

# OPERATION & MAINTENANCE

Paver Finisher  
F1800C  
Type 910



EN 02-0516  
4812018414



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# V Preface

Translation of the original operating instructions.

If the vehicle is to be operated safely, the information provided in these operating instructions will be required. The information is provided in a concise, clearly structured form. The individual chapters are arranged in alphabetical order, and every chapter starts with page 1. The individual pages are identified by the chapter letter and the page number.

Example: Page B 2 is the second page of chapter B.

These operating instructions cover various vehicle options. Make sure that during operation and maintenance work the description appropriate to the vehicle option is used.





In the interest of continued development, the manufacturer reserves the right to make changes to the vehicle (which will not, however, change the essential features of the type of vehicle described) without updating the present operating instructions at the same time.

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## **1 General safety instructions**

### **1.1 Laws, guidelines, accident prevention regulations**

-  The locally applicable laws, guidelines and accident prevention regulations must always be observed, even if these are not expressly named here.  
The user himself/herself is responsible for compliance with the resulting regulations and measures!
-  The following warnings, prohibitive symbols and instructive symbols indicate dangers for persons, the vehicle and the environment due to residual risks when operating the vehicle.
-  Failure to observe this information, prohibitions and instructions can result in life-threatening injuries!
-  The "Guidelines for the Correct Use and Application of Paver Finishers" compiled by Dynapac must also be observed!

## 1.2 Safety signs, signal words

In the safety instructions, the signal words "Danger", "Warning", "Caution", "Note" are positioned in the coloured title block. They follow a certain hierarchy; in combination with the warning symbol, they indicate the severity of the danger or the type of note.

### "Danger"!



Danger of personal injury.

Indication of an immediately threatening danger that result in fatal or severe injuries unless the corresponding actions are taken.

### "Warning" !



Indication of a possible danger that can result in fatal or severe injuries unless the corresponding actions are taken.

### "Caution" !



Indication of a possible danger that result in moderate or minor injuries unless the corresponding actions are taken.

### "Note" !



Indication of a possible drawback unless the corresponding actions are taken, e.g. unwanted conditions or consequences can occur.

## 1.3 Other supplementary information

Other information and important explanations are identified by the following pictograms:



Precedes safety instructions that must be observed in order to prevent danger to personnel.



Precedes notes that must be observed to prevent damage to equipment.



Precedes general notes and explanations.

## 1.4 Warnings

Warning on a dangerous area or hazard!  
Failure to observe the warnings can result in life-threatening injuries!



Warning on danger of being pulled in!



In this working area/on this element there is a danger of being pulled in by rotating or conveying elements!  
Only carry out activities with elements switched off!



Warning on dangerous electrical voltage!



All maintenance and repair work on the screed's electrical system must always be carried out by an electrician!



Warning on suspended loads!



Never stand under suspended loads!



Warning on danger of crushing!



There is a danger of crushing when certain components are operated, or certain functions or vehicle movements are carried out.  
Always make sure that there are no persons within the endangered areas!



Warning on hand injuries!



Warning on hot surfaces or hot liquids!



Warning on danger of falling!



Warning on dangers posed by batteries!



Warning on hazardous or irritating substances!



Warning on substances which constitute a fire hazard!



Warning on gas bottles!



## 1.5 Prohibitive symbols

Opening/walking on/reaching in/carrying out/setting up are prohibited during operation or while the drive engine is running!



Do not start engine/drive!  
Maintenance and repair work may only be carried out with the diesel engine shut down!



Spraying with water is prohibited!



Extinguishing with water is prohibited!



Unauthorised maintenance is prohibited!  
Only qualified experts may conduct maintenance!

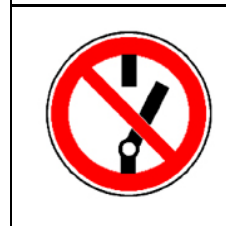


Consult the Dynapac Service Department

Fire!, naked flames and smoking are prohibited!



Do not switch!



## 1.6 Protective equipment



Locally applicable regulations may require the wearing of various safety equipment!  
Always observe these regulations!

Wear safety goggles to protect your eyes!



Wear suitable head protection!



Wear suitable hearing protection to protect your hearing!



Wear suitable safety gloves to protect your hands!



Wear safety shoes to protect your feet!



Always wear close-fitting work clothing!

Wear a warning vest to be seen in time to avoid accidents!



Wear respiratory equipment if breathing air is contaminated!



## 1.7 Environmental protection



The locally applicable laws, guidelines and accident prevention regulations for the proper recycling and disposal of waste must always be observed, even if these are not expressly named here.

Water-endangering substances like:

- Lubricants (oil, grease)
- Hydraulic oil
- Diesel fuel
- Coolant
- Cleaning liquids

must not get into the soil or sewer system during cleaning, maintenance and repair work!

Substances must be caught, stored, transported and brought to professional disposal sites in suitable containers!



Environmentally hazardous substance!



## 1.8 Fire prevention



Locally applicable regulations may require suitable extinguishing agents to be carried on the vehicle!

Always observe these regulations!

Fire extinguisher!  
(optional equipment)



## 1.9 Additional information



Also observe the manufacturer's documentation and additional documentation!



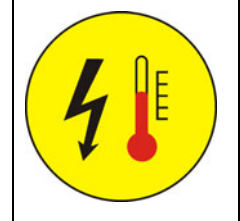
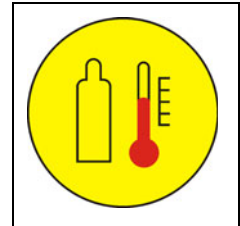
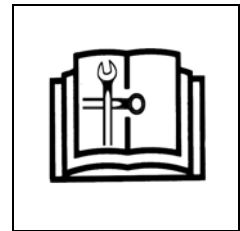
For example, the maintenance instructions of the engine manufacturer



Description / depiction applicable when equipped with gas heater!



Description / depiction applicable when equipped with electric heater!



● Used to indicate standard equipment.

○ Used to indicate optional equipment.

## **2 CE identification and Declaration of Conformity**

(only applies to machines sold in the EU/EEC)

This machine has CE identification. This identification says that the machine fulfils the basic health and safety requirements pursuant to the Machinery Directive 2006/42/EC together with all other valid regulations. The scope of supply of the machine includes a Declaration of Conformity as specified in the valid regulations and amendments together with harmonised standards and other valid provisions.

## **3 Guarantee conditions**



The guarantee conditions are included in the scope of supply of the machine. This contains a complete specification of the valid conditions.

### **The guarantee becomes null and void if**

- damage occurs through malfunctions caused by improper use and incorrect operation.
- repairs or manipulations are carried out by persons who are neither trained nor authorised accordingly.
- accessories or spare parts are used that cause damage and which are not approved by Dynapac.

## **4 Residual risks**

These are risks that remain even if all possible measures and safety precautions have been taken to help minimise dangers (risks) or to reduce their probability and scope to zero.

### **Residual risks in the form of**

- **Danger to life and limb of persons at the machine**
- **Danger to the environment posed by the machine**
- **Damage to property and restricted output and functionality of the machine**
- **Damage to property in the operating range of the machine**

### **caused by:**

- wrong or improper use of the machine
- defective or missing safety devices
- use of the machine by untrained, uninstructed staff
- defective or damaged parts
- incorrect transport of the machine
- incorrect maintenance or repairs
- leaking operating substances
- emission of noise and vibrations
- impermissible operating substances

### **Existing residual risks can be avoided by complying and implementing the following:**

- warnings at the machine
- warnings and instructions in the safety manual for paver finishers and in the operating instructions of the paver finisher
- Operating instructions of the machine operator

## **5 Sensibly predictable incorrect usage**

Every kind of sensibly predictable incorrect usage of the machine constitutes misuse. Incorrect usage makes the manufacturer's warranty null and void: the operator bears sole responsibility.

Sensibly predictable incorrect usage of the machine includes:

- presence in the danger zone of the machine
- transporting persons
- leaving the operator's platform while the machine is operating
- removing protection or safety devices
- starting and using the machine outside the operator's platform
- operating the machine with the screed walkway plate hinged up
- failing to comply with the maintenance instructions
- omission or incorrect execution of maintenance or repair work
- spraying the machine with high pressure cleaners

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# A Correct use and application



The "Guidelines for the Correct Use and Application of Paver Finishers" compiled by Dynapac are included in the scope of delivery for the present machine. The guidelines are part of the present operating instructions and must always be heeded. National regulations are fully applicable.

The road construction machine described in these operating instructions is a paver finisher that is suited for laying mixed materials, roll-down concrete or lean-mixed concrete, track-laying ballast and unbound mineral aggregates for foundations for paving.

The paver finisher must be used, operated and maintained according to the instructions given in the present operating instructions. Any other use is regarded as improper use and can cause injury to persons or damage to the paver finisher or other equipment or property.

Any use going beyond the range of applications described above is regarded as improper use and is expressly forbidden! Especially in those cases where the paver finisher is to be operated on inclines or where it is to be used for special purposes (construction of dumps, dams), it is absolutely necessary to contact the manufacturer.

**Duties of the user:** A "user" within the meaning of these operating instructions is defined as any natural or legal person who either uses the paver finisher himself, or on whose behalf it is used. In special cases (e.g. leasing or renting), the user is considered to be the person who, in accordance with existing contractual agreements between the owner and the user of the paver finisher, is charged with the observance of the operating duties.

The user must ensure that the paver finisher is only used in the stipulated manner and that all danger to life and limb of the operator, or third parties, is avoided. In addition to this, it must be ensured that the relevant accident prevention regulations and other safety-related provisions as well as the operating, servicing and maintenance guidelines are observed. The user must also ensure that all persons operating the paver finisher have read and understood the present operating instructions.

**Mounting of attachments:** The paver finisher must only be operated in conjunction with screeds that have been approved by the manufacturer. Mounting or installation of any attachments that will interfere with or supplement the functions of the paver finisher is permitted only after written approval by the manufacturer has been obtained. If necessary, the approval of local authorities must be obtained.

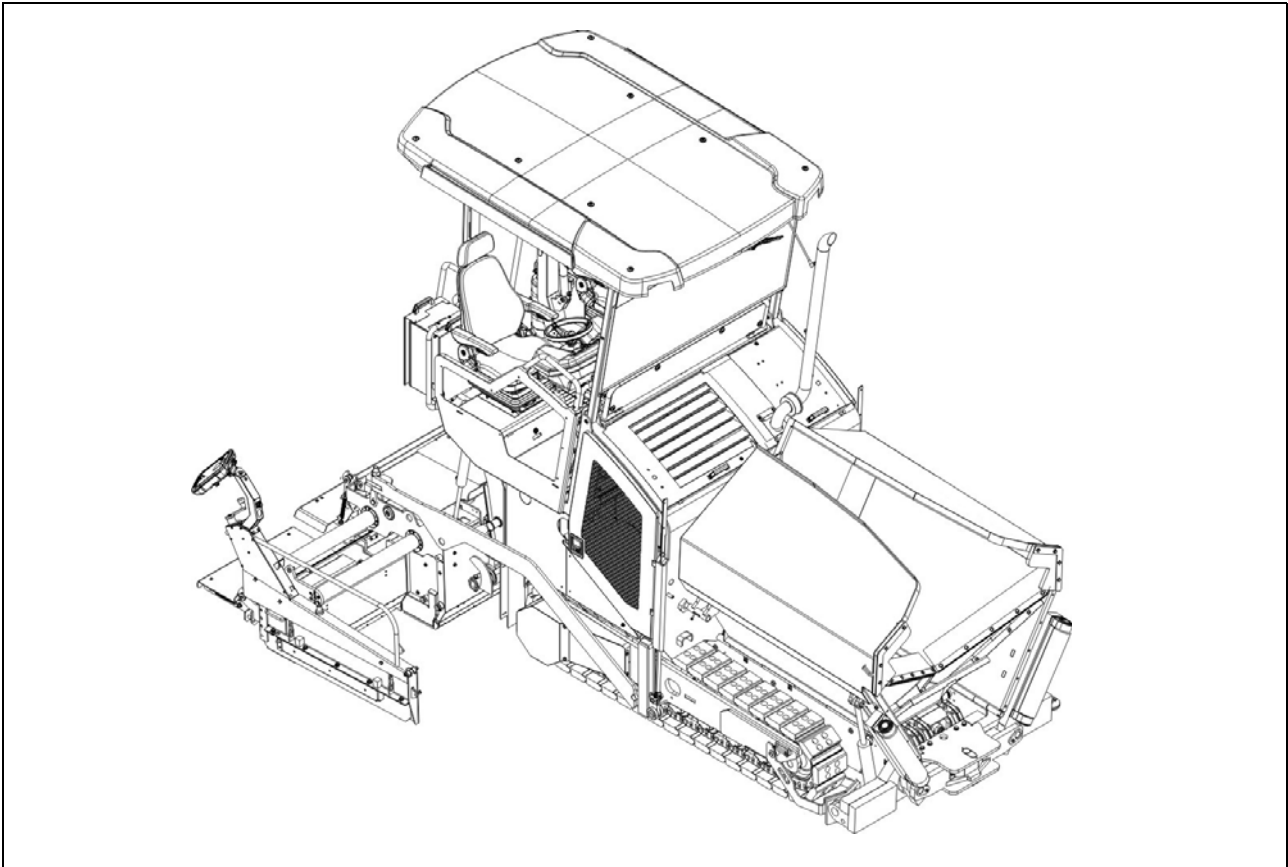
Any approval obtained from local authorities does not, however, make approval by the manufacturer unnecessary.



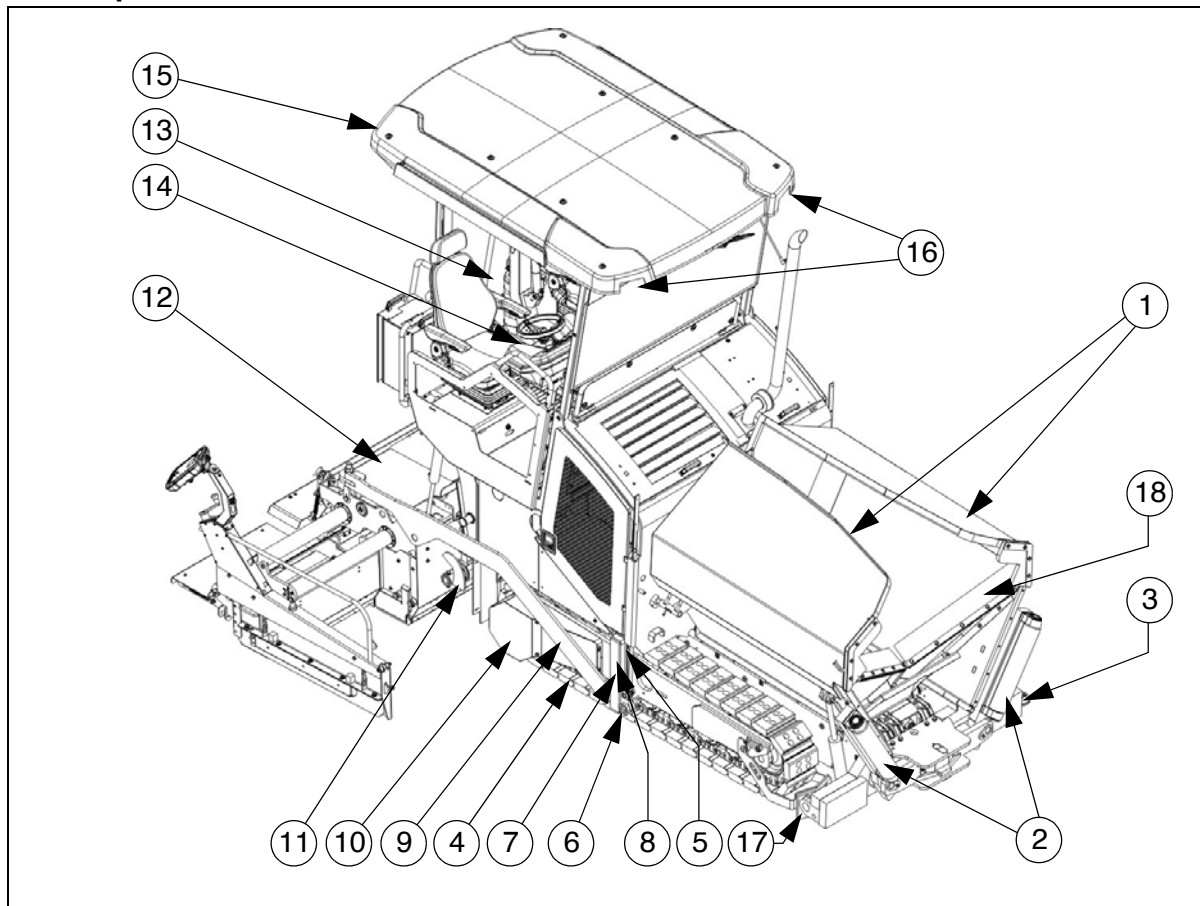
## B Vehicle description

### 1 Application

The Dynapac F1800C paver finisher is a paver finisher with a caterpillar drive which is used for paving bituminous mixed material, roll-down or lean-mixed concrete, track-laying ballast and unbound mineral aggregates for foundations for paving.



## 2 Description of assemblies and functions



Item		Designation
1	●	Material compartment (hopper)
2	●	Truck push rollers
3	●	Sensor rod (direction indicator)
4	●	Caterpillar drive
5	●	Levelling cylinder for paving thickness
6	●	Traction roller
7	●	Crossbeam pull bar
8	●	Paving thickness indicator
9	●	Crossbeam
10	●	Travel drive of the caterpillar drive
11	●	Auger
12	●	Screed
13	●	Operator's platform
14	●	Operating panel (can be moved to either side)
15	○	Protective roof
16	○	Working lights
17	○	Lane cleaner
18	○	Hydraulic front hopper

● = Standard equipment

○ = Optional equipment

## 2.1 Vehicle

### Construction

The paver finisher has a welded steel frame on which the individual components are mounted.

The caterpillar drives compensate uneven areas on the ground; the suspension of the attached screed additionally helps to attain high paving precision.

The continuously adjustable hydrostatic travel drive allows the speed of the paver finisher to be matched to all work conditions.

The operation of the paver finisher is considerably facilitated by the automatic material handling system, the independent travel drives and the clearly structured operating components and controls.

The following extra equipment (option) is available:

- Automatic levelling/slope control system
- Hopper with hydraulic front hopper
- Protective roof (control platform)
- Emulsion spraying system
- Asphalt fume control system
- Additional headlights, warning lamps
- Central lubrication system
- Alternator
- Larger working widths
- Further equipment and upgrade options on request

**Engine:** The paver finisher is driven by a water cooled diesel engine. For further details see the technical data and the engine's instruction manual.

**Drive unit:** Both caterpillar drives are directly driven by separate drives. They operate directly, without any drive chains which require maintenance or servicing. The tension of the caterpillar chains can be readjusted using tensioners. A swivelling lane cleaner (○), which ensures an even passage during paving, is located in front of each of the drive units. Small obstacles lying in the lane are cleared away to the side.

**Hydraulic system:** The diesel engine drives the hydraulic pumps for all main paver finisher drives via the attached distribution gear and its auxiliary drive shafts.

**Travel drive:** The continuously adjustable travel drive pumps are connected to the travel drive engines by means of high pressure hydraulic hoses. These hydraulic motors drive the caterpillar chains via planetary gears that are mounted directly inside the drive wheels of the caterpillar chains.

**Steering system/operator's platform:** The independent hydrostatic travel drives allow the feeder to be turned on the spot. Electronic synchronous control ensures precise straight-ahead travel. The seat consoles left/right can be moved beyond the outer edge of the vehicle, providing the driver with a better view of the paving area in this position. The entire operating panel can be swivelled for operation beyond the outer edge of the vehicle, and can be additionally be locked in several positions along the control platform.

**Push roller crossbar:** The push rollers for material trucks are fastened to a cross bar that is pivoted at its centre. The paver finisher thus deviates less from its course and paving in curves is made easier. For adaptation to various truck design types, the push roller crossbar can be shifted to two positions.

Push roller damping (○) hydraulically absorbs the shocks between the material truck and paver finisher.

**Material compartment (hopper):** The hopper inlet is equipped with a conveyor system that empties the hopper and transfers the material to the auger.

The hopper can hold approx. 10.5 t.

To facilitate emptying and achieve even material transfer, each of the lateral covers of the hopper can be hydraulically folded in.

The hydraulic front hopper flaps (○) ensure that no material remains at the front of the feeding hoppers.

The hopper is designed as a "Thermal Hopper" and lengthens the cooling down period for the material.

**Material transfer:** The paver finisher is equipped with two conveyors driven separately that transfer the material from the hopper to the augers.

By scanning the filling height during the paving procedure, the transfer amount is regulated fully automatically.

The drive is reversible.

**Augers:** The augers are driven and actuated independently from the conveyors. The left-hand and the right-hand half of the auger can be controlled separately. The drive system is fully hydraulic.

The conveying direction can be changed towards the centre or towards the outside. This ensures that there is always a sufficient supply of material even if an excessive amount of material is required at one side.

The auger function is switched on or off by the material flow.

**Height adjustment and extension of augers:** Height adjustment and extension of augers ensure optimum adaptation to a wide range of paving thicknesses and widths. Auger segments of different lengths can be attached to easily adapt to the different paving widths.

The auger height is adjusted mechanically.

In another version, the height is adjusted by hydraulic cylinder (○).

**Levelling/slope control system:** The slope control system (○) allows the traction point to be regulated at the left-hand or the right-hand side with a defined difference to the opposite side.

To determine the actual value, the two traction crossbeams are linked with a slope control rod.

The slope control system always operates in conjunction with the screed height adjustment of the opposite side.

By adjusting the height of the traction point of the crossbeam (traction roller), the paving thickness of the material or the laying height of the screed can be controlled.

Actuation occurs electro-hydraulically on both sides and can be controlled manually by means of toggle switches or automatically by means of an electronic grade control system.

**Crossbeams / screed lifting device:** The screed lifting device is used to lift the screed for the paving conditions and during transportation.

This takes place by hydraulic means by actuating a hydraulic cylinder.

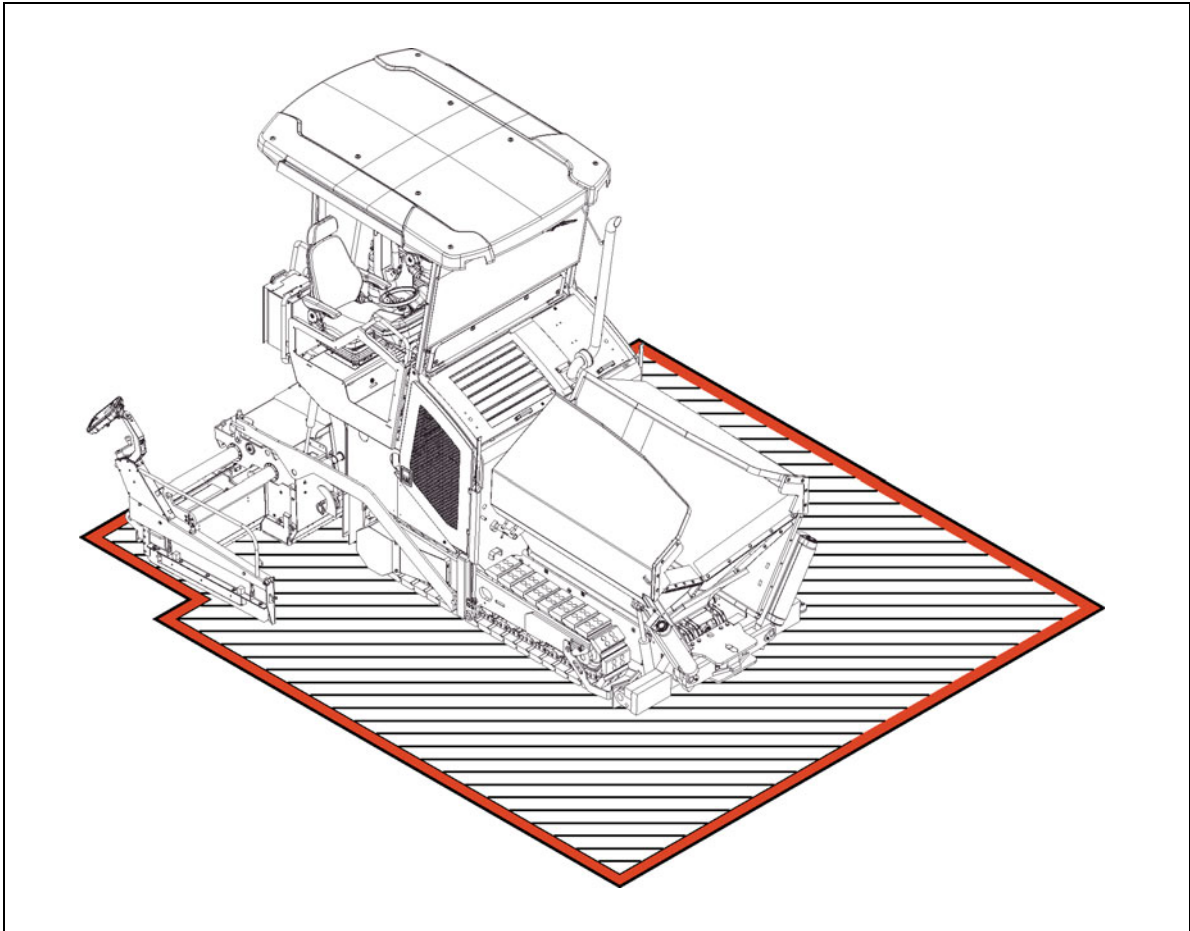
The crossbeams have a multi-stage rapid adjustment for the positioning angle.

**Automatic paving stop:** The automatic paving stop prevents the formation of any screed marks caused by a stopped screed. When the paver finisher stops (during a truck change), the screed remains in position, preventing the screed from sinking while stationary.

**Asphalt fume control system (○):** An extraction system extracts and discharges asphalt fumes.

**Central lubrication unit (○):** The central lubrication pump fitted with a large lubricant tank supplies grease to the various lubrication circuits through various flow dividers. They supply lubricant to the service-sensitive points of lubrication (e.g. bearings) at adjustable intervals.

### 3 Danger zones



#### **WARNING**

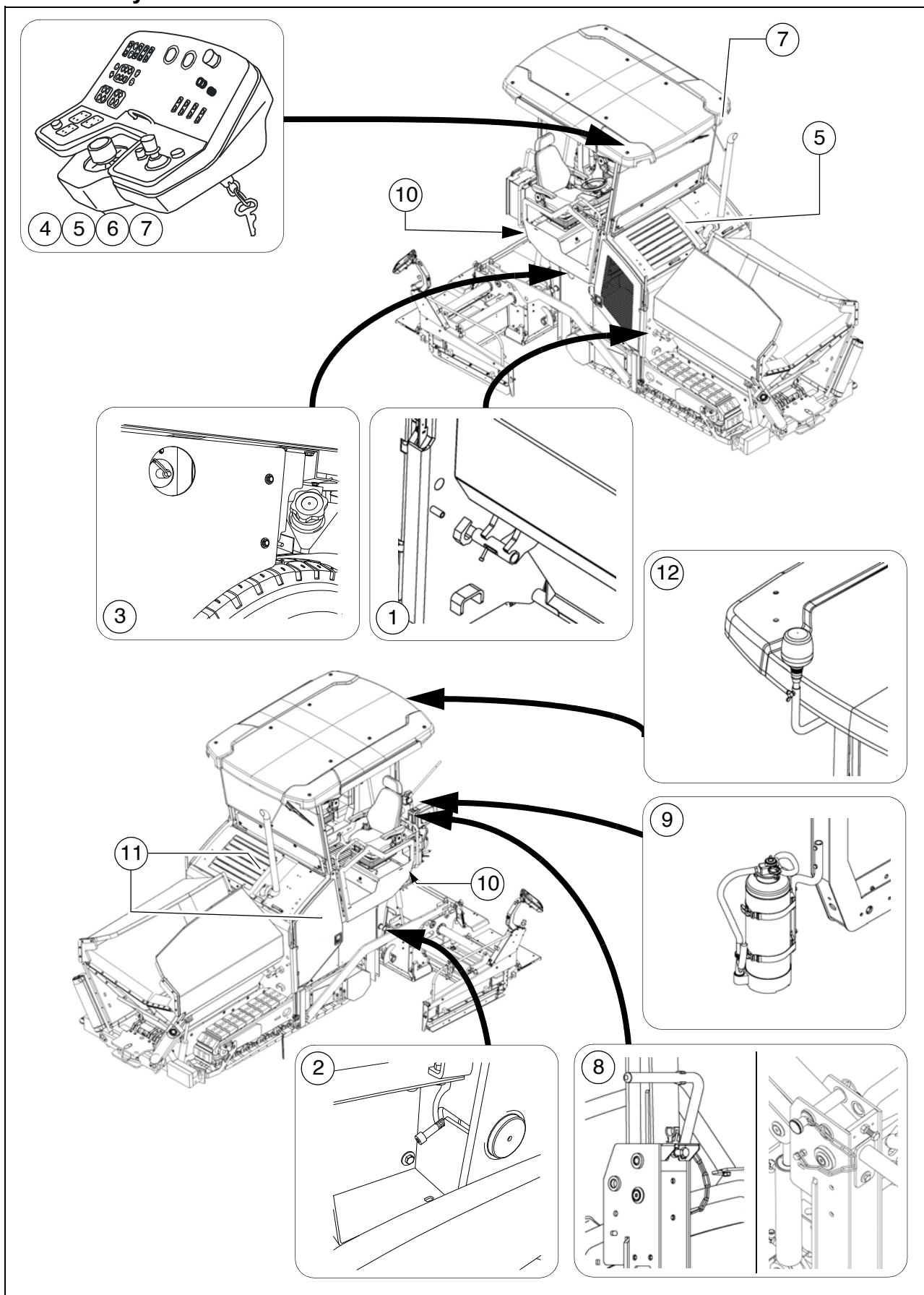
#### **Danger for persons in the danger zone**



Persons in the danger zone can suffer severe or fatal injuries from movements and functions of the vehicle!

- Remaining in the vehicle's danger zone during operation is prohibited!
- During operation, only the vehicle operator and the screed personnel are allowed on the vehicle or in the danger zone. The vehicle operator and screed personnel must keep to the respective driver's seats.
- Make sure that there is no-one in the danger zone before switching the vehicle on or starting it moving.
- The vehicle operator must ensure that no-one is in the danger zone.
- Sound the horn before driving away.
- Comply with all further information in these instructions and in the safety manual.

## 4 Safety devices



Item	Designation	
1	Hopper transport safeguard	**
2	Crossbeam lock, mechanical	**
3	Main switch	
4	Emergency stop button	
5	Horn	
6	Ignition key	
7	Lights	**
8	Protective roof latch (○)	**
9	Fire extinguisher (○)	
10	Screed warning light (○)	**
11	Covers, lateral flaps, coverings	**
12	Rotary beacon (○)	

\*\* Located on both sides of the vehicle



Safe operation is only possible when all operating and control elements are functioning correctly and when all safety devices are in position.



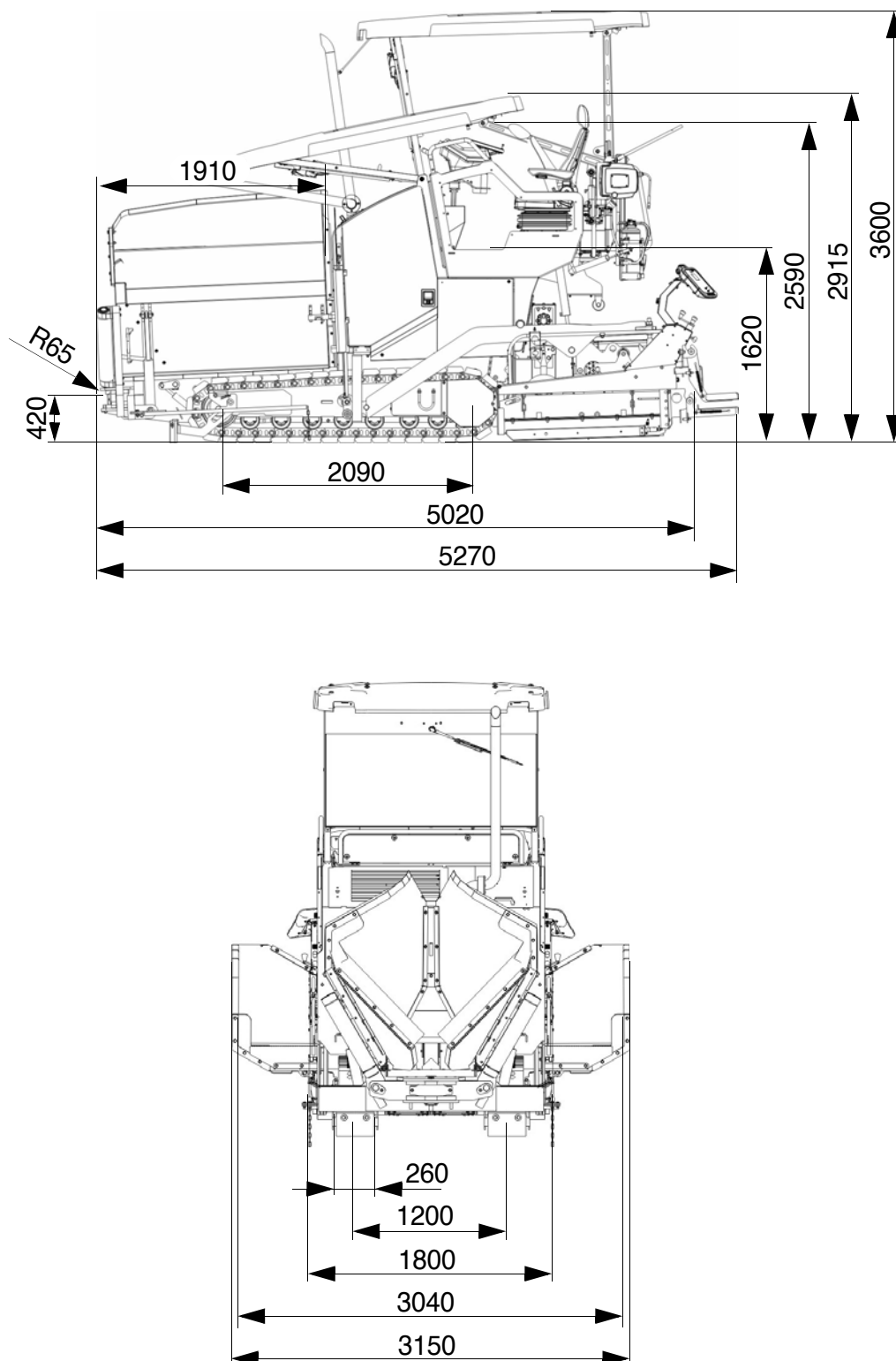
Check the function of these devices at regular intervals.



Functional descriptions for the individual safety facilities can be found in the following chapters.

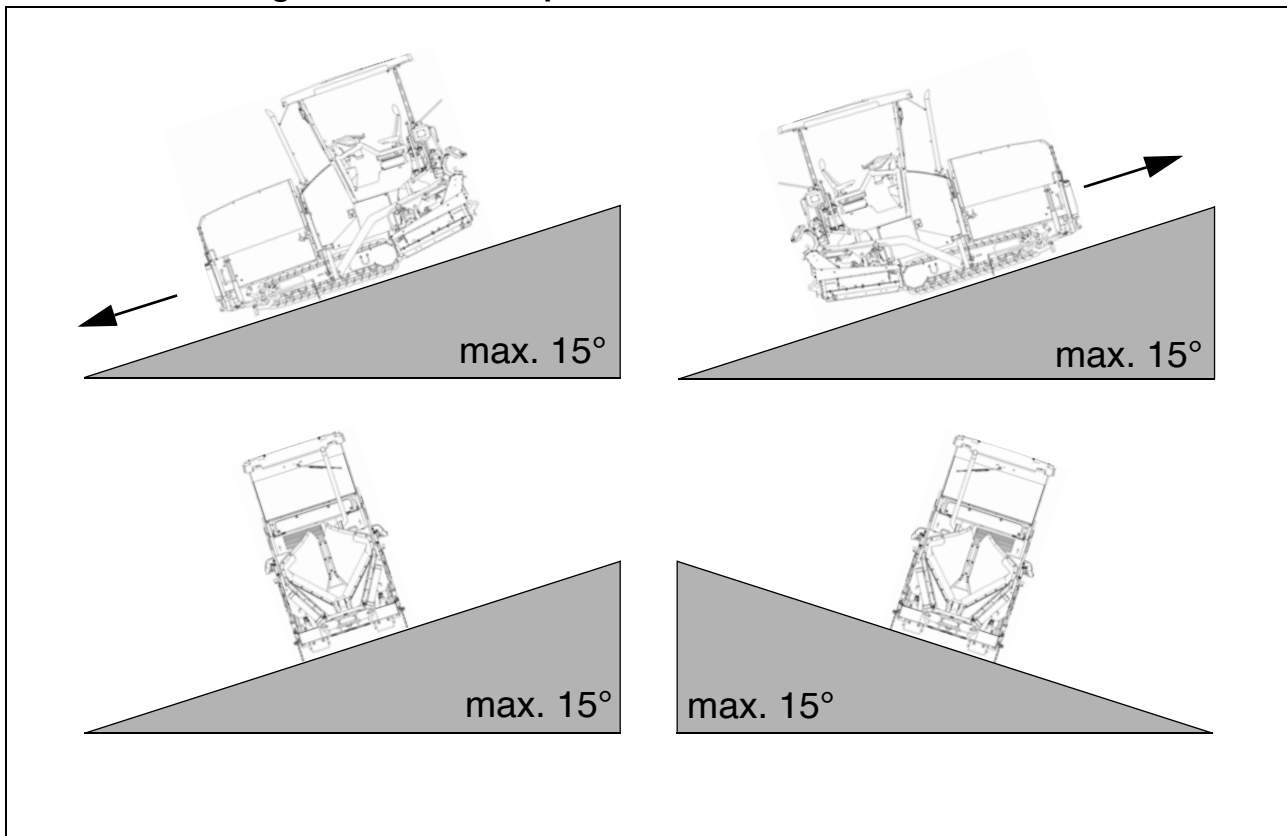
## 5 Technical data, standard configuration


### 5.1 Dimensions (all dimensions in mm)



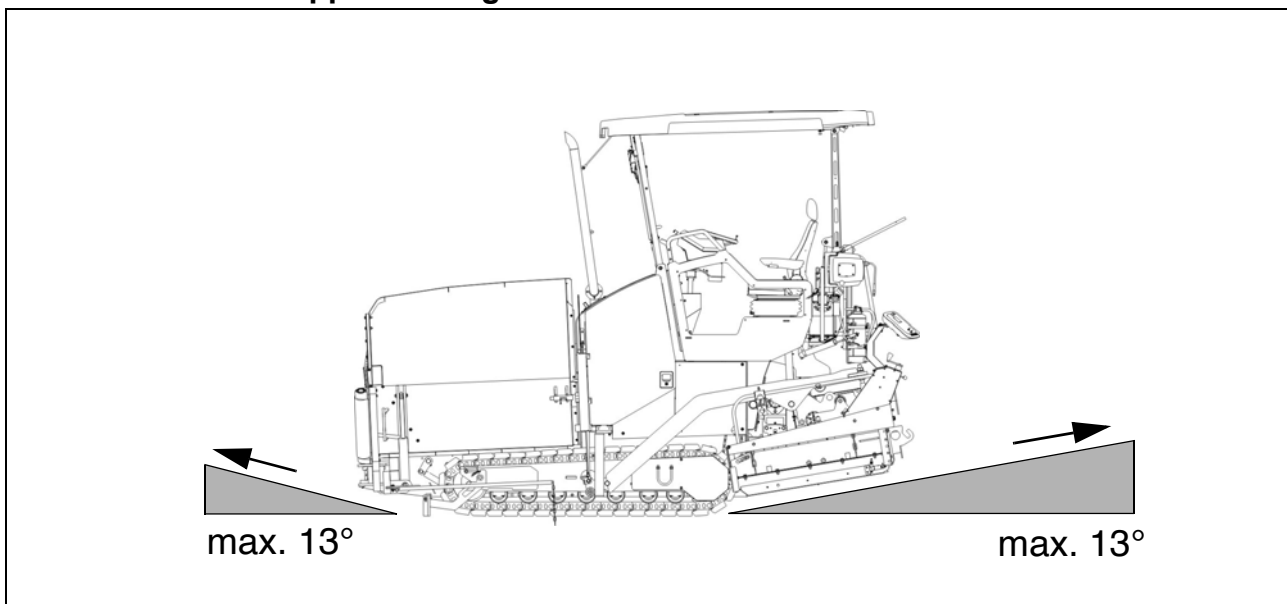
 For screed technical data, refer to the screed operating instructions.

## 5.2 Allowed angle of rise and slope



 Before operating your vehicle in an inclined position (gradient, slope, lateral inclination) which is above the specified limit value, please consult the customer service department for your vehicle!

## 5.3 Permissible approach angle



## 5.4 Weights (all weights in t)

Paver finisher without screed	approx. 8.9
Paver finisher with screed: - V3500	approx. 10.5
With extension parts for max. working width, additionally max.:	approx. 0.52
With filled hopper additionally max.	approx. 10.5



For the weights of the screed and the screed attachments, see the operating instructions for the screed.

## 5.5 Capacity data

Screed used	Basic width (without cut-off shoes)	minimum paving width (with cut-off shoe)	fully variable hydr. adjustment up to	maximum paving widths (with extension parts)	
V3500TV	1.75	0.7	3.50	4.7	m

Transport speed	0 - 4	km/h
Operating speed	0 - 25	m/min
Paving height	-120 - 200	mm
Max. grain size	30	mm
Theoretical paving performance	350	t/h

## 5.6 Travel drive/traction unit

Drive	Hydrostatic drive, continuously controllable
Drive unit	Two separately driven caterpillar drives with rubber grouser chains
Turning capacity	Turning on the spot
Speed	See above

## 5.7 Engine EU 3A / Tier 3 (○)

Make/type	Deutz TD 2.9 L4
Version	4-cylinder diesel engine
Performance	54 KW / 73 PS (at 2200 rpm)
Fuel consumption, full load	14 l/h
Fuel consumption, 2/3 load	9.3 l/h
Fuel tank capacity	(See chapter F)

## 5.8 Engine EU 4 / Tier 4f (○)

Make/type	Deutz TD 2.9 L4
Version	4-cylinder diesel engine
Performance	54 KW / 73 PS (at 2200 rpm)
Fuel consumption, full load	15.3 l/h
Fuel consumption, 2/3 load	10.2 l/h
Fuel tank capacity	(See chapter F)

## 5.9 Hydraulic system

Pressure generation	Hydraulic pumps via distribution gear (directly flanged to the engine)
Pressure distribution	Hydraulic circuits for: <ul style="list-style-type: none"> <li>- Travel drive</li> <li>- Auger</li> <li>- Conveyor</li> <li>- Tamper / vibration</li> <li>- Operating functions</li> <li>- Fan</li> <li>- Separate hydraulic circuits for options</li> </ul>
Hydraulic oil reservoir - volume	(See chapter F)

### 5.10 Material compartment (hopper)

Volume	Approx. 4.8 m <sup>3</sup> = approx. 10.5 t
Minimum inlet height, centre	520 mm
Minimum inlet height, outside	605 mm
Hopper width, outside, open	3400 mm

### 5.11 Material transfer

Type	Dual conveyor belt
Width	2 x 350 mm
Conveyors	Left and right auger separately controllable
Drive	Hydrostatic, 0 / 1
Conveying volume controller	Fully automatic via configurable switching points

### 5.12 Material distribution

Auger diameter	320 mm
Drive	Hydrostatic external drive, fully variable regardless of conveyor Auger halves can be switched to opposite directions Reversible direction of rotation
Conveying volume controller	Fully automatic via configurable switching points
Auger height adjustment	- mechanical / hydraulic (○)
Auger extension	With extension parts (see auger extension chart)

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### 5.13 Screed lifting device

Special functions	At standstill: - Screed stop
Levelling system	Mechanical grade control Optional systems with and without slope control



### 5.14 Electrical system

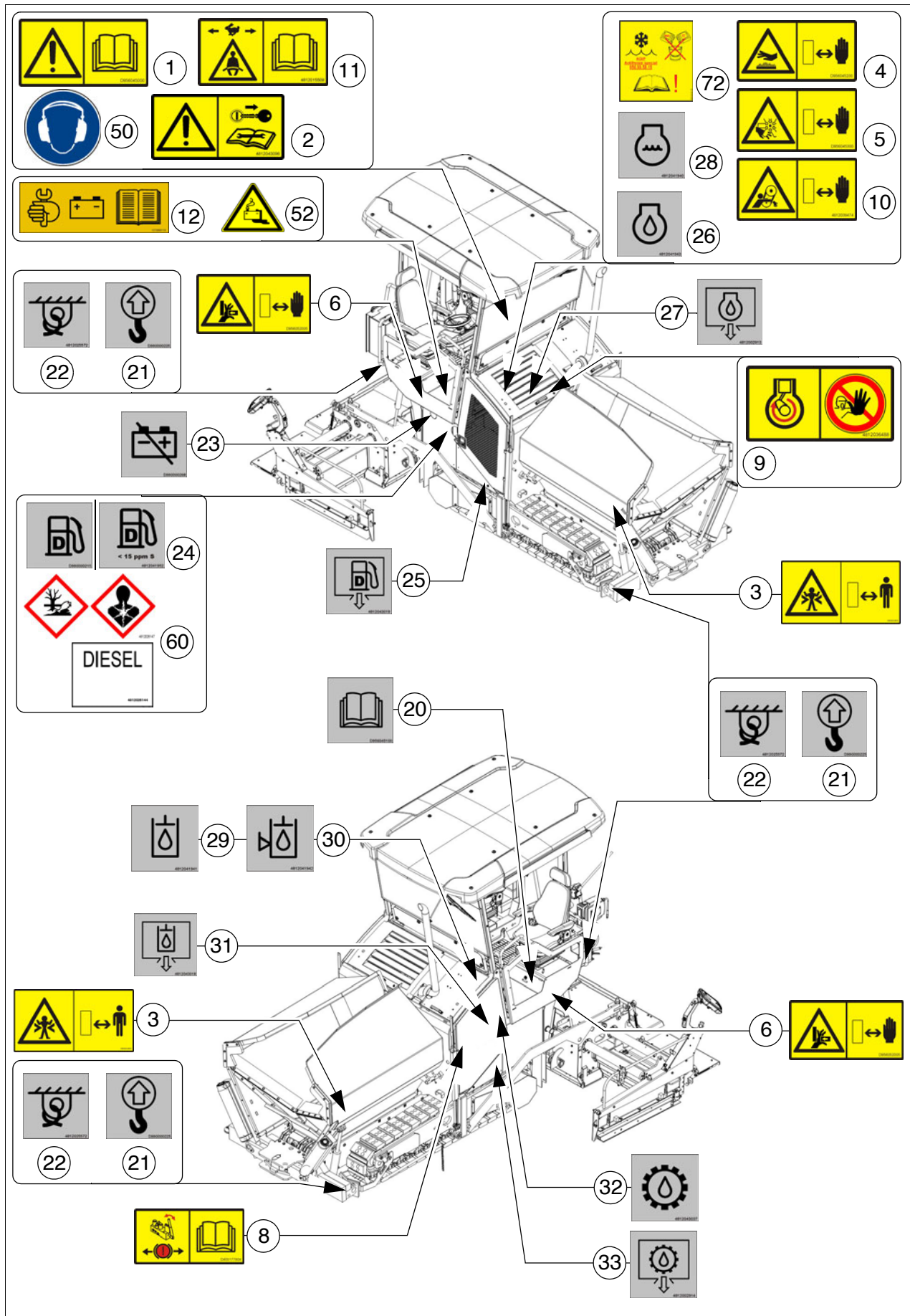
On-board voltage	24 V
Batteries	2 x 12 V, 74Ah
Generator (○)	12.5 kVA / 400V

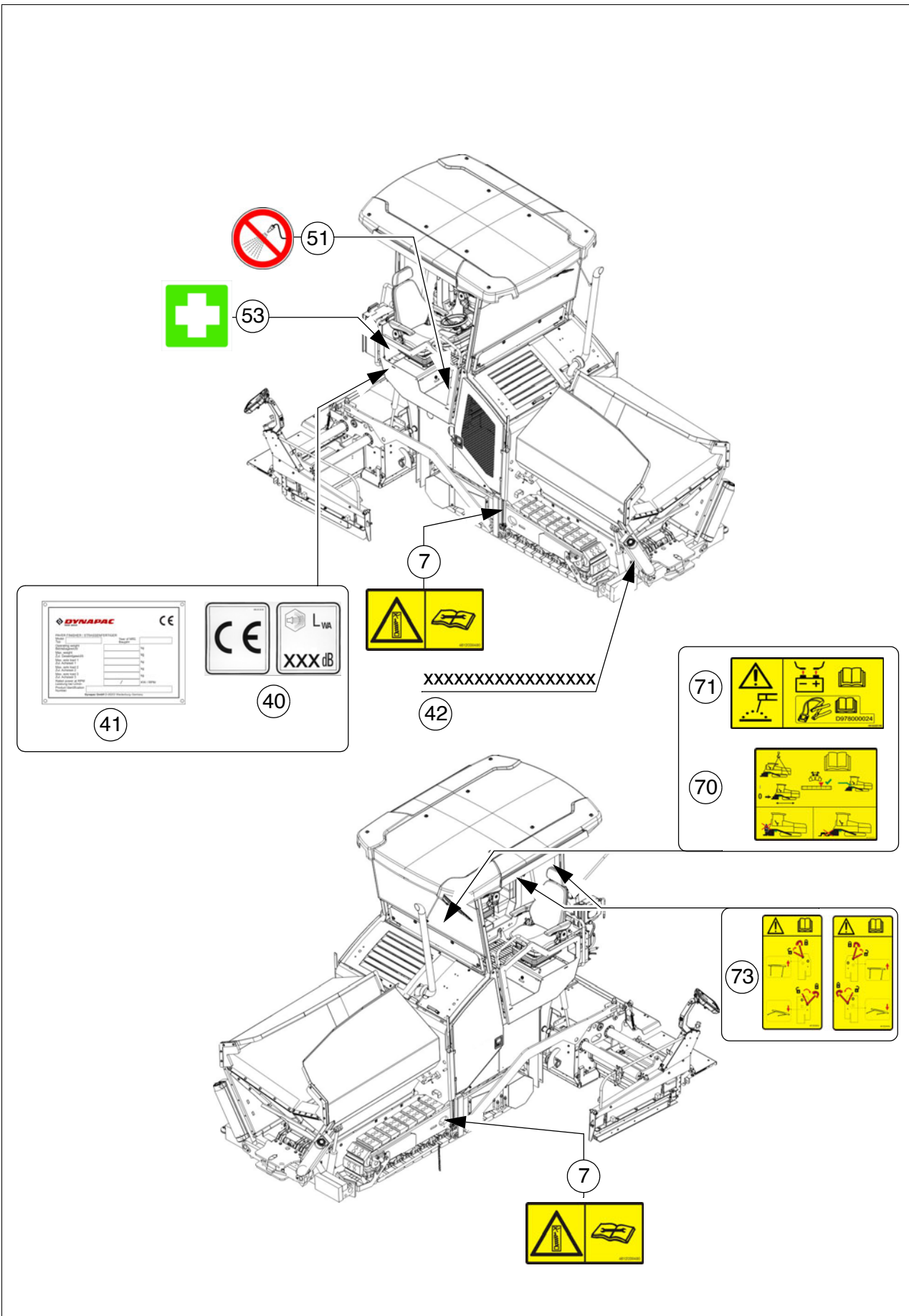
### 5.15 Permissible temperature ranges

Operation	-5°C / +45°C
Storage	-5°C / +45°C




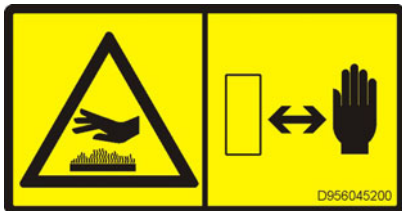
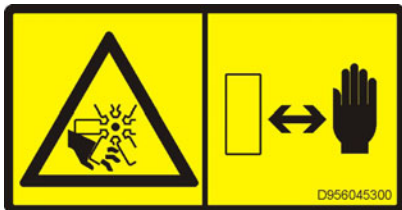
## 6 Identification points

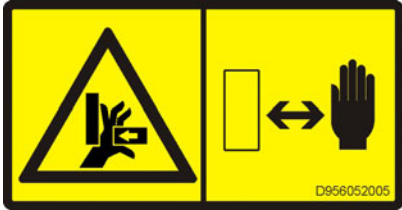

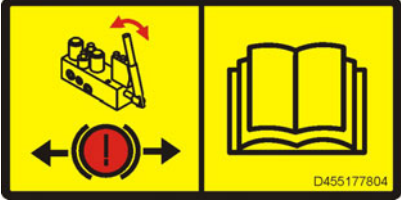

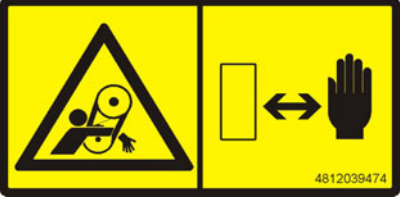
 <b>CAUTION</b>	<b>Danger due to missing or misunderstood vehicle signs</b>
	<p>Missing or misunderstood vehicle signs pose a danger of injuries!</p> <ul style="list-style-type: none"><li>- Never remove any warnings or information signs from the vehicle.</li><li>- Damaged or lost warning or information signs must be replaced immediately.</li><li>- Make yourself familiar with the meaning and position of the warning and information signs.</li><li>- Comply with all further information in these instructions and in the safety manual.</li></ul>









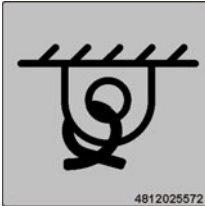


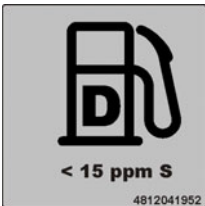
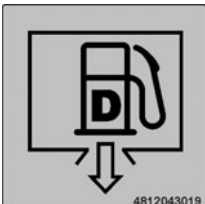
## 6.1 Warning signs








No.	Pictogram	Meaning
1		<ul style="list-style-type: none"> <li>- <b>Warning - operating instructions!</b>            Danger due to improper operation. The vehicle personnel must have read and understood the safety, operating and maintenance instructions for the vehicle before the vehicle is put into operation! Failure to comply with the operating and warning instructions can cause severe or fatal injuries. Always replace lost operating instructions immediately! It is your personal responsibility to take due care and attention!</li> </ul>
2		<ul style="list-style-type: none"> <li>- <b>Warning - switch off the engine and remove the ignition key before performing any maintenance and repair work!</b>            If the drive engine is left running or functions are switched on, this can cause severe or fatal injuries! Switch the engine off and remove the ignition key.</li> </ul>
3		<ul style="list-style-type: none"> <li>- <b>Warning - danger of crushing!</b>            Crushing points can cause severe or fatal injuries! Maintain a safe distance from the danger area!</li> </ul>
4		<ul style="list-style-type: none"> <li>- <b>Warning - hot surface - risk of burning!</b>            Hot surfaces can cause severe injuries! Keep your hands a safe distance away from the danger area! Use protective clothing or protective equipment!</li> </ul>
5		<ul style="list-style-type: none"> <li>- <b>Warning - danger from fan!</b>            Rotating fans can cause severe injuries from cutting or severing fingers and hands. Keep your hands a safe distance away from the danger area!</li> </ul>

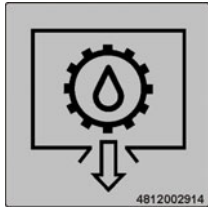
No.	Pictogram	Meaning
6		<ul style="list-style-type: none"> <li>- <b>Warning - danger of crushing fingers and hands due to moving, accessible vehicle parts!</b> Crushing points can cause severe injuries with the loss of parts of the fingers or hand. Keep your hands a safe distance away from the danger area!</li> </ul>
7		<ul style="list-style-type: none"> <li>- <b>Warning - spring-loaded component!</b> Performing work incorrectly can cause severe to fatal injuries. Always observe the maintenance instructions!</li> </ul>
8		<ul style="list-style-type: none"> <li>- <b>Caution - danger due to incorrect towing!</b> Vehicle movements can cause severe or fatal injuries. The traction system brake must be released before towing. Always observe the operating instructions!</li> </ul>
9		<ul style="list-style-type: none"> <li>- <b>Warning - danger from running engine!</b> If the drive engine is left running, this can cause severe or fatal injuries. Never open the engine hood while the engine is running!</li> </ul>
10		<ul style="list-style-type: none"> <li>- <b>Warning - danger of being pulled in by the belt drive!</b> Being pulled in by the belt drive can cause severe injuries to the hands and arms. Keep your hands a safe distance away from the danger area!</li> </ul>

No.	Pictogram	Meaning
11		<ul style="list-style-type: none"> <li>- <b>Warning - danger from improper transportation!</b> Always sit down with the seatbelt fastened to drive the vehicle forwards/in reverse at transport speed! Driving the vehicle when standing up / without the seatbelt fastened can cause severe or fatal injuries. Always observe the operating instructions!</li> </ul>
12		<ul style="list-style-type: none"> <li>- <b>Maintenance for the starter batteries!</b> Maintenance work has to be carried out to the starter batteries! Comply with the maintenance instructions!</li> </ul>

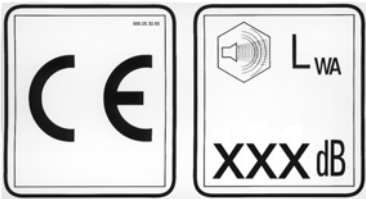
## 6.2 Information signs

No.	Pictogram	Meaning
20	 D956045100	- <b>Operating instructions</b> Position of the storage compartment.
21	 D990000225	- <b>Lifting point</b> Lifting the machine is only permitted at these lifting points!
22	 4812025572	- <b>Lashing point</b> Lashing the machine is only permitted at these points!
23	 D990000268	- <b>Main battery switch</b> Position of the main battery switch.
24	 D990000215	- <b>Diesel fuel</b> Position of the filling point.
24	 4812041952	- <b>Diesel fuel, off, sulphur level &lt; 15 ppm</b> Position of the filling point, specification.
25	 4812043019	- <b>Fuel drainage point</b> Position of the drainage point.





No.	Pictogram	Meaning
26	 4812041943	- <b>Engine oil</b> Position of the filling and control point.
27	 4812002913	- <b>Engine oil drainage point</b> Position of the drainage point.
28	 4812041940	- <b>Engine coolant</b> Position of the filling and control point.
29	 4812041941	- <b>Hydraulic oil</b> Position of the filling point.
30	 4812041942	- <b>Hydraulic oil level</b> Position of the control point.
31	 4812043018	- <b>Hydraulic oil drainage point</b> Position of the drainage point.
32	 4812043037	- <b>Gear oil</b> Position of the filling and control point.

No.	Pictogram	Meaning
33		- <b>Gear oil drainage point</b> Position of the drainage point.


### 6.3 CE marking

No.	Pictogram	Meaning
40		- CE, sound output level

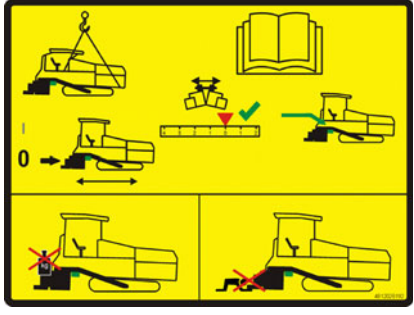
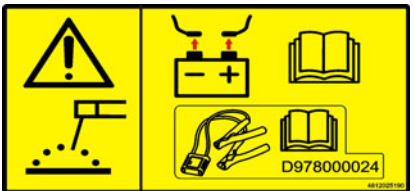

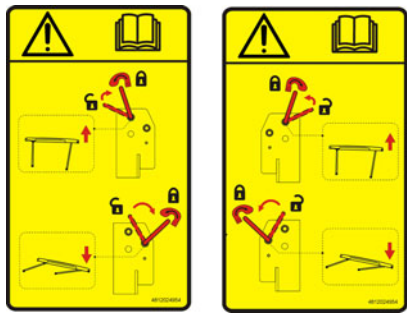
#### 6.4 Instructive symbols, prohibitive symbols, warning symbols

No.	Pictogram	Meaning
50		- Wear ear protectors
51		- Do not spray the area or component with water!
52		- Warning on dangers posed by batteries!
53		- First aid kit

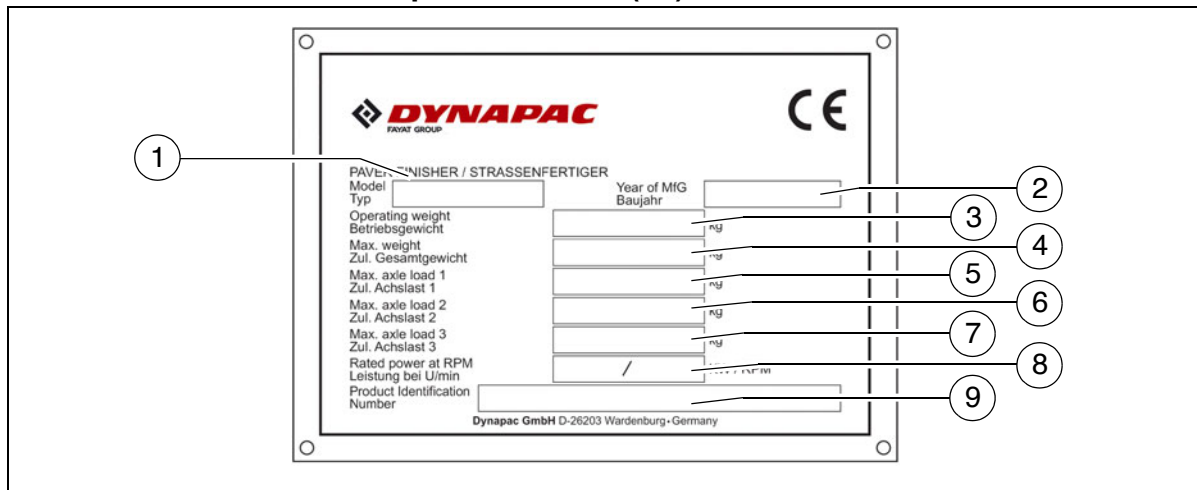
## 6.5 Danger symbols

No.	Pictogram	Meaning	No.
60			<ul style="list-style-type: none"> <li>- <b>XN: Danger to health!</b> This substance can damage your health when absorbed in the body! Substance irritating to skin, eyes and respiratory system; can cause inflammation. Avoid contact with the human body; also avoid inhaling the vapours and seek medical advice if feeling unwell.</li> <li>- <b>N: Environmentally hazardous substance!</b> May cause immediate or delayed danger to the eco-system when released into the environment. Do not release into the sewage system, ground or environment, depending on hazard potential. Comply with special disposal regulations!</li> <li>- Diesel fuel complies with EN590</li> </ul>

## 6.6 Further warnings and operating instructions

No.	Pictogram	Meaning
70		<ul style="list-style-type: none"> <li>- <b>Warning - hazard from unsupported screed!</b> If the screed sags, this can cause severe or fatal injuries! Insert crossbeam lock only at crown adjustment "zero". Screed lock only for transportation! Do not charge the screed or work under it if it is only secured by the crossbeam lock!</li> </ul>
71		<ul style="list-style-type: none"> <li>- <b>Attention - danger of high voltage in vehicle electrical system!</b> Disconnect batteries and electronics during welding work or when charging the batteries, or use a service watchdog D978000024 in accordance with the corresponding instruction manual.</li> </ul>
72		<ul style="list-style-type: none"> <li>- <b>Attention!</b> Only use approved radiator anti-freeze. Never mix different grades of radiator anti-freeze. Always observe the operating instructions!</li> </ul>
73 ○		<ul style="list-style-type: none"> <li>- <b>Caution - danger from faulty roof lock!</b> The roof must be locked correctly in the top or bottom position! Always observe the operating instructions!</li> </ul>

## 6.7 Identification label for the paver finisher (41)

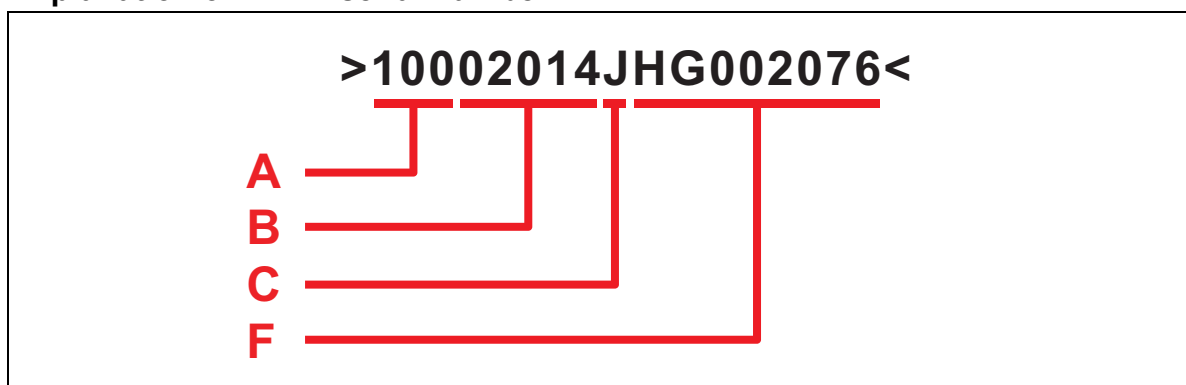


Item	Designation
1	Paver finisher type
2	Year of construction
3	Operating weight, incl. all extension parts, in kg
4	Maximum permitted total weight in kg
5	Max. permissible load on the front axle, in kg
6	Max. permissible load on the rear axle, in kg
7	Maximum permissible axle load of the trailer axle in kg (○)
8	Rated performance in kW
9	Product identification number (PIN)



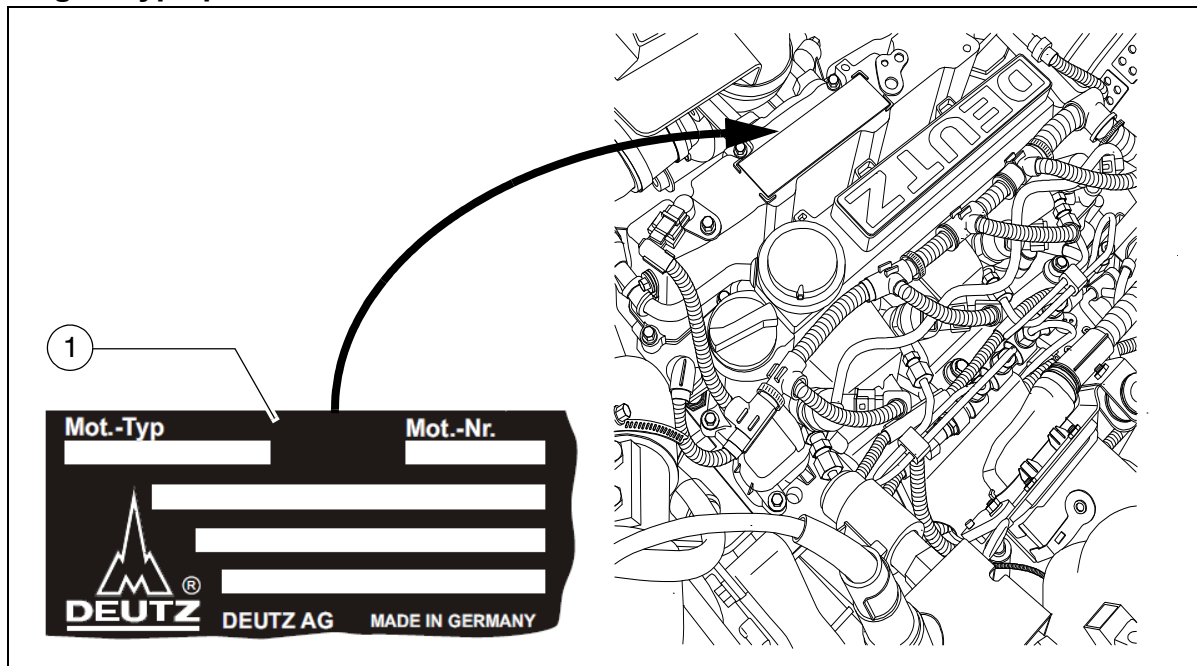
The punched vehicle identification number (VIN) on the paver finisher must match the product identification number (9).

## 6.8 Explanation of 17PIN serial number



A	- Manufacturer
B	- Family/Model
C	- Check letter
F	- Serial number

## 6.9 Engine type plate



The engine type plate (1) is affixed on top of the engine.  
The type plate states the engine type, serial number and engine data.  
Please state the engine number of the engine when ordering spare parts.



See also operating instructions for the engine.

## 7 EN standards

### 7.1 Continuous sound pressure level



The operator always must use ear protection. The emission value at the ear of the driver varies depending on the materials used for paving and may even rise above 85 dB(A). If no ear protection devices are used, hearing can be impaired.

The sound emission level of the paver finisher was measured under free-field conditions according to EN 500-6:2006 and ISO 4872.

**Sound pressure level at the operator's position  
(at the height of the head):**

$L_{AF} = 87.0 \quad \text{dB(A)}$

**Sound capacity level:**

$L_{WA} = 104.0 \quad \text{dB(A)}$

### 7.2 Operating conditions during measurement

The diesel engine was running at maximum speed. The screed was lowered into working position. The tamper and the vibrator were running at min. 50% of their maximum speed, the augers at min. 40% and the conveyors at min. 10% of their maximum speed.

### **7.3 Vibration acting on the entire body**

When the vehicle is used properly, the weighted effective acceleration values at the driver's seat of  $a_w = 0.5 \text{ m/s}^2$  according to DIN EN 1032 are not exceeded.

### **7.4 Vibrations acting on hands and arms**

When the vehicle is used properly, the weighted effective acceleration values at the driver's seat of  $a_{hw} = 2.5 \text{ m/s}^2$  according to DIN EN ISO 20643 are not exceeded.

### **7.5 Electromagnetic compatibility (EMC)**

The following limit values are observed according to the protection requirements of the EMC Directive 2004/108/EC:

- Interference emission according to DIN EN 13309:
  - < 35 dB  $\mu\text{V/m}$  for frequencies of 30 MHz - 1GHz measured at a distance of 10 m
  - < 45 dB  $\mu\text{V/m}$  for frequencies of 30 MHz - 1 GHz measured at a distance of 10 m
- Interference immunity against electrostatic discharge (ESD) according to DIN EN 13309:
  - The paver finisher did not show any discernible reactions to contact discharges of  $\pm 4 \text{ KV}$  and to air discharges of  $\pm 4 \text{ KV}$ .
  - The modifications according to test criterion "A" are being met, i.e. the paver finisher continues to work without malfunction during the test.



Electrical or electronic components and their arrangement may only be modified after written approval has been obtained from the manufacturer.



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# C 10.18 Transportation

## 1 Safety regulations for transportation



Accidents can happen when the paver finisher and the screed are not properly prepared for transportation or when transportation is carried out improperly!

Reduce both the paver finisher and the screed to their basic widths. Remove all protruding parts (such as the automatic levelling system, auger limit switches, aprons, etc.). When transporting under a special permit, secure these parts!

Close the hopper lids and set the hopper transport safeguards. Lift the screed and engage the screed transport safeguards. Convert the protective roof and engage the latch.

Pack all parts that are not permanently fixed to the paver finisher and the screed into the appropriate boxes and into the hopper.

Close all coverings and check that they are securely seated.

In Germany, gas bottles must not be transported on the paver finisher or on the screed.

Disconnect the gas bottles from the gas system and protect them with their caps. Use a separate vehicle to transport them.

When loading via ramps, there is a risk that the machine will slip, tilt or overturn. Drive carefully! Keep people away from the danger area!

### **Additional stipulations for transportation on public roads:**



In Germany, caterpillar paver finishers **must not be driven as self-propelling vehicles** on public roads.

Note that in other countries different regulations may apply.

The operator must be in the possession of a valid permit for vehicles of this type.





The operating panel must be moved to the side of the oncoming traffic and secured in this position.

The driving lights must be properly adjusted.

Only attachments and extension parts may be transported in the hopper, no material or gas bottles!

If necessary, the operator must be assisted by a second person when driving on public roads – especially at road crossings and junctions.

## 2 Transportation on low-bed trailers

-  Reduce the paver finisher and the screed to their basic widths; also remove any attached side plates.  
The maximum approach angle is indicated in the section entitled "Technical data"!
-  Check the fill level of the operating substances so that these do not escape when driving on an incline.
-  Attachment and loading equipment must meet the conditions of the applicable accident prevention regulations!
-  The weight of the paver finisher must be taken into consideration when selecting the attachment and loading equipment!

### 2.1 Preparations

- Prepare the paver finisher for transportation (see chapter D).
- Remove all overlaying or loose parts from finisher and screed (see also Screed operating instructions). Store these parts in a safe place.

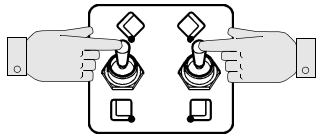
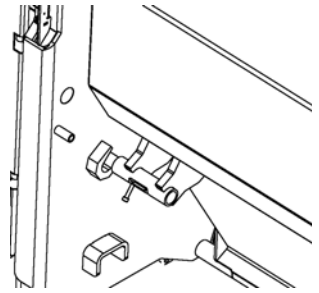
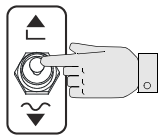
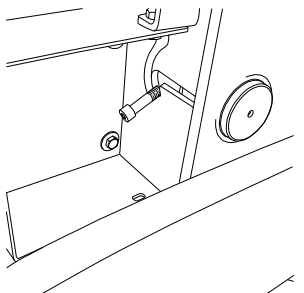
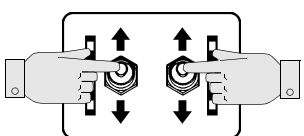
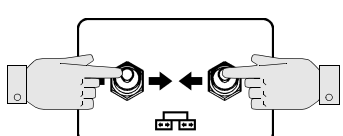
-  Move the auger to the uppermost position to avoid collisions!



When the screed is operated with the optional gas heating system:








- Remove the gas bottles for the screed heating system:
  - Close the main shut-off valves and the bottle valves.
  - Turn off the valves on the bottles and remove the gas bottles from the holder.
- Transport the gas bottles on a second vehicle; heed all applicable safety regulations.



