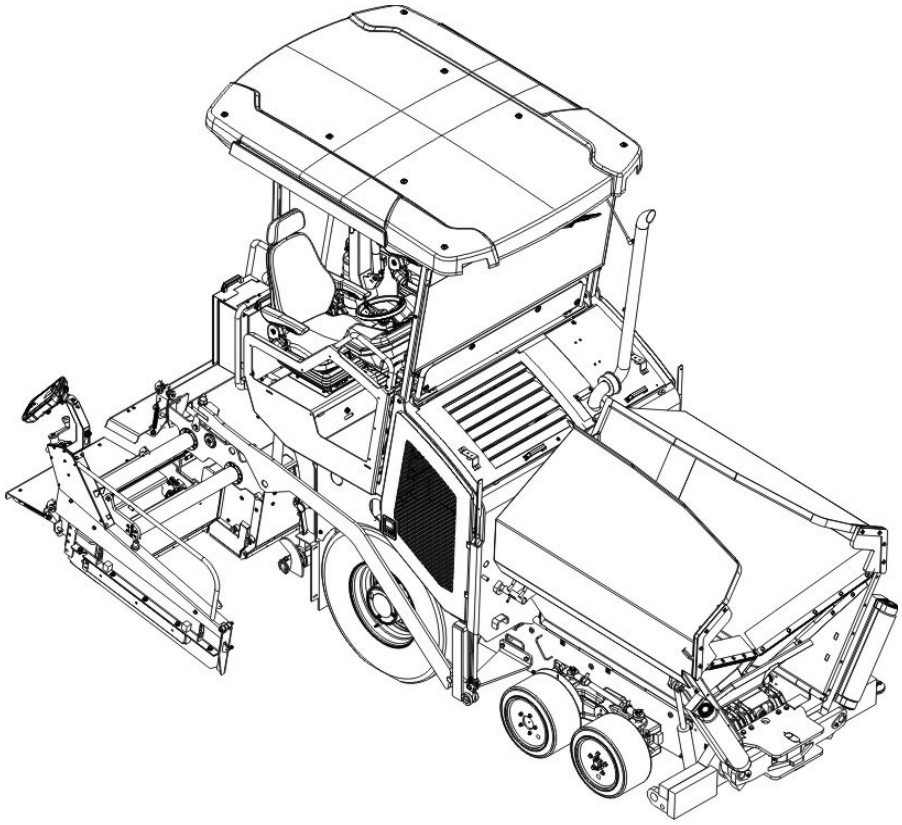
DYNAPAC
FAYAT GROUP

OPERATION & MAINTENANCE



Paver Finisher
Dynapac
SD1800W
Type 913

GB 02-0516 4812018601 (A5)

Keep for later use in document compartment

Valid for:

_____ - _____

_____ - _____

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V Preface

Translation of the original operating instructions.

If the vehicle is to be operated safely, the information provided in these operating instructions will be required. The information is provided in a concise, clearly structured form. The individual chapters are arranged in alphabetical order. and every chapter starts with page 1. The individual pages are identified by the chapter letter and the page number.
Example: Page B 2 is the second page of chapter B.

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

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

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1 General safety instructions

1.1 Laws, guidelines, accident prevention regulations

☞ The locally applicable laws, guidelines and accident prevention regulations must always be observed, even if these are not expressly named here.
The user himself/herself is responsible for compliance with the resulting regulations and measures!

☞ The following warnings, prohibitive symbols and instructive symbols indicate dangers for persons, the vehicle and the environment due to residual risks when operating the vehicle.

☞ Failure to observe this information, prohibitions and instructions can result in life-threatening injuries!

☞ The "Guidelines for the Correct Use and Application of Paver Finishers" compiled by Dynapac must also be observed!

1.2 Safety signs, signal words

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

"Danger"!

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

"Warning" !

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

"Caution" !

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

"Note" !

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

1.3 Other supplementary information

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

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

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

Precedes general notes and explanations.

1.4 Warnings

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

Warning on danger of being pulled in!

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

Warning on dangerous electrical voltage!

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

Warning on suspended loads!

⚠ Never stand under suspended loads!

Warning on danger of crushing!

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

Warning on hand injuries!

Warning on hot surfaces or hot liquids!

Warning on danger of falling!

Warning on dangers posed by batteries!

Warning on hazardous or irritating substances!

Warning on substances which constitute a fire hazard!

Warning on gas bottles!

1.5 Prohibitive symbols

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

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

Spraying with water is prohibited!

Extinguishing with water is prohibited!

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

☞ Consult the Dynapac Service Department

Fire!, naked flames and smoking are prohibited!

Do not switch!

1.6 Protective equipment

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

Wear safety goggles to protect your eyes!

Wear suitable head protection!

Wear suitable hearing protection to protect your hearing!

Wear suitable safety gloves to protect your hands!

Wear safety shoes to protect your feet!

Always wear close-fitting work clothing!
Wear a warning vest to be seen in time to avoid accidents!

Wear respiratory equipment if breathing air is contaminated!

1.7 Environmental protection

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

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

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

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

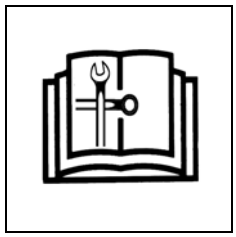
Environmentally hazardous substance!

1.8 Fire prevention

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

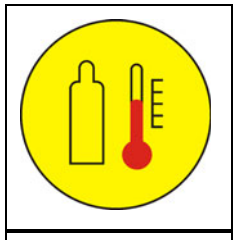
Fire extinguisher!
(optional equipment)

1.9 Additional information

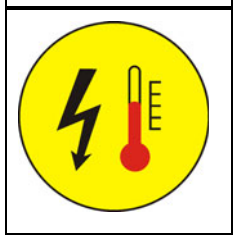


⚠ Also observe the manufacturer's documentation and additional documentation!

☞ For example, the maintenance instructions of the engine manufacturer



⚠ Description / depiction applicable when equipped with gas heater!



⚠ Description / depiction applicable when equipped with electric heater!

- ● Used to indicate standard equipment.
- ○ Used to indicate optional equipment.

2 CE identification and Declaration of Conformity

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

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

3 Guarantee conditions

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

The guarantee becomes null and void if

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

The road construction machine described in these operating instructions is a paver finisher that is suited for laying mixed materials, roll-down concrete or lean-mixed concrete, track-laying ballast and unbound mineral aggregates for foundations for paving.
The paver finisher must be used, operated and maintained according to the instructions given in the present operating instructions. Any other use is regarded as improper use and can cause injury to persons or damage to the paver finisher or other equipment or property.

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

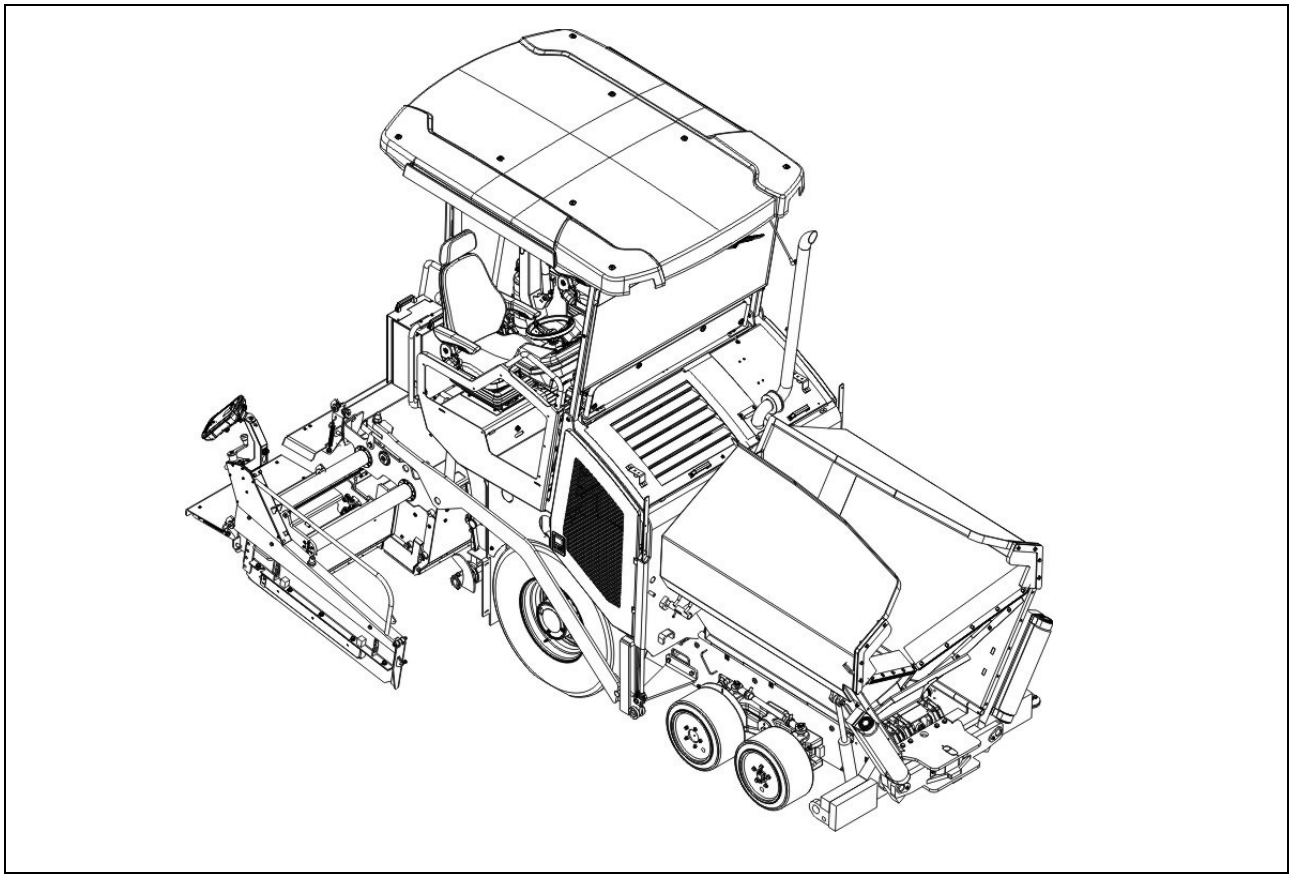
Duties of the user: A "user" within the meaning of these operating instructions is defined as any natural or legal person who either uses the paver finisher himself, or on whose behalf it is used. In special cases (e.g. leasing or renting), the user is considered to be the person who, in accordance with existing contractual agreements between the owner and the user of the paver finisher, is charged with the observance of the operating duties.
The user must ensure that the paver finisher is only used in the stipulated manner and that all danger to life and limb of the operator, or third parties, is avoided. In addition to this, it must be ensured that the relevant accident prevention regulations and other safety-related provisions as well as the operating, servicing and maintenance guidelines are observed. The user must also ensure that all persons operating the paver finisher have read and understood the present operating instructions.

Mounting of attachments: The paver finisher must only be operated in conjunction with screeds that have been approved by the manufacturer. Mounting or installation of any attachments that will interfere with or supplement the functions of the paver finisher is permitted only after written approval by the manufacturer has been obtained. If necessary, the approval of local authorities must be obtained.
Any approval obtained from local authorities does not, however, make approval by the manufacturer unnecessary.

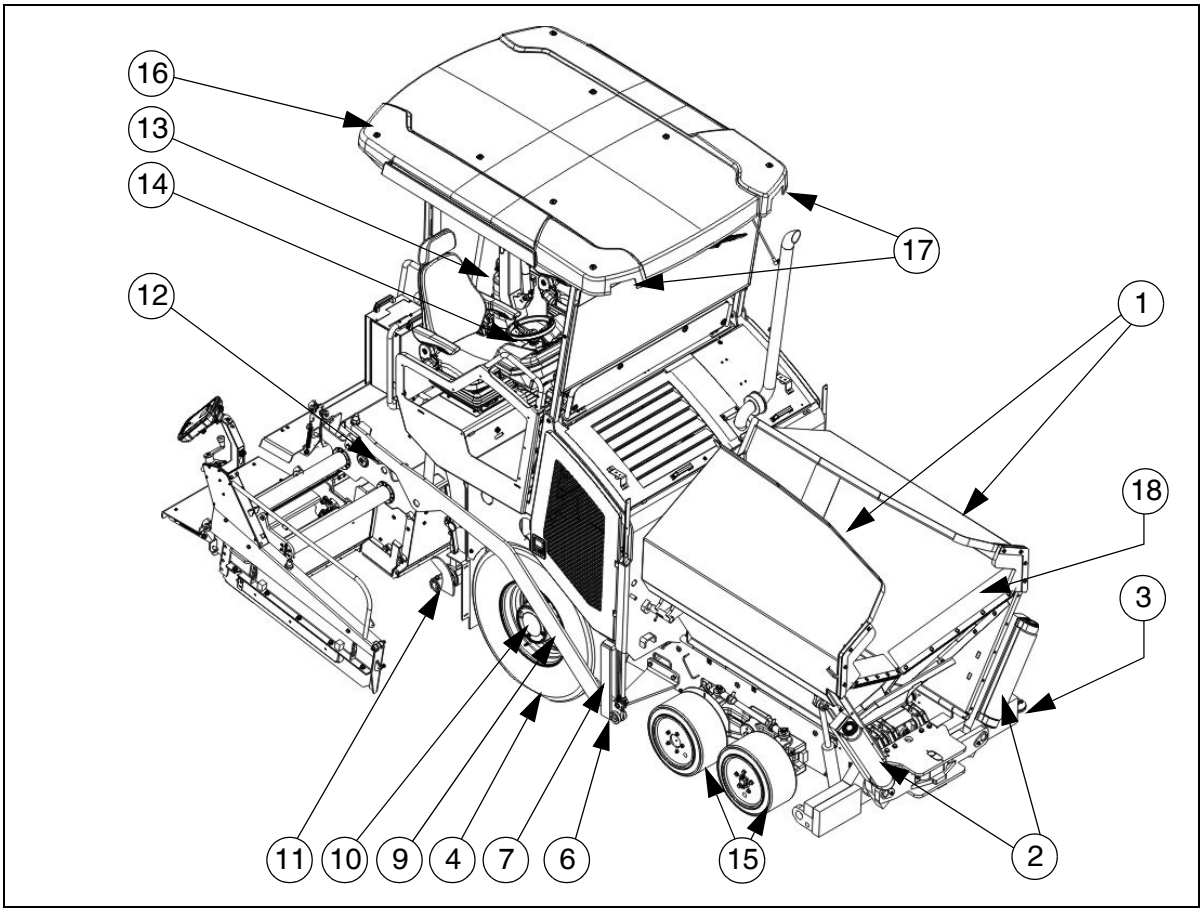
B Vehicle description

1 Application

The Dynapac paver finisher SD1800W is a wheeled paver finisher which is used for paving bituminous mixed material, roll-down or lean-mixed concrete, track-laying ballast and unbound mineral aggregates for foundations for paving.



2 Description of assemblies and functions



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

● = Standard equipment	○ = Optional equipment

2.1 Vehicle

Construction

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

The large drive wheels and the tandem front axle compensate uneven areas on the ground; the suspension of the attached screed additionally helps to attain high paving precision.
The continuously adjustable hydrostatic travel drive allows the speed of the paver finisher to be matched to all work conditions.

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

The following extra equipment (option) is available:

○ Automatic levelling/slope control system

○ Hopper with hydraulic front hopper

○ Protective roof (control platform)

○ Emulsion spraying system

○ Push roller damping "Safe Impact System"

○ Asphalt fume control system

○ Additional headlights, warning lamps

○ Central lubrication system

○ Alternator

○ Larger working widths

○ Further equipment and upgrade options on request

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

Traction unit: The front axle is a tandem swing axle. As the wheels are not mounted on non-uniform lifting arms, the second front wheel is subject to a heavier load on the shorter lifting arm.
This solution provides increased steering and load-bearing capabilities, especially on soft grounds. The tyres are solid rubber tyres at the front axle and large, tubeless, pneumatic tyres at the rear axle.
When equipped with an additional front wheel drive, the second front axle can be used as a second drive axle.

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 oil engines drive the drive wheels via planetary gears.
The multi-stage planetary gear covers the various driving ranges and the braking function.

Steering system/operator's platform: The fully hydraulic steering system ensures easy manoeuvrability.
The small turning radius permits quick and easy manoeuvring.
The seat consoles left/right can be moved beyond the outer edge of the vehicle, providing the driver with a better view of the paving area in this position.
The entire operating panel can be swivelled for operation beyond the outer edge of the vehicle, and can be additionally be locked in several positions along the control platform.

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

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

Material compartment (hopper): The hopper inlet is equipped with a conveyor system that empties the hopper and transfers the material to the auger.
The hopper can hold approx. 10.5 t.
To facilitate emptying and achieve even material transfer, each of the lateral covers of the hopper can be hydraulically folded in.
The hydraulic front hopper flaps (○) ensure that no material remains at the front of the feeding hoppers.
The hopper is designed as a "Thermal Hopper" and lengthens the cooling down period for the material.

Material transfer: The paver finisher is equipped with two conveyors driven separately that transfer the material from the hopper to the augers.
By scanning the filling height during the paving procedure, the transfer amount or speed is regulated fully automatically.
The drive is reversible.

Augers: The augers are driven and actuated independently from the conveyors. The left-hand and the right-hand half of the auger can be controlled separately. The drive system is fully hydraulic.
The conveying direction can be changed towards the centre or towards the outside. This ensures that there is always a sufficient supply of material even if an excessive amount of material is required at one side.
The auger speed is continuously controlled by sensors that monitor the material flow.

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

Levelling/slope control system: The slope control system (○) allows the traction point to be regulated at the left-hand or the right-hand side with a defined difference to the opposite side.
To determine the actual value, the two traction crossbeams are linked with a slope control rod.

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

By adjusting the height of the traction point of the crossbeam (traction roller), the paving thickness of the material or the laying height of the screed can be controlled.
Actuation occurs electro-hydraulically on both sides and can be controlled manually by means of toggle switches or automatically by means of an electronic grade control system.

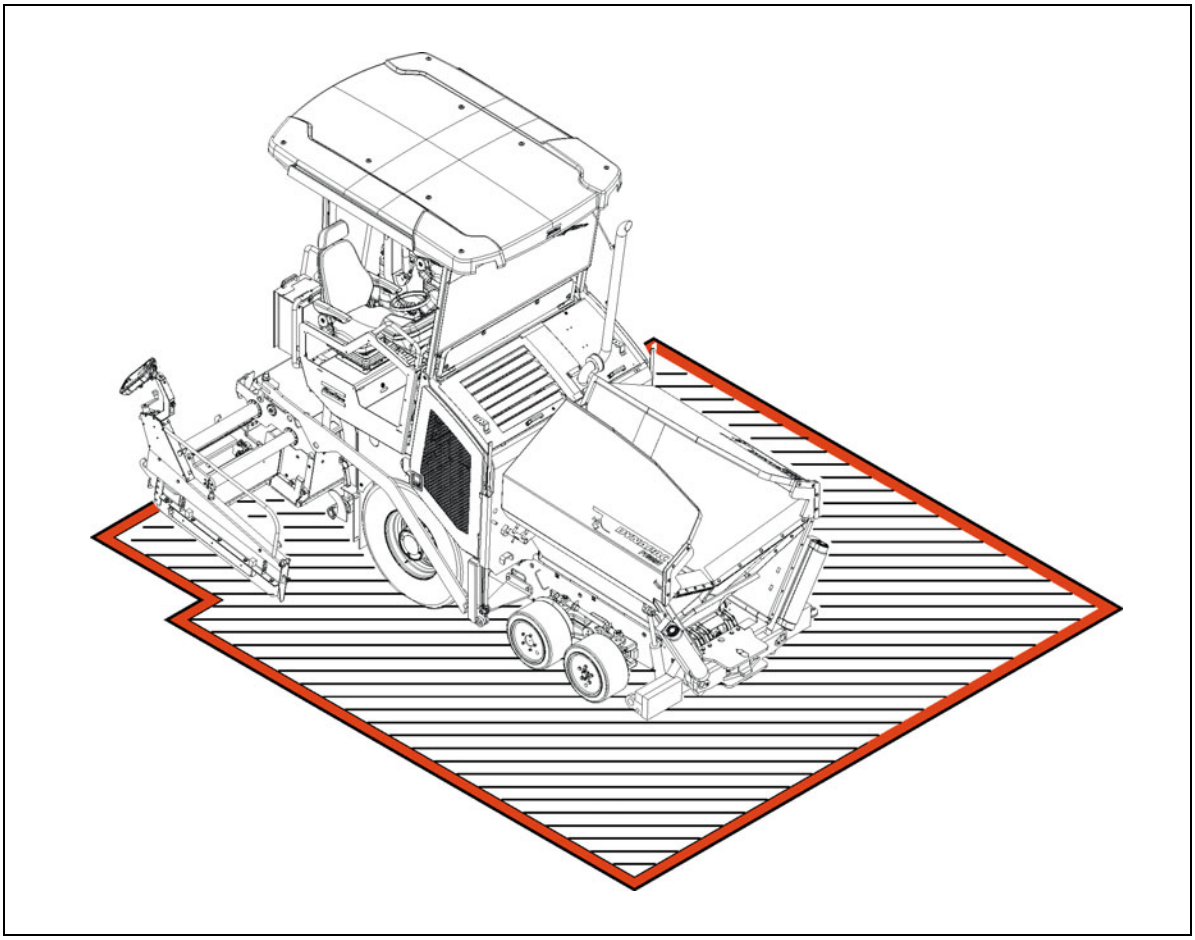
Crossbeams / screed lifting device: The screed lifting device is used to lift the screed for the paving conditions and during transportation.
This takes place by hydraulic means by actuating a hydraulic cylinder.
The crossbeams have a multi-stage rapid adjustment for the positioning angle

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

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

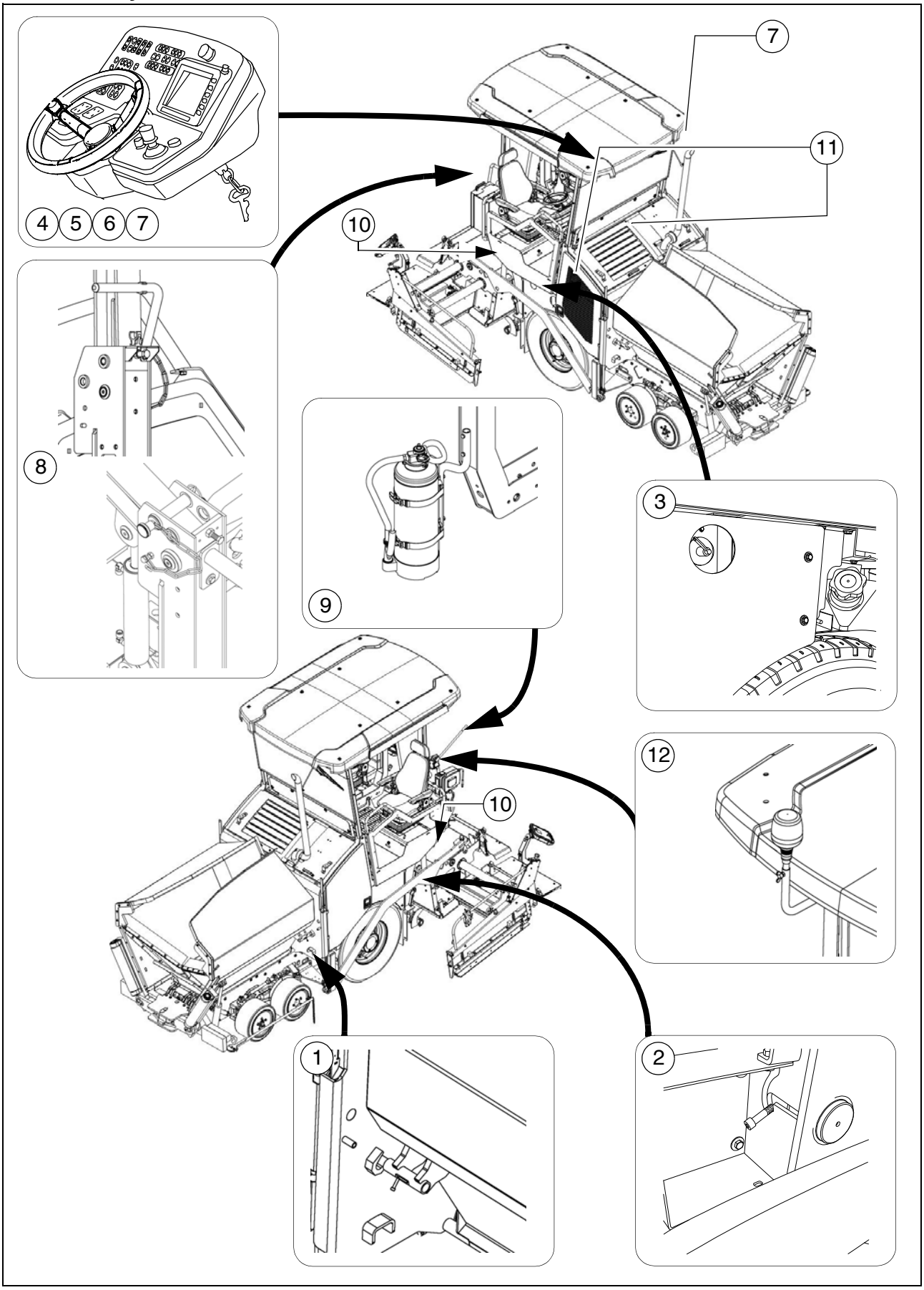
Central lubrication system (○): The central lubrication pump fitted with a large lubricant tank supplies grease to the various lubrication circuits through various flow dividers. They supply lubricant to the service-sensitive points of lubrication (e.g. bearings) at adjustable intervals.

3 Danger zones



⚠ WARNING	**Danger for persons in the danger zone**
	Persons in the danger zone can suffer severe or fatal injuries from movements and functions of the vehicle! - Remaining in the vehicle's danger zone during operation is prohibited! - During operation, only the vehicle operator and the screed personnel are allowed on the vehicle or in the danger zone. The vehicle operator and screed personnel must keep to the respective driver's seats. - Make sure that there is no-one in the danger zone before switching the vehicle on or starting it moving. - The vehicle operator must ensure that no-one is in the danger zone. - Sound the horn before driving away. - Comply with all further information in these instructions and in the safety manual.

4 Safety devices



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

** Located on both sides of the vehicle

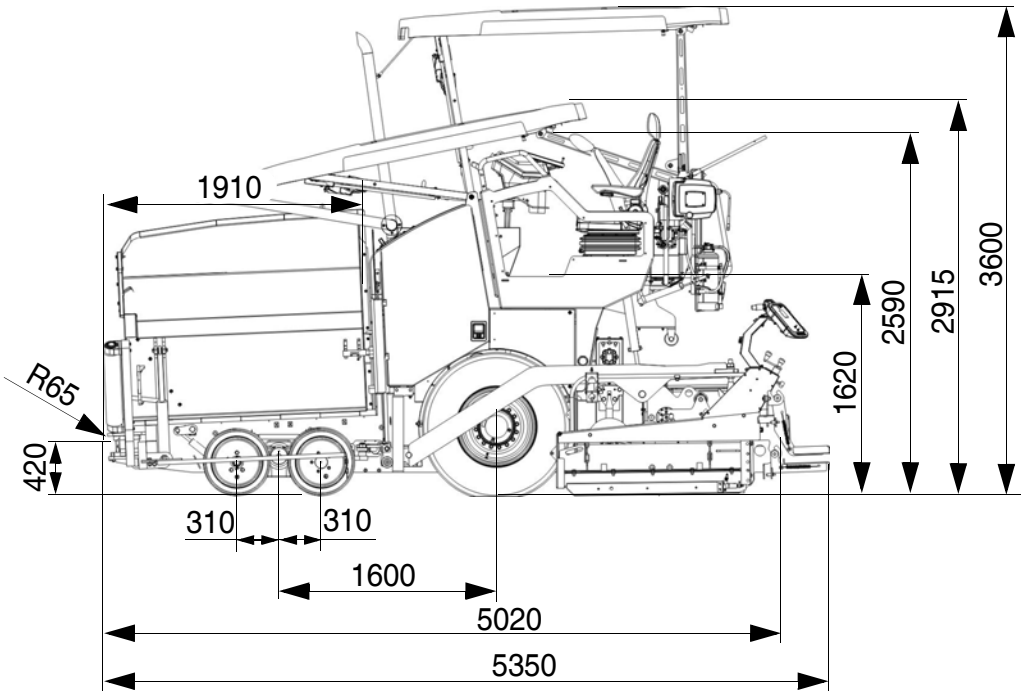
⚠ Safe operation is only possible when all operating and control elements are functioning correctly and when all safety devices are in position.

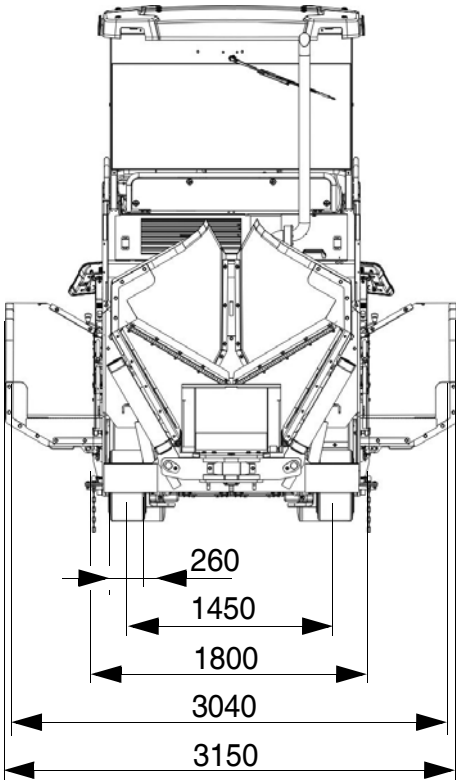
⚠ Check the function of these devices at regular intervals.

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

5 Technical data, standard configuration

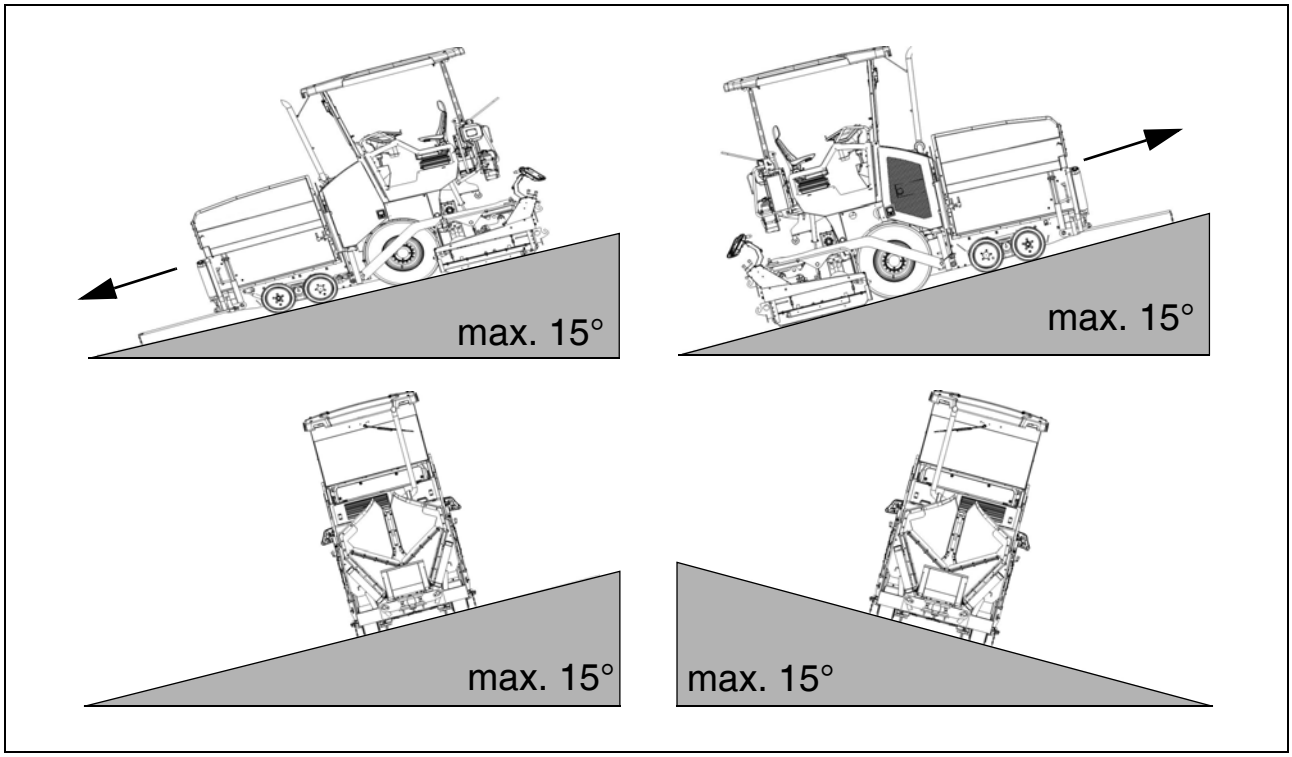
5.1 Dimensions (all dimensions in mm)





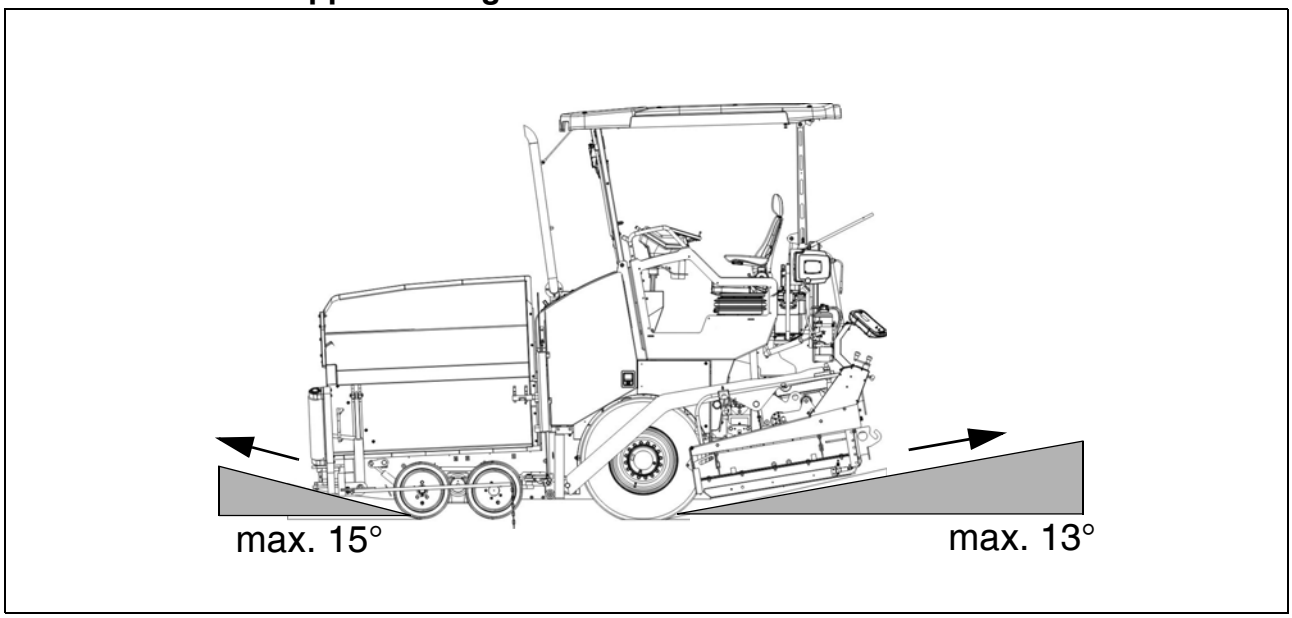
☞ For screed technical data, refer to the screed operating instructions.

5.2 Allowed angle of rise and slope



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

5.3 Permissible approach angle



5.4 Turning circle

Internal turning cycle	5.0 m
External turning cycle	10.0 m

5.5 **Weights** (all weights in t)

Paver finisher without screed	approx. 8.7
Paver finisher with screed: - V3500	approx. 10.3
With extension parts for max. working width, additionally max.:	approx. 0.52
With filled hopper additionally max.	approx. 10.5

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

5.6 Capacity data

Screed used	Basic width (without cut-off shoes)	minimum paving width (with cut-off shoe)	fully variable hydr. adjustment up to	maximum paving widths (with extension parts)	
V3500TV	1.75	0.7	3.50	4.1	m

Transport speed	0 - 15	km/h
Transport speed - reversing	0 - 4.8	km/h
Operating speed	0 - 25	m/min
Paving height	-120 - 200	mm
Max. grain size	30	mm
Theoretical paving performance	350	t/h

5.7 Travel drive/traction unit

Drive	Hydrostatic drive with pump and motor, continuously adjustable
Transmission	Planetary gear
Speeds	(see above)
Drive wheels	2 x 385/65R22,5 (pneumatic tyres)
Steered wheels	4 x 492/260-378 (elastic solid rubber tyres)
Front-wheel drive	2- wheel hub hydraulic motor, variable drive performance, anti-spin control
Brakes	Travel drive brake, hydraulic parking brake

5.8 Engine EU 3A / Tier 3 (○)

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

5.9 Engine EU 4 / Tier 4f (○)

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

5.10 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)

5.11 Material compartment (hopper)

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

5.12 Material transfer

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

5.13 Material distribution

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

5.14 Screed lifting device

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

5.15 Electrical system

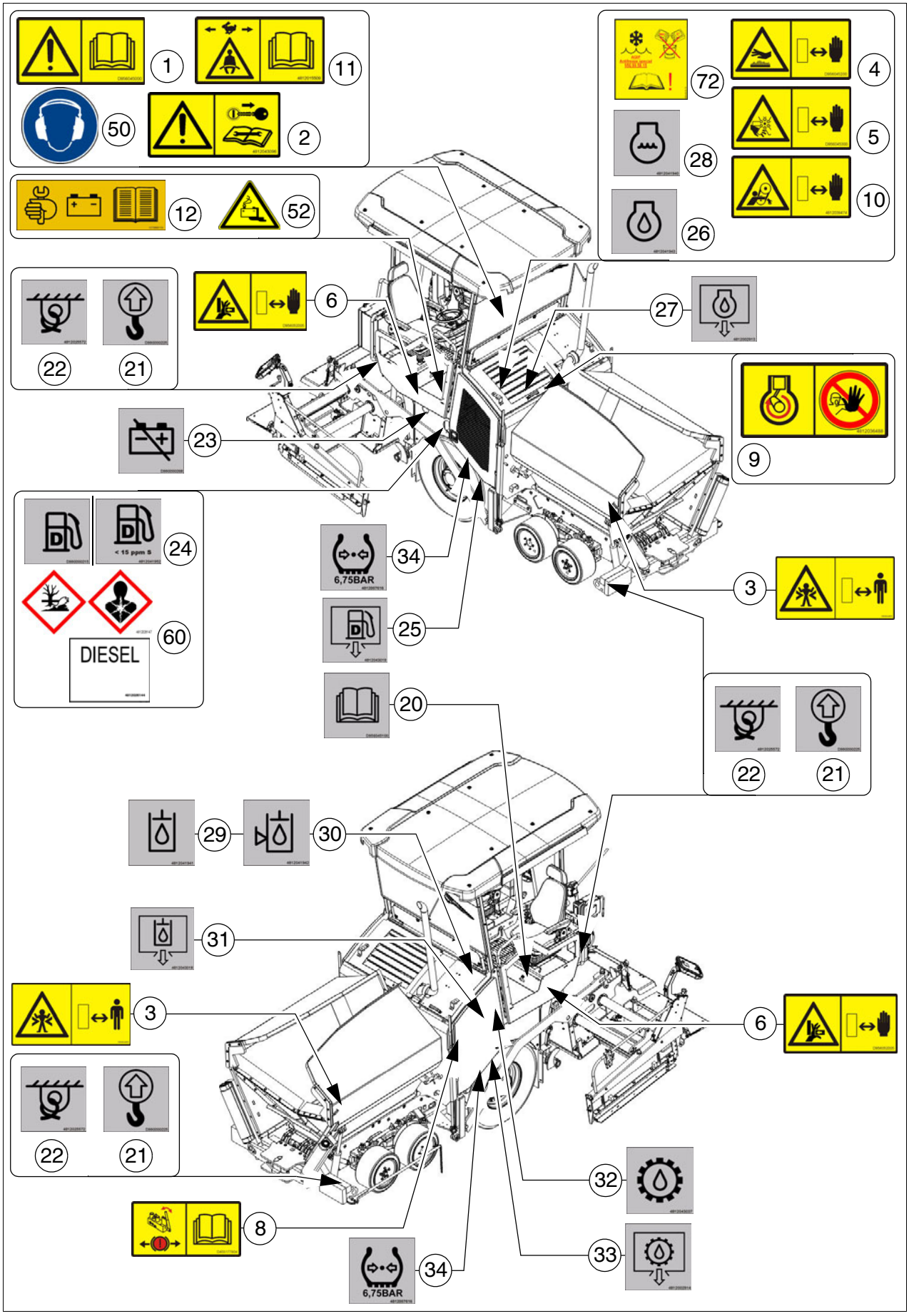
On-board voltage	24 V
Batteries	2 x 12 V, 74Ah
Alternator (○)	12.5 kVA / 400V

5.16 Permissible temperature ranges

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

6 Identification points

CAUTION	**Danger due to missing or misunderstood vehicle signs**
	Missing or misunderstood vehicle signs pose a danger of injuries! - Never remove any warnings or information signs from the vehicle. - Damaged or lost warning or information signs must be replaced immediately. - Make yourself familiar with the meaning and position of the warning and information signs. - Comply with all further information in these instructions and in the safety manual.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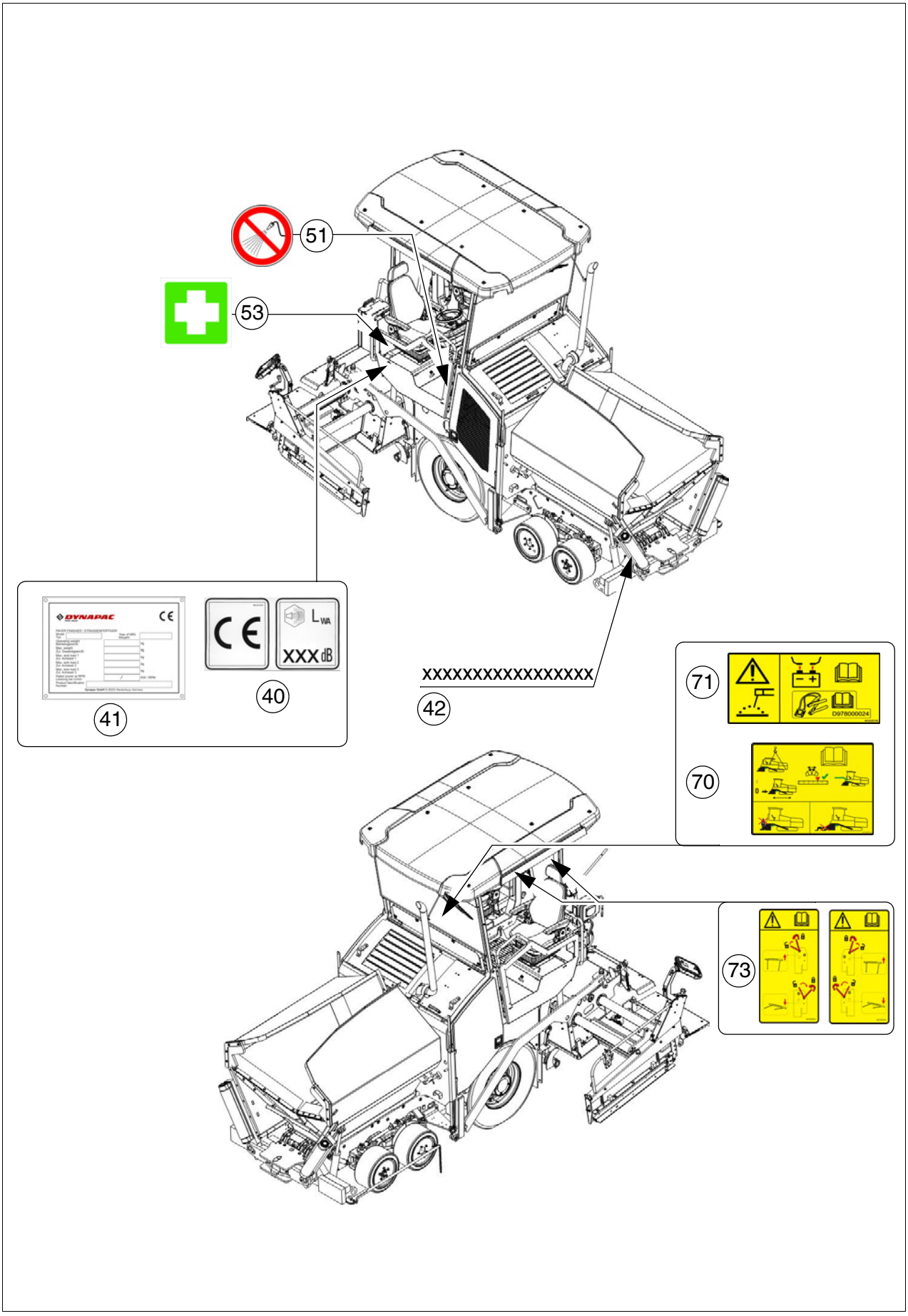
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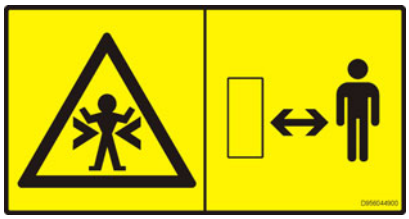
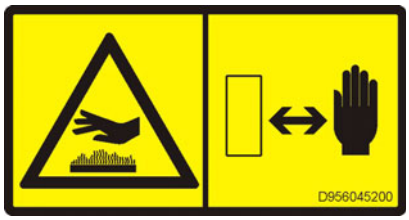
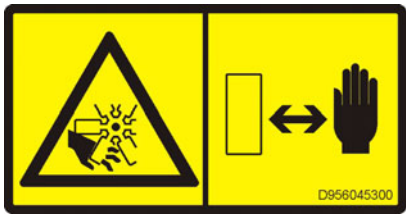
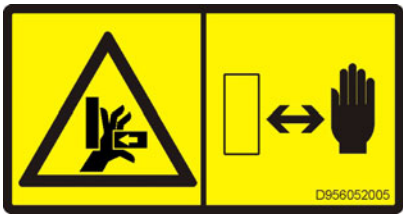
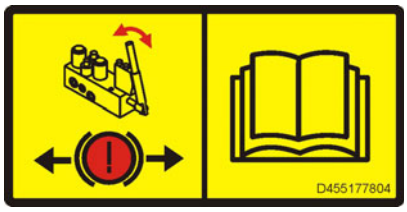
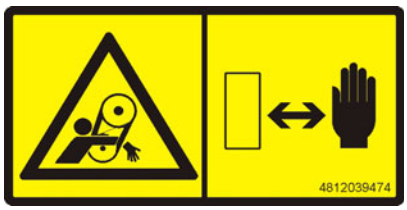
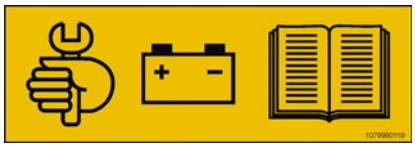
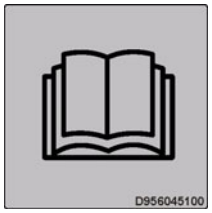
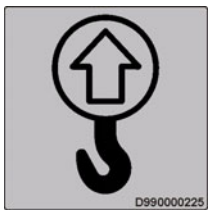
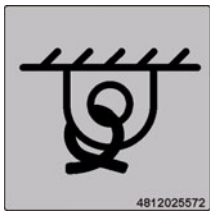
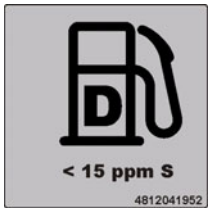
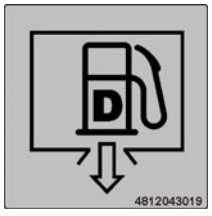
6.1 Warning signs

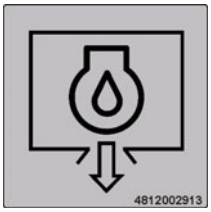
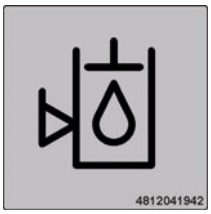
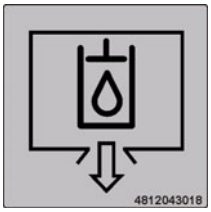
No.	Pictogram	Meaning
1		- **Warning - operating instructions!** Danger due to improper operation. The vehicle personnel must have read and understood the safety, operating and maintenance instructions for the vehicle before the vehicle is put into operation! Failure to comply with the operating and warning instructions can cause severe or fatal injuries. Always replace lost operating instructions immediately! It is your personal responsibility to take due care and attention!
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 - risk of burning!** Hot surfaces can cause severe injuries! Keep your hands a safe distance away 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 a safe distance away from the danger area!

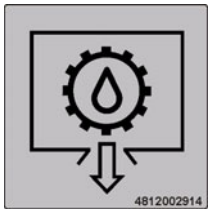
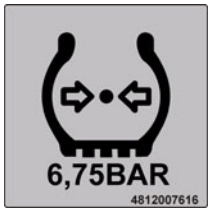
No.	Pictogram	Meaning
6		- **Warning - danger of crushing fingers and hands due to moving, accessible vehicle parts!** Crushing points can cause severe injuries with the loss of parts of the fingers or hand. Keep your hands a safe distance away from the danger area!
8		- **Caution - danger due to incorrect towing!** Vehicle movements can cause severe or fatal injuries. The traction system brake must be released before towing. Always observe the operating instructions!
9		- **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!
10		- **Warning - danger of being pulled in by the belt drive!** Being pulled in by the belt drive can cause severe injuries to the hands and arms. Keep your hands a safe distance away from the danger area!
11		- **Warning - danger from improper transportation!** Always sit down with the seatbelt fastened to drive the vehicle forwards/in reverse at transport speed! Driving the vehicle when standing up / without the seatbelt fastened can cause severe or fatal injuries. Always observe the operating instructions!

No.	Pictogram	Meaning
12		- **Maintenance for the starter batteries!** Maintenance work has to be carried out to the starter batteries! Comply with the maintenance instructions!

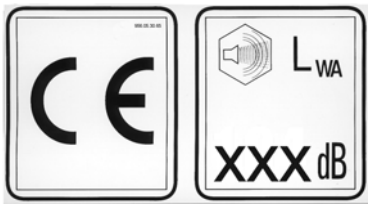
6.2 Information signs

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, off, 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 oil drainage point** Position of the drainage point.
28		- **Engine coolant** Position of the filling and control point.
29		- **Hydraulic oil** Position of the filling point.
30		- **Hydraulic oil level** Position of the control point.
31		- **Hydraulic oil drainage point** Position of the drainage point.
32		- **Gear oil** Position of the filling and control point.

No.	Pictogram	Meaning
33		- **Gear oil drainage point** Position of the drainage point.
34		- **Tyre air pressure** Required tyre pressure.

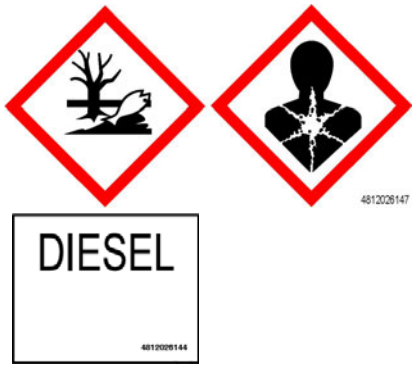
6.3 CE marking

No.	Pictogram	Meaning
40		- CE, sound output level

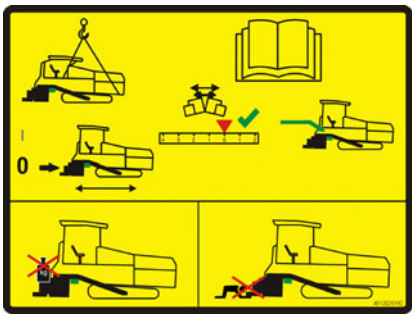
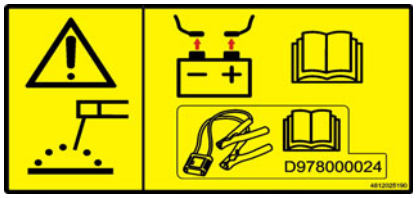
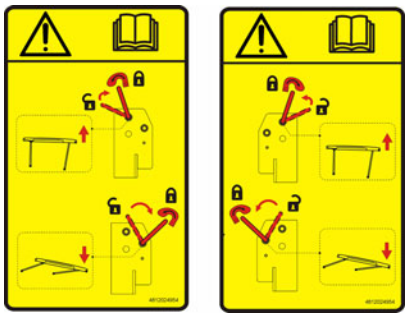
6.4 Instructive symbols, prohibitive symbols, warning symbols

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

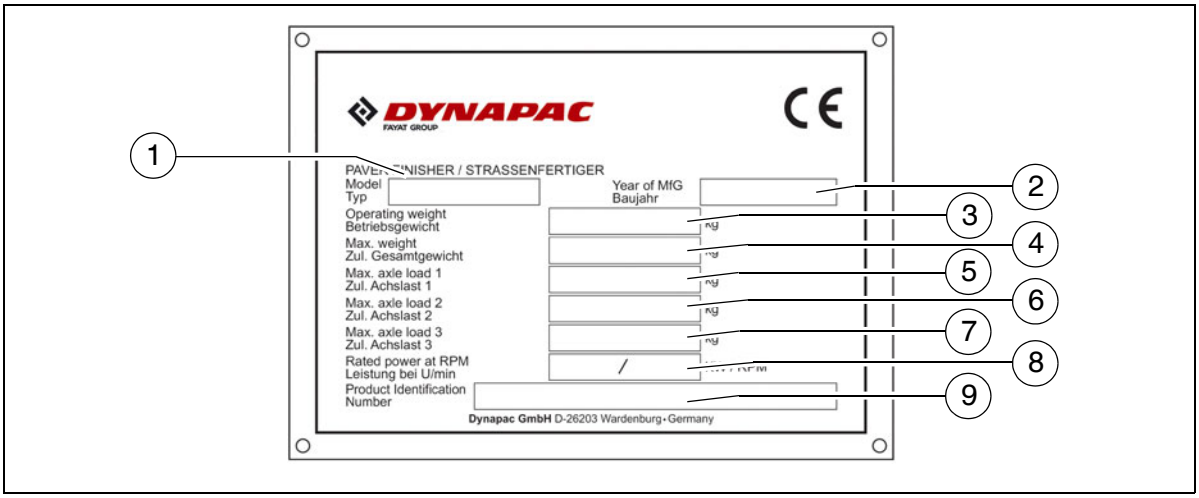
6.5 Danger symbols

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 inflammation. 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 crossbeam lock only at crown adjustment "zero". Cross-beam lock only for transportation! Do not charge the screed or work under it if it is only secured by the crossbeam lock!
71		- **Important - danger of high voltage in vehicle electrical system!** Disconnect batteries and electronics dur-ing welding work or when charging the batteries, or use a service watchdog D978000024 in accordance with the cor-responding instruction manual.
72		- **Important!** Only use approved radiator anti-freeze. Never mix different grades of radiator anti-freeze. Always observe the operating instructions!
73 ○		- **Caution - danger from faulty roof lock!** The roof must be locked correctly in the top or bottom position! Always observe the operating instructions!

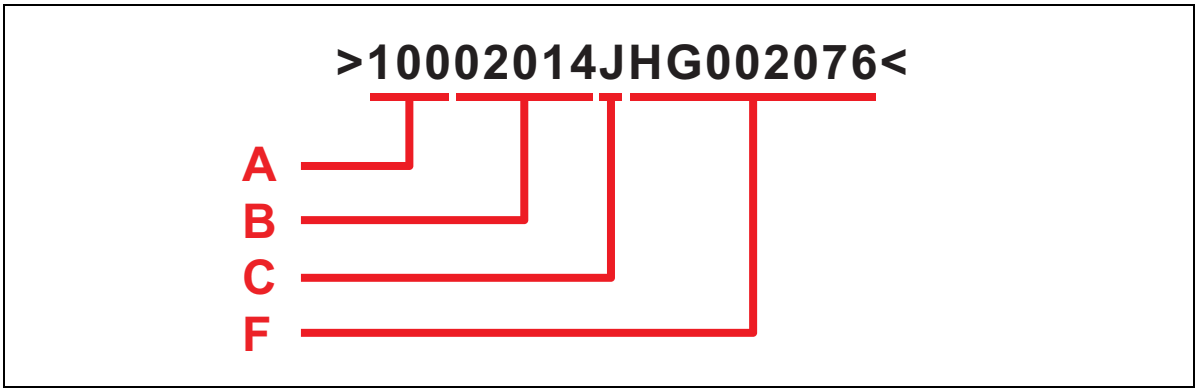
6.7 Identification label for the paver finisher (41)



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	Maximum permissible axle load of the trailer axle in kg (○)
8	Rated performance in kW
9	Product identification number (PIN)

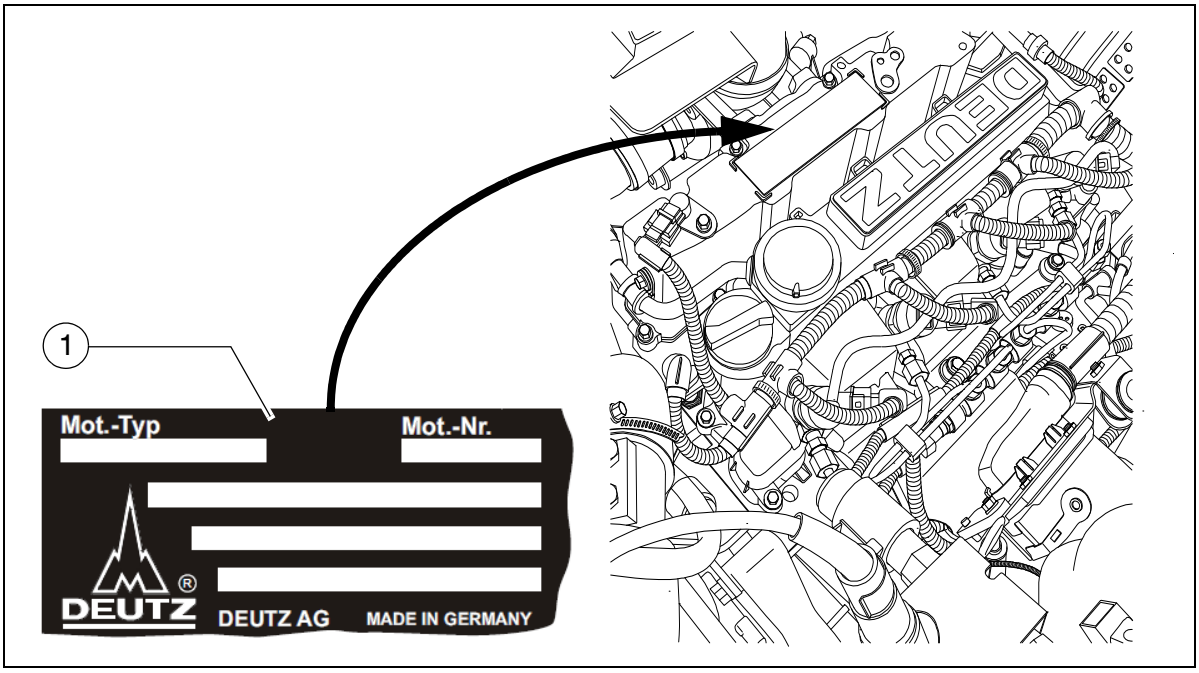
☞ The punched vehicle identification number (VIN) on the paver finisher must match the product identification number (9).

6.8 Explanation of 17PIN serial number



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

6.9 Engine type plate



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

☞ See also operating instructions for the engine.

7 EN standards

7.1 Continuous sound pressure level SD1800W

⚠ 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} = XX.X dB(A)

Sound capacity level: L_{WA} = XXX.XdB(A)

Sound pressure level at the vehicle

Measuring point	2	4	6	8	10	12
Sound pressure level L_{AFeq} (dB(A))	XXX	XXX	XXX	XXX	XXX	XXX

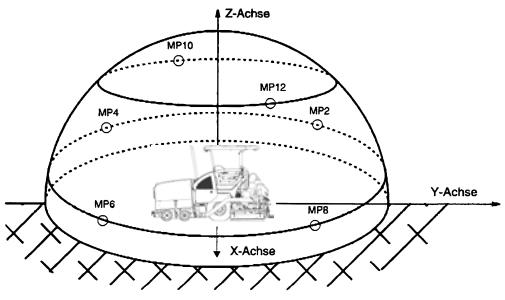
7.2 Operating conditions during measurement

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

7.3 Measuring point configuration

Hemispherical measuring surface with a radius of 16 m. The machine 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 Vibration acting on the entire body

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

7.5 Vibrations acting on hands and arms

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

7.6 Electromagnetic compatibility (EMC)

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

- Interference emission according to DIN EN 13309:
  < 35 dB µV/m for frequencies of 30 MHz - 1GHz 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 (ESD) according to DIN EN 13309:
  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 has been obtained from the manufacturer.

C 13.18 Transportation

1 Safety regulations for transportation

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

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

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

Pack all parts that are not permanently fixed to the paver finisher and the screed into the appropriate boxes and into the hopper.
Close all coverings and check that they are securely seated.

In Germany, gas bottles must not be transported on the paver finisher or on the screed.
Disconnect the gas bottles from the gas system and protect them with their caps. Use a separate vehicle to transport them.

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

Additional stipulations for transportation on public roads:

⚠ Comply with the local road traffic regulations!

⚠ On the screed, remove the floorboards and place them in the hopper.
Hinged side shields must be swivelled behind the screed and secured correctly.

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

The driver's seat must be on the same side as the service brake.
The driving lights must be properly adjusted.

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

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

2 Transportation on low-bed trailers

⚠ Reduce the paver finisher and the screed to their basic widths; also remove any attached side plates.
The maximum approach angle is indicated in the section entitled "Technical data"!

⚠ Check the fill level of the operating substances so that these do not escape when driving on an incline.

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

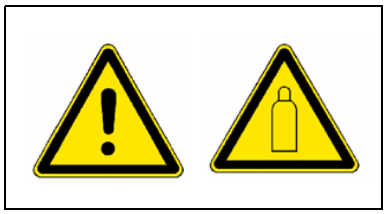
⚠ The weight of the paver finisher must be taken into consideration when selecting the attachment and loading equipment!

2.1 Preparations

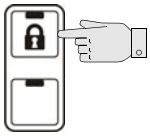
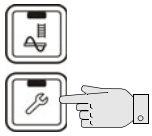
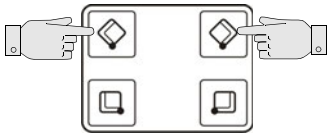
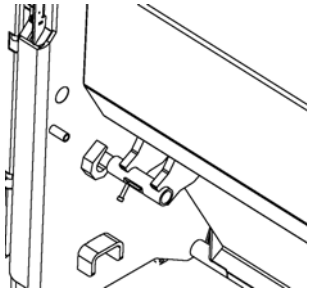
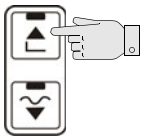
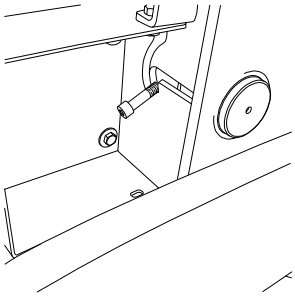
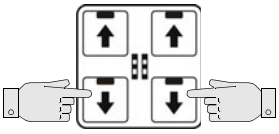
- Prepare the paver finisher for transportation (see chapter D).
- Remove all overlaying or loose parts from finisher and screed (see also Screed operating instructions). Store these parts in a safe place.

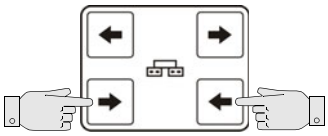
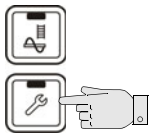
⚠ Move the auger to the uppermost position to avoid collisions!

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



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

Operation	Buttons
- Deactivating the function lock	
- Activate set-up mode.	
- Close the hopper lids.	
- Engage both hopper transport safeguards.	
- Lift the screed.	
- Insert the transportation safeguards of the screed.	
- Fully extend the levelling cylinder.	

Operation	Buttons
- Retract the screed parts until the screed matches the basic width of the paver finisher.	
- Deactivate set-up mode.	
	

3 Securing the load

☞ The following instructions for securing the load on the low-bed trailer consist merely in examples of how to secure the load correctly.

☞ Always comply with the local regulations for securing the load and for correct use of load securing equipment.

☞ Normal driving mode also includes emergency braking, evasive manoeuvres and poor road surfaces.

