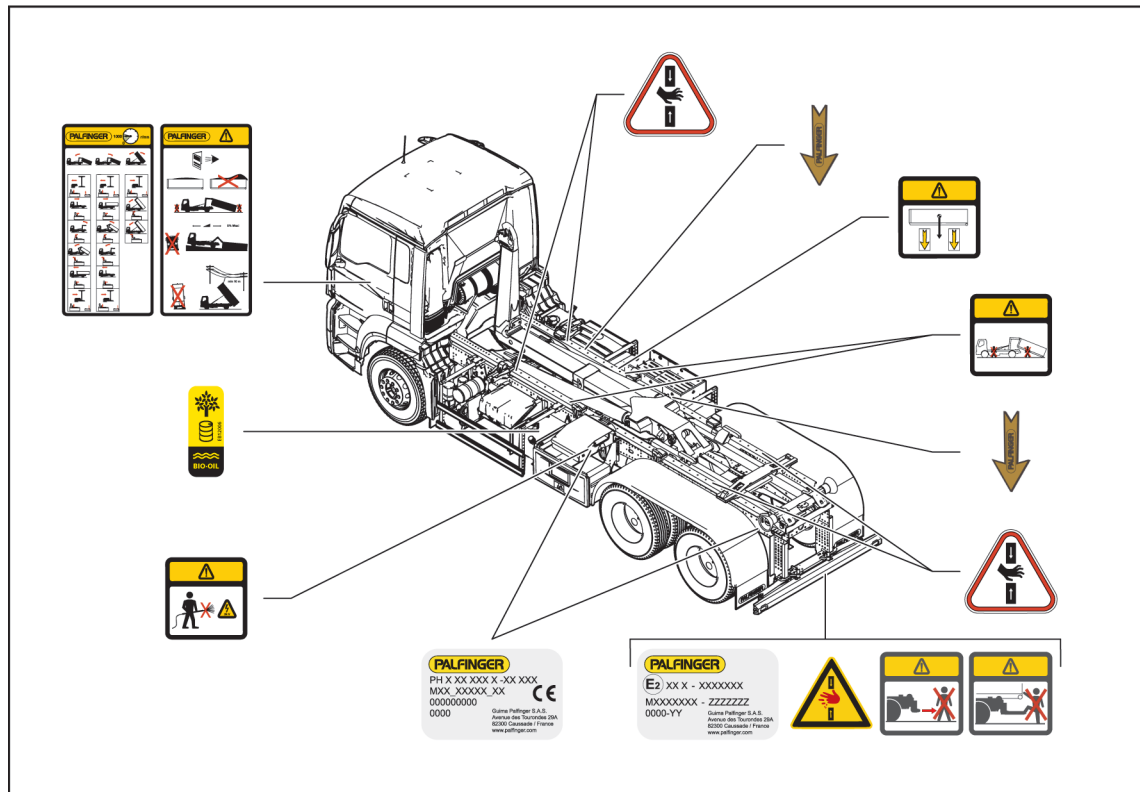
## 2.10 Signs on the machine

There are the following signs on the machine:

- Safety signs for safe operation
- Operational signs to make error-free operation easier
- Type plates for identification



Signs are there to ensure safe, correct operation of the machine and must all be in place and legible at all times.



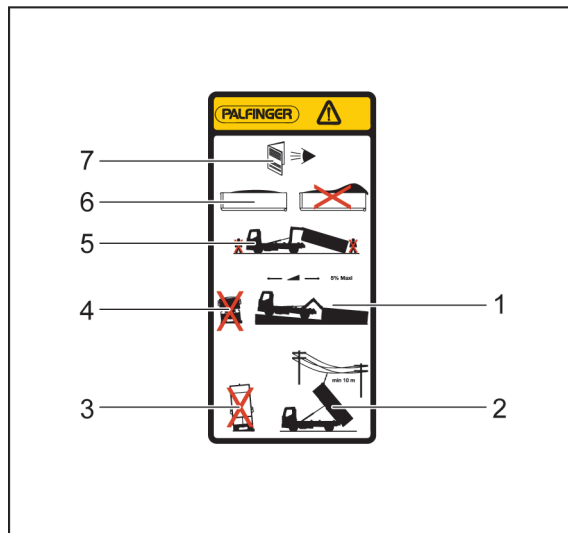
Ill. 1: Signs on the machine

### 2.10.1 Safety signs

If safety signs are ignored, people can be seriously injured.

- ▶ Ensure that all signs are in place and legible.
- ▶ Take heed of safety signs.

Safety sign in the driver's cab



- |  |   |
|--|---|
| <p>1 Maximum vehicle tilt around the transverse axis</p> <p>3 Danger caused by vehicle leaning to the side when tipping the container</p> <p>5 Risk of crushing due to people being in the danger area</p> <p>7 Observe the operating instructions</p> | <p>2 Distance from overhead power lines (see page 12)</p> <p>4 Danger caused by vehicle leaning to the side</p> <p>6 Ensure load is distributed evenly in the container</p> |
|--|---|



Water jet

Never point the water jet at the following components:

- Electrical components
- Plastic components
- Bearings and bearing points
- Labels



Danger of crushing due to underride protection / Don't step here

Always observe the prescribed safety distances to escarpments. Don't step on the underride protection



Risk of crushing on marked point

Keep the safety distances (see page 11)



Risk of crushing by moving parts

Keep the safety distances (see page 11)



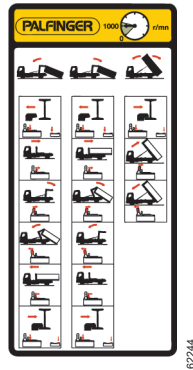
Risk of crushing for any people in the danger area

Seal off danger zone (see page 43)

### 2.10.2 Operating signs

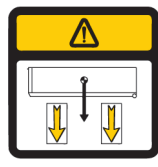
If operating signs are ignored, it is possible that the machine will be operated incorrectly, which could lead to it being damaged.

- ▶ Ensure that all operating signs are in place and legible.
- ▶ Pay attention to operating signs.



Recommended rpm / procedure when moving containers

Column to the left: Sequence when pulling on  
Middle column: Sequence when rolling off  
Column to the right: Sequence when tipping



Container's centre of gravity

This sign marks the position of the container's centre of gravity with the load distributed in the optimum way



Container's centre of gravity

With nearly perfect load distribution place the container's centre of gravity between the two arrows.

### 2.10.3 Type plates

Type plates are used to identify the machine or auxiliary items of equipment.

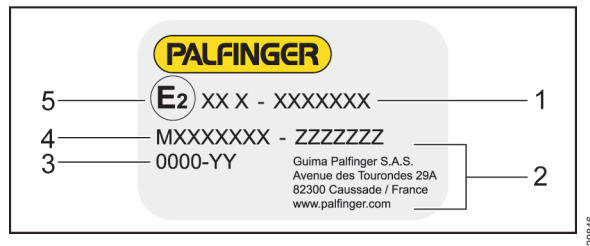
- ▶ Ensure that all type plates are in place and legible.

#### Type plate



- |   |                              |   |                              |
|---|------------------------------|---|------------------------------|
| 1 | Machine's operating pressure | 2 | Conformity with EU Directive |
| 3 | Manufacturer's address       | 4 | Year built                   |
| 5 | Serial number                | 6 | Product code                 |
| 7 | Model                        |   |                              |

### Underride protection type plate



- |   |                      |   |                        |
|---|----------------------|---|------------------------|
| 1 | Type / serial number | 2 | Manufacturer's address |
| 3 | Year built           | 4 | Product code           |
| 5 | Type approval        |   |                        |

### 2.10.4 Service labels

Service labels show information about servicing schedules and operating fluids used.

- ▶ Ensure that all service labels are in place and legible.



Biodegradable oil label  
(option)

If this sign has been stuck on the hydraulic oil tank, it may be topped up only with biodegradable oil. The specification of the hydraulic oil and the details on the Service intervals label must be followed. (see page 127)

## 2.11 Safety equipment and warning devices

Safety equipment protects people from danger when working with the machine.

- ▶ Before operating the machine, ensure that all safety features are working.

### 2.11.1 Control system

The control system controls and monitors the machine. Sensors monitor the positions of the boom system, of the frame and of the container locking mechanisms. Operation and indicator display is via the cab control system in the driver's cab. A remote control unit is available as an option.

### 2.11.2 Transport position monitoring

The transport position monitoring system helps the operator to recognize that the machine and the container locking are not properly in the transport position. Its use is indicated via the cabin control in the driver's cab.

### 2.11.3 Monitoring the articulated boom (option)

A sensor monitors the position of the articulated boom. If the articulated boom extends beyond the safe area, the movement stops automatically. Within the critical area there is danger of collision with the moving tipper cylinder.

- Slew articulated boom in the safe area. (see page 86)
- Slew articulated boom in the critical area. (see page 86)



#### 2.11.4 Warning horn

The warning horn provides a warning in the following situations:

- During operation (PTO is on):
  - Hydraulic container lock not closed/locked
  - Telescopic boom is completely retracted
  - Underride protection not retracted/extended
- During travel (PTO is off):
  - Tipping frame not in transport position
  - Hydraulic container lock not closed/locked
  - Underride protection not retracted/extended

#### 2.11.5 Warning light

The machine is equipped with a warning light (varies depending on version). When working at night, this can be used instead of the warning buzzer. To do this, you need to switch to Night mode via the control system.

#### 2.11.6 Seals

Some screws on the emergency operator station are secured with seals.

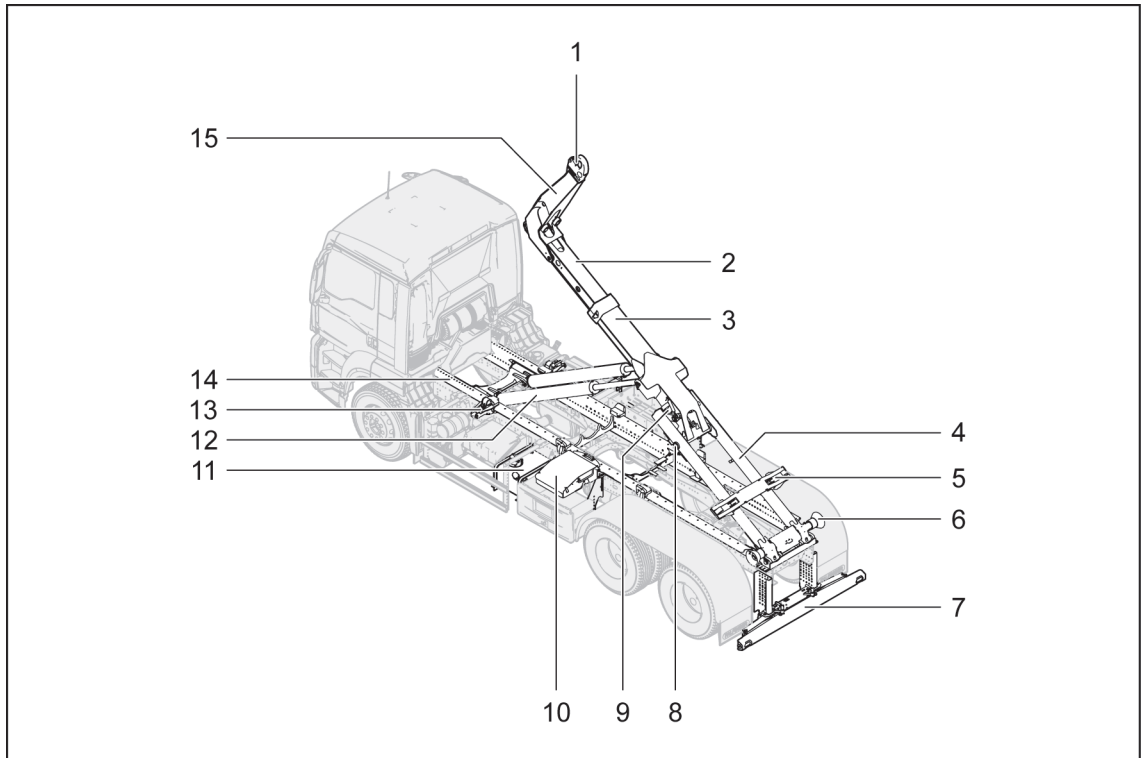
- ▶ Have any seals that are defective or have broken open replaced without delay.



### 3 Product description

#### 3.1 Overview of the machine and how it works

The hook loader is operated via a hydraulic pump, which is connected to the vehicle's power take-off. The container gets attached by the hook (1) and loaded onto the vehicle. The hook arm and thus the container are moved via the controls in the driver's cab. Locking mechanisms secure the container for transportation.



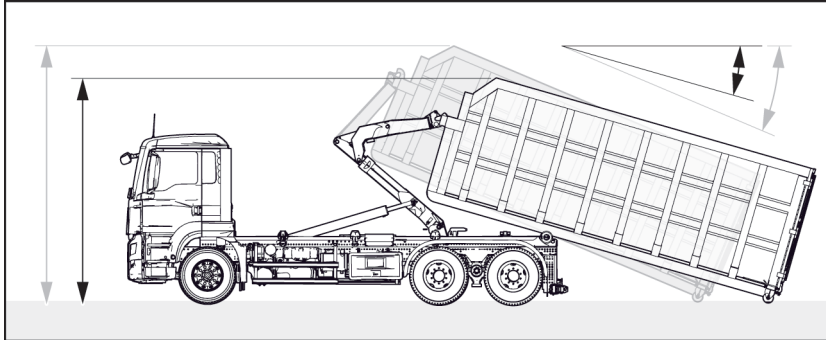
III. 2: Hook loader product overview

- |    |   |    |                                     |
|----|---|----|-------------------------------------|
| 1  | Hook for attaching a container                | 2  | Telescopic boom                     |
| 3  | Swivel frame                                  | 4  | Tipper frame                        |
| 5  | Rear locking                                  | 6  | Roll-off rollers                    |
| 7  | Underride protection                          | 8  | Tipper frame / auxiliary frame lock |
| 9  | Swivel frame / tipper frame anti-buckle guard | 10 | Control valves                      |
| 11 | Oil tank                                      | 12 | Tipper cylinder                     |
| 13 | Front locking                                 | 14 | Auxiliary frame                     |
| 15 | Articulated boom                              |    |                                     |

### 3.1.1 Articulated boom

In base position the articulated boom is slewed forward completely. In manual mode it is possible to slew the articulated boom backward while pulling on / rolling off the container. This provides the following advantages:

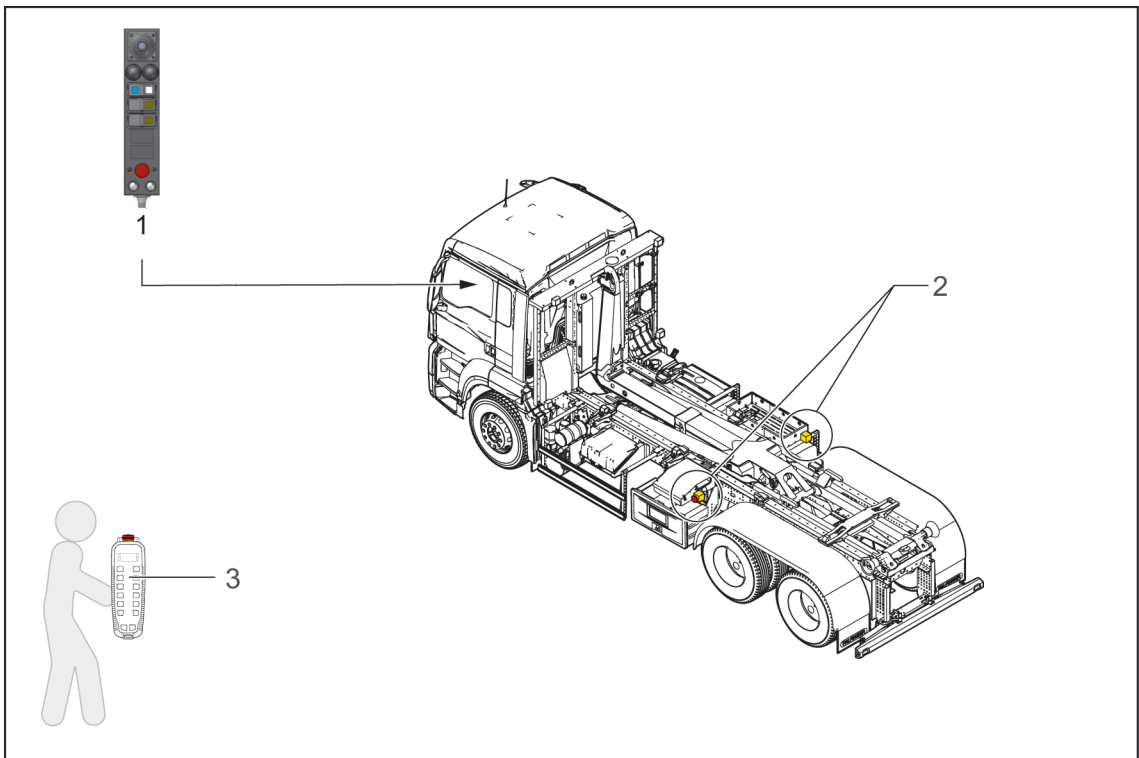
- Smaller angle of loading of container
- Less height when pulling on / rolling off the container



64232

III. 3: Advantages of the articulated boom

### 3.1.2 Overview of operating levers



62247

III. 4: Overview of operating levers

- |   |                           |   |                                |
|---|---------------------------|---|--------------------------------|
| 1 | Cabin control             | 2 | EMERGENCY STOP button (option) |
| 3 | Remote control (optional) |   |                                |

### 3.1.3 Container locking system



The container lock's equipment may differ from the illustration in this document.

The locking system serves to fix the loaded container in place and to prevent it from tipping over. The type of container locking system is dependent on the container standard being used in each instance.

There are two variants of container locking system, which are attached at the back and optionally also on the front of the machine:

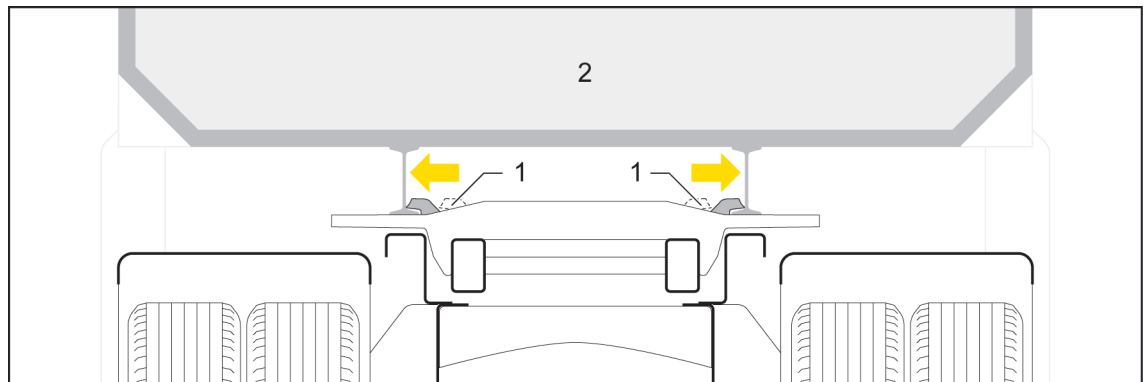
- Hydraulic locking (see page 23)
- Mechanical locking (see page 24)

#### Hydraulic locking

Locking is done via hydraulically controlled gripping jaws, which fix the container in place on the side. This locking variant is not able to absorb any lengthways forces. The position of the container locking system is recorded and displayed by the control system. Depending on design, the container is locked in place either from the inside or outside.

- Inside locking (see page 23)
- Outside locking (see page 24)
- Multi-track locking (see page 24)

#### Inside locking

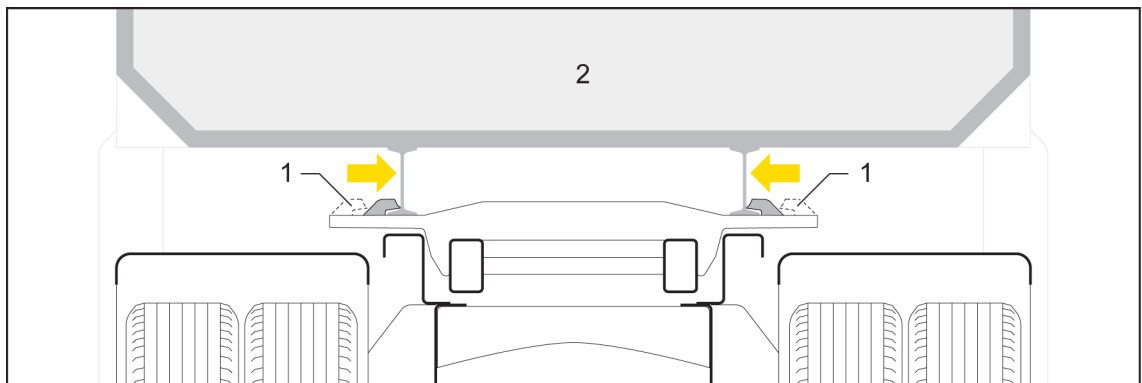


III. 5: Inside locking

1 Inside locking

2 Container

### Outside locking

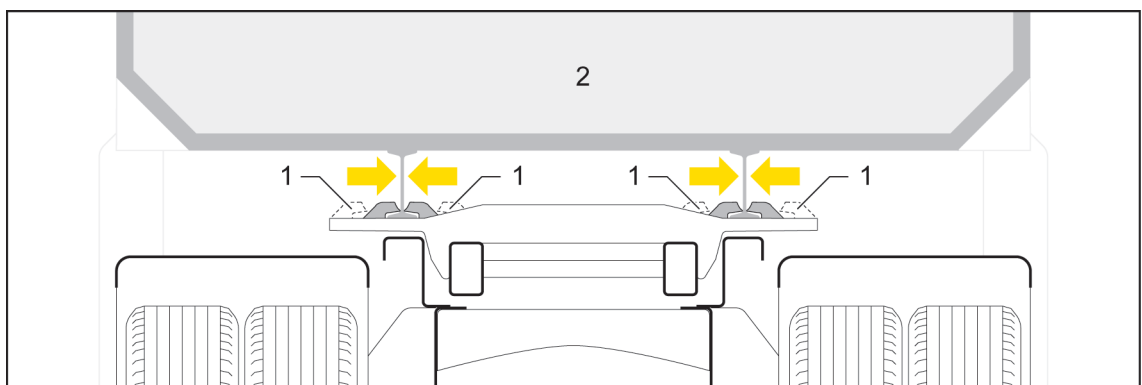


III. 6: Outside locking

1 Outside locking

2 Container

### Multi-track locking



III. 7: Multi-track locking

1 Multi-track locking

2 Container

### Mechanical locking

By mechanical locking the container is positively locked. The design of the mechanical lock differs depending on the container standard being used.

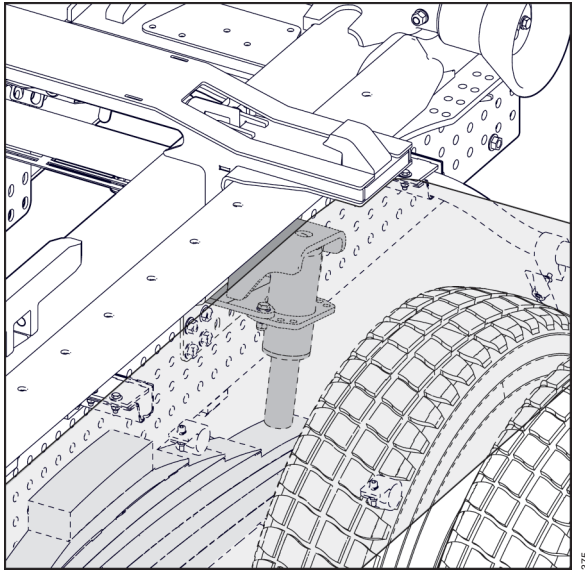
#### 3.1.4 Vehicle stabilization system

The following variants are possible as options in order to increase the vehicle's stability for operation:

- Axle stabilization (see page 25)
- Roller stabilization (see page 25)
- Air suspension (see page 26)

### Axle stabilization

The axle stabilization system stabilizes the vehicle via the leaf springs of the rearmost axle.

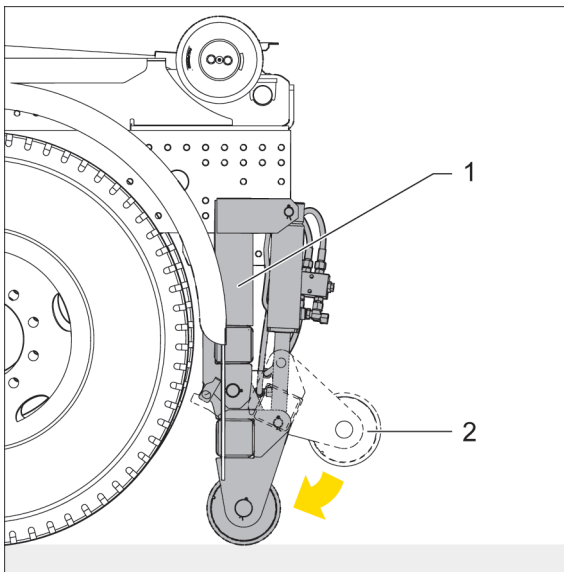


31375

III. 8: Axle stabilization

### Roller stabilization

The roller stabilization system is attached at the rear on the vehicle frame and supports the vehicle.



28072

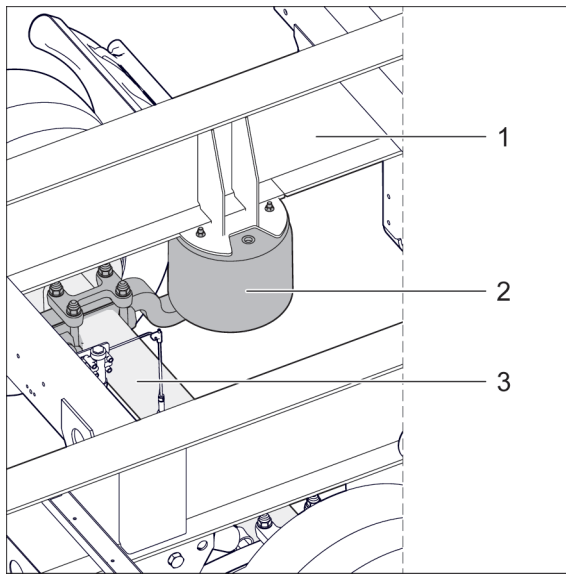
III. 9: Roller stabilization

1 Stabilizer leg

2 Stabilizer roller

### Air suspension

By lowering the vehicle's stability increases.