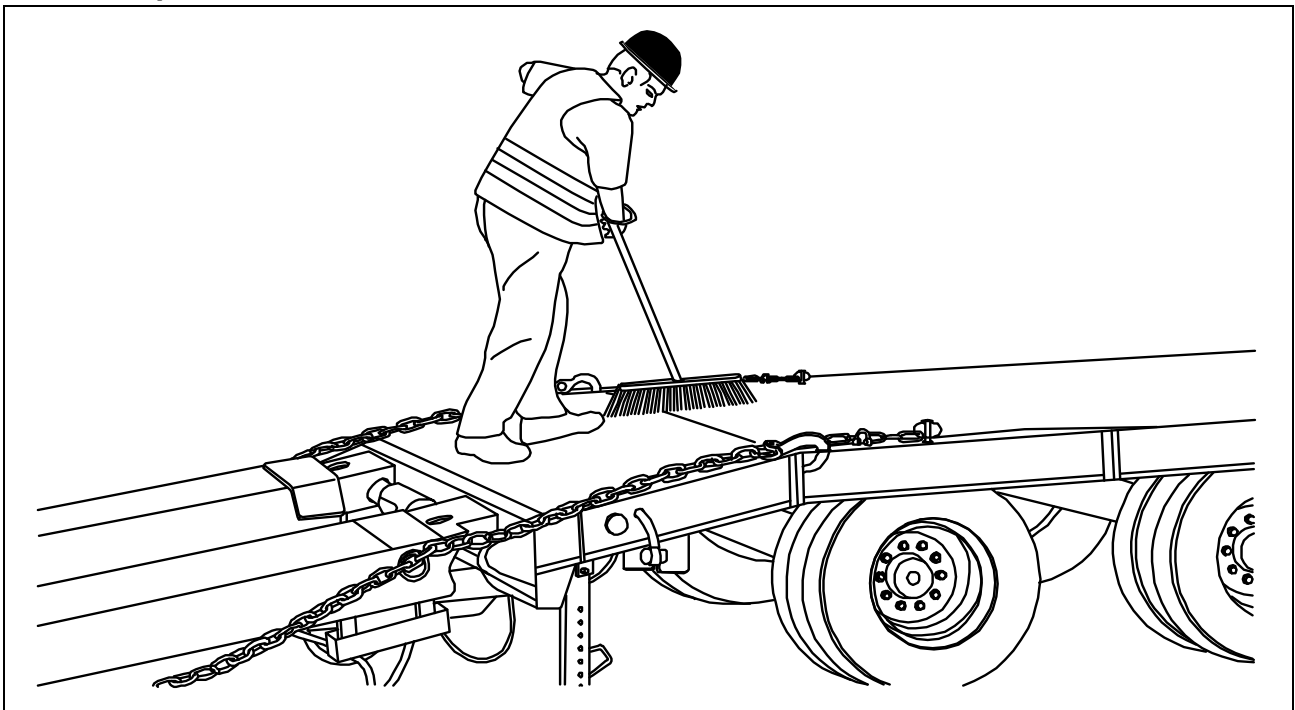
Operation	Travelling direction
- Close the hopper lids.	
- Engage both hopper transport safeguards.	
- Lift the screed.	
- Insert the transportation safeguards of the screed.	
- Fully extend the levelling cylinder.	
- Retract the screed parts until the screed matches the basic width of the paver finisher.	




### 3 Securing the load

-  The following instructions for securing the load on the low-bed trailer consist merely in examples of how to secure the load correctly.
-  Always comply with the local regulations for securing the load and for correct use of load securing equipment.
-  Normal driving mode also includes emergency braking, evasive manoeuvres and poor road surfaces.
-  Use should be made of the different methods available for securing loads (positive fit, force connection, diagonal lashing, etc.) in accordance with the specific transport vehicle.
-  The low-loader must have the necessary number of lashing points with a lashing strength of LC 4,000 daN.
-  The total height and total width must not exceed the maximum permissible dimensions.
-  The ends of lashing chains and straps must be secured to prevent them working loose and falling down unintentionally!

#### 3.1 Prepare the low loader

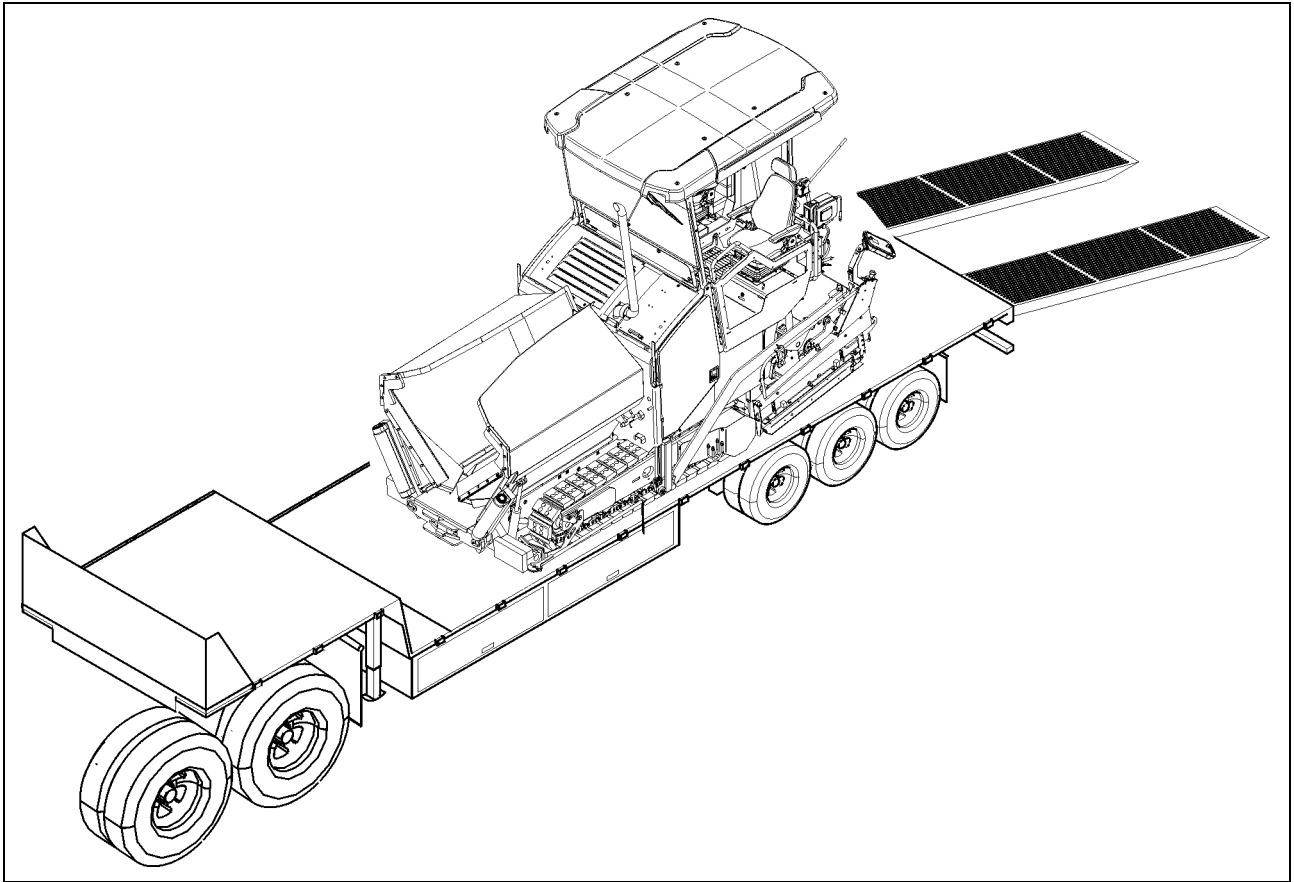



-  The floor of the loading space must always be undamaged, free of oil and mud, dry (residual moisture is permitted without accumulations of water) and swept clean!

### 3.2 Driving onto the low-bed trailer



Make sure that there are no persons in the danger area during loading.



NOTE	Caution! Possible collision of parts
	<ul style="list-style-type: none"><li>- When driving up inclines, lock the lane clearer in the upper position.</li></ul>

- Use the work gear and low engine speeds to drive onto the low-bed trailer.

### 3.3 Lashing equipment

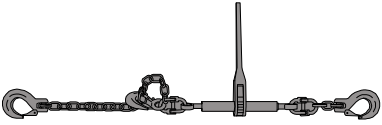


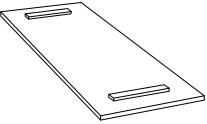
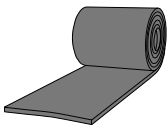
Use the load securing equipment, lashing straps and chains belonging to the vehicle. Additional shackles, eyebolts, edge guards and non-slip mats may be needed depending on the type of load securing equipment.



Always comply with the stated values for permitted lashing force and load rating!



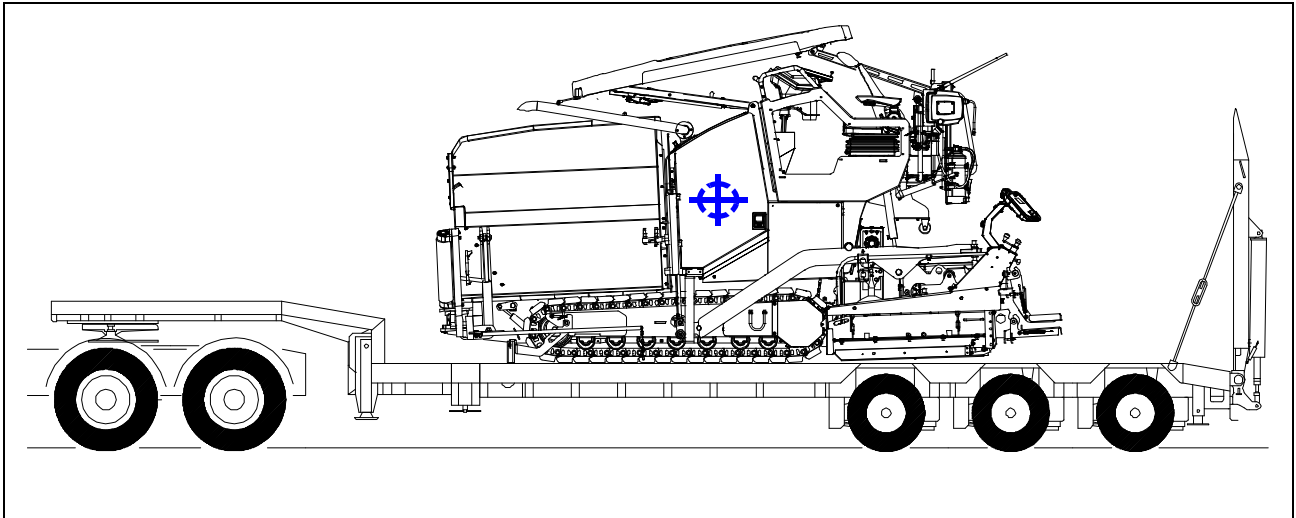
Always tighten the lashing chains and straps hand-tight (100-150 daN).

- Lashing chain permissible lashing force LC 4,000 daN	
- Lashing straps permissible lashing force LC 4,000 daN	
- Shackles Load rating 4,000 daN	
- Edge guards for lashing straps	
- Non-slip mats	



Lashing equipment must be checked by the user for any signs of damage before use. On detecting any signs of damage that affect safety, the lashing equipment must be withdrawn from further use.

### 3.4 Loading



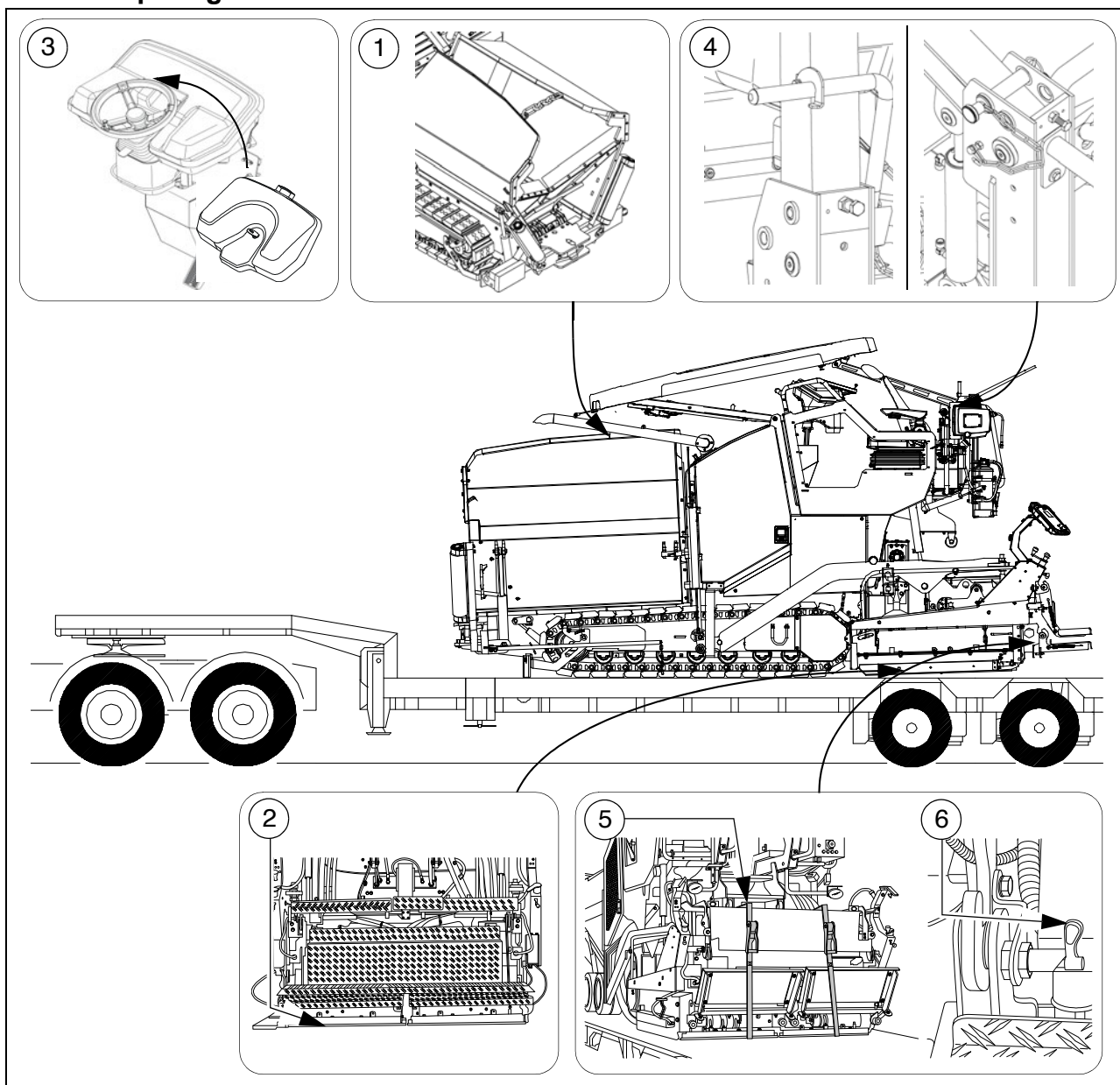
Pay attention to load distribution during loading!

On some vehicles, the kingpin load is too low so that the load has to be positioned further to the back of the vehicle.

Always heed the details regarding load distribution stipulated for the vehicle together with the centre of gravity of the paver finisher.

If the paver finisher has to be placed in the front section of the low-bed trailer for load distribution reasons or on account of the length of the paver finisher, ensure that it stands freely.

### 3.5 Preparing the vehicle



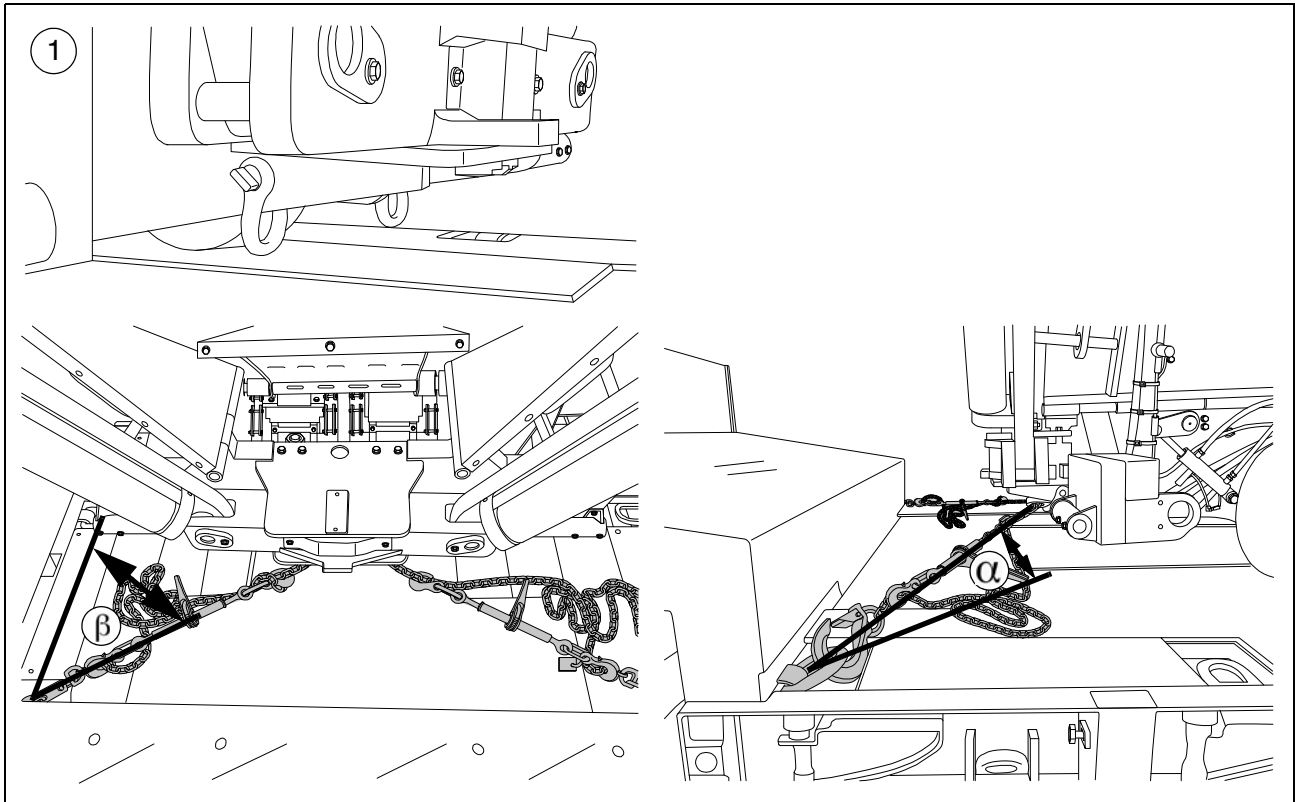
After the vehicle has been positioned on the low-loader, the following preparations must be carried out:




- Close hopper, set hopper transport safeguards (1).
- Position the non-slip mats under the screed across the whole width of the vehicle (2) and lower the screed.
- Switch off the paver finisher.
- Attach and secure the protective hood (3) to the operating panel.
- Lower the roof and set the retainers (4) properly on both sides. (see section entitled "Protective roof")
- Fold up the walkway plates of the screed and fasten on both sides using lashing straps (5) and the existing retaining pins (6).

## 4 Securing the load

### 4.1 Securing at the front

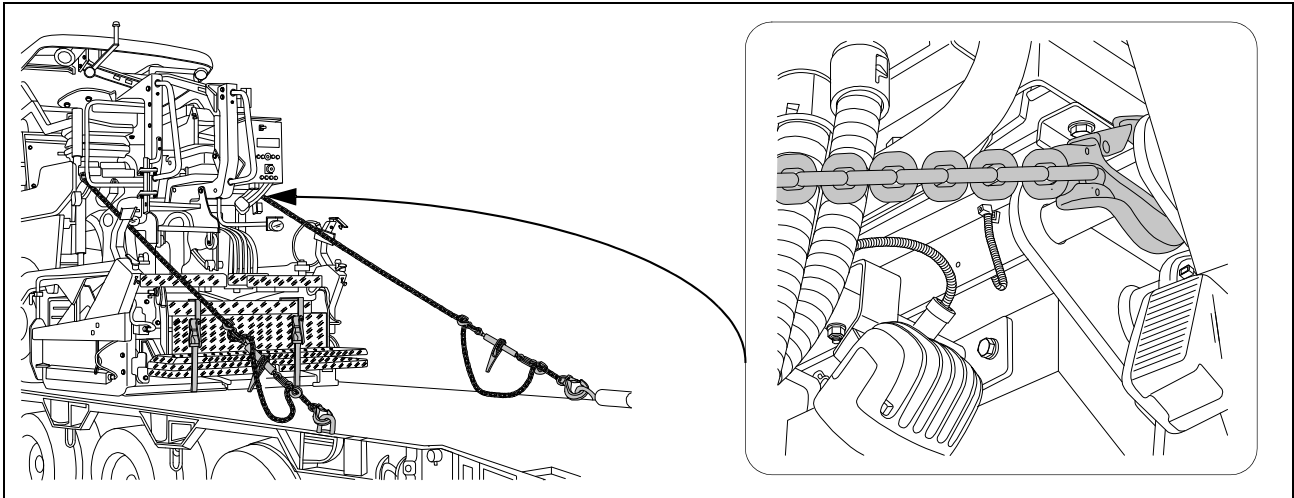
#### Fasten lashing chains at the front



-  Diagonal lashing secures the paver finisher at the front using the lashing points on the paver finisher and on the low-load trailer. Fasten the lashing chains as shown.
-  Shackles have to be used: To ensure that lashing chains can be fitted securely on the left and on the right, a shackle has to be fitted at each of the lashing points (1) provided on the paver finisher for the lashing equipment
-  The lashing angles should be: "β" between 6°-55° and "α" between 20°-65°!

## 4.2 Securing at the rear

### Fasten lashing chains



Diagonal lashing secures the paver finisher at the rear using the lashing points on the paver finisher and on the low-load trailer.  
Fasten the lashing chains as shown.



Permissible angles see "Securing at the front".

### 4.3 After transportation


- Remove the attachment devices.
- Raise protective roof:



See section entitled "Protective roof"

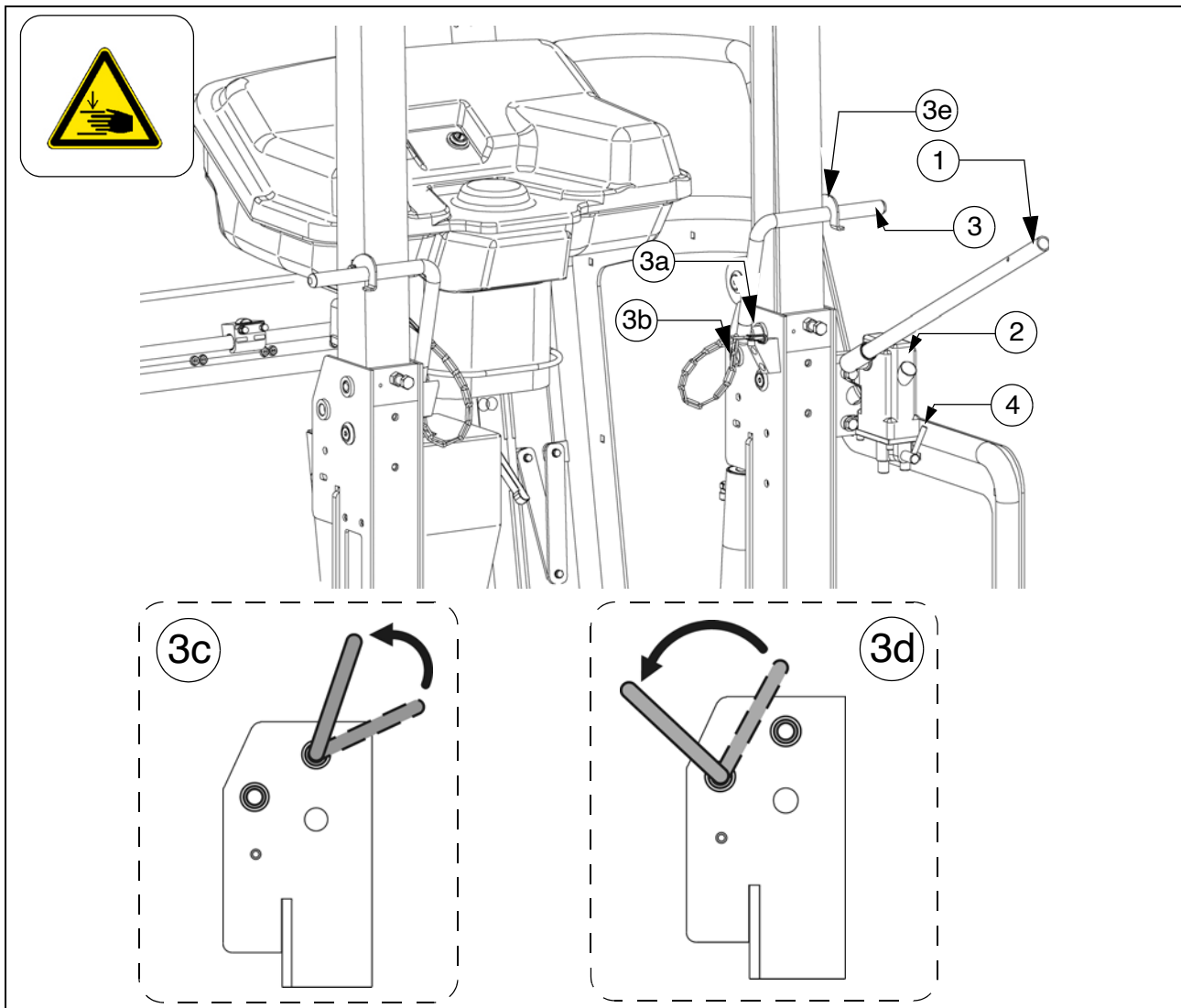
- Start engine.
- Lift the screed to the transportation position.
- Drive from the trailer at a low engine revs/speed.
- Park the paver finisher in a secure spot, lower the screed and switch off the engine.
- Remove the key and/or cover the operating panel with the protective hood and secure it.

## Protective roof (○)

NOTE	Caution! Possible collision of parts
	<p>The following adjustments must be made before lowering the roof:</p> <ul style="list-style-type: none"><li>- Both seat consoles pushed in.</li><li>- Backrests and armrests of driver's seats tilted forwards.</li><li>- Operating panel in lowest position and locked with the vandalism protection facility.</li><li>- Front window closed.</li><li>- Engine hood closed.</li></ul>

The protective roof can be raised and lowered with a manual hydraulic pump.

Version 1:



The exhaust pipe is lowered or raised together with the roof.

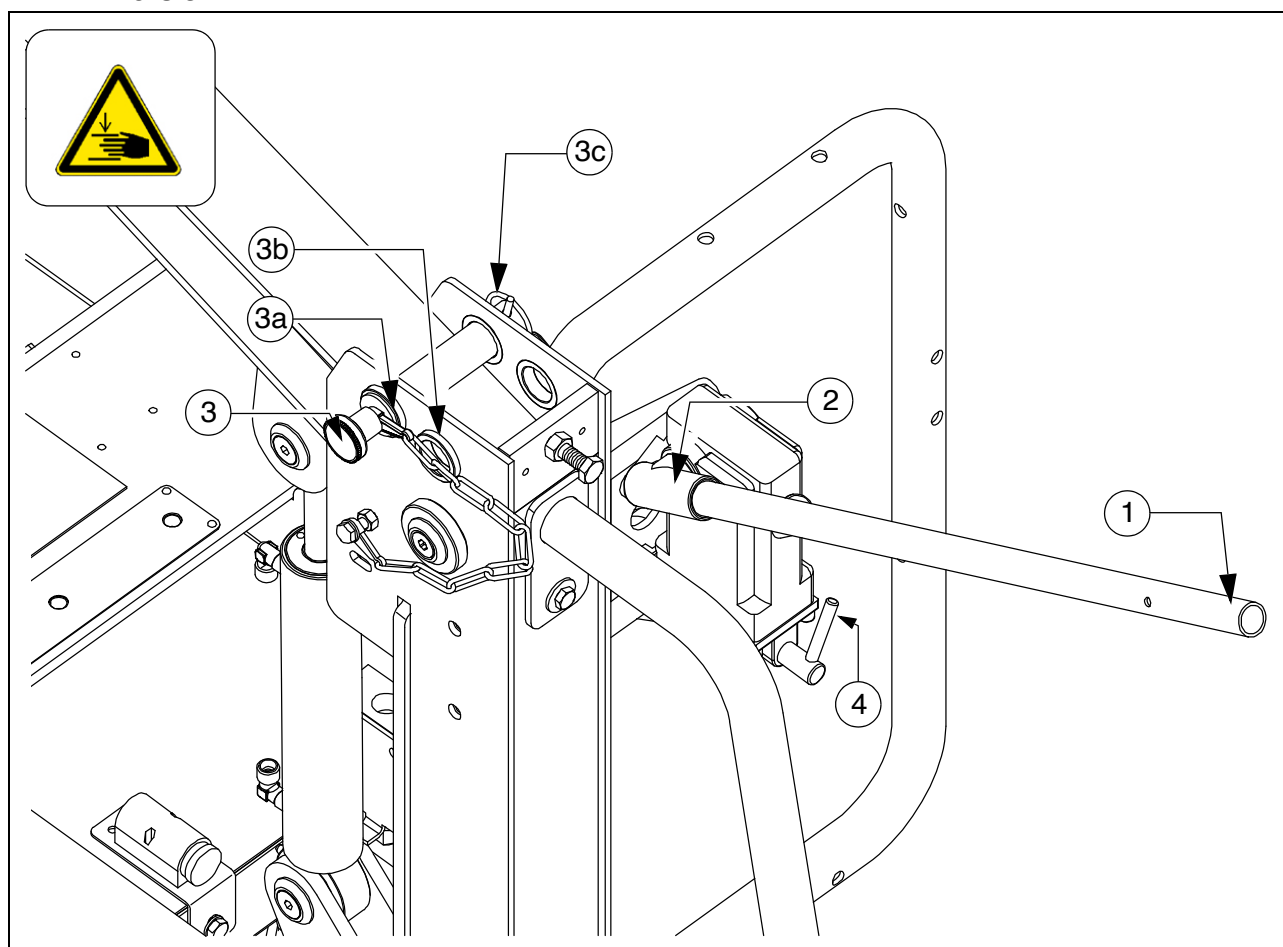
- Connect the pump lever (1) to the pump (2).
- Tighten bolts (3) on both sides of the roof.
- Set the adjustment lever (4) to the "Raise" or "Lower" position.
- Operate the pump lever (1) until the roof has reached the upper or lower limit position.
- Bolt (3) must be inserted in the corresponding hole on both sides of the roof:
  - Position (3a): Roof raised.
  - Position (3b): Roof lowered.



The bolt must be inserted with the alignment as shown and then swivelled against the roof beam. Possibly adjust the position of the roof with the hand pump to insert the bolt.

- Position (3c): Roof raised.
- Position (3d): Roof lowered.
- Secure bolt with hook (3e).

Version 2:



- Connect the pump lever (1) to the pump (2).
- Tighten bolts (3) on both sides of the roof.
- Set the adjustment lever (4) to the "Raise" or "Lower" position.
- Operate the pump lever (1) until the roof has reached the upper or lower limit position.
- Bolt (3) must be inserted in the corresponding hole on both sides of the roof:
  - Position (3a): Roof raised.
  - Position (3b): Roof lowered.
  - Secure bolt with split pin (3c).

## 5 Transportation



Reduce the paver finisher and the screed to their basic widths; also remove any attached side plates.

### 5.1 Preparations

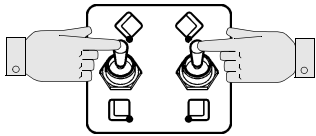
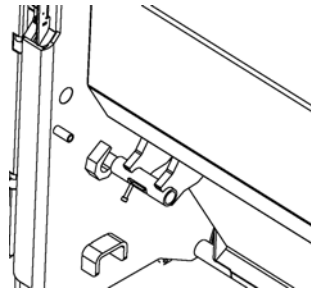
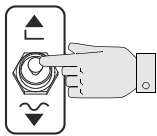
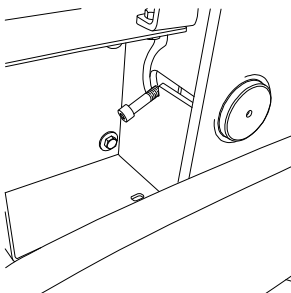
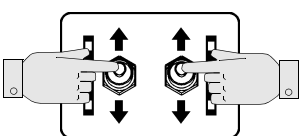
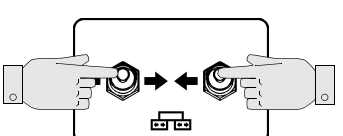
- Prepare the paver finisher for transportation (see chapter D).
- Remove all overlaying or loose parts from finisher and screed (see also Screed operating instructions). Store these parts in a safe place.



When the screed is operated with the optional gas heating system:

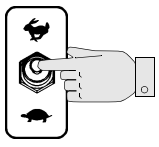
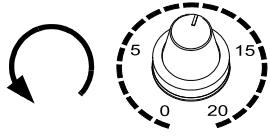


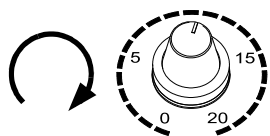
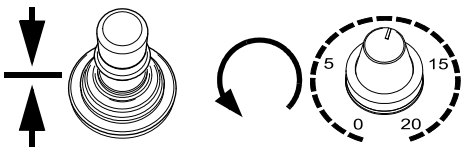
- Remove the gas bottle for the screed heater system:
  - Close main shut-off valve and bottle valve.
  - Turn off the valves on the bottles and remove the gas bottles from the holder.
  - Transport the gas bottle on a second vehicle, adhering to all safety regulations.



Operation	Travelling direction
<ul style="list-style-type: none"> <li>- Close the hopper lids.</li> </ul>	
<ul style="list-style-type: none"> <li>- Engage both hopper transport safeguards.</li> </ul>	
<ul style="list-style-type: none"> <li>- Lift the screed.</li> </ul>	
<ul style="list-style-type: none"> <li>- Insert the transportation safeguards of the screed.</li> </ul>	
<ul style="list-style-type: none"> <li>- Fully extend the levelling cylinder.</li> </ul>	
<ul style="list-style-type: none"> <li>- Retract the screed parts until the screed matches the basic width of the paver finisher.</li> </ul>	





## 5.2 Driving mode

Operation	Travelling direction
<ul style="list-style-type: none"> <li>- Set the fast/slow switch to "Hare" if necessary.</li> </ul>	
<ul style="list-style-type: none"> <li>- Turn the preselector to "zero".</li> </ul>	
<ul style="list-style-type: none"> <li>- Swivel the drive lever to maximum.   The vehicle already advances slightly on deflecting the drive lever!</li> </ul>	
<ul style="list-style-type: none"> <li>- Adjust required vehicle speed with the preselector.</li> </ul>	
<ul style="list-style-type: none"> <li>- To stop the vehicle, swivel the drive lever to the middle setting and set the preselector to "zero".</li> </ul>	



Press the emergency stop button when a dangerous situation arises!

## 6 Loading by crane

 <b>WARNING</b>	<b>Danger from suspended loads</b>
	<p>Crane and/or lifted vehicle can tip when lifted and cause injuries!</p> <ul style="list-style-type: none"> <li>- The vehicle may only be raised at the marked lifting points.</li> <li>- Heed the operating weight of the vehicle.</li> <li>- Do not enter the danger zone.</li> <li>- Use only lifting gear that can bear the load.</li> <li>- Do not leave any load or loose parts on the vehicle.</li> <li>- Comply with all further information in these instructions and in the safety manual.</li> </ul>



Use only lifting gear that can bear the load.  
 (See chapter B for weights and dimensions).

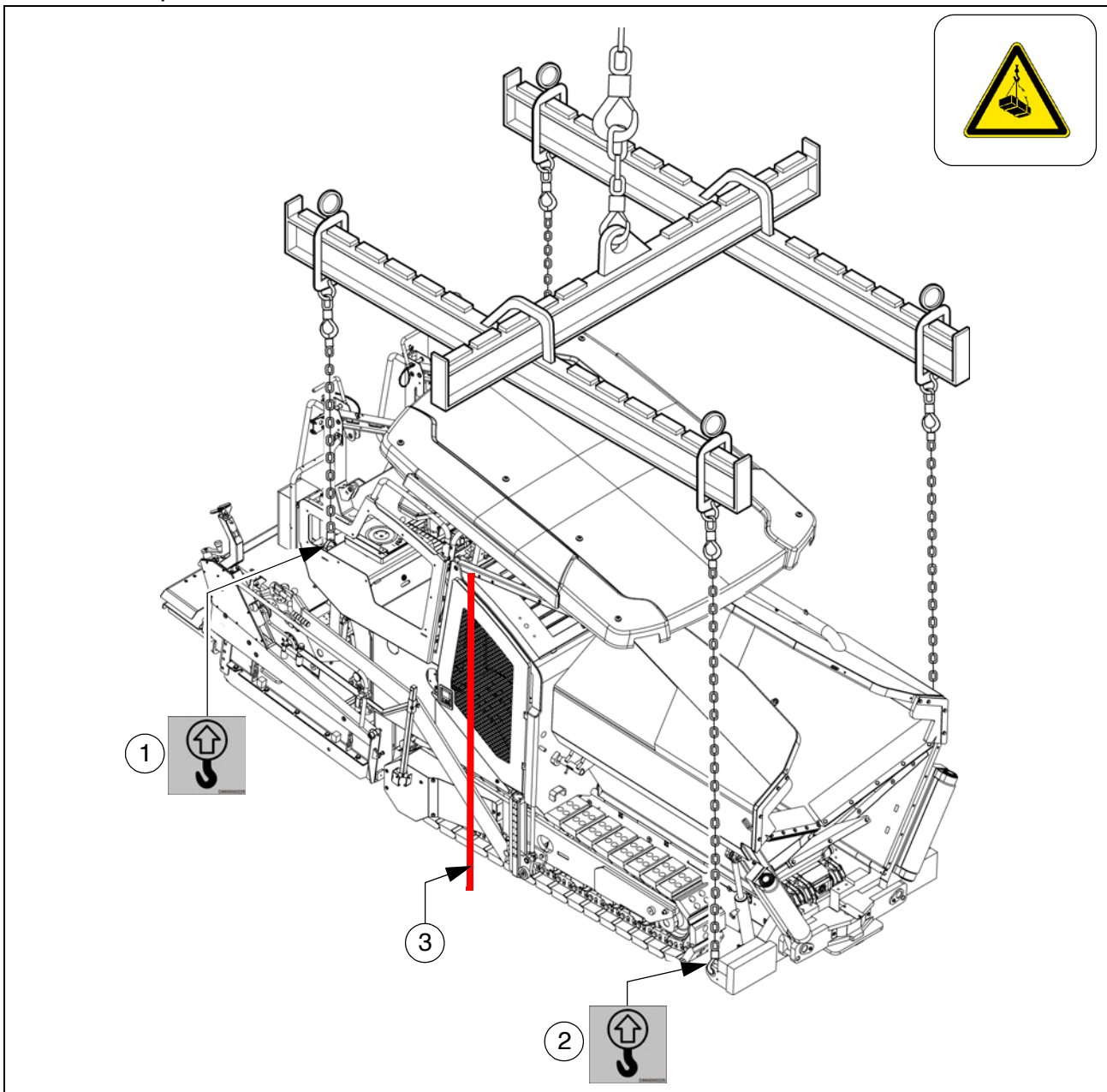




Attachment and loading equipment must meet the conditions of the applicable accident prevention regulations!



The vehicle's centre of gravity is dependent on the screed which is mounted.

Example:



-  Four lifting eyes (1, 2) are provided for loading the vehicle with a crane.
-  Depending on the type of screed which is used, the paver finisher's centre of gravity, with the screed mounted, is located in area (3) of the vehicle.
- Secure vehicle wherever it is parked up.
- Engage the transport safeguards.
- Remove any attachments and extension parts from the paver finisher and the screed until the basic width has been attained.
- Take off all protruding or loose parts and the gas bottles of the screed heater (see chapters E and D).
- Lower the protective roof (○):



See section entitled "Protective roof"

- Attach lifting gear to the four attachment points (1, 2).



The max. permissible attachment point load at the attachment points is 73.0 kN.



The permissible load applies in the vertical direction!



Make sure that the paver finisher remains in a horizontal position during transportation!

## 7 Towing



Heed all regulations and apply all safety measures applicable for towing heavy construction machines.



The towing vehicle must be capable of securing the paver finisher, even on slopes.

Use only approved tow bars!

If necessary, remove any attachments and accessories from the paver finisher and the screed until the basic width has been attained.



A hand pump (1) is located in the engine compartment (left side); it must be actuated to be able to tow the machine.

Pressure for releasing the traction system brakes is built up with the hand pump.

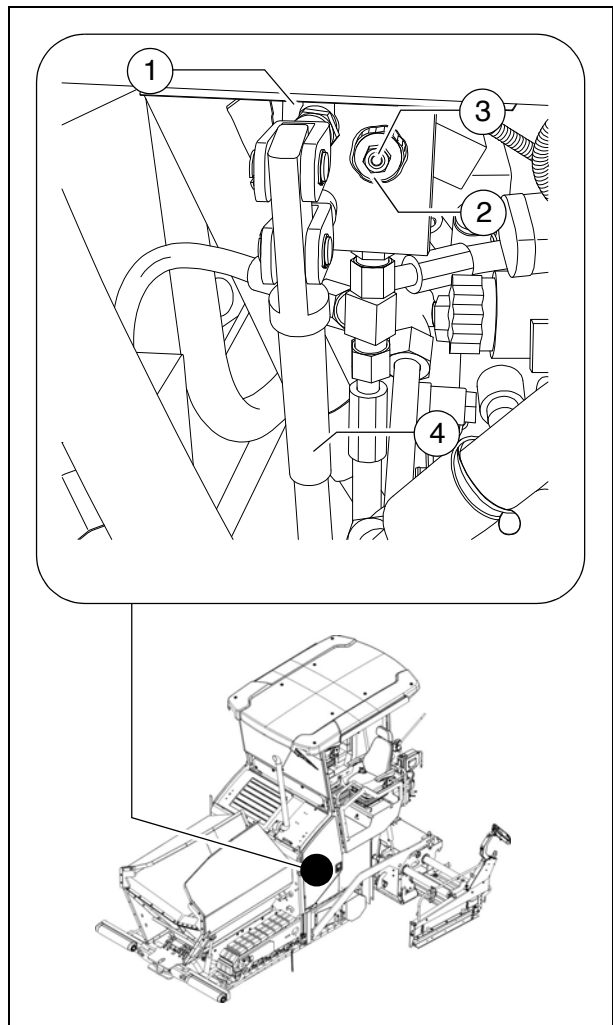
- Release lock nut (2), screw threaded dowel (3) into pump as far as possible and secure with lock nut.
- Actuate lever (4) of hand pump until sufficient pressure has been built up and traction system brakes have been released.




On completion of the towing process, restore the initial status.




Only release the traction system brakes when the machine is sufficiently secured against accidental rolling or is already properly connected to the towing vehicle.





 Two high-pressure cartridges (6) are located on both of the travel drive pumps (5). The following activities must be carried out to activate the towing function:


- Loosen lock nut (7) half a turn.
- Screw in the bolt (8) until increased resistance occurs. Then screw the bolt a further half turn into the high-pressure cartridge.
- Tighten the lock nut (7) to a torque of 22 Nm.


 On completion of the towing process, restore the initial status.

- Attach the tow bar to the coupling (9) located in the bumper.

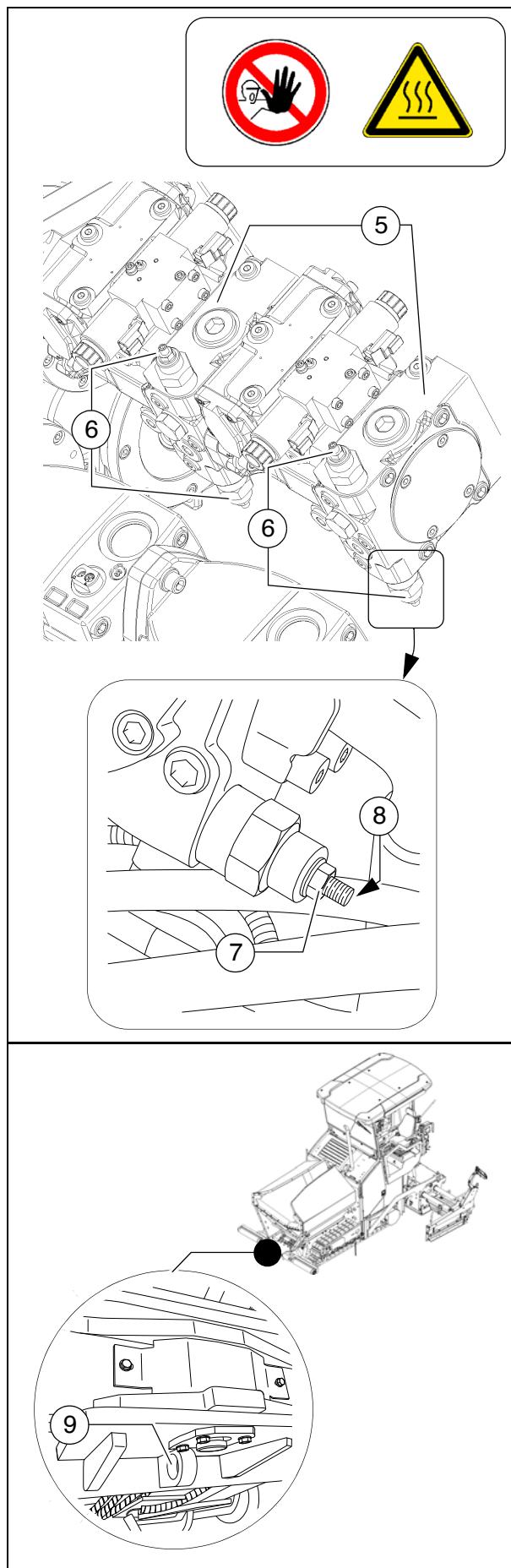
 The fastening point for the towing device is in the vehicle frame, below the push roller.

 Now carefully and slowly tow the paver finisher out of the construction area.

 Only ever tow the shortest distance to the means of transport or the next parking possibility.

 The max. permissible towing speed is 10 m/min!  
In hazardous situations, a towing speed of 15 m/min is only permitted temporarily.

 The max. permissible towing eye (9) load is: 150 kN

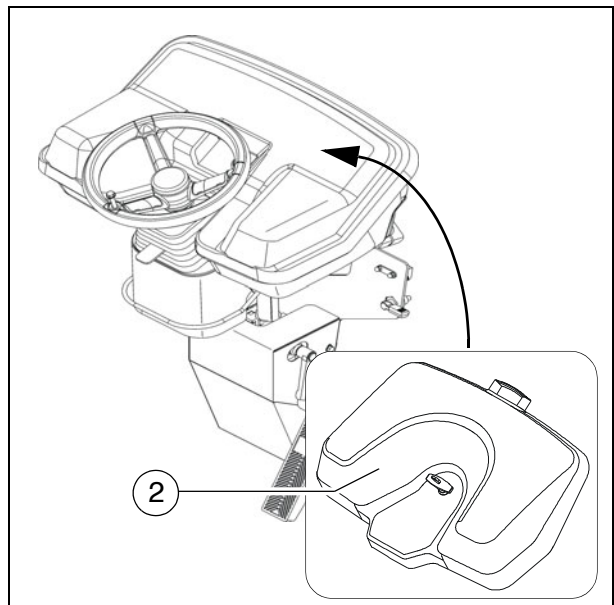
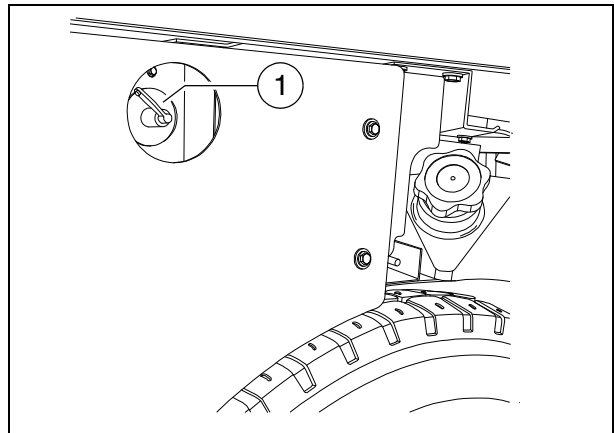


## 8 Safely parking the vehicle

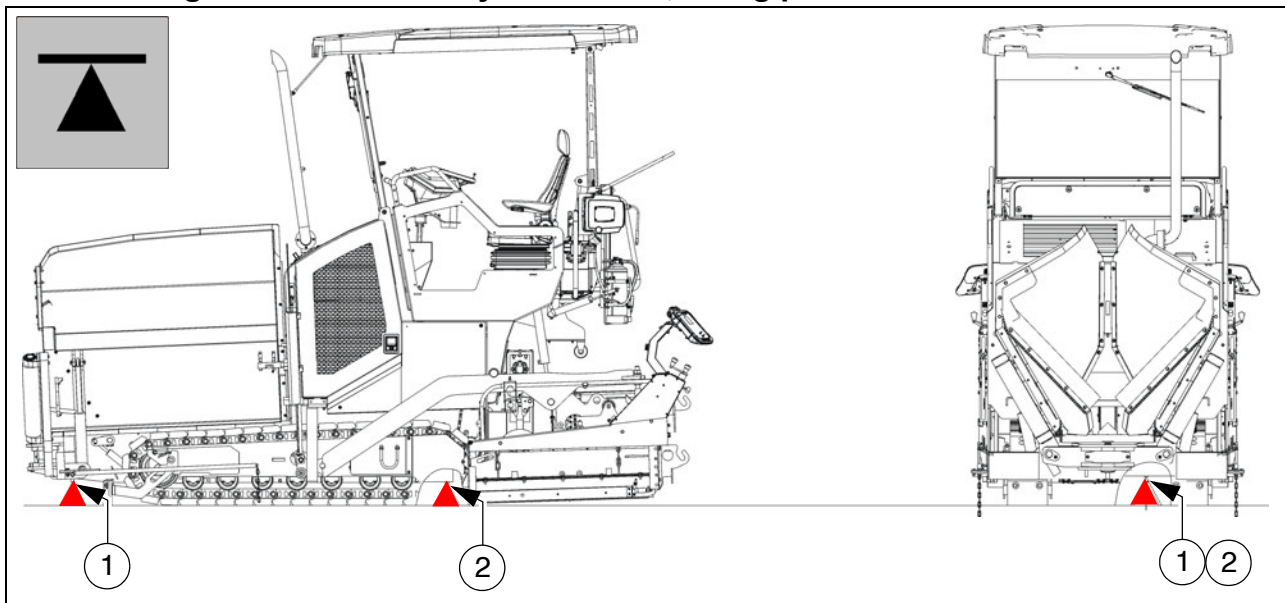


When the paver finisher is parked at a location accessible to the public, it must be secured in such a way that unauthorised persons or playing children cannot damage the vehicle.

- Pull off the ignition key and the main switch (1) and take it with you – do not hide them somewhere on the machine.
- Protect the operating panel with the dust cover (2) and lock it.
- Store loose parts and accessories in a safe place.



## 8.1 Lifting the vehicle with hydraulic lifts, lifting points



- STOP** The hydraulic lift must be rated for at least 10t.
- STOP** Always choose a horizontal surface with adequate load rating as installation surface for the hydraulic lift!
- STOP** Make sure that the hydraulic lift is securely and correctly positioned!
- STOP** The hydraulic lift is only intended to lift a load and not as a support. Work should only be performed to and under raised vehicles when they have been secured and correctly supported to prevent them from tilting over and rolling or sliding away.
- STOP** Roller-type jacks must not be moved when under load.
- STOP** Chocks or supporting beams positioned so that they cannot be shifted or tilted must be adequately dimensioned and be able to take the corresponding weight.
- STOP** There must not be anyone on the vehicle while it is being lifted.
- STOP** All raising and lowering work must be carried out uniformly with all hydraulic lifts in use! Always check and observe horizontal alignment of the load!
- STOP** Always carry out raising and lowering work with several people together, with an additional person monitoring progress!
- STOP** Only positions (1) and (2) in the left and right side of the vehicle are permissible lifting points!

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# D 10.18 Operation

## 1 Safety regulations



Starting the engine, the travel drive, the conveyor, the auger, the screed or the lifting devices can cause injuries or even the death of persons.

Make sure before starting any of these devices that no-one is working at, in or beneath the paver finisher or within its danger area!

- Do not start the engine or do not actuate any controls when this is expressly forbidden!  
Unless otherwise specified, the controls may only be actuated when the engine is running!









Never crawl into the auger tunnel or step into the hopper or onto the conveyor. Danger to life!

- Always make sure during work that no-one is endangered by the vehicle!
- Ensure that all protective covers and hoods are fitted and secured accordingly!
- Immediately rectify damage which has been ascertained! Operation must not be continued when the vehicle is defective!
- Do not let any persons ride on the paver finisher or the screed!
- Remove obstacles from the road and the work area!
- Always try to choose a driver's position that is opposite to the flowing traffic! Lock the operating panel and the driver's seat.
- Maintain sufficient safety clearance from overhanging objects, other vehicles and points of danger!
- Be careful when travelling on rough terrain to keep the paver finisher from slipping, tipping or turning over.




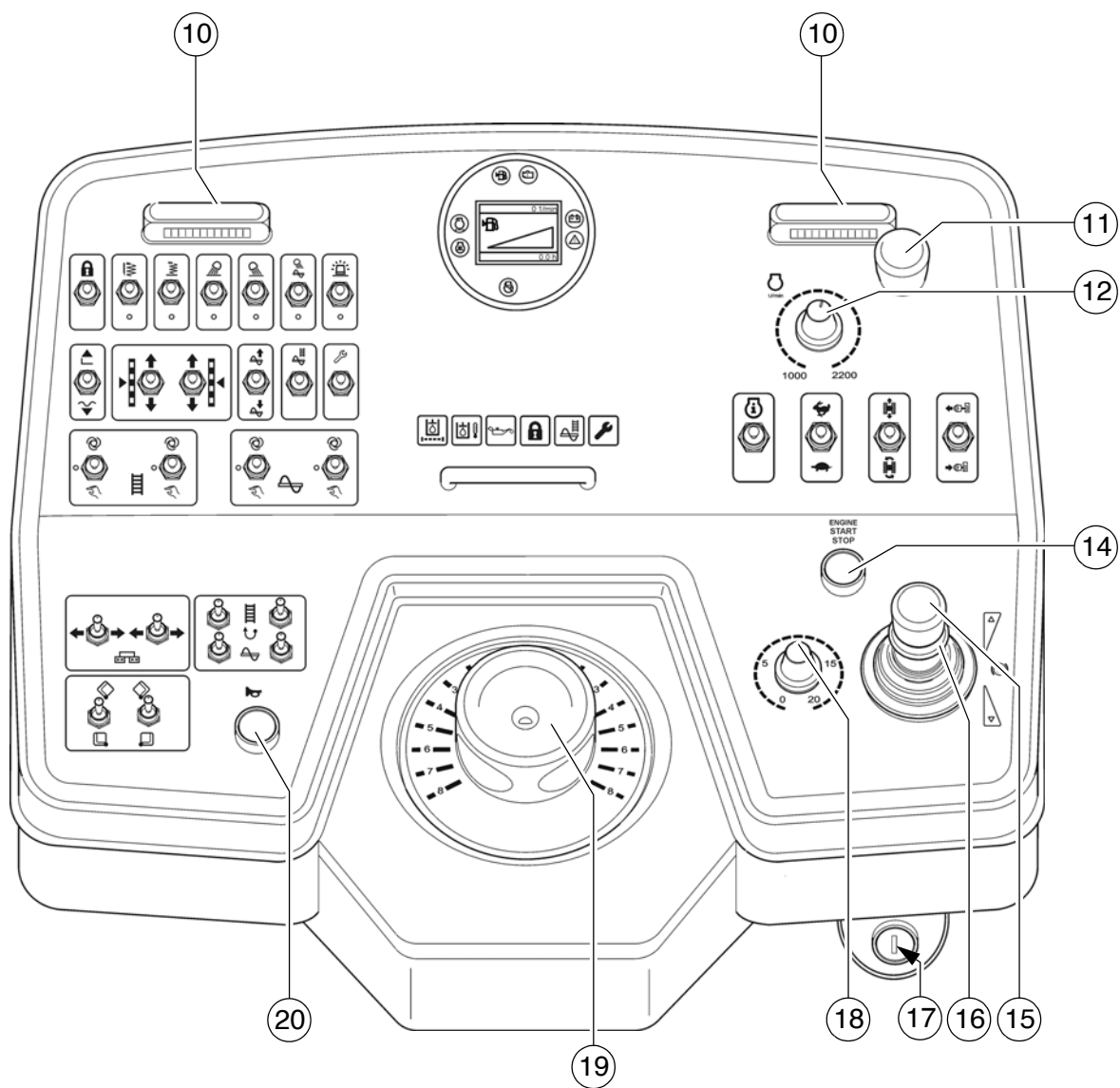
Always be the master over the vehicle; never try to use it beyond its capacities!



 <b>DANGER</b>	<b>Danger due to improper operation</b>
	<p>Improper operation of the vehicles can cause severe to fatal injuries!</p> <ul style="list-style-type: none"> <li>- The vehicle may only be used in the proper manner for its intended purpose.</li> <li>- The vehicle may only be operated by trained staff.</li> <li>- The vehicle operators must have made themselves familiar with the contents of the operating instructions.</li> <li>- Avoid jerky movements of the vehicle.</li> <li>- Do not exceed the permissible angle of rise and slope.</li> <li>- Keep hoods and covering parts closed during operation.</li> <li>- Comply with all further information in these instructions and in the safety manual.</li> </ul>
 <b>WARNING</b>	<b>Danger of being pulled in by rotating or conveying vehicle parts</b>
	<p>Rotating or conveying vehicle parts can cause severe or fatal injuries!</p> <ul style="list-style-type: none"> <li>- Do not enter the danger zone.</li> <li>- Do not reach into rotating or conveying parts.</li> <li>- Only wear close-fitting clothing.</li> <li>- Comply with the warning and information signs on the vehicle.</li> <li>- Stop the engine and remove the ignition key for any maintenance work.</li> <li>- Comply with all further information in these instructions and in the safety manual.</li> </ul>
 <b>WARNING</b>	<b>Danger of crushing due to moving vehicle parts</b>
	<p>Vehicle parts performing movements can cause severe or fatal injuries!</p> <ul style="list-style-type: none"> <li>- Remaining in the vehicle's danger zone during operation is prohibited!</li> <li>- Do not reach into the danger zone.</li> <li>- Comply with the warning and information signs on the vehicle.</li> <li>- Comply with all further information in these instructions and in the safety manual.</li> </ul>

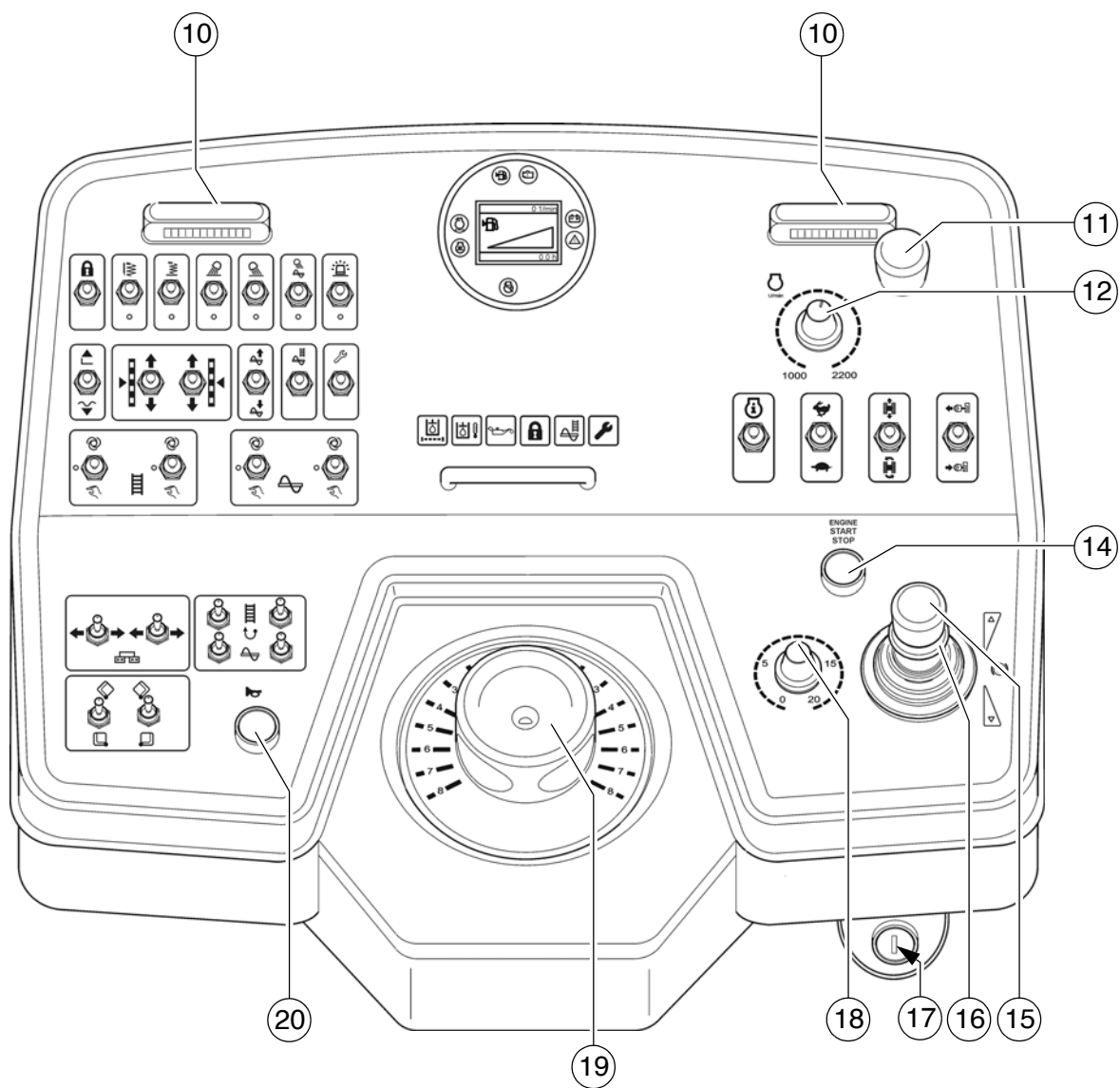
## 2 Controls







### 2.1 Operating panel

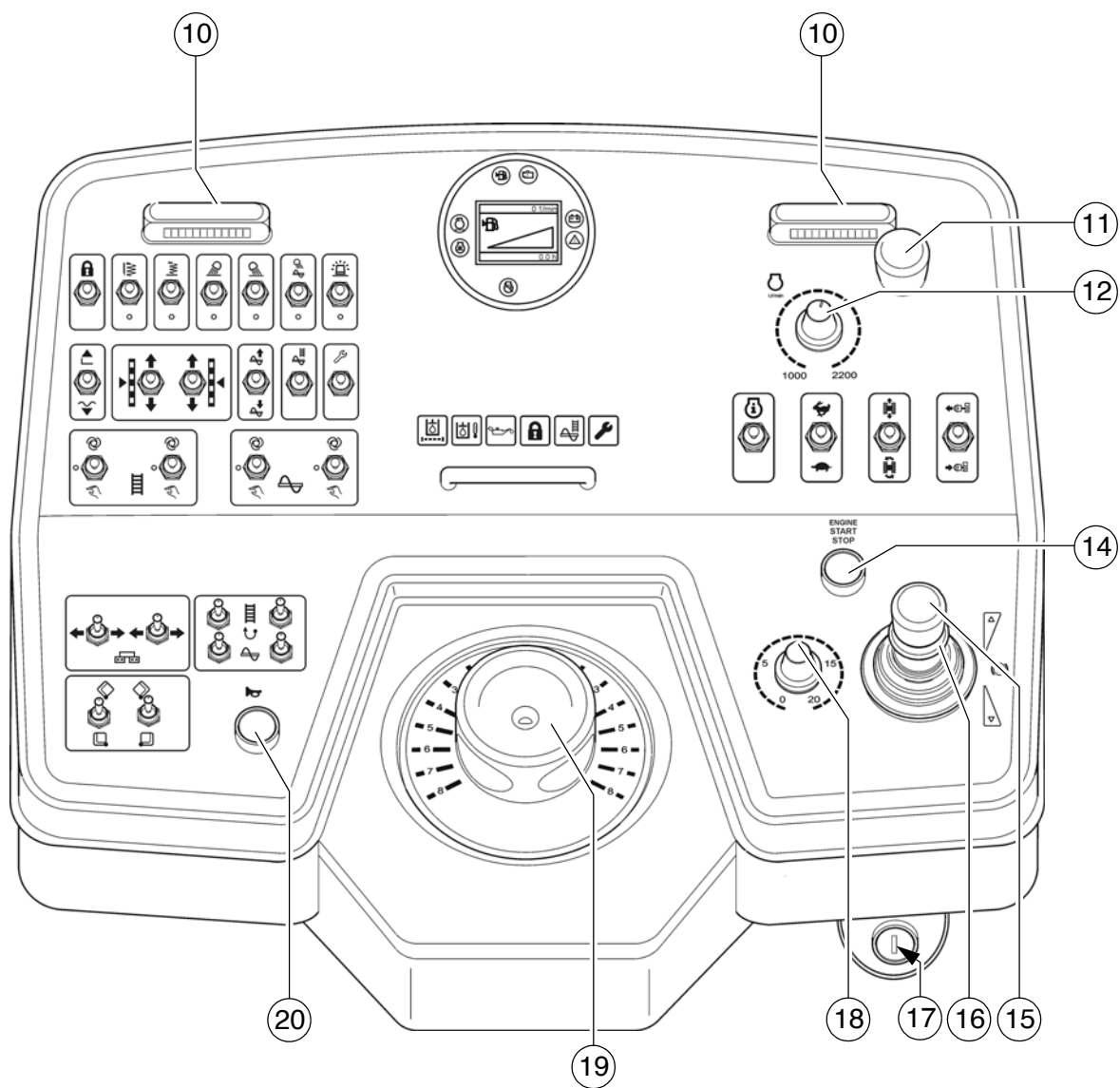
NOTE	Heed any possible start inhibit!
	<ul style="list-style-type: none"><li>- All detent switch functions that can pose a hazard when the diesel engine starts up (turning to the side, conveying function of auger and conveyor) prevent the engine from starting (start inhibit) when switched on or when set to "MANUAL" or "AUTO". These functions must be "Straight-ahead travel" or "OFF".</li></ul>










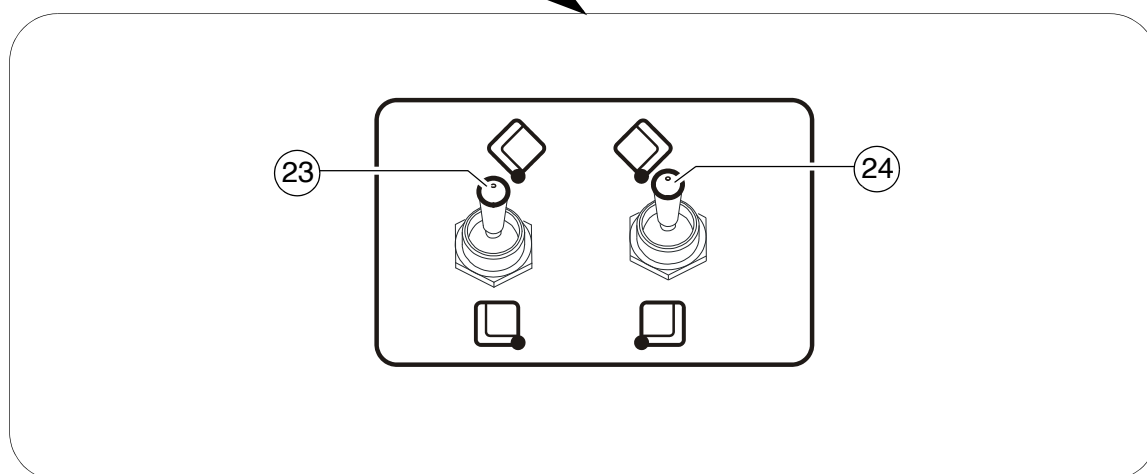
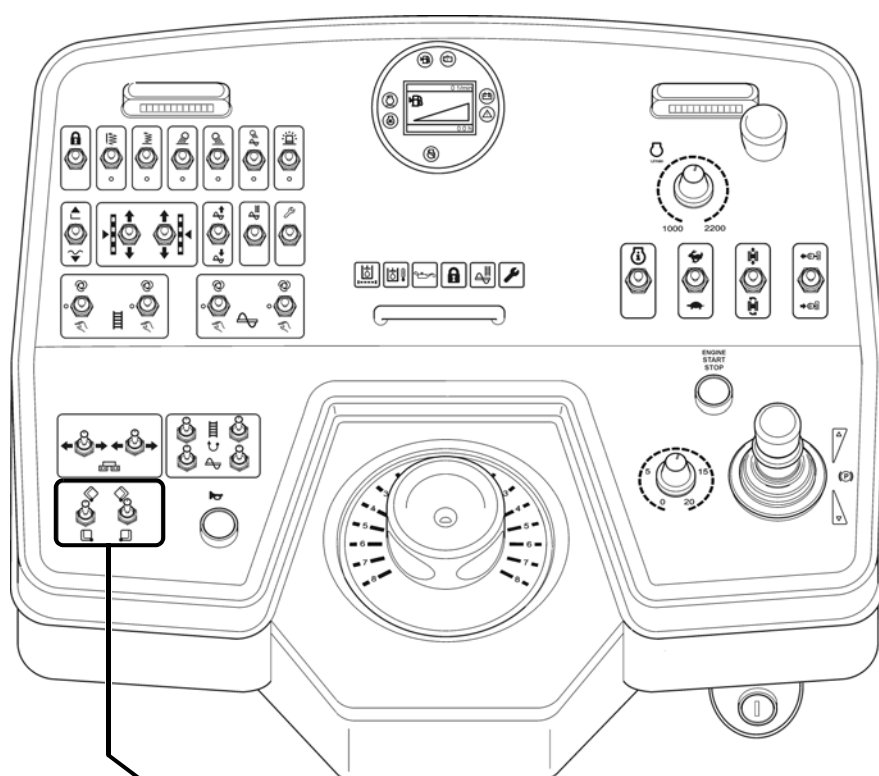
Item	Designation	Brief description
10	Lights	Lights up instrument panel A/B when the parking light is switched on
11	Emergency stop button	<p>Press in an emergency (danger to persons, impending collision, etc.)!</p> <ul style="list-style-type: none"> <li>- Pressing the emergency stop button switches off the engine, the drives and the steering system. Making way, lifting the screed or other actions are then no longer possible! Danger of accidents!</li> <li>- The emergency stop button does not shut off the gas heater system. Close the main shut-off valve and the valve on the bottles by hand!</li> <li>- To restart the engine, the button must be pulled out again.</li> </ul>
12	Engine speed adjuster	<p>Continuously variable engine speed setting (if drive lever is extended).  Min. setting: Idle speed  Max. setting: Nominal speed</p> <p> For paving, select the rated speed; reduce the speed for transportation.</p> <p> The automatic speed control keeps the set speed constant even under a load.</p>





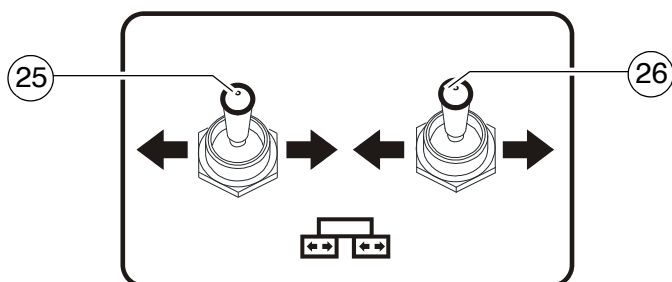
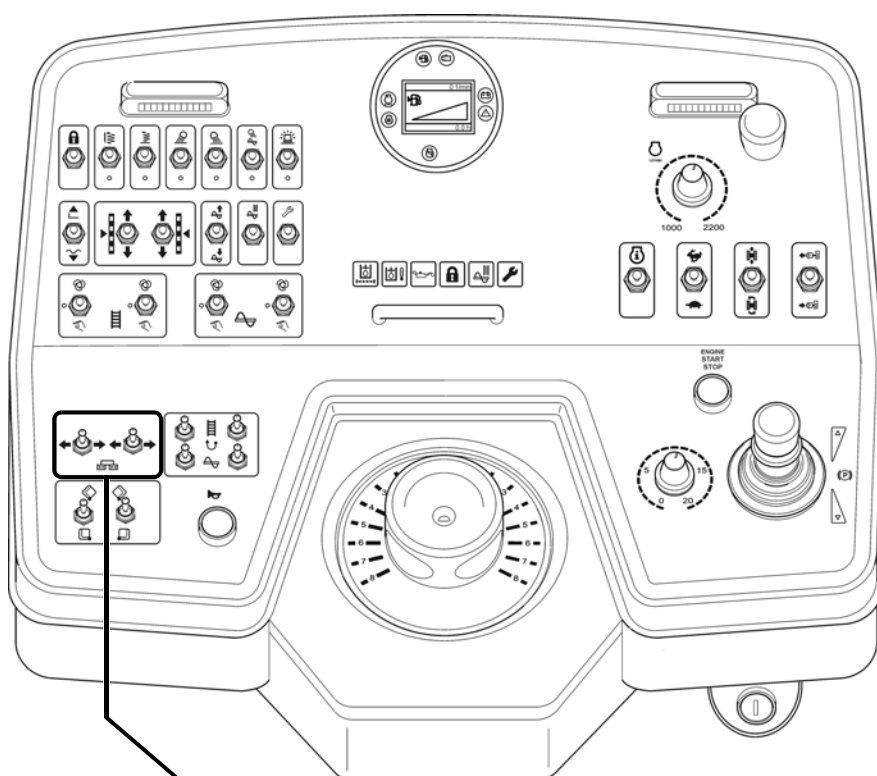
Item	Designation	Brief description
14	Starter / drive engine OFF	<p>For starting and shutting off the drive engine.</p> <ul style="list-style-type: none"> <li>- On actuation, the starter is in operation</li> <li>- Switch the running engine OFF by pressing the button again</li> </ul> <p> Run the starter continuously for a maximum of 20 seconds, then take a break for 1 minute!</p> <p> All emergency stop buttons (on the operating panel and the remote controls) must be pulled out when starting.</p>
15 / 16	Drive lever (traction)	<p>For switching on the paver finisher functions and for continuously regulating the road speed – forward or reverse. Centre position: Engine in neutral; no travel drive;</p> <ul style="list-style-type: none"> <li>- To swivel the drive lever out, release by pulling the handle (16) up.</li> </ul> <p>Depending on the position of the drive lever, the following functions can be activated:</p> <p>1st position:</p> <ul style="list-style-type: none"> <li>- Conveyor and auger on.</li> </ul> <p>2nd position:</p> <ul style="list-style-type: none"> <li>- Screed motion (tamper/vibration) on; travel drive on; increase speed until the stop is reached.</li> </ul> <p> Use the preselector to set the maximum speed.</p> <p> The vehicle speed cannot be reduced to "0" with the preselector. The vehicle advances slightly with deflected drive lever, even if the travel drive preselector is set to zero!</p> <p> If the engine is started with the drive lever pivoted out, the travel drive is inhibited. To start the travel drive, first the drive lever must be returned to the centre position.</p> <p> When changing over between forwards and reverse travel, the drive lever must remain briefly in neutral.</p>





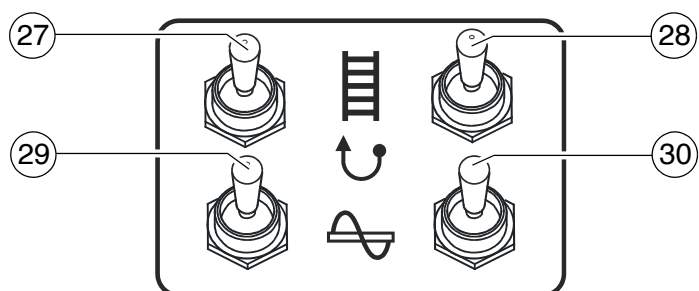
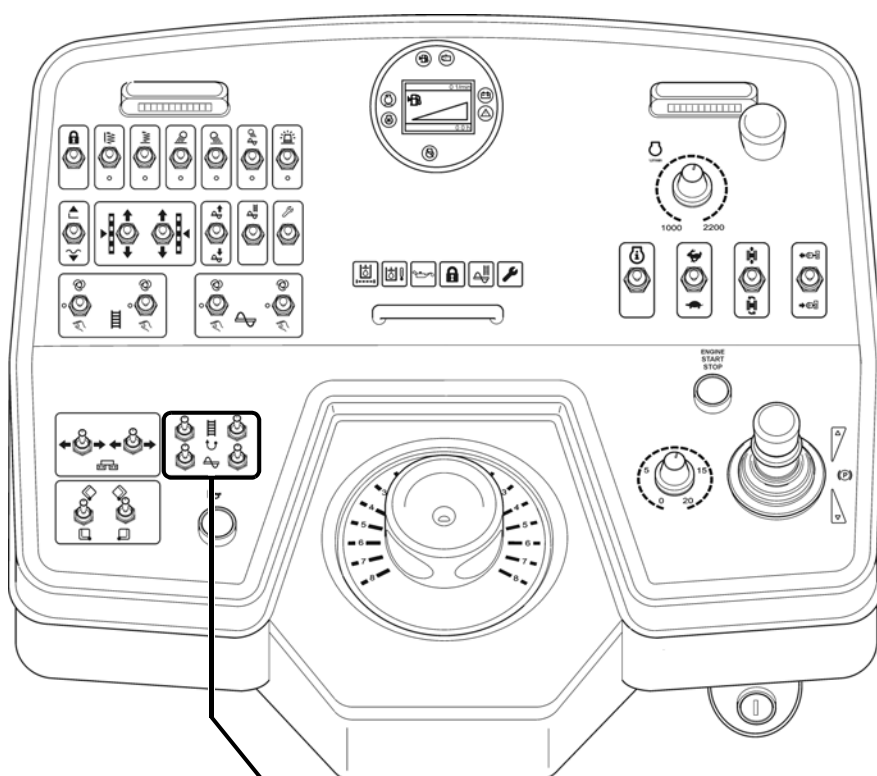
Item	Designation	Brief description
17	Ignition lock	<p>To activate the ignition voltage by turning the key.  - Switch off by turning the key back to its starting position.</p> <p> On shutting off the vehicle, first switch off the ignition, then deactivate the main switch.</p> <p> Before the main battery switch is deactivated, a period of at least 10 seconds must elapse after switching off the vehicle.</p>
18	Travel drive preselector	<p>For setting the maximum speed that can be reached when the drive lever is at its stop.</p> <p> The scale roughly matches the speed in m/min (during paving).</p> <p> The vehicle must not travel at max. transport speed when the hopper is full!</p> <p> The vehicle speed cannot be reduced to "0" with the preselector. The vehicle advances slightly with deflected drive lever, even if the travel drive preselector is set to zero!</p>
19	Steering potentiometer	<p>The steering wheel movement is transferred electrohydraulically.</p> <p> For precise adjustments (position "0" = straight-ahead), see the straight-ahead travel synchronisation.  For turning on the spot, see switch (turning on the spot).</p>
20	Horn	<p>Press in the case of emergencies and to indicate when the vehicle starts to move!</p> <p> The horn can also be used to communicate acoustically with the truck driver for material loading!</p>









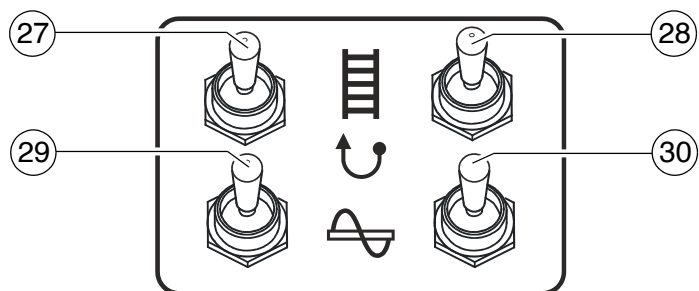
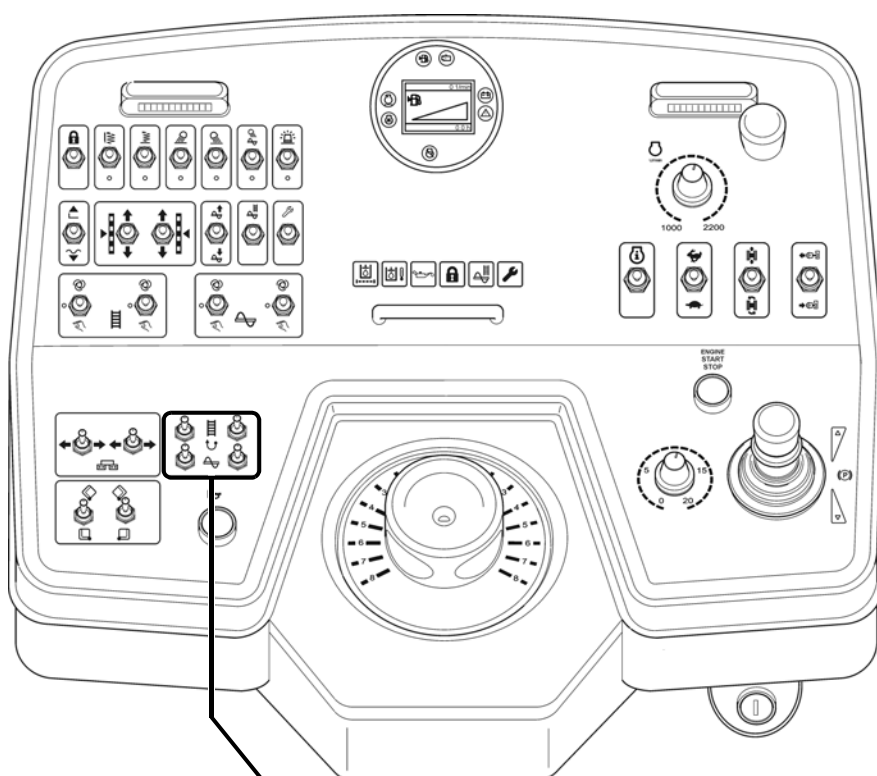
Item	Designation	Brief description
23	Open / close left hopper	<p>Pushbutton function:</p> <ul style="list-style-type: none"> <li>- Upper switch position: Close left hopper lid.</li> <li>- Lower switch position: Open left hopper lid.</li> </ul>  On actuation, heed danger zones of moving parts of the vehicle!
24	Open / close right hopper	<p>Pushbutton function:</p> <ul style="list-style-type: none"> <li>- Upper switch position: Close right hopper lid.</li> <li>- Lower switch position: Open right hopper lid.</li> </ul>  On actuation, heed danger zones of moving parts of the vehicle!









