



SWIVEL LOADERS  
TELESCOPING WHEEL LOADERS  
TELESCOPING SWIVEL LOADERS  
DUMPERS

## AKR 9095 HP



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## 1 About this manual

### 1.1 Validity

12451-002

#### 1.1.1 Validity of this manual

This manual is valid for the machine with which it has been delivered.  
To avoid mix-ups, you can record the corresponding serial number here.

| Designation | Product No. | Type        | Serial number |
|-------------|-------------|-------------|---------------|
| Dumpers     | 7451-00-000 | AKR 9095 HP |               |

The machine can be identified from the machine type plate.[▶ 104](#)

## 1.2 General notes

134-005

### 1.2.1 Original operating manual

This manual is the original operating manual as long as it is not labelled "Translation of the original operating manual".

#### Labelling requirement for translations of this operating manual

Any translation of this operating manual not written or proofread by HERMANN PAUS MASCHINENFABRIK GMBH is to be labelled on the cover sheet as "Translation of the original operating manual".

135-010

### 1.2.2 Terms

The following terms are described in this manual using a synonym:

| Term                                       | Synonym              |
|--------------------------------------------|----------------------|
| Hermann Paus Maschinenfabrik GmbH          | PAUS                 |
| Platform component                         | Attachment component |
| Attachment                                 |                      |
| Exchangeable equipment                     |                      |
| Interchangeable equipment                  |                      |
| Vehicle (including the incomplete vehicle) | Machine              |
| Basic vehicle                              |                      |
| Operating manual                           | Instructions         |
| Brief operating manual                     |                      |
| Assembly instructions                      |                      |
| Repair instructions                        |                      |
| Commissioning instructions                 |                      |
| Conversion instructions                    |                      |
| Maintenance instructions                   |                      |

136-004

### 1.2.3 Economic benefits

This manual contains important instructions for operating the machine safely, properly and efficiently. Properly following the instructions helps prevent hazards, minimize repair costs and downtimes and increase the reliability and service life of the machine.

This manual must always be available at the machine and must be read and used by each person who works on or with the machine. This includes, for example:

- Operating and setting up
- Troubleshooting
- Care
- Servicing (maintenance, inspection, repairs)
- Transport

137-003

#### 1.2.4 Depictions of texts

Texts can be distinguished based on their formatting.

##### Descriptions

Descriptions are not subject to any special formatting. Descriptions illustrate relationships between required actions or describe functions or the like.

Example:

All liability claims will be void if damage occurs.

##### Requirements

The term "requirements" refers to necessary qualifications or procedures, which are required for carrying out the action to follow.

Example:

- ✓ Qualified specialist
- ✓ Lifting gear
- ✓ Motor switched on.

##### Required actions

Required actions are presented using an en-dash. The term "required actions" refers to one or more operating steps that must be performed sequentially.

Example:

- ▶ Operating step 1
- ▶ Operating step 2
  - ▷ Substep of the action

##### Results

Results are displayed in italics. The term "result" refers to an expected outcome of the previously described required action.

Example:

*Outcome of a required action.*

##### Bullet list items

Bullet list items are presented using a bullet point. The term "bullet list items" refers to one or more instructions or descriptions that do not need to be read/performed in a specific order.

Example:

- Bulleted list 1
- Bulleted list 2

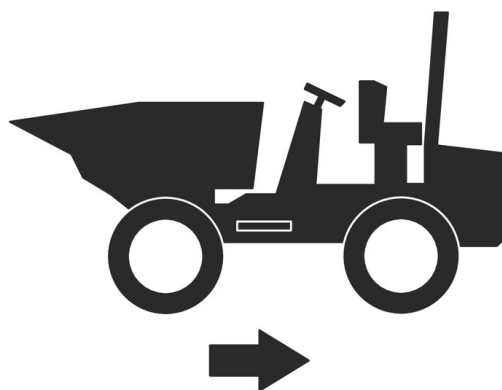
## Symbols

| Symbol                                                                            | Meaning                                                                                                                                          |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| [▶ ...]                                                                           | The symbol indicates that further information on the topic is available on the next page.                                                        |
|  | The symbol indicates that further information on the topic is available in the operating manual for the corresponding machine or the attachment. |

11529-001

### 1.2.5 Directions

All directions refers to the indicated direction of travel of the machine.



343-002

### 1.2.6 Copyright

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344-003

### 1.2.7 Accessories and special equipment

This manual describes the largest possible range of equipment at the time of printing. Accessories or special equipment is labelled "optional." In addition, there are separate operating manuals for some pieces of special equipment.

## 2 Safety

### 2.1 Safety instructions in this manual

138-006

#### 2.1.1 Warnings and notes

##### Prefixed warnings and notes

The following notes are placed in front of potentially dangerous work steps in these instructions or offer tips for use.

##### **DANGER!**

This warning indicates an imminently hazardous situation, which, if not avoided, will result in death or serious injury. Follow the notes to prevent danger.

- ▶ Read and observe notes.

##### **WARNING!**

This warning indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury. Follow the notes to prevent danger.

- ▶ Read and observe notes.

##### **CAUTION!**

This warning points out the risk of minor or moderate injuries. Follow the notes to prevent danger.

- ▶ Read and observe notes.

##### **NOTICE!**

This instruction points out the risk of property damage to the machine or its surroundings. It provides hints, recommendations and information for ensuring smooth and efficient operation.

- ▶ Read and observe notes.

All warnings and notes in these instructions are structured identically and are depicted in order:

- Type and source of the danger
- Possible consequences of non-compliance
- Measures and prohibitions for preventing the danger

##### Embedded warnings and notes

Embedded warnings and instructions warn of risks.

The  symbol indicates a warning. Failure to observe this warning can result in injury and/or death.

The  symbol indicates a note. Failure to observe this note can result in damage to the machine or your environment. The note can also relate to efficient and faultless operation.

Examples:

- ▶  Switch off and secure the machine.
- ▶  Make sure it fits and seals correctly.

## 2.2 Safety instructions on the machine

1201-006

### 2.2.1 Working with signs on the machine

#### **WARNING!**

Missing or illegible signs on the machine or attachment.

Risk of severe injury or death due to unmarked danger zones or operator error.

- ▶ Replace illegible signs.
- ▶ Do not remove the signs.

#### **WARNING!**

Failure to follow the signs on the machine or attachment.

Risk of severe injury or death due to failure to take into account danger zones or operator error.

- ▶ Observing the signs on the machine or attachment.

The machine is marked with signs corresponding to ISO or ANSI standards, depending on the country in which it was delivered.

The meaning of the markings is described below.

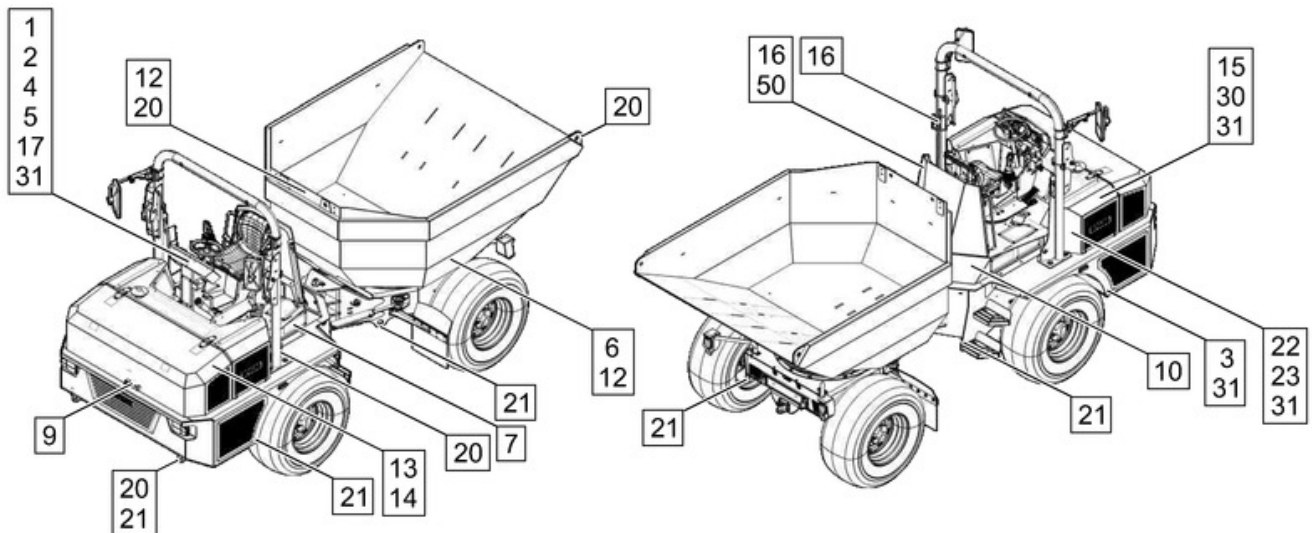
12089-001

### 2.2.2 Overview of safety signs

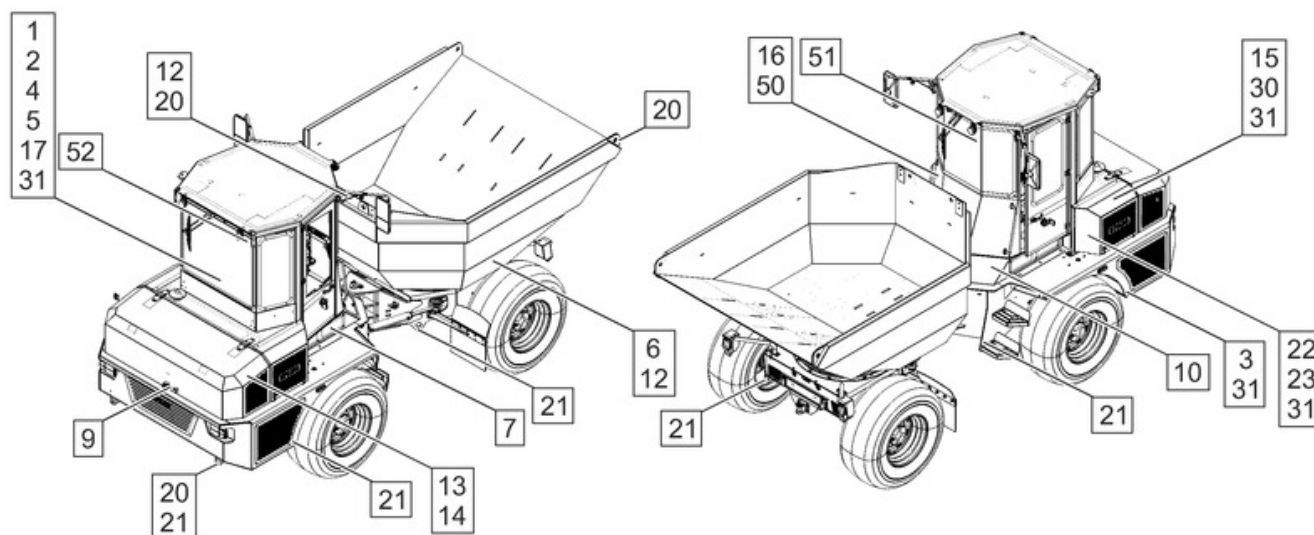
| Safety signs<br>ISO | Safety signs<br>ANSI EN | Safety signs<br>ANSI FR |
|---------------------|-------------------------|-------------------------|
| 878537[▶ 12]        | 878545[▶ 22]            | 878543[▶ 32]            |

### 2.2.3 Safety signs – ISO

Valid for Paus part number:  
878537-03



*The illustration shows the machine with an open driver's platform.*



*The illustration shows the machine with a closed driver's platform.*

| Item | Safety signs                                                                                                                                                                                                                                                                                                                 | Quantity / remarks                                                                             |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| 1    | <p><b>Warning sign 590005</b><br/>118x62 mm</p>  <p>Warning of operator error on the machine.</p> <ul style="list-style-type: none"> <li>► Make sure you have read and understood the manual before you switch the machine on.</li> </ul> | <p>1 pc.<br/>In the control panel area of the machine.<br/>Visible from the driver's seat.</p> |

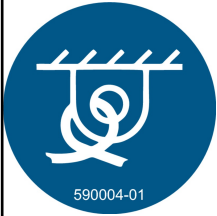
| Item | Safety signs                                                                                                                                                                                                                                                                                                      | Quantity / remarks                                                                             |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| 2    | <p><b>Warning sign 590006</b><br/>118x62 mm</p>  <p>Warning about falling out of the machine.</p> <ul style="list-style-type: none"> <li>▶ Driver and co-driver must fasten seat belts before the start of a journey.</li> </ul> | <p>1 pc.<br/>In the control panel area of the machine.<br/>Visible from the driver's seat.</p> |
| 3    | <p><b>Warning sign 579542</b><br/>62x118 mm</p>  <p>Warning about incorrect handling of batteries.</p> <ul style="list-style-type: none"> <li>▶ Comply with the safety and operating instructions in the manual.</li> </ul>     | <p>1 pc.<br/>In the battery area.</p>                                                          |
| 4    | <p><b>Warning sign 590041</b><br/>70x37 mm</p>  <p>Warning against filling in incorrect operating fluids.</p> <ul style="list-style-type: none"> <li>▶ Comply with the instructions in the manual.</li> </ul>                  | <p>1 pc.<br/>In the area of the brake fluid reservoir.</p>                                     |

| Item | Safety signs                                                                                                                                                                                                                                                                                                                                                                    | Quantity / remarks                                                                             |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| 5    | <p><b>Warning sign 579543</b><br/>118x62 mm</p>  <p>Warning about damage to the machine caused by welding on the machine.</p> <ul style="list-style-type: none"> <li>► Comply with the instructions in the manual.</li> </ul>                                                                  | <p>1 pc.<br/>In the control panel area of the machine.<br/>Visible from the driver's seat.</p> |
| 6    | <p><b>Warning sign 599889</b><br/>118x62 mm</p>  <p>Warning about damage to the machine caused by screws shearing.</p> <ul style="list-style-type: none"> <li>► Comply with the maintenance instructions in the manual.</li> </ul>                                                             | <p>2 pcs.<br/>In the area of the turret.<br/>Attached on both sides of the machine.</p>        |
| 7    | <p><b>Warning sign 590009</b><br/>70x37 mm</p>  <p>Warning about incorrect handling of pressure reservoirs.</p> <ul style="list-style-type: none"> <li>► Keep away from the indicated area.</li> <li>► Always comply with repair information when working on pressure reservoirs.</li> </ul> | <p>1 pc.<br/>At each hydraulic accumulator.</p>                                                |

| Item | Safety signs                                                                                                                                                                                                                                                                             | Quantity / remarks                                                                                                                                                       |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9    | <b>Warning sign 590011</b><br>232x122 mm<br><br>Warning of collision with the machine or with moving parts of the machine.<br>► Keep distance from hazard area.                                         | 1 pc.<br>On the engine bonnet.                                                                                                                                           |
| 10   | <b>Warning sign 590001</b><br>118x62 mm<br><br>Warning of crush injuries in the area of the articulated joint.<br>► Do not stand in the area of the articulated joint.                                  | 4 pcs.<br>In the area of the articulated joint.<br>Attached on both sides of the machine.                                                                                |
| 12   | <b>Warning sign 589998</b><br>118x62 mm<br><br>Warning of crushing injuries to the hands.<br>► Do not reach into the indicated area.<br>► Before maintenance work, switch off and secure the machine. | 2 pcs.<br>In the area of the bucket support points.<br>Attached on both sides of the machine.<br><br>1 pc.<br>In the area of the bucket protective grille.<br>(optional) |

| Item | Safety signs                                                                                                                                                                                                                                                                                                                                                              | Quantity / remarks                               |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| 13   | <p><b>Warning sign 590040</b><br/>62x118 mm</p>  <p>Warning of injuries to the hands in the area of the drives.</p> <ul style="list-style-type: none"> <li>▶ Do not reach into the area of the drives.</li> <li>▶ Before maintenance work, switch off and secure the machine.</li> </ul> | <p>1 pc.<br/>In the belt area of the engine.</p> |
| 14   | <p><b>Warning sign 590010</b><br/>62x118 mm</p>  <p>Warning of hand injuries due to rotating parts!</p> <ul style="list-style-type: none"> <li>▶ Do not reach into the area of rotating parts.</li> <li>▶ Before maintenance work, switch off and secure the machine.</li> </ul>       | <p>1 pc.<br/>In the area of rotating parts.</p>  |
| 15   | <p><b>Warning sign 590002</b><br/>118x62 mm</p>  <p>Warning of burns due to hot surfaces.</p> <ul style="list-style-type: none"> <li>▶ Keep limbs out of the marked areas.</li> <li>▶ If necessary, wait until the surfaces have cooled down.</li> </ul>                               | <p>1 pc.<br/>In the engine area.</p>             |

| Item | Safety signs                                                                                                                                                                                                                                                                                                                             | Quantity / remarks                                                                                                                                                                                           |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 16   | <b>Warning sign 838719</b><br>37x70 mm<br><br>Warning of slipping or falling off.<br>► Hold on securely when exiting or climbing off the vehicle.                                                                                                       | 4 pcs.<br>Visible when accessing the driver's platform.<br>Attached on both sides of the machine.<br>Valid for machines: <ul style="list-style-type: none"> <li>With the driver's platform open</li> </ul>   |
|      |                                                                                                                                                                                                                                                                                                                                          | 2 pcs.<br>Visible when accessing the driver's platform.<br>Attached on both sides of the machine.<br>Valid for machines: <ul style="list-style-type: none"> <li>With the driver's platform closed</li> </ul> |
| 17   | <b>Warning sign 881539</b><br>118x62 mm<br><br>Warning about steering too sharply with the bucket tipped.<br>Risk of damage to the machine due to machine parts colliding.<br>► Never turn the machine's steering to full lock with the bucket tipped. | 1 pc.<br>In the control panel area of the machine.<br>Visible from the driver's seat.                                                                                                                        |
| 20   | <b>Mandatory sign 590003</b><br>40x40 mm<br><br>Warning of incorrectly hooking in and lifting the machine.<br>► Only use mounting points indicated by this symbol.<br>► Comply with the instructions in the manual.                                   | 8 pcs.<br>In the direct vicinity of the mounting points of the machine.<br>Valid for machines: <ul style="list-style-type: none"> <li>With the driver's platform open</li> </ul>                             |
|      |                                                                                                                                                                                                                                                                                                                                          | 6 pcs.<br>In the direct vicinity of the mounting points of the machine.<br>Valid for machines: <ul style="list-style-type: none"> <li>With the driver's platform closed</li> </ul>                           |

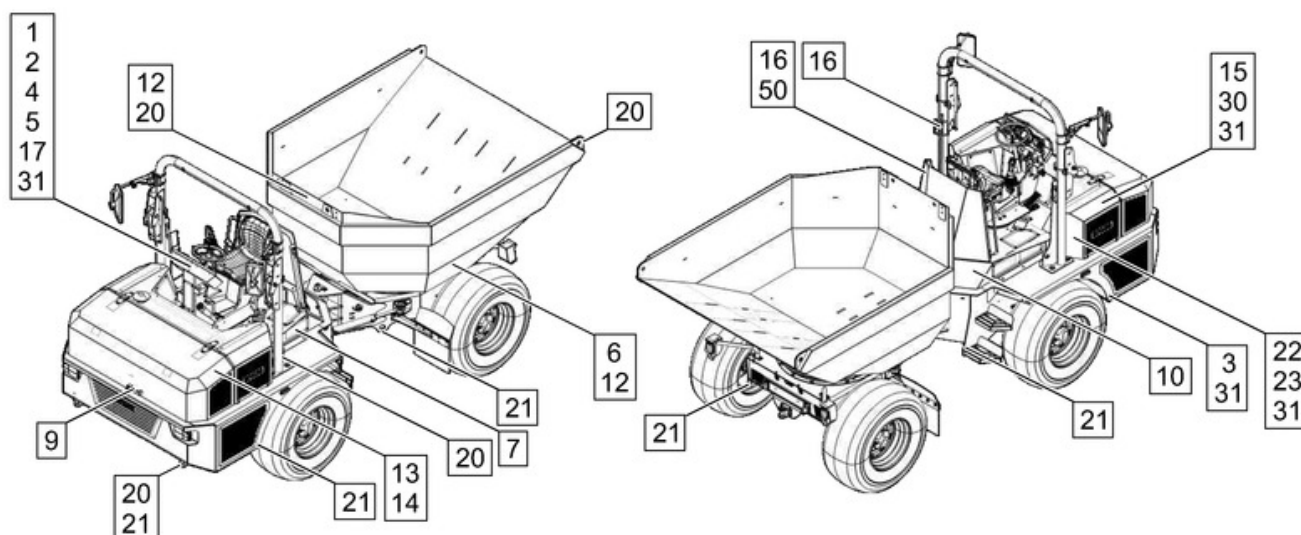
| Item | Safety signs                                                                                                                                                                                                                                                                                                                                             | Quantity / remarks                                                                                         |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| 21   | <p><b>Mandatory sign 590004</b><br/>40x40 mm</p>  <p>Warning about lashing the machine incorrectly.</p> <ul style="list-style-type: none"> <li>► Only use the lashing points marked with this symbol.</li> <li>► Comply with the instructions in the manual.</li> </ul> | <p>10 pcs.<br/>In the direct vicinity of the tether points of the machine.</p>                             |
| 22   | <p><b>Mandatory sign 590007</b><br/>90x90 mm</p>  <p>► Wear ear protection.</p>                                                                                                                                                                                       | <p>2 pcs.<br/>Visible when accessing the driver's platform.<br/>Attached on both sides of the machine.</p> |
| 23   | <p><b>Mandatory sign 590008</b><br/>90x90 mm</p>  <p>► Wear head protection.</p>                                                                                                                                                                                      | <p>2 pcs.<br/>Visible when accessing the driver's platform.<br/>Attached on both sides of the machine.</p> |

| Item | Safety signs                                                                                                                                                                                                                                                                                                                                      | Quantity / remarks                                       |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| 30   | <p><b>Prohibition sign 590029</b><br/>90x90 mm</p>  <p>Warning about loss of warranty and about damage to the machine.</p> <ul style="list-style-type: none"> <li>► Only allow specialists qualified in the components concerned to make adjustments.</li> </ul> | 1 pc.<br>In the area of the battery master switch.       |
| 31   | <p><b>Prohibition sign 803807</b><br/>40x40 mm</p>  <p>Cleaning the marked component using a high-pressure cleaner is forbidden.</p>                                                                                                                           | 1 pc.<br>In the control panel area of the machine.       |
|      |                                                                                                                                                                                                                                                                                                                                                   | 1 pc.<br>In the battery area.                            |
|      |                                                                                                                                                                                                                                                                                                                                                   | 1 pc.<br>In the area of the battery master switch.       |
|      |                                                                                                                                                                                                                                                                                                                                                   | 1 pc.<br>In the area of the fuse box.                    |
| 50   | <p><b>Escape sign 835916</b><br/>90x90 mm</p>  <p>Position of the first-aid kit.</p>                                                                                                                                                                           | 1 pc.<br>In the area of the first-aid kit.<br>(optional) |

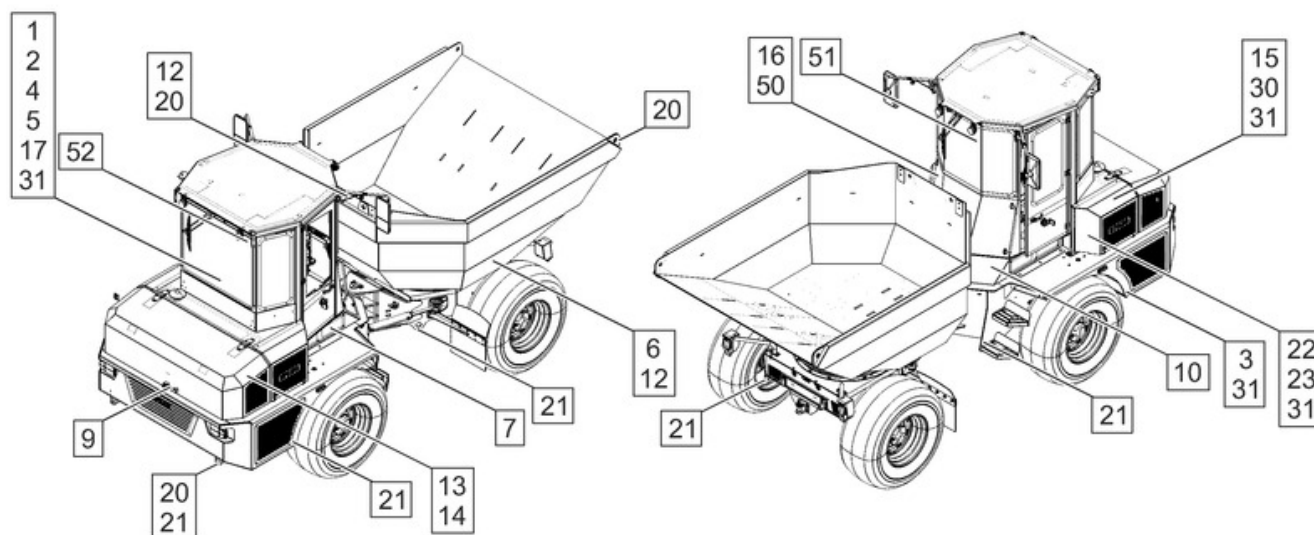
| Item | Safety signs                                                                                                                                                             | Quantity / remarks                                                                                                                                                |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 51   | <p><b>Escape sign 800974</b><br/>90x90 mm</p>  <p>Position of the emergency hammer.</p> | <p>1 pc.<br/>In the area of the emergency hammer.<br/>Valid for machines:</p> <ul style="list-style-type: none"> <li>With the driver's platform closed</li> </ul> |
| 52   | <p><b>Escape sign 800973</b><br/>90x90 mm</p>  <p>Position of the emergency exit.</p>  | <p>1 pc.<br/>In the area of the emergency exit.<br/>Valid for machines:</p> <ul style="list-style-type: none"> <li>With the driver's platform closed</li> </ul>   |

### 2.2.4 Safety signs – ANSI EN

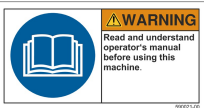
Valid for Paus part number:  
878545-03

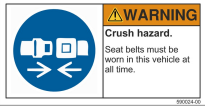
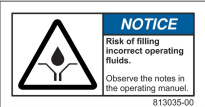


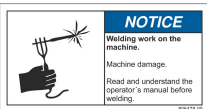
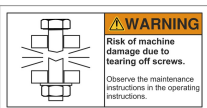
*The illustration shows the machine with an open driver's platform.*



*The illustration shows the machine with a closed driver's platform.*

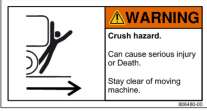
| Item | Safety signs                                                                                                                                                                                                                                                                                                                 | Quantity / remarks                                                                             |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| 1    | <p><b>Warning sign 590021</b><br/>118x62 mm</p>  <p>Warning of operator error on the machine.</p> <ul style="list-style-type: none"> <li>► Make sure you have read and understood the manual before you switch the machine on.</li> </ul> | <p>1 pc.<br/>In the control panel area of the machine.<br/>Visible from the driver's seat.</p> |

| Item | Safety signs                                                                                                                                                                                                                                                                                                                                                                               | Quantity / remarks                                                                             |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| 2    | <p><b>Warning sign 590024</b><br/>118x62 mm</p>  <p>Warning against falling out of the machine.</p> <ul style="list-style-type: none"> <li>▶ Driver and passengers must fasten their seat belts before starting a journey.</li> </ul>                                                                     | <p>1 pc.<br/>In the control panel area of the machine.<br/>Visible from the driver's seat.</p> |
| 3    | <p><b>Warning sign 837984</b><br/>62x118 mm</p>  <p>Warning about incorrect handling of batteries.</p> <ul style="list-style-type: none"> <li>▶ Comply with safety and operating instructions in the operating manual.</li> <li>▶ Before maintenance work, switch off and secure the machine.</li> </ul> | <p>1 pc.<br/>In the battery area.</p>                                                          |
| 4    | <p><b>Warning sign 813035</b><br/>70x37 mm</p>  <p>Warning against filling in incorrect operating fluids.</p> <ul style="list-style-type: none"> <li>▶ Comply with the instructions in the manual.</li> </ul>                                                                                           | <p>1 pc.<br/>In the area of the brake fluid reservoir.</p>                                     |

| Item | Safety signs                                                                                                                                                                                                                                                                                                                                                                    | Quantity / remarks                                                                             |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| 5    | <p><b>Warning sign 806478</b><br/>118x62 mm</p>  <p>Warning about damage to the machine caused by welding on the machine.</p> <ul style="list-style-type: none"> <li>► Comply with the instructions in the manual.</li> </ul>                                                                  | <p>1 pc.<br/>In the control panel area of the machine.<br/>Visible from the driver's seat.</p> |
| 6    | <p><b>Warning sign 838007</b><br/>118x62 mm</p>  <p>Warning about damage to the machine caused by screws shearing.</p> <ul style="list-style-type: none"> <li>► Comply with the maintenance instructions in the manual.</li> </ul>                                                             | <p>2 pcs.<br/>In the area of the turret.<br/>Attached on both sides of the machine.</p>        |
| 7    | <p><b>Warning sign 590018</b><br/>70x37 mm</p>  <p>Warning about incorrect handling of pressure reservoirs.</p> <ul style="list-style-type: none"> <li>► Keep away from the indicated area.</li> <li>► Always comply with repair information when working on pressure reservoirs.</li> </ul> | <p>1 pc.<br/>At each hydraulic accumulator.</p>                                                |

## 2 Safety

### 2.2 Safety instructions on the machine

| Item | Safety signs                                                                                                                                                                                                                                                                                                                                           | Quantity / remarks                                                                                                                                                                  |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9    | <p><b>Warning sign 806480</b><br/>232x122 mm</p>  <p>Warning of collision with the machine or with moving parts of the machine.</p> <ul style="list-style-type: none"> <li>► Keep distance from hazard area.</li> </ul>                                               | <p>1 pc.<br/>On the engine bonnet.</p>                                                                                                                                              |
| 10   | <p><b>Warning sign 806454</b><br/>118x62 mm</p>  <p>Warning of crush injuries in the area of the articulated joint.</p> <ul style="list-style-type: none"> <li>► Do not stand in the area of the articulated joint.</li> </ul>                                        | <p>4 pcs.<br/>In the area of the articulated joint.<br/>Attached on both sides of the machine.</p>                                                                                  |
| 12   | <p><b>Warning sign 590014</b><br/>118x62 mm</p>  <p>Warning of crushing injuries to body parts</p> <ul style="list-style-type: none"> <li>► Do not reach into the indicated area.</li> <li>► Before maintenance work, switch off and secure the machine.</li> </ul> | <p>2 pcs.<br/>In the area of the bucket support points.<br/>Attached on both sides of the machine.</p> <p>1 pc.<br/>In the area of the bucket protective grille.<br/>(optional)</p> |

| Item | Safety signs                                                                                                                                                                                                                                                                                                                                                              | Quantity / remarks                               |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| 13   | <p><b>Warning sign 837985</b><br/>62x118 mm</p>  <p>Warning of injuries to the hands in the area of the drives.</p> <ul style="list-style-type: none"> <li>▶ Do not reach into the area of the drives.</li> <li>▶ Before maintenance work, switch off and secure the machine.</li> </ul> | <p>1 pc.<br/>In the belt area of the engine.</p> |
| 14   | <p><b>Warning sign 590017</b><br/>62x118 mm</p>  <p>Warning of hand injuries due to rotating parts!</p> <ul style="list-style-type: none"> <li>▶ Do not reach into the area of rotating parts.</li> <li>▶ Before maintenance work, switch off and secure the machine.</li> </ul>       | <p>1 pc.<br/>In the area of rotating parts.</p>  |
| 15   | <p><b>Warning sign 590016</b><br/>118x62 mm</p>  <p>Warning of burns due to hot surfaces.</p> <ul style="list-style-type: none"> <li>▶ Keep limbs out of the marked areas.</li> <li>▶ If necessary, wait until the surfaces have cooled down.</li> </ul>                               | <p>1 pc.<br/>In the engine area.</p>             |

| Item | Safety signs                                                                                                                                                                                                                                                                                                                             | Quantity / remarks                                                                                                                                                                                           |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 16   | <b>Warning sign 857058</b><br>37x70 mm<br><br>Warning of slipping or falling off.<br>► Hold on securely when exiting or climbing off the vehicle.                                                                                                       | 4 pcs.<br>Visible when accessing the driver's platform.<br>Attached on both sides of the machine.<br>Valid for machines: <ul style="list-style-type: none"> <li>With the driver's platform open</li> </ul>   |
|      |                                                                                                                                                                                                                                                                                                                                          | 2 pcs.<br>Visible when accessing the driver's platform.<br>Attached on both sides of the machine.<br>Valid for machines: <ul style="list-style-type: none"> <li>With the driver's platform closed</li> </ul> |
| 17   | <b>Warning sign 881540</b><br>118x62 mm<br><br>Warning about steering too sharply with the bucket tipped.<br>Risk of damage to the machine due to machine parts colliding.<br>► Never turn the machine's steering to full lock with the bucket tipped. | 1 pc.<br>In the control panel area of the machine.<br>Visible from the driver's seat.                                                                                                                        |
| 20   | <b>Warning sign 590019</b><br>62x118 mm<br><br>Warning of incorrectly hooking in and lifting the machine.<br>► Only use mounting points indicated by this symbol.<br>► Note instructions in the operating manual.                                     | 8 pcs.<br>In the direct vicinity of the mounting points of the machine.<br>Valid for machines: <ul style="list-style-type: none"> <li>With the driver's platform open</li> </ul>                             |
|      |                                                                                                                                                                                                                                                                                                                                          | 6 pcs.<br>In the direct vicinity of the mounting points of the machine.<br>Valid for machines: <ul style="list-style-type: none"> <li>With the driver's platform closed</li> </ul>                           |

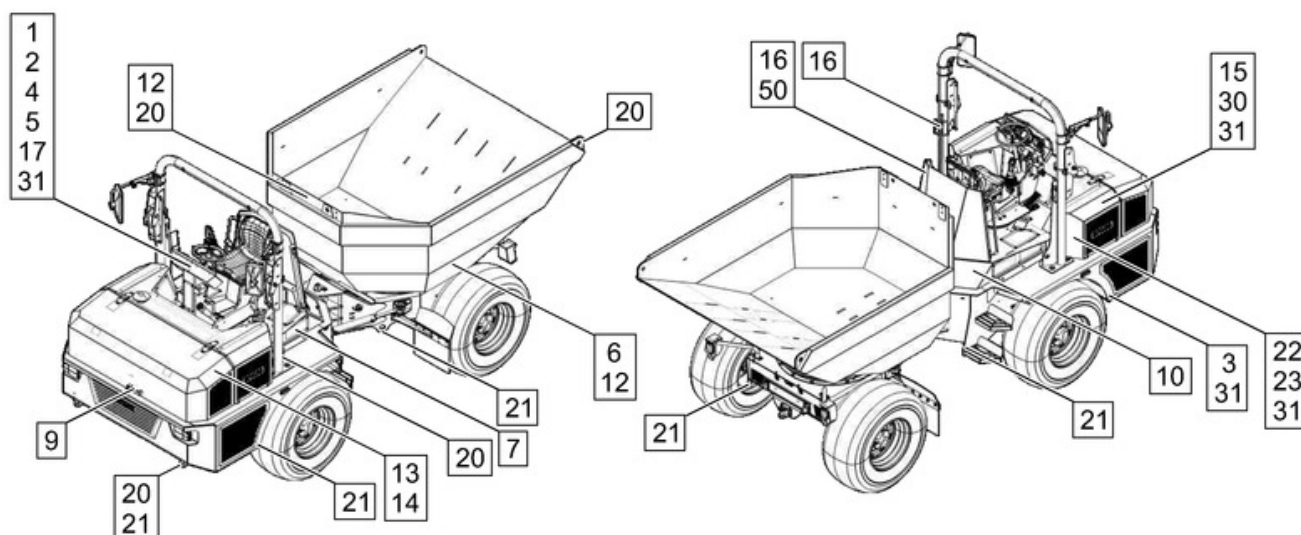
| Item | Safety signs                                                                                                                                                                                                                                                                                                                                           | Quantity / remarks                                                                                         |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| 21   | <p><b>Warning sign 806453</b><br/>62x118 mm</p>  <p>Warning about lashing the machine incorrectly.</p> <ul style="list-style-type: none"> <li>▶ Only use the lashing points marked with this symbol.</li> <li>▶ Note instructions in the operating manual.</li> </ul> | <p>10 pcs.<br/>In the direct vicinity of the tether points of the machine.</p>                             |
| 22   | <p><b>Mandatory sign 590022</b><br/>118x62 mm</p>  <ul style="list-style-type: none"> <li>▶ Wear ear protection.</li> </ul>                                                                                                                                         | <p>2 pcs.<br/>Visible when accessing the driver's platform.<br/>Attached on both sides of the machine.</p> |
| 23   | <p><b>Mandatory sign 590023</b><br/>118x62 mm</p>  <ul style="list-style-type: none"> <li>▶ Wear head protection.</li> </ul>                                                                                                                                        | <p>2 pcs.<br/>Visible when accessing the driver's platform.<br/>Attached on both sides of the machine.</p> |

| Item | Safety signs                                                                                                                                                                                                                                                                               | Quantity / remarks                                                                                                                                                                 |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 30   | <b>Prohibition sign 806476</b><br>118x62 mm<br><br>Warning about loss of warranty and about damage to the machine.<br>► Only allow specialists qualified in the components concerned to make adjustments. | 1 pc.<br>In the area of the battery master switch.                                                                                                                                 |
| 31   | <b>Prohibition sign 590026</b><br>70x37 mm<br><br>► Cleaning with use of a high-pressure cleaner in areas marked with warning signs is prohibited.                                                       | 1 pc.<br>In the control panel area of the machine.<br>1 pc.<br>In the battery area.<br>1 pc.<br>In the area of the battery master switch.<br>1 pc.<br>In the area of the fuse box. |
| 50   | <b>Escape sign 835916</b><br>90x90 mm<br><br>Position of the first-aid kit.                                                                                                                             | 1 pc.<br>In the area of the first-aid kit. (optional)                                                                                                                              |

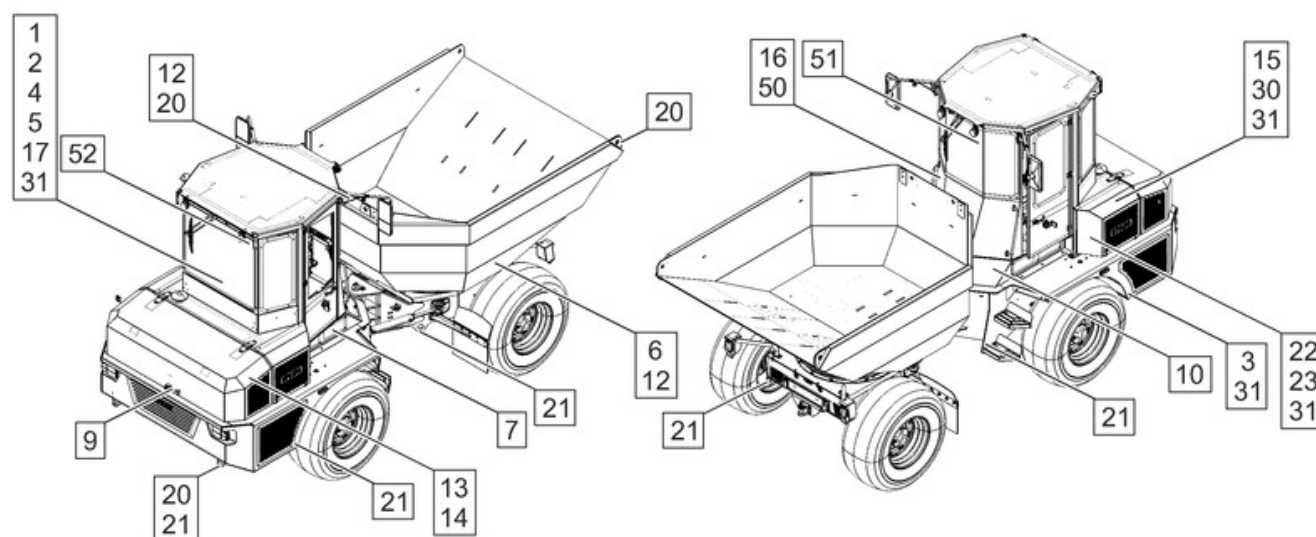
| Item | Safety signs                                                                                                                                                             | Quantity / remarks                                                                                                                                                  |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 51   | <p><b>Escape sign 800974</b><br/>90x90 mm</p>  <p>Position of the emergency hammer.</p> | <p>1 pc.<br/>In the area of the emergency hammer.<br/>Valid for machines:</p> <ul style="list-style-type: none"> <li>• With the driver's platform closed</li> </ul> |
| 52   | <p><b>Escape sign 800973</b><br/>90x90 mm</p>  <p>Position of the emergency exit.</p>  | <p>1 pc.<br/>In the area of the emergency exit.<br/>Valid for machines:</p> <ul style="list-style-type: none"> <li>• With the driver's platform closed</li> </ul>   |

### 2.2.5 Safety signs – ANSI FR

Valid for Paus part number:  
878543-03



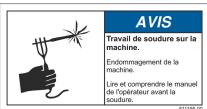
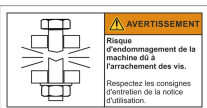
*The illustration shows the machine with an open driver's platform.*



*The illustration shows the machine with a closed driver's platform.*

| Item | Safety signs                                                                                                                                                                                                                                                                                                                 | Quantity / remarks                                                                             |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| 1    | <p><b>Warning sign 811201</b><br/>118x62 mm</p>  <p>Warning of operator error on the machine.</p> <ul style="list-style-type: none"> <li>► Make sure you have read and understood the manual before you switch the machine on.</li> </ul> | <p>1 pc.<br/>In the control panel area of the machine.<br/>Visible from the driver's seat.</p> |

| Item | Safety signs                                                                                                                                                                                                                                                                                                                                                                               | Quantity / remarks                                                                             |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| 2    | <p><b>Warning sign 811199</b><br/>118x62 mm</p>  <p>Warning against falling out of the machine.</p> <ul style="list-style-type: none"> <li>► Driver and passengers must fasten their seat belts before starting a journey.</li> </ul>                                                                     | <p>1 pc.<br/>In the control panel area of the machine.<br/>Visible from the driver's seat.</p> |
| 3    | <p><b>Warning sign 878502</b><br/>62x118 mm</p>  <p>Warning about incorrect handling of batteries.</p> <ul style="list-style-type: none"> <li>► Comply with safety and operating instructions in the operating manual.</li> <li>► Before maintenance work, switch off and secure the machine.</li> </ul> | <p>1 pc.<br/>In the battery area.</p>                                                          |
| 4    | <p><b>Warning sign 874812</b><br/>70x37 mm</p>  <p>Warning against filling in incorrect operating fluids.</p> <ul style="list-style-type: none"> <li>► Comply with the instructions in the manual.</li> </ul>                                                                                           | <p>1 pc.<br/>In the area of the brake fluid reservoir.</p>                                     |

| Item | Safety signs                                                                                                                                                                                                                                                                                                                                                                    | Quantity / remarks                                                                             |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| 5    | <p><b>Warning sign 811195</b><br/>118x62 mm</p>  <p>Warning about damage to the machine caused by welding on the machine.</p> <ul style="list-style-type: none"> <li>► Comply with the instructions in the manual.</li> </ul>                                                                  | <p>1 pc.<br/>In the control panel area of the machine.<br/>Visible from the driver's seat.</p> |
| 6    | <p><b>Warning sign 874815</b><br/>118x62 mm</p>  <p>Warning about damage to the machine caused by screws shearing.</p> <ul style="list-style-type: none"> <li>► Comply with the maintenance instructions in the manual.</li> </ul>                                                             | <p>2 pcs.<br/>In the area of the turret.<br/>Attached on both sides of the machine.</p>        |
| 7    | <p><b>Warning sign 811204</b><br/>70x37 mm</p>  <p>Warning about incorrect handling of pressure reservoirs.</p> <ul style="list-style-type: none"> <li>► Keep away from the indicated area.</li> <li>► Always comply with repair information when working on pressure reservoirs.</li> </ul> | <p>1 pc.<br/>At each hydraulic accumulator.</p>                                                |

| Item | Safety signs                                                                                                                                                                                                                                                                                                                                           | Quantity / remarks                                                                                                                                                                  |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9    | <p><b>Warning sign 811261</b><br/>232x122 mm</p>  <p>Warning of collision with the machine or with moving parts of the machine.</p> <ul style="list-style-type: none"> <li>► Keep distance from hazard area.</li> </ul>                                               | <p>1 pc.<br/>On the engine bonnet.</p>                                                                                                                                              |
| 10   | <p><b>Warning sign 811260</b><br/>118x62 mm</p>  <p>Warning of crush injuries in the area of the articulated joint.</p> <ul style="list-style-type: none"> <li>► Do not stand in the area of the articulated joint.</li> </ul>                                        | <p>4 pcs.<br/>In the area of the articulated joint.<br/>Attached on both sides of the machine.</p>                                                                                  |
| 12   | <p><b>Warning sign 811256</b><br/>118x62 mm</p>  <p>Warning of crushing injuries to body parts</p> <ul style="list-style-type: none"> <li>► Do not reach into the indicated area.</li> <li>► Before maintenance work, switch off and secure the machine.</li> </ul> | <p>2 pcs.<br/>In the area of the bucket support points.<br/>Attached on both sides of the machine.</p> <p>1 pc.<br/>In the area of the bucket protective grille.<br/>(optional)</p> |

| Item | Safety signs                                                                                                                                                                                                                                                                                                                                                              | Quantity / remarks                               |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| 13   | <p><b>Warning sign 874818</b><br/>62x118 mm</p>  <p>Warning of injuries to the hands in the area of the drives.</p> <ul style="list-style-type: none"> <li>▶ Do not reach into the area of the drives.</li> <li>▶ Before maintenance work, switch off and secure the machine.</li> </ul> | <p>1 pc.<br/>In the belt area of the engine.</p> |
| 14   | <p><b>Warning sign 811205</b><br/>62x118 mm</p>  <p>Warning of hand injuries due to rotating parts!</p> <ul style="list-style-type: none"> <li>▶ Do not reach into the area of rotating parts.</li> <li>▶ Before maintenance work, switch off and secure the machine.</li> </ul>       | <p>1 pc.<br/>In the area of rotating parts.</p>  |
| 15   | <p><b>Warning sign 811207</b><br/>118x62 mm</p>  <p>Warning of burns due to hot surfaces.</p> <ul style="list-style-type: none"> <li>▶ Keep limbs out of the marked areas.</li> <li>▶ If necessary, wait until the surfaces have cooled down.</li> </ul>                               | <p>1 pc.<br/>In the engine area.</p>             |

| Item | Safety signs                                                                                                                                                                                                                                                                                                                             | Quantity / remarks                                                                                                                                                                                              |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 16   | <b>Warning sign 874822</b><br>37x70 mm<br><br>Warning of slipping or falling off.<br>► Hold on securely when exiting or climbing off the vehicle.                                                                                                       | 4 pcs.<br>Visible when accessing the driver's platform.<br>Attached on both sides of the machine.<br>Valid for machines:<br><ul style="list-style-type: none"> <li>With the driver's platform open</li> </ul>   |
|      |                                                                                                                                                                                                                                                                                                                                          | 2 pcs.<br>Visible when accessing the driver's platform.<br>Attached on both sides of the machine.<br>Valid for machines:<br><ul style="list-style-type: none"> <li>With the driver's platform closed</li> </ul> |
| 17   | <b>Warning sign 881541</b><br>118x62 mm<br><br>Warning about steering too sharply with the bucket tipped.<br>Risk of damage to the machine due to machine parts colliding.<br>► Never turn the machine's steering to full lock with the bucket tipped. | 1 pc.<br>In the control panel area of the machine.<br>Visible from the driver's seat.                                                                                                                           |
| 20   | <b>Warning sign 811203</b><br>62x118 mm<br><br>Warning of incorrectly hooking in and lifting the machine.<br>► Only use mounting points indicated by this symbol.<br>► Note instructions in the operating manual.                                     | 8 pcs.<br>In the direct vicinity of the mounting points of the machine.<br>Valid for machines:<br><ul style="list-style-type: none"> <li>With the driver's platform open</li> </ul>                             |
|      |                                                                                                                                                                                                                                                                                                                                          | 6 pcs.<br>In the direct vicinity of the mounting points of the machine.<br>Valid for machines:<br><ul style="list-style-type: none"> <li>With the driver's platform closed</li> </ul>                           |

| Item | Safety signs                                                                                                                                                                                                                                                                                                                                           | Quantity / remarks                                                                                         |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| 21   | <p><b>Warning sign 811197</b><br/>62x118 mm</p>  <p>Warning about lashing the machine incorrectly.</p> <ul style="list-style-type: none"> <li>► Only use the lashing points marked with this symbol.</li> <li>► Note instructions in the operating manual.</li> </ul> | <p>10 pcs.<br/>In the direct vicinity of the tether points of the machine.</p>                             |
| 22   | <p><b>Mandatory sign 811200</b><br/>118x62 mm</p>  <ul style="list-style-type: none"> <li>► Wear ear protection.</li> </ul>                                                                                                                                         | <p>2 pcs.<br/>Visible when accessing the driver's platform.<br/>Attached on both sides of the machine.</p> |
| 23   | <p><b>Mandatory sign 811259</b><br/>118x62 mm</p>  <ul style="list-style-type: none"> <li>► Wear head protection.</li> </ul>                                                                                                                                        | <p>2 pcs.<br/>Visible when accessing the driver's platform.<br/>Attached on both sides of the machine.</p> |

| Item | Safety signs                                                                                                                                                                                                                                                                                                                              | Quantity / remarks                                                                                                                                                                             |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 30   | <b>Prohibition sign 811196</b><br>118x62 mm<br><br>Warning about loss of warranty and about damage to the machine. <ul style="list-style-type: none"> <li>► Only allow specialists qualified in the components concerned to make adjustments.</li> </ul> | 1 pc.<br>In the area of the battery master switch.                                                                                                                                             |
| 31   | <b>Prohibition sign 811198</b><br>70x37 mm<br><br><ul style="list-style-type: none"> <li>► Cleaning with a high-pressure cleaner is not permitted.</li> </ul>                                                                                           | 1 pc.<br>In the control panel area of the machine.<br><br>1 pc.<br>In the battery area.<br><br>1 pc.<br>In the area of the battery master switch.<br><br>1 pc.<br>In the area of the fuse box. |
| 50   | <b>Escape sign 835916</b><br>90x90 mm<br><br>Position of the first-aid kit.                                                                                                                                                                            | 1 pc.<br>In the area of the first-aid kit. (optional)                                                                                                                                          |

| Item | Safety signs                                                                                                                                                             | Quantity / remarks                                                                                                                                                |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 51   | <p><b>Escape sign 800974</b><br/>90x90 mm</p>  <p>Position of the emergency hammer.</p> | <p>1 pc.<br/>In the area of the emergency hammer.<br/>Valid for machines:</p> <ul style="list-style-type: none"> <li>With the driver's platform closed</li> </ul> |
| 52   | <p><b>Escape sign 800973</b><br/>90x90 mm</p>  <p>Position of the emergency exit.</p>  | <p>1 pc.<br/>In the area of the emergency exit.<br/>Valid for machines:</p> <ul style="list-style-type: none"> <li>With the driver's platform closed</li> </ul>   |

## 2.3 Basic safety instructions

989-003

### 2.3.1 Compliance with safety instructions

All of the safety instructions attached to the machine and listed in this manual must be observed in order to avoid damage, injuries and accidents.

In addition to the safety instructions listed in connection with specific activities, this also includes the basic safety instructions listed in the Safety chapter. [▶ 42](#)

The safety instructions must be observed both by persons working on or with the machine as well as by persons in the area around the machine.

4694-005

### 2.3.2 Designated use

The machine is an earth-moving machine primarily intended as for transporting and unloading aggregate materials and bulk goods in the bucket of the machine.

Loading is intended by way of physical work by personnel or by other equipment or machines.

Aggregate materials and bulk goods are unloaded as intended by tipping them out of the bucket.

Intended use also includes the following:

- Following all instructions in the manual and the user information attached to the machine.
- Adhering to all regional and national regulations regarding machine operation and maintenance
- Operating the machine in a safety-conscious and risk-aware manner
- Wearing personal protective equipment [▶ 52](#)
- Operating the machine only when it is in a technically sound condition
- Adhering to the maintenance interval and documenting proper implementation [▶ 195](#)
- Immediately eliminating any faults that occur
- Observing and complying with the technical performance data and usage conditions [▶ 60](#)
- Operating the machine using accessories and equipment that have been designed and explicitly approved in writing for such use by the company Paus

4695-005

### 2.3.3 Non-intended use

Using the machine for purposes outside of the intended use is considered improper use and is not permitted. The company PAUS shall not accept liability for any damage resulting from such use.

Doing any of the following with the machine is strictly prohibited:

- Stepping onto the bucket and climbing into the bucket
- Transporting people in the bucket
- Lifting persons with the bucket
- Transporting water or other swaying materials in the bucket
- Transporting or lifting of loads that exceed the maximum permitted load capacity or the approved centre of gravity.
- Transporting materials other than bulk goods or aggregates,
- Lifting or transporting suspended loads.
- Use as a crane.
- Use as a support for other objects.
- Use for other forms of force exertion onto other objects (through downward pressure or pulling, for example).
- Exclusive use underground, e.g. in underground mining.

- Using the machine on public highways or on areas with an equivalent legal status without the necessary licences, permits, approvals, etc. being issued for the country of use. Information in this operating manual relating to the operation of the machine on public highways does not imply that the machine is generally authorised, approved or licensed for use on public highways.
- Using a defective machine or a machine that has been tampered with  
Manipulations of the machine may include the following:
  - Bypassing or unauthorised modifications of the safety devices such as limit switches or sensors
  - Reworking machine components, e.g. drilling or welding
  - Carrying out conversions on the machine, including the control system
- Operating while persons are present in the danger zone.
- Working on live equipment while on the machine
- Use of the machine by persons under the age of 18 or who cannot be expected to assess the dangers adequately.
- Using loads and limits of the machine besides those specified in the technical data of this manual or on instruction signs affixed to the machine[► 67]
- Entering the machine when it has not been securely shut down for entrance or the procedure is explicitly described as such in this manual.
- Towing other machines, unless this is expressly described in this manual.

The above list is not exhaustive.

### 2.3.4 Residual risk

Even if all safety regulations are observed, there remains a residual risk during operation, maintenance/repairs and transportation of the machine. The residual risks are listed below.

Other risks could develop due to the operating conditions of the machine and other local conditions. For this reason, the operator of the machine must carry out a risk assessment for the use intended by the operator, document the assessment in writing and implement the required measures accordingly.

641-018

#### 2.3.4.1 Safety instructions when working with the machine

##### **DANGER!**

Operating the machine in potentially explosive areas or explosive atmosphere.

Risk of death due to explosion of gas, dust, vapors or fog.

- Do not operate the machine or switch it on in potentially explosive areas or in an explosive atmosphere.
- If necessary, use gas detectors or other sensors suitable for the local level of risk.
- Observe local regulations and hazard warnings.

##### **WARNING!**

Commissioning the machine without having read the machine manual.

Death or serious injury due to operating error or failure to observe safety measures and safety instructions!

- Read the manual before commissioning the machine.
- Make sure that the content of the manual has been understood and can be properly applied.
- Before beginning work, familiarise yourself with the machine and learn how to operate the machine in a safe area where no other persons are in danger.

### **WARNING!**

Inhaling poisonous exhaust fumes.

Loss of consciousness, severe illnesses and death.

- ▶ Avoid inhaling exhaust fumes if possible.
- ▶ Switch off the engine in the event of a long standstill.
- ▶ Do not turn on the engine in enclosed spaces unless the exhaust fumes can be captured at the discharge point of the exhaust pipe and directed outside or unless the spaces are sufficiently ventilated.
- ▶ Areas with differing capacities for handling exhaust fumes must be physically separated; such as workshops and staff rooms.
- ▶ Observe the legal regulations of the operator's country with respect to exhaust emissions of the machine; this applies in particular to the use of the machine in enclosed spaces or in poorly ventilated locations. The legal regulations may differ for the specific use of the machine.

### **WARNING!**

Sparking on the exhaust pipe or the electrical system.

Risk of severe or even fatal injury due to explosion or fire.

- ▶ Do not operate the machine in rooms where easily flammable materials or gases are.

### **WARNING!**

Use of non-original PAUS spare parts.

Risk of severe injury or death due to machine malfunctions or spare part breakage!

- ▶ Only use original PAUS spare parts.

### **WARNING!**

The use of a defective or incomplete machine or a machine that has been tampered with.

Risk of severe or even fatal injury due to unforeseeable movements of the machine or machine parts.

- ▶ Ensure that the machine is properly reassembled after each maintenance session.
- ▶ Do not operate a defective machine.
- ▶ Do not commission a machine or device with missing parts or safety devices.
- ▶ Immediately have any faults or defects on the machine eliminated.
- ▶ Do not make any modifications to the machine without approval from PAUS.

### **WARNING!**

Uncontrolled rolling away of the machine.

Risk of severe injury or death!

- ▶ When leaving the machine, engage the parking brake and remove the ignition key.
- ▶ Place wheel chocks under the wheels.

### **WARNING!**

Driving too close to burning materials or picking these up.

Risk of severe injury or death due to burning or machine damage.

- ▶ Keep a sufficient distance from burning materials.
- ▶ Never pick up burning material with the machine or attachment.

### **WARNING!**

Storing highly combustible materials or liquids in the area of heat-emitting components.

Risk of severe injury or death due to fire hazard.

- ▶ Never store highly combustible materials or liquids in the area of heat-emitting components.

### **WARNING!**

Misunderstood instructions or hand signals.

Risk of severe injury or death due to incomprehensible communication.

- ▶ Make sure that the other person has correctly understood during all acoustic communication.
- ▶ Ensure that any hand signals used by the people involved can be understood.
- ▶ Notify people in the vicinity about the pending operation.
- ▶ Remove people from the danger zone.
- ▶ Make sure that the operator and the banksman are always visible to each other.

### **WARNING!**

Working on unknown terrain without having thoroughly checked this in advance.

Risk of severe injuries or death due to destruction of utility equipment!

- ▶ Examine the work area for possible dangers such as overhead electrical wires, electric cables, gas lines or water lines before beginning work.
- ▶ Make sure that no underground supply systems can be damaged. Mark points accordingly if necessary.
- ▶ Ensure the ground has sufficient load capacity.
- ▶ Check the general conditions of the route before putting the vehicle in motion, including possible damage and obstacles.
- ▶ Permitted inclines not exceeded.
- ▶ If necessary, make sure that the driving and work area is well illuminated.

### **WARNING!**

Non-compliance with load limits for the machine.

Risk of severe injury or death due to overloading or tipping the machine.

- ▶ Observe the permitted weights and load specifications from the "Technical data" chapter.
- ▶ Do not make any modifications to the machine without approval from PAUS.
- ▶ Only operate attachments approved by PAUS.

### **WARNING!**

Distraction during working operation.

Risk of severe injury or death!

- ▶ While working on or with the machine, concentrate only on the work at all times.
- ▶ Do not allow yourself to become distracted, e.g. by a telephone call etc.

### **WARNING!**

Working on or with the machine without taking the corresponding protective measures.

Risk of severe injury or death due to getting caught or pulled into the danger area.

- ▶ Wear tightly fitting clothes.
- ▶ Do not wear jewellery.
- ▶ Do not wear long, loose hair.

### **CAUTION!**

Opening the bonnet with the engine switched on.

Risk of injury due to moving parts.

- ▶ Only open the bonnet if the engine is switched off.
- ▶ Ensure that the engine cannot be started by another person while the bonnet is open.

### **CAUTION!**

Contact with hot liquids or machine parts.

Risk of burning

- ▶ Wear suitable protective gloves.
- ▶ Wear suitable safety goggles.
- ▶ Allow liquids or machine parts to cool down before working on or with them.

152-009

#### 2.3.4.2 Safety instructions for handling the electrical system

### **WARNING!**

Improper work on the electrical system.

Risk of severe injury or death due to malfunctions of the machine or electric shock.

- ▶ Only allow electrically skilled persons to work on the electrical system.
- ▶ Before working on the electric system, first switch off the battery main switch, disconnect the battery or remove it from the power supply.
- ▶ Allow the electrical system or the machine to cool down sufficiently, if necessary, before working on it.
- ▶ Inspect all cable connections for firm and correct connection before restarting the electrical system.

### ⚠ WARNING!

Incorrect work on high-voltage systems.

Risk of severe injury or death due to malfunctions of the machine or electric shock.

- ▶ Only allow work on AC systems more than 30V or DC systems more than 60V to be performed by an electrical specialist with relevant knowledge in high-voltage systems.
- ▶ When working on high-voltage systems, wear a hard hat with glass visor and suitable protective gloves.
- ▶ Before working on high-voltage systems, wait some time after disconnecting the battery until the electrical system is voltage-free.
- ▶ Before working on an AC system more than 30V or a DC system more than 60V, check that the system is free of voltage.
- ▶ Switch boxes with high-voltage systems may only be opened by an electrical specialist with suitable knowledge of high-voltage systems.

7546-003

#### 2.3.4.3 Safety information on radio equipment

The machine may feature systems that can transmit and/or receive radio waves and which are subject to Directive 2014/53/EU.

The manufacturers of the installed systems declare their conformity with Directive 2014/53/EU.

Some countries may impose restrictions and/or requirements for commissioning.

In such cases, the machine must have an information sign on which the corresponding country code is displayed.

A list of the restrictions and/or requirements for the individual radio transmission systems can be found in the "Technical data" chapter. [▶ 60](#)



|    |    |    |
|----|----|----|
| ES | LU | RO |
| CZ | FR | HU |
| SI | DK | HR |

Example: information sign

156-003

#### 2.3.4.4 Safety instructions regarding overhead electrical wires

When the machine and/or attachments are used near overhead electrical wires, minimum safety distances are prescribed in Germany and are to be taken as recommendations in other countries. Observe federal regulations.