III. 10: Air suspension

- |   |               |   |                              |
|---|---------------|---|------------------------------|
| 1 | Vehicle frame | 2 | Pneumatic suspension bellows |
| 3 | Axle          |   |                              |

## 3.2 Controls

The machine is operated via the following controls.

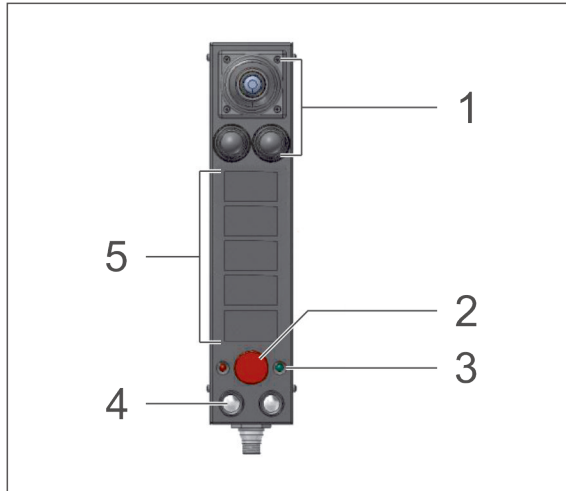
- Cabin control (see page 27)
- Remote control (see page 30) (optional)



### 3.2.1 Cabin control

In the driver's cab there is the cabin control with the following functions:

- Operating lever for moving the machine
- Control of ancillary equipment
- *STOP button (option)*

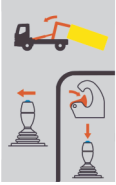











637736

Ill. 11: Cabin control

- |   |                   |   |                       |
|---|-------------------|---|-----------------------|
| 1 | Operating levers  | 2 | STOP button           |
| 3 | Status indicators | 4 | General function keys |
| 5 | Function keys     |   |                       |

Symbol	Element	Function or meaning
	Display	Messages are shown (see page 103)
	Display	Machine is in transport position
	Display	PTO is switched on
	Display	PTO is switched on
	Display	Not illuminated: Container locking system open Comes on: Container locking system closed Flashing: Undefined position
	Display	Not illuminated: Underride protection retracted Comes on: Underride protection extended Flashing: Undefined position
	Display	Not illuminated: Stabilizer(s) retracted Comes on: Stabilizer(s) not retracted
	Display	Not illuminated: Roller stabilization retracted Comes on: Roller stabilization not retracted

Symbol	Element	Function or meaning
	<i>Operating lever</i>	Forwards: Retract tipper cylinders Backwards: Extend tipper cylinders Press: Open pneumatic hook safety latch / navigate in the service menu
	<i>Operating lever</i>	Forwards: Extend telescopic boom Backwards: Retract telescopic boom Navigating in the service menu
	<i>Operating lever</i>	Forwards: Slew articulated boom forward Backwards: Slew articulated boom backward
	<i>Button</i>	Switch on/off lights
	<i>Button</i>	Activate rapid movement (see page 84)
	<i>STOP button</i>	Stop machine
	<i>Button</i>	Left button: Open container locking system. Right button: Close container locking system.
	<i>Button</i>	Left button: Retract underride protection Right button: Extend underride protection
	<i>Button</i>	Left button: Extend stabilizer(s) Right button: Retract stabilizer(s)
	<i>Button</i>	Left button: Retract roller stabilization Right button: Extend roller stabilization





## Digital display

The digital display shows current machine status messages. The messages are split in two parts that appear alternately. Also information for the <service partner> may be displayed in the service menu.






63902

Ill. 12: Digital display

Symbol	Element	Function or meaning
 63908	Display	No message
 63909	Display	First digit of message refers to the affected part
 63901	Display	Second digit of message refers to the affected function
 63909	Display	<i>STOP</i> button or <i>EMERGENCY STOP</i> button has been pressed

## Service menu

The service menu shows the following items of information.

Symbol	Element	Function or meaning
 63910	Display	Shows information about the operating hours (see page 116)
 63912	Display	Shows information about the software (see page 112)
 63914	Display	Shows the saved status codes (see page 103)

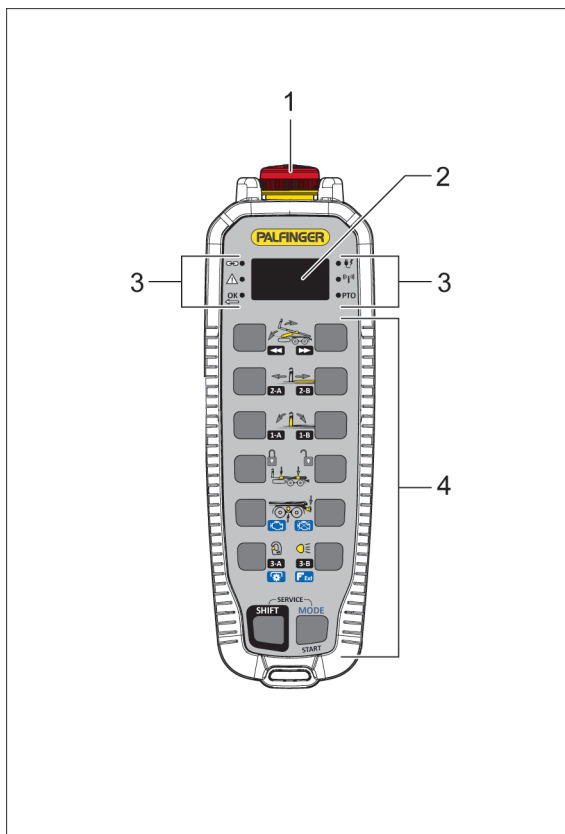
### 3.2.2 Remote control

Depending on how they are assigned, multiple functions are possible through button combinations:

- Moving the machine
- Selection of mode of operation
- *STOP button*
- Control of ancillary equipment
- Indication of the machine status



The remote control units' features and markings may differ from what is presented in this documentation.



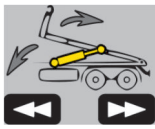


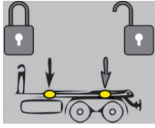
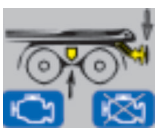





30930

Ill. 13: Remote control

- |   |                       |   |               |
|---|-----------------------|---|---------------|
| 1 | EMERGENCY STOP button | 2 | Display       |
| 3 | Status indicators     | 4 | Function keys |

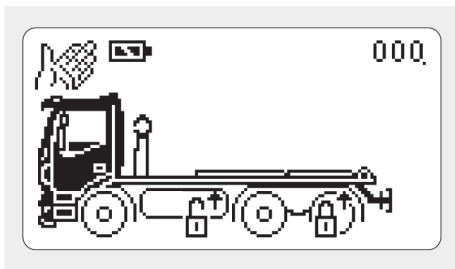
Symbol	Element	Function or meaning
 30966	Display	Indicates wireless connection
 30969	Display	Indicates due error
 30970	Display	Indicates transport position

Symbol	Element	Function or meaning
 31072	<i>Display</i>	Indicates charge status of battery
 31079	<i>Display</i>	Indicates connection error of remote control
<b>PTO</b> 31081	<i>Display</i>	Indicates status of PTO
 31017	<i>Button</i>	Left button: Retract tipper cylinders Right button: Extend tipper cylinders SHIFT function: Activate rapid movement (see page 84)
 31018	<i>Button</i>	Left button: Extend telescopic boom Right button: Retract telescopic boom SHIFT function: Additional function
 45998	<i>Button</i>	Left button: slew articulated boom forward Right button: slew articulated boom backward SHIFT function: Additional function
 31019	<i>Button</i>	Left button: Close rear locking Right button: Open rear locking SHIFT function: Close/open front locking
 31021	<i>Button</i>	Left button: Retract underride protection Right button: Extend underride protection SHIFT function: Operate the stabilizers MODE function: Start / stop engine
 31022	<i>Button</i>	Open hook safety latch SHIFT function: Additional function MODE function: Switch on/off power-take-off
 31023	<i>Button</i>	Switch on/off lights SHIFT function: Additional function MODE function: Additional function
<b>SHIFT</b> 31024	<i>Button</i>	Keep pressed: Activation of SHIFT function
<b>START</b> 31025	<i>Button</i>	Start remote control
<b>MODE</b> 31020	<i>Button</i>	Press: Change operating mode Keep pressed: Activation of MODE function











Symbol	Element	Function or meaning
	<i>EMERGENCY STOP button</i>	Stop the machine in an emergency situation
	<i>Display</i>	Show functions (see page 32)


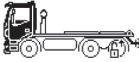


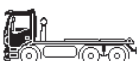













### Display on the remote control

Shown on the display are the operating status and the currently activated movement on the remote control unit.



III. 14: Display on the remote control

Symbol	Element	Function or meaning
	<i>Display</i>	Manual operation is activated
	<i>Display</i>	Automatic mode for pulling on / rolling off container is enabled
	<i>Display</i>	Automatic mode for tipping container is enabled
	<i>Display</i>	Indicates the remote control's battery status
	<i>Display</i>	<i>STOP button</i> or <i>EMERGENCY STOP button</i> has been pressed / All movements stopped
	<i>Display</i>	Shows the code of the current message
	<i>Display</i>	No wireless connection
	<i>Display</i>	Maintenance and servicing information
	<i>Display</i>	Front locking is closed (option)
	<i>Display</i>	Front locking is open (option)

Symbol	Element	Function or meaning
 61949	Display	Rear locking is closed
 61951	Display	Rear locking is open
 61952	Display	Underride protection is retracted
 61953	Display	Underride protection is extended
 61954	Display	Stabilizer(s) extended
 61952	Display	Stabilizer(s) retracted
 61956	Display	Roller stabilization has been extended
 61957	Display	Roller stabilization has been retracted
 61975	Display	Machine in transport position
 61976	Display	Telescopic boom is retracted
 61977	Display	Swivel frame is raised
 61978	Display	Swivel frame is raised vertically
 61979	Display	Machine in loading position
 61980	Display	Tipper frame is raised
 62150	Display	Hook safety latch is open
 62151	Display	Hook safety latch is closed
 64032	Display	Articulated boom has slewed backward
 91334	Display	Emergency operation is activated

### 3.3 Technical data



Further technical data can be found in the separate 'Technical data' documentation.

#### 3.3.1 Ambient conditions during operation

Ambient temperature:  $-30$  to  $+50$  °C ( $-22$  to  $+122$  °F)

#### 3.3.2 Noise emission

Noise exposure comes mainly from the vehicle motor or the auxiliary units. The following values can be reached, depending on model:

Max. sound pressure level ( $L_{pA}$ ): 86 dB(A)

Max. sound power level ( $L_{wA}$ ): 100 dB(A)



Observe the documentations from vehicle manufacturer and body builder.

#### 3.3.3 Storage temperature for batteries

Recommended storage temperature for remote control batteries:  $+5$  to  $+45$ °C( $+41$  to  $+113$ °F)

Temperature permitted during charging procedure:  $+4.5$  to  $+40.5$ °C( $+40$  to  $+105$ °F)



## 4 Preparing for operation

This section describes the preparations that are necessary before actual operation can begin.

### 4.1 Inspecting vehicle before setting off

In order to be able to ensure safety on the road, the entire vehicle must be in good working condition.

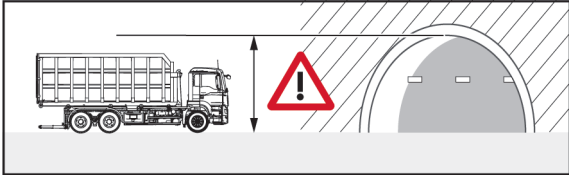


#### DANGER

Elements that project out from the vehicle pose a risk of fatal injury

- ▶ Ensure that all elements are in the transport position.
- ▶ Ensure that all loose parts are secured.
- ▶ Comply with respective national regulations.

- ▶ Before every journey carry out the following checks:

Check	Check step	✓
Vehicle height	<ul style="list-style-type: none"> <li>▶ The machine is in transport position. (see page 101)</li> <li>▶ The vehicle does not exceed the permitted height.</li> </ul> 	
Vehicle length	<ul style="list-style-type: none"> <li>▶ When there is no container on board, retract the underride protection.</li> </ul>	
Vehicle width	<ul style="list-style-type: none"> <li>▶ Components must not protrude over the vehicle width.</li> </ul>	
Load and items of auxiliary equipment	<ul style="list-style-type: none"> <li>▶ The load is properly secured.</li> <li>▶ When there is a container on board, the latter is secured by the locking system.</li> <li>▶ Any loose components or items of auxiliary equipment are properly stored and secured.</li> </ul>	
PTO	<ul style="list-style-type: none"> <li>▶ The machine is switched off.</li> </ul>	



## 5 Basic operation

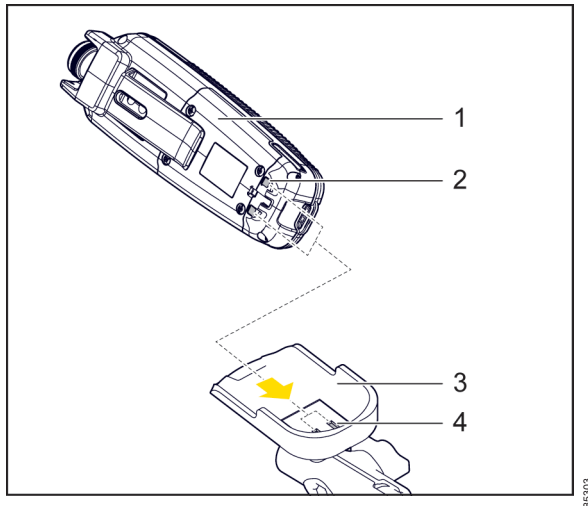
This section describes operation of the machine for the intended use. (see page 9)

### 5.1 Charging the remote control's batteries

The battery charger is integrated in the holder of the remote control handset.





The charger is to be found in the driver's cab or as determined by the assembler.



Ill. 15: Battery charger and remote control

- |   |                        |   |  |
|---|------------------------|---|--|
| 1 | Remote control handset | 2 | Contacts on the remote control handset |
| 3 | Charger                | 4 | Contacts on the battery charger        |

Symbol	Element	Function or meaning
 61895	Display	Indicates the remote control's battery status
 30872	Display	Indicates charge status of battery

#### Requirements

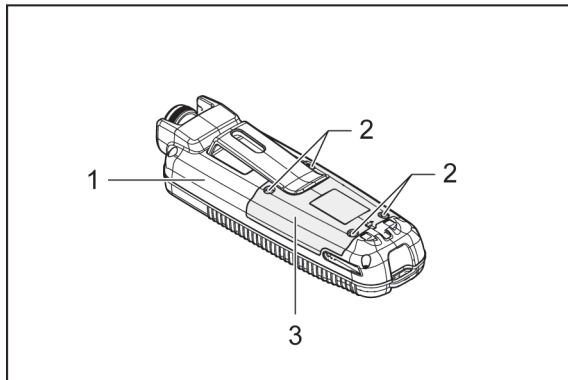
- ✓ Batteries are inserted in the remote control handset.
- ✓ Electric power supply established to battery charger.

#### Procedure

1. Charge the remote control handset.
  - ▶ Insert remote control into the charger.
    - NOTE: Make sure as you do so that the contacts are correctly positioned and that the remote control handset snaps into place.
  - ↪ *Battery status gets shown on the display.*
  - ↪ *Charge status of battery is illuminated.*
  - ↪ *Battery is charging.*

### 5.1.1 Changing the remote control's battery

Three rechargeable AA-batteries for operating the remote control are supplied with it.



Ill. 16: Back of the remote control unit

- |   |                        |   |        |
|---|------------------------|---|--------|
| 1 | Remote control handset | 2 | Screws |
| 3 | Battery cover          |   |        |

#### Requirements

- ✓ Batteries in the remote control are flat.

#### Procedure

1. Change batteries.
  - ▶ Undo screws.
  - ▶ Remove the battery cover.
  - ▶ Insert charged replacement batteries into the back of the remote control unit.  
NOTE: Make sure that the contacts are correctly positioned and that the batteries snap into place.
2. Switch on remote control. (see page 46)

## 5.2 Pulling on a container

This section describes how a container is pulled onto the vehicle.

### 5.2.1 Rules for loading containers



#### DANGER

##### Risk of fatal injury from crushing

- ▶ Use only trained personnel.
  - ▶ Keep all movements of vehicle and machine in sight.
  - ▶ Make sure nobody is within the machine's movement range.
  - ▶ Make sure that there are no buildings or other obstructions within the machine's movement range.
  - ▶ Never overload the machine.
- 
- ▶ If fitted, lower the vehicle's pneumatic suspension.
  - ▶ When pulling on the container, make sure that the wheels remain in contact with the ground.
  - ▶ Keep the vehicle horizontally aligned.
  - ▶ Follow the container's operating instructions.
  - ▶ Pay attention to any notices on the container.

## 5.2.2 General procedure for pulling on a container

### *Procedure for pulling on*

1. Check working area. (see page 39)
2. Check container type and perform visual inspection. (see page 40)
3. Seal off danger zone. (see page 43)
4. Make a visual inspection of the machine. (see page 44)
5. Position vehicle. (see page 45)
6. Start the machine. (see page 45)
7. Switch on remote control (option). (see page 46)
8. If necessary, adjust hook height (option). (see page 99)
9. Pull container onto the vehicle. (see page 46)
10. Switch off the machine. (see page 60)

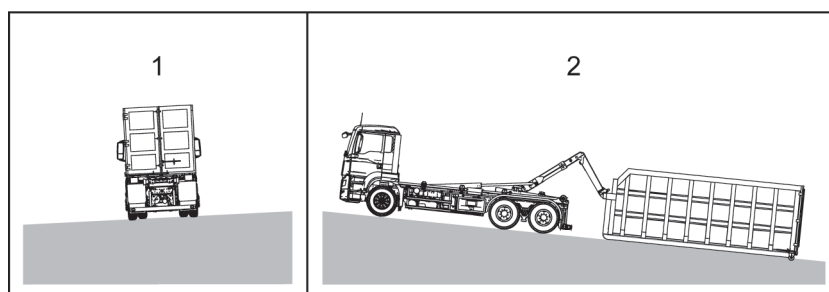
## 5.2.3 Check working area

- ▶ Before starting work in the working area perform the following checks:

Check	Check step	✓
Distance	<ul style="list-style-type: none"> <li>▶ Ensure adequate distance from overhead power lines. (see page 12)</li> <li>▶ Ensure adequate distance from buildings, embankments and other machines. (see page 39)</li> <li>▶ Make sure that there are no obstructions within the machine's movement range.</li> </ul>	
Surface	<ul style="list-style-type: none"> <li>▶ Ensure that the ground does not exceed the permitted angle of slope. (see page 39)</li> <li>▶ Make sure of the ground surface's load-bearing capacity. (see page 40)</li> </ul>	
Light conditions	<ul style="list-style-type: none"> <li>▶ Make sure that the working area is adequately lit.</li> </ul>	

### Checking the slope of the ground surface

Before starting to use the unit, check the maximum permissible slope of the ground.



III. 17: Maximum slope of the ground surface

1 Vehicle's sideways tilt

2 Vehicle's lengthways tilt



**DANGER**

**Risk of fatal injury through the vehicle tipping over**

- ▶ Do not exceed 5% lengthways tilt of the vehicle.
- ▶ Do not exceed 10% sideways tilt of the vehicle.
- ▶ Keep a safe distance from any embankments.

**Requirements**

- ✓ Area for the job is known.

***Procedure for doing checks***

1. Check ground surface.
  - ▶ Ensure that the slope of the ground surface is not exceeded.  
 NOTE: Pay attention here to the differing maximum vehicle tilt around the longitudinal axis and transverse axis.
  - ▶ Ensure that there is an adequate distance to any embankments.

**Checking the surface's load-bearing capacity**

In order to ensure safe operation, the ground's load-bearing capacity must be checked.

**Requirements**

- ✓ Slope of the ground surface has been checked.

***Procedure for doing checks***

1. Ensure adherence to the required load-bearing capacity of the ground.  
 NOTE: Container rollers and vehicle wheels are not sinking in.

**5.2.4 Check container type and carry out a visual inspection around it.**

If it is not in perfect condition or not of a design compatible with the machine, it must not be loaded.



**DANGER**

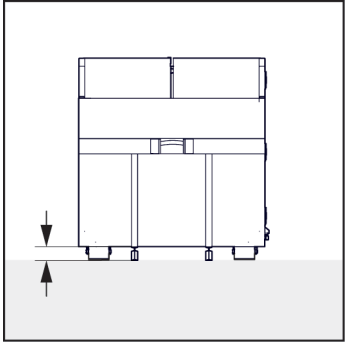
**Risk of fatal injury due to defective container**

- ▶ Never work with a defective container.
- ▶ If any damage is noticed, contact the container's owner.

- ▶ Before loading a container, always carry out the following checks:

Module	Activity	✓
Container type	Checked results must tally with the details from the body builder and with the build type. <ul style="list-style-type: none"> <li>▶ Check container standard.</li> <li>▶ Check design of the container locking system. (see page 23)</li> <li>▶ Check length of the container.</li> </ul> NOTE: - Take into account container's overhang of the vehicle.	

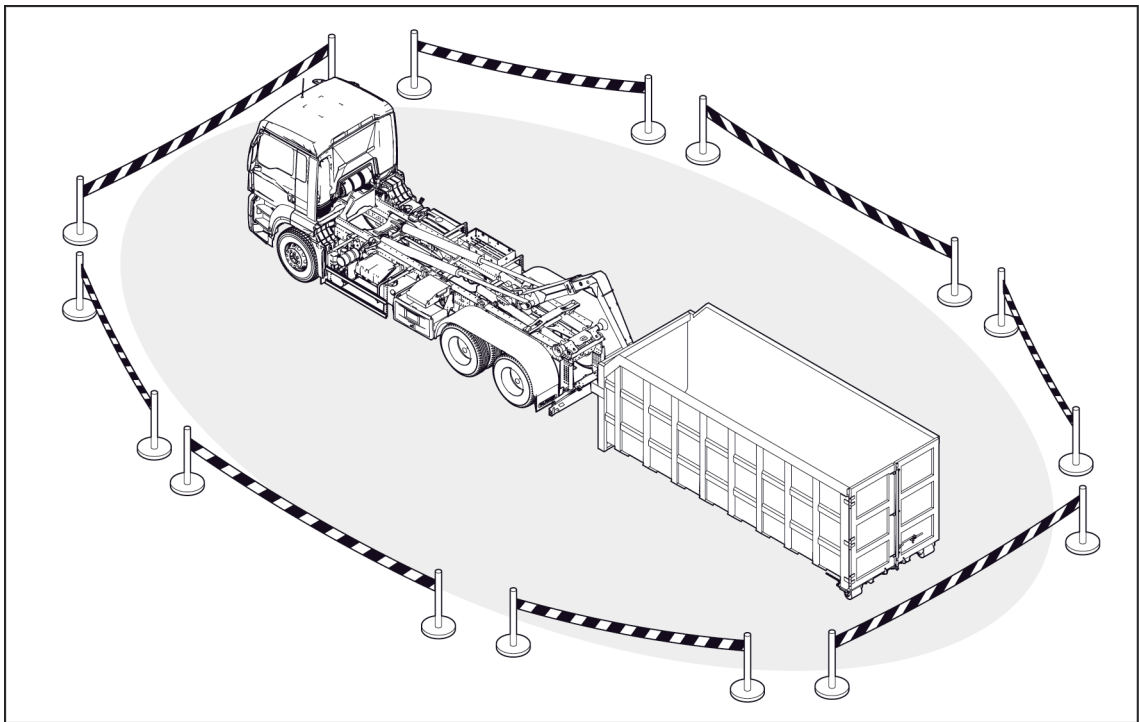
Module	Activity	✓
	<p>- If the container is short, ensure that it lies on the roll-off rollers.</p>	
	<p>▶ Check height of the take-up yoke.</p>	
	<p>▶ Check end distance of the take-up yoke.</p>	
	<p>▶ Check track width.</p>	

Module	Activity	✓
	<ul style="list-style-type: none"> <li>▶ Check tunnel clearance.</li> </ul>  <p style="text-align: right; font-size: small;">28214</p>	
General	<ul style="list-style-type: none"> <li>▶ If present, check ladders and standing areas.</li> <li>▶ Check container for any cracks, damage or loose parts.</li> <li>▶ Check lynch pins.</li> <li>▶ Check hook safety latch.</li> <li>▶ Check rollers.</li> <li>▶ Check condition of the take-up yoke.</li> </ul> <p>Check bolt connections:</p> <ul style="list-style-type: none"> <li>▶ Tighten any loose bolts or nuts.</li> </ul>	
In the case of a loaded container	<ul style="list-style-type: none"> <li>▶ Check that load is distributed evenly.</li> <li>▶ Check that load is properly secured.</li> </ul>	
Hydraulic system	<ul style="list-style-type: none"> <li>▶ Check hydraulic components for damage and leaks.</li> <li>▶ Check level of hydraulic oil and top up if necessary. (see page 123)</li> </ul>	



### 5.2.5 Sealing off danger zone

The machine's entire working range represents a danger zone for people and must be sealed off.



III. 18: Sealed off danger zone



#### WARNING

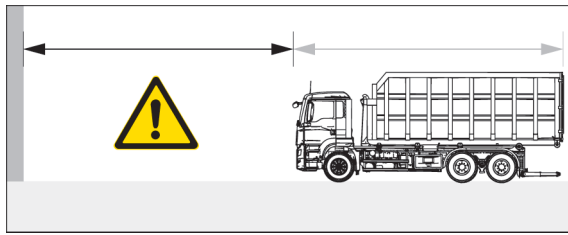
##### Risk of fatal injury from moving loads or loads falling off

- ▶ Cordon off the area where the loads move above.
- ▶ Make sure, any other persons do not step into the danger zone.

#### *Sealing-off procedure*

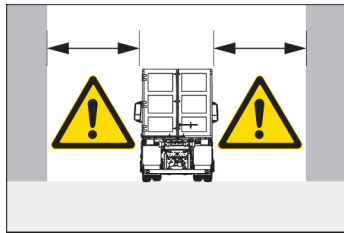
1. Determine danger zone.
  - ▶ Define working range for the planned loading activity.  
**NOTE:** Take into account movements of the container and vehicle during the operation.

- 2. Seal off danger zone.
  - ▶ Seal off danger zone at front.



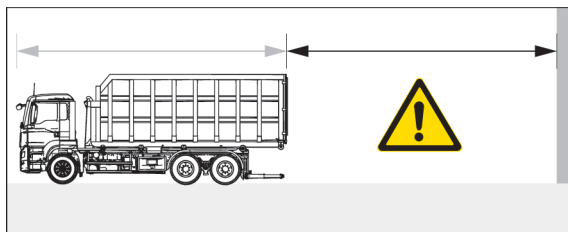
NOTE: Keep a distance of at least one vehicle length from the vehicle front to any obstacles.

