SCHMITZ CARGOBULL

The TrailerCompany.



Operating manual (Translation)
Semitrailer tipper

en

Take the time to read this...

This manual informs you about Schmitz Cargobull semitrailer tippers. It contains important information on working with the semitrailer.

Please read the information in this manual carefully. Take particular note of the sections dealing with your safety.

Make sure that the manual is always carried in the vehicle, particularly if you lease or sell it.

Schmitz Cargobull is continuously developing our products. For this reason, the descriptions in the text and the pictures in this manual may differ from the equipment on your semitrailer.

If you have any questions that cannot be answered by reading this manual, please contact a Schmitz Cargobull service centre or the Schmitz Cargobull customer service:

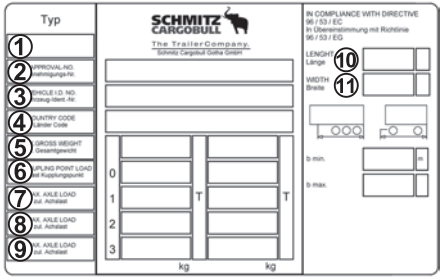
Schmitz Cargobull AG
Siemensstrasse 50
D-48341 Altenberge

In the event of a breakdown, contact Schmitz Cargobull Euroservice at:



The vehicle identification number (VIN) is stamped into the vehicle frame. Make sure that the vehicle identification number remains legible; prevent damage.

In addition, the vehicle identification number is also provided on the "Vehicle" name plate.

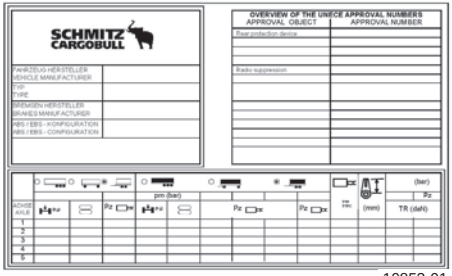


11182-01

"Vehicle" name plate

1 Model
2 Approval number
3 Vehicle identification number
4 Country code
5 Permissible total weight
6 Permissible load coupling point
7 Permissible axle load (1st axle)
8 Permissible axle load (2nd axle)
9 Permissible axle load (3rd axle)
10 Length
11 Width

On the "Brake data" name plate, there is information concerning the brake system.



10853-01

"Brake data" name plate

Keep the name plate legible and replace illegible or lost name plates immediately. You can obtain a replacement through the Schmitz Cargobull Spare Parts Centre by specifying the vehicle identification number.

Safety instructions

This manual includes various safety instructions with the following meanings:

DANGER!

Texts with this symbol warn of possible dangers to health and life.
If these instructions are not observed accidents and injuries that can result in fatalities may occur.

▶ Observe the instructions provided for avoiding hazards.

Property damage

Texts with this symbol warn of possible material damage.

▶ Observe the instructions provided for avoiding property damage.

Supplementary information

Text with this symbol provides tips or supplementary information.

Directions/procedures

▶ Text with this symbol identifies a procedure that should be carried out.

▷ Texts with this symbol describe the expected result of the previously executed activity.

Direction indicators

Direction indicators in this manual always refer to the direction of travel. Therefore, "on the left chassis frame" means the left side of the vehicle viewed in the direction of travel. Forwards means "in the direction of travel", backwards means "against the direction of travel".

Special equipment*

Text marked with an asterisk* identifies special equipment. For this reason text and illustrations in this manual may show different equipment from that of your vehicle.

This operating manual applies to the following Schmitz Cargobull semitrailers.

S.KI 18 7.2

Two-axle semitrailer rear tipper with a load length of approx. 7.2 m.

S.KI 24 7.2

Three-axle semitrailer rear tipper with a load length of approx. 7.2 m.

S.KI 24 8.2

Three-axle semitrailer rear tipper with a load length of approx. 8.2 m.

S.KI 24 9.6

Three-axle semitrailer rear tipper with a load length of approx. 9.6 m.

S.KI 24 10.5

Three-axle semitrailer rear tipper with a load length of approx. 10.5 m.

1 SAFETY

Operating instructions 12
General 12
Intended use 12
Semitrailer tractor equipment 13
Semitrailer tractor - semitrailer connections 13
Brake adjustment 13
Optimum braking capacity 13
Service and maintenance. 14
Warning stickers. 14

Residual hazards. 15

Inspection before starting a trip and after reaching the destination 18
Before starting a trip. 18
Weather-dependent 18
After loading or unloading 19
At the destination 19

Warranty. 20
Terms and conditions. 20
Spare parts. 20

2 CHASSIS

Chassis overview. 22

Electrical system 24
Electrical connections 24

Lighting equipment 25
Contour marking 25
Rear marking plates according to ECE-R70* 26
Additional reversing light* 26
Working light* 27
Beacon light at the rear* 27

Control unit overview 29
"Vehicle" control panel. 29
"Trailer Information*" control unit. . . 30
"Sliding roof*" control unit 31

Brake system 32
General 32
Coupling heads 32
ABS/EBS connection. 34
Parking/manoeuvring valve 35
Emergency release device spring-actuated parking brake 38
Brake pad wear indicator* 39
Paver brake* 40
Compressed air tank 41

Air suspension 42
Stroke limit 42

Chassis operation 43
Lifting and lowering / levelcontrol . . 43
Auto-reset function* 46
Automatic lowering* 47
Automatic lowering with electronic air suspension* 47
Trailing steering axle* 48
Axle lift* 49
LSP* (Load Spread Program) 51
Second driving height* 53
Axle load indicator* 53

Driving height basic setting 56
Changing driving height 56

Side guard 58

Folding underrun protection 60
Manually operated underrun protection 60
Electropneumatically operated underrun protection* 61

Tow hook. 66

Wheels and tyres 67
Changing wheels and tyres. 67
Wheel nut protective caps* 69
Tyre pressure monitoring system* . 70

Tyre pressure refill system* 71
Wheel cover 73

Hubodometer* (kilometre counter) 75

3 SUPERSTRUCTURE

Tractor hydraulic system 78
Volumetric flow and pressure 79
Hydraulic pumps on the auxiliary drive of tractors. 79
Hydraulic oil 80
Hydraulic tank. 81

Semitrailer tipper hydraulic system 83
Tipping cylinder 83
Hydraulic connector on the semitrailer tipper. 85
Hydraulic connections 86
Burst pipe protection with emergency drain connection*. 87

Rear walls. 92
Top-hung tailboard* 93
Double-leaf door. 94
Double-leaf combined door*. 95
Single-leaf combined door* 96
Hydraulic rear wall with swing function*. 96

Rear walllocking mechanism . . . 98
Automatic mechanical hook lock* . . 99
Automatic mechanical hook lock with locking function* 100
Pneumatic hook lock* 101
Hydraulic rear wall locking mechanism*. 103
Espagnolette lock 105
Laterally operated safety lock*. . . . 106
Additional clamp locks* 108

Trough equipment 110
Trough guide 110
Rear wall flap guide* 111
Tensioning chains* 111
Tailgate roof bow* 113
Door locks* 113
Grain unloader* 114
Trough interior lighting* 116
Trough interiorcamera* 117
Thermal insulation* 117
Plastic trough lining* 119
Compressed air roller vibrator* . . . 121
Lateral deflector plates*. 122
Handle on the rear wall* 122
Flow regulating device* 123

Covers/tarpaulins* 125
Roll-up tarpaulin*. 125
Sliding roof*. 133
Rear wall protective tarpaulin* . . . 135

Work platform* 136

4 MOUNTED PARTS

Landing legs 140
Landing leg winches* 141
Drop supports* 143
Auxiliary supports* 144

Wheel chocks 146

Hydraulic hose holder*. 147

Spare wheel holder* 148
General 148
Spare wheel holder in basket design* 149
Spare wheel holder in winch design* 152
Spare wheel holder on the side of the chassis*. 155

Ladders/steps/ascents* 157
Leaning ladder* 157
Ascent ladder at the rear of the vehicle* 158
Ascent ladder on the front wall* . . . 159

Tarpaulin rod* 161
Holder for tarpaulin rod* 161

Holder for broom and shovel* . . 162
Holder on the vehicle frame* 162
Holder on the front wall* 163

Storage compartments* 164
Safety instructions 164
Small toolbox* 164
Large toolbox* 164

Water tank* 166

Fire extinguisher* 167

Document compartment* 168

Discharge funnel* 169
Park position 169
Installing/removing on the grain unloader 170

Warning signs and symbols* . . . 172
Warning signs* 172
Holding frame for placard* 173
Speed symbols* 173

Rear area camera* 174

Lashing points* 175

Additional licence plate holder* 176

5 DRIVING

Train composition 178

First journey 179
Checking the wheel nuts 179

Brake adjustment. 180

Manoeuvring. 181

Electronic braking system (EBS) 182
Approved plug connections 182
Stability program 182
Warning displays 183
Axle load indicator 183

Trailer Informations System* . . 184
WABCO® SmartBoard* 184
KNORR® Trailer Information Module* 186

Maximum top speed 188
Speed symbol 188

Coupling and uncoupling 189
Before coupling 189
Coupling 190
Uncoupling 191

Clearance zones 193
Supply lines. 193
Swivel radius (turning circle) 193
Rotation radius 193
Turning angle 194
Tipping angle 194

Air suspension 195
Driving instructions 195
Driving with defective air suspension 195

Ferry transport 196
Accompanied ferry transport. 196
Unaccompanied ferry transport. . . 196
Arrangement of the lashing points (ferry lashings) 196
Leaving the ferry 196

6 OPERATION

Trough insert 198
Operating recommendations. 199

Transport instructions for special cargo 201

Loading and unloading. 203
Loading. 203
Unloading 204

Load securing 207
Legal requirements. 207
Basic physical information 207

Tipping procedure. 209
Tilt resistance 209
Before the tipping procedure 210
Tipping procedure 211
After the tipping procedure 212

Working with the hydraulic rear wall door* 214
General instructions 214
Safety instructions 214
Operating modes 216
Infinitely variable manual opening/ closing / grain unloader function. . . 217
Swing function 218
Completely opened rear wall 219
Opening the hydraulic rear wall door 219
Closing the hydraulic rear wall door 220
Error recognition when the pilot lamp is flashing 222

Working with the single-leaf combined door* 224
Locking system 224
Grain unloader function 225
Swing function 226
Door function 227

Side tilt warning function*. 228

Road paver operation 230
Prerequisites for operation on the road paver 230
Tipping procedure during paver operation 231
After the tipping procedure on the paver 232
Engaging the paver brake 232
Switching off the paver brake 233

7 MAINTENANCE, CARE

Requirements. 236
Safety inspection 236
Changes to the semitrailer. 237
Personnel qualification. 237
Service and maintenance guide . . 237

Maintenance intervals 238
One-time maintenance work 238
Regular maintenance tasks. 239

Maintenance work. 245
Bolts and nuts 245
King pin 245
Tipping cylinder 247
Tipper bearing 247
Trough floor wear 248
Running gear system 248
Rear wall and self-aligning bearing 249
Locking mechanism 250
Trough supports 250
Compressed air system 250
Landing legs 251
Wheels and tyres 251
Spare wheel holder* 252
Brake pad wear indicator* 252
Plastic trough lining* 253
Folding underrun protection 253
Thermal insulation* 255
Hydraulic rear wall* 256

Lubricating work. 257
King pin and coupling plate 257
Lower tipping cylinder bearing . . . 257
Upper tipping cylinder bearing . . . 257
Tipper bearing 258

Self-aligning bearing* 258
Hydraulic rear wall* 259
Leaf door hinges* 260
Lever locking mechanism on single-leaf combined door* 260
Linkage adjuster* 260
Landing leg winches* 261

Care of the commercial vehicle . 262
Use of high-pressure cleaners 262
Painted surfaces 263
Hot-dip galvanised surfaces 264
Cleaning the interior of the trough . 264

Decommissioning 265
Recommissioning 265
Final decommissioning 265

8 TECHNICAL DATA

Dimensions 268

Electrical system 270
Terminal assignment 270

Circuit diagrams 274

Tightening torques 275

Operating materials 276
Lubricants 276
Hydraulic oil 277
Cleaning agents 279

Sticker overview 280
Signs for components that are subject to approval 280
Control panel stickers 280
Warning and information signs . . . 282

9 SPARE PARTS/SERVICE

Spare parts 288
Procurement of spare parts 288
Breakdown 288

CONTENTS

Operating instructions
Residual hazards
Inspection before starting a trip and after reaching the destination
Warranty

1

Operating instructions

General

- The semitrailer must be operated only by trained personnel.
- The operator is responsible for compliance with safety regulations and industrial safety regulations.
- Before operating the semitrailer, the operator must ensure that the vehicle is in a safe operating condition.
- Accessories, tools and other objects must not be left loose and lying about on the semitrailer.
- The permissible axle loads and the permissible total weight of the semitrailer must be observed and complied with.
- When operating, maintaining, and repairing the semitrailer, the relevant occupational health and safety and accident prevention regulations as well as other generally recognised safety, occupational medical and road traffic regulations must be observed.
- Modifications to the semitrailer and its components, the attachment of non-approved accessories, and the installation of third-party spare parts will invalidate the operating permit.
- Loads must be secured in accordance with the applicable regulations and the specific type of load.

Intended use

Schmitz Cargobull semitrailers are approved only for operation behind tractors with brake systems in accordance with ECE Regulation no. 13.

Operation of the semitrailer is permissible only with properly connected supply lines (compressed air and electrical system) and the EBS connection cable.

For the power supply of the brake system (EBS), the tractors must be equipped with either an ISO 7638-1:1997 plug connector (7-pin, 24 V) or an ISO 7638:1985 plug connector (5-pin, 24 V).

The semitrailer rear tipper is designed to transport tippable bulk cargo. Please also observe the instructions under "Trough insert" starting on page 198, to prevent damage to the vehicle due to improper loading.

The semitrailer loaded with bulk cargo is intended to be unloaded by tipping the superstructure. Unloading with an excavator is forbidden.

Transport of the following is not permitted:

- Livestock,
- Foodstuff controlled under the ATP agreement,
- Surging loads,
- Persons,
- Containers with liquids,
- Cargo which, due to its characteristics (physical, chemical, temperature), causes damage to the superstructure,
- Cargo that cannot be safely loaded and unloaded,
- Cargo that cannot be safely transported.
- Cargo that cannot be sufficiently secured (e.g. packaged goods).

The transport of hazardous goods as per ADR is only permitted with the additional equipment required for this purpose and issuing of a permit for the vehicle in accordance with ADR Part 9. You must also observe the instructions under "Transport of dangerous goods" on page 201.

The load must be properly secured with the supplied equipment, such as tarpaulins and supplementary equipment such as tension nets, before beginning a trip. Unsecured or insufficiently secured loads can cause serious accidents with personal injury by moving or falling from the load area.

Load the semitrailer so the axles and drawbars are neither overloaded and the permissible gross weight of the semitrailer is not exceeded. With partial load, make sure the load is evenly distributed. Otherwise the driving characteristics will deteriorate and the risk of accident will be higher.

Do not exceed the legally permissible length, width and height dimensions.

Always drive with the rear wall closed and secured, and with the tarpaulin closed and secured. Open rear walls and flapping tarpaulins can cause accidents with personal injuries.

Do not modify the semitrailer in any way. This can negatively affect the safety of the semitrailer. The operating permit will also be cancelled. Schmitz Cargobull does not accept liability for damage caused by modifications to the semitrailer.

Designated use also includes following the directions of this operating manual and the test and service intervals with the service conditions specified by Schmitz Cargobull. This applies to all operating manuals supplied with the vehicle.

Semitrailer tractor equipment

For the operation of certain functions on the semitrailer, actuation devices or additional equipment is required on the semitrailer tractor.

To retrofit these devices, the associated specifications from the semitrailer tractor manufacturer must be observed.

Semitrailer tractor - semitrailer connections

The connections between semitrailer tractor and the semitrailer must be properly coordinated.

- Pneumatic brake connections
- Electrical supply EBS/ABS
- Electrical connection for the lighting and the auxiliary consumers (in 2x7-pin or 1x15-pin)
- Electrical auxiliary connections for auxiliary consumers (e.g. drive cover)
- Hydraulic connections (max. pressure, coupling); utilised hydraulic oil

Brake adjustment

To distribute the braking force uniformly across all brakes in the train, you should perform a train tuning while loaded after the first 2,000 to 5,000 km in accordance with ECE-R13 (see "Brake adjustment" on page 180).

Optimum braking capacity

To ensure that optimum braking capacity is maintained during operation for a long time, the brake pad must be continuously thermally activated. This is only possible through regular use of the wheel brakes of the trailer.

Negative influencing factors on the braking effect include, e.g.

- Use of aggressive road salt on the roads,

- Minimal use of the brakes due to the operational profile,
- Frequent use of retarders and engine brakes,
- Predominantly only slight adjustment braking,
- Low thermal stress on the wheel brakes.

For this reason, the operator obligations include regular use of the wheel brake and checking the effectiveness of the brakes before starting a trip. The driver must regularly decelerate the vehicle from higher speeds and without using retarders and engine brakes.

Service and maintenance

All service and maintenance work must be carried out by qualified specialist workshops only.

Have all inspections and services completed within the specified intervals.

The service book documents all inspections and forms the basis for any warranty claims.

Warning stickers

The warning stickers on the vehicle are part of the operating manual. Comply with information and instructions on these warning stickers as you would comply with the information and instructions in the operating manual. Keep the warning stickers legible and replace illegible or lost stickers immediately.

An overview of the stickers attached to the vehicle can be found in "Sticker overview" on page 280.

Residual hazards

Schmitz Cargobull semitrailers are designed in accordance with the state of technology and the generally accepted technical safety regulations. However, hazards to life and limb of persons or damage to the semitrailer and other property may occur when working on the semitrailer.



MORTAL DANGER!

Danger of crushing through reversing without supervision!

An overview of the residual hazards when working with the tipping semitrailer is shown below.

1

Hazard source	Hazard/consequences
Coupling and uncoupling	**MORTAL DANGER!** **Persons in the danger zone between the tractor and the semitrailer may be crushed or run over.** ■ Direct all persons away from the danger zone when coupling or uncoupling. ■ No person is permitted to remain at the fifth-wheel lock of the tractor while coupling or uncoupling. ■ Any required persons directing the tractor driver must maintain an adequate distance.
Working with brake released	**MORTAL DANGER!** **When the parking brake is released the vehicle may move and crush or run over persons.** ■ Secure the vehicle with wheel chocks to prevent it from rolling before starting work.
Opening and closing tarpaulin	**INJURY HAZARD!** **You may slip and fall if you climb up parts not designed for the purpose.** ■ Do not use wheels, the underrun protection or other attached parts to climb up onto the vehicle. ■ Always use a ladder with anti-slip feet.

Hazard source	Hazard/consequences
Overhead power lines	**MORTAL DANGER!** **When working in the vicinity of overhead power lines or catenary lines, a safety distance of at least 5 metres must be maintained between such lines and persons, vehicles, auxiliary equipment and transported goods.** ■ Never underrange the minimum distance. There is a risk of electric shock.
Tipping procedure	**MORTAL DANGER!** **No persons must be in the unloading area during the tipping process. They could be injured by the cargo or the rear wall.**
Hydraulically operated rear wall	**MORTAL DANGER!** **The hydraulic rear wall opens and closes automatically at high speed.** ■ Persons in the pivoting area of the rear wall can be thrown out or crushed. ■ During the tipping process, no persons must be in the pivoting area of the rear wall.
Lowering the tipper superstructure	**MORTAL DANGER!** **People underneath the tipping trough can be crushed.** ■ Keep the danger area under the tipping trough free of people.

1

Inspection before starting a trip and after reaching the destination

The departure inspection is an important contribution to road safety. Carry out a departure inspection before every trip. Walk around the tractor-trailer after trip interruptions, such as rest stops on the motorway or after the weekend, inspect the most important points, and repair any defects if necessary.

Before starting a trip

- Are all of the vehicle and equipment parts in driving position and secured?
- Does the lighting system function?
- Are the contour markings and warning markings undamaged?
- Is the semitrailer coupling correctly locked and secured?
- Are all landing legs retracted and secured? Is the crank secured?
- Are all supply lines connected?
- Are the compressed air connections and lines sealed?
- Is the up/down valve in the "DRIVE" position?
- Are the compressed air tanks free of condensation?
- Are the air bellows free of folds and undamaged?
- Are the side guards undamaged, unfolded and secured?
- Is the folding underrun protection undamaged, unfolded and secured?
- Do the actuation devices work properly?
- Are all of the components outside of the load space, such as frames, vehicle chute, underrun protection, ascents etc. free of bulk cargo?
- Is the tipping trough fully lowered?
- Is the auxiliary drive in the tractor switched off?
- Are the rear wall doors / tailgate properly closed and secured?
- Are the grain unloaders properly closed and secured?
- Is the tarpaulin closed and properly secured?
- Are all tyres in good condition? Is the tyre pressure correct?
- Are the spare wheels fixed and secured?
- If the work platform ladder folded up and secured?
- Are all of the mounted parts complete, undamaged and in the secured driving position? Are the safety elements undamaged and intact?
- Check that no accessories, tools, supplementary equipment and other objects are lying loosely on the semitrailer.
- The condition of the brake discs must be checked, particularly for dirt and corrosion.
- The braking effect must be checked shortly after departure through brake tests. (You must also observe the instructions under “Optimum braking capacity” on page 13.)

Weather-dependent

Check the following points depending on the weather:

- If it is raining remove the water from the semitrailer tipper by starting and braking appropriately. Keep the windows closed while doing this.

- Remove ice or snow accumulations from the semitrailer tipper in snow or freezing conditions. Do not endanger yourself in the process.

After loading or unloading

After loading or unloading or after picking up the semitrailer check the following points:

- Is the semitrailer tipper correctly loaded?
- Are all of the components outside of the load space, such as frames, vehicle chute, underrun protection, ascents etc. free of bulk cargo?
- Is the underrun protection folded down again and secured after working with the road paver?

At the destination

- Park the semitrailer tipper after arrival so water can run out of the trough rearwards (e.g. by lowering the semitrailer tipper).
- For periods of standstill of more than 6 months, please observe the instructions under “Decommissioning” on page 265.

1

Warranty

Changes to safety-related components and to components that are subject to approval are not permitted and can result in invalidation of the operating permit. Pay attention to the instructions in chapter "MAINTENANCE, CARE“.

Terms and conditions

The contents and scope of warranty claims conform to the Schmitz Cargobull new vehicle supply terms and conditions (purchase contract between Schmitz Cargobull and the customer).

Damage caused by the following is not covered by the warranty:

- overloading,
- non-designated and improper use,
- unauthorised modifications.

Natural wear is also excluded from warranty coverage.

The warranty coverage only exists:

- If the semitrailer is operated as intended and only with components approved by Schmitz Cargobull,
- If spare parts approved by Schmitz Cargobull are used,
- If all prescribed maintenance tasks have been executed by one of our authorised service partners.

Spare parts

Spare parts, that have not been approved by Schmitz Cargobull, cannot be assessed by Schmitz Cargobull with regard to their suitability, safety, and reliability.

The operating permit and the warranty will be invalidated if spare parts that are not approved by Schmitz Cargobull are used.

For information on purchasing spare parts, see chapter "TECHNICAL DATA“.

Breakdown

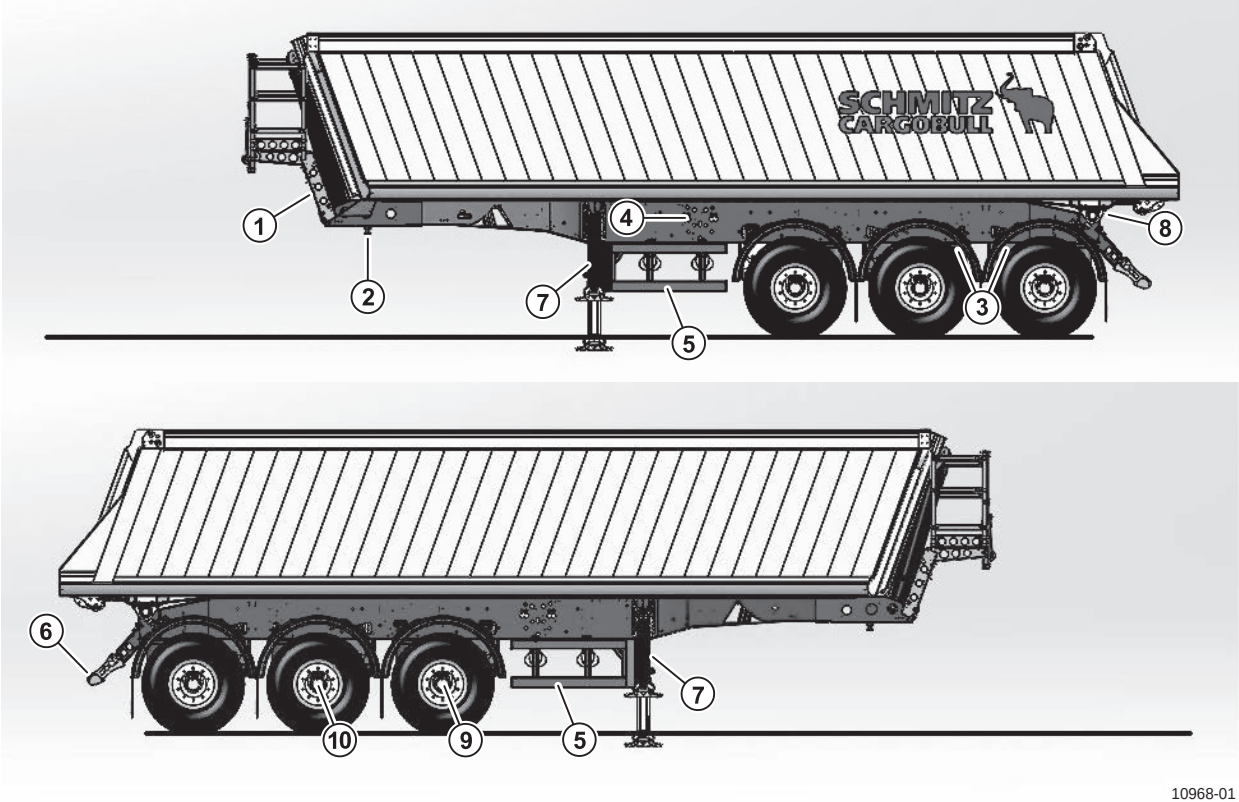
In the event of breakdown, you can contact the Cargobull Euroservice at:



Chassis overview
Electrical system
Lighting equipment
Control unit overview
Brake system
Air suspension
Chassis operation
Driving height basic setting
Side guard
Folding underrun protection
Tow hook
Wheels and tyres
Hubodometer* (kilometre counter)

Chassis overview

2



10968-01

Chassis S.KI overview

Item	Designation
1	Supply connections for compressed air and electrical system, EBS plug connector
2	King pin
3	Compressed air tanks (2 pieces with basic equipment)
4	Control panel
5	Side guard
6	Folding underrun protection
7	Landing legs
8	Tow hook*
9	Lift axle*
10	Hubodometer*

2

Electrical system

Schmitz Cargobull vehicles are equipped with 24 volt lighting systems in accordance with the applicable regulations.

The electrical system comprises all live devices:

- Lighting equipment
- Supply connections to the tractor
- Control units, such as the electronic control unit for the brake system with power supply (EBS)
- Connection lines
- Switches
- Sensors

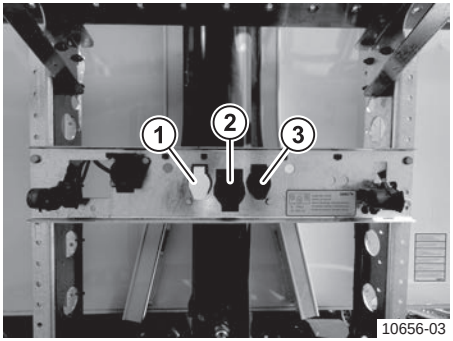
The connection between trailer and tractor is established with connecting cables.

After coupling the connection cable and before starting every journey, the lighting system must be checked for function.

The electrical system components must be checked regularly. Defective or damaged parts should be immediately replaced.

Electrical connections

Schmitz Cargobull semitrailers have two 7-pin sockets and/or one 15-pin socket.



Electrical connections

1 7-pin socket
2 15-pin socket
3 7-pin socket

For trailer equipment operated from the driver's cab, please follow the "Terminal assignment" in chapter "TECHNICAL DATA“ starting on page 270.

The PIN assignment depends on the equipment of your semitrailer tipper (see "TECHNICAL DATA“ starting on page 270).

Lighting equipment

The basic equipment of your semitrailer includes the following lighting equipment according to ECE-R48.

- Conventional multiple chamber lamp, consisting of: Indicator, brake light, parking light, rear light, reversing light, rear fog light, triangular reflector
- Flexible LED contour lamps with integrated side marker lights
- White LED side-marker lights with reflectors
- LED side marker lights with reflectors (optionally in flashing version)
- LED number plate light
- Contour marking

Depending on the equipment, the following lighting equipment can be installed on your semitrailer:

- LED multiple chamber lamp, consisting of: Indicator, brake light, parking light, rear light, reversing light, rear fog light, triangular reflector
  or:
  LED three-chamber lamp, consisting of indicator, brake light, rear light with separate rear fog light, separate triangular reflector, separate LED reversing light
- Additional reversing light*
- Working light*
- Beacon light at the rear*

After coupling, the connection cables between the tractor and the semitrailer and before every departure, the functions of the lighting equipment must be checked.

Lighting equipment and their installation on the vehicle are subject to approval.

It is not permitted to change lighting equipment or install additional equipment without approval.

Property damage!

All lighting equipment installed on the vehicle must be functional.

- ▶ Check the lighting equipment before starting a trip.
- ▶ Defective or damaged parts should be immediately replaced.

Contour marking

The contour markings are part of the lighting equipment.

The contour marking installed on Schmitz Cargobull vehicles complies with ECE regulations. The legal requirements permit you to choose between white or yellow for the side contour markings.



Side wall contour marking (example)

For the contour marking on the rear wall, there is a choice between red or yellow.



Rear wall contour marking (example)

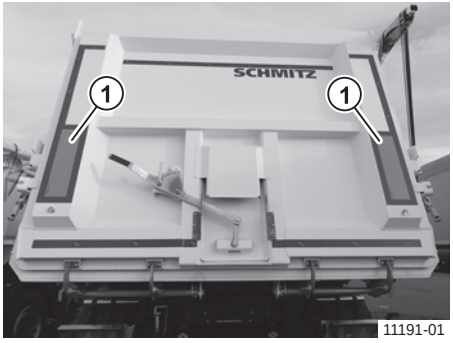
WARNING!

Ensure that the contour marking is always clearly visible.

- ▶ Before starting a trip, ensure that all contour markings are present and free of dirt.
- ▶ Have the contour marking replaced when it is worn.
- ▶ Use only contour markings approved by Schmitz Cargobull.

Rear marking plates according to ECE-R70*

The rear marking plates according to ECE-R70 are attached to the rear wall of the semitrailer tipper.



Attachment example for rear marking plates according to ECE-R70

1 ECE-R70 labelling plate

WARNING!

Ensure that the rear marking is always clearly visible.

- ▶ Before starting a trip, ensure that all rear marking plates are present and free of dirt.
- ▶ Have the rear marking plates replaced when they are worn.

Additional reversing light*

Optionally, your semitrailer can be equipped with additional reversing lights. The reversing lights are arranged symmetrically on the rear and/or sides of the vehicle.



Additional reversing light (shown on the sides)

Working light*

Depending on the equipment, working lights can installed at the following positions on or in the vehicle:

- At the rear of the vehicle
- On the sides on the vehicle frame
- In the superstructure (tipping trough)

WARNING!

The use of working lights is prohibited when driving on public roads.

- ▶ Only use working lights when loading, unloading, or when manoeuvring.
- ▶ Before driving on public roads, check that the working lights are switched off.

Working lights at the rear of the vehicle/on the sides on the vehicle frame

The working lights installed on the chassis illuminate the areas beside and/or behind the vehicle.

Have a separate switch retrofitted in the driver's cab of the tractor for operating/switching the working lights that are installed on the sides and rear of the vehicle.

Working lights in the superstructure

The working lights installed in the tipping trough illuminate the interior area of the trough.

A separate switch on the control unit of the vehicle frame is required to switch the working lights in the tipping trough.

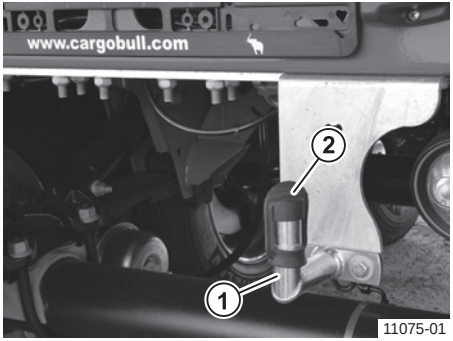
Beacon light at the rear*

For special purposes (construction site vehicles), your vehicle can be equipped with a beacon light at the rear.

When using the beacon light, observe the national regulations.

In Germany, use of the beacon light (beacon for yellow indicator) on public roads is allowed only for vehicles with special privileges. Another prerequisite for this is the identification of the vehicle with red-white warning markings according to DIN 30710.

In Germany, the beacon light must be removed before driving on public roads.



Beacon light holder

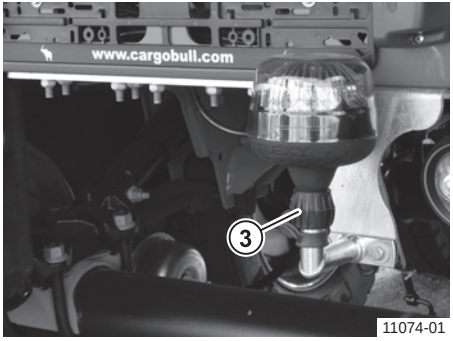
1 Holder
2 Protective cap

Installation of the beacon light

- ▶ Remove the protective cap (2) from the holder (1).
- ▶ Fit the beacon light with slight pressure on the holder (1).
- ▶ Secure the beacon light by turning the clamping screw (3) to the right on the holder.

  When it is properly fitted, the 2-pin electrical connection is established.

  ▷ Tighten the clamping screw (3) by hand.



Beacon light, installed

3 Clamping screw

Removing the beacon light

- ▶ Loosen the clamping screw (3) of the beacon light by turning to the left.
- ▶ Pull the beacon light upwards and out of the holder (1).
- ▶ Put the protective cap (2) on the holder.
- ▶ Store the beacon light safely in the toolbox.

Electrical switch

We recommend installing an additional switch to actuate the beacon light in the driver's cab of the tractor.

With continuous current supply, the beacon light is switched on and off by putting it on (installing) or taking off (removing) it.

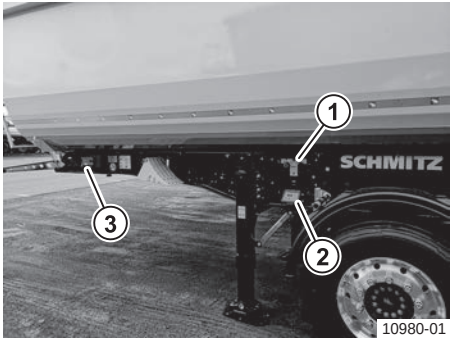
The PIN assignment depends on the equipment of your semitrailer tipper (see "TECHNICAL DATA“ starting on page 270).

Control unit overview

Depending on the equipment, your vehicle has one or more control units:

- "Vehicle" control panel
- "Trailer information" control unit*
- "Sliding roof" control unit*

The control units are installed as standard equipment on the left side of the semitrailer.



Control units S.KI overview (with special equipment*)

1 "Vehicle" control panel
2 "Trailer information" control unit*
3 "Sliding roof" control unit*

WARNING!

Before actuating the different control elements, inform yourself about their functions.

- ▶ Carefully read about the operation of the individual control elements in this operating manual.
- ▶ Also observe the operating manual of the system manufacturer.
- ▶ Pay special attention to the safety instructions.

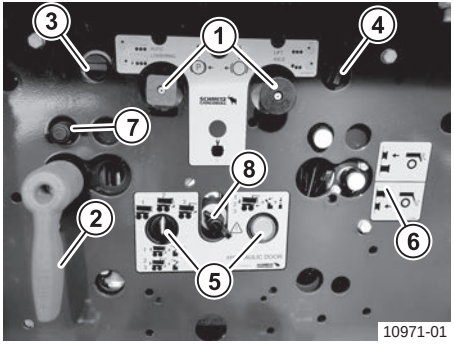
Keep the stickers on the control units legible and replace illegible, damaged, or lost stickers immediately.
An overview of the stickers can be found in "Control panel stickers" on page 280.

"Vehicle" control panel

Depending on the vehicle equipment, the vehicle control panel has different control elements.

Depending on the equipment, you can control the following functions of the chassis and the superstructure of your semitrailer tipper using the corresponding control elements on the "Vehicle" control panel:

- Service brake (page 36)
- Parking brake (page 36)
- Lifting and lowering / level control (page 43)
- Second driving height* (page 53)
- Axle lift* (page 49)
- Automatic lowering* (page 47)
- Electropneumatically operated underrun protection* (page 61)
- Trailing steering axle* (page 48)
- LSP* (page 51)
- Hydraulic rear wall* (page 96)
- Pneumatic hook lock* (page 101)
- Compressed air roller vibrator* (page 121)
- Test connections for service brake and air suspension



Example for "Vehicle" control panel with control elements (partially with special equipment*)

1 Brake
2 Lift and lower
3 Automatic lowering*
4 Axle lift*
5 Hydraulic rear wall*
6 Pneumatic underrun protection*
7 Air suspension test connection
8 Service brake test connection

The image does not show all possible equipment for your vehicle. Familiarise yourself with your vehicle and carefully read the instructions in this operating manual before operation.

"Trailer Information*" control unit

Depending on the vehicle equipment, a Trailer Information System can be installed on your semitrailer. You can find more information on page 184.



"Trailer information" control unit

1 TIS - WABCO® SmartBoard
2 TIM - KNORR® Trailer Information Module

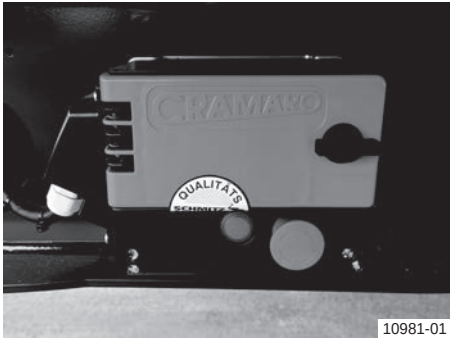
Carefully read the instructions in this operating manual as well as the operating manual of the system manufacturer before operation.

Cargobull Telematics* trailer monitoring is optionally available if you would like quick access to the following information, e.g.:

- Vehicle information
- Load status
- Coupling status
- Tyre pressure (with additional sensors installed)

For further information on the operation please contact Cargobull Telematics.

"Sliding roof*" control unit



"Sliding roof*" control unit

Depending on the equipment, you vehicle can be equipped with an electrically actuated sliding roof. To operate the roof, the "sliding roof" control unit is installed on the vehicle frame (see chapter "SUPERSTRUCTURE“ on page 134).

Carefully read the instructions in the operating manual of the system manufacturer before operation.

Brake system

General

2

Schmitz Cargobull semitrailers are fitted with the Electronic Brake System (EBS) as standard equipment (see "Electronic braking system (EBS)" on page 182).

The EBS also includes the ABS function (Antiskid Braking System) and the ALB function (automatic load-sensing braking pressure regulation).

All supply line connections are combined in a retainer.

Wendelflex lines that are tangled may come off in very tight curves. Separate them before connecting them.

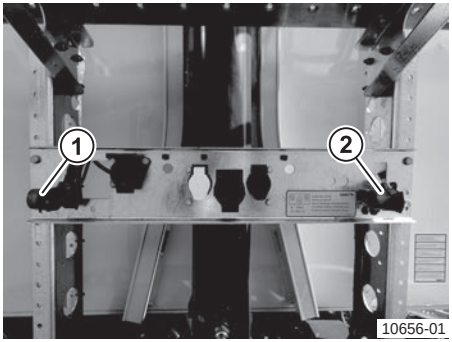
Coupling heads

The following types of coupling heads may be installed:

- Standard coupling heads (production) with integrated line filters
- Duo-Matic connector*
- C-coupling heads* with separate line filter

Different types of coupling heads can be installed simultaneously for specialised applications.

Standard coupling heads



1 Standard supply coupling head (red)
2 Standard brake coupling head (yellow)

Connecting standard coupling heads to the tractor

Prerequisite:
The parking brake of the tractor is engaged.

▶ Check the sealing surfaces of the coupling heads and clean them if necessary.

▶ Always connect the brake coupling head (2) (yellow) first.

▷ The semitrailer is braked.

- ▶ Connect the supply coupling head (1) (red).
- ▶ Check the coupling heads for leaks. Replace leaky rubber seals.

Disconnecting standard coupling heads from the tractor

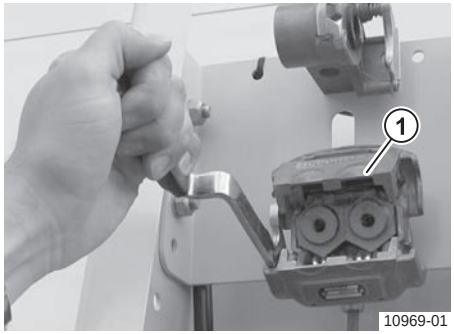
Prerequisite:
The parking brake of the tractor is engaged.

- ▶ Secure the semitrailer additionally with two wheel chocks.
- ▶ Always disconnect the supply coupling head (1) (red) first.

  ▷ The semitrailer is braked.

- ▶ Disconnect the brake coupling head (2) (yellow).
- ▶ Close the protective caps on the coupling heads.

Duo-Matic coupling head*



Duo-Matic connector*

1 Duo-Matic* coupling head

Connecting the Duo-Matic coupling head to the tractor

Prerequisite:
The parking brake of the tractor is engaged.

- ▶ Check the sealing surfaces of the coupling heads and clean them if necessary.
- ▶ Pull the selector lever for the coupling head down and insert the counterpart.

  ▷ The semitrailer is braked.

- ▶ Check the connections for leaks. Replace leaky rubber seals.

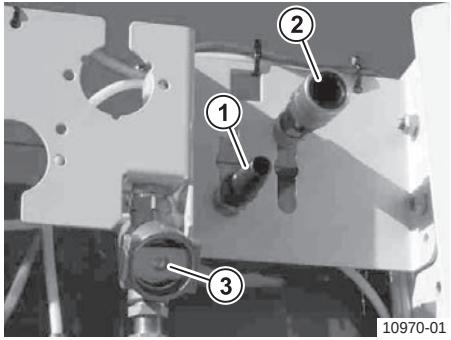
Disconnecting the Duo-Matic coupling head from the tractor

Prerequisite:
The parking brake of the tractor is engaged.

- ▶ Secure the semitrailer additionally with two wheel chocks.
- ▶ Pull the selector lever for the coupling head down and remove the counterpart.

  ▷ The semitrailer is braked.

C-coupling heads*



C-coupling heads*

1 Supply coupling head
2 Brake coupling head
3 Line filter

Connecting C-coupling heads to the tractor

Prerequisite:
The parking brake of the tractor is engaged.

- ▶ Check the sealing surfaces of the coupling heads and clean them if necessary.
- ▶ Always connect the brake coupling head (2) first.
  - ▷ The semitrailer is braked.
- ▶ Connect the supply coupling head (1).
- ▶ Check coupling heads for leaks, repair the leaks.

Disconnecting C-coupling heads from the tractor

Prerequisite:
the parking brake of the tractor must be engaged.

- ▶ Secure the semitrailer additionally with two wheel chocks.
- ▶ Always disconnect the supply coupling head (1) first.
  - ▷ The semitrailer is braked.
- ▶ Disconnect brake coupling head (2).

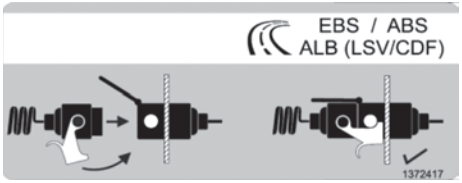
ABS/EBS connection

ACCIDENT HAZARD!

The EBS and thus the ABS and the automatic load sensing brake control will not operate without the ABS / EBS plug connector. This can cause the semitrailer to overbrake and skid and may result in accidents.

- ▶ Always connect the ABS/EBS plug connector between tractor and semitrailer.
- ▶ Use only approved ABS/EBS plug connectors.
- ▶ Only tow the semitrailer with trailer EBS with tractors that have a plug connector compliant with ISO 7638.

Schmitz Cargobull vehicles have an additional power supply for the EBS system. This is provided by the stop light supply of the 7-pin socket (ISO 1185) or via the 15-pin socket (ISO 12098) of the light system. This means that the ABS and ALB will still operate even if the ABS/EBS plug connector is disconnected.
The power supply through the 7-/15-pin socket is only a backup power supply in case the ABS/EBS plug connector fails.

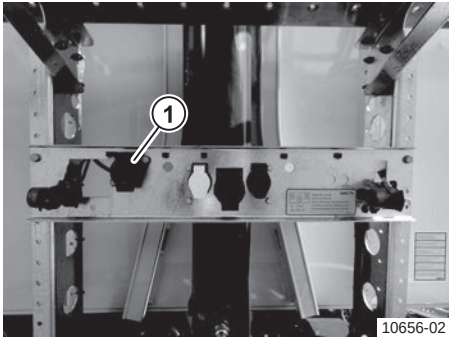


11032-01

"EBS" warning sticker on the front wall

The "EBS" warning sticker is part of the operating manual. Observe the sticker and keep it readable. Replace the "EBS" warning sticker if it is lost or becomes illegible.

Approved plug connections



10656-02

1 EBS socket

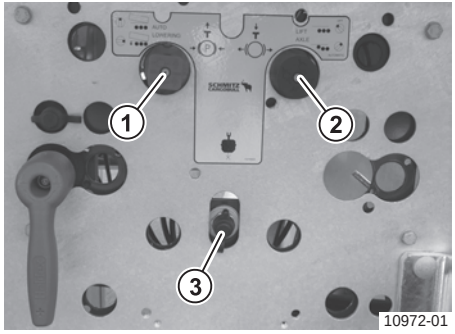
The approved plug connections can be found in chapter "DRIVING" under "Approved plug connections" on page 182.

The location of the sockets depends on the configuration of your semitrailer tipper.

Parking/manoeuvring valve

When the supply line is uncoupled the semitrailer is automatically braked. The emergency braking and tear-off function is ensured in accordance with ECE-R13.

Use the manoeuvring valve (black button) to release and apply the service brake to manoeuvre the uncoupled semitrailer. In doing so, the supply connections (brake->yellow and supply->red) are disconnected.



10972-01

Brake control unit

1 Parking valve (red button)
2 Manoeuvring valve (black button)
2 Service brake test connection

2

Use the parking valve (red button) to activate the spring-actuated parking brake. The parking valve (red button) has an integrated safeguard to prevent unintentional release.

Service brake

Releasing and actuating the service brake several times consumes compressed air. Leaks in the compressed air system also lead to pressure loss.

At a pressure below 3 bar, the service brake can no longer be released with the manoeuvring valve (black button).

The manoeuvring valve (black button) can only be pushed in when the supply lines are uncoupled (release service brake).
When coupling the supply line, the manoeuvring valve is automatically pushed out and cannot be actuated (driving position).

Releasing the service brake

▶ Press the manoeuvring valve (black button).

▷ The service brake is released.

! The semitrailer is unbraked when the spring-actuated parking brake is released.

Actuating the service brake

▶ Pull out the manoeuvring valve (black button).

▷ The service brake is actuated, the semitrailer is braked.

ACCIDENT HAZARD!

The service brake is not suitable for continuously braking the parked semitrailer! Pressure loss in the brake system causes a reduction in the braking effect of the service brake. This may cause the semitrailer to roll away and cause accidents with personal injury.

▶ Always secure the parked semitrailer with the spring-actuated parking brake (parking valve, red button).

▶ In addition, always place wheel chocks under the wheels.

Spring-actuated parking brake

When the spring-actuated parking brake is set, the spring-actuated brake cylinders are drained. The semitrailer is permanently braked.

At low pressure (below 5.2 bar) and when the supply connections are uncoupled (supply, brake), the spring-actuated parking brake is automatically actuated. Release is only possible if there is at least 5.2 bar pressure in the compressed air system of the semitrailer.

In order to release the spring-actuated parking brake without compressed air, the spring-actuated brake cylinders are equipped with a mechanical emergency release device (see "Emergency release device spring-actuated parking brake" on page 38).

A check valve prevents the spring-actuated parking brake from being unintentionally actuated in the event of a pressure loss while driving with coupled supply connections. Even if the pressure is less than 5.2 bar, the parking brake remains released, but if actuated once it cannot be subsequently released.

ACCIDENT HAZARD!

When the spring-actuated parking brake is released, the uncoupled trailer can move and crush or run over persons.

- ▶ Always secure the uncoupled trailer with the spring-actuated parking brake by pulling out the parking valve (red button).

Releasing/actuating the spring-actuated parking brake

*When the supply connections are **uncoupled**:*

- ▶ Push in the parking valve (red button).
- ▶ Push in the manoeuvring valve (black button).
  - ▷ The spring storage parking brake is released, and the semitrailer is unbraked!
- ▶ Pull out the parking valve (red button).
  - ▷ The spring-actuated pressure accumulator parking brake is set, and the semitrailer is braked.

*When the supply connections are **coupled**:*

- ▶ Push in the parking valve (red button).
  - ▷ The spring storage parking brake is released, and the semitrailer is unbraked!
- ▶ Pull out the parking valve (red button).
  - ▷ The spring-actuated pressure accumulator parking brake is set, and the semitrailer is braked.

Manoeuvring the semitrailer

Prerequisite:
The supply connections are uncoupled.

- ▶ Push in the parking valve (red button).
- ▶ Push in the manoeuvring valve (black button).
  - ▷ The brake is released, and the semitrailer is unbraked!
- ▶ Pull out the manoeuvring valve (black button).

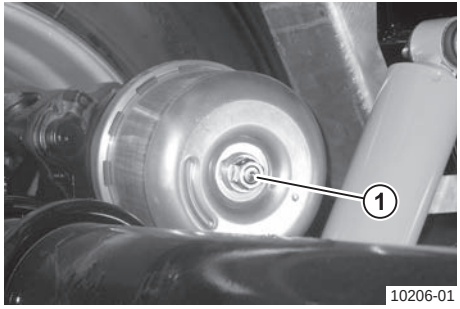
▷ The brake is actuated, the semitrailer is braked.

2

To park the semitrailer:

▶ Pull out the parking valve (red button) again.

Emergency release device spring-actuated parking brake



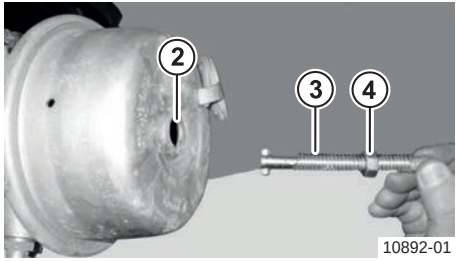
1 Emergency release device protective cap on the spring-actuated brake cylinder (KNORR®)

MORTAL DANGER!

The unbraked semitrailer may roll away and run over you or other persons!

▶ Secure the semitrailer with wheel chocks to prevent it from rolling away before releasing or applying the spring-actuated parking brake via the emergency release.

Emergency release of the spring-actuated parking brake



Spring-actuated brake cylinder (KNORR®)

2 Receptacle bore
3 Release rod
4 Nut

Prerequisite:
The semitrailer must be secured to prevent it rolling away.

▶ Remove the protective cap (1) from the receptacle bore (2).

▶ Take the release rod (3) out of the holding device on the brake cylinder and insert it in the receptacle bore (2).

▶ Lock the release rod in the receptacle hole (2) by turning it clockwise by 90°.

▶ Release the spring actuator by turning the nut clockwise.

Only use a ring spanner or open-ended spanner to do this.

▷ The spring storage parking brake is released, and the semitrailer is unbraked!

ACCIDENT HAZARD!

If the emergency release is actuated, the parking brake will not operate; the semitrailer may roll away and run over you or other persons!

▶ Deactivate the emergency release device before driving with the trailer.

Deactivating the emergency release

As soon as the operating pressure of the trailer is at least 5.2 bar, you must again deactivate the emergency release device. Only after this has been done can the trailer be braked via the parking brake again**.**

It is easier to deactivate the emergency release with vented spring-actuated brake cylinders.

Prerequisite:
The semitrailer must be secured to prevent it rolling away.

▶ Completely unscrew the nut (4).

▶ Remove the release rod (3) and reattach it to the brake cylinder in the holder provided for this purpose.

▷ The emergency release is deactivated, and the semitrailer can be braked with the spring-actuated pressure accumulator parking brake again.

▶ Fasten the protective cap (1) on the receptacle bore (2).

Brake pad wear indicator*

The brake pad wear indicator provides a way to detect the wear limit of the brake pads on axles with disc brakes at an early stage.

Check whether the disc brake pads have reached the wear limit every day. You must also observe the instructions under "MAINTENANCE, CARE" / "Brake pad wear indicator*" on page 252.

Depending on the equipment of your semitrailer, the wear limit is displayed via:

- Trailer Information System
- ABS warning light in the tractor
- "Cargobull Telematics" trailer monitoring

Trailer Information System*

Depending on the equipment on your semitrailer, the brake pad wear can be displayed on the "Trailer Information" control unit (see page 30). You must also observe the instructions on page 252 as well as the operating manual of the respective system manufacturer.

▶ If you do not see "OK" in the view window of the control unit, at least one brake pad has reached the wear limit of 2 mm.

▷ Replace the brake pads immediately.

ABS warning light in the tractor*

The data for the display in the tractor are sent to the semitrailer tractor through the CAN bus. The appropriate way to display this must be confirmed with the relevant manufacturer.

