

# USERS MANUAL

## Knapen Trailers



# Table of Contents

<b>1</b>	<b>Introduction</b>	<b>5</b>
1.1	General	5
1.2	Application of a moving floor trailer	6
1.3	Symbols in this manual	6
<b>2</b>	<b>Vehicle identification</b>	<b>7</b>
2.1	Trailer position indications	7
<b>3</b>	<b>Safety</b>	<b>9</b>
3.1	General safety rules	9
3.2	First check after receiving the trailer	9
3.3	Standard visual inspection before driving off	10
3.4	Safety instructions	11
3.5	Personal protective equipment	12
<b>4</b>	<b>General use of trailer</b>	<b>13</b>
4.1	Coupling	13
4.2	Uncoupling	14
4.3	Landing legs	15
4.4	Wheel wedges	16
4.5	Mudguards	16
4.6	Connectors	17
4.7	Control box air suspension/lift axle	19
4.9	Lift axle (option)	24
4.10	Brakes	25
4.11	Lighting	26
4.12	Toolbox / storage box	27
4.13	Self steering axle (option)	27
4.14	Towing eye (option)	28
<b>5</b>	<b>Use moving floor trailer</b>	<b>29</b>
5.1	General operation	29
5.2	Loading of bulk goods	34
5.3	Unloading of bulk goods	35
5.4	Loading pallets	36
5.5	Floor sheet (option)	38

5.6	Operating the moving floor (B control)	41
5.7	Operating the moving floor (E-operation)	42
5.8	Use of the Knapen Trailers remote control	43
5.9	Use of the bars and upper beam	46
5.10	Use of sheeting systems	48
5.11	PowerSheet® (option)	51
5.12	Sidewall protection sheet (option)	53
<b>6</b>	<b>Maintenance and cleaning</b>	<b>54</b>
6.1	Trailer maintenance instructions	54
6.2	Cleaning the lighting system	57
6.3	Cleaning the outside	57
6.4	Pneumatic rear door locking device	58
6.5	Check compressed air	59
6.6	Cleaning the top rail	59
6.7	Cleaning the moving floor	60
6.8	Maintenance of tyres and rims	62
6.9	Maintenance PowerSheet® (option)	64
6.10	Maintenance hydraulic system	64
<b>7</b>	<b>Troubleshooting</b>	<b>65</b>
7.1	Troubleshooting moving floor	65
7.2	Emergency control B-control	66
7.3	Emergency control E-control	67
7.4	Troubleshooting PowerSheet	68
7.5	Troubleshooting Knapen Trailers remote control	72
<b>8</b>	<b>Warranty</b>	<b>75</b>
<b>9</b>	<b>Technical data</b>	<b>76</b>
9.1	Landing legs	76
9.2	Kingpin	76
9.3	Floor system	77






# 1 Introduction

## 1.1 General

Dear driver,

Congratulations on the purchase of your new moving floor trailer: An indispensable tool in your daily work. Our greatest concern is with your safety. This manual plays an important role in this. Before using the trailer for the first time, read the user manual carefully to prevent accidents and/or serious damage. If you have any questions or comments, please contact us via [www.knapen-trailers.eu/contact](http://www.knapen-trailers.eu/contact).

Soon you will unload with your trailer for the very first time: Enjoy this special moment!

#KnapenUnloading   

We wish you many safe kilometres!

Kind regards,

*Knapen Trailers*

## 1.2 Application of a moving floor trailer

The Knapen Trailers moving floor is exceptionally suited for the transport of bulk goods.

With a moving floor trailer, you can transport the following products:

- Agricultural products
- Wood products
- Waste (household)
- Metal waste
- Pallets, big bags
- Paper waste/rolls bales

A trailer fitted with a roll-up sheet can, among others, transport the following products:

- Glass
- Gravel
- Ores
- Sharp sand
- Fruit & Vegetables
- Other abrasive materials

Materials that may **NOT** automatically be transported:

- Abrasive materials with low grain size
- (Greasy) substances that can harden during transport.
- Materials that are mutually subject to galvanic corrosion (e.g between copper and aluminium) amplified by the presence of moisture.



When transporting these product categories, there is a risk of the floor planks getting stuck. In this case, the moving floor must be completely dismantled. This is not covered by the warranty.



The floor is not suited for heavy point loads. A floor load can damage the floor planks and guides. Point loads also have an effect on wear and tear or damage to the side wall.

For loading with a forklift or pallet truck, we refer to chapter 5.4





For specific questions or in case of doubt regarding the product to be transported, we advise you to contact your Knapen Trailers representative.

## 1.3 Symbols in this manual

It is very important that everyone who operates the trailer reads the manual carefully!

The instructions in this manual are essential for using your trailer safely. In addition, following the regulations contributes to a longer lifespan of your trailer; Lowest Cost of Ownership.

This manual uses various symbols:


Symbol	Description
	A safety instruction follows this symbol. Failure to follow this instruction correctly may result in damage to your trailer, injury, and in some cases death.
	Additional information follows this symbol. For example, a link to another document or a useful tip.
	Reference to maintenance and/or cleaning
	Reference in case of malfunctions

# 2 Vehicle identification


## 2.1 Trailer position indications

NO	Description	Chapter
1	Type plate trailer	
2	Landing legs / Type plate	4.3
3	Floor system / Type plate	5.1
4	Control valve floor system	
5	Axles / Type plate	
6	Safety markings sticker	3.4
7	Kingpin plate/kingpin plate	4.1
8	Sheet stick	
9	Wabco sticker	4.8
10	VIN number	


Positions may be different, depending on type and configuration

 Knapen Service BV THE NETHERLANDS TEL: +31 (0)493 326 666		Knapen Trailers BV TEL: +31 (0)493 320 330	
TYPE-APPROVAL NO.	TYPE-NEHMUNGSR.	64*2007/46*0302	
IDENTIFICATION NO.	FAHRGESTELLE-NR.	XPKNKAC20020120002	
COUNTRY CODE	LANDERKODIERUNG	NL	
TOTAL MASS	GESAMTMASS	42000 kg	42000 kg
KINGPIN PRESSURE	KUPPLINGSDRUCK	0- 15000 kg	0- 15000 kg
AXLE MASS MAX.	ACHSLAST MAX.	1- 9000 kg	1- 9000 kg
		2- 9000 kg	2- 9000 kg
		3- 9000 kg	3- 9000 kg
		4- kg	4- kg
TYPE	TYP	K200	
YEAR OF CONSTRUCTION	BAUJAHR	2016	
WWW.KNAPEN-TRAILERS.EU			


**READ MANUAL!**




**STOP**




**WABCO**



**WABCO**



**CAUTION!**



**Start and Interlock**

1. Start the engine and let it warm up for 2 minutes before starting the trailer.

2. Check the oil level and the water level in the radiator.

3. Check the air pressure in the tires.

4. Check the brake system.

5. Check the lights.

6. Check the coupling.


7. Check the suspension.

8. Check the steering.

9. Check the brakes.

10. Check the tires.

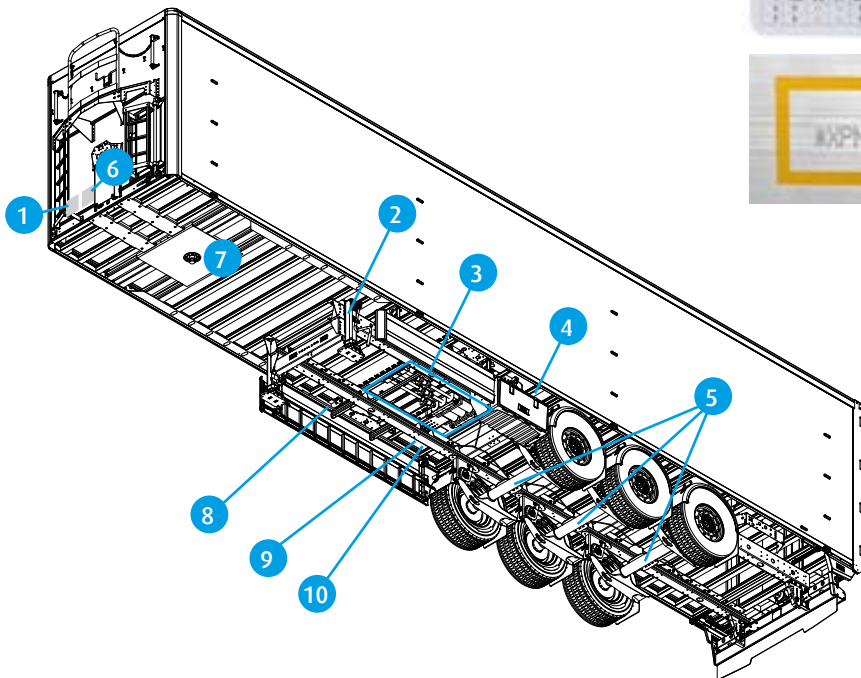
**KEEP CLEAR!**



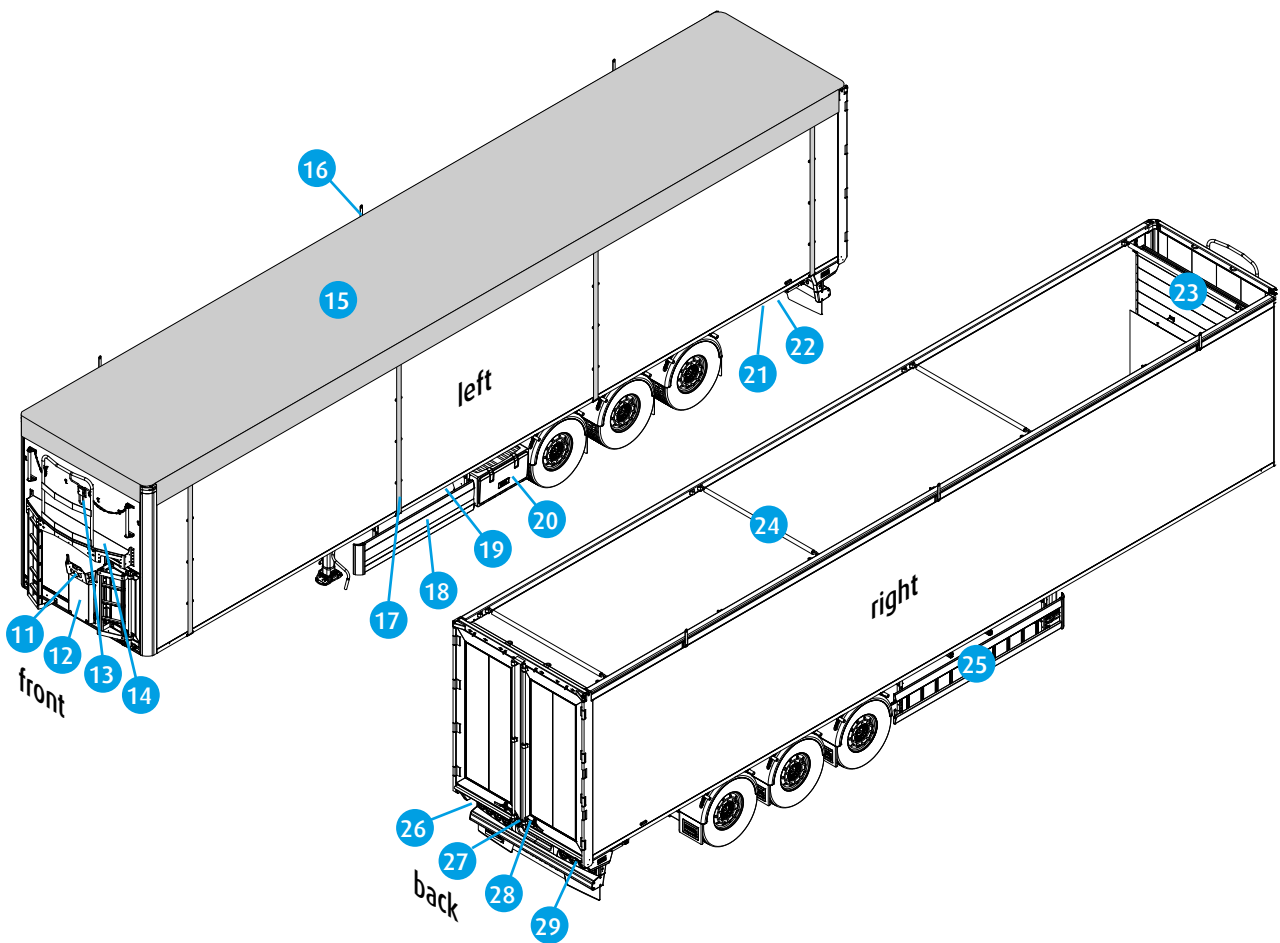
**Washing instructions**

1. >10 bar

2. >10 bar



NO	Description	Chapter
11	Electric/air connectors	4.6
12	Hydraulic connectors	4.6
13	Key for roof sheet	5.8
14	Platform	5.8
15	Roof sheet	
16	Roof sheet support	
17	Strap	
18	Side guard	
19	Receiver remote control	5.7
20	Toolbox/storage box	4.12
21	Control box air suspension	4.7
22	Operation pneumatic rear door locking device	5.1.6
23	Movable bulk head	5.1.2
24	Bars	
25	Ladder	
26	Protection plate	
27	Pneumatic door locking device	5.1.6
28	Door lock	5.1.6
29	Pull-out ladder	5.1.5





## 3 Safety



Read this chapter carefully prior to using the trailer.  
Always apply the following points of attention in the daily use of the trailer!

### 3.1 General safety rules

	Do not	Do
Stand behind the trailer while the floor is in operation (see 5.1.7).	x	
Be under the trailer while the moving floor is in operation.	x	
Stand on top of the trailer while the moving floor is in operation.	x	
Enter the trailer while the moving floor is in operation.	x	
Leave the trailer unattended while the moving floor is in operation.	x	
Block or bridge the emergency switches.	x	
Operate the floor with open protection covers.	x	
Operate the moving floor with closed rear doors.	x	
Operate the trailer without proper instruction and reading this manual.	x	
Operate the pneumatic door locking device if someone is in the vicinity of the doors (see 5.1.7).	x	
Switch off the PTO/Hydraulics system before and during service and maintenance.		✓
Switch off the PTO/Hydraulics system while moving the trailer.		✓
Adjust system with the moving floor switched off.		✓
Switch off the hydraulic system and electricity before crawling under the trailer.		✓
Stay away from oil leaks. The oil pressure can be very high / hot.		✓
Wear correct and prescribed personal protective means.		✓
Check the safety stickers for legibility and condition.		✓

### 3.2 First check after receiving the trailer

Check all screw connections for tightness.

Check whether the wheel nuts have been sufficiently tightened. For the required tightening torque, see the documentation of the axles.

Wheel nuts must be checked for the correct tightening torque after 50 km and 150 km.  
This also applies when replacing the wheel.

Check whether the moving floor is functioning properly by switching it on for approximately 15 minutes (see Ch 5.1).

Check whether the hydraulic system of the truck can supply a maximum working pressure of 250 bar.

Check if all moving parts are functioning properly.

Visual inspection: are all parts mounted correctly and properly?

Check if the lighting works.

Check that all connections between trailer and truck are functioning and are not leaking (air, electricity and hydraulics).

Check if the tyre pressure is correct. According to recommendations of your tyre supplier (see Ch6.8 for maintenance).

Harmonise the brakes of the truck and the trailer. This provides optimum braking and prevents excessive wear to the brake components. This harmonisation must be carried out by the truck supplier.

### 3.3 Standard visual inspection before driving off

The visual inspection prior to driving off is very important for the safety of the driver, bystanders, and fellow road users.

#### Points for attention are:

Is the air suspension in driving position?

Is there hydraulic oil leakage?

Is there an audible air leak ?

Are all tools such as ladders, etc., properly secured?

Are the doors closed and is the pneumatic door locking device switched on?

Is the sheeting system closed?

Is the lighting visible (protection plate folded up), does the lighting work properly and is it clean?

Do the tyres have the correct pressure and are they in good condition?

Are the air bags undamaged?

Is the license plate properly legible?

Are there no loose parts or other circumstances that are not "correct"?

Check the connection between the aluminium floor boards and the floor system for tightness of the floor bolts. This check must take place after the first loading/unloading, after approximately 10 times loading/unloading and after a month. If the bolt mounting of the floor planks is not correct, a difference will occur in the forces transmitted to the floor system by the floor planks, which in turn can lead to damage to the drive unit.

#### Checking the floor plank mounting

Switch on the moving floor at normal speed. Place a finger on the transition between the countersunk bolt and floor plank. If the bolt is loose, you will notice this as soon as the floor plank moves.

Replace the bolts if there is play. Check this a few days after receiving the semi-trailer, after ten loadings/unloadings and after one month.



#### Specification bolts floor plank

M12 x 30 countersunk bolt with hexagon socket cl.10.9 galv. counters. DIN 7991.

Apply Loc-tite to the bolts (Loc-tite® 243 cat. o. 23286 thread-locker).  
The tightening torque is 140 Nm.















**Attention:** if a floor bolt is loose, there is no point in just tightening it again.  
The bolt will become loose again and may cause damage to the system.

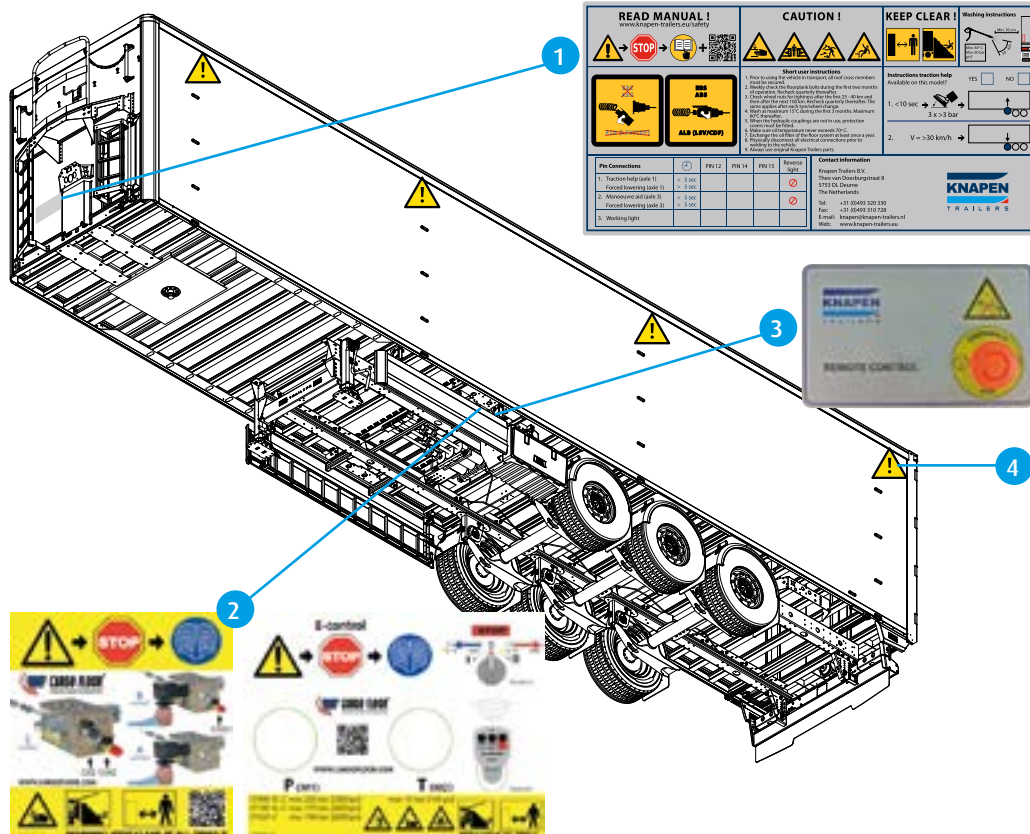
#### What to do with loose bolts

Completely remove the loose bolt and clean the cone of the mounting hole as well as the underlying thread. Mount a new M12 x 30 class 10.9 bolt, completely grease-free, with Loc-tite (Loc-tite ® 243 cat. o. 23286 thread-locker).  
The tightening torque is 140 Nm.