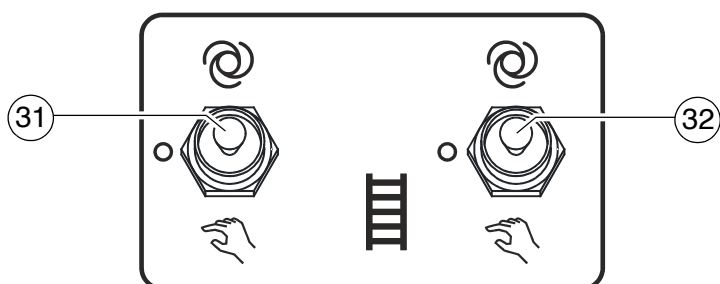
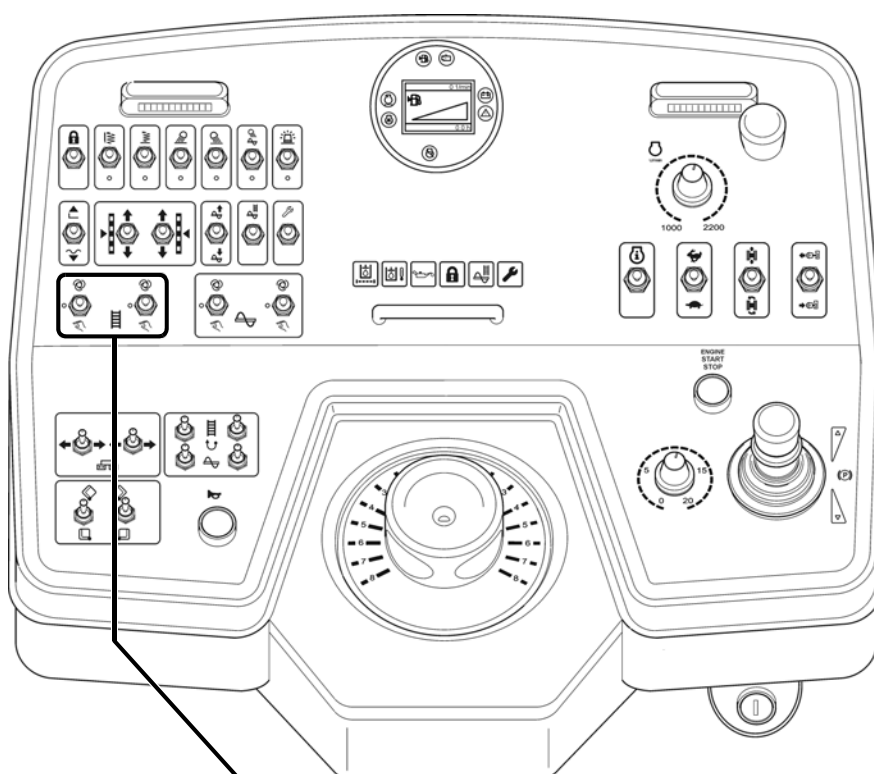
Item	Designation	Brief description
25	Retract / extend left screed	<p>Pushbutton function:</p> <ul style="list-style-type: none"> <li>- Left switch position: Extend left half of screed.</li> <li>- Right switch position: Retract left half of screed.</li> </ul> <p> On actuation, heed danger zones of moving parts of the vehicle!</p>
26	Retract / extend right screed	<p>Pushbutton function:</p> <ul style="list-style-type: none"> <li>- Left switch position: Retract right half of screed.</li> <li>- Right switch position: Extend right half of screed.</li> </ul> <p> On actuation, heed danger zones of moving parts of the vehicle!</p>







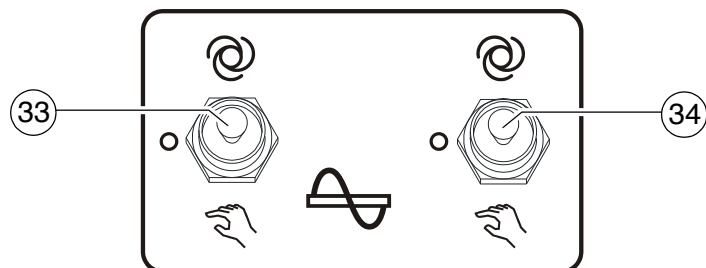
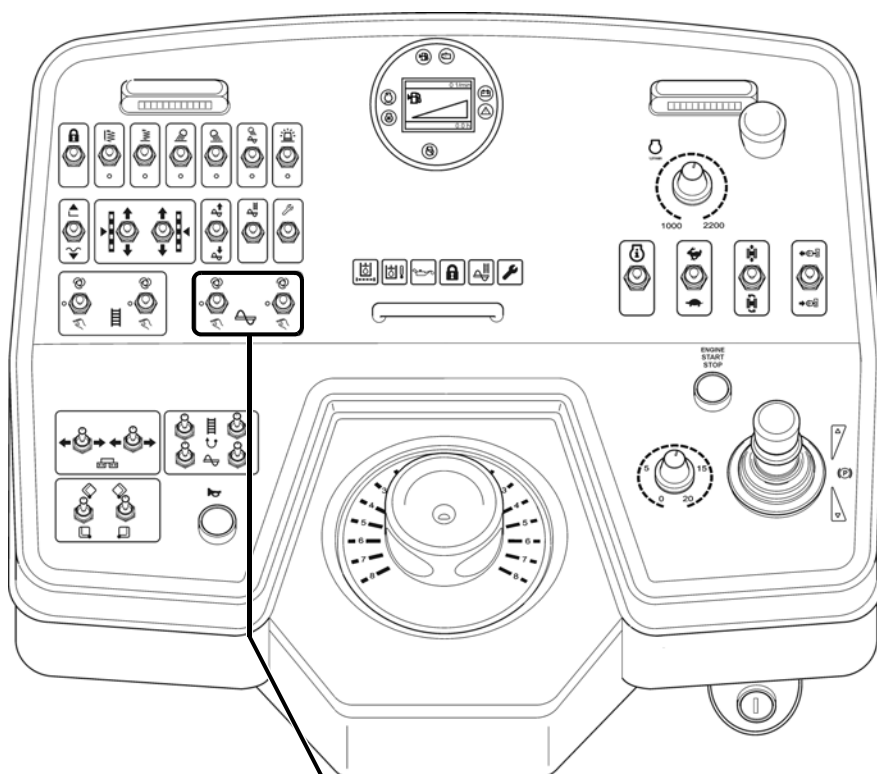
Item	Designation	Brief description
27	Reversing switch Left conveyor	<p>Pushbutton function:</p> <ul style="list-style-type: none"> <li>- Upper switch position: The conveying direction of the conveyor can be reversed in order to slightly reverse paving material for example which may be present in the material tunnel.</li> </ul> <p> The function can be triggered in all modes of the conveyor.</p> <p> The main function switch locks the conveying function.</p> <p> On actuation, heed danger zones of moving parts of the vehicle!</p>
28	Reversing switch Right conveyor	<p>Pushbutton function:</p> <ul style="list-style-type: none"> <li>- Upper switch position: The conveying direction of the conveyor can be reversed in order to slightly reverse paving material for example which may be present in the material tunnel.</li> </ul> <p> The function can only be triggered in the "Auto" mode when the vehicle is moving.</p> <p> The main function switch locks the conveying function.</p> <p> On actuation, heed danger zones of moving parts of the vehicle!</p>







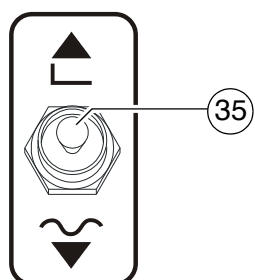
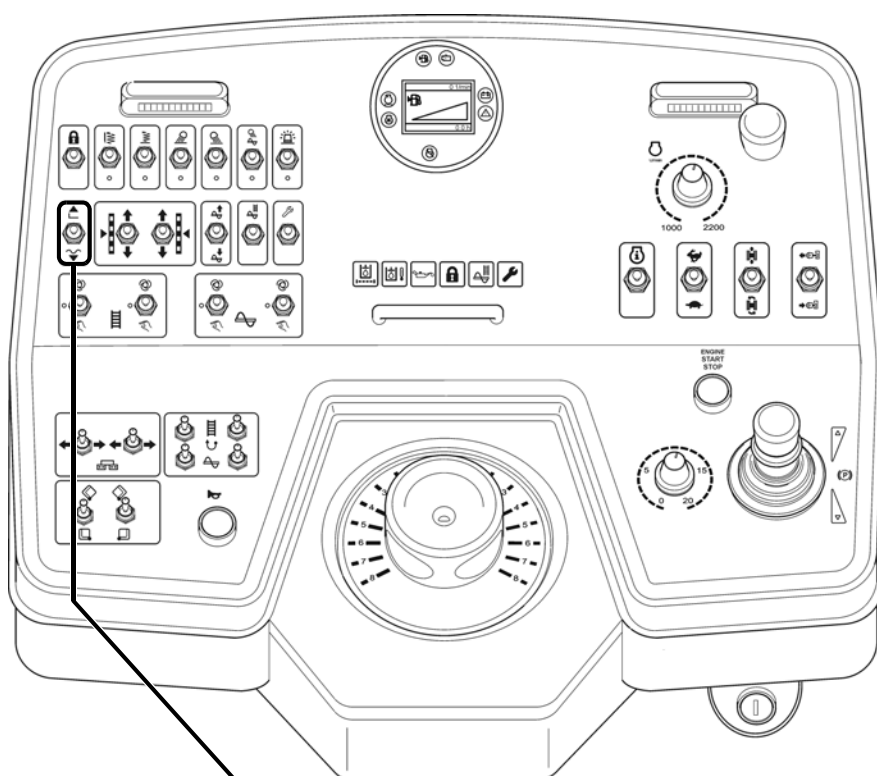
Item	Designation	Brief description
29	Reversing switch Left auger	<p>Pushbutton function:</p> <ul style="list-style-type: none"> <li>- Upper switch position: The conveying direction of the left half of the auger can be reversed in order to slightly reverse paving material for example.</li> </ul> <p> The function can be triggered in all modes of the auger.</p> <p> The main function switch locks the conveying function.</p> <p> On actuation, heed danger zones of moving parts of the vehicle!</p>
30	Reversing switch Right auger	<p>Pushbutton function:</p> <ul style="list-style-type: none"> <li>- Upper switch position: The conveying direction of the right half of the auger can be reversed in order to slightly reverse paving material for example.</li> </ul> <p> The function can be triggered in all modes of the auger.</p> <p> The main function switch locks the conveying function.</p> <p> On actuation, heed danger zones of moving parts of the vehicle!</p>






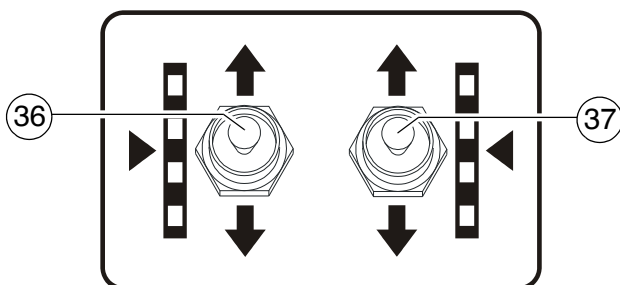
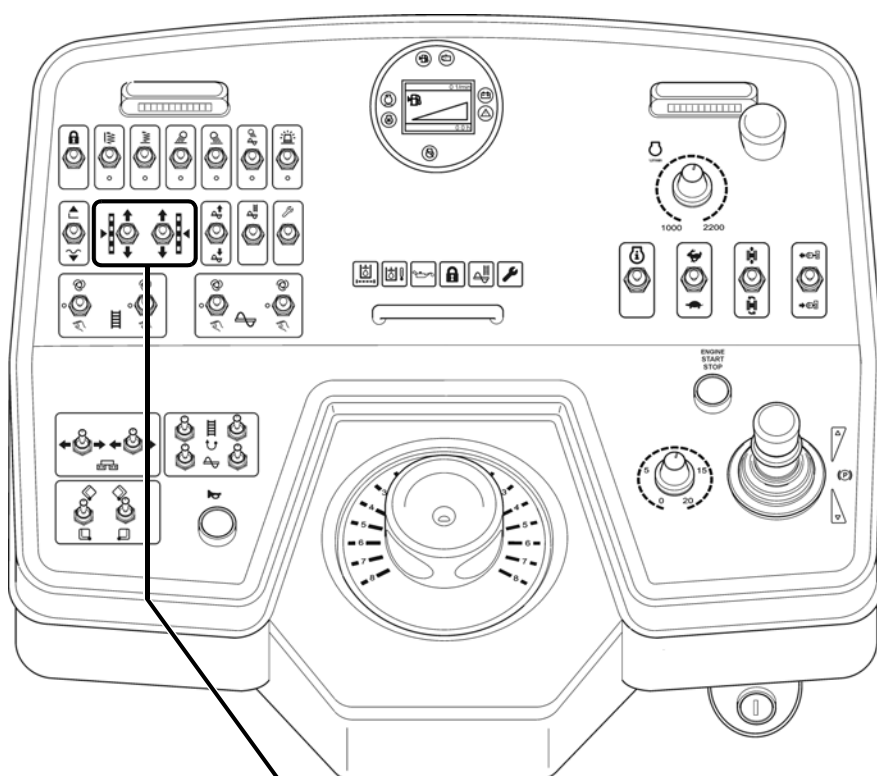
Item	Designation	Brief description
31	Left conveyor - Operating mode "AUTO" / "OFF" / "MANUAL"	<p>Detent switch function:</p> <ul style="list-style-type: none"> <li>- Upper switch position: Operating mode "AUTO": The conveying function of the left conveyor is switched on when the drive lever is swivelled out and is continuously controlled via the material limit switches.</li> <li>- Switch position, central: Operating mode "OFF": The conveying function of the left conveyor is switched off.</li> <li>- Lower switch position: Operating mode "MANUAL": The conveying function of the left conveyor is switched on continuously with full delivery rate, without material control via the limit switches.</li> </ul> <p> The main function switch locks the conveying function.</p> <p> On actuation, heed danger zones of moving parts of the vehicle!</p>
32	Right conveyor - Operating mode "AUTO" / "OFF" / "MANUAL"	<p>Detent switch function:</p> <ul style="list-style-type: none"> <li>- Upper switch position: Operating mode "AUTO": The conveying function of the right conveyor is switched on when the drive lever is swivelled out and is continuously controlled via the material limit switches.</li> <li>- Switch position, central: Operating mode "OFF": The conveying function of the right conveyor is switched off.</li> <li>- Lower switch position: Operating mode "MANUAL": The conveying function of the right conveyor is switched on continuously with full delivery rate, without material control via the limit switches.</li> </ul> <p> The main function switch locks the conveying function.</p> <p> On actuation, heed danger zones of moving parts of the vehicle!</p>





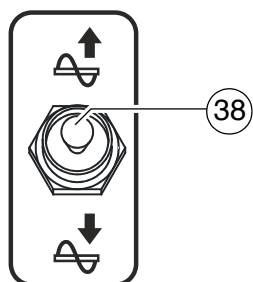
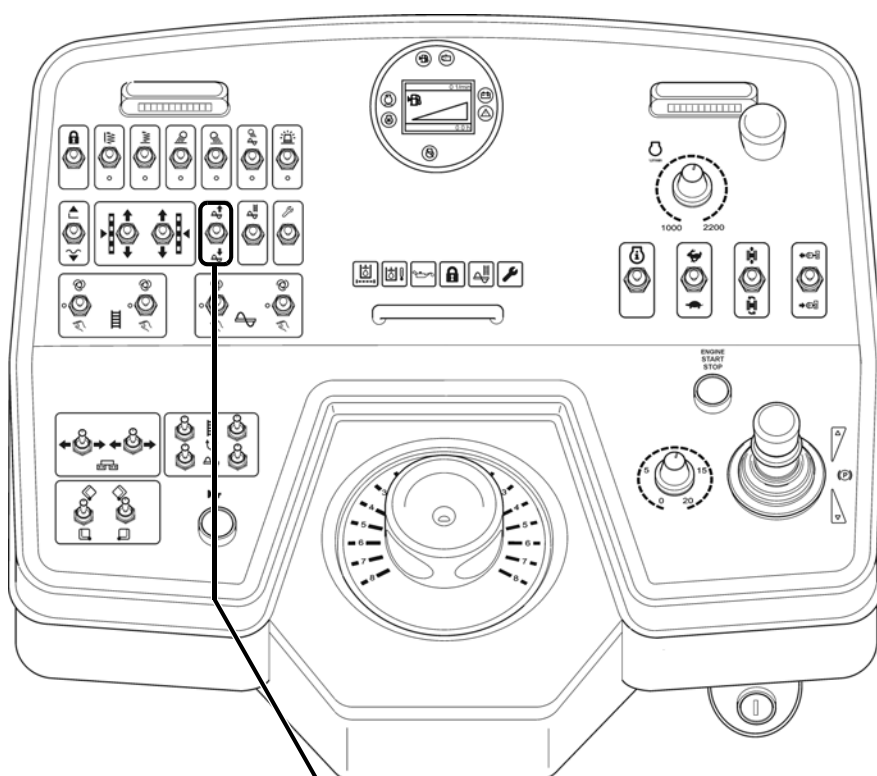
Item	Designation	Brief description
33	Left auger - Operating mode "AUTO" / "OFF" / "MANUAL"	<p>Detent switch function:</p> <ul style="list-style-type: none"> <li>- Upper switch position: Operating mode "AUTO": The conveying function of the left half of the auger is switched on when the drive lever is swivelled out and is continuously controlled via the material limit switches.</li> <li>- Switch position, central: Operating mode "OFF": The conveying function of the left half of the auger is switched off.</li> <li>- Lower switch position: Operating mode "MANUAL": The conveying function of the left half of the auger is switched on continuously with full delivery capacity, without material control via the limit switches.</li> </ul> <p> The main function switch locks the conveying function.</p> <p> On actuation, heed danger zones of moving parts of the vehicle!</p>
34	Right auger - Operating mode "AUTO" / "OFF" / "MANUAL"	<p>Detent switch function:</p> <ul style="list-style-type: none"> <li>- Upper switch position: Operating mode "AUTO": The conveying function of the right half of the auger is switched on when the drive lever is swivelled out and is continuously controlled via the material limit switches.</li> <li>- Switch position, central: Operating mode "OFF": The conveying function of the right half of the auger is switched off.</li> <li>- Lower switch position: Operating mode "MANUAL": The conveying function of the right half of the auger is switched on continuously with full delivery capacity, without material control via the limit switches.</li> </ul> <p> The main function switch locks the conveying function.</p> <p> On actuation, heed danger zones of moving parts of the vehicle!</p>





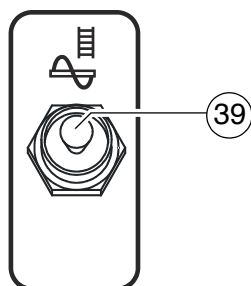
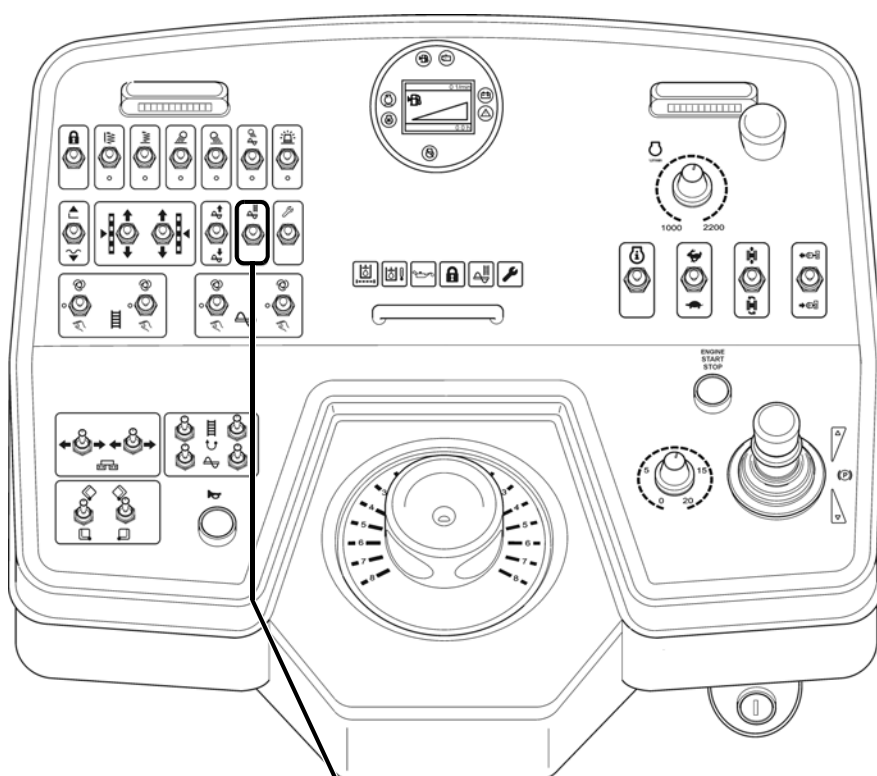
Item	Designation	Brief description
35	Screed Raise / Lower Screed stop (floating position OFF) / Lower screed + floating position	<p>Pushbutton/detent switch function</p> <ul style="list-style-type: none"> <li>- Upper switch position: Lift the screed.</li> <li>- Switch position, central: Screed stop (floating position OFF): Screed is hydraulically blocked in position.</li> <li>- Lower switch position: Lower screed + floating position: Screed is lowered and released in the floating position when the drive lever is swivelled out.</li> </ul> <p> To prevent the screed from lowering during an intermediate stop (drive lever in centre position), the screed is hydraulically held in position via relief pressure and the counter pressure of the material.</p> <p> Check whether the screed transport safeguard is inserted!</p> <p> On actuation, heed danger zones of moving parts of the vehicle!</p>






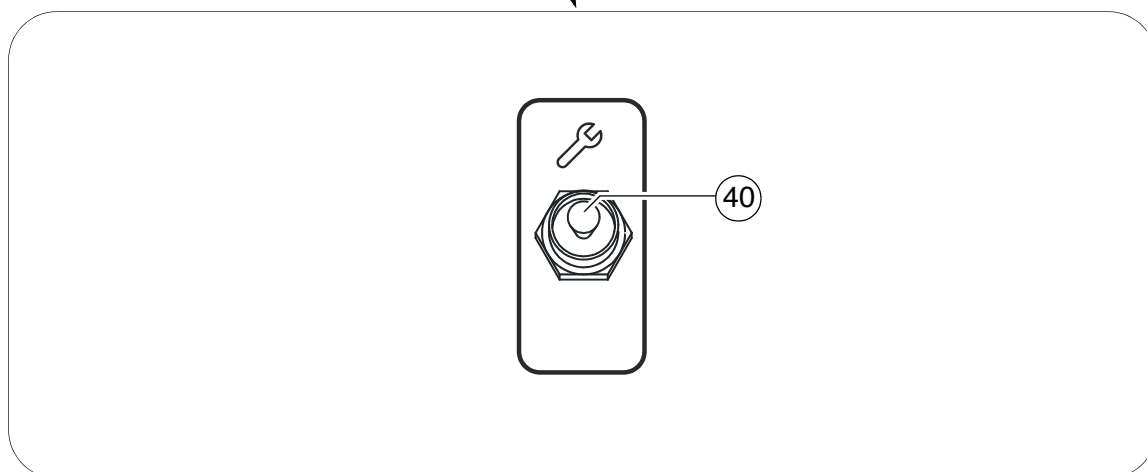
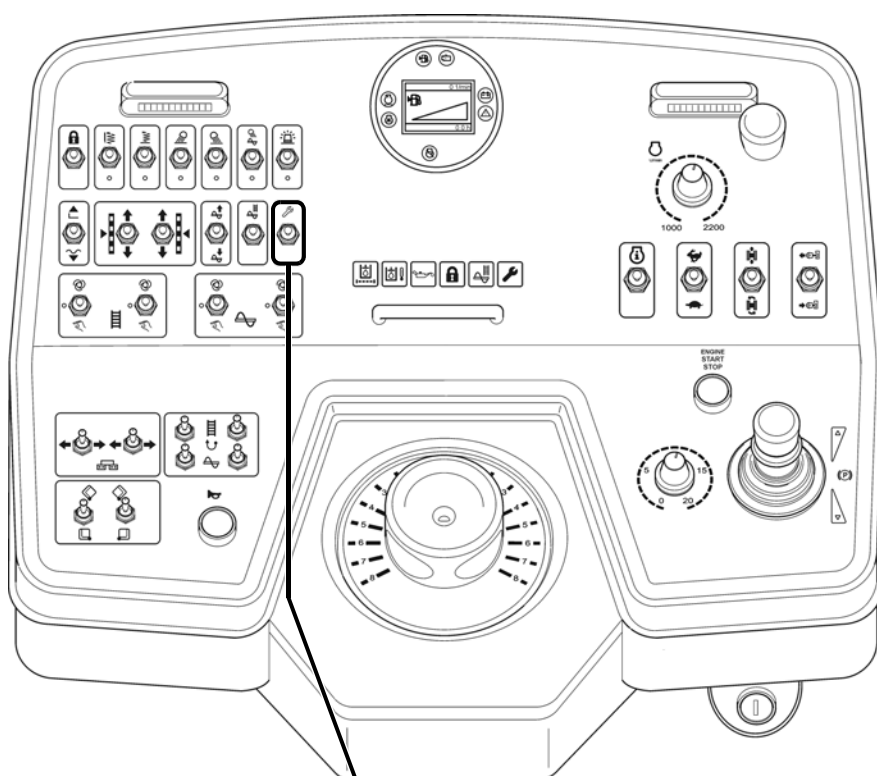
Item	Designation	Brief description
36	Retract / extend left levelling cylinder	<p>Pushbutton function:</p> <ul style="list-style-type: none"> <li>- Upper switch position: Retract left levelling cylinder.</li> <li>- Lower switch position: Extend left levelling cylinder.</li> </ul> <p> On actuation, heed danger zones of moving parts of the vehicle!</p>
37	Retract / extend right leveling cylinder	<p>Pushbutton function:</p> <ul style="list-style-type: none"> <li>- Upper switch position: Retract right levelling cylinder.</li> <li>- Lower switch position: Extend right levelling cylinder.</li> </ul> <p> On actuation, heed danger zones of moving parts of the vehicle!</p>







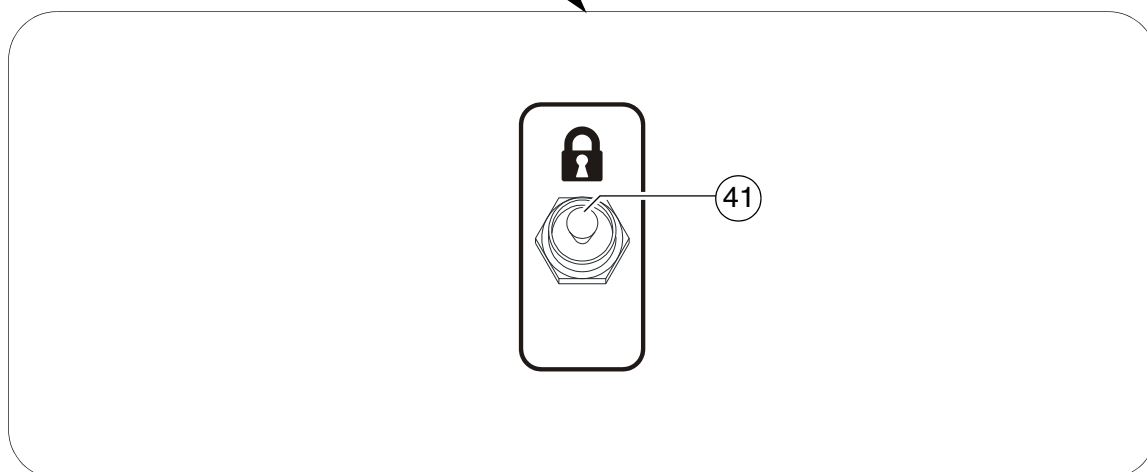
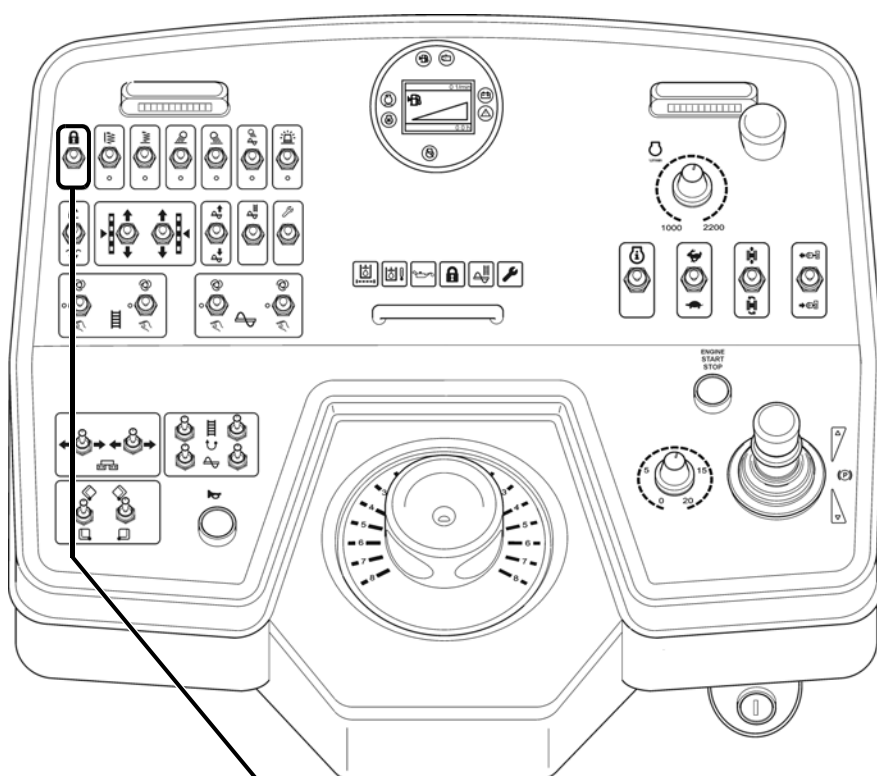
Item	Designation	Brief description
38	Raising/lowering auger (○)	<p>Pushbutton function:</p> <ul style="list-style-type: none"> <li>- Upper switch position: Raise auger.</li> <li>- Lower switch position: Lower auger.</li> </ul> <p> The height can be read off on the scale on the corresponding hydraulic cylinder. Rule of thumb: Paving thickness plus 5 cm (2 inches) equals the auger crossbeam height.</p> <p> On actuation, heed danger zones of moving parts of the vehicle!</p>






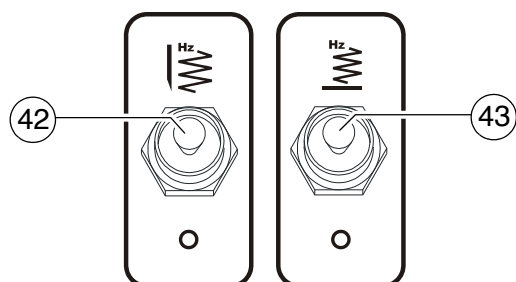
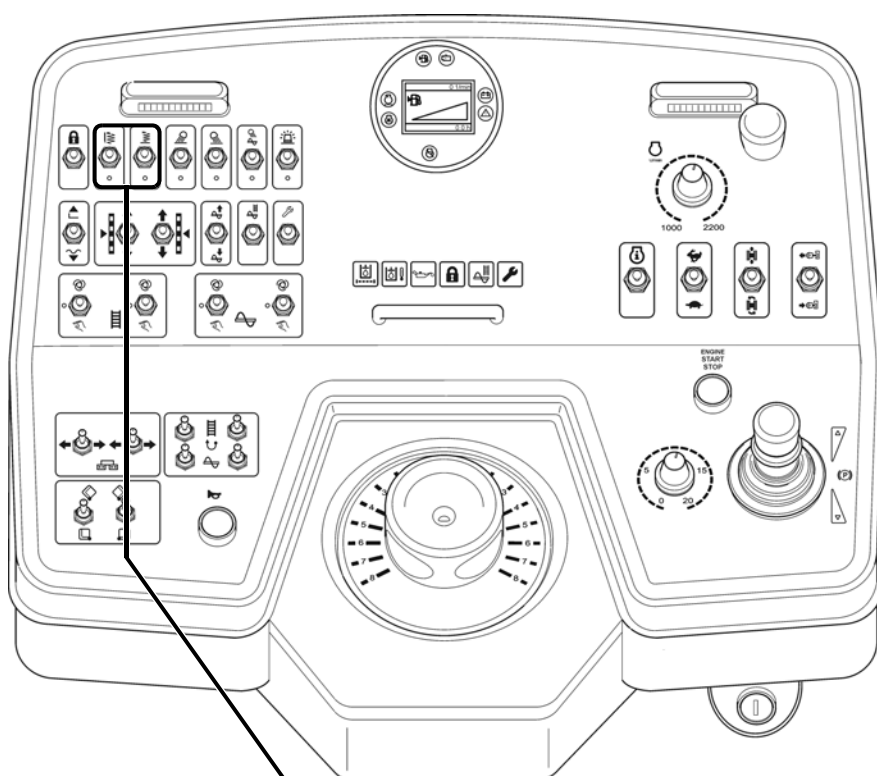
Item	Designation	Brief description
39	Fill vehicle for paving process	<p>Pushbutton function:</p> <ul style="list-style-type: none"> <li>- Filling function for the paving process. The conveying functions set to "automatic" (conveyor and auger) are switched on.</li> </ul> <p> Once the set material height is reached at the limit switches, the conveying functions are switched off.</p> <p> On actuation, heed danger zones of moving parts of the vehicle!</p> <p> Heed corresponding indicator lamp!</p>







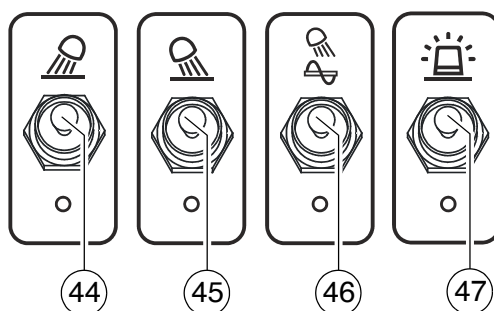
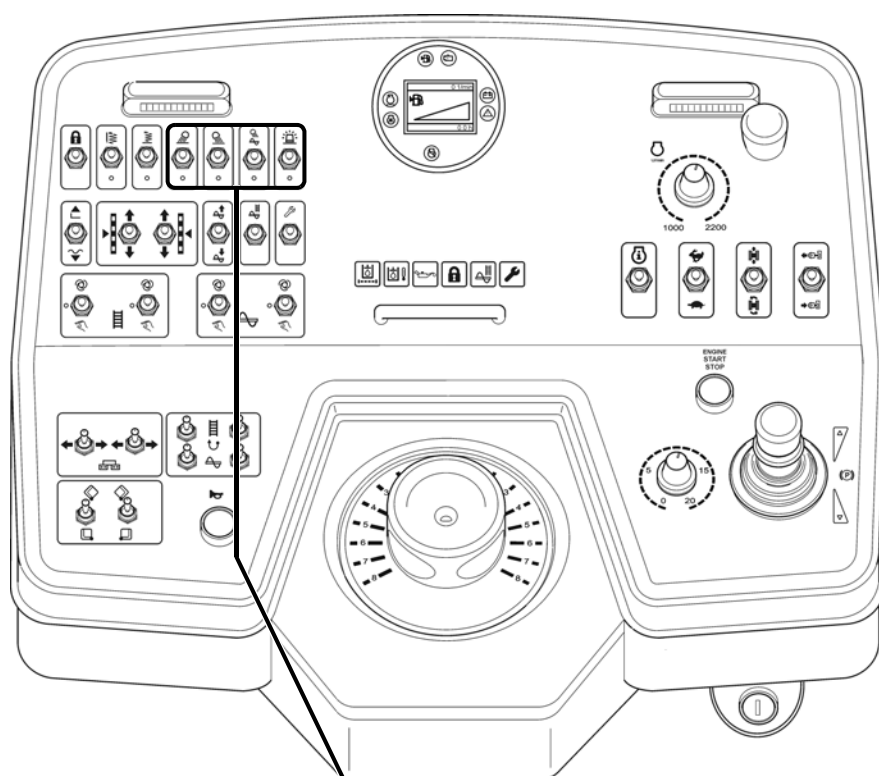
Item	Designation	Brief description
40	Set-up mode	<p>Pushbutton function:</p> <ul style="list-style-type: none"> <li>- When the vehicle is stationary, this function enables all operating functions, which are only activated when the drive lever is swivelled out (vehicle driving), to be started up.</li> </ul> <p> The main function switch must be set to the OFF position.</p> <p> The engine speed is increased to the preselected nominal value.</p> <p> On actuation, heed danger zones of moving parts of the vehicle!</p> <p> Heed corresponding indicator lamp!</p>






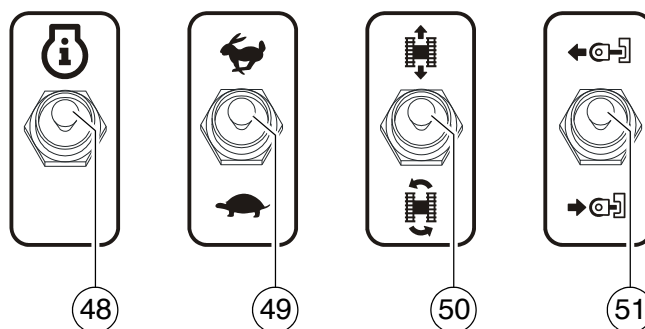
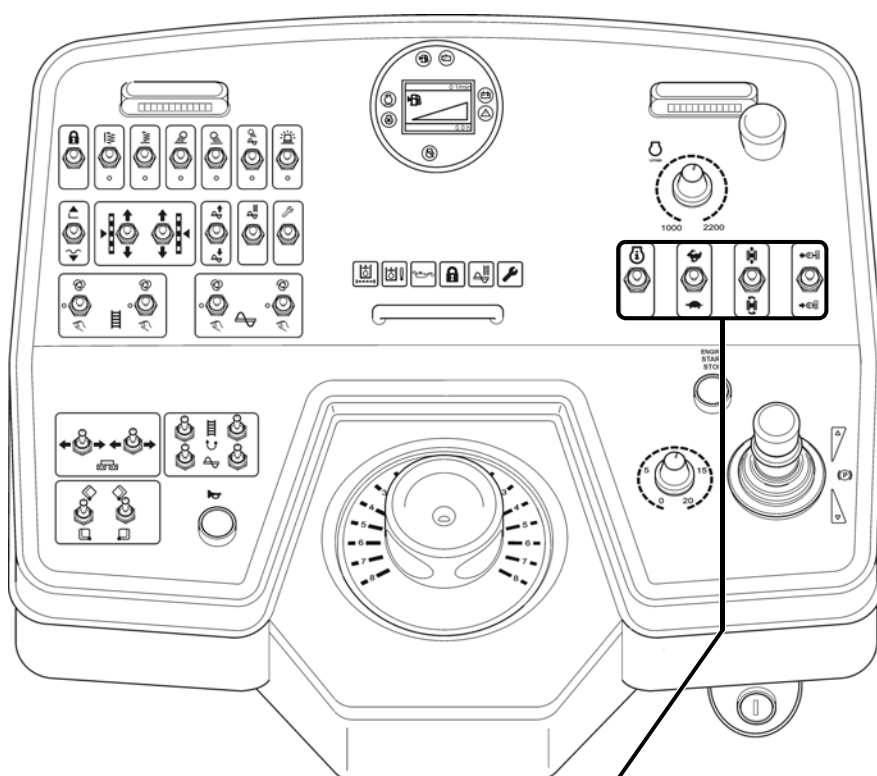
Item	Designation	Brief description
41	Main function switch	<p>Pushbutton function:</p> <ul style="list-style-type: none"> <li>- To lock all functions relevant to paving. Despite "Auto" settings in the individual functions, these are not activated when the drive lever is swivelled out.</li> <li>- Switch OFF by pressing the button again.</li> </ul> <p> The preset vehicle can be relocated and released at the new paving location. The paving process is continued on swivelling the drive lever out.</p> <p> On restarting, the function is set to "ON".</p> <p> Heed corresponding indicator lamp!</p>








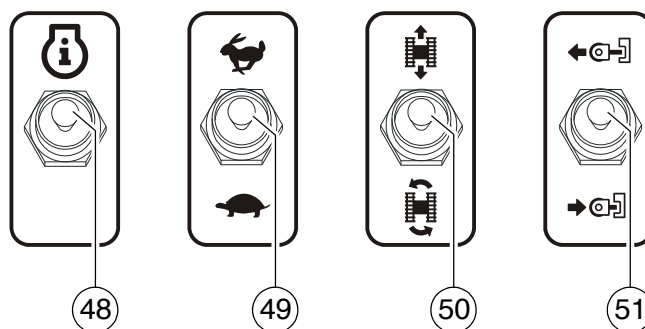
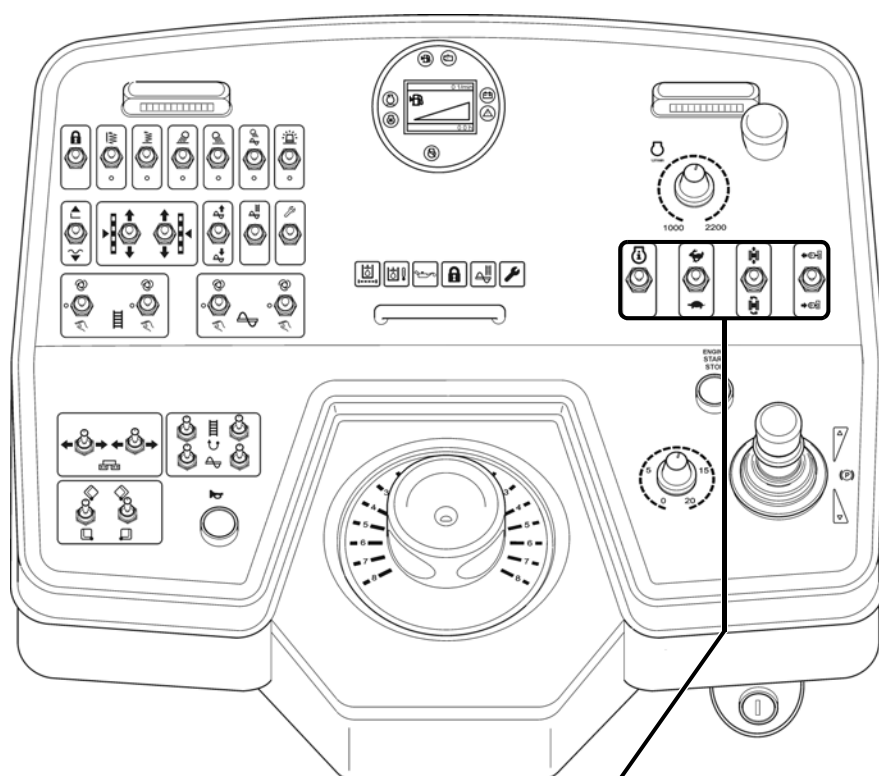
Item	Designation	Brief description
42	Tamper - Operating mode "AUTO" / "OFF"	<p>Detent switch function:</p> <ul style="list-style-type: none"> <li>- Upper switch position: Operating mode "AUTO": The screed tamper is switched on when the drive lever is swivelled out.</li> <li>- Lower switch position: Operating mode "OFF": The screed tamper is switched off.</li> </ul> <p> For switching on, the main function switch must be set to the OFF position.</p> <p> The function is preset in conjunction with the "Set-up mode" button.</p>
43	Vibration - Operating mode "AUTO" / "OFF"	<p>Detent switch function:</p> <ul style="list-style-type: none"> <li>- Upper switch position: Operating mode "AUTO": Screed vibration is switched on when the drive lever is swivelled out.</li> <li>- Lower switch position: Operating mode "OFF": Screed vibration is switched off.</li> </ul> <p> For switching on, the main function switch must be set to the OFF position.</p> <p> The function is preset in conjunction with the "Set-up mode" button.</p>





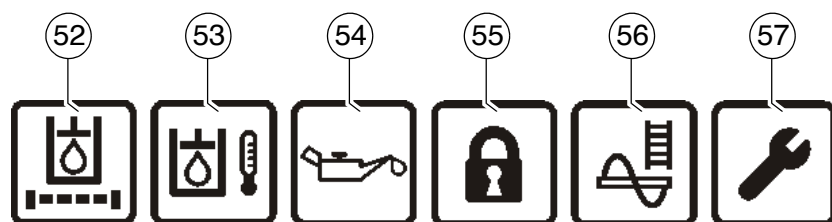
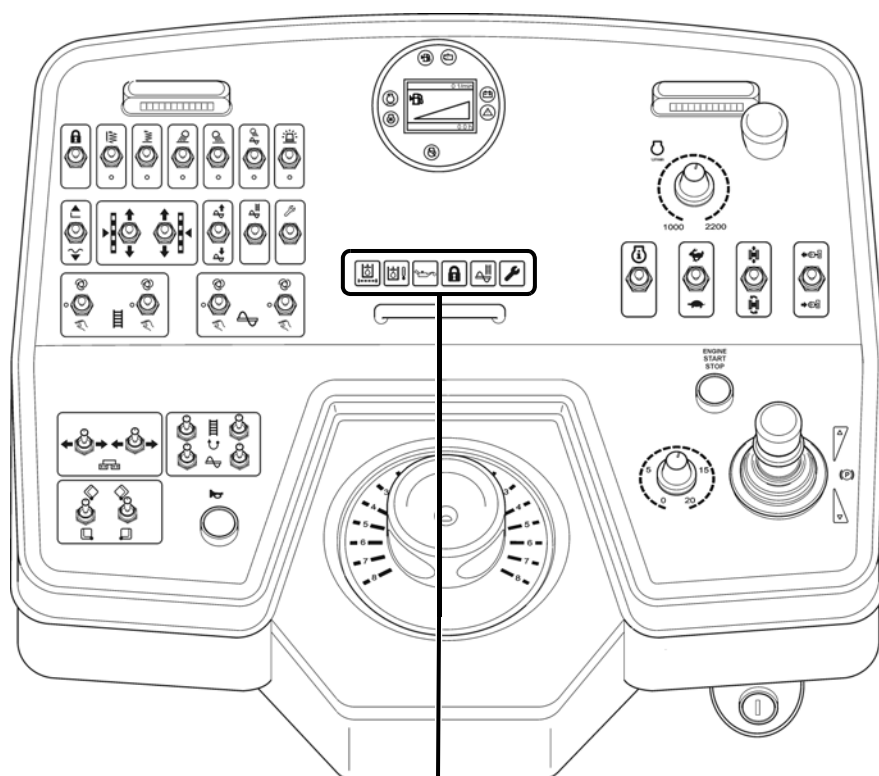
Item	Designation	Brief description
44	not used	
45	Front working lights ON / OFF	<p>Detent switch function:</p> <ul style="list-style-type: none"> <li>- Upper switch position: Front working lights ON.</li> <li>- Lower switch position: Front working lights OFF.</li> </ul>  Avoid dazzling other road users!
46	Rear working lights ON / OFF (○)	<p>Detent switch function:</p> <ul style="list-style-type: none"> <li>- Upper switch position: Rear working lights ON.</li> <li>- Lower switch position: Rear working lights OFF.</li> </ul>  Avoid dazzling other road users!
47	Rotary beacon ON / OFF (○)	<p>Detent switch function:</p> <ul style="list-style-type: none"> <li>- Upper switch position: Rotary beacon ON.</li> <li>- Lower switch position: Rotary beacon OFF.</li> </ul>  Switch on for safety on roads and in the construction site area









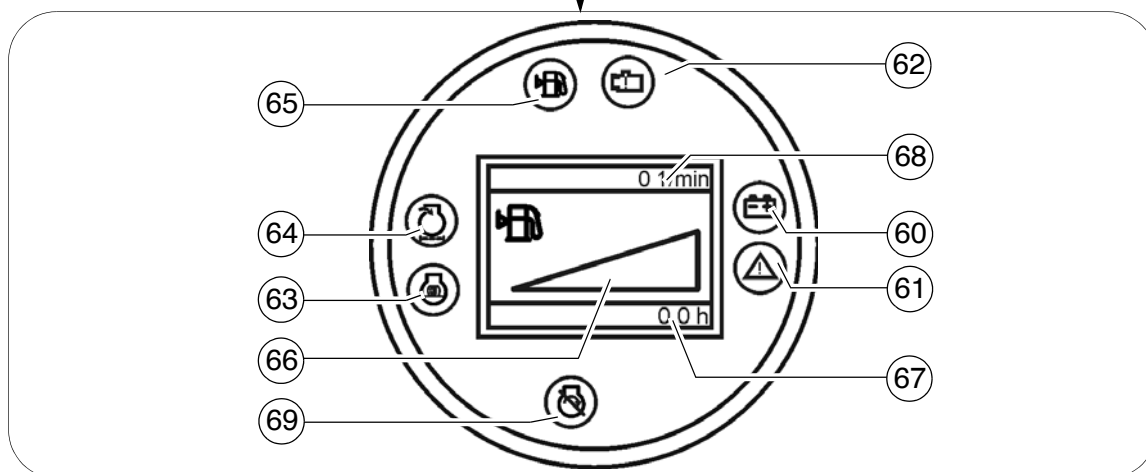
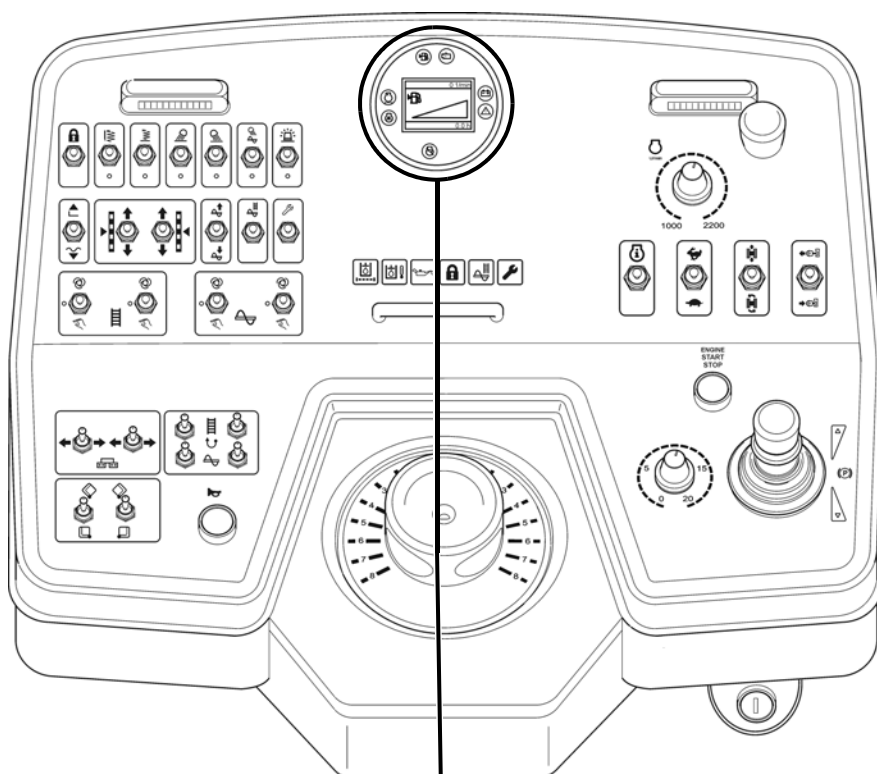
Item	Designation	Brief description
48	Error / malfunction call up	<p>If a fault discovered on the drive engine is indicated by one of the warning lamps, a code assigned to a defined defect can be called up.</p> <p>Pushbutton function:</p> <ul style="list-style-type: none"> <li>- Upper switch position: Call the error code.</li> </ul> <p> Press the switch until the three-digit code has been output by the warning lamp.</p> <p> Refer to the "Malfunctions" section for calling up error codes!</p>
49	Travel drive fast/slow	<p>Pushbutton function:</p> <ul style="list-style-type: none"> <li>- Upper switch position: Preselect the speed level - Transport speed (fast).</li> <li>- Lower switch position: Preselect the speed level - Operating speed (slow).</li> </ul>
50	Straight-ahead travel / Turning on the spot	<p>Detent switch function:</p> <ul style="list-style-type: none"> <li>- Upper switch position: Straight-ahead travel / standard operation.</li> <li>- Lower switch position: Turning on the spot- The finisher turns on the spot (the caterpillar chains run in opposite directions) when the steering wheel is set to "10".</li> <li>- Steering turned to the left = vehicle turns to the left</li> <li>- Steering turned to the right = vehicle turns to the right</li> </ul> <p> If the "Turning on the spot" function has been inadvertently activated (and the steering is set to straight-ahead travel), the paver finisher does not move. This is often interpreted as a "malfunction".</p> <p> The function can only be activated in the working gear ("travel drive slow") speed.</p> <p> When the vehicle turns, persons and objects next to the paver finisher are in extreme danger. Note the danger area!</p>











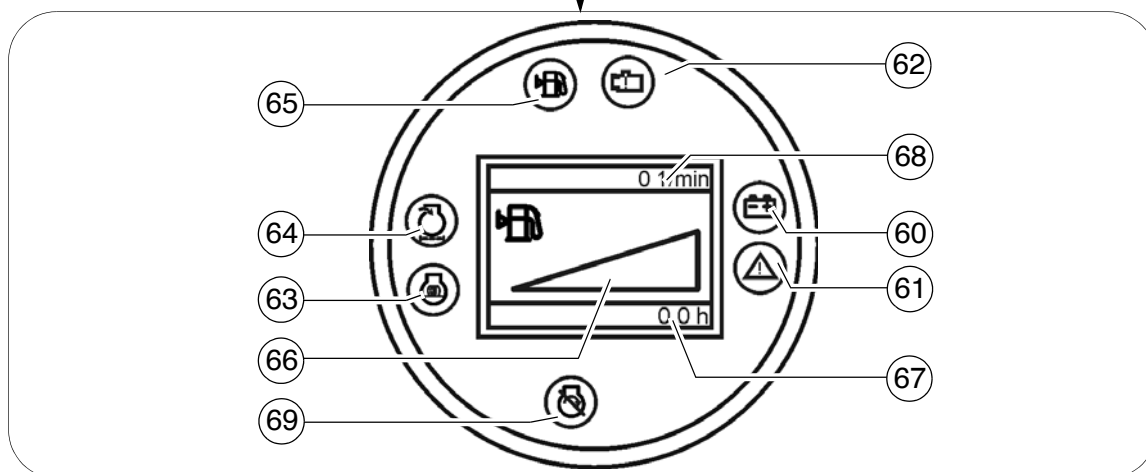
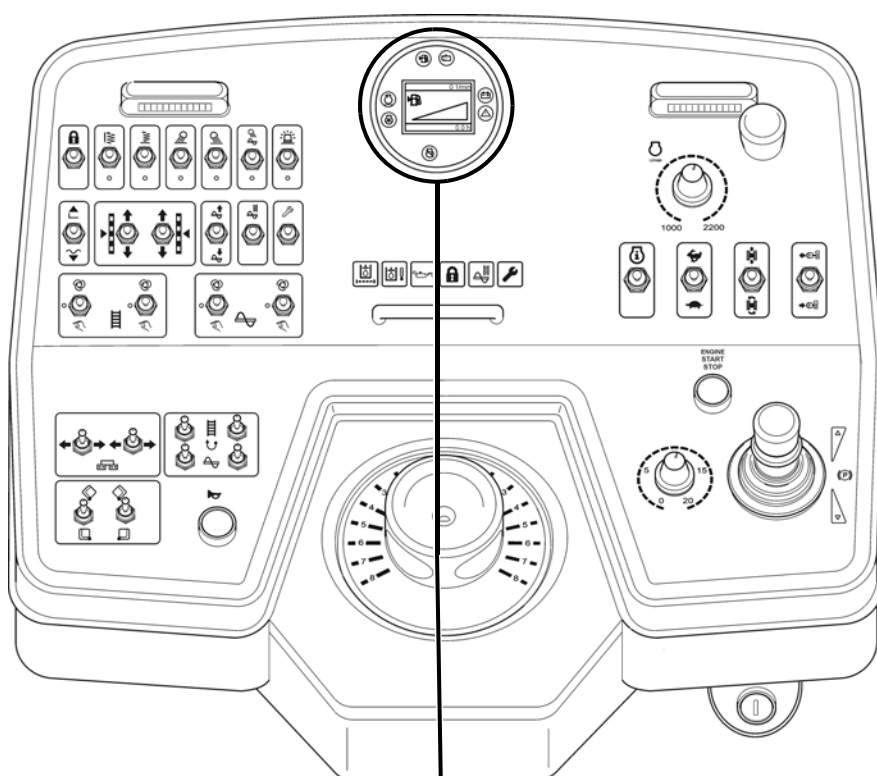
Item	Designation	Brief description
51	Retract/extend push roller (○)	<p>Pushbutton function:</p> <ul style="list-style-type: none"> <li>- Upper switch position: To hydraulically extend the push roller crossbar.</li> <li>- Lower switch position: To hydraulically retract the push roller crossbar.</li> </ul> <p> If the push roller crossbar has been pressed into the home position by the counterpressure of the truck tyres, it has to be extended again.</p> <p> On actuation, heed danger zones of moving parts of the vehicle!</p>



Item	Designation	Brief description
52	Indicator lamp hydraulic filter	Lights up when the hydraulic filter needs replacing.  Replace filter element acc. to Maintenance Instructions!
53	Indicator lamp Hydraulic oil temperature	 Lights up if the hydraulic oil temperature is too high. Stop the paver finisher when if the temperature is too high (drive lever in centre position), let the engine cool down while idling. Determine the cause and correct it if necessary.
54	Oil pressure indicator lamp for the diesel engine (red)	 Lights up when the oil pressure is too low. Switch off the engine immediately! For further possible faults, see Engine's operating instructions.
55	Indicator lamp "Main function switch" / "Start inhibit"	<ul style="list-style-type: none"> <li>- Lights up when the function is switched on.</li> <li>- Indicates that an enabled function stops the machine from starting.</li> </ul>  Press the corresponding function switch to switch off the start inhibit for maintenance work. However, the start function is prevented and the indicator lamp is switched on again at the next attempt to start the vehicle.   On restarting, the function is set to "ON".
56	Indicator lamp "Filling function"	Lights up when the function is switched on.  The indicator lamp goes off when the driver lever is swivelled out.
57	Indicator lamp "Set-up mode"	<ul style="list-style-type: none"> <li>- Lights up when the function is switched on.</li> </ul>



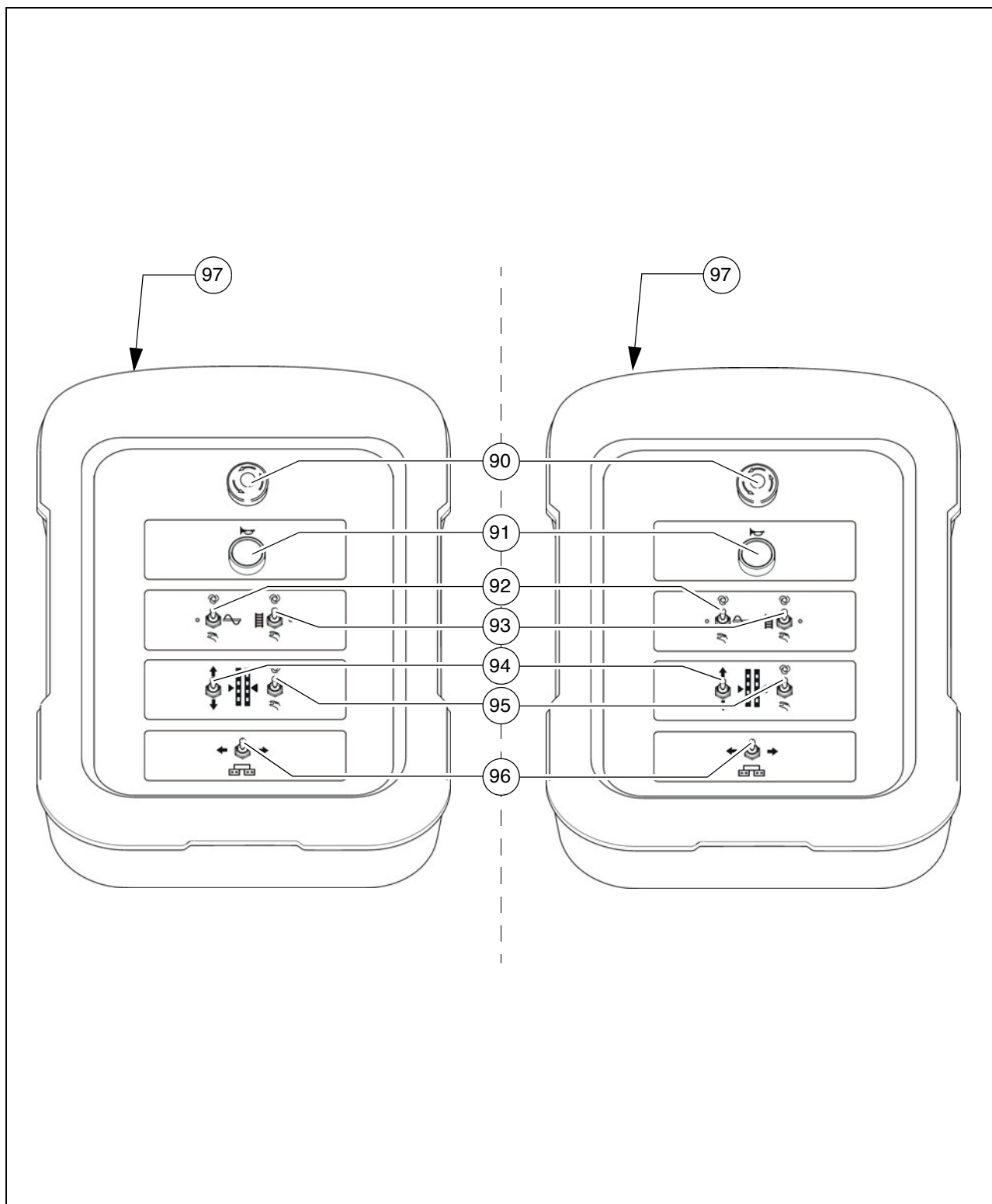
Item	Designation	Brief description
60	Battery charge indicator (red)	Must go out after starting when the engine revs up. - If the light does not go out, switch off the engine
61	Error message - vehicle (red)	Indicates that there is fault in the vehicle control system. Each fault should be checked and rectified as soon as possible!  Special equipment is needed to read out faults in the vehicle control system.  Please contact the technical customer service for your vehicle
62	Error message - drive engine (yellow)	Lights up when there is a fault in the drive engine. Depending on the type of fault, the drive engine may be switched off automatically for safety reasons.  The error code can be retrieved using the "Call up error/malfunction" switch.  Lights up for a few seconds once the ignition has been switched on for checking purposes.
63	Pre-heating indicator (yellow)	 Pre-heating is started with the ignition starter by switching the ignition on. (ignition key in position 1). Once pre-heating has finished, the indicator lamp goes off.  Do not switch the ignition on until the pre-heating phase has finished!
64	Indicator lamp Air filter (yellow)	Lights up if the air filter needs replacing.  Replace filter element acc. to Maintenance Instructions!
65	Fuel reserve (yellow)	Lights up when the fuel in the tank reaches the reserve level.  Approx. 10% remains.
66	Fuel gauge	Shows the level of fuel in the tank.





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Item	Designation	Brief description
67	Operating hours counter	The operating hours are only counted while the engine is running. Heed the maintenance intervals (see chapter F).
68	Engine speed	Shows the actual speed of the drive engine (rpm).
69	not used	

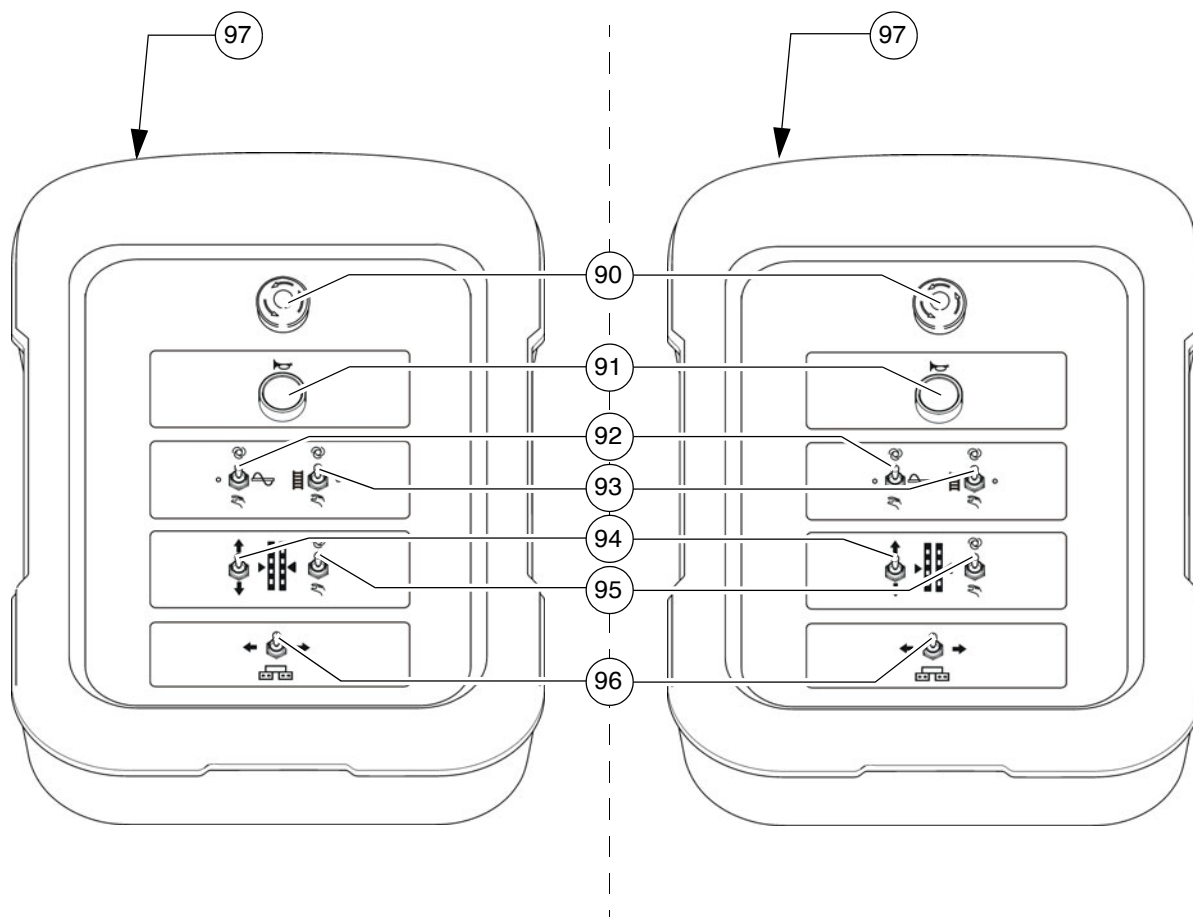
### 3 Remote control







 Depending on the side of the machine (left/right), the function switches only control the corresponding function on the particular side of the machine.

 **Important!** Do not disconnect remote controls with emergency stop button during operation! This causes the paver finisher to be shut down!

