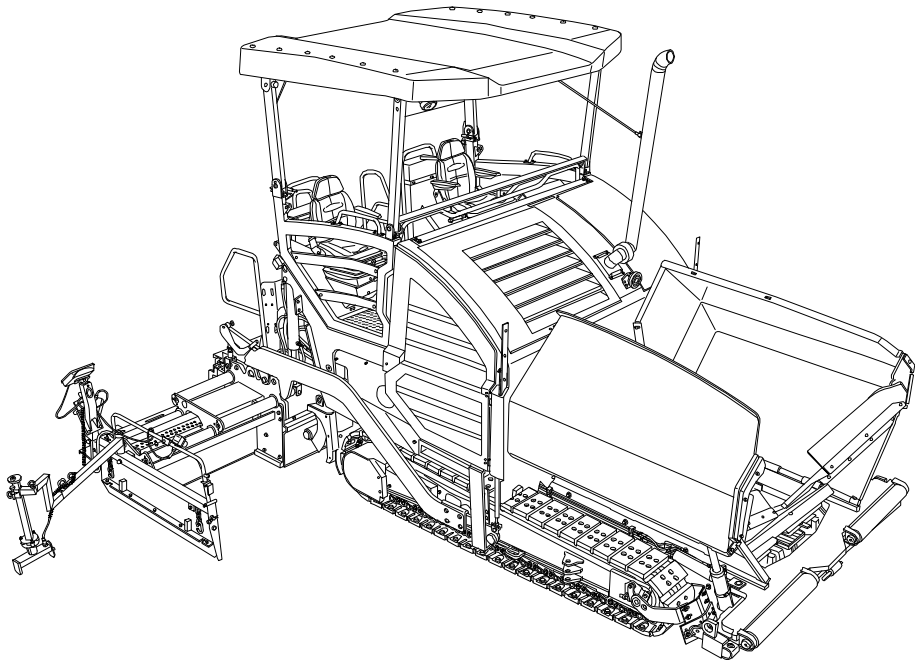
DYNAPAC
Part of the Atlas Copco Group

OPERATION & MAINTENANCE

Paver Finisher
F2500C
F2500CS
Type 890 / 891



Keep for later use in document compartment

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_____ to _____
_____ to _____

DYNAPAC
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Original spare parts only
Everything from one source

Your authorised Dynapac dealer:

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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.

Safety instructions and important notes 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.

● Used to indicate standard equipment.

○ Used to indicate optional equipment.

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 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!

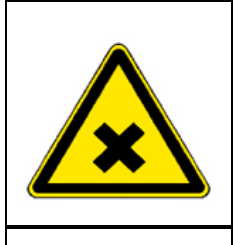
Warning on hand injuries!

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!

1.3 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!

1.4 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!

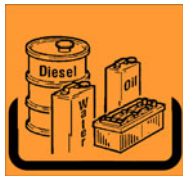
1.5 Environmental protection

☞ 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!

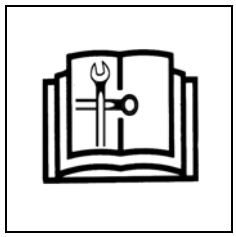
1.6 Fire prevention

☞ Locally applicable regulations may require suitable extinguishing agents to be carried on the vehicle!
Always observe these regulations!

Fire extinguisher!
(optional equipment)

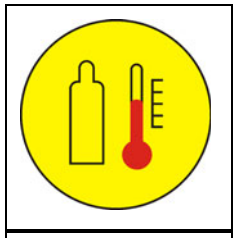
1.7 Additional information

⚠ Also observe the manufacturer's documentation and additional documentation!

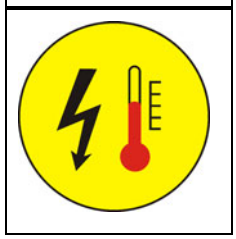


☞ For example, the maintenance instructions of the engine manufacturer

⚠ Description / depiction applicable when equipped with gas heater!



⚠ Description / depiction applicable when equipped with electric heater!



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 occurrs 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

A Correct use and application

☞ The Dynapac "Guideline for the correct and proper use of feeders" is included in the scope of delivery of this device. The guidelines are part of the present operating instructions and must always be heeded. National regulations are fully applicable.

The vehicle described in these operating instructions is a feeder which is used as a transportation and conveyor system for paving materials for paver finishers and which forwards material accepted from transport vehicles to paver finishers.
Roll-down or lean-mixed concrete, track-laying ballast and unbound mineral aggregates for paving foundations are suitable paving materials.
The feeder must be used, operated and maintained according to the specifications in these operating instructions. Any other use is regarded as improper and can cause injury to persons or damage to the feeder or other assets.

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 feeder 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.

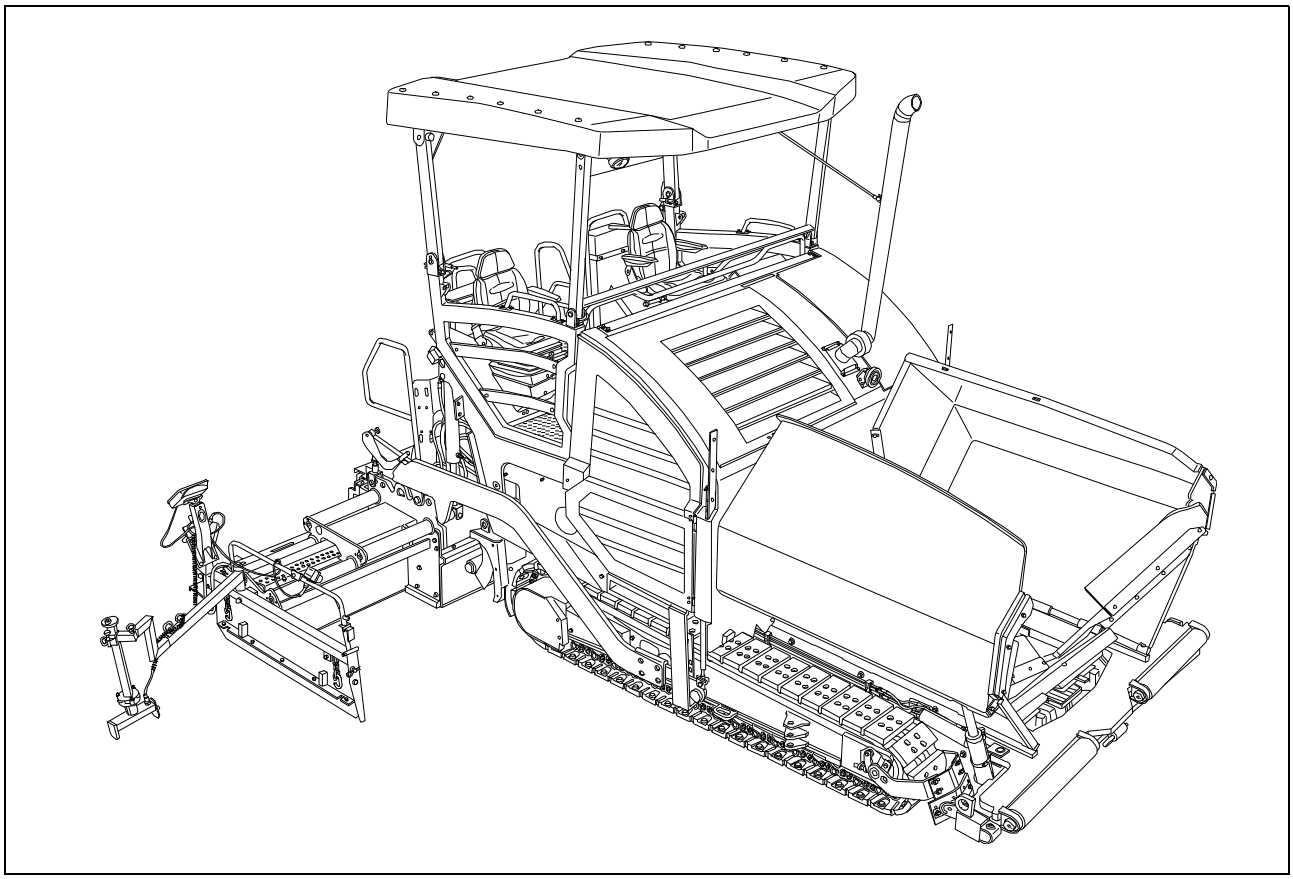
Duties of the operator: An operator within the meaning of these operating instructions is defined as any natural or legal person who either uses the feeder himself or on whose behalf it is used. In special cases (e.g. leasing or renting), the operator is considered to be the person who, in accordance with existing contractual agreements between the owner and the user of the feeder, is charged with the observance of the operating duties.
The operator must ensure that the feeder is only used in the proper manner and that all danger to the life and limb of the user 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 operator must also ensure that all persons operating the feeder have read and understood the present operating instructions.

Mounting of attachments: The feeder can only be operated with paver finishers and paving materials that have been approved by the manufacturer. Mounting or installation of additional facilities that interfere with or supplement the functions of the feeder are only permissible after written approval has been obtained from the manufacturer. If necessary, approval must be obtained from local authorities.
Any approval obtained from local authorities does not, however, make approval by the manufacturer unnecessary.

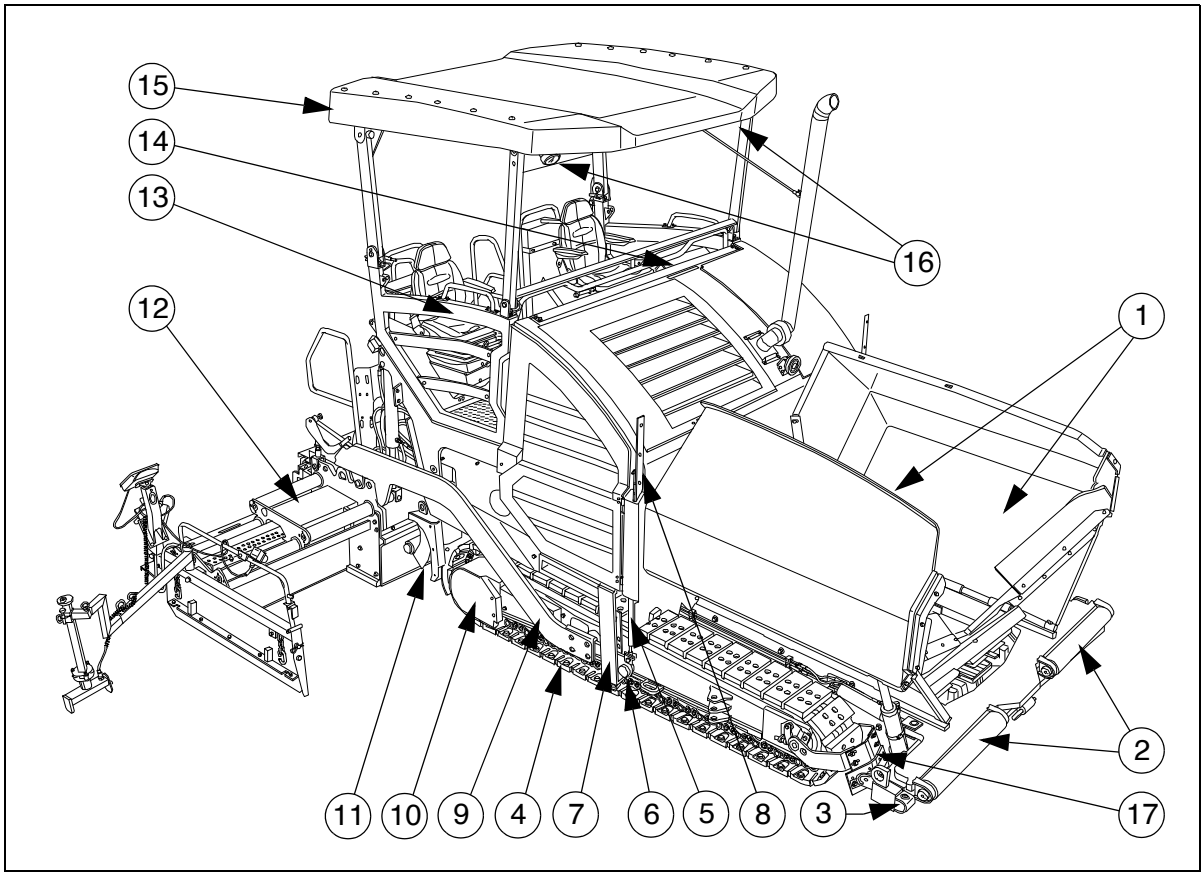
B Vehicle description

1 Application

The Dynapac F2500C / F2500CS 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	●	Tube for sensor rod (direction indicator) and holder for levelling shoe
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

● = 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

○ Ultrasonic sensors for conveying material

○ Additional cut-off shoe

○ Larger working widths

○ Protective roof

○ Additional headlights, warning lamps

○ 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 paver finisher to be turned on the spot.
The electronic synchronisation, controlled from the operating panel, ensures that the paver finisher runs straight ahead.
The movable operating panel can 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.

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. 15.0 t.
To facilitate emptying and to improve material transport, each of the lateral covers of the hopper can be hydraulically moved.

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.

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 speed is continuously controlled by sensors that monitor 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.

The height of the auger is adjusted by means of barrel nuts on the rear wall (○).

Auger segments of different lengths can be attached to easily adapt to the different paving widths.

Levelling/slope control system: The slope control system (○) can be used to regulate the traction point on 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.

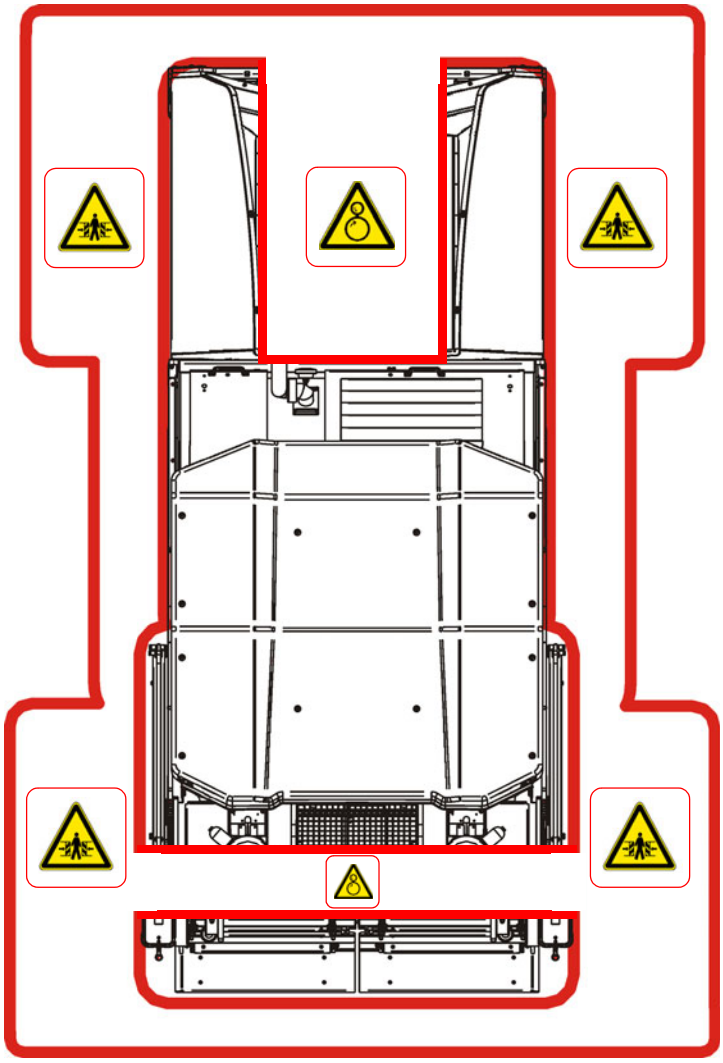
Crossbeams / screed lifting device: The screed lifting device is used to lift the screed during transportation. The screed's approach angle can be changed using the eccentric adjustment facility on the crossbeam.
Depending on the paving condition requirements, the crossbeam can be moved backwards or forwards. This adjustment enlarges the material space between the auger and screed.

Automatic paving stop and screed charging/relieving: 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 floating position and relief pressure is applied, thus preventing the screed from sinking while stationary.

The screed relieving device puts a higher load on the traction unit, thus increasing the traction.
Activating the screed charging device can improve the compacting result under different paving conditions.

3 Danger zones

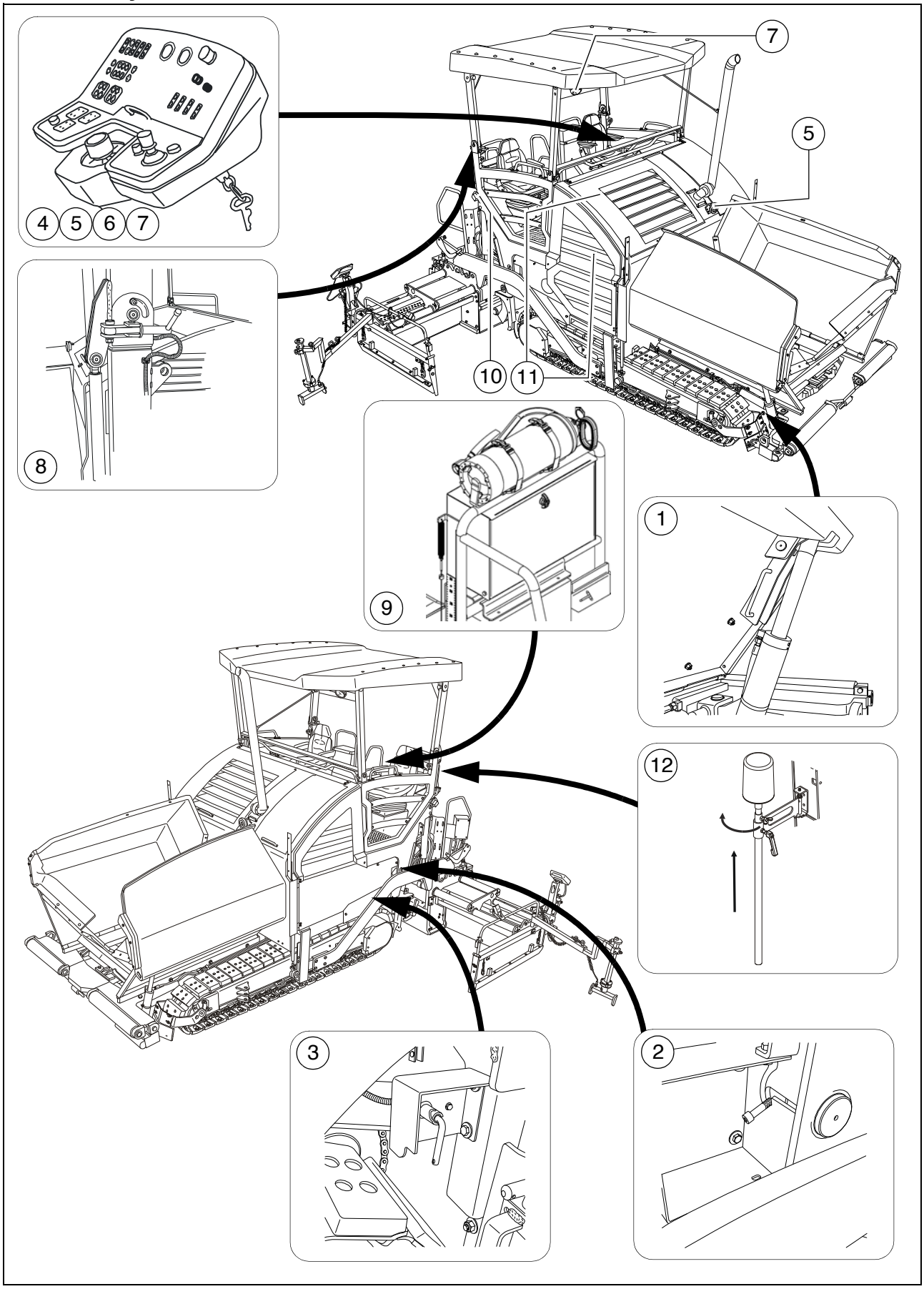
⚠ In these vehicle working areas, there may be a risk of drawing in or crushing during normal operation caused by rotating and conveying elements, or by components in motion.



Danger of being pulled in!

Danger of crushing!

4 Safety devices



Item	Designation	
1	Hopper transport safeguard	**
2	Screed lock, mechanical / hydraulic (○)	**
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

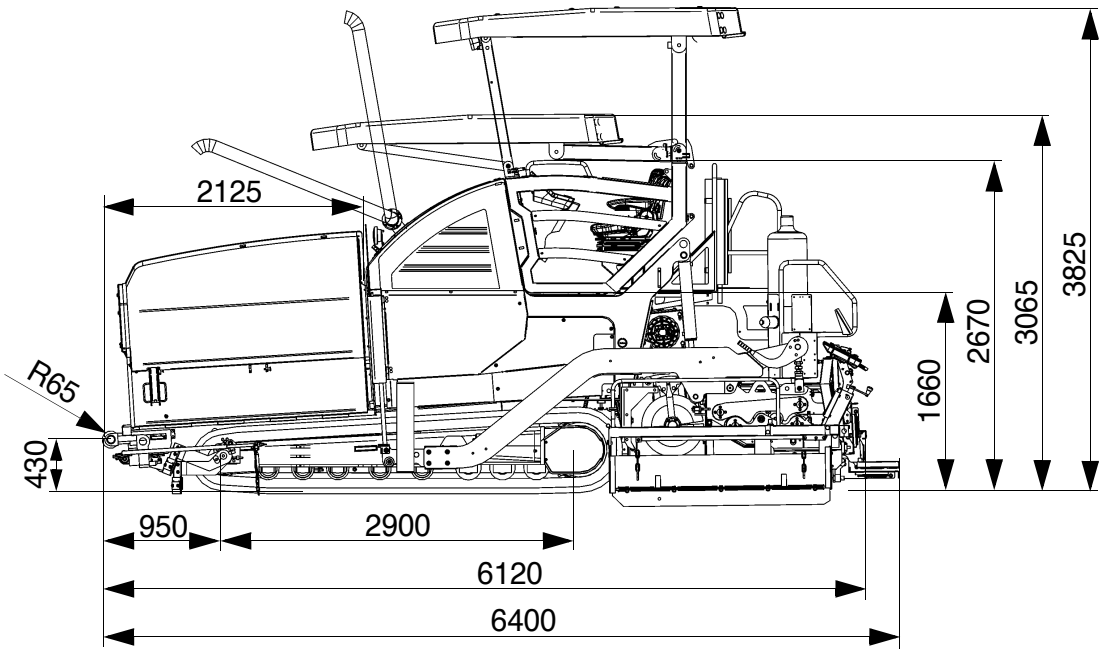
⚠ Safe operation is only possible if the control and safety devices are functioning perfectly and if the protective equipment is fitted correctly.

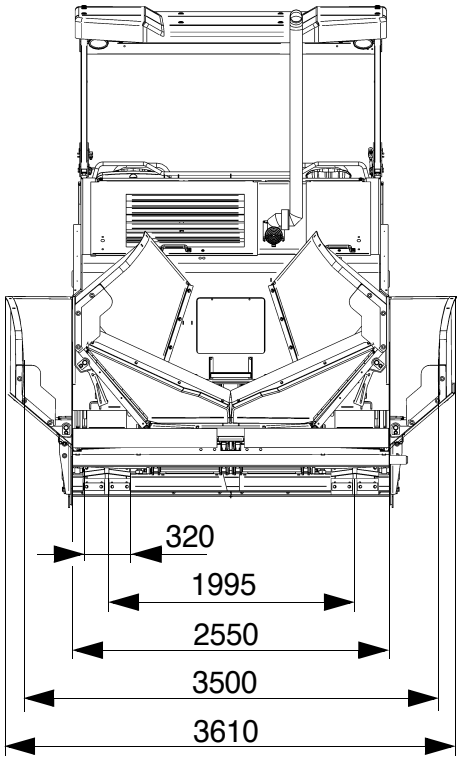
⚠ Check the function of these devices at regular intervals.

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

5 Technical data, standard configuration

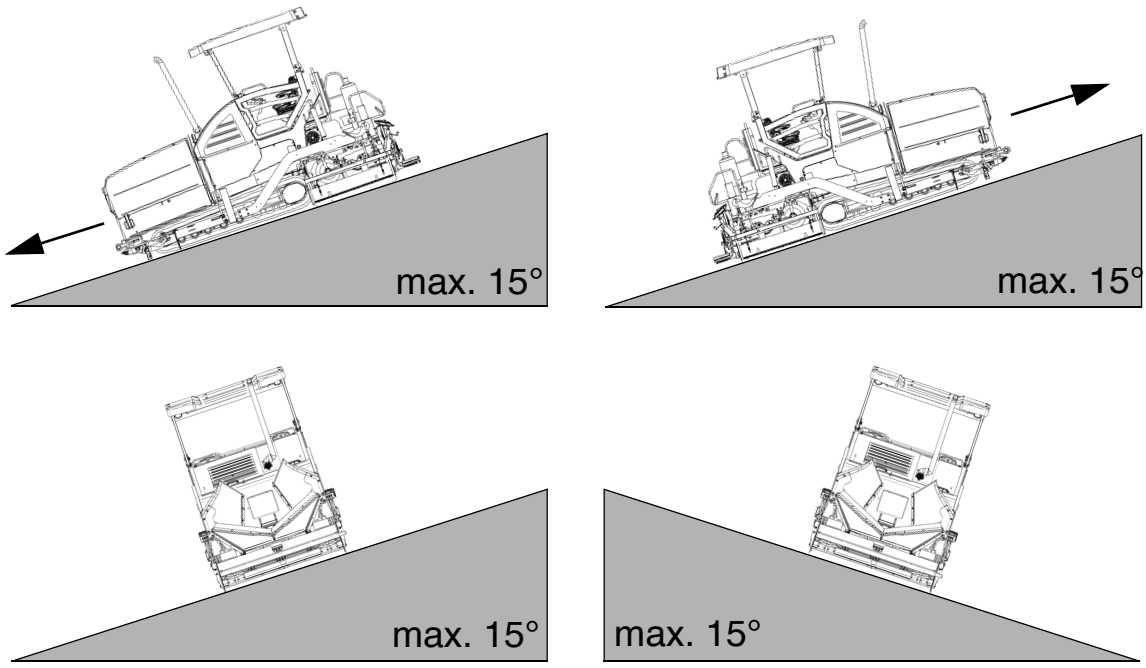
5.1 Dimensions (all dimensions in mm)





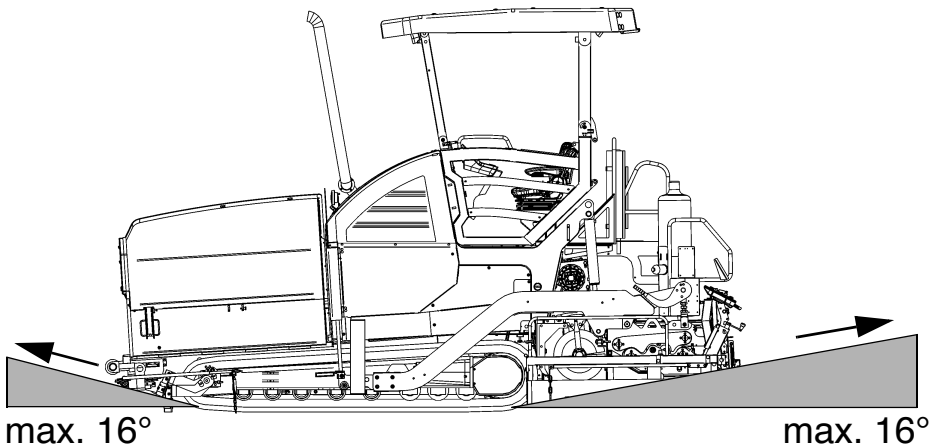
☞ For screed technical data, refer to the screed operating instructions.

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 F2500C (all weights in t)

Paver finisher without screed	Approx. 14.5
Paver finisher with screed: - V5100	Approx. 18.2
With extension parts for max. working width, additionally max.:	Approx. xxx
With filled hopper Additionally max.	Approx. 15.0

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

5.5 Weights F2500CS (all weights in t)

Paver finisher without screed	Approx. 14.5
Paver finisher with screed: - V5100	Approx. 18.2
With extension parts for max. working width, additionally max.:	Approx. xxx
With filled hopper Additionally max.	Approx. 15.0

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

5.6 Performance data F2500C

Screed used	Basic width (without cut-off shoes)	Minimum paving width (with cut-off shoe)	Continuously hydraulically adjustable up to	Maximum paving width (with extension parts)	
V5100TV	2.55	2.00	5.10	8.10	m

Transport speed	0 - 4	km/h
Operating speed	0 - 30	m/min
Paving height	-150 - 320	mm
Max. grain size	40	mm
Theoretical paving performance	650	t/h

5.7 Performance data F2500CS

Screed used	Basic width (without cut-off shoes)	Minimum paving width (with cut-off shoe)	Continuously hydraulically adjustable up to	Maximum paving width (with extension parts)	
V5100TV	2.55	2.00	5.10	8.10	m
V6000TV	3.00	2.00	6.00	9.00	m

Transport speed	0 - 4	km/h
Operating speed	0 - 30	m/min
Paving height	-150 - 320	mm
Max. grain size	40	mm
Theoretical paving performance	750	t/h

5.8 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

5.9 Engine F2500C

Make/type	Cummins QSB 6.7-C173
Version	6-cylinder diesel engine (water-cooled)
Performance	110 kW / 150 hp (at 2200 rpm)
Pollutant emissions in co-ordination with:	EU 3A / Tier 3
Fuel consumption, full load Fuel consumption, 2/3 load	29.8 l/h 19.9 l/h
Fuel tank capacity	(See chapter F)

5.10 Engine F2500CS

Make/type	Cummins QSB 6.7-C173
Version	6-cylinder diesel engine (water-cooled)
Performance	129 kW / 175 hp (at 2200 rpm)
Pollutant emissions in co-ordination with:	EU 3A / Tier 3
Fuel consumption, full load Fuel consumption, 2/3 load	35.1 l/h 23.4 l/h
Fuel tank capacity	(See chapter F)

5.11 Hydraulic system

Pressure generation	Hydraulic pumps via distribution gear (directly flanged to the engine)
Pressure distribution	Hydraulic circuits for: - Travel drive - Auger - Conveyor - Tamper / vibration - Operating functions - Fan - Separate hydraulic circuits for options
Hydraulic oil reservoir - volume	(See chapter F)

5.12 Material compartment (hopper)

Volume	Approx. 6.5 m^3 = approx. 15.0 t
Minimum inlet height, centre	555 mm
Minimum inlet height, outside	560 mm
Hopper width, outside, open	3610 mm

5.13 Material transfer

Type	Dual conveyor belt
Width	2 x 655 mm
Conveyors	Left and right auger separately controllable
Drive	Hydrostatic, 0/1
Conveying volume controller	Fully automatic via configurable switching points

5.14 Material distribution

Auger diameter	380 mm
Drive	Hydrostatic central drive, continuously controllable independently of the 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	- Mechanically
Auger extension	With extension parts (see auger extension chart)

5.15 Screed lifting device

Special functions	At standstill: - Screed stop - Screed stop with pretensioning (max. pressure 50 bar) During paving: - Screed charging - Screed relieving (max. pressure 50 bar)
Levelling system	Mechanical grade control Optional systems with and without Slope control system

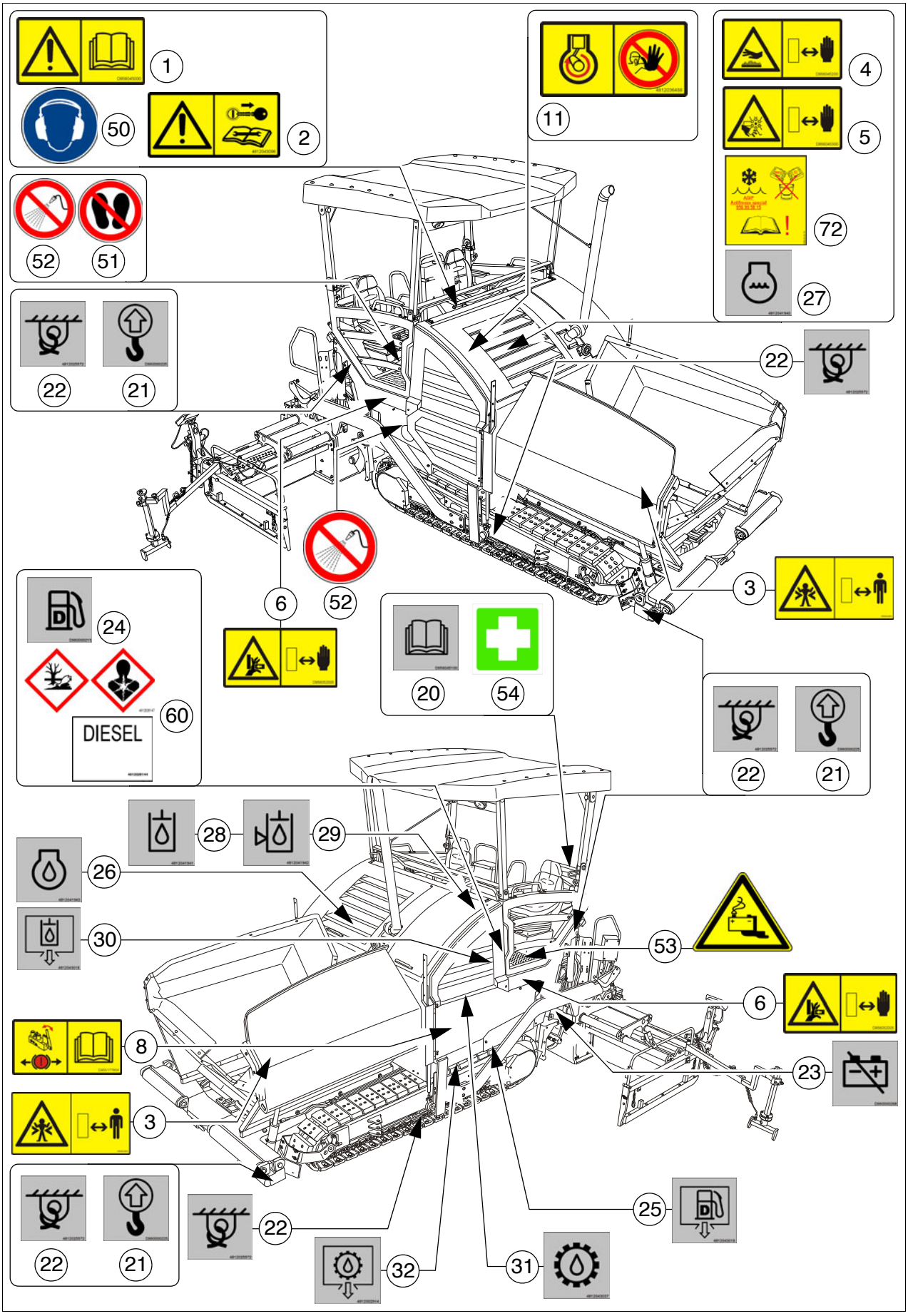
5.16 Electrical system

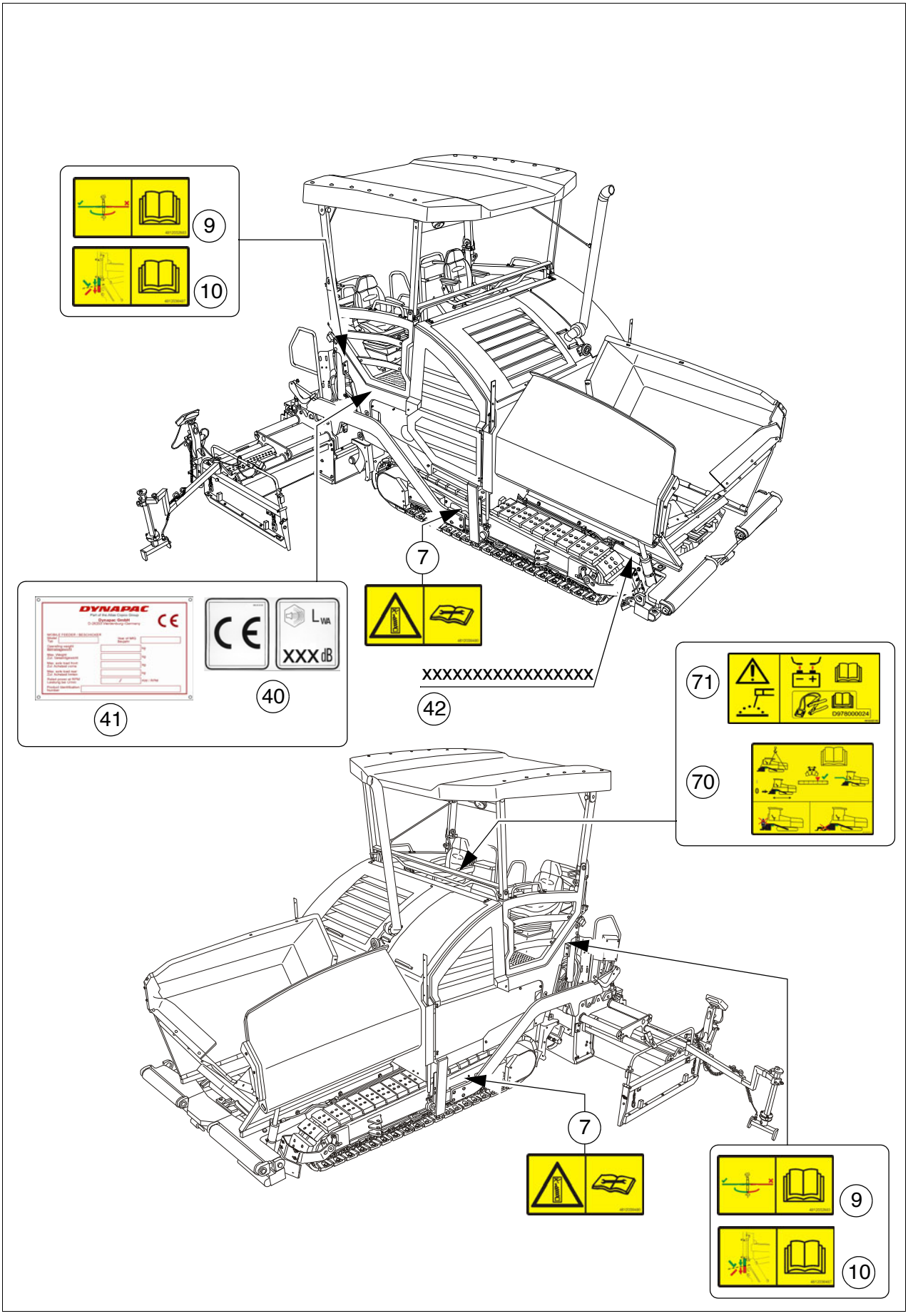
On-board voltage	24 V
Batteries	2 x 12 V, 88 Ah

5.17 Permissible temperature ranges

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

6 Location of instruction labels and identification plates

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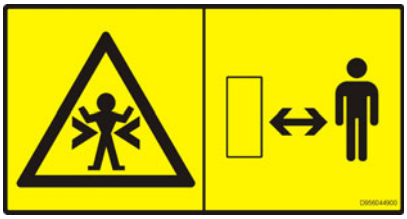
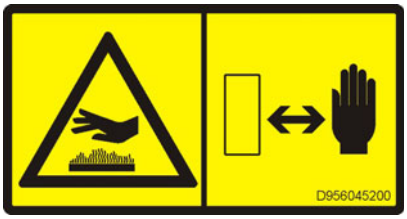
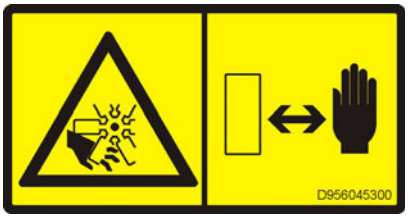
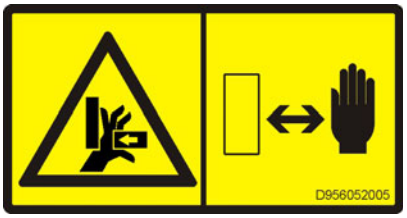
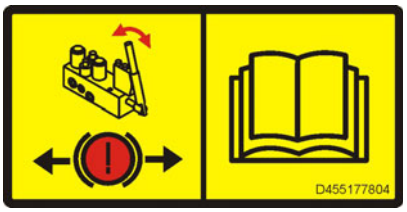
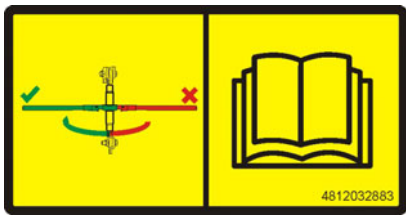
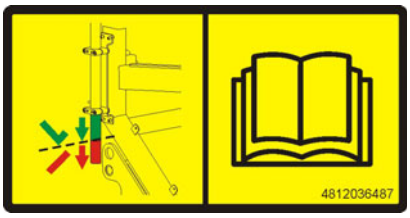
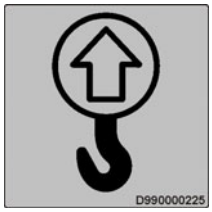
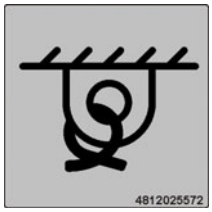
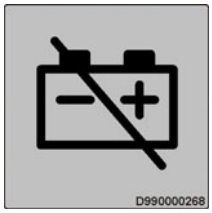
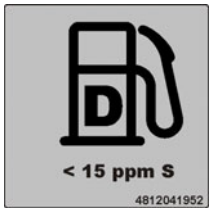
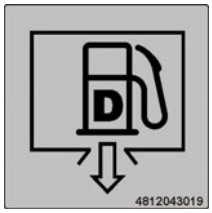
6.1 Warning signs

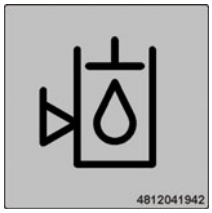
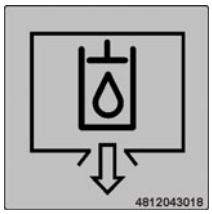
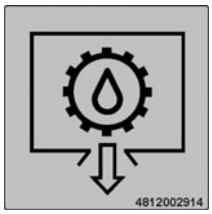
No.	Pictogram	Meaning
1		- **Warning - Operating instructions!** Danger due to improper operation. The machine personnel must have read and understood the safety, operating and maintenance instructions for the machine before the machine is put into operation! Failure to comply with the operating and 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!
2		- **Warning - Switch off the engine and remove the ignition key before performing any maintenance and repair work!** 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.
3		- **Warning - Danger of crushing!** Crushing points can cause severe or fatal injuries! Maintain a safe distance from the danger area!
4		- **Warning - Hot surface - Danger of burning!** Hot surfaces can cause severe injuries! Keep your hands at a safe distance from the danger area! Use protective clothing or protective equipment!
5		- **Warning - Danger from fan!** Rotating fans can cause severe injuries from cutting or severing fingers and hands. Keep your hands at a safe distance from the danger area!

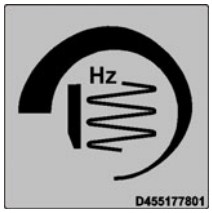
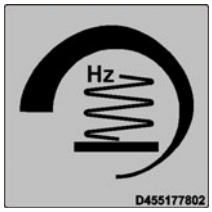
No.	Pictogram	Meaning
6		- **Warning - Danger of crushing fingers and hands with moving, accessible machine parts!** Crushing points can cause severe injuries with the loss of parts of the fingers or hand. Keep your hands at a safe distance from the danger area!
7		- **Warning - Spring-loaded part!** Performing work incorrectly can cause severe to fatal injuries. Always observe the maintenance instructions!
8		- **Caution - Danger from incorrect towing!** Movements of the machine can cause severe or fatal injuries. The traction system brakes must be released before towing. Always observe the operating instructions!
9		- **Caution - Possible collision of parts!** The ratchet lever must always be swivelled in. Always observe the operating instructions!
10		- **Caution - Possible collision of parts!** The Powermoon tripod must be mounted correctly. Always observe the operating instructions!
11		- **Warning - Danger from running engine!** If the drive engine is left running, this can cause severe or fatal injuries. Never open the engine hood while the engine is running!

No.	Pictogram	Meaning
12		- **Warning - Hazard from hydraulic reservoir and from hydraulic oil under pressure!** Escaping hydraulic oil under pressure can pierce the skin and enter into the body, causing severe or fatal injuries. Always observe the operating instructions!
13		- **Warning - Danger from tyres filled with water!** Handling tyres filled with water incorrectly can cause severe to fatal injuries. Always observe the operating instructions!

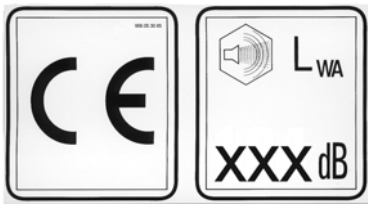
6.2 Information signs

No.	Pictogram	Meaning
20		- **Operating Instructions** Position of the storage compartment.
21		- **Lifting point** Lifting the machine is only permitted at these lifting points!
22		- **Lashing point** Lashing the machine is only permitted at these points!
23		- **Main battery switch** Position of the main battery switch.
24		- **Diesel fuel** Position of the filling point.
24		- **Diesel fuel, sulphur level < 15 ppm** Position of the filling point, specification.
25		- **Fuel drainage point** Position of the drainage point.

No.	Pictogram	Meaning
26		- **Engine oil** Position of the filling and control point.
27		- **Engine coolant** Position of the filling and control point.
28		- **Hydraulic oil** Position of the filling point.
29		- **Hydraulic oil level** Position of the control point.
30		- **Engine oil drainage point** Position of the drainage point.
31		- **Gearbox oil** Position of the filling and control point.
32		- **Gear oil drainage point** Position of the drainage point.

No.	Pictogram	Meaning
33		- **Tamper speed adjuster** Position of the speed adjuster.
34		- **Vibration, speed adjuster** Position of the speed adjuster.

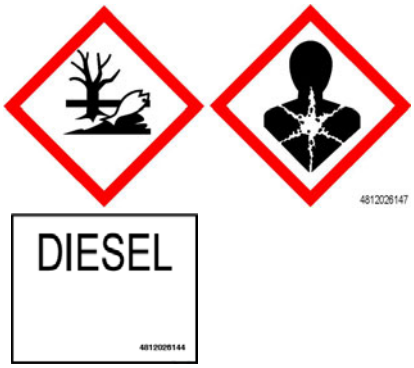
6.3 CE marking

No.	Pictogram	Meaning
40		- CE, sound output level

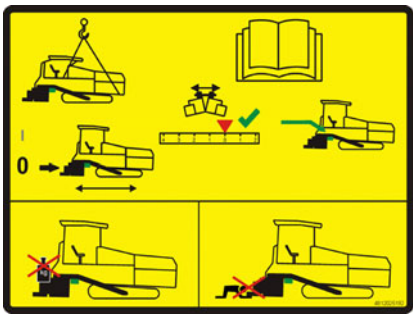
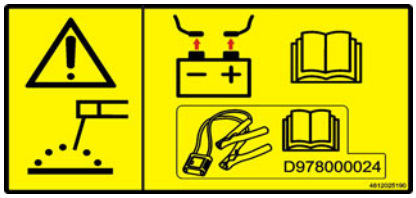
6.4 Instructive symbols, prohibitive symbols, warning symbols

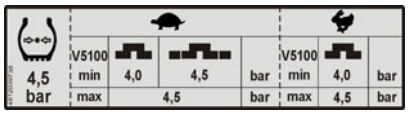
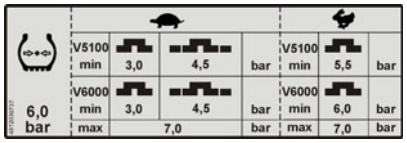
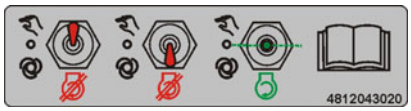
No.	Pictogram	Meaning
50		- Wear ear protection devices
51		- Do not enter the area!
52		- Do not spray the area or part with water!
53		- Warning on dangers posed by batteries!
54		- First aid kit

6.5 Danger symbols

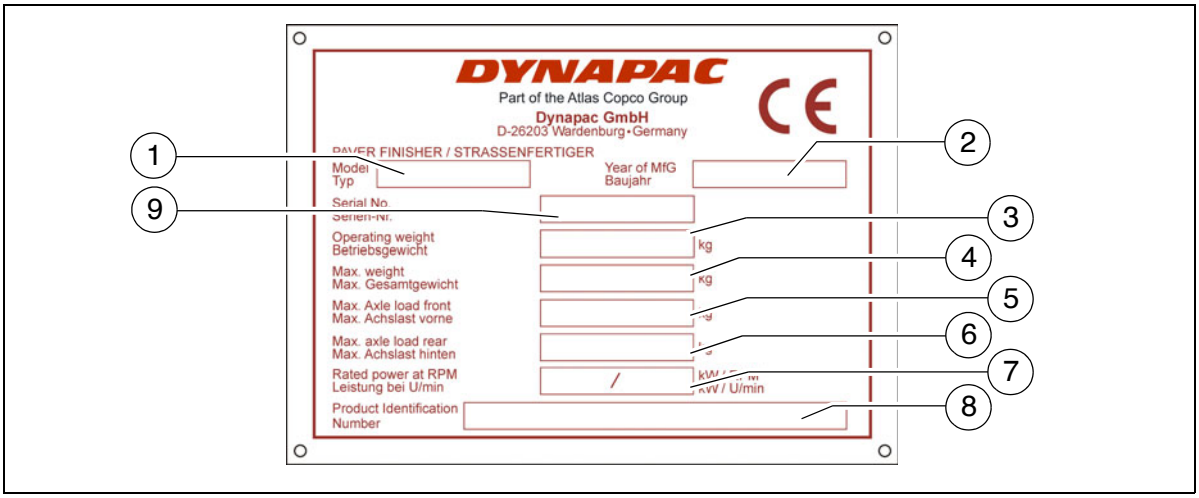
No.	Pictogram	Meaning	No.
60			- **XN: Danger to health!** This substance can damage your health when absorbed in the body! Substance irritating to skin, eyes and respiratory system; can cause inflammations. Avoid contact with the human body, also avoid inhaling the vapours and seek medical advice if feeling unwell. - **N: Environmentally hazardous substance!** 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! - Diesel fuel complies with EN590

6.6 Further warnings and operating instructions

No.	Pictogram	Meaning
70		- **Warning - Hazard from unsupported screed!** If the screed sags, this can cause severe or fatal injuries! Insert screed lock only at crown adjustment "zero". Screed lock only for transportation! Do not enter or work under screed only secured with screed lock for transportation!
71		- **Caution - Danger of high voltage in vehicle electrical system!** 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.
72		- **Important!** Only use approved radiator anti-freeze. Never mix different grades of radiator anti-freeze. Always observe the operating instructions!

No.	Pictogram	Meaning
74		- Overview "Tyre pressure / working width / speed preselection"
74		- Overview "Tyre pressure / working width / speed preselection"
75		- **Engine start - All switches in neutral!** The engine cannot be started when functions are switched on. Always observe the operating instructions!

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	Rated performance in kW
8	Product identification number (PIN)
9	Serial number (empty)

☞ The punched vehicle identification number (VIN) on the paver finisher must match the product identification number (8).

7 EN standards

7.1 Continuous sound pressure F2500C, Cummins QSB 6.7-C173

⚠ 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} = 88.6 dB(A)

Sound capacity level: L_{WA} = 108.2 dB(A)

Sound pressure level at the vehicle

Measuring point	2	4	6	8	10	12
Sound pressure level L_{AFeq} (dB(A))	75.9	75.5	74.5	74.6	75.3	75.3

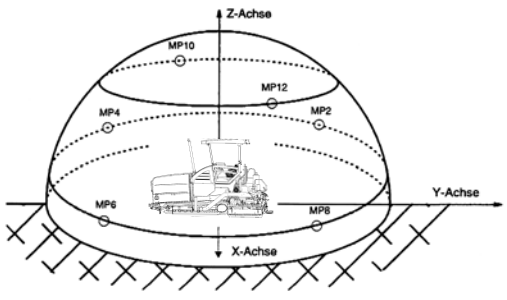
7.2 Operating conditions during measurement

The diesel engine was running at maximum speed. The screed was lowered into working position. Tamper and vibration unit were operated at min. 50%, while the augers were operated at a minimum of 40% and the conveyors were operated at a minimum of 10% of their maximum speed.

7.3 Measuring point configuration

Hemispherical measuring surface with a radius of 16 m. The vehicle was at the centre. The measuring points had been assigned the following coordinates:

	Measuring points 2, 4, 6, 8			**Measuring points 10, 12**		
Co-ordinates	X	Y	Z	X	Y	Z
	±11.2	±11.2	1.5	- 4.32 +4.32	+10.4 -10.4	11.36 11.36



7.4 Continuous sound pressure F2500CS, Cummins QSB 6.7-C173

⚠ 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} = 88.5 dB(A)

Sound capacity level: L_{WA} = 108.6 dB(A)

Sound pressure level at the vehicle

Measuring point	2	4	6	8	10	12
Sound pressure level L_{AFeq} (dB(A))	76.3	75.3	74.2	75.8	75.8	75.8

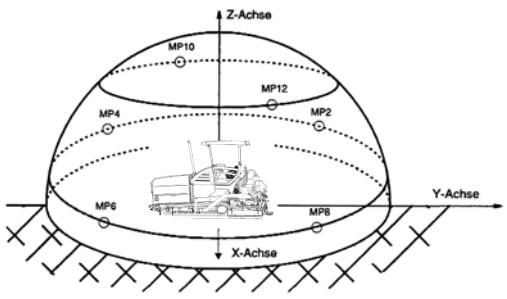
7.5 Operating conditions during measurement

The diesel engine was running at maximum speed. The screed was lowered into working position. Tamper and vibration unit were operated at min. 50%, while the augers were operated at a minimum of 40% and the conveyors were operated at a minimum of 10% of their maximum speed.

7.6 Measuring point configuration

Hemispherical measuring surface with a radius of 16 m. The vehicle was at the centre. The measuring points had been assigned the following coordinates:

	Measuring points 2, 4, 6, 8			**Measuring points 10, 12**		
Co-ordinates	X	Y	Z	X	Y	Z
	±11.2	±11.2	1.5	- 4.32 +4.32	+10.4 -10.4	11.36 11.36



7.7 Vibration acting on the entire body

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

7.8 Vibrations acting on hands and arms

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

7.9 Electromagnetic compatibility (EMC)

The following limit values are observed according to the stipulations of the EMC directive 2004/108 CE:

- Interference emission according to DIN EN 13309:
  < 35 dB μV/m for frequencies of 30 MHz - 1 GHz measured at a distance of 10 m
  < 45 db μV/m for frequencies of 30 MHz - 1 GHz measured at a distance of 10 m

- Interference immunity against electrostatic discharge according to DIN EN 13309 CE (ESD):
  The paver finisher did not show any discernible reactions to contact discharges of ± 4 KV and to air discharges of ± 4 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 by the manufacturer has been obtained.

C 10 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 engage 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!

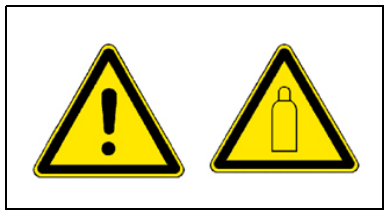
⚠ The weight of the paver finisher must be taken into consideration when selecting the attachment and loading equipment!

2.1 Preparations

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

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

STOP 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 screed.
  - Transport the gas bottles on a second vehicle; heed all applicable safety regulations.

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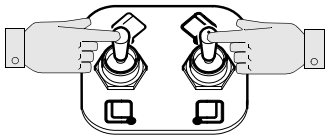
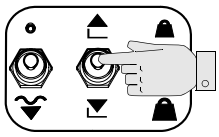
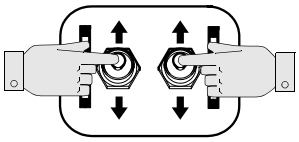
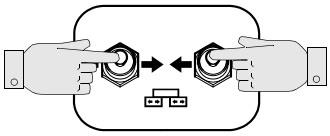
Operation	Travelling direction
- Close the hopper lids.	
- Engage both hopper transport safeguards.	
- Lift the screed.	
- Engage screed transport safeguards.	
- Extend levelling cylinders completely.	
- Retract the screed parts until the screed matches the basic width of the paver finisher.	

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.

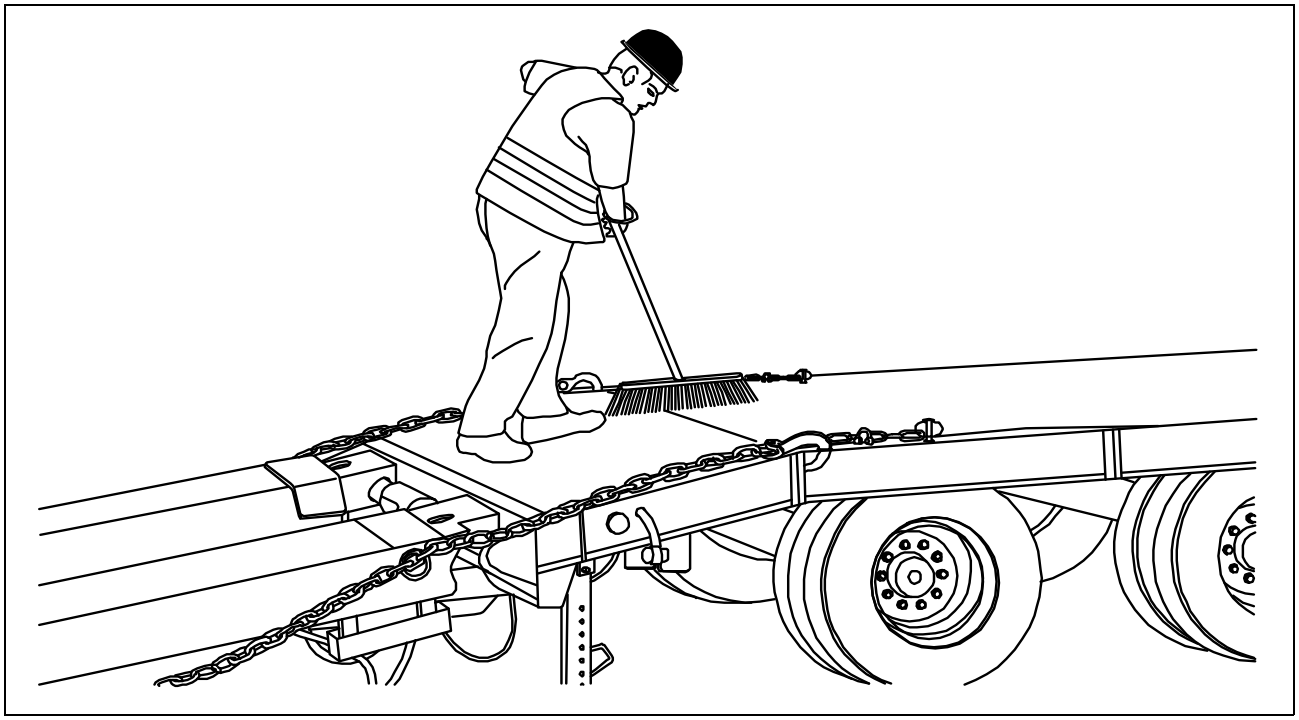
☞ Use should be made of the different methods available for securing loads (positive fit, force connection, diagonal lashing, etc.) in accordance with the specific transport vehicle.

⚠ The low-bed trailer must have the necessary number of lashing points with 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!

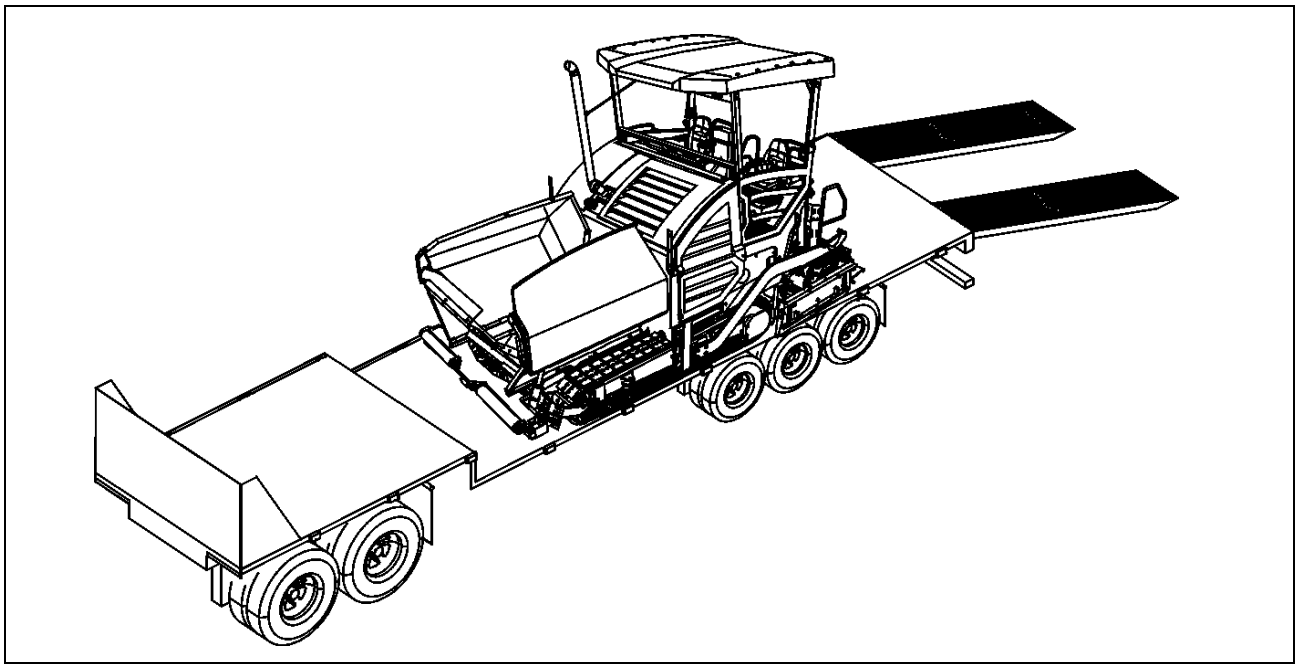
3.1 Prepare the low-bed trailer



⚠ 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.



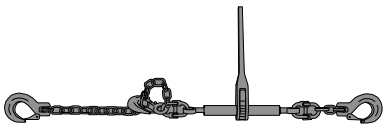
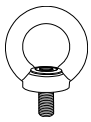
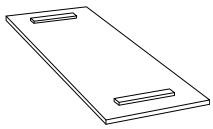
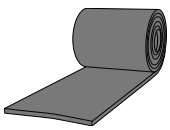
- Use the work gear and low engine speeds to drive onto the low-bed trailer.

3.3 Lashing equipment

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

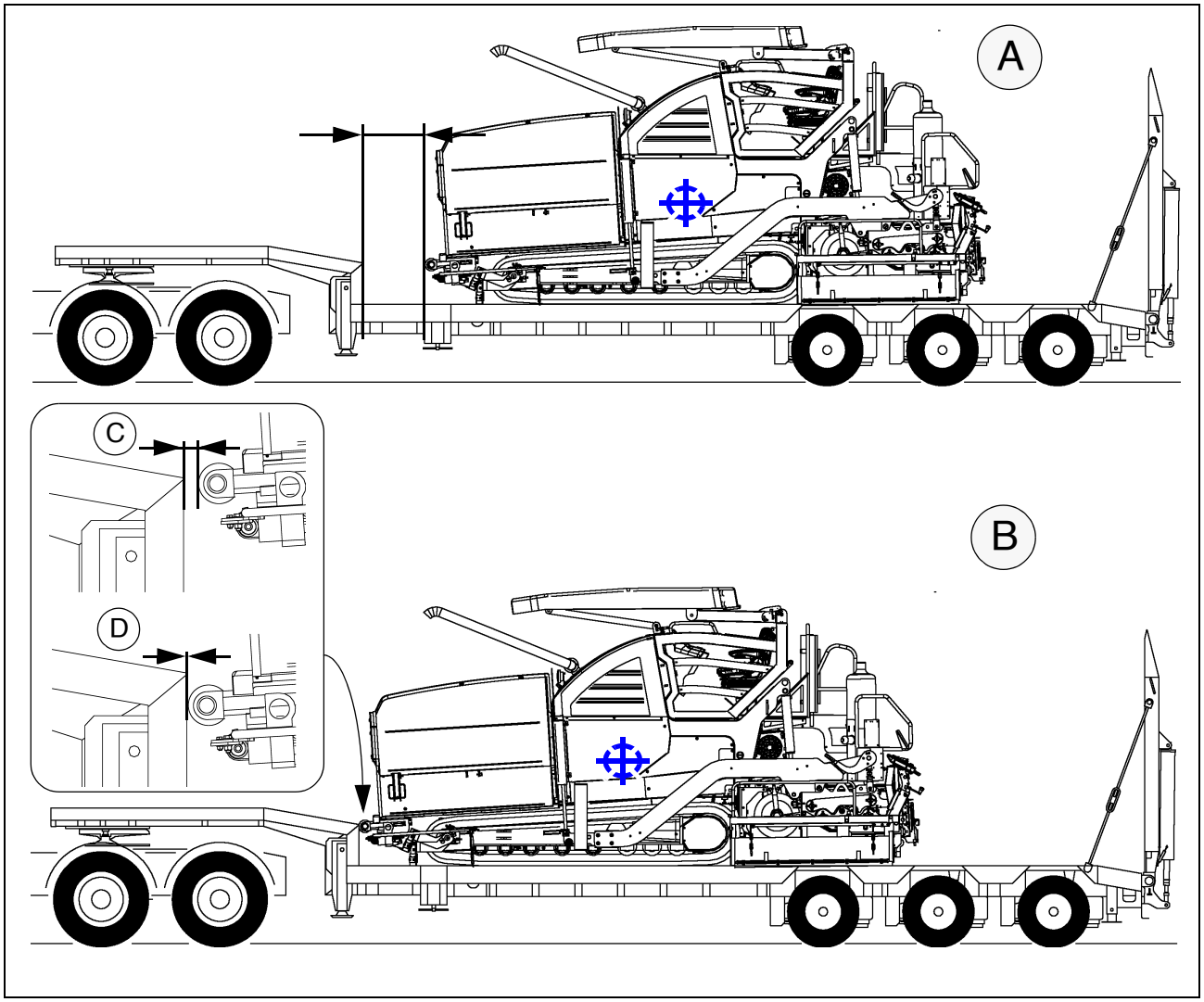
⚠ Always comply with the stated values for permitted lashing force and load rating!

⚠ Always tighten the lashing chains and straps handtight (100-150daN).

- Lashing chain permissible lashing force LC 4,000 daN	
- Lashing straps permissible lashing force LC 2,500 daN	
- Shackles Load rating 4,000 daN	
- Eyebolts Load rating 2,500 daN	
- Edge safeguards 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 impact on safety, the lashing equipment must be withdrawn from any further use.

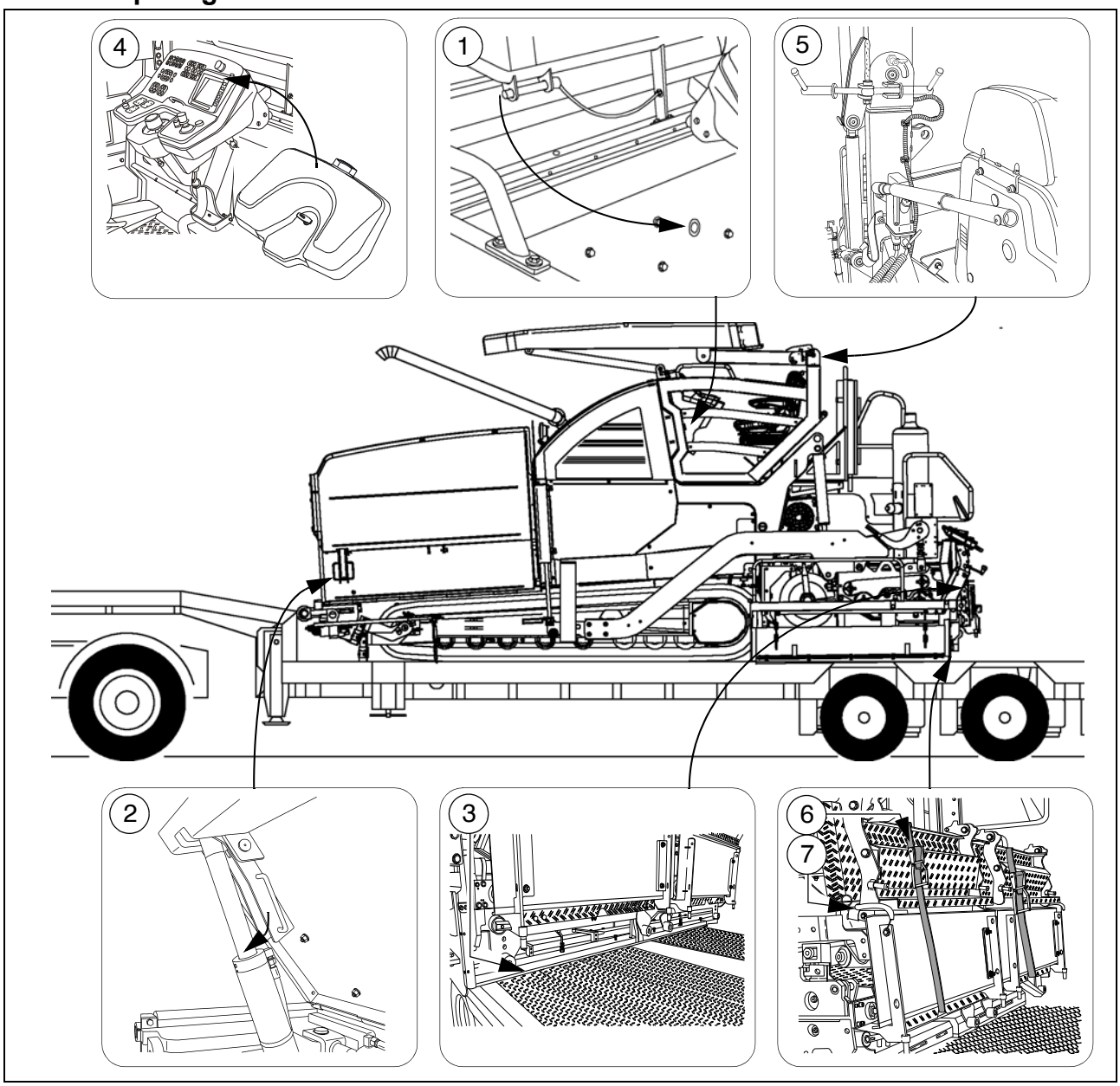
3.4 Loading



⚠ Pay attention to load distribution during loading!
In some vehicles, the kingpin load is too low so that the load has to be positioned further to the back of the vehicle (A).
Always heed the details regarding load distribution stipulated for the vehicle together with the centre of gravity of the paver finisher.
Comply with the following if the paver finisher has to be placed in the front section of the low-bed trailer (B) for load distribution reasons or on account of the length of the paver finisher:

- The paver finisher must stand freely if the push rollers would only touch the gooseneck half way up (C).
- There must be a positive fit between the paver finisher push rollers and the low-bed trailer if the push rollers are in full contact with the low-bed trailer (D).

3.5 Preparing the machine

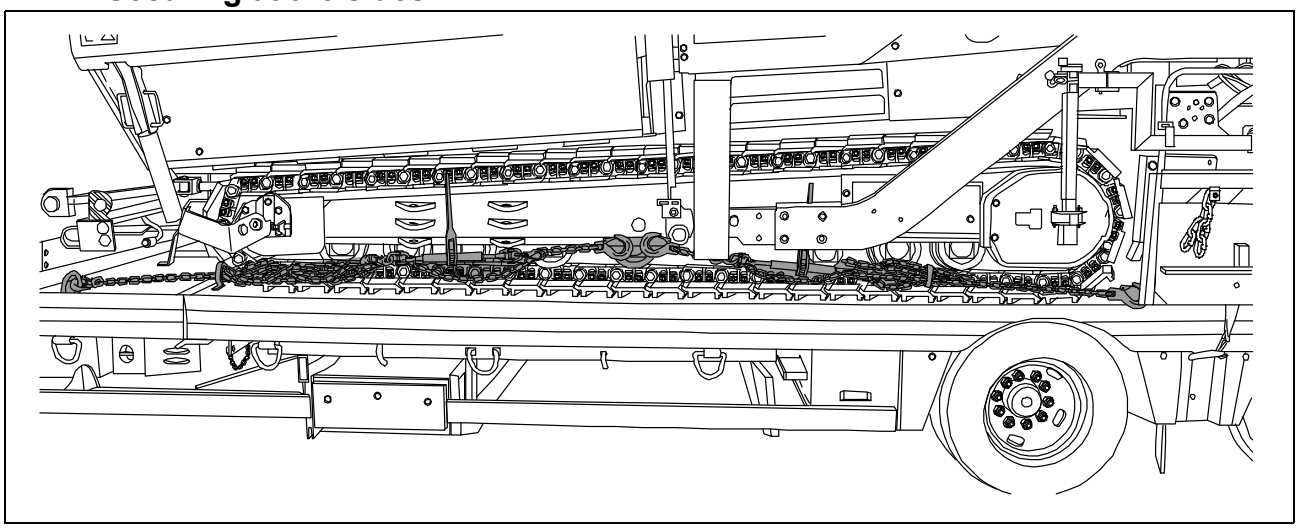


After the machine has been positioned on the low-bed trailer, the following preparations must be carried out:

- For movable platform: Set the retaining bolt properly (1).
- Close the hopper and set the hopper transport safeguards (2) on both sides.
- Position the non-slip mats under the screed across the whole width of the vehicle (3) and lower the screed.
- Switch off the paver finisher.
- Attach and secure the protective hood (4) to protect the operating panel.
- Lower the roof and set the retainers (5) properly on both sides.
  - For machines without roof: remove the exhaust extension pipe after it has cooled down.
- Fold up the walkway plates of the screed and fasten on both sides using lashing straps (6) and any possibly existing hook springs (7).

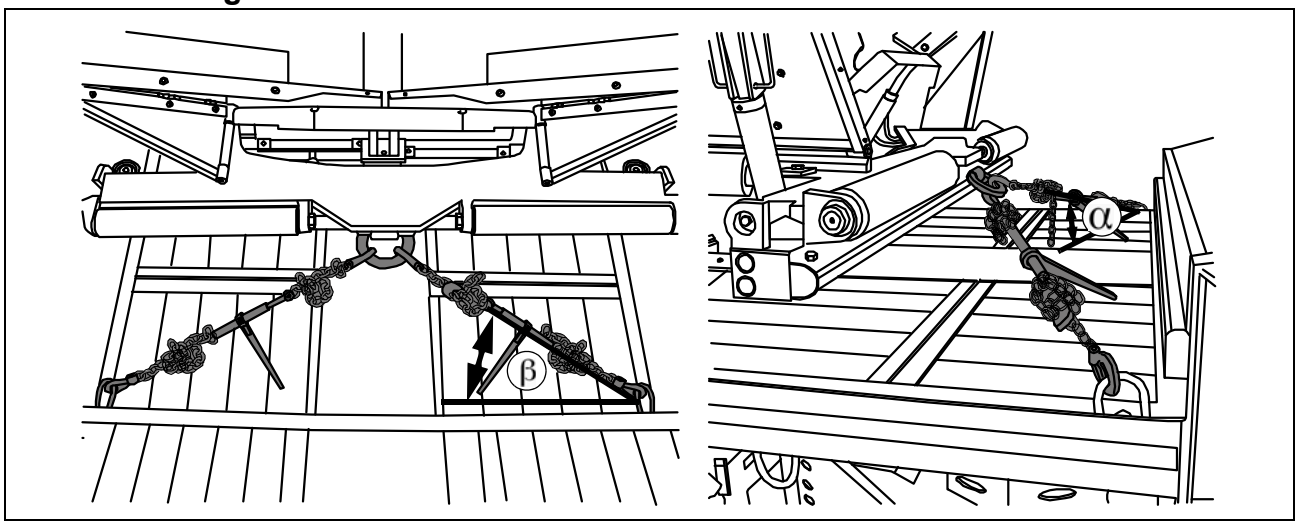
4 Securing the load

4.1 Securing at the sides



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

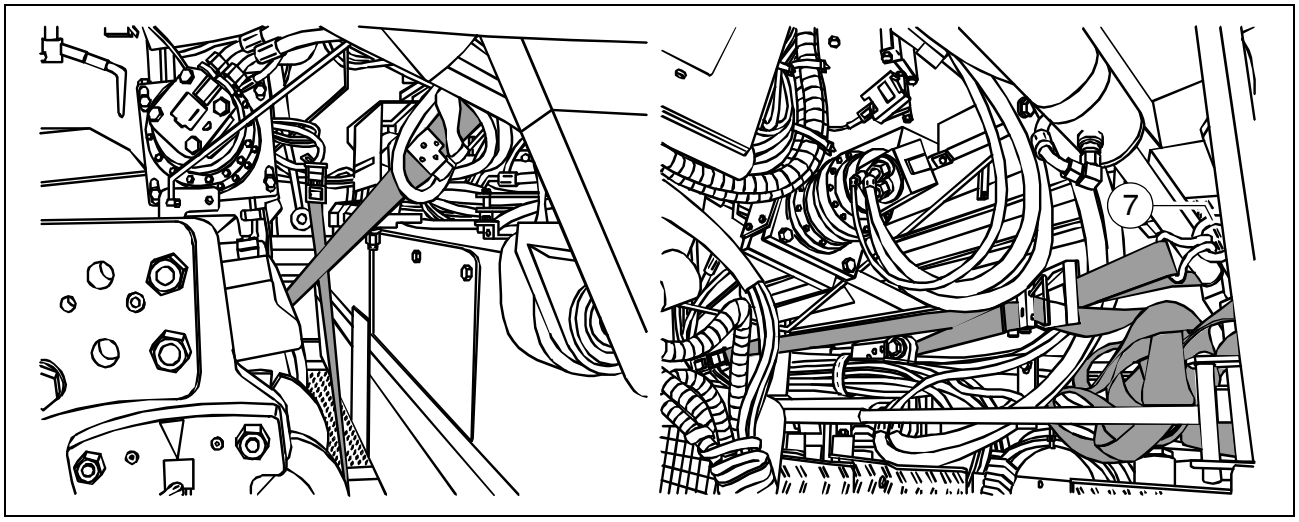
4.2 Securing at the front



⚠ 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.

⚠ The lashing angles should be "ß" between 6°-55° and "a" between 20°-65°!

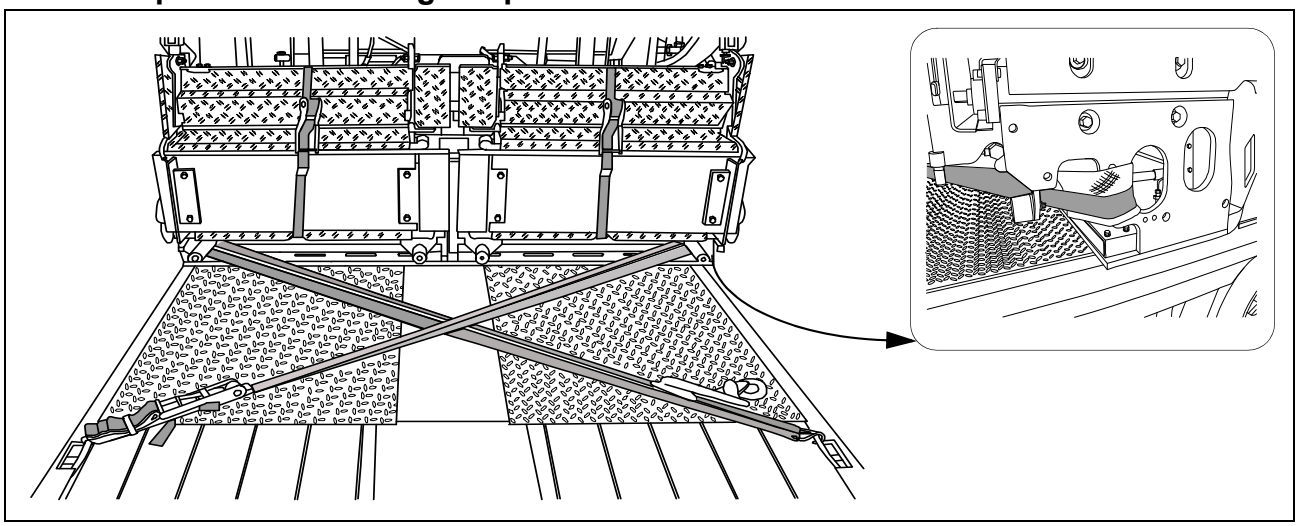
4.3 Securing at the rear - screed with side board



⚠ Diagonal lashing secures the paver finisher at the rear, at right angles to the direction of travel using the lashing points on the paver finisher (eyebolts) and on the low-load trailer. Fasten the lashing straps as shown.
Screw the supplied eyebolts first of all in the holes provided in the arms.