### 3.4 Safety instructions

Explaining the used stickers and positions.

No	Icon	Description	No	Icon	Description
1, 2		Risk of crushing hands	1, 2		Danger
1, 2		Crush hazard	1, 2		Stop
1, 2		Burial hazard	2		Control valve floor system
1		Falling hazard due to height difference	3		Warning for use of pressure washer
1, 2		Keep sufficient distance, at least 10 metres	3		Emergency button
1, 2		Moving load hazard	4		Bar position



## 3.5 Personal protective equipment



Always follow indicated safety markings of the location!

### Most common safety markings



Safety goggles required



Wearing a welding helmet is required



Face protection required



Wearing a fluorescent safety vest is required



Hearing protection required



Wearing safety shoes is required



Wearing a safety helmet is required



Wearing work gloves is required



Respiratory protection mandatory

# 4 General use of trailer



Make sure that nobody can get in between the trailer and the truck during coupling and uncoupling!



Useful tips for saving fifth wheel grease and for ensuring that the landing legs continue to rotate slightly can be found in the Knapen Trailers Driver tips no 12 "Coupling and uncoupling". [www.knapen-trailers.eu/downloads/tips-for-drivers](http://www.knapen-trailers.eu/downloads/tips-for-drivers)



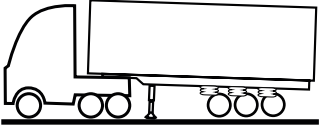
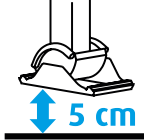


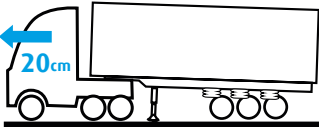
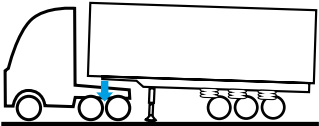
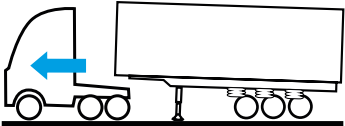
## 4.1 Coupling

Step	Coupling	
1	Place the truck in a straight line in front of the trailer, on a level surface	
2	Use the parking brake and wheel wedges so that the trailer cannot roll away (see 4.4). The kingpin locking device of the fifth wheel of the truck must be open	
3	Drive the truck up to 20 cm in front of the kingpin (fifth wheel under the trailer). Do this without touching the trailer and without losing grease from the fifth wheel	
4	Lift the truck so that the fifth wheel is practically lying on the kingpin plate.	
5	Drive carefully towards the trailer until the kingpin bolts in the locking device of the fifth wheel on the truck	
6	Lift the trailer so that the landing legs are 5 cm clear of the ground	
7	Check that the trailer is secured by carefully moving forward and check the locking device on the fifth wheel	
8	Connect the couplings, hoses and electricity (see 4.6) Next turn or lift the landing legs (see 4.3)	
9	Release the parking brake and remove the wheel wedges. You are now ready to leave.	





## 4.2 Uncoupling



Only uncouple a trailer with a load if the load is positioned so that the trailer cannot tilt!

Step	Disconnect	
1	Place the truck in a straight line in front of the trailer, on a level and solid surface. Lift the trailer up to the maximum using the rear axle suspension of the truck.	
2	Lower the landing legs to 5 cm above the ground. Lower the semi-trailer's air suspension completely.	
3	Disconnect the couplings, hoses and electricity (see 4.6)	
4	Place the wheel wedges in front of/behind the wheels in the possible rolling direction.	
5	Release the kingpin locking device on the fifth wheel of the truck and drive the truck 20 cm forward	
6	Lower the truck's rear axle down to the minimum height	
7	Now drive the truck completely from underneath the trailer. Do this without touching the trailer and without losing grease from the fifth wheel.	

### Prevent pollution in the air lines

	Correct	Incorrect
All air lines have a air connection with a closing lid. Always close after uncoupling the air connection on the head board.		
Hang up the air lines again after uncoupling. This prevents sand/polution in the air connections, which can enter the EBS modulator through the compressed air.		

## 4.3 Landing legs

Landing legs can be divided into two types, namely spindle support legs and fall support legs.

### Spindle support legs

The legs support the trailer when the trailer is uncoupled and can be used to adjust the height of the trailer for coupling and uncoupling. The legs have two speed settings.



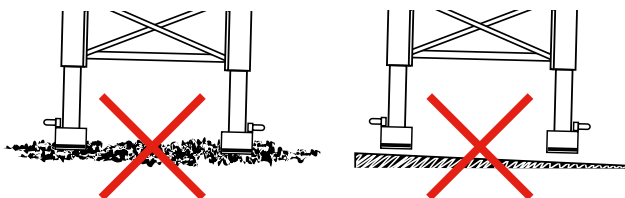
### Fall support legs

The legs support the trailer when the trailer is uncoupled. The height can only be adjusted in coupled state.



**Warning:** Avoid limbs becoming trapped between the ground and the landing legs when lowering the legs.

A level and solid surface is required.



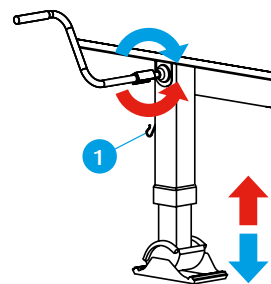
### 4.3.1 Operation of the spindle support legs



- A slight turning movement makes switching easier.
- Be aware of a possible recoil of the crank.
- Pay attention to the maximum height position (crank force increases)!

#### Description

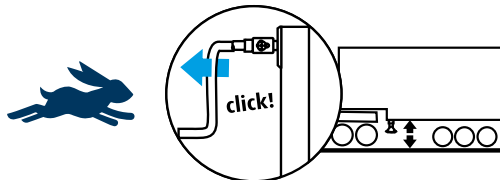
Remove the crank from the hanging hook (1) and position the support at axle height.



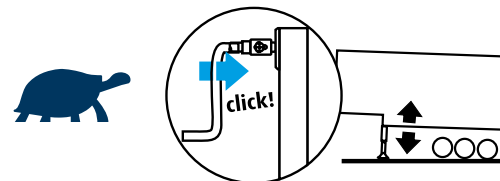
Use only to bridge ground clearance.

**Fast** extending and retracting the unloaded landing leg. Pull the crank towards you.

Before the support foot touches the ground, switch over to the low speed setting.



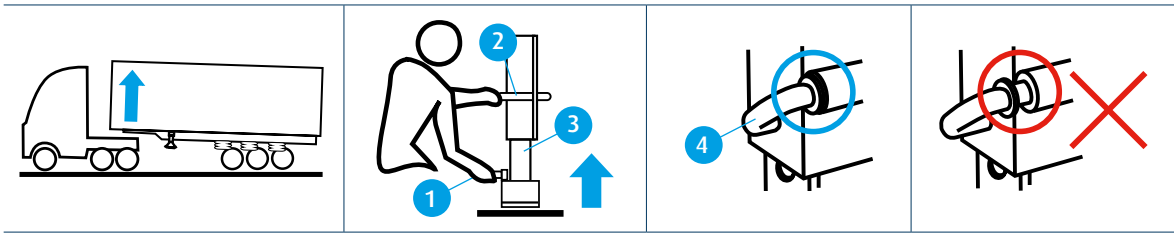
**Slowly** lift and lower both a loaded and an unloaded vehicle, press the crank.



### 4.3.2 Operation of fall support legs

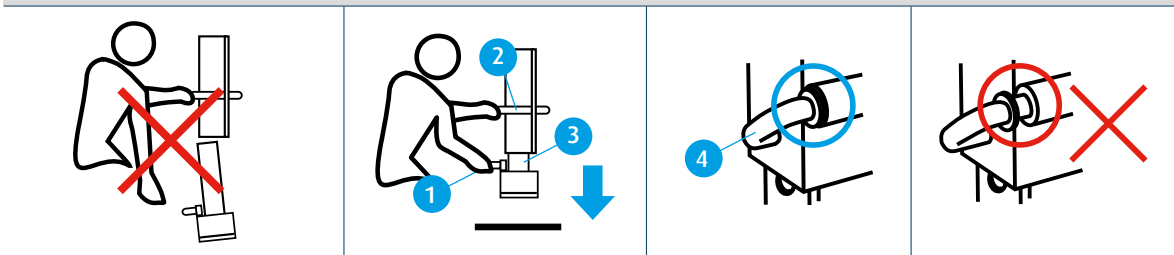
#### Raise landing legs

Lift the front of the trailer so no tension is exerted on the landing legs



Repeat the above for the other side

#### Lower landing legs



Repeat the above for the other side

## 4.4 Wheel wedges



**Warning:** Do not forget to remove the wheel wedges after the trailer has been coupled and place them in the designated holders.

When the trailer is uncoupled, use of the wheel wedges is highly recommended. Even when the trailer is uncoupled on a level surface.

Place the wheel wedges in front of/behind the wheels in the possible rolling direction.



## 4.5 Mudguards



**The anti-spray mats of the mudguards must be cleaned on a regular basis with a high pressure washer.**

The mudguards are mounted per wheel where the last fender must be equipped with an anti-spray mat. If a fender is damaged, it must be replaced. This also prevents pollution to the underside of the floor, so that wear is reduced.





## 4.6 Connectors



Tips for keeping hydraulic couplings clean can be found in the Knapen Trailers Driver Tips No 10 "Hydraulic couplings".

[www.knapen-trailers.eu/downloads/tips-for-drivers](http://www.knapen-trailers.eu/downloads/tips-for-drivers)



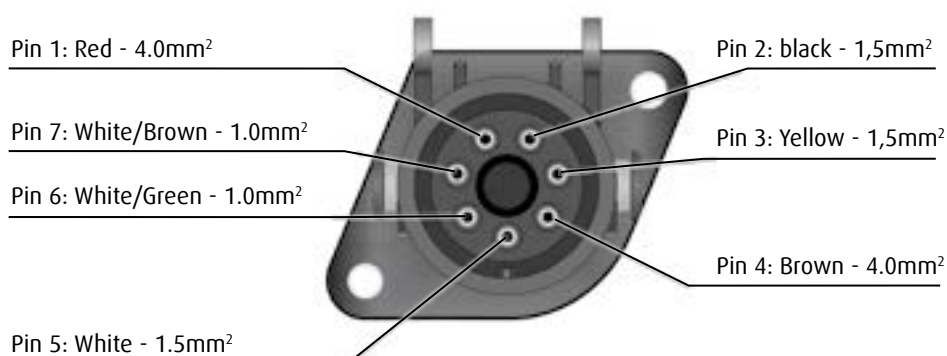
### Connectors

1	Air connector red, supply line
2	Air connector yellow, control line
3	EBS plug connection ISO 7638-1
4	White plug connection - 7-pole (ISO 1185, 24N)
5	Plug connection - 15-pole (ISO 12098)
6	Black plug connection - 7-pole (ISO 3731, 24S)
7	Hydraulic connector return pressure blue
8	Hydraulic connector pressure red



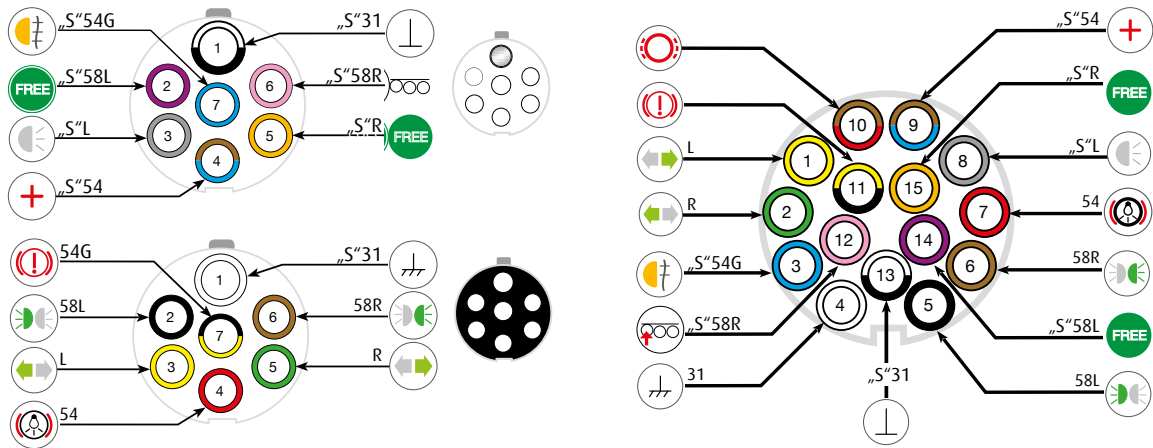
If the connectors (1 - 2) are not used, turn the lids in front of them (see 4.2).

### 4.6.1 EBS plug connection



Pin 1	24v unswitched (solenoids)
Pin 2	24v ign. switched (ECU)
Pin 3	Ground for pin 2
Pin 4	Ground for pin 1
Pin 5	Warning lamp
Pin 6	CAN-High 24v (ISO 11992)
Pin 7	CAN-Low 24v (ISO 11992)

#### 4.6.2. Plug connection 7/15 pole



Function	7-pole white 1185 24N	7-pole black 3731 24S	15-pole ISO 12098
Indicator left		3	1
Indicator right		5	2
Fog light	7		3
Ground		1	4
Rear light left		2	5
Rear light right		6	6
Brake light		4	7
Reverse light	3		8
Constant power supply	4		9
Brake wear indicator*			10
Brake cylinder marking*		7	11
Axle lift (option)	6		12
Mass Data	1		13
Free position	2		14
Free position	5		15

\* Not standard connected by Knapen Trailers

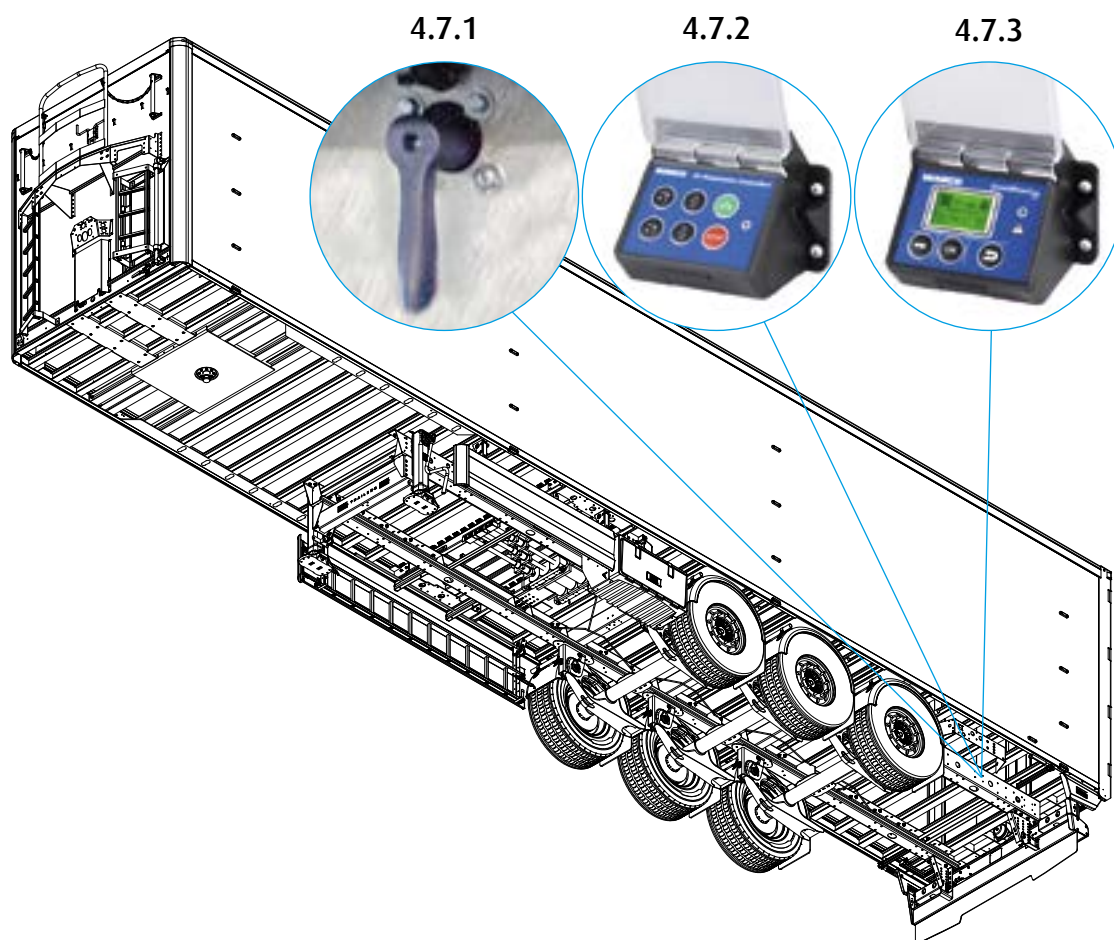
Pin Connections		PIN 12	PIN 14	PIN 15	Reverse light
1 Traction help (axle 1) Forced lowering (axle1)	< 5 sec. > 5 sec.		●		⊘
2 Manoeuvre aid (axle 3) Forced lowering (axle 3)	< 5 sec. > 5 sec.			●	⊘
3 Working light					

Deviating 15-pole plug configuration is shown by black dots in the accompanying overview (see head board safety marking sticker Ch 2.1).

## 4.7 Control box air suspension/lift axle



Warning: do not place any body parts under the lift axle while it is being lowered!



### 4.7.1 Manual height control

The trailer must be attached/connected in order to operate the height control.