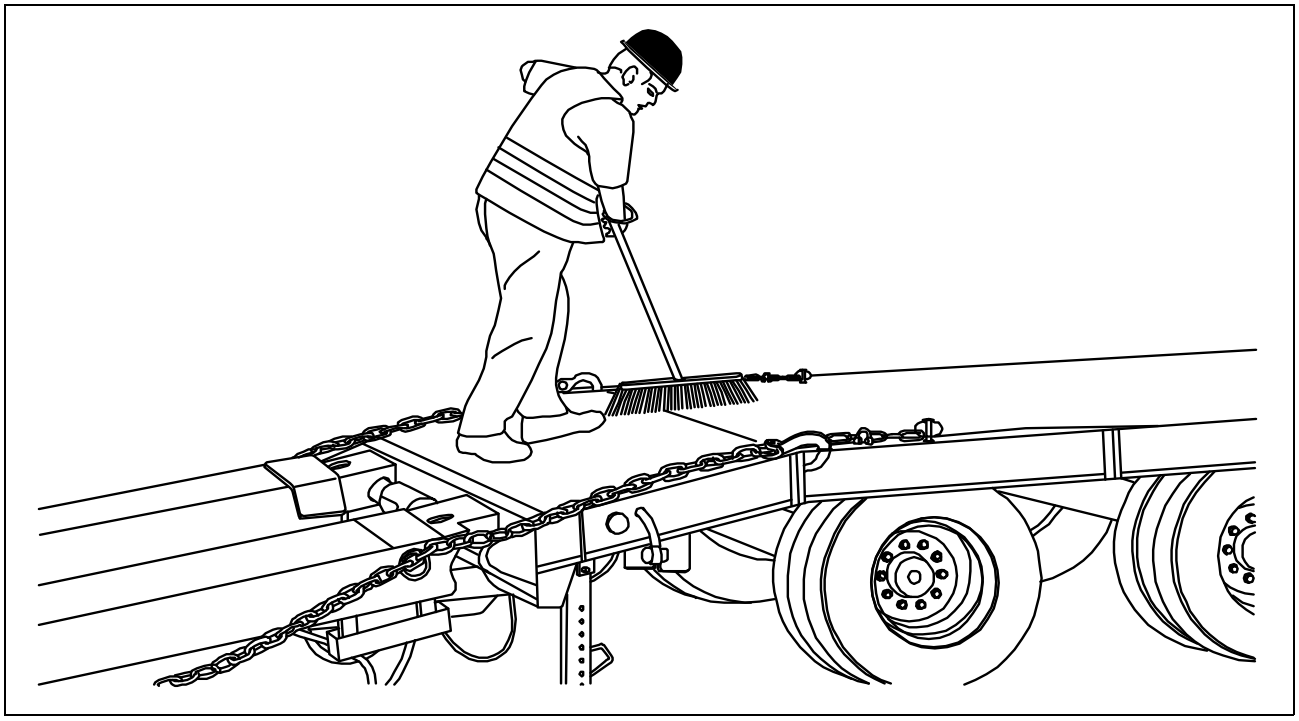
☞ Use should be made of the different methods available for securing loads (positive fit, force connection, diagonal lashing, etc.) in accordance with the specific transport vehicle.

⚠ The low-loader must have the necessary number of lashing points with a lashing strength of LC 4,000 daN.

⚠ The total height and total width must not exceed the maximum permissible dimensions.

⚠ The ends of lashing chains and straps must be secured to prevent them working loose and falling down unintentionally!

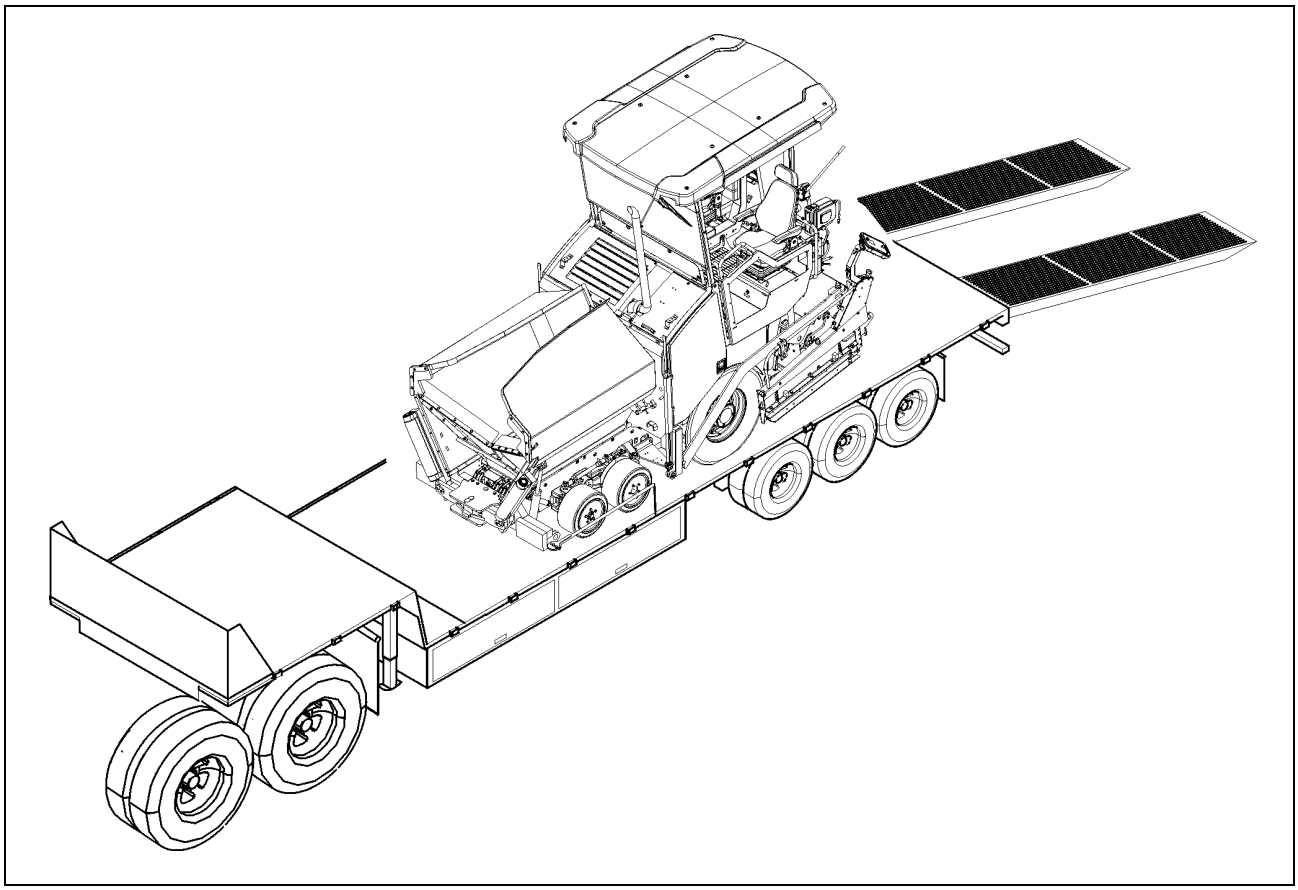
3.1 Prepare the low loader



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

3.2 Driving onto the low-bed trailer

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



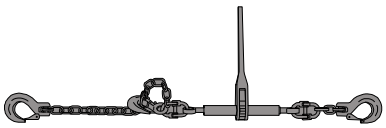
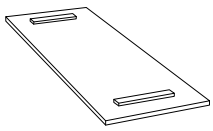
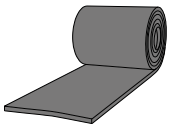
- Use the work gear and low engine speeds to drive onto the low-bed trailer.

3.3 Lashing equipment

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

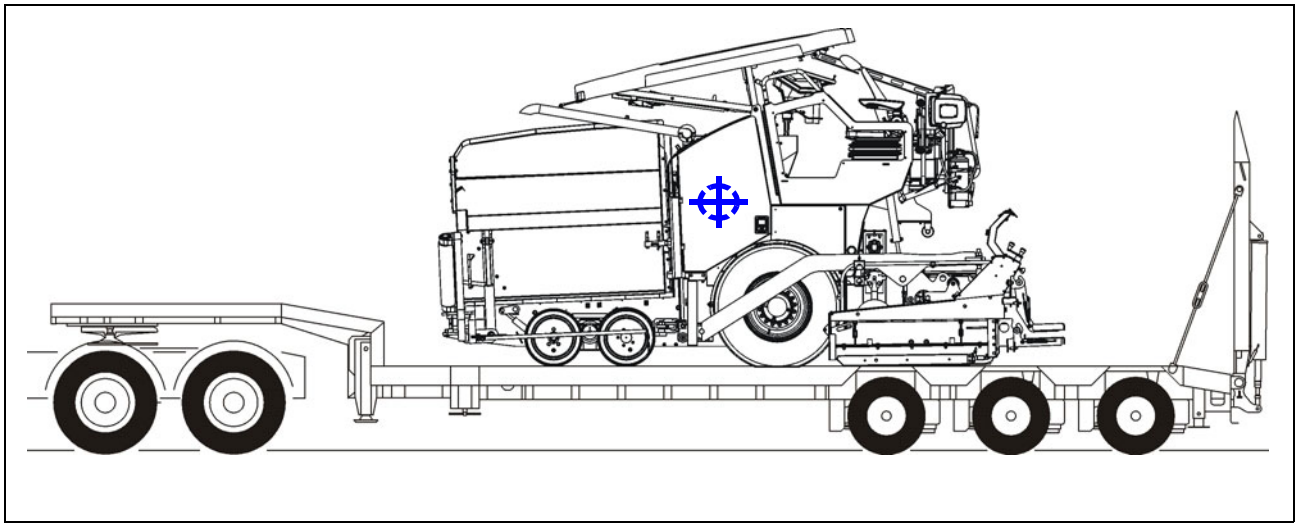
⚠ Always comply with the stated values for permitted lashing force and load rating!

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

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

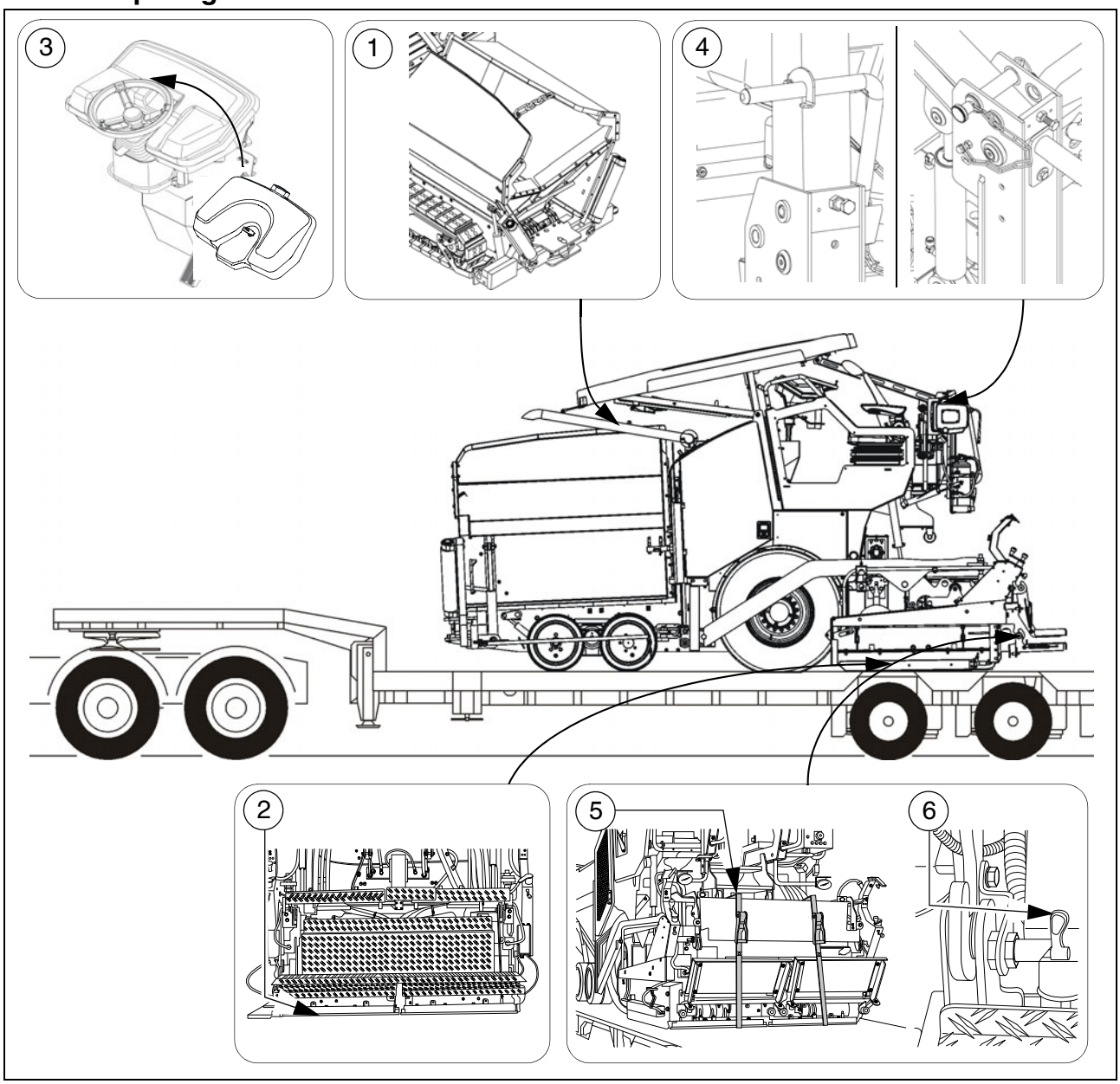
⚠ Lashing equipment must be checked by the user for any signs of damage before use. On detecting any signs of damage that affect safety, the lashing equipment must be withdrawn from further use.

3.4 Loading



⚠ Pay attention to load distribution during loading!
On some vehicles, the kingpin load is too low so that the load has to be positioned further to the back of the vehicle.
Always heed the details regarding load distribution stipulated for the vehicle together with the centre of gravity of the paver finisher.
If the paver finisher has to be placed in the front section of the low-bed trailer for load distribution reasons or on account of the length of the paver finisher, ensure that it stands freely.

3.5 Preparing the vehicle



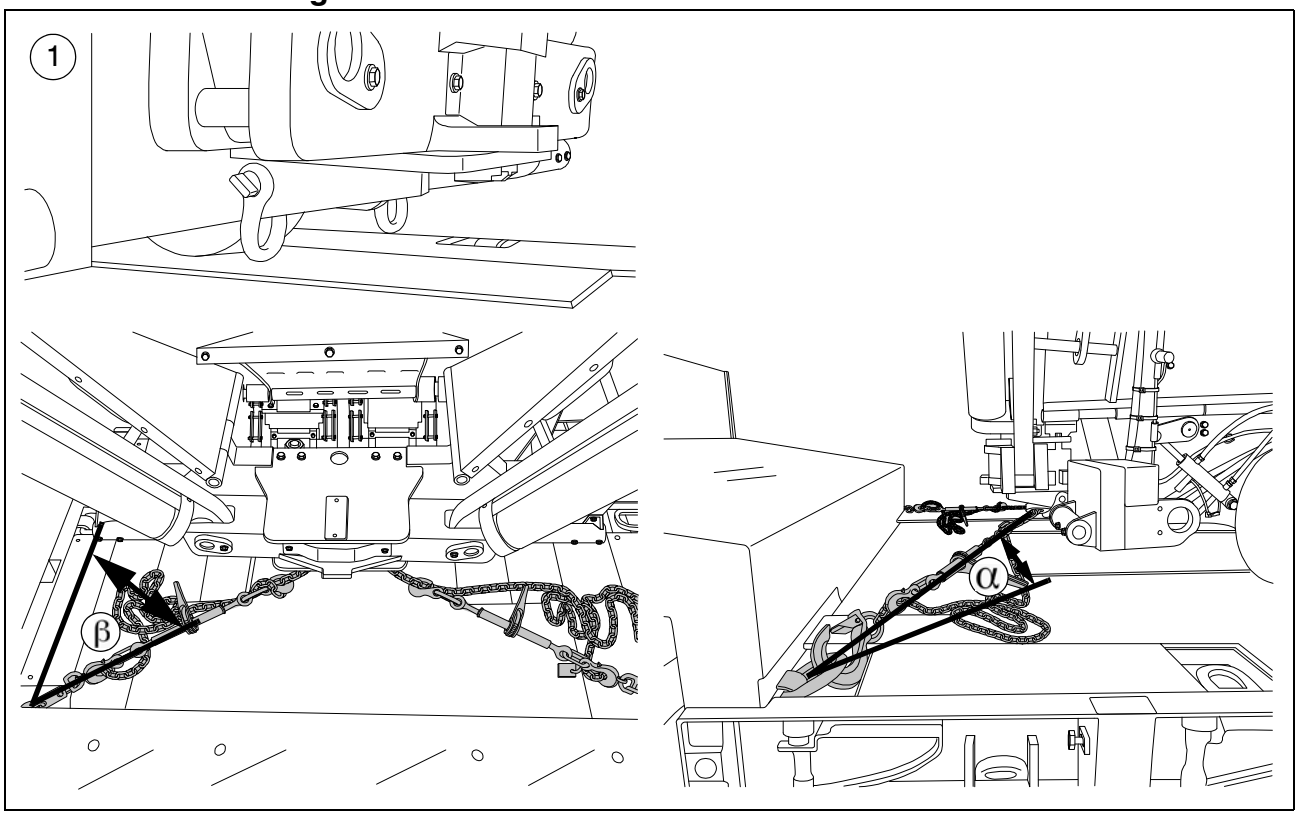
After the vehicle has been positioned on the low-loader, the following preparations must be carried out:

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

4 Securing the load

4.1 Securing at the front

Fasten lashing chains at the front



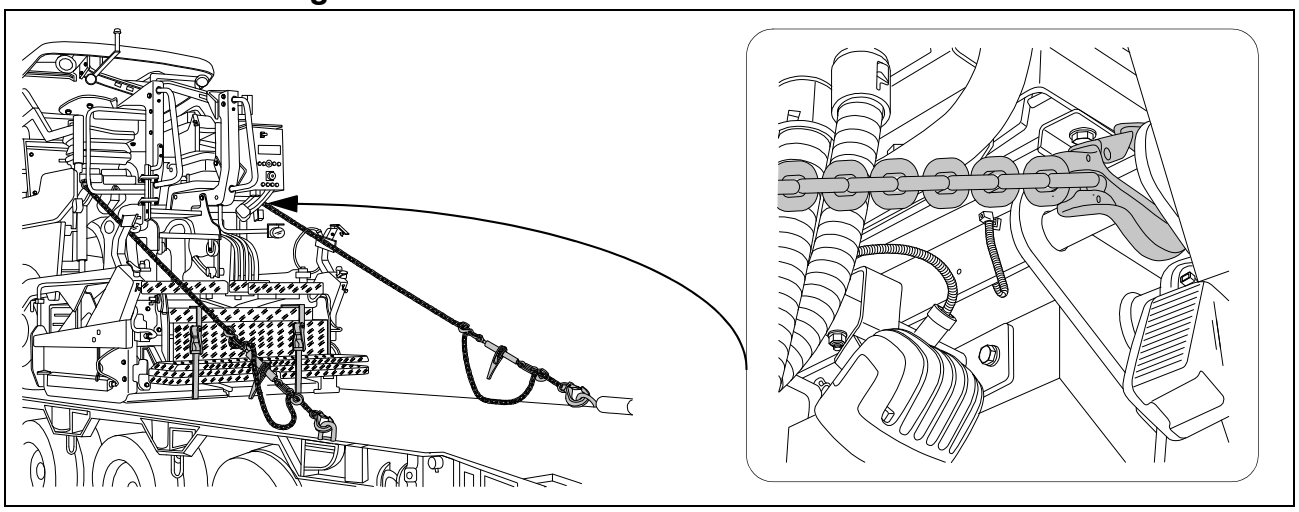
⚠ Diagonal lashing secures the paver finisher at the front using the lashing points on the paver finisher and on the low-load trailer.
Fasten the lashing chains as shown.

⚠ Shackles have to be used: To ensure that lashing chains can be fitted securely on the left and on the right, a shackle has to be fitted at each of the lashing points (1) provided on the paver finisher for the lashing equipment

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

4.2 Securing at the rear

Fasten lashing chains



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

☞ Permissible angles see "Securing at the front".

4.3 After transportation

- Remove the attachment devices.
- Raise protective roof:

☞ See section entitled "Protective roof"

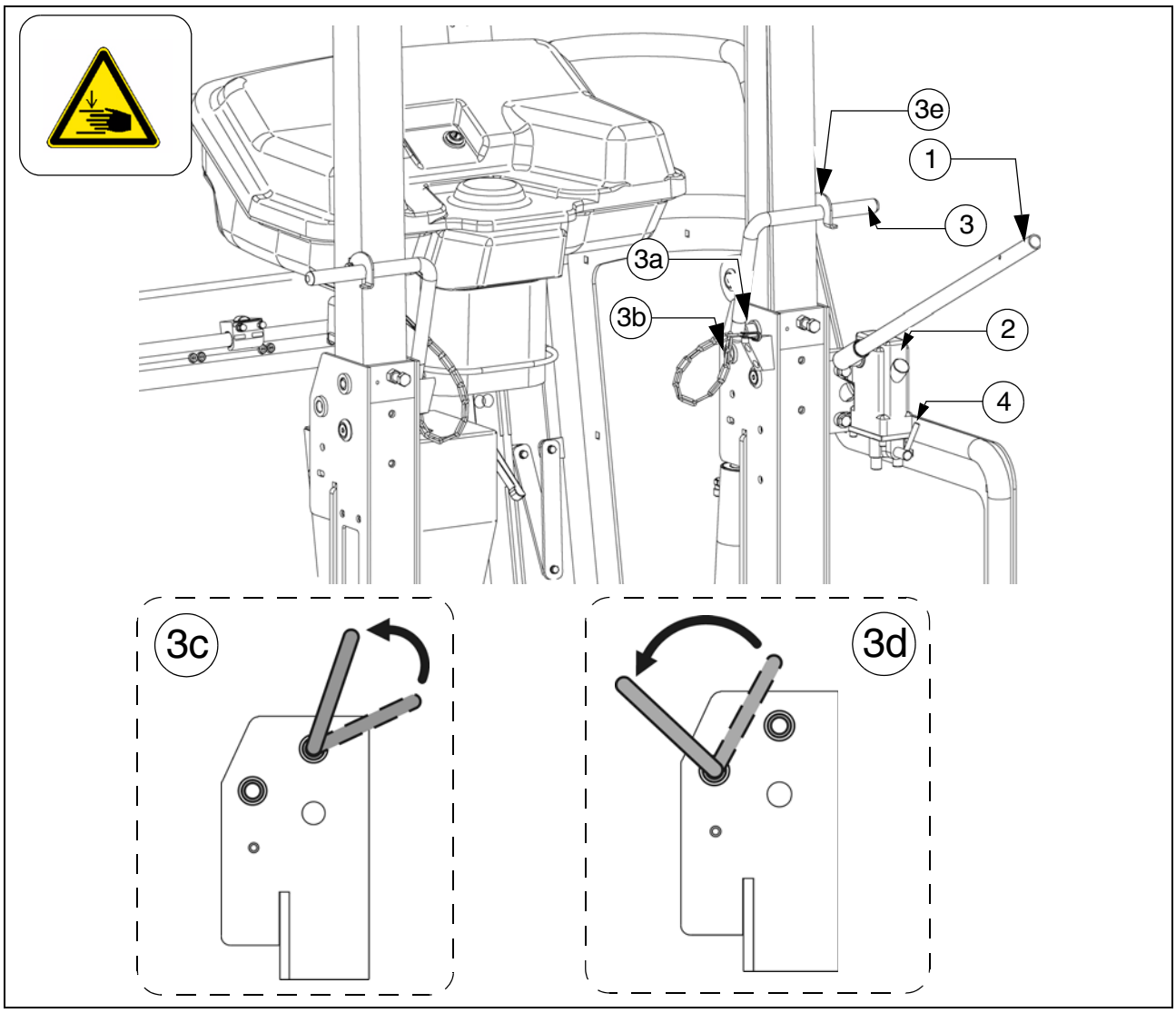
- Start engine.
- Lift the screed to the transportation position.
- Drive from the trailer at a low engine revs/speed.
- Park the paver finisher in a secure spot, lower the screed and switch off the engine.
- Remove the key and/or cover the operating panel with the protective hood and secure it.

Protective roof (○)

NOTE	Caution! Possible collision of parts
	The following adjustments must be made before lowering the roof: - Both seat consoles pushed in. - Backrests and armrests of driver's seats tilted forwards. - Operating panel in lowest position and locked with the vandalism protection facility. - Front window closed. - Engine hood closed.

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

Version 1:



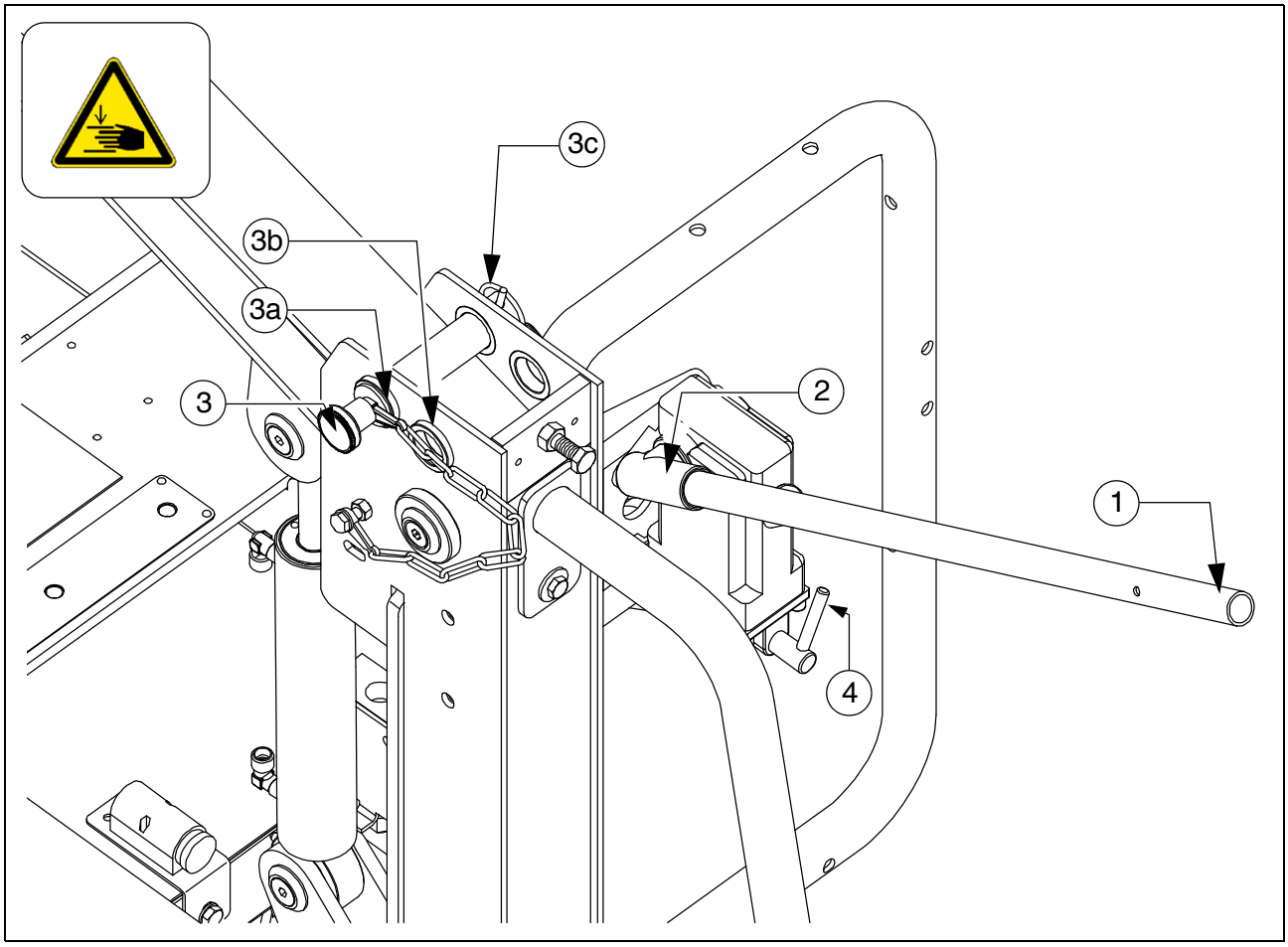
☞ The exhaust pipe is lowered or raised together with the roof.

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

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

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

Version 2:



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

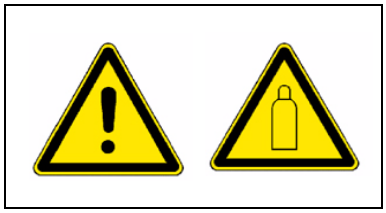
5 Transportation

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

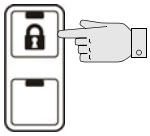
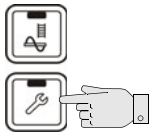
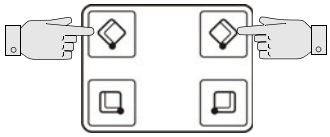
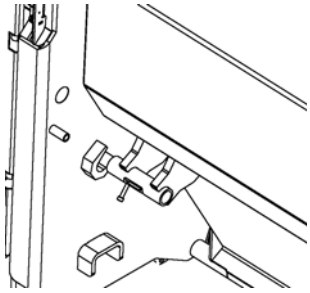
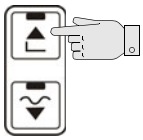
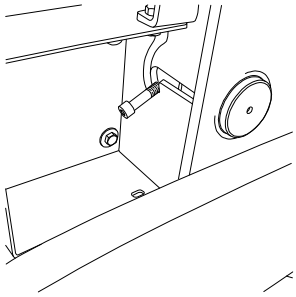
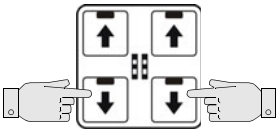
5.1 Preparations

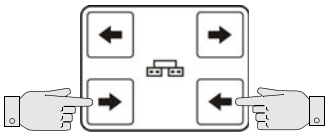
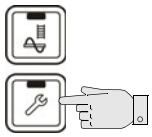
- Prepare the paver finisher for transportation (see chapter D).
- Remove all overlaying or loose parts from finisher and screed (see also Screed operating instructions). Store these parts in a safe place.

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

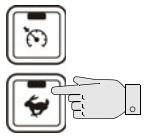
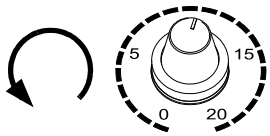
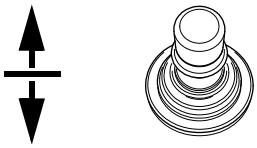
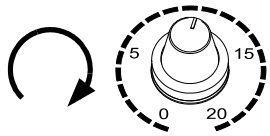
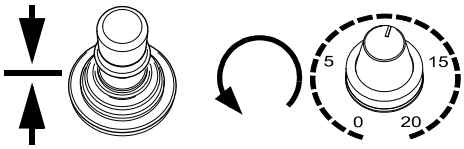


- Remove the gas bottles for the screed heating system:
  - Close main shut-off valves and bottle valves.
  - Turn off the valves on the bottles and remove the gas bottles from the holder.
  - Transport the gas bottles on a second vehicle; heed all applicable safety regulations.

Operation	Buttons
- Deactivating the function lock	
- Activate set-up mode.	
- Close the hopper lids.	
- Engage both hopper transport safeguards.	
- Lift the screed.	
- Insert the transportation safeguards of the screed.	
- Fully extend the levelling cylinder.	

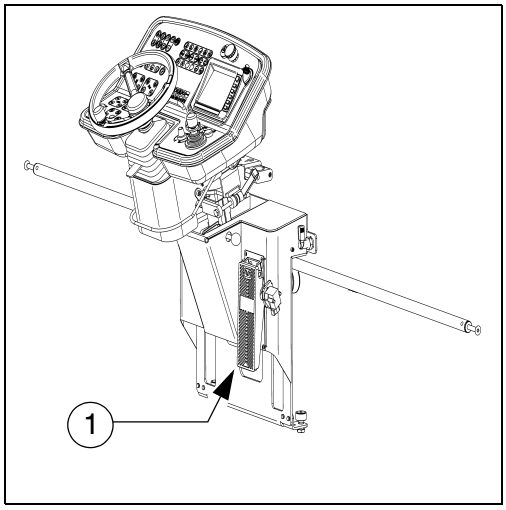
Operation	Buttons
- Retract the screed parts until the screed matches the basic width of the paver finisher.	
- Deactivate set-up mode.	
	

5.2 Driving mode

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

STOP Use the service brake (1) to brake the vehicle!



6 Loading by crane

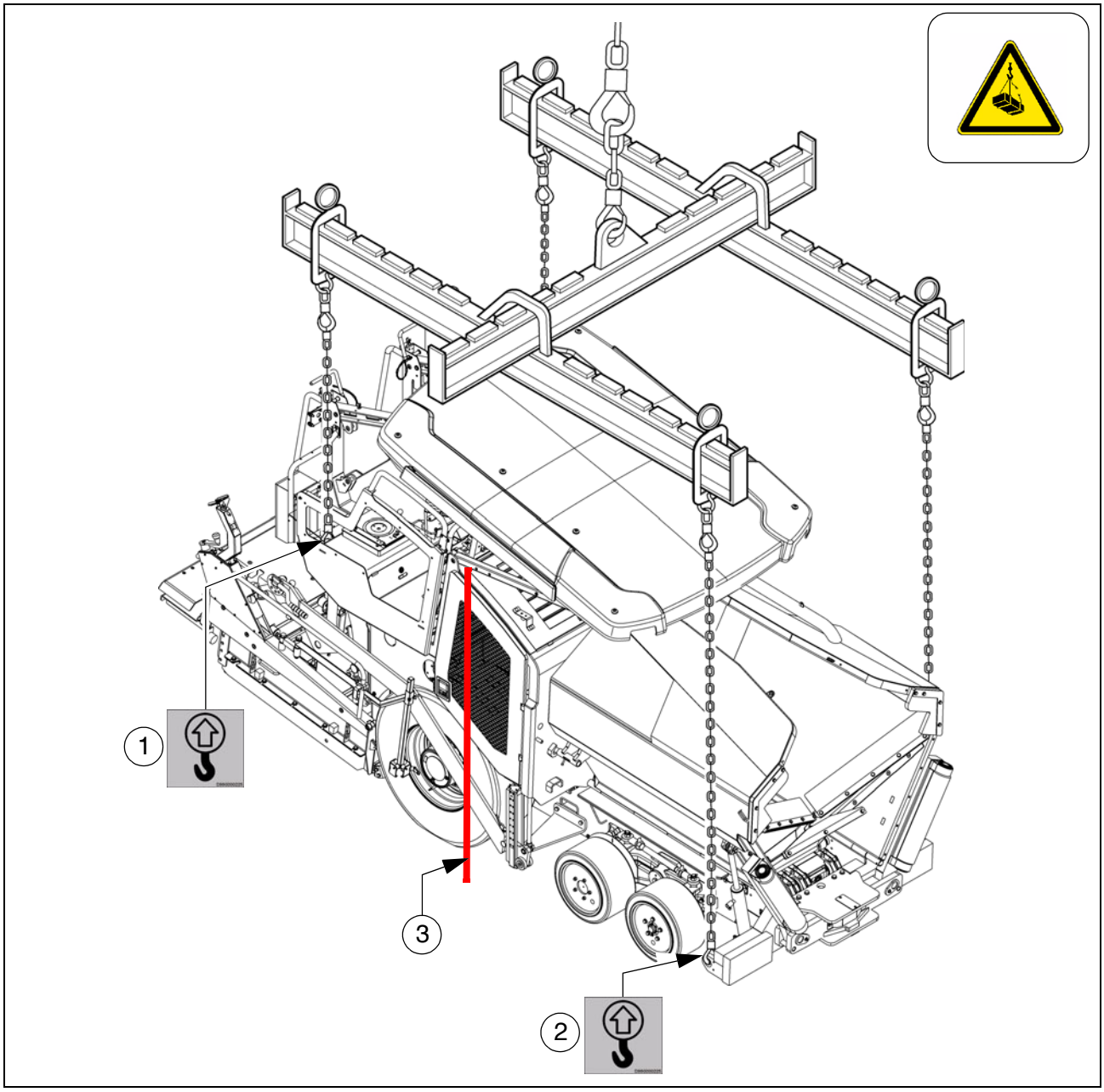
⚠ WARNING	**Danger from suspended loads**
	Crane and/or lifted vehicle can tip when lifted and cause injuries! - The vehicle may only be raised at the marked lifting points. - Heed the operating weight of the vehicle. - Do not enter the danger zone. - Use only lifting gear that can bear the load. - Do not leave any load or loose parts on the vehicle. - Comply with all further information in these instructions and in the safety manual.

⚠ 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 the area of the front edge (3) of the rear wheel.

- Secure vehicle wherever it is parked up.
- Engage the transport safeguards.
- Remove any attachments and extension parts from the paver finisher and the screed until the basic width has been attained.
- Take off all protruding or loose parts and the gas bottles of the screed heater (see chapters E and D).
- Lower the protective roof:

☞ See section entitled "Protective roof"

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

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

⚠ The permissible load applies in the vertical direction!

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

7 Towing

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

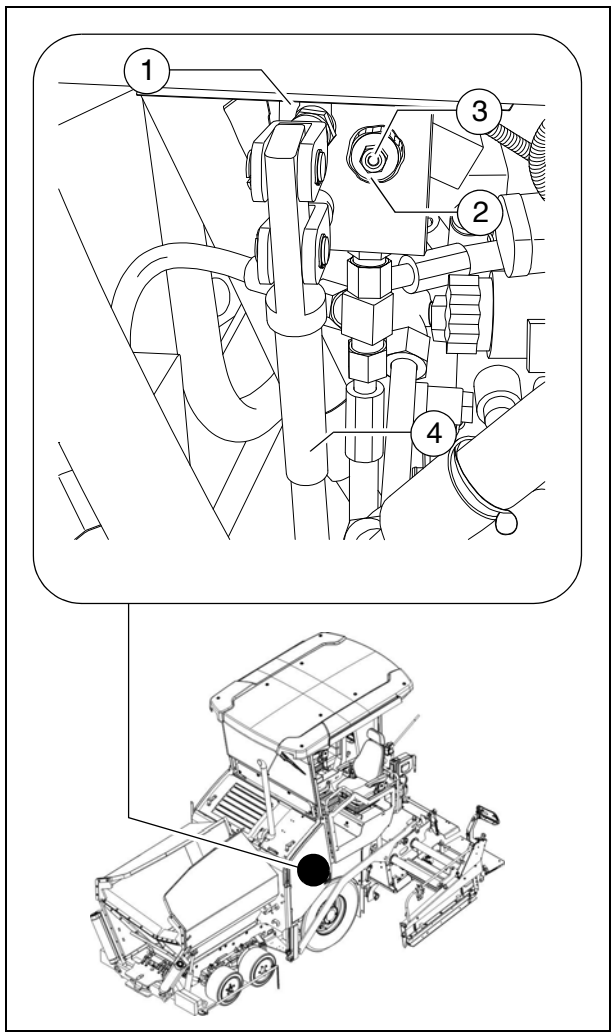
The towing vehicle must be capable of securing the paver finisher, even on slopes.

Use only approved tow bars!

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

A hand pump (1) is located in the engine compartment (left side); it must be actuated to be able to tow the machine.
Pressure for releasing the traction system brakes is built up with the hand pump.

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



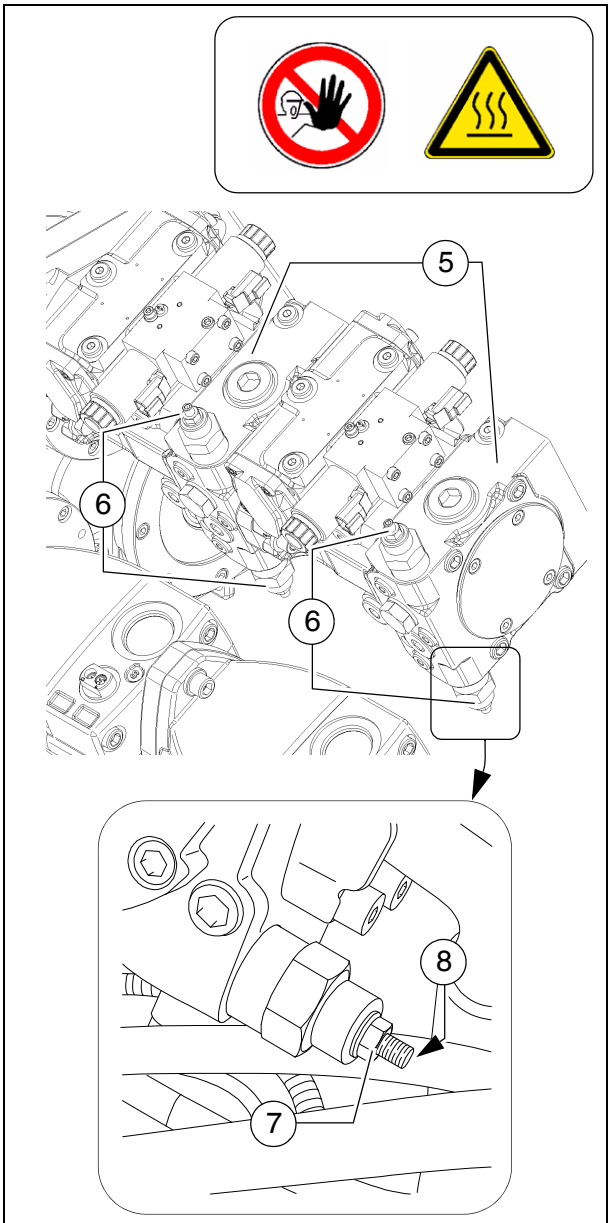
On completion of the towing process, restore the initial status.

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

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

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

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



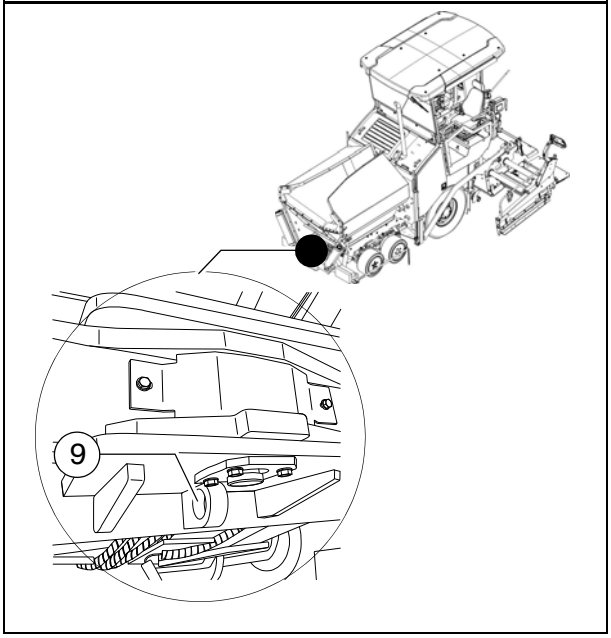
- Attach the tow bar to the coupling (9) located in the bumper.

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

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

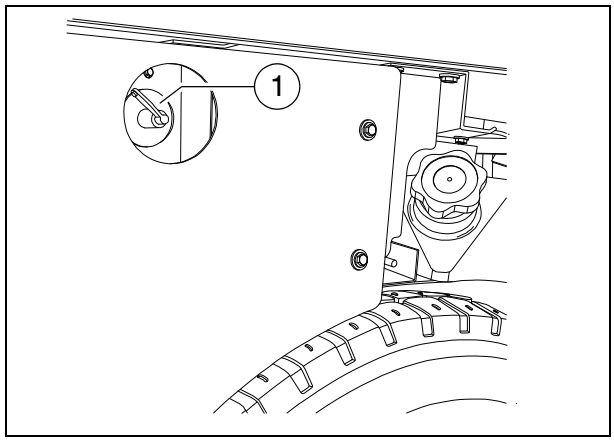
⚠ The max. permissible towing speed is 10 m/min!
In hazardous situations, a towing speed of 15 m/min is only permitted temporarily.

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

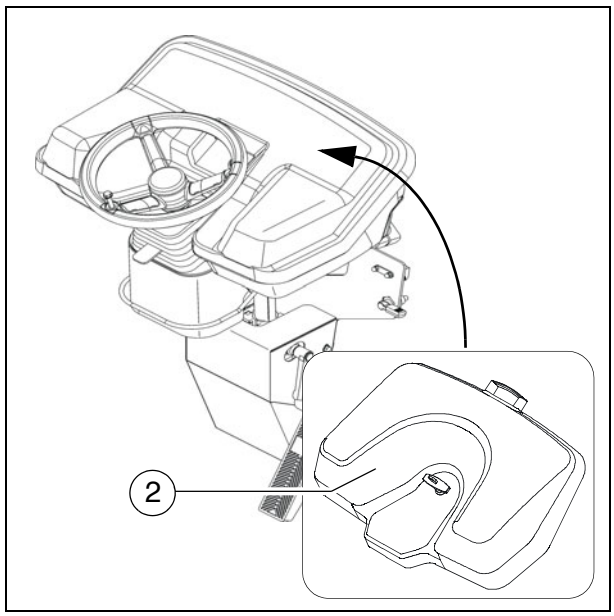


8 Safely parking the vehicle

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

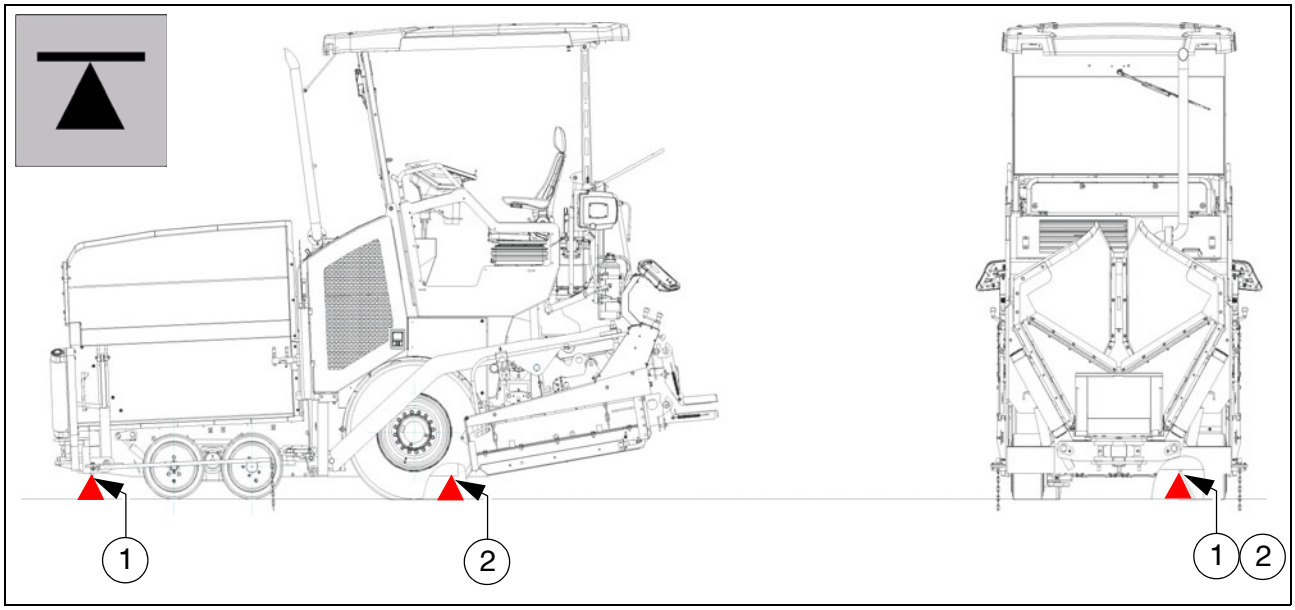


- Pull off the ignition key and the main switch (1) and take it with you – do not hide them somewhere on the machine.



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

8.1 Lifting the vehicle with hydraulic lifts, lifting points



STOP The hydraulic lift must be rated for at least 10t.

STOP Always choose a horizontal surface with adequate load rating as installation surface for the hydraulic lift!

STOP Make sure that the hydraulic lift is securely and correctly positioned!

STOP The hydraulic lift is only intended to lift a load and not as a support. Work should only be performed to and under raised vehicles when they have been secured and correctly supported to prevent them from 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 13.18 Operation

1 Safety regulations

Starting the engine, the travel drive, the conveyor, the auger, the screed or the lifting devices can cause injuries or even the death of persons.
Make sure before starting any of these devices that no-one is working at, in or beneath the paver finisher or within its danger area!

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

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

- Always make sure during work that no-one is endangered by the vehicle!
- Ensure that all protective covers and hoods are fitted and secured accordingly!
- Immediately rectify damage which 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!

DANGER	**Danger due to improper operation**
	Improper operation of the vehicles can cause severe to fatal injuries! - The vehicle may only be used in the proper manner for its intended purpose. - The vehicle may only be operated by trained staff. - The vehicle operators must have made themselves familiar with the contents of the operating instructions. - Avoid jerky movements of the vehicle. - Do not exceed the permissible angle of rise and slope. - Keep hoods and covering parts closed during operation. - Comply with all further information in these instructions and in the safety manual.

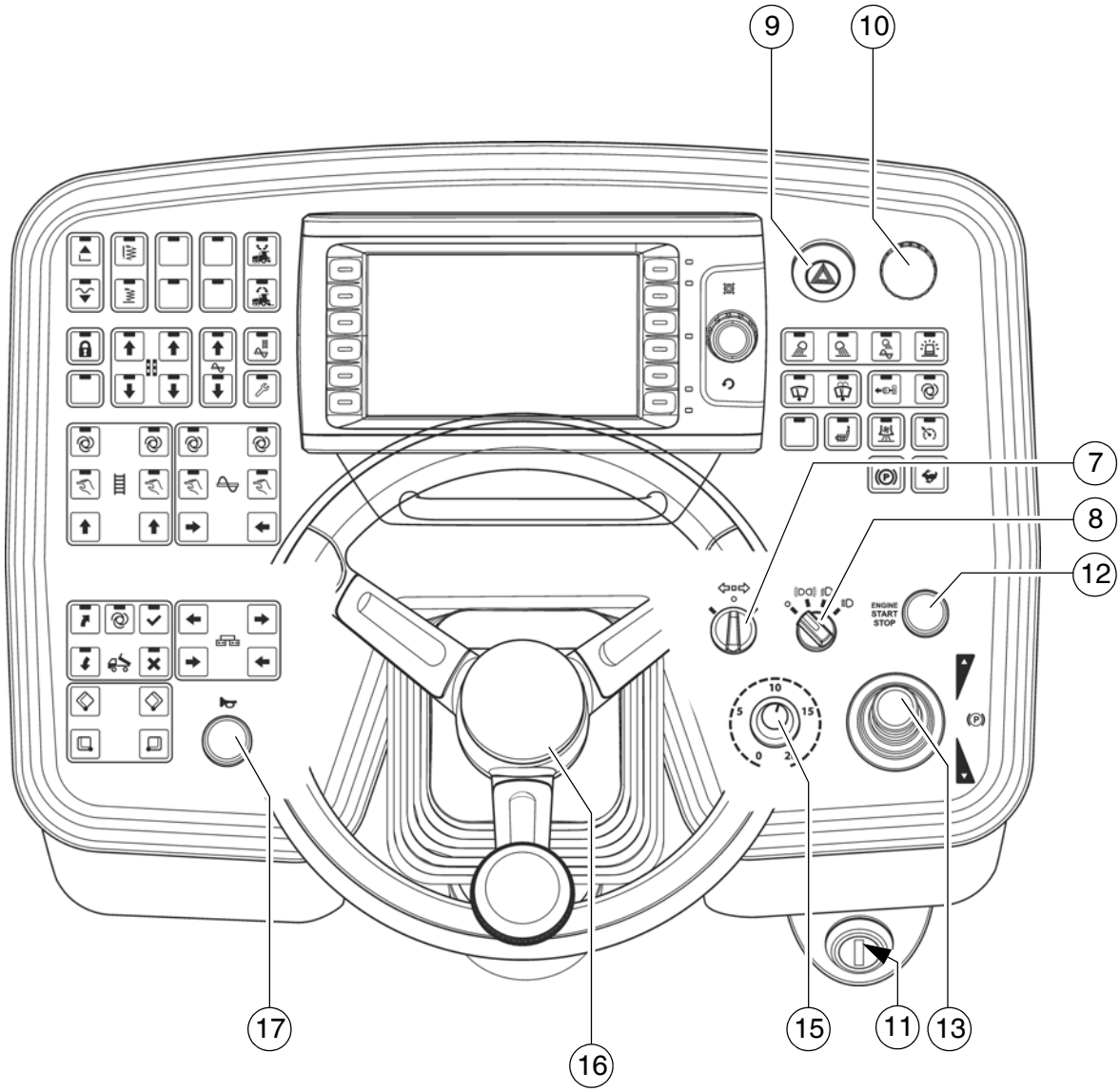
WARNING	**Danger of being pulled in by rotating or conveying vehicle parts**
	Rotating or conveying vehicle parts can cause severe or fatal injuries! - Do not enter the danger zone. - Do not reach into rotating or conveying parts. - Only wear close-fitting clothing. - Comply with the warning and information signs on the vehicle. - Stop the engine and remove the ignition key for any maintenance work. - Comply with all further information in these instructions and in the safety manual.

WARNING	**Danger of crushing due to moving vehicle parts**
	Vehicle parts performing movements can cause severe or fatal injuries! - Remaining in the vehicle's danger zone during operation is prohibited! - Do not reach into the danger zone. - Comply with the warning and information signs on the vehicle. - Comply with all further information in these instructions and in the safety manual.