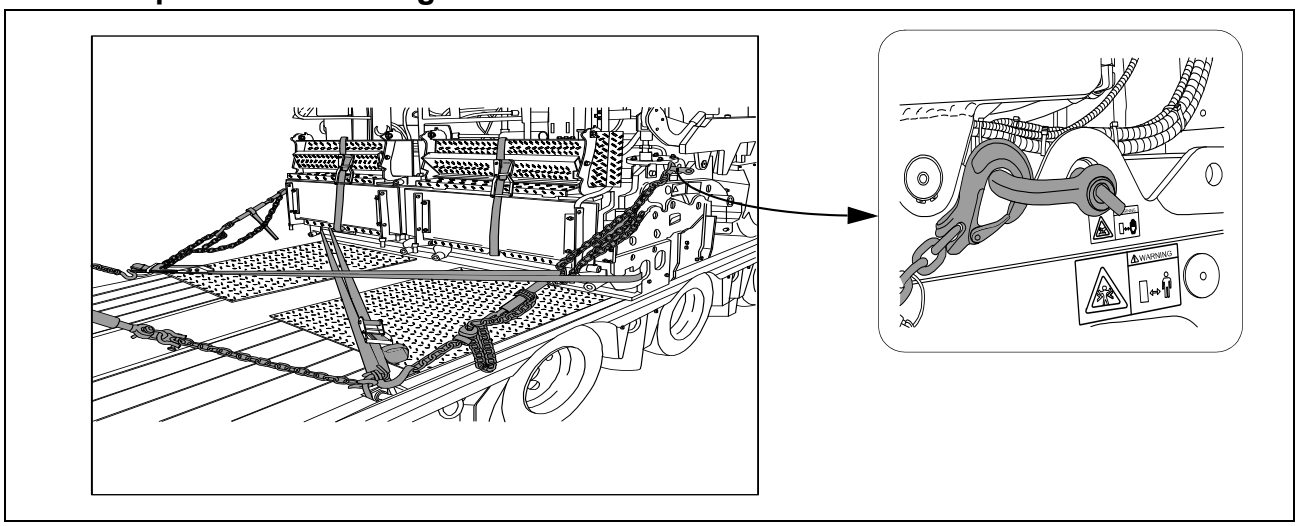
4.4 Securing at the rear - screed without side board

Step 1: fasten lashing straps



⚠ 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 straps as shown.

Step 2: 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.

4.5 After transportation

- Remove the attachment devices.
- Raise the protective roof (○):

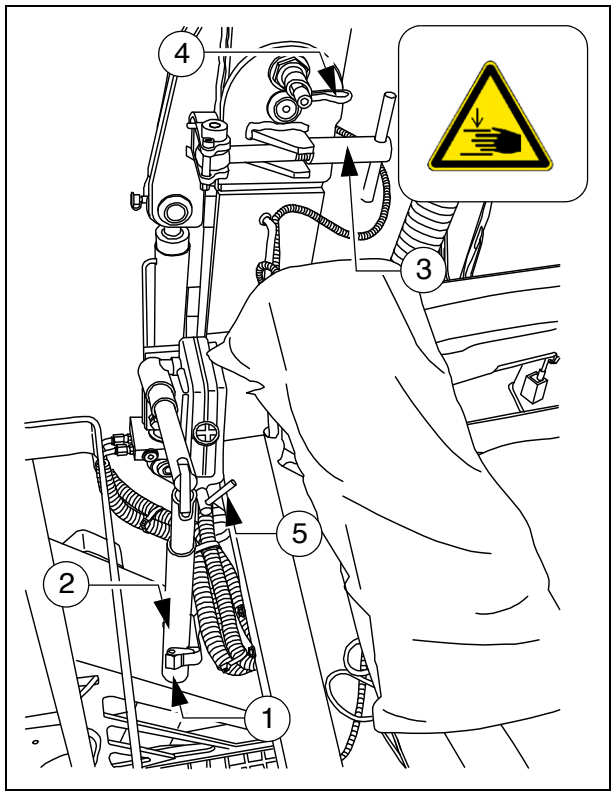
☞ See section entitled "Protective roof"

For a paver finisher without roof:

- Mount the exhaust extension pipe.

- Lift the screed to the transportation position.
- Start the engine and drive from the trailer at a low engine/traction 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.

5 Protective roof (○)



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

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

- Remove the lower section of the pump lever (1) from the storage compartment, and connect to the upper section using a pipe (2).
  - Lower the roof: The locks (3) on both sides of the roof must be released.#
  - Raise the roof: The locks (4) on both sides of the roof must be released.
- Set the adjustment lever (5) to the "Raise" or "Lower" position.
  - Raise the roof: The lever points forwards.
  - Lower the roof: The lever points backwards.
- Operate the pump lever (1) until the roof has reached the upper or lower limit position.
  - Roof in uppermost position: Set the locks (3) on both sides of the roof.
  - Roof lowered: Set the lock (4) on both sides of the roof.

⚠ If the vehicle is equipped with a protective roof, the engine hood must be closed before lowering the roof!

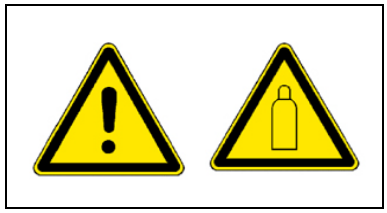
6 Transportation

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

6.1 Preparations

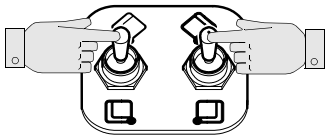
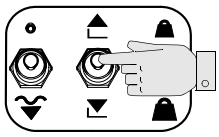
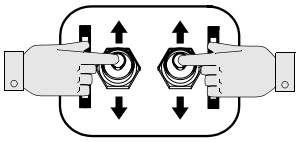
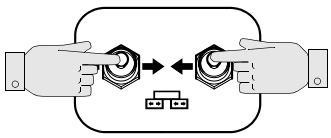
- Prepare the paver finisher for transportation (see chapter D).
- Remove all overlaying or loose parts from finisher and screed (see also Operating instructions for the screed). Store these parts in a safe place.

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

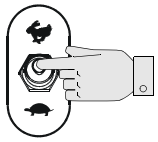
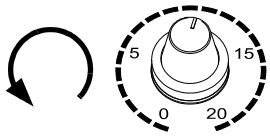
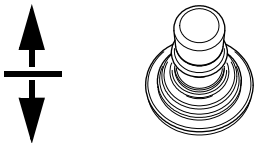
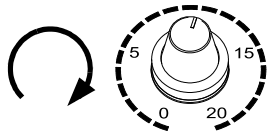
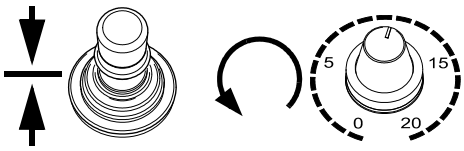


- Remove the gas bottles for the screed heating system:
  - Close main shut-off valves and bottle valves.
  - Turn off the valves on the bottles and remove the gas bottles from the screed.
  - Transport the gas bottles on a second vehicle; heed all applicable safety regulations.

.

Operation	Travelling direction
- Close the hopper lids.	
- Engage both hopper transport safeguards.	
- Lift the screed.	
- Engage screed transport safeguards.	
- Extend levelling cylinders completely.	
- Retract the screed parts until the screed matches the basic width of the paver finisher.	

6.2 Driving mode

Operation	Travelling direction
- Set the fast/slow switch to "Hare" if necessary.	
- Turn the preselector to "zero".	
- Swivel the drive lever to maximum. STOP The machine already advances slightly on deflecting the drive lever!	
- Adjust required vehicle speed with the preselector.	
- To stop the machine, swivel the drive lever to the middle setting and set the preselector to "zero".	

STOP Press the emergency stop button when a dangerous situation arises!

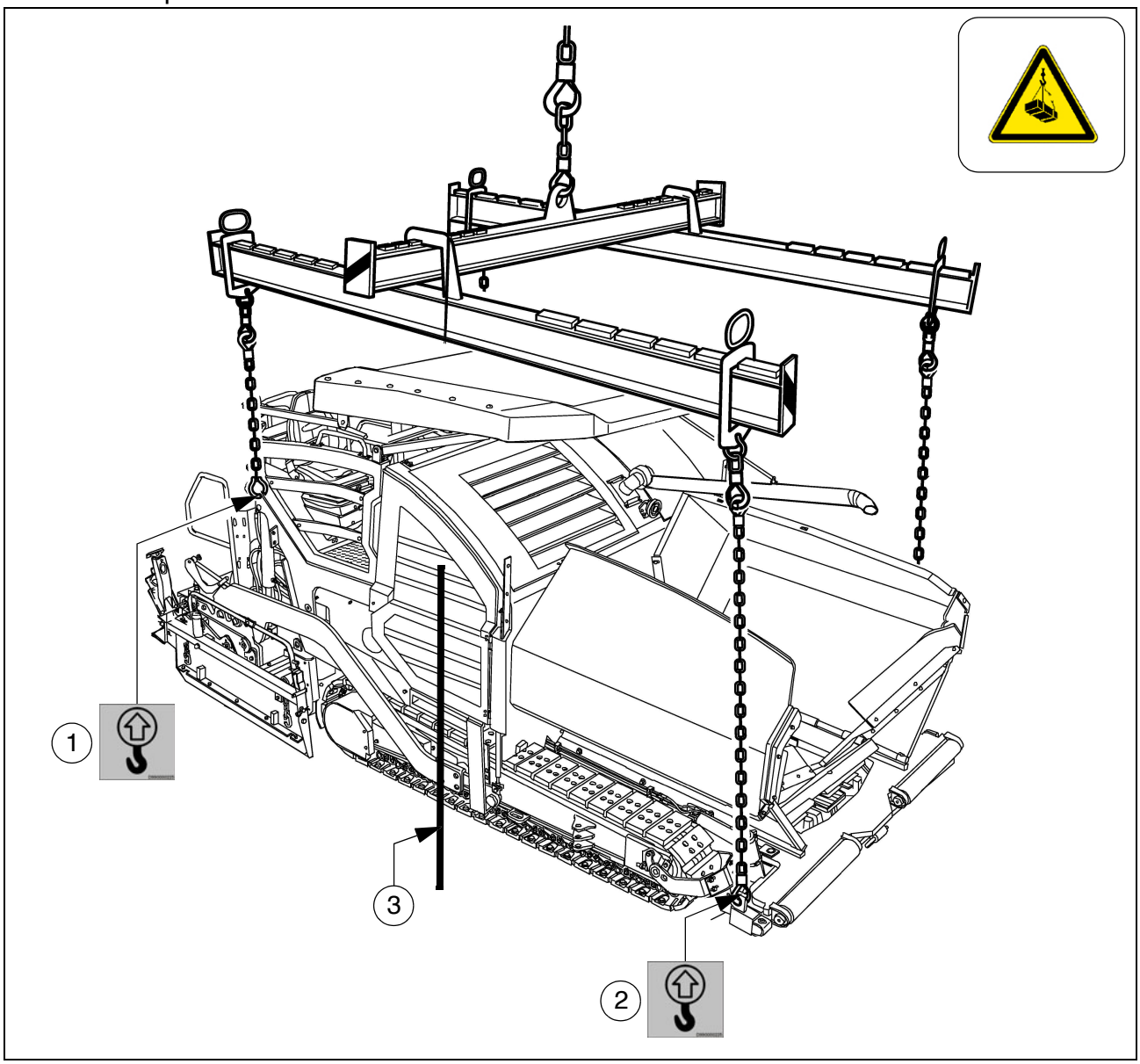
7 Loading by crane

⚠ 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 is 73.5 kN.

⚠ The permissible load applies in the vertical direction!

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

8 Towing

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

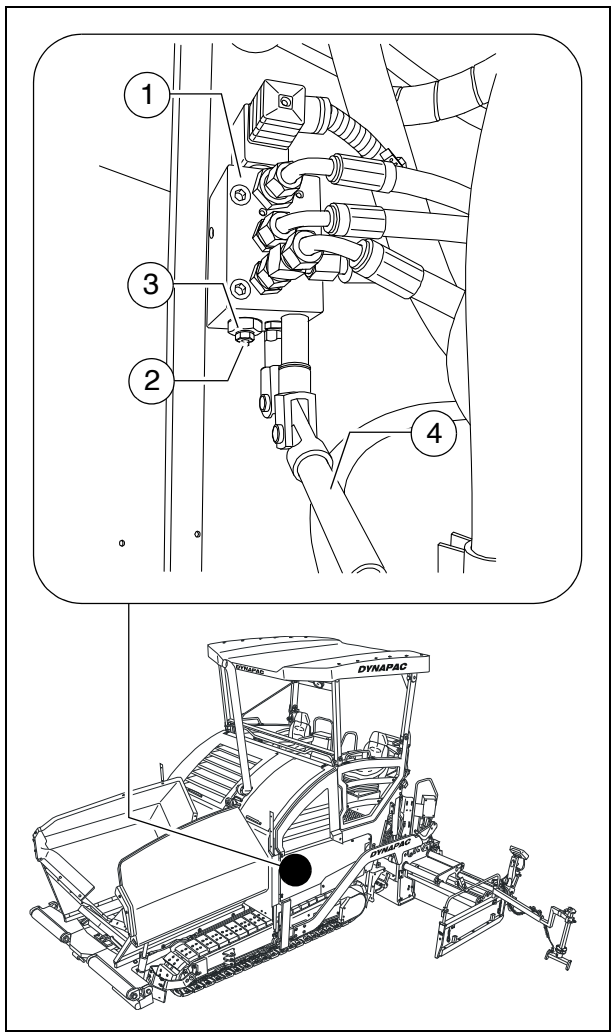
The towing vehicle must be capable of securing the paver finisher, even on slopes.

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.



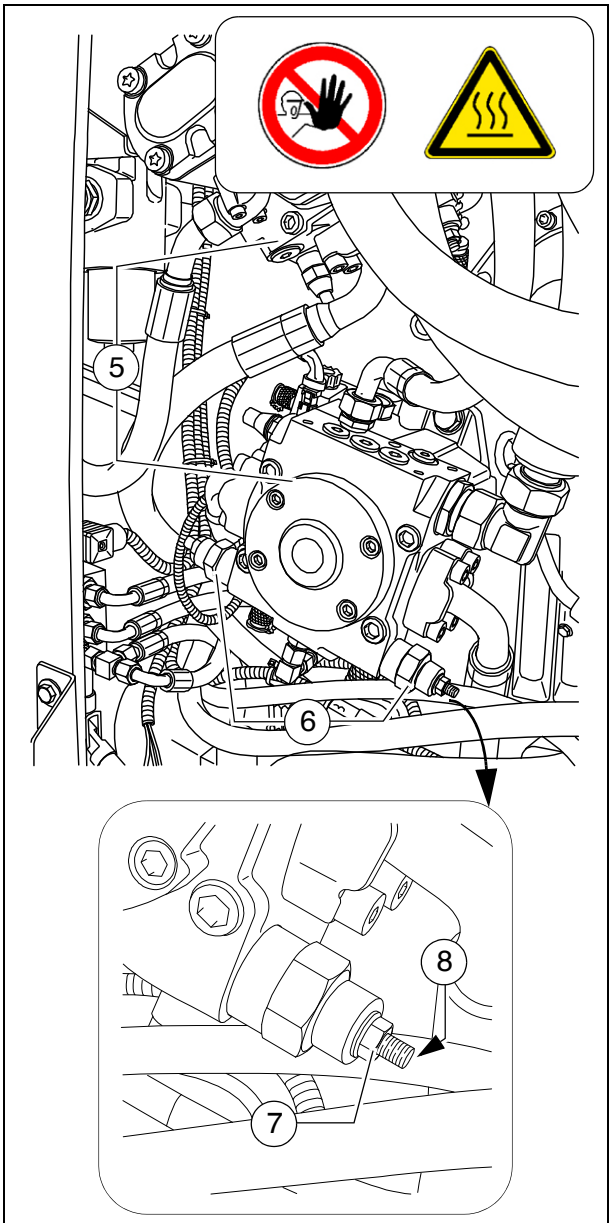
On completion of the towing process, restore the initial status.

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.



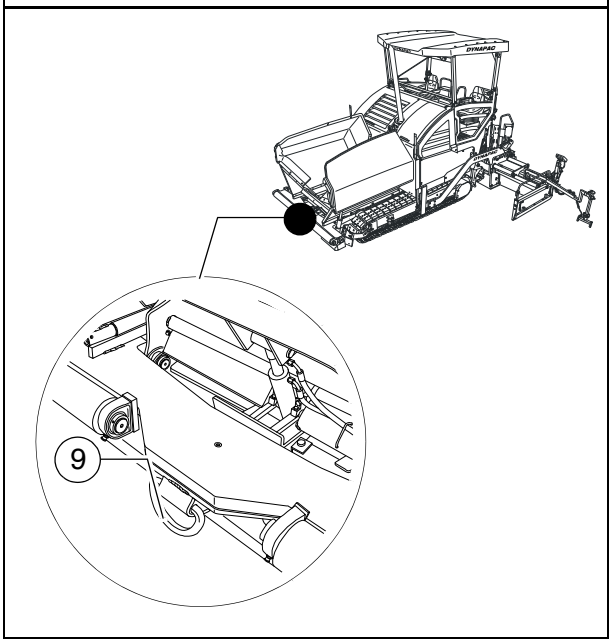
- Attach the tow bar to the coupling (9) located in the bumper.

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.

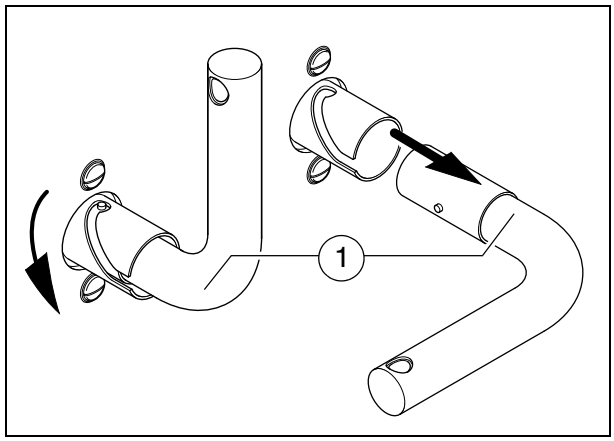
The max. permissible towing eye (9) load is: 200 kN



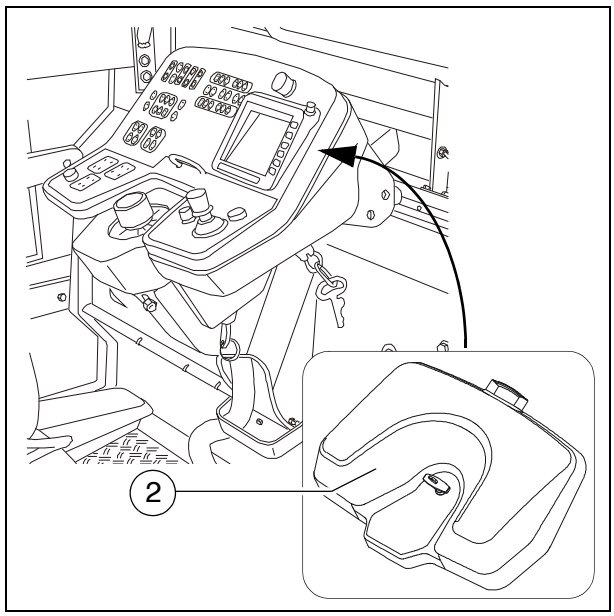
9 Safely parking the vehicle

⚠ 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.

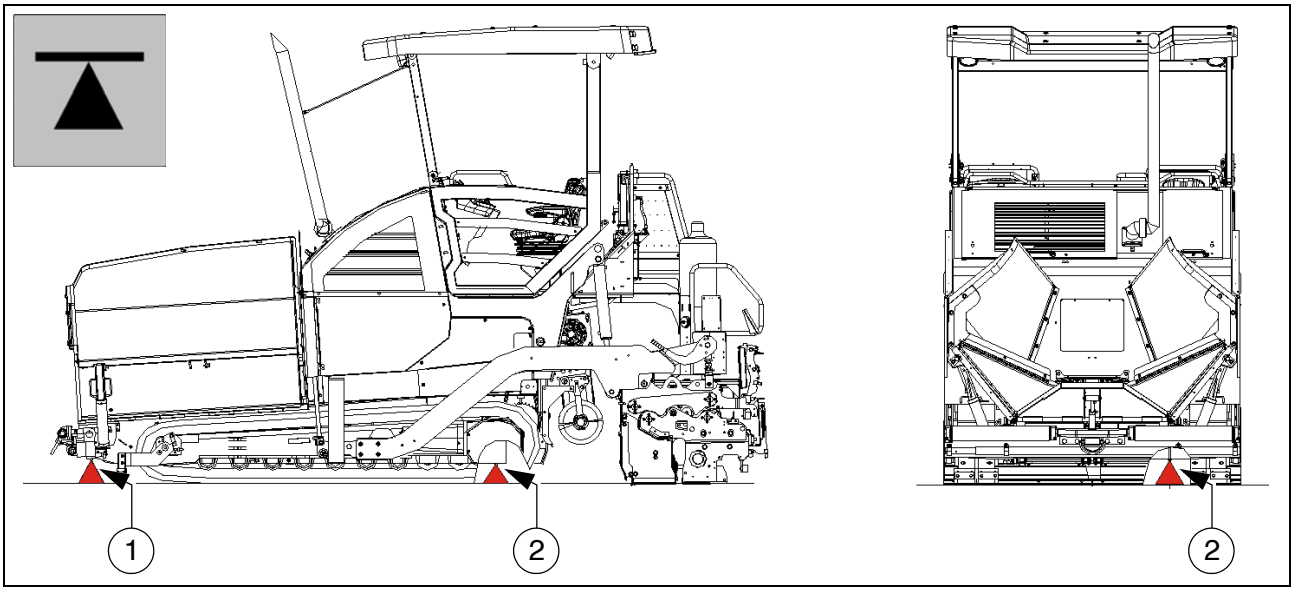
- Pull off the ignition key and the main switch (1) and take it with you – do not hide them somewhere on the machine.



- Protect the operating panel with the dust cover (2) and lock it.
- Store loose parts and accessories in a safe place.



9.1 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 tilling 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!

D 10 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!

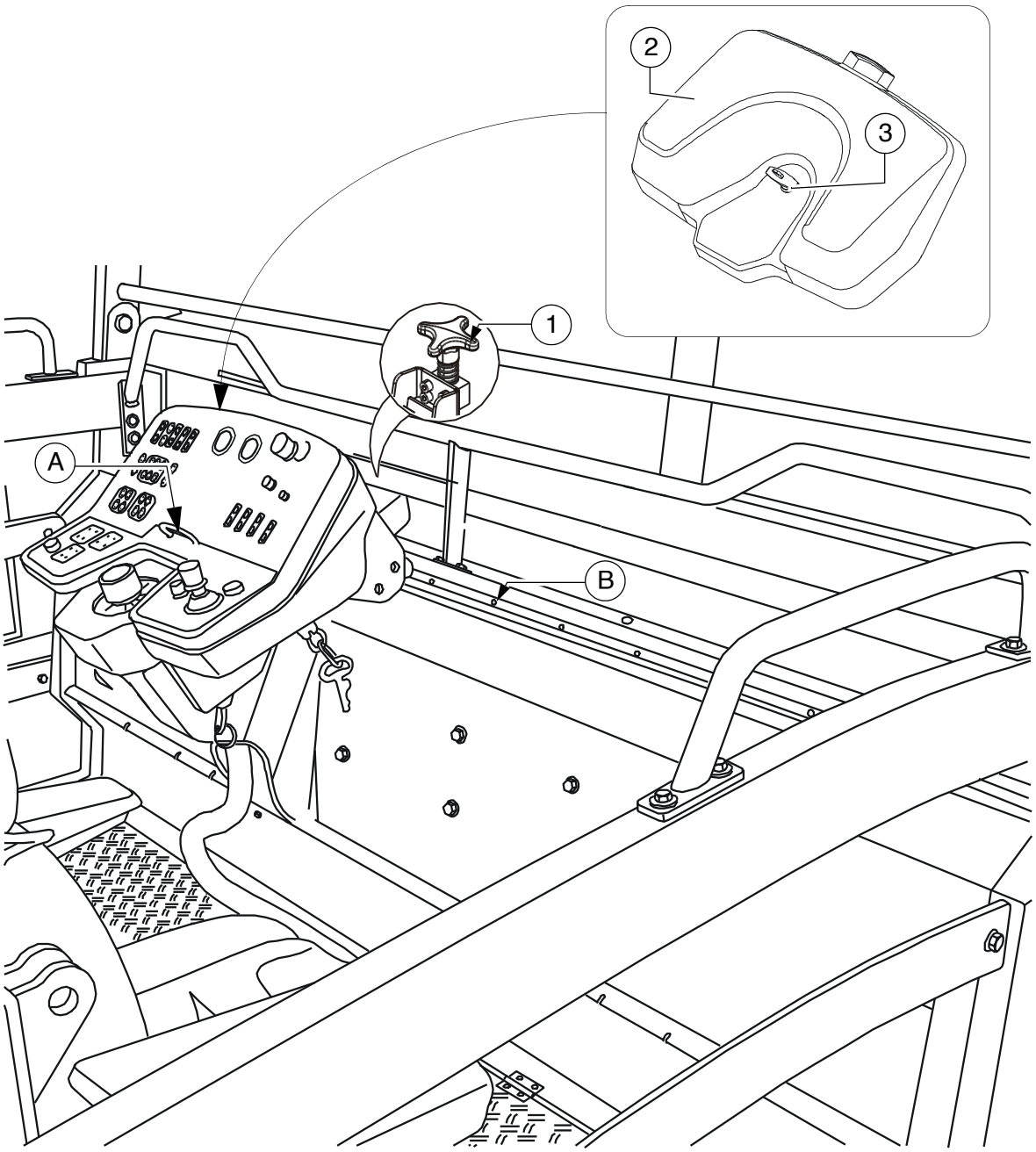
Never crawl into the auger tunnel or step into the hopper or onto the conveyor. Danger to life and limb!

- 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 as 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!

2 Controls

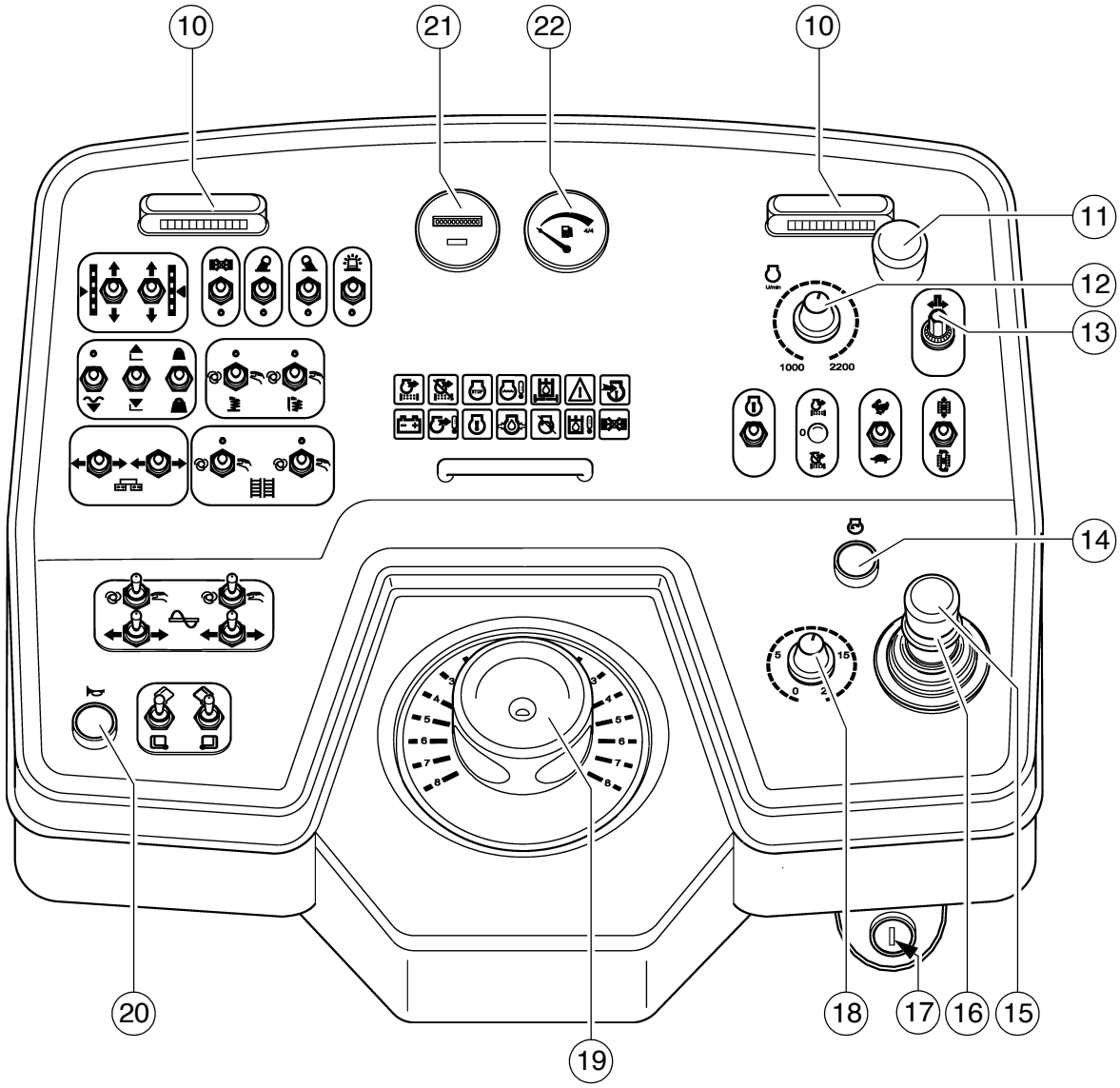
2.1 Operating panel



⚠ General notes on adherence to CE regulations

All detent switch functions which may pose a risk on starting the diesel engine (auger and conveyor conveying function) are set to the STOP function in the case of EMERGENCY STOP or restarting the control system. If settings are changed when the diesel engine is stopped ("AUTO" or "MANUAL"), these are reset to "STOP" on starting the diesel engine.
The "Turning on the spot" function is reset to "Straight-ahead travel".

Item	Designation	Brief description
1	Latch of shift operating panel	The operating panel can be shifted to several positions on the left- and right-hand sides of the vehicle. - Losen panel latch (1) and slide panel console to the desired position using the handle (A). - Insert panel latch (1) into one of the detent positions (B). ⚠ Make sure it is latched properly! STOP Only adjust the operating position whilst the vehicle is stationary!
2	Vandalism protection facility	On completion of work, secure the operating panel with the vandalism protection facility.
3	Lock	To lock the vandalism protection facility. - Turn the handle to the locking position and lock.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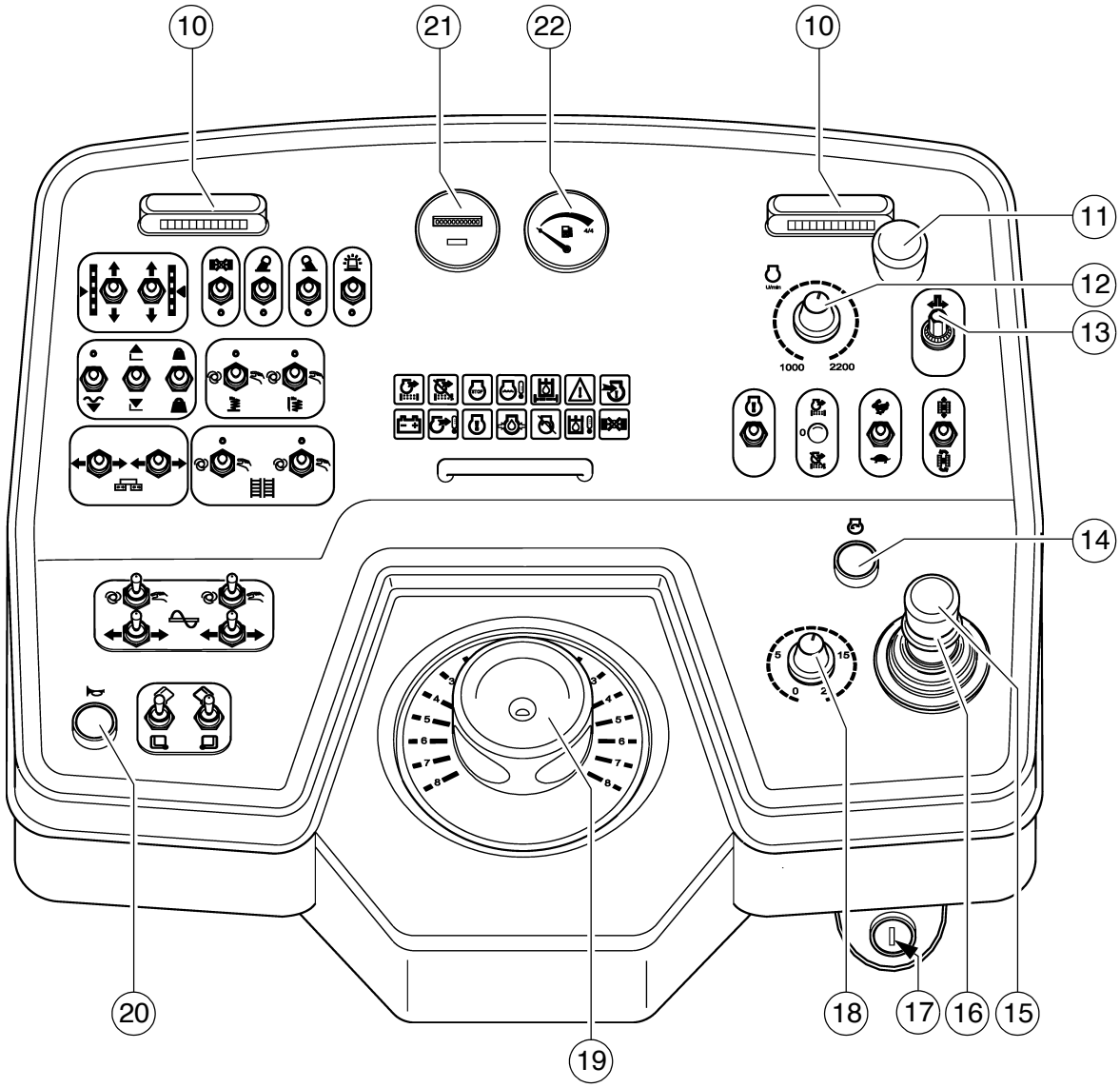
Item	Designation	Brief description
10	Lights	Lights up instrument panel A/B when the parking light is switched on
11	Emergency stop button	In the case of an emergency (danger to persons, possible collision etc.), press in the button! - Pressing the emergency stop button switches the engine, the drives and the steering system off. Making way, lifting the screed or other actions are then no longer possible! Danger of accidents! - The emergency stop button does not shut off the gas heater system. Close the main shut-off valve and the valves on the bottles by hand! - To restart the engine, the button must be pulled out again.
12	Engine speed adjuster	Continuously variable engine speed setting (if drive lever is extended). Min. setting: Idling speed Max. position: Nominal speed ☞ For paving, select the rated speed; reduce the speed for transportation. ☞ The automatic speed control keeps the set speed constant even under a load.
13	Straight-ahead travel synchronisation	Using this potentiometer, both chains can be synchronised for straight-ahead travel while driving: - Set the steering to position "0"; then adjust the potentiometer until the paver finisher is travelling straight ahead. ☞ This function is only active if the vehicle is not equipped with automatic synchronisation or the automatic synchronisation system is defective.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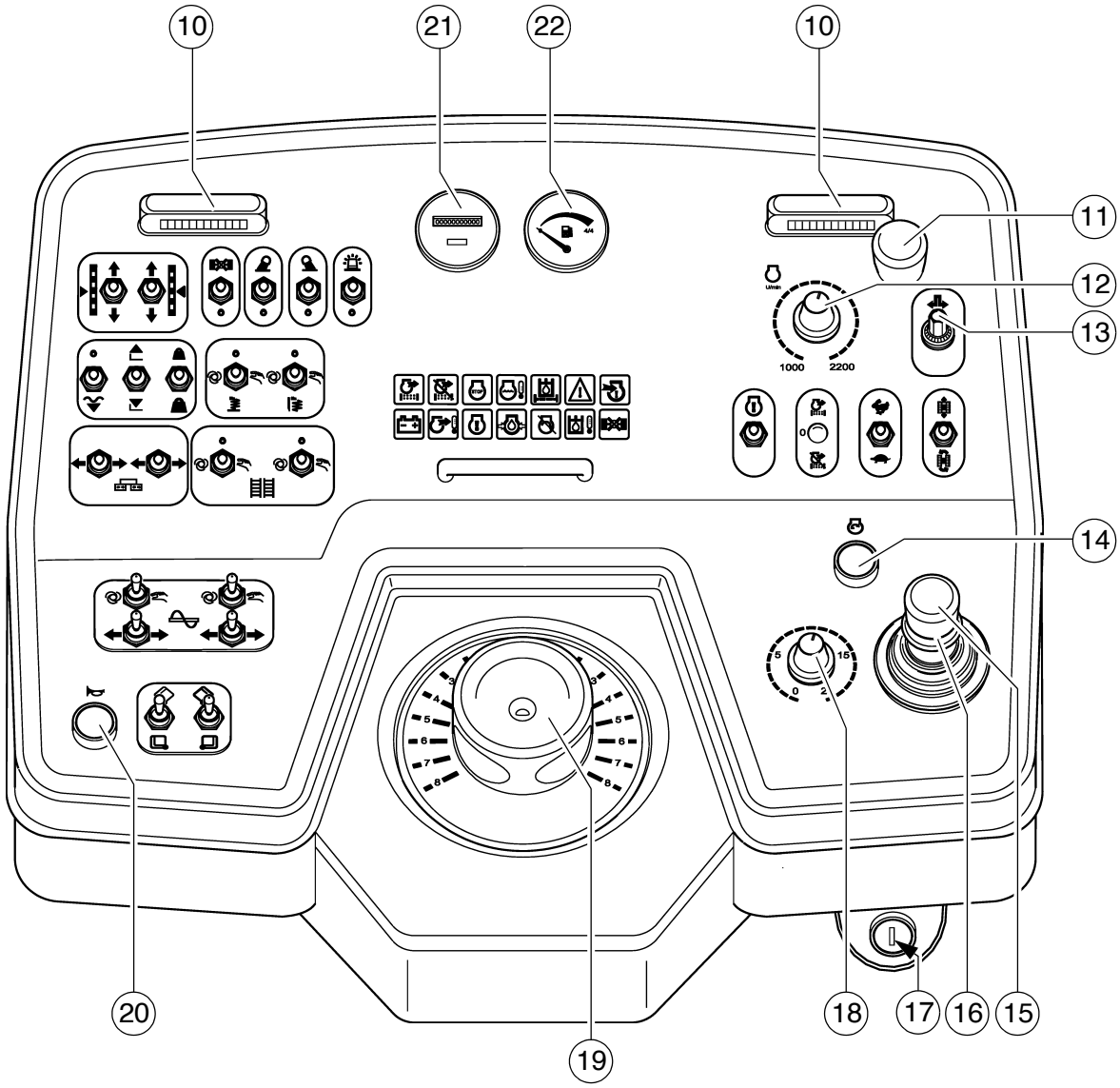
Item	Designation	Brief description
14	Starter	Energizes starter motor while pressed. All emergency stop buttons (on the operating panel and the remote controls) must be pulled out.
15 / 16	Drive lever (traction)	For switching on the paver finisher functions and for continuously regulating the road speed – forward or reverse. Zero position: engine at idling speed; no travel drive; - To swivel the drive lever out, release by pulling the handle (16) up. Depending on the position of the drive lever, the following functions can be activated: 1st position: - Conveyor and auger on. 2nd position: - Screed motion (tamper/vibration) on; travel drive on; increase speed until the stop is reached. ☞ Use the preselector to set the maximum speed. STOP Even if the travel drive preselector is set to "zero", the machine already advances slightly when the drive lever is deflected! ☞ The drive is locked by an engine start with drive lever out of center position. To start the drive, the lever must be put into center position before. ☞ When changing over between forwards and reverse travel, the drive lever must remain briefly in neutral.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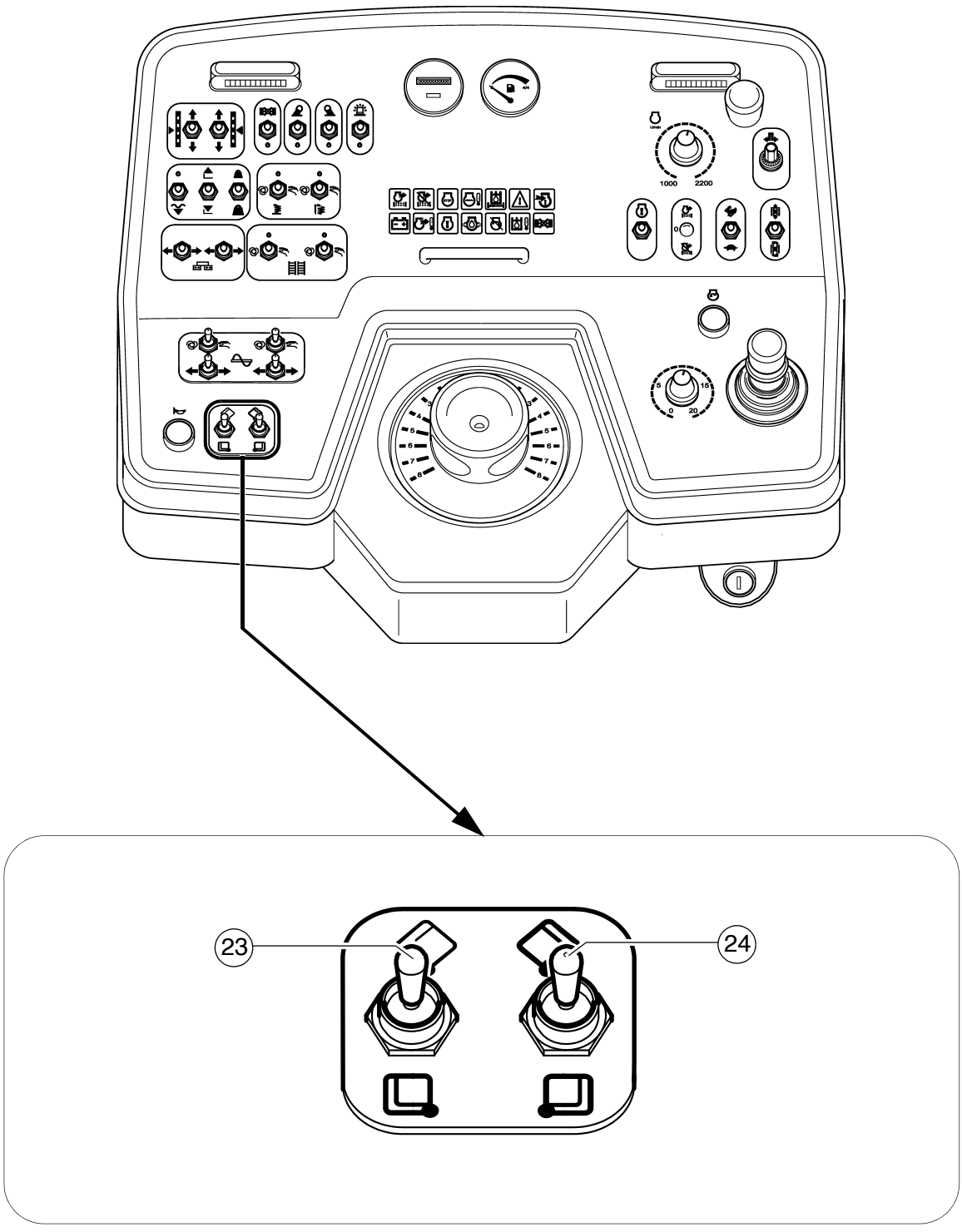
Item	Designation	Brief description
17	Ignition lock	To activate the ignition voltage by turning the key. - Switch off by turning the key back to its starting position. ☞ On shutting off the vehicle, first switch off the ignition, then deactivate the main switch. ☞ Before the main battery switch is deactivated, a period of at least 10 seconds must elapse after switching off the vehicle.
18	Travel drive preselector	For setting the maximum speed that can be reached when the drive lever is at its stop. ☞ The scale roughly matches the speed in m/min (during paving). STOP Even if the travel drive preselector is set to "zero", the machine already advances slightly when the drive lever is deflected!
19	Steering potentiometer	The steering wheel movement is transferred electrohydraulically. ☞ For precise adjustments (position "0" = straight-ahead), see the straight-ahead travel synchronisation. For turning on the spot, see switch (Turning on the spot).
20	Horn	Press in the case of emergencies and to indicate when the vehicle starts to move! ☞ The horn can also be used to communicate acoustically with the truck driver for material loading!
21	Operating hours counter	The operating hours are only counted while the engine is running. Heed the maintenance intervals (see chapter F).
22	Fuel gauge	Always heed the fuel gauge. ⚠ Do not completely empty the diesel tank! Otherwise, the entire fuel system must be bled.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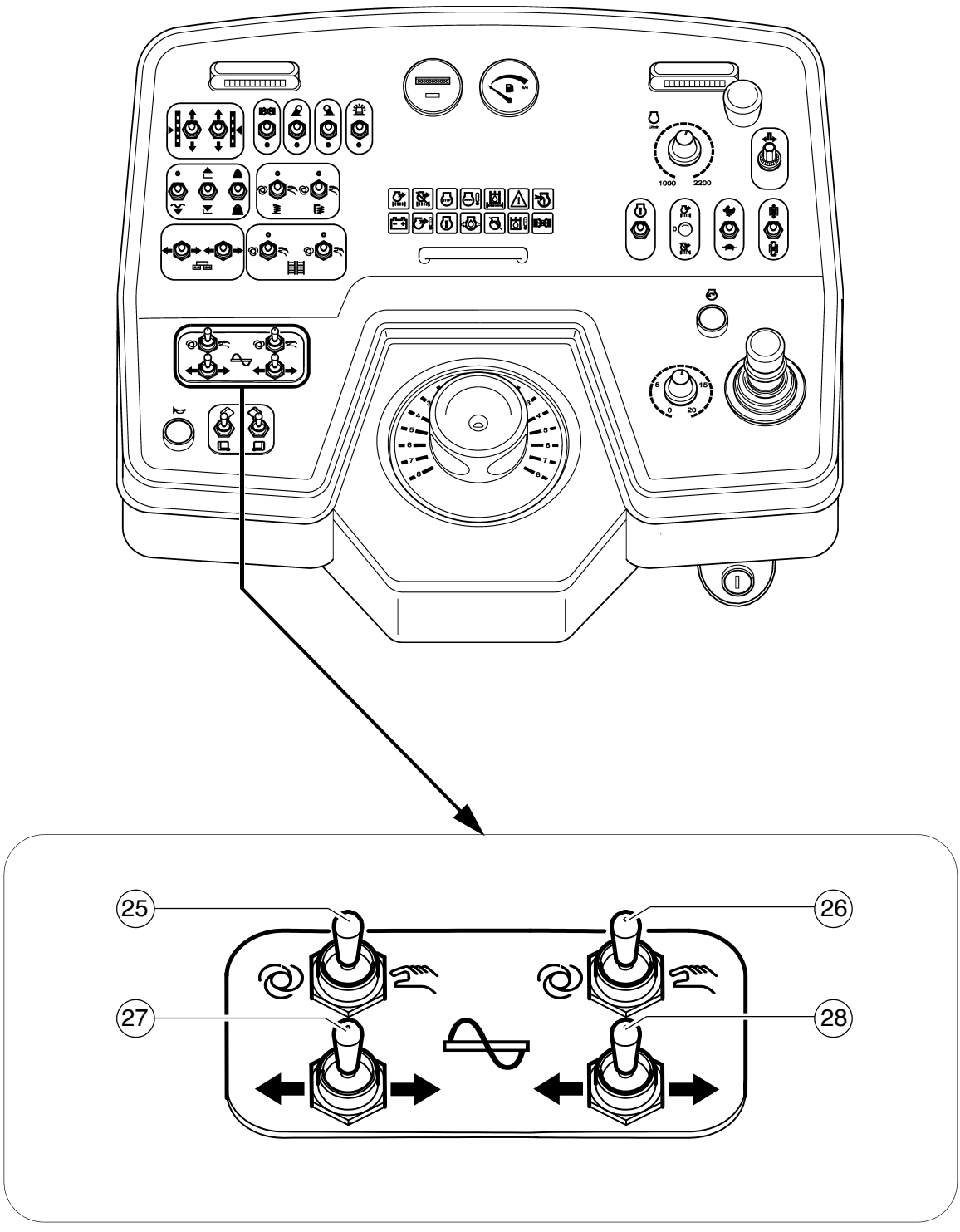
Item	Designation	Brief description
23	Open/close left hopper	Pushbutton function: - Upper switch position: Close left half of hopper. - Lower switch position: Open left half of hopper. STOP On actuation, note danger zones of moving parts of the vehicle!
24	Open/close right hopper	Pushbutton function: - Upper switch position: Close right half of hopper. - Lower switch position: Open right half of hopper. STOP On actuation, note danger zones of moving parts of the vehicle!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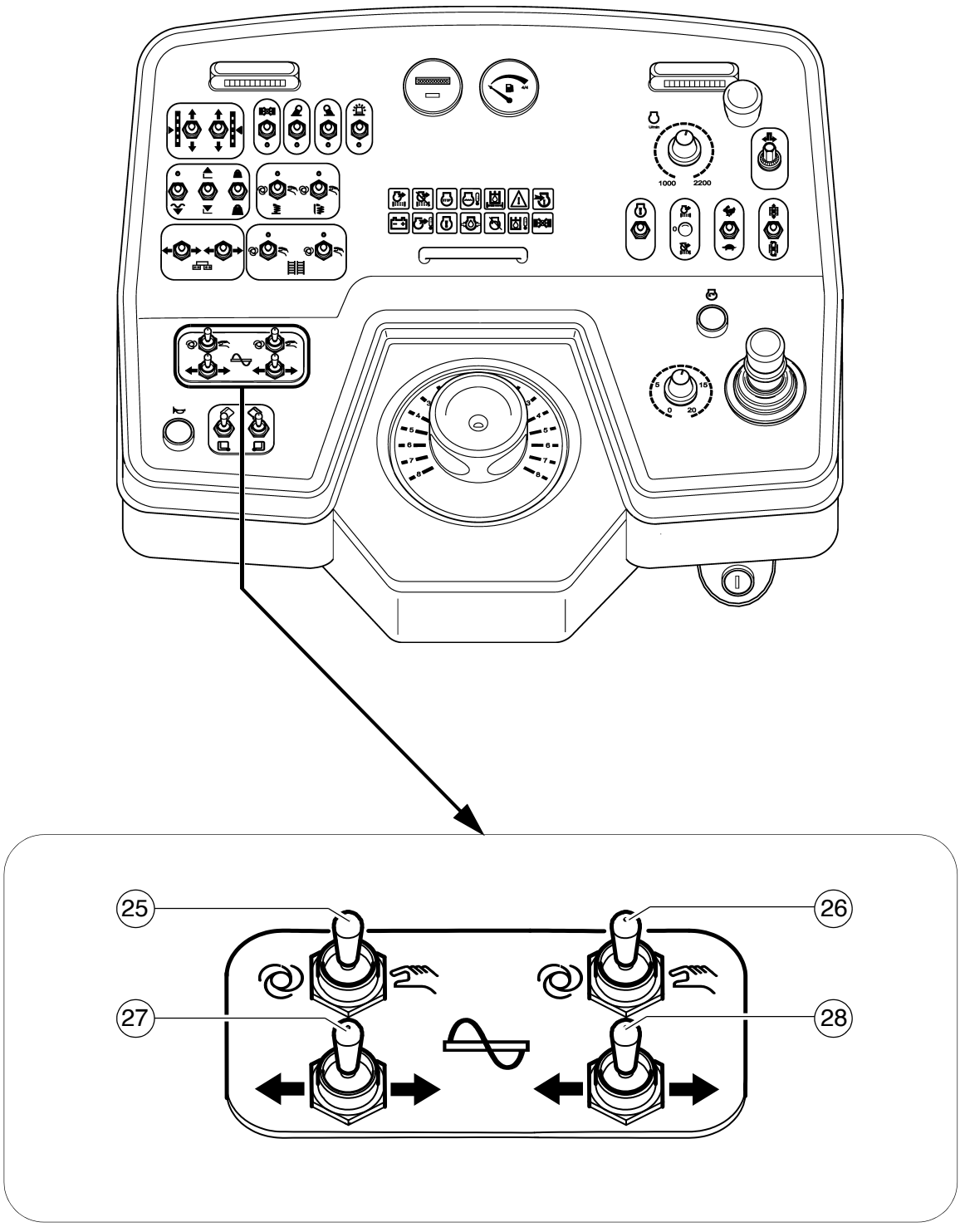
Item	Designation	Brief description
25	Left auger - operating mode "AUTO" / "OFF" / "MANUAL"	Detent switch function: - Left switch position: "AUTO" operating mode: The conveying function of the left half of the auger is switched on when the drive lever is swivelled out and is continuously controlled via the material limit switches. - Switch position, central: "OFF" operating mode: The conveying function of the left half of the auger is switched off. - Right switch position: "MANUAL" operating mode: The conveying function of the left half of the auger is switched on continuously with full feed capacity, without material control via the limit switches. STOP On actuation, note danger zones of moving parts of the vehicle!
26	Right auger - operating mode "AUTO" / "OFF" / "MANUAL"	Detent switch function: - Left switch position: "AUTO" operating mode: 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. - Switch position, central: "OFF" operating mode: The conveying function of the right half of the auger is switched off. - Right switch position: "MANUAL" operating mode: The conveying function of the right half of the auger is switched on continuously with full feed capacity, without material control via the limit switches. STOP On actuation, note danger zones of moving parts of the vehicle!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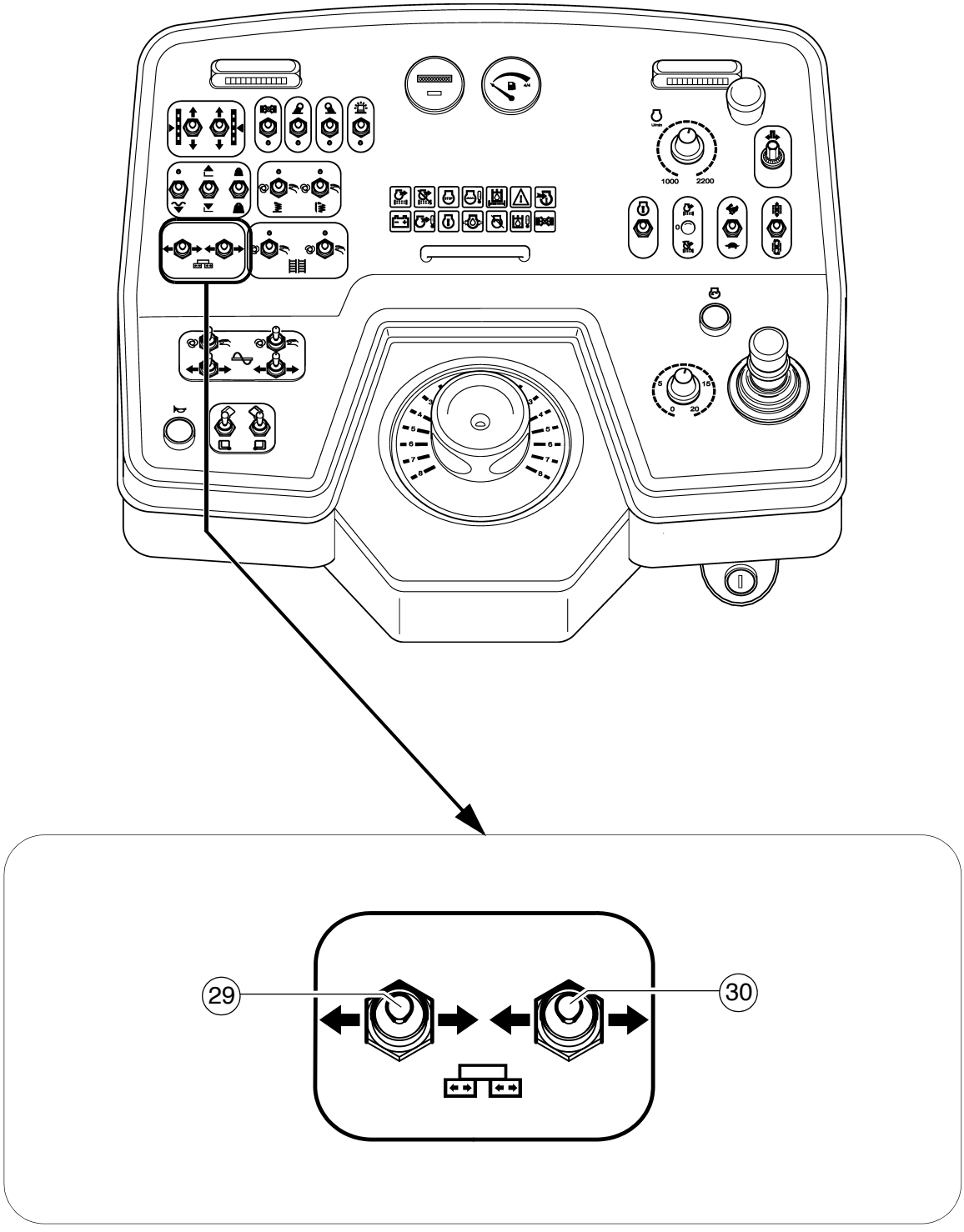
Item	Designation	Brief description
27	Left auger "MANUAL" conveying direction outwards / inwards	Pushbutton function: - Left switch position: Manual start of the conveying function, Conveying direction outwards. - Right switch position: Manual start of the conveying function, Conveying direction inwards. ☞ For manual triggering, the auger function must be switched to "AUTO" or "MANUAL" ☞ On manual triggering, the automatic function is overridden with reduced delivery capacity. STOP On actuation, note danger zones of moving parts of the vehicle!
28	Right auger "MANUAL" conveying direction outwards / inwards	Pushbutton function: - Left switch position: Manual start of the conveying function, Conveying direction inwards. - Right switch position: Manual start of the conveying function, Conveying direction outwards. ☞ For manual triggering, the auger function must be switched to "AUTO" or "MANUAL" ☞ On manual triggering, the automatic function is overridden with reduced delivery capacity. STOP On actuation, note danger zones of moving parts of the vehicle!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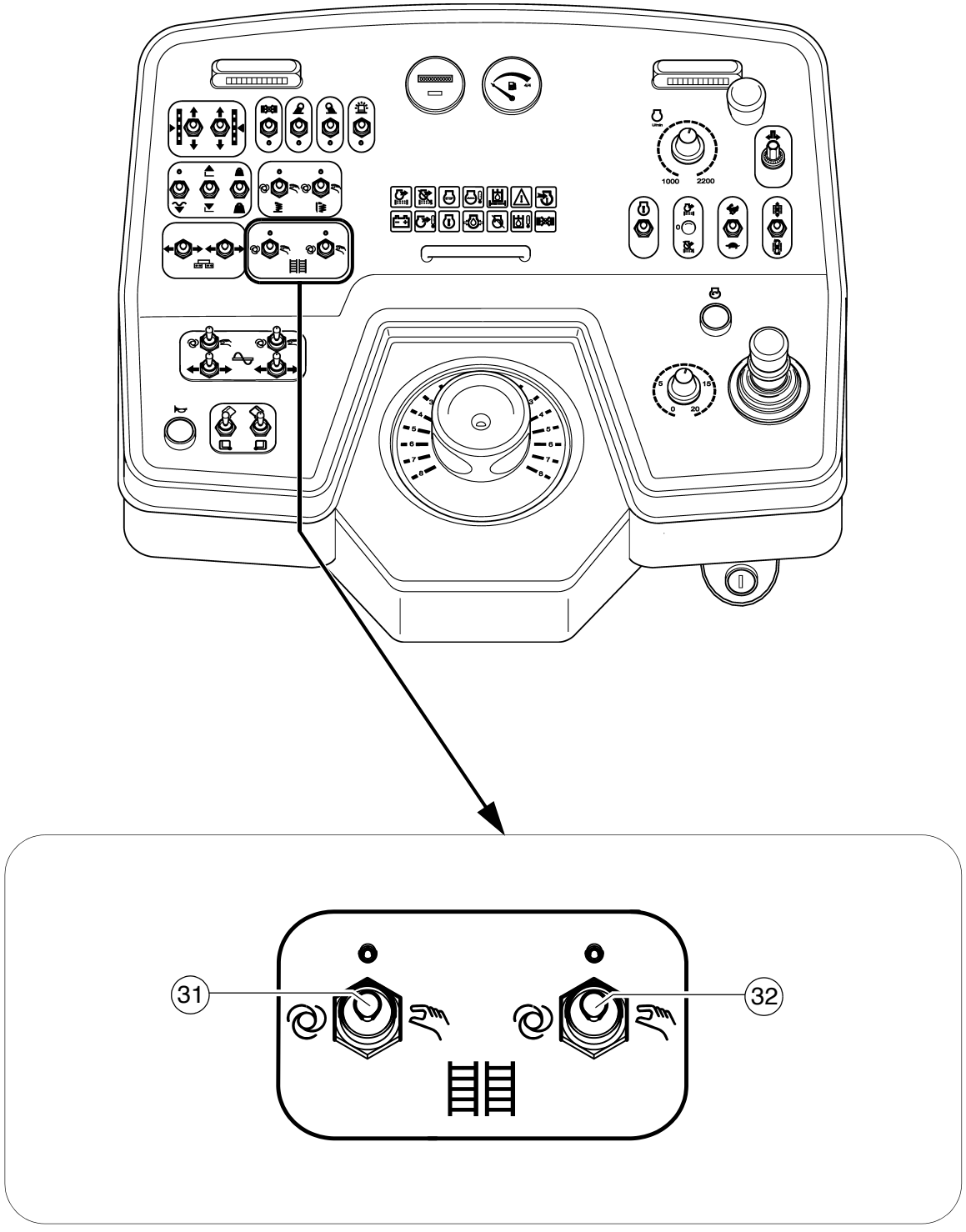
Item	Designation	Brief description
29	Left screed extend / retract	Pushbutton function: - Left switch position: Extend left half of screed. - Right switch position: Retract left half of screed. STOP On actuation, note danger zones of moving parts of the vehicle!
30	Right screed extend / retract	Pushbutton function: - Left switch position: Retract right half of screed. - Right switch position: Extend right half of screed. STOP On actuation, note danger zones of moving parts of the vehicle!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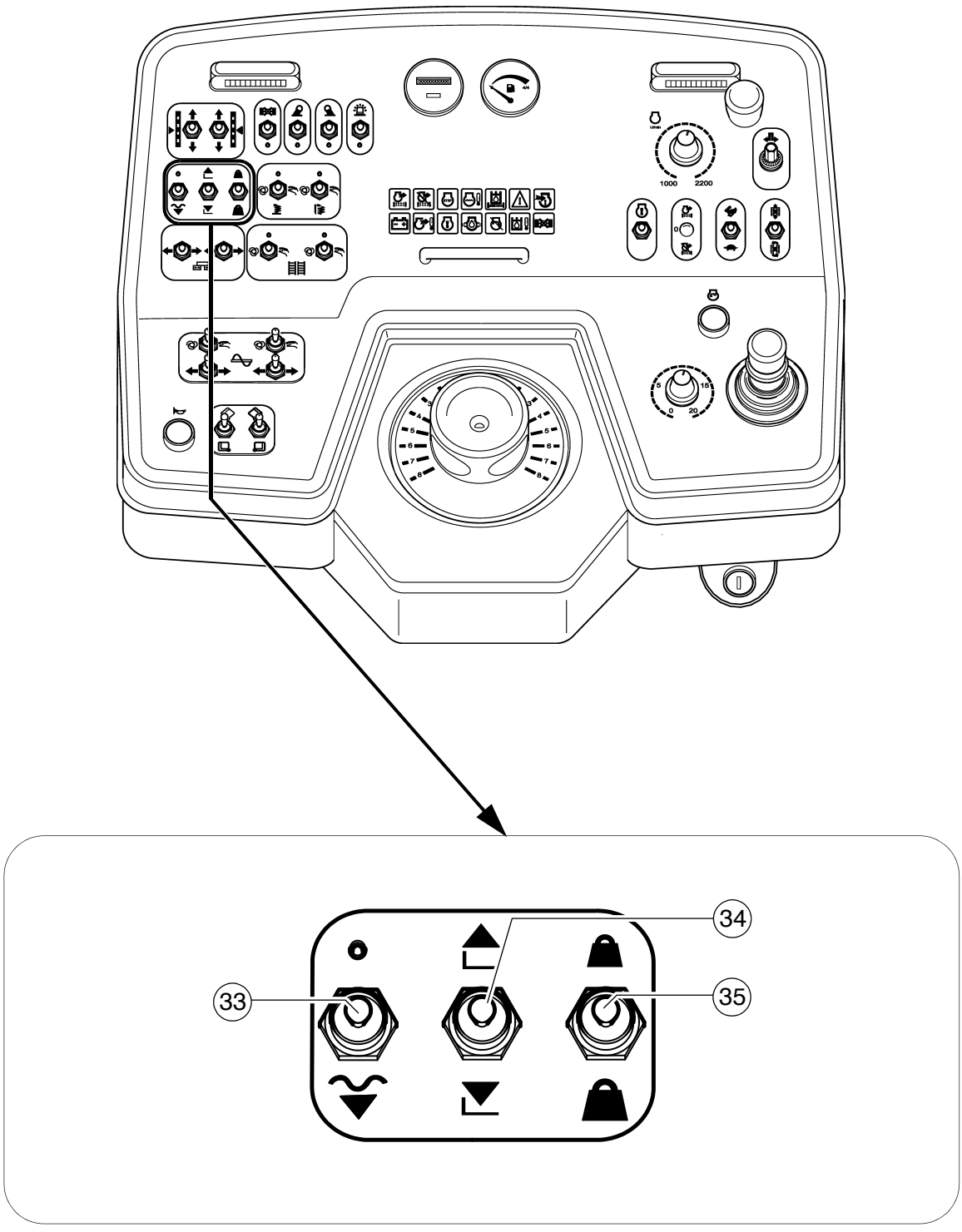
Item	Designation	Brief description
31	Left conveyor - operating mode "AUTO" / "OFF" / "MANUAL"	Detent switch function: - Left switch position: "AUTO" operating mode: The conveying function of the left conveyor is switched on when the drive lever is swivelled out and is continuously controlled via the material limit switches. - Switch position, central: "OFF" operating mode: The conveying function of the left conveyor is switched off. - Right switch position: "MANUAL" operating mode: The conveying function of the left conveyor is switched on continuously with full delivery rate, without material control via the limit switches. STOP On actuation, note danger zones of moving parts of the vehicle!
32	Right conveyor - operating mode "AUTO" / "OFF" / "MANUAL"	Detent switch function: - Left switch position: "AUTO" operating mode: 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. - Switch position, central: "OFF" operating mode: The conveying function of the right conveyor is switched off. - Right switch position: "MANUAL" operating mode: The conveying function of the right conveyor is switched on continuously with full delivery rate, without material control via the limit switches. STOP On actuation, note danger zones of moving parts of the vehicle!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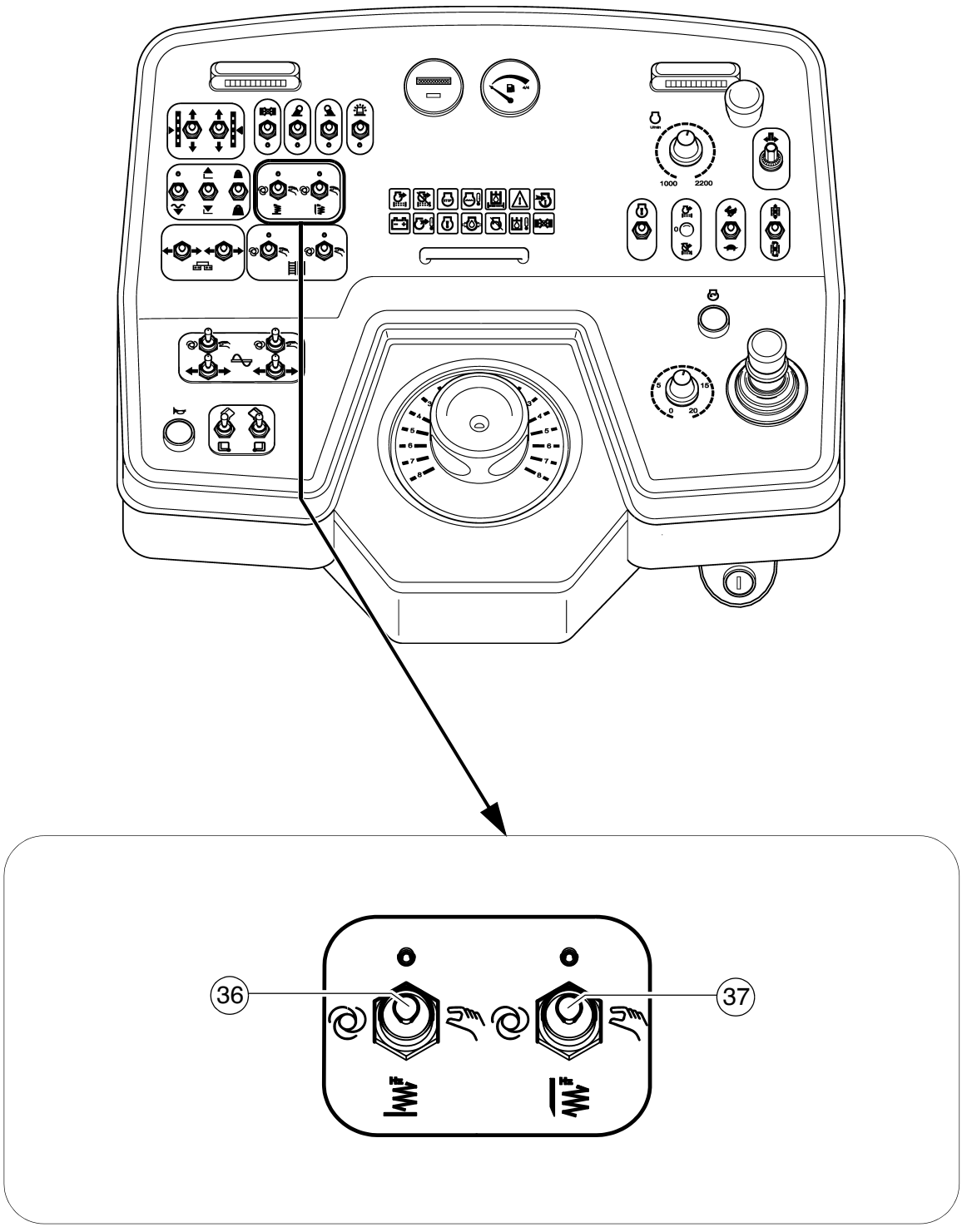
Item	Designation	Brief description
33	Screed stop (floating position OFF) / lower screed + floating position	Detent switch function: - Upper switch position: Screed stop (floating position OFF): Screed is hydraulically locked in position. - Lower switch position: Lower screed + floating position: Screed is lowered and held in the floating position when the drive lever is swivelled out. ☞ 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. ⚠ Check whether the screed transport safeguard is inserted! STOP On actuation, note danger zones of moving parts of the vehicle!
34	Screed lifting / lowering	Pushbutton function: - Upper switch position: Lift screed. ⚠ Switch (33) must be deactivated for this function, as the screed otherwise lowers again! - Lower switch position: Lower screed. ⚠ Check whether the screed transport safeguard is inserted! STOP On actuation, note danger zones of moving parts of the vehicle!
35	Screed charging/ relieving device	Detent switch function: - Upper switch position: Screed relieving: For hydraulically relieving the screed to influence the traction force and compaction. - Switch position, central: Function OFF. - Lower switch position: Screed charging: For hydraulically charging the screed to influence the traction force and compaction. ☞ The relevant pressure control valve can be used to set the level of charging/relieving.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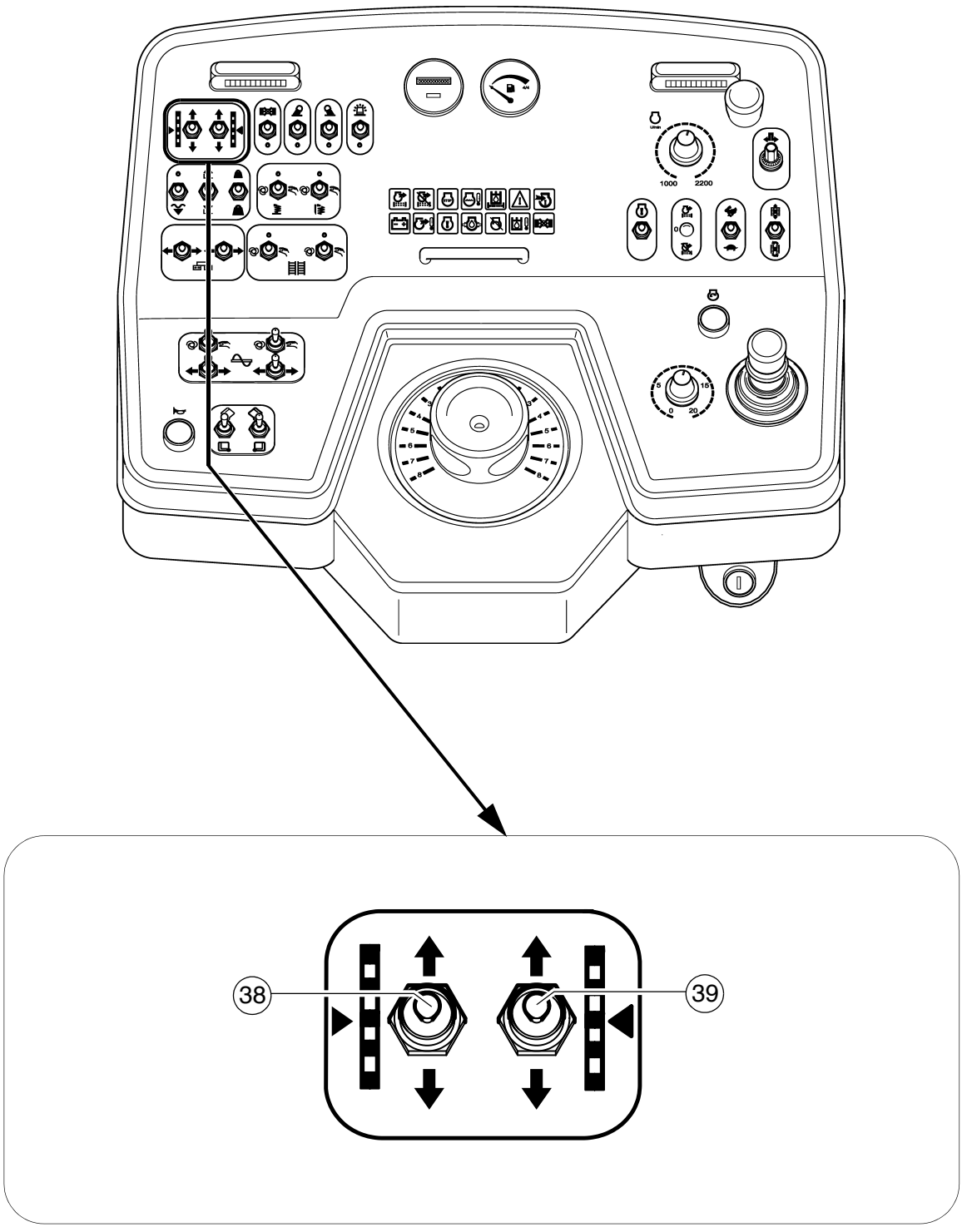
Item	Designation	Brief description
36	Vibration - operating mode "AUTO" / "OFF" / "MANUAL"	Detent switch function: - Left switch position: "AUTO" operating mode: Screed vibration is switched on when the drive lever is swivelled out. - Switch position, central: "OFF" operating mode: Screed vibration is switched off. - Right switch position: "MANUAL" operating mode: Screed vibration is switched on constantly.
37	Tamper - operating mode "AUTO" / "OFF" / "MANUAL"	Detent switch function: - Left switch position: "AUTO" operating mode: The screed tamper is switched on when the drive lever is swivelled out. - Switch position, central: "OFF" operating mode: The screed tamper is switched off. - Right switch position: "MANUAL" operating mode: The screed tamper is switched on constantly.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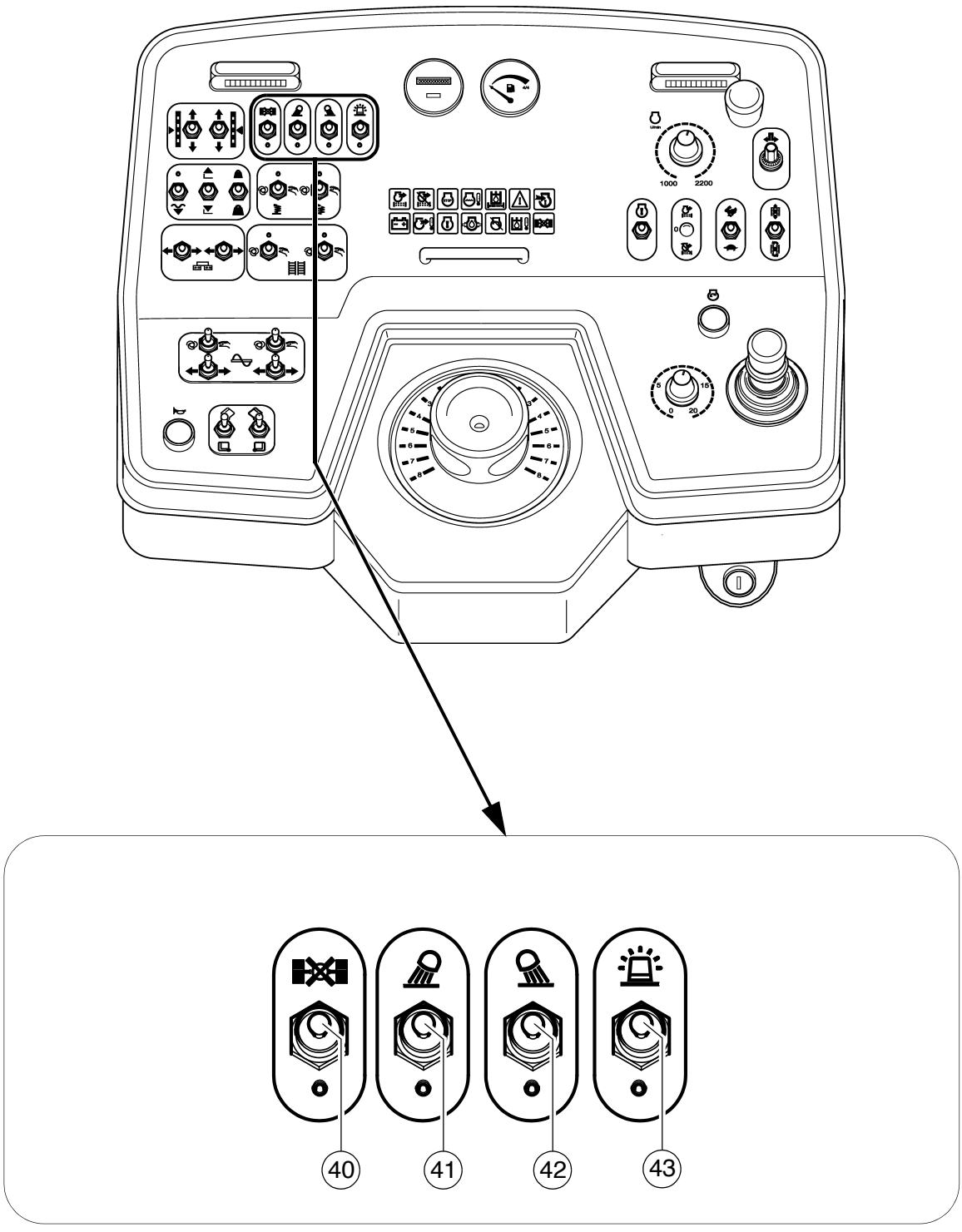
Item	Designation	Brief description
38	Extend / retract left levelling cylinder	Pushbutton function: - Upper switch position: Retract left levelling cylinder. - Lower switch position: Extend left levelling cylinder. STOP On actuation, note danger zones of moving parts of the vehicle!
39	Extend / retract right levelling cylinder	Pushbutton function: - Upper switch position: Retract right levelling cylinder. - Lower switch position: Extend right levelling cylinder. STOP On actuation, note danger zones of moving parts of the vehicle!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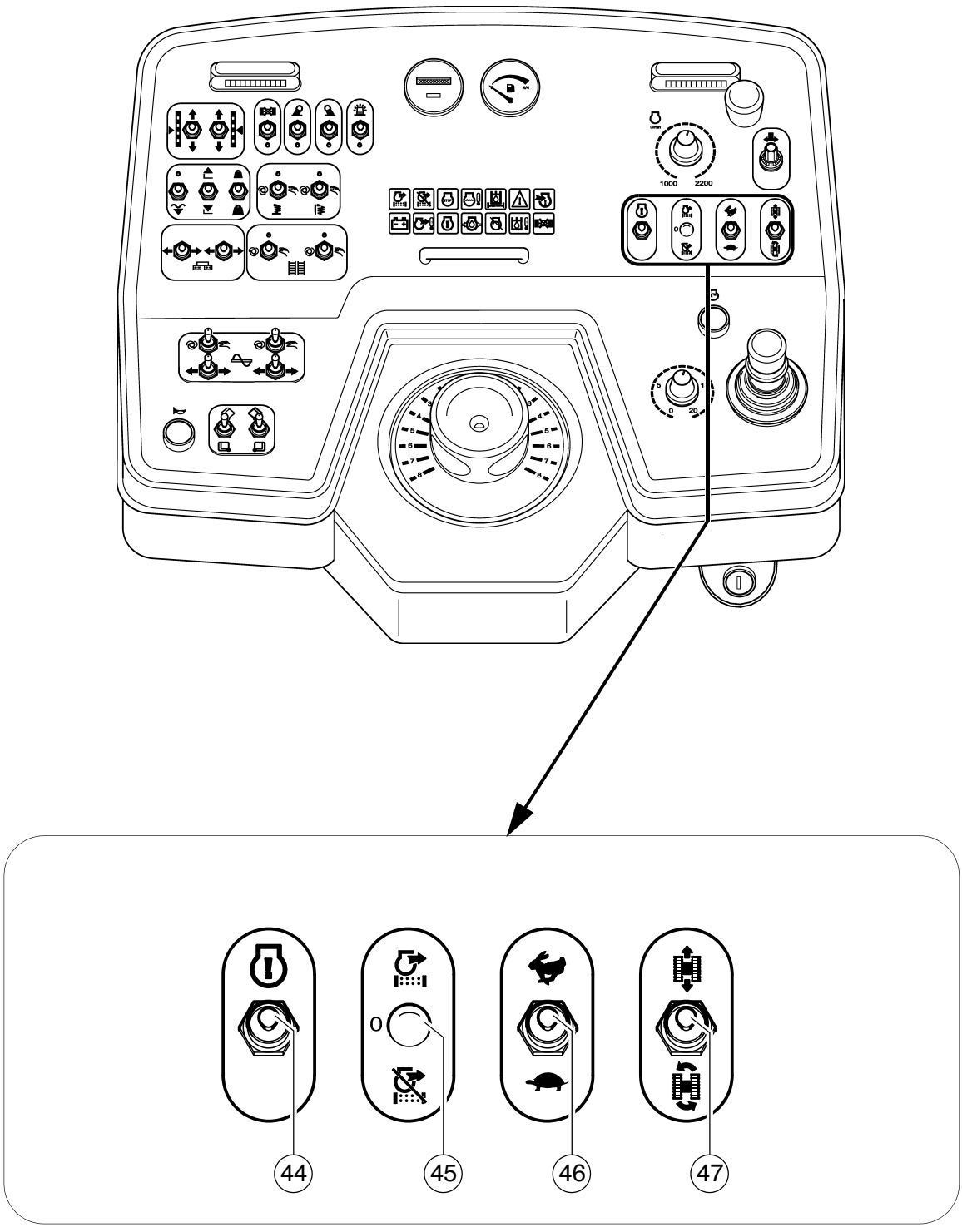
Item	Designation	Brief description
40	not used	
41	Working lights, front ON / OFF	Detent switch function: - Upper switch position: Front working lights ON. - Lower switch position: Front working lights OFF. STOP Avoid dazzling other road users!
42	Working lights, rear ON / OFF (○)	Detent switch function: - Upper switch position: Rear working lights ON. - Lower switch position: Rear working lights OFF. STOP Avoid dazzling other road users!
43	Rotary beacon ON / OFF (○)	Detent switch function: - Upper switch position: Rotary beacon ON. - Lower switch position: Rotary beacon OFF. ☞ Switch on for safety on roads and in the construction site area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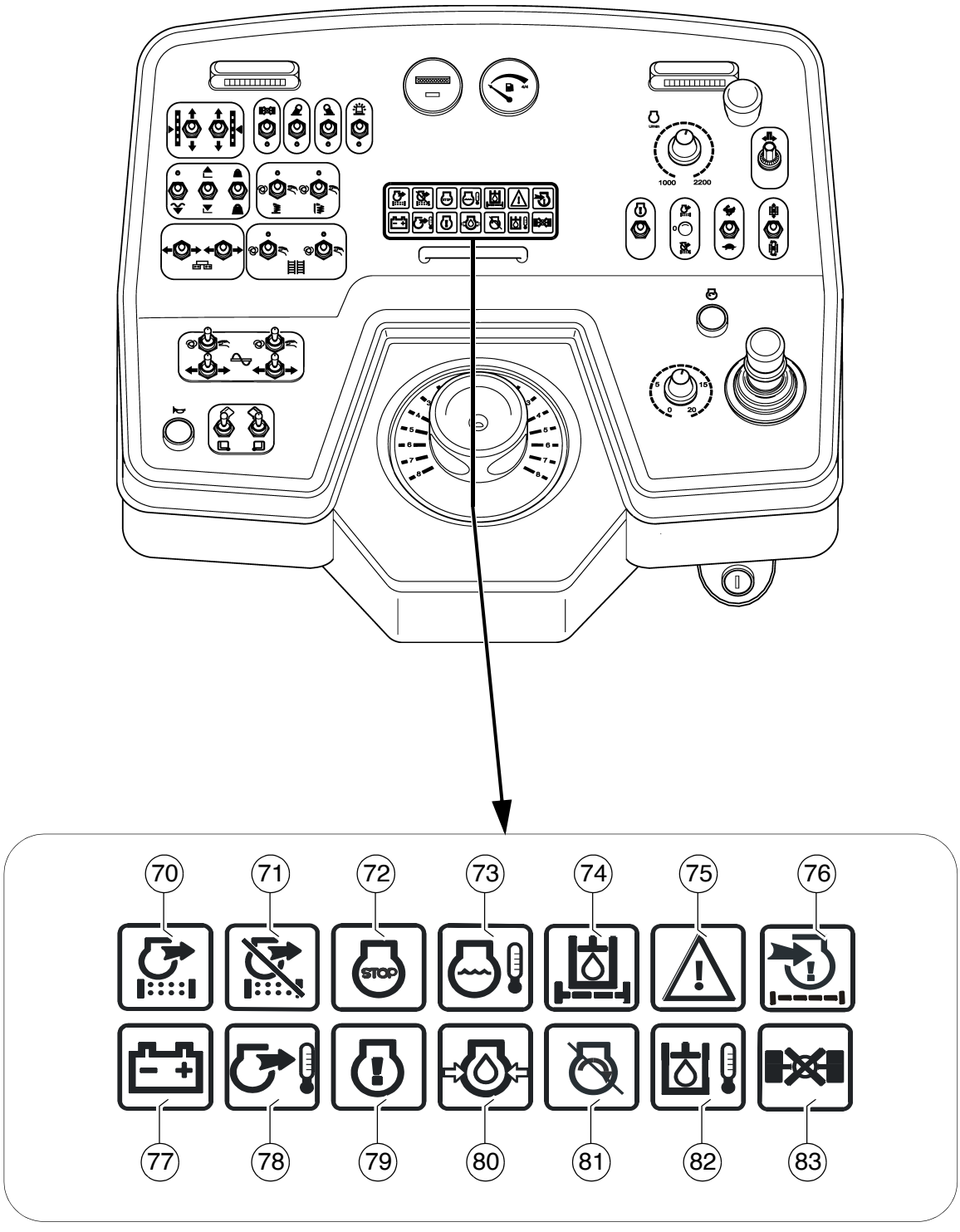
Item	Designation	Brief description
44	Error / malfunction interrogation	If a fault discovered on the drive engine is indicated by one of the warning lamps, a code assigned to a defined defect can be called up. Pushbutton function: - Upper switch position: Call the fault code. ☞ Press the switch until the three-digit code has been output by the warning lamp. ☞ Refer to the "Malfunctions" section for calling up error codes!
45	not used	
46	Travel drive fast/slow	Pushbutton function: - Upper switch position: Preselection of the speed level - transportation speed (fast). - Lower switch position: Preselection of the speed level - operating speed (slow).
47	Turning on the spot	Detent switch function: - Upper switch position: Straight-ahead travel / standard operation. - Lower switch position: Turning on the spot - The paver finisher turns on the spot (the caterpillar chains run in opposite directions) when the steering is turned to "10". - Steering turned to the left = vehicle turns to the left - Steering turned to the right = vehicle turns to the right ☞ The function can only be activated in the "travel drive slow" speed. ☞ 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". STOP When the vehicle turns, persons and objects next to the paver finisher are in extreme danger. Note the danger area!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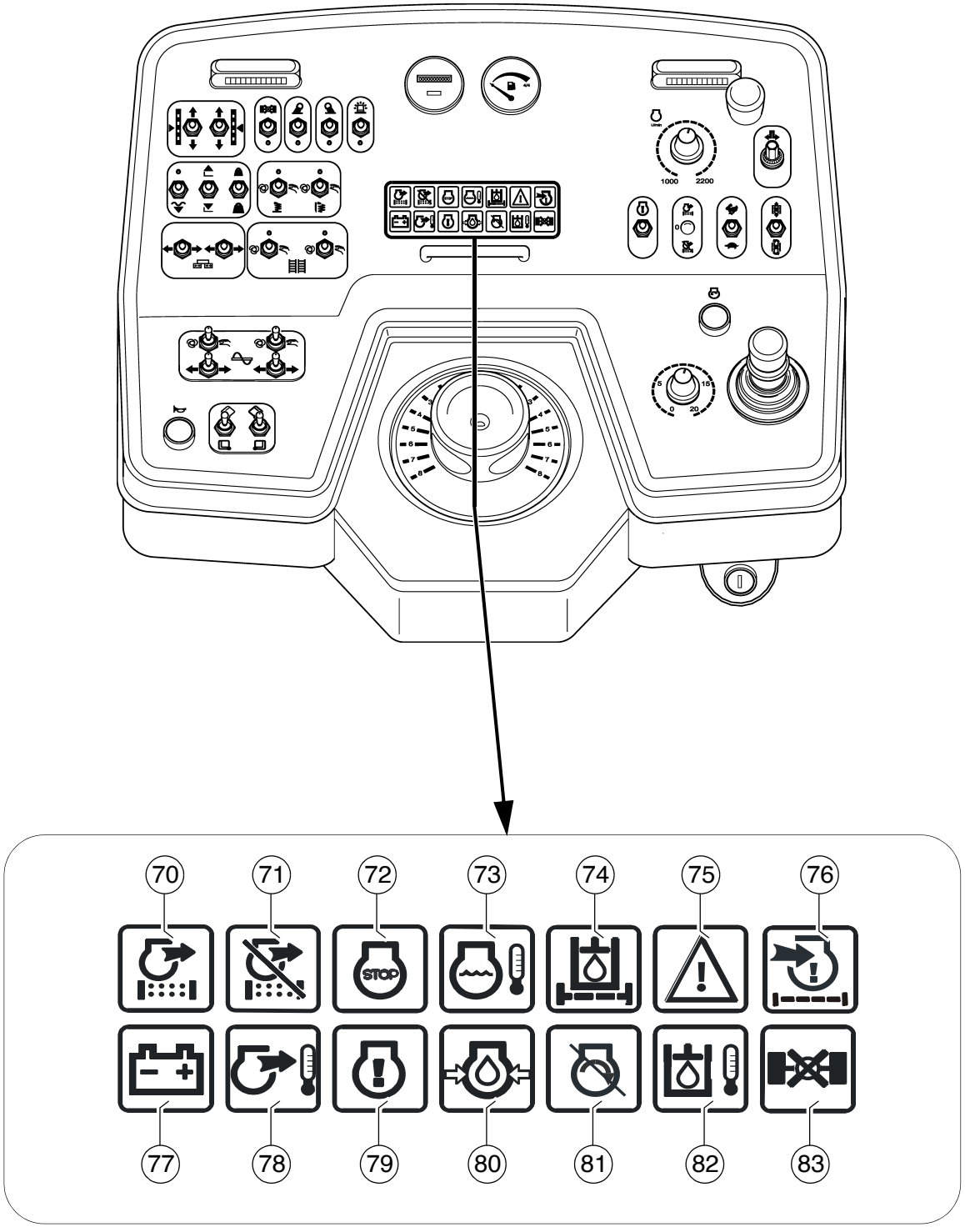
STOP