Item	Designation	Brief description
90	Emergency stop button	<p>Press in an emergency (danger to persons, impending collision, etc.)!</p> <ul style="list-style-type: none"> <li>- Pressing the emergency stop button switches off the engine, the drives and the steering system. Making way, lifting the screed or other actions are then no longer possible! Danger of accidents!</li> <li>- The emergency stop button does not shut off the gas heater system. Close the main shut-off valve and the valve on the bottles by hand!</li> <li>- To restart the engine, the button must be pulled out again.</li> </ul>
91	Horn	<p>Press in the case of emergencies and to indicate when the vehicle starts to move!</p> <p> The horn can also be used to communicate acoustically with the truck driver for material loading!</p>
92	Auger left/right Operating mode "AUTO" / "OFF" / "MANUAL"	<p>Detent switch function:</p> <ul style="list-style-type: none"> <li>- Lower switch position: Operating mode "AUTO": The conveying function of the left / right half of the auger is switched on when the drive lever is swivelled out and is continuously controlled via the material limit switches.</li> <li>- Switch position, central: Operating mode "OFF": The conveying function of the left / right half of the auger is switched off.</li> <li>- Upper switch position: Operating mode "MANUAL": The conveying function of the left / right half of the auger is switched on continuously with full delivery capacity, without material control via the limit switches.</li> </ul> <p> On actuation, heed danger zones of moving parts of the vehicle!</p>





Item	Designation	Brief description
93	Conveyor left/right Operating mode "AUTO" / "OFF" / "MANUAL"	<p>Detent switch function:</p> <ul style="list-style-type: none"> <li>- Lower switch position: Operating mode "AUTO": The conveying function of the left / right conveyor is switched on when the drive lever is swivelled out and is continuously controlled via the material limit switches.</li> <li>- Switch position, central: Operating mode "OFF": The conveying function of the left / right conveyor is switched off.</li> <li>- Upper switch position: Operating mode "MANUAL": The conveying function of the left / right conveyor is switched on continuously with full delivery rate, without material control via the limit switches.</li> </ul> <p> On actuation, heed danger zones of moving parts of the vehicle!</p>
94	Retract / extend left / right levelling cylinder	<p>Pushbutton function:</p> <ul style="list-style-type: none"> <li>- Upper switch position: Retract left / right levelling cylinder.</li> <li>- Lower switch position: Extend left / right levelling cylinder.</li> </ul> <p> On actuation, heed danger zones of moving parts of the vehicle!</p>
95	Levelling Operating mode "AUTO" / "MANUAL"	<p>Detent switch function:</p> <ul style="list-style-type: none"> <li>- Upper switch position: Operating mode "MANUAL": height adjustment is carried out using the corresponding function switches on the remote control or operating panel.</li> <li>- Lower switch position: Operating mode "AUTO": height adjustment is carried out automatically via the connected grade control system.</li> </ul>
96	Retract / extend left / right screed	<p>Pushbutton function:</p> <ul style="list-style-type: none"> <li>- Switch position in the corresponding direction: Extend or retract left / right screed half.</li> </ul> <p> On actuation, heed danger zones of moving parts of the vehicle!</p>
97	Socket	<p> For connecting with the corresponding socket on the side shield.</p>




# D 30.18 Operation

## 1 Operating elements on the paver finisher

### 1.1 Control elements on the operator's control station

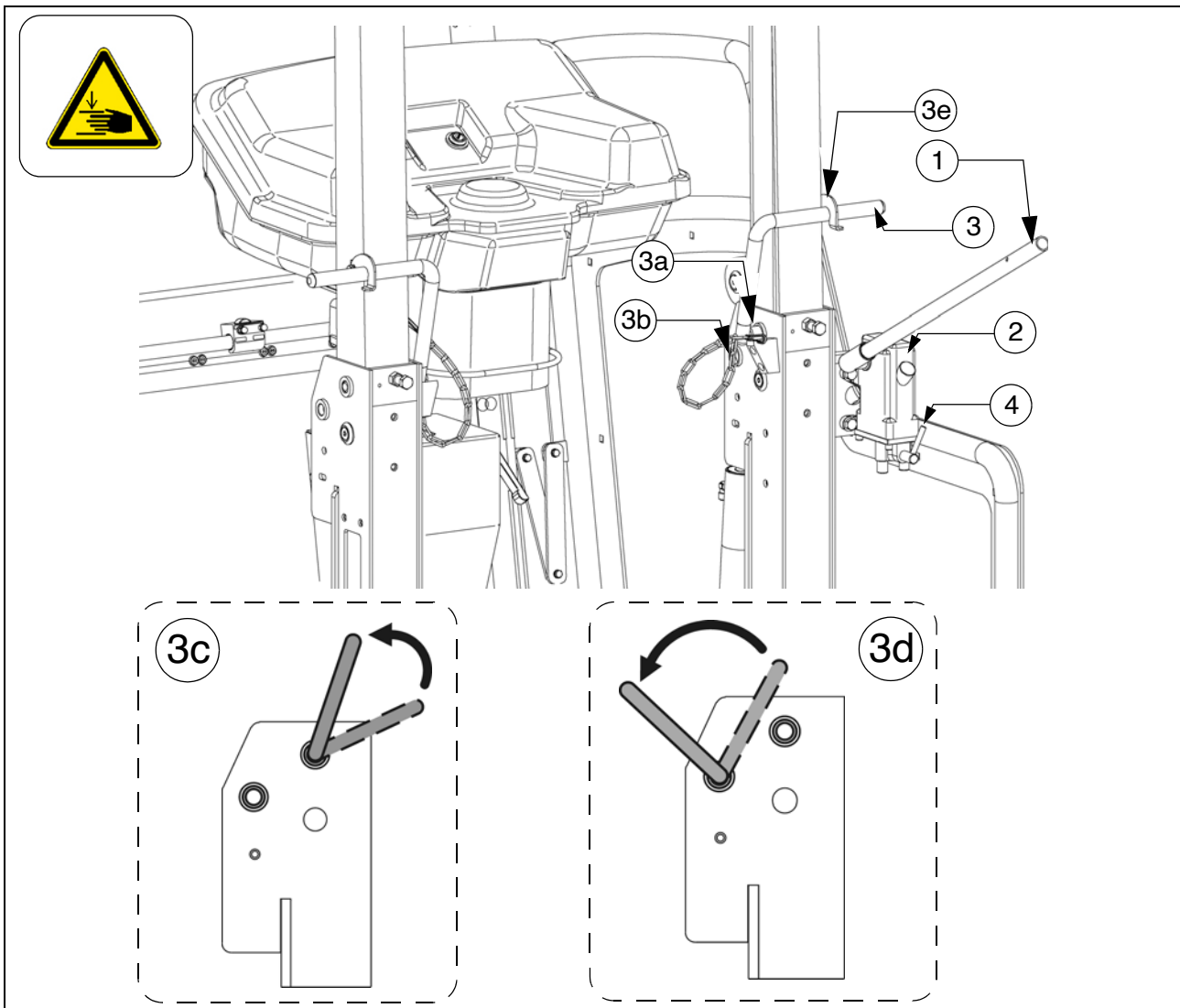
 <b>WARNING</b>	<b>Danger of falling from the vehicle</b>
	<p>Entering and leaving the vehicle and the driver's seat during operation poses a risk of falling from the vehicle, which can cause severe to fatal injuries!</p> <ul style="list-style-type: none"> <li>- During operation, the operator must be at the intended driver's seat and be seated properly.</li> <li>- Never jump onto or off a moving vehicle.</li> <li>- Keep accessible surfaces free of any soiling, e.g. operating substances, to avoid the risk of slipping.</li> <li>- Use the steps provided and hold onto the handrail with both hands.</li> <li>- Comply with all further information in these instructions and in the safety manual.</li> </ul>

## Protective roof (○)

NOTE	Caution! Possible collision of parts
	<p>The following adjustments must be made before lowering the roof:</p> <ul style="list-style-type: none"><li>- Both seat consoles pushed in.</li><li>- Backrests and armrests of driver's seats tilted forwards.</li><li>- Operating panel in lowest position and locked with the vandalism protection facility.</li><li>- Front window closed.</li><li>- Engine hood closed.</li></ul>

The protective roof can be raised and lowered with a manual hydraulic pump.

Version 1:



The exhaust pipe is lowered or raised together with the roof.

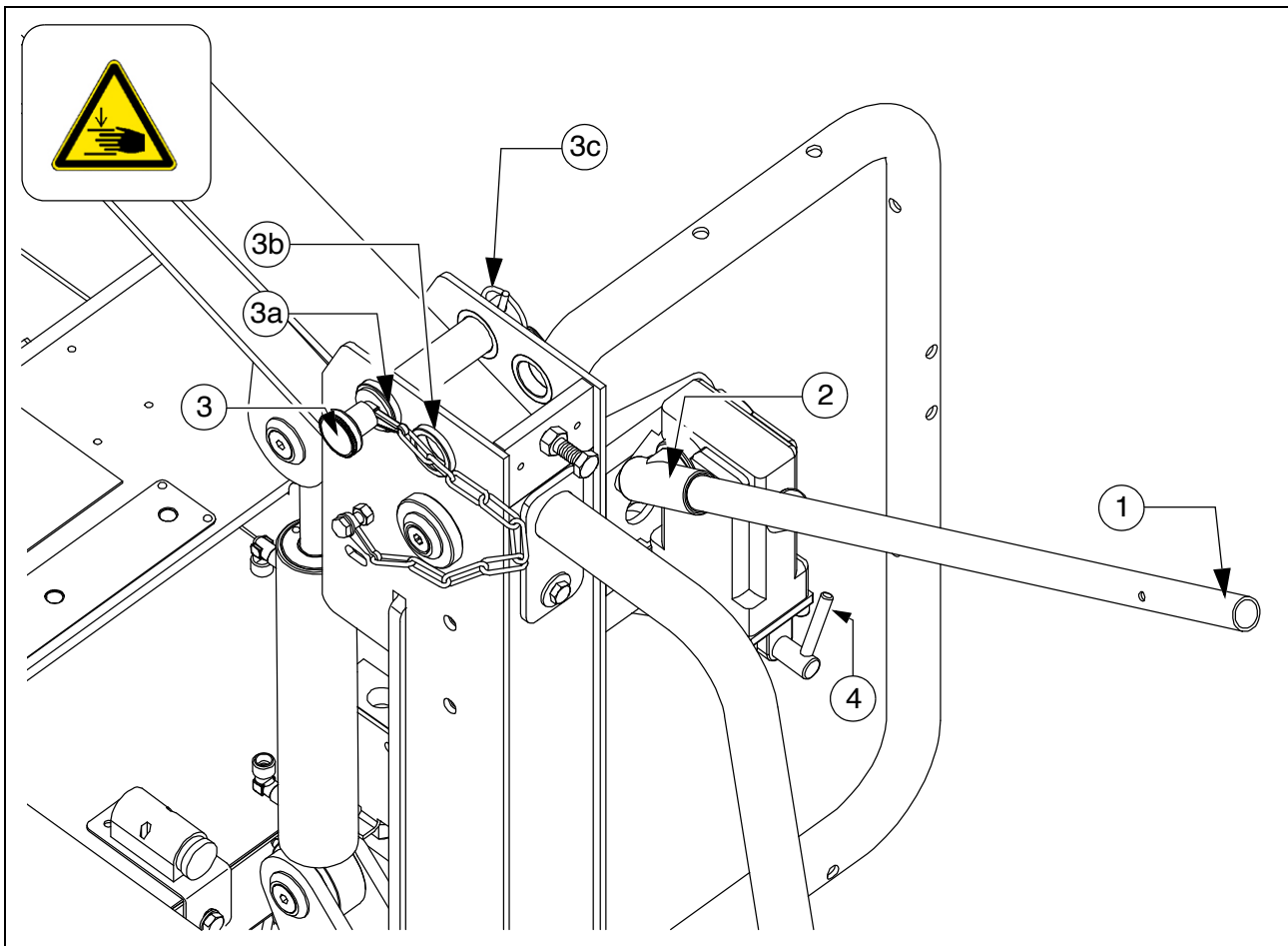
- Connect the pump lever (1) to the pump (2).
- Tighten bolts (3) on both sides of the roof.
- Set the adjustment lever (4) to the "Raise" or "Lower" position.
- Operate the pump lever (1) until the roof has reached the upper or lower limit position.
- Bolt (3) must be inserted in the corresponding hole on both sides of the roof:
  - Position (3a): Roof raised.
  - Position (3b): Roof lowered.



The bolt must be inserted with the alignment as shown and then swivelled against the roof beam. Possibly adjust the position of the roof with the hand pump to insert the bolt.

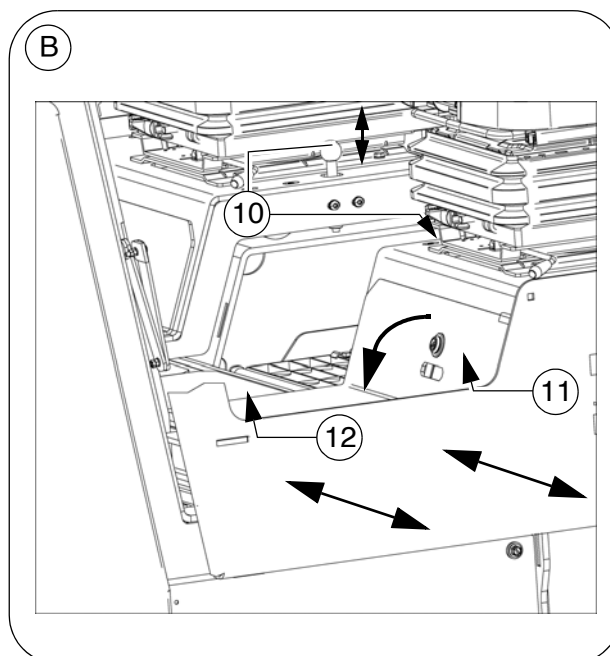
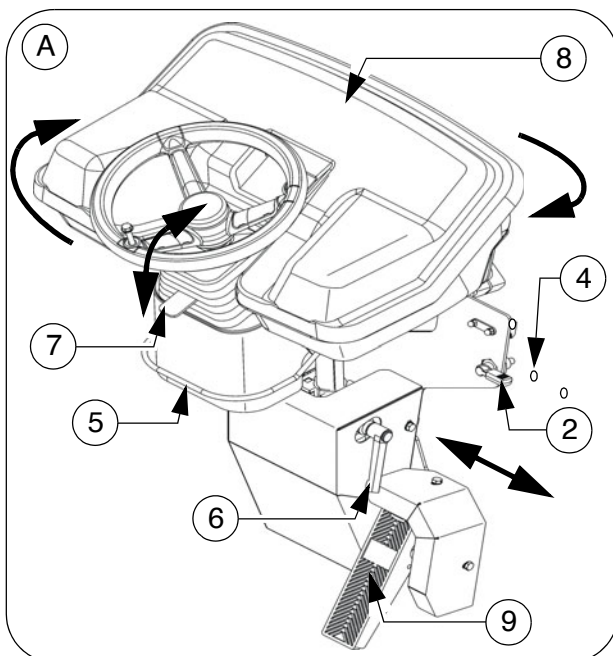
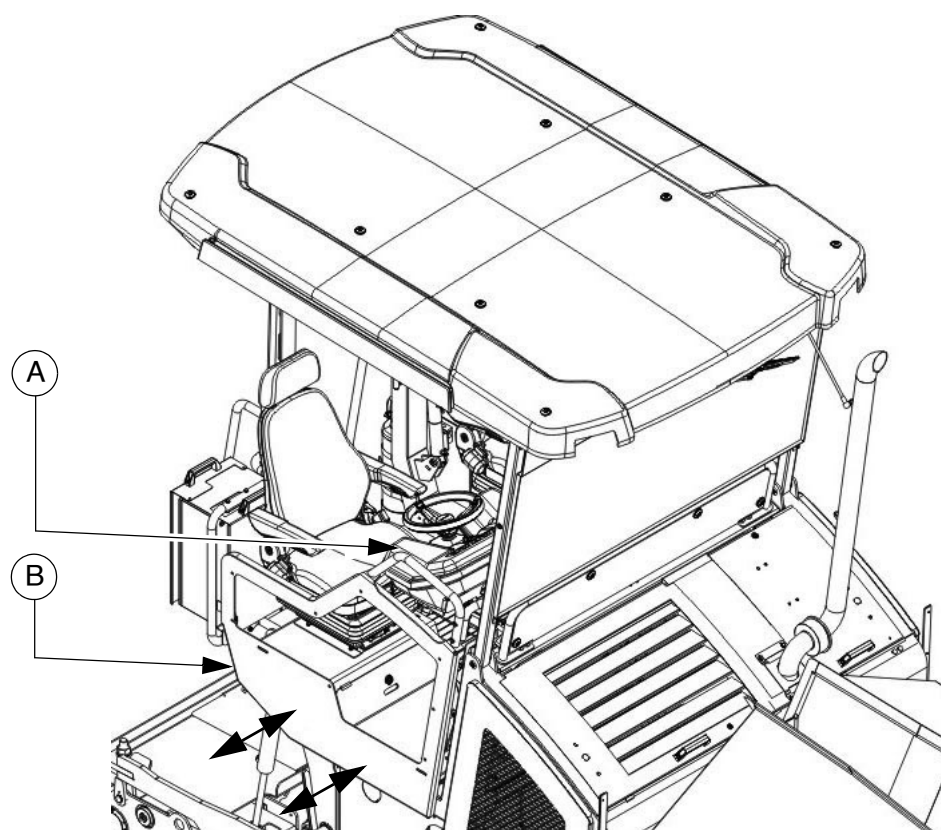
- Position (3c): Roof raised.
- Position (3d): Roof lowered.
- Secure bolt with hook (3e)

Version 2:



- Connect the pump lever (1) to the pump (2).
- Tighten bolts (3) on both sides of the roof.
- Set the adjustment lever (4) to the "Raise" or "Lower" position.
- Operate the pump lever (1) until the roof has reached the upper or lower limit position.
- Bolt (3) must be inserted in the corresponding hole on both sides of the roof:
  - Position (3a): Roof raised.
  - Position (3b): Roof lowered.
  - Secure bolt with split pin (3c).

## Control platform, telescoping seat consoles



## Operating panel

The operating panel can be adjusted to the various operating positions: left/right, sitting/standing. The entire operating panel can be swivelled for operation beyond the outer edge of the vehicle.



Make sure it is latched properly!



Only adjust the operating position whilst the vehicle is stationary!

Pushing the operating panel:

- Release the panel latch (2) and slide the panel console to the required position.
- Insert panel latch (2) into one of the detent positions (4).

Swivelling the operating panel:

- Lift latch (5), swivel operating panel to the required position and allow latch to engage again in one of the intended detent positions.

Raise/lower the operating panel:

- Release clamping lever (6), lift or lower operating panel.  
Tighten clamping lever (6) in required position.

Steering wheel, inclination adjustment (○):

- Press latch (7), swivel steering wheel to the required position and allow latch to engage again.



During longer interruptions and after work has been completed, cover the operating panel with the vandalism protection facility (8) and lock in position.

## Service brake ("foot brake") (○)

The brake pedal (9) is in front of the driver's seat.



When the brake is actuated, the speed of the travel drive is automatically reduced (regardless of the drive lever position).

- If the vehicle was brought to a standstill with the service brake, it cannot be driven away again until after the drive lever has been put into neutral!

---

## Seat console

The seat consoles left/right can be moved beyond the outer edge of the vehicle, providing the driver with a better view of the paving area in this position.

- There is a latch at both seat consoles.
- Pull latch (10), extend left or right seat console and allow latch to engage again.



Make sure it is latched properly!



When extended, the seat consoles increase the basic width of the paver finisher.



If the seat consoles are moved, ensure that there is no one in the danger area!



Only adjust the operating position whilst the vehicle is stationary!



During transportation in road traffic and when transporting the vehicle on transporters, the seat consoles must be secured in the retracted position!

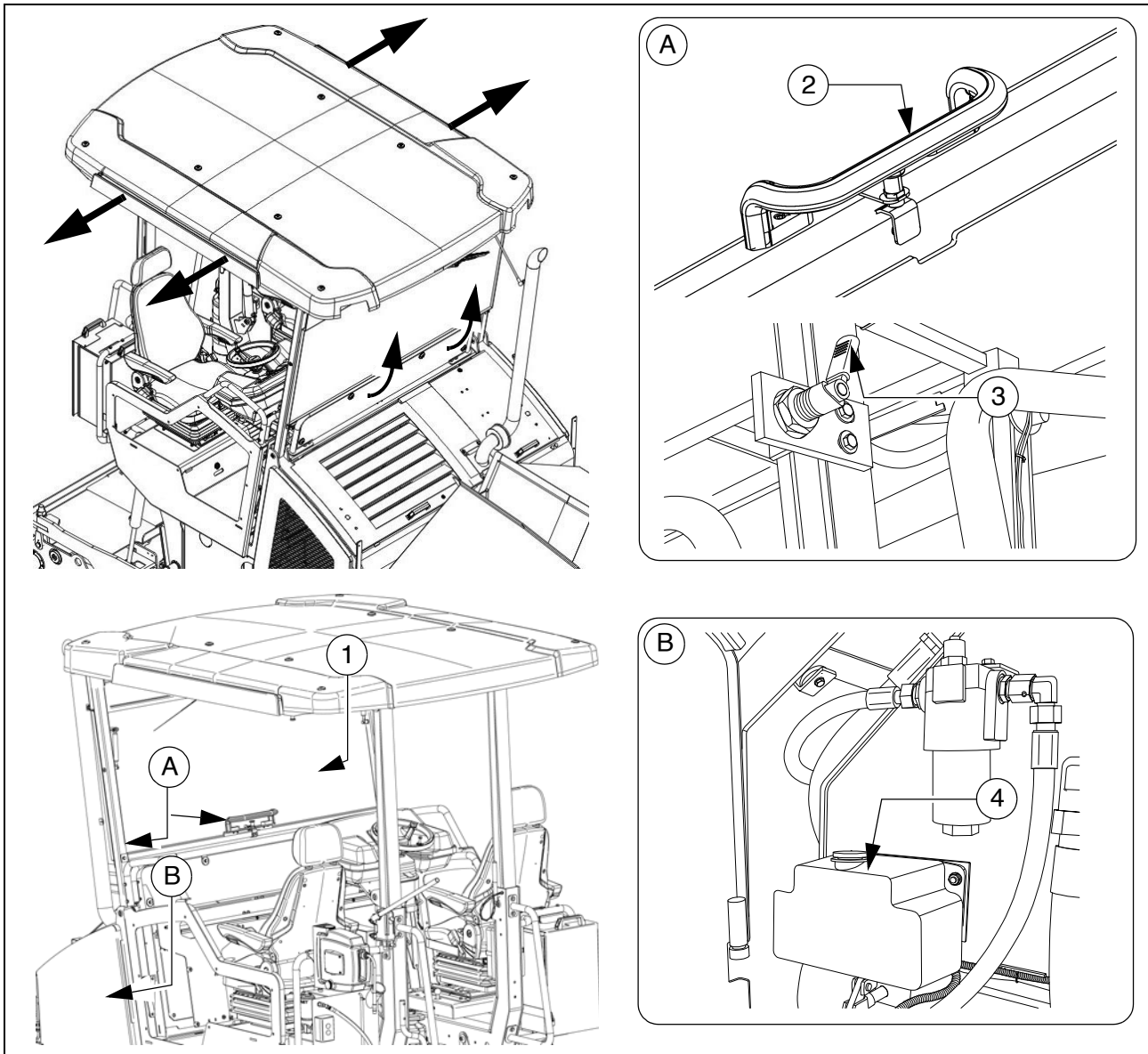
## Storage space


There are lockable storage compartments under both left / right seat consoles and in the middle of the platform (11), (12).



For storing the on-board tool kit, remote controls and other accessories.

## Protective roof (○)



<p><b>⚠ CAUTION</b></p>	<p><b>Risk of crushing hands</b></p>
	<p>When closing the spring-loaded front window, there is a risk of crushing which can cause injuries!</p> <ul style="list-style-type: none"> <li>- Do not reach into the danger zone.</li> <li>- Set the latches correctly.</li> <li>- Comply with further instructions in the safety manual.</li> </ul>

The protective roof is equipped with an additional front window and optionally with two side windows.

- The front window (1) can be swivelled using the handle (3) with the latch pulled (2). To close the front window, pull the latch (2) and pull the sliding frame at the handle (3).

### Windscreen wiper

- Engage the windscreen wiper / screen wash on the operating panel if necessary.

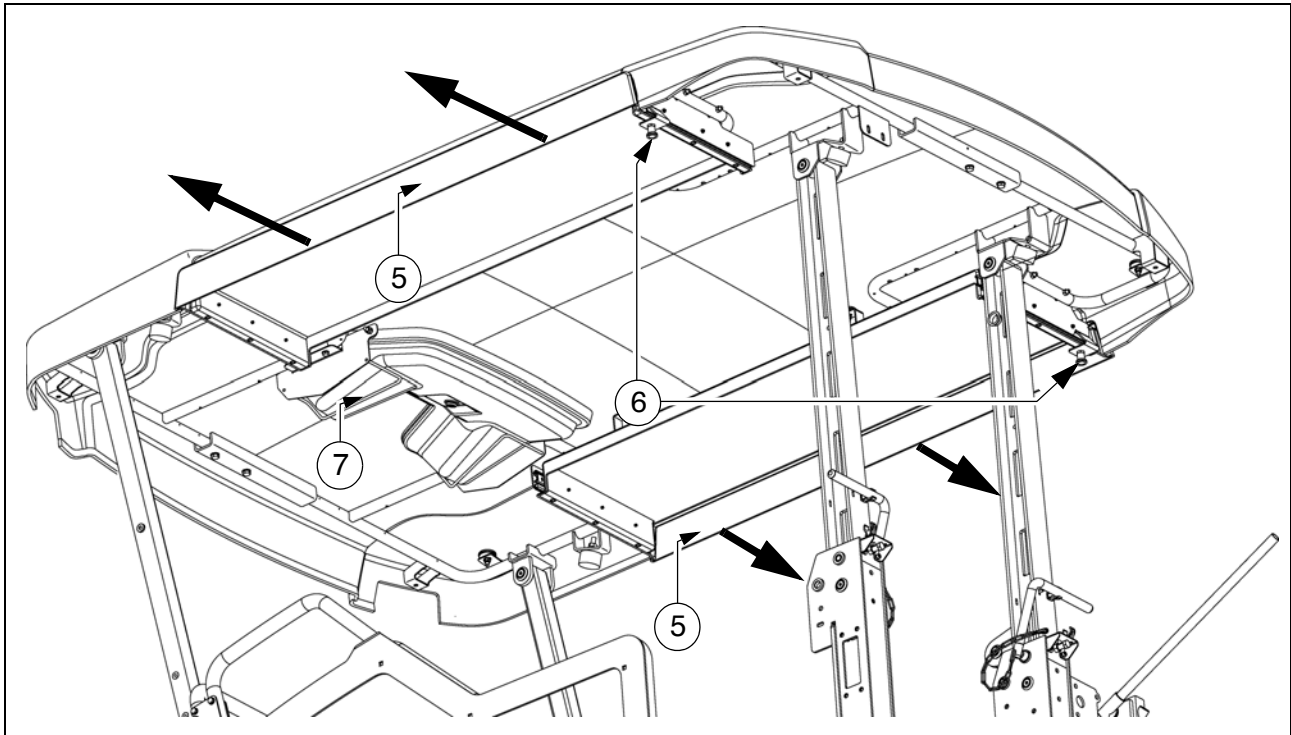


Ensure that the washer fluid tank (4) is always adequately filled.



Replace worn wiper blades immediately.

### Sunshade



A sliding sunshade (5) is available to the left and right of the protective roof to protect the driver, for example when the seat console is extended.

- Pull the latch (6) and extend the sunshade. Set the latches in one of the intended detent positions.



The sunshade must be retracted again before lowering the roof and for transport on the low-bed trailer!

### Holder for the vandalism protection facility

- Keep the vandalism protection facility in the holder (7) during operation.

## Driver's seat, type I



To avoid damage to health, the individual seat settings should be checked and adjusted before starting the vehicle.

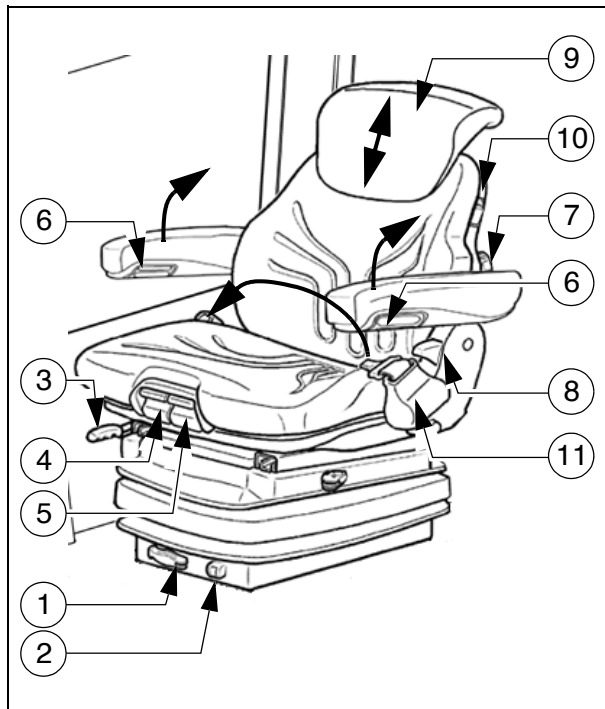


After locking the individual elements, it must no longer be possible to shift them to another position.

- **Weight setting (1):** The relevant driver's weight should be set by turning the weight adjustment lever when the driver's seat is unoccupied.
- **Weight indicator (2):** The set driver's weight can be read off at the viewing window.
- **Longitudinal adjustment (3):** Longitudinal adjustment is released by actuating the locking lever.

The locking lever must engage in the desired position.

- **Seat depth adjustment (4):** The seat depth can be individually adjusted. Raise the button to adjust the seat depth. The desired position is set by simultaneously sliding the seat surface forwards or backwards.
- **Seat inclination adjustment (5):** The seat surface's longitudinal inclination can be individually adjusted. Raise the button to adjust the inclination. The seat surface inclines to the desired position by simultaneously loading or relieving it.
- **Armrest inclination (6):** The armrest's longitudinal inclination can be adjusted by turning the hand wheel. Turning outwards raises the front of the armrest; turning inwards lowers it at the front.  
In addition, the armrests can be folded up fully.
- **Lumbar support (7):** Both the height and the extent of the convexity in the backrest padding can be individually adjusted by turning the hand wheel to the left or right.
- **Backrest adjustment (8):** The backrest is adjusted via the locking lever. The locking lever must engage in the desired position.
- **Back extension (9):** By pulling out via perceptible detents, the height can be individually adjusted up to a limit stop. To remove the back extension, the limit stop is overcome with a jolt.
- **Seat heating ON/OFF (10):** The seat heating is switched on and off by actuating the switch.
- **Seat belt (11):** The seat belt must be applied before starting up the vehicle.



The seat belts must be replaced following an accident.

## Driver's seat, type II



To avoid damage to health, the individual seat settings should be checked and adjusted before starting the vehicle.

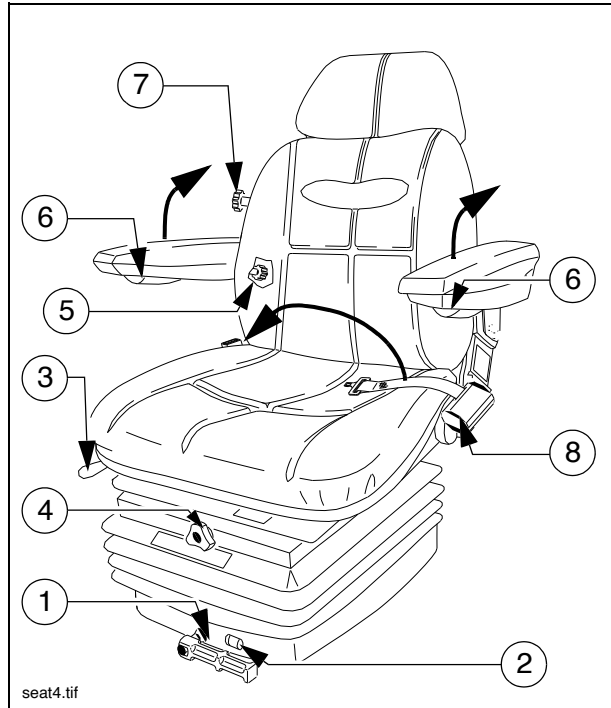


After locking the individual elements, it must no longer be possible to shift them to another position.

- **Weight setting (1):** The relevant driver's weight should be set by turning the weight adjustment lever when the driver's seat is unoccupied.
- **Weight indicator (2):** The set driver's weight can be read off at the viewing window.
- **Longitudinal adjustment (3):** Longitudinal adjustment is released by actuating the locking lever.

The locking lever must engage in the desired position.

- **Seat height adjustment (4):** The seat height can be individually adjusted. Turn the handle in the desired direction to adjust the seat height.
- **Backrest adjustment (5):** The backrest inclination can be continuously adjusted. Turn the handle in the desired direction to adjust.
- **Armrest inclination (6):** The armrest's longitudinal inclination can be adjusted by turning the hand wheel. Turning outwards raises the front of the armrest; turning inwards lowers it at the front.  
In addition, the armrests can be folded up fully.
- **Lumbar support (7):** Both the height and the extent of the convexity in the backrest padding can be individually adjusted by turning the hand wheel to the left or right.
- **Seat belt (8):** The seat belt must be applied before starting up the vehicle.



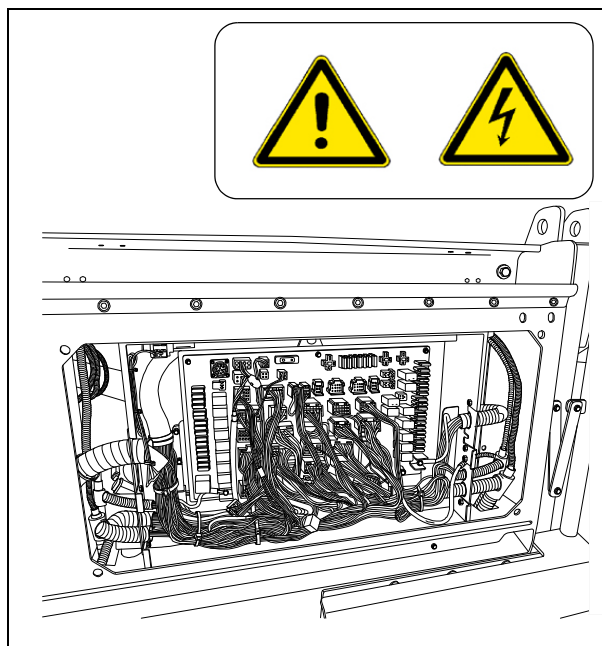
The seat belts must be replaced following an accident.

## Fuse box

The terminal box, which contains all fuses and relays, etc. is located beneath the central control platform floor panel.



An assignment plan for fuses and relays can be found in chapter F8.



## Batteries

The batteries (1) of the 24 V system are located in the vehicle footwell.



For the specifications, refer to chapter B, "Technical data". For maintenance, see chapter "F".



External starting must only be carried out according to the instructions (see section "Starting the paver finisher, external starting (starting aid)").

## Main battery switch

The main battery switch separates the current circuit from the battery to the main fuse.

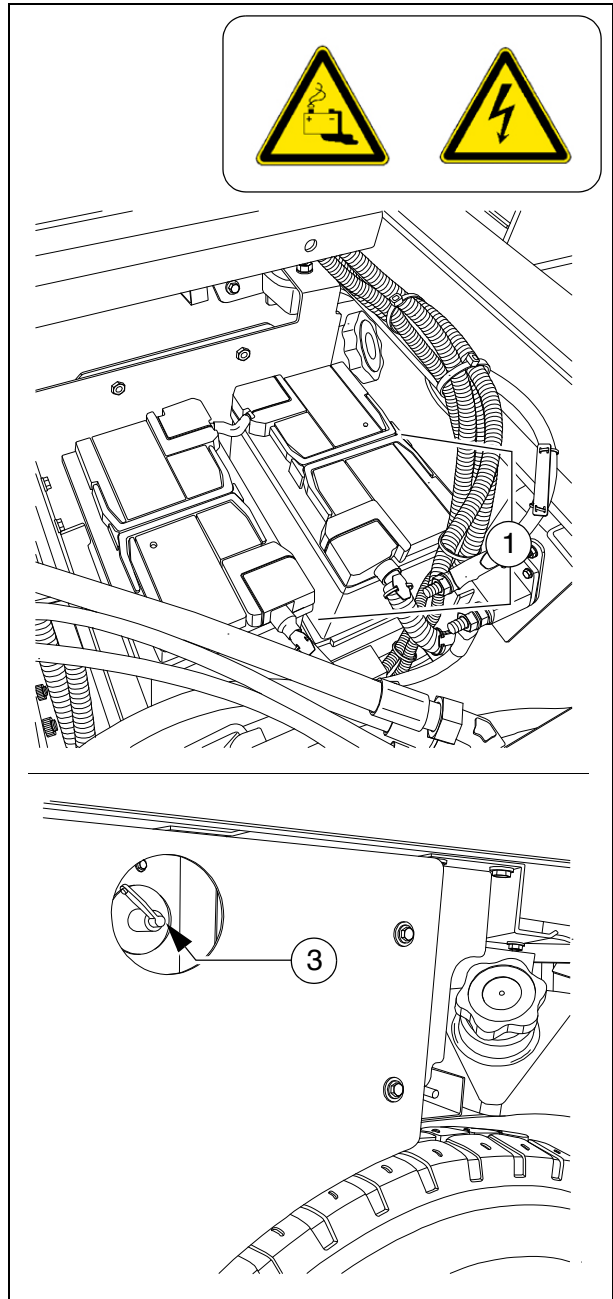


For the assignment of all fuses, see chapter F.

- To interrupt the battery's current circuit, turn the key pin (3) to the left and pull it out.



Do not lose the key pin as in this case the paver finisher can no longer be moved!



## Hopper transport safeguard

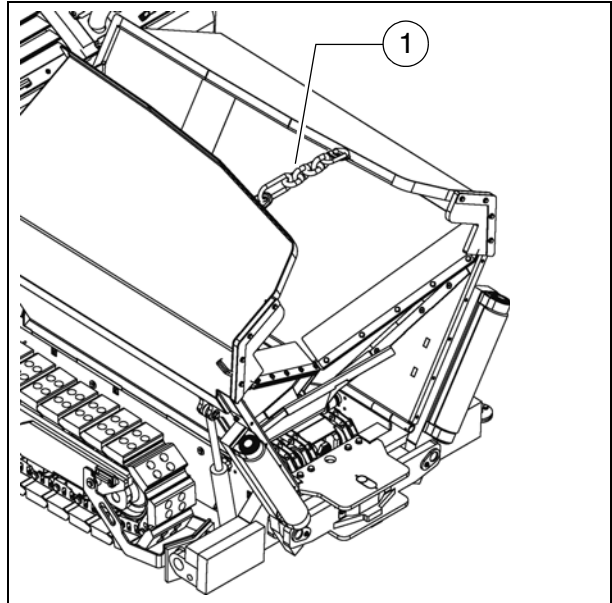
Before parking or transporting the paver finisher, the hopper lids must be swung upwards and the transport safeguards for the hopper must be inserted.

- Insert snap hook (1) in the corresponding shackle of the opposite hopper lid.



Do not enter the hopper while the engine is running! Danger of being caught by the conveyor!

Without transport safeguards inserted, the hopper halves will slowly open; danger during transportation!



## Screed lock, mechanical

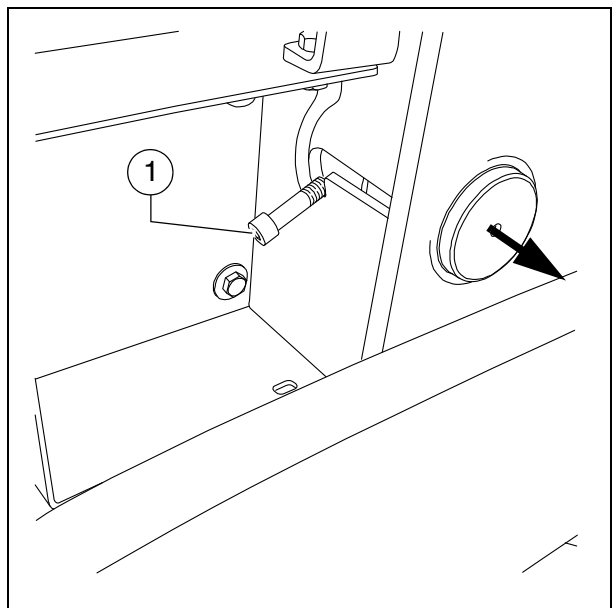


The screed locks must additionally be engaged on both sides of the vehicle prior to transportation with the screed lifted.



Transportation with an unsecured screed leads to a risk of accidents!

- Lift the screed.
- On both sides of the paver finisher, slide the screed lock beneath the crossbeams using the lever (1); place the lever in the detent position.



### ATTENTION!

Insert crossbeam lock only at crown adjustment "zero"!

Crossbeam lock only for transportation!

Do not charge the screed or work under it if it is only secured by the crossbeam lock!

**Danger of accidents!**

## Paving thickness indicator

Two scales, on which the currently set paving thickness can be read off, are located on the left and right sides of the vehicle.

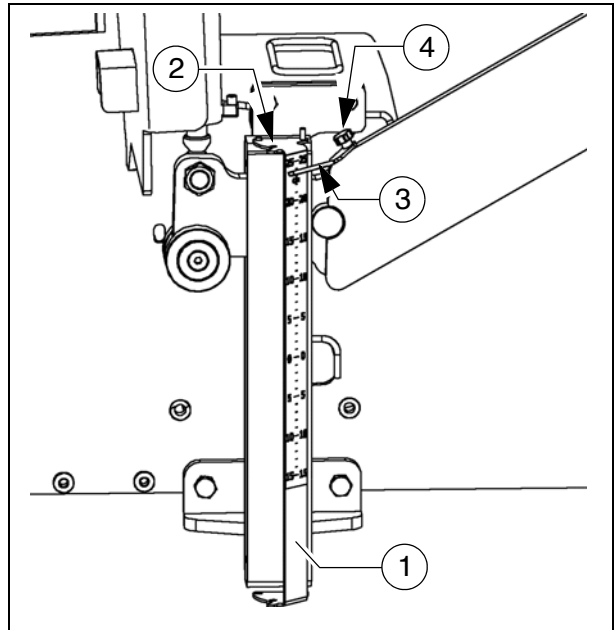
- To change the reading position, the scale (1) can be raised and lowered again in one of the adjacent locating bores (2).
- The pointer (3) can be swivelled to different positions using the locking knob (4).



The scale (1) and pointer (3) must be swivelled in completely to transport the machine.



In normal paving situations, the same paving thickness should be set on both sides of the vehicle!

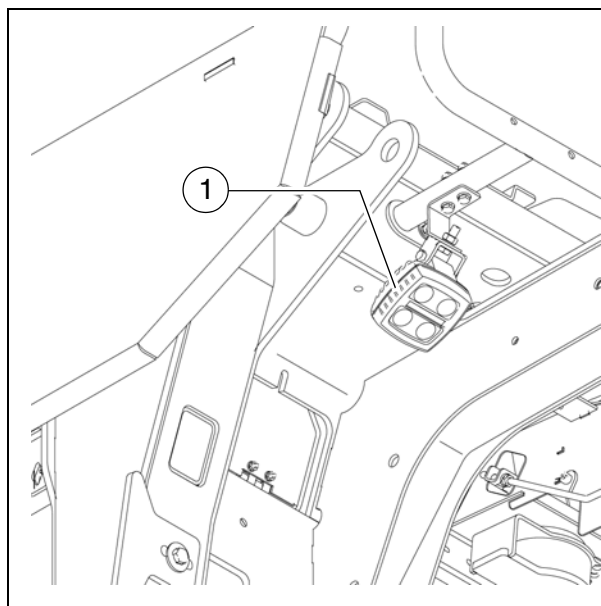


## Auger lighting (○)



Two swivelling headlights (1) are located at the back of the vehicle for illuminating the auger compartment.

- They are engaged together with the working lights.

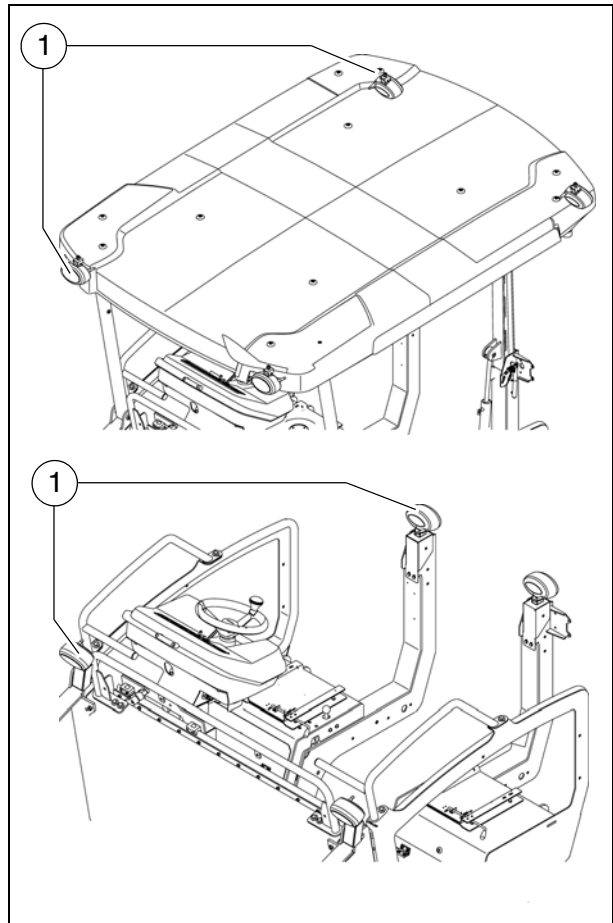


## LED working light (○)

There are two LED spotlights (1) at the front and rear of the vehicle.



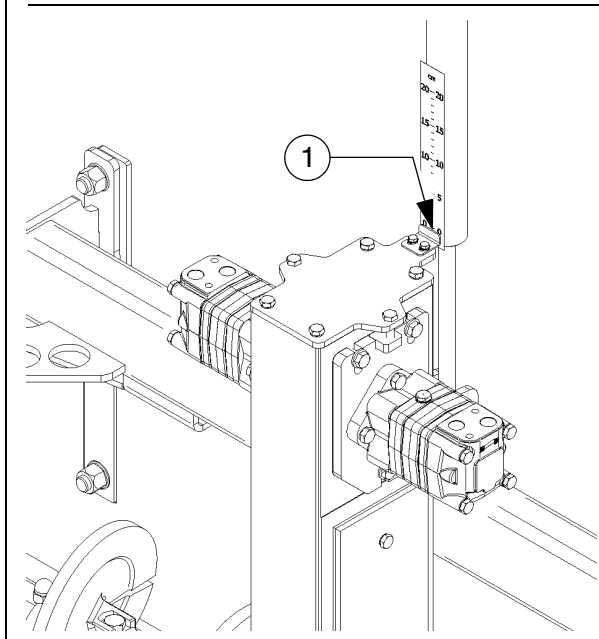
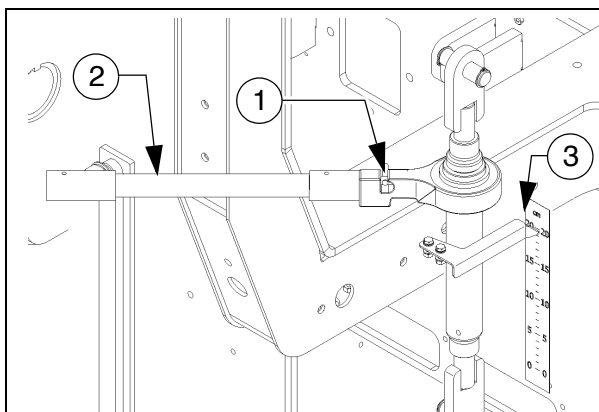
Always align the working lights to avoid dazzling the operating personnel or other road users!



## Mechanical height adjustment, auger (○)

For mechanical adjustment of the auger height

- Set the ratchet direction lever (1) to the clockwise or anti-clockwise direction. Turning anti-clockwise lowers the auger, turning clockwise lifts the auger.
- Actuate the ratchet lever (2)
- Set the desired height by alternatingly actuating the left and right ratchets.
- The current height can be read at the scale (3).



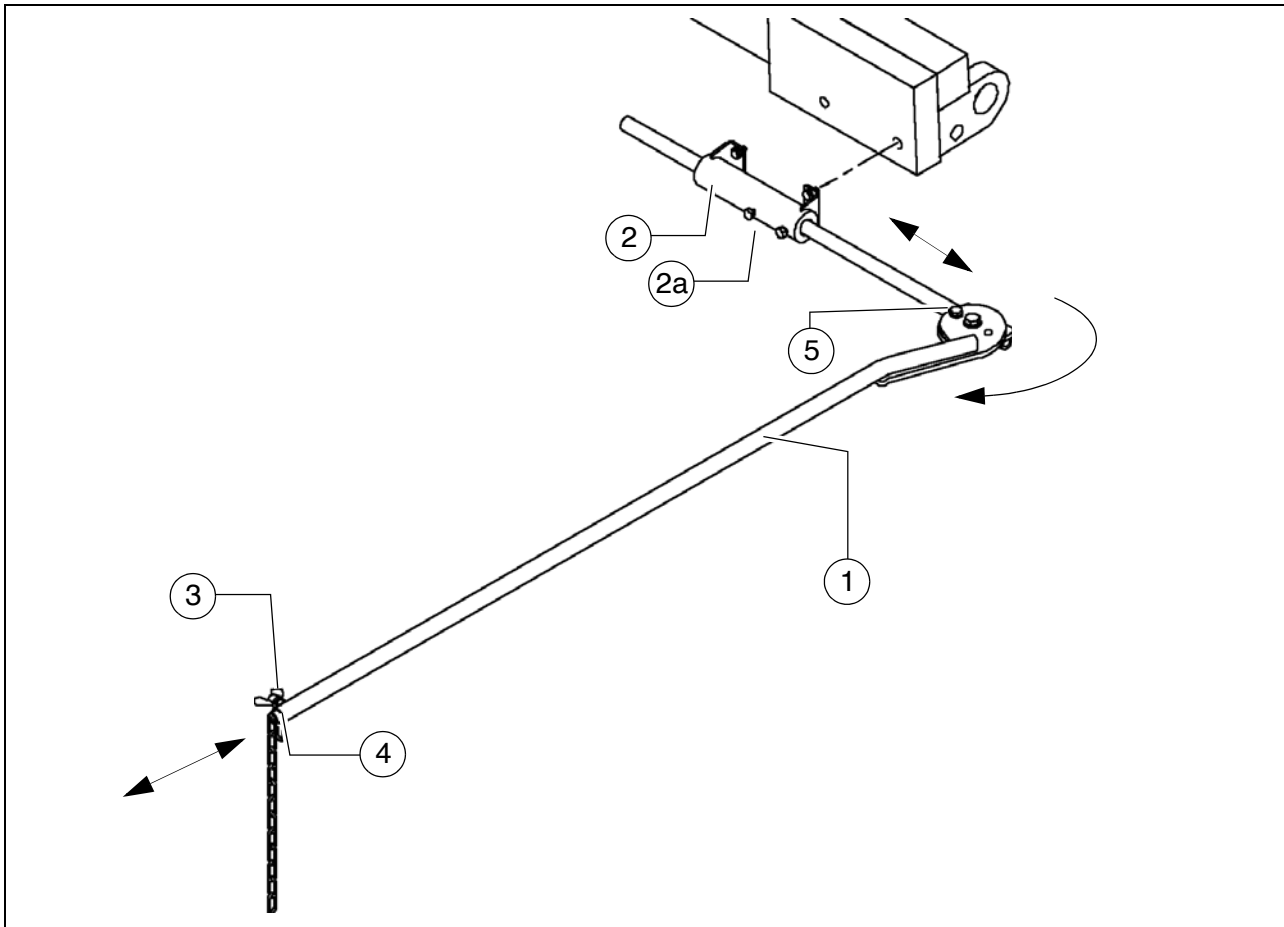
## Hydraulic height adjustment:

- Adjust the required height by pressing the corresponding switch (operating panel).
- The current height can be read at the scale (4).



Observe the notes on adjusting the auger height in the chapter "Set-up and modification"!

## Sensor rod / sensor rod extension



The sensor rod acts as an orientation aid for the vehicle driver during paving. Along the defined paving route, the vehicle driver can use the sensor rod to follow a tensioned reference wire or another marking.

The sensor rod runs along the reference wire or over the marking. Steering deviations can therefore be ascertained and corrected by the driver.



Use of the sensor rod increases the basic width of the paver finisher.



If the sensor rod or sensor rod extension are used, ensure that there is no one in the vehicle's danger area!



The sensor rod is adjusted when the vehicle is positioned, with its set working width, on the paving route and the reference marking running parallel to the paving route has been set up.

Adjusting the sensor rod:

- The sensor rod (1) is located at the head end of the vehicle and can be inserted in the corresponding holder (2) on either the left or right side of the vehicle. The sensor rod is fixed in the holder by tightening the two screws (2a).

- Loosen the winged nut (3) to pull the sensor rod extension (4) out for adjustment to the required length. You can also change the angle by swivelling the joint (5).



Tighten all assembly parts properly after setting up!



During transportation, the sensor rod must be swivelled right back and fixed correctly. The max. transport width must not be exceeded!

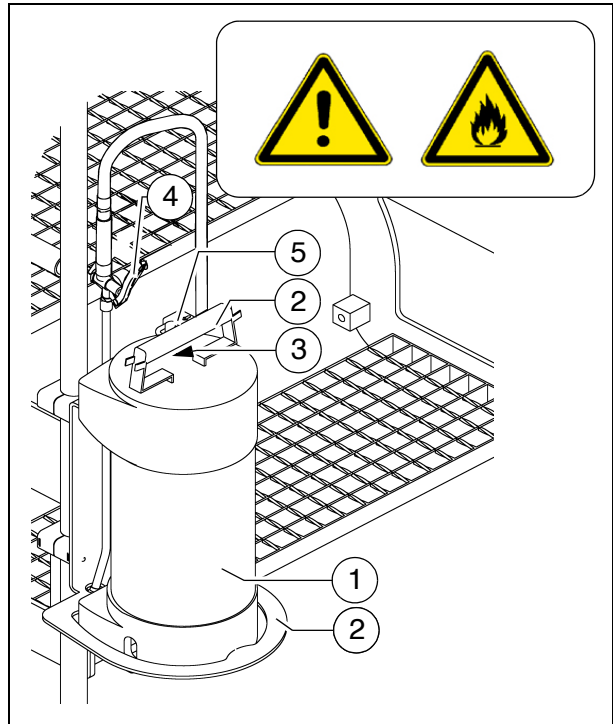
## Manual separator fluid spray (○)

Used to spray the parts coming into contact with asphalt with a separator emulsion.

- Remove the spray (1) from its bracket.
- Build up pressure by actuating the pump lever (2).
  - The pressure is indicated on the manometer (3).
- Actuate the manual valve (4) to spray.
- On completion of work, secure the manual spray in its bracket with a lock (5).



Do not spray into open flame or on hot surface! Danger of explosion!



## Separator fluid spraying system (○)

Used to spray the parts coming into contact with asphalt with a separator emulsion.

- Connect the spray hose (1) with the hand piece (2).



Only switch on the spraying system when the diesel engine is running; otherwise, the battery will be discharged. Switch off after use.

- Pull the hose out of the device until a click is audible. When released, the hose automatically engages here. The hose is automatically retracted into the guide after pulling and discharging again.
- Actuate button (3) to activate and deactivate the pump.
  - The indicator lamp (4) lights up when the emulsion pump is running.
- Actuate the manual valve (5) to spray.



Do not spray into open flame or on hot surface! Danger of explosion!

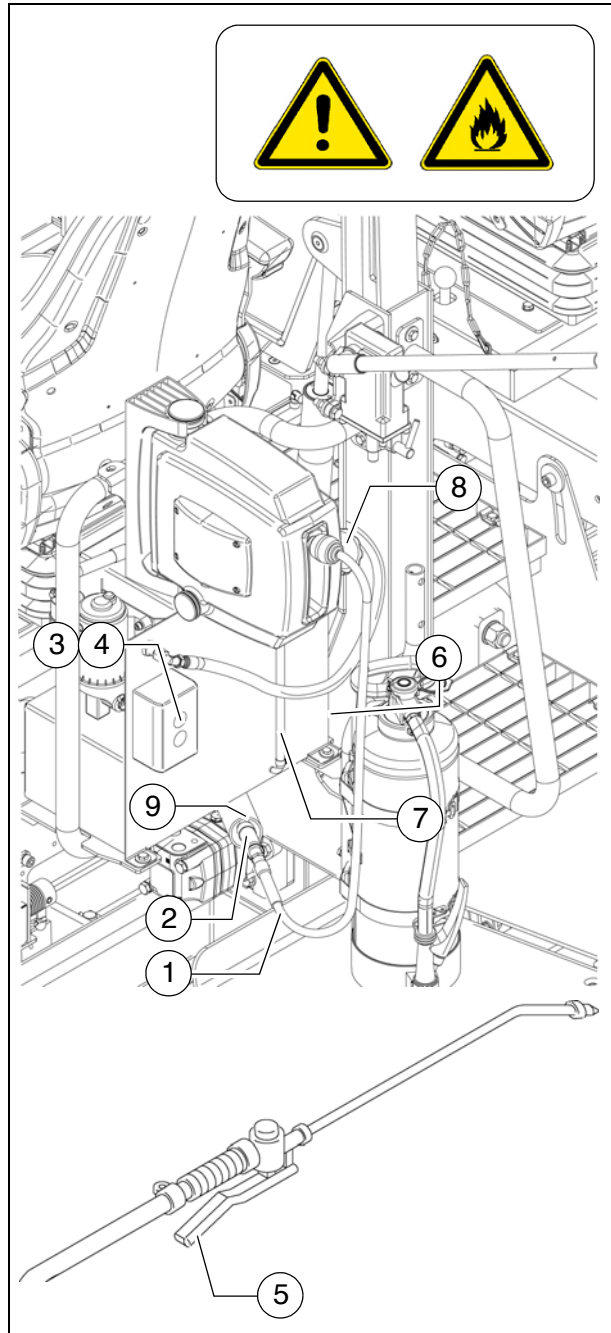


The spraying system is fed by a canister (6) at the vehicle step. Check the level at the sight tube (7). Unscrew the tank cover (8) to fill the tank.



Refill the canister only while the vehicle is stationary!

- If the system is not in use, place the spray lance in the holder (9) provided.



## Conveyor limit switches

The mechanical conveyor limit switches (1) control the material flow on the relevant half of the conveyor.

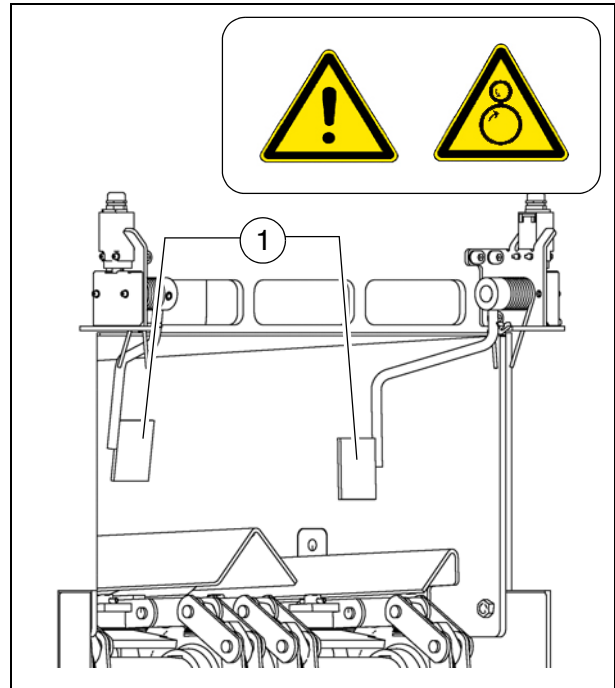
The conveyors should stop when the material has roughly reached the area below the auger tube.



This requires that the auger height has been adjusted correctly (see chapter E).



In vehicles with a PLC control system, the deactivation point is set on the remote control.



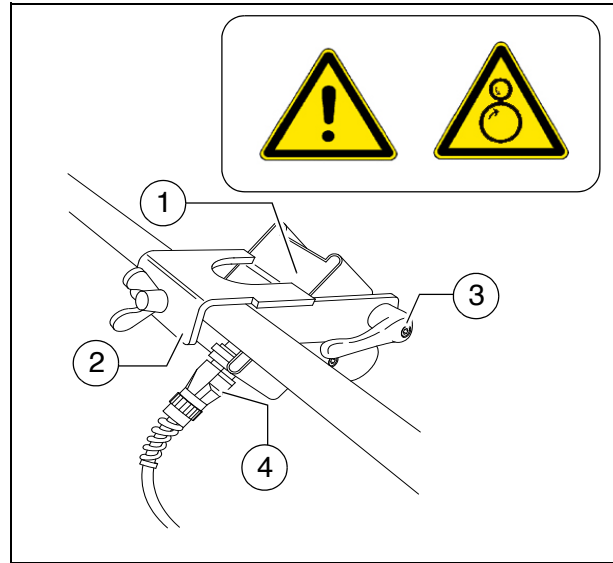
### Ultrasonic auger limit switches (left and right) - PLC version



The limit switches control the material flow at the relevant half of the auger without contact.

The ultrasonic sensor (1) is secured to the side shield via a bracket (2).

- To adjust, release the clamping lever / stop screw (3) and adjust the sensor's angle.
- After adjusting, retighten all mounting parts properly.



The connection cables (4) are connected to the relevant sockets on the remote control bracket.



The sensors should be adjusted so that 2/3 of the augers are covered with the paving material.



The paving material must be conveyed over the full working width.



We recommend adjusting the limit switch positions during material distribution.



In vehicles with a PLC control system, the deactivation point is set on the remote control.

### Ultrasonic auger limit switches (left and right) - conventional version



The limit switches control the material flow at the relevant half of the auger without contact.

The ultrasonic sensor (1) is secured to the side shield via a bracket (2).

- To adjust the sensor angle, loosen the clamps (3) and swivel the bracket.
- To set the sensor height / the deactivation point, loosen the star handles (4) and adjust the linkage to the required length.
- After adjusting, retighten all mounting parts properly.



The connection cables are connected to the relevant sockets on the remote control bracket.



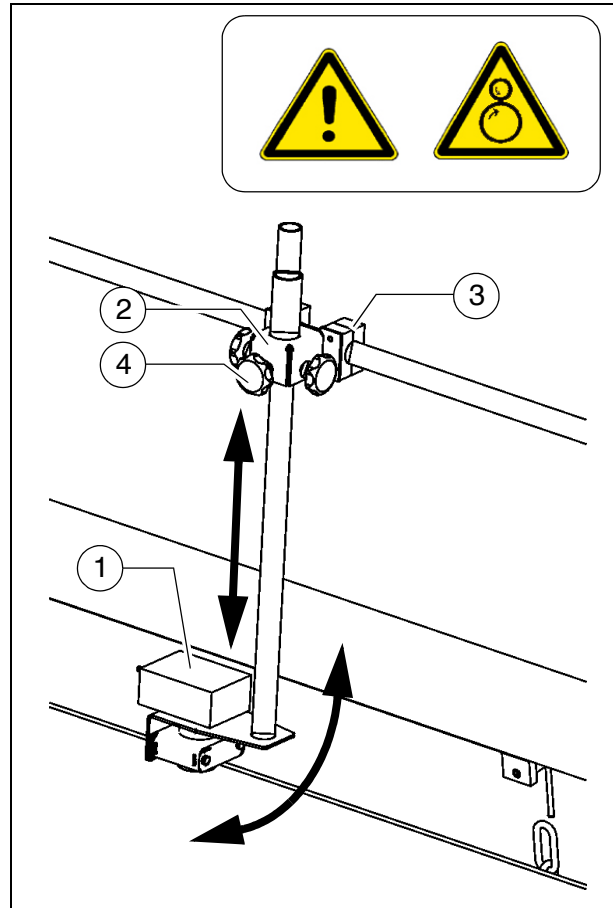
The sensors should be adjusted so that 2/3 of the augers are covered with the paving material.



The paving material must be conveyed over the full working width.



We recommend adjusting the limit switch positions during material distribution.



### 24 volt / 12 volt sockets (○)

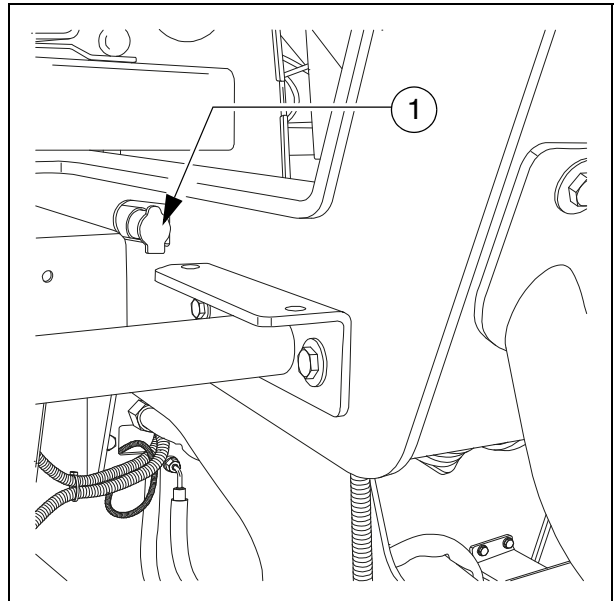
A socket (1) is located behind the left/ right seat consoles.

Additional working lights can be connected here, for example.





- Right seat console: 12V socket
- Left seat console: 24V socket

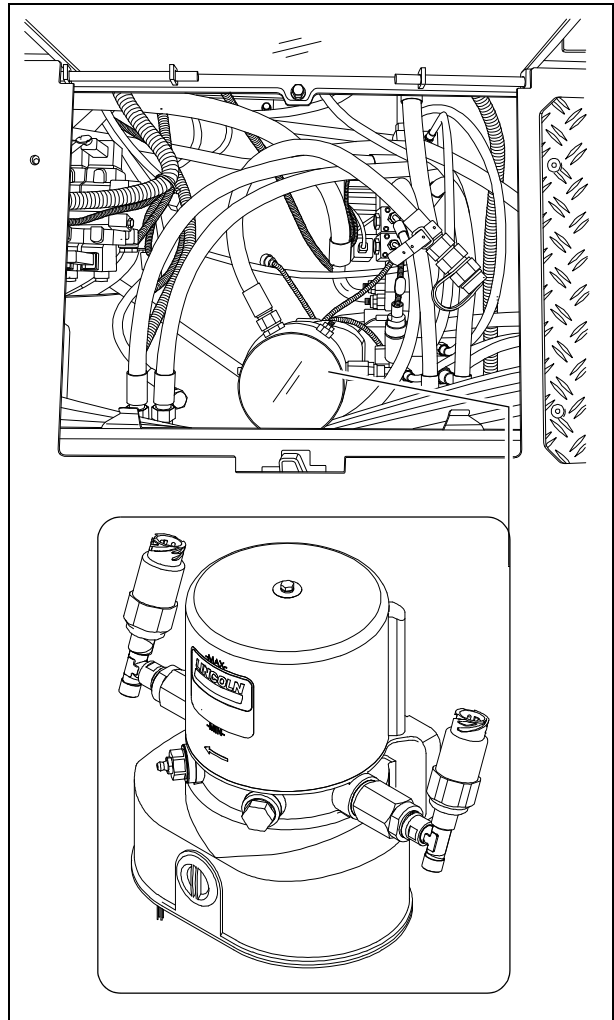


Voltage is present when the main switch is switched on.



## Central lubrication system (○)

-  The central lubrication system is located under the maintenance flap on the operator's platform.
-  The pumping interval adjusted in the factory must be modified to the paving situation.
-  Changing the duration of lubrication and breaks may be necessary when laying mineral or cement bound material mix.
-  The adjustment is carried out in the vehicle control (display) for PLC vehicles.



## Pressure control valve for paving stop with relief

Adjusts the pressure for the screen control with paving stop - "floating stop with relief".



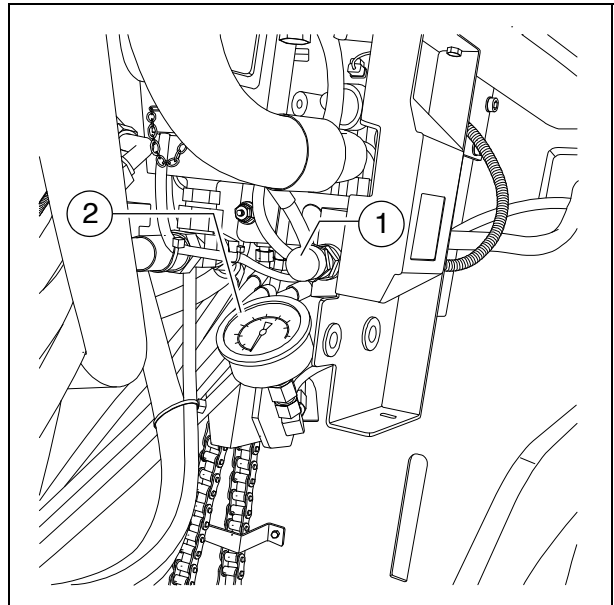
Is engaged automatically with paving stop.

- Pressure adjustment with valve (1).



Lock the valve with the corresponding nut after making the adjustment!

- For pressure indication, see manometer (2).



## Lane clearer (○)

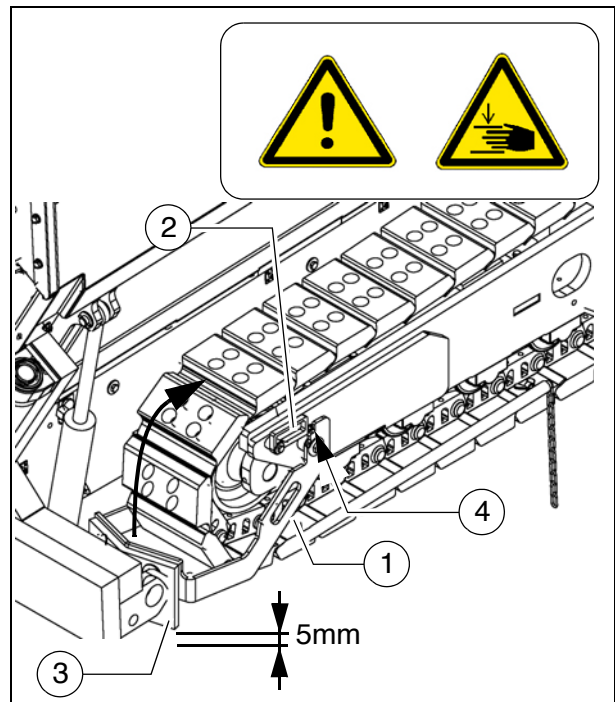
A swivelling lane clearer (1), which deflects small obstacles away to one side, is located in front of both drive units.




The lane clearers should only be swivelled down during paving.

Swivelling the lane clearers:

- Swivel the lane clearer (1) up and secure in the uppermost position with a shackle (2).
- To lower the lane clearer, it must be lifted a little and the shackle (2) must be swivelled back.



NOTE	Caution! Possible collision of parts
	<ul style="list-style-type: none"> <li>- The lane clearer must be adjusted in the lower setting with a few mm clearance between the ground and the blade (3).</li> <li>- When driving up inclines, lock the lane clearer in the upper position.</li> </ul>

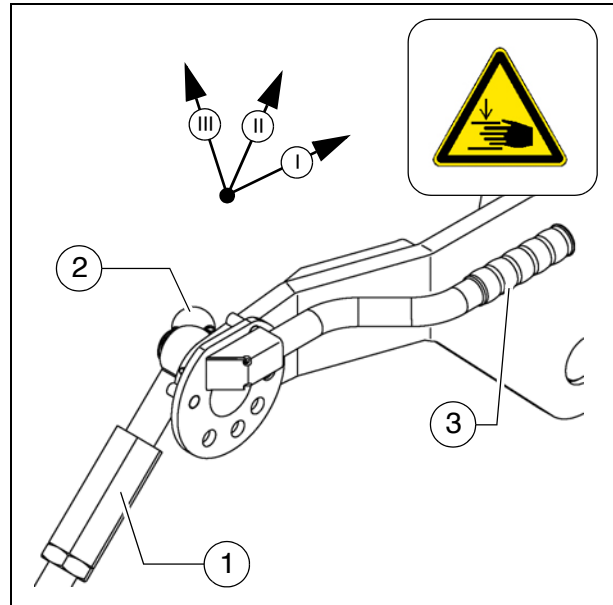


The blade's level above the ground is adjusted with a bolt (4).

## Screed eccentric adjustment

To pave thicker layers of material, if the piston rods in the levelling cylinder are operating close to their limit position and if the desired paving thickness cannot be reached, it is possible to alter the approach angle of the screed by adjusting the eccentric.

- Pos. I: Paving thickness up to approx. 7 cm
- Pos. II Paving thickness of approx. 7 cm to approx. 14 cm
- Pos. III Paving thickness above approx. 14 cm



- The spindle (1) is not adjusted.
- Unfasten locks (2) for eccentric adjustment.
- Swivel screed to the desired position using the lever (3), and engage the locking knob again.



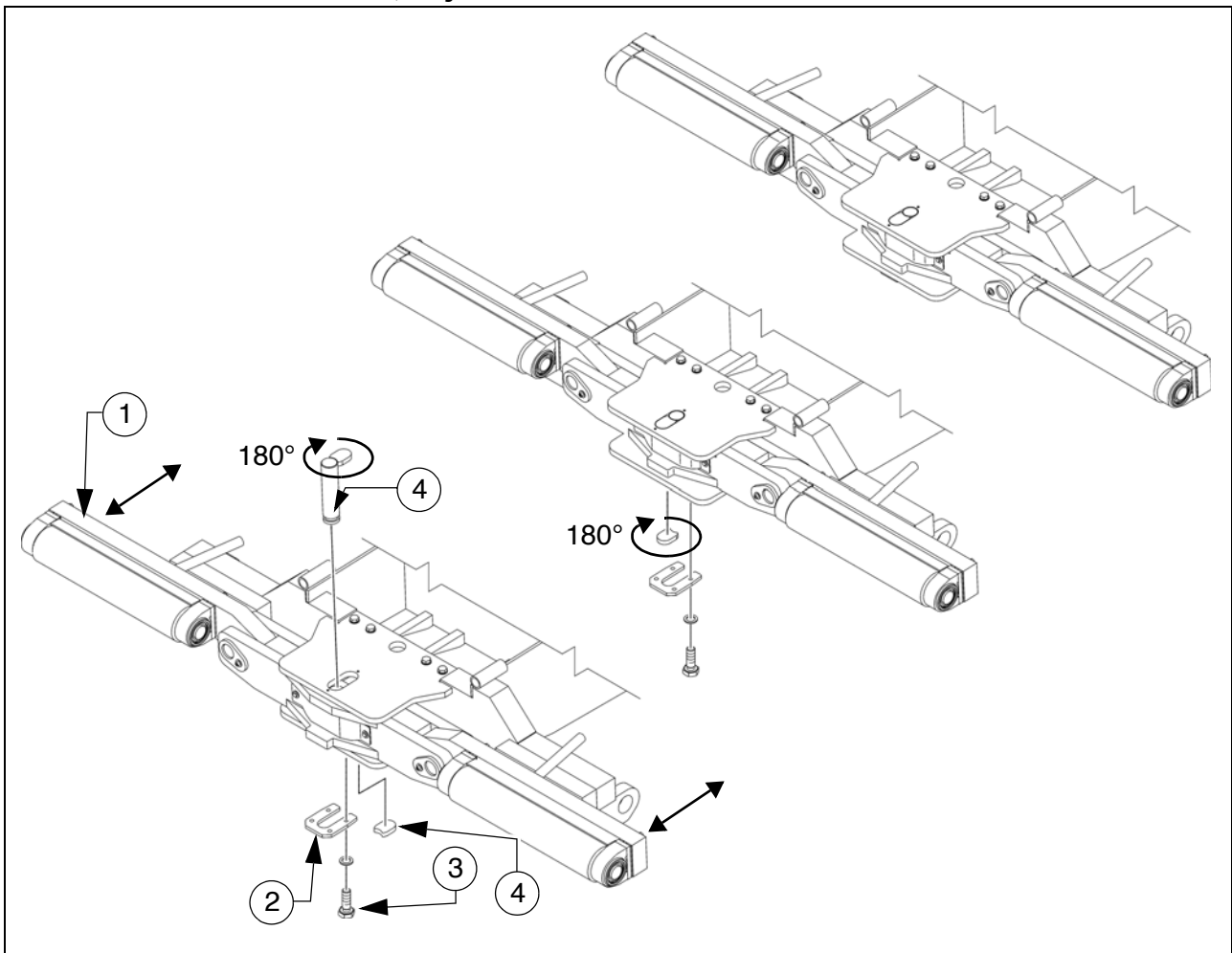
If the levelling unit is connected to a height controller, this has the function of balancing out any rapid rise in the screed position: The levelling cylinders are extended until the correct height is reached.



The change in approach angle can only take place slowly and uniformly on both sides at once during paving operation, and involves the use of eccentric adjustments. Failing this, any rapid response in the screed could easily cause waves to appear on the road surface.

The setting process should therefore take place before work starts!

## Push roller crossbar, adjustable



For adaptation to various truck design types, the push roller crossbar (1) can be shifted to two positions.



The adjustment travel is 60mm.

- Close the hopper halves to lift the hopper flap (○).
- After removing the bolts (3), remove the locking plate (2) on the lower side of the crossbar.
- Remove insert plate (4).
- Remove bolt (5).
- Move the push roller crossbar as far as it will go to the front / rear position.



Shift the push roller crossbar at the towing eye or use a suitable assembly lever in its guide (left and right) to push it into the corresponding position.

- Turn the bolt (5) 180° and reinsert in the front or rear position.
- Turn the insert plate (5) 180° and reinsert into the groove in the front or rear position.
- Properly reinstall the locking plate (2) with bolts (3).

### **Push roller damping, hydraulic (○)**



Push roller damping hydraulically absorbs the shocks between the material truck and paver finisher.

- Activate the function on the operating panel as necessary.

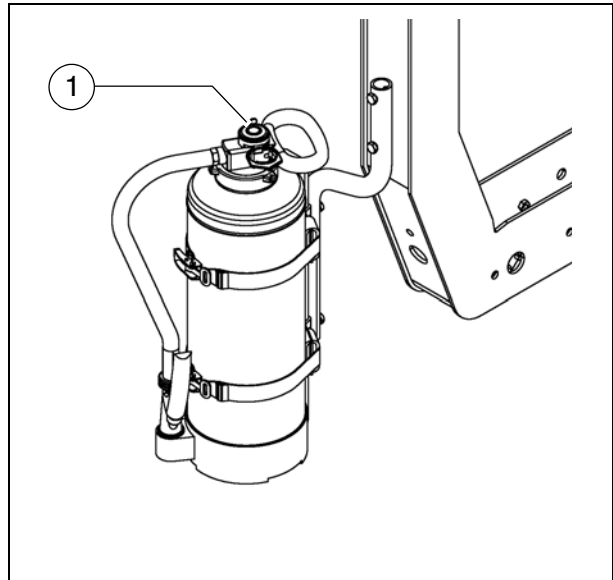
### Fire extinguisher (○)



The paver finisher personnel must be familiarised with operation of the fire extinguisher (1).