When the vehicle combination is at a standstill with the ignition switched on, the ABS warning light in the tractor will flash to indicate that the wear limit of 2 mm has been reached. Depending on the installed system,

2

▷ the ABS warning light flashes four times, pauses briefly, and flashes four times again.

or:

▷ the ABS warning light flashes continuously.

▶ Change the brake pads immediately!

The ABS warning light in the tractor stops flashing as soon as you drive off.

Paver brake*

Your semitrailer tipper can be equipped with a special paver brake for operation with road paver.

The paver brake applies a defined braking pressure in the brake system of the semitrailer tipper and thus simplifies work with a road paver.

Depending on the equipment, the paver brake is operated using a switch in the driver's cab or with the "Trailer information" control unit (WABCO® SmartBoard).

The service brake can also be actuated when the paver brake is switched on.

Property damage!

When the paver brake is permanently switched on, there is a risk of increased brake pad and tyre wear as well as overheating of the brakes.

▶ After the intended operation, switch off the paver brake using the switch in the driver's cab.

Operation of the semitrailer tipper on public roads with the paver brake switched on is prohibited.

The paver brake is controlled depending on the vehicle equipment.

Paver brake with KNORR® EBS

The paver brake is activated with a switch in the driver's cab. Actuation of the paver brake only takes place after lifting the tipping trough during the tipping procedure (tipping angle of approx. 5°).

When lowering the tipping trough on the vehicle frame, the paver brake is switched off. When the tipping trough is lifted again, the paver brake is switched back on.

Switch off the "Paver brake" switch in the driver's cab to deactivate the function.

Paver brake with WABCO® EBS

The paver brake is switched on and off with a switch in the driver's cab. Lifting or lowering the tipping trough does not affect the paver brake.

When a speed of 10 km/h is exceeded, the paver brake is released. When the speed drops below 10 km/h, the paver brake is active again.

Paver brake with WABCO® SmartBoard

In addition to the switch in the driver's cab, the paver brake can also be switched on and off on the WABCO® SmartBoard.

The pre-set braking pressure can be changed using the WABCO® SmartBoard.

To operate the Trailer Information System (WABCO® SmartBoard), observe the instructions on page 184 as well as the operating manual of the system manufacturer.

Property damage!

For correct actuation of the paver brake, the electrical connection must be established with the correct PIN assignment of the semitrailer (see "TECHNICAL DATA“ / "Electrical system" on page 270).

- ▶ Incorrect PIN assignment leads to malfunctions and property damage to the semitrailer.
- ▶ You must also observe the instructions under "Road paver operation" starting on page 230 as well as the operating manual of the tractor and the safety instructions it contains.

Compressed air tank

The basic equipment of your vehicle includes two compressed air tanks, which largely prevent the formation of condensation in the compressed air.

Check whether there is condensation in the compressed air tanks on a regular basis. Drain the compressed air tank according to the maintenance schedule (see page 239).

ACCIDENT HAZARD!

Condensation in the compressed air tank may cause brakes to freeze and failure of the brake system!

- ▶ Condensation must be regularly removed according to the maintenance schedule.
- ▶ At operating temperatures under 0°C, the condensation must be removed weekly.
- ▶ Observe the instructions in chapter "MAINTENANCE, CARE“ on page 250.

2

Air suspension

Thanks to the air suspension, a constant distance between the axle and the frame is adjusted for all load conditions of the semi-trailer. This distance is the "driving height" (see "Driving height basic setting" on page 56).

After changing the height for loading or unloading the basic level is reset.

The air suspension chassis of your semi-trailer enables the following functions, amongst others:

- Lifting and lowering / level control
- Lift axle
- Starting aid

Depending on the vehicle equipment, the air suspension valve is controlled:

- conventionally
- electronically*

ACCIDENT HAZARD!

If the air suspension is not set to the "DRIVE" position before starting a trip, there is a risk of accidents due to poor driving characteristics or getting caught on underpasses due to an elevated driving level.

▶ Always set the lifting/lowering valve to the "DRIVE" position before driving away.

The air suspension functions are described under "Chassis operation" starting on page 43.

Stroke limit

The shock absorbers are used to limit the stroke. This means that arrester cables or other stroke limiters are not required.

To lower the air suspension completely, a bumper stop is integrated in the air spring bellows or a stop on the axle connection.

The stop allows the trailer to be driven a short distance at low speed to the nearest workshop if the air suspension system on the block fails. However, make sure that the tyres rotate freely

Chassis operation

In this section, the individual chassis functions will be described.

Operation takes place:

- conventionally
  using the "Vehicle" control panel
- electronically*
  using the Trailer Information System*
  (see "WABCO® SmartBoard*" starting on page 184)

Lifting and lowering / levelcontrol

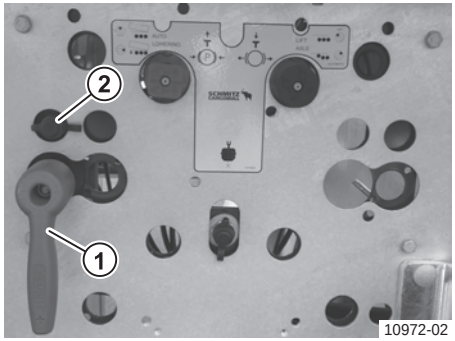
You can lift and lower the level of the parked trailer with the lifting and lowering function (e.g. for coupling and uncoupling).

ACCIDENT HAZARD!

Ensure that no one is in the immediate vicinity of the trailer during the lifting and lowering procedure.

In "DRIVE " position, the air suspension always keeps the driving level at the same height, regardless of load condition.

Conventional air suspension



"Lifting/lowering" control unit

1 Selector lever for lifting/lowering valve (shown in the "Drive" position)
2 Air suspension test connection

Always set the lifting/lowering valve to the "DRIVE" position before driving away.

Property damage!

Driving with the lifting/lowering valve set to "LIFT", "LOWER", or "STOP" may damage the load, the semitrailer, the brakes, and the air suspension system and will overload and destroy the shock absorber.

▶ Before beginning a trip, always set the lifting and lowering valve to the "DRIVE" position.

If the lifting/lowering valve is not in "DRIVE" position during loading or unloading, the level of the semitrailer will change as the load condition changes!

If the service or parking brake is set, it may be difficult to lift or lower the vehicle because the springs will not be able to pivot freely.

Follow the instructions in chapter "DRIVING" starting on page 195.

ACCIDENT HAZARD!

If the air suspension is not set to the "DRIVE" position before starting a trip, there is a risk of accidents due to poor driving characteristics or getting caught on underpasses due to an elevated driving level.

- ▶ Always set the lifting/lowering valve to "DRIVE" position before starting a trip.

The following positions of the selector lever are possible:

"DRIVE" position

The selector lever is pulled out in the centre position and cannot be moved.

"STOP" position

- ▶ Press selector lever in from "DRIVE" position.
  - ▷ The selector lever can now be turned.



10976-01

"STOP" position

To restore the driving position, pull the selector lever out of the "STOP" position into the "DRIVE" position.

Leave the selector lever in the "STOP" position or lock position if you wish to leave the semitrailer lowered (e.g. on a ferry) or lifted (e.g. on a ramp).

"LIFT" position

- ▶ Move the selector lever from the "STOP" position to the right (counterclockwise).
  - ▷ The semitrailer is lifted as long as you actuate the selector lever.
  - ▷ When the selector lever is released, it automatically returns to the "STOP" position and the lifting procedure is stopped (safety function).



10977-01

"LIFT" position

"LIFT" lock position

- ▶ Move the selector lever from the "STOP" position to the right (counterclockwise).
- ▶ Push the selector lever in again.
  - ▷ The semitrailer is lifted up to the maximum possible height.

To end the "LOWER" lock position, pull the selector lever out into the "STOP" position.

Do not leave the selector lever in the "LIFT" lock position for a longer period of time.



10978-01

"LIFT" lock position

"LOWER" position

▶ Move the selector lever from the "STOP" position to the left (clockwise).

▷ The semitrailer is lowered as long as you actuate the selector lever.

▷ When the selector lever is released, it automatically returns to the "STOP" position and the lowering procedure is stopped (safety function).

To restore the "DRIVE" position, pull the selector lever out of the "STOP" position into the "DRIVE" position.

"LOWER" lock position

▶ Move the selector lever from the "STOP" position to the left (clockwise).

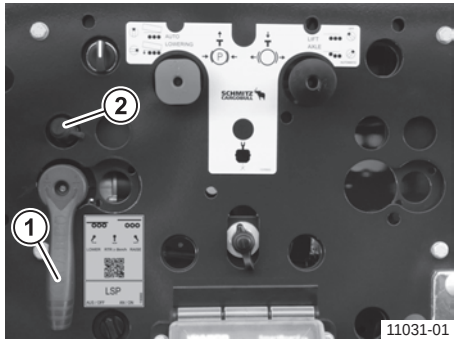
▶ Push the selector lever in again.

▷ The semitrailer is lowered all the way down.

To end the "LOWER" lock position, pull the selector lever out into the "STOP" position.

In the "LIFT" or "LOWER" lock position, the selector lever is engaged. The lifting and lowering procedure is **not** interrupted when the selector lever is released.

Electronic air suspension*



11031-01

"Lifting/lowering" control unit in conjunction with electronic air suspension (eTask)

1 eTask lifting/lowering valve
2 Air suspension test connection

The vehicle can be lifted or lowered using the lifting/lowering valve (eTask).

The driving position is automatically set above a speed of 8 km/h.

"LIFT" position

▶ Move the selector lever from the "STOP" centre position to the right (counter-clockwise).

▷ The semitrailer is lifted as long as you

actuate the selector lever.

▷ When the selector lever is released, it automatically returns to the "STOP" centre position and the lifting procedure is stopped.

There is no lock position for the "LIFT" position.

"LOWER" position

▶ Move the selector lever from the "STOP" centre position to the left (clockwise).

▷ The semitrailer is lowered as long as you actuate the selector lever.

▷ When the selector lever is released, it automatically returns to the "STOP" centre position and the lowering procedure is stopped.

"LOWER" lock position

▶ Move the selector lever from the "STOP" centre position to the left (clockwise) until it reaches the lock position.

▷ The semitrailer is lowered all the way down.

To end the "LOWER" lock position, move the selector lever back to the "STOP" centre position.

If the tractor is coupled (limited by the EBS programming to two hours), the frame height is automatically held or readjusted during the loading and unloading procedure.

ACCIDENT HAZARD!

Ensure that no one is in the immediate vicinity of the trailer during the lifting and lowering procedure.

Optionally, the chassis functions can be operated using a Trailer Information System installed on the side of the chassis (see "WABCO® SmartBoard*" on page 184).

In suitable tractors, a remote control can be connected as an option.

Auto-reset function*

The auto-reset function (also called **RtR** function = **R**eset **t**o **R**ide) is a safety function that automatically sets the driving level.

The auto-reset function moves the selector lever from the "STOP" position to the "DRIVE" position from a speed of 16 km/h, which automatically sets the driving position.

The RtR function (auto-reset) is also effective in the lock positions. From the "LIFT" or "LOWER" lock positions, the selector lever is also pressed into the "DRIVE" position.

For this reason, the semitrailer can only be driven lowered or raised at speeds of less than 16 km/h.

ACCIDENT HAZARD!

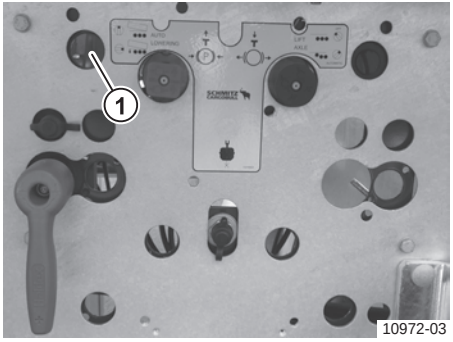
If you intentionally lower the semitrailer to drive through a low underpass, it will automatically be lifted to driving position if the speed exceeds 16 km/h, and it can then get caught.

▶ When you intentionally lower the semitrailer to drive through a low underpass, always drive at walking pace (well under 16 km/h).

Automatic lowering*

The "Automatic lowering" function fully vents the air suspension. The semitrailer tipper is automatically fully lowered during the tipping procedure. This helps to achieve more stability during the tipping procedure.

The automatic lowering function is switched on and off with the "Automatic lowering" rotary switch (1).
When it is switched off, the semitrailer tipper does not lower automatically during the tipping procedure.



"Automatic lowering" control unit

1 Rotary switch

Switching on automatic lowering

▶ Turn the rotary switch (1) to the "ON" position (to the right).

▷ Automatic mode is activated.

The air suspension lowers automatically during the tipping procedure.

Switching off automatic lowering

▶ Turn the rotary switch (1) to the "OFF" position (to the left).

▷ Automatic axle lift is disabled.

The semitrailer tipper does not lower automatically during the tipping procedure.

Property damage!

Driving with the semitrailer tipper lowered may damage the air suspension system.

▶ Do not drive away after the tipping procedure until the air suspension is returned to driving level.

Property damage!

Using the "Automatic lowering" function when working with road pavers can cause problems.

▶ Switch this function off before working with the road paver.

Automatic lowering with electronic air suspension*

The "Automatic lowering" function is **not available** when the "Unloading level" function is **deactivated** on the WABCO® SmartBoard* (see page 184).

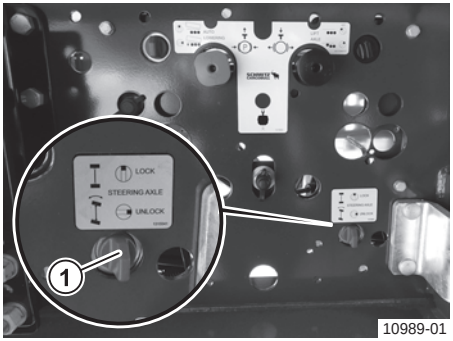
▶ The "Unloading level" must be first be **activated** on the WABCO® control unit!

▶ Comply with the information in the operating manual of the system manufacturer.

2

Trailing steering axle*

The trailing steering axle supplements the cornering ability of the semitrailer by means of independent steering. This is achieved by means of the friction force between the tyres and the road surface.



"Trailing steering axle" control unit

1 Rotary switch

The trailing steering axle is equipped with an automatic load-dependent reset device, which assists the resetting of the wheels for straight-ahead driving. It has a steering damper for smooth directional stability of the axle.

With 3-axle semitrailers, the trailing steering axle can also be operated with the first axle lifted.

The stub axle and the reset device are equipped with lubrication nipples, which must be maintained in accordance with the maintenance schedule (see page 239).

Trailing steering axle reversing lock

To prevent uncontrolled steering movement when driving in reverse, you must lock the trailing steering axle beforehand.

It is locked on the steering linkage of the axle. The lock only engages when the wheels are not turned (straight-ahead driving and tractor-trailer lined up). For this reason, the tractor-trailer must be aligned straight before driving in reverse or actuating the steering lock (lined up).

Automatic trailing steering axle lock

When engaging the reverse gear, the lock on the trailing steering axle is automatically actuated.

Before driving in reverse, always position the tractor-trailer straight (lined up). When starting to drive in reverse, the trailing steering axle is unlocked and aligns itself again automatically when driving in curves.

Depending on the vehicle equipment, the trailing steering axle is automatically locked when driving at speeds greater than 45 km/h.

Manual trailing steering axle lock

The trailing steering axle can be manually locked using the rotary switch (1) on the "Vehicle" control panel as well as with a switch in the driver's cab.

Locking the trailing steering axle:

- ▶ Position the tractor-trailer lined up straight.
- ▶ To lock the trailing steering axle, actuate the rotary switch (1) on the control panel or press the switch in the driver's cab.
- ▶ Drive the tractor-trailer approx. 1 m forwards.

▷ The trailing steering axle lock engages.

Unlocking the trailing steering axle:

The trailing steering axle must be released again in the same way in which the lock was activated (rotary switch on the control panel or switch in the driver's cab).

Axle lift*

Tyre wear can be minimised by using lift axles for empty trips.

The following lift axle type is available for 2-axle semitrailers:

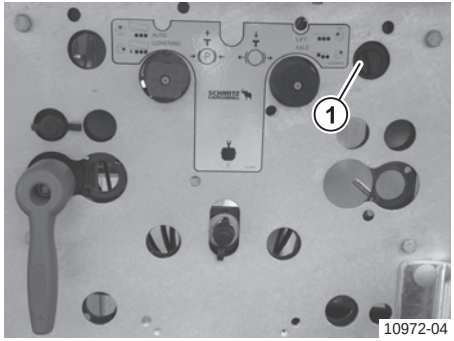
- Axle lift on the first axle

The following lift axle types are available for 3-axle semitrailers:

- Axle lift on the first axle
- Axle lift on the first and second axle
- Axle lift on the first and third axle

On vehicles with **EBS**, the lift axle is lowered when the ignition in the tractor is switched off, regardless of the load condition.

Actuating the axle lift on the chassis



"Axle lift" control unit

1 Rotary switch

The axle lift system is switched on and off with the rotary switch (1) on the control panel of the semitrailer.

Switching on - Activation of automatic mode (turn the switch to the right).

When the axle lift system is switched on, the fully automatic regulation of the lift axles begins after turning the ignition "ON". The lifted axles are raised or lowered, depending on the load status.

The lift axles are lowered as soon as the ignition is turned off, regardless of the load condition.

Switching off - Deactivation of automatic mode (turn the switch to the left).

When the axle lift system is switched off, the axles are no longer lifted. The lift axles also remain permanently lowered when the semitrailer is empty or partially loaded.

The axle lift can be manually operated using the button in the driver's cab of the tractor.

INJURY HAZARD!

The lift axle may crush feet when lowered quickly.

- ▶ Lower the lift axle before parking the semitrailer unsupervised. In the event of air loss the axle will lower uncontrollably.
- ▶ Switch the axle lift off before loading the semitrailer tipper.

INJURY HAZARD!

Before performing repair work on the vehicle, the lift axles must be lowered and the ignition must be switched off.

- ▶ Sudden lifting or lowering of the lift axles can startle and endanger people standing nearby. This is particularly true for people who are under the vehicle to perform repair work.

Axle lift actuation using button in driver's cab

Property damage!

For correct actuation of the axle lift system, the electrical connection must be established with the correct PIN assignment of the semitrailer (see "TECHNICAL DATA“ / "Electrical system" on page 270).

- ▶ Incorrect PIN assignment leads to malfunctions and property damage to the semitrailer.

When the vehicle is unloaded and the rotary switch is turned off, the following functions can be controlled using the button in the driver's cab of the tractor:

Raising the lift axle

- ▶ Press the button one time briefly (for less than 5 seconds)

Lowering the lift axle

- ▶ Press and hold the button for 5-10 seconds.

▷ KNORR® EBS:
The lift axles are only lowered once the button is released.

▷ WABCO® EBS:
The lift axle is lowered without having to release the button.

Standard starting aid

As standard, all 3-axle semitrailer tippers with axle lift are equipped with a starting aid. This allows the first axle to be lifted with a loaded vehicle to increase the weight proportion on the drive axle of the tractor and thereby improve the traction.

Above a speed of 30 km/h, the axle is automatically lowered and the starting aid is deactivated.

Activating the starting aid

- ▶ By pressing on the brake pedal three times within 5 seconds while at a standstill.

or:

- ▶ By briefly pressing the button in the driver's cab one time.

Deactivating the starting aid

- By pressing on the brake pedal three times within 5 seconds while at a standstill.

  or:

- By pressing and holding the button in the driver's cab for 5-10 seconds.

It is only permitted to use the starting aid on public roads if there is snow and ice on the roads!

Terrain starting aid*

As an option, your semitrailer tipper can be equipped with a terrain starting aid. The terrain starting aid is always parameterised as an additional function to the standard starting aid.

The terrain starting aid must be manually switched on.

A button is required in the tractor to switch on the terrain starting aid. The terrain starting aid can only be switched on when the total axle load is not exceeded.

At speeds greater than 20 km/h, the terrain starting aid is automatically deactivated.

Activating the terrain starting aid

- Briefly press the button in the driver's cab two times (for less than 5 seconds)

Deactivating the terrain starting aid

- By pressing on the brake pedal three times within 5 seconds while at a standstill.

  or:

- By pressing and holding the button in the driver's cab for 5-10 seconds.

It is not permitted to use the terrain starting aid on public roads!

Manual lowering of the lift axle

On vehicles that are equipped with a KNORR® axle lift system, the lift axle can be forced to lower, even in an empty state, by pressing the brake pedal three times.

LSP* (Load Spread Program)

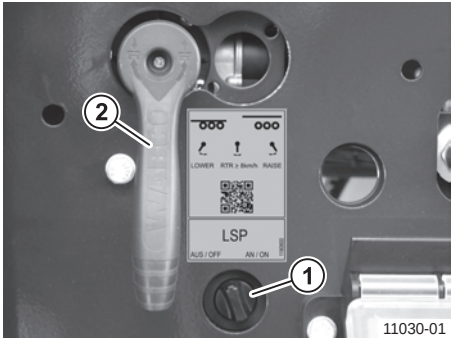
The load spread function is available as an option for 3-axle semitrailer tippers.

Using controlled release of the load on the third axle (via air bellow ventilation) with simultaneous loading of the two front axles, the effective wheelbase of the semitrailer is variably shortened. This results in the load being shifted (reduces the load on the drive axle of the tractor vehicle).

The LSP function only works with partial loads.

LSP is combined with the WABCO® Optilevel (see "Electronic air suspension*" on page 45.)

LSP is activated and deactivated (ON/OFF) using the rotary switch (1) or a switch in the driver's cab (see "Terminal assignment" on page 270).



"Lifting/lowering" control unit in conjunction with electronic air suspension (eTask) and LSP

1 LSP rotary switch
2 eTask lifting/lowering valve

The switch in the driver's cab can be actuated regardless of whether the system was deactivated on the rotary switch (1).

When it is switched on, the last axle will be unloaded until the permissible axle load of the 1st and 2nd axles of the semitrailer is reached (approx. 2x9 tons). Up to this limit, the coupling load is reduced.

An effective improvement in the curve handling (reduction of the effective wheelbase) is only achieved when the semitrailer is partially loaded.

LSP should be switched off for winter operation to prevent reducing the traction of the drive axle unnecessarily.

LSP can be combined with an axle lift on the front axle too.

Axle lift with LSP

When the axle is lifted, LSP is switched off.

Overall system (LSP + axle lift) active:

▷ Axle lift is lowered when there is a 12 t load on the 2nd and 3rd axle.

LSP system deactivated with the switch:

▷ Axle lift is lowered when there is a 18 t load on the 2nd and 3rd axle.

The LSP and axle lift/starting aid functions can be activated and deactivated in the motor vehicle, regardless of whether the system was manually deactivated using the rotary switch (1) (see "Terminal assignment" on page 270).

LSP operation on the WABCO® SmartBoard

▶ In the SmartBoard menu, select the symbol for air suspension (see "WABCO® SmartBoard" on page 184).

▶ Select the symbol for OptiLoad.

▶ Proceed as described in the operating manual of the WABCO® SmartBoard to activate/deactivate WABCO® OptiLoad.


11033-01

"OptiLoad" symbol on the WABCO SmartBoard

Second driving height*

For certain applications (e.g. increasing the ground clearance on the underrun protection when using the road paver), a pre-set, second driving height can be set as an option.

It is not permitted to use the second driving height on public roads!

Depending on the vehicle equipment, the driving height is selected:

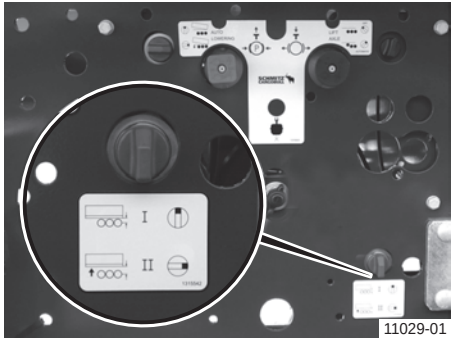
- using a switch in the driver's cab of the tractor*

or:

- using a rotary switch on the control panel on the chassis*

or optionally:

- by actuating the paver brake* (see also page 40)



11029-01

"Second driving height" control unit

1 Rotary switch (showing low driving height)

MORTAL DANGER!

Accidental turning of the rotary switch on the semitrailer parked of landing legs can cause the trailer to tip over.

- ▶ Completely empty the air bellows of the semitrailer before parking the semitrailer on landing legs.
- ▶ You must also observe the instructions under "Coupling and uncoupling" starting on page 189.

Axle load indicator*



10985-01

Axle load indicator* (pressure gauge)

The pressure gauge displays the current spring bellows pressure, which depends on the load status.

The higher the pressure, the higher the total axle load.

Check the total axle load before driving away to make sure that overloads can be detected early.

2

Determining the axle load

- ▶ Determine the total axle load of the empty semitrailer tipper and enter the pressure in a diagram (see sample diagram on page 55).

  Reading example (3):
  0.3 bar spring bellows pressure at 3 t total axle load.
- ▶ Determine the total axle load of the loaded semitrailer tipper and enter the pressure in the diagram (see sample diagram).

  Reading example (4):
  4.3 bar spring bellows pressure at 27 t total load
- ▶ Connect the two entered points with each other.

  ▷ You can read the respective total axle load from the line on the diagram.

  Example: In our example, the pressure of 3.0 bar read on the pressure gauge corresponds to a total axle load of 19 t.

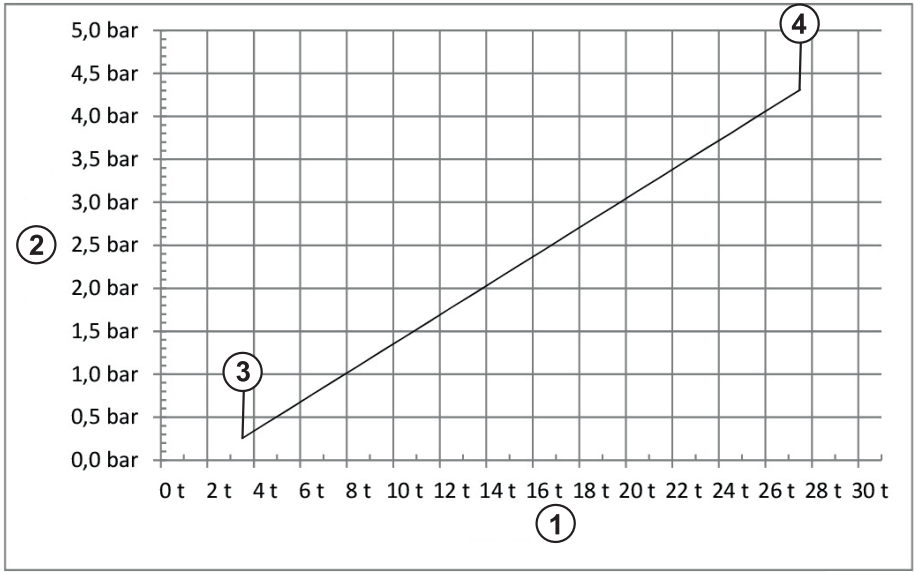
  The total axle load is the sum of the individual axle loads.

The determined axle load must never be higher than the maximum permissible axle load. This can be found on the "Vehicle" name plate (see page 1). Note the following: In Europe, the permissible axle loads can differ in each country.

When it is supported by the tractor, the axle load can also be determined and displayed via the trailer EBS.

Combined with the Trailer Information System* (TIS), the load of each axle is shown on the display. You can find more information under "Trailer Informations System*" on page 184 and from the respective system manufacturers.

The derivation of the axle load using the display of the spring bellows pressure is only a very rough estimate. The determined value can only be used orientation!
To determine the actual axle loads, calibrated axle load scales must be used.



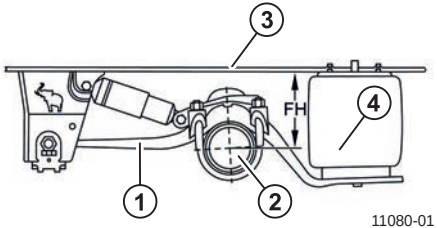
10999-01

Sample diagram of the total axle load for 3-axle semitrailer with Schmitz Cargobull air suspension AC387

1 Total axle load in t
2 Air spring bellows in bar
3 Total axle load of the unloaded vehicle
4 Total axle load of the unloaded vehicle

2

Driving height basic setting



Axle guide

DH Driving height
1 Axle guide
2 Axle tube
3 Bottom of frame
4 Air spring bellows

The driving height affects the deflection and rebound travel, handling and total height.

Changes to the driving height set at the factory are permitted only with approval from the manufacturer. Ask for the adjustable driving height ranges at Cargobull Parts and Service.

Do not exceed or fall below the specified values!

If your semitrailer tipper is equipped with an electronic air suspension (see page 45), the driving height is programmed as a parameter. Changes to the driving height require recalibration at a Schmitz Cargobull service workshop.

The adjustments to the air suspension system may only be carried out by an authorised service partner.

Changing driving height

The driving height can be adjusted only when the vehicle is unloaded.

ACCIDENT HAZARD!

The unbraked semitrailer can roll away and injure persons.

- ▶ Adjust the driving height on flat horizontal ground only.
- ▶ Always secure the semitrailer with the wheel chocks to prevent rolling away.

INJURY HAZARD!

When setting the driving height the chassis may lower and cause personal injury.

- ▶ Keep all parts of the body out of the danger area between the axle and chassis.
- ▶ Make sure that there is nobody standing in the danger area.

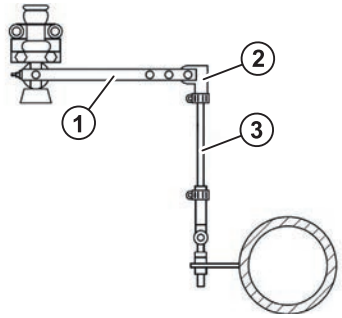
Increasing/reducing the driving height

The driving height is set directly at the link rod (3) of the air suspension valve/turning angle sensor.

Prerequisite:
The semitrailer is coupled to the tractor and secured against rolling away.

- ▶ Release service and parking brake of the semitrailer.
- ▶ Loosen clamp screw of rubber coupling.
- ▶ Slide the rubber coupling (2) up or down as far as needed so that the measured driving height (DH) is within the permissible limits.
- ▶ Tighten clamp screw of rubber coupling.

Note the legal limit of the overall vehicle height (4,000 mm as specified by the EC Directive or national regulations).



10979-01

Air suspension valve

1 Valve lever
2 Rubber coupling
3 Link rod

2

Side guard

The side guards can be fixed and/or foldable, depending on the vehicle equipment.

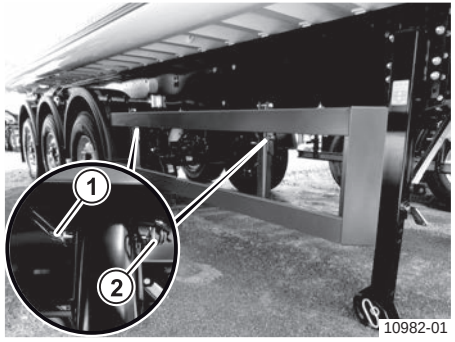
Equipment parts such as storage compartments can also be part of the side guard and may not be modified.

The side guards and their installation on the vehicle are subject to approval. It is not permitted to make modifications to the side guards or their installation.

On public roads, it must be ensured that the side guards are equipped and undamaged and are in driving position (folded down and locked).

Foldable side guard*

The side guard can be folded up if needed. In driving position, the side guard is secured on the right and left with a lock (1) on the left and right.



Side guard in the driving position (secured)

1 Securing pin
2 Spring clip

Property damage!

Before starting a trip, the side guard must be secured in driving position.

▶ Check that the securing clip and the spring clip are properly fitted.

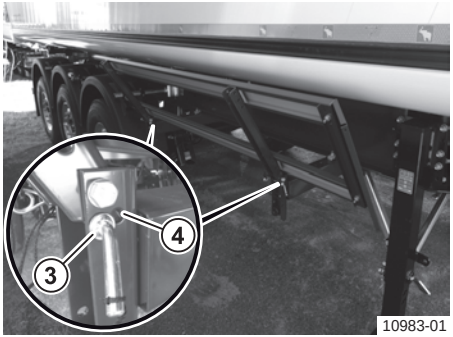
Folding up/down

The retainer has two pegging positions. Depending on the vehicle equipment, it may be necessary to use the rear hole (4) to avoid damage to mounted parts installed on the vehicle (such as the water tank).

▶ Pull on the spring clip (2) and pull the securing pin (1) out of retainer.

▷ The side guard is unlocked.

▶ Swivel the side guard up or down and install the securing devices on all of the retainers.



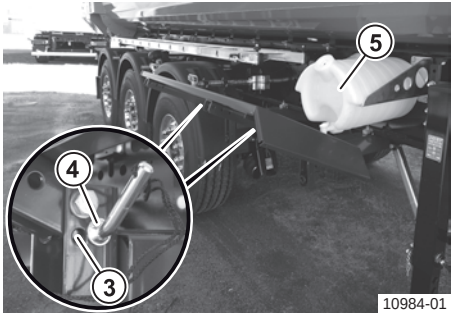
Side guard folded up and secured in the front hole

3 Front hole - Securing pin locked in the front hole
4 Rear hole

Property damage!

Do not use the front hole (3) if there are additional mounted parts such as a water tank, discharge funnel, ladder, etc.

▶ Use the rear hole (4) instead.



Side guard folded up and secured in the rear hole (water tank interferes with the front pegging position!)

3 Front hole
4 Rear hole - Pin secured in the rear hole
5 Water tank

INJURY HAZARD!

The side guard can fall down suddenly and injure persons kneeling underneath it.

▶ Always secure the side guard with all securing devices when it is folded up.

▶ Always make sure that all securing devices are properly engaged.

Folding underrun protection

2

Your vehicle is equipped with a folding underrun protection.

The underrun protection and its installation on the vehicle are subject to approval. It is not permitted to make modifications to the underrun protection or its installation.

On public roads, it must be ensured that the underrun protection is in the lowered position (driving position).

When working with a road paver, the folding underrun protection must be folded up.

Property damage!

Check all components for proper function, completeness, tight fit, and damage.

▶ Comply with the instructions in chapter "MAINTENANCE, CARE".

Unintended use of the underrun protection is not permitted!

CAUTION!

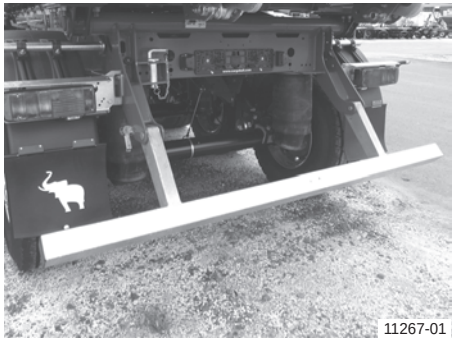
On public roads, it is forbidden to operate the semitrailer tipper with the underrun protection folded up.

▶ After working with the road paver and before driving off, make sure that the underrun protection is in secured driving position.

Depending on the vehicle equipment, the underrun protection operation is:

- Manual
- Electropneumatic*

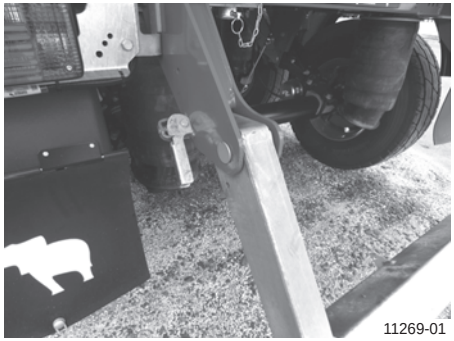
Manually operated underrun protection



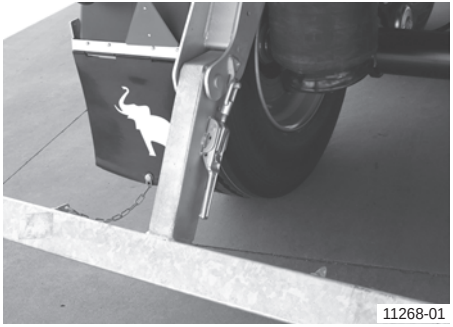
Example for manually operated underrun protection in secured driving position (lower end position, secured)

Depending on the vehicle equipment, the manually operated underrun protection is secured in the lower end position (driving position) with a spring lock or toggle tensioning lever.

Open the spring lock / toggle tensioning lever completely before the underrun protection is folded up, and leave it in this position during the tipping procedure.



Securing with spring lock



Securing with toggle tensioning lever

CAUTION!

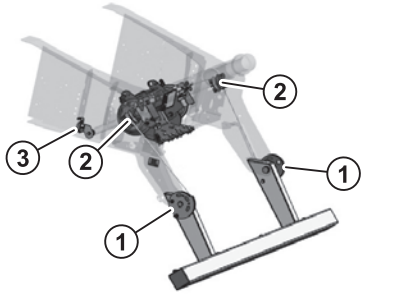
Before starting a trip, make sure that the underrun protection is in driving position (lower end position, secured).

Electropneumatically operated underrun protection*

The electropneumatically operated underrun protection allows you to conveniently move the underrun protection into the upper end position before the tipping procedure by means of a button that is integrated in the driver's cab. The position of the underrun protection is recorded by two sensors installed on the underrun protection and is indicated by a position light.

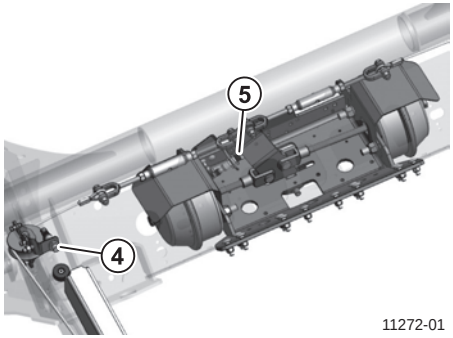
It is only possible to move the underrun protection when the trough is completely lowered!

The pneumatic underrun protection can be operated only when the red coupling head of the brake system is connected (see chapter "CHASSIS" starting on page 35) and an operating pressure of **4.5 bar** is available.



3D model of the electropneumatically operated underrun protection (driving position)

1 Lower pulleys
2 Upper pulleys
3 Position light

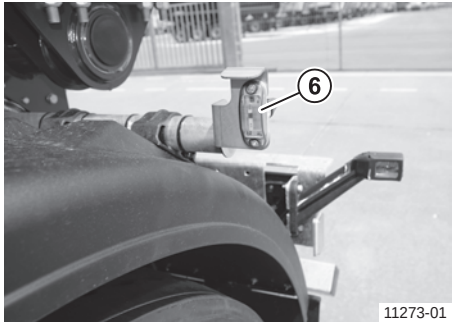


11272-01

Underrun protection sensors

4 Sensor (green) for the underrun protection position in the upper end position

5 Sensor (black) for the underrun protection position in the lower end position (driving position)



11273-01

6 Underrun protection position light

Display of the position light	Position of the underrun protection
LED off	Lower end position (driving position)
LED flashing	Intermediate position -> Error
LED lights up permanently	Upper end position

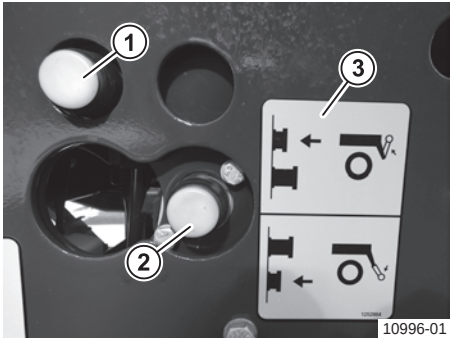
MORTAL DANGER!

The underrun protection may cause injury to persons who are within its swivelling range.

▶ Before actuating, ensure that nobody is standing within its swivelling range.

PIN assignment:
PIN 9 permanent positive (D+) / PIN 15 lifting

The pneumatic underrun protection is operated using the "Electropneumatic underrun protection" control unit on the "Vehicle" control panel (see page 29). With a button that is retrofitted in the driver's cab, the underrun protection can only be lifted.



"Electropneumatic underrun protection" control unit

1 "LIFT" control button
2 "LOWER" control button
3 Instruction sticker

Moving the underrun protection into the upper end position

Prerequisite:
The trough is completely lowered:

▶ Check that there is no dirt or bulk cargo in the lower pulleys (4).

▷ Clean the lower pulleys (4) if necessary!

▶ Check that nobody is standing in the swivelling area of the underrun protection.

▶ Actuate the "LIFT" control button (1) on the control panel or the button in the driver's cab of the tractor (depending on the equipment).

▷ The position light starts flashing as soon as the lower end position is left.

▷ The underrun protection will be folded up into the upper end position. The position light lights up permanently after reaching the upper end position.

CAUTION!!

If the position light flashes permanently, the underrun protection is in the intermediate position!

▶ Only start the tipping procedure when the upper end position has been reached.

Property damage!

If the underrun protection is not completely lifted (intermediate position), there will be a collision between the underrun protection and the trough when the trough is tipped.

▶ Before the tipping procedure, check that the underrun protection is folded up to the stop.

INJURY HAZARD!

If the pulley on the underrun protection is dirty, it must be cleaned before use.

▶ Only use appropriate equipment for cleaning!

▶ Never clean with your bare hands!

▶ Clean and maintain the pneumatic underrun protection regularly (see "Maintenance intervals" starting on page 238).

2

With the button that is retrofitted in the driver's cab, the underrun protection can only be lifted.
The underrun protection must be lowered on the control panel.

Putting the underrun protection in driving position

Prerequisite:
The trough is completely lowered:

▶ Check that there is no dirt or bulk cargo in the lower pulleys (4).

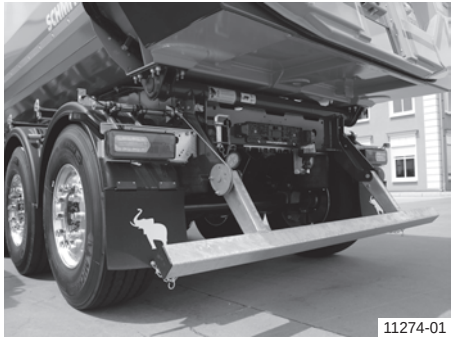
▷ Clean the lower pulleys (4) if necessary!

▶ Check that nobody is standing in the swivelling area of the underrun protection.

▶ Actuate the "LOWER" control button (2).

▷ The position light starts flashing as soon as the upper end position is left.

▷ The underrun protection will be folded down into the lower end position (driving position). After reaching the lower end position (driving position), the position light goes out.



Electropneumatic underrun protection (in driving position)

When the trough is completely lowered and the speed is greater than 16 km/h, the pneumatic underrun protection automatically folds down into driving position.

SAFETY INSTRUCTIONS

On public roads, it must be ensured that the underrun protection is in the lowered position.

▶ Before starting a trip, check whether the underrun protection is folded down to the stop (driving position).

If the underrun protection is in an intermediate position (position between the upper and lower end position), the position light flashes. In this case, investigate why the underrun protection stopped in an intermediate position with extreme caution.

CAUTION: The underrun protection can suddenly swivel up or down. Do not endanger yourself!

Check the following points:

- Is the operating pressure above 4.5 bar?
- Are the pulleys free of bulk cargo?
- Is the steel cable OK?
- You must also observe the instructions under "MAINTENANCE, CARE“ on page 253.

If you can rule out these faults, actuate the "LOWER" or "LIFT" button again.

If the underrun protection is still in an intermediate position, do not continue to drive or perform tipping procedures with your semitrailer tipper until the underrun protection is repaired.



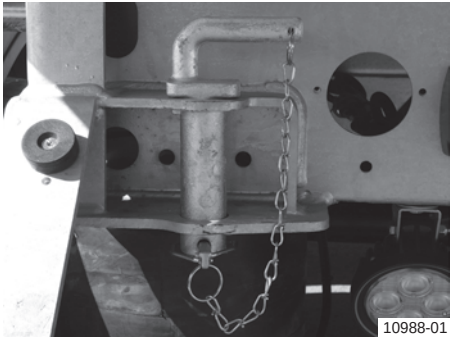
10313-01

"Pneumatic underrun protection" warning sticker

2

Tow hook

The tow hook is intended only for pulling the semitrailer in reverse out of a dangerous situation.



Tow hook

ACCIDENT HAZARD!

The tow hook may shear off and cause personal injury or property damage.

- ▶ Use the tow hook for towing short distances only.

DANGER!

The tow hook may not be used to tow other vehicles.

Use suitable equipment (tow bar) that is designed for the strain to pull the semitrailer tipper in reverse straight out of the dangerous situation. In doing so, the semitrailer must be coupled to the semitrailer tractor.

Make sure that there is enough clearance in the towing direction!

The tow hook must not be used on public roads.

MORTAL DANGER!

Persons in the danger area between the tractor, semitrailer tipper, and towing vehicle may be crushed or run over.

- ▶ Keep people out of the danger area.
- ▶ Any required persons directing the tractor driver must maintain an adequate lateral distance from the vehicle.
- ▶ Observe the applicable accident prevention regulations.

Wheels and tyres

ACCIDENT HAZARD!

The condition of the wheels and tyres is very important for the operating safety of the semitrailer.

- ▶ Check the tyre pressure on all wheels regularly. If there are deviations, rectify them.
- ▶ Check the condition of all wheels and tyres for deformation, rust, cracks, and fractures (see "Maintenance intervals" starting on page 238) at regular intervals.
- ▶ Immediately replace damaged wheels and tyres.

The wheel model (rim) must be suitable for the wheel studs and wheel nuts. Use only wheels and wheel nuts that are approved by Schmitz Cargobull for your semitrailer.

ACCIDENT HAZARD!

Damaged wheel studs or wheel nuts can result in sudden loss of wheels.

- ▶ It is forbidden to drive with damaged wheel studs or nuts.

The speed symbol shown on the outer side wall of the tyre specifies the maximum permitted speed for the tyre. Observe the instructions in chapter "DRIVING“ on page 188.

We recommend a tyre pressure of **9 bar**.

Changing wheels and tyres

When changing wheels or tyres, pay particular attention to:

- the right tyre size
- the minimum required speed class
- the minimum required load index
- the right wheel dimensions (rim size)
- the right wheel offset

This information is listed in the registration documents of the vehicle.

Property damage!

Only install wheels and tyres with the size specified in the registration papers on your semitrailer. Other wheel and tyre sizes as well as tyre parameters must be approved by Schmitz Cargobull before installation.

- ▶ The registration documents must be adapted accordingly by the competent authorities after approval from Schmitz Cargobull.

CAUTION!

When changing a wheel, no other work on the vehicle is permitted!

2

MORTAL DANGER!

The semitrailer can roll away or tip over when changing wheels.

- ▶ Change the wheels only when the semitrailer is coupled.
- ▶ Use suitable equipment to secure both the tractor and the semitrailer against rolling away.

Wheel removal.

Prerequisite:
The vehicle combination must be parked on level, load-bearing ground

- ▶ Apply the spring-actuated parking brake (see page 37).
- ▶ Set the trailing steering axle* straight ahead and lock it (see page 48).
- ▶ Lower all of the axles with the axle lift*. Lock the lifting axle function (see page 49).
- ▶ Secure the opposite, damage-free wheel with two wheel chocks to prevent it from rolling away.
- ▶ Observe the "Instructions for changing wheels on vehicles with tyre pressure refill system*" on page 73.
- ▶ Remove the wheel nut protective caps* (see page 69).
- ▶ Slightly unscrew the wheel nuts.
- ▶ Position the vehicle jack so that it is stable and on a paved substrate.

  Jacking point: Next to the spring lugs on the axle beam of the wheel to be changed.
- ▶ Jack up the chassis until the tyre to be changed is lifted off the ground.
- ▶ Unscrew and remove the wheel nuts.
- ▶ Remove the wheel from the wheel hub.

Wheel assembly

- ▶ Clean the contact surface of the wheel on the hub and the wheel before installation.
- ▶ Replace damaged, tight or rusted wheel nuts and wheel studs.
- ▶ Only fit wheels with the correct tyre pressure.

  There is a danger of explosion if the inflation pressure is too high!
- ▶ Place the wheel on the wheel head.
- ▶ Tighten up the wheel nuts by hand.
- ▶ Slightly tighten up the wheel nuts using the wheel nut wrench crosswise.
- ▶ Lower the vehicle jack down.
- ▶ Tighten the wheel nuts gradually and crosswise at the specified torque (see "Tightening torques" on page 275).

  Always use a torque wrench to tighten and retighten wheel nuts.
- ▶ Install the wheel nut protective caps* (see page 69).
- ▶ Stow the wheel chocks in the holders provided for this purpose and secure them (see page 146).

Checking the wheel nuts

The wheel nuts loosen due to settling processes.

ACCIDENT HAZARD!

Loose wheel nuts cause wheels to separate from the vehicle, which can cause accidents with personal injury.

- ▶ On brand-new semitrailers, tighten the wheel nuts at the specified torque after 50 km of driving.
- ▶ After each wheel change, tighten the wheel nuts at the specified torque after 50 km of driving.

Wheel nut protective caps*

Depending on the equipment, your semitrailer tipper is equipped with wheel nut protective caps to protect the wheel studs and nuts against rust and other damage.

Depending on the vehicle specifications, the wheel nut protective caps are:

- plugged on
- screwed on

Property damage!

Replace lost or damaged wheel stud protective caps immediately to minimize damage to the wheel fastening.

- ▶ Observe the installation instructions for the wheel nut protective caps used on your semitrailer tipper.

ACCIDENT HAZARD!

Loose wheel nuts cause wheels to separate from the vehicle, which can cause accidents with personal injury.

- ▶ Before installing the wheel nut protective caps, ensure that the wheel nuts are tightened to the correct torque.

Plugged-on wheel nut protective caps*

Property damage!

The wheel nut protective caps are plugged on and can be pulled off by hand.

- ▶ Do not use any screwing tools to fit on/pull off the wheel nut protective caps.

Screwed-on wheel nut protective caps

Property damage!

Never install or remove the wheel nut protective caps with an impact wrench!

- ▶ Use a wheel nut wrench / socket wrench.

Removal

- ▶ Put the wheel nut wrench on the protective cap.
- ▶ Turn the wheel nut wrench to the left by approx. 15°.
- ▶ Pull off the wheel nut wrench.
  - ▷ When pulling off the wheel nut wrench, the protective cap is pulled off of the wheel nut at the same time.
- ▶ If necessary, remove the protective cap from the wheel nut wrench before you loosen the next protective cap.

Installation

Prerequisite:
The wheel nuts are tightened at the correct torque.

- ▶ Manually put the protective cap on the wheel nut to be protected.
- ▶ Put the wheel nut wrench on the protective cap.
- ▶ Turn the wheel nut wrench with slight pressure to the right by approx. 15°.
  - ▷ You can clearly feel how it clicks in.

The sealing lip of the protective cap is pressed on and the threaded connection is sealed.

Tyre pressure monitoring system*

Depending on the equipment, your semitrailer tipper is equipped with a tyre pressure monitoring system.

The tyre pressure monitoring system constantly checks the tyre pressure on all wheels of the semitrailer.

Schmitz Cargobull recommends installing a warning lamp in the driver's cab of the semitrailer tractor to be able to use the tyre pressure monitoring system effectively. The data are sent via the CAN bus to the semitrailer tractor.

If the tyre pressure falls below the minimum level, a warning signal will be shown in the Trailer Information System*, in the Cargobull Telematics Portal*, or in the semitrailer tractor when the ignition is switched on, depending on the equipment. Comply with the instructions from the system manufacturer!

- ▶ Park your vehicle in a suitable spot.
- ▶ Check the tyres for damage and air leaks.
- ▶ Check the tyre pressure.
- ▶ Before continuing the trip, correct the tyre pressure where necessary.

ACCIDENT HAZARD!

Equipping your semitrailer with a tyre pressure monitoring system does not release you from your due diligence.

- ▶ Perform a visual inspection on all wheels and tyres for damage at regular intervals.

The tyre pressure is monitored by sensors on the wheels.

A - visible
The sensor is connection on the outside of the wheel on the valve.

B - not visible
The sensor is installed in the rim well.

Depending on the vehicle equipment, the tyre pressure of each wheel can be shown in the Trailer Informations System*, in the Cargobull Telematics Portal* or in the driver's cab of the tractor*. Comply with the instructions from the system manufacturer!

Instructions for changing wheels and tyres on vehicles with tyre pressure monitoring system*

After each wheel change, the control electronics must be reconfigured. Have the wheels and tyres changed by an authorised specialist workshop.

Property damage!

On wheels with sensors in the rim well, the sensors are not visible.

▶ When changing the tyres, make sure that the sensors are not damaged.

Changing wheels in the event of breakdown

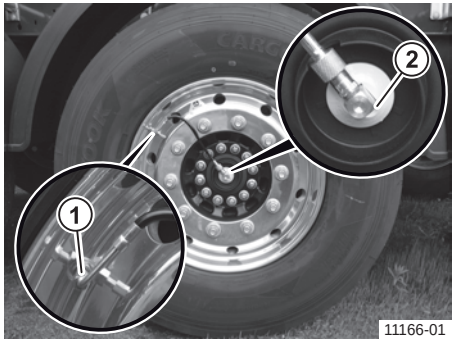
After installing the spare wheel, the warning lamp in the driver's cab of the semitrailer tractor is still illuminated.

▶ Go to a specialist workshop to have the control electronics configured.

Tyre pressure refill system*

The tyre pressure refill system constantly checks the tyre pressure on all wheels of the semitrailer. It is not combined with the tyre pressure monitoring system; the tyre pressures cannot be displayed.

When the tyre pressure falls below the preset level, air is automatically refilled.



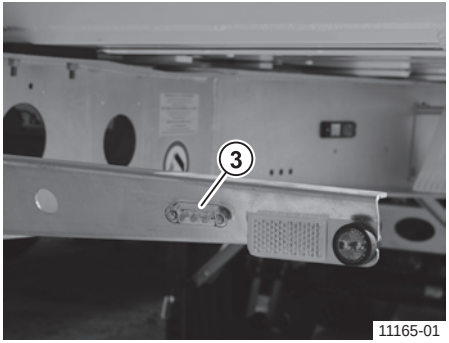
Tyre pressure refill system

1 Valve
2 Rotary feedthrough

The tyre pressure refill system works independently. It does not require a power supply. The function is even active when the semitrailer is uncoupled, as long as there is enough pressure in the reservoir.