Item	Designation	Brief description
70	not used	
71	not used	
72	Error message with engine stop (red)	Lights up when a serious error has occurred on the engine. The engine is automatically shut down for safety. ☞ The error code can be called up using the switch "Call up error / malfunction". ☞ Lights up for a few seconds once the ignition has been switched on for checking purposes.
73	not used	
74	Indicator lamp hydraulic filter	Lights up when the hydraulic filter needs replacing. ☞ Replace filter element acc. to maintenance instructions!
75	Travel drive error message	Lights up if there is a fault in the travel drive or if an actuated emergency stop button prevents the machine from starting. ☞ Warning lamp goes out as soon as the error was repaired.
76	Indicator lamp Air filter	Lights up if the air filter needs replacing. ☞ Replace filter element acc. to Maintenance Instructions!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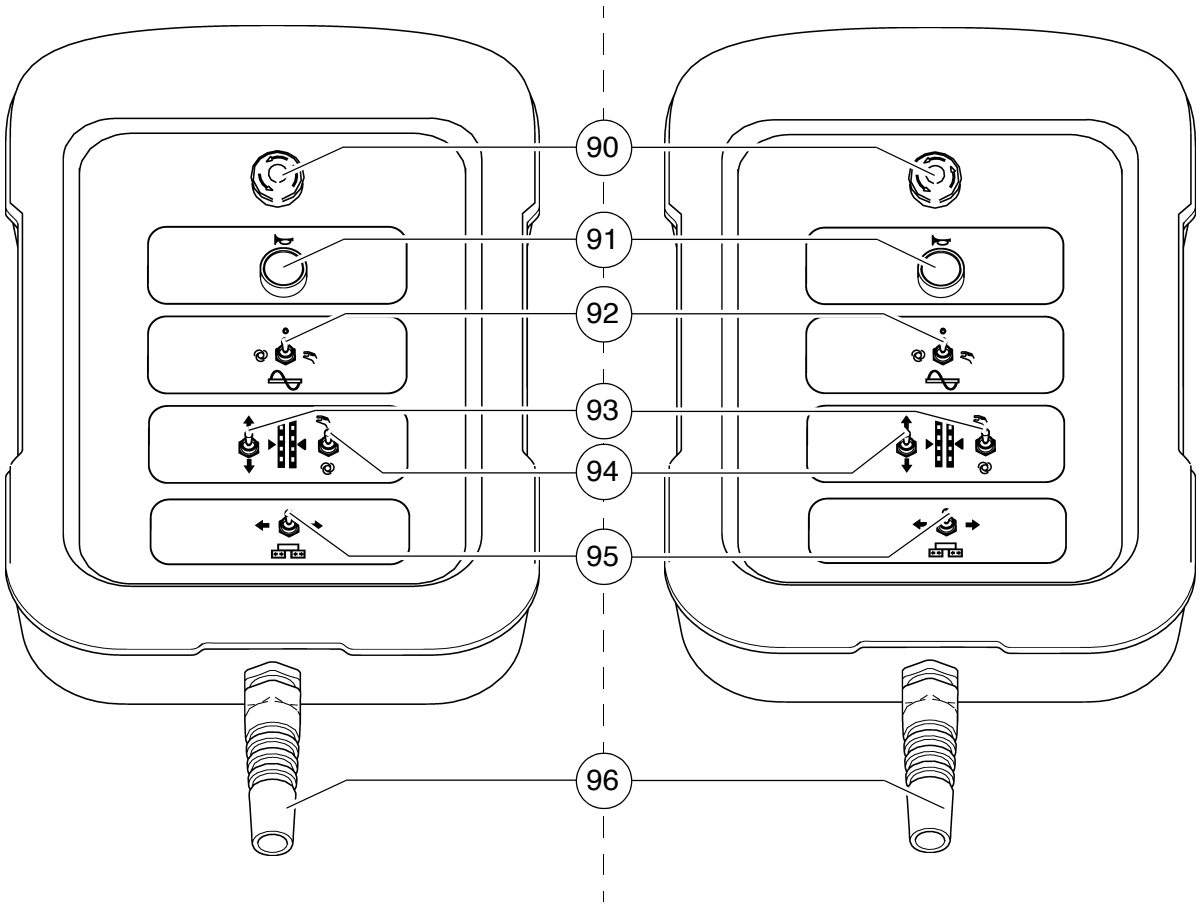
STOP

Item	Designation	Brief description
77	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
78	not used	
79	Error message (yellow)	Indicates that there is a drive engine 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. Each fault should be rectified as soon as possible! ☞ The error code can be called up using the switch "Call up error / malfunction". ☞ Lights up for a few seconds once the ignition has been switched on for checking purposes.
80	not used	
81	Start inhibit	Indicates that an enabled function stops the machine from starting.
82	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.
83	not used	

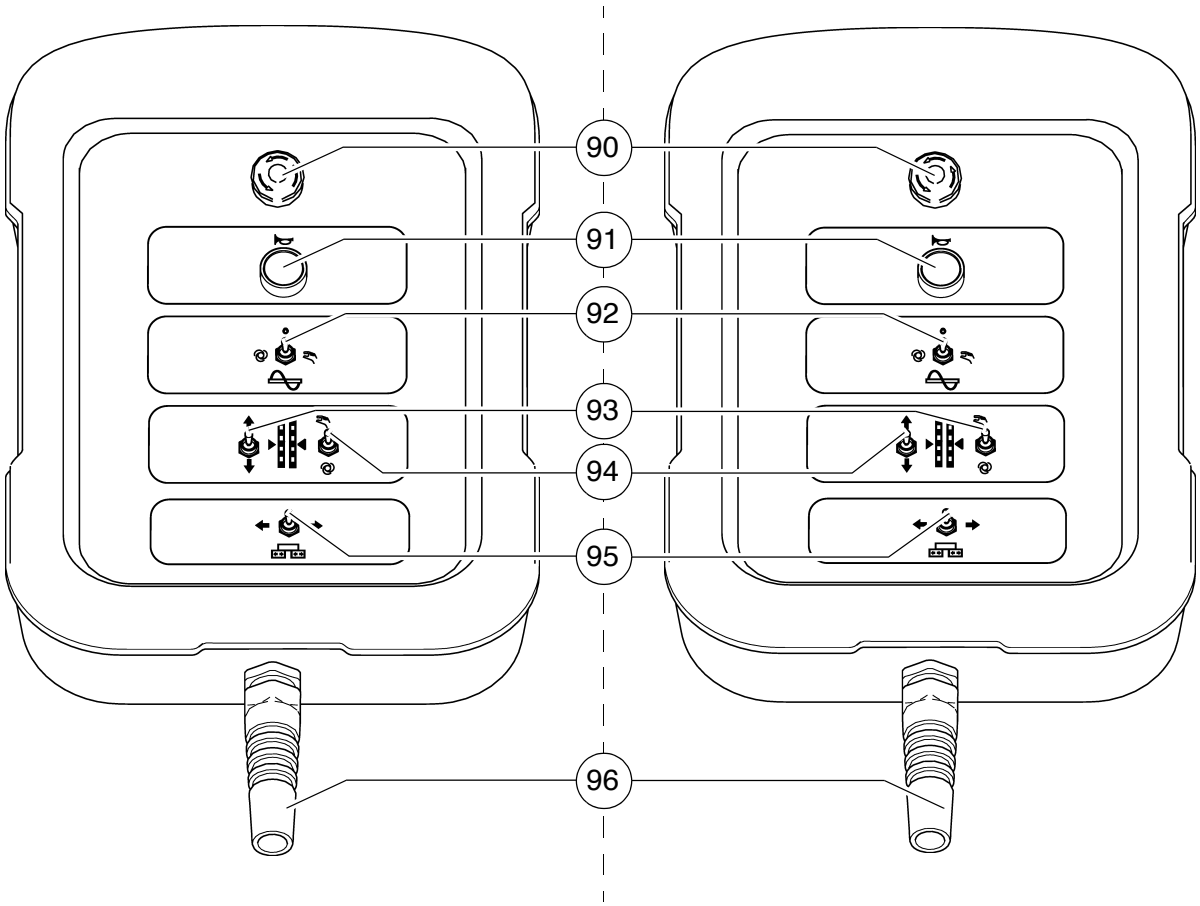
3 Remote control



☞ Depending on the machine side left/right, the function switches steers only the appropriate function on the respective machine side!

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

Item	Designation	Brief description
90	Emergency stop button	In the case of an emergency (danger to persons, possible collision etc.), press in the button! - Pressing the emergency stop button switches the engine, the drives and the steering system off. Making way, lifting the screed or other actions are then no longer possible! Danger of accidents! - The emergency stop button does not shut off the gas heater system. Close the main shut-off valve and the valves on the bottles by hand! - To restart the engine, the button must be pulled out again.
91	Horn	Press in the case of emergencies and to indicate when the vehicle starts to move! ☞ The horn can also be used to communicate acoustically with the truck driver for material loading!
92	Left / right auger - operating mode "AUTO" / "OFF" / "MANUAL"	Detent switch function: - Left switch position: "AUTO" operating mode: 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. - Switch position, central: "OFF" operating mode: The conveying function of the left / right half of the auger is switched off. - Right switch position: "MANUAL" operating mode: The conveying function of the left / right half of the auger is switched on continuously with full feed capacity, without material control via the limit switches. STOP On actuation, note danger zones of moving parts of the vehicle!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Item	Designation	Brief description
93	Extend / retract levelling cylinder left / right	Pushbutton function: - Upper switch position: Retract left / right levelling cylinder. - Lower switch position: Extend left / right levelling cylinder. STOP On actuation, note danger zones of moving parts of the vehicle!
94	Levelling operating mode "AUTO" / "MANUAL"	Detent switch function: - Upper switch position: "MANUAL" operating mode: height adjustment is carried out using the corresponding function switches on the remote control or operating panel. - Lower switch position: "AUTO" operating mode: height adjustment is carried out automatically via the connected grade control system.
95	Extend / retract screed left / right	Pushbutton function: - Switching position in the appropriate direction: extend / retract screed half left / right. STOP On actuation, note danger zones of moving parts of the vehicle!
96	Connection cable	☞ For connection to the paver finisher's corresponding socket.

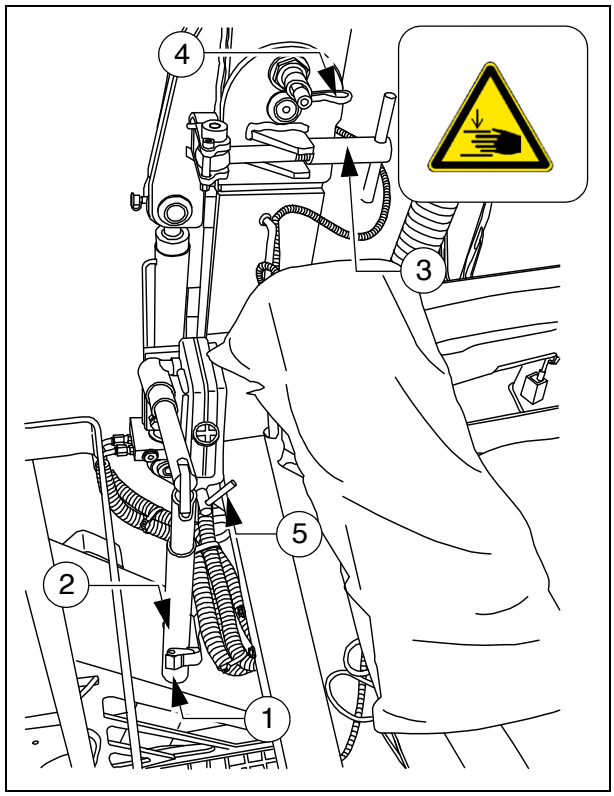
D 30 Operation

1 Operating elements on the paver finisher

1.1 Control elements on the operator's control station

Protective roof (○)

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



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

- Remove the lower section of the pump lever (1) from the storage compartment, and connect to the upper section using a pipe (2).
  - Lower the roof: The locks (3) on both sides of the roof must be released.#
  - Raise the roof: The locks (4) on both sides of the roof must be released.
- Set the adjustment lever (5) to the "Raise" or "Lower" position.
  - Raise the roof: The lever points forwards.
  - Lower the roof: The lever points backwards.
- Operate the pump lever (1) until the roof has reached the upper or lower limit position.
  - Roof in uppermost position: Set the locks (3) on both sides of the roof.
  - Roof lowered: Set the lock (4) on both sides of the roof.

⚠ If the vehicle is equipped with a protective roof, the engine hood must be closed before lowering the roof!

Protective cabin (○)

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

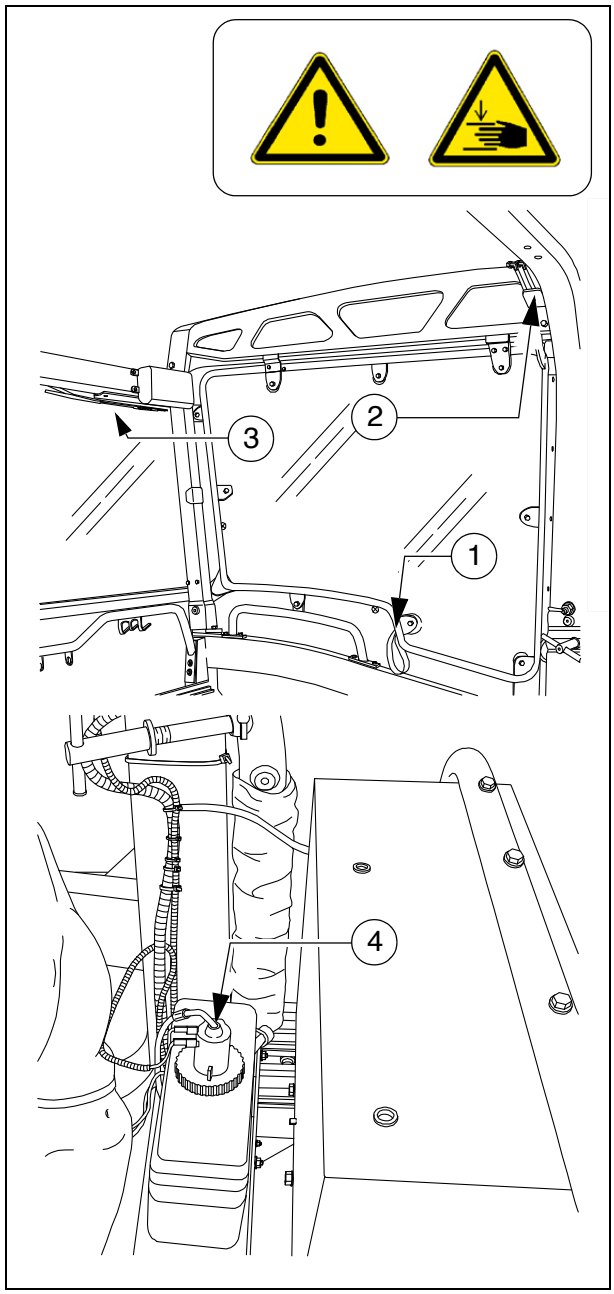
- The side windows can be swivelled out to the side at the bracket (1). Press the lock (2) to unlock.

Windscreen wiper

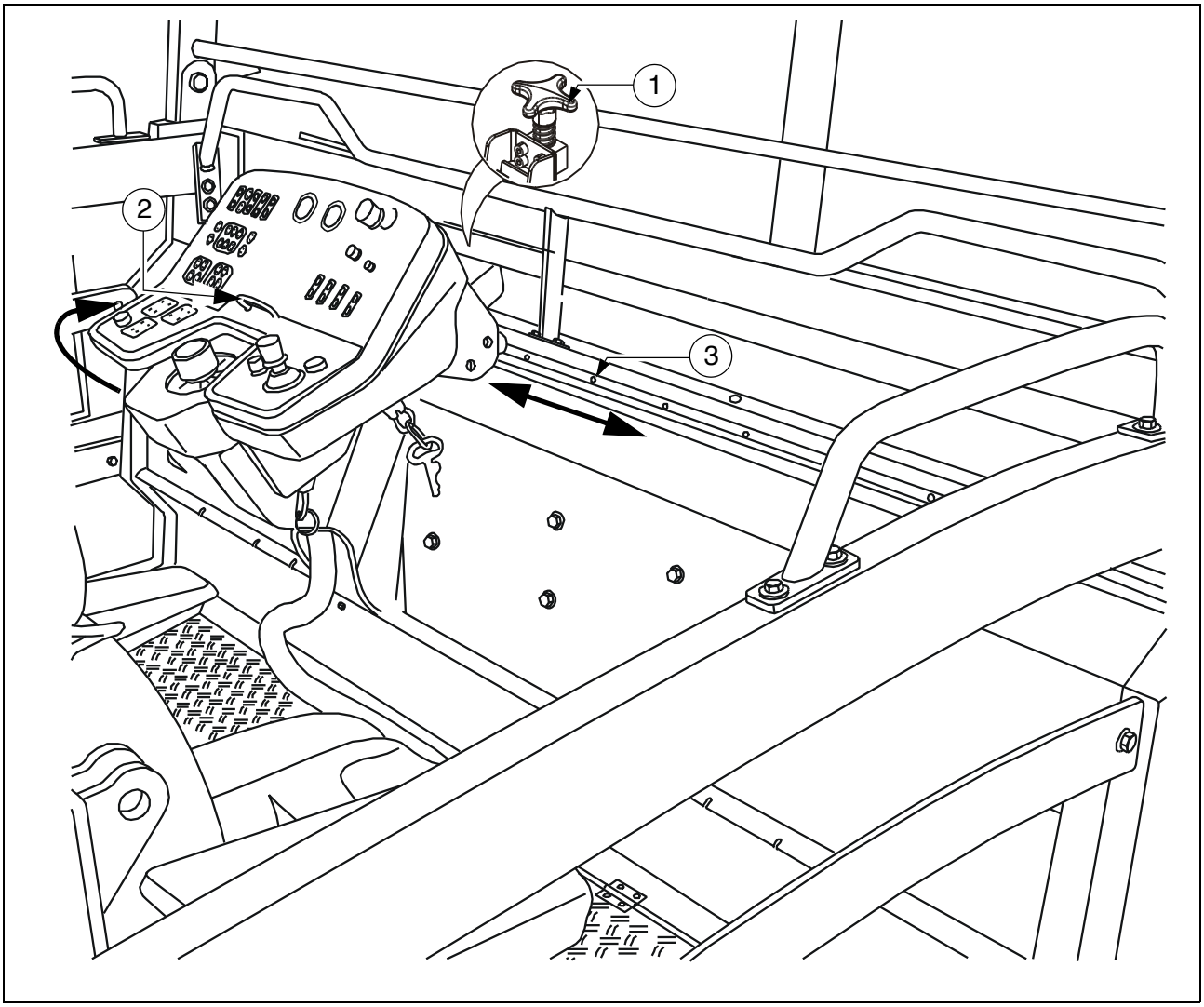
- Activate the windscreen wiper (3) / screen wash on the operating panel if necessary.

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

⚠ Replace worn wiper blades immediately.



Control panel, rigid



Operating panel, moveable

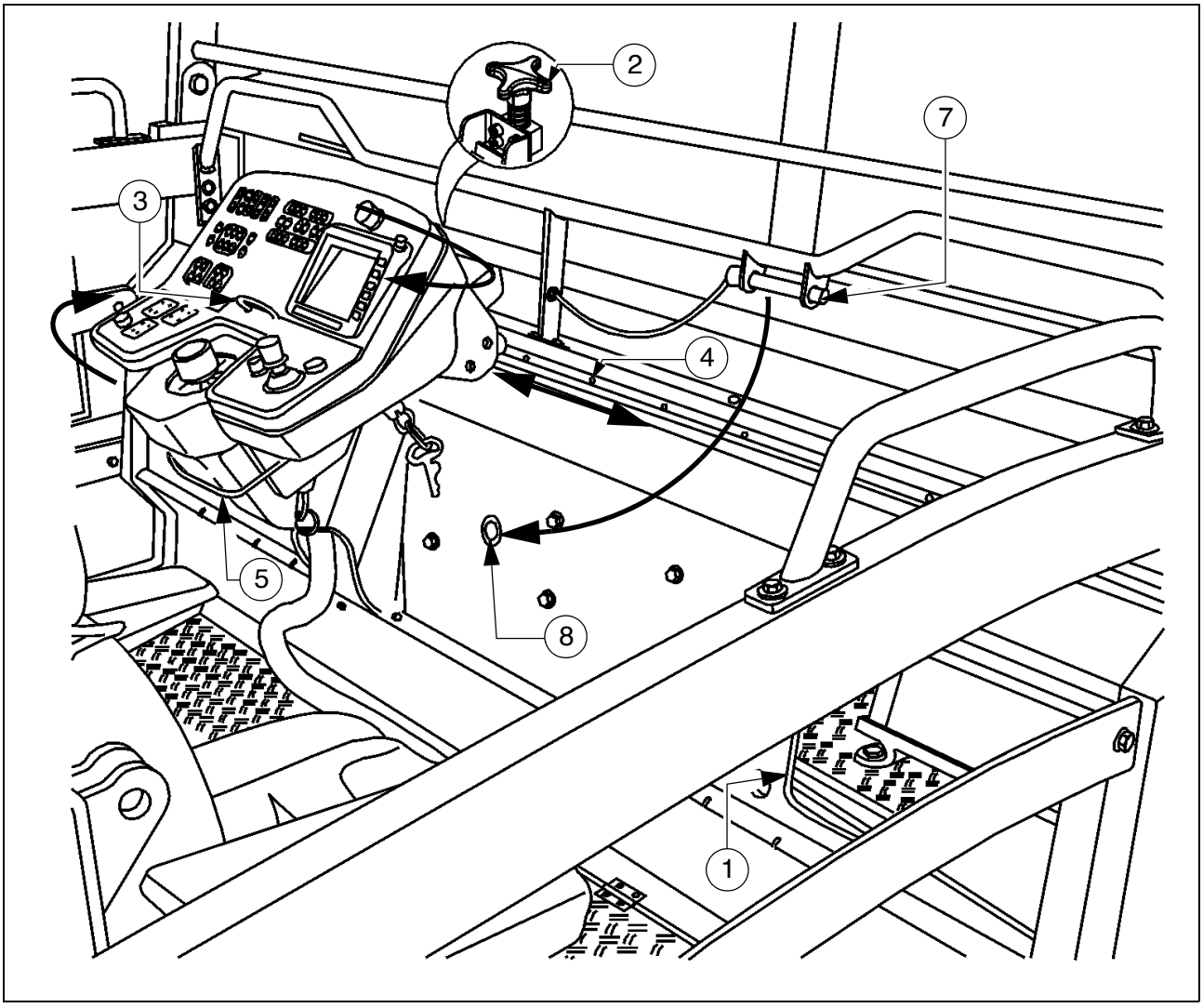
The operating panel can be shifted to several positions on the left- and right-hand sides of the vehicle.

- Loosen panel latch (1) and slide panel console to the desired position using the handle (2).
- Insert panel latch (1) into one of the detent positions (3).

⚠ Make sure it is latched properly!

STOP Only adjust the operating position whilst the vehicle is stationary!

Control platform, moveable (○)



The control platform can be hydraulically shifted beyond the left/right outer edge of the vehicle, providing the driver with a better view of the paving area in this position.

- When the control platform has been moved, the windows (1) additionally offer a good view of the paving area.

Refer to the operating panel for actuation of the platform movement function.

Shifting the platform increases the basic width of the paver finisher.

If the platform is moved, ensure that there is no one in the vehicle's danger area!

Only adjust the operating position whilst the vehicle is stationary!

Operating panel, moveable

The operating panel can be shifted to several positions on the left- and right-hand sides of the vehicle.

- Raise panel latch (2) and slide panel console to the desired position using the handle (3).
- Insert panel latch (2) into one of the detent positions (4).

⚠ Make sure it is latched properly!

STOP Only adjust the operating position whilst the vehicle is stationary!

Operating panel, swivelling (○)

The entire operating panel can be swivelled for operation beyond the outer edge of the vehicle.

- Press latch (5), swivel operating panel to the required position using the handle (3) and allow latch to engage again in one of the intended detent positions.

⚠ Make sure it is latched properly!

STOP Only adjust the operating position whilst the vehicle is stationary!

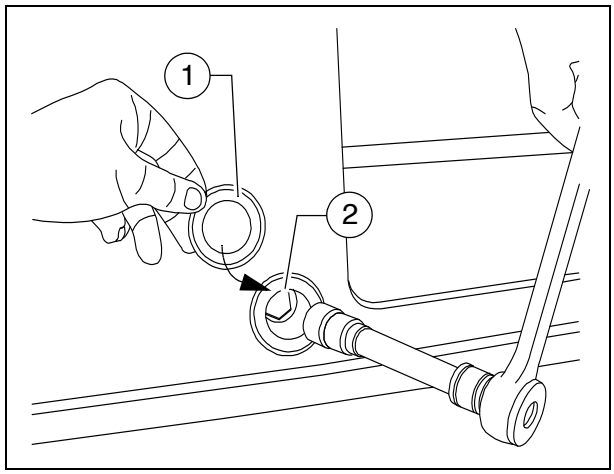
Control platform lock (○)

STOP During transportation in road traffic and when transporting the vehicle on transporters, the control panel must be secured in the central position!

- Remove the locking pin (7) from its storage compartment (press pushbutton) and insert into locking aperture (8).

⚠ To be able to set the lock, the panel must be positioned centrally above the vehicle frame.

.Emergency actuation control platform, movable



If the control platform cannot be moved hydraulically, it can be pushed back to its central position by hand.

- Remove the screw cap (1) (next to the right footwell window).
- Remove screw (2).

☞ This undoes the connection between the platform and the frame so that the platform can be moved.

- Restore the original status after eliminating the fault.

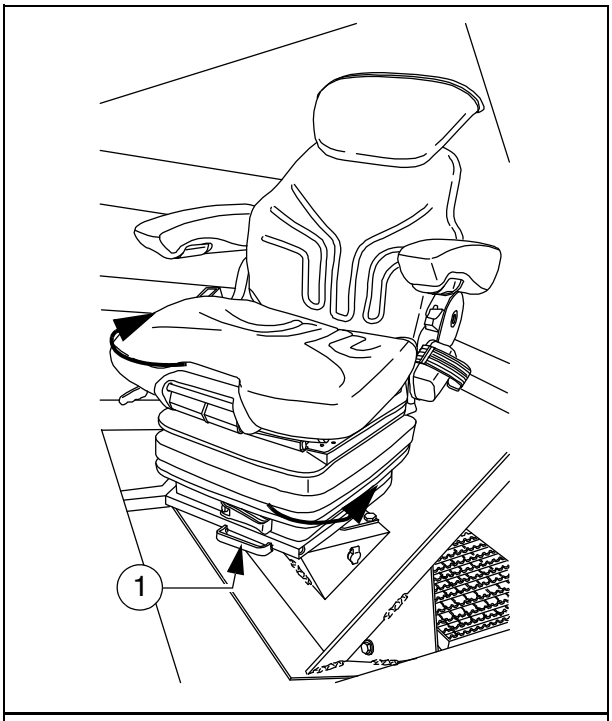
Seat console, swivelling (○)

The seat consoles can be swivelled for operation beyond the outer edge of the vehicle.

- Press latch (1), swivel seat console to the desired position and allow latch to engage again.

⚠ Make sure it is latched properly!

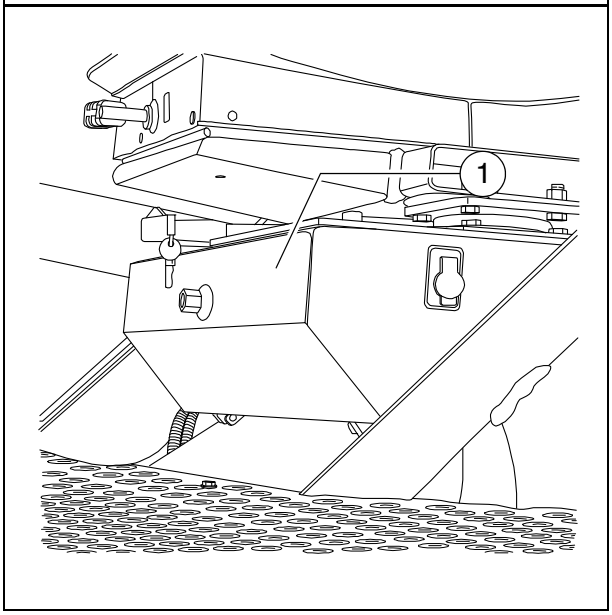
STOP Only adjust the operating position whilst the vehicle is stationary!



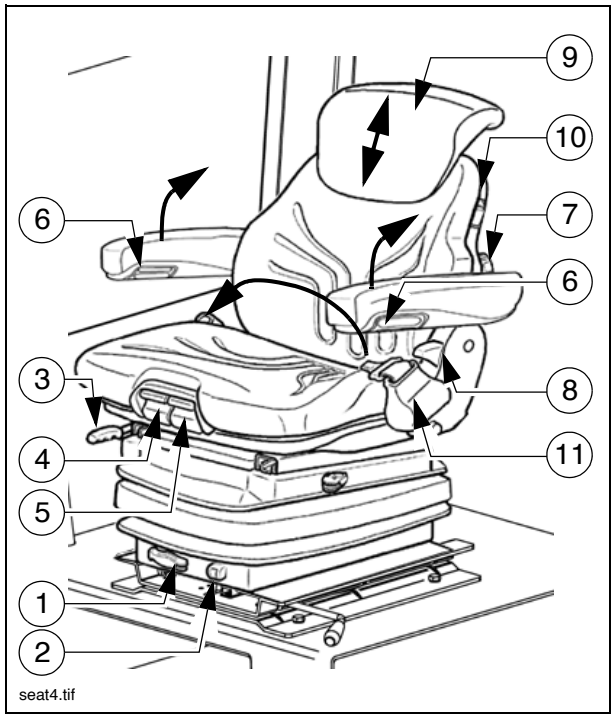
Seat console storage compartment

☞ Beneath both seat consoles, there is a storage compartment which can be locked (1).

☞ Lock the storage compartments at the end of work.



Driver's seat, type I



seat4.tif

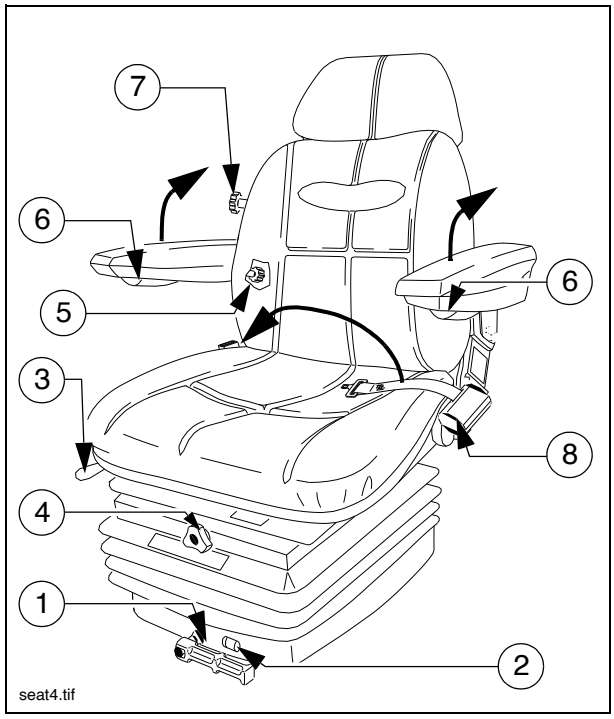
To avoid damage to health, the individual seat settings should be checked and adjusted before starting the vehicle.

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

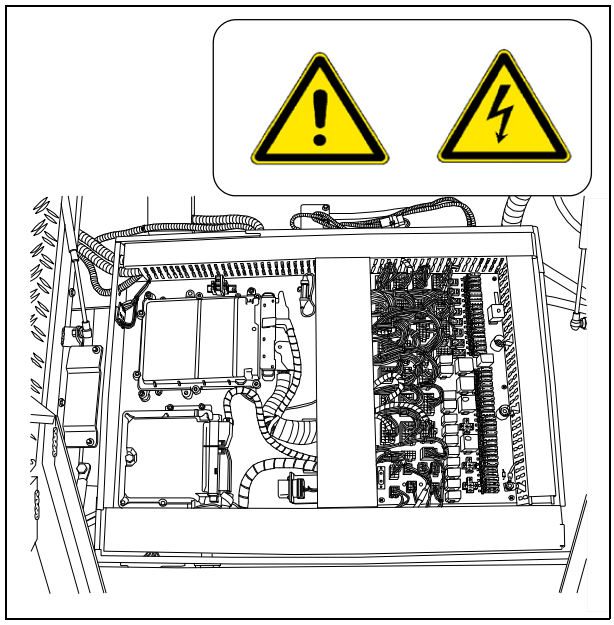
- **Weight setting (1):** The relevant driver's weight should be set by turning the weight adjustment lever when the driver's seat is unoccupied.
- **Weight indicator (2):** The set driver's weight can be read off at the viewing window.
- **Longitudinal adjustment (3):** Longitudinal adjustment is released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

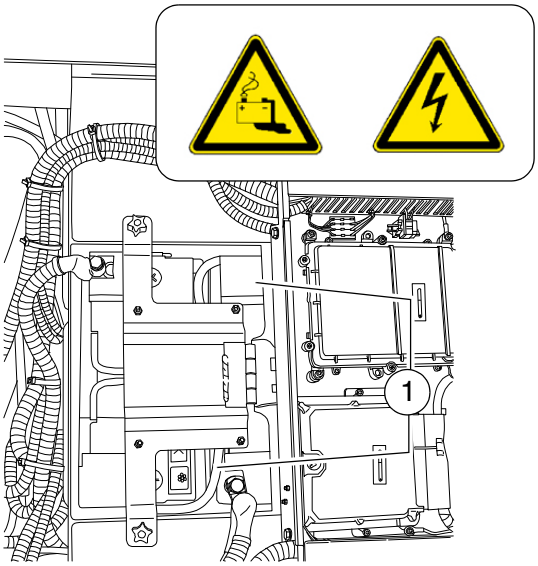


Batteries

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)".



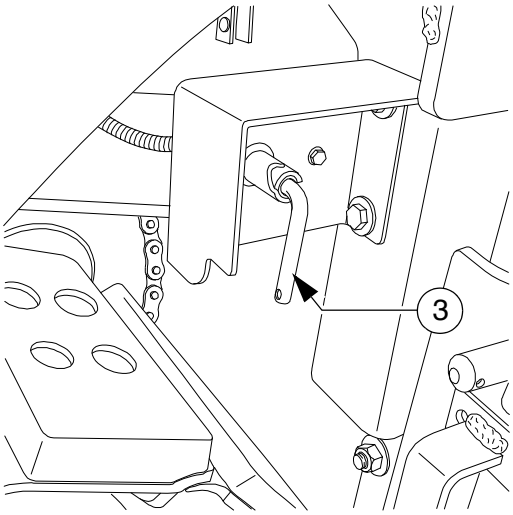
Main battery switch

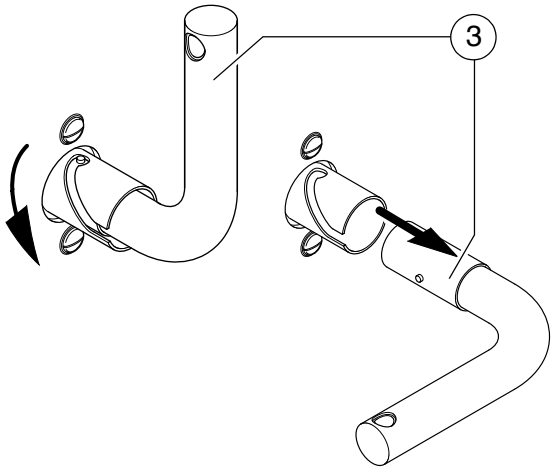
The main battery switch separates the current circuit from the battery to the main fuse.

☞ For the assignment of all fuses, see chapter F.

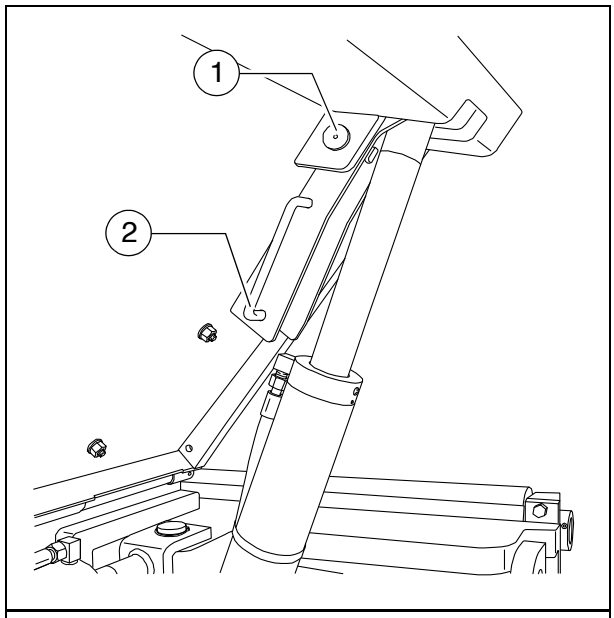
- To interrupt the battery's current circuit, turn the key pin (3) to the left and pull it out.

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





Hopper transport safeguard

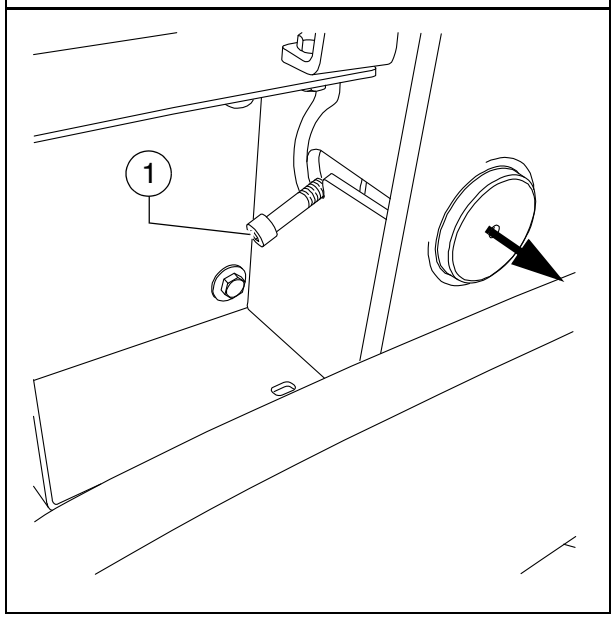


Before transporting or in order to park the paver finisher, the hopper halves must be swung upwards and the transport safeguards for the hopper must be inserted on both sides of the vehicle.

- Pull the locking pin (1) and place the transport safeguard (2) with the handle above the hopper cylinder's piston rod.

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

Screed lock, mechanical (○)



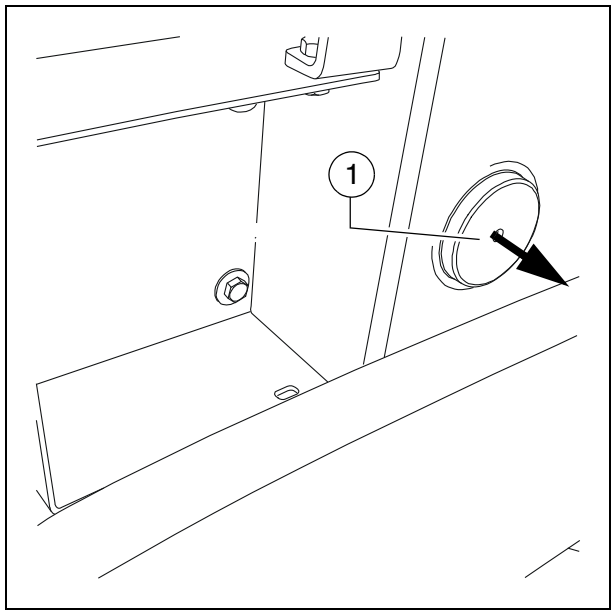
☞ The screed locks must additionally be engaged on both sides of the vehicle prior to transportation with the screed lifted.

STOP 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 screed lock only at crown adjustment "zero"!
Screed lock only for transportation!
Do not enter or work under screed only secured with screed lock for transportation!
Danger of accidents!

Screed lock, hydraulic (○)



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

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

- Lift the screed.
- Activate the function on the operating panel.

☞ The two screed locks (1) extend hydraulically.

⚠ **ATTENTION!**
Insert screed lock only at crown adjustment "zero"!
Screed lock only for transportation!
Do not enter or work under screed only secured with screed lock for transportation!
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.

- Loosen the clamping bolt (1) to change the position of the indicator.

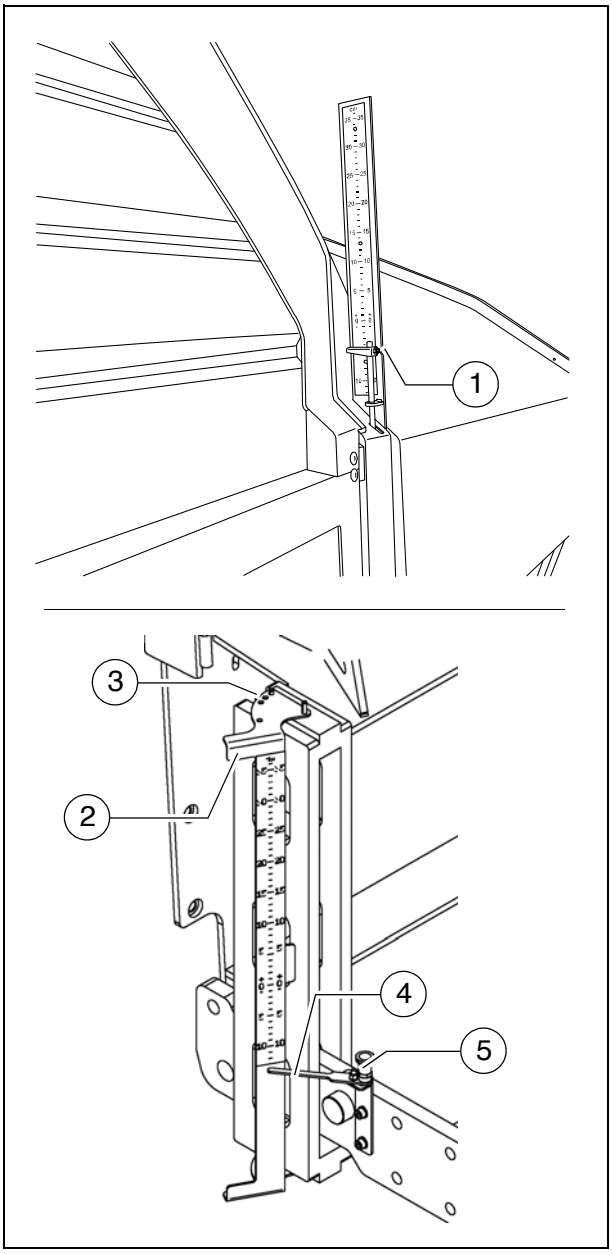
☞ In normal paving situations, the same paving thickness should be set on both sides of the vehicle!

Other displays (○) are on the crossbeam guide.

- To change the reading position, the scale (2) can be raised and lowered again in one of the adjacent locating bores (3).
- The pointer (4) can be swivelled to different positions using the locking knob (5).

⚠ The scale (2) and pointer (4) must be swivelled in completely to transport the machine.

⚠ Avoid parallax errors!

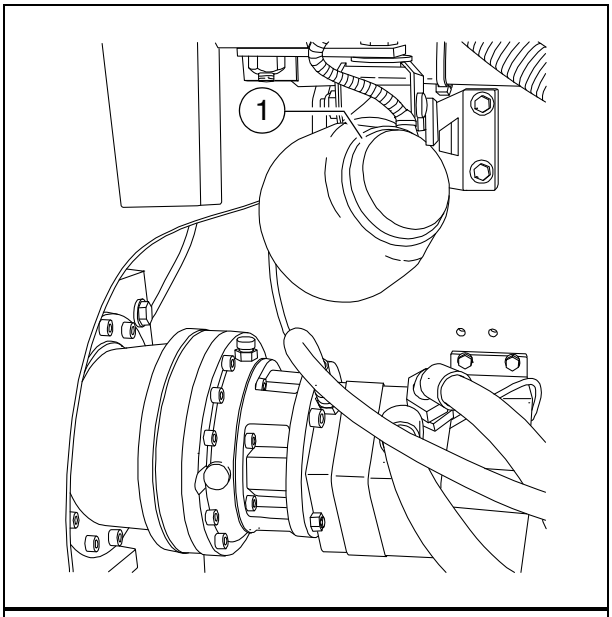


Auger lighting (○)

☞ Two swivelling headlights (1) are located on the auger box for illuminating the auger compartment.

- They are engaged together with the working lights.

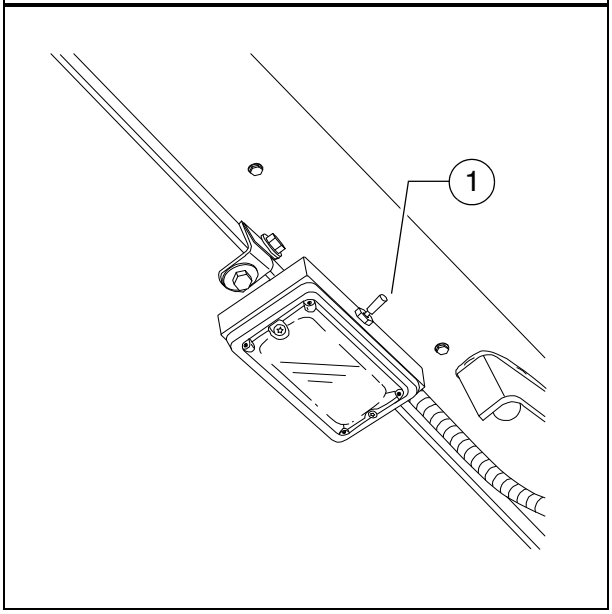
☞ These are activated together with the other working lights on the operating panel!



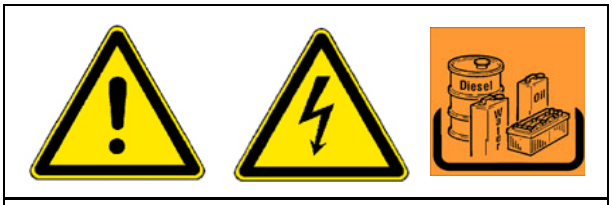
Engine compartment lighting (○)

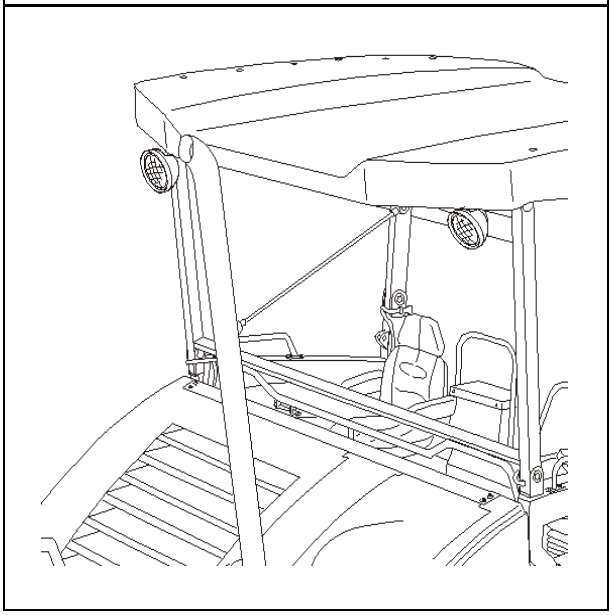
☞ The engine compartment lighting can be activated when the ignition is switched on.

- On/off switch (1) for the engine compartment lighting.



Xenon working light (○)





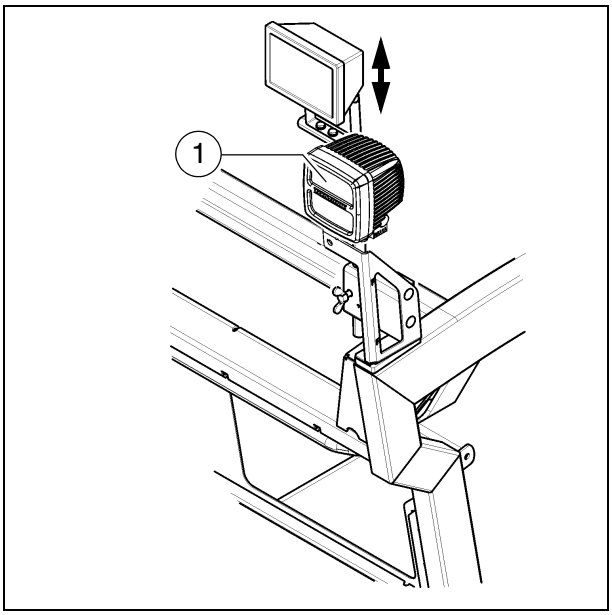
STOP Xenon working lights have a secondary high voltagesource.
Only a qualified electrician may work on the lighting after the primary voltage has been switched off.

☞ Please contact a Dynapac dealer!

STOP Caution, environmentally harmful waste! Working lights with Xenon lamps have a gas discharge lamp containing mercury (Hg). A defective lamp is deemed to be hazardous waste and must be disposed of in accordance with the local regulations.

LED working light (○)

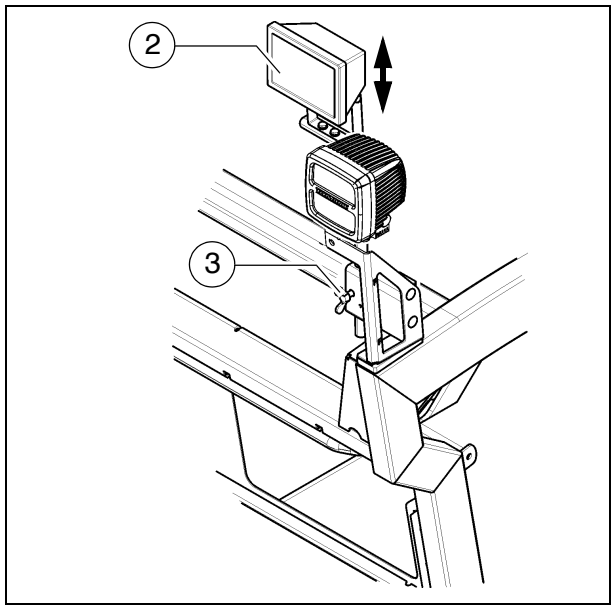
There are two LED spotlights (1) at the front of the machine and also at the back.



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

500 watt spotlight (○)

There are two halogen spotlights (2) at the front of the machine and also at the back.



- For machine without roof: use clamping bolt (3) to change the height of the spotlights.

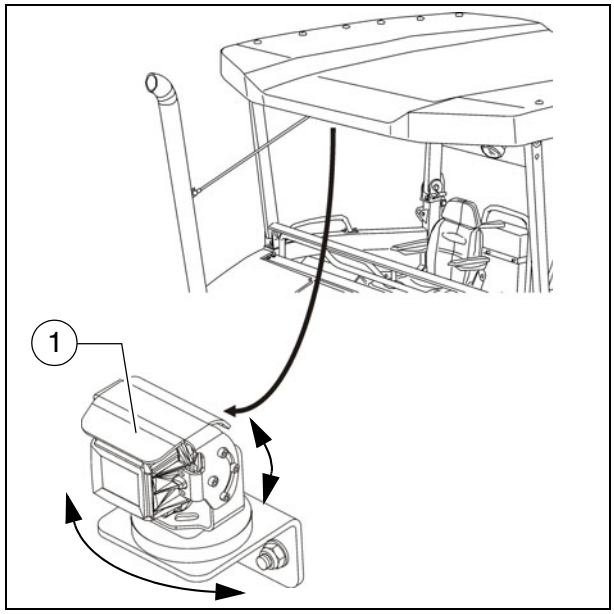
STOP Always align the working lights to avoid dazzling the operating personnel or other road users!

STOP Danger of burning! The working lights get very hot!
Do not touch working lights that are switched on or hot!

☞ When equipped with an electric screed, it is possible for the lamps to flicker irregularly during the heating-up phase with simultaneous operation of 500 watt spotlights (○) and the power moon (○).
Preferably only one type of lighting should be used during the heating-up phase.

Camera (○)

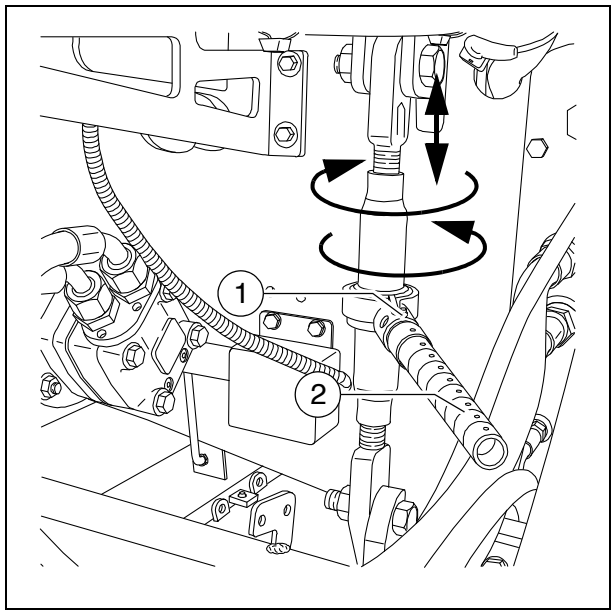
There is a camera (1) at the front of the machine and also at the back.



- The camera can be swivelled in various directions.

☞ The pictures are shown in the control panel display.

Auger height adjustment ratchet (○)



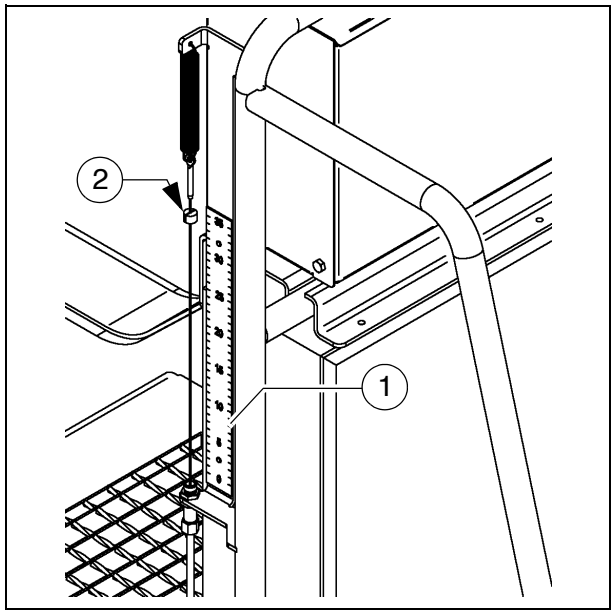
For mechanical adjustment of the auger height

- 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 on both auger height indicators.

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

Auger height indicators



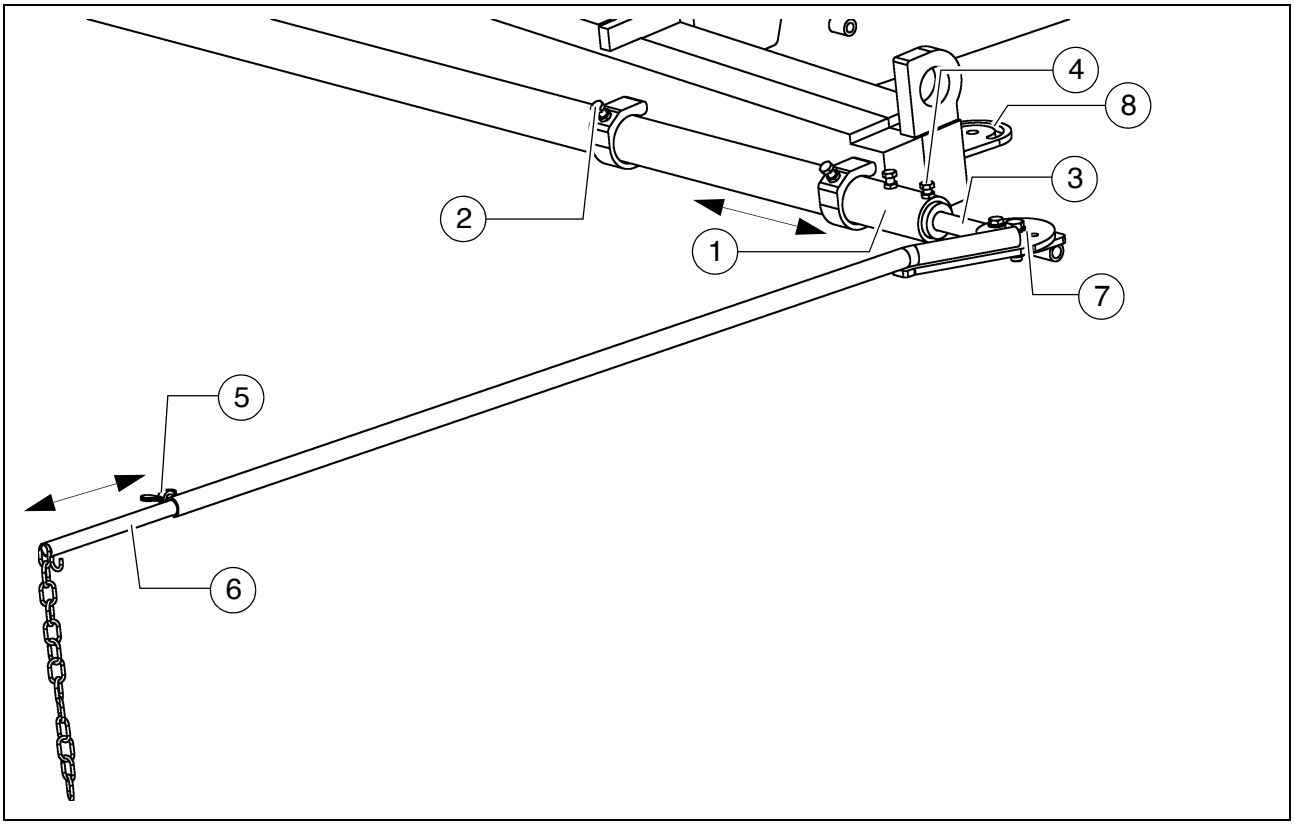
A scale (1), on which the currently set auger height can be read off, is located on the left and right sides of the ladder.

☞ Display in cm

- Loosen the clamping bolt (2) to change the position of the indicator.

⚠ When setting the auger height, adjustment must be carried out evenly on both sides to prevent the auger from jamming!

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.

STOP 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 on the face end of the vehicle and can be pulled out to the left or right after releasing the four clamping bolts (2).

☞ In the case of larger working widths, the sensor rod extension (3) is inserted into the sensor rod.

- Once the sensor rod has been set to the desired width, the clamping bolts (2) must be tightened again.
- The inserted sensor rod extension is secured with the bolts (4).

☞ Depending on the side of the vehicle on which the sensor rod extension is used, the entire sensor rod may have to be removed and re-inserted on the other side of the vehicle!

- After releasing the wing nuts (5), the end section of the sensor rod extension (6) can be set to the desired length; the angle can additionally be changed by swivelling on the joint (7).

☞ Either the adjustable indicator or the chain can be used as an aid to orientation.

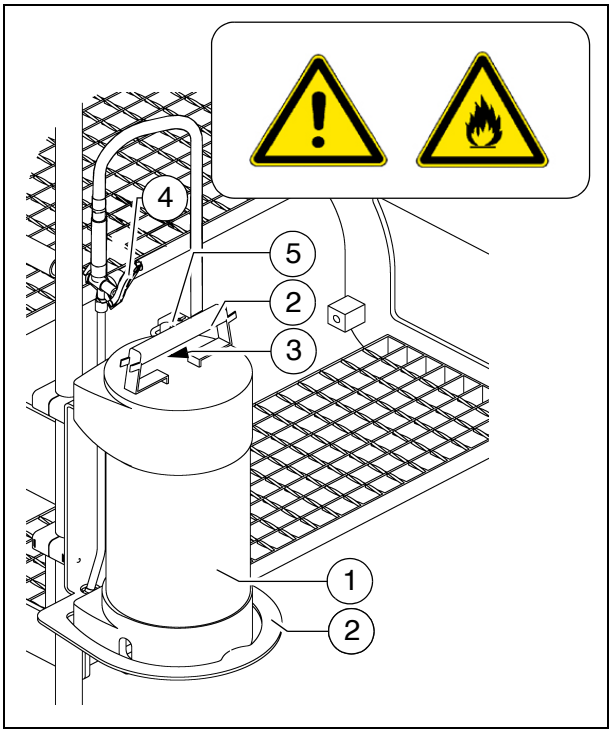
⚠ Tighten all assembly parts properly after setting up!

☞ The sensor rod extension's joint (7) can be mounted on both sides of the vehicle in position (8).
At this point, the sensor rod extension can be swivelled in for transporting the vehicle without increasing the vehicle's basic width.

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).



STOP 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 quick-action coupling (2).

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

☞ A permanently installed hose package (3) for the spraying system is available as an option.

- 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.

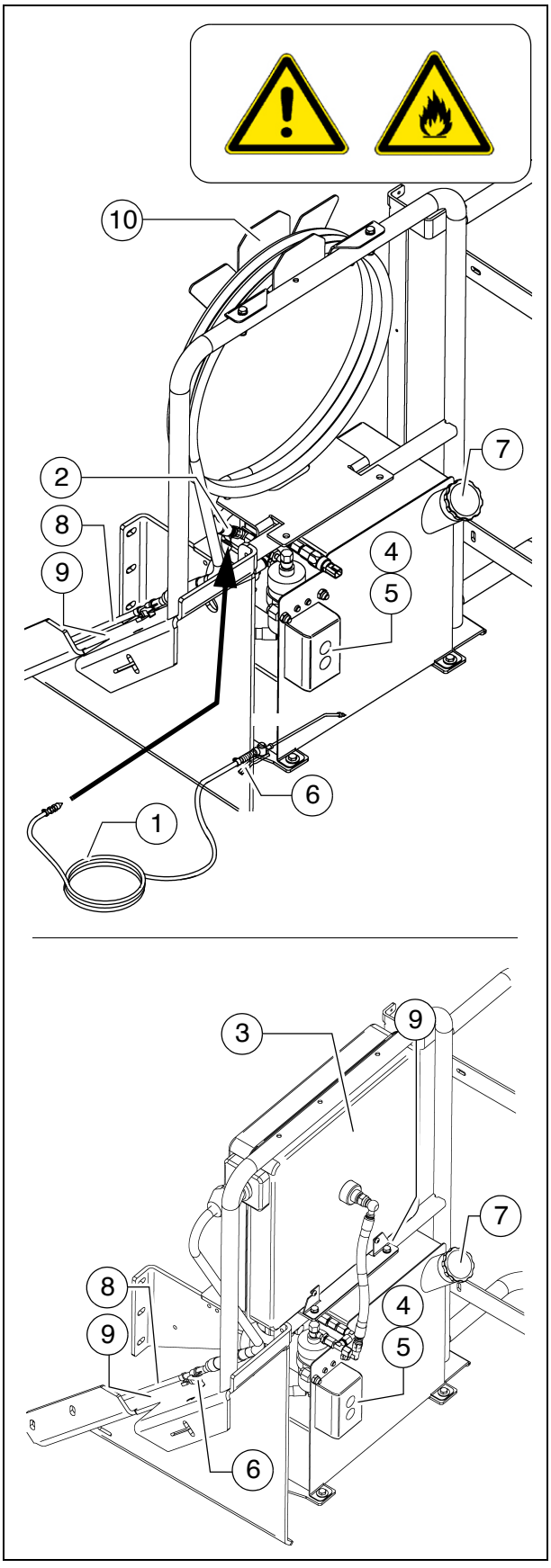
- Actuate button (4) to activate and deactivate the pump.
  - The indicator lamp (5) lights up when the emulsion pump is running.
- Actuate the manual valve (6) to spray.

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

☞ The spraying system is fed by a canister (7) at the vehicle step.

STOP Refill the canister only while the vehicle is stationary!

- If the system is not in use, place the spray lance (8) in the provided holder (9).
- If the spray hose is not in use, it can be placed in its bracket (10).

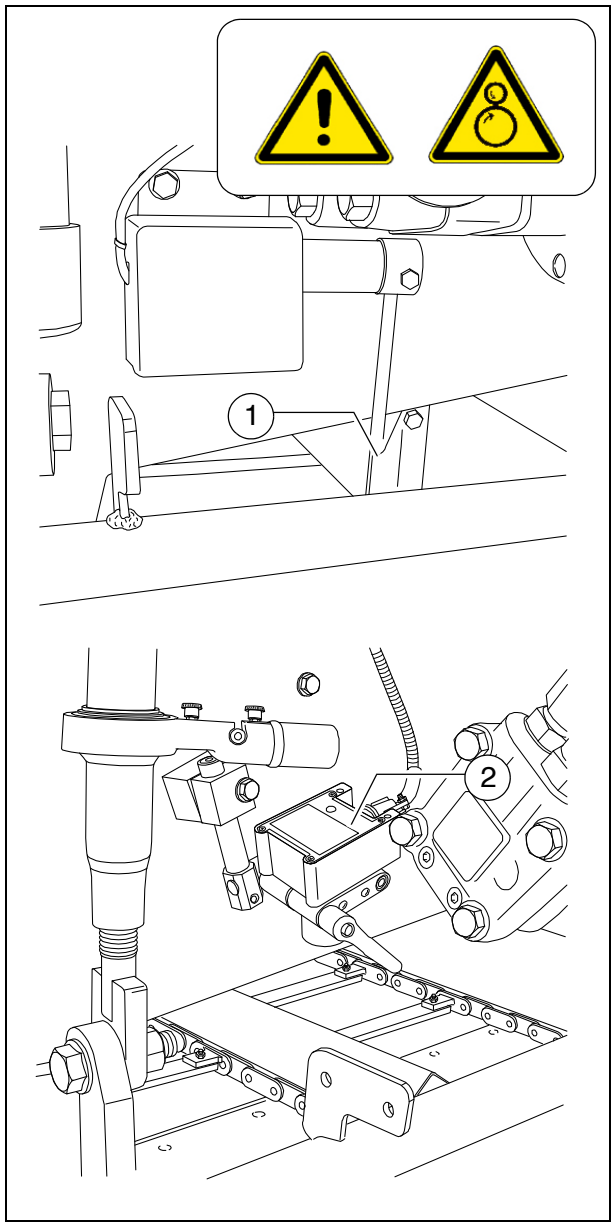


Conveyor limit switches - PLC version

The mechanical conveyor limit switches (1) or the ultrasonic conveyor limit switches (2) 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.

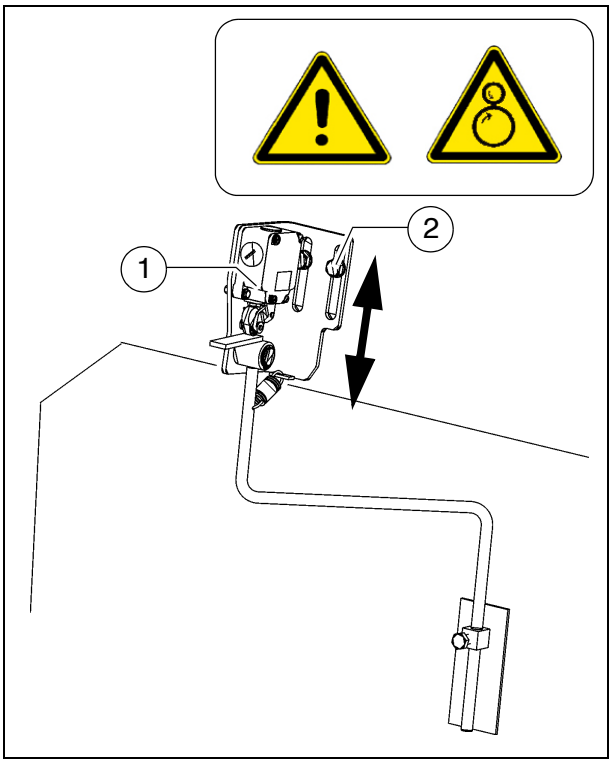
☞ This requires that the auger height has been adjusted correctly (see chapter E).