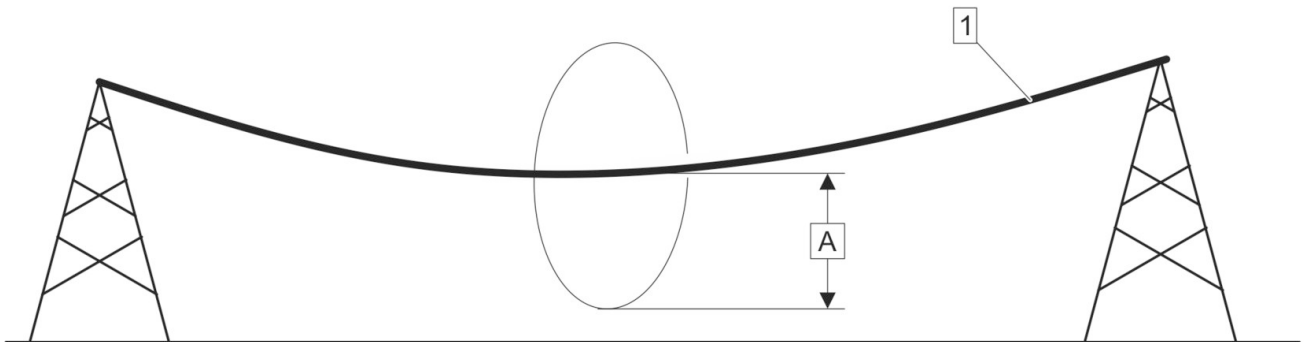
### ⚠ WARNING!

Touching live overhead electrical wires.

Risk of severe injury or death for the operator or person outside the machine.

After contact with overhead electrical wires:

- ▶ Safety distances to overhead electrical wires must be maintained.
- ▶ Do not touch the machine.
- ▶ Warn others to prevent them from coming closer or touching the machine.
- ▶ Have the voltage switched off immediately.



| Nominal voltage of the overhead electrical wire | Safety distance (A) in accordance with DIN German Association of Electrical, Electronic & Information Technologies 0105-1 | Unit |
|-------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|------|
| up to 1000 V                                    | 1.0                                                                                                                       | m    |
| over 1 kV to 110 kV                             | 3.0                                                                                                                       | m    |
| over 110 kV up to 220 kV                        | 4.0                                                                                                                       | m    |
| over 220 kV up to 380 kV                        | 5.0                                                                                                                       | m    |
| for unknown nominal voltage                     | 6.0                                                                                                                       | m    |

When working close to overhead electrical wires, observe the following:

When working in an unfamiliar environment, start by familiarizing yourself with the environment and checking it for overhead electrical wires, etc.

- Before working near overhead electrical wires, make sure they are de-energised and earthed.
- The machine and attachment must never move within the range of the safety distance of overhead electrical wires.
- Material must not be picked up under live wires as long as there is danger of coming into contact with any of the wires.

#### 2.3.4.5 Safety instructions for handling the hydraulic system

##### **WARNING!**

Improper handling of the hydraulic system or hydraulic components.

Risk of severe injury or death due to malfunctions of the machine or bursting lines.

- ▶ Only allow hydraulically skilled persons to work on the hydraulic system.
- ▶ Work on the hydraulic system only when it has been depressurised.
- ▶ Drain fluids from the hydraulic system only at the specified locations and only when the system has been depressurised.
- ▶ Fill the hydraulic system only with hydraulic fluid approved by PAUS.
- ▶ Allow the hydraulic system to cool down before working on it.
- ▶ Exercise special caution when working with hydraulic pressure accumulators.
- ▶ Before restarting the machine, ensure that all hydraulic lines are properly screwed on.

##### **CAUTION!**

Incorrect handling of leakage points on the hydraulic system.

Risk of injury due to high-pressure hydraulic fluid.

- ▶ Switch off the machine and if necessary release the pressure.
- ▶ Do not use your fingers when checking for leaks.
- ▶ Keep your face away from leakage points.
- ▶ Check leakage points using a piece of card.
- ▶ Have work and repairs on the hydraulic system carried out immediately by a qualified specialist.
- ▶ Seek medical attention immediately if hydraulic fluid penetrates skin or comes in contact with the eyes.

##### **CAUTION!**

Incorrect handling of injuries caused by pressurised hydraulic fluid.

Complications due to incorrect or delayed treatment of such injuries.

- ▶ Seek medical attention immediately if hydraulic fluid penetrates skin or comes in contact with the eyes.

#### 2.3.4.6 Safety instructions for handling lubricants and operating materials

##### **WARNING!**

Improper handling of combustible substances and vapours.

Risk of severe or even fatal injury due to explosion or fire.

- ▶ Do not smoke in the immediate vicinity.
- ▶ Keep naked flames away from inflammable substances and gases.
- ▶ Prevent the formation of dust.
- ▶ Prevent static charges.
- ▶ Only use approved tanks and dispensing equipment for inflammable liquids and gases.
- ▶ Wipe off fuel or any other combustible liquid that has dripped or spilled and dispose of it properly.
- ▶ Ensure good ventilation when using inflammable liquids and gases.
- ▶ Do not perform any welding, grinding or cutting work in the immediate vicinity of pipes or tanks carrying fuel or other combustible liquids or gases.

### **CAUTION!**

Unchecked handling of lubricants or operating materials.

Damage to health or the environment.

- ▶ Use and dispose of lubricants and operating materials properly.
- ▶ Adhere to the safety data sheets from the manufacturer regarding the different materials.
- ▶ Keep combustible materials away from open flame.
- ▶ Comply with the applicable regulations for handling flammable fluids.
- ▶ Wear personal protective equipment.
- ▶ Apply protective cream to your skin.
- ▶ Avoid contact with skin.
- ▶ Avoid skin contact with oil-soaked clothing.
- ▶ Wash oil-contaminated clothing before wearing it again.
- ▶ Do not store any oil-soaked cloths in your pockets.
- ▶ Throw away oil-soaked shoes.
- ▶ Thoroughly wash oil-contaminated skin with soap and water.
- ▶ To extinguish fires caused by lubricants or operating materials, use only carbon dioxide, dry powder or foam. Do not use water.
- ▶ Wear a breathing mask.

### **CAUTION!**

Incorrect handling of injuries caused by lubricants or operating materials.

Complications due to incorrect or delayed treatment of such injuries.

- ▶ In the event that a person swallows lubricants, operating materials, fuels, coolants or battery acid:  
Do not attempt to induce vomiting. There is a risk of chemical lung inflammation.  
If the person is awake, give the person one to two sips of water to drink.  
Seek medical attention immediately.
- ▶ If a person feels unwell after breathing in fuel vapours for a long time:  
Bring the affected person to fresh air.  
If recovery does not begin quickly, seek medical attention.
- ▶ In the event that lubricants or operating materials come into contact with eyes:  
Flush the eyes with water for at least 15 minutes.  
Then seek medical attention.
- ▶ In the event that fuel comes into contact with skin:  
Immediately wash the skin well with soap and water; do not scrub.  
Remove fuel-contaminated clothing.

### **NOTICE!**

Improper handling of lubricants or operating materials.

Environmental damage.

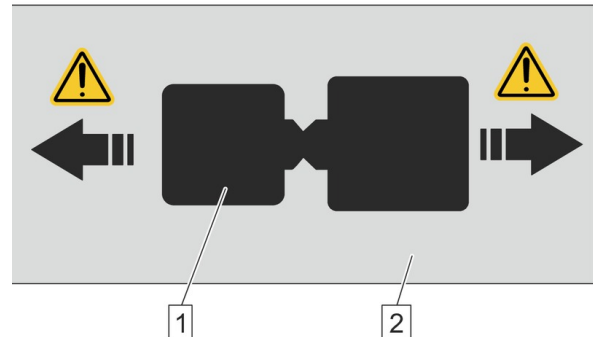
- ▶ Adhere to the safety data sheets from the manufacturer regarding the different materials.
- ▶ Absorb spilled oil with sand or an absorbent binding agent that is permitted locally.  
Remove the sand or absorbent binding agent and dispose of it at a hazardous waste landfill.
- ▶ All waste must be disposed of in accordance with local regulations.
- ▶ Used engine oil must be stored and disposed of in accordance with the local regulations.
- ▶ Do not pour lubricants or operating materials down the drain or dump them onto the ground.

### 2.3.5 Danger zone

The danger zone (2) describes a safety distance of 3 m around the machine (1).

When the machine is in motion, the danger zone expands to include the driver's entire field of vision.

⚠ Never sit, stand or walk in the danger zone.

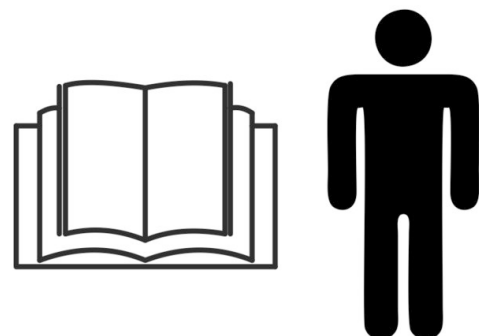
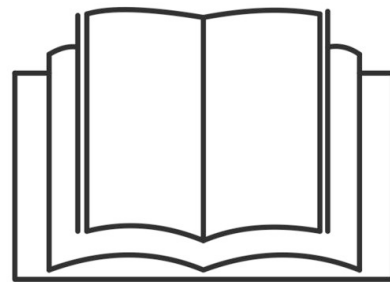


154-005

### 2.3.6 Organisational information for the operator

The operating manual constitutes an important part of the machine.

- ▶ Ensure the following:
  - ▷ A second copy of the operating manual is always available in the document box or at the operating site of the machine.
  - ▷ Lost or illegible operating manuals are replaced without delay.
  - ▷ The original operating manual is stored safely.
  
- ▶ The machine is only allowed to be operated by trained and instructed personnel who have been instructed in writing to operate the machine.
- ▶ The responsibilities are clearly defined for maintenance and repair performed by expert personnel
- ▶ Ensure that the operator has read and understood the operating manual including the information on proper use.
- ▶ Ensure that personnel undergoing training or instruction only operate the machine under continuous supervision by a previously trained individual or an expert.
- ▶ Provide the operator with personal protective equipment. [▶ 52\]](#)



- Observe the regulations of the country of use regarding accident prevention, security and proper work.



155-005

### 2.3.7 Personal protective equipment

Within the scope of intended use of the machine, at least the personal protective equipment required elsewhere in this operating manual is necessary. The conditions of the machine's specific use may require the use of additional personal protective equipment.

The operator of the machine is required to determine whether and if so what further personal protective equipment is necessary to protect persons working on or with the machine and, if applicable, in its vicinity. The operator is further required to provide the above persons with the personal protective equipment and to make sure it is used.

Personal protective equipment must comply with the legislative requirements applicable at the place of use.

- Inspect the protective equipment for obvious defects before putting it on and replace if necessary.
- Put on protective equipment before commissioning, servicing or repairing the machine.

Applicable statutory regulations or provisions that are mandatory on any other legal basis shall remain unaffected by the above requirements.



Symbols are exemplary.

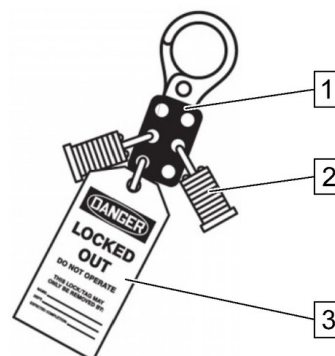
2611-001

### 2.3.8 Securing against unauthorised operation

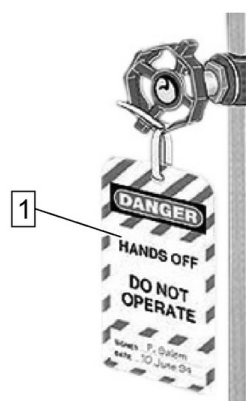
The operator determines a safe procedure for securing the machine from unauthorised operation. Unauthorised operation can include the following:

- Recommissioning the machine while performing work on it.
- Operating control elements that are only allowed to be operated by corresponding technicians.
- Removing protective devices that secure the work area during work on the machine.
- Securing systems that are running on electricity or hydraulic pressure and securing other mechanical systems that can pose hazards.

The securing mechanism may consist of a lock (1), that itself is secured by one or more padlocks (2). This lock (1) prevents operation of a corresponding control element that can only be made accessible by one or more authorised personnel by opening the corresponding padlocks (2). Additional protection can be provided by adding an information sign (3) in the corresponding language.



Another option for securing corresponding control elements is to attach an information sign (1) in the corresponding language directly to the control element.



## 2.4 Personnel qualification

158-001

### 2.4.1 Basic requirements for the operating personnel

In addition to the personnel qualifications listed in this operating manual, the operating personnel of this machine must fulfil basic requirements. Operating the machine without fulfilling the following requirements is not permitted. The following requirements apply to operating personnel:

- They must be 18 years of age or older.
- They must be physically and mentally capable of operating the machine.
- They must carry out the tasks assigned to them in a reliable manner.
- They must be healthy with respect to vision, hearing, reflexes and mobility.
- They must be able to assess weights, distances, heights and clearances correctly.
- They must be able to handle the machine responsibly.

163-005

### 2.4.2 Qualification of trained personnel

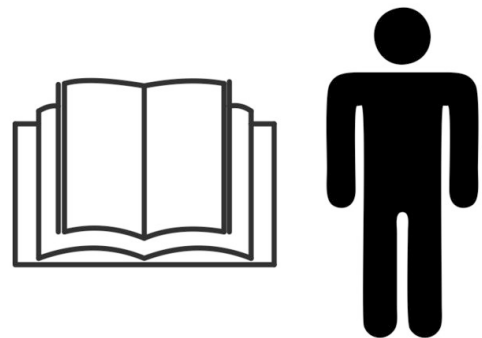
In addition to the basic requirements for the operating personnel, trained personnel possess the following qualifications.

A trained person is a person who has been instructed how to use the machine by the manufacturer or by another person who has been trained by the manufacturer.

The trained person has read and understood the operating manual and is able to operate and service the machine in accordance with proper use.

The trained person has been instructed on possible dangers by the operator or the manufacturer of the machine.

The person repeats the training measures once per year and can verify this with documents.



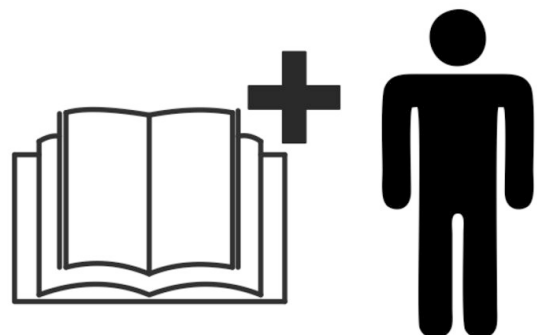
160-002

### 2.4.3 Qualification of qualified personnel

In addition to the basic requirements for the operating personnel, qualified personnel possess the following qualifications.

Based on his/her professional training, the qualified person has the necessary knowledge and experience, as well as knowledge of the applicable provisions, in order to be able to carry out the work assigned to him/her on the machine or the components.

The qualified person is able to recognise and avoid dangers originating from the machine or corresponding components.

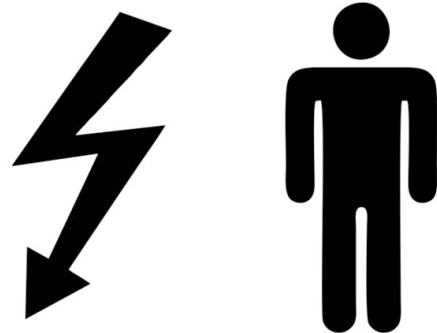


#### 2.4.4 Qualification of electrically skilled persons

In addition to the basic requirements for the operating personnel, qualified personnel possess the following qualifications.

An electrically skilled person is a person with suitable professional training, knowledge and experience working with electronics.

The electrically skilled person can recognise and avoid dangers caused by electricity.

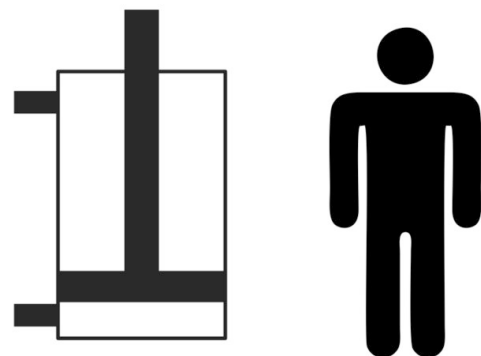


#### 2.4.5 Qualification of hydraulically skilled persons

In addition to the basic requirements for the operating personnel, qualified personnel possess the following qualifications.

A hydraulically skilled person is a person with suitable specialized training, knowledge and experience in the area of hydraulics.

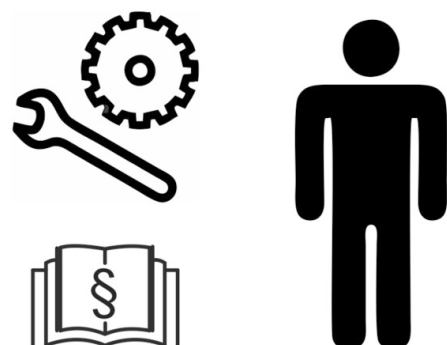
The hydraulically skilled person can recognise and avoid dangers caused by hydraulics.



#### 2.4.6 Qualification of experts

An expert is a person with suitable professional training, knowledge and experience working with the machine.

The expert is familiar with the applicable government regulations, accident prevention regulations and generally recognised rules of technology to the extent that he/she can assess whether the condition of the machine is reliable for operation.



### 2.4.7 Qualification of banksmen

A banksman is a person who supports the driver or the operator in unclear driving areas, work areas or in poor visibility conditions.

In addition to the basic requirements for the operating personnel, banksmen possess the following qualifications.

He/She has mastered the hand signals for the instruction necessary for communication between the driver/operator and the banksmen.



410-001

### 2.4.8 Hand signals for communication

If multiple people are working together, one must be designated as the responsible person and indicated to the operator. In order to avoid misunderstandings, only this person is allowed to give hand signals to the operator. The operator must only respond to signals given by this person.

For providing hand signals, the following collection of hand signals has proven itself reliable in practice.

Deviations are permitted. It is very important that differing hand signals are unmistakable. Therefore, they must be agreed upon in advance.

Personnel and operators must exit the danger zone before they give signals or operate the machine.

| Designation | Meaning                                  | Finish                                      | Signals                                                                               |
|-------------|------------------------------------------|---------------------------------------------|---------------------------------------------------------------------------------------|
| Caution     | Reference to the following hand signals. | Hold arm extended with palm facing forward. |  |
| Stop        | Ending a movement sequence.              | Extend both arms sideways.                  |  |

| Designation            | Meaning                                                    | Finish                                                                                    | Signals                                                                               |
|------------------------|------------------------------------------------------------|-------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Danger                 | Ending a movement sequence as quickly as possible.         | Extend both arms sideways horizontally. Bend and extend arms repeatedly.                  |    |
| Slow down              | Slowing down a movement sequence and continuing it slowly. | Extend both arms horizontally with palms facing downward. Move arms up and down slightly. |    |
| Determining a location | Marking a destination point for a movement.                | Point to destination point with both hands.                                               |   |
| Distance               | Indicating a reduction in distance.                        | Hold palms apart parallel to indicate remaining distance.                                 |  |
| Up                     | Initiating a vertical upwards motion.                      | Make circular arm motions with hand pointing upward.                                      |  |

| Designation          | Meaning                                                                                    | Finish                                                                                   | Signals                                                                               |
|----------------------|--------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Down                 | Initiating a vertical downwards motion.                                                    | Make circular arm motions with hand pointing downward.                                   |    |
| Move upward slowly   | Initiating a slow upwards motion.                                                          | With forearm horizontal and palm facing upwards, move forearm up and down slightly.      |    |
| Move downward slowly | Initiating a slow downwards motion.                                                        | With forearm horizontal and palm facing downwards, move forearm up and down slightly.    |  |
| Follow               | Initiating or continuing a driving motion in accordance with a preceding direction signal. | Raise arm and wave back and forth with palm facing forwards.                             |  |
| Directions           | Initiating a movement in a specific direction.                                             | Bend arm corresponding to the direction of movement and move it back and forth sideways. |  |

| Designation              | Meaning                                     | Finish                                                                          | Signals                                                                             |
|--------------------------|---------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Move toward signaller    | Initiating a motion toward the banksman.    | Wave toward your body using both arms with palms facing your body.              |  |
| Move away from signaller | Initiating a motion away from the banksman. | Wave away from your body using both arms with palms facing away from your body. |  |

## 3 Technical data

### 3.1 General

4878-005

#### 3.1.1 Conversion factors

##### Length

| Unit            |   | Factor  |   | Unit      |
|-----------------|---|---------|---|-----------|
| Millimeter (mm) | x | 0.03937 | = | Inch (in) |
| Millimeter (mm) | x | 0.00328 | = | Foot (ft) |
| Centimeter (cm) | x | 0.3937  | = | Inch (in) |
| Meter (m)       | x | 3.2808  | = | Foot (ft) |
| Kilometer (km)  | x | 0.6214  | = | Miles     |

##### Area

| Unit                           |   | Factor        |   | Unit                |
|--------------------------------|---|---------------|---|---------------------|
| Square meter (m <sup>2</sup> ) | x | 1550          | = | Square inch (sq in) |
| Square meter (m <sup>2</sup> ) | x | 10.764        | = | Square foot (sq ft) |
| Acre (a)                       | x | 155000.3      | = | Square inch (sq in) |
| Acre (a)                       | x | 1076.391<br>5 | = | Square foot (sq ft) |
| Hectare (ha)                   | x | 100           | = | Acre (a)            |
| Hectare (ha)                   | x | 3.9167        | = | Acre                |

##### Weight

| Unit          |   | Factor |   | Unit        |
|---------------|---|--------|---|-------------|
| Kilogram (kg) | x | 2.2046 | = | Pounds (lb) |

##### Tightening torque

| Unit                |   | Factor |   | Unit               |
|---------------------|---|--------|---|--------------------|
| Kilopondmeter (mkp) | x | 7.233  | = | Foot-pound (ft lb) |
| Newton-meter (Nm)   | x | 0.7376 | = | Foot-pound (ft lb) |

| Unit                |   | Factor |   | Unit              |
|---------------------|---|--------|---|-------------------|
| Kilopondmeter (mkp) | x | 9.81   | = | Newton-meter (Nm) |

### Pressure

| Unit                                                                                   |   | Factor    |   | Unit                        |
|----------------------------------------------------------------------------------------|---|-----------|---|-----------------------------|
| Kilopascal (kPa)                                                                       | x | 0.145     | = | Pound per square inch (psi) |
| Pound per square inch (psi)                                                            | x | 6.895     | = | Kilopascal (kPa)            |
| Bar (bar)                                                                              | x | 14.504    | = | Pound per square inch (psi) |
| Kilogram per square centimetre (kg/cm <sup>2</sup> )                                   | x | 0.980665* | = | Bar (bar)                   |
| Kilogram per square centimetre (kg/cm <sup>2</sup> )                                   | x | 14.223    | = | Pound per square inch (psi) |
| Kilogram per square centimetre (kg/cm <sup>2</sup> )                                   | x | 1         | = | Atmosphere (atm)            |
| *This factor was rounded up so that it corresponds to kg/cm <sup>2</sup> (at) and bar. |   |           |   |                             |

### Volume

| Unit                                |   | Factor  |   | Unit                          |
|-------------------------------------|---|---------|---|-------------------------------|
| Cubic centimeter (cm <sup>3</sup> ) | x | 0.06102 | = | Cubic inch (cu in)            |
| Cubic meters (m <sup>3</sup> )      | x | 35.3147 | = | Cubic feet (ft <sup>3</sup> ) |
| Liter (L)                           | x | 0.2201  | = | Imperial gallons (imp. gal.)  |
| Liter (L)                           | x | 0.8798  | = | Imperial quarts (imp. qt.)    |
| Liter (L)                           | x | 0.2642  | = | U.S. gallons (U.S. gal.)      |
| Liter (L)                           | x | 1.05668 | = | U.S. quarts (U.S. qt.)        |
| Liter (L)                           | x | 0.0275  | = | Imp. bushels                  |
| Liter (L)                           | x | 0.02838 | = | U.S. bushels                  |

### Speed

| Unit                       |   | Factor |   | Unit                 |
|----------------------------|---|--------|---|----------------------|
| Kilometres per hour (km/h) | x | 0.6215 | = | Miles per hour (mph) |

**Temperature**

| Unit                                                                                                                                                                                                                                                                                                                                                 |  | Factor |  | Unit |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------|--|------|
| To convert degrees Celsius into Fahrenheit, multiply the numerical value by 9, divide the result by 5 and add 32.<br>Example:<br>$+27\text{ }^{\circ}\text{C} = 27 \times 9 / 5 = 48.6 + 32 = 80.6\text{ }^{\circ}\text{F}$<br>$-24\text{ }^{\circ}\text{C} = -24 \times 9 / 5 = -43.2\text{ }^{\circ}\text{F} + 32 = -11.2\text{ }^{\circ}\text{F}$ |  |        |  |      |

Subject to errors.

### 3.1.2 Dimensions

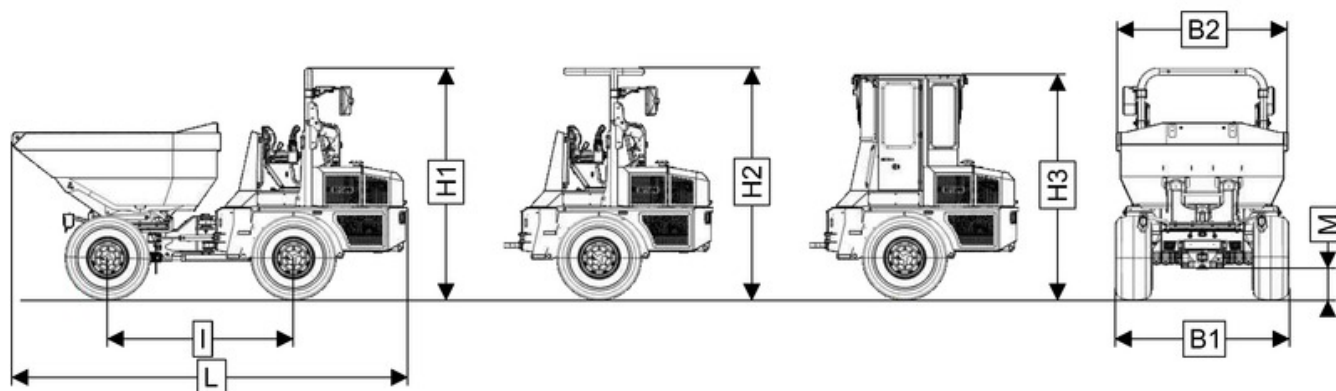
All heights are specified without taking any possible optional equipment such as rotating flashing beacon and/or work lights into account.

H1 = Open driver's platform

H2 = Open driver's platform with protective roof

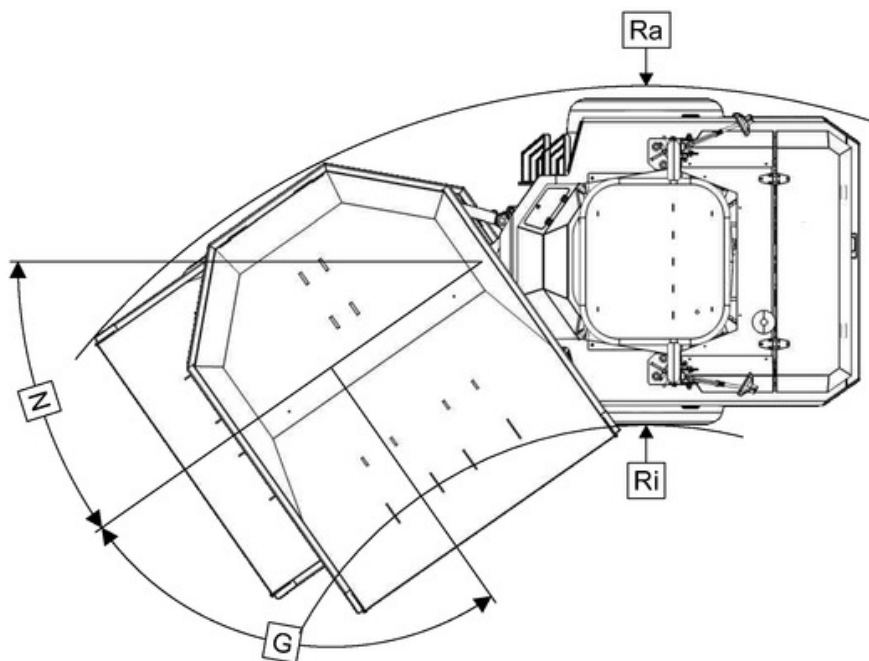
H3 = Closed driver's platform

All widths are specified without taking possible mirror overhang into account.



| Di-<br>men-<br>sion | Note                                     | Value | Unit |
|---------------------|------------------------------------------|-------|------|
| B1                  | ALLIANCE 500/60-22.5 FLOTATION 331 tyres | 2,425 | mm   |
| B2                  |                                          | 2,380 | mm   |
| H1 *                | ALLIANCE 500/60-22.5 FLOTATION 331 tyres | 3,135 | mm   |
| H2                  | ALLIANCE 500/60-22.5 FLOTATION 331 tyres | 3,170 | mm   |
| H3 *                | ALLIANCE 500/60-22.5 FLOTATION 331 tyres | 3,080 | mm   |
| I                   |                                          | 2,600 | mm   |
| L                   |                                          | 5,525 | mm   |
| m                   | ALLIANCE 500/60-22.5 FLOTATION 331 tyres | 365   | mm   |
| * Optional          |                                          |       |      |

### 3.1.3 Turning radius



| Di-<br>men-<br>sion | Note                                     | Value | Unit |
|---------------------|------------------------------------------|-------|------|
| G                   |                                          | 90    | °    |
| N                   |                                          | 35    | °    |
| Ri                  | ALLIANCE 500/60-22.5 FLOTATION 331 tyres | 2,890 | mm   |
| Ra                  |                                          | 5,455 | mm   |

### 3.1.4 Speeds

| Designation                  | Direction of travel | Bucket position | Value | Unit |
|------------------------------|---------------------|-----------------|-------|------|
| Travel speed<br>Working gear | Forwards            |                 | 0-7   | km/h |
|                              | Reverse             |                 |       |      |
| * <i>Optional</i>            |                     |                 |       |      |

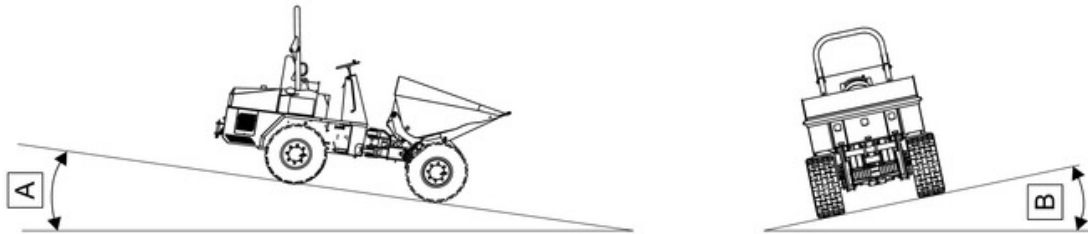
| Designation               | Direction of travel | Bucket position | Value  | Unit |
|---------------------------|---------------------|-----------------|--------|------|
| Travel speed<br>Fast gear | Forwards            | Lowered         | 0-25   | km/h |
|                           |                     |                 | 0-30 * |      |
|                           |                     | Raised          | 0-13   |      |
|                           | Reverse             | Lowered         | 0-15   |      |
|                           |                     | Raised          | 0-13   |      |
| * <i>Optional</i>         |                     |                 |        |      |

12093-001

### 3.1.5 Tractive force

| Designation            | Value | Unit |
|------------------------|-------|------|
| Maximum tractive force | 77    | kN   |

### 3.1.6 Permissible inclinations



| Item | Designation                                               | Value | Unit |
|------|-----------------------------------------------------------|-------|------|
| A    | Permissible incline<br>• Transport position *             | 22 ** | %    |
|      | Permissible incline<br>• Bucket turned<br>• Bucket raised | 15 ** | %    |
| B    | Permissible incline<br>• Transport position *             | 14 ** | %    |
|      | Permissible incline<br>• Bucket turned<br>• Bucket raised | 8 **  | %    |

\* Transport position = Bucket straight and tilted back.

\* The permissible inclinations were determined when driving the machine straight ahead on a dry, non-slip surface.



Discrepancies from these properties must be taken into account by the operator.

### 3.1.7 Loads and weights

| Designation                                                                                                                                                                                                                                                                                                                                                                                                         | Value    | Unit |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------|
| Operating weight                                                                                                                                                                                                                                                                                                                                                                                                    | 6,300 ** | kg   |
| Permissible gross weight                                                                                                                                                                                                                                                                                                                                                                                            | 15,800 * | kg   |
| Permissible payload for construction site operation                                                                                                                                                                                                                                                                                                                                                                 | 9,500    | kg   |
| Permissible front axle load                                                                                                                                                                                                                                                                                                                                                                                         | 6,000 *  | kg   |
| Permissible rear axle load                                                                                                                                                                                                                                                                                                                                                                                          | 10,000 * | kg   |
| <p>* The permissible loads were measured with the machine on a flat, horizontal and stable surface.</p> <p> Deviations to these conditions must be taken into account by the operator.</p> <p>** The values may deviate according to the machine equipment. Refer to the type plate for the exact value. <a href="#">▶ 104</a></p> |          |      |

### 3.1.8 Temperature

| Designation                                                                                                                                                                                                                                                                                                                                                                            | Value        | Unit |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|------|
| Permissible ambient temperature                                                                                                                                                                                                                                                                                                                                                        | -15 to +40 * | °C   |
| <p>* The permissible ambient and operating temperatures of optionally installed components may differ.</p> <p> Discrepancies from these properties must be taken into account by the operator.</p> <p>The corresponding values can be found in the technical data for the components installed.</p> |              |      |

## 3.2 Engine

8139-006

### 3.2.1 Engine DEUTZ TCD 3.6 L4

| Designation                                  | Value / remarks                                                                                                                                                                                                                                                                                                                           | Unit |
|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| Manufacturer                                 | DEUTZ                                                                                                                                                                                                                                                                                                                                     |      |
| Type                                         | TCD 3.6 L4                                                                                                                                                                                                                                                                                                                                |      |
| Output                                       | 90                                                                                                                                                                                                                                                                                                                                        | kW   |
| at engine speed                              | 2,200                                                                                                                                                                                                                                                                                                                                     | rpm  |
| Emissions standard                           | EU: Level V<br>USA: EPA Tier 4                                                                                                                                                                                                                                                                                                            |      |
| Permissible fuels                            | Diesel: <ul style="list-style-type: none"> <li>• EN 590 (B7) - Sulphur &lt;10 mg/kg</li> <li>• ASTM D 975 Grade 1-D S15</li> <li>• ASTM D 975 Grade 2-D S15 (sulphur &lt; 15 mg/kg)</li> </ul> Biodiesel fuels: <ul style="list-style-type: none"> <li>• EN 16734 (B10)</li> <li>• EN 16709 (B20 / B30)</li> <li>• ASTM D 7467</li> </ul> |      |
| Lubricant<br>PAUS part number                | 563502 * / ** / ***<br>877144 * / ** / ***                                                                                                                                                                                                                                                                                                |      |
| Lubricant filling volume                     | approx. 10                                                                                                                                                                                                                                                                                                                                | l    |
| Exhaust aftertreatment system                | <ul style="list-style-type: none"> <li>• Selective Catalytic Reduction (SCR)</li> <li>• Diesel oxidation catalytic converter (DOC)</li> <li>• Diesel particulate filter (DPF)</li> </ul>                                                                                                                                                  |      |
| Exhaust gas aftertreatment fluid             | AdBlue <ul style="list-style-type: none"> <li>• DIN 70070</li> <li>• ISO 22241-1</li> <li>• ATSTM D 7821</li> </ul>                                                                                                                                                                                                                       |      |
| Exhaust gas aftertreatment fluid tank volume | 10                                                                                                                                                                                                                                                                                                                                        | l    |

\* For comparable oils, see the lubricant comparison list. [\[► 82\]](#)

\*\* For the PAUS part numbers of the lubricants and liquids that are actually used, please refer to the spare parts list for this machine. [\[► 295\]](#)

\*\*\* May vary depending on the operating conditions. [\[► 88\]](#)

### 3.2.2 Fuel tank

| Designation    | Value | Unit |
|----------------|-------|------|
| Filling volume | 100   | l    |

### 3.2.3 Engine cooling system

| Designation                                                                                                                                                                                                                     | Properties                                  | Unit |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|------|
| Cooling type                                                                                                                                                                                                                    | Water cooling                               |      |
| Coolant                                                                                                                                                                                                                         | ARAL ANTIFREEZE EXTRA<br>Mixing ratio 50:50 |      |
| PAUS part number, coolant                                                                                                                                                                                                       | 536893 * / **                               |      |
| Filling volume                                                                                                                                                                                                                  | approx. 20                                  | l    |
| <p>* For the PAUS part numbers of the lubricants and liquids that are actually used, please refer to the spare parts list for this machine. <a href="#">▶ 295</a></p> <p>** May vary depending on the operating conditions.</p> |                                             |      |

### 3.3 DRIVE

11892-002

#### 3.3.1 Overview of axles

The following axles are possible for the machine type concerned.

| Front axle                                                                                                                  | Rear axle                         |
|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| 357/112/10056194 ** <a href="#">▶ 70</a>                                                                                    | 112/10056190 <a href="#">▶ 70</a> |
| 358/112/0339252 *** <a href="#">▶ 71</a>                                                                                    |                                   |
| <div>** Valid for machines up to chassis number 323P005</div> <div>*** Valid for machines from chassis number 323P006</div> |                                   |

4324-003

#### 3.3.2 DANA 357/112/10056194 axle

| Designation                                                                                                                                                                                                                                                                      | Designation / value  | Unit |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|------|
| Manufacturer                                                                                                                                                                                                                                                                     | DANA                 |      |
| Type                                                                                                                                                                                                                                                                             | 357/112/10056194     |      |
| Type                                                                                                                                                                                                                                                                             | Planetary drive axle |      |
| Lubricant                                                                                                                                                                                                                                                                        | 501248 */**/**       |      |
| Filling volume for each wheel hub gear                                                                                                                                                                                                                                           | approx. 0.8          | l    |
| Filling volume for differential                                                                                                                                                                                                                                                  | approx. 8.4          | l    |
| Filling volume for reduction gear                                                                                                                                                                                                                                                | approx. 1.8          | l    |
| * For comparable lubricants, see Comparison list <a href="#">▶ 82</a><br>** For the PAUS part number of the lubricant that is actually used, please refer to the spare parts list for this machine. <a href="#">▶ 295</a><br>*** May vary depending on the operating conditions. |                      |      |

11184-002

#### 3.3.3 DANA 358/112/10339252 axle

| Designation                                                                                                                                                                                                                                                                      | Designation / value  | Unit |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|------|
| Manufacturer                                                                                                                                                                                                                                                                     | DANA                 |      |
| Type                                                                                                                                                                                                                                                                             | 358/112/10339252     |      |
| Type                                                                                                                                                                                                                                                                             | Planetary drive axle |      |
| * For comparable lubricants, see Comparison list <a href="#">▶ 82</a><br>** For the PAUS part number of the lubricant that is actually used, please refer to the spare parts list for this machine. <a href="#">▶ 295</a><br>*** May vary depending on the operating conditions. |                      |      |

| Designation                                                                                                                                                                                                                                                                                     | Designation / value | Unit |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|------|
| Lubricant                                                                                                                                                                                                                                                                                       | 501248 */**/**      |      |
| Filling volume for each wheel hub gear                                                                                                                                                                                                                                                          | approx. 0.8         | l    |
| Filling volume for differential                                                                                                                                                                                                                                                                 | approx. 8.4         | l    |
| Filling volume for reduction gear                                                                                                                                                                                                                                                               | approx. 1.8         | l    |
| <p>* For comparable lubricants, see Comparison list <a href="#">▶ 82</a></p> <p>** For the PAUS part number of the lubricant that is actually used, please refer to the spare parts list for this machine. <a href="#">▶ 295</a></p> <p>*** May vary depending on the operating conditions.</p> |                     |      |

4323-003

### 3.3.4 DANA 112/10056190 axle

| Designation                                                                                                                                                                                                                                                                                     | Designation / value | Unit |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|------|
| Manufacturer                                                                                                                                                                                                                                                                                    | DANA                |      |
| Type                                                                                                                                                                                                                                                                                            | 112/10056190        |      |
| Type                                                                                                                                                                                                                                                                                            | Drive axle          |      |
| Lubricant                                                                                                                                                                                                                                                                                       | 501248 */**/**      |      |
| Filling volume for each wheel hub gear                                                                                                                                                                                                                                                          | approx. 0.8         | l    |
| Filling volume for differential                                                                                                                                                                                                                                                                 | approx. 7.8         | l    |
| <p>* For comparable lubricants, see Comparison list <a href="#">▶ 82</a></p> <p>** For the PAUS part number of the lubricant that is actually used, please refer to the spare parts list for this machine. <a href="#">▶ 295</a></p> <p>*** May vary depending on the operating conditions.</p> |                     |      |

11932-002

### 3.3.5 Overview of tyres

The following tyres are possible for the machine type concerned.

| Tyres                                                   |
|---------------------------------------------------------|
| ALLIANCE 500/60-22.5 FLOTATION 331 <a href="#">▶ 71</a> |

11570-002

### 3.3.6 ALLIANCE 500/60-22.5 FLOTATION 331 tyres

| Designation | Property / value  | Unit |
|-------------|-------------------|------|
| Type        | Single, pneumatic |      |

| Designation              | Property / value | Unit |
|--------------------------|------------------|------|
| Tyre manufacturer        | ALLIANCE         |      |
| Tyre size                | 500/60-22.5      |      |
| Tyre tread               | FLOTATION 331    |      |
| Rim manufacturer         | GIANETTI FAD     |      |
| Rim material             | Steel            |      |
| Rim size                 | 16.00x22.5 ET0   |      |
| Front axle tyre pressure | 3.0              | bar  |
| Rear axle tire pressure  | 4.1              | bar  |

## 3.4 Brake

656-002

### 3.4.1 Service brake

| Designation | Properties                                                                                                                                            |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type        | <ul style="list-style-type: none"><li>• Applied to all wheels.</li><li>• Integrated into the axle.</li><li>• Oil-immersed multi-disk brake.</li></ul> |

657-002

### 3.4.2 Parking brake

| Designation | Description                                                                                                                                                                                           |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type        | <ul style="list-style-type: none"><li>• Effect on the service brake.</li><li>• Effect on the rear axle wheels.</li><li>• Integrated into the axle.</li><li>• Oil-immersed multi-disk brake.</li></ul> |

658-002

### 3.4.3 Auxiliary brake

| Designation              | Description                                                       |
|--------------------------|-------------------------------------------------------------------|
| Hydrostatic travel drive | <ul style="list-style-type: none"><li>• Wear-free brake</li></ul> |

### 3.5 Frame / machine housing

5323-003

#### 3.5.1 Steering

| Designation            | Property / value     | Unit |
|------------------------|----------------------|------|
| Steering type          | Articulated steering |      |
| Maximum steering angle | 35                   | °    |

2199-004

#### 3.5.2 Pendulum suspension

| Designation            | Property / value     | Unit |
|------------------------|----------------------|------|
| Pendulum type          | Articulated pendulum |      |
| Maximum pendulum angle | 10                   | °    |

## 3.6 Driver's cab

2589-002

### 3.6.1 Driver's cab / operator's position

| Designation                 | Properties |
|-----------------------------|------------|
| Permitted number of persons | 1 Driver   |

### 3.7 Assembly/attachment component

11572-002

#### 3.7.1 Bucket volume

| Designation              | Value | Unit |
|--------------------------|-------|------|
| Volume of bucket, heaped | 5,500 | l    |
| Volume of bucket, level  | 4,500 | l    |

### 3.8 Electrical system

3803-004

#### 3.8.1 Electrics

| Designation       | Value | Unit |
|-------------------|-------|------|
| Battery voltage   | 12    | V    |
| Battery charge    | 110   | Ah   |
| Operating voltage | 12    | V    |

### 3.9 Hydraulics

515-004

#### 3.9.1 Hydraulic system

| Designation                                                                                                                                                                                                                                                  |                 | Lubricant<br>PAUS part number | Filling volume | Unit |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------------------|----------------|------|
| Hydraulic system                                                                                                                                                                                                                                             | Hydraulic fluid | 552722 * / **                 | 65             | l    |
|                                                                                                                                                                                                                                                              |                 | 505033 * / **                 |                |      |
|                                                                                                                                                                                                                                                              |                 | 505034 * / **                 |                |      |
| Braking system                                                                                                                                                                                                                                               | Brake fluid     | 552722 * / **                 | No details     |      |
| <p>* For comparable oils, see the lubricant comparison list. <a href="#">▶ 82</a></p> <p>** For the PAUS part numbers of the lubricants and liquids that are actually used, please refer to the spare parts list for this machine. <a href="#">▶ 295</a></p> |                 |                               |                |      |

1601-002

#### 3.9.2 Pressure accumulator

| Designation                                | Designation / value          | Unit |
|--------------------------------------------|------------------------------|------|
| Model                                      | DIAPHRAGM ACCUMULATOR        |      |
| Filling gas                                | Nitrogen                     |      |
| Filling gas class                          | Min. class 4.0               |      |
| Filling pressure                           | Specified on the accumulator |      |
| Tightening torque of the gas filling screw | 20                           | Nm   |

## 3.10 Options / accessories

12322-001

### 3.10.1 Overview of camera

The following cameras are possible for the machine type concerned.

| Camera                                                                                                             |
|--------------------------------------------------------------------------------------------------------------------|
| VISIO MOTIVE CLS-120 ** <a href="#">▶ 79</a>                                                                       |
| VISIO MOTIVE CLX-170 *** <a href="#">▶ 79</a>                                                                      |
| ** Valid for machines up to chassis number <u>  P  </u><br>*** Valid for machines from chassis number <u>  P  </u> |

11091-002

### 3.10.2 Camera

| Designation                     | Property / value     | Unit |
|---------------------------------|----------------------|------|
| Manufacturer                    | RT-SYSTEMTECHNIK     |      |
| Type                            | VISIO MOTIVE CLS-120 |      |
| Field of view                   | 120                  | °    |
| Permissible ambient temperature | -20 to +60           | °C   |

12321-001

### 3.10.3 Camera

| Designation                     | Property / value     | Unit |
|---------------------------------|----------------------|------|
| Manufacturer                    | RT-SYSTEMTECHNIK     |      |
| Type                            | VISIO MOTIVE CLX-170 |      |
| Field of view                   | 170                  | °    |
| Permissible ambient temperature | -30 to +70           | °C   |

11092-001

### 3.10.4 Camera monitor

| Designation   | Property / value     | Unit |
|---------------|----------------------|------|
| Manufacturer  | RT-SYSTEMTECHNIK     |      |
| Type          | VISIO MOTIVE CMX-703 |      |
| Screen size   | 7                    | "    |
| Camera inputs | 3                    |      |

| Designation                     | Property / value | Unit |
|---------------------------------|------------------|------|
| Permissible ambient temperature | -30 to +70       | °C   |

11888-002

**3.10.5 Radio (optional)**

Valid for Paus part number:  
859158

| Properties                                | Designation / value                                                                      | Unit |
|-------------------------------------------|------------------------------------------------------------------------------------------|------|
| Manufacturer                              | Pioneer Corporation<br>28-8, Honkomagome 2-chome,<br>Bunkyo-ku,<br>Tokyo 113-0021, Japan |      |
| Type                                      | MVH-330DAB                                                                               |      |
| Operating frequency<br>FM tuner           | 87.5 - 108                                                                               | MHz  |
| Operating frequency<br>AM tuner           | 531 - 1602                                                                               | kHz  |
| Operating frequency<br>DAB tuner          | 174,928 - 239,200                                                                        | MHz  |
| Operating frequency<br>Bluetooth          | 2400 - 2483,5                                                                            | MHz  |
| Transmission output, maximum<br>Bluetooth | +4                                                                                       | dBm  |

Limitations or requirements:  
- None

9388-003

**3.10.6 Telemetry unit (optional)**

| Designation    | Properties | Unit |
|----------------|------------|------|
| Manufacturer   | STW        |      |
| Type           | TCG4       |      |
| Supply voltage | 9-32       | V    |

| Designation                                 | Properties                                                                                                                                                                                                                                             | Unit |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| Interfaces                                  | <ul style="list-style-type: none"> <li>• SIM card slot</li> <li>• CAN 2.0 B</li> <li>• Serial 1</li> <li>• Ethernet</li> <li>• USB</li> <li>• 4G modem</li> <li>• GNSS</li> <li>• WiFi</li> <li>• Bluetooth</li> <li>• LPWAN</li> <li>• NFC</li> </ul> |      |
| Bluetooth                                   | <ul style="list-style-type: none"> <li>• Bluetooth 4.2</li> <li>• Power Class 1.5</li> </ul>                                                                                                                                                           |      |
| Compliant standards                         | CE mark <ul style="list-style-type: none"> <li>• 2011/65/EU</li> <li>• 2015/863/EU</li> <li>• 2014/53/EU</li> </ul> Electric <ul style="list-style-type: none"> <li>• ISO 11452-1/-2/-5</li> <li>• ISO 7637-2</li> </ul>                               |      |
| WiFi                                        | <ul style="list-style-type: none"> <li>• IEEE 802. 11 a/b/g/n - 2.4 (/ 5 GHz)</li> <li>• 64-, 128-, 256-bit WEP, WPA, WPA 2.0 TKIP, AES network key</li> </ul>                                                                                         |      |
| Frequency bands 4G modem Europe (EMEA)      | <ul style="list-style-type: none"> <li>• LTE Cat1 (B 1,3,5,7,8,20)</li> <li>• UMTS (B 1,5,8)</li> <li>• GSM (900,1800)</li> </ul>                                                                                                                      |      |
| Frequency bands 4G modem US (North America) | <ul style="list-style-type: none"> <li>• LTE Cat1 (B 2,4,12)</li> <li>• UMTS (B 2,4,5)</li> </ul>                                                                                                                                                      |      |
| Maximum temperature                         | -40 to +65                                                                                                                                                                                                                                             | °C   |

### 3.11 Operating materials

514-001

#### 3.11.1 Lubricants

| Service point      | Lubricant                 |
|--------------------|---------------------------|
| Lubrication points | Lithium-saponified grease |

2636-014

#### 3.11.2 Lubricant comparison list

##### NOTICE!

For the PAUS part numbers of the lubricants which are used, see the "Technical data" chapter.

From time to time, the product names are changed by the manufacturers. As machine manufacturer, we have no influence on this. This list does not necessarily include the most current version of the product names.

The following product names of the manufacturers are designations which are used within Germany. Outside Germany, other names and other oil compounds are possible. If you have questions, contact your oil supplier. Oils with the same viscosity do not necessarily have the same properties. The original manufacturer specification is always determinative.

Various oils do not mix with each other.

| PAUS part number | Manufacturer | Designation          | Viscosity at 40 °C |
|------------------|--------------|----------------------|--------------------|
| 501248           | ARAL         | HYP-LS 85W-90        | SAE 85W-90         |
|                  | SHELL        | Spirax S2 A LS 90    | SAE 90             |
|                  | MOBIL        | Mobilube LS 85/90    | SAE 85W-90         |
|                  | TOTAL        | Dynatrans DA 80W-90  | SAE 80W-90         |
|                  | BP           | Energear LS 90       | SAE 90             |
| 505016           | ARAL         | Hyp 85W90            | SAE 85W-90         |
|                  | SHELL        | Spirax MB 90         | SAE 90             |
|                  | MOBIL        | Mobilube HD-A 85W-90 | SAE 85W-90         |
|                  | TOTAL        | Traxium Axle7 85W-90 | SAE 85W-90         |
|                  | BP           | Energear Hypo 85W-90 | SAE 85W-90         |
| 505022           | SHELL        | Morlina S2 B46       | ISO VG 46          |
|                  | MOBIL        | DTE Oil Medium       | ISO VG 46          |
|                  | TOTAL        | Cirkan RO46          | ISO VG 46          |

| PAUS part number | Manufacturer | Designation          | Viscosity at 40 °C |
|------------------|--------------|----------------------|--------------------|
| 505025           | ARAL         | Degol BG 220         | ISO VG 220         |
|                  | SHELL        | Omala S2 GX 220      | ISO VG 220         |
|                  | MOBIL        | Mobilgear 600 XP 220 | ISO VG 220         |
|                  | TOTAL        | Carter EP 220        | ISO VG 220         |
|                  | BP           | Energol GR-XP 220    | ISO VG 220         |
| 505034           | ARAL         | Vitam GX 46          | ISO VG 46          |
|                  | SHELL        | Tellus S2 MX 46      | ISO VG 46          |
|                  | MOBIL        | DTE 25               | ISO VG 46          |
|                  | TOTAL        | Azolla ZS 46         | ISO VG 46          |
|                  | BP           | Energol HLP HM 46    | ISO VG 46          |
| 505036           | ARAL         | Vitam GX 46          | ISO VG 46          |
|                  | SHELL        | Tellus S2 MX 46      | ISO VG 46          |
|                  | MOBIL        | DTE 25               | ISO VG 46          |
|                  | TOTAL        | Azolla ZS 46         | ISO VG 46          |
|                  | BP           | Energol HLP HM 46    | ISO VG 46          |
| 505037           | ARAL         | Vitam GX 46          | ISO VG 46          |
|                  | BP           | Energol HLP HM 46    | ISO VG 46          |
|                  | MOBIL        | DTE 25               | ISO VG 46          |
|                  | SHELL        | Tellus S2 MX 46      | ISO VG 46          |
|                  | TOTAL        | Azolla ZS 46         | ISO VG 46          |
| 511774           | ARAL         | Motanol HE 68        | ISO VG 68          |
|                  | MOBIL        | Rarus 426            | ISO VG 68          |
|                  | SHELL        | Corena S2 R 68       | ISO VG 68          |
|                  | TOTAL        | Dacnis LD 68         | ISO VG 68          |
| 534790           | BP           | Energol GR XF 220    | ISO VG 220         |
|                  | SHELL        | Omala S4 GXV 220     | ISO VG 220         |
|                  | TOTAL        | Carter SG 220        | ISO VG 220         |

| PAUS part number | Manufacturer | Designation          | Viscosity at 40 °C |
|------------------|--------------|----------------------|--------------------|
| 535790           | ARAL         | Vitam GX 68          | ISO VG 68          |
|                  | MOBIL        | DTE 26               | ISO VG 68          |
|                  | SHELL        | Tellus S2 MX 68      | ISO VG 68          |
|                  | TOTAL        | Azolla ZS 68         | ISO VG 68          |
| 539879           | ARAL         | Motanol HE 68        | ISO VG 68          |
|                  | MOBIL        | Rarus 426            | ISO VG 68          |
|                  | SHELL        | Corena S2 R 68       | ISO VG 68          |
|                  | TOTAL        | Dacnis LD 68         | ISO VG 68          |
| 542507           | CASTROL      | Hyspin HVI 46        | ISO VG 46          |
|                  | MOBIL        | DTE 10 Excel 46      | ISO VG 46          |
|                  | SHELL        | Tellus S2 VX 46      | ISO VG 46          |
|                  | TOTAL        | Equivis ZS 46        | ISO VG 46          |
| 543947           | BP           | Energol GR XF 220    | ISO VG 220         |
|                  | SHELL        | Omala S4 GX 220      | ISO VG 220         |
|                  | TOTAL        | Carter SG 220        | ISO VG 220         |
| 552664           | ARAL         | Fluid HGS            | SAE 10W-30         |
|                  | MOBIL        | Mobilfluid 424       | SAE 10W-30         |
|                  | SHELL        | Spirax S4 TXM        | SAE 10W-30         |
|                  | TOTAL        | Dynatrans MPV        | SAE 10W-30         |
| 552665           | ARAL         | HYP 85W-90           | SAE 85W-90         |
|                  | BP           | Energear Hypo 85W-90 | SAE 85W-90         |
|                  | MOBIL        | Mobilube HD-A 85W-90 | SAE 85W-90         |
|                  | SHELL        | Spirax MB 90         | SAE 90             |
|                  | TOTAL        | Traxium Axle7 85W-90 | SAE 85W-90         |

| PAUS part number | Manufacturer | Designation              | Viscosity at 40 °C |
|------------------|--------------|--------------------------|--------------------|
| 552667           | ARAL         | Turboral SAE 15W-40      | SAE 15W-40         |
|                  | BP           | Vanellus Multi 15W-40    | SAE 15W-40         |
|                  | MOBIL        | Delvac Super 1400 15W-40 | SAE 15W-40         |
|                  | SHELL        | Rimula R4X 15W-40        | SAE 15W-40         |
|                  | TOTAL        | Rubia TIR 7400 15W-40    | SAE 15W-40         |
| 552722           | ARAL         | ATF SGF 84               | ISO VG 41          |
|                  | BP           | Autran GM.MP             | ISO VG 38          |
|                  | FUCHS        | TITAN ATF 10             | ISO VG 40          |
|                  | MOBIL        | ATF 200                  | ISO VG 40          |
|                  | SHELL        | Spirax S1 ATF Tasa       | ISO VG 40          |
|                  | TOTAL        | Fluide CC                | ISO VG 39          |
| 554855           | ARAL         | HYP 85W-140              | SAE 85W-140        |
|                  | SHELL        | Spirax S2A 85W-140       | SAE 85W-140        |
|                  | TOTAL        | Traxium Axle 7 85W-140   | SAE 85W-140        |
| 563502           | ARAL         | Mega Turboral LA 10W-40  | SAE 10W-40         |
|                  | BP           | Vanellus Max Eco 10W-40  | SAE 10W-40         |
|                  | MOBIL        | Delvac XHP ESP 10W-40    | SAE 10W-40         |
|                  | TOTAL        | Rubia 8900 10W-40        | SAE 10W-40         |
| 810886           | ARAL         | SNA-E 75W-90             | SAE 75W-90         |
|                  | SHELL        | Spirax S6 ADME 75W-90    | SAE 75W-90         |
|                  | TOTAL        | Trax. Dual 9 FE 75W-90   | SAE 75W-90         |
| 829166           | SHELL        | Rimula R4 L 15W-40       | SAE 15W-40         |
|                  | MOBIL        | Delvac MX ESP 15W-40     | SAE 15W-40         |
|                  | TOTAL        | Rubia Optima 1100 15W-40 | SAE 15W-40         |

| PAUS part number | Manufacturer | Designation             | Viscosity at 40 °C |
|------------------|--------------|-------------------------|--------------------|
| 835740           | ARAL         | Super Turboral 5W-30    | SAE 5W-30          |
|                  | SHELL        | Rimula R6 ME 5W-30      | SAE 5W-30          |
|                  | TOTAL        | Rubia 9200 FE 5W-30     | SAE 5W-30          |
| 843461           | SHELL        | Tellus S4 VX 32         | ISO VG 32          |
|                  | TOTAL        | Equivis XLT 32          | ISO VG 32          |
| 844375           | SHELL        | Tellus S2 VX 32         | ISO VG 32          |
|                  | TOTAL        | Equivis ZS 32           | ISO VG 32          |
| 844376           | ARAL         | HYP 85W-90              | SAE 85W-90         |
|                  | BP           | Energear Hypo 85W-90    | SAE 85W-90         |
|                  | MOBIL        | Mobilube HD-A 85W-90    | SAE 85W-90         |
|                  | SHELL        | Spirax MB 90            | SAE 90             |
|                  | TOTAL        | Traxium Axle7 85W-90    | SAE 85W-90         |
| 844377           | ARAL         | Mega Turboral LA 10W-40 | SAE 10W-40         |
|                  | BP           | Vanellus Max Eco 10W-40 | SAE 10W-40         |
|                  | MOBIL        | Delvac XHP ESP 10W-40   | SAE 10W-40         |
|                  | SHELL        | Rimula R5 LM 10W-40     | SAE 10W-40         |
|                  | TOTAL        | Rubia 8900 10W-40       | SAE 10W-40         |
| 868401           | MOBIL        | Rarus SHC 1026          | ISO VG 68          |
|                  | SHELL        | Corena S4 R68           | ISO VG 68          |
| 877144           | ARAL         | Mega Turboral LA 10W-40 | SAE 10W-40         |
|                  | BP           | Vanellus Max Eco 10W-40 | SAE 10W-40         |
|                  | MOBIL        | Delvac XHP ESP 10W-40   | SAE 10W-40         |
|                  | SHELL        | Rimula R5 LM 10W-40     | SAE 10W-40         |
|                  | TOTAL        | Rubia 8900 10W-40       | SAE 10W-40         |

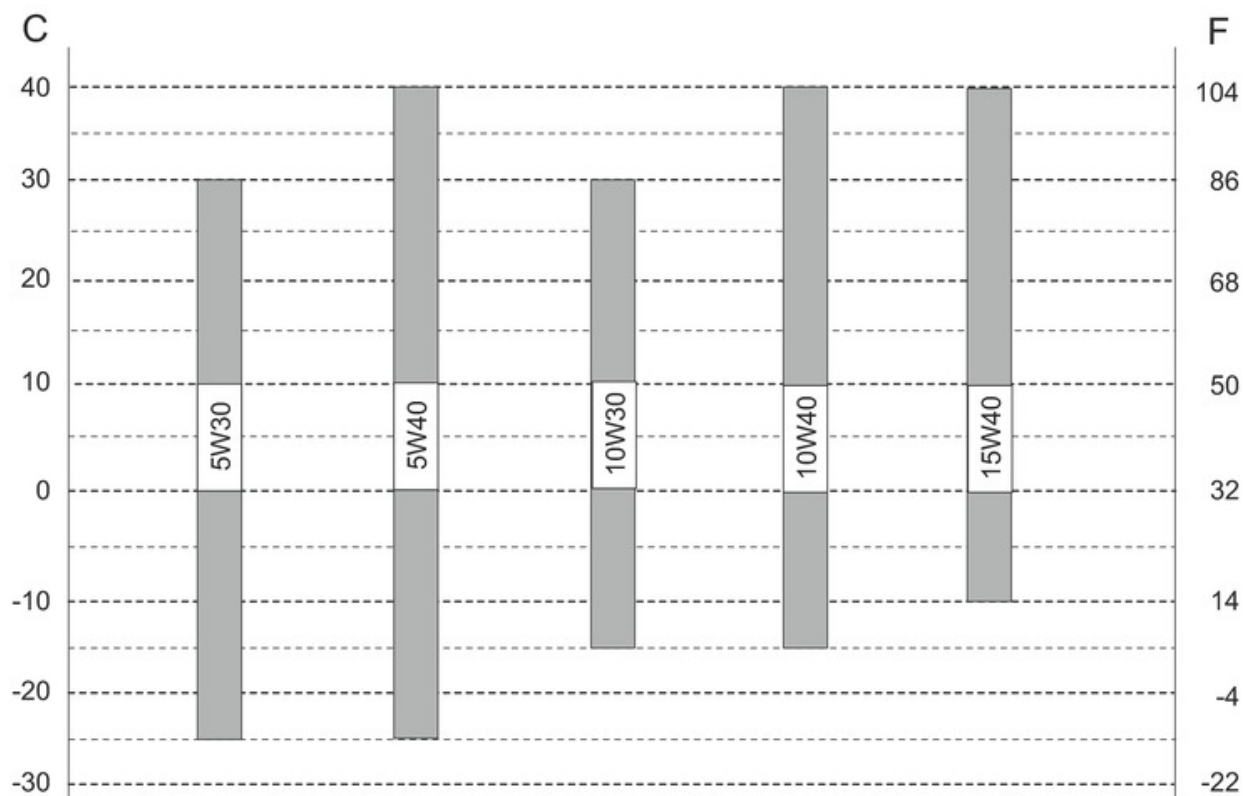
| PAUS part number | Manufacturer | Designation                   | Viscosity at 40 °C |
|------------------|--------------|-------------------------------|--------------------|
| 877145           | SHELL        | SPIRAX S4 CX30                | SAE 30             |
|                  | TOTAL        | Dynatrans ACX 30              | SAE 30             |
| 877974           | TOTAL        | Rubia Works 4000 FE<br>10W-30 | SAE 10W-30         |

### 3.11.3 Recommended viscosities for engine oils

#### NOTICE!

Operating the engine in case of discrepancies from the specified temperature ranges.  
Damage to the engine.