- ▶ Seal off danger zone to the side.



NOTE: Keep a distance of at least 2 meters from the vehicle sides to any obstacles.

- ▶ Seal off rear danger zone.



NOTE: Keep a distance of at least one vehicle length from the vehicle rear to any obstacles.

- ▶ Seal off danger zone and any adjoining traffic routes using trained personnel or cordon off by appropriate means.

### 5.2.6 Making a visual inspection of the machine

If the machine is not in perfect condition, it must not be used.



#### DANGER

##### Risk of fatal injury from defective machine

- ▶ Never operate a defective machine.
- ▶ If any damage is identified, contact <service partner>.

- ▶ Before starting to use the machine, always carry out the following checks:

Module	Activity	✓
General	<ul style="list-style-type: none"> <li>▶ If present, check ladders and standing areas.</li> <li>▶ Check machine for any cracks, damage or loose parts.</li> <li>▶ Check lynch pins.</li> <li>▶ Check hook safety latch.</li> </ul> Check bolt connections: <ul style="list-style-type: none"> <li>▶ Tighten any loose bolts or nuts.</li> <li>▶ Have any load-bearing bolt connections tightened by a &lt;service partner&gt;.</li> </ul> Check operating levers: <ul style="list-style-type: none"> <li>▶ Check ease of movement.</li> </ul>	

Module	Activity	✓
	<ul style="list-style-type: none"> <li>▶ Check resetting into neutral position.</li> </ul>	
Electrics	<ul style="list-style-type: none"> <li>▶ Check cable and plug connections.</li> <li>▶ Check display elements.</li> <li>▶ Check switches and sensors for damage.</li> </ul>	
Covers	<ul style="list-style-type: none"> <li>▶ Check covers and protective hoses for damage, functionality and to ensure none are missing.</li> </ul>	
Hydraulic system	<ul style="list-style-type: none"> <li>▶ Check hydraulic components for damage and leaks.</li> <li>▶ Check level of hydraulic oil and top up if necessary. (see page 123)</li> </ul>	

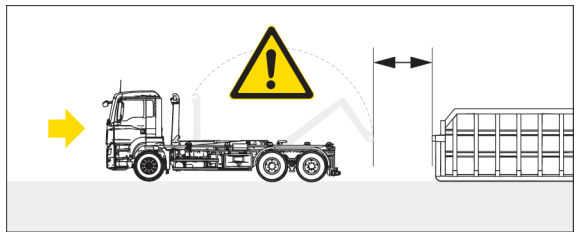
### 5.2.7 Position vehicle for pulling on a container.

#### *Procedure for positioning*

1. Position vehicle.

**NOTE:** At any site where it is difficult to see, have hand signals given.

- ▶ Slowly reverse towards the container (max. 5 km/h / 3 mp/h).



**NOTE:**

Align vehicle centrally to the container.

Take into account space needed for the hook arm.

2. Secure the vehicle against rolling away.

- ▶ Apply vehicle's parking brake.

3. Prepare vehicle for operation.

- ▶ If vehicle has pneumatic suspension, lower it.

**NOTE:** Observe here the body builder's additional documents.

↪ *Vehicle is ready for operation.*

### 5.2.8 Starting the machine



The procedure for switching the machine on and off may differ from these instructions. Take note of additional documentation from the assembler and vehicle manufacturer.

#### **Requirements**

- ✓ Vehicle has been positioned properly.
- ✓ Danger zone has been cordoned off.
- ✓ *EMERGENCY STOP* button on the emergency operator station is released.

#### *Procedure for switching on the machine*

1. Start the vehicle.




- ▶ Start the engine.
- ▶ Put the vehicle into neutral.

2. Start the machine.
  - ▶ Switch on power-take-off.
 

**NOTE:** If the ambient temperature is low, wait a few minutes before starting the operation in order for the hydraulic oil to warm up.
  - ↳ *Hydraulic pump is running.*
  - ↳ *The machine's power supply has been established and the PTO indicator is flashing.*
  - ↳ *Machine is switched on.*

### 5.2.9 Switching on the remote control

On the remote control unit

Symbol	Element	Function or meaning
 31025	Button	Start remote control
 30968	Display	Indicates wireless connection
 30981	Display	Indicates status of PTO

#### Requirements

- ✓ *EMERGENCY STOP button* on the remote control has been unlocked.
- ✓ Machine is switched on.

#### Procedure

1. Start the remote control.
  - ▶ Press *Start* button for two seconds.
  - ↳ *Signal sounds and the main view appears on the display.*
  - ↳ *The status indicators for wireless connection are lit up.*
  - ↳ *The status indicator for PTO is lit up.*


### 5.2.10 Pull container onto the vehicle




The following operating modes are possible for loading a container:

- Pulling on in manual mode using cab controls
  - Without the use of the articulated boom (see page 46)
  - By using the articulated boom (see page 48)
- Pulling on in automatic mode using cab controls (see page 50)
- Pulling on in manual mode using remote control
  - Without the use of the articulated boom (see page 53)
  - By using the articulated boom (see page 55)
- Pulling on in automatic mode using remote controls (see page 57)

#### Pulling on in manual mode using cab controls

On the cabin control

Symbol	Element	Function or meaning
 63748	Operating lever	Forwards: Retract tipper cylinders Backwards: Extend tipper cylinders Press: Open pneumatic hook safety latch / navigate in the service menu

Symbol	Element	Function or meaning
 637749	<i>Operating lever</i>	Forwards: Extend telescopic boom Backwards: Retract telescopic boom Navigating in the service menu
 63855	<i>Button</i>	Left button: Open container locking system. Right button: Close container locking system.
 87373	<i>Display</i>	Machine is in transport position



## DANGER

### Risk of fatal injury from crushing

- ▶ Use only trained personnel.
- ▶ Keep all movements of vehicle and machine in sight.
- ▶ Make sure nobody is within the machine's movement range.
- ▶ Make sure that there are no buildings or other obstructions within the machine's movement range.
- ▶ Never overload the machine.

### Requirements

- ✓ Machine is switched on.
- ✓ Remote control is switched off.
- ✓ Vehicle has been positioned properly.

### Procedure

1. Open container locking system.
  - ▶ Open rear locking.
  - ▶ Open front locking (option).
2. Retract underride protection (option). (see page 95)
3. Position hook relative to the take-up yoke.
  - ▶ Fully retract telescopic boom.
  - ▶ Extend tipper cylinder until the hook's opening is positioned at the height of the take-up yoke.  
**NOTE:** If you are unable to see adequately, have someone give you hand signals.
4. Hook container into hook.
  - ▶ Release vehicle's parking brake.
  - ▶ Drive in reverse direction to the take-up yoke and hook the latter into the hook.  
**NOTE:** In the event of any necessary readjustment of the hook height, engage neutral.

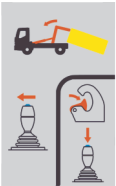



5. Extend the stabilizer(s) (option). (see page 91)
6. Pull container on.
  - ▶ Fully retract tipper cylinder.  
NOTE: As soon as the container no longer has contact with the ground, activate the vehicle's parking brake.
  - ▶ Depending on the container's length, extend telescopic boom.  
NOTE: Pay attention to the body builder's additional documents.
7. Close container locking system.
  - ▶ Close rear locking.
  - ▶ Close front locking (option).  
NOTE: Dependent on the container's length.
8. Retract the stabilizer(s) (option). (see page 92)
9. Extend underride protection (option). (see page 97)  
NOTE: Dependent upon the length of the container and the country-specific regulations.
10. If fitted, activate automatic levelling of the pneumatic suspension.  
↳ 'Machine is in transport position' indicator is illuminated.

### Pulling on in manual mode using cabin control and articulated boom



In order to reduce angle and height of loading of the container it is possible to slew the articulated boom backward. (see page 22)

#### On the cabin control

Symbol	Element	Function or meaning
	<i>Operating lever</i>	Forwards: Retract tipper cylinders Backwards: Extend tipper cylinders Press: Open pneumatic hook safety latch / navigate in the service menu
	<i>Operating lever</i>	Forwards: Extend telescopic boom Backwards: Retract telescopic boom Navigating in the service menu
	<i>Operating lever</i>	Forwards: Slew articulated boom forward Backwards: Slew articulated boom backward
	<i>Button</i>	Left button: Open container locking system. Right button: Close container locking system.

**DANGER****Risk of fatal injury from crushing**

- ▶ Use only trained personnel.
- ▶ Keep all movements of vehicle and machine in sight.
- ▶ Make sure nobody is within the machine's movement range.
- ▶ Make sure that there are no buildings or other obstructions within the machine's movement range.
- ▶ Never overload the machine.

**Requirements**

- ✓ Machine is switched on.
- ✓ Remote control is switched off.
- ✓ Vehicle has been positioned properly.

***Procedure***

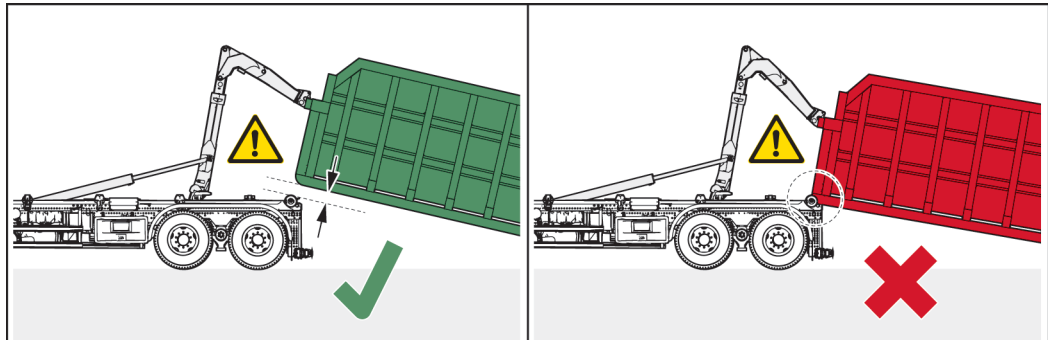
1. Open container locking system.
  - ▶ Open rear locking.
  - ▶ Open front locking (option).
2. Retract underride protection (option). (see page 95)
3. Position hook relative to the take-up yoke.
  - ▶ Fully retract telescopic boom.
  - ▶ Extend tipper cylinder until the hook's opening is positioned at the height of the take-up yoke.  
**NOTE:** If you are unable to see adequately, have someone give you hand signals.
4. Hook container into hook.
  - ▶ Release vehicle's parking brake.
  - ▶ Drive in reverse direction to the take-up yoke and hook the latter into the hook.  
**NOTE:** In the event of any necessary readjustment of the hook height, engage neutral.

5. Extend the stabilizer(s) (option). (see page 91)
6. Pull container on.

**NOTICE**

**Damage to components caused by collision with container while moving the articulated boom**

- ▶ When executing movements keep sufficient distance between components and container.
- ▶ Alternately actuate 'Slew articulated boom forward' and 'Retract tipper cylinder'. While doing so always keep sufficient distance between machine parts and lower edge of container.



**NOTE:** As soon as the container no longer has contact with the ground, activate the vehicle's parking brake.

- ▶ Slew articulated boom forward completely.
  - ▶ Depending on the container's length, extend telescopic boom.
- NOTE:** Pay attention to the body builder's additional documents.

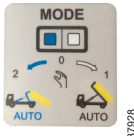

7. Close container locking system.
  - ▶ Close rear locking.
  - ▶ Close front locking (option).

**NOTE:** Dependent on the container's length.
8. Retract the stabilizer(s) (option). (see page 92)
9. Extend underride protection (option). (see page 97)
 






**NOTE:** Dependent upon the length of the container and the country-specific regulations.
10. If fitted, activate automatic levelling of the pneumatic suspension.
  - ↳ *The Vehicle is ready to be driven indicator appears on the cabin control unit.*
  - ↳ *The container is sitting properly on the vehicle.*

**Pulling on in automatic mode using cab controls**

**On the cabin control**

Symbol	Element	Function or meaning
	Display	Solid blue: Automatic rolling-off operation is activated Not illuminated: Manual operation is activated Solid white: Automatic tipping operation is activated
	Button	Left button: Automatic rolling-off operation is activated Center position: Manual operation is activated Right button: Automatic tipping operation is activated



Symbol	Element	Function or meaning
	<i>Operating lever</i>	Forwards: Extend telescopic boom Backwards: Retract telescopic boom Navigating in the service menu
	<i>Display</i>	Not illuminated: Container locking system open Comes on: Container locking system closed Flashing: Undefined position
	<i>Display</i>	Not illuminated: Underride protection retracted Comes on: Underride protection extended Flashing: Undefined position
	<i>Button</i>	Left button: Open container locking system. Right button: Close container locking system.
	<i>Display</i>	Machine is in transport position



## DANGER

### Risk of fatal injury from crushing

- ▶ Use only trained personnel.
- ▶ Keep all movements of vehicle and machine in sight.
- ▶ Make sure nobody is within the machine's movement range.
- ▶ Make sure that there are no buildings or other obstructions within the machine's movement range.
- ▶ Never overload the machine.

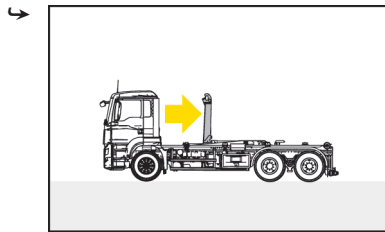
### Requirements

- ✓ Machine is switched on.
- ✓ Remote control is switched off.
- ✓ Vehicle has been positioned properly.
- ✓ Articulated boom is in the safe area (option).

### Procedure

1. Select automatic system for pulling on / rolling off.
  - ▶ Press *Activate automatic mode for pulling on / rolling off* button.

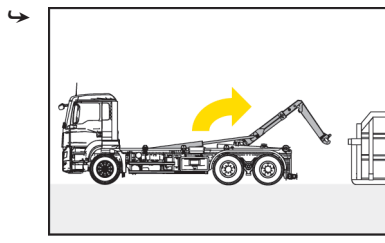
2. Press operating lever for *Retract telescopic boom* function. The movements are executed in the following order:
  - ▶ Front locking is opening.
  - ▶ Rear locking is opening.
  - ▶ Underride protection is moving in (option).
  - ▶ Telescopic boom is being fully retracted.



- ▶ Tipper cylinder is being extended.

**NOTE:**

- Keep operating lever pressed until the hook's opening is positioned at the height of the container's take-up yoke.
- If you are unable to see adequately, have someone give you hand signals.



3. Hook container into hook.
  - ▶ Apply vehicle's parking brake.
  - ▶ Drive in reverse direction to the take-up yoke and take up the latter into the hook.

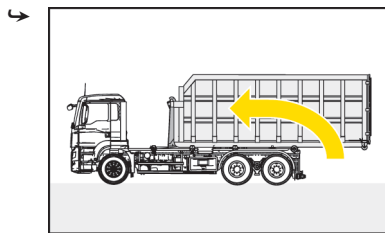
**NOTE:** In the event of any necessary readjustment of the hook height, engage neutral.

4. Extend the stabilizer(s) (option). (see page 91)
 

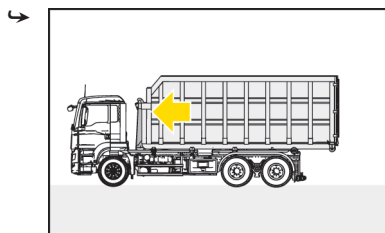
**NOTE:** Activate manual mode for operating the stabilization system.

5. Press operating lever for *Extend telescopic boom* function. The movements are executed in the following order:
  - ▶ Tipper cylinder is being retracted completely.

**NOTE:** As soon as the container no longer has contact with the ground, activate the vehicle's parking brake.



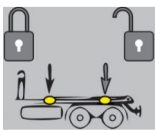

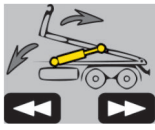



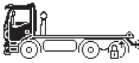




- ▶ Telescopic boom is being extended.
- NOTE:** Dependent on the length of the container, the telescopic boom's transport position changes. Pay attention to the body builder's additional documents.




6. Release operating lever.  
↳ *Rear locking is closing.*
7. Close front locking (option).  
**NOTE:** Dependent on the container's length.
8. Retract the stabilizer(s) (option). (see page 92)  
**NOTE:** Activate manual mode for operating the stabilization system.
9. Extend underdrive protection (option). (see page 97)  
**NOTE:** Dependent upon the length of the container and the country-specific regulations.
10. If fitted, activate automatic levelling of the pneumatic suspension.  
↳ *The machine is in transport position.*

## Pulling on in manual mode using remote control

### On the remote control unit

Symbol	Element	Function or meaning
 31019	<i>Button</i>	Left button: Close rear locking Right button: Open rear locking SHIFT function: Close/open front locking
 31018	<i>Button</i>	Left button: Extend telescopic boom Right button: Retract telescopic boom SHIFT function: Additional function
 31017	<i>Button</i>	Left button: Retract tipper cylinders Right button: Extend tipper cylinders SHIFT function: Activate rapid movement (see page 84)
 31024	<i>Button</i>	Keep pressed: Activation of SHIFT function
 31020	<i>Button</i>	Press: Change operating mode Keep pressed: Activation of MODE function
 58589	<i>Display</i>	Manual operation is activated
 61975	<i>Display</i>	Machine in transport position
 61976	<i>Display</i>	Telescopic boom is retracted
 61977	<i>Display</i>	Swivel frame is raised
 61978	<i>Display</i>	Swivel frame is raised vertically
 61979	<i>Display</i>	Machine in loading position

Symbol	Element	Function or meaning
	<i>Display</i>	Indicates transport position

**DANGER****Risk of fatal injury from crushing**

- ▶ Use only trained personnel.
- ▶ Keep all movements of vehicle and machine in sight.
- ▶ Make sure nobody is within the machine's movement range.
- ▶ Make sure that there are no buildings or other obstructions within the machine's movement range.
- ▶ Never overload the machine.

**Requirements**

- ✓ Machine is switched on.
- ✓ Remote control is switched on.
- ✓ Vehicle has been positioned properly.

***Procedure for pulling on in manual mode***

1. Select operating mode.
  - ▶ Press *Mode* button until *Manual mode* indicator appears.
2. Open container locking system.
  - ▶ Open rear locking.
  - ▶ Keep *Shift* button pressed and open front locking mechanism (option).
3. Retract underide protection (option). (see page 95)
4. Position hook relative to the take-up yoke.
  - ▶ Fully retract telescopic boom.
  - ▶ Extend tipper cylinder until the hook's opening is positioned at the height of the take-up yoke.  
NOTE: If you are unable to see adequately, have someone give you hand signals.
5. Hook container into hook.
  - ▶ Release vehicle's parking brake.
  - ▶ Drive in reverse direction to the take-up yoke and hook the latter into the hook.  
NOTE: In the event of any necessary readjustment of the hook height, engage neutral.
6. Extend the stabilizer(s) (option). (see page 91)
7. Pull container on.
  - ▶ Fully retract tipper cylinder.  
NOTE: As soon as the container no longer has contact with the ground, activate the vehicle's parking brake.
  - ▶ Depending on the container's length, extend telescopic boom.  
NOTE: Pay attention to the body builder's additional documents.
8. Close container locking system.
  - ▶ Close rear locking.
  - ▶ Keep *Shift* button pressed and close front locking mechanism (option).  
NOTE: Dependent on the container's length.

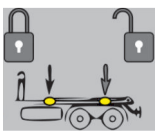


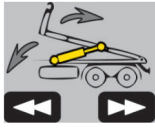



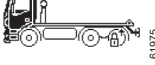
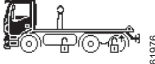



9. Retract the stabilizer(s) (option). (see page 92)
10. Extend underride protection (option). (see page 97)  
 NOTE: Dependent upon the length of the container and the country-specific regulations.
11. If fitted, activate automatic levelling of the pneumatic suspension.
  - ↳ The Vehicle is ready to be driven indicator appears on the remote control unit.
  - ↳ The container is sitting properly on the vehicle.


### Pulling on in manual mode using remote control and articulated boom



In order to reduce angle and height of loading of the container it is possible to slew the articulated boom backward. (see page 22)

#### On the remote control unit

Symbol	Element	Function or meaning
	Button	Left button: Close rear locking Right button: Open rear locking SHIFT function: Close/open front locking
	Button	Left button: slew articulated boom forward Right button: slew articulated boom backward SHIFT function: Additional function
	Button	Left button: Extend telescopic boom Right button: Retract telescopic boom SHIFT function: Additional function
	Button	Left button: Retract tipper cylinders Right button: Extend tipper cylinders SHIFT function: Activate rapid movement (see page 84)
	Button	Keep pressed: Activation of SHIFT function
	Button	Press: Change operating mode Keep pressed: Activation of MODE function
	Display	Manual operation is activated
	Display	Machine in transport position
	Display	Telescopic boom is retracted
	Display	Swivel frame is raised
	Display	Swivel frame is raised vertically
	Display	Machine in loading position

Symbol	Element	Function or meaning
	<i>Display</i>	Indicates transport position



## DANGER

### Risk of fatal injury from crushing

- ▶ Use only trained personnel.
- ▶ Keep all movements of vehicle and machine in sight.
- ▶ Make sure nobody is within the machine's movement range.
- ▶ Make sure that there are no buildings or other obstructions within the machine's movement range.
- ▶ Never overload the machine.

### Requirements

- ✓ Machine is switched on.
- ✓ Remote control is switched on.
- ✓ Vehicle has been positioned properly.

### Procedure

1. Select operating mode.
  - ▶ If cab controls are fitted, press *Manual mode* button.
  - ▶ Press *Mode* button until *Manual mode* indicator appears.
2. Open container locking system.
  - ▶ Open rear locking.
  - ▶ Keep *Shift* button pressed and open front locking mechanism (option).
3. Retract underide protection (option). (see page 95)
4. Position hook relative to the take-up yoke.
  - ▶ Fully retract telescopic boom.
  - ▶ Extend tipper cylinder until the hook's opening is positioned at the height of the take-up yoke.

NOTE: If you are unable to see adequately, have someone give you hand signals.
5. Hook container into hook.
  - ▶ Release vehicle's parking brake.
  - ▶ Drive in reverse direction to the take-up yoke and hook the latter into the hook.

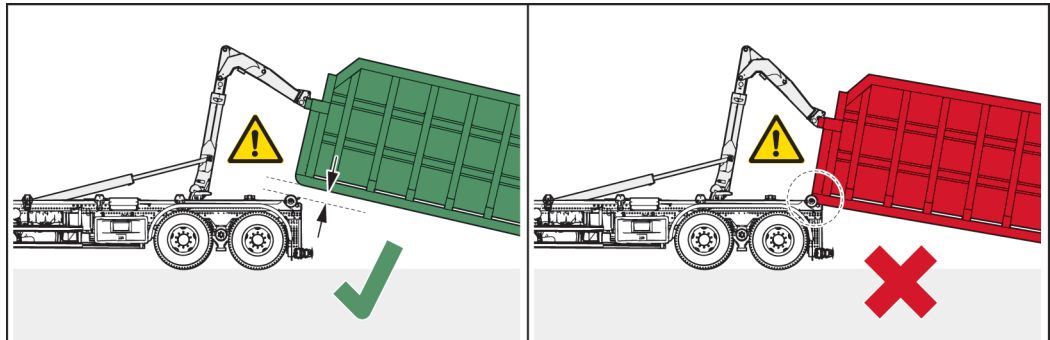
NOTE: In the event of any necessary readjustment of the hook height, engage neutral.

6. Extend the stabilizer(s) (option). (see page 91)
7. Pull container on.

**NOTICE**

**Damage to components caused by collision with container while moving the articulated boom**

- ▶ When executing movements keep sufficient distance between components and container.
- ▶ Alternately actuate 'Slew articulated boom forward' and 'Retract tipper cylinder'. While doing so always keep sufficient distance between machine parts and lower edge of container.



**NOTE:** As soon as the container no longer has contact with the ground, activate the vehicle's parking brake.

- ▶ Slew articulated boom forward completely.
  - ▶ Depending on the container's length, extend telescopic boom.
- NOTE:** Pay attention to the body builder's additional documents.

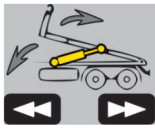


8. Close container locking system.
  - ▶ Close rear locking.
  - ▶ Keep *Shift* button pressed and close front locking mechanism (option).


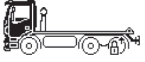
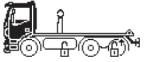

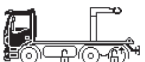


**NOTE:** Dependent on the container's length.
9. Retract the stabilizer(s) (option). (see page 92)
10. Extend underride protection (option). (see page 97)
 

**NOTE:** Dependent upon the length of the container and the country-specific regulations.
11. If fitted, activate automatic levelling of the pneumatic suspension.
  - ↳ *The Vehicle is ready to be driven indicator appears on the remote control unit.*
  - ↳ *The container is sitting properly on the vehicle.*

**Pulling on in automatic mode using remote control**

**On the remote control unit**

Symbol	Element	Function or meaning
	Button	Left button: Retract tipper cylinders Right button: Extend tipper cylinders SHIFT function: Activate rapid movement (see page 84)
	Button	Keep pressed: Activation of SHIFT function
	Button	Press: Change operating mode Keep pressed: Activation of MODE function

Symbol	Element	Function or meaning
 61891	Display	Automatic mode for pulling on / rolling off container is enabled
 61975	Display	Machine in transport position
 61976	Display	Telescopic boom is retracted
 61977	Display	Swivel frame is raised
 61978	Display	Swivel frame is raised vertically
 61979	Display	Machine in loading position
 30970	Display	Indicates transport position



**DANGER**

**Risk of fatal injury from crushing**

- ▶ Use only trained personnel.
- ▶ Keep all movements of vehicle and machine in sight.
- ▶ Make sure nobody is within the machine's movement range.
- ▶ Make sure that there are no buildings or other obstructions within the machine's movement range.
- ▶ Never overload the machine.

**Requirements**

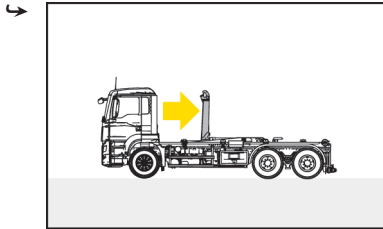
- ✓ Machine is switched on.
- ✓ Remote control is switched on.
- ✓ Vehicle has been positioned properly.
- ✓ Articulated boom is in the safe area (option).