Observe the inspection interval for the fire extinguisher!



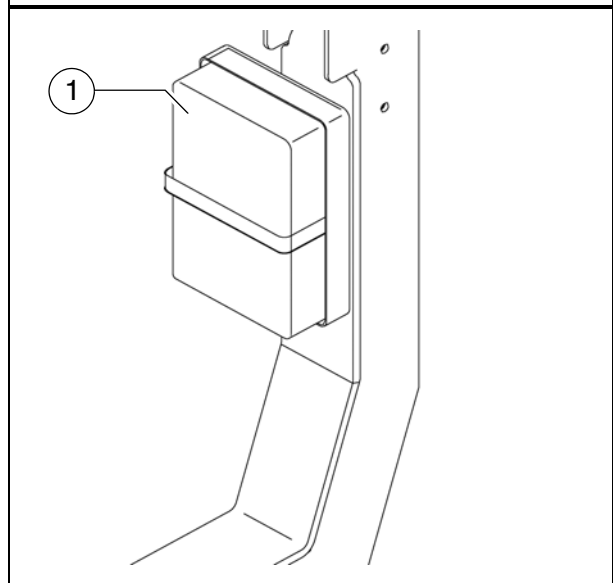
### First-aid kit (○)



Any dressings that have been used must be replaced immediately!



Heed the expiry date of the first-aid kit!



## Rotary beacon (○)

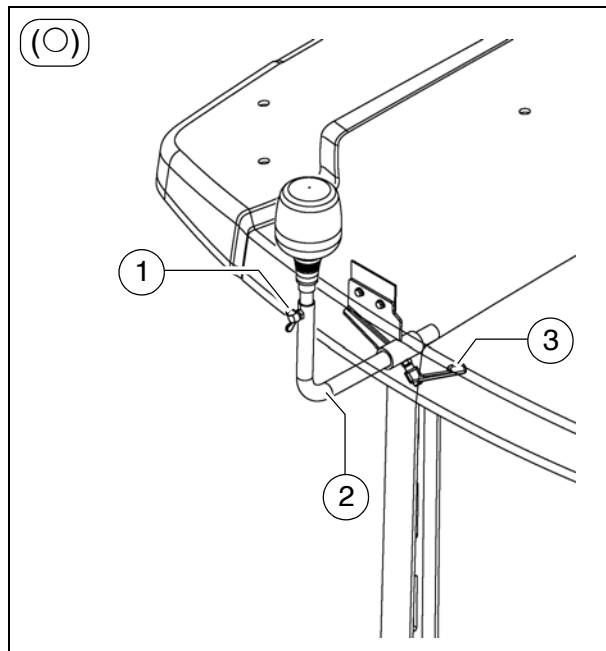


The function of the rotary beacon must be checked daily before starting work.

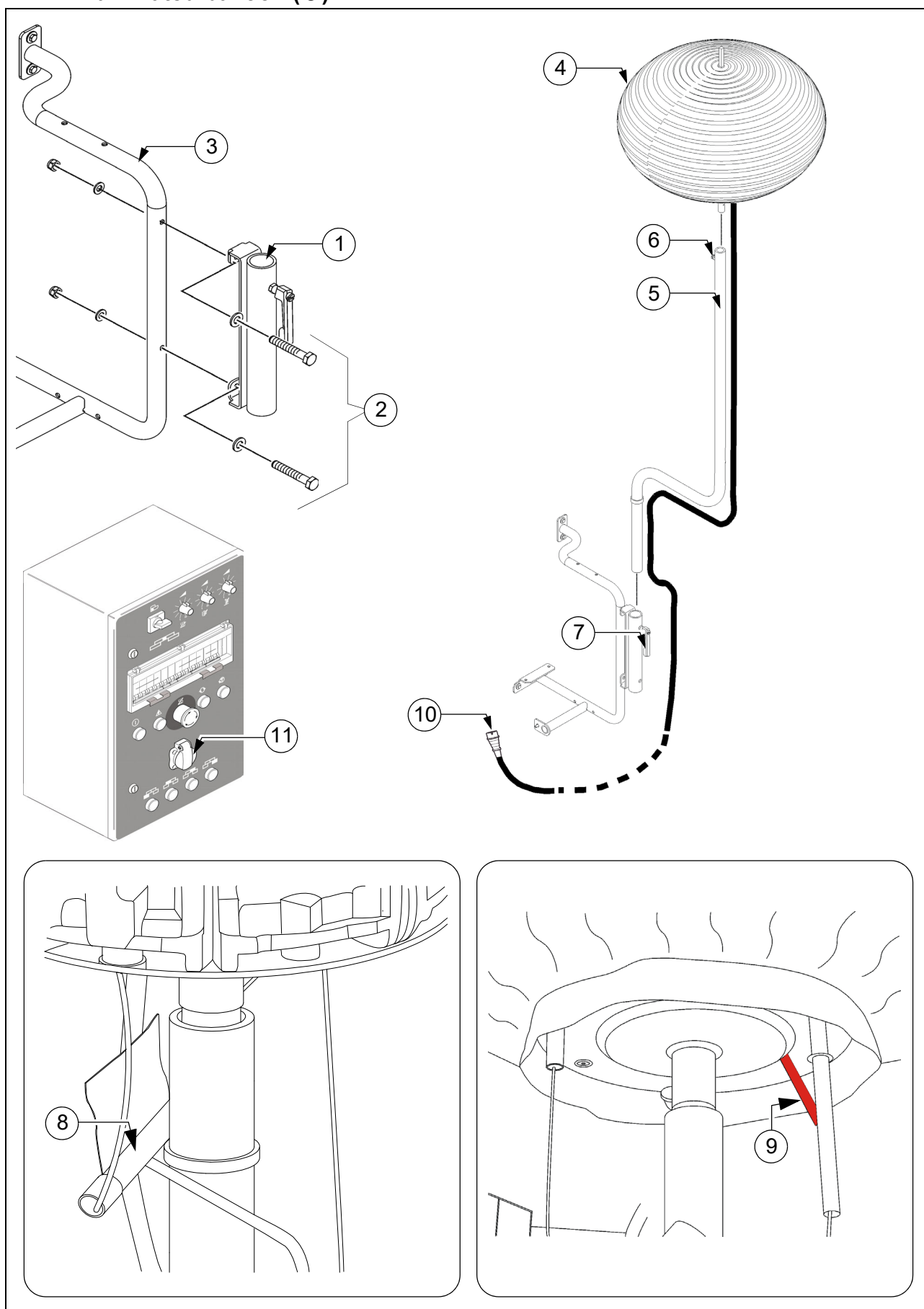
- Place the rotary beacon onto the plug-in contact and secure with a wing bolt (1).
- Raise the bracket (2), swivel to the outer position and allow to engage there
- Slide the rotary beacon with the tube (2) out to the desired height and secure with the clamping bolt (3).
- Activate the function on the operating panel as necessary.



The rotary beacon is easy to remove and should be stored securely at the end of work.



# Illuminated balloon (○)



The illuminated balloon generates shadow-reducing and anti-dazzle light.



The illuminated balloon makes the paver finisher higher and wider.



Note the passage height of bridges and tunnels and the enlarged vehicle width.



Always disconnect the power supply before working on the illuminated balloon!



Never look directly in the balloon when it is switched on!



The illuminated balloon must not be used in the vicinity of highly flammable materials (e.g. petrol and gas); a safety distance of at least 1 metre must be maintained from combustible materials.



Ensure that the area above the balloon is free and open without any power lines and hindrances. There should be a linear distance of at least 50 m between overhead high voltage power lines and the illuminated balloon. There should be a distance of at least 2.5 m between overhead power lines and railway tracks with overhead lines on the one hand, and the balloon on the other.







The illuminated balloon must not be operated if there is any damage to the electric supply cables or connectors, the lamp or the balloon skin.



Never operate the balloon unattended!

## Installation and operation

 <b>CAUTION</b>	<b>Danger due to electric shock</b>
	<p>Electric shock can cause severe or fatal injuries</p> <ul style="list-style-type: none"> <li>- The Powermoon must always be completely unpacked, assembled and aligned before it is connected to the power grid and switched on!</li> </ul>

 <b>CAUTION</b>	<b>Danger of squeezing!</b>
	<p>Fingers or hands can get clamped between the bracket and the holding tube!</p> <ul style="list-style-type: none"> <li>- Caution when inserting the holding tube!</li> </ul>

- Install the bracket (1) at the vehicle step (3) using the corresponding assembly material (2).
- Fasten the illuminated balloon (4) to the holding tube (5) and tighten the clamping bolt (6).
- Guide the holding tube (5) into the premounted holder (1) and tighten the clamping lever (7) correctly to fix the holding tube.
- With one hand on the handle flagged in green (8), pull down hard to open the balloon before putting it into operation.  
When the balloon has been pulled down completely as far as it will go, a safety brace (9) hinges out of the guide rod.
- Once the illuminated balloon is completely mounted and secured, connect the plug (10) of the illuminated balloon in the corresponding switch cabinet sockets (11).



Never adjust the holding tube while the illuminated balloon is in operation.





Operation of the switch cabinet - see screed operating instructions.



Route the supply lines so as to rule out any risk of stumbling or damage to the lines.

## Decommissioning

 <b>CAUTION</b>	<b>Danger due to electric shock</b>
	<p>Electric shock can cause severe or fatal injuries</p> <ul style="list-style-type: none"> <li>- Do not start to dismantle the Powermoon until it has been disconnected from the power grid!</li> </ul>



- Switch off the illuminated balloon on the switch cabinet.
- Disconnect the power plug from the socket (10).
- To dismantle the Powermoon, pull the cable down and hinge in the safety brace (8) until it disappears in the guide rod.  
Now carefully release the pressure on the cable and hinge the Powermoon down.
- Fold the Powermoon up and store in dry condition in the corresponding transport cover.

## Cleaning



A damp cloth may be used to wipe down the Powermoon skins. Dishwashing detergent is recommended as the cleaning agent for the upper and lower skin. Never use aggressive cleaners such as cleaning solvent, turpentine or other products that could corrode the material.

## Service safety

 <b>CAUTION</b>	<b>High voltage! Danger due to electric shock</b>
	<p>This unit uses high-voltage circuits that can cause severe or fatal injuries!</p> <ul style="list-style-type: none"> <li>- Only qualified electricians may be entrusted with troubleshooting or repairing any electrical problems with this device. Only skilled staff are allowed to open the LED body. The capacitor circuit must be discharged.</li> </ul>



## **D 40.18    Mode of operation**



### **1        Preparing for operation**

#### **Required devices and aids**

To avoid delays on site, check before starting work whether or not the following devices and aids are present:

- Wheel loader for transporting heavy extension parts
- Diesel fuel
- Engine oil and hydraulic oil, lubricants
- Separator fluids (emulsion) and manual injector
- A full bottle of propane gas (○)
- Shovel and broom
- Scraper (spatula) for cleaning the auger and the hopper infeed area
- Parts that may become necessary for extending the auger
- Parts that may become necessary for extending the screed
- Percentage spirit level + levelling rail, 4 m long
- Levelling wire
- Protective clothing, signal vest, gloves, ear protection

 <b>CAUTION</b>	<b>Danger due to restricted vision</b>
	<p>Restricted vision poses a risk of injury!</p> <ul style="list-style-type: none"> <li>- Before starting work, arrange the intended driver's seat to ensure adequate vision.</li> <li>- Signalmen must be used when vision is restricted, also to the sides and when reversing.</li> <li>- Only reliable persons may be used as signalmen who must have been received instructions about their task before taking up their activity. This refers in particular to the hand signals to be used. Standardised hand signals must be used.</li> <li>- Adequate lighting must be provided when working at night.</li> <li>- Comply with all further information in these instructions and in the safety manual.</li> </ul>

 <b>WARNING</b>	<b>Danger of falling from the vehicle</b>
	<p>Entering and leaving the vehicle and the driver's seat during operation poses a risk of falling from the vehicle, which can cause severe to fatal injuries!</p> <ul style="list-style-type: none"> <li>- The operator must be at the intended driver's seat during operation.</li> <li>- Never jump onto or off a moving vehicle.</li> <li>- Keep accessible surfaces free of any soiling, e.g. operating substances, to avoid the risk of slipping.</li> <li>- Use the steps provided and hold onto the handrail with both hands.</li> <li>- Comply with all further information in these instructions and in the safety manual.</li> </ul>


## Before starting work

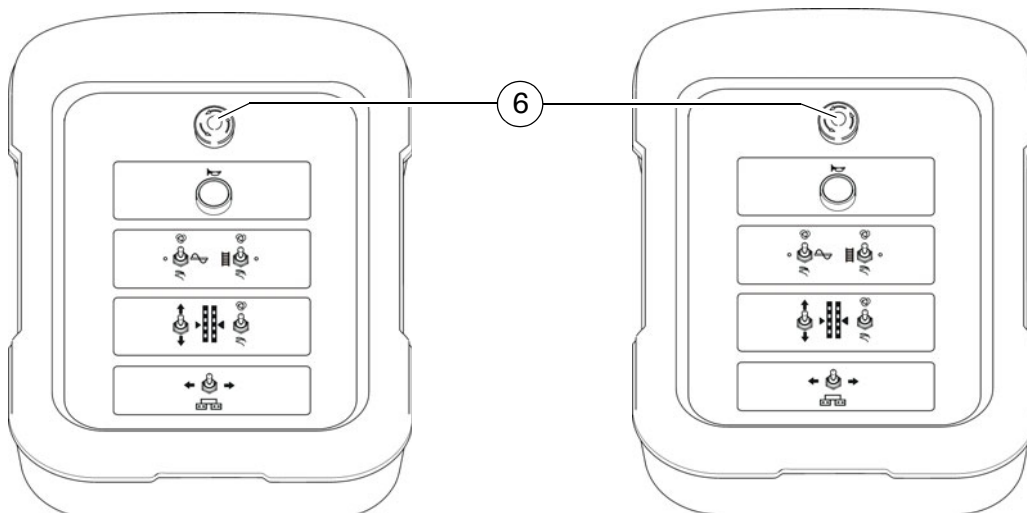
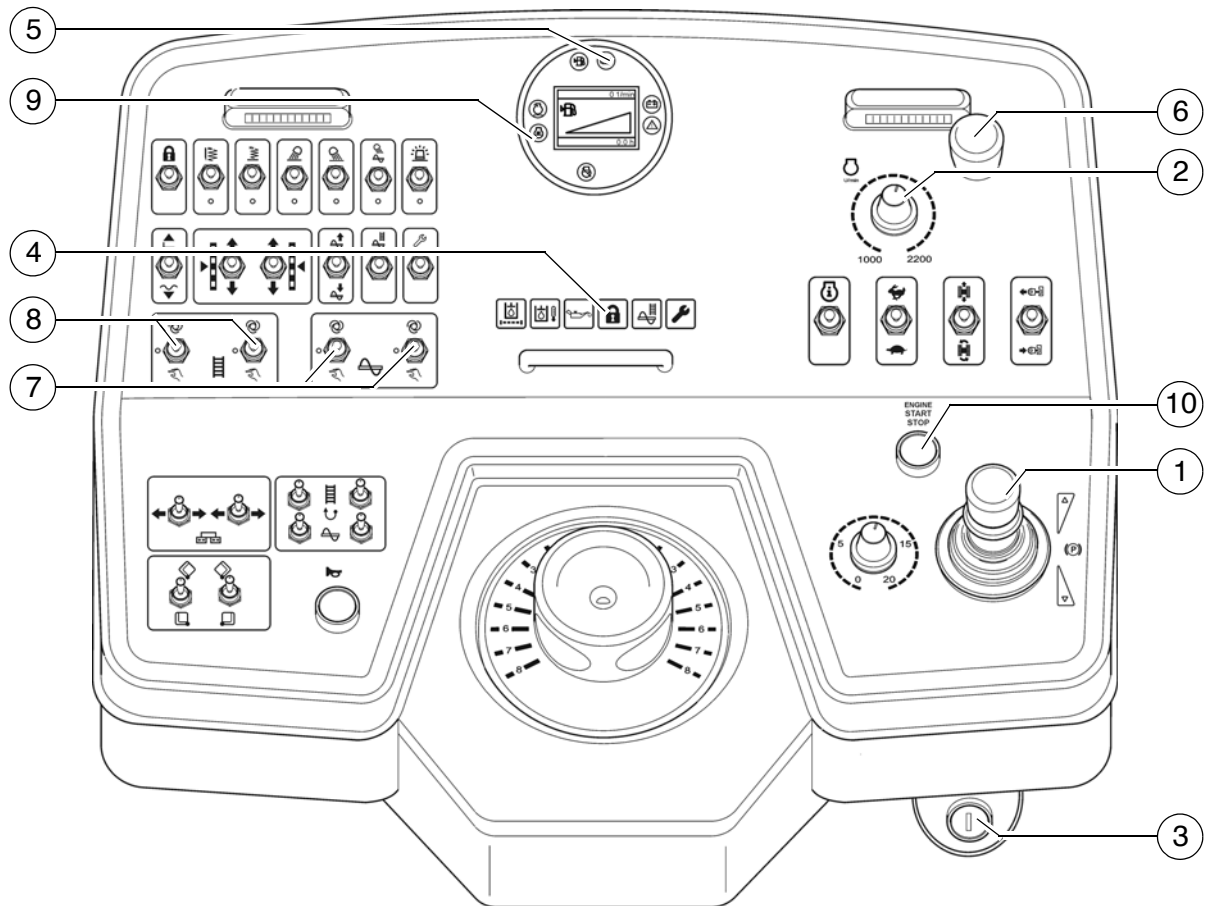
(in the morning or when starting paving)

- Heed the safety instructions.
- Check the personal protective equipment .
- Take an inspection walk around the paver finisher and check for leaks and damages.
- Install parts removed for transportation or for the night.
- When screed is operated with the optional gas heating system, open the closing valves and the main shut-off valve.
- Perform the check according to the following "Checklist for the machine operator".

## Check list for the machine operator

Check!	How?
Emergency stop button <ul style="list-style-type: none"> <li>- on the operating panel</li> <li>- on both remote controls</li> </ul>	Push in the button. The diesel engine and all running drives must stop immediately.
Steering	The paver finisher must immediately follow every steering wheel movement in a precise manner. Check straight ahead travel.
Horn <ul style="list-style-type: none"> <li>- On the operating panel</li> <li>- on both remote controls</li> </ul>	Briefly press the horn button. Horn signal must sound.
Lights	Switch on with the ignition key, walk around the paver finisher to check and switch off again.
Screed hazard flasher (with vario screeds)	With the ignition switched on, press the switches for extending/retracting the screed parts. The rear lights must flash.
Gas heater system (○): <ul style="list-style-type: none"> <li>- Bottle holder</li> <li>- Bottle valve</li> <li>- Pressure reducer</li> <li>- Hose rupture protection</li> <li>- Closing valve</li> <li>- Main shut-off valve</li> <li>- Connections</li> <li>- Indicator lamps of the switch box</li> </ul>	Check: <ul style="list-style-type: none"> <li>- Secure seat</li> <li>- Cleanliness and tightness</li> <li>- Working pressure 1.5 bar</li> <li>- Function</li> <li>- Function</li> <li>- Function</li> <li>- Tightness</li> <li>- All indicator lamps must light up when the system is switched on</li> </ul>

Check!	How?
Auger coverings	For larger working widths, the walkway plates must be extended and the auger tunnels must be covered.
Screed covers and walkways	Folding walkways must be present at the basic screed and all extension parts and folded down accordingly. Check that the side shields, the side plates and the covers are securely seated.
Screed transport safeguard	When the screed is raised / before transport, make sure that the cross-beam lock is fixed correctly.
Hopper transport safeguard	When the hopper is closed / before transport, the locks must be fixed correctly.
Protective roof	Both locking bolts must be in the provided bore hole.
Other facilities: - Engine panels - Lateral flaps	Check that the hoods and flaps are securely seated.
Accessories: - First aid box	Equipment must be present on the vehicle!  Always observe the local regulations!



## 1.1 Starting the paver finisher

### Before starting the paver finisher

Before starting the diesel engine and beginning operation, the following steps must be performed:

- Daily maintenance of the paver finisher (see chapter F).



Check the operating hour counter to determine whether or not additional maintenance work (e.g. monthly or annual maintenance) must be performed.

- Check the safety devices and protective devices.

### "Normal" starting

Set the drive lever (1) to the centre position and the speed adjuster (2) to minimum.

- Insert the ignition key (3) in position "0".



The lights should be switched off during starting to reduce the current drain on the battery.



The vehicle cannot be started if the "Start inhibit" (4) or "Error message" (5) indicator lamps are on.

The "Start inhibit" indicator lamps shows that the following states are present on the operating panel or remote control:

- Emergency stop button (6) pressed
- Auger function (7) switched to "AUTO" or "MANUAL"
- Conveyor function (8) switched to "AUTO" or "MANUAL"

The "Error message" indicator lamp shows that an engine fault prevents the starting process.

- Turn ignition key (3) to position 1 and wait for the preheat check (9) to go off.
- Press the starter button (10) to start the engine. Run the starter continuously for a maximum of 20 seconds, then take a break for 2 minutes!



If the engine does not start and the Error message (5) indicator lamp flashes, then the electronic engine control system has activated the start inhibit.

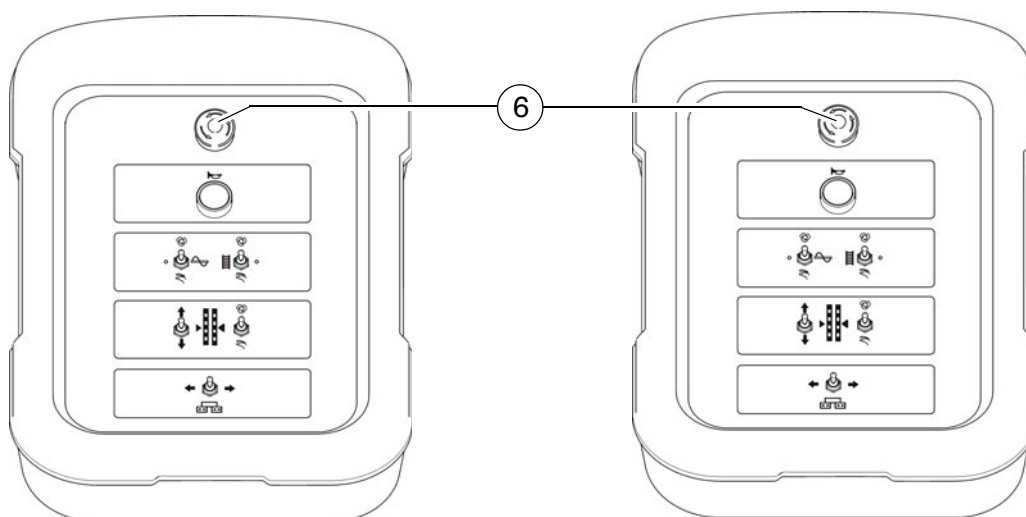
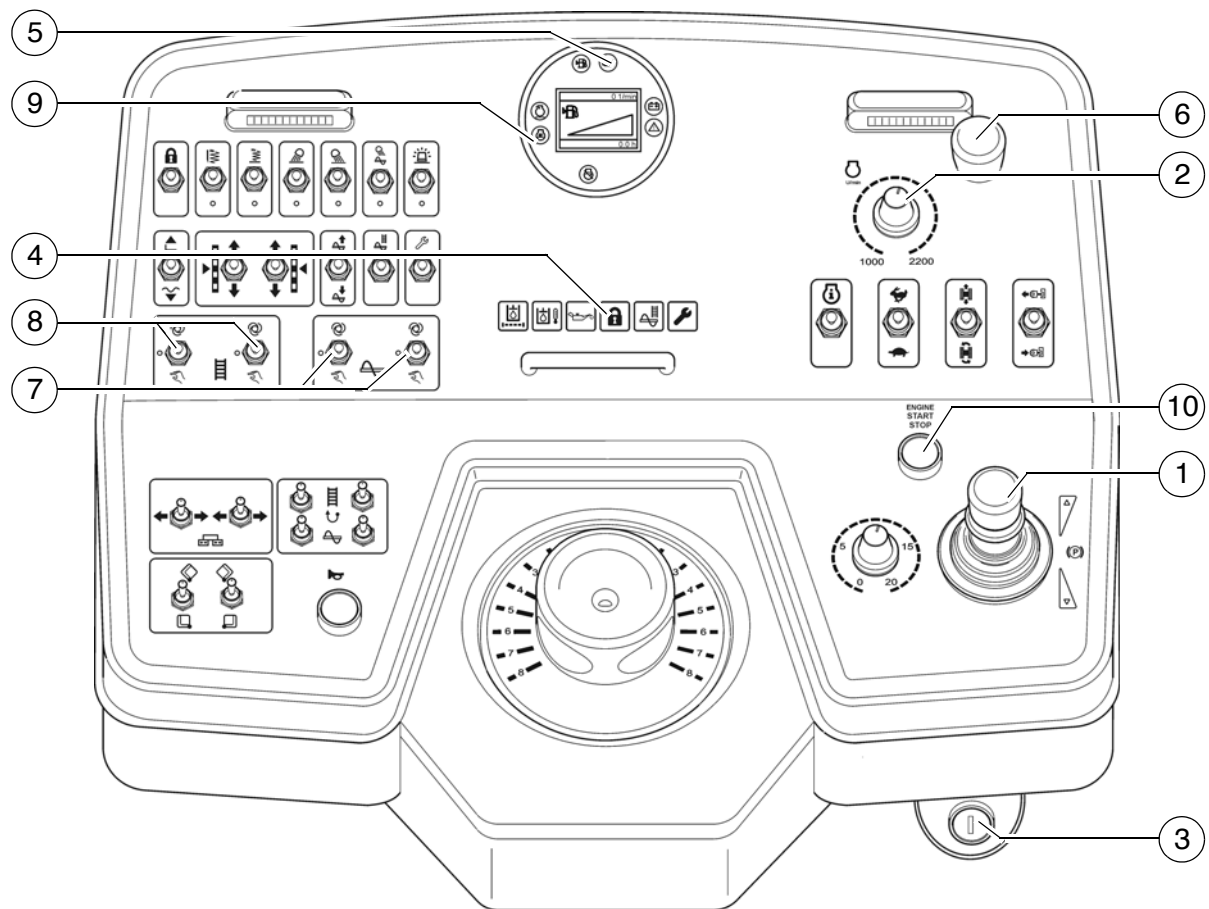
To deactivate the start inhibit, turn the system off with the ignition key (3) for approx. 30 s.



If the engine still has not started after two attempts, ascertain the cause!



Do not use aerosol types such as ether as starting aid. This can cause an explosion and lead to personal injuries.



## External starting (starting aid)



The engine can be started with the help of an external power source if the batteries are empty and the starter no longer turns.

Suitable power sources are:

- Other vehicles with a 24V system
- Additional 24V battery
- Start device that is suitable for external starting (24 V/90 A).



Standard chargers or quick chargers cannot be used for external starting.

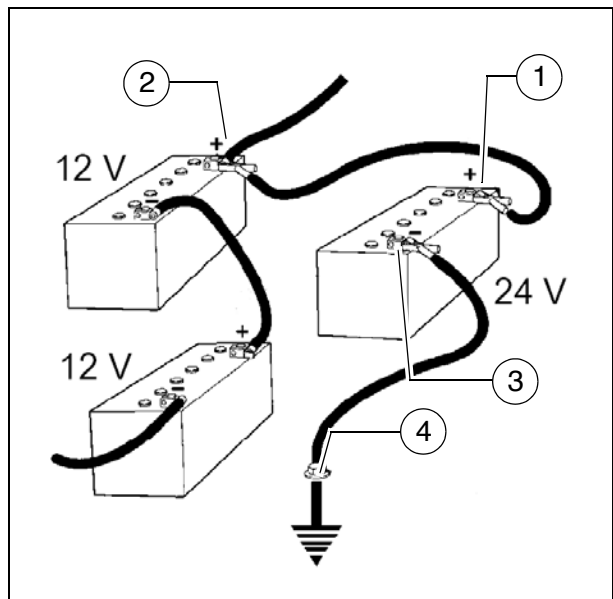
To externally start the engine:

- Set the drive lever (1) to the centre position and the engine speed adjuster (2) to minimum.
- Insert the ignition key (3) in position "0" to switch on the ignition.



The starting aid cable must be connected to 24 V.

- First connect the positive terminal (1) of the starting aid battery to the positive terminal (2) of the vehicle battery.
- Then connect the negative terminal (3) of the starting aid battery to the ground of the discharged vehicle, e.g. to the engine block or to a bolt (4) on the vehicle frame.



Do not connect the starting aid cable to the negative terminal of the discharged battery! Danger of explosion!



Lay the starting aid cable so that it can be disconnected once the engine is running.



The vehicle cannot be started if the "Start inhibit" (4) or "Error message" (5) indicator lamps are on.

The "Start inhibit" indicator lamps shows that the following states are present on the operating panel or remote control:

- Emergency stop button (6) pressed
- Auger function (7) switched to "AUTO" or "MANUAL"
- Conveyor function (8) switched to "AUTO" or "MANUAL"

The "Error message" indicator lamp shows that an engine fault prevents the starting process.

- If necessary, start the engine of the vehicle supplying power and leave to run for a while.

Now try to start the other vehicle:

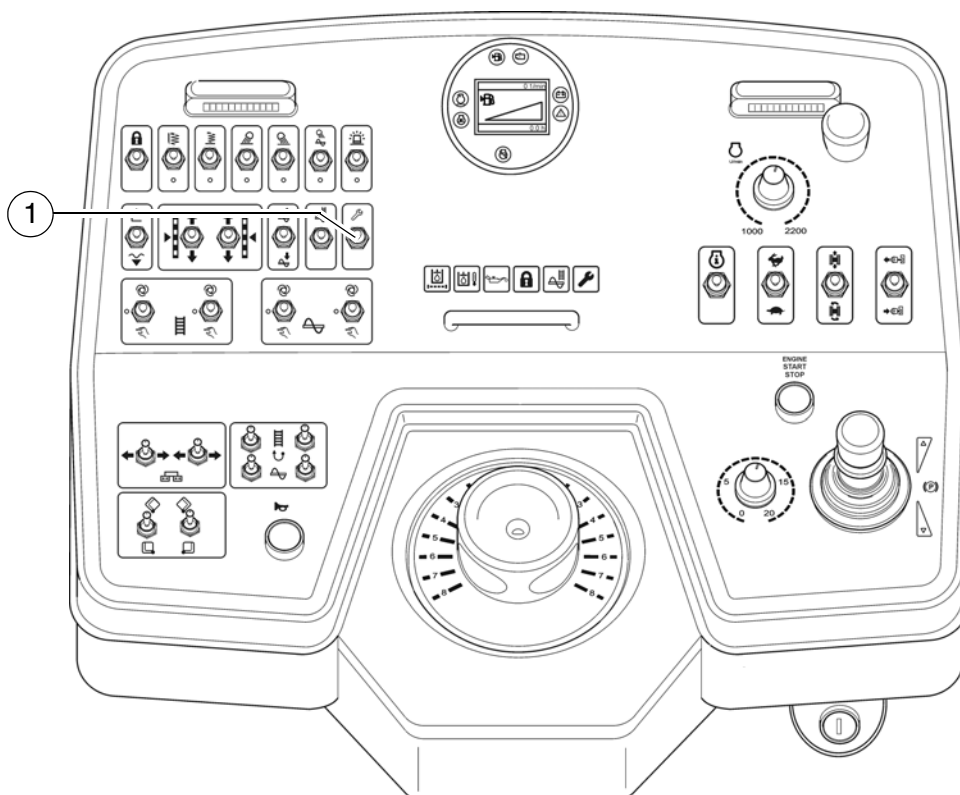
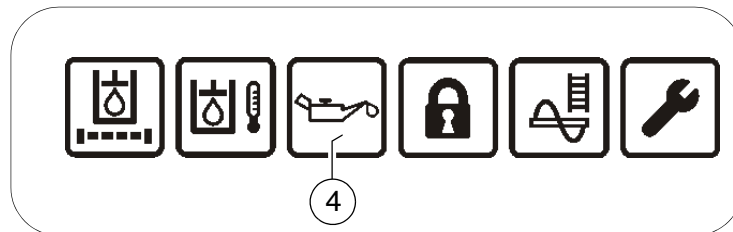
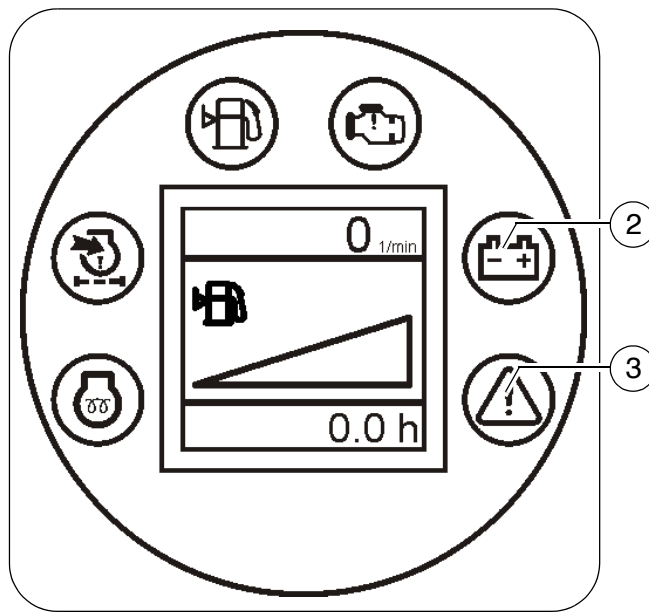
- Turn ignition key (3) to position 1 and wait for the preheat check (9) to go off.
- Press the starter button (10) to start the engine. Run the starter continuously for a maximum of 20 seconds, then take a break for 2 minutes!



If the engine does not start and the Error message (5) indicator lamp flashes, then the electronic engine control system has activated the start inhibit.

To deactivate the start inhibit, turn the system off with the ignition key (3) for approx. 30 s.

- If the engine still has not started after two attempts, ascertain the cause!
- If the engine has started, disconnect the starting aid cable again in reverse order.



### **After starting**

To increase the engine speed:

- Increase the engine speed with switch (1).



The engine speed is increased to the preset value.



Let the paver finisher warm up for approx. 5 minutes if the engine is cold.

### **Observe indicator lamps**

The following indicator lamps must be observed under all circumstances:

#### **Battery charge indicator (2)**

Must go out after starting.



If the lamp does not go out or lights up during operation: Briefly rev up the engine.



The engine speed can be increased by switching on a conveying function.

Switch off the engine and determine the fault if the lamp does not go out.

#### **Error message (3)**



Lights up for a few seconds once the ignition has been switched on for checking purposes.



If the lamp does not go out or lights up during operation: switch off engine immediately and determine fault.



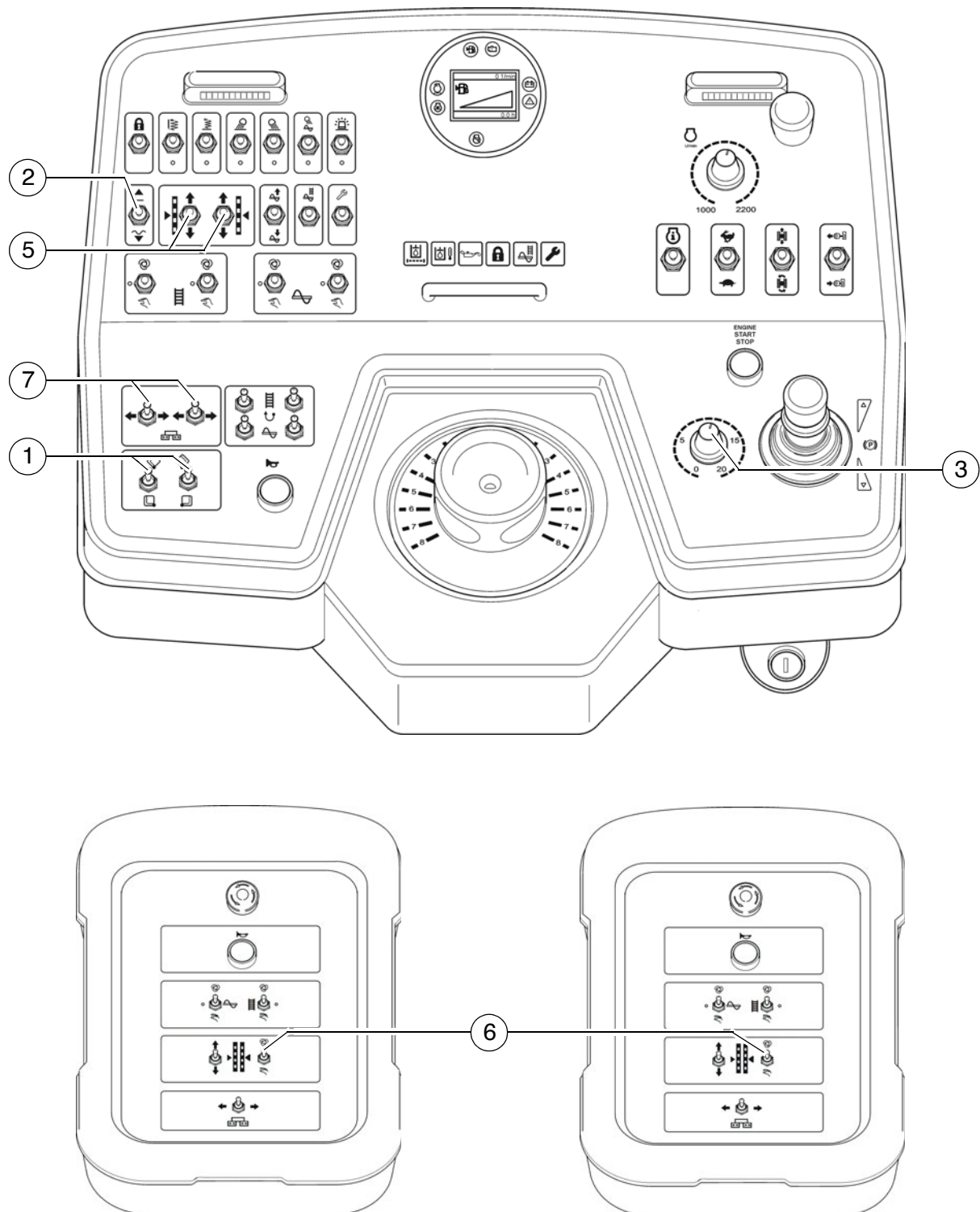
Depending on the type of fault, the vehicle can temporarily continue to be operated or, in the case of serious faults, should be shut down immediately to prevent further damage from occurring.

#### **Oil pressure indicator lamp for the diesel engine (4)**

Must go out at the latest 15 seconds after starting.



If the lamp does not go out or lights up during operation: switch off engine immediately and determine fault.



## 1.2 Preparation for transportation

- Use switch (1) to close the hopper.
- Engage both hopper transport safeguards.
- Lift the screed completely using switch (2), set the crossbeam lock.
- Turn the travel drive preselector (3) to zero.
- Fully extend the levelling cylinders with the switch (5).



To extend the levelling cylinders, levelling operating mode (6) must be switched to "MANUAL" on the remote controls.

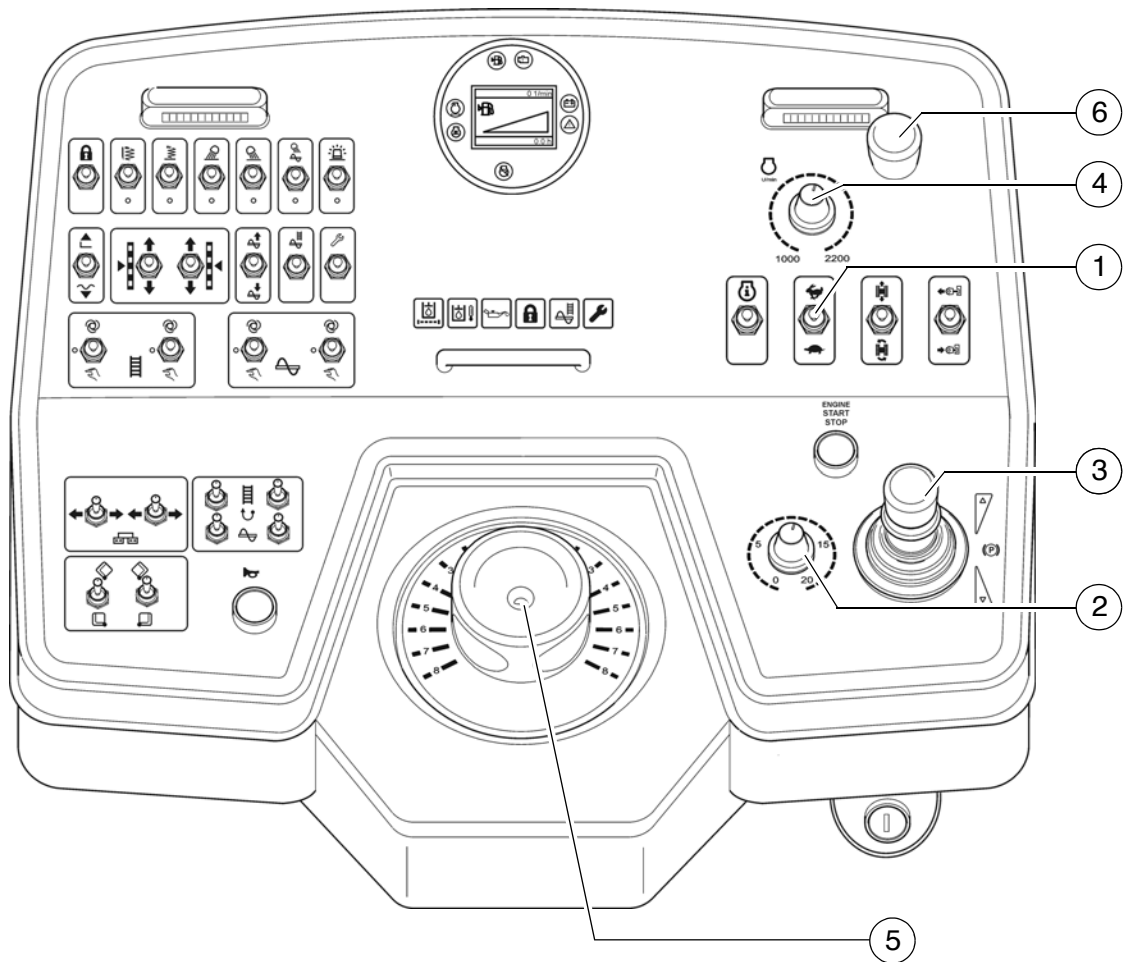
- Use switch (7) to adjust the screed to the basic width of the paver finisher.



Lift the auger if necessary!



If the engine is started with the drive lever pivoted out, the travel drive is inhibited. To start the travel drive, first the drive lever must be returned to the centre position.



## Driving and stopping the paver finisher

- Set the travel drive to the desired speed level, fast/slow (1).
  - Upper switch position: transport speed (hare)
  - Lower switch position: operating speed (tortoise)
- Turn the travel drive preselector (2) to medium speed.
- For driving, carefully tilt the drive lever (3) forward or backward according to the drive direction desired.
  - Adjust the speed with the preselector (2).
- If necessary, increase the engine speed with the speed controller (4).
- Carry out steering movements by actuating the steering potentiometer (5).



In emergency situations, press the emergency stop button (6)!

- To stop, set the preselector (2) to "0" and move the drive lever (3) into its centre position.

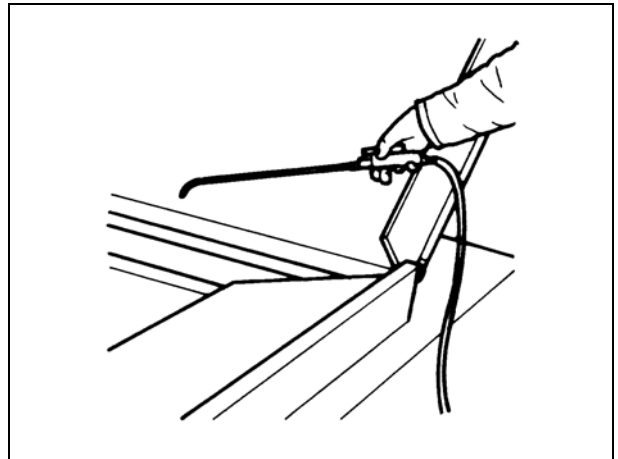
### 1.3 Preparations for paving

#### Separator fluid

Spray the parts coming into contact with asphalt (hopper, screed, auger, push roller) with a separator fluid.



Do not use diesel fuel as it dissolves the bitumen (prohibited in Germany!).



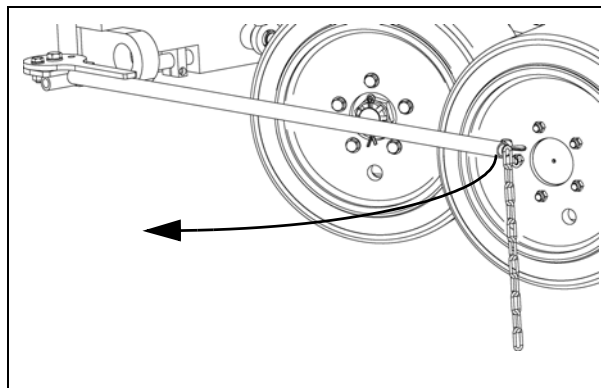
#### Screed heater system

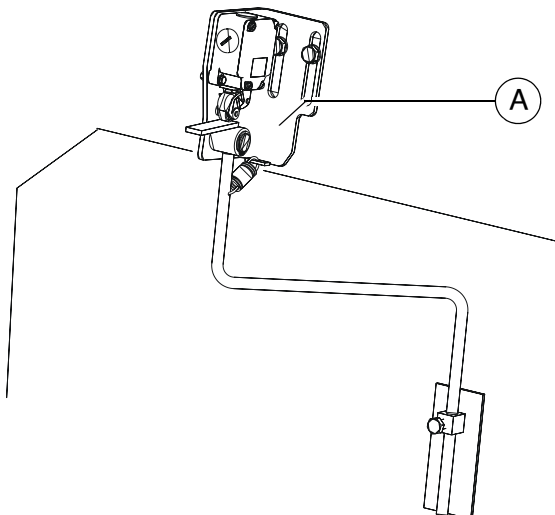
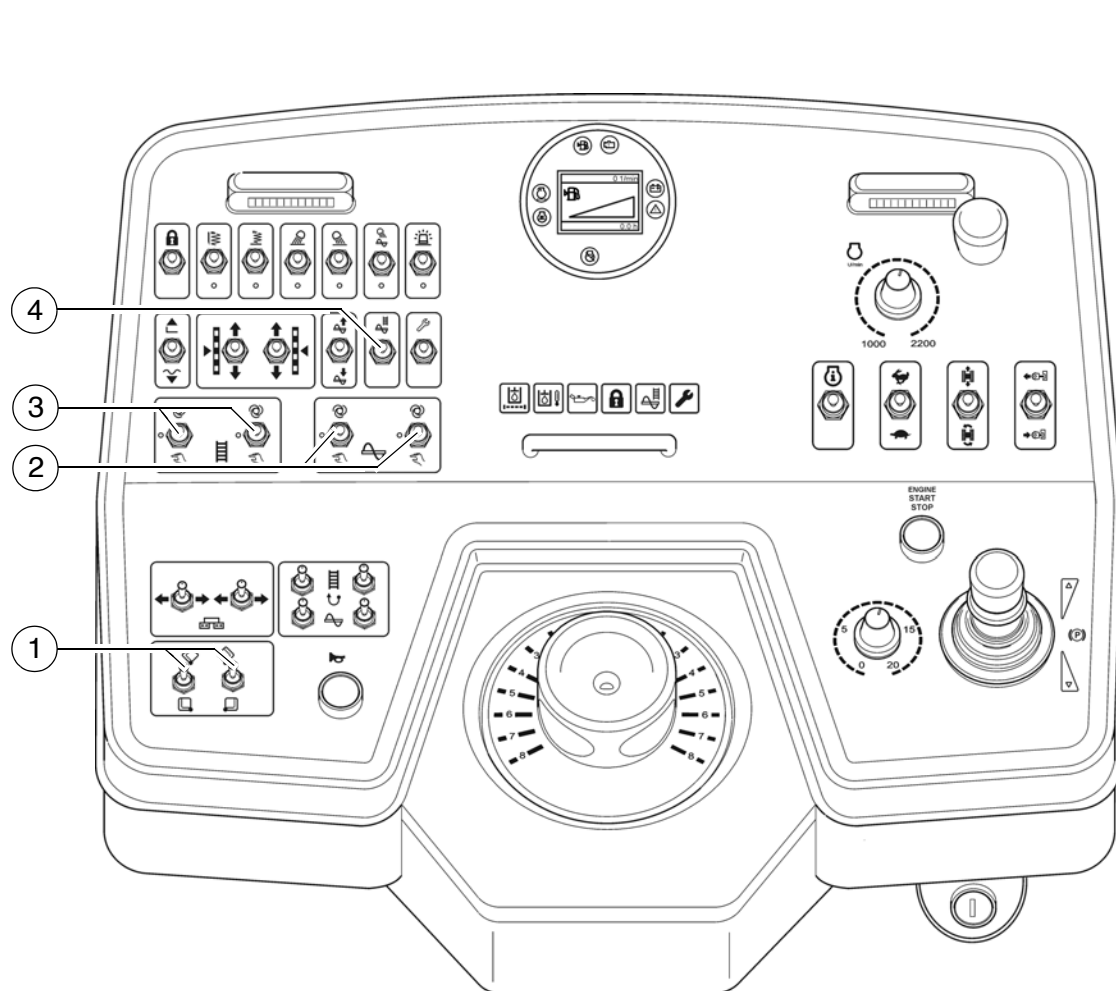
Switch on the screed heater approx. 15–30 minutes (depending on the ambient temperature) before paving begins. Warming up prevents the material from sticking to the screed plates.

## Direction marks

To ensure straight paving, a direction mark must be present or established (road edge, chalk lines or similar).

- Slide the operating panel to the desired side and secure it.
- Adjust direction of travel indicator on the bumper.





### **Loading/conveying material**

- Use switch (1) to open the hopper.  
Instruct the truck driver to dump the material.
- Set the switches for the auger (2) and the conveyor (3) to "auto".



The conveying function starts by deflecting the drive lever.



Check that the material is transferred properly.

Readjust the auger limit switches (A) if conveying is not satisfactory. Adjust the conveyor limit switches with the vehicle turned off until sufficient material is conveyed in front of the screed.

### **Filling function**

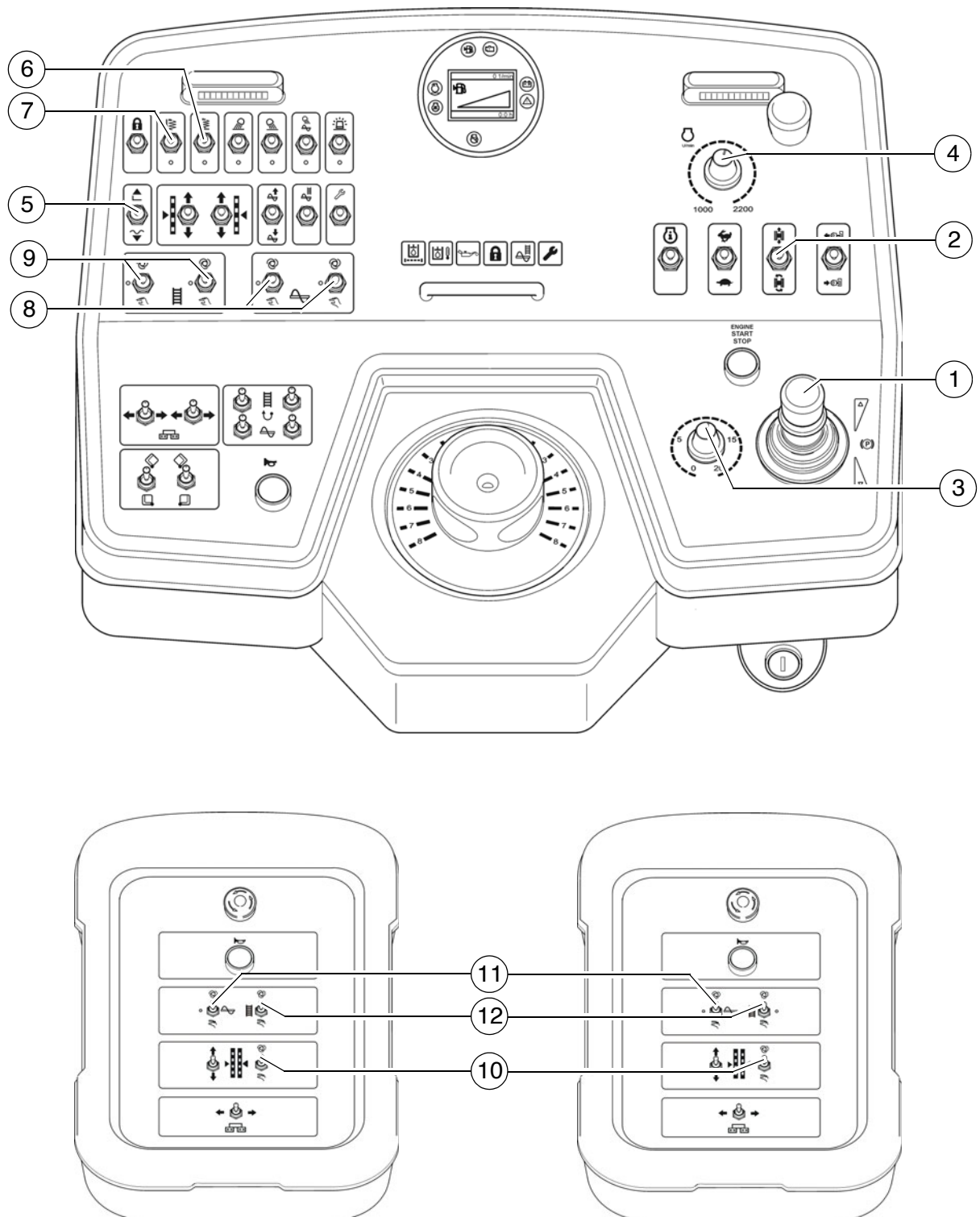


The "filling function" can additionally be used to convey the material in front of the screed at the start of paving:

- Set the switches for the auger (2) and the conveyor (3) to "auto".
- Actuate switch (4):  
The engine speed is increased, the conveying functions (conveyor and auger) are switched on without deflecting the drive lever.



Once the set material height is reached at the limit switches, the conveying functions are switched off.



## 1.4 Starting for paving

Set the switches, levers and controls listed below to the specified positions when the screed has reached its operating temperature and a sufficient amount of material lies in front of the screed

Item	Travelling direction	Position
1	Drive lever	Centre position
2	Traction drive speed - fast/slow	Slow ("tortoise")
3	Travel drive preselector	Mark 6-7
4	Engine speed	Maximum
5	Screed position	Floating position
6	Vibration	auto
7	Tamper	auto
8	Auger left/right	auto
9	Conveyor left/right	auto
	Speed control for the tamper	adapted to the paving situation
	Speed regulator, vibration	adapted to the paving situation
10	Levelling	auto
11	Auger	auto
12	Conveyor	auto

- Push the drive lever (1) all the way to the front and start driving.
- Observe the distribution of the material and adjust the limit switches if necessary.
- Set the compacting elements (tamper and/or vibration) according to the required compaction ratio.
- Let the paving master check the paving thickness after 5–6 meters and correct if necessary.

Carry out the check in the area of the caterpillar chains or drive wheels as the screed tends to level an uneven ground. The reference points for the layer thickness are the caterpillar chains or drive wheels.

The basic setting of the screed must be corrected when the actual layer thickness deviates significantly from the values indicated by the scales (see the operating instructions for the screed).



The basic setting is for asphalt material.

## **1.5 Checks during paving**

The following points must be constantly observed during paving:

### **Paver function**

- Screed heater system
- Tamper and vibration
- Engine oil and hydraulic oil temperature
- The screed parts must be retracted and extended in time when obstacles are in the way
- Uniform material transport and distribution or supply to the screed; may require corrections to settings of the material switches for conveyor and auger.



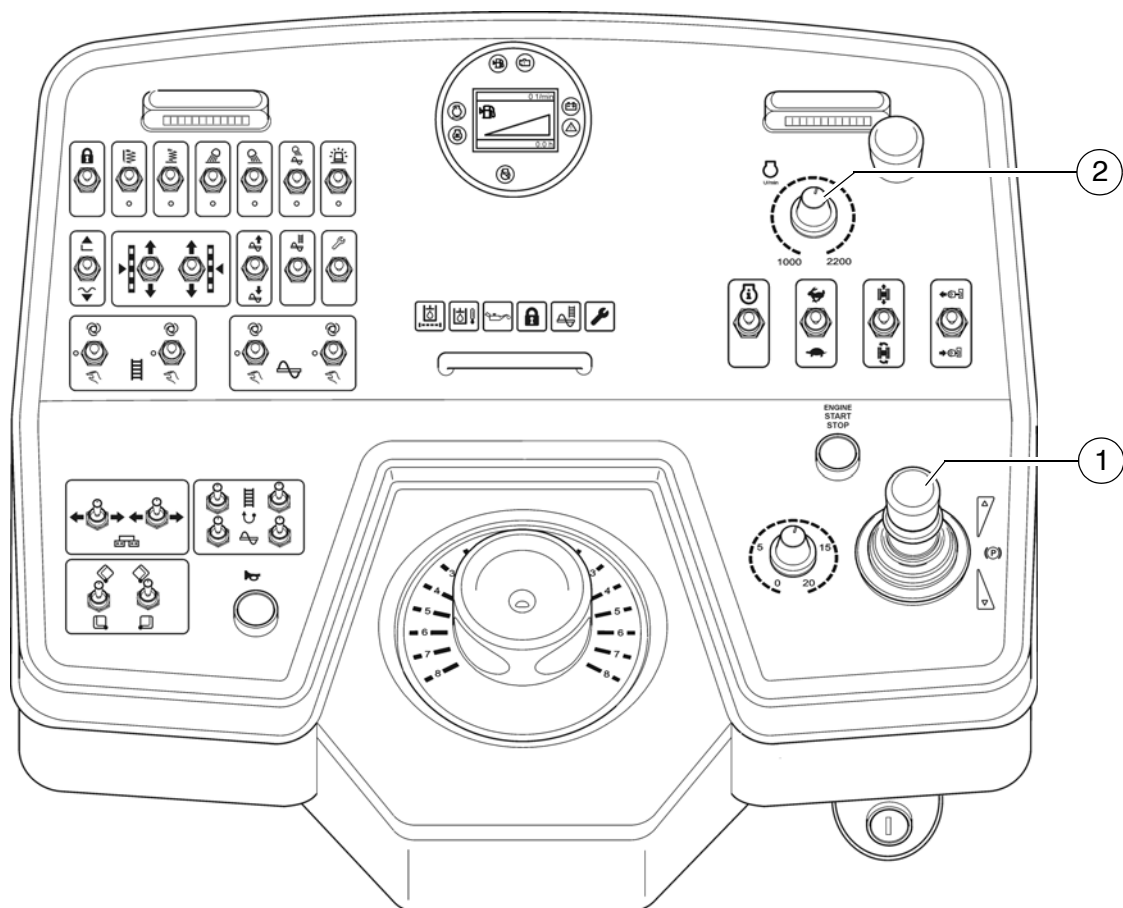
See the section "Malfunctions" when paver functions fail.

### **Quality of the layer**

- Paving height
- Slope
- Evenness in the driving direction and at right angles to it (check with 4 m levelling rod)
- Surface structure/texture behind the screed.



See section "Malfunctions, problems during paving" if the paving quality is poor.



## 1.6 Interrupting/terminating operation

### **During breaks in paving** (e.g. delay due to material trucks)

- Determine the approximate duration.
- When cooling down of the material below the minimum paving temperature must be expected, run the paver finisher empty and create an edge like the end of a layer.
- Set the drive lever (1) to the centre position.

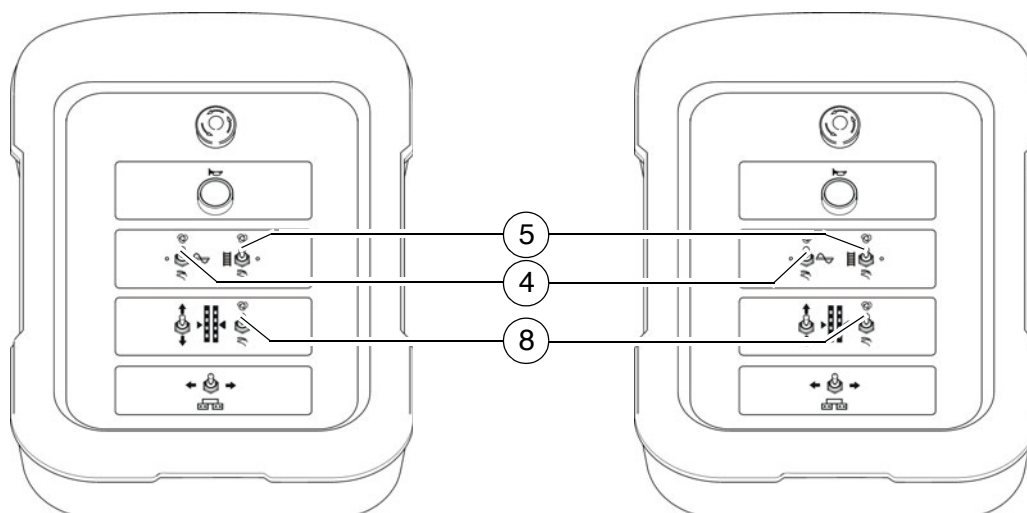
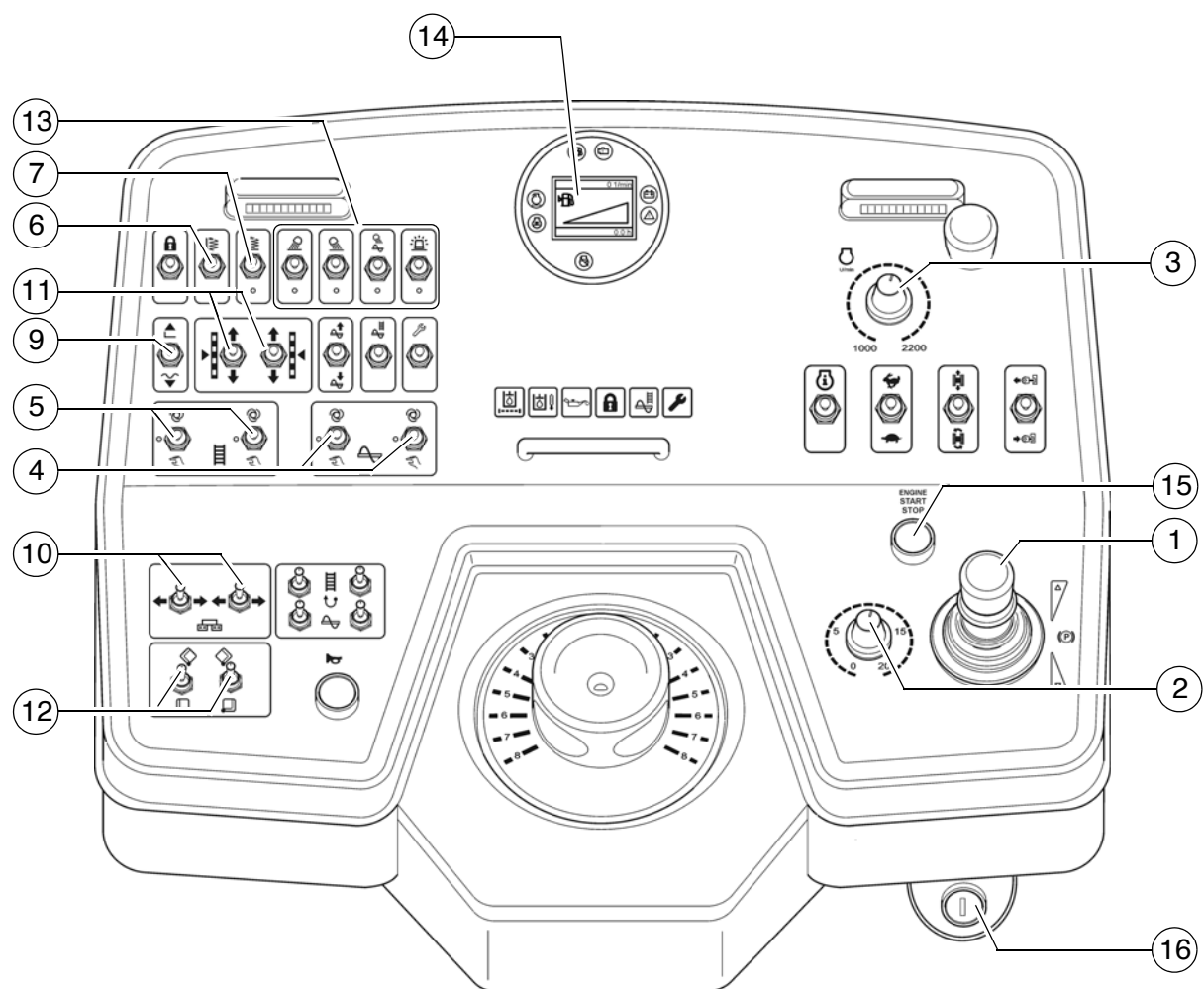
### **During longer breaks**

(e.g. lunch break)

- Set the drive lever (1) to the centre position and the speed adjuster (2) to minimum.
- Switch the screed heater system off.
- Switch off the ignition.
- With a screed with gas heating system (○) , close the bottle valves.



The screed must be heated up to the correct paving temperature before paving may be restarted.



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## When work is finished

- Run the paver finisher empty and stop it.
- Move the drive lever (1) to the central position, set preselector (2) to "0" and set the speed adjuster (3) to minimum.
- Switch the auger (4), conveyor (5), tamper(○) (6), vibration (7) and levelling (8) functions to "OFF".
- Lift the screed with switch (9).
- Insert the screed transport safeguard.
- Retract screed to basic width with switch (10).  
Where applicable, completely extend the levelling cylinders using switch (11).
- Use switch (12) to close the hopper lids.
- Set the hopper transport safeguard.
- Switch the tampers(○) (6) on; while operating the tampers at a low speed, let any material residues drop out.
- Switch tampers(○) (6) "OFF".
- Switch the screed heater system off. (See screed operating instructions)
- Switch the working and warning lights (13) to "OFF".
- Read and check the operating hour meter (14) to determine whether maintenance work must be performed (see chapter F).
- Turn the engine off with switch (15).
- Remove the ignition key (16) in position "0".
- (○) Close main shut-off valve and bottle valve of the screed gas heating system.
- Remove the levelling units and stow them away in the boxes, close all flaps.
- Remove all parts that extend beyond the paver finisher contour or secure them if the paver finisher is to be transported over public roads on a low-bed trailer.



Do not turn off main switch until 15 seconds after the ignition has been turned off!

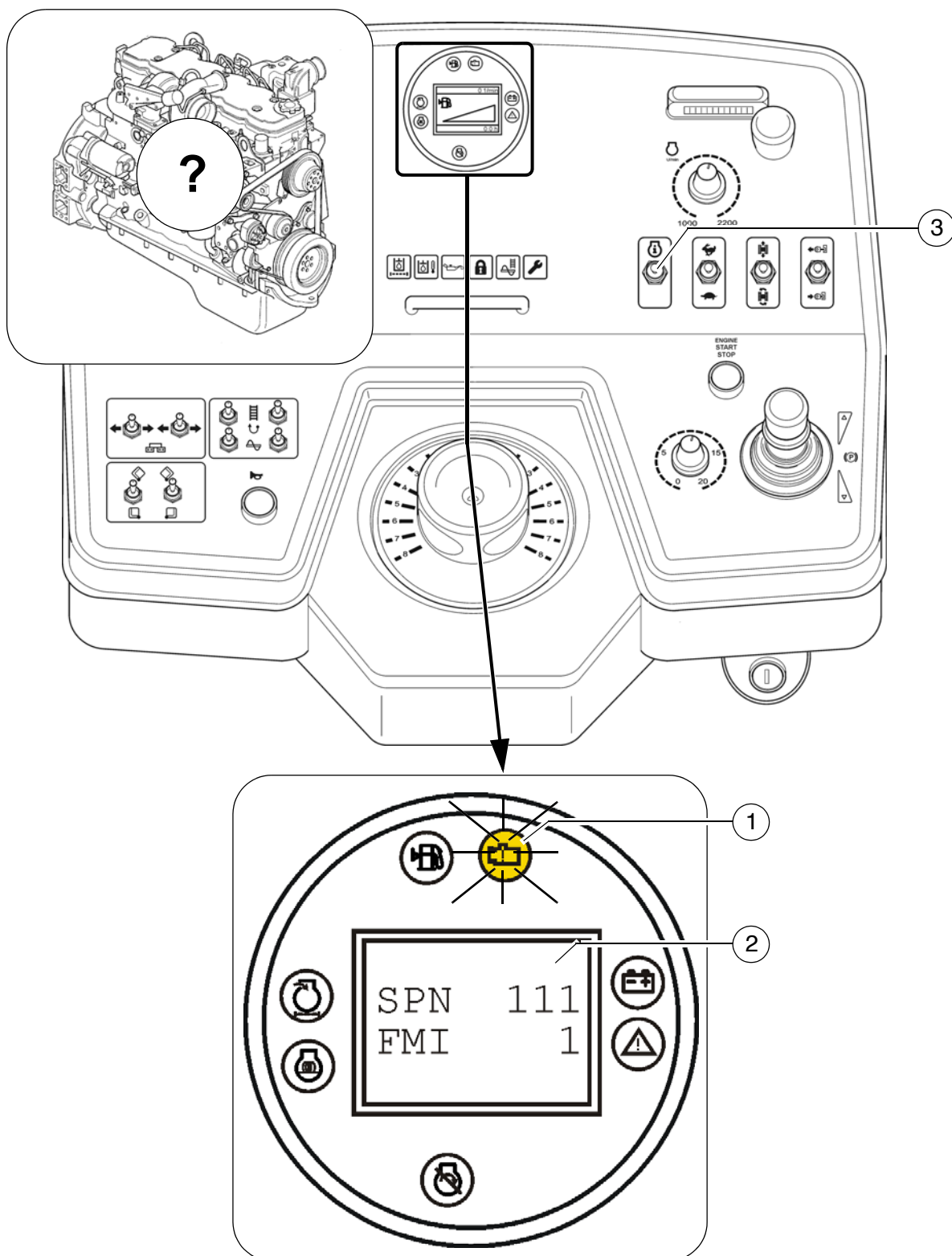


The engine electronics need this length of time to back up data.

- Cover and lock the operating panel.
- Remove material residues from the screed and the paver finisher and spray all parts with separator fluid.

## 2 Malfunctions

### 2.1 Error code display and query for engine

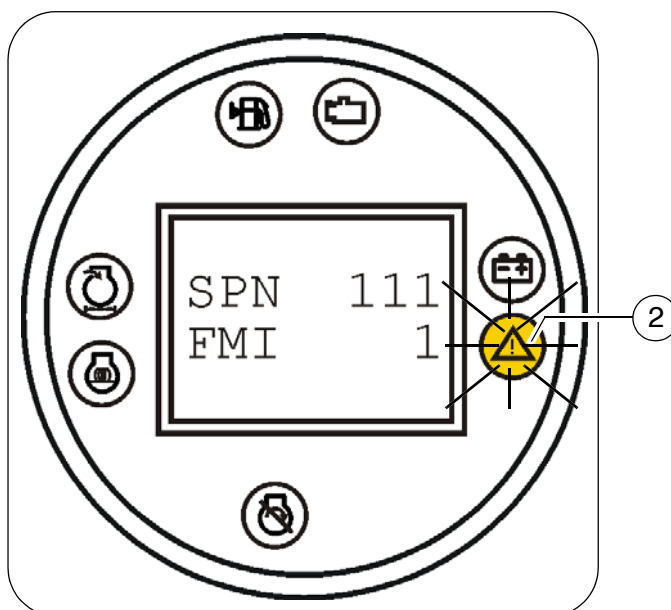


- If there is an error in the engine, a message appears with a flashing warning light (1). The corresponding error code (SPN/FMI) appears in the display (2).
- The error code goes off again after a defined period of time. The flashing warning light (1) remains active.
- To see the error display again, press the switch (3) briefly in the Info position until the error code appears in the display again.




If there are several errors, the error codes (SPN/FMI) appear one after the other. The warning light continues to flash until all errors have been rectified.

## 2.2 Error code display and query for travel drive computer



- If there is an error in the travel drive computer, a message appears with a flashing warning light (2).