To monitor the system while driving, a pilot lamp (3) is installed on the side-marker light holder in the direction of travel on the left side of your semitrailer tipper.

The pilot lamp (3) provides a tyre pressure warning function.



Tyre pressure refill system pilot lamp

3 Lamp on the side-marker light holder

Flashing pilot lamp

▶ The system is compensating for a pressure loss.

CAUTION!
If the pilot lamp (3) flashes for longer than 10 minutes, the system (tyres, connections, and compressed air lines) must be checked at an authorised specialist workshop.

▷ You can continue driving while the pressure is being compensated.

Permanently lit pilot lamp

▶ Park your vehicle safely in a suitable spot.

▷ The system is no longer capable of compensating the pressure loss.

ACCIDENT HAZARD!

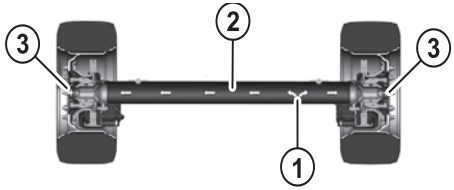
If the tyre pressure refill system is working, this is shown by the pilot lamp (1) on the side-marker light holder.

▶ Observe the pilot lamp (3) while driving by looking at the side mirror of the tractor.

▶ Make sure that the pilot lamp (3) is easily visible at all times while driving.

▶ Park your vehicle safely in a suitable spot if the pilot lamp (3) is permanently lit.

Operating principle of the tyre pressure refill system



Cross-sectional view of the vehicle axle

1 Air connection on the axle tube
2 Axle tube
3 Rotary feedthrough

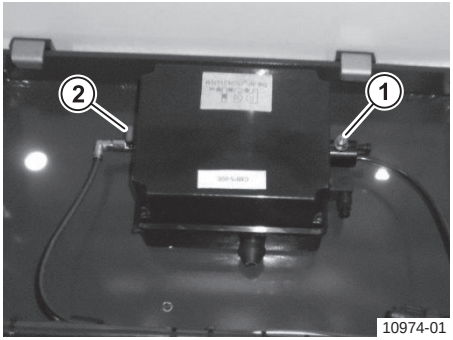
The axle tube (2) serves as a channel. From the control unit, the air is supplied through the air connection (1) in the axle tube (2). Air is supplied to each tyre as required through the rotary feedthrough (3) in the axle stub.

Property damage!

The control unit of the tyre pressure refill system must not be opened!

▶ Opening the control unit will void the manufacturer warranty.

Instructions for changing wheels on vehicles with tyre pressure refill system*



Tyre pressure refill system control unit

1 Shut-off valve
2 Pressure relief valve

Improper work on the system can lead to damage.

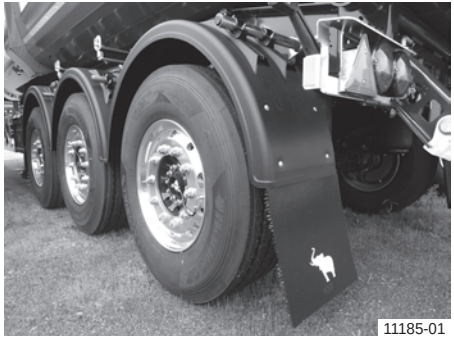
Before each wheel change, perform the following work:

- ▶ Close the shut-off valve (1) on the control unit.

  Attachment point of the control unit: On the inside of the vehicle frame, on the right in the direction of travel.
- ▶ Blow off the air on the pressure relief valve (2) of the control unit.
- ▶ Remove the connecting hose between the valve and the rotary feedthrough.
- ▶ Observe the instructions under "Changing wheels and tyres" starting on page 67.

Wheel cover

Schmitz Cargobull semitrailers are equipped with wheel covers.



Wheel cover with dirt trap on the rear axle (with splash guard)

Replace damaged wheel covers immediately.

Dirt trap

The dirt traps are part of the wheel cover.

Depending on the wheelbase, a dirt trap is installed behind each wheel or only on the wheels on the last axle.

The rear dirt trap can be folded, depending on the vehicle equipment.



Folding dirt trap

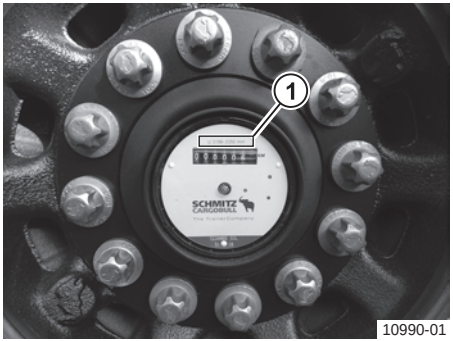


Dirt trap with spray suppression device

Depending on the equipment, the dirt traps have a spray suppression device.

Dirt traps with spray suppression devices are components that require approval. The approval number can be found on the dirt trap.

Hubodometer* (kilometre counter)



Hubodometer

1 Permissible tyre diameter

The hubodometer (kilometre counter) counts the distance travelled by the semi-trailer in kilometres.

The hubodometer must be calibrated for the installed tyre size.

The tyre diameter (1) of the permissible tyre size is printed on the hubodometer.

Have the hubodometer replaced if you change the tyre size.

Hubodometer* (kilometre counter)

Tractor hydraulic system
Semitrailer tipper hydraulic system
Rear walls
Rear walllocking mechanism
Trough equipment
Covers/tarpaulins*
Work platform*

3

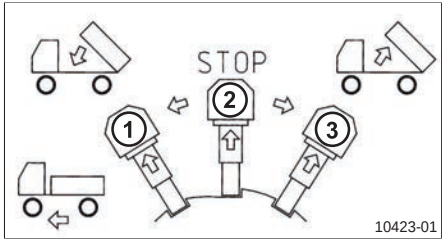
Tractor hydraulic system

The front-lift tipping cylinder (see page 83) and the hydraulically actuated rear wall (see page 96) of the semitrailer tipper are supplied and controlled by the tractor's hydraulic equipment. They are driven by a hydraulic pump on the auxiliary drive of the tractor.

The tractor's hydraulic system must be tailored to the semitrailer tipper's hydraulic system. This particularly applies to:

- the maximum permissible pressure in the hydraulic system
- the maximum permissible volumetric flow
- the hydraulic connectors and coupling
- the volume of the hydraulic tank
- the specifications for the hydraulic oil
- the actuation

Actuation for lifting and lowering the tipping trough takes place with the tipper control valve installed in the driver's cab of the tractor.

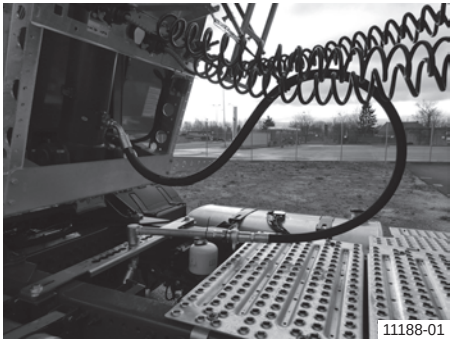


Example for switch positions of a tipper control valve in the driver's cab

1 Lower/drive
2 Stop
3 Lift

Hydraulic connector

The hydraulic connections on the semitrailer tipper are established using a flexible hydraulic hose with a coupling. The connector on the tractor should preferably be located in front of the semitrailer coupling. We recommend using a swing arm.



Example: Hydraulic connection to the tractor when using a swing arm

Use sufficiently dimensioned cross-sections for all hydraulic components. We recommend a minimum nominal diameter of 25 or 1".

Insufficient cross-sections can result in:

- higher flow speed
- heating of the oil
- ageing of the oil
- reduced speed when lowering/lifting the tipping trough

Property damage!

Air trapped in the hydraulic system results in damage to the hydraulic components and malfunctions.

▶ Vent the hydraulic system before initial operation, after changing the oil, and when replacing hydraulic components.

Volumetric flow and pressure

The front-lift tipping cylinders are designed for a maximum extension speed of 0.35 m/s. Consequently the maximum permissible volumetric oil flow on the inflow of the tipping cylinder must not be exceeded.

Depending on the tipping cylinder model, the following maximum permissible volumetric oil flow occurs:

Model designation according to the name plate Tipping cylinder	Maximum permissible volumetric flow
...169-5...	115 l/min
...191-5...	190 l/min
...191-6...	115 l/min

The volumetric flow depends on the hydraulic pump used and its rotational speed.

- Comply with the operating manual of your hydraulic pump.
- Select the pump in such a manner that the operational rotational speed of the pump does not exceed the maximum permissible volumetric flow.
- Comply with the maximum permissible operating pressure on the name plate of the tipping cylinder.
- Use suitable pressure limiting valves for the hydraulic equipment that prevent maximum permissible operating pressure from being exceeded.

Hydraulic pumps on the auxiliary drive of tractors

The rotational speed on the auxiliary drive depends on:

- Engine speed
- Gear ratio
- Auxiliary drive transmission

Property damage!

The rotational speed on the auxiliary drive does not necessarily equal the engine speed.

▶ To operate the auxiliary drive, observe the operating manual for your tractor.

Select the engine speed so that the rotational speed of the pump on the auxiliary drive does not exceed the maximum permissible volumetric flow. Depending on the tractor equipment, it is possible to assign parameters for the engine speed when the auxiliary drive is switched on.

MORTAL DANGER!

Extension of the tipping cylinder at excessive speed (exceeding the maximum permissible volumetric flow) and excessive pressure in the hydraulic system can result in breakage of the end stops on the cylinder stages. This results in breakage of the tipping cylinder and sudden lowering of the tipping trough at high speed.

▶ Never exceed the maximum permissible volumetric flow and the maximum permissible operating pressure of the tipping cylinder.

Hydraulic oil

Property damage!

Use hydraulic oil that complies with our operating recommendations (see "Operating materials" starting on page 277).

▶ Change the hydraulic oil when the operating conditions change.

Make sure to use the right specification of the hydraulic oil according to the operating temperatures. This is particularly true for high and low operating temperatures. Incorrect oil specifications result in damage to the hydraulic components and malfunctions.

Property damage!

Contaminated hydraulic oil can cause damage to the tipping cylinder (scoring) and other elements of the hydraulic system.

▶ Change contaminated hydraulic oil immediately.

Environmental damage!

Escaping oil is harmful to the environment!

▶ Collect escaping oil in suitable containers and dispose of it in an environmentally friendly manner.

Oil filter

Use oil filters in the tractor's hydraulic system.

▶ Check the tractor's oil filters regularly.

▷ Replace contaminated oil filters regularly. Comply with the instructions from the system manufacturer.

Hydraulic tank

The work volume of the hydraulic tank must be adapted to the work volume of the tipping cylinder and the operating conditions.

The effective work volume in the hydraulic tank must be at least 20-30% bigger than the work volume of the tipping cylinder.

In the following table, the work volumes of the tipping cylinder are assigned.

Please note that the minimum work volumes for the hydraulic tank listed in the table are only recommendations for operating the tipping cylinder.

Vehicle model	Tipping cylinder / model designation[1]	Tipping cylinder work volume	Minimum work volume Hydraulic tank[2]
S.KI 18 - 7.2 **S.KI 24 - 7.2**	5-stage / ...169-5...	approx. 80 l	100 l
	6-stage / ...191-6...	approx. 95 l	120 l
S.KI 24 - 8.2	5-stage / ...169-5...	approx. 90 l	115 l
	5-stage / ...191-5...	approx. 116 l	145 l
S.KI 24 - 9.6 **S.KI 24 - 10.5**	5-stage / ...169-5...	approx. 98 l	125 l
	5-stage / ...191-5...	approx. 122 l	150 l
	6-stage / ...191-6...	approx. 119 l	150 l
S.KI 24 - 10.5	5-stage / ...191-5-7150	approx. 135 l	170 l

1. The model designation associated to your tipping cylinder (e.g. ...169-5...) can be found on the name plate on the tipping cylinder.
2. When changing the semitrailer tipper, observe the recommended minimum work volume of the hydraulic tank.

3

During longer periods of unpressurised oil circulation in the hydraulic system and at higher operating temperatures, larger oil volumes are required.

Property damage!

Extreme operating temperatures call for special measures.

- ▶ At high operating temperatures, use an oil cooler if necessary.
- ▶ At **low operating temperatures**, it may be necessary to preheat the hydraulic oil.

Observe the operating instructions from the manufacturer of the hydraulic equipment on your tractor.

The operating recommendations for hydraulic oil can be found in the table on page 277.

Semitrailer tipper hydraulic system

The hydraulic system of the semitrailer tipper consists of:

- Tipping cylinder
- Hydraulic connector
- Hydraulic connections
- Pressure limiting valve*
- Burst pipe protection*
- Control elements for the hydraulic rear wall*

Tipping cylinder

Your semitrailer tipper is equipped with a front-lift tipping cylinder, which is attached to the front wall of the trough and the chassis. The tipping cylinder is self-venting.

The multi-stage telescopic cylinder has a hydraulic connector for lifting and lowering the tipping trough. The maximum lift of the tipping trough is limited by the telescopic cylinder.

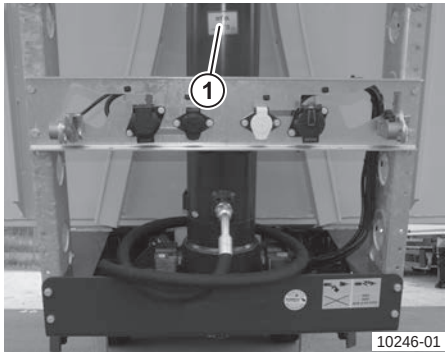
The tipping cylinder is a heavy-duty component on the semitrailer tipper. Observe the instructions in the chapter "MAINTENANCE, CARE“ on page 247 as well as the "Maintenance intervals" starting on page 238.

Property damage!

The tipping cylinder may be damaged if it is operated at too high a pressure.

▶ Maintain the specified operating pressures.

▶ The operating pressure of the tipping cylinder can be found on the information sign on the tipping cylinder (1).



Tipping cylinder

1 Operating pressure information sign

Property damage!

The tipping cylinder may be damaged if it is operated at high extension speeds at the end of the stroke.

▶ Reduce the extension speed before the end of the stroke.

During the tipping procedure, there is relative movement of the tipping cylinder towards the rear. In the process, the cylinder stages come close to the front wall.

Property damage!

Keep the collision area around the tipping cylinder free of objects. This also applies for the space under the tipping cylinder.

▶ Before the tipping procedure, remove any cargo deposited under the tipping cylinder.

You must also observe the instructions under "Tipping procedure" on page 209.

In an extended state, the cylinder stages can become corroded in a very short time.

Property damage!

Corroded cylinder stages lead to damage to the gaskets and slide bushings in the cylinder.

▶ Do not leave the semitrailer tipper in a tipped state for longer than half an hour.

For applications during which the trough is tipped for longer than half an hour, only tipping cylinders with special corrosion protection should be used on all cylinder stages (hard chrome-plated).

Longer downtimes of the semitrailer tipper can lead to corrosion on the bearing points and therefore to seizing of the tipping cylinder. This results in damage to the cylinder stages or even breaking of the tipping cylinder. Lubricate the upper and lower bearing points before longer periods of standstill of the semitrailer. For periods of standstill of more than 6 months, please observe the instructions under “Decommissioning” on page 265.

Property damage!

Corroded bearing points result in seizing when the tipping cylinder is extended.

▶ Lubricate the bearing points before using the semitrailer. Observe the instructions under "Regular maintenance tasks" on page 239.

The model-specific information and the serial number on your tipping cylinder are required for spare parts and for repairs. Protect the name plate against damage.

Hydraulic connector on the semitrailer tipper

The hydraulic connector is located at the front of the semitrailer tipper.

Property damage!

Damaged hydraulic connectors result in leaks and pressure loss.

▶ Protect the hydraulic connectors from environmental influences and mechanical damage.

Hydraulic coupling

Depending on the equipment, your semitrailer tipper is equipped with one of the following connector types.

- Detachable coupling parts with hose connection directly on the tipping cylinder
- Detachable coupling parts with hose connection directly on the light/air holder
- Coupling with connection directly on the tipping cylinder
- Coupling with connection on the light/air holder
- Coupling for feed line and coupling for return line including pressure limiting valve on the light/air holder

Use the matching counterparts for the hydraulic couplings. Pay attention to tightness and firm connection. We recommend a minimum nominal diameter of 25 or 1".

Property damage!

Soiled hydraulic couplings result in damage to the hydraulic system.

▶ Before connecting the coupling parts (tractor and semitrailer tipper), pay attention to cleanliness so that no dirt particles can enter the hydraulic system.

Property damage!

The tipping cylinder moves during the tipping procedure, so the hydraulic hose requires clearance above.

▶ For the version with the hydraulic connector directly on the tipping cylinder, make sure that there is enough clearance for the hydraulic hose.

For the "Coupling for feed line and coupling for return line including pressure limiting valve" version, the pressure is limited on the semitrailer tipper. Two hose connections on the tractor-trailer are required for this.

Hydraulic hose

When the semitrailer tipper is equipped with a hydraulic hose, the hydraulic hose is designed for the maximum pressure and volumetric flow of the semitrailer tipper's hydraulic system.

To connect the semitrailer tipper, use hydraulic hoses for the maximum required operating pressure.

The hydraulic hose connection between the tractor and the semitrailer tipper is subject to high mechanical loads and wear during operation. Tipping of the tipping trough is only allowed with intact, undamaged hydraulic hoses.

To prevent damage to the hydraulic hose, please also observe the instructions under "Hydraulic hose holder*" on page 147.

MORTAL DANGER!

Tipping the trough with damaged hydraulic hoses can result in sudden bursting of the hydraulic hose and therefore to abrupt lowering of the tipping trough at high speed.

- ▶ Check the connection hose for damage/oil leaks before each use.
- ▶ Tipping with damaged hydraulic hoses is forbidden.
- ▶ Replace damaged hydraulic hoses immediately.

Environmental damage!

Escaping oil is harmful to the environment!

- ▶ Collect escaping oil in suitable containers and dispose of it in an environmentally friendly manner.

Hydraulic connections

Hydraulic hoses, hydraulic pipes and their connection fittings are designed for the maximum pressure and volumetric flow of the hydraulic system of the semitrailer tipper.

Due to their material properties, hydraulic hoses are subject to natural ageing processes. For this reason, hydraulic hoses are intended for a maximum service lift of 6 years. The manufacturing date is stamped on each hose (on the screw connector).

In case of repairs, only use hydraulic components that are approved by Schmitz Cargobull and suitable for the purpose.

Particularly the hydraulic hoses on the connection to the tipping cylinder and the hydraulic rear wall are components that are subject to high mechanical strain, and they need to be checked for damage on a regular basis.

Tipping of the tipping trough and actuation of the hydraulic rear wall is only allowed with intact, undamaged hydraulic hoses.

Property damage!

Hydraulic hoses have an expiry date of 6 years starting from the manufacturing date.

- ▶ Replace hydraulic hoses at the latest 6 years after the manufacturing date, even if they do not exhibit any visible damage.

MORTAL DANGER!

Tipping the trough with damaged hydraulic hoses can result in sudden bursting of the hydraulic hose and therefore to abrupt lowering of the tipping trough at high speed.

- ▶ Check the connection hoses for damage/oil leaks before each use.
- ▶ Tipping with damaged hydraulic hoses is forbidden.
- ▶ Replace damaged hydraulic hoses immediately.

Environmental damage!

Escaping oil is harmful to the environment!

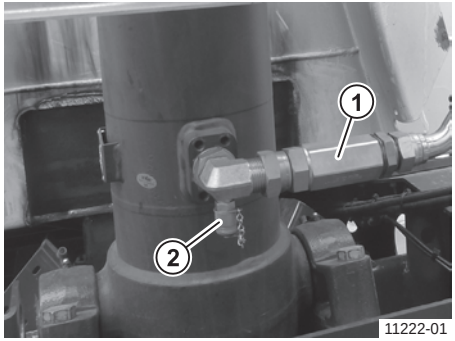
- ▶ Collect escaping oil in suitable containers and dispose of it in an environmentally friendly manner.

Burst pipe protection with emergency drain connection*

The burst pipe protection* is closed in case of sudden pressure loss in the hydraulic system (e.g. due to bursting of a hydraulic hose) or too rapid actuation of the tipper control valve from the "STOP" position to the "LOWER" position. As a result, the return flow of the hydraulic oil from the tipping cylinder is blocked. Abrupt lowering of the trough is prevented. The trough is not lowered any further.

The burst pipe protection* is located directly on the connector for the tipping cylinder and is equipped with an emergency drain connection.

The emergency drain connection is equipped with a valve. The valve prevents hydraulic oil from escaping unintentionally.



Tipping cylinder

1 Burst pipe protection*
2 Emergency drain connection*

CAUTION!

If the tipping cylinder is driven against the end stop when tipping the tipping trough at high speed, there is a risk of blockage by the burst pipe protection.

- ▶ Extend the tipping cylinder at reduced speed at the end of the stroke.

3

Property damage!

Once the burst pipe protection* has been actuated once, it no longer works.

▶ Have the burst pipe protection* replaced at a hydraulic specialist workshop.

ACCIDENT HAZARD!

Blocking of the burst pipe protection when the trough is tipped represents a hazard to life and limb.

▶ Secure the vehicle with suitable equipment against rolling away as well as against tipping over to the sides. Keep people and objects out of the danger area.

▶ Immediately call a competent salvage company to secure the tipped trough.

▶ Observe the accident prevention regulations.

Releasing the burst pipe protection

If the burst pipe protection has been activated, the trough can no longer be lowered from the "STOP" position to the "LOWER" position by actuating the tipper control valve.

If there is no damage to the hydraulic system (e.g. due to bursting of a hydraulic hose, pressure drop, oil loss, etc.), you can try to release the burst pipe protection by:

- carefully actuating the tipper control valve (see "Releasing the burst pipe protection using the tipper control valve" on page 88)
- providing pressure equalisation on the system (see "Releasing the burst pipe protection by pressure equalisation" on page 89)

If the burst pipe protection cannot be released with these measures, there is damage in the hydraulic system. In this case, you must lower the trough by draining hydraulic oil (see "Draining hydraulic oil to lower the tipping trough" on page 90). Have the damage repaired at an authorised specialist workshop before the next tipping procedure.

Releasing the burst pipe protection using the tipper control valve

If the burst pipe protection is blocked, you can try to release the block by carefully lifting/lowering the tipping trough.

▶ Switch on the auxiliary drive.

▶ Slowly set the tipper control valve to "LIFT" (not suddenly).

▷ Pressure will build up in the system.

▶ After approx. 5 seconds, move the tipper control valve to the "STOP" position.

▶ Switch off the auxiliary drive.

▶ Then slowly switch the tipper control valve to "LOWER" (not suddenly).

▷ The burst pipe protection is unlocked, the tipping trough is lowered.

or:

▷ The burst pipe protection remains blocked, the tipping trough is not lowered.

▶ Repeat the procedure if the trough cannot be lowered.

▷ If careful actuation of the tipper control valve does not unblock the burst pipe protection, the emergency drain connection is used (see "Releasing the burst pipe protection by pressure equalisation").

Releasing the burst pipe protection by pressure equalisation

If the burst pipe protection could not be unlocked by careful lifting/lowering of the tipping trough, the emergency drain connection is used.

Prerequisite:
The auxiliary drive is switched off and the drain hose is ready at hand.

▶ Open the hydraulic tank of the tractor.

▶ Remove the protective caps from the drain hose.

▶ Put one end of the drain hose in the hydraulic tank.

▶ Remove the sealing cap from the emergency drain connection and screw the other end of the drain hose open.

▷ By screwing open the drain hose, the valve in the emergency drain connection is opened. Pressure equalisation takes place. Escaping hydraulic oil is collected in the hydraulic tank.

▶ Leave the hose on the emergency drain connection for approx. one minute.

▶ Remove the hose from the emergency drain connection and put the sealing cap back on the emergency drain connection.

▶ Let the oil in the hose drain into the hydraulic tank.

▶ Close both ends of the hose with protective caps.

▶ Close the hydraulic tank.

▶ Now proceed as described under "Releasing the burst pipe protection using the tipper control valve" to release the burst pipe protection (see page 88).

▶ Repeat the procedure if the trough cannot be lowered.

▷ If the pressure equalisation does not result in unlocking of the burst pipe protection, there is a defect in the hydraulic system (e.g. due to bursting of a hydraulic hose, pressure drop, oil loss, etc.). To lower the tipping trough, the hydraulic oil must be drained out of the hydraulic cylinder (see “Draining hydraulic oil to lower the tipping trough” starting on page).

Environmental damage!

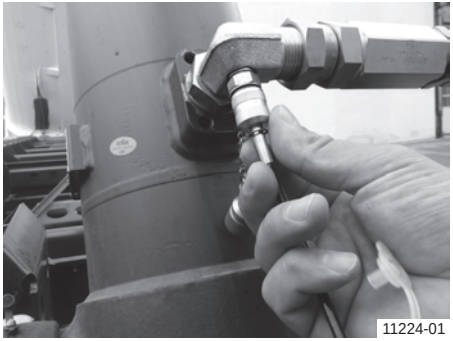
Escaping hydraulic oil represents a hazard for the environment.

▶ Collect escaping oil in the hydraulic tank.


11223-01

Drain hose with protective caps (included in the delivery with "burst pipe protection with emergency drain connection*" equipment)

3



Installation of the drain hose on the emergency drain connection*

Property damage!

When performing any work, make sure that no impurities can enter the hydraulic connectors and hydraulic tank.

Draining hydraulic oil to lower the tipping trough

All attempts to release the burst pipe protection have failed. There is a defect in the burst pipe protection or damage to the hydraulic system (bursting of a hose, pressure drop, oil loss, etc.).

Prerequisite:
The auxiliary drive is switched off and the drain hose is ready at hand.

- ▶ Open the hydraulic tank of the tractor.
- ▶ Remove the protective caps from the drain hose.
- ▶ Insert one end of the drain hose in the hydraulic tank.
- ▶ Remove the sealing cap from the emergency drain connection and screw the other end of the drain hose open.
  - ▷ By screwing open the drain hose, the valve in the emergency drain connection is opened. Pressure equalisation takes place. Escaping hydraulic oil is collected in the hydraulic tank.
  - ▷ Note:
    The tipping trough is slowly lowered.
    Observe the instructions in the "Semitrailer tipper" operating manual for lowering the tipping trough.
- ▶ Leave the hose on the emergency drain connection until the trough is completely lowered.
  - ▷ During the lowering procedure, all of the hydraulic oil escapes from the tipping cylinder (approx. 80 - 120 litres). This can take some time!
- ▶ When the trough is completely resting on vehicle frame, remove the hose from the emergency drain connection and put the sealing cap on the emergency drain connection.
- ▶ Let the oil in the hose drain into the hydraulic tank.
- ▶ Close both ends of the hose with protective caps.
- ▶ Close the hydraulic tank.
- ▶ You must immediately drive to a specialist workshop to have the damage in the hydraulic system of your semitrailer tipper repaired.

CAUTION!

If the trough was lowered because of damage in the hydraulic system due to complete draining of the hydraulic oil, it is not permitted to lift the trough again.

- ▶ Have the hydraulic system of your semitrailer tipper repaired at a hydraulic specialist workshop before the next tipping procedure!
- ▶ Have the burst pipe protection replaced.

Environmental damage!

When lowering the tipping trough, all of the hydraulic oil escapes from the tipping cylinder (approx. 80 - 120 litres).

- ▶ Collect escaping oil in the hydraulic tank.
- ▶ Pay attention to possible environmental damage.

Environmental damage!

Defects in the hydraulic system (e.g. bursting of a hydraulic hose) cause oil to escape.

- ▶ Collect escaping oil in suitable containers and dispose of it in an environmentally friendly manner.
- ▶ Before starting a trip, make sure that hydraulic oil cannot escape into the environment.

Rear walls

Depending on the vehicle equipment, your semitrailer tipper is equipped with one of the following rear walls:

- Top-hung tailboard (see page 93)
- Leaf door (see page 94)
- Double-leaf combined door (see page 95)
- Single-leaf combined door (see page 96)
- Hydraulic rear wall flap with swing function (see page 96)

Rear wall versions with door and swing functions are called combined doors.

Observe the information about the rear wall installed on your semitrailer tipper and its locking mechanism (see page 98).

After every tipping procedure, check that the rear wall is completely closed and locked.

ACCIDENT HAZARD!

Familiarise yourself with your semitrailer tipper before loading and the tipping procedure.

- ▶ In addition to the instructions in this chapter, pay special attention to the instructions under "Rear walllocking mechanism" starting on page 98 as well as the instructions about the "Tipping procedure" starting on page 209.
- ▶ Depending on the equipment, locking of the different rear wall versions can be supplemented with additional clamp locks. You can find more information on page 108.

ACCIDENT HAZARD!

It is not permitted to drive on public roads with an open, unsecured rear wall. If there are operating errors, the rear wall can be opened during travel, cargo can be lost, and result in road accidents.

- ▶ Always check that the rear wall and rear wall locking mechanism closes correctly after every tipping procedure.

When unloading with the grain unloader, the rear wall remains closed. Observe the instructions under "Grain unloader*" on page 114.

ACCIDENT HAZARD!

The rear wall is subject to special maintenance procedures.

- When servicing and repairing the vehicle with the trough in tipping position or with the rear wall open, the raised parts must be supported by suitable means as specified by accident prevention regulations.
- Observe the instructions in the chapter "MAINTENANCE, CARE“to prevent damage to the rear wall.

Top-hung tailboard*

Depending on the equipment, your semi-trailer tipper can be equipped with a top-hung tailboard.

The cargo can be unloaded using the top-hung tailboard or a grain unloader*.

For troughs with double self-aligning bearings, observe the instructions under "Rear wall flap guide*" on page 111.



11128-01

Aluminium box trough with top-hung tailboard (vertical), surface-mounted



11125-01

Steel rounded trough with top-hung tailboard (slanted), external



11124-01

Aluminium box trough with top-hung tailboard (slanted), chute



11129-01

Steel rounded trough with top-hung tailboard (slanted), chute

3

Property damage!

The locking mechanism on the rear wall depends on the equipment. Familiarise yourself with your vehicle before the tipping procedure.

- If your vehicle is equipped with an **automatic mechanical locking mechanism**, observe the instructions starting on page 99.
- If your vehicle is equipped with a **pneumatic locking mechanism**, observe the instructions starting on page 101.

Depending on the vehicle equipment, your semitrailer tipper is equipped with grain unloaders* (see page 114) or a flow regulating device* (see page 123). Observe the operating instructions!

Double-leaf door

Depending on the equipment, your semitrailer tipper can have double-leaf doors. The cargo can be unloaded using the rear wall doors or through grain unloaders*.



Aluminium box trough with double-leaf door

Depending on the height, your aluminium box trough can be equipped with a swinging tailgate roof bow*. Observe the instructions under "Tailgate roof bow*" on page 113.



Steel rounded trough with double-leaf door

Property damage!

The double-leaf door is locked with a combination of the espagnolette lock and the laterally operated safety lock. Pay attention to the sequence while opening!

- First open the "Espagnolette lock" (see page 105).
- Then stand on the left side of the vehicle and actuate the "Laterally operated safety lock*" (see page 106).

Double-leaf combined door*

Depending on the equipment, your semi-trailer tipper can have a double-leaf combined door.

The double-leaf combined door combines the function of the classic top-hung tailboard with the function of the leaf door. The cargo can be unloaded using the rear wall doors, the top-hung tailboard, or through grain unloaders*.

For troughs with double self-aligning bearings, observe the instructions under "Rear wall flap guide*" on page 111.



Aluminium box trough with double-leaf combined door with tailgate roof bow

Depending on the height, your aluminium box trough can be equipped with a folding tailgate roof bow*. Observe the instructions under "Tailgate roof bow*" on page 113.



Steel rounded trough with double-leaf combined door without tailgate roof bow

The locking mechanism for the double-leaf combined door is a combination of:

- Espagnolette lock (see page 105)
- Automatic mechanical hook lock with locking function* (see page 100) **or** Pneumatic locking mechanism* (see page 101)
- Depending on the equipment: Additional clamp locks* (see page 108)

Property damage!

Because there is the option of unloading the cargo through the top-hung tailboard, grain unloader, or the doors, particular care must be taken.

▶ Familiarise yourself with your vehicle before the tipping procedure.

ACCIDENT HAZARD!

During the tipping procedure with the doors open, the automatic locking mechanism must be locked.

▶ Observe the instructions under "Automatic mechanical hook lock with locking function*" on page 100.

Single-leaf combined door*

Depending on the equipment, your semi-trailer tipper can have a single-leaf combined door.



Aluminium box trough with single-leaf combined door

The single-leaf combined door combines the function of the classic top-hung tailboard with the function of the leaf door. The cargo can be unloaded using the rear wall doors, the top-hung tailboard, or through grain unloaders*.

Use the swing function to dump bulk material. Use the door function to load and unload packaged goods.

Switching between the door and swing function takes place with a selector lever. Observe the instructions under "Working with the single-leaf combined door*" (see page 224).

The locking mechanism for the single-leaf combined door is a combination of:

- Pneumatic locking mechanism* (see page 101)
- Three pairs of additional clamp locks* (see page 108)
- Selector lever* (see page 224)

Property damage!

Because there is the option of unloading the cargo through the top-hung tailboard, grain unloader or the door, particular care must be taken.

▶ Familiarise yourself with your vehicle before the tipping procedure.

▶ Observe the instructions under "Working with the single-leaf combined door*" starting on page 224.

Hydraulic rear wall with swing function*

Depending on the equipment, your semi-trailer tipper can have a hydraulic rear wall with swing function.

The hydraulic rear wall combines the function of the classic top-hung tailboard with the function of a hydraulic rear wall flap.

The cargo can be unloaded using the top-hung tailboard, the completely opened rear wall, or through grain unloaders*.



Steel rounded trough with hydraulic rear wall flap

MORTAL DANGER!

The hydraulic rear wall function is coupled to the function of the tipping cylinder (lifting and lowering the tipping trough).

▶ Before the tipping procedure, observe the functional descriptions of the individual operating modes under "Working with the hydraulic rear wall door*" starting on page 214.

Property damage!

The hydraulic rear wall is locked manually after lowering the tipping trough.

▶ Observe the instructions under "Hydraulic rear wall locking mechanism*" on page 103.

Rear walllocking mechanism

Depending on the vehicle equipment, the rear walls on the Schmitz Cargobull semi-trailer tipper are locked with the following locking mechanism versions.

3

- Automatic mechanical hook lock* (page 99)
- Automatic mechanical hook lock with locking function* (page 100)
- Pneumatic hook lock* (page 101)
- Hydraulic rear wall locking mechanism* (page 103)
- Espagnolette lock (page 105)
- Laterally operated safety lock* (page 106)
- Locking mechanism for Single-leaf combined door* (see "Working with the single-leaf combined door*" starting on page 224)
- Additional clamp locks* (page 108)

MORTAL DANGER!

Depending on the equipment, the rear wall is locked with a combination of several locking mechanism versions.

- ▶ Familiarise yourself with your vehicle before loading and before the first tipping procedure.
- ▶ Observe the instructions in this chapter as well as the instructions under "Rear walls" (see page 92) and under "Tipping procedure" (see page 209).
- ▶ Comply with the instructions in chapter "OPERATION".

ACCIDENT HAZARD!

It is not permitted to drive on public roads with an open, unsecured rear wall. The rear wall door can open and cargo can be lost, possibly causing accidents in the following traffic.

- ▶ Before starting a trip, close all of the existing locking mechanisms on the rear wall.
- ▶ When taking possession of the vehicle, before each loading process and after each tipping procedure, check that the rear wall door and the rear wall locking mechanism close perfectly.

ACCIDENT HAZARD!

The locking mechanism is subject to special maintenance procedures.

▶ Observe the instructions in the chapter "MAINTENANCE, CARE“to prevent damage to the rear wall and locking mechanism.

MORTAL DANGER!

The load pressure applied tension to the rear wall.

▶ Before unlocking the rear wall, open the additional clamp locks* (see page 108).

Automatic mechanical hook lock*

Semitrailer tippers with top-hung tailboard without grain unloader are equipped with an automatic mechanical hook lock.

Depending on the equipment, the rear wall is secured with two or four locking hooks.

During the tipping procedure, the locking hooks are automatically opened. The locking mechanism closes automatically when the tipping trough has lowered completely.

The automatic mechanical locking mechanism is actuated by a linkage on the trough floor. When tipping the trough, a control lever is released. The locking mechanism is opened.

If your semitrailer is equipped with an "Flow regulating device*" (see page 123), it must be opened before the tipping procedure if the bulk cargo is not intended to be spread.

ACCIDENT HAZARD!

During the course of time it may be necessary to adjust the automatic locking mechanism.

▶ Check at monthly intervals whether the locking hooks are in proper contact with the rear wall with the trough lowered.

▶ Have the automatic locking mechanism adjusted by a Schmitz Cargobull service partner.

Property damage!

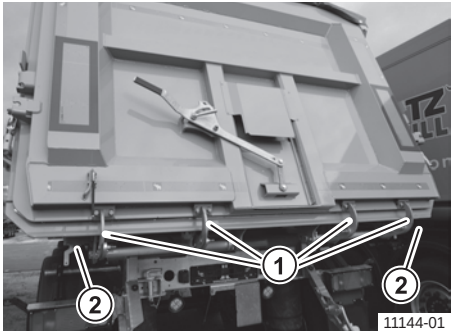
The locking mechanisms can be damaged by bulk cargo residues and their function can be impaired.

▶ Before lowering the tipping trough, check that there are no bulk cargo residues remaining in the area of the locking hooks, chute, and rear wall.

Automatic mechanical hook lock with locking function*

Semitrailer tippers with top-hung tailboard with grain unloader are equipped with an automatic mechanical hook lock with locking function.

Depending on the equipment, the rear wall is secured with two or four locking hooks.



Four-hook locking mechanism

1 Locking hook
2 Lock for the automatic mechanical locking mechanism*

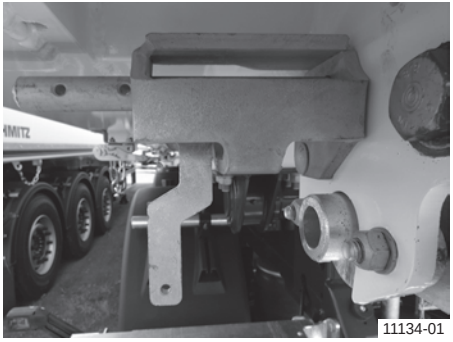
During the tipping procedure with the open leaf doors of the double-leaf combined door and for unloading the cargo using the grain unloader function, it is necessary to lock the locking mechanism.

The lock (2) for the locking mechanism is installed on the left and right rear of the vehicle. To lock/release the automatic locking mechanism, always actuate the right and left lock.

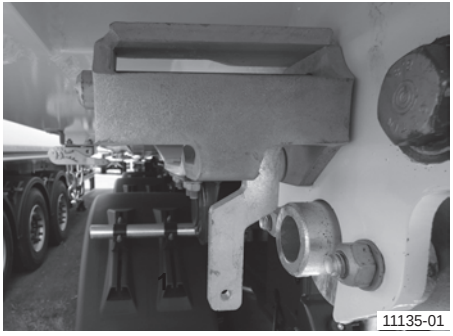
Property damage!

The automatic locking mechanism may be damaged if you try to unload with the top-hung tailboard and the automatic locking mechanism is locked.

▶ Before tipping with the top-hung tailboard, check that the automatic locking mechanism is released.



Lock for the automatic mechanical hook lock, released



Lock for the automatic mechanical hook lock, locked

Locking the locking mechanism

Prerequisite:
The trough is empty and completely lowered, the rear wall is closed.

- ▶ Lift the selector lever out of the lock on the outside of the vehicle.
- ▶ Push the selector lever towards the inside of the vehicle.
- ▶ Lower the selector lever into the lock on the inside of the vehicle.
- ▶ Repeat the procedure on the other side of the vehicle.

Releasing the automatic locking mechanism

Prerequisite:
The trough is completely lowered.

- ▶ Lift the selector lever out of the lock on the inside of the vehicle.
- ▶ Push the selector lever towards the outside of the vehicle.
- ▶ Lower the selector lever into the lock on the outside of the vehicle.
- ▶ Repeat the procedure on the other side of the vehicle.

ACCIDENT HAZARD!

During the course of time it may be necessary to adjust the automatic locking mechanism.

- ▶ Check at monthly intervals whether the locking hooks are in proper contact with the rear wall with the trough lowered.
- ▶ Have the automatic locking mechanism adjusted by a Schmitz Cargobull service partner.

Property damage!

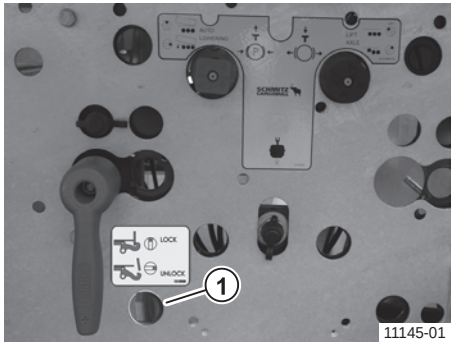
The locking mechanisms can be damaged by bulk cargo residues and their function can be impaired.

- ▶ Before lowering the tipping trough, check that there are no bulk cargo residues remaining in the area of the locking hooks, chute, and rear wall.

Pneumatic hook lock*

Depending on the equipment, Schmitz Cargobull semitrailer tippers are equipped with a pneumatic hook lock.

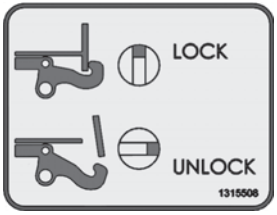
The pneumatic hook lock is released (UNLOCK) or locked (LOCK) using the "Pneumatic rear wall locking mechanism" control unit on the "Vehicle" control panel.



"Vehicle" control panel

1 "Pneumatic hook lock" control unit

3



11098-01

Rotary switch positions for pneumatic rear wall locking mechanism

LOCK
The locking mechanism is locked. The locking hooks remain closed during the tipping procedure.

UNLOCK
The locking mechanism is released. The locking hooks open/close at a tipping angle of approx. 2°.

The pneumatic locking mechanism is coupled to the tipping angle of the tipping trough. At a tipping angle of 2°, the locking hooks are opened/closed if the pneumatic locking mechanism was released on the rotary switch of the control unit.

Release the pneumatic locking mechanism when unloading using the top-hung tailboard (UNLOCK), and when unloading using the grain unloader or during the tipping procedure with the leaf doors of the double-leaf combined door opened, the pneumatic locking mechanism must be locked (LOCK).

Observe the functioning for operating each rear wall version.

Property damage!

Make sure that the switch is in the correct position.

- ▶ Before the tipping procedure, make sure that the switch (1) is in the required position (LOCK/UNLOCK).
- ▶ Lock the pneumatic locking mechanism before starting the trip ("LOCK" switch position)

MORTAL DANGER!

If the switch for the pneumatic locking mechanism is set to the "UNLOCK" position in a tipped state, the locking hooks are immediately released regardless of the load condition. Due to the load pressure, the rear wall suddenly jumps open.

- ▶ Make sure that there are no persons or objects in the danger area before you actuate the switch.

Opening the pneumatic rear wall locking mechanism when the trough is loaded

Prerequisite:
The trough is lowered.

- ▶ Move the switch (1) to the horizontal position ("UNLOCK" switch position).
- ▶ Slightly lift the trough using the tipper control valve.
  - ▷ At a tipping angle of 2°, the locking hooks are opened and release the rear wall.

Opening the pneumatic rear wall locking mechanism when the trough is tipped

Prerequisite:
The trough is empty or was emptied through the grain unloader (residual emptying).

▶ Keep persons and objects out of the danger area (beside and behind the rear wall).

▶ Ensure that there is sufficient clearance for the rear wall to swivel.

! Be particularly careful when opening the pneumatic locking mechanism in a tipped state.

▶ Move the switch (1) to the horizontal position ("UNLOCK" switch position).

▷ The locking hooks are opened and release the rear wall.

▷ Due to the load pressure, the rear wall can suddenly jump open.

Locking the pneumatic rear wall locking mechanism

Prerequisite:
The trough is lowered.

▶ Move the switch (1) to the vertical position ("LOCK" switch position).

▶ Slightly lift the trough using the tipper control valve.

▷ The locking mechanism remains closed.

Closing the pneumatic rear wall locking mechanism

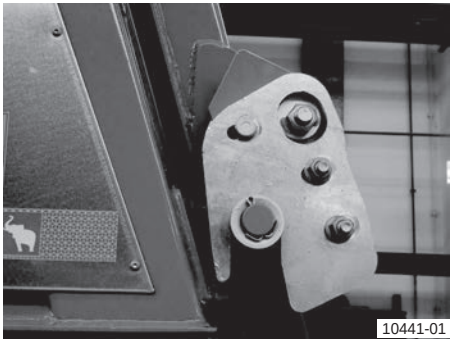
▶ Lower the trough completely using the tipper control valve.

▶ Move the switch (1) to the vertical position ("LOCK" switch position)

▷ The locking hooks are closed.

▶ Check that the locking hooks press the rear wall completely closed.

Hydraulic rear wall locking mechanism*



Side locking hooks on the rear wall: locked

The hydraulic rear wall is locked using the side locking hooks. The locking hooks are locked onto bolts on the side wall.

The hydraulic rear wall is opened and closed with hydraulic cylinders. They are located on the right and left at the end of the side walls.

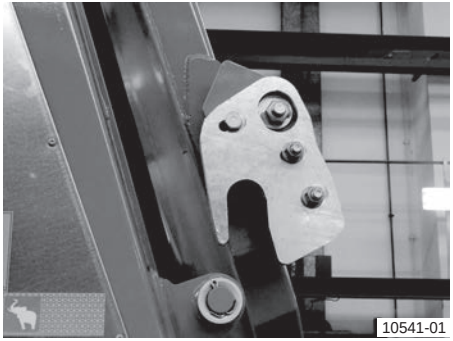
3

Opening the hydraulic rear wall locking mechanism

MORTAL DANGER!

The rear wall is opened depending on the respective tipping angle reached by the trough as well as the selected operating mode of the hydraulic rear wall.

- ▶ Familiarise yourself with your vehicle before the first load and before the first tipping procedure.
- ▶ Observe the instructions and functional descriptions of the individual operating modes under "Working with the hydraulic rear wall door*" starting on page 214.



Side locking hooks on the rear wall: unlocked

Closing the hydraulic rear wall locking mechanism

- ▶ Lower the trough completely using the tipper control valve.
  - ▷ The pilot lamp on the "Hydraulic rear wall" control unit lights up. -> **The hydraulic rear wall can be closed manually.**
- ▶ To close the rear wall, continue to hold the tipper control valve in the "LOWER" position and simultaneously actuate the retrofitted button in the driver's cab, until the rear wall is completely closed and locked.

  If your tractor has not been retrofitted with a button in the driver's cab, then a second person is required to operate the button on the control unit.
  - ▷ The rear wall closes as long as the button is pressed. When the button is released, the movement of the rear wall stops immediately.
- ▶ Check that the side locking hooks on the rear wall are locked into the bolts!

Property damage!

If the rear wall is closed when the tipping angle is too high, there is a risk that the side locking hooks do not lock.

- ▶ Lift the trough again, open the rear wall, and repeat the lowering and closing procedure.

DANGER!

If there is an error in the function of the hydraulic rear wall, the pilot lamp flashes (2).

▶ The hydraulic rear wall can no longer be operated. To fix the error, contact an authorised Schmitz Cargobull service workshop.

Espagnolette lock

Depending on the vehicle equipment, vehicles with leaf doors are equipped with espagnolette locks. The espagnolette locks are located on the rear wall.

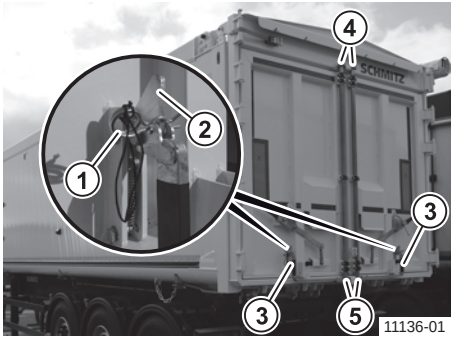
You must also observe the instructions under "Rear walls" on page 92.

ACCIDENT HAZARD!

The espagnolette lock can be opened while driving and cargo can be lost.

▶ Always secure the hooks (2) with the spring clips (1) after closing the rear wall.

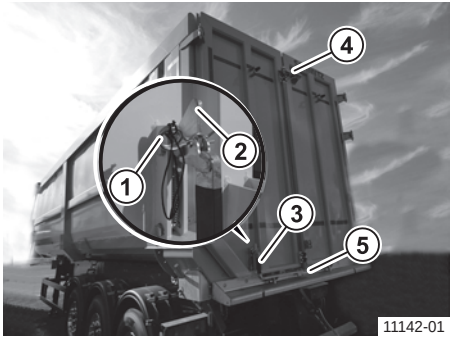
Depending on the vehicle equipment, your vehicle is equipped with one or two espagnolette locks.



Example of turn rod lock on aluminium box trough with tailgate roof bow

1 Spring clip
2 Hook
3 Locking lever
4 Top locking hook
5 Bottom locking hook

Vehicles with tailgate roof bow are equipped with a separate espagnolette on both leaf doors. The tailgate roof bow stabilises the side walls. Also observe the instructions on page 113.



Example of espagnolette lock on steel rounded trough (without tailgate roof bow)

1 Spring clip
2 Hook
3 Locking lever
4 Top locking hook
5 Bottom locking hook

Vehicles without tailgate roof bow are equipped with an espagnolette on the left leaf door. The top locking hook simultaneously stabilises the side walls.

Property damage!

Observe the sequence when opening and closing the leaf doors.

- ▶ Always open the left door first.
- ▶ Always close the right door first.

Opening revolving rod locking mechanism

- ▶ Remove the spring clip (1).

  For rear walls with two espagnolette locks, start with the left door.
- ▶ Loosen the hooks (2) and open the locking levers (3).

  If it is difficult to move the hook, a hammer can be used to open it.

  ! Risk of injury!
  The load pressure applied tension to the rear wall.

  ▷ The top (4) and bottom (5) locking hook are opened.

When the vehicle is equipped with laterally operated safety locks, the doors remain closed. To open the doors, open the laterally operated safety locks as described on page 106.

- ▶ Secure the doors using a safety chain (see "Door locks*" on page 113).

  To prevent damage to the side wall, we recommend engaging the locking lever (3) back in the hook (2).

Closing the espagnolette lock

- ▶ The espagnolette lock is closed in reverse order.
- ▶ Make sure that the top (4) and bottom (5) locking hooks engage properly.
- ▶ Before starting a trip, put the safety chain in driving position (see page 113).

Laterally operated safety lock*

Depending on the vehicle equipment (aluminium or steel trough), vehicles with double-leaf doors without swing function are equipped with a laterally operated safety lock. The laterally operated safety lock prevents the doors from swinging open after unlocking the espagnolette locks.

The operating lever of the laterally operated safety lock is located on the left side of the vehicle.

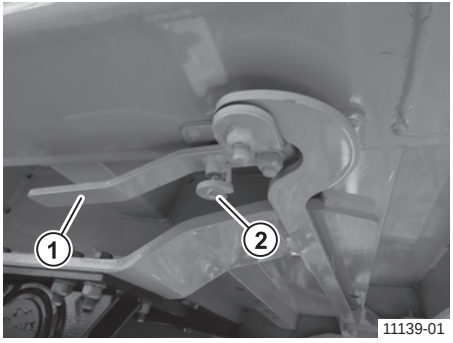
Before opening the laterally operated safety lock, the espagnolette lock must be opened (see "Espagnolette lock" on page 105).

INJURY HAZARD!

When opening the laterally operated safety lock, the leaf doors can jump open suddenly due to the load pressure.

- ▶ Keep people and objects out of the swivelling range of the leaf doors.
- ▶ When opening the locking mechanism, stand beside the semitrailer tipper, never in the swivelling range of the leaf doors.
- ▶ Open the locking mechanism with extreme caution.

Design for aluminium box troughs



Laterally operated safety lock for aluminium box troughs; locking mechanism closed and secured

1 Operating lever
2 Spring lock

The operating lever (1) is located at the rear of the vehicle under the trough floor.

Opening the locking mechanism

Prerequisite:
The espagnolette locks on the rear wall doors are open (see page 105).

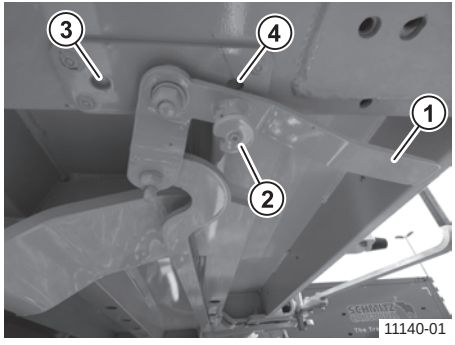
▶ Release the spring lock (2) from the front hole (3).

▶ Move the selector lever (1) to the rear.

▷ The locking hook (5) is opened, the doors are unlocked.

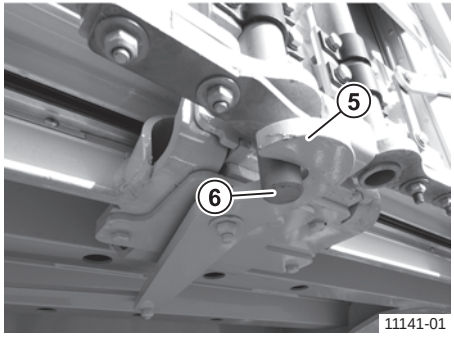
▶ Engage the spring lock (2) in the rear hole (4) and secure it.

▶ Completely open the doors and secure them with safety chains (see page 113).



Laterally operated safety lock on aluminium box troughs; locking mechanism opened and unsecured

3 Front hole
4 Rear hole



Aluminium box trough locking hook; locking mechanism closed

5 Locking hook
6 Pin

Closing the locking mechanism

Prerequisite:
The doors are closed and secured with the espagnolette lock (see page 105).