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



Conveyor limit switches - conventional version

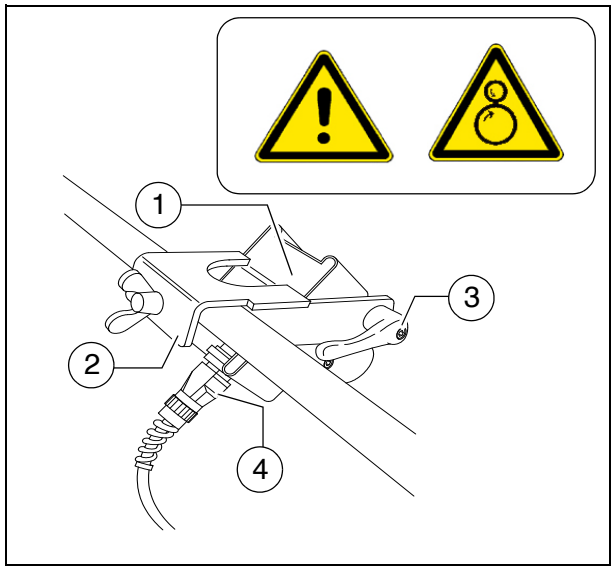
The mechanical conveyor limit switches (1) control the material flow on the relevant half of the conveyor. The conveyors should stop when the material has roughly reached the area below the auger tube.



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

- To set the deactivation point, release the two mounting screws (2) and set the switch to the required height.
- After adjusting, retighten all mounting parts properly.

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.

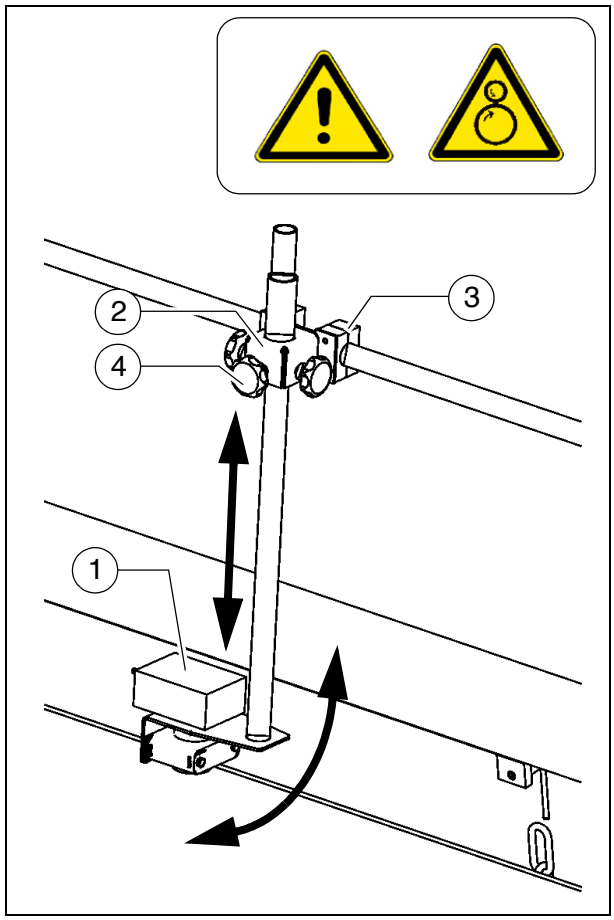
☞ The sensors should be adjusted so that 2/3 of the augers are covered with the paving material.

☞ 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.

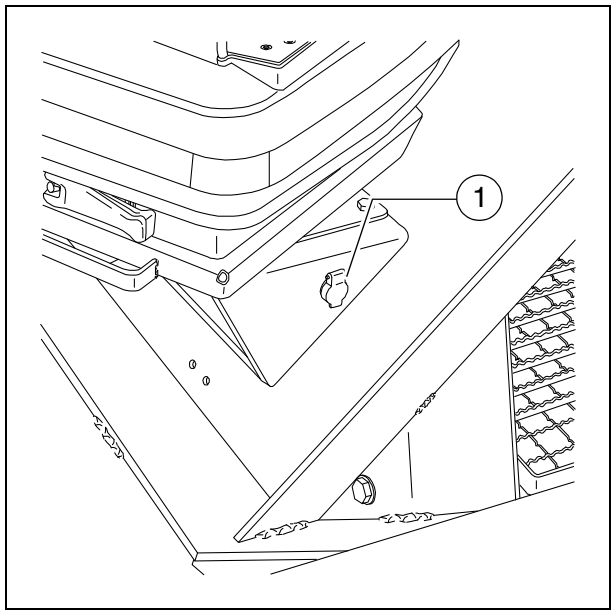
☞ We recommend adjusting the limit switch positions during material distribution.

24 volt / 12 volt sockets (○)

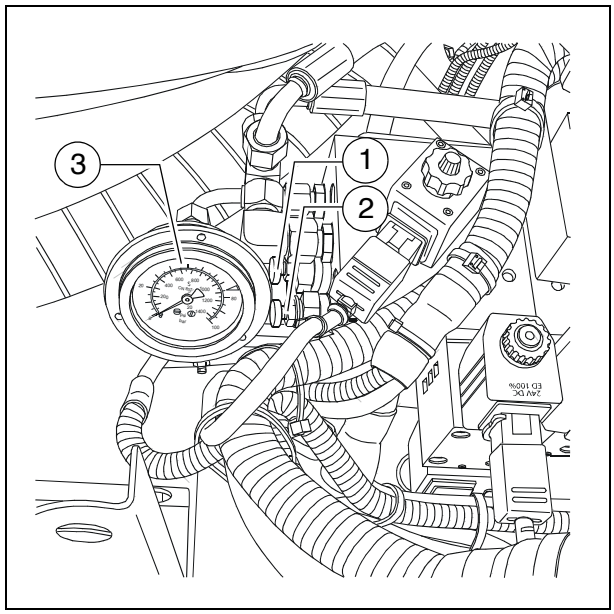
A socket (1) is located beneath the left/ right seat consoles.
Additional working lights can be connected here, for example.

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

☞ Voltage is present when the main switch is switched on.



Pressure control valve for screed charging/relieving



A valve (1) is used to set the pressure for additional screed charging/relieving.

☞ Switching on, see screed charging/relieving (chapter "Operating panel", "Operation").

- For pressure indication, see manometer (3).

Pressure control valve for paving stop with relieving

This is used to set the pressure for "Screed control with paver finisher stop - floating stop with relieving".

- Switching on, see screed stop / paving stop (Chapters "Operating panel", "Operation").
- For pressure indication, see manometer (3).

Manometer for screed charging/relieving

The manometer (3) indicates the pressure for:

- Screed charging/relieving when the drive lever is in the third position (pressure setting with valve (1)).

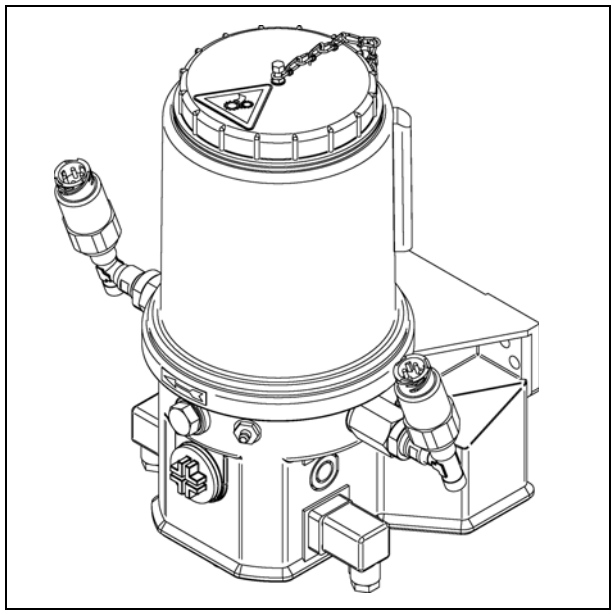
Central lubrication system (○)

The central lubrication system is activated in automatic mode as soon as the drive engine is started.

- Pumping time: 4 min
- Pause time: 2 h

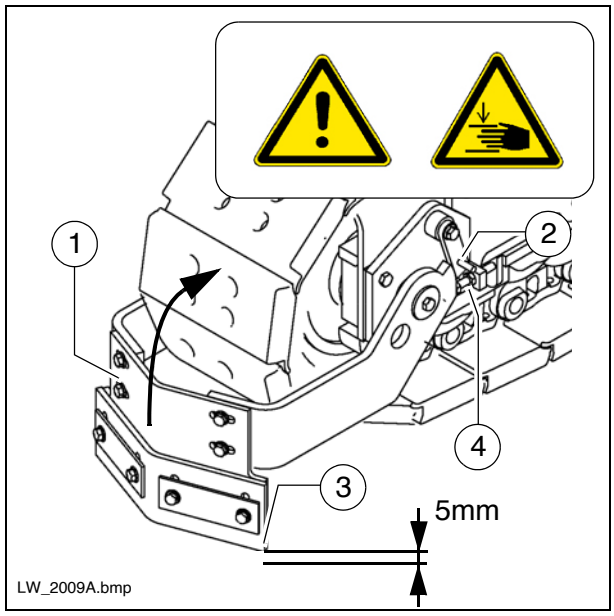
⚠ It is prohibited to change the factory-set durations of pumping and break without consulting the technical customer service!

☞ Changing the duration of lubrication and breaks may be necessary when laying mineral or cement bound material mix.



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.

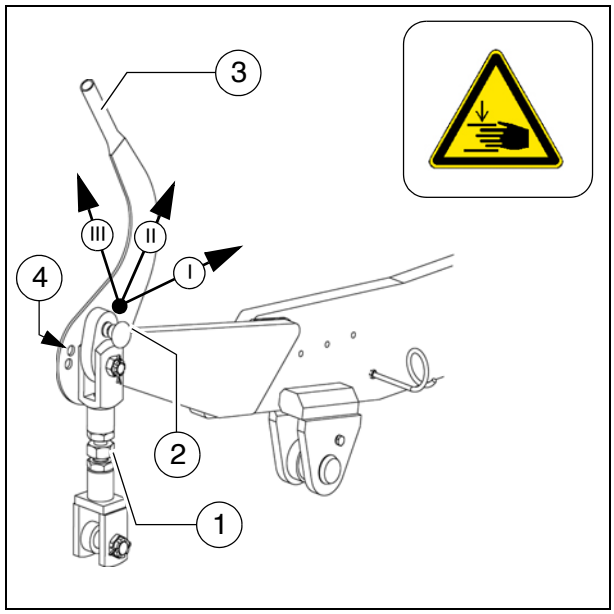
Swivelling the lane clearers:

- 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.

⚠ To avoid collisions, the lane clearer must be adjusted so that a few mm are available between the ground and the blade (3).

☞ 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!

☞ When equipped with rigid screed, the second hole (4) is intended for (item I).

Push roller crossbar, adjustable

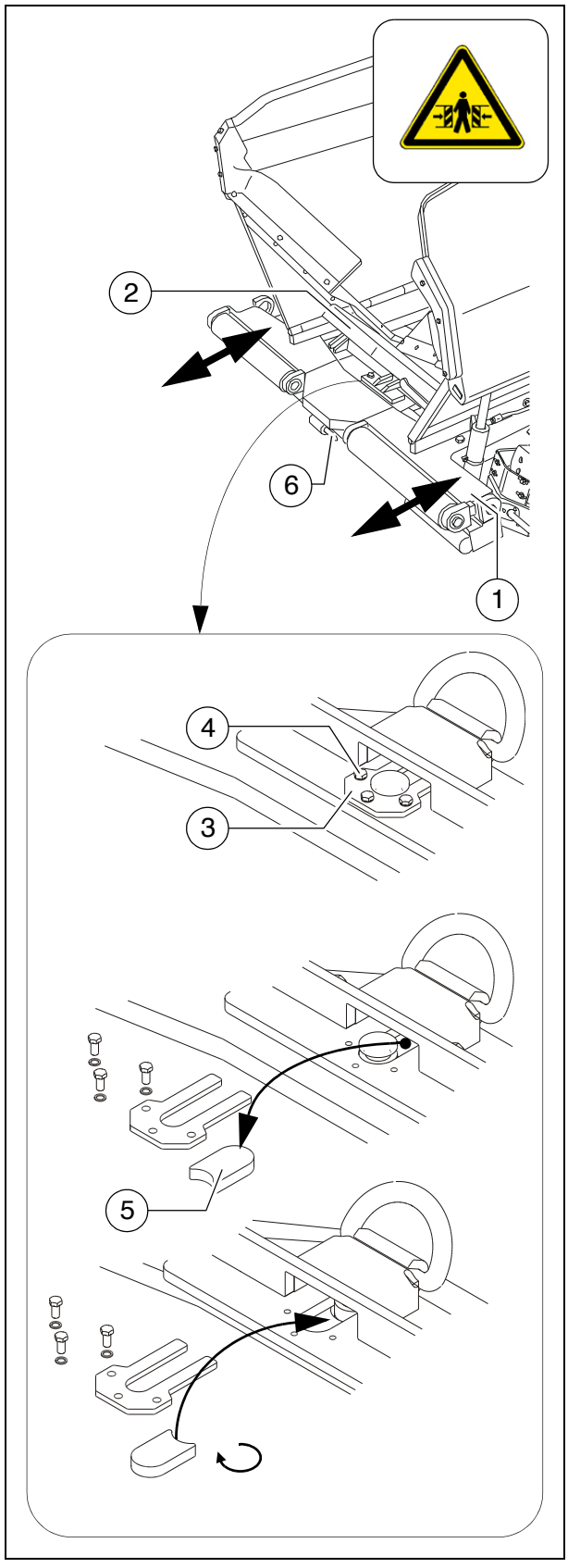
For adaptation to various truck design types, the push roller crossbar (1) can be shifted to two positions.

☞ The adjustment travel is 90 mm.

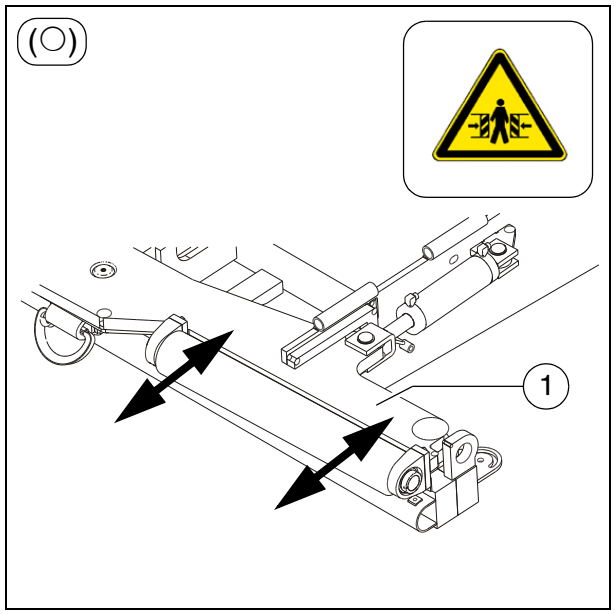
- Close the hopper halves to lift the hopper flap (2).
- After removing the bolts (4), remove the locking plate (3) on the lower side of the crossbar.
- Remove insert plate (5).
- Move the push roller crossbar to stop to the front / rear position.

☞ Shift the push roller crossbar at the towing eye (6) or use a suitable assembly lever in its guide (left and right) to push it into the corresponding position.

- Turn the insert plate (5) 180° and reinsert into the groove in the front or rear position.
- Properly reinstall the locking plate (3) with bolts (4).



Push roller crossbar, hydraulically extendable (○)



For adaptation to various truck design types, the push roller crossbar (1) can be retracted and extended hydraulically.

☞ The max. adjustment travel is 90 mm.

- Activate the function on the operating panel as necessary.

⚠ Extending the push roller increases the transportation length of the paver finisher.

STOP On actuation, ensure that nobody is in the danger area!

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.

Storage box

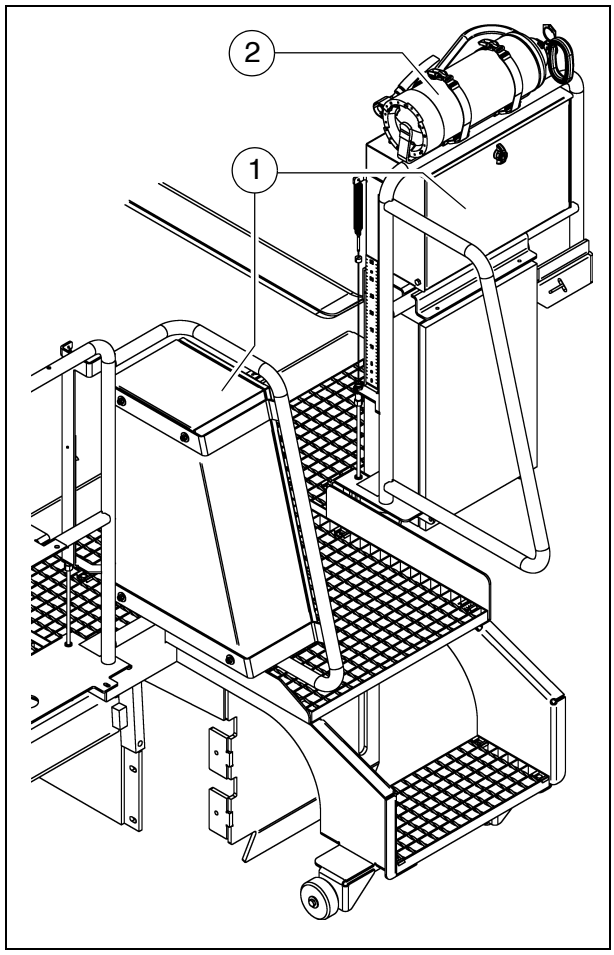
☞ For storing the on-board tool kit, remote controls and other accessories.

☞ Lock the storage box at the end of work.

Fire extinguisher (○)

☞ The paver finisher personnel must be familiarised with fire extinguisher (2) operation.

☞ Observe the inspection intervals for the fire extinguisher!

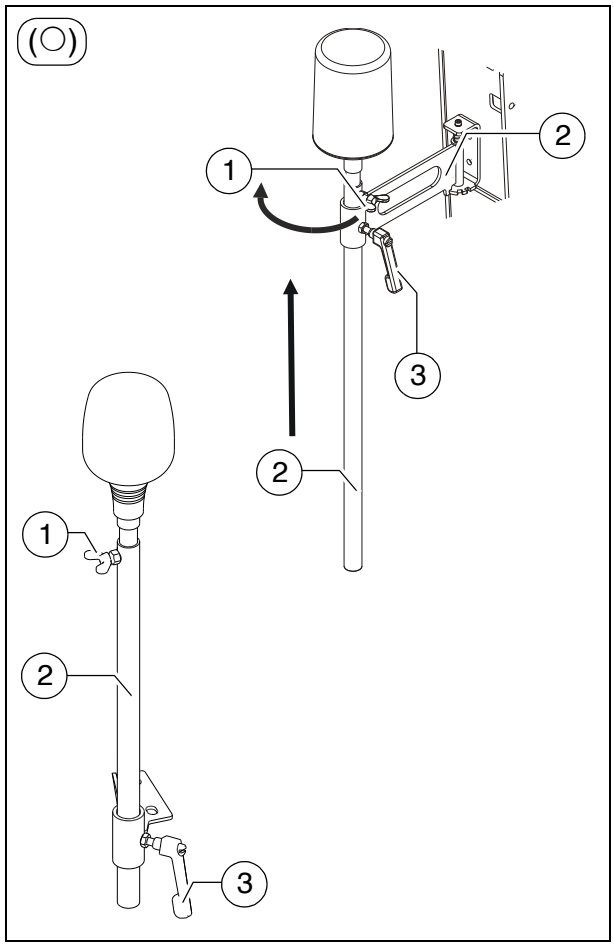


Rotary beacon (○)

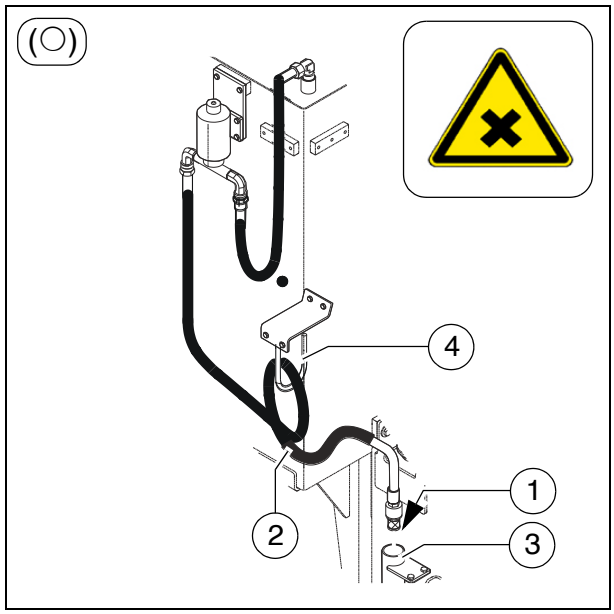
⚠ The function of the rotary beacon must be checked daily before starting work.

- Place the rotary beacon onto the plug-in contact and secure with a wing bolt (1).
- Slide the rotary beacon with the tube (2) out to the desired height and secure with the clamping bolt (3).
  - Vehicle version with protective roof: Raise the bracket (4), swivel to the outer position and allow to engage there.
- 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.



Fuelling pump (○)



⚠ The fuelling pump must only be used to pump diesel fuel.

⚠ Foreign bodies which are larger than the mesh size of the intake cage (1) lead to damage. An intake cage must therefore always be used.

⚠ Each time fuelling is carried out, the intake cage (1) must be checked for damage, and must be replaced if damaged. Do not work without it under any circumstances, as the fuelling pump is not otherwise protected against foreign bodies.

- Insert the suction hose (2) into the container which is to be emptied.

☞ To enable the container to be emptied completely, the suction hose must reach down to the floor of the container.

- Activate the function on the operating panel as necessary.

⚠ The fuelling pump does not shut off automatically. Therefore, never leave the pump unattended when fuelling!

⚠ Never operate the pump without pumping a fluid. The risk of damaging your diesel pump is run if it runs dry.

- To end fuelling, switch the function "off" on the operating panel.
- Place the end of the hose, with the intake cage, into its cup (3) so that no diesel is able to escape into the environment.
- Gather up the hose and place it over the bracket (4).

Power moon (○)

The power moon is a special, illuminated balloon with shadow-reducing and anti-dazzle light.

Use of the power moon increases the height of the paver finisher.

Note the passage height of bridges and tunnels.

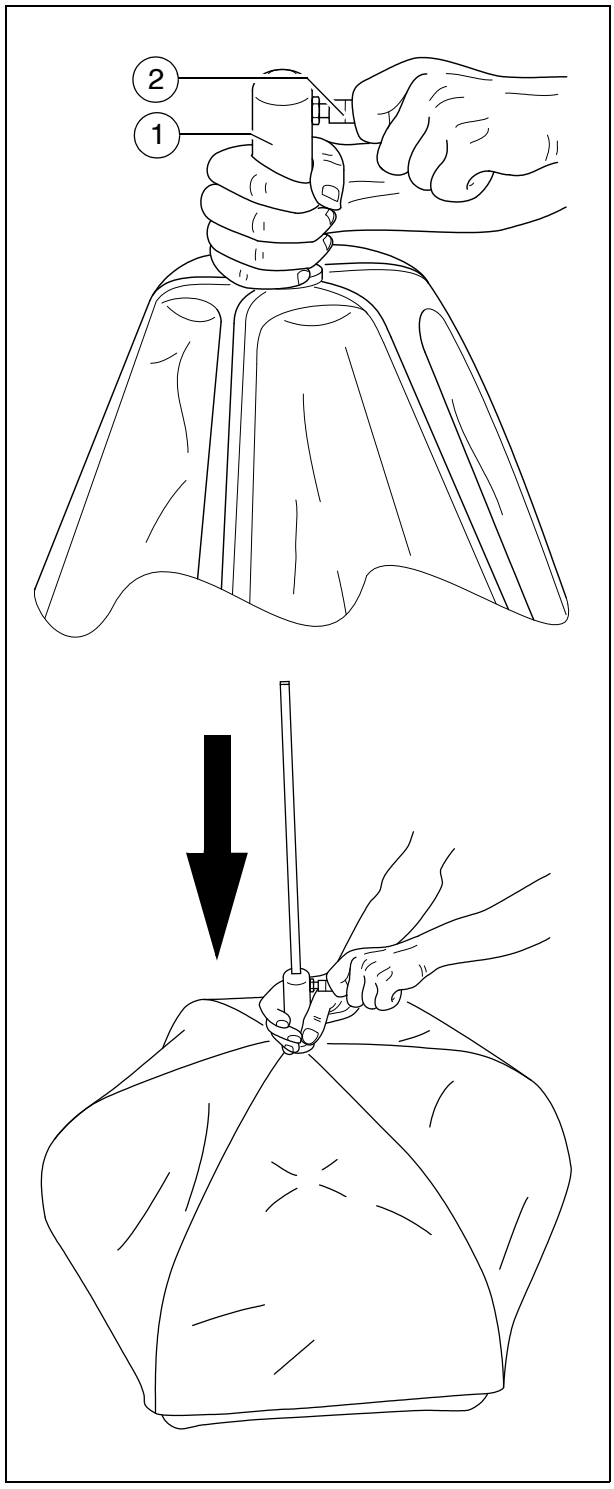
The power moon must not be used in the vicinity of highly flammable materials (e.g. petrol and gas); a safety distance of at least 1 metre must be maintained from combustible materials.

A safety distance of at least 50 m must be maintained from high-voltage lines, and at least 2.5 m from railway track voltage lines.

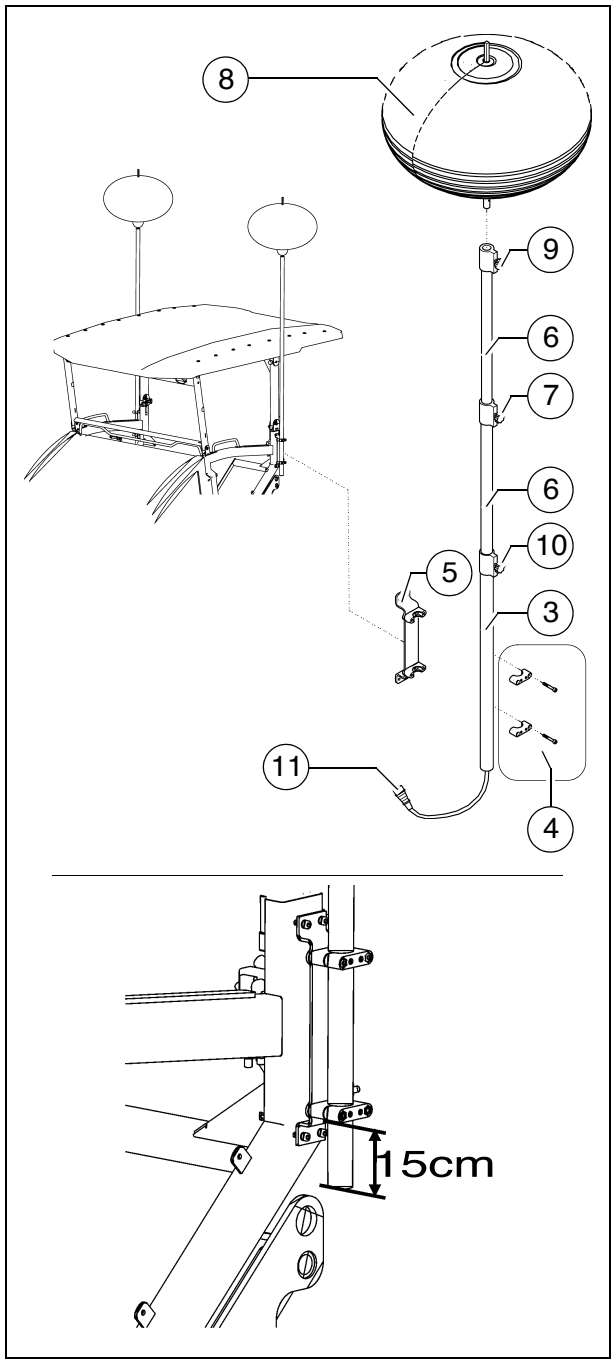
The power moon must not be operated if the electric supply cables or connectors are damaged.

- Hold the handle (1) tightly and pull the detent pin (2) out.
- Press the handle down until the detent pin engages.

Before starting up, check whether the Velcro seal around the power moon is closed. If the skin is damaged, it must be repaired or replaced. The bulbs must be checked for firm seating and damage.



- Secure the lower part of the tripod (3) to the preassembled bracket (5) using the relevant assembly parts (4).
- Connect the tripod sections (6) and secure with stop screws (7).
- Place the power moon's journal (8) onto the top part of the tripod and secure with the stop screws (9).
- Finally, place the assembled tripod sections, together with the power moon, onto the lower part of the tripod (3) and secure with the stop screws (10).
- When the power moon has been fully assembled and secured, the power moon connector (11) can be connected to its current supply.
- The power moon is switched off by removing the power connector (11) from the socket.



⚠ On assembly, make sure that the lower part of the tripod projects max. 15 cm out of the bracket. Risk of collision!

☞ When equipped with an electric screed, it is possible for the lamps to flicker irregularly during the heating-up phase with simultaneous operation of 500 watt spotlights (○) and the power moon (○). Preferably only one type of lighting should be used during the heating-up phase.

D 40 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
- Two filled propane gas bottles
- 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

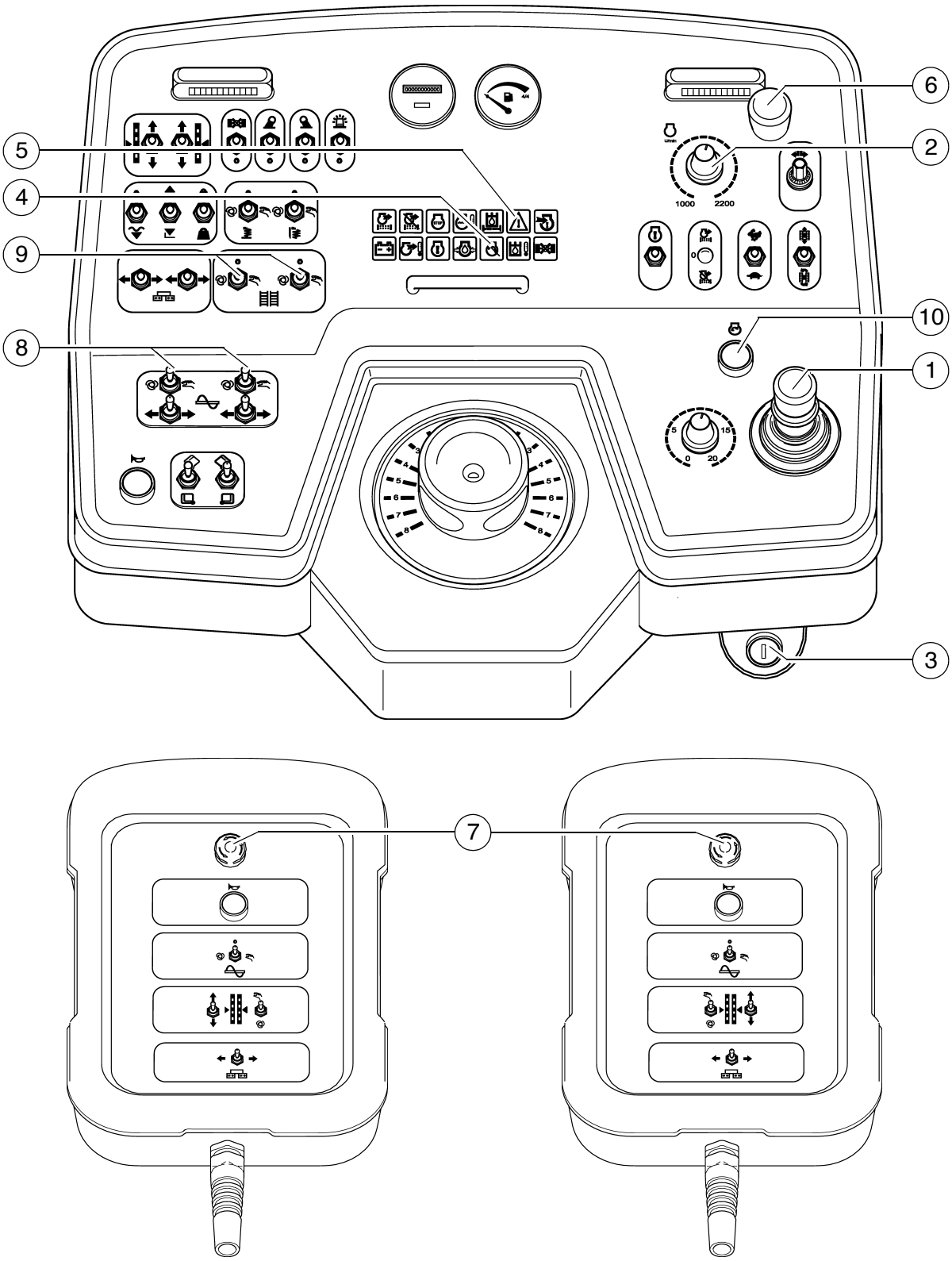
Before starting work
(in the morning or when starting paving)

- 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 "Checklist for the vehicle operator" given below.

Check list for the vehicle operator

Check!	How?
Emergency stop button - on the operating panel - on both remote controls	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 - on the operating panel - on both remote controls	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 (○): - Bottle holders - Bottle valves - Pressure reducer - Hose break safety devices - Shut-off valves - Main shut-off valve - Connections - Indicator lamps of the switch box	Check: - Secure seat - Cleanliness and tightness - Working pressure 1.5 bar - Function - Function - Function - Tightness - All indicator lamps must light up when the system is switched on

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	For larger working widths, the walkway plates must be extended. Hinged walkway plates must be swung down. Check that the side shields, the side plates and the covers are securely seated.
Screed transport safeguard	When the screed is lifted, it must be possible to push the locking rods sideways into the recesses in the crossbeams using the lever beneath the seat.
Hopper transport safeguard	When the hopper is closed, it must be possible to fold the catches over the lock studs on the two lids of the hopper.
Protective roof	Both locking bolts must be in the provided bore hole.
Miscellaneous: - 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!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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

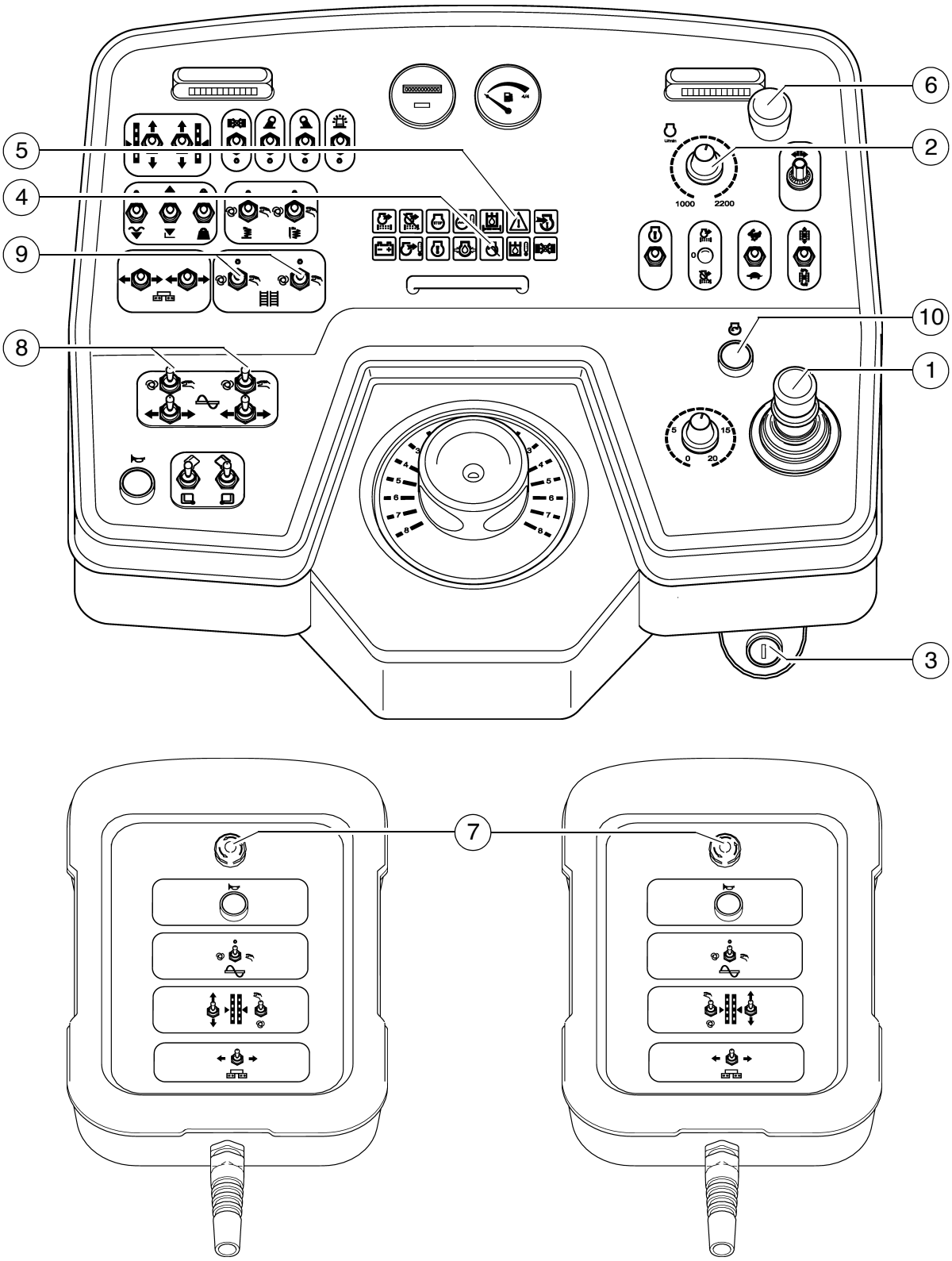
Set the drive lever (1) to the centre position and the speed adjuster (2) to minimum

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

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

☞ Starting is not possible when the "Start inhibit" (4) or drive mode (5) indicator lamps indicate that an emergency stop button (6) / (7) on the remote control has been pressed, or the auger function (8) or conveyor function (9) are switched to "AUTO" or "MANUAL" operating mode.

- Press the starter button (10) to start the engine. Do not let the starter run permanently for more than 30 seconds; allow for a break of 2 minutes after every attempt!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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 24 V system
- Additional 24 V 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.
- Use appropriate cables to connect the external power source.

⚠ Observe the polarity! Always connect the negative cable last and disconnect it first!

☞ Starting is not possible when the "Start inhibit" (4) or drive mode (5) indicator lamps indicate that an emergency stop button (6) / (7) on the remote control has been pressed, or the auger function (8) or conveyor function (9) are switched to "AUTO" or "MANUAL" operating mode.

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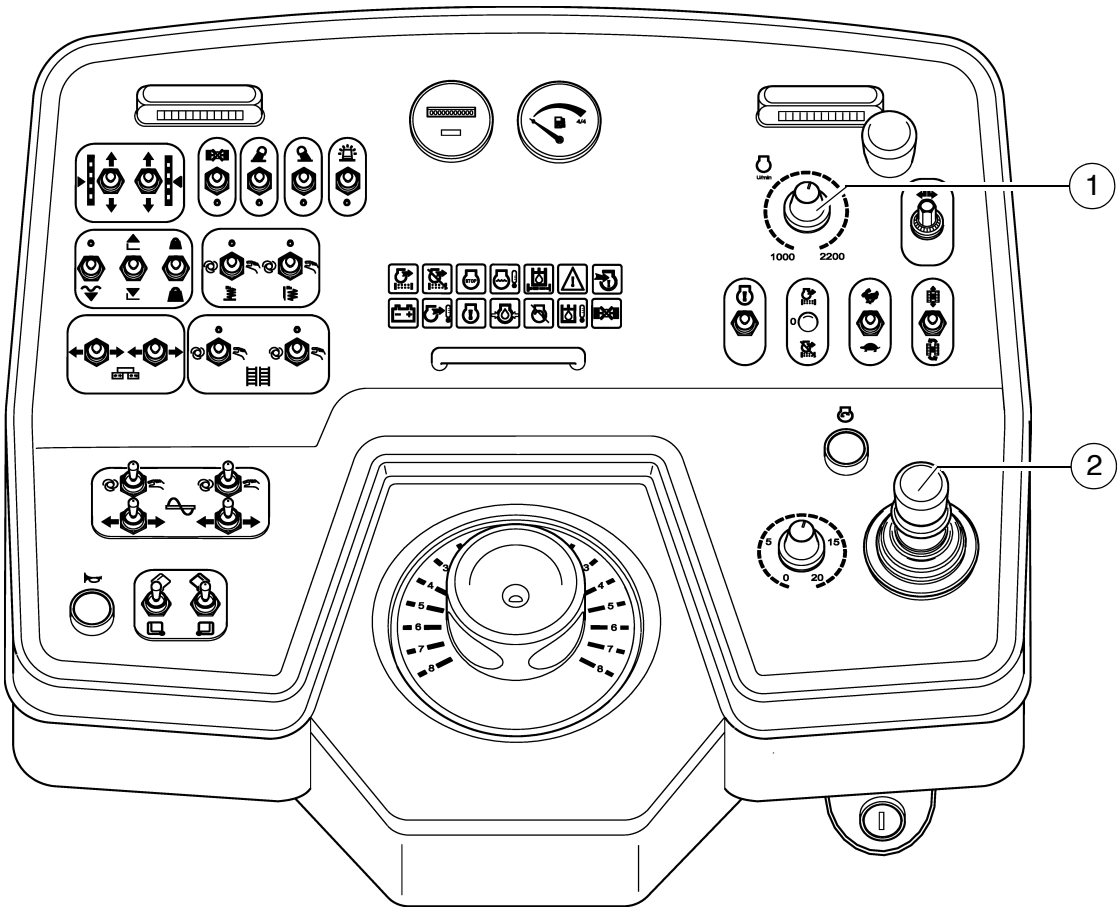
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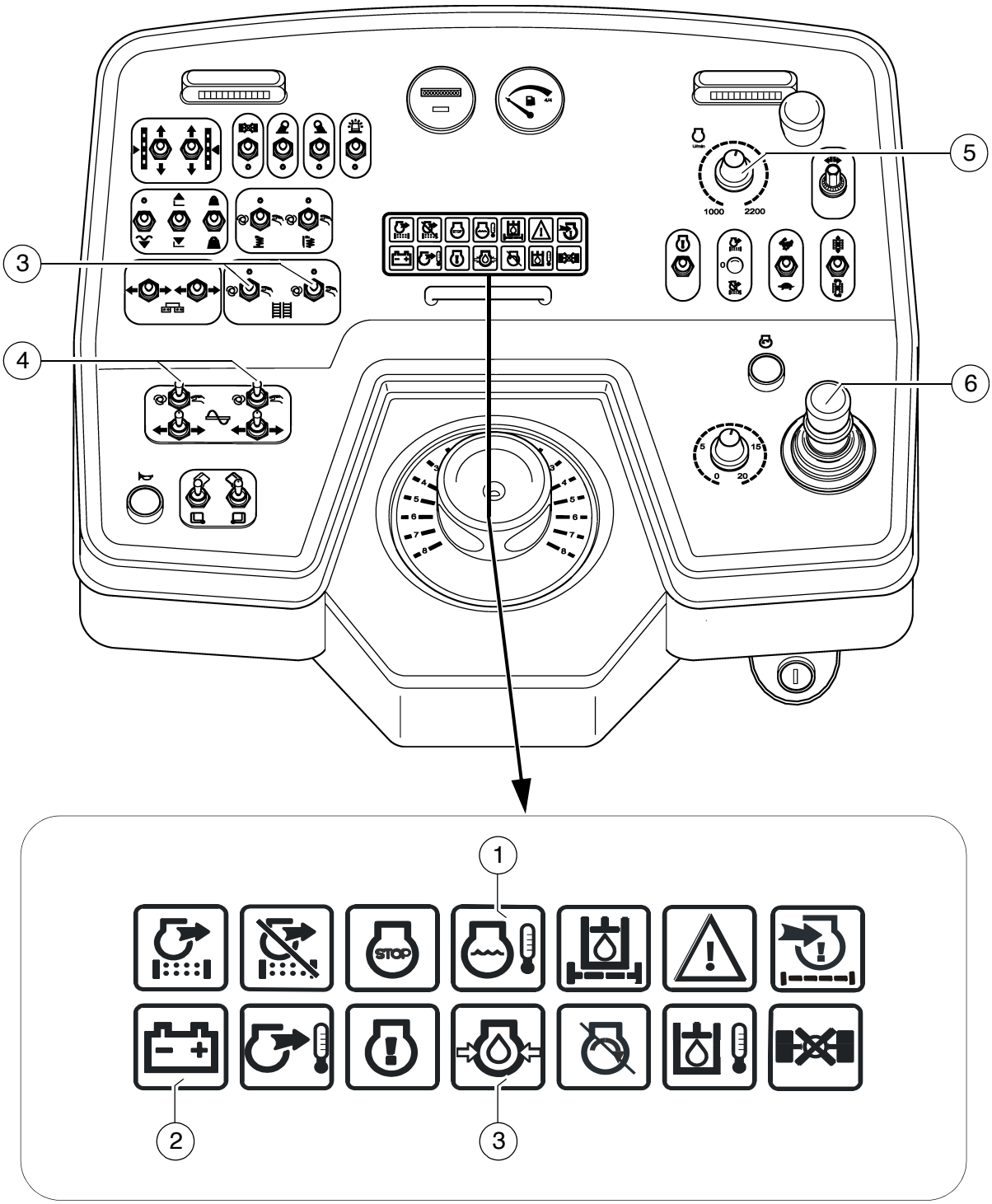
After starting

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

Observe indicator lamps

The following indicator lamps must be observed under all circumstances:

For further possible faults, see Engine operating instructions.

Engine coolant temperature check (1)

Lights up when the engine temperature is outside of the permissible range.

⚠ Stop the paver finisher (drive lever to the centre position), let the engine cool down while idling.
Determine the cause and correct it if necessary.

☞ The engine performance will be throttled down automatically. (Driving mode remains possible).
After cooling down to normal temperature, the engine will run with full performance again.

Battery charge indicator (2)

Must go out after starting when the engine revs up.

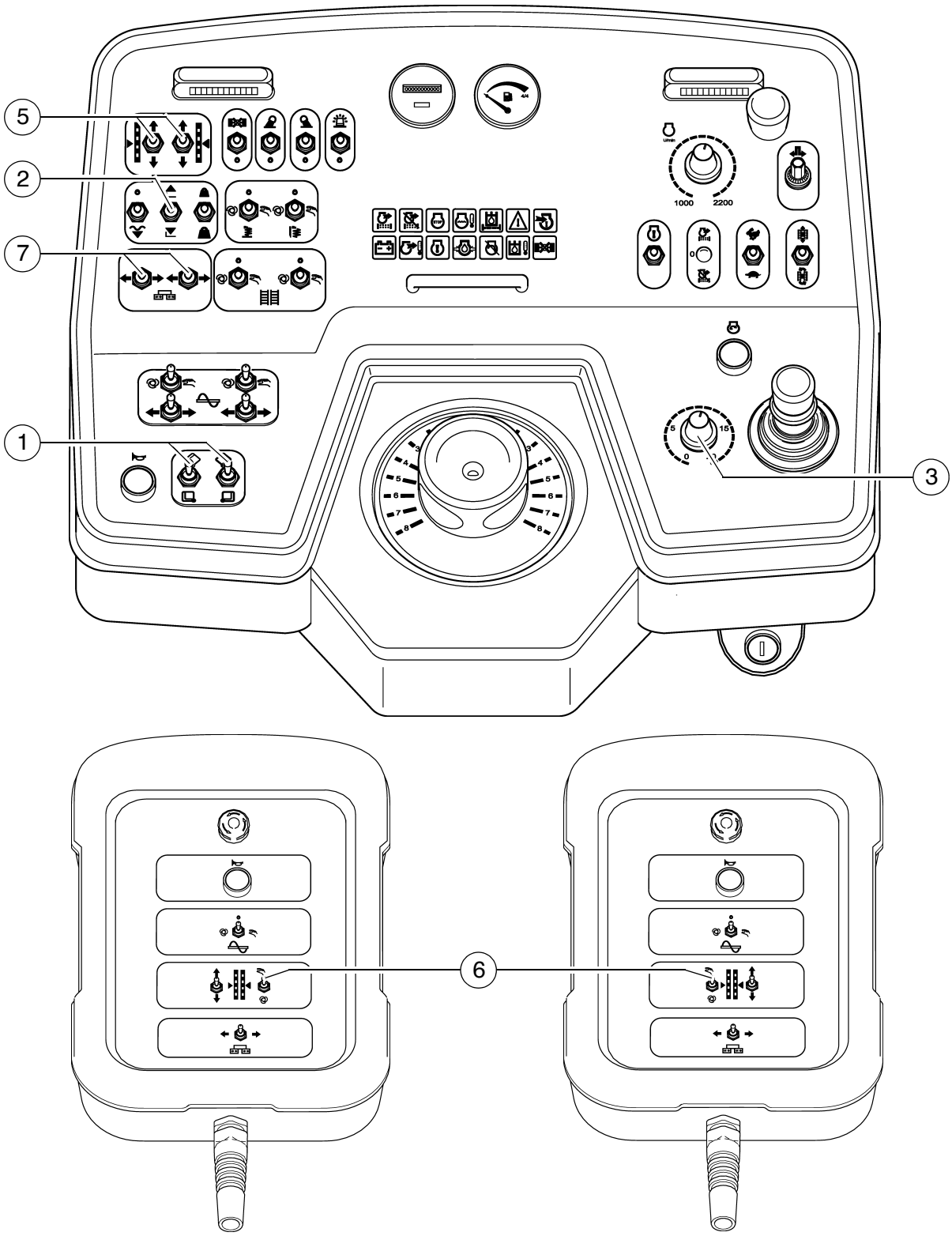
⚠ If the lamp does not go out or lights up during operation: Briefly rev up the engine. Switch off the engine and determine the fault if the lamp does not go out.

For further possible malfunctions, refer to the section "Malfunctions".

Oil pressure indicator lamp for the diesel engine (3)

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.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1.2 Preparation for transportation

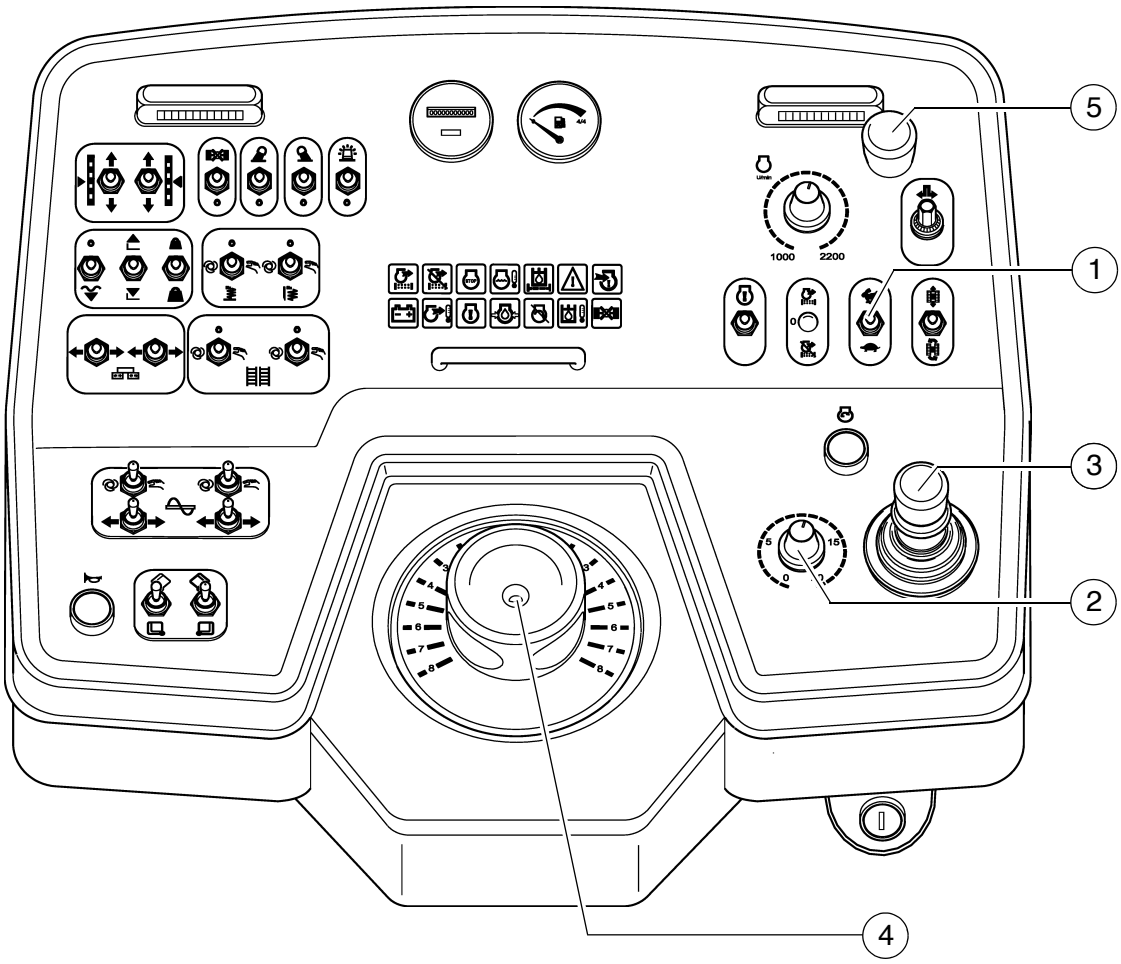
- Use switch (1) to close the hopper.
- Engage both hopper transport safeguards.
- Lift the screed completely using switch (2), set the crossbeam lock.
- Turn the travel drive preselector (3) to zero.
- Fully extend the levelling cylinders with the switch (5).

☞ 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!

☞ The drive is locked by an engine start with drive lever out of center position. To start the drive, the lever must be put into center position before.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Driving and stopping the paver finisher

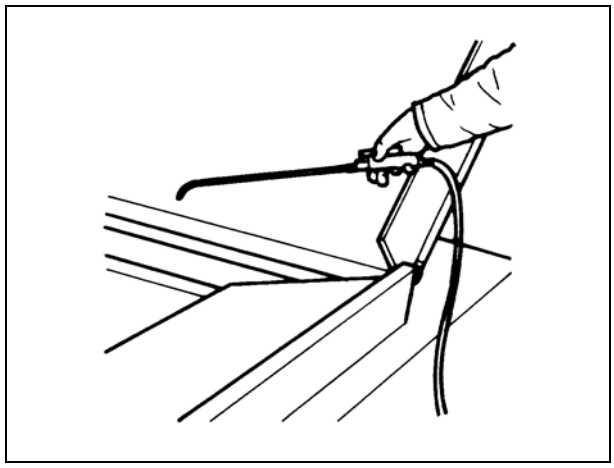
- Set the travel drive to the desired speed level, fast/slow (1).
  - Upper switch position: transport speed (hare)
  - Lower switch position: operating speed (tortoise)
- Turn the travel drive preselector (2) to medium speed.
- For driving, carefully tilt the drive lever (3) forward or backward according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

In emergency situations, press the emergency stop button (5)!

- 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!).

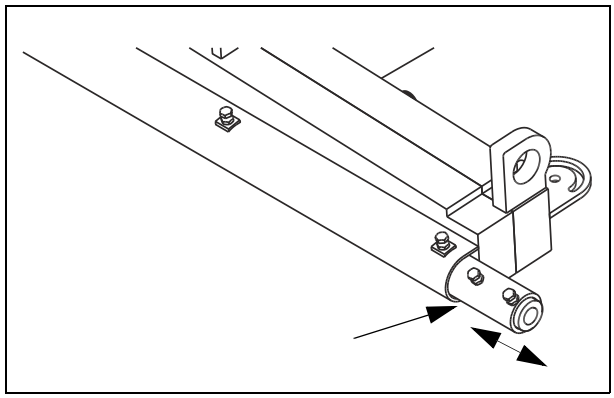
Screed heater system

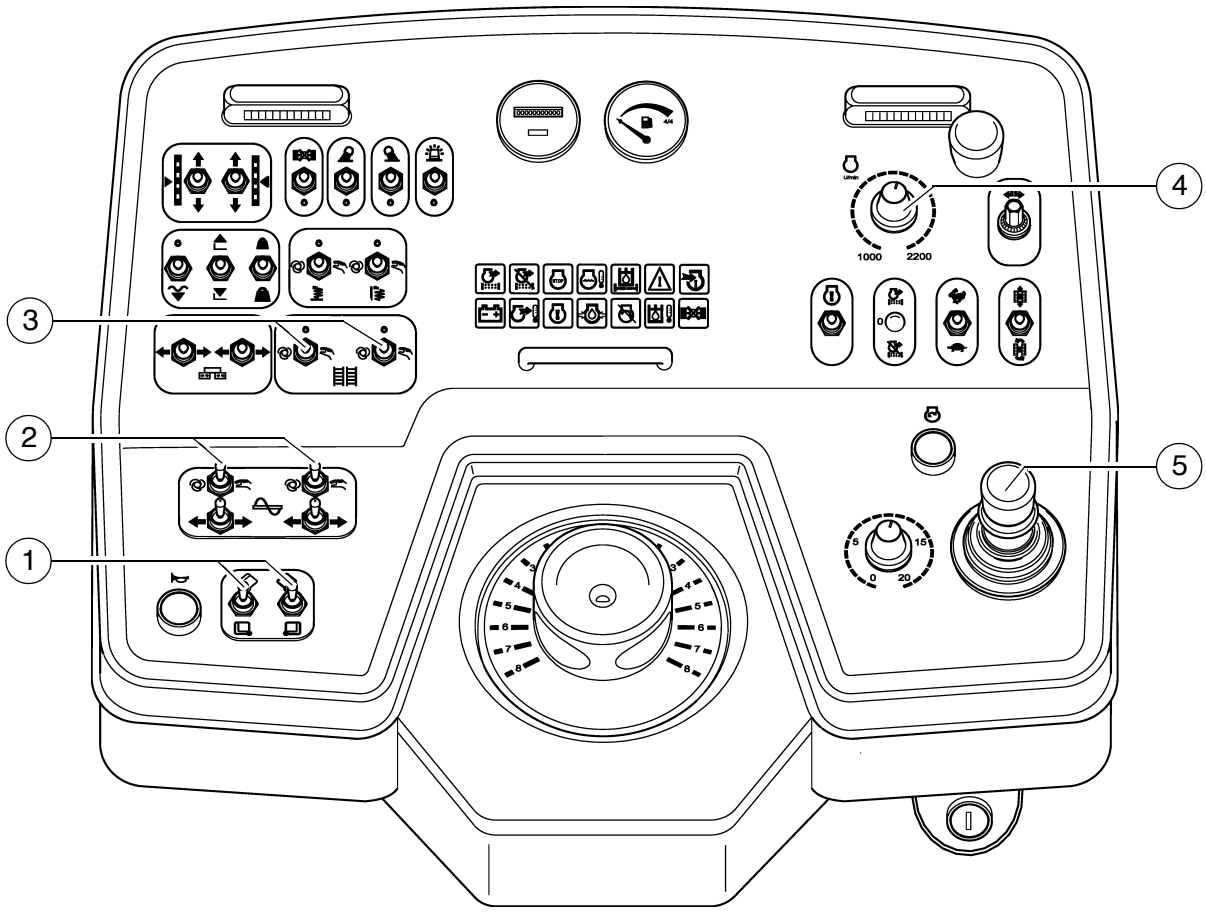
Switch on the screed heater approx. 15–30 minutes (depending on the ambient temperature) before paving begins. Warming up prevents the material from sticking to the screed plates.

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.
- Pull the direction indicator out of the bumper (arrow) and adjust it accordingly.

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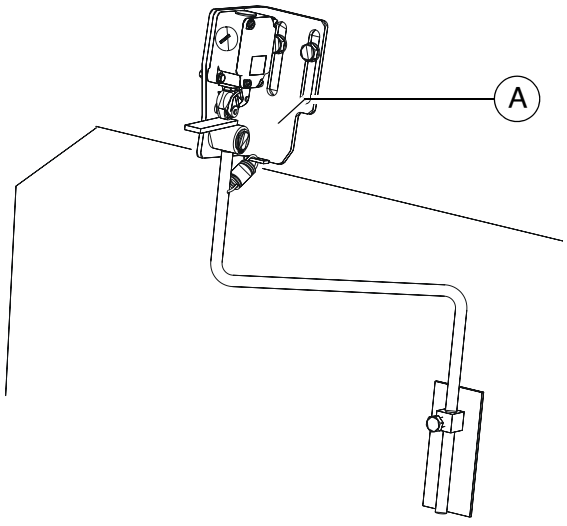
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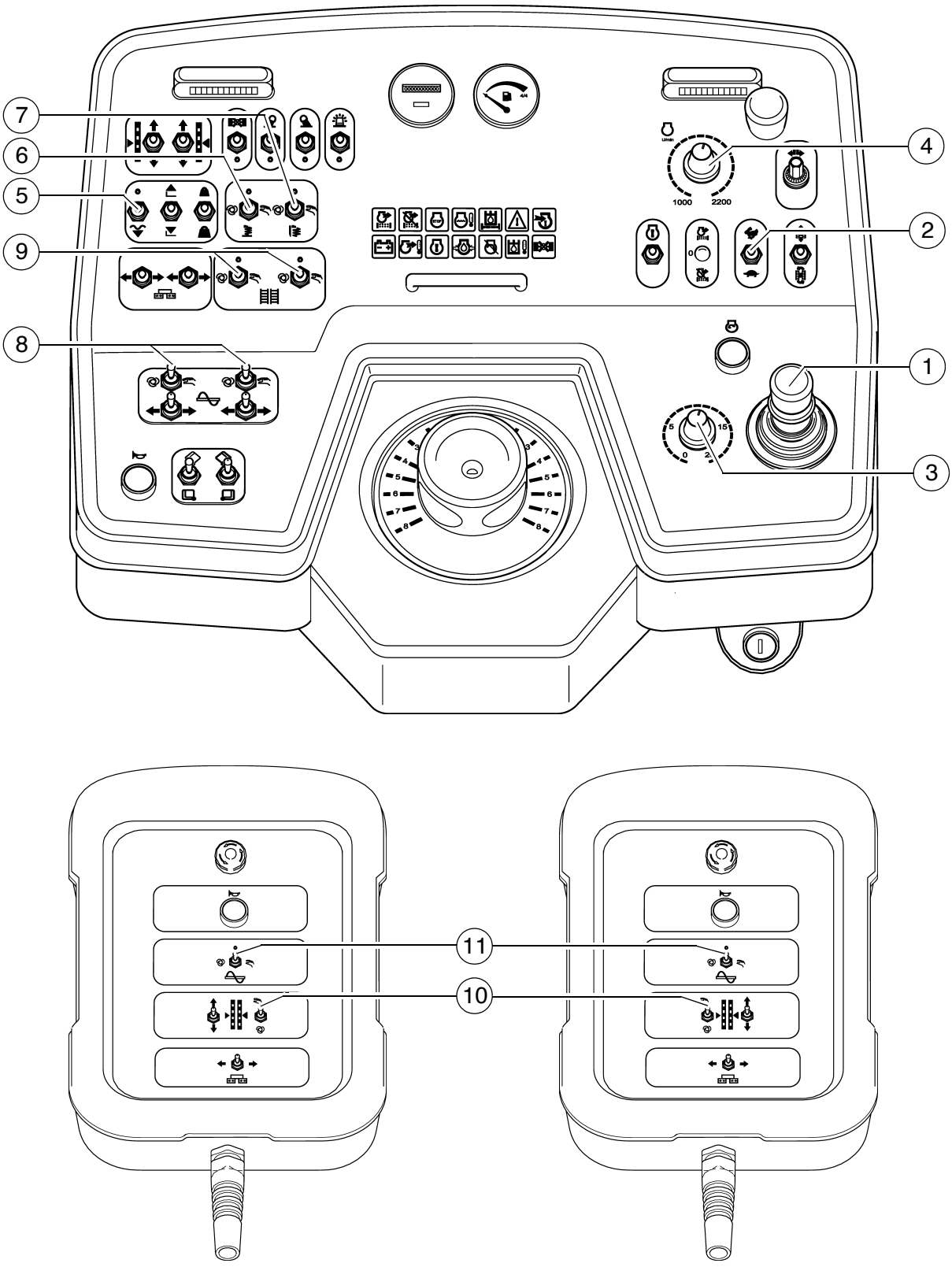
Loading/conveying material

- 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".
- Set the corresponding switches for the auger and the conveyor on the remote controls (if applicable) to "auto".
- Switch the conveyors on.
  The conveyor limit switches (A) must switch off when the material has approximately reached the area beneath the auger crossbeam.
- Check that the material is transferred properly.
  Manually switch on or off the conveyor if the material is not conveyed properly until a sufficient amount of material lies in front of the screed.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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	Travel 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

- Then 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 finisher 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.

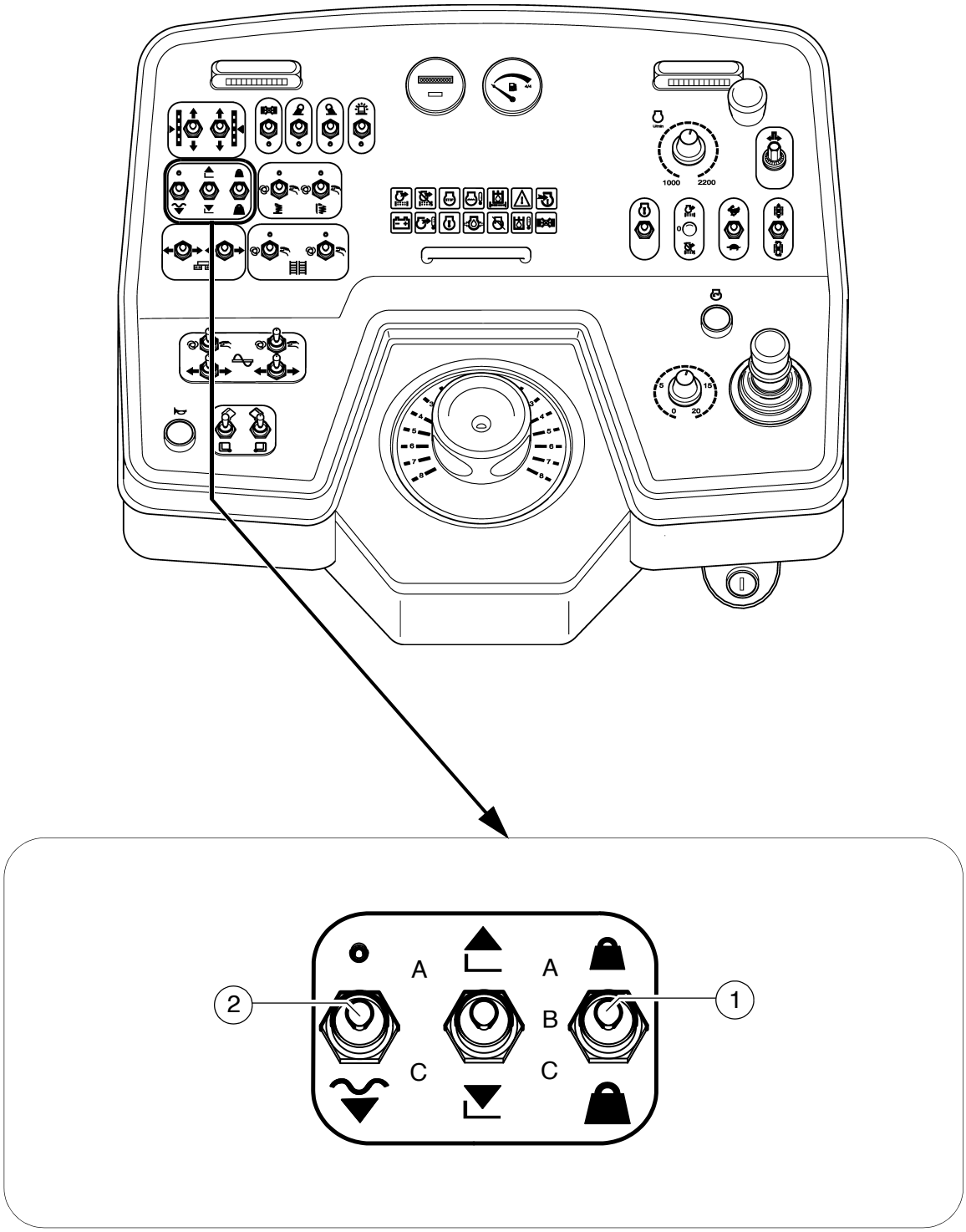
1.6 Paving with "screed control at paver finisher stop" and "screed charging/ relieving"

General

The screed hydraulics can be influenced in three different ways to attain optimum paving results:

- floating stop with relief when the paver finisher is halting,
- floating paving when the paver finisher is driving,
- floating paving with screed charging or relieving when the paver finisher is driving.

☞ Relieving reduces the screed weight and increases the traction force.
Charging increases the screed weight, reduces the traction force, but increases the compaction ratio. (To be used with light-weight screeds in exceptional cases.)


A
A
B
C
C
2
1

Screed charging/relieving

This function charges or relieves the screed regardless of its own dead weight.

Switch (1) has the following positions:

A: relieving (screed 'lighter')
B: function OFF
C: charging (screed 'heavier')

☞ Switch positions "Screed charging/relieving" are only effective when the paver finisher moves.
According to the activated function, the paver finisher is automatically switched to "Screed stop" when stationary.

Screed control with paver finisher stop / in paving operation (screed stop / floating stop / floating paving)

Switch (2) has the following positions:

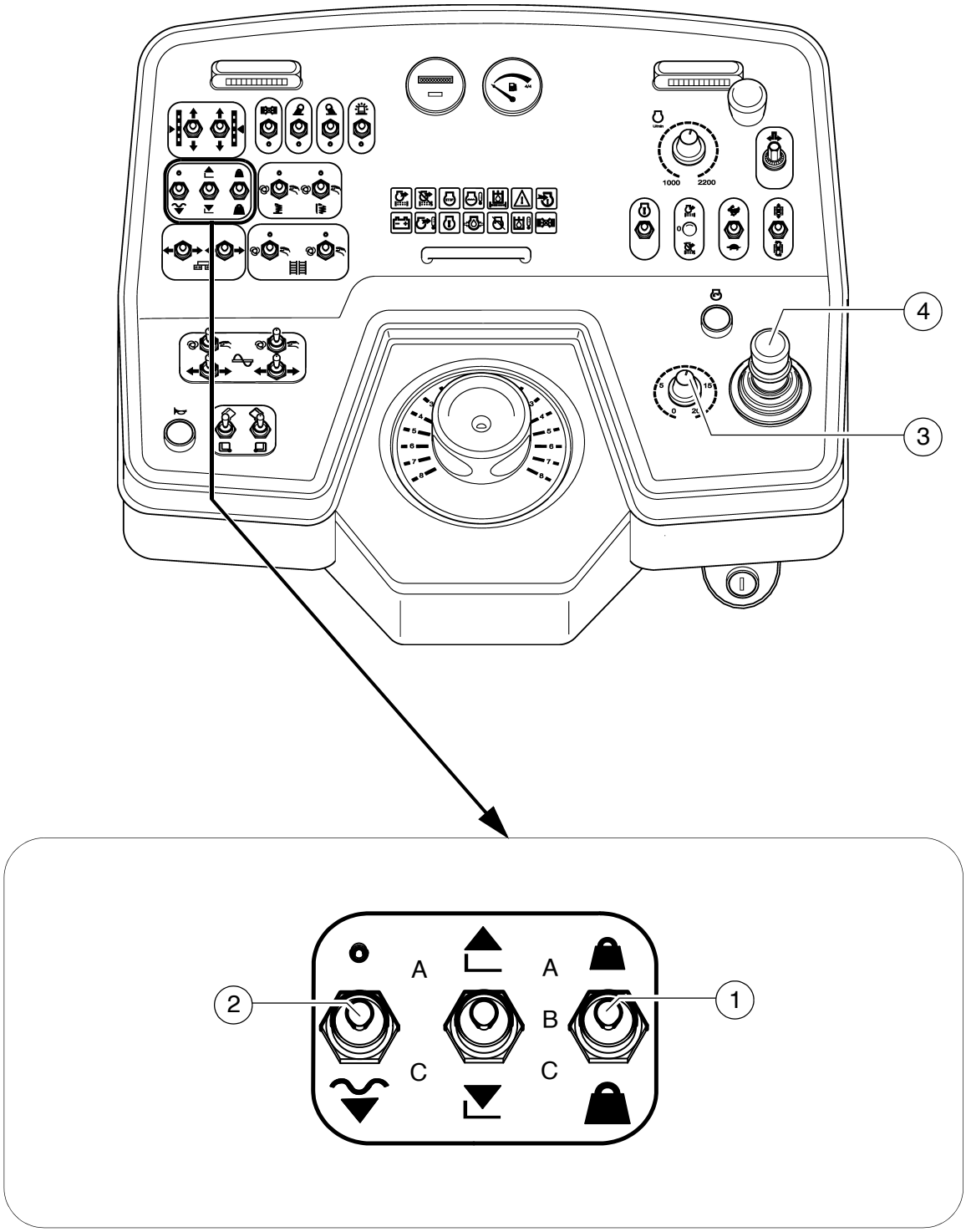
A: screed stop / floating position OFF:
screed is hydraulically held in position.

☞ Function for setting up the paver finisher and for lifting/lowering the screed.

C: floating position
The following functions are active depending on operating status:

- "floating stop": when the paver finisher is stationary.
  The screed is held by the relief pressure and the counter pressure of the material.
- "floating paving": during paving operation.
  Screed lowering to the floating position with preselected screed charging/relieving function.

☞ Function for paving operation.


4
3
2
1
A
A
B
C
C

Screed control with paver finisher stop - floating stop with relief

As for charging/relieving, a pressure of 2-50 bar can be individually applied to the screed lifting cylinders. This pressure acts to combat the weight of the screed to prevent the screed from sinking into the freshly laid material.

The pressure to be applied depends on the load-bearing capacity of the material. If necessary, the pressure must be readjusted or changed as required during the first stops until the lower edge of the screed no longer leaves any marks when the finisher moves on again.

As of a pressure of approx. 10-15 bar, the weight of the screed is neutralised, thus preventing the screed from possibly sinking into the material.

☞ The pressure is set to approx. 20 bar in the factory.

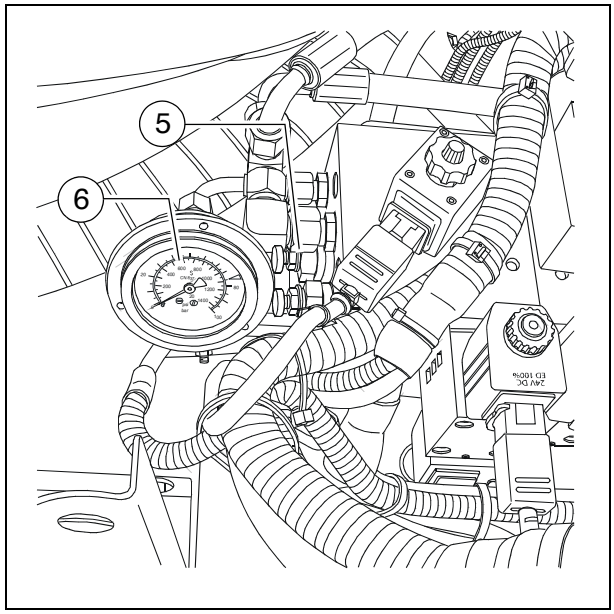
Adjusting the pressure

Pressure adjustments can only be made while the diesel engine is running. Therefore:

- Start the diesel engine and set the traction controller (3) to zero.
- Set switch (2) to "Floating position".

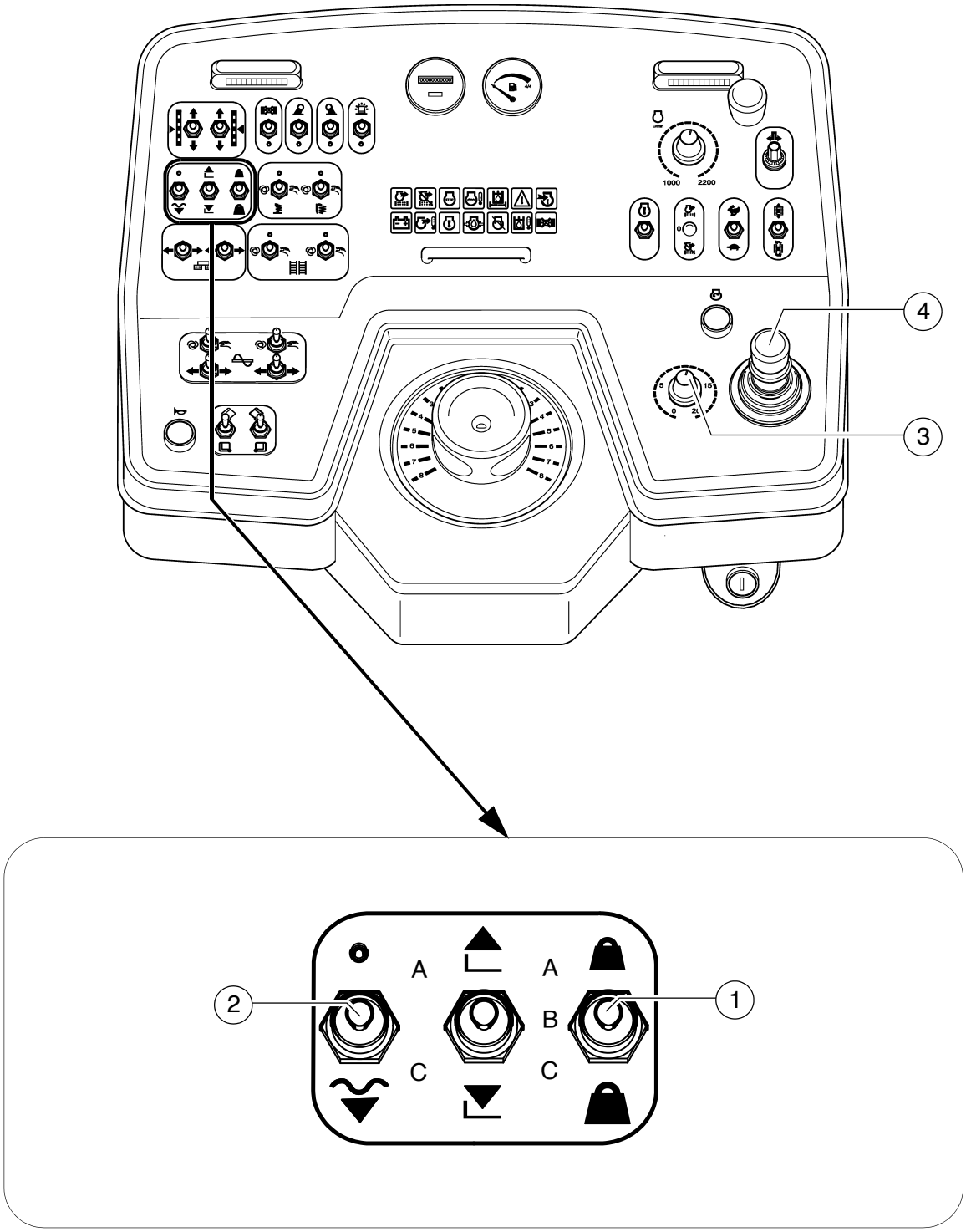
Set pressure for screed charging or relieving

- Swivel the drive lever (4) out.
- Set switch (1) to position A (relieving) or C (charging).
- Set pressure with pressure control valve (5); read off at the manometer (6).