**Procedure**

1. Select operating mode.
  - ▶ If cab controls are fitted, press *Manual mode* button.
  - ▶ Press *Mode* button until *Automatic mode for pulling on / rolling off containers* indicator appears.



2. Keep *Extend tipper cylinder* button pressed.  
The movements are executed in the following order:
- ▶ Front locking is opening (option)
  - ▶ Rear locking is opening.
  - ▶ Underride protection is moving in (option).
  - ▶ Telescopic boom is being fully retracted.

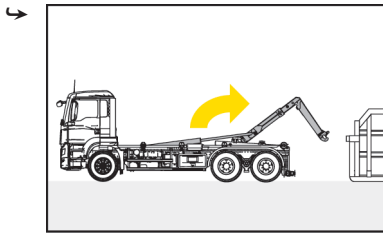


- ▶ Tipper cylinder is being extended.

**NOTE:**

Keep button pressed until the hook's opening is positioned at the height of the container's take-up yoke.

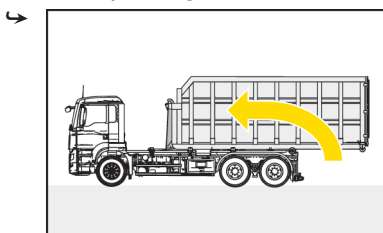
If you are unable to see adequately, have someone give you hand signals.



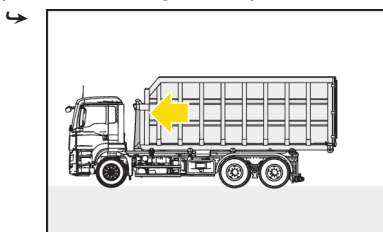
3. Hook container into hook.
- ▶ Release vehicle's parking brake.
  - ▶ Drive in reverse direction to the take-up yoke and take up the latter into the hook.
- NOTE:** In the event of any necessary readjustment of the hook height, engage neutral.

4. Extend the stabilizer(s) (option). (see page 91)

5. Keep *Retract tipper cylinder* button pressed.  
The movements are executed in the following order:
- ▶ Tipper cylinder is being retracted completely.
- NOTE:** As soon as the container no longer has contact with the ground, activate the vehicle's parking brake.



- ▶ Telescopic boom is being extended.
- NOTE:** Dependent on the length of the container, the telescopic boom's transport position changes. Pay attention to the body builder's additional documents.



6. Let go of the button.
  - ↳ *Rear locking is closing.*
7. Close front locking (option).
  - NOTE: Dependent on the container's length.
8. Retract the stabilizer(s) (option). (see page 92)
9. Extend underdrive protection (option). (see page 97)
  - NOTE: Dependent upon the length of the container and the country-specific regulations.
10. If fitted, activate automatic levelling of the pneumatic suspension.
  - ↳ *The Vehicle is ready to be driven indicator appears on the remote control unit.*
  - ↳ *The container is sitting properly on the vehicle.*

### 5.2.11 Switch off the machine.



The procedure for switching the machine on and off may differ from these instructions. Take note of additional documentation from the assembler and vehicle manufacturer.

#### Requirements

- ✓ Machine is in transport position.
- ✓ Container locking system is closed.
- ✓ Stabilizer(s) retracted.

#### *Procedure for switching off the machine*

1. Switch off the machine.
  - ▶ Switch off power take-off or power unit.
    - ↳ *Hydraulic pump is stopping.*
    - ↳ *Machine's power supply has been cut and the PTO indicator has gone out.*
  - ▶ Stop the vehicle motor.
2. When using remote control:
  - ▶ Press *EMERGENCY STOP button* on the remote control unit.
    - ↳ *The display on the remote control unit goes out.*
  - ▶ Put remote control into the holder intended for it in the cabin.
3. Before setting off, inspect vehicle. (see page 35)

## 5.3 Rolling a container off

This section describes how rolling the container off the vehicle works.

### 5.3.1 Rules for rolling off containers



#### DANGER

#### Risk of fatal injury from crushing

- ▶ Use only trained personnel.
  - ▶ Keep all movements of vehicle and machine in sight.
  - ▶ Make sure nobody is within the machine's movement range.
  - ▶ Make sure that there are no buildings or other obstructions within the machine's movement range.
  - ▶ Never overload the machine.
- 
- ▶ If fitted, lower the vehicle's pneumatic suspension.
  - ▶ When rolling off the container, make sure that the wheels remain in contact with the ground.
  - ▶ Keep the vehicle horizontally aligned.

- ▶ Follow the container's operating instructions.
- ▶ Pay attention to any notices on the container.
- ▶ Observe ancillary equipment and connections between vehicle and container.

### 5.3.2 General procedure for rolling a container off

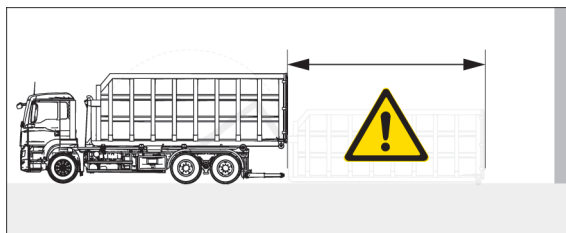
#### *Procedure for rolling off*

1. Check working area. (see page 39)
2. Seal off danger zone. (see page 43)
3. Make a visual inspection of the machine. (see page 44)
4. Position vehicle. (see page 61)
5. Start the machine. (see page 45)
6. Switch on remote control (option). (see page 46)
7. Roll container off the vehicle. (see page 62)
8. Switch off the machine. (see page 60)

### 5.3.3 Position vehicle for rolling off a container.

#### *Procedure for positioning*

1. Select spot for the vehicle.  
**NOTE:** At any site where it is difficult to see, have hand signals given.
  - ▶ Position vehicle.



**NOTE:** Take into account space needed for the container.

2. Secure the vehicle against rolling away.
  - ▶ Apply vehicle's parking brake.
3. Prepare vehicle for operation.
  - ▶ If vehicle has pneumatic suspension, lower it.  
**NOTE:** Observe here the body builder's additional documents.
4. Prepare container for the rolling off operation.  
**NOTE:** In doing so, follow the container's operating instructions.  
↳ *Vehicle is ready for operation.*

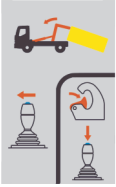



### 5.3.4 Rolling a container off the vehicle

The following operating modes are possible for rolling off a container:

- Rolling off in manual mode using cab controls
  - Without the use of the articulated boom (see page 62)
  - By using the articulated boom (see page 63)
- Roll off in automatic mode using cab controls (see page 66)
- Rolling off in manual mode using remote control
  - Without the use of the articulated boom (see page 68)
  - By using the articulated boom (see page 70)
- Roll off in automatic mode using remote control (see page 73)

#### Rolling off in manual mode using cab controls

On the cabin control

Symbol	Element	Function or meaning
	<i>Operating lever</i>	Forwards: Retract tipper cylinders Backwards: Extend tipper cylinders Press: Open pneumatic hook safety latch / navigate in the service menu
	<i>Operating lever</i>	Forwards: Extend telescopic boom Backwards: Retract telescopic boom Navigating in the service menu
	<i>Button</i>	Left button: Open container locking system. Right button: Close container locking system.
	<i>Display</i>	Machine is in transport position



#### DANGER

##### Risk of fatal injury from crushing

- ▶ Use only trained personnel.
- ▶ Keep all movements of vehicle and machine in sight.
- ▶ Make sure nobody is within the machine's movement range.
- ▶ Make sure that there are no buildings or other obstructions within the machine's movement range.
- ▶ Never overload the machine.

#### Requirements

- ✓ Machine is switched on.
- ✓ Remote control is switched off.
- ✓ Vehicle has been positioned properly.

**Procedure**

1. Open container locking system.
  - ▶ Open rear locking.
  - ▶ Open front locking (option).
2. Retract underride protection (option). (see page 95)
3. Extend the stabilizer(s) (option). (see page 91)
4. Roll container off.
  - ▶ Fully retract telescopic boom.
  - ▶ Extend tipper cylinder until the container has completely rolled off.  
 NOTE: If the container is loaded, release the vehicle's parking brake as soon as the container has contact with the ground.
5. Unhook container from hook.
  - ▶ Release vehicle's parking brake.
  - ▶ If using a pneumatic hook safety latch, open the latch. (see page 94)
  - ▶ Drive forwards until the take-up yoke comes out of the hook.  
 NOTE: In the event of any necessary readjustment of the hook height, engage neutral.
6. Bring machine in transport position.
  - ▶ Fully retract tipper cylinder.
  - ▶ Fully extend telescopic boom.
7. Close container locking system.
  - ▶ Close rear locking.
  - ▶ Close front locking (option).
8. Retract the stabilizer(s) (option). (see page 92)
9. If fitted, activate automatic levelling of the pneumatic suspension.
  - ↳ 'Machine is in transport position' indicator is illuminated.



**Rolling off in manual mode using cabin control and articulated boom**



In order to reduce angle and height of loading of the container it is possible to slew the articulated boom backward. (see page 22)

**On the cabin control**

Symbol	Element	Function or meaning
 63748	<i>Operating lever</i>	Forwards: Retract tipper cylinders Backwards: Extend tipper cylinders Press: Open pneumatic hook safety latch / navigate in the service menu
 63749	<i>Operating lever</i>	Forwards: Extend telescopic boom Backwards: Retract telescopic boom Navigating in the service menu

Symbol	Element	Function or meaning
	<i>Operating lever</i>	Forwards: Slew articulated boom forward Backwards: Slew articulated boom backward
	<i>Button</i>	Left button: Open container locking system. Right button: Close container locking system.



## DANGER

### Risk of fatal injury from crushing

- ▶ Use only trained personnel.
- ▶ Keep all movements of vehicle and machine in sight.
- ▶ Make sure nobody is within the machine's movement range.
- ▶ Make sure that there are no buildings or other obstructions within the machine's movement range.
- ▶ Never overload the machine.

### Requirements

- ✓ Machine is switched on.
- ✓ Remote control is switched off.
- ✓ Vehicle has been positioned properly.

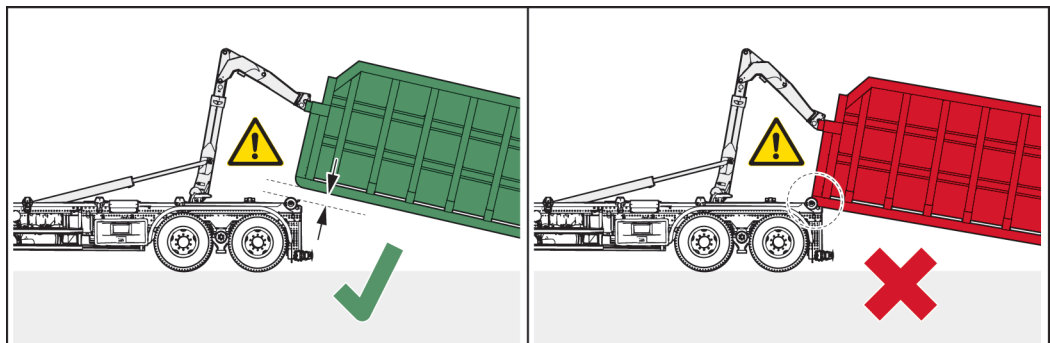
### Procedure

1. Open container locking system.
  - ▶ Open rear locking.
  - ▶ Open front locking (option).

2. Retract underride protection (option). (see page 95)
3. Extend the stabilizer(s) (option). (see page 91)
4. Roll container off.

**NOTICE****Damage to components caused by collision with container while moving the articulated boom**

- ▶ When executing movements keep sufficient distance between components and container.
- ▶ Fully retract telescopic boom.
- ▶ Fully extend tipper cylinder.
- ▶ Alternately actuate 'Slew articulated boom forward' and 'Extend tipper cylinder', until the container has rolled off completely. While doing so always keep sufficient distance between machine parts and lower edge of container.






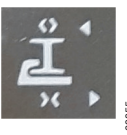



**NOTE:** If the container is loaded, release the vehicle's parking brake as soon as the container has contact with the ground.

5. Unhook container from hook.
  - ▶ Release vehicle's parking brake.
  - ▶ If using a pneumatic hook safety latch, open the latch. (see page 94)
  - ▶ Drive forwards until the take-up yoke comes out of the hook.

**NOTE:** In the event of any necessary readjustment of the hook height, engage neutral.
6. Bring machine in transport position.
  - ▶ Fully retract tipper cylinder.
  - ▶ Slew articulated boom forward completely.
  - ▶ Fully extend telescopic boom.
7. Close container locking system.
  - ▶ Close rear locking.
  - ▶ Close front locking (option).
8. Retract the stabilizer(s) (option). (see page 92)
9. If fitted, activate automatic levelling of the pneumatic suspension.
  - ↳ *The Vehicle is ready to be driven indicator appears on the cabin control unit.*
  - ↳ *The machine is in transport position.*

## Rolling off in automatic mode using cab controls

### On the cabin control

Symbol	Element	Function or meaning
	<i>Display</i>	Solid blue: Automatic rolling-off operation is activated Not illuminated: Manual operation is activated Solid white: Automatic tipping operation is activated
	<i>Button</i>	Left button: Automatic rolling-off operation is activated Center position: Manual operation is activated Right button: Automatic tipping operation is activated
	<i>Operating lever</i>	Forwards: Extend telescopic boom Backwards: Retract telescopic boom Navigating in the service menu
	<i>Display</i>	Not illuminated: Container locking system open Comes on: Container locking system closed Flashing: Undefined position
	<i>Display</i>	Not illuminated: Underride protection retracted Comes on: Underride protection extended Flashing: Undefined position
	<i>Operating lever</i>	Forwards: Retract tipper cylinders Backwards: Extend tipper cylinders Press: Open pneumatic hook safety latch / navigate in the service menu
	<i>Display</i>	Machine is in transport position



### DANGER

#### Risk of fatal injury from crushing

- ▶ Use only trained personnel.
- ▶ Keep all movements of vehicle and machine in sight.
- ▶ Make sure nobody is within the machine's movement range.
- ▶ Make sure that there are no buildings or other obstructions within the machine's movement range.
- ▶ Never overload the machine.

### Requirements

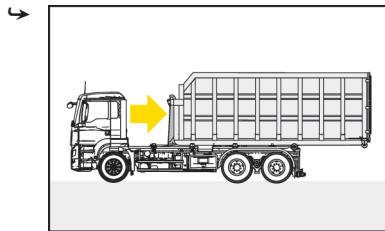
- ✓ Machine is switched on.
- ✓ Remote control is switched off.
- ✓ Vehicle has been positioned properly.



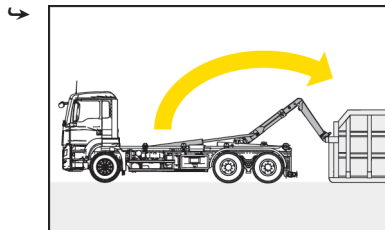
- ✓ Articulated boom is in the safe area (option).

### Procedure

1. Select automatic system for pulling on / rolling off.
  - ▶ Press *Activate automatic mode for pulling on / rolling off* button.
2. Extend the stabilizer(s) (option). (see page 91)  
**NOTE:** Activate manual mode for operating the stabilization system.
3. Press operating lever for *Retract telescopic boom* function.  
The movements are executed in the following order:
  - ▶ Front locking is opening.
  - ▶ Rear locking is opening.
  - ▶ Underride protection is moving in (option).
  - ▶ Telescopic boom is being fully retracted.



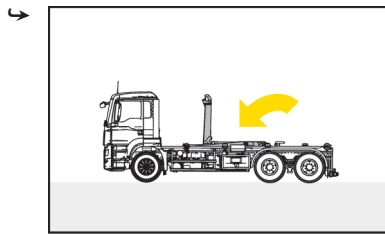
- ▶ Tipper cylinder is being extended.  
**NOTE:** If the container is loaded, release the vehicle's parking brake as soon as the container has contact with the ground.



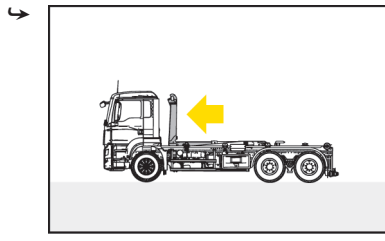
4. Unhook container from hook.
  - ▶ Release vehicle's parking brake.
  - ▶ If using a pneumatic hook safety latch, open the latch. (see page 94)
  - ▶ Drive forwards until the take-up yoke comes out of the hook.  
**NOTE:** In the event of any necessary readjustment of the hook height, engage neutral.

5. Press operating lever for *Extend telescopic boom* function.  
The movements are executed in the following order:

- ▶ Tipper cylinder is being retracted.



- ▶ Telescopic boom is being extended.



6. Release operating lever.

↳ *Rear locking is closing.*

7. Retract the stabilizer(s) (option). (see page 92)

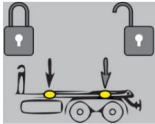

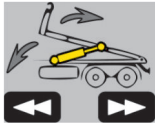




NOTE: Activate manual mode for operating the stabilization system.

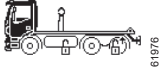
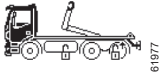
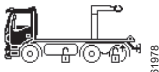
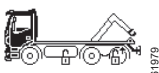

8. If fitted, activate automatic levelling of the pneumatic suspension.

↳ *The machine is in transport position.*

## Rolling off in manual mode using remote control

### On the remote control unit

Symbol	Element	Function or meaning
	<i>Button</i>	Left button: Close rear locking Right button: Open rear locking SHIFT function: Close/open front locking
	<i>Button</i>	Left button: Extend telescopic boom Right button: Retract telescopic boom SHIFT function: Additional function
	<i>Button</i>	Left button: Retract tipper cylinders Right button: Extend tipper cylinders SHIFT function: Activate rapid movement (see page 84)
	<i>Button</i>	Keep pressed: Activation of SHIFT function
	<i>Button</i>	Press: Change operating mode Keep pressed: Activation of MODE function
	<i>Display</i>	Manual operation is activated
	<i>Display</i>	Machine in transport position

Symbol	Element	Function or meaning
 61976	Display	Telescopic boom is retracted
 61977	Display	Swivel frame is raised
 61978	Display	Swivel frame is raised vertically
 61979	Display	Machine in loading position
 30970	Display	Indicates transport position



## DANGER

### Risk of fatal injury from crushing

- ▶ Use only trained personnel.
- ▶ Keep all movements of vehicle and machine in sight.
- ▶ Make sure nobody is within the machine's movement range.
- ▶ Make sure that there are no buildings or other obstructions within the machine's movement range.
- ▶ Never overload the machine.

## Requirements

- ✓ Machine is switched on.
- ✓ Remote control is switched on.
- ✓ Vehicle has been positioned properly.

## Procedure for rolling off in manual mode

1. Select operating mode.
  - ▶ Press *Mode* button until *Manual mode* indicator appears.
2. Open container locking system.
  - ▶ Open rear locking.
  - ▶ Keep *Shift* button pressed and open front locking mechanism (option).
3. Retract underride protection (option). (see page 95)
4. Extend the stabilizer(s) (option). (see page 91)
5. Roll container off.
  - ▶ Fully retract telescopic boom.
  - ▶ Extend tipper cylinder until the container has completely rolled off.  
**NOTE:** If the container is loaded, release the vehicle's parking brake as soon as the container has contact with the ground.
6. Unhook container from hook.
  - ▶ Release vehicle's parking brake.
  - ▶ Where a pneumatic hook safety latch is fitted: Open hook safety latch. (see page 94)
  - ▶ Drive forwards until the take-up yoke comes out of the hook.  
**NOTE:** In the event of any necessary readjustment of the hook height, engage neutral.

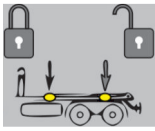


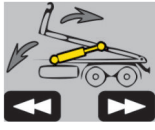



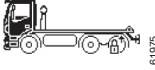
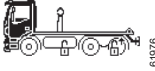
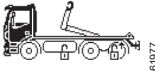
7. Bring machine in transport position.
  - ▶ Fully retract tipper cylinder.
  - ▶ Fully extend telescopic boom.
8. Close container locking system.
  - ▶ Close rear locking.
  - ▶ Keep *Shift* button pressed and close front locking mechanism (option).
9. Retract the stabilizer(s) (option). (see page 92)
10. If fitted, activate automatic levelling of the pneumatic suspension.
  - ↳ *The Vehicle is ready to be driven indicator appears on the remote control unit.*
  - ↳ *The machine is in transport position.*

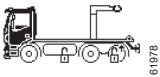
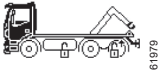

### Rolling off in manual mode using remote control and articulated boom



In order to reduce angle and height of loading of the container it is possible to slew the articulated boom backward. (see page 22)

#### On the remote control unit

Symbol	Element	Function or meaning
 31019	Button	Left button: Close rear locking Right button: Open rear locking SHIFT function: Close/open front locking
 45908	Button	Left button: slew articulated boom forward Right button: slew articulated boom backward SHIFT function: Additional function
 31018	Button	Left button: Extend telescopic boom Right button: Retract telescopic boom SHIFT function: Additional function
 31017	Button	Left button: Retract tipper cylinders Right button: Extend tipper cylinders SHIFT function: Activate rapid movement (see page 84)
 31024	Button	Keep pressed: Activation of SHIFT function
 31020	Button	Press: Change operating mode Keep pressed: Activation of MODE function
 59589	Display	Manual operation is activated
 61975	Display	Machine in transport position
 61976	Display	Telescopic boom is retracted
 61977	Display	Swivel frame is raised

Symbol	Element	Function or meaning
	<i>Display</i>	Swivel frame is raised vertically
	<i>Display</i>	Machine in loading position
	<i>Display</i>	Indicates transport position



## DANGER

### Risk of fatal injury from crushing

- ▶ Use only trained personnel.
- ▶ Keep all movements of vehicle and machine in sight.
- ▶ Make sure nobody is within the machine's movement range.
- ▶ Make sure that there are no buildings or other obstructions within the machine's movement range.
- ▶ Never overload the machine.

### Requirements

- ✓ Machine is switched on.
- ✓ Remote control is switched on.
- ✓ Vehicle has been positioned properly.

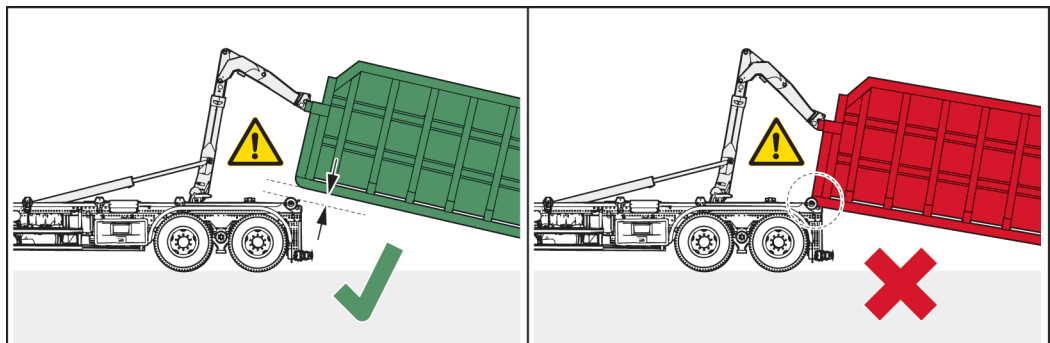
### Procedure

1. Select operating mode.
  - ▶ If cab controls are fitted, press *Manual mode* button.
  - ▶ Press *Mode* button until *Manual mode* indicator appears.
2. Open container locking system.
  - ▶ Open rear locking.
  - ▶ Keep *Shift* button pressed and open front locking mechanism (option).

3. Retract underride protection (option). (see page 95)
4. Extend the stabilizer(s) (option). (see page 91)
5. Roll container off.

**NOTICE****Damage to components caused by collision with container while moving the articulated boom**

- ▶ When executing movements keep sufficient distance between components and container.
- ▶ Fully retract telescopic boom.
- ▶ Fully extend tipper cylinder.
- ▶ Alternately actuate 'Slew articulated boom forward' and 'Extend tipper cylinder', until the container has rolled off completely. While doing so always keep sufficient distance between machine parts and lower edge of container.







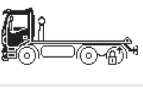
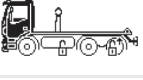

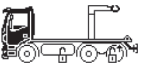
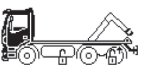

**NOTE:** If the container is loaded, release the vehicle's parking brake as soon as the container has contact with the ground.

6. Unhook container from hook.
  - ▶ Release vehicle's parking brake.
  - ▶ Where a pneumatic hook safety latch is fitted: Open hook safety latch. (see page 94)
  - ▶ Drive forwards until the take-up yoke comes out of the hook.

**NOTE:** In the event of any necessary readjustment of the hook height, engage neutral.
7. Bring machine in transport position.
  - ▶ Fully retract tipper cylinder.
  - ▶ Slew articulated boom forward completely.
  - ▶ Fully extend telescopic boom.
8. Close container locking system.
  - ▶ Close rear locking.
  - ▶ Keep *Shift* button pressed and close front locking mechanism (option).
9. Retract the stabilizer(s) (option). (see page 92)
10. If fitted, activate automatic levelling of the pneumatic suspension.
  - ↪ *The Vehicle is ready to be driven indicator appears on the remote control unit.*
  - ↪ *The machine is in transport position.*

## Rolling off in automatic mode using remote control

### On the remote control unit

Symbol	Element	Function or meaning
	<i>Button</i>	Left button: Retract tipper cylinders Right button: Extend tipper cylinders SHIFT function: Activate rapid movement (see page 84)
	<i>Button</i>	Keep pressed: Activation of SHIFT function
	<i>Button</i>	Press: Change operating mode Keep pressed: Activation of MODE function
	<i>Display</i>	Automatic mode for pulling on / rolling off container is enabled
	<i>Display</i>	Machine in transport position
	<i>Display</i>	Telescopic boom is retracted
	<i>Display</i>	Swivel frame is raised
	<i>Display</i>	Swivel frame is raised vertically
	<i>Display</i>	Machine in loading position
	<i>Display</i>	Indicates transport position



### DANGER

#### Risk of fatal injury from crushing

- ▶ Use only trained personnel.
- ▶ Keep all movements of vehicle and machine in sight.
- ▶ Make sure nobody is within the machine's movement range.
- ▶ Make sure that there are no buildings or other obstructions within the machine's movement range.
- ▶ Never overload the machine.