▶ Release the spring lock (2) from the rear hole (4)

▶ Move the selector lever (1) to the front.

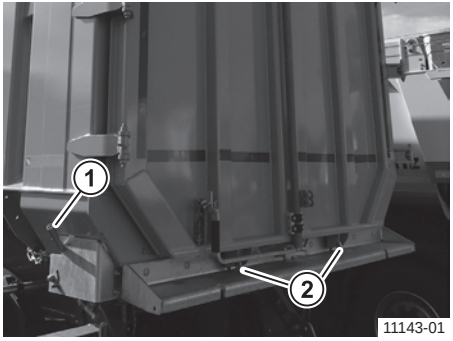
▷ The locking hook (5) is closed.

▶ Make sure that the locking hook (5) encloses the pin (6).

▶ Engage the spring lock (2) in the front hole (4) and secure it.

Design for steel rounded troughs

The operating lever (1) is located on the side of the rear of the vehicle.



Laterally operated safety lock on steel rounded troughs; locking mechanism closed

1 Extendable operating lever
2 Locking hook

Opening the locking mechanism

Prerequisite:
The espagnolette lock on the rear wall doors is open (see page 105).

▶ Pull the operating lever (1) upwards and out.

▶ Move the operating lever (1) in the direction of travel.

▷ The locking hooks (2) are opened.

▶ Completely open the doors and secure them with safety chains (see page 113).

Closing the locking mechanism

Prerequisite:
The doors are closed and secured with the espagnolette lock (see page 105).

▶ Move the operating lever (1) opposite to the direction of travel.

▷ The locking hooks (2) are closed and press the rear wall completely closed.

▶ Check that the locking hooks press the rear wall completely closed.

▶ Push in the operating lever (1).

Additional clamp locks*

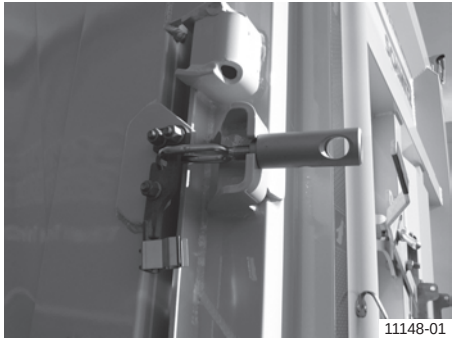
Depending on the trough design, your semitrailer tipper is equipped with additional clamp locks arranged in pairs.

MORTAL DANGER!

The load pressure applied tension to the rear wall.

▶ Open the additional clamp locks depending on the rear wall function.

▶ Pay attention to the load pressure.



Closed clamp lock (driving position)

Opening the clamp lock

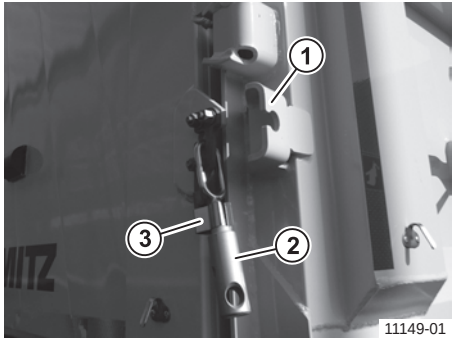
▶ Loosen the clamping nut (2).

▷ Use suitable supplementary equipment if necessary.

- ▶ Pull the clamp lock from the side out of the retainer (1).
- ▶ Secure the clamp lock in the retaining spring (3).
- ▶ Slightly tighten the clamping nut (2).

Closing clamp lock

- ▶ Loosen the clamping nut (2).
- ▶ Pull the clamp lock up and out of the retaining spring (3) against the resistance.
- ▶ Insert the clamp lock in the retainer (1).
- ▶ Firmly tighten the clamping nut (2).
  - ▷ Use suitable supplementary equipment if necessary.



Clamp lock open

1) Bracket
2) Clamping nut with securing device
3) Retaining spring

Property damage!

The clamp locks are part of the rear wall locking mechanism.

- ▶ Close the additional clamp locks before starting a trip and before unloading with the grain unloader.

Trough equipment

Depending on the vehicle equipment, your semitrailer tipper is equipped with an aluminium trough or with a steel trough.

Property damage!

Incorrect cargo and incorrect operation cause damage to the tipping trough.

- ▶ Only load your semitrailer tipper with cargo that is suitable for the trough! Observe the instructions under "Trough insert" on page 198.
- ▶ Observe the instructions for the equipment installed on your vehicle.

The trough equipment varies depending on the purpose. The following equipment is possible:

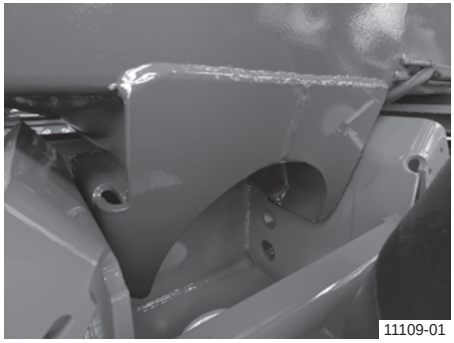
- Trough guide (see page 110)
- Rear wall flap guide* (see page 111)
- Tensioning chains* (see page 111)
- Tailgate roof bow* (see page 113)
- Door locks* (see page 113)
- Grain unloader* (see page 114)
- Trough interior lighting* (see page 116)
- Trough interiorcamera* (see page 117)
- Thermal insulation* (see page 117)
- Plastic trough lining* (see page 119)
- Compressed air roller vibrator*(see page 121)
- Lateral deflector plates* (see page 122)
- Handle on the rear wall* (see page 122)
- Flow regulating device* (see page 123)

Property damage!

The equipment installed on the trough must be ready for use and in a safe operating condition at all times.

- ▶ Check the equipment installed on your vehicle at regular intervals for proper function, tight fit, and damage.

Trough guide



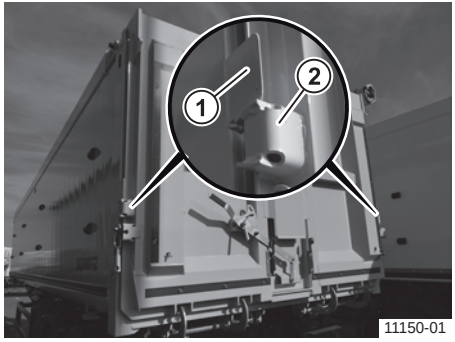
Trough guide (shown on a steel rounded trough)

Property damage!

Check that the trough guide is in good condition before every tipping procedure.

- ▶ If the guides are bent or damaged, they must be replaced immediately.

Rear wall flap guide*



Rear wall flap guide

1 Side wall guide
2 Rear wall guide

Guides are used on the rear wall flap on troughs with double self-aligning bearings.

During the closing procedure of the rear wall flap, the guide prevents the rear wall from sliding up and to the side.

Property damage!

The guides on the rear wall flap must be checked regularly for damage.

- ▶ Check the condition of the guides at regular intervals. In case of damage or deformation, the guides must be replaced immediately.
- ▶ Make sure that the rear wall slides under the guide during the closing procedure.

Tensioning chains*

Depending on the vehicle equipment, your tipping trough is equipped with one or several tensioning chains between the side walls.

When loading the trough, make sure that the tensioning chains are neither too loose nor too taut. Observe the instructions for adjusting the tensioning chains on page 112.

Property damage!

When loading the tipping trough with incorrectly tightened tensioning chains or without tensioning chains, the tipping trough can be damaged.

- ▶ Before every load, check that the tensioning chains are properly adjusted (see page 112).
- ▶ In a loaded state, operating the semi-trailer tipper is permitted only with the tensioning chains installed.
- ▶ Damaged tensioning chains must be replaced with new ones before the next load.

ACCIDENT HAZARD!

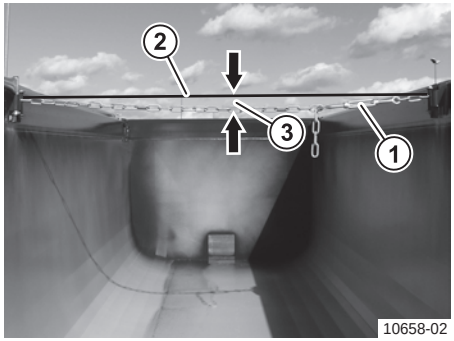
External forces (e.g. with a bucket) can cause rupture of the tensioning chain and personal injuries.

- ▶ When loading and unloading, make sure that the tensioning chains are not damaged.

Property damage!

The cargo may not protrude beyond the tensioning chain to prevent damage to the tensioning chain during the tipping procedure.

▶ After loading, check the fill level of the tipping trough.



Tensioning chain correctly taut

1 Turnbuckle
2 Imaginary horizontal line
3 Space between the tensioning chain and the imaginary horizontal line, required dimension: 10 mm to 20 mm

Adjusting the tensioning chains

The tensioning chains are always adjusted in an unloaded state.

▶ Turn the turnbuckle (1) until the required dimension (3) of 10 mm to 20 mm has been reached.

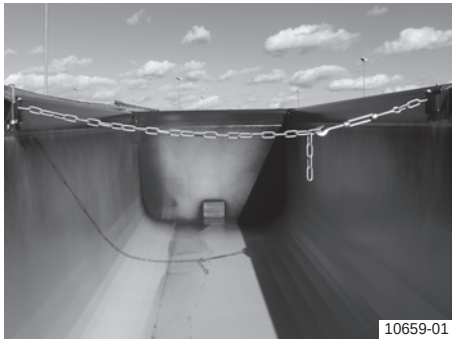
The specified dimension refers to the centre of the tensioning chain.

Dimension from the centre of the chain to the imaginary horizontal line:
10 mm to maximum 20 mm.

Property damage!

To prevent damage to the tipping trough, the tensioning chains may neither sag excessively nor be too taut.

▶ Check the tightness of the tensioning chain and adjust the required dimension of 10 ... 20 mm using the turnbuckle.



Loading not permitted!
The tensioning chain is not taut enough.

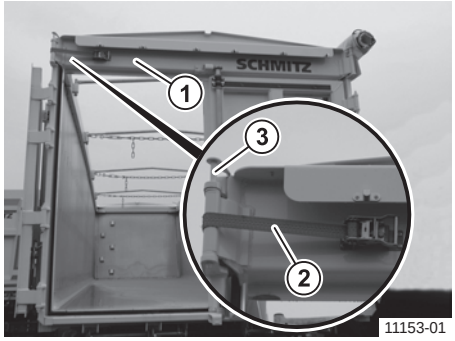


Loading not permitted!
The tensioning chain is too taut.

Tailgate roof bow*

Depending on the equipment, your aluminium box trough can be equipped with a tailgate roof bow.

It may be necessary to open the tailgate roof bow to be able to load and unload the semitrailer tipper with packaged goods.



Tailgate roof bow

1 Tailgate roof bow
2 Tension strap
3 Locking pin

Opening the tailgate roof bow

Prerequisite:
The side walls are not subject to load pressure.

- ▶ Open the leaf doors (see "Espagnolette lock" on page 105).
- ▶ Remove the locking pin (3) on the hinge of the tailgate crossbeam.
- ▶ Open the tension strap (2) on the outside of the tailgate roof bow using a tension ratchet.
- ▶ Swivel the roof bow away to the side.
- ▶ Secure the door using a safety chain (see "Door locks*" on page 113).

Closing tailgate roof bow

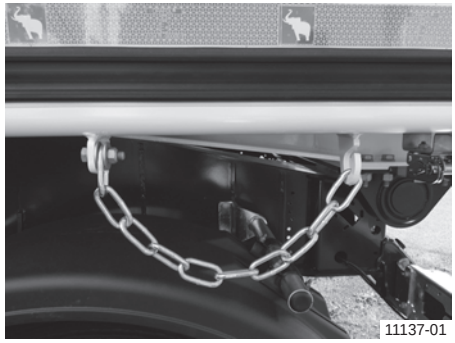
- ▶ The tailgate roof bow is closed in the reverse order.
- ▶ Make sure that the locking pin engages in the rotation lock.

Door locks*

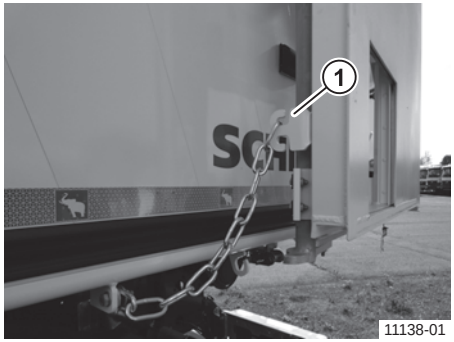
Rear walls with leaf doors are equipped with door locks.

Secure the doors with the safety chain after opening to prevent the doors from accidentally slamming shut.

Before starting a trip, check that the safety chain is in driving position to prevent damage.



Safety chain in the driving position



Door lock with safety chain

1 Locking hooks on the rear wall door

INJURY HAZARD!

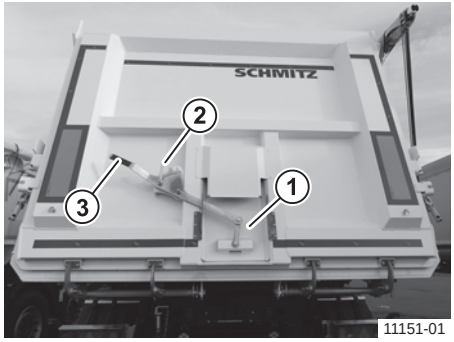
Opened, unsecured doors can pose a significant hazard.

- ▶ Always secure opened doors with the safety chain.
- ▶ Replace safety elements immediately if they are damaged.

Grain unloader*

The following types of grain unloaders are available for the different rear wall versions:

- one central grain unloader
- two grain unloaders side by side



Grain unloader, closed (one central grain unloader is shown)

1 Grain unloader
2 Tapered handle
3 Selector lever

ACCIDENT HAZARD!

When unloading with the grain unloader, the rear wall remains closed.

- ▶ Before using the grain unloader, observe the information under "Rear walls" on page 92 as well as the information under "Rear walllocking mechanism" starting on page 98.

Property damage!

If the tipping angle is too large, the cargo can slide out over the rear wall.

- ▶ The tipping angle should be selected so that the bulk cargo can flow out in a controlled way.

Property damage!

The grain unloader may be damaged if you try to use it with coarse-grained or non-flowing bulk materials.

▶ Use the grain unloader for easily flowing bulk materials only.

ACCIDENT HAZARD!

It is not permitted to drive with the grain unloaders open.

▶ Before starting a trip, make sure that the grain unloaders are properly closed and secured.

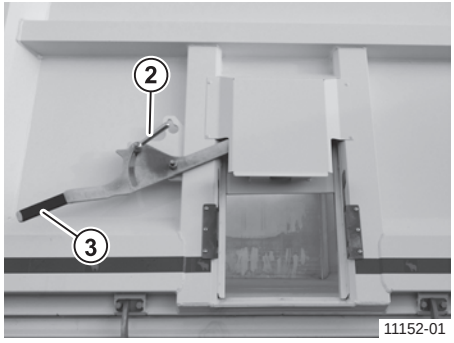
Property damage!

If the grain unloader is not used for an extended period, it may not function properly.

▶ Open and close the grain unloader at regular intervals to ensure that it still operates correctly.

To attach the grain discharge funnel on the grain unloader,
please observe the instructions on page 169.

Operating grain unloader



Grain unloader, open (one central grain unloader is shown)

2 Tapered handle
3 Selector lever

Opening the grain unloader

▶ Release the tapered handle (2) by turning it.

▶ Pull the selector lever (3) down to the stop.

▷ The grain unloader is completely opened.

▶ Hold the selector lever (3) firmly while you screw the tapered handle (2) tight with the other hand.

INJURY HAZARD!

When releasing the selector lever (3) with the tapered handle (2) unsecured, there is a risk of injury. The grain unloader falls down at high speed.

▶ Do not reach into the opening of the grain unloader with your hand.

▶ Always tighten the tapered handle (2) firmly to secure the grain unloader.

3

Closing grain unloader

- ▶ Loosen the tapered handle (2) by turning with one hand while you hold onto the selector lever (3) with the other hand.
- ▶ Move the selector lever (3) up until the grain unloader (1) is completely closed.
- ▶ Screw the tapered handle (2) tight.

Property damage!

Cargo can be lost through the opened, unsecured grain unloader while driving.

- ▶ Before loading and before starting a trip, check that the grain unloaders are completely closed and secured with the tapered handle.

Trough interior lighting*

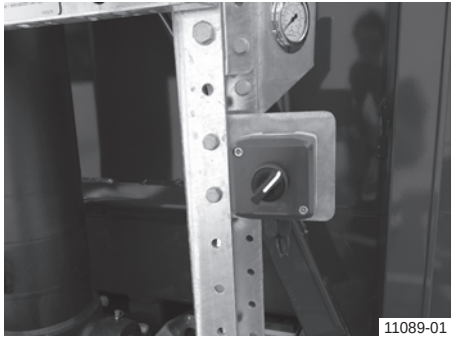
Depending on the equipment, your tipping trough is equipped with interior lighting.



Trough interior lighting

The lights can be switched using a separate switch on the light/air holder.

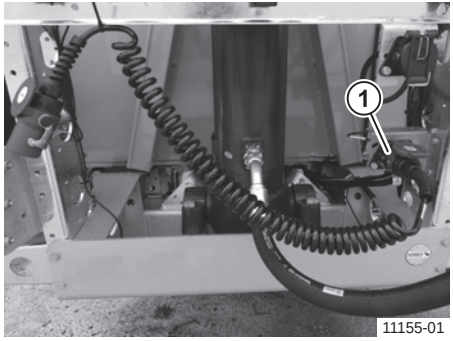
PIN assignment: PIN 9 (D+)
You must also observe the instructions under "Terminal assignment" on page 270.



Separate switch for trough interior lighting on the light/air holder

Trough interiorcamera*

Depending on the equipment, your tipping trough is equipped with a trough interior camera.



1 Separate socket on the light/air holder

The electric connection of the camera is established with a separate socket on the light/air holder. The connection to the tractor is established with a Wendelflex cable.

The images are transmitted on a display in the tractor when the vehicle is at a standstill.

Thermal insulation*

Semitrailer tippers with thermal insulation in the tipping trough are designed for transporting asphalt.

Property damage!

Thermally-insulated troughs are designed for asphalt with temperatures up to maximum 200°C.

▶ Temperatures above this can cause damage to your semitrailer tipper and are not permitted.

Property damage!

The hot cargo cools down quickly.

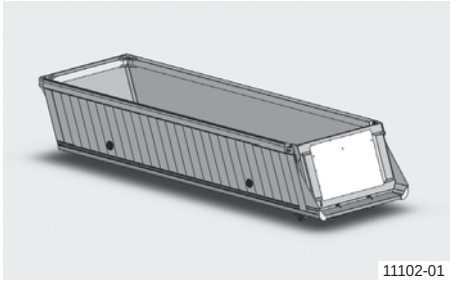
▶ Always keep the trough cover closed until unloading to prevent rapid temperature loss.

Insulation layer

Depending on the equipment, the trough of your semitrailer tipper is equipped with permanently mounted thermal insulation.

The thermal insulation is attached to the floor, side walls, front and rear walls.

Aluminium box trough



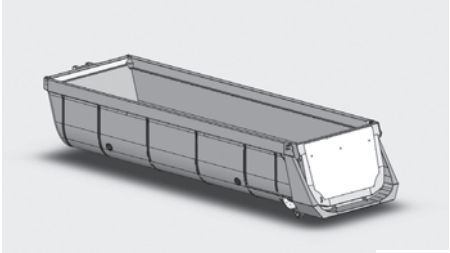
Aluminium box trough, with thermal insulation

The insulation layer of the aluminium box trough is on the inside of the trough on the front wall and the side walls, and on the outside of the trough on the floor and on the rear wall.

Heat loads occurring during operation can cause waviness in the floor area. This is not a technical default.

3

Steel rounded trough



Steel rounded trough, with thermal insulation

The insulation layer of the steel rounded trough on the floor, side walls, and rear wall flap is on the outside of the steel trough and is coated with a covering layer made of thin sheet metal. The insulation layer on the front wall is on the inside of the steel trough and is covered with a 4 mm thick steel sheet.

Loading instruction

Ensure that the cargo is evenly distributed in the cargo area.

The measuring openings should be covered to achieve suitable measurement results.

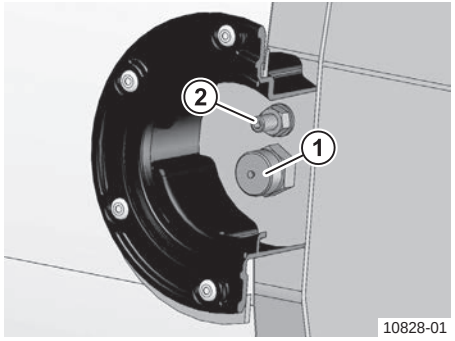
Manual temperature measurement

Troughs with thermal insulation are equipped with four inspection openings (measuring openings), two on each side wall.

You can use the inspection openings in the side walls to reach measuring openings to manually measure the temperature of your cargo load



Inspection opening cover



1 Measuring opening lock
2 Measuring system preparation

▶ Open the cover of the inspection opening by turning it counterclockwise
.

▶ Open the lock on the measuring opening (1) by turning it counterclockwise.

▷ You now have direct access to the cargo and can measure the temperature using a measuring probe.

Observe the operating manual of the measuring probe!

INJURY HAZARD!

The cargo can exhibit temperatures of up to 200°C. The measuring openings are heated up by the cargo.

▶ Wear suitable gloves to prevent injuries.

Property damage!

The inspection openings and the measuring openings are only to be opened to perform temperature measurements or for maintenance and inspection work.

▶ Always keep the openings closed.

Property damage!

There is a risk that fluid cargo can emerge from the measuring opening. Close the cover of the measuring opening immediately after performing the measurement.

▶ Remove any cargo which has emerged to prevent damaging the thread.

▶ Clean the thread of the measuring openings as well as the thread of the inspection openings after each temperature measurement to prevent damaging the thread.

After unloading

After unloading, any cargo residues should be removed from the holes of the measuring opening to prevent them becoming blocked up.

Property damage!

Solidified cargo residues in the hole can cause damage to the measuring probe.

▶ Never remove the residue in the hole using the measuring probe!

Plastic trough lining*

Depending on the equipment, your aluminium box trough can be equipped with a plastic lining. The coloured surface is a clear identifying feature of the plastic lining.

The plastic inner lining protects the trough body from abrasive wear due to the bulk cargo. It absorbs the wear.

Plastic wear linings result in a significant improvement of the gliding properties (sliding friction) of the bulk cargo. There is a considerable reduction in adhesion and freezing of the cargo. This enables reduced tipping angles and decreases the risk of the semitrailer tipping to the side during the tipping procedure because the bulk cargo does not slide off evenly.

3

MORTAL DANGER!

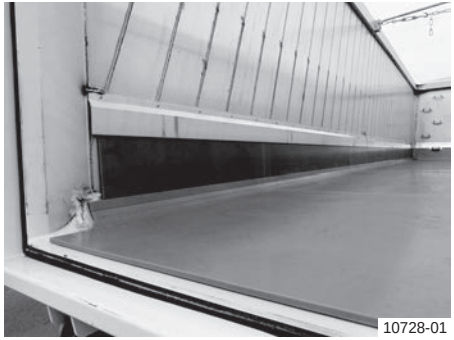
Thanks to the improved sliding properties, the bulk cargo can slide out of the trough at comparatively small tipping angles.

- ▶ Before the tipping procedure, make sure that the are no persons or objects in the dumping/working area.
- ▶ You must also observe the instructions under "Loading and unloading" starting on page 203.

The inner lining consists of special floating plastic plates installed on the floor, front wall, and side walls. The plastic plates are welded together at the joints.

The trough lining is locked in place at the side walls and front wall with cover strips and sealed to prevent bulk cargo from falling down.

The plastic lining is available in two versions.



Version 1: Trough lining, approx. 300 mm coverage of the side and front walls



Version 2: Trough lining, approx. 900 mm coverage of the side and front walls

The sliding properties are reduced by the scoring of the plastic plates during operation. These are normal signs of wear and not a technical defect.

Property damage!

The plastic lining and the trough body expand to different extents when there are temperature fluctuations. For this reason, the plastic lining is only bolted on the floor at the front and on the front wall.

- ▶ Additional fastening of the lining in the centre and rear area of the trough is not permitted!

Property damage!

Liquid and fine-grained bulk cargo constituents can enter the spaces between the plastic lining and the interior of the trough. This leads to corrosion processes with the trough material and the fastening elements of the lining.

- ▶ Check the inside and outside of the trough body regularly for damage.
- ▶ Bulk cargo constituents between the lining and the floor must be removed on a regular basis.

Property damage!

Coarse and sharp-edged bulk cargo have higher sliding friction and result in strong scoring in the plastic plates.

- ▶ Avoid coarse and sharp-edged cargo to prevent damage to the trough lining.

Usage restrictions

Transport of the following bulk cargo causes damage to the trough body and plastic lining. It is not permitted to transport these bulk materials.

- Chemically aggressive substances
- Bulk cargo with a temperature > 80°C (e.g. asphalt)
- Bulk cargo with grain sizes of > 200 mm diameter

Chemically aggressive substances can cause severe damage to the trough body within a very short time. This can even cause functional incapacity of the tipping trough.

Property damage!

Damaged trough linings must be promptly repaired or replaced.

- ▶ Perform visual inspections at regular intervals to detect damage to the plastic lining at an early stage (see "MAINTENANCE, CARE“ on page 253).
- ▶ In case of visible damage, immediately contact a Schmitz Cargobull service partner.

Compressed air roller vibrator*

The compressed air roller vibrator (shaker) is used to loosen sticking or frozen bulk cargo from the trough surface during the tipping procedure.

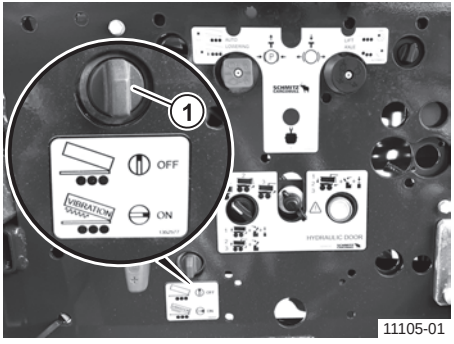
Two compressed air roller vibrators are installed on mounting plates in the front area of the trough floor. The roller vibrators are supplied by the semitrailer's air supply and cause the trough floor to vibrate.

3

As a result, sticking or frozen bulk cargo is loosened more easily as soon as the trough is tipped. The compressed air roller vibrator works only in a tipped state when the tipping angle is greater than 2°.

The compressed air roller vibrator is actuated by a switch on the control panel.

You can obtain more information from the system manufacturer.



11105-01

Control panel

1 "Compressed air roller vibrator" rotary switch


11106-01

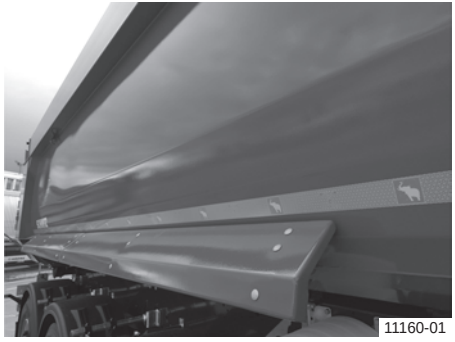
Aluminium box trough compressed air roller vibrator


11107-01

Steel rounded trough compressed air roller vibrator

Lateral deflector plates*

Depending on the equipment, your semitrailer tipper is equipped with deflector plates on the side walls of the tipping trough.

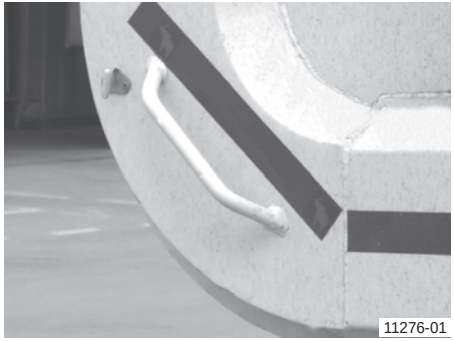

11160-01

Lateral deflector plates

The lateral deflector plates protect the chassis areas when loading.

Handle on the rear wall*

Depending on the equipment, semitrailer tippers with top-hung tailboard are equipped with a handle on the rear wall.



Handle on the rear wall

CRUSHING HAZARD!

There is a risk of crushing when using the handle.

- ▶ Do not put any body parts in the opening gap of the top-hung tailboard.

Flow regulating device*

Depending on the equipment, semitrailer tippers can be equipped with an external top-hung tailboard with a flow regulating device.

The flow regulating device is used to evenly dump the cargo, for example, to spread gravel or grit.

The flow regulating device limits the opening of the rear wall during the tipping procedure. This limits the quantity of bulk cargo flowing out.

Only use the flow regulating device for free-flowing bulk cargo with grain sizes smaller than 50 mm.



Flow regulating device

MORTAL DANGER!

The load pressure applied tension to the rear wall.

- ▶ The flow regulating device is adjusted when the trough is lowered and the rear wall is locked.
- ▶ Before unlocking the rear wall, open the additional clamp locks (see "Additional clamp locks*" on page 108).

Property damage!

If the tipping angle is too large, the cargo can slide out over the rear wall.

- ▶ The tipping angle should be selected so that the bulk cargo can flow out in a controlled way.

3

Property damage!

The opening of the rear wall can be regulated using the chain links.

▶ Make sure that both sides of the flow regulating device are adjusted evenly to prevent damage to your rear wall.

MORTAL DANGER!

When spreading bulk cargo, the hydraulic cylinder can be damaged by strong braking and may be bent.

▶ Drive very slowly and with great caution.

▶ Do not brake abruptly.

Covers/tarpaulins*

Covers protect your cargo from the weather conditions. Moreover, covers also serve to secure the load. It is not permitted to drive with an open cover.

DANGER!

It is forbidden to walk on the trough cover.

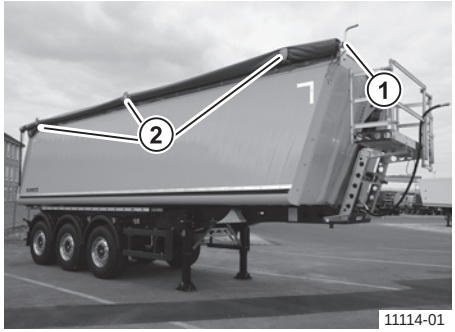
Roll-up tarpaulin*

Depending on the equipment, your semi-trailer tipper can have a roll-up tarpaulin.

The roll-up tarpaulin is available in the following models:

- Standard roll-up tarpaulin (see page 130)
- Two-part roll-up tarpaulin with extra long centre strap to close the tarpaulin* (see page 131)
- Roll-uptarpaulin with quick clamping device* (see page 132)

Also observe the instructions for the different fastening variations starting on page 129.



Roll-up tarpaulin, opened

1 Hand crank
2 Tarpaulin stops

ACCIDENT HAZARD!

Cargo can be loosened while driving and cause serious accidents in the following traffic.

- ▶ Secure the cargo safely with the tarpaulin before starting a trip.
- ▶ Secure the tarpaulin with all of the fastening elements.

Property damage!

Precipitation (rain, snow, hail) can accumulate on the tarpaulin and damage the cover.

- ▶ The vehicle may not be parked for longer periods of time (e.g. over the weekend or overnight) with the tarpaulin closed.
- ▶ Open the cover when you park the vehicle and precipitation is expected.

INJURY HAZARD!

Loose tarpaulins may not be unrolled.

- ▶ Before opening the roll-up cover, make sure that the tarpaulin is securely fastened to the side wall with tarpaulin rope.

Tarpaulin stops

Depending on the equipment, your semi-trailer tipper is equipped with fixed or plugged tarpaulin stops.

3

Plugged tarpaulin stops must be removed before starting a trip. Before opening the tarpaulin, insert the tarpaulin stops in the intended positions in the top strap of the side wall.


11169-01

Tarpaulin stop

Property damage!

Plugged tarpaulin stops can be lost while driving when the tarpaulin is closed.

▶ Remove the tarpaulin stops before starting a trip and store then safely in the semitrailer's toolbox or in the tractor's storage compartment.

Tarpaulin deflector*

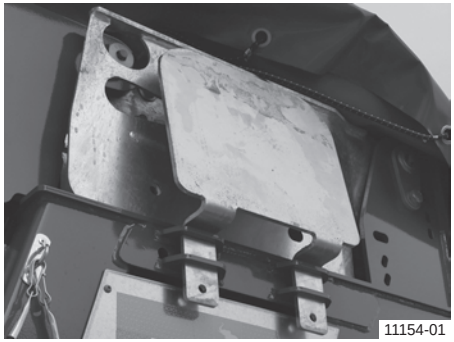
Semitrailer tippers with hydraulic rear wall and roll-up tarpaulin are equipped with a plugged tarpaulin deflector on the self-aligning bearing.

The tarpaulin deflector protects the tarpaulin against damage when operating the hydraulic rear wall.

Property damage!

Completely open the roll-up tarpaulin before actuating the hydraulic rear wall.

▶ Before the tipping procedure, check that the roll-up tarpaulin is completely open and secured.


11154-01

Tarpaulin deflector

Roof bow*

Depending on the vehicle equipment, your vehicle is equipped with one or several swivelling roof bows.

Roof bows reduce the sagging of the roll-up tarpaulin and facilitate winding.

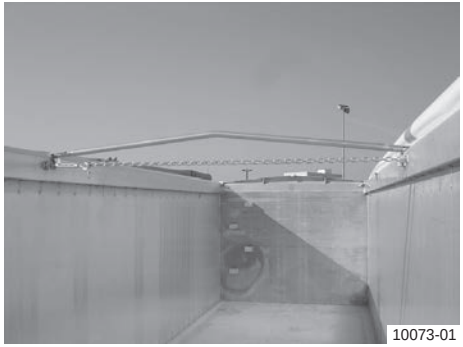
Roof bows are available in the following models:

- Straight roof bow*
- Arched roof bow*
- Roof-shaped roof bow*



11110-01

Straight roof bow (in driving position)



10073-01

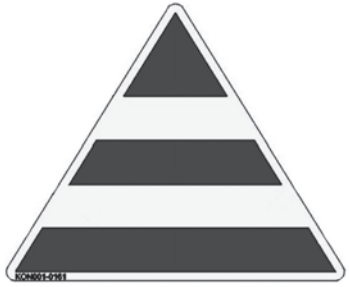
Roof-shaped roof bow (in driving position)

Property damage!

All roof bows attached to the tipping trough must be put into driving position and secured before starting a trip.

▶ Before each trip, check that the roof bows are in driving position and secured with securing pins on both sides (right and left).

The position of the roof bow is marked on the outer trough wall with an information sign.



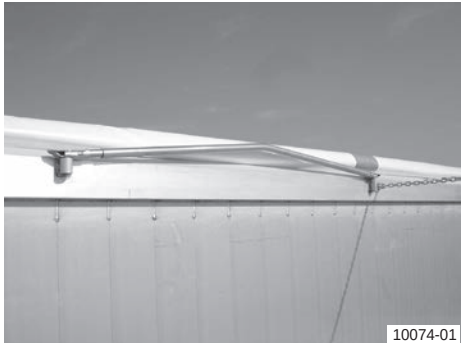
11111-01

"Roof bow marking" information sign

Swivelling the roof bow

A distinction is made between two positions for the roof bow:

- Driving position
  Position while driving
- Park position
  Position during the loading procedure

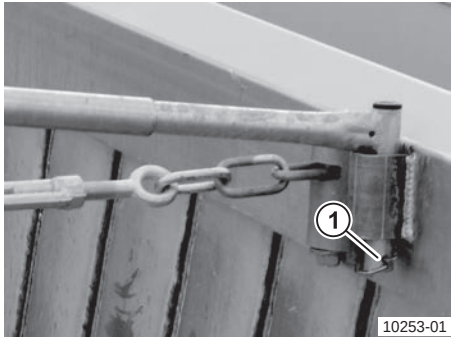


Roof bow in park position (roof-shaped roof bow is shown)

Property damage!

Roof bows may be damaged if they are in driving position during loading.

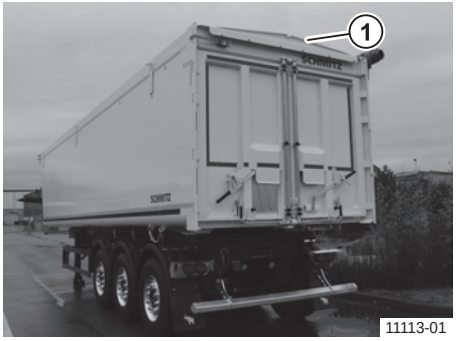
▶ Before loading, put the roof bows into park position by swivelling them around.



Roof bow secured with a spring cotter pin (driving position)

Before starting a trip, check that the roof bow is secured on both sides with spring cotter pins (1)!

Roof-shaped/arched extension*



1 Roof-shaped extension

Depending on the equipment, roof-shaped extensions are installed on the front and rear wall of your semitrailer tipper.

Property damage!

The roof-shaped extension can be damaged when loading the vehicle.

▶ Vehicles with roof-shaped extension are only suitable to a limited extent for use on asphalt milling machines.

Tarpaulin fastening*

Depending on the equipment, you have the following options for fastening your tarpaulin for driving:

- Tarpaulin hooks* and eyelets* for bungee cords
- Tension ratchets* for tension straps
- Quick clamping device*

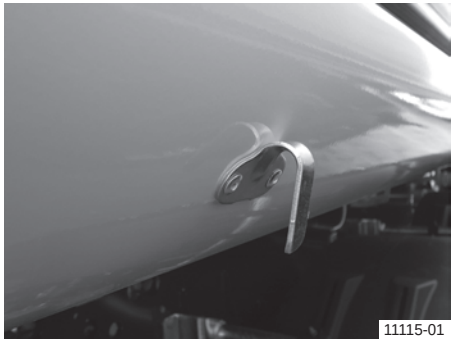
ACCIDENT HAZARD!

A poorly tensioned tarpaulin may be detached by the air movement while driving and be destroyed and cause accidents in road traffic.

▶ Make sure that the tarpaulin is firmly attached to all hooks, eyelets, or tension ratchets before beginning a trip. Pay particular attention to the corners at the front left and right to ensure that the moving air cannot penetrate under the tarpaulin.

Tarpaulin hooks and eyelets*

Various types of tarpaulin hook are mounted on your trough, depending on the model. Always lock your cover with all available tarpaulin hooks on the tipping trough (front wall, side wall, rear wall). Hook all of the bungee cords in the intended hooks and eyelets on the tipping trough.



Example of tarpaulin hooks

Tension ratchets* for tension straps

Depending on the vehicle equipment, your tipping trough is equipped with lateral tension ratchets to secure the roll-up tarpaulin. Use the installed tarpaulin hooks and eyelets to additionally secure the roll-up tarpaulin on the front and rear wall.



Roll-up tarpaulin, secured with tension straps

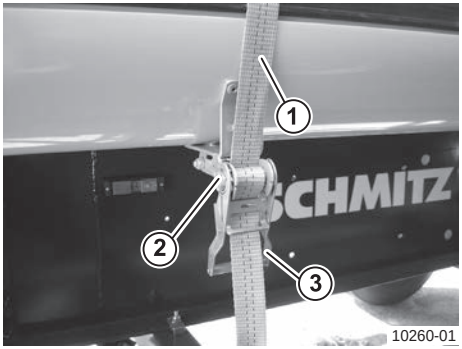
Securing the roll-up tarpaulin with tension ratchets

▶ Close the roll-up tarpaulin.

▶ Insert the strap (1) in the slit of the tension ratchet (2).

▶ Tension the strap using the handle (3).

▶ Thread the end of the strap into the ratchet and make a loop.



Tension ratchet

1 Tension strap
2 Tension ratchet
3 Handle

Releasing the tension ratchet

- ▶ Turn the handle (3) on the tension ratchet upwards up to the stop.
- ▶ Pull the strap (2) out of the ratchet.
- ▶ Wind up the roll-up tarpaulin (see "Opening the roll-up tarpaulin" on page 130).

Standard roll-up tarpaulin

The roll-up tarpaulin is operated manually from the platform with a crank.

Closing the roll-up tarpaulin

- ▶ Release the fasteners for the rolled-up tarpaulin and the crank.
- ▶ Completely close the roll-up tarpaulin by turning the crank.
- ▶ Position the crank vertically.
- ▶ Secure the roll-up tarpaulin as described under "Tarpaulin fastening*" on page 129.
- ▶ Remove the plugged tarpaulin stops (depending on the equipment).

Opening the roll-up tarpaulin

- ▶ Insert the tarpaulin stops in the intended positions in the top strap (depending on the equipment).
- ▶ Release the tension in the tarpaulin (see "Tarpaulin fastening*" on page 129).
- ▶ Fold the end of the tarpaulin protruding at the front wall.
- ▶ By turning the crank, wind the roll-up tarpaulin **tightly** on the winding tube.
- ▶ Open the tarpaulin completely.
  - ▷ The winding tube with the tightly wrapped tarpaulin touches the tarpaulin stops.
- ▶ Position the crank vertically. Secure the crank with bungee cords.
- ▶ Secure the winding tube at the front and rear with the bungee cords on the intended fastening elements.

Property damage!

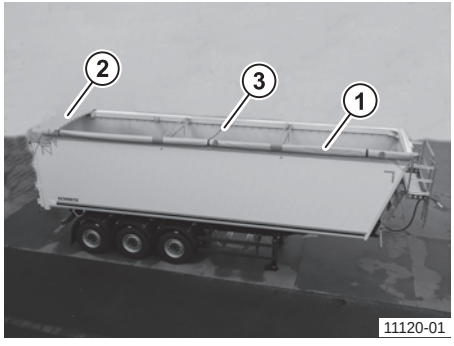
The tarpaulin may be damaged if bulk cargo gets caught on it.

- ▶ Before unloading, open the tarpaulin completely and secure it.

Two-part roll-up tarpaulin with extra long centre strap to close the tarpaulin*

Depending on the equipment, Schmitz Cargobull semitrailer tippers can be equipped with an extra long tension strap. It enables convenient unrolling of the tarpaulin from the ground.

In this version, the tarpaulin has two parts. It consists of a fixed tarpaulin flap at the rear of the vehicle and a roll-up tarpaulin with a winding board.



Two-part roll-up tarpaulin with winding board and extra long centre belt

1 Roll-up tarpaulin with winding board
2 Fixed tarpaulin flap at the rear
3 Extra long centre strap

The fixed tarpaulin flap (2) at the rear of the vehicle can remain on the vehicle during loading and unloading procedures. Before starting a trip, check that the tarpaulin flap is stretched with all bungee cords on the existing tarpaulin hooks on the side wall, on the arched extension, and on the tailgate roof bow*.

Property damage!

When the roll-up cover is open, the centre strap remains stretched over the trough.

▶ During loading procedures, make sure that the centre strap is not damaged.

Closing the roll-up tarpaulin with tension straps

▶ Release the fasteners for the rolled-up tarpaulin and the crank.

▶ Remove the extra long centre tension strap from the holder (4).

▶ Open the clamp lock (see page 129).

▶ Pull firmly on the centre strap until the tarpaulin with the winding board falls down over the opposite side wall.

CAUTION:
People standing on the work platform can be injured by the tarpaulin crank. When unrolling the tarpaulin, maintain eye contact and unroll the tarpaulin slowly.

▶ Secure the tarpaulin with all tension straps using the tension ratchets (see page 129).

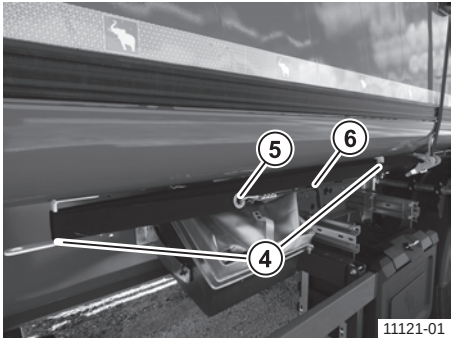
▷ Make sure that the roll-up tarpaulin is stretched taut.

▶ Secure the overhanging end of the centre strap in the holder (4) using a bungee cord (6).

INJURY HAZARD!

Loose tarpaulins may not be unrolled.

▶ Before opening the roll-up cover, make sure that the tarpaulin is securely fastened to the side wall with tarpaulin rope.



Strap holder for extra long centre strap

4 Centre strap holder
5 Centre strap with eyelet
6 Bungee cord

Opening the roll-up tarpaulin

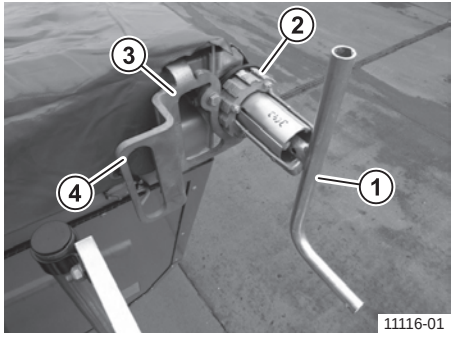
▶ Release the clamp locks as described on page 129.

▶ Wrap up the tarpaulin tightly on the tarpaulin board. To do so, proceed as described on page 130.

▶ Secure the extra long strap safely on the strap holder (4) and secure it with the bungee cord (6).

Roll-uptarpaulin with quick clamping device*

The quick clamping device enables fast and easy loosening of the roll-up tarpaulin on the side wall.



Quick clamping mechanism

1 Crank, extendible and adjustable
2 Tooth washer on the tarpaulin tube
3 Lock
4 Handle on the lock

Closing the tarpaulin with quick clamping device

▶ Close the roll-up tarpaulin as described on page 130.

▷ The crank (1) for the roll-up tarpaulin with quick clamping device is extendible. It must engage in the tarpaulin tube to fix the crank.

▶ Move the tooth washer (2) in line with the lock (3).

▶ Wrap up the roll-up tarpaulin opposite to the winding direction under all of the stops installed on the top strap (5).

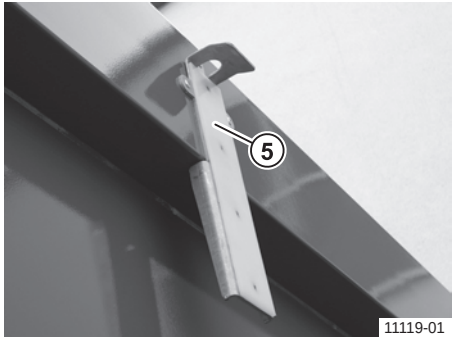
Make sure that the roll-up tarpaulin is stretched taut over the trough.

▶ Engage the tooth washer (2) in the lock (3).

▶ Position the crank (1) vertically by pulling it out.

▶ Engage the crank (1) in the tarpaulin tube and secure it with a bungee cord.

▶ Secure the tarpaulin with all bungee cords on the tarpaulin hooks and eyelets on the front and rear wall.



5 Stop on the top strap

Opening the quick clamping device

- ▶ Release the fasteners for the rolled-up tarpaulin and the crank.
- ▶ Fold the end of the tarpaulin protruding at the front wall onto the tarpaulin.
- ▶ With one hand, hold the crank (1) firmly and slacken it while releasing the lock on the selector lever (4) with the other hand.

  ! During the releasing procedure, hold onto the crank firmly to prevent injuries!
- ▶ Roll up the tarpaulin tightly on the tarpaulin tube as described on page 130.
- ▶ Position the crank vertically by pulling it out.
- ▶ Engage the crank in the tarpaulin tube and secure it with a bungee cord.
- ▶ Secure the tarpaulin with the bungee cords on the tarpaulin hooks on the front and rear wall.

Sliding roof*

Depending on the equipment, Schmitz Cargobull semitrailer tippers are equipped with a sliding roof.

The sliding roof is secured on the sides with hooks that catch under the guide rail.

Property damage!

Unsecured covers will be damaged while driving.

- ▶ Before starting a trip, check that the fastening hooks are securely positioned under the lateral guide rails.



Lateral hooks under the guide rail; open sliding roof is shown

Property damage!

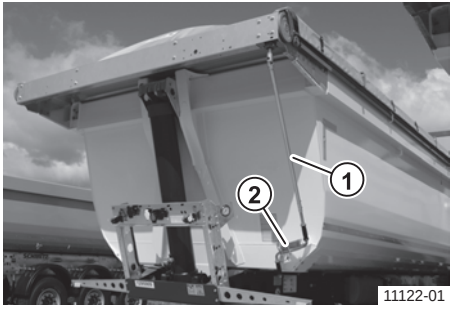
When loading from the side, there is a risk of damage to the lateral guide rails or ropes.

- ▶ Be very careful when loading the trough.
- ▶ Check the condition of the ropes and guide rail for damage after loading from the side.

Depending on the equipment, operation can be:

- Manual
- Electrical

Manually operated sliding roof*



Manually operated sliding roof

1 Hand crank
2 Crank holder on the front wall

The cover is operated manually from the ground with a crank (1).

Before starting a trip, check that the crank is secured in the crank holder with a securing pin and lynch pin.

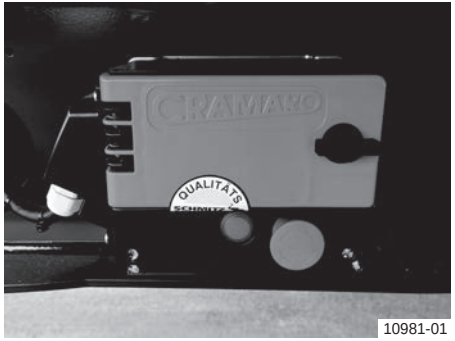
You can find more information on operation, maintenance, and care of the manually operated sliding roof from the system manufacturer at:
www.cramaro.com

Electrically operated sliding roof*

The cover is operated using:

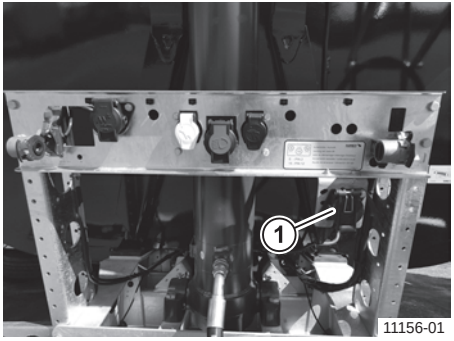
- the control unit on the chassis
- the remote control
- a mobile device (smartphone/tablet) via app*

You can find more information on operation, maintenance, and care of the electrically operated sliding roof as well as on connecting to a mobile device (*) from the system manufacturer at:
www.cramaro.com



"Sliding roof" control unit

The power supply to the electrical sliding roof is established with a separate socket on the light/air holder. The connection to the tractor is established with a Wendelflex cable.



1 Separate socket on the light/air holder

Observe the "Terminal assignment" starting on page 270.

Rear wall protective tarpaulin*



Rear wall protective tarpaulin, unrolled

For special vehicle applications, depending on the equipment, a protective tarpaulin can be installed on your semitrailer tipper to protect the rear wall.

Fasten the tarpaulin with all fastening elements both when it is rolled up and when it is unrolled.

When the tarpaulin is rolled up, make sure that the contour marking of the rear wall is fully visible.

CAUTION!

When the protective tarpaulin is unrolled, all of the markings applied to the rear wall are covered.

3

Work platform*

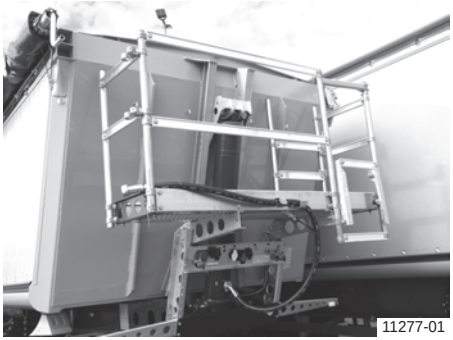
As an option, your semitrailer tipper can be equipped with a work platform. The work platform is used to operate the roll-up tarpaulin (see page 125) and to check the fill level of the trough. Moreover, the work platform can be used for maintenance work on the tipping cylinder.

Depending on your vehicle equipment, the work platform is installed:

- on the chassis
  (remains down during the tipping procedure)
- on the front wall
  (moves up along with the tipping procedure)

Schmitz Cargobull work platforms are equipped with:

- Circumferential railing
- Safety barrier on the platform access
- Folding step as platform access
  (choice of right or left)
- Non-slip floor
- Hydraulic hose holder (see page 147)
- Park position for tarpaulin crank



Work platform (installed on the chassis)



Work platform (installed on the front wall)

ACCIDENT HAZARD!

It is forbidden to carry any objects or persons on the work platform while driving.

▶ Before starting a trip, make sure that there are no persons/objects on the work platform.

INJURY HAZARD!

It is forbidden for people to stand on the work platform during the tipping procedure as well as when loading and unloading.

▶ Before the tipping procedure and before loading and unloading, make sure that nobody is standing on the work platform.

Property damage!

The folding ladder can break off if it is folded down when the vehicle is turned.

▶ Before driving off, check whether the folding ladder is folded up and secured on both sides.

It is forbidden to climb into the trough from the work platform.

Landing legs
Wheel chocks
Hydraulic hose holder*
Spare wheel holder*
Ladders/steps/ascents*
Tarpaulin rod*
Holder for broom and shovel*
Storage compartments*
Water tank*
Fire extinguisher*
Document compartment*
Discharge funnel*
Warning signs and symbols*
Rear area camera*
Lashing points*
Additional licence plate holder*

Landing legs

Depending on the vehicle equipment, your semitrailer tipper has:

- Landing leg winches*
- Drop supports*
- Auxiliary supports*

The landing legs are used to support the uncoupled semitrailer.

4

Landing legs are safety-relevant components. Improper use can result in significant danger.

The following are not permitted:

- Persons under the uncoupled semitrailer.
- Persons on the uncoupled semitrailer.
- Propping up and driving with damaged landing legs.
- Driving with lowered landing legs.
- Loading and unloading semitrailer tippers that are parked on the landing legs.

In addition to the instructions in this chapter, observe the instructions under "Coupling and uncoupling" starting on page 189 as well as "Loading and unloading" starting on page 203.