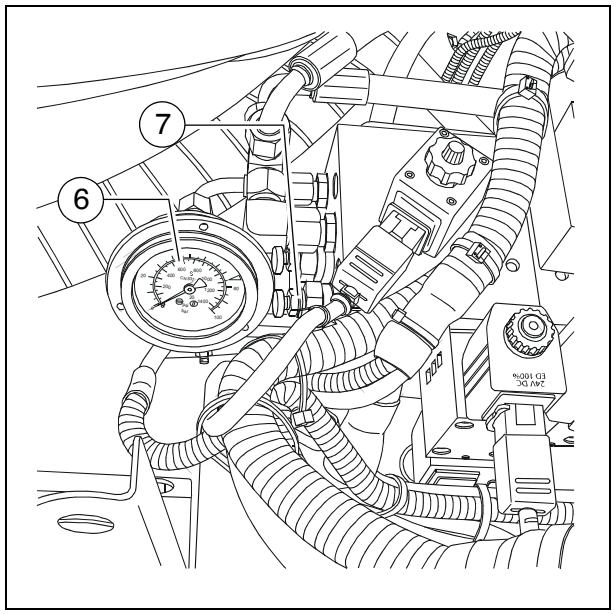
☞ When screed charging/relieving is necessary and automatic levelling is used (grade control and/or slope control), the compacting performance changes (layer thickness).

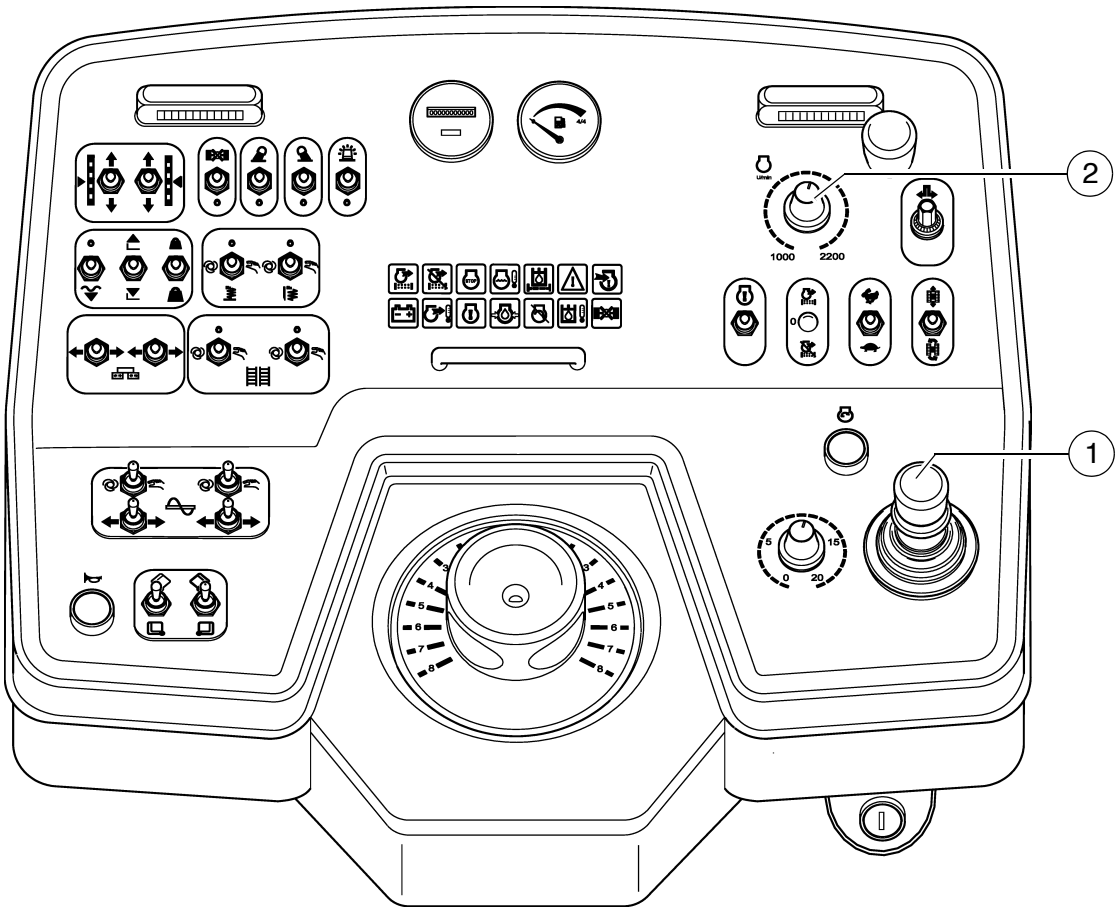
☞ The pressure can also be set or corrected during paving.
(Max. 50 bar)


4
3
2
1
A
A
B
C
C

Setting pressure for screed control with paver finisher stop - floating stop with relief

- Set the drive lever (4) to the centre position.
- Set switch (2) to position C.
- Set the pressure using pressure regulating valve (7); read the pressure off at the manometer (6). (Basic setting: 20 bar)




2
1
1000
2200

1.7 Interrupting/terminating operation

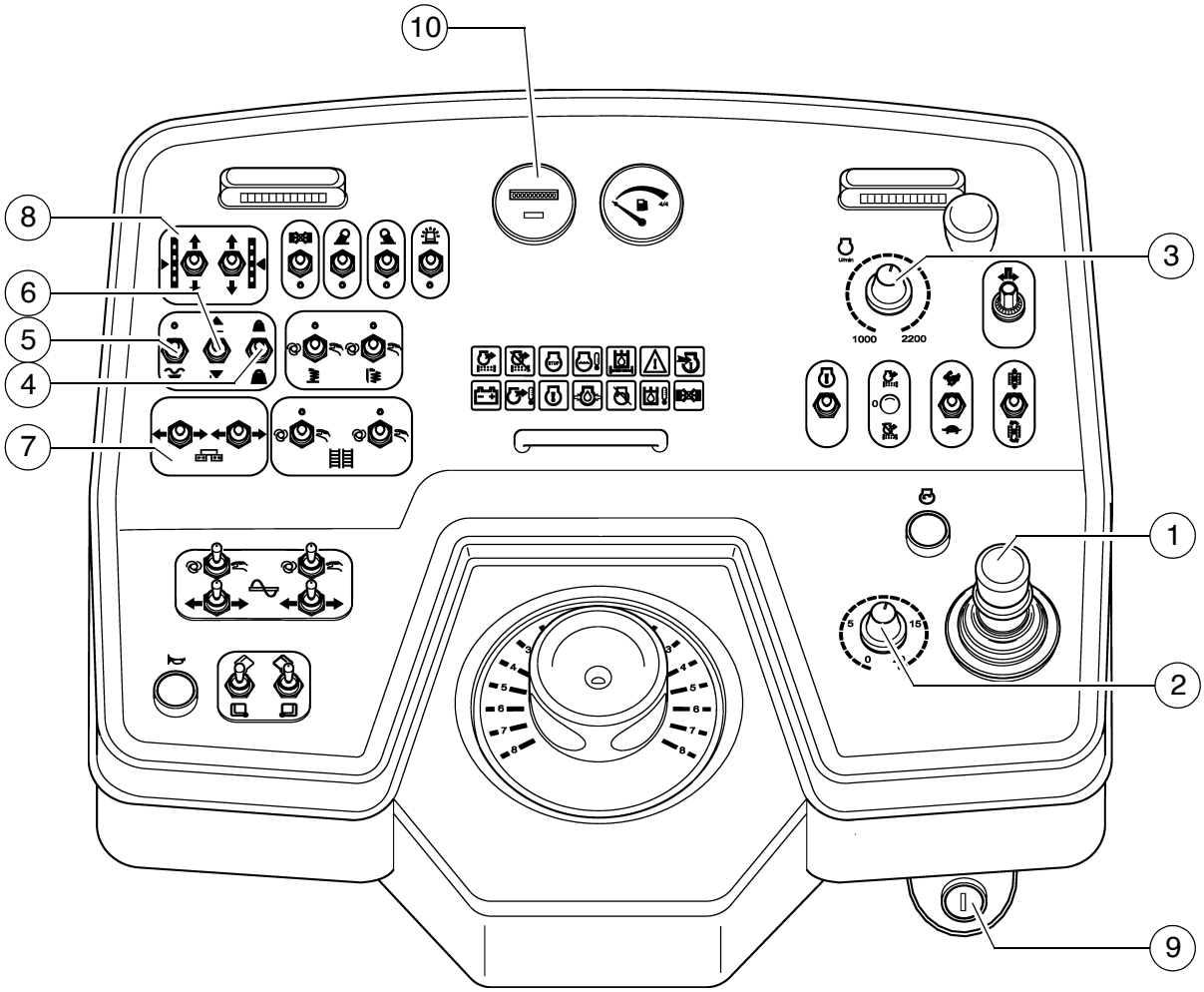
During breaks (e.g. the material supply truck is late)

- 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.
- When screed is operated with the optional gas heating system, close the valves of the bottles.

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


10
8
6
5
4
7
3
1
2
9
1000
2200

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, conveyor, tamper and vibration functions "OFF".
- Lift the screed: set switch (4) to centre position, switch (5) to the top position and switch (6) to lifting.
- Set crossbeam lock.
- Retract the screed parts to the basic screed width using switch (7) and lift the auger. Where applicable, completely extend the levelling cylinders using switch (8).

- Close hopper halves, set hopper transport safeguards.

  - Set tampers to "manual"; while operating the tampers at a low speed, let any material residues drop out.

- Switch tampers "OFF".
- Switch the screed heater system off.
- Switch lighting "OFF".
- Switch off the ignition (9).
- Close the main shut-off valves and the bottle valves for the screed gas heater 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.

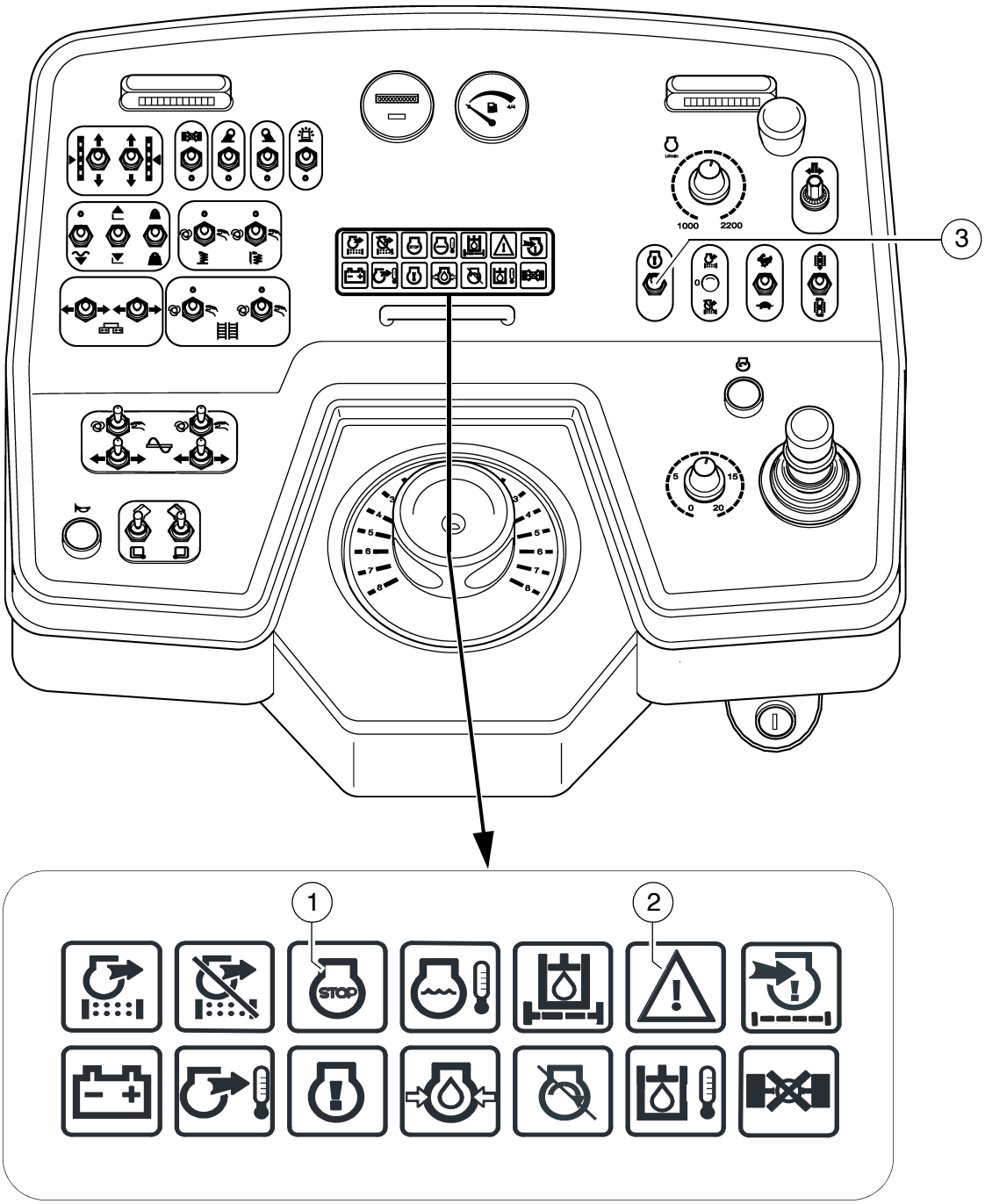
⚠ Do not turn off main switch until 15 seconds after the ignition has been turned off!

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

- Read and check the operating hour meter (10) to determine whether maintenance work must be performed (see chapter F).
- 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 query for engine

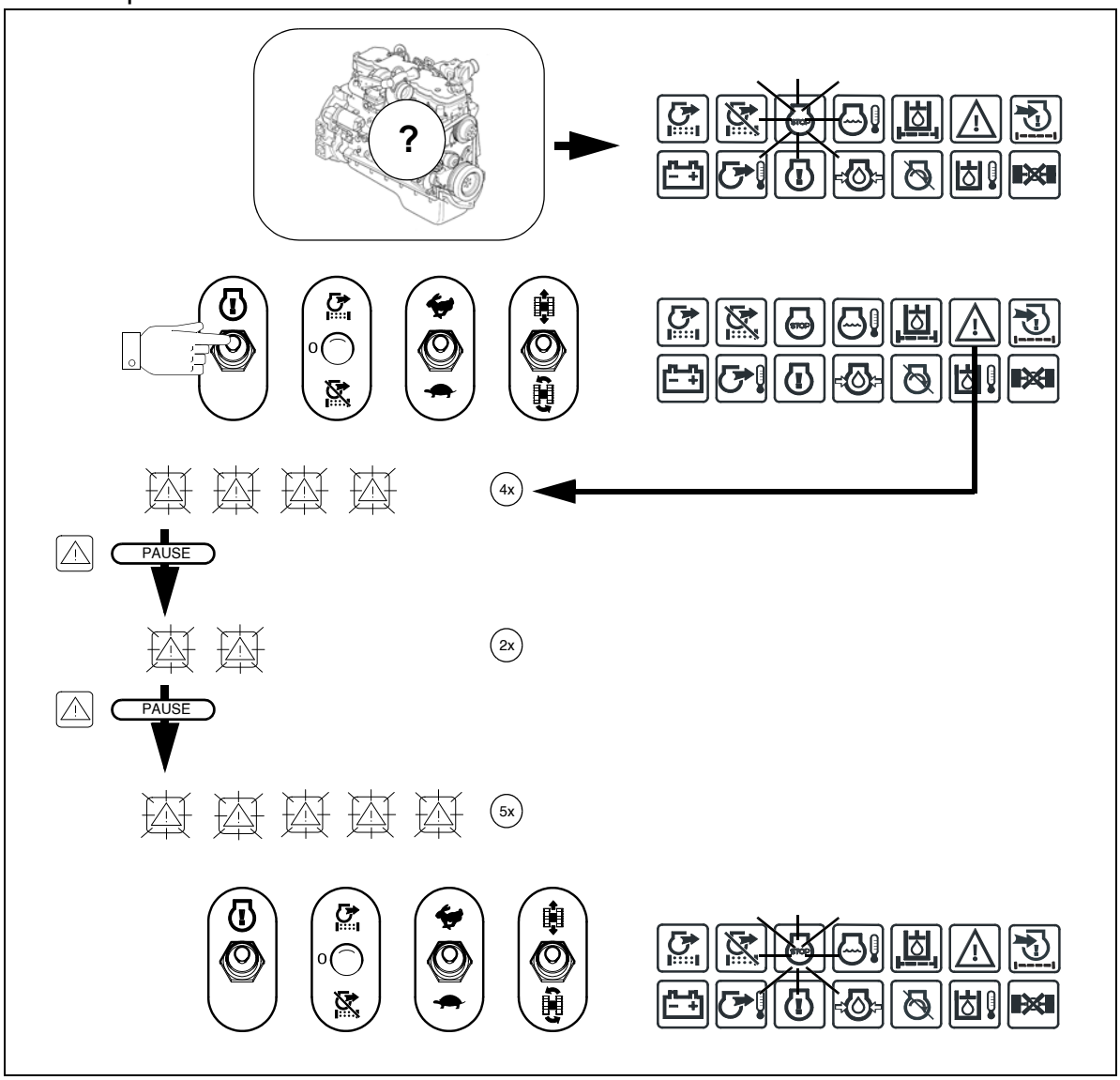


If a fault on the engine is detected and is signalled by one of the warning lamps (1) or (2), a code to which a defined fault is assigned can be displayed using the query switch (3).
Output of the flash code is performed by the other warning lamp:
if a fault is displayed by warning lamp (1), output is carried out via warning lamp (2) and vice-versa.

Output of numerical code

- Press switch (3) into display position until the three-digit code has been output via the warning lamp. While the switch for error queries is being actuated, the warning lamp which first signalled the fault which occurred goes out.

Example:



Flash sequence: 4-Pause-2-Pause-5.
Fault code: 425

☞ If the output switch continues to be held in its upper position, the code is issued once again.

☞ Once the switch for error queries has returned to its 0 position, the warning lamp which signalled the fault lights up again.
This continues until the corresponding error or malfunction has been rectified.

☞ If several errors occur at the same time, the various flash codes are displayed next to one another by pressing the output switch.

⚠ Notify customer service of the fault number displayed on your paver finisher: staff in this department will then discuss with you what action to take.

2.2 Error codes

Fault Code	J1939 SPN	J1939 FMI	Lamp Color	J1939 SPN Description	Cummins Description
111	629	12	Red	Controller #1	Engine Control Module Critical internal failure - Bad intelligent Device or Component
115	612	2	Red	System Diagnostic Code # 2	Engine Speed/Position Sensor Circuit lost both of two signals from the magnetic pickup sensor - Data Erratic, Intermittent, or incorrect
122	102	3	Amber	Boost Pressure	Intake Manifold Pressure Sensor Circuit – Voltage Above Normal, or Shorted to High Source
123	102	4	Amber	Boost Pressure	Intake Manifold Pressure Sensor Circuit – Voltage Below Normal, or Shorted to Low Source
131	91	3	Red	Accelerator Pedal Position	Accelerator Pedal or Lever Position Sensor Circuit - Voltage Above Normal, or Shorted to High Source
132	91	4	Red	Accelerator Pedal Position	Accelerator Pedal or Lever Position Sensor Circuit - Voltage Below Normal, or Shorted to Low Source
133	974	3	Red	Remote Accelerator	Remote Accelerator Pedal or Lever Position Sensor Circuit – Voltage Above Normal, or Shorted to High Source
134	974	4	Red	Remote Accelerator	Remote Accelerator Pedal or Lever Position Sensor Circuit – Voltage Below Normal, or Shorted to Low Source
135	100	3	Amber	Engine Oil Pressure	Oil Pressure Sensor Circuit - Voltage Above Normal, or Shorted to High Source
141	100	4	Amber	Engine Oil Pressure	Oil Pressure Sensor Circuit - Voltage Below Normal, or Shorted to Low Source
143	100	18	Amber	Engine Oil Pressure	Oil Pressure Low – Data Valid but Below Normal Operational Range - Moderately Severe Level
144	110	3	Amber	Engine Coolant Temperature	Coolant Temperature Sensor Circuit – Voltage Above Normal, or Shorted to High Source
145	110	4	Amber	Engine Coolant Temperature	Coolant Temperature Sensor Circuit – Voltage Below Normal, or Shorted to Low Source
146	110	16	Amber	Engine Coolant Temperature	Coolant Temperature High - Data Valid but Above Normal Operational Range - Moderately Severe Level
147	91	1	Red	Accelerator Pedal Position	Accelerator Pedal or Lever Position Sensor Circuit – Abnormal Frequency, Pulse Width, or Period
148	91	0	Red	Accelerator Pedal Position	Accelerator Pedal or Lever Position Sensor Circuit – Abnormal Frequency, Pulse Width, or Period
151	110	0	Red	Engine Coolant Temperature	Coolant Temperature Low - Data Valid but Above Normal Operational Range - Most Severe Level
153	105	3	Amber	Intake Manifold #1 Temp	Intake Manifold Air Temperature Sensor Circuit - Voltage Above Normal, or Shorted to High Source
154	105	4	Amber	Intake Manifold #1 Temp	Intake Manifold Air Temperature Sensor Circuit - Voltage Below Normal, or Shorted to Low Source
155	105	0	Red	Intake Manifold #1 Temp	Intake Manifold Air Temperature High – Data Valid but Above Normal Operational Range - Most Severe Level
187	1080	4	Amber	5 Volts DC Supply	Sensor Supply Voltage #2 Circuit – Voltage Below Normal, or Shorted to Low Source
195	111	3	Amber	Coolant Level	Coolant Level Sensor Circuit - Voltage Above Normal, or Shorted to High Source
196	111	4	Amber	Coolant Level	Coolant Level Sensor Circuit - Voltage Below Normal, or Shorted to Low Source
197	111	18	Amber	Coolant Level	Coolant Level - Data Valid but Below Normal Operational Range - Moderately Severe Level
211	1484	31	None	J1939 Error	Additional Auxiliary Diagnostic Codes logged - Condition Exists
212	175	3	Amber	Oil Temperature	Engine Oil Temperature Sensor 1 Circuit - Voltage Above Normal, or Shorted to High Source
213	175	4	Amber	Oil Temperature	Engine Oil Temperature Sensor 1 Circuit - Voltage Below Normal, or Shorted to Low Source
214	175	0	Red	Oil Temperature	Engine Oil Temperature - Data Valid but Above Normal Operational Range - Most Severe Level

Fault Code	J1939 SPN	J1939 FMI	Lamp Color	J1939 SPN Description	Cummins Description
221	108	3	Amber	Barometric Pressure	Barometric Pressure Sensor Circuit – Voltage Above Normal, or Shorted to High Source
222	108	4	Amber	Barometric Pressure	Barometric Pressure Sensor Circuit – Voltage Below Normal, or Shorted to Low Source
227	1080	3	Amber	5 Volts DC Supply	Sensor Supply Voltage #2 Circuit – Voltage Above Normal, or Shorted to High Source
231	109	3	Amber	Coolant Pressure	Coolant Pressure Sensor Circuit - Voltage Above Normal, or Shorted to High Source
232	109	4	Amber	Coolant Pressure	Coolant Pressure Sensor Circuit - Voltage Below Normal, or Shorted to Low Source
233	109	18	Amber	Coolant Pressure	Coolant Pressure - Data Valid but Below Normal Operational Range - Moderately Severe Level
234	190	0	Red	Engine Speed	Engine Speed High - Data Valid but Above Normal Operational Range - Most Severe Level
235	111	1	Red	Coolant Level	Coolant Level Low - Data Valid but Below Normal Operational Range - Most Severe Level
237	644	2	Amber	External Speed Input	External Speed Input (Multiple Unit Synchronization) - Data Erratic, Intermittent, or Incorrect
238	611	4	Amber	System Diagnostic code # 1	Sensor Supply Voltage #3 Circuit – Voltage Below Normal, or Shorted to Low Source
241	84	2	Amber	Wheel-based Vehicle Speed	Vehicle Speed Sensor Circuit - Data Erratic, Intermittent, or Incorrect
242	84	10	Amber	Wheel-based Vehicle Speed	Vehicle Speed Sensor Circuit tampering has been detected – Abnormal Rate of Change
245	647	4	Amber	Fan Clutch Output Device Driver	Fan Control Circuit - Voltage Below Normal, or Shorted to Low Source
249	171	3	Amber	Ambient Air Temperature	Ambient Air Temperature Sensor Circuit - Voltage Above Normal, or Shorted to High Source
256	171	4	Amber	Ambient Air Temperature	Ambient Air Temperature Sensor Circuit - Voltage Below Normal, or Shorted to Low Source
261	174	16	Amber	Fuel Temperature	Engine Fuel Temperature - Data Valid but Above Normal Operational Range - Moderately Severe Level
263	174	3	Amber	Fuel Temperature	Engine Fuel Temperature Sensor 1 Circuit - Voltage Above Normal, or Shorted to High Source
265	174	4	Amber	Fuel Temperature	Engine Fuel Temperature Sensor 1 Circuit - Voltage Below Normal, or Shorted to Low Source
268	94	2	Amber	Fuel Delivery Pressure	Fuel Pressure Sensor Circuit - Data Erratic, Intermittent, or Incorrect
271	1347	4	Amber	Fuel Pump Pressurizing Assembly #1	High Fuel Pressure Solenoid Valve Circuit – Voltage Below Normal, or Shorted to Low Source
272	1347	3	Amber	Fuel Pump Pressurizing Assembly #1	High Fuel Pressure Solenoid Valve Circuit – Voltage Above Normal, or Shorted to High Source
275	1347	7	Amber	Fuel Pump Pressurizing Assembly #1	Fuel Pumping Element (Front) – Mechanical System Not Responding Properly or Out of Adjustment
281	1347	7	Amber	Fuel Pump Pressurizing Assembly #1	High Fuel Pressure Solenoid Valve #1 – Mechanical System Not Responding Properly or Out of Adjustment
284	1043	4	Amber	Internal Sensor Voltage Supply	Engine Speed/Position Sensor (Crankshaft) Supply Voltage Circuit - Voltage Below Normal, or Shorted to Low Source
285	639	9	Amber	SAE J1939 Datalink	SAE J1939 Multiplexing PGN Timeout Error - Abnormal Update Rate
286	639	13	Amber	SAE J1939 Datalink	SAE J1939 Multiplexing Configuration Error – Out of Calibration
287	91	19	Red	Accelerator Pedal Position	SAE J1939 Multiplexing Accelerator Pedal or Lever Sensor System Error - Received Network Data In Error
288	974	19	Red	Remote Accelerator	SAE J1939 Multiplexing Remote Accelerator Pedal or Lever Data Error - Received Network Data In Error
293	441	3	Amber	OEM Temperature	Auxiliary Temperature Sensor Input # 1 Circuit - Voltage Above Normal, or Shorted to High Source
294	441	4	Amber	OEM Temperature	Auxiliary Temperature Sensor Input # 1 Circuit - Voltage Below Normal, or Shorted to Low Source
295	108	2	Amber	Barometric Pressure	Barometric Pressure Sensor Circuit - Data Erratic,

Fault Code	J1939 SPN	J1939 FMI	Lamp Color	J1939 SPN Description	Cummins Description
					Intermittent, or Incorrect
296	1388	14	Red	Auxiliary Pressure	Auxiliary Pressure Sensor Input 1 - Special Instructions
297	1388	3	Amber	Auxiliary Pressure	Auxiliary Pressure Sensor Input # 2 Circuit - Voltage Above Normal, or Shorted to High Source
298	1388	4	Amber	Auxiliary Pressure	Auxiliary Pressure Sensor Input # 2 Circuit - Voltage Below Normal, or Shorted to Low Source
319	251	2	Maint	Real Time Clock Power	Real Time Clock Power Interrupt - Data Erratic, Intermittent, or Incorrect
322	651	5	Amber	Injector Cylinder #01	Injector Solenoid Cylinder #1 Circuit – Current Below Normal, or Open Circuit
323	655	5	Amber	Injector Cylinder #05	Injector Solenoid Cylinder #5 Circuit – Current Below Normal, or Open Circuit
324	653	5	Amber	Injector Cylinder #03	Injector Solenoid Cylinder #3 Circuit – Current Below Normal, or Open Circuit
325	656	5	Amber	Injector Cylinder #06	Injector Solenoid Cylinder #6 Circuit – Current Below Normal, or Open Circuit
331	652	5	Amber	Injector Cylinder #02	Injector Solenoid Cylinder #2 Circuit – Current Below Normal, or Open Circuit
332	654	5	Amber	Injector Cylinder #04	Injector Solenoid Cylinder #4 Circuit – Current Below Normal, or Open Circuit
334	110	2	Amber	Engine Coolant Temperature	Coolant Temperature Sensor Circuit – Data Erratic, Intermittent, or Incorrect
338	1267	3	Amber	Vehicle Accessories Relay Driver	Idle Shutdown Vehicle Accessories Relay Driver Circuit - Voltage Above Normal, or Shorted to High Source
339	1267	4	Amber	Vehicle Accessories Relay Driver	Idle Shutdown Vehicle Accessories Relay Driver Circuit - Voltage Below Normal, or Shorted to Low Source
341	630	2	Amber	Calibration Memory	Engine Control Module data lost - Data Erratic, Intermittent, or Incorrect
342	630	13	Red	Calibration Memory	Electronic Calibration Code Incompatibility - Out of Calibration
343	629	12	Amber	Controller #1	Engine Control Module Warning internal hardware failure - Bad Intelligent Device or Component
351	629	12	Amber	Controller #1	Injector Power Supply - Bad Intelligent Device or Component
352	1079	4	Amber	5 Volts DC Supply	Sensor Supply Voltage #1 Circuit – Voltage Below Normal, or Shorted to Low Source
386	1079	3	Amber	5 Volts DC Supply	Sensor Supply Voltage #1 Circuit – Voltage Above Normal, or Shorted to High Source
387	1043	3	Amber	Internal Sensor Voltage Supply	Accelerator Pedal or Lever Position Sensor Supply Voltage Circuit - Voltage Above Normal, or Shorted to High Source
415	100	1	Red	Engine Oil Pressure	Oil Pressure Low – Data Valid but Below Normal Operational Range - Most Severe Level
418	97	15	Maint.	Water in Fuel Indicator	Water in Fuel Indicator High - Data Valid but Above Normal Operational Range – Least Severe Level
422	111	2	Amber	Coolant Level	Coolant Level - Data Erratic, Intermittent, or Incorrect
425	175	2	Amber	Oil Temperature	Engine Oil Temperature - Data Erratic, Intermittent, or Incorrect
428	97	3	Amber	Water in Fuel Indicator	Water in Fuel Sensor Circuit - Voltage Above Normal, or Shorted to High Source
429	97	4	Amber	Water in Fuel Indicator	Water in Fuel Sensor Circuit - Voltage Below Normal, or Shorted to Low Source
431	558	2	Amber	Accelerator Pedal Low Idle Switch	Accelerator Pedal or Lever Idle Validation Circuit - Data Erratic, Intermittent, or Incorrect
432	558	13	Red	Accelerator Pedal Low Idle Switch	Accelerator Pedal or Lever Idle Validation Circuit - Out of Calibration
433	102	2	Amber	Boost Pressure	Intake Manifold Pressure Sensor Circuit - Data Erratic, Intermittent, or Incorrect
434	627	2	Amber	Power Supply	Power Lost without Ignition Off - Data Erratic, Intermittent, or Incorrect

Fault Code	J1939 SPN	J1939 FMI	Lamp Color	J1939 SPN Description	Cummins Description
					Intermittent, or Incorrect
296	1388	14	Red	Auxiliary Pressure	Auxiliary Pressure Sensor Input 1 - Special Instructions
297	1388	3	Amber	Auxiliary Pressure	Auxiliary Pressure Sensor Input # 2 Circuit - Voltage Above Normal, or Shorted to High Source
298	1388	4	Amber	Auxiliary Pressure	Auxiliary Pressure Sensor Input # 2 Circuit - Voltage Below Normal, or Shorted to Low Source
319	251	2	Maint	Real Time Clock Power	Real Time Clock Power Interrupt - Data Erratic, Intermittent, or Incorrect
322	651	5	Amber	Injector Cylinder #01	Injector Solenoid Cylinder #1 Circuit – Current Below Normal, or Open Circuit
323	655	5	Amber	Injector Cylinder #05	Injector Solenoid Cylinder #5 Circuit – Current Below Normal, or Open Circuit
324	653	5	Amber	Injector Cylinder #03	Injector Solenoid Cylinder #3 Circuit – Current Below Normal, or Open Circuit
325	656	5	Amber	Injector Cylinder #06	Injector Solenoid Cylinder #6 Circuit – Current Below Normal, or Open Circuit
331	652	5	Amber	Injector Cylinder #02	Injector Solenoid Cylinder #2 Circuit – Current Below Normal, or Open Circuit
332	654	5	Amber	Injector Cylinder #04	Injector Solenoid Cylinder #4 Circuit – Current Below Normal, or Open Circuit
334	110	2	Amber	Engine Coolant Temperature	Coolant Temperature Sensor Circuit – Data Erratic, Intermittent, or Incorrect
338	1267	3	Amber	Vehicle Accessories Relay Driver	Idle Shutdown Vehicle Accessories Relay Driver Circuit - Voltage Above Normal, or Shorted to High Source
339	1267	4	Amber	Vehicle Accessories Relay Driver	Idle Shutdown Vehicle Accessories Relay Driver Circuit - Voltage Below Normal, or Shorted to Low Source
341	630	2	Amber	Calibration Memory	Engine Control Module data lost - Data Erratic, Intermittent, or Incorrect
342	630	13	Red	Calibration Memory	Electronic Calibration Code Incompatibility - Out of Calibration
343	629	12	Amber	Controller #1	Engine Control Module Warning internal hardware failure - Bad Intelligent Device or Component
351	629	12	Amber	Controller #1	Injector Power Supply - Bad Intelligent Device or Component
352	1079	4	Amber	5 Volts DC Supply	Sensor Supply Voltage #1 Circuit – Voltage Below Normal, or Shorted to Low Source
386	1079	3	Amber	5 Volts DC Supply	Sensor Supply Voltage #1 Circuit – Voltage Above Normal, or Shorted to High Source
387	1043	3	Amber	Internal Sensor Voltage Supply	Accelerator Pedal or Lever Position Sensor Supply Voltage Circuit - Voltage Above Normal, or Shorted to High Source
415	100	1	Red	Engine Oil Pressure	Oil Pressure Low – Data Valid but Below Normal Operational Range - Most Severe Level
418	97	15	Maint.	Water in Fuel Indicator	Water in Fuel Indicator High - Data Valid but Above Normal Operational Range – Least Severe Level
422	111	2	Amber	Coolant Level	Coolant Level - Data Erratic, Intermittent, or Incorrect
425	175	2	Amber	Oil Temperature	Engine Oil Temperature - Data Erratic, Intermittent, or Incorrect
428	97	3	Amber	Water in Fuel Indicator	Water in Fuel Sensor Circuit - Voltage Above Normal, or Shorted to High Source
429	97	4	Amber	Water in Fuel Indicator	Water in Fuel Sensor Circuit - Voltage Below Normal, or Shorted to Low Source
431	558	2	Amber	Accelerator Pedal Low Idle Switch	Accelerator Pedal or Lever Idle Validation Circuit - Data Erratic, Intermittent, or Incorrect
432	558	13	Red	Accelerator Pedal Low Idle Switch	Accelerator Pedal or Lever Idle Validation Circuit - Out of Calibration
433	102	2	Amber	Boost Pressure	Intake Manifold Pressure Sensor Circuit - Data Erratic, Intermittent, or Incorrect
434	627	2	Amber	Power Supply	Power Lost without Ignition Off - Data Erratic, Intermittent, or Incorrect

Fault Code	J1939 SPN	J1939 FMI	Lamp Color	J1939 SPN Description	Cummins Description
692	1172	4	Amber	Turbocharger #1Compressor Inlet Temperature	Turbocharger #1 Compressor Inlet Temperature Sensor Circuit – Voltage Below Normal, or Shorted to Low Source
697	1136	3	Amber	Sensor Circuit - Voltage	ECM Internal Temperature Sensor Circuit - Voltage Above Normal, or Shorted to High Source
698	1136	4	Amber	Sensor Circuit - Voltage	ECM Internal Temperature Sensor Circuit - Voltage Below Normal, or Shorted to Low Source
719	22	3	Amber	Crankcase Pressure	Extended Crankcase Blow-by Pressure Circuit - Voltage Above Normal, or Shorted to High Source
729	22	4	Amber	Crankcase Pressure	Extended Crankcase Blow-by Pressure Circuit - Voltage Below Normal, or Shorted to Low Source
731	723	7	Amber	Engine Speed Sensor #2	Engine Speed/Position #2 mechanical misalignment between camshaft and crankshaft sensors - Mechanical System Not Responding Properly or Out of Adjustment
753	723	2	Amber	Engine Speed Sensor #2	Engine Speed/Position #2 Camshaft sync error - Data Erratic, Intermittent, or Incorrect
757	611	31	Amber	Electronic Control Module	Electronic Control Module data lost - Condition Exists
778	723	2	Amber	Engine Speed Sensor #2	Engine Speed Sensor (Camshaft) Error – Data Erratic, Intermittent, or Incorrect
779	703	11	Amber	Auxiliary Equipment Sensor Input	Warning Auxiliary Equipment Sensor Input # 3 (OEM Switch) - Root Cause Not Known
951	166	2	None	Cylinder Power	Cylinder Power Imbalance Between Cylinders - Data Erratic, Intermittent, or Incorrect
1117	627	2	None	Power Supply	Power Lost With Ignition On - Data Erratic, Intermittent, or Incorrect
1139	651	7	Amber	Injector Cylinder # 01	Injector Cylinder #1 - Mechanical System Not Responding Properly or Out of Adjustment
1141	652	7	Amber	Injector Cylinder # 02	Injector Cylinder #2 - Mechanical System Not Responding Properly or Out of Adjustment
1142	653	7	Amber	Injector Cylinder # 03	Injector Cylinder #3 - Mechanical System Not Responding Properly or Out of Adjustment
1143	654	7	Amber	Injector Cylinder # 04	Injector Cylinder #4 - Mechanical System Not Responding Properly or Out of Adjustment
1144	655	7	Amber	Injector Cylinder # 05	Injector Cylinder #5 - Mechanical System Not Responding Properly or Out of Adjustment
1145	656	7	Amber	Injector Cylinder # 06	Injector Cylinder #6 - Mechanical System Not Responding Properly or Out of Adjustment
1239	2623	3	Amber	Accelerator Pedal Position	Accelerator Pedal or Lever Position Sensor 2 Circuit - Voltage Above Normal, or Shorted to High Source
1241	2623	4	Amber	Accelerator Pedal Position	Accelerator Pedal or Lever Position Sensor 2 Circuit - Voltage Below Normal, or Shorted to Low Source
1242	91	2	Red	Accelerator Pedal Position	Accelerator Pedal or Lever Position Sensor 1 and 2 - Data Erratic, Intermittent, or Incorrect
1256	1563	2	Amber	Control Module Identification Input State	Control Module Identification Input State Error - Data Erratic, Intermittent, or Incorrect
1257	1563	2	Red	Control Module Identification Input State	Control Module Identification Input State Error - Data Erratic, Intermittent, or Incorrect
1911	157	0	Amber	Injector Metering Rail	Injector Metering Rail 1 Pressure - Data Valid but Above Normal Operational Range - Most Severe Level
2111	32	3	Amber	Coolant Temperature	Coolant Temperature 2 Sensor Circuit - Voltage Above Normal, or Shorted to High Source
2112	52	4	Amber	Coolant Temperature	Coolant Temperature 2 Sensor Circuit - Voltage Below Normal, or Shorted to Low Source
2113	52	16	Amber	Coolant Temperature	Coolant Temperature 2 - Data Valid but Above Normal Operational Range - Moderately Severe Level
2114	52	0	Red	Coolant Temperature	Coolant Temperature 2 - Data Valid but Above Normal Operational Range - Most Severe Level
2115	2981	3	Amber	Coolant Pressure	Coolant Pressure 2 Circuit - Voltage Above Normal, or Shorted to High Source
2116	2981	4	Amber	Coolant Pressure	Coolant Pressure 2 Circuit - Voltage Below Normal, or Shorted to Low Source

Fault Code	J1939 SPN	J1939 FMI	Lamp Color	J1939 SPN Description	Cummins Description
2117	2981	18	Amber	Coolant Pressure	Coolant Pressure 2 - Data Valid but Below Normal Operational Range - Moderately Severe Level
2185	611	3	Amber	System Diagnostic code # 1	Sensor Supply Voltage #4 Circuit – Voltage Above Normal, or Shorted to High Source
2186	611	4	Amber	System Diagnostic code # 1	Sensor Supply Voltage #4 Circuit – Voltage Below Normal, or Shorted to Low Source
2195	703	14	Red	Auxiliary Equipment Sensor	Auxiliary Equipment Sensor Input 3 Engine Protec Critical - Special Instructions
2215	94	18	Amber	Fuel Delivery Pressure	Fuel Pump Delivery Pressure - Data Valid but Bel Normal Operational Range - Moderately Severe Level
2216	94	1	Amber	Fuel Delivery Pressure	Fuel Pump Delivery Pressure - Data Valid but Abo Normal Operational Range – Moderately Severe Level
2217	630	31	Amber	Calibration Memory	ECM Program Memory (RAM) Corruption - Condit Exists
2249	157	1	Amber	Injector Metering Rail 1 Pressure	Injector Metering Rail 1 Pressure - Data Valid but Below Normal Operational Range - Most Severe Level
2265	1075	3	Amber	Electric Lift Pump for Engine Fuel	Fuel Priming Pump Control Signal Circuit – Voltag Above Normal, or Shorted to High Source
2266	1075	4	Amber	Electric Lift Pump for Engine Fuel	Fuel Priming Pump Control Signal Circuit – Voltag Below Normal, or Shorted to Low Source
2292	611	16	Amber	Fuel Inlet Meter Device	Fuel Inlet Meter Device - Data Valid but Above Normal Operational Range - Moderately Severe L
2293	611	18	Amber	Fuel Inlet Meter Device	Fuel Inlet Meter Device flow demand lower than expected - Data Valid but Below Normal Operation Range - Moderately Severe Level
2311	633	31	Amber	Fuel Control Valve #1	Fueling Actuator #1 Circuit Error – Condition Exist
2321	190	2	None	Engine Speed	Engine Speed / Position Sensor #1 - Data Erratic, Intermittent, or Incorrect
2322	723	2	None	Engine Speed Sensor #2	Engine Speed / Position Sensor #2 - Data Erratic, Intermittent, or Incorrect
2345	103	10	Amber	Turbocharger 1 Speed	Turbocharger speed invalid rate of change detecte Abnormal Rate of Change
2346	2789	15	None	System Diagnostic Code #1	Turbocharger Turbine Inlet Temperature (Calculat - Data Valid but Above Normal Operational Range Least Severe Level
2347	2629	15	None	System Diagnostic Code #1	Turbocharger Compressor Outlet Temperature (Calculated) - Data Valid but Above Normal Operational Range – Least Severe Level
2362	1072	4	Amber	Engine Compression Brake Output # 1	Engine Brake Actuator Circuit #1 – Voltage Below Normal, or Shorted to Low Source
2363	1073	4	Amber	Engine Compression Brake Output # 2	Engine Brake Actuator Circuit #2 – Voltage Below Normal, or Shorted to Low Source
2366	1072	3	Amber	Engine Compression Brake Output # 1	Engine Brake Actuator Circuit #1 – Voltage Above Normal, or Shorted to High Source
2367	1073	3	Amber	Engine Compression Brake Output # 2	Engine Brake Actuator Circuit #2 – Voltage Above Normal, or Shorted to High Source
2377	647	3	Amber	Fan Clutch Output Device Driver	Fan Control Circuit - Voltage Above Normal, or Shorted to High Source
2384	641	4	Amber	Variable Geometry Turbocharger	VGT Actuator Driver Circuit - Voltage Below Norm or Shorted to Low Source
2385	641	3	Amber	Variable Geometry Turbocharger	VGT Actuator Driver Circuit - Voltage Above Norm or Shorted to High Source
2555	729	3	Amber	Inlet Air Heater Driver #1	Intake Air Heater #1 Circuit - Voltage Above Norm or Shorted to High Source
2556	729	4	Amber	Inlet Air Heater Driver #1	Intake Air Heater #1 Circuit - Voltage Below Norm or Shorted to Low Source
					Auxiliary PWM Driver #1 - Voltage Above Normal

Fault Code	J1939 SPN	J1939 FMI	Lamp Color	J1939 SPN Description	Cummins Description
2963	110	15	None	Engine Coolant Temperature	Engine Coolant Temperature High - Data Valid but Above Normal Operational Range - Least Severe Level
2964	105	15	None	Intake Manifold #1 Temperature	Intake Manifold Temperature High - Data Valid but Above Normal Operational Range - Least Severe Level
2973	102	2	Amber	Boost Pressure	Intake Manifold Pressure Sensor Circuit - Data Erratic, Intermittent, or Incorrect

2.3 Problems during paving

Problem	Reason
Wavy surface ("short waves")	- change in the material temperature, demixing - wrong material composition - incorrect operation of the roller - incorrectly prepared foundation - long standstill times between loads - grade control reference line is not suitable - grade control jumps to the reference line - grade control toggles between up and down (inertia setting is too high) - bottom plates of the screed are loose - bottom plates of the screed are warped or not uniformly worn - screed is not operated in the floating position - too much play in the mechanical screed link/suspension - paver finisher speed is too high - augers are overloaded - changing material pressure against the screed
Wavy surface (“long waves”)	- change in the material temperature - demixing - roller has stopped on the hot material - roller has turned or roller speed has been changed too fast - incorrect operation of the roller - incorrectly prepared foundation - truck brake is applied too tight - long standstill times between loads - grade control reference line is not suitable - incorrect installation of the grade control - limit switch is not correctly set - screed is empty - screed has not been switched to the floating position - too much play in the mechanical screed link - auger is set too deep - auger is overloaded - changing material pressure against the screed
Cracks in the layer (over the entire width)	- material temperature is too low - change in the material temperature - moisture on the foundation - demixing - wrong material composition - wrong layer height for maximum grain size - cold screed - bottom plates of the screed are worn or warped - paver finisher speed is too high

Problem	Reason
Cracks in the layer (centre strip)	- material temperature - cold screed - bottom plates are worn or warped - wrong crowning
Cracks in the layer (outer strip)	- material temperature - screed extendable parts are incorrectly installed - limit switch is not correctly set - cold screed - bottom plates are worn or warped - paver finisher speed is too high
Layer composition is not uniform	- material temperature - change in the material temperature - moisture on the foundation - demixing - wrong material composition - incorrectly prepared foundation - wrong layer height for maximum grain size - long standstill times between loads - vibration is too slow - screed extendable parts are incorrectly installed - cold screed - bottom plates are worn or warped - screed is not operated in the floating position - paver finisher speed is too high - auger is overloaded - changing material pressure against the screed
Marks in the surface	- truck hits too much against the finisher while aligning to the finisher - too much play in the mechanical screed link/suspension - truck brake is applied - vibration is too high while standing on a spot
Screed does not react to corrective measures as expected	- material temperature - change in the material temperature - wrong layer height for maximum grain size - incorrect installation of the grade control - vibration is too slow - screed is not operated in the floating position - too much play in the mechanical screed link - paver finisher speed is too high

2.4 Malfunctions on the paver finisher or screed

Malfunction	Reason	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 the 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 the 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

Hopper cannot be swung open	Engine speed is too low	Increase the speed
	Hydraulic oil level is too low	Top up the 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

Malfunction	Reason	Remedy
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	Reason	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

E 10 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!

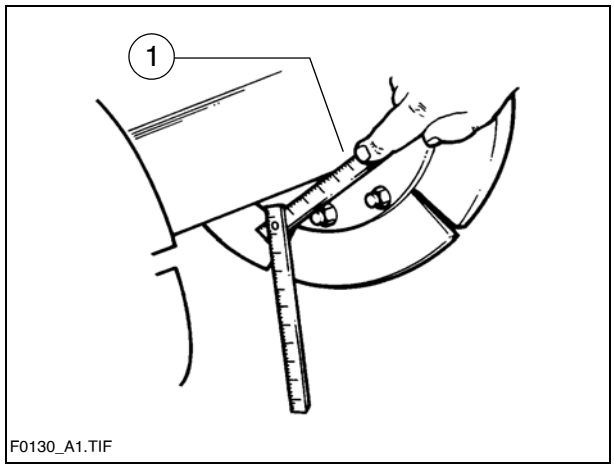
- To protect the paver finisher against inadvertent starting:
  Move drive lever into centre position and turn preselector controller to zero, remove ignition key and battery main switch.
- Protect lifted vehicle parts (e.g. screed or hopper) against lowering by means of mechanical safeguards.
- Replace 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.
- The walkway must always reach over the entire working width of the screed.
  The hinged walkway plate may only be folded up under the following conditions:
  - When paving next to a wall or a similar obstacle.
  - During transportation on a low-bed trailer.

2 Distribution auger

2.1 Height adjustment



Depending on the mix of materials, the set height of the distribution auger (1) – measured from its bottom edge – should lie above the material layer height.

Grain sizes up to 16 mm

Example:
Paving thickness 10 cm
Min. height setting 15 cm
from the ground

Grain sizes > 16 mm

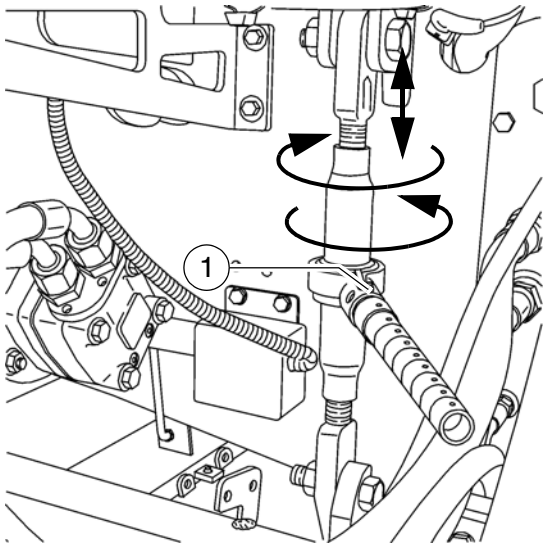
Example:
Paving thickness 10 cm
Min. height setting 18 cm
from the ground

☞ 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.

2.2 Mechanical adjustment with ratchet (○)

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

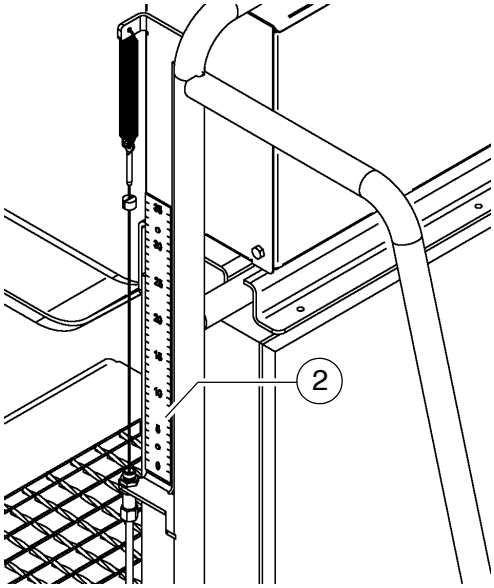


2.3 Hydraulic adjustment (○)

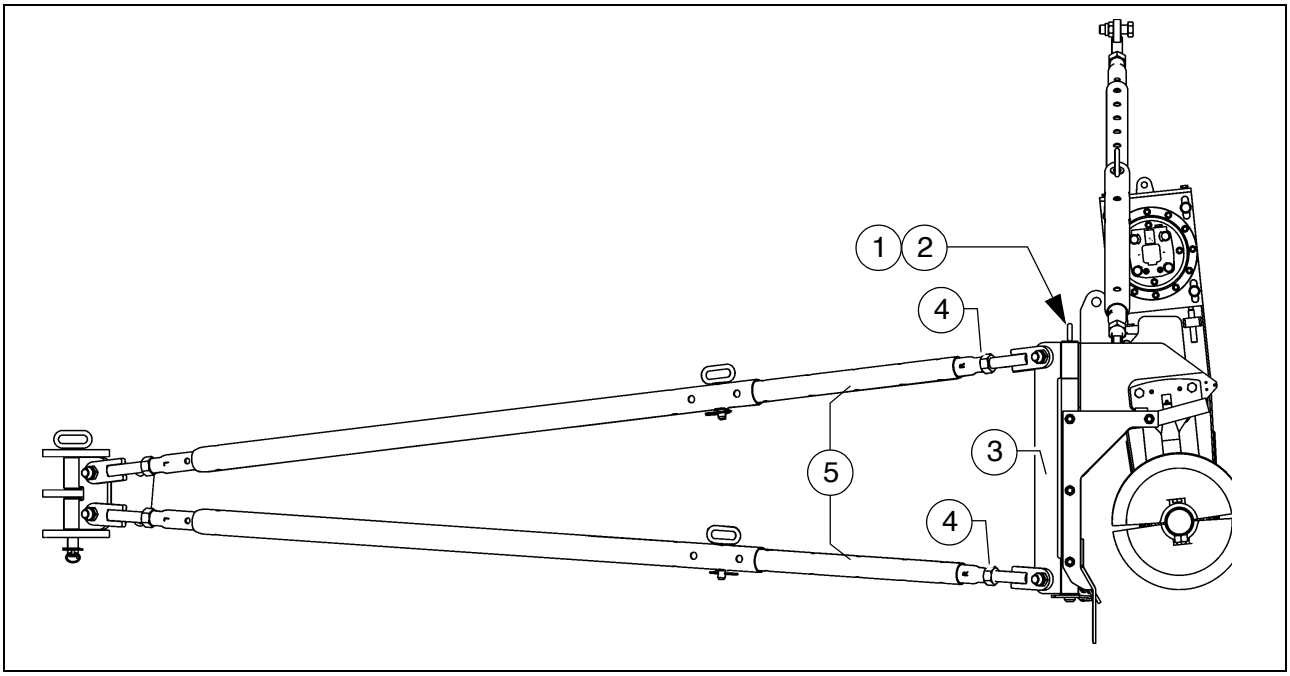
- Determine the currently set height of the auger crossbeam - left and right on the scale (2).

⚠ Actuate both of the corresponding function buttons on the operating panel evenly to prevent the auger crossbeam from jamming.

- Check whether the heights on the left and on the right are identical.



2.4 Height adjustment for large working widths / with brace



Auger height adjustment for large working widths can be carried out with a hinged brace:

⚠ Only adjust the height of the auger with the slewing bracket retaining pins removed!

- Remove the slewing bracket (3) split pin (1) and retaining pin (2) on both sides of the vehicle.
- Push the slewing brackets with braces from the attaching point on the material shaft.
- Carry out height adjustment.
- Push the slewing brackets with braces onto the attaching point on the material shaft.
- Install the split pin (1) and retaining pin (2) again.

☞ If the retaining pins (2) cannot be inserted in the new position, the braces must be extended or shortened by rotating the adjustment rods until a continuous bore enables the retaining pin (2) to be inserted.

- Loosen lock nuts (4).

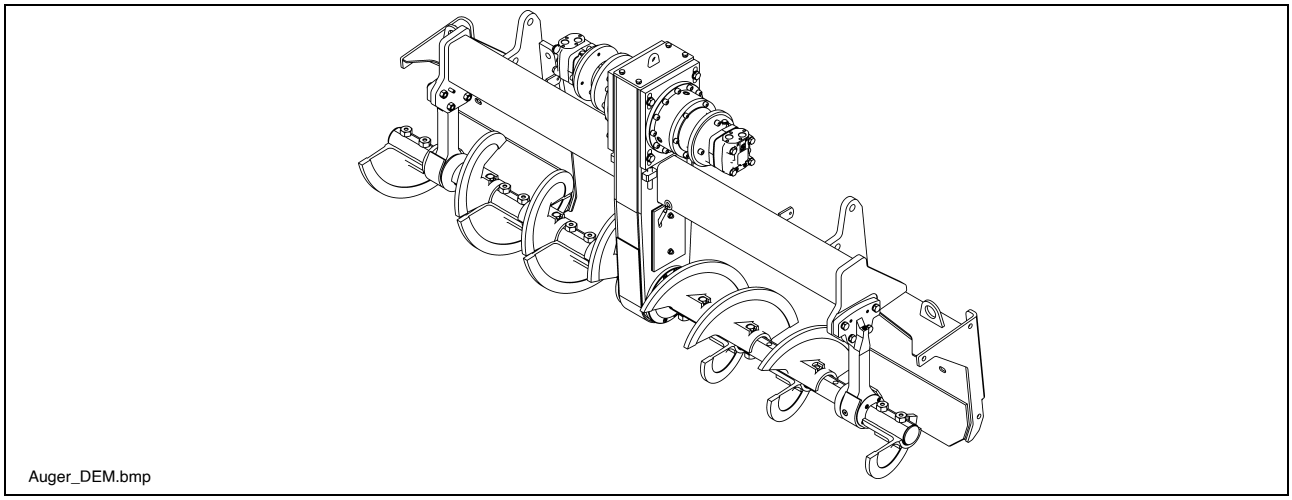
☞ The adjustment rods (5) are each equipped with a bore. A suitable drift can be used to adjust the length of the adjustment rod here.

- Extend or shorten the braces by rotating the adjustment rods (5) until the retaining pins can be inserted.
- Retighten the lock nuts (4).
- Install the split pin (1) and retaining pin (2).

⚠ Each time the height is adjusted, the auger must be realigned via the braces!

☞ See section "Aligning the auger"!

3 Auger extension



Depending on the type of screed, the most diversified working widths can be reached.

☞ Auger and screed extension must match.
Refer to the appropriate chapter "Set-up and modification" in the Operating instructions for the screed:
– screed extension chart

To attain the desired working width, the respective screed extensions, side plates, augers, tunnel plates or cut-off shoes must be mounted.

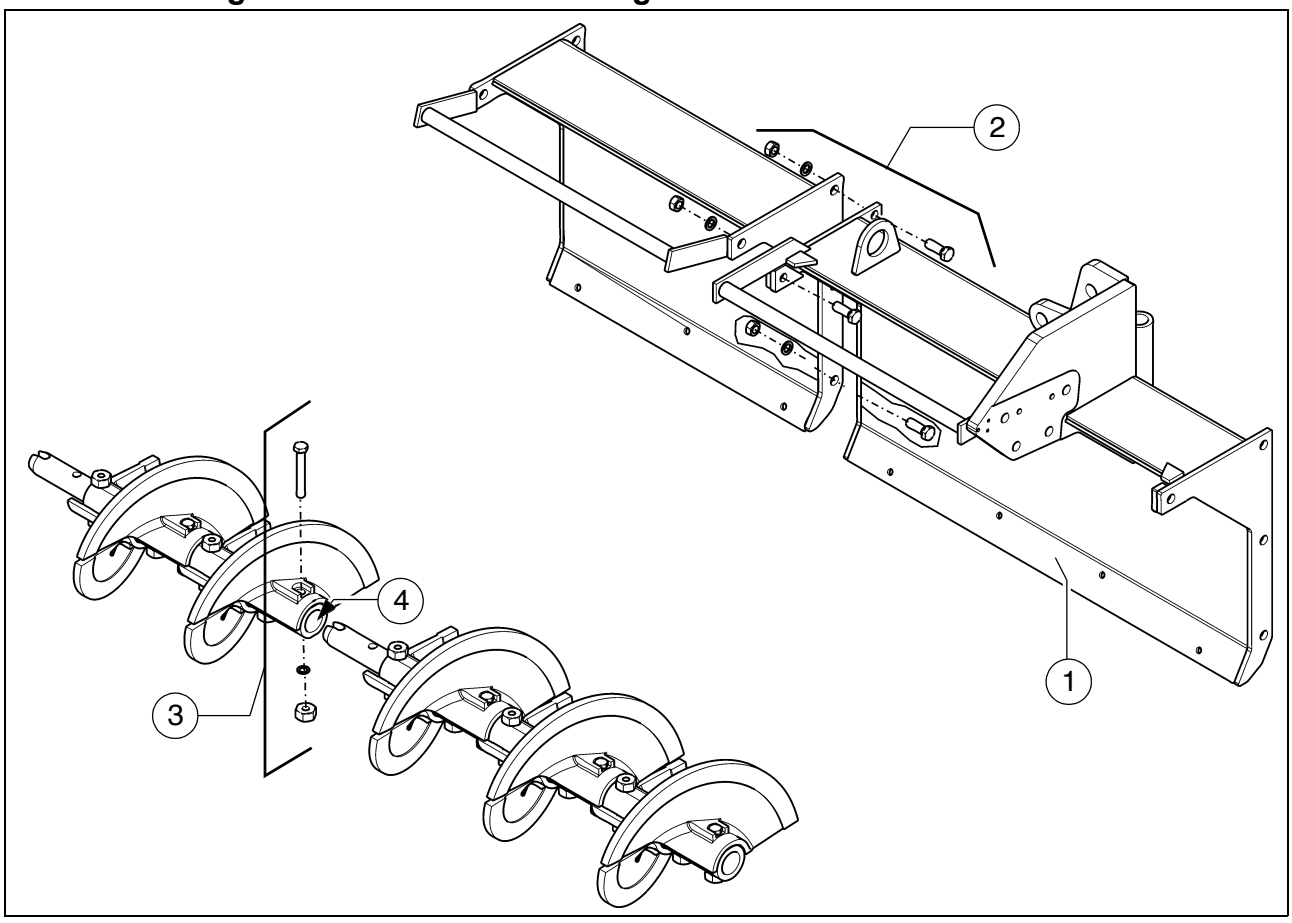
For working widths of more than 3.00 m, the auger should be fitted with extension parts on both sides to improve material distribution and to reduce the wear.

STOP The diesel engine must be switched off whenever work is performed on the auger. Danger of injuries!

☞ If the operating conditions on the construction site permit an auger extension to be fitted, or render this necessary, always additionally fit the outer auger bearings.
For auger width extensions with an outer auger bearing on the basic unit, fit the shorter auger blade to the bearing. Otherwise, destruction between the auger blade and bearing may occur.

3.1 Mounting extension parts

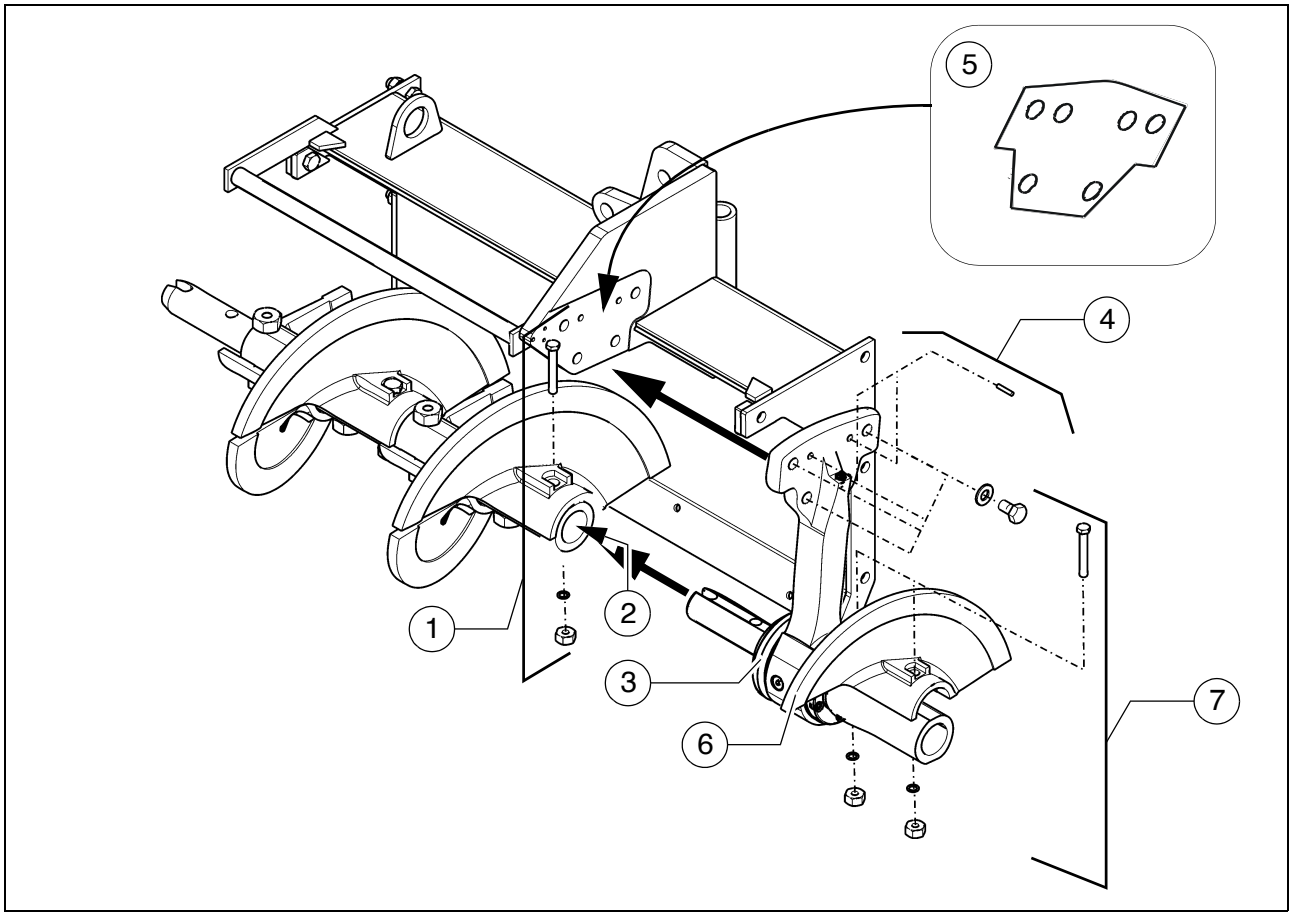
Mounting the material shaft and auger extension



- Secure the additional material shaft (1) to the basic unit or the adjacent material shaft with the relevant assembly parts (2) (bolts, washers, nuts).
- Dismantle the assembly parts (3) of the adjacent auger blade, remove plug (4).
- Insert the auger shaft extension into the auger shaft.
- Reinstall the previously removed assembly parts (3) and simultaneously tighten the auger shaft bolts.
- Insert the plug (4) at the end of the auger.

☞ Depending on the operating width, the outer auger bearing and/or auger end bearing must be installed:

Mounting the outer auger bearing

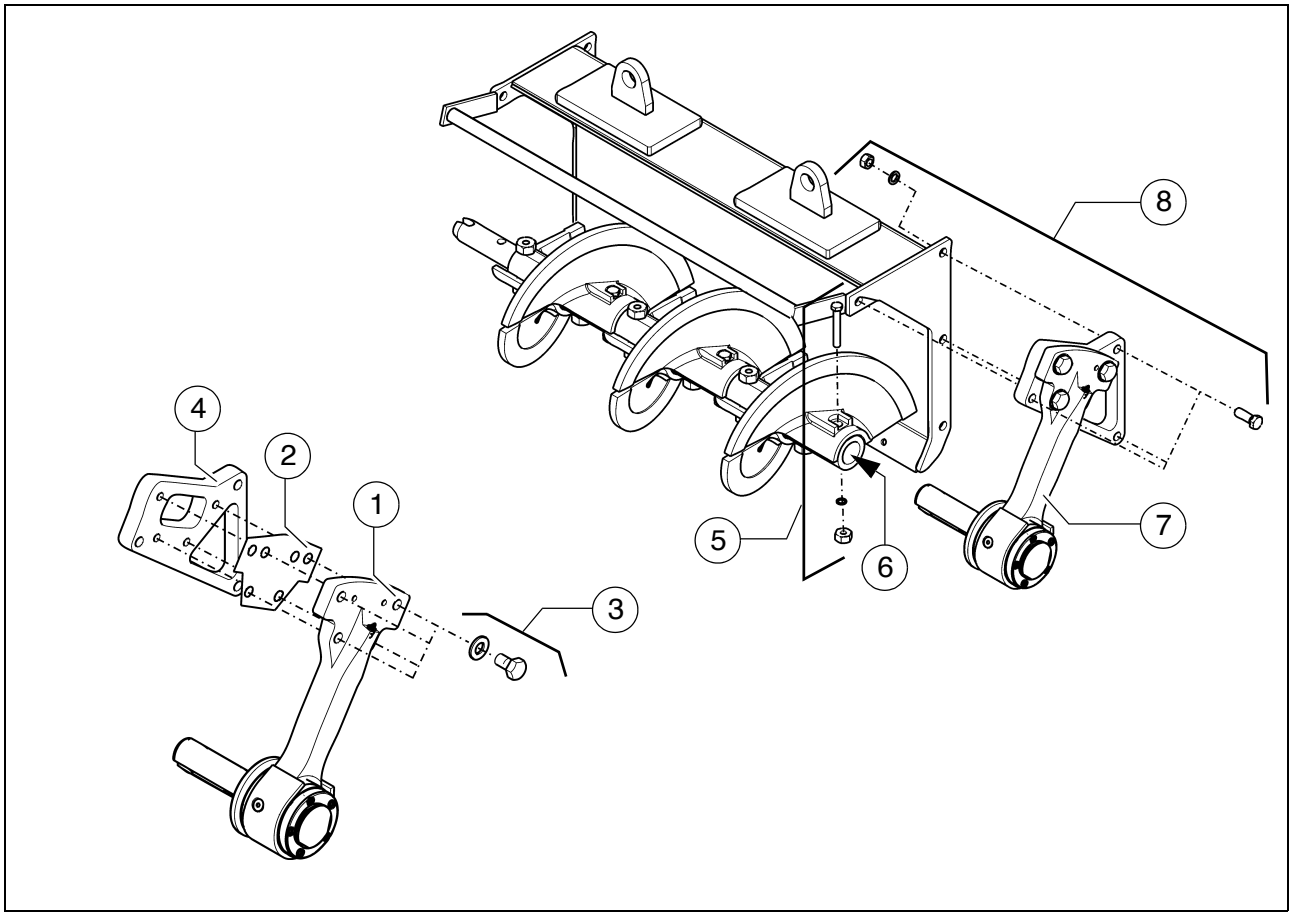


- Dismantle the assembly parts (1) of the adjacent auger blade, remove plug (2).
- Insert the outer auger bearing (3) into the auger extension.
- Secure the outer auger bearing to the brace shaft with the relevant assembly parts (4) (bolts, washers, pins).

☞ If necessary, insert fitted plates (5)!

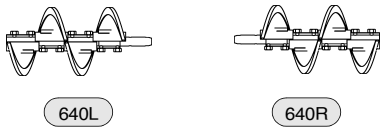
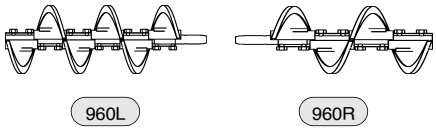
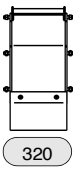
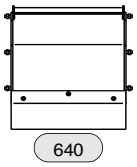
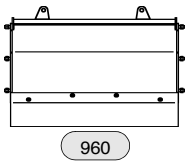
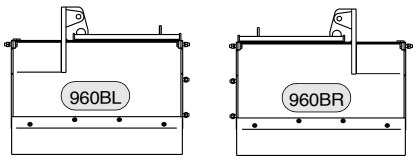
- Reinstall the previously removed assembly parts (1) and simultaneously tighten the auger shaft and bearing shaft bolts.
- Mount the auger half (5) on the outer side of the bearing with the relevant assembly parts (6) (bolts, washers, nuts).
- Insert the plug (2) at the end of the auger.

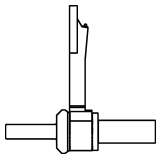
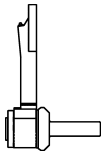
Mounting the auger end bearing



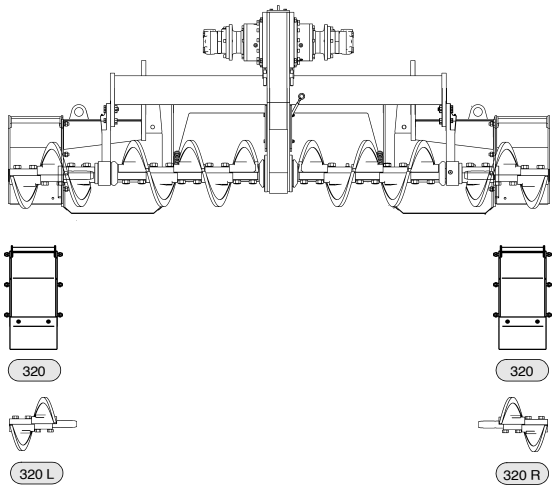
- The auger end bearing must first be pre-assembled:
  - Mount the auger end bearing (1) together with the fitted plate (2) on the intermediate plate (4) with the relevant assembly parts (3) (bolt, washer).
- Dismantle the assembly parts (5) of the adjacent auger blade, remove plug (6).
- Insert the auger end bearing (7) into the auger extension.
- Secure the auger end bearing to the material shaft with the relevant assembly parts (8) (bolts, washers, nuts).
- Reinstall the previously removed assembly parts (5) of the auger blade and simultaneously tighten the auger shaft and bearing shaft bolts.
- Insert the plug (6) at the end of the auger.