2 Controls

2.1 Operating panel

☞ 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.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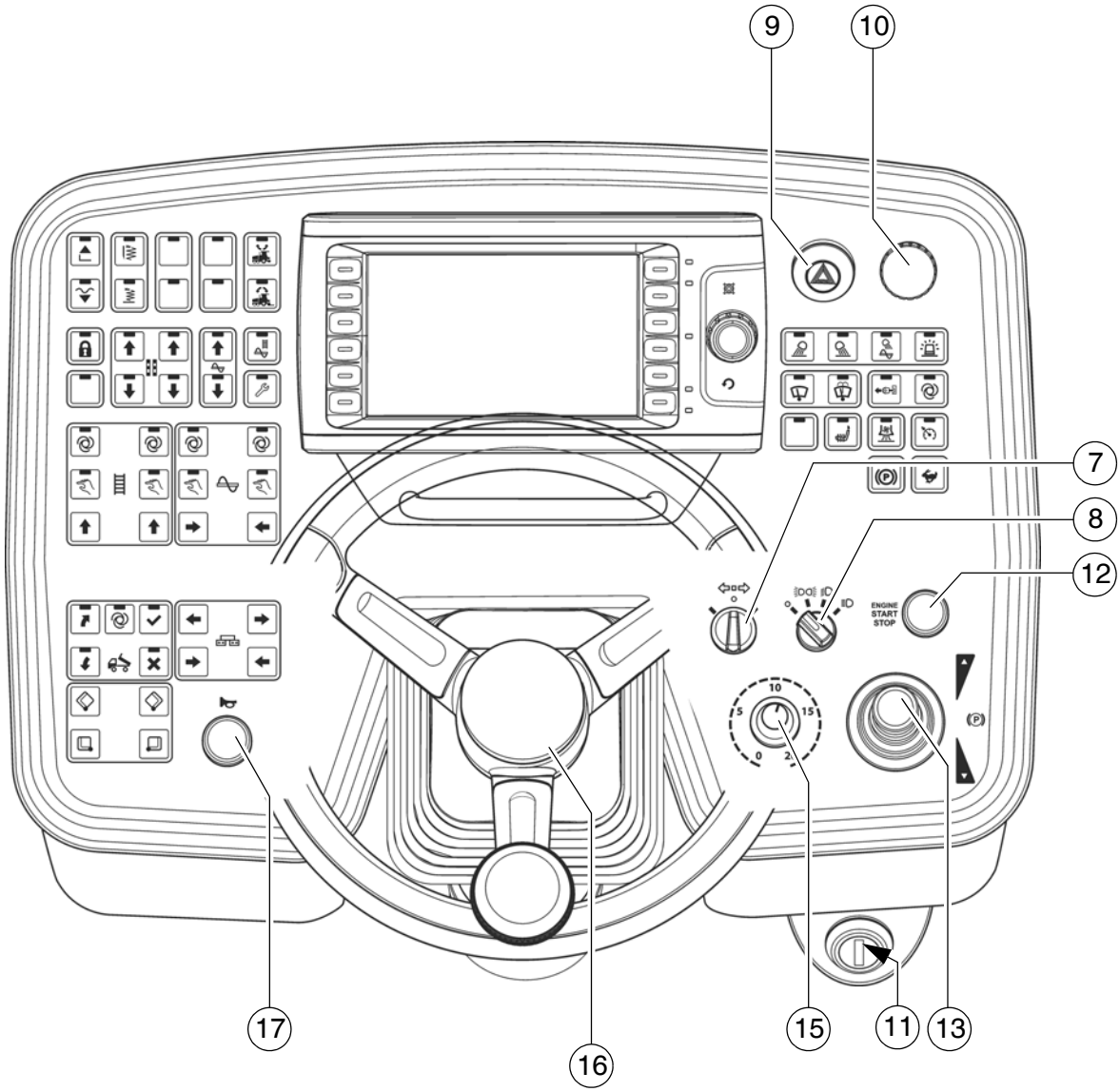
Item	Designation	Brief description
7	Direction of travel indicator ("flasher")	Use when changing direction of travel on roads.
8	Illumination switch	Four switch positions can be selected: - 0 : Light OFF - 1 : Parking lights ON (+operating panel lighting) - 2 : Low-beam headlights ON (+operating panel lighting) - 3 : High-beam headlights ON (+operating panel lighting) STOP Avoid dazzling the oncoming traffic!
9	Hazard warning flasher	⚠ Always have the warning lights on when moving the machine!
10	Emergency stop button	Press in an emergency (danger to persons, impending collision, etc.)! - 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.
11	Ignition lock	To activate the ignition voltage by turning the key. - Switch off by turning the key back to its starting position. ☞ After activating the ignition voltage, the input and display terminal requires a few seconds for the booting process. ☞ 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.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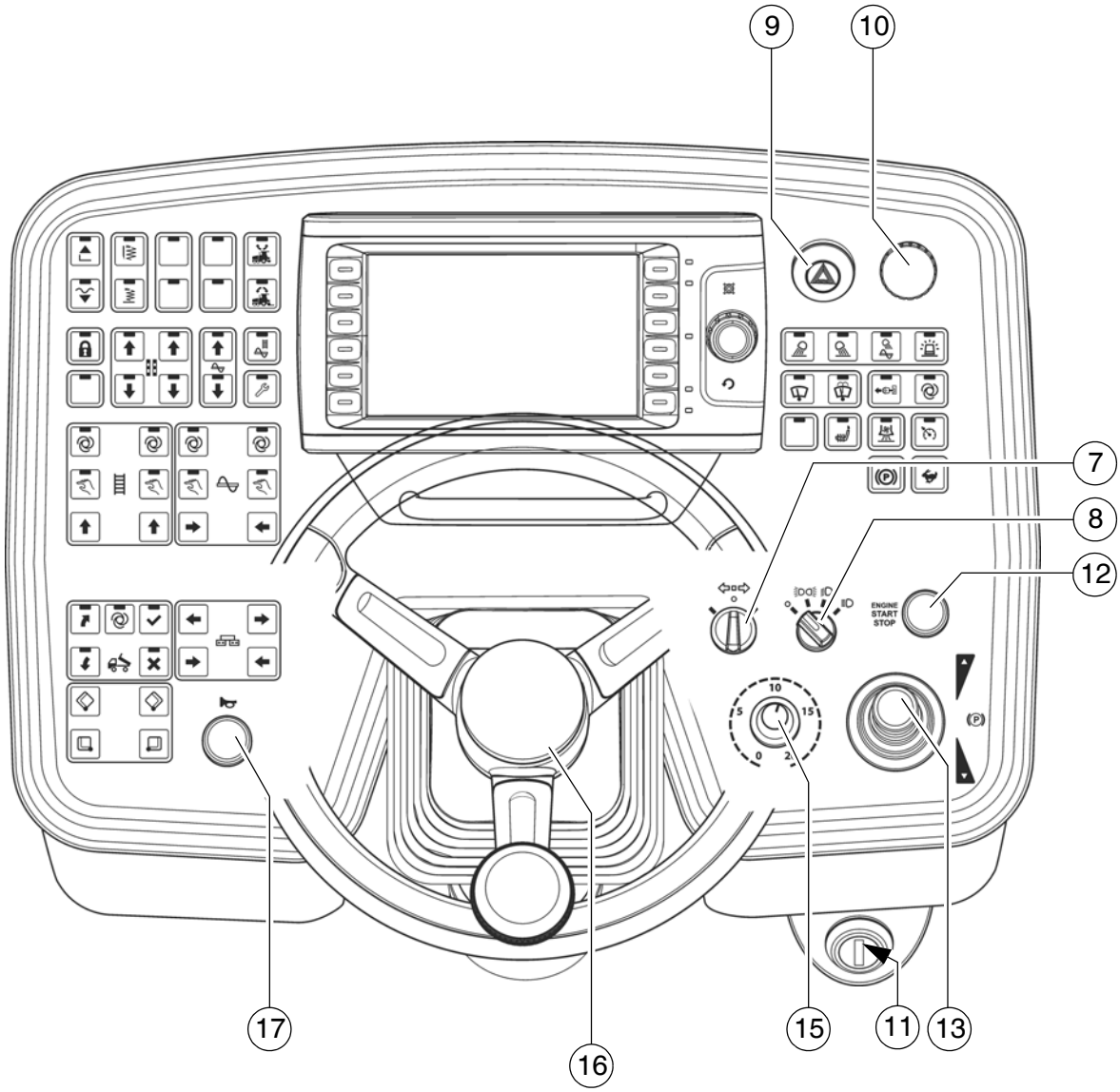
Item	Designation	Brief description
12	Starter / drive engine OFF	For starting and shutting off the drive engine. - On actuation, the starter is in operation - Switch the running engine OFF by pressing the button again ⚠ Run the starter continuously for a maximum of 20 seconds, then take a break for 1 minute! ☞ All emergency stop buttons (on the operating panel and the remote controls) must be pulled out when starting.
13	Drive lever (traction)	For switching on the paver finisher functions and for continuously regulating the road speed – forward or reverse. Centre position: Engine in neutral; no travel drive; - To swivel the drive lever out, release by pulling the handle 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 The vehicle speed cannot be reduced to "0" with the preselector. The vehicle advances slightly with deflected drive lever, even if the travel drive preselector is set to zero! ☞ If the engine is started with the drive lever pivoted out, the travel drive is inhibited. To start the travel drive, first the drive lever must be returned to the centre position. ☞ When changing over between forwards and reverse travel, the drive lever must remain briefly in neutral.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ENGINE START STOP
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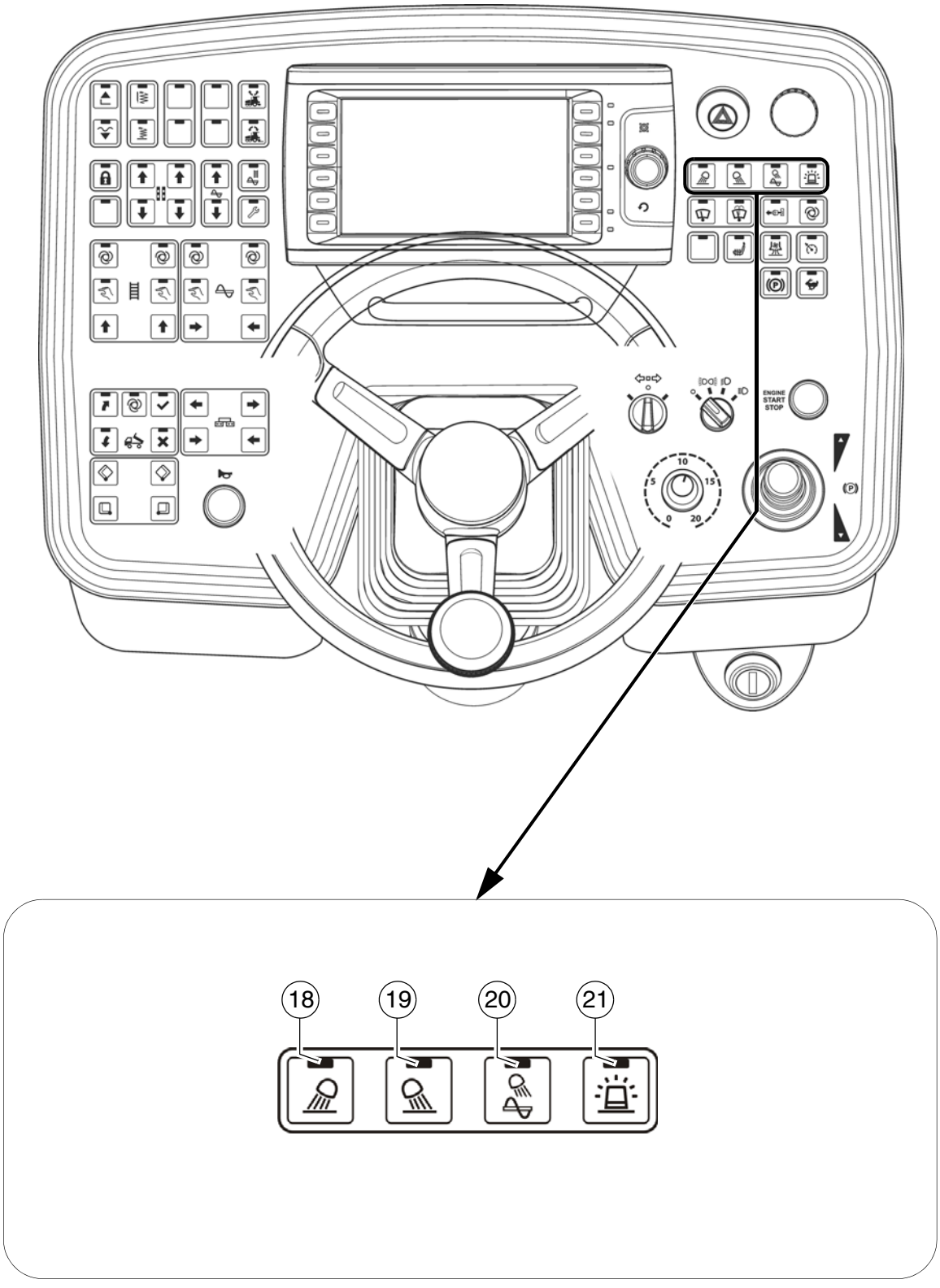
Item	Designation	Brief description
15	Travel drive preselector	For setting the maximum speed that can be reached when the drive lever is at its stop. ☞ The scale roughly matches the speed in m/min (during paving). ⚠ The vehicle must not travel at max. transport speed when the hopper is full! STOP The vehicle speed cannot be reduced to "0" with the preselector. The vehicle advances slightly with deflected drive lever, even if the travel drive preselector is set to zero!
16	Steering wheel	The steering wheel movement is transferred hydraulically to the front wheels. STOP Take the special steering ratio into consideration when transporting the machine through tight curves (approx. 3 turns for a full steering lock). Danger of accidents!
17	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!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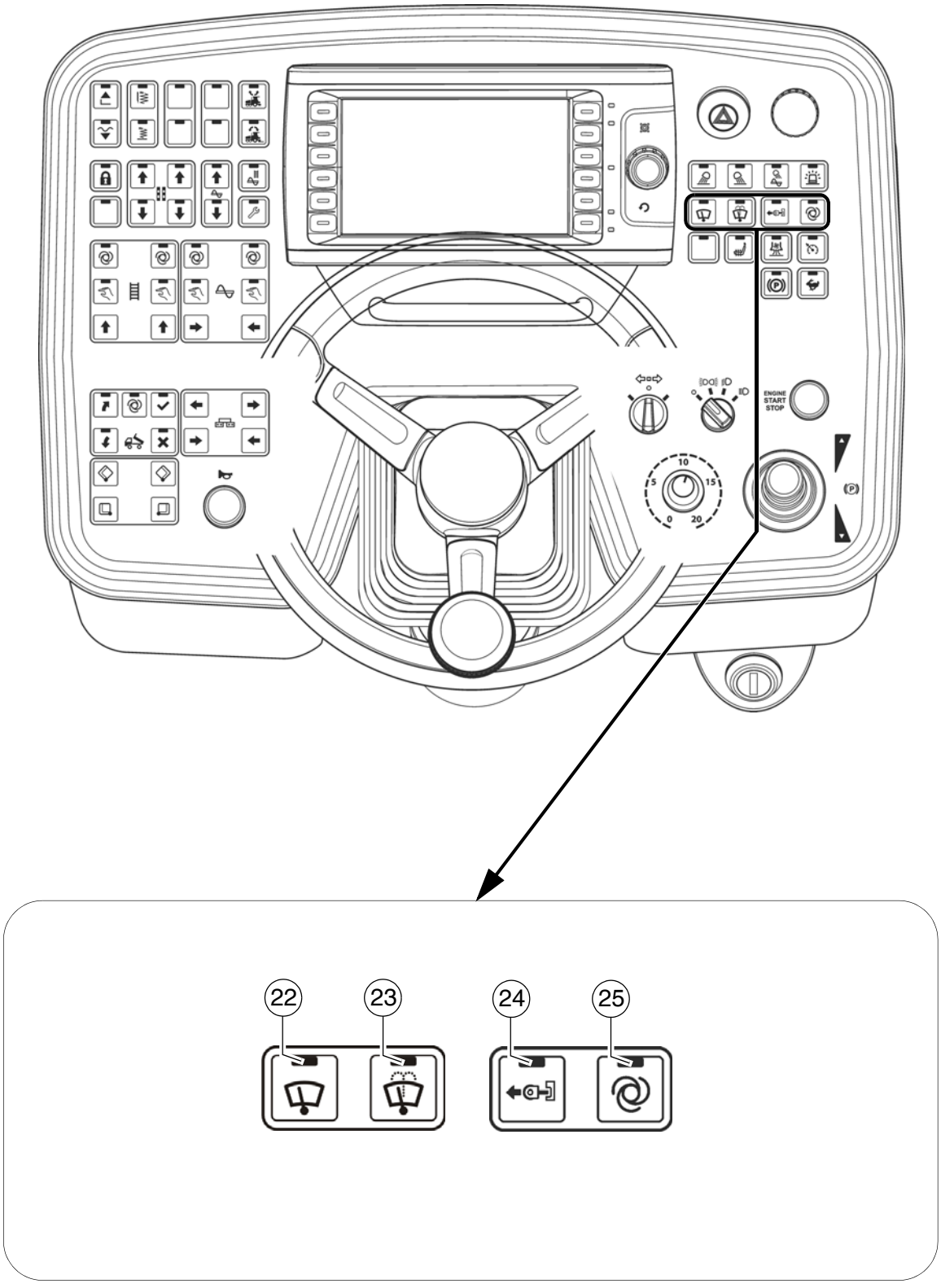
Item	Designation	Brief description
18	Front working lights ON / OFF (○)	Button with detent switch function and LED feedback: - For switching on the front working lights - Switch OFF by pressing the button again STOP Avoid dazzling other road users!
19	Rear working lights ON / OFF (○)	Button with detent switch function and LED feedback: - For switching on the rear working lights - Switch OFF by pressing the button again STOP Avoid dazzling other road users!
20	Auger compart-ment working lights ON / OFF (○)	Button with detent switch function and LED feedback: - for switching on the auger compartment working lights - Switch OFF by pressing the button again
21	Rotary beacon ON / OFF (○)	Button with detent switch function and LED feedback: - For switching on the rotary beacon - Switch OFF by pressing the button again ☞ Switch on for safety on roads and in the construction site area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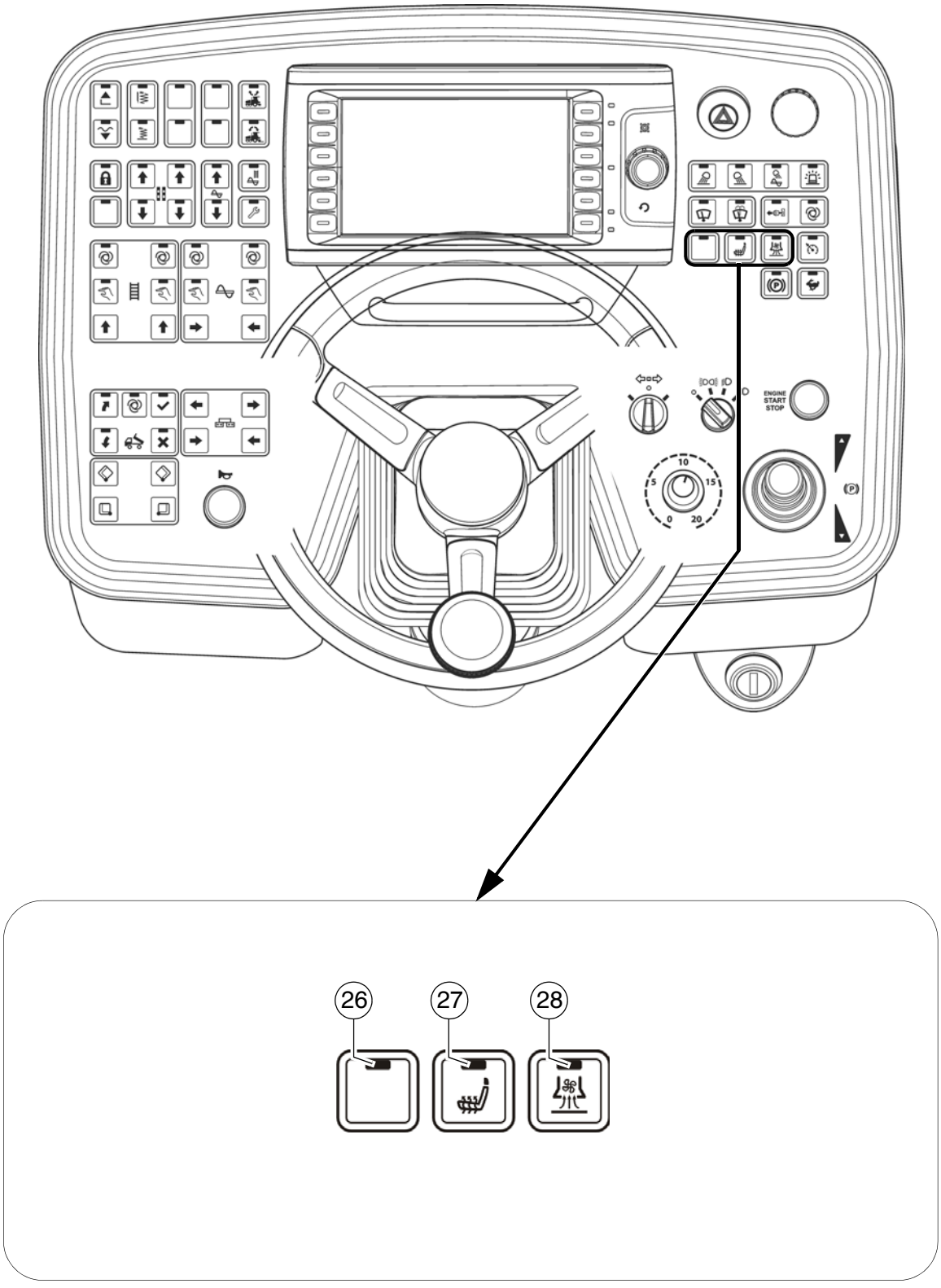
Item	Designation	Brief description
22	Windscreen wipers ON / OFF (○)	Detent switch function and LED feedback: - For switching on the windscreen wipers - Switch OFF by pressing the button again
23	Windscreen washer system + windscreen wipers ON / OFF (○)	Detent switch function and LED feedback: - For engaging the windscreen washer system + windscreen wipers - Switched OFF with time control
24	Extend push roller (○)	Pushbutton function with LED feedback: - To hydraulically extend the push roller crossbar. STOP On actuation, heed danger zones of moving parts of the vehicle!
25	Push roller damping "AUTO" (○)	Detent switch function and LED feedback: - To activate automatic push roller damping. - Every time the hopper closes, the push roller automatically moves to the front limit position. - Switch OFF or press the button again. ☞ Push roller damping hydraulically absorbs the shocks between the material truck and paver finisher.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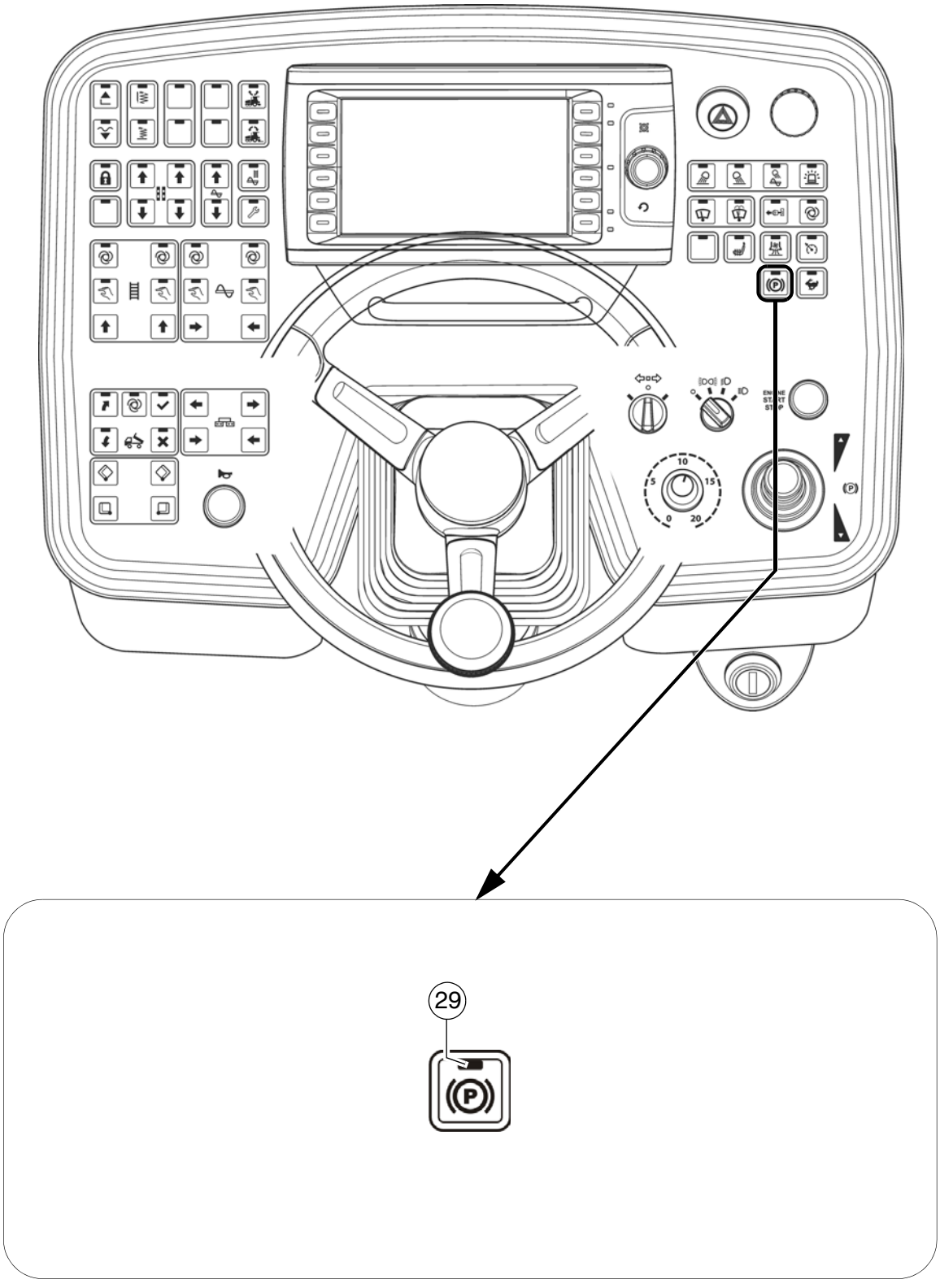
Item	Designation	Brief description
26	Not used	
27	Seat heating ON / OFF (○)	Button with detent switch function and LED feedback: - For switching on the seat heating - Switch OFF by pressing the button again
28	Extraction system ON / OFF (○)	Detent switch function and LED feedback: - To actuate the asphalt fume control system - Switch OFF by pressing the button again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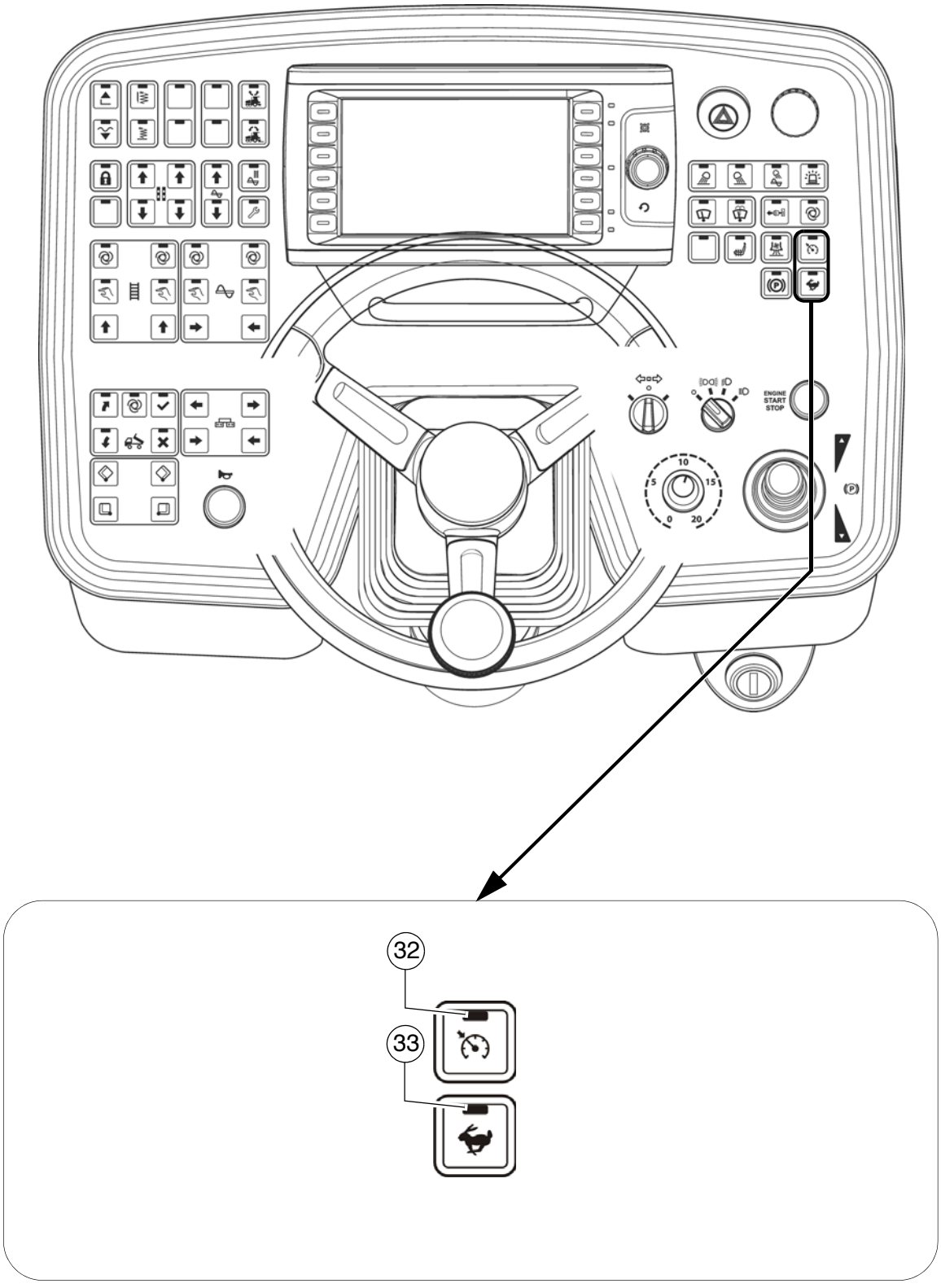
Item	Designation	Brief description
29	Parking brake	Buttons with detent switch function and LED feedback: - for activating the parking brake when the vehicle is stationary. ☞ The parking brake must be deactivated to start the drive the vehicle away again.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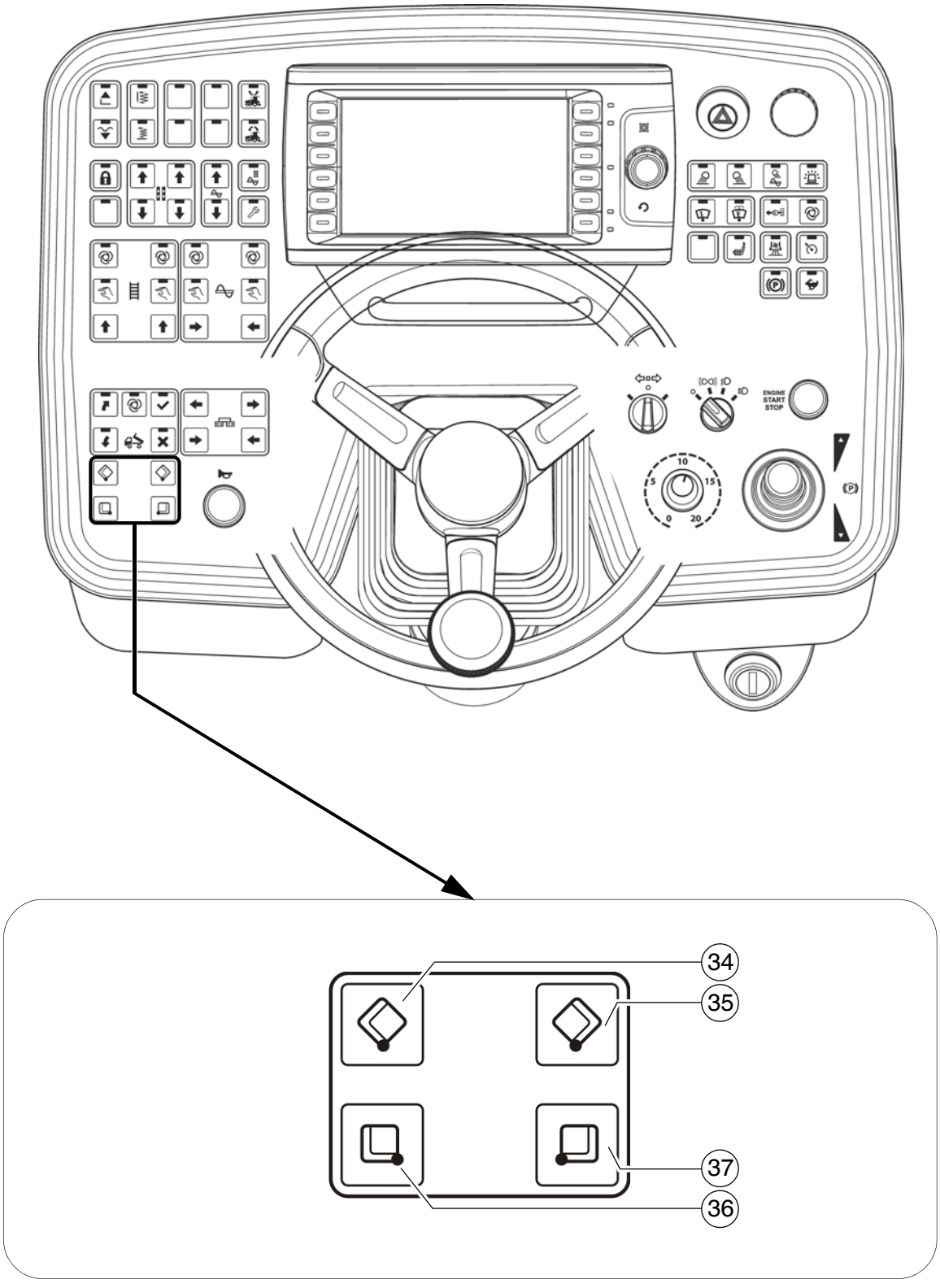
Item	Designation	Brief description
32	Tempomat (cruise control)	Buttons with detent switch function and LED feedback. (LED ON = ready) - The speed control is activated by pressing the foot brake. The speed obtained after slowing down is held automatically. - Pressing the button again switches the function off (LED ON) and the machine is accelerated to the speed set by the drive lever and the preselection potentiometer. ☞ If the speed has been reduced to "zero", the drive lever first has to be put back into its zero position.
33	Traction drive speed fast (transport gear)	Buttons with detent switch function and LED feedback: - To preselect the speed level -transport speed ☞ On restarting, the speed is set to operating speed. ☞ When activated, all functions set to "AUTO" are stopped (main function switch active).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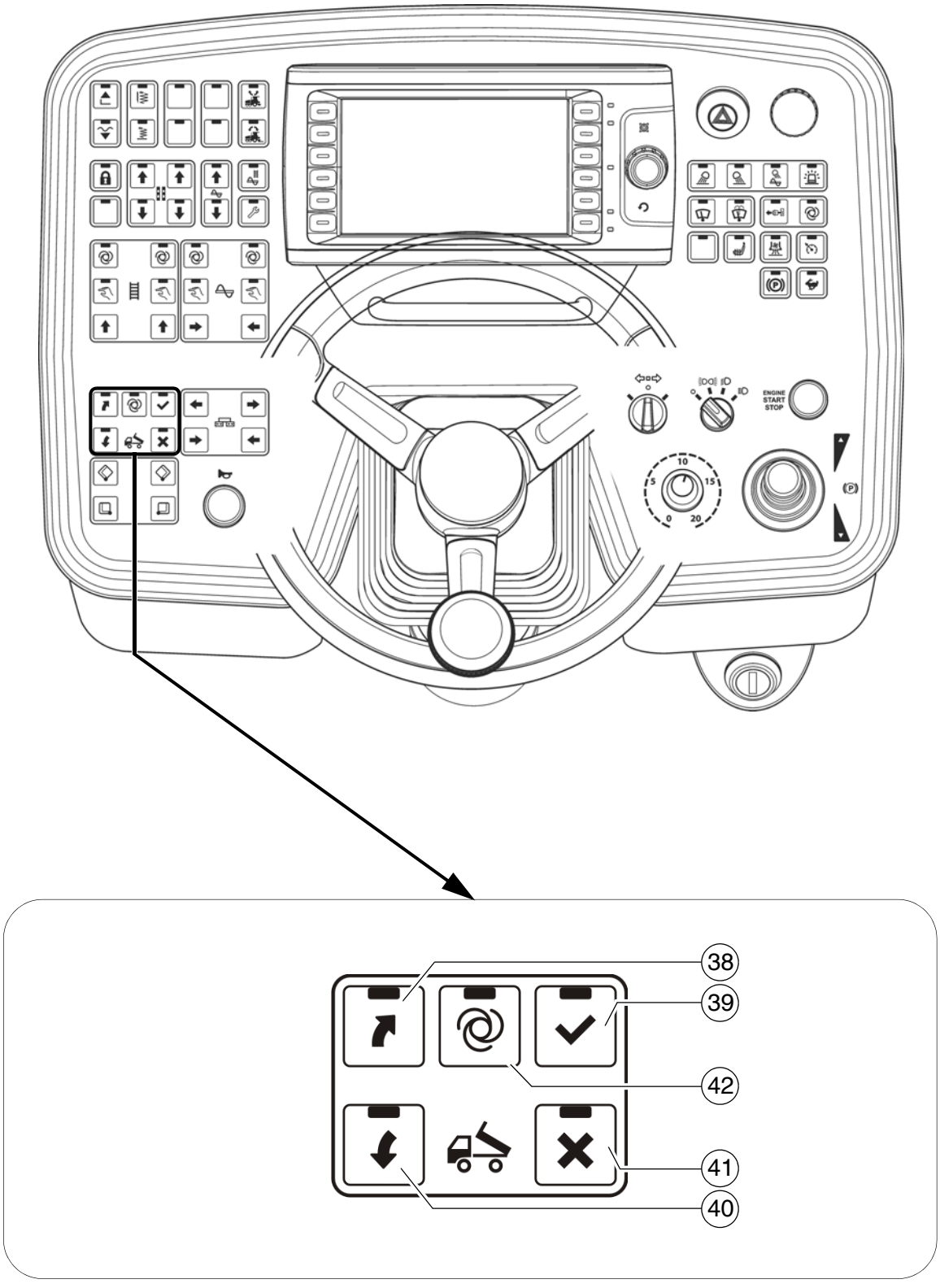
Item	Designation	Brief description
34	Close hopper left	Pushbutton function: - To close the left half of the hopper ☞ Separate actuation (○): Is required when paving in spaces where there is only limited space at one side or when obstacles obstruct unloading of the truck. STOP On actuation, heed danger zones of moving parts of the vehicle!
35	Close hopper right	Pushbutton function: - To close the right half of the hopper ☞ Separate actuation (○): Is required when paving in spaces where there is only limited space at one side or when obstacles obstruct unloading of the truck. STOP On actuation, heed danger zones of moving parts of the vehicle!
36	Open hopper left	Pushbutton function: - To open the left half of the hopper ☞ If the hoppers are hydraulically actuated at the same time, both the left and the right switch can be used for actuation. STOP On actuation, heed danger zones of moving parts of the vehicle!
37	Open hopper right	Pushbutton function: - To open the right half of the hopper ☞ If the hoppers are hydraulically actuated at the same time, both the left and the right switch can be used for actuation. STOP On actuation, heed danger zones of moving parts of the vehicle!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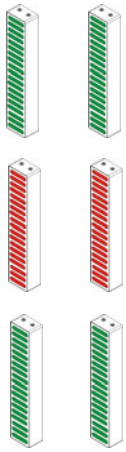
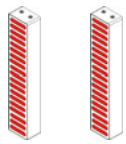
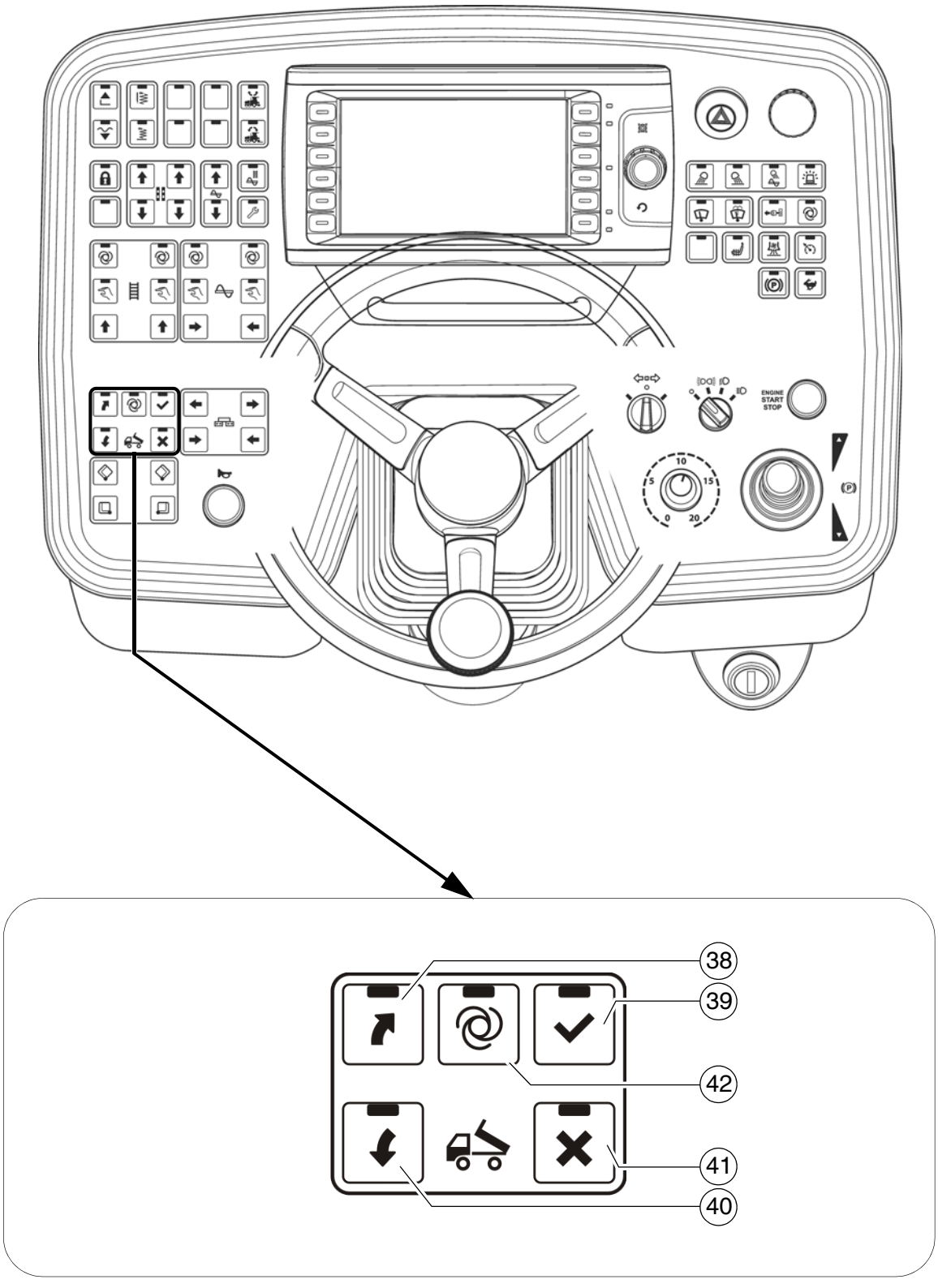
☞ The Truck Assist system is used for communication between the driver of the paver and the driver of the material truck. The corresponding signal system shows the truck driver which action to perform (reversing / stop / tip material / depart).

NOTE	**Caution! Possible material damage through insufficient instruction**
	Ignored or incorrectly understood signals can cause damage to the paver and/or material truck! - The paver driver and all drivers of the material trucks must be instructed in how the Truck Assist system works and understand the system. - Comply with all further information in the operating instructions and in the safety manual.

Item	Designation	Brief description	LED display
38	Tell truck to reverse	Pushbutton function with LED feedback: - To change over to the "Start Reversing" signal. (GREEN SIGNAL) - Press button again to change signal over to "Stop". Button LED (39) on + (RED SIGNAL). - Press button once more to switch again to "Start Reversing" signal. (GREEN SIGNAL) ☞ Button (39) can also be used to change over to "Stop".	
39	Tell truck to interrupt reversing - "STOP"	Pushbutton function with LED feedback: - To change over to the "STOP" signal. (RED SIGNAL) ☞ Set "STOP" signal to interrupt procedure or on reaching correct distance between truck and paver.	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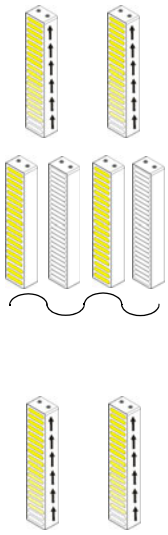
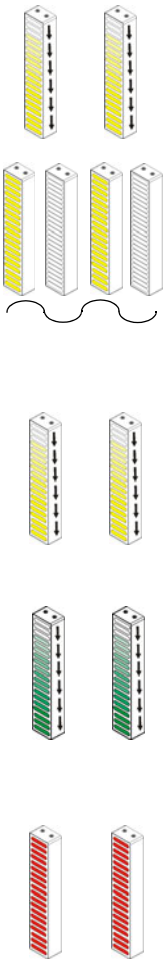
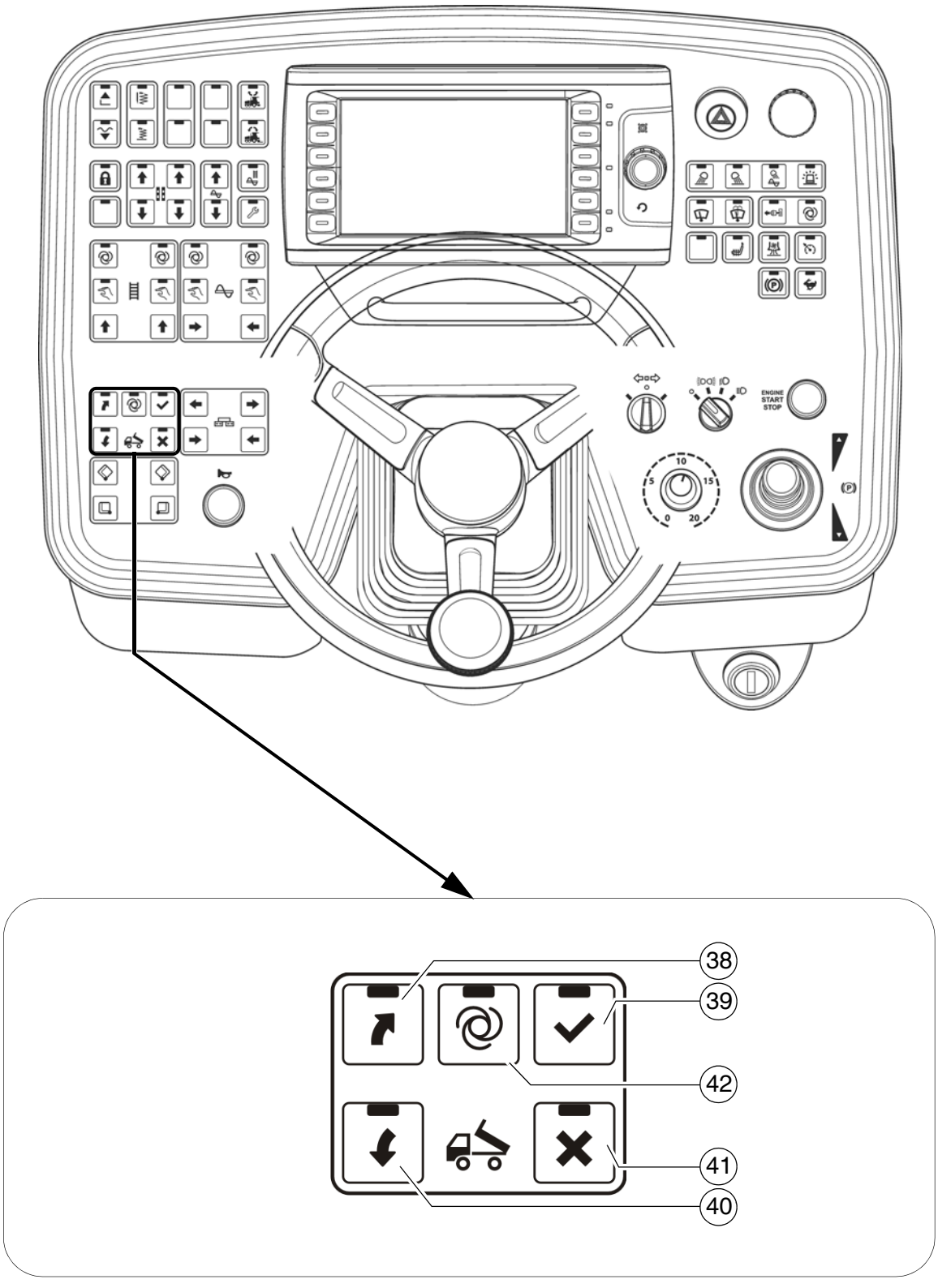
Item	Designation	Brief description	LED display
40	Tell truck "Start Tipping"(raise truck hopper)	Pushbutton function with LED feedback: - To change over to the "Start Tipping" signal. (YELLOW SIGNAL, running light ascending) - Press button again to change signal over to "Pause". (YELLOW SIGNAL, flashing). ☞ The button LED + button LED (41) flashes in the "PAUSE" MODE - Press button once more to switch again to "Start Tipping" signal. (YELLOW SIGNAL, running light ascending)	
41	Tell truck to "End Tipping" (lower truck hopper) + Tell truck to "Detach, Depart"	Pushbutton function with LED feedback: - To change over to the "End Tipping" signal. (YELLOW SIGNAL, running light descending) - Press button again to change signal over to "Pause". (YELLOW SIGNAL, flashing). ☞ The button LED + button LED (40) flashes in the "PAUSE" MODE - Press button once more to switch again to "Start Tipping" signal. (YELLOW SIGNAL, running light descending) - After material transfer completed: Press button >3 seconds to change signal to "Detach, Depart". (GREEN SIGNAL, running light descending) + button LED (38), flashing. - After 10 seconds the system automatically changes over to the "STOP" signal. (RED SIGNAL)	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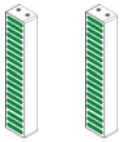
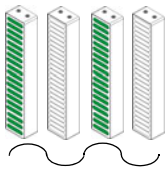
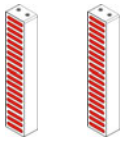
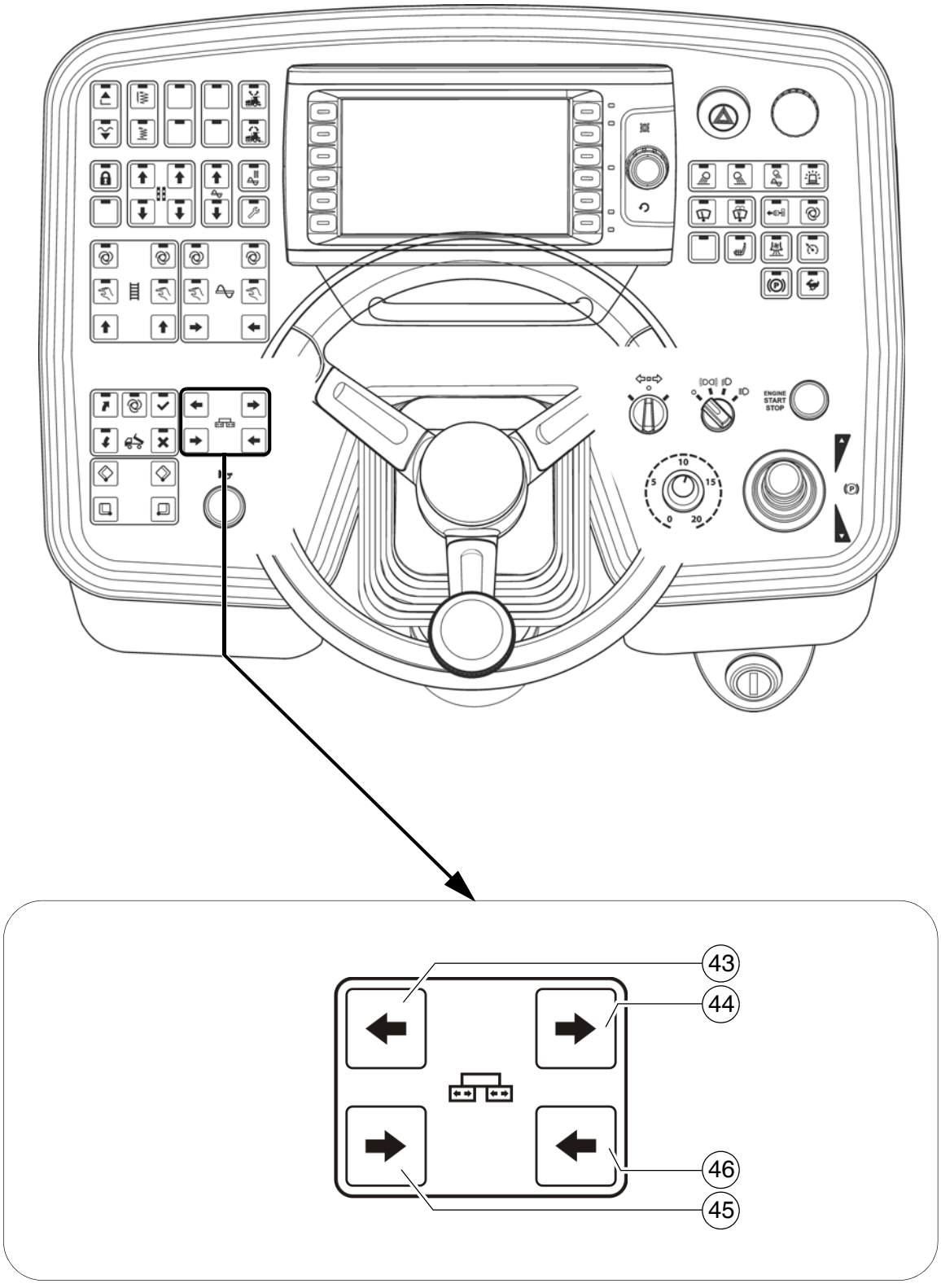
Item	Designation	Brief description	LED display
42	"Truck Assist" AUTO mode ON / OFF	Pushbutton function with LED feedback: - The "Truck Assist" function runs automatically. - Switch OFF by pressing the button again - Press button (38) to request a truck with material / Release for truck to approach (GREEN SIGNAL) ☞ The truck is detected by a laser sensor at a distance of 6 m between the paver and the material truck. (GREEN SIGNAL, flashing) ☞ The flashing frequency of the display increases with decreasing distance between paver and material truck. - On reaching the preset minimum distance, the signal changes over to "STOP". (RED SIGNAL) ☞ The minimum distance is adjusted in the display settings. ☞ The other signals have to be triggered by hand.	  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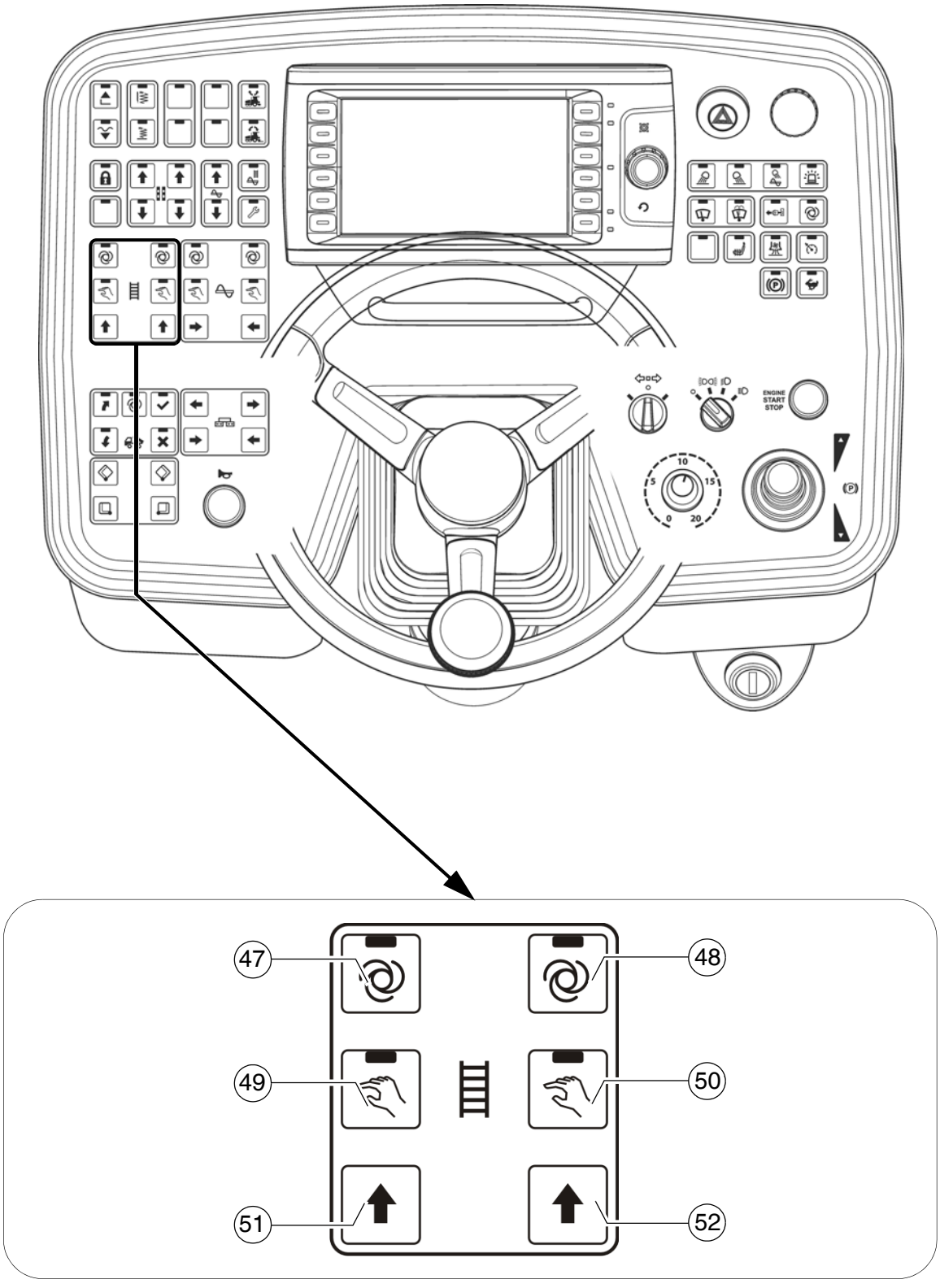
Item	Designation	Brief description
43	Extend left screed	Pushbutton function: - To extend the left half of the screed ☞ This function is not used in vehicle configurations with a screed which cannot be extended. STOP On actuation, heed danger zones of moving parts of the vehicle!
44	Extend right screed	Pushbutton function: - To extend the right half of the screed ☞ This function is not used in vehicle configurations with a screed which cannot be extended. STOP On actuation, heed danger zones of moving parts of the vehicle!
45	Retract left screed	Pushbutton function: - To retract the left half of the screed ☞ This function is not used in vehicle configurations with a screed which cannot be extended. STOP On actuation, heed danger zones of moving parts of the vehicle!
46	Retract right screed	Pushbutton function: - To retract the right half of the screed ☞ This function is not used in vehicle configurations with a screed which cannot be extended. STOP On actuation, heed danger zones of moving parts of the vehicle!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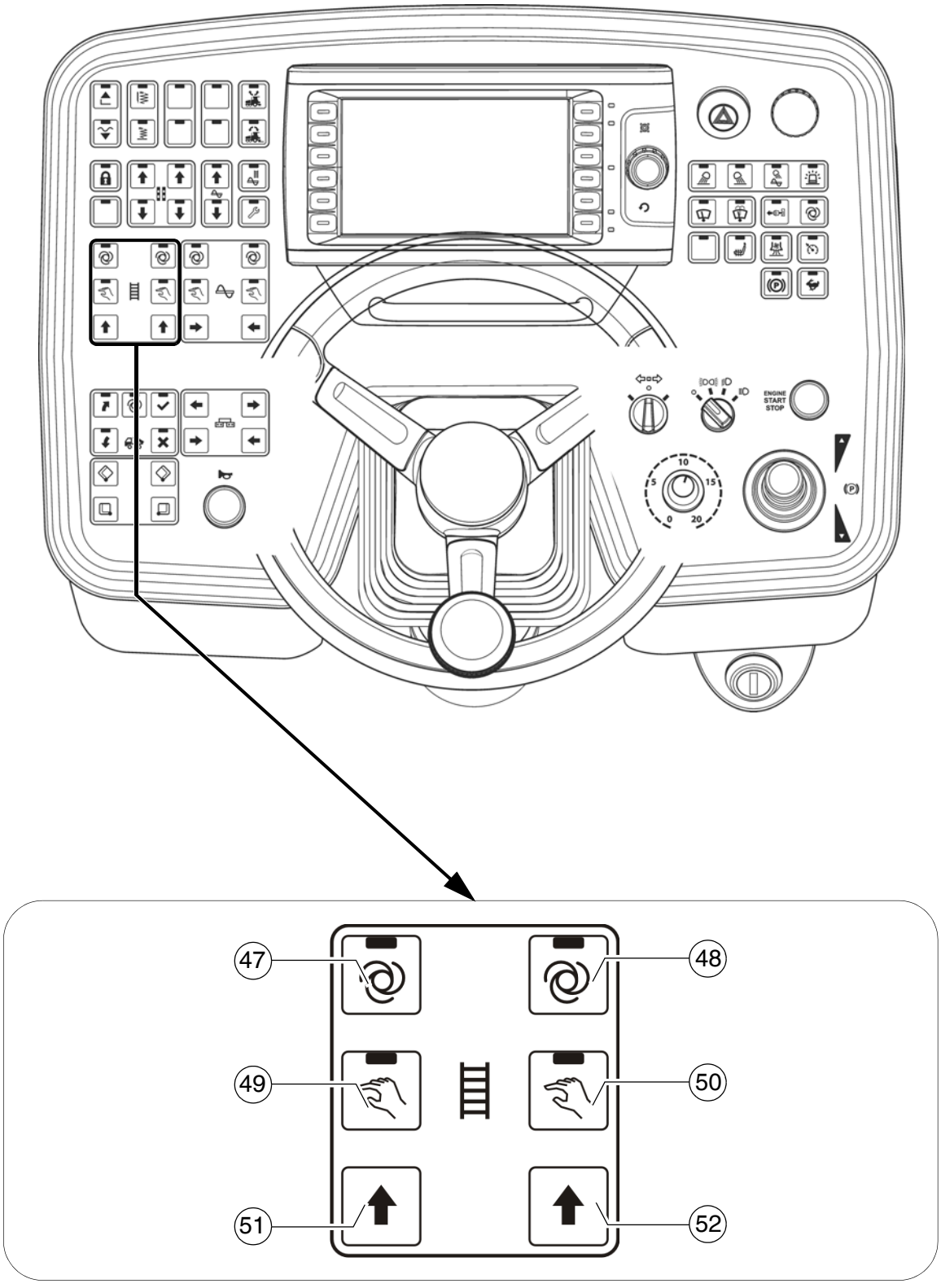
Item	Designation	Brief description
47	Left conveyor "AUTO"	Button with detent switch function and LED feedback: - The conveying function of the left conveyor is switched on when the drive lever is swivelled out and is continuously controlled via the material limit switches in the material tunnel. - Switch OFF by pressing the button again ☞ The function is shut off by pressing the EMERGENCY STOP button or restarting the vehicle. ☞ The main function switch locks the conveying function. STOP On actuation, heed danger zones of moving parts of the vehicle!
48	Right conveyor "AUTO"	Button with detent switch function and LED feedback: - 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 in the material tunnel. - Switch OFF by pressing the button again ☞ The function is shut off by pressing the EMERGENCY STOP button or restarting the vehicle. ☞ The main function switch locks the conveying function. STOP On actuation, heed danger zones of moving parts of the vehicle!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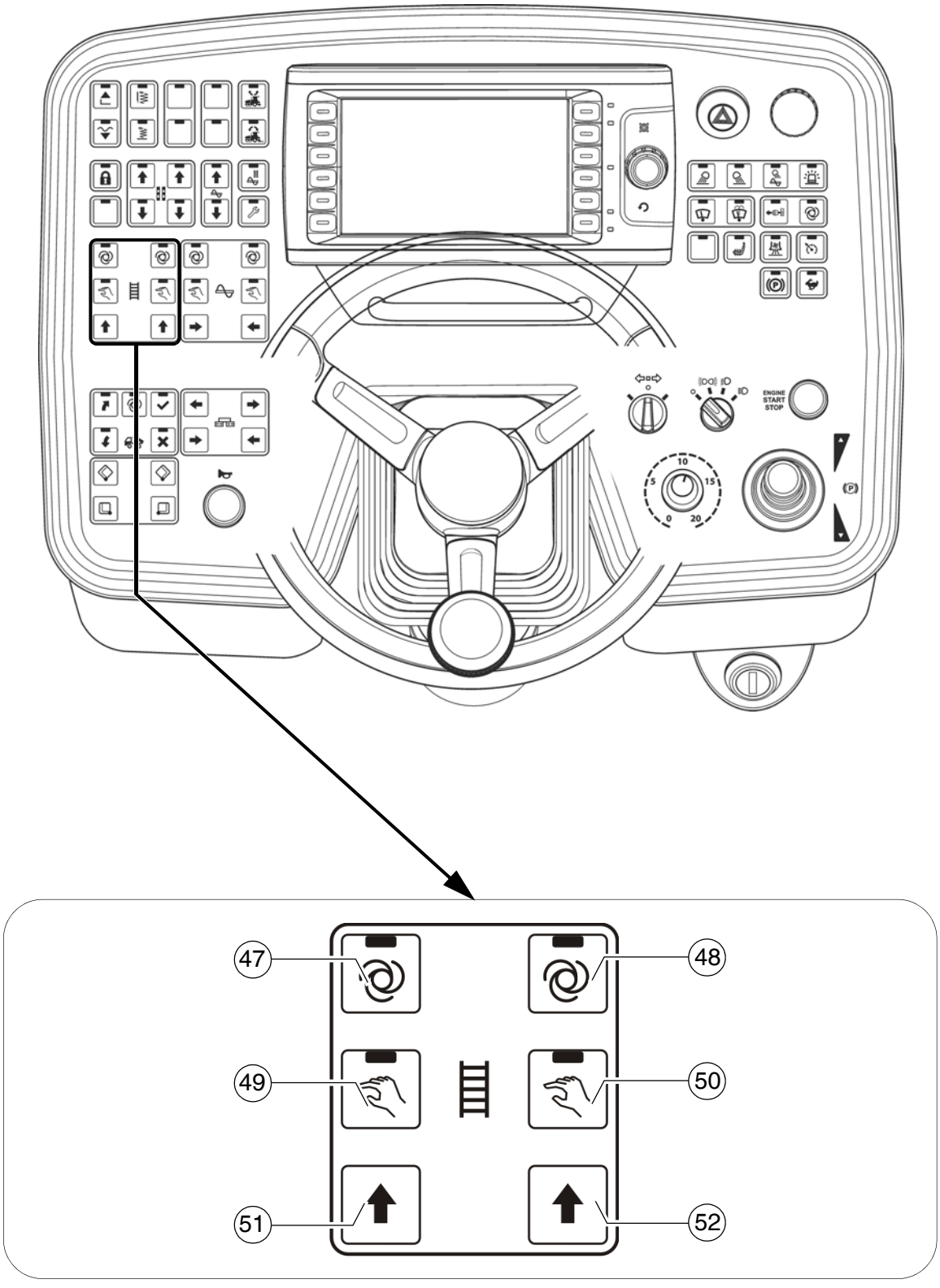
Item	Designation	Brief description
49	Left conveyor "MANUAL"	Button with detent switch function and LED feedback: - The function of the left conveyor is permanently switched on at full conveying rate and is activated/deactivated with the material limit switch in the material tunnel. - Switch OFF by pressing the button again. ☞ To avoid excessive conveying, the system is shut off at a defined material height! - Pressing and holding the button can result in excessive conveying. ☞ The function is shut off by pressing the EMERGENCY STOP button or restarting the vehicle. ☞ The main function switch locks the conveying function. STOP On actuation, heed danger zones of moving parts of the vehicle!
50	Right conveyor "MANUAL"	Button with detent switch function and LED feedback: - The function of the right conveyor is permanently switched on at full conveying rate and is activated/deactivated with the material limit switch in the material tunnel. - Switch OFF by pressing the button again. ☞ To avoid excessive conveying, the system is shut off at a defined material height! - Pressing and holding the button can result in excessive conveying. ☞ The function is shut off by pressing the EMERGENCY STOP button or restarting the vehicle. ☞ The main function switch locks the conveying function. STOP On actuation, heed danger zones of moving parts of the vehicle!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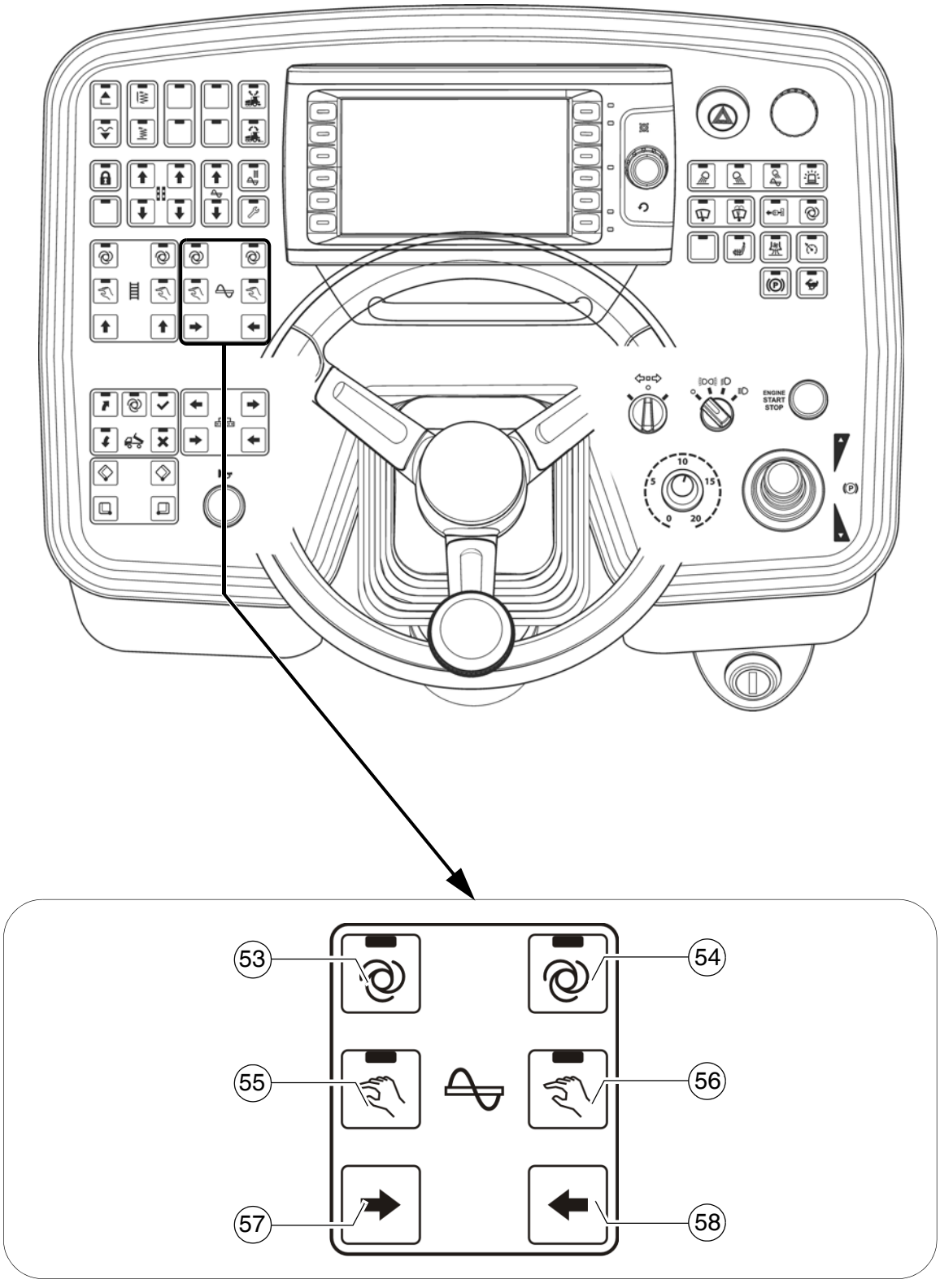
Item	Designation	Brief description
51	"Reverse" left conveyor	Pushbutton function: - The conveying direction of the conveyor can be reversed in order to slightly reverse paving material for example which may be present in the material tunnel. ☞ The function can be triggered in all modes of the conveyor. ☞ The main function switch locks the conveying function. ☞ The conveyor moves towards the hopper for approx. 3-5 seconds. STOP On actuation, heed danger zones of moving parts of the vehicle!
52	"Reverse" right conveyor	Pushbutton function: - The conveying direction of the conveyor can be reversed in order to slightly reverse paving material for example which may be present in the material tunnel. ☞ The function can only be triggered in the "Auto" mode when the vehicle is moving. ☞ The main function switch locks the conveying function. ☞ The conveyor moves towards the hopper for approx. 3-5 seconds. STOP On actuation, heed danger zones of moving parts of the vehicle!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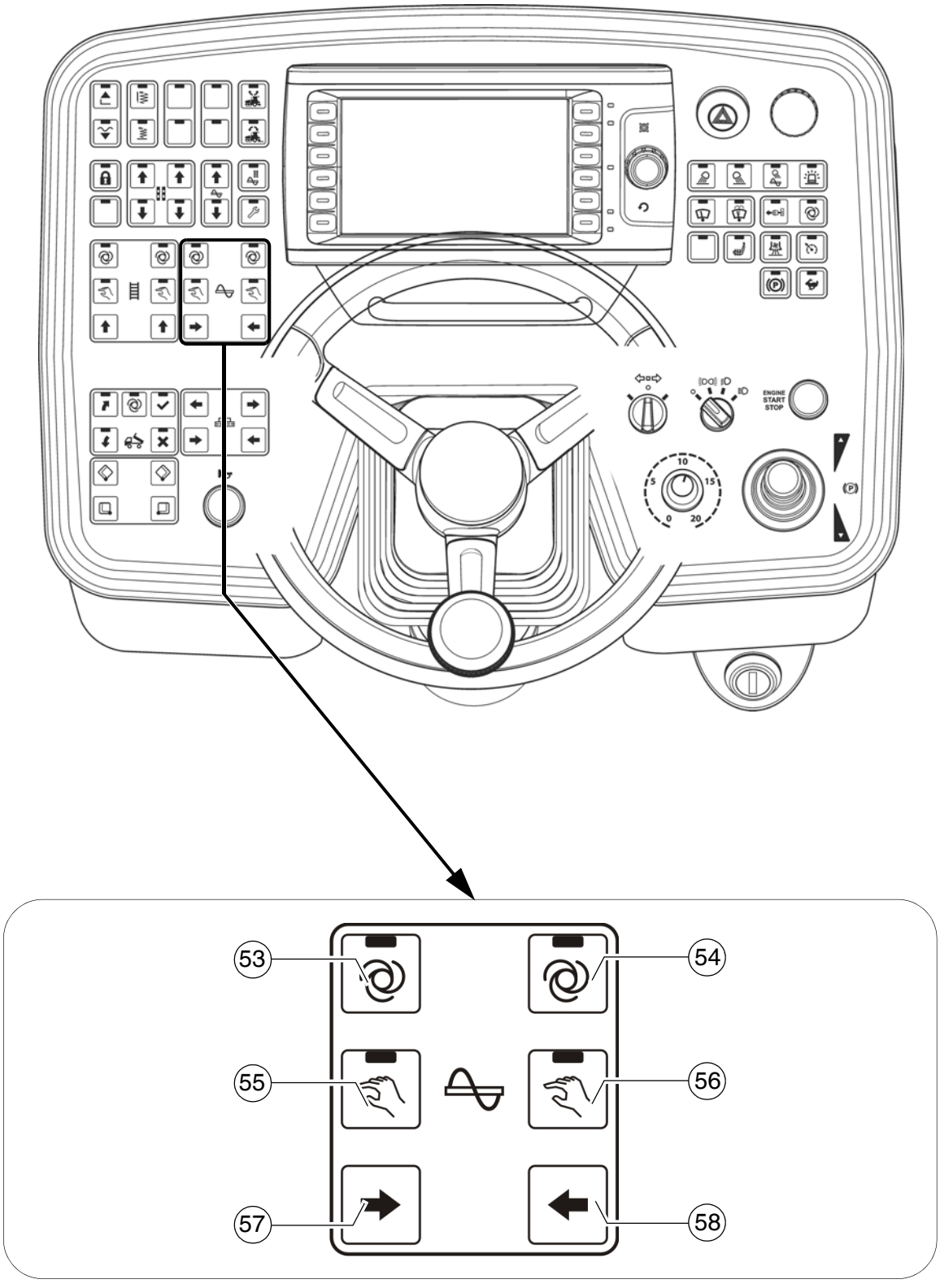
Item	Designation	Brief description
53	Left auger "AUTO"	Button with detent switch function and LED feedback: - The conveying function of the left half of the auger is switched on when the drive lever is swivelled out and is continuously controlled via the material limit switches. - Switch OFF by pressing the button again ☞ The function is shut off by pressing the EMERGENCY STOP button or restarting the vehicle. ☞ The main function switch locks the conveying function. STOP On actuation, heed danger zones of moving parts of the vehicle!
54	Right auger "AUTO"	Button with detent switch function and LED feedback: - 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 in the material tunnel. - Switch OFF by pressing the button again ☞ The function is shut off by pressing the EMERGENCY STOP button or restarting the vehicle. ☞ The main function switch locks the conveying function. STOP On actuation, heed danger zones of moving parts of the vehicle!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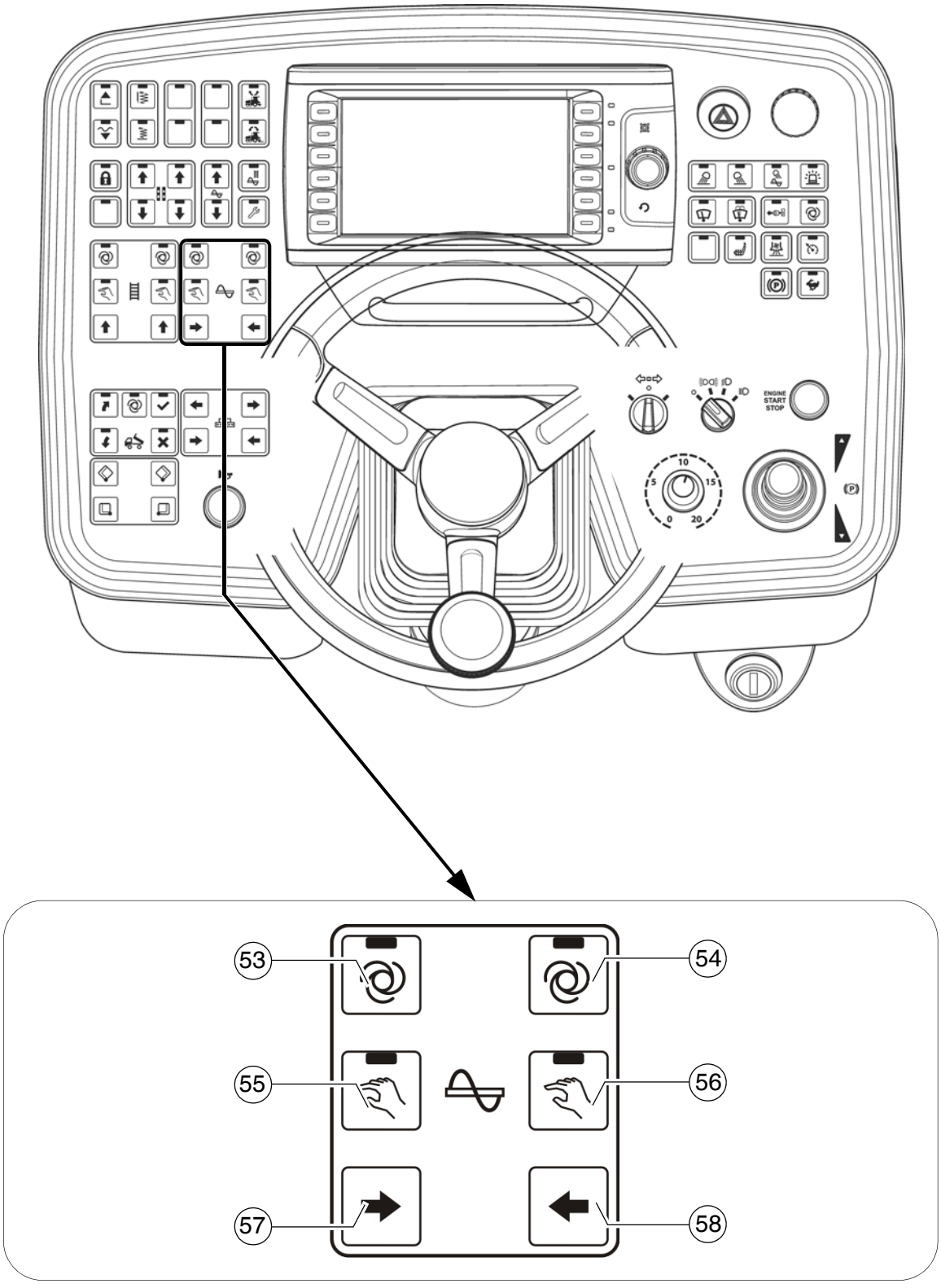
Item	Designation	Brief description
55	Left auger "MANUAL"	Button with detent switch function and LED feedback: - The conveying function of the left half of the auger is switched on continuously with full delivery capacity, without material control via the limit switches. - Switch OFF by pressing the button again ☞ The function is shut off by pressing the EMERGENCY STOP button or restarting the vehicle. ☞ The main function switch locks the conveying function. STOP On actuation, heed danger zones of moving parts of the vehicle!
56	Right auger "MANUAL"	Button with detent switch function and LED feedback: - The conveying function of the right half of the auger is switched on continuously with full delivery capacity, without material control via the limit switches. - Switch OFF by pressing the button again ☞ The function is shut off by pressing the EMERGENCY STOP button or restarting the vehicle. ☞ The main function switch locks the conveying function. STOP On actuation, heed danger zones of moving parts of the vehicle!