- In case of discrepancies to the permissible temperature ranges, first consult PAUS.



| Abbreviation | Designation                                 |
|--------------|---------------------------------------------|
| C            | Ambient temperature in degrees celsius (°C) |
| F            | Ambient temperature in degrees fahrenheit   |

## 3.12 Noise and vibrations

12110-001

### 3.12.1 Sound power level

| Evaluation method                       | Value | Unit  |
|-----------------------------------------|-------|-------|
| A-weighted measured sound power level   | 103   | dB(A) |
| A-weighted guaranteed sound power level | 103   | dB(A) |

#### Measuring procedures and conditions

The values have been determined in accordance with EN ISO 3744 and the measuring conditions have been determined in accordance with 2000/14/EC, Annex III, Part B.

The specified values have been measured on the original machine or on a comparable machine. They are valid under the measurement conditions stated.

#### Information regarding measurement uncertainty

Uncertainties result primarily from measurement constraints due to factors such as driving speeds, different operating styles of different operators, variation in reproducibility of the operation of a machine, repeatability of work tasks, different loading statuses and tyre pressures. On the other hand, measurement uncertainties resulting from the calibration of the measuring equipment or from the measurement itself can be reduced by careful preparation, execution and evaluation of the measurements so that they are no longer of significance and thus without any practical relevance.

#### Remarks

It is primarily the operating company and the operator of the machine himself/herself who determine the current airborne sound emissions because they determine the parameters that have a significant effect, such as exposure times and road conditions or they choose the speed, working method and route.

511-001

### 3.12.2 Oscillation values

| Oscillating range                        | Measured variable                                                                   | Value      | Unit             |
|------------------------------------------|-------------------------------------------------------------------------------------|------------|------------------|
| Upper body part<br>(Hand-arm vibrations) | Total frequency-weighted oscillation value                                          | $\leq 2.5$ | m/s <sup>2</sup> |
| Body<br>(fully body vibrations)          | Maximum effective value of the weighted acceleration to which the body is subjected | 0,66       | m/s <sup>2</sup> |

#### Measuring procedure

The measurement was taken with acceleration sensors in the driver's seat. The measurement and evaluation were carried out in accordance with DIN EN 14253, DIN EN ISO 5349-1, DIN EN ISO 5349-2 and VDI 2057. The specified values have been measured on the original machine or on a comparable machine. They are valid under the measurement conditions stated.

#### Operating conditions

The measurement was taken under the following operating conditions over equal periods of time:

- Driving mode on smooth roadways at 6 km/h, skip filled with dirt,
- Driving mode off-road at 6 km/h, skip filled with dirt,
- Driving mode on smooth roadways at 20 km/h, skip empty
- Off-road loading

#### **Information regarding measurement uncertainty**

Uncertainties are primarily the result of the boundary conditions of the measurement due to factors such as driving speeds, temperature-dependent air pressure in the tyres, different operating styles of different operators, fluctuation in the reproducibility of the operation of a machine, repeatability of the work tasks, different load statuses, different tyre pressures, application time (how long the machine is operated), road conditions and ability of the operator to reproduce typical procedures during the measurements. On the other hand, measurement uncertainties resulting from the calibration of the measuring equipment or from the measurement itself can be reduced by careful preparation, execution and evaluation of the measurements so that they are no longer of significance and thus without any practical relevance.

#### **Remarks**

The operating company and the operator of the machine himself determine primarily the vibration loads as they determine the influence parameters such as exposure time and road conditions and choose the speed, working styles and paths. Therefore implementation of Directive 2002/44/EC remains the responsibility of the machine operator, regardless of the values listed in these operating instructions.

### 3.13 Tightening torques

198-003

#### 3.13.1 Tightening torques for screws

| Dimensions | Strength 8.8 | Strength 10.9 | Strength 12.9 |
|------------|--------------|---------------|---------------|
| M 6        | 10 Nm        | 15 Nm         | 18 Nm         |
| M 8        | 25 Nm        | 36 Nm         | 43 Nm         |
| M 10       | 49 Nm        | 72 Nm         | 84 Nm         |
| M 12       | 85 Nm        | 125 Nm        | 145 Nm        |
| M 14       | 135 Nm       | 200 Nm        | 235 Nm        |
| M 16       | 210 Nm       | 310 Nm        | 365 Nm        |
| M 18       | 300 Nm       | 430 Nm        | 500 Nm        |
| M 20       | 425 Nm       | 610 Nm        | 710 Nm        |
| M 22       | 580 Nm       | 820 Nm        | 960 Nm        |
| M 24       | 730 Nm       | 1050 Nm       | 1220 Nm       |
| M 27       | 1100 Nm      | 1550 Nm       | 1800 Nm       |
| M 30       | 1450 Nm      | 2100 Nm       | 2450 Nm       |

197-002

#### 3.13.2 Tightening torques for screws on input flanges

| Dimensions | Tightening torque |
|------------|-------------------|
| M10        | 70 Nm             |
| M12        | 120 Nm            |
| M14        | 190 Nm            |
| M16        | 300 Nm            |

668-002

#### 3.13.3 Tightening torques for screws with coating

| Dimensions | Strength 8.8<br>Galvanized | Strength 10.9<br>Zinc flake coating | Strength 12.9<br>Zinc flake coating |
|------------|----------------------------|-------------------------------------|-------------------------------------|
| M 8        | 25 Nm                      | 28 Nm                               | 33 Nm                               |
| M 10       | 50 Nm                      | 56 Nm                               | 65 Nm                               |
| M 12       | 85 Nm                      | 94 Nm                               | 110 Nm                              |

| Dimensions | Strength 8.8<br>Galvanized | Strength 10.9<br>Zinc flake coating | Strength 12.9<br>Zinc flake coating |
|------------|----------------------------|-------------------------------------|-------------------------------------|
| M 14       | 135 Nm                     | 150 Nm                              | 175 Nm                              |
| M 16       | 215 Nm                     | 230 Nm                              | 270 Nm                              |
| M 18       | 300 Nm                     | 320 Nm                              | 380 Nm                              |
| M 20       | 430 Nm                     | 460 Nm                              | 540 Nm                              |
| M 22       | 570 Nm                     | 610 Nm                              | 710 Nm                              |
| M 24       | 740 Nm                     | 790 Nm                              | 920 Nm                              |
| M 27       | 1090 Nm                    | 1150 Nm                             | 1350 Nm                             |
| M 30       | 1500 Nm                    | 1550 Nm                             | 1850 Nm                             |

669-003

### 3.13.4 Tightening torques, screws with fine thread

| Dimensions | Strength 8.8 | Strength 10.9 | Strength 12.9 |
|------------|--------------|---------------|---------------|
| M8x1       | 27 Nm        | 39 Nm         | 46 Nm         |
| M10x1.25   | 52 Nm        | 76 Nm         | 90 Nm         |
| M12x1.25   | 93 Nm        | 135 Nm        | 160 Nm        |
| M12x1.5    | 89 Nm        | 130 Nm        | 155 Nm        |
| M14x1.5    | 145 Nm       | 215 Nm        | 255 Nm        |
| M16x1.5    | 225 Nm       | 330 Nm        | 390 Nm        |
| M18x1.5    | 340 Nm       | 485 Nm        | 570 Nm        |
| M20x1.5    | 475 Nm       | 680 Nm        | 790 Nm        |
| M22x1.5    | 630 Nm       | 900 Nm        | 1050 Nm       |
| M24x2      | 800 Nm       | 1150 Nm       | 1350 Nm       |
| M27x2      | 1150 Nm      | 1650 Nm       | 1950 Nm       |
| M30x2      | 1650 Nm      | 2350 Nm       | 2750 Nm       |

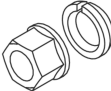
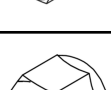
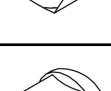
196-008

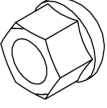
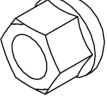
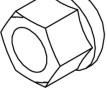
### 3.13.5 Tightening torques for wheel nuts

The specified tightening torques are guideline figures based on the following operating conditions:

- Fastening elements with a strength class of 10.9 and grease-free thread.
- Rim to be mounted made of rim material S355J2+N as per DIN EN 10025.

 Different tightening torques are to be used for other operating conditions.

| Symbol                                                                              | Designation                                                                            | Dimensions | Tightening torque |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|------------|-------------------|
|    | Wheel nut with spherical lock washer<br>Blackened phosphorous                          | M18x1.5    | 360 Nm            |
|    | Wheel nut with spherical lock washer<br>Galvanised                                     | M18x1.5    | 340 Nm            |
|    | Wheel nut with spherical lock washer<br>Blackened phosphorous                          | M20x1.5    | 450 Nm            |
|    | Wheel nut with spherical lock washer<br>Blackened phosphorous                          | M22x1.5    | 550 Nm            |
|   | Wheel nut with spherical lock washer<br>Galvanised                                     | M22x1.5    | 450 Nm            |
|  | Wheel nuts with pressure plate<br>(Rims with centring device)<br>Blackened phosphorous | M18x1.5    | 360 Nm            |
|  | Wheel nuts with pressure plate<br>(Rims with centring device)<br>Blackened phosphorous | M20x1.5    | 500 Nm            |
|  | Wheel nuts with pressure plate<br>(Rims with centring device)<br>Blackened phosphorous | M22x1.5    | 650 Nm            |
|  | Wheel nuts with clamping piece<br>(Beadlock mounting)<br>Galvanised                    | M18x2      | 350 Nm            |
|  | Ball collar nut<br>Galvanised                                                          | 3/4" 16UNF | 390 Nm            |

| Symbol                                                                            | Designation                   | Dimensions | Tightening torque |
|-----------------------------------------------------------------------------------|-------------------------------|------------|-------------------|
|  | Ball collar nut<br>Black      | M18x1.5    | 460 Nm            |
|  | Ball collar nut<br>Galvanised | M20x1.5    | 450 Nm            |
|  | Ball collar nut<br>Black      | M20x1.5    | 630 Nm            |
|  | Ball collar nut<br>Black      | M22x1.5    | 740 Nm            |

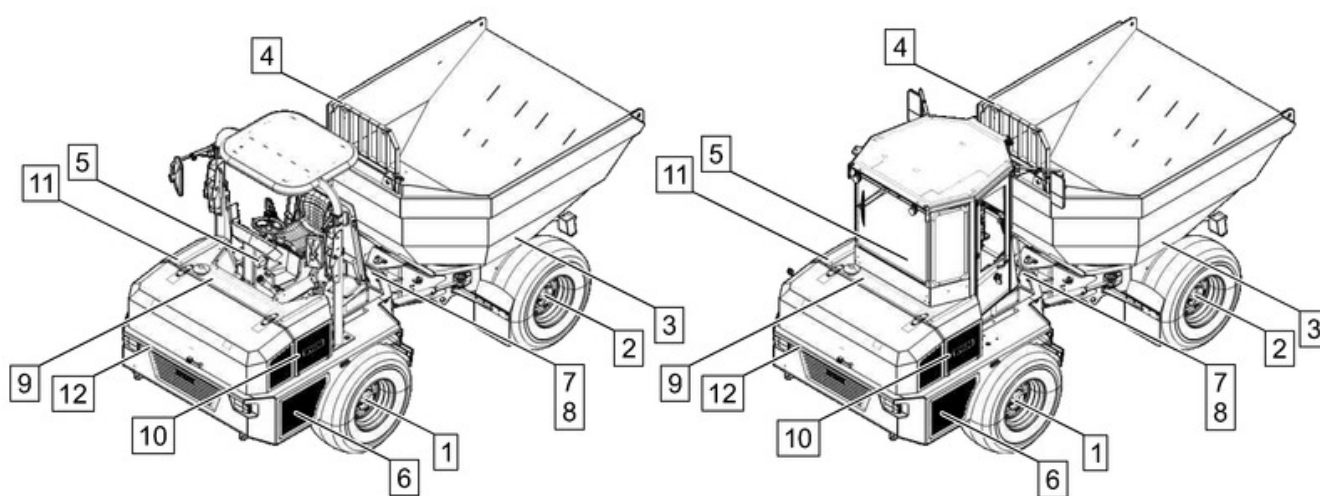
## 4 Description

### 4.1 Body

#### 4.1.1 General

11576-002

##### 4.1.1.1 Machine, front left



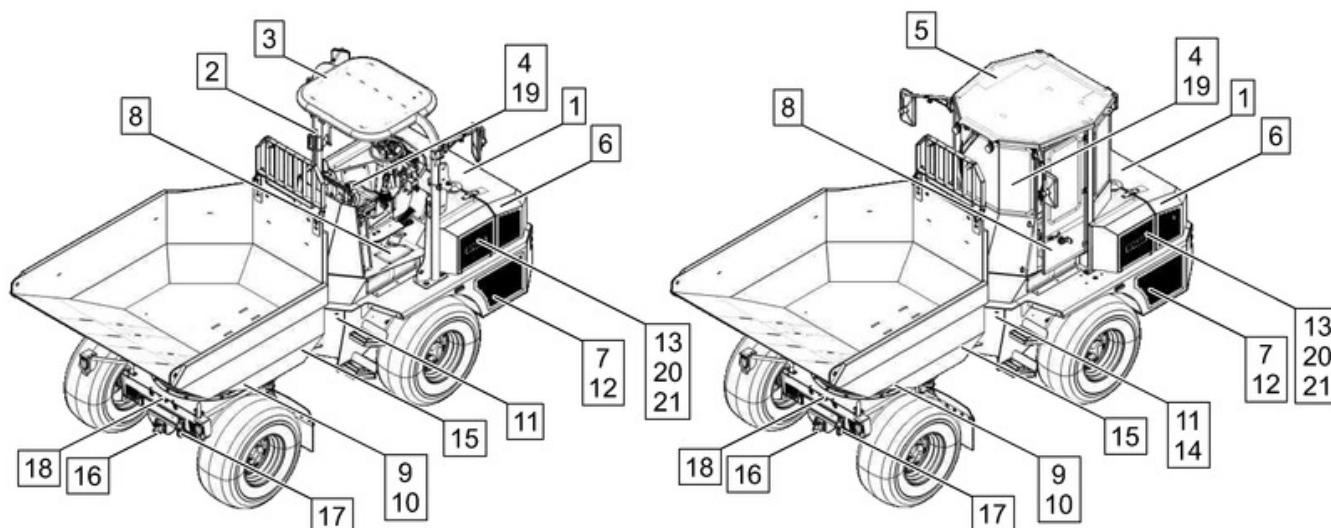
| Item       | Designation                |
|------------|----------------------------|
| 1          | Front axle                 |
| 2          | Rear axle                  |
| 3          | Bucket                     |
| 4          | Bucket protective grille * |
| 5          | Brake fluid reservoir      |
| 6          | Maintenance lid            |
| 7          | Fuel tank                  |
| * Optional |                            |

## 4 Description

### 4.1 Body

| Item              | Designation                                    |
|-------------------|------------------------------------------------|
| 8                 | AdBlue tank                                    |
| 9                 | Inspection glass for hydraulic fluid reservoir |
| 10                | Radiator                                       |
| 11                | Battery master switch                          |
| 12                | Fuel stopcock                                  |
| * <i>Optional</i> |                                                |

4.1.1.2 Machine, rear right



| Item       | Designation            |
|------------|------------------------|
| 1          | Engine                 |
| 2          | Rollover bar *         |
| 3          | Protective roof *      |
| 4          | Driver's platform      |
| 5          | Driver's cab *         |
| 6          | Coolant reservoir      |
| 7          | Maintenance lid        |
| 8          | Hydraulic fluid tank   |
| 9          | Articulated joint lock |
| 10         | Bucket lock            |
| * Optional |                        |

## 4 Description

### 4.1 Body

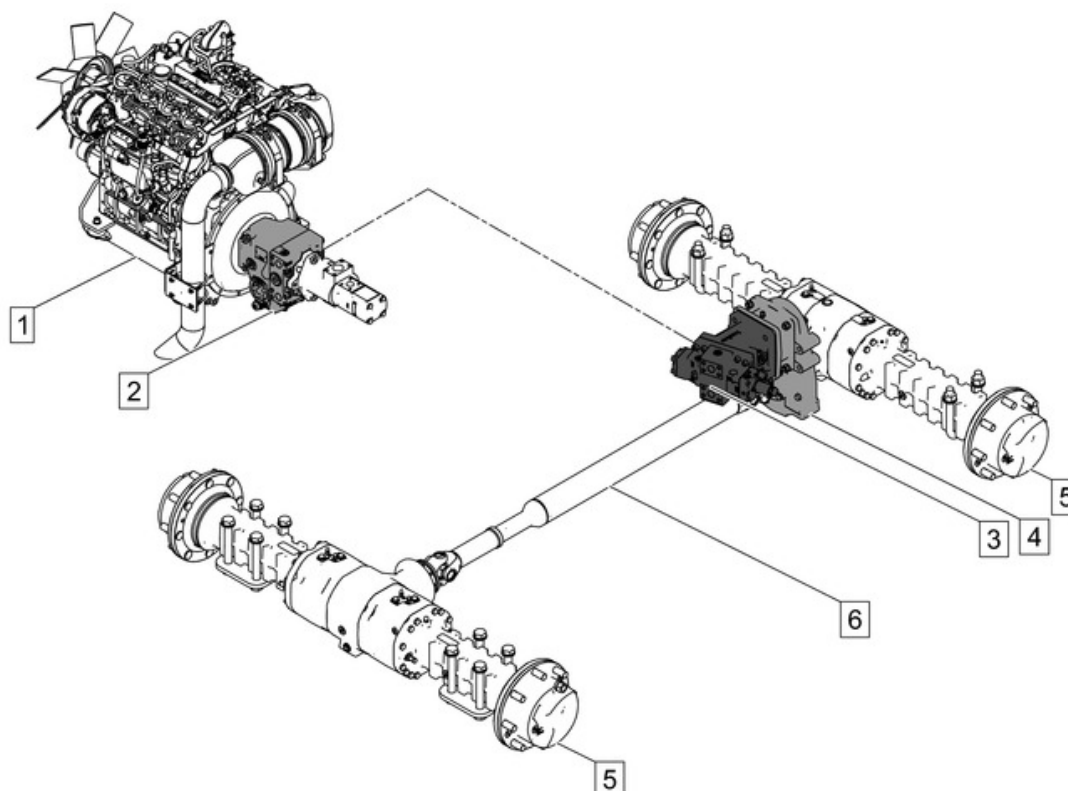
| Item              | Designation                      |
|-------------------|----------------------------------|
| 11                | Type plate                       |
| 12                | Battery                          |
| 13                | Fuse box                         |
| 14                | Chock                            |
| 15                | Universal shaft                  |
| 16                | Manoeuvring coupling             |
| 17                | Trailer power connector *        |
| 18                | Camera                           |
| 19                | Documents box                    |
| 20                | Telemetry unit PAUS CONNECT *    |
| 21                | Engine override control elements |
| * <i>Optional</i> |                                  |

## 4.2 Function

### 4.2.1 DRIVE

525-003

#### 4.2.1.1 Travel drive operating principle



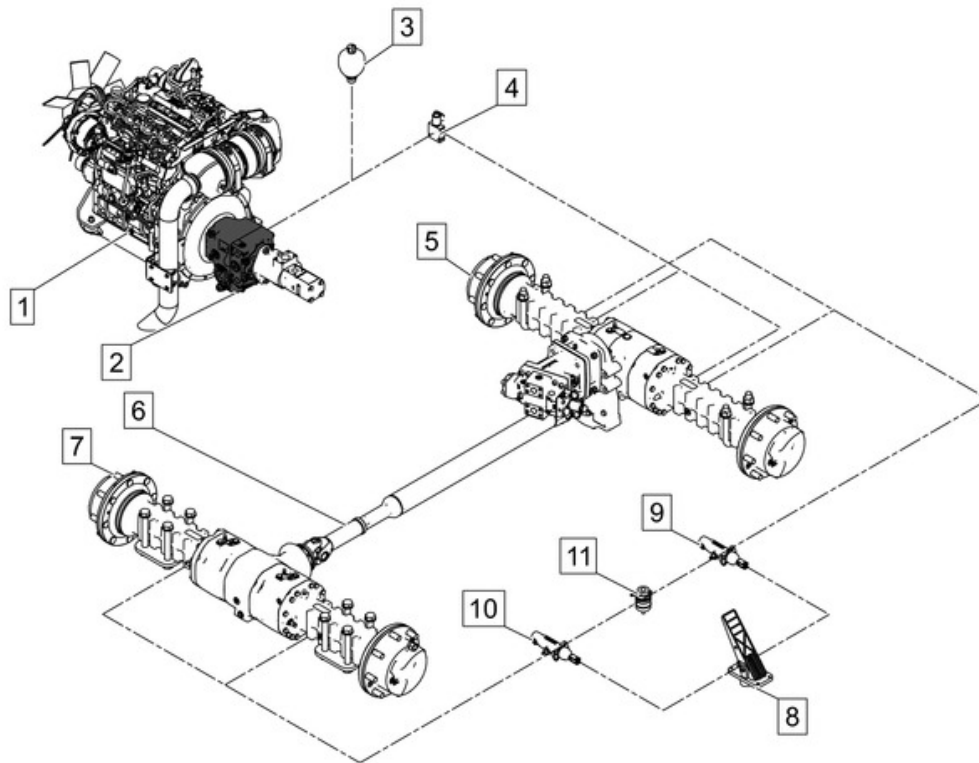
*The figure shows a schematic diagram.*

| Item | Description          | Function                                                              |
|------|----------------------|-----------------------------------------------------------------------|
| 1    | Diesel engine        | Mechanically drives the adjustment pump (2).                          |
| 2    | Variable pump        | Hydraulically drives the adjustment motor (3).                        |
| 3    | Servomotor           | Mechanically drives the axle drive (4).                               |
| 4    | Axle drive           | Mechanically drives the front/rear axles (5) and propeller shaft (6). |
| 5    | Front axle/rear axle | Mechanically drives the wheels.                                       |
| 6    | Universal shaft      | Mechanically drives the axles (5).                                    |

### 4.2.2 Brake

11600-001

#### 4.2.2.1 Brake system operating principle



*The figure shows a schematic diagram.*

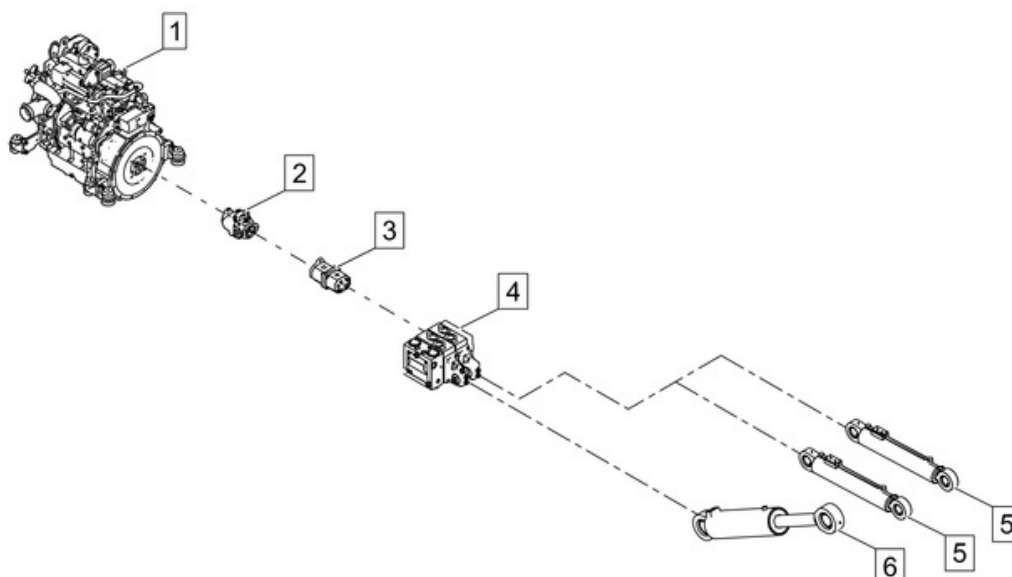
| Item | Description                         | Function                                                                                   |
|------|-------------------------------------|--------------------------------------------------------------------------------------------|
| 1    | Diesel engine                       | Mechanically drives the adjustment pump (2).                                               |
| 2    | Variable pump                       | Generates the hydraulic pressure needed to release the parking brake on the rear axle (5). |
| 3    | Service brake diaphragm accumulator | Stores the reservoir pressure needed to release the parking brake on the rear axle (5).    |
| 4    | Brake valve                         | Actuates the parking brake on rear axle (5).                                               |
| 5    | Rear axle                           | Includes the parking brake and the service brake.                                          |
| 6    | Universal shaft                     | Mechanically transmits the brake force between the rear axle (5) and the front axle (7).   |
| 7    | Front axle                          | Includes the service brake.                                                                |
| 8    | Service brake pedal                 | Actuates the brake cylinder (9) and (10).                                                  |

| Item | Description                   | Function                                                                                                              |
|------|-------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| 9    | Service brake cylinder        | Actuates the service brake on the rear axle (5).                                                                      |
| 10   | Brake cylinder, service brake | Actuates the service brake on the front axle (7).                                                                     |
| 11   | Brake fluid expansion tank    | Contains the brake fluid for the service brake.<br>Displays the current brake fluid fill level for the service brake. |

### 4.2.3 Assembly/attachment component

8772-002

#### 4.2.3.1 Bucket operating principle



The figure shows a schematic diagram.

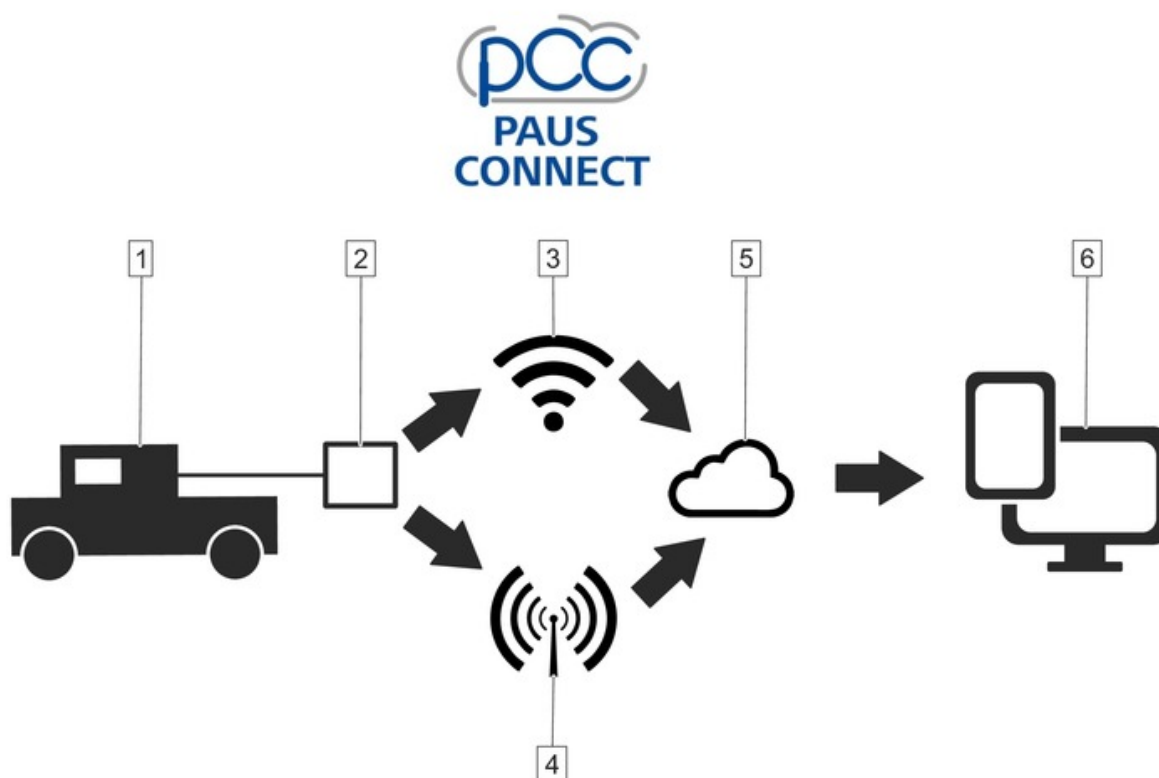
| Item | Description   | Function                                                           |
|------|---------------|--------------------------------------------------------------------|
| 1    | Diesel engine | Drives the variable pump (2) mechanically.                         |
| 2    | Variable pump | Mechanically drives the gear pump (3).                             |
| 3    | Gear pump     | Supplies hydraulic fluid to the valve block (4).                   |
| 4    | Valve block   | Distributes the hydraulic pressure on the corresponding cylinders. |

| Item | Description     | Function                     |
|------|-----------------|------------------------------|
| 5    | Swivel cylinder | Swings the bucket.           |
| 6    | Curl cylinder   | Moves the bucket in and out. |

#### 4.2.4 Options / accessories

10477-004

##### 4.2.4.1 PAUS CONNECT function (optional)



The figure shows a schematic diagram.

| Item | Description                  | Function                                                                    |
|------|------------------------------|-----------------------------------------------------------------------------|
| 1    | Machine with control modules | The control modules send predefined machine data to the telemetry unit.     |
| 2    | Telemetry unit               | Collects and transmits machine data by WiFi or mobile phone connection.     |
| 3    | WiFi connection              | Transmits the data over the internet to the PAUS CONNECT CLOUD.             |
| 4    | Mobile phone connection      | Transmits the data over the mobile phone network to the PAUS CONNECT CLOUD. |

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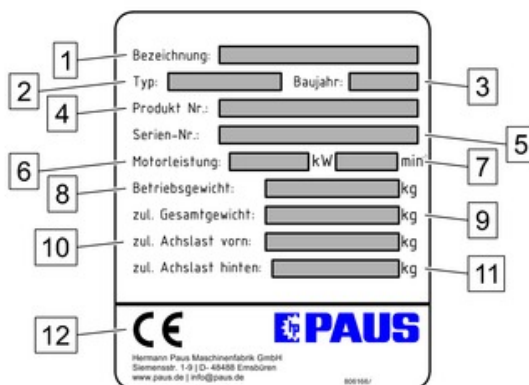
| Item | Description        | Function                                                                                  |
|------|--------------------|-------------------------------------------------------------------------------------------|
| 5    | PAUS CONNECT CLOUD | Saves the data for retrieval on end devices.                                              |
| 6    | End device         | Retrieves the data from the PAUS CONNECT CLOUD and visualizes it in the internet browser. |

## 4.3 Type plates and identification numbers

### 4.3.1 General

4931-002

#### 4.3.1.1 Machine type plate

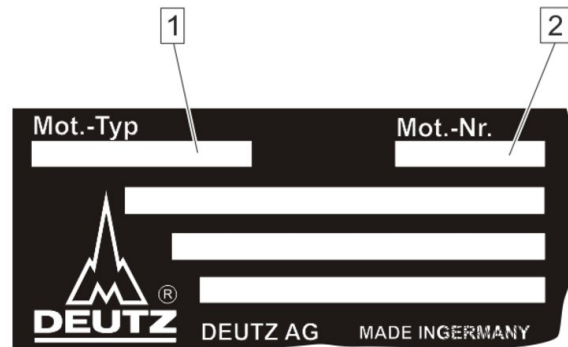


| Item       | Designation                 |
|------------|-----------------------------|
| 1          | Designation                 |
| 2          | Type                        |
| 3          | Year of production          |
| 4          | Product number              |
| 5          | Serial number               |
| 6          | Engine output in kW         |
| 7          | Engine output at rpm        |
| 8          | Operating weight            |
| 9          | Permissible gross weight    |
| 10         | Permissible front axle load |
| 11         | Permissible rear axle load  |
| 12         | CE label *                  |
| * Optional |                             |

### 4.3.2 Engine

527-003

#### 4.3.2.1 Engine type plate



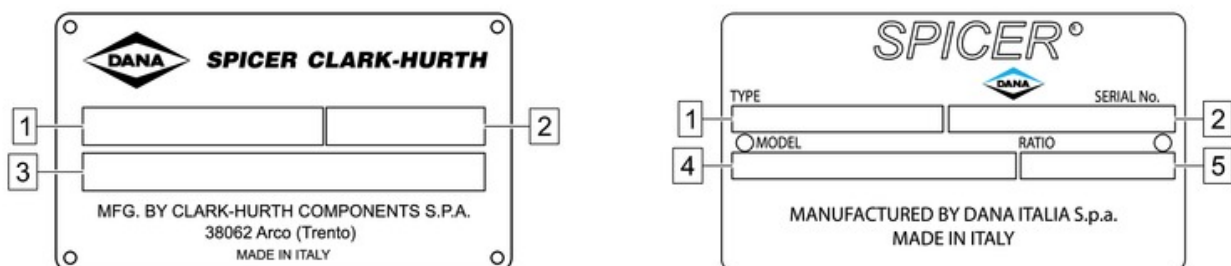
*Figure may differ from the original.*

| Item | Designation   |
|------|---------------|
| 1    | Type          |
| 2    | Serial number |

### 4.3.3 DRIVE

1142-004

#### 4.3.3.1 Axle/transmission type plate (DANA)



*The design of the type plate depends on the axle/transmission installed.*

| Item                                              | Designation   |
|---------------------------------------------------|---------------|
| 1                                                 | Type          |
| 2                                                 | Serial number |
| * Specification depends on the type plate fitted. |               |

## 4 Description

### 4.3 Type plates and identification numbers

| Item                                              | Designation       |
|---------------------------------------------------|-------------------|
| 3                                                 | Lubricating oil * |
| 4                                                 | Model *           |
| 5                                                 | Reduction ratio * |
| * Specification depends on the type plate fitted. |                   |

#### 4.3.4 Driver's cab

4184-001

##### 4.3.4.1 Driver protection type plate

Prüfnummer : ROPS:  1  
 FOPS:  2  
 Fahrzeugtyp:  3  
 Baujahr:  4  
 Maschinengewicht  
 nach EN ISO 3471  5  
 Anforderungsstufe  nach EN ISO 3449 6

**EPAUS**  
 Hermann Paus Maschinenbau GmbH  
 Bornumweg 1-3 | D-42699 Soltau (SH)  
 www.epaus.de | info@epaus.de  
 000100

| Pos. | Designation                                             |
|------|---------------------------------------------------------|
| 1    | Test number for rollover protection system (ROPS)       |
| 2    | Test number for falling object protection system (FOPS) |
| 3    | Vehicle type                                            |
| 4    | Year of production                                      |
| 5    | Maximum machine measurements                            |
| 6    | Performance level                                       |

## 4.4 Protective devices

### 4.4.1 General

165-005

#### 4.4.1.1 General information about safety devices

The machine/attachment is equipped with protective devices to prevent risks to the health and safety of the operator or third parties if the machine/attachment is used as intended.

Removing, modifying or circumventing (bypassing) safety devices without authorisation is a criminal act. All liability claims will be void if damage occurs.

Damaged or worn safety devices must be replaced by a qualified specialist before operation.

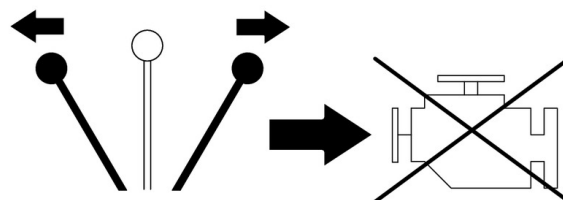
The following describes some of the most important protective devices with which the machine / attachments can be equipped.

### 4.4.2 Engine

2210-002

#### 4.4.2.1 Starter inhibitor

Having a gear engaged prevents the machine from being started.

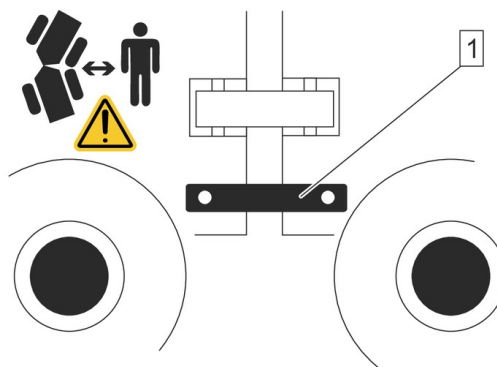


### 4.4.3 Frame / machine housing

464-002

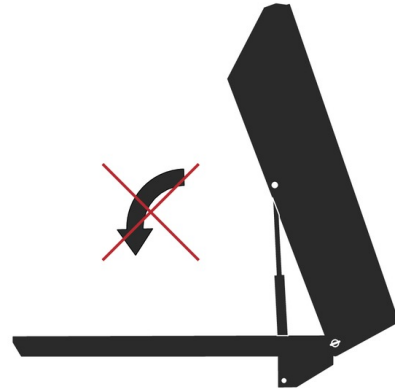
#### 4.4.3.1 Articulated joint lock

The articulated joint lock prevents persons in the area of the articulated joint from being crushed by steering movements of the machine.



#### 4.4.3.2 Bucket lock

The built-in bucket lock prevent the bucket from dropping during servicing or maintenance work.



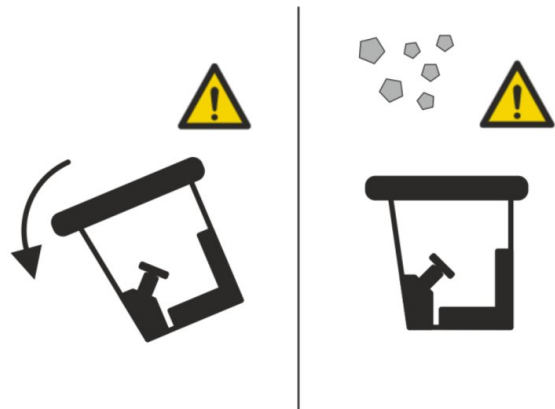
#### 4.4.4 Driver's cab

5278-001

##### 4.4.4.1 ROPS/FOPS protective structure

The machine is equipped with a driver's platform with protective structure.

Depending on the equipment version, the driver's platform satisfies the ROPS regulations for protecting the driver in the event of the machine overturning and/or the FOPS regulations for protecting the driver against objects that fall down or fall over.



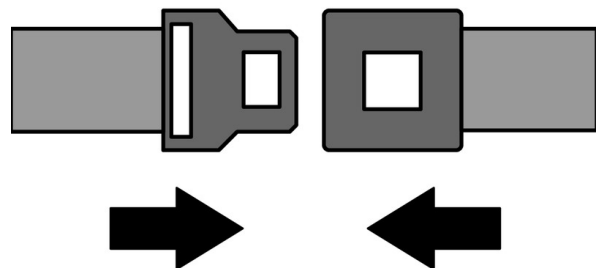
468-005

##### 4.4.4.2 Seat belt / belt contact switch

In order to prevent the driver/passengers from being thrown forward during jerky movements, the seats are equipped with safety belts that must be buckled before the machine starts moving.

Depending on the equipment version, the following precautions are automatically initiated if a seat belt is not fastened

- The drive hydraulics is deactivated.
- The parking brake is engaged.
- The travel drive is switched to neutral.
- The steering is switched off.
- The working hydraulics are switched off.



#### 4.4.4.3 Emergency stop button

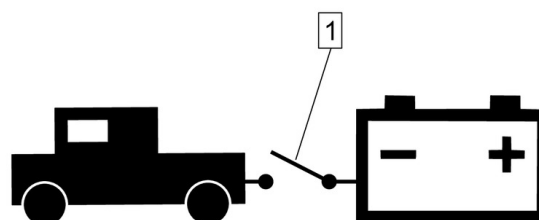
In an emergency, all movements of the machine can be stopped with the emergency stop button (1).



#### 4.4.5 Electrical system

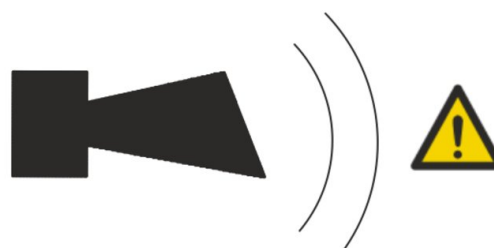
##### 4.4.5.1 Battery main switch

The battery main switch (1) isolates the battery from the electrical system of the machine.



##### 4.4.5.2 Acoustic warning signal

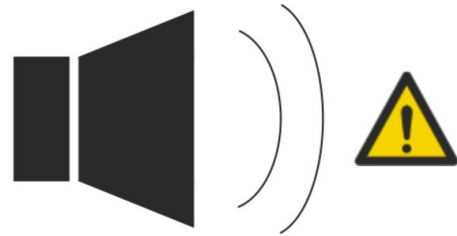
The acoustic warning signal (horn) is used for communication between operating personnel of the machine and other persons.



**4.4.5.3 Acoustic reversing signal**

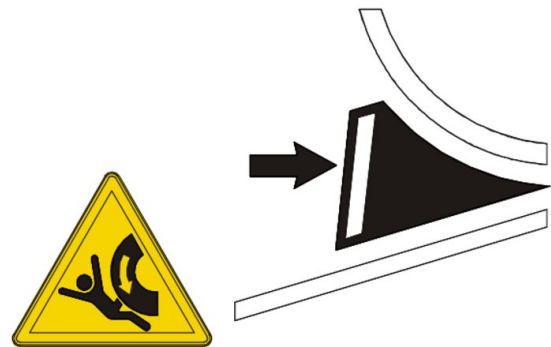
The area behind the machine cannot be seen completely from the driver's seat. This means that persons have to be warned of the dangers of a reversing vehicle.

For this purpose, an acoustic signal sounds as soon as the machine is shifted into reverse.

**4.4.6 Options / accessories****4.4.6.1 Chock**

The machine is equipped with one or more wheel chocks.

Using the wheel chock in addition to the parking brake prevents the deactivated machine from rolling away.

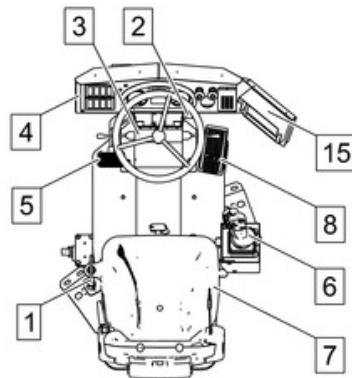


## 5 Control and display elements

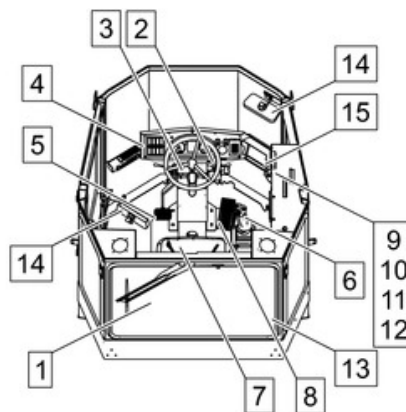
### 5.1 Driver's cab

11873-001

#### 5.1.1 Driver's platform overview



The illustration shows the machine with an open driver's platform.

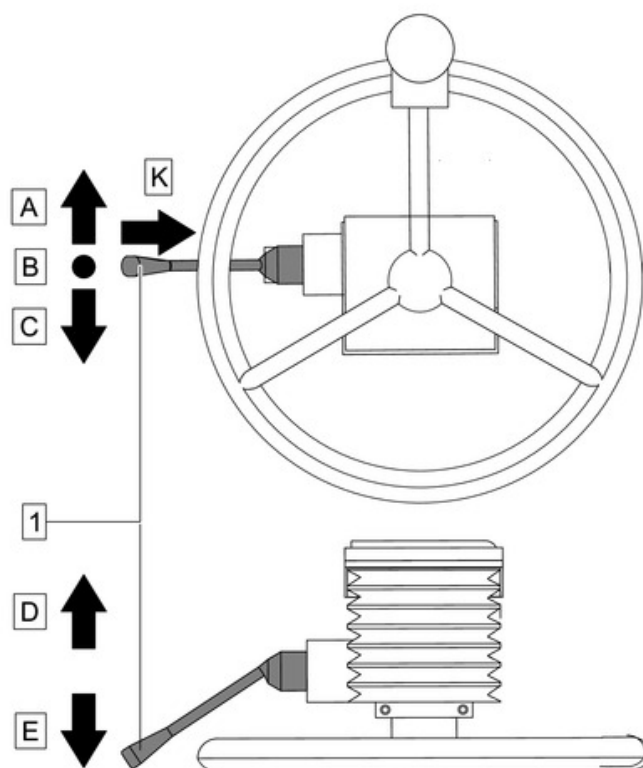


The illustration shows the machine with a closed driver's platform.

| Item       | Designation                                 | Function/comment                                                 |
|------------|---------------------------------------------|------------------------------------------------------------------|
| 1          | Driver's platform locking mechanism         | Locks the driver's platform in position. <a href="#">[► 160]</a> |
| 2          | Steering wheel inclination adjustment lever | Used to adjust the inclination of the steering wheel.            |
| 3          | Steering column control elements            | Operates the machine. <a href="#">[► 113]</a>                    |
| 4          | Control panel control elements              | Operates the machine. <a href="#">[► 114]</a>                    |
| 5          | Brake pedal                                 | Actuates the machine's service brake. <a href="#">[► 175]</a>    |
| 6          | Joystick control elements                   | Operates the bucket. <a href="#">[► 132]</a>                     |
| * Optional |                                             |                                                                  |

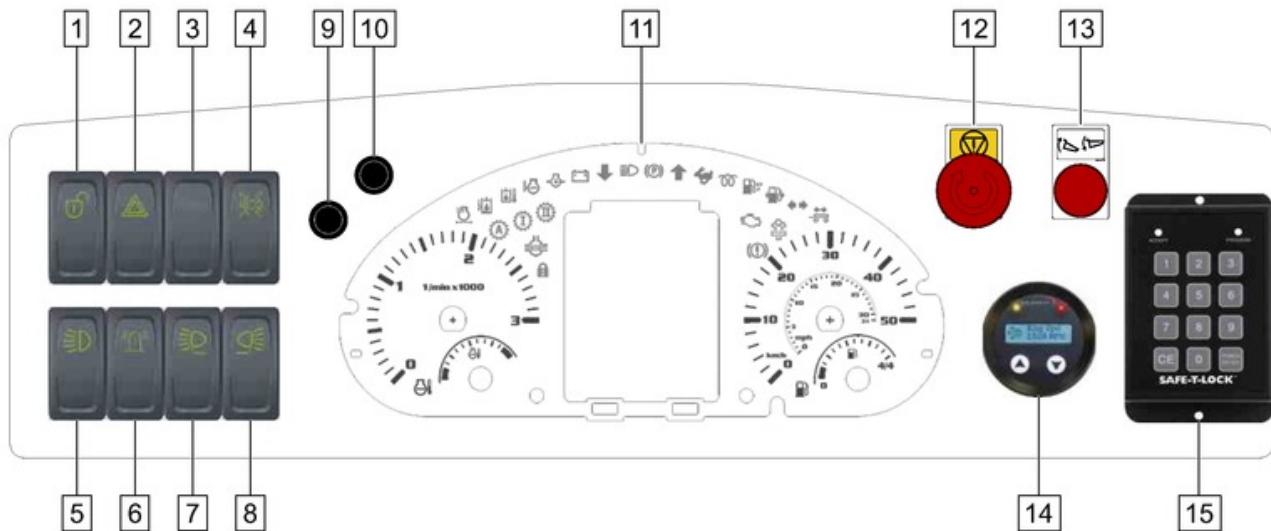
| Item              | Designation                          | Function/comment                                                           |
|-------------------|--------------------------------------|----------------------------------------------------------------------------|
| 7                 | Driver's seat                        | Place for the driver to sit. <a href="#">▶ 133</a>                         |
| 8                 | Accelerator pedal                    | Accelerates the machine. <a href="#">▶ 172</a>                             |
| 9                 | Cab control elements *               | Operates the machine. <a href="#">▶ 130</a>                                |
| 10                | Interior lights *                    | Serves as the light source in the operator's position.                     |
| 11                | Radio *                              | Is used to receive radio signals.                                          |
| 12                | Heating *                            | Heats the driver's platform. <a href="#">▶ 131</a>                         |
| 13                | Windscreen washer system reservoir * | Contains the water for the windscreen washer system. <a href="#">▶ 241</a> |
| 14                | Interior mirror *                    | Used to provide a view to the rear.                                        |
| 15                | Camera monitor                       | Shows the images from the camera. <a href="#">▶ 129</a>                    |
| * <i>Optional</i> |                                      |                                                                            |

### 5.1.2 Steering column control elements



| Item | Designation                                                     | Function/comment                                                                                                                                                                         |
|------|-----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Turn signal / high beam lever<br>Acoustic warning signal button | Switches the turn signals on and off. <ul style="list-style-type: none"> <li>(A) = Right turn signals on</li> <li>(B) = Turn signals off</li> <li>(C) = Left turn signals on</li> </ul>  |
|      |                                                                 | When the driving lights are switched on, switches between dipped beam and high beam. <ul style="list-style-type: none"> <li>(D) = High beams on</li> <li>(E) = Dipped beam on</li> </ul> |
|      |                                                                 | Generates an acoustic warning signal. <ul style="list-style-type: none"> <li>(K) = Acoustic warning signal</li> </ul>                                                                    |

## 5.1.3 Control panel control elements



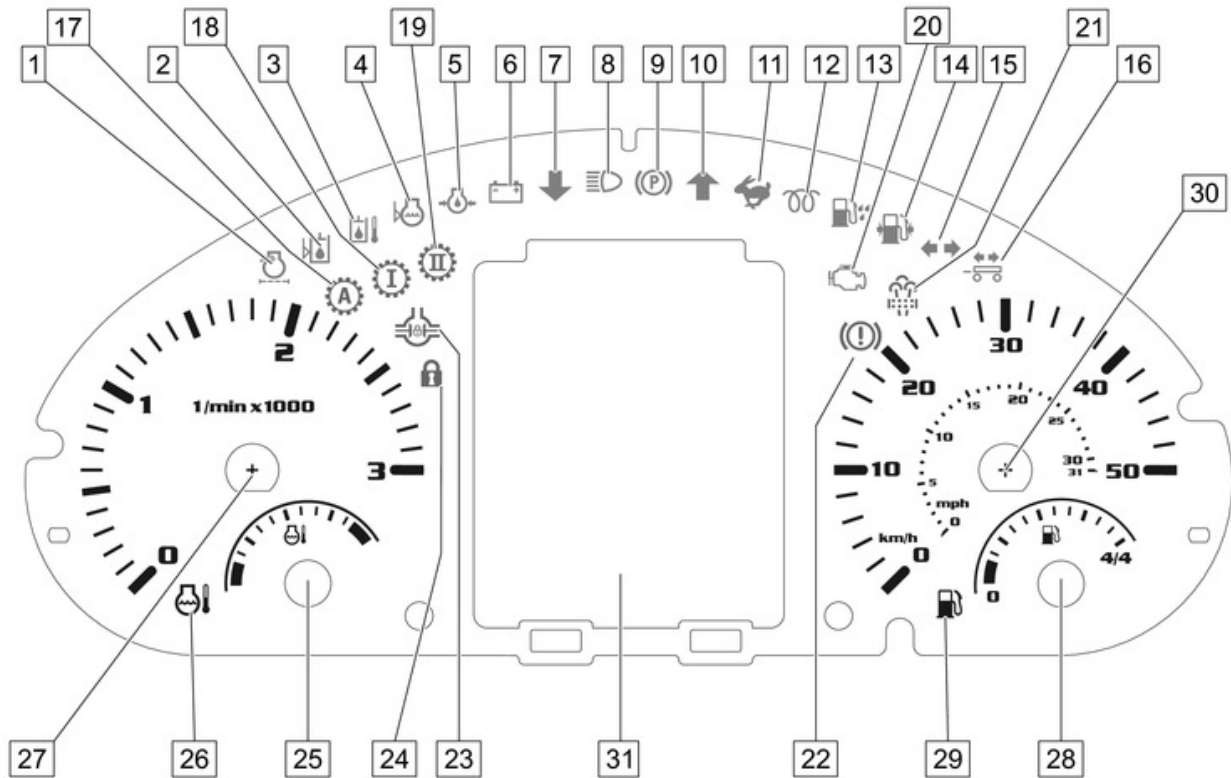
876389-00

| Item       | Designation                                     | Function/comment                                                                                                                                   |
|------------|-------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| 1          | Joystick enable button                          | Enables the joystick functions for operating the bucket.<br>[▶ 179]<br>Lights up when the joystick functions for operating the bucket are enabled. |
| 2          | Hazard warning lamps switch                     | Switches the hazard warning lights on and off.[▶ 168]<br>Flashes when the hazard warning lights are switched on.                                   |
| 3          | Not assigned                                    |                                                                                                                                                    |
| 4          | Diesel particulate filter regeneration button * | Switches the regeneration of the diesel particulate filter on and off.[▶ 275]<br>Lights up when regeneration is active.                            |
| * Optional |                                                 |                                                                                                                                                    |

| Item              | Designation                            | Function/comment                                                                                                                                                                                                                                                                                                                              |
|-------------------|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5                 | Parking lights / driving lights switch | Switches the parking lights / driving lights on and off. <a href="#">▶ 168</a><br>Switch positions:<br><ul style="list-style-type: none"> <li>• 0 = Parking lights off / driving lights off</li> <li>• 1 = Parking lights on</li> <li>• 2 = Driving lights on</li> </ul> Lights up when the parking lights or driving lights are switched on. |
| 6                 | Rotating flashing beacon switch *      | Switches the rotating beacon on and off. <a href="#">▶ 168</a><br>Lights up when the rotating flashing beacon is switched on.                                                                                                                                                                                                                 |
| 7                 | Switch for front work lights *         | Switches the front working lights on and off. <a href="#">▶ 168</a><br>Lights up if the front work lights are switched on.                                                                                                                                                                                                                    |
| 8                 | Switch for rear work lights *          | Switches the rear work lights on/off. <a href="#">▶ 168</a><br>Lights up if the rear work lights are switched on.                                                                                                                                                                                                                             |
| 9                 | Button for driver's platform display   | Sets the time on the display. <a href="#">▶ 157</a><br>Changes between the information views for fault messages in the display. <a href="#">▶ 267</a>                                                                                                                                                                                         |
| 10                | Button for driver's platform display   | Sets the time on the display. <a href="#">▶ 157</a><br>Changes between the information views for fault messages in the display. <a href="#">▶ 267</a>                                                                                                                                                                                         |
| 11                | Driver's platform display              | Displays values and messages about the machine. <a href="#">▶ 116</a>                                                                                                                                                                                                                                                                         |
| 12                | Emergency stop button                  | Switches the machine off in an emergency. <a href="#">▶ 148</a>                                                                                                                                                                                                                                                                               |
| 13                | Bucket warning lamp                    | Lights up when the bucket is not in the transport position. <a href="#">▶ 181</a>                                                                                                                                                                                                                                                             |
| 14                | Diagnosis display                      | Displays active fault messages. <a href="#">▶ 126</a>                                                                                                                                                                                                                                                                                         |
| 15                | Immobilizer control element *          | Switches the immobilizer on and off. <a href="#">▶ 128</a>                                                                                                                                                                                                                                                                                    |
| * <i>Optional</i> |                                        |                                                                                                                                                                                                                                                                                                                                               |

### 5.1.4 Driver's platform display

#### Main display



| Item | Symbol                                                                              | Designation                               | Meaning / remarks                                                                                                                                                                  |
|------|-------------------------------------------------------------------------------------|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    |  | Air filter warning lamp                   | Lights up when the permissible air filter contamination level is exceeded.<br><b>i</b> Turn off the machine and clean or if necessary change the air filter. <a href="#">▶ 205</a> |
| 2    |  | Hydraulic fluid fill level warning lamp * | Lights up when the hydraulic fluid fill level drops below the permissible level.<br><b>i</b> Turn off the machine and fill hydraulic fluid. <a href="#">▶ 248</a>                  |
| 3    |  | Hydraulic fluid temperature warning lamp  | Lights up when the permissible hydraulic fluid temperature is exceeded.<br><b>i</b> Allow the machine to idle to reduce the hydraulic fluid temperature.                           |

\* *Optional*

| Item       | Symbol                                                                              | Designation                                | Meaning / remarks                                                                                                                                                                    |
|------------|-------------------------------------------------------------------------------------|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4          |    | Coolant level warning lamp *               | Lights up when the engine coolant level drops below the permissible level.<br><b>i</b> Turn off the machine, let it cool and fill the coolant. <a href="#">▶ 221</a>                 |
| 5          |    | Engine oil pressure warning lamp           | Lights up if the engine oil pressure drops below the permissible level.<br><b>i</b> Switch off the machine and eliminate the cause, if necessary the help of an authorized workshop. |
| 6          |    | Battery charge warning lamp                | Lights up if the battery charge voltage drops below the permissible level.                                                                                                           |
| 7          |    | Reverse direction of travel indicator lamp | Lights up when the direction of travel is Reverse.                                                                                                                                   |
| 8          |    | High beam indicator lamp                   | Lights up if the high beams are switched on.                                                                                                                                         |
| 9          |  | Parking brake warning lamp                 | Lights up if the parking brake is engaged.                                                                                                                                           |
| 10         |  | Forward direction of travel indicator lamp | Lights up when the direction of travel is Forward.                                                                                                                                   |
| 11         |  | Fast gear indicator lamp                   | Lights up when the machine's fast gear is engaged.                                                                                                                                   |
| 12         |  | Preglow indicator lamp                     | Lights up when the engine's preglow system is switched on.                                                                                                                           |
| 13         |  | Warning lamp for water in the fuel         | Lights up when there is water in the fuel.<br><b>i</b> Switch off the machine and drain the fuel prefilter. <a href="#">▶ 214</a>                                                    |
| 14         |  | Fuel system pressure warning lamp          | Lights up when a fault develops in the fuel system pressure.                                                                                                                         |
| 15         |  | Turn signal indicator lamp                 | Flashes if the turn signal is switched on.                                                                                                                                           |
| 16         |  | Rear attachment turn signal indicator lamp | Flashes if the turn signal is switched on.                                                                                                                                           |
| * Optional |                                                                                     |                                            |                                                                                                                                                                                      |

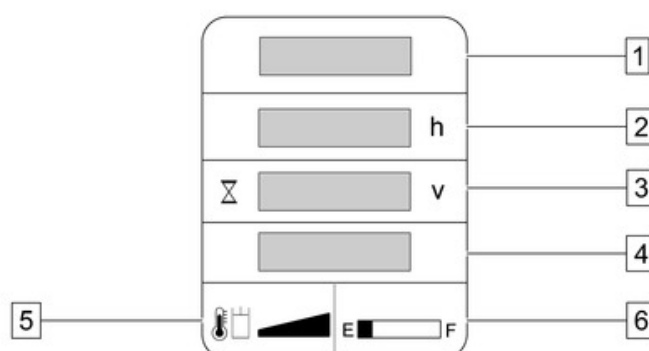
| Item       | Symbol                                                                              | Designation                                          | Meaning / remarks                                                                                                                                                                                                                            |
|------------|-------------------------------------------------------------------------------------|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 17         |    | Automatic travel drive indicator lamp *              | Lights up when automatic travel drive is switched on.                                                                                                                                                                                        |
| 18         |    | 1st gear indicator lamp                              | Lights up when 1st gear is engaged.                                                                                                                                                                                                          |
| 19         |    | 2nd gear indicator lamp                              | Lights up when 2nd gear is engaged.                                                                                                                                                                                                          |
| 20         |    | Engine fault warning lamp *                          | Lights up when an engine error.<br> Have the cause eliminated, if necessary with the assistance of an authorized specialist workshop.                       |
| 21         |    | Diesel particulate filter warning lamp               | Lights up when the permissible diesel particulate filter contamination level is exceeded.<br> Regenerate diesel particulate filter. <a href="#">[► 275]</a> |
| 22         |  | Brake pressure warning lamp *                        | Lights up if the brake pressure drops below the permissible level.<br> Have the cause eliminated by an authorized specialist.                             |
| 23         |  | Differential lock warning lamp *                     | Lights up when the differential lock is switched on.                                                                                                                                                                                         |
| 24         |  | Driver's platform locking mechanism indicator lamp * | Lights up when the driver's platform is not locked in place.<br> Check whether the driver's platform is locked in place. <a href="#">[► 160]</a>          |
| 25         |                                                                                     | Engine temperature display                           | Displays the current engine temperature.                                                                                                                                                                                                     |
| 26         |  | Engine temperature warning lamp                      | Lights up when the permissible engine temperature is exceeded.                                                                                                                                                                               |
| 27         |                                                                                     | Engine speed display                                 | Displays the current engine speed.                                                                                                                                                                                                           |
| 28         |                                                                                     | Fuel level display                                   | Displays the current fuel level.                                                                                                                                                                                                             |
| 29         |  | Fuel level warning lamp                              | Lights up when the permissible fuel level has reached the reserve level.<br> Switch off the machine and refuel. <a href="#">[► 144]</a>                   |
| * Optional |                                                                                     |                                                      |                                                                                                                                                                                                                                              |

| Item       | Symbol | Designation   | Meaning / remarks                                                     |
|------------|--------|---------------|-----------------------------------------------------------------------|
| 30         |        | Speed display | Displays the current machine speed.                                   |
| 31         |        | Info display  | Displays various information about the machine. <a href="#">▶ 119</a> |
| * Optional |        |               |                                                                       |