MORTAL DANGER!

When parked on the landing legs, the semitrailer can tip over and cause personal injury.

- ▶ Always park the semitrailer on a horizontal, load-bearing ground. If necessary, use suitable underlays.
- ▶ Always use both of the landing legs installed on the vehicle (left and right).
- ▶ Make sure that the left and right landing leg are evenly loaded.

MORTAL DANGER!

When uncoupling, the S.KI 18 can tip to the front.

- ▶ Always uncouple in unloaded condition with slight tilt towards the rear.
- ▶ The parking surfaces for the landing legs (left and right) must be at the same elevation.

Before each use, perform the following checks:

- ▶ Visual inspection of the landing legs for cracks or deformation.
- ▶ Function of the landing legs.

Landing leg winches*

Landing leg winches are used to support the uncoupled semitrailer tipper in a loaded or unloaded state and to adjust the height during the coupling or uncoupling procedure.

Our landing leg winches are conveniently operated from one side. By actuating the crank, the landing legs are variably adjusted on both sides.

Two different gear steps enable convenient operation of the landing leg winches and easy changing between high and low speed.

Parking the semitrailer on landing leg winches

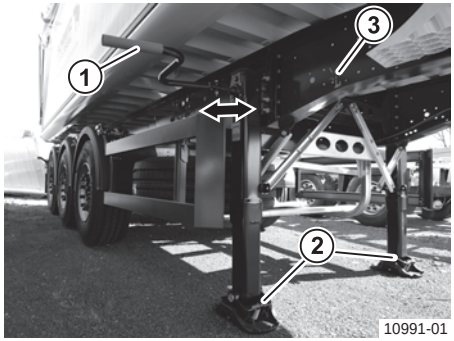
- ▶ Completely empty the air bellows of the semitrailer tipper.
- ▶ Take the crank (1) from the holder (3).
- ▶ Set it to high speed by pulling out the crank.
- ▶ Lower the landing legs (2) until they touch the ground.
  - ▷ Make sure that the left and right landing leg touch the ground evenly.
  - ▷ If necessary, use suitable, load-bearing underlays.
- ▶ Set it to low speed by pushing in the crank (1).
- ▶ Extend the landing legs (2) to the desired length and secure the crank (1) in the holder (3).

  Depending on your vehicle's equipment, the crank holder is located on the vehicle frame or directly on the landing leg winch.
- ▶ Uncouple the semitrailer tipper as described under "Coupling and uncoupling" starting on page 189.

Property damage!

The use of other drives can lead to damage and hazards.

- ▶ The landing leg winches may be driven only with the intended crank.



Landing leg winch with switch between low and high speed (arrow)

1 Crank
2 Landing legs
3 Crank holder (on the frame)



Crank secured in the crank holder (on the frame)

ACCIDENT HAZARD!

The semitrailer may fall and cause personal injury.

- ▶ Before uncoupling make sure that the semitrailer is loaded so it will not tip.
- ▶ Load the uncoupled semitrailer so it will not tip during loading.
- ▶ Do not exceed the maximum permissible support load of the winches.

Property damage!

The landing leg winches can be damaged if the maximum extension distance is exceeded.

- ▶ Observe the coupling height!
- ▶ Do not use the low speed to increase the maximum extension distance achieved at high speed.

Property damage!

The landing leg winches can be damaged by overloading if you attempt to lift or lower the semitrailer at high speed.

- ▶ When the landing legs touch the ground, only use the landing leg winches at low speed; this applies regardless of whether the semitrailer is empty or loaded.
- ▶ Switch to high speed only after the landing leg is lifted and relieved of all load.

Retracting the landing leg winches

Prerequisite:
The semitrailer tipper is coupled. Observe the instructions under "Coupling and uncoupling" starting on page 189.

- ▶ Take the crank (1) from the holder (3).
- ▶ Set it to low speed by pushing in the crank (1).
- ▶ Using the crank, lift the landing legs (2) until they no longer touch the ground.
- ▶ Set it to high speed by pulling out the crank (1).
- ▶ Completely retract the landing legs (2) using the crank.
- ▶ Set it to low speed (push in the crank) and secure the crank in the crank holder (3).

Property damage!

To prevent the landing leg winches from slipping out on their own while driving, the drive shafts of the landing leg winches must be secured against unintentional rotational movement.

- ▶ Before starting a trip, check that all landing leg winches are set to low speed and the crank (1) is secured in the crank holder (3).

Landing leg winches with length compensation

Landing leg winches with a pivoted foot can compensate for possible longitudinal movement of the semitrailer when uncoupling.

As the air suspension loses pressure, the semitrailer lowers and simultaneously moves forwards. When lifting the air suspension, the semitrailer moves to the rear. Landing legs with length compensation (pivoted foot) compensate for this movement and prevent damage caused by tension acting on the landing leg winch. Pivoted feet can move approximately 10 cm forward or back.



Pivoted foot with length compensation

Inspection

The landing leg winches must be checked in accordance with the conditions in the country in accordance with the applicable regulations for winches, lifting, and pulling equipment.

The inspection must be performed at least annually by a qualified person (expert).

The inspections are to be documented. In addition, inspection is required:

- ▶ after extraordinary events, which may have damaging effects on the safety of the landing leg winches (accidents, natural phenomena, prolonged non-use).
- ▶ after repair work on the landing leg winches.

Drop supports*

The drop supports are used to support the uncoupled semitrailer when it is in a loaded or unloaded condition.

The drop supports must be separately operated on both sides of the vehicle.

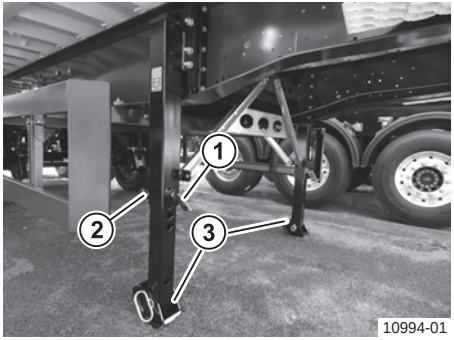
Semitrailers with drop supports may be used only on semitrailer tractors with air suspension!

Parking the semitrailer on drop supports

Prerequisite:
The tractor has an air suspension!

- ▶ Completely empty the air bellows of the semitrailer tipper.
- ▶ Remove the spring clip (2).
- ▶ Pull out the locking pin (1).
- ▶ Pull out the drop support all the way down to the ground.
  - ▷ If necessary, use suitable, load-bearing underlays.

  Ensure that the locking pin can be inserted into an appropriate hole in the drop support.
  Adjust the height using the tractor's air suspension as needed.
- ▶ Insert the locking pin (1) into the appropriate hole of the drop support and secure it with a spring clip (2).
- ▶ Repeat the procedure on the other side of the vehicle.
- ▶ Uncouple the semitrailer tipper (see "Coupling and uncoupling" starting on page 189).



Drop support with compensation foot

1 Locking pin
2 Spring clip
3 Compensation foot

ACCIDENT HAZARD!

The semitrailer may fall and cause personal injury.

- ▶ Before uncoupling make sure that the semitrailer is loaded so it will not tip.
- ▶ Load the uncoupled semitrailer so it will not tip during loading.
- ▶ Do not exceed the maximum permitted support load of the drop supports.

Retracting the drop support

Prerequisite:
The semitrailer tipper is coupled to a tractor with air suspension. Observe the instructions under "Coupling and uncoupling" starting on page 189.

- ▶ Lift the semitrailer tipper using the air suspension until the drop supports hang freely.
- ▶ Remove the spring clip (2).
- ▶ Pull out the locking pin (1).
- ▶ Slide in the drop support all the way to the stop.
- ▶ Insert the locking pin (1) into the appropriate hole of the drop support and secure it with a spring clip (2).
- ▶ Repeat the procedure on the other side of the vehicle.

Auxiliary supports*

CAUTION!

Semitrailers with auxiliary supports may be used only on semitrailer tractors with air suspension!

Auxiliary supports serve to support the uncoupled semitrailer tipper in an unloaded state.

The auxiliary supports must be pushed into the frame separately on both sides.

Auxiliary supports cannot be carried on the vehicle frame.

MORTAL DANGER!

The semitrailer tipper will tip over if the auxiliary supports are used when it is loaded.

- ▶ Only park the semitrailer tipper on auxiliary supports when it is in an **unloaded** state.

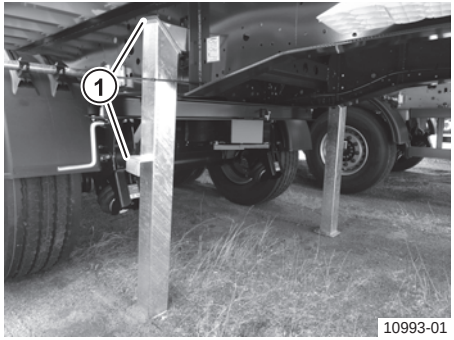
Parking the semitrailer on auxiliary supports

Prerequisite:
The semitrailer must be unloaded and the tractor must have an air suspension!

- ▶ Completely empty the air bellows of the semitrailer.
- ▶ Lift the semitrailer using the tractor's air suspension until the auxiliary support can be installed.
- ▶ Insert the auxiliary supports into the guide on the vehicle frame up to the stop.
- ▶ Carefully lower the semitrailer on the auxiliary supports.

  ▷ If necessary, use suitable, load-bearing underlays.

- ▶ Uncouple the semitrailer tipper as described under "Coupling and uncoupling" starting on page 189.



Auxiliary supports

1 Handles on the auxiliary support

Removing the auxiliary supports

Prerequisite:
The semitrailer tipper is coupled to a tractor with air suspension. Observe the instructions under "Coupling and uncoupling" starting on page 189.

- ▶ Lift the semitrailer using the tractor's air suspension until both auxiliary supports hang freely.
- ▶ Remove the auxiliary supports on both sides using the handles (1).

Property damage!

Driving with installed auxiliary supports is forbidden!

- ▶ Immediately remove the auxiliary supports after coupling.
- ▶ Before starting a trip, check that the auxiliary supports are removed.

Wheel chocks

Your semitrailer is equipped with two wheel chocks.

Ensure that you always have two wheel chocks on the vehicle.

Always secure the semitrailer with the wheel chocks in addition to other measures:

4

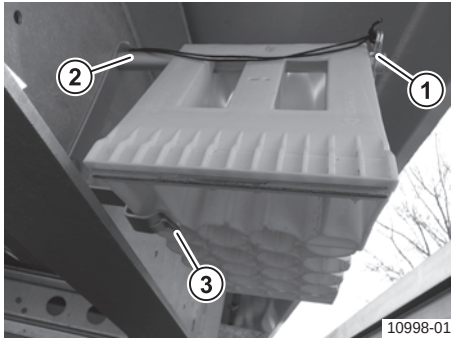
- when parking on slopes
- while loading and unloading
- while uncoupled
- when changing a wheel

Always place the wheel chocks on wheels of rigid axles, never on wheels of lift or steering axles.

Removing the wheel chock

▶ Remove the spring clip (1).

▶ Pull the wheel chock out of the holder against the resistance of the retaining bracket (3).



Wheel chock bracket

1 Spring clip
2 Retaining rod
3 Retaining bracket

Fastening the wheel chock

▶ Insert the wheel chock with the hole on the retaining rod (2) on the vehicle frame.

▶ Slide the wheel chock to the rear against the resistance of the retaining bracket (3) until it locks in place.

▷ Check whether the wheel chock is engaged in the groove of the retaining bracket (3).

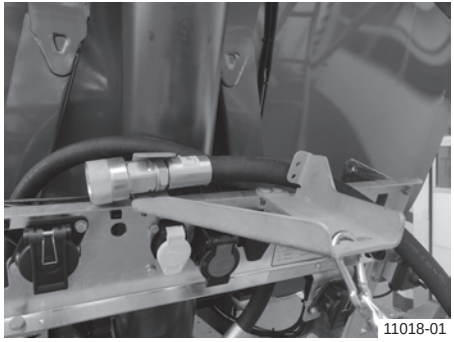
▶ Secure the wheel chock with the spring clip (1).

Hydraulic hose holder*

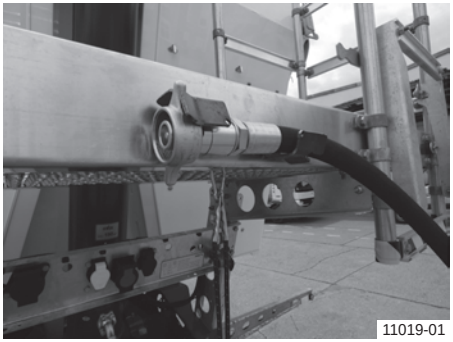
To protect the hydraulic hose from damage in an uncoupled state, a holder is installed on your semitrailer tipper.

When the semitrailer is coupled to the tractor, the hydraulic hose holder must not be used.

After uncoupling, hang the hydraulic hose in the holding device as shown. Make sure that the hydraulic hose is not bent.



Hydraulic hose holder on the light/air holder



Hydraulic hose holder on the platform

A carabiner is attached to the holder or platform. An elastic rope is attached to it for permanent upward fixing of the hydraulic hose. The rope remains on the hydraulic hose both in a coupled and uncoupled state.

Spare wheel holder*

General

Depending on the design of your semitrailer, there are the following spare wheel holders used:

- Basket-type design* for one or two spare wheels (see page 149),
- Winch-type design*, for one spare wheel (see page 152)
- On the side of the chassis*, for one spare wheel (see page 155)

To fasten the spare wheel in the holder, the supplied fastening kit must be used.

The fastening kits of the spare wheel holder are intended only for the factory-installed wheel size.

Before installing/removing the spare wheel, fold the side guard up (see page 58).

Check the air pressure of the spare wheel at regular intervals so that it is ready for use at all times in the event of a breakdown.

Usage notes

The spare wheel holder is a safety-relevant component.

- Improper use can result in significant danger.
- Driving with a damaged spare wheel holder is not permitted.
- Only use the spare wheel holder when it is in perfect condition.
- Improper use can result in significant danger.
- Only allow trained personnel to use it.

Safety instructions

▶ Before working on the vehicle, make sure that the tipping trough is completely lowered.

▶ When removing or inserting the spare wheel, the vehicle must be coupled and secured against rolling away.

▶ The semitrailer may not be lifted, lowered, or moved when persons are under the vehicle.

▶ Ensure that the vehicle cannot be moved by unauthorised persons.

▶ Make sure that no other functions can be actuated on the vehicle.

▶ Do not loiter under the spare wheel when removing and replacing it.

▶ Loading and unloading is forbidden while changing wheels.

INJURY HAZARD!

The heavy spare wheel may crush hands and feet.

- ▶ Wear safety gloves.
- ▶ Work safely and bearing risks in mind.
- ▶ Make sure that your feet are not in the danger area while pulling out the spare wheel.
- ▶ First repair any damage or defects, then continue working.

Property damage!

The spare wheel must be safely stowed and secured in the holder.

- ▶ Before starting a trip, check that the spare wheel is properly secured in the spare wheel holder.

Property damage!

The spare wheel holder is intended only for transporting the supplied spare wheel.

- ▶ Do not transport any other objects in the spare wheel holder!

MORTAL DANGER!

Special caution is required when changing the wheel on public roads.

- ▶ Put on a safety vest before leaving your vehicle.
- ▶ Adequately safeguard the danger area.
- ▶ Do not stay in the danger area (traffic area) when changing a wheel.

Spare wheel holder in basket design*

Depending on the equipment, your semi-trailer tipper is equipped with a basket-type spare wheel holder.



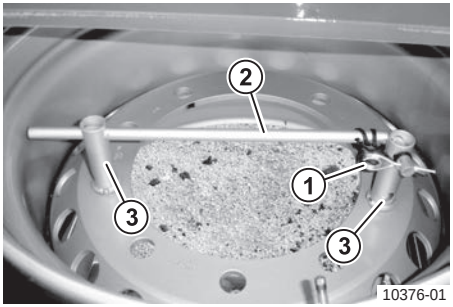
Basket-type design spare wheel holder

The basket-type design spare wheel holder is intended to transport one to a maximum of two spare wheels.

You must also observe the instructions under "General" on page 148.

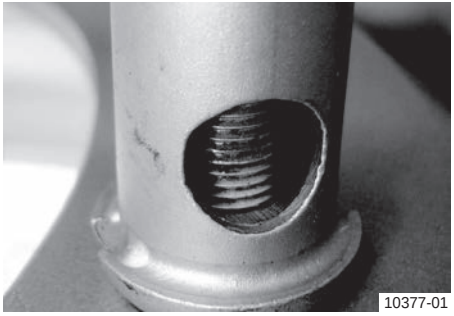
4

Layout of the spare wheel holder

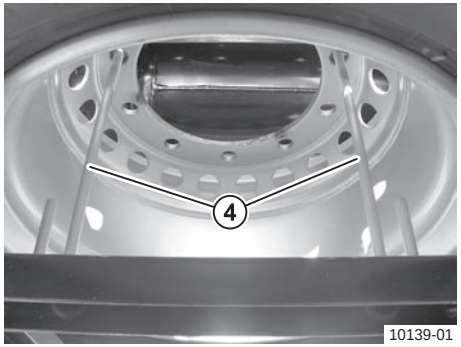


Spare wheel fastening, driving position (viewed from above)

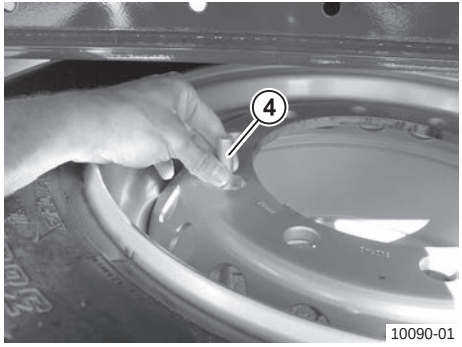
1 Spring clip
2 Safety bracket
3 Tubular nut with viewing window



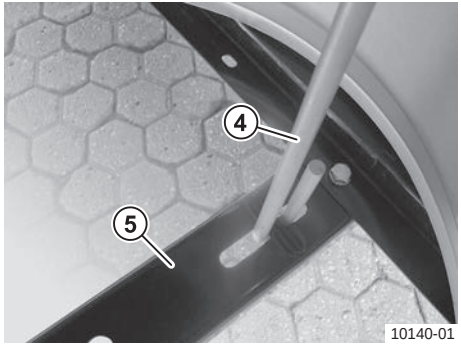
Tubular nut with viewing window - detail



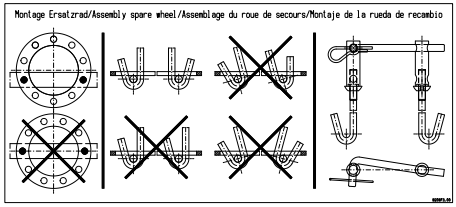
4 Retaining bracket; viewed from below



4 Retaining bracket (tubular nut removed); viewed from above



4 Retaining bracket (installed)
5 Traverse



"Spare wheel installation" instruction sticker

Installing/removing the spare wheel from the holder

Removing the spare wheel from the holder

- ▶ Fold up and secure the side guard (see page 58).
- ▶ Remove the spring clip (1) from the safety bracket (2).
- ▶ Release the safety bracket (2).
- ▶ Using the safety bracket (2), unscrew both tubular nuts (3).
- ▶ Remove the retaining bracket (4) downwards.
- ▶ Remove spare wheel.

Installing the spare wheel on the holder

- ▶ Lay the wheel with the offset upwards in the spare wheel holder.
- ▶ Insert the two retaining brackets (4) through the drill holes in the traverse (5) and thread through the rim of the spare wheel.
- ▶ Place the tubular nuts (3) on the retaining brackets (4) and tighten up using the safety bracket (2).
- ▶ Push the safety bracket (2) through both tubular nuts (3) and secure with the spring clip (1).
- ▶ Fold down and secure the side guard (see page 58).

Make sure that the retaining bracket thread (4) is visible through the inspection window in the tubular nuts (3)!

INJURY HAZARD!

The heavy spare wheel can come off of the holder and thus pose a risk.

- ▶ Always fasten the spare wheel with all fastening elements and check that the spare wheel is safely secured in the holder from time to time.

Make sure that the valve of the spare wheel is easily accessible so that you can easily check the tyre pressure at any time.

Operating the spare wheel holder without a spare wheel fitted

Property damage!

The spare wheel holder is intended only for transporting the supplied spare wheel.

- ▶ Do not transport any other objects in the spare wheel holder!

Store the fastening kit (safety bracket with spring clips and retaining brackets with tubular nuts) safely in the stow box of the semitrailer.

4

Spare wheel holder in winch design*

Depending on the equipment, your semi-trailer tipper is equipped with a winch-type spare wheel holder.

Use the spare wheel holder only to raise, lower and transport the supplied spare wheel.

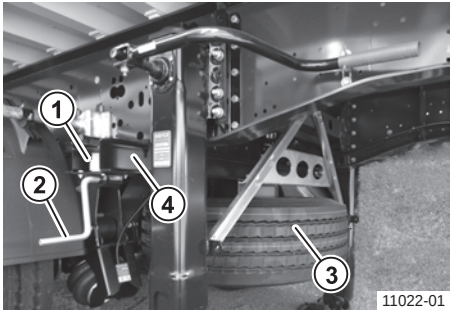
On the S.KI 24 7.2 with winch-type spare wheel holder, the rotation radius is limited according to ISO 1726, depending on the vehicle specifications! Observe the instructions under "Clearance zones" on page 193.

Safety instructions

- Do not leave the spare wheel in the raised condition swing without supervision.
- Do not let the spare wheel swing.
- Do not allow the spare wheel to fall onto the rope.
- Observe both lifting device and spare wheel during all movements.
- You must also observe the instructions under "General" starting on page 148.

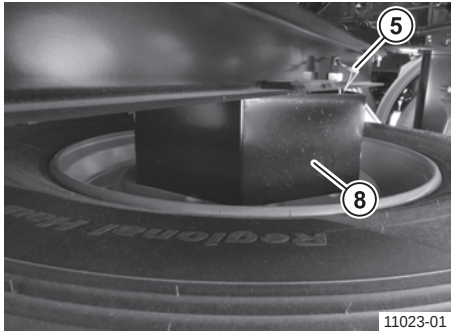
Layout of the spare wheel holder

The winch in the spare wheel holder is fitted with a self-locking worm gear. The rope is fitted at the factory on the tension arm and to the winch drum. The frame of the spare wheel holder is fastened to the vehicle frame.



Winch-design spare wheel holder

1 Rope winch
2 Crank
3 Spare wheel (in driving position)
4 Spare wheel carrier

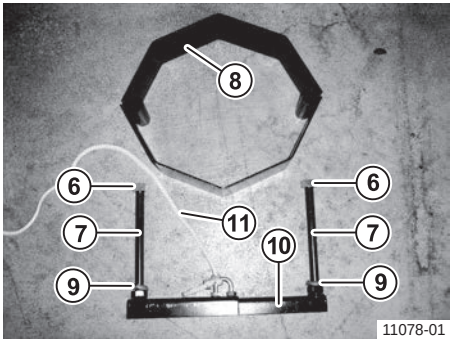


Installed spare wheel (driving position)

5 Spring clip
8 Spacer

The fastening kit is designed only for the factory-installed wheel size. Installing other wheel or tyre sizes is prohibited.

The fastening kit depends on the offset as well as the wheel and tyre size.



Fastening kit overview

6 Lock nut
7 Threaded bolts with drill hole for the spring clip
8 Spacer
9 Centring ring
10 Tension arm
11 Rope

Installing/removing the spare wheel from the holder

MORTAL DANGER!

To install/remove the spare wheel, the threaded connections on the fastening kit under the vehicle must be unscrewed.

- ▶ Ensure that the vehicle cannot be moved by unauthorised persons.
- ▶ Additionally secure the vehicle with wheel chocks to prevent rolling away.

Removing the spare wheel from the holder

- ▶ Check whether the rope (11) is sufficiently taut to hold the heavy spare wheel.

  ▷ Correct the rope tension if necessary!

  Observe the crank direction!
- ▶ Remove the spring clips (5) from the threaded bolts (7).
- ▶ Loosen the lock nuts (6).
- ▶ Use the rope winch (1) to lower the spare wheel onto the ground.

  In this process, unwind the rope (11) until there is enough clearance to remove the tension arm (10) from the spare wheel.

  ▷ Make sure that there are at least two turns of rope on the drum after the spare wheel has been lowered.
- ▶ Remove the spacer (8).
- ▶ Detach the tension arm (10) from the spare wheel by guiding it upwards through the wheel hub.

INJURY HAZARD!

The heavy spare wheel may fall and injure you.

- ▶ Before removing the spare wheel, ensure that the rope is sufficiently taut to hold the heavy spare wheel.

4

Installing the spare wheel on the holder

▶ Insert the tension arm (10) with the centring rings (9) through the wheel hub and insert the threaded bolts (7) into two opposite wheel stud holes.

Do not damage the thread.

▶ Position the spare wheel under the pulley of the spare wheel holder.

▷ On wheels with offset, make sure that the offset is facing up.

▶ Put on the spacer (8).

▶ Crank the spare wheel upwards using the rope winch (1).

In this process, ensure adequate rope tension so that the rope is wound tightly onto the drum.

▷ Carefully insert the threaded bolt into the drilled holes in the spare wheel carrier (4).

Do not damage the thread.

▶ Using the winch (1), crank the spare wheel up to the stop and leave it in this position.

▶ Attach the lock nuts (6) to both threaded bolts (7) and secure them with spring clips (5).

▷ The rope remains slightly taut.

On wheels with offset, the wheel must be fastened in the spare wheel holder with the offset facing up!

Operating the spare wheel holder without a spare wheel fitted

▶ Fasten the spacer (8) on the tension arm (10).

▶ Pull the tension arm (10) with the spacer (8) upwards using the winch (1) by turning the crank.

▶ Carefully insert the threaded bolts (7) in the holes of the spare wheel carrier (4).

Do not damage the thread.

▶ Using the winch (1), crank the tension arm (10) with the spacer (8) upwards up to the stop.

▶ Screw on the lock nuts (6) and secure on both sides with spring clips (5).

▶ The rope remains slightly taut.

Inspection

The spare wheel holder with winch is to be inspected according to use in line with the relevant regulations for winches, lifting and pulling equipment in the country of vehicle registration. Follow the instructions in the Maintenance chapter on page 252.

Before each use, perform the following checks:

▶ Visual inspection of the rope and tension arm (condition, rope tension)

▶ Function of the rope winch

▶ Firm seating of the spare wheel and spare wheel carrier

In addition, inspection is required:

- ▶ after unusual events that can have damaging effects on the safety of the rope winch (accidents, natural phenomena, longer periods of non-use).
- ▶ after repair tasks on the rope winch.

Spare wheel holder on the side of the chassis*

Depending on the equipment, your semi-trailer tipper is equipped with a spare wheel holder on the side of the chassis.

Property damage!

The spare wheel holder is intended only for transporting the supplied spare wheel.

- ▶ Do not transport any other objects or wheels of different wheel sizes in the spare wheel holder!



Spare wheel holder on the side of the chassis

ACCIDENT HAZARD!

The completely installed spare wheel assumes the function of the side guards.

- ▶ Driving without completely installed spare wheel is not permitted.

Installing/removing the spare wheel from the holder

Removing the spare wheel from the holder

- ▶ Remove the protective cover from the wheel hub.
- ▶ Remove the lynch pins.
- ▶ Unscrew the wheel nuts from the threaded bolts.
- ▶ Take the spare wheel out of the holder.
  - ▷ Make sure that the threaded bolts of the spare wheel holder are not damaged.



Spare wheel in the holder, shown without protective cover

Installing the spare wheel on the holder

- The spare wheel is installed in the holder in the same direction as on the axle (valve pointing out).
- Installation is done in the reverse order.

INJURY HAZARD!

The heavy spare wheel can come off of the holder and thus pose a risk.

- Always fasten the spare wheel with all fastening elements and check that the spare wheel is safely secured in the holder from time to time.

Ladders/steps/ascents*

When using ladders, steps, and ascents, the applicable accident prevention regulations must be observed. Only use ladders, steps, and ascents for tasks that are allowed in the scope of the applicable accident prevention regulations.

Depending on the equipment, your vehicle has the following ladders:

- Leaning ladder* (page 157)
- Ascent ladder at the rear of the vehicle* (page 158)
- Ascent ladder at the front wall* (page 159)

ACCIDENT HAZARD!

You may slip and fall if you climb up parts not designed for the purpose.

▶ Do not climb up on wheels, the underrun protection, or other mounted parts.

▶ Always use a ladder with anti-slip feet.

ACCIDENT HAZARD!

Only use ladders that are not damaged.

▶ Replace damaged ladders immediately.

▶ Check the ladders at the prescribed intervals.

Leaning ladder*

The leaning ladder mounted on the vehicle frame is used only to check the load and the fill level of the trough.

It is forbidden to climb into the trough using the leaning ladder!

The leaning ladder has slip-resistant plastic feet on both sides.

When using the leaning ladder, pay special attention to the following points:

- Use the ladder as intended.
- Observe the warning stickers attached to the ladder.
- Choose a level, load-bearing surface to set up the ladder.
- Observe the permissible pitching angle.
- It is forbidden to climb onto the top three rungs.
- The ladder may be used only by one person.
- Do not exceed the maximum load-bearing capacity of the leaning ladder.

ACCIDENT HAZARD!

Ladders that are more than 3 metres long are equipped with hooks.

▶ Only climb onto the ladder when both hooks are securely hooked onto the top strap of the side wall.

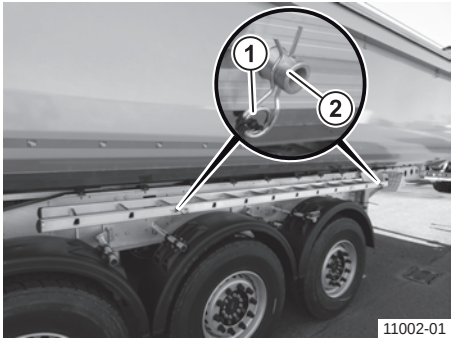
4

Removing the leaning ladder

▶ Remove the spring clip (1).

▶ Pull the ladder out of the retaining rods (2).

▷ When using the leaning ladder, observe the applicable accident prevention regulations!



Leaning ladder*

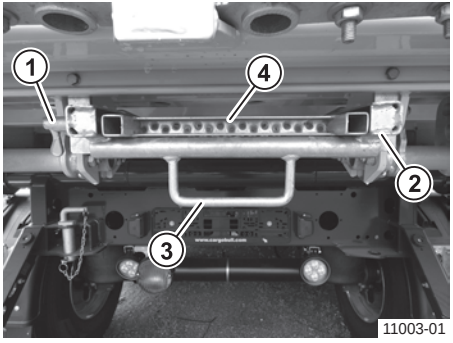
1 Spring clip
2 Retaining rod

Fastening the leaning ladder

▶ Put the ladder back into the holder (2) on the vehicle frame and secure it on both sides with spring clips (1).

Ascent ladder at the rear of the vehicle*

Depending on your vehicle's equipment, there is an extendible ascent ladder at the rear of the vehicle.



Ascent ladder at the rear of the vehicle

1 Locking bolt
2 Ladder holder / extension
3 Handle on the extension
4 Fold-down ladder

The ascent ladder can be pulled out in two steps. The topmost rung forms a step that is clearly visible when climbing down from the superstructure.

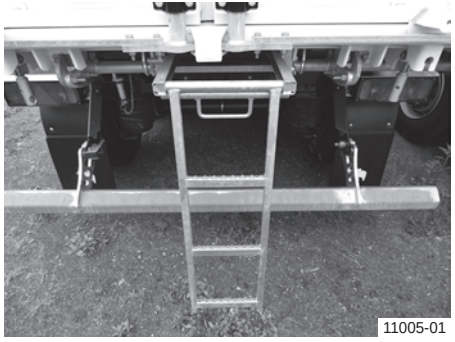
Pulling out the ascent ladder

▶ Open the locking bolt (1).

▶ Pull out the extendible ladder holder (2) completely using the handle (3).

▶ Pull out the fold-down ladder (4) completely by lifting it slightly and folding it down.

▶ Insert the locking bolt (1) in the rear hole.



Access ladder folded down

Property damage!

It is forbidden to drive with the ladder fully or partially extended.

▶ Before starting a trip, check that the ladder is completely pushed in and secured.

Fastening the ascent ladder

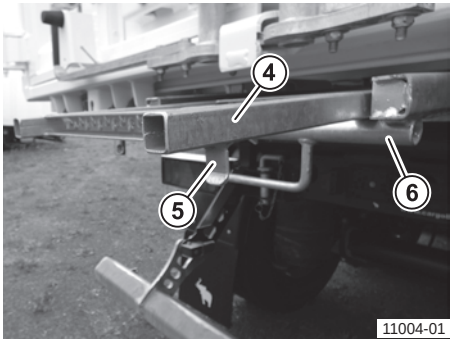
▶ Open the locking bolt (1).

▶ Fold up the ladder by 90° and push it into the holder (2).

▷ Make sure that the locking hook (5) slides in front of the tube (6) when pushing it into the holder. This secures the fold-down ladder against slipping out.

▶ Push the extendible holder (2) back under the trough floor up to the stop.

▶ Secure the extension using the locking bolt in the front hole.



Partially extended ascent ladder

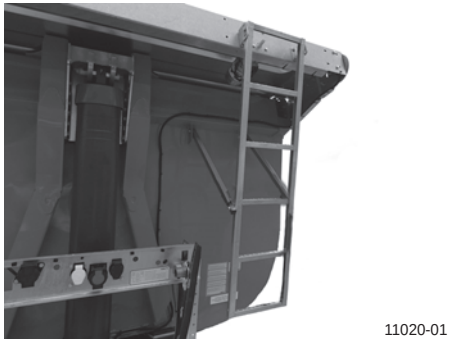
4 Fold-down ladder
5 Locking hook
6 Tube

Ascent ladder on the front wall*

Depending on the equipment, your semitrailer tipper can have a ascent ladder on the front wall.

The ascent ladder is firmly installed on the front wall. It is used only to check the load and the fill level of the trough.

It is forbidden to climb into the trough using the ladder!



Ascent ladder on the front wall* (driving position)

Only use the ladder when the semitrailer tipper is coupled and the tipping trough is completely lowered.

Before using the ladder, it must be put in working position.

Putting the ladder in working position

▶ Unlock the spring lock of the retainer bar (on both sides).

▶ Pull the ladder into a vertical position.

▷ Select the suitable latching position.

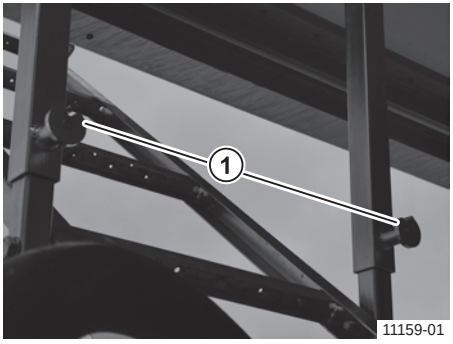
▶ Lock the ladder with the spring locks in the holes (on both sides).

4

MORTAL DANGER!

During the tipping procedure, there must be nobody standing on the ascent ladder.

▶ Before climbing onto the ladder, ensure that the vehicle cannot be moved by unauthorised persons.



Ascent ladder retainer bar

1 Spring lock

Property damage!

Driving with the ladder in the working position can lead to collisions during the tipping procedure and when driving in curves.

▶ Always put the ladder in driving position before starting a trip.

Putting the ladder in driving position

▶ Unlock the spring lock of the retainer bar (on both sides).

▶ Push the ladder into the holder opposite to the direction of travel.

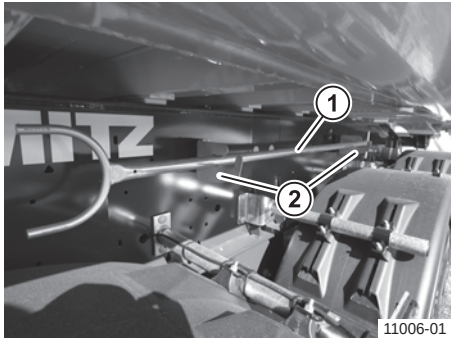
▶ Lock the ladder with the spring locks in the last holes (on both sides).

Tarpaulin rod*

Depending on the equipment, the tarpaulin rod is fastened on the vehicle frame in:

- the holder for the tarpaulin rod*
- the holder for the broom and shovel* (see page 162)

The tarpaulin rod simplifies operation of the tarpaulin.

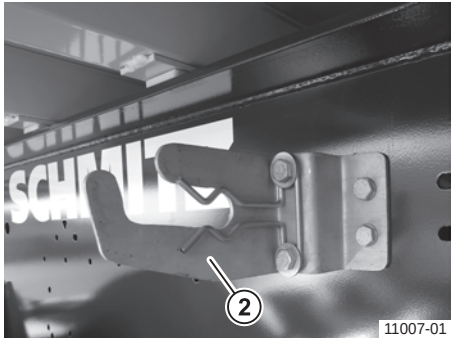


Tarpaulin rod in the holder on the vehicle frame

1 Tarpaulin rod
2 Holder with spring clamp (2 pieces)

Holder for tarpaulin rod*

The tarpaulin rod is attached in two separate holders.



Holder for tarpaulin rod

2 Holder with spring clamp

CAUTION!

The holders must be used only for the supplied tarpaulin rod with the dimensions it had upon delivery!

Removing the tarpaulin rod

▶ Pull the tarpaulin rod out of the spring clamps on both sides against the resistance and take it out of the holding devices (2).

Fastening the tarpaulin rod

▶ Insert the tarpaulin rod in the two holders.

▷ Make sure that the tarpaulin rod is engaged in both holders.

▶ Press the tarpaulin rod against the resistance into the spring clamps of the holder (2).

Property damage!

The tarpaulin rod must be safely stowed in the holder after use.

▶ Before starting a trip, check that the tarpaulin rod is firmly seated in both holders.

▶ The tarpaulin rod must be engaged in both holders and secured with the spring clamps.

Holder for broom and shovel*

Depending on the equipment, your vehicle has a holder for the broom and shovel:

- on the vehicle frame
- on the front wall

Only use the special holding devices for transporting the intended tools.

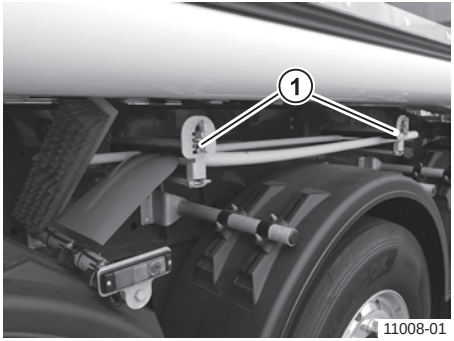
4

Property damage!

The tools must be safety stowed in the intended holders before starting a trip.

- ▶ Before starting a trip, check that the tools are mounted and secured in the holders.
- ▶ Only transport brooms and shovels that are firmly attached to the tool shaft and whose shaft protrudes beyond the total length of the holding devices.

Holder on the vehicle frame*



Holder for broom and shovel on the vehicle frame

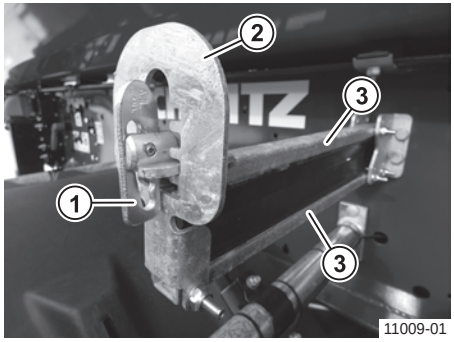
1 Holder for broom and shovel, secured (2 pieces)

Only one or two tools may be mounted and transported at the same time in the holder for broom and shovel on the vehicle frame.

If the tarpaulin rod* is transported in the broom and shovel holder, only <u>one</u> additional tool (broom or shovel) may be mounted in the holding device.

Use only suitable tools that can be safety fastened between the retaining brackets.

Only brooms and shovels with a shaft diameter of 25-42 mm are permitted.



Broom/shovel holder, secured

1 Locking bolt
2 Safety bracket
3 Retaining bracket with rubber lip

The rubber lips are wear parts that are subject to natural ageing. At low temperatures and with increasing age, the elasticity of the rubber lips is reduced.

Property damage!

Check the condition of the rubber lips of both holding devices at regular intervals.

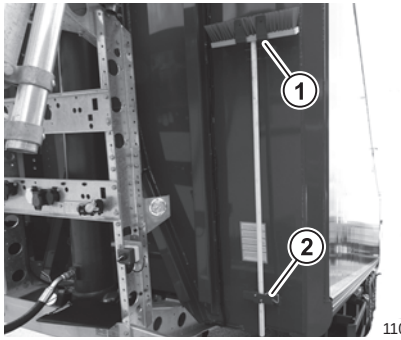
- ▶ Replace the rubber lip immediately as soon as it shows signs of wear.
- ▶ Replace the rubber lips at least once a year.

Holder on the front wall*

Depending on its purpose, the holder is attached to the outside or inside of the front wall. It is intended to mount one suitable tool.

Several holders for brooms and shovels can be installed on the front wall.

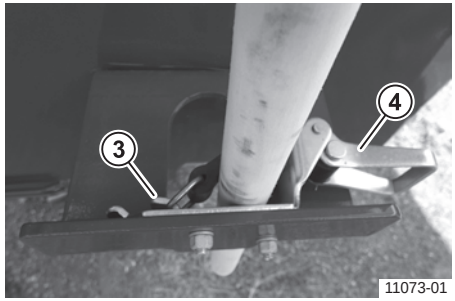
Only brooms and shovels with a shaft diameter of 25-42 mm are permitted.



11072-01

Holder for broom/shovel on the front wall (outside)

1 Upper mount
2 Lower mount with clamp lock



11073-01

Lower mount for broom/shovel holder

3 Hook
4 Clamp lock with rubber tension band

Property damage!

Check the condition of the rubber tension band at regular intervals.

- ▶ Replace worn holding devices without delay.

4

Storage compartments*

Depending on the equipment, your semitrailer is equipped with toolboxes.

Carry the operating manual in the drawer of the toolbox on the semitrailer.

Safety instructions

Property damage!

Before departure, check that all storage compartments are closed and secured with a suitable locking element (lock/spring clip).

▶ Replace missing locking elements immediately.

Property damage!

Never exceed the permissible area load (uniformly distributed load) of the storage compartments.

▶ The marking of the permissible area load is specified in the lid of the storage compartments.

INJURY HAZARD!

The contents of the storage compartments may fall out and injure you when opening the lid.

▶ Always open the lid with particular caution.

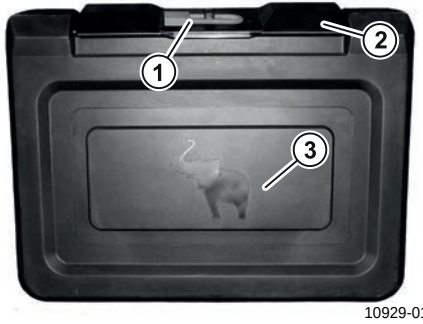
Small toolbox*



Small storage compartment

The storage compartment is opened/closed with the supplied key. When opening, watch out for falling objects.

Large toolbox*



Large storage compartment*

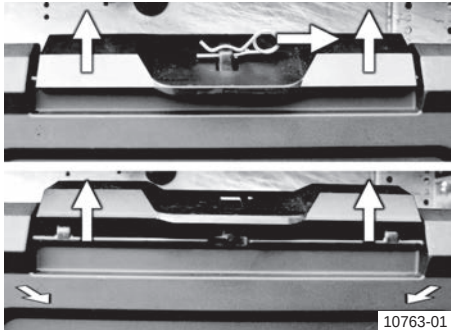
1 Locking element (spring clip/lock)
2 Latch
3 Cover

Opening the toolbox

▶ Remove the locking element (1) (spring clip/lock).

▶ Press the flap (2) upwards against the resistance with both hands.

▶ Open the lid (3). Watch out for falling objects!



Opening the toolbox

Closing the toolbox

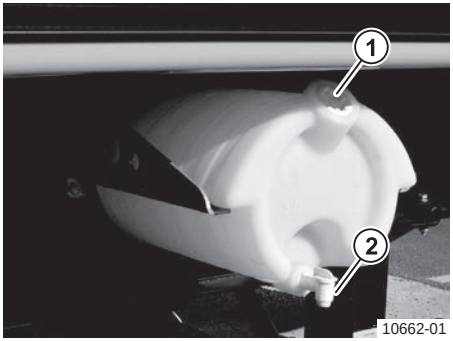
- ▶ Close the lid (3).
- ▶ Press the flap (2) downwards against the resistance until it engages.
- ▶ Always secure the flap (2) with a suitable locking element (3) (lock/spring clip).

4

Water tank*

Depending on the equipment, your vehicle may have a water tank.

The capacity is indicated on the water tank.



Water tank on chassis

1 Filler funnel
2 Water tap

To prevent damage to the water tank due to the side guards, please observe the instructions starting on page 58.

Property damage!

The water tank can be damaged by frost due to the formation of ice.

▶ Empty the water tank in due time before winter sets in.

HEALTH HAZARD!

Water that is impure or containing germs may cause poisoning or damage to health.

▶ Use only fresh water from the public water supply.

▶ Replace the water at frequent intervals to prevent the growth of microbes.

▶ Never use the water in the water tank as drinking water.

▶ Do not use cleaning agents to clean the water tank.

MORTAL DANGER!

Chemicals, fuels, cleaning agents and other substances can seriously damage health on contact or if swallowed.

▶ Fill the water tank with water only.

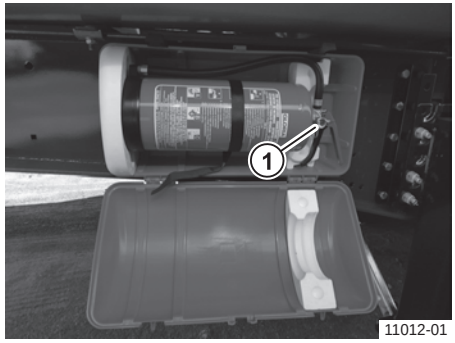
Fire extinguisher*

Depending on the equipment, your semi-trailer tipper can have fire extinguishers. The fire extinguishers are fastened on the vehicle frame in a transport box.


11011-01

Fire extinguisher transport box on the chassis frame (driving position)

Before starting a trip, find the position of the fire extinguisher on the vehicle to be able to act quickly in case of emergency.



11012-01

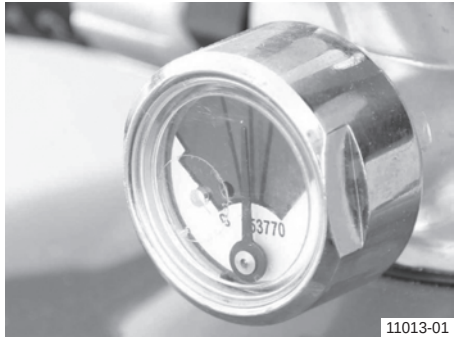
Fire extinguisher secured in the transport box

1 Pressure gauge on the fire extinguisher

Improperly secured fire extinguishers may not be transported.

- ▶ Always secure the fire extinguisher in the transport box.
- ▶ Close the lid of the transport box and secure it with rubber bands and spring clips.

Have the fire extinguishers checked regularly as required by law. Check daily to ensure that the fire extinguishers are still present, and that the operating pressure is in the green area.


11013-01

Pressure gauge on the fire extinguisher

Document compartment*

Depending on the equipment, your semi-trailer tipper can have a document compartment.

The document compartment holds freight documents. Secure the lid of the transport box before departure with suitable means (lynch pin).

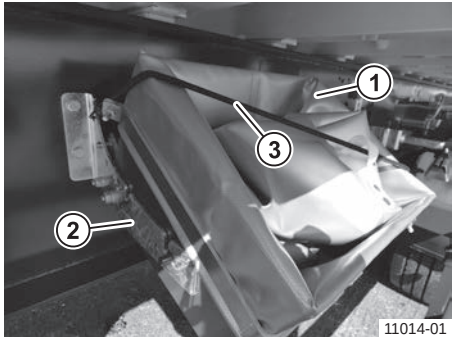


Document compartment on the light/air holder

Discharge funnel*

Depending on the vehicle equipment, your semitrailer tipper can have discharge funnels. They can be attached on the grain unloader to unload free-flowing bulk cargo.

Park position



Discharge funnel in park position

1 Discharge funnel
2 Holder on the vehicle frame
3 Bungee cord

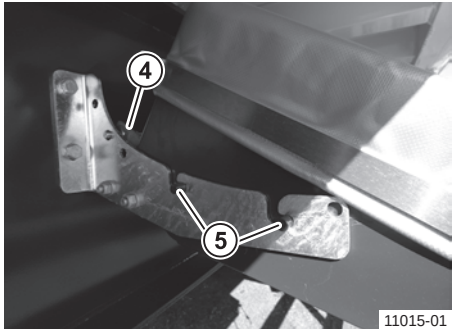
The grain discharge funnel must be put in the secured park position before driving on public roads.

Taking the discharge funnel out of park position

▶ Unlock the spring lock (4) by turning (on both sides).

▷ The securing pin of the spring lock slides out of the hole in the holding device.

▶ Push the discharge funnel (1) towards the rear and pull it up and out of the retaining bracket (2).



Retaining bracket on the vehicle frame

4 Spring lock (secured)
5 Locking pin (secured)

Placing the discharge funnel in park position

▶ Slide all of the locking pins (5) of the discharge funnel into the guide of the retaining brackets (2) on the vehicle frame.

▷ Check that all four locking pins (5) are firmly connected to the retaining brackets on the vehicle frame (2).

▶ Lock the spring lock on the discharge funnel in the hole of the holding device.

▷ Make sure that the pin of the spring lock engages in the hole of the holding device.

▶ Secure the discharge hose with the bungee cord (3).

▷ In doing so, thread the bungee cord (3) through the handle on the discharge hose and safely hook on the bungee cord.

4

ACCIDENT HAZARD!

The discharge funnel may come loose while driving, fall off and damaging following vehicles.

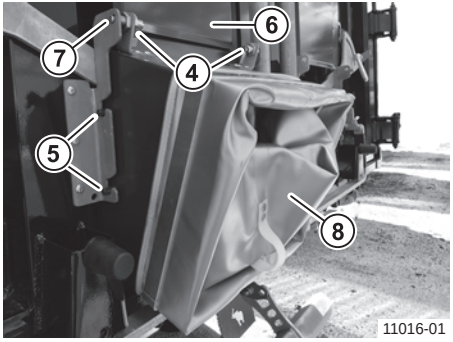
▶ Before starting a trip, make sure that the discharge funnel is in park position on the vehicle frame and correctly secured.

Installing/removing on the grain unloader

To install the discharge funnel on the grain unloader, holders are required on the grain unloader.

The grain unloader is closed before/during installation/removal of the grain discharge funnel.

For the unloading procedure using the grain unloader, please observe the instructions in chapter "SUPERSTRUCTURE“ starting on page 114.



Discharge funnel on grain unloader

4 Spring lock (secured)
5 Locking pin
6 Cover plate on the grain unloader
7 Hole in the holding device
8 Discharge hose

Installation on the grain unloader

▶ Remove the bungee cord (3) from the discharge funnel.

▶ Push the upper edge of the discharge funnel behind the cover plate (6) on the grain unloader.

▷ The grain unloader remains closed during installation.

▶ Slide the locking pins (5) into the guides on the holder on both sides.

▷ Check that all four locking pins (5) are firmly connected to the retaining brackets on the grain unloader.

▶ Lock the spring locks (4) in the hole of the holding device.

▷ Make sure that the pins of the spring lock engage in the hole (7) of the holding device on both sides.

▶ Unpack the discharge hose (8).

Property damage!

The discharge funnel may be damaged if you try to use it with coarse-grained or non-flowing bulk materials.

▶ Use the discharge funnel for easily flowing bulk materials only.

Removing the grain discharge funnel

▶ Unlock the spring lock (4) by turning (on both sides).

▷ The securing pin of the spring lock slides out of the hole (7) in the holding device.

▶ Push the discharge funnel (1) upwards out of the retaining brackets.

▶ Remove the discharge funnel.

▶ Completely empty the discharge hose.

▶ Put the discharge funnel in park position (see page 169).

Warning signs and symbols*

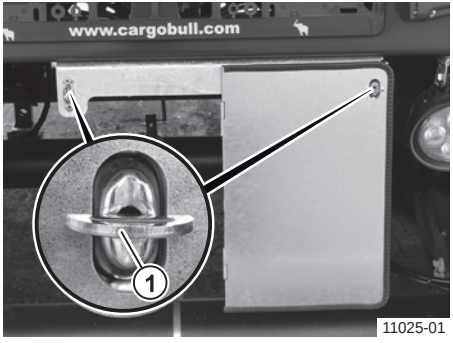
Depending on your vehicle's equipment, different warning signs/symbols can be attached to your semitrailer.

Keep the signs legible. Immediately replace defective/damaged signs and fastening elements.

Warning signs*

4

The warning signs attached to Schmitz Cargobull semitrailer tippers can be folded. They are held in the required position using twist locks.



Warning sign, folded and secured

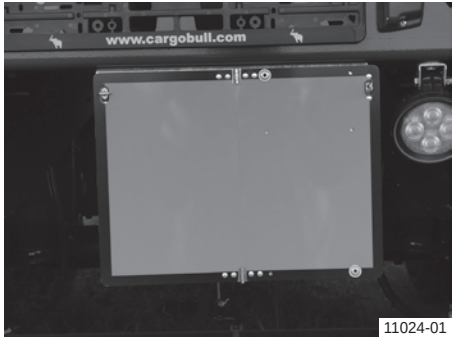
1 Twist lock

Property damage!

Before departure, check that the warning sign is in the correct position and fastened with twist locks.

▶ Immediately replace damaged signs and twist locks.

Hazardous goods warning sign, folding*



Hazardous goods warning sign, unfolded and secured

When transporting hazardous goods, observe the applicable ADR Directive and identify your vehicle accordingly (see also "Holding frame for placard*" on page 173).