53
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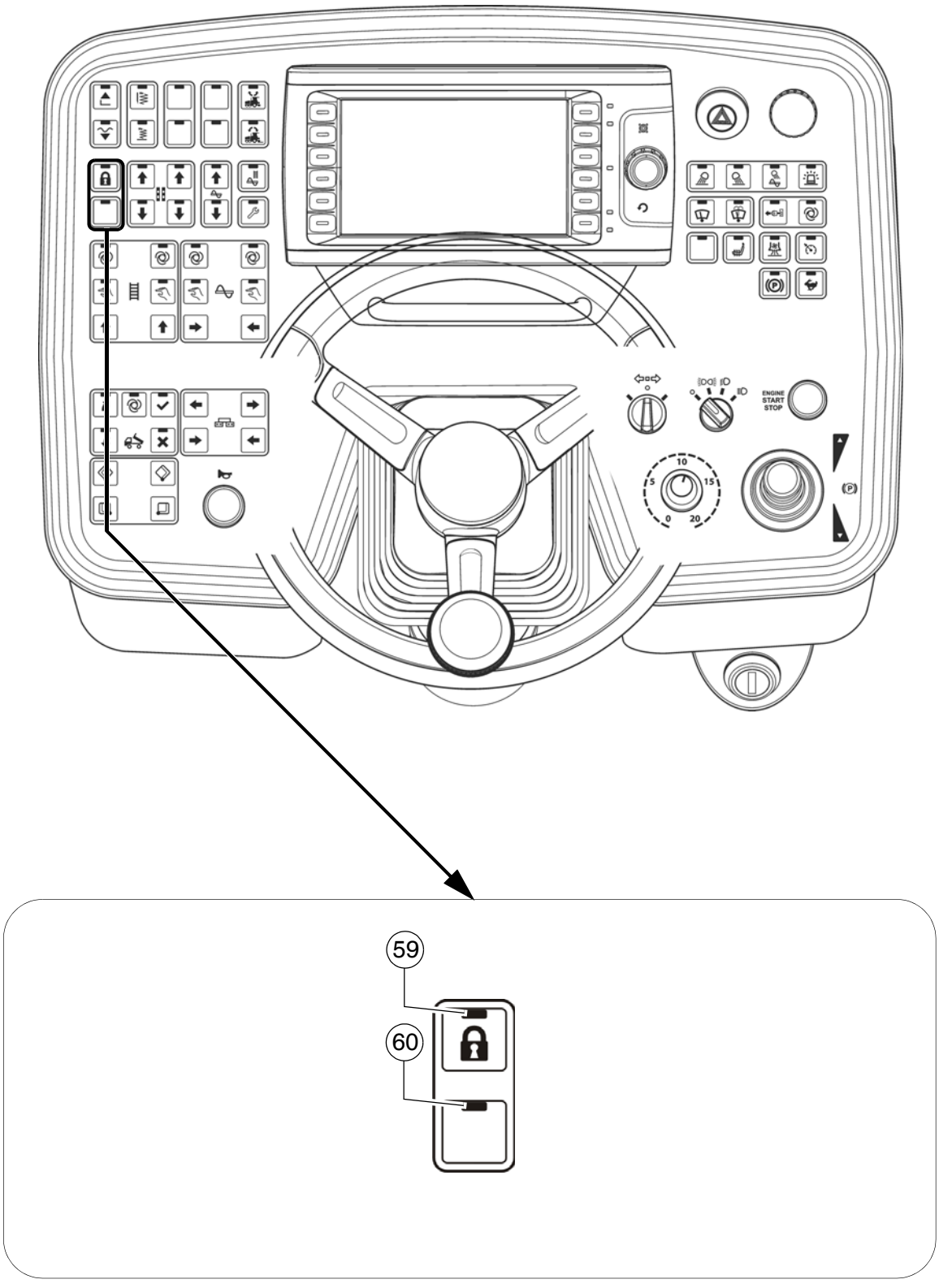
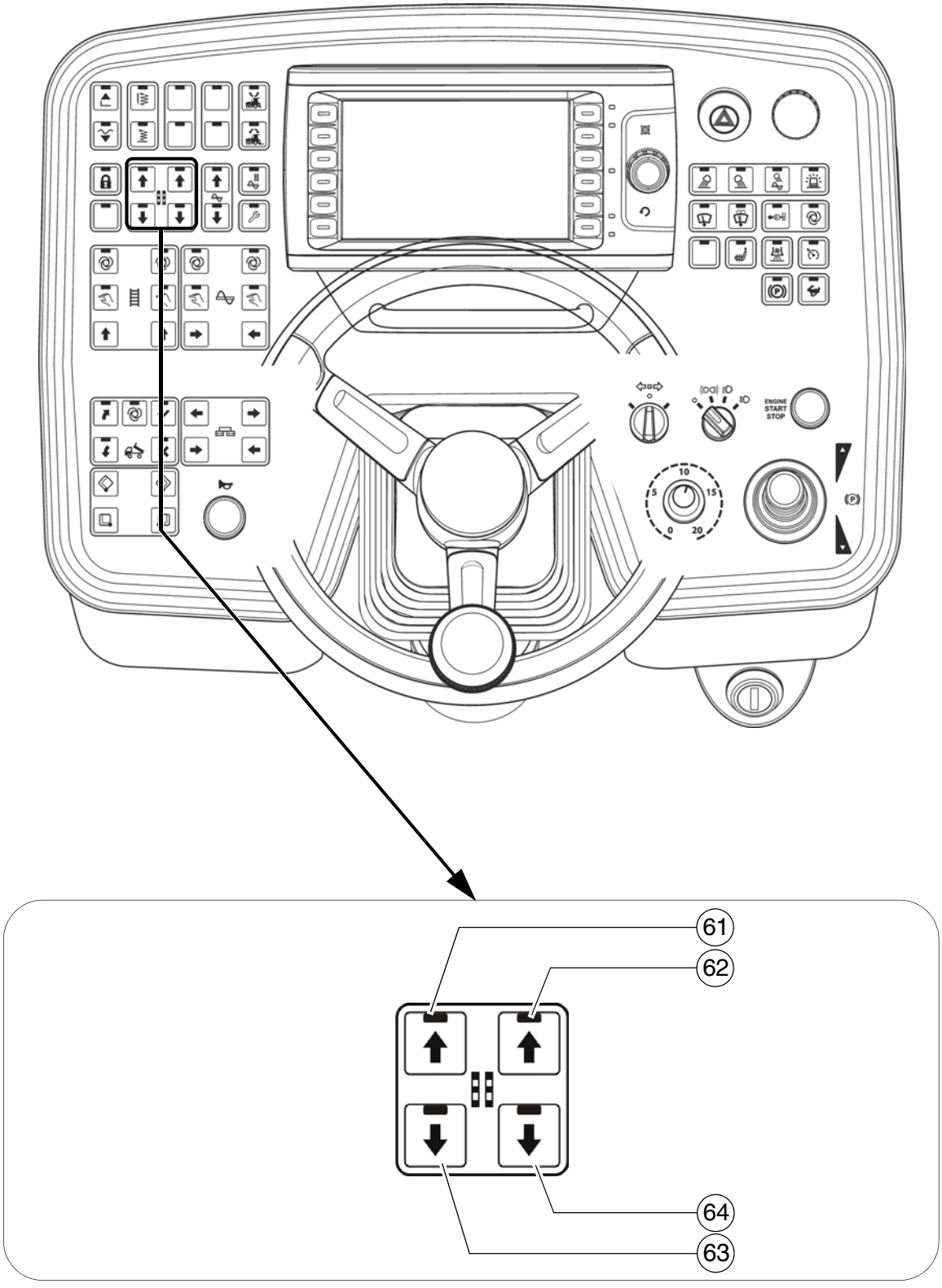
Item	Designation	Brief description
57	Left auger "MANUAL" Conveying direction inwards	Pushbutton function: - To manually trigger the conveying function for the left half of the auger, conveying direction inwards. ☞ For manual triggering, the auger function must be switched to "AUTO" or "MANUAL" ☞ On manual triggering, the automatic function is overridden with reduced delivery capacity.
58	Right auger "MANUAL" Conveying direction inwards	Pushbutton function: - To manually trigger the conveying function for the right half of the auger, 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.


59
60

Item	Designation	Brief description
59	Main function switch	Detent switch function and LED feedback: - In transport gear: To lock all functions relevant to paving. Despite "Auto" settings in the individual functions, these are not activated when the drive lever is swivelled out. LED permanently ON - In working gear: To lock all detent functions relevant to paving. Despite "Auto" settings in the individual functions, these are not activated when the drive lever is swivelled out. Push-button functions can be carried out. LED flashes - Switch OFF by pressing the button again. ☞ The preset vehicle can be relocated and released at the new paving location. The paving process is continued on swivelling the drive lever out. ☞ On restarting, the function is set to "ON".
60	Not used	

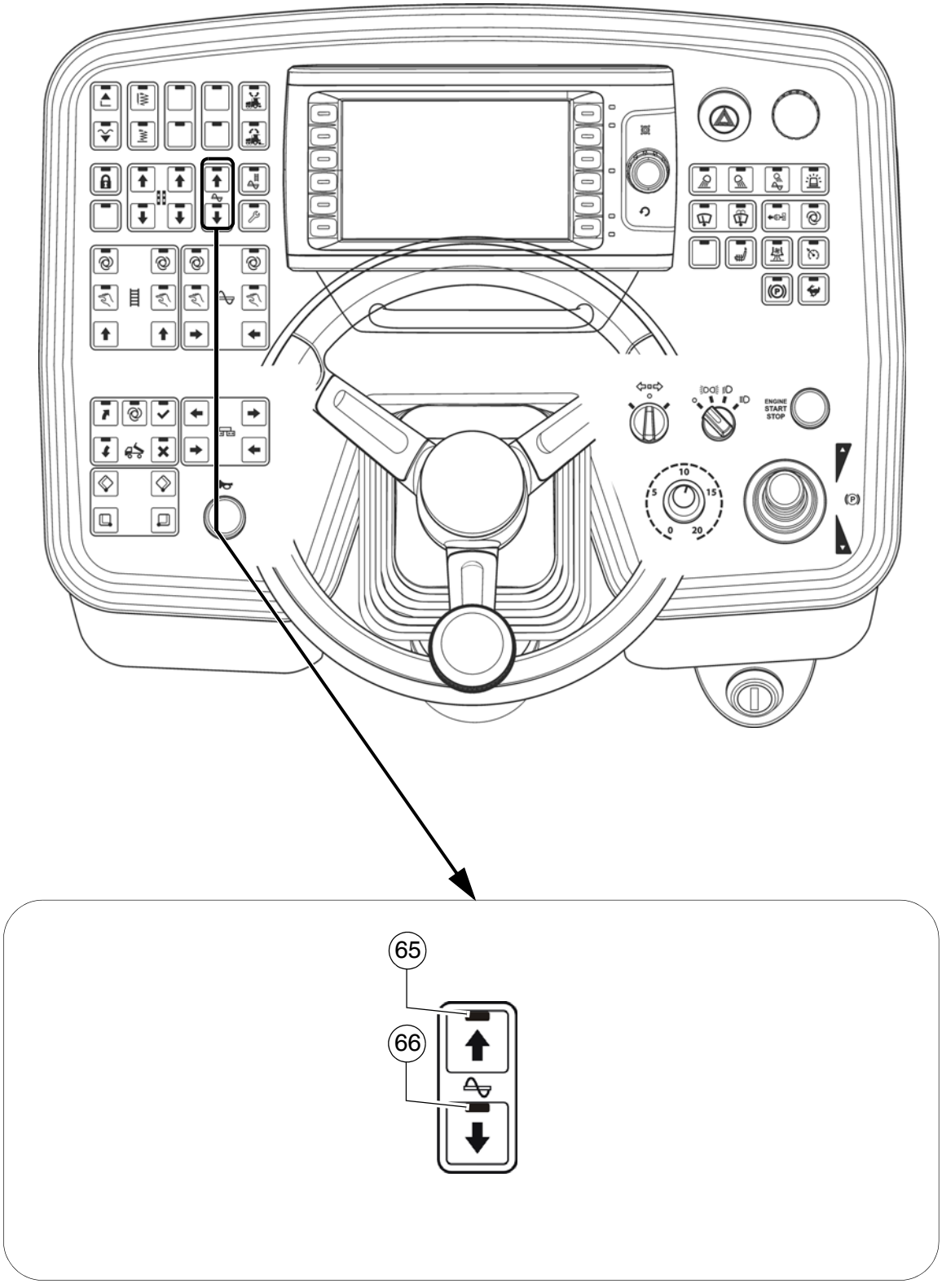

61
62
64
63

Item	Designation	Brief description
61	Adjustment button: Retract / raise left levelling cylinder	Pushbutton function: - For manual actuation of the levelling cylinders in the corresponding direction (when the automatic levelling system is switched off). STOP On actuation, heed danger zones of moving parts of the vehicle!
62	Adjustment button: Retract / raise right levelling cylinder	Pushbutton function: - For manual actuation of the levelling cylinders in the corresponding direction (when the automatic levelling system is switched off). STOP On actuation, heed danger zones of moving parts of the vehicle!
63	Adjustment button: Extend / lower left levelling cylinder	Pushbutton function: - For manual actuation of the levelling cylinders in the corresponding direction (when the automatic levelling system is switched off). STOP On actuation, heed danger zones of moving parts of the vehicle!
64	Adjustment button: Extend / lower right levelling cylinder	Pushbutton function: - For manual actuation of the levelling cylinders in the corresponding direction (when the automatic levelling system is switched off). STOP On actuation, heed danger zones of moving parts of the vehicle!

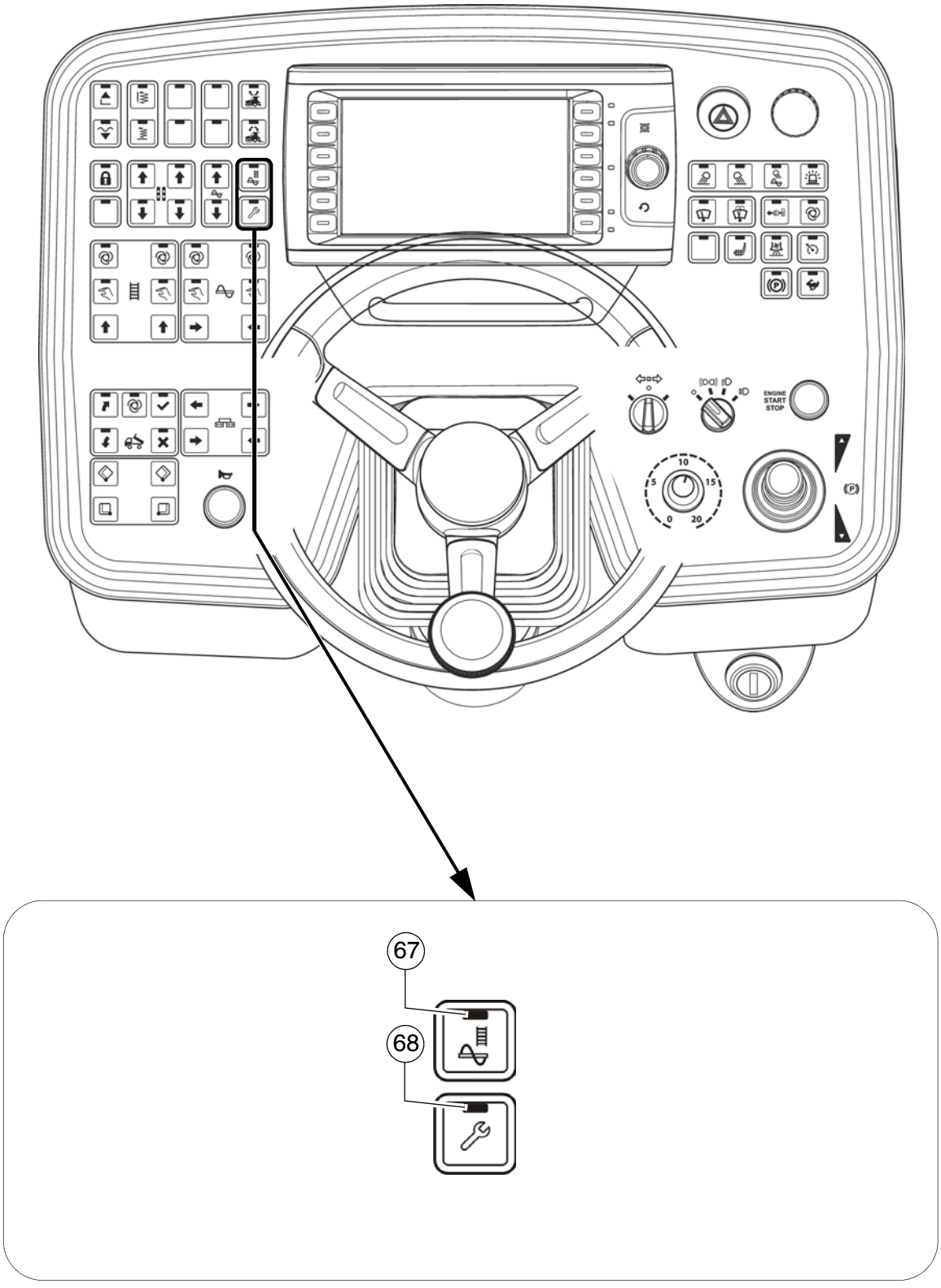
☞ The corresponding switch on the remote control must be switched to "Manual" for this function.

☞ Levelling cylinder adjustment is carried out with the adjustment buttons in the displayed arrow direction.

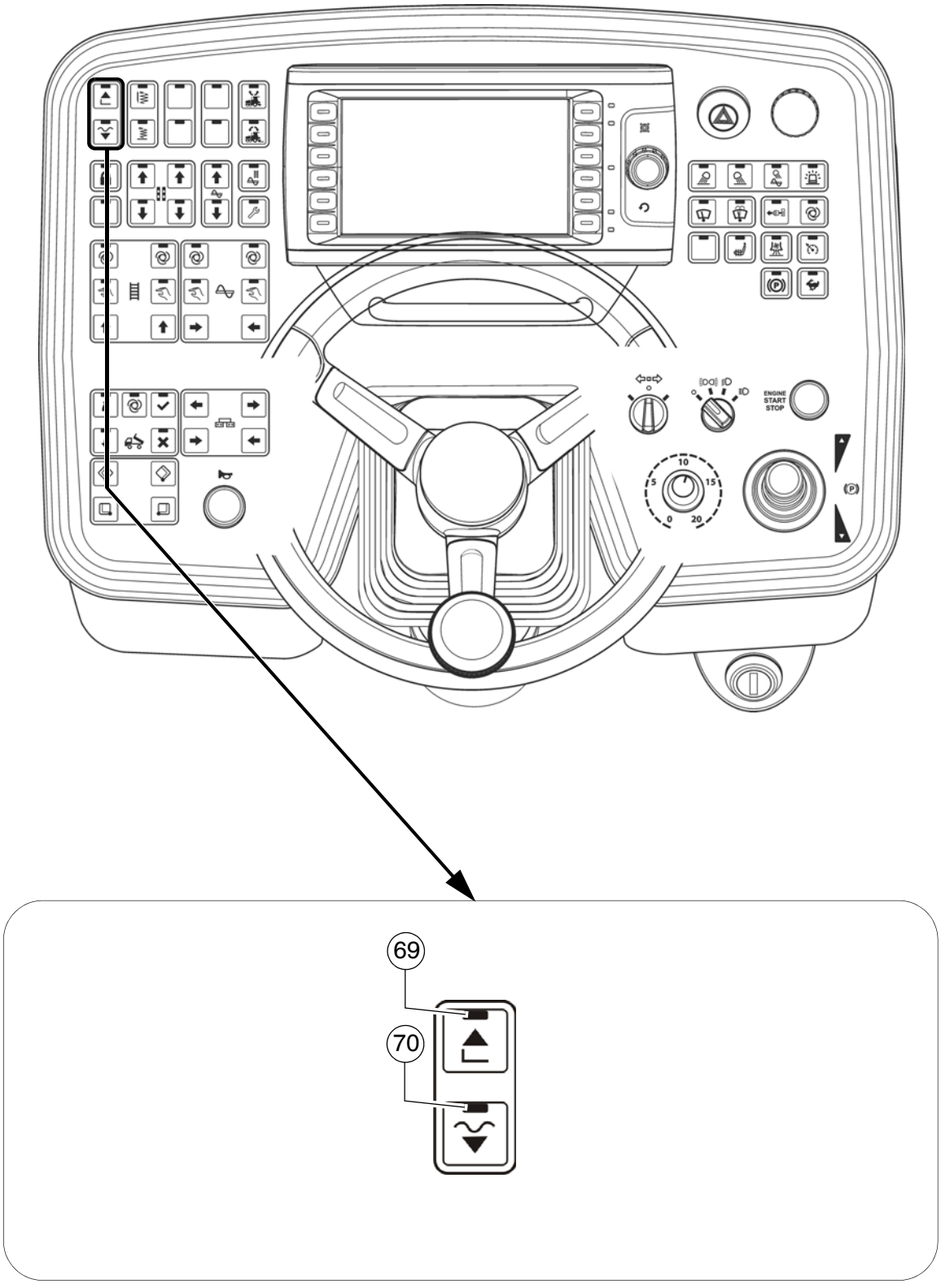
☞ This function is also activated when the remote control is not connected!


65
66

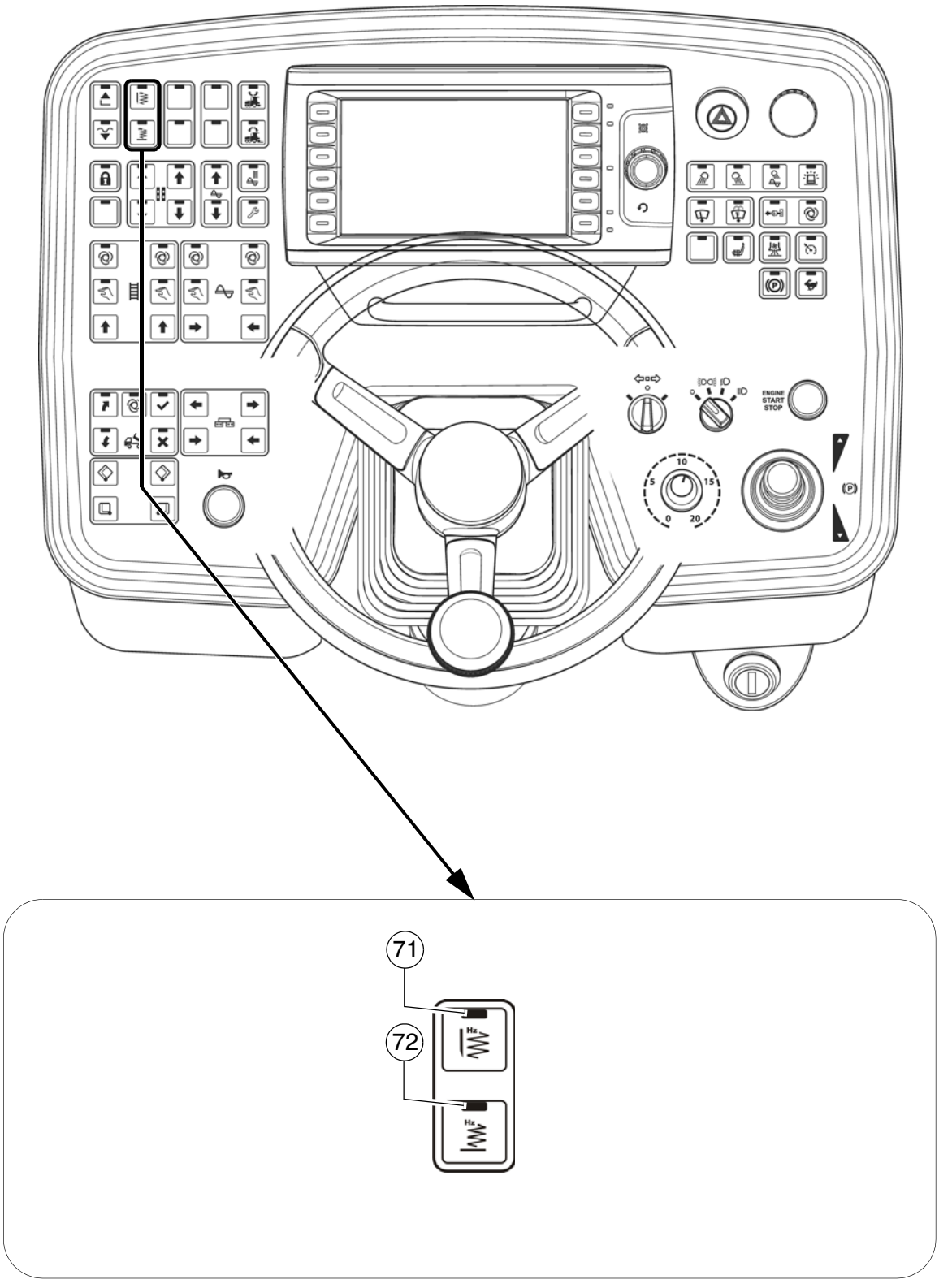
Item	Designation	Brief description
61	Adjustment button: Retract / lift on left	Pushbutton function: - To adjust the selected function in the corresponding direction. STOP On actuation, heed danger zones of moving parts of the vehicle!
62	Adjustment button: Retract / lift on right	Pushbutton function: - To adjust the selected function in the corresponding direction. STOP On actuation, heed danger zones of moving parts of the vehicle!


67
68

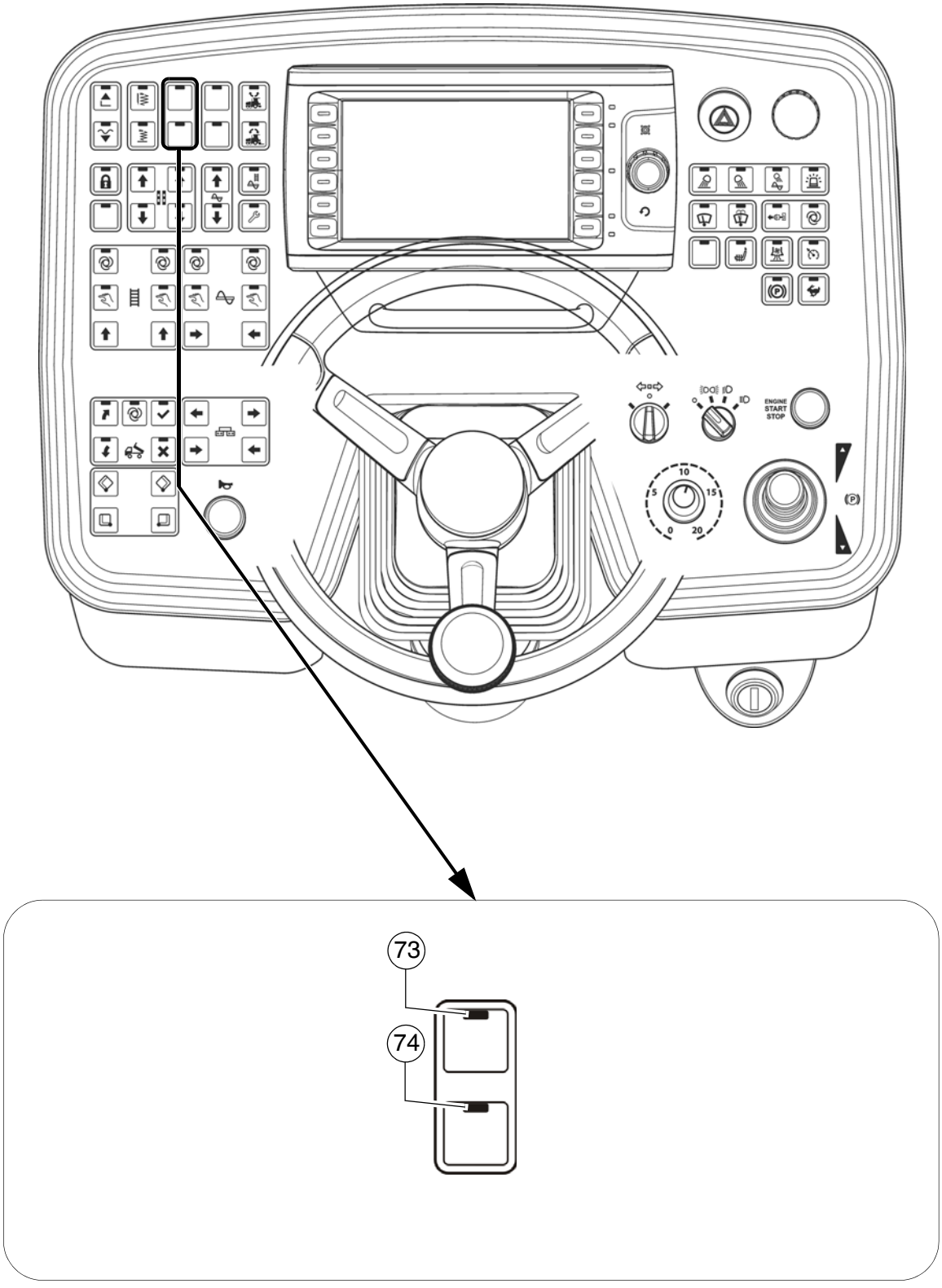
Item	Designation	Brief description
67	Fill vehicle for paving process	Detent switch function and LED feedback: - Filling function for the paving process. The diesel engine's speed is increased to the preselected nominal speed and all conveying functions set to "Automatic" (conveyor and auger) are engaged. ☞ The main function switch must be set to the OFF position. - Switch OFF by pressing the button again or by swivelling the drive lever out to the paving position. - On reaching the adjusted material height (material sensor), the filling function is automatically switched off. STOP On actuation, heed danger zones of moving parts of the vehicle!
68	Set-up mode/ cleaning mode (○)	Detent switch function and LED feedback: - Set-up mode: When the vehicle is stationary, this function enables all operating functions, which are only activated when the drive lever is swivelled out (vehicle driving), to be started up. ☞ The main function switch must be set to the OFF position. ☞ The engine speed is increased to the preselected nominal value. - Cleaning mode: After finishing work, this function improves the cleaning of the conveying and compacting elements at reduced speed: - Set either auger, conveyor or tamper to "Auto". - Press button for min. 2 sec. - LED flashes - Press button again to end cleaning mode.


69
70

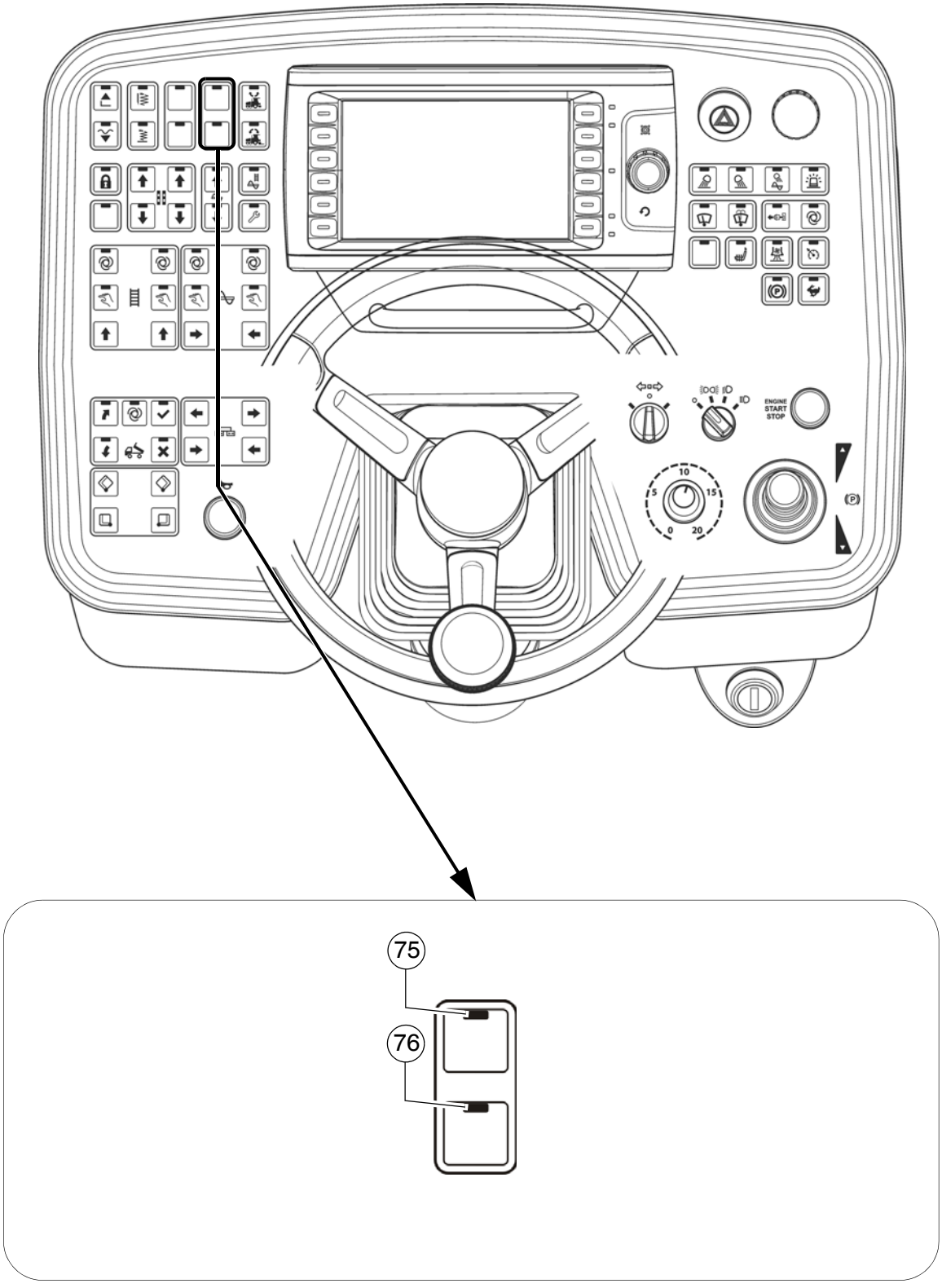
Item	Designation	Brief description
69	Lift screed	Pushbutton function with LED feedback: - For lifting the screed (LED ON) and for switching off the "Screed floating position" function ⚠ Check whether the screed transport safeguard is inserted! STOP On actuation, heed danger zones of moving parts of the vehicle!
70	Paving stop + relief pressure / Lower screed + floating position	Button with detent switch function and LED feedback ☞ The main function switch must be set to the OFF position. - Button function: Keep the button pressed for longer than 1.5 seconds (LED ON). The screed is lowered as long as the button is pressed. When the button is released, the screed is held in the stop paving + relief pressure position. (LED ON). ⚠ Screed may lower slowly! - Resting function: Press the button briefly (LED ON) - the screed is lowered. Press the button briefly again (LED OFF) - the screed is stopped. - Screed floating position: Pressing the button switches the LED ON and the screed is in readiness in the "floating position", which is activated via the swivelled out drive lever. - Switch off by pressing the button again or via the lift screed button. ☞ During paving, the screed always remains in its floating position. During intermediate stops (drive lever in centre position), the screed is switched to stop paving + relief pressure. ⚠ Check whether the screed transport safeguard is inserted! STOP On actuation, heed danger zones of moving parts of the vehicle!


71
72

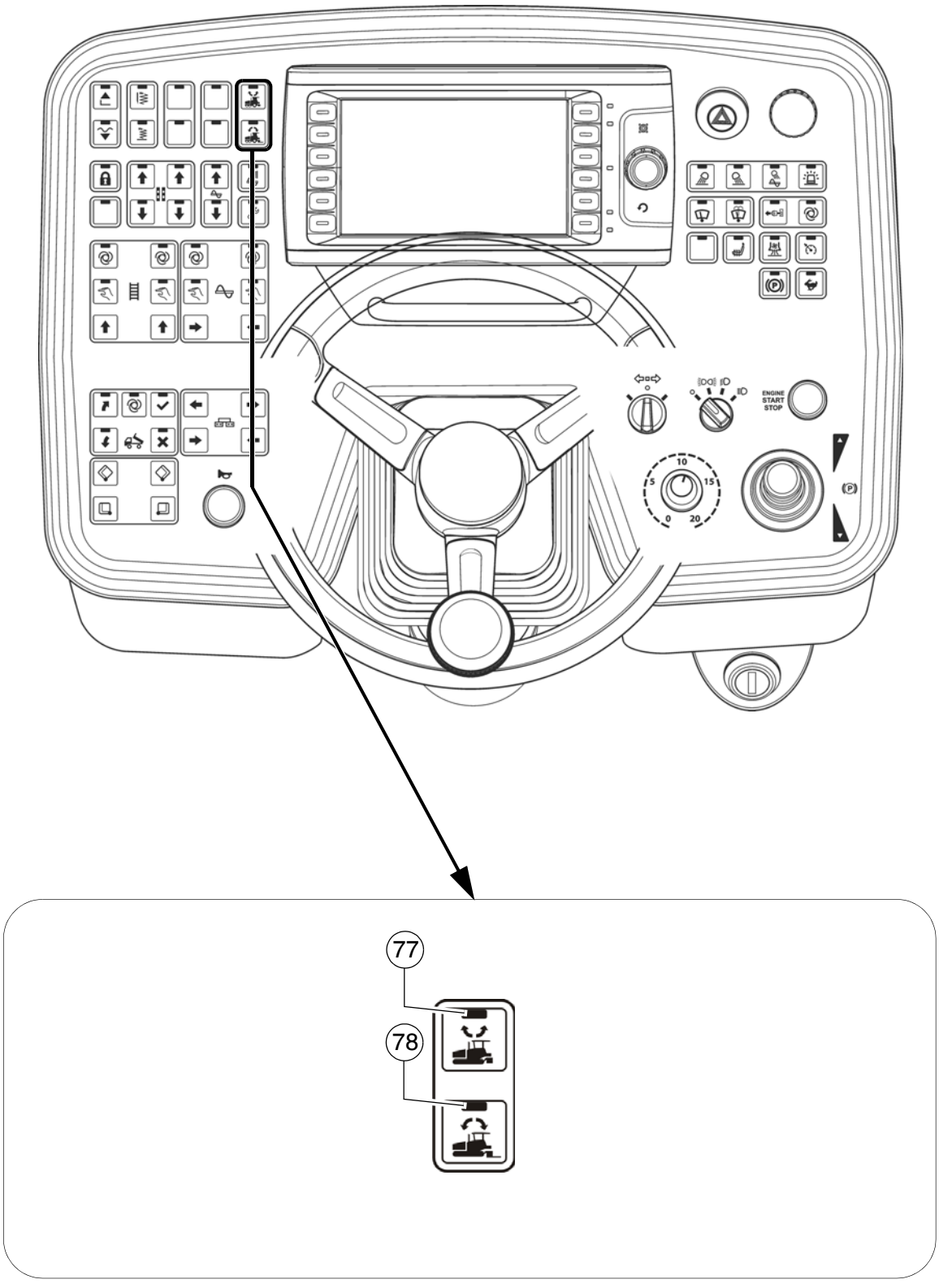
Item	Designation	Brief description
71	Tamper (screed-specific)	Button with detent switch function and LED feedback: - Tamper ON and OFF function. - Activation is carried out by swivelling the drive lever out. - Switch OFF by pressing the button again. ☞ The main function switch must be set to the OFF position. ☞ The function is preset in conjunction with the "Set-up mode" button.
72	Vibration (screed-specific)	Button with detent switch function and LED feedback: - Vibration ON and OFF function. - Activation is carried out by swivelling the drive lever out. - Switch OFF by pressing the button again. ☞ The main function switch must be set to the OFF position. ☞ The function is preset in conjunction with the "Set-up mode" button.


73
74

Item	Designation	Brief description
73	Screed relieving	Button with detent switch function and LED feedback: - For relieving the screed to influence the traction force and compaction ratio. - Switch OFF by pressing the button again or switching between screed relieving and screed charging. - To preset the hydraulic oil pressure, switch this button and the "Set-up mode" button to "ON".
74	Screed charging	Button with detent switch function and LED feedback: - For relieving the screed to influence the traction force and compaction ratio. - Switch OFF by pressing the button again or switching between screed relieving and screed charging. - To preset the hydraulic oil pressure, switch this button and the "Set-up mode" button to "ON".


75
76

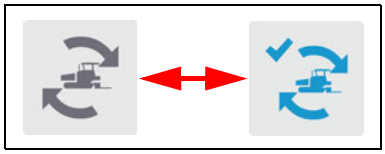
Item	Designation	Brief description
75	Extend cross-beam lock (○)	Pushbutton function with LED feedback: - To hydraulically extend the crossbeam lock. ⚠ Before retracting and extending the lock, raise the crossbeams slightly over the locking bolts (raise the screed)!
76	Retract cross-beam lock (○)	Pushbutton function with LED feedback: - To hydraulically retract the screed lock. ⚠ Before retracting and extending the lock, raise the crossbeams slightly over the locking bolts (raise the screed)!


77
78

☞ The "Set Assist" function prepares the paver to relocate to another section of roadworks or for transportation.
When the function is activated, previously selected vehicle functions are carried out to make the vehicle ready for transport.
The function can be reset after relocating the paver.
This restores the corresponding elements to the previously saved working condition /position.

☞ The elements that can be actuated by the function are selected in the corresponding menu in the vehicle display.

☞ The working condition / current position of the corresponding functions and components must be saved initially for later use.
See display description

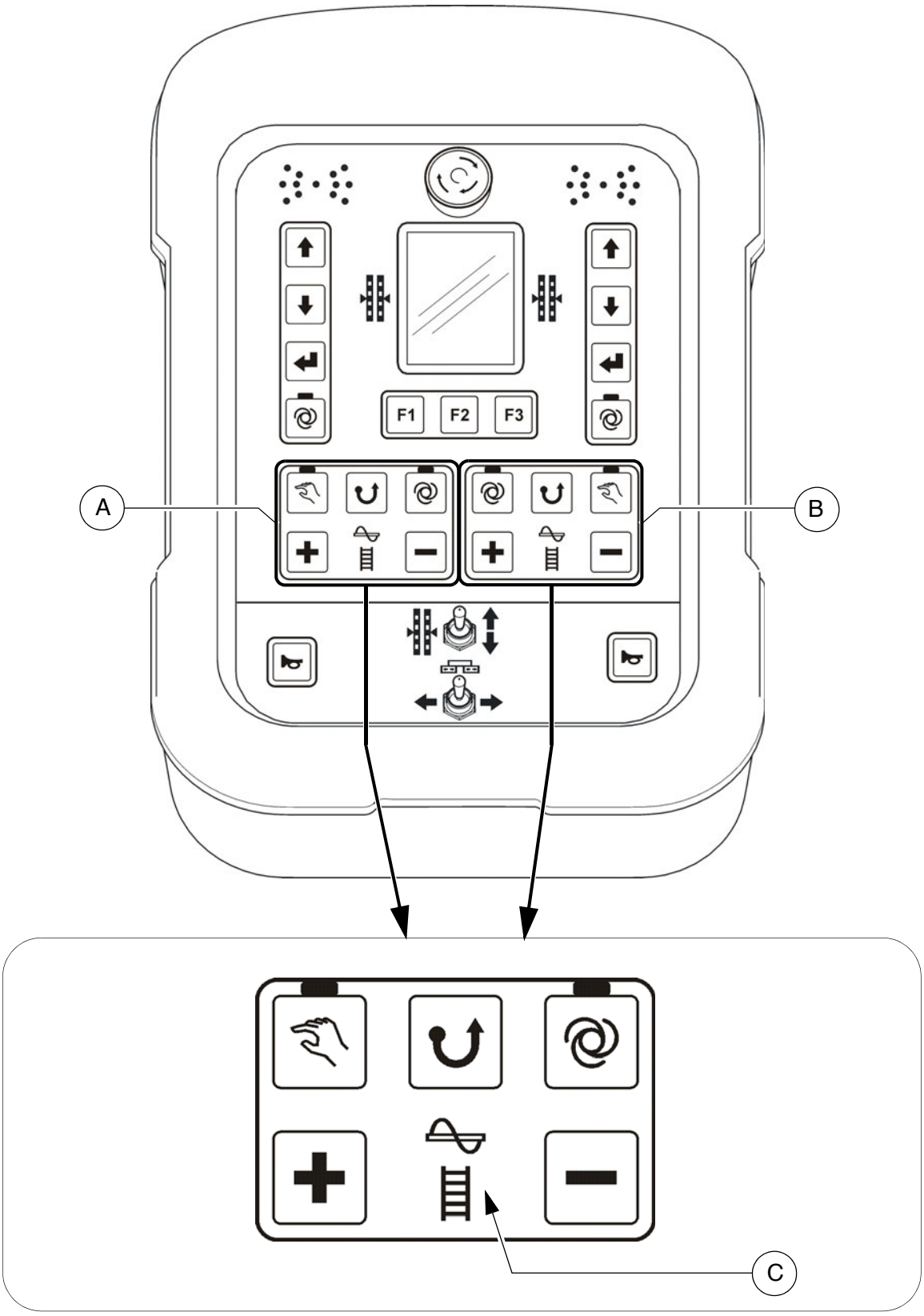


☞ The following conditions must be fulfilled to use the function:

- Drive lever (13) in neutral position, road speed "0"
- Set-up mode (68) OFF

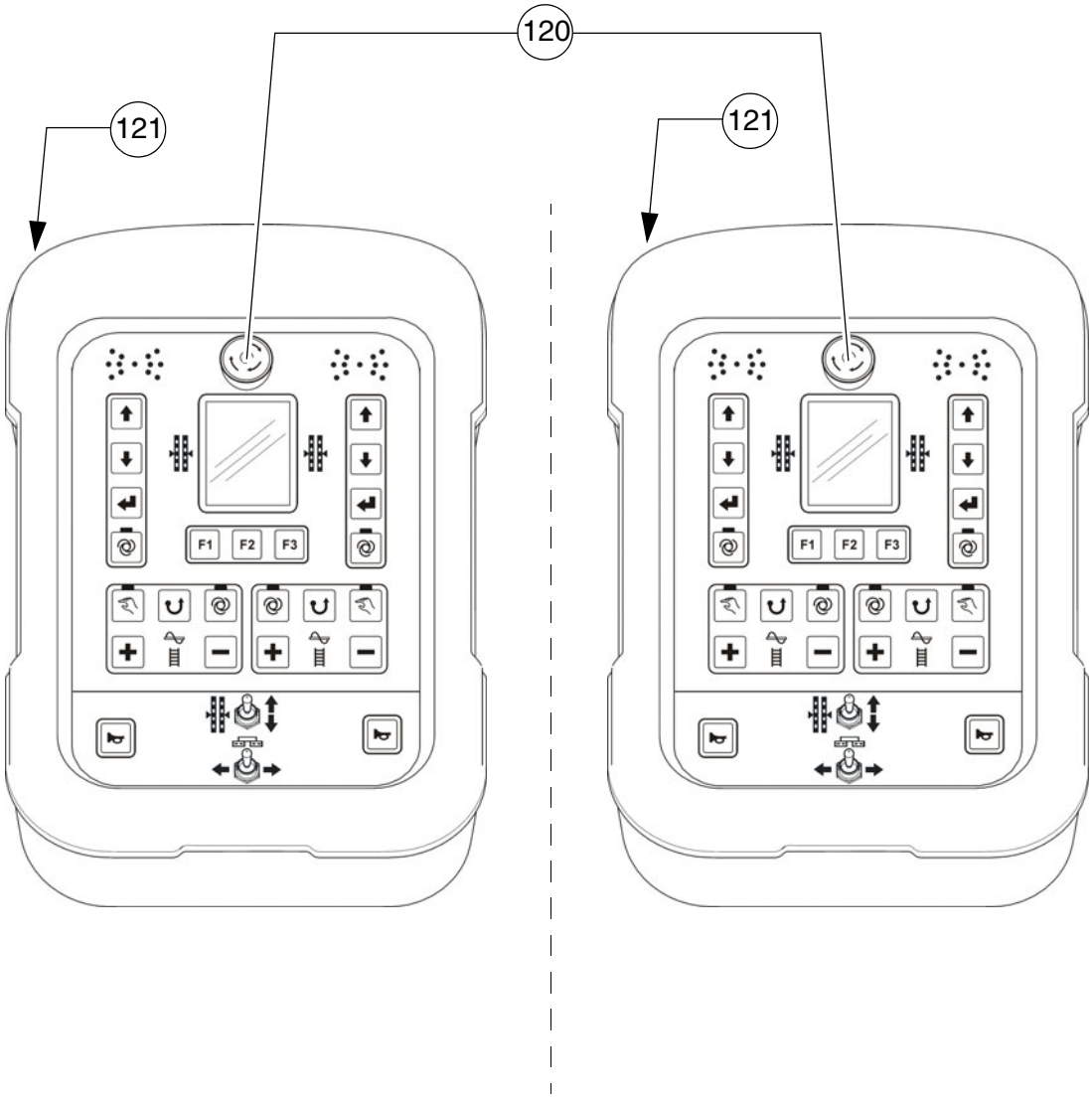
Item	Designation	Brief description
77	Set "Set assist" (○)	Pushbutton function with LED feedback: - To set up the transport condition. - Press and hold button (LED flashes) until completion of all functions to achieve transport condition (LED ON). STOP On actuation, heed danger zones of moving parts of the vehicle!
78	Reset "Set assist" (○)	Pushbutton function with LED feedback: - To set up the previous working condition. - Press and hold button (LED flashes) until completion of all functions to achieve last saved working condition (LED ON). STOP On actuation, heed danger zones of moving parts of the vehicle!

3 Remote control



☞ Depending on the side of the vehicle, the button blocks (A) and (B) are assigned to either the auger or the conveyor control system. The relevant element which is controlled is indicated by an illuminated symbol (C).

⚠ Important! Do not disconnect remote controls during operation!
This causes the paver finisher to be shut down!


120
121
121
F1
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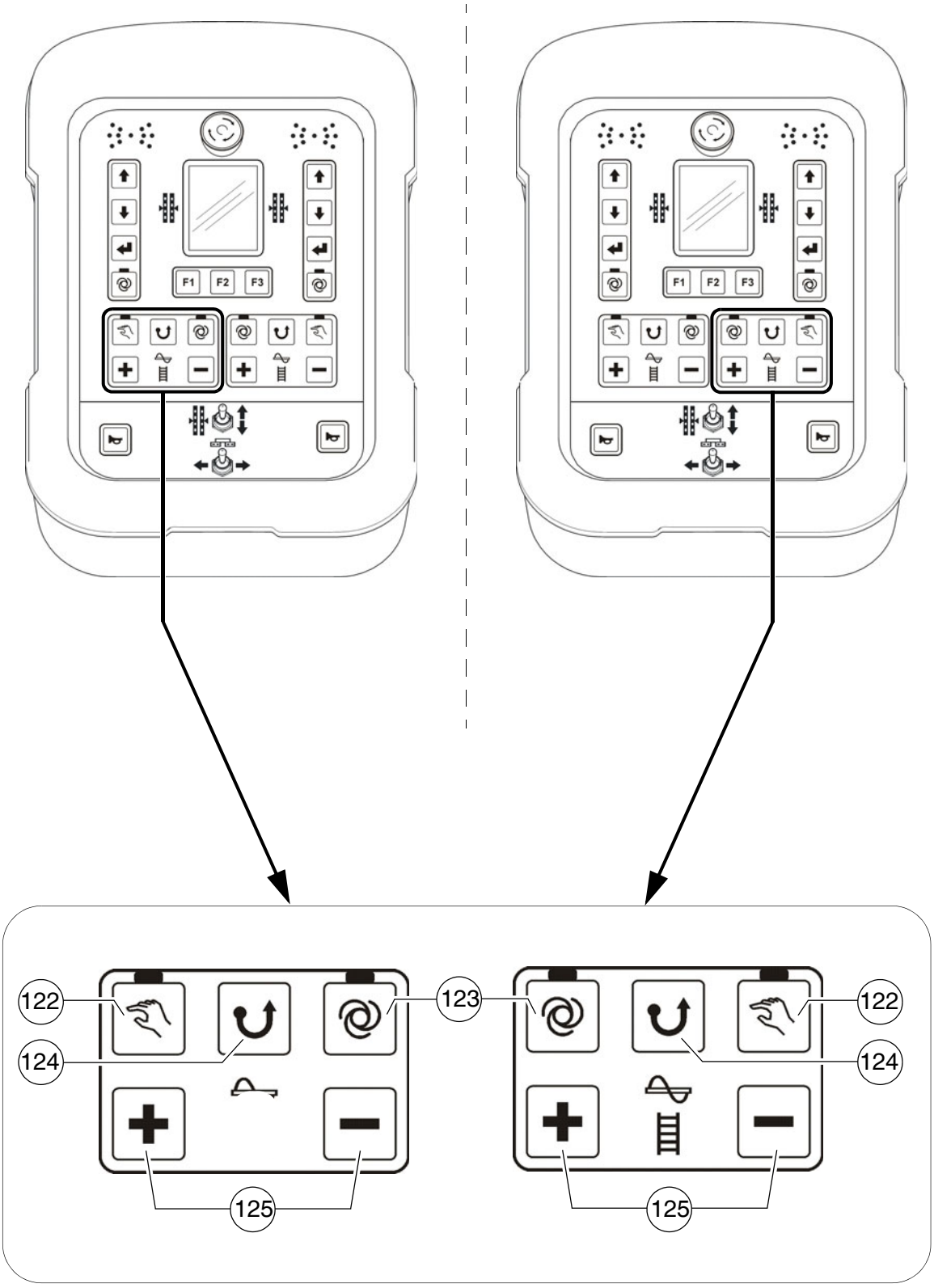
F3

Item	Designation	Brief description
120	Emergency stop button	Press in an emergency (danger to persons, impending collision, etc.)! - Pressing the emergency stop button switches off the engine, the drives and the steering system. Making way, lifting the screed or other actions are then no longer possible! Danger of accidents! - 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.
121	Remote control connection socket	Connect the plug to the screed. ☞ Whether this involves the left-hand or the right-hand remote control is automatically detected.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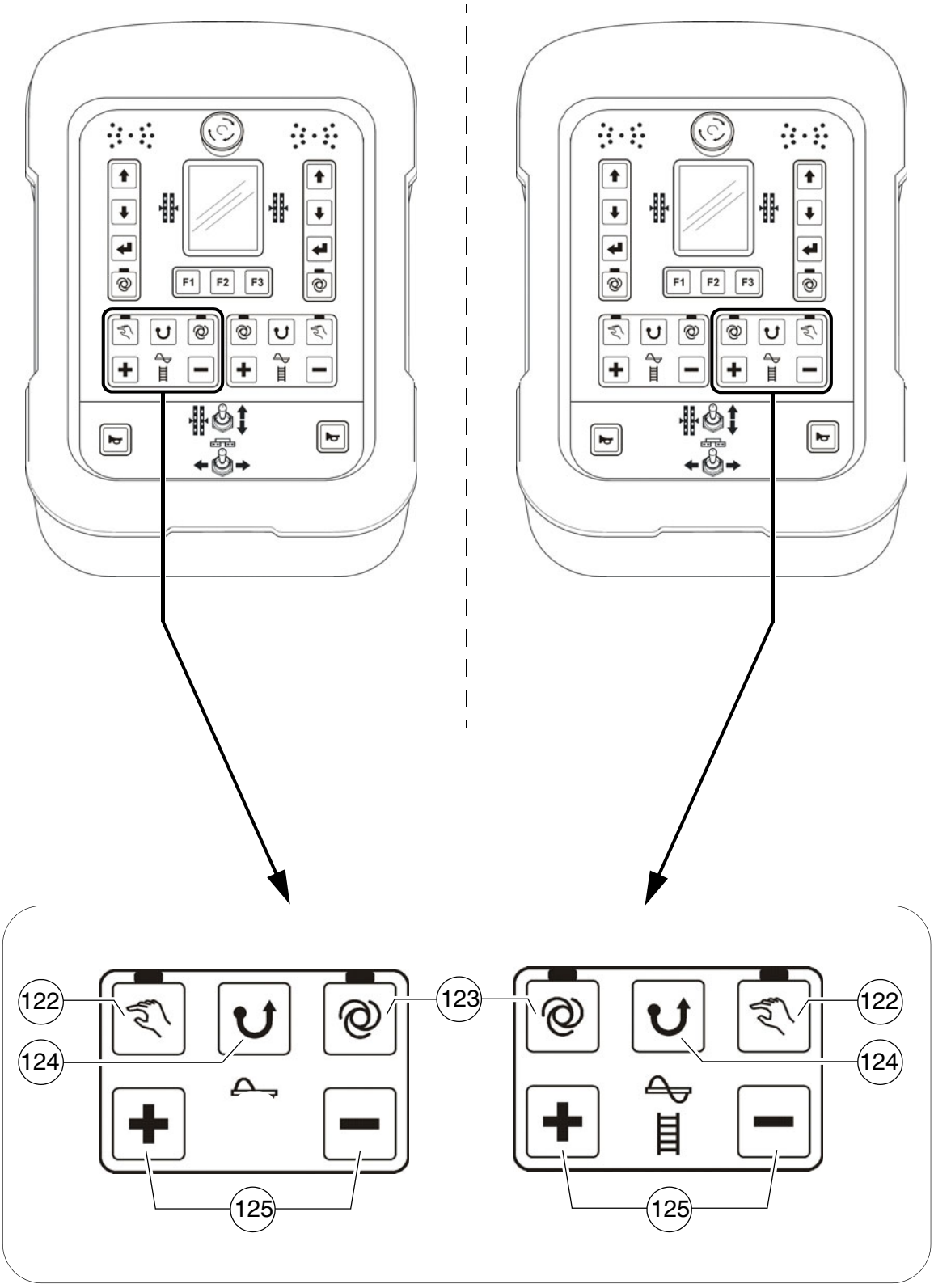
Item	Designation	Brief description
122	Auger "MANUAL"	Button with detent switch function and LED feedback: - The conveying function of the corresponding half of the auger is switched on continuously with full delivery capacity, without material control via the limit switches. - Switch OFF by pressing the button again ☞ The function is shut off by pressing the EMERGENCY STOP button or restarting the vehicle. ☞ The main function switch locks the conveying function.
123	Auger "AUTO"	Button with detent switch function and LED feedback: - The conveying function of the corresponding half of the auger is switched on when the drive lever is swivelled out and is continuously controlled via the material limit switches. - Switch OFF by pressing the button again ☞ The function is shut off by pressing the EMERGENCY STOP button or restarting the vehicle. ☞ The main function switch (operating panel) locks the conveying function.
124	Auger "Reversing mode"	Pushbutton function: - The auger's conveying direction can be reversed in order to slightly reverse any paving material which may be positioned just in front of the auger. This enables e.g. material losses to be avoided during transportation. - Temporally limited reversal is carried out when the button is pressed continuously. ☞ The auger function must be switched to "AUTO" or "MANUAL" for reversing mode. ☞ In reversing mode, the automatic function is overridden with reduced capacity.