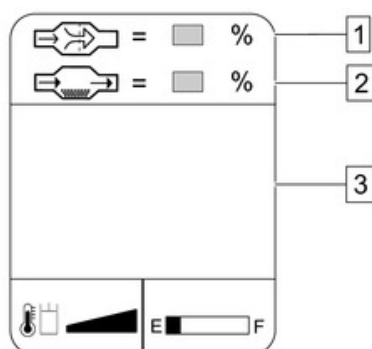
3344-012

## 5.1.5 Info display

### Info display 1

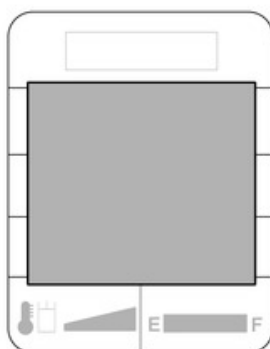


| Item       | Designation                                           | Meaning / remarks                                                                                                            |
|------------|-------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| 1          | Clock display                                         | Indicates the current time.<br>The time can be set using the buttons on the driver's platform display. <a href="#">▶ 157</a> |
| 2          | Operating hours display                               | Indicates the running operating hours of the engine.                                                                         |
| 3          | Battery power supply voltage display                  | Displays the current battery voltage.                                                                                        |
| 4          | Travel drive fault code display *                     | Displays fault messages for the travel drive. <a href="#">▶ 267</a>                                                          |
| 5          | Hydraulic fluid temperature display                   | Displays the current hydraulic fluid temperature.                                                                            |
| 6          | Exhaust gas aftertreatment fluid fill level display * | Displays the current exhaust gas aftertreatment fluid level.                                                                 |
| * Optional |                                                       |                                                                                                                              |

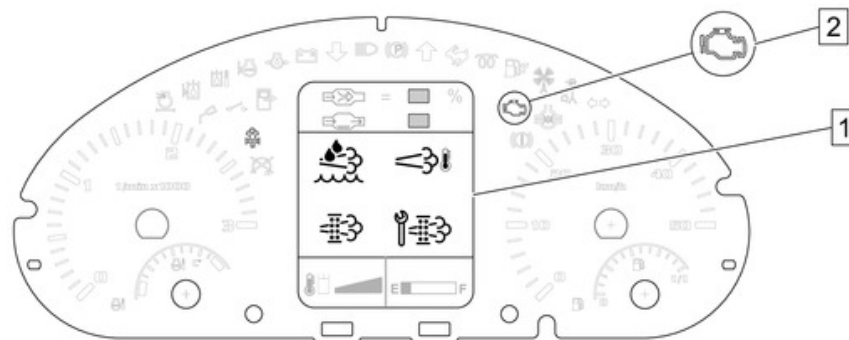
**Info display 2**

| Item              | Designation                                   | Meaning / remarks                                                |
|-------------------|-----------------------------------------------|------------------------------------------------------------------|
| 1                 | Diesel particulate filter soot load display * | Displays the current soot load in the diesel particulate filter. |
| 2                 | Diesel particulate filter ash load display *  | Displays the current ash load in the diesel particulate filter.  |
| 3                 | Messages display                              | Displays messages. <a href="#">▶ 121</a>                         |
| * <i>Optional</i> |                                               |                                                                  |

## Overview of info display messages

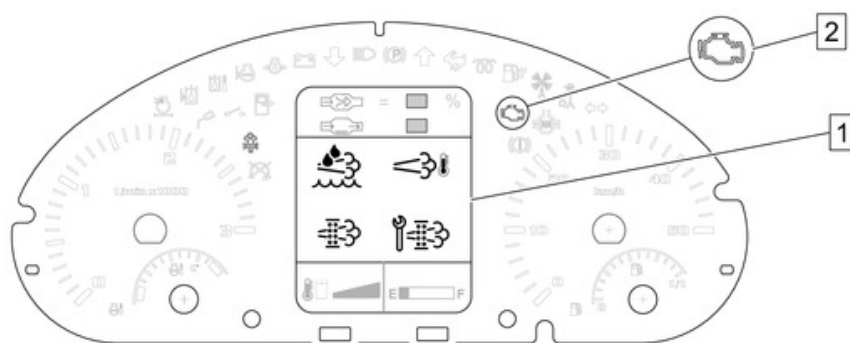


| Symbol                                                                              | Designation                                | Meaning / remarks                                                                                                                                                              |
|-------------------------------------------------------------------------------------|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | Diesel particulate filter message *        | Indicates that there are messages about the diesel particulate filter.<br><b>i</b> Identify diesel particulate filter message. <a href="#">▶ 122</a>                           |
|  | Change diesel particulate filter message * | Indicates that the diesel particulate filter must be changed.<br><b>i</b> Have the diesel particulate filter replaced by personnel at an authorized, specialized garage.       |
|  | SCR message *                              | Indicates that there are additional messages about the nitrogen reduction system (SCR).<br><b>i</b> Identify SCR message. <a href="#">▶ 123</a>                                |
|  | Exhaust gas temperature message            | Indicates that the exhaust gas temperature is too high.<br><b>i</b> Switch off the machine and eliminate the cause, if necessary the help of an authorized workshop.           |
|  | Charge air temperature message             | Indicates that the charge air temperature is too high or too low.<br><b>i</b> Switch off the machine and eliminate the cause, if necessary the help of an authorized workshop. |
|  | CAN error message *                        | Indicates that a fault has developed in the CAN bus system.<br><b>i</b> Switch off the machine and eliminate the cause, if necessary the help of an authorized workshop.       |
| * Optional                                                                          |                                            |                                                                                                                                                                                |

**Diesel particulate filter message \***

| Symbol (1)                                                                          | Symbol (2)                                                                          | Meaning / remarks                                                                                                                                                                                                                          |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | Without                                                                             | The soot load is >100%.<br>Regenerate diesel particulate filter. <a href="#">▶ 275</a>                                                                                                                                                     |
| Flashes slowly                                                                      |                                                                                     |                                                                                                                                                                                                                                            |
|  |  | The soot load is >109%.<br>The machine switches to a reduced power mode.<br>Regenerate diesel particulate filter. <a href="#">▶ 275</a>                                                                                                    |
| Flashes slowly                                                                      | Lights up                                                                           |                                                                                                                                                                                                                                            |
|  |  | The soot load is >125%.<br>The machine switches off.<br> The regeneration can only be carried out at an authorized workshop.                            |
| Flashes quickly                                                                     | flashes                                                                             |                                                                                                                                                                                                                                            |
|  |  | The soot load is >156%.<br>The machine switches off.<br> Have the diesel particulate filter replaced by personnel at an authorized, specialized garage. |
| Flashes quickly                                                                     | flashes                                                                             |                                                                                                                                                                                                                                            |
| * <i>Optional</i>                                                                   |                                                                                     |                                                                                                                                                                                                                                            |

### SCR message \*



| Symbol (1)                                                                          | Symbol (2)                                                                          | Meaning / remarks                                                                                                                                                                           |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |    | The exhaust gas aftertreatment fluid fill level is <15%.<br>Top up exhaust gas aftertreatment fluid. <a href="#">▶ 145</a>                                                                  |
| Lights up                                                                           | off                                                                                 |                                                                                                                                                                                             |
|  |  | The exhaust gas aftertreatment fluid fill level is <10%.<br>Top up exhaust gas aftertreatment fluid. <a href="#">▶ 145</a>                                                                  |
| Flashes slowly                                                                      | off                                                                                 |                                                                                                                                                                                             |
|  |  | The exhaust gas aftertreatment fluid fill level is <5%.<br>Top up exhaust gas aftertreatment fluid. <a href="#">▶ 145</a>                                                                   |
| Flashes slowly                                                                      | Lights up                                                                           |                                                                                                                                                                                             |
|  |  | The exhaust gas aftertreatment fluid fill level has been <5% for 10 min.<br>The machine switches to a reduced power mode.<br>Top up exhaust gas aftertreatment fluid. <a href="#">▶ 145</a> |
| Flashes quickly                                                                     | Lights up                                                                           |                                                                                                                                                                                             |
|  |  | The exhaust gas aftertreatment fluid fill level has been <5% for 15 min.<br>The machine switches to a reduced power mode.<br>Top up exhaust gas aftertreatment fluid. <a href="#">▶ 145</a> |
| Flashes quickly                                                                     | flashes                                                                             |                                                                                                                                                                                             |
| * <i>Optional</i>                                                                   |                                                                                     |                                                                                                                                                                                             |

| Symbol (1)                                                                          | Symbol (2)                                                                          | Meaning / remarks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |    | <p>The quality of the nitrogen reduction is too low.<br/>The machine switches to various power reduction modes according to the amount of time the fault has been present.<br/>For machines in accordance with the EURO emission standards:</p> <ul style="list-style-type: none"><li>• &gt;10 h = Level 1 power reduction</li><li>• &gt;20 h = Level 2 power reduction</li></ul> <p>For machines in accordance with the EPA emission standards:</p> <ul style="list-style-type: none"><li>• &gt;3 h 25 min = Level 1 power reduction</li><li>• &gt;3 h 55 min = Level 2 power reduction</li></ul> <p> Switch off the machine and eliminate the cause, if necessary the help of an authorized workshop.</p>       |
| Lights up                                                                           | Lights up                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|    |    | <p>The nitrogen reduction process is being manipulated.<br/>The machine switches to various power reduction modes according to the amount of time the fault has been present.<br/>For machines in accordance with the EURO emission standards:</p> <ul style="list-style-type: none"><li>• &gt;36 h = Level 1 power reduction</li><li>• &gt;100 h = Level 2 power reduction</li></ul> <p>For machines in accordance with the EPA emission standards:</p> <ul style="list-style-type: none"><li>• &gt;3 h 25 min = Level 1 power reduction</li><li>• &gt;3 h 55 min = Level 2 power reduction</li></ul> <p> Switch off the machine and eliminate the cause, if necessary the help of an authorized workshop.</p> |
| Lights up                                                                           | Lights up                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|  |  | <p>An error has occurred for the installed components, e.g. the supply pump.<br/>The machine switches to a reduced power mode for &gt;10 min.</p> <p> Switch off the machine and eliminate the cause, if necessary the help of an authorized workshop.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Lights up                                                                           | flashes                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

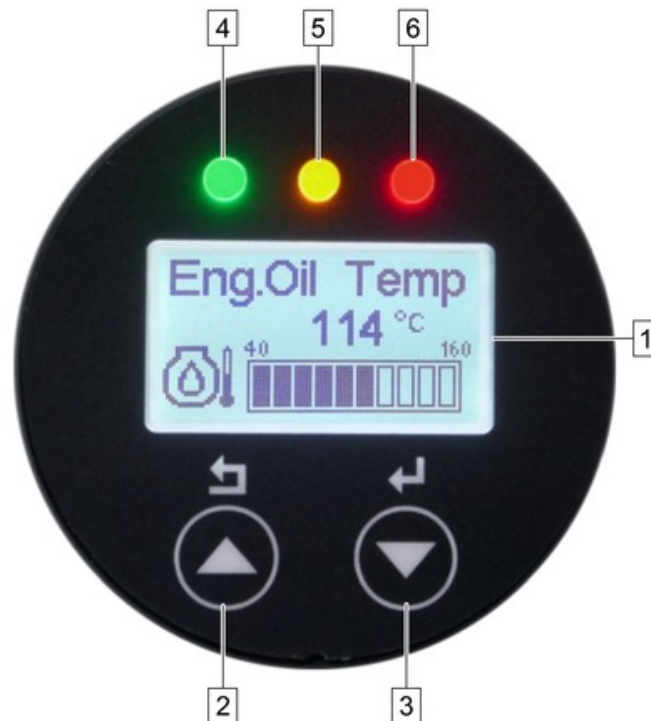
\* *Optional*

### Engine fault message \*



| Symbol (1)                                                                          | Symbol (2)                                                                          | Meaning / remarks                                                                                                                                                      |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | Without                                                                             | Indicates that an engine fault has developed.<br><b>i</b> Have the cause eliminated, if necessary with the assistance of an authorized specialist workshop.            |
| Lights up                                                                           |                                                                                     |                                                                                                                                                                        |
|  |  | Indicates that a grave engine fault has developed.<br>The engine switches off.<br><b>i</b> Switch off the machine and have the issue corrected by qualified personnel. |
| flashes                                                                             | Lights up                                                                           |                                                                                                                                                                        |
| * Optional                                                                          |                                                                                     |                                                                                                                                                                        |

### 5.1.6 Diagnostic display \*



| Item | Designation           | Function/comment                                                                                                                                                                                                                           |
|------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Screen                | Displays data and the menu.                                                                                                                                                                                                                |
| 2    | Up / End button       | Changes between displays.<br>Navigates through the menu.<br>Closes the selected menu.                                                                                                                                                      |
| 3    | Down / Select button  | Changes between displays.<br>Switches to the menu when held down.<br>Navigates through the menu.<br>Confirms the selected menu item when held down.                                                                                        |
| 4    | Status indicator lamp | Lights up when the display is switched on and there is no fault message.                                                                                                                                                                   |
| 5    | Warning lamp fault    | Lights up if a non-safety-relevant engine fault develops.<br> Identify the fault message on the screen and have it rectified by a qualified specialist. |

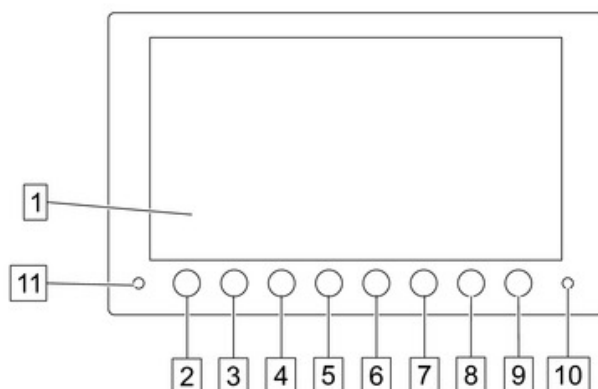
| Item | Designation                | Function/comment                                                                                                                                                                                                                                                                       |
|------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6    | Fault shutoff warning lamp | <p>Lights up if a safety-relevant engine fault develops.</p> <p><i>The engine switches off.</i></p> <p> Identify the fault message on the screen and have it rectified by a qualified specialist.</p> |

### 5.1.7 Immobilizer control element (optional)



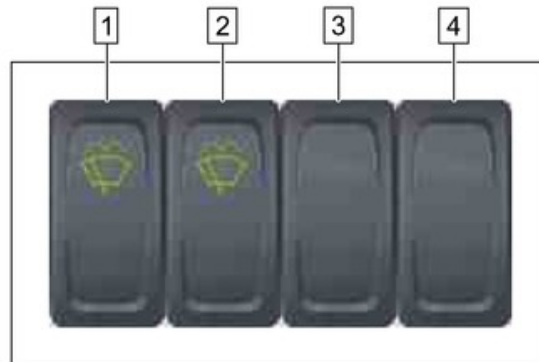
| Item | Designation        | Function/comment                                                            |
|------|--------------------|-----------------------------------------------------------------------------|
| 1    | PROGRAM lamp       | Lights up when the unlock code is entered incorrectly.                      |
| 2    | Key block          | Used to enter number code for unlocking the immobilizer. Operates the menu. |
| 3    | POWER ENTER button | Switches the immobilizer on and off.                                        |
| 4    | CE button          | Confirms a selection or entry.                                              |
| 5    | ACCEPT lamp        | Lights up when the entry is confirmed.                                      |

### 5.1.8 Monitor camera control elements



| Item | Designation            | Function                                                                                                              |
|------|------------------------|-----------------------------------------------------------------------------------------------------------------------|
| 1    | Display                | Shows the images from the camera.                                                                                     |
| 2    | DIMMER button          | Switches between daylight and night display mode.                                                                     |
| 3    | MODE button            | Switches between the images from the cameras.<br><b>i</b> This function is only possible if several cameras are used. |
| 4    | DOWN button            | Switches between the individual submenus.                                                                             |
| 5    | UP button              | Switches between the individual submenus.                                                                             |
| 6    | LEFT button            | Reduces the volume.<br>Changes the settings in the submenu.                                                           |
| 7    | RIGHT button           | Reduces the volume.<br>Changes the settings in the submenu.                                                           |
| 8    | MENU button            | Switches to the menu to make settings on the monitor.                                                                 |
| 9    | POWER button           | Switches the monitor on and off.                                                                                      |
| 10   | Standby indicator lamp | Lights up when the monitor is in standby mode.                                                                        |
| 11   | Dimmer sensor          | Regulates the brightness of the display based on ambient brightness.                                                  |

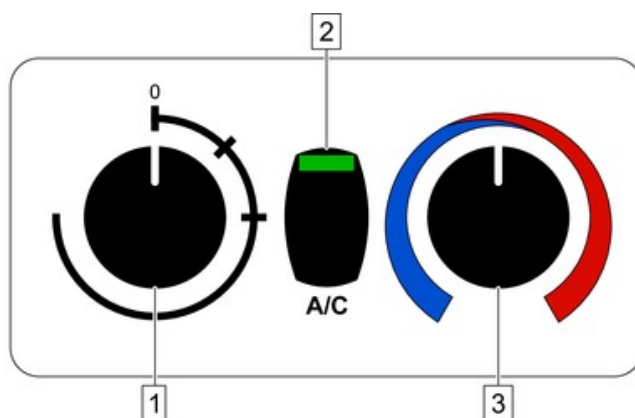
11898-001

**5.1.9 Cab control elements (optional)**

9211-001

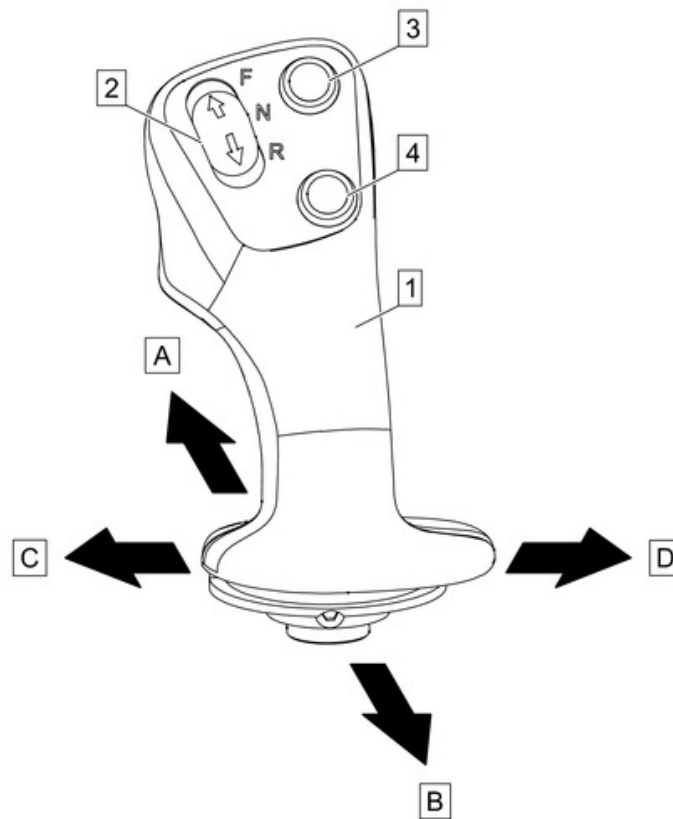
| Item | Designation                                                       | Function/comment                                                                                                                                                                                                                                                                                                                                |
|------|-------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Windscreen wiper switch / Windscreen washer system<br>Windscreen  | <p>Switches the wipers and the washer system for the windscreen on and off.</p> <ul style="list-style-type: none"> <li>0 = Windscreen wipers off / windscreen washer system off</li> <li>1 = Windscreen wipers on</li> <li>2 = Windscreen washer system on</li> </ul> <p>Lights up if the windscreen wiper or washer system is switched on.</p> |
| 2    | Windscreen wiper switch / Windscreen washer system<br>Rear window | <p>Switches the wipers and the washer system for the windscreen on and off.</p> <ul style="list-style-type: none"> <li>0 = Windscreen wipers off / windscreen washer system off</li> <li>1 = Windscreen wipers on</li> <li>2 = Windscreen washer system on</li> </ul> <p>Lights up if the windscreen wiper or washer system is switched on.</p> |
| 3    | Not assigned                                                      |                                                                                                                                                                                                                                                                                                                                                 |
| 4    | Not assigned                                                      |                                                                                                                                                                                                                                                                                                                                                 |

### 5.1.10 Heating / air conditioning control elements (optional)



| Item       | Designation             | Function/comment                                       |
|------------|-------------------------|--------------------------------------------------------|
| 1          | Ventilation controller  | Reduces or increases the air flow in the driver's cab. |
| 2          | Air conditioning switch | Switches the air-conditioning system on/off. *         |
| 3          | Temperature controller  | Controls the temperature in the driver's cab.          |
| * Optional |                         |                                                        |

## 5.1.11 Joystick control elements



| Item | Designation                    | Function/comment                                                                                                                                                                                                                |
|------|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Joystick                       | Operates the bucket. <a href="#">[► 179]</a> <ul style="list-style-type: none"> <li>(A) = Tip bucket out</li> <li>(B) = Fold bucket in</li> <li>(C) = Move bucket left</li> <li>(D) = Move bucket right</li> </ul>              |
| 2    | Direction of travel switch     | Selects the direction of travel. <a href="#">[► 172]</a> <ul style="list-style-type: none"> <li>forward = Forward direction of travel</li> <li>middle = Neutral position</li> <li>rear = Direction of travel reverse</li> </ul> |
| 3    | Acoustic warning signal button | Generates an acoustic warning signal.                                                                                                                                                                                           |
| 4    | Gear button                    | Switches between the gears. <a href="#">[► 172]</a><br>The selected gear appears in the display.                                                                                                                                |

### 5.1.12 Seat control elements

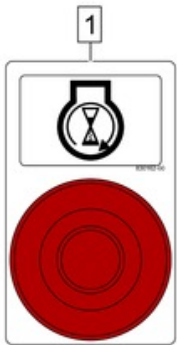


| Item       | Designation                   | Function                                                                  |
|------------|-------------------------------|---------------------------------------------------------------------------|
| 1          | Weight adjustment lever       | Adjusts the suspension of the seat according to the weight of the driver. |
| 2          | Longitudinal adjustment lever | Adjusts the longitudinal position of the seat.                            |
| 3          | Backrest adjustment lever     | Adjusts the angle of the seat backrest.                                   |
| 6          | Armrest *                     | Serves as an armrest for the driver.                                      |
| 7          | Armrest tilt handwheel *      | Adjusts the longitudinal position of the armrest.                         |
| 9          | Safety belt *                 | Used to secure the driver.                                                |
| * Optional |                               |                                                                           |

5.2 Frame / machine housing

11883-001

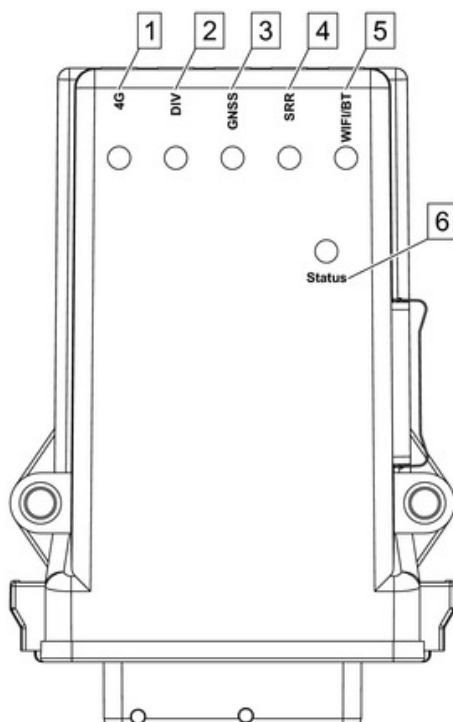
5.2.1 Engine override control elements



881310-00

| Item | Designation                | Function/comment                            |
|------|----------------------------|---------------------------------------------|
| 1    | Bridge engine fault button | Engine fault bridged. <a href="#">▶ 274</a> |

### 5.2.2 Telematics unit display elements (optional)



| Item | Colour | Designation                    | Function/comment                          |
|------|--------|--------------------------------|-------------------------------------------|
| 1    | green  | 4G antenna status display      | Indicates that 4G antenna is active.      |
| 2    | green  | DIV antenna status display     | Indicates that DIV antenna is active.     |
| 3    | green  | GNSS antenna status display    | Indicates that GNSS antenna is active.    |
| 4    | green  | SRR antenna status display     | Indicates that SRR antenna is active.     |
| 5    | green  | WiFi/BT antenna status display | Indicates that WiFi/BT antenna is active. |

| Item | Colour | Designation                     | Function/comment                                                                                                               |
|------|--------|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| 6    | yellow | Telemetrics unit status display | Indicates that the telemetrics unit is supplied with power.<br>GPS connection is inactive.<br>Internet connection is inactive. |
|      | Blue   |                                 | Indicates that the telemetrics unit is supplied with power.<br>GPS connection is active.<br>Internet connection is inactive.   |
|      | red    |                                 | Indicates that the telemetrics unit is supplied with power.<br>GPS connection is inactive.<br>Internet connection is active.   |
|      | green  |                                 | Indicates that the telemetrics unit is supplied with power.<br>GPS connection is active.<br>Internet connection is active.     |

## 6 Transport and loading

### 6.1 Transport

895-003

#### 6.1.1 Approving the machine for road traffic

If the machine is to be operated on public highways, the relevant regulations must be observed (for example the StVZO in Germany). The machine must have an official stamped metal license plate for use on public roads. The machine is only approved for individual operation on public highways.

#### **WARNING!**

Machine operation in road traffic without a permitted operating license.

Risk of severe injury or death due to malfunctions of important components.

- ▶ In Germany, machines under 0.75 t permissible gross vehicle weight must have the operating permit renewed after the first three years, then every two years.
  - ▶ In Germany, machines up to 3.5 t permissible gross vehicle weight must have the operating permit renewed every three years.
  - ▶ In Germany, machines over 3.5 t permissible gross vehicle weight must have the operating permit renewed every year.
  - ▶ In other countries, observe the country-specific provisions for road traffic approval.
-

## 6.2 Loading

225-010

### 6.2.1 Loading the machine using a crane

#### **WARNING!**

Risk of injury due to improper loading using a crane!

Risk of severe injury or death due to falling loads.

- ▶ Only secure loads using the transport lugs intended for doing so.
- ▶ Only use sufficiently sized ropes or chains to hold the load.
- ▶ Never stand or walk under raised loads.
- ▶ Keep at a sufficient safety distance from raised loads.
- ▶ If necessary, only carry out loading work with the assistance of a support person.
- ▶ Carry out all processes slowly and carefully.
- ▶ Make sure that no forces are encountered which could deform or damage the load being lifted.
- ▶ Attach lifting gear so that it cannot be damaged by chafe points.

#### **WARNING!**

Improper machine loading with an interchangeable attachment.

Risk of severe injury or death due to machine or attachment falling down.

- ▶ Remove the attachment before loading the machine.
- ▶ Load the machine and attachment separately.

#### **WARNING!**

Use of load-carrying equipment or lifting gear that does not comply with the requirements.

Incorrect use of load-carrying equipment or lifting gear.

Risk of severe injury or death due to the load falling.

- ▶ Use load-carrying equipment and lifting gear with a sufficient payload or clamping force.
- ▶ Observe the notes in the manual of the manufacturer of the components.
- ▶ Only allow those persons familiar with the procedure to attach loads.
- ▶ Attach lifting gear so that it cannot be damaged by chafe points.
- ▶ Do not put damaged load-carrying equipment or lifting gear into operation.

#### **WARNING!**

Risk of the machine colliding with its surroundings during transportation on a transport vehicle.

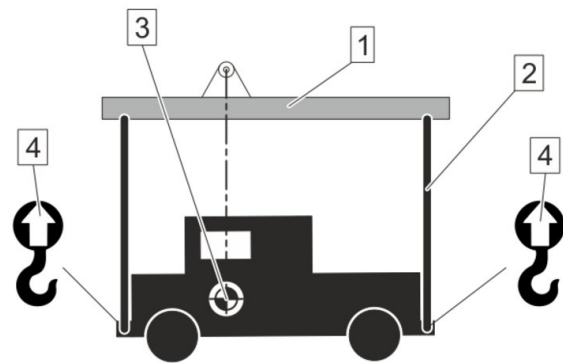
Risk of severe injury or death!

- ▶ Make sure that the height and width of the machine in combination with the transport vehicle is not exceeded for the route being driven. In particular, note the clearances of bridges and other passageways.
- ▶ Select suitable transport vehicles with a sufficiently low loading area.
- ▶ if necessary, note the dimensions for use on public highways.

- ✓ Qualified specialist
- ✓ Lifting gear
- ✓ 4-string carrying frame (load-carrying equipment)

Lifting gear includes the following:

- Cables
  - Chains
  - Lifting straps
  - Round slings
- 
- ▶ **⚠** Make sure that there are no personnel inside the machine.
  - ▶ Unload accepted freight (option).
  - ▶ Setting the machine to the transport position. [▶ 181]
  - ▶ On machines with an articulated joint, insert an articulated joint securing mechanism.
  - ▶ Hook the lifting gear (2) into the areas on the machine that are labelled with the symbol (4).
  - ▶ Use a suitable carrying frame (1) to lift the machine from its centre of gravity (3).
    - ▷ Ensure that the machine is not situated at an oblique angle.
  - ▶ Lash the machine securely to the transport vehicle. [▶ 141]



226-008

## 6.2.2 Loading the machine using a loading ramp

### **⚠ WARNING!**

Risk of injury due to improper loading using a ramp.

Risk of severe or even fatal injury due to the machine suddenly falling or rolling backwards.

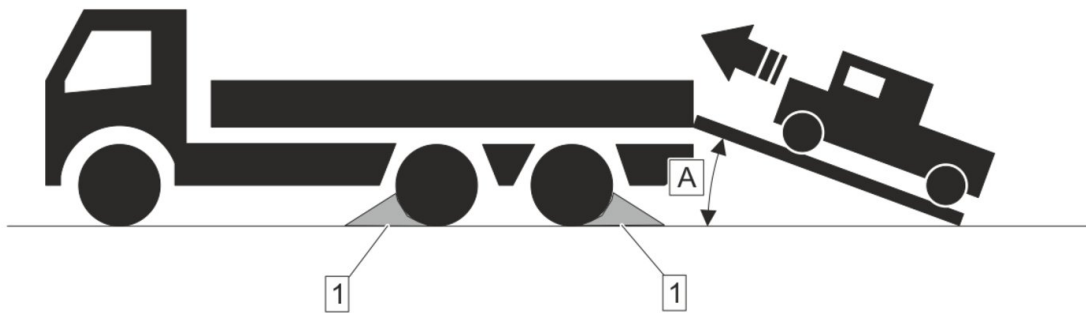
- ▶ For loading, only use stable loading ramps with sufficient load capacity.
- ▶ Make sure that the loading ramps and load area are clean and dry.  
If necessary, clean coarse dirt from the tyres before loading.
- ▶ Only perform loading on a level surface.
- ▶ If necessary, make sure that the area of the loading ramps and load area is well illuminated.
- ▶ Never stop or stand in the vicinity of the loading ramp or the machine during the loading procedure.  
The machine may roll backwards without warning.
- ▶ Only carry out loading work with the assistance of a driver's assistant.
- ▶ Carry out all processes slowly and carefully.
- ▶ Forces must not develop which could deform or damage the machine.

### **⚠ WARNING!**

Risk of the machine colliding with its surroundings during transportation on a transport vehicle.

Risk of severe injury or death!

- ▶ Make sure that the height and width of the machine in combination with the transport vehicle is not exceeded for the route being driven. In particular, note the clearances of bridges and other passageways.
- ▶ Select suitable transport vehicles with a sufficiently low loading area.
- ▶ if necessary, note the dimensions for use on public highways.



- ✓ Qualified specialist
  - ▶ Unload the loaded machine. (optional)
  - ▶ If it is permissible to carry other persons, allow them to get off or climb off. (optional)
  - ▶ Setting the machine to the transport position. [▶ 181](#)
  - ▶ Engage the parking brake of the transport vehicle.
  - ▶ Use the wheel chock to secure the transport device from rolling away.
  - ▶ Set up the ramp so its angle (A) does not exceed 15°.
  - ▶ Ensure that the ramp is free of coarse dirt, and is dry and non-slip.
  - ▶ Drive the machine onto the transport vehicle in the lowest gear and/or at low speed.
    - ▷ If necessary, choose a driving direction that does not put the machine at risk of tipping over when moving up the ramp.
  - ▶ Switch off and secure the machine. [▶ 182](#)
  - ▶ Lash the machine securely to the transport vehicle. [▶ 141](#)

## 6.3 Lashing

229-005

### 6.3.1 Lashing the machine to the transport device

#### **⚠ WARNING!**

Use of load-carrying equipment or lifting gear that does not comply with the requirements.

Incorrect use of load-carrying equipment or lifting gear.

Risk of severe injury or death due to the load falling.

- ▶ Use load-carrying equipment and lifting gear with a sufficient payload or clamping force.
- ▶ Observe the notes in the manual of the manufacturer of the components.
- ▶ Only allow those persons familiar with the procedure to attach loads.
- ▶ Attach lifting gear so that it cannot be damaged by chafe points.
- ▶ Do not put damaged load-carrying equipment or lifting gear into operation.

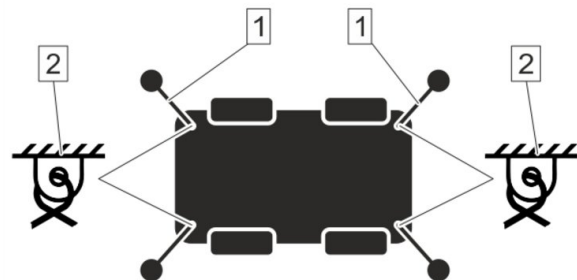
✓ Qualified specialist

✓ Lifting gear

Lifting gear includes the following:

- Cables
- Chains
- Lifting straps
- Round slings

- ▶ Setting the machine to the transport position. [[▶ 181](#)]
- ▶ On machines with an articulated joint, insert an articulated joint securing mechanism.
- ▶ Hook the lifting gear (1) into the points on the machine marked with the symbol (2).
  - ▷ If necessary, additionally secure the attachments to prevent them from slipping or swinging.



**⚠** Check that the individual lifting gear (1) has sufficient, uniform clamping force.

## 7 Operation

### 7.1 Before start-up

1540-011

#### 7.1.1 Checklist for every commissioning

The following tasks have to be carried out each time before the machine is started.

|                          | Task                                                                                                                                  |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> | Process all maintenance work according to the maintenance interval 10 Oh.[▶ 196]                                                      |
| <input type="checkbox"/> | Check the tightening torque of the wheel studs/wheel nuts after 50 km and every 500 km; if necessary, re-tighten them.[▶ 228]         |
| <input type="checkbox"/> | Remove coarse dirt or rocks from the machine.                                                                                         |
| <input type="checkbox"/> | Check the operating and display elements to make sure they are clean and have no visible damage. If necessary, clean and repair them. |
| <input type="checkbox"/> | Check the signage for completeness, cleanliness and legibility. If necessary, replace the signage.                                    |
| <input type="checkbox"/> | Check tyres and rims for damage, tread depth and proper air pressure. If necessary, replace any damaged or worn tyres.[▶ 228]         |
| <input type="checkbox"/> | Check the machine for damage or missing parts; if necessary, repair the machine and replace the missing parts.                        |
| <input type="checkbox"/> | Check the area under the machine for oil spills; if necessary, repair the machine.                                                    |
| <input type="checkbox"/> | Lock all safety guards, panels and lockable parts.                                                                                    |
| <input type="checkbox"/> | Check the driving lights and work lights for proper function; if necessary, repair the machine.                                       |
| <input type="checkbox"/> | Check that the lighting installations are clean, and clean them if necessary (optional).                                              |
| <input type="checkbox"/> | Remove loose accessories or other loose objects from the machine or attach them to the machine in their provided positions.           |
| <input type="checkbox"/> | Check the fill level of the fuel or other operating materials.                                                                        |
| <input type="checkbox"/> | Close all fuel caps.                                                                                                                  |
| <input type="checkbox"/> | Check the service brake for proper function.[▶ 237]                                                                                   |
| <input type="checkbox"/> | Check parking brake function. [▶ 236]                                                                                                 |
| <input type="checkbox"/> | Check the potential driving and working area for obstacles. If necessary, remove any obstacles.                                       |

|                          | Task                                                                                                                  |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> | Check the functionality of protective devices, repair if necessary.                                                   |
| <input type="checkbox"/> | If necessary, change the operating materials after the machine has been out of operation for a longer period of time. |

### 7.1.2 Refuelling

#### **⚠ WARNING!**

Improper refueling.

Risk of severe injury or death due to explosion, fire or incorrect handling of fuel.

- ▶ Do not refuel near open flame, sparks or smoldering objects.
- ▶ Do not smoke in the immediate vicinity.
- ▶ Prevent static charges.
- ▶ Only perform the refuelling procedure in well-ventilated areas.
- ▶ Observe the filling station safety instructions at the site of the filling process.
- ▶ Wipe off fuel that has dripped or spilled and dispose of it properly.
- ▶ Prevent inhaling fuel vapours.
- ▶ Keep fuels away from children.
- ▶ If fuel has been ingested, seek medical attention immediately.

#### **NOTICE!**

Refuelling with non-permitted or contaminated operating materials.

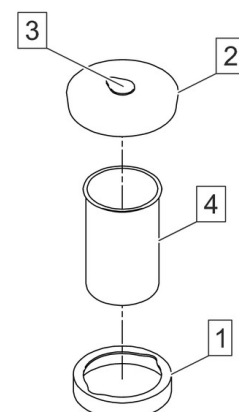
Damage to important components.

- ▶ Only refuel with permitted operating materials.
- ▶ Do not refuel with contaminated operating materials.
- ▶ Ensure that no water gets into the tank during refuelling.
- ▶ Do not mix different operating materials.

✓ Trained personnel

- ▶ ⚠ Switch off and secure the machine. [▶ 182](#)
- ▶ ⚠ Comply with safety instructions for handling the lubricants and operating materials. [▶ 49](#)

- ▶ Remove any dirt from the fitting (1) and the cover (2).
- ▶ If present, unlock the cover (2) using the key at (3).
- ▶ Unscrew the cover (2).
- ▶ If present, remove the sieve (4) and clean it.
  - ▷ Check the sieve for holes and replace it if necessary.
- ▶ Insert the sieve (4).
- ▶ Refill the fuel using the nozzle (1).
- ▶ **i** Only fill with permitted fuels. [▶ 68](#)
- ▶ Screw on cap (2).
- ▶ If present, unlock the cover (2) using the key at (3).



### 7.1.3 Filling engine AdBlue tank

#### **⚠ CAUTION!**

Contact with hot liquids or machine parts.

Risk of burning

- ▶ Wear suitable protective gloves.
- ▶ Wear suitable safety goggles.
- ▶ Allow liquids or machine parts to cool down before working on or with them.

#### **⚠ CAUTION!**

Contact with aggressive liquids.

Chemical burns, skin reactions or eye injuries.

- ▶ Wear suitable protective gloves.
- ▶ Wear safety glasses.

#### **NOTICE!**

Refuelling with non-permitted or contaminated operating materials.

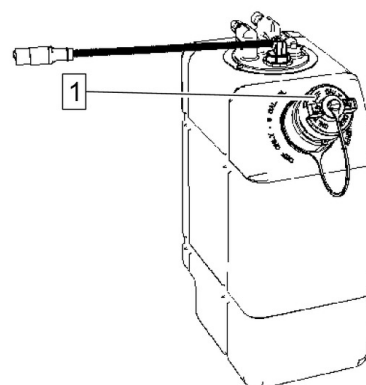
Damage to important components.

- ▶ Only refuel with permitted operating materials.
- ▶ Do not refuel with contaminated operating materials.
- ▶ Ensure that no water gets into the tank during refuelling.
- ▶ Do not mix different operating materials.

✓ Trained personnel

- ▶ ⚠ Switch off and secure the machine. [\[▶ 182\]](#)
- ▶ ⚠ Observe the safety instructions for all maintenance tasks. [\[▶ 190\]](#)
- ▶ ⚠ Comply with safety instructions for handling the lubricants and operating materials. [\[▶ 49\]](#)

- ▶ Clear any dirt from the cover (1) and the sealing surfaces.
- ▶ Unscrew the cover (1).
- ▶ Add AdBlue in accordance with the specification in the "Technical data" chapter.
- ▶ Screw on the cover (1).



#### 7.1.4 Tyre pressures

The specified tyre pressures (basic air pressure values) are designed for the maximum permitted machine load. Information about this is specified in the chapter on technical data. [▶ 71](#)

Driving with lower tyre pressures is recommended when driving off-road. However, this also results in a decrease in the maximum permitted load depending on the tyre pressure. Tyre pressure that is too low is just as harmful as tyre pressure that is too high!

The consequences of low tyre pressure are:

- Wear at edges of tread
- Tyre overheating
- Tyre carcass fatigue
- Reduced steering precision
- Increased fuel consumption

The consequences of high tyre pressure are:

- Wear in middle of tread
- Poor traction
- Increased risk of burst tyres (risk of accident and injury)
- Less comfort

Even pressure that is 20% too high or too low can reduce the operational performance by more than a quarter!

#### At an outside temperature over 25 °C

The actual tyre pressure increases by itself at the following outside temperatures.

| Temperature range | Increase in original tyre pressure |
|-------------------|------------------------------------|
| 25 – 29 °C        | 4%                                 |
| 30 – 34 °C        | 6%                                 |
| 35 – 39 °C        | 8%                                 |
| 40 – 45 °C        | 10%                                |

 The basic air pressure must be reduced accordingly.

#### At an outside temperature below 0 °C

Using tyres in the cold (outside temperature below 0 °C) requires increasing the basic air pressure. This increase depends on the outside temperature at the area of use. Additionally, special safety measures may be necessary for very low temperatures (contact tyre service).

#### 7.1.5 Preparing the machine for cold climate operations

Prior to using the machine in temperatures below 0 °C, the following actions have to be taken.

- ▶ Fill the water tank and coolant tank with antifreeze.
- ▶ If possible, drain the water from the tanks, water-bearing lines and components.
- ▶ Refuel with winter diesel.
- ▶ Before starting the machine, use the fuel prefilter heating system to heat the fuel (optional).
- ▶ Before starting, preheat the machine with the auxiliary heating (optional).
- ▶ Drain water from the fuel prefilter.
- ▶ Do not use or push-start a machine with a frozen battery or attempt to start it with starter cables. Doing so poses an explosion hazard.
- ▶ Ensure that the batteries are sufficiently charged.
- ▶ Ensure that all components and the added oil are suitable for the temperature range.
- ▶ After switching on the machine, let it warm up for a few minutes while idling.
- ▶ If the tyres are inflated with air, adjust the air pressure for the temperature range.
  - ▷ If necessary, increase the base air pressure.

698-007

### 7.1.6 Preparing the machine for an increased ambient temperature

Prior to using the machine at ambient temperatures above 30 °C, the following actions have to be taken.

- ▶ Ensure that the added oil is suitable for the temperature range.
- ▶ Ensure that the engine is prepared for applications at ambient temperatures above 30 °C.
  - ▷ Have the engine adjusted by an engine service workshop.
- ▶ If the tyres are inflated with air, adjust the air pressure for the temperature range.[\[▶ 71\]](#)
  - ▷ If necessary, reduce the base air pressure.

699-004

### 7.1.7 Preparing the machine for use at high altitude

Prior to using the machine at altitudes above 1000 m above sea level, the following actions have to be taken:

- ▶ Ensure that the engine is prepared/adjusted for applications at high elevations.
  - ▷ Have the engine adjusted by an engine service workshop.

## 7.2 General

1927-004

### 7.2.1 Activating the emergency stop

#### **WARNING!**

Emergency stop button misuse.

Risk of severe injury or death due to the machine suddenly stopping.

- ▶ Only use the emergency stop button for an emergency.
- ▶ If possible, slow the machine down using the brake pedal until it comes to a standstill.

#### **NOTICE!**

Emergency stop button misuse.

Damage to the engine.

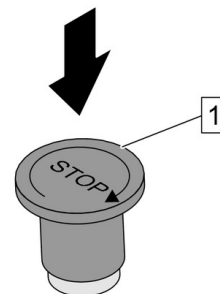
- ▶ Do not use the emergency stop button as a default method of switching off the machine.
- ▶ Only use the emergency stop button for an emergency.

✓ Trained personnel

- ▶ Trigger the emergency stop by pressing the button (1) firmly.

*The machine engine switches off, the parking brake is engaged.*

 After pressing the emergency stop button, it must first be switched off again before the machine can be started. [▶ 148](#)



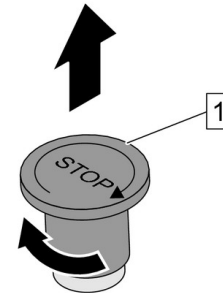
1928-003

### 7.2.2 Switching off the emergency stop

✓ Trained personnel

- ▶ Turn the button (1) clockwise.

*The machine can be started again.*



11903-002

### 7.2.3 Installing and removing the articulated joint lock

#### **⚠ WARNING!**

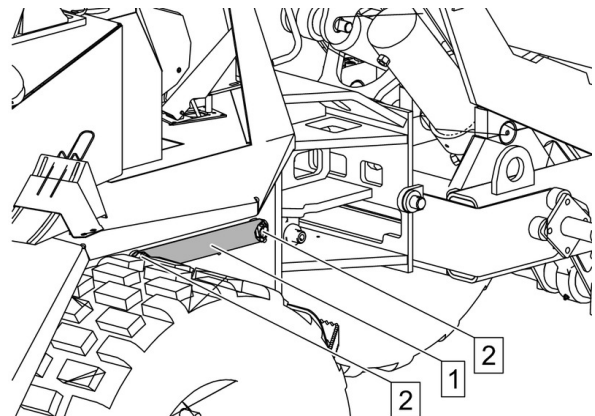
Danger when attaching the articulated joint retainer.

Risk of severe or even fatal injuries due to crushing between the vehicle front end and rear section.

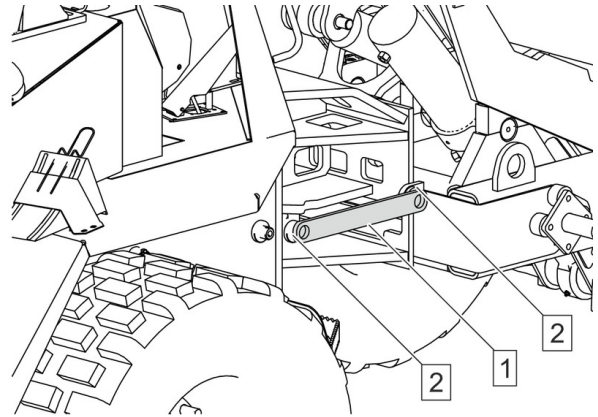
- ▶ Switch off the machine.
- ▶ Securing the machine with a wheel chock.
- ▶ Make sure that the machine cannot be switched on and steered by anybody else.

✓ Trained personnel

- ▶ ⚠ Switch off the machine.
- ▶ ⚠ Securing the machine with a wheel chock.
- ▶ Remove the split pins from the support points (2) and remove the articulated joint lock (1).



- ▶ If necessary, steer the machine such that the articulated joint lock (1) can be placed in the mounts (2).
- ▶ Insert the articulated joint lock (1) at the support points (2) and secure with split pins.



- ▶ Return the articulated joint lock to its holder after working on the machine.

11904-001

#### 7.2.4 Inserting the bucket lock

##### **⚠ WARNING!**

Uncontrolled lowering of the bucket.

Risk of severe or even fatal injuries due to crushing.

- ▶ Insert the bucket lock before performing any work under the raised bucket.

##### **⚠ WARNING!**

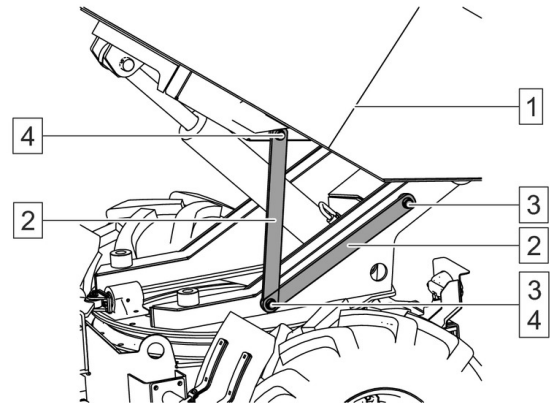
Drive the machine with the skip raised.

Risk of severe or even fatal injuries due to collision between the skip and covering rocks or other parts.

- ▶ Lower the skip before every drive.

- ✓ Trained personnel
- ✓ Machine switched on.
- ▶ **⚠** Make sure that the parking brake is engaged.

- ▶ Swing the bucket (1) to the centre position and raise it.
- ▶ Remove the split pins from the support points (3) and remove the bucket lock (2)
- ▶ Insert the bucket lock (2) at the support points (4) and secure with split pins.



- ▶ Return the bucket lock to its holder after working under the bucket.
- ▶ Lower the bucket.

4581-002

### 7.2.5 Folding the rollover bar up (optional)

#### **⚠ CAUTION!**

Components carelessly moved.

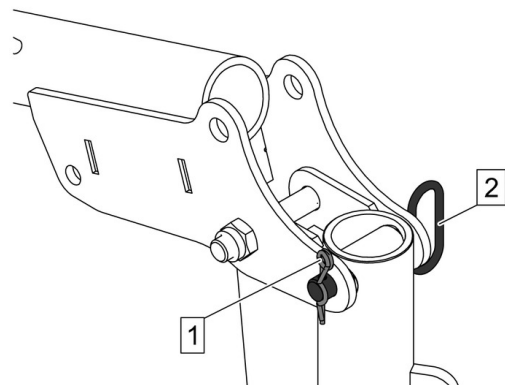
Crushing injuries due to uncontrolled movement of components.

- ▶ When unlocking components, hold them firmly and slowly move them to the position required.
- ▶ Keep limbs out of the range of movement of the components to be unlocked.

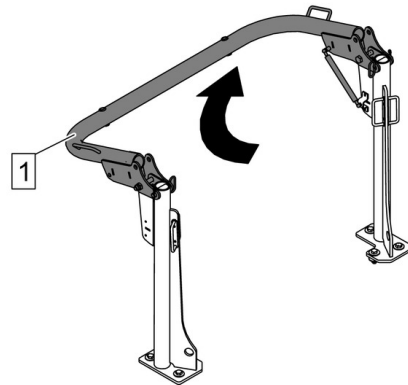
✓ Trained personnel

- ▶ ⚠ Switch off the machine. [▶ 181](#)

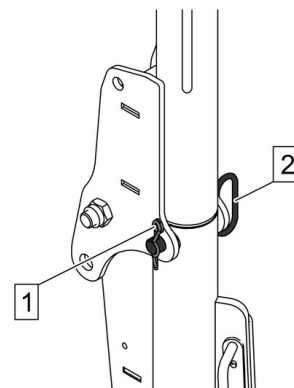
- ▶ Pull out the split pin (1).
- ▶ Pull out the pin (2).
- ▶ Repeat the process on the other side.



- Fold the bar (3) up.



- Insert the bolt (2) and secure it with a split pin (2).
- Repeat the process on the other side.



4580-002

### 7.2.6 Folding the rollover bar down (optional)

#### **WARNING!**

Operating the machine with the roll bar folded down.  
Risk of severe injury or death due to unsecured driver's cab.

- As a rule, never operate the machine with the roll bar folded down.
- Only use the folding function of the roll bar during transport.

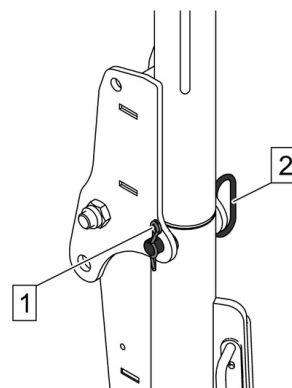
#### **CAUTION!**

Components carelessly moved.  
Crushing injuries due to uncontrolled movement of components.

- When unlocking components, hold them firmly and slowly move them to the position required.
- Keep limbs out of the range of movement of the components to be unlocked.

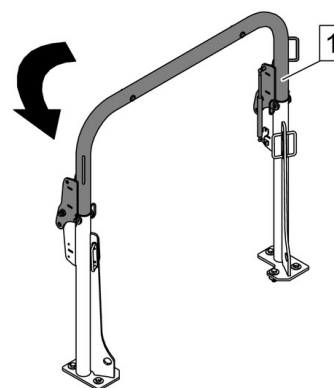
- ✓ Trained personnel
-  Switch off the machine. [▶ 181](#)

- ▶ Pull out the split pin (1).
- ▶ Pull out the pin (2).
- ▶ Repeat the process on the other side.

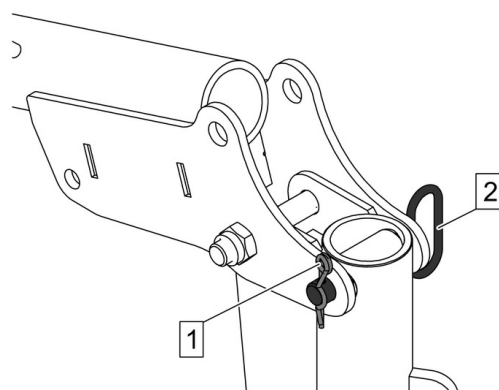


- ▶ Fold the bar (3) down.

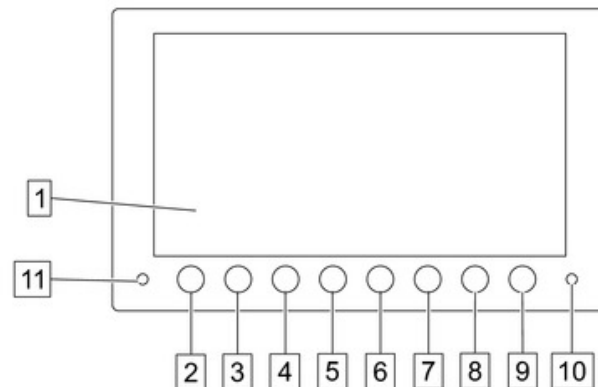
**⚠** Whenever the machine is commissioned, the bar (3) must be folded up again and locked in place.



- ▶ Insert the bolt (2) and secure it with a split pin (2).
- ▶ Repeat the process on the other side.



### 7.2.7 Operating/adjusting the camera monitor



#### Switching on the monitor

- ▶ Press and hold button 9.  
*The monitor is switched on.*

#### Adjusting the dimmer

- ▶ Press button 2.  
*The view changes between daylight and night.*

#### Adjusting the camera image

 The camera image can only be changed if more than one camera is installed.

- ▶ Press button 3.  
*The view changes between the images from the different cameras.*

#### Adjusting the volume

- ▶ Press button 6 or 7.  
*The volume is reduced or increased.*  
*The set volume is shown on the display when the button is pressed.*

#### Selecting the main menu

- ▶ Press button 8.  
*The main menu is displayed.*
- ▶ Press button 8.  
*The main menu changes between SETUP, IMAGE and CAMERA.*

#### Selecting a submenu

- ▶ When the main menu is selected, press button 3.  
*The submenu is displayed.*
- ▶ Press button 4 or 5.  
*The cursor changes between the submenu items. The selected submenu is displayed in bold type.*

## **Main menu SETUP**

### **Submenu DIMMER**

#### **Adjusting the dimmer**

- ▶ Press button 6 or 7.  
*The setting changes between daylight and night.*

### **Submenu LANGUAGE**

#### **Setting the language**

- ▶ Press button 6 or 7.  
*The language changes between ENGLISH, GERMAN, ITALIAN, FRENCH, SPANISH, KOREAN And JAPANESE.*

### **Submenu DIRECTION**

#### **Setting the orientation of the display on the screen**

- ▶ Press button 6 or 7.  
*The orientation of the display on the screen changes between 0° and 180°.*

### **Submenu DISPLAY**

#### **Setting the image format of the display on the screen**

- ▶ Press button 6 or 7.  
*The image format of the display on the screen changes between WIDESCREEN, NORMAL, CINEMA and FULL SCREEN.*

### **Submenu MARKER**

#### **Setting distance markers**

 The displayed distance markers are only intended as an orientation aid. The distance markers are hidden as standard. The distance markers may only be set in consultation with the company PAUS.

- ▶ Press button 6 or 7.  
*The distance markers are displayed or hidden.*

### **Submenu RESET**

#### **Resetting the monitor settings**

- ▶ Press button 6 or 7.  
 *All settings made are reset to the delivery state settings.*

## **Main menu IMAGE**

### **Submenu CONTRAST**

#### **Setting the screen contrast**

- ▶ Press button 6 or 7.  
*The contrast is reduced or increased.*  
*The set contrast value is shown on the display.*

### **Submenu BRIGHTNESS**

#### **Setting the screen brightness**

- ▶ Press button 6 or 7.  
*The brightness is reduced or increased.*  
*The set brightness value is shown on the display.*

### **Submenu COLOUR**

#### **Setting the screen colour**

- ▶ Press button 6 or 7.  
*The colour is reduced or increased.*  
*The set colour value is shown on the display.*

### **Submenu COLOUR TONE**

#### **Setting the screen colour tone**

- ▶ Press button 6 or 7.  
*The colour tone is reduced or increased.*  
*The set colour tone value is shown on the display.*

## **Main menu CAMERA**

### **Submenu CAM**

#### **Reflecting the camera image**

 The camera images can be reflected separately for each camera installed.

- ▶ Press button 6 or 7.  
*The camera image changes between NORMAL and REFLECTED.*

#### **Switching off the monitor**

- ▶ Press and hold button 9.  
*The monitor is switched off.*

## 7.2.8 Setting the display time

### **⚠ WARNING!**

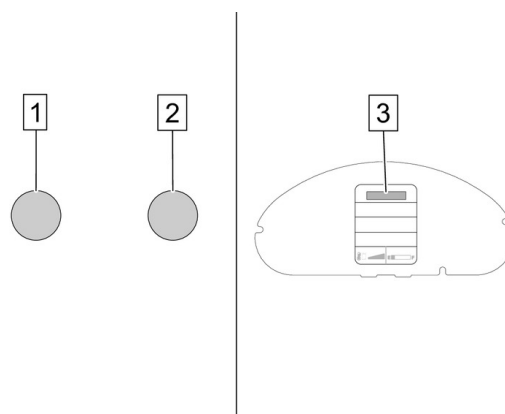
Configure settings on the display while driving.

Risk of severe injury or death due to unexpected movement of the machine.

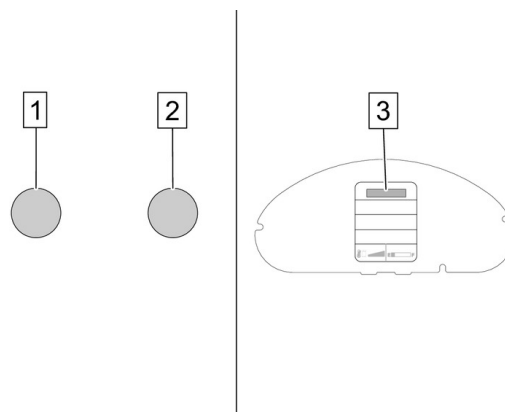
- ▶ Never configure settings while driving.

- ✓ Trained personnel
- ✓ The ignition is switched on.

- ▶ Set hours.
  - ▷ Hold button (2) down for 5 s.  
*When it is released, the hour display for (3) is selected.*
  - ▷ Set the value using the button (1).



- ▶ Set minutes.
  - ▷ Hold button (2) down for 5 s.  
*When it is released, the minute display for (3) is selected.*
  - ▷ Set the value using the button (1).
- ▶ Hold button (2) down for 5 s.  
*The settings are saved.*

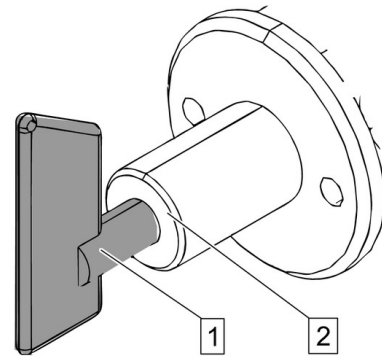


## 7.2.9 Switching on the battery main switch

- ✓ Trained personnel

- ▶ Insert the battery main switch (1) into (2) and switch it on by turning it to the right.

*The power supply of the machine is switched on.*



1627-003

### 7.2.10 Switching off the battery main switch

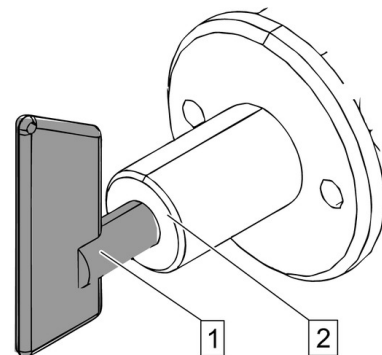
- ✓ Trained personnel

- ▶ Switch off the ignition.

- ▶  Wait 2 minutes.

- ▶ Switch off the battery main switch (1) by turning it to the left then pull the switch out.  
*The power supply is switched off and the residual voltage is discharged if the indicator light goes out.*

- ▶  Ensure that the battery main switch cannot be switched back on by third parties during the work to be performed.



## 7.3 Driving the machine

1167-004

### 7.3.1 Entering the driver's platform

#### **⚠ CAUTION!**

Incorrectly entering or exiting the driver's platform.

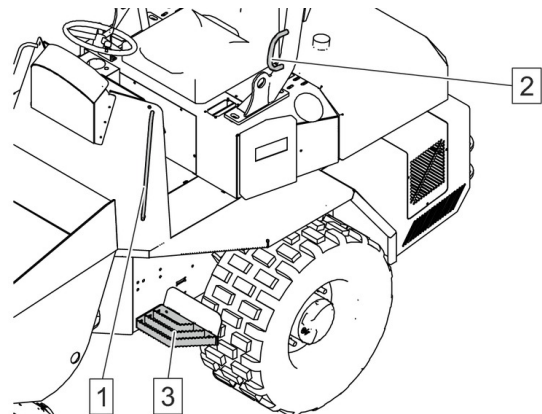
Risk of injury due to slipping or unforeseeable machine movements.

- ▶ Only enter or exit when the machine is stationary.
- ▶ Before entering or exiting, make sure that the steps, railings, shoes, hands and gloves are clean and dry.
- ▶ Face towards the machine when entering or exiting the driver's platform.
- ▶ Do not hold onto the steering wheel or other control elements when entering or exiting.
- ▶ When entering or exiting the machine, use only the equipment provided for this purpose.
- ▶ Always maintain contact with the machine at 3 points when entering or exiting. This means that one hand and two feet or two hands and one foot are in contact with the machine at all times.
- ▶ Observe the following operating instructions.

✓ Trained personnel

Valid for machines:

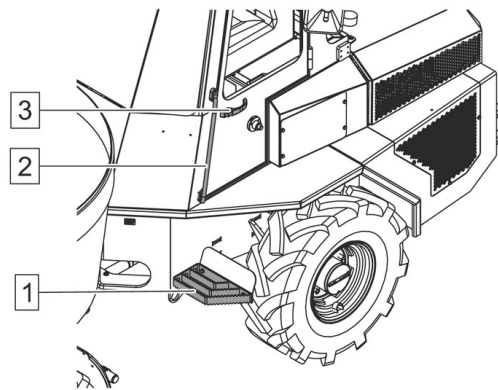
- With the driver's platform open
  - ▶ Face the machine when entering the driver's platform.
    - ▷ Hold onto the bars (1) and (2).
    - ▷ Climb into the driver's cab using the steps (3).
  - ▶ Sit down on the driver's seat.
  - ▶ Fasten seat belt at the driver's seat.