## 4.7.2 Control box

With the WABCO control box, the height of the trailer can be adjusted and the lift axle (option) can be operated






### Overview buttons and functions

Button	Function
	Lift the lift axle
	Lift trailer
	Bring trailer to driving level
	Lower lift axle
	Lower trailer
	Stop lifting/lowering
	Operation light



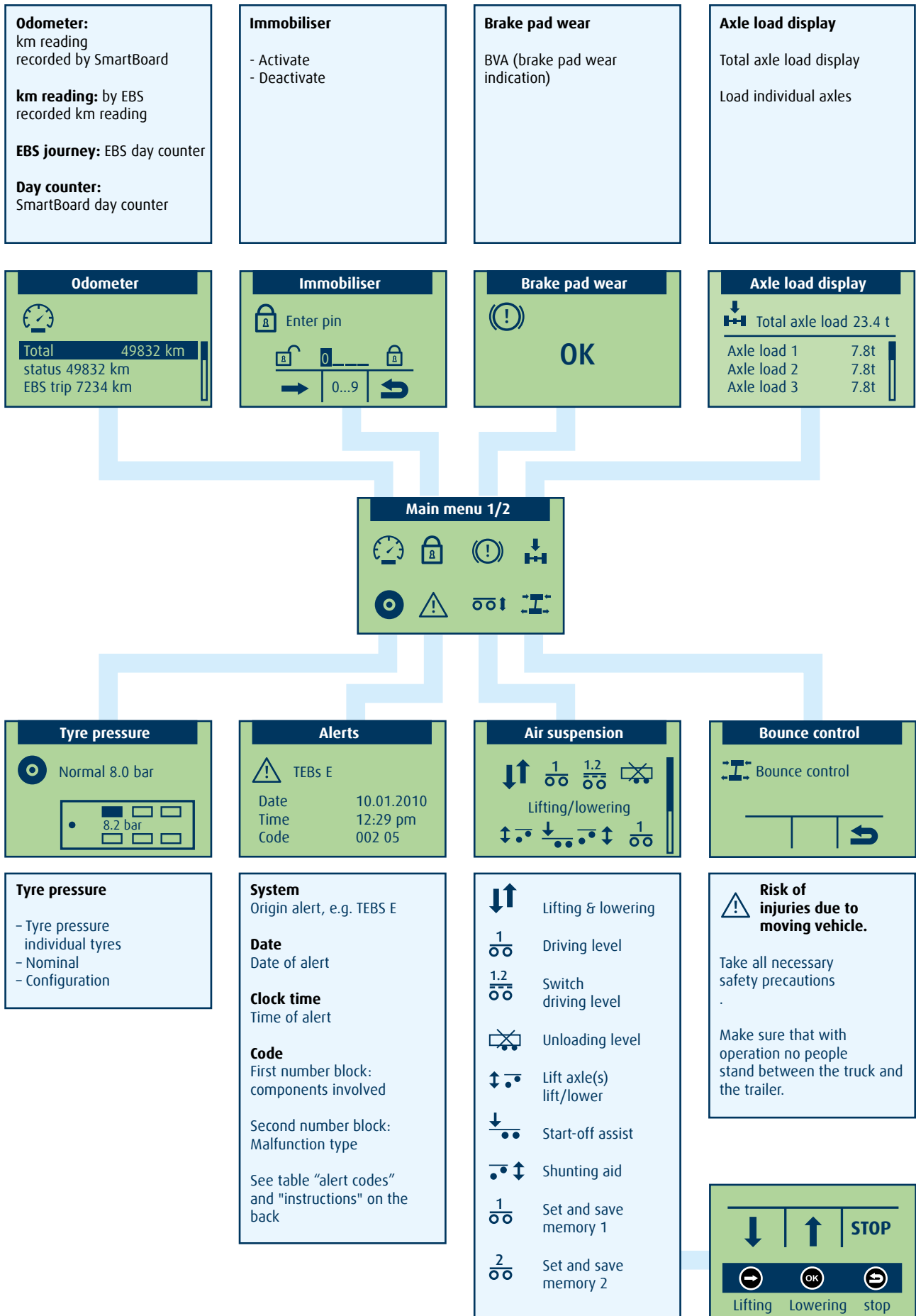
## 4.7.3 Smartboard

This manual only describes basic functions of the WABCO Smartboard. For the complete manual, see WABCO's manual.

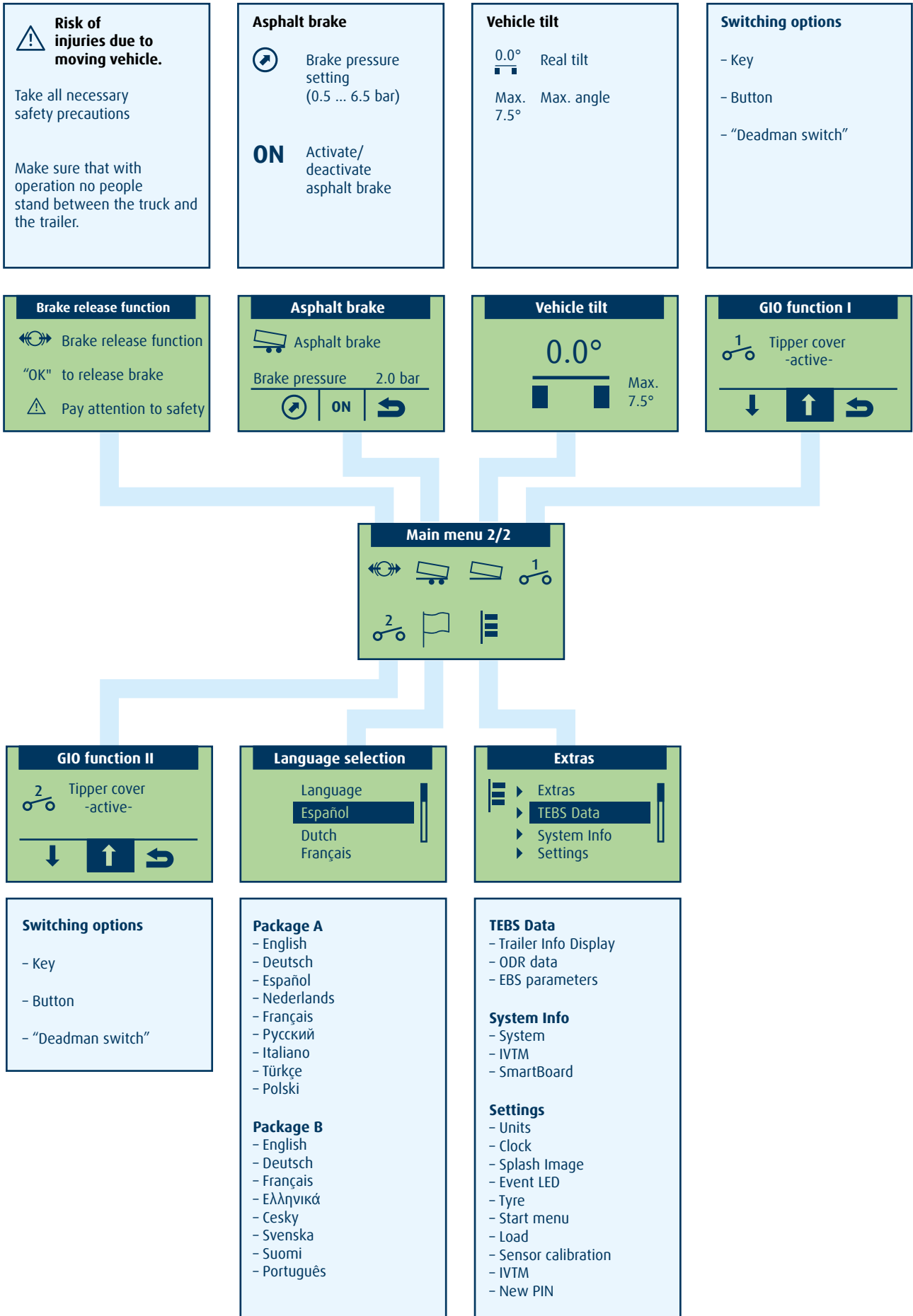
Button	Function
	Select next menu item or next option
	Confirmation and/or execution of current selection
	One menu level back
	Warning light blinking: current alert. The warning light can be switched off in the Event LED submenu.
	Menu symbol blinking: details about alert



## Smartboard main menu 1/2

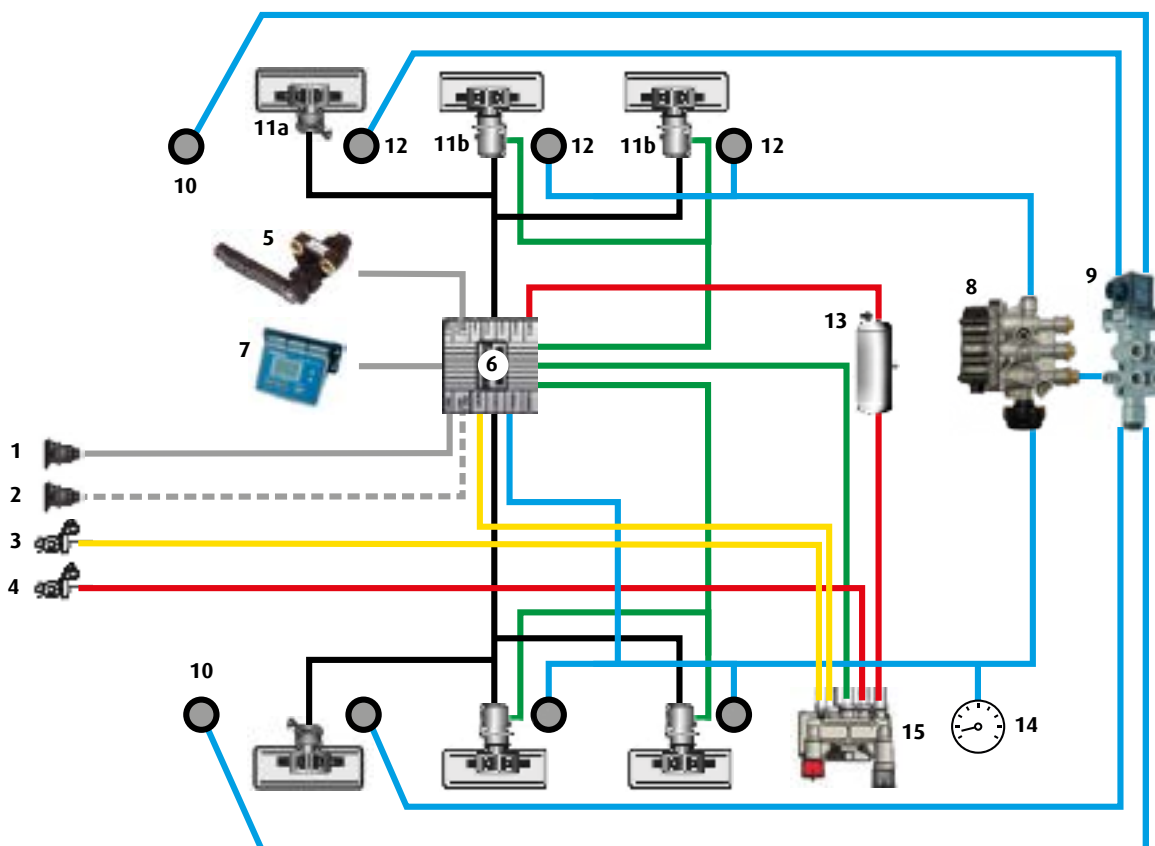


### Smartboard main menu 2/2



## 4.8 Air system

Schematic overview of the air system.



No	Operation
1	Power supply via ISO 7638
2	Signal light supply 24N via ISO 1185 (optional)
3	Control line (yellow)
4	Supply line (red)
5	Height sensor
6	TEBS E modulator (Premium) with integrated control unit and integrated bag pressure sensor for lift axle control
7	External remote control, for example SmartBoard, Trailer Remote Control, ECAS control unit or ECAS control box
8	ECAS solenoid valve
9	Axle lift valve
10	Lift bag
11 a	Brake cylinder
11 b	Spring cylinder
12	Air bag
13	Compressed air tank for service brake system/air suspension
14	Bag pressure gauge
15	Park-release emergency valve (PREV)

Example of a Wabco brake setting sticker



Bag pressure gauge



Indication of the pressure in the bags with corresponding weights. This depends on the type of axle and air bags. The settings can be found on the Wabco sticker. For position see chapter 2.2

## 4.9 Lift axle (option)



**Warning:** A lift axle may only be set by a Wabco authorised workshop.

The construction of the lift axle depends on the axle brand and the axle type. In all cases the axle is pushed upwards via an air bag/air cylinder that is controlled by a separate air valve.

Knapen Trailers saves the lift axle settings in the modulator. These settings ensure that the lift axle is automatically lifted or lowered at a certain weight.

Operate the lift axle as follows:

- 1 Settings in modulator
- 2 Button on Wabco remote control/control box/smartboard
- 3 Press the brake pedal three times > 3 bar
- 4 Switch in cabin

Possibilities 2,3,4 depend on the chosen configuration. The settings in the modulator are always leading.

No	Remote control	Control box	Smartboard
2			

- 3
  - <10 sec →
  - 3 x >3 bar →
  - V = >30 km/h →

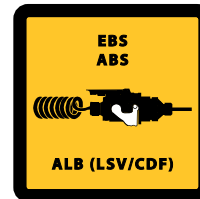


## 4.10 Brakes



The EBS connector must be connected at all times for the brake system to function correctly. Work on the brake system may only be carried out by a Wabco authorised service outlet .

If malfunction alert EBS/ABS is displayed in the cab, immediately take appropriate action, depending on the alert.



### 4.10.1 General

The trailer's brake system is activated from the cab via the brake pedal. The trailer is standard equipped with a WABCO electronic brake system EBS-E (Electronic Brake System). This system controls the brake pressure based on the load weight, the controlled brake pressure from the truck and the stability of the trailer. The integrated ABS system ensures that the wheels do not block during braking. The RSS system (Roll Stability Support) intervenes if the angle of inclination of the trailer is too much and the trailer brakes automatically. Malfunction alerts from the EBS/ABS system are displayed in the cab. These built-in systems influence the braking behaviour of the trailer, but the driver is and remains responsible for his/her driving behaviour and its possible consequences. If there is no air pressure, the trailer will remain on the parking brake or will immediately start braking automatically.

The EBS System conforms to:

Directive 71/320/EWG

Regulation ECE R 13 or StVZO

### 4.10.2 Brake control on trailer

As soon as the red supply line on the trailer is no longer connected, the trailer will automatically activate the brakes. To be able to move the trailer, use the neutral option.



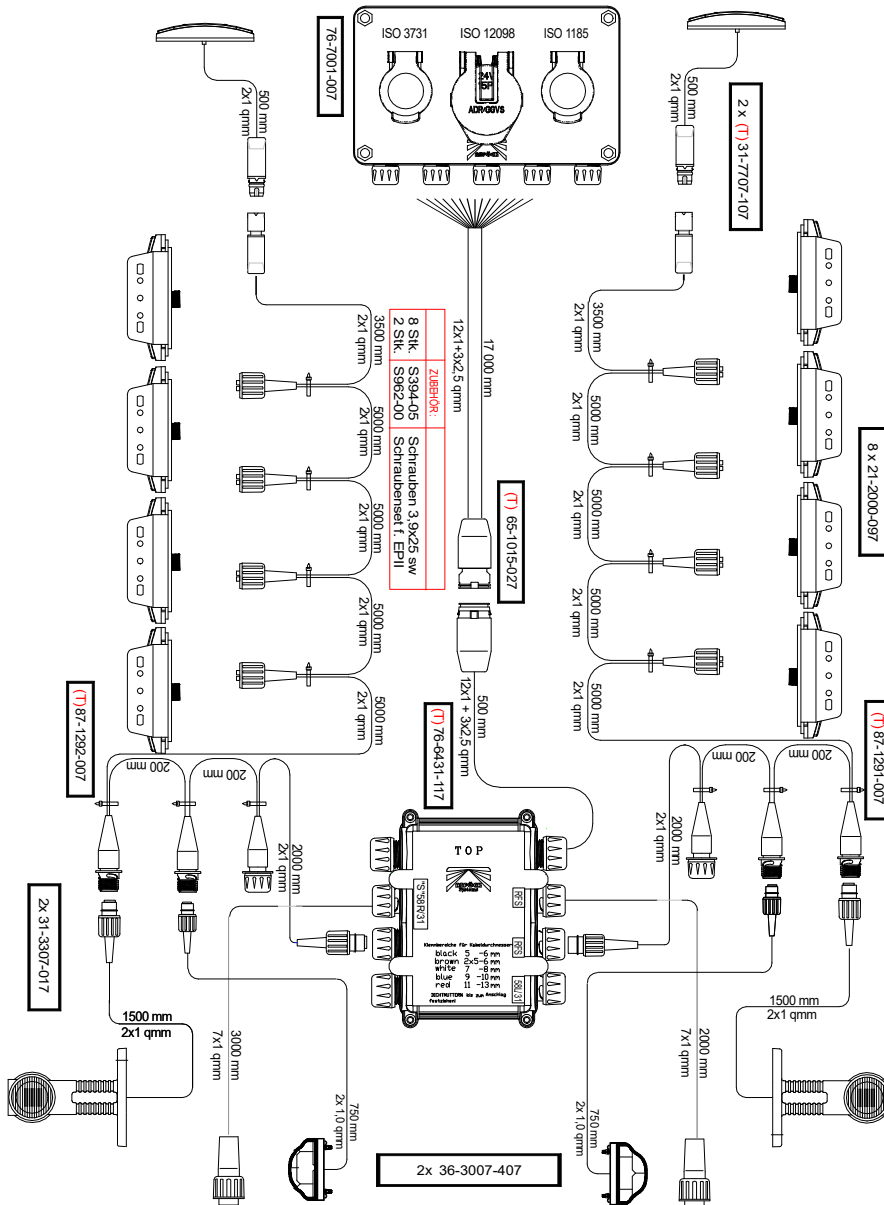
Icon	Function	
	Parking brake unlocking	
	Parking brake applied	
	Service brake neutral (minimum 4 bar air pressure required)	
	Service brake normal operation	

Use the WABCO control box to adjust the height of the trailer and operate the lift axle (option)

# 4.11 Lighting



Warning: Check daily whether the lighting is functioning properly.