F1
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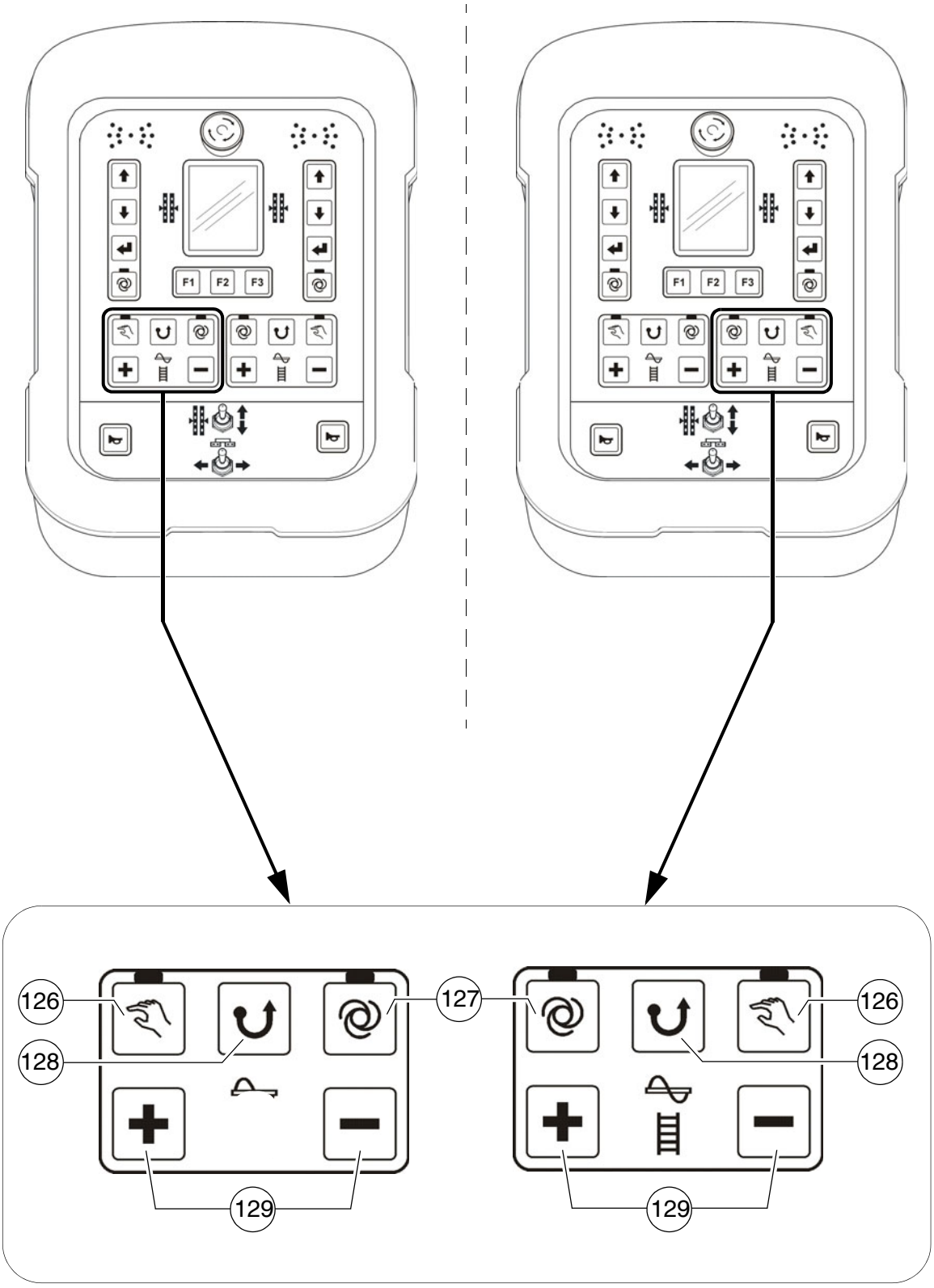
125

Item	Designation	Brief description
125	Auger delivery capacity	Pushbutton function: - Plus/minus buttons for adjusting the delivery capacity. - The delivery capacity is slowed down or speeded up depending on the length of time for which the button is pressed. ☞ The auger function must be switched to "AUTO" or "MANUAL" for making the adjustment.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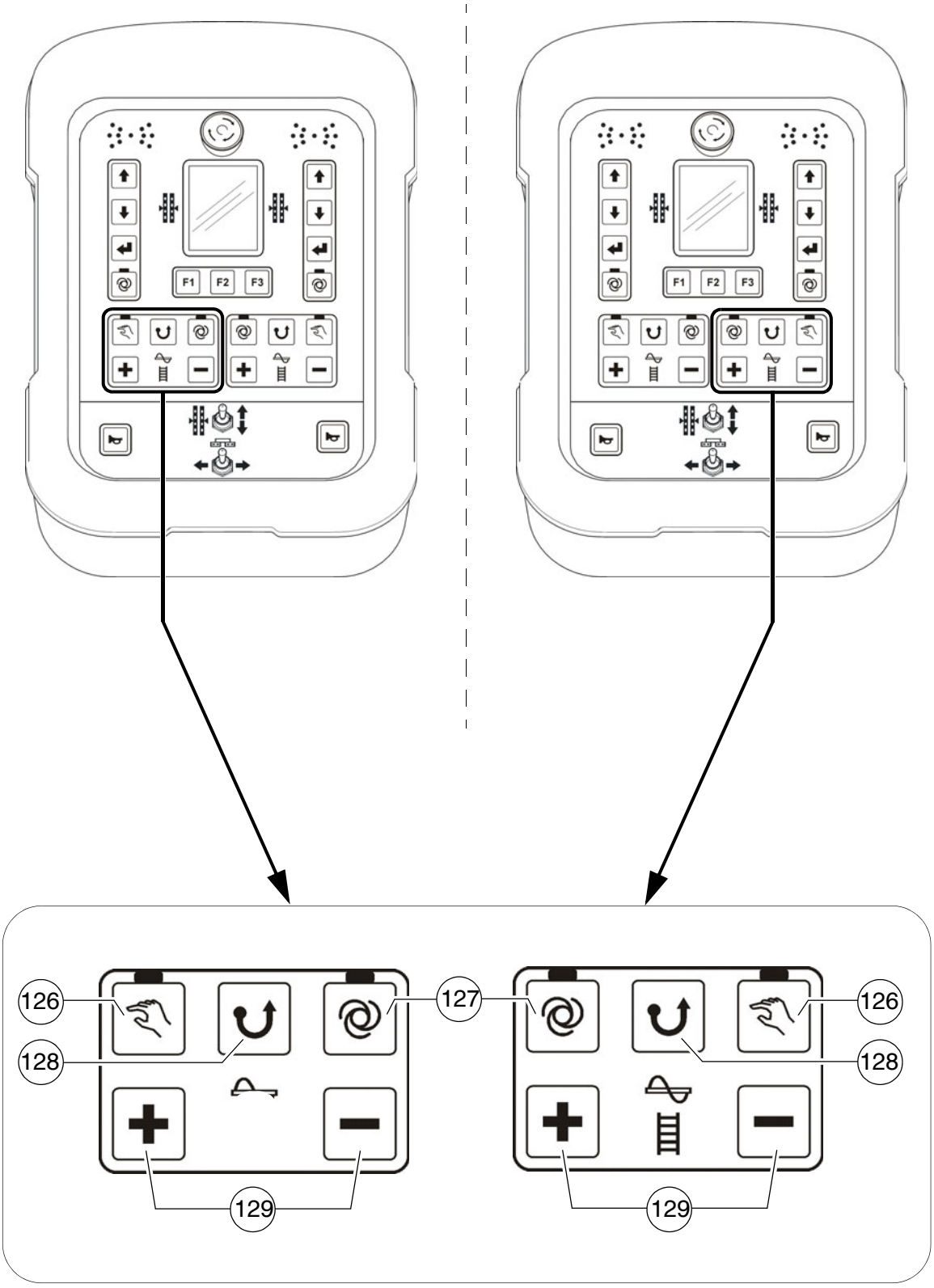
129

Item	Designation	Brief description
126	Conveyor "MANUAL"	Button with detent switch function and LED feedback: - The conveying function of the corresponding half of the conveyor is switched on continuously with full delivery capacity, without material control via the limit switches. - Switch OFF by pressing the button again ☞ The function is shut off by pressing the EMERGENCY STOP button or restarting the vehicle. ☞ The main function switch locks the conveying function.
127	Conveyor "AUTO"	Button with detent switch function and LED feedback: - The conveying function of the corresponding half of the conveyor is switched on when the drive lever is swivelled out and is continuously controlled via the material limit switches. - Switch OFF by pressing the button again ☞ The function is shut off by pressing the EMERGENCY STOP button or restarting the vehicle. ☞ The main function switch (operating panel) locks the conveying function.
128	Conveyor "Reversing mode"	Pushbutton function: - The conveying direction of the corresponding half of the conveyor can be reversed in order to slightly reverse e.g. paving material which may be present in the material tunnel. - Temporally limited reversal is carried out when the button is pressed continuously. ☞ The conveyor function must be switched to "AUTO" or "MANUAL" for reversing mode. ☞ In reversing mode, the automatic function is overridden with reduced capacity.


F1
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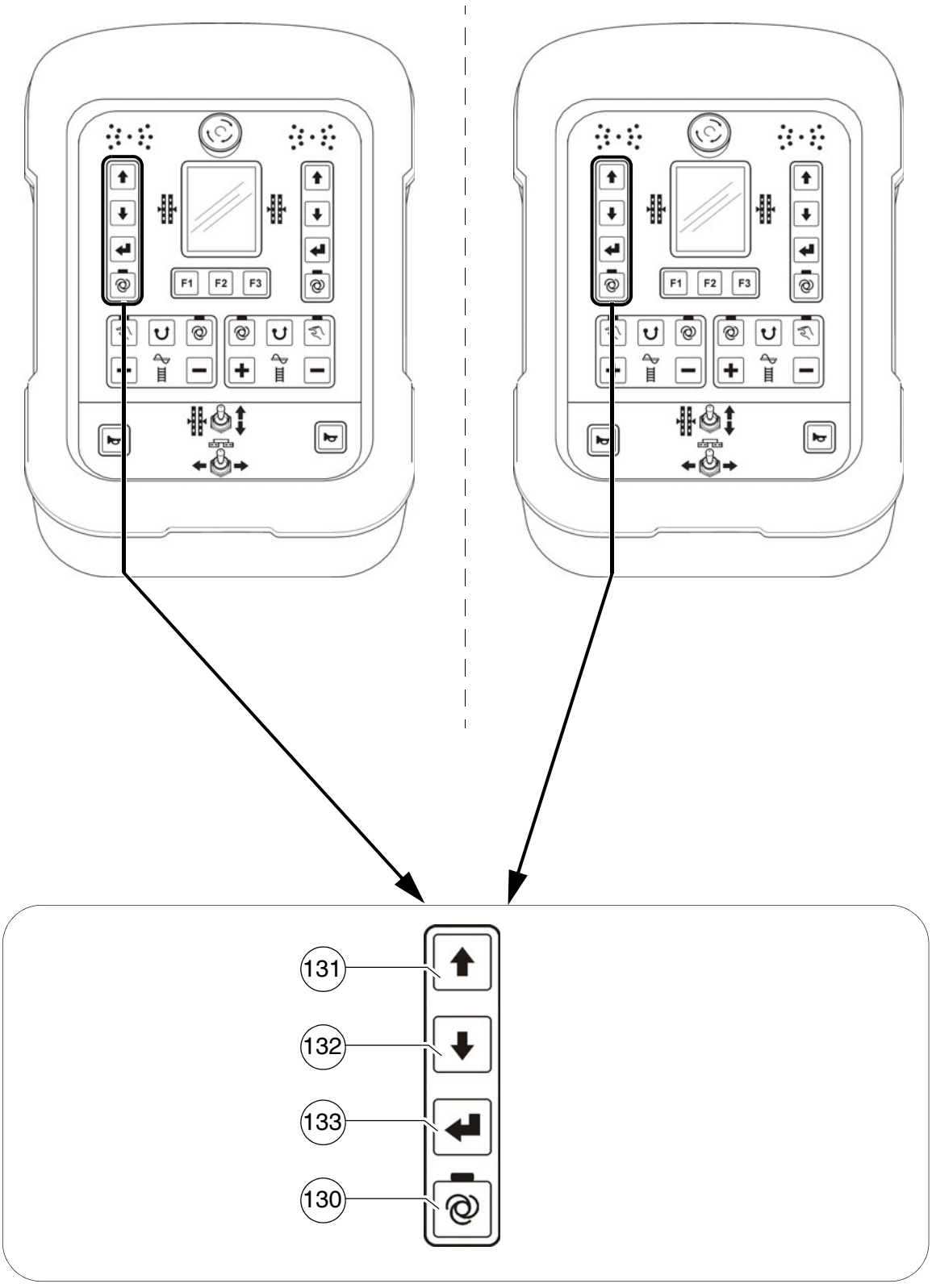
129

Item	Designation	Brief description
129	Conveyor delivery capacity	Pushbutton function: - Plus/minus buttons for adjusting the delivery capacity. - The delivery capacity is slowed down or speeded up depending on the length of time for which the button is pressed. ☞ The conveyor function must be switched to "AUTO" or "MANUAL" for making the adjustment.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F1
F2
F3
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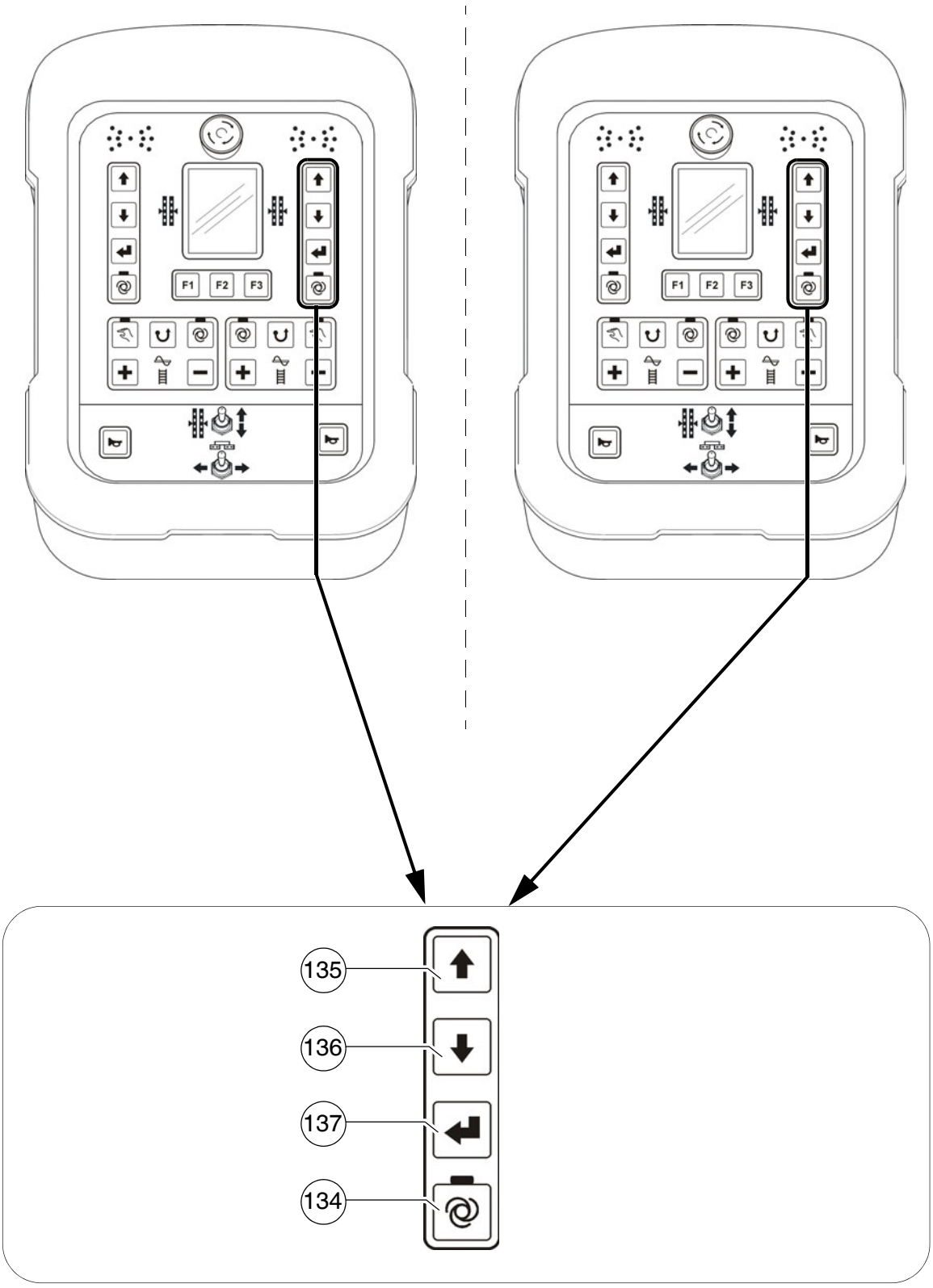
Item	Designation	Brief description
130	Operating mode levelling "AUTO" / "MANUAL" left	Button with detent switch function and LED feedback: - Operating mode "AUTO" (LED ON): levelling engages automatically when the drive lever is swivelled out for paving operation. - Operating mode "MANUAL" (LED OFF): levelling switched off.
131 / 132	Adjustment Left levelling cylinder	Pushbutton function: - To retract and extend the levelling cylinder on the corresponding side of the vehicle. ☞ On adjustment, note the levelling display in the remote control display! ☞ For direct adjustment, the levelling function must be set to "MANUAL". In "AUTO" operating mode, adjustment is carried out after confirming the enter button (133).
133	Enter	Pushbutton function: - For confirming levelling cylinder adjustment in "Auto" operating mode. Levelling cylinder adjustment is carried out by pressing the button.


F1
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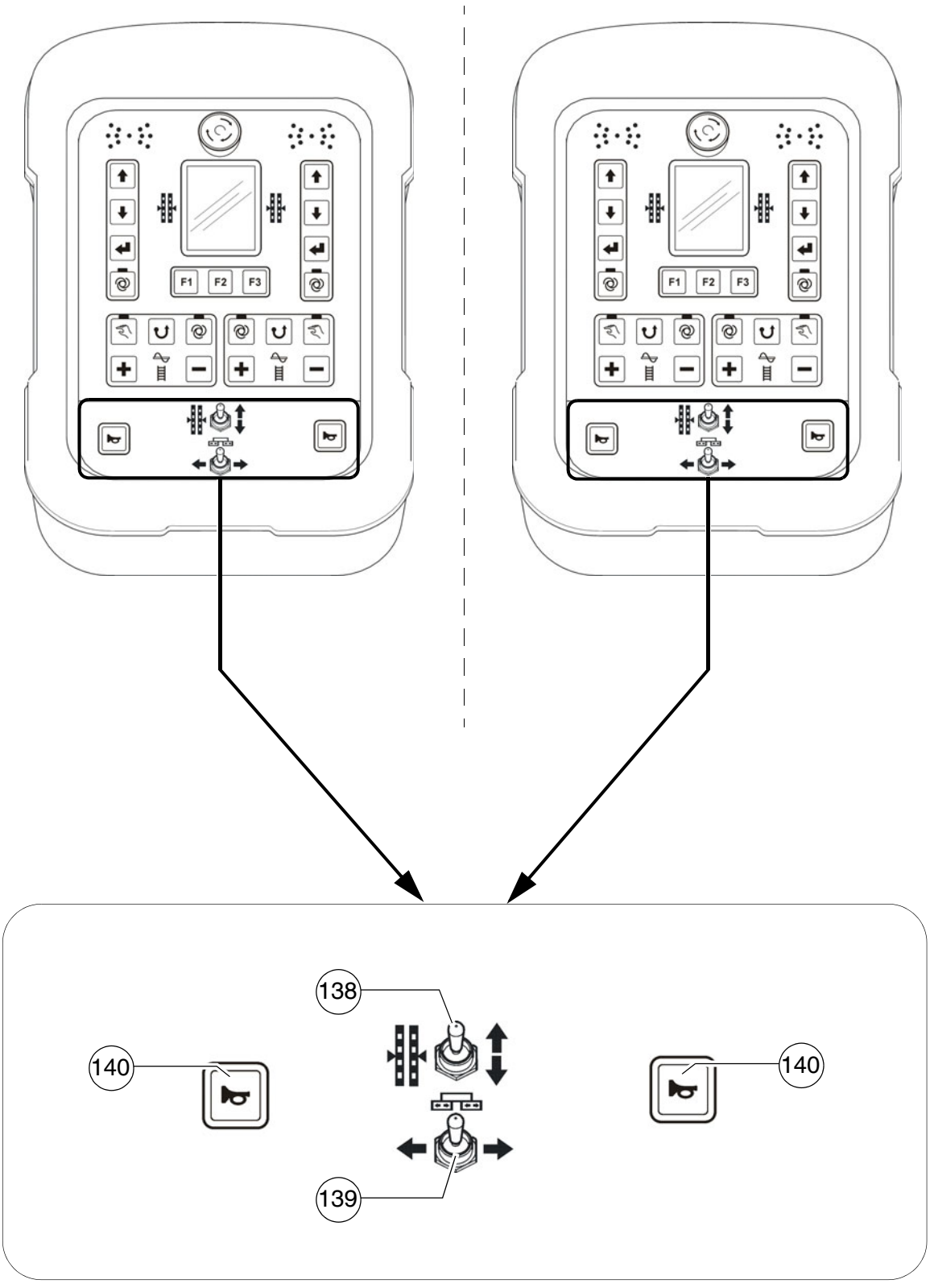
135
136
137
134

Item	Designation	Brief description
134	Operating mode Levelling "AUTO" / "MANUAL" right	Button with detent switch function and LED feedback: - Operating mode "AUTO" (LED ON): levelling engages automatically when the drive lever is swivelled out for paving operation. - Operating mode "MANUAL" (LED OFF): levelling switched off.
135 / 136	Adjustment Right levelling cylinder	Pushbutton function: - To retract and extend the levelling cylinder on the corresponding side of the vehicle. ☞ On adjustment, note the levelling display in the remote control display! ☞ For direct adjustment, the levelling function must be set to "MANUAL". In "AUTO" operating mode, adjustment is carried out after confirming the enter button (137).
137	Enter	Pushbutton function: - For confirming levelling cylinder adjustment in "Auto" operating mode. Levelling cylinder adjustment is carried out by pressing the button.


F1
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F1
F2
F3
138
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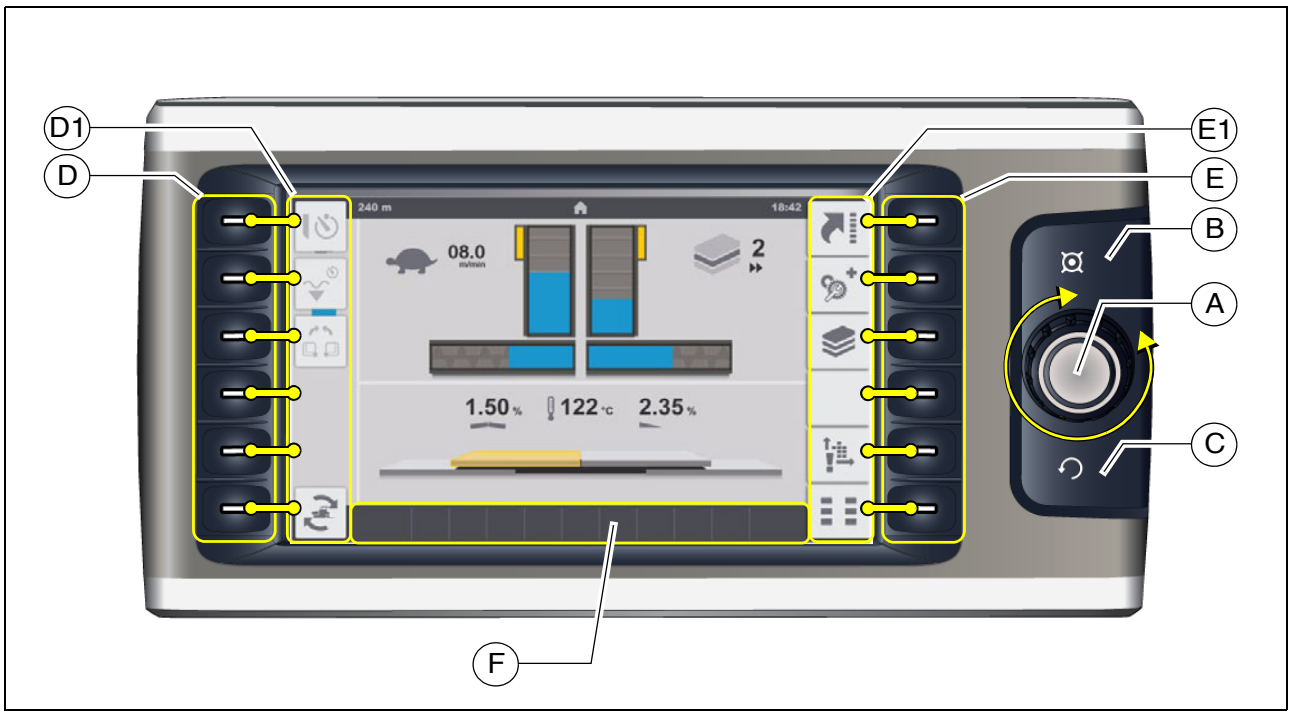
140
139

Item	Designation	Brief description
138	Levelling cylinder manual	Pushbutton function: - For manual actuation of the levelling cylinders on the corresponding side of the vehicle when the automatic levelling system is switched off (LED OFF). ☞ On adjustment, note the levelling display in the remote control display!
139	Extend/retract screed	Pushbutton function: - To retract and extend the screed half on the corresponding side of the vehicle. ☞ This function is not used in vehicle configurations with a screed which cannot be extended. STOP On actuation, heed danger zones of moving parts of the vehicle!
140	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!

D 23.18 Operating the display

1 Operation of the input and display terminal



Button layout on the display

- (A) Jog dial (knob to be turned+push button):
  - Turn:
    - to select various adjustment parameters within a menu
    - to adjust the parameter
    - to select various selection possibilities within a menu
  - Press:
    - to release the adjustment of a parameter
    - to confirm a parameter adjustment
    - to confirm a selection possibility

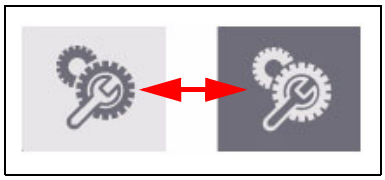
- (B) Home button
  - To show the home menu directly

- (C) Upwards button
  - To show the higher-level menu / higher-level display

- (D) Function buttons:
  - To select the menus assigned in the display area (D1)
  - To activate the functions assigned in the display area (D1)

- (E) Function buttons:
  - To select the menus assigned in the display area (E1)

☞ To confirm an active/opened menu, the colour of the corresponding symbol changes from pale to dark grey!



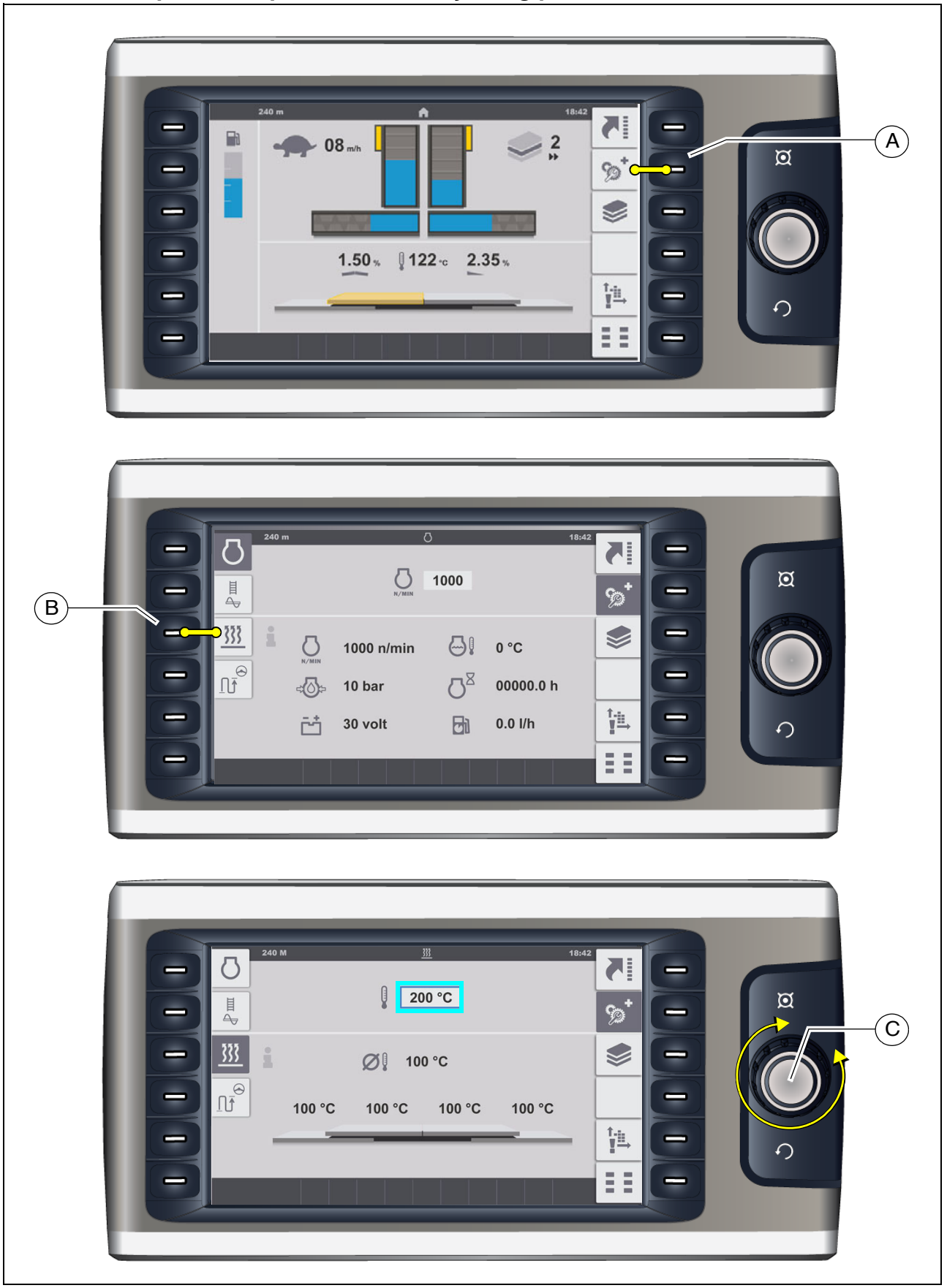
- (F) Display area for status, warning and error messages:
  - To show current earnings or error messages.

☞ The colour of the symbol indicates whether it is a status, warning or error message.

Colour code	Explanation
	- RED - error message - Reports a serious fault that must be checked and rectified immediately.
	- YELLOW - warning message - Reports a current condition that needs to be observed or rectified at short notice to ensure correct working.
	- BLUE / GREEN - status message - Confirms an activated function.

☞ Detailed explanations for the individual displays can be found in the section "Symbols for status, warning and error messages"

1.1 Menu operation - procedure for adjusting parameters



Example: Adjusting the screed temperature

- The "Home" menu is open in the display.
  - Press button (A) to open the "Engine Speed" menu.
- The "Engine Speed" menu is open in the display.
  - Press button (B) to open the "Screed Heater" menu.
- Turn jog dial (C) to make the cursor appear.

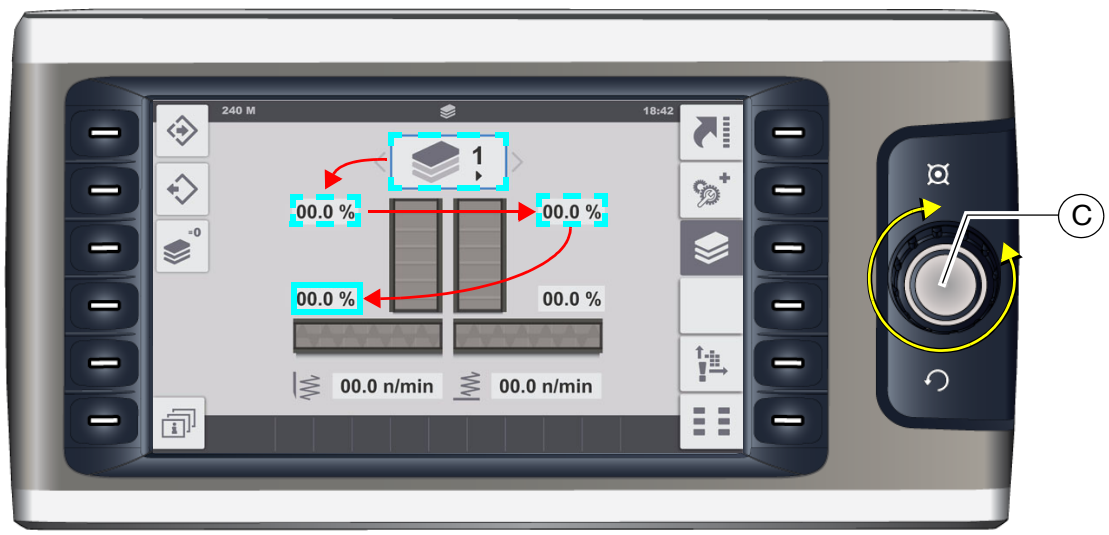
☞ A blue frame appears around the temperature parameter.

- Press jog dial (C) to activate the adjustment.

  - Turn jog dial (C) in the corresponding direction to reach the required temperature.
  - Press jog dial (C) to adopt the adjusted value.

☞ The blue frame around the temperature parameter disappears.

Selecting and changing an adjustment parameter in a menu

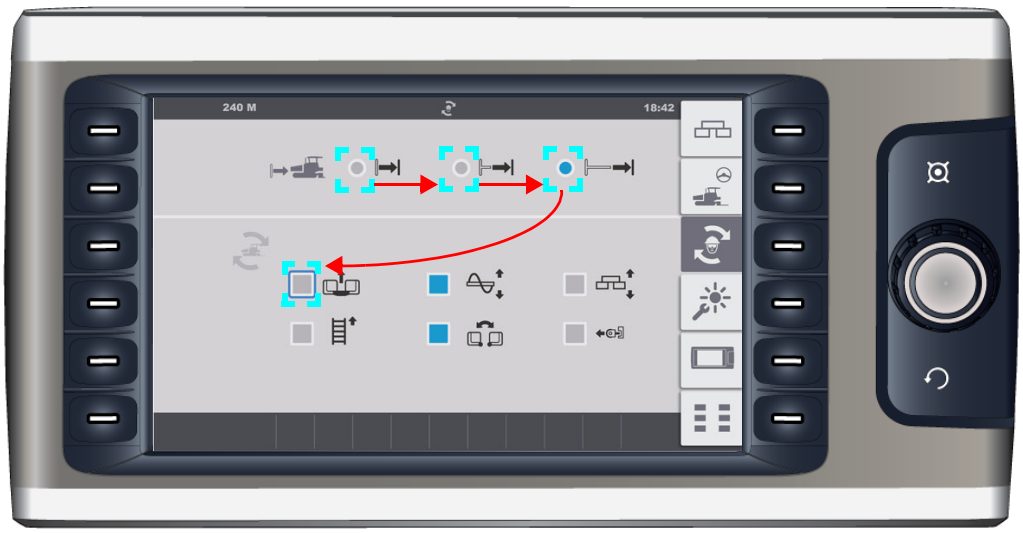


- Press jog dial (C) to activate the parameter adjustment.

☞ A blue frame appears around the top adjustment parameter in the menu.

- Turn jog dial (C) in the corresponding direction until the blue frame is around the required adjustment parameter.
- Press jog dial (C) to activate the parameter adjustment.
- Turn jog dial (C) in the corresponding direction to reach the required value.
- Press jog dial (C) to adopt the adjusted value.

Selecting and changing a selection possibility in a menu



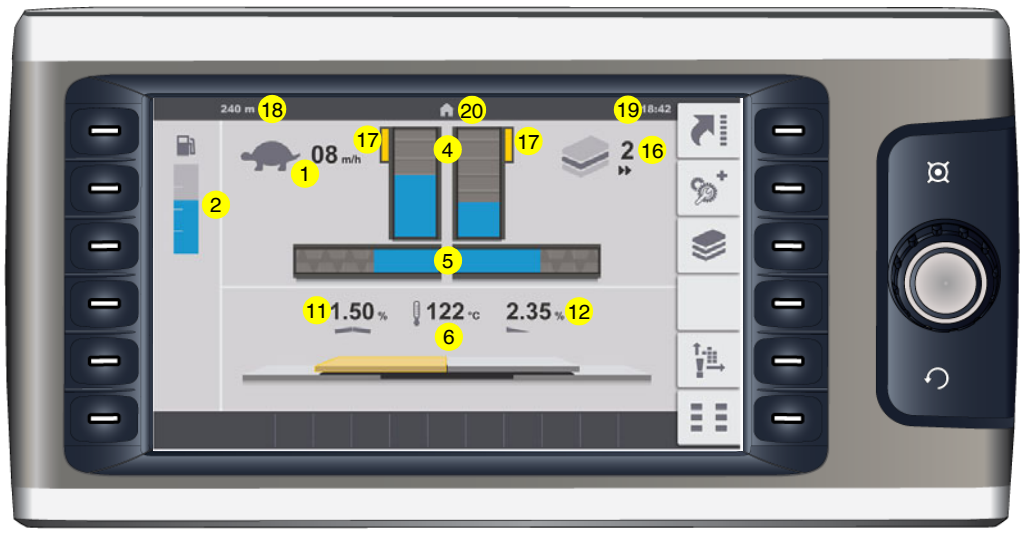
- Press jog dial to activate the parameter adjustment.

☞ A blue frame appears around the top selection possibility in the menu.

- Turn jog dial in the corresponding direction until the blue frame is around the required selection possibility.
- Press jog dial to activate the selection possibility.

2 Menu structure

Menu of the "Home" displays



Displays:

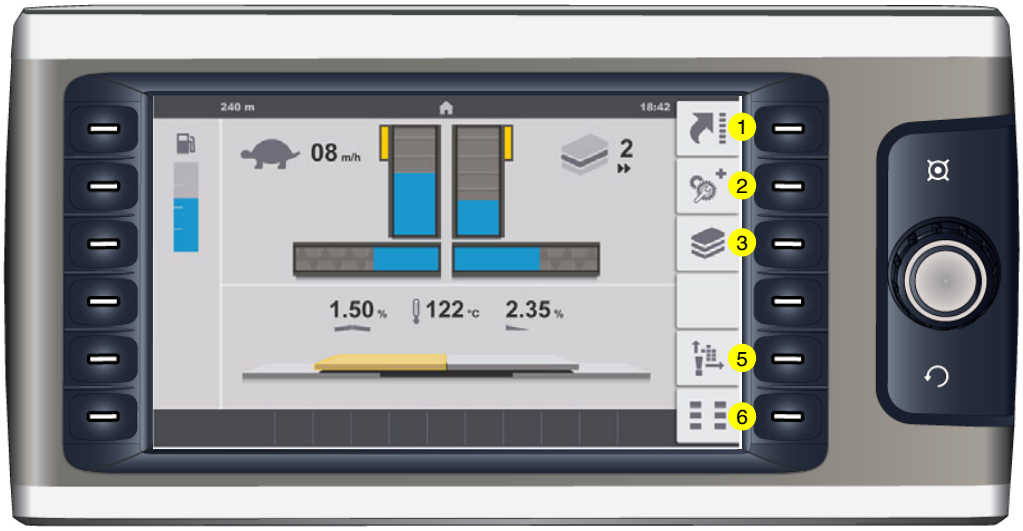
- (1) Speed:
  - Paving (tortoise)-(m/min) / (ft/min)
  - Driving (hare) - (km/h) / (mph)
- (2) Fuel gauge
- (4) Paving material - conveyor level left / right
- (5) Paving material - auger level left / right
- (6) Actual temperature of the screen heater (°C) / (°F)

☞ The display shows the average temperature of all screed sections.

☞ Currently heated screed sections appear coloured in the corresponding graphic.

- (11) Crowning - (%) (○)
- (12) Target slope - left / right (%) (○)
- (16) Type of material control being used
- (17) Truck Assist control (○)
- (18) Distance travelled counter (m) / (ft)
- (19) Time of day (hh:mm) (AM/PM)
- (20) Menu/display symbol

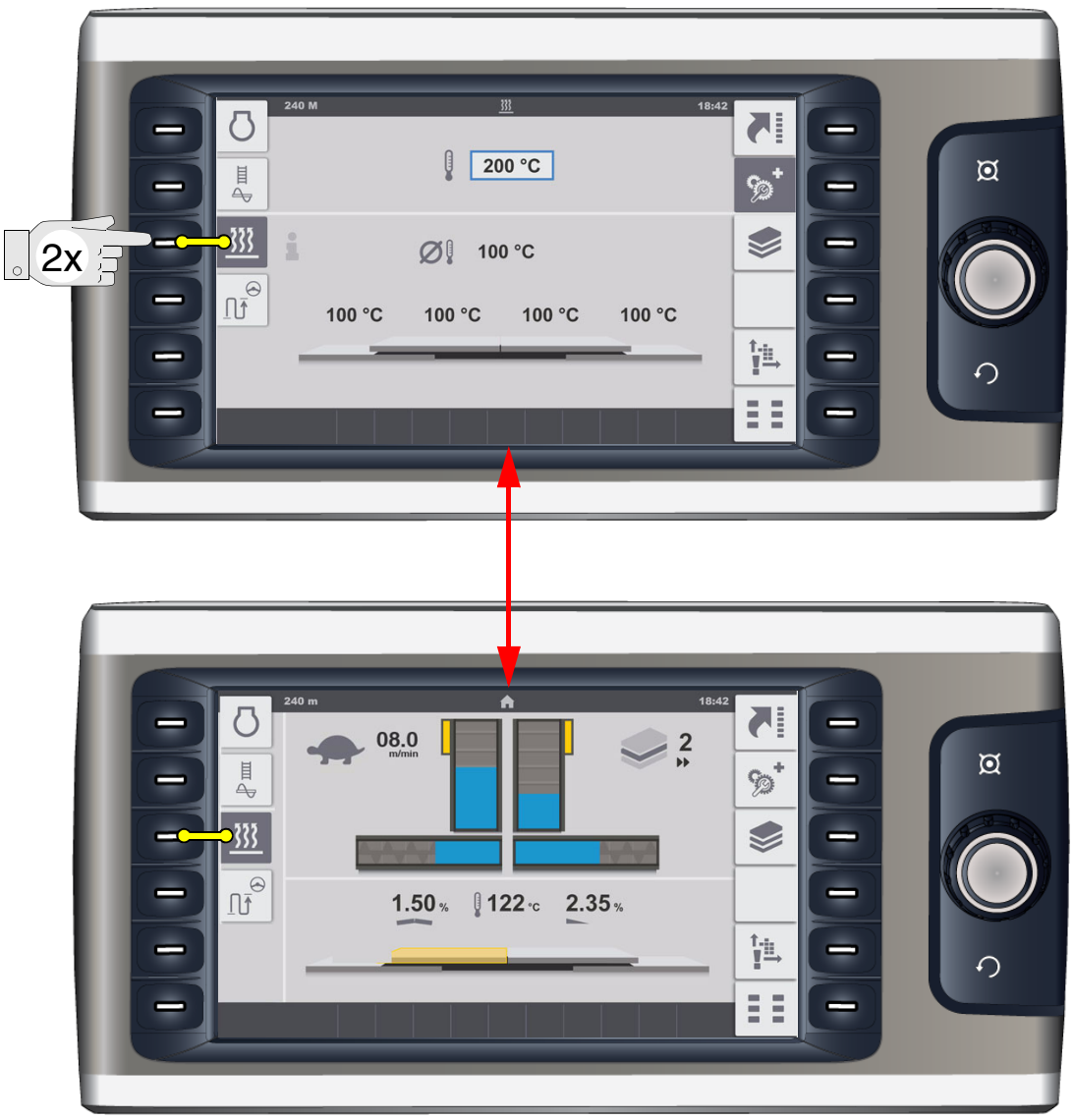
"HOME" menu - sub-menus



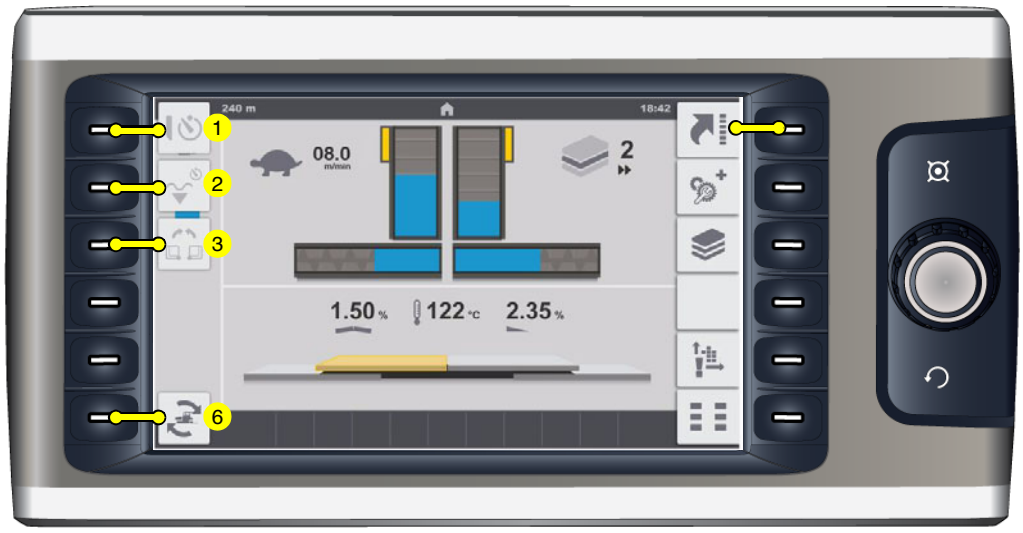
Open the following sub-menus:

- (1) Show "Home" functions / "Quick Settings"
- (2) Call "Engine Speed" menu / Engine measured value display + sub-menus.
- (3) "Paving Parameters" menu + sub-menus.
- (5) "Error Memory" menu + sub-menus.
- (6) "Basic" menu + sub-menus.

☞ If the corresponding function button of an opened sub-menu is pressed again, the Home menu appears and the sub-menu display remains.



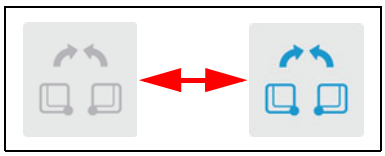
"Home" functions / "Quick Settings"



Menu for directly activating various functions.

- Press corresponding function button to show the functions / quick settings (1) to (6). Press once more to hide the functions again.

☞ Pressing the adjacent function button activates or deactivates the functions.
The function is activated when the corresponding symbol appears blue.



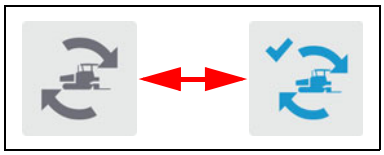
- (1): "Delayed tamper start" function
  - On swivelling the drive lever, the tamper function is only activated once a defined time has elapsed.

- (2): "Delayed screed start" function
  - When the drive lever is deflected, the floating function is only activated once the time set in the relevant menu has elapsed.

- (3): "Joint hopper actuation" function
  - Both hopper halves are actuated together with one of the hopper function switches (open hopper / close hopper).

- (6) Save function "Set Assist"
  - The working condition / current position of the corresponding functions and components is saved for later use.

☞ As confirmation, the display changes for 5 to 10 seconds during saving.



☞ The functions and elements for the "Set Assist" function are selected in the corresponding menu.

☞ The "Set Assist" function prepares the paver to relocate to another section of road-works or for transportation.
When the function is activated, previously selected vehicle functions are carried out to make the vehicle ready for transport.
The function can be reset after relocating the paver.
This restores the corresponding elements to the previous working condition /position.

"Engine Speed" menu / Engine measured value display

Menu for adjusting the engine speed and for checking various measured values of the engine.

- (1) Nominal speed display and adjustment parameters

☞ Adjusted directly by pressing the job dial.

☞ Adjustment is carried out in steps of 50; the engine speed is adapted directly.

- (2) Actual engine speed
- (3) Engine oil pressure (bar)
- (4) On-board voltage (V)
- (5) Engine coolant temperature (°C) / (°F)
- (6) Engine operating hours (h)
- (7) Fuel consumption (l/h) (○)

Open the following sub-menus:

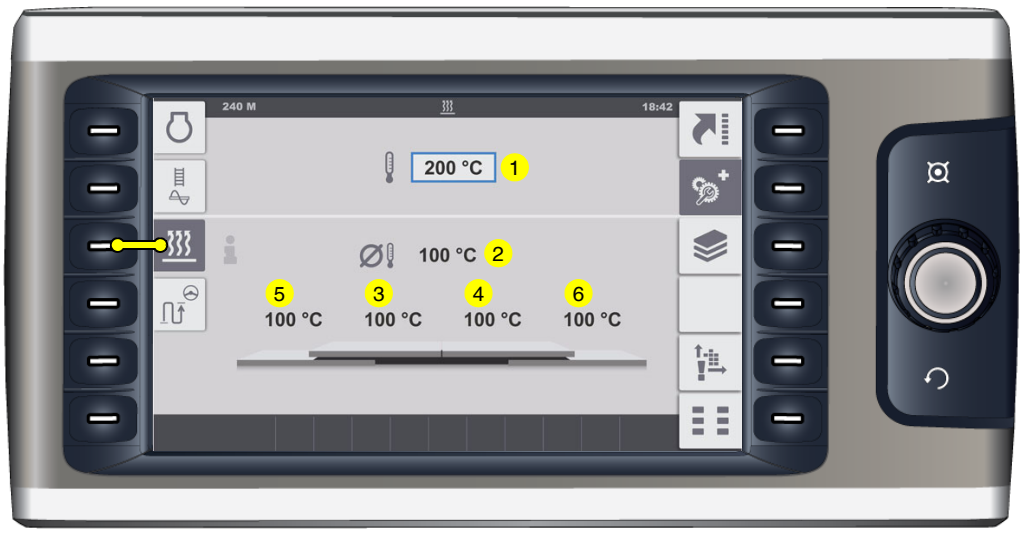
- (8) "Material Management" measured value display.
- (9) "Screed Heater" adjustment and display menu. (○)
- (10) "Paving Area / Automatic Steering Unit" menu. (○)

"Material Management" measured value display

Menu for checking the following parameters:

- (1) Paving material level (%) conveyor left
- (2) Paving material level (%) conveyor right
- (3) Paving material level (%) auger left
- (4) Paving material level (%) auger right
- (5) Tamper speed (n/min)
- (6) Vibrations speed (n/min)

"Screed Heater" adjustment and display menu (○)



Menu for adjusting the nominal screed heater temperature and for checking the actual temperatures.

- (1) Nominal screed heater temperature display and adjustment parameters.

☞ Press encoder (A) to start the editing menu.

☞ Setting range 50-180°C

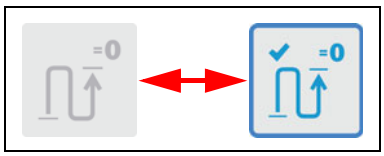
- (2) Average actual temperature of all screed sections (°C) / (°F)
- (3) Actual temperature basic screed left (°C) / (°F)
- (4) Actual temperature basic screed right (°C) / (°F)
- (5) Actual temperature extendable part + extension parts left (°C) / (°F)
- (6) Actual temperature extendable part + extension parts right (°C) / (°F)

"Paving Area / Automatic Steering Unit" menu

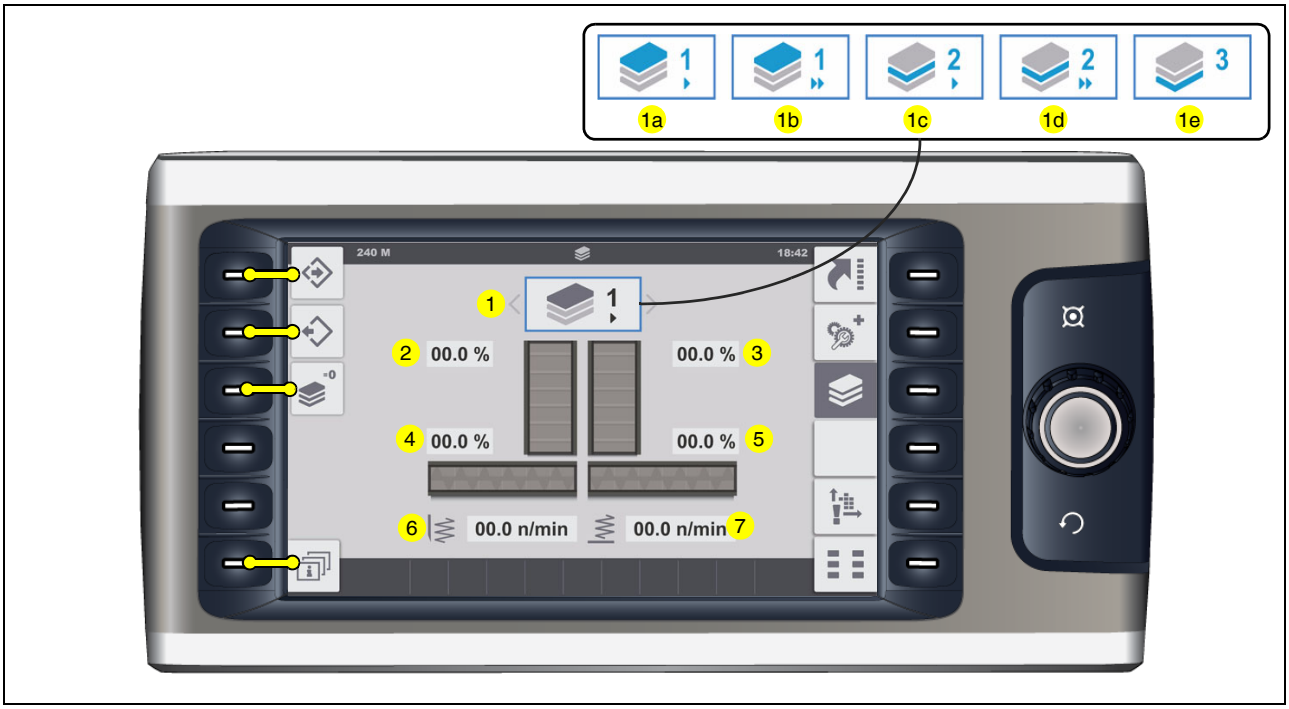
Menu for querying and resetting the current paving distance.

- (1) Current paving distance (m)
  - Reset / set value to zero: Select function (1.1) with the job dial and press to reset.

☞ As confirmation, the display changes for 5 to 10 seconds during reset.



"Paving parameters" menu



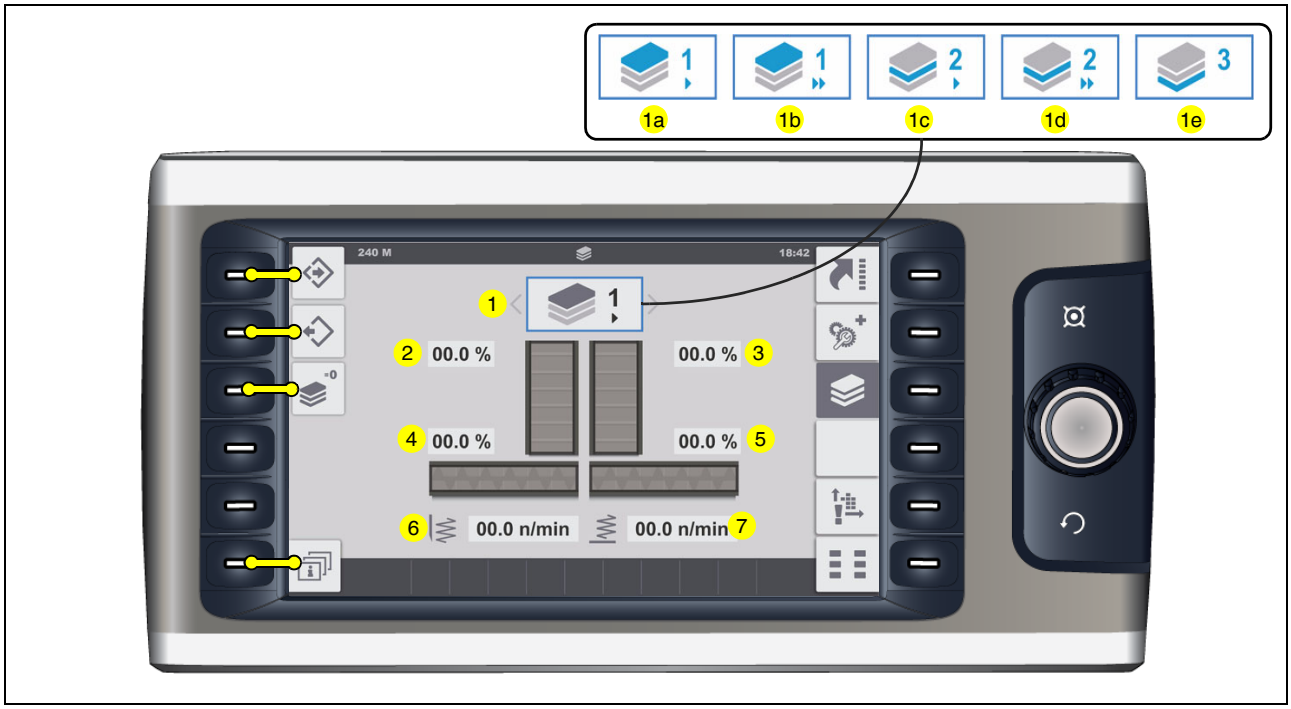
Menu for showing and adjusting the paving parameters.

- (1) Current course thickness parameter
  - The following course thickness parameters can be selected:

  - (1a) Surface course >, low paving speed
  - (1b) Surface course >>, high paving speed
  - (1c) Binder course >, low paving speed
  - (1d) Binder course >>, high paving speed
  - (1e) Foundation

☞ The speeds for every course thickness parameter have been stored in the factory for all conveying and compacting elements.
Depending on the course thickness, the conveying rate increases slowly or faster at the start of paving.
Preferred parameters or parameters configured to the paving material can be saved in the memory for later use.

☞ Factory resets for the values are possible.



- (2) Left conveyor speed (%) display and adjustment parameters
- (3) Right conveyor speed (%) display and adjustment parameters
- (4) Left auger speed (%) display and adjustment parameters
- (5) Right auger speed (%) display and adjustment parameters
- (6) Nominal tamper speed (n/min) display and adjustment parameters
- (7) Nominal vibration speed (n/min) display and adjustment parameters

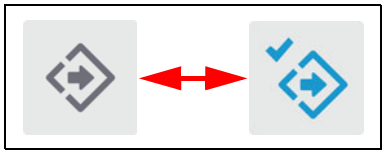
☞ Tamper and vibration range depending on screed type.

☞ If the settings are not saved, an adjusted parameter remains valid until another course thickness is chosen. This also applies when restarting the vehicle.

Adjusting the paving parameters

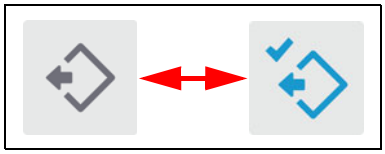
Functions:

- (8) "Save Parameter" function



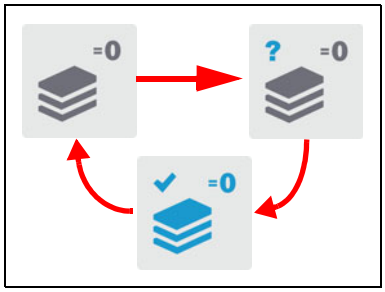
☞ As confirmation, the display changes for 5 to 10 seconds during saving.

- (9): "Load Parameter" function



☞ As confirmation, the display changes for 5 to 10 seconds during loading.

- (10): "Parameter Reset - Load Factory Settings" function



☞ Firstly the system requests reset confirmation.
Press the button again for a reset within 5 seconds.
As confirmation, the display changes for 5 to 10 seconds during reset.

Open the following sub-menus:

- (11) Overview "Course Thickness Parameters".

Overview "Course Thickness Parameters"

Menu for viewing the speeds saved for all conveying and compacting elements according to the course thickness parameters.

Back to the main menu:

- (1) "Paving Parameters" menu.

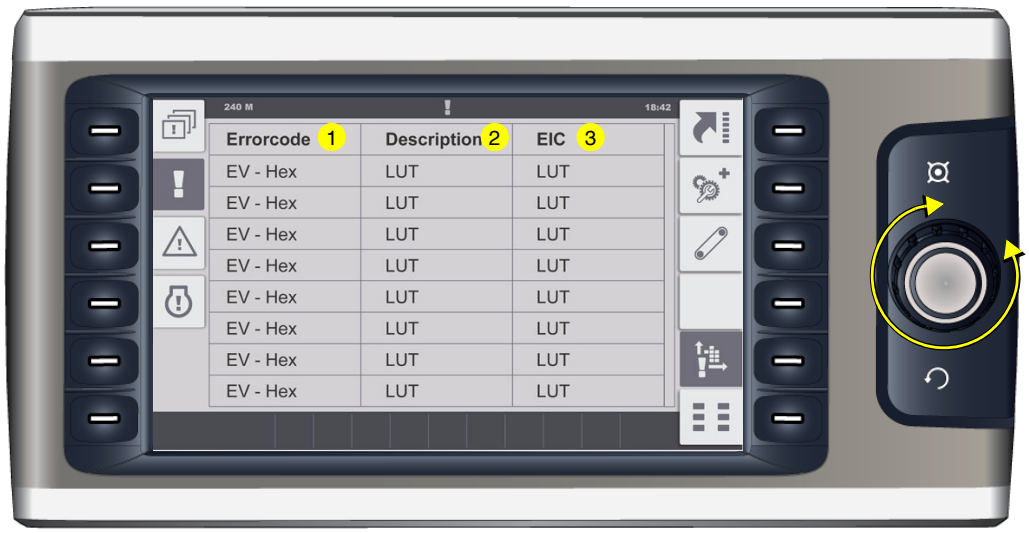
"Error Memory" menu

Menu for retrieving existing error messages.

- (1) Number of error messages with travel drive stop.
  - Open detailed display "Error Messages With Travel Drive Stop": (1.1).
- (2) Number of vehicle warning messages.
  - Open detailed display "Vehicle Warning Messages": (2.1).
- (3) Number of engine error messages.
  - Open detailed display "Engine Error Messages": (3.1).
- (4) System error display.

☞ Possibly notify customer service of the system error number displayed on your paver finisher; the customer service department will then discuss with you how to proceed.