A sign, folding*

When transporting waste materials, the vehicle must be identified accordingly.

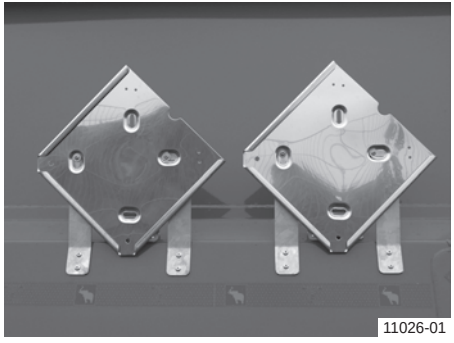


A sign, unfolded and secured

Holding frame for placard*

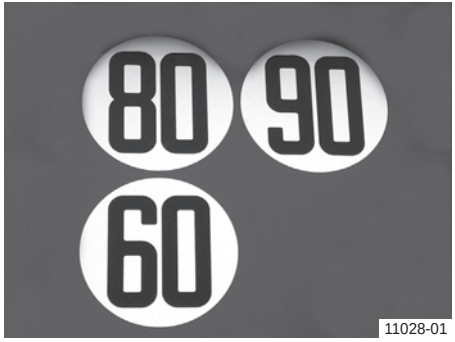
Depending on the equipment, holding frames for placards (danger labels) are installed on your vehicle for special purposes.

When transporting hazardous goods, observe the applicable ADR Directive and identify your vehicle accordingly.



Holding frame for placard (danger label)

Speed symbols*



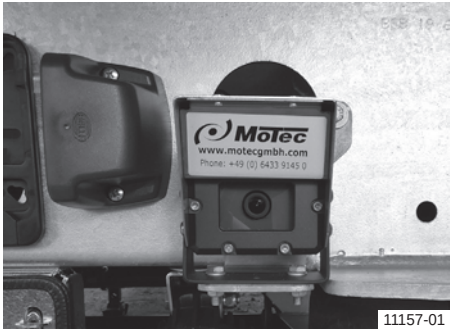
Speed symbols

Depending on the country of registration, different speed symbols can be installed on your semitrailer tipper.

Rear area camera*

Depending on the equipment, your semi-trailer tipper may have a rear area camera.

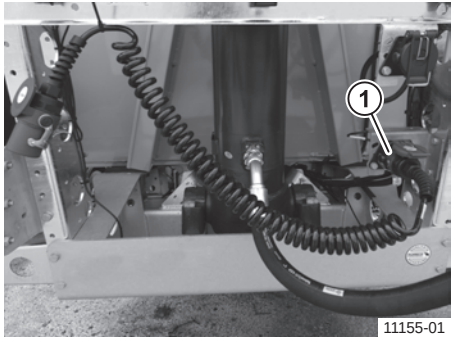
The camera is installed at the rear of the vehicle close to the licence plate holder.



Rear area camera

The power supply to the camera is established with a separate socket on the light/air holder. The connection to the tractor is established with a Wendelflex cable.

The images are transmitted on a display in the tractor when the reverse gear is engaged.



1 Separate socket on the light/air holder

You can find more information on operation, maintenance, and care of the rear area camera from the system manufacturer.

Lashing points*

The lashing points attached to the vehicle frame (two to four pairs, depending on the equipment) are used for lashing during maritime transport.

Do not use the lashing points for manoeuvring or towing!

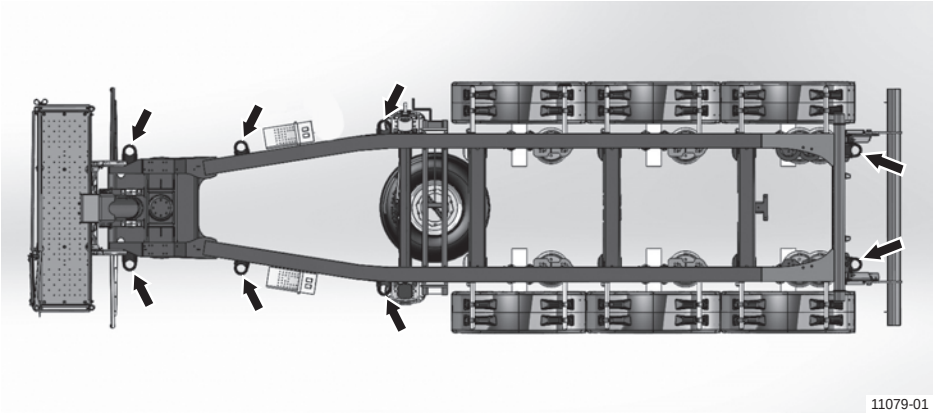
Before lashing on means of transportation, the trailer must be parked separately from the tractor.

ACCIDENT HAZARD!

Through setting processes in the air suspension (e.g. air loss in the bellows), there is risk that the lashing will loosen.

▶ Always vent the air spring bellows before lashing!

The vehicle must not be lashed if there is air in the spring bellows.



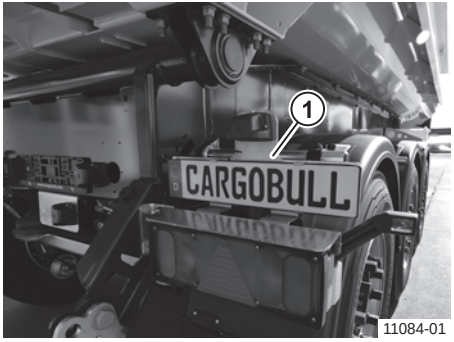
Position of the lashing points on the S.KI chassis

You must also observe the instructions under "Ferry transport" on page 196.

Additional licence plate holder*

Depending on the country, your vehicle can be equipped with an additional licence plate holder on the chassis.

Use of an additional licence plate holder is required only in Spain. In all other countries, it is forbidden to use an additional licence plate holder.



Additional licence plate holder

1 Licence plate holder with lighting

Before starting a trip, make sure that the licence plate is firmly seated in the holder!

Train composition
First journey
Brake adjustment
Manoeuvring
Electronic braking system (EBS)
Trailer Informations System*
Maximum top speed
Coupling and uncoupling
Clearance zones
Air suspension
Ferry transport

Train composition

The composition of the tractor and semitrailer requires compliance with the prescribed clearances between the tractor and semitrailer.

- Compliance with the maximum permissible total train length.
- Compliance with the maximum permissible number of axles and axle loads.
- Compliance with the clearances between the tractor and semitrailer (swivel radius).
- The supply lines must be laid out and connected correctly between the tractor and the semitrailer.

Check the layout of the supply lines!

DANGER!

The supply lines must be laid out and connected correctly between the tractor and the semitrailer. In particular, ensure that the supply lines:

- ▶ do not sag excessively.
- ▶ do not chafe.
- ▶ are not pulled too tight (cornering).
- ▶ are not crushed.

First journey

Before driving with the semitrailer for the first time, familiarise yourself with the vehicle and read and comply with the instructions in the operating manual.

In particular, observe the instructions in chapter "Inspection before starting a trip and after reaching the destination" on page 18.

If you have any questions that are not answered in this manual, please contact a Schmitz Cargobull service centre or the Schmitz Cargobull customer service.

Checking the wheel nuts

Through settling processes, the wheel nuts will loosen during the first few kilometres of driving the brand new trailer.

For this reason the wheel nuts must be tightened to the specified torque after 50 km of driving.

The wheel nuts of the changed wheel must also be tightened to the specified torque after every wheel change.

ACCIDENT HAZARD!

Loose wheel nuts cause wheels to separate from the vehicle, which can cause accidents with personal injury.

- ▶ Tighten the wheel nuts of all wheels to the prescribed torque after the first trip with a load, however at the latest after 50 km.
- ▶ Tighten the wheel nuts to the specified torque after every wheel change and after no more than 50 km of driving.

The specified torques for tightening and retightening the wheel nuts can be found under "Tightening torques" on page 275.

Follow the directions of the axle manufacturer.



11081-01

"Wheel nut seating" warning sign

5

Brake adjustment

Unlike drum brakes, disc brakes show no perceptible loss of braking power when overloaded.

The overload is noticeable more by overheated brake discs, which can result in damage to wheel bearings and brakes and also increased brake pad wear.

To distribute the braking work evenly across all brakes in the semitrailer, you must perform a train tuning when loaded after the first 2,000 to 5,000 km.

Warranty claims resulting from premature wear can be considered only when the results of the train tuning are submitted.

Manoeuvring

Only drive in reverse if it is ensured that no one is in danger. If this cannot be ensured, the vehicle driver must be directed by a guide.

MORTAL DANGER!

Danger of crushing through reversing without supervision!

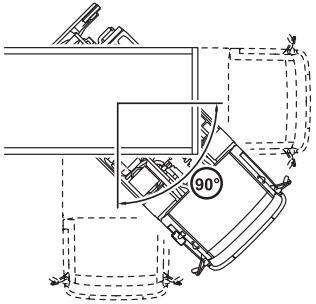
Guides must always be in the driver's field of vision; never between the moving vehicle and obstacles in the driver's direction of movement. Guides must not perform any other activities while they are guiding the vehicle.

Vehicles may only be moved using other vehicles if both are connected securely. Using lose objects (e.g. posts or bars) for pushing is not permissible.

Property damage!

Excessive turning angles during manoeuvring can lead to damage.

▶ The turning angle of 90° may not be exceeded.



10240-01

Turning angle maximum 90 °

Electronic braking system (EBS)

The electronic braking system (EBS) is an electronically controlled brake system, which is fitted with automatic anti-skid systems (ABV/ABS) and automatic load-sensing braking pressure regulation (ALB).

Older vehicles or customised vehicles may still have an ABS system:

- You can recognise an EBS system by its 7-pin socket.
- You can recognise an ABS system by its 5-pin socket.

5

Approved plug connections

To ensure that the EBS operates, semitrailers with trailer EBS may only be towed by tractors that are equipped with one of the following plug connectors:

- Extended ISO 7638-1996 plug connector (ABS + CAN), 7-pin, 24 V, on tractors with CAN data line (tractors with EBS).
- ISO 7638-1985 plug connector, 5-pin, 24 V, on tractors without CAN data line (tractors without EBS, with ABS plug connector).

ACCIDENT HAZARD!

Without EBS, the semitrailer overbrakes, which can result in accidents caused by skidding.

- ▶ Always connect the EBS plug connector between tractor and semitrailer.
- ▶ Use only approved plug connectors.
- ▶ Only tow semitrailers with trailer EBS with tractors that have a plug connector compliant with ISO 7638.

A safety function takes effect when driving for a short time without EBS plug connection or in the event of a cable break. In this case, the EBS is supplied by the brake light voltage, whereby the automatic load-dependent brake pressure control (ALB) and the automatic anti-lock braking system (ABS) are ensured.

Please note that this is purely an emergency solution. This is not suitable for normal drive operation.

ACCIDENT HAZARD!

Trailer EBS is not a system that can defy the laws of physics! It optimises the semitrailer's braking operations within the physical limits, and, in emergency situations, it can help to prevent accidents.

- ▶ Do not let the increased safety mislead you to a faster, riskier driving style!

Stability program

The (driving dynamics) stability program is an component of the trailer EBS and is standard equipment on all Schmitz Cargobull semitrailers. It uses specific braking operations to stabilise the semitrailer in critical driving situations, such as swerving to avoid accidents or excessive speed in curves.

In many cases, the stability program can prevent the semitrailer from tipping over in emergency situations if the stabilisation process remains within the physical limits. But this also applies:

The stability program cannot defy the laws of nature!
The stability program simply exploits all the options offered by those laws.

If these limits are exceeded, not even the stability program will be able to prevent the semitrailer from tipping over.

ACCIDENT HAZARD!

The stability program is not a system that can override the laws of physics. It stabilises the driving behaviour of the semitrailer within the physical limits, and in emergency situations, it can help to prevent accidents.

▶ Do not let the increased safety mislead you to a faster, riskier driving style!

The stability program of the trailer EBS operates fully independently of the make, model and equipment of the tractor.

Warning displays

The tractor has warning lights that display the status of the trailer EBS and any faults.

The red warning light must not be on continuously while driving.

Any faults in the EBS must be repaired at a qualified specialist workshop as soon as possible.

Axle load indicator

Trailer EBS offers the possibility of calculating the trailer axle load based on the air spring bellows pressure.

When it supports the tractor, axle load can be displayed in the driver's cab.

Trailer Informations System*

Depending on the equipment, a Trailer Information System can be installed on your semitrailer, which gives you quick access to the following information:

- Total mileage reading
- Daily mileage
- Axle loads
- Brake pad wear indicator (with additional sensors)
- EBS fault diagnosis



11260-01

"Trailer Information" control unit

1 WABCO® SmartBoard
2 KNORR® Trailer Information Module

WABCO® SmartBoard*



11259-01

WABCO® SmartBoard control unit

The WABCO®SmartBoard is installed on the chassis frame, close to the control panel (see "Trailer Information*" control unit on page 30).

The WABCO® SmartBoard allows you to call up current information about the condition of your semitrailer directly at the vehicle and to operate chassis functions. In its basic version, the WABCO® SmartBoard also has the axle load indicator function as well as an odometer.

The device has its own power supply (battery) so that the data can also be retained when the trailer is uncoupled and be called up at any time.

Functions of the WABCO® SmartBoard

To operate the WABCO® SmartBoard, observe the operating manual provided by the system manufacturer!

Depending on the configuration of your vehicle, the following functions can be displayed and controlled with the SmartBoard:

- ECAS air suspension
- Axle load indicator
- Bounce Control
- Brake pad wear
- Release brakes
- Trailer length
- Diagnosis memory
- Electronic parking brake
- Lift axle control
- OptiTurn
- Starting aid
- OptiLoad

- Kilometre counter
- SafeStart
- Automatic steering axle
- Vehicle inclination
- Paver brake
- OptiTire

In suitable tractors, a remote control can be connected as an option.

To operate the WABCO® SmartBoard, observe the operating manual of the system manufacturer as well as the operating instructions in chapter "Chassis operation" starting on page 43.

Switching on and off

Ignition ON

The monitor is automatically turned on, all configured menus are available.

Ignition OFF

The monitor is turned off. By pressing and holding any button
(> 2 seconds), the monitor is turned on.

Navigation

Button	Function
 11261-01	Press this button to navigate through the different pages of the main menu
 11262-01	*Main menu:* Press this button to go back to the first page of the main menu. *Submenu:* Press this button to go back to the next higher menu level. Press and hold this button for two seconds to go back to the previously displayed page of the main menu.

The display of the menu elements is done according to the build and the programmed systems.

The displayed information and messages correspond to the situation of the last or the current driving operation.

The menus and symbols listed here are examples and do not claim to be complete.

Battery replacement can be performed only in authorised specialist workshops.

You can obtain more information from the system manufacturer:
www.wabco-auto.com

KNORR® Trailer Information Module*



11034-01

KNORR® Trailer Information Module (TIM) control unit

The KNORR® Trailer Information Module® (TIM) is installed on the chassis frame, close to the control panel (see "Trailer Information*" control unit on page 30).

The TIM® allows you to call up current information about the condition of the semitrailer directly at the vehicle at any time.

The device has its own power supply (battery) so that the data can also be retained when the trailer is uncoupled and be called up at any time. Battery replacement can be performed only in authorised specialist workshops.

Possible options with the KNORR® Trailer Information Module

- Brake pad wear indicator
- Mileage of the semitrailer
- Load status of the semitrailer

Ignition ON

The monitor is automatically turned on, all configured menus are available.

Ignition OFF

The monitor is turned off. By pressing a button for one second, the monitor is turned on.

Menu items in green are not available in battery mode.

Operating buttons

Button	Function
 11043-01	Moves the cursor downwards. Pressing briefly moves forward one step; pressing for a long time moves to the end of the menu.
 11044-01	Moves the cursor upwards. Pressing briefly moves forward one step; pressing for a long time moves to the end of the menu.
 11045-01	Selects the menu item where the cursor is.

Function-dependent cursor shape

Symbol	Meaning
 11046-01	Menu item has no sub-menu
 11047-01	Menu entry has a sub-menu.

All data are for information purposes only!

The display of the menu elements is done according to the build and the programmed systems.

The displayed information and messages correspond to the situation of the last or the current driving operation.

Battery replacement can be performed only in authorised specialist workshops.

To operate the KNORR® Trailer Information Module, observe the operating manual of the system manufacturer as well as the operating instructions in chapter "Chassis operation" starting on page 43.

You can obtain more information from the system manufacturer:
www.knorr-bremseCVS.com

Maximum top speed

Schmitz Cargobull semitrailers are suitable for a maximum speed of up to **100 km/h**. Exceptions are order-related technical restrictions. Above all, this applies to the speed category of the tyres.

Speed symbol

The speed symbol shows the maximum permitted top speed of the tyre and can be found on the outer side wall of each tyre.

5

The tyre must have a speed symbol of at least J (100 km/h) or higher to be able to drive at 100 km/h. Otherwise, the maximum permitted top speed is to be observed in accordance with the speed symbol.

Selection of speed symbols	Maximum permissible speed
E	70 km/h
F	80 km/h
G	90 km/h
J	100 km/h
K	110 km/h
L	120 km/h
M	130 km/h
N	140 km/h

ACCIDENT HAZARD!

Do not exceed the maximum permissible speeds to avoid endangering yourself and other road users and to prevent vehicle damage.

- ▶ Observe the country-specific legal speed limits.
- ▶ Observe the maximum permissible speed of your tractor.
- ▶ When changing a wheel or tyre, observe the instructions in chapter "CHASSIS“ starting on page 67.

Coupling and uncoupling

When coupling and uncoupling, no person is permitted to be in the danger zone between the tractor and the semitrailer.

MORTAL DANGER!

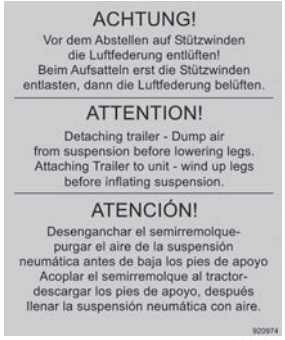
Persons in the danger zone between the tractor and the semitrailer may be crushed or run over.

- ▶ Direct all persons away from the danger zone when coupling or uncoupling.
- ▶ No person is permitted to remain at the fifth-wheel lock of the tractor while coupling or uncoupling.
- ▶ Persons directing the tractor driver must stand well away from the vehicles.
- ▶ Observe the following sequence when coupling the coupling heads.

ACCIDENT HAZARD!

Semitrailer tippers can tip when loaded while they are uncoupled.

- ▶ Load these vehicles only when they are coupled.



11086-01

"Landing legs" warning sign

CAUTION!

Observe the correct sequence when coupling and uncoupling!

- ▶ After coupling, first unload the landing leg winches before venting the air suspension.
- ▶ Before parking on the landing legs, first vent the air suspension!

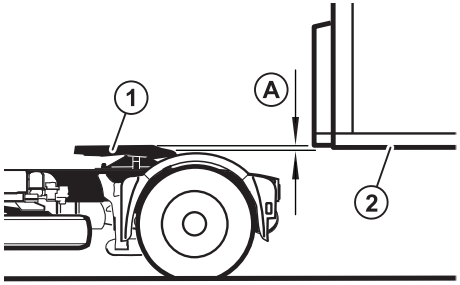
Before coupling

Check the following before coupling:

- Is the wear on the king-pin still within approved limits?
- Is the king-pin tight? Are all fastening bolts present?
- Is the semitrailer correctly loaded? Is the load secured?
- Do the coupling heights of the tractor and semitrailer match?
- Are the swivel radius and the rotation radius sufficient? (see page 193)
- Is the semitrailer's parking brake applied?

Never couple the semitrailer unless all the above items have been checked.

Coupling



10238-01

Height difference when coupling

A Height difference approx. 5 cm
1 Semitrailer coupling contact surface
2 Semitrailer skid plate

When coupling and uncoupling, no person is permitted to be in the danger zone between the tractor and the semitrailer.

▶ Drive the tractor towards the semitrailer as straight as possible.

▶ Open the semitrailer coupling.

Comply with information in the operating manual provided by the manufacturer!

▶ Adjust the height difference so that the skid plate (2) is approx. 5 cm lower than the contact surface of the semitrailer coupling (1).

Adjust the height difference either with the air suspension of the tractor (see page 43) or with the landing leg winches of the semitrailer (see page 140).

▶ Reverse the tractor slowly until the semitrailer coupling locks.

▶ Apply the tractor's parking brake (see page 35)!

After coupling

Prerequisite:
The parking brake of the tractor is applied!

▶ Check that the semitrailer coupling is properly locked and secure it.

Comply with information in the operating manual provided by the manufacturer!

▷ The skid plate must not have a visible air gap between it and the semitrailer coupling.

! If the skid plate is not correctly positioned or if the semitrailer coupling cannot be locked, repeat the coupling process!

▶ Connect the supply lines for compressed air, brakes, and electrical system.

For information on connecting the supply lines, see chapter "CHASSIS“ starting on page 32.

▶ Connect the EBS connection cable.

▶ Put the landing legs in driving position and secure them (see page 140).

▶ Put the air suspension in driving position (see page 43).

▶ Stow the wheel chocks in the provided holders and secure them (see page 146).

▶ Release the spring-actuated parking brake of the semitrailer (see page 35).

▶ Check that the supply lines move freely by slowly driving around a tight curve.

▶ Perform a departure inspection as described under "Inspection before starting a trip and after reaching the destination" (see page 18).

Uncoupling

MORTAL DANGER!

Parking the loaded semitrailer onto **auxiliary supports** and **drop supports** is **not permitted**.

▶ Observe the instructions in chapter "Landing legs" starting on page 140.

Property damage!

The semitrailer can be damaged if the trough is not fully lowered when uncoupling.

▶ Only uncouple when the trough is completely lowered and is resting on the chassis frame.

MORTAL DANGER!

The uncoupled semitrailer can tip over due to unfavourable load distribution.

▶ Semitrailers that have loads concentrated towards the front or rear may not be uncoupled.

▶ Uncouple only when the semitrailer is loaded such that it cannot tip over.

Before uncoupling, vent the air spring bellows of the semitrailer and then move the tractor-trailer forward or back slightly. This prevents any tension from damaging the chassis and the landing legs when the uncoupled semitrailer sinks on to the air suspension after loss of pressure.

Choose a suitable parking area (horizontal, level, load-bearing ground). If necessary, use suitable, load-bearing underlays under the landing legs.
Please note that certain surfaces (e.g. asphalt) can subside at high temperatures.

▶ Make sure that the tipping trough is completely lowered.

▶ Apply the semitrailer's parking brake (see page 35).

▶ Put the wheel chocks on the semitrailer on wheels of the rigid axles.

! **Never** secure the semitrailer with wheel chocks on the wheels of lift or steering axles!

For tractors with air suspension

▶ Lift the semitrailer with the air suspension of the tractor and then extend the landing legs.

For tractors without air suspension

▶ Lift the semitrailer with the low speed of the landing leg winch (see page 141).

- ▶ Disconnect hydraulic, compressed air, and electrical system supply lines and EBS plug connector (first the supply/red coupling head, then the brake/yellow coupling head).

  For information on disconnecting the supply lines, see chapter "CHASSIS“ starting on page 32.
- ▶ Unlock and open the semitrailer coupling.

  Comply with information in the operating manual provided by the manufacturer!
- ▶ Pull the tractor slowly and straight from under the semitrailer.

Clearance zones

Supply lines

Check the layout of the supply lines. They must not sag too much and chafe, and they must not be too taut for driving around curves.

Property damage!

Wendelflex lines that are tangled may come off in very tight curves.

▶ Separate Wendelflex lines that are twisted together before connecting them.

Swivel radius (turning circle)

The swivel radius is the distance from the king pin to the front semitrailer corner.

If the distance from the centre of the semitrailer coupling to the rear of the driver's cab or any mounted parts is less than the swivel radius, the trailer must not be coupled. The tractor and the semitrailer would touch each other at the latest when driving around a curve.

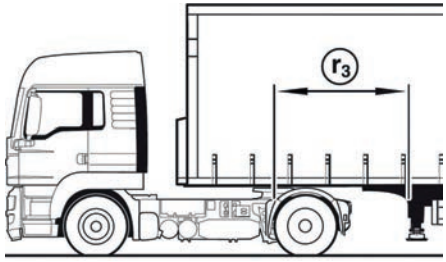
The swivel radius is reduced if the semitrailer is tilted forward (see "Tipping angle" on page 194, position B).

Rotation radius

Property damage!

During coupling or when driving around a curve, the rear part of the tractor can be caught on the semitrailer. In doing so, both the tractor and the semitrailer can be severely damaged.

▶ Never couple semitrailers with reduced rotation radius to three-axle tractors.



11082-01

r_3 Rotation radius

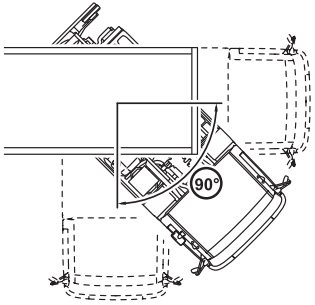
The rotation radius (r_3) is the distance from the king pin to the crank of the longitudinal beam (or mounted parts set forwards).

According to ISO 1726, the rotation radius (r_3) is 2,300 mm.

On the S.KI 7.2 with winch-type spare wheel holder, the rotation radius (r_3) is depending on the vehicle specifications!

5

Turning angle



10240-01

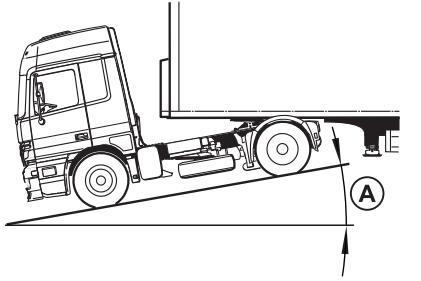
Turning angle maximum 90 °

Property damage!

If the maximum turning angle is exceeded, the supply lines will be torn off.

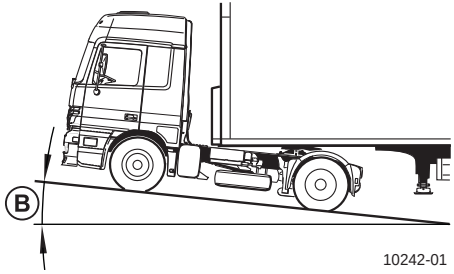
- ▶ Always be aware of the approved turning angle when driving around curves and manoeuvring.

Tipping angle



10241-01

A Rear tipping angle



10242-01

B Front tipping angle

Property damage!

If you exceed the maximum permissible tipping angle, you risk damaging the semitrailer and the tractor.

- ▶ Be aware of the permissible tipping angle when driving over obstacles.
- ▶ The values are reduced for the tractor-trailer when turning.

According to ISO 1726 (for two-axle tractors), the tipping angle must be at least 6° at the front (B) and 7° at the rear (A).

The actual possible tipping angles depend on the tractor and are influenced by the wheel base, coupling height, and mudguard arrangement.

Three-axle tractors are often not compliant with DIN ISO 1726 and ISO 1726-2. When using three-axle tractors, note particularly the rotation radius and the clearance to the landing leg winch and the winch-type spare wheel holder.

Air suspension

Driving instructions

Driving with the semitrailer raised or lowered can result in poor driving characteristics that may cause accidents and damage to the semitrailer and its load.

Pay particular attention to the position of the lifting/lowering valve:

- after transit via ferry
- after height adjustments
- after breaks in driving

Always set the lifting/lowering valve to "DRIVE" position before starting a trip.

Property damage!

When driving with the semitrailer lowered, the tyres and other vehicle parts can be damaged.

▶ When driving with faulty air suspension, make sure that the tyres do not touch the semitrailer frame.

ACCIDENT HAZARD!

If the air suspension is not set to the "DRIVE" position before starting a trip, there is a risk of accidents due to poor driving characteristics or getting caught on underpasses due to an elevated driving level.

▶ Always set the lifting/lowering valve to the "DRIVE" position before starting a trip (see page 43).

On vehicles with an auto-reset function (see page 46), the driving position is automatically set when the speed exceeds 16 km/h.

Driving with defective air suspension

An end stop in the air bellows allows a semitrailer with defective air suspension (no air in the spring bellows) to be driven at low speed (max. 25 km/h) to the nearest workshop.

Property damage!

When driving with defective air suspension, shocks are transmitted directly to the chassis and superstructure without any spring effect or damping effect. This can damage the load and chassis.

▶ Drive defensively and with extreme caution, especially on uneven roads and when cornering.

If there is no air in the air suspension system, the brake system operates independently of the load status. The braking effect is the same as it is with maximum load of the vehicle.

Ferry transport

If the spring bellows have air in them, the semitrailer must not be lashed to the deck of the ferry. The lashing may become loose as the semitrailer settles onto its air suspension (e.g. loss of air in the spring bellows).

▶ Lower the semitrailer completely before lashing it down.

ACCIDENT HAZARD!

The semitrailer may tear loose if improperly lashed and cause accidents with personal injury.

▶ Vent the spring bellows of the air suspension completely when you park the semitrailer on the ferry.

▶ Do not lash the semitrailer until the air suspension has completely lowered.

▶ Observe the lashing regulations.

Do not actuate the spring-actuated pressure accumulator parking brake of the semitrailer until the semitrailer has been fully lowered by the air suspension. This will prevent tension in the chassis and landing legs.

Accompanied ferry transport

During accompanied ferry transport, the semitrailer remains coupled to the tractor.

Unaccompanied ferry transport

During unaccompanied ferry transport, the semitrailer is loaded on the ferry without a tractor and supported on a support block.

Arrangement of the lashing points (ferry lashings)

The position of the lashing points can be found in chapter "MOUNTED PARTS“ on page 175.

Leaving the ferry

Before leaving the ferry, put the air suspension of the semitrailer in driving position.

Follow the instructions in chapter "CHASSIS“ under:

- "Lifting and lowering / levelcontrol" on page 43
- "Auto-reset function*" on page 46

Trough insert
Loading and unloading
Load securing
Tipping procedure
Working with the hydraulic rear wall door*
Working with the single-leaf combined door*
Side tilt warning function*
Road paver operation

Trough insert

The semitrailer rear tipper is designed to transport tippable bulk cargo. The pallet-width aluminium box trough is an exception. It is also suitable for the transport of packaged goods.

The various trough models are suitable for different cargoes. Observe the Operating recommendationstable on page 199 as well as the instructions under "Transport instructions for special cargo" on page 201.

Property damage!

Sharp-edged cargo causes increased abrasion in the trough.

▶ Observe the instructions under "Trough floor wear" on page 248.

The trough floor of the steel rounded trough is not suitable for being driven on with forklifts. It is forbidden to drive on the steel rounded trough with industrial trucks.

The trough floor of the aluminium box trough is suitable to a limited extent only for approved equipment for driving with forklifts. The trough floor must have a minimum floor thickness of 7 mm and the maximum permissible axle load of the industrial truck may not exceed 3.5 t. You must also observe the instructions under "Pallet transport" on page 202.

It is forbidden to transport the following cargo with the semitrailer rear tipper!

- Livestock
- Foodstuff controlled under the ATP agreement
- Surging loads
- Persons
- Containers with liquids
- Cargo which, due to its characteristics (physical, chemical, temperature), causes damage to the superstructure.
- Cargo that cannot be safely loaded and unloaded.
- Cargo that cannot be safely transported.
- Cargo that cannot be sufficiently secured (e.g. packaged goods).

MORTAL DANGER!

Unsuitable cargo and incorrect trough inserts lead to unpredictable hazards.

▶ Before loading for the first time, inform yourself about which cargo is suitable for your semitrailer tipper.

▶ Only transport cargo that is suitable for your semitrailer.

The transport of hazardous goods as per ADR is permitted only with the additional equipment required for this purpose and with the issuance of a permit for the vehicle in accordance with ADR Part 9. You must also observe the instructions under "Transport of dangerous goods" on page 201.

Operating recommendations

■ Recommended application

Transported goods *Selected examples*	**Aluminium box trough 7.2 + 8.2**	**Aluminium box trough 9.6**	**Aluminium box trough 10.5**	**Aluminium box trough 9.6 + 10.5 Pallet-width**	**Steel rounded trough 7.2 + 8.2 Light model**	**Steel rounded trough 7.2 + 8.2**	**Steel rounded trough 9.6 + 10.5**	**Information on page**
Demolition material						■		201
Ash	■	■	■	■	■	■	■	
Excavated material	■				■	■		
Combustibles	■	■	■	■	■			
Wood chips	■	■	■	■	■	■	■	
Gravel	■				■	■		
Agricultural products	■	■	■	■	■	■	■	
Mixed materials	■				■	■		201
Pallets				■				202
Sand	■				■	■		

■ Recommended application

Transported goods *Selected examples*	**Aluminium box trough 7.2 + 8.2**	**Aluminium box trough 9.6**	**Aluminium box trough 10.5**	**Aluminium box trough 9.6 + 10.5 Pallet-width**	**Steel rounded trough 7.2 + 8.2 Light model**	**Steel rounded trough 7.2 + 8.2**	**Steel rounded trough 9.6 + 10.5**	**Information on page**
Acidic or alkaline substances	■	■	■	■				201
Scrap							■	
Rock						■		
Turf	■	■	■	■	■	■	■	

Transport instructions for special cargo

Transporting heavy demolition material

When transporting heavy demolition material, it is recommended to use a steel rounded trough with a minimum thickness of 6 mm on the floor and 5 mm on the side walls as well as a hydraulic rear wall flap (see "Hydraulic rear wall with swing function*" on page 96).

Transporting mixed material

A rear wall with a chute* is recommended for transporting mixed materials.

Transporting surging loads

Surging loads are considered as cargo that can move and slide uncontrollably during driving operation due to their consistency and liquid content.

DANGER!

Transporting a "surging load" is not permitted.

These include, for example:

- Sludge
- Concrete mix
- Slaughterhouse waste
- Carcasses

Transporting acidic or alkaline substances

Troughs with steel floors are not suitable for transporting acidic or alkaline substances.

Property damage!

The transport of acidic or alkaline substances may cause stress cracks in your trough.

- ▶ Only transport acidic or alkaline substances with suitable aluminium troughs!
- ▶ Clean the trough thoroughly after transport.

Transport of dangerous goods

The transport of dangerous goods is subject to the ADR regulations.

Only substances that are suitable for the vehicle in terms of the superstructure material, rear wall design, cover design, tightness, etc. may be transported.

When transporting dangerous goods, a permit in accordance with ADR Part 9 is required for the vehicle, depending on the transported goods. It must be issued by a technical service.

Depending on the substance to be transported, the additional equipment regulated by the ADR are required (fire extinguisher, warning signs, danger label, etc.).

Pallet transport

When using pallet-width aluminium box troughs, paletted goods (packaged goods) can be transported taking into account the available floor space.

When loading with pallets and packaged goods, observe the applicable regulations for load securing.

Property damage!

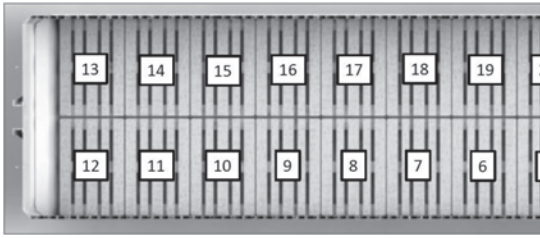
Aluminium box troughs can be damaged when loading and unloading with packaged goods.

- ▶ Driving on the trough floor with industrial trucks is allowed only when the floor has a minimum thickness of **7 mm**.
- ▶ The axle load of the industrial truck may not exceed the maximum permissible axle load of **3.5 t**.

ACCIDENT HAZARD!

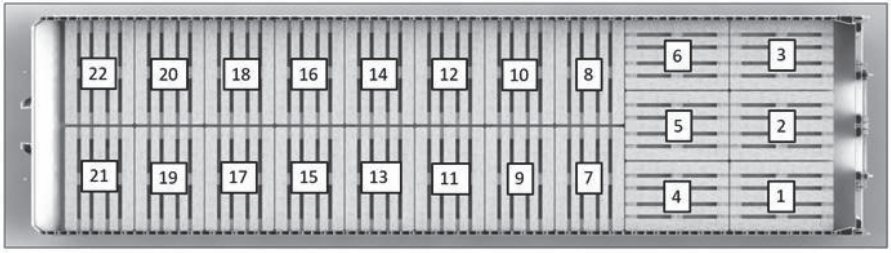
If the cargo has fallen, it may fall out when the trough is opened and cause personal injury.

- ▶ Secure the last row of the cargo using rearward load securing system.
- ▶ Secure the cargo at the bottom and the top rigging board position.



Loading diagram for aluminium box trough 10.5, pallet-width

Loading diagrams:



11172-01

Loading diagram for aluminium box trough 9.6, pallet-width

Loading and unloading

The semitrailer is a rear tipper vehicle for unloading the cargo via the rear wall.

When loading/unloading, make sure that nobody is endangered by falling, tipping, or rolling objects.

MORTAL DANGER!

During the loading and unloading procedures, unauthorised persons must be directed out of the danger area.

▶ Keep people out of the danger area.

Observe the labelling requirements for all parts protruding outside of the vehicle perimeter.

When the permissible total dimensions are exceeded (length, width, height), the country-specific regulations must be observed. The corresponding special permits must be obtained from the responsible authorities.

When working in the vicinity of live overhead power lines or catenary lines, a safety distance of at least 5 m must be maintained between lines and persons, vehicles, auxiliary equipment and the transported goods.

Also observe the instructions under "Residual hazards" on page 15 and under "Tilt resistance" on page 209.

Loading

Before loading

Before loading, observe the following points:

- Select the appropriate vehicle for the cargo to be transported. Observe the instructions under "Trough insert" starting on page 198.
- Ensure that the vehicle cannot roll away, fall over, or tip over.
- Before loading with bulk cargo, check that the rear wall is completely closed and secured.
- Open the cover.
- Make sure that the tyre pressure is equal.

During loading

During the loading procedure, the following points must be observed:

- Do not allow the cargo to fall from a great height.
- Ensure uniform loading (front/rear and right/left).
- Make sure that the material cone does not protrude beyond the cargo capacity limit.
- Never exceed the permissible total weight. Observe the "Density of various bulk materials" table on page 205.

Load distribution

ACCIDENT HAZARD!

The braking and steering characteristics of the tractor-trailer may be affected by uneven load distribution and cause accidents with personal injury.

- ▶ Load the semitrailer in such a way that none of the axles and drawbars are overloaded or underloaded.
- ▶ Never exceed the permissible total weight and axle loads.
- ▶ In all load statuses (also partial loads), make sure that the load is evenly distributed. The semitrailer is not designed for point loads.

After loading

After the loading procedure, check the following points:

- Check the total weight.
- Secure the cargo (see "Load securing" on page 207).
- Check that the hydraulic system and particularly the hose lines are undamaged (see "Hydraulic connector on the semitrailer tipper" on page 85).
- Remove bulk cargo from the work platform, the vehicle chute, and all mounted parts.
- Check that the rear wall is properly locked.

Unloading

Every substance has different physical properties. The consistency of the cargo must be considered for the unloading procedure. Select an unloading procedure that is suitable for the cargo.

Observe the instructions under "Tipping procedure" starting on page 209.

Property damage!

The semitrailer loaded with bulk cargo is intended to be unloaded by tipping the superstructure.

- ▶ Unloading with an excavator is forbidden.

MORTAL DANGER!

The doors/flaps are pressed open by the load pressure after unlocking.

- ▶ Keep the swivel area of the doors and flaps clear.
- ▶ When opening the flaps or doors, never stand in the swivel area of the flaps/doors.
- ▶ Observe the instructions under "Rear walllocking mechanism" starting on page 98.

Density of various bulk materials

Bulk cargo / transported material	Bulk density min[1] [t/m³]	Bulk density max[1] [t/m³]
Overburden	1.6	1.7
Ash, wet	0.7	0.9
Ash, dry	0.55	0.7
Asphalt	2.1	2.1
Bauxite, broken	1.2	1.4
Pumice, mixed	0.7	0.7
Brown coal	0.65	0.75
Brown coal coke	0.67	0.67
Briquettes	0.75	0.82
Iron ore	2	4
Earth, wet	1.5	1.9
Fly ash, settled	1.2	1.6
Fly ash, fluidised	0.45	0.6

Bulk cargo / transported material	Bulk density min[1] [t/m³]	Bulk density max[1] [t/m³]
Grain (except oats)	0.64	0.85
Gypsum, broken	1.3	1.35
Gypsum, powder	0.95	1.0
Broken glass	1.3	1.6
Granite, broken	1.5	1.6
Oats	0.5	0.5
Charcoal	0.2	0.4
Wood chips, wet	0.6	0.9
Wood chips, dry	0.2	0.3
Pulses	0.85	0.85
Potash	1.1	1.6
Hydrated lime	1	1.2
Limestone, broken	1.3	1.6

1. Differences are possible

Bulk cargo / transported material	Bulk density min[1] [t/m³]	Bulk density max[1] [t/m³]
Potatoes	0.75	0.75
Gravel, wet	1.8	1.9
Gravel, dry	1.4	1.5
Clinker	1.2	1.5
Coke	0.35	0.45
Synthetic fertiliser	0.8	1.2
Loam, wet	1.8	2
Loam, dry	1.5	1.6
Marl	1.2	1.3
Salt (rock salt)	1	1.2
Sand, wet	1.4	1.7

Bulk cargo / transported material	Bulk density min[1] [t/m³]	Bulk density max[1] [t/m³]
Sand, dry	1.3	1.4
Slag (blast furnace)	0.85	1.0
Sludge	1	1
Rock, broken	1.5	1.8
Anthracite	0.75	1
Clay, wet	1.8	2
Turf	0.4	0.6
Cement, powder	1.2	1.5
Cement clinker	1.2	1.3
Sugar beet	0.7	0.7

1. Differences are possible

Load securing

Depending on the type of cargo, there is a risk that the load itself or parts of it are detached due to air movement or other influences while driving.

- ▶ Secure the load with suitable equipment before starting a trip.
- ▶ Before departure, check that the rear wall is completely closed and locked (see "Rear walllocking mechanism" starting on page 98).
- ▶ Close the cover before departure (see "Covers/tarpaulins*" starting on page 125).

ACCIDENT HAZARD!

It is not permitted to drive on public roads with an open, unsecured rear wall. The rear wall door can open and cargo can be lost, possibly causing accidents in the following traffic.

- ▶ Before starting a trip, close all of the existing locking mechanisms on the rear wall.

Legal requirements

Give load safety your full attention. Take sufficient time to make sure that your load is loaded and secured safely for operation in traffic.

Correctly secured loads prevent:

- Personal injury
- Property damage to the cargo
- Property damage to vehicles and the environment

Correctly secured loads offer safety during checks by the officials. Observe the regulations, standards, and directives that are applicable in the country of registration regarding load securing in road traffic. Observe the applicable accident prevention regulations. Detailed instructions for securing loads can be found in the VDI regulations 2700 ff.

The following are all equally responsible for securing loads:

- the driver,
- the vehicle owner,
- the loader.

Basic physical information

While the semitrailer is being driven forces from acceleration and braking and also changes in direction all act on the cargo (packaged goods). These forces will affect the cargo (packaged goods), unless it is well secured:

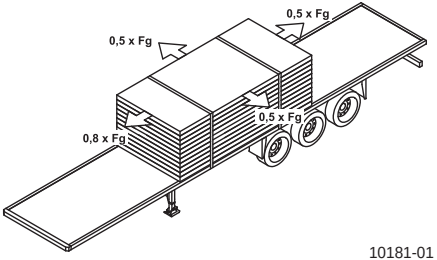
- slippage
- tipping
- rolling
- movement

The forces against which you need to secure the load can be calculated using the maximum inert forces in road traffic. These are defined for the individual directions of movement in Directive VDI 2700.

The load weight multiplied by the preceding number in the diagram will give the inert force with which the load can move. For example, in the forward direction with a 10 t load component, this is 0.8 x 10 t = 8 t.

Note that the values in the diagram apply for road traffic. The values for combined transport, ferry traffic etc. can differ!

The securing forces actually required depend on the friction between the load and the vehicle floor and also the dimensions (ratio of width to height) and the stability of the load.



10181-01

Maximum inert forces in road traffic in the individual directions of movement

Fg Weight of the cargo

Tipping procedure

MORTAL DANGER!

Familiarise yourself with your semitrailer tipper before the tipping procedure.

▶ Observe the equipment-specific instructions in chapter "SUPERSTRUCTURE“ under "Rear walls" starting on page 92 and "Rear wall-locking mechanism" starting on page 98!

Tilt resistance

Semitrailer tippers can tip over during the tipping procedure. Observe the following instructions to minimise the risk.

- Semitrailer tippers with trough lengths of more than 7.5 m should not be used to transport sticky cargo (e.g. asphalt, soil, or loamy sand).
- Do not exceed the total mass. Higher loads increase the risk of tipping.
- Make sure that the tyre pressure is equal on both sides during the loading process.
- Ensure uniform loading (left/right and front/rear).
- The wind conditions must be considered during the tipping procedure. There is a risk of tipping over when the wind strength is 5 Bft or greater!
- Only tip the semitrailer on horizontal, level, and load-bearing ground.
- Before starting the tipping procedure, always position the train lined up.
- Completely lower the semitrailer tipper using the air suspension before the tipping procedure (set the vehicle on the block).
- During the tipping procedure, maintain a safe distance from slopes (2 m) and shoring (1 m).
- Release the brake slightly several times during the tipping procedure. Never press on the brake pedal continuously.
- When spreading bulk cargo, avoid jerky braking applications. Drive very slowly and with great caution.
- Always thoroughly clean your trough. The interior of the trough must be checked for bulk cargo residues before each load. Firmly stuck bulk cargo residues can interfere with uniform sliding of the material during the next tipping procedure.

MORTAL DANGER!

The semitrailer tipper may be operated only by trained personnel.

▶ Start the tipping procedure only if everything is in order.

▶ Put on your seat belt before starting the tipping procedure.

▶ Close the doors of the semitrailer tractor.

▶ Stay on the driver's seat during the tipping procedure.

MORTAL DANGER!

There is a risk of tipping over during loading and unloading.

- ▶ It is forbidden to load and unload semitrailer tippers that are parked on the landing legs!

Property damage!

The loaded, uncoupled semitrailer can tip over.

- ▶ S.KI 18 and semitrailer tippers with auxiliary supports may never be parked when they are loaded.
- ▶ Never exceed the maximum permitted support load of the landing legs.
- ▶ Ensure uniform load distribution.
- ▶ Never uncouple the semitrailer if the load exceeds the permissible weights.

Before the tipping procedure

Special precautions must be taken during the tipping procedure. You must also observe the instructions under "Tilt resistance" on page 209.

- ▶ Park the vehicle on load-bearing, level ground - no lateral tilt.

  If the vehicle is tilted, it may be in danger of tipping over to the side!

  Depending on the equipment, your semitrailer tipper can have a "Side tilt warning function*" (see page 228.)
- ▶ Position the tractor-trailer straight.

  If the tractor-trailer is jack-knifed, it may be in danger of tipping over to the side.
- ▶ Ensure that the semitrailer tipper has enough clearance at the top to be able to fully tip the trough.
- ▶ Make sure that there is enough lateral clearance in case of tipping over to the side. Direct persons out of the danger area.
- ▶ Completely lower the semitrailer tipper using the air suspension (see "Lifting and lowering / levelcontrol" on page 43).

  ▷ Release the brake intermittently to prevent tension in the air suspension while lowering.
- ▶ Make sure that the semitrailer tipper is evenly loaded.

  If the load is to one side, there is a risk of the semi-trailer tipping over to the side.
- ▶ Fold up the underrun protection (see page 60) to prevent damage and accumulations of bulk cargo.
- ▶ Open the cover.

  Observe the instructions under "Covers/ tarpaulins*" on page 125.
- ▶ Open any additional locks on the tailgate (depending on the equipment).

  Observe the instructions under "Additional clamp locks*" on page 108.
- ▶ Open the locking mechanism of the rear wall for the intended unloading procedure.

  To unlock the rear wall, observe the instructions under "Rear walllocking mechanism" starting on page 98.



Semitrailer tipper with excessive side tilt

MORTAL DANGER!

During tipping procedures near overhead electrical power lines, particular care is needed. There is a risk of electric shock.

▶ Maintain a safe distance, at least 5 meters.

Tipping procedure

Only start the tipping procedure if neither you nor others are in danger and when all requirements for safe tipping have been met.

▶ Switch on the auxiliary drive of the tractor.

▶ Set the tipping valve in the driver's cab to "LIFT".

On troughs with automatic rear wall locking mechanism (pneumatic, hydraulic), it will be automatically unlocked at the start of the tipping procedure.

▷ Depending on the equipment, the indicator light for when the tipping trough is lifted goes on in the driver's cab of the tractor.

With free-flowing bulk cargo as well as with the "Plastic trough lining*" equipment (see page 119), it might be necessary to extend the tipping cylinder up to the stop under certain circumstances.

Property damage!

The tipping cylinder may be damaged if it is operated at high extension speeds at the end of the stroke.

▶ Reduce the extension speed before reaching the end stop. You must also observe the instructions under "Tipping cylinder" on page 83.

CAUTION!

Set the tipper control valve to the “STOP” position immediately when the stop is reached.

MORTAL DANGER!

Persons standing in the danger area can be injured during the tipping procedure.

- Persons are prohibited from remaining in the tipping or working area, on the load area, on the work platform or under the trough during the tipping procedure.

Property damage!

Reversing during the tipping procedure can cause damage to the trough, rear wall door, and chassis.

- Never reverse into the cargo that has already been dumped when the trough is tipped.

MORTAL DANGER!

If the semitrailer is braked too suddenly when moving forward with the trough raised, the hydraulic cylinder may be damaged and may even bend.

- Drive very slowly and with great caution.
- Do not brake abruptly.

ACCIDENT HAZARD!

If the load is frozen or sticky, the centre of gravity may be displaced while tipping, and if the semitrailer has the slightest tilt to one side, it may be in danger of tipping over to the side.

- Watch the side tilt during the tipping procedure and stop if necessary.

After the tipping procedure

- Before lowering the tipping trough, check that there are no bulk cargo residues remaining in the area of the locking hooks, chute, and rear wall.
- Hold the tipper control valve in the driver's cab of the tractor to "LOWER".
- Switch off the auxiliary drive to avoid reducing the lowering speed.
- Lower the tipping trough completely.
- Hold the tipper control valve at “LOWER” for another 5-10 seconds to ensure that the tipping trough is completely resting on the frame.
- Move the selector lever of the tipper control valve to the “STOP” position.
- Check whether the tipping trough is resting on the frame.
- Close and lock the rear wall flap/doors.

  On troughs with automatic rear wall locking mechanism (mechanical, pneumatic, hydraulic), the rear wall flap will be automatically locked when the tipping procedure has ended. Check that the rear wall is properly locked.
- Close any existing additional locks on the tailgate (see "Additional clamp locks*" on page 108).
- Before starting a trip on public roads, fold down the underrun protection (see page 60).

- ▶ Close and secure the cover before starting a trip. Observe the instructions under "Covers/tarpaulins*" on page 125.
- ▶ Check that all of the components outside of the load space, such as frames, vehicle chute, underrun protection, ascents etc. are free of bulk cargo.
- ▶ Move the semitrailer to driving height using the air suspension (see "Lifting and lowering / levelcontrol" on page 43).

ACCIDENT HAZARD!

If the air suspension is not set to the "DRIVE" position before starting a trip, there is a risk of accidents due to poor driving characteristics or getting caught on underpasses due to an elevated driving level.

- ▶ Always set the lifting/lowering valve to "DRIVE" position before starting a trip.

Property damage!

It is forbidden to drive with the trough tipped.

- ▶ Lower the tipping trough completely before departure.

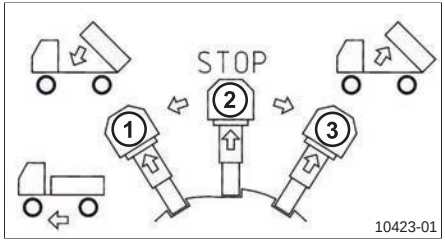
Working with the hydraulic rear wall door*

General instructions

Depending on the equipment, your semitrailer tipper can have a hydraulic rear wall with swing function (see page 96).

The hydraulic rear wall function is coupled to the function of the tipping cylinder (raising/lowering the trough).

The tipping trough is lifted and lowered via the tipper control valve in the driver's cab of the tractor.



Example for switch positions of a tipper control valve in the driver's cab

1 Lower
2 Stop/drive
3 Lift

The hydraulic rear wall is operated in conjunction with the following elements:

- Position switch on guide
- Control unit operating mode control unit
- Tipper control valve in the driver's cab
- Button on the control unit or in driver's cab
- Electric sliding roof*

When starting the tipping procedure, a minimum pressure is built up in the hydraulic system. The tipping cylinder is not extended until this pressure is reached.

The rear wall is opened depending on the respective tipping angle reached by the trough as well as the selected operating mode (see "Operating modes" on page 216).

The rear wall is always closed using the button on the control panel or with a button that is retroactively fitted in the driver's cab.

Schmitz Cargobull recommends having a button retrofitted in the driver's cab to control the "OPENING"/"CLOSING" of the rear wall. Without this button, two people are required to operate the rear wall!

For information on locking the hydraulic rear wall, see chapter "SUPERSTRUCTURE“ on page 103.

Safety instructions

Familiarise yourself with your semitrailer tipper before the first load and before the first tipping procedure. You must also observe the instructions under "Tipping procedure" on page 209.

MORTAL DANGER!

During tipping procedures near overhead electrical power lines, particular care is needed. There is a risk of electric shock.

- ▶ Maintain a safe distance, at least 5 meters.

MORTAL DANGER!

Persons standing in the danger area can be injured during the tipping procedure.

- ▶ Before starting the tipping procedure, make sure that the required function on the selector switch of the control unit has been preselected.
- ▶ Persons are prohibited from remaining in the tipping or working area, on the load area, on the work platform or under the trough during the tipping procedure.

MORTAL DANGER!

It is forbidden to drive with an open, unsecured rear wall.