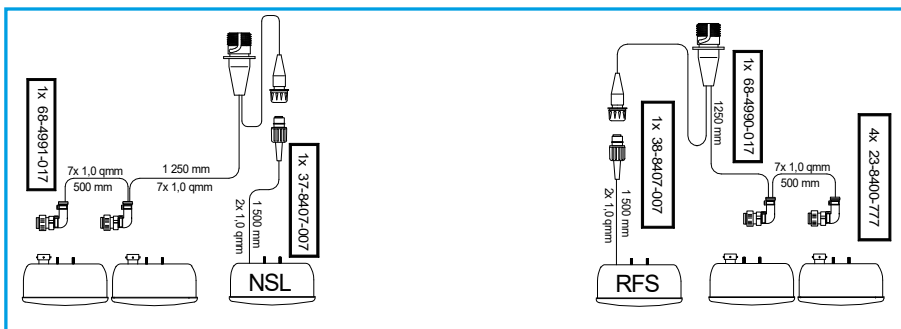
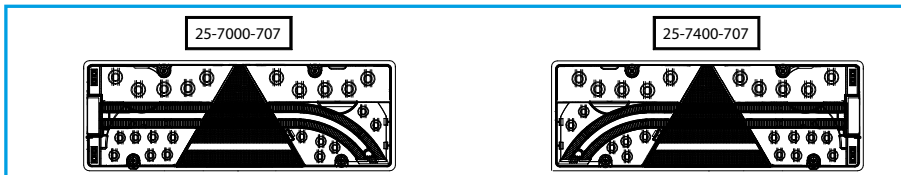


Standard lighting of the trailer consists of:

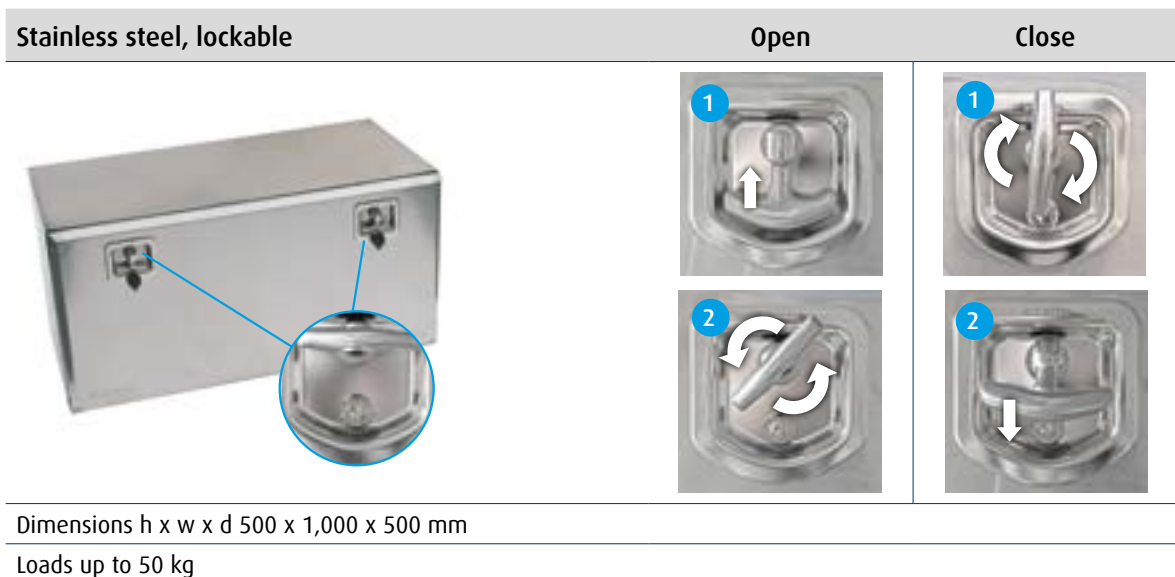
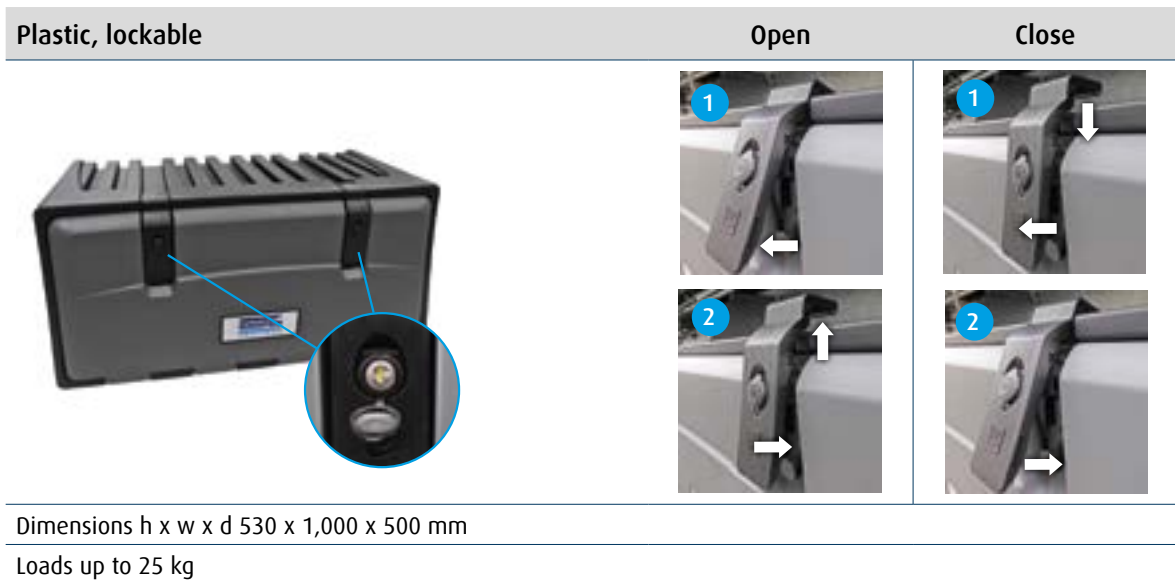
- Marking light
- Sidemarkers lights
- Marker lights
- Rear lights
- License plate light

Rear lights are available in different versions and configurations:

**When replacing lights and lighting components, pay attention to the watertightness of the connections and seals of the lighting covers (see 6.2).**



## 4.12 Toolbox / storage box



## 4.13 Self steering axle (option)

A self-tracking axle is the last axle of the trailer, no 3, which can be mounted under certain conditions to favourably influence the turning radius of the trailer. This is not forced steering. The settings of the conditions are programmed in the modulator.

The following setting is the default setting:

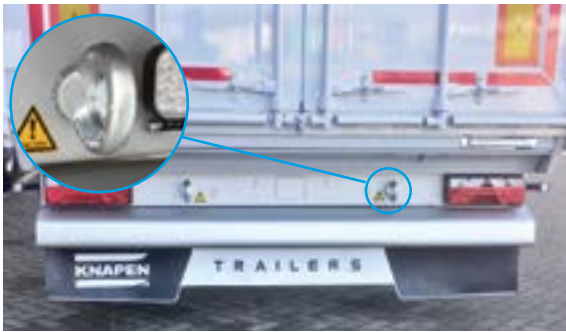
- Blocking self steering axle 30 km per hour and when reverse driving
- After reverse driving, the axle remains blocked up to 10 km per hour

The pivot points (steering knuckles) of the self steering axle must be lubricated according to the maintenance interval specified by the axle supplier.



## 4.14 Towing eye (option)

### 4.14.1 Standard towing eye



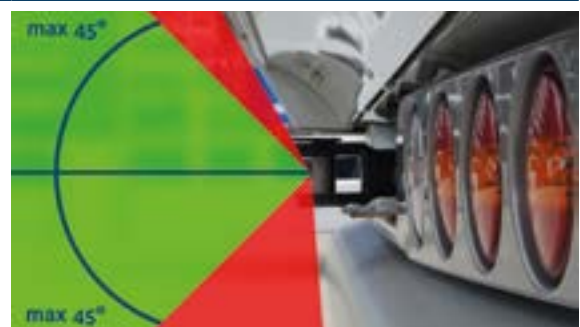
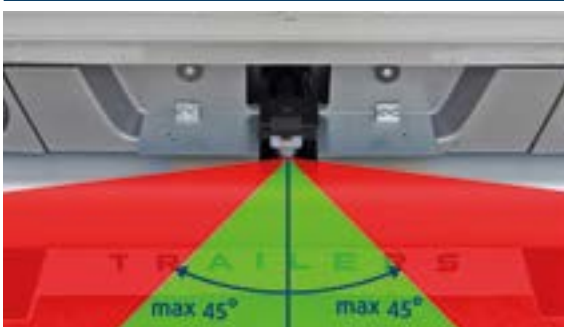
The towing eye can be mounted on one or two sides (load: max. 3 tonnes)

### 4.14.2 Heavy-duty towing eye

The heavy-duty towing eye is located behind the license plate, so that towing is always done from the centre. This means that forces are always well spread over the chassis. The towing eye can withstand a maximum pulling force of 10 tonnes. The towing eye is easy and quick to install. A simple turning movement secures the towing eye in the space behind the license plate.



The maximum towing angle is 45 ° in all directions.



# 5 Use moving floor trailer

## 5.1 General operation

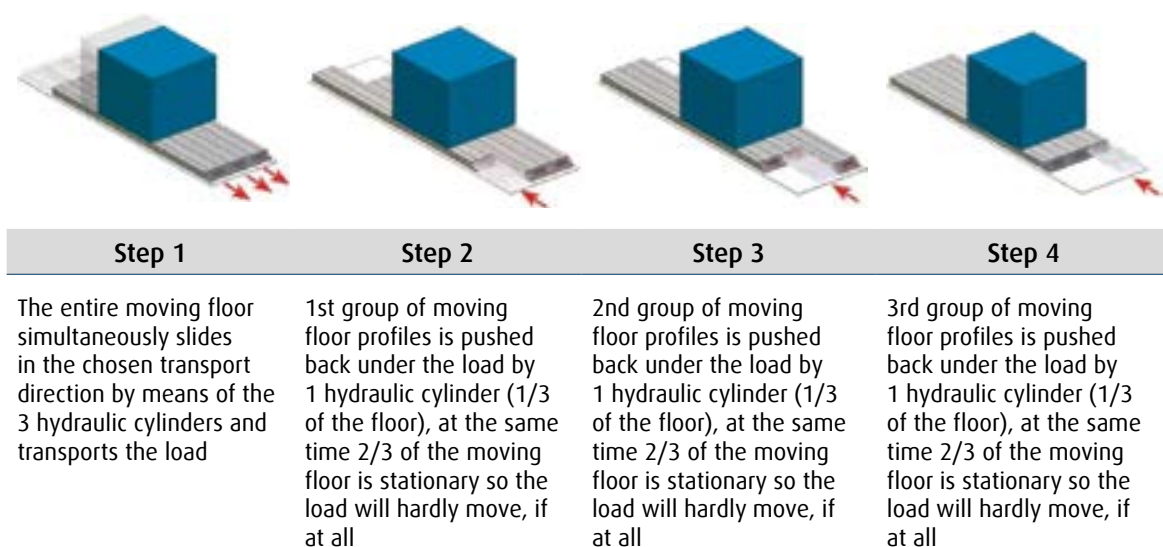


For maintenance and/or cleaning of the moving floor, see Ch 6.7



In case of malfunctions of the moving floor, see Ch 7.1

### 5.2.1 Operation of the floor system

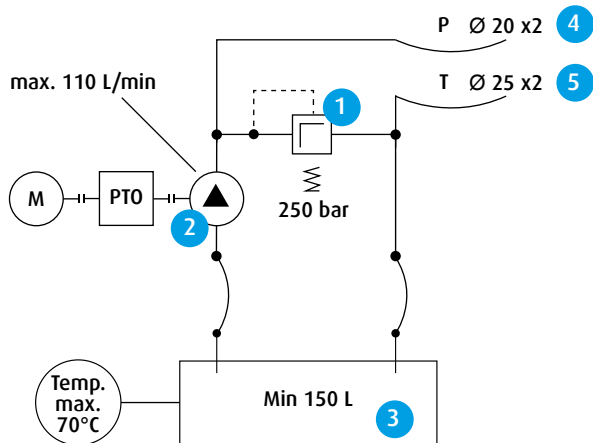


The frequency and the speed at which these steps are repeated depends on the hydraulic pump output. The available power that can be used to move the load depends on the available pressure of the hydraulic pump and the adjustment of the pressure relief valve.

The principle works in two directions, so that you can unload but also load with the moving floor system.

### Requirements for the CF500 hydraulic system

- |   |                       |              |
|---|-----------------------|--------------|
| 1 | Pressure relief valve | 250 bar      |
| 2 | Pump capacity         | 110L per min |
| 3 | Tank content          | 150L         |
| 4 | Pressure line         | Ø 20 mm x 2  |
| 5 | Return line           | Ø 25 mm x 2  |



For technical specifications Cargo Floor System see Ch 9.3

## 5.1.2 Before loading/unloading

**Check the following before you start loading or unloading.**

Switch on the hydraulics (PTO)

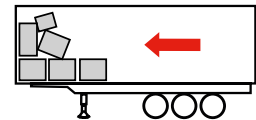
Switch on the lighting for the power supply of the moving floor system.



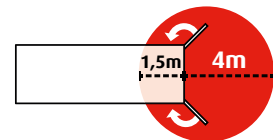
Consider carefully what you want the system to do. Load or unload?



When loading, ensure that the load is not pressed against the head board.



Keep a safe distance from the vehicle, see chapter 3 and operate it with the wired remote control or the Knapen Trailers remote control.



For the transport of sharp or fine-grained products it is advisable to use a floor sheet to protect the moving floor.



The passage for the product to be transported must be free. Make sure the doors are open.

Check immediately, and always, if the product is moving in the desired direction

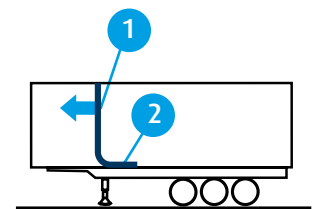
### Movable bulk head

Regardless of the type of load, the movable bulk head (1) must be pushed to the front.

The movable bulk head can easily be pushed to the front in the trailer.

Make sure the sheet (2) that is attached to the movable bulk head is placed on the moving floor before starting to load.

When loading the goods, ensure the load does not exert too much pressure on the head board. Pay special attention if pallets are loaded. (loading using floor system)



### 5.1.3 During loading/unloading

**Pay attention to the following points during loading or unloading.**

During unloading, slowly and gently put the system in motion (min. 90 l/min), until the load comes away from the walls. Then increase the speed by increasing the RPM.

Never exceed the maximum speed of 13 strokes per minute. A higher number of strokes per minute transmits enormous forces to the system and the chassis, while generating a lot of heat in the hydraulic system.

Do not exceed the maximum working pressure of 225 bar. Sometimes, for example, the working pressure is exceeded when loading and unloading wet heavy materials. In this case, remove part of the load manually or mechanically.

Adjust the loading / unloading speed by varying the RPM of the truck, for example when loading and unloading heavy solid products where the system requires the maximum working pressure. This to avoid high loads.

If unloading exceeds 15 minutes, checked why the load is not exiting the trailer sufficiently. This prevents consequential damage.

#### Oil pressure gauge



unload empty

35 - 50 bar



25T unloading

150 - 180 bar

The difference in oil pressure can be seen when all floor planks move simultaneously or when only 1 group moves.

### 5.1.4 After loading/unloading

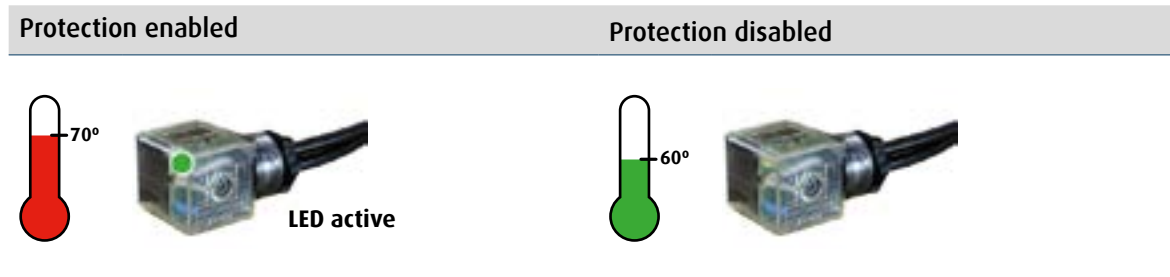
#### Emergency button

After unloading, always switch on the emergency button on the wired control. Vibration may cause the switch to be in the wrong position, so the moving floor is switched on electrically while driving.



### 5.1.5. Temperature safety device (option)

The temperature safety device of the floor interrupts the electrical contact at 70 degrees Celsius and becomes active again at 60 degrees Celsius. If the safety device is active, the floor cannot be operated electrically.



### 5.1.6 Access cargo space head board (option)



Entering the cargo area through the door in the head board entails a crushing hazard if the moving floor is put into operation or if the trailer starts moving.



Crushing hazard

#### Take the following steps:

If others are present during your work in the trailer, indicate your position to them.

And inform others of the risks of your work.

If possible, open the rear doors and secure them against the side walls.  
This provides an extra exit

Disconnect the hydraulic hoses. Drive of the moving floor is no longer possible.

Make sure that the vehicle can no longer be moved. Remove the key from the truck and lock it.

Only enter the cargo space with the door locking device in the open position.



### 5.1.7 Access cargo area at the rear

#### Step

- 1 Access to the cargo space is possible via the ladder at the rear. Check the condition of the ladder before use.



- 2 Use the handle when entering and exiting the trailer





### 5.1.8 Locking device rear doors



Tips for using the pneumatic rear door locking device can be found in the Knapen Trailers driver tips no 16 "Pneumatic rear door locking device".  
[www.knapen-trailers.eu/downloads/tips-for-drivers](http://www.knapen-trailers.eu/downloads/tips-for-drivers)



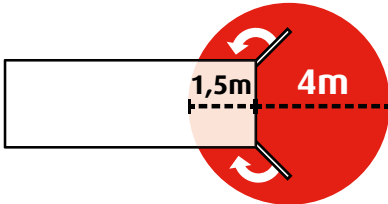
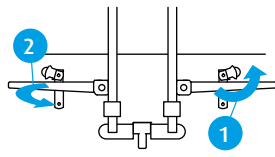




Depending on the type of load, (high) pressure may develop against the rear doors of your moving floor trailer. When to unlock the door lock, the rear doors may be pushed open with great force. This may have hazardous consequences.



For maintenance and/or cleaning of the pneumatic door locking device see Ch 6.4

After opening the door lock, the pneumatic rear door locking device ensures that the doors of the loaded trailer remain closed until the driver has taken sufficient distance to unlock the doors. In addition to ease of use, this pneumatic rear door locking device provides extra safety for both drivers and people in the vicinity.

Step	
1	<p>Always put the pneumatic rear door locking device in the locked position by pressing the green button on the control panel.</p>  
2	<p>Check there is no-one in the (red) danger zone.</p> 
3	<p>Open the door locks of the rear doors. Open the right one door first</p> 
4	<p>Pull out the green button at the control panel to release the pneumatic door locking device</p> 
5	<p>Secure the doors against the side of the trailer using the retractable door retainer.</p> 

## 5.2 Loading of bulk goods

### 5.2.1 Before loading

#### Check the following points before loading:

Are all wheels of the trailer in contact with the ground?

Has the movable bulk head (1) been fully moved to the front?

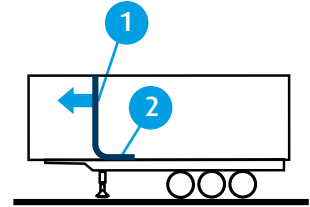
Is the sheet (2) of the movable bulkhead positioned correctly on the moving floor?

Are the bars in the desired position?

Is the sheeting system open?

Are the doors closed correctly and is the pneumatic locking device switched on?

Does the trailer have the desired height? This can be adjusted using the height control if the EBS cable is connected and the truck is in contact (see Ch 4.7).



### 5.2.2 During loading

#### Observe the following points during loading:

Ensure that the bars are not damaged during loading.

Make sure that no heavy parts fall on the moving floor from great height.

Make sure that the roof sheet is not damaged.

Make sure the trailer is not overloaded.

### 5.2.3 After loading

#### Pay attention to the following points after loading:

The air suspension must be put in the "driving position".

The sheeting system must be closed.

## 5.3 Unloading of bulk goods

### 5.3.1 Before unloading

#### Check the following points before unloading:

Apply the parking brake

Open the sheeting system (Roof sheet or PowerSheet®)

Set the desired height of the trailer using the height control (see 4.7).

Fold down the protection plate to protect the lights

Mechanically unlock rear doors

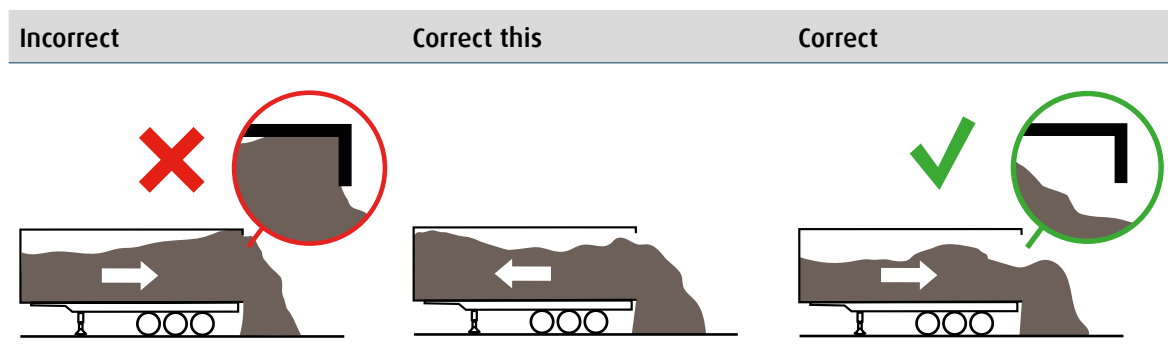
Deactivate pneumatic door locking device (see 6.1.6)

Turn the upper beam away and/or release the bars if desired (see 5.9)



### 5.3.2 During unloading

To prevent damage to the upper beam during unloading, take care to ensure that the load does not exert any pressure on the upper beam.