### Requirements

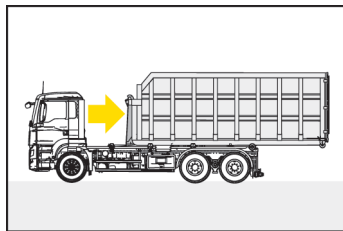
- ✓ Machine is switched on.
- ✓ Remote control is switched on.
- ✓ Vehicle has been positioned properly.
- ✓ Articulated boom is in the safe area (option).

### Procedure

1. Select operating mode.
  - ▶ If cab controls are fitted, press *Manual mode* button.
  - ▶ Press *Mode* button until *Automatic mode for pulling on / rolling off containers* indicator appears.
2. Extend the stabilizer(s) (option). (see page 91)
3. Keep *Extend tipper cylinder* button pressed.
 

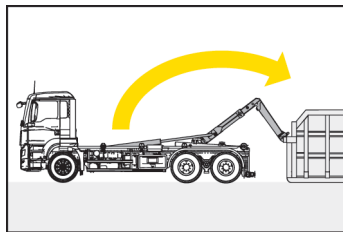
The movements are executed in the following order:

  - ▶ Front locking is opening (option)
  - ▶ Rear locking is opening.
  - ▶ Underride protection is moving in (option).
  - ▶ Telescopic boom is being fully retracted.



2337/6

- ▶ Tipper cylinder is being extended.
- NOTE:** If the container is loaded, release the vehicle's parking brake as soon as the container has contact with the ground.



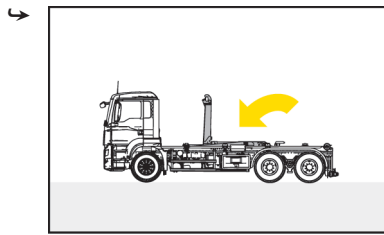
2337/9

4. Unhook container from hook.
  - ▶ Release vehicle's parking brake.
  - ▶ Where a pneumatic hook safety latch is fitted: Open hook safety latch. (see page 94)
  - ▶ Drive forwards until the take-up yoke comes out of the hook.

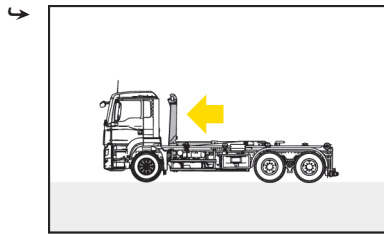
**NOTE:** In the event of any necessary readjustment of the hook height, engage neutral.



5. Keep *Retract tipper cylinder* button pressed.  
The movements are executed in the following order:
  - ▶ Tipper cylinder is being retracted.



- ▶ Telescopic boom is being extended.



6. Let go of the button.
  - ▶ Container locking system closes.
7. Retract the stabilizer(s) (option). (see page 92)
8. If fitted, activate automatic levelling of the pneumatic suspension.
  - ↪ *The Vehicle is ready to be driven indicator appears on the remote control unit.*
  - ↪ *The machine is in transport position.*

## 5.4 Tipping a container

This section describes how unloading the container by tipping works.

### 5.4.1 Rules for tipping containers



#### DANGER

##### Risk of fatal injury from crushing

- ▶ Use only trained personnel.
- ▶ Keep all movements of vehicle and machine in sight.
- ▶ Make sure nobody is within the machine's movement range.
- ▶ Make sure that there are no buildings or other obstructions within the machine's movement range.
- ▶ Never overload the machine.

#### NOTICE

##### Damage to the machine and container when tipping due to large container overhang

- ▶ Where there is a large container overhang: Pay attention to distance between ground and container when tipping up.
- ▶ If fitted, lower the vehicle's pneumatic suspension.
- ▶ Keep the vehicle horizontally aligned.
- ▶ Follow the container's operating instructions.
- ▶ Pay attention to any notices on the container.
- ▶ Check swivel frame / tipper frame anti-buckle guard

## 5.4.2 General procedure for tipping a container

### *Procedure for tipping*

1. Check working area. (see page 39)
2. Seal off danger zone. (see page 43)
3. Make a visual inspection of the machine. (see page 44)
4. Position vehicle. (see page 76)
5. Start the machine. (see page 45)
6. Switch on remote control (option). (see page 46)
7. Tip container to empty it. (see page 76)
8. Switch off the machine. (see page 60)

## 5.4.3 Position vehicle for tipping a container

### *Procedure for positioning*

1. Select spot for the vehicle.  
NOTE: At any site where it is difficult to see, have hand signals given.
  - ▶ Position vehicle.  
NOTE: Take into account space needed for the tipped cargo.
2. Secure the vehicle against rolling away.
  - ▶ Apply vehicle's parking brake.
3. Prepare vehicle for operation.
  - ▶ If vehicle has pneumatic suspension, lower it.  
NOTE: Observe here the body builder's additional documents.
4. Prepare container for tipping operation.  
NOTE: In doing so, follow the container's operating instructions.  
↪ *Vehicle is ready for operation.*


## 5.4.4 Tipping a container



The following operating modes are possible for tipping a container:

- Tipping in manual mode using cab controls (see page 76)
- Tipping in automatic mode using cab controls (see page 78)
- Tipping in manual mode using remote control (see page 79)
- Tipping in automatic mode using remote control (see page 81)

### Tipping in manual mode using cab controls

On the cabin control

Symbol	Element	Function or meaning
	<i>Operating lever</i>	Forwards: Retract tipper cylinders Backwards: Extend tipper cylinders Press: Open pneumatic hook safety latch / navigate in the service menu

Symbol	Element	Function or meaning
	<i>Button</i>	Left button: Open container locking system. Right button: Close container locking system.
	<i>Display</i>	Machine is in transport position



## DANGER

### Risk of fatal injury from crushing

- ▶ Use only trained personnel.
- ▶ Keep all movements of vehicle and machine in sight.
- ▶ Make sure nobody is within the machine's movement range.
- ▶ Make sure that there are no buildings or other obstructions within the machine's movement range.
- ▶ Never overload the machine.

### Requirements



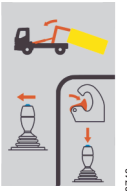



- ✓ Machine is switched on.
- ✓ Remote control is switched off.
- ✓ Vehicle has been positioned properly.
- ✓ Rear locking is closed.

### Procedure

1. Extend the stabilizer(s) (option). (see page 91)
2. Open front locking (option).
3. Retract underride protection (option). (see page 95)
4. Tip container.
  - ▶ Operate 'Extend tipper cylinder' until the container has been emptied.
5. Lower container.
  - ▶ Operate 'Retract tipper cylinder' until the latter is in its transport position.
6. Close front locking (option).  
NOTE: Dependent on the container's length.
7. Retract the stabilizer(s) (option). (see page 92)
8. Extend underride protection (option). (see page 97)  
NOTE: Dependent upon the length of the container and the country-specific regulations.
9. If fitted, activate automatic levelling of the pneumatic suspension.  
↪ 'Machine is in transport position' indicator is illuminated.

## Tipping in automatic mode using cab controls

### On the cabin control

Symbol	Element	Function or meaning
	<i>Display</i>	Solid blue: Automatic rolling-off operation is activated Not illuminated: Manual operation is activated Solid white: Automatic tipping operation is activated
	<i>Button</i>	Left button: Automatic rolling-off operation is activated Center position: Manual operation is activated Right button: Automatic tipping operation is activated
	<i>Operating lever</i>	Forwards: Retract tipper cylinders Backwards: Extend tipper cylinders Press: Open pneumatic hook safety latch / navigate in the service menu
	<i>Display</i>	Not illuminated: Container locking system open Comes on: Container locking system closed Flashing: Undefined position
	<i>Display</i>	Not illuminated: Underride protection retracted Comes on: Underride protection extended Flashing: Undefined position
	<i>Display</i>	Machine is in transport position



### DANGER

#### Risk of fatal injury from crushing

- ▶ Use only trained personnel.
- ▶ Keep all movements of vehicle and machine in sight.
- ▶ Make sure nobody is within the machine's movement range.
- ▶ Make sure that there are no buildings or other obstructions within the machine's movement range.
- ▶ Never overload the machine.

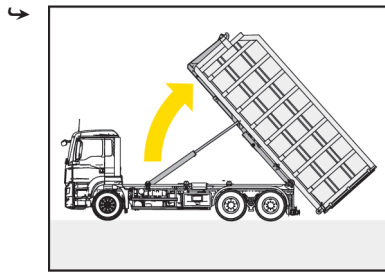
### Requirements

- ✓ Machine is switched on.
- ✓ Remote control is switched off.
- ✓ Vehicle has been positioned properly.
- ✓ Articulated boom is in the safe area (option).

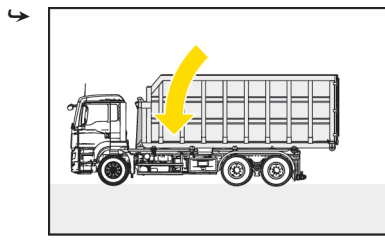
### Procedure

1. Select automatic system for tipping.
  - ▶ Press *Activate automatic mode for tipping* button.

2. Extend the stabilizer(s) (option). (see page 91)  
 NOTE: Activate manual mode for operating the stabilization system.
3. Operate the lever for *Extend tipper cylinder* function until the container has been emptied. The movements are executed in the following order:
  - ▶ Front locking is opening (option)
  - ▶ Underride protection is moving in (option).
  - ▶ Container is being tipped.



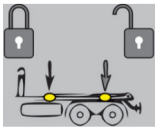
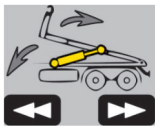

4. Press operating lever for *Retract tipper cylinder* function. The movements are executed in the following order:
  - ▶ Container is being lowered.



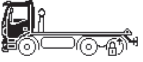

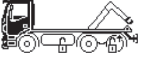



5. Release operating lever.  
 NOTE: Front locking mechanism closes automatically if it was closed prior to the tipping process.  
 ↳ *Front locking is closing (option).*
6. Retract the stabilizer(s) (option). (see page 92)  
 NOTE: Activate manual mode for operating the stabilization system.
7. Extend underride protection (option). (see page 97)  
 NOTE: Dependent upon the length of the container and the country-specific regulations.
8. If fitted, activate automatic levelling of the pneumatic suspension.  
 ↳ *The machine is in transport position.*

### Tipping in manual mode using remote control

#### On the remote control unit

Symbol	Element	Function or meaning
	Button	Left button: Close rear locking Right button: Open rear locking SHIFT function: Close/open front locking
	Button	Left button: Retract tipper cylinders Right button: Extend tipper cylinders SHIFT function: Activate rapid movement (see page 84)
	Button	Keep pressed: Activation of SHIFT function

Symbol	Element	Function or meaning
 31020	<i>Button</i>	Press: Change operating mode Keep pressed: Activation of MODE function
 59589	<i>Display</i>	Manual operation is activated
 61975	<i>Display</i>	Machine in transport position
 61980	<i>Display</i>	Tipper frame is raised
 61979	<i>Display</i>	Machine in loading position
 30970	<i>Display</i>	Indicates transport position



## DANGER

### Risk of fatal injury from crushing

- ▶ Use only trained personnel.
- ▶ Keep all movements of vehicle and machine in sight.
- ▶ Make sure nobody is within the machine's movement range.
- ▶ Make sure that there are no buildings or other obstructions within the machine's movement range.
- ▶ Never overload the machine.

## Requirements

- ✓ Machine is switched on.
- ✓ Remote control is switched on.
- ✓ Vehicle has been positioned properly.
- ✓ Rear locking is closed.

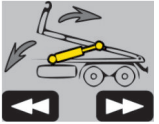



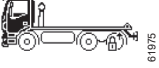
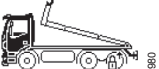
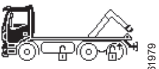

## *Procedure for tipping in manual mode*

1. Select operating mode.
  - ▶ Press *Mode* button until *Manual mode* indicator appears.
2. Extend the stabilizer(s) (option). (see page 91)
3. Keep *Shift* button pressed and *open front locking mechanism* (option).
4. Retract underride protection (option). (see page 95)
5. Tip container.
  - ▶ Operate 'Extend tipper cylinder' until the container has been emptied.
6. Lower container.
  - ▶ Operate 'Move container in' until the latter is in its transport position.
7. Keep *Shift* button pressed and *close front locking mechanism* (option).  
NOTE: Dependent on the container's length.

8. Retract the stabilizer(s) (option). (see page 92)
9. Extend underride protection (option). (see page 97)  
NOTE: Dependent upon the length of the container and the country-specific regulations.
10. If fitted, activate automatic levelling of the pneumatic suspension.
  - ↳ *The Vehicle is ready to be driven indicator appears on the remote control unit.*
  - ↳ *The container is sitting properly on the vehicle.*

## Tipping in automatic mode using remote control

### On the remote control unit

Symbol	Element	Function or meaning
	Button	Left button: Retract tipper cylinders Right button: Extend tipper cylinders SHIFT function: Activate rapid movement (see page 84)
	Button	Keep pressed: Activation of SHIFT function
	Button	Press: Change operating mode Keep pressed: Activation of MODE function
	Display	Automatic mode for tipping container is enabled
	Display	Machine in transport position
	Display	Tipper frame is raised
	Display	Machine in loading position
	Display	Indicates transport position



### DANGER

#### Risk of fatal injury from crushing

- ▶ Use only trained personnel.
- ▶ Keep all movements of vehicle and machine in sight.
- ▶ Make sure nobody is within the machine's movement range.
- ▶ Make sure that there are no buildings or other obstructions within the machine's movement range.
- ▶ Never overload the machine.

### Requirements

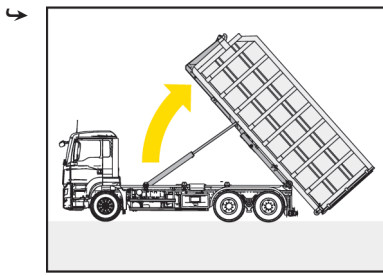
- ✓ Machine is switched on.
- ✓ Remote control is switched on.
- ✓ Vehicle has been positioned properly.
- ✓ Articulated boom is in the safe area (option).

### Procedure

1. Select operating mode.
  - ▶ If cab controls are fitted, press *Manual mode* button.
  - ▶ Press *Mode* button until *Automatic mode for tipping containers* indicator appears.
2. Extend the stabilizer(s) (option). (see page 91)
3. Keep *Extend tipper cylinder* button pressed until the container has been emptied.
 

The movements are executed in the following order:

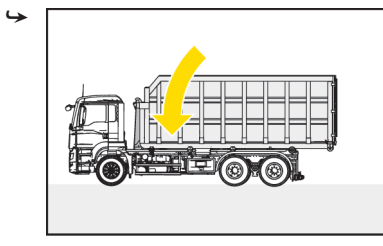
  - ▶ Front locking is opening (option)
  - ▶ Underride protection is moving in (option).
  - ▶ Container is being tipped.



4. Keep *Retract tipper cylinder* button pressed until the container is in its transport position.
 

The movements are executed in the following order:

  - ▶ Container is being lowered.



5. Let go of the button.
  - ▶ Front locking is closing (option).
 

NOTE: Front locking mechanism closes automatically if it was closed prior to the tipping process.
6. Retract the stabilizer(s) (option). (see page 92)
7. Extend underride protection (option). (see page 97)
 

NOTE: Dependent upon the length of the container and the country-specific regulations.
8. If fitted, activate automatic levelling of the pneumatic suspension.
  - ↪ *The Vehicle is ready to be driven indicator appears on the remote control unit.*
  - ↪ *The container is sitting properly on the vehicle.*

## 5.5 Transferring a container

This section describes the transferring of the container from the vehicle onto the trailer.



### 5.5.1 Rules for transferring containers



#### DANGER

##### Risk of fatal injury from crushing

- ▶ Use only trained personnel.
  - ▶ Keep all movements of vehicle and machine in sight.
  - ▶ Make sure nobody is within the machine's movement range.
  - ▶ Make sure that there are no buildings or other obstructions within the machine's movement range.
  - ▶ Never overload the machine.
- 
- ▶ If fitted, lift up the vehicle's pneumatic suspension.
  - ▶ If fitted, lower the trailer's pneumatic suspension.
  - ▶ Keep the vehicle horizontally aligned to the trailer.
  - ▶ Follow the container's operating instructions.
  - ▶ Pay attention to any notices on the container.

### 5.5.2 General procedure for transferring a container

#### *Procedure for the transfer*

1. Check working area. (see page 39)
2. Check container type and perform visual inspection. (see page 40)
3. Seal off danger zone. (see page 43)
4. Make a visual inspection of the machine. (see page 44)
5. Position vehicle. (see page 45)
6. Start the machine. (see page 45)
7. Switch on remote control (option). (see page 46)
8. If necessary, adjust hook height (option). (see page 99)
9. Transfer container:
  - ▶ Transfer container onto the trailer. (see page 62)  
NOTE: Lock container on the trailer as per body builder's specifications.
  - ▶ Transfer container onto the vehicle. (see page 46)  
NOTE: Unlock container on the trailer as per body builder's specifications.
10. Switch off the machine. (see page 60)

### 5.5.3 Position vehicle for transferring containers



The procedure for positioning the vehicle may differ from these instructions. Take note of additional documentation from the body builder and vehicle manufacturer.

#### Requirements

- ✓ Trailer is unhooked and secured against rolling away.
- ✓ If fitted, the vehicle's pneumatic suspension is lowered.
- ✓ Frame of the vehicle is equally high or higher than the frame of the trailer.

### Procedure

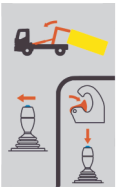


1. Position vehicle.  
NOTE: At any site where it is difficult to see, have hand signals given.
  - ▶ Reverse towards the trailer.  
NOTE: Align vehicle centrally to the trailer.
2. Secure the vehicle against rolling away.
  - ▶ Apply vehicle's parking brake.
3. Prepare vehicle for operation.
  - ▶ If vehicle has pneumatic suspension, lift it up.  
NOTE: Observe here the body builder's additional documents.
4. Prepare container for transfer.  
NOTE: In doing so, follow the container's operating instructions.
  - ↪ *Vehicle and trailer are ready for the transfer.*

## 5.6 Changing the movements' speeds

- Changing speed via cabin control (see page 84)
- Changing speed via remote control (see page 85)

### 5.6.1 Changing speed via cabin control

#### On the cabin control

Symbol	Element	Function or meaning
	<i>Operating lever</i>	Forwards: Retract tipper cylinders Backwards: Extend tipper cylinders Press: Open pneumatic hook safety latch / navigate in the service menu
	<i>Operating lever</i>	Forwards: Extend telescopic boom Backwards: Retract telescopic boom Navigating in the service menu
	<i>Button</i>	Activate rapid movement (see page 84)

#### Requirements

- ✓ Machine is switched on.
- ✓ Underride protection is in transport position.
- ✓ Container locking system is open.
- ✓ Movement is being performed.


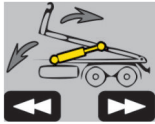


### Procedure

1. Change the movement speed.
  - ▶ Slow speed: Move operating lever halfway.
  - ▶ Fast speed: Move operating lever all the way.
  - ▶ Rapid movement: Move operating lever all the way and press *Activate rapid movement* button.

**NOTE:** The rapid movement is available for the 'Extend tipper cylinder' movement.

## 5.6.2 Changing speed via remote control

On the remote control unit

Symbol	Element	Function or meaning
	Button	Keep pressed: Activation of SHIFT function
	Button	Left button: Retract tipper cylinders Right button: Extend tipper cylinders SHIFT function: Activate rapid movement (see page 84)
	Button	Left button: Extend telescopic boom Right button: Retract telescopic boom SHIFT function: Additional function
	Button	Left button: slew articulated boom forward Right button: slew articulated boom backward SHIFT function: Additional function

### Requirements

- ✓ Machine is switched on.
- ✓ Remote control is switched on.
- ✓ Underride protection is in transport position.
- ✓ Container locking system is open.
- ✓ Movement is being performed.

### Procedure

1. Change the movement speed.
  - ▶ Low speed level: Press button halfway.
  - ▶ Fast speed level: Press button all the way.
  - ▶ Rapid movement: Keep *Shift* button pressed and press button all the way.

**NOTE:** The rapid movement is available for the 'Retract/extend tipper cylinder' movements in tipping mode and for the 'Extend tipper cylinders' movement in skipping mode.

## 5.7 Starting machine after EMERGENCY STOP

In order to continue working after the machine has been stopped by the *STOP* or *EMERGENCY STOP* button being pressed, proceed as follows.

### Requirements


- ✓ Fault has been remedied.
- ✓ No dangerous situations exists.

***Procedure for starting after an EMERGENCY STOP***

1. Continue operation.
    - ▶ If the *EMERGENCY STOP button* has been activated, unlock it by turning it anti-clockwise.
    - ▶ If using remote control, press *Start* button.
- *If fault is still present, contact a <service partner>.*

**5.8 Slew articulated boom in the safe area (option)**

On the cabin control

Symbol	Element	Function or meaning
	<i>Operating lever</i>	Forwards: Slew articulated boom forward Backwards: Slew articulated boom backward

**NOTICE****Damage to components caused by collision with container while moving the articulated boom**

- ▶ When executing movements keep sufficient distance between components and container.

**Requirements**


- ✓ Articulated boom is in the critical area.

***Procedure***

1. Slew articulated boom forward completely.

**5.9 Slew articulated boom in the critical area (option)**

On the cabin control

Symbol	Element	Function or meaning
	<i>Operating lever</i>	Forwards: Slew articulated boom forward Backwards: Slew articulated boom backward

**NOTICE****Damage to components caused by collision with container while moving the articulated boom**

- ▶ When executing movements keep sufficient distance between components and container.

**Requirements**

- ✓ Articulated boom is in the safe area.

### Procedure

1. Slew articulated boom backward.
  - ▶ Actuate lever *Slew articulated boom backward*.
    - ↳ *The movement stops automatically.*
  - ▶ Let lever *Slew articulated boom backward* go and actuate it again.

## 5.10 Suspending operation

During short breaks or when leaving the place of work briefly it is necessary to stop operation properly. Any unauthorized starting of the crane must be impossible.

### Requirements

- ✓ The working range is cordoned off.
- ✓ Container is in transport position or completely on the ground.

### Procedure for suspending operation

1. Switch off the machine. (see page 60)
2. Continue operation.
  - ▶ Check machine for any changes.
  - ▶ Start the machine. (see page 45)

## 5.11 Emergency operation



In the event of electrical system failure contact the <service partner>.

By activating emergency operation it is possible to bring the machine into its transport position in the event of a sensor failing. Particular attention must be paid to the positions of the following components, as they are not monitored by the control system when in emergency mode:

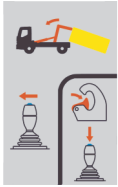

- Container locks
- Vehicle stabilization system
- Underride protection



The below methods can be used to operate the unit in the event of sensor failure:

- Operating in the event of sensor failure via cabin control. (see page 87)
- Operating in the event of sensor failure via remote control handset. (see page 88)

### 5.11.1 Operating in the event of sensor failure via cabin control

On the cabin control

Symbol	Element	Function or meaning
	<i>Operating lever</i>	Forwards: Retract tipper cylinders Backwards: Extend tipper cylinders Press: Open pneumatic hook safety latch / navigate in the service menu
	<i>Button</i>	Switch on/off lights

Symbol	Element	Function or meaning
  87895	Display	Emergency operation is activated

### Requirements

- ✓ Machine is switched on.
- ✓ An error message has occurred.
- ✓ Sensor is cleaned. (see page 119)
- ✓ Normal operation is not possible due to a faulty sensor.
- ✓ The *STOP button* is unlocked.

### Procedure

1. Activate emergency operation.
  - ▶ Keep buttons *Switch on/off lights* and *Open hook safety latch* on cabin control pressed for ten seconds.  
NOTE: During these 10 seconds let *Open hook safety latch* button go briefly and keep it pressed again.
    - ↳ *Warning horn is continuously activated.*
    - ↳ *Emergency operation is activated.*
    - ↳ *Message 680,000 appears on the digital display.*
2. Bring machine in transport position.




### NOTICE

#### Damage to components or the container caused by wrong sequence of movements

- ▶ Follow sequence of movements as per operating instructions.
  - ▶ When pulling a container on: Pull container on. (see page 46)
  - ▶ When rolling a container off: Roll container off. (see page 62)
  - ▶ When tipping a container: Lower container. (see page 76)
  - ▶ When transferring a container: Transfer container. (see page 83)
- 3. End emergency operation.
  - ▶ Push the *STOP button*.
    - ↳ *Emergency operation is deactivated.*
  - ▶ Switch off the machine. (see page 60)
- 4. Contact the <service partner>.

## 5.11.2 Operating in the event of sensor failure via remote control handset

### On the remote control unit

Symbol	Element	Function or meaning
 31025	Button	Start remote control
 31024	Button	Keep pressed: Activation of SHIFT function
 91134	Display	Emergency operation is activated

**Requirements**

- ✓ Machine is switched on.
- ✓ An error message has occurred.
- ✓ Sensor is cleaned. (see page 119)
- ✓ Normal operation is not possible due to a faulty sensor.
- ✓ The *STOP button* is unlocked.

**Procedure**

1. Activate emergency operation.
  - ▶ Keep pressed the *Activate SHIFT function* button and, while doing so, press the *Start remote control* button ten times.
    - ↳ *Warning horn is continuously activated.*
    - ↳ *Emergency operation is activated.*
    - ↳ *A warning triangle appears on the display.*
2. Bring machine in transport position.

**NOTICE****Damage to components or the container caused by wrong sequence of movements**

- ▶ Follow sequence of movements as per operating instructions.
  - ▶ When pulling a container on: Pull container on. (see page 46)
  - ▶ When rolling a container off: Roll container off. (see page 62)
  - ▶ When tipping a container: Lower container. (see page 76)
  - ▶ When transferring a container: Transfer container. (see page 83)
- 3. End emergency operation.
  - ▶ Push the *STOP button*.
    - ↳ *Emergency operation is deactivated.*
  - ▶ Switch off the machine. (see page 60)
- 4. Contact the <service partner>.





## 6 Operating items of auxiliary equipment

For extending the functionality of the machine there are some optional pieces of equipment.



When being used on the machine the items of auxiliary equipment must be suitable and approved for the intended use. In case of any uncertainties contact a <service partner>.

### NOTICE

#### Damage to items of auxiliary equipment due to overload



- ▶ Pay attention to the manufacturer's information and documentation.

### 6.1 Stabilization

The stabilization increases the stability of the vehicle during operation. There are two variants of the stabilization system, which do not differ in how they are operated. (see page 24)

#### 6.1.1 Extend stabilizer(s) via cabin control

On the cabin control

Symbol	Element	Function or meaning
	Button	Left button: Extend stabilizer(s) Right button: Retract stabilizer(s)
	Button	Left button: Retract roller stabilization Right button: Extend roller stabilization

#### Requirements


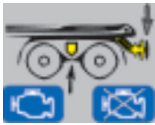
- ✓ Machine is switched on.
- ✓ Underride protection is pushed in / retracted.
- ✓ Manual operation is activated.