3.2 Auger extension chart

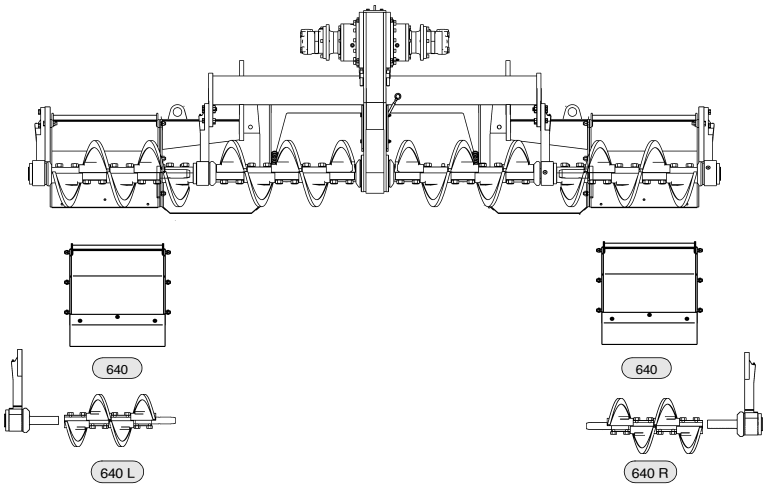
Symbol		Meaning
	- (160L)	- Auger blade 160 mm left
	- (160R)	- Auger blade 160 mm right
	- (320L)	- Auger extension part 320 mm left
	- (320R)	- Auger extension part 320 mm right
	- (640L)	- Auger extension part 640 mm right
	- (640R)	- Auger extension part 640 mm right
	- (960L)	- Auger extension part 960 mm left
	- (960R)	- Auger extension part 960 mm right
	- (320)	- Material shaft 320 mm
	- (640)	- Material shaft 640 mm
	- (960)	- Material shaft 960 mm
	- (960BL)	- Material shaft 960 mm with brace left
	- (960BR)	- Material shaft 960 mm with brace right

Symbol		Meaning
		Outer auger bearing
		Auger end bearing

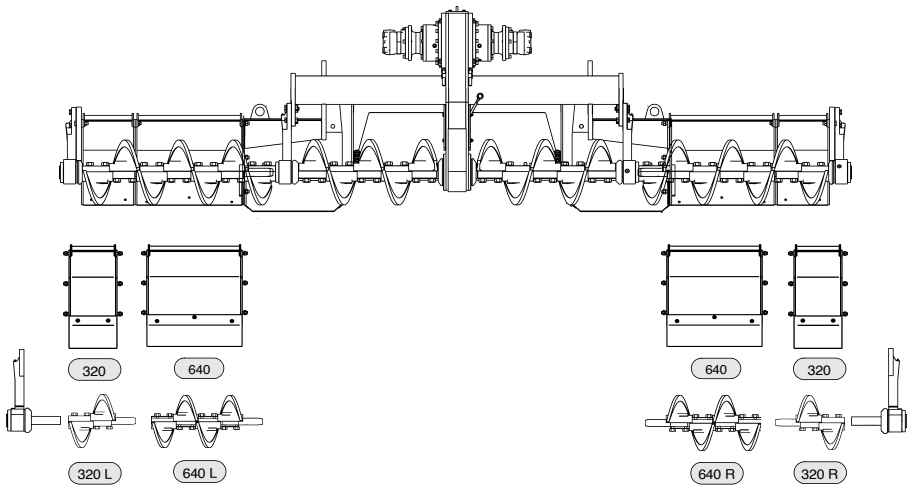
Auger upgrading, working width 3.14 m



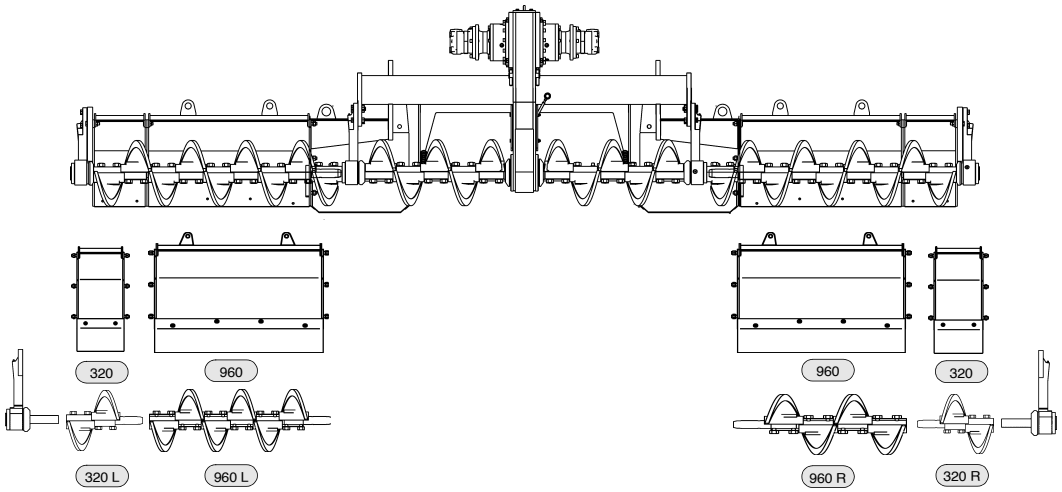
Auger upgrading, working width 3.78 m



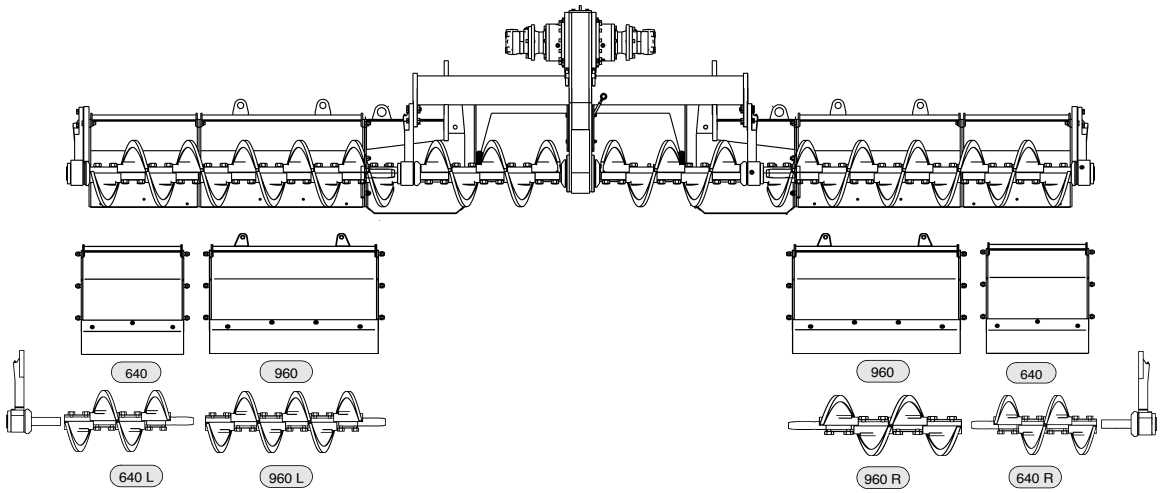
Auger upgrading, working width 4.42 m



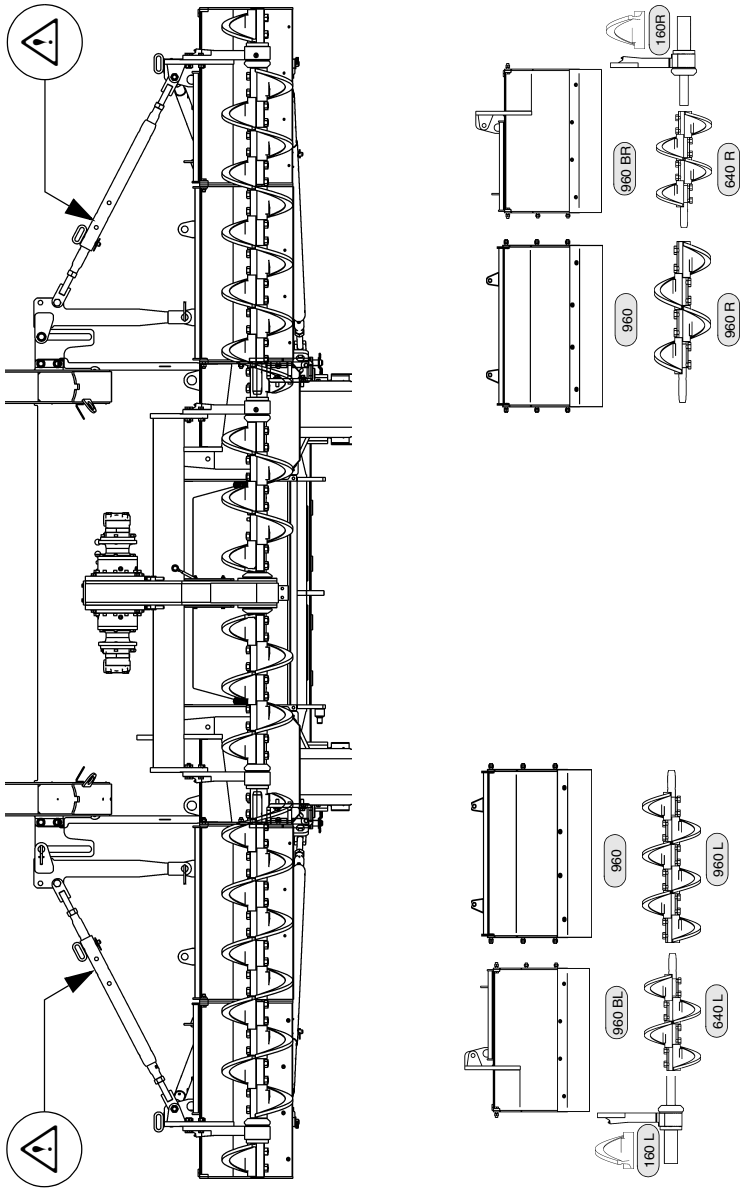
Auger upgrading, working width 5.06 m



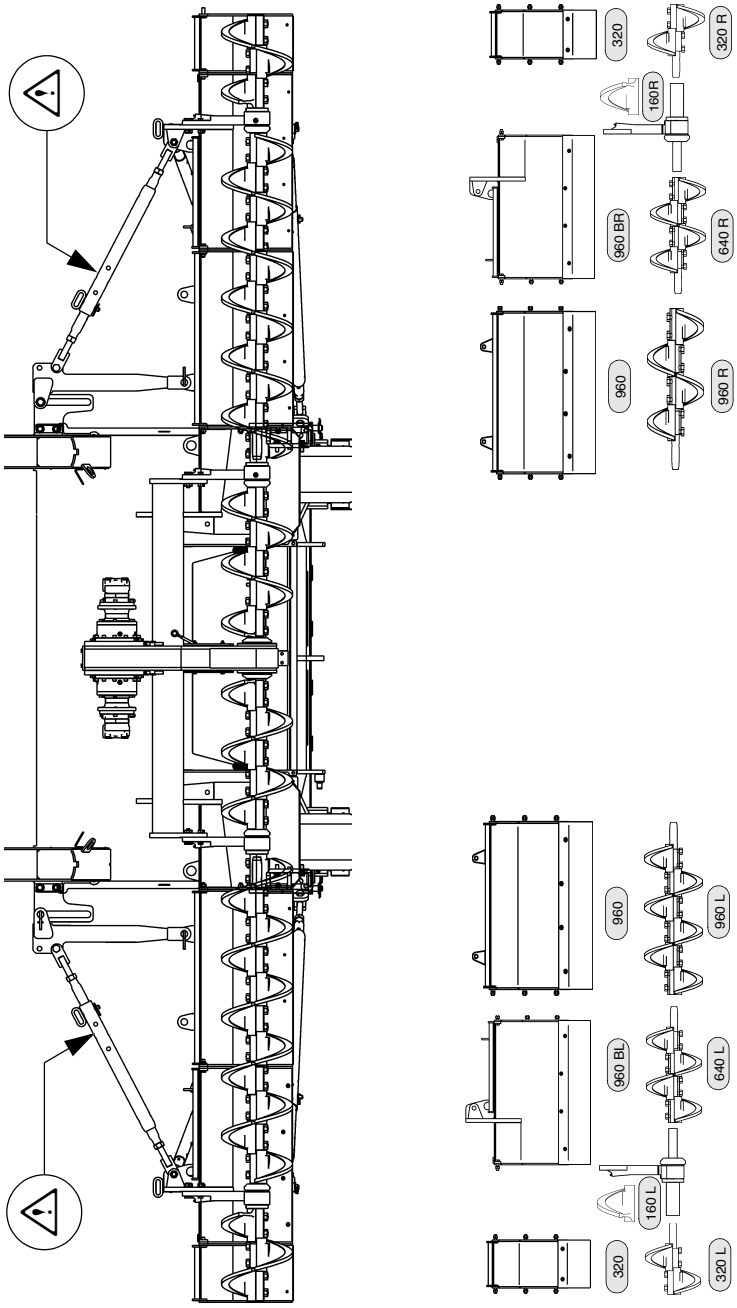
Auger upgrading, working width 5.70 m



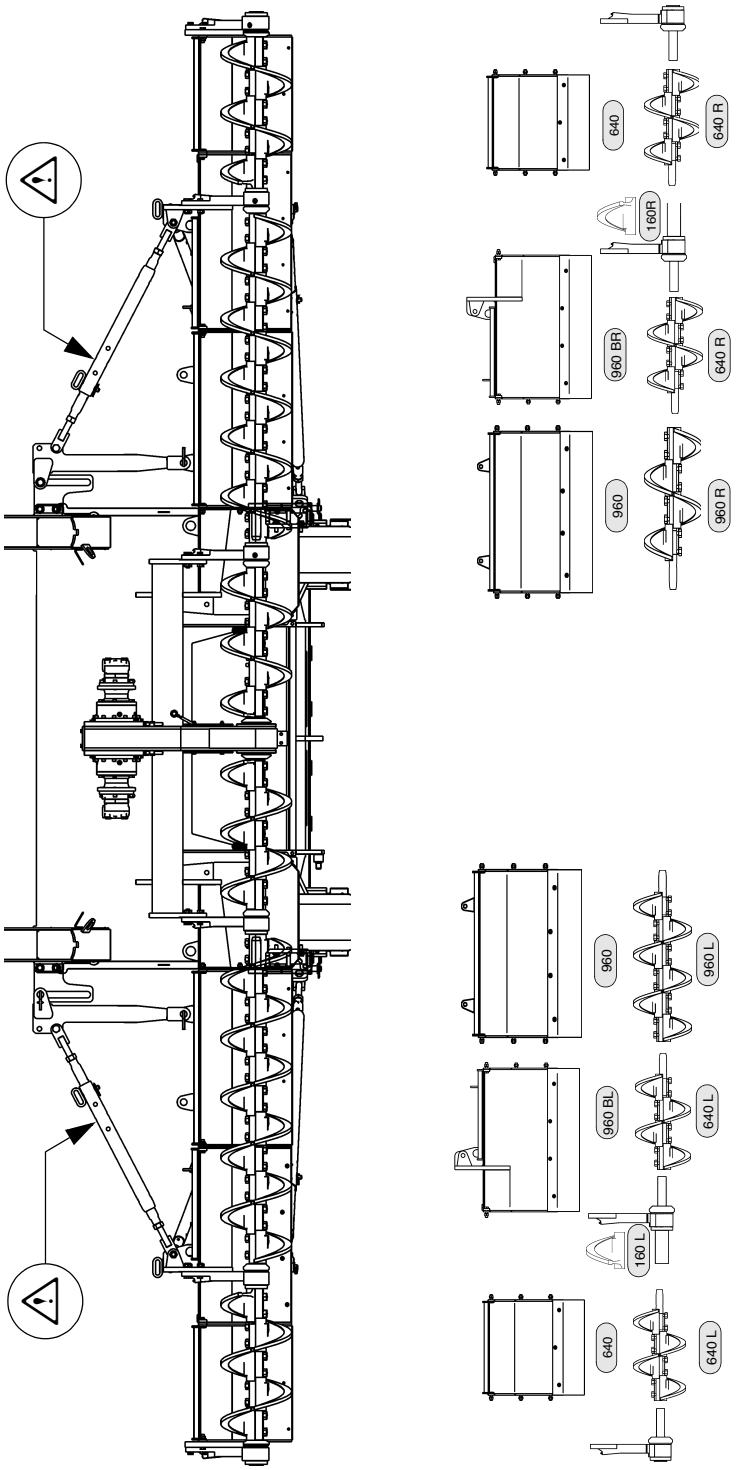
Auger upgrading, working width 6.34 m



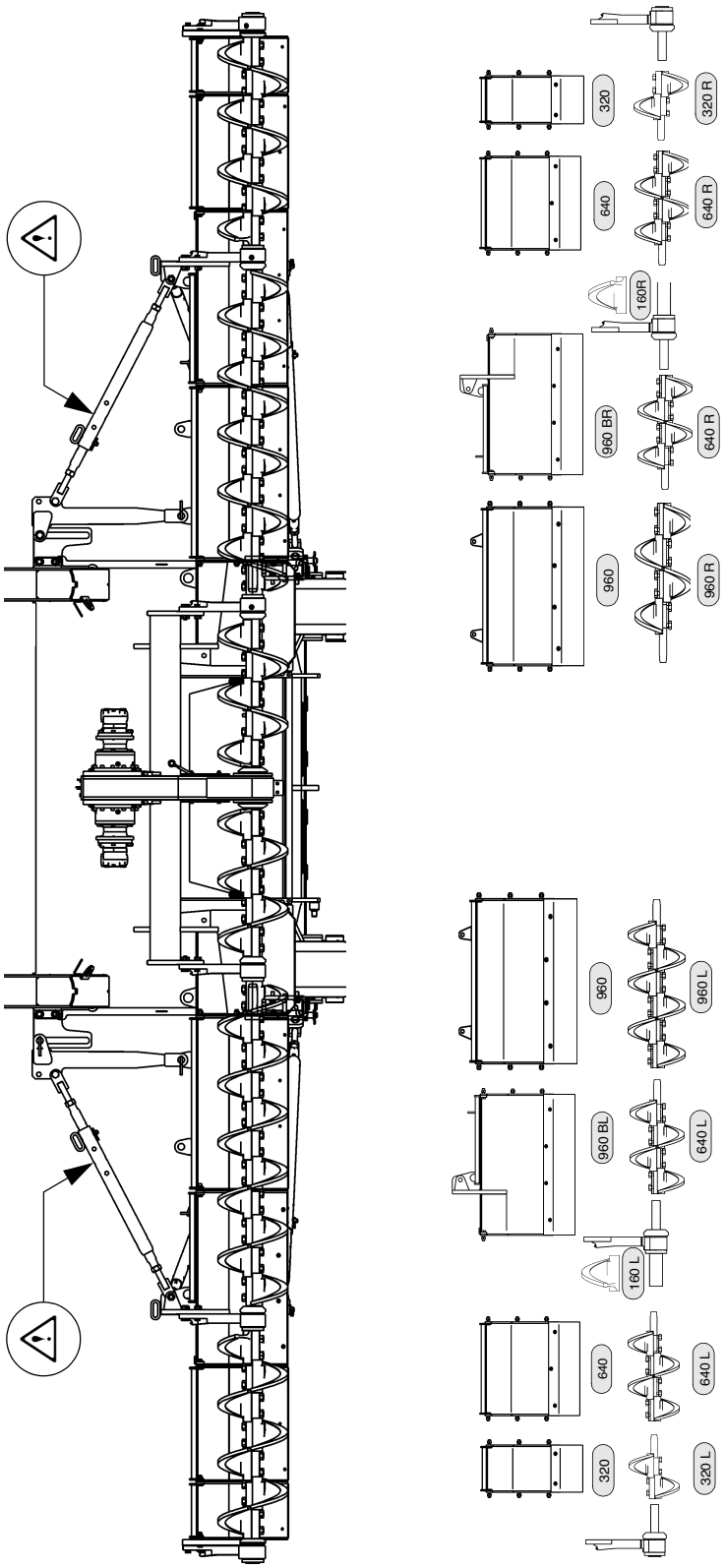
Auger upgrading, working width 6.98 m



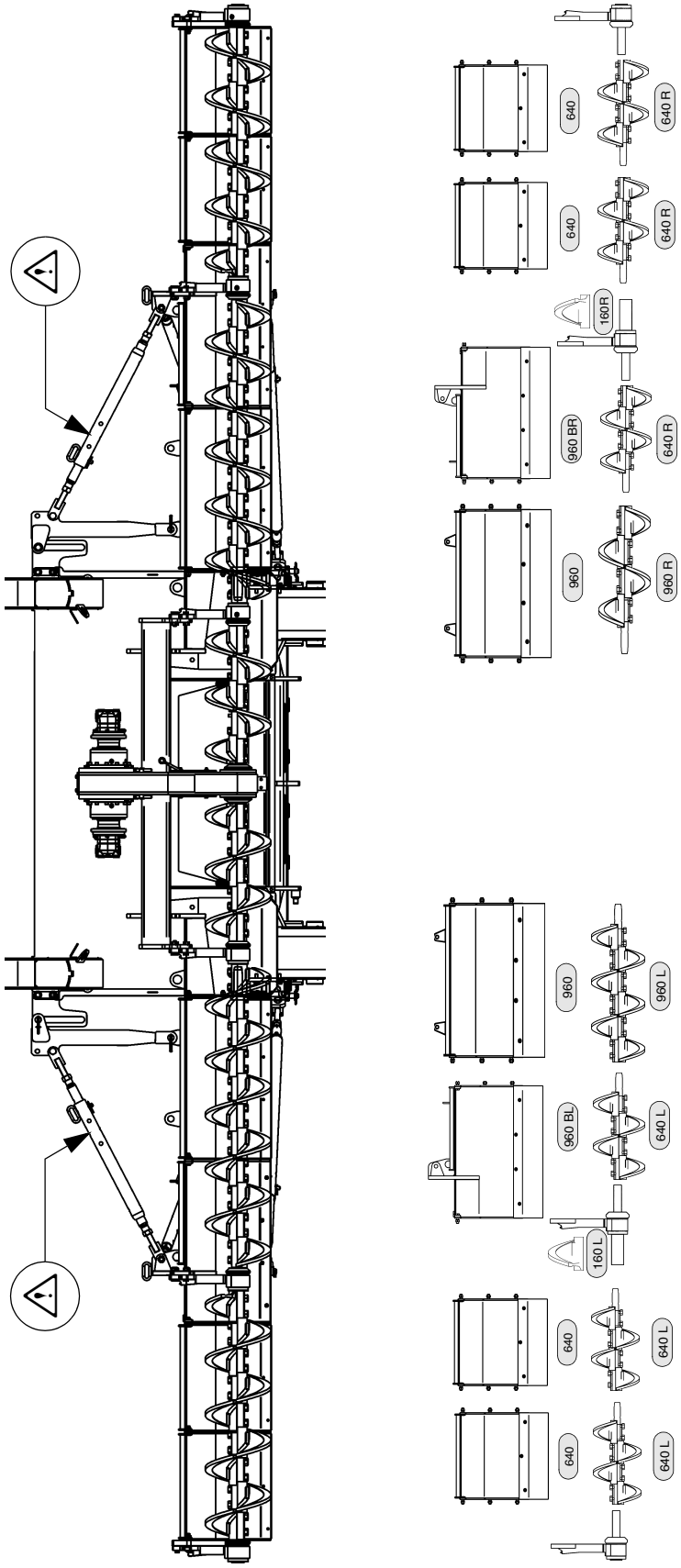
Auger upgrading, working width 7.62 m



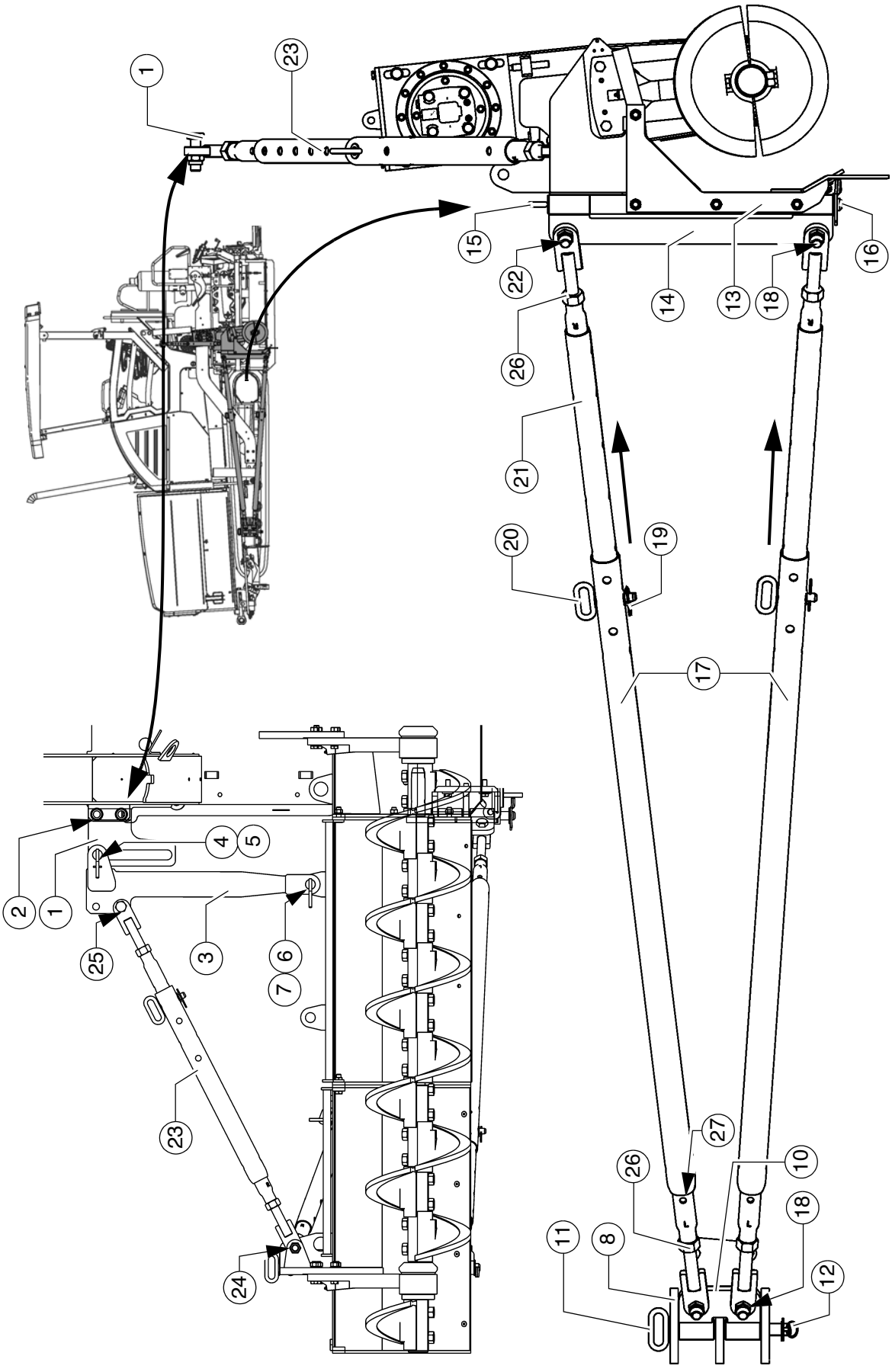
Auger upgrading, working width 8.26 m



Auger upgrading, working width 8.90 m



3.3 Mounting the auger brace



☞ Before mounting the auger brace, the required auger height should already have been set on the basic auger!
Note the section "Height adjustment for large operating widths / with brace"!

- Mount the left/right guide plates (1) on the vehicle frame shackles with the relevant assembly parts (2).

☞ The guide plates must be mounted on the front side of the shackles.

- Slide the support shackle (3) over the guide plate and secure in the groove with a pin (4) and split pin (5).
- Slide the lower support shackle (3) over the attaching point of the material shaft and secure with a pin (6) and split pin (7).

☞ The brace bracket (8) is located directly on the drive unit.

☞ The rear brace bracket is used for the first brace set!
For larger working widths, the second brace set is mounted on the front brace bracket.

- Insert the fulcrum bracket (10) into the brace bracket (8) and secure with the retaining pin (11).
- Secure the retaining pins (11) with a split pin (12).

☞ The first brace set must be set in the rear bore. If the operating width necessitates a second brace, the front bore must be used!

- Mount the slewing bracket (14) at the brace shaft (13) with retaining pins (15).
- Secure the retaining pins (15) with a split pin (16).
- Mount the braces (17) on the fulcrum bracket (10) with the assembly parts (18).

☞ The braces must be mounted on the outer side of the fulcrum bracket (10)!

- Remove the spring cotter pin (19) and retaining pin (20), pull out the adjustment rod (21) until the brace can be mounted on the slewing bracket (14) together with the corresponding assembly parts (22).
- Secure the adjustment rod (21) in an appropriate bore with a retaining pin (20) and spring cotter pin (19).

- Mount the vertical brace (23) in the same way.
  - In this case, secure the vertical brace at the outer auger bearing (24) and the lower support bore (25).

☞ At the support (3) mounting point, the brace must be secured at the rear side in each case!

3.4 Aligning the auger

- Loosen lock nuts (26).

☞ Note the left-hand thread (L) and right-hand thread (R) mark on the brace!

- Extend or shorten the braces (17) by rotating both adjustment rods (21) until all mounted material shafts align with the auger.

☞ The adjustment rod (21) is equipped with a bore (27) on the left and right. A suitable drift can be used to adjust the length of the adjustment rod here. The rotational direction for extending or shortening the adjustment rod is determined by the left-hand thread (L) or right-hand thread (R).

☞ A cord, which aligns with the screed or the rear wall of the vehicle, can be tensioned e.g. to provide assistance during alignment!

- Extend the upper and lower adjustment rods until the material shafts are aligned vertically.

- Retighten the lock nuts (26).
- Align the auger height in the same way by adjusting the vertical brace (23).

☞ Check the horizontal alignment with a spirit level!

3.5 Material shaft, hinged

To close the gap between auger box and side board of the screen, hinged material shafts can be fitted to both sides of the auger.

☞ The hinged material shafts swivel up due to the material pressure which is exerted and swivel in due to screed retraction.

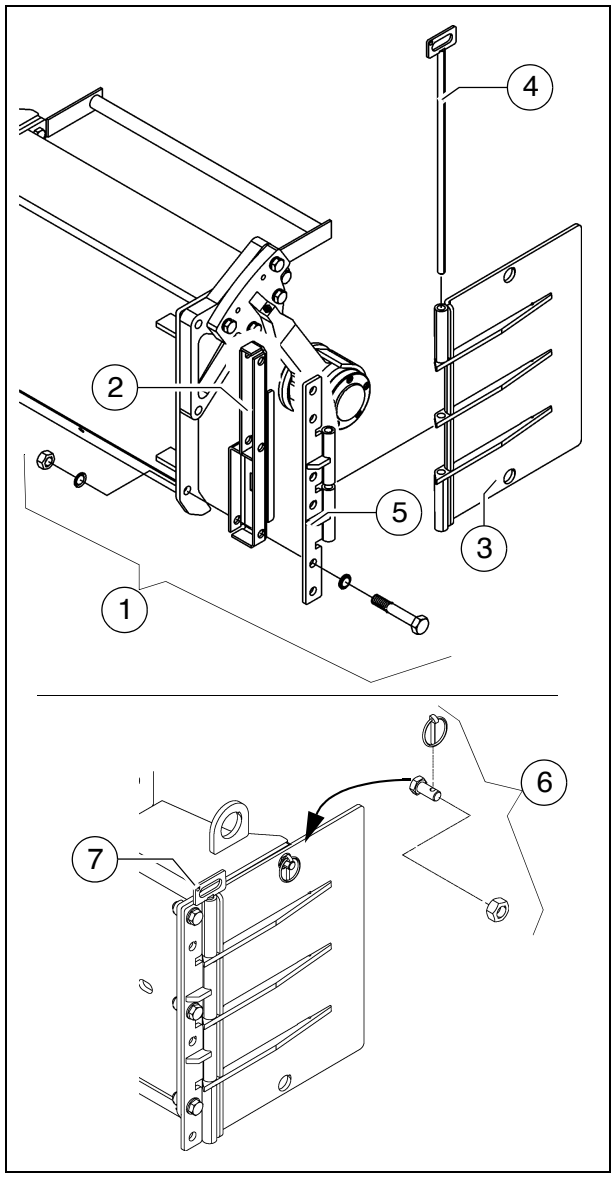
- Mount the left/right material shafts on the auger box with the relevant assembly parts (1).

☞ If a terminal bearing is mounted for the existing auger width, the adapter plate (2) also has to be fitted.

- Fit the plate (3) to the hinge (5) using the hinge rod (4).

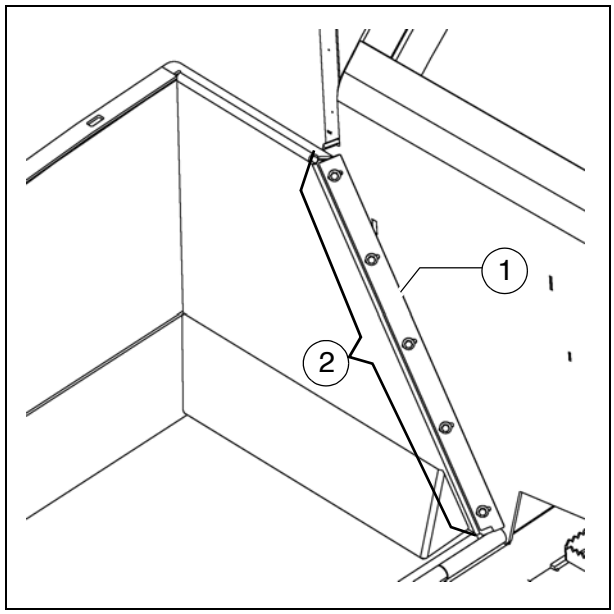
☞ The hinged material shaft can be secured with the assembly parts (6) in swivelled in position when transporting the machine in its basic width.

☞ The assembly parts (6) can be kept at the hole (7).



3.6 Hopper scraper

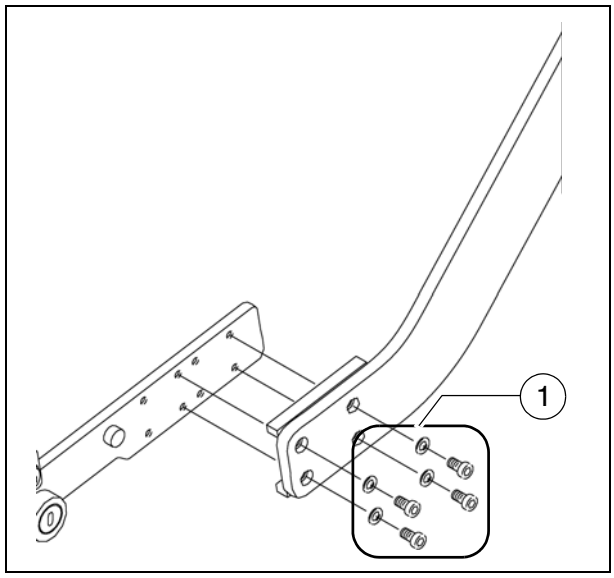
To reduce the gap between hopper and machine frame, the hopper scrapers (1) must be adjusted at both hopper halves.



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

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

4 Offsetting the screed



Depending on the paving condition requirements, the crossbeam can be moved backwards or forwards.
This adjustment enlarges the material space between the auger and screed.

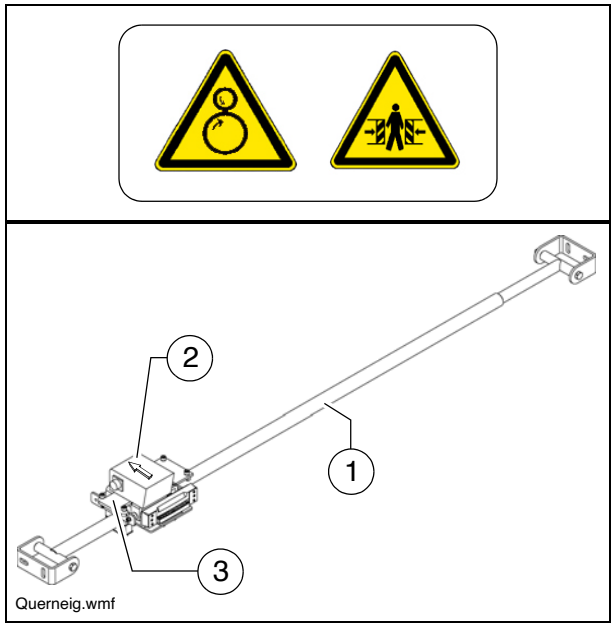
- Loosen the four mounting screws (1).
- Remove the screws and move the vehicle forwards.
- The crossbeam remains in its position on slide rails: now tighten the screws (1) back down.

☞ When paving thin layers, the material can "settle" in front of the screed if the screed is set to the rear position. When paving thick layers, the screed then climbs better.

5 Levelling

5.1 Slope controller

⚠ During operation, no work may be carried out on the slope control linkage or the slope controller!



- Mount the slope control linkage (1) in the intended position between the two crossbeams.
- Mount the slope controller (2) on the slope control linkage's retaining plate (3).

☞ Four securing holes are provided for mounting on the sensor's retaining plate.

☞ The digital slope controller must be mounted in such a way that the marking arrow on the housing points in the direction of travel.

☞ The analogue slope controller must be mounted in such a way that the displays for the operator visibly point backwards.

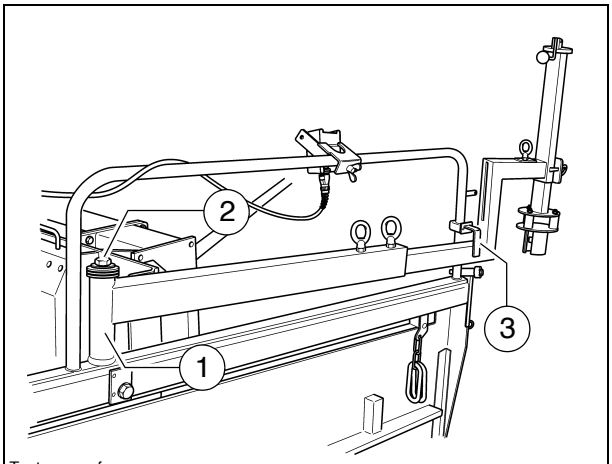
- Connect the left or right connection cable to the intended handset or vehicle socket.

☞ Exhaustive operating instructions can be found in the documentation for the corresponding levelling system.

5.2 Mounting the sensor arm

- Position the sensor arm mounting (1) on the corresponding journal of the screed side board.
- Tighten the pin (2) so that the sensor arm is just still able to swivel.

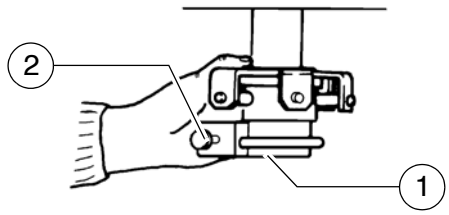
☞ The sensor arm can be secured on the side board with the lock (3).



Tastarm.wmf

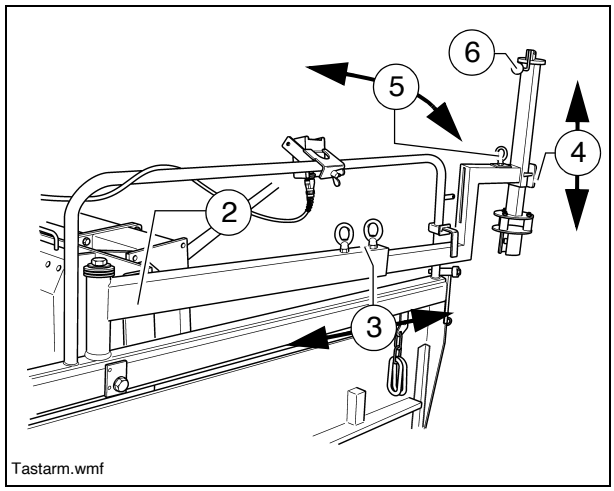
5.3 Mounting the grade control system

Insert the grade control system into the clamp bracket (1) and secure with the clamping bolt (2) to prevent rotation.



F0258_A1.TIF/

5.4 Setting up the sensor arm



Before starting paving, the sensor arm must be set, with the grade control system, to its reference (cable, kerb, etc.).

☞ Sensing should be carried out in the area of the auger.

- Swivel the sensor arm (2) over the reference.
- Use the following options to adjust the sensor arm precisely:
  - After loosening the clamping bolts (3), the sensor arm length can be set up.
  - The sensing height can be set by loosening the clamping bolts (4).
  - Adjustment of the lateral sensing angle is possible at the lock (5).
  - Height adjustment for analogue grade sensors is carried out by means of a crank (6). To lock it, the crank is inserted into one of the available notches following the adjustment work.

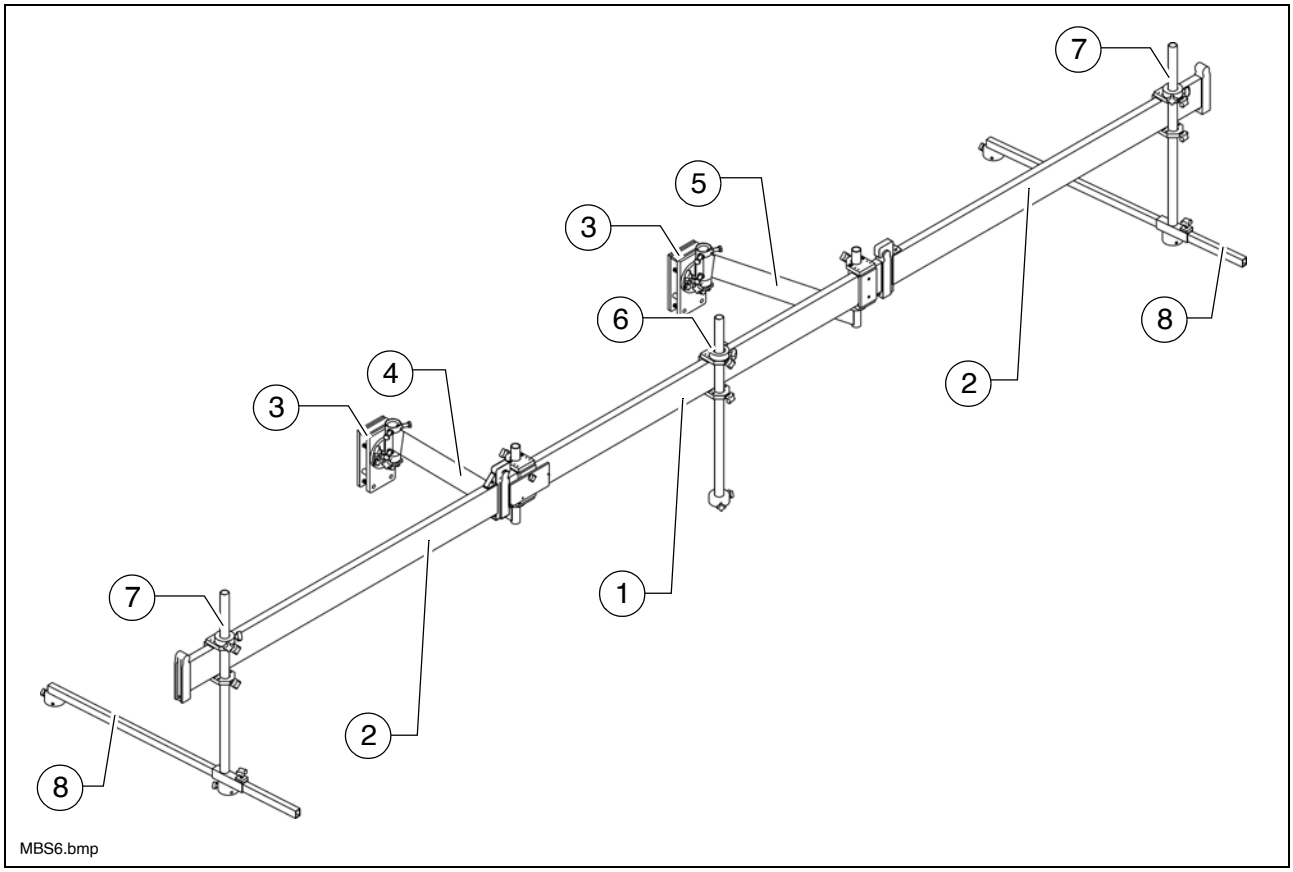
☞ All assembly parts and clamping points must be tightened properly to ensure safe and precise sensor arm operation!

- Connect the left or right grade control system connection cable to the intended handset or vehicle socket.

☞ If the vehicle is to be operated with automatic grade sensing on both sides, the above described adjustment process must be repeated on the second side.

☞ Exhaustive operating instructions can be found in the documentation for the corresponding levelling system.

5.5 Big ski 9 m, big ski 13 m



The big ski is used for contactless sensing over a particularly large reference length.

☞ A total max. ski length of approx. 9.30 m can be achieved with the combination of 1 centre element and 2 module elements together with the sensor arm extensions. A total max. ski length of approx. 13.50 m can be achieved with the combination of 1 centre element and 4 module elements together with the sensor arm extensions.

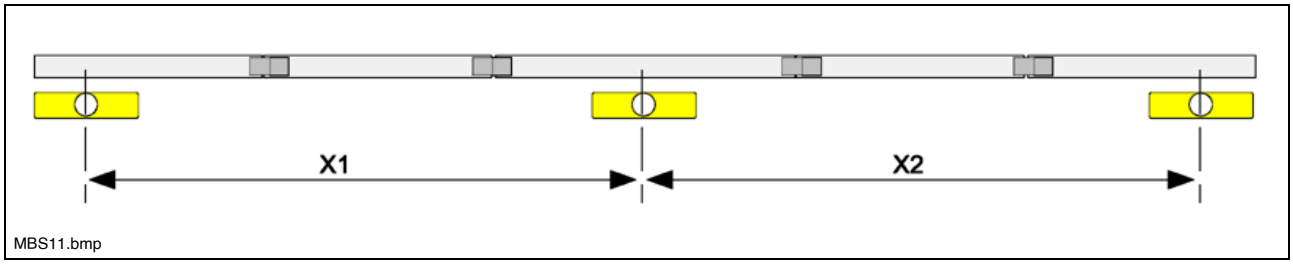
☞ The big ski enables the alignment of the individual sensors at the front and rear to be shifted over the reference. The sonic ski can actually be positioned in front of and behind the vehicle in order to guarantee safe reference sensing even on cornering.

☞ Before starting paving, the big ski must be set, with the grade control system mounted, to its reference (cable, kerb, etc.).

The big ski essentially consists of the following components:

- Centre element (1)
- Extension modules (2)
- Crossbeam bracket (3)
- Front swivel arm (4)
- Rear swivel arm (5)
- Sensor bracket (6)
- Sensor bracket, extendable (7)
- Arm extension (8)

☞ Assembly of the short version is described in the following, as the longer variant is achieved simply by adding further module elements.



The distances between the sensors are ideally identical (X1 = X2).

☞ The centre sensor is mounted in the usual individual sensor position so that, if necessary, work can be carried out with just one sensor by switching over on the MOBA-matic (e.g. at the start of paving, road junctions, etc…)

☞ Depending on application, the mechanism can be mounted at the side next to the screed or also above the screed. This is dependent on the paving width required in each case.

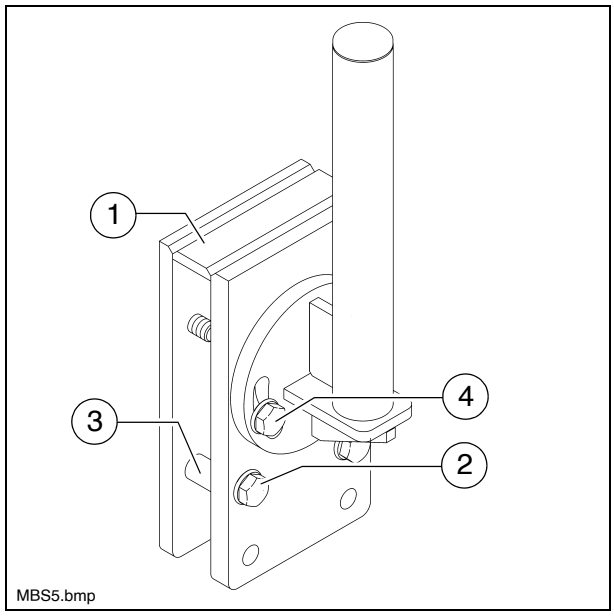
☞ The procedure for mounting the big ski is the same in both cases.

☞ So that the big ski can be operated as parallel to the ground as possible during paving, it must be attached according to the subsequent paving conditions. To do this, the screed should be lowered to the desired course thickness and the traction point should be set appropriately.

⚠ When mounting the two crossbeam brackets, it is vital to ensure that these do not hamper the free movement of either the crossbeam or the screed construction! Clearance must be guaranteed throughout the entire working range!

Mounting the big ski bracket on the crossbeam

☞ The entire big ski construction is mounted laterally on the crossbeams. To do so, the two crossbeam brackets must first be mounted. The crossbeam bracket design differs slightly depending on the paver finisher which is used.
During assembly, it is possible either to bolt the bracket directly at the existing bores or, as described in the following, to secure it to the crossbeam using clamping plates.



☞ The front bracket is mounted directly behind the traction point; the rear bracket is mounted at approximately the height of the auger.

- Place both brackets (1) over the crossbeam at the corresponding point and mount with bolts (2) and sleeves (3).

☞ For different crossbeam thicknesses, use the mounting's corresponding bores.

- The mounting tube is aligned via the two bolts (4).

☞ Align the bracket vertically.

Mounting the swivel arms

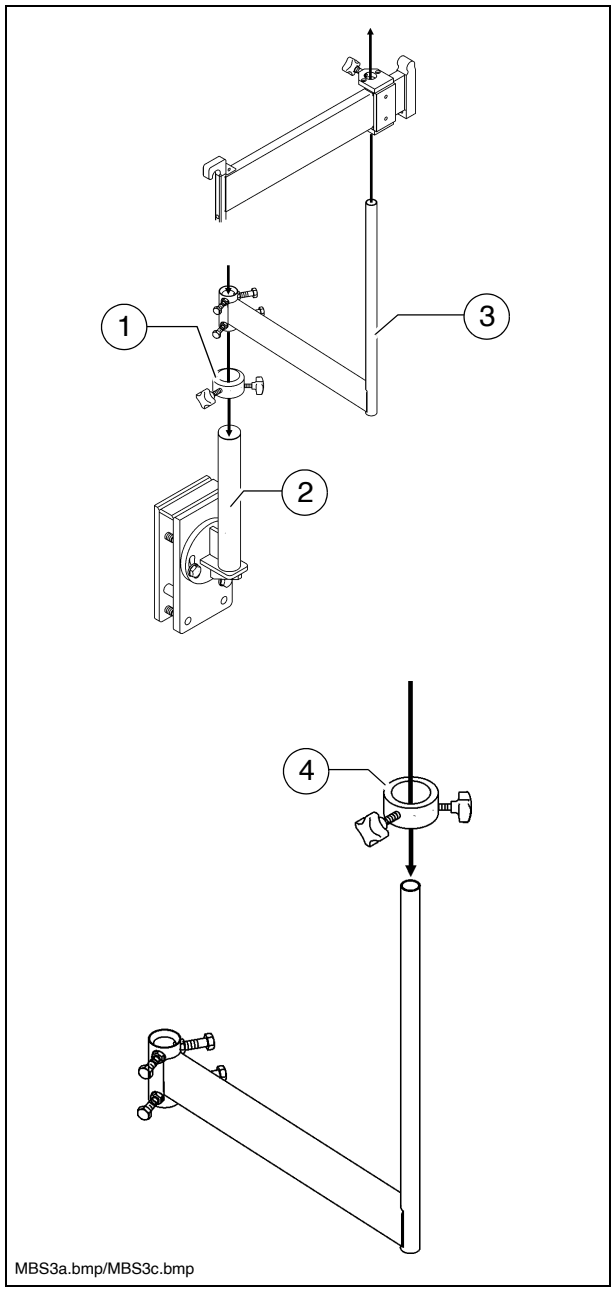
- Slide a fixing ring (1) over the tube of the big ski bracket (2).

☞ The fixing ring's 45° chamfer must point upwards.

- Then slide the two swivel arms (3) onto the tube of the big ski bracket.

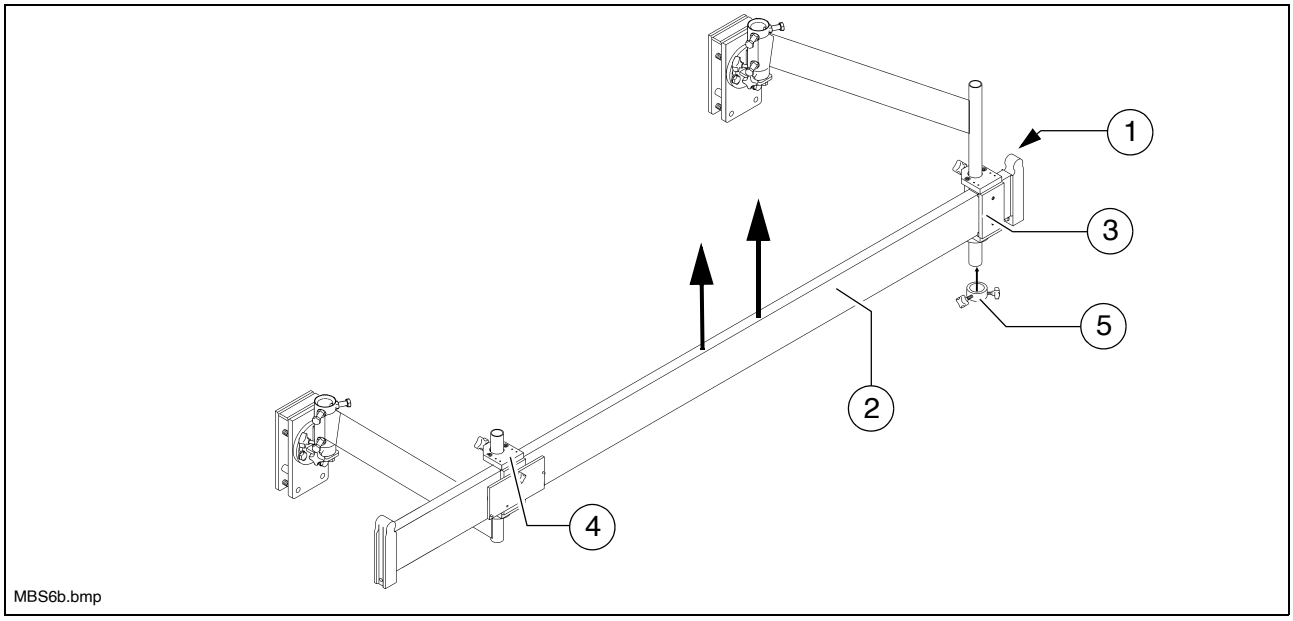
☞ The rear swivel arm is positioned, rotated by 180°, on the big ski bracket.

- Slide a fixing ring (4) (flat version) onto the front swivel arm and secure with the relevant star handle bolt.



MBS3a.bmp/MBS3c.bmp

Mounting the centre element



☞ During assembly, it must be ensured that the round lug (1) for attaching the subsequent modules points upwards.

☞ The centre element (2) is already fitted in the factory with 2 pre-assembled sliding parts (3) / (4), which are pushed over the two round mounting journals of the swivel arms.

- First slide the rear sliding part (3) onto the rear swivel arm from below. Then raise the centre element, together with the rear swivel arm, until the front sliding part (4) can be pushed onto the front swivel arm from above.
- Then secure the rear sliding part with a fixing ring (5) and the relevant star handle bolt.

☞ Once the first part of the beam has been assembled, it is initially aligned:

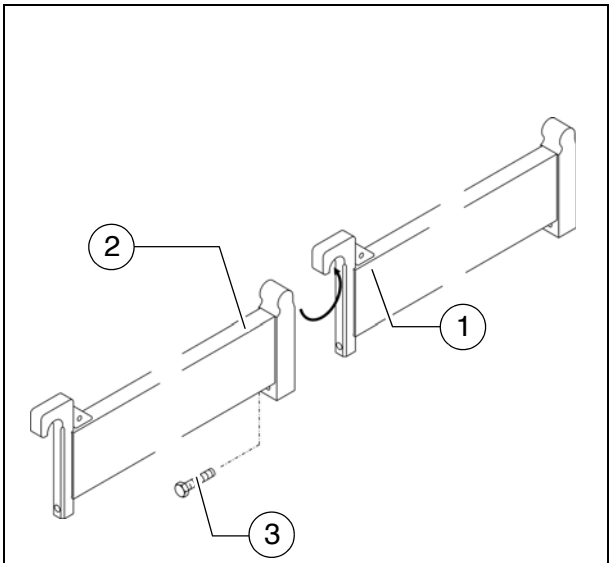
- The centre element is now aligned horizontally using the fixing rings on the swivel arms, and also with the fixing rings on the big ski brackets if necessary.
- Next, the centre element is aligned by rotating the swivel arms parallel to the paver finisher.
- Finally tighten all securing bolts.

Extending the big ski

☞ The big ski can be extended to both the 9 m and 13 m versions.

☞ Structure of the 9 m version:
Extension part at the front/rear each.
Structure of the 13 m version:
Two extension parts at the front/rear each.

- Place the extension module (1) onto the centre element (2) and secure with a bolt (3).



MBS1.bmp

Mounting the sensor bracket

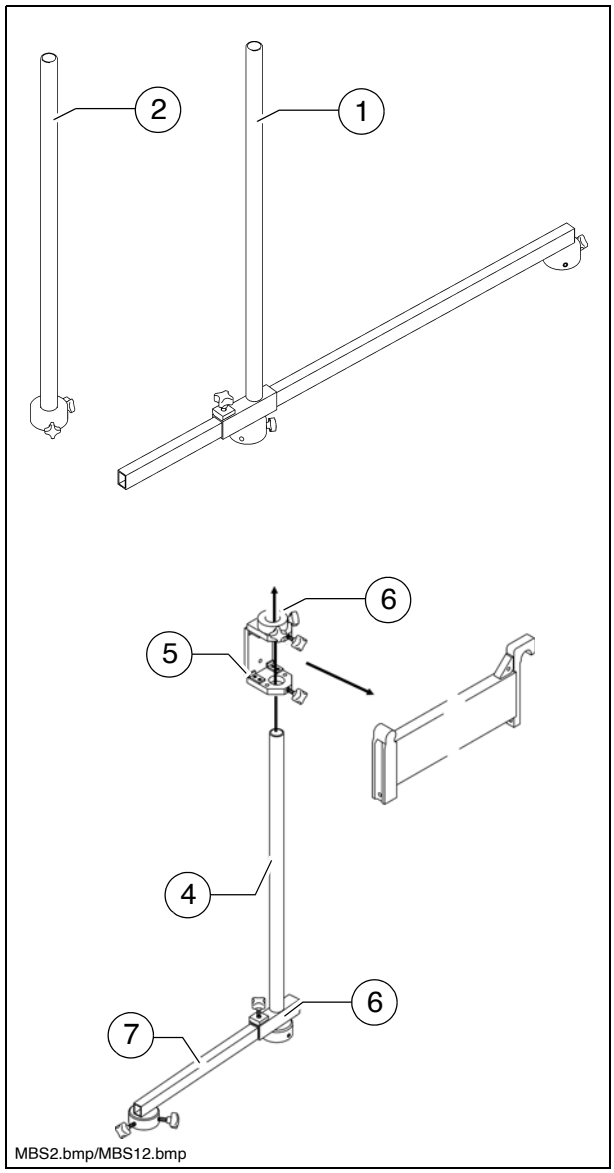
☞ A sensing system with 3 sensors is provided over the entire length of the big ski. One sensor each on the centre element, and the front and rear end elements.

☞ The centre sensor should be mounted on the ski in precisely the location in which it would be found during normal operation (approx. the height of the auger).
The two other sensors should be mounted the same distance away from it.

☞ Extendable sensor brackets (1) are mounted in the two outer positions; the normal sensor bracket (2) is mounted in the centre.

- Place the sliding bracket (3) over the corresponding big ski element from the inner side.
- Insert the sensor bracket (4) into the sliding bracket (5) from below and secure with the relevant star handle bolts.
- Place the clamping ring (6) onto the sensor bracket tube and secure with the relevant star handle bolt.

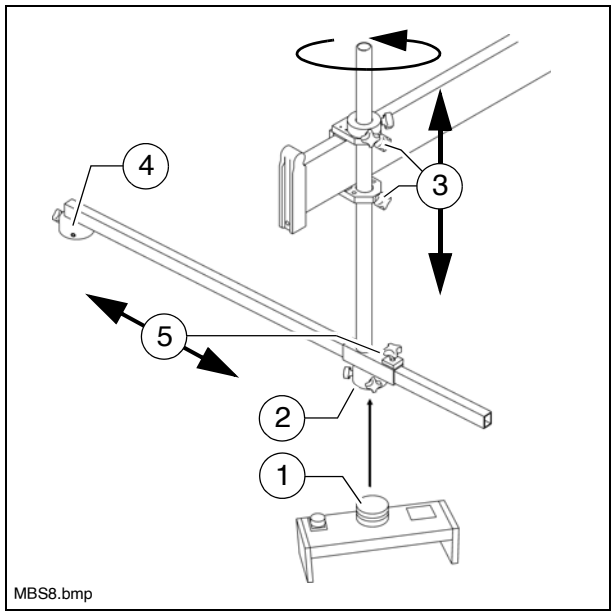
- In the case of the extendable sensor brackets, slide in the arm extension (7) and secure in position with the relevant star handle bolt.



MBS2.bmp/MBS12.bmp

Mounting and aligning the sensors

- Insert the sensor mounting (1) into the bracket (2).
- Align the sensor and secure with the relevant star handle bolts.
  - The sensing height can be adjusted by loosening the star handle bolts (3).



☞ At the two outer sensor brackets, the sensor can also be mounted on the swivelling sensor extension arm (4).
This therefore enables the two outer sensors to be swivelled during paving for diverse requirements, e.g. cornering.

- By loosening the star handle bolts (5), the length of the extension arm can be adjusted.
- The sensor bracket with extension arm can be swivelled by loosening the star handle bolts (3).

☞ If a sensor extension arm is swivelled to the side, it must be ensured that the attached sensor is subsequently aligned in the direction of travel.

☞ All assembly parts must be mounted and tightened properly to ensure safe and precise operation of the big ski!

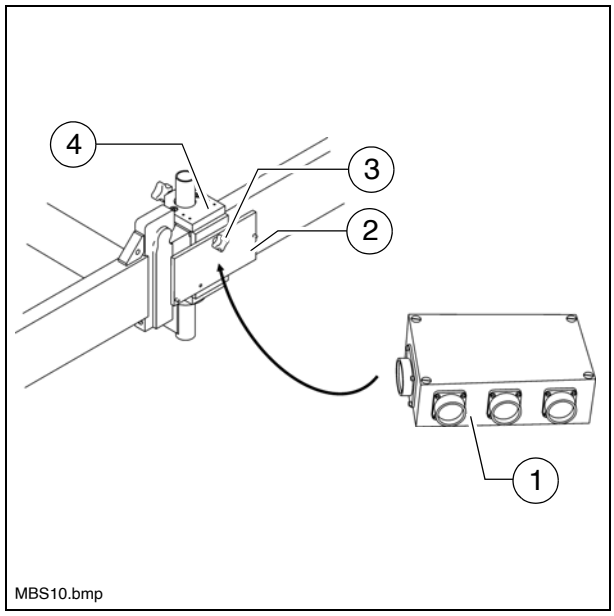
Mounting the distributor box

☞ The distributor box should be mounted in such a way that simple wiring to the controller and the sensors is possible.

⚠ The connections for the sensors should always point down to prevent water from entering the distributor box. Inlets which are not required must be sealed with dust caps.

- Allen head bolts are used to initially mount the distributor box (1) on the mounting plate (2).

☞ The input connector always points in the direction of travel.



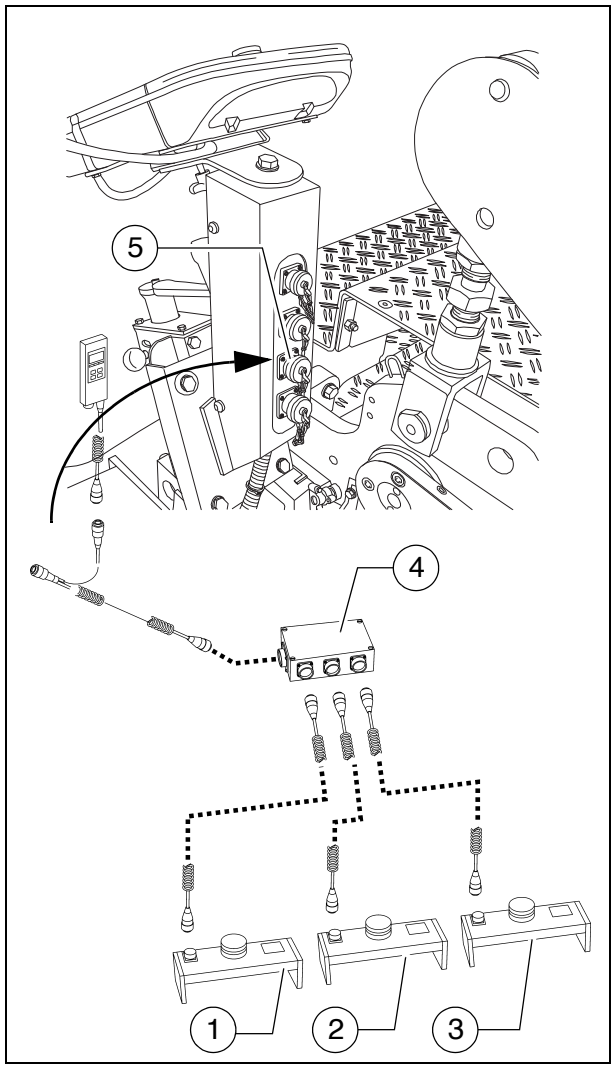
- Then mount the mounting plate on one of the two sliding brackets (4) on the centre element using a star handle bolt (3).

⚠ Mounting the big ski on the right-hand side of the vehicle:
To meet the requirement that the input connector always points in the direction of travel, the sliding bracket, on which the distributor box is to be mounted, must be pushed onto the big ski from the inside to the outside here.

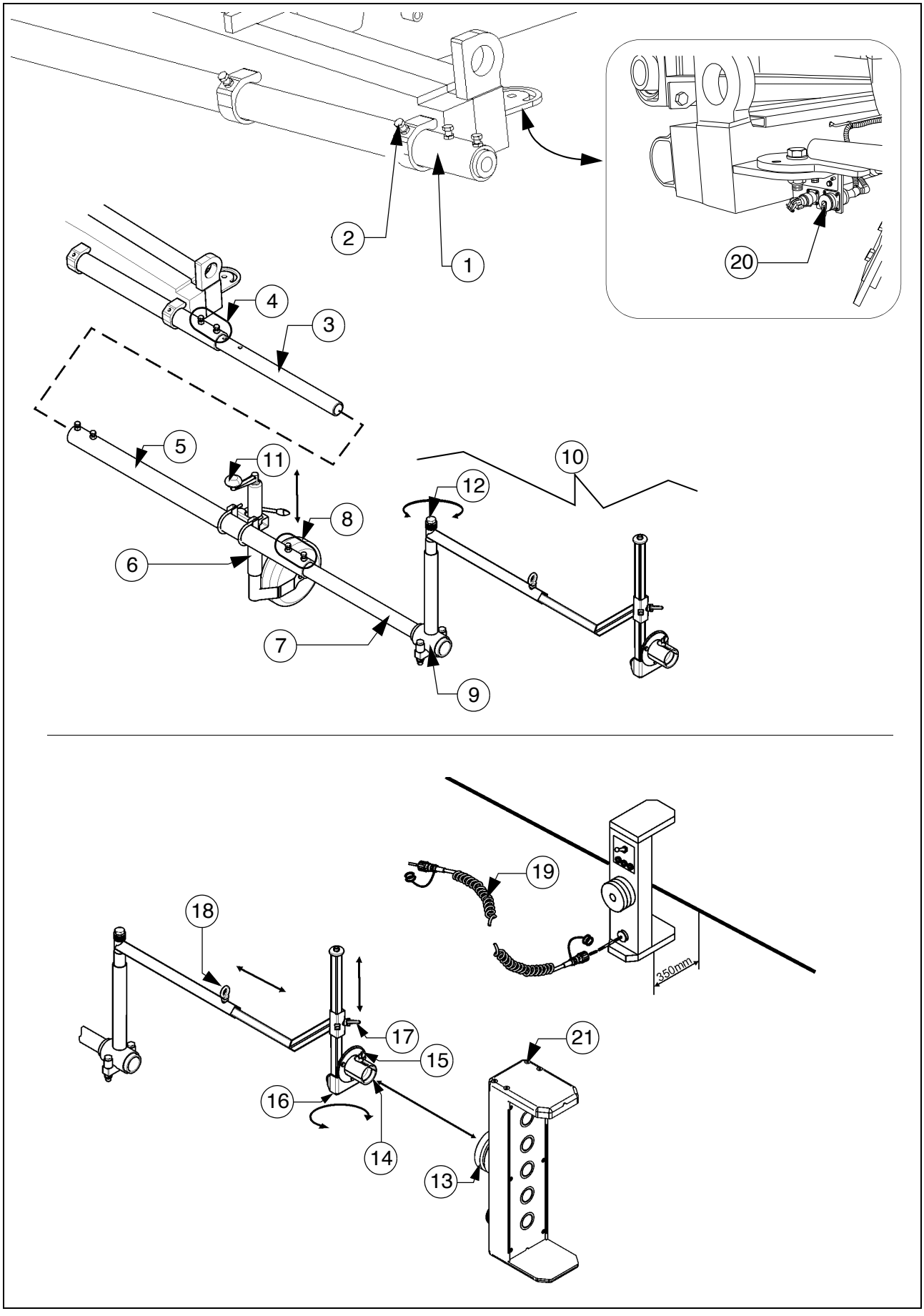
Connection diagram

☞ The three sensors are connected to the distributor box and the distributor to the machine according to the following scheme.

- Sensors
  - Front (1)
  - Centre (2)
  - Rear (3)
- Distributor box (4)
- Machine interface (5)



6 Automatic steering unit



6.1 Mounting the automatic steering unit on the paver finisher

⚠ During operation, no work may be carried out on the automatic steering unit!

☞ Depending on the desired sensing side on the vehicle, the sensor rod tube may have to be removed and re-inserted on the other side of the vehicle!

- Pull the sensor rod tube (1) at the front of the vehicle out to the desired length and secure with the clamping bolts (2).

☞ Only for 14m automatic steering unit:
-Push the connecting tube (3) into the sensor rod tube (1), fix with screws and lock nuts (4).
-Push extension (5) onto the connection tube and fix in the same way.
-Fix support wheel (6) in a suitable position using the corresponding assembly parts.
-Heed vertical alignment!

- Insert tube (7) to the required length and also fix with screws and lock nuts (8).
- Fit the clamping piece (9) with extension arm (10) to the end of the tube.

☞ Heed vertical alignment!

- If necessary, adjust the height of the support wheel at the adjustment knob (11) until all extension tubes are horizontally in line.
- Swivel the extension arm (9) to the desired angle and secure by tightening the bolt (12).

⚠ Use of the automatic steering unit increases the basic width of the paver finisher!

☞ If the automatic steering unit is used, ensure that there are no persons and no hindrances in the danger area.

Mounting and aligning the sensor

- Insert the sensor mounting (13) into the bracket (14) and secure with a wing nut (15).
- Align the angle between the sensor and reference and secure with the relevant clamping bolt (16).

☞ The sensor and reference must be at right angles to each other!

- The sensing height can be set by loosening the fixing screw (17).

☞ The reference should run centrally along the sensor.

- The sensor's distance from the reference can be set by loosening the fixing screw (18).

☞ The distance between the sensor and reference (cable) should be 350 mm!

☞ All assembly parts must be mounted and tightened properly to ensure safe and precise operation of the automatic steering unit!

Connecting the sensor

☞ A sensor for connecting the sensing system to the vehicle's control system is located on the left and right sides of the vehicle on the inner side of the bumper.

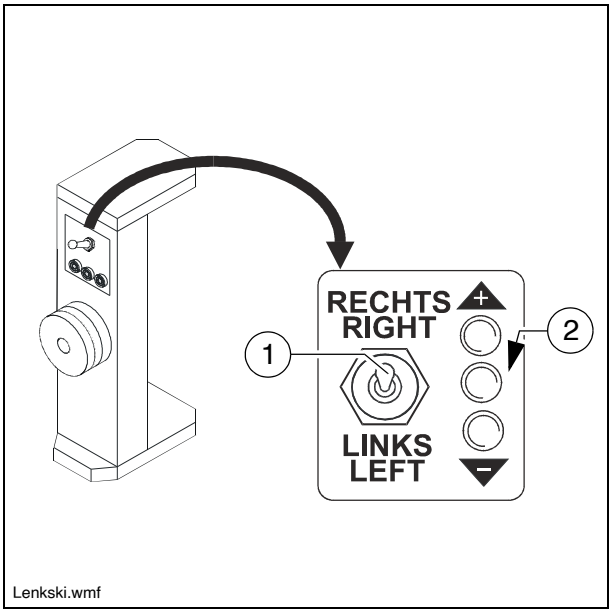
- Connect the relevant connection cable (19) to the socket (20) and sensor (21).

☞ A connection socket for the automatic steering unit is located on both sides of the vehicle.

⚠ Route the connection cable so that it cannot be damaged during operation.

⚠ Seal unused sockets with the relevant protective caps.

Automatic steering unit operating instructions



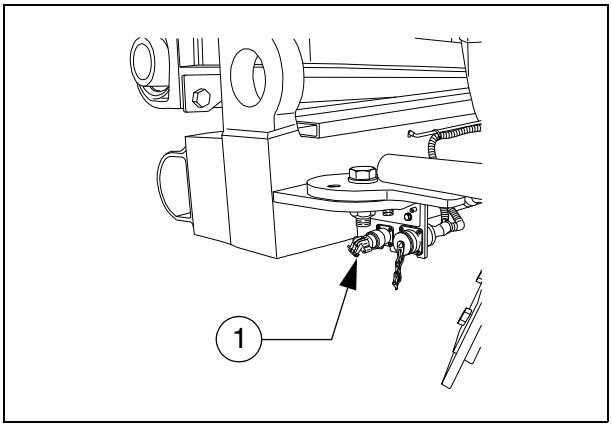
- When the automatic steering unit is activated, the steering potentiometer is deactivated. Steering is carried out automatically via ski cable sensing.
- Activate the function on the operating panel as necessary.
- The automatic steering unit can be overridden by actuating the steering potentiometer.

- The switch (1) is used to set the sensing side:
  - Right: Automatic steering unit on the right side of the vehicle.
  - Left: Automatic steering unit on the left side of the vehicle.

- The LEDs (2) indicate the distance from the reference.
  - LED + / - : Distance from the reference too high / too low.
  - Centre LED: Distance correct.

7 Emergency stop during feeder operation

☞ If the function is not in use, the bridge connector must be fitted to the corresponding socket, as otherwise the travel drive is blocked!

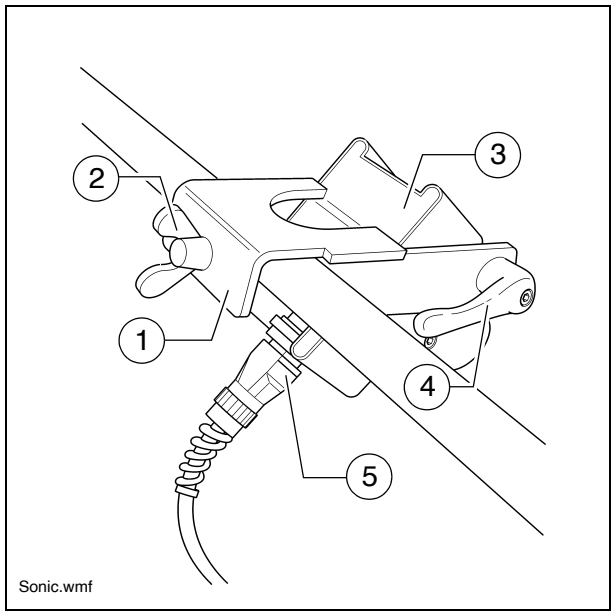


8 Limit switch

8.1 Auger limit switches (left and right) - mounting the PLC version

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



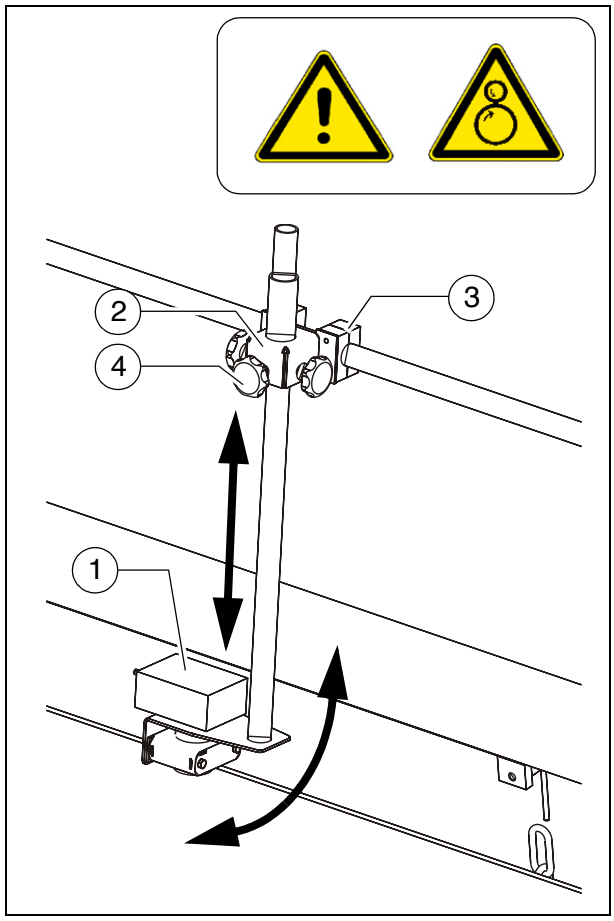
☞ The connection cables are connected to the relevant sockets on the remote control bracket.

☞ 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.

8.2 Auger limit switches (left and right) - mounting the 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.

9 Screed

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

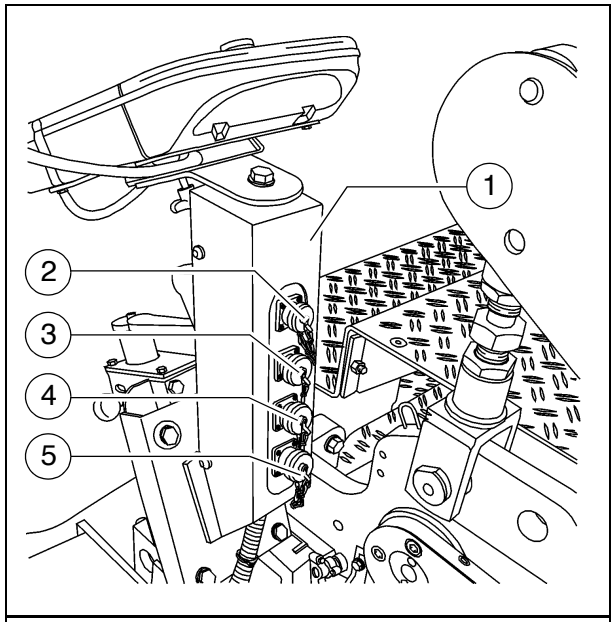
10 Electrical connections

Establish the following connections on the rear of the remote control brackets (1) when the mechanical assemblies have been mounted and set up:

PLC version:

- Auger limit switches (2)
- Remote control (3)
- Grade control system (4)
- External levelling system (5)

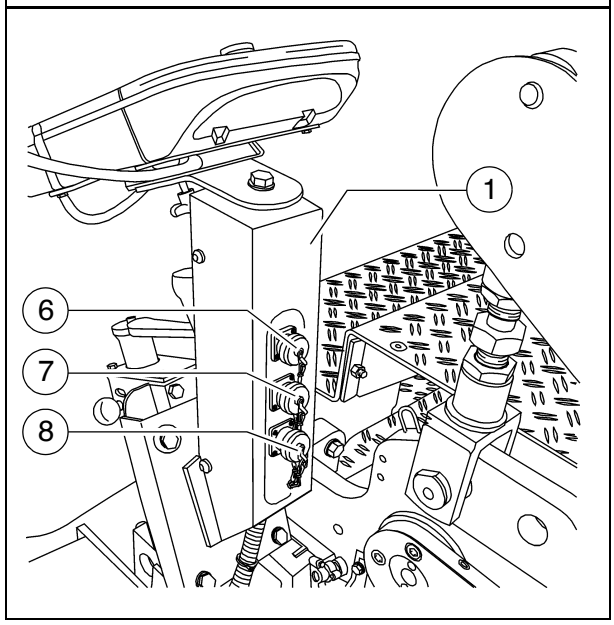
☞ When using an external levelling system, this must be logged in using the remote control menu.



Conventional version:

- Remote control (6)
- Auger limit switches (7)
- Automatic levelling system (8)

☞ Always seal unused sockets with the relevant protective caps!



10.1 Machine operation without remote control / side board

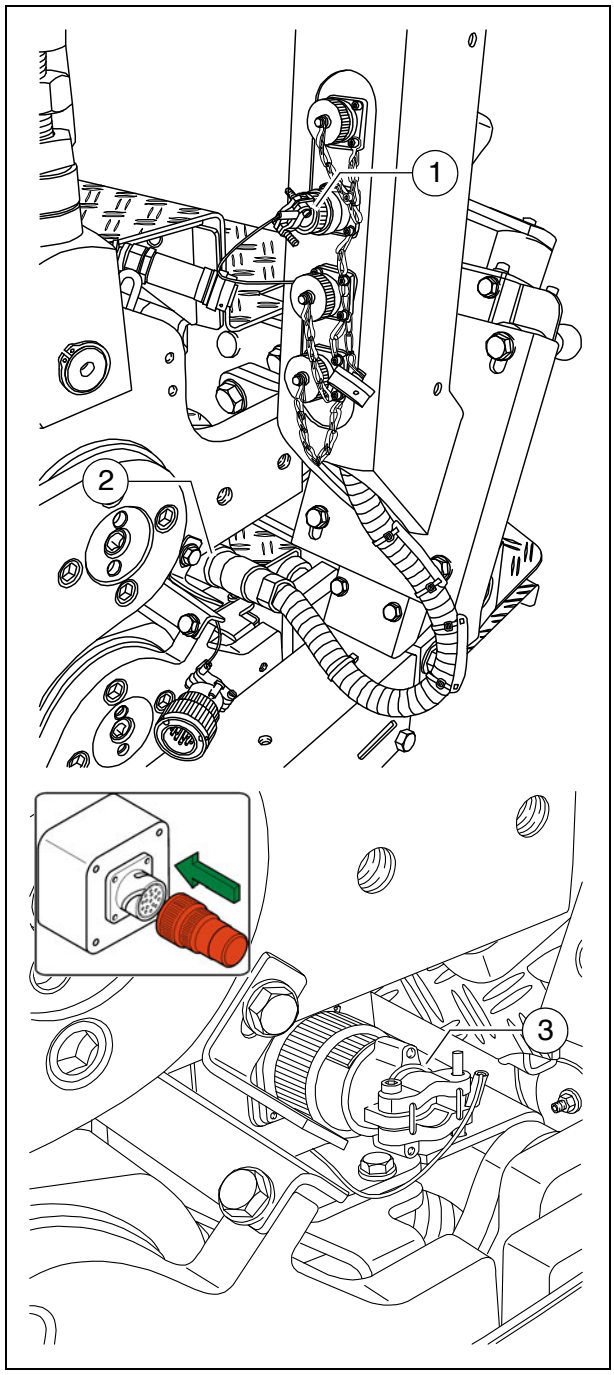
☞ The machine can only be driven without connected remote control if the corresponding bridge connectors have been fitted on both sides of the machine.

Side board with mounted remote bracket:

- Fit bridge connector (1) in the socket of the remote control and secure with cap.
- Check that the connection box is plugged in (2).

Side board removed:

- Fit bridge connector (3) in the socket of the connection box and secure with cap.



F 10 Maintenance

1 Notes regarding safety

Maintenance work: Maintenance work may only be carried out when the engine is at a standstill.

Secure the paver finisher and the attachments against inadvertent starting before beginning any maintenance work:

- Set the drive lever to the centre position and the speed preselector to zero.
- Pull out the ignition key and the battery main switch.

Lifting and jacking up: Secure lifted machine parts (e.g. screed or hopper) against lowering by means of mechanical supports.

Spare parts: Use only approved parts and install them according to the specifications! If in doubt, contact the manufacturer!

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

Cleaning: Cleaning must not be carried out while the engine is running.
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.

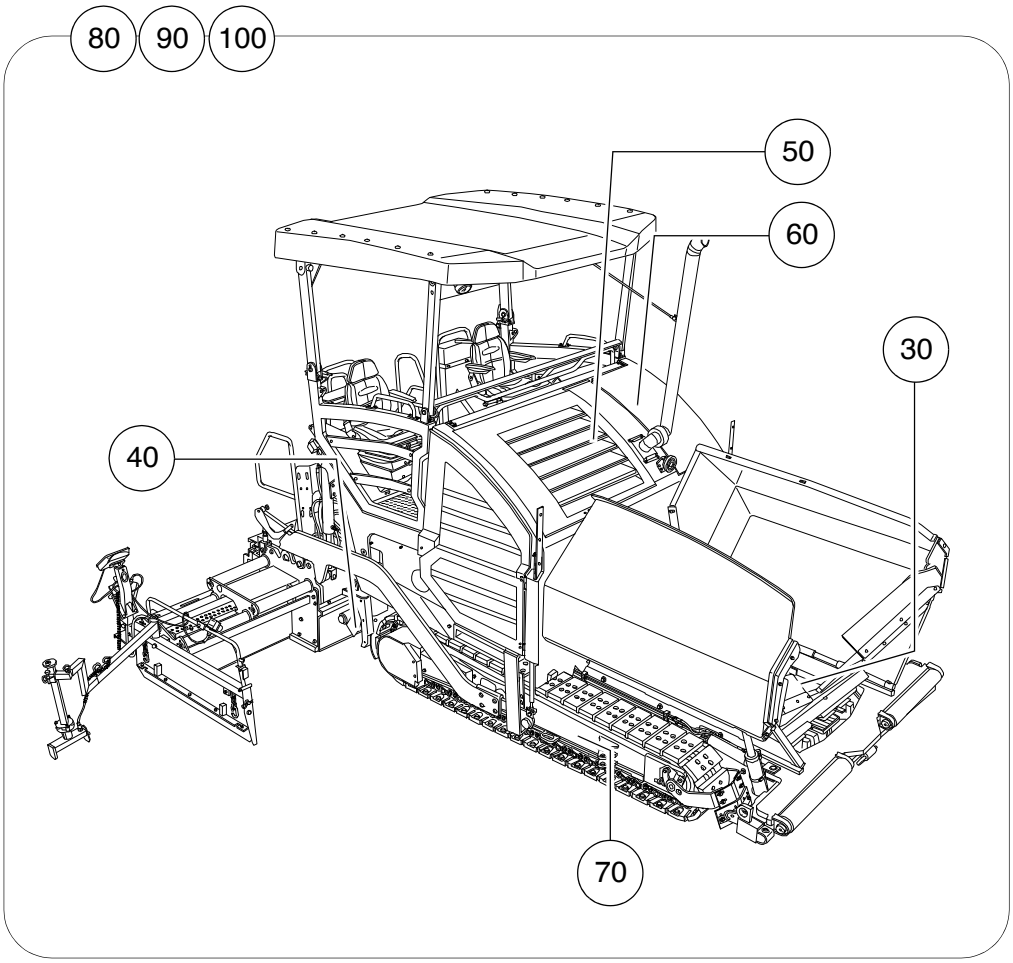
Working in enclosed environments: Exhaust fumes must be conducted into the open air. Propane gas bottles must not be stored in closed rooms.