When unloading heavy solid products, the working speed/motor speed (PTO) must be adjusted so that the hydraulic system is not overloaded.

### 5.3.3 After unloading

#### Check the following points after unloading:

Place the moving floor in rear position to protect the cylinder rods.

Hang the sheet on the movable bulk head.

Push the movable bulk head back to the front and position the sheet correctly on the moving floor (Ch 5.2)

Clean the walls and moving floor if necessary

Clean retainer bracket and claw of the door locking device

Wipe door rubbers clean.

Close and mechanically lock the doors (Ch 5.1.8)

Lock the doors pneumatically (Ch 5.1.4)

Fold up and lock the protection plate to protect the lighting

Air suspension must be put in the 'driving position' by using the height control (Ch 4.7)

Close the sheeting system (Ch 5.10)

The emergency button of the floor control must be switched on during manual operation. (Ch 5.8)

## 5.4 Loading pallets



Tips for loading and unloading pallets can be found in Knapen Trailers driver tips no. 21 "Loading/unloading general cargo".

[www.knapen-trailers.eu/downloads/tips-for-drivers](http://www.knapen-trailers.eu/downloads/tips-for-drivers)



When loading pallets it is important that the load does not move too far forward to prevent damage to the head board. Also make sure that the cover plate of the floor at the head board is not damaged.

Step		
1	Before loading ensure the moving floor and the walls are clean.	
2	If the trailer is equipped with lashing hooks, these must be put in the lower position.	
3	Only place flat, sound pallets, without protruding nails, on the floor, to prevent the pallets from remaining stationary or tilting. If necessary, place a wooden board (soft wood) of approx. 300x18x2350 mm under the pallet.	
4	Place the pallets transversally, and two side-by-side in the width of the trailer.	
5	All pallets must be clear from the side wall and must not exert any pressure on the head board.	
6	After placing two pallets, let the moving floor load until there is room for two more pallets. Repeat this until the trailer is full.	
7	When the desired number of pallets has been loaded, secure the load in accordance with regulations.	
8	Close the rear doors and activate the door locking device. (Ch 5.1.8)	

## 5.4.1 Loading/unloading with fork-lift



Comply with the following points when loading and unloading using a forklift or hand pallet truck:

An uncoupled trailer may never be loaded using a fork-lift



The moving floor must be in the rearmost position.



The floor system must NOT be activated with the fork-lift truck or hand pallet truck at loading and unloading.



When loading/unloading at a loading platform, the floor of the trailer must be level with the loading platform.



Load/unload calmly. No hard braking or acceleration is permitted. Set pallets etc. on the floor gently.  
Do not make sharp turns with the fork-lift.  
Avoid steering movements near the floor system



### Floor systems

If the above principles have been met, the following fork-lifts and loads can drive on the moving floor system. Several variations of floor planks are possible



**Warning: a 15-plank is not suitable for loading and unloading pallets**

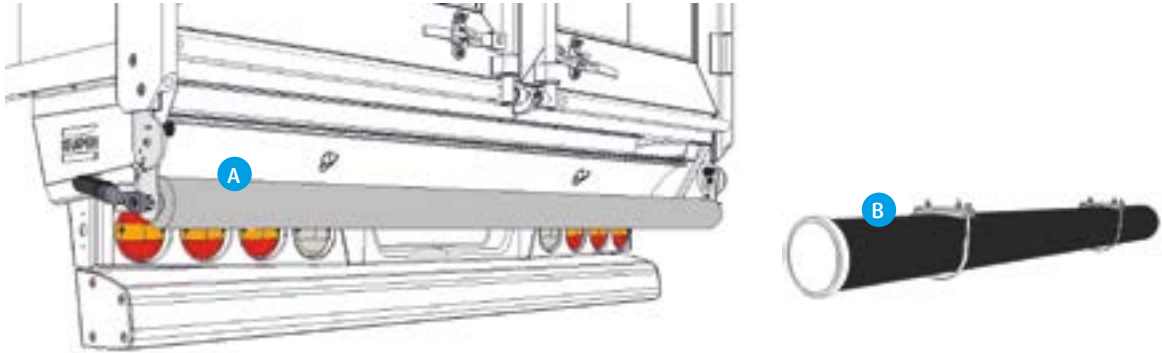
Options   Type of moving floor	6 mm, 21 planks standard profiles	10 mm, 21 planks standard profiles	Dura-Floor, 21 planks
Loading/unloading of general cargo* using the floor system	Yes	Yes	No
Driving over the moving floor system with fork-lift	For normal use, i.e. once a day with a standard 2 T fork-lift, incl. load	For intensive use, i.e. more than once a day, with a standard 2.5 T fork- lift, incl. load	Not permitted
Maximum weight per pallet	1,500 kg	2,000 kg	-
Maximum wheel pressure per wheel, which includes the weight of the pallet	1,000 kg	1,500 kg	-
Front tyre width (each)	12 inches (= 305 mm)	12 inches (= 305 mm)	-
Width of the rear tyre (each)	9 inches (= 229 mm)	9 inches (= 229 mm)	-

\* General cargo, including pallets, big bags, paper reels etc

## 5.5 Floor sheet (option)

For transporting sharp loads that release very fine dust (for example, lime), use a roll-up sheet to protect the moving floor. When loading and unloading without roll-up sheet, avoid sharp products such as glass as this will cause unnecessary wear to the sealing. (With the exception of the Dura-Floor, see 5.4.1)

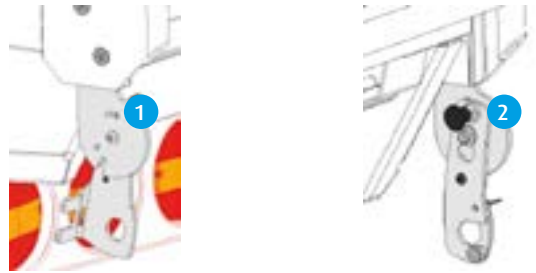
The floor sheet (A) is stored under the trailer in a plastic storage tube (B)



### 5.5.1 Installation of the floor sheet

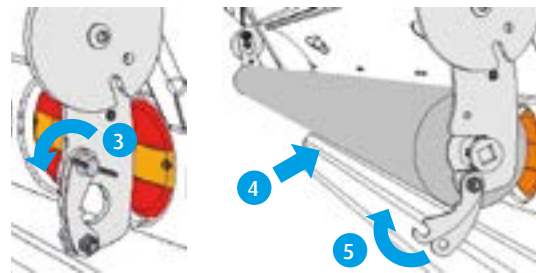
#### Mounting

Mount the brackets at the end of the trailer on the left (1) and right (2)

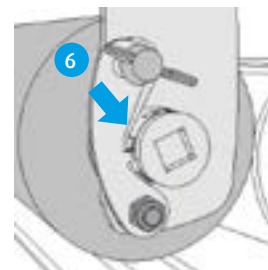


Loosen the wing nut and open the bracket (3)

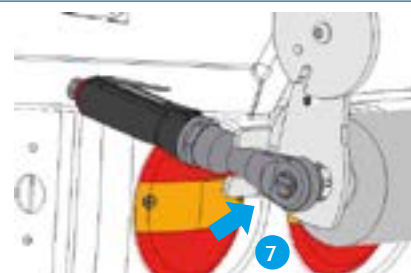
Place the floor sheet (4) and close the tube holders (5).



When closing the tube holders, the rotation blockage must remain open so that the roll-up sheet can turn (6).



Install the air wrench (7)

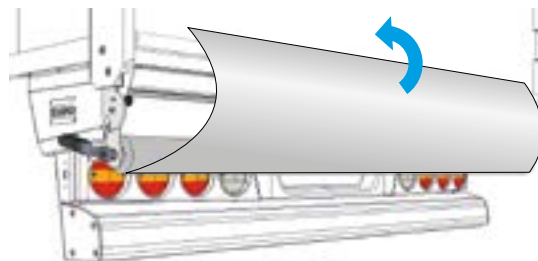


## 5.5.2 Operation of the floor sheet

### Operation

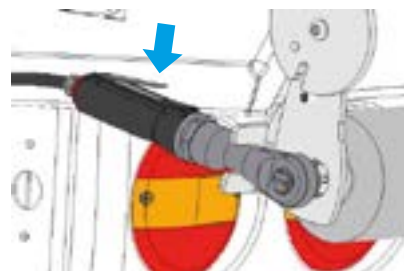
#### Rolling out:

Pull the floor sheet manually into the trailer to put it into use.



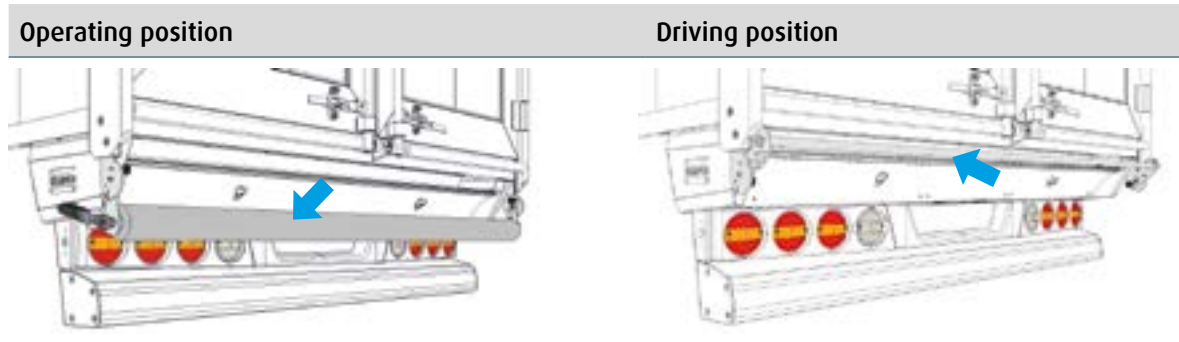
#### Rolling up:

Connect the air wrench to the designated air connection. Gradually squeeze the air wrench to roll up the sheet again.



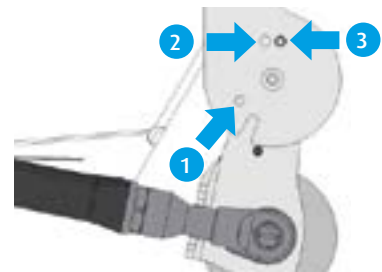
### 5.5.3 Floor sheet position

The floor sheet brackets can be placed in different positions. An operating position and a driving position. To see the rear lights properly, the floor plate must be in the upper position while driving.

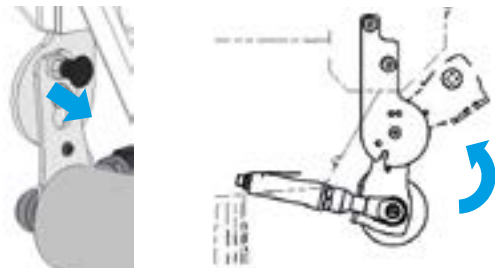


#### Switch to driving position

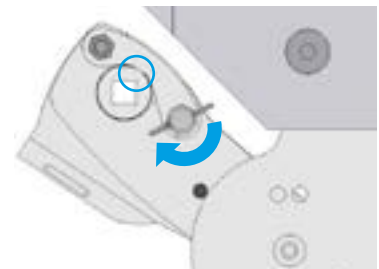
There is one driving position (1) in the holder and there are two operating modes (2-3). Which operating position you use makes no difference.



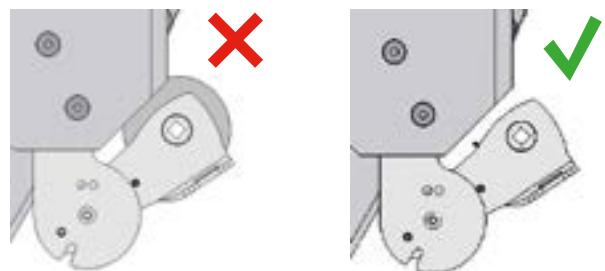
To switch between positions, simply pull out the knob and turn the bracket to the desired position.



Tighten the wing nut well and use the rotation block to prevent the tube from turning while driving.



It is not permitted to drive with a floor sheet when it is not in use.





## 5.6 Operating the moving floor (B control)



In the event of malfunctioning of the operation, see Ch 7.2

**Loading or unloading can be selected using the handle located under the trailer**

- 1 Threaded rod

---

- 2 Operating handle: Loading - Unloading

---

- 3 Deutsch connector

---

- 4 GS02 function: on/off

---

- 5 Pressure relief valve



- 1 **Handle pushed in**, moving floor will unload
- 0 **Handle in the middle position**, moving floor stops
- 2 **Handle pulled out**, moving floor will load



### 5.6.1 CF3 switch (switch in box on the trailer, see 2.1)

The CF3 is the fixed switch that is mounted in the control box and is equipped with a 3-position switch.

**Functions:**

- I From this position the switch jumps to the stop position when you release it.

---

- 0 Centre position = 0, the rotary switch automatically returns to this position when you release it.

---

- II From this position the switch jumps to the stop position when you release it.



To prevent an operation conflicting with the CF4 remote control, the switch is equipped with an automatic spring return. Position I and II, always jumps back to the "0" position. At the front of the CF3 switch is a connector to which the CF4 switch can be connected. The CF3 switch can be used if the CF4 switch malfunctions



### 5.6.2 CF4 switch (remote control)

**Functions:**

- Red button:** The emergency button. Press to activate and turn to deactivate the emergency button;

---

- Rotary switch:** three-position rotary switch. By activating this, the system will start loading or unloading (depending on the position of the control lever). By deactivating this, the system will stop.

---

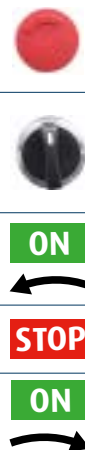
- Load:** When released, the switch turns to the stop position

---

- Centre position

---

- Unload:** Where the switch remains in the position(locking).



## 5.7 Operating the moving floor (E-operation)



In case of malfunctioning of the control, see Ch 7.3

### Control valve E-control

- |   |                                       |
|---|---------------------------------------|
| 1 | Threaded rod                          |
| 2 | Valve G02 Function: unloading/loading |
| 3 | Valve GS02 Function: on/off           |
| 4 | Pressure relief valve                 |



### 5.7.1 CF7 switch (switch on the trailer)

The CF7 is the fixed switch that is mounted in the control box and is equipped with a 3-position switch.

#### Functions:

I **Loading:** is activated when you turn the rotary switch counter-clockwise.



0 The rotary switch automatically returns to this position when you release it.

II **Unloading:** is activated when you turn the rotary switch clockwise.



For safety, this switch is equipped with an automatic spring return for positions I and II, so that it always returns to the centre "0" position. This is necessary to prevent a functioning that conflicts with the CF8 remote control.

At the front of the CF7 switch is a connector to which the CF8 switch can be connected. The CF7 switch can be used if the CF8 switch malfunctions



### 5.8.1 CF8 switch (remote control)

#### Functions:

**Red button:** The emergency button. Press to activate and turn to the right to deactivate, the button then jumps back automatically.



**Rotary switch:** this is a three-position rotary switch.



**Loading:** is activated when you turn the rotary switch counter-clockwise. The rotary switch automatically returns to the centre position when you release it.



Centre position



**Unloading:** is activated when you turn the rotary switch clockwise. To stop the system, turn the rotary switch back to position 0 or operate the red stop button.



## 5.8 Use of the Knapen Trailers remote control





The Knapen Trailers remote control is supplied in three versions, the 5-function, the 6-function and the 12-function. The receiver on your trailer is powered by the lighting. The lighting must therefore be switched on to operate the system.



In the event of a malfunction of the remote control, see Ch 7.5











### 5.8.1 Operation via the remote control
















The remote control uses two LED indicators, one red and one green. The table below shows the meaning.

LED	Light behaviour	Meaning
	Blinking	Button pressed
	Blinks every 5 seconds	Radio communication started
	Blinks every 3 seconds	Button held down
	Blinks every second	Radio communication active
	Blinks twice a second	Radio communication disconnected
	Blinks every second when a button is held down	Battery almost empty
	Lit continuously when a button is held down	Battery empty (replace)
Symbol		
	No function	
	Light sensor	

#### Overview buttons and functions

This shows the buttons and functions each remote control has. Each function is described.

Button	Function	Mode	5-Function	6-Function
	SYSTEM START	-		
	SYSTEM STOP	-		
	FLOOR "LOAD"	M		
	FLOOR "UNLOAD"	L		
	LIGHTS 1	L		
	OPEN	M		
	AXLE	M		
	CLOSE	M		

Button	Function	Mode	12-Function remote control
	SYSTEM START	-	
	SYSTEM STOP	-	
	FLOOR "LOAD"	M	
	FLOOR "UNLOAD"	L	
	LIGHTS 1	L	
	LIGHTS 2	L	
	AXLE	M	
	WINCH	M	
	ROOF 1 "OPEN"	M	
	ROOF 1 "CLOSE"	M	
	ROOF 2 "OPEN"	M	
	ROOF 2 "CLOSE"	M	
	DOOR "OPEN"	M	
	DOOR "CLOSE"	M	

### Functions

SYSTEM START	Press the START button to switch on the receiver. Press START a second time to ensure the functions can be operated.
SYSTEM STOP	A system stop (no operation possible) can be achieved in different ways: <ul style="list-style-type: none"> <li>• when no function has been operated for a time longer than 2 minutes</li> <li>• when the STOP button is pressed</li> <li>• when the connection is lost because the transmitter is out of range</li> </ul>
FLOOR "LOAD"	Controls the load function of the moving floor.
FLOOR "UNLOAD"	Controls the unload function of the moving floor.
LIGHTS 1 and LIGHTS 2	Switch the work lights on or off. (Attention: This is optional)
AXLE	This operate the axle lift. Holding it down for less than 5 seconds is to lift. Holding it down for longer than 5 seconds means forced lowering. (Attention: This is optional)
OPEN and CLOSE	These 6 buttons are used to open and close the option(s) you chose, such as an automatic roof or a hydraulic valve.
WINCH	This operates the winch.

Mode	
M	As long as the user keeps the button pressed, the corresponding function on the receiver will remain active
L	Functioning is the same as with a light switch in the house: pressing once is ON and the next press is OFF.

Funktion	
1	Floor "Unload"
2	Floor "Load"
3	Close (Roof 1 / Powersheet)
4	Supply -
5	Lights 2
6	Open (Roof 1 / Powersheet)
7	Supply +
8	Winch
9	Open Door
10	Pump
11	Open Roof 2
12	Close Roof 2
13	Lights 1
14	Door close
15	Lift Axle

### Lighting of the remote control

The remote control is equipped with a light sensor which detects whether it is necessary to switch on the button lighting. Press a random button (except STOP) once to switch on the button lighting. A second pressing of the desired button will control the function.

### 5.8.2 EMERGENCY BUTTON

In the event of an emergency, the remote-controlled functions can be stopped by means of an emergency button on the casing of the receiver.