#### *Procedure for extending the stabilization system*

1. Extend stabilizer(s).
  - ▶ Press *Extend stabilizer(s)* or *Extend roller stabilization* button until *Stabilizer(s) extended* indicator appears.
  - ↪ *Stabilizer(s) extended*.

#### 6.1.2 Extend stabilizer(s) via remote control

On the remote control unit

Symbol	Element	Function or meaning
	Button	Keep pressed: Activation of SHIFT function
	Button	Left button: Retract stabilizer(s) Right button: Extend stabilizer(s)

Symbol	Element	Function or meaning
	<i>Display</i>	Stabilizer(s) extended

#### Requirements



- ✓ Machine is switched on.
- ✓ Remote control is switched on.
- ✓ Underride protection is pushed in / retracted.

#### *Procedure for extending the stabilization system*

1. Extend stabilizer(s).
    - ▶ Keep *Shift* button pressed and press *Extend stabilizer(s)* until *Stabilizer(s) extended* indicator appears.
- ↳ *Stabilizer(s) extended.*

### 6.1.3 Retract stabilizer(s) via cabin control

#### On the cabin control

Symbol	Element	Function or meaning
	<i>Button</i>	Left button: Extend stabilizer(s) Right button: Retract stabilizer(s)
	<i>Button</i>	Left button: Retract roller stabilization Right button: Extend roller stabilization


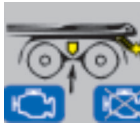
#### Requirements

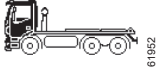
- ✓ Machine is switched on.
- ✓ Parking brake is on.
- ✓ Manual operation is activated.

#### *Procedure for retracting the stabilization system*

1. Retract stabilizer(s).
    - ▶ Press *Retract stabilizer(s)* or *Retract roller stabilization* button until *Stabilizer(s) extended* indicator disappears.
- ↳ *Stabilizer(s) retracted.*

### 6.1.4 Retract stabilizer(s) via remote control

Symbol	Element	Function or meaning
	<i>Button</i>	Keep pressed: Activation of SHIFT function
	<i>Button</i>	Left button: Retract stabilizer(s) Right button: Extend stabilizer(s)

Symbol	Element	Function or meaning
	<i>Display</i>	Stabilizer(s) retracted

**Requirements**

- ✓ Machine is switched on.
- ✓ Remote control is switched on.
- ✓ Parking brake is on.

***Procedure for retracting the stabilization system***

1. Retract stabilizer(s).
    - ▶ Keep *Shift* button pressed and press *Retract stabilizer(s)* until *Stabilizer(s) retracted* indicator appears.
- ↳ *Stabilizer(s) retracted.*

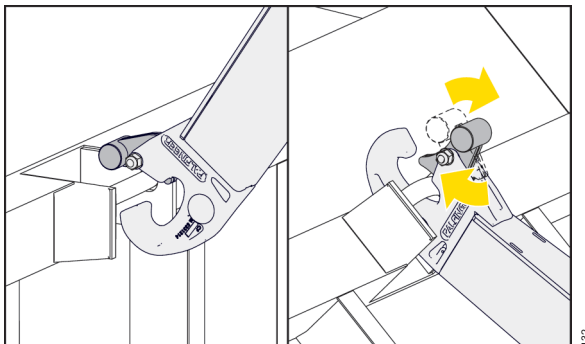
**6.2 Hook safety latch**

There are two kinds of hook safety latch:

- Mechanical hook safety latch (see page 93)
- Pneumatic hook safety latch (see page 94)

**6.2.1 Working with the mechanical hook safety latch**

The mechanical hook safety latch is a safety feature operated by gravity that secures the container in the jaw of the hook during the pulling on, rolling off and tipping process.

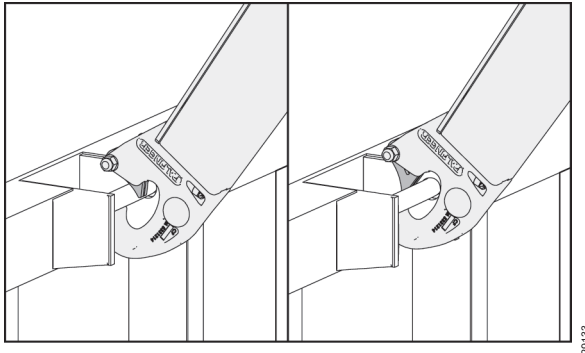


*Ill. 19: Mechanical hook safety latch*

### 6.2.2 Working with the pneumatic hook safety latch

The pneumatic hook safety latch is always closed and secures the container's take-up yoke. In order to unhook the container from the hook jaw, the latch has to be opened via an operating lever.

- Open safety hook latch via cabin control (see page 94)
- Open hook safety latch via remote control (see page 94)



Ill. 20: Pneumatic hook safety latch

#### Open pneumatic hook safety latch using cab controls

On the cabin control

Symbol	Element	Function or meaning
	<i>Operating lever</i>	Forwards: Retract tipper cylinders Backwards: Extend tipper cylinders Press: Open pneumatic hook safety latch / navigate in the service menu

#### Requirements

- ✓ Container has rolled off.

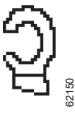
#### *Procedure for opening the pneumatic hook safety latch*

1. Press button on the operating lever.  
 ↳ *Hook safety latch is open for 5 seconds.*

#### Open pneumatic hook safety latch using remote control

On the remote control unit

Symbol	Element	Function or meaning
	<i>Button</i>	Open hook safety latch SHIFT function: Additional function MODE function: Switch on/off power-take-off

Symbol	Element	Function or meaning
	<i>Display</i>	Hook safety latch is open

### Requirements

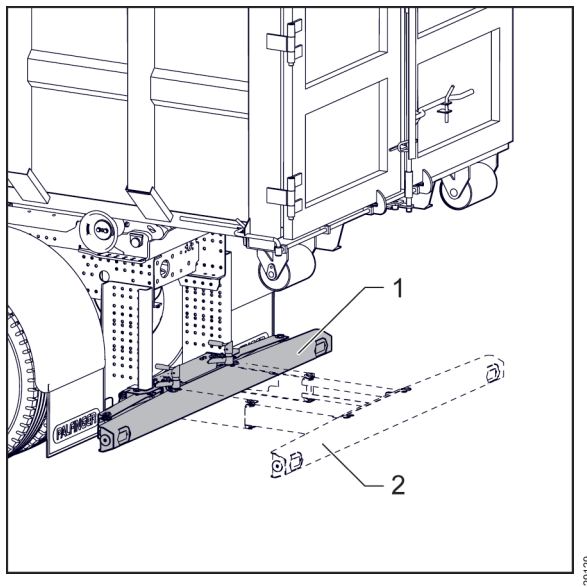
- ✓ Container has rolled off.
- ✓ Remote control is switched on.

### *Procedure for opening the pneumatic hook safety latch*

1. Press *Open hook safety latch* button.
  - ➔ *Hook safety latch is open for 5 seconds.*

## 6.3 Underride protection

The underride protection serves to reduce the rear overhang of the container when in position for transportation. The regulations on the necessity for an underride protection differ from country to country and must be taken into account by the body builder.



III. 21: Underride protection

- |   |                  |   |                    |
|---|------------------|---|--------------------|
| 1 | Working position | 2 | Transport position |
|---|------------------|---|--------------------|

### 6.3.1 Retract underride protection

Before rolling off or tipping the container, the underride protection must be brought into working position by retracting it. Depending on specification, the following possibilities exist:

- Retract underride protection mechanically (see page 95)
- Retract underride protection hydraulically using cab controls (see page 96)
- Retract underride protection hydraulically using remote control (see page 97)

### Retract underride protection mechanically

#### Requirements

- ✓ Container is in transport position and locked.

**Procedure for mechanically retracting the underride protection**

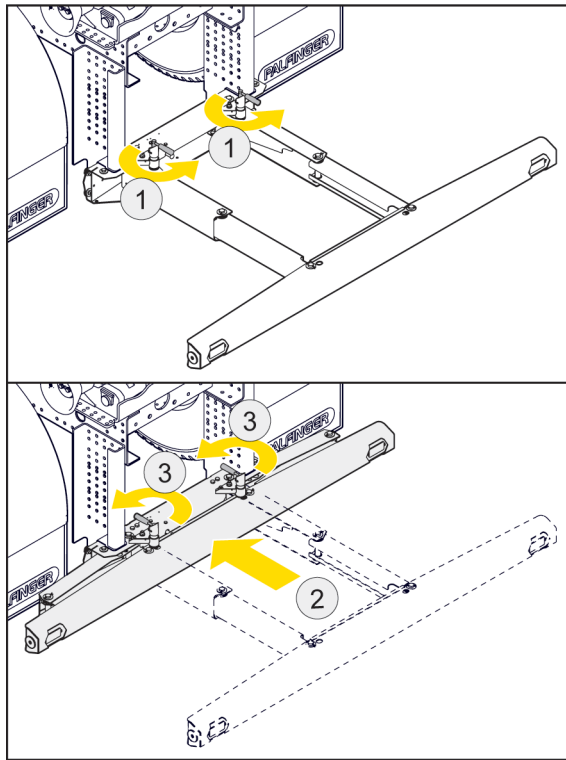
1. Bring underride protection into working position.



**CAUTION**

**Risk of crushing through moving the underride protection**


- ▶ When moving the underride protection use the handles provided.



- ▶ Hold onto underride protection and open both catches.
  - ▶ Push in underride protection by hand.
  - ▶ Close both catches.
  - ▶ Make sure that the catches have ratcheted into place.
- ↳ *Underride protection is retracted.*

**Retract underride protection hydraulically using cab controls**

On the cabin control

Symbol	Element	Function or meaning
	Button	Left button: Retract underride protection Right button: Extend underride protection

**Requirements**

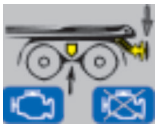
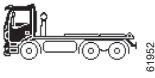
- ✓ Container is in transport position and locked.
- ✓ Danger zone has been cordoned off. (see page 43)

***Procedure for retracting the underride protection hydraulically***

1. Retract underride protection.
    - ▶ Press *Retract underride protection* button until *Underride protection extended* indicator disappears.
- ↪ *Underride protection is retracted.*

**Retract underride protection hydraulically using remote control**

On the remote control unit

Symbol	Element	Function or meaning
	<i>Button</i>	Left button: Retract underride protection Right button: Extend underride protection SHIFT function: Operate the stabilizers MODE function: Start / stop engine
	<i>Display</i>	Underride protection is retracted

**Requirements**

- ✓ Container is in transport position and locked.
- ✓ Remote control is switched on.
- ✓ Danger zone has been cordoned off. (see page 43)

***Procedure for retracting the underride protection hydraulically***

1. Retract underride protection.
    - ▶ Press *Retract underride protection* button until *Underride protection retracted* indicator appears.
- ↪ *Underride protection is retracted.*

**6.3.2 Extend underride protection**

Dependent on the length of the container and the country-specific regulations, the underride protection must be brought into transport position prior to setting off by extending it. Depending on specification, the following possibilities exist:

- Extend underride protection mechanically (see page 97)
- Extend underride protection hydraulically using cab controls (see page 98)
- Extend underride protection hydraulically using remote control (see page 99)

**Extending underride protection mechanically****Requirements**

- ✓ Container is in transport position and locked.

**Procedure for extending the underride protection mechanically**

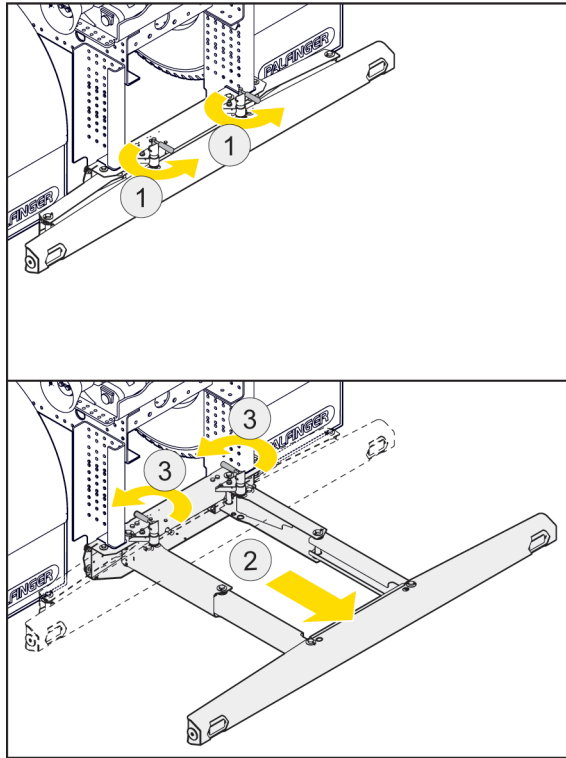
1. Bring underride protection into transport position.



**CAUTION**

**Risk of crushing through moving the underride protection**


- ▶ When moving the underride protection use the handles provided.



- ▶ Hold onto underride protection and open both catches.
  - ▶ Pulling out underride protection by hand.
  - ▶ Close both catches.
  - ▶ Make sure that the catches have ratcheted into place.
- ↳ *Underride protection is extended.*

**Extend underride protection hydraulically using cab controls**

**On the cabin control**

Symbol	Element	Function or meaning
	<i>Button</i>	Left button: Retract underride protection Right button: Extend underride protection

**Requirements**

- ✓ Container is in transport position and locked.
- ✓ Danger zone has been cordoned off. (see page 43)

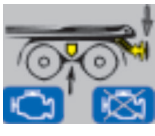
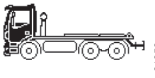


***Procedure for extending the underride protection hydraulically***

1. Extend underride protection.
    - ▶ Press *Extend underride protection* button until *Underride protection extended* indicator appears.
- ↳ *Underride protection is extended.*

**Extend underride protection hydraulically using remote control**

On the remote control unit

Symbol	Element	Function or meaning
	<i>Button</i>	Left button: Retract underride protection Right button: Extend underride protection SHIFT function: Operate the stabilizers MODE function: Start / stop engine
	<i>Display</i>	Underride protection is extended

**Requirements**

- ✓ Container is in transport position and locked.
- ✓ Remote control is switched on.
- ✓ Danger zone has been cordoned off. (see page 43)

***Procedure for extending the underride protection hydraulically***

1. Extend underride protection.
    - ▶ Press *Extend underride protection* button until *Underride protection extended* indicator appears.
- ↳ *Underride protection is extended.*

**6.4 Adjustable hook height**

The adjustable hook height facilitates working with containers using different hook heights.

- Adjust hook height mechanically (see page 99)

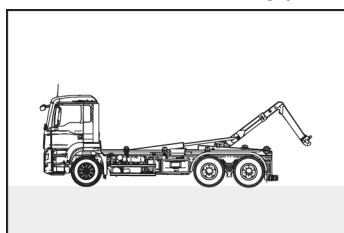
**6.4.1 Adjust hook height mechanically**

**Requirements**

- ✓ There is no container on the machine.
- ✓ Height of the take-up yoke is known.

***Procedure for manual adjustment of the hook height***

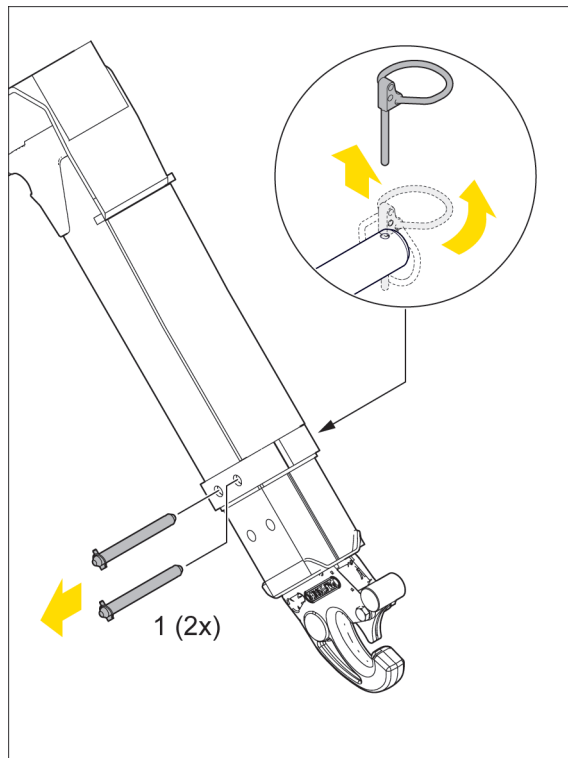
1. Move machine into loading position.



## 2. Manually set hook height.

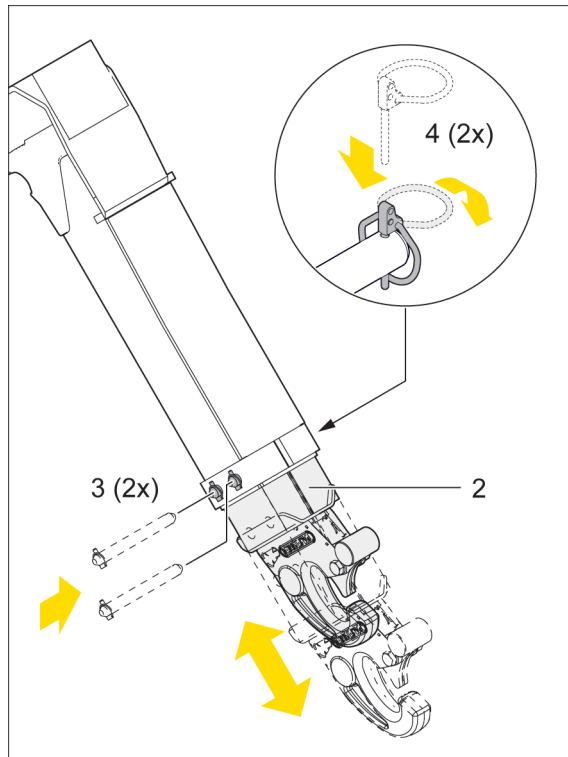
**NOTE:** Always work in pairs.

- ▶ Hold hook arm and pull out its bolt (1).



- ▶ Move hook arm into position (2).

- ▶ Push in (3) and secure (4) bolt.



## 7 Ending operation

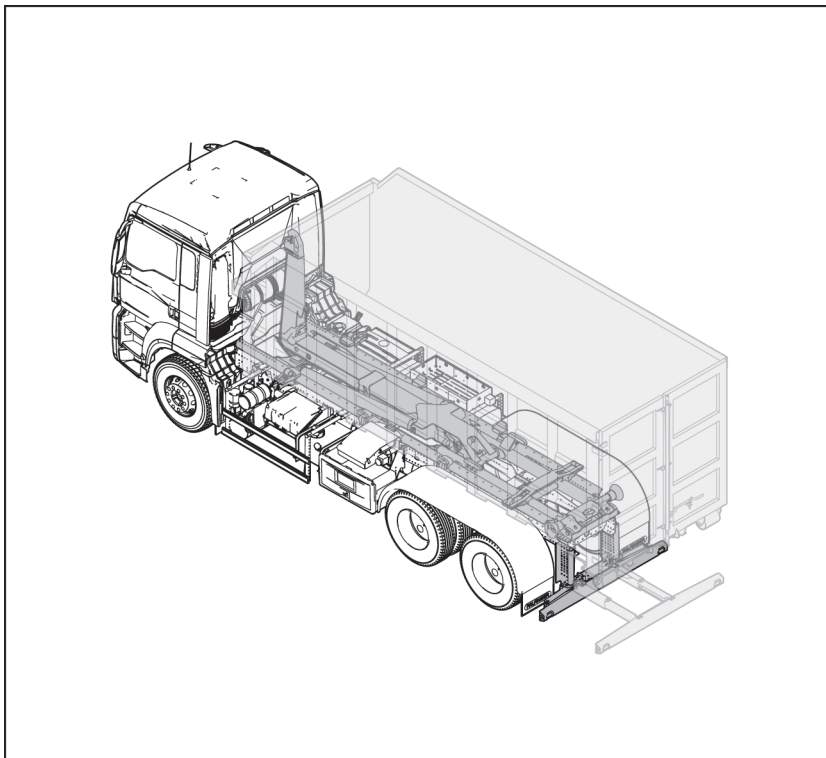
This section describes the tasks that are necessary in order to completely end operation.

### *General procedure for ending operation*

1. Ensure transport position. (see page 101)
2. Switch off the machine. (see page 60)
3. Before setting off, inspect vehicle. (see page 35)

### 7.1 Ensure transport position

The transport position is the machine's base position. This state must be established when operation of the machine has ended.



*III. 22: Machine in transport position*

- Transport position without container:
  - After the rolling off process (see page 62)
- Transport position with container:
  - After the pulling on process (see page 46)
  - After the tipping process (see page 76)







## 8 Troubleshooting

This section describes corrective measures to be taken in the event of any faults occurring.

### 8.1 Retrieve saved status codes

The last ten status codes to have occurred are saved and can be retrieved.

On the cabin control

Symbol	Element	Function or meaning
	<i>Operating lever</i>	Forwards: Retract tipper cylinders Backwards: Extend tipper cylinders Press: Open pneumatic hook safety latch / navigate in the service menu
	<i>Operating lever</i>	Forwards: Extend telescopic boom Backwards: Retract telescopic boom Navigating in the service menu
	<i>Button</i>	Switch on/off lights
	<i>Display</i>	Shows the saved status codes (see page 103)

#### Requirements

- ✓ Machine is supplied with power.
- ✓ PTO is switched off.

#### *Procedure for accessing the saved codes*



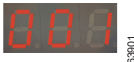
1. Call up the codes via cabin control.
  - ▶ Keep *Switch on/off lights* button pressed for ten seconds.
  - ▶ Actuate the *Tipper cylinder forwards / backwards* operating lever until the saved *status codes'* display appears.
  - ▶ Press operating lever for *Open hook safety latch* function.
    - ↳ *Recently saved codes are now shown.*
  - ▶ Actuate the *Tipper cylinder forwards / backwards* operating lever to change between the status codes saved last.
2. Leave menu.
  - ▶ Press the *Retract telescopic boom* lever twice.

## 8.2 Warning messages on the cabin control

The warning messages on the digital display shall be interpreted as follows.



Ill. 23: Digital display

Symbol	Element	Function or meaning
	Display	No message
	Display	First digit of message refers to the affected part
	Display	Second digit of message refers to the affected function

### 8.2.1 Overview of the warning messages

Listed below in ascending order are all warning messages that can appear as the result of a sensor signal.