Valid for machines:

- With the driver's platform closed

- ▶ Face the machine when entering the driver's platform.
  - ▷ Hold on to the bar (2).
  - ▷ Open door (3).
  - ▷ Climb into the driver's cab using the steps (1).
- ▶ Sit down on the driver's seat.
- ▶ Close the door (3).
- ▶ Fasten seat belt at the driver's seat.



4594-001

### 7.3.2 Rotating the driver's platform

#### **⚠ WARNING!**

Turn the driver's platform while driving.

Risk of severe injury or death due to uncontrolled movement of the machine.

- ▶ Never rotate or unlock the driver's cab while driving.

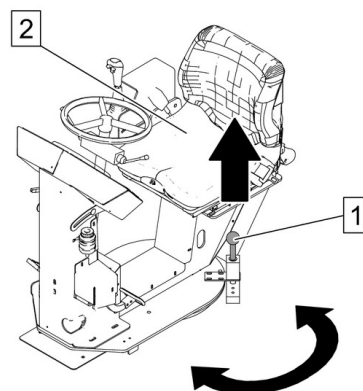
- ✓ Trained personnel
- ✓ Machine switched off.

When driving, the driver's platform must be turned in the direction that provides the best visibility around the machine.

- ▶ Pull up the bolt (1).
- ▶ Turn the driver's platform (2) to the required position.
- ▶ **⚠** Make sure the bolt (1) locks again.

**⚠** If the "Lock driver's platform" indicator lamp lights up in the display, the driver's platform is not engaged or a fault has developed.

*The machine cannot be driven when a gear is not engaged.*



12462-001

### 7.3.3 Adjusting the driver's seat

#### **⚠ WARNING!**

Adjusting the driver's seat while in motion

Risk of severe or even fatal injury due to unexpected movement of the machine.

- ▶ Never adjust the driver's seat while in motion.

**⚠ CAUTION!**

Incorrectly adjusted driver's seat.

Damage to health.

- ▶ Adjust the driver's seat ergonomically and individually to the driver before operating the machine.

- ✓ Trained personnel

**Set weight**

- ✓ Seat occupied
- ▶ Fold out the lever (1) out.
- ▶ Turn the lever (1) and set according to the weight of the driver using the scale.
- ▶ Fold the lever (1) in.

**Set longitudinal position**

- ▶ Pull the lever (2) up and hold.
- ▶ Move seat.
- ▶ Release lever (2).

*Lever (2) engages. The driver's seat is fixed in place.*

**Adjusting the backrest**

- ▶ Pull the lever (3) up and hold.
- ▶ Adjust the backrest.
- ▶ Release lever (3).

*Lever (3) engages. The driver's seat is fixed in place.*

**Adjusting armrest (optional)**

- ▶ If necessary, fold armrest (6) up or down.
- ▶ If necessary, adjust the inclination of the armrest.
  - ▷ Turn the handwheel (7).



**7.3.4 Operating the immobilizer (optional)**

1911-002

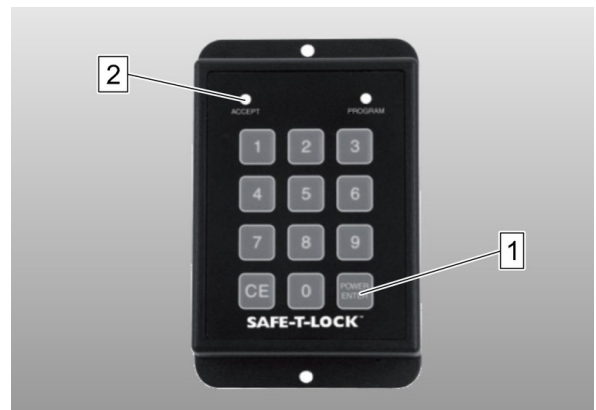
- ✓ Battery main switch switched on.

### Enabling the immobilizer

- ▶ Enter the user ID with the numerical key block.
  - ▷ If necessary, add the user first. [▶ 164](#)
- ▶ Enter the user PIN with the numerical key block.

When a user ID is used for the first time, the user PIN is preset to 1234. The user PIN can be at any time. [▶ 162](#)

- ▶ Confirm the entry with button (1).  
*Lamp (2) flashes and a high-pitched tone sounds to confirm that the immobilizer has been successfully enabled.*



### Changing user PIN

- ▶ Enter the user ID with the numerical key block.
- ▶ Enter the user PIN with the numerical key block.
- ▶ Confirm the entry with button (4).  
*Lamps (1) and (2) flash and a high-pitched tone sounds to confirm the successful input.*
- ▶ Press button 1 on the numerical key block.
- ▶ Confirm the entry with button (4).
- ▶ Enter a new 4 to 8-digit PIN with the numerical key block.  
*Each input is confirmed by lamp (1) flashing.*
- ▶ Confirm the entry with button (4).
- ▶ Enter the same PIN again.
  - ▷ Confirm the entry with button (2).  
*Lamps (1) and (2) flash and a high-pitched tone sounds to confirm the successful change.*
- ▶ Complete and save the change with button (3).  
*Lamps (1) and (1) flash and a high-pitched tone sounds to confirm the successful saving.*



### Editing the immobilizer settings

The following settings can be made on the immobilizer:

- Change administrator PIN.
- Add or delete user.
- Check last user.
- Switch service alarm on or off.

## Login as administrator

To make settings on the device, you first have to log in as administrator.

- ▶ Press button 0 on the numerical key block twice.
- ▶ Enter the 4 to 8-digit administrator PIN on the numerical key block.
- ▶ Confirm entry at (4).

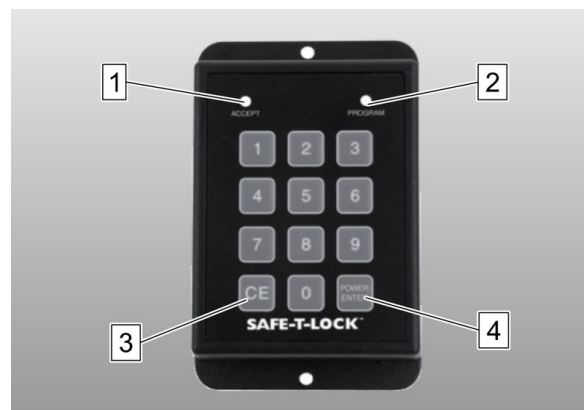
*Lamps (1) and (2) flash and a high-pitched tone sounds to confirm the successful login.*

The default PIN is set to 1234. The PIN should be changed after commissioning. [▶ 163](#)

The PIN can be reset to the default setting at any time. [▶ 164](#)

- ▶ After changing the settings, log out as an administrator with button (3).

If the device is not used for more than 1 minute, an automatic logout will be effected.



## Changing administrator PIN

- ✓ Log in as administrator.

- ▶ Press button 1 on the numerical key block.
- ▶ Press button (4).  
*Lamp (2) flashes and a high-pitched tone sounds to confirm that the PIN can now be changed.*
- ▶ Enter a new 4 to 8-digit PIN with the numerical key block.  
*Each input is confirmed by lamp (1) flashing.*
- ▶ Confirm the entry with button (4).
- ▶ Enter the same PIN again.
  - ▷ Confirm the entry with button (4).  
*Lamps (1) and (2) flash and a high-pitched tone sounds to confirm the successful change.*
- ▶ Complete and save the change with button (3).  
*Lamps (1) and (2) flash and a high-pitched tone sounds to confirm the successful saving.*



### Resetting administrator PIN to default setting

- ▶ Press button 1, 3, 7 and 9 on the numerical key block together until a tone confirms the input.  
*Lamps (1) and (2) flash to confirm the resetting to the default settings.*
- ▶ Complete and save the change with button (3).  
*Lamps (1) and (2) flash and a high-pitched tone sounds to confirm the successful saving.*



### Adding or delete users

- ✓ Log in as administrator.
- ▶ Press button 2 on the numerical key block.
- ▶ Confirm the entry with button (4).  
*Lamps (1) and (2) flash and a high-pitched tone sounds to confirm the successful input.*
- ▶ Enter a new user in the form of a user ID between 01 and 99.
- ▶ Confirm the entry with button (4).  
*Lamp (1) flashes and a high-pitched tone sounds to confirm the successful input.*  
*Lamp (2) flashes and a deep tone sounds to indicate that the user ID is already in use.*
- ▶ If necessary, repeat the procedure with another user ID until the input is confirmed.
- ▶ Confirm the entry with button (4).  
*Lamp (1) flashes and a high-pitched tone sounds to confirm the successful user activation.*



Pressing button (4) again switches between active and inactive users.

- ▶ Complete and save the change with button (3).

*Lamps (1) and (2) flash and a high-pitched tone sounds to confirm the successful saving.*

### Checking last user

- ✓ Log in as administrator.
- ▶ Press button 3 on the numerical key block.
- ▶ Confirm the entry with button (4).  
*Lamps (1) and (2) flash and a high-pitched tone sounds to confirm the successful input.*
- ▶ Check the last user ID with button (4).  
*The user ID is displayed by lamps (1) and (2).*

Lamp (1) shows the first digit of the user ID.  
Lamp (2) shows the second digit of the user ID.  
The number of times the lamp flashes shows the digit.  
The user ID can be checked again by pressing button (4) again.

- ▶ End check with button (3).

*Lamps (1) and (2) flash and a high-pitched tone sounds to confirm the successful ending.*



### Switching the service alarm on or off

When the service alarm is switched on, an alarm sounds after 250 operating hours as a reminder that the machine is due for servicing.

- ✓ Log in as administrator.
- ▶ Press button 4 on the numerical key block.
- ▶ Confirm the entry with button (4).  
*Lamps (1) and (2) flash and a high-pitched tone sounds to confirm the successful input.*
- ▶ Switch the service alarm on with button (4).  
*Lamp (1) flashes and a high-pitched tone sounds to confirm the successful input.*

Press button (4) again to switch the service alarm off again.

- ▶ End the input with button (3).

*Lamps (1) and (2) flash and a high-pitched tone sounds to confirm the successful input.*



### 7.3.5 Switching the machine on

#### **DANGER!**

Operating the machine in potentially explosive areas or explosive atmosphere.

Risk of death due to explosion of gas, dust, vapors or fog.

- ▶ Do not operate the machine or switch it on in potentially explosive areas or in an explosive atmosphere.
- ▶ If necessary, use gas detectors or other sensors suitable for the local level of risk.
- ▶ Observe local regulations and hazard warnings.

#### **WARNING!**

Commissioning the machine without having read the machine manual.

Death or serious injury due to operating error or failure to observe safety measures and safety instructions!

- ▶ Read the manual before commissioning the machine.
- ▶ Make sure that the content of the manual has been understood and can be properly applied.
- ▶ Before beginning work, familiarise yourself with the machine and learn how to operate the machine in a safe area where no other persons are in danger.

#### **WARNING!**

Commissioning and switching the machine on without taking corresponding safety measures.

Risk of severe injury or death!

- ▶ Observe the information on personnel qualification in the chapter on safety.
- ▶ Inform other persons about the planned work.
- ▶ Visually check that there is nobody under, on or near the machine.
- ▶ Direct persons to vacate the danger areas, including the swivel and travel ranges of the machine.

#### **WARNING!**

Machine operation from non-permissible positions.

Risk of severe or even fatal injury due to uncontrolled movement of the machine or the attachment.

- ▶ Only operate the machine from the workstations provided for this purpose.
- ▶ If present, put on a safety belt prior to operation.
- ▶ Do not lean out of the machine while the machine is in motion.
- ▶ Close the doors before starting the machine and keep them closed while the machine is in motion.

### **WARNING!**

Inhaling poisonous exhaust fumes.

Loss of consciousness, severe illnesses and death.

- ▶ Avoid inhaling exhaust fumes if possible.
- ▶ Switch off the engine in the event of a long standstill.
- ▶ Do not turn on the engine in enclosed spaces unless the exhaust fumes can be captured at the discharge point of the exhaust pipe and directed outside or unless the spaces are sufficiently ventilated.
- ▶ Areas with differing capacities for handling exhaust fumes must be physically separated; such as workshops and staff rooms.
- ▶ Observe the legal regulations of the operator's country with respect to exhaust emissions of the machine; this applies in particular to the use of the machine in enclosed spaces or in poorly ventilated locations. The legal regulations may differ for the specific use of the machine.

### **WARNING!**

Driving with loose parts on or in the machine.

Risk of severe injury or death from flying parts!

- ▶ Remove loose parts or tools from the machine or secure them to prevent them from slipping.

### **NOTICE!**

Operating the machine with the emission cleaning system excessively at idle.

Increased need for maintenance of the exhaust system.

- ▶ Do not operate the machine in idle for extended periods with the catalytic converter or diesel particulate filter.

### **NOTICE!**

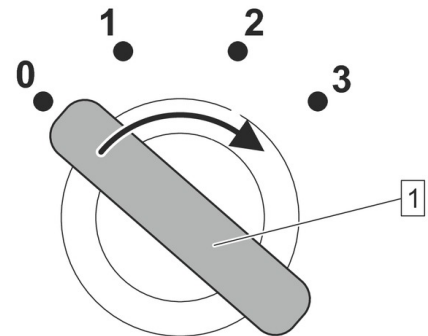
Failure to observe fault messages.

Damage to components.

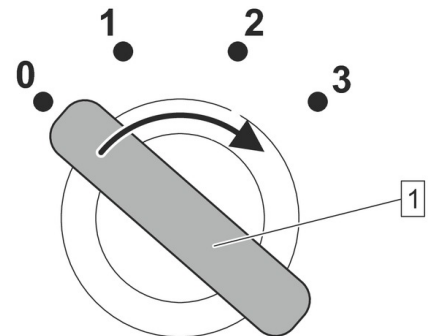
- ▶ After switching on the engine, make sure that no fault messages are displayed on the control and monitoring elements.
- ▶ After switching on the machine, make sure that all pressures displayed on the pressure gauges are in the specified operating ranges.
- ▶ If faults have developed, first identify and eliminate them.

- ✓ Trained personnel
- ✓ Rollover bar folded up (optional)
- ✓ Battery main switch switched on
- ✓ Emergency stop button switched off.
- ▶ Enter the driver's platform.[\[▶ 159\]](#)
- ▶ Close the door. (optional)
- ▶ Turn the driver's platform in the direction of travel.[\[▶ 160\]](#)
- ▶ Adjust the driver's seat.[\[▶ 160\]](#)
- ▶ Adjust the steering wheel inclination.
- ▶ Fasten the seat belt.
- ▶ Enable the immobilizer. (optional)[\[▶ 162\]](#)

- ▶ Turn the ignition key (1) to the first position.
- ▶  Make sure that no warning symbols are displayed.
  - ▷ If there are any, first eliminate the faults.
- ▶ Use the horn to get persons out of the danger area.
- ▶ Lift your foot off the accelerator.



- ▶ Make sure that the travel direction switch is in neutral.
- ▶ Turn the ignition key (1) the rest of the way.
  - ▷ Let go of the ignition key once the engine has started.
  - ▷ Never try to start the engine for longer than 10 seconds. Repeat the starting procedure if necessary.
  - ▷ For subsequent starting procedures, wait at least one minute between each attempt to start the machine.
- ▶  If any warnings are displayed or warning lamps light up, switch the machine off and first eliminate the fault.

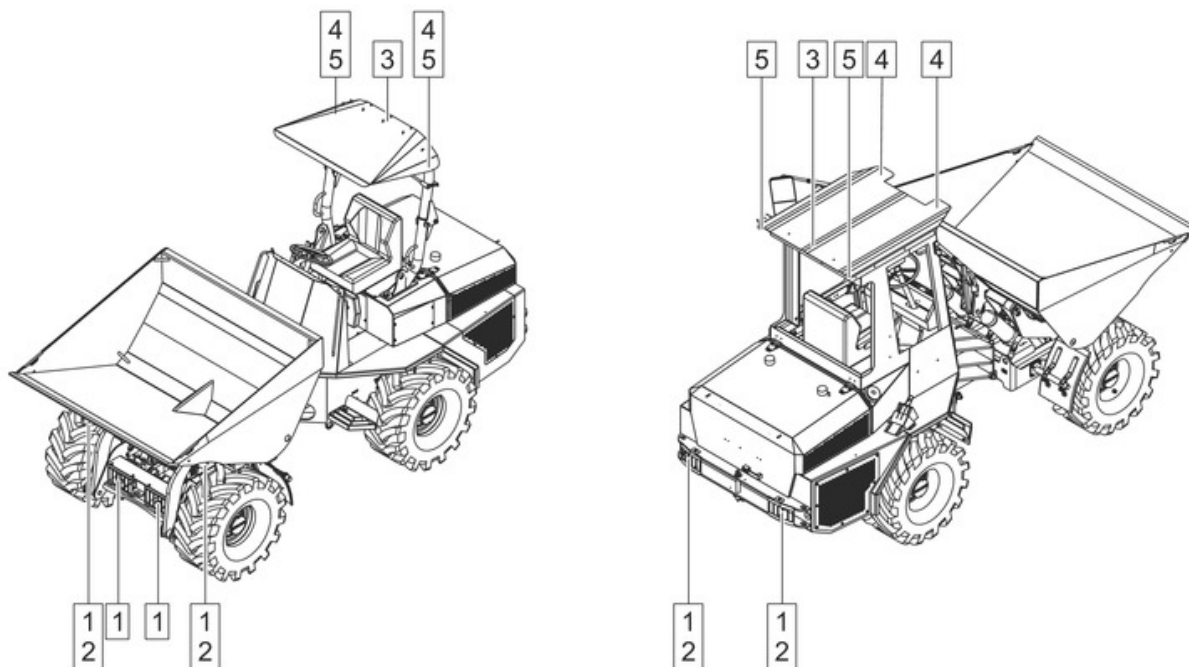


11887-001

### 7.3.6 Switching on lighting

- ✓ Trained personnel
- ✓ Battery main switch switched on.
- ✓ The ignition is switched on.

The lighting can be switched on as follows with the relevant switches.



| Item                                                      | Symbol | Designation                     |
|-----------------------------------------------------------|--------|---------------------------------|
| 1                                                         |        | Parking lights / driving lights |
| 2                                                         |        | Hazard warning lights           |
| 3                                                         |        | Rotating flashing beacon */**   |
| 4                                                         |        | Front work lights *             |
| 5                                                         |        | Rear work lights *              |
| * Optional<br>** The position of the component may differ |        |                                 |

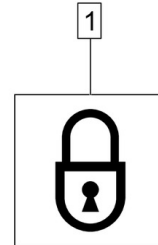
11884-001

### 7.3.7 Preparing the machine for driving

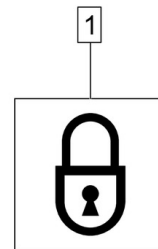
#### Driving on construction sites

- ✓ Trained personnel
- ✓ Machine switched on.

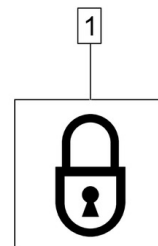
- ▶ Switch on switch (1).  
*The joystick functions for operating the bucket are enabled.*



- ▶ Lower the bucket (1) and swing it to the centre position.  
*The bucket warning lamp (2) goes out.*



- ▶ Switch off the switch (1).  
*The joystick functions for operating the bucket are disabled.*



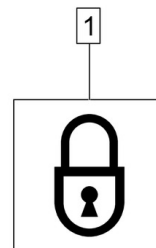
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#### Driving on public highways

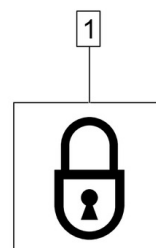
If the machine is to be operated on public highways or on areas with an equivalent legal status, the relevant regulations applicable in the country of use must be observed (for example the StVZO in Germany).

- ✓ Trained personnel
- ✓ Machine switched on.

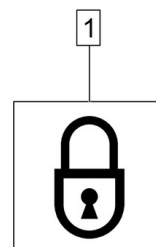
- ▶ Switch on switch (1).  
*The joystick functions for operating the bucket are enabled.*



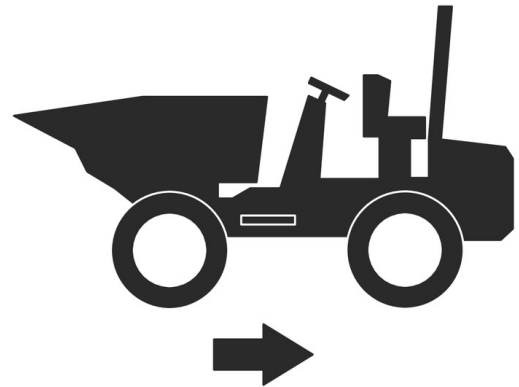
- ▶ Lower the bucket (1) and swing it to the centre position.  
*The bucket warning lamp (2) goes out.*



- ▶ Switch off the switch (1).  
*The joystick functions for operating the bucket are disabled.*



- ▶ Turn the driver's platform in the direction of travel.  
[▶ 160]



11909-003

### 7.3.8 Driving the machine

#### **⚠ WARNING!**

Working on unknown terrain without having thoroughly checked this in advance.

Risk of severe injuries or death due to destruction of utility equipment!

- ▶ Examine the work area for possible dangers such as overhead electrical wires, electric cables, gas lines or water lines before beginning work.
- ▶ Make sure that no underground supply systems can be damaged. Mark points accordingly if necessary.
- ▶ Ensure the ground has sufficient load capacity.
- ▶ Check the general conditions of the route before putting the vehicle in motion, including possible damage and obstacles.
- ▶ Permitted inclines not exceeded.
- ▶ If necessary, make sure that the driving and work area is well illuminated.

### **WARNING!**

Moving the machine without regard for the environment or the limits of the machine.

Risk of severe injury or death due to uncontrolled movement of the machine!

- ▶ Get persons out of the danger zone before putting the vehicle in motion.
- ▶ Switch the lighting on if the driving or work area is not adequately illuminated.
- ▶ Have a trained person assist you in the event of poor visibility, e.g. fog.
- ▶ Adjust the driving speed to the specific conditions and ground conditions.
- ▶ Comply with the maximum uphill gradients, downhill gradients and speed in accordance with the technical data.
- ▶ Avoid sudden starting, braking or turning.
- ▶ Only travel on arches, bridges or the like if they have sufficient load capacity.
- ▶ Be aware of the dimensions and weights of the machine corresponding to the technical data when driving over bridges, through tunnels and underpasses, etc.
- ▶ Make sure that there is sufficient headroom, including when the machine swings up.
- ▶ Keep sufficient distance away from the edges of construction pits and embankments.
- ▶ Do not drive horizontally along slopes.
- ▶ Take slopes at low speeds.
- ▶ Always look in the direction of travel, including when reversing. Use the reversing monitors, if installed.
- ▶ If the driver's field of view is restricted by components in the cab or attachments, walk around the machine before putting the vehicle in motion and make sure that there are no obstacles. This applies in particular for swinging, lifting and lowering attachments.
- ▶ Do not use the machine on public highways unless it is approved for this.
- ▶ Make sure that the machine's speed and steering can be controlled by the driver.
- ▶ Keep sufficient clearance from doors and passageways so that persons are not put at risk.

### **WARNING!**

Non-compliance with load limits for the machine.

Risk of severe injury or death due to overloading or tipping the machine.

- ▶ Observe the permitted weights and load specifications from the "Technical data" chapter.
- ▶ Do not make any modifications to the machine without approval from PAUS.
- ▶ Only operate attachments approved by PAUS.

### **NOTICE!**

Retracting the machine carelessly.

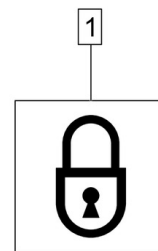
Damage to the machine or increased wear.

- ▶ For the first 50 operating hours, operate the machine with light loads and not at maximum engine speed.
- ▶ Note any warning indicators, and if necessary have the cause of any malfunction eliminated without delay.

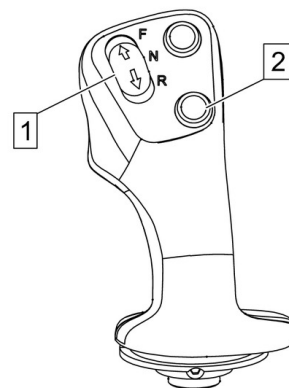
- ✓ Trained personnel
- ✓ Machine switched on
- ▶ If necessary, switch on the lighting.
- ▶ Use the horn to get persons out of the danger area.
- ▶ ⚠ Make sure that the camera system is operational.
- ▶ ⚠ Make sure that no one is standing or walking in the danger area.
- ▶ ⚠ In the event of poor visibility, have a trained person assist you.
- ▶ ⚠ Follow the instructions for driving downhill.

- ▶ Switch off the switch (1).

*The joystick functions for operating the bucket are disabled.*

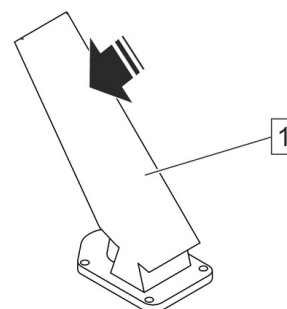


- ▶ Select the direction of travel using the joystick (1).  
[▶ 132](#)
- ▶ Select the gear with the joystick (2).  
[▶ 132](#)

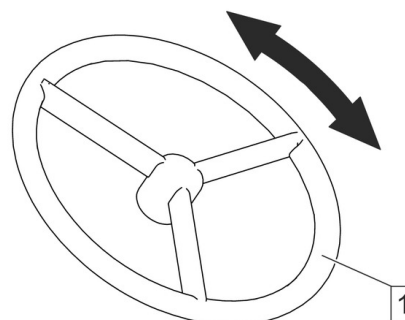


- ▶ Increase the speed of the machine using the accelerator (1).  
*The machine accelerates based on how far down the pedal is pressed.*

 Do not step on the accelerator abruptly.



- ▶ Use the steering wheel (1) to steer the machine.



703-004

### 7.3.9 Braking the machine

#### **WARNING!**

Unforeseen or abrupt braking of the machine.

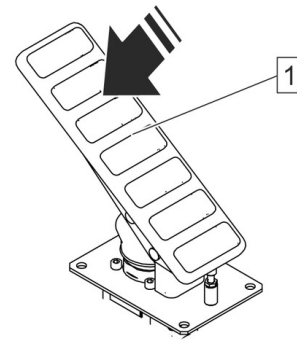
Risk of severe injury or death due to the machine sliding.

- ▶ Only brake the machine abruptly in an emergency.
- ▶ Adjust braking action to the speed and the road surface.
- ▶ Plan for a brake path that corresponds to the machine load.

- ✓ Trained personnel
- ✓ The machine accelerates.

- Operate the service brake with the brake pedal (1).  
*The machine is stopped in position or slowed according to the amount of pressure applied to the brake pedal.*

In addition to using the service brake, the machine can be slowed by releasing the accelerator. Reducing the engine speed effects the hydraulic travel drive and slows the machine.

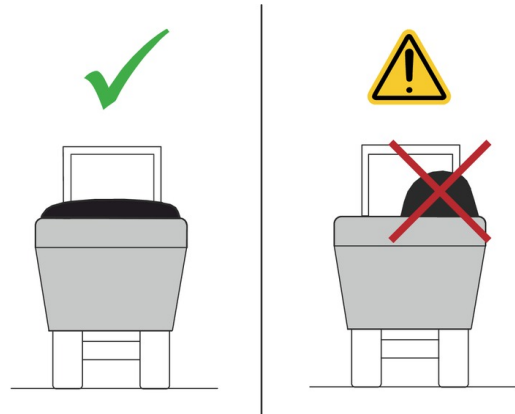


## 7.4 Beginning work

5276-001

### 7.4.1 Safety instructions for loading and transporting loads

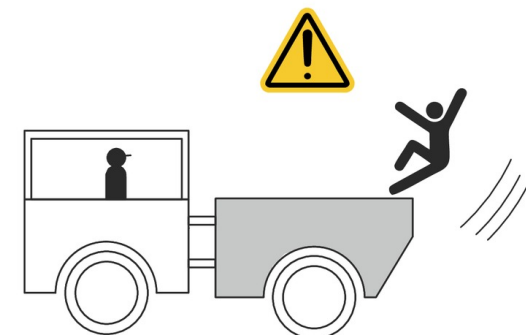
- ▶ Do not load the machine on one side only.
- ▶ Always pick up a load in the middle, at the centre of gravity.
- ▶ Make sure that the load cannot shift.



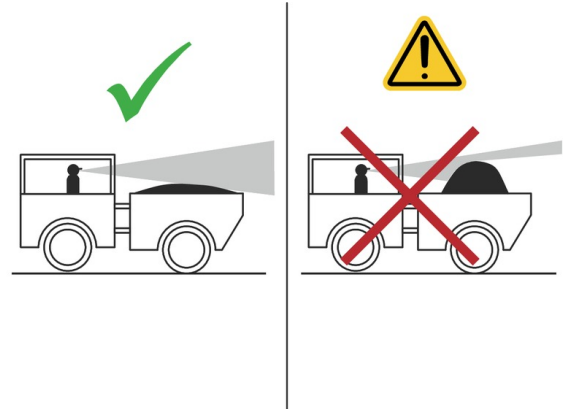
- ▶ Observe the permitted loads and inclines in the "Technical data" chapter. [▶ 66](#)



- ▶ Never transport persons in the bucket.



- ▶ Make sure that the field of view is not restricted by the load.
- ▶ Spread the load flat and even in the bucket.



4658-004

### 7.4.2 Working with the machine

#### **WARNING!**

Working on unknown terrain without having thoroughly checked this in advance.

Risk of severe injuries or death due to destruction of utility equipment!

- ▶ Examine the work area for possible dangers such as overhead electrical wires, electric cables, gas lines or water lines before beginning work.
- ▶ Make sure that no underground supply systems can be damaged. Mark points accordingly if necessary.
- ▶ Ensure the ground has sufficient load capacity.
- ▶ Check the general conditions of the route before putting the vehicle in motion, including possible damage and obstacles.
- ▶ Permitted inclines not exceeded.
- ▶ If necessary, make sure that the driving and work area is well illuminated.

#### **WARNING!**

Non-compliance with load limits for the machine.

Risk of severe injury or death due to overloading or tipping the machine.

- ▶ Observe the permitted weights and load specifications from the "Technical data" chapter.
- ▶ Do not make any modifications to the machine without approval from PAUS.
- ▶ Only operate attachments approved by PAUS.

#### **Loading the bucket**

- ✓ Trained personnel
- ▶ Set the bucket to the transport position.
- ▶  Drive the machine on horizontal surfaces.
- ▶ Straighten the wheels.
- ▶ Switch off the machine.

- ▶  Make sure that the driver's cab is not occupied when loading the machine.



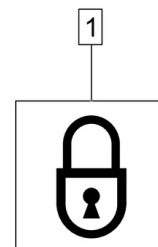
- ▶ Carefully perform loading with scoop, crane or similar external tool, make sure that stability is maintained.



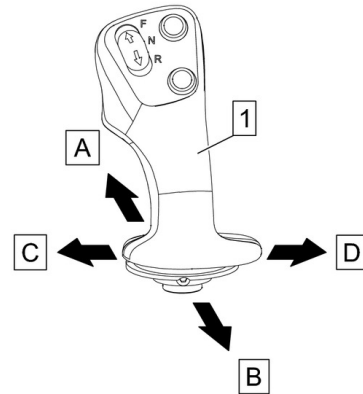
- ✓ Trained personnel
- ▶ Switch on the machine. [▶ 166](#)
- ▶ Drive the machine. [▶ 172](#)

### Operating the bucket

- ▶ Switch on switch (1).  
*The joystick functions for operating the bucket are enabled.*



- Operate the joystick (1).  
(A) = Tip bucket out.  
(B) = Fold bucket in.  
(C) = Move bucket left.  
(D) = Move bucket right.



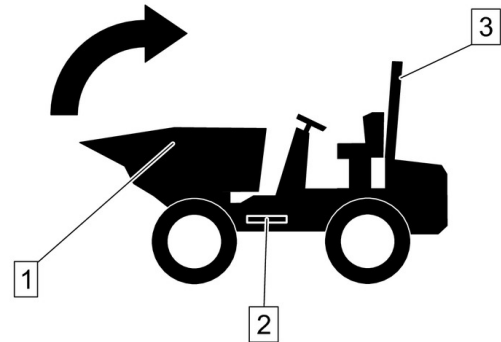
## 7.5 Ending work

4588-002

### 7.5.1 Set machine to transport position

✓ Trained personnel

- ▶ Unload bucket (1).
- ▶ Lower bucket (1) to the transport position.
- ▶ Straighten the wheels.
- ▶ Switch off and secure the machine. [▶ 182]
- ▶ Install articulated joint securing mechanism (2).
- ▶ If necessary, fold the rollover bar (3) down. (optional)[▶ 152]



4706-002

### 7.5.2 Switching the machine off

#### **⚠ WARNING!**

Switching off the machine while in motion.

Risk of severe injury or death due to the machine suddenly stopping.

- ▶ Bring the machine to a standstill before switching it off.

#### **NOTICE!**

Machine switched off in full-load operation.

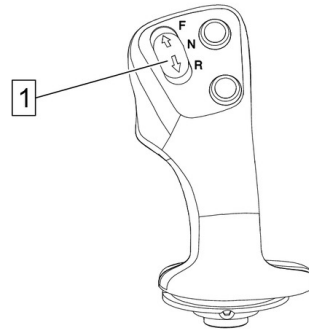
Damage to the engine.

- ▶ Do not switch the engine off while it is operating at full load or at high engine speed.
- ▶ Once the load has been removed, let the engine keep running at a low idling speed for about 2 minutes.

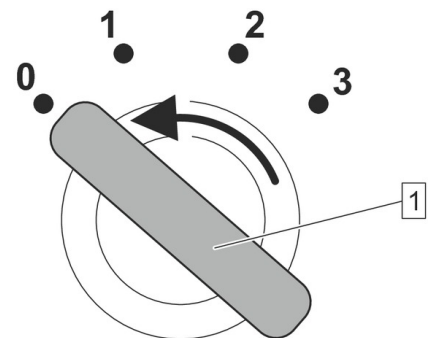
✓ Trained personnel

- ▶ Lift your foot off the accelerator.
- ▶ Slow the machine until it comes to a standstill.
- ▶ Switch on the parking brake.

- ▶ Set the switch (1) to neutral (N) for the direction of travel.



- ▶ Let the machine idle for approximately 1 minutes.
- ▶ Switch off the engine using the ignition key (1).



- ▶ Secure the machine with wheel chocks if necessary. [▶ 183](#)

1716-005

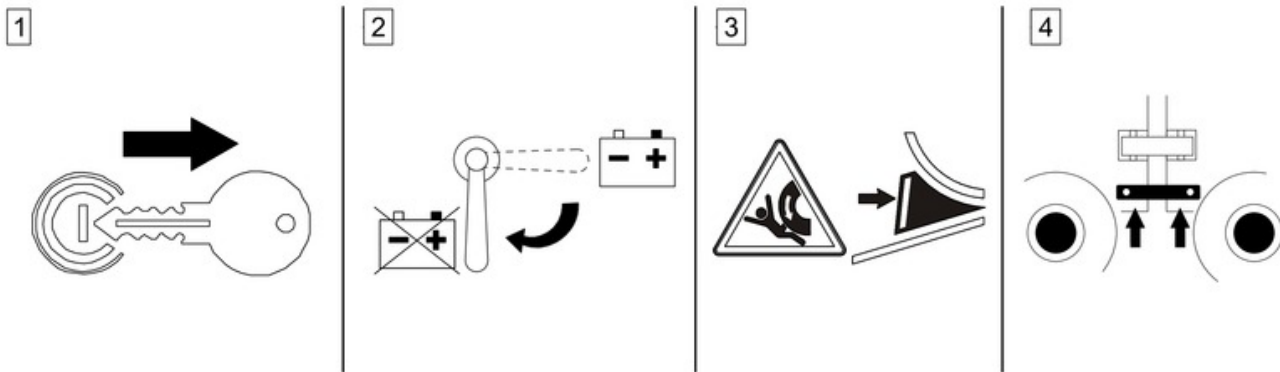
### 7.5.3 Switching off and locking the machine

#### **⚠ WARNING!**

Unsecured machine parking.

Risk of severe injury or death!

- ▶ Only park in the provided areas.
- ▶ Only park on a suitable, solid surface.
- ▶ Ensure that the machine is not an obstacle.
- ▶ If necessary, switch on the lighting.
- ▶ If necessary, secure the machine with warning signs.



- ✓ Trained personnel
- ▶ Switch off the machine.[\[▶ 181\]](#)  
*The parking brake automatically engages when the engine is switched off.*
- ▶ Remove the ignition key and secure it to protect the machine from being switched on by other persons.
- ▶ Switch off the battery main switch.[\[▶ 158\]](#)
- ▶ Use the wheel chocks to prevent the machine from rolling away.[\[▶ 183\]](#)
- ▶ If work is to be performed on the machine or the machine is to be transported, apply the articulated joint lock.[\[▶ 149\]](#)

239-005

#### 7.5.4 Securing the machine with wheel chocks

**⚠** Prior to working on the machine and when parking it on a hill, secure it with wheel chocks to prevent it from rolling away. The ground must be firm so that the chocks are not pressed into the ground. Precise stipulations for how to use the chocks must be made by the machine operator, taking into account the usage situation of the machine.

At least the following criteria must be taken into account:

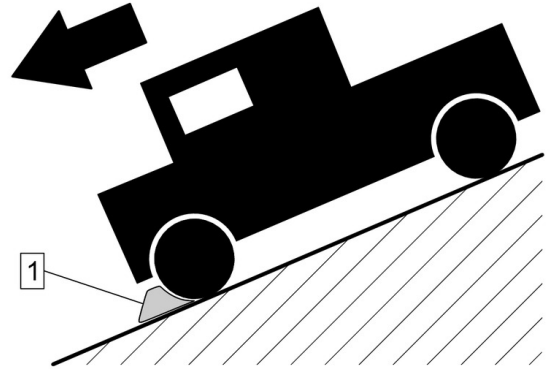
- Wheels that are subject to a heavier load must be prioritised when securing.
- Wheels that are not steered must be prioritised when securing.
- Take the accessibility of the wheels into account.

A **possible** method of securing with chocks is described in the following.

- ✓ Trained personnel
- ▶ Straighten the wheels.
- ▶ Straighten articulated machines in the longitudinal direction of the machine.
- ▶ Engage the parking brake.
- ▶ Switch off the machine.

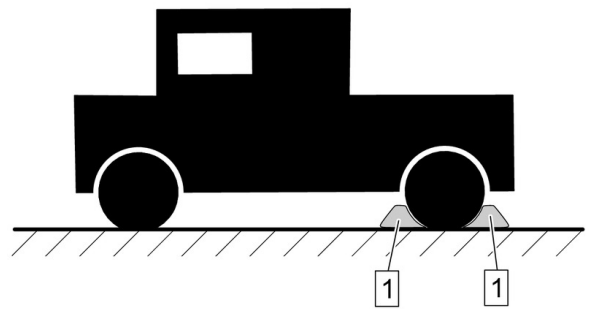
**Securing on a slope**

- ▶ Secure the machine against the rolling direction with two chocks (1) on both wheels on the down-hill axle.



**Securing on level ground**

- ▶ Secure the machine against both possible rolling directions with two chocks (1) on one wheel.
  - ▷ Attach both chocks to a wheel on an un-steered axle.



## 7.6 Storing the machine

845-015

### 7.6.1 Decommissioning the machine

- ✓ Trained personnel

If the machine is to be left unused for an extended period, the following tasks have to be carried out.

|                          | Task                                                                                                                                                      |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> | Park the machine on a horizontal surface.                                                                                                                 |
| <input type="checkbox"/> | Setting the machine to the transport position. <a href="#">▶ 181</a>                                                                                      |
| <input type="checkbox"/> | Clean the machine.                                                                                                                                        |
| <input type="checkbox"/> | Check the tyre pressure (optional).                                                                                                                       |
| <input type="checkbox"/> | Seal the exhaust pipe (optional).                                                                                                                         |
| <input type="checkbox"/> | Jack up the machine so that the tires do not touch the ground. <a href="#">▶ 186</a>                                                                      |
| <input type="checkbox"/> | Release the parking brake.                                                                                                                                |
| <input type="checkbox"/> | Lubricate lubrication points. <a href="#">▶ 253</a>                                                                                                       |
| <input type="checkbox"/> | Grease bare machine parts with acid-free grease. <a href="#">▶ 186</a>                                                                                    |
| <input type="checkbox"/> | Store the batteries. <a href="#">▶ 188</a>                                                                                                                |
| <input type="checkbox"/> | Drain water from tanks (optional).                                                                                                                        |
| <input type="checkbox"/> | Bleed AdBlue from the tank (option).                                                                                                                      |
| <input type="checkbox"/> | Use preserving agents on the steel tank. <a href="#">▶ 187</a>                                                                                            |
| <input type="checkbox"/> | If necessary, cover the machine with a tarpaulin and protect it from moisture.                                                                            |
| <input type="checkbox"/> | Store the machine at room temperature between 0 °C and 35 °C.                                                                                             |
| <input type="checkbox"/> | On machines with gas warning system (optional) which have been out of use for more than 1 month, have the gas warning system deactivated by a specialist. |
| <input type="checkbox"/> | On machines with electric drive (optional), check the charge capacity of the drive batteries at regular intervals.                                        |

### 7.6.2 Jacking up the machine

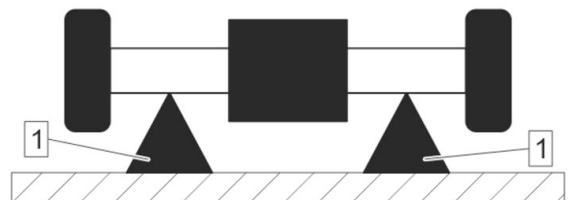
#### **⚠ WARNING!**

Lifting or jacking up the machine improperly.

Risk of severe injury or death due to the machine crashing down!

- ▶ Use hoists and support blocks with sufficient load capacity.
- ▶ Note the load distribution.
- ▶ Keep the working equipment in good, working condition.
- ▶ Keep the working platform and equipment clean.
- ▶ Use hoists and support blocks that function reliably.
- ▶ Use hoists and jack stands on solid, level surfaces without a sliding hazard.
- ▶ Move the hoists and support blocks to the stipulated position on the machine.
- ▶ Only use hoists and support blocks on rigid components, not on swivelling or rotating components.

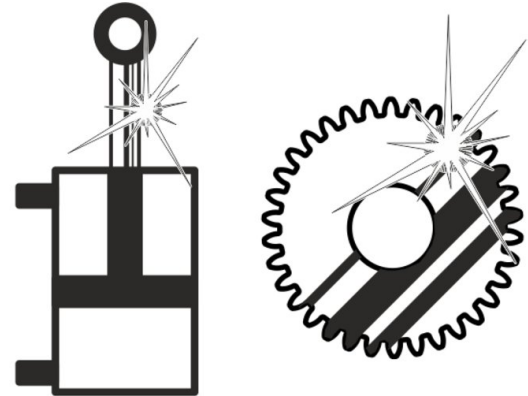
- ✓ Qualified specialist
- ▶ Setting the machine to the transport position. [▶ 181]
- ▶ ⚠ Switch off and secure the machine. [▶ 182]
- ▶ ⚠ Observe the safety instructions for all maintenance tasks. [▶ 190]
  
- ▶ Position jacks or support blocks (1) below the machine to prevent the machine from slipping or falling.



### 7.6.3 Greasing bare machine parts

- ✓ Trained personnel
- ▶ ⚠ Switch off and secure the machine. [▶ 182]
- ▶ ⚠ Observe the safety instructions for all maintenance tasks. [▶ 190]

- ▶ Grease bare machine parts such as piston rods and gearbox parts (slewing rings) with acid-free grease.
- ▶ Touch up any paint damage.



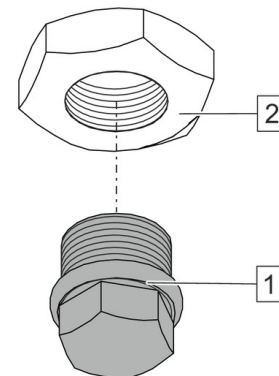
1197-005

#### 7.6.4 Preserving the steel tank

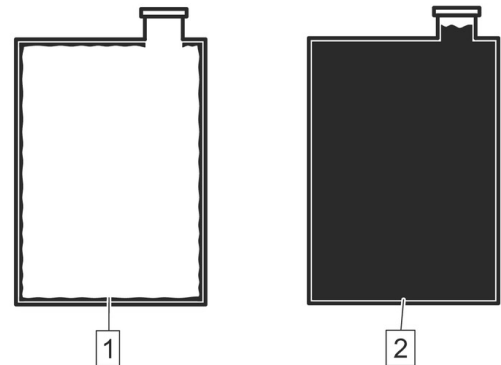
If the machine is to be decommissioned for an extended time, steel tanks that are not painted on the inside must be preserved.

This does not apply to steel tanks that are painted on the inside and stainless steel tanks.

- ✓ Trained personnel
- ▶ Drive the machine on horizontal surfaces.
- ▶ ⚠ Switch off and secure the machine. [▶ 182]
- ▶ ⚠ Observe the safety instructions for all maintenance tasks. [▶ 190]
- ▶ ⚠ Comply with safety instructions for handling the lubricants and operating materials. [▶ 49]
- ▶ Empty the tanks.
  - ▷ Unscrew all of the screws (1) below each tank.
  - ▷ Collect the operating material in a suitable container and dispose of it properly.
  - ▷ Clean the screw (1) and sealing surface (2).
  - ▷ Screw all of the screws (1) back in.



- ▶ Coat (1) the inside of the tanks with protective agents.
  - ▶ If possible, make sure that the protective agent is compatible with the fluid going into each tank and with the tanks' connected components.
  - ▶ Re-coat with protective agents at least once a year.
  - ▶ If necessary, thoroughly clean the protective agents from the tanks.
  - ▶ The tanks can also be filled completely with the respective medium.
    - ▷ Fill (2) the tanks completely.
  - ▶ It is recommended to replace the filling agents before using the machine if it has been inactive for more than a year.
- Drain off the fill agents.
  - Clean the tanks and lines.
  - Change the filter if one is present.



2217-009

### 7.6.5 Putting the battery into storage

#### **WARNING!**

Incorrect handling of batteries.

Risk of potentially fatal injuries due to the battery exploding or an electric shock.

- ▶ Do not use or push-start a machine with a frozen battery or attempt to start it with starter cables. Doing so poses an explosion hazard.
- ▶ In order to prevent the battery from freezing, keep the battery in a fully charged state at all times. Observe instructions for jumping or charging batteries.
- ▶ Only recharge batteries in well-ventilated areas.
- ▶ Only recharge a battery when the battery is at a temperature between +5°C and +45°C.
- ▶ Avoid breathing in any gases escaping from the battery.
- ▶ Do not allow the electrolyte fluid of the battery to come into contact with clothing, skin, mouth or eyes. Wear suitable protective equipment.
- ▶ Keep sparks, open flames and smoke away from the battery, otherwise there is a risk of explosion.
- ▶ Do not check the charge level of the battery by short-circuiting the terminals with a metal object. Use a hydrometer or voltmeter for this.
- ▶ Keep metallic objects such as rings, wristwatches and tools away from the battery terminals, otherwise there is a risk of sparking.
- ▶ Observe the safety instructions of the manufacturer. See the annex regarding the battery in the spare parts list.

**⚠ WARNING!**

Improper work on the electrical system.

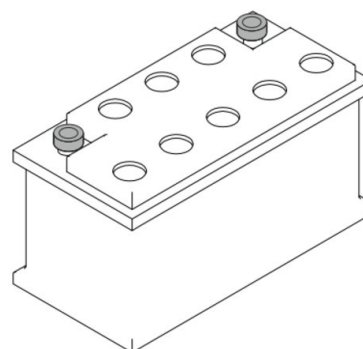
Risk of severe injury or death due to malfunctions of the machine or electric shock.

- ▶ Only allow electrically skilled persons to work on the electrical system.
- ▶ Before working on the electric system, first switch off the battery main switch, disconnect the battery or remove it from the power supply.
- ▶ Allow the electrical system or the machine to cool down sufficiently, if necessary, before working on it.
- ▶ Inspect all cable connections for firm and correct connection before restarting the electrical system.

✓ Electrical specialist

- ▶ ⚠ Switch off and secure the machine. [▶ 182]
- ▶ ⚠ Observe the safety instructions for handling the electric system. [▶ 46]
- ▶ ⚠ Observe the safety instructions for all maintenance tasks. [▶ 190]

- ▶ Disconnect the battery. [▶ 287]
- ▶ Store the battery in a dry, well-ventilated room at approximately 20 °C.
- ▶ Charge the battery. [▶ 284]
  - ▷ Charge the battery every month, and discharge and recharge it every three months.
- ▶ Keep battery clean and dry on the outside.
- ▶ Never leave the battery in a discharged state.



## 8 Maintenance

### 8.1 Safety instructions

719-010

#### 8.1.1 Safety instructions for every service

##### **WARNING!**

Performing service and repair work without preparation measures.

Risk of severe injury or death due to inadequate preparation.

- ▶ Ensure that the machine is not an obstacle.
- ▶ Make sure that the area is adequately illuminated and ventilated.
- ▶ Make sure that there is sufficient space around the machine for the work to be performed.
- ▶ Make sure that steps are clean and dry.
- ▶ Make sure that the surroundings of the area being serviced are clean.

##### **WARNING!**

Carrying out work on the machine on an unsafe or sloped surface.

Risk of severe or even fatal injury due to the machine suddenly lowering or slipping.

- ▶ Only carry out work on the machine when it is on a solid and level substrate.
- ▶ Do not carry out any work on the machine if it is on a slope.
- ▶ Prior to each task, use wheel chocks to secure the machine from rolling away.

##### **WARNING!**

Lifting or jacking up the machine improperly.

Risk of severe injury or death due to the machine crashing down!

- ▶ Use hoists and support blocks with sufficient load capacity.
- ▶ Note the load distribution.
- ▶ Keep the working equipment in good, working condition.
- ▶ Keep the working platform and equipment clean.
- ▶ Use hoists and support blocks that function reliably.
- ▶ Use hoists and jack stands on solid, level surfaces without a sliding hazard.
- ▶ Move the hoists and support blocks to the stipulated position on the machine.
- ▶ Only use hoists and support blocks on rigid components, not on swivelling or rotating components.

##### **WARNING!**

Uncontrolled lowering of attachment components.

Risk of severe or even fatal injuries due to crushing.

- ▶ Before all maintenance and repair work, secure raised attachment components using suitable locking mechanisms.

### **WARNING!**

Improper handling of work equipment or the workstation.  
Risk of severe or even fatal injuries from flying or falling parts.

- ▶ Keep the working platform and equipment clean.
- ▶ Keep the working equipment in good, working condition.
- ▶ Professional handling of work equipment. Do not drop work equipment.

### **WARNING!**

Performing work on the machine without having secured the machine against unauthorised use or being switched on accidentally beforehand.

Risk of severe injury or death due to uncontrolled movement of the machine!

- ▶ Switch off and secure the machine.
- ▶ Use an information sign in the area of the corresponding control elements to secure the machine to prevent it from being switched back on.
- ▶ Notify any other persons working on the machine before switching the machine back on.

### **WARNING!**

Performing work in potentially explosive places or in an explosive atmosphere.

Risk of death due to explosion of gas, dust, vapors or fog.

- ▶ Only carry out repairs and maintenance work in areas that are not potentially explosive and in non-explosive atmospheres.
- ▶ Observe local regulations and hazard warnings.

### **WARNING!**

Work being performed by unauthorised persons on explosion-protected components.

Risk of death due to explosion of gas, dust, vapors or fog.

- ▶ Repair and maintenance work on explosion-protected components must only be performed by a qualified specialist.
- ▶ Observe local regulations and hazard warnings.

### **CAUTION!**

Working in areas with moving parts, such as flaps, belts and other drives.

Crushing hazard due to moving or trailing parts.

- ▶ Do not reach into the drives.
- ▶ Wait until components that are still rotating have come to a stop.
- ▶ Secure flaps against inadvertent closing.

 **CAUTION!**

Improper maintenance and repair tasks on compressed air systems.

Injury due to pressurised components or lines.

Risk of injury due to malfunctioning components.

- ▶ Only allow qualified personnel to work on the compressed air systems.
- ▶ Before working on compressed air systems, de-energise them.
- ▶ Keep body parts away from unsealed areas.

## 8.2 General maintenance work

11430-001

### 8.2.1 Cleaning the machine

#### **WARNING!**

Machine cleaning from non-permissible positions.

Falling hazard due to slipping on wet surfaces.

- ▶ Only clean the machine from the ground or from machine areas equipped with non-skid surfaces, such as diamond plates or grates.
- ▶ If there are no such machine areas and certain sections are not accessible, carry out work on the machine from a suitable platform.

#### **NOTICE!**

Improperly cleaning the machine using a high-pressure cleaner or steam cleaner.

Machine damage due to premature wear or failure of electrical components.

- ▶ Do not clean the following areas with a high-pressure cleaner or steam cleaner.
  - Areas with electrical components, such as solenoid valves or control elements.
  - Areas of mechanical drives, such as propeller shafts or ring gears.
  - Areas of bearing points, such as joint heads or wheel bearings.
  - Areas with soft materials, such as rubber.

#### **NOTICE!**

Insufficient cleaning of the machine in winter.

Damage to the machine from the use of road salt on the roads.

- ▶ Clean the machine each time after it is operated or transported and remove the road salt.

✓ Trained personnel

- ▶  Switch off and secure the machine. [▶ 182](#)
- ▶  Observe the safety instructions for all maintenance tasks. [▶ 190](#)

- ▶ Select a cleaning agent and cleaning device based on the surfaces and parts that need to be cleaned.
- ▶ Clean the machine.



### 8.2.2 Machine technical inspection

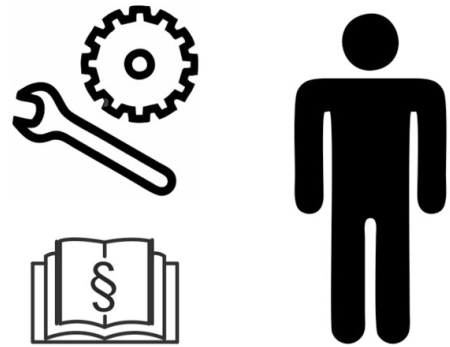
The frequency and scope of recurring examinations must be defined by the operator. Amongst other things, the following must be taken into account when defining this:

- Requirements of national regulations
- Operating conditions of the machine
- Frequency of use of the machine

✓ Expert

- ▶  Observe safety instructions for handling the machine. [\[▶ 43\]](#)
- ▶  Observe the safety instructions for all maintenance tasks. [\[▶ 190\]](#)

- ▶ Inspect the machine to ensure that it is in working condition according to national regulations.
- ▶ Perform visual inspection.
- ▶ Perform function check.
- ▶ Check the safety devices. [\[▶ 107\]](#)
- ▶ Check the protective devices. [\[▶ 107\]](#)
- ▶ Perform secondary inspecting to ensure that any defects have been corrected.
- ▶ Document the inspection.



## 8.3 Maintenance intervals

263-008

### 8.3.1 Dealing with maintenance intervals

Timely and proper maintenance and inspection are prerequisites for smooth operation and a long service life for the machine. The necessary tasks are compiled in the following maintenance tables according to the maintenance interval.

The work performed is described in more detail in the following chapter and must only be performed by instructed personnel designated by the machine operator.

The maintenance intervals refer to the operating hours of the machine, which are recorded on its operating hours indicator.

#### **WARNING!**

Non-compliance with maintenance intervals or deviating operating conditions.

Risk of severe injury or death due to machine malfunctions.

Increased wear on components.

- ▶ In very dusty conditions, reduce the maintenance intervals accordingly.
- ▶ If necessary, adapt the maintenance intervals to the operating conditions (outside temperature, humidity, operating altitude etc.).  
If necessary, consult PAUS Service.
- ▶ Note any variations in quality or grade of lubricant and operating materials and adjust maintenance intervals if necessary.
- ▶ Adjust the maintenance interval to the national regulations of the country of use.

#### Units in the maintenance table

| Unit | Meaning                                  |
|------|------------------------------------------|
| Bh   | Regularly every ... operating hours      |
| Y    | ... times a year                         |
| A    | Once after the first ... operating hours |
| O    | Every ... years                          |

If an interval for operating hours, e.g. 500 operating hours, and a time frame such as every 6 years is specified, only carry out whichever interval comes first.