The receiver is mounted in a plastic box against the chassis, in the vicinity of the floor system. (See Chapter 2)

**Activate:**

Press the emergency button to activate it. The emergency button must be deactivated to reactivate the remote-control functions. Restart the system via the remote control.

**Deactivate:** Deactivate the emergency button turning the knob clockwise.



## 5.9 Use of the bars and upper beam

### 5.9.1 Bars

Bars must be present, in good condition and in correct positions

- Make sure that the roof sheet reinforcement rests on the bar
- If the block tears, put the bar at the second position. Do not tilt it
- Bar positions are indicated with stickers (see 3.4)

#### Turning away the bar

- 1 Remove the locking pin



- 2 Lift the bar out of the block, turn the bar towards the holder and replace the locking pin. Never turn away all the bars at the same time



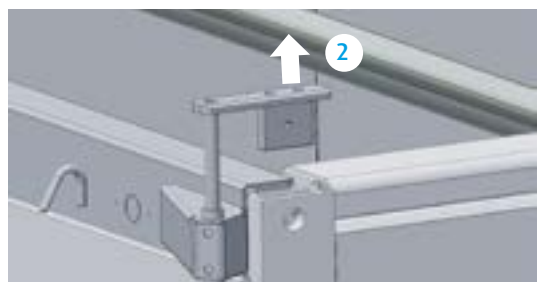
### 5.9.2 Upper beam

#### Release top beam

- 1 Remove the M10 hexagon socket locking bolt,



- 2 Remove the locking pin

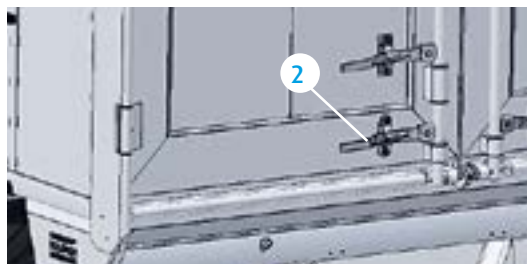


## Release top beam - Tico snap fastener

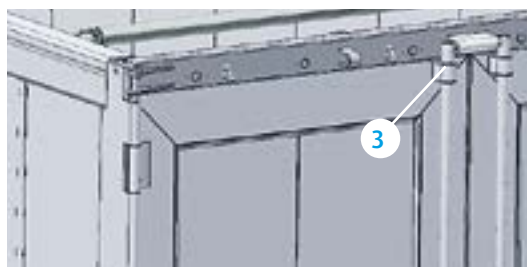
- 1 Open the Tico snap fastener by pulling the handle from the upper beam



- 2 Unlock the locking device on the underside. The lever serves to lock the door at the rear section



- 3 The top locking device remains closed. This handle on the left locking bar serves to lock the upper beam.



- 4 The upper beam now turns outward with the left door.



## 5.10 Use of sheeting systems



It is not permitted to take part in traffic with an open, not tensioned or damaged sheeting system! It is not permitted to take part in traffic if the legal height limit is exceeded.

Use correct footwear and follow safety regulations when accessing the platform.

### 5.10.1 Platform

1	Safety chain		
2	Key for roof sheet		
3	Ladder		
4	Access protection (Only if the trailer is equipped with a combination of automatic sheeting system and platform)		

### 5.10.2 Avoid paint damage

It is better to twist the straps once or twice before tensioning. This prevents the strap flapping and protects your paintwork.

If you keep the strap flat, the wind caused by driving wind will usually cause resonance. As a result, the strap will flap against the paintwork, causing it to wear.



When tensioning the straps, they will rub against the side wall and bottom edge. Protective parts in good condition are therefore required. To prevent paint damage, replace worn protective parts immediately.












### 5.10.3 Use of the roof sheet



In the Knapen Trailers tips no 18 for moving floor trailers "Prevent damage to the roof sheet" you can find how to prevent damage to the roof sheet.

[www.knapen-trailers.eu/downloads/tips-for-drivers](http://www.knapen-trailers.eu/downloads/tips-for-drivers)



Step		Open the roll-over sheet
1	Loosen the straps (or the quick-release fastener) of the roof sheet	
2	Loosen the elastic straps at the rear with the sheet stick	
3	To open the roll-over cover, climb on the platform (see 5.9.1).	
4	Secure the sides of the platform with the chain. The chain serves as protection of the person on the platform (see 5.9.1).	
5	Loosen the elastic straps on the front	
6	The key for the sheet can be put in the sheet from the platform (see 5.8.1).	
7	The roll-over sheet can then be opened by rolling the sheet over the trailer with the help of the key for the sheet.	

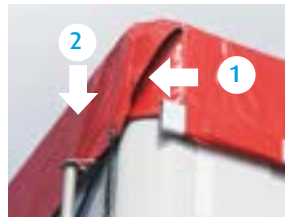
### Close the roll-over sheet

Correct

Incorrect

Repeat the steps of opening in reverse order

**Attention:** Close the side pieces (1) at the front first so that part 2 overlaps.



### Extend the life of your roof sheet

Correct

Incorrect

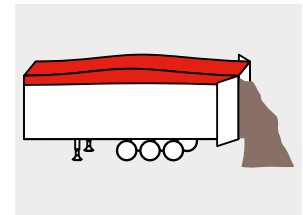
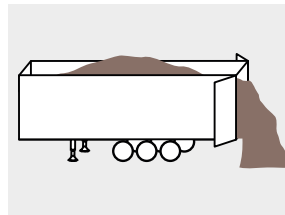
Make sure that the central elastic strap on the rear is properly secured



Head load increases the wear pattern of the roof sheet. After departure, the load will settle, causing the straps to loosen. Check the lashing straps en route and keep them tight



Open the sheet when unloading a breaking up load



If your trailer is parked for a long time, always open the roof sheet before the trailer is put away, so that no water, snow or ice gets on it



### Repair tears and holes immediately

In the unlikely event of a tear or hole appearing in the roof sheet, it is important that you repair it immediately. By repairing small damage early, you prevent further tearing of the sheet or having to replace it completely. You can easily carry out the repair yourself. For this purpose Knapen Trailers is supplying a special, strong repair tape of 650 gr/m<sup>2</sup>.



## 5.11 PowerSheet® (option)



For maintenance and/or cleaning of the PowerSheet® see Ch 6.9

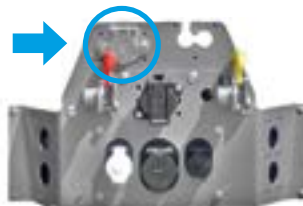


In the event of a malfunction of the PowerSheet® see Ch 7.4

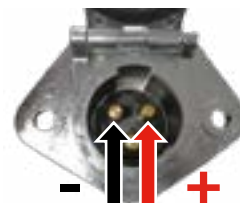
### 5.11.1 Standard power supply for PowerSheet®

The truck must be equipped with a separate fused power supply for providing power to the PowerSheet®.

On the head board there is a 3-pole connector near the other connectors, which provides the PowerSheet® power.



Only two pins of this connector are used.



Use the spiral cable supplied with the trailer to power the system. Always check before use that the locking device is in place.



### 5.11.2 Position of components



When operating the Powersheet, there must be absolutely no persons on the ladder due to the crushing hazard. Make sure that the system is without power when using the ladder. If the trailer is equipped with a platform, no one may be on it during operation, and the access protection must be closed.

1 Roof sheet tube

2 Torque shaft

3 Electric motor

4 Arm construction

5 Motor control unit



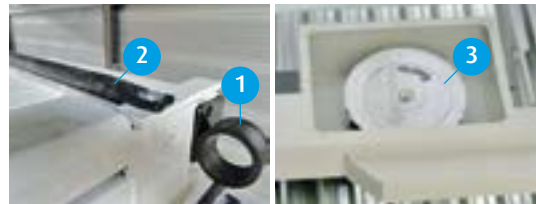
Casing receiver Remote control  
See Ch 2.1 for position



Clamping profile for the sheet (1)  
Rubber seal for sheet (2)



Strapbushing (1)  
Rubber seal for sheet (2)  
Strapreturn behind inspection cover (3)



Limiterstrap for sheet (1)  
Spoiler against wind impact (2)



### 5.11.3 Operation



It is not permitted to take part in traffic with a loaded trailer with an open, not tensioned or damaged sheeting system. Keep the relevant button pressed until the system stops.

Operation takes place via the remote control or receiver, the lighting of the trailer must be switched on so the receiver is powered.

#### Open Powersheet (1)

Keep the "open" button pressed until the system stops automatically. The motor rolls the sheet around the sheet tube and moves it from the closed to the open position. In doing so, the springs in the arm construction and strapreturn pulley are tensioned. By releasing the button, the movement can be stopped at any time.

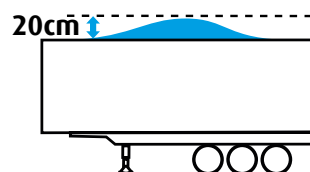
#### Close Powersheet (2)

Keep the "close" button pressed until the system stops automatically. The strapreturn pulley, together with the springs in the arm construction, move the sheet from the open to the closed position. Here too the movement can be stopped at any time by releasing the button.



### 5.11.4 Head load

The PowerSheet® is designed to function well with a limited head load. We can guarantee a proper functioning of the system with an evenly distributed head load up to 20 cm between the middle two bars of the trailer.



## 5.12 Sidewall protection sheet (option)



### Roll out

- 1 Loosen the belt and elastic straps.  
Use the sheet stick for the elastic straps



- 2 Unlock the rotating mechanism



- 3 Pull out the mechanism to prevent damage during operation  
Turn the sheet down and take an appropriate distance for easy operation



### Roll up

- 1 The dirty side of the sheet must be placed against the dirty side of the sheet when it is rolled up so that it does not touch the trailer



- 2 Secure the roll with the sheet in the top position using elastic straps and the belt



- 3 Slide the mechanism in to prevent damage to the cab  
Press the rotating mechanism back into the holder and lock the winding mechanism using the belt



# 6 Maintenance and cleaning

## 6.1 Trailer maintenance instructions



Observe the following safety regulations:



The hydraulic system must be switched off during cleaning

Let the hydraulic system cool down to 40 ° C or lower (lukewarm) before cleaning

Wear safety footwear, safety goggles and safety gloves



Thoroughly inspect all parts for damage or defects

Make sure no water enters the hydraulic system



When the trailer is cleaned with a pressure washer or with a normal jet of water avoid spraying the bearings, the hydraulic installation and the switch panels, control element and electrical installation. These parts are only splash-proof and cannot be sprayed on directly

Only use the specified cleaning agents for cleaning the machines.

### 6.1.1 Checking and/or cleaning parts

Front	daily	weekly	monthly	annually
Air couplings (see Ch 4.2)	x			
Hydraulic couplings and hoses (see Ch 4.6)	x			
Protective lids on hydraulics connectors (see Ch 4.2.)	x			
Ladder and supports	x			
Chain and lock mechanisms (see Ch 5.9)	x			
Platform for damage (see Ch 5.9)	x			
Lighting/electricity	daily	weekly	monthly	annually
Lights front	x			
Side lights left	x			
Side lights right	x			
Lights rear	x			
Lights upper beam	x			
Side	daily	weekly	monthly	annually
Side guard	x			
Side guard, locking pin positioned correctly	x			
Toolbox (see Ch 4.12)		x		
Control Box air suspension (see Ch 4.9)		x		
Block for straps (see Ch 5.9.2)			x	
Door retainer (see Ch 5.1.8)		x		
End stop blocks at doors	x			
Landing legs operation (see Ch 4.3)		x		
Lubricate landing legs			x	
Back/rear	daily	weekly	monthly	annually
Smooth operation of protection plate and lockings		x		
Smooth operation of doors		x		
Closing of doors (see Ch 5.1.7.)		x		
Operation/condition pneumatic locking device (see Ch 6.4)	x			
Door seals, presence, condition and position	x			
Pull-out ladder for safety and operation (see Ch 5.1.6)	x			

<b>Bottom</b>	<b>daily</b>	<b>weekly</b>	<b>monthly</b>	<b>annually</b>
Axles	according to supplier's instructions			
Wheel hubs for heat and leakage	x			
Bearing self steering axle (optional) lubrication			x	
Brakes for wear and operation (see Ch 4.10)			x	
Shock absorbers	x			
Air bags for leaks	x			
Lift axle		x		
Axle locking valve		x		
Kingpin for wear			x	
Lines, cabling for leaks or wear			x	
Wear of plastic guides (touch floor planks cross members)		x		
Compressed air tank for the presence of moisture and leaks (see Ch 6.10)	x			

<b>Inside</b>	<b>daily</b>	<b>weekly</b>	<b>monthly</b>	<b>annually</b>
Walls for damage	x			
Top edge for damage	x			
Floor planks	x			
End caps of planks for damage (see Ch 6.7.2)	x			
Tightness of floor bolts	x			
Movable bulk head and sheet for damage	x			
Rollers (movable bulk head) for operation (see Ch 6.6)	x			
Side profile for damage	x			
Wear plate rear section for damage	x			
Bars for presence and damage	x			
Support for bars for presence or mounting	x			
Front plate for damage	x			

<b>Floor system</b>	<b>daily</b>	<b>weekly</b>	<b>monthly</b>	<b>annually</b>
Functioning of the system	x			
Check plastic guides for wear (see Ch 6.7.1)		x		
Check working pressures with manometer		x		
Replace filter (see Ch 6.1.4)				x
Check whether the plastic guides are damaging the cross members put the moving floor to the rear position for the protection of the cylinders (before each journey)	x	x		
Yellow locking clip present	x			
Check the hydraulic hoses		x		
Check cylinders for leaks		x		
Clean the moving floor (see Ch 6.7)	depending on the type of load			

<b>Roof sheet</b>	<b>daily</b>	<b>weekly</b>	<b>monthly</b>	<b>annually</b>
Roll-over sheet for damage (see Ch 5.9.3)	x			
Profile for roof sheet for damage	x			
Roof sheet stick present	x			
Roof sheet supports for operation	x			
Central elastic at the back of the sheet for damage	x			
Straps for wear or damage	x			
Tensioners, ratchet for damage	x			

<b>PowerSheet® (option)</b>	daily	weekly	monthly	annually
Roof sheet for damage (especially with the bars) (see Ch 5.10)	x			
Roof sheet tube straight	x			
Damage to locking plate/profile	x			
Visual check cord strapreturn pulley		x		
Rubber seals front and rear		x		
Visual check spoiler		x		
Visual check springs		x		
Visual check limiterstrap		x		
<b>Operation</b>	daily	weekly	monthly	annually
Battery indicator on (replace battery) (see Ch 7.5)	x			
Operation stop via transmitter	x			
Operation emergency button receiver (see Ch 7.5.2)	x			
Operation of all functions		x		
Operation wired remote control	x			
Operation of the control box	x			
<b>Tyres</b>	daily	weekly	monthly	annually
Tyre pressure (see Ch 6.8)	x			
Tyres for damage	x			
<b>Side doors (option)</b>	daily	weekly	monthly	annually
Smooth operation of doors	x			
Play on hinge pins	x			
Closing doors	x			
Door seals, presence, condition and position	x			
<b>Hydraulic installation</b>	daily	weekly	monthly	annually
Oil level (see Ch 6.10)	x			
Leak	x			
Hydraulic couplings and hoses (see Ch 4.6)	x			
Breather tank			x	
Reaching maximum pressure of 250 bar			x	
Optimum and maximum capacity 110 litres per minute			x	
Check oil quality and replace if necessary				x

New Spare Parts are available through your service dealer. To select the right part, please refer to the spare parts catalogue at: [www.knapen-trailers.eu/spare-parts-catalogue](http://www.knapen-trailers.eu/spare-parts-catalogue)



## 6.2 Cleaning the lighting system



In the Knapen Trailers tips for moving floor trailers no 13 "Prevent malfunctions of your lighting system" you can find how to maintain and clean your lighting system.

[www.knapen-trailers.eu/downloads/tips-for-drivers](http://www.knapen-trailers.eu/downloads/tips-for-drivers)



Check the protection cover regularly for pollution. The protection cover of the lighting system ensures that the connectors of your lighting system remain clean and dry, so that the lights function properly. Failure to clean the protective cover in time can lead to corrosion on the light connectors, resulting in rotten cables, malfunctioning and short-circuits.



Each light cover contains a sealing rubber to protect against moisture and pollution. A proper seal is crucial for the life of your lighting system.

Incorrect replacement of a light cover after cleaning or replacing a broken light can lead to corrosion and a short circuit.



## 6.3 Cleaning the outside



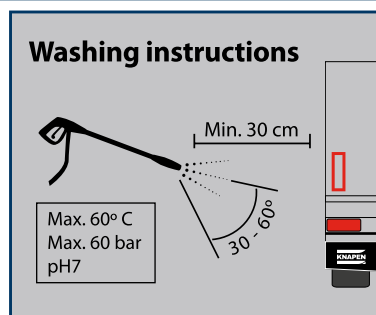
In the Knapen Trailers tips for moving floor trailers no 15 "Correct cleaning keeps the paintwork in top condition", you can find how to best clean the outside.

[www.knapen-trailers.eu/downloads/tips-for-drivers](http://www.knapen-trailers.eu/downloads/tips-for-drivers)



Regular and correct cleaning of the outside of your trailer is very important. This not only keeps the paintwork in good condition, but also increases the service life. The washing instructions are on the safety sticker on the head board of your trailer.

Use a maximum of 60 bar water pressure (870 Psi) and a temperature of up to max. 60 ° C.



Use neutral cleaning agents (pH7) to prevent aggressive damage to or corroding of the paintwork.



## 6.4 Pneumatic rear door locking device



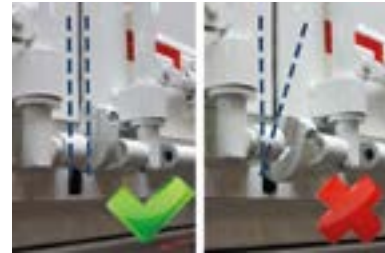
In the Knapen Trailers tips for moving floor trailers no 16 "Pneumatic rear door locking device" you can find how to use the rear door locking device best.

[www.knapen-trailers.eu/downloads/tips-for-drivers](http://www.knapen-trailers.eu/downloads/tips-for-drivers)



The pneumatic rear door locking device works optimally if the lock is parallel to the rear doors. If this is not the case, it is possible that the doors may not open even after unlocking. Underneath your trailer you can adjust the position of the pneumatic rear door locking device by means of the threaded rod, so that the pneumatic door locking device is again parallel to the rear doors.

Make sure the pneumatic rear door locking device is always parallel to the rear doors



Loosen the lock nut (key 24), adjust the position of the pneumatic rear door locking device by turning the threaded rod



Due to frequent use and pollution, the pneumatic rear door locking device may no longer function optimally. In this case, clean the locking mechanism and immediately lubricate the pneumatic rear door locking device. This to prevent unsafe situations. There are two lubrication points at the bottom of your trailer. Clean the lubrication points and then lubricate them with a grease gun.

Clean the lubrication points.



Lubricate with a grease gun.  
Optionally, the lubrication points can be mounted at the outside.



## 6.5 Check compressed air



In the Knapen Trailers tips for moving floor trailers no 17 "Prevent damage to the brake system", you can find how to check the compressed air.  
[www.knapen-trailers.eu/downloads/tips-for-drivers](http://www.knapen-trailers.eu/downloads/tips-for-drivers)



The compressed air system of the truck and your moving floor trailer are connected to each other. If the air from the truck is not dry and clean, this can also impact the air system of your trailer.