Message	Cause	Remedy
F01.001	Extending tipper cylinder disabled due to undefined position of rear locking mechanism	<ul style="list-style-type: none"> <li>▶ Open rear locking.</li> <li>▶ Check sensor B4: Signal must be available.</li> </ul>
F01.002	Retracting tipper cylinder disabled due to undefined position of rear locking mechanism	<ul style="list-style-type: none"> <li>▶ Open rear locking.</li> <li>▶ Check sensor B4: Signal must be available.</li> </ul>
F01.003	Extending telescopic boom disabled due to undefined position of rear locking mechanism	<ul style="list-style-type: none"> <li>▶ Open rear locking.</li> <li>▶ Check sensor B4: Signal must be available.</li> </ul>
F01.004	Retracting telescopic boom disabled due to undefined position of rear locking mechanism	<ul style="list-style-type: none"> <li>▶ Open rear locking.</li> <li>▶ Check sensor B4: Signal must be available.</li> </ul>

Message	Cause	Remedy
F01.007	Slewing articulated boom forward is disabled due to undefined position of rear locking mechanism	<ul style="list-style-type: none"> <li>▶ Open rear locking.</li> <li>▶ Check sensor B4: Signal must be available.</li> </ul>
F01.008	Slewing articulated boom backward is disabled due to undefined position of rear locking mechanism	<ul style="list-style-type: none"> <li>▶ Open rear locking.</li> <li>▶ Check sensor B4: Signal must be available.</li> </ul>
F02.006	Closing rear lock process not finished after 6 seconds	<ul style="list-style-type: none"> <li>▶ Check container frame. (see page 40)</li> <li>▶ Ensure container is in transport position and close rear locking mechanism.</li> </ul>
F04.003	Extending telescopic boom disabled due to closed rear locking mechanism	<ul style="list-style-type: none"> <li>▶ Open rear locking.</li> <li>▶ Check sensor B4: Signal must be available.</li> </ul>
F04.004	Retracting telescopic boom disabled due to closed rear locking mechanism	<ul style="list-style-type: none"> <li>▶ Open rear locking.</li> <li>▶ Check sensor B4: Signal must be available.</li> </ul>
F04.007	Slewing articulated boom forward is disabled due to closed rear locking mechanism	<ul style="list-style-type: none"> <li>▶ Open rear locking.</li> <li>▶ Check sensor B4: Signal must be available.</li> </ul>
F04.008	Slewing articulated boom backward is disabled due to closed rear locking mechanism	<ul style="list-style-type: none"> <li>▶ Open rear locking.</li> <li>▶ Check sensor B4: Signal must be available.</li> </ul>
F04.014	Rapid movement disabled due to closed rear locking mechanism	<ul style="list-style-type: none"> <li>▶ Open rear locking.</li> <li>▶ Check sensor B4: Signal must be available.</li> </ul>
F05.003	Extending telescopic boom disabled due to closed rear locking mechanism	<ul style="list-style-type: none"> <li>▶ Open rear locking.</li> <li>▶ Check sensor B5: Signal must be available.</li> </ul>
F05.004	Retracting telescopic boom disabled due to closed rear locking mechanism	<ul style="list-style-type: none"> <li>▶ Open rear locking.</li> <li>▶ Check sensor B5: Signal must be available.</li> </ul>
F05.007	Slewing articulated boom forward is disabled due to closed rear locking mechanism	<ul style="list-style-type: none"> <li>▶ Open rear locking.</li> <li>▶ Check sensor B5: Signal must be available.</li> </ul>
F05.008	Slewing articulated boom backward is disabled due to closed rear locking mechanism	<ul style="list-style-type: none"> <li>▶ Open rear locking.</li> <li>▶ Check sensor B5: Signal must be available.</li> </ul>
F05.014	Rapid movement disabled due to closed rear locking mechanism	<ul style="list-style-type: none"> <li>▶ Open rear locking.</li> <li>▶ Check sensor B5: Signal must be available.</li> </ul>

Message	Cause	Remedy
F06.000	Tipper frame monitoring faults, Loss of sensor B6's signal without activation of any function, Tipper frame being raised by external force	<ul style="list-style-type: none"> <li>▶ Reduce mechanical force on the hook (e.g. release vehicle's parking brake).</li> <li>▶ Check sensor B6: Signal must be available.</li> </ul>
F06.001	Extending tipper cylinder in automatic mode for pulling on / rolling off is disabled due to the raised tipper frame	<ul style="list-style-type: none"> <li>▶ Check tipper frame / auxiliary frame locking mechanism.</li> <li>▶ Check sensor B6: Signal must be available.</li> </ul>
F06.003	Extending telescopic boom disabled due to the raised tipper frame	<ul style="list-style-type: none"> <li>▶ Fully retract tipper cylinder.</li> <li>▶ Check sensor B6: Signal must be available.</li> </ul>
F06.004	Retracting telescopic boom disabled due to the raised tipper frame	<ul style="list-style-type: none"> <li>▶ Fully retract tipper cylinder.</li> <li>▶ Check sensor B6: Signal must be available.</li> </ul>
F06.005	Opening rear locking mechanism disabled due to the raised tipper frame	<ul style="list-style-type: none"> <li>▶ Fully retract tipper cylinder.</li> <li>▶ Check sensor B6: Signal must be available.</li> </ul>
F06.006	Closing rear locking mechanism disabled due to the raised tipper frame	<ul style="list-style-type: none"> <li>▶ Fully retract tipper cylinder.</li> <li>▶ Check sensor B6: Signal must be available.</li> </ul>
F06.007	Slewing articulated boom forward is disabled due to closed raised tipper frame	<ul style="list-style-type: none"> <li>▶ Fully retract tipper cylinder.</li> <li>▶ Check sensor B6: Signal must be available.</li> </ul>
F06.008	Slewing articulated boom backward is disabled due to raised tipper frame	<ul style="list-style-type: none"> <li>▶ Fully retract tipper cylinder.</li> <li>▶ Check sensor B6: Signal must be available.</li> </ul>
F06.014	Rapid movement disabled due to the raised tipper frame	<ul style="list-style-type: none"> <li>▶ Fully retract tipper cylinder.</li> <li>▶ Check sensor B6: Signal must be available.</li> </ul>
F07.003	Extending telescopic boom disabled due to mechanical locking	<ul style="list-style-type: none"> <li>▶ Ensure container is in transport position.</li> <li>▶ Check sensor B7: Signal must be available.</li> </ul>
F07.007	Telescopic boom forwards disabled due to mechanical locking	<ul style="list-style-type: none"> <li>▶ Ensure container is in transport position.</li> <li>▶ Check sensor B7: Signal must be available.</li> </ul>
F08.001	Extending tipper cylinder disabled due to closed front	<ul style="list-style-type: none"> <li>▶ Open right front locking.</li> <li>▶ Check sensor B8: Signal must be available.</li> </ul>



Message	Cause	Remedy
	locking mechanism on the right	
F08.002	Retracting tipper cylinder disabled due to closed front locking mechanism on the right	<ul style="list-style-type: none"> <li>▶ Open right front locking.</li> <li>▶ Check sensor B8: Signal must be available.</li> </ul>
F08.003	Extending telescopic boom disabled due to closed front locking mechanism on the right	<ul style="list-style-type: none"> <li>▶ Open right front locking.</li> <li>▶ Check sensor B8: Signal must be available.</li> </ul>
F08.004	Retracting telescopic boom disabled due to closed front locking mechanism on the right	<ul style="list-style-type: none"> <li>▶ Open right front locking.</li> <li>▶ Check sensor B8: Signal must be available.</li> </ul>
F08.007	Slewing articulated boom forward is disabled due to closed front locking mechanism on the right	<ul style="list-style-type: none"> <li>▶ Open right front locking.</li> <li>▶ Check sensor B8: Signal must be available.</li> </ul>
F08.008	Slewing articulated boom backward is disabled due to closed front locking mechanism on the right	<ul style="list-style-type: none"> <li>▶ Open right front locking.</li> <li>▶ Check sensor B8: Signal must be available.</li> </ul>
F08.014	Rapid movement disabled due to closed front locking mechanism on the right	<ul style="list-style-type: none"> <li>▶ Open right front locking.</li> <li>▶ Check sensor B8: Signal must be available.</li> </ul>
F09.001	Extending tipper cylinder disabled due to closed front locking mechanism on the left	<ul style="list-style-type: none"> <li>▶ Open left front locking.</li> <li>▶ Check sensor B9: Signal must be available.</li> </ul>
F09.002	Retracting tipper cylinder disabled due to closed front locking mechanism on the left	<ul style="list-style-type: none"> <li>▶ Open left front locking.</li> <li>▶ Check sensor B9: Signal must be available.</li> </ul>
F09.003	Extending telescopic boom disabled due to closed front locking mechanism on the left	<ul style="list-style-type: none"> <li>▶ Open left front locking.</li> <li>▶ Check sensor B9: Signal must be available.</li> </ul>
F09.004	Retracting telescopic boom disabled due to closed front locking mechanism on the left	<ul style="list-style-type: none"> <li>▶ Open left front locking.</li> <li>▶ Check sensor B9: Signal must be available.</li> </ul>
F09.007	Slewing articulated boom forward is disabled due to closed front locking mechanism on the left	<ul style="list-style-type: none"> <li>▶ Open left front locking.</li> <li>▶ Check sensor B9: Signal must be available.</li> </ul>
F09.008	Slewing articulated boom backward is disabled due to closed front locking mechanism on the left	<ul style="list-style-type: none"> <li>▶ Open left front locking.</li> <li>▶ Check sensor B9: Signal must be available.</li> </ul>
F09.014	Rapid movement disabled due to closed front locking mechanism on the left	<ul style="list-style-type: none"> <li>▶ Open left front locking.</li> <li>▶ Check sensor B9: Signal must be available.</li> </ul>


Message	Cause	Remedy
F14.001	Extending tipper cylinder disabled due to extended underide protection	<ul style="list-style-type: none"> <li>▶ Retract underide protection.</li> <li>▶ Check sensor B14: Signal must be available.</li> </ul>
F14.002	Retracting tipper cylinder disabled due to extended underide protection	<ul style="list-style-type: none"> <li>▶ Retract underide protection.</li> <li>▶ Check sensor B14: Signal must be available.</li> </ul>
F14.003	Extending telescopic boom disabled due to extended underide protection	<ul style="list-style-type: none"> <li>▶ Retract underide protection.</li> <li>▶ Check sensor B14: Signal must be available.</li> </ul>
F14.004	Retracting telescopic boom disabled due to extended underide protection	<ul style="list-style-type: none"> <li>▶ Retract underide protection.</li> <li>▶ Check sensor B14: Signal must be available.</li> </ul>
F14.007	Slewing articulated boom forward is disabled due to extended underide protection	<ul style="list-style-type: none"> <li>▶ Retract underide protection.</li> <li>▶ Check sensor B14: Signal must be available.</li> </ul>
F14.008	Slewing articulated boom backward is disabled due to extended underide protection	<ul style="list-style-type: none"> <li>▶ Retract underide protection.</li> <li>▶ Check sensor B14: Signal must be available.</li> </ul>
F14.014	Rapid movement disabled due to extended underide protection	<ul style="list-style-type: none"> <li>▶ Retract underide protection.</li> <li>▶ Check sensor B14: Signal must be available.</li> </ul>
F17.001	Extending tipper cylinder in automatic mode for tipping is disabled due to closed swivel frame / tipper frame locking mechanism	<ul style="list-style-type: none"> <li>▶ Fully retract tipper cylinder and then briefly extend telescopic boom.</li> <li>▶ Check sensor B17: Signal not available.</li> </ul>
F17.014	Rapid movement when tipping as of a horizontal position (cylinder end position) is disabled	<ul style="list-style-type: none"> <li>▶ Briefly extend tipper cylinder. Then rapid movement is available. (see page 84)</li> </ul>
F17.030	Retracting/extending tipper cylinder in automatic mode for tipping is disabled due to open swivel frame / tipper frame locking mechanism	<ul style="list-style-type: none"> <li>▶ Fully retract tipper cylinder and then briefly extend telescopic boom.</li> <li>▶ Check sensor B17: Signal not available.</li> </ul>
F18.xxx	Free for additional function	<ul style="list-style-type: none"> <li>▶ Pay attention to the body builder's additional documents.</li> </ul>
F20.001	Extending tipper cylinder disabled due to closed Twistlock locking mechanism on the left	<ul style="list-style-type: none"> <li>▶ Open Twistlock locking mechanism on the left.</li> <li>▶ Check sensor B20: Signal must be available.</li> </ul>

Message	Cause	Remedy
F20.002	Retracting tipper cylinder disabled due to closed Twistlock locking mechanism on the left	<ul style="list-style-type: none"> <li>▶ Open Twistlock locking mechanism on the left.</li> <li>▶ Check sensor B20: Signal must be available.</li> </ul>
F20.003	Extending telescopic boom disabled due to closed Twistlock locking mechanism on the left	<ul style="list-style-type: none"> <li>▶ Open Twistlock locking mechanism on the left.</li> <li>▶ Check sensor B20: Signal must be available.</li> </ul>
F20.004	Retracting telescopic boom disabled due to closed Twistlock locking mechanism on the left	<ul style="list-style-type: none"> <li>▶ Open Twistlock locking mechanism on the left.</li> <li>▶ Check sensor B20: Signal must be available.</li> </ul>
F20.007	Slewing articulated boom forward is disabled due to closed Twistlock locking mechanism on the left	<ul style="list-style-type: none"> <li>▶ Open Twistlock locking mechanism on the left.</li> <li>▶ Check sensor B20: Signal must be available.</li> </ul>
F20.008	Slewing articulated boom backward is disabled due to closed Twistlock locking mechanism on the left	<ul style="list-style-type: none"> <li>▶ Open Twistlock locking mechanism on the left.</li> <li>▶ Check sensor B20: Signal must be available.</li> </ul>
F20.014	Rapid movement disabled due to closed Twistlock locking mechanism on the left	<ul style="list-style-type: none"> <li>▶ Open Twistlock locking mechanism on the left.</li> <li>▶ Check sensor B20: Signal must be available.</li> </ul>
F21.001	Extending tipper cylinder disabled due to closed Twistlock locking mechanism on the right	<ul style="list-style-type: none"> <li>▶ Open Twistlock locking mechanism on the right.</li> <li>▶ Check sensor B21: Signal must be available.</li> </ul>
F21.002	Retracting tipper cylinder disabled due to closed Twistlock locking mechanism on the right	<ul style="list-style-type: none"> <li>▶ Open Twistlock locking mechanism on the right.</li> <li>▶ Check sensor B21: Signal must be available.</li> </ul>
F21.003	Extending telescopic boom disabled due to closed Twistlock locking mechanism on the right	<ul style="list-style-type: none"> <li>▶ Open Twistlock locking mechanism on the right.</li> <li>▶ Check sensor B21: Signal must be available.</li> </ul>
F21.004	Retracting telescopic boom disabled due to closed Twistlock locking mechanism on the right	<ul style="list-style-type: none"> <li>▶ Open Twistlock locking mechanism on the right.</li> <li>▶ Check sensor B21: Signal must be available.</li> </ul>
F21.007	Slewing articulated boom forward is disabled due to closed Twistlock locking mechanism on the right	<ul style="list-style-type: none"> <li>▶ Open Twistlock locking mechanism on the right.</li> <li>▶ Check sensor B21: Signal must be available.</li> </ul>
F21.008	Slewing articulated boom backward is disabled due to closed Twistlock locking mechanism on the right	<ul style="list-style-type: none"> <li>▶ Open Twistlock locking mechanism on the right.</li> <li>▶ Check sensor B21: Signal must be available.</li> </ul>



Message	Cause	Remedy
F21.014	Rapid movement disabled due to closed Twistlock locking mechanism on the right	<ul style="list-style-type: none"> <li>▶ Open Twistlock locking mechanism on the right.</li> <li>▶ Check sensor B21: Signal must be available.</li> </ul>
F34.021	Retracting/extending underride protection disabled due to the raised tipper frame	<ul style="list-style-type: none"> <li>▶ Fully retract tipper cylinder.</li> <li>▶ Check sensor B34: Signal must be available.</li> </ul>
F40.001	Extending tipper cylinder in automatic mode for pulling on / rolling off is disabled due to position monitoring of articulated boom	<ul style="list-style-type: none"> <li>▶ Bring articulated boom in vertical position (90°).</li> <li>▶ Check sensor B40: Signal must be available.</li> </ul>
F40.002	Retracting tipper cylinder in automatic mode for pulling on / rolling off is disabled due to position monitoring of articulated boom	<ul style="list-style-type: none"> <li>▶ Bring articulated boom in vertical position (90°).</li> <li>▶ Check sensor B40: Signal must be available.</li> </ul>
F41.001	Extending tipper cylinder disabled as a result of undefined position of the adjustable hook height	<ul style="list-style-type: none"> <li>▶ Fully extend height-adjustable hook.</li> <li>▶ Check sensor B41: Signal must be available.</li> </ul>
F41.002	Retracting tipper cylinder disabled as a result of undefined position of the adjustable hook height	<ul style="list-style-type: none"> <li>▶ Fully extend height-adjustable hook.</li> <li>▶ Check sensor B41: Signal must be available.</li> </ul>
F41.003	Extending telescopic boom disabled as a result of undefined position of the adjustable hook height	<ul style="list-style-type: none"> <li>▶ Fully extend height-adjustable hook.</li> <li>▶ Check sensor B41: Signal must be available.</li> </ul>
F41.004	Retracting telescopic boom disabled as a result of undefined position of the adjustable hook height	<ul style="list-style-type: none"> <li>▶ Fully extend height-adjustable hook.</li> <li>▶ Check sensor B41: Signal must be available.</li> </ul>
F42.002	Extending tipper cylinder in automatic mode for pulling on / rolling off is disabled due to the telescopic boom being extended too far	<ul style="list-style-type: none"> <li>▶ Retract telescopic boom.</li> <li>▶ Check sensor B42: Signal must be available.</li> </ul>
F42.003	Extending telescopic boom in automatic mode for pulling on / rolling off is disabled due to the telescopic boom being extended too far	<ul style="list-style-type: none"> <li>▶ Retract telescopic boom.</li> <li>▶ Check sensor B42: Signal must be available.</li> </ul>
F42.015	Extending height-adjustable hook is disabled due to the telescopic boom being extended too far	<ul style="list-style-type: none"> <li>▶ Retract telescopic boom.</li> <li>▶ Check sensor B42: Signal must be available.</li> </ul>
F42.016	Retracting height-adjustable hook is disabled due to the	<ul style="list-style-type: none"> <li>▶ Retract telescopic boom.</li> <li>▶ Check sensor B42: Signal must be available.</li> </ul>

Message	Cause	Remedy
	telescopic boom being extended too far	
F43.003	Extending telescopic boom disabled due to locked CHU unit	<ul style="list-style-type: none"> <li>▶ Unlock CHU unit.</li> <li>▶ Check sensor B43: Signal must be available.</li> </ul>
F43.004	Retracting telescopic boom disabled due to locked CHU unit	<ul style="list-style-type: none"> <li>▶ Unlock CHU unit.</li> <li>▶ Check sensor B43: Signal must be available.</li> </ul>
F45.001	Extending tipper cylinder disabled due to mechanical locking	<ul style="list-style-type: none"> <li>▶ Retract telescopic boom.</li> <li>▶ Check sensor B45: Signal not available.</li> </ul>
F25.001	Maximum pressure reached with quick set-down or tipping	<ul style="list-style-type: none"> <li>▶ Stop the quick set-down or tipping movement and retract the tipper cylinder.</li> </ul>

### 8.3 Information messages on the cabin control

Message	Cause	Remedy
	<i>STOP button or EMERGENCY STOP button</i> has been pressed	<ul style="list-style-type: none"> <li>▶ After the fault has been rectified or the dangerous situation resolved, unlock <i>STOP button</i> or <i>EMERGENCY STOP button</i>.</li> </ul>

### 8.4 Error messages on the cabin control

Message	Cause	Remedy
	Software or hardware error (all error messages greater than 600)	<ul style="list-style-type: none"> <li>▶ Contact the &lt;service partner&gt;.</li> </ul>
	Reduced speed due to defective swivel frame / tipper frame anti-buckle guard	<ul style="list-style-type: none"> <li>▶ Contact the &lt;service partner&gt;.</li> </ul>



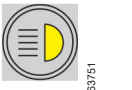

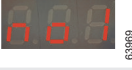

### 8.5 Remediating machine malfunctions

Malfunction	Cause	Remedy
Machine movements are restricted	Machine is overloaded.	<ul style="list-style-type: none"> <li>▶ Move the machine out of the overload situation.</li> <li>▶ Move the machine out of the end position.</li> </ul>
Warning horn sounds continuously	Container lock not closed/locked	<ul style="list-style-type: none"> <li>▶ Open/close the lock.</li> <li>▶ Check sensors B2 and B17. (see page 119)</li> </ul>
Warning horn sounds continuously	Hydraulic override protection is in undefined position.	<ul style="list-style-type: none"> <li>▶ Extend/retract override protection.</li> <li>▶ Check sensors B14 and B30. (see page 119)</li> </ul>

## 8.6 Show software version

The software version may be displayed in the service menu.

### On the cabin control

Symbol	Element	Function or meaning
	<i>Operating lever</i>	Forwards: Retract tipper cylinders Backwards: Extend tipper cylinders Press: Open pneumatic hook safety latch / navigate in the service menu
	<i>Operating lever</i>	Forwards: Extend telescopic boom Backwards: Retract telescopic boom Navigating in the service menu
	<i>Button</i>	Switch on/off lights
	<i>Display</i>	Shows information about the software (see page 112)
	<i>Display</i>	Show the control system's software version
	<i>Display</i>	Show the cabin control unit's software version

### Requirements

- ✓ Machine is supplied with power.
- ✓ PTO is switched off.

### *Procedure for calling up the software version*

1. Call up the software version via cabin control.
  - ▶ Keep *Switch on/off lights* button pressed for ten seconds.
  - ▶ Actuate the *Tipper cylinder forwards / backwards* operating lever until the display of *software information* appears.
  - ▶ Press operating lever for *Open hook safety latch* function.
    - ↳ *The software information menu shows up.*
2. Show the control system's software version.
  - ▶ Actuate the *Tipper cylinder forwards / backwards* operating lever until the *control system's software version* appears.
  - ▶ Press operating lever for *Open hook safety latch* function.
    - ↳ *The control system's software version gets shown.*
3. Show the cabin control unit's software version.
  - ▶ Actuate the *Tipper cylinder forwards / backwards* operating lever until the *cabin control's software version* appears.
  - ▶ Press operating lever for *Open hook safety latch* function.
    - ↳ *The cabin control unit's software version gets shown.*

4. Leave menu.
  - ▶ Press the *Retract telescopic boom* lever twice to leave the menu.





## 9 Maintenance

Any servicing or repair jobs that go beyond the maintenance mentioned here may be carried out only by a PALFINGER service partner.



### DANGER

#### Risk of fatal injury from unexpected machine movements

- ▶ Prior to any maintenance work, deactivate machine.



### WARNING

#### Serious falling injuries

- ▶ When placing the machine make sure all spots to be accessed can be reached from a safe tread surface.
- ▶ Use suitable climbing aids and grab handles.
- ▶ Step only on the treads provided.



### WARNING

#### Risk of injury due to residual pressures in hydraulic lines

- ▶ Never disconnect hydraulic connections.
- ▶ Have repairs carried out by a <service partner>.

### 9.1 Maintenance schedule

Interval in operating hours	Module	Action
Every 100 loadings or once a week	Entire machine	▶ Clean machine thoroughly. (see page 118)
Every 100 loadings or once a week	Entire machine	▶ Perform a visual check. (see page 122)
Every 100 loadings or once a week	Entire machine	▶ Lubricate machine. (see page 124)
Every 6 months	Tipper frame / auxiliary frame lock	▶ Check mechanics are working properly.

#### 9.1.1 Operating hours counter

Information on servicing dates and operating hours can be accessed here:

- Cabin control (see page 116)
- Remote control (see page 117)

#### Servicing dates

The indicator showing the operating hours until the next service helps the operator to arrange the regular inspections by a <service partner>. These indicators are to be interpreted as follows:

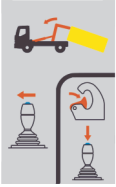







- The operating hours remaining until the next service is due are shown.
- If due dates have been passed, the operating hours continue to be counted as negative figures.

### Maintenance dates

The display of the total operating hours helps the operator to schedule the next maintenance. PALFINGER recommends that when the maintenance is carried out a note is made of the number of cycles shown.

### Show operating hours via cabin control

#### On the cabin control

Symbol	Element	Function or meaning
	<i>Operating lever</i>	Forwards: Retract tipper cylinders Backwards: Extend tipper cylinders Press: Open pneumatic hook safety latch / navigate in the service menu
	<i>Operating lever</i>	Forwards: Extend telescopic boom Backwards: Retract telescopic boom Navigating in the service menu
	<i>Button</i>	Switch on/off lights
	<i>Display</i>	Shows information about the operating hours (see page 116)
	<i>Display</i>	Show first letter in message 'total operating hours'
	<i>Display</i>	Show second letter in message 'total operating hours'
	<i>Display</i>	Show first letter in message 'daily operating hours'
	<i>Display</i>	Second letter in message 'operating hours until next service'

### Requirements

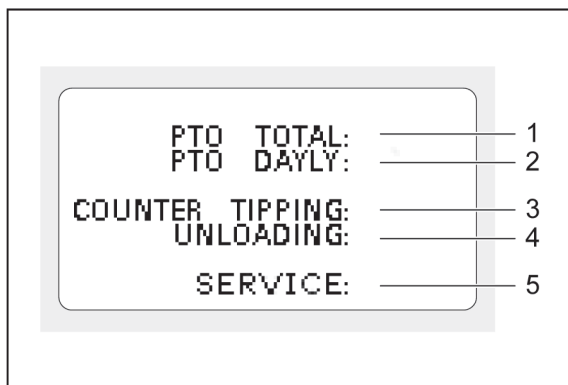
- ✓ Machine is supplied with power.
- ✓ PTO is switched off.

### Procedure for calling up the operating hours

1. Call up the operating hours via cabin control.
  - ▶ Keep *Switch on/off lights* button pressed for ten seconds.
  - ▶ Actuate the *Tipper cylinder forwards / backwards* operating lever until the display of *operating hours* appears.
  - ▶ Press operating lever for *Open hook safety latch* function.
    - ↳ *The operating hours menu shows up.*

2. Show total operating hours.
  - ▶ Actuate the *Tipper cylinder forwards / backwards* operating lever until the message *total operating hours* appears.
  - ▶ Press operating lever for *Open hook safety latch* function.
    - ↳ *The total operating hours display.*
3. Show daily operating hours.
  - ▶ Actuate the *Tipper cylinder forwards / backwards* operating lever until the message *daily operating hours* appears.
  - ▶ Press operating lever for *Open hook safety latch* function.
    - ↳ *Daily operating hours get displayed.*
4. Show operating hours until next service.
  - ▶ Actuate the *Tipper cylinder forwards / backwards* operating lever until the message *operating hours until next service* appears.
  - ▶ Press operating lever for *Open hook safety latch* function.
    - ↳ *Operating hours until next service display.*
5. Leave menu.
  - ▶ Press the *Retract telescopic boom* lever twice.

### Remote control unit operating hours counter



Ill. 24: Display of the operating hours on the remote control unit

- |   |   |   |  |
|---|---|---|--|
| 1 | Total operating hours                       | 2 | Operating hours  |
| 3 | Cycle number for automatic mode for tipping | 4 | Cycle number for automatic mode for pulling on / rolling off |
| 5 | Operating hours until next service          |   |  |

### Show operating hours via remote control

#### On the remote control unit

Symbol	Element	Function or meaning
<b>SHIFT</b> <small>31024</small>	<i>Button</i>	Keep pressed: Activation of SHIFT function
<b>MODE</b> <small>31020</small>	<i>Button</i>	Press: Change operating mode Keep pressed: Activation of MODE function

#### Requirements

- ✓ Machine is switched on.

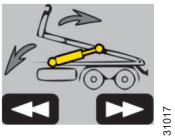
### *Procedure for calling up the operating hours*

1. Launch operating hours counter via remote control.
  - ▶ Press *Shift* button and keep it pressed.
  - ▶ Press *Mode* button five times.
    - ↳ *Information now gets shown.*
  - ▶ Press *Mode* button.
- ↳ *Main view displays.*

### **Clearing down operating hours via remote control possible**

In order to clear down the operating hours counter, proceed as follows:

#### **On the remote control unit**

Symbol	Element	Function or meaning
	<i>Button</i>	Left button: Retract tipper cylinders Right button: Extend tipper cylinders SHIFT function: Activate rapid movement (see page 84)

#### **Requirements**

- ✓ Machine is switched on.

### *Procedure for clearing down the operating hours*

1. Launch operating hours counter. (see page 117)
2. Clear down operating hours counter.
  - ▶ Press *Retract tipper cylinder* and *Extend tipper cylinder* buttons for two seconds.
- ↳ *Operating hours have been cleared down.*

## **9.2 Cleaning**

### **NOTICE**

#### **Machine can be damaged by incorrect cleaning**




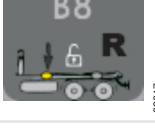





- ▶ Prior to cleaning, switch off machine. (see page 60)
- ▶ Do not use aggressive cleaning agents!
- ▶ Do not clean the following parts using high-pressure cleaning equipment:
  - Electrical components
  - Plastic components
  - Bearings or bearing points
  - Signs
  - Load rope
- ▶ Follow the high-pressure cleaning equipment's operating instructions.
- ▶ Do not exceed water temperature of 60°C (140°F).


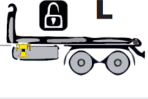


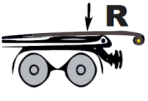
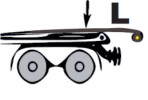


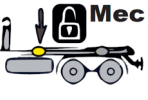

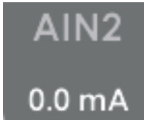
### *Procedure for cleaning the machine*

1. Position vehicle.
  - ▶ Park vehicle in a place that is suitable and has an oil separator.
2. Shut down vehicle.
  - ▶ Engage the parking brake.
  - ▶ Switch off vehicle engine.