NOTE	Service qualification necessary
	<p>The error messages can only be read out by a qualified Dynapac service partner.</p> <ul style="list-style-type: none"> <li>- Special equipment is necessary to read out the errors.</li> <li>- Particular skills and special instructions are required.</li> </ul>

## 2.3 Problems during paving

Problem	Cause
Wavy surface ("short waves")	<ul style="list-style-type: none"> <li>- change in the material temperature, demixing</li> <li>- wrong material composition</li> <li>- incorrect operation of the roller</li> <li>- incorrectly prepared foundation</li> <li>- long standstill times between loads</li> <li>- grade control reference line is not suitable</li> <li>- grade control jumps to the reference line</li> <li>- grade control toggles between up and down (inertia setting is too high)</li> <li>- bottom plates of the screed are loose</li> <li>- bottom plates of the screed are warped or not uniformly worn</li> <li>- screed is not operated in the floating position</li> <li>- too much play in the mechanical screed link/suspension</li> <li>- paver finisher speed is too high</li> <li>- augers are overloaded</li> <li>- changing material pressure against the screed</li> </ul>
Wavy surface ("long waves")	<ul style="list-style-type: none"> <li>- change in the material temperature</li> <li>- demixing</li> <li>- roller has stopped on the hot material</li> <li>- roller has turned or roller speed has been changed too fast</li> <li>- incorrect operation of the roller</li> <li>- incorrectly prepared foundation</li> <li>- truck brake is applied too tight</li> <li>- long standstill times between loads</li> <li>- grade control reference line is not suitable</li> <li>- incorrect installation of the grade control</li> <li>- limit switch is not correctly set</li> <li>- screed is empty</li> <li>- screed has not been switched to the floating position</li> <li>- too much play in the mechanical screed link</li> <li>- auger is set too deep</li> <li>- auger is overloaded</li> <li>- changing material pressure against the screed</li> </ul>
Cracks in the layer (over the entire width)	<ul style="list-style-type: none"> <li>- material temperature is too low</li> <li>- change in the material temperature</li> <li>- moisture on the foundation</li> <li>- demixing</li> <li>- wrong material composition</li> <li>- wrong layer height for maximum grain size</li> <li>- cold screed</li> <li>- bottom plates of the screed are worn or warped</li> <li>- paver finisher speed is too high</li> </ul>

Problem	Cause
Cracks in the layer (centre strip)	<ul style="list-style-type: none"> <li>- material temperature</li> <li>- cold screed</li> <li>- bottom plates are worn or warped</li> <li>- wrong crowning</li> </ul>
Cracks in the layer (outer strip)	<ul style="list-style-type: none"> <li>- material temperature</li> <li>- screed extendable parts are incorrectly installed</li> <li>- limit switch is not correctly set</li> <li>- cold screed</li> <li>- bottom plates are worn or warped</li> <li>- paver finisher speed is too high</li> </ul>
Layer composition is not uniform	<ul style="list-style-type: none"> <li>- material temperature</li> <li>- change in the material temperature</li> <li>- moisture on the foundation</li> <li>- demixing</li> <li>- wrong material composition</li> <li>- incorrectly prepared foundation</li> <li>- wrong layer height for maximum grain size</li> <li>- long standstill times between loads</li> <li>- vibration is too slow</li> <li>- screed extendable parts are incorrectly installed</li> <li>- cold screed</li> <li>- bottom plates are worn or warped</li> <li>- screed is not operated in the floating position</li> <li>- paver finisher speed is too high</li> <li>- auger is overloaded</li> <li>- changing material pressure against the screed</li> </ul>
Marks in the surface	<ul style="list-style-type: none"> <li>- truck hits too much against the finisher while aligning to the finisher</li> <li>- too much play in the mechanical screed link/suspension</li> <li>- truck brake is applied</li> <li>- vibration is too high while standing on a spot</li> </ul>
T	<ul style="list-style-type: none"> <li>- material temperature</li> <li>- change in the material temperature</li> <li>- wrong layer height for maximum grain size</li> <li>- incorrect installation of the grade control</li> <li>- vibration is too slow</li> <li>- screed is not operated in the floating position</li> <li>- too much play in the mechanical screed link</li> <li>- paver finisher speed is too high</li> </ul>

## 2.4 Malfunctions on the paver finisher or screed

Malfunction	Cause	Remedy
At the diesel engine	Various	See operating instructions for the engine
Diesel engine does not start	Batteries empty	See "External starting" (start assistance)
	Various	see "Towing"
Tamper or vibration is not functioning	Tamper is obstructed by cold bitumen	Properly heat the screed
	Hydraulic oil level in the tank is too low	Top up oil
	Pressure limiting valve is defective	Replace the valve; if necessary, repair and adjust the valve
	Leak in the suction line of the pump	Seal or replace the connections
		Tighten or replace the hose clamps
	Oil filter is soiled	Clean the filter; if necessary, replace the filter
Conveyor or augers run too slowly	Hydraulic oil level in the tank is too low	Top up oil
	Power supply interrupted	Check fuses and cables; replace if necessary
	Switch is defective	Replace the switch
	One of the pressure limiting valves is defective	Repair or exchange the valves
	Pump shaft broken	Replace the pump
	Limit switch does not switch or regulate correctly	Check the switch; replace and adjust the switch if necessary
	Pump is defective	Check the high pressure filter for dirt particles; replace if necessary
	Oil filter is soiled	Replace the filter

Malfunction	Cause	Remedy
Hopper cannot be swung open	Engine speed is too low	Increase the speed
	Hydraulic oil level is too low	Top up oil
	Leak in the suction line	Tighten the connections
	Flow rate regulator defective	Replace
	Leaking seals of the hydraulic cylinder	Replace
	Control valve is defective	Replace
	Power supply interrupted	Check fuse and cables; replace if necessary
Hoppers lowers inadvertently	Control valve is defective	Replace
	Leaking seals of the hydraulic cylinder	Replace
Screed cannot be lifted	Oil pressure too low	Increase the oil pressure
	Leaking seal	Replace
	Screed relieving or charging is switched on	Switch must be in the centre position
	Power supply interrupted	Check fuse and cables; replace if necessary
Crossbeams cannot be lifted or lowered	Switch on the remote control is set to "Auto"	Set the switch to "Manual"
	Power supply interrupted	Check fuse and cables; replace if necessary
	Switch on the operating panel defective	Replace
	Excess pressure valve defective	Replace
	Flow rate regulator defective	Replace
	Seals defective	Replace
Crossbeams lower inadvertently	Control valves defective	Replace
	Pilot-controlled non-return valves defective	Replace
	Seals defective	Replace

Malfunction	Cause	Remedy
Traction does not work	Travel drive fuse defective	Replace (fuse strip on the operating panel)
	Power supply interrupted	Check potentiometer, cables, connectors; replace if necessary
	Travel drive monitoring (type-specific) defective	Replace
	Electro-hydraulic servo unit of the pump defective	Replace the servo unit
	Insufficient supply pressure	Check and adjust if necessary
		Check the suction filter; replace the supply pump and the filter if necessary
	Drive shaft of hydraulic pumps or engines broken	Replace pump or engine
Irregular engine speed, engine stop function does not work	Fuel level too low	Check the fuel level; refill fuel if necessary
	Fuse "engine speed control" defective	Replace (fuse strip on the operating panel)
	Electrical power defect (line break or short circuit)	Check potentiometer, cables, connectors; replace if necessary



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## E 10.18 Set-up and modification

### 1 Special notes on safety



Danger to personnel by inadvertent starting of the engine, travel drive, conveyor, auger, screed or screed lifting devices.

Unless otherwise specified, work may only be performed when the engine is at a standstill!



- To protect the paver finisher against inadvertent starting:  
Move drive lever into centre position and turn preselector controller to zero, remove ignition key and battery main switch.
- Protect lifted vehicle parts (e.g. screed or hopper) against lowering by means of mechanical safeguards.
- Replace parts or have them replaced as stipulated.



When connecting or disconnecting hydraulic hoses and when working on the hydraulic system, hot hydraulic fluid may spurt out at high pressure.

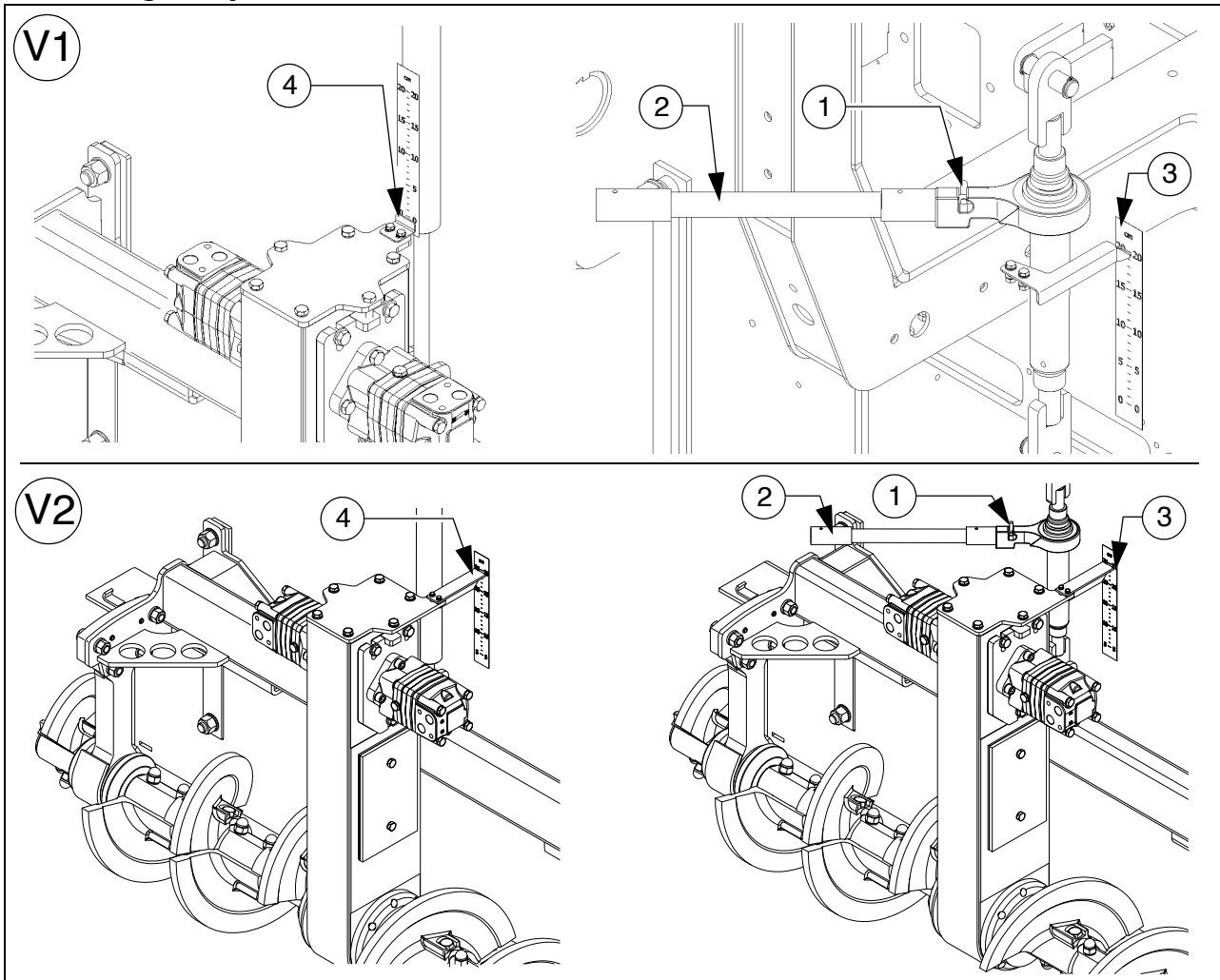
Switch off the engine and depressurise the hydraulic system! Protect your eyes!

- Mount all protective devices before re-commissioning the paver finisher.

 <b>DANGER</b>	<b>Danger due to changes at the vehicle</b>
	<p>Structural changes to the vehicle make the operating licence null and void and can cause severe to fatal injuries!</p> <ul style="list-style-type: none"><li>- Only use original spare parts and approved accessories.</li><li>- After maintenance and repair work, ensure that any dismantled protective and safety devices are all completely fitted again.</li><li>- Comply with all further information in these instructions and in the safety manual.</li></ul>

## 2 Distribution auger

### 2.1 Height adjustment



Depending on the material, the height of the auger – measured from its lower edge – should be at least 50 mm (2 inches) above the height of the material layer.

Example: layer height 10 cm  
adjustment 15 cm from the ground

An incorrect height setting can result in the following problems during paving:

- Auger too high:  
Too much material in front of the screed; material overflow. When operating with larger working widths, demixing and traction problems may occur.
- Auger too low:  
Not enough material that can be precompacted by the auger. Irregularities resulting from this cannot be completely compensated by the screed (wavy surface).  
In addition, increased auger segment wear occurs.

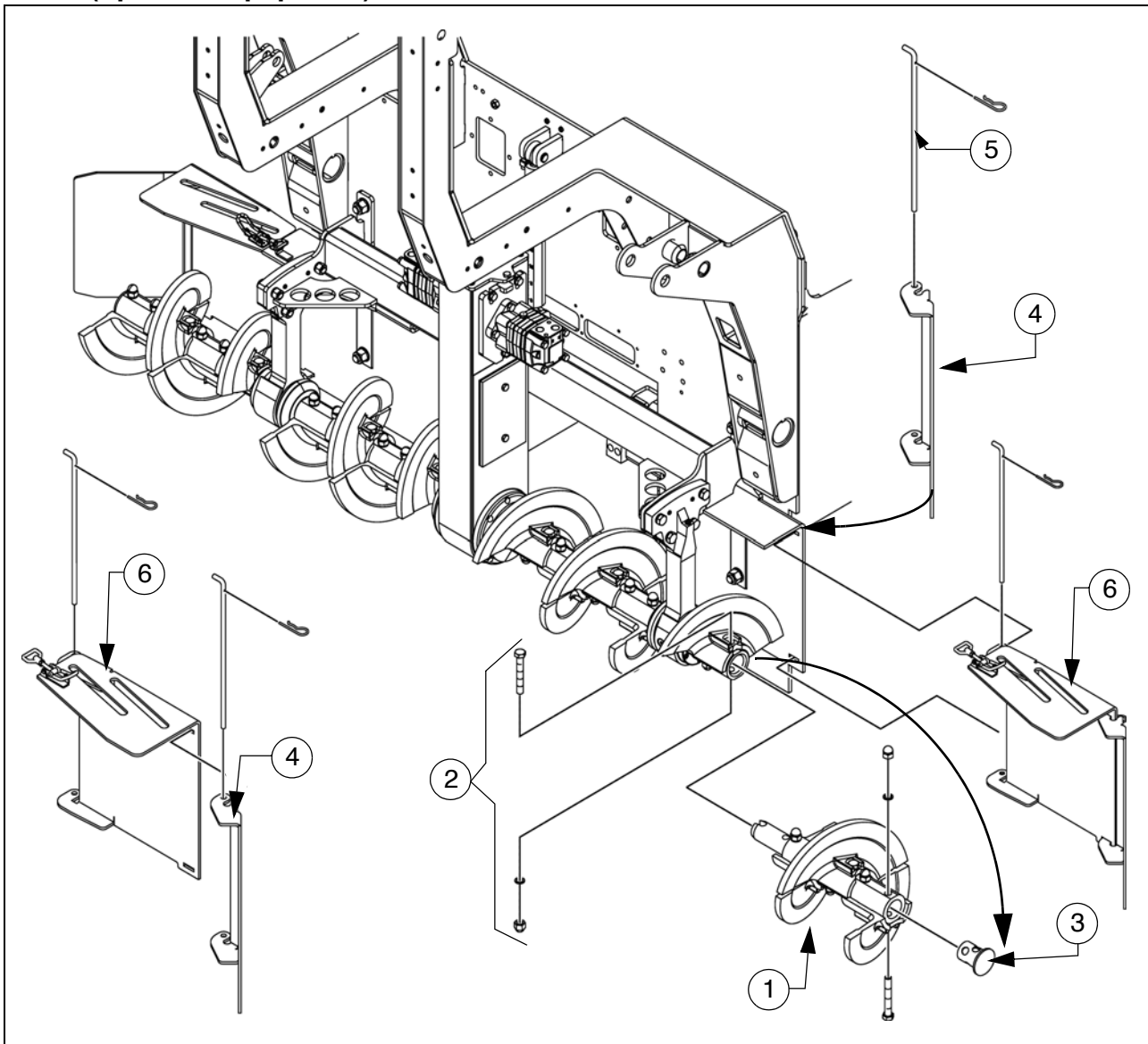
**Mechanical height adjustment:**

- Set the ratchet direction lever (1) to the clockwise or anti-clockwise direction.
- Adjust the required height by actuating the ratchet (2).
- The current height can be read at the scale (3).

**Hydraulic height adjustment:**

- Adjust the required height by pressing the corresponding switch (operating panel).
- The current height can be read at the scale (4).

## 2.2 Auger width extension and material shaft with protective cover (optional equipment)



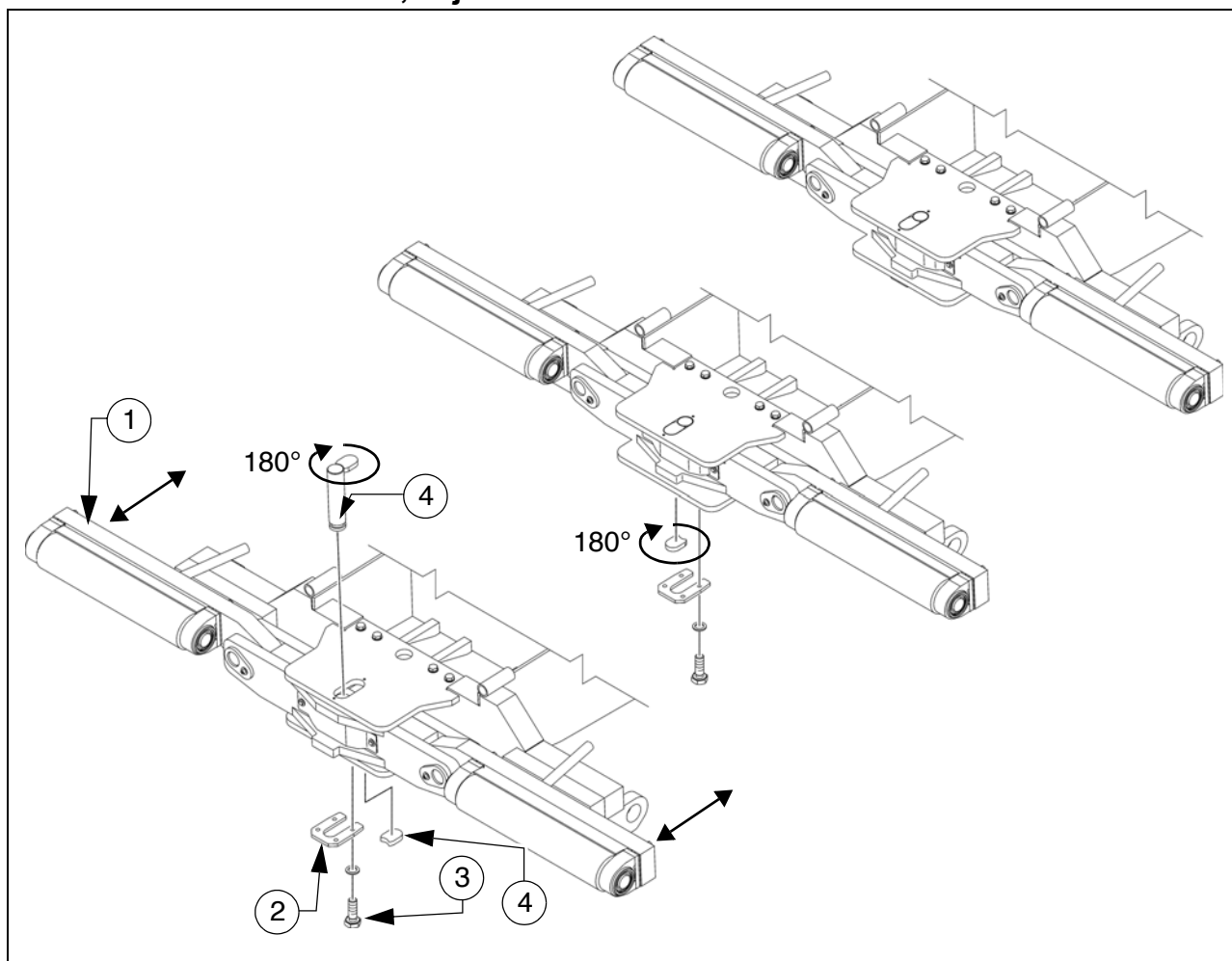
To fit auger extensions, an additional auger segment (1) is fitted to the auger shaft.

Assembly:

- Remove outermost screw connection (2) from the basic auger.
- Remove plug (3).
- Fit the auger extension (1) to the corresponding side.
- Fit screw connection (2).
- Fit plugs (3) to the auger extension.

The relevant material shaft must be fitted to each auger extension.

## Push roller crossbar, adjustable



For adaptation to various truck design types, the push roller crossbar (1) can be shifted to two positions.



The adjustment travel is 60mm.

- Close the hopper halves to lift the hopper flap (○).
- After removing the bolts (3), remove the locking plate (2) on the lower side of the crossbar.
- Remove insert plate (4).
- Remove bolt (5).
- Move the push roller crossbar as far as it will go to the front / rear position.



Shift the push roller crossbar at the towing eye or use a suitable assembly lever in its guide (left and right) to push it into the corresponding position.

- Turn the bolt (5) 180° and reinsert in the front or rear position
- Turn the insert plate (5) 180° and reinsert into the groove in the front or rear position.
- Properly reinstall the locking plate (2) with bolts (3).

## Hopper scraper

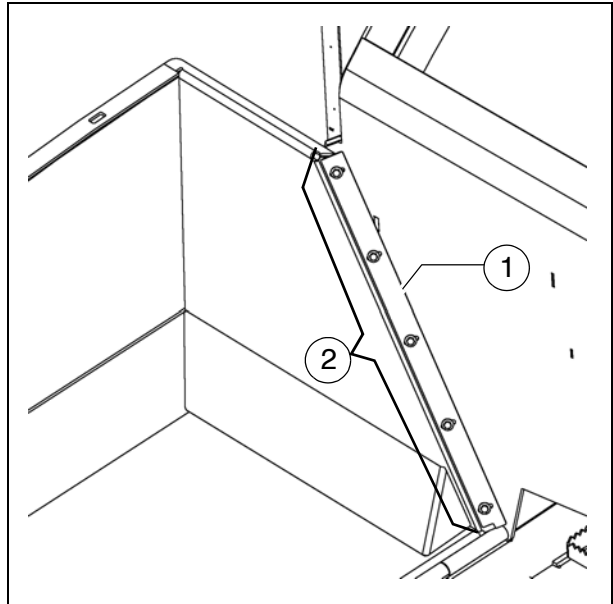
To reduce the gap between hopper and vehicle frame, the hopper scrapers (1) must be adjusted on both hopper lids.



- Loosen the mounting screws (2).
- Set a gap of 6 mm across the whole length of the scraper.
- Retighten the mounting screws (2) properly.



Risk of injury due to sharp-edged parts!  
Wear suitable safety gloves to protect your hands!



## 2.3 Crossbeam guide

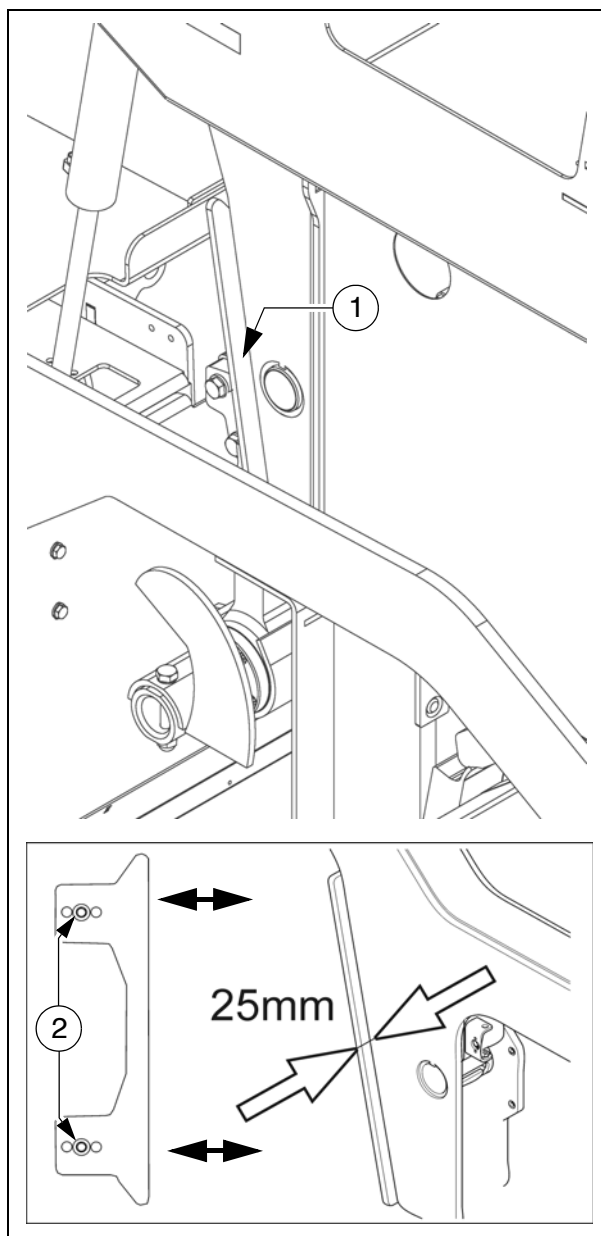
To warrant correct guidance of the crossbeams, the guide plates (1) at both sides of the vehicle must be adjusted to the prevailing paving conditions (e.g. positive or negative crowning, etc.).



- Remove screws (2).
- Move guide plate to the required size (basic setting 25mm).
- Retighten the mounting screws (2) properly.



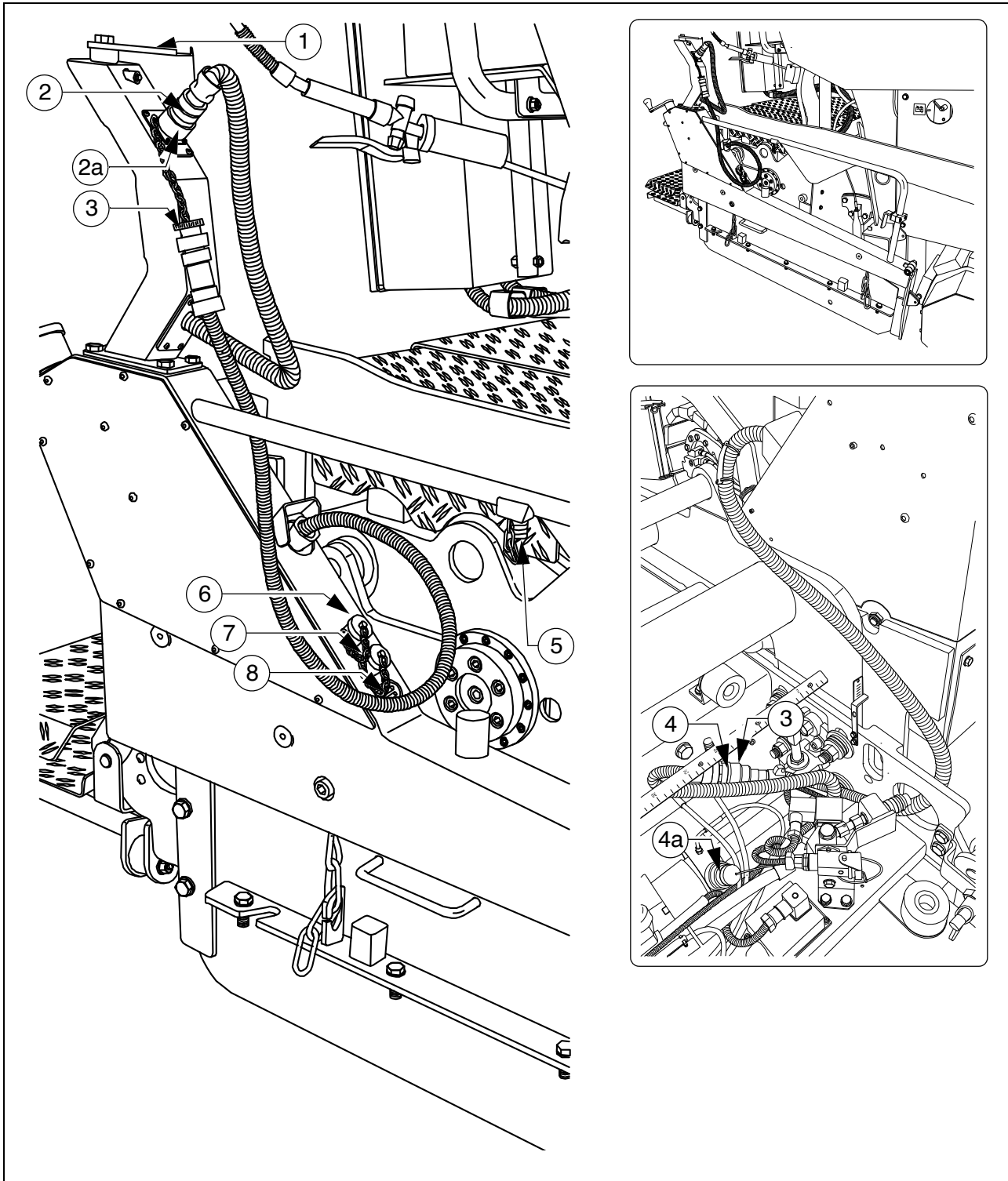
Risk of injury due to sharp-edged parts!  
Wear suitable safety gloves to protect your hands!



### 3 Screed

The Screed operating instructions cover all work required for mounting, setting up and extending the screed.

### 4 Electrical connections



Prepare or make the following electrical connections when the mechanical components have been mounted and set up:

- Set remote control to holder (1).
- Connect plug (2) with the remote control.



If the remote control is not implemented, the plug (2) has to be set to the bridge socket (2a).

- Connect the connection lead (3) of the side shield with the socket (4) of the screed.



The cover of the extendable part must be removed to install the cables.  
Install the cables to rule out the risk of any damage to the cables.



If the side shield is not connected, the socket (4) has to be connected with the bridge plug (4a).

Other connection possibilities:

- Auger limit switches (5)
- Grade control system (6)
- External levelling system (7)
- 24 volt consumers, e.g. additional lighting.



When using an external levelling system, this must be logged in using the remote control menu.



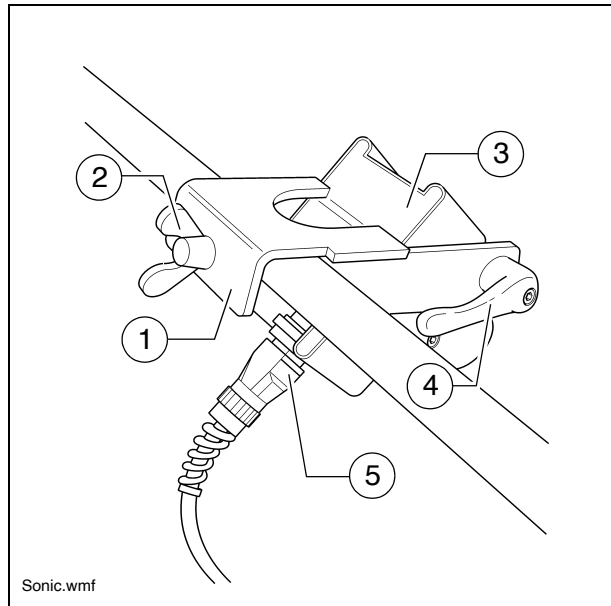
Always seal unused sockets or plugs with the corresponding protective caps!





## 5 Limit switch

### 5.1 Auger limit switches (left and right) - mount PLC version

The auger's ultrasonic limit switch is mounted on both sides on the side shield's handrail.

- Place the sensor bracket (1) onto the handrail, align it and tighten with a wing bolt (2).
- Align the sensor (3) and secure with a clamping lever (4).
- Connect the left or right sensor's connection cable (5) to the intended remote control bracket sockets.





-  The connection cables are connected to the relevant sockets on the remote control bracket.
-  The sensors should be adjusted so that 2/3 of the augers are covered with the paving material.
-  The paving material must be conveyed over the full working width.
-  We recommend adjusting the limit switch positions during material distribution.


## 5.2 Auger limit switches (left and right) - mount conventional version


The ultrasonic sensor (1) is secured to the side shield via a bracket (2).

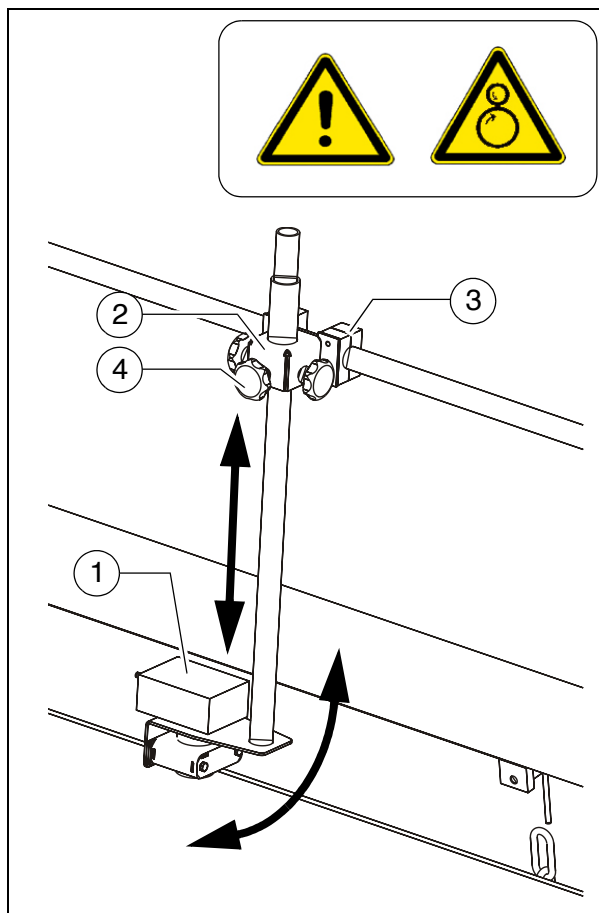
- To adjust the sensor angle, loosen the clamps (3) and swivel the bracket.
- To set the sensor height / the deactivation point, loosen the star handles (4) and adjust the linkage to the required length.
- After adjusting, retighten all mounting parts properly.

 The connection cables are connected to the relevant sockets on the remote control bracket.

 The sensors should be adjusted so that 2/3 of the augers are covered with the paving material.



 The paving material must be conveyed over the full working width.



 We recommend adjusting the limit switch positions during material distribution.







# F 10 Maintenance

## 1 Notes regarding safety

 <b>DANGER</b>	<b>Danger due to changes at the vehicle</b>
	<p>Structural changes to the vehicle make the operating licence null and void and can cause severe to fatal injuries!</p> <ul style="list-style-type: none"> <li>- Only use original spare parts and approved accessories.</li> <li>- After maintenance and repair work, ensure that any dismantled protective and safety devices are all completely fitted again.</li> <li>- Comply with all further information in these instructions and in the safety manual.</li> </ul>

 <b>DANGER</b>	<b>Danger due to incorrect vehicle maintenance</b>
	<p>Incorrectly performed maintenance and repair work can cause severe or fatal injuries!</p> <ul style="list-style-type: none"> <li>- Ensure that maintenance and repair work is always only carried out by trained, specialist staff.</li> <li>- All maintenance, repair and cleaning work should only be carried out with the engine turned off. Remove ignition key and main switch.</li> <li>- Affix a sign "Do not start" to the vehicle.</li> <li>- Perform a visual inspection and check all functions every day.</li> <li>- Proceed with all maintenance tasks according to the maintenance schedule.</li> <li>- Proceed with expert inspection every twelve months.</li> <li>- Eliminate all ascertained faults straight away.</li> <li>- Do not restart the vehicle until all ascertained faults have been eliminated.</li> <li>- Failure to comply with the prescribed inspection and maintenance work renders the operating licence null and void!</li> <li>- Comply with all further information in these instructions and in the safety manual.</li> </ul>

 <b>CAUTION</b>	<b>Hot surfaces!</b>
	<p>Surfaces including those behind covering parts, together with combustion fuels from the engine or screed heater can be very hot and cause injuries!</p> <ul style="list-style-type: none"> <li>- Wear your personal safety gear.</li> <li>- Do not touch hot parts of the vehicle.</li> <li>- Only perform maintenance and repair work after the vehicle has cooled down.</li> <li>- Comply with all further information in these instructions and in the safety manual.</li> </ul>

 <b>CAUTION</b>	<b>Danger due to electric shock</b>
	<p>Injuries can be caused by touching live parts directly or indirectly!</p> <ul style="list-style-type: none"> <li>- Do not remove any protective safeguards.</li> <li>- Never spray water on electric or electronic components.</li> <li>- Maintenance work to the electric system should only be carried out by trained specialist staff.</li> <li>- When equipped with electric screed heater, check the insulation monitoring every day according to the instructions.</li> <li>- Comply with all further information in these instructions and in the safety manual.</li> </ul>



**Cleaning:** Do not use any inflammable substances (such as petrol).

Avoid directly cleaning electrical parts and insulation material with a steam jet; cover them up beforehand.



**Working in enclosed environments:** Exhaust fumes must be conducted into the open air. Propane gas bottles must not be stored in closed rooms.



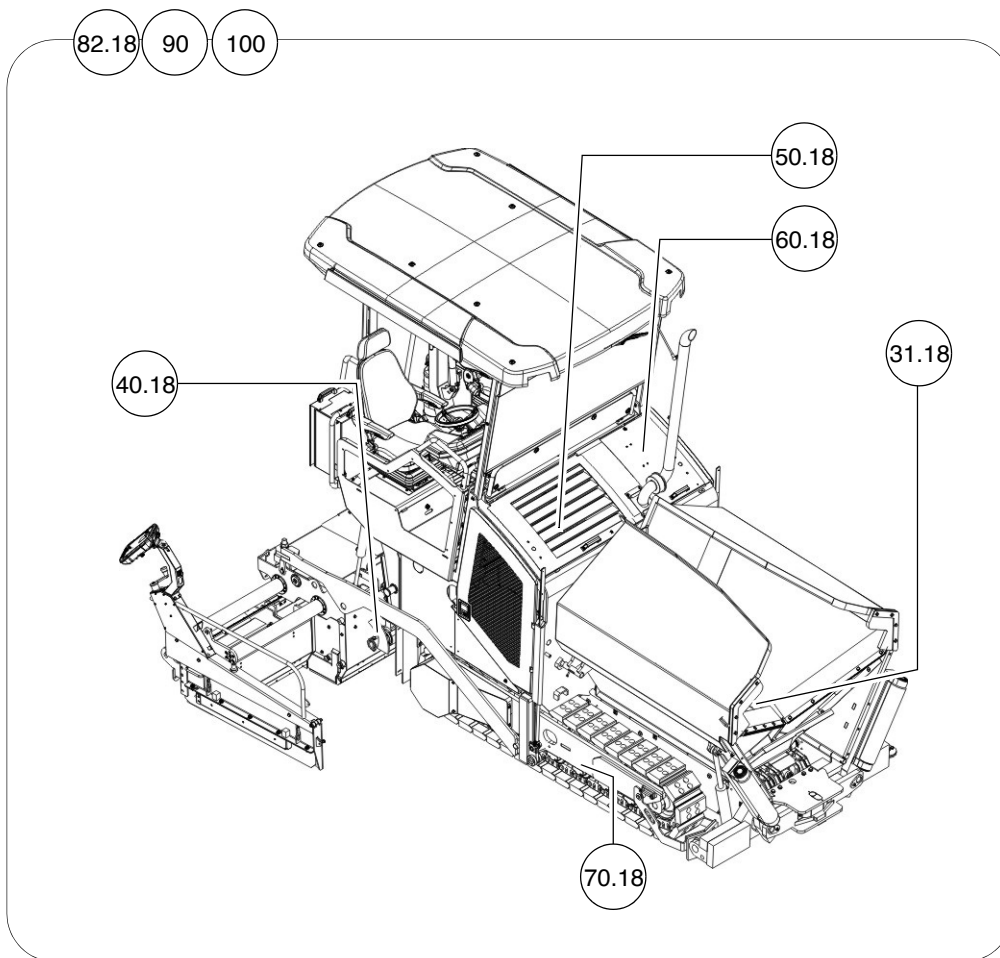
In addition to these maintenance instructions, the maintenance instructions issued by the engine manufacturer must be adhered to under all circumstances. All maintenance work and service intervals itemised here are binding in nature.



Information on how to maintain the optional equipment can be found in the individual sub-sections of this chapter!

# F 20.18 Maintenance review

## 1 Maintenance review



Assembly	Chapter	Maintenance necessary after operating hours									
		10	50	100	250	500	1000 / annually	2000 / every 2 years	5000	20000	If necessary
Conveyor	F31.18	■		■							■
Auger	F40.18	■	■	■			■				■
Engine	F50.18	■			■	■	■	■			■
Hydraulic system	F60.18	■	■	■		■	■	■			■
Drive units	F70.18	■	■	■	■	■	■				■
Electrical system	F82.18	■	■	■	■		■	■			■
Lubrication points	F90	■	■					■			■
Checking/stopping	F100	■					■				■

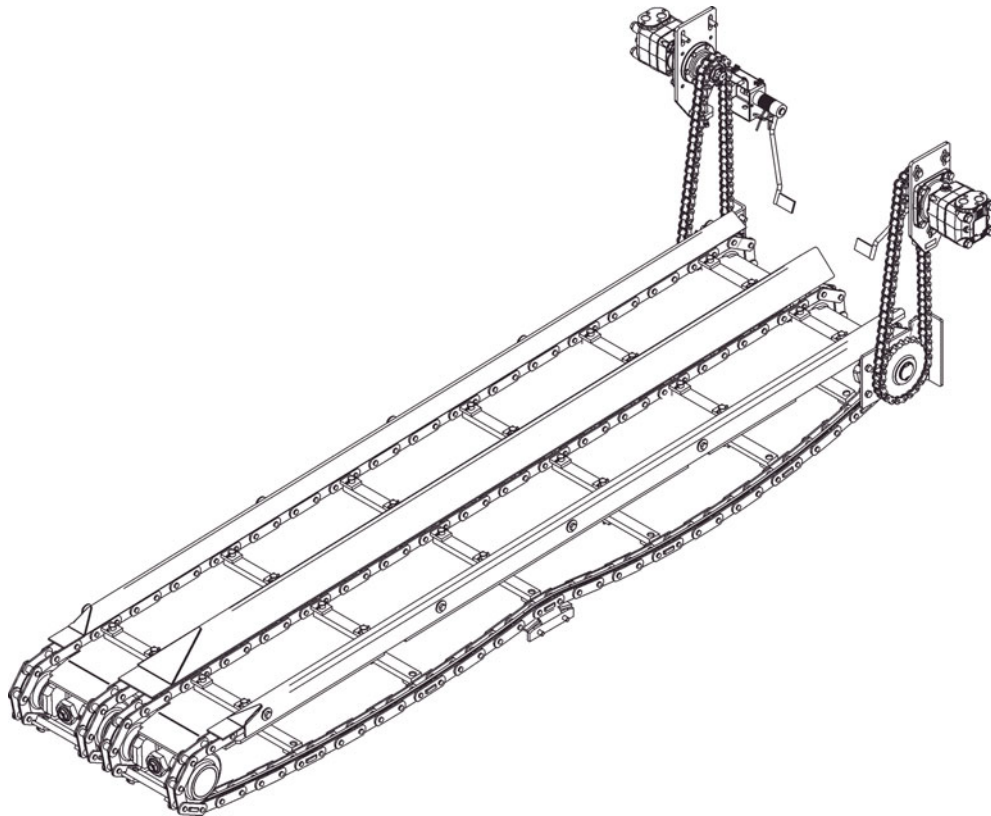
Maintenance required	■
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In this overview, you will find the maintenance intervals for optional machine equipment!



# F 31.18 Maintenance - conveyor

## 1 Maintenance - conveyor



 <b>WARNING</b>	<b>Danger of being pulled in by rotating or conveying vehicle parts</b>
	<p>Rotating or conveying vehicle parts can cause severe or fatal injuries!</p> <ul style="list-style-type: none"> <li>- Do not enter the danger zone.</li> <li>- Do not reach into rotating or conveying parts.</li> <li>- Only wear close-fitting clothing.</li> <li>- Comply with the warning and information signs on the vehicle.</li> <li>- Stop the engine and remove the ignition key before any maintenance work.</li> <li>- Comply with all further information in these instructions and in the safety manual.</li> </ul>

 <b>CAUTION</b>	<b>Danger from heavy loads</b>
	<p>Lowering vehicle parts may cause injuries!</p> <ul style="list-style-type: none"> <li>- When the vehicle is parked and during maintenance and transport, close both hopper lids and fit the corresponding hopper transport safeguards.</li> <li>- When the vehicle is parked and during maintenance and transport, raise the screen and fit the corresponding screed transport safeguards.</li> <li>- Ensure that opened hoods and covering parts are locked properly.</li> <li>- Comply with all further information in these instructions and in the safety manual.</li> </ul>

 <b>CAUTION</b>	<b>Hot surfaces!</b>
	<p>Surfaces including those behind covering parts, together with combustion gases from the engine or screed heater can be very hot and cause injuries!</p> <ul style="list-style-type: none"> <li>- Wear your personal safety gear.</li> <li>- Do not touch hot parts of the vehicle.</li> <li>- Only perform maintenance and repair work after the vehicle has cooled down.</li> <li>- Comply with all further information in these instructions and in the safety manual.</li> </ul>

## 1.1 Maintenance intervals

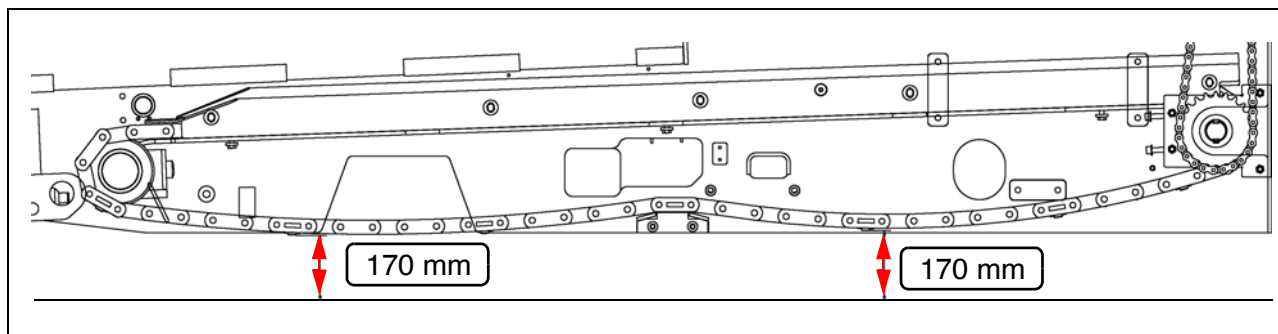
Item	Interval							Maintenance point	Note
	10	50	100	250	500	1000 / annually	2000 / every 2 years		
1	■							- Conveyor chain - Check tightness	
								■ - Conveyor chain - Adjust tension	
								■ - Conveyor chain - Replace chain	
2			■					- Conveyor drive - drive chains - Check chain tightness	
								■ - Conveyor drive - drive chains - Adjust chain tightness	
3								■ - Replace conveyor deflectors / conveyor plates	

Maintenance	■
Maintenance during the running-in period	▼

## 1.2 Points of maintenance

### Chain tension, conveyor (1)

Check chain tension:



When the conveyor chain is tensioned correctly, the lower edges of both chain sags (before and after the chain guide) hangs approx. 170 mm above the ground.



The conveyor chains should not be too tight or too slack. An excessively taut chain can cause the chain to be stopped or to break when material falls into the space between the chain and the sprocket.  
If the chains are too slack, it may get stuck in the protruding objects and be damaged.

### Adjustment of chain tension:



One adjusting screw is located on both halves of the conveyor for adjusting the chain tension.

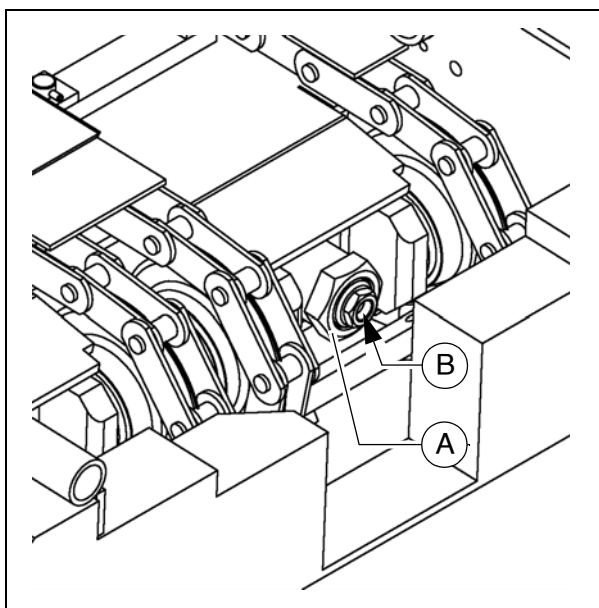


The adjusting screws are located at the reversal behind the crossbeam.



A special wrench for the lock nut (A) is included in the scope of supply of the vehicle.

- Unfasten lock nut (A) at the reversal.
- Adjust the chain tension using the adjusting screw (B).
- Retighten the lock nut (A) properly.



### Check / replace chain:



At the latest, the conveyor chains (A) must be replaced when their elongation has progressed so far that they can no longer be re-tensioned.

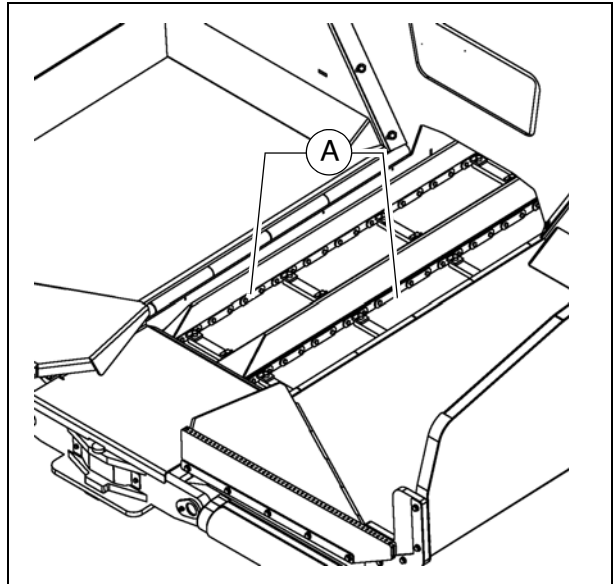


Chain links must not be removed to shorten the chain!  
Incorrectly dividing the chains would lead to destruction of the drive wheels!



If components have to be replaced as a result of wear, the following components should always be replaced in sets:

- Conveyor chain
- Conveyor deflectors
- Conveyor plates
- Deflector plates
- Conveyor chain reversing rollers
- Conveyor drive chain sprockets



Your Dynapac customer service will be happy to provide support during maintenance, repair and the replacement of wearing parts!

## Conveyor drive - drive chains (2)

To check the chain tension:

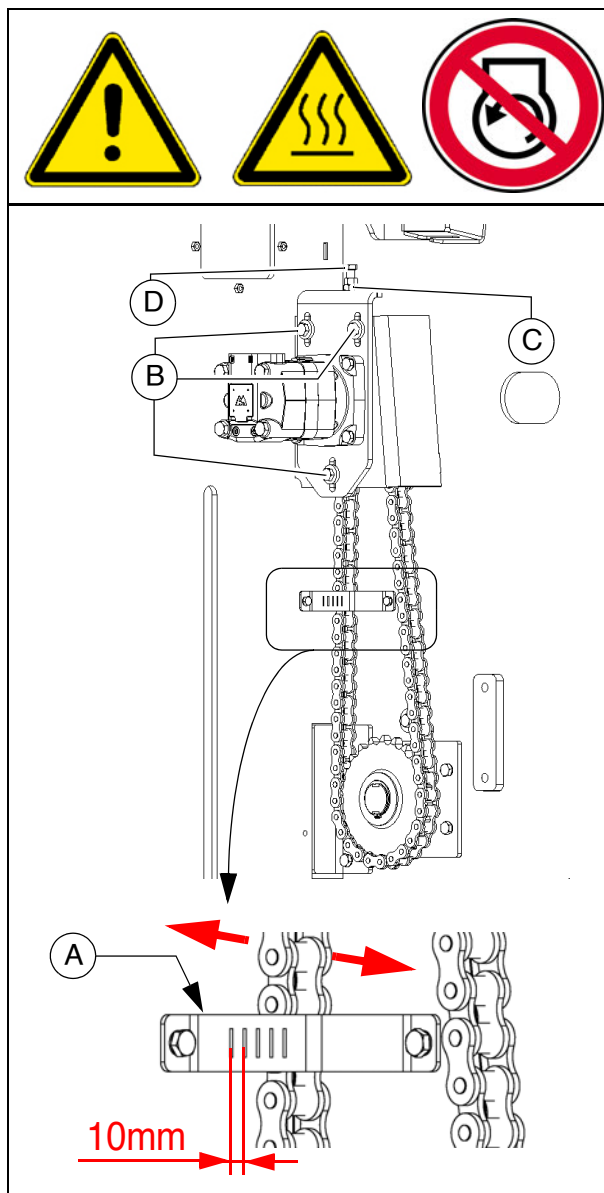


There is a scale (A) on the chain guard to show the chain sag.

- Move the chain:  
If the tension has been set properly, the chain must be able to move freely approx. 10 - 15 mm.

To **re-tension** the chains

- Unfasten mounting screws (B) and lock nut (C) slightly.
- Adjust the required chain tension using the tensioning screw (C).
- Retighten fastening bolts (B) and lock nuts (C) correctly.



### Conveyor deflectors / conveyor plates (3)



At the latest, the conveyor deflectors (A) must be replaced when their lower edges are worn or reveal holes.

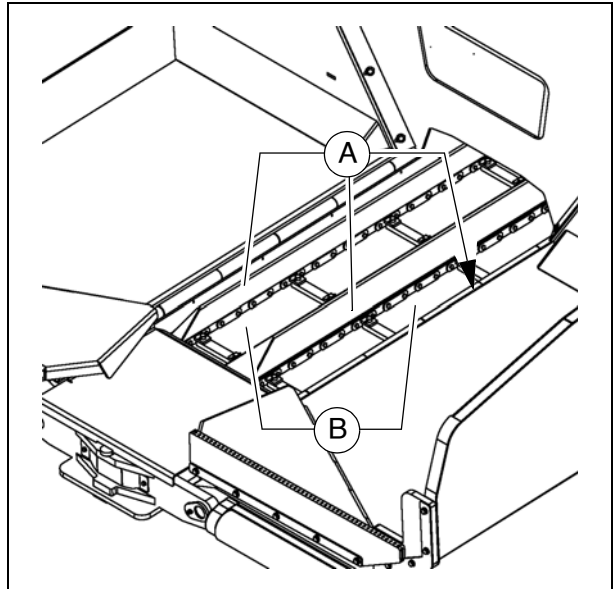


The conveyor chain is not offered protection by worn conveyor deflectors!

- Remove conveyor deflector bolts.
- Remove the conveyor deflectors from the material tunnel.
- Install new conveyor deflectors with new bolts.



At the latest, the conveyor plates (B) must be replaced when the wear limit of 5 mm in the rear area beneath the chain has been reached.



If components have to be replaced as a result of wear, the following components should always be replaced in sets:

- Conveyor chain
- Conveyor deflectors
- Conveyor plates
- Deflector plates
- Conveyor chain reversing rollers
- Conveyor drive chain sprockets

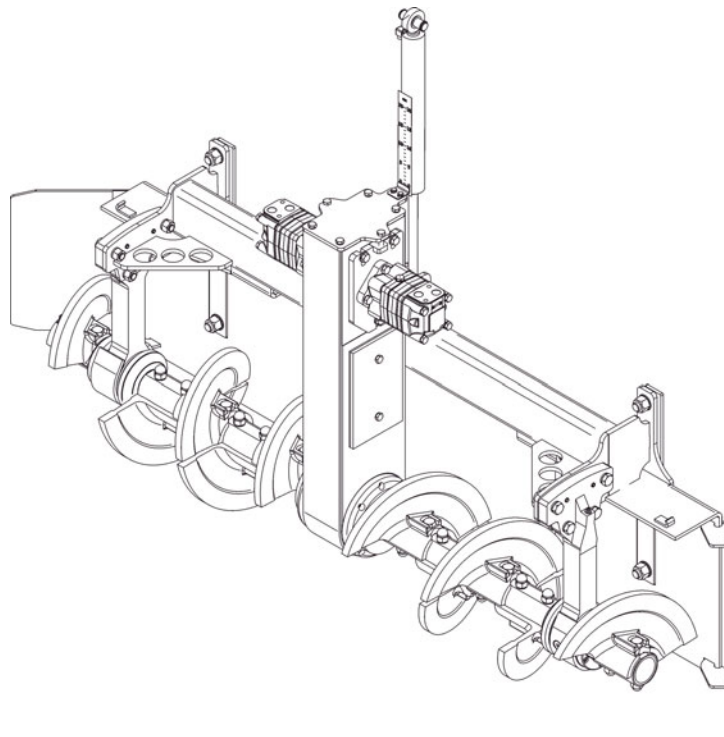




Your Dynapac customer service will be happy to provide support during maintenance, repair and the replacement of wearing parts!





# F 40.18 Maintenance - auger assembly

## 1 Maintenance - auger assembly



 <b>WARNING</b>	<b>Danger of being pulled in by rotating or conveying vehicle parts</b>
	<p>Rotating or conveying vehicle parts can cause severe or fatal injuries!</p> <ul style="list-style-type: none"> <li>- Do not enter the danger zone.</li> <li>- Do not reach into rotating or conveying parts.</li> <li>- Only wear close-fitting clothing.</li> <li>- Comply with the warning and information signs on the vehicle.</li> <li>- Stop the engine and remove the ignition key before any maintenance work.</li> <li>- Comply with all further information in these instructions and in the safety manual.</li> </ul>

 <b>CAUTION</b>	<b>Hot surfaces!</b>
	<p>Surfaces including those behind covering parts, together with combustion gases from the engine or screed heater can be very hot and cause injuries!</p> <ul style="list-style-type: none"> <li>- Wear your personal safety gear.</li> <li>- Do not touch hot parts of the vehicle.</li> <li>- Only perform maintenance and repair work after the vehicle has cooled down.</li> <li>- Comply with all further information in these instructions and in the safety manual.</li> </ul>

## 1.1 Maintenance intervals

Item	Interval								Maintenance point	Note
	10	50	100	250	500	1000 / annually	2000 / every 2 years	5000		
1			■						- Auger drive chains - Check tension	
								■	- Auger drive chains - Adjust tension	
								■	- Auger drive chains - Replace chains and chain sockets	
2						■			- Auger box - Check grease fill	
								■	- Auger box - Top up with grease	
								■	- Auger box - Change grease	
3						■			- Seals and sealing rings - Check wear	
								■	- Seals and sealing rings - Replace seals	
4	■								- Outer auger bearing - Lubricate	

Maintenance	■
Maintenance during the running-in period	▼

Item	Interval								Maintenance point	Note
	10	50	100	250	500	1000 / annually	2000 / every 2 years	5000		
5		▼							▼ - Outer bearing bolts - Check tightening	
									■ - Outer bearing bolts - Tighten to correct torque	
6			■						- Auger blade - Check wear	
									■ - Auger blade - Replace auger blade	

Maintenance	■
Maintenance during the running-in period	▼

## 1.2 Points of maintenance

### Auger drive chains (1)

To check the chain tension:

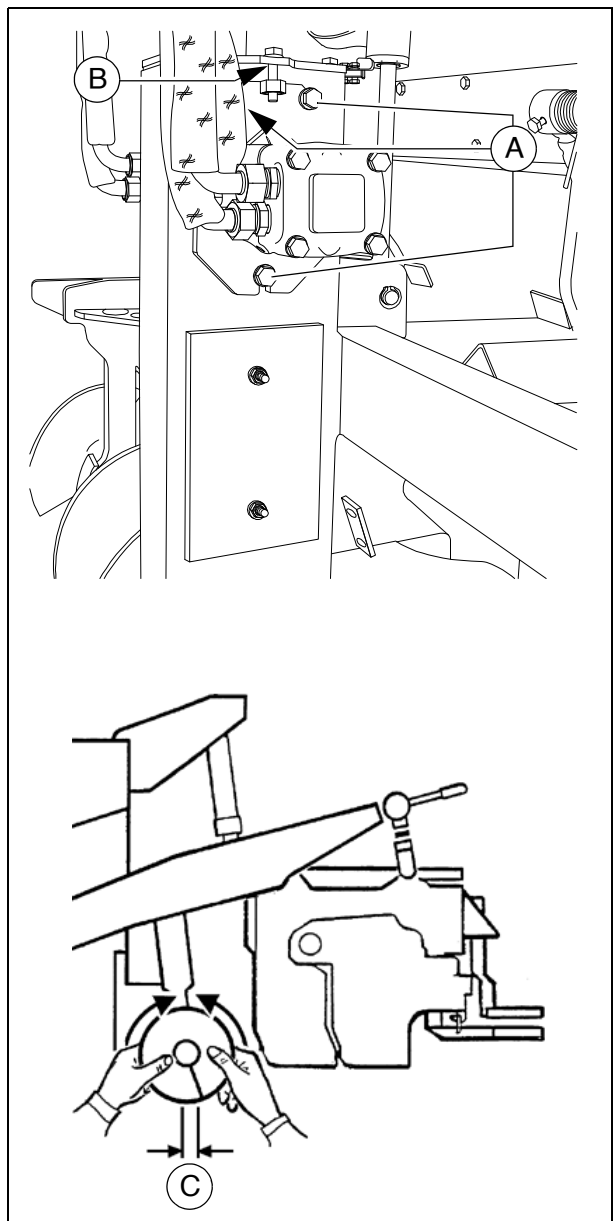
- Manually turn both augers to the right and left. In this case, movement clearance (C) at the augers' outer circumference should be 3-4 mm.



Risk of injury due to sharp-edged parts!

To **re-tension** the chains

- Release the mounting screws (A).
- Adjust chain tension with the adjusting screws (B):
- Retighten the bolts (A).



### Check / replace chain:



The drive chains (A) must be replaced at the latest when:

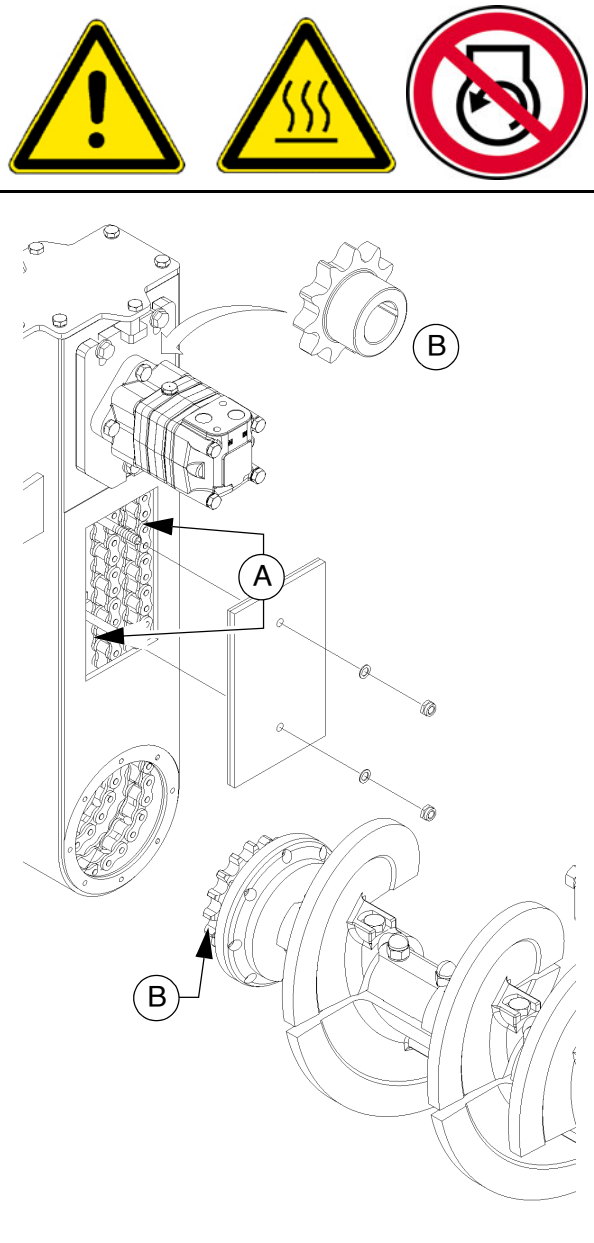
- The sprockets (B) on the auger shaft or drive are worn.
- The chains (A) have lengthened to such an extent that they can no longer be retightened.



Chains and chain sprockets must always be replaced in sets.



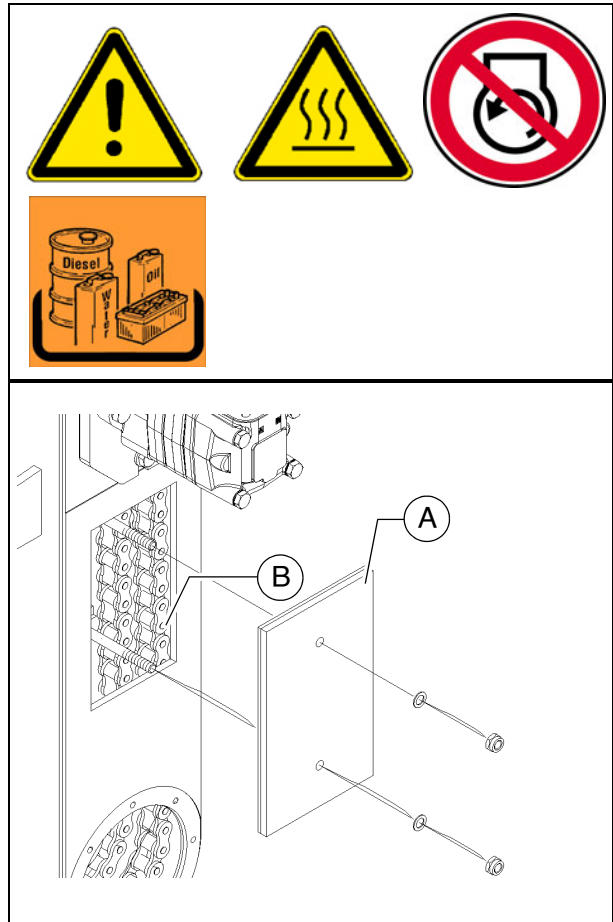
Your Dynapac customer service will be happy to provide support during maintenance, repair and the replacement of wearing parts!



## Auger box (2)

### Check grease fill

To **check** the grease fill:



- Remove side cover (A)



No reduction in the quality and quantity of the grease fill is normally expected. However, the grease fill must always be replaced if there is a considerable change in colour or any lumps have formed.



When grease is present in the correct quantity and quality, a film of grease adheres to the full length of both chains (B).

- Top up with grease if necessary.
- Reinstall cover (A).

### Change grease



The grease should be changed regularly when proceeding with wear-related change of the chains and chain sprockets.

- After dismantling the worn parts, clean the auger box on the inside.
- Once all parts have been mounted, fill with new grease, then fit cover (A).



Your Dynapac customer service will be happy to provide support during maintenance, repair and the replacement of wearing parts!

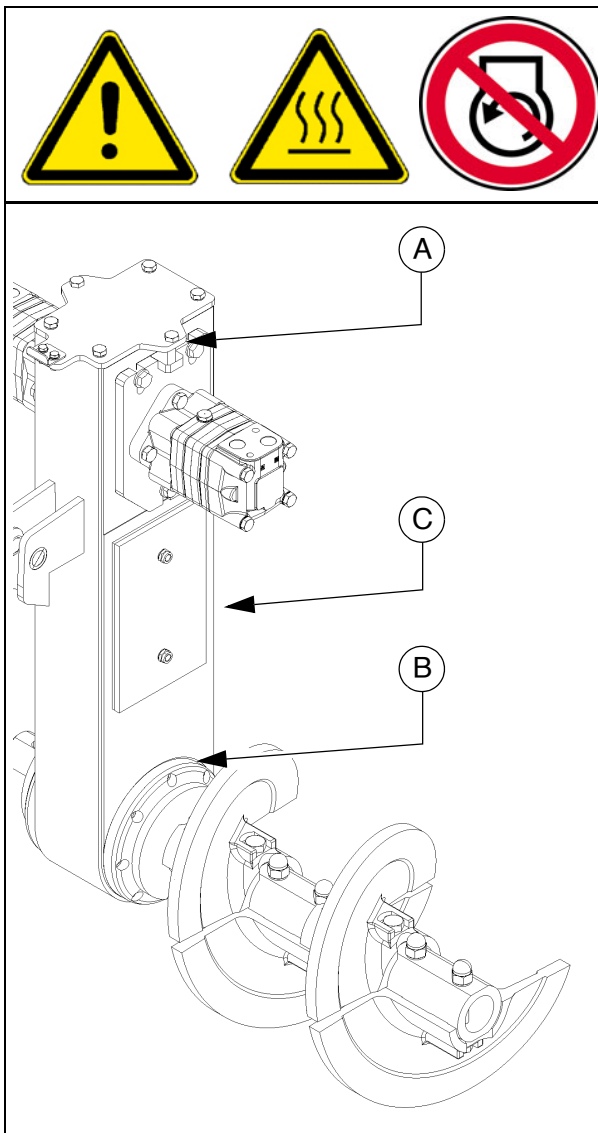
### Seals and sealing rings (3)



After reaching operating temperature, check the gearbox for leaks.



In case of visible leaks, e.g. between the flange surfaces (A) of the drive, auger shaft (B) or at the side cover (C), replacement of the seals and sealing rings is necessary.



#### Outer auger bearing (4)

The grease nipples are located on each side at the top of the outer auger bearings.



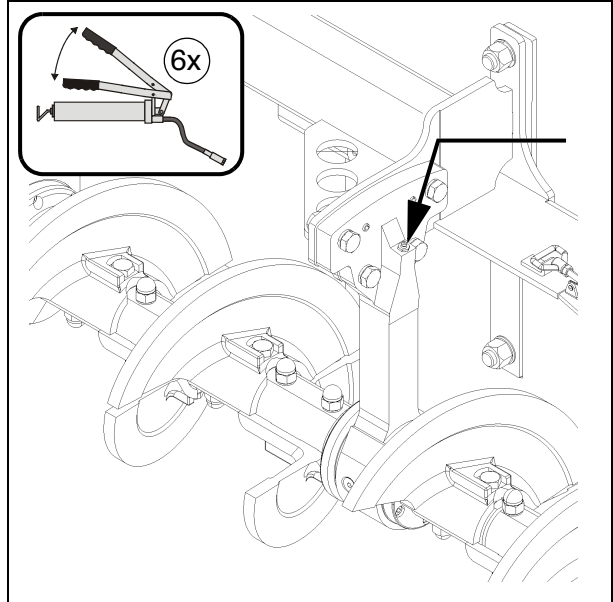
These nipples must be lubricated at the end of work to force out any bitumen residues which may have entered and to supply the bearings with fresh grease when warm.



If the auger is extended, the outer rings should be loosened slightly when initially greasing the outer bearing points in order to improve ventilation on greasing. The outer rings must be properly secured again after greasing.



New bearings must be filled with 60 strokes of grease using a grease gun.



#### Mounting screws - outer auger bearing Check tightening (5)

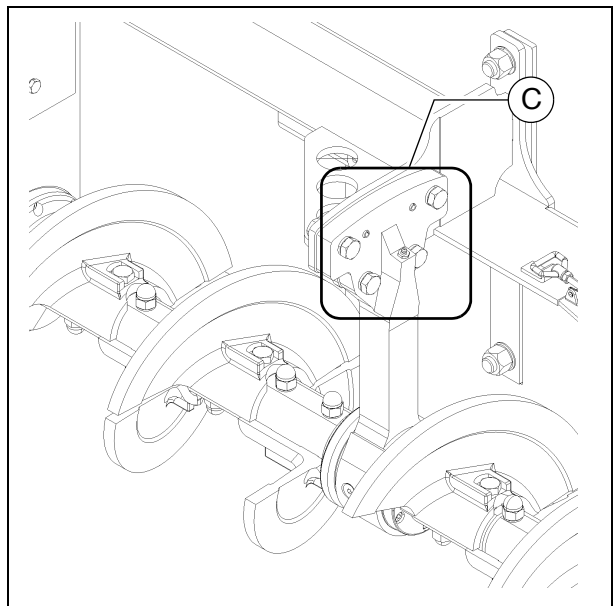


Following the running-in period, the tightening torques of the outer auger bearing mounting screws must be checked.

- Tighten to the following torques if necessary:
- (F): 210 Nm



If the auger's working width is changed, the tightening check must be repeated after the running-in period!



## Auger blade (6)



If the surface of the auger blade (A) becomes sharp-edged, the diameter of the auger is reduced and the blades (B) have to be replaced.



- Remove the bolts (C), washers (D), nuts (E) and auger blade (B).

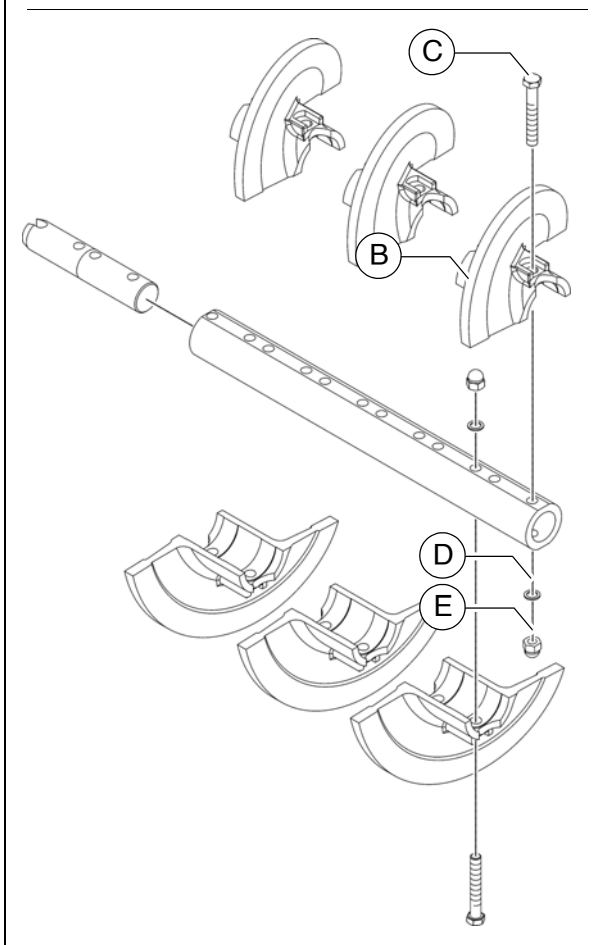
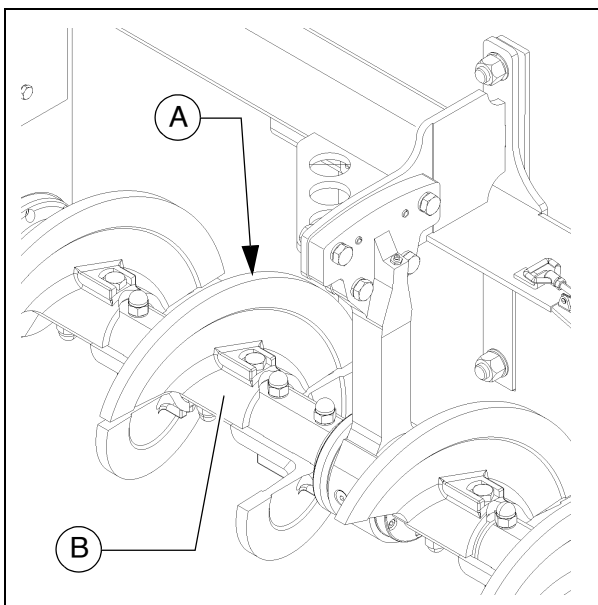


Risk of injury due to sharp-edged parts!



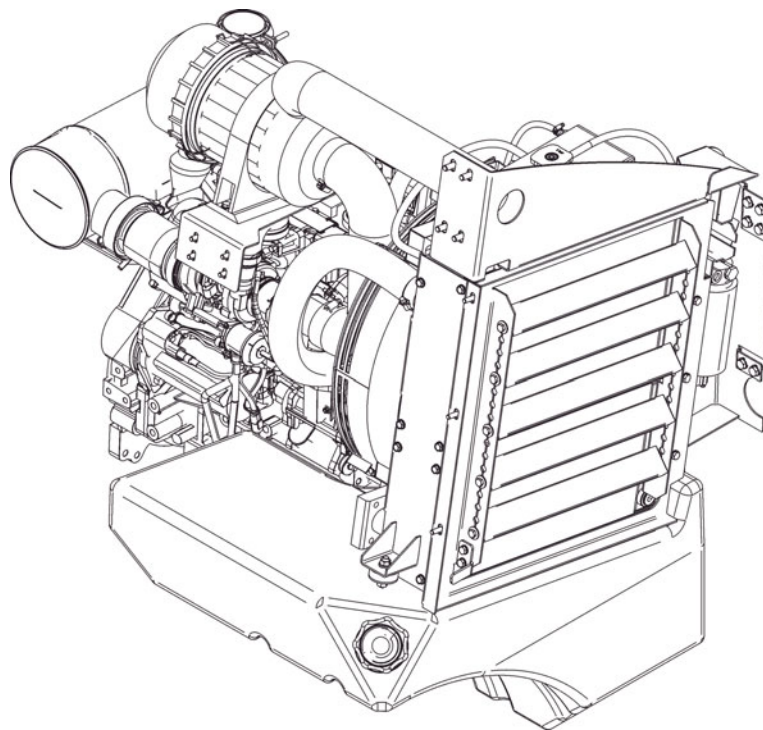
Auger blades must be installed play-free; the contact surfaces must be dirt-free!

- Install the new auger blade (B); replace the bolts (C), washers (D) and nuts (E) if necessary.







# F 50.18 Maintenance - engine assembly

## 1 Maintenance - engine assembly



As well as this maintenance manual, always also pay close attention to the maintenance manual provided by the engine manufacturer. All maintenance work and service intervals itemised here are binding in nature.