There is a ring under the air tank of your trailer. Press this ring in. If no water or oil is released you can assume that the air quality from the truck is sufficient..

Damaged cabling, corrosion or pollution in the braking system is "user damage"



## 6.6 Cleaning the top rail



In the Knapen Trailers tips for moving floor trailers no 3 "Maintaining top rail" you can find out when and in what way the upper rail must be cleaned.  
[www.knapen-trailers.eu/downloads/tips-for-drivers](http://www.knapen-trailers.eu/downloads/tips-for-drivers)



If the top rail is polluted, the rollers can block and the movable bulk head will no longer continue to move. Pollution also leads to faster wear of the rollers. Clean the top rail twice a week with an air gun. If dry dusty products are transported, it is advisable to clean the track after each unloading



Regularly check the condition of the rollers and brushes and replace them if necessary.

Visual check: Are all parts still present?

Function check: are the bearings OK? Can the movable bulk head move without an extra effort? If the bearings are stuck, they must be replaced. If this is not done, the integrated aluminium sliding profile will wear out quickly.



## 6.7 Cleaning the moving floor



In the Knapen Trailers tips for moving floor drivers no. 9 "Saving costs by cleaning in time" you can find how to clean the loading floor

[www.knapen-trailers.eu/downloads/tips-for-drivers](http://www.knapen-trailers.eu/downloads/tips-for-drivers)



The degree of a pollution of a moving floor can be inferred from the oil pressure of an empty trailer. Switch on the moving floor at normal speed (approx. 13 strokes per minute). The values below are indicative.

	< 50 bar	not polluted
	50 - 75 bar	slightly polluted
	> 75 bar	heavily polluted



Step	Instruction	
1	Slightly tilt the trailer backwards (sloping approximately 10 cm)	
2	Distribute the 2 bags of sharp sand (mason sand) of 25 kg evenly over the moving floor	
3	Moisten sand with water	
4	Switch the moving floor on slowly, about 4/5 strokes per minute (You can achieve this by adapting the RPM)	
5	Sweep the sand over the moving floor so that the seals are sanded clean. Sweep until the manometer drops below 50 bar again. The moving floor has now been sufficiently cleaned. With a heavily polluted moving floor this can take up to 2 hours.	
6	Spray the moving floor clean using a power washer.	

## 6.7.1 Checking floor guides



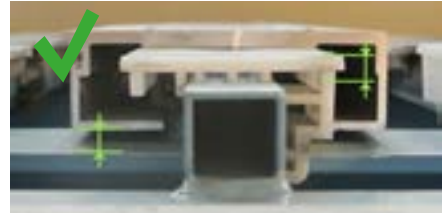
Tips for timely recognition of wear on the plastic guides can be found in the Knapen Trailers driver tips no 11 "Prevention is better than cure".

[www.knapen-trailers.eu/downloads/tips-for-drivers](http://www.knapen-trailers.eu/downloads/tips-for-drivers)



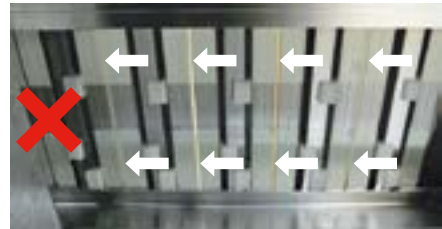
### Plastic guides

These plastic guides support the floor profiles. When these plastic guides are worn, the bottom of the floor plank will also affect the top of the cross members.



Check the bottom of the floor planks once a month, while the floor is moving, behind the last axle underneath the trailer.

The plastic guides are worn when the bottom side of the floor plank touches the cross member. Contact your service outlet if plain aluminium becomes visible.



## 6.7.1 Checking end caps



Tips for timely recognition of moving floor wear can be found in the Knapen Trailers driver tips no 6 "Extend the life of your moving floor".

[www.knapen-trailers.eu/downloads/tips-for-drivers](http://www.knapen-trailers.eu/downloads/tips-for-drivers)



### End caps

The aluminium end caps are welded to floor planks to ensure that no load can get under the floor plank. After several years of intensive use, the weld seam on the top will wear off slowly (see photo). Regularly check the end caps and contact your service centre for repairs. A minor repair is now necessary to avoid major consequences.



### Wear plate

Regularly check the plastic or stainless steel plate located under the floor planks at the rear of the trailer. If it is heavily worn (see photo), unnecessary forces will be applied to the end caps during unloading. This causes them to degrade earlier and warps the floor planks.



## 6.8 Maintenance of tyres and rims



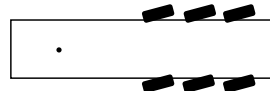
In the Knapen Trailers tips for moving floor trailers no 19 "Reduce wear and additional costs related to your tyres and rims" you will find preventive measures and proper maintenance advice for your tyres and rims. [www.knapen-trailers.eu/downloads/tips-for-drivers](http://www.knapen-trailers.eu/downloads/tips-for-drivers)



### Align tyres

A good alignment facilitates your driving comfort and job satisfaction because the trailer then follows stably behind your truck. In addition, the correct alignment reduces the roll resistance of the tyres. This saves you fuel and prevents unnecessary wear to your tyres.

During the alignment process, it is important to consider the parallel positioning of the axles and the toe-in/toe-out.



### Maintain the tyre pressure

Check the tyre pressure every week with a calibrated pressure gauge. For the correct tyre pressure, follow the advice of your tyre supplier.



The correct tyre pressure prevents unnecessary tyre wear and reduces the chance of a blow-out. You also save money on fuel costs by maintaining the correct tyre pressure.



### Check and tighten wheel nuts

With a new trailer or after changing a wheel, check the wheel nuts after the first approx. 100 kilometres. On returning to base and after your first loaded journey, the wheel nuts should be re-tightened according to the recommended tightening torque because "untightening forces" can occur when the wheel moves in relation to the hub. The wheel nuts can loosen without you noticing. Regular checks and tightening torques are advisable. Follow the guidelines provided by your axle supplier. Enclosed are the tightening torques in Nm per axle supplier.



Tightening torque in Nm wheel nuts steel rim	630	600	600	630
Tightening torque in Nm wheel nuts aluminium rim	630	600	600	630
Paint or coating permitted on tightening area	✗	✗	✗	✗



### 6.8.1 24-hour service axle supplier



In the event of a breakdown, 24 hours a day, 7 days a week

**+ 49 (0) 2262 780**

**[www.bpw.de/en/service](http://www.bpw.de/en/service)**



In the event of a breakdown, 24 hours a day, 7 days a week

**+ 49 (0) 6095 301 247**

**[www.safholland.com](http://www.safholland.com)**



Urgent service support available 24 hours a day by calling

**00800 8259 8259** (free) Netherlands/Germany

**+ 31 (0) 40 2088 777** international

**[www.valx.eu](http://www.valx.eu)**



24-hour service hotline

**+ 49 (0) 5674 9237 240**

**[www.jost-axle-systems.com/en/service](http://www.jost-axle-systems.com/en/service)**

**[service-axles@jost-world.com](mailto:service-axles@jost-world.com)**

### 6.8.2 Wabco service



Website: **[www.wabco-auto.com](http://www.wabco-auto.com)**

Service locator: **[www.wabco-auto.com/contact/contact/advanced-location-finder](http://www.wabco-auto.com/contact/contact/advanced-location-finder)**

## 6.9 Maintenance PowerSheet® (option)

### 6.9.1 Maintenance check of the PowerSheet®



This work may only be carried out by technically trained personnel with experience in repairing and maintaining electromechanical systems.

#### Check at least once a year for the following safety aspects:

Regularly check the motor mounting bolts for a minimum tightening torque of 8 Nm

Regularly check all mountings for proper securing of all parts.

Check all moving parts for wear.

Check the rear strap and the roof sheet for wear.

Check the condition of the locking plates/tension profile.

Check the spring tension of the strapreturn mechanism.

Check the spring tension of the springs at the pivot points at the front.

Check legibility of safety stickers.

Regularly check all electrical connections for corrosion. If a connection is corroded: thoroughly clean the connection (ensure that the system's power supply is switched off) and protect it with, for example, Vaseline. Electrical connections can be found at: electric motor, motor control unit, remote control receiver, junction boxes, batteries and fuses.

### 6.9.1 Repairs/replacement of parts

During the warranty period, repairs may only be performed under the direction of the manufacturer. When replacing parts, only original replacement parts should be used.

## 6.10 Maintenance hydraulic system



Tips for recognition of dirty oil and replacing the oil filter yourself can be found in the Knapen Trailers driver tips no 4 "The hydraulic system".

[www.knapen-trailers.eu/downloads/tips-for-drivers](http://www.knapen-trailers.eu/downloads/tips-for-drivers)



#### The following check is important for the life of the floor system:

Check the quality of the oil; it must be changed regularly (check every ½ year)

Replace filter element every year

Change oil every 2 years, or more frequently if necessary

Check the amount of oil in the tank. There should constantly be min. 150 litres of oil present to suppress heat generation. Use the prescribed oil



Hydraulic oil	Type	Temperature
Prescribed quality	ISO 22	-25 ° C > 0 ° C
	ISO 32	-15 ° C > 30 ° C
	ISO 46	15 ° C > 40 ° C



# 7 Troubleshooting

## 7.1 Troubleshooting moving floor

If the floor system does not function properly, or does not function at all, despite the meticulous follow-up of the operating instructions, check the following points:

System malfunction	Cause	Solution
System is not working, no oil flow control valve	PTO not switched on	Switch on PTO
	Block quick couplings	Check quick couplings/mount correctly
	Pressure-relief valve truck broken	Replace pressure-relief valve
System is not working, oil flow at control valve	Lighting not switched on, no power on the system	Switch on the lighting
	Temperature protection switched on, oil temperature is higher than 70 ° C	Cool oil to 60 ° C
	Emergency switch operated	Deactivate the emergency switch
	Magnetic valve GS02 on/off Break in coil/wiring	Temporarily activate the emergency control GS02 and/or repair the power circuit
	Dirty pressure-relief valve	Clean with compressed air/replace
	Control lever (B-control) is in the centre position	Move the control lever towards loading or unloading
	Control valve (E-control) is in centre position Flow < 60 l/m [16 gpm]	Increase the speed of the pump Install other pump Adjust the throttle
	Control lever (B-control) is in the centre position Hoses connected incorrectly	First check the filter, then connect pressure and return correctly/turn
Start immediately after switching on PTO	Control lever moves heavily due to molten seals	Replace control lever seals
	CF3 or CF7 movement switch blocked in the "on" position	Unblock
	Emergency control GS02 activated	Turn switch out, yellow clip in between
Individual movement is difficult and/or incorrect with full semi-trailer	Pressure and return line exchanged	First check the filter, then connect the pressure and return pipe correctly
	Dual pressure tipping valve	Put the tipping valve in the correct position, high pressure
	Pressure relief valve truck maximum pressure too low	Measuring/adjusting the maximum pressure of the truck
	Pressure relief valve return oil has restriction	Measure pressure at measuring point M2, remove restriction
	Capacity is insufficient due to overloading	Partially unload with crane
	Capacity is insufficient due to pollution between the profiles	Clean the floor
Individual movement unloading incorrectly with full and empty semi-trailer	Capacity is insufficient due to frost	Defrost the load
	Valve in cylinder head 1 or 2 dirty and prevents proper closure	Remove pollution
	Broken valve spring in cylinder head 1 or 2	Replace spring
	Valve seat cylinder head 1 or 2 loose	Replace/secure the seat*
	Plug in the common rail is loose	Tighten plug/replace common rail
	Common rail mounted in wrong way	Mount the common rail correctly

System malfunction	Cause	Solution
Switching is difficult or not possible. 3 cylinders are all completely slid in or out	Threaded rod worn	Adjust threaded rod correctly, determine cause
	Threaded rod switch spring broken	Replace spring, determine cause stopgap solution: fill space with cable tie
	Switching plunger Stroke > 12 mm. [0.5"] -> threaded rod loose, distance bush loose	Fully screw in the threaded rod/end bolt
	Shifted due to loose profiles in the frame profile	Replace screws, fit with locking device and check the rod guide bushes*
	Switching choke soiled	Clean the choke*
With E-control load or unload, the moving floor will unload	Break in coil wiring	Temporarily activate the G02 emergency control and/or repair the power circuit
With E-control loading or unloading, the moving floor will start loading	Emergency control unloading/loading is activated	Deactivate emergency control

\*Contact your service partner for the correct repair advice

In the event of other malfunctions, contact your service outlet. Have your chassis number/system number ready.

## 7.2 Emergency control B-control



Attention: Make sure the doors are open before the emergency control is switched on.

Attention: When using this emergency control, always ensure that, after use, it is returned to its original position.

### Control valve B-control

1 Function: unloading/loading

2 Function: on/off



#### Activate emergency control

Remove the yellow locking clip, then screw in the red knob on the on/off GS02 coil (clockwise), until the blockage. The system switches "on" when the handle is in the loading or unloading position.

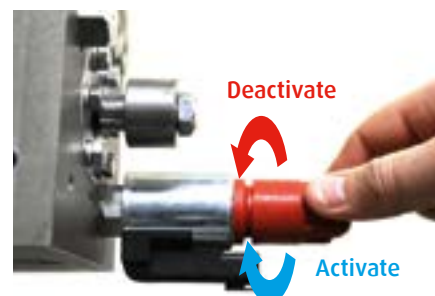
#### Deactivate emergency control

Unscrew the red button on top of the on/off GS02 coil (counter-clockwise) until the click and place the yellow locking clip. The system switches off

on/off coil/pin not activated



on/off coil/pin manually activated



## 7.3 Emergency control E-control



Make sure the doors are open before the emergency control is switched on.  
When using this emergency control, always ensure that, after use, it is returned to its original position.

Control valve E-control	
1	Threaded rod
2	Function: unloading/loading
3	Function: on/off

### Activate emergency control

Remove the yellow locking clip, then screw in the red knob on the on/off coil (clockwise), until the blockage.

### Deactivate emergency control

Unscrew the red button on top of the on/off GS02 coil (counter-clockwise) until the click.  
Replace the yellow locking clip. The system switches "off".

on/off coil/pin not activated	on/off coil/pin manually activated

### Activate emergency control loading (moving floor can only load):

Unscrew the black cap (pay attention to O-ring).  
Unscrew the screw under the cap of the loading/unloading pin (counter-clockwise) until the blockage.

### Deactivate emergency control loading:

Screw in the screw of the loading/unloading pin (clockwise) until the blockage. Then screw the black protective cap back on (pay attention to O-ring mounting).

loading/unloading coil/pin not activated	on/off coil/pin manually activated
Function: unloading	Function: loading

## 7.4 Troubleshooting PowerSheet

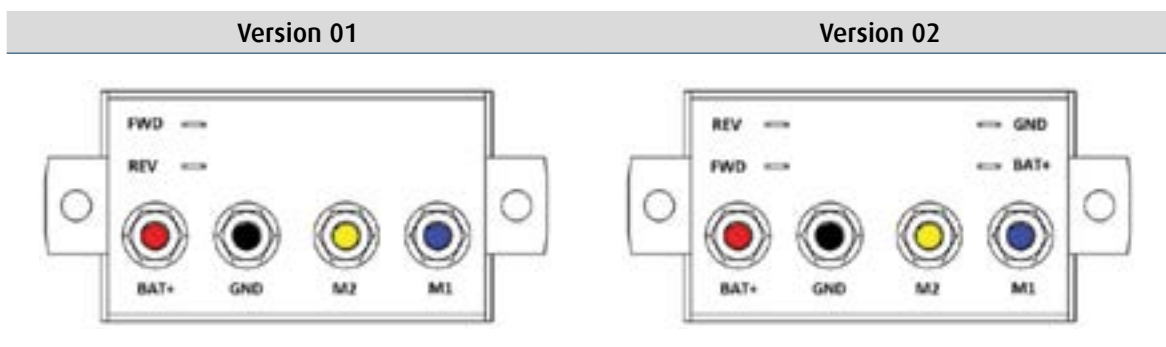


Always first check whether all the required plugs have been plugged in

System malfunction	Cause	Solution
The sheet is not moving	No power supply receiver remote control	Switch on the lighting. Check the operation of the remote control by testing one of the other electrical functions.
The sheet does not move and the lighting is switched on.	motor control unit gives an error code	Check the error code of the diagnostic LED (see 7.4.1)
The sheet does not move and the motor control unit does not give an error code	Control signal does not arrive at the motor control unit	Take a short electrical wire and connect the BAT+ to the "REV" or "FWD" connection. If it moves the system, please contact your service outlet
The sheet does not move and the voltage on the REV or FWD connection is $\pm 24V$	The power supply of the motor control unit may not be working properly	Check the connection to the batteries. If the fuse has blown, check the cables for any defects before replacing the fuse.
The sheet does not move and the power supply of the motor control unit is OK	The motor control unit may not work properly.	See 7.4.2 Emergency procedure Powersheet
The sheet does not move but the motor is running	Torque shaft may not work properly.	See 7.4.2 Close defective torque shaft and contact your service outlet
Regardless of the operation, the sheet only moves in one direction	Moisture between the FWD and REV connectors.	Clean the connectors and protect them with Vaseline.
The motor control unit works, but the motor is not running	Short circuit between the M1 and M2 cables or internal short circuit in the motor.	Check for a short circuit or contact your service outlet.

### Connection points

Enclosed is a view of the rear of the motor control unit and the connection points and colour codes that are on it.



## 7.4.1 Error codes

The error codes can be read on the motor control unit, see 5.9 PowerSheet® for the position of the motor control unit on the trailer. The list below states the meanings of the different error codes

LED status	Description	Note
Is continuously lit	System works properly	LED lit during operation
Blinks 2x	System overloaded	LED status is performed 2 times
	Normal operation	Determining that the sheet is tensioned
Blinks 3x	Motor control unit overloaded. System draws too much power	LED status disappears when operated again. Check the entire system for correct operation of the components.
Blinks 4x	Motor has been running too long or has been operated too often in succession	LED status disappears when operated again. Wait a few minutes before operating again
Blinks 5x	Too high voltage (> 30V)	LED status disappears when operated again.
Blinks 6x	Too low voltage (< 16V). Loose connection in the circuit before the controller.	LED status disappears when operated again. Check all connections from the battery to the controller.
	Incorrectly connected or no power.	Check all connections
Blinks 7x	Power cables connected inversely	Swap the power cables, the red connection point is positive, the black connection point negative (ground).
	Ground connected to the M2 connection	Swap the M2 and the ground
	No power supply, loose connection at the rear of the motor control unit or at the motor	Check all connections
	Cable breakage or short circuit	Contact a service outlet



**Attention:** Spring of the strapreturn pulley and the arm construction contain stored energy in the form of springs. Pay attention with any (dis)assembly work.

Mechanical failure	Cause	Solution
The sheet does not open completely	An object has been rolled-up into the sheet	Close the sheet and remove the object
	There is a lot of water/snow on the sheet	Close the roof sheet, remove water and try to open the roof sheet again
	There is a malfunction in the strapreturn pulley	Remove the inspection cover on the back and check if the strap is in the correct position. Correct if necessary. Is the strap in position and the sheet still does not open, repair or replace the strapreturn pulley.
Closing movement arm construction irregular	Springs defective/broken in the arm construction	Visually check whether springs are defective in the arm construction
	Strength loss springs	Measure the current while opening the system. When it is < 13A, the springs need replacing
Roof sheet is not moving	The strapreturn pulley is not functioning properly.	Check if the wire is in the correct position and on tension. Replace the strapreturn pulley if this is not the case.