### 8.3.2 Overview of maintenance work

| Pos. | Component          | Task                                                 | A  | Bh  | Y | O |       |
|------|--------------------|------------------------------------------------------|----|-----|---|---|-------|
| 1    | Brake              | Checking the fill level of the brake fluid           |    | 10  |   |   | ► 239 |
| 2    | DRIVE              | Checking the wheels                                  |    | 10  |   |   | ► 228 |
| 3    | Engine             | Checking the engine for leaks                        |    | 10  |   |   | ► 204 |
| 4    | Engine             | Checking the exhaust system for leaks                |    | 10  |   |   | ► 204 |
| 5    | Engine             | Checking the engine air filter                       |    | 10  |   |   | ► 205 |
| 6    | Engine             | Checking the engine oil fill level                   |    | 10  |   |   | ► 209 |
| 7    | Engine             | Draining the fuel pre-filter                         |    | 10  |   |   | ► 214 |
| 8    | Engine             | Checking the cooler                                  |    | 10  |   |   | ► 220 |
| 9    | Engine             | Checking the engine coolant level                    |    | 10  |   |   | ► 221 |
| 10   | Hydraulics         | Checking the fluid level of the hydraulic system     |    | 10  |   |   | ► 246 |
| 11   | Hydraulics         | Checking the hydraulic system filling aerator        |    | 10  |   |   | ► 249 |
| 12   | Brake              | Checking the parking brake for proper function       |    | 50  |   |   | ► 236 |
| 13   | Brake              | Checking the service brake for proper function       |    | 50  |   |   | ► 237 |
| 14   | Brake              | Checking the brake pads for wear                     |    | 50  |   |   | ► 238 |
| 15   | Lubrication points | Greasing lubrication points every 50 operating hours |    | 50  |   |   | ► 253 |
| 16   | Engine             | Checking the engine air filter safety cartridge      |    | 125 |   |   | ► 207 |
| 17   | Engine             | Checking the poly-V belt                             | 50 | 125 |   |   | ► 224 |
| 18   | Engine             | Checking the V-belt tension                          | 50 | 125 |   |   | ► 225 |
| 19   | DRIVE              | Checking the wheel hub gear oil level                |    | 250 |   |   | ► 229 |
| 20   | DRIVE              | Checking the axle drive oil level                    |    | 250 |   |   | ► 232 |
| 21   | DRIVE              | Checking the wheel mounting                          | 5  | 500 |   |   | ► 228 |
| 22   | DRIVE              | Changing the wheel hub gear oil                      | 50 | 500 | 1 |   | ► 230 |

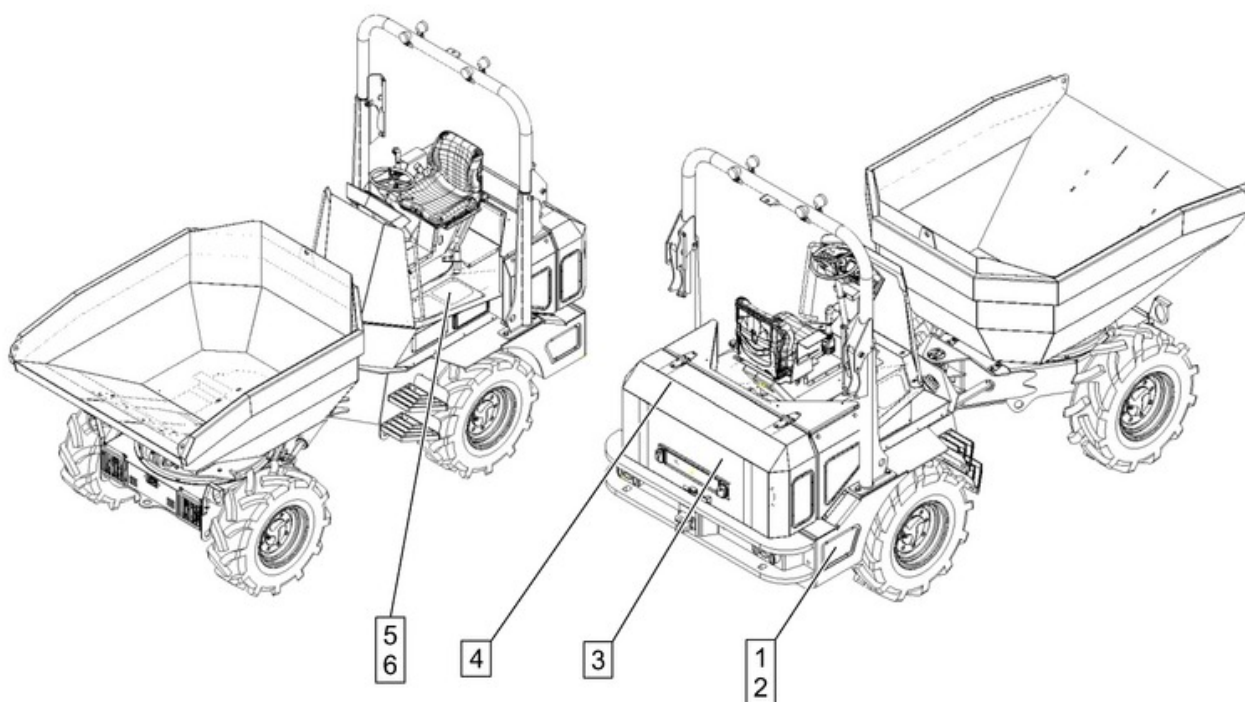
| Pos. | Component               | Task                                                                 | A   | Bh   | Y | O |       |
|------|-------------------------|----------------------------------------------------------------------|-----|------|---|---|-------|
| 23   | DRIVE                   | Checking the mounting of the axles                                   |     | 500  |   |   | ► 231 |
| 24   | DRIVE                   | Changing the axle drive oil                                          | 50  | 500  | 1 |   | ► 233 |
| 25   | DRIVE                   | Checking the drivetrain universal shaft flange connections           | 125 | 500  |   |   | ► 234 |
| 26   | Electrical system       | Checking electrics components                                        |     | 500  |   |   | ► 242 |
| 27   | Electrical system       | Checking the battery                                                 |     | 500  |   |   | ► 243 |
| 28   | Engine                  | Replacing the engine air filter main element                         |     | 500  | 1 |   | ► 206 |
| 29   | Engine                  | Changing the engine oil                                              | 50  | 500  | 1 |   | ► 210 |
| 30   | Engine                  | Changing the engine oil filter                                       | 50  | 500  | 1 |   | ► 212 |
| 31   | Engine                  | Changing the fuel pre-filter                                         |     | 500  | 2 |   | ► 215 |
| 32   | Engine                  | Changing the fuel filter                                             | 50  | 500  |   |   | ► 216 |
| 33   | Engine                  | Changing the engine AdBlue filter                                    |     | 500  |   | 2 | ► 218 |
| 34   | Engine                  | Checking the coolant additive concentration                          |     | 500  | 2 |   | ► 222 |
| 35   | Frame / machine housing | Checking the articulated joint and steering cylinder                 | 50  | 500  |   |   | ► 240 |
| 36   | Frame / machine housing | Checking the slewing ring fixture                                    | 50  | 500  |   |   | ► 240 |
| 37   | Hydraulics              | Checking the hydraulic components                                    |     | 500  |   |   | ► 245 |
| 38   | Hydraulics              | Changing the hydraulic system filling aerator                        |     | 500  |   |   | ► 250 |
| 39   | Engine                  | Replacing the engine air filter safety element                       |     | 1000 | 1 |   | ► 208 |
| 40   | Engine                  | Cleaning the engine exhaust gas aftertreatment fluid filler sieve    |     | 1000 |   |   | ► 217 |
| 41   | Engine                  | Changing the engine exhaust gas aftertreatment fluid breather filter |     | 1000 |   |   | ► 219 |
| 42   | Engine                  | Checking the tensioner pulley                                        |     | 1000 | 1 |   | ► 226 |
| 43   | Hydraulics              | Replacing the hydraulic fluid                                        |     | 1000 |   | 2 | ► 247 |
| 44   | Hydraulics              | Changing the hydraulic system return filter                          |     | 1000 | 1 |   | ► 251 |

| Pos. | Component                | Task                                  | A | Bh   | Y | O |       |
|------|--------------------------|---------------------------------------|---|------|---|---|-------|
| 45   | Engine                   | Changing the engine coolant           |   | 2000 |   | 2 | ► 223 |
| 46   | Engine                   | Changing the poly-V belt              |   | 3000 |   | 2 | ► 224 |
| 47   | Engine                   | Replacing the engine tensioner pulley |   | 3000 |   |   | ► 226 |
| 48   | General maintenance work | Machine technical inspection          |   |      | 1 |   | ► 194 |
| 49   | Hydraulics               | Checking the pressure accumulator     |   |      | 1 |   | ► 252 |
| 50   | Hydraulics               | Replacing hydraulic hoses             |   |      |   | 6 | ► 245 |

## 8.4 Overview of maintenance points

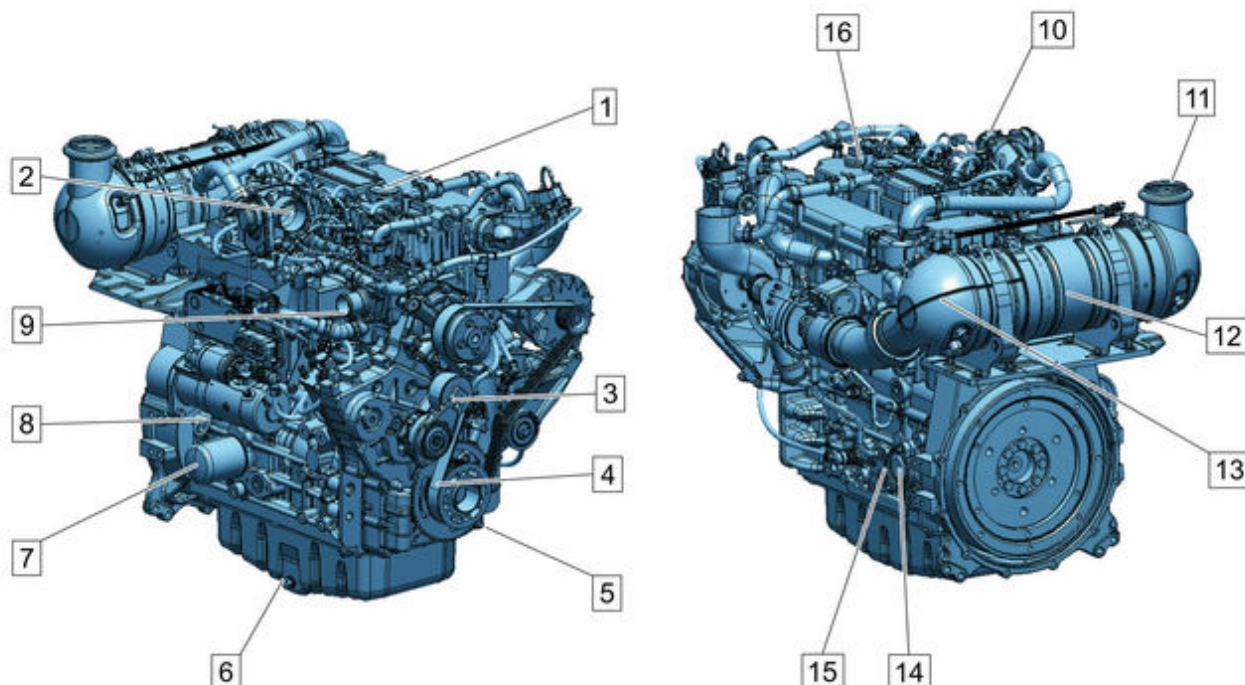
4318-001

### 8.4.1 Overview of filters



| Item | Designation                |
|------|----------------------------|
| 1    | Fuel filter                |
| 2    | Fuel prefilter             |
| 3    | Engine oil filter          |
| 4    | Engine air filter          |
| 5    | Hydraulics filling aerator |
| 6    | Hydraulic fluid filter     |

### 8.4.2 Overview of engine DEUTZ TCD 3.6 / TCD 3.6 L4

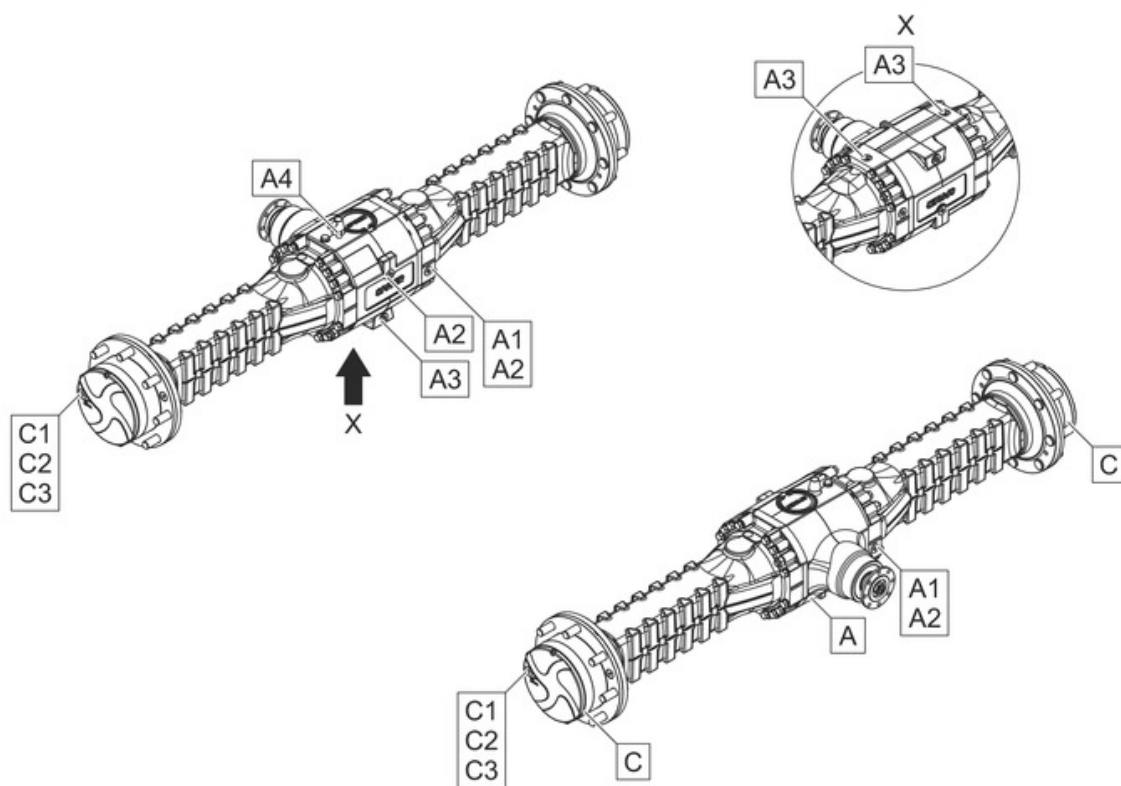


| Pos. | Designation               |
|------|---------------------------|
| 1    | Crank case ventilation    |
| 2    | Throttle valve (option)   |
| 3    | Tensioner pulley          |
| 4    | V-BELT                    |
| 5    | Coolant inlet             |
| 6    | Engine oil drain screw    |
| 7    | ENGINE OIL FILTER         |
| 8    | Engine oil level dipstick |
| 9    | Coolant outlet            |
| 10   | Combustion air inlet      |
| 11   | Exhaust outlet            |

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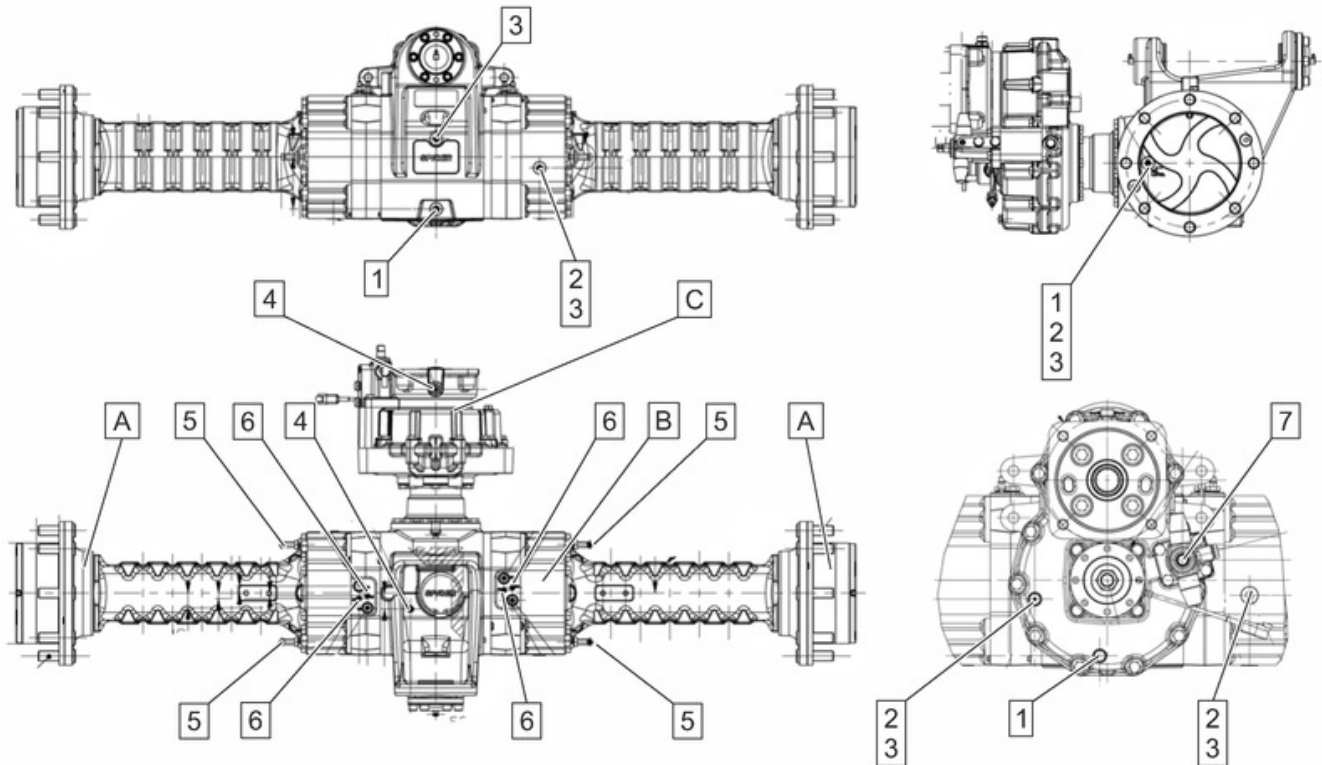
| Pos. | Designation                        |
|------|------------------------------------|
| 12   | Diesel particulate filter (option) |
| 13   | Diesel oxidation catalyst          |
| 14   | Engine oil level dipstick (option) |
| 15   | Engine oil filter (option)         |
| 16   | Engine oil inlet                   |

## 8.4.3 Overview of DANA 112/435 axle



| Item                            | Designation                   |
|---------------------------------|-------------------------------|
| A                               | Differential gear             |
| A1                              | Fill level inspection screw   |
| A2                              | Oil filler screw              |
| A3                              | Oil drain screw               |
| A4                              | Bleed screw                   |
| C                               | Wheel hub transmission        |
| C1                              | Fill level inspection screw * |
| C2                              | Oil filler screw *            |
| C3                              | Oil drain screw *             |
| * Tightening torque: 35 - 50 Nm |                               |

#### 8.4.4 Overview of DANA 357/112/XXX axle



| Item | Designation                  |
|------|------------------------------|
| A    | Wheel hub gear               |
| B    | Differential gear            |
| C    | Reducer gearbox              |
| 1    | Oil drain screw              |
| 2    | Fill level check screw       |
| 3    | Oil filler screw             |
| 4    | Bleed screw                  |
| 5    | Brake emergency operation    |
| 6    | Brake bleed screw            |
| 7    | Emergency operation, neutral |

## 8.5 Engine

278-004

### 8.5.1 Checking the engine for leaks

#### CAUTION!

Contact with hot liquids or machine parts.

Risk of burning

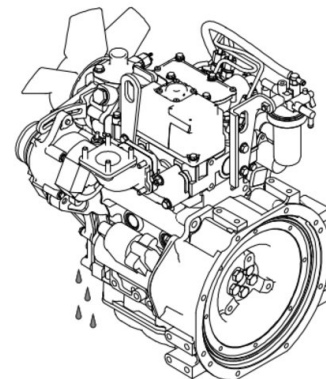
- ▶ Wear suitable protective gloves.
- ▶ Wear suitable safety goggles.
- ▶ Allow liquids or machine parts to cool down before working on or with them.

✓ Trained personnel

- ▶  Switch off and secure the machine. [▶ 182](#)
- ▶  Observe the safety instructions for all maintenance tasks. [▶ 190](#)
- ▶  Comply with safety instructions for handling the lubricants and operating materials. [▶ 49](#)

- ▶ Check the engine for leaks.

 Have any leaks repaired by a qualified specialist.



3354-004

### 8.5.2 Checking the exhaust system for leaks

#### WARNING!

Inhaling poisonous exhaust fumes.

Loss of consciousness, severe illnesses and death.

- ▶ Avoid inhaling exhaust fumes if possible.
- ▶ Switch off the engine in the event of a long standstill.
- ▶ Do not turn on the engine in enclosed spaces unless the exhaust fumes can be captured at the discharge point of the exhaust pipe and directed outside or unless the spaces are sufficiently ventilated.
- ▶ Areas with differing capacities for handling exhaust fumes must be physically separated; such as workshops and staff rooms.
- ▶ Observe the legal regulations of the operator's country with respect to exhaust emissions of the machine; this applies in particular to the use of the machine in enclosed spaces or in poorly ventilated locations. The legal regulations may differ for the specific use of the machine.

### **CAUTION!**

Contact with hot liquids or machine parts.

Risk of burning

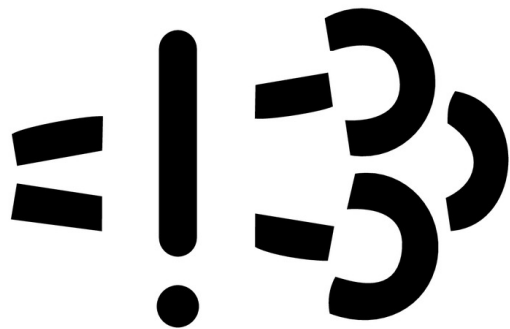
- ▶ Wear suitable protective gloves.
- ▶ Wear suitable safety goggles.
- ▶ Allow liquids or machine parts to cool down before working on or with them.

- ✓ Trained personnel
- ✓ Machine switched on

- ▶  Switch on the parking brake.
- ▶  Observe the safety instructions for all maintenance tasks. [▶ 190](#)

- ▶ Check the exhaust system for leaks, including the exhaust aftertreatment system, with the engine running.  
Leaks may occur on flange connections, corroded parts, etc.

-  Have any leaks repaired by a qualified specialist.



### 8.5.3 Checking the engine air filter

7620-005

#### **NOTICE!**

Using non-permissible spare and wear parts.

Machine damage due to increased wear.

- ▶ Only use spare and wear parts approved by PAUS.

#### **NOTICE!**

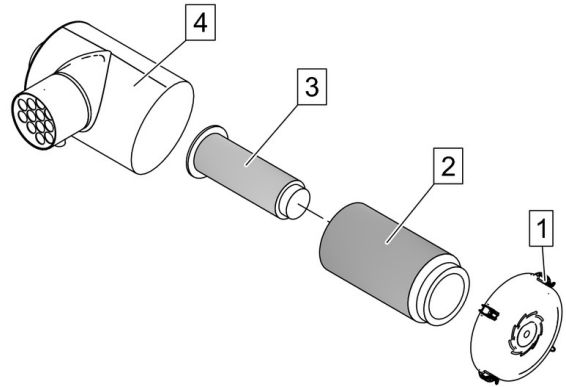
Dirt or foreign bodies get into the fuel, hydraulic or other enclosed systems.

Damage to components.

- ▶ Before opening the system, such as for changing filters or operating materials, clean the components to be opened.
- ▶ After opening the systems, ensure that the opened components and the surrounding area are absolutely clean.
- ▶ Place unscrewed components on a clean surface.
- ▶ Do not open systems in a dusty environment.

- ✓ Trained personnel
- ▶  Switch off and secure the machine. [▶ 182](#)
- ▶  Observe the safety instructions for all maintenance tasks. [▶ 190](#)

- ▶ Release the clamp fasteners (1) and remove the cover.
- ▶ Pull out the main element (2) and check it for dirt.
- ▶ Clean the main element (2) by tapping it. Then, if necessary, purge it with dry compressed air (max. 5 bar) from the inside to the outside.
  - ▷ If there is significant contamination, replace the main element [▶ 206](#).
- ▶ Insert the main element (2) into the housing.
- ▶ Reposition the cover and secure it with clamp fasteners (1).



7708-005

#### 8.5.4 Replacing the engine air filter main element

##### CAUTION!

Contact with hot liquids or machine parts.

Risk of burning

- ▶ Wear suitable protective gloves.
- ▶ Wear suitable safety goggles.
- ▶ Allow liquids or machine parts to cool down before working on or with them.

##### NOTICE!

Using non-permissible spare and wear parts.

Machine damage due to increased wear.

- ▶ Only use spare and wear parts approved by PAUS.

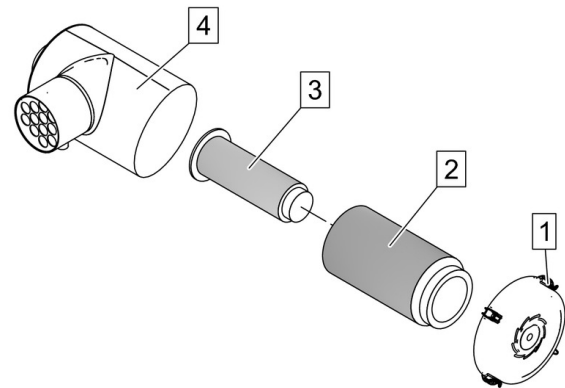
##### NOTICE!

Dirt or foreign bodies get into the fuel, hydraulic or other enclosed systems.

Damage to components.

- ▶ Before opening the system, such as for changing filters or operating materials, clean the components to be opened.
- ▶ After opening the systems, ensure that the opened components and the surrounding area are absolutely clean.
- ▶ Place unscrewed components on a clean surface.
- ▶ Do not open systems in a dusty environment.

- ✓ Trained personnel
- ▶ ⚠ Switch off and secure the machine. [▶ 182]
- ▶ ⚠ Observe the safety instructions for all maintenance tasks. [▶ 190]
- ▶ Release the clamp fasteners (1) and remove the cover.
- ▶ Remove the air filter (2) from the housing.
- ▶ Clean the inside of the housing (4).
- ▶ Replace the air filter (2).
- ▶ Insert the air filter (2) into the housing.
- ▶ Reposition the cover and secure it with clamp fasteners (1).
- ▶ ⚠ Ensure that the housing is properly sealed.



10171-002

### 8.5.5 Checking the engine air filter safety cartridge

#### ⚠ CAUTION!

Contact with hot liquids or machine parts.

Risk of burning

- ▶ Wear suitable protective gloves.
- ▶ Wear suitable safety goggles.
- ▶ Allow liquids or machine parts to cool down before working on or with them.

#### NOTICE!

Dirt or foreign bodies get into the fuel, hydraulic or other enclosed systems.

Damage to components.

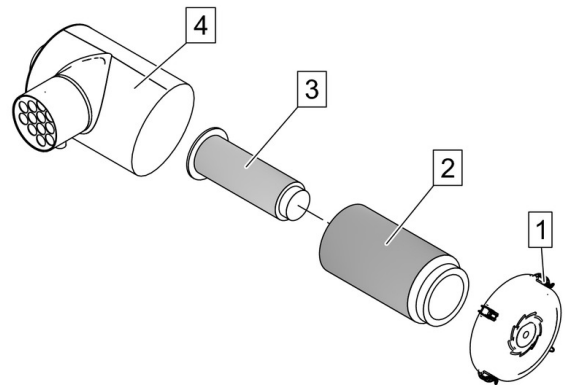
- ▶ Before opening the system, such as for changing filters or operating materials, clean the components to be opened.
- ▶ After opening the systems, ensure that the opened components and the surrounding area are absolutely clean.
- ▶ Place unscrewed components on a clean surface.
- ▶ Do not open systems in a dusty environment.

- ✓ Trained personnel
- ▶ ⚠ Switch off and secure the machine. [▶ 182]
- ▶ ⚠ Observe the safety instructions for all maintenance tasks. [▶ 190]

- ▶ Release the clamp fasteners (1) and remove the cover.
- ▶ Remove the main element (2).
- ▶ Remove the safety filter cartridge (3) and check it for dirt.
  - ▷ Always replace the safety cartridge if it is contaminated.

 Do not clean the safety filter cartridge.

- ▶ Insert the main element (2) and the safety filter cartridge (3).
- ▶ Reposition the cover and secure it with clamp fasteners (1).



7707-005

### 8.5.6 Replacing the engine air filter safety element

#### CAUTION!

Contact with hot liquids or machine parts.

Risk of burning

- ▶ Wear suitable protective gloves.
- ▶ Wear suitable safety goggles.
- ▶ Allow liquids or machine parts to cool down before working on or with them.

#### NOTICE!

Using non-permissible spare and wear parts.

Machine damage due to increased wear.

- ▶ Only use spare and wear parts approved by PAUS.

#### NOTICE!

Dirt or foreign bodies get into the fuel, hydraulic or other enclosed systems.

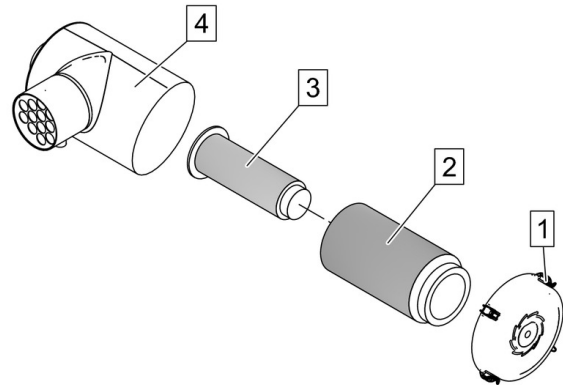
Damage to components.

- ▶ Before opening the system, such as for changing filters or operating materials, clean the components to be opened.
- ▶ After opening the systems, ensure that the opened components and the surrounding area are absolutely clean.
- ▶ Place unscrewed components on a clean surface.
- ▶ Do not open systems in a dusty environment.

✓ Trained personnel

- ▶  Switch off and secure the machine. [▶ 182](#)
- ▶  Observe the safety instructions for all maintenance tasks. [▶ 190](#)

- ▶ Release the clamp fasteners (1) and remove the cover.
- ▶ Pull out the main element (2) and check it for dirt.
- ▶ Remove the safety filter cartridge (3) from the housing (4).
- ▶ Clean the inside of the housing (4).
- ▶ Insert the new safety cartridge (3) into the housing (4).
- ▶ Insert the main element (2) into the housing.
- ▶ Reposition the cover and secure it with clamp fasteners (1).
- ▶ ⚠ Ensure that the housing is properly sealed.



267-006

### 8.5.7 Checking the engine oil fill level

#### ⚠ CAUTION!

Contact with hot liquids or machine parts.

Risk of burning

- ▶ Wear suitable protective gloves.
- ▶ Wear suitable safety goggles.
- ▶ Allow liquids or machine parts to cool down before working on or with them.

#### NOTICE!

Dirt or foreign bodies get into the fuel, hydraulic or other enclosed systems.

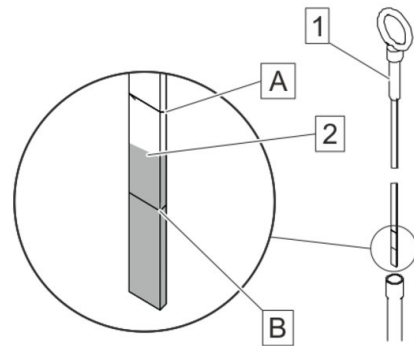
Damage to components.

- ▶ Before opening the system, such as for changing filters or operating materials, clean the components to be opened.
- ▶ After opening the systems, ensure that the opened components and the surrounding area are absolutely clean.
- ▶ Place unscrewed components on a clean surface.
- ▶ Do not open systems in a dusty environment.

✓ Trained personnel

- ▶ Drive the machine until the engine oil has reached a temperature  $>80^{\circ}\text{C}$ .
- ▶ Drive the machine on horizontal surfaces.
- ▶ ⚠ Switch off and secure the machine. [▶ 182]
- ▶ ⚠ Observe the safety instructions for all maintenance tasks. [▶ 190]
- ▶ ⚠ Comply with safety instructions for handling the lubricants and operating materials. [▶ 49]
- ▶ Let the machine rest for five minutes.  
*The engine oil has flowed back into the oil sump.*

- ▶ Clean the area around the dipstick (1).
- ▶ Pull out the dipstick (1) from the engine block.
- ▶ Use a lint-free, clean cloth to wipe off the dipstick (1).
- ▶ Insert the dipstick (1) to the stop into the engine block.
- ▶ Pull out the dipstick (1) from the engine block.
- ▶ Read off the engine oil fill level (2) on the dipstick (1).  
The engine oil fill level (2) must be between the marks (A) and (B).
  - ▷ Fill level (2) above mark (A) = Drain off engine oil [▶ 211](#)
  - ▷ Fill level (2) below mark (B) = Add engine oil [▶ 211](#)
- ▶ Use a lint-free, clean cloth to wipe off the dipstick (1).
- ▶ Insert the dipstick (1) to the stop into the engine block.



813-021

### 8.5.8 Changing the engine oil

#### **CAUTION!**

Contact with hot liquids or machine parts.

Risk of burning

- ▶ Wear suitable protective gloves.
- ▶ Wear suitable safety goggles.
- ▶ Allow liquids or machine parts to cool down before working on or with them.

#### **NOTICE!**

Dirt or foreign bodies get into the fuel, hydraulic or other enclosed systems.

Damage to components.

- ▶ Before opening the system, such as for changing filters or operating materials, clean the components to be opened.
- ▶ After opening the systems, ensure that the opened components and the surrounding area are absolutely clean.
- ▶ Place unscrewed components on a clean surface.
- ▶ Do not open systems in a dusty environment.

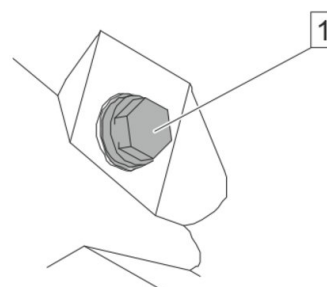
✓ Trained personnel

**i** On engines with exhaust gas aftertreatment system, fuel is fed into the engine oil during stationary regeneration.

- ▶ Before every engine oil change at an interval of 500 operating hours, make sure that stationary regeneration is performed and that the regeneration interval is reset by an authorised specialist before the engine oil change is performed. [▶ 275]
- ▶ Drive the machine until the engine oil has reached a temperature  $>80^{\circ}\text{C}$ .
- ▶ Drive the machine on horizontal surfaces.
- ▶ ⚠ Switch off and secure the machine. [▶ 182]
- ▶ ⚠ Observe the safety instructions for all maintenance tasks. [▶ 190]
- ▶ ⚠ Comply with safety instructions for handling the lubricants and operating materials. [▶ 49]

### Draining off the engine oil

- ▶ Clean the area around the oil drain screw (1).
- ▶ Position a suitable collector under the oil drain screw (1).
- ▶ Unscrew the oil drain screw (1) together with the sealing ring.
  - ▷ If available, plug on the oil drain hose.
- ▶ Clean the oil drain screw (1).
- ▶ Screw on the oil drain screw (1) together with a new sealing ring.
- ▶ **i** Tightening torque= 55 Nm
- ▶ Dispose of the engine oil and sealing ring appropriately.
- ▶ Replace the engine oil filter. [▶ 212]



### Adding engine oil

#### NOTICE!

Using lubricants or operating materials that are not suitable.

Machine damage due to increased wear.

- ▶ Do not mix different lubricants or operating materials together.
- ▶ Observe the manufacturer's instructions.
- ▶ Only use additives if they are specified in the Technical Data chapter.
- ▶ Only use lubricants and operating materials approved by PAUS.
- ▶ If necessary, adapt recommended lubricants or operating materials to the application.

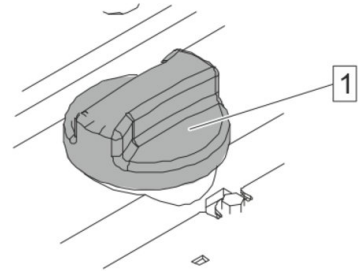
#### NOTICE!

Operating the machine with lubricants with the wrong viscosity.

Machine damage due to excessively high or low lubricant viscosity.

- ▶ Measure the ambient temperature to check whether the lubricant filled is suitable for the temperature range. If necessary, change the lubricant.
- ▶ Use a multigrade lubricant with the corresponding SAE class.

- ▶ Clean the environment of the cover (1).
- ▶ Unscrew the cover (1).
- ▶ Add engine oil in accordance with the "Technical data" chapter. [\[▶ 68\]](#)
- ▶ Clean the cover (1).
- ▶ Screw on the cover (1).
- ▶ Check the engine oil fill level. [\[▶ 209\]](#)



270-011

### 8.5.9 Changing the engine oil filter

#### **CAUTION!**

Contact with hot liquids or machine parts.

Risk of burning

- ▶ Wear suitable protective gloves.
- ▶ Wear suitable safety goggles.
- ▶ Allow liquids or machine parts to cool down before working on or with them.

#### **NOTICE!**

Using non-permissible spare and wear parts.

Machine damage due to increased wear.

- ▶ Only use spare and wear parts approved by PAUS.

#### **NOTICE!**

Dirt or foreign bodies get into the fuel, hydraulic or other enclosed systems.

Damage to components.

- ▶ Before opening the system, such as for changing filters or operating materials, clean the components to be opened.
- ▶ After opening the systems, ensure that the opened components and the surrounding area are absolutely clean.
- ▶ Place unscrewed components on a clean surface.
- ▶ Do not open systems in a dusty environment.

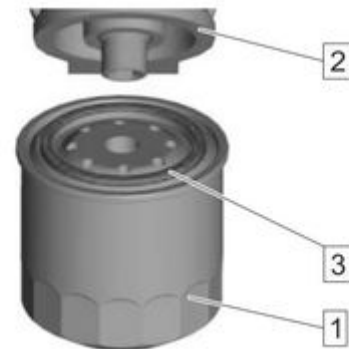
✓ Trained personnel

- ▶  Switch off and secure the machine. [\[▶ 182\]](#)
- ▶  Observe the safety instructions for all maintenance tasks. [\[▶ 190\]](#)
- ▶  Comply with safety instructions for handling the lubricants and operating materials. [\[▶ 49\]](#)

- ▶ Clean the area around the engine oil filter (1).
- ▶ Position a suitable collector under the engine oil filter (1).
- ▶ Unscrew the engine oil filter (1) from the filter head (2).
- ▶ Clean the sealing surface of the filter head (2) with a lint-free, clean cloth.
- ▶ Wet the sealing ring (3) of the new engine oil filter (1) with engine oil.
- ▶ Screw the engine oil filter (1) onto the filter head (2).

**i** Tightening torque = 15-17 Nm

- ▶ Dispose of the engine oil, engine oil filter (1) and sealing ring (3) appropriately.
- ▶ Check the engine oil fill level. [▶ 209](#)



5598-003

### 8.5.10 Bleeding the fuel system

✓ Trained personnel

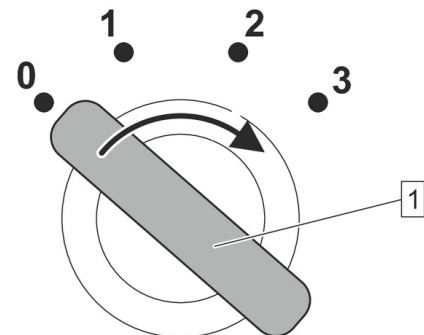
- ▶  Switch off and secure the machine. [▶ 182](#)
- ▶  Observe the safety instructions for all maintenance tasks. [▶ 190](#)
- ▶  Comply with safety instructions for handling the lubricants and operating materials. [▶ 49](#)

The fuel system is bled via the electric fuel pump.

 Do not start the engine during the bleeding process.

- ▶ Switch on the battery main switch. [▶ 157](#)
- ▶ Turn the ignition on at (1).  
*The fuel pump switches on for 20 seconds to bleed the fuel system.*
- ▶ Wait until the fuel pump shuts off automatically.
- ▶ Switch off the ignition.
- ▶ Repeat the process at least 4 times.
- ▶ Switch the machine on and operate it for 5 minutes at low load.

*The fuel system is bled.*



### 8.5.11 Draining the fuel pre-filter

#### **⚠ CAUTION!**

Contact with hot liquids or machine parts.

Risk of burning

- ▶ Wear suitable protective gloves.
- ▶ Wear suitable safety goggles.
- ▶ Allow liquids or machine parts to cool down before working on or with them.

#### **NOTICE!**

Using non-permissible spare and wear parts.

Machine damage due to increased wear.

- ▶ Only use spare and wear parts approved by PAUS.

#### **NOTICE!**

Dirt or foreign bodies get into the fuel, hydraulic or other enclosed systems.

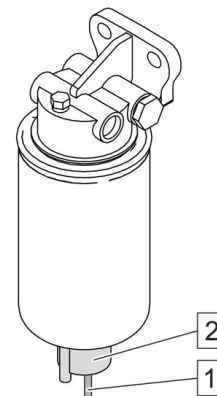
Damage to components.

- ▶ Before opening the system, such as for changing filters or operating materials, clean the components to be opened.
- ▶ After opening the systems, ensure that the opened components and the surrounding area are absolutely clean.
- ▶ Place unscrewed components on a clean surface.
- ▶ Do not open systems in a dusty environment.

✓ Trained personnel

- ▶ **⚠** Switch off and secure the machine. [▶ 182](#)
- ▶ **⚠** Observe the safety instructions for all maintenance tasks. [▶ 190](#)
- ▶ **⚠** Comply with safety instructions for handling the lubricants and operating materials. [▶ 49](#)

- ▶ Disconnect the electrical connection (1).
- ▶ Turn and release the cap (2).
  - ▷ Collect the draining fluid in a suitable container.
- ▶ Drain off liquid until pure diesel fuel flows out.
- ▶ Screw on the cap (2).
  - ▷ Tightening torque  $1.6 \pm 0.3$  Nm
- ▶ Connect the electrical connection (1).



### 8.5.12 Changing the fuel pre-filter

#### ⚠ CAUTION!

Contact with hot liquids or machine parts.

Risk of burning

- ▶ Wear suitable protective gloves.
- ▶ Wear suitable safety goggles.
- ▶ Allow liquids or machine parts to cool down before working on or with them.

#### NOTICE!

Using non-permissible spare and wear parts.

Machine damage due to increased wear.

- ▶ Only use spare and wear parts approved by PAUS.

#### NOTICE!

Dirt or foreign bodies get into the fuel, hydraulic or other enclosed systems.

Damage to components.

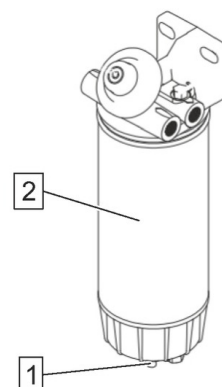
- ▶ Before opening the system, such as for changing filters or operating materials, clean the components to be opened.
- ▶ After opening the systems, ensure that the opened components and the surrounding area are absolutely clean.
- ▶ Place unscrewed components on a clean surface.
- ▶ Do not open systems in a dusty environment.

✓ Trained personnel

- ▶ ⚠ Switch off and secure the machine. [▶ 182]
- ▶ ⚠ Observe the safety instructions for all maintenance tasks. [▶ 190]
- ▶ ⚠ Safety instructions for handling the lubricants and operating materials. [▶ 49]
- ▶ Close off the fuel inlet.

- ▶ Unscrew the screw (1) at the lower end of the fuel prefilter (2) and drain off the fluid.
  - ▷ Collect the draining fuel in a suitable container.
- ▶ Unscrew the fuel prefilter (2) by turning the filter head.
  - ▷ Collect the draining fuel in a suitable container.
- ▶ Lightly moisten the sealing surfaces of the new fuel prefilter with fuel.
- ▶ Screw on the new fuel prefilter hand-tight.
  - ▷ Make sure that it is sealed.

Bleed the fuel system. [▶ 213]



### 8.5.13 Changing the fuel filter

#### **⚠ CAUTION!**

Contact with hot liquids or machine parts.

Risk of burning

- ▶ Wear suitable protective gloves.
- ▶ Wear suitable safety goggles.
- ▶ Allow liquids or machine parts to cool down before working on or with them.

#### **NOTICE!**

Using non-permissible spare and wear parts.

Machine damage due to increased wear.

- ▶ Only use spare and wear parts approved by PAUS.

#### **NOTICE!**

Dirt or foreign bodies get into the fuel, hydraulic or other enclosed systems.

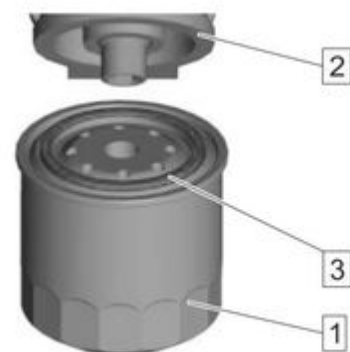
Damage to components.

- ▶ Before opening the system, such as for changing filters or operating materials, clean the components to be opened.
- ▶ After opening the systems, ensure that the opened components and the surrounding area are absolutely clean.
- ▶ Place unscrewed components on a clean surface.
- ▶ Do not open systems in a dusty environment.

✓ Trained personnel

- ▶ **⚠** Switch off and secure the machine. [\[▶ 182\]](#)
- ▶ **⚠** Observe the safety instructions for all maintenance tasks. [\[▶ 190\]](#)
- ▶ **⚠** Comply with safety instructions for handling the lubricants and operating materials. [\[▶ 49\]](#)

- ▶ Shut off the fuel supply stopcock.
- ▶ Clean the area around the filter (1).
- ▶ Position a suitable collector under the filter (1).
- ▶ Unscrew the filter (1) from the filter head (2).
- ▶ Clean the sealing surface of the filter head (2) with a lint-free, clean cloth.
- ▶ Wet the sealing ring (3) of the new filter (1) with fuel.
- ▶ Screw filter (1) onto the filter head (2).
- ▶ **i** Tightening torque = 10-12 Nm
- ▶ Open the fuel supply stopcock.
- ▶ Dispose of the fuel, filter (1) and sealing ring (3) appropriately.
- ▶ Bleed the fuel system. [\[▶ 213\]](#)



**8.5.14 Cleaning the engine exhaust gas aftertreatment fluid filler sieve****⚠ CAUTION!**

Contact with hot liquids or machine parts.

Risk of burning

- ▶ Wear suitable protective gloves.
- ▶ Wear suitable safety goggles.
- ▶ Allow liquids or machine parts to cool down before working on or with them.

**⚠ CAUTION!**

Contact with aggressive liquids.

Chemical burns, skin reactions or eye injuries.

- ▶ Wear suitable protective gloves.
- ▶ Wear safety glasses.

**NOTICE!**

Dirt or foreign bodies get into the fuel, hydraulic or other enclosed systems.

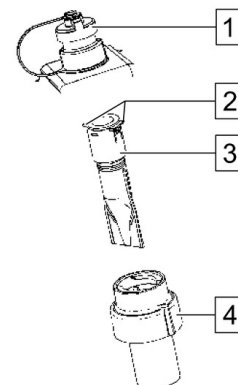
Damage to components.

- ▶ Before opening the system, such as for changing filters or operating materials, clean the components to be opened.
- ▶ After opening the systems, ensure that the opened components and the surrounding area are absolutely clean.
- ▶ Place unscrewed components on a clean surface.
- ▶ Do not open systems in a dusty environment.

✓ Trained personnel

- ▶ ⚠ Switch off and secure the machine. [▶ 182](#)
- ▶ ⚠ Observe the safety instructions for all maintenance tasks. [▶ 190](#)

- ▶ Make sure that the area around the cap (1) is clean.
- ▶ Remove cap (1).
- ▶ Press the tabs (2) down and release.
- ▶ Remove the filter strainer (3) from the fitting (4).
- ▶ Clean the filter strainer (3) with clean water and compressed air.
- ▶ Press the filter strainer (3) into the fitting (4).
- ▶ Close the cover (1).



### 8.5.15 Changing the engine AdBlue filter

#### CAUTION!

Contact with hot liquids or machine parts.

Risk of burning

- ▶ Wear suitable protective gloves.
- ▶ Wear suitable safety goggles.
- ▶ Allow liquids or machine parts to cool down before working on or with them.

#### CAUTION!

Contact with aggressive liquids.

Chemical burns, skin reactions or eye injuries.

- ▶ Wear suitable protective gloves.
- ▶ Wear safety glasses.

#### NOTICE!

Using non-permissible spare and wear parts.

Machine damage due to increased wear.

- ▶ Only use spare and wear parts approved by PAUS.

#### NOTICE!

Dirt or foreign bodies get into the fuel, hydraulic or other enclosed systems.

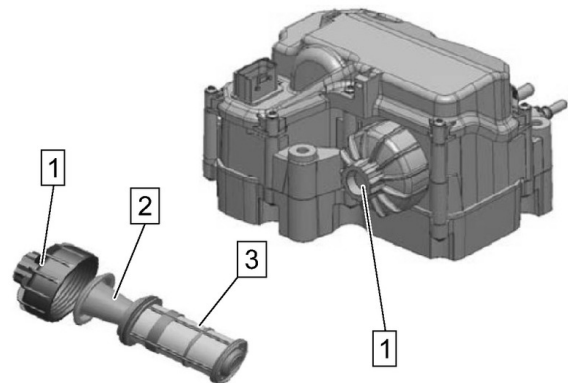
Damage to components.

- ▶ Before opening the system, such as for changing filters or operating materials, clean the components to be opened.
- ▶ After opening the systems, ensure that the opened components and the surrounding area are absolutely clean.
- ▶ Place unscrewed components on a clean surface.
- ▶ Do not open systems in a dusty environment.

✓ Trained personnel

- ▶  Switch off and secure the machine. [\[▶ 182\]](#)
- ▶  Observe the safety instructions for all maintenance tasks. [\[▶ 190\]](#)
- ▶  Comply with safety instructions for handling the lubricants and operating materials. [\[▶ 49\]](#)

- ▶ Place a suitable collector underneath.
- ▶ Disconnect the electrical connection.
- ▶ Unscrew the cover (1).
- ▶ Take out the insert (2) and filter (3).
- ▶ Insert the new filter (3) with insert (2).
- ▶ Screw on the cover (1).
  - ▷ Observe a tightening torque of 22.5 +/-2.5 Nm.
- ▶ Connect the electrical connection.



6901-003

### 8.5.16 Changing the engine exhaust gas aftertreatment fluid breather filter

#### **CAUTION!**

Contact with hot liquids or machine parts.

Risk of burning

- ▶ Wear suitable protective gloves.
- ▶ Wear suitable safety goggles.
- ▶ Allow liquids or machine parts to cool down before working on or with them.

#### **CAUTION!**

Contact with aggressive liquids.

Chemical burns, skin reactions or eye injuries.

- ▶ Wear suitable protective gloves.
- ▶ Wear safety glasses.

#### **NOTICE!**

Dirt or foreign bodies get into the fuel, hydraulic or other enclosed systems.

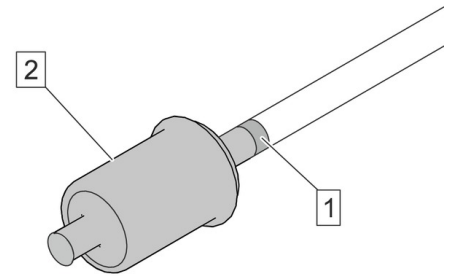
Damage to components.

- ▶ Before opening the system, such as for changing filters or operating materials, clean the components to be opened.
- ▶ After opening the systems, ensure that the opened components and the surrounding area are absolutely clean.
- ▶ Place unscrewed components on a clean surface.
- ▶ Do not open systems in a dusty environment.

✓ Trained personnel

- ▶  Switch off and secure the machine. [▶ 182](#)
- ▶  Observe the safety instructions for all maintenance tasks. [▶ 190](#)

- ▶ Release the clamp (1).
- ▶ Remove filter (2) and dispose of properly.
- ▶ Insert the new filter.
- ▶ Screw on the clamp (1).



724-004

### 8.5.17 Checking the cooler

#### CAUTION!

Contact with hot liquids or machine parts.

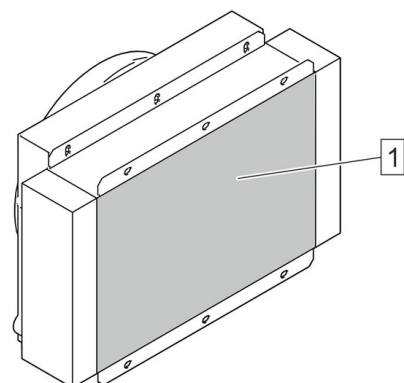
Risk of burning

- ▶ Wear suitable protective gloves.
- ▶ Wear suitable safety goggles.
- ▶ Allow liquids or machine parts to cool down before working on or with them.

✓ Trained personnel

- ▶  Switch off and secure the machine. [▶ 182](#)
- ▶  Observe the safety instructions for all maintenance tasks. [▶ 190](#)

- ▶ Check the cooling vanes (1) for damage.
  - ▷ If necessary, have the radiator repaired or replaced by a qualified vehicle engineering specialist.
- ▶ Check the cooling vanes (1) for dirt and clean them if necessary.
  - ▷ Purge the cooling vanes (1) with compressed air.



### 8.5.18 Checking the engine coolant level

#### ⚠ CAUTION!

Contact with hot liquids or machine parts.

Risk of burning

- ▶ Wear suitable protective gloves.
- ▶ Wear suitable safety goggles.
- ▶ Allow liquids or machine parts to cool down before working on or with them.

#### NOTICE!

Using lubricants or operating materials that are not suitable.

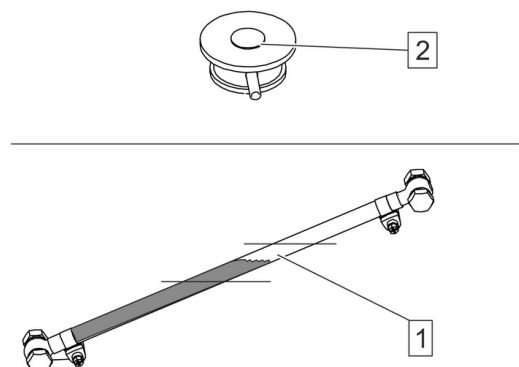
Machine damage due to increased wear.

- ▶ Do not mix different lubricants or operating materials together.
- ▶ Observe the manufacturer's instructions.
- ▶ Only use additives if they are specified in the Technical Data chapter.
- ▶ Only use lubricants and operating materials approved by PAUS.
- ▶ If necessary, adapt recommended lubricants or operating materials to the application.

✓ Trained personnel

- ▶ ⚠ Switch off and secure the machine. [▶ 182](#)
- ▶ ⚠ Observe the safety instructions for all maintenance tasks. [▶ 190](#)
- ▶ ⚠ Comply with safety instructions for handling the lubricants and operating materials. [▶ 49](#)

- ▶ Check the coolant level at (1).
  - ▷ Make sure that the hose (1) is filled to the middle.
- ▶ If necessary, top up coolant at (2).
  - ▷ ⚠ Remove the cap (2) carefully to release any residual pressure.
  - ▷ Refill the coolant.
  - ▷ Screw on the cover (2).



### 8.5.19 Checking the coolant additive concentration

#### **CAUTION!**

Contact with hot liquids or machine parts.

Risk of burning

- ▶ Wear suitable protective gloves.
- ▶ Wear suitable safety goggles.
- ▶ Allow liquids or machine parts to cool down before working on or with them.

#### **NOTICE!**

Using lubricants or operating materials that are not suitable.

Machine damage due to increased wear.

- ▶ Do not mix different lubricants or operating materials together.
- ▶ Observe the manufacturer's instructions.
- ▶ Only use additives if they are specified in the Technical Data chapter.
- ▶ Only use lubricants and operating materials approved by PAUS.
- ▶ If necessary, adapt recommended lubricants or operating materials to the application.

#### **NOTICE!**

Dirt or foreign bodies get into the fuel, hydraulic or other enclosed systems.

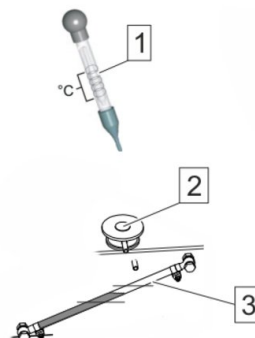
Damage to components.

- ▶ Before opening the system, such as for changing filters or operating materials, clean the components to be opened.
- ▶ After opening the systems, ensure that the opened components and the surrounding area are absolutely clean.
- ▶ Place unscrewed components on a clean surface.
- ▶ Do not open systems in a dusty environment.

✓ Trained personnel

- ▶  Switch off and secure the machine. [▶ 182](#)
- ▶  Observe the safety instructions for all maintenance tasks. [▶ 190](#)

- ▶ Let the machine rest for 5 minutes.
- ▶ Carefully unscrew the cap (2) to release any residual pressure.
- ▶ Check the coolant using a commercially available hydrometer (1).
  - ▷ If necessary, refill with additive concentrate or replace coolant. [▶ 223](#)
- ▶ The coolant fill level should be approximately in the centre of the hose (3).
  - ▷ Correct the fill level if necessary.
- ▶ Screw the cover back on.



3565-005

## 8.5.20 Changing the engine coolant

### ⚠ CAUTION!

Contact with hot liquids or machine parts.

Risk of burning

- ▶ Wear suitable protective gloves.
- ▶ Wear suitable safety goggles.
- ▶ Allow liquids or machine parts to cool down before working on or with them.

✓ Qualified specialist

- ▶ ⚠ Switch off and secure the machine. [▶ 182](#)
- ▶ ⚠ Observe the safety instructions for all maintenance tasks. [▶ 190](#)

- ▶ **i** Only have the coolant changed by qualified personnel.
- ▶ If possible, bleed the cooling system.



### 8.5.21 Checking the poly-V belt

#### **⚠ CAUTION!**

Working in areas with moving or pre-tensioned parts.

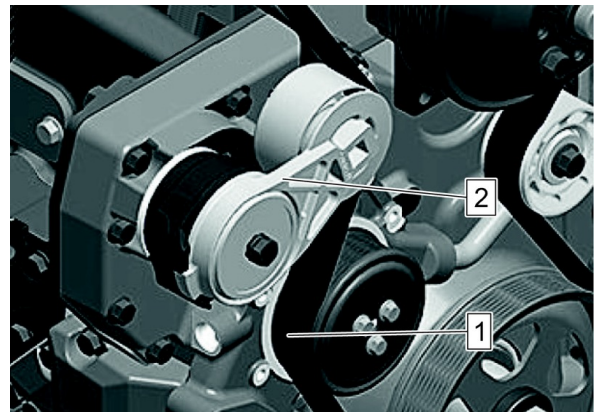
Crushing hazard due to moving or pre-tensioned parts, such as belts and belt pulleys.

- ▶ Do not place your hands between moving or pre-tensioned parts.

✓ Trained personnel

- ▶  Switch off and secure the machine. [▶ 182](#)
- ▶  Observe the safety instructions for all maintenance tasks. [▶ 190](#)

- ▶ Check the entire belt (1) for damage.
- ▶ Exchanged damaged belt. [▶ 224](#)
- ▶ Make sure that the belt tensioner (2) does not make contact with the stop.
  - ▷ If it does make contact with the stop, check the brackets for the alternator, the belt tensioner, tensioner pulley and the belt length.
  - ▷ Have damaged or worn parts repaired by a qualified specialist.
- ▶ Check the belt tension. [▶ 225](#)



1926-006

### 8.5.22 Changing the poly-V belt

#### **⚠ CAUTION!**

Working in areas with moving or pre-tensioned parts.

Crushing hazard due to moving or pre-tensioned parts, such as belts and belt pulleys.

- ▶ Do not place your hands between moving or pre-tensioned parts.

#### **NOTICE!**

Using non-permissible spare and wear parts.

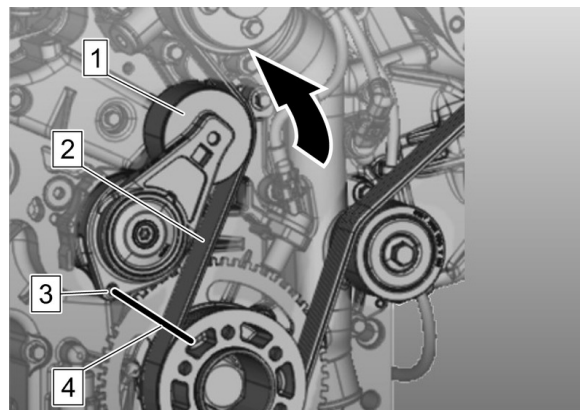
Machine damage due to increased wear.

- ▶ Only use spare and wear parts approved by PAUS.

- ✓ Trained personnel
- ✓ Socket wrench
- ✓ Retaining pin

- ▶  Switch off and secure the machine. [▶ 182](#)
- ▶  Observe the safety instructions for all maintenance tasks. [▶ 190](#)

- ▶ Push the tensioner pulley (1) in the direction of the arrow using the socket wrench until the pin (4) can be inserted into the bore (3) and the tensioner pulley (1) is attached.
- ▶ Remove the belts (2).
  - ▷ First, remove the belts (2) on the smallest roller.
- ▶ Fit a new belt (2).
- ▶ Slowly pull out the retaining pin (4).  
*The tensioner pulley tensions the belt.*
- ▶ Ensure that the belt (2) is inserted in the guide of the belt pulleys correctly.



730-003

### 8.5.23 Checking the V-belt tension

#### ⚠ CAUTION!

Working in areas with moving or pre-tensioned parts.

Crushing hazard due to moving or pre-tensioned parts, such as belts and belt pulleys.

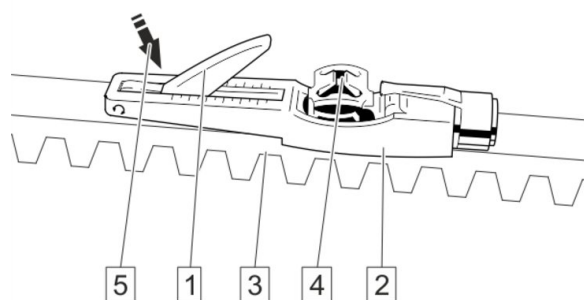
- ▶ Do not place your hands between moving or pre-tensioned parts.

- ✓ Trained personnel
- ▶ Switch off and secure the machine. [▶ 182](#)
- ▶ Comply with safety instructions for all maintenance tasks. [▶ 190](#)

Use a V-belt tension measuring device to check the V-belt tension.

Order number: 598884

- ▶ Lower the display arm (1) in the tester.
- ▶ Place the guide (2) between the two pulleys on the V-belt (3).
- ▶ Keep the button (4) held until you can hear or feel the spring disengage.
- ▶ Read off the measured value at the intersection (5).
- ▶ If the tension value is incorrect, re-tension and repeat the measurement.



#### V-belt tension values

|                              | Pre-tensioning                                          | Re-tensioning |
|------------------------------|---------------------------------------------------------|---------------|
| V-belt AVX 11 (width: 11 mm) | 650 +/- 50 N                                            | 400 +/- 50 N  |
| V-belt AVX 13 (width: 13 mm) | 650 +/- 50 N                                            | 400 +/- 50 N  |
| V-ribbed belt tension        | Automatically tensioning spring-loaded tensioner pulley |               |

### 8.5.24 Checking the tensioner pulley

#### ⚠ CAUTION!

Working in areas with moving or pre-tensioned parts.

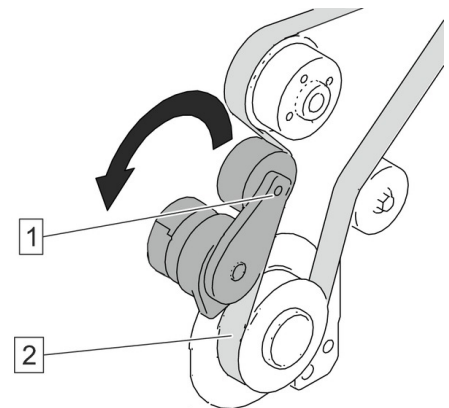
Crushing hazard due to moving or pre-tensioned parts, such as belts and belt pulleys.

- ▶ Do not place your hands between moving or pre-tensioned parts.

✓ Trained personnel

- ▶ ⚠ Switch off and secure the machine. [▶ 182]
- ▶ ⚠ Observe the safety instructions for all maintenance tasks. [▶ 190]

- ▶ Press the tensioner pulley (1) in the direction of the arrow until the belt (2) is free.
- ▶ Remove the belts (2).
- ▶ Release the tensioner pulley (1) and make sure that the tensioner pulley (1) is in contact with the stop.
  - ▷ If the tensioner pulley is not tensioned to the stop, have the tensioner pulley replaced by a qualified specialist.
- ▶ Check the tensioner pulley (1) for damage.
  - ▷ Have damaged parts replaced by a qualified specialist.
- ▶ Press the tensioner pulley (1) in the direction of the arrow and pull on the belt (2).
- ▶ Release the tensioner pulley (1).  
*The tensioner pulley tensions the belt.*
- ▶ Make sure that the belt (2) is seated correctly in all guides of the belt pulleys.
- ▶ Check the poly-V belt. [▶ 224]



4951-001

### 8.5.25 Replacing the engine tensioner pulley

#### ⚠ CAUTION!

Working in areas with moving or pre-tensioned parts.

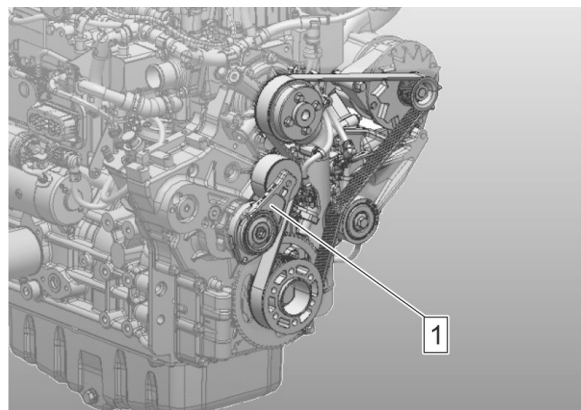
Crushing hazard due to moving or pre-tensioned parts, such as belts and belt pulleys.

- ▶ Do not place your hands between moving or pre-tensioned parts.

✓ Qualified specialist

- ▶ ⚠ Switch off and secure the machine. [▶ 182]
- ▶ ⚠ Observe the safety instructions for all maintenance tasks. [▶ 190]

- Replace the tensioner pulley.



## 8.6 DRIVE

286-007

### 8.6.1 Checking the wheels

#### **WARNING!**

Cutting or welding on a rim.

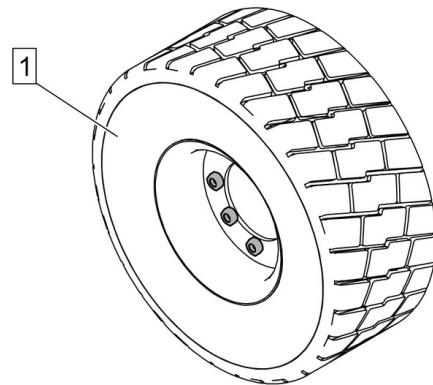
Risk of death or serious injury due to explosive decompression.

- ▶ Never cut or weld on a rim with an inflated tyre fitted.

✓ Trained personnel

- ▶  Switch off and secure the machine. [▶ 182](#)
- ▶  Observe the safety instructions for all maintenance tasks. [▶ 190](#)

- ▶ Check the tread depth and, if necessary, tyre pressure on all of the tyres (1) based on the information in the Technical data chapter. [▶ 71](#)
  - ▷  Observe the instructions for inflating tyres.
- ▶ Check tyres for damage and uneven wear.
- ▶ Check the rims for damage.
- ▶ Check wheels for missing or loose wheel nuts or wheel bolts and replace any that are missing.
- ▶ Check the condition of the valve stems and caps.
- ▶ After fitting the wheel, check that the direction of travel is correct if necessary.



- ▶ Have damaged or worn tyres and rims repaired or replaced by a qualified specialist.