Sensors' functions

	Element	Function or meaning
	<i>Pressure transducer</i> B1	
	Sensor B2	Rear locking is closed
	Sensor B4	Rear locking is open
	Sensor B6	Tipper frame is horizontal
	Sensor B8	Right front locking is open
	Sensor B9	Left front locking is open
	Sensor B10	Right front locking is closed
	Sensor B11	Left front locking is closed
	Sensor B12	Swivel frame is raised by $< 5^\circ$
	Sensor B13	Roller stabilization has been extended
	Sensor B14	Underride protection is retracted
	Sensor B17	Swivel frame / tipper frame locking system is closed

	Element	Function or meaning
	Sensor B18	Protective cap for the hydraulic coupling is open
	Sensor B20	Twistlock locking mechanism on the left is open
	Sensor B21	Twistlock locking mechanism on the right is open
	Sensor B25	Swivel frame is raised vertically
	Sensor B28	Lifting gear on the right is retracted
	Sensor B29	Lifting gear on the left is retracted
	Sensor B30	Underride protection extended
	Sensor B34	Swivel frame not raised
	Sensor B40	Articulated boom in visible area
	Sensor B45	Front locking mechanism deactivated.
	Sensor B48	Reverse gear is engaged
	Display	Analogue actual value entry

### *Procedure for cleaning the sensors*

- Clean sensor.
  - ▶ Blow off using compressed air or wipe down with a damp cloth.  
NOTE: Use mild detergents.

### 9.3 Visual inspection

During the visual inspection, the entire machine is checked for any damage or irregularities.

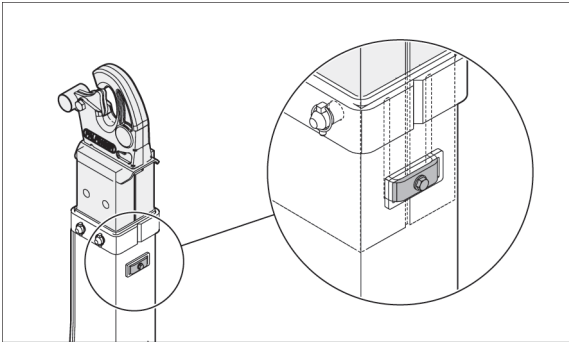


**DANGER**

**Risk of fatal injury from defective machine**

- ▶ Never start up the defective machine.
- ▶ When detecting damages contact a PALFINGER servicepartner.

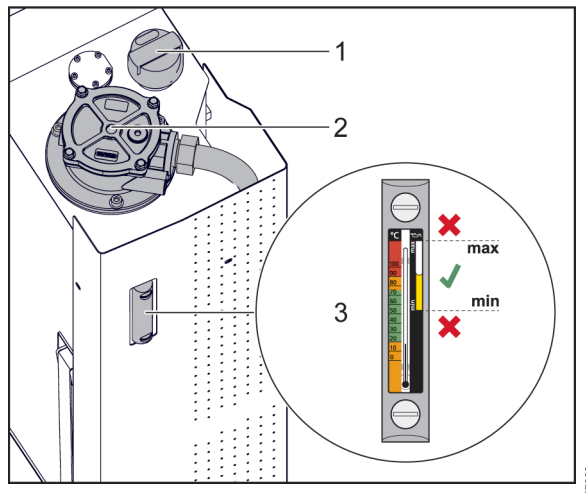
- ▶ When doing any maintenance work perform a visual inspection as follows:

Module	Check step	✓
General	<ul style="list-style-type: none"> <li>▶ Check ladders and standing areas.</li> <li>▶ Check machine for any cracks, damage or loose parts.</li> <li>▶ Check hook for attaching a container.</li> <li>▶ Check lynch pins.</li> <li>▶ Check stop for mechanically adjustable hook height.</li> </ul> <div style="text-align: right; margin-top: 10px;">  <p style="font-size: small; margin: 0;">1104842</p> </div> <p>Check bolt connections:</p> <ul style="list-style-type: none"> <li>▶ Tighten any loose bolts or nuts.</li> <li>▶ Have any load-bearing bolt connections tightened by a &lt;service partner&gt;.</li> </ul> <p>Check operating levers:</p> <ul style="list-style-type: none"> <li>▶ Check ease of movement.</li> <li>▶ Check resetting into neutral position.</li> </ul>	
Signs	<ul style="list-style-type: none"> <li>▶ Check all signs are present and legible.</li> <li>▶ Replace any missing or illegible signs. (see page 15)</li> </ul>	
Electrics	<ul style="list-style-type: none"> <li>▶ Check cable and plug connections.</li> <li>▶ Check display elements.</li> <li>▶ Check switches, sensors and rear camera for any damage.</li> </ul>	
Covers	<ul style="list-style-type: none"> <li>▶ Check covers and protective hoses for damage, functionality and to ensure none are missing.</li> </ul>	
Hydraulic system	<ul style="list-style-type: none"> <li>▶ Check hydraulic components for damage and leaks.</li> <li>▶ Check level of hydraulic oil and top up if necessary. (see page 123)</li> </ul>	
Pneumatic system	<ul style="list-style-type: none"> <li>▶ Ensure that operating pressure is 8 bar.</li> <li>▶ Check compressed air filter for any condensation and drain if necessary. (see page 124)</li> </ul>	
Remote control handset	<ul style="list-style-type: none"> <li>▶ Check remote control handset for damage.</li> </ul>	



### 9.3.1 Hydraulic oil inspection

Every time maintenance is carried out, the level of the hydraulic oil must be checked.

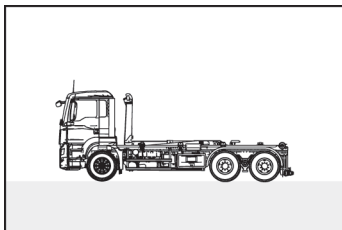


Ill. 26: Oil tank

- |   |                    |   |               |
|---|--------------------|---|---------------|
| 1 | Ventilation filter | 2 | Return filter |
| 3 | Gauge-glass        |   |               |

#### *Procedure for checking and topping up hydraulic oil*

1. Move machine into starting position.
  - ▶ Park vehicle on a horizontal surface.
  - ▶ Bring machine in transport position.



**NOTE:** If present, bring crane into transport position following the crane's operating instructions.

- ▶ If necessary, let hydraulic oil cool down.
2. Check level.
    - ▶ Read off level from the oil tank's gauge-glass (3).  
**NOTE:** At room temperature the level must be between the min. and max. marks.
  3. If necessary, top up hydraulic oil.

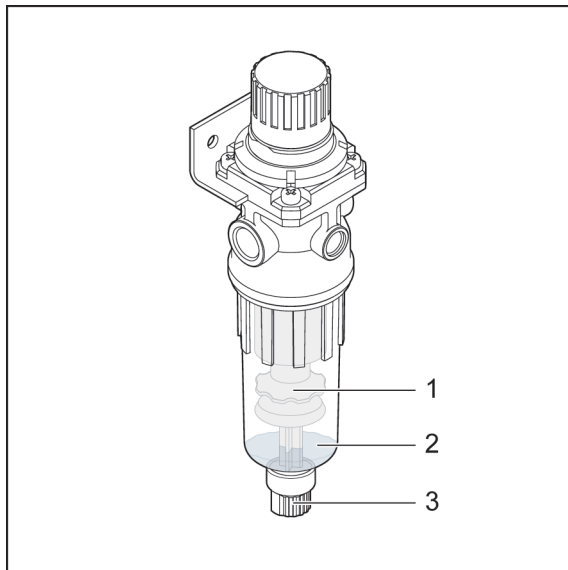
#### **NOTICE**

##### **Using unsuitable hydraulic oil causes damage to the hydraulic system**

- ▶ Follow PALFINGER's specifications and recommendations.
  - ▶ Pay attention to information on the service label.
- ▶ Take off ventilation filter (1).
  - ▶ Carefully pour in hydraulic oil.
- NOTE:**
- Pour in only previously filtered hydraulic oil and use a filling device with a filter.
  - Top up until the oil level has reached the max. mark.
  - Pay attention to the specification of the hydraulic oil. (see page 127)

### 9.3.2 Compressed air filter check

Every time maintenance is carried out, the compressed air filter must be checked for condensation.



Ill. 27: Compressed air filter

- |   |               |   |              |
|---|---------------|---|--------------|
| 1 | Filter insert | 2 | Condensation |
| 3 | Drain valve   |   |              |

#### Requirements

- ✓ Machine is switched on.

#### *Procedure for checking the compressed air filter*

1. Open the control valves' cover.
2. Check compressed air filter.
  - ▶ Check filter for leakage and damage.
3. If any condensation is present, drain it off.
  - ▶ Open drainage valve manually by turning until there is no longer any condensation in the filter.
  - ▶ Close drainage valve again manually by turning.

## 9.4 Lubrication

This section describes which areas of the machine need to be lubricated in the course of its maintenance. Listed are the lubricants required and how to use them correctly.

#### Requirements

- ✓ The machine is thoroughly cleaned.
- ✓ Machine is properly prepared. (see page 124)

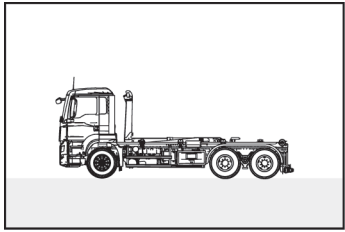
#### *Procedure for preparing for lubrication*

1. Position vehicle.
 

**NOTE:** In the event of a change of location after cleaning.

  - ▶ Park vehicle on a level surface.
  - ▶ Make sure that no lubricants get into the environment.

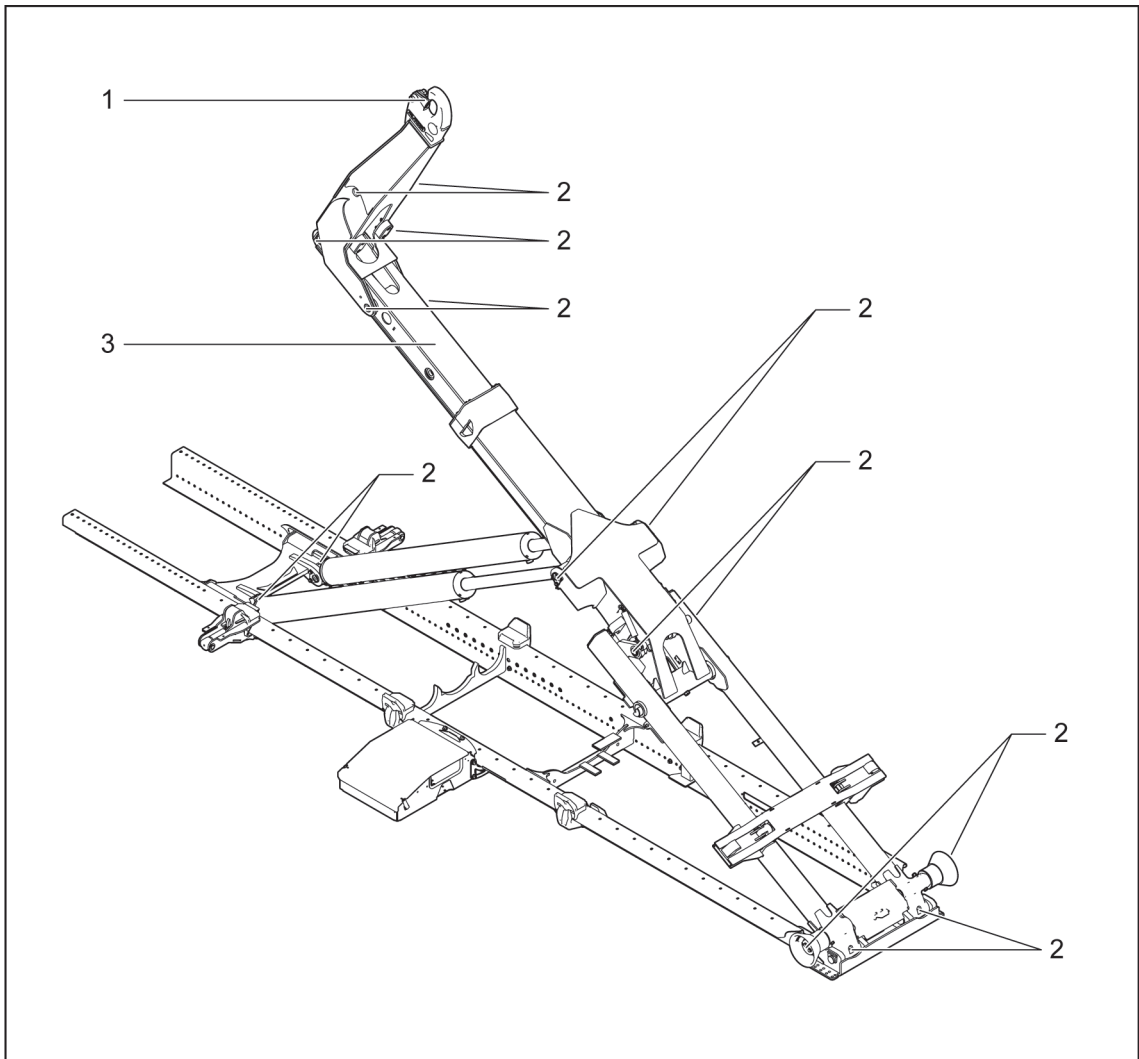
2. Bring machine in transport position.



26602

3. Switch off the machine. (see page 60)

### 9.4.1 Lubricating points



89495

III. 28: Lubricating points on the machine

No.	Machine part	Lubricant
1	Take-up hook	Lubricating grease (see page 126)
2	Pin bushings	Lubricating grease (see page 126)

No.	Machine part	Lubricant
3	Sliding surfaces	PALFINGER Teflon spray (see page 126)

### *Procedure for lubricating using lubricating grease*

1. Prepare lubricating point.
  - ▶ Clean lubricating point thoroughly and free of old grease.
2. Lubricate.
  - ▶ Press grease into the grease nipple.  
NOTE: Enough grease has been pressed in when fresh grease starts to come out at the bearing point.
3. Clean lubricating point.
  - ▶ Remove any excess lubricating grease.

### *Lubricating using PTFE spray*

1. Prepare lubricating point.
  - ▶ Clean lubricating point thoroughly so that it is clean, dry and free of any grease.
2. Lubricate.
  - ▶ Apply PALFINGER Teflon spray thinly.

## 9.5 Lubricants and operating fluids

To ensure that the machine provides optimum performance and has a long service life, the lubricants recommended by PALFINGER should be used. (see page 126)



The lubricants can be bought from any PALFINGER service partner. PALFINGER recommends using biodegradable lubricants.

### 9.5.1 Grease

Name (tested to DIN51502)	Dropping point (tested to ISO2176)	Basic oil viscosity at 40 °C (tested to DIN51562)	Oxidation resistance (100 h / 100 °C - tested to DIN51808)	PALFINGER order number
K2K-30	195 °C	120 mm <sup>2</sup> /s	max. 0.2 bar	EZ6734 (5 kg)
K2K-30	195 °C	120 mm <sup>2</sup> /s	max. 0.2 bar	EZ6735 (400 g)

### 9.5.2 PALFINGER Teflon spray

Product recommendation	PALFINGER order number
PALFINGER Teflon spray	EZ2807

### 9.5.3 PALFINGER Teflon grease

Product recommendation	PALFINGER order number
PALFINGER Teflon grease	EZ3142 (1 kg)
PALFINGER Teflon grease	EZ2394 (13 kg)
PALFINGER Teflon grease (for grease-spraying tool)	EZ7726 (400 g)

### 9.5.4 Hydraulic oil

The hydraulic oil used must satisfy at least the requirements of DIN 51524/3.

High temperature range	Cold start threshold	Purity class (as per ISO4406)
10 cSt	1000 cSt	17/15/12



As a general rule, top up only with the same hydraulic oil in the right viscosity class as originally used by the assembler. Pay attention to service label on the oil tank, if available.

#### Product recommendation

For optimum operation we recommend using PALFINGER hydraulic oils, if available on the local market. For more information refer to the product datasheets.

#### PREMIUM

High-quality multigrade hydraulic oil based on mineral oil

Product portfolio	Bucket (20 l)	Barrel (209 l)	IBC container (1000 l)	Full tank (from 6000 l)
PALFINGER Hydraulic oil EXTREME 22	FL000005 +00020	FL000005 +00209	FL000005 +01000	FL000005
PALFINGER Hydraulic oil EXTREME 32	FL000006 +00020	FL000006 +00209	FL000006 +01000	FL000006
PALFINGER Hydraulic oil EXTREME 46	FL000007 +00020	FL000007 +00209	FL000007 +01000	FL000007
PALFINGER Hydraulic oil EXTREME 68	FL000008 +00020	FL000008 +00209	FL000008 +01000	FL000008

#### EXTREME

High-quality hydraulic oil based on mineral oil for use at low temperatures

Product portfolio	Bucket (20 l)	Barrel (209 l)	IBC container (1000 l)	Full tank (from 6000 l)
PALFINGER Hydraulic oil EXTREME 32	FL000009 +00020	FL000009 +00209	FL000009 +01000	FL000009

#### BIO

High-quality biodegradable synthetic-based hydraulic oil

---

Product portfolio	Bucket (20 l)	Barrel (209 l)	IBC container (1000 l)
PALFINGER Hydraulic oil BIO 15	FL000010 +00020	FL000010 +00209	FL000010 +01000
PALFINGER Hydraulic oil BIO 32	FL000011 +00020	FL000011 +00209	FL000011 +01000
PALFINGER Hydraulic oil BIO 46	FL000012 +00020	FL000012 +00209	FL000012 +01000
PALFINGER Hydraulic oil BIO 68	FL000013 +00020	FL000013 +00209	FL000013 +01000

---

## 10 Decommissioning

If the machine is not to be used for a relatively long time, a differentiation needs to be made as follows:

- Temporary mothballing
- Decommissioning and disposal due to the end of its service life

### 10.1 Mothballing

#### Requirements

- ✓ The machine is not going to be used for more than three months.

#### *Procedure for temporary mothballing*

1. Mothball machine.
  - ▶ Clean machine.
  - ▶ Lubricate machine.
  - ▶ Protect machine from corrosion.  
**NOTE:** On any bare areas of the telescopic booms apply PALFINGER Teflon grease.
2. Bring machine into transport position and secure it against being switched back on.
3. If mothballing for a longer period:
  - ▶ Repeat this procedure every three months.

### 10.2 Disposal



#### **WARNING**

##### **Risk of injury from disassembling the machine incorrectly**

- ▶ Follow the PALFINGER service partner's instructions.
- ▶ Have machine dismantled by PALFINGER service partner.

#### **NOTICE**

##### **Risk of environmental pollution by lubricants and operating fluids**

- ▶ Clean and drain out lubricants and operating fluids.
- ▶ Clean all components.

#### Requirements

- ✓ The machine is at the end of its service life and you need to dispose of it.

#### *Procedure for disposal*

1. Clean out operating fluids.
  - ▶ Completely clean and drain out oils and lubricants.
2. Dismantle machine.
  - ▶ Break machine down into its component parts.
  - ▶ Sort component parts by recyclable material.
  - ▶ Dispose of operating fluids, recyclable materials and batteries in accordance with the country-specific regulations.





# Index

## A

- About this document • 7
- Adjust hook height mechanically • 99
- Adjustable hook height • 99
- Air suspension • 26
- Ambient conditions during operation • 34
- Applicability • 7
- Articulated boom • 22
- Axle stabilization • 25

## B

- Basic operation • 37
- Biodegradable oil label (option) • 18
- Burns • 14

## C

- Cabin control • 27
- Changing speed via cabin control • 84
- Changing speed via remote control • 85
- Changing the movements' speeds • 84
- Changing the remote control's battery • 38
- Charging the remote control's batteries • 37
- Check container type and carry out a visual inspection around it. • 40
- Check working area • 39
- Checking the slope of the ground surface • 39
- Checking the surface's load-bearing capacity • 40
- Cleaning • 118
- Cleaning the sensors • 119
- Clearing down operating hours via remote control possible • 118
- Compressed air filter check • 124
- Condition of the machine • 10
- Container locking system • 23
- Container's centre of gravity • 17, 17
- Control system • 18
- Controls • 26
- Copyright • 7
- Crushing • 11

## D

- Danger of crushing due to underride protection / Don't step here • 16
- Decommissioning • 129
- Digital display • 29
- Display on the remote control • 32
- Disposal • 129

## E

- Electric shock caused by overhead power lines • 12
- Emergency operation • 9, 87
- Ending operation • 101

- Ensure transport position • 101
- Error messages on the cabin control • 111
- Extend stabilizer(s) via cabin control • 91
- Extend stabilizer(s) via remote control • 91
- Extend underride protection • 97
- Extend underride protection hydraulically using cab controls • 98
- Extend underride protection hydraulically using remote control • 99
- Extending underride protection mechanically • 97

## F

- Further applicable documents • 7

## G

- General procedure for ending operation • 101
- General procedure for pulling on a container • 39
- General procedure for rolling a container off • 61
- General procedure for tipping a container • 76
- General procedure for transferring a container • 83
- Grease • 126

## H

- Heavy lifting when retooling • 14
- Hook safety latch • 93
- Hydraulic locking • 23
- Hydraulic oil • 127
- Hydraulic oil inspection • 123

## I

- Improper use • 9
- In an emergency • 9
- Information messages on the cabin control • 111
- Inhaling exhaust fumes • 14
- Inside locking • 23
- Inspecting vehicle before setting off • 35
- Intended use • 9

## L

- Lubricants and operating fluids • 126
- Lubricating points • 125
- Lubricating using PTFE spray • 126
- Lubrication • 124

## M

- Maintenance • 115
- Maintenance schedule • 115
- Making a visual inspection of the machine • 44
- Mechanical locking • 24

Monitoring the articulated boom (option) • 18  
Mothballing • 129  
Multi-track locking • 24

## **N**

Noise • 14  
Noise emission • 34

## **O**

Open pneumatic hook safety latch using cab controls • 94  
Open pneumatic hook safety latch using remote control • 94  
Operating hours counter • 115  
Operating in the event of sensor failure via cabin control • 87  
Operating in the event of sensor failure via remote control handset • 88  
Operating items of auxiliary equipment • 91  
Operating signs • 17  
Operation in the event of poor visibility • 11  
Operators • 10  
Outside locking • 24  
Overview of operating levers • 22  
Overview of the machine and how it works • 21  
Overview of the warning messages • 104

## **P**

PALFINGER Teflon grease • 127  
PALFINGER Teflon spray • 126  
Personal protective equipment • 10  
Position vehicle for pulling on a container. • 45  
Position vehicle for rolling off a container. • 61  
Position vehicle for tipping a container • 76  
Position vehicle for transferring containers • 83  
Preparing for operation • 35  
Procedure for lubricating using lubricating grease • 126  
Procedure in the event of an electrical accident • 13  
Product description • 21  
Pull container onto the vehicle • 46  
Pulling on a container • 38  
Pulling on in automatic mode using cab controls • 50  
Pulling on in automatic mode using remote control • 57  
Pulling on in manual mode using cab controls • 46  
Pulling on in manual mode using cabin control and articulated boom • 48  
Pulling on in manual mode using remote control • 53  
Pulling on in manual mode using remote control and articulated boom • 55  
Purpose of the present operating instructions • 7

## **R**

Recommended rpm / procedure when moving containers • 17  
Remedying machine malfunctions • 111  
Remote control • 30  
Remote control unit operating hours counter • 117  
Retract stabilizer(s) via cabin control • 92  
Retract stabilizer(s) via remote control • 92  
Retract underride protection • 95  
Retract underride protection hydraulically using cab controls • 96  
Retract underride protection hydraulically using remote control • 97  
Retract underride protection mechanically • 95  
Retrieve saved status codes • 103  
Risk of crushing by moving parts • 16  
Risk of crushing for any people in the danger area • 16  
Risk of crushing on marked point • 16  
Risk of falling • 13  
Roller stabilization • 25  
Rolling a container off • 60  
Rolling a container off the vehicle • 62  
Rolling off in automatic mode using cab controls • 66  
Rolling off in automatic mode using remote control • 73  
Rolling off in manual mode using cab controls • 62  
Rolling off in manual mode using cabin control and articulated boom • 63  
Rolling off in manual mode using remote control • 68  
Rolling off in manual mode using remote control and articulated boom • 70  
Rules for loading containers • 38  
Rules for rolling off containers • 60  
Rules for tipping containers • 75  
Rules for transferring containers • 83

## **S**

Safety • 9  
Safety bar for inspection (option) • 14  
Safety during maintenance • 14  
Safety during operation • 11  
Safety equipment and warning devices • 18  
Safety sign in the driver's cab • 16  
Safety signs • 15  
Sealing off danger zone • 43  
Seals • 19  
Service labels • 18  
Service menu • 29  
Show operating hours via cabin control • 116  
Show operating hours via remote control • 117  
Show software version • 112  
Signalers • 10  
Signs on the machine • 15

Slew articulated boom in the critical area (option) • 86  
Slew articulated boom in the safe area (option) • 86  
Stabilization • 91  
Staff competency • 10  
Starting machine after EMERGENCY STOP • 85  
Starting the machine • 45  
Stopping the machine in an emergency situation • 9  
Storage temperature for batteries • 34  
Suspending operation • 87  
Switch off the machine. • 60  
Switching on the remote control • 46  
Symbols in this document • 7

## **T**

Technical data • 34  
The operating company's obligations • 9  
The operating company's maintenance staff • 10  
Tipping a container • 75, 76  
Tipping in automatic mode using cab controls • 78  
Tipping in automatic mode using remote control • 81  
Tipping in manual mode using cab controls • 76  
Tipping in manual mode using remote control • 79  
Transferring a container • 82  
Transport position monitoring • 18  
Troubleshooting • 103  
Type plate • 17  
Type plates • 17

## **U**

Underride protection • 95  
Underride protection type plate • 18  
Using the machine • 9

## **V**

Vehicle stabilization system • 24  
Visual inspection • 122

## **W**

Warning horn • 19  
Warning light • 19  
Warning messages on the cabin control • 104  
Water jet • 16  
Working with the mechanical hook safety latch • 93  
Working with the pneumatic hook safety latch • 94



ABST: OHNE  
Ausgabe: 2020-C  
BU: CWS  
CWS\_CS: PAD  
ETB: OHNE  
FFST: MIT  
GROUP: TxA  
HPSCP: OHNE  
ISC: OHNE  
KORB: OHNE  
Krangeo: OHNE  
MAINT: STD  
CC: OHNE  
OWOA: OHNE  
PAL: OHNE  
PALOPS: OHNE  
PSF: OHNE  
PULL: OHNE  
S: OHNE  
SL: OHNE  
STG: OHNE  
STGA: OHNE  
STZ: OHNE  
SWL\_SWH: OHNE  
TOT: TO  
SYS\_LOCALE: English (US)  
SYS\_LOCALE: English (US)  
SYS\_LOCALE: English (US)  
SYS\_LOCALE: English (US)