 <b>WARNING</b>	<b>Danger of being pulled in by rotating or conveying vehicle parts</b>
	<p>Rotating or conveying vehicle parts can cause severe or fatal injuries!</p> <ul style="list-style-type: none"> <li>- Do not enter the danger zone.</li> <li>- Do not reach into rotating or conveying parts.</li> <li>- Only wear close-fitting clothing.</li> <li>- Comply with the warning and information signs on the vehicle.</li> <li>- Stop the engine and remove the ignition key before any maintenance work.</li> <li>- Comply with all further information in these instructions and in the safety manual.</li> </ul>

 <b>CAUTION</b>	<b>Hot surfaces!</b>
	<p>Surfaces including those behind covering parts, together with combustion gases from the engine or screed heater can be very hot and cause injuries!</p> <ul style="list-style-type: none"> <li>- Wear your personal safety gear.</li> <li>- Do not touch hot parts of the vehicle.</li> <li>- Only perform maintenance and repair work after the vehicle has cooled down.</li> <li>- Comply with all further information in these instructions and in the safety manual.</li> </ul>

## 1.1 Maintenance intervals

Item	Interval								Maintenance point	Note
	10	50	100	250	500 / annually	1000 / annually	2000 / every 2 years	If necessary		
1	■								- Fuel tank Check filling level	
								■	- Fuel tank Refill with fuel	
							■		- Fuel tank Clean the tank and system	
2	■								- Engine lube oil system Check oil level	
								■	- Engine lube oil system Top up oil	
					■				- Engine lube oil system Change oil	
					■				- Engine lube oil system Change oil filter	
3	■								- Engine fuel system Fuel filter (drain the water separator)	
					■				- Engine fuel system Replace fuel pre-filter	
					■				- Engine fuel system Replace fuel filter	
								■	- Engine fuel system Bleed fuel system	

Maintenance	■
Maintenance during the running-in period	▼

Item	Interval								Maintenance point	Note
	10	50	100	250	500 / annually	1000 / annually	2000 / every 2 years	If necessary		
4	■								- Engine air filter Check air filter	
	■								- Engine air filter Emptying dust collector	
						■		■	- Engine air filter Replace air filter cartridge	
5	■								- Engine cooling system Check radiator fins	
				■				■	- Engine cooling system Clean radiator fins	
				■					- Engine cooling system Check level of the coolant	
								■	- Engine cooling system Top up coolant	
					■				- Engine cooling system Check coolant concentration	
								■	- Engine cooling system Adjust coolant concentration	
							■		- Engine cooling system Change coolant	

Maintenance	■
Maintenance during the running-in period	▼

Item	Interval							Maintenance point	Note
	10	50	100	250	500 / annually	1000 / annually	2000 / every 2 years		
6					■			- Engine drive belt Check drive belt	
							■	- Engine drive belt Tighten drive belt	
					■		■	- Engine drive belt Replace drive belt	

Maintenance	■
Maintenance during the running-in period	▼

## 1.2 Points of maintenance

### Engine fuel tank (1)

- Check the **filling level** on the gauge on the operating panel.



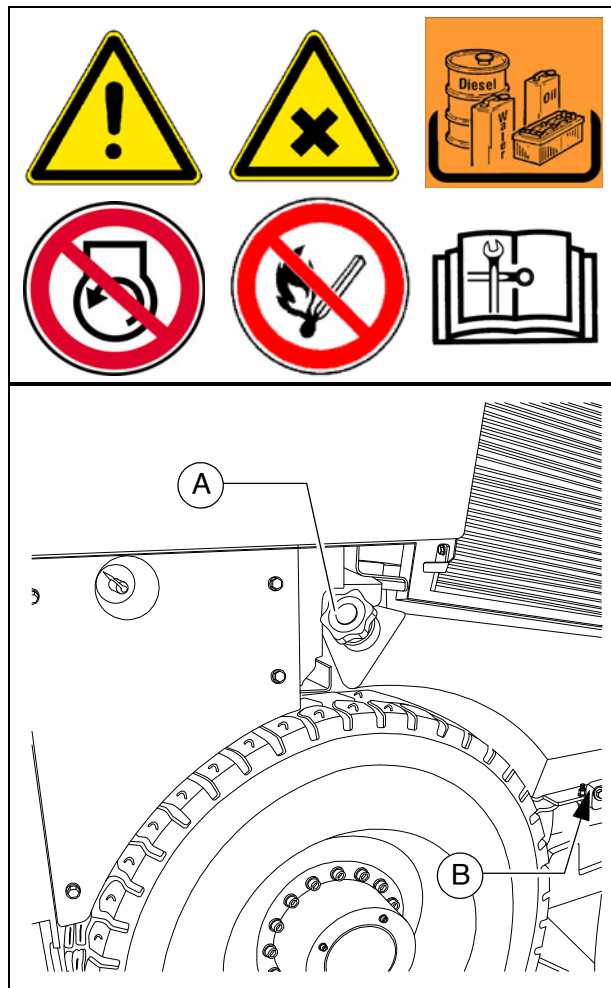
Fill the fuel tank each time before starting work so that the fuel system cannot "run dry" and time-consuming venting (bleeding) can therefore be avoided.

For **filling with fuel**:

- Remove cover (A).
- Fill in fuel through the filling port until the required fill lever is achieved.
- Replace the cover (A).

**Clean the tank and system:**

- Unscrew the drain plugs (B) of the tank and drain about 1 l fuel into a collection pan.
- When returning the screw, make sure to use a new seal.



## Engine lube oil system (2)

### Check oil level



In case of correct oil level, the oil is between the two notches of the dipstick (A).



Only check the oil level when the finisher is in a horizontal position!



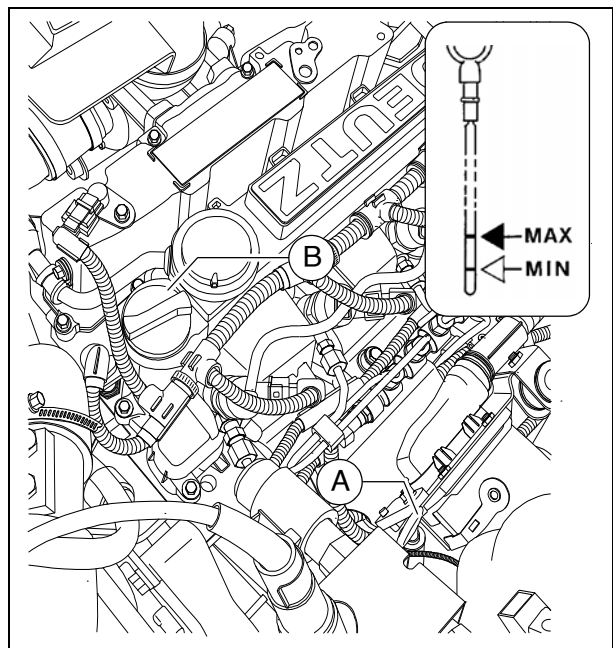
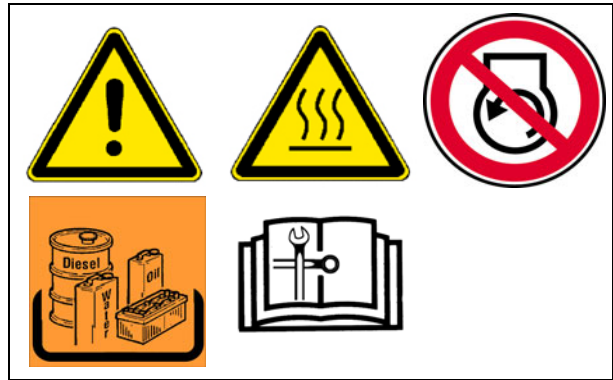
The sensor rod is located at the front end of the engine.



Too much oil in engine damages gas-kets; too little oil results in overheating and engine destruction.

For **filling with oil**:

- Remove cover (B).
- Fill up oil to correct level.
- Return cover (B).
- Use dipstick to check level again.

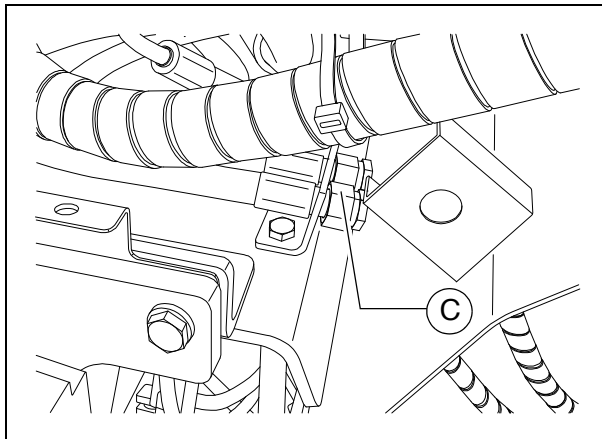


## Oil change:



The oil should be changed when at operating temperature.

- Place the end of the oil drain port hose (C) in the collection container.
- Remove the screw cap with a wrench and allow the oil to drain completely.
- Replace the screw cap and tighten properly.
- Fill in the specified quality of oil through the filler opening (B) on the engine until the oil level rises to the correct mark on the dipstick (A).



## Changing the oil filter:

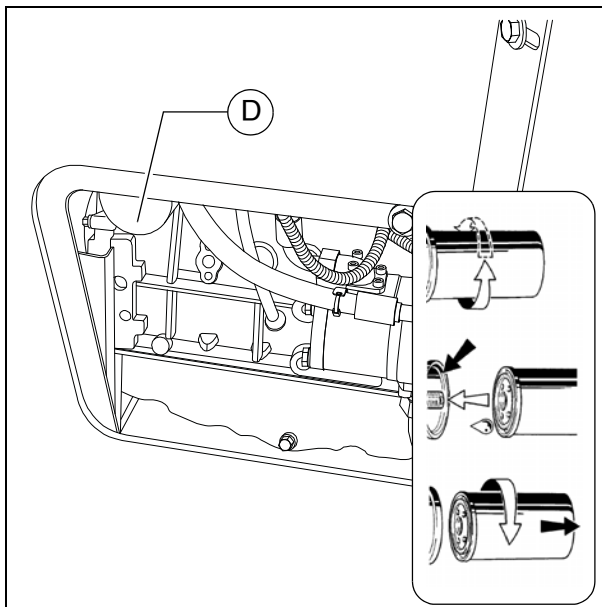


The new filter is inserted during an oil change once the used oil has been drained out.



The oil filter is located at the front end of the engine. (Use the maintenance flap for access)

- Loosen the filter (D) using a filter wrench or filter strap and unscrew.
- Collect escaping lubricating oil.
- Clean the sealing face of the filter carrier with a clean, lint-free cloth.
- Slightly lubricate the seal of the new filter before installing it.
- Screw the new filter in by hand until the seal makes contact and tighten with a torque of 15-17 Nm.



After installing the oil filter, attention must be paid to the oil pressure display and good sealing during the test run. Check oil level again.

## Engine fuel system (3)



The fuel filter system consists of two filters:

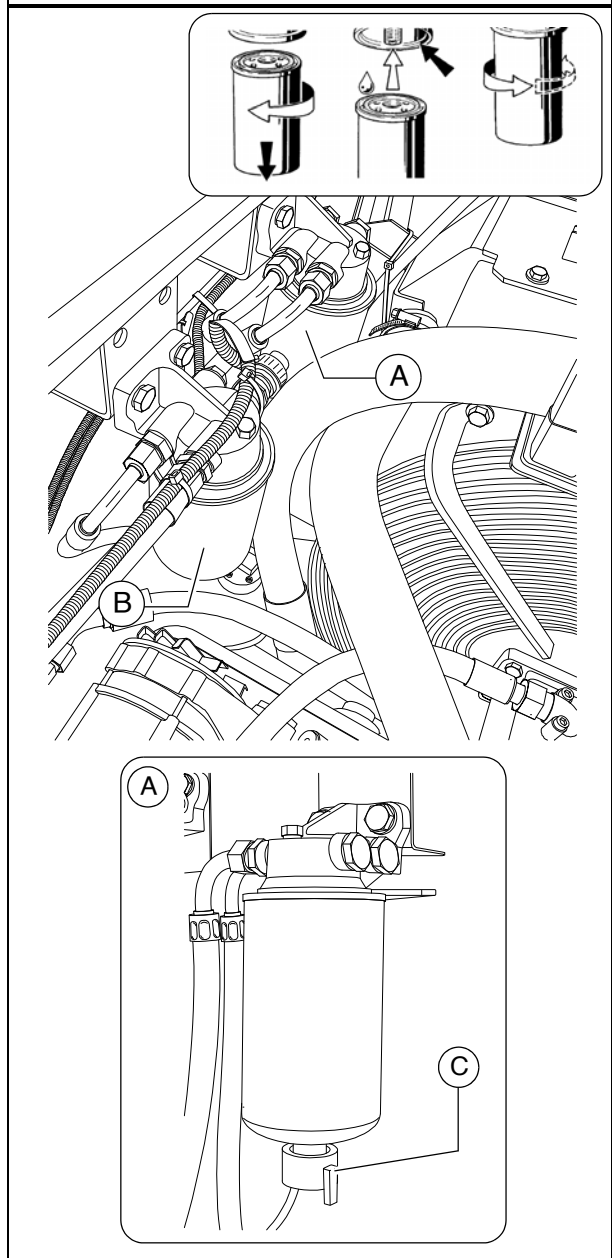
- Prefilter (A) with water separator
- Main filter (B)

### Prefilter - draining of water



Drain the collecting vessel at regular intervals, or in response to an error message from the engine control unit.


- Put a suitable drip pan underneath.
- Disconnect the electrical connection/cable connection.
- Loosen drain plug (C).
- Drain off liquid until pure diesel fuel emerges.
- Tighten the drain plug (C) again.
- Restore the electrical connection/cable connection.




### **Changing the prefilter:**


- Put a suitable drip pan underneath.
- Disconnect the electrical connection/cable connection.
- Loosen drain plug (C) and drain off liquid.
- Untighten the filter cartridge (A) using a pair of oil filter tongs or oil filter strap and unscrew it.
- Clean any dirt from the sealing face of the new filter cartridge and the opposite side of the filter head.
- Lightly coat the oil filter cartridge seal with fuel and screw hand-tight under the bracket (17-18 Nm).
- Restore the electrical connection/cable connection.
- Tighten the drain plug (C).
- Bleed the fuel system

### **Bleed the fuel system:**


 The fuel system is bled using the electric fuel feed pump. Do not attempt to start the vehicle while the fuel system is being bled to ensure that no error message is generated.

- Ignition "ON"

 The electronic fuel feed pump switches on for 20 seconds to bleed the fuel system and build up the necessary fuel pressure.

 Wait until the electric fuel feed pump is switched off by the control unit.

- Ignition "OFF"

 Repeat at least twice until the fuel system is bled.

### **Replacing the main filter:**

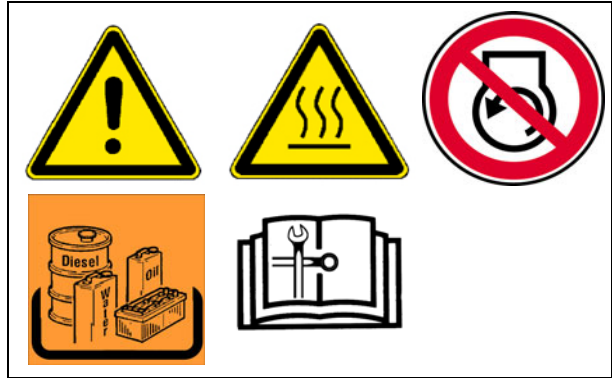
- Untighten the filter cartridge (B) using a pair of oil filter tongs or oil filter strap and unscrew it.
- Clean any dirt from the sealing face of the new filter cartridge and the opposite side of the filter head.
- Lightly coat the oil filter cartridge seal with fuel and screw hand-tight under the bracket (17-18 Nm).

 After fitting the filter, ensure good sealing action during the test run.

## Engine air filter (4)

### Empty dust collector

- Empty the dust removal valve (B) on the air cleaner housing (A) by pressing the discharge port in the direction of the arrow.
- Remove any baked on dust by pressing together the upper valve section.



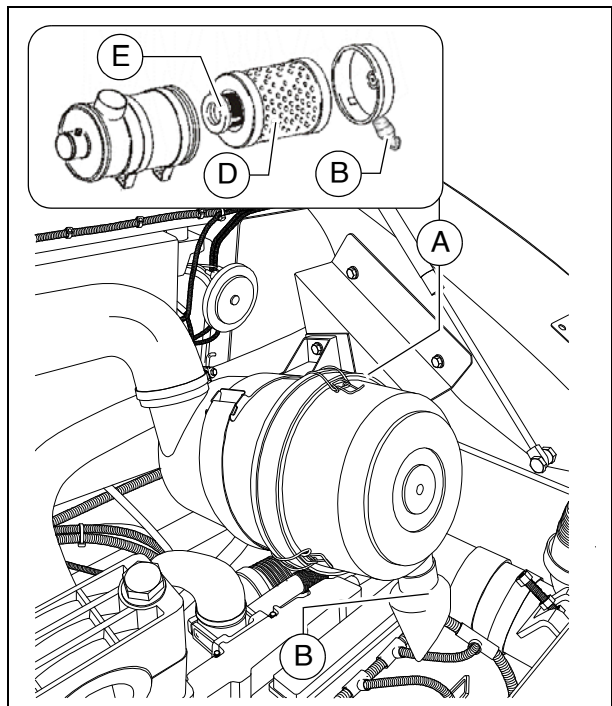
- ☞ Clean the discharge port from time to time.

### Cleaning / replacing the air filter cartridge

- ☞ Pollution of the combustion air filter depends on the dust content of the air and the mesh size of the filter selected.

- ☞ Filter maintenance becomes necessary if:

- Maintenance interval or
- Engine electronics service indicator
- Open the air filter lid.
- Pull out the filter cartridge (D) and the safety cartridge (E).



- ☞ Clean the filter cartridge (D) and replace after one year at the latest.

- Blow out with dry pressure air (max. 5 bar) from inside out or tap it (in case of emergency only).

- ☞ Do not damage cartridge when doing so.

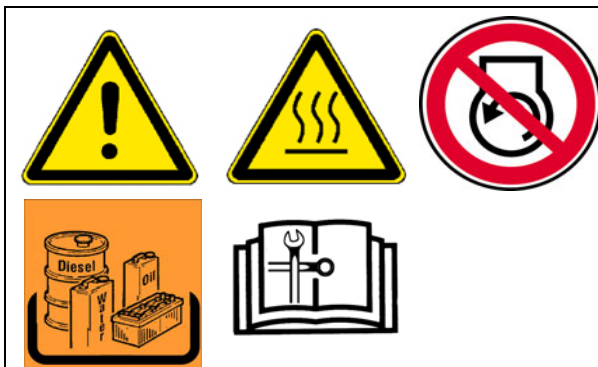
- Check the soundness of the filter papers of the filter cartridge (by exposing to light) and the soundness of the seals. Replace them as required.

- ☞ Replace the safety cartridge (E) together with the filter cartridge (D)

## Engine cooling system (5)

### Checking / topping up coolant

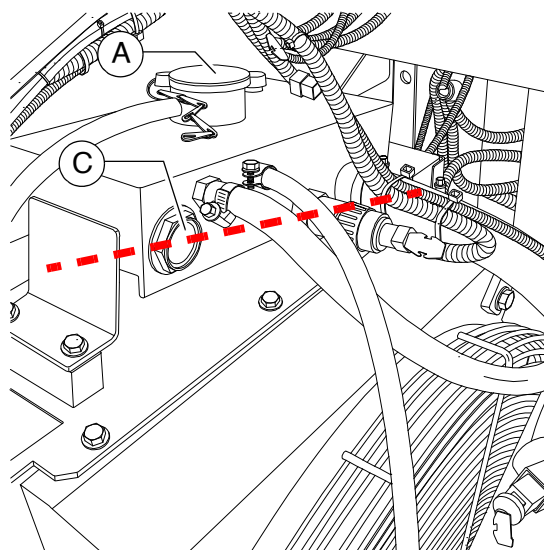
The cooling water level must be checked when the system is cold. Make sure that the anti-freeze and anti-corrosive liquid is sufficient ( $-25^{\circ}\text{C}$ ).



When hot, the system is under pressure. When opening, there is a danger of scalding!



If necessary fill in a sufficient amount of coolant through the open port (A) of the compensating tank.



When hot, the system is under pressure. When opening, there is a danger of scalding!

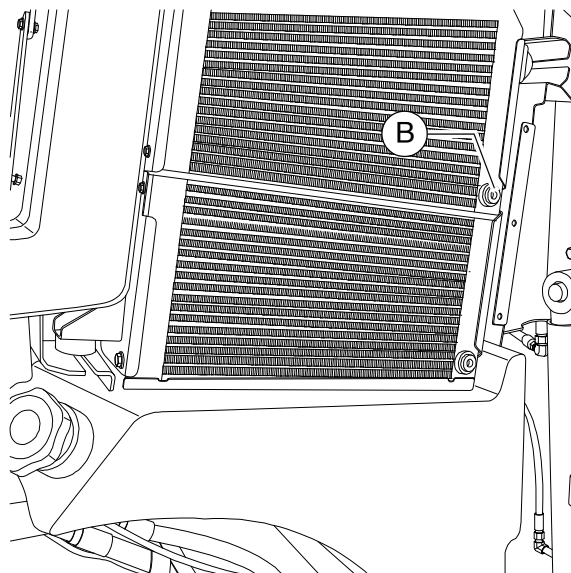


Use only approved coolants!



Observe the instructions in the chapter entitled "Operating substances"!

- Remove the drain screw (B) on the radiator and let the coolant drain completely.
- Reinstall the drain screw (B) and tighten properly.
- Fill in coolant through the filling opening (A) on the compensation tank until the coolant level rises to the centre of the sight glass (C).



The air is only able to escape completely from the cooling system once the engine has reached its operating temperature (at least  $90^{\circ}\text{C}$ ).

Check the fluid level again, top up if necessary.

### **Checking and cleaning the radiator fins**

- If necessary, remove leaves, dust or sand from the radiator.



Observe engine's operating instructions

### **Checking coolant concentration**

- Check the concentration using a suitable tester (hydrometer).
- Adjust the concentration if necessary.



Observe engine's operating instructions

## Engine drive belt (6)

### Check drive belt

- Check the drive belt for damage.



Small transverse cracks in the belt are acceptable.



In the event of longitudinal cracks which intersect with transverse cracks and damaged material surfaces, belt replacement is necessary.

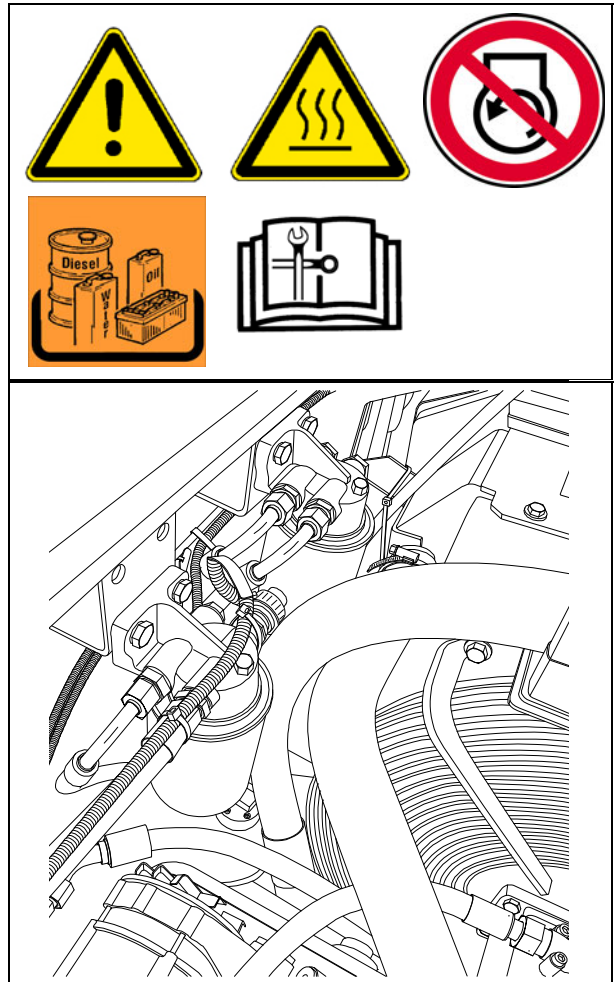


Observe engine's operating instructions

### Replace drive belt

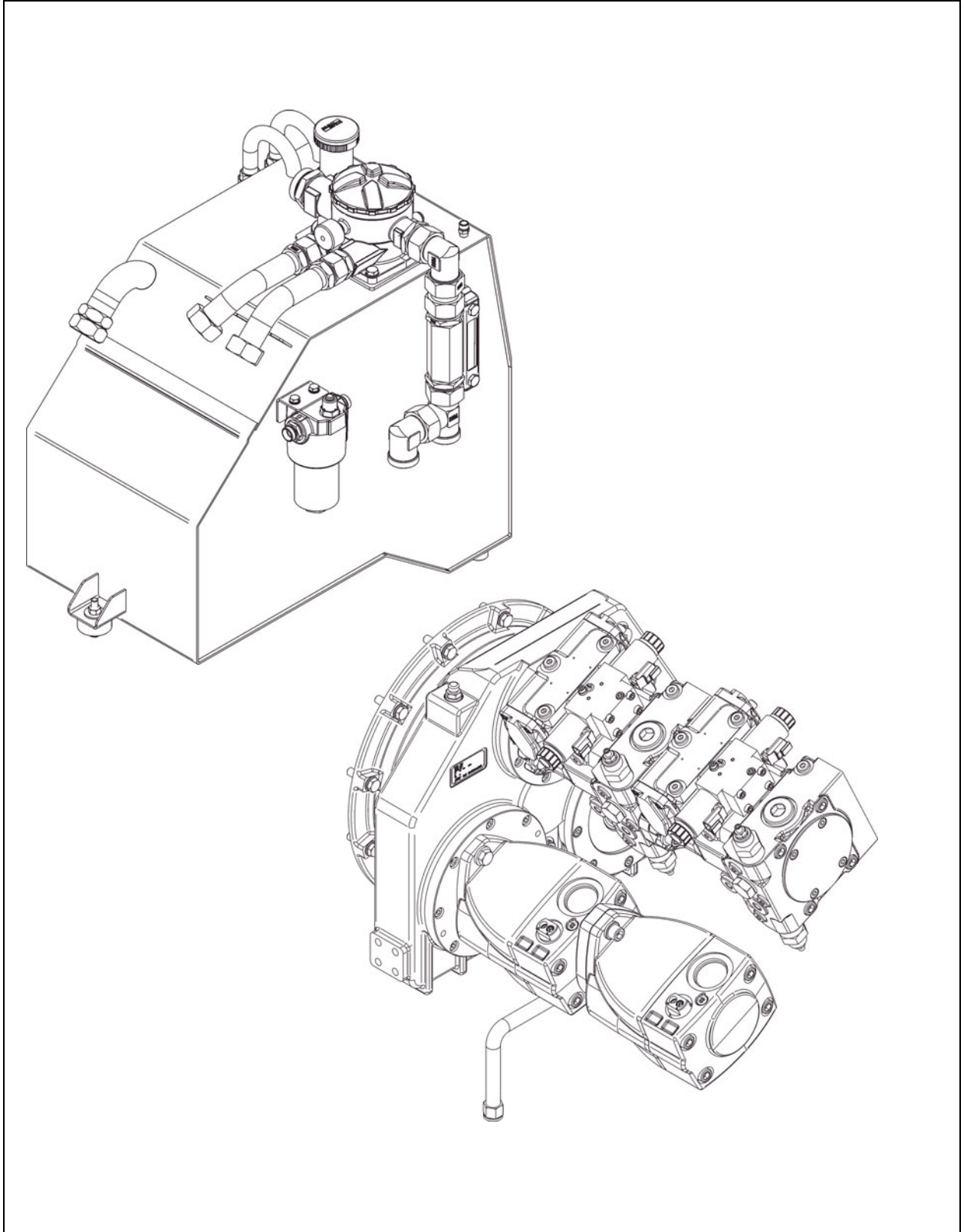




Observe engine's operating instructions








# F 60.18 Maintenance - hydraulic system

## 1 Maintenance - hydraulic system



 <b>WARNING</b>	<b>Danger due to hydraulic oil</b>
	<p>Hydraulic oil under high pressure can cause severe to fatal injuries!</p> <ul style="list-style-type: none"> <li>- Only competent staff should work on the hydraulic system!</li> <li>- Any hydraulic hoses that are cracked or soaked through must be replaced immediately.</li> <li>- Depressurise the hydraulic system.</li> <li>- Lower screed and open hopper.</li> <li>- Stop the engine and remove the ignition key before any maintenance work.</li> <li>- Secure the vehicle to prevent it being switched on again.</li> <li>- Consult a doctor immediately if injured.</li> <li>- Comply with all further information in these instructions and in the safety manual.</li> </ul>

 <b>CAUTION</b>	<b>Hot surfaces!</b>
	<p>Surfaces including those behind covering parts, together with combustion gases from the engine or screed heater can be very hot and cause injuries!</p> <ul style="list-style-type: none"> <li>- Wear your personal safety gear.</li> <li>- Do not touch hot parts of the vehicle.</li> <li>- Only perform maintenance and repair work after the vehicle has cooled down.</li> <li>- Comply with all further information in these instructions and in the safety manual.</li> </ul>

 <b>WARNING</b>	<b>Danger from residual pressure in hydraulic lines</b>
	<p>Residual pressure in the hydraulic system can cause severe or fatal injuries!</p> <ul style="list-style-type: none"> <li>- Proceed as follows before working on the hydraulic system:</li> <li>- Depressurise the hydraulic system for maintenance:             <ol style="list-style-type: none"> <li>2. Open hopper.</li> <li>3. Move levelling cylinder to lower limit position.</li> <li>4. Retract screed.</li> <li>5. Lower the screed to the floating position.</li> <li>6. Set crowning to 0°.</li> <li>7. Move front hopper cylinder to lower limit position.</li> </ol> </li> <li>- Stop the engine and remove the ignition key before any maintenance work.</li> <li>- Secure the vehicle to prevent it being switched on again.</li> <li>- Let the hydraulic oil cool down.</li> </ul> <p> After depressurising, begin slowly and carefully when opening the threaded connections in the hydraulic lines.</p> <p>Continue to loosen the threaded connections with caution in order to notice possible dangers resulting from any still remaining pressure in the hydraulic fluid (here it may help to knock gently on the threaded connection) so that precautions can be taken.</p> <p>Do not continue loosening the threaded connection if there is still any remaining pressure in the system. Depressurise the system again and check once more that this has been effective.</p>

## 7.1 Maintenance intervals

Item	Interval							Maintenance point	Note
	10	50	100	250	500	1000 / annually	2000 / every 2 years		
1	■							- Hydraulic oil tank - Check fill level	
								- Hydraulic oil tank - Top up with oil	
							■	- Hydraulic oil tank - Change oil and clean	
					■			- Hydraulic oil tank - Change ventilation filter	
2	■							- Hydraulic oil tank - Check maintenance indicator	
					■		■	- Hydraulic oil tank - Change and vent the suction/re- turn flow hydraulic filter	
3	■							- High-pressure filter - Check maintenance indicator	
					■		■	- High-pressure filter - Replace filter element	
4		▼			▼	■	■	- High-pressure filter (mesh filter) - Replace filter element	(○)

Maintenance	■
Maintenance during the running-in period	▼

Item	Interval							Maintenance point	Note
	10	50	100	250	500	1000 / annually	2000 / every 2 years		
5	■							- Pump distribution gear - Check oil level	
							■	- Pump distribution gear - Top up oil	
			▼		■			- Pump distribution gear - Change oil	
	■							- Pump distribution gear - Check bleeder	
							■	- Pump distribution gear - Clean bleeder	
6	▼ ■							- Hydraulic hoses - Visual inspection	
	▼ ■							- Hydraulic system Leak test	
							■	- Hydraulic system- Retighten screw connections	
						■	■	- Hydraulic hoses - Replace hoses	
7					■		■	- Auxiliary flow filter- Replace filter element	(○)

Maintenance	■
Maintenance during the running-in period	▼

## 7.2 Points of maintenance

### Hydraulic oil tank (1)

- Check oil level at sight glass (A).



The oil level must be up to the centre of the sight glass when the cylinders are retracted.



If all the cylinders are extended, the level can fall below the sight glass.



The sight glass is located on the side of the tank.

For **filling** with oil:

- Remove cap (B).
- Fill in oil through the filler opening until the oil level rises to the centre of the sight glass (A) (+/- 5 mm).
- Screw cap (B) on again.



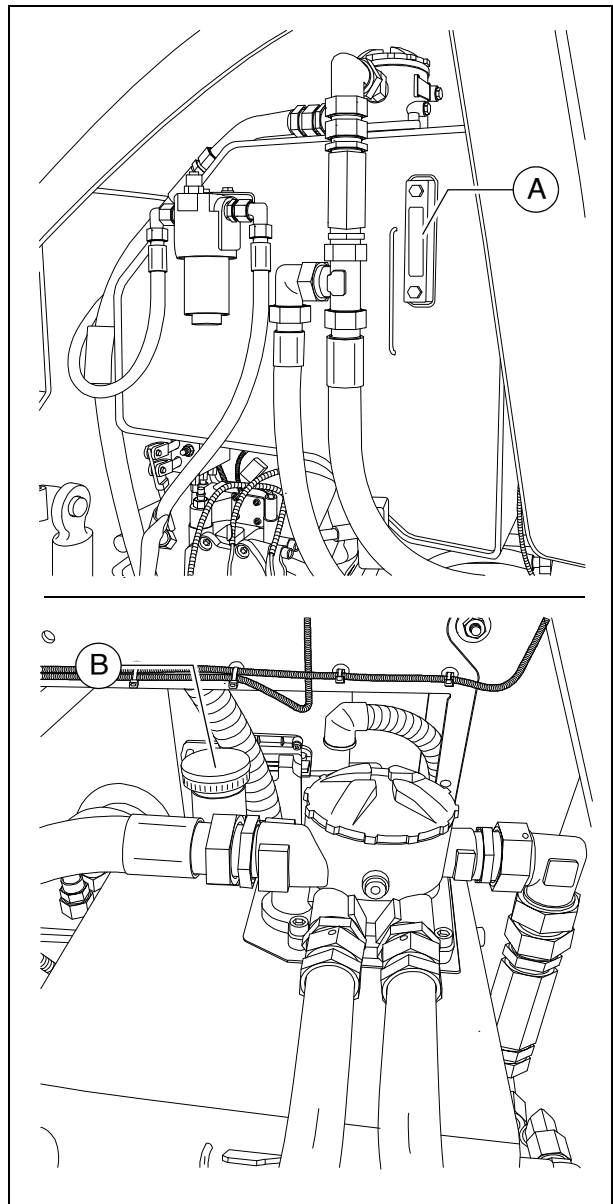
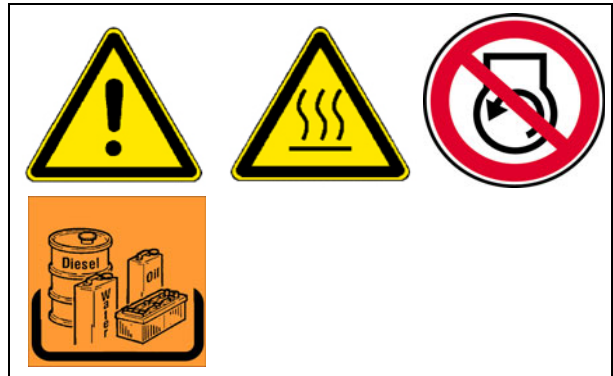
Regularly remove dust and pollution from the oil tank vent integrated in the cover (B). Clean the surfaces of the oil cooler.



Use only the recommended hydraulic oils - see section "Recommended hydraulic oils".



When filling for the first time, all hydraulic cylinders should be extended/retracted at least twice!



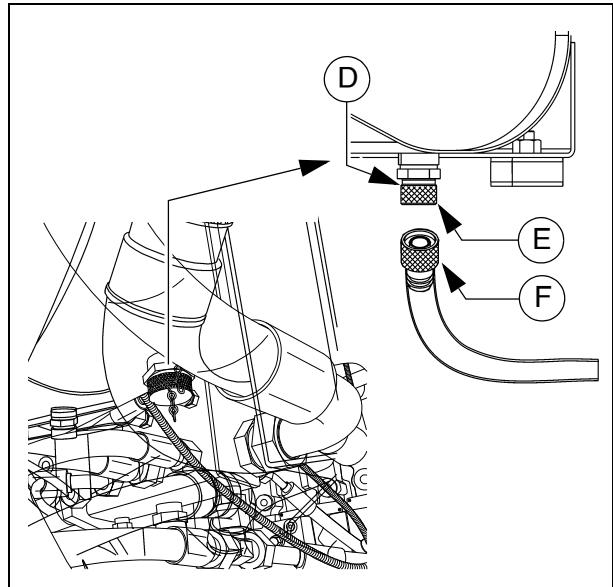
### To **change** oil:

- To drain the hydraulic oil unscrew the drain plug (D) at the bottom of the tank.
- Collect the oil in a container using a funnel.
- When returning the screw, make sure to use a new seal.



When using the drainage hose (○):

- Unscrew seal cap (E).
- Screwing on the oil drainage hose (F) opens the valve to let the oil drain out.
- Place the end of the hose in the collecting vessel and let the oil drain completely.
- Unscrew the drainage hose and return the screw cap.



The oil should be changed when at operating temperature.

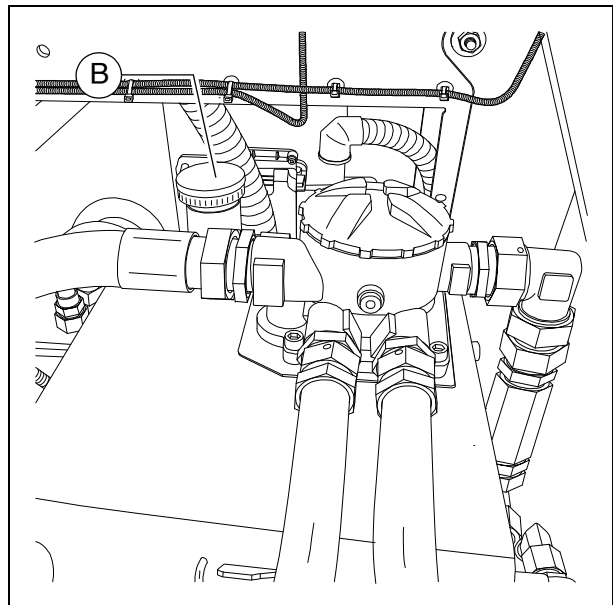


When changing the hydraulic oil also change the filter.

### Ventilation filter

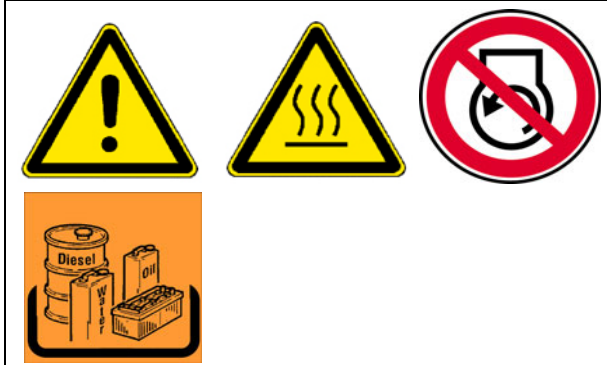


The ventilation filter is integrated in the cover (B).  
The cover must be replaced according to the maintenance interval.



## Suction/return flow hydraulic filter (2)

Replace the filter element when the indicator lamp in the operating panel or the **service indicator** (A) turns red at a hydraulic oil temperature of more than 80°C or the interval has been reached.



- Remove cover (A).
- Pull filter element (B) out of the housing.
- Clean filter element and cover.
- Check O-rings (C), replace if necessary.
- Coat the sealing surfaces and O-rings with clean operating fluid.
- Fill the opened filter housing with hydraulic oil up to approx. 2 cm below the top edge.
- If the oil level drops, replenish oil again.

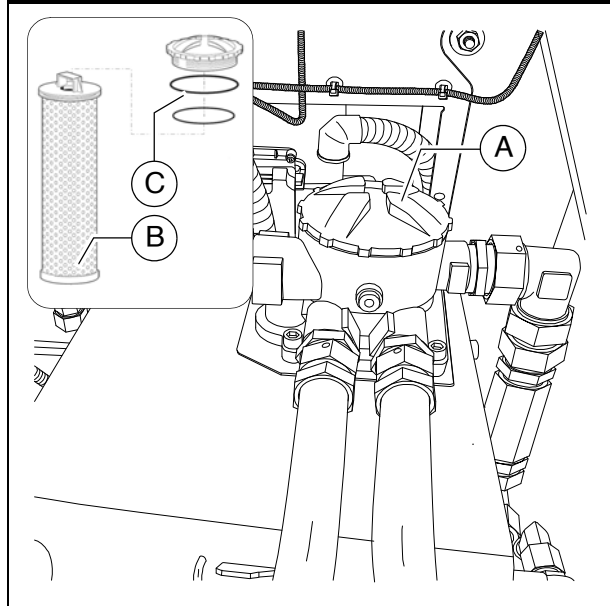


Slow oil level reduction of approx. 1 cm / min. is normal!

- If the oil level remains stable, slowly insert the assembled unit with new filter element into the housing, position the cover (A) and screw hand-tight.



Ensure seal integrity is good after changing the filter.

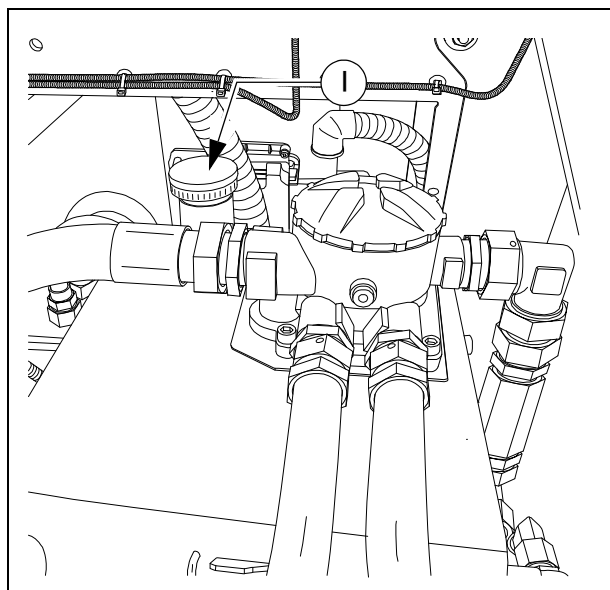


## Ventilation filter



The ventilation filter is contained in the filler cap.

- Replace ventilation filter / filler cap.



### High-pressure filter (3)

The filter elements must be replaced when the maintenance indicator (A) turns red.



The vehicle's hydraulic system contains 2 or 3 high-pressure filters.

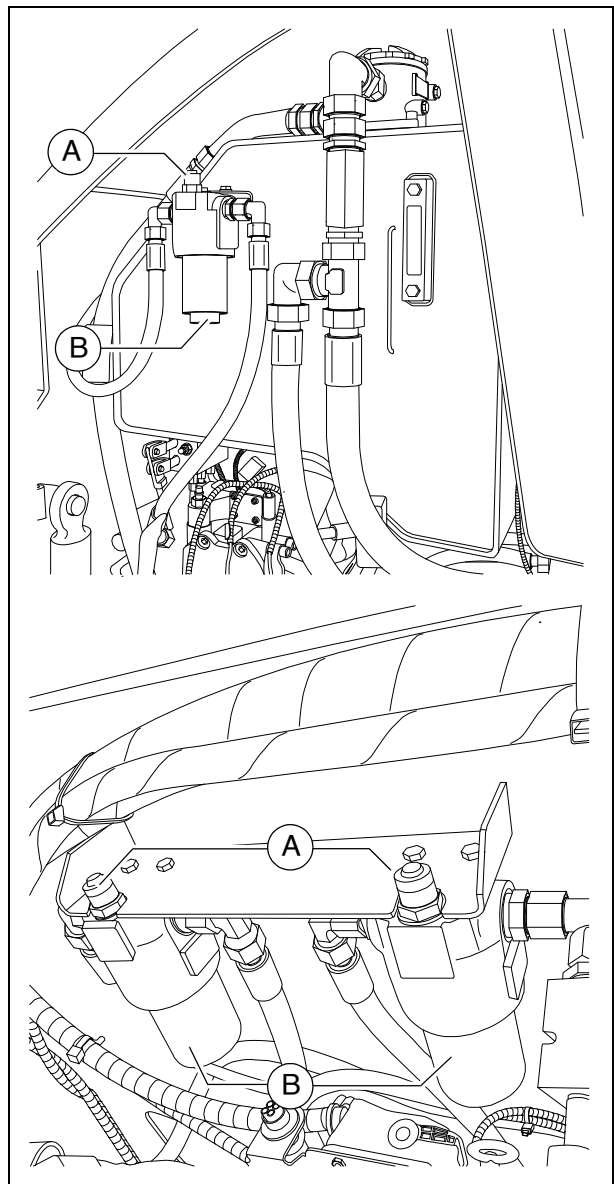
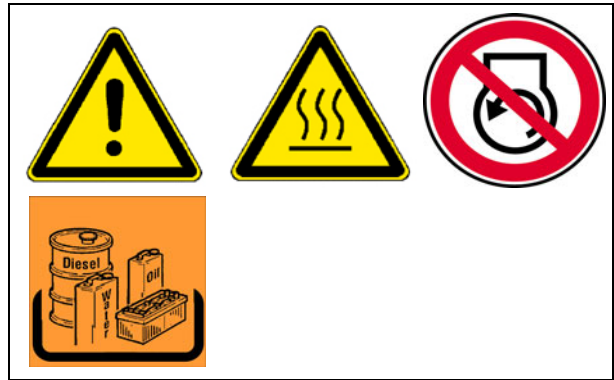
- Unscrew filter housing (B).
- Remove the filter cartridge.
- Clean the filter housing.
- Insert the new filter cartridge.
- Replace the seal ring of the filter housing.
- Turn on the filter housing by hand and tighten it using a wrench.
- Start trial operation and check the tightness of the filter.



Replace the seal ring whenever the filter cartridge is replaced.



After replacing the filter element, the red mark in the maintenance indicator (A) automatically reverts to green.



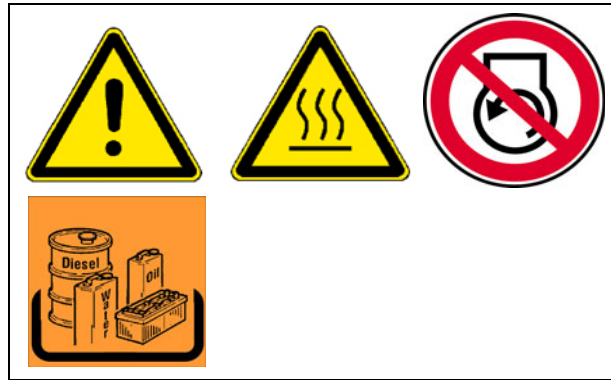
## High-pressure filter (4)

Replace the filter elements when the interval has been reached

The filter (B) is in the engine compartment on the left of the vehicle.



During the run-in time, the filter element can be cleaned with cleaning solvent, later it will have to be changed.



- Loosen the fittings (C) and remove the filter housing (B).
- Fix the filter in a vice.
- Loosen and unscrew the screw-in neck (D) with a screw wrench.

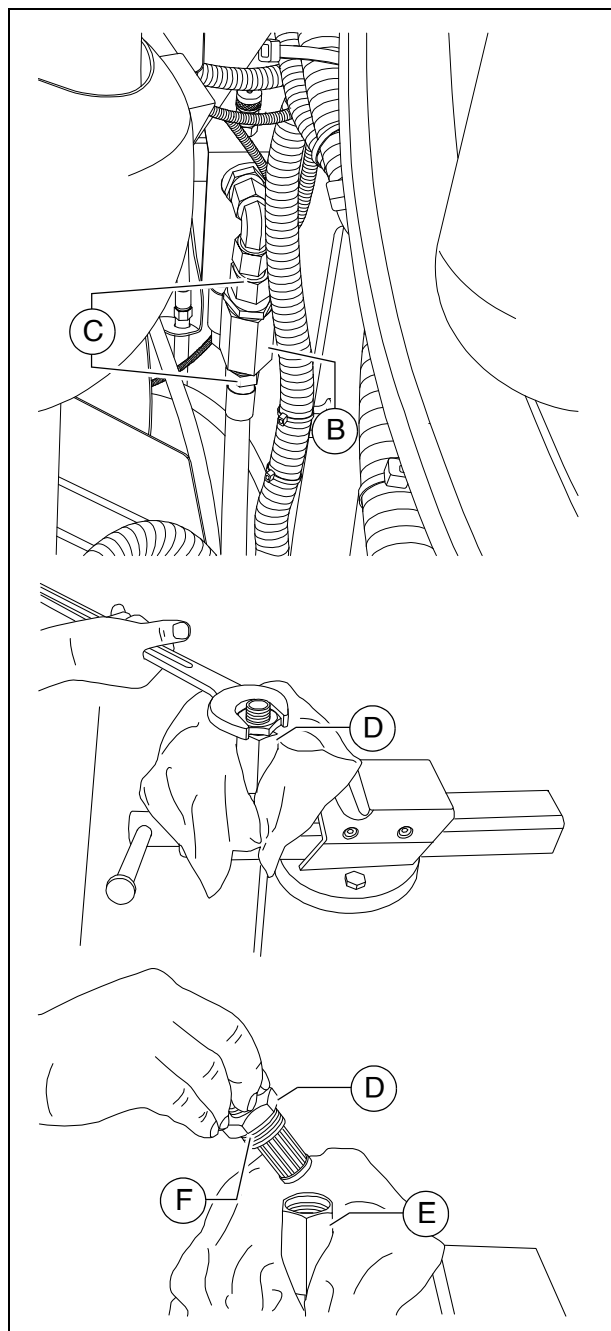


Put a vessel underneath to collect the draining oil.

- Remove the screw-in neck with strainer element (D).
- Shake any remaining oil out of the housing (E) into a vessel for used oil, then clean the filter housing with cleaning solvent.
- Check that the O-ring (F) at the screw-in neck is in perfect condition, replace if necessary.
- Push the screw-in neck with strainer element (D) carefully into the housing (E) and screw in as far as it will go. Tighten with a screw wrench (torque 120 +/- 5 Nm)
- Start trial operation and check the tightness of the filter.



Replace the seal ring whenever the filter cartridge is replaced.



## Pump distribution gear (5)

- **Check the oil level** at the sight glass (A) (at the side of the gear housing).



The oil level must be up to the centre of the sight glass.

For **filling** with oil:

- Unscrew the filler screw (B).
- Fill oil in through the filling port until the required filling level is achieved at the sight glass (A).
- Screw in the filler screw (B) again.



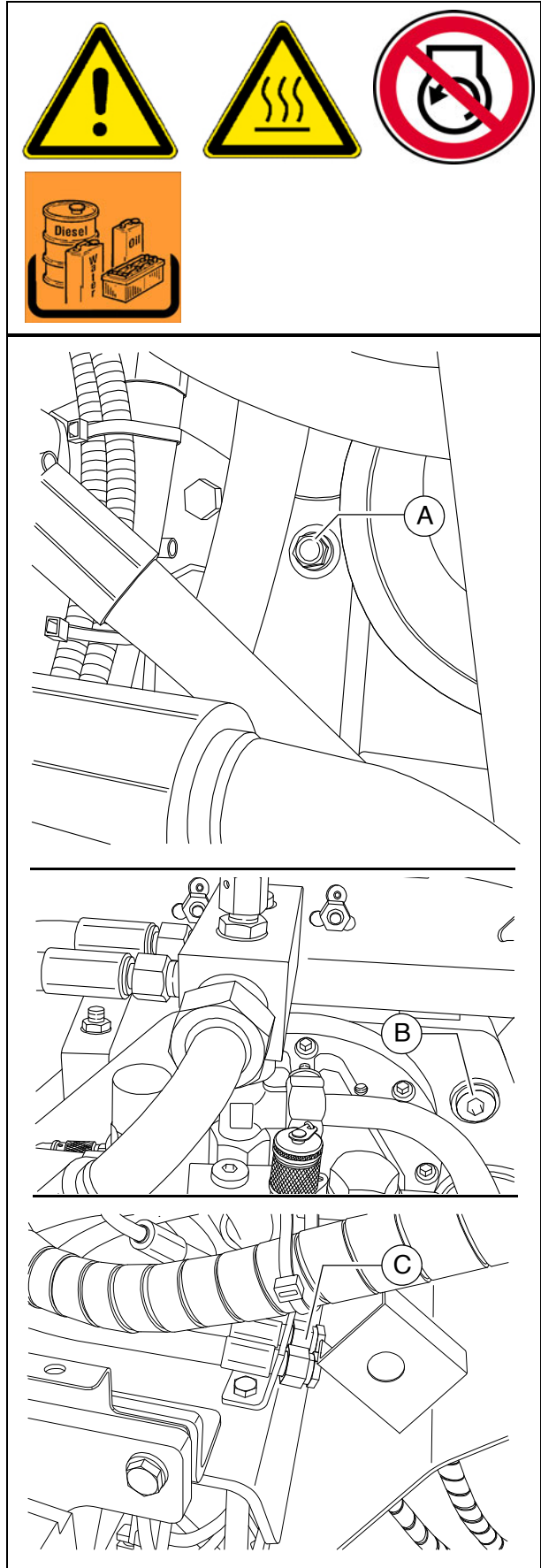
Make sure to clean the screw and the vicinity of the drain bore!

**Oil change:**

- Place the end of the oil drain port hose (C) in the collection container.
- Remove the screw cap with a wrench and allow the oil to drain completely.
- Replace the screw cap and tighten properly.
- Fill in the oil of specified quality through the filling port on the gearbox (B) until the oil level rises to the centre of the sight glass (A).

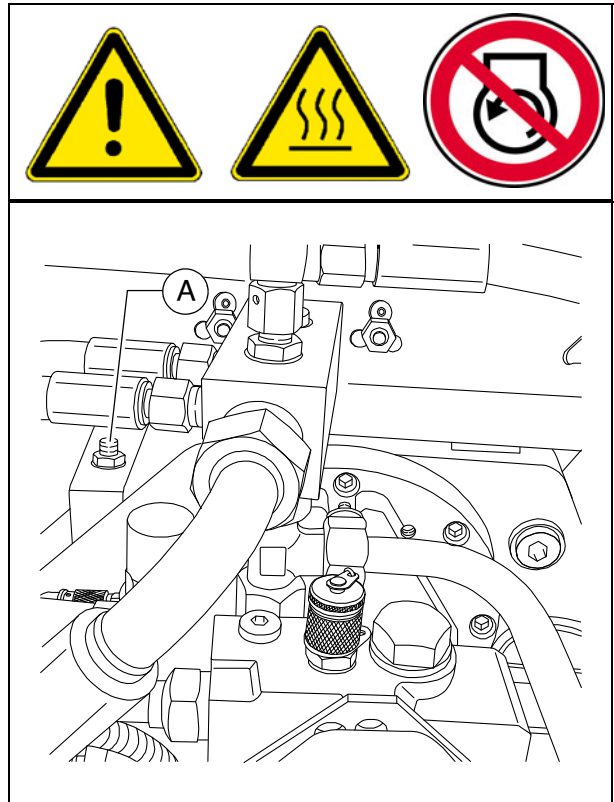


The oil should be changed when at operating temperature.



## Bleeder

- The functioning of the bleeder (A) must be ensured.  
If soiling has occurred, the bleeder should be cleaned.

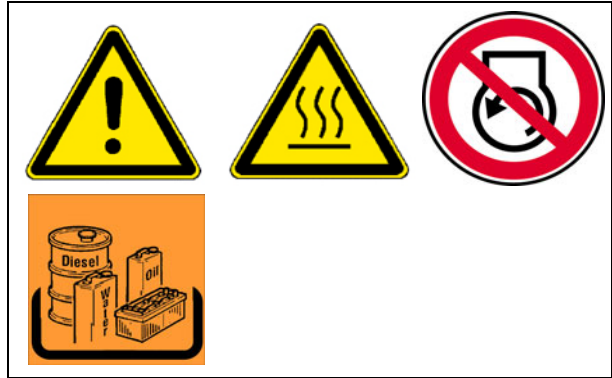


## Hydraulic hoses (6)

- Specifically check the condition of the hydraulic hoses.
- Immediately replace any damaged hoses.



Replace hydraulic hoses if the following criteria are found on inspection:



- damage of the outer layer to the inlay (e.g. chafing, cuts, cracks).
- brittleness of the outer layer (cracking of the hose material).
- deformation that does not correspond to the natural shape of the hose or pipe when depressurised or under pressure or when bent (e.g. separated layers, blistering, pinched or buckled points).
- leaks.
- damage or deformation to the hose fittings (affecting the sealing function); replacements are not necessary for minor damage to the surface.
- hose coming away from the fitting.
- corrosion of the fitting with a detrimental effect on function and strength.
- failure to comply with the installation requirements.
- period of use has exceeded 6 years. Here it is the date of manufacture of the hydraulic hose stated on the fitting that counts, plus 6 years. If the fitting states "2004" as the date of manufacture, the period of use ends in February 2010.



See the section on "Marking hydraulic hoses".



Ageing hoses become porous and may burst! Danger of accidents!



Always comply with the following instructions when installing and removing hydraulic hoses:

- Always only use original Dynapac hydraulic hoses!
- Always observe high standards of cleanliness!
- Hydraulic hoses must always be fitted to ensure that in all operating statuses,
  - there is no tensile load apart from dead weight.
  - there is no compressive load for short lengths.
  - any external mechanical impact on the hydraulic hoses is avoided.
  - appropriate positioning and fastening of the hoses prevents them from chafing on components or on each other.  
components with sharp edges must be covered when installing hydraulic hoses.
  - bending radii are not smaller than the permitted values.
- When hydraulic hoses are connected to moving parts, the length of the hose must be dimensioned to ensure that the bending radii are not smaller than the permitted smallest values right across the full range of movement and/or that the hydraulic hose is not also exposed to tension.
- Fasten the hydraulic hoses to the provided fastening points. the hoses must not be hindered in their natural movement and change in length.
- Painting the hydraulic hoses is forbidden!

### Marking hydraulic hoses / storage period, period of use



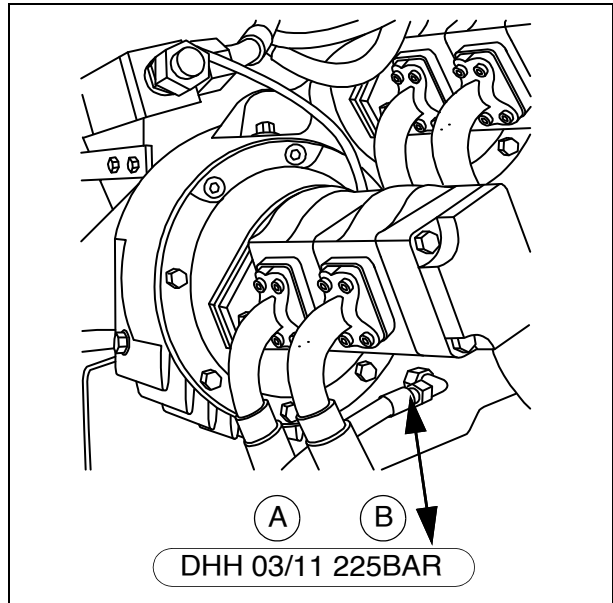
A number stamped onto the screwed connection provides information about the date of manufacture (A) (month / year) and the maximum pressure permitted for this hose (B).



Never install hoses on top of one another and always ensure that they are at the correct pressure.

In individual cases, the period of use can be stipulated according to experience and may differ from the following general indications:

- When producing the hose pipe, the hose (purchased by the meter) should not be more than four years old.
- The period of use of a hose pipe should not exceed six years, including any possible storage period.  
The storage period should not exceed two years.



## Auxiliary flow filter (6)



The hydraulic oil change is omitted on use of an auxiliary flow filter!

The quality of the oil must be checked regularly.

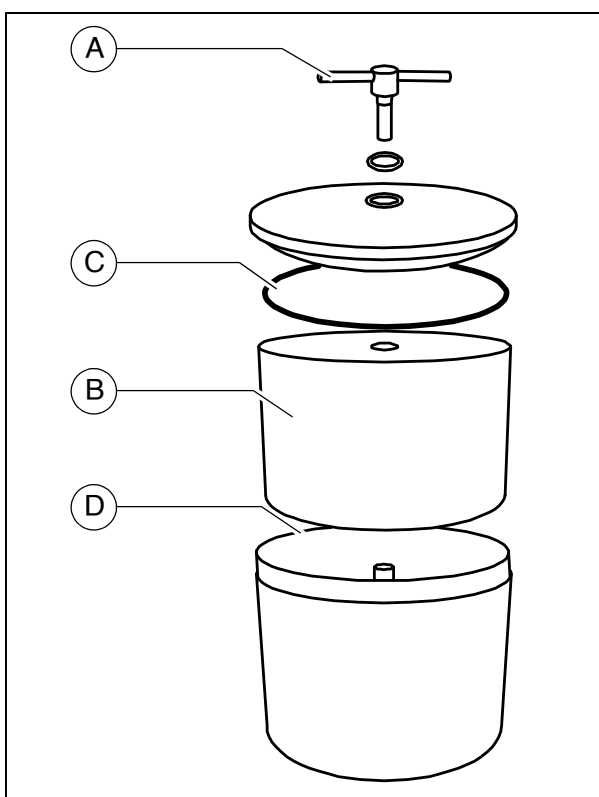
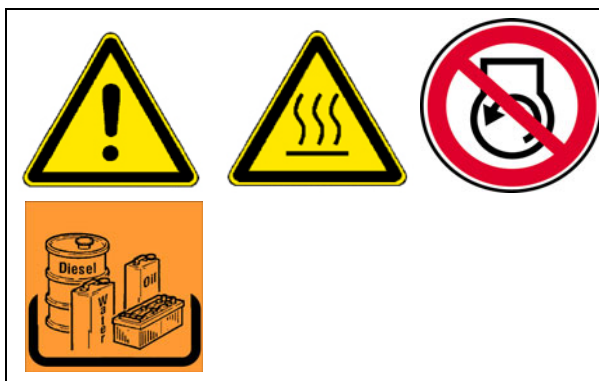
The oil level must be topped up if necessary!

### Replacing filter element:

- Release the threaded cover connection (A) then open the non-return valve briefly to lower the oil level in the filter, then close the non-return valve again.
- Replace filter element (B) and sealing ring (C):
  - Turn filter element clockwise with the help of carrier straps and, at the same time, raise it slightly.
  - Wait for a moment until the oil has escaped downwards, then remove the filter element.
- Check inlet and outlet in filter housing (D).
- As required, top up hydraulic oil level in filter housing then screw down the cover.
- Bleed the hydraulic system.

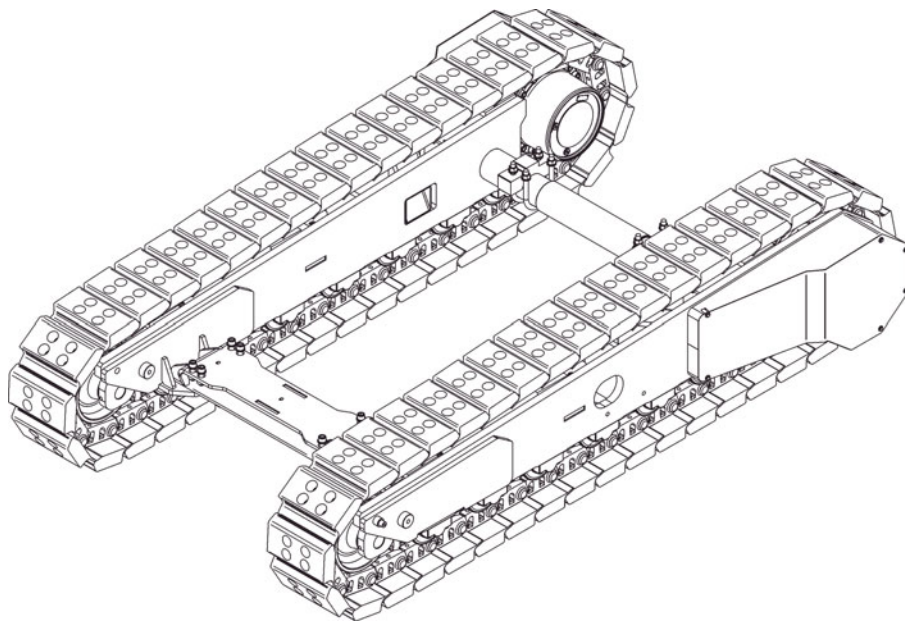




Do not remove the cardboard sleeve from the filter element! This is part of the filter!







# F 70.18 Maintenance - drive units

## 1 Maintenance - drive units



 <b>WARNING</b>	<b>Danger of being pulled in by rotating or conveying vehicle parts</b>
	<p>Rotating or conveying vehicle parts can cause severe or fatal injuries!</p> <ul style="list-style-type: none"> <li>- Do not enter the danger zone.</li> <li>- Do not reach into rotating or conveying parts.</li> <li>- Only wear close-fitting clothing.</li> <li>- Comply with the warning and information signs on the vehicle.</li> <li>- Stop the engine and remove the ignition key before any maintenance work.</li> <li>- Comply with all further information in these instructions and in the safety manual.</li> </ul>

 <b>CAUTION</b>	<b>Danger from heavy loads</b>
	<p>Lowering vehicle parts may cause injuries!</p> <ul style="list-style-type: none"> <li>- When the vehicle is parked and during maintenance and transport, close both hopper lids and fit the corresponding hopper transport safeguards.</li> <li>- When the vehicle is parked and during maintenance and transport, raise the screen and fit the corresponding screed transport safeguards.</li> <li>- Ensure that opened hoods and covering parts are locked properly.</li> <li>- Comply with all further information in these instructions and in the safety manual.</li> </ul>

 <b>CAUTION</b>	<b>Hot surfaces!</b>
	<p>Surfaces including those behind covering parts, together with combustion gases from the engine or screed heater can be very hot and cause injuries!</p> <ul style="list-style-type: none"> <li>- Wear your personal safety gear.</li> <li>- Do not touch hot parts of the vehicle.</li> <li>- Only perform maintenance and repair work after the vehicle has cooled down.</li> <li>- Comply with all further information in these instructions and in the safety manual.</li> </ul>



## 1.1 Maintenance intervals

Item	Interval								Points of maintenance	Note
	10	50	100	250	500	1000 / annually	2000 / every 2 years	If necessary		
1	■								- Chain tension - Check	
								■	- Chain tension - Adjust	
								■	- Chains - Relieve	
2				■					- Bottom plates - Check wear	
								■	- Bottom plates - Replace	
3	■								- Rollers - Check for leaks	
				■					- Rollers - Check wear	
								■	- Rollers - Replace	

Maintenance	■
Maintenance during the running-in period	▼

Item	Interval								Points of maintenance	Note
	10	50	100	250	500	1000 / annually	2000 / every 2 years	If necessary		
4		■							- Planetary gear - Check oil level	
								■	- Planetary gear - Top up oil	
			▼			■			- Planetary gear - Change oil	
					■				- Planetary gear - Check oil quality	
				■					- Planetary gear - Check screw connections	
								■	- Planetary gear - Tighten screw connections	

Maintenance	■
Maintenance during the running-in period	▼

 <b>WARNING</b>	<b>Danger from pretensioned springs</b>
	<p>Incorrectly performed maintenance and repair work can cause severe or fatal injuries!</p> <ul style="list-style-type: none"> <li>- Always observe the maintenance instructions.</li> <li>- Do not perform any unauthorised maintenance or repair work to pretensioned springs.</li> <li>- Comply with all further information in these instructions and in the safety manual.</li> </ul>



Any work on the pretensioned spring element must only be carried out by trained, specialist personnel!



The spring elements must only be removed by a specialist workshop! The following applies to all spring elements in the event of a necessary repair: replace the complete unit only!



Repairing the spring elements involves significant safety measures and should only be carried out by a specialist workshop!



Your Dynapac customer service will be happy to provide support during maintenance, repair and the replacement of wearing parts!

## 1.2 Points of maintenance

### Chain tension (1)



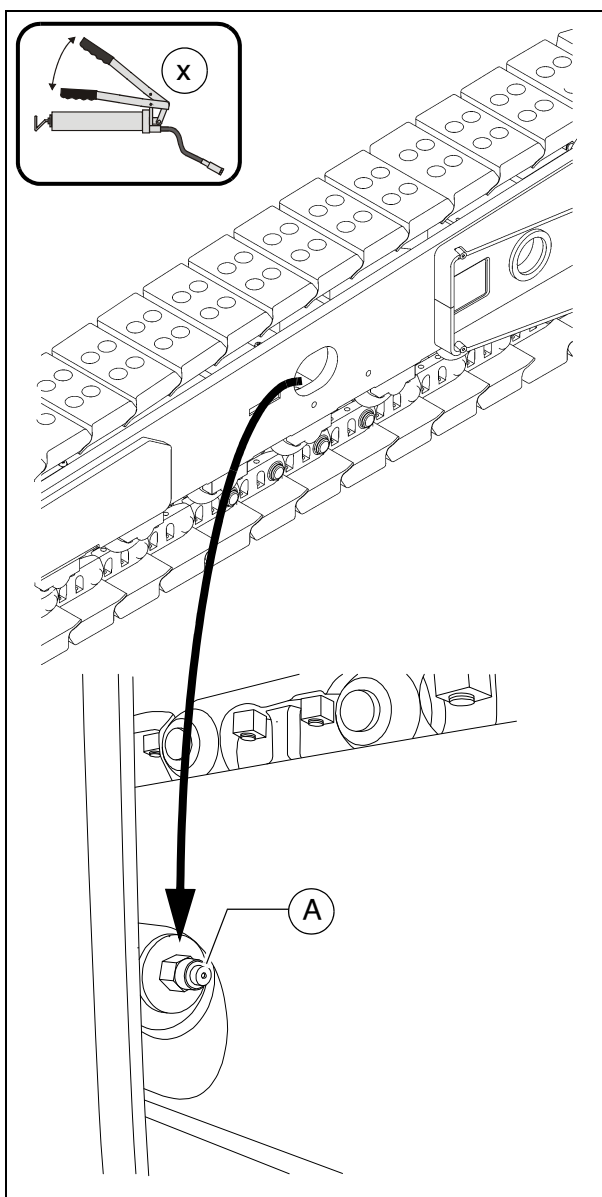
If the chains are not tensioned sufficiently, they can slip out of their guide formed by rollers, drive gear and idler wheel, thereby increasing wear levels.

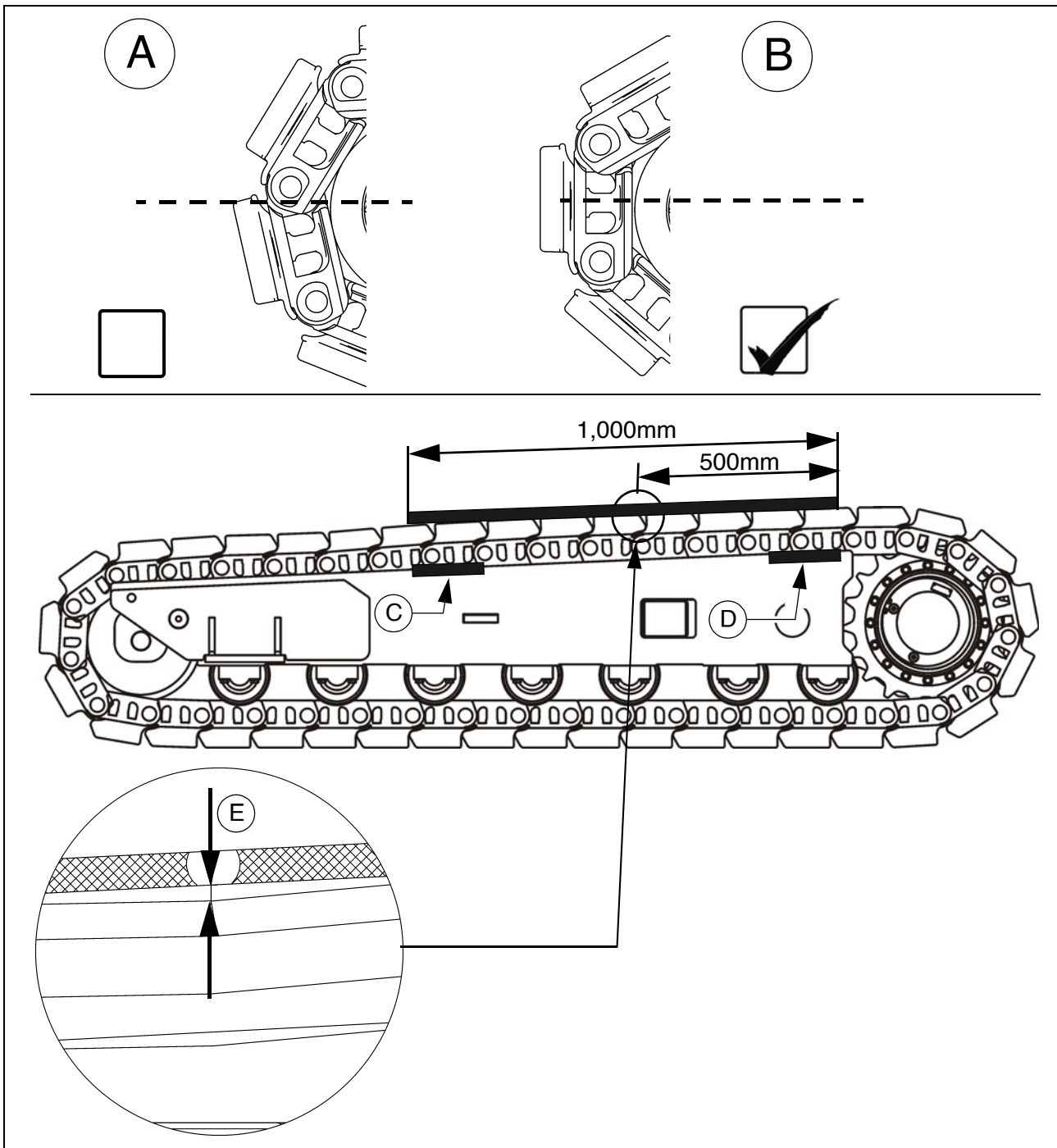


If the chains are tensioned too tightly, this increases wear on the idler wheel and drive unit mounting, and also increases wear on track bolts and bushes.

### Checking / adjusting chain tension

- The chain tension is adjusted with grease tensioners. The filling ports (A) are located on the RH and LH sides of the drive unit frame.






- Before checking/adjusting the chain tension, ensure that the position of the chain to the idler wheel is as shown in diagram (B).




Correct if necessary by moving the vehicle a little.

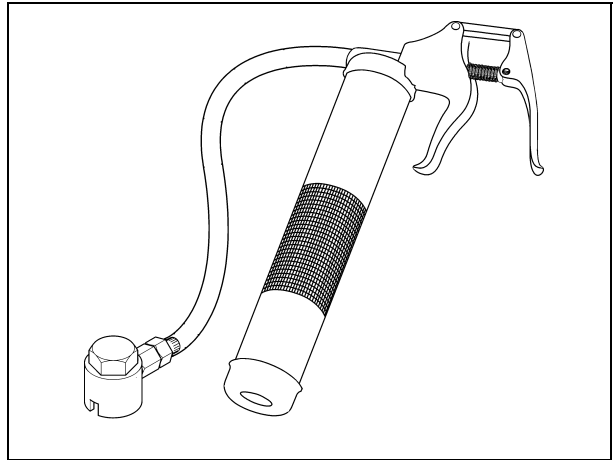
- Insert a measuring rule 1 m long between the sliding piece (C) and (D) of the track to determine the maximum slack:
  - Check the slack in the middle of the measuring rule (0.5 m).  
When adjusted correctly, there must be 8 mm clearance (E) between the bottom plate and the measuring rule.

 If a different level of slack is detected during the measurement process, proceed as follows:


- Screw head section for flat nipple (toolbox) onto the grease gun.
- Refill the chain tensioner with grease at the filler connection (A), then remove the grease gun.
- Check the chain tension once again, as described above.

 If the tension is too high: see section "Relieving the chain".


 Repeat this procedure on both drive units!