853-003

### 8.6.2 Checking the wheel mounting

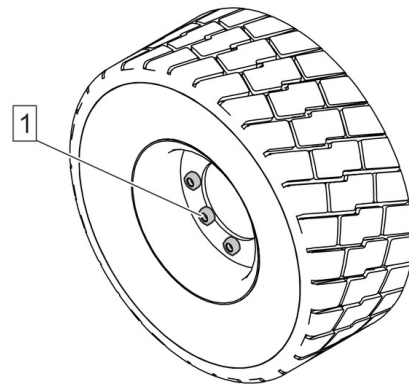
✓ Trained personnel

✓ Torque wrench

- ▶  Switch off and secure the machine. [▶ 182](#)
- ▶  Observe safety instructions for all maintenance tasks. [▶ 190](#)

- ▶ Identify the size and properties of the wheel nuts (1).
- ▶ Set the torque wrench as indicated in the tightening torque table. [▶ 92](#)
- ▶ Tighten all the wheel nuts (1) in a crosswise pattern using the torque wrench.
- ▶ Repeat this on all wheels.

 Replace any damaged wheel nuts.



576-005

### 8.6.3 Checking the wheel hub gear oil level

#### CAUTION!

Contact with hot liquids or machine parts.

Risk of burning

- ▶ Wear suitable protective gloves.
- ▶ Wear suitable safety goggles.
- ▶ Allow liquids or machine parts to cool down before working on or with them.

#### NOTICE!

Dirt or foreign bodies get into the fuel, hydraulic or other enclosed systems.

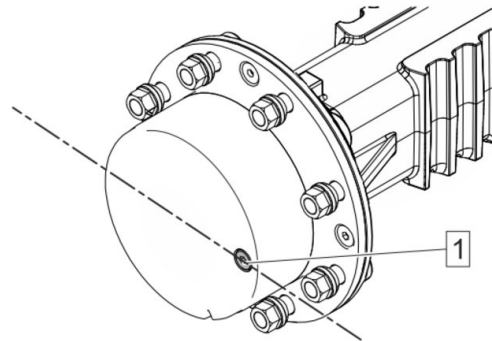
Damage to components.

- ▶ Before opening the system, such as for changing filters or operating materials, clean the components to be opened.
- ▶ After opening the systems, ensure that the opened components and the surrounding area are absolutely clean.
- ▶ Place unscrewed components on a clean surface.
- ▶ Do not open systems in a dusty environment.

✓ Trained personnel

- ▶  Observe the safety instructions for all maintenance tasks. [▶ 190](#)
- ▶  Comply with safety instructions for handling the lubricants and operating materials. [▶ 49](#)

- ▶ Drive the machine on horizontal surfaces.
  - ▷ Park the machine such that the screw (1) is positioned horizontally.
- ▶  Switch off and secure the machine. [▶ 182](#)
- ▶ Unfasten screw (1).
- ▶ Ensure that the oil is filled up to the hole at (1).
  - ▷ If the oil level is too low, refill oil.
- ▶ Remove any dirt from the screw (1) and sealing surface.
- ▶ Fasten the screw (1).



9164-005

#### 8.6.4 Changing the wheel hub gear oil

##### CAUTION!

Contact with hot liquids or machine parts.

Risk of burning

- ▶ Wear suitable protective gloves.
- ▶ Wear suitable safety goggles.
- ▶ Allow liquids or machine parts to cool down before working on or with them.

##### NOTICE!

Dirt or foreign bodies get into the fuel, hydraulic or other enclosed systems.

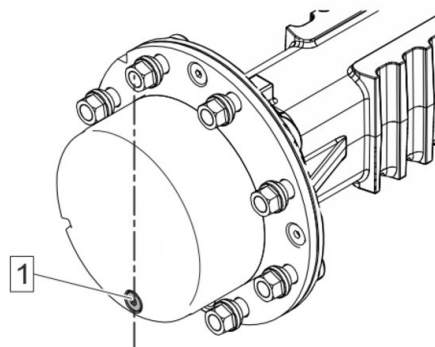
Damage to components.

- ▶ Before opening the system, such as for changing filters or operating materials, clean the components to be opened.
- ▶ After opening the systems, ensure that the opened components and the surrounding area are absolutely clean.
- ▶ Place unscrewed components on a clean surface.
- ▶ Do not open systems in a dusty environment.

- ✓ Trained personnel
- ▶ Drive the machine on horizontal surfaces.
- ▶  Switch off and secure the machine. [▶ 182](#)
- ▶  Observe the safety instructions for all maintenance tasks. [▶ 190](#)
- ▶  Comply with safety instructions for handling the lubricants and operating materials. [▶ 49](#)

### Draining the wheel hub gear oil

- ▶ Park the machine such that the screw (1) is positioned at the lowest point.
- ▶ Unfasten the bolt (1).
  - ▷ Collect the used oil in a suitable container and dispose of it properly.
- ▶ Remove any dirt from the screw (1) and sealing surface.
- ▶ Fasten the bolt (1).



### Refilling the wheel hub gear oil

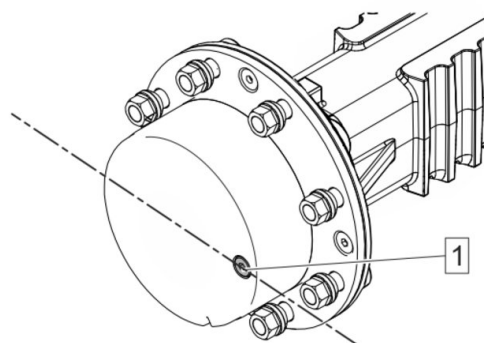
#### NOTICE!

Using lubricants or operating materials that are not suitable.

Machine damage due to increased wear.

- ▶ Do not mix different lubricants or operating materials together.
- ▶ Observe the manufacturer's instructions.
- ▶ Only use additives if they are specified in the Technical Data chapter.
- ▶ Only use lubricants and operating materials approved by PAUS.
- ▶ If necessary, adapt recommended lubricants or operating materials to the application.

- ▶ Park the machine such that the screw (1) is positioned horizontally.
- ▶ Unfasten the bolt (1).
- ▶ Refill clean oil of the permissible type at (1), in accordance with the "Technical data" chapter.
- ▶ Remove any dirt from the screw (1) and sealing surface.
- ▶ Check the fill level[▶ 229], if necessary, top up.
- ▶ Fasten the bolt (1).

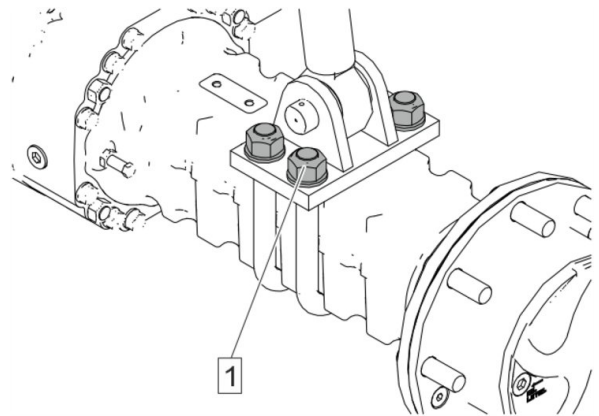


581-001

### 8.6.5 Checking the mounting of the axles

- ✓ Trained personnel
- ▶ ⚠ Switch off and secure the machine.[▶ 182]
- ▶ ⚠ Observe safety instructions for all maintenance tasks.[▶ 190]

- ▶ Make sure that the necessary tightening torque is used to attach the axle beam and the plate (2) with the four nuts (1) onto the machine.
  - ▷ Use a tightening torque of 730 Nm.
- ▶ Do this on both sides of the axle and on both axles.



579-010

### 8.6.6 Checking the axle drive oil level

#### **CAUTION!**

Contact with hot liquids or machine parts.

Risk of burning

- ▶ Wear suitable protective gloves.
- ▶ Wear suitable safety goggles.
- ▶ Allow liquids or machine parts to cool down before working on or with them.

#### **NOTICE!**

Using lubricants or operating materials that are not suitable.

Machine damage due to increased wear.

- ▶ Do not mix different lubricants or operating materials together.
- ▶ Observe the manufacturer's instructions.
- ▶ Only use additives if they are specified in the Technical Data chapter.
- ▶ Only use lubricants and operating materials approved by PAUS.
- ▶ If necessary, adapt recommended lubricants or operating materials to the application.

#### **NOTICE!**

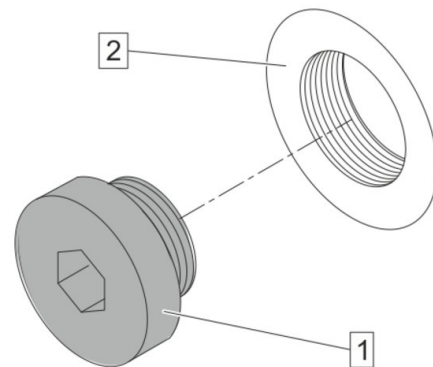
Dirt or foreign bodies get into the fuel, hydraulic or other enclosed systems.

Damage to components.

- ▶ Before opening the system, such as for changing filters or operating materials, clean the components to be opened.
- ▶ After opening the systems, ensure that the opened components and the surrounding area are absolutely clean.
- ▶ Place unscrewed components on a clean surface.
- ▶ Do not open systems in a dusty environment.

- ✓ Trained personnel
- ✓ The machine has been parked on a horizontal surface
- ▶ ⚠ Switch off and secure the machine. [▶ 182]
- ▶ ⚠ Observe the safety instructions for all maintenance tasks. [▶ 190]
- ▶ ⚠ Comply with safety instructions for handling the lubricants and operating materials. [▶ 49]

- ▶ Unfasten the bolt (1).
- ▶ Make sure that the oil is filled up to the hole.
  - ▷ If the oil level is too low, refill oil.
- ▶ Clean the bolt (1) and sealing surface (2).
- ▶ Fasten the bolt (1).



9162-005

### 8.6.7 Changing the axle drive oil

#### ⚠ CAUTION!

Contact with hot liquids or machine parts.

Risk of burning

- ▶ Wear suitable protective gloves.
- ▶ Wear suitable safety goggles.
- ▶ Allow liquids or machine parts to cool down before working on or with them.

#### NOTICE!

Dirt or foreign bodies get into the fuel, hydraulic or other enclosed systems.

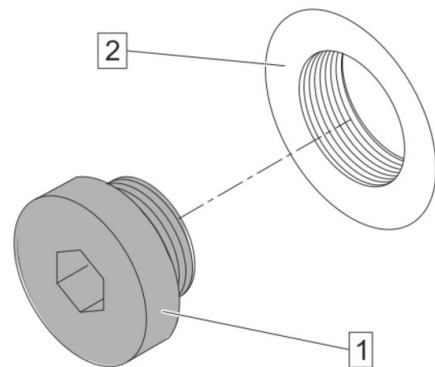
Damage to components.

- ▶ Before opening the system, such as for changing filters or operating materials, clean the components to be opened.
- ▶ After opening the systems, ensure that the opened components and the surrounding area are absolutely clean.
- ▶ Place unscrewed components on a clean surface.
- ▶ Do not open systems in a dusty environment.

- ✓ Trained personnel
- ▶ Drive the machine on horizontal surfaces.
- ▶ ⚠ Switch off and secure the machine.
- ▶ ⚠ Observe the safety instructions for all maintenance tasks. [▶ 190]
- ▶ ⚠ Comply with safety instructions for handling the lubricants and operating materials. [▶ 49]

### Draining the axle drive oil

- ▶ Unfasten the bolt (1).
  - ▷ Collect the used oil in a suitable container and dispose of it properly.
- ▶ Clean the bolt (1) and sealing surface (2).
- ▶ Fasten the bolt (1).



### Topping up the axle drive oil

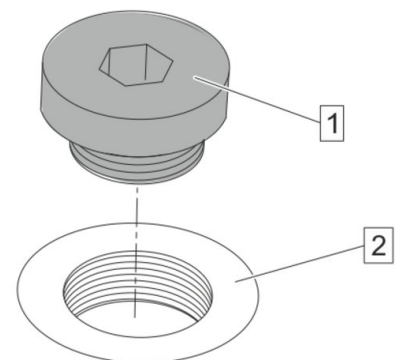
#### NOTICE!

Using lubricants or operating materials that are not suitable.

Machine damage due to increased wear.

- ▶ Do not mix different lubricants or operating materials together.
- ▶ Observe the manufacturer's instructions.
- ▶ Only use additives if they are specified in the Technical Data chapter.
- ▶ Only use lubricants and operating materials approved by PAUS.
- ▶ If necessary, adapt recommended lubricants or operating materials to the application.

- ▶ Unfasten the bolt (1).
- ▶ Figure may not match the actual vehicle.
- ▶ Refill clean oil of the permissible type at (1), in accordance with the "Technical data" chapter.
- ▶ Clean the bolt (1) and sealing surface (2).
- ▶ Fasten the bolt (1).
- ▶ Check the fill level[▶ 232], if necessary, top up.

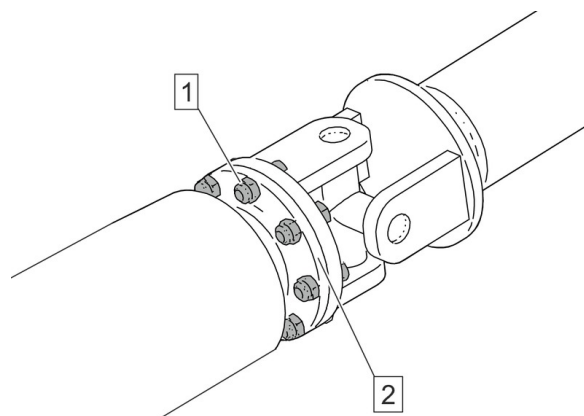


5085-001

### 8.6.8 Checking the drivetrain universal shaft flange connections

- ✓ Trained personnel
- ▶  Switch off and secure the machine.[▶ 182]
- ▶  Comply with safety instructions for all maintenance tasks.[▶ 190]

- ▶ Check the tightening torques of the screws (1) of all universal shaft flange connections (2) in accordance with the Technical data chapter. [▶ 91](#)
  - ▷ If necessary, retighten the screws (1).



## 8.7 Brake

1085-008

### 8.7.1 Checking the parking brake for proper function

#### **WARNING!**

Driving with defective or worn brakes.

Risk of severe or even fatal injuries due to malfunctions of the brake system.

- ▶ Never use the machine with a worn or defective brake.
- ▶ Check the brakes for wear as indicated in the maintenance table.
- ▶ Only allow qualified personnel to work on the brakes.

#### **WARNING!**

Checking the brakes without paying attention to the surroundings.

Risk of uncontrolled movement of the machine.

- ▶ Only check the brakes in an environment suitable for doing so.
- ▶ Before checking the brakes, instruct all persons to leave the area where the brakes will be checked.
- ▶ Ensure that the brakes are not checked on a wet surface.

- ✓ Trained personnel
- ✓ All passengers got off
- ✓ Driver strapped in
- ✓ Doors are closed
- ▶  Check the service brake for proper function.[\[▶ 237\]](#)
  - ▷ Do not continue with the process unless the service brake is functioning.
- ▶  Comply with notes on driving the machine.[\[▶ 172\]](#)
- ▶  Make sure there is enough space in front of and behind the vehicle.
- ▶  Load the machine up to the permissible gross weight, but make sure that this is not reached by carrying additional persons. If necessary, use additional weights.[\[▶ 67\]](#)

Perform the process with maximum payload and with trailer (optional).

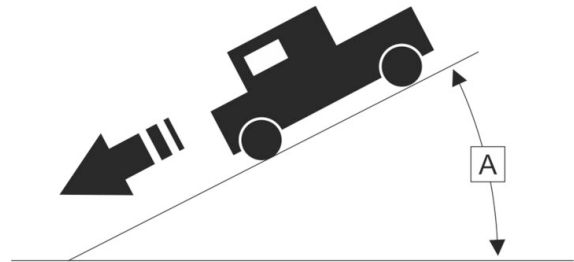
- ▶ Drive the machine on an steep stretch without lateral inclination.

The gradient (A) must have at least the following value:

(A) = permissible downhill gradient x safety factor

(Example: Permitted downhill gradient 30% x 1.2 = 36%)

- ▶ Refer to the Technical data first for the permitted downhill gradient. [▶ 66](#)
- ▶ Engage the service brake and the parking brake.
- ▶ Release the service brake.  
*The vehicle is kept in position on the sloping road by the engaged parking brake.*
- ▶ Repeat this process with the machine driving in reverse.



**⚠** If the machine is not kept in position, bring the machine to a stop and have qualified personnel repair the parking brake.

1086-007

### 8.7.2 Checking the service brake for proper function

#### **⚠ WARNING!**

Driving with defective or worn brakes.

Risk of severe or even fatal injuries due to malfunctions of the brake system.

- ▶ Never use the machine with a worn or defective brake.
- ▶ Check the brakes for wear as indicated in the maintenance table.
- ▶ Only allow qualified personnel to work on the brakes.

#### **⚠ WARNING!**

Checking the brakes without paying attention to the surroundings.

Risk of uncontrolled movement of the machine.

- ▶ Only check the brakes in an environment suitable for doing so.
- ▶ Before checking the brakes, instruct all persons to leave the area where the brakes will be checked.
- ▶ Ensure that the brakes are not checked on a wet surface.

- ✓ Trained personnel
- ✓ All passengers got off
- ✓ Driver strapped in
- ✓ Doors are closed
- ▶  Comply with notes on driving the machine. [▶ 172](#)
- ▶  Make sure there is enough space in front of and behind the machine.
- ▶  Load the machine up to the permissible gross weight, but make sure that this is not reached by carrying additional persons. If necessary, use additional weights. [▶ 67](#)
- ▶ Choose a level and sufficiently long stretch of road without any lateral inclination upon which the machine can be accelerated to the maximum speed and braked abruptly.
- ▶ Drive the machine on the selected stretch of road and accelerate to the maximum driving speed.
- ▶ Brake the machine with the service brake.  
*The machine brakes noticeably.*
- ▶  If no braking of the machine is apparent, bring the machine to a stop and have qualified personnel repair the service brake.



582-003

### 8.7.3 Checking the brake pads for wear

#### NOTICE!

Dirt or foreign bodies get into the fuel, hydraulic or other enclosed systems.

Damage to components.

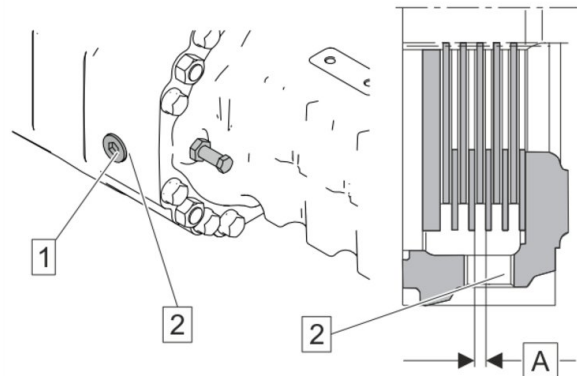
- ▶ Before opening the system, such as for changing filters or operating materials, clean the components to be opened.
- ▶ After opening the systems, ensure that the opened components and the surrounding area are absolutely clean.
- ▶ Place unscrewed components on a clean surface.
- ▶ Do not open systems in a dusty environment.

- ✓ Trained personnel
- ▶  Switch off and secure the machine. [▶ 182](#)
- ▶  Observe safety instructions for all maintenance tasks. [▶ 190](#)

- ▶ Unscrew the screw (1).
- ▶ Measure the distance (A) through the drilled hole (2) using a feeler gauge or a vernier calliper.
- ▶ Make sure that the distance (A) amounts to at least 4.5 mm.

If this value is not met, replace the brake pads at a specialised garage.

- ▶ Carry out the process on both sides of the axle.



583-005

#### 8.7.4 Checking the fill level of the brake fluid

##### NOTICE!

Dirt or foreign bodies get into the fuel, hydraulic or other enclosed systems.

Damage to components.

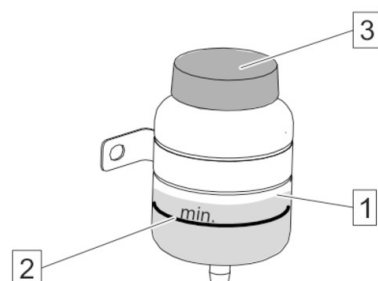
- ▶ Before opening the system, such as for changing filters or operating materials, clean the components to be opened.
- ▶ After opening the systems, ensure that the opened components and the surrounding area are absolutely clean.
- ▶ Place unscrewed components on a clean surface.
- ▶ Do not open systems in a dusty environment.

✓ Trained personnel

- ▶ Drive the machine on horizontal surfaces.
- ▶ ⚠ Switch off and secure the machine. [▶ 182]
- ▶ ⚠ Observe the safety instructions for all maintenance tasks. [▶ 190]
- ▶ ⚠ Comply with safety instructions for handling the lubricants and operating materials. [▶ 49]

- ▶ Make sure that the fill level (1) of the oil in the reservoir is above the "min" mark (2).
  - ▷ If necessary, unscrew cap (3) and top up with oil complying with technical data. [▶ 78]

Some machine versions are equipped with two reservoirs. On such machines, both reservoirs must be checked.

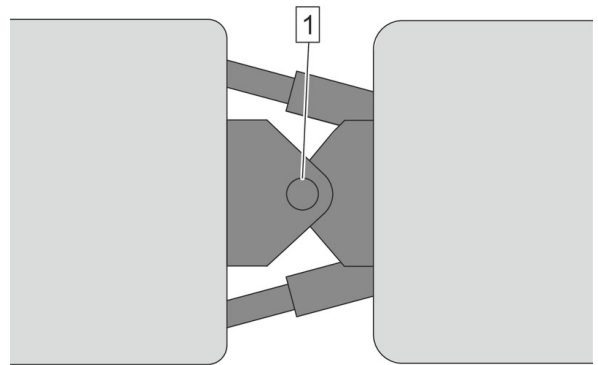


## 8.8 Frame / machine housing

584-004

### 8.8.1 Checking the articulated joint and steering cylinder

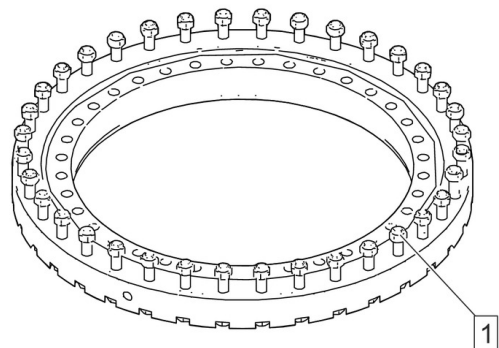
- ✓ Trained personnel
- ▶  Switch off and secure the machine. [▶ 182](#)
- ▶  Observe the safety instructions for all maintenance tasks. [▶ 190](#)
- ▶ Check all fastening points at (1) in the area of the articulated joint and the steering cylinders for wear and firm seating.
  - ▷ If necessary, retighten the screws or replace the connecting elements.
- ▶ if necessary, check the tensioning elements.



6278-001

### 8.8.2 Checking the slewing ring fixture

- ✓ Trained personnel
- ✓ Torque wrench
- ▶  Switch off and secure the machine. [▶ 182](#)
- ▶  Observe the safety instructions for all maintenance tasks. [▶ 190](#)
- ▶ If necessary, unscrew the covers.
- ▶ Check the tightening torques of all screws (1) according to the Technical data chapter. [▶ 91](#)
- ▶  Replace any damaged screws.

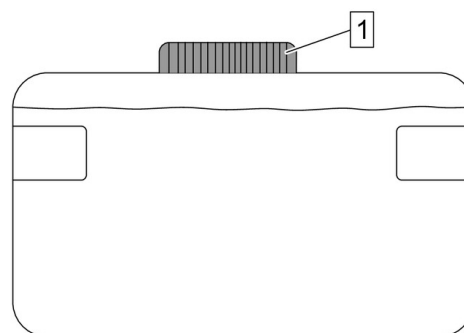


## 8.9 Driver's cab

2142-001

### 8.9.1 Filling the windscreen washer reservoir

- ✓ Trained personnel
- ▶ Switch on the parking brake.
- ▶ Observe the safety instructions for all maintenance tasks. [▶ 190](#)
  
- ▶ Unscrew the cover (1).
- ▶ Fill the tank with water.
  - ▷ Add antifreeze or windshield cleaning solution to the water if necessary.
- ▶ Screw on the cover (1).



## 8.10 Electrical system

300-010

### 8.10.1 Checking electrics components

#### **WARNING!**

Improper work on the electrical system.

Risk of severe injury or death due to malfunctions of the machine or electric shock.

- ▶ Only allow electrically skilled persons to work on the electrical system.
- ▶ Before working on the electric system, first switch off the battery main switch, disconnect the battery or remove it from the power supply.
- ▶ Allow the electrical system or the machine to cool down sufficiently, if necessary, before working on it.
- ▶ Inspect all cable connections for firm and correct connection before restarting the electrical system.

#### **NOTICE!**

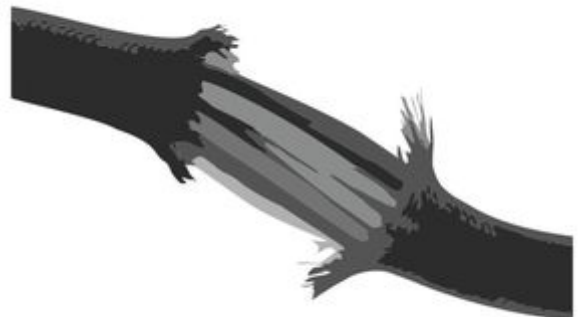
Using non-permissible spare and wear parts.

Machine damage due to increased wear.

- ▶ Only use spare and wear parts approved by PAUS.

✓ Electrical specialist

- ▶  Switch off and secure the machine. [▶ 182](#)
- ▶  Observe the safety instructions for all maintenance tasks. [▶ 190](#)
- ▶  Observe the safety instructions for handling the electric system. [▶ 46](#)
- ▶ Check all plugs and plug connectors to make sure they are joined correctly.
- ▶ Check all cables for wear, possible chafe points and cable breaks.
  - ▷ Eliminate any chafe points.
- ▶ Check the function of all emergency stop buttons.
  - ▷  If an emergency stop button is not functioning, have it repaired by an electrical specialist.



### 8.10.2 Checking the battery

#### **WARNING!**

Incorrect handling of batteries.

Risk of potentially fatal injuries due to the battery exploding or an electric shock.

- ▶ Do not use or push-start a machine with a frozen battery or attempt to start it with starter cables. Doing so poses an explosion hazard.
- ▶ In order to prevent the battery from freezing, keep the battery in a fully charged state at all times. Observe instructions for jumping or charging batteries.
- ▶ Only recharge batteries in well-ventilated areas.
- ▶ Only recharge a battery when the battery is at a temperature between +5°C and +45°C.
- ▶ Avoid breathing in any gases escaping from the battery.
- ▶ Do not allow the electrolyte fluid of the battery to come into contact with clothing, skin, mouth or eyes. Wear suitable protective equipment.
- ▶ Keep sparks, open flames and smoke away from the battery, otherwise there is a risk of explosion.
- ▶ Do not check the charge level of the battery by short-circuiting the terminals with a metal object. Use a hydrometer or voltmeter for this.
- ▶ Keep metallic objects such as rings, wristwatches and tools away from the battery terminals, otherwise there is a risk of sparking.
- ▶ Observe the safety instructions of the manufacturer.  
See the annex regarding the battery in the spare parts list.

#### **WARNING!**

Improper work on the electrical system.

Risk of severe injury or death due to malfunctions of the machine or electric shock.

- ▶ Only allow electrically skilled persons to work on the electrical system.
- ▶ Before working on the electric system, first switch off the battery main switch, disconnect the battery or remove it from the power supply.
- ▶ Allow the electrical system or the machine to cool down sufficiently, if necessary, before working on it.
- ▶ Inspect all cable connections for firm and correct connection before restarting the electrical system.

- ✓ Trained personnel
- ✓ Ambient temperature approx. 20 °C

- ▶  Switch off and secure the machine. [▶ 182](#)
- ▶  Observe the safety instructions for handling the electric system. [▶ 46](#)
- ▶  Observe the safety instructions for all maintenance tasks. [▶ 190](#)
- ▶  Comply with safety instructions for handling the lubricants and operating materials. [▶ 49](#)

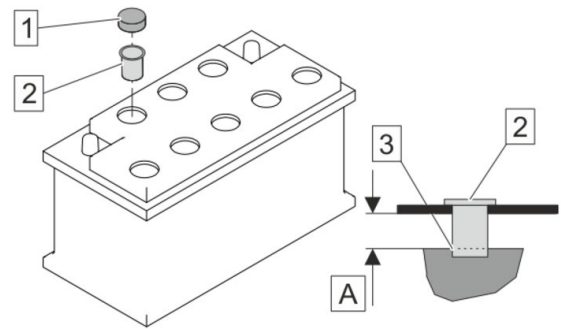
In the case of maintenance-free batteries, the acid level and battery charge cannot be checked, because they have no inspection openings.

### Checking the battery acid level

- ▶ Disconnect the battery.
- ▶ Unscrew the cover (1).
- ▶ Ensure that the acid level (3) just covers the base of the control insert (2).
  - ▷ If the acid level cannot be seen, add distilled water until the acid level is reached.
  - ▷ If the distance (A) is less than 10 mm, reduce the acid level.

 Batteries might not be equipped with a control insert (2). On these batteries, the correct spacing (A) is between 10-15 mm.

- ▶ Check the battery charge.
- ▶ Screw on the cover (1).

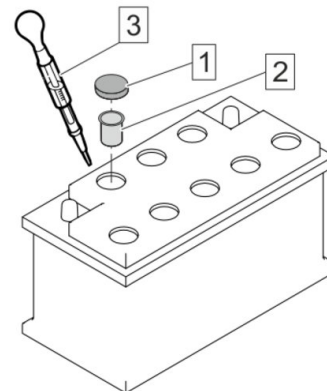


### Checking the battery charge

The battery's charge can be checked based on the acid density.

- ▶ Disconnect the battery.
- ▶ Unscrew the cover (1).
- ▶ If available, remove the control insert (2).
- ▶ Check the acid density using a commercially available acid testing device (3).
- ▶ If available, use control insert (2).
- ▶ Screw on the cover (1).
- ▶ Repeat this at all other openings.

 If the acid density is below 1.2 kg/dm<sup>3</sup> (= battery is charged about 50%), connect the battery to a charger and charge it.



## 8.11 Hydraulics

588-005

### 8.11.1 Checking the hydraulic components

#### **⚠ CAUTION!**

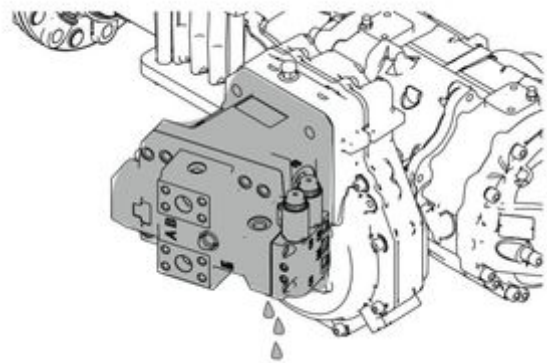
Contact with hot liquids or machine parts.

Risk of burning

- ▶ Wear suitable protective gloves.
- ▶ Wear suitable safety goggles.
- ▶ Allow liquids or machine parts to cool down before working on or with them.

✓ Trained personnel

- ▶ ⚠ Switch off and secure the machine. [▶ 182](#)
- ▶ ⚠ Observe the safety instructions for all maintenance tasks. [▶ 190](#)
  
- ▶ Check all hydraulic components and all lines of the hydraulic system for leaks.
  - ▷ If necessary, eliminate any leaks or have components replaced by a qualified specialist.



310-007

### 8.11.2 Replacing hydraulic hoses

#### **⚠ CAUTION!**

Contact with hot liquids or machine parts.

Risk of burning

- ▶ Wear suitable protective gloves.
- ▶ Wear suitable safety goggles.
- ▶ Allow liquids or machine parts to cool down before working on or with them.

#### **NOTICE!**

Using non-permissible spare and wear parts.

Machine damage due to increased wear.

- ▶ Only use spare and wear parts approved by PAUS.

### NOTICE!

Dirt or foreign bodies get into the fuel, hydraulic or other enclosed systems.  
Damage to components.

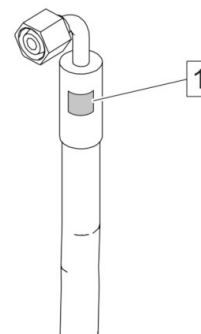
- ▶ Before opening the system, such as for changing filters or operating materials, clean the components to be opened.
- ▶ After opening the systems, ensure that the opened components and the surrounding area are absolutely clean.
- ▶ Place unscrewed components on a clean surface.
- ▶ Do not open systems in a dusty environment.

✓ Hydraulics specialist

- ▶ ⚠ Switch off and secure the machine. [▶ 182]
- ▶ ⚠ Observe the safety instructions for all maintenance tasks. [▶ 190]
- ▶ ⚠ Observe safety instructions for handling the hydraulic system [▶ 49]
- ▶ Let the machine rest for 5 minutes.

The manufacturing date and the PAUS part number are embossed on the end piece at (1).  
If the manufacturing date is older than 6 years, replace the hydraulic hoses.

- ▶ Check the manufacturing date of all hydraulic hoses and, if necessary, have the hydraulic hoses replaced by a hydraulics specialist.



745-003

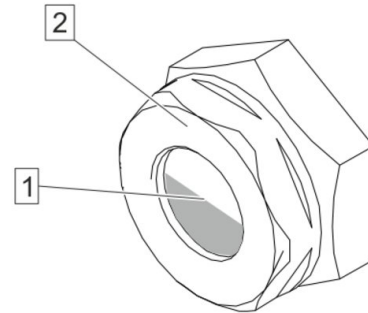
#### 8.11.3 Checking the fluid level of the hydraulic system

✓ Trained personnel

- ▶ Drive the machine on horizontal surfaces.
- ▶ Make sure that all hydraulic cylinders are retracted.
- ▶ ⚠ Secure the machine against rolling away.
- ▶ ⚠ Comply with safety instructions for all maintenance tasks. [▶ 190]

The inspection glass (2) is on the side of the hydraulic reservoir.

- ▶ Make sure that the hydraulic fluid level (1) is visible in the centre of the inspection glass (2).
  - ▷ If the level is too low, add hydraulic fluid. [▶ 248]



1221-006

#### 8.11.4 Replacing the hydraulic fluid

##### **CAUTION!**

Contact with hot liquids or machine parts.

Risk of burning

- ▶ Wear suitable protective gloves.
- ▶ Wear suitable safety goggles.
- ▶ Allow liquids or machine parts to cool down before working on or with them.

##### **NOTICE!**

Dirt or foreign bodies get into the fuel, hydraulic or other enclosed systems.

Damage to components.

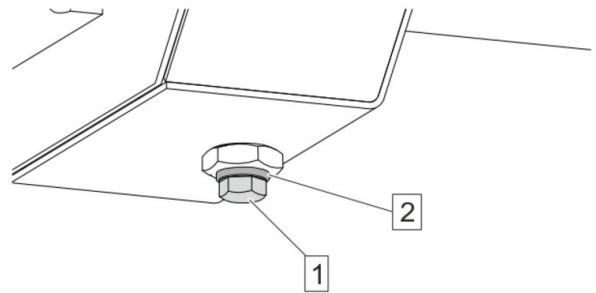
- ▶ Before opening the system, such as for changing filters or operating materials, clean the components to be opened.
- ▶ After opening the systems, ensure that the opened components and the surrounding area are absolutely clean.
- ▶ Place unscrewed components on a clean surface.
- ▶ Do not open systems in a dusty environment.

- ✓ Trained personnel
- ✓ Retract all hydraulic cylinders.
- ▶ Drive the machine on horizontal surfaces.
- ▶ Keep the engine running until the hydraulic fluid has reached a temperature of at least 10-20°C.  
*Hydraulic fluid flows more easily at a higher temperature.*
- ▶ ⚠ Switch off and secure the machine. [▶ 182]
- ▶ ⚠ Observe the safety instructions for all maintenance tasks. [▶ 190]
- ▶ ⚠ Observe safety instructions for handling the hydraulic system. [▶ 49]
- ▶ ⚠ Comply with safety instructions for handling the lubricants and operating materials. [▶ 49]

### Draining the hydraulic fluid

The drain screw (1) is located under the hydraulic tank.

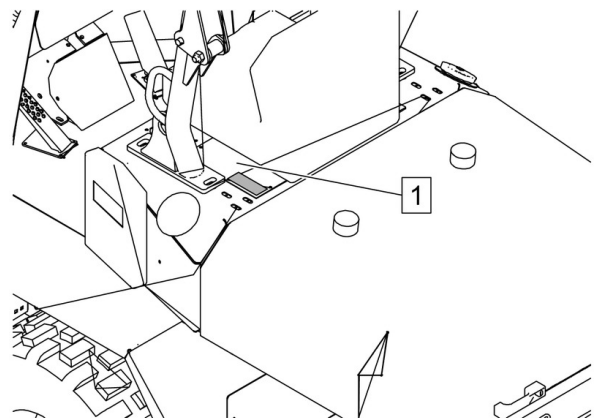
- ▶ Unscrew the bolt (1) together with the sealing ring (2).
- ▶ If available, attach the oil drain hose.
  - ▷ Collect the draining hydraulic fluid in a sufficiently large container.
- ▶ Clean the screw (1), sealing ring (2) and sealing surfaces.
- ▶ Screw on the bolt (1) along with the sealing ring (2).
- ▶ Add new hydraulic fluid to the hydraulic system according to the specification in the "Technical data" chapter.



- ▶ Unscrew the cover (1).

If you wish to change over from mineral oil to biologically degradable hydraulic fluid, please consult the responsible PAUS dealer for details.

 Bio oils from different manufacturers cannot be mixed.



### Topping up hydraulic fluid

#### NOTICE!

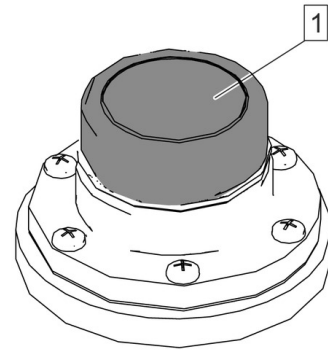
Using lubricants or operating materials that are not suitable.

Machine damage due to increased wear.

- ▶ Do not mix different lubricants or operating materials together.
- ▶ Observe the manufacturer's instructions.
- ▶ Only use additives if they are specified in the Technical Data chapter.
- ▶ Only use lubricants and operating materials approved by PAUS.
- ▶ If necessary, adapt recommended lubricants or operating materials to the application.

The filling aerator (1) is located above the hydraulic tank.

- ▶ Clean the area around the filling aerator (1).
- ▶ Unscrew the cover (1).
- ▶ Clean the internal sieve.
- ▶ Check the sieve for damage and replace it if necessary.
- ▶ Add hydraulic fluid in accordance with the specification in the "Technical data" chapter. [▶ 78](#)
- ▶ Insert the strainer and screw on the cap (1).
- ▶ Check the oil level of the hydraulic system. [▶ 246](#)



1016-003

### 8.11.5 Checking the hydraulic system filling aerator

#### **⚠ CAUTION!**

Contact with hot liquids or machine parts.

Risk of burning

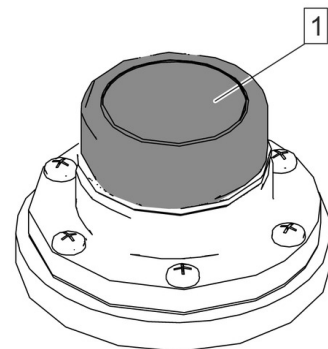
- ▶ Wear suitable protective gloves.
- ▶ Wear suitable safety goggles.
- ▶ Allow liquids or machine parts to cool down before working on or with them.

✓ Trained personnel

- ▶ **⚠** Switch off and secure the machine. [▶ 182](#)
- ▶ **⚠** Observe the safety instructions for all maintenance tasks. [▶ 190](#)
- ▶ **⚠** Observe safety instructions for handling the hydraulic system. [▶ 49](#)
- ▶ **⚠** Comply with safety instructions for handling the lubricants and operating materials. [▶ 49](#)

The filling aerator (1) is located above the hydraulic fluid reservoir.

- ▶ Clean the area around the aerator (1).
- ▶ Unscrew the cover (1).
- ▶ Check the internal sieve for contamination and clean it if necessary.
- ▶ Check the sieve for damage and replace the aerator if necessary. [▶ 250](#)



### 8.11.6 Changing the hydraulic system filling aerator

#### **⚠ CAUTION!**

Contact with hot liquids or machine parts.

Risk of burning

- ▶ Wear suitable protective gloves.
- ▶ Wear suitable safety goggles.
- ▶ Allow liquids or machine parts to cool down before working on or with them.

#### **NOTICE!**

Using non-permissible spare and wear parts.

Machine damage due to increased wear.

- ▶ Only use spare and wear parts approved by PAUS.

#### **NOTICE!**

Dirt or foreign bodies get into the fuel, hydraulic or other enclosed systems.

Damage to components.

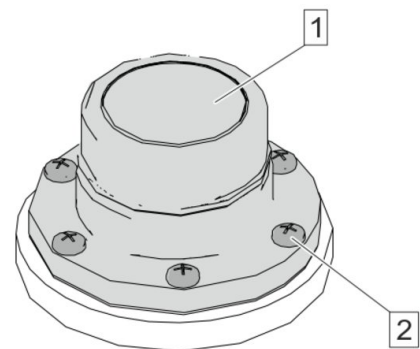
- ▶ Before opening the system, such as for changing filters or operating materials, clean the components to be opened.
- ▶ After opening the systems, ensure that the opened components and the surrounding area are absolutely clean.
- ▶ Place unscrewed components on a clean surface.
- ▶ Do not open systems in a dusty environment.

✓ Trained personnel

- ▶ ⚠ Switch off and secure the machine. [▶ 182]
- ▶ ⚠ Observe the safety instructions for all maintenance tasks. [▶ 190]
- ▶ ⚠ Observe safety instructions for handling the hydraulic system [▶ 49]
- ▶ ⚠ Comply with safety instructions for handling the lubricants and operating materials. [▶ 49]

The filling aerator (1) is located above the hydraulic fluid reservoir.

- ▶ Clean the area around the filling aerator (1).
- ▶ Unscrew the filling aerator (1) at (2).
  - ▷ If present, remove the float ball from the internal sieve and insert it in the new part.
- ▶ Insert and screw on a new filling aerator.



### 8.11.7 Changing the hydraulic system return filter

#### **CAUTION!**

Contact with hot liquids or machine parts.

Risk of burning

- ▶ Wear suitable protective gloves.
- ▶ Wear suitable safety goggles.
- ▶ Allow liquids or machine parts to cool down before working on or with them.

#### **NOTICE!**

Using non-permissible spare and wear parts.

Machine damage due to increased wear.

- ▶ Only use spare and wear parts approved by PAUS.

#### **NOTICE!**

Dirt or foreign bodies get into the fuel, hydraulic or other enclosed systems.

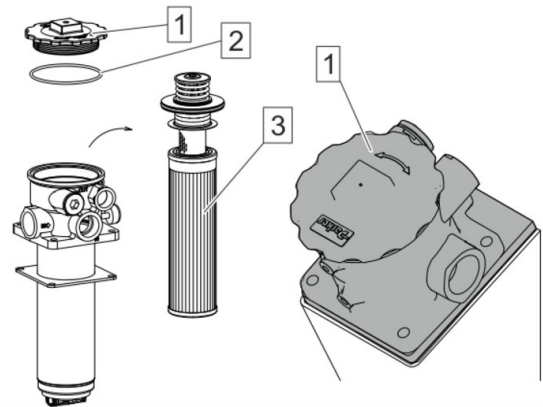
Damage to components.

- ▶ Before opening the system, such as for changing filters or operating materials, clean the components to be opened.
- ▶ After opening the systems, ensure that the opened components and the surrounding area are absolutely clean.
- ▶ Place unscrewed components on a clean surface.
- ▶ Do not open systems in a dusty environment.

✓ Trained personnel

- ▶  Switch off and secure the machine. [▶ 182](#)
- ▶ Let the machine rest for 5 minutes.
- ▶  Observe the safety instructions for all maintenance tasks. [▶ 190](#)
- ▶  Comply with safety instructions for handling the hydraulic system. [▶ 49](#)
- ▶  Comply with safety instructions for handling the lubricants and operating materials. [▶ 49](#)

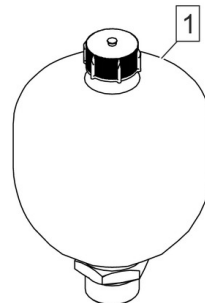
- ▶ Unscrew the cover (1).
- ▶ Clean the seal (2) and sealing surfaces and check them for damage.
  - ▷ Replace damaged seals.
- ▶ Pull out the filter (3).
  - ▷ Collect the draining fluid in a suitable container.
- ▶ Insert a new filter (3).
- ▶ Screw the cover (1) and seals (2) on until hand-tight.
  - ▷ Make sure that it is sealed.
- ▶ Check the fluid level in the hydraulic system. [[▶ 246](#)]



1600-003

### 8.11.8 Checking the pressure accumulator

- ✓ Qualified personnel
- ▶  Switch off and secure the machine. [[▶ 182](#)]
- ▶  Comply with safety instructions for all maintenance tasks. [[▶ 190](#)]
- ▶  Comply with safety instructions for handling the hydraulic system. [[▶ 49](#)]
- ▶ Have the filling pressure of the pressure accumulator checked by a qualified personnel.  
The filling pressure is specified on the pressure accumulator.  
The pressure accumulator may be a:
  - Diaphragm accumulator (1)
  - Piston accumulator (2)

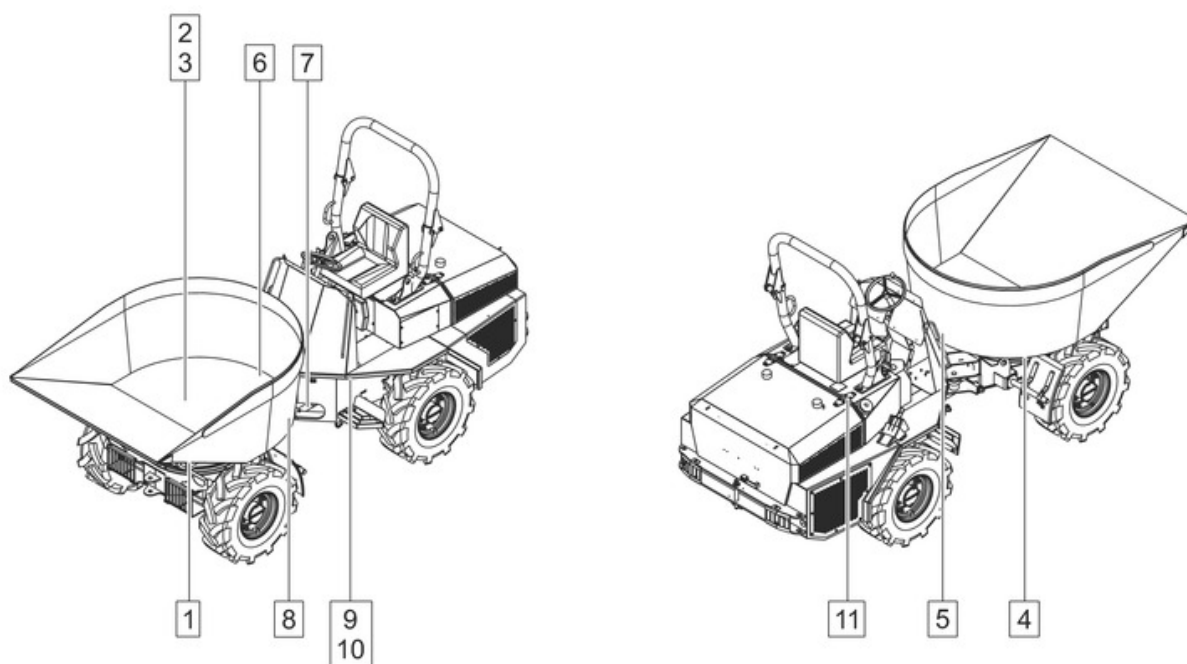


## 8.12 Lubrication points

8775-001

### 8.12.1 Greasing lubrication points every 50 operating hours

- ✓ Trained personnel
- ▶  Switch off and secure the machine. [▶ 182](#)
- ▶  Insert the bucket lock. [▶ 150](#)
- ▶  Observe the safety instructions for all maintenance tasks. [▶ 190](#)
- ▶  Comply with safety instructions for handling the lubricants and operating materials. [▶ 49](#)
- ▶ Lubricate the lubrication points as shown in the figure.
  - ▷ Use approved lubricant as specified in the technical data. [▶ 82](#)
  - ▷ Remove dirt from the lubrication points before lubricating.



| Item | Designation                 | Note          | Number |
|------|-----------------------------|---------------|--------|
| 1    | Bolt for tipping kinematics | On both sides | 2      |
| 2    | Tip cylinder                |               | 2      |

| Item | Designation                            | Note          | Number |
|------|----------------------------------------|---------------|--------|
| 3    | Slewing cylinder                       | On both sides | 4      |
| 4    | Slewing ring                           | On both sides | 4      |
| 5    | Bolt for bucket locking mechanism      |               | 1      |
| 6    | Articulated swivel joint               |               | 2      |
| 7    | Universal joint on the universal shaft | On both sides | 2      |
| 8    | STEERING CYLINDER                      | Front         | 1      |
| 9    | STEERING CYLINDER                      | Rear          | 1      |
| 10   | Swivel joint                           | Rear          | 1      |
| 11   | Engine bonnet hinge                    |               | 2      |

## 9 Fault and remedy

### 9.1 Safety instructions

312-012

#### 9.1.1 Safety instructions for eliminating faults

##### **WARNING!**

Eliminate malfunctions without suitable specialist knowledge.

Risk of severe injury or death due to machine malfunctions.

- ▶ Only have malfunctions on the hydraulic system eliminated by a hydraulics specialist.
- ▶ Only have malfunctions on the electrical system eliminated by an electrical specialist.
- ▶ Only have malfunctions on components such as the brake system, steering or explosion-protected components eliminated by a qualified specialist.

##### **WARNING!**

Carrying out work on the machine on an unsafe or sloped surface.

Risk of severe or even fatal injury due to the machine suddenly lowering or slipping.

- ▶ Only carry out work on the machine when it is on a solid and level substrate.
- ▶ Do not carry out any work on the machine if it is on a slope.
- ▶ Prior to each task, use wheel chocks to secure the machine from rolling away.

##### **WARNING!**

Working under a raised boom, load or attachment.

Risk of severe or even fatal injuries due to components lowering suddenly.

- ▶ Never stand or walk under a raised boom, load or attachment.
- ▶ Before working on the machine, lower the load to the ground.
- ▶ Before working on the machine, lower the attachment and secure it to prevent it from lowering accidentally.
- ▶ Before working on the machine, lower the boom into the transport position.

##### **WARNING!**

Improper handling of work equipment or the workstation.

Risk of severe or even fatal injuries from flying or falling parts.

- ▶ Keep the working platform and equipment clean.
- ▶ Keep the working equipment in good, working condition.
- ▶ Professional handling of work equipment. Do not drop work equipment.

 **WARNING!**

Lifting or jacking up the machine improperly.

Risk of severe injury or death due to the machine crashing down!

- ▶ Use hoists and support blocks with sufficient load capacity.
- ▶ Note the load distribution.
- ▶ Keep the working equipment in good, working condition.
- ▶ Keep the working platform and equipment clean.
- ▶ Use hoists and support blocks that function reliably.
- ▶ Use hoists and jack stands on solid, level surfaces without a sliding hazard.
- ▶ Move the hoists and support blocks to the stipulated position on the machine.
- ▶ Only use hoists and support blocks on rigid components, not on swivelling or rotating components.

 **WARNING!**

Performing work on the machine without having secured the machine against unauthorised use or being switched on accidentally beforehand.

Risk of severe injury or death due to uncontrolled movement of the machine!

- ▶ Switch off and secure the machine.
- ▶ Use an information sign in the area of the corresponding control elements to secure the machine to prevent it from being switched back on.
- ▶ Notify any other persons working on the machine before switching the machine back on.

 **WARNING!**

Performing work in potentially explosive places or in an explosive atmosphere.

Risk of death due to explosion of gas, dust, vapors or fog.

- ▶ Only carry out repairs and maintenance work in areas that are not potentially explosive and in non-explosive atmospheres.
- ▶ Observe local regulations and hazard warnings.

 **WARNING!**

Work being performed by unauthorised persons on explosion-protected components.

Risk of death due to explosion of gas, dust, vapors or fog.

- ▶ Repair and maintenance work on explosion-protected components must only be performed by a qualified specialist.
- ▶ Observe local regulations and hazard warnings.

 **WARNING!**

Performing work on high-voltage systems without corresponding expertise.

Risk of severe injury or death due to electric shock.

- ▶ Only have work performed on high-voltage systems by electrical specialists.

**⚠ CAUTION!**

Working in areas with moving parts, such as flaps, belts and other drives.

Crushing hazard due to moving or trailing parts.

- ▶ Do not reach into the drives.
- ▶ Wait until components that are still rotating have come to a stop.
- ▶ Secure flaps against inadvertent closing.

**⚠ CAUTION!**

Improper maintenance and repair tasks on compressed air systems.

Injury due to pressurised components or lines.

Risk of injury due to malfunctioning components.

- ▶ Only allow qualified personnel to work on the compressed air systems.
- ▶ Before working on compressed air systems, de-energise them.
- ▶ Keep body parts away from unsealed areas.

## 9.2 Possible faults

### 9.2.1 General

1356-002

#### 9.2.1.1 Possible faults on the machine

- ▶  Switch off and secure the machine. [▶ 182](#)
- ▶  Observe safety instructions for eliminating malfunctions. [▶ 255](#)
- ▶  Observe the safety instructions for handling the electric system. [▶ 46](#)
- ▶  Comply with safety instructions for handling the hydraulic system. [▶ 49](#)

| Malfunction                                    | Cause                                      | Action                                                                                                                                                                                |
|------------------------------------------------|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unusual noises from the hydraulic pump.        | Fluid level too low.                       | Stop operation immediately! Have a qualified specialist perform troubleshooting.                                                                                                      |
|                                                | Pump is defective.                         |                                                                                                                                                                                       |
|                                                | Intake line is leaking.                    |                                                                                                                                                                                       |
| Uneven hydraulic movements.                    | Oil level in the hydraulic system too low. | Check and fill as necessary.                                                                                                                                                          |
| Brake will not release when the machine is on. | Brake pressure is too low.                 | Have a hydraulically skilled person check the brake pressure and perform repairs.                                                                                                     |
| Steering is sluggish                           | Failure in the machine / hydraulic system  | A failure in the hydraulic system necessitates turning the steering wheel more times and using more force.<br>Stop operation.<br>Have a qualified specialist perform troubleshooting. |

### 9.2.2 Engine

752-010

#### 9.2.2.1 Potential malfunctions on the engine (DEUTZ)

- ▶  Switch off and secure the machine. [▶ 182](#)
- ▶  Observe safety instructions for eliminating malfunctions. [▶ 255](#)
- ▶  Observe the safety instructions for handling the electric system. [▶ 46](#)
- ▶  Comply with safety instructions for handling the hydraulic system. [▶ 49](#)

The most frequent causes of faults are listed in the following table. Technical defects in assemblies are not taken into account.

| Malfunction                             | Cause                                                    | Action                                      |
|-----------------------------------------|----------------------------------------------------------|---------------------------------------------|
| Engine does not start or starts poorly. | Gear engaged                                             | Set the gear selector lever to "Neutral"    |
|                                         | Fuel tank empty                                          | Refill the fuel<br>Bleeding the fuel system |
|                                         | Electric fuel pump defective                             | Replace                                     |
|                                         | Fuel intake line cut off                                 | Check                                       |
|                                         | Cold start aid                                           | Check                                       |
|                                         | Start limit temperature exceeded                         | Check                                       |
|                                         | Incorrect SAE viscosity class of engine oil              | Changing the engine oil                     |
|                                         | Fuel quality does not correspond to the manual.          | Change the fuel                             |
|                                         | Fuel filter or prefilter contaminated                    | Check and clean or replace it if necessary  |
|                                         | Battery discharged                                       | Recharge battery                            |
|                                         | Battery is defective                                     | Check and replace if necessary              |
|                                         | Cable connections to the starter motor loose or oxidised | Check cable connections                     |
|                                         | Starter is defective or pinion is not engaging.          | Check the starter                           |
|                                         | Shut-off solenoid defective (enabling circuit)           | Check and replace if necessary              |
|                                         | Engine off lever still is stop position                  | Check and replace if necessary              |
|                                         | Incorrect valve clearance                                | Check and adjust as necessary               |
|                                         | Air filter contaminated                                  | Check and clean or replace it as necessary  |
|                                         | Exhaust-gas turbocharger defective                       | Replace                                     |
|                                         | Air in fuel system                                       | Bleeding the fuel system                    |
|                                         | Insufficient compression pressure                        | Check                                       |
|                                         | Exhaust back-pressure too high                           | Check                                       |

| Malfunction                                       | Cause                                                       | Action                                                                         |
|---------------------------------------------------|-------------------------------------------------------------|--------------------------------------------------------------------------------|
|                                                   | Injection line is leaking.                                  | Check the injection line and replace it if necessary                           |
|                                                   | Injection valve defective                                   | Check the injection valve and replace if necessary                             |
|                                                   | Ambient temperature or altitude is too high                 | Please contact the service partner for your engine.                            |
|                                                   | V-belt/poly-V-belt                                          | Check, tension or replace                                                      |
| Engine does not start and diagnosis lamp flashes. | Engine electronics are preventing the start.                | Check the fault according to the fault code and rectify the fault if necessary |
| Engine starts but runs irregularly or misfires.   | V-belt/poly-V-belt                                          | Check whether loose or broken                                                  |
|                                                   | Incorrect valve clearance                                   | Check the valve clearance and adjust as necessary                              |
|                                                   | Exhaust back-pressure too high                              | Check the exhaust back pressure                                                |
|                                                   | Insufficient compression pressure                           | Check the compression pressure                                                 |
|                                                   | Cold start aid                                              | Check and replace as necessary                                                 |
|                                                   | Lubricating oil level too high                              | Check the oil level and drain off oil as necessary                             |
|                                                   | Glow plugs defective                                        | Replace                                                                        |
|                                                   | Air in fuel system                                          | Bleed the air                                                                  |
|                                                   | Fuel filter/prefilter contaminated                          | Clean                                                                          |
|                                                   | Fuel quality does not correspond to the manual.             | Drain the fuel and add fuel as specified in the instructions.                  |
|                                                   | Injection valve defective                                   | Replace                                                                        |
|                                                   | Air filter maintenance switch / service indicator defective | Check and replace if necessary                                                 |
|                                                   | Intercooler line leaking                                    | Check and replace if necessary                                                 |
|                                                   | Charge-air cooler dirty                                     | Clean                                                                          |
|                                                   | Air filter contaminated                                     | Check and clean or replace as necessary                                        |
|                                                   | Exhaust-gas turbocharger defective                          | Replace                                                                        |

| Malfunction                                                           | Cause                                                                             | Action                                                                          |
|-----------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
|                                                                       | Injector line leaking                                                             | Check and replace if necessary                                                  |
| Speed fluctuations are possible and diagnosis lamp lights up.         | Engine electronics have detected a system fault and activated a substitute speed. | Check the fault according to the fault code and rectify the fault if necessary. |
| Engine becomes too hot. Temperature warning system is not responding. | Vent line to the coolant expansion tank blocked                                   | Clean                                                                           |
|                                                                       | Incorrect SAE viscosity class of engine oil                                       | Changing the engine oil                                                         |
|                                                                       | Lubricating oil cooler defective                                                  | Check and replace if necessary                                                  |
|                                                                       | Lubricating oil cooler contaminated on the air and/or the lubricating oil side    | Clean                                                                           |
|                                                                       | Lubricating oil level too high                                                    | Drain off lubricating oil accordingly                                           |
|                                                                       | Lubricating oil level too low                                                     | Top up the lubricating oil                                                      |
|                                                                       | Incorrect valve clearance                                                         | Check and adjust as necessary                                                   |
|                                                                       | Starter is defective or pinion is not engaging.                                   | Check the starter                                                               |
|                                                                       | Shut-off solenoid defective (enabling circuit)                                    | Check and replace if necessary                                                  |
|                                                                       | Injection valve defective                                                         | Replace                                                                         |
|                                                                       | Coolant heat exchanger dirty                                                      | Clean                                                                           |
|                                                                       | Coolant pump is defective. (V-belt is torn or loose)                              | Check and replace or tighten as necessary                                       |
|                                                                       | Coolant level too low                                                             | Check and top up as necessary                                                   |
|                                                                       | Resistance in cooling system is too high or flow volume is too low.               | Check and clean or replace it as necessary.                                     |
|                                                                       | Heat build-up in the cooling-air duct                                             | Check the cooling system                                                        |
|                                                                       | Coolant blower or exhaust gas thermostat defective, V-belt broken or loose        | Check, tension or replace                                                       |
|                                                                       | Cooling-air guide plates are loose, cracked or missing.                           | Check and replace if necessary                                                  |

| Malfunction            | Cause                                                                | Action                                                         |
|------------------------|----------------------------------------------------------------------|----------------------------------------------------------------|
|                        | Intercooler line leaking                                             | Check, replace.                                                |
|                        | Charge-air cooler dirty                                              | Check, clean or replace                                        |
|                        | Air filter is dirty or exhaust turbo-charger is defective.           | Check, clean or replace                                        |
|                        | Air filter service indicator defective                               | Check or replace                                               |
|                        | Fan defective, V-belt broken or loose                                | Check, retighten or replace the fan V-belt                     |
|                        | Exhaust back-pressure too high                                       | Check the exhaust back pressure                                |
|                        | Ambient temperature or altitude is too high                          | Please contact the service partner for your engine.            |
| Lack of engine output. | Lubricating oil level too high                                       | Check the lubricating oil and drain some off as necessary.     |
|                        | Lubricating oil level too low                                        | Check the lubricating oil level; top up oil as necessary.      |
|                        | Lubricating oil vanes dirty                                          | Clean                                                          |
|                        | Engine off lever still in stop position; mechanical injection system | Check and replace if necessary                                 |
|                        | Fuel intake temperature too high                                     | Check the system                                               |
|                        | Fuel quality does not correspond to the manual.                      | Drain the fuel and add fuel as specified in the instructions.  |
|                        | Fuel filter / prefilter contaminated                                 | Clean and replace as necessary                                 |
|                        | Air in fuel system                                                   | Bleeding the fuel system                                       |
|                        | Air filter is dirty or exhaust turbo-charger is defective.           | Clean and replace as necessary                                 |
|                        | Air filter service indicator defective                               | Check and replace if necessary                                 |
|                        | Fan defective / V-belt loose or broken                               | Check the fan and V-belt and retighten or replace as necessary |
|                        | Intercooler line leaking                                             | Check                                                          |
|                        | Charge-air cooler dirty                                              | Clean                                                          |
|                        | Heat build-up in the cooling-air duct                                | Check the cooling system                                       |

| Malfunction                                             | Cause                                                               | Action                                                        |
|---------------------------------------------------------|---------------------------------------------------------------------|---------------------------------------------------------------|
|                                                         | Resistance in cooling system is too high or flow volume is too low. | Check the cooling system                                      |
|                                                         | Injection lines leaking                                             | Check the injection line                                      |
|                                                         | Injection valve defective                                           | Replace                                                       |
|                                                         | Incorrect valve clearance                                           | Check and adjust as necessary                                 |
|                                                         | Insufficient compression pressure                                   | Check the compression pressure                                |
|                                                         | Exhaust back-pressure too high                                      | Check the exhaust back pressure                               |
|                                                         | Catalytic converter blocked                                         | Let the warm engine run for several minutes under full load.  |
|                                                         | Ambient temperature or altitude is too high                         | Please contact the service partner for your engine.           |
| Lack of engine power and diagnosis lamp lights up.      | Engine electronics (optional) are reducing the power.               | Please contact the service partner for your engine.           |
| Engine is not running on all cylinders.                 | Injector line leaking                                               | Check the injection line                                      |
|                                                         | Injection valve defective                                           | Replace                                                       |
|                                                         | Incorrect valve clearance                                           | Check and adjust as necessary                                 |
|                                                         | Air in fuel system                                                  | Bleeding the fuel system                                      |
|                                                         | Insufficient compression pressure                                   | Check the compression pressure                                |
|                                                         | Fuel filter / prefilter contaminated                                | Clean and replace as necessary                                |
|                                                         | Air filter is dirty or exhaust turbo-charger is defective.          | Clean and replace as necessary                                |
|                                                         | Air filter service indicator defective                              | Check and replace if necessary                                |
|                                                         | Fuel quality does not correspond to the manual.                     | Drain the fuel and add fuel as specified in the instructions. |
|                                                         | Intercooler line leaking                                            | Check the charge air line                                     |
|                                                         | Lubricating oil level too high                                      | Check and drain some off as necessary                         |
|                                                         | V-belt/poly-V-belt                                                  | Check, tension or replace                                     |
| Engine has insufficient or no lubricating-oil pressure. | Lubricating oil level too low                                       | Check and top up as necessary                                 |

| Malfunction                               | Cause                                                        | Action                                                         |
|-------------------------------------------|--------------------------------------------------------------|----------------------------------------------------------------|
|                                           | Engine inclination too great                                 | Check the engine bearings / reduce the inclination             |
|                                           | Oil pressure switch / oil pressure gauge defective           | Check and replace if necessary                                 |
|                                           | Lubricating oil cooler defective                             | Check and replace if necessary                                 |
|                                           | Incorrect SAE viscosity of engine oil                        | Changing the engine oil                                        |
| Engine consumes too much lubricating oil. | Lubricating oil level too high                               | Check and drain some off as necessary                          |
|                                           | Engine inclination too great                                 | Check the engine mount and reduce the inclination as necessary |
|                                           | Air filter contaminated or turbo-charger defective           | Clean and replace as necessary                                 |
|                                           | Crankcase ventilation system                                 | Check and replace as necessary                                 |
|                                           | Incorrect SAE viscosity class of engine oil                  | Replace the fluid                                              |
| Lubricating oil in exhaust system         | Engine runs continuously with insufficient load (<20 – 30%). | Check the load factor                                          |
| Engine is creating blue smoke.            | Lubricating oil level too high                               | Check the lubricating oil and drain some off as necessary      |
|                                           | Engine inclination too great                                 | Check the engine bearings and reduce the inclination           |
| Engine is creating white smoke.           | Start limit temperature exceeded                             | Check                                                          |
|                                           | Cold start aid                                               | Check and replace if necessary                                 |
|                                           | Incorrect valve clearance                                    | Check and adjust as necessary                                  |
|                                           | Fuel quality does not satisfy requirements.                  | Drain the fuel and add fuel as specified in the instructions.  |
|                                           | Insufficient compression pressure                            | Check the compression pressure                                 |
|                                           | Injection valve defective                                    | Replace                                                        |
|                                           | Heating flange defective                                     | Check and replace if necessary                                 |
| Engine is creating black smoke.           | Air filter is dirty or exhaust turbo-charger is defective.   | Check and replace if necessary                                 |
|                                           | Air filter service indicator defective                       | Check and replace if necessary                                 |

| Malfunction                                                                                         | Cause                                                                                                                 | Action                                                                                                                                                              |
|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                     | Charge-air pressure-dependent full-load stop defective                                                                | Check                                                                                                                                                               |
|                                                                                                     | Charge-air cooler dirty                                                                                               | Clean                                                                                                                                                               |
|                                                                                                     | Incorrect valve clearance                                                                                             | Check and adjust as necessary                                                                                                                                       |
|                                                                                                     | Insufficient compression pressure                                                                                     | Check the system                                                                                                                                                    |
|                                                                                                     | Exhaust back-pressure too high                                                                                        | Check the exhaust back pressure                                                                                                                                     |
|                                                                                                     | Intercooler line leaking                                                                                              | Check                                                                                                                                                               |
|                                                                                                     | Injection valve defective                                                                                             | Replace                                                                                                                                                             |
|                                                                                                     | Ambient temperature or altitude is too high                                                                           | Please contact the service partner for your engine.                                                                                                                 |
| Regeneration lamp is flashing.                                                                      | Diesel particulate filter is covered with soot and has to be regenerated.                                             | Induce stationary regeneration[▶<br>275]                                                                                                                            |
| Regeneration lamp is flashing quickly and the engine warning light is lit.                          | Diesel particulate filter is covered with soot and has to be regenerated.<br>Stationary regeneration was not enabled. | Initiate stationary regeneration                                                                                                                                    |
| Regeneration lamp is flashing quickly, the engine warning light is lit and engine power is reduced. | Diesel particulate filter is covered with soot and has to be regenerated.<br>Stationary regeneration was not enabled. | Have stationary regeneration enabled by the DEUTZ partner                                                                                                           |
| Regeneration lamp is flashing quickly, the engine warning light and ash lamp are lit.               | Diesel particulate filter is overloaded.                                                                              | Replace the diesel particulate filter                                                                                                                               |
| Fault in SCR system (optional)                                                                      | AdBlue reservoir empty and display indicates full.                                                                    | Check the tank sensor                                                                                                                                               |
|                                                                                                     | SRC not working.                                                                                                      | Check the connectors and wires at the delivery pump and injector<br>Check the connectors and wires for the delivery pump, NOx sensor and exhaust temperature sensor |
|                                                                                                     | SRC not working (cold).                                                                                               | Wires frozen, clean the wires, check the heating<br>AdBlue reservoir frozen, check the heating                                                                      |

| Malfunction                                 | Cause                                                                                   | Action                                            |
|---------------------------------------------|-----------------------------------------------------------------------------------------|---------------------------------------------------|
| Frequent standstill regeneration (optional) | Air filter is dirty or exhaust turbo-charger is defective.                              | Check and replace if necessary                    |
|                                             | Incorrect valve clearance                                                               | Check the valve clearance and adjust as necessary |
|                                             | Intercooler line leaking                                                                | Check the charge air line                         |
|                                             | Injector defective                                                                      | Replace                                           |
|                                             | Differential pressure flow meter defective                                              | Replace                                           |
|                                             | NOx sensor defective                                                                    | Replace                                           |
|                                             | Differential pressure sensor for diesel particulate filter delivers implausible signal. | Replace                                           |
|                                             | Differential pressure line clogged                                                      | Clean                                             |

## 9.3 Malfunction identified

### 9.3.1 DRIVE

3456-003

#### 9.3.1.1 Identifying messages

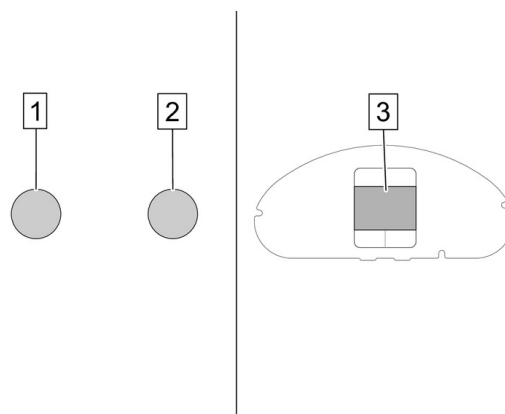
- ✓ Trained personnel
- ✓ Message in display

If messages appear in the display (3), further information about this message can be called up as follows.