Detailed display "Error Messages With Travel Drive Stop"

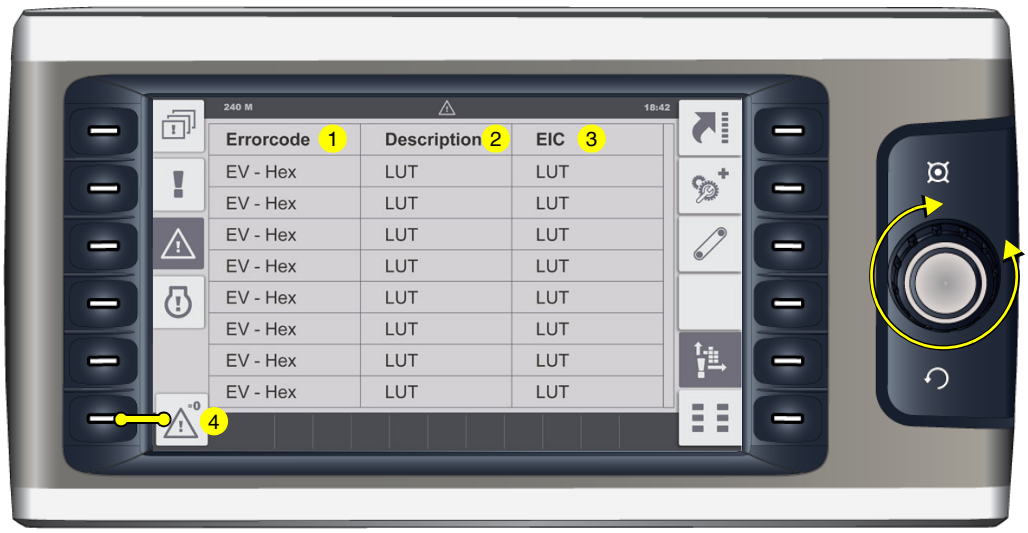


Display of existing error messages in a table.

- (1) Error code.
- (2) Error description.
- (3) Designation of the faulty part as per BMK/EIC list.

☞ Press the job dial to scroll through the list.

Detailed display "Vehicle Warning Messages"



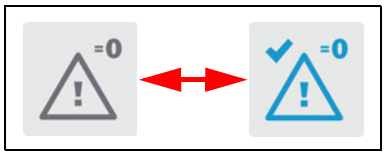
Display of existing error messages in a table.

- (1) Error code.
- (2) Error description.
- (3) Designation of the faulty part as per BMK/EIC list.

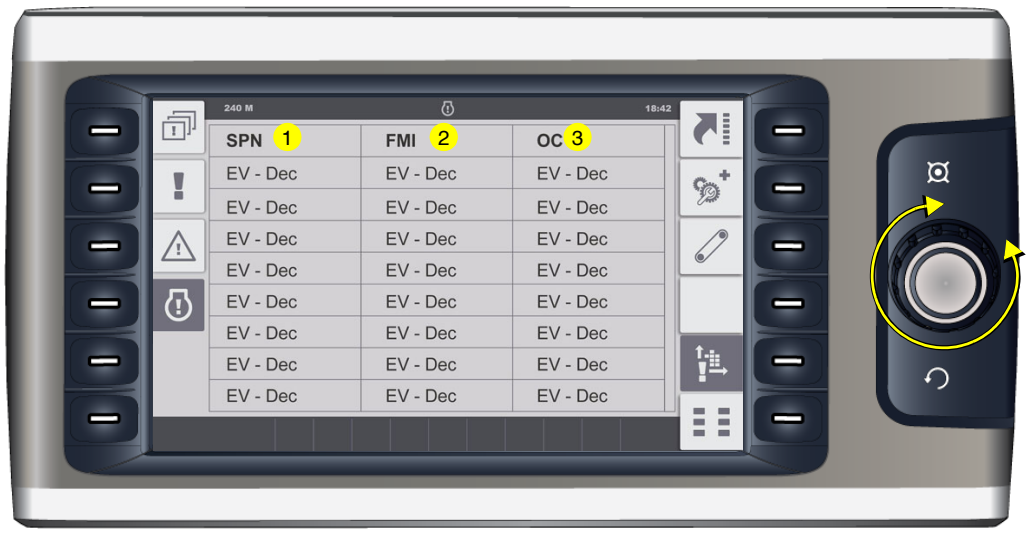
☞ Press the job dial to scroll through the list.

- Delete list of error messages: (4).

☞ As confirmation, the display changes for 5 to 10 seconds during deleting.



Detailed display "Engine Error Messages"



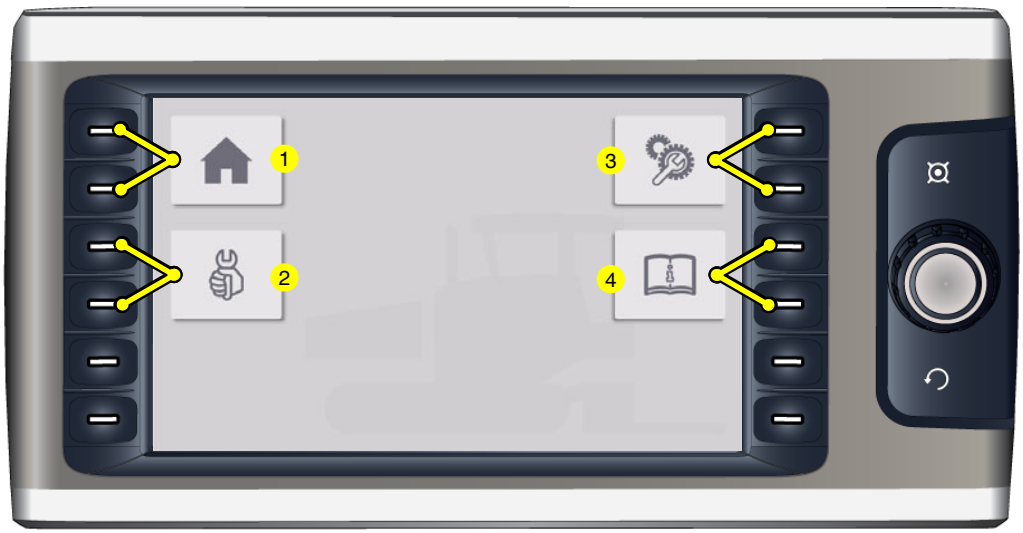
Display of existing error messages in a table.

- (1) SPN code.
- (2) FMI code.
- (3) OC error frequency.

☞ All error messages can be identified in the section "Error codes drive engine".

☞ Press the job dial to scroll through the list.

"Basic" menu



☞ The "Basic" menu can be opened from every menu, sub-menu or display.

Menu for opening the following sub-menus:

- (1) "Home" menu
  - Display and quick settings menu.
- (2) "Service" menu
  - Menu for service technician (password required)
- (3) "Info & Settings" menu.
  - Menu for adjusting various functions.
- (4) "Info" menu
  - Menu for calling up stored information such as operating instructions, etc.

"Service" menu

Password-protected menu for various service settings.

"Info & Settings" menu

Menu for calling up various vehicle information and sub-menus for various settings.

Display of the following information:

- (1) Software version of the vehicle
- (2) Software version of the display
- (3) Engine operating hours (h)
- (4) Next service interval (h)

☞ If consultation with Technical Support is required for your vehicle, always specify the software version!

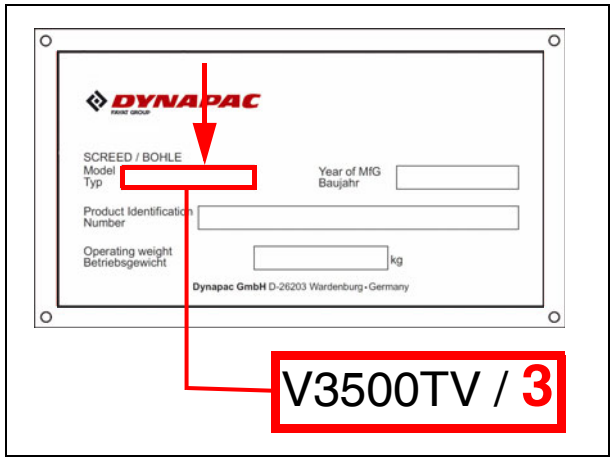
Open the following sub-menus:

- (5) "Screed" set-up menu.
- (6) "Paving / Travel" set-up menu.
- (7) "Truck Assist / Set Assist" set-up menu.
- (8) "Day/Night Lighting" set-up menu.
- (9) "Display" set-up menu.

"Screed" set-up menu

Menu for setting up the basic screed settings and screed functions.

- (1) Display and adjustment parameters for the screed type
  - Screed type 1, 2, 3, 4, 5



☞ Please consult the screed type plate for the parameter to be entered here, corresponding to the last number of the screed type.

☞ If a different screed type has been connected to the paver finisher, the corresponding setting must be carried out!

- (2) Display and adjustment parameters for the screed heater
  - (2.1): Electric heater
  - (2.2): Gas heater

- (3) Display and adjustment parameters for "Delayed Screed Start" - delay time (sec)

☞ On swivelling the drive lever, the floating function is only activated once an adjusted time has elapsed.

☞ Setting range 0-10 sec.

- (4) Display and adjustment parameters for the central lubrication system
  - (4.1): Extended lubrication interval
  - (4.2): Standard lubrication interval
  - (4.3): Shortened lubrication interval

☞ If necessary, the lubrication interval has to be adjusted to the prevailing paving situation and to the material.

"Paving / Travel" set-up menu

Menu for setting up the vehicle and levelling functions.

- (1) Display and adjustment parameters for "Delayed Front Hopper" - delay time (sec). (○)

☞ After closing the hopper lids, the front hopper is only raised after the adjusted time has expired.

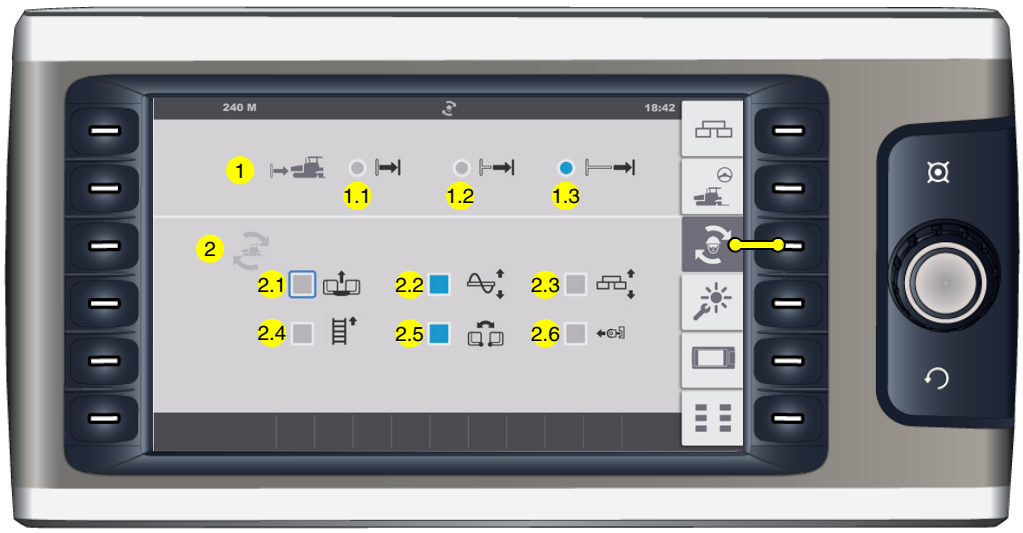
☞ Setting range 0-25 sec.

- (2) Selection "External Levelling"
  - (L): External levelling - left side of the vehicle
  - (R): External levelling - right side of the vehicle

☞ When "External levelling" is selected, the toggle switches of the system's own remote control remain active!

- (3) Selection "Cross Levelling"
  - (0): Cross levelling OFF
  - (1): Only data display of the opposite side of the vehicle.
  - (2): Data display and control of the opposite side of the vehicle.
  - (3): Split screen on the remote controls: simultaneous data display and operation of both sides of the vehicle possible. (○)
- (4) Selection "Steering Sensitivity" (○)
  - (>): Low steering sensitivity
  - (>>): Medium steering sensitivity
  - (>>>): High steering sensitivity

"Truck Assist / Set Assist" set-up menu



Menu for setting up the "Truck Assist" and "Set Assist" functions.

- (1) Selection "Truck Distance"

☞ In order to adjust to the prevailing situation, the truck's automatic detection function can be preset to 3 different distances (paver/truck).

- (1.1): Shortened distance
- (1.2): Medium distance
- (1.3): Extended distance

- (2) Selection "Set Assist"

☞ The selected elements are taken into account in executing the "Set Assist" function.

- (2.1): Raise / lower front hopper
- (2.2): Raise / lower auger
- (2.3): Raise / lower screed
- (2.4): reverse right
- (2.5): Open / close hopper
- (2.6): Retract/extend push rollers

"Day/Night Lighting" set-up menu

Menu for adjusting the illuminance of various control elements.

- (2) Monitor brightness display and adjustment parameters
  - (2.1): and adjustment parameters (daytime light)
  - (2.2): and adjustment parameters (nighttime light)

- (3) Truck Assist display and adjustment parameters
  - (3.1): and adjustment parameters (daytime light)
  - (3.2): and adjustment parameters (nighttime light)

☞ Setting range 0-100%

"Display" set-up menu

Menu for setting up basic display settings.

- (1) Selection "System Language"
  - English / German
- (2) Selection "Units of measurement"
  - Metric / Imperial (US)
- (3) "Time" display and adjustment parameters
  - h/h : min/min
  - 24h / PM/AM
- (4) "Date" display and adjustment parameters
  - dd - mm - yyyy

Open the following sub-menus:

- (5) "Licence text" display

"Licence text" display

Display of the software licence text.

Back to the main menu:

- (1) "Display" set-up menu.

2 Terminal error messages

Status, warning and error messages symbols

Command	Symbol in the display
- High beam headlights control The high beam headlights are switched on. STOP Avoid dazzling the oncoming traffic!	
- Check direction of travel indicator Flashes whenever direction of travel indicator is activated.	
- Particulate filter indicator lamp. Particulate filter regeneration is necessary. - Indicator lamp on permanently: Urgent maintenance, level I. Particulate filter regeneration must be carried out as soon as the operating status of the vehicle permits. - Indicator lamp flashes: Urgent maintenance, level II. Particular filter regeneration must be carried out as soon as possible. The engine output may be automatically reduced under certain circumstances. - Indicator lamp flashes + indicator lamp "Engine malfunction" is on permanently: Urgent maintenance, level III. Particulate filter regeneration is vitally necessary to avoid subsequent damage and repairs. The engine output is automatically reduced. - Indicator lamp goes off + indicator lamp "Engine malfunction" is on permanently: Particulate filter regeneration is no longer possible. ⚠ Operation must be stopped immediately. - Consult the Atlas Copco Service Department ☞ See "Home" menu pop-up functions	

Command	Symbol in the display
- Indicator lamp AdBlue® / DEF The level of AdBlue® / DEF is insufficient. Level 10% - display flashes Level 5% - display stays on permanently Level 0% - drive engine is throttled to emergency mode	
- Indicator lamp platform lock. The control platform lock is set.	
- Indicator lamp automatic particulate filter regeneration - deactivated Particulate filter regeneration is deactivated. - Automatic regeneration should only be deactivated if the operating status of the paver finisher does not permit any automatic function. ☞ See "Home" menu pop-up functions	
- Indicator lamp fuel reserve The fuel is down to the reserve level in the tank. ☞ Approx. 10% remains ⚠ Urgent need to refuel!	
- Pre-heating indicator (yellow) ☞ Pre-heating is started with the ignition starter by switching the ignition on. (ignition key in position 1). Once pre-heating has finished, the indicator lamp goes off. ⚠ Do not switch the start button until the pre-heating phase has finished!	

Command	Symbol in the display
- Error message 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! ☞ An error code query can be shown in the corresponding menu of the display. ☞ Lights up for a few seconds once the ignition has been switched on for checking purposes.	
- Hydraulic oil temperature indicator lamp Hydraulic oil temperature too low! ⚠ Bring vehicle up to temperature with stationary acceleration! ☞ The engine speed cannot be increased when the hydraulic oil temperature is too low!	
- Overspeed Important! Machine speed too high! Reduce travel	
- Warning: The vehicle has one or more errors. ☞ Error details can be viewed in the "Error Memory" display menu.	

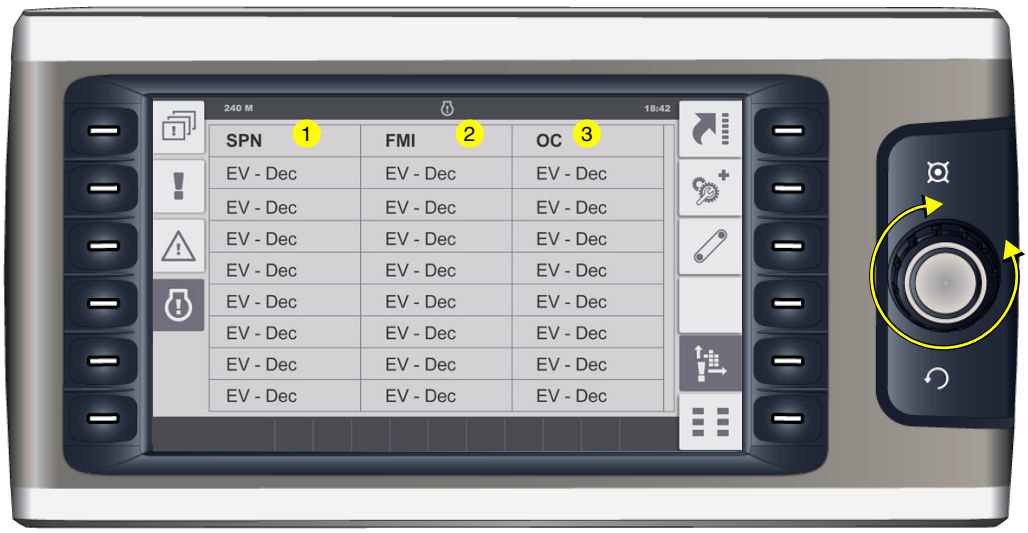
Command	Symbol in the display
- Pending service: ☞ A maintenance interval is about to expire. ⚠ Proceed immediately with maintenance to avoid subsequent damage!	
- Service overdue: ☞ A maintenance interval is overdue. ⚠ Proceed immediately with maintenance to avoid subsequent damage!	

Command	Symbol in the display
- Error message "Engine Malfunction" There is a malfunction in the engine. ⚠ Switch off the drive engine immediately! ☞ Error details can be viewed in the "Error Memory" display menu. ☞ Lights up for a few seconds once the ignition has been switched on for checking purposes.	
- Parking brake indicator The parking brake is switched on.	
- Emergency Stop One or more emergency stop buttons have been pressed.	
- Engine coolant temperature The engine temperature is too high. ⚠ The engine performance will be throttled down automatically. (Driving mode remains possible). Stop the paver finisher (drive lever to the centre position), let the engine cool down while idling. Determine the cause and rectify if necessary (refer to "Malfunctions" section). After cooling down to normal temperature, the engine will run with full performance again. ☞ This error is displayed together with "Error Message".	
- Battery charge indicator: Must go out after starting when the engine revs up. ⚠ If the light does not go out, switch off the engine	

Command	Symbol in the display
- Engine stop: Display for all error messages with machine stop.	
- Hydraulic filter. The hydraulic filter must be replaced. ☞ Replace filter element acc. to Maintenance Instructions!	
- Engine oil pressure ⚠ The oil pressure is insufficient. Switch off the engine immediately! For further possible faults, see Engine's operating instructions. ☞ This error is displayed together with "Error Message".	
- Hydrostatic travel drive oil pressure indicator ⚠ The oil pressure is insufficient. Switch off the engine immediately! For further possible faults, see Engine's operating instructions.	
- Emergency mode active	
- Vehicle error. The control unit reports one or several malfunctions that cause the vehicle to shut down. It may be possible to continue operating the vehicle in the emergency mode. ☞ Error details can be viewed in the "Error Memory" display menu.	
- Master display communication error Communication between master and display is interrupted / emergency stop button has been pressed	

2.1 Drive engine error codes

☞ If a fault is detected on the engine, this is shown by the corresponding indication (1) in the display.



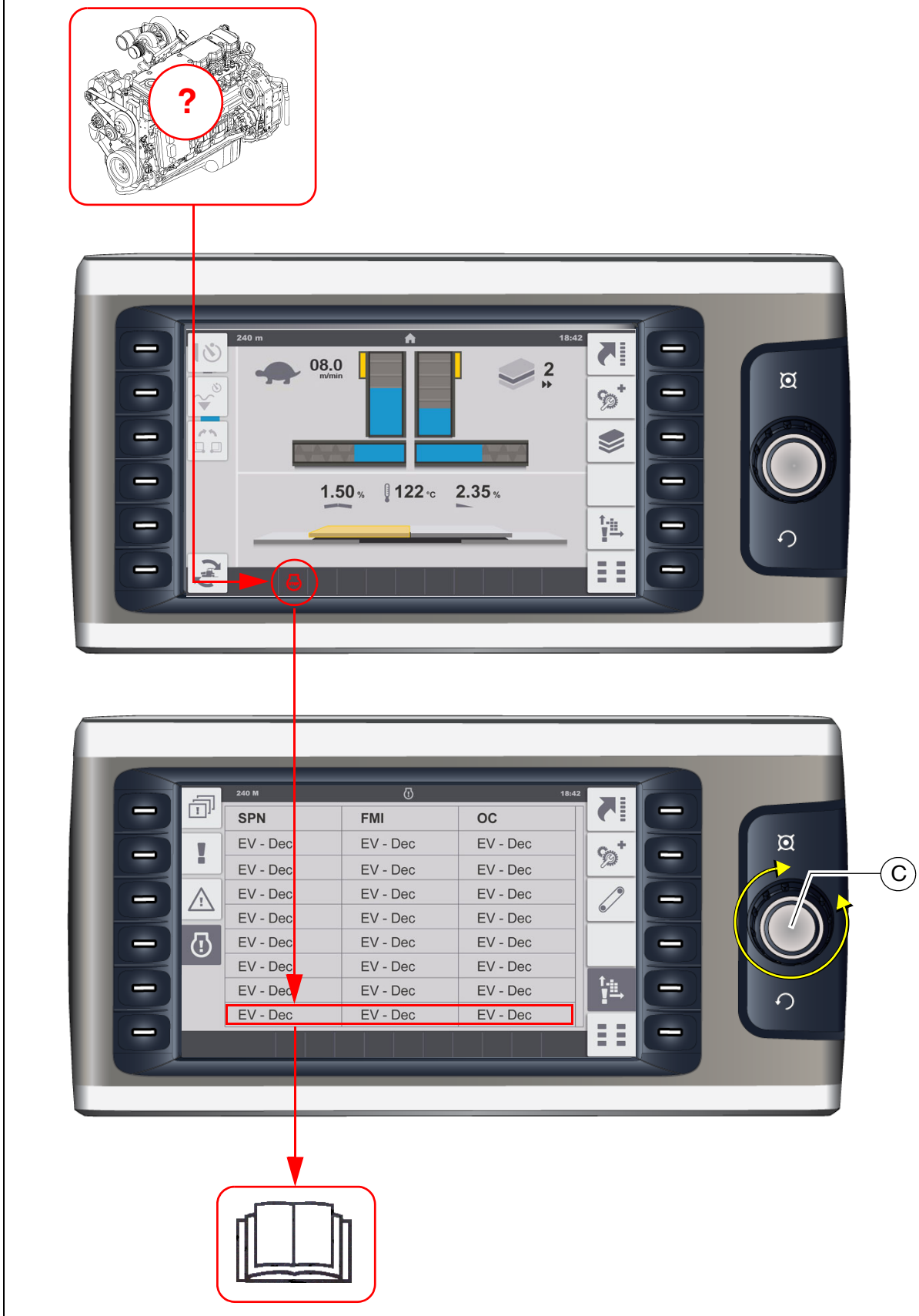
The error message that can be viewed in the corresponding menu contains several numerical codes, which clearly define the fault after decoding.

Press the job dial to scroll through the list.

It may be possible to continue operating the vehicle, depending on the severity of the error. The error should however be remedied quickly to prevent further damage.

Engine malfunctions result in the engine stopping automatically to prevent further damage.

Example:



Explanation:
Warning light and display signal a serious fault on the drive engine with automatic or necessary engine shut-down.
Display:
SPN: 157
FMI: 3
OC: 1

Cause: Cable break on sensor for rail pressure.
Effect: Engine shut-down.
Frequency: Fault occurs for the 1st time.

⚠ Notify customer service of the error number displayed on your paver finisher; the customer service department will then discuss the further procedure with you.

2.2 Error codes

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
1	132	11	2-2-6	Air flow sensor; sensor error	Air flow sensor load correction factor exceeding the maximum drift limit; plausibility error
2	132	11	2-2-6	Air flow sensor; sensor error	Air flow sensor load correction factor exceeding drift limit; plausibility error
3	132	11	2-2-6	Air flow sensor; sensor error	Air flow sensor low idle correction factor exceeding the maximum drift limit
4	132	11	2-2-6	Air flow sensor; sensor error	Air flow sensor load correction factor exceeding the maximum drift limit
9	172	2	2-2-6	Sensor ambient air temperature; plausibility error	Sensor ambient air temperature; plausibility error
34	523006	3	2-4-2	Controller mode switch; short circuit to battery	Controller mode switch; short circuit to battery
35	523006	4	2-4-2	Controller mode switch; short circuit to ground	Controller mode switch; short circuit to ground
36	523923	3	7-2-9	UB1; Short circuit to battery error of actuator relay 1	UB1; Short circuit to battery error of actuator relay 1
37	523924	3	7-3-0	UB2; Short circuit to battery error of actuator relay 2	UB2; Short circuit to battery error of actuator relay 2
38	523925	3	7-3-1	UB3; Short circuit to battery error of actuator relay 3	UB3; Short circuit to battery error of actuator relay 3
39	523926	3	7-3-2	UB4; Short circuit to battery error of actuator relay 4	UB4; Short circuit to battery error of actuator relay 4
40	523927	3	7-3-3	UB5; Short circuit to battery error of actuator relay 5	UB5; Short circuit to battery error of actuator relay 5
45	168	3	3-1-8	Sensor error battery voltage; signal range check high	Sensor error battery voltage; signal range check high
46	168	4	3-1-8	Sensor error battery voltage; signal range check low	Sensor error battery voltage; signal range check low
47	168	2	3-1-8	Battery voltage; system reaction initiated	High battery voltage; warning threshold exceeded
48	168	2	3-1-8	Battery voltage; system reaction initiated	Low battery voltage; warning threshold exceeded
49	597	2	3-2-1	Break lever mainswitch and break lever redundancyswitch status not plausible	Break lever mainswitch and break lever redundancyswitch status not plausible
55	523910	14	6-9-5	Air pump doesn´t achieve air mass flow setpoint	Air pump doesn´t achieve air mass flow setpoint
56	524013	7	8-5-6	Burner operation disturbed	Burner flame unintentional deleted
57	524020	14	8-6-3	Engine power; Not enough oxygen for regeneration	Engine power; Not enough oxygen for regeneration
58	523911	0	7-2-3	Burner dosing valve (DV2); overcurrent at the end of the injection phase	Burner dosing valve (DV2); overcurrent at the end of the injection phase
59	523911	12	7-2-3	Burner dosing valve (DV2); powerstage over temperature	Burner dosing valve (DV2); powerstage over temperature

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
60	523911	3	7-2-3	Burner dosing valve (DV2); short circuit to battery	Burner dosing valve (DV2); short circuit to battery
61	523911	3	7-2-3	Burner dosing valve (DV2); short circuit to battery	Burner dosing valve (DV2); short circuit to battery on high side
62	523911	4	7-2-3	Burner dosing valve (DV2); short circuit to ground	Burner dosing valve (DV2); short circuit to ground
63	523911	11	7-2-3	Burner dosing valve (DV2); short circuit high side powerstage	Burner dosing valve (DV2); short circuit high side powerstage
64	523912	2	7-2-2	Burner dosing valve (DV2) downstream pressure sensor; plausibility error	Burner dosing valve (DV2) downstream pressure sensor; plausibility error
66	523912	0	7-2-2	Physical range check high for burner dosing valve (DV2) downstream pressure; shut off regeneration	Physical range check high for burner dosing valve (DV2) downstream pressure; shut off regeneration
69	523912	1	7-2-2	Physical range check low for burner dosing valve (DV2) downstream pressure; shut off regeneration. When burner injector is actuated, the measured pressure does not rise above ca. 1250mbar abs (expected: ca. 2400mbar).	Physical range check low for burner dosing valve (DV2) downstream pressure; shut off regeneration. When burner injector is actuated, the measured pressure does not rise above ca. 1250mbar abs (expected: ca. 2400mbar).
72	523912	3	7-2-2	Sensor error burner dosing valve (DV2) downstream pressure sensor; signal range check high	Sensor error burner dosing valve (DV2) downstream pressure sensor; signal range check high
73	523912	4	7-2-2	Sensor error burner dosing valve (DV2) downstream pressure sensor; signal range check low	Sensor error burner dosing valve (DV2) downstream pressure sensor; signal range check low
74	523913	3	7-2-1	Sensor error glow plug control diagnostic line voltage; signal range check high	Sensor error glow plug control diagnostic line voltage; signal range check high
75	523913	4	7-2-1	Sensor error glow plug control diagnostic line voltage; signal range check low	Sensor error glow plug control diagnostic line voltage; signal range check low
76	523914	5	7-2-1	Glow plug control; open load	Glow plug control; open load
77	523914	12	7-2-1	Glow plug control; powerstage over temperature	Glow plug control; powerstage over temperature
78	523914	3	7-2-1	Glow plug control; short circuit to battery	Glow plug control; short circuit to battery
79	523914	4	7-2-1	Glow plug control; short circuit to ground	Glow plug control; short circuit to ground
82	1235	14	2-7-1	CAN Bus error passive; warning CAN C	CAN Bus error passive; warning CAN C
84	639	14	2-7-1	CAN-Bus 0 "BusOff-Status"	CAN-Bus 0 "BusOff-Status"
85	1231	14	2-7-1	CAN-Bus 1 "BusOff-Status"	CAN-Bus 1 "BusOff-Status"
86	1235	14	2-7-1	CAN-Bus 2 "BusOff-Status"	CAN-Bus 2 "BusOff-Status"
88	102	2	2-2-3	Charged air pressure; system reaction initiated	Charged air pressure above warning threshold
89	102	2	2-2-3	Charged air pressure; system reaction initiated	Charged air pressure above shut off threshold
96	110	3	2-2-5	Sensor error coolant temperature; signal range check high	Sensor error coolant temperature; signal range check high

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
97	110	4	2-2-5	Sensor error coolant temperature; signal range check low	Sensor error coolant temperature; signal range check low
98	110	0	2-3-2	Coolant temperature; system reaction initiated	High coolant temperature; warning threshold exceeded
99	110	0	2-3-2	Coolant temperature; system reaction initiated	High coolant temperature; shut off threshold exceeded
101	111	1	2-3-5	Coolant level too low	Coolant level too low
109	523929	0	7-2-4	Fuel Balance Control integrator injector 1 (in firing order); maximum value exceeded	Fuel Balance Control integrator injector 1 (in firing order); maximum value exceeded
110	523930	0	7-2-4	Fuel Balance Control integrator injector 2 (in firing order); maximum value exceeded	Fuel Balance Control integrator injector 2 (in firing order); maximum value exceeded
111	523931	0	7-2-4	Fuel Balance Control integrator injector 3 (in firing order); maximum value exceeded	Fuel Balance Control integrator injector 3 (in firing order); maximum value exceeded
112	523932	0	7-2-4	Fuel Balance Control integrator injector 4 (in firing order); maximum value exceeded	Fuel Balance Control integrator injector 4 (in firing order); maximum value exceeded
113	523933	0	7-2-4	Fuel Balance Control integrator injector 5 (in firing order); maximum value exceeded	Fuel Balance Control integrator injector 5 (in firing order); maximum value exceeded
114	523934	0	7-2-4	Fuel Balance Control integrator injector 6 (in firing order); maximum value exceeded	Fuel Balance Control integrator injector 6 (in firing order); maximum value exceeded
115	523929	1	7-2-4	Fuel Balance Control integrator injector 1 (in firing order); minimum value exceeded	Fuel Balance Control integrator injector 1 (in firing order); minimum value exceeded
116	523930	1	7-2-4	Fuel Balance Control integrator injector 2 (in firing order); minimum value exceeded	Fuel Balance Control integrator injector 2 (in firing order); minimum value exceeded
117	523931	1	7-2-4	Fuel Balance Control integrator injector 3 (in firing order); minimum value exceeded	Fuel Balance Control integrator injector 3 (in firing order); minimum value exceeded
118	523932	1	7-2-4	Fuel Balance Control integrator injector 4 (in firing order); minimum value exceeded	Fuel Balance Control integrator injector 4 (in firing order); minimum value exceeded
119	523933	1	7-2-4	Fuel Balance Control integrator injector 5 (in firing order); minimum value exceeded	Fuel Balance Control integrator injector 5 (in firing order); minimum value exceeded
120	523934	1	7-2-4	Fuel Balance Control integrator injector 6 (in firing order); minimum value exceeded	Fuel Balance Control integrator injector 6 (in firing order); minimum value exceeded
121	1109	2	3-4-1	Engine shut off demand ignored	Engine shut off demand ignored
122	523698	11	5-9-2	Shut off request from supervisory monitoring function	Shut off request from supervisory monitoring function

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
125	523717	12	5-9-5	Timeout Error of CAN-Transmit-Frame AmbCon; Weather environments	Timeout Error of CAN-Transmit-Frame AmbCon; Weather environments
126	523603	9	3-3-8	Timeout Error of CAN-Receive-Frame AMB; Ambient Temperature Sensor	Timeout Error of CAN-Receive-Frame AMB; Ambient Temperature Sensor
127	3224	2	5-9-6	NOx Sensor; CAN DLC error	DLC Error of CAN-Receive-Frame AT1IG1 NOX Sensor (SCR-system upstream cat; DPF-system downstream cat); length of frame incorrect
128	3224	9	5-9-7	NOx Sensor; CAN Timeout	Timeout Error of CAN-Receive-Frame AT1IG1; NOX sensor upstream
129	3224	2	5-9-6	NOx Sensor; CAN DLC error	DLC Error of CAN-Receive-Frame AT1IG1Vol NOX Sensor (SCR-system upstream cat; DPF-system downstream cat); length of frame incorrect
130	3224	9	5-9-7	NOx Sensor; CAN Timeout	Timeout Error of CAN-Receive-Frame AT1IG1Vol; NOX sensor (SCR-system upstream cat; DPF- system downstream cat)
133	523938	9	7-6-6	Timeout Error (BAM to packet) for CAN-Receive-Frame AT1IGCVol1 information; factors & Sensorcalibration for NOX Sensor (SCR-system upstream cat; DPF- system downstream cat)	Timeout Error (BAM to packet) for CAN-Receive-Frame AT1IGCVol1 information; factors & Sensorcalibration for NOX Sensor (SCR-system upstream cat; DPF-system downstream cat)
134	523939	9	7-6-6	Timeout Error (BAM to BAM) for CAN-Receive-Frame AT1IGCVol1 information; factors & Sensorcalibration for NOX Sensor (SCR-system upstream cat; DPF- system downstream cat)	Timeout Error (BAM to BAM) for CAN-Receive-Frame AT1IGCVol1 information; factors & Sensorcalibration for NOX Sensor (SCR-system upstream cat; DPF-system downstream cat)
135	523940	9	7-6-6	Timeout Error (PCK2PCK) for CAN-Receive-Frame AT1IGCVol1 information; factors & Sensorcalibration for NOX Sensor (SCR-system upstream cat; DPF-system downstream cat)	Timeout Error (PCK2PCK) for CAN-Receive-Frame AT1IGCVol1 information; factors & Sensorcalibration for NOX Sensor (SCR-system upstream cat; DPF-system downstream cat)
137	3234	9	6-0-1	NOx Sensor; CAN Timeout	Timeout Error of CAN-Receive-Frame AT1OG1; NOX sensor (SCR-system downstream cat; DPF- system downstream cat)
138	3234	2	6-0-0	NOx Sensor; CAN DLC error	DLC Error of CAN-Receive-Frame AT1O1Vol NOX Sensor (SCR-system downstream cat; DPF- system downstream cat); length of frame incorrect
139	3234	9	6-0-1	NOx Sensor; CAN Timeout	Timeout Error of CAN-Receive-Frame AT1OG1Vol; NOX sensor (SCR-system downstream cat; DPF-system downstream cat)
140	523941	9	7-6-7	Timeout Error (BAM to packet) for CAN-Receive-Frame AT1OGCVol2 information; factors & Sensorcalibration for NOX Sensor (SCR-system downstream cat; DPF- system downstream cat)	Timeout Error (BAM to packet) for CAN-Receive-Frame AT1OGCVol2 information; factors & Sensorcalibration for NOX Sensor (SCR-system downstream cat; DPF-system downstream cat)

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
141	523942	9	7-6-7	Timeout Error (BAM to BAM) for CAN-Receive-Frame AT1OGCVol2 information; factors & Sensorcalibration for NOX Sensor (SCR-system downstream cat; DPF- system downstream cat)	Timeout Error (BAM to BAM) for CAN-Receive-Frame AT1OGCVol2 information; factors & Sensorcalibration for NOX Sensor (SCR-system downstream cat; DPF-system downstream cat)
142	523943	9	7-6-7	Timeout Error (PCK2PCK) for CAN-Receive-Frame AT1OGCVol2 information; factors & Sensorcalibration for NOX Sensor (SCR-system downstream cat; DPF- system downstream cat)	Timeout Error (PCK2PCK) for CAN-Receive-Frame AT1OGCVol2 information; factors & Sensorcalibration for NOX Sensor (SCR-system downstream cat; DPF-system downstream cat)
168	523935	12	7-6-3	Timeout Error of CAN-Transmit-Frame EEC3VOL1; Engine send messages	Timeout Error of CAN-Transmit-Frame EEC3VOL1; Engine send messages
169	523936	12	7-6-4	Timeout Error of CAN-Transmit-Frame EEC3VOL2; Engine send messages	Timeout Error of CAN-Transmit-Frame EEC3VOL2; Engine send messages
171	523212	9	3-3-3	Timeout Error of CAN-Receive-Frame ComEngPrt; Engine Protection	Timeout Error of CAN-Receive-Frame ComEngPrt; Engine Protection
179	523240	9	5-2-7	Timeout CAN-message FunModCtl; Function Mode Control	Timeout CAN-message FunModCtl; Function Mode Control
198	523216	9	3-3-7	Timeout Error of CAN-Receive-Frame PrHtEnCmd; pre-heat command, engine command	Timeout Error of CAN-Receive-Frame PrHt-EnCmd; pre-heat command, engine command
202	523793	9	6-7-8	Timeout Error of CAN-Receive-Frame UAA10; AGS sensor service message	Timeout Error of CAN-Receive-Frame UAA10; AGS sensor service message
203	523794	9	6-7-8	Timeout Error of CAN-Receive-Frame UAA11; AGS sensor data	Timeout Error of CAN-Receive-Frame UAA11; AGS sensor data
212	523803	9	6-7-8	Timeout Error of CAN-Receive-Frame RxEngPres; Status burner airpump	Timeout Error of CAN-Receive-Frame RxEng-Pres; Status burner airpump
281	523766	9	1-1-8	Timeout Error of CAN-Receive-Frame Active TSC1AE	Timeout Error of CAN-Receive-Frame Active TSC1AE
282	523767	9	1-1-8	Timeout Error of CAN-Receive-Frame Passive TSC1AE	Timeout Error of CAN-Receive-Frame Passive TSC1AE
283	523768	9	1-1-9	Timeout Error of CAN-Receive-Frame Active TSC1AR	Timeout Error of CAN-Receive-Frame Active TSC1AR
284	523769	9	1-1-9	Timeout Error of CAN-Receive-Frame Passive TSC1AR	Timeout Error of CAN-Receive-Frame Passive TSC1AR
285	523770	9		Timeout Error of CAN-Receive-Frame Passive TSC1DE	Timeout Error of CAN-Receive-Frame Passive TSC1DE
291	523776	9	1-1-9	Timeout Error of CAN-Receive-Frame TSC1TE - active	Timeout Error of CAN-Receive-Frame TSC1TE - active
292	523777	9	1-1-9	Passive Timeout Error of CAN-Receive-Frame TSC1TE; Setpoint	Passive Timeout Error of CAN-Receive-Frame TSC1TE; Setpoint
293	523778	9	1-1-8	Active Timeout Errorof CAN-Receive-Frame TSC1TR	Active Timeout Errorof CAN-Receive-Frame TSC1TR
294	523779	9	1-1-8	Passive Timeout Error of CAN-Receive-Frame TSC1TR	Passive Timeout Error of CAN-Receive-Frame TSC1TR

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
299	523788	12	6-5-5	Timeout Error of CAN-Transmit-Frame TrbCH; Status Wastegate	Timeout Error of CAN-Transmit-Frame TrbCH; Status Wastegate
300	523605	9	1-1-8	Timeout Error of CAN-Receive-Frame TSC1AE; Traction Control	Timeout Error of CAN-Receive-Frame TSC1AE; Traction Control
301	523606	9	1-1-9	Timeout Error of CAN-Receive-Frame TSC1AR; Retarder	Timeout Error of CAN-Receive-Frame TSC1AR; Retarder
305	898	9	1-1-8	Timeout Error of CAN-Receive-Frame TSC1TE; Setpoint	Timeout Error of CAN-Receive-Frame TSC1TE; Setpoint
306	520	9	1-1-9	Timeout Error of CAN-Receive-Frame TSC1TR; Setpoint	Timeout Error of CAN-Receive-Frame TSC1TR; Setpoint
322	523867	12	6-7-9	Timeout Error of CAN-Transmit-Frame UAA1 on CAN 2; Burner Air Pump Control	Timeout Error of CAN-Transmit-Frame UAA1 on CAN 2; Burner Air Pump Control
360	523982	0	7-3-7	Powerstage diagnosis disabled; high battery voltage	Powerstage diagnosis disabled; high battery voltage
361	523982	1	7-3-7	Powerstage diagnosis disabled; low battery voltage	Powerstage diagnosis disabled; low battery voltage
376	630	12	2-8-1	Access error EEPROM	Access error EEPROM memory (delete)
377	630	12	2-8-1	Access error EEPROM	Access error EEPROM memory (read)
378	630	12	2-8-1	Access error EEPROM	Access error EEPROM memory (write)
381	411	4		Physical range check low for EGR differential pressure	Physical range check low for EGR differential pressure
383	2791	5	4-1-5	Actuator EGR Valve; open load	Actuator EGR Valve; open load
384	2791	12	4-1-5	Actuator EGR Valve; powerstage over temperature	Actuator EGR Valve; powerstage over temperature
385	2791	3	4-1-4	Actuator EGR Valve; short circuit to battery	Actuator EGR Valve; short circuit to battery
386	2791	4	4-1-4	Actuator EGR Valve; short circuit to ground	Actuator EGR Valve; short circuit to ground
387	523612	12	5-5-5	Internal software error ECU	Internal software error ECU; injection cut off
388	190	0	2-1-4	Engine speed above warning threshold (FOC-Level 1)	Overspeed detection in component engine protection
389	190	0	2-1-4	Engine speed above warning threshold (FOC-Level 1)	Engine speed above warning threshold (FOC-Level 1)
390	190	11	2-1-4	Engine speed above warning threshold (FOC-Level 2)	Engine speed above warning threshold (FOC-Level 2)
391	190	14	2-1-4	Speed detection; out of range, signal disrupted	Engine speed above warning threshold (Overrun Mode)
412	108	3	2-9-2	Sensor error ambient air pressure; signal range check high	Sensor error ambient air pressure; signal range check high
413	108	4	2-9-2	Sensor error ambient air pressure; signal range check low	Sensor error ambient air pressure; signal range check low

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
417	171	3	3-1-2	Sensor error environment temperature; signal range check high	Sensor error environment temperature; signal range check high
418	171	4	3-1-2	Sensor error environment temperature; signal range check low	Sensor error environment temperature; signal range check low
419	190	8	2-1-2	Speed detection; out of range, signal disrupted	Sensor camshaft speed; disturbed signal
420	190	12	2-1-2	Speed detection; out of range, signal disrupted	Sensor camshaft speed; no signal
421	190	2	2-1-3	Offset angle between crank- and camshaft sensor is too large	Offset angle between crank- and camshaft sensor is too large
422	190	8	2-1-2	Speed detection; out of range, signal disrupted	Sensor crankshaft speed; disturbed signal
423	190	12	2-1-2	Speed detection; out of range, signal disrupted	Sensor crankshaft speed; no signal
424	703	5	1-4-2	Engine running lamp; open load	Engine running lamp; open load
425	703	12	1-4-2	Engine running lamp; powerstage over temperature	Engine running lamp; powerstage over temperature
426	703	3	1-4-2	Engine running lamp; short circuit to battery	Engine running lamp; short circuit to battery
427	703	4	1-4-2	Engine running lamp; short circuit to ground	Engine running lamp; short circuit to ground
450	975	5	2-2-8	Fan control; open load	Digital fan control; open load
451	975	12	2-2-8	Fan control; internal error	Digital fan control; powerstage over temperature
452	975	3	2-2-8	Fan control; short circuit to battery	Digital fan control; short circuit to battery
453	975	4	2-2-8	Fan control; short circuit to ground	Digital fan control; short circuit to ground
455	975	5	2-2-8	Fan control; open load	Fan actuator (PWM output); open load
456	975	12	2-2-8	Fan control; internal error	Fan actuator (PWM output); powerstage over temperature
457	975	3	2-2-8	Fan control; short circuit to battery	Fan actuator (PWM output); short circuit to battery
458	975	4	2-2-8	Fan control; short circuit to ground	Fan actuator (PWM output); short circuit to ground
460	1639	0	2-2-8	Sensor error fan speed; signal range check high	Sensor error fan speed; signal range check high
461	1639	1	2-2-8	Sensor error fan speed; signal range check low	Sensor error fan speed; signal range check low
462	523602	0	2-2-8	Fan control; out of range, system reaction initiated	High fan speed; warning threshold exceeded
463	523602	0	2-2-8	Fan control; out of range, system reaction initiated	High fan speed; shut off threshold exceeded
464	97	3	2-2-8	Sensor error water in fuel; signal range check high	Sensor error water in fuel; signal range check high

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
465	97	4	2-2-8	Sensor error water in fuel; signal range check low	Sensor error water in fuel; signal range check low
472	94	3	2-1-6	Sensor error low fuel pressure; signal range check high	Sensor error low fuel pressure; signal range check high
473	94	4	2-1-6	Sensor error low fuel pressure; signal range check low	Sensor error low fuel pressure; signal range check low
474	94	1	2-1-6	Low fuel pressure; system reaction initiated	Low fuel pressure; warning threshold exceeded
475	94	1	2-1-6	Low fuel pressure; system reaction initiated	Low fuel pressure; shut off threshold exceeded
481	174	0	2-3-7	High low fuel temperature; system reaction initiated	High low fuel temperature; warning threshold exceeded
482	174	0	2-3-7	High Low fuel temperature; system reaction initiated	High Low fuel temperature; shut off threshold exceeded
488	523619	2	1-3-3	Physical range check high for exhaust gas temperature upstrem (SCR-CAT)	Physical range check high for exhaust gas temperature upstrem (SCR-CAT)
500	523915	0	7-2-0	HCI dosing valve (DV1); overcurrent at the end of the injection phase	HCI dosing valve (DV1); overcurrent at the end of the injection phase
501	523915	12	7-2-0	HCI dosing valve (DV1); powerstage over temperature	HCI dosing valve (DV1); powerstage over temperature
502	523915	3	7-2-0	HCI dosing valve (DV1); short circuit to battery	HCI dosing valve (DV1); short circuit to battery
503	523915	3	7-2-0	HCI dosing valve (DV1); short circuit to battery	HCI dosing valve (DV1); short circuit to battery high side
504	523915	4	7-2-0	HCI dosing valve (DV1); short circuit to ground	HCI dosing valve (DV1); short circuit to ground
505	523915	11	7-2-0	HCI dosing valve (DV1); short circuit high side powerstage	HCI dosing valve (DV1); short circuit high side powerstage
506	523916	2	7-1-9	Sensor HCI dosing valve (DV1) downstream pressure; plausibility error	Sensor HCI dosing valve (DV1) downstream pressure; plausibility error
508	523916	0	7-1-9	Physical range check high for HCI dosing valve (DV1) downstream pressure; shut off regeneration	Physical range check high for HCI dosing valve (DV1) downstream pressure; shut off regeneration
511	523916	1	7-1-9	Physical range check low for HCI dosing valve (DV1) downstream pressure; shut off regeneration	Physical range check low for HCI dosing valve (DV1) downstream pressure; shut off regeneration
514	523916	3	7-1-9	Sensor error HCI dosing valve (DV1) downstream pressure; signal range check high	Sensor error HCI dosing valve (DV1) downstream pressure; signal range check high
515	523916	4	7-1-9	Sensor error HCI dosing valve (DV1) downstream pressure; signal range check low	Sensor error HCI dosing valve (DV1) downstream pressure; signal range check low
516	523917	2	7-1-8	Sensor DV1 & DV2 upstream pressure; plausibility error	Sensor DV1 & DV2 upstream pressure; plausibility error

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
518	523917	0	7-1-8	Physical range check high for DV1 & DV2 upstream pressure; shut off regeneration	Physical range check high for DV1 & DV2 upstream pressure; shut off regeneration
521	523917	1	7-1-8	Physical range check low for DV1 & DV2 upstream pressure; shut off regeneration	Physical range check low for DV1 & DV2 upstream pressure; shut off regeneration
524	523917	3	7-1-8	Sensor error DV1 & DV2 upstream pressure; signal range check high	Sensor error DV1 & DV2 upstream pressure; signal range check high
525	523917	4	7-1-8	Sensor error DV1 & DV2 upstream pressure; signal range check low	Sensor error DV1 & DV2 upstream pressure; signal range check low
526	523918	2	7-1-7	Sensor DV1 & DV2 upstream temperature; plausibility error	Sensor DV1 & DV2 upstream temperature; plausibility error
528	523918	0	7-1-7	Physical range check high for DV1 & DV2 upstream temperature; shut off regeneration	Physical range check high for DV1 & DV2 upstream temperature; shut off regeneration
531	523918	1	7-1-7	Physical range check low for DV1 & DV2 upstream temperature; shut off regeneration	Physical range check low for DV1 & DV2 upstream temperature; shut off regeneration
534	523918	3	7-1-7	Sensor error DV1 & DV2 upstream temperature; signal range check high	Sensor error DV1 & DV2 upstream temperature; signal range check high
535	523918	4	7-1-7	Sensor error DV1 & DV2 upstream temperature; signal range check low	Sensor error DV1 & DV2 upstream temperature; signal range check low
543	676	11	2-6-3	Cold start aid relay; open load, relay error.	Cold start aid relay error.
544	676	11	2-6-3	Cold start aid relay; open load, relay error.	Cold start aid relay open load
545	729	5	2-6-3	Cold start aid relay open load	Cold start aid relay open load
547	729	12	2-6-3	Cold start aid relay; over temperature error	Cold start aid relay; over temperature error
559	523895	13	7-0-6	Check of missing injector adjustment value programming (IMA) injector 1 (in firing order)	Check of missing injector adjustment value programming (IMA) injector 1 (in firing order)
560	523896	13	7-0-7	check of missing injector adjustment value programming (IMA) injector 2 (in firing order)	check of missing injector adjustment value programming (IMA) injector 2 (in firing order)
561	523897	13	7-0-8	check of missing injector adjustment value programming (IMA) injector 3 (in firing order)	check of missing injector adjustment value programming (IMA) injector 3 (in firing order)
562	523898	13	7-0-9	check of missing injector adjustment value programming (IMA) injector 4 (in firing order)	check of missing injector adjustment value programming (IMA) injector 4 (in firing order)
563	523899	13	7-1-0	check of missing injector adjustment value programming (IMA) injector 5 (in firing order)	check of missing injector adjustment value programming (IMA) injector 5 (in firing order)
564	523900	13	7-1-1	check of missing injector adjustment value programming (IMA) injector 6 (in firing order)	check of missing injector adjustment value programming (IMA) injector 6 (in firing order)

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
565	523350	4	1-5-1	Injector cylinder-bank 1; short circuit	Injector cylinder-bank 1; short circuit
566	523352	4	1-5-2	Injector cylinder-bank 2; short circuit	Injector cylinder-bank 2; short circuit
567	523354	12	1-5-3	Injector powerstage output defect	Injector powerstage output defect
568	651	5	1-5-4	Injector 1 (in firing order); interruption of electric connection	Injector 1 (in firing order); interruption of electric connection
569	652	5	1-5-5	Injector 2 (in firing order); interruption of electric connection	Injector 2 (in firing order); interruption of electric connection
570	653	5	1-5-6	Injector 3 (in firing order); interruption of electric connection	Injector 3 (in firing order); interruption of electric connection
571	654	5	1-6-1	Injector 4 (in firing order); interruption of electric connection	Injector 4 (in firing order); interruption of electric connection
572	655	5	1-6-2	Injector 5 (in firing order); interruption of electric connection	Injector 5 (in firing order); interruption of electric connection
573	656	5	1-6-3	Injector 6 (in firing order); interruption of electric connection	Injector 6 (in firing order); interruption of electric connection
580	651	3	1-5-4	Injector 1 (in firing order); short circuit	Injector 1 (in firing order); short circuit
581	652	3	1-5-5	Injector 2 (in firing order); short circuit	Injector 2 (in firing order); short circuit
582	653	3	1-5-6	Injector 3 (in firing order); short circuit	Injector 3 (in firing order); short circuit
583	654	3	1-6-1	Injector 4 (in firing order); short circuit	Injector 4 (in firing order); short circuit
584	655	3	1-6-2	Injector 5 (in firing order); short circuit	Injector 5 (in firing order); short circuit
585	656	3	1-6-3	Injector 6 (in firing order); short circuit	Injector 6 (in firing order); short circuit
586	651	4	1-5-4	High side to low side short circuit in the injector 1 (in firing order)	High side to low side short circuit in the injector 1 (in firing order)
587	652	4	1-5-5	High side to low side short circuit in the injector 2 (in firing order)	High side to low side short circuit in the injector 2 (in firing order)
588	653	4	1-5-6	High side to low side short circuit in the injector 3 (in firing order)	High side to low side short circuit in the injector 3 (in firing order)
589	654	4	1-6-1	High side to low side short circuit in the injector 4 (in firing order)	High side to low side short circuit in the injector 4 (in firing order)
590	655	4	1-6-2	High side to low side short circuit in the injector 5 (in firing order)	High side to low side short circuit in the injector 5 (in firing order)
591	656	4	1-6-3	High side to low side short circuit in the injector 6 (in firing order)	High side to low side short circuit in the injector 6 (in firing order)
592	523615	5	1-3-5	Metering unit (Fuel-System); open load	Metering unit (Fuel-System); open load
593	523615	12	1-3-5	Metering unit (Fuel-System); powerstage over temperature	Metering unit (Fuel-System); powerstage over temperature
594	523615	3	1-3-5	Metering unit (Fuel-System); short circuit to battery	Metering unit (Fuel-System); short circuit to battery highside
595	523615	4	1-3-5	Metering unit (Fuel-System); short circuit to ground	Metering unit (Fuel-System); short circuit to ground high side
596	523615	3	1-3-5	Metering unit (Fuel-System); short circuit to battery	Metering unit (Fuel-System); short circuit to battery low side

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
597	523615	4	1-3-5	Metering unit (Fuel-System); short circuit to ground	Metering Unit (Fuel-System); short circuit to ground low side
604	1323	12	2-4-1	Too many recognized misfires in cylinder 1 (in firing order)	Too many recognized misfires in cylinder 1 (in firing order)
605	1324	12	2-4-1	Too many recognized misfires in cylinder 2 (in firing order)	Too many recognized misfires in cylinder 2 (in firing order)
606	1325	12	2-4-1	Too many recognized misfires in cylinder 3 (in firing order)	Too many recognized misfires in cylinder 3 (in firing order)
607	1326	12	2-4-1	Too many recognized misfires in cylinder 4 (in firing order)	Too many recognized misfires in cylinder 4 (in firing order)
608	1327	12	2-4-1	Too many recognized misfires in cylinder 5 (in firing order)	Too many recognized misfires in cylinder 5 (in firing order)
609	1328	12	2-4-1	Too many recognized misfires in cylinder 6 (in firing order)	Too many recognized misfires in cylinder 6 (in firing order)
610	1322	12	2-4-1	Too many recognized misfires in more than one cylinder	Too many recognized misfires in more than one cylinder
612	523612	12	5-5-5	ECU reported internal software error	Internal ECU monitoring detection reported error
613	523612	12	5-5-5	ECU reported internal software error	Internal ECU monitoring detection reported error
614	523612	12	5-5-5	ECU reported internal software error	Internal ECU monitoring detection reported error
615	523612	12	5-5-5	ECU reported internal software error	Internal ECU monitoring detection reported error
616	523612	12	5-5-5	ECU reported internal software error	Internal ECU monitoring detection reported error
617	523612	12	5-5-5	ECU reported internal software error	Internal ECU monitoring detection reported error
618	523612	12	5-5-5	ECU reported internal software error	Internal ECU monitoring detection reported error
619	523612	12	5-5-5	ECU reported internal software error	Internal ECU monitoring detection reported error
620	523612	12	5-5-5	ECU reported internal software error	Internal ECU monitoring detection reported error
621	523612	12	5-5-5	ECU reported internal software error	Internal ECU monitoring detection reported error
623	523612	12	5-5-5	ECU reported internal software error	Internal ECU monitoring detection reported error
624	523612	12	5-5-5	ECU reported internal software error	Internal ECU monitoring detection reported error
625	523612	12	5-5-5	ECU reported internal software error	Internal ECU monitoring detection reported error
627	523612	12	5-5-5	ECU reported internal software error	Internal ECU monitoring detection reported error

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
628	523612	12	5-5-5	ECU reported internal software error	Internal ECU monitoring detection reported error
637	523612	12	5-5-5	ECU reported internal software error	Internal ECU monitoring detection reported error
648	523008	1	4-2-4	Manipulation control was triggered	Manipulation control was triggered
649	523008	2	4-2-4	Timeout error in Manipulation control	Timeout error in Manipulation control
732	100	3	2-2-4	Sensor error oil pressure; signal range check high	Sensor error oil pressure; signal range check high
733	100	4	2-2-4	Sensor error oil pressure sensor; signal range check low	Sensor error oil pressure sensor; signal range check low
734	100	0	2-3-1	High oil pressure; system reaction initiated	High oil pressure; warning threshold exceeded
735	100	0	2-3-1	High oil pressure; system reaction initiated	High oil pressure; shut off threshold exceeded
736	100	1	2-3-1	Low oil pressure; system reaction initiated	Low oil pressure; warning threshold exceeded
737	100	1	2-3-1	Low oil pressure; system reaction initiated	Low oil pressure; shut off threshold exceeded
738	175	2	1-4-4	Oil temperature; plausibility error	Sensor oil temperature; plausibility error
739	175	2	1-4-4	Oil temperature; plausibility error	Sensor oil temperature; plausibility error oil temperature too high
740	175	0	1-4-4	Oil temperature; out of range, system reaction initiated	Physical range check high for oil temperature
741	175	1	1-4-4	Physical range check low for oil temperature	Physical range check low for oil temperature
743	175	3	1-4-4	Sensor error oil temperature; signal range check high	Sensor error oil temperature; signal range check high
744	175	4	1-4-4	Sensor error oil temperature; signal range check low	Sensor error oil temperature; signal range check low
745	175	0	1-4-4	Oil temperature; out of range, system reaction initiated	High oil temperature; warning threshold exceeded
746	175	0	1-4-4	Oil temperature; out of range, system reaction initiated	High oil temperature; shut off threshold exceeded
747	1237	2	1-4-5	Override switch; plausibility error	Override switch; plausibility error
750	107	3	1-3-6	Sensor error airfilter differential pressure; short circuit to battery	Sensor error airfilter differential pressure; short circuit to battery
751	107	4	1-3-6	Sensor error airfilter differential pressure; short circuit to ground	Sensor error airfilter differential pressure; short circuit to ground
752	107	0	1-3-6	Air filter differential pressure; system reaction initiated	High air filter differential pressure; warning threshold exceeded
753	523919	2	6-9-4	Sensor airpump pressure; plausibility error	Sensor airpump pressure; plausibility error

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
755	523919	0	6-9-4	Physical range check high for airpump pressure; shut off regeneration	Physical range check high for airpump pressure; shut off regeneration
758	523919	1	6-9-4	Physical range check low for airpump pressure; shut off regeneration	Physical range check low for airpump pressure; shut off regeneration
761	523919	3	6-9-4	Sensor error airpump pressure; signal range check high	Sensor error airpump pressure; signal range check high
762	523919	4	6-9-4	Sensor error airpump pressure; signal range check low	Sensor error airpump pressure; signal range check low
763	523920	2	7-1-6	Sensor exhaustgas back pressure; plausibility error	Sensor exhaustgas back pressure; plausibility error
765	523920	0	7-1-6	Physical range check high for exhaustgas back pressure burner; shut off regeneration	Physical range check high for exhaustgas back pressure burner; shut off regeneration
768	523920	1	7-1-6	Physical range check low for exhaustgas back pressure burner; shut off regeneration	Physical range check low for exhaustgas back pressure burner; shut off regeneration
770	523920	3	7-1-6	Sensor error exhaustgas back pressure burner; signal range check high	Sensor error exhaustgas back pressure burner; signal range check high
771	523920	4	7-1-6	Sensor error exhaustgas back pressure burner; signal range check low	Sensor error exhaustgas back pressure burner; signal range check low
776	102	3	2-2-3	Sensor error charged air pressure; signal range check high	Sensor error charged air pressure; signal range check high
777	102	4	2-2-3	Sensor error charged air pressure; signal range check low	Sensor error charged air pressure; signal range check low
791	411	0	6-9-3	Physical range check high for differential pressure Venturiunit (EGR)	Physical range check high for differential pressure Venturiunit (EGR)
792	411	1	6-9-3	Physical range check low for differential pressure Venturiunit (EGR)	Physical range check low for differential pressure Venturiunit (EGR)
793	411	11	6-9-3	Sensor differential pressure Venturiunit (EGR); plausibility error	Sensor differential pressure Venturiunit (EGR); plausibility error
794	411	2	6-9-3	Sensor differential pressure Venturiunit (EGR); CAN signal invalid	Sensor differential pressure Venturiunit (EGR); CAN signal invalid
795	411	3	6-9-3	Sensor error differential pressure Venturiunit (EGR); signal range check high	Sensor error differential pressure Venturiunit (EGR); signal range check high
796	411	4	6-9-3	Sensor error differential pressure Venturiunit (EGR); signal range check low	Sensor error differential pressure Venturiunit (EGR); signal range check low
805	524025	14		Particulate filter; regeneration not succesful	Particulate filter; regeneration not succesful
807	3253	2	6-9-2	Sensor differential pressure (DPF); plausibility error	Sensor differential pressure (DPF); plausibility error regarding signal offset
809	3251	0	6-9-2	Physical range check high for differential pressure (DPF); shut off regeneration	Physical range check high for differential pressure (DPF); shut off regeneration
812	3251	1	6-9-2	Physical range check low for differential pressure (DPF); shut off regeneration	Physical range check low for differential pressure (DPF); shut off regeneration

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
814	3253	3	6-9-2	Sensor error differential pressure (DPF); signal range check high	Sensor error differential pressure (DPF); signal range check high
815	3253	4	6-9-2	Sensor error differential pressure (DPF); signal range check low	Sensor error differential pressure (DPF); signal range check low
825	523009	9	2-5-3	Pressure Relief Valve (PRV) reached maximun allowed opening count	Pressure Relief Valve (PRV) reached maximun allowed opening count
826	523470	2	1-4-6	Pressure Relief Valve (PRV) forced to open	Pressure Relief Valve (PRV) forced to open; performed by pressure increase
827	523470	2	1-4-6	Pressure Relief Valve (PRV) forced to open	Pressure Relief Valve (PRV) forced to open; performed by pressure shock
828	523470	12	1-4-6	Pressure Relief Valve (PRV) forced to open; system reaction initiated	Open Pressure Relief Valve (PRV); shut off condition
829	523470	12	1-4-6	Pressure Relief Valve (PRV) forced to open; system reaction initiated	Open Pressure Relief Valve (PRV); warning condition
830	523470	14	1-4-6	Pressure Relief Valve (PRV) is open	Pressure Relief Valve (PRV) is open
831	523470	11	1-4-6	Pressure Relief Valve (PRV) error; Rail pressure out of tolerance range	The PRV can not be opened at this operating point with a pressure shock
832	523470	11	1-4-6	Rail pressure out of tolerance range	Rail pressure out of tolerance range
833	523009	10	2-5-3	Pressure relief valve (PRV) reached maximun allowed open time	Pressure relief valve (PRV) reached maximun allowed open time
834	523906	5	7-6-1	Electrical fuel pre - supply pump; open load	Electrical fuel pre - supply pump; open load
835	523906	12	7-6-1	Electrical fuel pre - supply pump; power-stage over temperature	Electrical fuel pre - supply pump; powerstage over temperature
836	523906	3	7-6-1	Electrical fuel pre - supply pump; short circuit to battery	Electrical fuel pre - supply pump; short circuit to battery
837	523906	4	7-6-1	Electrical fuel pre - supply pump; short circuit to ground	Electrical fuel pre - supply pump; short circuit to ground
838	523450	3	1-4-3	Multiple Stage Switch constant speed; short circuit to battery	Multiple Stage Switch constant speed; short circuit to battery
839	523450	4	1-4-3	Multiple Stage Switch constant speed; short circuit to ground	Multiple Stage Switch constant speed; short circuit to ground
840	523450	2	1-4-3	Multiple Stage Switch constant speed; plausibility error	Multiple Stage Switch constant speed; plausi-bility error
841	523451	3	1-4-3	Multiple Stage Switch engine speed con-trol parameter; short circuit to battery	Multiple Stage Switch engine speed control parameter; short circuit to battery
842	523451	4	1-4-3	Multiple Stage Switch engine speed con-trol parameter; short circuit to ground	Multiple Stage Switch engine speed control parameter; short circuit to ground
843	523451	2	1-4-3	Multiple Stage Switch engine speed con-trol parameter; plausibility error	Multiple Stage Switch engine speed control parameter; plausibility error
844	523452	3	1-4-3	Multiple Stage Switch engine torque limi-tation curve; short circuit to battery	Multiple Stage Switch engine torque limitation curve; short circuit to battery
845	523452	4	1-4-3	Multiple Stage Switch engine torque limi-tation curve; short circuit to ground	Multiple Stage Switch engine torque limitation curve; short circuit to ground