- ▶ Before each tipping procedure and before starting a trip, check that the side locking hooks on the rear wall are locked into the bolts (see "Hydraulic rear wall locking mechanism*" on page 103).

Property damage!

In the “Trough lowered” state, the completely opened rear wall protrudes approx. 70 cm beyond the total height of the tipping trough.

- ▶ Make sure there is sufficient clearance when opening the rear wall and when lifting the tipping trough.

Property damage!

Before actuating the tipper control valve in the driver's cab, manually operated covers/tarpaulins must be opened!

- ▶ Roll-up tarpaulins must be completely opened and secured (see “Roll-up tarpaulin*” on page 125).
- ▶ Manually operated sliding roofs must be opened by at least 750 mm (see “Manually operated sliding roof*” on page 134).

Property damage!

When working on the road paver, the swing function of the rear wall door should be used.

- ▶ Before starting the tipping procedure, make sure that the required function on the selector switch of the control unit has been preselected. Sudden, unintentional opening of the rear wall can cause collisions.

Operating modes

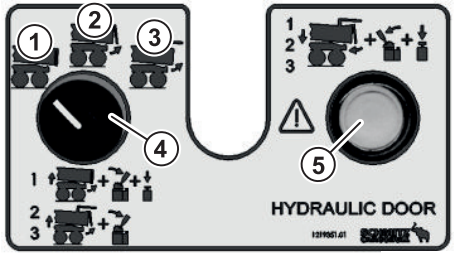
There are three different operating modes for the hydraulic rear wall with swing function:

- Infinitely variable, manual opening/ closing/ grain unloader function (see page 217)
  Switch position 1
- Swing function (see page 218)
  Switch position 2
- Completely opened rear wall (see page 219)
  Switch position 3

6

The operating mode is selected using the rotary switch (4) on the "Hydraulic rear wall" control unit on the chassis.

Depending on the selected operating mode and the position of the tipper control valve ("LIFT"/"LOWER"), the button on the control panel (5) controls the "OPENING"/"CLOSING" of the rear wall.



11037-05

"Hydraulic rear wall" control unit

1 *Switch position 1* - “Infinitely variable, manual opening/closing / grain unloader function”
2 *Switch position 2* - "Swing function"
3 *Switch position 3* - "Completely opened rear wall"
4 Rotary switch/selector switch for the operating mode
5 Button to manually open/close the rear wall with pilot lamp

The button (5) for manual opening/ closing of the rear wall has a pilot lamp. The signalling of the pilot lamp depends on the selected operating mode. Observe the instructions under "Pilot lamp on the control unit" on page 216.

Pilot lamp on the control unit

The signalling of the pilot lamp takes place depending on the operating mode:

Switch position 1 - ***Infinitely variable, manual opening/closing / grain unloader function***

▶ When the pilot lamp lights up (5), all of the requirements for manual **opening** of the rear wall are met.

▷ The rear wall can be manually opened using the button (5).

▶ The pilot lamp goes out as soon as a speed of 10 km/h is exceeded or when the power supply is interrupted.

▷ To enable operation again, it is nec-

essary to briefly raise the tipping trough by approx. 3°.

*Switch position 2 - **Swing function** and Switch position 3 - **Completely opened rear wall***

▶ When the pilot lamp lights up (5), all of the requirements for manual **closing** of the rear wall are met.

▷ The trough is completely lowered, the rear wall is open.

▶ The pilot lamp goes out as soon as a speed of 10 km/h is exceeded or when the power supply is interrupted.

You must also observe the instructions for the individual operating modes on the following pages as well as the instructions under “Opening/closing the hydraulic rear wall door” starting on page 219 .

CAUTION!

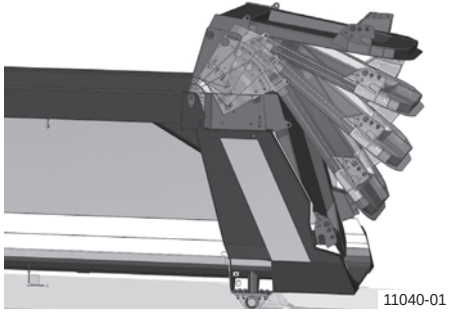
Flashing pilot lamp = error!

▶ The flashing function of the pilot lamp makes it possible to recognise the error by means of different flashing frequencies.
Observe the instructions under "Error recognition when the pilot lamp is flashing" on page 222.

Infinitely variable manual opening/ closing / grain unloader function

This operating modes allows infinitely variable, manual opening/closing of the rear wall regardless of the tipping angle.

The rear wall can be infinitely variably manually opened up to the maximum opening position.



Infinitely variable, manual opening/closing of the tailboard

For trough equipment with grain unloader*, use this operating mode to unload the cargo through the grain unloader. The rear wall remains closed during the tipping procedure.

Observe the instructions for using grain unloaders* on page 114.

6

Manual, infinitely variable opening of the rear wall

Prerequisite:
Before operating the hydraulic rear wall, observe the instructions under “Opening the hydraulic rear wall door” starting on page 219.

- ▶ As soon as the tipping trough reaches a tipping angle of 2-3°, the pilot lamp on the control unit lights up and thus indicates that the rear wall can be opened manually (see page 216).
- ▶ Continue to hold the tipper control valve in the “LIFT” position and simultaneously actuate the retrofitted button in the driver’s cab to open the rear wall.
  - ▷ If the tractor does not have a button for opening the rear wall, then a second person is required to operate the button on the control unit.
  - ▷ The rear wall is opened as long as the button is pressed. When the button is released, the movement of the rear wall stops immediately.

MORTAL DANGER!

The rear wall is opened wide at high speed.

- ▶ Keep people and objects out of the danger area.

Closing of the hydraulic rear wall is possible at any tipping angle with this operating mode. To ensure proper locking of the rear wall, **we recommend only closing the rear wall after the tipping trough is completely lowered**. Observe the instructions under "Closing the hydraulic rear wall door" starting on page 220.

Property damage!

If the rear wall is closed when the tipping angle is too high, there is a risk that the side locking hooks do not lock.

- ▶ Lift the trough again by 2-3°, open the rear wall door, and repeat the lowering and closing procedure.

Swing function

With the swing function, the rear wall works like a standard top-hung tailboard after unlocking.

During the tipping procedure, the rear wall is automatically lifted out of the side bolt with the hook and opened by a gap at a tipping angle of 2-3°. The rear wall is pushed open by the sliding cargo.

To open the rear wall, observe the instructions under "Opening the hydraulic rear wall door" starting on page 219.



The rear wall has been lifted out of the side bolts and slightly opened.



Swinging position with tipped trough

To close the rear wall, observe the instructions under "Closing the hydraulic rear wall door" starting on page 220.

The rear wall cannot be closed until the tipping trough has been completely lowered.

Completely opened rear wall

With this operating mode, the rear wall is automatically opened to the maximum opening position at a tipping angle of 2-3° during the tipping procedure.



Tipping with completely opened rear wall

To open the rear wall, observe the instructions under "Opening the hydraulic rear wall door" starting on page 219.

MORTAL DANGER!

The rear wall is completely opened at high speed when the tipping trough is lifted.

- ▶ Before raising the tipping trough, ensure that nobody is standing in the danger area.
- ▶ Make sure there is sufficient clearance towards the rear and upwards.

To close the rear wall, observe the instructions under "Closing the hydraulic rear wall door" starting on page 220.

The rear wall cannot be closed until the trough has been completely lowered.

Opening the hydraulic rear wall door

Safety instructions

- The hydraulic rear wall may be operated only by trained personnel.
- The rear wall may only be opened when the vehicle is stationary.
- Before unloading, select a suitable operating mode of the rear wall for the cargo. Observe the instructions starting on page 216.
- Observe the instructions for the "Tipping procedure" starting on page 209.
- Make sure there is sufficient clearance to the top and to the rear before opening the rear wall and when lifting the tipping trough.
- Keep people and objects out of the danger area.

Conditions for opening the rear wall door

The following conditions must be met to ensure the rear wall can be opened:

- Manually operated covers/tarpaulins are completely opened and secured (see page 125).
- Electric sliding roofs are switched on or open (see system manufacturer operating manual).
- The auxiliary drive or the hydraulic pump is switched on (see basic vehicle operating manual).
- The trough is raised by 2-3°.

Property damage!

When switching on the auxiliary drive, the electric sliding roof is automatically opened by approx. 750 mm.

▶ Before opening the hydraulic rear wall, make sure that the electric sliding roof is switched on. (Comply with information in the operating manual provided by the system manufacturer!)

Opening procedure

Prerequisite:
Manually operated covers are completely opened and secured; the auxiliary drive or the hydraulic pump is switched on. (Comply with the operating instructions provided by the manufacturer!)

▶ Select the operating mode that is suitable for the cargo on the control unit (see “Operating modes” on page 216).

▷ Observe the specific instructions for the individual operating modes.

▶ Ensure that nobody is standing in the danger area.

▶ Lift the trough using the tipper control valve ("LIFT" switch position).

▷ When equipped with the electric sliding roof, it is automatically opened by approx. 700 mm.

▶ Depending on the operating mode, the rear wall is automatically opened when a tipping angle of approx. 2-3° is reached or can be opened manually with the control panel.

▷ Observe the specific instructions for the individual operating modes (see page 216) as well as the instructions under “Manual, infinitely variable opening of the rear wall” on page 218).

Closing the hydraulic rear wall door

Depending on the selected operating mode, the pilot lamp on the “Hydraulic rear wall” control unit will show when the rear wall can be closed (see “Pilot lamp on the control unit” on page 216).

The rear wall is closed manually using the button on the control panel or with a button that is retroactively fitted in the driver’s cab.

The tipper control valve must be held at “LOWER” during the entire closing procedure of the hydraulic rear wall.

With the "Infinitely variable, manual opening/closing" operating mode, it is possible to close the rear wall at any tipping angle when the tipper control valve is set to "LOWER"! **We recommend not closing the rear wall until the trough has been completely lowered to ensure that it locks securely into place.**

MORTAL DANGER!

The hydraulic rear wall equipment does not replace due diligence.

▶ Before starting a trip, before loading and after taking possession of the vehicle, always check that the rear wall is properly closed and locked.

Closing procedure

Prerequisite:
The tipping trough is completely lowered. The pilot lamp on the "Hydraulic rear wall" control unit lights up (depending on the selected operating mode (see page 216).

▶ To close the rear wall, continue to hold the tipper control valve at "LOWER" and simultaneously actuate the retrofitted button in the driver's cab, until the rear wall is completely closed and locked.

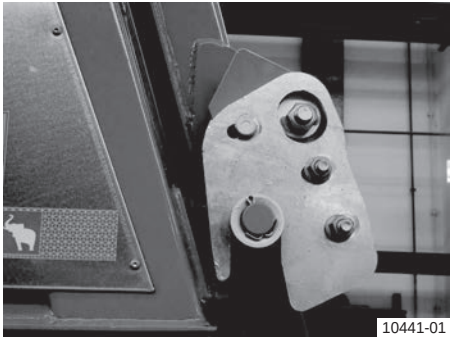
▷ If the tractor does not have a button for opening the rear wall, then a second person is required to operate the button on the control unit.

▷ The rear wall closes as long as the button is pressed. When the button is released, the movement of the rear wall stops immediately.

▶ Check that the side locking hooks on the rear wall are locked into the bolts. (You must also observe the instructions under "Hydraulic rear wall locking mechanism*" on page 103.)

▷ If the hooks are not properly engaged in the bolts, the closing procedure must be repeated. Open the rear wall and repeat the closing procedure with the tipping trough completely lowered.

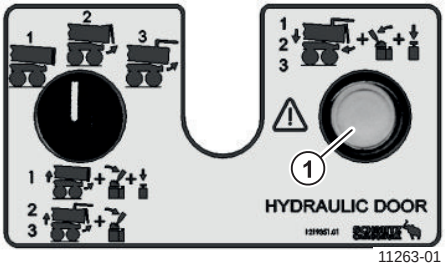
▶ Close the cover (see "Covers/tarpaulins*" on page 125).



Side locking hooks on the rear wall: locked

Error recognition when the pilot lamp is flashing

The flashing function of the pilot lamp makes it possible to recognise the error by means of different flashing frequencies. If the pilot lamp is flashing, contact an authorised Schmitz Cargobull service partner.



11263-01

"Hydraulic rear wall" control unit

1 Pilot lamp

Flashing frequency of the pilot lamp

- **Slight error**
  Flashing interval of 1 second (slow flashing)
- **Moderate error**
  Flashing interval of 0.5 second (moderate flashing)
- **Critical error**
  Flashing interval of 0.1 second (fast flashing)

If there is a slight or moderate error, the rear wall can principally only be closed manually with the button on the control unit on the side of the chassis (see also “Closing the hydraulic rear wall door” one page 220). **To fix the error, visit an authorised Schmitz Cargobull service workshop before the next tipping procedure (see page 220).**

CAUTION!

If the opening procedure of the rear wall with the “Swing function” or with the “Completely opened rear wall” function is interrupted (time out), the rear wall stops in the position it has reached.

- ▶ Slightly lift the trough using the tipper control valve.
- ▶ Lower the trough completely.
- ▶ Close the rear wall (see page 220).
- ▶ The rear wall can be opened again as described under “Opening the hydraulic rear wall door” (see page 219).

CAUTION!

If there is a critical error, the rear wall stops in the position it has reached and can no longer be operated.

- ▶ Lower the trough completely.
- ▶ Secure the vehicle with suitable means.
- ▶ Contact an authorised mobile break-down service.

DANGER!

It is not permitted to drive on public roads with an open, unsecured rear wall.

Working with the single-leaf combined door*

Depending on the equipment, your semitrailer tipper can have a single-leaf combined door (see page 96).

Familiarise yourself with your semitrailer tipper before starting operation. You must also observe the instructions under "Tipping procedure" on page 209.

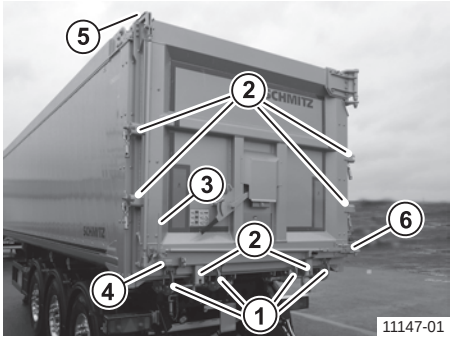
There are three different operating modes for the single-leaf door:

- Grain unloader function (see page 225)
- Swing function (see page 226)
- Door function (see page 227)

6

Switching between the door and swing function takes place with a selector lever (see "Selector lever positions" on page 225).

Locking system



Overview of the locking mechanism for the single-leaf combined door

1 Locking hooks of the pneumatic locking mechanism
2 Additional clamp locks (3 pairs)
3 Selector lever
4 Spring lock
5 Self-aligning bearing
6 Hinge

The locking mechanism for the single-leaf combined door is a combination of:

- Pneumatic locking mechanism (see page 101)
- Three pairs of additional clamp locks (see page 108)
- Selector lever (see page 225)

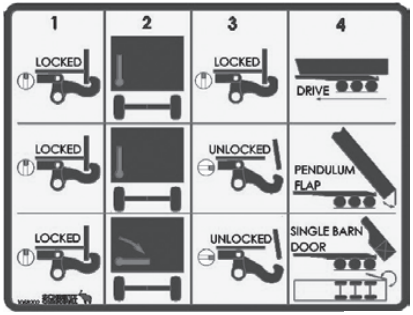
ACCIDENT HAZARD!

The locking mechanisms can be opened while loading or driving and cargo can be lost.

▶ Always lock all locking systems of the rear wall before loading with bulk cargo and before starting a trip.

▶ Before taking over the vehicle, check that all of the locking systems are closed and secured.

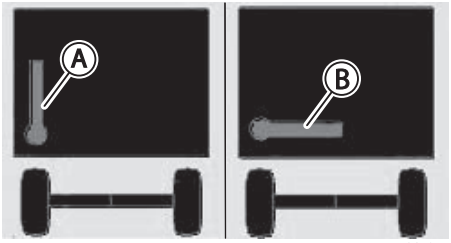
▶ Note the instruction stickers on the rear wall.



11104-01

"Single-leaf combined door" information sign

Selector lever positions



11168-01

Selector lever for single-leaf combined door

A Selector lever vertical - Driving position / grain unloader function / swing function

B Selector lever horizontal - Door function

The position of the selector lever of the single-leaf combined door is decisive for choosing the operating mode.

Selector lever vertical

Driving position / grain unloader function

▷ The selector lever (3) is in the vertical position (A) and secured with a spring lock (4). The locking hooks (1) of the pneumatic locking mechanism (see page 101) and the additional clamp locks (2) are closed (see page 108). The self-aligning bearing (5) is locked, the side hinge (6) is unlocked.

Swing function

▷ The selector lever (3) is in the vertical position (A) and secured with a spring lock (4). The self-aligning bearing (5) is locked, the side hinge (6) is unlocked.

Selector lever horizontal

Door function

▷ The selector lever (3) is in horizontal position (B) and secured with a spring lock (4). The self-aligning bearing (5) is unlocked, the side hinge (6) is locked.

Grain unloader function

When unloading with the grain unloader, the rear wall remains closed. The additional clamp locks are closed (see page 108) and the locking hooks of the pneumatic locking mechanism are locked (see page 101).

Only use the grain unloader function for free-flowing cargo that is suitable for being unloaded using the grain unloader.

Lifting the tipping trough with rear wall closed

Prerequisite:
The selector lever is in the vertical position and the pneumatic locking mechanism is locked (*switch position* "LOCK", see page 101).

- ▶ Ensure that nobody is standing in the danger area.
- ▶ Lift the trough using the tipper control valve ("LIFT" switch position).
  - ▷ The tipping trough is lifted, the rear wall remains closed.

For residual emptying of the tipping trough, switch to the swing function or door function. In any case, lower the tipping trough before switching the function and proceed as described.

Lowering the tipping trough with rear wall closed

- ▶ Lower the trough completely using the tipper control valve ("LOWER" switch position).

Swing function

With the swing function, the rear wall works like a standard top-hung tailboard after unlocking. The rear wall is pushed open by the sliding cargo.

Tipping with swing function

Based on the driving position (selector lever vertical, additional clamp locks and pneumatic rear wall locking mechanism are closed).

- ▶ Open the additional clamp locks (see page 108).
- ▶ Release the "Pneumatic hook lock*" (*switch position* "UNLOCK", see page 101).
- ▶ Ensure that nobody is standing in the danger area.
- ▶ Tip the trough by approx. 2° using the tipper control valve.
  - ▷ The locking hooks of the pneumatic locking mechanism are opened.
- ▶ When the tipping trough is tilted up further, the load begins to slide and presses on the rear wall.

Closing the rear wall

- ▶ Lower the trough completely using the tipper control valve.
  - ▷ When a tipping angle of 2° has been reached, the locking hooks of the pneumatic locking mechanism are closed and press the rear wall completely closed.
- ▶ Check that the rear wall is completely closed and secured with the locking hooks.
- ▶ Close all of the additional clamp locks installed on the rear wall (see page 108).
- ▶ Lock the pneumatic rear wall locking mechanism before starting a trip (*switch position* "LOCK", see page 101).

Door function

ACCIDENT HAZARD!

Do not endanger yourself when opening the rear wall. Open the door only when there is no load pressure acting on the rear wall.

- ▶ Due to the load pressure, the rear wall can swing open uncontrollably. Keep people and objects out of the swivel area.

Opening the rear wall

Based on the driving position (selector lever vertical, additional clamp locks and pneumatic rear wall locking mechanism are closed).

- ▶ Open the spring lock (4).
- ▶ Swivel the selector lever (3) down (horizontal position).
  - ▷ The self-aligning bearing (5) is unlocked, the side hinge (6) is locked.
- ▶ Secure the selector lever in the horizontal position using the spring lock (4).
- ▶ Open the additional clamp locks (see page 108).
- ▶ Release the "Pneumatic hook lock*" (*switch position* "UNLOCK", see page 101).
- ▶ Ensure that nobody is standing in the danger area.
- ▶ Tip the trough by approx. 2° using the tipper control valve.
  - ▷ The locking hooks of the pneumatic locking mechanism are opened and release the rear wall.

  If the pneumatic locking mechanism is locked, the rear wall door cannot be opened!
- ▶ Completely open the leaf door and secure it with a safety chain (see page 113).

Closing the rear wall

- ▶ Lower/lift the tipping trough by approx. 2° using the tipper control valve.
  - ▷ The locking hooks of the pneumatic locking mechanism may not be closed (see page 101).
- ▶ Close the rear wall door.
- ▶ Release the spring lock (4).
- ▶ Swivel the selector lever (3) in the vertical position and secure it with a spring lock (4).
- ▶ Lower the tipping trough completely using the tipper control valve.
  - ▷ The locking hooks of the pneumatic locking mechanism are closed and press the rear wall completely closed.
- ▶ Close all of the additional clamp locks installed on the rear wall (see page 108).
- ▶ Lock the pneumatic rear wall locking mechanism before starting a trip (*switch position* "LOCK", see page 101).

Side tilt warning function*

Uneven, one-sided loading or parking the vehicle on uneven, non-load-bearing ground can cause the semitrailer tipper to tilt to the side and tip over. You must also observe the instructions under "Tilt resistance" on page 209.

To recognise side tilting of the vehicle in due time, your semitrailer tipper can be equipped with a side tilt warning function*, depending on the equipment.

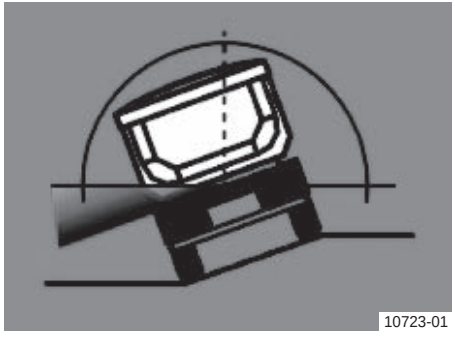


Illustration of side tilt angle

The warning function is an acoustic signal. There is no intervention in the tipping function of the tipping cylinder.

The warning signal is issued at a side tilt of 4° with reference to the horizontal plane.

The side tilt warning function* is a supporting function for the operator. However, it cannot prevent the vehicle from tipping over to the side.

MORTAL DANGER!

The side tilt warning function* does not absolve you of your due diligence!

▶ Immediately interrupt the tipping procedure as soon as the acoustic warning signal is issued.

MORTAL DANGER!

On non-load-bearing ground, the vehicle can tilt to the side before the warning signal is issued.

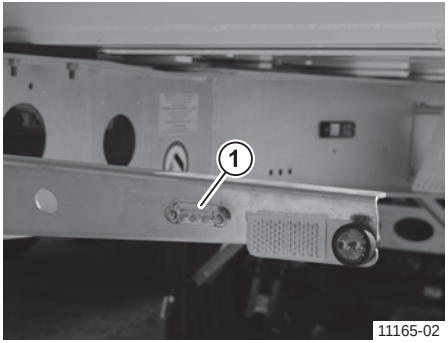
▶ Watch the vehicle closely during the tipping procedure to prevent it from tipping over.

DANGER!

The acoustic warning signal is issued on the semitrailer.

▶ Open the window and switch off the audio device to be able to hear the warning tone.

For an additional visual warning, lights can be installed on the side-marker light holder on your semitrailer tipper, depending on the equipment. When the permissible tilt angle is exceeded, the warning tone is issued and the lamps on the side-marker light holders start flashing (on the right and left of the vehicle). The position on the holder is selected so that the lights can be easily seen from the side mirrors of the tractor.



Visual side tilt warning function*

1 Lamp on the side-marker light holder (depending on the equipment)

The warning signal is issued before the tipping procedure

If the acoustic warning signal is issued already before the trough is tipped, the side tilt of your semitrailer has exceeded the threshold value.

- ▶ Park your semitrailer on a level and load-bearing surface.
- ▶ Start the tipping procedure only if no acoustic signal can be heard from the side tilt warning function.

The warning signal is issued during the tipping procedure

The tilt angle of the semitrailer tipper changes during the tipping procedure. The threshold value is exceeded and the acoustic warning signal is issued. This can be caused e.g., by an uneven load or by the ground being too soft, uneven, or non-load-bearing.

- ▶ Carefully lower the trough of your semitrailer. Watch the semitrailer closely in the process.
- ▶ Make sure that the semitrailer is evenly loaded and parked on firm, level, load-bearing (not on uneven and soft) ground.
- ▶ Start the tipping procedure again if no acoustic signal can be heard from the side tilt warning function.

Road paver operation

For use on the road paver, use the semitrailer tipper models that are intended for the construction site application:

- S.KI 18 7.2
- S.KI 24 7.2
- S.KI 24 8.2

With the following equipment:

- Top-hung tailboard
- Maximum trough height 1500 mm

When using the road paver, asphalt is continuously tipped into the road paver. The road paver and semitrailer tipper are not directly connected to each other. The press rollers of the road paver push the vehicle combination on the rear wheels forwards in the direction of travel. While feeding the paver, the semitrailer tipper maintains a constant distance from the paver and its press rollers. Depending on the slope of the road, the vehicle may also need to be braked (see also “Engaging the paver brake” on page 232).

During the tipping procedure into the paver, the rear area of the tipping trough dips into the paver. Different road paver models can be found on construction sites.

Before operation on the road paver, check whether the rear area of the semitrailer tipper is suitable for the particular road paver.

Prerequisites for operation on the road paver

Property damage!

During the tipping procedure, there must be sufficient clearance to prevent collisions with the paver.

▶ Make sure that the underrun protection, wheels, mudguards, dirt traps, rear lights, and licence plate holder provide the required clearance.

▶ Paver operation is not possible with all mudguard versions!

Before beginning to work on the paver, coordinate the mode of operation and the required signalling with the paver personnel.

The hydraulic rear wall* may not be completely open during operation on the road paver. There is a risk of accidents for the paver crew and a risk of collision with the paver.

MORTAL DANGER!

Particular caution must be taken for vehicles with hydraulic rear wall*.

▶ For operation on the paver, only use the “swing function” of the hydraulic rear wall (see “Working with the hydraulic rear wall door*” starting on page 214).

CAUTION!

For semitrailers with air suspension, the automatic lowering must be switched off before the tipping procedure. Otherwise, there can be collisions with the road paver.

▶ Adjust the height level of the semitrailer tipper to the paver.

Tipping procedure during paver operation

Also observe the instructions for tilt resistance starting on page 209.

- ▶ Fold up the underrun protection (see page 60).
- ▶ Fold up the dirt trap.
  - ▷ The dirt traps, which are attached to chains, are pulled up and locked when folding up the underrun protection.
- ▶ Switch off the automatic lowering.
- ▶ For semitrailer tippers with hydraulic rear wall, observe the following: Select the “Swing function” operating mode.

  Observe the instructions under "Working with the hydraulic rear wall door*" starting on page 214
- ▶ Check the required clearances.
- ▶ Drive very carefully in reverse up to the road paver.
- ▶ Engage the paver brake (see page 232).
- ▶ Carefully and slowly tip the trough. Observe the instructions under "Tipping procedure" starting on page 209.

Property damage!

Initiating the tipping procedure too early can cause property damage.

- ▶ Only initiate the tipping procedure directly at the road paver.

Property damage!

During the tipping procedure, weight is transferred onto the rear axles of the semitrailer tipper. This causes the vehicle to be lowered.

- ▶ If the clearances are insufficient, there can be a collision between the folded-up underrun protection and the paver.
- ▶ Ensure sufficient clearances!

Property damage!

The holding capacity of the road paver is limited.

- ▶ Only tip partial quantities into the road paver bunker.
- ▶ Observe the instructions from the paver crew.

Property damage!

For vehicles with hydraulic rear wall*, the swing function of the rear wall door must be used for operation on the road paver.

- ▶ Before the tipping procedure, make sure that the "Top-hung tailboard" function is pre-selected (see page 218) and remains switched on while working on the road paver.
- ▶ Sudden, unintentional complete opening of the rear wall can cause collisions with the road paver.

After the tipping procedure on the paver

- ▶ Observe the instructions under "After the tipping procedure" on page 212.
- ▶ Switch off the paver brake* (see page 233).
- ▶ Before starting a trip, check that there is no damage to the tyres, particularly on the rear axle.
- ▶ Check that the underrun protection, lighting equipment, mudguards, dirt traps and licence plate holder are not damaged.
- ▶ Clean the rear area.

Engaging the paver brake

Engaging of the paver brake differs depending on the vehicle equipment. See the instructions under:

- Engaging the paver brake with **conventional air suspension** (see page 232)
- Engaging the paver brake with **electronic air suspension** (see page 233)

Property damage!

Operation of the semitrailer tipper on public roads with the paver brake switched on is prohibited.

- ▶ Switch the paver brake off before starting a trip.
- ▶ Check the switch position in the driver's cab.

MORTAL DANGER!

Due to the function-related effect of the paver brake, the driver must always be ready to press the service brake to prevent the tractor-trailer from rolling away.

- ▶ It is forbidden to leave the tractor when working on the road paver.

Engaging the paver brake with conventional air suspension

Property damage!

Initiating the tipping procedure too early can cause property damage.

- ▶ Only initiate the tipping procedure directly at the road paver.

- ▶ Turn on the switch for the paver brake in the driver's cab of the tractor.
  - ▷ With a conventional air suspension, the paver brake function acts only when the trough is slightly tipped.

  When the trough is completely lowered, the paver brake remains inactive.
- ▶ Tip the trough slightly using the tipper control valve to activate the paver brake.
  - ▷ The paver brake is activated, the braking pressure is controlled.

Engaging the paver brake with electronic air suspension

▶ Turn on the switch for the paver brake in the driver's cab of the tractor.

▷ The paver brake is activated, the braking pressure is controlled.

▷ When the vehicle combination exceeds a speed of 10 km/h, the paver brake is released. - **The vehicle combination is no longer braked.**

When the speed drops below 10 km/h, the paver brake is active again.

With an electronic air suspension, the paver brake function acts only up to a maximum speed of 10 km/h.

Switching off the paver brake

The paver brake is switched off manually using the switch in the driver's cab.

▶ Actuate the service brake to prevent the vehicle combination from rolling away.

▶ Turn off the switch for the paver brake in the driver's cab of the tractor.

Property damage!

If the switch in the driver's cab of the tractor is not turned off again after use, the paver brake remains active. But it works only when the described requirements are met.

▶ After using the paver brake, turn off the switch to prevent accidental engaging of the paver brake.

Property damage!

Driving with the paver brake switched on may damage your semitrailer tipper.

▶ Make sure that the paver brake is switched off before driving away. Check the switch position in the driver's cab.

6

Requirements
Maintenance intervals
Maintenance work
Lubricating work
Care of the commercial vehicle
Decommissioning

Requirements

For all maintenance and repair work, observe the applicable environmental regulations.

Operate the semitrailer only in perfect condition as well as with due regard to safety and hazards. This requires the semitrailer to be serviced and repaired as specified. Have any changes that occur with the semitrailer corrected immediately by a qualified specialist workshop. This is particularly important with changes that affect the safety of persons and property.

The semitrailer with all its components must be serviced regularly and repaired when necessary to ensure safe and economical operation. If inspections, services and repairs are not carried out at the correct time, components may fail and cause accidents.

MORTAL DANGER!

Maintenance and repair work under moving vehicle superstructures and superstructure parts that are in a lifted or open position may be performed only when they are secured against unintentional falling down or falling shut.

- Before performing maintenance and repair work on vehicle superstructures and superstructure parts, they must be secured with suitable positive-locking securing devices.

Carry out functional inspections and services at the specified intervals and follow the directions.

Follow the intervals and directions for testing and servicing the OEM parts – such as axles, axle assembly, king pin or landing legs – in the respective, supplied operating manuals.

MORTAL DANGER!

Observe the accident prevention regulations, and work safely and bearing risks in mind.

- Functional checks and repair and maintenance work are permitted only on unloaded vehicles.
- Before servicing and repairing the vehicle with the trough in tipping position or with the hinged rear wall open, the raised parts must be supported by suitable means.

Safety inspection

Have all inspections and services completed within the specified intervals.

National legislation regulates the inspection intervals for safety-relevant components of the semitrailer. If there is no relevant legislation, you are responsible for ensuring that the semitrailer is inspected at least once a year by a government accredited expert for operational and traffic safety.

Changes to the semitrailer

Changes to safety-related components and to components that are subject to approval are not permitted and can result in invalidation of the operating permit.

This applies to, for example:

- Vehicle frame
- Wheels and tyres
- Axles with wheel brake
- Air suspension unit
- Braking system with valves, control units, connection lines, brake cylinder
- Lighting equipment
- Mechanical connecting devices (king pin)
- Side guards
- Underrun protection
- Splash guard system
- Control units and their control elements

The following in particular are prohibited:

- welding,
- alignment,
- drilling and
- heat treatment

on safely-related components and those that are subject to approval.

Electronic control units

Disconnect electronic control units for ABS/EBS, ECAS before carrying out any welding on **non**-safety-relevant components.

Cover plastic lines before carrying out welding, drilling or grinding work near them.

Personnel qualification

Have services and repair work carried out by qualified specialist workshops only, who have all the tools and knowledge required to carry out this type of work.

Schmitz Cargobull recommends the Schmitz Cargobull service centres for this work.

Appropriately qualified technicians are required for maintenance and repairs to the semitrailer. Maintenance and repairs done by insufficiently qualified persons involves unforeseeable risks with negative consequences for people, the semitrailer and the environment.

- Maintenance and repair of the chassis requires training as a motor vehicle mechanic and experience in maintaining and repairing commercial vehicles, trailers, and superstructures.
- Maintenance and repair of the electrical components of the superstructure requires training as an electrical technician.
- Maintenance and repair of the brakes requires training as a technician for brake systems.

Service and maintenance guide

Register services in the service and maintenance guide.

Maintenance intervals

The tables show which maintenance work is required, and when it is due. You can find instructions on how to perform the maintenance on the specified pages.
The time interval or kilometres driven, whichever comes first, is authoritative for the due date of a maintenance option. Vehicles that do not travel long distances should therefore be maintained according to time intervals. Reduce the intervals when operating in difficult conditions.

One-time maintenance work

Have the following maintenance items carried out once after delivery of the trailer.

Maintenance item	After 50 km	After 2,000 km	After 5,000 km	After 6 months	Information on page
Wheel nuts: tighten[1]	■				
Brake system: perform a train tuning		■			
Spring-loaded bearings and spring clips: Check for correct seating and retighten[2]		■			248
Check threaded connections of connecting rods, shock absorber fastening, and axle ties for rust and signs of settling		■			248
King pin: lubricate			■		245
King pin: check fastening bolts for tightness			■		245

1. This applies for every wheel change
2. After first trip with a load, and in any case no later than after 2,000 km.

Regular maintenance tasks

All of the vehicle and equipment parts installed on your semitrailer tipper must be ready for use and in a safe operating condition at all times. Check them regularly for proper function, firm seating, and damage.
In addition, have the following maintenance items carried out at the specified intervals on a regular basis.
Perform the daily required checks (see "Inspection before starting a trip and after reaching the destination" on page 18).

Maintenance item	Every 5,000 km or 14 days	Every 10,000 km or every month	Every 30,000 km or every 3 months	Every 60,000 km or every 6 months	Every 120,000 km or every 12 months	Information on page
Axle and wheel brakes: check state and wear	*Observe the specifications of the axle and brake manufacturer!*					
King pin: lubricate	■					257
Wheel nuts: check for tight fit. *Note the torque!*	■					251
Tyres: Visual check and test tyre pressure	■					251
Tyres: check state and wear	■					251
Lighting system: check components for damage	■					
Tipping cylinder: check for leaks and correct seating	■					247
Hydraulic hoses and pneumatic connectors and connections: Check for proper marking, fastening, leaks and damage	■					
Locking hooks: check seat and correct locking	■					250

Maintenance item	Every 5,000 km or 14 days	Every 10,000 km or every month	Every 30,000 km or every 3 months	Every 60,000 km or every 6 months	Every 120,000 km or every 12 months	Information on page
Locking mechanism adjustment: clean and lubricate	■					
Pneumatic underrun protection*: clean the pulleys and rope, check rope for damage	■					253
Sliding roof*: check fastening and movement	■					
Sliding roof*: check rope for damage, check the rope tension	■					
SR trough thermal insulation: check the spring adjustment of the fastening straps	■					255
King pin: check for wear and check that the fastening bolts are tight		■				245
Locking mechanism: Check all locking elements of the rear wall for proper function, completeness, and tight fit		■				
Folding underrun protection: check all components for proper function, completeness, tight fit, and damage		■				253
Side collision protection: check all components for proper function, completeness, tight fit, and damage		■				
Trough supports: Visual inspection for loss, damage, and firm seating		■				250
Compressed air system: check for leaks, drain the compressed air tank[1]		■				250

Maintenance item	Every 5,000 km or 14 days	Every 10,000 km or every month	Every 30,000 km or every 3 months	Every 60,000 km or every 6 months	Every 120,000 km or every 12 months	Information on page
Tipper bearing: check threaded connections for tight fit, signs of settling, and displacement[2]		■				247
Tipper bearing: lubricate[2]		■				258
Upper and lower tipping cylinder bearing: check threaded connections for tight fit[2]		■				247
Upper and lower tipping cylinder bearing: lubricate[2]		■				257
Rear wall self-aligning bearing: clean and lubricate[2]		■				257
Rear wall self-aligning bearing: check pins for tight fit and wear[2]		■				
Rear wall self-aligning bearing: check the adjustable self-aligning bearing for correct seating[2]		■				249
Trough guide: check for damage		■				110
Tailboard flap guide*: check for damage		■				111
Hydraulic rear wall*: clean and lubricate[2]		■				259
Roll-up tarpaulin*: check fastening and mobility, check for damage		■				
Check the trough floor for wear		■				248

Maintenance item	Every 5,000 km or 14 days	Every 10,000 km or every month	Every 30,000 km or every 3 months	Every 60,000 km or every 6 months	Every 120,000 km or every 12 months	Information on page
Welded seams: check for damage			■			
Spare wheel holder: check fastening bolts for tightness			■			
Tyres: check for uneven wear			■			
Pneumatic underrun protection*: check wire tension			■			253
Winch-design spare wheel holder*: check rope for wear			■			252
Work platform: check all threaded connections and clamps for tight fit			■			
Trailing steering axle*: lubricate all lubrication points			■			
Single-leaf combined door*: lubricate the lever locking mechanism			■			260
Leaf door hinges*: lubricate			■			260
King pin: check fastening bolts for tightness				■		
King pin: check for wear				■		245
Shock absorber: visual check for oil leakage				■		249
Check threaded connections of connecting rods, shock absorber fastening, and axle ties for rust and signs of settling				■		248

Maintenance item	Every 5,000 km or 14 days	Every 10,000 km or every month	Every 30,000 km or every 3 months	Every 60,000 km or every 6 months	Every 120,000 km or every 12 months	Information on page
Line filter in the compressed air system: clean				■		
Landing leg winches*: lubricate the gearbox				■		261
Automatic linkage adjuster: lubricate[3]				■		260
Change hydraulic oil[4]					■	80
Landing legs: check for proper fastening					■	
Landing leg winches*: Check wear on spindle and spindle nut, lubricate					■	
Landing leg winches*: required check of winches, lifting, and pulling equipment					■	
Mounted parts (all): check threaded connections for tight fit					■	
Winch-design spare wheel holder*: required check of winches, lifting, and pulling equipment					■	
Spring-loaded bearings and spring clips: Check for correct seating and retighten[3]					■	248
Check the threaded connections of the shock absorber mountings for tight fit[3]					■	
Hydraulic rear wall*: Replace the diaphragm accumulator[5]					[5]	256

Maintenance item	Every 5,000 km or 14 days	Every 10,000 km or every month	Every 30,000 km or every 3 months	Every 60,000 km or every 6 months	Every 120,000 km or every 12 months	Information on page
Legally required safety inspection					■	

1. At operating temperatures under 0°C, the condensation must be removed weekly.
2. Check more frequently under rough conditions (e.g. heavy off-road operation; strong soiling, extreme weather conditions).
3. Under rough conditions (e.g. off-road operation, heavy brake usage) lubricate more frequently as appropriate.
4. Change oil more frequently with heavy strain. Comply with the instructions from the tractor manufacturer!
5. Every 24 months! Observe the instructions on the specified page.

Maintenance work

All service and maintenance work must be carried out by qualified specialist workshops only.

Have all required inspections and service tasks completed well within the specified intervals (see "Maintenance intervals" starting on page 238).

The Service and maintenance guide is used to document all inspections and forms the basis for any warranty claim.

Bolts and nuts

Check all bolts and nuts regularly for tight fit.

All tightening torques that are not specified under "TECHNICAL DATA" (page 275) must be requested from Schmitz Cargobull.

CAUTION!

When replacing threaded connections, pay attention to the correct bolt size and strength class.

King pin

When working with semitrailer couplings, semitrailer tractors, and the king pin, the relevant safety regulations of the respective country apply.

The corresponding safety instructions in the operating manual of the semitrailer tractor must be observed.

The king pin is a component that requires approval and is subject to the highest safety requirements. It establishes the connection between the semitrailer tractor and the semitrailer.

The king pin, together with the mounting plate and the fastening bolts, form a component that requires approval. Only king pins that match the mounting plate may be used. To fasten the king pin, only fastening bolts that are approved by the manufacturer may be used.

Modifications of any type will exclude any warranty claims and void the operating permit.

The test mark of the type approval and the permissible D-value of the king pin are written on the front side of the lower collar of the king pin.

Only replace it with the type of king pin specified in the operating permit and installed when the trailer was first registered.

Contact the manufacturer or a qualified specialist workshop if you have any questions or doubts about the king pin . Follow the manufacturer's specifications for service and replacement.

Property damage!

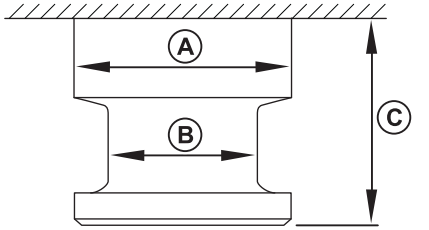
Regular lubrication is the most important factor for long life of the king pin and semitrailer coupling.

▶ Lubricate the king pin at the intervals specified in the service tables.

ACCIDENT HAZARD!

Replace the king pin when worn and when scoring is visible.

▶ Only replace it with the type of king pin specified in the operating permit and installed when the trailer was first registered.



10302-01

King pin dimensions

		50 (2")	90 (3.5")
A	New condition	73 mm	114 mm
	Wear limit	*71* mm	*112* mm
B	New condition	50.8 mm	89 mm
	Wear limit	*49* mm	*86* mm
C	Minimum	82.5 mm	72 mm
	Maximum	84 mm	74 mm

New and wear dimensions of the king pin

ACCIDENT HAZARD!

The use of a king pin under the limit diameter (wear limit) can cause the semitrailer to become uncoupled while driving.

▶ Check the diameter regularly.

▶ Replace the king pin in case of strong scoring, at the latest when the wear limit is reached.

▶ Lubricate the king pin at the intervals specified in the service tables. The recommended operating materials can be found on page 276.

▶ Check the mounting plate, the king pin, and the fastening elements for proper function, wear, and damage (e.g. cracks) in compliance with the intervals specified in the service table.

▶ Retighten the fastening bolts with the intended torque (see "Tightening torques" on page 275).

▶ Replace the king pin in case of strong wear or damage. Observe the wear limits.

▷ Use only the king pins entered in the operating permit. Follow the installation guidelines of the manufacturer!

▷ When replacing the king pin, always also replace the fastening bolts. Only use approved components that have an approval mark.

ACCIDENT HAZARD!

When the wear limit is reached, the king pin must be replaced.

- ▶ Only replace it with the type of king pin specified in the operating permit and installed when the trailer was first registered.
- ▶ Use only approved components that have an approval mark
- ▶ After replacing the king pin, readjust the lock for the semitrailer coupling.

CAUTION!

The wear on the king pin may not be compensated by readjusting the semitrailer coupling!

Tipping cylinder

The tipping cylinder is a heavy-duty component on the semitrailer tipper and is subject to special maintenance procedures.

- ▶ Check the tipping cylinder regularly for damage, scoring, and leaks.
- ▶ Have leaky or damaged tipping cylinders promptly repaired or replaced at a specialist workshop.
- ▶ Check the threaded connections on the bearing points in the frame (bottom) and on the front wall (top) for tight fit on a regular basis.
- ▶ Follow the instructions in chapter "SUPERSTRUCTURE“ starting on page 83.

Environmental damage!

Escaping oil is harmful to the environment!

- ▶ Collect escaping oil in suitable containers and dispose of it in an environmentally friendly manner.

Property damage!

Hydraulic oil is subject to ageing processes and as a result, its properties change.

- ▶ To prevent damage to the hydraulic system and the pump, change the hydraulic oil at least once a year, and accordingly more often in case of heavy use.

Tipper bearing

The tipper bearings and their fastening on the trough are components of the semitrailer tipper that are subject to high strain.

Check the threaded connections on the tipper bearings monthly for tight fit, signs of settling, and displacements.

Tipping procedures are not permitted if there are loose threaded connections, visible signs of settling, and displacements. There is a risk of tipping over to the side or the trough sliding to the rear. Please contact your Schmitz Cargobull service partner immediately.

Trough floor wear

The scraping effect of bulk material during the tipping procedure causes wear on the contact surfaces.

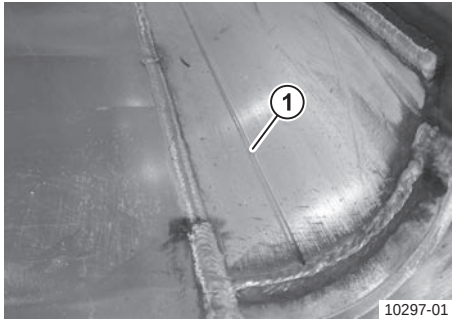
Aluminium troughs are particularly susceptible to wear. To avoid expensive repairs, a wear mark (1) is integrated into the trough floors of aluminium troughs.

Check this wear mark **monthly** when the trough is unloaded.

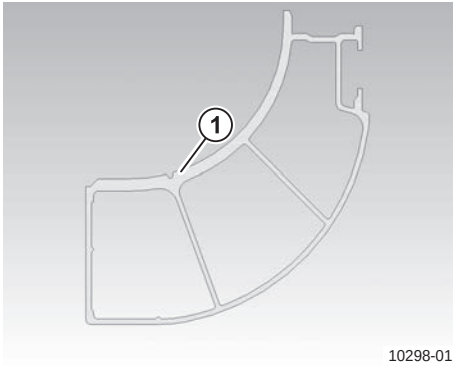
Property damage!

If the wear mark is no longer visible, the trough floor of your trough must be treated with a repair kit.

▶ In this case, please contact your Schmitz Cargobull service partner.



Wear mark on the floor of the aluminium trough



3D illustration of the wear mark on the aluminium trough

Running gear system

For the Schmitz Cargobull "ROTOS" running gear system, you can find detailed maintenance and service specifications on the associated "ROTOS" operating manual. For other running gear manufacturers, the specifications of the respective manufacturer must be observed.

The inspections must be carried out at the specified intervals in accordance with the relevant service instructions to ensure operating and road safety of the vehicle.

The elimination of detected defects or the replacement of worn parts should be entrusted to a Schmitz Cargobull service workshop, provided that the vehicle owner does not have the appropriate specialists and the necessary technical equipment in their own company, or has official permission for interim inspections. Connecting rods must always be replaced in pairs.

When installing spare parts we recommend using exclusively parts tested and approved by Schmitz Cargobull to ensure that the operating permit and the warranty remain valid under national and international regulations.

Observe the maintenance procedures of the axle manufacturer!

Schmitz Cargobull air suspension systems are low-maintenance systems. The articulated connections are designed as rubber-steel bushes, which do not require lubrication.

Visual inspection and test

<u>After the first two weeks, six months and then at least once a year:</u>

▶ Check threaded connections of connecting rods, shock absorber fastening and axle ties for rust and signs of settling.

If traces of rust or settling are found in the area of the threaded connections, this indicates internal movement in the connections.

In this case, please contact your Schmitz Cargobull service partner.

Shock absorbers

Damaged shock absorbers no longer fulfil their function. The driving behaviour of the semitrailer is adversely affected. Tyre wear may also increase.

Check the condition of all shock absorbers at regular intervals. Observe the following instructions:

- Check the shock absorbers in dry weather, not during rain.
- Leaky, damaged shock absorbers no longer fulfil their function. The driving behaviour is adversely affected. Tyre wear may also increase.
- Have damaged shock absorbers replaced at a specialist workshop.

<u>Oil mist contaminates the shock absorber</u>

The shock absorber does not drip and is mostly dry.
-> Not a fault

▶ Perform a visual inspection on all shock absorbers.

▷ The shock absorber can "sweat slightly" and this is actually desirable for lubrication.

<u>Moisture from leaking oil is visible</u>

The shock absorber is leaking.
-> Replace the shock absorber

▶ If necessary, wipe the shock absorber clean, drive the semitrailer for two days and check again.

▷ Oil will drip out if the shock absorber leaks.

▶ Have damaged shock absorbers replaced at a specialist workshop.

<u>Worn-out rubber bushes</u>

The shock absorber is sealed, the rubber bushes are worn.
-> Replace the shock absorber

▶ You can assess the wear of the rubber bushes by rotating the shock absorber.

▶ Have damaged shock absorbers replaced at a specialist workshop.

Rear wall and self-aligning bearing

It is forbidden to load the trough if the rear wall is damaged.

Have all repair work on the rear wall and on the self-aligning bearing performed by an authorised Schmitz Cargobull service partner.

Check the adjustable self-aligning bearing for correct seating. Displacements on the self-aligning bearing adjustment lead to leaks on the rear wall. There is also the risk that the locking mechanism does not close properly.

Check the pins of the self-aligning bearing regularly for tight fit and wear (see maintenance table starting on page 239). Observe the "Tightening torques" table on page 275.

Perform the following visual checks on a regular basis:

- Does the rear wall close completely?
- Does the self-aligning bearing fit tightly? (varies depending on the equipment)
- Are all of the gaskets present and undamaged? (varies depending on the equipment)
- Are the guides for the rear wall flap undamaged? (varies depending on the equipment)

You must also observe the instructions under "Lubricating work" starting on page 257.

Locking mechanism

Have all repair work on the rear wall locking mechanism performed by an authorised Schmitz Cargobull service partner.

Locking hooks

Over time, it may be necessary to readjust the locking mechanism.

▶ Check at monthly intervals whether the locking hooks are in proper contact with the rear wall with the trough lowered.

Trough supports

Perform a visual inspection of the trough supports for firm seating and displacements at regular intervals. If there is any loss, visible damage or wear, contact a Schmitz Cargobull Service Partner without delay.

Trough support versions:

- clamped on the longitudinal beam
- clamped on the longitudinal beam as a continuous profile rubber
- welded onto the trough (for aluminium box troughs)

Property damage!

Damaged or missing trough supports result in mechanical damage to the longitudinal beam and the trough as well as damage to the tipping cylinder.

▶ Perform regular visual inspections for firm seating and damage.

▶ Immediately replace damaged or missing trough supports.

Compressed air system

Check all coupling heads, valves and lines for leaks/air escape at regular intervals.

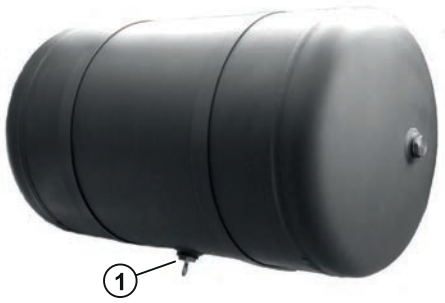
▶ Eliminate leaks immediately.

▶ Check and clean the sealing surfaces of the coupling heads.

▶ Drain the compressed air tank completely by pulling on the drain valve (1) at regular intervals.

▷ Drain any condensation completely out of the compressed air tank.

At operating temperatures under 0°C, the condensation must be removed weekly.



10925-01

Compressed air tank

1 Drain valve

Landing legs

MORTAL DANGER!

Perform visual inspections of the landing legs for deformation and cracks at regular intervals.

▶ Replace damaged landing legs immediately.

▶ Uncouple the semitrailer only when the landing legs are not damaged.

MORTAL DANGER!

Testing, maintenance, and repair of the landing legs may be performed only by capable, specialist personnel.

▶ You must follow the maintenance instructions of the landing leg manufacturer.

Wheels and tyres

Through settling processes, the wheel nuts will loosen during the first few kilometres.

▶ On brand-new semitrailers, tighten the wheel nuts at the specified torque after 50 km of driving.

▶ After each wheel change, tighten the wheel nuts at the specified torque after 50 km of driving.

▶ Follow the instructions in chapter "CHASSIS“ starting on page 67.

Checking condition

Inspect the wheels regularly for deformation, rust, cracks, and breaks.

- Replace cracked, deformed or otherwise damaged wheels.
- Replace wheels with cracked or deformed wheel stud seats immediately.
- Never weld cracked rims or wheel discs. The weld would crack after a very short time because of the dynamic stresses occurring while driving.
- Rust can cause both stress cracks in wheels and tyre damage. Check the contact surfaces of the tyre and the

wheel hub and remove rust. Replace the surface protection of the contact areas as necessary.

Check the tyres regularly for wear, damage, and foreign objects embedded in them.

- Replace damaged tyres immediately.

Check the tyre pressure with cold tyres as specified by the manufacturer every two weeks. In general, the tyre pressure should be 9 bar for tyres with 4.5 t carrying capacity.

Spare wheel holder*

Use the spare wheel holder only when it is in perfect condition. Before starting a trip, check whether all of the fastening elements are present and undamaged.

Spare wheel holder in winch design*

Testing, maintenance and repair may be performed only by capable, specialist personnel.

The spare wheel holder with winch is to be inspected according to use in line with the relevant regulations for winches, lifting and pulling equipment in the country of vehicle registration.

The inspection must be performed at least annually by a qualified person (expert).

The inspections are to be documented.

Carry out inspection, maintenance and repair work only on unloaded lifting gear.

Clean the spare wheel holder regularly. Do not use a high-pressure cleaner for this!