- ▶ Press button (1).

*Further information about this message is displayed.*

[▶ 121](#)



596-007

#### 9.3.1.2 Identifying travel drive control system fault codes

- ✓ Trained personnel
- ✓ Machine switched on.
- ✓ Active travel drive.

- ▶  Observe safety instructions for eliminating malfunctions.[▶ 255](#)
- ▶  Observe the safety instructions for handling the electric system.[▶ 46](#)
- ▶  Comply with safety instructions for handling the hydraulic system.[▶ 49](#)

If there is an error in the travel drive control, the corresponding error code is shown on the display in the driver's platform (1). If multiple errors occur at the same time, the error codes will be displayed alternately.

Errors in the travel drive control system can have the following effects on the behavior of the machine.

#### SAFE state

A safety-related error has been detected. The machine comes to a stop and cannot be switched on again until the error is fixed.

- Have an authorized specialized garage fix the error.

#### LIMITED state

A safety-related error has not been detected. The machine can continue to be driven at a reduced speed.

- Have an authorized specialized garage fix the error immediately.



Interpret the error codes as follows:

| Error code | Description                                                                                                                                                                                                                                                     | Effect                      |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| 11         | Internal reference voltage faulty                                                                                                                                                                                                                               | SAFE state                  |
| 12         | Analog measurement channel                                                                                                                                                                                                                                      | SAFE state                  |
| 13         | Watchdog                                                                                                                                                                                                                                                        | SAFE state                  |
| 14<br>15   | Battery voltage error<br>Voltage too low.<br>Voltage too high.<br>< 9 V or > 36 V leads to the safe state<br>12 V system:<br>< 9 V leads to the safe state,<br>> 16 V leads to the limited state<br>24 V system:<br>< 18 V or > 32 V leads to the limited state | SAFE state<br>LIMITED state |
| 16         | Sensor voltage error. Nominal voltage of 5 V.<br>< 4.825 V or > 5.075 V is outside of the permitted range.                                                                                                                                                      | SAFE state                  |
| 19         | Forward and reverse pump valve reversed.                                                                                                                                                                                                                        | SAFE state                  |
| 21         | Forward and reverse pump valve are faulty (cable break, short circuit or resistor faulty).                                                                                                                                                                      | SAFE state                  |
| 22         | Forwards pump valve has short circuit, cable break or resistor is faulty.                                                                                                                                                                                       | LIMITED state               |

| Error code | Description                                                                                                                         | Effect            |
|------------|-------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| 23         | Reverse pump valve has short circuit, cable break or resistor is faulty.                                                            | LIMITED state     |
| 25         | Digital output A1 (PSCp03) / A2 (PSC2p04) short circuit or cable break.                                                             | SAFE state        |
| 26         | Digital output B1 (CC2p10) / B2 (CC2p09) short circuit or cable break.                                                              | SAFE state        |
| 28         | Hydraulic motor valve has a short circuit, cable break or resistor is faulty.                                                       | LIMITED state     |
| 29         | Valve for the driving direction detector (BPD) has a short circuit or cable break.                                                  | LIMITED state     |
| 31         | Speed sensor for pump/combustion engine is faulty or frequency is > 10,000 Hz, pump speed > 8,000 rpm.                              | LIMITED state     |
| 35         | Short circuit of driving direction switch.                                                                                          | SAFE state        |
| 39         | Fault of inching pedal, signal outside of the specified range.                                                                      | LIMITED state     |
| 41         | Inching pedal (sensor) not calibrated.                                                                                              | Drive-off lock ON |
| 43         | Fault in accelerator pedal, signal outside of the specified range.                                                                  | LIMITED state     |
| 47         | Short circuit of mode switch B<br>Both input signals (nominal and redundant) are simultaneously at the same signal level (voltage). | LIMITED state     |
| 51         | Swivel angle sensor is faulty.                                                                                                      | LIMITED state     |
| 53         | Hydraulic motor / pressure sensor 0 degrees                                                                                         | LIMITED state     |
| 58         | Hydraulic motor speed / input frequency of > 8,000 Hz                                                                               | LIMITED state     |
| 59         | Hydraulic motor rotation direction detection                                                                                        | LIMITED state     |
| 71         | CAN bus error<br>If an internal CAN controller detects a bus error or driver error, the drive switches to the LIMITED state.        | LIMITED state     |
| 72         | CAN reception timeout.                                                                                                              | LIMITED state     |
| 73         | CAN communication fault to switching controller.                                                                                    | LIMITED state     |
| 98         | Shared activation of the combustion engine via CAN bus.                                                                             | SAFE state        |
| 100        | Parameter set incorrectly.                                                                                                          | ---               |
| 101        | Switching controller not ready.                                                                                                     | SAFE state        |

| Error code | Description                                               | Effect     |
|------------|-----------------------------------------------------------|------------|
| 110        | Gearbox speed sensor                                      | SAFE state |
| 112        | Gearbox fault                                             | SAFE state |
| 113        | Gearbox open, no gear engaged.                            | SAFE state |
| 114        | Gearbox fault, gearbox seized<br>No gear change possible. | SAFE state |
| 115        | Gear sensor fault                                         | SAFE state |
| 122        | 1st gear valve fault                                      | SAFE state |
| 223        | 2nd gear valve fault                                      | SAFE state |

12548-002

### 9.3.1.3 Calling up fault code list

Depending on the machine's equipment, fault codes are output on a display, a warning lamp in the control elements or on an LED directly on the component concerned.

The fault code list for all components issuing fault codes can only be issued with the PAUS spare parts catalogue on the online portal.

The output fault code lists can describe both SPN and FMI fault codes.

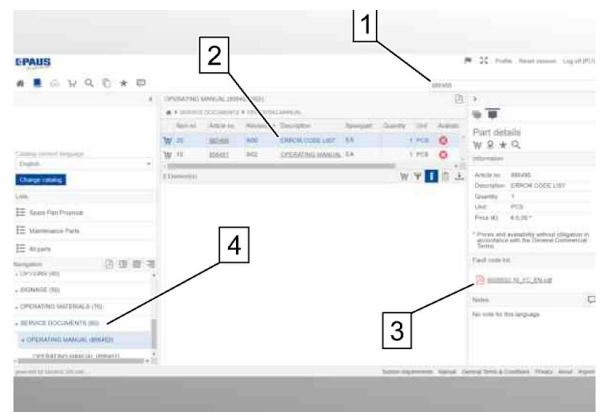
- Call up the PAUS spare parts catalogue for the relevant machine. [\[► 295\]](#)

- Enter PAUS part number 885495 of the fault code list in the search field (1) and confirm with Enter.
- Select an article in the search result.  
*The catalogue jumps to the article in the fault code list.*
- Mark the article at (2).

*The fault code list is generated in PDF format and can be opened after completion by double-clicking on (3). Alternatively, the fault code list article can be found after each operating manual article in the Service Documents section (4).*

 Fault codes can be identical for different components.

- Continue the search as necessary.



## 9.4 Eliminating malfunction

### 9.4.1 General

314-010

#### 9.4.1.1 Carrying out welding work on the machine

#### **⚠ WARNING!**

Improperly carrying out welding, heating or grinding work.

Death or severe injuries from combustible substances exploding.

- ▶ Carry out work only with the permission of the machine manufacturer or the system manufacturer.
- ▶ Ensure that the workspace is free of combustible and explosive materials.
- ▶ Perform work only in ventilated areas.
- ▶ Perform work only with corresponding protective equipment.
- ▶ Never perform work in a potentially explosive atmosphere.

#### **NOTICE!**

Carrying out welding work improperly.

Damage to the machine from electrical current or overvoltage.

- ▶ Before carrying out welding work, first switch off the battery main switch or disconnect the battery.
- ▶ If present, unplug the connectors of all electrical components.

✓ Qualified specialist

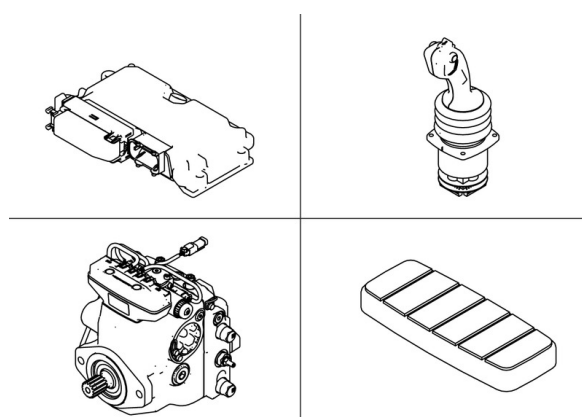
- ▶ ⚠ Switch off and secure the machine. [▶ 182]
- ▶ ⚠ Observe safety instructions for eliminating malfunctions.[▶ 255]

Carrying out welding work on the machine can damage electrical components.

- ▶ Before carrying out welding work on the machine, unplug the connectors of all electrical components.

Examples of electrical components include:

- Drive batteries
- Engine control unit
- Drive control units
- Travel drive controls
- Vehicle control systems (PAUS main controller)
- Expansion modules (CAN I/O)
- Displays
- Keyboards
- Joysticks



- ▶ Put the earth terminal of the welder near the welding location.
- ▶ Carry out the welding work.



1940-005

#### 9.4.1.2 Towing the machine

##### **WARNING!**

Improper towing of the machine.

Risk of severe injury or death!

- ▶ Tow the machine only if absolutely essential.
- ▶ Do not tow the machine over long distances.
- ▶ Only use tow bars for towing.
- ▶ Do not tow the machine faster than 4 km/h or for longer than 3 minutes.
- ▶ Tow the machine only by the marked tow points.
- ▶ If present, switch on the hazard warning lights.

##### **NOTICE!**

Towing the machine with an automatically engaged parking brake or incorrectly configured drive components.

Damage to the brake system or the drive components.

- ▶ Before each tow, make sure that the automatically engaged parking brake is not engaged.
- ▶ If necessary, release the parking brake in accordance with the Fault and Remedy chapter.
- ▶ If necessary, adjust the drive components for towing in accordance with the Fault and Remedy chapter.

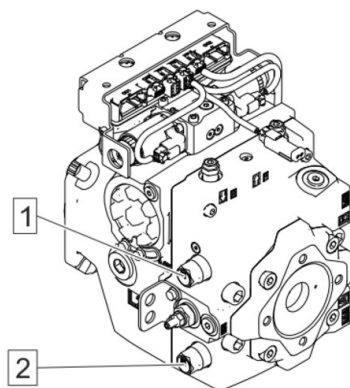
✓ Trained personnel

- ▶  Switch off and secure the machine. [[▶ 182](#)]
- ▶  Observe safety instructions for eliminating malfunctions. [[▶ 255](#)]

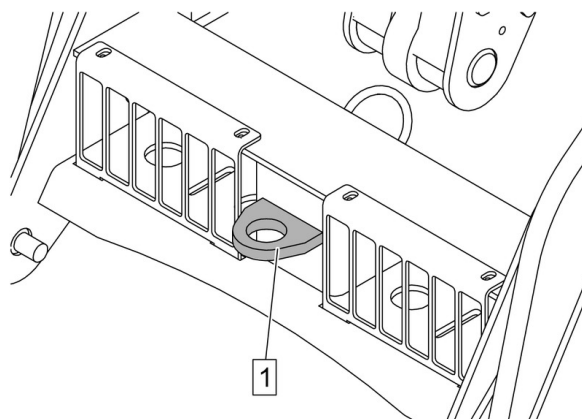
The travel drive must be set out of operation before towing the machine so that it is not damaged.

- Screw out the adjustment pump screws (1) and (2) by three rotations.

**i** If the screws are screwed out more than prescribed, leaks may occur.

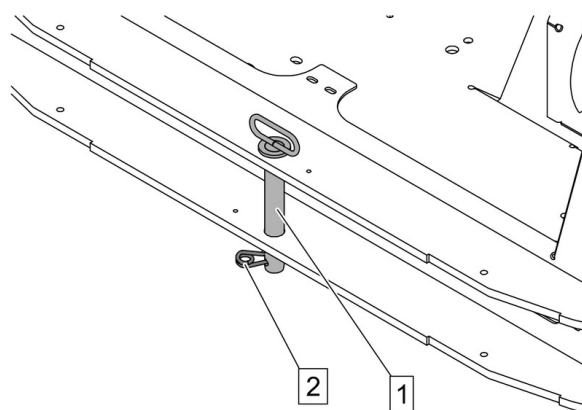


- Attach a suitable tow bar (1) to towing eye (1).



Bolt (1) can also be used to pull the machine out backward, but only for machine recovery.

- Secure a suitable pulling device to the bolt (1).
- Make sure that the splint (2) is inserted.

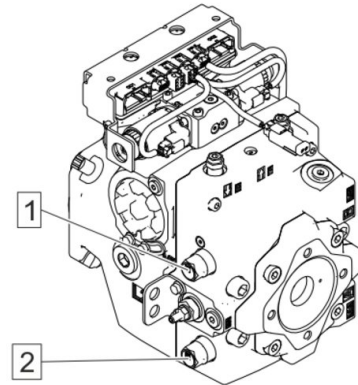


**i** The parking brake automatically engages when the engine is switched off or inoperative. To enable the machine to be towed, the parking brake must be released with the mechanical emergency control.

- ▶ If necessary, release the brake using the mechanical emergency control. [▶ 277]
- ▶ Carefully start driving the towing vehicle.

- ▶ Screw screws (1) and (2) back in after towing.  
Tightening torque= 70 Nm

**i** If the screws are not screwed back to their original position, travel drive is not fully functional.



#### 9.4.2 Engine

7269-004

##### 9.4.2.1 Switching on engine override

The engine will automatically be switched off in the event of a serious engine fault developing.

**⚠** This can result in life-threatening situations, for example if the machine is in an endangering position. In the event of such automatic shutoff, the engine can only be temporarily run using the engine bridge.

**i** Overriding the engine fault can cause damage to the engine and lies within the personal responsibility of the driver.

#### **⚠ WARNING!**

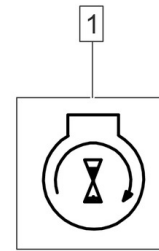
Using this function when there is not an emergency.

Risk of severe injury or death due to uncontrolled movement of the machine!

- ▶ Use the described function only in cases of emergency.
- ▶ Immediately eliminate the present fault.
- ▶ Properly restore the function after correcting the fault.

- ✓ Trained personnel
- ✓ The fault will be shown on the display.
- ✓ Emergency stop button switched off

- ▶ Press and hold the switch (1).
  - ▷ Switch the engine on.
  - ▷ Move the machine outside of the danger area.
- ▶  Overriding the engine serves this single purpose only and must not be used for other purposes.
- ▶ Have faults remedied by a qualified specialist.



6592-004

#### 9.4.2.2 Regenerating the diesel particulate filter

##### **WARNING!**

Noncompliance with measures for regenerating the diesel particulate filter or catalytic converter.

Risk of severe injury or death due to flames at the machine and in the vicinity!

- ▶ Keep a sufficient distance between the exhaust system and persons or combustible surroundings.
- ▶ Do not use the machine during regeneration.
- ▶ Only carry out regeneration under supervision.

- ✓ Trained personnel
- ✓ Machine switched on
- ✓ The indicator light for the particulate filter flashes.
- ✓ Machine warmed up, coolant temperature of 75°C reached

Diesel combustion causes soot, which is separated in the diesel particulate filter. This filter must be regenerated when the soot load increases. Regeneration involves burning the soot in the particulate filter in order to eliminate it.

If the exhaust temperature during operation is greater than 250 °C, automatic regeneration is performed continuously.

If automatic regeneration cannot be carried out, then the diesel particulate filter must be regenerated in a timely manner. Otherwise, the particulate filter will continue to be filled with soot and the particulate filter indicator lamp will flash.

Reason for the non-automatic regeneration can be:

- Only short operating times
  - Only low utilisation of the engine
- ▶ Slow the machine until it comes to a standstill.
  - ▶ Park the machine so that sufficient distance is maintained between the exhaust system and combustible objects.
  - ▶  Engage the parking brake.
  - ▶ Operate the engine in neutral.

- ▶ Actuate the button (1) briefly.

*Particulate filter indicator lamp lights up.*

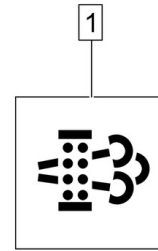
*Regeneration is carried out.*

*The engine speed is changed.*

The regeneration takes about 35 - 45 minutes.

After successful regeneration, the regeneration indicator lamp goes out.

The operation can be terminated either by pressing once at (1) or by pressing twice in quick succession at (1), depending on the version.



- ▶  Do not use the machine during regeneration.
- ▶  If the procedure has already been performed five times:
  - ▷ Change the engine oil. [▶ 210](#)
  - ▷ Have the interval for diesel particulate filter regeneration reset by qualified personnel. If the interval is not reset, the engine oil pressure indicator lamp stays on and/or the engine outputs an fault code.

### 9.4.3 DRIVE

315-010

#### 9.4.3.1 Replacing a wheel

#### **WARNING!**

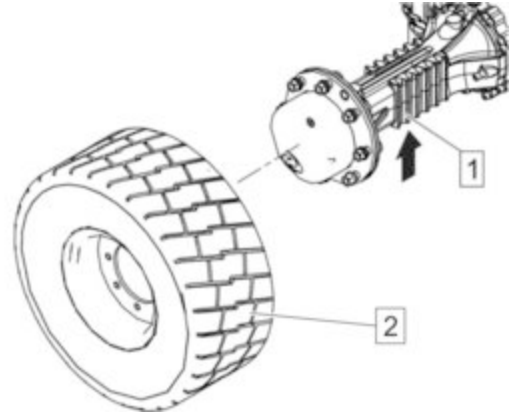
Lifting or jacking up the machine improperly.

Risk of severe injury or death due to the machine crashing down!

- ▶ Use hoists and support blocks with sufficient load capacity.
- ▶ Note the load distribution.
- ▶ Keep the working equipment in good, working condition.
- ▶ Keep the working platform and equipment clean.
- ▶ Use hoists and support blocks that function reliably.
- ▶ Use hoists and jack stands on solid, level surfaces without a sliding hazard.
- ▶ Move the hoists and support blocks to the stipulated position on the machine.
- ▶ Only use hoists and support blocks on rigid components, not on swivelling or rotating components.

- ✓ Qualified specialist
- ▶  Switch off and secure the machine. [▶ 182](#)
- ▶  Observe safety instructions for eliminating malfunctions. [▶ 255](#)
- ▶  Only use wheels which correspond to the technical data. [▶ 71](#)

- ▶ Use wheel chocks to secure the machine at every wheel on the side where the wheel is not being changed. [\[▶ 183\]](#)
- ▶ Use suitable lifting gear to jack up the machine at a suitable place, such as (1), on the side where the wheel is being changed.
- ▶ Remove the wheel (2).
- ▶ Install a new wheel (2).
  - ▷ Bolt on the wheel nuts in a crosswise pattern.
  - ▷ Use the wheel nut tightening torques specified in the Technical data chapter. [\[▶ 92\]](#)
- ▶ Recheck the tightening torque of each wheel nut after 5 operating hours or 50 km and retighten if necessary.



#### 9.4.4 Brake

598-005

##### 9.4.4.1 Releasing brake mechanically

The parking brake is automatically engaged if the diesel engine fails or if there is a pressure drop in the brake system. It can then no longer be released with the conventional function.

If the machine has to be towed away in an emergency, for example, the brake can be manually released.

#### **⚠ WARNING!**

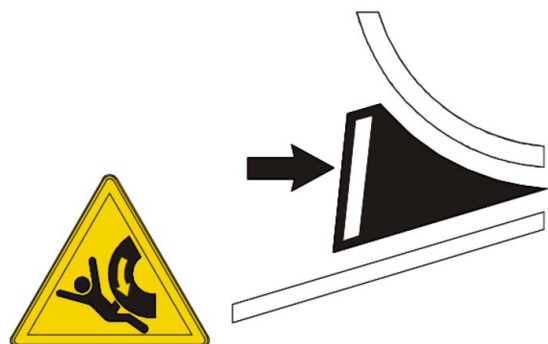
Using this function when there is not an emergency.

Risk of severe injury or death due to uncontrolled movement of the machine!

- ▶ Use the described function only in cases of emergency.
- ▶ Immediately eliminate the present fault.
- ▶ Properly restore the function after correcting the fault.

✓ Trained personnel

- ▶ ⚠ Switch off and secure the machine. [\[▶ 182\]](#)
- ▶ ⚠ Observe safety instructions for eliminating malfunctions. [\[▶ 255\]](#)
- ▶ ⚠ Make sure that the machine is secured against rolling away. [\[▶ 183\]](#)

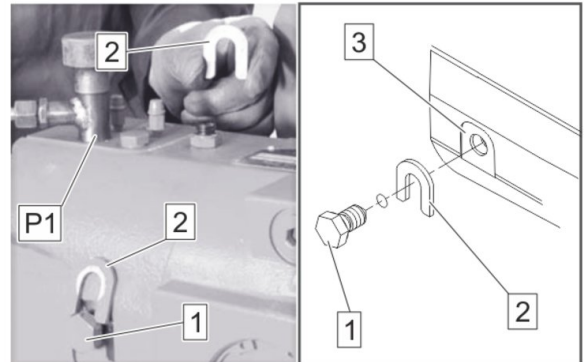


This operation depends on the type and is performed in two different ways, depending on the axle.

### Type 1

- ▶ Unscrew line (P1) from the axle.
- ▶ Unscrew screw (1) on both sides of the axle and remove the spacer (2).
- ▶ Screw in screw (1) by hand to the housing.
- ▶ Screw in screws (1) one-by-one ¼ of a turn until the screws are sitting firmly against the housing.  
*The brake is released.*

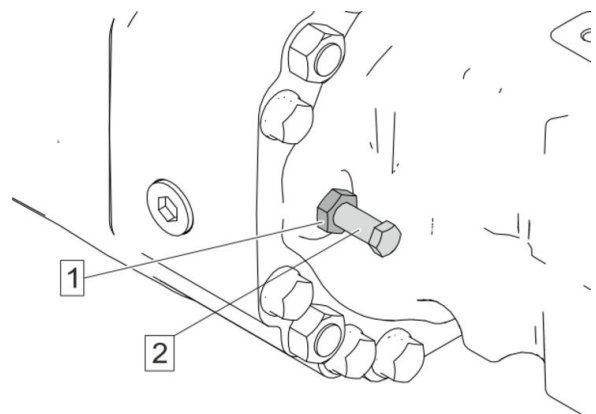
⚠ The brake must be enabled again once the malfunction has been eliminated.



### Type 2

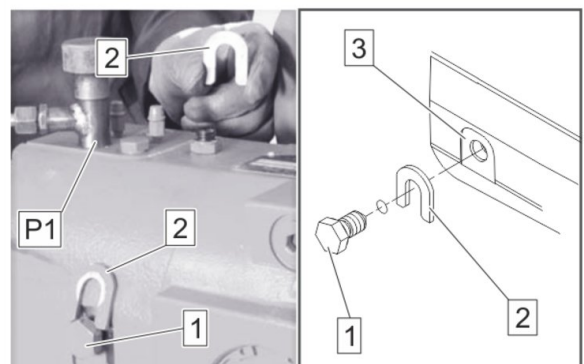
- ▶ Unscrew nut (1) and turn it back about 8 mm.
- ▶ Screw screw (2) into the housing until resistance can be felt.  
*The screw is in contact with the brake unit.*
- ▶ Screw in screw (1) ¼ of a turn at a time until the brake is adequately released.
- ▶ Repeat the process on the opposite side.
- ▶ Repeat the process on the other side of the machine.
- ▶ Perform the process on both axles (option).

⚠ The brake must be enabled again once the malfunction has been eliminated.



### Releasing brake type 1

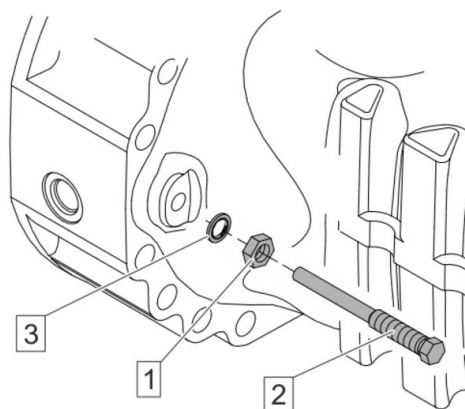
- ▶ Unscrew screw (1) about 5 mm.
- ▶ Place spacer (2) onto the screw and screw it to the housing together with screw (1).
  - ▷ Observe a tightening torque of 95-115 Nm.
- ▶ Repeat the process on the other side.  
*The brake is enabled and operational again.*



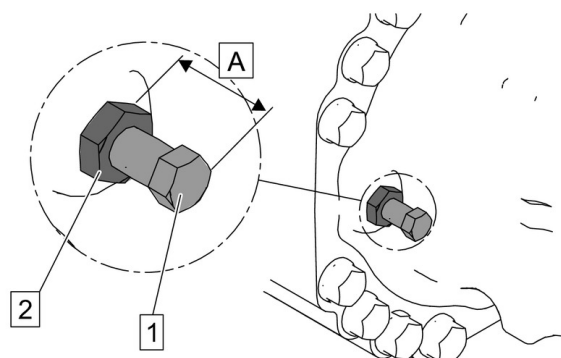
### Releasing brake type 2

The brake must be enabled again once the malfunction has been eliminated.

- ▶ Completely unscrew all screws (2).
- ▶ Grease all screws (2) and screw them in by hand together with sealing ring (3) and nut (1).
  - ▷ Replace damaged sealing rings.



- ▶ Adjust clearance (A) to 34 +/-0.5 mm.
- ▶ Counter the nut (1) against the housing.
  - ▷ When doing this, make sure that clearance (A) remains.
- ▶ Carry out this procedure on all four screws for each axle  
*The brake is enabled and operational again.*



## 9.4.5 Electrical system

### 9.4.5.1 Fuses on machine

10421-002

#### Fuses on machine

#### **NOTICE!**

Changing fuses while the machine is switched on or using unsuitable current ratings.  
Machine damage.

- ▶ Never change a fuse while the machine is running.
- ▶ Only change defective fuses for fuses with the same current rating (amperes).

- ✓ Trained personnel

- ▶  Observe the safety instructions for handling the electric system. [▶ 46](#)
- ▶  Switch off and secure the machine. [▶ 182](#)
- ▶  Observe safety instructions for eliminating malfunctions. [▶ 255](#)

11590-001

### Fuses and relays on driver's platform

#### Fuses on driver's platform (U2)

| No.        | Function                            | Rating (amperes) |
|------------|-------------------------------------|------------------|
| F1         | Alternator                          | 7.5              |
|            | Start relief valve                  |                  |
| F2         | PAUS CONNECT *                      | 10               |
| F3         | Diagnosis connector                 | 7.5              |
| F4         | Radio *                             | 5                |
| F5         | Interior light *                    | 7.5              |
| F6         | Ignition switch                     | 15               |
|            | Immobilizer *                       |                  |
| F7         | Parking light                       | 15               |
| F8         | Hazard warning lights               | 10               |
| F9         | Work lights *                       | 10               |
| F10        | Spare                               | 10               |
| F11        | Pilot control activation            | 7.5              |
| F12        | Emergency stop                      | 7.5              |
|            | Engine control unit                 |                  |
| F13        | Alternator                          | 7.5              |
|            | Power relay                         |                  |
| F14        | Joystick power supply               | 7.5              |
| F15        | PAUS CONNECT *                      | 10               |
| F16        | Fuse for direction of travel switch | 7.5              |
| F17        | I/O module                          | 10               |
| * Optional |                                     |                  |

| No.        | Function                                         | Rating (amperes) |
|------------|--------------------------------------------------|------------------|
| F18        | Reversing lights                                 | 10               |
| F19        | Brake lights                                     | 7.5              |
| F20        | Radio *                                          | 7.5              |
| F21        | Heating *                                        | 20               |
| F22        | Windscreen wiper *<br>Windscreen washer system * | 15               |
| F23        | Socket *                                         | 15               |
| F24        | Air spring seat *                                | 10               |
| F25        | Hazard warning lights                            | 5                |
| F26        | Rotating flashing beacon *                       | 10               |
| F27        | Pre-fuse, driving light                          | 7.5              |
|            | Pre-fuse, instruments                            |                  |
|            | Pre-fuse, power relay                            |                  |
| F28        | Pilot control signal                             | 7.5              |
|            | Camera                                           |                  |
| F29        | Reserve switch power supply *                    | 7.5              |
| F30        | Spare                                            | 10               |
| F31        | Side lights, left                                | 5                |
| F32        | Side lights, right                               | 5                |
| F33        | Number plate light                               | 5                |
|            | Contour light                                    |                  |
| F34        | Driving lights, left                             | 7.5              |
| F35        | Driving lights, right                            | 7.5              |
| F36        | High beam headlights, left                       | 7.5              |
| F37        | High beam headlights, right                      | 7.5              |
| F38        | Driving mode control unit                        | 10               |
| * Optional |                                                  |                  |

| No.               | Function            | Rating (amperes) |
|-------------------|---------------------|------------------|
| F39               | Gear detection      | 7.5              |
|                   | Brake               |                  |
|                   | Seat contact switch |                  |
| * <i>Optional</i> |                     |                  |

**Relays on driver's platform (U2)**

| No.               | Function                                        |
|-------------------|-------------------------------------------------|
| K1                | Ignition                                        |
| K2                | Turn signal left                                |
| K3                | Turn signal right                               |
| K4                | Engine control neutral detection                |
| K5                | Direction of travel neutral                     |
| K6                | Direction of motion forward                     |
| K7                | Direction of motion reverse                     |
| K8                | Engine control unit                             |
| K9                | Starter motor                                   |
| K10               | Brake lights                                    |
| K11               | Horn                                            |
| K12               | Driving lights                                  |
| K13               | High beam                                       |
| K14               | reversing signal                                |
| K15               | Not assigned                                    |
| K16               | Travel drive controller power supply activation |
| K17               | Work lights *                                   |
| K18               | Pilot control activation                        |
| K19               | Mode change work mode/transport mode *          |
| <i>* Optional</i> |                                                 |

### Relays of control panel (U1)

| No. | Function    |
|-----|-------------|
| K30 | Turn signal |

11594-001

### Fuses and relays in engine compartment

#### Fuses in engine compartment (U01)

| No. | Function                      | Rating (amperes) |
|-----|-------------------------------|------------------|
| F1  | Engine control unit main fuse | 30               |
| F2  | SCR main fuse                 | 30               |

#### Fuses in engine compartment (U02)

| No. | Function                      | Rating (amperes) |
|-----|-------------------------------|------------------|
| F3  | Pre-fuse, central electrics   | 80               |
| F4  | Pre-fuse, preglow             | 100              |
| F5  | Pre-fuse, alternator          | 100              |
| F6  | Pre-fuse, engine control unit | 50               |

#### Fuses in engine compartment (U4)

| No. | Function                             | Rating (amperes) |
|-----|--------------------------------------|------------------|
| F1  | 30 Upstream of battery master switch | 10               |
| F2  | Diesel delivery pump                 | 20               |
| F3  | Exhaust gas aftertreatment system    | 15               |
| F4  | Exhaust gas aftertreatment system    | 5                |
| F5  | Exhaust gas aftertreatment system    | 5                |

### Relays in engine compartment

| No. | Function                     |
|-----|------------------------------|
| K01 | Battery master switch bypass |
| K02 | Preheating                   |

**Relays in engine compartment (U4)**

| No. | Function             |
|-----|----------------------|
| K03 | Diesel delivery pump |
| K04 | Diesel delivery pump |

438-011

**9.4.5.2 Charging the battery****⚠ WARNING!**

Improper work on the electrical system.

Risk of severe injury or death due to malfunctions of the machine or electric shock.

- ▶ Only allow electrically skilled persons to work on the electrical system.
- ▶ Before working on the electric system, first switch off the battery main switch, disconnect the battery or remove it from the power supply.
- ▶ Allow the electrical system or the machine to cool down sufficiently, if necessary, before working on it.
- ▶ Inspect all cable connections for firm and correct connection before restarting the electrical system.

**⚠ WARNING!**

Incorrect handling of batteries.

Risk of potentially fatal injuries due to the battery exploding or an electric shock.

- ▶ Do not use or push-start a machine with a frozen battery or attempt to start it with starter cables. Doing so poses an explosion hazard.
- ▶ In order to prevent the battery from freezing, keep the battery in a fully charged state at all times. Observe instructions for jumping or charging batteries.
- ▶ Only recharge batteries in well-ventilated areas.
- ▶ Only recharge a battery when the battery is at a temperature between +5°C and +45°C.
- ▶ Avoid breathing in any gases escaping from the battery.
- ▶ Do not allow the electrolyte fluid of the battery to come into contact with clothing, skin, mouth or eyes. Wear suitable protective equipment.
- ▶ Keep sparks, open flames and smoke away from the battery, otherwise there is a risk of explosion.
- ▶ Do not check the charge level of the battery by short-circuiting the terminals with a metal object. Use a hydrometer or voltmeter for this.
- ▶ Keep metallic objects such as rings, wristwatches and tools away from the battery terminals, otherwise there is a risk of sparking.
- ▶ Observe the safety instructions of the manufacturer. See the annex regarding the battery in the spare parts list.

✓ Trained personnel

✓ Battery charger

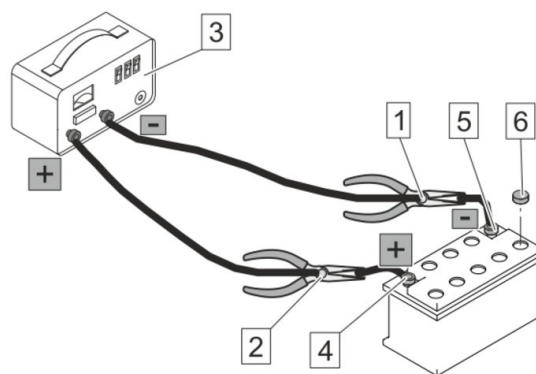
- ▶ Setting the machine to the transport position. [▶ 181]
- ▶ ⚠ Switch off and secure the machine. [▶ 182]
- ▶ ⚠ Observe the safety instructions for handling the electric system. [▶ 46]
- ▶ ⚠ Ensure sufficient ventilation for escaping gases.
  - ▷ Open the battery box, if fitted.

Information about the bridging cable:

Negative terminal = black cable (1)

Positive terminal = red cable (2)

- ▶ Use suitable battery charger. (3)
  - ▷ Read and follow charging device operating manual.
- ▶ Clean battery connections (4) (5).
- ▶ Position battery charger (3) and battery as far from each other as possible.
- ▶ Check the battery acid level, if possible. [▶ 244](#)
- ▶ Remove the cover (6) of the battery cells, if possible.
- ▶ Connect cable (2) at the positive terminal of the dead battery.
- ▶ Connect the cable (1) to the negative terminal of the dead battery.
- ▶ Switch on the charger (3) and set it to the required voltage.
- ▶ Observe the battery for several minutes and make sure that the charge process is performed correctly.
- ▶ After charging, check the battery charge. [▶ 244](#)



316-007

#### 9.4.5.3 Jumping the battery

### **⚠ WARNING!**

Incorrect handling of batteries.

Risk of potentially fatal injuries due to the battery exploding or an electric shock.

- ▶ Do not use or push-start a machine with a frozen battery or attempt to start it with starter cables. Doing so poses an explosion hazard.
- ▶ In order to prevent the battery from freezing, keep the battery in a fully charged state at all times. Observe instructions for jumping or charging batteries.
- ▶ Only recharge batteries in well-ventilated areas.
- ▶ Only recharge a battery when the battery is at a temperature between +5°C and +45°C.
- ▶ Avoid breathing in any gases escaping from the battery.
- ▶ Do not allow the electrolyte fluid of the battery to come into contact with clothing, skin, mouth or eyes. Wear suitable protective equipment.
- ▶ Keep sparks, open flames and smoke away from the battery, otherwise there is a risk of explosion.
- ▶ Do not check the charge level of the battery by short-circuiting the terminals with a metal object. Use a hydrometer or voltmeter for this.
- ▶ Keep metallic objects such as rings, wristwatches and tools away from the battery terminals, otherwise there is a risk of sparking.
- ▶ Observe the safety instructions of the manufacturer.  
See the annex regarding the battery in the spare parts list.

 **WARNING!**

Improper work on the electrical system.

Risk of severe injury or death due to malfunctions of the machine or electric shock.

- ▶ Only allow electrically skilled persons to work on the electrical system.
- ▶ Before working on the electric system, first switch off the battery main switch, disconnect the battery or remove it from the power supply.
- ▶ Allow the electrical system or the machine to cool down sufficiently, if necessary, before working on it.
- ▶ Inspect all cable connections for firm and correct connection before restarting the electrical system.

 **WARNING!**

Improper jump start or fault when bypassing batteries.

Death or serious injury due to explosion, electric shock or lack of control over the machine when starting.

- ▶ Observe the sequence of the following steps when bypassing the battery.
- ▶ Ensure that the jump start is carried out by two people.
- ▶ Ensure that the driver is in the driver's seat so that the machine is under control when the engine starts.
- ▶ Ensure that the jumper cables do not come into contact with each other or touch metal parts.
- ▶ Do not touch any metal parts of the cable clamps to avoid electric shocks.

Jumping batteries is a method of starting the engine when the battery is dead and the machine no longer starts up.

- ✓  Two trained persons
- ✓ Jumper cables
- ✓ Machine with charged battery to provide the jump
- ✓ Battery for providing the jump with voltage equal to the battery to be jumped (12 or 24 volt)
- ▶  Make sure that the machine providing the jump and the machine with a discharged battery do not touch each other.
- ▶  Use wheel chocks to prevent the machine being jumped from rolling away.
- ▶  Switch off and secure the machine. [▶ 182](#)
- ▶  Observe safety instructions for eliminating malfunctions. [▶ 255](#)
- ▶  Observe the safety instructions for handling the electric system. [▶ 46](#)
- ▶  Ensure that the driver is in the driver's seat.

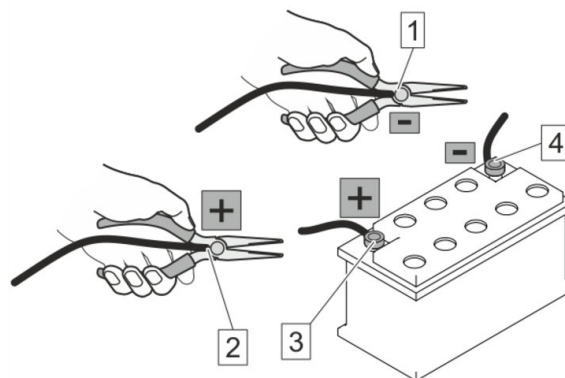
Information about the bridging cable:

Negative terminal = black cable (1)

Positive terminal = red cable (2)

**⚠** Observe the following series of steps when jumping a battery.

- ▶ Connect cable (2) at the positive terminal of the dead battery.
- ▶ Clamp the other end of the cable (2) to the positive terminal (3) of the charged battery.
- ▶ Clamp the cable (1) to the negative terminal (4) of the charged battery.
- ▶ Clamp the other end of the cable (1) to the metallic machine frame of the machine to be jumped, in the area of the battery.
- ▶ Switch on the machine providing the jump.
- ▶ Switch on the machine to be jumped.



**⚠** If the machine does not start after a few seconds, wait for a short time before trying again.

317-008

#### 9.4.5.4 Disconnecting the battery

##### **⚠ WARNING!**

Incorrect handling of batteries.

Risk of potentially fatal injuries due to the battery exploding or an electric shock.

- ▶ Do not use or push-start a machine with a frozen battery or attempt to start it with starter cables. Doing so poses an explosion hazard.
- ▶ In order to prevent the battery from freezing, keep the battery in a fully charged state at all times. Observe instructions for jumping or charging batteries.
- ▶ Only recharge batteries in well-ventilated areas.
- ▶ Only recharge a battery when the battery is at a temperature between +5°C and +45°C.
- ▶ Avoid breathing in any gases escaping from the battery.
- ▶ Do not allow the electrolyte fluid of the battery to come into contact with clothing, skin, mouth or eyes. Wear suitable protective equipment.
- ▶ Keep sparks, open flames and smoke away from the battery, otherwise there is a risk of explosion.
- ▶ Do not check the charge level of the battery by short-circuiting the terminals with a metal object. Use a hydrometer or voltmeter for this.
- ▶ Keep metallic objects such as rings, wristwatches and tools away from the battery terminals, otherwise there is a risk of sparking.
- ▶ Observe the safety instructions of the manufacturer. See the annex regarding the battery in the spare parts list.

**⚠ WARNING!**

Improper work on the electrical system.

Risk of severe injury or death due to malfunctions of the machine or electric shock.

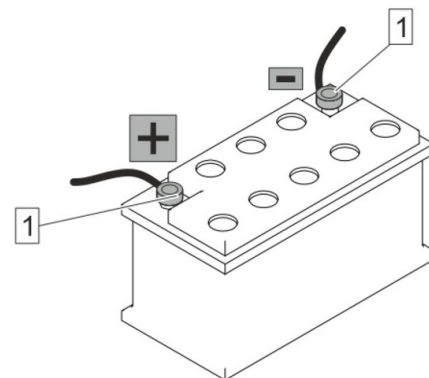
- ▶ Only allow electrically skilled persons to work on the electrical system.
- ▶ Before working on the electric system, first switch off the battery main switch, disconnect the battery or remove it from the power supply.
- ▶ Allow the electrical system or the machine to cool down sufficiently, if necessary, before working on it.
- ▶ Inspect all cable connections for firm and correct connection before restarting the electrical system.

✓ Trained personnel

- ▶ ⚠ Switch off and secure the machine. [▶ 182]
- ▶ ⚠ Observe the safety instructions for handling the electric system.[▶ 46]
- ▶ ⚠ Observe safety instructions for eliminating malfunctions.[▶ 255]

⚠ Observe the following series of steps when disconnecting the battery.

- ▶ Disconnect the negative terminal (1).
- ▶ Disconnect the positive terminal (1).



#### 9.4.5.5 Connecting the battery

##### **WARNING!**

Incorrect handling of batteries.

Risk of potentially fatal injuries due to the battery exploding or an electric shock.

- ▶ Do not use or push-start a machine with a frozen battery or attempt to start it with starter cables. Doing so poses an explosion hazard.
- ▶ In order to prevent the battery from freezing, keep the battery in a fully charged state at all times. Observe instructions for jumping or charging batteries.
- ▶ Only recharge batteries in well-ventilated areas.
- ▶ Only recharge a battery when the battery is at a temperature between +5°C and +45°C.
- ▶ Avoid breathing in any gases escaping from the battery.
- ▶ Do not allow the electrolyte fluid of the battery to come into contact with clothing, skin, mouth or eyes. Wear suitable protective equipment.
- ▶ Keep sparks, open flames and smoke away from the battery, otherwise there is a risk of explosion.
- ▶ Do not check the charge level of the battery by short-circuiting the terminals with a metal object. Use a hydrometer or voltmeter for this.
- ▶ Keep metallic objects such as rings, wristwatches and tools away from the battery terminals, otherwise there is a risk of sparking.
- ▶ Observe the safety instructions of the manufacturer.  
See the annex regarding the battery in the spare parts list.

##### **WARNING!**

Improper work on the electrical system.

Risk of severe injury or death due to malfunctions of the machine or electric shock.

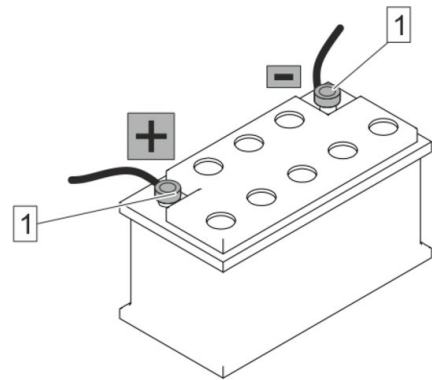
- ▶ Only allow electrically skilled persons to work on the electrical system.
- ▶ Before working on the electric system, first switch off the battery main switch, disconnect the battery or remove it from the power supply.
- ▶ Allow the electrical system or the machine to cool down sufficiently, if necessary, before working on it.
- ▶ Inspect all cable connections for firm and correct connection before restarting the electrical system.

✓ Trained personnel

- ▶  Switch off and secure the machine. [▶ 182](#)
- ▶  Observe the safety instructions for handling the electric system. [▶ 46](#)
- ▶  Observe safety instructions for eliminating malfunctions. [▶ 255](#)

⚠ Observe the following series of steps when connecting the battery.

- ▶ Connect the positive terminal (1).
- ▶ Connect the negative terminal (1).



## **10 Decommissioning and disposal**

### **10.1 Decommissioning**

328-001

#### **10.1.1 Final decommissioning**

If the machine is being decommissioned for the last time, all laws and regulations for disposing of parts in effect at that time must be followed.

After the end of the machine's service life, types of components that can be recycled must be sent to a specialist company for recycling.

## 10.2 Disposal

325-001

### 10.2.1 Disposing of replacement parts

By operating the machine, waste and replacement parts accrue that must be disposed of properly and as required by law.

326-001

### 10.2.2 Environmental protection

Contamination of the ground and/or groundwater due to negligent behavior during installation, repair and maintenance work.

Particularly during installation, repair and maintenance work, water-damaging materials must not reach the ground or sewer system. Examples of these materials include:

- Lubricant grease and oils
- Hydraulic fluid
- materials processed by the machine
- Wear parts/replacement parts

do not pollute the ground or dump waste into the sewage system.

For all work on and with the machine, the legal requirements for avoiding accidents and proper disposal and removal must be followed!

The materials mentioned must be stored, transported, unloaded and disposed of in suitable containers.

327-001

### 10.2.3 Disposing of oil and waste containing oil

Oil and waste containing oil represent a severe environmental hazard. They must therefore be disposed of by specialised companies.

Send this waste to a company-internal disposal system and then forward it to a specialist company.

## 11 Documents

11584-003

### 11.1 Wording of the EC Declaration of Conformity

in accordance with 2006/42/EC, Annex II, No. 1. A

The manufacturer

Name: Hermann Paus Maschinenfabrik GmbH

Address: Siemensstrasse 1-9  
48488 Emsbüren  
Germany

declares, that the machine specified as follows

Designation: Dump truck

Model: AKR swivel-skip dumper

Model: AKR 9095 HP

Serial (chassis) number: ...

Engine type: TCD 3.6 L4

Engine output: 90 kW

conforms to all applicable regulations of the following European directives in the model delivered:

2006/42/EC Machinery Directive

2014/53/EU Radio Equipment Directive  
(if the radio [▶ 80](#) and/or telemetrics unit [▶ 80](#)  
options are installed)

2014/30/EU EMC Directive  
(if the radio and/or telemetrics unit options are not  
installed)

2000/14/EC Outdoor Directive

Applied harmonized standards: EN 474-1:2022  
EN 474-6:2022

The notified body

Name: TÜV NORD CERT GmbH

Identification number: CE 0044

Address: Am TÜV 1  
30519 Hannover  
Germany

has been authorised to conduct the EC type examination in accordance with 2000/14/EC.

Applied conformity assessment procedure in accordance with pursuant to 2000/14/EC as per Appendix VI

Measured sound power level: LWA = 103 dB/1pW

Guaranteed sound power level: LWA = 103 dB/1pW

Person authorised to compile the technical documents:

Name: Dr. Martin Hindersmann

Address: Hermann Paus Maschinenfabrik GmbH  
Siemensstrasse 1-9  
48488 Emsbüren  
Germany

Date: ...

Signature: ...

Name of signatory: ...

Position at the company: ...

## 12 Service and warranty

### 12.1 Notes

329-003

#### 12.1.1 Service and warranty

HERMANN PAUS MASCHINENFABRIK GMBH makes every effort to answer your questions and respond to your orders as quickly as possible. We ask that you specify your name, return address and your machine's identification data before each query.

Our general terms and conditions can be found on our website.

[https://www.paus.de/fileadmin/user\\_upload/Paus/Dokumente/8.2-003-EN\\_AGB-Verkauf.pdf](https://www.paus.de/fileadmin/user_upload/Paus/Dokumente/8.2-003-EN_AGB-Verkauf.pdf)

331-001

#### 12.1.2 Spare parts

Defects or worn parts on the machine must be replaced only with original PAUS parts. In the event that parts from other suppliers or manufacturers are used, the warranty shall be void in the event that damage occurs and conformity to the corresponding guidelines is no longer achieved.

You can find information about spare parts and additional documents pertaining to your machine online at [www.paus.de](http://www.paus.de), in the Service section and spare parts catalogue.

Please provide the vehicle identification number of the machine in all correspondence and for every spare part order.

## 13 Abbreviations and technical terms

1407-017

### 13.1 Abbreviations

| Abbreviation    | Meaning                                | Description                                              |
|-----------------|----------------------------------------|----------------------------------------------------------|
| °               | Degrees                                | Such as the inclination of a machine                     |
| °C              | Degrees Celsius                        | Unit of temperature                                      |
| "               | Inches                                 | Unit of length corresponding to 25.4 mm                  |
| %               | Percent                                |                                                          |
| % by vol.       | Percent by volume                      | Unit of volume ratio (e.g. gas concentration)            |
| A               | Ampere                                 | Unit of electrical current                               |
| Ah              | Ampere-hour                            | Unit of electric charge                                  |
| bar             | bar                                    | Unit of pressure                                         |
| Beaufort        | Beaufort strength                      | Unit of wind speed in accordance with the Beaufort scale |
| bpm             | Cycles per minute                      | For example, strikes per minute                          |
| and/or          | and/or                                 | and/or                                                   |
| C               | Coulomb                                | Unit of battery charge capacity                          |
| approx.         | Approximately                          | An approximate amount                                    |
| cm              | Centimeter                             | Unit of length                                           |
| cm <sup>2</sup> | Square centimeter                      | Unit of area                                             |
| cm <sup>3</sup> | Cubic centimeters                      | Unit of volume                                           |
| daN             | Deca-newtons                           | Unit of force                                            |
| dB(A)           | Decibel                                | Unit of A-weighted sound pressure level                  |
| dB              | Decibel                                | Unit of sound level                                      |
| FMI             | Standardised fault type identification | Fault type identification as per SAE J1939               |
| GmbH            | Company with Limited Liability         | A company with limited liability under German law        |
| g               | Gram                                   | Unit of weight                                           |
| g/kWh           | Gram per kilowatt hour                 | Unit of weight per kilowatt hour                         |

| Abbreviation        | Meaning                           | Description                           |
|---------------------|-----------------------------------|---------------------------------------|
| Hz                  | Hertz                             | Unit of Frequency                     |
| in                  | Inches                            | Unit of length                        |
| kg                  | Kilogram                          | Unit of weight                        |
| km/h                | Kilometers per hour               | Unit of speed                         |
| kN                  | Kilonewton                        | Unit of force                         |
| kV                  | Kilovolt                          | Unit of electrical voltage            |
| kW                  | Kilowatt                          | Unit of power                         |
| kWh                 | Kilowatt hour                     | Unit of power per hour                |
| l                   | Liter                             | Unit of volume                        |
| L/min               | Liters per minute                 | Unit of flow rate                     |
| lbs                 | Pound                             | Unit of weight                        |
| mm                  | Millimeter                        | Unit of length                        |
| m/s <sup>2</sup>    | Meters per second squared         | Unit of acceleration                  |
| m <sup>3</sup> /min | Cubic meters per minute           | Unit of flow rate                     |
| rpm                 | Revolutions per minute            | Unit of (rotational) speed            |
| min                 | Minute                            | Unit of time                          |
| mt                  | Meter-ton                         | Unit of energy (lifting a load)       |
| N                   | Newton                            | Unit of force                         |
| N/cm <sup>2</sup>   | Newtons per square centimeter     | Unit of pressure                      |
| N/mm <sup>2</sup>   | Newtons per square millimeter     | Unit of pressure                      |
| Nm                  | Newton-meter                      | Unit of torque                        |
| psi                 | Pound per square inch             | Unit of pressure                      |
| s                   | Second                            | Unit of time                          |
| SCR                 | Selective catalytic reduction     | Reduction of output emissions         |
| SPN                 | Standardised fault identification | Fault identification as per SAE J1939 |

| Abbreviation | Meaning                                                                        | Description                                                                                              |
|--------------|--------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| StVZO        | German Road Traffic Licensing Regulation (Strassenverkehrs-Zulassungs-Ordnung) | A regulation in German governing licensing of persons and vehicles for operating as part of road traffic |
| t            | Tonne                                                                          | Unit of weight                                                                                           |
| TÜV          | Technical Inspection Association (Technischer-Überwachungsverein)              | A technical inspection organisation for carrying out safety inspections                                  |
| UVV          | Accident Prevention Regulations (Unfall-Verhütungs-Vorschriften)               | Binding obligations for work safety and health safety at the workplace                                   |
| V            | Volt                                                                           | Unit of electrical voltage                                                                               |
| W            | Watts                                                                          | Unit of electrical power                                                                                 |
| Wh           | Watt-hours                                                                     | Unit of energy consumption                                                                               |
| e.g.         | For example                                                                    |                                                                                                          |

## 14 Contact

### 14.1 Contact person at PAUS

335-001

#### 14.1.1 Contact info for headquarters

| Area code | Phone   | Fax | e-mail / homepage           |
|-----------|---------|-----|-----------------------------|
| +49 59 03 | 707 - 0 |     | info@paus.de<br>www.paus.de |

823-001

#### 14.1.2 Kontakt Service

| Area code | Phone     | Fax       | e-mail          |
|-----------|-----------|-----------|-----------------|
| +49 59 03 | 707 - 648 | 707 - 637 | service@paus.de |
|           | 707 - 667 |           |                 |
|           | 707 - 669 |           |                 |

825-001

#### 14.1.3 Contact info for Warranty

| Area code | Phone     | Fax | e-mail           |
|-----------|-----------|-----|------------------|
| +49 59 03 | 707 - 684 |     | warranty@paus.de |

826-001

#### 14.1.4 Contact info for Spare Parts

| Area code | Phone     | Fax       | e-mail             |
|-----------|-----------|-----------|--------------------|
| +49 59 03 | 707 – 680 | 707 - 687 | spareparts@paus.de |
|           | 707 – 681 |           |                    |
|           | 707 – 686 |           |                    |
|           | 707 – 689 |           |                    |

## 15 Index directory

### 15.1 Index directory

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