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
846	523452	2	1-4-3	Multiple Stage Switch engine torque limitation curve; plausibility error	Multiple Stage Switch engine torque limitation curve; plausibility error
849	1176	3	6-8-0	Sensor error pressure sensor upstream turbine; signal range check high	Sensor error pressure sensor upstream turbine; signal range check high
850	1176	4	6-8-0	Sensor error pressure sensor downstream turbine; signal range check high	Sensor error pressure sensor downstream turbine; signal range check high
856	523613	0	1-3-4	Rail pressure disrupted	Maximum positive deviation of rail pressure exceeded (RailMeUn0)
857	523613	0	1-3-4	Rail pressure disrupted	Maximum positive deviation of rail pressure in metering unit exceeded (RailMeUn1)
858	523613	0	1-3-4	Rail pressure disrupted	Railsystem leakage detected (RailMeUn10)
859	523613	0	1-3-4	Rail pressure disrupted	Maximum negative deviation of rail pressure in metering unit exceeded (RailMeUn2)
860	523613	0	1-3-4	Rail pressure disrupted	Negative deviation of rail pressure second stage (RailMeUn22)
861	523613	1	1-3-4	Minimum rail pressure exceeded (RailMeUn3)	Minimum rail pressure exceeded (RailMeUn3)
862	523613	0	1-3-4	Rail pressure disrupted	Maximum rail pressure exceeded (RailMeUn4)
864	523613	2	1-3-4	Setpoint of metering unit in overrun mode not plausible	Setpoint of metering unit in overrun mode not plausible
876	523470	7	1-4-6	Maximum rail pressure in limp home mode exceeded (PRV)	Maximum rail pressure in limp home mode exceeded (PRV)
877	157	3	1-4-7	Sesnor error rail pressure; signal range check high	Sesnor error rail pressure; signal range check high
878	157	4	1-4-7	Sensor error rail pressure; signal range check low	Sensor error rail pressure; signal range check low
881	523633	11	7-0-1	Nox conversion rate insufficient	Nox conversion rate insufficient (SCR-Cat defect, bad AdBule quality)
882	523633	11	7-0-1	Nox conversion rate insufficient	Nox conversion rate insufficient (SCR-Cat defect, bad AdBule quality); temperature range 1
883	523633	11	7-0-1	Nox conversion rate insufficient	Nox conversion rate insufficient (SCR-Cat defect, bad AdBule quality); temperature range 2
887	3234	11	8-0-7	Nox Sensor downstream of SCR Catalysator; plausibility error "stuk in range"	Nox Sensor downstream of SCR Catalysator; plausibility error "stuk in range"
889	3224	1	8-0-8	Nox sensor upstream of SCR Catalysator; low signal not plausible	Nox sensor upstream of SCR Catalysator; low signal not plausible
892	4345	11	8-7-0	Sensor backflow line pressure (SCR); plausibility error	Sensor backflow line pressure (SCR); plausibility error
893	4343	11	8-7-1	General pressure check error (SCR)	General pressure check error (SCR)
894	4374	13	8-7-2	Pressure stabilisation error dosing valve (SCR)	Pressure stabilisation error dosing valve (SCR)

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
896	523723	11	8-7-4	Detection of AdBlue filled SCR system in Init-State	Detection of AdBlue filled SCR system in Init-State
897	523632	16	8-7-5	Pump pressure SCR metering unit too high	Pump pressure SCR metering unit too high
898	523632	18	8-7-6	Pump pressure SCR metering unit too low	Pump pressure SCR metering unit too low
899	523632	0	8-7-7	Pressure overload of SCR-System	Pressure overload of SCR-System
900	523632	1	8-7-8	Pressure build-up error SCR-System	Pressure build-up error SCR-System
903	4365	0	8-8-1	Urea tank temperature too high	Urea tank temperature too high
905	3241	0	8-8-3	Sensor SCR catalyst upstream temperature too high; plausibility error	Sensor SCR catalyst upstream temperature too high; plausibility error
906	3241	1	8-8-4	Sensor SCR catalyst upstream temperature too low; plausibility error	Sensor SCR catalyst upstream temperature too low; plausibility error
908	3361	7	8-8-6	AdBlue dosing valve blocked (SCR)	AdBlue dosing valve blocked (SCR)
914	523720	2	6-9-0	Urea supply module heater temperature; plausibility error	Sensor urea supply module heater temperature; plausibility error (normal condition)
915	523720	2	6-9-0	Urea supply module heater temperature; plausibility error	Sensor urea supply module heater temperature; plausibility error (cold start condition)
916	523721	2	6-8-9	Urea supply module heater temperature; plausibility error	Sesnor urea supply module temperature; plausibility error (normal condition)
917	523721	2	6-8-9	Urea supply module heater temperature; plausibility error	Sensor urea supply module temperature; plausibility error (cold start condition)
918	523981	11		Urea-tank without heating function (heating phase)	Urea-tank without heating function (heating phase)
919	523330	14	1-3-1	Immobilizer status; fuel blocked	Immobilizer status; fuel blocked
925	523720	8	6-9-0	Urea supply module heater temperature; signal disrupted	Urea supply module heater temperature; duty cycle in failure range
926	523720	8	6-9-0	Urea supply module heater temperature; signal disrupted	Urea supply module heater temperature; duty cycle in invalid range
927	523721	11	6-8-9	Urea supply module temperature measurement not available	Urea supply module temperature measurement not available
928	523722	8	6-9-1	Urea supply module PWM signal; signal disrupted	Urea supply module PWM signal; period outside valid range
929	523722	8	6-9-1	Urea supply module PWM signal; signal disrupted	Detect faulty PWM signal from Supply Modul
930	523721	8	6-8-9	Urea supply module temperature; signal disrupted	Urea supply module temperature; duty cycle in failure range
931	523721	8	6-8-9	Urea supply module temperature; signal disrupted	Urea supply module temperature; duty cycle in invalid range
932	29	3	1-2-6	Handthrottle; signal out of range, short circuit to battery	Handthrottle idle validation switch; short circuit to battery
935	91	3	2-2-6	Sensor error accelerator pedal; signal range check high	Sensor error accelerator pedal; signal range check high

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
936	29	3	2-2-6	Handthrottle; signal out of range, short circuit to battery	Sesnor error handthrottle; signal range check high
937	29	4	1-2-6	Handthrottle; signal out of range, short circuit to ground	Handthrottle idle validation switch; short circuit to ground
940	91	4	2-2-6	Sensor error accelerator pedal; signal range check low	Sensor error accelerator pedal; signal range check low
941	29	4	2-2-6	Handthrottle; signal out of range, short circuit to ground	Sensor error handthrottle sensor; signal range check low
942	523921	3	7-1-4	Sensor error burner temperature; signal range check high	Sensor error burner temperature; signal range check high
943	3532	3	6-7-0	Sensor error urea tank level; signal range check high	Sensor error urea tank level; signal range check high
944	523921	4	7-1-4	Sensor error burner temperature; signal range check low	Sensor error burner temperature; signal range check low
945	3532	4	6-7-0	Sensor error urea tank level; signal range check low	Sensor error urea tank level; signal range check low
946	1079	13	2-8-2	Sensor supply voltage monitor 1 error (ECU)	Sensor supply voltage monitor 1 error (ECU)
947	1080	13	2-8-2	Sensor supply voltage monitor 2 error (ECU)	Sensor supply voltage monitor 2 error (ECU)
948	523601	13	2-8-2	Sensor supply voltage monitor 3 error (ECU)	Sensor supply voltage monitor 3 error (ECU)
956	677	3	5-1-2	Starter relay; short circuit	Starter relay high side; short circuit to battery
957	677	4	5-1-2	Starter relay; short circuit	Starter relay high side; short circuit to ground
958	677	5	5-1-2	Starter relay; no load error	Starter relay; no load error
959	677	12	5-1-2	Starter relay; powerstage over tempera-ture	Starter relay; powerstage over temperature
960	677	3	5-1-2	Starter relay; short circuit	Starter relay low side; short circuit to battery
961	677	4	5-1-2	Starter relay; short circuit	Starter relay low side; short circuit to ground
963	523922	5	7-1-5	Burner shut off valve; open load	Burner shut off valve; open load
965	523922	3	7-1-5	Burner shut of valve; short circuit to bat-tery	Burner shut of valve; short circuit to battery
967	523922	4	7-1-5	Burner shut of valve; short circuit to ground	Burner shut of valve; short circuit to ground
969	624	5	5-1-3	SVS lamp; open load	SVS lamp; open load
970	624	12	5-1-3	SVS lamp; powerstage over temperature	SVS lamp; powerstage over temperature
971	624	3	5-1-3	SVS lamp; short circuit to battery	SVS lamp; short circuit to battery
972	624	4	5-1-3	SVS lamp; short circuit to ground	SVS lamp; short circuit to ground
973	523612	14	5-5-5	Softwarereset CPU	Softwarereset CPU SWReset_0
974	523612	14	5-5-5	Softwarereset CPU	Softwarereset CPU SWReset_1
975	523612	14	5-5-5	Softwarereset CPU	Softwarereset CPU SWReset_2

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
976	91	11	2-2-6	Plausibility error between APP1 and APP2 or APP1 and idle switch	Plausibility error between APP1 and APP2 or APP1 and idle switch
980	523550	12	5-1-5	T50 start switch active for too long	T50 start switch active for too long
981	172	3	2-2-6	Sensor error intake air; signal range check high	Sensor error intake air; signal range check high
982	172	4	2-2-6	Sensor error intake air sensor; signal range check low	Sensor error intake air sensor; signal range check low
983	172	2	2-2-6	Intake air sensor; plausibility error	Intake air sensor; plausibility error
984	523921	11	7-1-4	Sensor burner temperature; plausibility error	Sensor burner temperature; plausibility error
986	523921	0	7-1-4	Physical range check high for burner temperature	Physical range check high for burner temperature
989	523921	1	7-1-4	Physical range check low for burner temperature	Physical range check low for burner temperature
994	105	3	1-2-8	Sensor error charged air temperature; signal range check high	Sensor error charged air temperature; signal range check high
995	105	4	1-2-8	Sensor error charged air temperature; signal range check low	Sensor error charged air temperature; signal range check low
996	105	0	2-3-3	Charged air cooler temperature; system reaction initiated	High charged air cooler temperature; warning threshold exceeded
997	105	0	2-3-3	Charged air cooler temperature; system reaction initiated	High charged air cooler temperature; shut off threshold exceeded
1007	412	3	6-8-2	Sensor error EGR cooler downstream temperature; signal range check high	Sensor error EGR cooler downstream temperature; signal range check high
1008	412	4	6-8-2	Sensor error EGR cooler downstream temperature; signal range check low	Sensor error EGR cooler downstream temperature; signal range check low
1009	412	2	6-8-2	Sensor exhaust gas temperature Venturiunit (EGR); plausibility error	Sensor exhaust gas temperature Venturiunit (EGR); plausibility error
1011	523960	0	7-7-1	EGR cooler downstream temperature; out of range, system reaction initiated	Physical range check high for EGR cooler downstream temperature
1012	523960	1	7-7-1	EGR cooler downstream temperature; out of range, system reaction initiated	Physical range check low for EGR cooler downstream temperature
1013	523960	11	7-7-1	Sensor exhaust gas temperature Venturiunit (EGR); plausibility error	Sensor exhaust gas temperature Venturiunit (EGR); plausibility error
1014	51	6	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); signal range check high
1015	51	5	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); signal range check low
1016	51	7	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	Actuator position for EGR-Valve (2.9,3.6) or Throttle-Valve (6.1,7.8) not plausible
1017	51	5	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	Actuator EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); open load
1018	51	12	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	Actuator EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); powerstage over temperature

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
1019	51	3	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); short circuit to battery
1020	51	4	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); short circuit to ground
1021	51	12	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	Mechanical actuator defect EGR-Valve (2.9,3.6) or Throttle-Valve (6.1,7.8)
1022	51	6	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); signal range check high
1023	51	5	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); signal range check low
1024	51	3	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	Position sensor error of actuator EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); signal range check high
1025	51	4	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	Position sensor error actuator EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); signal range check low
1026	4769	2	6-8-4	Sensor exhaust gas temperature downstream (DOC); plausibility error	Sensor exhaust gas temperature downstream (DOC); plausibility error
1029	4766	0	6-8-4	Physical range check high for exhaust gas temperature downstream (DOC)	Physical range check high for exhaust gas temperature downstream (DOC)
1032	4766	1	6-8-4	Physical range check low for exhaust gas temperature downstream (DOC)	Physical range check low for exhaust gas temperature downstream (DOC)
1034	4769	3	6-8-4	Sensor error exhaust gas temperature downstream (DOC); signal range check high	Sensor error exhaust gas temperature downstream (DOC); signal range check high
1035	4769	4	6-8-4	Sensor error exhaust gas temperature downstream (DOC); signal range check low	Sensor error exhaust gas temperature downstream (DOC); signal range check low
1036	4768	2	6-8-3	Sensor exhaust gas temperature upstream (DOC); plausibility error	Sensor exhaust gas temperature upstream (DOC); plausibility error
1039	4765	0	6-8-3	Physical range check high for exhaust gas temperature upstream (DOC)	Physical range check high for exhaust gas temperature upstream (DOC)
1042	4765	1	6-8-3	Physical range check low for exhaust gas temperature upstream (DOC)	Physical range check low for exhaust gas temperature upstream (DOC)
1044	4768	3	6-8-3	Sensor error exhaust gas temperature upstream (DOC); signal range check high	Sensor error exhaust gas temperature upstream (DOC); signal range check high
1045	4768	4	6-8-3	Sensor error exhaust gas temperature upstream (DOC); signal range check low	Sensor error exhaust gas temperature upstream (DOC); signal range check low
1047	3248	4	6-8-5	Sensor error particle filter downstream temperature; signal range check low	Sensor error particle filter downstream temperature; signal range check low
1066	1180	11	5-5-6	Sensor exhaust gas temperature upstream turbine; plausibility error	Sensor exhaust gas temperature upstream turbine; plausibility error
1067	1180	3	5-5-6	Sensor error exhaust gas temperature upstream turbine; signal range check high	Sensor error exhaust gas temperature upstream turbine; signal range check high

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
1068	1180	4	5-5-6	Sensor error exhaust gas temperature upstream turbine; signal range check low	Sensor error exhaust gas temperature upstream turbine; signal range check low
1069	4361	0	6-6-8	Physical range check high for urea catalyst upstream temperature	Physical range check high for urea catalyst upstream temperature
1070	4361	1	6-6-8	Physical range low for urea catalyst upstream temperature	Physical range low for urea catalyst upstream temperature
1072	4361	3	6-6-8	Sensor error urea catalyst exhaust gas temperature upstream; signal range check high	Sensor error urea catalyst exhaust gas temperature upstream; signal range check high
1073	4361	4	6-6-8	Sensor error urea catalyst exhaust gas temperature upstream; signal range check low	Sensor error urea catalyst exhaust gas temperature upstream; signal range check low
1074	1761	14	6-7-0	Urea tank level; warning threshold exceeded	Urea tank level; warning threshold exceeded
1077	3361	3	6-7-7	Urea dosing valve; short circuit to battery	Urea dosing valve; short circuit to battery on high side
1078	3361	3	6-7-7	Urea dosing valve; short circuit to battery	Urea dosing valve; short circuit to battery or open load on high side
1079	3361	4	6-7-7	Urea dosing valve; short circuit to ground	Urea dosing valve; short circuit to ground or open load on low side
1080	3361	4	6-7-7	Urea dosing valve; short circuit to ground	Urea dosing valve; short circuit on high side
1081	4345	5	6-7-4	SCR heater relay urea returnline; open load	SCR heater relay urea returnline sekondary side; open load
1082	4366	5	7-6-2	SCR main relay (secondary side): open load	SCR main relay (secondary side): open load
1083	4343	5	6-7-3	SCR heater relay urea pressureline; open load	SCR heater relay urea pressureline secondary side; open load
1084	4366	5	7-6-2	SCR main relay; short circuit	SCR main relay (secondary side); Shortcut to battery
1085	4366	5	7-6-2	SCR main relay; short circuit	SCR main relay (secondary side); shortcut to ground
1086	4341	5	6-7-5	SCR heater relay urea supplyline; open load	SCR heater relay urea supplyline secondary side; open load
1087	523719	5	6-7-2	SCR heater relay urea supply module; open load	SCR heater relay urea supply modul secondary side; open load
1088	4366	5	6-7-1	SCR Tank heating valve; open load	SCR Tank heating valve secundary side: open load
1089	4243	11	7-8-3	SCR system heater diagnostic reports error; shut off SCR-system	SCR system heater diagnostic reports error; shut off SCR-system
1090	4345	5	6-7-4	SCR heater relay urea returnline; open load	SCR heater relay urea returnline primary side; open load
1092	4345	3	6-7-4	SCR heater urea returnline; short circuit to battery	SCR heater urea returnline; short circuit to battery
1093	4345	4	6-7-4	SCR heater urea returnline; short circuit to ground	SCR heater urea returnline; short circuit to ground

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
1094	4343	5	6-7-3	SCR heater relay urea pressureline; open load	SCR heater relay urea pressureline primary side; open load
1096	4343	3	6-7-3	SCR heater urea pressureline; short circuit to battery	SCR heater urea pressureline; short circuit to battery
1097	4343	4	6-7-3	SCR heater urea pressureline; short circuit to ground	SCR heater urea pressureline; short circuit to ground
1098	523718	5	6-7-6	SCR main relay (primary side); open load	SCR main relay (primary side); open load
1099	523718	12	6-7-6	SCR main relay (primary side); powerstage over temperature	SCR main relay (primary side); powerstage over temperature
1100	523718	3	6-7-6	SCR main relay (primary side); short circuit to battery	SCR main relay (primary side); short circuit to battery
1101	523718	4	6-7-6	SCR main relay (primary side); short circuit to ground	SCR main relay (primary side); short circuit to ground
1102	4341	5	6-7-5	SCR heater relay urea supplyline; open load	SCR heater relay urea supplyline primary side; open load
1104	4341	3	6-7-5	SCR-heater urea supplyline; short circuit to battery	SCR-heater urea supplyline; short circuit to battery
1105	4341	4	6-7-5	SCR-heater urea supplyline; short circuit to ground	SCR-heater urea supplyline; short circuit to ground
1106	523719	5	6-7-2	SCR heater relay urea supply module; open load	SCR heater relay urea supplymodule primary side; open load
1108	523719	3	6-7-2	SCR heater urea supplymodule; short circuit to battery	SCR heater urea supplymodule; short circuit to battery
1109	523719	4	6-7-2	SCR heater urea supplymodule; short circuit to ground	SCR heater urea supplymodule; short circuit to ground
1110	4366	5	6-7-1	SCR Tank heating valve; open load	SCR tank heating valve primary side; open load
1111	4366	12	6-7-1	SCR-heater relay urea tank powerstage output; over temperature	SCR-heater relay urea tank powerstage output; over temperature
1112	4366	3	6-7-1	SCR Tank heating valve; short circuit to battery	SCR Tank heating valve; short circuit to battery
1113	4366	4	6-7-1	SCR Tank heating valve; short circuit to ground	SCR Tank heating valve; short circuit to ground
1118	4375	5	6-6-6	Urea pump motor; open load	Urea pump motor; open load
1120	4375	3	6-6-6	Urea pump motor; short circuit to battery	Urea pump motor; short circuit to battery
1121	4375	4	6-6-6	Urea pump motor; short circuit to ground	Urea pump motor; short circuit to ground
1122	523632	0	6-6-5	Urea pump pressure; out of range	Physical range check high for Urea Pump Pressure
1123	523632	1	6-6-5	Urea pump pressure; out of range	Physical range check low for Urea Pump Pressure
1124	523632	0	6-6-5	Urea pump pressure; out of range	Urea pump pressure sensor; high signal not plusible

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
1125	523632	1	6-6-5	Urea pump pressure; out of range	Urea pump pressure sensor; low signal not plausible
1127	523632	3	6-6-5	Sensor error urea pump pressure; signal range check high	Sensor error urea pump pressure; signal range check high
1128	523632	4	6-6-5	Sensor error urea pump pressure; signal range check low	Sensor error urea pump pressure; signal range check low
1129	4376	5	6-6-7	SCR reversing valve; open load	SCR reversing valve; open load
1130	4376	12	6-6-7	SCR reversing valve; over temperature	SCR reversing valve; over temperature
1131	4376	3	6-6-7	SCR reversing valve; short circuit to battery	SCR reversing valve; short circuit to battery
1132	4376	4	6-6-7	SCR reversing valve; short circuit to ground	SCR reversing valve; short circuit to ground
1135	4365	0	6-6-9	AdBlue-Tank temperature: maximum exceeded	AdBlue-Tank temperature: maximum exceeded
1136	4365	1	6-6-9	DEF-Tank temperature: below minimum	DEF-Tank temperature: below minimum
1138	4365	3	6-6-9	Sensor error urea tank temperature; short circuit to battery	Sensor error urea tank temperature; short circuit to battery
1139	4365	4	6-6-9	Sensor error urea tank temperature; short circuit to ground	Sensor error urea tank temperature; short circuit to ground
1157	97	12	2-2-8	Water in fuel level prefilter; maximum value exceeded	Water in fuel level prefilter; maximum value exceeded
1158	523946	0	7-7-2	Zerofuel calibration injector 1 (in firing order); maximum value exceeded	Zerofuel calibration injector 1 (in firing order); maximum value exceeded
1159	523947	0	7-7-2	Zerofuel calibration injector 2 (in firing order); maximum value exceeded	Zerofuel calibration injector 2 (in firing order); maximum value exceeded
1160	523948	0	7-7-2	Zerofuel calibration injector 3 (in firing order); maximum value exceeded	Zerofuel calibration injector 3 (in firing order); maximum value exceeded
1161	523949	0	7-7-2	Zerofuel calibration injector 4 (in firing order); maximum value exceeded	Zerofuel calibration injector 4 (in firing order); maximum value exceeded
1162	523950	0	7-7-2	Zerofuel calibration injector 5 (in firing order); maximum value exceeded	Zerofuel calibration injector 5 (in firing order); maximum value exceeded
1163	523951	0	7-7-2	Zerofuel calibration injector 6 (in firing order); maximum value exceeded	Zerofuel calibration injector 6 (in firing order); maximum value exceeded
1164	523946	1	7-7-2	Zerofuel calibration injector 1 (in firing order); minimum value exceeded	Zerofuel calibration injector 1 (in firing order); minimum value exceeded
1165	523947	1	7-7-2	Zerofuel calibration injector 2 (in firing order); minimum value exceeded	Zerofuel calibration injector 2 (in firing order); minimum value exceeded
1166	523948	1	7-7-2	Zerofuel calibration injector 3 (in firing order); minimum value exceeded	Zerofuel calibration injector 3 (in firing order); minimum value exceeded
1167	523949	1	7-7-2	Zerofuel calibration injector 4 (in firing order); minimum value exceeded	Zerofuel calibration injector 4 (in firing order); minimum value exceeded
1168	523950	1	7-7-2	Zerofuel calibration injector 5 (in firing order); minimum value exceeded	Zerofuel calibration injector 5 (in firing order); minimum value exceeded

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
1169	523951	1	7-7-2	Zerofuel calibration injector 6 (in firing order); minimum value exceeded	Zerofuel calibration injector 6 (in firing order); minimum value exceeded
1170	523612	12	5-5-5	ECU reported internal software error	Internal software error ECU
1171	175	2	1-4-4	Oil temperature; plausibility error	Customer oiltemperature: signal unplausible
1173	523973	14	7-7-9	SCR Tamper detection; derating timer below limit 1	SCR Tamper detection; derating timer below limit 1
1174	523974	14	7-7-9	SCR Tamper detection; derating timer below limit 2	SCR Tamper detection; derating timer below limit 2
1175	523975	14	7-8-0	Urea quality; derating timer below limit 1	Urea quality; derating timer below limit 1
1176	523976	14	7-8-0	Urea qulaity; derating timer below limit 2	Urea qulaity; derating timer below limit 2
1177	523977	14	7-8-1	Urea tank level; derating timer below limit 1	Urea tank level; derating timer below limit 1
1178	523978	14	7-8-1	Urea tank level; derating timer below limit 2	Urea tank level; derating timer below limit 2
1180	168	0	3-1-8	Physikal range check high for battery voltage	Physikal range check high for battery voltage
1181	168	1	3-1-8	Physikal range check low for battery voltage	Physikal range check low for battery voltage
1182	172	0	2-2-6	Physical range check high for intake air temperature	Physical range check high for intake air temperature
1183	172	1	2-2-6	Physical range check low for intake air temperature	Physical range check low for intake air temperature
1187	523980	14	7-8-4	Bad quality of reduction agent detected	Bad quality of reduction agent detected
1192	523922	12		Over temperature error on burner shut of valve	Over temperature error on burner shut of valve
1193	1180	0		Exhaust gas temperature upstream turbine; out of range, system reaction initiated	Physical range check high for exhaust gas temperature upstream turbine
1194	1180	1		Exhaust gas temperature upstream turbine; out of range, system reaction initiated	Physical range check low for exhaust gas temperature upstream turbine
1216	523914	5	8-5-1	Glow plug control; open load	Glow plug control release line; short circuit error
1217	523914	11	8-5-1	Glow plug control; internal error	Glow plug control; internal error
1219	524018	14	7-8-6	DPF wasn´t regenerated, power reduction phase 1 (manuell regeneration request)	DPF wasn´t regenerated, power reduction phase 1 (manuell regeneration request)
1220	524022	14	7-8-6	DPF wasn´t regenerated, power reduction phase 2 (manuell regeneration request)	DPF wasn´t regenerated, power reduction phase 2 (manuell regeneration request)
1221	524023	14	7-8-6	DPF wasn´t regenerated, warning condition (manuell regeneration mode)	DPF wasn´t regenerated, warning condition (manuell regeneration mode)
1222	190	14	2-1-2	Speed detection; out of range, signal disrupted	Camshaft- and Crankshaft speed sensor signal not available on CAN

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
1223	51	5	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	Actuator EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); open load
1224	51	6	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	Actuator EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); over current
1225	51	12	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	Actuator EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); over temperature
1226	51	3	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); short circuit to battery (A02)
1227	51	3	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); short circuit to battery (A67)
1228	51	4	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); short circuit to ground (A02)
1229	51	4	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); short circuit to ground (A67)
1230	51	6	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); Overload by short-circuit
1231	51	11	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); Power stage overtemperature due to high current
1232	51	4	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); Voltage below threshold
1239	523984	3	7-8-8	UB6; Short circuit to battery error of actuator relay 6	UB6; Short circuit to battery error of actuator relay 7
1240	523985	3	7-8-9	UB7; Short circuit to battery error of actuator relay 7	UB7; Short circuit to battery error of actuator relay 8
1243	523988	5	7-9-2	Charging lamp; open load	Charging lamp; open load
1244	523988	12	7-9-2	Charging lamp; over temperature	Charging lamp; over temperature
1245	523988	3	7-9-2	Charging lamp; short circuit to battery	Charging lamp; short circuit to battery
1246	523988	4	7-9-2	Charging lamp; short circuit to ground	Charging lamp; short circuit to ground
1247	524019	11	8-6-2	Air Pump; air lines blocked	Air Pump; air lines blocked
1248	523910	9	6-9-5	Air Pump; CAN communication lost	Air Pump; CAN communication lost
1249	523910	7	6-9-5	Air pump; CAN communication interrupted no purge function available	Air pump; CAN communication interrupted no purge function available
1250	523910	12	6-9-5	Air Pump; internal error	Air Pump; internal error
1251	523910	0	6-9-5	Air Pump; internal error	Air Pump; powerstage over temperature
1252	523910	0	6-9-5	Air Pump; internal error	Air Pump; operating voltage error
1253	523911	7	8-5-0	Burner dosing valve (DV2); blocked closed	Burner dosing valve (DV2); blocked closed
1254	524014	1	8-5-8	Air pressure glow plug flush line; below limit	Air pressure glow plug flush line; below limit
1255	524013	7	8-5-7	Burner operation disturbed	Burner operation is interrupted too often
1256	523915	7	8-5-2	HCI dosing valve (DV1); blocked	HCI dosing valve (DV1); blocked closed

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
1257	523915	7	8-5-3	HCl dosing valve (DV1); blocked	HCl dosing valve (DV1); blocked open
1258	524016	11	8-5-9	HFM sensor; electrical fault	HFM sensor; electrical fault
1259	524016	2	8-5-9	Air Pump; air flow is not plausible	Amount of air is not plausible to pump speed
1260	524016	2	8-5-9	Air Pump; air flow is not plausible	Calculated amount of air is not plausible to HFM reading
1261	523910	6	6-9-5	Air Pump; over current	Air Pump; over current
1262	523922	7	8-5-4	Shut off valve: blocked	Burner Shut Off Valve; blocked closed
1263	524021	11	8-6-4	Burner fuel line pipe leak behind Shut Off Valve	Burner fuel line pipe leak behind Shut Off Valve
1264	523922	7	8-5-5	Shut off valve: blocked	Burner Shut Off Valve; blocked open
1265	524017	12	8-6-0	Spark plug control unit (SPCU); internal error	Spark plug control unit (SPCU); electrical fault
1266	524017	12	8-6-1	Spark plug control unit (SPCU); internal error	Spark plug control unit (SPCU); internal error
1267	523989	0	7-2-4	Fuel Balance Control integrator injector 7 (in firing order); maximum value exceeded	Fuel Balance Control integrator injector 7 (in firing order); maximum value exceeded
1268	523990	0	7-2-4	Fuel Balance Control integrator injector 8 (in firing order); maximum value exceeded	Fuel Balance Control integrator injector 8 (in firing order); maximum value exceeded
1269	523989	1	7-2-4	Fuel Balance Control integrator injector 7 (in firing order); minimum value exceeded	Fuel Balance Control integrator injector 7 (in firing order); minimum value exceeded
1270	523990	1	7-2-4	Fuel Balance Control integrator injector 8 (in firing order); minimum value exceeded	Fuel Balance Control integrator injector 8 (in firing order); minimum value exceeded
1279	523992	9		Timeout Error of CAN-Receive-Frame DM19Vol1; NOX sensor upstream	Timeout Error of CAN-Receive-Frame DM19Vol1; NOX sensor upstream
1283	523993	9		Timeout Error of CAN-Receive-Frame DM19Vol2; NOX sensor downstream	Timeout Error of CAN-Receive-Frame DM19Vol2; NOX sensor downstream
1285	524038	9		Timeout error of CAN-Receive-Frame ComMS_Sys1TO (error memory Slave); Master-Slave internal CAN message	Timeout error of CAN-Receive-Frame ComMS_Sys1TO (error memory Slave); Master-Slave internal CAN message
1286	524039	9		Timeout error of CAN-Receive-Frame ComMS_Sys2TO (error memory Slave); Master-Slave internal CAN message	Timeout error of CAN-Receive-Frame ComMS_Sys2TO (error memory Slave); Master-Slave internal CAN message
1287	524040	9		Timeout error of CAN-Receive-Frame ComMS_Sys3TO (error memory Slave); Master-Slave internal CAN message	Timeout error of CAN-Receive-Frame ComMS_Sys3TO (error memory Slave); Master-Slave internal CAN message
1288	524041	9		Timeout error of CAN-Receive-Frame ComMS_Sys4TO (error memory Slave); Master-Slave internal CAN message	Timeout error of CAN-Receive-Frame ComMS_Sys4TO (error memory Slave); Master-Slave internal CAN message
1289	524042	9		Timeout error of CAN-Receive-Frame ComMS_Sys5TO (error memory Slave); Master-Slave internal CAN message	Timeout error of CAN-Receive-Frame ComMS_Sys5TO (error memory Slave); Master-Slave internal CAN message

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
1290	524043	9		Timeout error of CAN-Receive-Frame ComMS_Sys6TO (error memory Slave); Master-Slave internal CAN message	Timeout error of CAN-Receive-Frame ComMS_Sys6TO (error memory Slave); Master-Slave internal CAN message
1291	524045	9		Master-Slave CAN; Message-Counter-Error of CAN-Receive-Frame ComMSMoFOvR	Master-Slave CAN; Message-Counter-Error of CAN-Receive-Frame ComMSMoFOvR
1292	524046	9		Master-Slave CAN; Checksum-Error of CAN-Receive-Frame ComMSMoFOvR	Master-Slave CAN; Checksum-Error of CAN-Receive-Frame ComMSMoFOvR
1293	524047	9		Master-Slave CAN; Messsage-Length-Error of CAN-Receive-Frame ComMSMoFOvR	Master-Slave CAN; Messsage-Length-Error of CAN-Receive-Frame ComMSMoFOvR
1294	524048	9		Timeout error CAN message ComMSMoFOvR1TO error memory Slave	Timeout error CAN message ComMSMoFOvR1TO error memory Slave
1295	524049	9		Message copy error in the Master / Slave data transfer	Message copy error in the Master / Slave data transfer
1297	523788	0	6-5-5	Turbo charger wastegate; CAN Fehler	CAN-Transmit-Frame ComTrbChActr "BusOff-Satus"; Wastegate
1298	523788	0	6-5-5	Turbo charger wastegate; CAN Fehler	CAN-Transmit-Frame ComTrbChActr disable error; wastegate
1299	523788	0	6-5-5	Turbo charger wastegate; CAN Fehler	CAN-Transmit-Frame ComTrbChActr plausibility error; wastegate
1300	523788	0	6-5-5	Turbo charger wastegate; CAN Fehler	Timeout Error of CAN-Transmit-Frame ComTrbChActr; Wastegate
1302	524024	11	8-6-6	Deviation of the exhaust gas temperature setpoint to actual value downstream (DOC) too high	Deviation of the exhaust gas temperature setpoint to actual value downstream (DOC) too high
1324	523995	13	7-9-5	check of missing injector adjustment value programming (IMA) injector 7 (in firing order)	check of missing injector adjustment value programming (IMA) injector 7 (in firing order)
1325	523996	13	7-9-6	check of missing injector adjustment value programming (IMA) injector 8 (in firing order)	check of missing injector adjustment value programming (IMA) injector 8 (in firing order)
1327	523998	4	7-9-8	Injector cylinder bank 2 slave; short circuit	Injector cylinder bank 2 slave; short circuit
1328	523999	12	7-9-9	Injector powerstage output Slave defect	Injector powerstage output Slave defect
1329	524000	5	8-0-0	Injector 7 (in firing order); interruption of electric connection	Injector 7 (in firing order); interruption of electric connection
1330	524001	5	8-0-1	Injector 8 (in firing order); interruption of electric connection	Injector 8 (in firing order); interruption of electric connection
1333	524000	3	8-0-0	Injector 7 (in firing order); short circuit	Injector 7 (in firing order); short circuit
1334	524001	3	8-0-1	Injector 8 (in firing order); short circuit	Injector 8 (in firing order); short circuit
1335	524000	4	8-0-0	High side to low side short circuit in the injector 7 (in firing order)	High side to low side short circuit in the injector 7 (in firing order)
1336	524001	4	8-0-1	High side to low side short circuit in the injector 8 (in firing order)	High side to low side short circuit in the injector 8 (in firing order)

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
1337	2797	4		Injector diagnostics; timeout error of short circuit to ground measurement cyl. Bank 0	Injector diagnostics; timeout error of short circuit to ground measurement cyl. Bank 0
1338	2798	4		Injector diagnostics; timeout error of short circuit to ground measurement cyl. Bank 1	Injector diagnostics; timeout error of short circuit to ground measurement cyl. Bank 1
1339	2798	4		Injector diagnostics; short circuit Bank 0, Bank 1	Injector diagnostics; short circuit to ground monitoring Test in Cyl. Bank 0
1340	2798	4		Injector diagnostics; short circuit Bank 0, Bank 1	Injector diagnostics; short circuit to ground monitoring Test in Cyl. Bank 1
1341	524035	12	5-5-5	Injector diagnostics; time out error in the SPI communication	Injector diagnostics; time out error in the SPI communication
1342	524036	12		Injector diagnostics Slave; time out error in the SPI communication	Injector diagnostics Slave; time out error in the SPI communication
1343	524004	12	8-0-4	Too many recognized misfires in cylinder 7 (in firing order)	Too many recognized misfires in cylinder 7 (in firing order)
1344	524005	12	8-0-5	Too many recognized misfires in cylinder 8 (in firing order)	Too many recognized misfires in cylinder 8 (in firing order)
1345	524069	9		Timeout Error of CAN-Receive-Frame MSMon_FidFCCTO; Master-Slave CAN communication faulty	Timeout Error of CAN-Receive-Frame MSMon_FidFCCTO; Master-Slave CAN communication faulty
1357	524052	11		MS ECU reported internal error	Error memory Slave reports FID MSMonFC2; Shut-Off Path test error of fuel injection system
1368	524052	11		MS ECU reported internal error	Error memory Slave reports FID MSMonFC3; timeout of engine state messages (ComMS_Sys1- 7) from master ECU
1378	523919	2	6-9-4	Sensor airpump pressure; plausibility error	Sensor air pump airpressure; plausibility error
1379	523920	2	7-1-6	Sensor exhaustgas back pressure; plausibility error	Sensor exhaust gas back pressure burner; plausibility error
1380	3253	2	6-9-2	Sensor differential pressure (DPF); plausibility error	Sensor differential pressure (DPF); plausibility error
1381	164	2	8-3-9	Rail pressure safety function is not executed correctly	Rail pressure safety function is not executed correctly
1389	523922	5	7-1-5	Burner Shut Off Valve; open load	Burner Shut Off Valve; open load
1390	523922	12	7-1-5	Over temperature error on burner shut of valve	Burner Shut Off Valve; powerstage over temperature
1392	523922	4	7-1-5	Burner shut of valve; short circuit to ground	Burner Shut Off Valve; short circuit to ground
1395	523921	2	7-1-4	Sensor burner temperature; plausibility error	Sensor burner temperature; plausibility error
1398	1136	0	6-8-1	Physikal range check high for ECU temperature	Physikal range check high for ECU temperature
1399	1136	1	6-8-1	Physikal range check low for ECU temperature	Physikal range check low for ECU temperature

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
1400	1136	3	6-8-1	Sensor error ECU temperature; signal range check high	Sensor error ECU temperature; signal range check high
1401	1136	4	6-8-1	Sensor error ECU temperature; signal range check low	Sensor error ECU temperature; signal range check low
1402	4769	2	6-8-4	Sensor exhaust gas temperature (DOC) downstream; plausibility error	Sensor exhaust gas temperature OxiCat downstream (normal operation); plausibility error
1403	4769	2	6-8-4	Sensor exhaust gas temperature (DOC) downstream; plausibility error	Sensor exhaust gas temperature OxiCat downstream (regeneration); plausibility error
1404	3248	2	6-8-5	Sensor exhaust gas temperature downstream DPF; plausibility error	Sensor exhaust gas temperature downstream DPF; plausibility error
1405	3248	0	6-8-5	Exhaust gas temperature particulate filter downstream; out of range, system reaction initiated	Physical range check high for exhaust gas temperature particulate filter downstream
1406	3248	0	6-8-5	Exhaust gas temperature particulate filter downstream; out of range, system reaction initiated	Physical range check high for exhaust gas temperature particulate filter downstream; shut off regeneration
1407	3248	0	6-8-5	Exhaust gas temperature particulate filter downstream; out of range, system reaction initiated	Physical range check high for exhaust gas temperature particulate filter downstream; warning
1408	3248	1	6-8-5	Exhaust gas temperature particulate filter downstream; out of range, system reaction initiated	Physical range check low for exhaust gas temperature particulate filter downstream
1409	3248	1	6-8-5	Exhaust gas temperature particulate filter downstream; out of range, system reaction initiated	Physikal range check low for exhaust gas temperature particulate filter downstream; shut off regeneration
1410	3248	1	6-8-5	Exhaust gas temperature particulate filter downstream; out of range, system reaction initiated	Physical range check low for exhaust gas temperature particulate filter downstream; warning
1411	1188	11	8-1-4	Turbo charger wastegate actuator; internal error	Wastegate actuator; internal error
1412	1188	11	8-1-4	Turbo charger wastegate actuator; internal error	Wastegate actuator; EOL calibration not performed correctly
1413	1188	13	8-1-4	Wastegate actuator calibration deviation too large, recalibration required	Wastegate actuator calibration deviation too large, recalibration required
1414	1188	2	8-1-4	Wastegate; status message from ECU missing	Wastegate; status message from ECU missing
1415	1188	7	8-1-4	Wastegate actuator; blocked	Wastegate actuator; blocked
1416	1188	11	8-1-4	Turbo charger wastegate actuator; internal error	Wastegate actuator; over temperature (> 145°C)
1417	1188	11	8-1-4	Turbo charger wastegate actuator; internal error	Wastegate actuator; over temperature (> 135°C)
1418	1188	11	8-1-4	Turbo charger wastegate actuator; internal error	Wastegate actuator; operating voltage error
1419	524011	0	7-7-2	Zerofuel calibration injector 7 (in firing order); maximum value exceeded	Zerofuel calibration injector 7 (in firing order); maximum value exceeded

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
1420	524012	0	7-7-2	Zerofuel calibration injector 8 (in firing order); maximum value exceeded	Zerofuel calibration injector 8 (in firing order); maximum value exceeded
1421	524011	1	7-7-2	Zerofuel calibration injector 7 (in firing order); minimum value exceeded	Zerofuel calibration injector 7 (in firing order); minimum value exceeded
1422	524012	1	7-7-2	Zerofuel calibration injector 8 (in firing order); minimum value exceeded	Zerofuel calibration injector 8 (in firing order); minimum value exceeded
1431	524028	2	8-1-5	CAN message PROEGRActr; plausibility error	CAN message PROEGRActr; plausibility error
1432	524029	2	8-1-5	Timeout Error of CAN-Receive-Frame ComEGRActr - exhaust gas recirculation positioner	Timeout Error of CAN-Receive-Frame ComEGRActr - exhaust gas recirculation positioner
1436	524034	5	8-1-6	Disc Separator; open load	Disc Separator; open load
1437	524034	12	8-1-6	Disc Separator; powerstage over temperature	Disc Separator; powerstage over temperature
1438	524034	3	8-1-6	Disc separator; short circuit to battery	Disc separator; short circuit to battery
1439	524034	4	8-1-6	Disc separator; short circuit to ground	Disc separator; short circuit to ground
1440	524030	7		EGR actuator; internal error	EGR actuator; internal error
1441	524031	13		EGR actuator; calibration error	EGR actuator; calibration error
1442	524032	2		EGR actuator; status message "EGRCust" is missing	EGR actuator; status message "EGRCust" is missing
1443	524033	7		EGR actuator; due to overload in Save Mode	EGR actuator; due to overload in Save Mode
1444	2621	5		Flush valve burner (EPV DPF-System); open load	Flush valve burner (EPV DPF-System); open load
1445	2621	12		Flush valve burner (EPV DPF-System); powerstage over temperature	Flush valve burner (EPV DPF-System); powerstage over temperature
1446	2621	3		Flush valve burner (EPV DPF-System); short circuit to battery	Flush valve burner (EPV DPF-System); short circuit to battery
1447	2621	4		Flush valve burner (EPV DPF-System); short circuit to ground	Flush valve burner (EPV DPF-System); short circuit to ground
1448	175	0	1-4-4	Oil temperature; out of range, system reaction initiated	High customer oil temperature; warning threshold exceeded
1449	175	0	1-4-4	Oil temperature; out of range, system reaction initiated	High customer oil temperature; shut off threshold exceeded
1453	411	0		Differential pressure Venturiunit (EGR); warning threshold exceeded	Differential pressure Venturiunit (EGR); warning threshold exceeded
1454	411	1		Differential pressure Venturiunit (EGR); shut off threshold exceeded	Differential pressure Venturiunit (EGR); shut off threshold exceeded
1455	3711	12		Regeneration temperature (PFltRgn LigtOff) not reached; regeneration aborted	Regeneration temperature (PFltRgn LigtOff) not reached; regeneration aborted
1457	524055	4		Spark Plug Control Unit (SPCU); short circuit to ground	Spark Plug Control Unit (SPCU); short circuit to ground

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
1458	523960	0	7-7-1	Exhaust gas temperature EGR downstream; out of range, system reaction initiated	High exhaust gas temperature EGR cooler downstream; warning threshold exceeded
1459	523960	1	7-7-1	Exhaust gas temperature EGR downstream; out of range, system reaction initiated	High exhaust gas temperature EGR cooler downstream; shut off threshold exceeded
1460	1180	0	8-1-4	Exhaust gas temperature turbine upstream; out of range, system reaction initiated	Turbocharger Wastegate CAN feedback; warning threshold exceeded
1461	1180	1	8-1-4	Exhaust gas temperature turbine upstream; out of range, system reaction initiated	Turbocharger Wastegate CAN feedback; shut off threshold exceeded
1462	1180	0	5-5-6	Exhaust gas temperature turbine upstream; out of range, system reaction initiated	Exhaust gas temperature upstream turbine; warning threshold exceeded
1463	1180	1	5-5-6	Exhaust gas temperature turbine upstream; out of range, system reaction initiated	Exhaust gas temperature upstream turbine; shut off threshold exceeded
1474	524037	5		Ashlamp; open load	Ashlamp; open load
1475	84	2	5-2-1	Sensor vehicle speed; plausibility error	Sensor vehicle speed; plausibility error
1477	524037	3		Ashlamp; short circuit to battery	Ashlamp; short circuit to battery
1478	524037	4		Ashlamp; short circuit to ground	Ashlamp; short circuit to ground
1479	524062	12		EAT-system HMI disrupted	Regeneration inhibit switch not available; ComInhSwtNA
1480	524062	12		EAT-system HMI disrupted	Regeneration release switch not available; ComRegSwtNA
1481	524025	5		DPF system; operating voltage error	DPF system; operating voltage error
1482	524044	9		CAN message ComMS_Sys7 not received from slave	CAN message ComMS_Sys7 not received from slave
1483	523632	2		Metering control is not performed in time error	Metering control is not performed in time error
1484	524068	2		Master ECU and Slave ECU have been identified as the same types	Master ECU and Slave ECU have been identified as the same types
1485	524052	11		MS ECU reported internal error	Master ECU and Slave ECU data sets or software are not identical
1486	523718	5		SCR mainrelay; open load (only CV56B)	SCR mainrelay; open load (only CV56B)
1487	523718	12		SCR mainrelay; powerstage over temperature (only CV56B)	SCR mainrelay; powerstage over temperature (only CV56B)
1488	523718	3		SCR mainrelay; short circuit to battery (only CV56B)	SCR mainrelay; short circuit to battery (only CV56B)
1489	523718	4		SCR mainrelay; short circuit to ground (only CV56B)	SCR mainrelay; short circuit to ground (only CV56B)
1490	4376	5	6-6-7	SCR reversing valve; open load	SCR reversing valve; open load
1491	4376	12	6-6-7	SCR reversing valve; over temperature	SCR reversing valve; over temperature

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
1493	4376	4	6-6-7	SCR reversing valve; short circuit to ground	SCR reversing valve; short circuit to ground
1494	2659	0		Physical range check high for EGR mass flow	Physical range check high for EGR mass flow
1495	2659	1		Physical range check low for EGR mass flow	Physical range check low for EGR mass flow
1496	2659	11		Exhaust gas recirculation; EGR mass flow; shut off demand	Exhaust gas recirculation; EGR mass flow; shut off demand
1505	524057	2		Electric fuel pump; fuel pressure build up error	Electric fuel pump; fuel pressure build up error
1523	2659	2		Exhaust gas recirculation AGS sensor; plausibility error	Exhaust gas recirculation AGS sensor; plausibility error
1524	2659	0		Physical range check high for EGR exhaust gas mass flow	Physical range check high for EGR exhaust gas mass flow
1525	2659	1		Physical range check low for EGR exhaust gas mass flow	Physical range check low for EGR exhaust gas mass flow
1526	2659	12		Exhaust gas recirculation; AGS sensor has "burn off" not performed	Exhaust gas recirculation; AGS sensor has "burn off" not performed
1527	2659	2		AGS sensor temperature exhaust gas mass flow; plausibility error	AGS sensor temperature exhaust gas mass flow; plausibility error
1615	3699	14		Maximum stand-still-duration reached; oil exchange required	Maximum stand-still-duration reached; oil exchange required
1616	3699	2		DPF differential pressure sensor and a further sensor or actuator CRT system defective	DPF differential pressure sensor and a further sensor or actuator CRT system defective
1617	3699	2		Temperature sensor us. and ds. DOC simultaneously defect	Temperature sensor us. and ds. DOC simultaneously defect
1659	524114	9		Timeout error of CAN-Transmit-Frame A1DOC	Timeout error of CAN-Transmit-Frame A1DOC
1660	524115	9		Timeout error of CAN-Transmit-Frame AT1S	Timeout error of CAN-Transmit-Frame AT1S
1661	524116	9		Timeout error of CAN-Transmit-Frame SCR2	Timeout error of CAN-Transmit-Frame SCR2
1662	524117	9		Timeout error of CAN-Transmit-Frame SCR3	Timeout error of CAN-Transmit-Frame SCR3
1663	524097	9		Timeout error of CAN-Transmit-Frame DPFBrnAirPmpCtl	Timeout error of CAN-Transmit-Frame DPFBrnAirPmpCtl
1664	524098	9		Timeout error of CAN-Transmit-Frame ComDPFBrnPT	Timeout error of CAN-Transmit-Frame ComDPFBrnPT
1665	524099	9		Timeout error of CAN-Transmit-Frame ComDPFC0	Timeout error of CAN-Transmit-Frame ComDPFC1
1666	524100	9		Timeout error of CAN-Transmit-Frame ComDPFHisDat	Timeout error of CAN-Transmit-Frame ComDPFHisDat
1667	524101	9		Timeout error of CAN-Transmit-Frame ComDPFTstMon	Timeout error of CAN-Transmit-Frame ComDPFTstMon

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
1668	524105	9		Timeout error of CAN-Transmit-Frame ComEGRMsFlw	Timeout error of CAN-Transmit-Frame ComEGRMsFlw
1669	524108	9		Timeout error of CAN-Transmit-Frame ComEGRTVActr	Timeout error of CAN-Transmit-Frame ComEGRTVActr
1670	524110	9		Timeout error of CAN-Transmit-Frame ComETVActr	Timeout error of CAN-Transmit-Frame ComETVActr
1671	524112	9		Timeout ComITVActr	Timeout ComITVActr
1672	524118	9		Timeout error of CAN-Receive-Frame ComRxCM0	Timeout error of CAN-Receive-Frame ComRxCM1
1673	524119	9		Timeout error of CAN-Receive-Frame ComRxCustSCR2	Timeout error of CAN-Receive-Frame ComRxCustSCR3
1674	524102	9		Timeout error of CAN-Receive-Frame ComRxDPFBrnAirPmpCtl	Timeout error of CAN-Receive-Frame ComRxDPFBrnAirPmpCtl
1675	524103	9		Timeout error of CAN-Receive-Frame ComRxDPFBrnAirPmp	Timeout error of CAN-Receive-Frame ComRxDPFBrnAirPmp
1676	524104	9		Timeout error of CAN-Receive-Frame ComRxDPFCtl	Timeout error of CAN-Receive-Frame ComRxDPFCtl
1677	524106	9		Timeout error of CAN-Receive-Frame ComRxEGRMsFlw1	Timeout error of CAN-Receive-Frame ComRxEGRMsFlw1
1678	524107	9		Timeout error of CAN-Receive-Frame ComRxEGRMsFlw2	Timeout error of CAN-Receive-Frame ComRxEGRMsFlw2
1679	524109	9		Timeout error of CAN-Receive-Frame ComRxEGRTVActr	Timeout error of CAN-Receive-Frame ComRxEGRTVActr
1680	524111	9		Timeout error of CAN-Receive-Frame ComRxETVActr	Timeout error of CAN-Receive-Frame ComRxETVActr
1681	524113	9		Timeout error of CAN-Receive-Frame ComRxITVActr	Timeout error of CAN-Receive-Frame ComRxITVActr
1682	524120	9		Timeout error of CAN-Receive-Frame ComRxSCRHtDiag	Timeout error of CAN-Receive-Frame ComRxSCRHtDiag
1683	524121	9		Timeout error of CAN-Receive-Frame ComRxTrbChActr	Timeout error of CAN-Receive-Frame ComRxTrbChActr
1684	524122	9		Timeout error of CAN-Receive-Frame ComRxUQSens	Timeout error of CAN-Receive-Frame ComRxUQSens
1685	524123	9		Timeout error of CAN-Receive-Frame ComSCRHtCtl	Timeout error of CAN-Receive-Frame ComSCRHtCtl
1686	524124	9		Timeout error of CAN-Receive-Frame ComTxAT1IMG	Timeout error of CAN-Receive-Frame ComTxAT1IMG
1687	524125	9		Timeout error of CAN-Receive-Frame ComTxTrbChActr	Timeout error of CAN-Receive-Frame ComTxTrbChActr
932		3	1-2-6	Handthrottle; signal out of range, short circuit to battery	Handthrottle idle validation switch; short circuit to battery
936		3	2-2-6	Handthrottle; signal out of range, short circuit to battery	Sesnor error handthrottle; signal range check high

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937		4	1-2-6	Handthrottle; signal out of range, short circuit to ground	Handthrottle idle validation switch; short circuit to ground
941		4	2-2-6	Handthrottle; signal out of range, short circuit to ground	Sensor error handthrottle sensor; signal range check low
1019		3	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); short circuit to battery
1024		3	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	Position sensor error of actuator EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); signal range check high
1226		3	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); short circuit to battery (A02)
1227		3	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); short circuit to battery (A67)
1020		4	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); short circuit to ground
1025		4	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	Position sensor error actuator EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); signal range check low
1228		4	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); short circuit to ground (A02)
1229		4	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); short circuit to ground (A67)
1232		4	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); Voltage below threshold
1015		5	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); signal range check low
1017		5	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	Actuator EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); open load
1023		5	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); signal range check low
1223		5	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	Actuator EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); open load
1014		6	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); signal range check high
1022		6	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); signal range check high
1224		6	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	Actuator EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); over current
1230		6	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); Overload by short-circuit
1016		7	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	Actuator position for EGR-Valve (2.9,3.6) or Throttle-Valve (6.1,7.8) not plausible
1231		11	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); Power stage overtemperature due to high current

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
1018		12	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	Actuator EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); powerstage over temperature
1021		12	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	Mechanical actuator defect EGR-Valve (2.9,3.6) or Throttle-Valve (6.1,7.8)
1225		12	5-9-4	Actuator error EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); internal error	Actuator EGR-Valve (2.9;3.6) or Throttle-Valve (6.1,7.8); over temperature
1475		2	5-2-1	Sensor vehicle speed; plausibility error	Sensor vehicle speed; plausibility error
935		3	2-2-6	Sensor error accelerator pedal; signal range check high	Sensor error accelerator pedal; signal range check high
940		4	2-2-6	Sensor error accelerator pedal; signal range check low	Sensor error accelerator pedal; signal range check low
976		11	2-2-6	Plausibility error between APP1 and APP2 or APP1 and idle switch	Plausibility error between APP1 and APP2 or APP1 and idle switch
474		1	2-1-6	Low fuel pressure; system reaction initiated	Low fuel pressure; warning threshold exceeded
475		1	2-1-6	Low fuel pressure; system reaction initiated	Low fuel pressure; shut off threshold exceeded
472		3	2-1-6	Sensor error low fuel pressure; signal range check high	Sensor error low fuel pressure; signal range check high
473		4	2-1-6	Sensor error low fuel pressure; signal range check low	Sensor error low fuel pressure; signal range check low
464		3	2-2-8	Sensor error water in fuel; signal range check high	Sensor error water in fuel; signal range check high
465		4	2-2-8	Sensor error water in fuel; signal range check low	Sensor error water in fuel; signal range check low
1157		12	2-2-8	Water in fuel level prefilter; maximum value exceeded	Water in fuel level prefilter; maximum value exceeded
734		0	2-3-1	High oil pressure; system reaction initiated	High oil pressure; warning threshold exceeded
735		0	2-3-1	High oil pressure; system reaction initiated	High oil pressure; shut off threshold exceeded
736		1	2-3-1	Low oil pressure; system reaction initiated	Low oil pressure; warning threshold exceeded
737		1	2-3-1	Low oil pressure; system reaction initiated	Low oil pressure; shut off threshold exceeded
732		3	2-2-4	Sensor error oil pressure; signal range check high	Sensor error oil pressure; signal range check high
733		4	2-2-4	Sensor error oil pressure sensor; signal range check low	Sensor error oil pressure sensor; signal range check low
88		2	2-2-3	Charged air pressure; system reaction initiated	Charged air pressure above warning threshold
89		2	2-2-3	Charged air pressure; system reaction initiated	Charged air pressure above shut off threshold

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
776		3	2-2-3	Sensor error charged air pressure; signal range check high	Sensor error charged air pressure; signal range check high
777		4	2-2-3	Sensor error charged air pressure; signal range check low	Sensor error charged air pressure; signal range check low
996		0	2-3-3	Charged air cooler temperature; system reaction initiated	High charged air cooler temperature; warning threshold exceeded
997		0	2-3-3	Charged air cooler temperature; system reaction initiated	High charged air cooler temperature; shut off threshold exceeded
994		3	1-2-8	Sensor error charged air temperature; signal range check high	Sensor error charged air temperature; signal range check high
995		4	1-2-8	Sensor error charged air temperature; signal range check low	Sensor error charged air temperature; signal range check low
752		0	1-3-6	Air filter differential pressure; system reaction initiated	High air filter differential pressure; warning threshold exceeded
750		3	1-3-6	Sensor error airfilter differential pressure; short circuit to battery	Sensor error airfilter differential pressure; short circuit to battery
751		4	1-3-6	Sensor error airfilter differential pressure; short circuit to ground	Sensor error airfilter differential pressure; short circuit to ground
412		3	2-9-2	Sensor error ambient air pressure; signal range check high	Sensor error ambient air pressure; signal range check high
413		4	2-9-2	Sensor error ambient air pressure; signal range check low	Sensor error ambient air pressure; signal range check low
98		0	2-3-2	Coolant temperature; system reaction initiated	High coolant temperature; warning threshold exceeded
99		0	2-3-2	Coolant temperature; system reaction initiated	High coolant temperature; shut off threshold exceeded
96		3	2-2-5	Sensor error coolant temperature; signal range check high	Sensor error coolant temperature; signal range check high
97		4	2-2-5	Sensor error coolant temperature; signal range check low	Sensor error coolant temperature; signal range check low
101		1	2-3-5	Coolant level too low	Coolant level too low
1		11	2-2-6	Air flow sensor; sensor error	Air flow sensor load correction factor exceeding the maximum drift limit; plausibility error
2		11	2-2-6	Air flow sensor; sensor error	Air flow sensor load correction factor exceeding drift limit; plausibility error
3		11	2-2-6	Air flow sensor; sensor error	Air flow sensor low idle correction factor exceeding the maximum drift limit
4		11	2-2-6	Air flow sensor; sensor error	Air flow sensor load correction factor exceeding the maximum drift limit
877		3	1-4-7	Sesnor error rail pressure; signal range check high	Sesnor error rail pressure; signal range check high
878		4	1-4-7	Sensor error rail pressure; signal range check low	Sensor error rail pressure; signal range check low

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
1381		2	8-3-9	Rail pressure safety function is not executed correctly	Rail pressure safety function is not executed correctly
1180		0	3-1-8	Physikal range check high for battery voltage	Physikal range check high for battery voltage
1181		1	3-1-8	Physikal range check low for battery voltage	Physikal range check low for battery voltage
47		2	3-1-8	Battery voltage; system reaction initiated	High battery voltage; warning threshold exceeded
48		2	3-1-8	Battery voltage; system reaction initiated	Low battery voltage; warning threshold exceeded
45		3	3-1-8	Sensor error battery voltage; signal range check high	Sensor error battery voltage; signal range check high
46		4	3-1-8	Sensor error battery voltage; signal range check low	Sensor error battery voltage; signal range check low
417		3	3-1-2	Sensor error environment temperature; signal range check high	Sensor error environment temperature; signal range check high
418		4	3-1-2	Sensor error environment temperature; signal range check low	Sensor error environment temperature; signal range check low
1182		0	2-2-6	Physical range check high for intake air temperature	Physical range check high for intake air temperature
1183		1	2-2-6	Physical range check low for intake air temperature	Physical range check low for intake air temperature
9		2	2-2-6	Sensor ambient air temperature; plausibility error	Sensor ambient air temperature; plausibility error
983		2	2-2-6	Intake air sensor; plausibility error	Intake air sensor; plausibility error
981		3	2-2-6	Sensor error intake air; signal range check high	Sensor error intake air; signal range check high
982		4	2-2-6	Sensor error intake air sensor; signal range check low	Sensor error intake air sensor; signal range check low
481		0	2-3-7	High low fuel temperature; system reaction initiated	High low fuel temperature; warning threshold exceeded
482		0	2-3-7	High Low fuel temperature; system reaction initiated	High Low fuel temperature; shut off threshold exceeded
740		0	1-4-4	Oil temperature; out of range, system reaction initiated	Physical range check high for oil temperature
745		0	1-4-4	Oil temperature; out of range, system reaction initiated	High oil temperature; warning threshold exceeded
746		0	1-4-4	Oil temperature; out of range, system reaction initiated	High oil temperature; shut off threshold exceeded
1448		0	1-4-4	Oil temperature; out of range, system reaction initiated	High customer oil temperature; warning threshold exceeded
1449		0	1-4-4	Oil temperature; out of range, system reaction initiated	High customer oil temperature; shut off threshold exceeded

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
741		1	1-4-4	Physical range check low for oil temperature	Physical range check low for oil temperature
738		2	1-4-4	Oil temperature; plausibility error	Sensor oil temperature; plausibility error
739		2	1-4-4	Oil temperature; plausibility error	Sensor oil temperature; plausibility error oil temperature too high
1171		2	1-4-4	Oil temperature; plausibility error	Customer oiltemperature: signal unplausible
743		3	1-4-4	Sensor error oil temperature; signal range check high	Sensor error oil temperature; signal range check high
744		4	1-4-4	Sensor error oil temperature; signal range check low	Sensor error oil temperature; signal range check low
388		0	2-1-4	Engine speed above warning threshold (FOC-Level 1)	Overspeed detection in component engine protection
389		0	2-1-4	Engine speed above warning threshold (FOC-Level 1)	Engine speed above warning threshold (FOC-Level 1)
421		2	2-1-3	Offset angle between crank- and camshaft sensor is too large	Offset angle between crank- and camshaft sensor is too large
419		8	2-1-2	Speed detection; out of range, signal disrupted	Sensor camshaft speed; disturbed signal
422		8	2-1-2	Speed detection; out of range, signal disrupted	Sensor crankshaft speed; disturbed signal
390		11	2-1-4	Engine speed above warning threshold (FOC-Level 2)	Engine speed above warning threshold (FOC-Level 2)
420		12	2-1-2	Speed detection; out of range, signal disrupted	Sensor camshaft speed; no signal
423		12	2-1-2	Speed detection; out of range, signal disrupted	Sensor crankshaft speed; no signal
391		14	2-1-4	Speed detection; out of range, signal disrupted	Engine speed above warning threshold (Overrun Mode)
1222		14	2-1-2	Speed detection; out of range, signal disrupted	Camshaft- and Crankshaft speed sensor signal not available on CAN
791		0	6-9-3	Physical range check high for differential pressure Venturiunit (EGR)	Physical range check high for differential pressure Venturiunit (EGR)
1453		0		Differential pressure Venturiunit (EGR); warning threshold exceeded	Differential pressure Venturiunit (EGR); warning threshold exceeded
792		1	6-9-3	Physical range check low for differential pressure Venturiunit (EGR)	Physical range check low for differential pressure Venturiunit (EGR)
1454		1		Differential pressure Venturiunit (EGR); shut off threshold exceeded	Differential pressure Venturiunit (EGR); shut off threshold exceeded
794		2	6-9-3	Sensor differential pressure Venturiunit (EGR); CAN signal invalid	Sensor differential pressure Venturiunit (EGR); CAN signal invalid
795		3	6-9-3	Sensor error differential pressure Venturiunit (EGR); signal range check high	Sensor error differential pressure Venturiunit (EGR); signal range check high
381		4		Physical range check low for EGR differential pressure	Physical range check low for EGR differential pressure