Brake pad wear indicator*

The brake pad wear indicator provides an option for detecting the wear limit of the brake pads on axles with disc brakes at an early stage (see also page 39).

Check whether the disc brake pads have reached the wear limit every day.

Property damage!

After replacing the brake pads, check all wear sensor system wires, because at least one wire is worn and must be replaced.

▶ Insert the cable for the wear indicator into the new brake pads.

▶ After switching on the ignition for the first time, the wear display turns back to "OK".

Plastic trough lining*

Property damage!

Bulk cargo residues that are not removed result in damage to the lining and the trough body.

▶ Remove bulk cargo residues on a regular basis.

Perform the following visual inspections at regular intervals to detect damage to the plastic lining at an early stage.

▶ Is there dirt between the lining and the trough?

▶ Are all of the threaded and riveted connections present and undamaged?

▶ Did the lining slip out of place?

Property damage!

Damaged trough linings must be promptly repaired or replaced.

▶ Perform the following visual inspections on a regular basis.

▶ In case of visible damage, immediately contact a Schmitz Cargobull service partner.

Folding underrun protection

Check the components of the underrun protection device regularly for:

- Function
- Completeness
- Tight fit
- Damage

Particularly check the threaded connections for tight fit and damage:

- Connecting pins on the swing arm
- U-bolts on the underrun protection beam
- Threaded connections on the vehicle frame

Check the spring locks / toggle tensioning lever regularly for proper function and damage.

CAUTION!

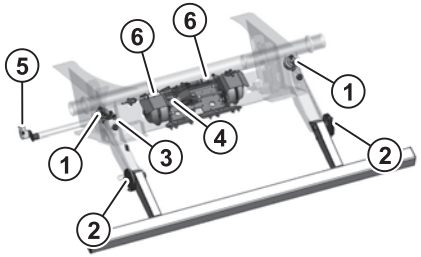
Deformation or other damage on the components of the underrun protection device are not permitted.

▶ Damaged components must be replaced immediately.

Electropneumatically operated underrun protection

Before maintenance work on the pneumatic underrun protection, observe the following instructions:

- The underrun protection must be in the lowered position during servicing!
- Observe the instructions in chapter "CHASSIS“ starting on page 61.
- Disconnect the connection to the red coupling head of the brake system.
- Disconnect the connection cable of the EBS and 15-pin or 2x7-pin socket.



11275-01

3D representation of the tail-end frame with pneumatic underrun protection

1 Upper pulley
2 Lower pulley
3 Sensor (green) for the underrun protection position in the upper end position
4 Sensor (black) for the underrun protection position in the lower end position (driving position)
5 Position light
6 Turnbuckle

▶ Clean the side pulleys (1+2) and the rope (3) of the pneumatic underrun protection (left and right) at least every 14 days. Check the rope for damage.

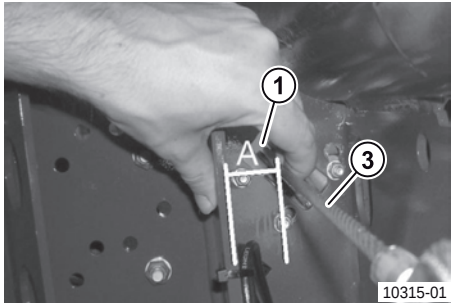
INJURY HAZARD!

Only use appropriate supplementary equipment to clean the pulleys and the rope.

▶ Never clean with your bare hands.

▶ Check the wire tension on the left and right every quarter.

▷ Measure the distance between the ropes in the direction of travel (DR) left and right with the underrun protection folded down, by gently pressing the wire (3) towards the sheet.



10315-01

Pneumatic underrun protection distance measurement re-tightening

A Distance between rope and sheet
1 Upper pulley
3 Rope

Dimension A DR right < 30 mm
→ Tighten the rope (3) using the turnbuckle (4)
to **Dimension A = 45 mm**

Dimension A DR left < 15 mm
→ Tighten the rope using the turnbuckle (4) to **Dimension A = 30 mm**

Thermal insulation*

The thermal insulation on the trough is essentially maintenance-free. Nonetheless, a visual inspection must be performed at regular intervals to detect any damage and to deal with it.

Property damage!

The insulation can be damaged if welding work is performed on the vehicle.

▶ The insulation material in the affected area must be removed by a Schmitz Cargobull Service Partner before starting welding work on the floor, rear wall door, or the side walls of the tipping trough.

MORTAL DANGER!

Visual inspections of the thermal insulation on the trough floor must be performed when the trough is tipped. The trough must be emptied before the visual inspection.

▶ Support the empty trough, before you start the visual check on the trough floor.

Fixing screws/rivets

Check all of the screws/rivets that serve to attach the insulation for tight fit on a regular basis. Loose or loosened screws/rivets must be replaced by new ones.

Perform a regular visual inspection of the fixing screws/rivets on the side wall, rear wall, front wall, and floor.

▶ Are all fixing screws/rivets present?

▶ Are all fixing screws/rivets undamaged and intact?

▶ If there are loose screws/rivet connections, contact a Schmitz Cargobull Service Partner.

Insulation

To ensure reliable insulation of the cargo, the insulation must be in perfect condition. Perform a regular check of the insulation on the side wall, rear wall, front wall, and floor.

Have any damage to the insulation repaired immediately by a Schmitz Cargobull Service Partner.

Schmitz Cargobull accepts no liability for operator errors or any resulting damage.

Aluminium box trough

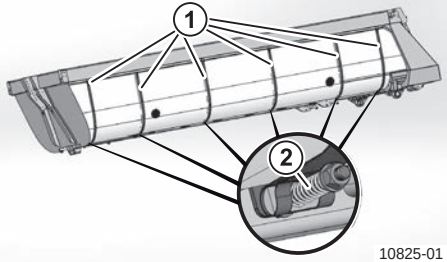
The internal cladding on the front wall and the side walls and the external cladding on the base and the rear wall must be checked regularly.

▶ Any damaged areas must be closed and sealed immediately to prevent cargo or water ingress.

▶ Check the continuous seal joint between the insulation panels and the trough for any changes.

Steel rounded trough:

The thermal insulation on the steel rounded trough is fastened to the side walls using fastening straps. Each fastening strap is tensioned with a spring.

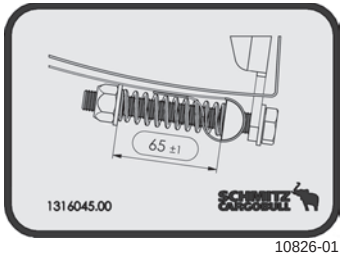


10825-01

Fastening straps

1 Fastening strap
2 Spring on fastening strap

Permitted spring dimension in mm in an unladen condition: **65 ± 1**



10826-01

Information sign "Fastening strap spring adjustment"

Property damage!

Every 14 days, check the spring dimension on all the fastening straps of the thermally-insulated trough while unloaded.

▶ If the spring dimension deviates, it must be immediately brought into the permissible tolerance range.

Hydraulic rear wall*

All service and maintenance tasks must be carried out by Schmitz Cargobull service partners only. You must also observe the instructions under "Lubricating work" on page 259.

Control and hydraulic systems

All maintenance and repair work for the control and hydraulic systems must be carried out by a recognised specialist workshop for electrically controlled hydraulic systems.

Diaphragm accumulator

The diaphragm accumulators ensure the function of the hydraulic rear wall.

▶ Replace the containers after two years.

Lubricating work

Adequate lubrication with suitable lubricants is important to maintain the function of individual elements.

The lubrication intervals can be found in the maintenance tables starting on page 238.

The lubricants can be found under "Operating materials" on page 276.

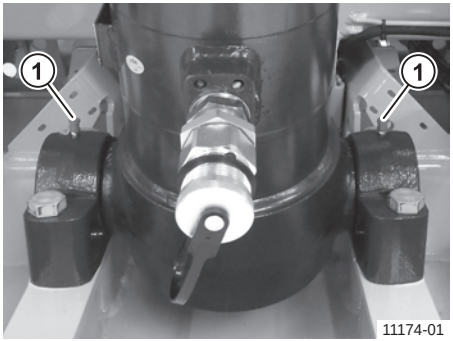
King pin and coupling plate

Property damage!

The connection of the tractor and the semitrailer requires a supply of grease.

- ▶ Regular lubrication is the most important factor for long life of the king pin and semitrailer coupling.
- ▶ Observe the instructions of the tractor manufacturer.

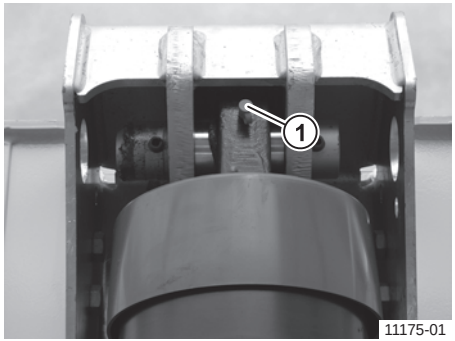
Lower tipping cylinder bearing



Lower tipping cylinder bearing

1 Lubrication point

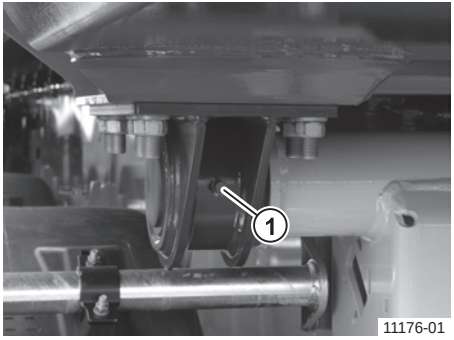
Upper tipping cylinder bearing



Upper tipping cylinder bearing

1 Lubrication point

Tipper bearing



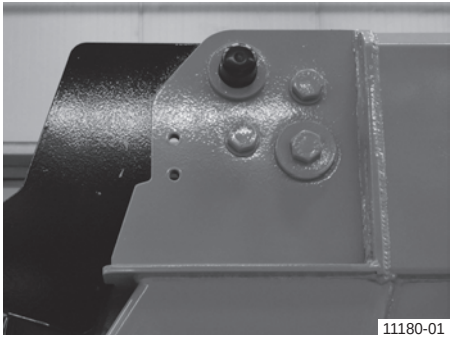
Tipper bearing

1 Lubrication point on tipper bearing

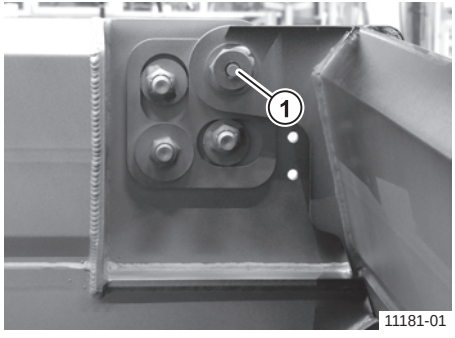
Self-aligning bearing*

Single self-aligning bearing*

The single self-aligning bearing is lubricated on the inner pendulum bolt.



External view of the single self-aligning bearing

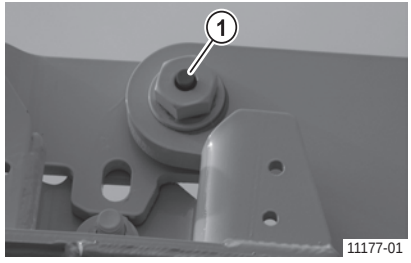


Internal view of the single self-aligning bearing

1 Lubrication point on single self-aligning bearing

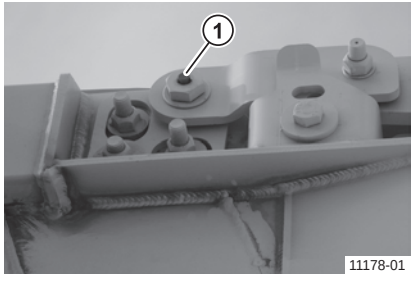
Double self-aligning bearing*

The double self-aligning bearing is lubricated on the outer and inner pendulum bolt.



External view of the double self-aligning bearing

1 Lubrication point on outer pendulum bolt



Internal view of the double self-aligning bearing

1 Lubrication point on inner pendulum bolt

Hydraulic rear wall*

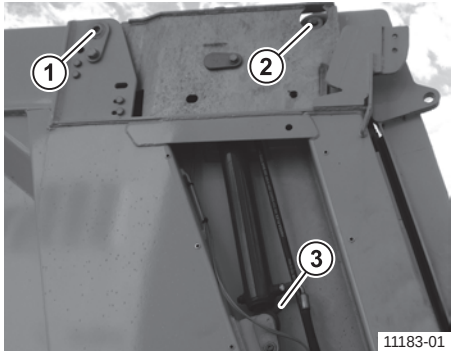
The hydraulic rear wall has lubrication points on the self-aligning bearing and on the hydraulic cylinder.

To lubricate the hydraulic cylinder, it is necessary to remove the side cover plate and to completely open the rear wall.

Property damage!

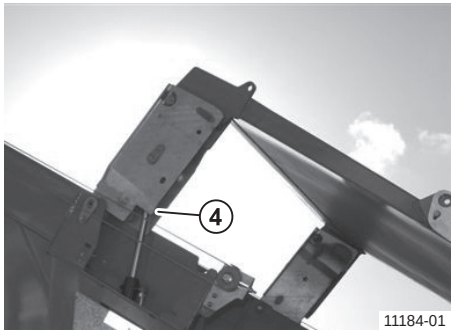
Dirt and dust accumulations under the cover plate can lead to damage.

▶ Clean the area under the cover plate before the lubricating procedure.



Hydraulic rear wall

1 Lubrication point on front self-aligning bearing bolt
2 Lubrication point on rear self-aligning bearing bolt
3 Lubrication point on hydraulic cylinder - lower bearing point -> Remove cover plate of the side wall



Hydraulic rear wall

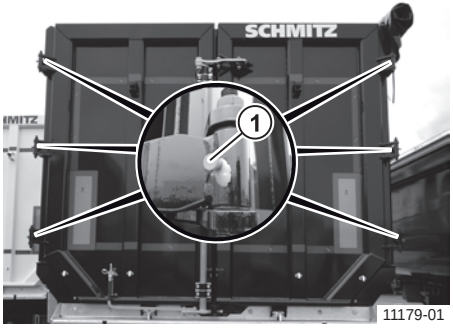
4 Lubrication point on hydraulic cylinder - top bearing point -> Requires complete opening of the rear wall

MORTAL DANGER!

Do not stand under the raised hydraulic tailgate!

▶ Before starting any maintenance work, secure the hydraulic flap with suitable equipment so that it does not suddenly fall down.

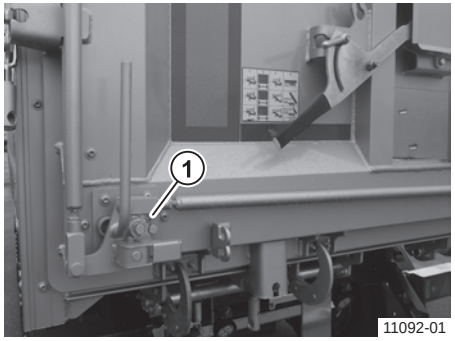
Leaf door hinges*



Leaf door hinge

1 Lubrication point on hinge

Lever locking mechanism on single-leaf combined door*

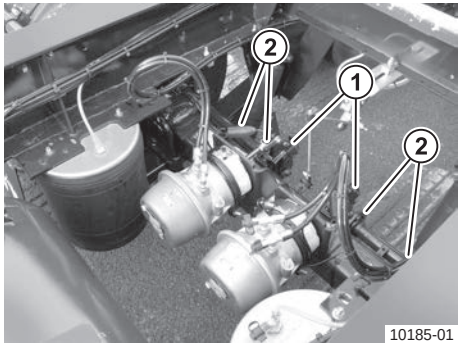


Single-leaf combined door

1 Lubrication point on lever locking mechanism

Linkage adjuster*

Only on semitrailers with drum brakes.



Linkage adjuster lubrication points

1 Linkage adjuster grease nipple (one each)
2 Brake shaft bearing grease nipple (two each)

Follow the service instructions in the operating manual supplied by the axle manufacturer.

Landing leg winches*

Depending on the equipment, the landing leg winches have lubrication points to top up the grease in the spindle. Depending on the frequency of use and the requirements placed on it, the spindle must be regularly lubricated.

If gear parts, spindle or nuts are replaced, it must be lubricated.

Follow the directions of the landing leg manufacturer.

Care of the commercial vehicle

The semitrailer is subject to many external influences during operation. Special care is therefore required to maintain the value of the semitrailer. Thanks to targeted measures, the paintwork and hot-dip galvanised surfaces of the vehicle can be prevented from losing value prematurely.

If a transport container is accidentally damaged during transport of aggressive substances and some of the cargo escapes, the contaminated areas of the vehicle must be rinsed immediately with a large amount of water.

During the winter months (start of November to end of March), the surface of your vehicle is subjected to additional stress because of dirt and road salt.

In order to maintain the value of the vehicle, clean your vehicle at weekly intervals during the winter months in accordance with our recommendations.

The cleaning agents to be used for the different surfaces can be found under "Operating materials" on page 279.

You can use a high-pressure cleaner to improve the cleaning effect. Observe the instructions under "Use of high-pressure cleaners" on page 262.

The following types of contamination are particularly damaging to the surfaces. They must be removed immediately: **salt residue, insect residue, bird droppings, sap, fuel and tar.**

Use of special cleaners

Observe the directions for use of the utilised care products.

- ▶ Apply the special cleaner undiluted on the affected areas.
  - ▷ Make sure that adjacent areas do not come into contact with the special cleaner.
- ▶ Rinse the affected areas with large amounts of clean water after allowing them to soak for 10 to 30 minutes.

POISON HAZARD!

Disinfection and cleaning agents can be poisonous and may cause injury on skin contact or when ingested.

- ▶ Observe the directions for use of the utilised care products.
- ▶ Keep cleaning agents closed and out of reach of children at all times.
- ▶ Never use drink containers for storing cleaning agents.

Dispose of empty containers in an environmentally friendly manner.

Use of high-pressure cleaners

Observe the directions for use of the utilised machine.

When cleaning with a high-pressure cleaner, note the following points:

- distance between round jet nozzle and the surface to be cleaned: at least 70 cm.
- Distance between flat spray nozzle or rotating nozzle and the surface to be cleaned: at least 30 cm.
- do not direct the water spray at electrical components, plug connectors, seals or hoses.
- do not direct the water jet at bearing points on the tipper bearing of the trough.
- do not direct the water jet at bearing points on the tipping cylinder.
- do not direct the water jet at pistons and seals on the hydraulic cylinder.
- To avoid damage, never direct the water jet towards the seal area of the insulation panels of thermally-insulated* troughs
- Always direct the water spray at warning stickers, name plates, contour markings or other stickers at an angle of 90° (do not point it at the edges at an angle).
- Do not use a round jet nozzle to clean tyres or air spring bellows. The pulsating water jet can cause damage to the substructure of tyres and air spring bellows that is not visible from the outside. This damage becomes noticeable much later and can make the tyre or the air spring bellows burst.

Painted surfaces

During the first 3 months

New vehicles are heavily affected by dirt and road salt during transportation, particularly during the winter months (beginning of November to end of March).

Clean your new vehicle regularly with clean, cold water, but in the first three months without using high-pressure cleaners and/or washing additives.

Surface damage!

Newly painted surfaces are not yet fully cured and can be damaged if high-pressure cleaners and/or washing additives are used prematurely.

▶ Wash painted surfaces with cold water spray only without additives during the first three months.

▶ Do not use pressure washers or steam cleaners or hard brushes.

After 3 months

Clean and treat the painted surfaces of the trailer with suitable paint care products, paint cleaners, paint preservatives, tar removers, etc.

However, do not use these products in direct sunlight and read the instructions for use of the agents employed before use.

Property damage!

Avoid paint finish damage caused by incorrect cleaning.

- ▶ Wash painted surfaces with water at temperatures below 60 °C only.
- ▶ Do not use aggressive cleaning agents, use standard commercial products labelled "pH-neutral".
- ▶ Keep the cleaning nozzle at the specified distance when using a pressure washer or steam cleaner.

Damage to small areas of paint can be temporarily repaired with the appropriate shade of spray paint.

7

Hot-dip galvanised surfaces

Hot-dip galvanising offers good protection against mechanical operating strains and rust.

White patches on the hot-dip galvanised surface of new vehicles during winter are normal and do not affect the quality and operating life of the surface.

You can remove these patches as described below:

- ▶ Clean the chassis thoroughly with clean water.

  Use a pressure washer for better cleaning.
- ▶ Allow the chassis to dry.

Property damage!

Avoid surface damage caused by incorrect cleaning!

- ▶ Wash the hot-dip galvanised surface during the first three months with a cold-water spray only under a temperature of 50°C.
- ▶ Do not use any additives.

Damage to the hot-galvanised surface is not to be considered serious when less than 2 mm wide. Larger damaged areas in the surface up to 5 cm^2 can be repaired with a suitable zinc dust paint.

Cleaning the interior of the trough

Depending on the transported cargo, it may be necessary to clean the interior of the trough before and after transport. Observe the regulations that apply for the transported cargo.

To access the inside of the trough, only use suitable equipment for climbing in and out.

Observe the applicable accident prevention regulations for vehicles, ascents, ladders, and steps.

Decommissioning

To temporarily take the vehicle out of service or to decommission the vehicle for longer than 6 months, the following points must be observed:

- Clean the vehicle thoroughly (see "Care of the commercial vehicle" starting on page 262).
- Perform all of the lubrication work listed in the maintenance table (see “Maintenance intervals” starting on page 238).
- Completely retract the tipping cylinder (see "Tipping cylinder" starting on page 83).
- Close the hydraulic rear wall* (see "Hydraulic rear wall with swing function*" starting on page 96).
- The hydraulic oil remains in the hydraulic system. Protect the hydraulic connectors from damage, corrosion and leaks.
- Protect the vehicle against weather conditions with suitable means.

Recommissioning

Perform all of the lubrication work listed in the maintenance table (see “Maintenance intervals” starting on page 238).

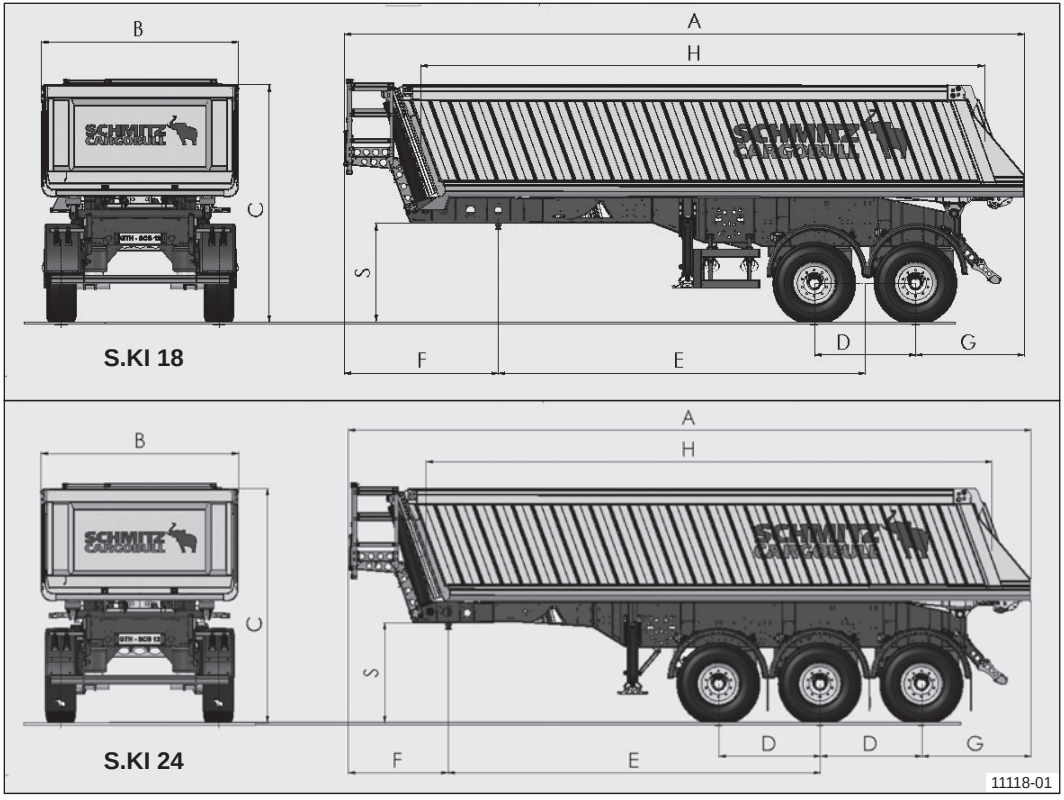
Final decommissioning

For final decommissioning, the vehicle and operating materials must be disposed of in accordance with the nationally applicable regulations.

7

Dimensions
Electrical system
Circuit diagrams
Tightening torques
Operating materials
Sticker overview

Dimensions



S.KI dimensions

The dimension specifications of your semitrailer tipper can be found in the sales documents and in the registration documents.

A	Vehicle total length	**E**	Wheel base
B	Vehicle total width	**F**	Front overhang
C	Overall height	**G**	Rear overhang
D	Wheelbase	**H**	Load length
S	Semitrailer coupling height unloaded (semitrailer horizontal)		

Electrical system

Terminal assignment

Schmitz Cargobull vehicles are equipped with 24-volt light systems.

The connection between semitrailer and tractor is established via two 7-pin sockets (plugs) using connection cables.

To prevent the connections from being mixed up, one plug (socket) according to DIN ISO 1185 and one plug (socket) according to DIN ISO 3731 is used, respectively.

The connection can also be established with a
15-pin plug in compliance with ISO 12098.

After coupling the connection cable and before starting every journey, the lighting system must be checked for function.

8

Property damage!

The electrical system components must be checked regularly.

▶ Defective or damaged parts should be immediately replaced.

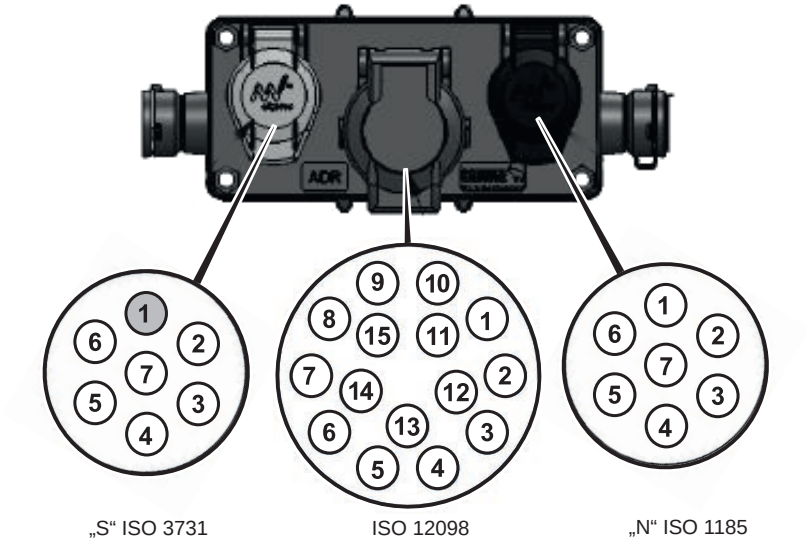
Note that there is a permanent positive connection (24V, fuse 5A) for the hydraulic rear wall and the pneumatic underrun protection's power supply and that an additional button is required in the driver's cab.

Property damage!

When the supplied terminal assignment is not observed, there can be malfunctions and therefore hazards.

▶ Before connecting the electrical system, ensure compliant terminal assignment of the tractor and semitrailer.

▶ Observe the "Terminal assignment for front distributor S.KI" table on page 272.



11042-01

Terminal assignment for front distributor S.KI

Terminal assignment for front distributor S.KI

7-pin socket "S" ISO 3731	15-pin socket ISO 12098	7-pin socket "N" ISO 1185	Function 1 Standard	Function 2 Standard	Colour
-	1	3	Left indicator	-	Yellow
-	2	5	Right indicator	-	Green
7	3	-	Rear fog light	-	Blue
1	4	1	Earth (terminal 31)	-	White
-	5	2	Left tail light	-	Black
-	6	6	Right tail light	-	Brown
-	7	4	Brake light (terminal 54)	-	Red
3	8	-	Reversing light	Trailing steering axle[1]	Grey
4	9	-	Free	Permanent positive (D+)[2]	Brown
6[3]	10[3]	-	Free	Trailing steering axle[3] / LSP[3]	Grey
-	11	7	Free	Button for hydraulic rear wall	Yellow
2[4]	12[4]	-	Starting aid/lift axle[4]	-	Violet
-	13	-	Free	-	Blue
-	14	-	Free	Beacon light	Grey
5[5]	15[5]	-	Free	Paver brake or underrun protection[5]	Red

1. Optional lock for the trailing steering axle when the reverse gear is engaged.
2. Optional permanent positive supply for the hydraulic rear wall and/or pneumatic underrun protection.
3. Optional switchable (+) lock for the trailing steering axle or switch LSP on/off.
4. Observe the "ISO PIN assignment for starting aid/axle lift" information sticker.
   (Attachment point on the vehicle: next to the plug distributor)
5. Optional actuation of the pneumatic underrun protection or actuation of the paver brake.



11070-01

"ISO PIN assignment for starting aid/axle lift" information sticker

Circuit diagrams

If you need circuit diagrams for repairs on the:

- Light system
- Brake system
- Air suspension system
- Hydraulic system

please contact our spare parts centre in Altenberge:

Cargobull Parts and Service GmbH
Siemensstraße 49
D-48341 Altenberge

Email: Ersatzteil-Center@Cargobull.com
Internet: www.cargobull.com

or one of our authorised service partners.

Keep the information from the "Vehicle" name plate (see page 1) at hand.

Tightening torques

For threaded connections on your semitrailer tipper that are not listed here, please contact Schmitz Cargobull. Keep the information from the "Vehicle" name plate (see page 1) at hand.

All threaded connections must be checked for tight fit on a regular basis (see “Maintenance intervals” on page 238).

Name	Bolt size	Torque
Wheel nuts	M22 x 1.5	630 Nm ± 30 Nm
King pin	M14	190 Nm ± 10 Nm
Fastening of tipping cylinder	M16 x 1.5 (10.9)	250 Nm ± 20 Nm
Fastening of tipping cylinder	M20 (10.9)	550 Nm ± 80 Nm
Rear tipper bearing	M16 (8.8)	190 Nm ± 25 Nm
Rear wall door pendulum bolt	M20 x 1.5 (10.9)	600 Nm ± 60 Nm

Operating materials

Lubricants

Object	Lubricant	Notes
King pin and friction plates	High-pressure grease with MoS2 or graphite additive e.g.: ■ BP L21 M ■ BP HTEP 1 ■ Esso multi-purpose grease M ■ Shell Retinax AM	
Tipping cylinder bearing with plastic sleeve below	■ Dinitrol paste ■ Molykote EM-30L	Do not use any other grease!
Rear tipper bearing	■ Commercially available multi-purpose grease	Commercially available multi-purpose grease that is suitable for the respective use, operating conditions and the operating temperature.
Gearbox landing leg winch and spare wheel holder winch	■ Commercially available gear grease	Gear grease with good adhesion and corrosion-protection properties that is suitable for the temperature range for the particular application.
Other lubrication points	■ Commercially available multi-purpose grease	Commercially available multi-purpose grease that is suitable for the respective use, operating conditions and the operating temperature.

Hydraulic oil

Tipping cylinder / hydraulic rear wall

Hydraulic oil is viscous at low temperatures and has low viscosity at high temperatures.

Property damage!

Use only hydraulic oil with sufficient viscosity for the operating temperatures of the oil.

▶ The use of hydraulic oils with the incorrect viscosity can cause damage to the hydraulic components.

CAUTION!

It is important to select the right hydraulic oil with a viscosity that is suitable for the purpose.
When beginning operation, the hydraulic oil temperature is the same as the ambient temperature. During short applications, the oil temperature only increases slightly.

For normal tipping mode, we recommend the following hydraulic oils:

ISO viscosity class	Viscosity index	Lowest short-term Oil initial temperature	Maximum Oil operating temperature
ISO VG 15	100	-23°C	+45°C
ISO VG 22	100	-17°C	+55°C
ISO VG 32	100	-12°C	+65°C[1]
ISO VG 46	100	-4°C	+65°C[1]

1. For oil temperatures above 65°C, we recommend the use of oil coolers.

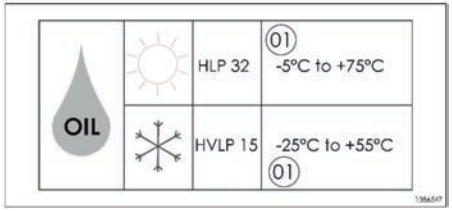
Recommended use for short operating times and a minor increase in the oil temperature:

Use hydraulic oil that has a minimum viscosity of 100 mm²/s at the lowest starting temperature.
If the minimum operating viscosity of the hydraulic oil used is not reached, it will need to be pre-heated!

For ambient temperatures below -20°C in very cold climatic regions, we recommend the following special hydraulic oils:

Manufacturer name	Viscosity index	Lowest short-term Oil initial temperature	Maximum Oil operating temperature
SRS WIOLAN HV 15	150	-32°C	+47°C
SUNVIS UHV 15	270	-46°C	+45°C

"Hydraulic oil" information sticker*



11265-01

"Hydraulic oil" information sticker*

For certain applications, the "Hydraulic oil" information sticker can be applied on your semitrailer tipper.
The temperature specifications apply to the oil operating temperature.

Cleaning agents

Surface	Cleaning agents
Cleaners for galvanised surfaces	■ In the first 3 months: Clear water up to 50°C ■ Standard cleaning products labelled "pH neutral" ■ Chlorine-free disinfectants with a pH between 6 and 10
Cleaners for painted surfaces	■ Standard cleaning products labelled "pH neutral"
Cleaners for anodised surfaces	■ Standard cleaning products labelled "pH neutral"

Sticker overview

The stickers applied on your semitrailer are part of the operating manual. Comply with information and instructions on these warning stickers as you would comply with the information and instructions in the operating manual.

Keep all stickers legible and replace illegible or lost stickers immediately.

The respective stickers can be ordered with the specified part numbers.

Signs for components that are subject to approval

Components that are subject to approval, such as the underrun protection and side guards, are equipped with the associated approval labels.

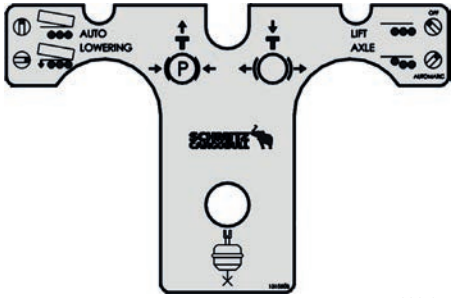
Check the legibility of the stickers at regular intervals. Replace the stickers promptly in case of damage or loss.

To reorder stickers for components that are subject to approval, keep the information from the "Vehicle" name plate (see page 1) at hand.

Control panel stickers

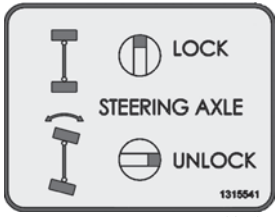
Depending on the vehicle equipment, the control panel contains different control elements. An information sticker belongs to each control element. Keep the information stickers on the control panel legible and replace illegible, damaged, or lost stickers immediately.

The stickers applied to your semitrailer depend on the equipment of your semitrailer tipper, here are a few examples:



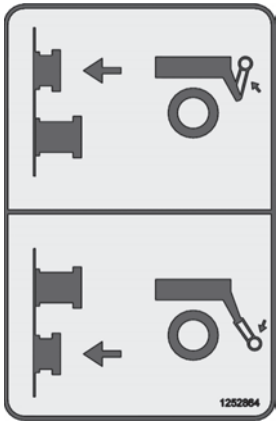
11090-01

"Brake / automatic lowering / axle lift" control unit sticker
Part no.: 1315503



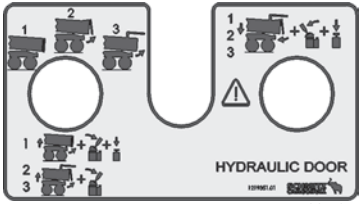
11091-01

"Trailing steering axle" control unit sticker
Part no.: 1315541



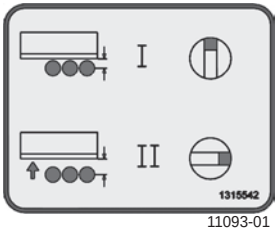
11094-01

"Pneumatic underrun protection" control unit sticker
Part no.: 1252864



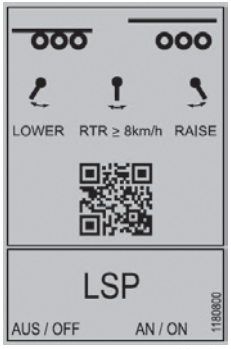
11095-01

"Hydraulic rear wall" control unit sticker
Part no.: 1219351



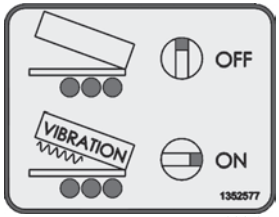
11093-01

"Second driving height" control unit sticker
Part no.: 1315542



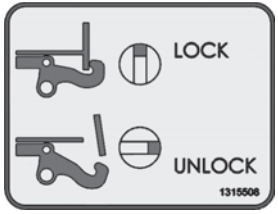
11035-01

"eTask/LSP" control unit sticker
Part no.: 1180800



11096-01

"Roller vibrator" control unit sticker
Part no.: 1352577

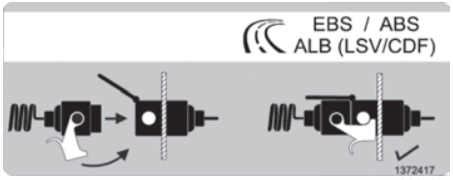


11098-01

"Pneumatic rear wall locking mechanism" control unit sticker
Part no.: 1315508

Warning and information signs

The warning and information signs applied to your semitrailer depend on the equipment of your semitrailer tipper, here are a few examples:



11032-01

"EBS" warning sign
Part no.: 1372417



11086-01

"Landing leg winch" warning sign
Part no.: 920974



10307-01

"Do not stand under tipped trough" warning sign
Part no.: KON001-0036



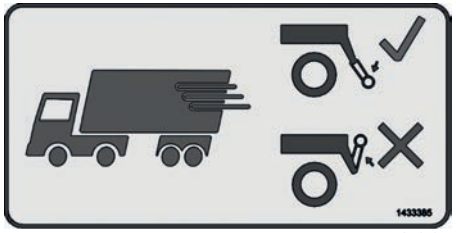
11081-01

"Wheel nut seat" information sticker
Part no.: 920223



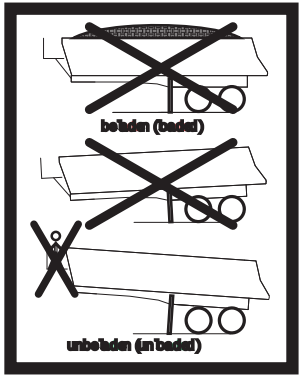
10313-01

"Pneumatic underrun protection" warning sign
Part no.: 1043531



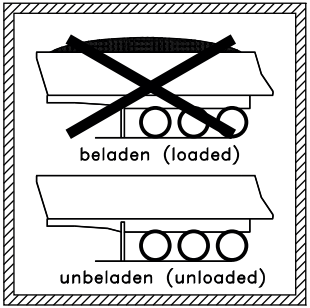
11270-01

"Underrun protection positions" warning sign
Part no.: 1433385



10308-01

"Parking" warning sign
Part no.: 1093023



10305-01

"Auxiliary support winch" warning sign
Part no.: KON001-0145



10306-01

"Rear wall door" warning sign
Part no.: END023-0044



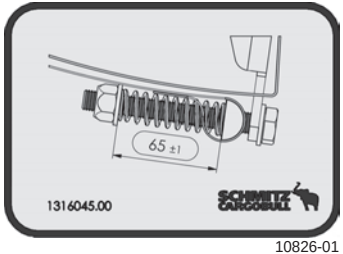
11070-01

"ISO PIN assignment for starting aid / axle lift" information sign
Part no. 1253279



11071-01

"Permanent positive and hydraulic rear wall flap button" warning sign
Part no. 1224971



10826-01

"Fastening strap spring adjustment thermal insulation of steel rounded trough" information sign
Part no. 1316045



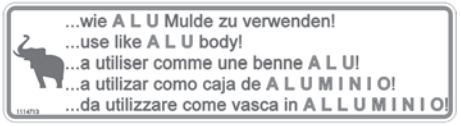
10311-01

"S.KI light bulk cargo" warning sign
Part no. 1111161



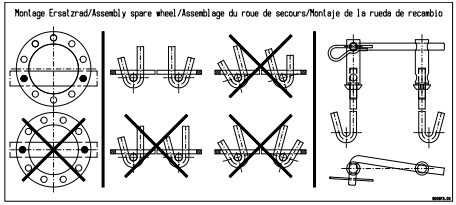
10310-01

"S.KI extra light bulk cargo" warning sign
Part no.: 1111160



11097-01

"S.KI extra light" warning sign
Part no.: 1114713



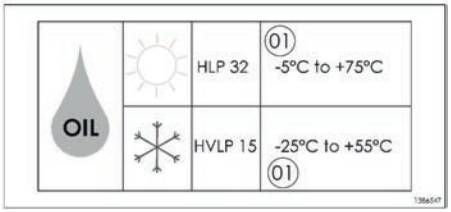
10199-01

"Spare wheel installation" information sign
Part no.: 920973



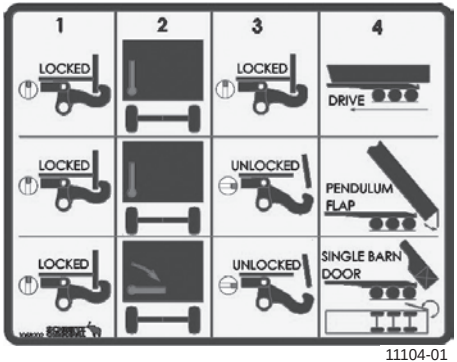
10371-01

"Spring-loaded bearing" warning sign
Part no.: 1138602 (for Eastern Europe) or 118604 (for Western Europe)



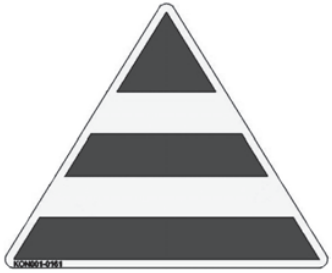
11265-01

"Hydraulic oil viscosity" information sign
Part no.: 1386547



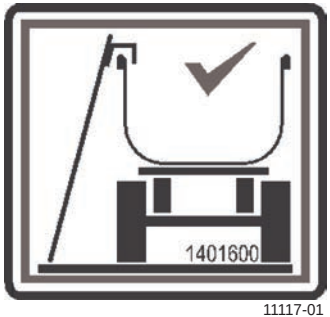
11104-01

"Single-leaf combined door" information sign
Part no.: 1058202



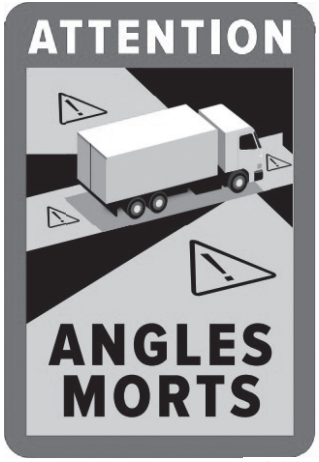
11111-01

"Roof bow marking" information sign
Part no. KON001-0161



11117-01

"Ladder hook" information sign
Part no.: 1401600



11279-01

“Caution - blind spot” information sign
Part no.: 1456457

8

Spare parts

Spare parts

Schmitz Cargobull recommends the exclusive use of Schmitz Cargobull original spare parts.

Schmitz Cargobull original spare parts undergo regular tests for safety and function. The use of Schmitz Cargobull original spare parts guarantees road and operating safety and the validity of the operating permit.

Spare parts, that have not been approved by Schmitz Cargobull, cannot be assessed by Schmitz Cargobull with regard to their suitability, safety, and reliability.

The operating permit and the warranty will be invalidated if spare parts that are not approved by Schmitz Cargobull are used.

Procurement of spare parts

If you require original spare parts, please contact your central regional spare parts warehouse directly or our spare parts centre in Altenberge:

Cargobull Parts and Service GmbH
Siemensstraße 49
D-48341 Altenberge

Email: Ersatzteil-Center@Cargobull.com
Internet: www.cargobull.com

or one of our authorised service partners.

Have the following information ready when ordering spare parts:

- Chassis number
- Vehicle type

The information required for ordering spare parts can be found on the "Vehicle" name plate (see page 1).

Breakdown

In the event of a breakdown, contact Schmitz Cargobull Euroservice at:



Symbols

"Brake data"
name plate 1

A

ABS function 182
ABS/EBS 34
Plug connections 35, 182
Accesses . . . . . see Ladders
Additional clamp locks* 108
Air reservoir . . . . . See Compressed air tank
Air suspension 42
Automatic lowering 47
Axle lift system 49
Axle load indicator 53
Conventional 43
Driving instructions 195
Driving with defective air suspension 195
Electronic 45
Arched extension 128
Automatic lowering 47
Auto-reset function 46
Auxiliary supports . . . . . see Landing legs
Axle lift 49
Axle load 12, 54
Axle load indicator 53, 183

B

Beacon light 27
Bolts and nuts 245
Brake adjustment 13, 180
Brake pad wear indicator 39, 252
Brake shoe . . . . . see Wheel chocks
Brake system 32
Braking capacity 13
Breakdown 20, 288
Broom holder 162
Burst pipe protection* 87

C

Camera
Rear area 174
Trough interior 117
Care of the commercial vehicle 262
Cargo 198, 201
Cargobull Euroservice 0, 20
Cargobull Parts and Service GmbH . 288
Cargobull Telematics 30
Changes to the semitrailer 237
Chassis 22, 43
Chassis number 1
Chock blocks . . . . . see Wheel chocks
Circuit diagrams 274
Cleaning agents 279
Cleaning the commercial vehicle . . . 262
Clearance zones 193
Combined door
Double-leaf 95
Single-leaf 96, 224, 260
Compressed air roller vibrator 121
Compressed air system 41, 250
Compressed air tank 41, 250
Compressed air tank . . . . . See Compressed air tank
Connections
Electrical system 24
Pneumatic 32
Connectors
Hydraulic 85
Contour marking 25
Control panel 29
Coupling 189
Coupling heads 32
C-coupling heads 34
Duo-Matic* 33
Standard 32
Covers 125

D

Dangerous goods transport 201
Decommissioning 265
Density of various bulk materials . . . 205
Departure inspection 18
Dimensions 268
Dirt trap 73
Discharge funnel 169
Document compartment 168
Door locks 113
Doors . . . . . see Rear walls
Double-leaf door 94, 260
Drain valve 41, 251
Driving height 53, 56
Driving level 42, 195
Drop supports . . . . . see Landing legs

E

EBS 182
connection 34
Plug connection 35, 182
ECE-R70 sign* 26
Electrical connections 24
Electrical system 270
Electronic braking system 182
Emergency braking / tear-off function . 35
Espagnolette lock 105
Eyelets 129

F

Ferry lashing rings . . . . . see Lashing points
Ferry transport 196
Fire extinguisher 167
First journey 179
Flow regulating device 123
Freight documents 168
Front distributor 24, 271

G

Grain discharge funnel 169
Grain unloader 114
Guarantee . . . . . see Warranty

H

Hazards . . . . . see Residual hazards
High-pressure cleaner 262, 263
Hinges 260
Hot-dip galvanised surfaces 264
Hubodometer 75
Hydraulic connections 86
Hydraulic connector 78
Hydraulic coupling 85
Hydraulic hose 86
Hydraulic hose holder 147
Hydraulic hoses 86
Hydraulic oil 80, 277
Hydraulic rear wall operating modes* 216
Hydraulic rear wall* 96, 214
Closing 220
Maintenance 256, 259
Opening 219
Operating modes 216
Hydraulic system
Semitrailer tipper 83
Tractor 78
Hydraulic tank 81

I

Internet 288

K

Kilometre counter . . . . . see Hubodometer
Kilometre reading . . . . . see Hubodometer
King pin 245, 257

King pin . . . . . see King pin
KNORR®. 30, 186

L

Ladders. 157
Landing legs 140, 251, 261
Lashing points 175
Lateral deflector plates 122
Leaf door . . . . . see Double-leaf door
Length . . . . . see Dimensions
Level control 43
Licence plate holder, additional 176
Lifting 43
Lifting/lowering valve 43
Lighting equipment 25
Load distribution. 204
Load securing 207
Loading. 203
Lock position. 44
Lowering 43
LSP (Load Spread Program) 51
Lubricants 276
Lubricating work. 257

M

Maintenance 14, 236
Maintenance intervals 238
Maintenance measures 262
Maintenance work 238, 245
One-time. 238
Regular 239
Manoeuvring 181
Manoeuvring valve 35
Measurements . . . . . see Dimensions
Milled material tarpaulin . . . . . see Rear wall protective tarpaulin
Mounted parts. 139
Mounting plate . . . . . see Skid plate

O

Operating instructions 12
Operating materials 276
Cleaning agents 279
Hydraulic oil 277
Lubricants 276

P

Painted surfaces 263
Pallet transport 202
Parking valve 35
Paver brake 40, 232
Paver operation 230
Personnel qualification 237
Pin assignment 270
Pivoted foot 143
Placard 173
Platform. . . . . see Work platform

Q

Quick clamping device. 132

R

Rear area camera 174
Rear marking plates according to ECE-R70* 26
Rear wall flap guide 111
Rear wall locking mechanism. . . 98, 250
Rear wall protective tarpaulin. 135
Rear walls 92, 249
Recommissioning 265
Reserve wheel holder 148
Reset to Ride 46
Residual hazards. 15
Road paver operation 40, 230

Roll-up tarpaulin 125
Roof bow 127
Tailgate roof bow 113
Roof-shaped extension 128
Rotation radius 193
RtR function 46
Running gear system 248

S

Safety inspection 236
Safety instructions
symbols 2
Self-aligning bearing 249, 258
Semitrailer tractor equipment 13
Service 14
Service and maintenance guide 237, 245
Service brake 36
Service work 236
Shaker . . . . . see Compressed air roller vibrator
Shock absorbers 249
Shovel holder 162
Side collision protection 58
Side guard 58
Side tilt warning function 228
Skid plate 190, 245
Sliding roof 31, 133
SmartBoard (WABCO®) 30, 184
Socket assignment plan 270
Spare parts 20, 288
Spare wheel holder 148, 252
Basket design 149
On the side of the chassis 155
Winch-type design 152
Speed symbol 188
Speed symbols 173
Spray suppression device 74
Spring bellows pressure 53
Spring-actuated parking brake 36
Emergency release device 38
Stability program 182
Starting a trip 18
Starting aid 50
Standard 50
Terrain 51
Sticker . . . . . see Warning stickers
Storage compartment 164
Stroke limit 42
Supply lines 193
Surfaces
Hot-dip galvanised 264
Painted 263
Swivel radius 193
Symbols 172

T

Tailgate roof bow 113
Tarpaulin deflector 126
Tarpaulin fastening 129
Tarpaulin hooks 129
Tarpaulin quick clamping device . . . 132
Tarpaulin rod 161
Holder 161, 162
Tarpaulin stops 125
Tarpaulin tension 129
Tarpaulins 125
Temperature measurement 118
Tension ratchets 129, 131
Tensioning chain 111
Terminal assignment 270
Thermal insulation 117, 255
Tightening torques 275
Tilt resistance 209
TIM (KNORR®) 30, 186
Tipper bearing 247, 258
Tipping angle 194
Tipping cylinder 83, 247

Tipping cylinder bearing
Lower 257
Upper 257
Tipping cylinder work volume 81
Tipping procedure. 209, 231
Toolbox . . . . . see Storage compartments
Top speed 188
Top-hung tailboard 93
Tow hook. 66
Trailer Information System. 30
Trailer Informations System* 184
Trailing steering axle 48
Train composition 178
Train tuning 180
Transport instructions 201
Trough cover . . . . . see Covers
Trough equipment 110
Trough floor wear inspection 248
Trough guide 110
Trough insert 198
Trough interior
Camera 117
Cleaning 264
Lighting. 116
Trough lining. 119, 253
Trough supports. 250
Turning angle 181, 194
Turning circle 193
Tyre pressure 67
Tyres 67, 251

U

Uncoupling 189
Underrun protection 60, 253
Electropneumatically operated . 61, 253
Manually actuated 60
Unloading 203
Use 12
Utilisation . . . . . see Use

V

Vehicle
name plate. 1
Vehicle care 262
Vehicle identification 1
Volumetric flow 79

W

WABCO® 30, 184
Warning signs. 172
Warning stickers 14, 280
Warranty. 20
Warranty claims 14, 180
Water tank 166
Wheel base . . . . . see Dimensions
Wheel change 67
Checking the wheel nuts . 68, 179, 251
Wheel chocks. 146
Wheel cover 73
Wheel nut protective caps 69
Wheel nuts 179
Wheelbase . . . . . see Dimensions
Wheels 67, 251
Width . . . . . see Dimensions
Work platform. 136
Working light 27

Publisher

Schmitz Cargobull Gotha GmbH
Kindleber Strasse 99

D-99867 Gotha, Germany

Editorial deadline: 08/2021

Title picture: 11280-01

Ident number: S.KI-MAN-DE2GB-10370-3521
Material number: 1465114

Some illustrations show special equipment - we reserve the right to make changes resulting from technical advances

SCHMITZ CARGOBULL

The TrailerCompany.



S.KI-MAN-DE2GB-10370-3521-SCB-Gotha - EN - 2021/08

Subject to technical change

Trailer Services Technology

Schmitz Cargobull AG · Bahnhofstr. 22 · D-48612 Horstmar
Telephone: +49 2558 81-0 · Fax: +49 2558 81-500 · Email: info@cargobull.com · www.cargobull.com