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 Maintenance review

1 Maintenance review



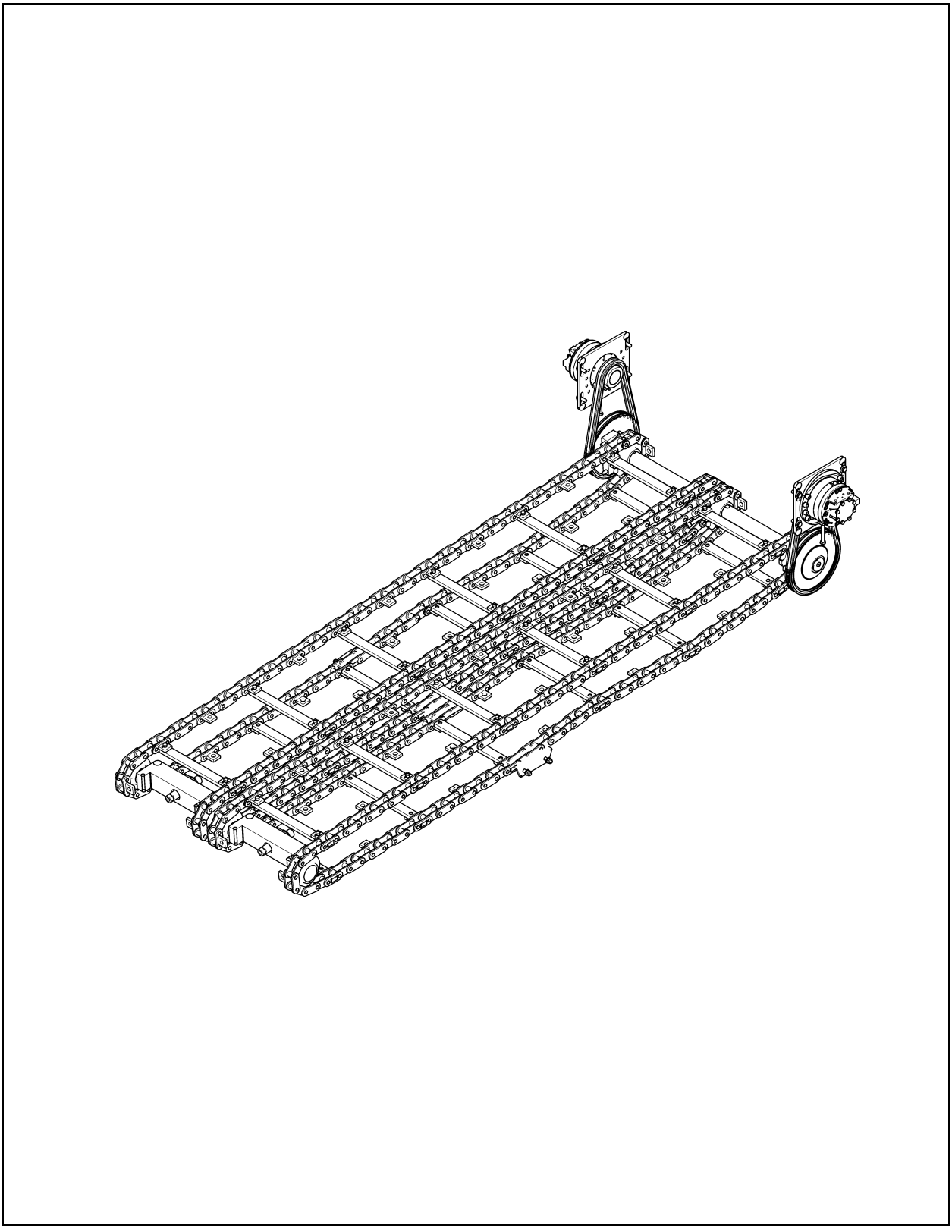
Assembly	Chapter	Maintenance required after the following service hours									
		10	50	100	250	500	1000 / annually	2000 / every 2 years	5000	20000	If necessary
Conveyor	F30	■		■							■
Auger	F40	■	■	■	■		■	■			■
Engine	F50	■			■	■	■	■			■
Hydraulics	F60	■	■			■	■	■			■
Drive units	F70	■	■	■	■	■	■				■
Electronics	F80			■	■						■
Lubrication points	F90	■	■					■			■
Checking/stopping	F100	■					■				■

Maintenance required	■

☞ In this overview, you will find the maintenance intervals for optional machine equipment!

F 30 Maintenance - conveyor

1 Maintenance - conveyor



1.1 Maintenance intervals

Item	Interval								Maintenance point	Note
	10	50	100	250	500	1000 / annually	2000 / every 2 years	If necessary		
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	

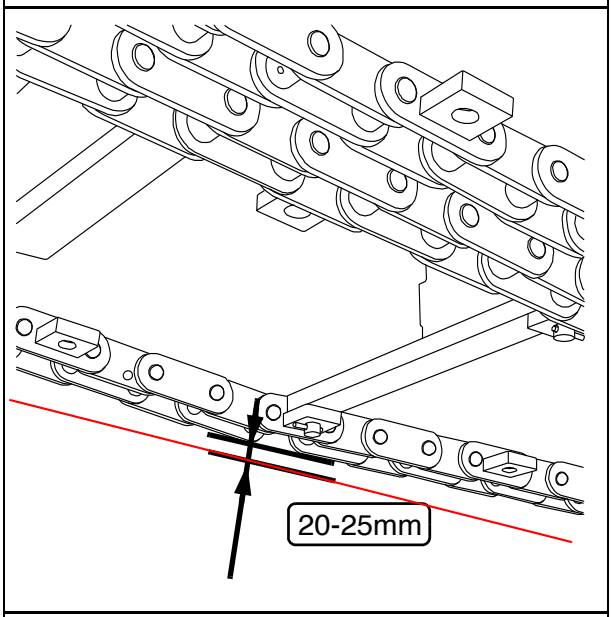
Maintenance	■
Maintenance during the running-in period	▼

1.2 Points of maintenance

Chain tension, conveyor (1)

Check chain tension:

When the conveyor chain is correctly tensioned, the lower edge of the chain is approx. 20-25mm over the lower edge of the chassis.

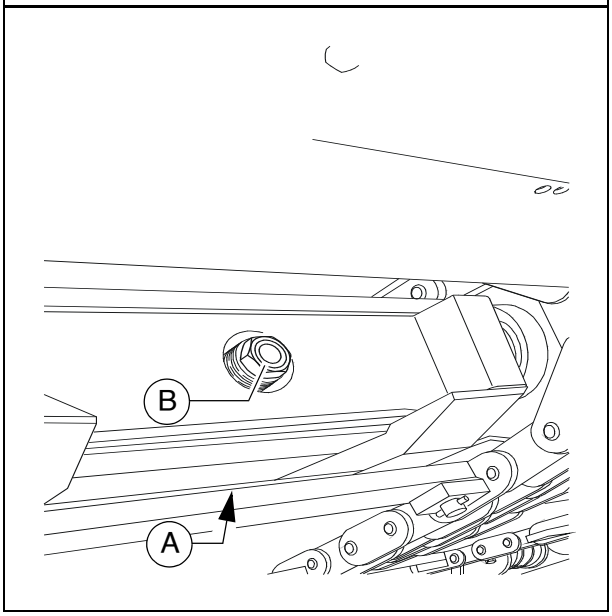


⚠ The conveyor chains should not be too tight or too slack. An excessively taut chain can cause the chain to be stopped or to break when material falls into the space between the chain and the sprocket.
An excessively slack chain may catch on protruding objects and be destroyed.

Adjustment of chain tension:

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

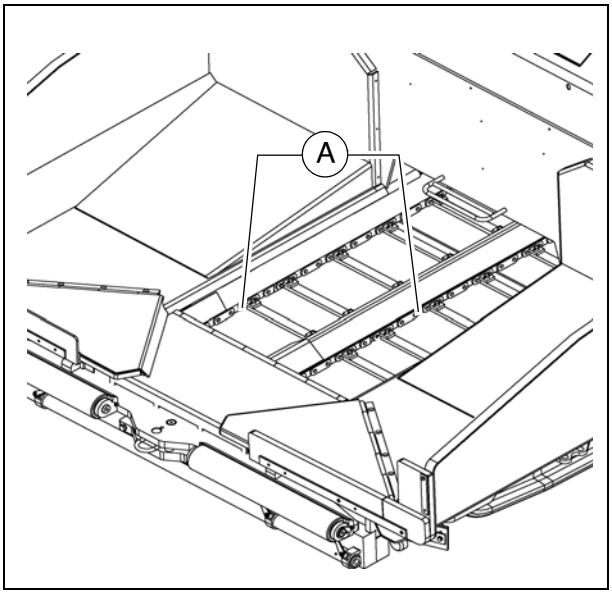
☞ The adjusting screws (A) are located at the reversal behind the crossbeam.



- Loosen the lock nut (A) on the rear of 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 the 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!

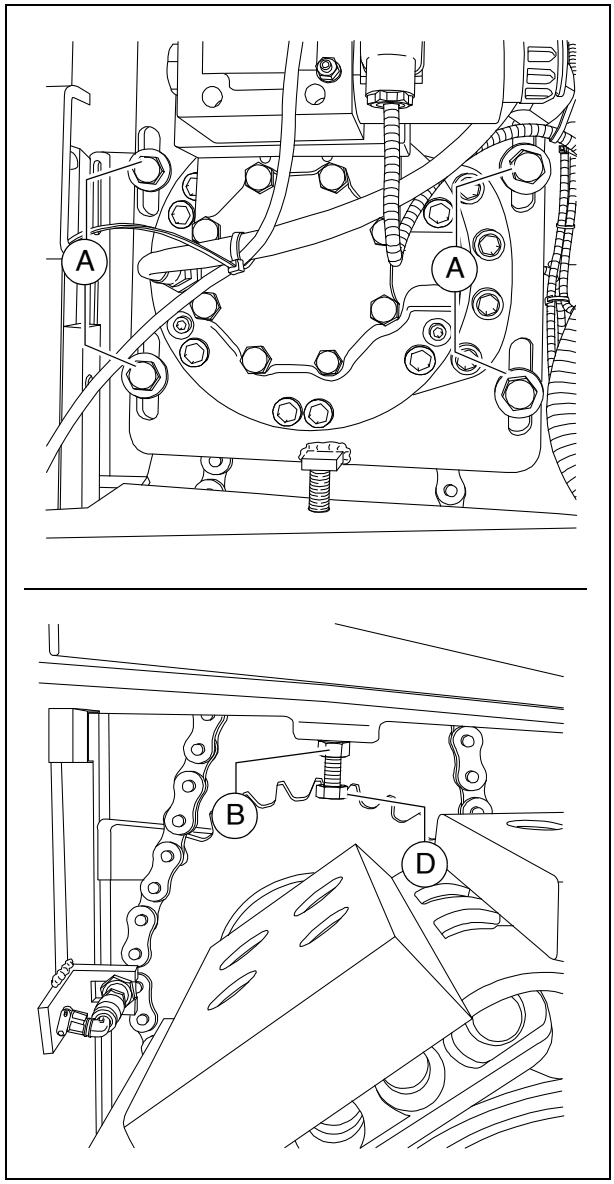
Conveyor drive - drive chains (2)

To **check the chain tension**:

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

To **re-tension** the chains

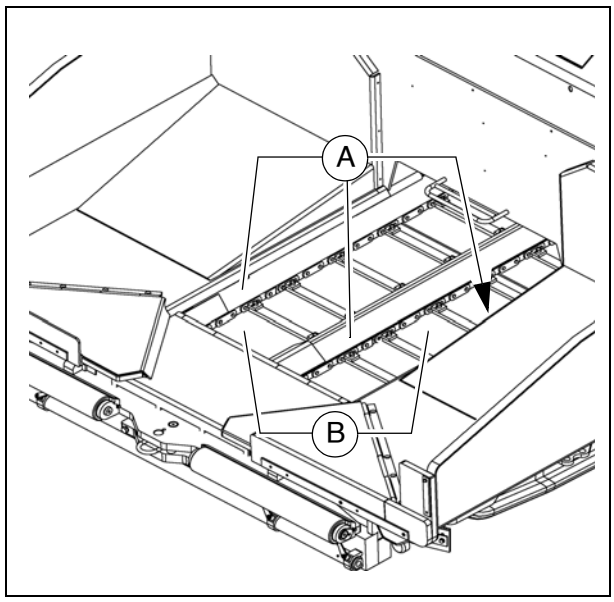
- Unfasten mounting screws (A) and lock nut (B) slightly.
- Use the tensioning screw (C) to set the required chain tightness.
- Retighten mounting screws (A) and lock nuts (B) correctly.



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.

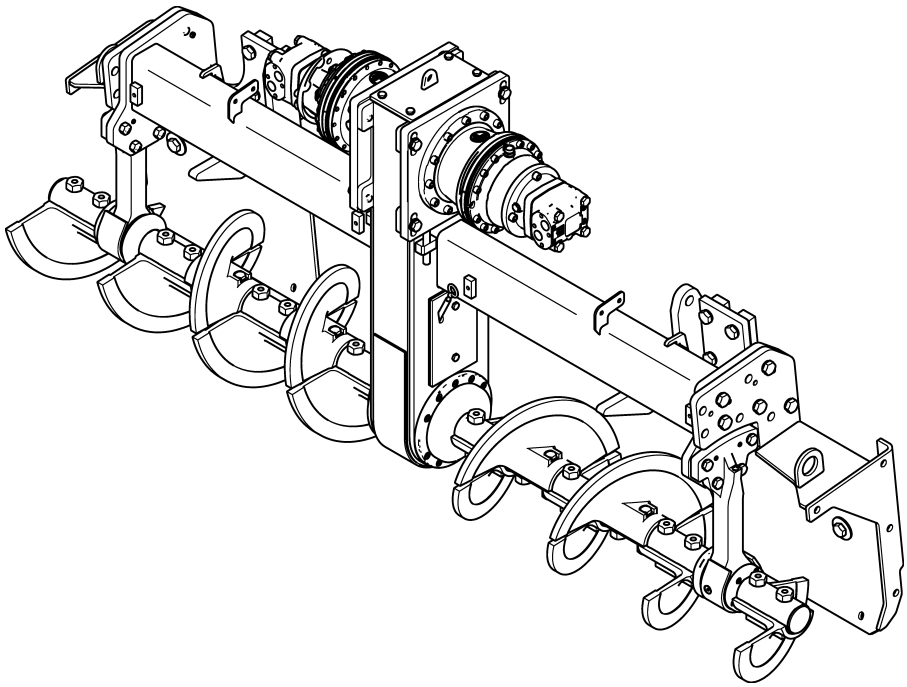
⚠ If components have to be replaced as a result of wear, the following components should always be replaced in sets:

- 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 Maintenance - auger assembly

1 Maintenance - auger assembly



1.1 Maintenance intervals

Item	Interval									Maintenance point	Note
	10	50	100	250	500	1000 / annually	2000 / every 2 years	5000	If necessary		
1	■									- Outer auger bearing - Lubricate	
2						■				- Auger planetary gear - Check oil level	
									■	- Auger planetary gear - Top up oil	
				▼			■			- Auger planetary gear - Change oil	
3			■							- Auger drive chains - Check tension	
									■	- Auger drive chains - Adjust tension	
4				■						- Auger box - Check oil level	
									■	- Auger box - Top up oil	
						■				- Auger box - Change oil	
5								■		- Seals and sealing rings - Check wear	
									■	- Seals and sealing rings - Replace seals	

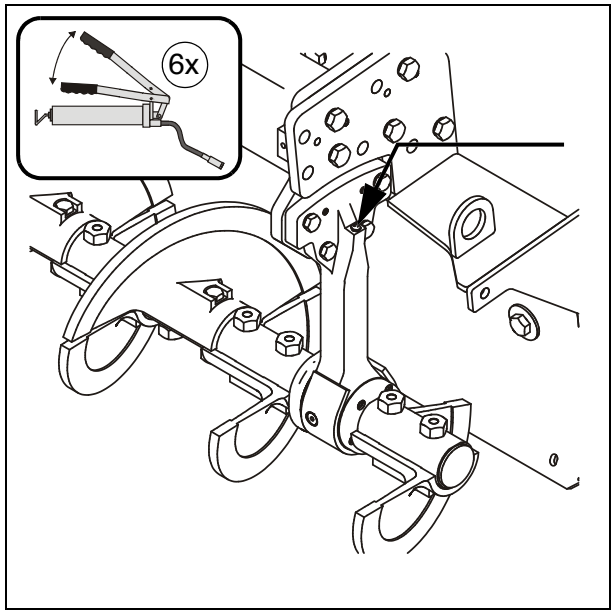
Maintenance	■
Maintenance during the running-in period	▼

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

Maintenance	■
Maintenance during the running-in period	▼

1.2 Points of maintenance

Outer auger bearing (1)



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 6 strokes of grease using a grease gun.

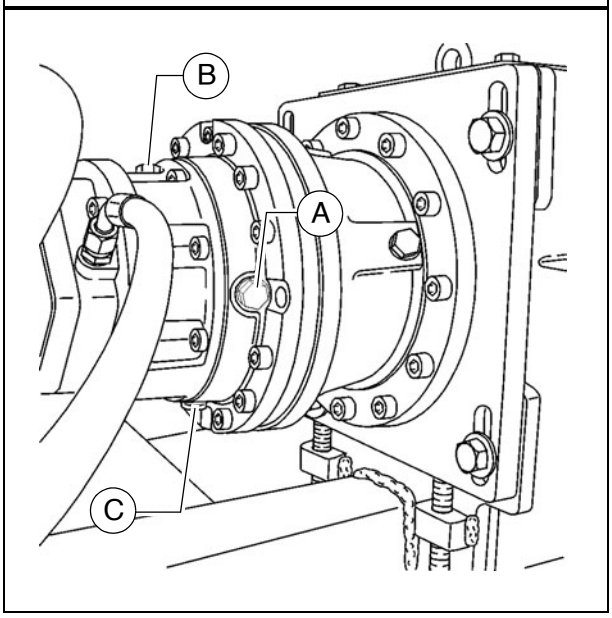
Auger planetary gear (2)

- For **oil level check** unscrew and remove the inspection bolt (A).

☞ When oil level is correct, the oil comes up to the lower edge of the inspection bore or a small amount of oil escapes through the aperture.

For **filling in** the oil:

- Unscrew inspection screw (A) and filler screw (B).
- Fill in the specified oil into the filler bore at (B) until the oil level has reached the lower edge of the inspection bore (A).
- Screw the filler (B) and inspection screws (A) back in.



To **change** oil:

☞ The oil should be changed when at operating temperature.

- Unscrew the filler screw (B) and drain plug (C).
- Drain the oil.
- Screw the drain plug (C) back in.
- Unscrew the inspection screw (A).
- Fill the specified oil into the filler bore at (B) until the oil level has reached the lower edge of the inspection bore (A).
- Screw the filler (B) and inspection screws (A) back in.

Drive chains of the augers (3)

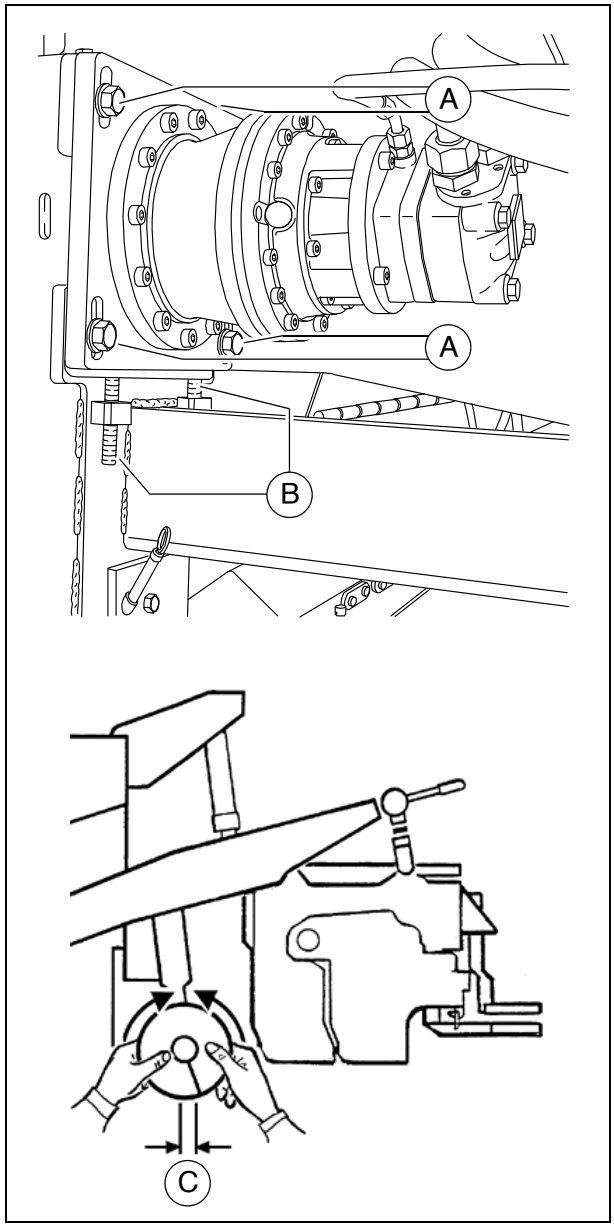
To **check the chain tension**:

- Manually turn both augers to the right and left. In this case, movement clearance (C) at the augers' outer circumference should be 10 mm.

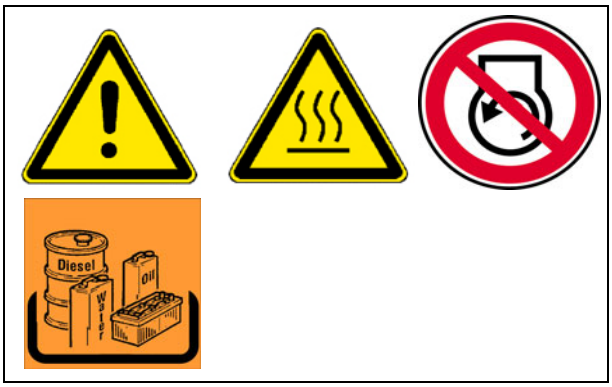
STOP Risk of injury due to sharp-edged parts!

To **re-tension** the chains

- Release the mounting screws (A).
- Set the chain tension correctly using the threaded pins (B):
  - Tighten the threaded pins to 20 Nm using a torque wrench.
  - Subsequently loosen the threaded pins again by one full revolution.
- Retighten the bolts (A).



Auger box (4)

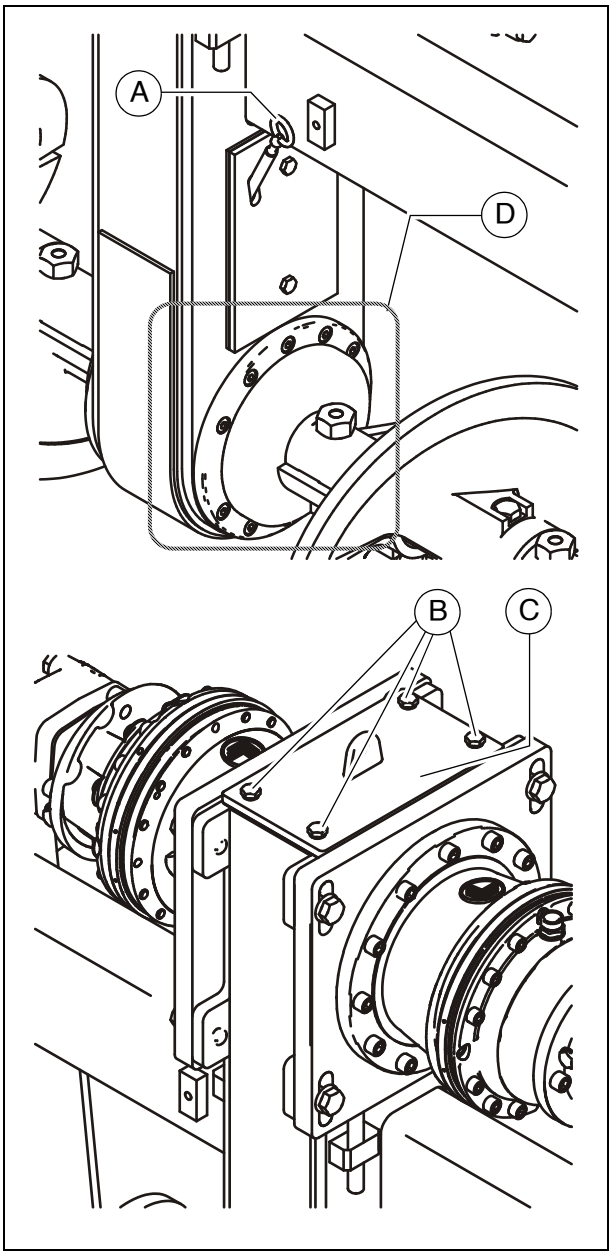


Check oil level

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

For **filling in** the oil:

- Unscrew screws (B) from the top cover of the auger box.
- Take off the cover (C).
- Fill up oil to correct level.
- Reinstall the cover.
- Use dipstick to check level again.



Change oil

☞ The oil should be changed when at operating temperature.

- Place a suitable collecting container under the auger box.
- Loosen bolts (D) from the circumference of the worm shaft flange.

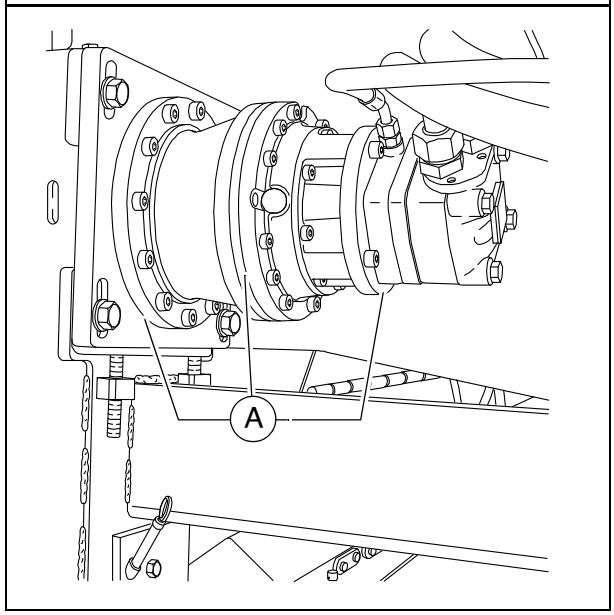
☞ The oil runs out between the flange and auger box.

- Drain out all oil.
- Correctly retighten flange bolts (D) diagonally.
- Pour the specified oil in through the open top cover (C) of the auger box until the oil level has reached the correct level on the dipstick (A).
- Correctly reinstall the cover (C) and screws (B).

Seals and sealing rings (5)

☞ After reaching operating temperature, check the gearbox for leaks.

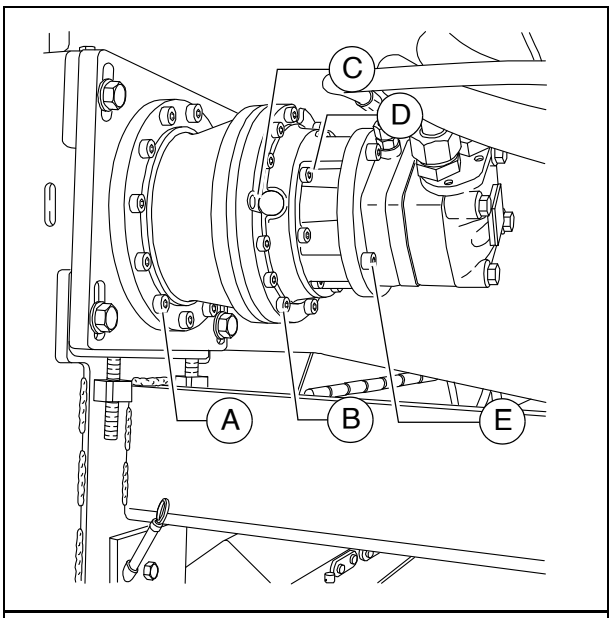
⚠ In case of visible leaks, e.g. between the flange surfaces (A) of the gearbox, replacement of the seals and sealing rings is necessary.



Gearbox bolts
Check tightening (6)

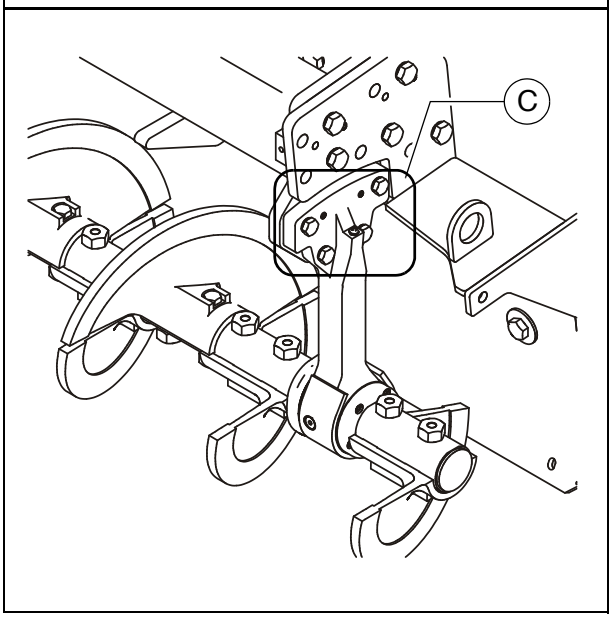
⚠ Following the running-in period, the tightening torques of the outer gearbox bolts must be checked.

- Tighten to the following torques if necessary:
  - (A): 86 Nm
  - (B): 83 Nm
  - (C): 49 Nm
  - (D): 49 Nm
  - (E): 86 Nm



⚠ Check that each bolt has attained the full tightening torque and note the corresponding tightening pattern whilst doing so!

Mounting screws -
Outer auger bearing
Check tightening (7)



⚠ 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 (8)

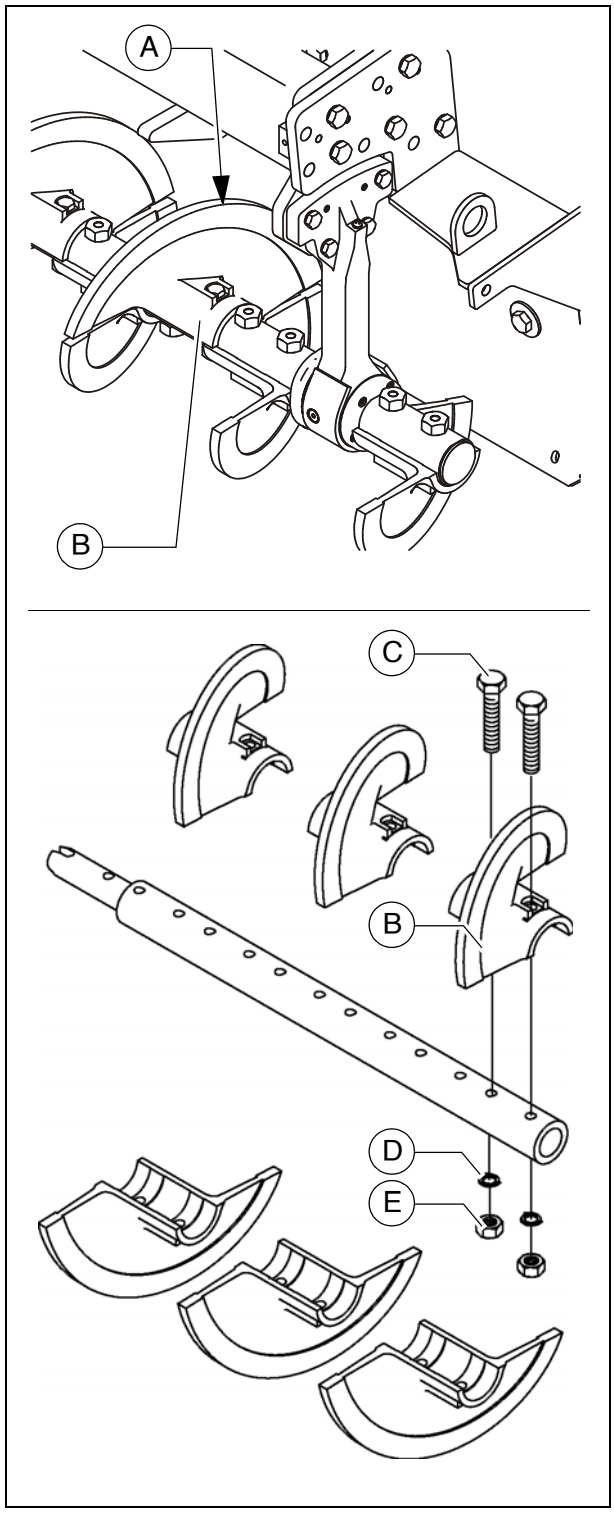
If the surface of the auger blade (A) becomes sharp-edged, the diameter of the auger is reduced and the blades (B) have to be replaced.

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

Risk of injury due to sharp-edged parts!

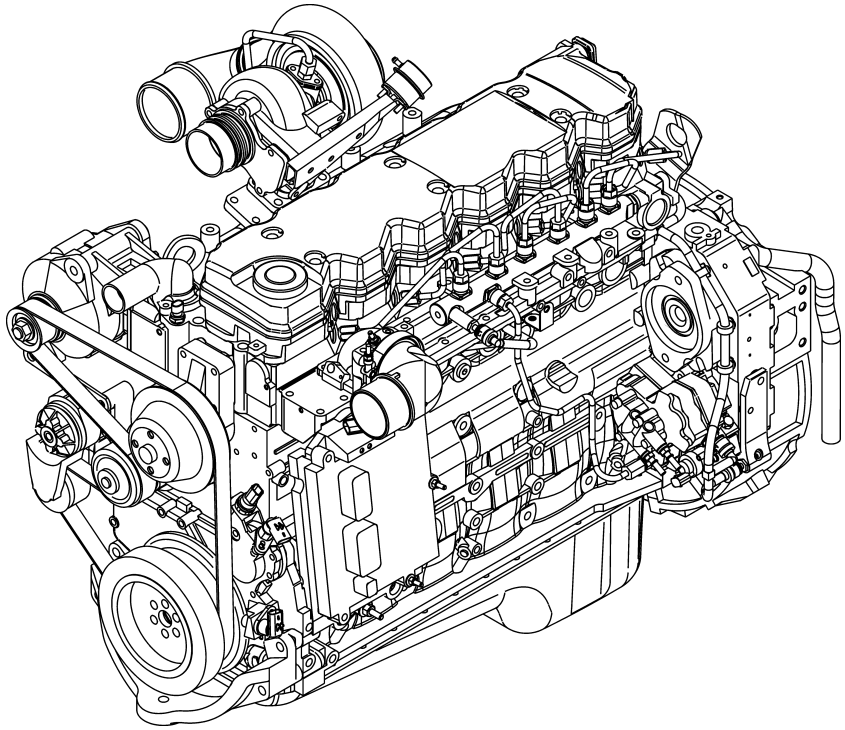
Auger blades must be installed play-free; the contact surfaces must be dirt-free!

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



F 50 Maintenance - engine assembly

1 Maintenance - engine assembly



⚠ 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.

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 Dust collector Emptying	
						■		■	- Engine air filter Air filter cartridge Replace	
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 Coolant concentration Adjust	
							■		- 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	If necessary		
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.

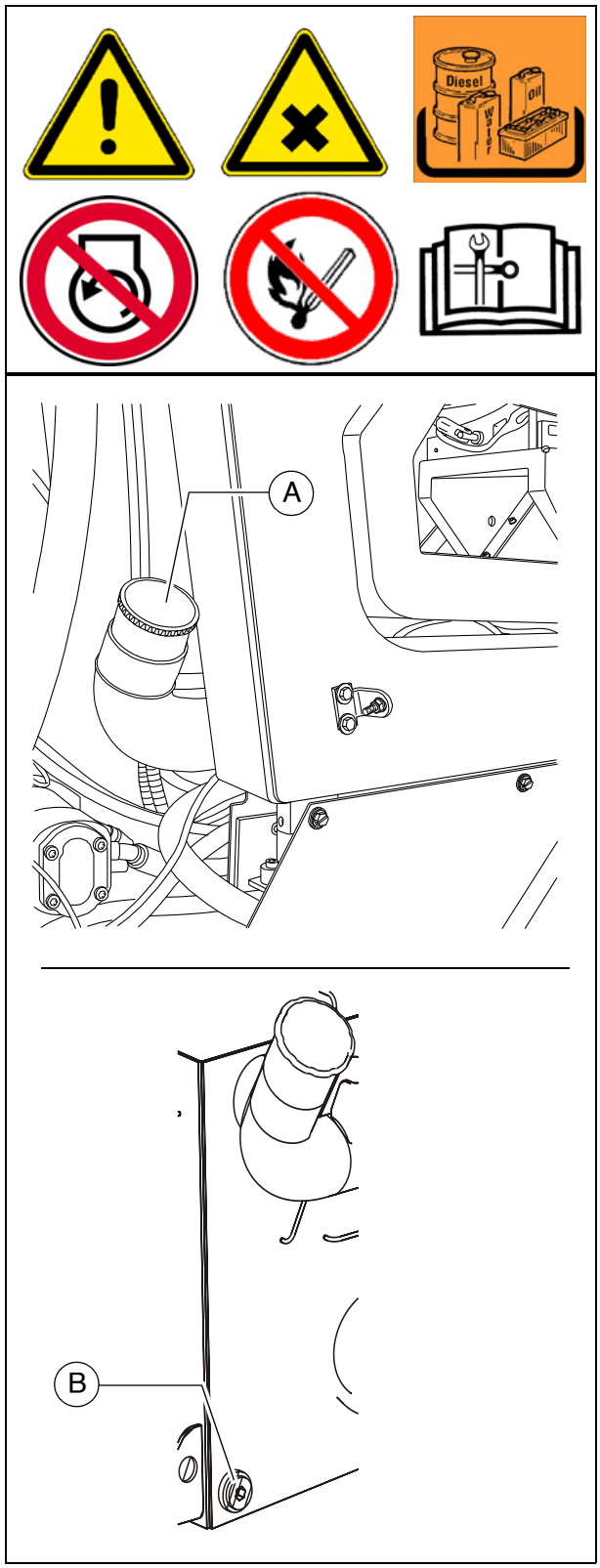
☞ Fill the fuel tank each time before starting work so that the fuel system cannot "run dry" and time-consuming venting (bleeding) can therefore be avoided.

For **filling in** the fuel:

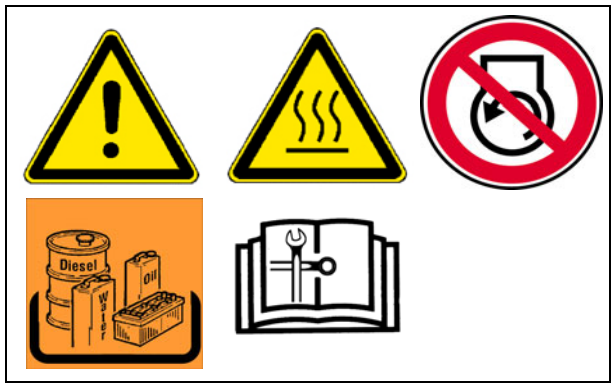
- Unscrew cap (A).
- Fill in fuel through the filling port until the required fill lever is achieved.
- Replace the cap (A).

Clean the tank and system:

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



Engine lube oil system (2)

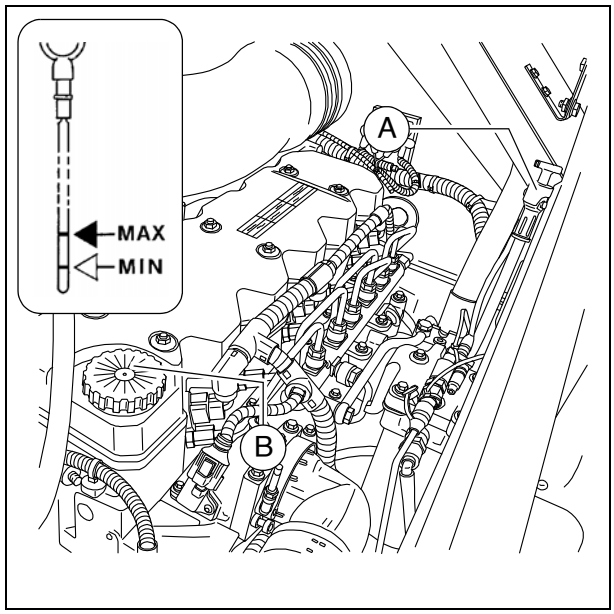


Check oil level

☞ 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!

⚠ Too much oil in engine damages gaskets; too little oil results in overheating and engine destruction.



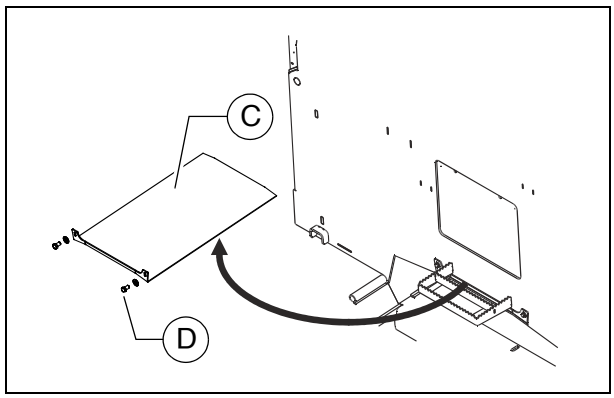
For **filling in** the oil:

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

Oil change:

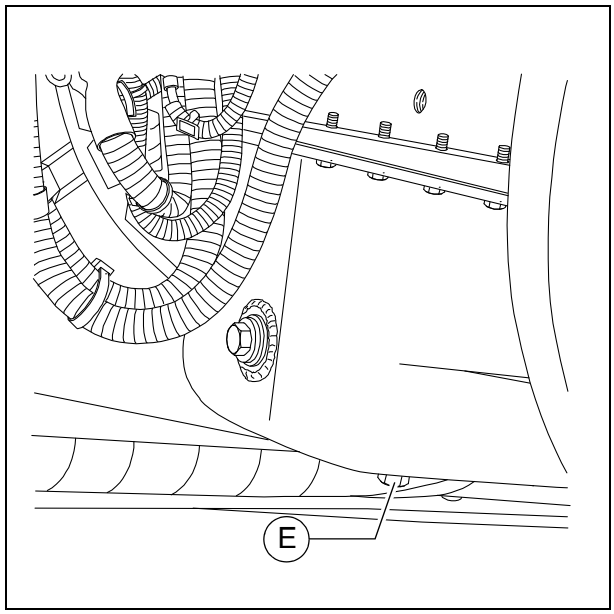
☞ The oil drain screw is accessed via the cover (C) in the vehicle's material tunnel:

- Remove the bolts (D) from the frame and pull the cover (C) out in the direction of travel.
- After completing the maintenance work, reinstall the cover (C) properly.



☞ Change the oil when the engine is at operating temperature.

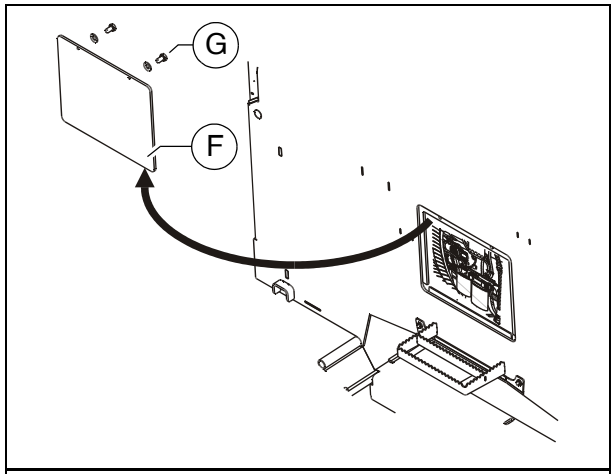
- Position a collecting container beneath the oil pan oil drain screw (E).
- Remove the oil drain screw (E) and allow the oil to drain completely.
- Reinstall the oil drain screw (E) with a new seal and tighten properly.
- Fill in the specified quality of oil through the filler opening (B) on the engine until the oil level rises to the correct mark on the dipstick (A).



Changing the oil filter:

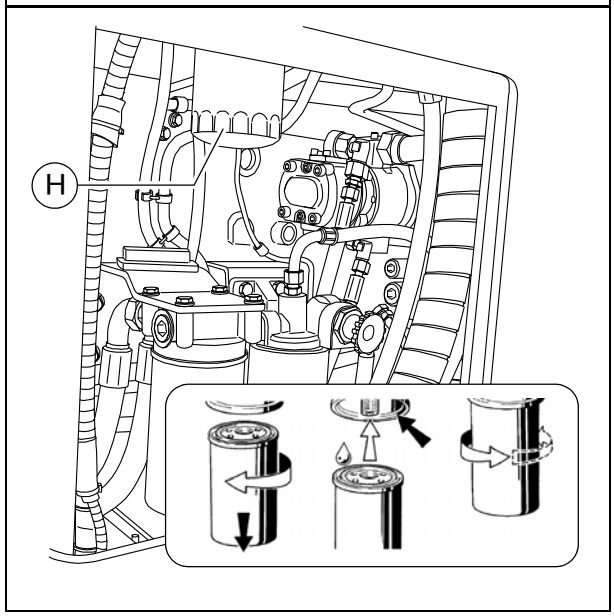
☞ All filters are accessed via the service flap (F) on the vehicle's centre wall:

- Remove the screws (G) from the inner side of the frame and remove the service flap (F).
- After completing the maintenance work, reinstall the service flap (F) properly.



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

- Loosen the filter (H) with a filter wrench or filter strap and unscrew it. Clean the contact surface.
- Apply light coating of oil to the gasket on the new filter and fill filter with oil before installing it.
- Tighten filter by hand.

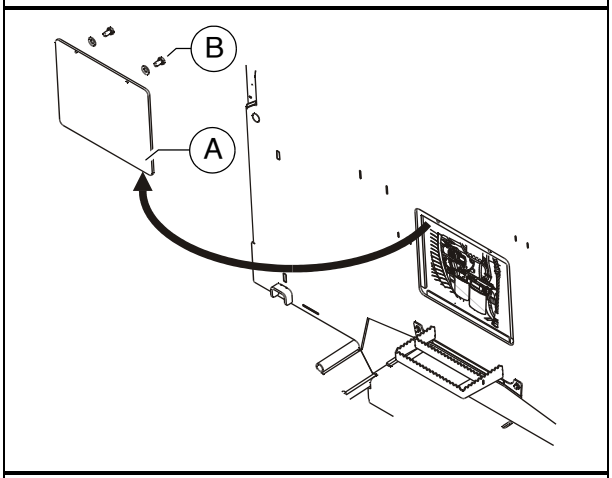


☞ After installing the oil filter, attention must be paid to the oil pressure display and good sealing during the test run. Check oil level again.

Engine fuel system (3)

☞ All filters are accessed via the service flap (A) on the vehicle's centre wall:

- Remove the screws (B) from the inner side of the frame and remove the service flap (A).
- After completing the maintenance work, reinstall the service flap (A) properly.



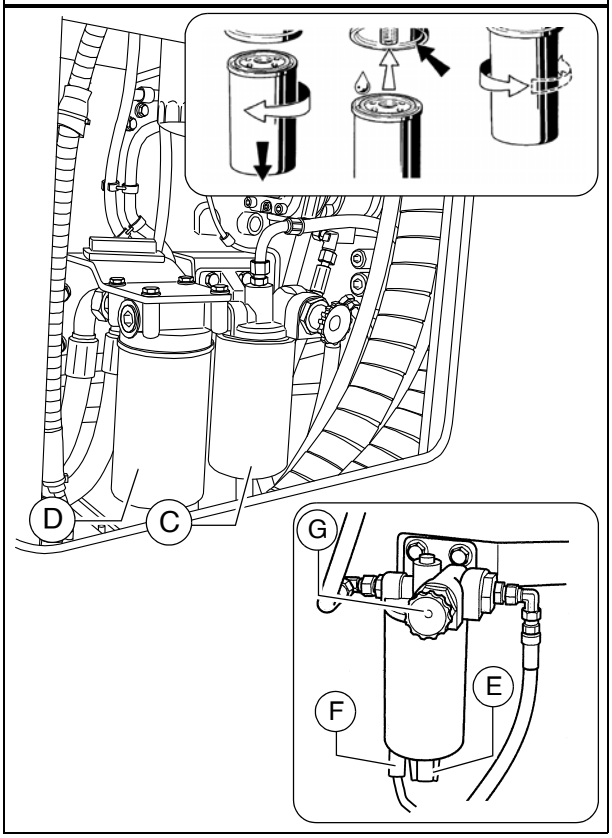
☞ The fuel filter system consists of two filters:

- Prefilter with water separator (C)
- Main filter (D)

Prefilter - draining of water

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

- Drain off separated water at the cock (E) and collect, then close the cock again.



Changing the prefilter:

- Drain off separated water at the cock (E) and collect, then close the cock again.
- Pull off the water sensor (F) connector.
- Loosen the filter cartridge (C) using a filter wrench or filter strap and unscrew.
- Clean sealing surface of filter bracket.
- Oil in filter cartridge gasket (only use a little oil) and screw (hand tight) under the bracket.
- Reconnect the water sensor (F) connector.

Bleeding the pre-filter:

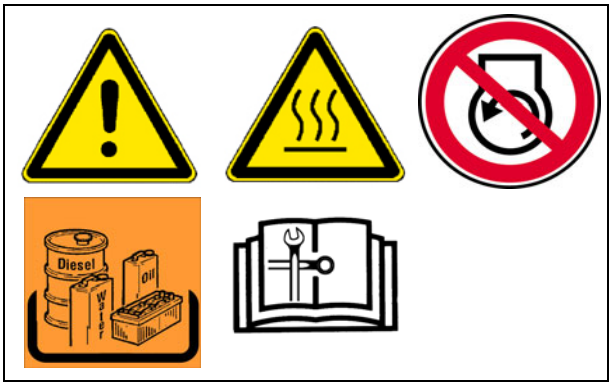
- Release the manual fuel pump's (G) bayonet lock by pressing and simultaneously turning counter-clockwise.
- The pump plunger is now pressed out via the spring.
- Pump until a very high resistance is perceptible and pumping can only be carried out very slowly.
- Now continue pumping a few more times. (The return line must be filled).
- Start the engine and operate for approx. 5 minutes at idle speed or low load.
- Check the prefilter for leaks whilst doing this.
- Lock the manual fuel pump's (G) bayonet lock by pressing and simultaneously turning clockwise.

Replacing the main filter:

- Loosen the filter cartridge (D) using a filter wrench or filter strap and unscrew.
- Clean sealing surface of filter bracket.
- Oil in filter cartridge gasket (only use a little oil) and screw (hand tight) under the bracket.

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

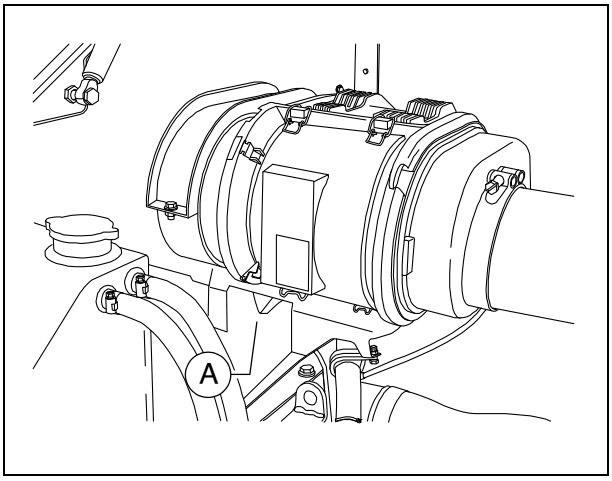
Engine air filter (4)



Empty dust collector

- Empty the dust removal valve (A) on the air filter housing by compressing the discharge slot.
- Remove any baked on dust by pressing together the upper valve section.

☞ Clean the dust removal valve from time to time.



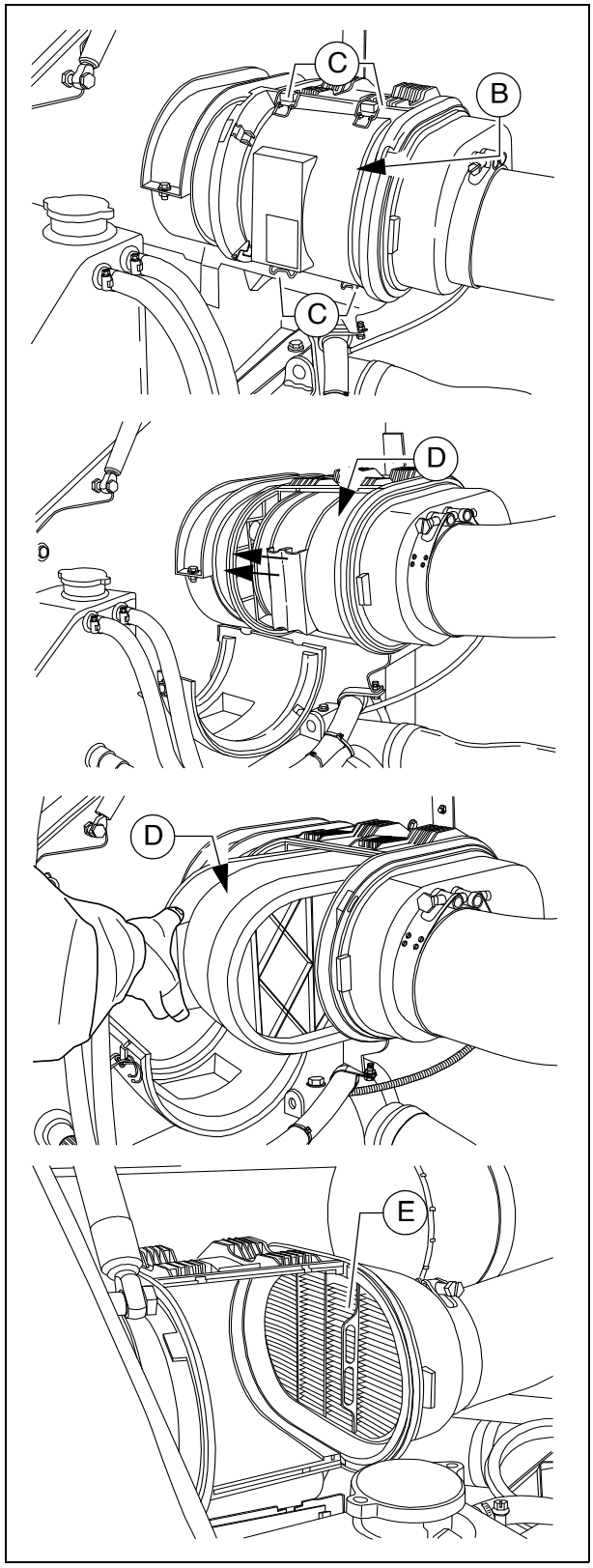
Replace air filter insert

☞ Maintenance of the filter becomes necessary if:

- Engine electronics service indicator

- Open the air filter housing (B) at the clips (C).
- Move filter element (D) to the side a little and then pull it out of the housing.
- Pull out the safety element (E) and check for signs of damage.

☞ Replace the safety element (E) after the filter has been serviced 3 times, but after 2 years at the latest (never clean it!).



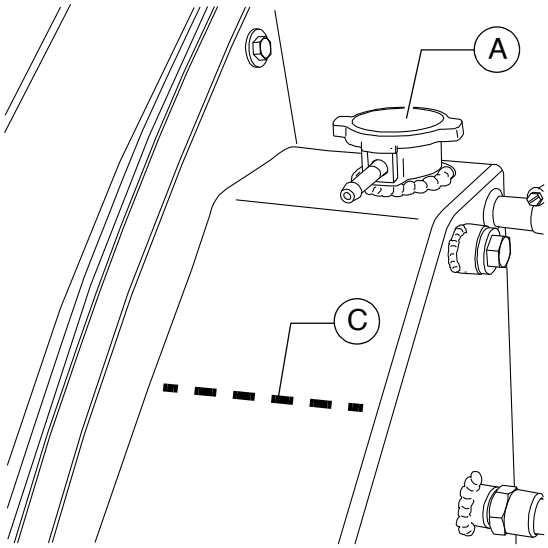
Engine cooling system (5)

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°C).

STOP When hot, the system is under pressure. When it is opened, there is danger of scalding!

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



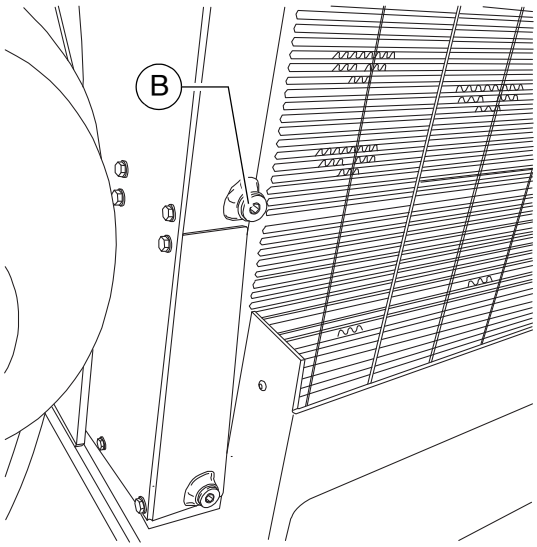
Change coolant

STOP When hot, the system is under pressure. When it is opened, there is 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 up to approx. 7 cm (C) from the top edge of the compensation tank.



⚠ The air is only able to escape completely from the cooling system once the engine has reached its operating temperature (at least 90°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 belts

- Check the drive belt for damage.

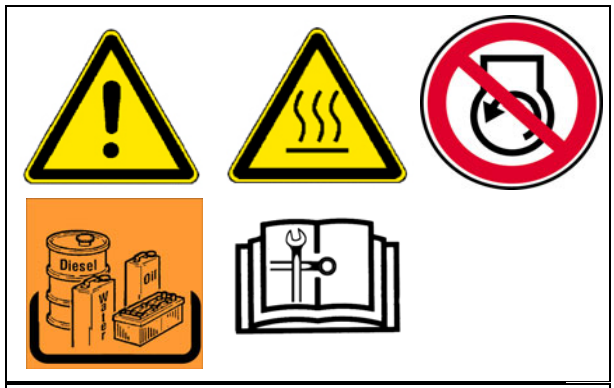
☞ Small transverse cracks in the belt are acceptable.

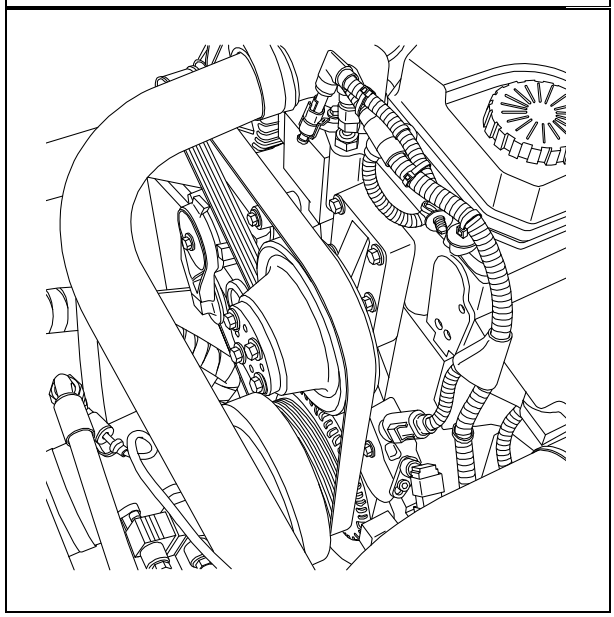
⚠ In the event of longitudinal cracks which intersect with transverse cracks and damaged material surfaces, belt replacement is necessary.

☞ Observe engine's operating instructions

Replace drive belt

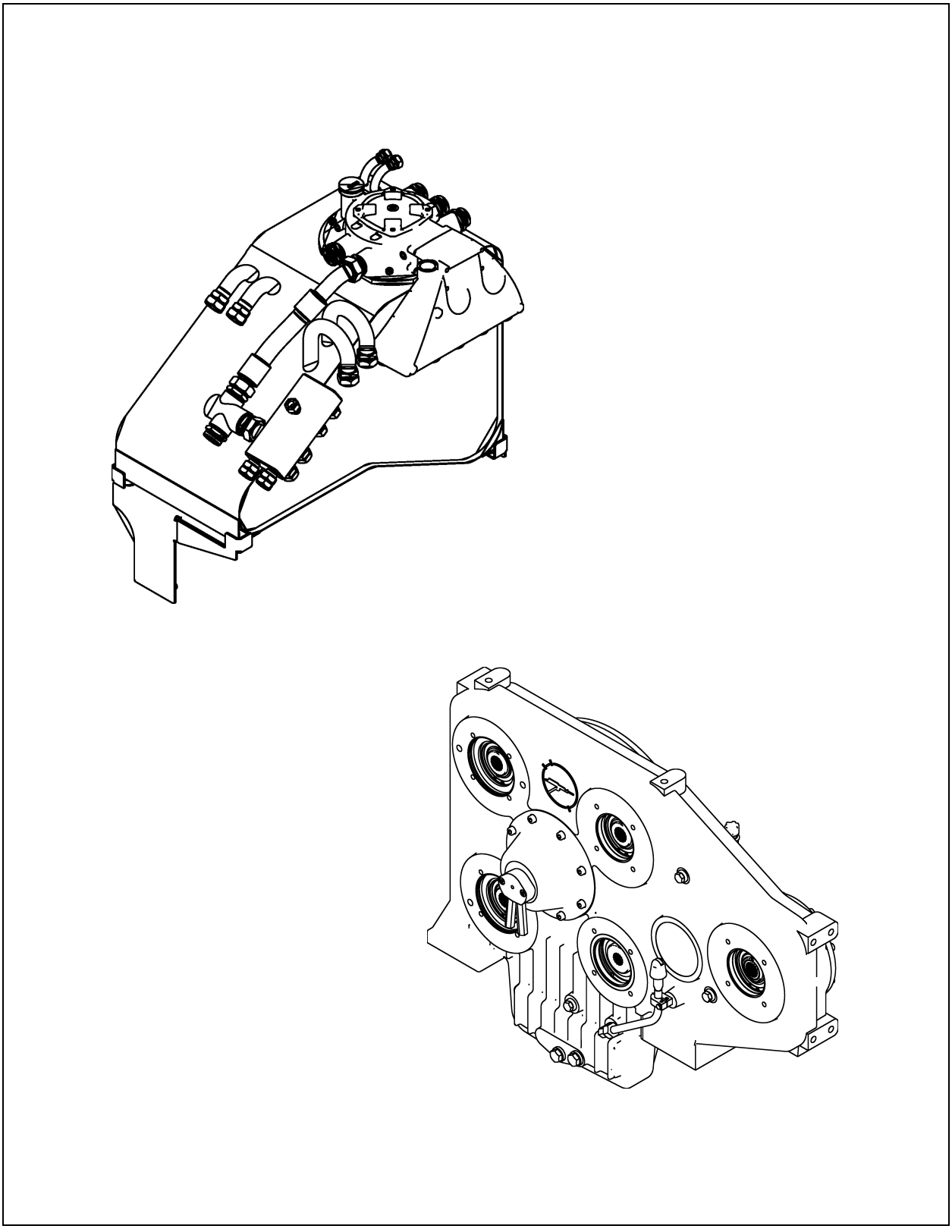
☞ Observe engine's operating instructions





F 60 Maintenance - hydraulic system

1 Maintenance - hydraulic system



1.1 Maintenance intervals

Item	Interval								Maintenance point	Note
	10	50	100	250	500	1000 / annually	2000 / every 2 years	If necessary		
1	■								- Hydraulic oil tank - Check fill level	
								■	- Hydraulic oil tank - Top up with oil	
							■		- Hydraulic oil tank - Change oil and clean	
2	■								- Hydraulic oil tank - Check maintenance indicator	
						■		■	- Hydraulic oil tank - Intake / return hydraulic filter; change, vent	
3	■								- High-pressure filter - Check maintenance indicator	
						■		■	- High-pressure filter - Replace filter element	
4		■							- 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	

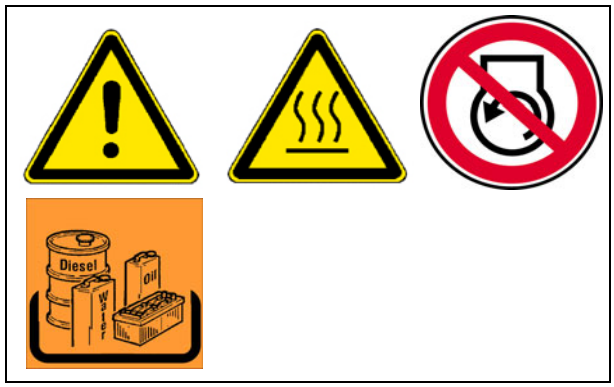
Maintenance	■
Maintenance during the running-in period	▼

Item	Interval								Maintenance point	Note
	10	50	100	250	500	1000 / annually	2000 / every 2 years	If necessary		
5	▼ ■								- Hydraulic hoses - Visual inspection	
	▼ ■								- Hydraulic system Leak test	
								■	- Hydraulic system Retighten screw connections	
							■	■	- Hydraulic hoses - Replace hoses	
6					■			■	- Auxiliary flow filter- Replace filter element	(○)

Maintenance	■
Maintenance during the running-in period	▼

1.2 Points of maintenance

Hydraulic oil tank (1)

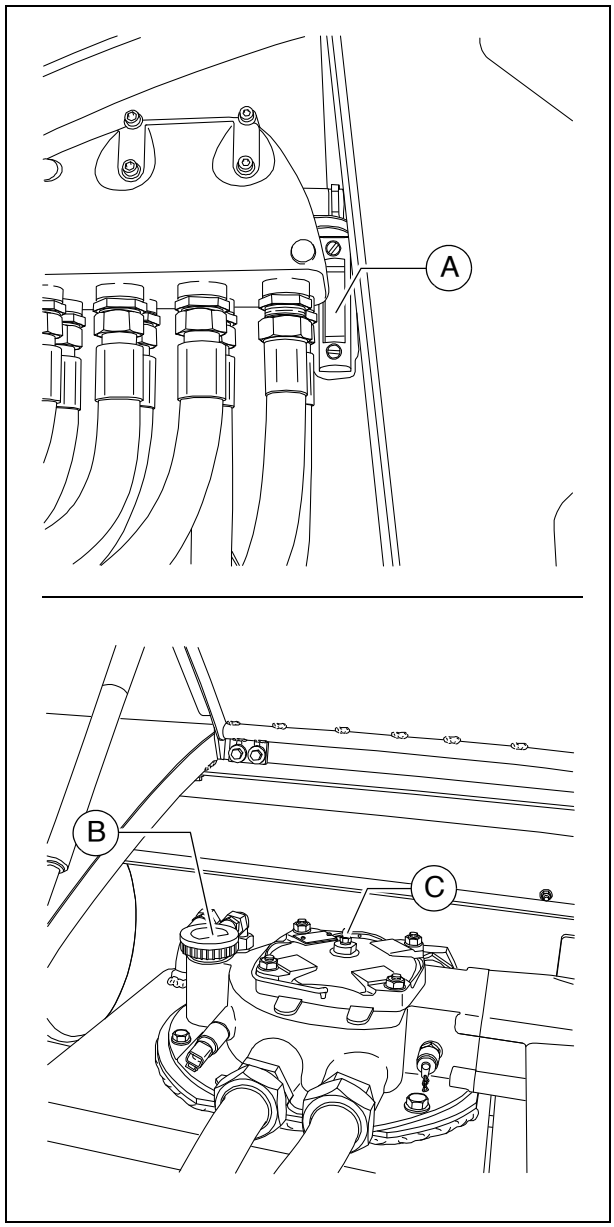


- Check **oil level** on sight glass (A).

☞ 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 in** the oil:

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

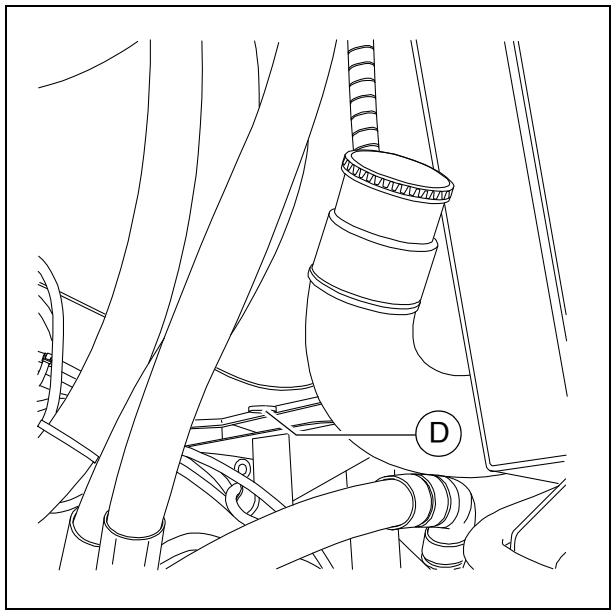
☞ Regularly remove dust and dirt from the oil tank vent (C). Clean the surfaces of the oil cooler.

⚠ 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 2x for ventilation!

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.



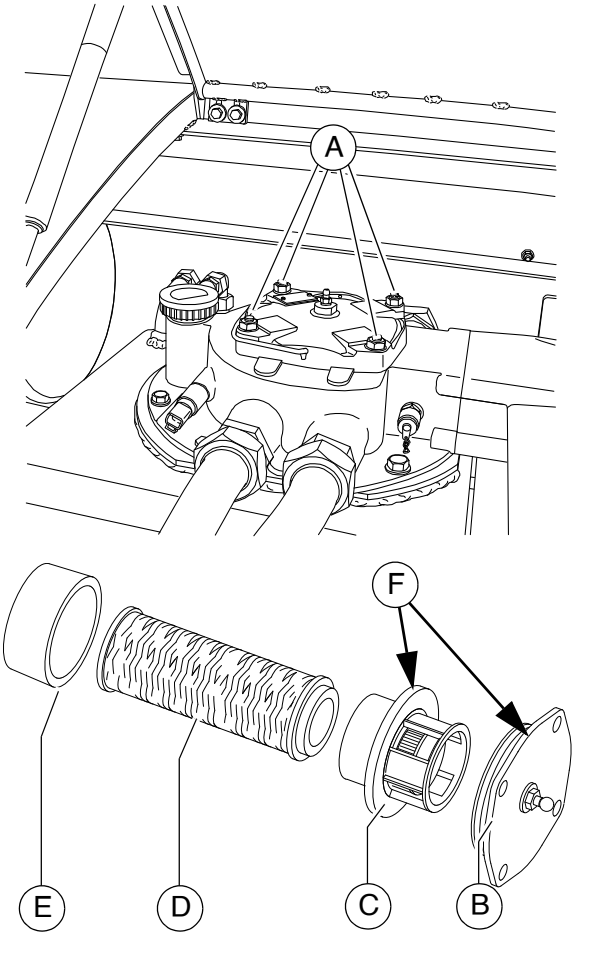
☞ The oil should be changed when at operating temperature.

⚠ When changing the hydraulic oil also change the filter.

Suction/return flow hydraulic filter (2)

Carry out **filter replacement** according to the interval or the indicator lamp in the operating panel!

- Remove cover mounting screws (A) and lift off cover.
- Disassemble the removed unit into:
  - Cover (B)
  - Separating plate (C)
  - Filter (D)
  - Dirt trap (E)
- Clean the filter housing, cover, separating plate and dirt trap.
- Check the O-rings (F), replace if necessary.
- Coat the sealing surfaces and O-rings with clean operating fluid.



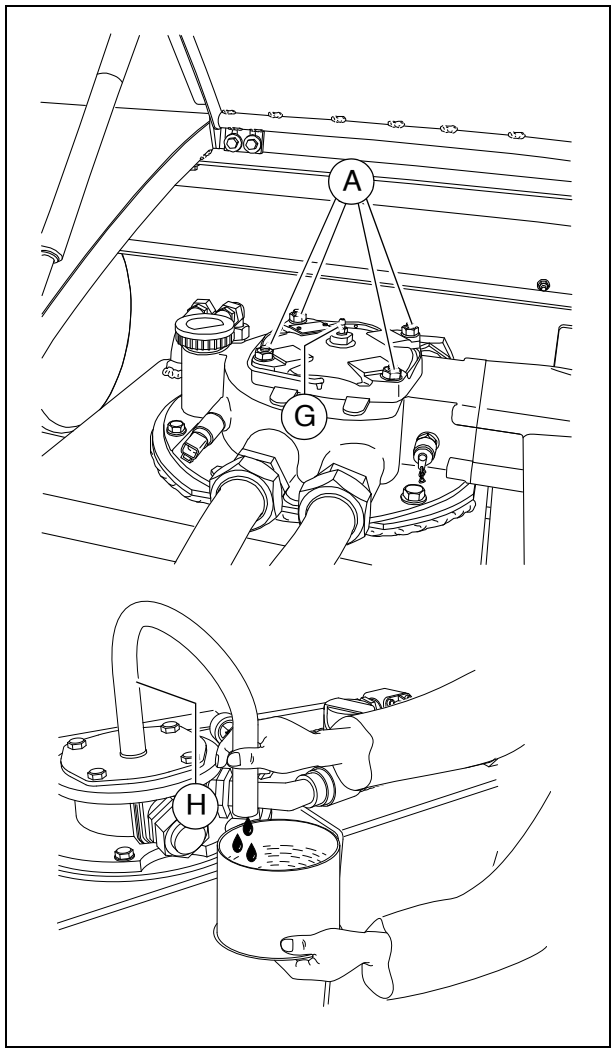
⚠ The filter must be bled following filter replacement!

Bleeding the filter

- 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!

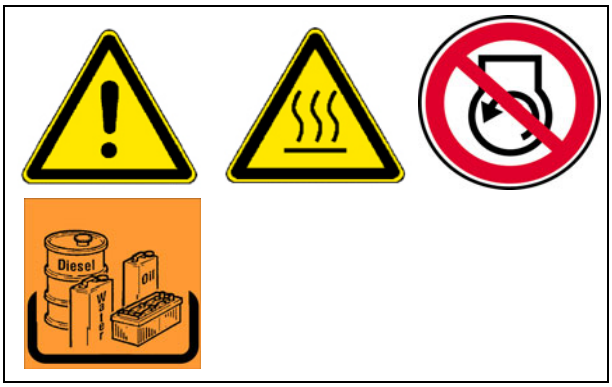
- If the oil level remains stable, slowly insert the assembled unit with new filter element into the housing and tighten the cover mounting screws (A).
- Open the bleed screw (G).
- Place a transparent hose (H) onto the bleed screw, ending in a suitable container.
- Start the up drive engine at idle speed.
- Close the bleed screw (G) as soon as the oil forced through the hose is clear and therefore free of air bubbles.



☞ The process from assembling the filter cover to starting the drive engine should take place in less than 3 minutes, as the oil level in the filter housing otherwise falls too far.

⚠ Ensure seal integrity is good after changing the filter.

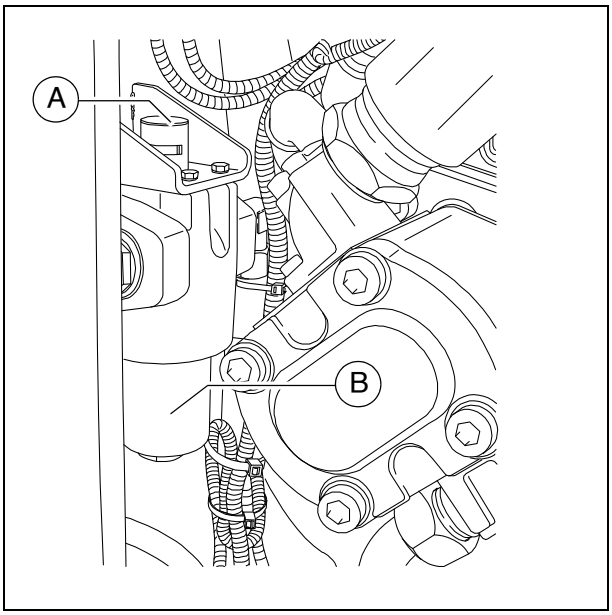
High-pressure filter (3)



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

☞ The vehicle's hydraulic system contains 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.



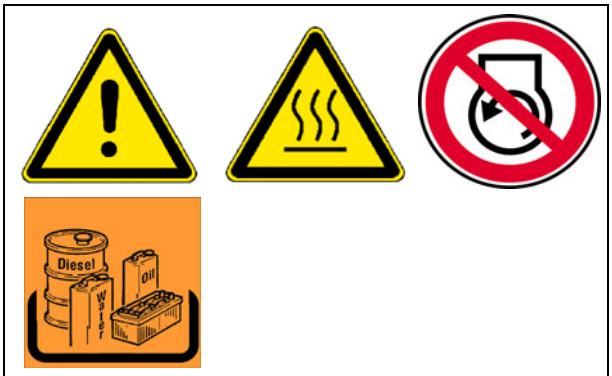
☞ Replace the seal ring whenever the filter cartridge is replaced.

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

Pump distribution gear (4)

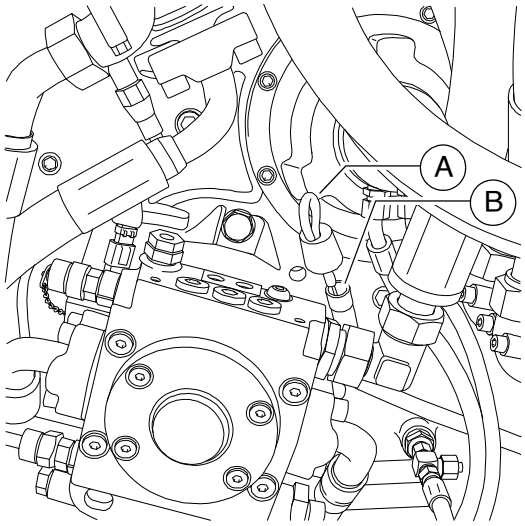
- **Oil level** check on dipstick (A).

☞ The oil level must lie between the upper and lower marks.



For **filling in** the oil:

- Pull out the dipstick (A) completely.
- Add new oil through the dipstick opening (B).
  - Check the fluid level using the dipstick.

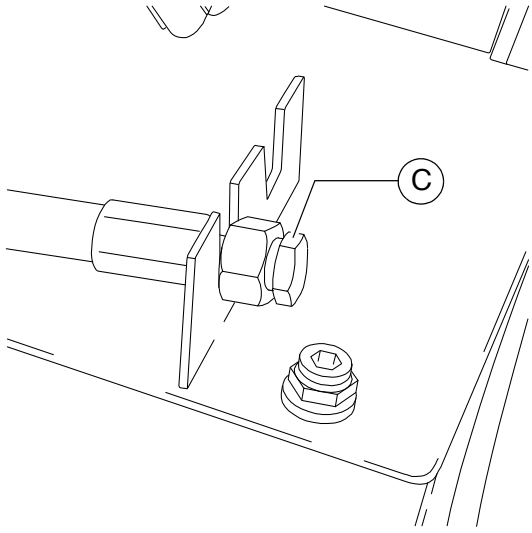


☞ Before checking with the dipstick, wait for a moment, as the oil which has been poured in first has to flow off.

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

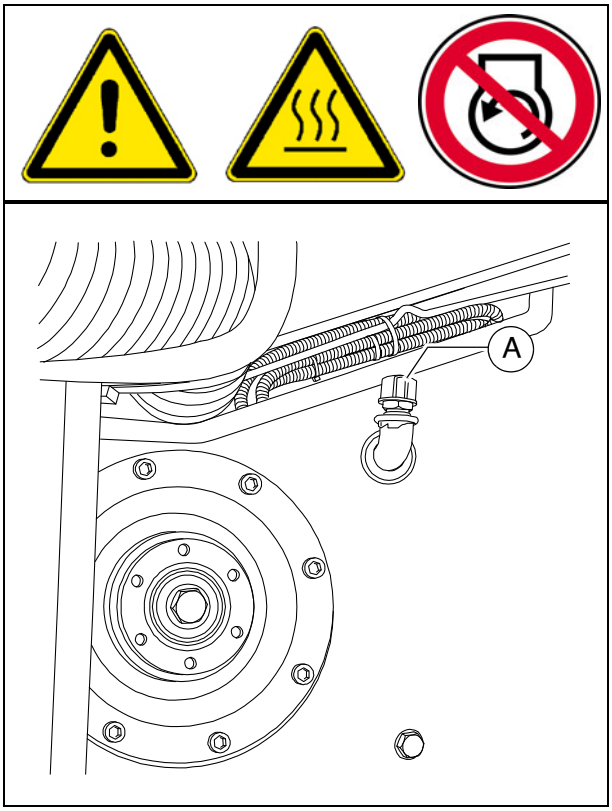
Oil change:

- 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.
- Pour in the prescribed quality of oil through the dipstick opening (B).
  - Check the fluid level using the dipstick.