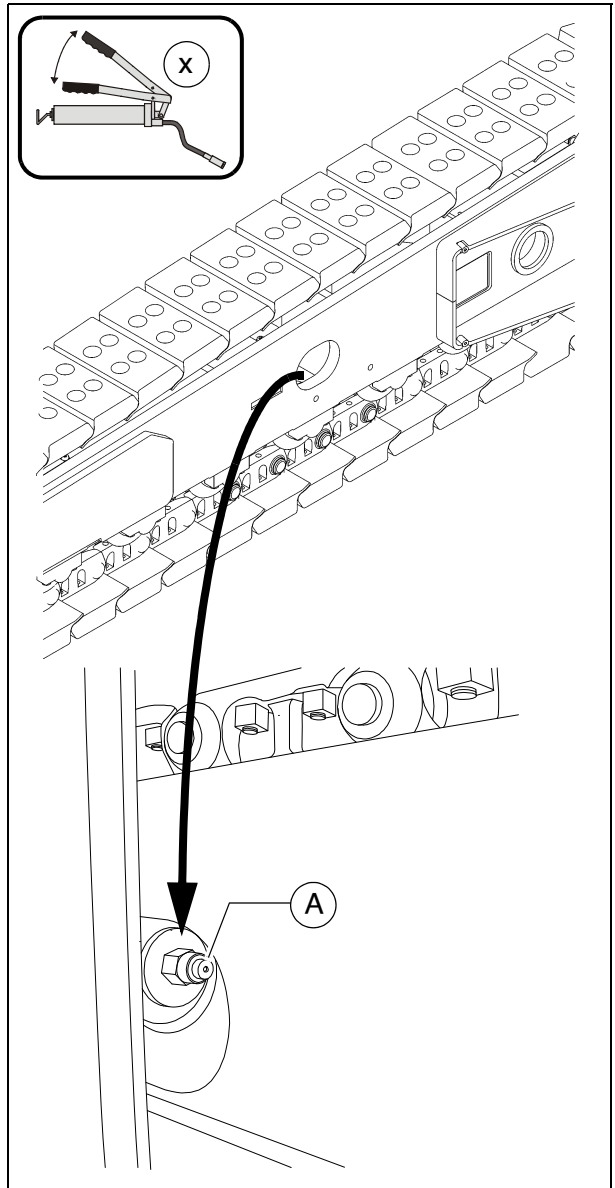


### Relieving the chain:

 The grease in the tensioning element is under pressure. Carefully and slowly unscrew the filling valve, but not too far.

- Unscrew the lubricating nipple (A) on the grease tensioner using a tool until the grease is able to emerge from the nipple's lateral hole.

 The idler wheel moves back independently or must be reset manually.

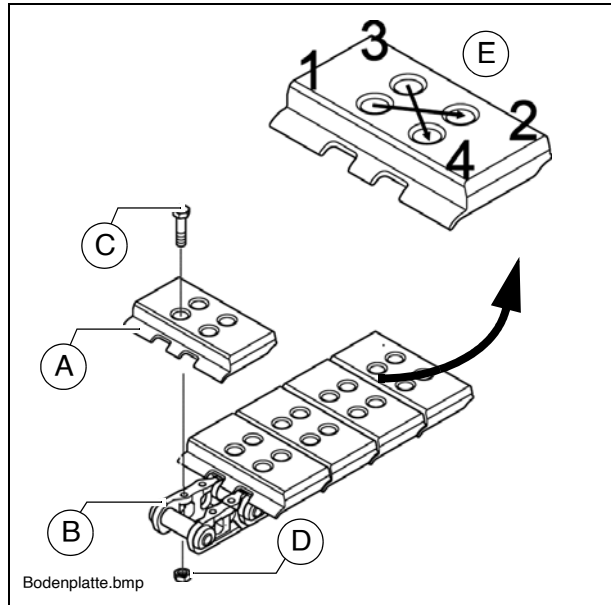


## Bottom plates (2)



Always use new bolts and nuts when installing new bottom plates!

- After removing the worn bottom plates, the adhesions must be cleaned from the contact surfaces of the chain links and the nut seats.
- Place the bottom plate with the front edge (A) over the chain links' bolt eye (B).
- Lubricate the threads and the contact surfaces beneath the bolt heads with a thin film of oil or grease.
- Insert the bolts (C) into the holes and screw them into the nuts (D) a few turns.
- Tighten the bolts without applying significant torque.
- Tighten the bolts diagonally (E) with the required torque  $155 \pm 8$  Nm.



Check that each bolt has attained the full tightening torque!

### Rollers (3)



Rollers with damaged surfaces or which are leaking should be replaced immediately!

- Relieving the caterpillar chain:
- Raise the track chassis using suitable lifting equipment and remove adhering dirt.



Observe the safety measures when raising and securing loads!

- Remove the defective roller.
- Install the new roller using new assembly parts.



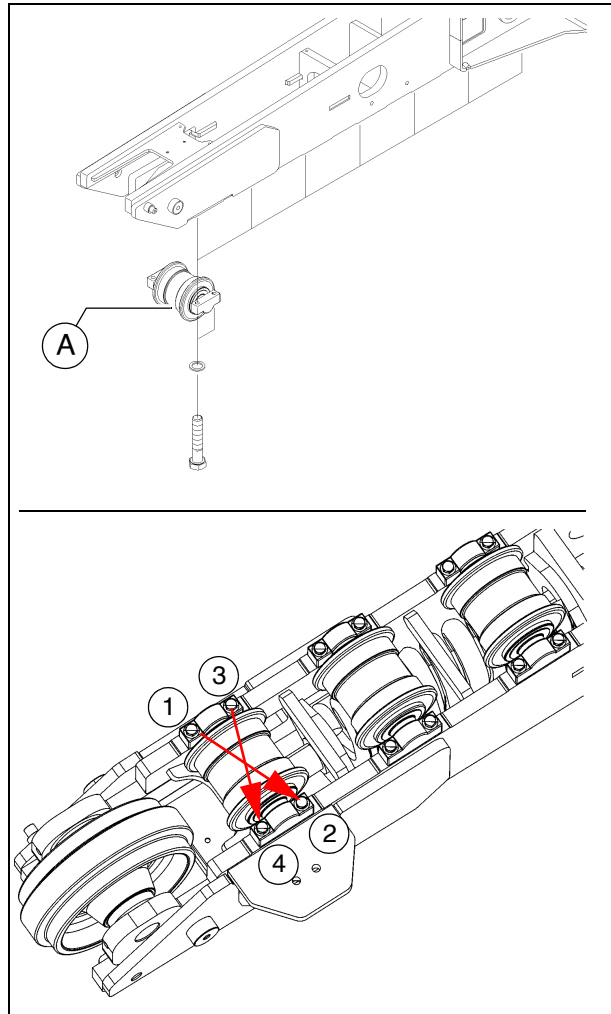
Use the bolt locking device stated in the spare parts catalogue in accordance with the manufacturer's instructions.

- Tighten the bolts without applying significant torque.
- Tighten the bolts diagonally to the required torque.
- Tighten to the following torques:
  - Rollers (A): 83 Nm



Check that each bolt has attained the full tightening torque!

- Lower the track chassis and tension the caterpillar chain properly.

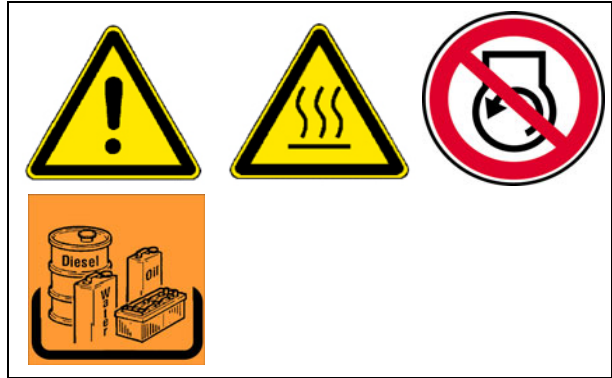


## Planetary gear (4)



Before checking the oil level, let the hot gear cool down for about 5 minutes.

- Turn conveyor chain sprocket so that inspection bolt (A) is in the 9 o'clock position.
- To **check the oil level**, unscrew the inspection bolt (A) and the filler screw (B).



When oil level is correct, the oil comes up to the lower edge of the inspection hole (A) or a small amount of oil escapes through the aperture.

For **filling in** the oil:

- Fill in the specified oil into the filler hole (B) until the oil level has reached the lower edge of the inspection hole.
- Check gaskets on both screws and replace if necessary.
- Tighten the inspection bolt (A) and filler screw (B) back in again.

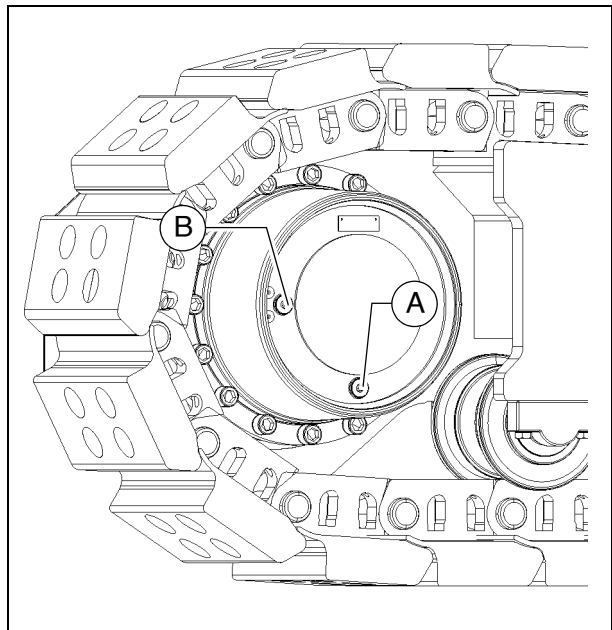
## Oil change:



The oil should be changed when at operating temperature.



Ensure that no dirt or foreign bodies are able to enter the gear.



- Turn conveyor chain sprocket so that drain plug (A) is in the 6 o'clock position.
- Place a suitable collecting container under the drain plug.
- Unscrew drain plug (A) and filler screw (B) and drain off oil.
- Check gaskets on both screws and replace if necessary.
- Screw in the drain plug (C).
- Fill new oil through the filler opening (B) until the lower edge of the opening is reached.
- Screw in the filler screw (B).

## Screw connections



After approx. 250 hours of operation at full load, check that all gearbox mounting screws are firmly seated.

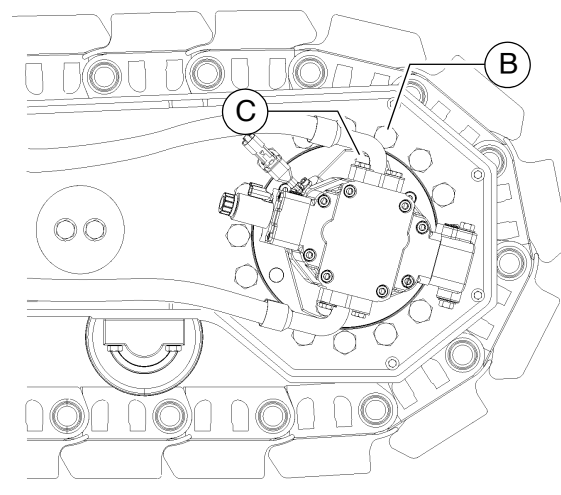
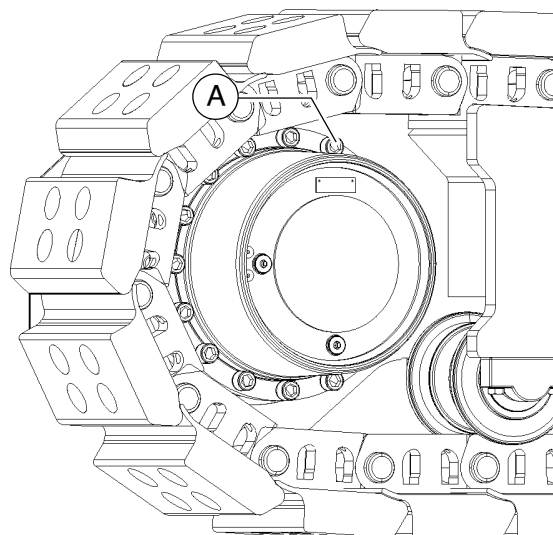


Improperly tightened screws may lead to increased wear and to the destruction of components!

- The correct torque for the gear/sprocket connecting screws (A) is: 255Nm
- The correct torque for the gear/track chassis connecting screws (B) is: 563Nm
- The correct torque for the hydraulic motor/gear connecting screws (C) is: 255Nm

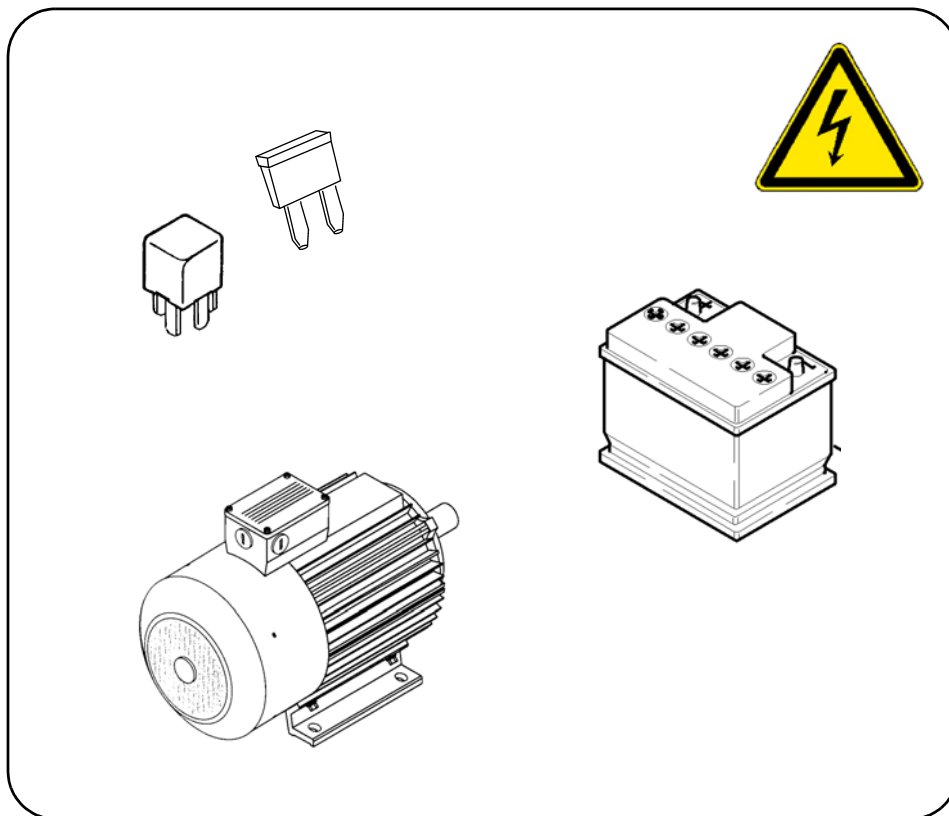



Use the bolt locking device stated in the spare parts catalogue in accordance with the manufacturer's instructions.





# F 82.18 Maintenance - electrical system

## 1 Maintenance - electrical system



<p><b>⚠ WARNING</b></p>	<p><b>Danger of being pulled in by rotating or conveying vehicle parts</b></p>
	<p>Rotating or conveying vehicle parts can cause severe or fatal injuries!</p> <ul style="list-style-type: none"> <li>- Do not enter the danger zone.</li> <li>- Do not reach into rotating or conveying parts.</li> <li>- Only wear close-fitting clothing.</li> <li>- Comply with the warning and information signs on the vehicle.</li> <li>- Stop the engine and remove the ignition key before any maintenance work.</li> <li>- Comply with all further information in these instructions and in the safety manual.</li> </ul>

<p><b>⚠ CAUTION</b></p>	<p><b>Danger due to electric shock</b></p>
	<p>Injuries can be caused by touching live parts directly or indirectly!</p> <ul style="list-style-type: none"> <li>- Do not remove any protective safeguards.</li> <li>- Never spray water on electric or electronic components.</li> <li>- Maintenance work to the electric system should only be carried out by trained specialist staff.</li> <li>- When equipped with electric screed heater, check the insulation monitoring every day according to the instructions.</li> <li>- Comply with all further information in these instructions and in the safety manual.</li> </ul>

<p><b>⚠ CAUTION</b></p>	<p><b>Danger from batteries</b></p>
	<p>Incorrect handling of the batteries poses a danger of injuries!</p> <ul style="list-style-type: none"> <li>- Wear your personal safety gear.</li> <li>- Do not smoke, avoid any open flames.</li> <li>- Ensure the working area is well ventilated after opening the battery compartment.</li> <li>- Avoid short-circuiting the battery terminals.</li> <li>- Comply with all further information in these instructions and in the safety manual.</li> </ul>

## 1.1 Maintenance intervals

Item	Interval							Maintenance point	Note
	10	50	100	250	500	1000 / annually	2000 / every 2 years		
1				■				■ Check batteries	
								■ Apply grease to battery terminals	
2	■							- Alternator Insulation monitoring, check electric system is functioning	(○)
		■						- Alternator Visual check for pollution or damage - Check the cooling air openings for pollution or clogging, clean if necessary.	(○)
	▼		■					- Generator Check the drive belts for damage, replace if necessary	(○)
	▼		■					- Generator Drive belts - check tension, adjust if necessary.	(○)
						■		- Generator Replace drive belts	(○)
3								■ Electrical fuses	

Maintenance	■
Maintenance during the running-in period	▼

## 1.2 Points of maintenance

### Batteries (1)

#### Maintenance of batteries



The batteries are factory-filled with the correct quantity of acid. The fluid level should come up to the top mark. If required, top up the battery, but only use distilled water to do so!



The battery terminal clips must be free of corrosion (oxide) and protected with a special grade of terminal grease.



When removing the batteries, always first remove the negative terminal, ensuring that the battery terminals cannot be short circuited.



Keep the battery surfaces clean and dry, use only a damp or antistatic cloth for cleaning.



Do not open batteries without plugs!



If the starting capacity is insufficient, check and possible recharge the batteries.



Regularly check the charge of the battery and recharge if necessary.



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## Recharging the batteries

Both batteries must be recharged individually and must be dismantled from the vehicle for this purpose.



Always keep batteries upright during transport!

Before and after recharging a battery, always check the electrolyte level in every cell; if this needs to be topped up, only use distilled water.



When recharging batteries, every cell must be opened, i.e. plugs and/or covers must be removed.



Only use commercially available automatic battery chargers according to the manufacturer's instructions.

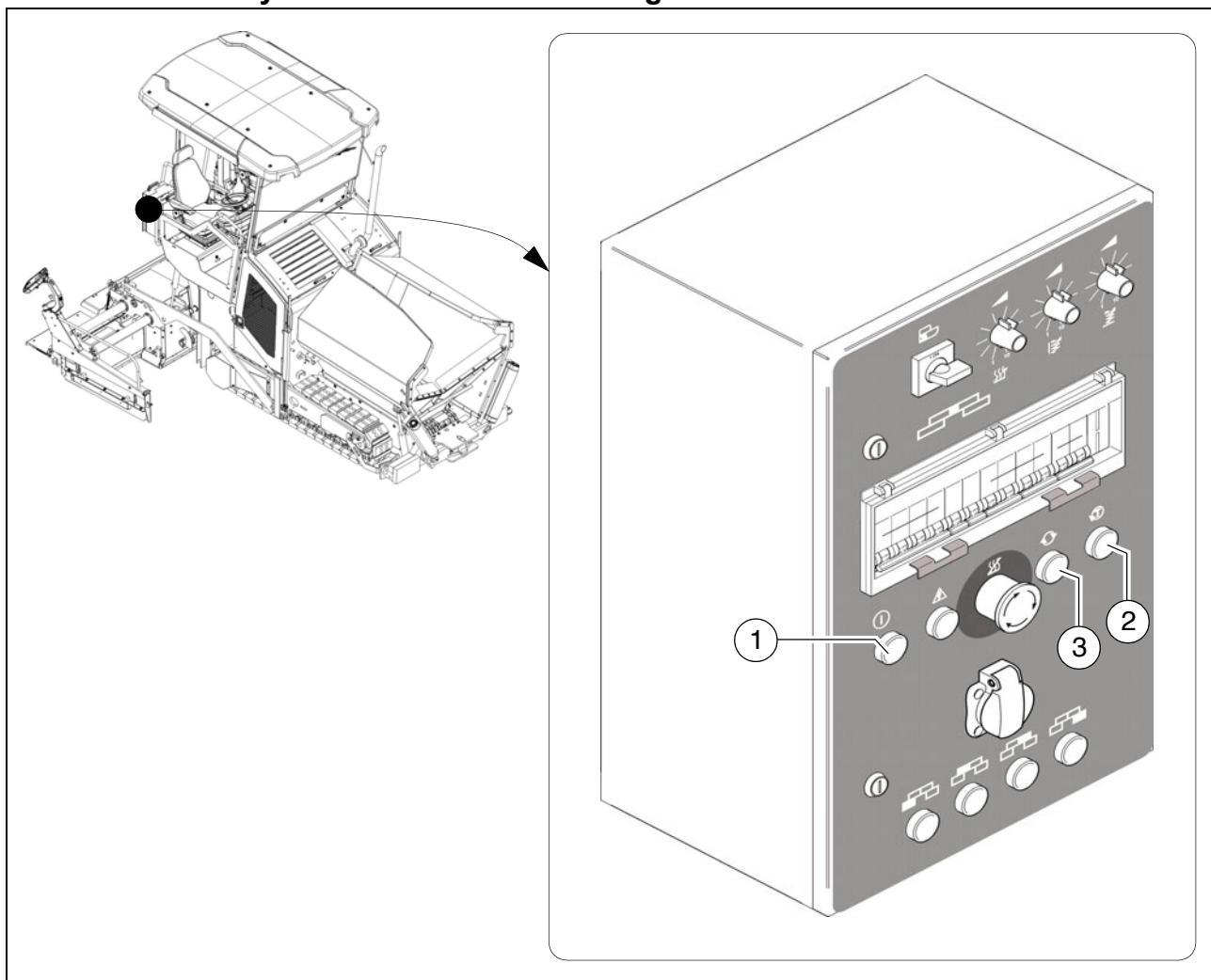


Preferably use the slow recharging procedure and adjust the charge current according to the following rule of thumb:

Battery capacity in Ah divided by 20 results in the safe charge current in A.

## Alternator (2)

### Electrical system insulation monitoring



The function of the protective insulation monitoring measure must be checked every day before starting work.



This check only checks the function of the insulation monitor, not whether an insulation error has occurred on the heating sections or consumers.

- Start the paver finisher's drive engine.
- Switch heating system switch (1) to ON.
- Press test button (2).
- The indicator lamp integrated into the test button signals "insulation fault".
- Press reset button (3) for at least 3 sec. to delete the simulated fault.
- The indicator lamp goes out.



If the test is conducted successfully, work may be undertaken with the screed and external consumers may be used.

If the "insulation fault" indicator lamp displays a fault even before the test button is pressed or if no fault is displayed during the simulation, work must not be undertaken with the screed or with connected, external equipment.



**The screed and equipment must be checked or repaired by a specialist electrician. Only then may work again be undertaken with the screed and equipment.**



**Danger from electric voltage**



**Non-adherence to the safety precautions and safety regulations when operating the electric screed heating system leads to a risk of electric shock.**

**Danger to life.**

**All maintenance and repair work on the screed's electrical system may be carried out by a specialist electrician only.**



## Insulation faults



If an insulation fault occurs during operation, and the indicator lamp displays an insulation fault, the operator may proceed as follows:

- Switch the switches of all external equipment and the heating system to OFF and press the reset button for at least 3 seconds to delete the fault.
- If the indicator lamp does not go out, the fault lies in the alternator.



No further work may be carried out.

- If the indicator lamp goes out, the switches of the heating system and external equipment can be switched back to ON one after another until a message again appears and the system is shut-down.
- The equipment found to be faulty must be removed or must not be engaged, and the reset button must be pressed for at least 3 seconds to delete the fault.



Operation may now be continued - without the faulty equipment, of course.



**The alternator or electrical consumer found to be faulty must be checked or repaired by a specialist electrician. Only then may work again be carried out with the screed and equipment.**



## Cleaning the alternator



The alternator must be regularly checked for excessive dirt and must be cleaned if necessary.

- The air intake (1) must be kept free of dirt.



Cleaning with a high-pressure cleaner is not permissible!



## Drive belts



### Checking / adjusting belt tension:

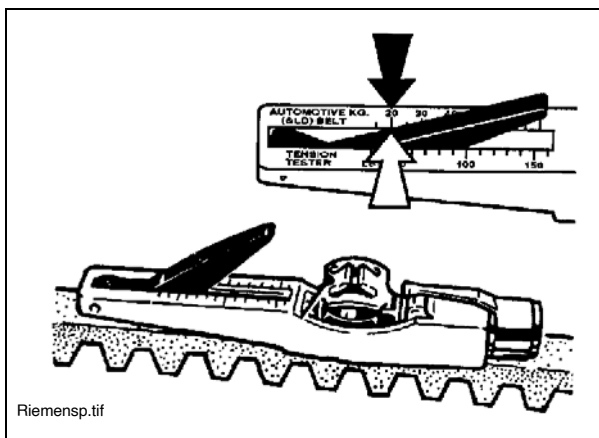
- The tension of the belt can only be adjusted using a pre-tensioning test device.


### Checking belt tension

The tension of each belt must be inspected with a pretension checking instrument.

Specified tension:

- In case of initial assembly: 605-648N
- After running-in period / maintenance interval: 518-561N





 Instructions for checking tightness in the pretension measuring instrument instructions.

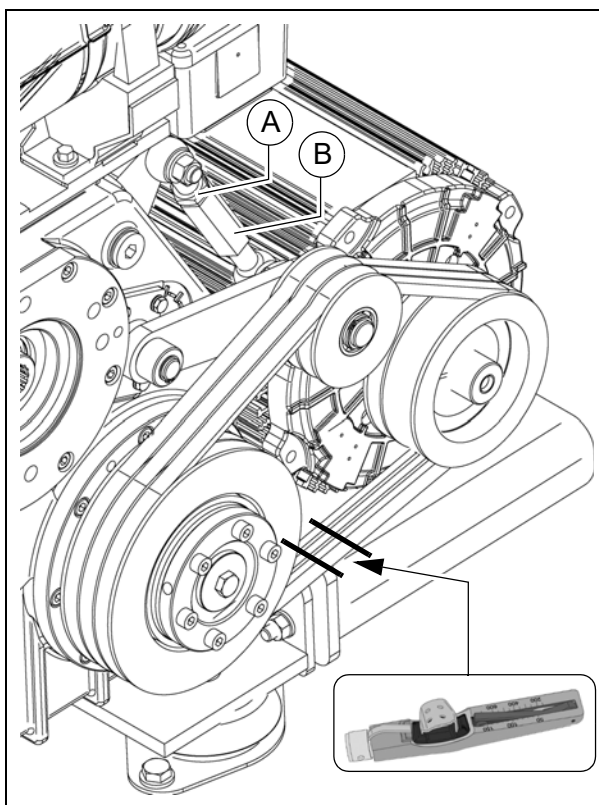
 A pretension measuring instrument can be ordered under Article No. 4753200045!

### If necessary, adjust the belt tension:

- Unfasten lock nut (A) from the clamping lock.
- Adjust belt tension to the correct values by turning the clamping lock (B).
- Tighten the lock nut (A) again.

 Further instructions for checking of tension - see description of the pre-tensioning test device.

 A belt pre-tensioning test device can be ordered from Dynapac as a spare part! Item number on request.



## Replacing belt

- Unfasten lock nut (A) from the clamping lock.
- Turn and open clamping lock (B) until belts (C) can be replaced.

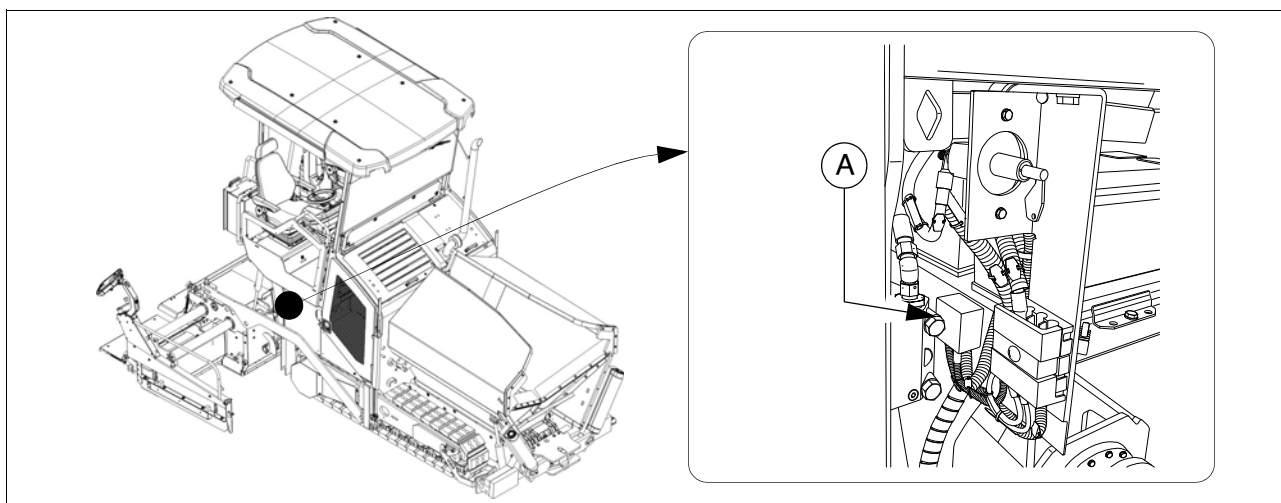


Pre-tension the newly fitted belts using clamping lock (B).

- Check / adjust belt tension.

## 2 Electrical fuses

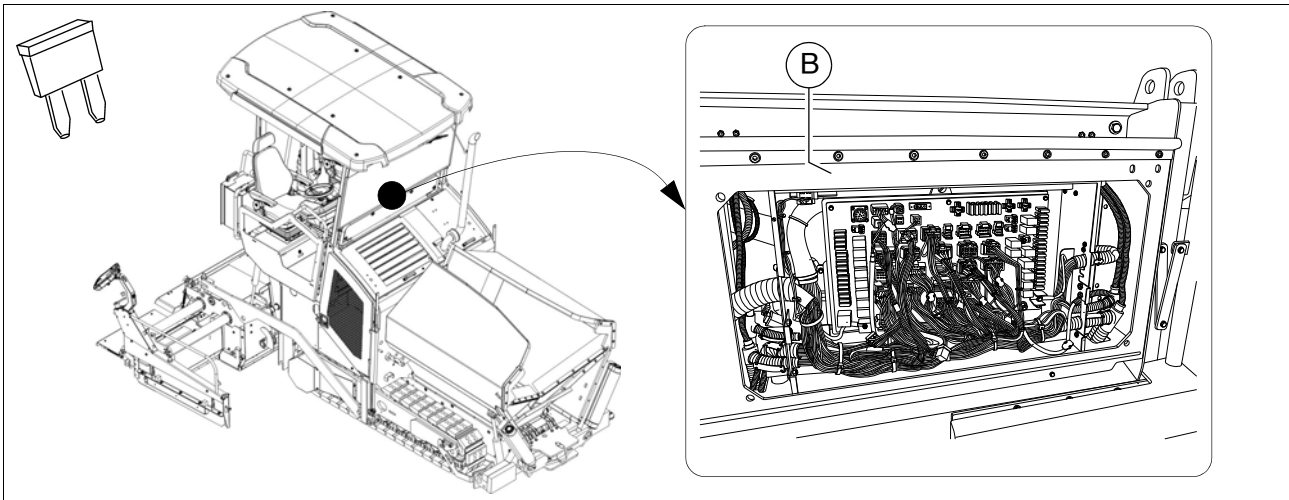
### 2.1 Main fuses



#### Main fuses (A)

F		A
1.1	Main fuse	50
1.2	Main fuse	30
1.4	Preheating ignition system	100

## 2.2 Fuses in main terminal box

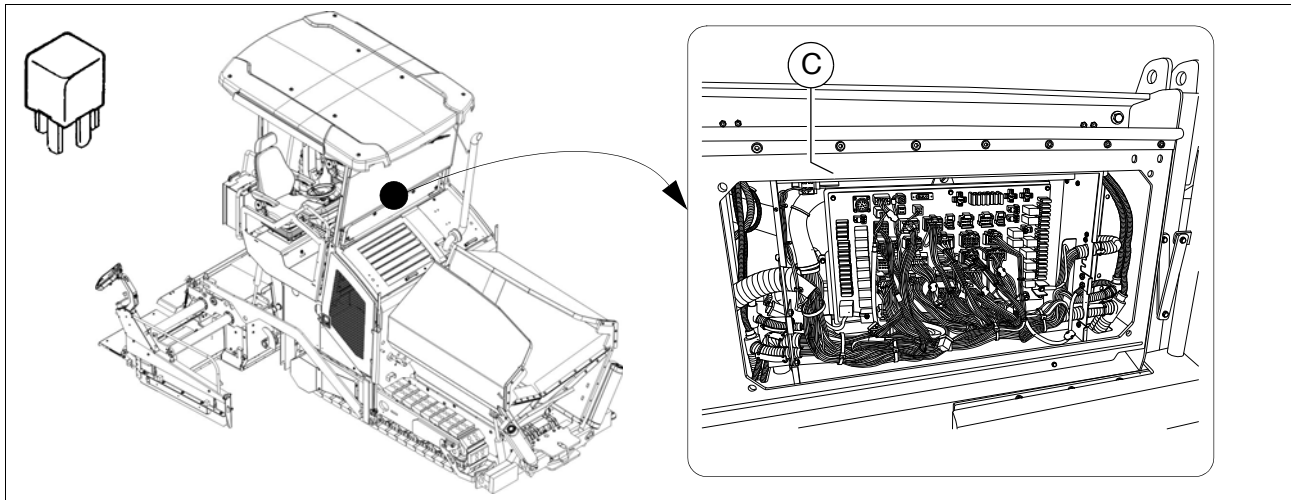


### Fuse carrier (B)

F		A
F1	Screed	10
F2	Screed	10
F3	Screed	10
F4	Starter	5
F6	Auger light	10
F7	Monitoring unit	10
F8	Monitoring unit	5
F10	Central lubrication	5
F12	Conveyor, auger	7.5
F13	24V socket left	10
F16	24V socket right	10
F17	Power supply A1 (master)	5
F19	12V socket	10
F20	Rotary beacon	7.5

F		A
F21	Power supply A1 (master)	25
F23	Horn	10
F24	Diesel pump	10
F26	Power supply A2 (engine control unit)	30
F27	Ignition	2
F28	Instrument panel illumination	10
F29	Steering potentiometer, preselection potentiometer, GPS module	3
F30	Reverse buzzer	5
F31	Central lubrication	5
F32	Power supply A1 (master)	5
F35	Protective roof rear light	10
F36	Protective roof front light	10
F37	Interface - engine diagnosis - A2	2
F38	Interface - engine diagnosis - A1	2

## Relays in main terminal box



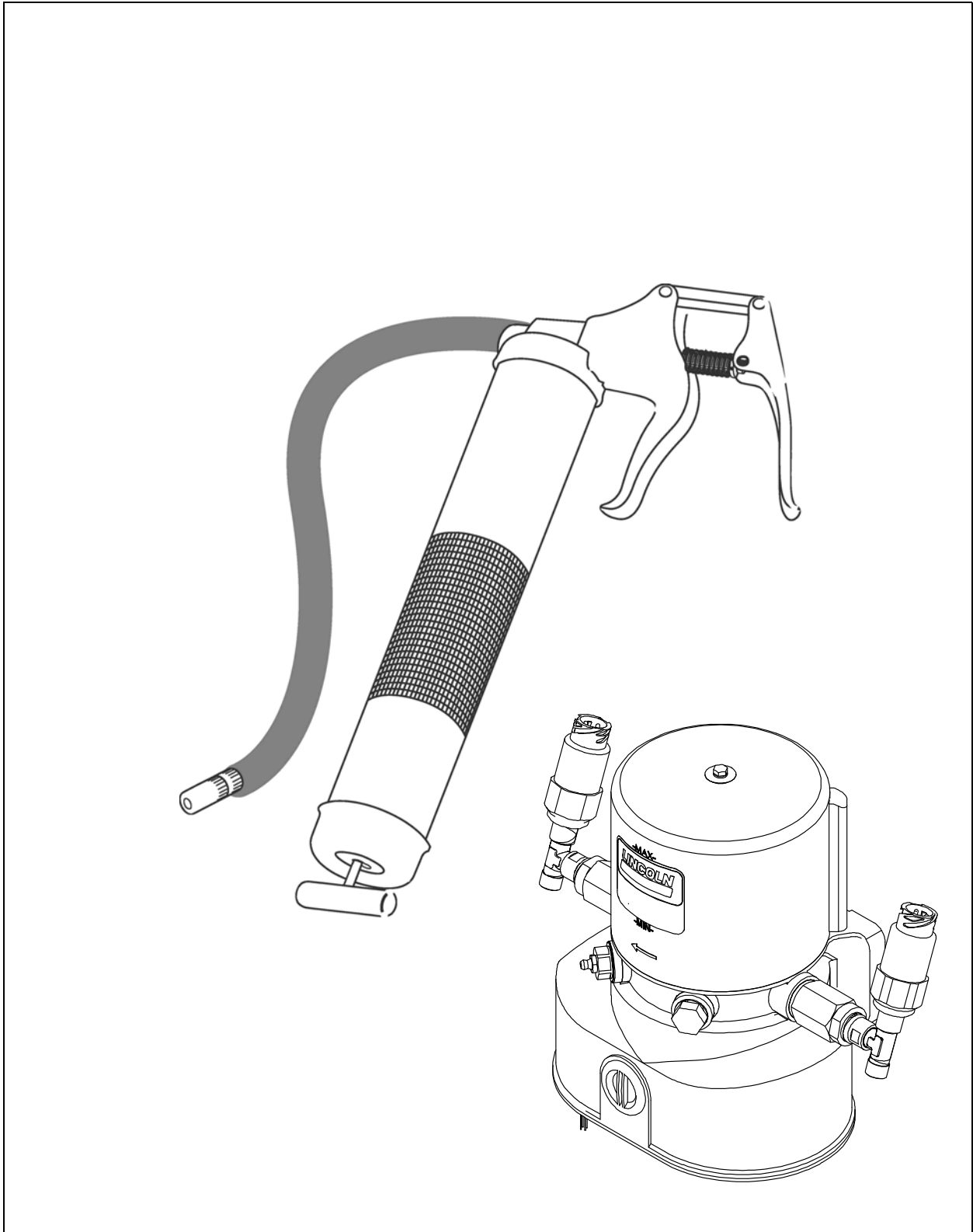
## Relays (C)

K	
K0	Engine start
K1	Switched positive
K2	Engine start / stop
K3	Control unit voltage
K4	Emergency stop
K5	Front working lights
K6	Rear working lights
K7	Auger working light
K8	Horn
K10	Right conveyor
K11	Left conveyor
K12	Left auger
K13	Right auger
K14	Levelling - left
K15	Levelling - right
K16	Rotary beacon
K20	Reverse buzzer
K21	Central lubrication
K22	Operating functions lock
K26	Fuel pump
K27	Engine pre-heating function




# F 90.18 Maintenance - lubricating points

## 1 Maintenance - lubricating points



The information on the lubricating points for the various assemblies is assigned to the specific maintenance descriptions and must be read there!

 Due to the use of a central lubrication system (○), the number of lubricating points may deviate from the description.

## 1.1 Maintenance intervals

Item	Interval								Maintenance point	Note
	10	50	100	250	500	1000 / annually	2000 / every 2 years	If necessary		
1	■								- Check lubricant tank fill level	(○)
								■	- Top up lubricant tank	(○)
							■		- Bleed central lubrication system	(○)
	■								- Check pressure limiting valve	(○)
								■	- Check flow of lubricant at the consumer	(○)
2		■							- Bearing points	

Maintenance	■
Maintenance during the running-in period	▼

## 1.2 Points of maintenance

### Central lubrication system (1)

#### Danger of injuries!



Do not reach into the tank when the pump is running!



The central lubrication system must only be operated with the safety valve installed!



Do not undertake any work on the pressure relief valve during operation!



Risk of injury due to escaping lubricant, as the system operates at high pressures!



Ensure that the diesel engine cannot be started when working on the system!



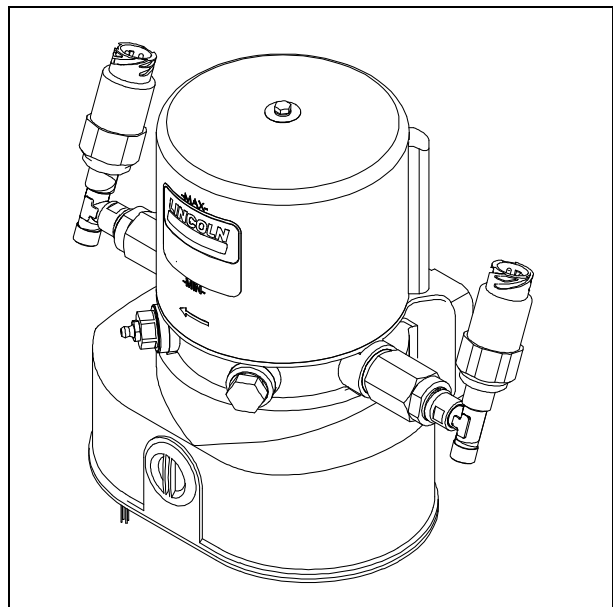
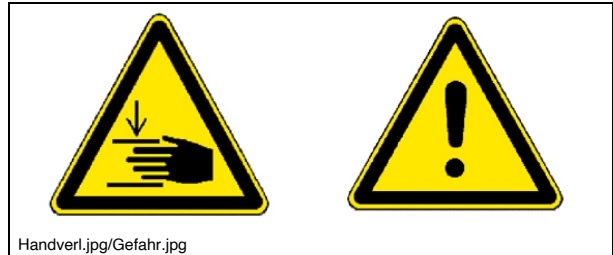
Observe safety regulations for handling hydraulic systems!



Ensure maximum cleanliness when working on the central lubrication system!

The following assemblies' lubricating points can be automatically supplied with grease by the central lubrication system:

- Auger
- Screed (tamper / vibration)

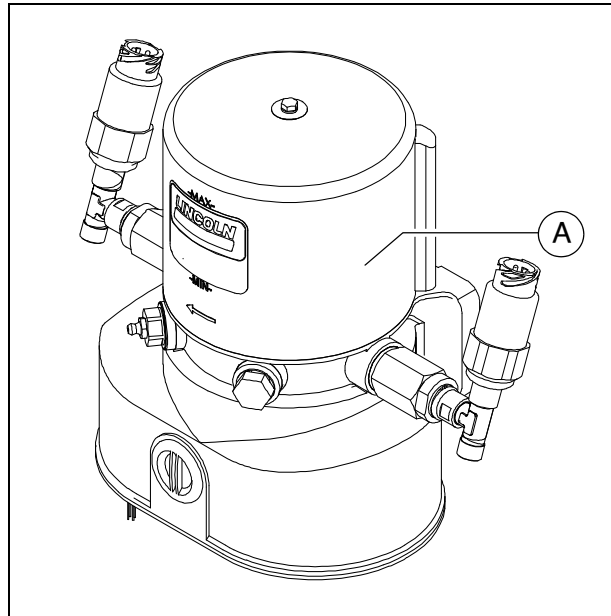


## Central lubrication system Check filling level

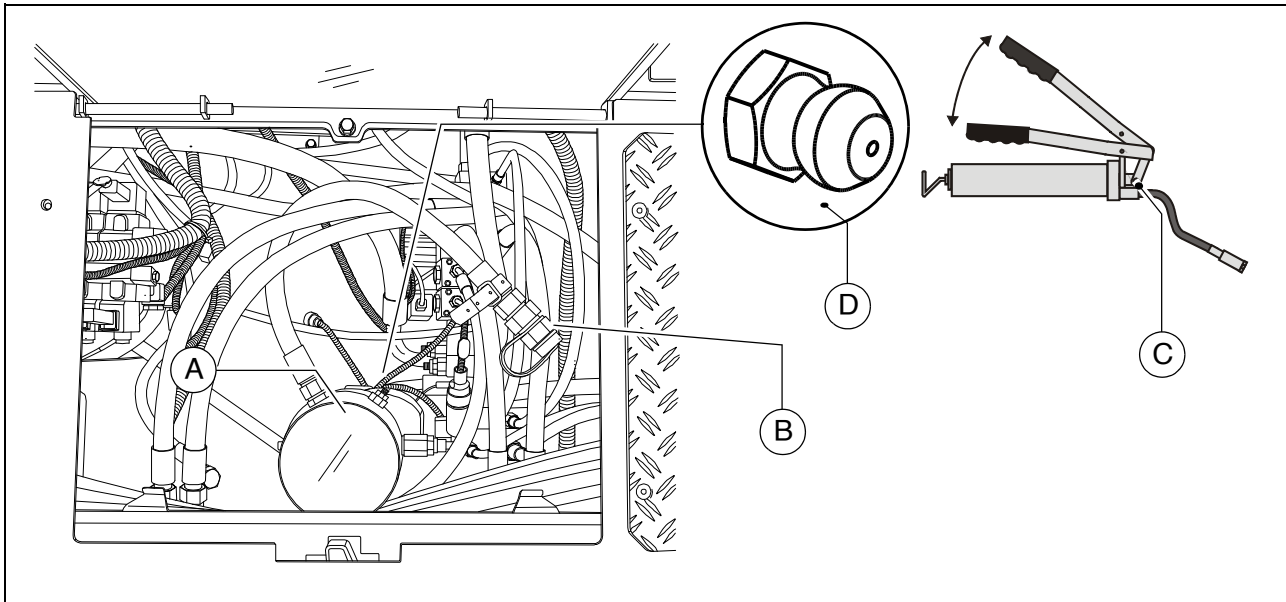


The lubricant tank should always be filled sufficiently so that the system cannot "run dry", ensuring sufficient drive chain lubrication and eliminating the need for time-consuming bleeding of the system.

- Always maintain a fill level above the "MIN" mark (A) on the tank.



## Top up lubricant tank



- A filler hose (B) is located on the lubricant tank (A) for filling purposes.
- Connect the grease gun (C) included with the scope of supply to the filler hose (B) and fill the lubricant tank (A) up to the MAX mark.  
Alternatively, the lubricant tank can be filled with a standard grease gun at the lubricating nipple (D).

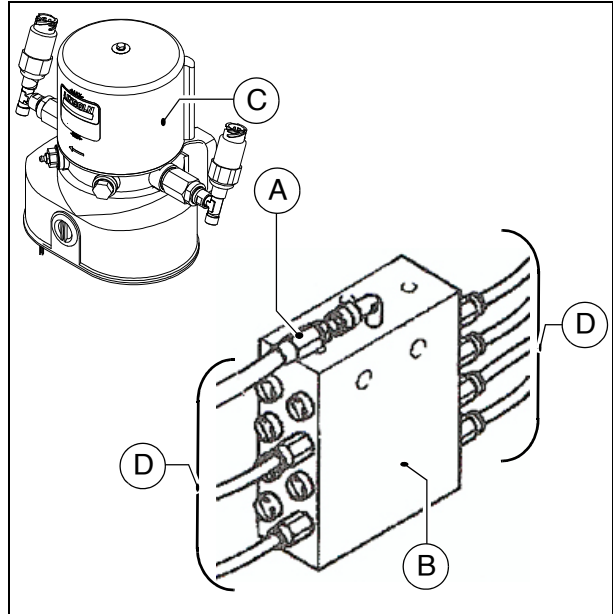


When the lubricant tank is completely empty, the pump may have to run for up to 10 minutes until the full delivery rate is achieved after filling.

## Bleed central lubrication system

Bleeding the lubrication system is necessary if the central lubrication system has been operated with an empty lubricant tank.

- Disconnect the main lubrication line (A) at the distributor (B).
- Start up the central lubrication system with the filled lubricant tank (C).
- Allow the pump to run until lubricant emerges from the previously disconnected main line (A).
- Reconnect the main line (A) to the distributor.
- Disconnect all distribution lines (D) from the distributor.
- Reconnect all distribution lines as soon as lubricant has emerged.
- Check all connections and lines for leaks.



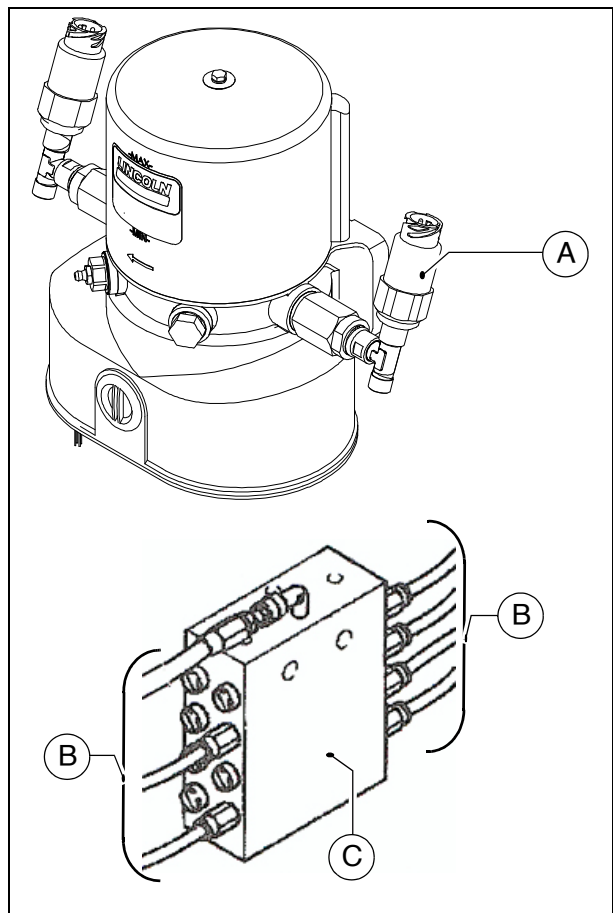
## Check pressure limiting valve



If lubricant emerges at the pressure limiting valve (A), this indicates a malfunction in the system.

The consumers are no longer adequately supplied with lubricant.

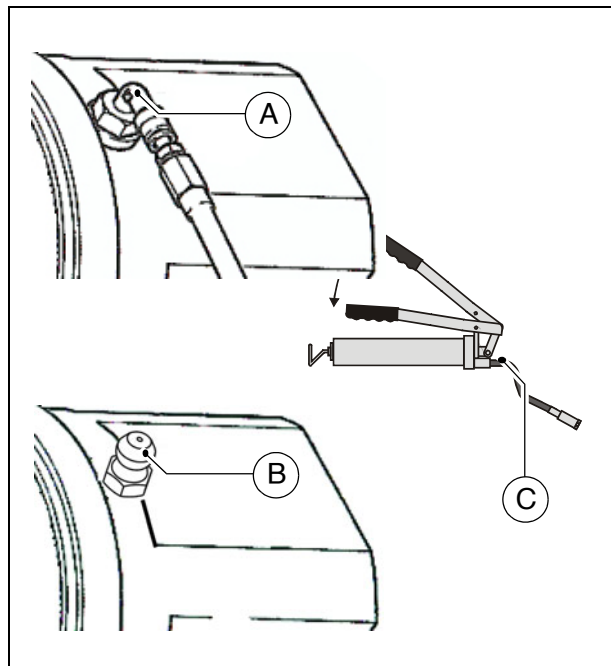
- Disconnect all distribution lines (B) leading from the distributor (C) to the consumers in succession.
- If lubricant emerges from one of the disconnected distribution lines (B) under pressure, search in this lubrication circuit for the cause of the blockage which has triggered the pressure limiting valve.
- After rectifying the malfunction and reconnecting all lines, again check the pressure limiting valve (A) for lubricant emergence.
- Check all connections and lines for leaks.



### Check the flow of lubricant at the consumers

Each lubrication channel at the consumers must be checked as regards clearance.

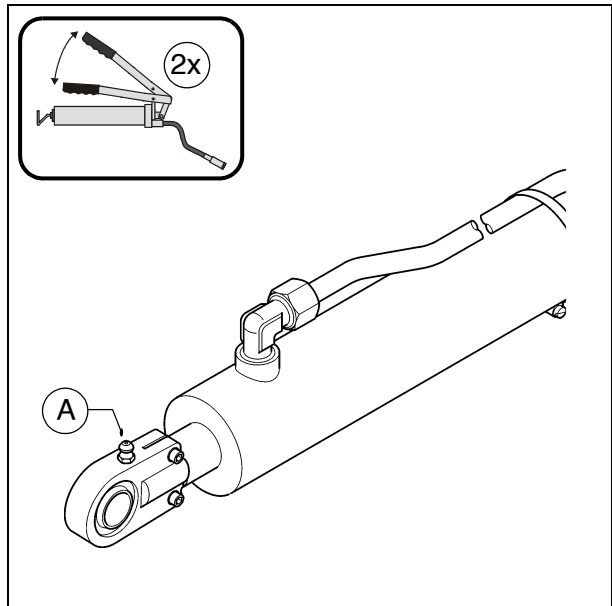
- Remove the lubrication line (A) and install a normal lubricating nipple (B).
- Connect the grease gun (C) included in the scope of supply to the lubricating nipple (B).
- Operate the grease gun until the lubricant visibly emerges.
- Rectify any faults in the flow of lubricant.
- Reinstall the lubrication lines.
- Check all connections and lines for leaks.



## Bearing points (2)



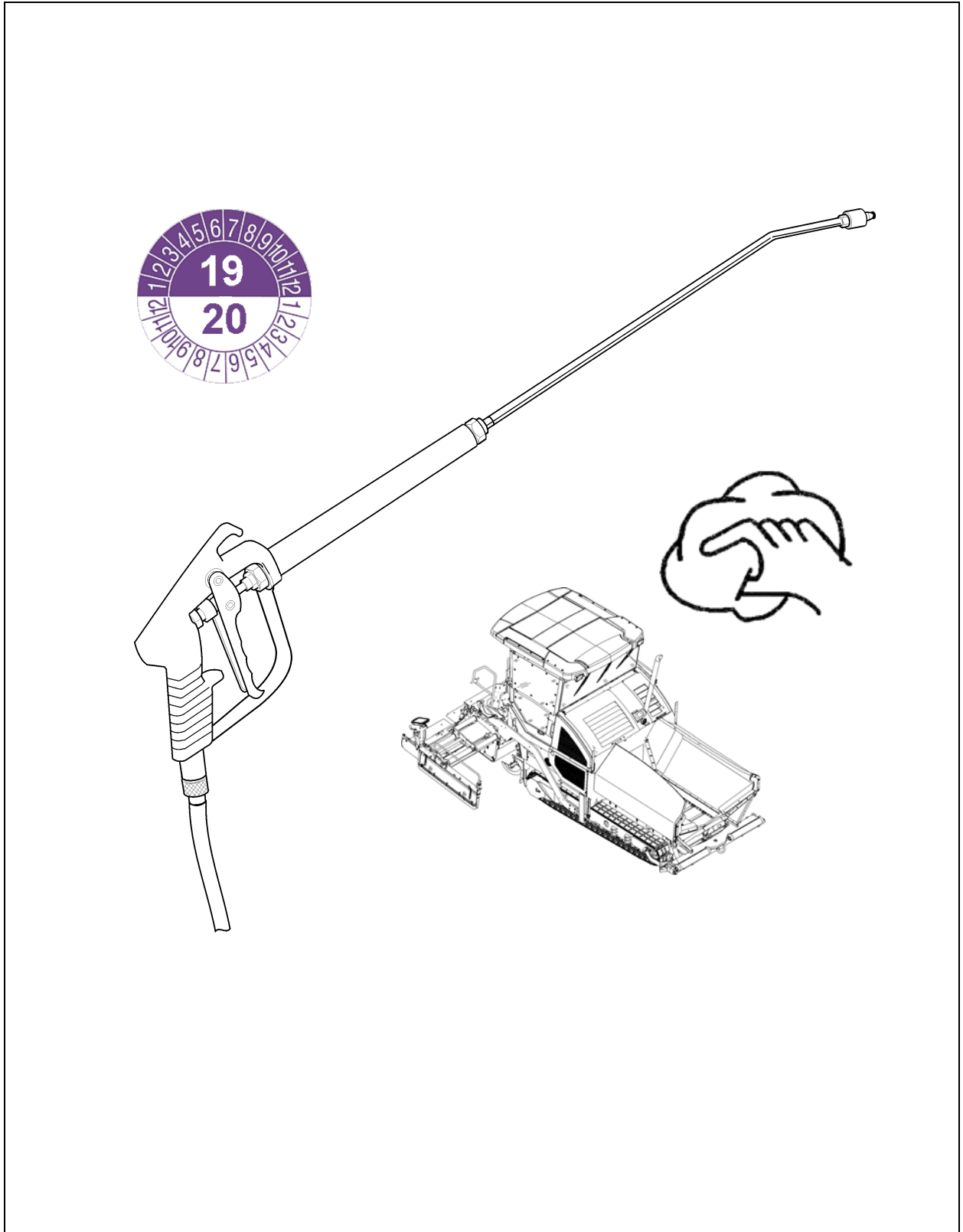
One lubricating nipple (A) is located at each hydraulic cylinder bearing point (top and bottom).





# F 100 Tests, stopping ...

## 1 Tests, checks, cleaning, stopping



## 1.1 Maintenance intervals

Item	Interval								Maintenance point	Note
	10	50	100	250	500	1000 / annually	2000 / every 2 years	If necessary		
1	■								- General visual inspection	
2	regularly								- Check that the bolts and nuts fit firmly	
3						■		■	- Inspection by an expert	
4								■	- Cleaning	
4								■	- Cleaning sensors	
5								■	- Preserving the paver finisher	

Maintenance	■
Maintenance during the running-in period	▼

## 2 General visual inspection


The daily routine should comprise a visual inspection around the entire paver finisher. The following items must be checked:

- Are components or controls damaged?
- Are there leaks on the engine, the hydraulics, the gearbox, etc.?
- Are all fastening points (conveyor, auger, screed, etc.) in order?
- Are the warnings affixed to the vehicle complete and legible?
- Are the non-slip surfaces at ladders, steps, etc. in correct condition, not worn or soiled?



Immediately take actions to correct any detected malfunction to avoid damages, dangers or environmental hazards!

## 3 Check that the bolts and nuts fit firmly

NOTE	Caution! Possible damage to or destruction of parts!
	<ul style="list-style-type: none"> <li>- Self-locking nuts must always be replaced after removal.</li> <li>- Special torques not mentioned in this manual are stated at the corresponding place in the spare parts catalogue.</li> <li>- Screws locked with screw cement must be cemented in again if found to have come loose. Always use the stated torque.</li> <li>- Stated torques for screwed connections apply to dry (uncoiled) state</li> <li>- Do not reuse screws inserted with the maximum permitted torque; instead, replace with new screws.</li> <li>- Screws in strength class 12.9 should only be used once.</li> <li>- All screwed connections must be clean.</li> <li>- Check all reused components of the screwed connection for any signs of damage.</li> </ul>

Bolts and nuts must be checked regularly to ensure that they fit firmly; retighten them if necessary.



The spare parts catalogue states the special torques at the corresponding parts.



For the necessary standard torques, please refer to the section "Bolts - torques"

#### **4 Inspection by an expert**



Have finisher, screed and optional gas or electric system checked by a trained specialist

- when required (according to the operating conditions and the nature of application),
- however, at least once a year, check that they are all in good operational condition.

## 5 Cleaning

- Clean all parts coming into contact with paving material.
- Spray contaminated parts with the separator fluid spraying system (○).



**Before** cleaning work with the high pressure cleaner, grease all lube points acc. to specification.

- Clean the vehicle with water after laying mineral aggregates, lean-mixed concrete, etc.



Do not spray bearing points, electrical or electronic components with water.

- Remove residual paving material.







**After** cleaning work with the high pressure cleaner, grease all lube points acc. to specification.




Danger of slipping! Ensure that all steps and ladders are free of grease and oil!



 <b>WARNING</b>	<b>Danger of being pulled in by rotating or conveying vehicle parts</b>
	<p>Rotating or conveying vehicle parts can cause severe or fatal injuries!</p> <ul style="list-style-type: none"> <li>- Do not enter the danger zone.</li> <li>- Do not reach into rotating or conveying parts.</li> <li>- Only wear close-fitting clothing.</li> <li>- Comply with the warning and information signs on the vehicle.</li> <li>- Stop the engine and remove the ignition key before any maintenance work.</li> <li>- Comply with all further information in these instructions and in the safety manual.</li> </ul>

 <b>CAUTION</b>	<b>Hot surfaces!</b>
	<p>Surfaces including those behind covering parts, together with combustion fuels from the engine or screed heater can be very hot and cause injuries!</p> <ul style="list-style-type: none"> <li>- Wear your personal safety gear.</li> <li>- Do not touch hot parts of the vehicle.</li> <li>- Only perform maintenance and repair work after the vehicle has cooled down.</li> <li>- Comply with all further information in these instructions and in the safety manual.</li> </ul>

## 5.1 Cleaning the hopper

 Clean the hopper regularly

To clean the hopper, park the vehicle on a smooth surface with the hopper open. Switch off the engine.

## 5.2 Cleaning the conveyor and auger

 Clean the conveyor and auger regularly.

If necessary, let the conveyor and auger run at low speed during cleaning.



There must always be an assistant at the operator's platform whenever cleaning work is being carried out to intervene in the event of any potential danger.

### **5.3 Cleaning optical or acoustic sensors**

Heavily soiled sensors can have a negative effect on measuring results or functions.



Daily cleaning with a dry, lint-free cloth.

## **6 Preserving the paver finisher**

### **6.1 Shutdowns for up to 6 months**

- Park the vehicle in a place where it is protected from great exposure to direct sunlight, wind, humidity and frost.
- Grease all lube points in accordance with specifications. Allow optional central lubricating unit to run if necessary.
- Change oil in diesel engine.
- Seal exhaust silencer to make it airtight.
- Remove batteries, charge them and store them in a well ventilated place at room temperature.



Recharge removed batteries every 2 months.

- Protect all bare metal components, e.g. piston rods on hydraulic cylinders, with a suitable corrosion inhibitor.
- If it is not possible to park the vehicle in an enclosed building or under cover, it must be covered with a suitable size of tarpaulin. In all cases, seal all air intake and exhaust apertures with plastic film and adhesive tape.

### **6.2 Shutdowns lasting from 6 months to 1 year**

- Carry out all the actions listed for "Shutdowns of up to 6 months".
- Once the engine oil has been drained off, fill the diesel engine with a manufacturer-approved grade of preserving oil.



### **6.3 Recommissioning the machine**

- Reverse all the steps described in the "Shutdown" sections.




---

## **7 Environmental protection, disposal**

### **7.1 Environmental protection**

-  Packaging materials, used operating substances, cleaning agents and machine accessories must be correctly recycled.
-  Always observe the local regulations!

### **7.2 Disposal**

-  Correctly sorted disposal must be carried out after replacing wear and spare parts and after the machine has been withdrawn from service (scrapped).  
The materials must be sorted correctly according to metal, plastic, electronic scrap, various operating substances etc.  
Any oily or greasy parts (hydraulic hoses, lube pipes etc.) must be treated separately.
-  Electric devices, accessories and packaging should be recycled in an environment-friendly manner.
-  Always observe the local regulations!

## 8 Bolts - torques

### 8.1 Standard metric threads - strength class 8.8 / 10.9 / 12.9

Treatment	dry/lightly oiled						Molykote ®					
	Torque (Nm)	Permitted deviation (+/- Nm)	Torque (Nm)	Permitted deviation (+/- Nm)	Torque (Nm)	Permitted deviation (+/- Nm)	Torque (Nm)	Permitted deviation (+/- Nm)	Torque (Nm)	Permitted deviation (+/- Nm)	Torque (Nm)	Permitted deviation (+/- Nm)
Strength class	8.8	8.8	10.9	10.9	12.9	12.9	8.8	8.8	10.9	10.9	12.9	12.9
M3	1	0,3	1,5	0,4	1,7	0,4	1	0,3	1,4	0,4	1,7	0,4
M4	2,4	0,6	3,5	0,9	4	1	2,3	0,6	3,3	0,8	3,9	1
M5	5	1,2	7	1,7	8	2	4,6	1,1	6,4	1,6	7,7	1,9
M6	8	2,1	12	3	14	3	7,8	1,9	11	2,7	13	3,3
M8	20	5	28	7,1	34	8	19	4,7	26	6,6	31	7,9
M10	41	10	57	14	70	17	37	9	52	13	62	16
M12	73	18	97	24	120	30	63	16	89	22	107	27
M14	115	29	154	39	195	45	100	25	141	35	169	42
M16	185	46	243	61	315	75	156	39	219	55	263	66
M18	238	60	335	84	402	100	215	54	302	76	363	91
M20	335	84	474	119	600	150	304	76	427	107	513	128
M22	462	116	650	162	759	190	410	102	575	144	690	173
M24	600	150	817	204	1020	250	522	131	734	184	881	220
M27	858	214	1206	301	1410	352	760	190	1067	267	1281	320
M30	1200	300	1622	405	1948	487	1049	262	1475	369	1770	443
M33	1581	395	2224	556	2669	667	1400	350	1969	492	2362	590
M36	2000	500	2854	714	3383	846	1819	455	2528	632	3070	767

## 8.2 Fine metric threads - strength class 8.8 / 10.9 / 12.9

Treatment	dry/lightly oiled						Molykote ®					
	Torque (Nm)	Permitted deviation (+/- Nm)	Torque (Nm)	Permitted deviation (+/- Nm)	Torque (Nm)	Permitted deviation (+/- Nm)	Torque (Nm)	Permitted deviation (+/- Nm)	Torque (Nm)	Permitted deviation (+/- Nm)	Torque (Nm)	Permitted deviation (+/- Nm)
Strength class	8.8	8.8	10.9	10.9	12.9	12.9	8.8	8.8	10.9	10.9	12.9	12.9
M3x0,35	1,2	0,3	1,7	0,4	2,1	0,5	1,1	0,3	1,5	0,4	1,8	0,5
M4x0,5	2,8	0,7	3,9	1	4,7	1,2	2,5	0,6	3,5	0,9	4,2	1
M5x0,5	5,7	1,4	8	2	9,6	2,4	5,1	1,3	7,1	1,8	8,5	2,1
M6x0,75	9,2	2,3	12,9	3,2	15,5	3,9	8,3	2,1	11,6	2,9	13,9	3,5
M8x1	21,7	5,4	30,6	7,6	36,7	9,2	19,5	4,9	27,4	6,8	32,8	8,2
M10x1,25	42,1	10,5	59,2	15	71	17,8	37,7	9,4	53	13	63,6	15,9
M12x1,25	75,7	18,9	106,2	26	127	31,9	67,2	16,8	94,5	24	113	28,3
M14x1,5	119	29,7	167	42	200	50,1	106	26	149	37	178	44,6
M16x1,5	183	45,6	257	64	308	77	162	40	227	57	273	68,2
M18x1,5	267	66,8	376	94	451	112,7	236	59	331	83	398	99,4
M20x1,5	373	93,2	524	131	629	157,3	328	82	461	115	553	138,3
M22x1,5	503	126	707	177	848	212,1	442	110	621	155	745	186,3
M24x2	630	158	886	221	1063	265,8	556	139	782	195	938	234,5
M27x2	918	229	1290	323	1548	387,1	807	202	1136	284	1363	340,7
M30x2	1281	320	1802	450	2162	540,6	1124	281	1581	395	1897	474,3
M33x2	1728	432	2430	607	2916	728,9	1514	378	2128	532	2554	638,5
M36x3	2126	532	2990	747	3588	897,1	1876	469	2638	659	3165	791,3



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# F 110.18 Lubricants and operating substances

## 1 Lubricants and operating substances



Use only the lubricants listed below or comparable qualities of well-known brands.



Only use containers which are clean on inside and outside for filling oil or fuel.



Note capacities (see section "Capacities").



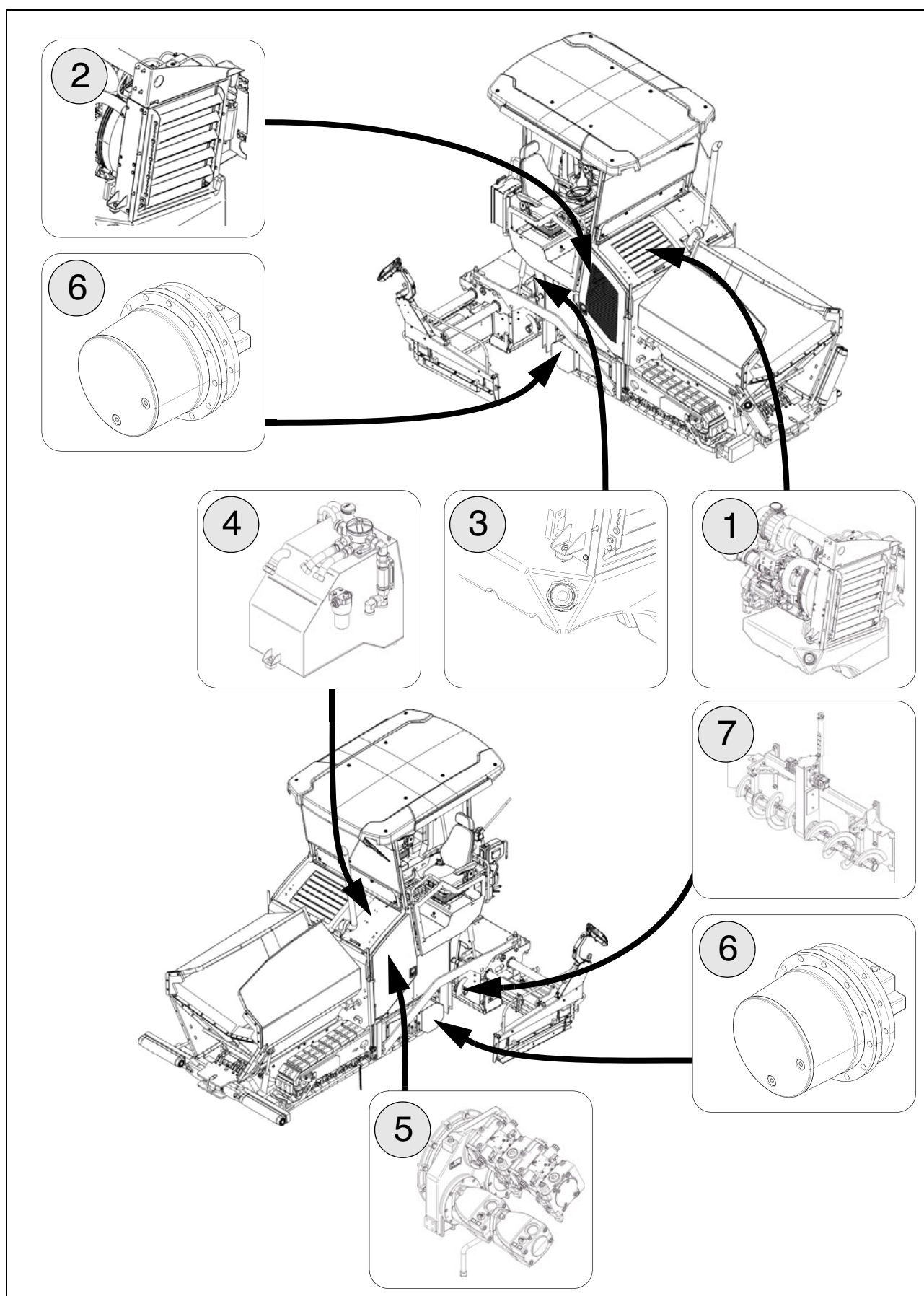
Incorrect oil or lubricant levels promote rapid wear and feeder failure.



Never mix synthetic oils with mineral oils!



Please heed the equipment-related fuel specification requirements!



## 1.1 Capacities

		Substance	Volume
1	Diesel engine (with oil filter change)	Engine oil	8,2 litres
2	Engine cooling system	Cooling liquid	12,0 litres
3	Fuel tank	Diesel fuel	73,0 litres
4	Hydraulic oil reservoir	Hydraulic oil	80,0 litres
5	Pump distribution gear	Gearbox oil	2,0 litres
5	Pump distribution gear, as of s/n 3309, 3510 ff.	Gearbox oil	1,5 litres
6	Planetary gear drive unit	Gearbox oil	approx. 2.4 litres (1.2 l per side)
7	Auger box	Liquid grease	3,5 kg
	Batteries	Distilled water	



Note specifications on the following pages!

## 2 Operating substance specifications

### 2.1 Notes on diesel fuel



Danger of explosion! Never mix diesel fuel with ethanol, petrol or alcohol!



Diesel fuel contaminated with water or dirt can cause serious damage to the fuel system! Keep fuel and fuel system free of water and impurities!



Observe the instructions for fuel recommendations and the specification in the maintenance instructions of the engine manufacturer!

### 2.2 Drive engine TIER III (○) fuel specification

Permissible diesel fuels

Specifications				
Diesel fuel as specified in the engine manufacturer's requirements * sulphur level max. 2000mg/kg	EN 590	ASTM D975	JIS K 2204 HFRR max. 460µm	

\* Detailed information at:

<http://www.deutz.com>

de	\Service\Betriebsstoffe und Additive\Kraftstoffe
en	\Service\Operating Liquids and Additives\Fuels

### 2.3 Drive engine TIER IV (○) - fuel specification



Low-sulphur diesel fuel is prescribed for correct operation of the exhaust-gas treatment system!

The maximum sulphur level must not exceed 15 ppm!

If low-sulphur diesel fuel is not used, the prescribed exhaust values cannot be met and damage will be caused to the engine and to the exhaust-gas treatment system!


Permissible diesel fuels

Specifications				
EN 590	ASTM D975 S15	JIS K 2204 HFRR max. 460µm		

## 2.4 Engine - lubricating oil

Dynapac	Aral	BP	Esso / Exxon	Fuchs	Mobil	Shell	
Engine Oil 200 (*)							

 (\*) = recommended

 Observe the instructions for lubricant recommendations and the specification in the maintenance instructions of the engine manufacturer!

## 2.5 Cooling system

Dynapac	AGIP	Chevron	Caltex	Delo	Petronas		Finke
Coolant 200 (*)	-Antifreeze Special	Extended Life Coolant			Antifreeze G12		Aviaticon Finkofreeze P12+

 (\*) = recommended

## 2.6 Hydraulic system

Dynapac	AGIP	Chevron	Caltex	Fuchs	Mobil	Shell	Finke
Hydraulic 100 (*)		Rando HDZ 46	Rando HDZ 46			-Tellus Oil S2 V46 -Tellus S2 VX46	Aviaticon HV 46


 (\*) = recommended

## 2.7 Pump distribution gear

Dynapac	Aral	BP	Esso / Exxon	Fuchs	Mobil	Shell	
Gear Oil 100 (*)						-Omala S2 GX 220	

## 2.8 Pump distribution gear, as of s/n 3309, 3510 ff.

Dynapac	Aral	BP	Esso / Exxon	Fuchs	Mobil	Shell	
Gear Oil 400 (*)				-Titan ATF 6000 SL (*)		-Spirax S4 ATF HDX -Spirax S6 ATF VM	

 (\*) = filled in at the factory

## 2.9 Drive unit planetary gear

Dynapac	Aral	BP	Esso / Exxon	Fuchs	Mobil	Shell	
Gear Oil 100 (*)						-Omala S2 GX 220	

 (\*) = recommended

## 2.10 Auger box

Dynapac	Aral	BP	Esso / Exxon	Fuchs	Mobil	Shell	
Auger Grease (*)						-Gadus S5 V142W 00	

 (\*) = recommended

## 2.11 Grease

Dynapac	Aral	BP	Esso / Exxon	Fuchs	Mobil	Shell	Chevron
Paver Grease (*)						-Gadus S5 T460 1.5	-High Temp Premium2

 (\*) = recommended

## 2.12 Hydraulic oil

Preferred hydraulic oils:

a) Synthetic hydraulic liquids based on ester, HEES

Manufacturer	ISO viscosity class VG 46
Dynapac	Hydraulic 120 (*)
Shell	Natural HF-E46
Panolin	HLP SYNTH 46
Esso	Univis HEES 46
Total	Total Biohydran SE 46
Aral	Vitam EHF 46
Finke	Aviaticon HY-HE 46



(\*) = recommended



When changing from mineral oil pressure fluids to biodegradable pressure fluids, please contact our factory advisory service!