## 7.4.2 Emergency procedure PowerSheet

As soon as the emergency operation has been used, a certified service outlet must be contacted immediately

Take appropriate safety measures before any actions are performed and carefully read this description.

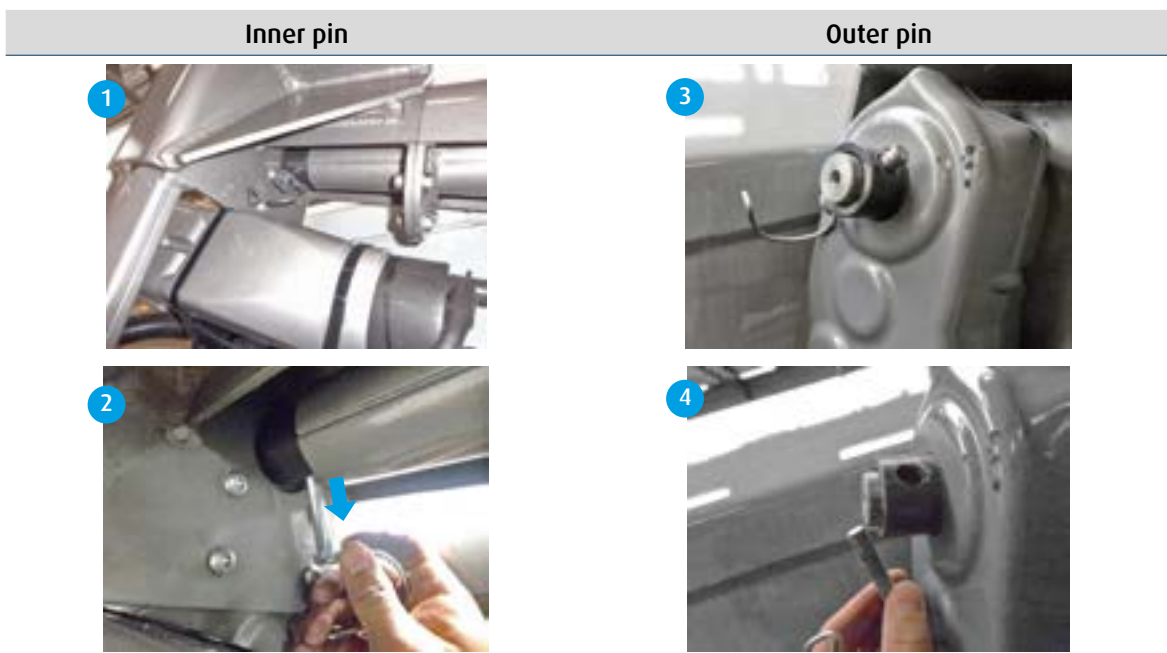


**ATTENTION!** Never let the motor control unit operate the sheet to the fully open or closed position when it is controlled directly. If the malfunction occurs in a completely open or closed position of the sheet, first remove the motor connection pins.

### Defective/motor

#### Motor connection pins

The connection between the motor and arm consists of two pins. If the arm or the motor is damaged, the two pins must be dismantled so that the sheet tube is free to turn. It is important to start with the inner pin, then the outer pin.



#### Close the roof sheet

Three straps are required to close the sheet.

- 1 Wrap the strap around the arm and attach the hook to the edge at the bottom left.
- 2 Pull on the other side just until the roof sheet tube is on the edge
- 3 Now carefully pull the tube over the edge. If the rear part of the tube does not follow, pull it then over the edge with a strap.



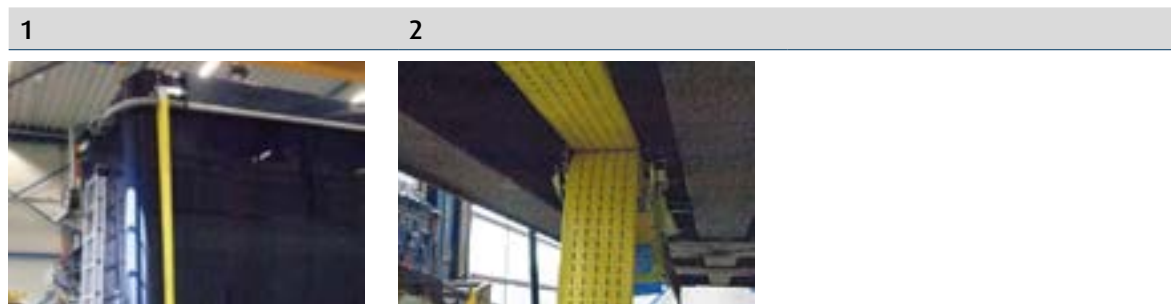
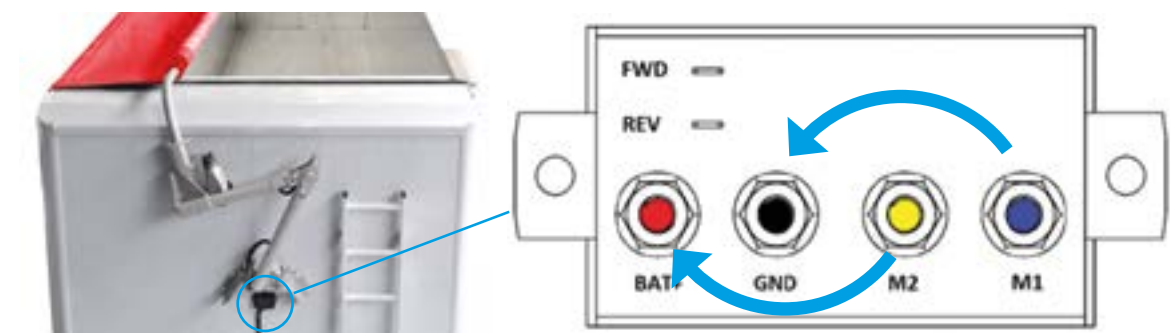
**Secure**

Take a small strap. Hook one side into the top hole of the Powersheet (1). Turn it once around the attachment point and hook the other end into the hole where the cable has been passed through (2). Now tension the strap so that the sheet tube is pulled against the wall (3).

**Secure sheet**

Front: Attach on the left under the hook (1) of the strap or mount the ratchet side of the strap at that position (2). Pull the sheet tube down by tightening the strap.

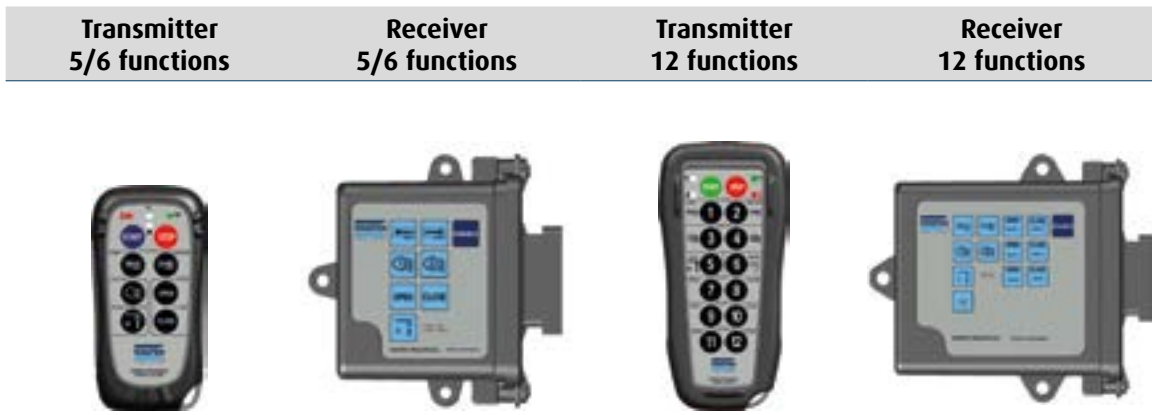
Rear end: Take a long strap and hook it at the bottom right or install the ratchet of the strap at that position. Then fold the strap over the rear of the trailer and attach the other side to the bottom left in the rear. Tension the strap so that the sheet tube is pulled against the wall.

**Defective motor control unit**

Step	
1	Pull the connector completely out so that the system becomes de-energised. Disassemble the motor control cover
2	Take the motor cable from Pin M1 and screw it together with GND
3	Take the motor cable from Pin M2 and screw it together with BAT+
4	Insert the connector and immediately check whether the tube turns in the right direction. If not, remove the connector immediately and swap the M1 and M2 cables.
5	Just before the sheet is at full tension, remove the connector so that the motor and/or arm is not damaged.

## 7.5 Troubleshooting Knapen Trailers remote control

The remote control consists of a transmitter and receiver



Malfunction	Cause	Solution
The system does not respond at all to its operation.	No power to the receiver	Check whether the lighting is on. Check whether the emergency button is deactivated.
	Remote control is malfunctioning	Check its operation with the emergency control 7.5.2
The green LED does not light up when a button is pressed.	Transmitter and receiver are not paired.	Transmitter and receiver pairs.
	Fuse is defective	Check and replace the fuse in the receiver.
The green LED does not light up when a button is pressed.	Batteries empty	Replace the batteries in the transmitter.
	Polarity of the batteries in the transmitter is incorrect.	Check if the batteries are installed correctly.
The system does not respond consistently to the operation	Batteries almost empty	Voltage too low, replace batteries
	Battery 1.2 v. voltage is too low	Use 1.5 v batteries
	Transmitter is used beyond the maximum range	Get closer to the receiver.
	Error in cabling to intended function.	Check the cabling to the intended function.



## 7.5.1 Replace batteries in the transmitter

Requirements:

1 Small cross screwdriver



2 Batteries: 5- and 6-function remote control: 2x AAA 1.5V alkaline batteries  
12-function remote control: 2x AA 1.5V alkaline batteries

Step	
1	Open the battery compartment
2	Remove the batteries from their holders
3	Insert the new batteries. Make sure that the polarity of the battery matches the illustration on the PCB
4	Test the transmitter's operation by checking whether the green LED blinks every time a button is pressed
5	Now close the battery compartment cover together with the two screws (1)



## 7.5.2 Emergency control of the receiver

In case of loss/defect or empty batteries of the transmitter, all functions can still be operated via the integrated emergency control on the receiver.

1	Remove the lid of the plastic box with a flat screwdriver.	
2	<p>The receiver is now visible. All functions available on the transmitter can also be found on the receiver.</p> <p>To operate a function, you must push the ENABLE button together with the button for the intended function.</p>	

### 7.5.3 Pairing the transmitter and receiver

If the transmitter or receiver needs to be replaced, it can easily be paired. This is necessary to let transmitter and receiver communicate with each other.

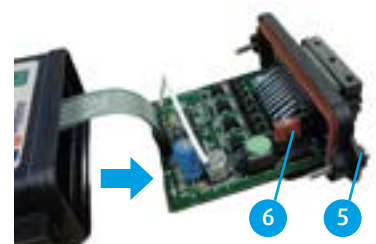
Step	
1	The receiver is mounted in a plastic box against the chassis in the vicinity of the floor system.
2	Remove the lid of the plastic box with a flat screwdriver.
3	Make sure the trailer's lighting is on.
4	Activate the emergency button so that the receiver does not get any power.
5	Push the ENABLE button on the receiver and deactivate the emergency button. Release the ENABLE button after 3-4 seconds.
6	Turn the transmitter on by pressing the start twice.
7	Press 3 random buttons on the transmitter at the same time.
8	Transmitter and receiver are now paired.



### 7.5.4. Replacement of fuse in the receiver

The receiver has internal protection against overloading and a possible short circuit on the corresponding outputs. For additional protection, the receiver is also equipped with an internal main fuse. To inspect and replace the fuse follow the following steps:

Step	
1	Activate the emergency button so that the receiver does not get any power.
2	Open the casing where the receiver is located
3	Unscrew the receiver
4	Now disconnect the connector at the bottom by sliding the purple clamp to the side
5	Unscrew the two screws on the bottom of the receiver and slide the PCB out of the casing. (Pay attention to the keyboard cabling)
6	The fuse can now be inspected and replaced if necessary. (mini plug-in fuse of 10A)



# 8 Warranty

## 8.1 Warranty period and conditions

Standard warranty : The warranty for a delivered product of Knapen Trailers is valid for a period of twelve months after the delivery date by Knapen Trailers.

Construction warranty : the warranty on the construction is valid for a period of two years after date of delivery by Knapen Trailers or 250,000 km, whichever comes first.

## 8.2 Warranty process

On purchasing parts, Knapen Trailers will take over the warranty terms and conditions of its suppliers. The terms and conditions of the suppliers prevail with regard to these parts over the terms and conditions of Knapen Trailers. They are part of our warranty conditions and are available on request.

A warranty is provided on the paint system of the Knapen Trailer for 2 years after the date of delivery by Knapen Trailers. See separate brochure with conditions. This warranty is carried out by the supplier of the paint system.

The warranty covers the replacement parts originally installed by Knapen Trailers including the time stated in the Knapen Trailers SRT manual or a predetermined repair time.

Warranties must be submitted in accordance with the procedure established by Knapen Trailers. This can be found on the Knapen Trailers website.

Warranty repairs must be authorised in advance by Knapen Trailers.

Warranty cases not registered and confirmed in advance will not be processed.

The repairs must be carried out by a Knapen Trailers authorised workshop or an authorised workshop of the supplier of the defective component.

Original Knapen Trailers parts or supplier parts must be used.

The replaced parts must remain available to Knapen Trailers for 180 days

Parts that can be destroyed at the instruction of Knapen Trailers must be completely disabled for possible reuse.

The repair or replacement under warranty of the defective part does not extend the warranty on the trailer.

Provided that Knapen Trailers is culpably liable, the repairing party provides a legal warranty on the repair carried out

Knapen Trailers cannot be held liable for the accuracy of the information provided and the expertise of the repairing party.

The warranty can only be requested and granted by the owner of the product or the party acting on behalf of the owner.

The final submission of the warranty must take place within 5 working days after the end of the repair.

It is not permitted not to pay outstanding invoices during the assessment of the application.

Knapen Trailers reserves the right to inspect the trailer on location before and during a repair.

The general terms and conditions of Knapen Trailers also apply to warranty issues.

Invoices addressed to Knapen Trailers without the correct order number and address will not be processed.

## 8.3 Exclusions from warranty

Wear parts or components subject to wear and tear such as tyres, brake shoes, sheets and air bags are excluded from the warranty.

The costs that are not covered by the warranty are:

- Replacement transport, trailer rental
- Recovery costs
- Transport costs
- Loss of revenue
- Call-out charges
- Subsistence costs
- Damage due to violence
- Consequential damage direct and indirect
- Damage to load
- Regular maintenance costs
- Oil and lubricants

The situations below exclude the trailer from the warranty

- Improper use of trailer
- Improper or lack of maintenance
- Overload
- Abnormal driving behaviour
- Accidents
- Extreme weather conditions
- Transport under abnormal circumstances
- Adjustments made by the customer or commissioned by the customer

Knapen Trailers reserves the right to refuse a warranty application in the event of non-compliance with the warranty conditions or other general terms and conditions by the applicant party.

[knapen-trailers.eu/warranty](https://knapen-trailers.eu/warranty)

## 9 Technical data

### 9.1 Landing legs

**Spindle support leg** maximum lifting load per leg 12 t, maximum static load 25 t

**Fall support legs** maximum permissible load per leg 10 t



### 9.2 Kingpin

#### Kingpin 50S15



50	Kingpin large Ø 50 mm
S:	Mounting bolt
15	pitch circle Ø 150 mm
Used type	SAF 50165S1510, Ø 50mm
Thickness of the kingpin plate	10 mm
Tightening torque	190 Nm (8 bolts M14x25 DIN 933 class 10.9)
Individual pin number:	2108 30 000002 0

Type	Plate thickness	D value	Pin	Flange	Composition
50165S1510	10 mm	165 kN	2108 30 000002 0	2031 10 000003 0	1030 30 000003 0

#### Permissible tolerances of the kingpin plate thickness

Plate thickness 6, 7, 8, 10 mm

#### Tolerances

+0.4 / -0.3

Type	D value		DIN		Tightening torque
65	165 kN	8 Hex-head screws Hex head	M14 x 35	933/10.9	micro-encapsulated 190 Nm

## 9.3 Floor system

System	CF500 SLC	CF100 SLL	CF500 Power speed	CF3 LP-2 (Leak Proof)	CF600 HDC	CF800 HD-6
Bore (mm [inch])	100 [3.9]	80 [3.15]	100 [4]	125 [4.9]	120 [4.7]	100 [3.9]
Piston rod diameter (mm [inch])	45 [1.77]	35 [1.38]	45 [1.77]	60 [2.35]	45 [1.8]	50 [2]
Stroke (mm [inch])	200 [8]	150 [5.9]	200 [8]	150 [5.9]	200 [8]	200 [8]
Cylinder volume ltr. [gallon]	2.82 [0.7]	1.36 [0.4]	2.82 [0.75]	3.26 [0.9]	4.2 [1.1]	5.5 [1.5]
Oil volume per cycle (ltr. [gallon])	8.46 [2.2]	4.09 [1.1]	8.46 [2.25]	9.77 [2.6]	12.6 [3.3]	16.5 [4.4]
Pressure relief valve setting, max. pressure (bar [psi])	225 [3.300]	175 [2.538]	225 [3.300]	150 [2.175]	205 [2973]	225 [3.300]
Strokes per minute with advised pump capacity	13	17	21	11	8.7	6.6
Speed (mtr. / min [ft./min]) with advised pump capacity	2.6 [8.5]	2.6 [8.5]	4.2 [13.8]	2.0 [6.6]	1.7 [5.6]	1.3 [10]
Advised pump capacity:						
Flow (ltr./min [gpm])	110 [29]	70 [18.5]	180 [47.6]	130 [34]	110 [29]	110 [29]
Pressure (bar [psi])	250 [3.625]	200 [2.900]	250 [3.625]	175 [2.538]	205 [2973]	250 [3.625]
Max. pump capacity:						
Flow (ltr./min [gpm])	130 [34.5]	80 [21]	200 [52.8]	170 [45]	190 [50]	130 [34.5]
Pressure (bar [psi])	250 [3.625]	200 [2.900]	250 [3.625]	175 [2.538]	205 [2973]	250 [3.625]
Speed at maximum pump capacity (mtr. / min. [ft./min])	3.1 [10]	2.9 [9.5]	4.7 [15.4]	2.6 [8.5]	3.0 [9.8]	1.6 [5.2]

### 9.3.1. Estimated unloading table (13.6 mtr [45 ft] trailer)

Motor	Pump output	Speed	Unloading time
550 RPM/m [rpm]	60 l/m [15 g/min]	1.4 m/min [4.6 ft/min]	9-10 minutes
750 RPM/m [rpm]	80 l/m [21 g/min]	1.9 m/min [5.9 ft/min]	7-8 minutes
1000 RPM/m [rpm]	110 l/m [29 g/min]	2.6 m/min [8.5 ft/min]	5-6 minutes



**Knapen Trailers B.V.**  
Theo van Doesburgstraat 8  
5753 DL Deurne, Netherlands

**Postal address**  
Postbox 343  
5750 DL Deurne, Netherlands

Tel: +31 (0) 493 320 330  
Fax: +31 (0) 493 310 728  
E-mail: [knapen@knapen-trailers.nl](mailto:knapen@knapen-trailers.nl)  
Web: [www.knapen-trailers.eu](http://www.knapen-trailers.eu)

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