☞ The oil should be changed when at operating temperature.

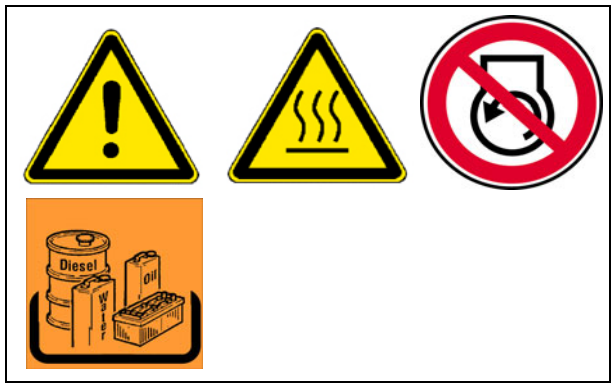
Bleeder



☞ The bleeder (A) can be found on the rear of the pump distribution gear housing.

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

Hydraulic hoses (5)



- 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.

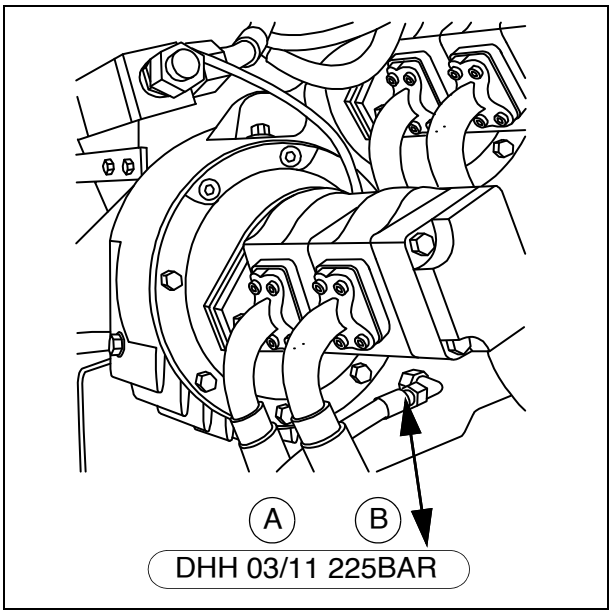
☞ See the section on "Marking hydraulic hoses".

STOP 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



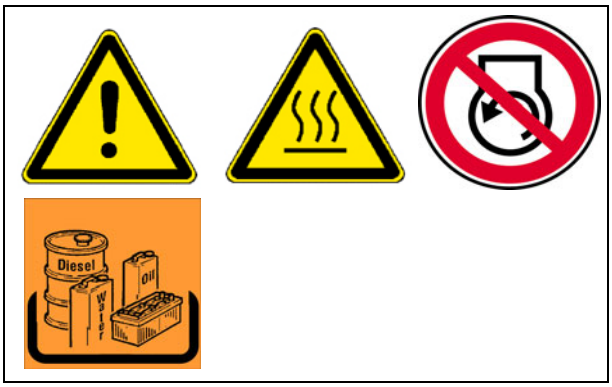
☞ A number stamped onto the threaded connection provides information about the date of manufacture (A) (month / year)and the maximum pressure permitted for this hose (B).

⚠ 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.

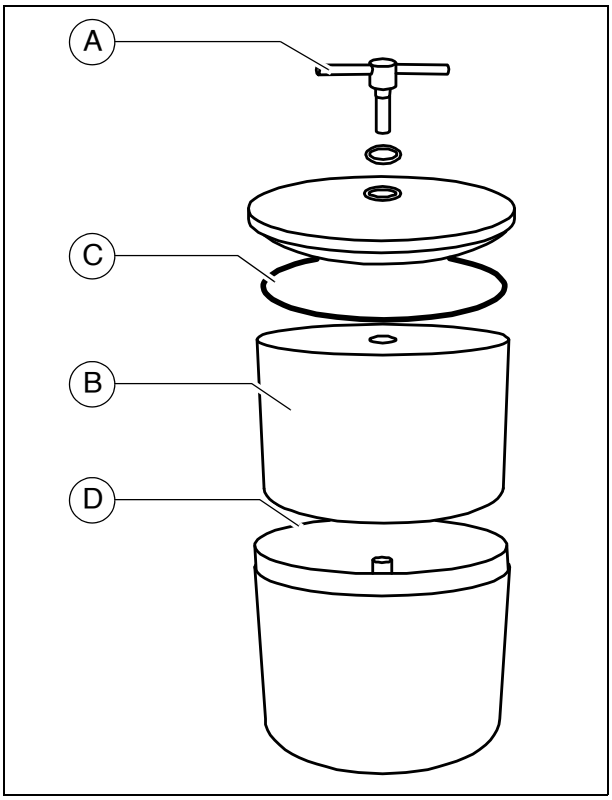
Auxiliary flow filter (6)



☞ 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:

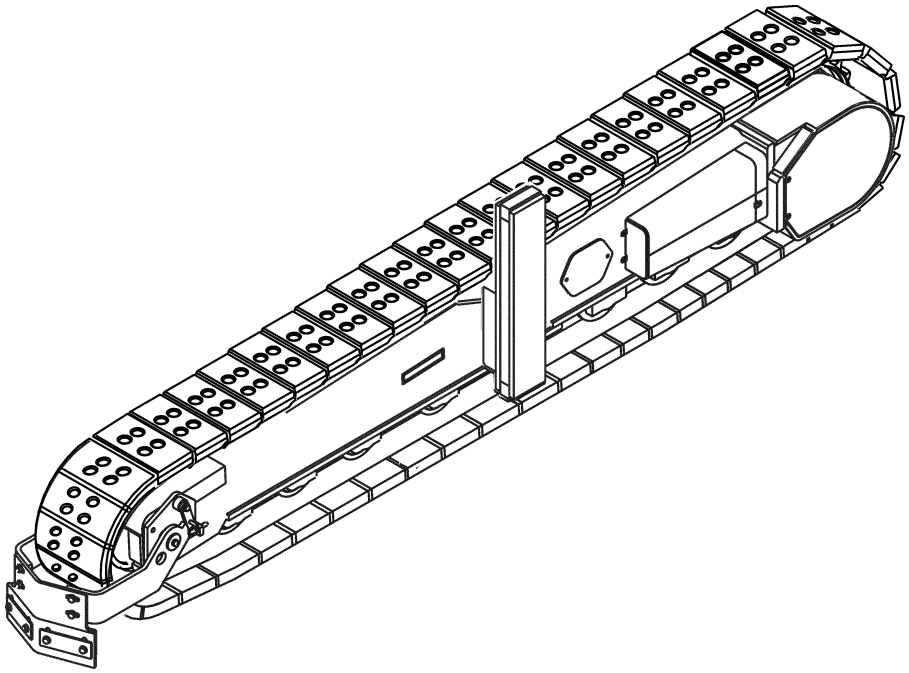
- Release the threaded cover connection (A) then open the non-return valve briefly to lower the oil level in the filter, then close the non-return valve again.
- Replace filter element (B) and sealing ring (C):
  - Turn filter element clockwise with the help of carrier straps and, at the same time, raise 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 Maintenance – drive units

1 Maintenance – drive units



1.1 Maintenance intervals

Item	Interval								Maintenance point	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								Maintenance point	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 - Screw connections Check	
								■	- Planetary gear - Screw connections Tighten	

Maintenance	■
Maintenance during the running-in period	▼

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

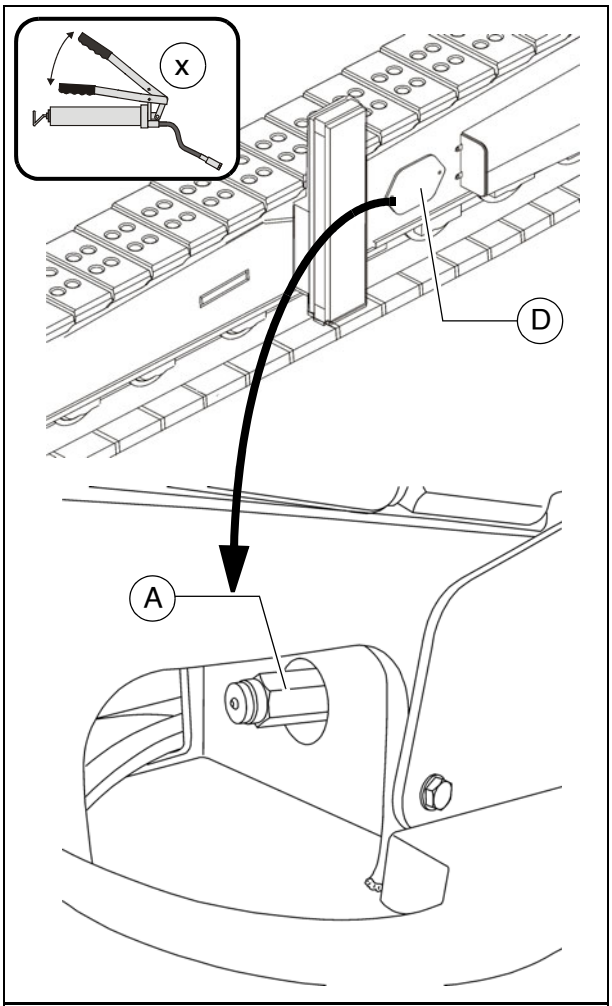
Chain tension (1)

⚠ 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.

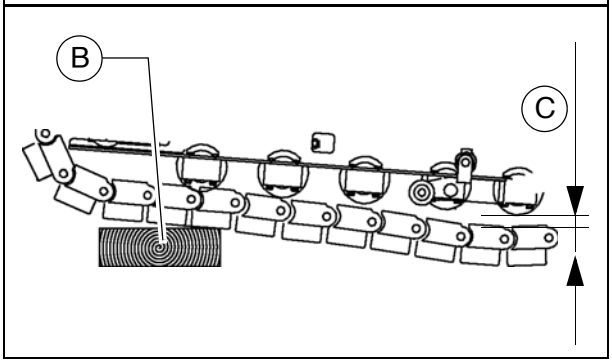
⚠ If the chains are tensioned too tightly, this increases wear on the idler wheel and drive unit mounting, and also increases wear on track bolts and bushes.

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.
- Run paver finisher drive unit onto a suitable piece of angled timber (B) or onto a similar object.
- To relieve strain on the chain, reverse a short distance, ensuring that the vehicle remains on the angled timber.



☞ The chain tension is correct if the chain slack (C) between centre roller and chain is 30-40 mm.



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

- Drive the vehicle forwards slightly, to relieve strain on the upper track section.
- Remove the cover (D).
- 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.
- Next, drive the vehicle forwards and backwards a few times.
- Check the chain tension once again, as described above.

☞ Repeat this procedure on both drive units!

- Reinstall cover (D).

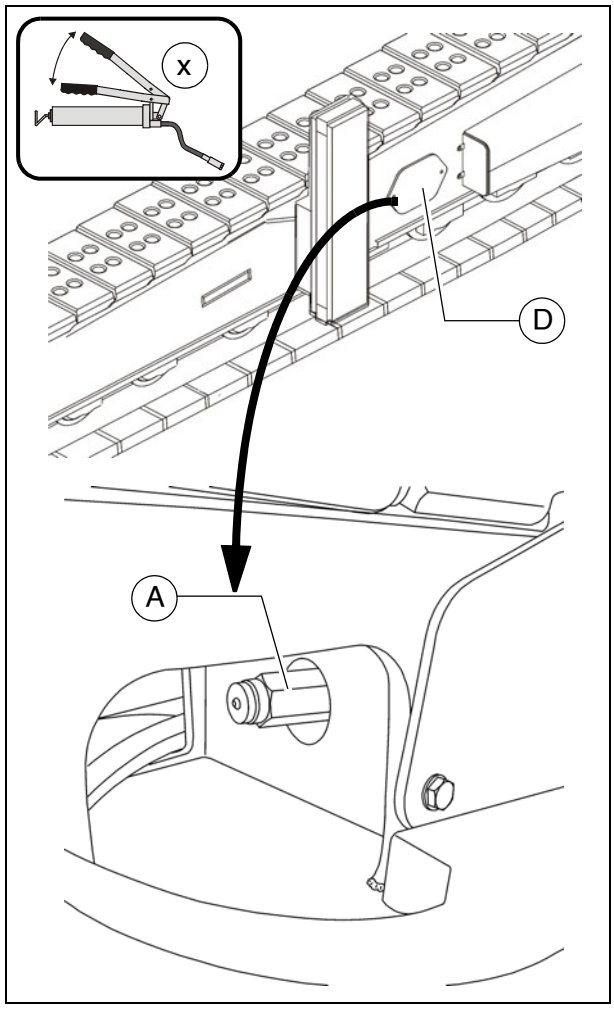
Relieving the chain:

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

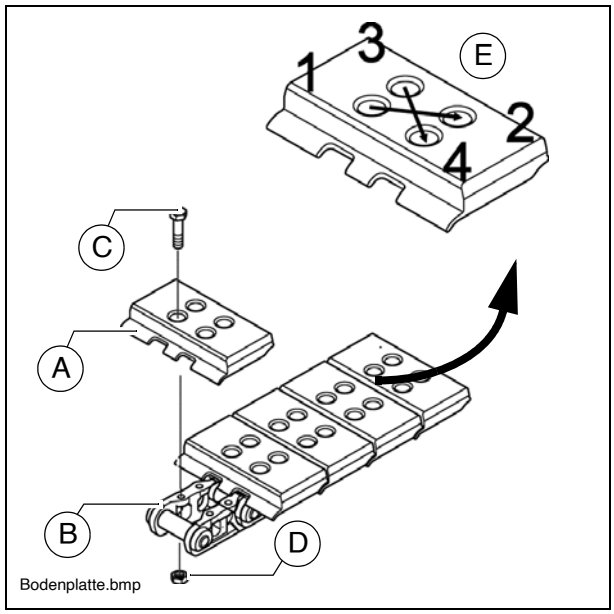
- Remove the cover (D).
- Unscrew the lubricating nipple (A) on the grease tensioner using a tool until the grease is able to emerge from the nipple's lateral hole.

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

- Reinstall cover (D).



Bottom plates (2)

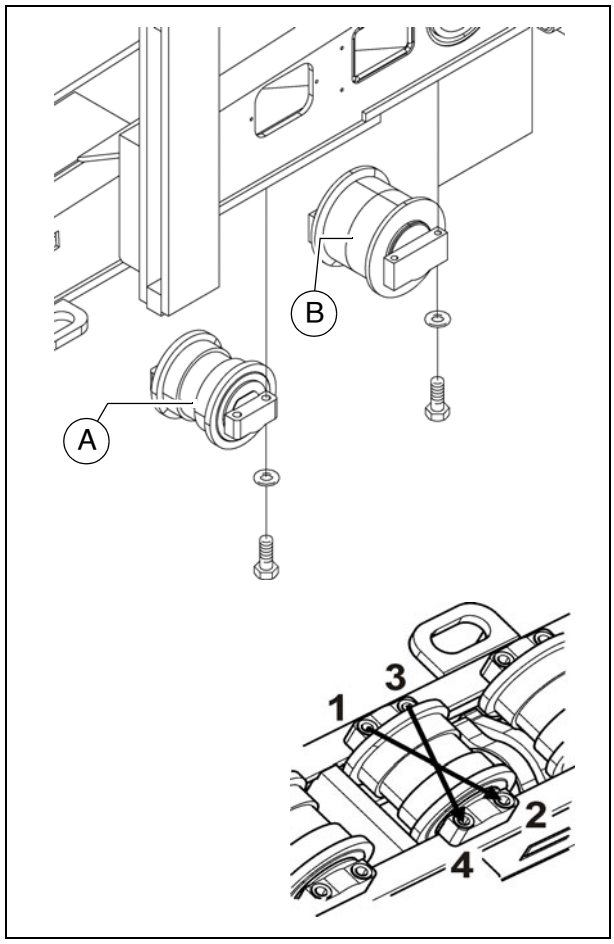


⚠ Always use new bolts and nuts when installing new bottom plates!

- 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 to the required torque 155 ± 8 Nm (E).

⚠ 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.

STOP Observe the safety measures when raising and securing loads!

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

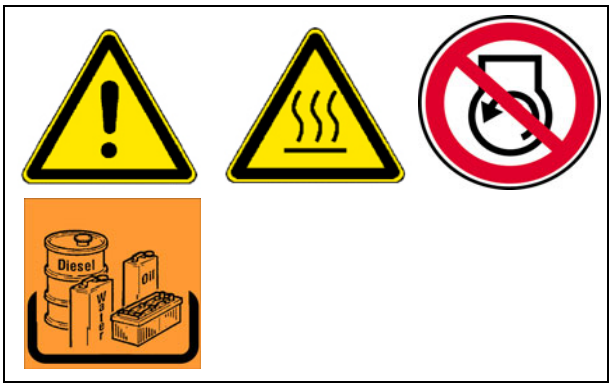
- Tighten the bolts without applying significant torque.
- Tighten the bolts diagonally to the required torque.

- Tighten to the following torques:
  - Small rollers (A): 210 Nm
  - Large rollers (B): 85 Nm

⚠ Check that each bolt has attained the full tightening torque!

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

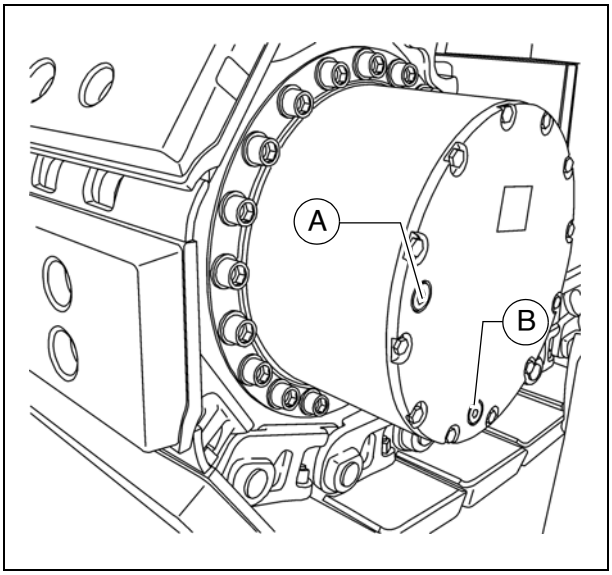
Planetary gear (4)



- Turn the conveyor chain sprocket so that the drain plug (B) is located at the bottom.
- For **oil level check** unscrew and remove the inspection bolt (A).

☞ When oil level is correct, the oil comes up to the lower edge of the inspection bore or a small amount of oil escapes through the aperture.

For **filling in** the oil:



- Unscrew the filler screw (A).
- Fill in the specified oil into the filler bore at (A) until the oil level has reached the lower edge of the filler bore.
- Screw the filler screw (A) back in.

Oil change:

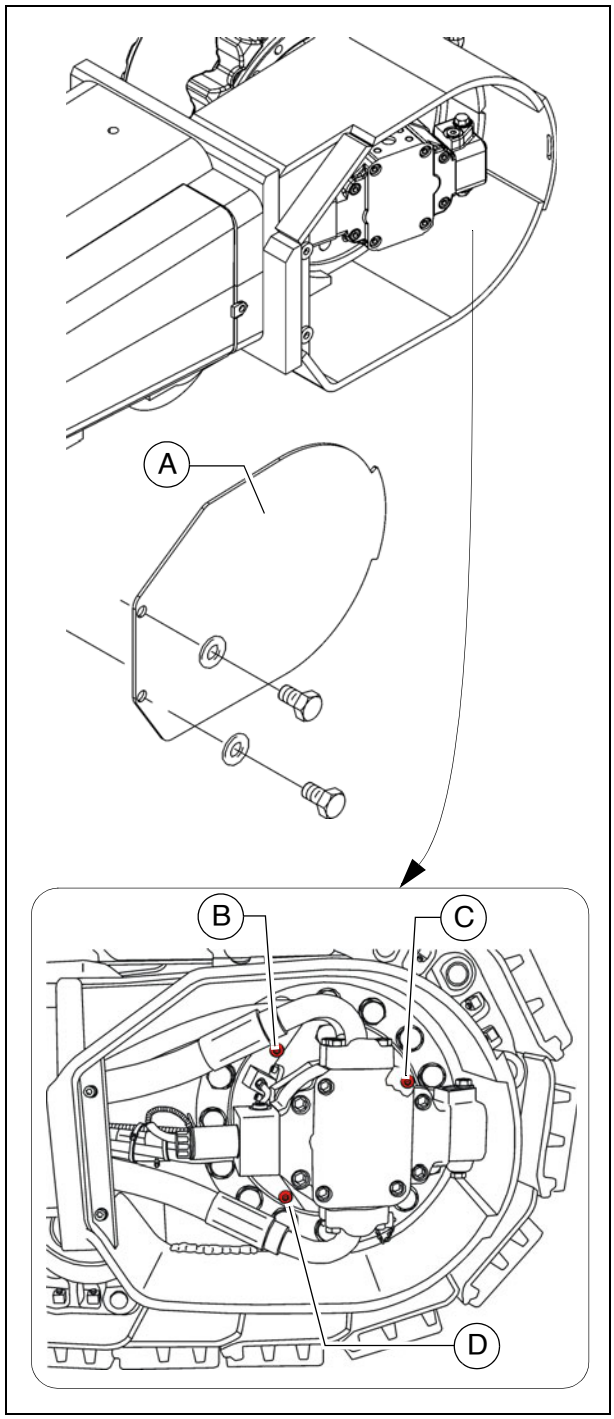
☞ The oil should be changed when at operating temperature.

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

- Turn the conveyor chain sprocket so that the drain plug (B) is located at the bottom.
- Unscrew and remove the drain plug (B) and filler screw (A) and drain off oil.
- Check gaskets on both screws and replace if necessary.
- Screw the drain plug (B) in.
- Fill new oil through the filler opening until the lower edge of the opening is reached.
- Tighten the filler screw (A).

☞ Alternatively, the oil level can be checked and the oil changed at the rear of the gearbox:

- Remove protective cover (A)
- The following are located at the rear of the gearbox:
  - Oil inlet (B)
  - Oil level check (C)
  - Oil drain (D)



☞ Carry out the oil level check and oil change as per the description above.

⚠ When draining using the drain (D), a small residual quantity of oil remains in the gearbox.

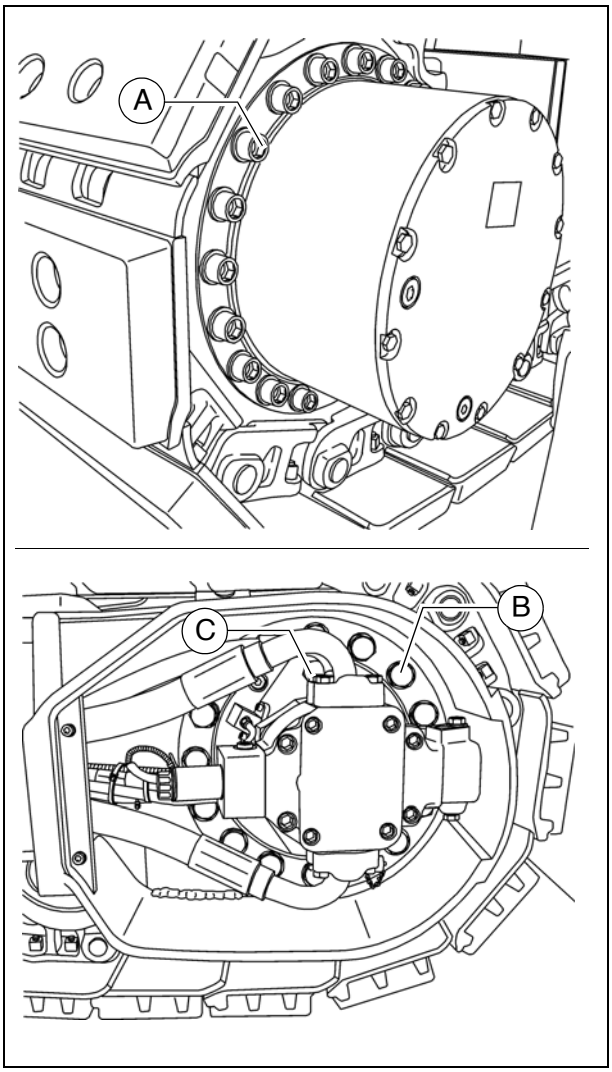
- Max. oil level up to lower edge of oil check (C).
- Reinstall the protective cover (A) properly.

Screw connections

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

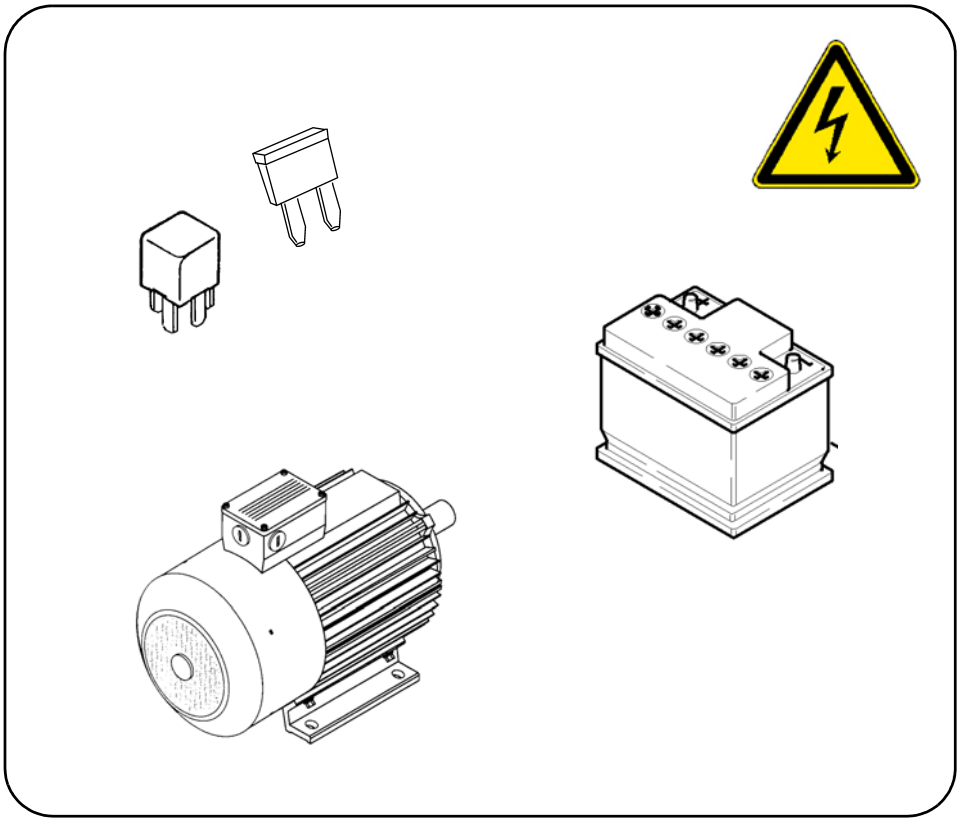
Improperly tightened screws may lead to increased wear and to the destruction of components!

- The correct tightening torque for the connecting screws for the gearbox - chain sprocket (A) is: 295 Nm
- The correct tightening torque for the connecting screws for the gearbox - drive unit frame (B) is: 580 Nm
- The correct tightening torque for the connecting screws for the hydraulic motor - gearbox (C) is: 210 Nm



F 80 Maintenance - electrical system

1 Maintenance - electrical system



1.1 Maintenance intervals

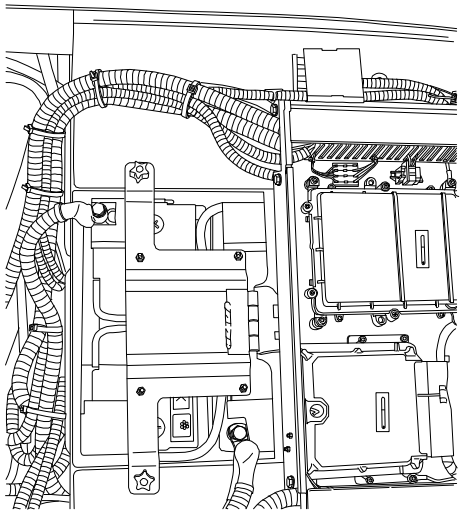
Item	Interval								Maintenance point	Note
	10	50	100	250	500	1000 / annually	2000 / every 2 years	If necessary		
1			■						Filling level of battery electrolyte - check	
								■	Top up with distilled water	
				■					Apply grease to battery terminals	
2								■	Electrical fuses	

Maintenance	■
Maintenance during the running-in period	▼

1.2 Points of maintenance

Batteries (1)

Maintenance of batteries

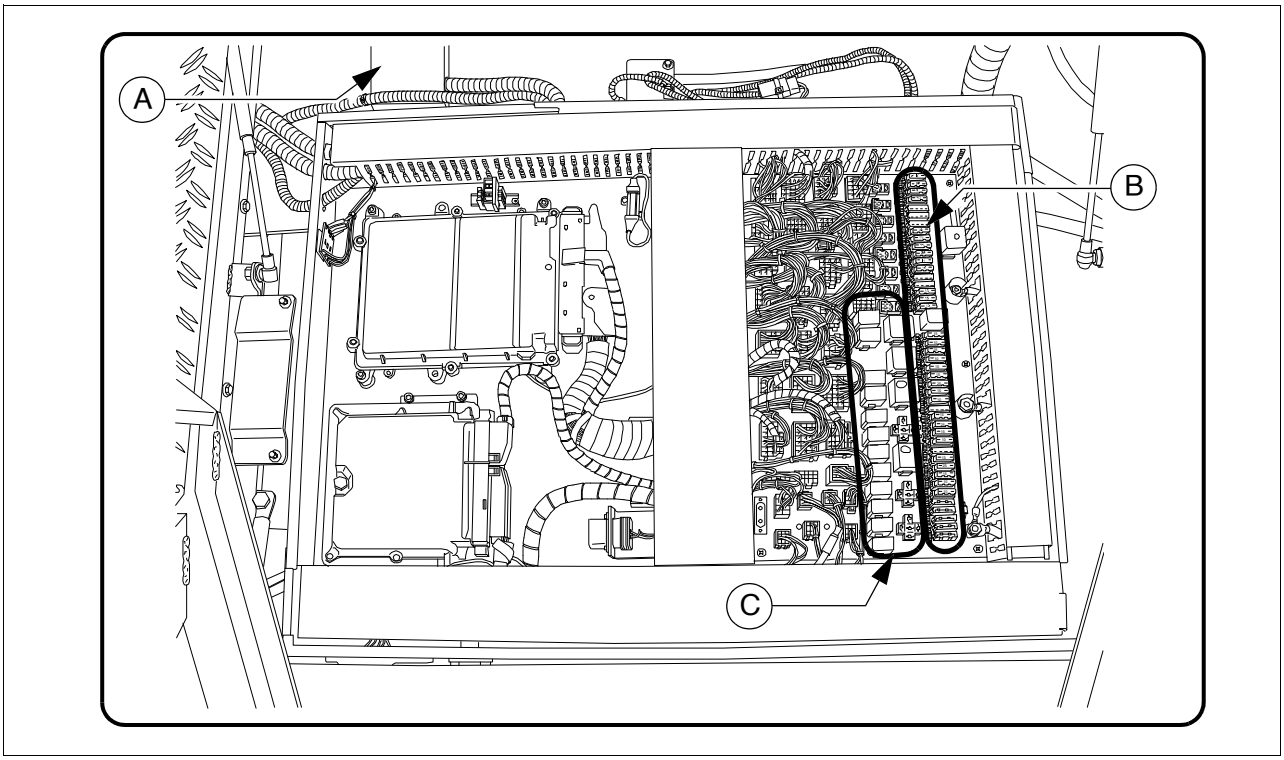


☞ The batteries are factory-filled with the correct quantity of acid. The fluid level should come up to the top mark. If required, top up the battery, but only use distilled water to do so!

⚠ The battery terminal clips must be free of oxide and protected with a special terminal grease.

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

Electrical fuses / relays (2)

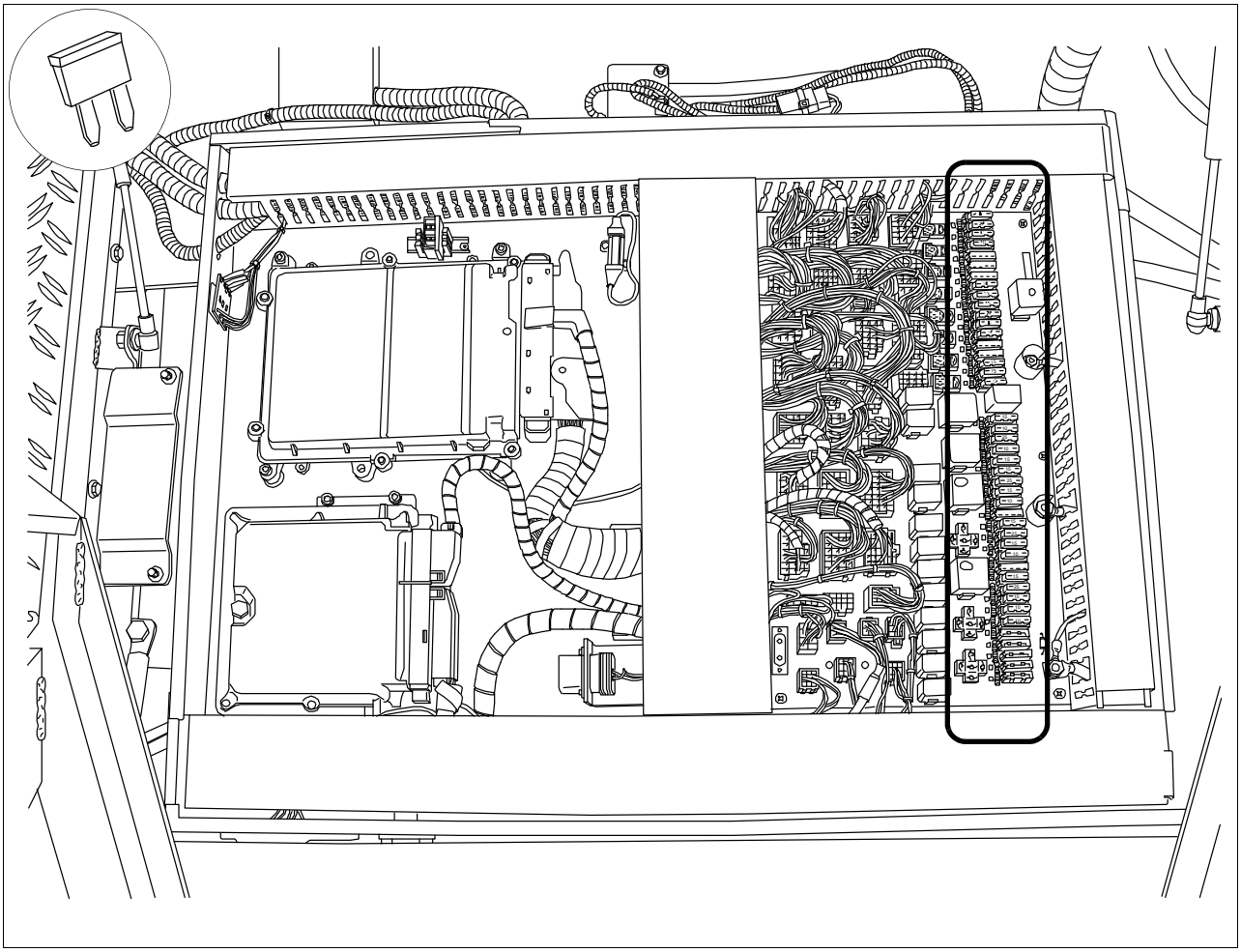


A	Main fuses
B	Fuses in terminal box
C	Relays in terminal box

Main fuses (A)

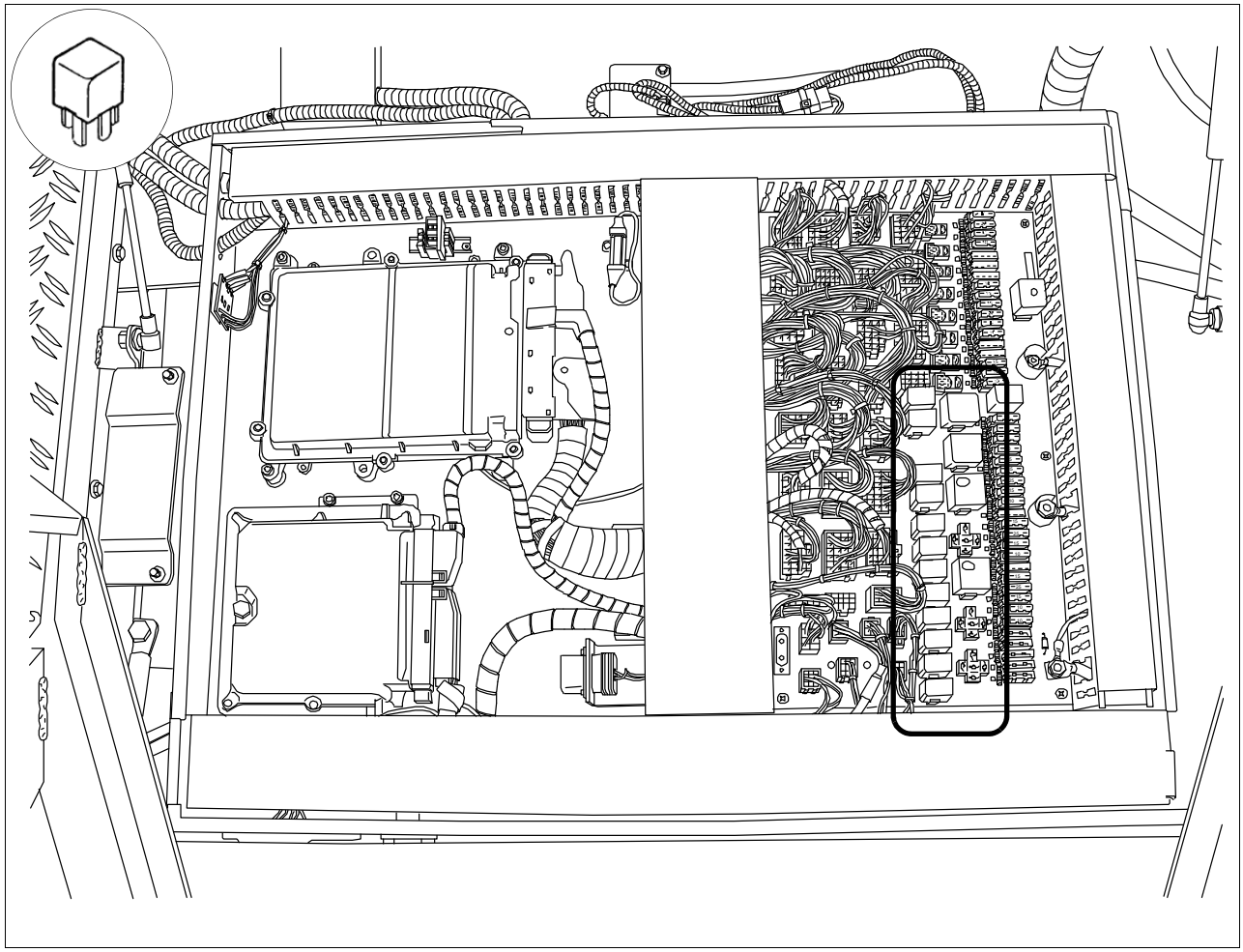
F		A
F1.1	Main fuse	50
F1.2	Main fuse	50

Fuses in terminal box (B)



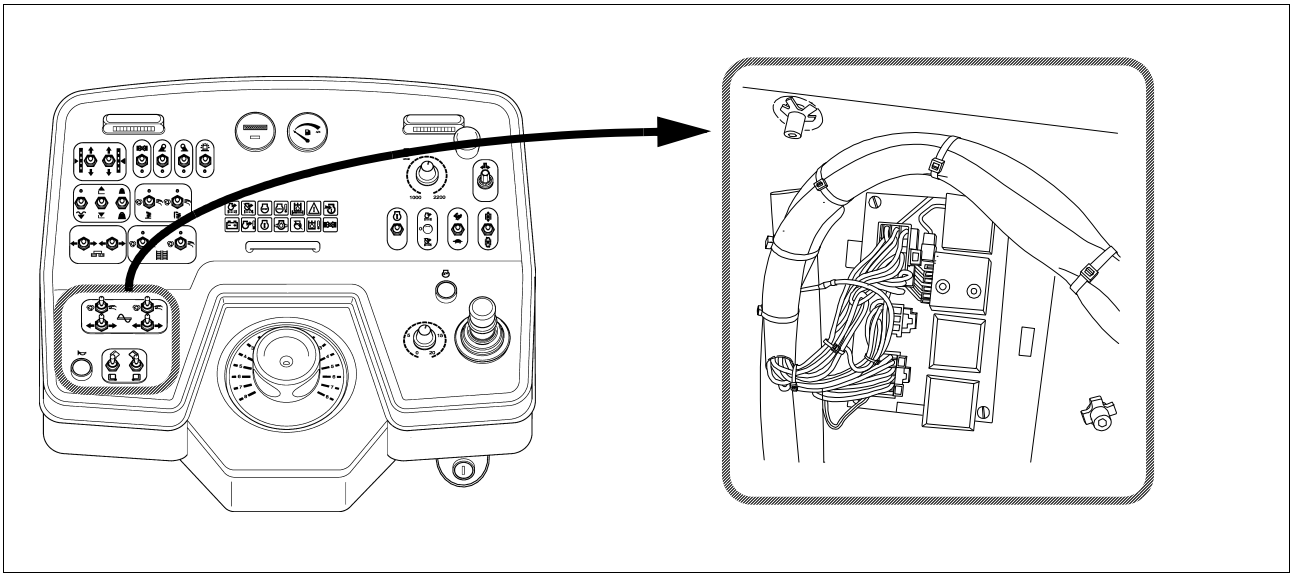
F		A
F1	Screed	10
F2	Screed	10
F3	Levelling	10
F4	Engine start / emergency stop	5
F5	Tamper (○) / vibration	7,5
F6	Screed on / off	10
F7	not used	
F8	Indicator lamps	5
F9	Emulsion spraying system (○)	5
F10	Travel drive sensors	7,5
F11	not used	10
F12	Conveyor sensors	7,5
F13	12V sockets (○)	10
F14	Levelling	10
F15	not used	
F16	24V sockets	10
F17	Indicator displays	5
F18	Auger	10
F19	not used	
F20	Rotary beacon (○)	10
F21	Travel drive computer voltage supply	25
F22	not used	
F23	Horn	10
F24	Engine start	10
F25	not used	
F26	Engine control unit power supply	30
F27	Travel drive computer indicator lamp	2
F28	not used	
F29	Ignition	3
F30	Reverse buzzer (○)	5
F31	not used	
F32	Travel drive computer outputs	20
F33	not used	
F34	not used	
F35	Rear working lights	10
F36	Front working lights	10
F37	Engine interface	2
F38	Diagnostic interface	2

Relays in terminal box (C)



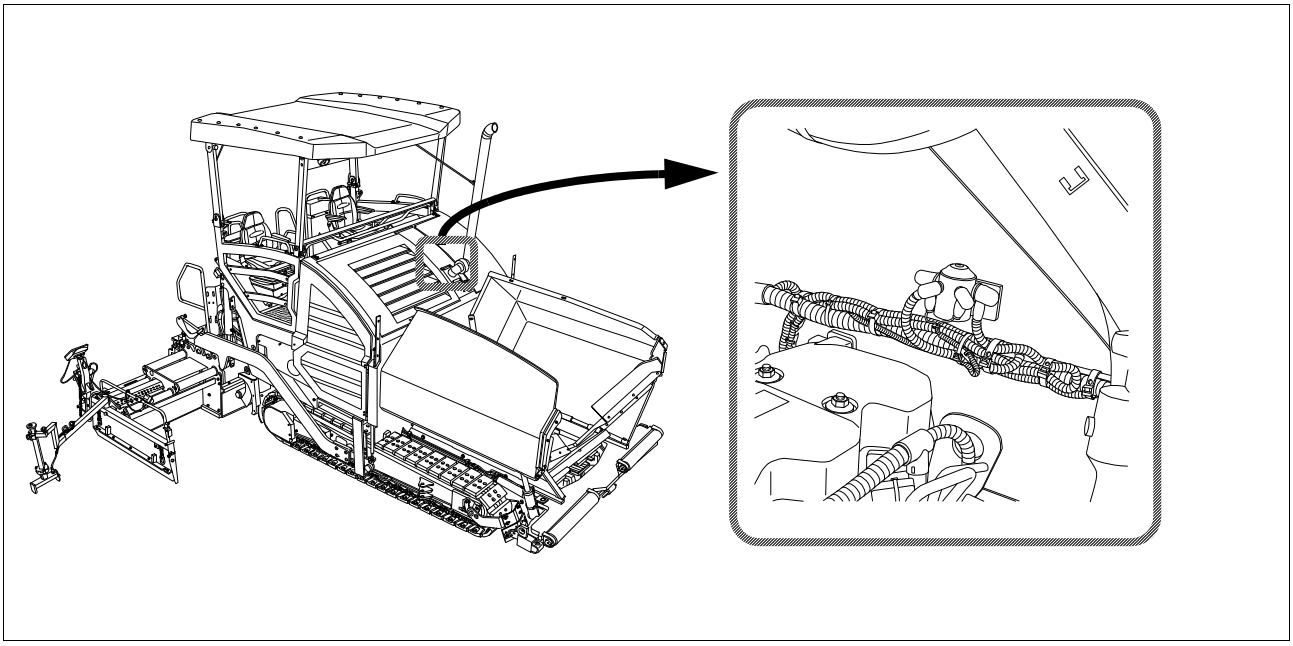
K	
1	Ignition
2	Travel drive computer voltage supply
3	not used
4	Engine start
5	Travel drive computer outputs
6	Ignition
7	Front working lights
8	Rear working lights
9	Horn
10	Start inhibit, emergency stop
11	Start inhibit
12	Rotary beacon (○)
13	not used
14	not used
15	not used
16	Reverse buzzer (○)
17	not used
18	not used
19	not used
20	not used
21	not used
22	Vibration auto
23	Tamper auto
24	Conveyor auto
25	Conveyor auto
26	Auger auto
27	Auger auto

Relays in operating panel (D)



K	
1	Floating position
2	Screed start (auto)
3	Screed hazard warning flashers, left-hand
4	Screed hazard warning flashers, right-hand
30	Lock screed extend / retract l.h.
31	Lock screed extend / retract r.h.

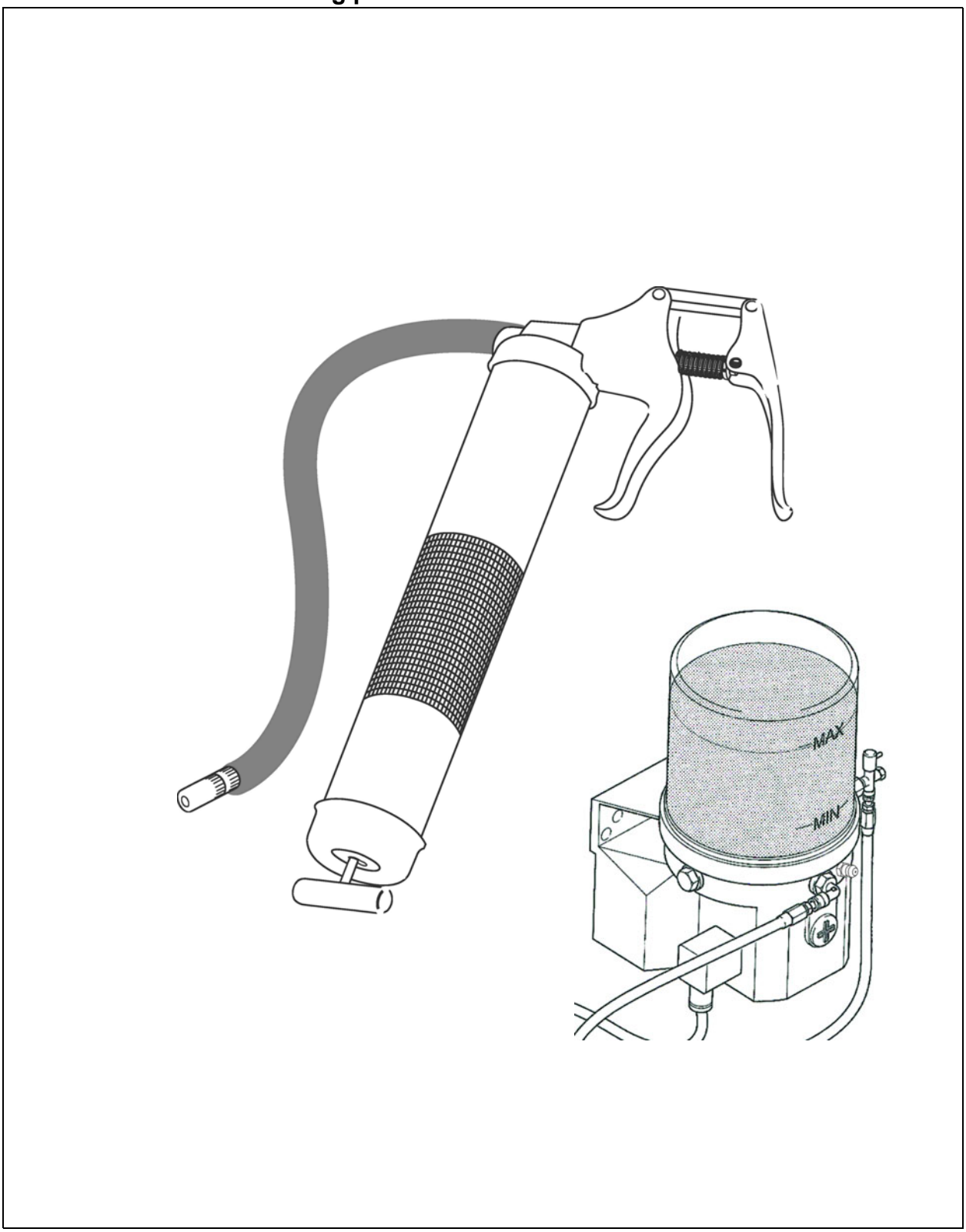
Relays in the engine compartment (E)



K	
0	Engine start

F 90 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	

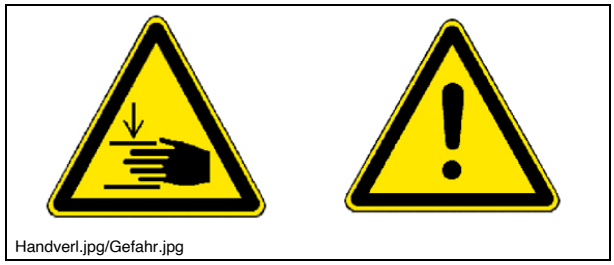
Maintenance	■
Maintenance during the running-in period	▼

1.2 Points of maintenance

Central lubrication system (1)

Danger of injuries!

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


Handverl.jpg/Gefahr.jpg

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!

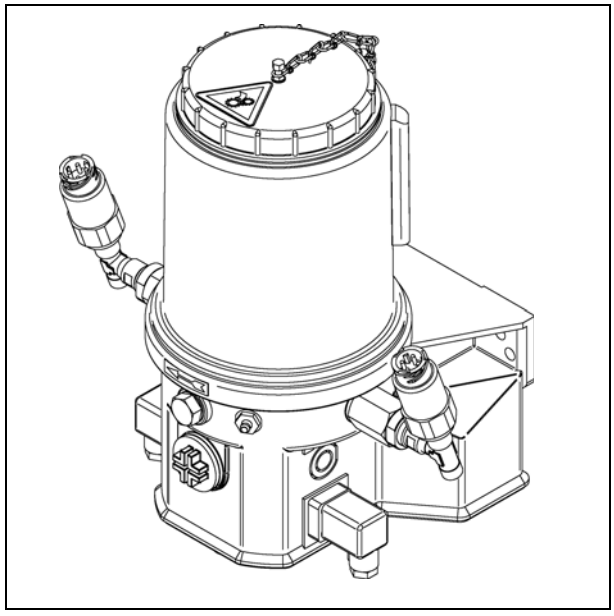
Ensure that the diesel engine cannot be started when working on the system!

Observe safety regulations for handling hydraulic systems!

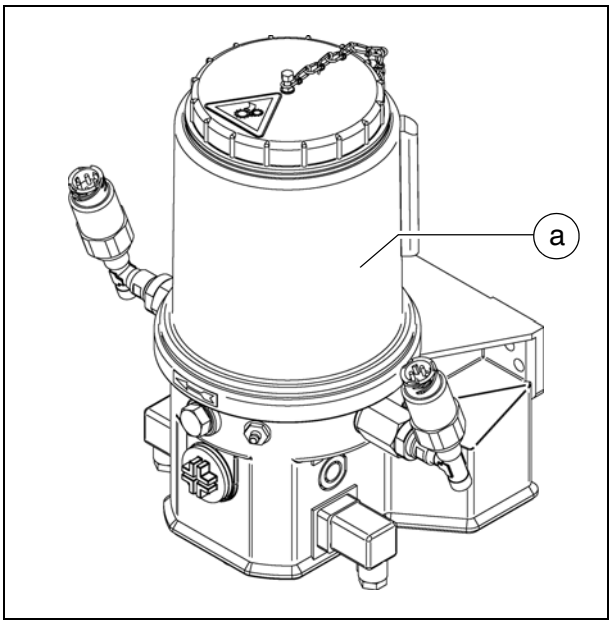
Ensure maximum cleanliness when working on the central lubrication system!

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

- Conveyor
- Auger
- Steering, axles (wheeled pavers)
- Screed (tamper / vibration)



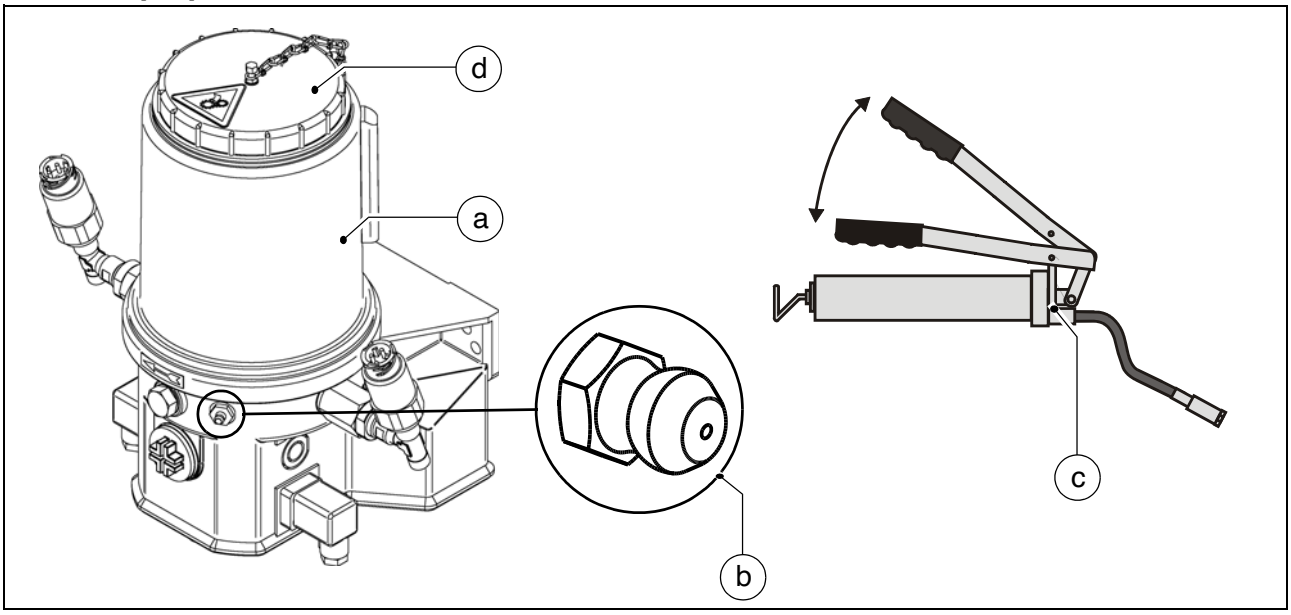
Central lubrication system
Check filling level



☞ The lubricant tank should always be filled sufficiently to ensure that the system does not "run dry", that adequate lubricating point supply is ensured and that time-consuming bleeding does not become necessary.

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

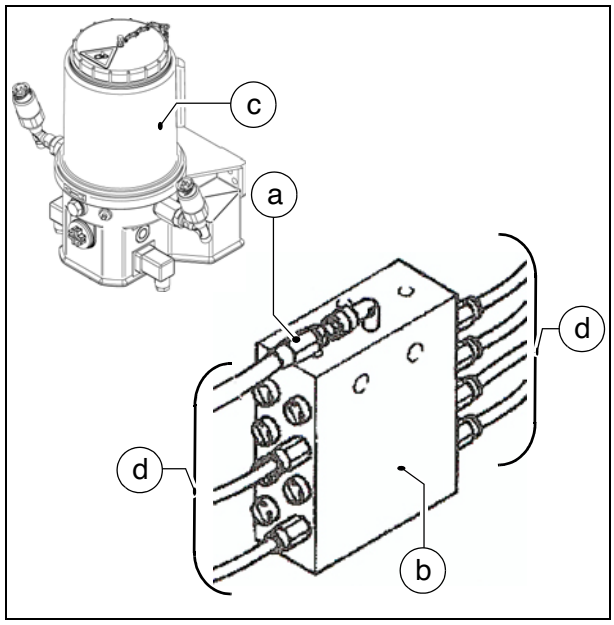
Top up lubricant tank



- A lubricating nipple (b) is located on the lubricant tank (a) for filling purposes.
- Connect the grease gun (c) enclosed on delivery to the filling nipple (b) and fill the lubricant tank (a) up to the MAX mark.
- Alternatively, unscrew cover (d) and fill tank from above.

☞ 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.

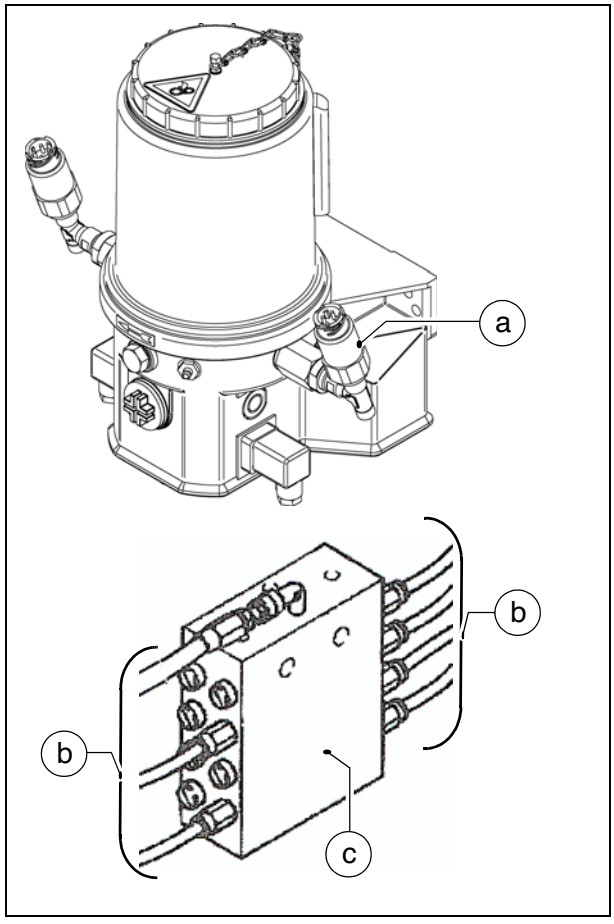
Bleed central lubrication system



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

- Release 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 released main line (a).
- Reconnect the main line (a) to the distributor.
- Release 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



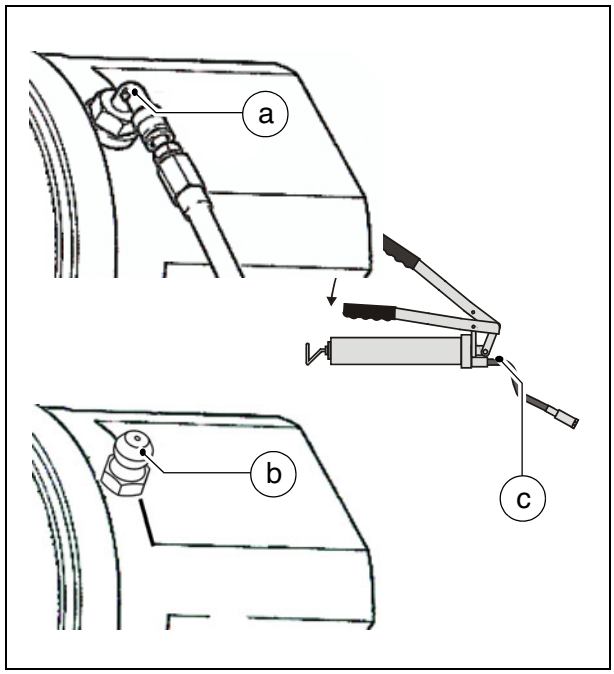
⚠ If lubricant emerges at the pressure limiting valve (a), this indicates a malfunction in the system.
The consumers are no longer adequately supplied with lubricant.

- Release all distribution lines (b) leading from the distributor (c) to the consumers in succession.
- If lubricant emerges from one of the released 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

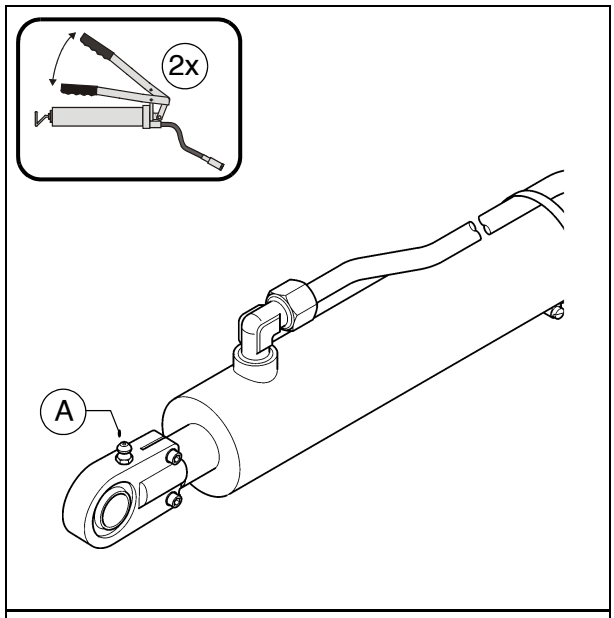
Each lubrication channel at the consumers must be checked as regards clearance.

- Remove the lubrication line (a) and install a normal lubricating nipple (b).
- Connect the grease gun (c) enclosed on delivery 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.

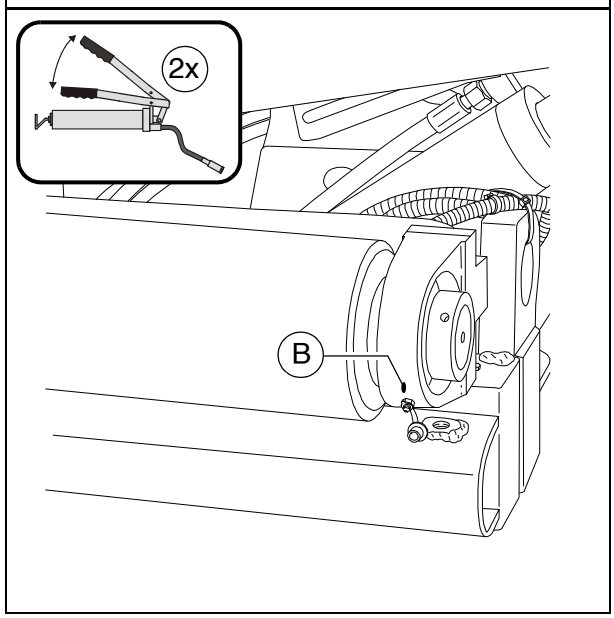


Bearing points (2)

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

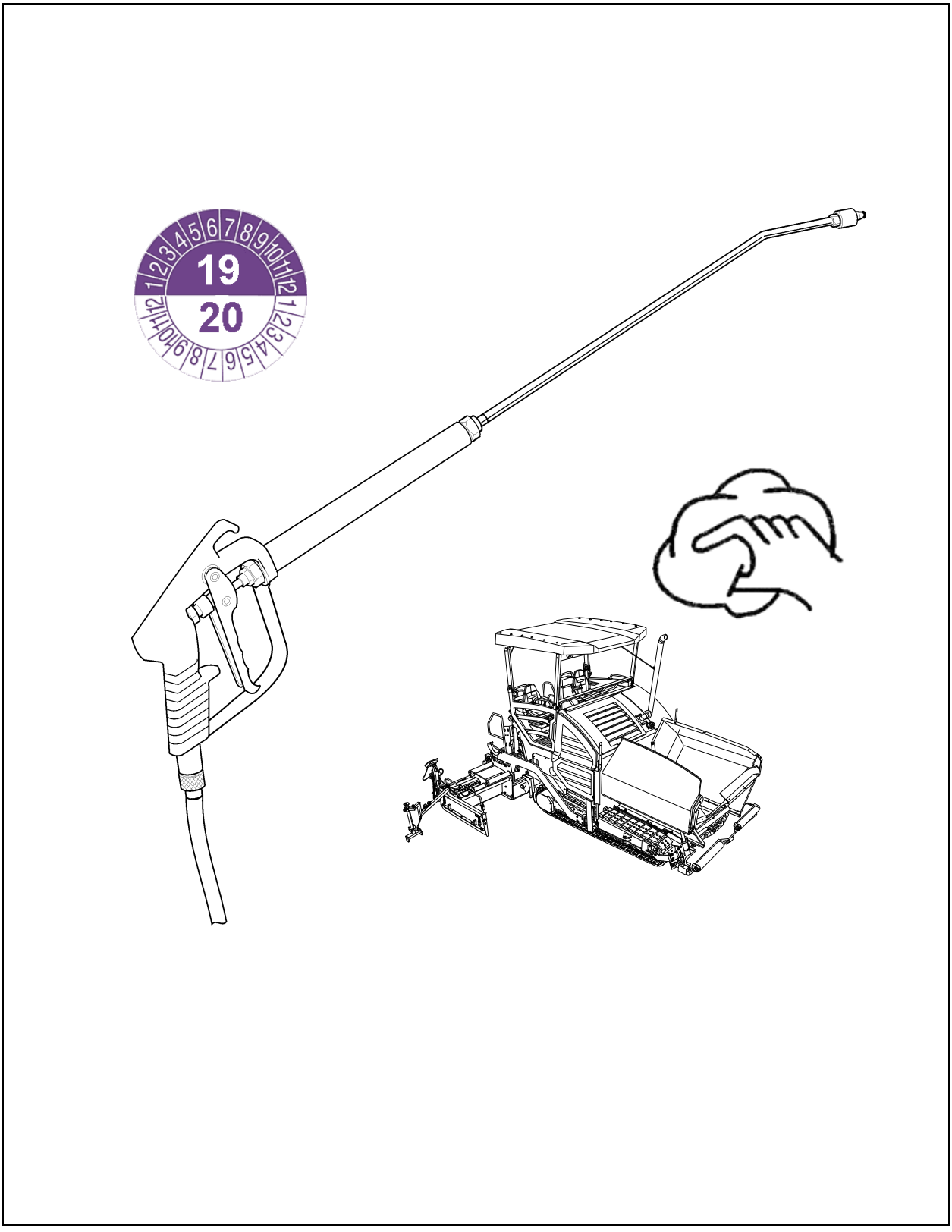


☞ One lubricating nipple (B) is located at each push roller bearing point.



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						■		■	- Inspection by an expert	
3								■	- Cleaning	
4								■	- 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?

⚠ Immediately take actions to correct any detected malfunction to avoid damages, dangers or environmental hazards!

3 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.

4 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.

STOP Danger of slipping! Ensure that all steps and ladders are free of grease and oil!

4.1 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.

STOP **Risk from hot surfaces!**

STOP Hot surfaces and vehicle parts can cause severe injuries!

- Wear your personal safety gear.
- Do not touch hot parts of the vehicle.
- Consult a doctor immediately if injured.

☞ Comply with further instructions in the safety manual!

4.2 Cleaning the conveyor and auger

⚠ Clean the conveyor and auger regularly.

If necessary, let the conveyor and auger run at low speed during cleaning.

STOP **Danger of being pulled in by rotating or conveying vehicle parts!**

STOP Rotating or conveying vehicle parts can cause severe or fatal injuries!

- Do not enter the danger zone.
- Do not reach into rotating or conveying parts.
- Only wear close-fitting clothing.
- Comply with the warning and information signs on the vehicle.

☞ Comply with further instructions in the safety manual.

5 Preserving the paver finisher

5.1 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 is 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.

5.2 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.

5.3 Recommissioning the machine

- Reverse all the steps described in the "Shutdown" sections.

6 Environmental protection, disposal

6.1 Environmental protection

☞ Packaging materials, used operating substances, cleaning agents and machine accessories must be correctly recycled.

☞ Always observe the local regulations!

6.2 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!

F 110 Lubricants and operating substances

1 Lubricants and operating substances

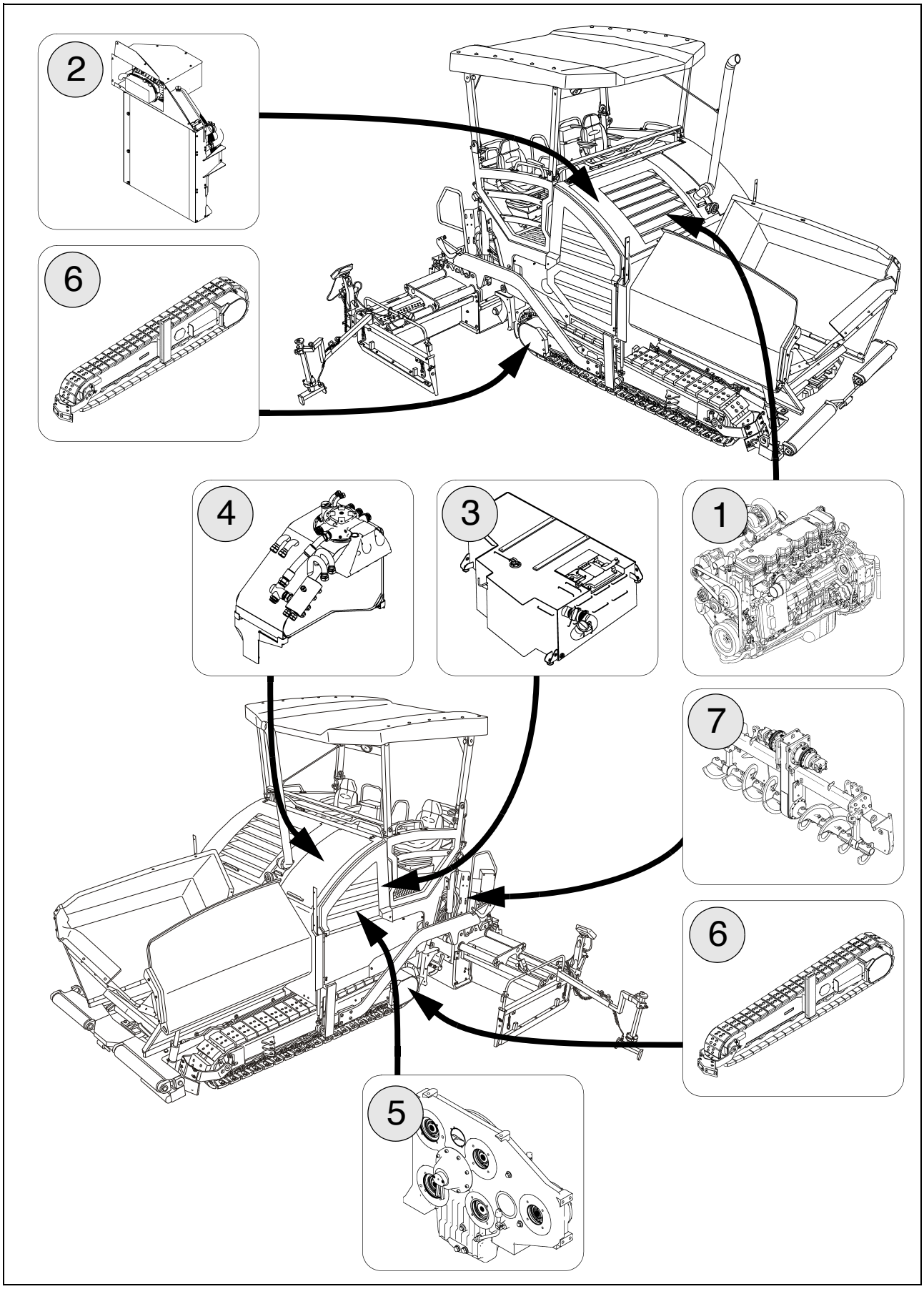
⚠ Use only the lubricants listed below or comparable qualities of well-known brands.

⚠ 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 paver finisher failure.

⚠ Never mix synthetic oils with mineral oils!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1.1 Capacities

		Substance	Volume	
1	Diesel engine (with oil filter change)	Engine oil	15	litres
2	Engine cooling system	Cooling liquid	20.0	litres
3	Fuel tank	Diesel fuel	350	litres
4	Hydraulic oil reservoir	Hydraulic oil	200	litres
5	Pump distribution gear	Gearbox oil	7.0	litres
6	Planetary gear drive unit	Gearbox oil	3.5	litres
7	Planetary gear augers (on each side)	Gearbox oil	1.5	litres
7	Auger box	Gearbox oil	4.0	litres
7	Outer auger bearing (per bearing)**	Hot bearing grease	115	grammes
	Central lubrication system (option)	Grease		
	Batteries	Distilled water		

⚠ Note specifications on the following pages!

** for new installation

2 Lubricant specifications

2.1 Engine

Atlas Copco	Aral	BP	Esso / Exxon	Fuchs	Mobil	Shell	
Engine Oil 100 (*)						-Rimula R6LM 10W-40	

☞ (*) = recommended

2.2 Cooling system

Dynapac	AGIP	Chevron	Caltex	Delo	Mobil	Shell	
Coolant 200 (*)	-Antifreeze Spezial	Extended Life Coolant	Extended Life Coolant	Extended Life Coolant			

☞ (*) = recommended

2.3 Hydraulic system

Atlas Copco	AGIP	Chevron	Caltex	Fuchs	Mobil	Shell	
Hydraulic 100 (*)		Rando HDZ 46	Rando HDZ 46			-Tellus Oil S2 V46	

☞ (*) = recommended

2.4 Pump distribution gear

Dynapac	Aral	BP	Esso / Exxon	Fuchs	Mobil	Shell	
				-Titan ATF 6000 SL (*)		-Spirax S4 ATF HDX -Spirax S4 ATF VM	

☞ (*) = filled in at the factory

2.5 Drive unit planetary gear

Atlas Copco	Aral	BP	Esso / Exxon	Fuchs	Mobil	Shell	
Traction Gear 100 (*)						-Omala Oil F 220	

☞ (*) = recommended

2.6 Auger drive planetary gear

Atlas Copco	Aral	BP	Esso / Exxon	Fuchs	Mobil	Shell	
Traction Gear 100 (*)						-Omala Oil F 220	

☞ (*) = recommended

2.7 Auger box

Dynapac	Aral	BP	Esso / Exxon	Fuchs	Mobil	Shell	
						-Omala S4WE460 (*)	

☞ (*) = recommended

2.8 Grease

Dynapac	Aral	BP	Esso / Exxon	Fuchs	Mobil	Shell	Chevron
Paver Grease (*)						-Gadus S5 T460 1.5	-High Temp Premium2

☞ (*) = recommended

2.9 Hydraulic oil

Preferred hydraulic oils:

a) Synthetic hydraulic liquids based on ester, HEES

Manufacturer	ISO viscosity class VG 46
Atlas Copco	Hydraulic 120 (*)
Shell	Naturelle HF-E46
Panolin	HLP SYNTH 46
Esso	Univis HEES 46
Total	Total Biohydran SE 46
Aral	Vitam EHF 46

☞ (*) = recommended

b) Mineral oil pressure fluids

Manufacturer	ISO viscosity class VG 46
Atlas Copco	Hydraulic 100 (*)
Shell	Tellus S2 V46
Chevron	Rando HDZ 46
Caltex	Rando HDZ 46

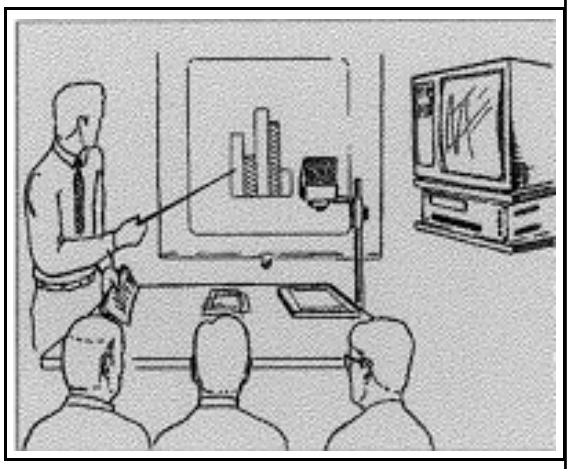
☞ (*) = recommended

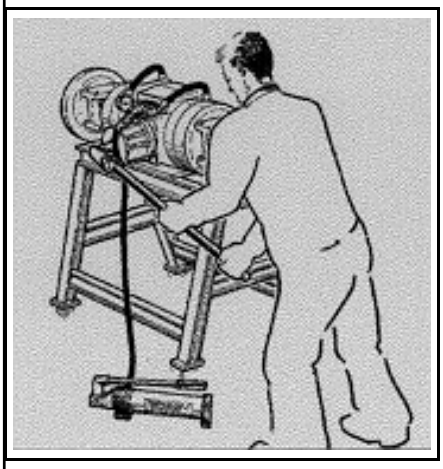
⚠ When changing from mineral oil pressure fluids to biodegradable pressure fluids, please contact our factory advisory service!

DYNAPAC
Part of the Atlas Copco Group

TRAINING/ INSTRUCTIONS

We offer our customers training courses on DYNAPAC equipment in our dedicated factory training centre.
We hold regular training courses in this training centre as well as courses outside the scheduled hours.





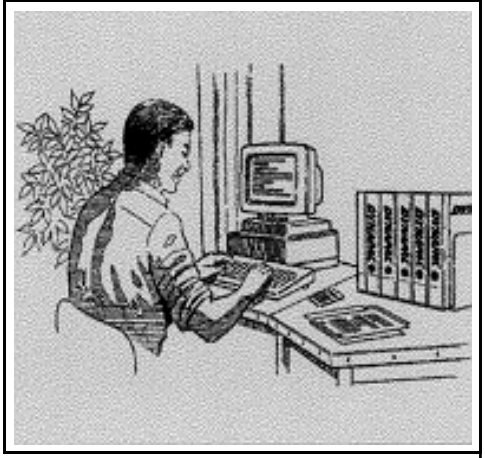
SERVICE

Please contact one of our responsible service outlets if you encounter any operational problems or have enquiries about spare parts.
Our trained, specialist staff will ensure that you receive prompt attention and repairs in the event of any accident or malfunction you may encounter.

FACTORY ADVISORY SERVICE

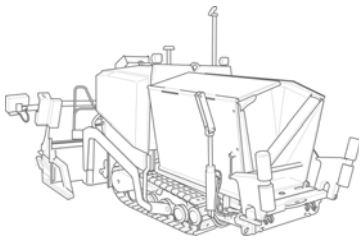
If ever for any reason our dealership network encounters limits to what it is able to do for you, please always feel free to contact us directly.
Our team of technical advisers is on hand to assist you.

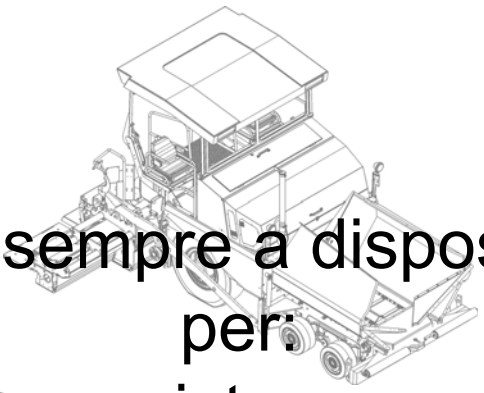
gmbh-service@dynapac.com



DYNAPAC

Part of the Atlas Copco Group





Siamo sempre a disposizione per:
assistenza,
ricambi,
documentazione,
accessori
ed
il programma
completo di
finitrici
Dynapac.