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
796		4	6-9-3	Sensor error differential pressure Venturiunit (EGR); signal range check low	Sensor error differential pressure Venturiunit (EGR); signal range check low
793		11	6-9-3	Sensor differential pressure Venturiunit (EGR); plausibility error	Sensor differential pressure Venturiunit (EGR); plausibility error
1009		2	6-8-2	Sensor exhaust gas temperature Venturiunit (EGR); plausibility error	Sensor exhaust gas temperature Venturiunit (EGR); plausibility error
1007		3	6-8-2	Sensor error EGR cooler downstream temperature; signal range check high	Sensor error EGR cooler downstream temperature; signal range check high
1008		4	6-8-2	Sensor error EGR cooler downstream temperature; signal range check low	Sensor error EGR cooler downstream temperature; signal range check low
306		9	1-1-9	Timeout Error of CAN-Receive-Frame TSC1TR; Setpoint	Timeout Error of CAN-Receive-Frame TSC1TR; Setpoint
49		2	3-2-1	Break lever mainswitch and break lever redundancyswitch status not plausible	Break lever mainswitch and break lever redundancyswitch status not plausible
971		3	5-1-3	SVS lamp; short circuit to battery	SVS lamp; short circuit to battery
972		4	5-1-3	SVS lamp; short circuit to ground	SVS lamp; short circuit to ground
969		5	5-1-3	SVS lamp; open load	SVS lamp; open load
970		12	5-1-3	SVS lamp; powerstage over temperature	SVS lamp; powerstage over temperature
376		12	2-8-1	Access error EEPROM	Access error EEPROM memory (delete)
377		12	2-8-1	Access error EEPROM	Access error EEPROM memory (read)
378		12	2-8-1	Access error EEPROM	Access error EEPROM memory (write)
84		14	2-7-1	CAN-Bus 0 "BusOff-Status"	CAN-Bus 0 "BusOff-Status"
580		3	1-5-4	Injector 1 (in firing order); short circuit	Injector 1 (in firing order); short circuit
586		4	1-5-4	High side to low side short circuit in the injector 1 (in firing order)	High side to low side short circuit in the injector 1 (in firing order)
568		5	1-5-4	Injector 1 (in firing order); interruption of electric connection	Injector 1 (in firing order); interruption of electric connection
581		3	1-5-5	Injector 2 (in firing order); short circuit	Injector 2 (in firing order); short circuit
587		4	1-5-5	High side to low side short circuit in the injector 2 (in firing order)	High side to low side short circuit in the injector 2 (in firing order)
569		5	1-5-5	Injector 2 (in firing order); interruption of electric connection	Injector 2 (in firing order); interruption of electric connection
582		3	1-5-6	Injector 3 (in firing order); short circuit	Injector 3 (in firing order); short circuit
588		4	1-5-6	High side to low side short circuit in the injector 3 (in firing order)	High side to low side short circuit in the injector 3 (in firing order)
570		5	1-5-6	Injector 3 (in firing order); interruption of electric connection	Injector 3 (in firing order); interruption of electric connection
583		3	1-6-1	Injector 4 (in firing order); short circuit	Injector 4 (in firing order); short circuit
589		4	1-6-1	High side to low side short circuit in the injector 4 (in firing order)	High side to low side short circuit in the injector 4 (in firing order)

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
571		5	1-6-1	Injector 4 (in firing order); interruption of electric connection	Injector 4 (in firing order); interruption of electric connection
584		3	1-6-2	Injector 5 (in firing order); short circuit	Injector 5 (in firing order); short circuit
590		4	1-6-2	High side to low side short circuit in the injector 5 (in firing order)	High side to low side short circuit in the injector 5 (in firing order)
572		5	1-6-2	Injector 5 (in firing order); interruption of electric connection	Injector 5 (in firing order); interruption of electric connection
585		3	1-6-3	Injector 6 (in firing order); short circuit	Injector 6 (in firing order); short circuit
591		4	1-6-3	High side to low side short circuit in the injector 6 (in firing order)	High side to low side short circuit in the injector 6 (in firing order)
573		5	1-6-3	Injector 6 (in firing order); interruption of electric connection	Injector 6 (in firing order); interruption of electric connection
543		11	2-6-3	Cold start aid relay; open load, relay error.	Cold start aid relay error.
544		11	2-6-3	Cold start aid relay; open load, relay error.	Cold start aid relay open load
956		3	5-1-2	Starter relay; short circuit	Starter relay high side; short circuit to battery
960		3	5-1-2	Starter relay; short circuit	Starter relay low side; short circuit to battery
957		4	5-1-2	Starter relay; short circuit	Starter relay high side; short circuit to ground
961		4	5-1-2	Starter relay; short circuit	Starter relay low side; short circuit to ground
958		5	5-1-2	Starter relay; no load error	Starter relay; no load error
959		12	5-1-2	Starter relay; powerstage over temperature	Starter relay; powerstage over temperature
426		3	1-4-2	Engine running lamp; short circuit to battery	Engine running lamp; short circuit to battery
427		4	1-4-2	Engine running lamp; short circuit to ground	Engine running lamp; short circuit to ground
424		5	1-4-2	Engine running lamp; open load	Engine running lamp; open load
425		12	1-4-2	Engine running lamp; powerstage over temperature	Engine running lamp; powerstage over temperature
545		5	2-6-3	Cold start aid relay open load	Cold start aid relay open load
547		12	2-6-3	Cold start aid relay; over temperature error	Cold start aid relay; over temperature error
305		9	1-1-8	Timeout Error of CAN-Receive-Frame TSC1TE; Setpoint	Timeout Error of CAN-Receive-Frame TSC1TE; Setpoint
452		3	2-2-8	Fan control; short circuit to battery	Digital fan control; short circuit to battery
457		3	2-2-8	Fan control; short circuit to battery	Fan actuator (PWM output); short circuit to battery
453		4	2-2-8	Fan control; short circuit to ground	Digital fan control; short circuit to ground
458		4	2-2-8	Fan control; short circuit to ground	Fan actuator (PWM output); short circuit to ground

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
450		5	2-2-8	Fan control; open load	Digital fan control; open load
455		5	2-2-8	Fan control; open load	Fan actuator (PWM output); open load
451		12	2-2-8	Fan control; internal error	Digital fan control; powerstage over temperature
456		12	2-2-8	Fan control; internal error	Fan actuator (PWM output); powerstage over temperature
946		13	2-8-2	Sensor supply voltage monitor 1 error (ECU)	Sensor supply voltage monitor 1 error (ECU)
947		13	2-8-2	Sensor supply voltage monitor 2 error (ECU)	Sensor supply voltage monitor 2 error (ECU)
121		2	3-4-1	Engine shut off demand ignored	Engine shut off demand ignored
1398		0	6-8-1	Physikal range check high for ECU temperature	Physikal range check high for ECU temperature
1399		1	6-8-1	Physikal range check low for ECU temperature	Physikal range check low for ECU temperature
1400		3	6-8-1	Sensor error ECU temperature; signal range check high	Sensor error ECU temperature; signal range check high
1401		4	6-8-1	Sensor error ECU temperature; signal range check low	Sensor error ECU temperature; signal range check low
849		3	6-8-0	Sensor error pressure sensor upstream turbine; signal range check high	Sensor error pressure sensor upstream turbine; signal range check high
850		4	6-8-0	Sensor error pressure sensor downstream turbine; signal range check high	Sensor error pressure sensor downstream turbine; signal range check high
1193		0		Exhaust gas temperature upstream turbine; out of range, system reaction initiated	Physical range check high for exhaust gas temperature upstream turbine
1460		0	8-1-4	Exhaust gas temperature turbine upstream; out of range, system reaction initiated	Turbocharger Wastegate CAN feedback; warning threshold exceeded
1462		0	5-5-6	Exhaust gas temperature turbine upstream; out of range, system reaction initiated	Exhaust gas temperature upstream turbine; warning threshold exceeded
1194		1		Exhaust gas temperature upstream turbine; out of range, system reaction initiated	Physical range check low for exhaust gas temperature upstream turbine
1461		1	8-1-4	Exhaust gas temperature turbine upstream; out of range, system reaction initiated	Turbocharger Wastegate CAN feedback; shut off threshold exceeded
1463		1	5-5-6	Exhaust gas temperature turbine upstream; out of range, system reaction initiated	Exhaust gas temperature upstream turbine; shut off threshold exceeded
1067		3	5-5-6	Sensor error exhaust gas temperature upstream turbine; signal range check high	Sensor error exhaust gas temperature upstream turbine; signal range check high
1068		4	5-5-6	Sensor error exhaust gas temperature upstream turbine; signal range check low	Sensor error exhaust gas temperature upstream turbine; signal range check low

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
1066		11	5-5-6	Sensor exhaust gas temperature upstream turbine; plausibility error	Sensor exhaust gas temperature upstream turbine; plausibility error
1414		2	8-1-4	Wastegate; status message from ECU missing	Wastegate; status message from ECU missing
1415		7	8-1-4	Wastegate actuator; blocked	Wastegate actuator; blocked
1411		11	8-1-4	Turbo charger wastegate actuator; internal error	Wastegate actuator; internal error
1412		11	8-1-4	Turbo charger wastegate actuator; internal error	Wastegate actuator; EOL calibration not performed correctly
1416		11	8-1-4	Turbo charger wastegate actuator; internal error	Wastegate actuator; over temperature (> 145°C)
1417		11	8-1-4	Turbo charger wastegate actuator; internal error	Wastegate actuator; over temperature (> 135°C)
1418		11	8-1-4	Turbo charger wastegate actuator; internal error	Wastegate actuator; operating voltage error
1413		13	8-1-4	Wastegate actuator calibration deviation too large, recalibration required	Wastegate actuator calibration deviation too large, recalibration required
85		14	2-7-1	CAN-Bus 1 "BusOff-Status"	CAN-Bus 1 "BusOff-Status"
82		14	2-7-1	CAN Bus error passive; warning CAN C	CAN Bus error passive; warning CAN C
86		14	2-7-1	CAN-Bus 2 "BusOff-Status"	CAN-Bus 2 "BusOff-Status"
747		2	1-4-5	Override switch; plausibility error	Override switch; plausibility error
610		12	2-4-1	Too many recognized misfires in more than one cylinder	Too many recognized misfires in more than one cylinder
604		12	2-4-1	Too many recognized misfires in cylinder 1 (in firing order)	Too many recognized misfires in cylinder 1 (in firing order)
605		12	2-4-1	Too many recognized misfires in cylinder 2 (in firing order)	Too many recognized misfires in cylinder 2 (in firing order)
606		12	2-4-1	Too many recognized misfires in cylinder 3 (in firing order)	Too many recognized misfires in cylinder 3 (in firing order)
607		12	2-4-1	Too many recognized misfires in cylinder 4 (in firing order)	Too many recognized misfires in cylinder 4 (in firing order)
608		12	2-4-1	Too many recognized misfires in cylinder 5 (in firing order)	Too many recognized misfires in cylinder 5 (in firing order)
609		12	2-4-1	Too many recognized misfires in cylinder 6 (in firing order)	Too many recognized misfires in cylinder 6 (in firing order)
460		0	2-2-8	Sensor error fan speed; signal range check high	Sensor error fan speed; signal range check high
461		1	2-2-8	Sensor error fan speed; signal range check low	Sensor error fan speed; signal range check low
1074		14	6-7-0	Urea tank level; warning threshold exceeded	Urea tank level; warning threshold exceeded
1446		3		Flush valve burner (EPV DPF-System); short circuit to battery	Flush valve burner (EPV DPF-System); short circuit to battery

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
1447		4		Flush valve burner (EPV DPF-System); short circuit to ground	Flush valve burner (EPV DPF-System); short circuit to ground
1444		5		Flush valve burner (EPV DPF-System); open load	Flush valve burner (EPV DPF-System); open load
1445		12		Flush valve burner (EPV DPF-System); powerstage over temperature	Flush valve burner (EPV DPF-System); power-stage over temperature
1494		0		Physical range check high for EGR mass flow	Physical range check high for EGR mass flow
1524		0		Physical range check high for EGR exhaust gas mass flow	Physical range check high for EGR exhaust gas mass flow
1495		1		Physical range check low for EGR mass flow	Physical range check low for EGR mass flow
1525		1		Physical range check low for EGR exhaust gas mass flow	Physical range check low for EGR exhaust gas mass flow
1523		2		Exhaust gas recirculation AGS sensor; plausibility error	Exhaust gas recirculation AGS sensor; plausi-bility error
1527		2		AGS sensor temperature exhaust gas mass flow; plausibility error	AGS sensor temperature exhaust gas mass flow; plausibility error
1496		11		Exhaust gas recirculation; EGR mass flow; shut off demand	Exhaust gas recirculation; EGR mass flow; shut off demand
1526		12		Exhaust gas recirculation; AGS sensor has "burn off" not performed	Exhaust gas recirculation; AGS sensor has "burn off" not performed
385		3	4-1-4	Actuator EGR Valve; short circuit to bat-tery	Actuator EGR Valve; short circuit to battery
386		4	4-1-4	Actuator EGR Valve; short circuit to ground	Actuator EGR Valve; short circuit to ground
383		5	4-1-5	Actuator EGR Valve; open load	Actuator EGR Valve; open load
384		12	4-1-5	Actuator EGR Valve; powerstage over temperature	Actuator EGR Valve; powerstage over temper-ature
1337		4		Injector diagnostics; timeout error of short circuit to ground measurement cyl. Bank 0	Injector diagnostics; timeout error of short cir-cuit to ground measurement cyl. Bank 0
1338		4		Injector diagnostics; timeout error of short circuit to ground measurement cyl. Bank 1	Injector diagnostics; timeout error of short cir-cuit to ground measurement cyl. Bank 1
1339		4		Injector diagnostics; short circuit Bank 0, Bank 1	Injector diagnostics; short circuit to ground monitoring Test in Cyl. Bank 0
1340		4		Injector diagnostics; short circuit Bank 0, Bank 1	Injector diagnostics; short circuit to ground monitoring Test in Cyl. Bank 1
1135		0	6-6-9	AdBlue-Tank temperature: maximum exceeded	AdBlue-Tank temperature: maximum exceeded
1136		1	6-6-9	DEF-Tank temperature: below minimum	DEF-Tank temperature: below minimum
1138		3	6-6-9	Sensor error urea tank temperature; short circuit to battery	Sensor error urea tank temperature; short cir-cuit to battery

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
1139		4	6-6-9	Sensor error urea tank temperature; short circuit to ground	Sensor error urea tank temperature; short circuit to ground
889		1	8-0-8	Nox sensor upstream of SCR Catalysator; low signal not plausible	Nox sensor upstream of SCR Catalysator; low signal not plausible
127		2	5-9-6	NOx Sensor; CAN DLC error	DLC Error of CAN-Receive-Frame AT1IG1 NOX Sensor (SCR-system upstream cat; DPF-system downstream cat); length of frame incorrect
129		2	5-9-6	NOx Sensor; CAN DLC error	DLC Error of CAN-Receive-Frame AT1IG1Vol NOX Sensor (SCR-system upstream cat; DPF-system downstream cat); length of frame incorrect
128		9	5-9-7	NOx Sensor; CAN Timeout	Timeout Error of CAN-Receive-Frame AT1IG1; NOX sensor upstream
130		9	5-9-7	NOx Sensor; CAN Timeout	Timeout Error of CAN-Receive-Frame AT1IG1Vol; NOX sensor (SCR-system upstream cat; DPF- system downstream cat)
138		2	6-0-0	NOx Sensor; CAN DLC error	DLC Error of CAN-Receive-Frame AT1O1Vol NOX Sensor (SCR-system downstream cat; DPF- system downstream cat); length of frame incorrect
137		9	6-0-1	NOx Sensor; CAN Timeout	Timeout Error of CAN-Receive-Frame AT1OG1; NOX sensor (SCR-system downstream cat; DPF- system downstream cat)
139		9	6-0-1	NOx Sensor; CAN Timeout	Timeout Error of CAN-Receive-Frame AT1OG1Vol; NOX sensor (SCR-system downstream cat; DPF-system downstream cat)
887		11	8-0-7	Nox Sensor downstream of SCR Catalysator; plausibility error "stuk in range"	Nox Sensor downstream of SCR Catalysator; plausibility error "stuk in range"
905		0	8-8-3	Sensor SCR catalyst upstream temperature too high; plausibility error	Sensor SCR catalyst upstream temperature too high; plausibility error
906		1	8-8-4	Sensor SCR catalyst upstream temperature too low; plausibility error	Sensor SCR catalyst upstream temperature too low; plausibility error
1405		0	6-8-5	Exhaust gas temperature particulate filter downstream; out of range, system reaction initiated	Physical range check high for exhaust gas temperature particulate filter downstream
1406		0	6-8-5	Exhaust gas temperature particulate filter downstream; out of range, system reaction initiated	Physical range check high for exhaust gas temperature particulate filter downstream; shut off regeneration
1407		0	6-8-5	Exhaust gas temperature particulate filter downstream; out of range, system reaction initiated	Physical range check high for exhaust gas temperature particulate filter downstream; warning
1408		1	6-8-5	Exhaust gas temperature particulate filter downstream; out of range, system reaction initiated	Physical range check low for exhaust gas temperature particulate filter downstream
1409		1	6-8-5	Exhaust gas temperature particulate filter downstream; out of range, system reaction initiated	Physikal range check low for exhaust gas temperature particulate filter downstream; shut off regeneration

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
1410		1	6-8-5	Exhaust gas temperature particulate filter downstream; out of range, system reaction initiated	Physical range check low for exhaust gas temperature particulate filter downstream; warning
1404		2	6-8-5	Sensor exhaust gas temperature downstream DPF; plausibility error	Sensor exhaust gas temperature downstream DPF; plausibility error
1047		4	6-8-5	Sensor error particle filter downstream temperature; signal range check low	Sensor error particle filter downstream temperature; signal range check low
809		0	6-9-2	Physical range check high for differential pressure (DPF); shut off regeneration	Physical range check high for differential pressure (DPF); shut off regeneration
812		1	6-9-2	Physical range check low for differential pressure (DPF); shut off regeneration	Physical range check low for differential pressure (DPF); shut off regeneration
807		2	6-9-2	Sensor differential pressure (DPF); plausibility error	Sensor differential pressure (DPF); plausibility error regarding signal offset
1380		2	6-9-2	Sensor differential pressure (DPF); plausibility error	Sensor differential pressure (DPF); plausibility error
814		3	6-9-2	Sensor error differential pressure (DPF); signal range check high	Sensor error differential pressure (DPF); signal range check high
815		4	6-9-2	Sensor error differential pressure (DPF); signal range check low	Sensor error differential pressure (DPF); signal range check low
1077		3	6-7-7	Urea dosing valve; short circuit to battery	Urea dosing valve; short circuit to battery on high side
1078		3	6-7-7	Urea dosing valve; short circuit to battery	Urea dosing valve; short circuit to battery or open load on high side
1079		4	6-7-7	Urea dosing valve; short circuit to ground	Urea dosing valve; short circuit to ground or open load on low side
1080		4	6-7-7	Urea dosing valve; short circuit to ground	Urea dosing valve; short circuit on high side
908		7	8-8-6	AdBlue dosing valve blocked (SCR)	AdBlue dosing valve blocked (SCR)
943		3	6-7-0	Sensor error urea tank level; signal range check high	Sensor error urea tank level; signal range check high
945		4	6-7-0	Sensor error urea tank level; signal range check low	Sensor error urea tank level; signal range check low
1616		2		DPF differential pressure sensor and a further sensor or actuator CRT system defective	DPF differential pressure sensor and a further sensor or actuator CRT system defective
1617		2		Temperature sensor us. and ds. DOC simultaneously defect	Temperature sensor us. and ds. DOC simultaneously defect
1615		14		Maximum stand-still-duration reached; oil exchange required	Maximum stand-still-duration reached; oil exchange required
1455		12		Regeneration temperature (PFltRgn LigtOff) not reached; regeneration aborted	Regeneration temperature (PFltRgn LigtOff) not reached; regeneration aborted
1089		11	7-8-3	SCR system heater diagnostic reports error; shut off SCR-system	SCR system heater diagnostic reports error; shut off SCR-system
1122		0	6-6-5	Urea pump pressure; out of range	Physical range check high for Urea Pump Pressure

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
1124		0	6-6-5	Urea pump pressure; out of range	Urea pump pressure sensor; high signal not plusible
1123		1	6-6-5	Urea pump pressure; out of range	Physical range check low for Urea Pump Pressure
1125		1	6-6-5	Urea pump pressure; out of range	Urea pump pressure sensor; low signal not plausible
1127		3	6-6-5	Sensor error urea pump pressure; signal range check high	Sensor error urea pump pressure; signal range check high
1128		4	6-6-5	Sensor error urea pump pressure; signal range check low	Sensor error urea pump pressure; signal range check low
1104		3	6-7-5	SCR-heater urea supplyline; short circuit to battery	SCR-heater urea supplyline; short circuit to battery
1105		4	6-7-5	SCR-heater urea supplyline; short circuit to ground	SCR-heater urea supplyline; short circuit to ground
1086		5	6-7-5	SCR heater relay urea supplyline; open load	SCR heater relay urea supplyline secondary side; open load
1102		5	6-7-5	SCR heater relay urea supplyline; open load	SCR heater relay urea supplyline primary side; open load
1096		3	6-7-3	SCR heater urea pressureline; short circuit to battery	SCR heater urea pressureline; short circuit to battery
1097		4	6-7-3	SCR heater urea pressureline; short circuit to ground	SCR heater urea pressureline; short circuit to ground
1083		5	6-7-3	SCR heater relay urea pressureline; open load	SCR heater relay urea pressureline secondary side; open load
1094		5	6-7-3	SCR heater relay urea pressureline; open load	SCR heater relay urea pressureline primary side; open load
893		11	8-7-1	General pressure check error (SCR)	General pressure check error (SCR)
1092		3	6-7-4	SCR heater urea returnline; short circuit to battery	SCR heater urea returnline; short circuit to battery
1093		4	6-7-4	SCR heater urea returnline; short circuit to ground	SCR heater urea returnline; short circuit to ground
1081		5	6-7-4	SCR heater relay urea returnline; open load	SCR heater relay urea returnline sekondary side; open load
1090		5	6-7-4	SCR heater relay urea returnline; open load	SCR heater relay urea returnline primary side; open load
892		11	8-7-0	Sensor backflow line pressure (SCR); plausibility error	Sensor backflow line pressure (SCR); plausibility error
1069		0	6-6-8	Physical range check high for urea catalyst upstream temperature	Physical range check high for urea catalyst upstream temperature
1070		1	6-6-8	Physical range low for urea catalyst upstream temperature	Physical range low for urea catalyst upstream temperature
1072		3	6-6-8	Sensor error urea catalyst exhaust gas temperature upstream; signal range check high	Sensor error urea catalyst exhaust gas temperature upstream; signal range check high

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
1073		4	6-6-8	Sensor error urea catalyst exhaust gas temperature upstream; signal range check low	Sensor error urea catalyst exhaust gas temperature upstream; signal range check low
903		0	8-8-1	Urea tank temperature too high	Urea tank temperature too high
1112		3	6-7-1	SCR Tank heating valve; short circuit to battery	SCR Tank heating valve; short circuit to battery
1113		4	6-7-1	SCR Tank heating valve; short circuit to ground	SCR Tank heating valve; short circuit to ground
1082		5	7-6-2	SCR main relay (secondary side): open load	SCR main relay (secondary side): open load
1084		5	7-6-2	SCR main relay; short circuit	SCR main relay (secondary side); Shortcut to battery
1085		5	7-6-2	SCR main relay; short circuit	SCR main relay (secondary side); shortcut to ground
1088		5	6-7-1	SCR Tank heating valve; open load	SCR Tank heating valve secundary side: open load
1110		5	6-7-1	SCR Tank heating valve; open load	SCR tank heating valve primary side; open load
1111		12	6-7-1	SCR-heater relay urea tank powerstage output; over temperature	SCR-heater relay urea tank powerstage output; over temperature
894		13	8-7-2	Pressure stabilisation error dosing valve (SCR)	Pressure stabilisation error dosing valve (SCR)
1120		3	6-6-6	Urea pump motor; short circuit to battery	Urea pump motor; short circuit to battery
1121		4	6-6-6	Urea pump motor; short circuit to ground	Urea pump motor; short circuit to ground
1118		5	6-6-6	Urea pump motor; open load	Urea pump motor; open load
1131		3	6-6-7	SCR reversing valve; short circuit to battery	SCR reversing valve; short circuit to battery
1132		4	6-6-7	SCR reversing valve; short circuit to ground	SCR reversing valve; short circuit to ground
1493		4	6-6-7	SCR reversing valve; short circuit to ground	SCR reversing valve; short circuit to ground
1129		5	6-6-7	SCR reversing valve; open load	SCR reversing valve; open load
1490		5	6-6-7	SCR reversing valve; open load	SCR reversing valve; open load
1130		12	6-6-7	SCR reversing valve; over temperature	SCR reversing valve; over temperature
1491		12	6-6-7	SCR reversing valve; over temperature	SCR reversing valve; over temperature
1039		0	6-8-3	Physical range check high for exhaust gas temperature upstream (DOC)	Physical range check high for exhaust gas temperature upstream (DOC)
1042		1	6-8-3	Physical range check low for exhaust gas temperature upstream (DOC)	Physical range check low for exhaust gas temperature upstream (DOC)
1029		0	6-8-4	Physical range check high for exhaust gas temperature downstream (DOC)	Physical range check high for exhaust gas temperature downstream (DOC)
1032		1	6-8-4	Physical range check low for exhaust gas temperature downstream (DOC)	Physical range check low for exhaust gas temperature downstream (DOC)

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
1036		2	6-8-3	Sensor exhaust gas temperature upstream (DOC); plausibility error	Sensor exhaust gas temperature upstream (DOC); plausibility error
1044		3	6-8-3	Sensor error exhaust gas temperature upstream (DOC); signal range check high	Sensor error exhaust gas temperature upstream (DOC); signal range check high
1045		4	6-8-3	Sensor error exhaust gas temperature upstream (DOC); signal range check low	Sensor error exhaust gas temperature upstream (DOC); signal range check low
1026		2	6-8-4	Sensor exhaust gas temperature down-stream (DOC); plausibility error	Sensor exhaust gas temperature downstream (DOC); plausibility error
1402		2	6-8-4	Sensor exhaust gas temperature (DOC) downstream; plausibility error	Sensor exhaust gas temperature OxiCat down-stream (normal operation); plausibility error
1403		2	6-8-4	Sensor exhaust gas temperature (DOC) downstream; plausibility error	Sensor exhaust gas temperature OxiCat down-stream (regeneration); plausibility error
1034		3	6-8-4	Sensor error exhaust gas temperature downstream (DOC); signal range check high	Sensor error exhaust gas temperature down-stream (DOC); signal range check high
1035		4	6-8-4	Sensor error exhaust gas temperature downstream (DOC); signal range check low	Sensor error exhaust gas temperature down-stream (DOC); signal range check low
34		3	2-4-2	Controller mode switch; short circuit to battery	Controller mode switch; short circuit to battery
35		4	2-4-2	Controller mode switch; short circuit to ground	Controller mode switch; short circuit to ground
648		1	4-2-4	Manipulation control was triggered	Manipulation control was triggered
649		2	4-2-4	Timeout error in Manipulation control	Timeout error in Manipulation control
825		9	2-5-3	Pressure Relief Valve (PRV) reached maximun allowed opening count	Pressure Relief Valve (PRV) reached maximun allowed opening count
833		10	2-5-3	Pressure relief valve (PRV) reached maximun allowed open time	Pressure relief valve (PRV) reached maximun allowed open time
171		9	3-3-3	Timeout Error of CAN-Receive-Frame ComEngPrt; Engine Protection	Timeout Error of CAN-Receive-Frame ComEngPrt; Engine Protection
198		9	3-3-7	Timeout Error of CAN-Receive-Frame PrHtEnCmd; pre-heat command, engine command	Timeout Error of CAN-Receive-Frame PrHt-EnCmd; pre-heat command, engine command
179		9	5-2-7	Timeout CAN-message FunModCtl; Function Mode Control	Timeout CAN-message FunModCtl; Function Mode Control
919		14	1-3-1	Immobilizer status; fuel blocked	Immobilizer status; fuel blocked
565		4	1-5-1	Injector cylinder-bank 1; short circuit	Injector cylinder-bank 1; short circuit
566		4	1-5-2	Injector cylinder-bank 2; short circuit	Injector cylinder-bank 2; short circuit
567		12	1-5-3	Injector powerstage output defect	Injector powerstage output defect
840		2	1-4-3	Multiple Stage Switch constant speed; plausibility error	Multiple Stage Switch constant speed; plausi-bility error
838		3	1-4-3	Multiple Stage Switch constant speed; short circuit to battery	Multiple Stage Switch constant speed; short circuit to battery

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
839		4	1-4-3	Multiple Stage Switch constant speed; short circuit to ground	Multiple Stage Switch constant speed; short circuit to ground
843		2	1-4-3	Multiple Stage Switch engine speed control parameter; plausibility error	Multiple Stage Switch engine speed control parameter; plausibility error
841		3	1-4-3	Multiple Stage Switch engine speed control parameter; short circuit to battery	Multiple Stage Switch engine speed control parameter; short circuit to battery
842		4	1-4-3	Multiple Stage Switch engine speed control parameter; short circuit to ground	Multiple Stage Switch engine speed control parameter; short circuit to ground
846		2	1-4-3	Multiple Stage Switch engine torque limitation curve; plausibility error	Multiple Stage Switch engine torque limitation curve; plausibility error
844		3	1-4-3	Multiple Stage Switch engine torque limitation curve; short circuit to battery	Multiple Stage Switch engine torque limitation curve; short circuit to battery
845		4	1-4-3	Multiple Stage Switch engine torque limitation curve; short circuit to ground	Multiple Stage Switch engine torque limitation curve; short circuit to ground
826		2	1-4-6	Pressure Relief Valve (PRV) forced to open	Pressure Relief Valve (PRV) forced to open; performed by pressure increase
827		2	1-4-6	Pressure Relief Valve (PRV) forced to open	Pressure Relief Valve (PRV) forced to open; performed by pressure shock
876		7	1-4-6	Maximum rail pressure in limp home mode exceeded (PRV)	Maximum rail pressure in limp home mode exceeded (PRV)
831		11	1-4-6	Pressure Relief Valve (PRV) error; Rail pressure out of tolerance range	The PRV can not be opened at this operating point with a pressure shock
832		11	1-4-6	Rail pressure out of tolerance range	Rail pressure out of tolerance range
828		12	1-4-6	Pressure Relief Valve (PRV) forced to open; system reaction initiated	Open Pressure Relief Valve (PRV); shut off condition
829		12	1-4-6	Pressure Relief Valve (PRV) forced to open; system reaction initiated	Open Pressure Relief Valve (PRV); warning condition
830		14	1-4-6	Pressure Relief Valve (PRV) is open	Pressure Relief Valve (PRV) is open
980		12	5-1-5	T50 start switch active for too long	T50 start switch active for too long
948		13	2-8-2	Sensor supply voltage monitor 3 error (ECU)	Sensor supply voltage monitor 3 error (ECU)
462		0	2-2-8	Fan control; out of range, system reaction initiated	High fan speed; warning threshold exceeded
463		0	2-2-8	Fan control; out of range, system reaction initiated	High fan speed; shut off threshold exceeded
126		9	3-3-8	Timeout Error of CAN-Receive-Frame AMB; Ambient Temperature Sensor	Timeout Error of CAN-Receive-Frame AMB; Ambient Temperature Sensor
300		9	1-1-8	Timeout Error of CAN-Receive-Frame TSC1AE; Traction Control	Timeout Error of CAN-Receive-Frame TSC1AE; Traction Control
301		9	1-1-9	Timeout Error of CAN-Receive-Frame TSC1AR; Retarder	Timeout Error of CAN-Receive-Frame TSC1AR; Retarder
387		12	5-5-5	Internal software error ECU	Internal software error ECU; injection cut off

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
612		12	5-5-5	ECU reported internal software error	Internal ECU monitoring detection reported error
613		12	5-5-5	ECU reported internal software error	Internal ECU monitoring detection reported error
614		12	5-5-5	ECU reported internal software error	Internal ECU monitoring detection reported error
615		12	5-5-5	ECU reported internal software error	Internal ECU monitoring detection reported error
616		12	5-5-5	ECU reported internal software error	Internal ECU monitoring detection reported error
617		12	5-5-5	ECU reported internal software error	Internal ECU monitoring detection reported error
618		12	5-5-5	ECU reported internal software error	Internal ECU monitoring detection reported error
619		12	5-5-5	ECU reported internal software error	Internal ECU monitoring detection reported error
620		12	5-5-5	ECU reported internal software error	Internal ECU monitoring detection reported error
621		12	5-5-5	ECU reported internal software error	Internal ECU monitoring detection reported error
623		12	5-5-5	ECU reported internal software error	Internal ECU monitoring detection reported error
624		12	5-5-5	ECU reported internal software error	Internal ECU monitoring detection reported error
625		12	5-5-5	ECU reported internal software error	Internal ECU monitoring detection reported error
627		12	5-5-5	ECU reported internal software error	Internal ECU monitoring detection reported error
628		12	5-5-5	ECU reported internal software error	Internal ECU monitoring detection reported error
637		12	5-5-5	ECU reported internal software error	Internal ECU monitoring detection reported error
1170		12	5-5-5	ECU reported internal software error	Internal software error ECU
973		14	5-5-5	Softwarereset CPU	Softwarereset CPU SWReset_0
974		14	5-5-5	Softwarereset CPU	Softwarereset CPU SWReset_1
975		14	5-5-5	Softwarereset CPU	Softwarereset CPU SWReset_2
856		0	1-3-4	Rail pressure disrupted	Maximum positive deviation of rail pressure exceeded (RailMeUn0)
857		0	1-3-4	Rail pressure disrupted	Maximum positive deviation of rail pressure in metering unit exceeded (RailMeUn1)
858		0	1-3-4	Rail pressure disrupted	Railsystem leakage detected (RailMeUn10)
859		0	1-3-4	Rail pressure disrupted	Maximum negative deviation of rail pressure in metering unit exceeded (RailMeUn2)

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
860		0	1-3-4	Rail pressure disrupted	Negative deviation of rail pressure second stage (RailMeUn22)
862		0	1-3-4	Rail pressure disrupted	Maximum rail pressure exceeded (RailMeUn4)
861		1	1-3-4	Minimum rail pressure exceeded (RailMeUn3)	Minimum rail pressure exceeded (RailMeUn3)
864		2	1-3-4	Setpoint of metering unit in overrun mode not plausible	Setpoint of metering unit in overrun mode not plausible
594		3	1-3-5	Metering unit (Fuel-System); short circuit to battery	Metering unit (Fuel-System); short circuit to battery highside
596		3	1-3-5	Metering unit (Fuel-System); short circuit to battery	Metering unit (Fuel-System); short circuit to battery low side
595		4	1-3-5	Metering unit (Fuel-System); short circuit to ground	Metering unit (Fuel-System); short circuit to ground high side
597		4	1-3-5	Metering unit (Fuel-System); short circuit to ground	Metering Unit (Fuel-System); short circuit to ground low side
592		5	1-3-5	Metering unit (Fuel-System); open load	Metering unit (Fuel-System); open load
593		12	1-3-5	Metering unit (Fuel-System); powerstage over temperature	Metering unit (Fuel-System); powerstage over temperature
488		2	1-3-3	Physical range check high for exhaust gas temperature upstrem (SCR-CAT)	Physical range check high for exhaust gas temperature upstrem (SCR-CAT)
899		0	8-7-7	Pressure overload of SCR-System	Pressure overload of SCR-System
900		1	8-7-8	Pressure build-up error SCR-System	Pressure build-up error SCR-System
1483		2		Metering control is not performed in time error	Metering control is not performed in time error
897		16	8-7-5	Pump pressure SCR metering unit too high	Pump pressure SCR metering unit too high
898		18	8-7-6	Pump pressure SCR metering unit too low	Pump pressure SCR metering unit too low
881		11	7-0-1	Nox conversion rate insufficient	Nox conversion rate insufficient (SCR-Cat defect, bad AdBule quality)
882		11	7-0-1	Nox conversion rate insufficient	Nox conversion rate insufficient (SCR-Cat defect, bad AdBule quality); temperature range 1
883		11	7-0-1	Nox conversion rate insufficient	Nox conversion rate insufficient (SCR-Cat defect, bad AdBule quality); temperature range 2
122		11	5-9-2	Shut off request from supervisory monitoring function	Shut off request from supervisory monitoring function
125		12	5-9-5	Timeout Error of CAN-Transmit-Frame AmbCon; Weather environments	Timeout Error of CAN-Transmit-Frame AmbCon; Weather environments
1100		3	6-7-6	SCR main relay (primary side); short circuit to battery	SCR main relay (primary side); short circuit to battery
1488		3		SCR mainrelay; short circuit to battery (only CV56B)	SCR mainrelay; short circuit to battery (only CV56B)

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
1101		4	6-7-6	SCR main relay (primary side); short circuit to ground	SCR main relay (primary side); short circuit to ground
1489		4		SCR mainrelay; short circuit to ground (only CV56B)	SCR mainrelay; short circuit to ground (only CV56B)
1098		5	6-7-6	SCR main relay (primary side); open load	SCR main relay (primary side); open load
1486		5		SCR mainrelay; open load (only CV56B)	SCR mainrelay; open load (only CV56B)
1099		12	6-7-6	SCR main relay (primary side); powerstage over temperature	SCR main relay (primary side); powerstage over temperature
1487		12		SCR mainrelay; powerstage over temperature (only CV56B)	SCR mainrelay; powerstage over temperature (only CV56B)
1108		3	6-7-2	SCR heater urea supplymodule; short circuit to battery	SCR heater urea supplymodule; short circuit to battery
1109		4	6-7-2	SCR heater urea supplymodule; short circuit to ground	SCR heater urea supplymodule; short circuit to ground
1087		5	6-7-2	SCR heater relay urea supply module; open load	SCR heater relay urea supply modul secondary side; open load
1106		5	6-7-2	SCR heater relay urea supply module; open load	SCR heater relay urea supplymodule primary side; open load
914		2	6-9-0	Urea supply module heater temperature; plausibility error	Sensor urea supply module heater temperature; plausibility error (normal condition)
915		2	6-9-0	Urea supply module heater temperature; plausibility error	Sensor urea supply module heater temperature; plausibility error (cold start condition)
925		8	6-9-0	Urea supply module heater temperature; signal disrupted	Urea supply module heater temperature; duty cycle in failure range
926		8	6-9-0	Urea supply module heater temperature; signal disrupted	Urea supply module heater temperature; duty cycle in invalid range
916		2	6-8-9	Urea supply module heater temperature; plausibility error	Sesnor urea supply module temperature; plausibility error (normal condition)
917		2	6-8-9	Urea supply module heater temperature; plausibility error	Sensor urea supply module temperature; plausibility error (cold start condition)
930		8	6-8-9	Urea supply module temperature; signal disrupted	Urea supply module temperature; duty cycle in failure range
931		8	6-8-9	Urea supply module temperature; signal disrupted	Urea supply module temperature; duty cycle in invalid range
927		11	6-8-9	Urea supply module temperature measurement not available	Urea supply module temperature measurement not available
928		8	6-9-1	Urea supply module PWM signal; signal disrupted	Urea supply module PWM signal; period outside valid range
929		8	6-9-1	Urea supply module PWM signal; signal disrupted	Detect faulty PWM signal from Supply Modul
896		11	8-7-4	Detection of AdBlue filled SCR system in Init-State	Detection of AdBlue filled SCR system in Init-State

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
281		9	1-1-8	Timeout Error of CAN-Receive-Frame Active TSC1AE	Timeout Error of CAN-Receive-Frame Active TSC1AE
282		9	1-1-8	Timeout Error of CAN-Receive-Frame Passive TSC1AE	Timeout Error of CAN-Receive-Frame Passive TSC1AE
283		9	1-1-9	Timeout Error of CAN-Receive-Frame Active TSC1AR	Timeout Error of CAN-Receive-Frame Active TSC1AR
284		9	1-1-9	Timeout Error of CAN-Receive-Frame Passive TSC1AR	Timeout Error of CAN-Receive-Frame Passive TSC1AR
285		9		Timeout Error of CAN-Receive-Frame Passive TSC1DE	Timeout Error of CAN-Receive-Frame Passive TSC1DE
291		9	1-1-9	Timeout Error of CAN-Receive-Frame TSC1TE - active	Timeout Error of CAN-Receive-Frame TSC1TE - active
292		9	1-1-9	Passive Timeout Error of CAN-Receive-Frame TSC1TE; Setpoint	Passive Timeout Error of CAN-Receive-Frame TSC1TE; Setpoint
293		9	1-1-8	Active Timeout Errorof CAN-Receive-Frame TSC1TR	Active Timeout Errorof CAN-Receive-Frame TSC1TR
294		9	1-1-8	Passive Timeout Error of CAN-Receive-Frame TSC1TR	Passive Timeout Error of CAN-Receive-Frame TSC1TR
1297		0	6-5-5	Turbo charger wastegate; CAN Fehler	CAN-Transmit-Frame ComTrbChActr "BusOff-Satus"; Wastegate
1298		0	6-5-5	Turbo charger wastegate; CAN Fehler	CAN-Transmit-Frame ComTrbChActr disable error; wastegate
1299		0	6-5-5	Turbo charger wastegate; CAN Fehler	CAN-Transmit-Frame ComTrbChActr plausibil-ity error; wastegate
1300		0	6-5-5	Turbo charger wastegate; CAN Fehler	Timeout Error of CAN-Transmit-Frame ComTr-bChActr; Wastegate
299		12	6-5-5	Timeout Error of CAN-Transmit-Frame TrbCH; Status Wastegate	Timeout Error of CAN-Transmit-Frame TrbCH; Status Wastegate
202		9	6-7-8	Timeout Error of CAN-Receive-Frame UAA10; AGS sensor service message	Timeout Error of CAN-Receive-Frame UAA10; AGS sensor service message
203		9	6-7-8	Timeout Error of CAN-Receive-Frame UAA11; AGS sensor data	Timeout Error of CAN-Receive-Frame UAA11; AGS sensor data
212		9	6-7-8	Timeout Error of CAN-Receive-Frame RxEngPres; Status burner airpump	Timeout Error of CAN-Receive-Frame RxEng-Pres; Status burner airpump
322		12	6-7-9	Timeout Error of CAN-Transmit-Frame UAA1 on CAN 2; Burner Air Pump Con-trol	Timeout Error of CAN-Transmit-Frame UAA1 on CAN 2; Burner Air Pump Control
559		13	7-0-6	Check of missing injector adjustment value programming (IMA) injector 1 (in firing order)	Check of missing injector adjustment value pro-gramming (IMA) injector 1 (in firing order)
560		13	7-0-7	check of missing injector adjustment value programming (IMA) injector 2 (in firing order)	check of missing injector adjustment value pro-gramming (IMA) injector 2 (in firing order)
561		13	7-0-8	check of missing injector adjustment value programming (IMA) injector 3 (in firing order)	check of missing injector adjustment value pro-gramming (IMA) injector 3 (in firing order)

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
562		13	7-0-9	check of missing injector adjustment value programming (IMA) injector 4 (in firing order)	check of missing injector adjustment value programming (IMA) injector 4 (in firing order)
563		13	7-1-0	check of missing injector adjustment value programming (IMA) injector 5 (in firing order)	check of missing injector adjustment value programming (IMA) injector 5 (in firing order)
564		13	7-1-1	check of missing injector adjustment value programming (IMA) injector 6 (in firing order)	check of missing injector adjustment value programming (IMA) injector 6 (in firing order)
836		3	7-6-1	Electrical fuel pre - supply pump; short circuit to battery	Electrical fuel pre - supply pump; short circuit to battery
837		4	7-6-1	Electrical fuel pre - supply pump; short circuit to ground	Electrical fuel pre - supply pump; short circuit to ground
834		5	7-6-1	Electrical fuel pre - supply pump; open load	Electrical fuel pre - supply pump; open load
835		12	7-6-1	Electrical fuel pre - supply pump; powerstage over temperature	Electrical fuel pre - supply pump; powerstage over temperature
1251		0	6-9-5	Air Pump; internal error	Air Pump; powerstage over temperature
1252		0	6-9-5	Air Pump; internal error	Air Pump; operating voltage error
1261		6	6-9-5	Air Pump; over current	Air Pump; over current
1249		7	6-9-5	Air pump; CAN communication interrupted no purge function available	Air pump; CAN communication interrupted no purge function available
1248		9	6-9-5	Air Pump; CAN communication lost	Air Pump; CAN communication lost
1250		12	6-9-5	Air Pump; internal error	Air Pump; internal error
55		14	6-9-5	Air pump doesn´t achieve air mass flow setpoint	Air pump doesn´t achieve air mass flow setpoint
58		0	7-2-3	Burner dosing valve (DV2); overcurrent at the end of the injection phase	Burner dosing valve (DV2); overcurrent at the end of the injection phase
60		3	7-2-3	Burner dosing valve (DV2); short circuit to battery	Burner dosing valve (DV2); short circuit to battery
61		3	7-2-3	Burner dosing valve (DV2); short circuit to battery	Burner dosing valve (DV2); short circuit to battery on high side
62		4	7-2-3	Burner dosing valve (DV2); short circuit to ground	Burner dosing valve (DV2); short circuit to ground
1253		7	8-5-0	Burner dosing valve (DV2); blocked closed	Burner dosing valve (DV2); blocked closed
63		11	7-2-3	Burner dosing valve (DV2); short circuit high side powerstage	Burner dosing valve (DV2); short circuit high side powerstage
59		12	7-2-3	Burner dosing valve (DV2); powerstage over temperature	Burner dosing valve (DV2); powerstage over temperature
66		0	7-2-2	Physical range check high for burner dosing valve (DV2) downstream pressure; shut off regeneration	Physical range check high for burner dosing valve (DV2) downstream pressure; shut off regeneration

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
69		1	7-2-2	Physical range check low for burner dosing valve (DV2) downstream pressure; shut off regeneration. When burner injector is actuated, the measured pressure does not rise above ca. 1250mbar abs (expected: ca. 2400mbar).	Physical range check low for burner dosing valve (DV2) downstream pressure; shut off regeneration. When burner injector is actuated, the measured pressure does not rise above ca. 1250mbar abs (expected: ca. 2400mbar).
64		2	7-2-2	Burner dosing valve (DV2) downstream pressure sensor; plausibility error	Burner dosing valve (DV2) downstream pressure sensor; plausibility error
72		3	7-2-2	Sensor error burner dosing valve (DV2) downstream pressure sensor; signal range check high	Sensor error burner dosing valve (DV2) downstream pressure sensor; signal range check high
73		4	7-2-2	Sensor error burner dosing valve (DV2) downstream pressure sensor; signal range check low	Sensor error burner dosing valve (DV2) downstream pressure sensor; signal range check low
74		3	7-2-1	Sensor error glow plug control diagnostic line voltage; signal range check high	Sensor error glow plug control diagnostic line voltage; signal range check high
75		4	7-2-1	Sensor error glow plug control diagnostic line voltage; signal range check low	Sensor error glow plug control diagnostic line voltage; signal range check low
78		3	7-2-1	Glow plug control; short circuit to battery	Glow plug control; short circuit to battery
79		4	7-2-1	Glow plug control; short circuit to ground	Glow plug control; short circuit to ground
76		5	7-2-1	Glow plug control; open load	Glow plug control; open load
1216		5	8-5-1	Glow plug control; open load	Glow plug control release line; short circuit error
1217		11	8-5-1	Glow plug control; internal error	Glow plug control; internal error
77		12	7-2-1	Glow plug control; powerstage over temperature	Glow plug control; powerstage over temperature
500		0	7-2-0	HCI dosing valve (DV1); overcurrent at the end of the injection phase	HCI dosing valve (DV1); overcurrent at the end of the injection phase
502		3	7-2-0	HCI dosing valve (DV1); short circuit to battery	HCI dosing valve (DV1); short circuit to battery
503		3	7-2-0	HCI dosing valve (DV1); short circuit to battery	HCI dosing valve (DV1); short circuit to battery high side
504		4	7-2-0	HCI dosing valve (DV1); short circuit to ground	HCI dosing valve (DV1); short circuit to ground
1256		7	8-5-2	HCI dosing valve (DV1); blocked	HCI dosing valve (DV1); blocked closed
1257		7	8-5-3	HCI dosing valve (DV1); blocked	HCI dosing valve (DV1); blocked open
505		11	7-2-0	HCI dosing valve (DV1); short circuit high side powerstage	HCI dosing valve (DV1); short circuit high side powerstage
501		12	7-2-0	HCI dosing valve (DV1); powerstage over temperature	HCI dosing valve (DV1); powerstage over temperature
508		0	7-1-9	Physical range check high for HCI dosing valve (DV1) downstream pressure; shut off regeneration	Physical range check high for HCI dosing valve (DV1) downstream pressure; shut off regeneration

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
511		1	7-1-9	Physical range check low for HCl dosing valve (DV1) downstream pressure; shut off regeneration	Physical range check low for HCl dosing valve (DV1) downstream pressure; shut off regeneration
506		2	7-1-9	Sensor HCl dosing valve (DV1) downstream pressure; plausibility error	Sensor HCl dosing valve (DV1) downstream pressure; plausibility error
514		3	7-1-9	Sensor error HCl dosing valve (DV1) downstream pressure; signal range check high	Sensor error HCl dosing valve (DV1) downstream pressure; signal range check high
515		4	7-1-9	Sensor error HCl dosing valve (DV1) downstream pressure; signal range check low	Sensor error HCl dosing valve (DV1) downstream pressure; signal range check low
518		0	7-1-8	Physical range check high for DV1 & DV2 upstream pressure; shut off regeneration	Physical range check high for DV1 & DV2 upstream pressure; shut off regeneration
521		1	7-1-8	Physical range check low for DV1 & DV2 upstream pressure; shut off regeneration	Physical range check low for DV1 & DV2 upstream pressure; shut off regeneration
516		2	7-1-8	Sensor DV1 & DV2 upstream pressure; plausibility error	Sensor DV1 & DV2 upstream pressure; plausibility error
524		3	7-1-8	Sensor error DV1 & DV2 upstream pressure; signal range check high	Sensor error DV1 & DV2 upstream pressure; signal range check high
525		4	7-1-8	Sensor error DV1 & DV2 upstream pressure; signal range check low	Sensor error DV1 & DV2 upstream pressure; signal range check low
528		0	7-1-7	Physical range check high for DV1 & DV2 upstream temperature; shut off regeneration	Physical range check high for DV1 & DV2 upstream temperature; shut off regeneration
531		1	7-1-7	Physical range check low for DV1 & DV2 upstream temperature; shut off regeneration	Physical range check low for DV1 & DV2 upstream temperature; shut off regeneration
526		2	7-1-7	Sensor DV1 & DV2 upstream temperature; plausibility error	Sensor DV1 & DV2 upstream temperature; plausibility error
534		3	7-1-7	Sensor error DV1 & DV2 upstream temperature; signal range check high	Sensor error DV1 & DV2 upstream temperature; signal range check high
535		4	7-1-7	Sensor error DV1 & DV2 upstream temperature; signal range check low	Sensor error DV1 & DV2 upstream temperature; signal range check low
755		0	6-9-4	Physical range check high for airpump pressure; shut off regeneration	Physical range check high for airpump pressure; shut off regeneration
758		1	6-9-4	Physical range check low for airpump pressure; shut off regeneration	Physical range check low for airpump pressure; shut off regeneration
753		2	6-9-4	Sensor airpump pressure; plausibility error	Sensor airpump pressure; plausibility error
1378		2	6-9-4	Sensor airpump pressure; plausibility error	Sensor air pump airpressure; plausibility error
761		3	6-9-4	Sensor error airpump pressure; signal range check high	Sensor error airpump pressure; signal range check high
762		4	6-9-4	Sensor error airpump pressure; signal range check low	Sensor error airpump pressure; signal range check low

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
765		0	7-1-6	Physical range check high for exhaust-gas back pressure burner; shut off regeneration	Physical range check high for exhaustgas back pressure burner; shut off regeneration
768		1	7-1-6	Physical range check low for exhaustgas back pressure burner; shut off regenera-tion	Physical range check low for exhaustgas back pressure burner; shut off regeneration
763		2	7-1-6	Sensor exhaustgas back pressure; plau-sibility error	Sensor exhaustgas back pressure; plausibility error
1379		2	7-1-6	Sensor exhaustgas back pressure; plau-sibility error	Sensor exhaust gas back pressure burner; plausibility error
770		3	7-1-6	Sensor error exhaustgas back pressure burner; signal range check high	Sensor error exhaustgas back pressure burner; signal range check high
771		4	7-1-6	Sensor error exhaustgas back pressure burner; signal range check low	Sensor error exhaustgas back pressure burner; signal range check low
986		0	7-1-4	Physical range check high for burner temperature	Physical range check high for burner tempera-ture
989		1	7-1-4	Physical range check low for burner tem-perature	Physical range check low for burner tempera-ture
1395		2	7-1-4	Sensor burner temperature; plausibility error	Sensor burner temperature; plausibility error
942		3	7-1-4	Sensor error burner temperature; signal range check high	Sensor error burner temperature; signal range check high
944		4	7-1-4	Sensor error burner temperature; signal range check low	Sensor error burner temperature; signal range check low
984		11	7-1-4	Sensor burner temperature; plausibility error	Sensor burner temperature; plausibility error
965		3	7-1-5	Burner shut of valve; short circuit to bat-tery	Burner shut of valve; short circuit to battery
967		4	7-1-5	Burner shut of valve; short circuit to ground	Burner shut of valve; short circuit to ground
1392		4	7-1-5	Burner shut of valve; short circuit to ground	Burner Shut Off Valve; short circuit to ground
963		5	7-1-5	Burner shut off valve; open load	Burner shut off valve; open load
1389		5	7-1-5	Burner Shut Off Valve; open load	Burner Shut Off Valve; open load
1262		7	8-5-4	Shut off valve: blocked	Burner Shut Off Valve; blocked closed
1264		7	8-5-5	Shut off valve: blocked	Burner Shut Off Valve; blocked open
1192		12		Over temperature error on burner shut of valve	Over temperature error on burner shut of valve
1390		12	7-1-5	Over temperature error on burner shut of valve	Burner Shut Off Valve; powerstage over tem-perature
36		3	7-2-9	UB1; Short circuit to battery error of actu-ator relay 1	UB1; Short circuit to battery error of actuator relay 1
37		3	7-3-0	UB2; Short circuit to battery error of actu-ator relay 2	UB2; Short circuit to battery error of actuator relay 2

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
38		3	7-3-1	UB3; Short circuit to battery error of actuator relay 3	UB3; Short circuit to battery error of actuator relay 3
39		3	7-3-2	UB4; Short circuit to battery error of actuator relay 4	UB4; Short circuit to battery error of actuator relay 4
40		3	7-3-3	UB5; Short circuit to battery error of actuator relay 5	UB5; Short circuit to battery error of actuator relay 5
109		0	7-2-4	Fuel Balance Control integrator injector 1 (in firing order); maximum value exceeded	Fuel Balance Control integrator injector 1 (in firing order); maximum value exceeded
115		1	7-2-4	Fuel Balance Control integrator injector 1 (in firing order); minimum value exceeded	Fuel Balance Control integrator injector 1 (in firing order); minimum value exceeded
110		0	7-2-4	Fuel Balance Control integrator injector 2 (in firing order); maximum value exceeded	Fuel Balance Control integrator injector 2 (in firing order); maximum value exceeded
116		1	7-2-4	Fuel Balance Control integrator injector 2 (in firing order); minimum value exceeded	Fuel Balance Control integrator injector 2 (in firing order); minimum value exceeded
111		0	7-2-4	Fuel Balance Control integrator injector 3 (in firing order); maximum value exceeded	Fuel Balance Control integrator injector 3 (in firing order); maximum value exceeded
117		1	7-2-4	Fuel Balance Control integrator injector 3 (in firing order); minimum value exceeded	Fuel Balance Control integrator injector 3 (in firing order); minimum value exceeded
112		0	7-2-4	Fuel Balance Control integrator injector 4 (in firing order); maximum value exceeded	Fuel Balance Control integrator injector 4 (in firing order); maximum value exceeded
118		1	7-2-4	Fuel Balance Control integrator injector 4 (in firing order); minimum value exceeded	Fuel Balance Control integrator injector 4 (in firing order); minimum value exceeded
113		0	7-2-4	Fuel Balance Control integrator injector 5 (in firing order); maximum value exceeded	Fuel Balance Control integrator injector 5 (in firing order); maximum value exceeded
119		1	7-2-4	Fuel Balance Control integrator injector 5 (in firing order); minimum value exceeded	Fuel Balance Control integrator injector 5 (in firing order); minimum value exceeded
114		0	7-2-4	Fuel Balance Control integrator injector 6 (in firing order); maximum value exceeded	Fuel Balance Control integrator injector 6 (in firing order); maximum value exceeded
120		1	7-2-4	Fuel Balance Control integrator injector 6 (in firing order); minimum value exceeded	Fuel Balance Control integrator injector 6 (in firing order); minimum value exceeded
168		12	7-6-3	Timeout Error of CAN-Transmit-Frame EEC3VOL1; Engine send messages	Timeout Error of CAN-Transmit-Frame EEC3VOL1; Engine send messages
169		12	7-6-4	Timeout Error of CAN-Transmit-Frame EEC3VOL2; Engine send messages	Timeout Error of CAN-Transmit-Frame EEC3VOL2; Engine send messages

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
133		9	7-6-6	Timeout Error (BAM to packet) for CAN-Receive-Frame AT1IGCVol1 information; factors & Sensorcalibration for NOX Sensor (SCR-system upstream cat; DPF- system downstream cat)	Timeout Error (BAM to packet) for CAN-Receive-Frame AT1IGCVol1 information; factors & Sensorcalibration for NOX Sensor (SCR-system upstream cat; DPF-system downstream cat)
134		9	7-6-6	Timeout Error (BAM to BAM) for CAN-Receive-Frame AT1IGCVol1 information; factors & Sensorcalibration for NOX Sensor (SCR-system upstream cat; DPF- system downstream cat)	Timeout Error (BAM to BAM) for CAN-Receive-Frame AT1IGCVol1 information; factors & Sensorcalibration for NOX Sensor (SCR-system upstream cat; DPF-system downstream cat)
135		9	7-6-6	Timeout Error (PCK2PCK) for CAN-Receive-Frame AT1IGCVol1 information; factors & Sensorcalibration for NOX Sensor (SCR-system upstream cat; DPF-system downstream cat)	Timeout Error (PCK2PCK) for CAN-Receive-Frame AT1IGCVol1 information; factors & Sensorcalibration for NOX Sensor (SCR-system upstream cat; DPF-system downstream cat)
140		9	7-6-7	Timeout Error (BAM to packet) for CAN-Receive-Frame AT1OGCVol2 information; factors & Sensorcalibration for NOX Sensor (SCR-system downstream cat; DPF- system downstream cat)	Timeout Error (BAM to packet) for CAN-Receive-Frame AT1OGCVol2 information; factors & Sensorcalibration for NOX Sensor (SCR-system downstream cat; DPF-system downstream cat)
141		9	7-6-7	Timeout Error (BAM to BAM) for CAN-Receive-Frame AT1OGCVol2 information; factors & Sensorcalibration for NOX Sensor (SCR-system downstream cat; DPF- system downstream cat)	Timeout Error (BAM to BAM) for CAN-Receive-Frame AT1OGCVol2 information; factors & Sensorcalibration for NOX Sensor (SCR-system downstream cat; DPF-system downstream cat)
142		9	7-6-7	Timeout Error (PCK2PCK) for CAN-Receive-Frame AT1OGCVol2 information; factors & Sensorcalibration for NOX Sensor (SCR-system downstream cat; DPF- system downstream cat)	Timeout Error (PCK2PCK) for CAN-Receive-Frame AT1OGCVol2 information; factors & Sensorcalibration for NOX Sensor (SCR-system downstream cat; DPF-system downstream cat)
1158		0	7-7-2	Zerofuel calibration injector 1 (in firing order); maximum value exceeded	Zerofuel calibration injector 1 (in firing order); maximum value exceeded
1164		1	7-7-2	Zerofuel calibration injector 1 (in firing order); minimum value exceeded	Zerofuel calibration injector 1 (in firing order); minimum value exceeded
1159		0	7-7-2	Zerofuel calibration injector 2 (in firing order); maximum value exceeded	Zerofuel calibration injector 2 (in firing order); maximum value exceeded
1165		1	7-7-2	Zerofuel calibration injector 2 (in firing order); minimum value exceeded	Zerofuel calibration injector 2 (in firing order); minimum value exceeded
1160		0	7-7-2	Zerofuel calibration injector 3 (in firing order); maximum value exceeded	Zerofuel calibration injector 3 (in firing order); maximum value exceeded
1166		1	7-7-2	Zerofuel calibration injector 3 (in firing order); minimum value exceeded	Zerofuel calibration injector 3 (in firing order); minimum value exceeded
1161		0	7-7-2	Zerofuel calibration injector 4 (in firing order); maximum value exceeded	Zerofuel calibration injector 4 (in firing order); maximum value exceeded
1167		1	7-7-2	Zerofuel calibration injector 4 (in firing order); minimum value exceeded	Zerofuel calibration injector 4 (in firing order); minimum value exceeded
1162		0	7-7-2	Zerofuel calibration injector 5 (in firing order); maximum value exceeded	Zerofuel calibration injector 5 (in firing order); maximum value exceeded

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
1168		1	7-7-2	Zerofuel calibration injector 5 (in firing order); minimum value exceeded	Zerofuel calibration injector 5 (in firing order); minimum value exceeded
1163		0	7-7-2	Zerofuel calibration injector 6 (in firing order); maximum value exceeded	Zerofuel calibration injector 6 (in firing order); maximum value exceeded
1169		1	7-7-2	Zerofuel calibration injector 6 (in firing order); minimum value exceeded	Zerofuel calibration injector 6 (in firing order); minimum value exceeded
1011		0	7-7-1	EGR cooler downstream temperature; out of range, system reaction initiated	Physical range check high for EGR cooler downstream temperature
1458		0	7-7-1	Exhaust gas temperature EGR downstream; out of range, system reaction initiated	High exhaust gas temperature EGR cooler downstream; warning threshold exceeded
1012		1	7-7-1	EGR cooler downstream temperature; out of range, system reaction initiated	Physical range check low for EGR cooler downstream temperature
1459		1	7-7-1	Exhaust gas temperature EGR downstream; out of range, system reaction initiated	High exhaust gas temperature EGR cooler downstream; shut off threshold exceeded
1013		11	7-7-1	Sensor exhaust gas temperature Venturiunit (EGR); plausibility error	Sensor exhaust gas temperature Venturiunit (EGR); plausibility error
1173		14	7-7-9	SCR Tamper detection; derating timer below limit 1	SCR Tamper detection; derating timer below limit 1
1174		14	7-7-9	SCR Tamper detection; derating timer below limit 2	SCR Tamper detection; derating timer below limit 2
1175		14	7-8-0	Urea quality; derating timer below limit 1	Urea quality; derating timer below limit 1
1176		14	7-8-0	Urea qulaity; derating timer below limit 2	Urea qulaity; derating timer below limit 2
1177		14	7-8-1	Urea tank level; derating timer below limit 1	Urea tank level; derating timer below limit 1
1178		14	7-8-1	Urea tank level; derating timer below limit 2	Urea tank level; derating timer below limit 2
1187		14	7-8-4	Bad quality of reduction agent detected	Bad quality of reduction agent detected
918		11		Urea-tank without heating function (heating phase)	Urea-tank without heating function (heating phase)
360		0	7-3-7	Powerstage diagnosis disabled; high battery voltage	Powerstage diagnosis disabled; high battery voltage
361		1	7-3-7	Powerstage diagnosis disabled; low battery voltage	Powerstage diagnosis disabled; low battery voltage
1239		3	7-8-8	UB6; Short circuit to battery error of actuator relay 6	UB6; Short circuit to battery error of actuator relay 7
1240		3	7-8-9	UB7; Short circuit to battery error of actuator relay 7	UB7; Short circuit to battery error of actuator relay 8
1245		3	7-9-2	Charging lamp; short circuit to battery	Charging lamp; short circuit to battery
1246		4	7-9-2	Charging lamp; short circuit to ground	Charging lamp; short circuit to ground
1243		5	7-9-2	Charging lamp; open load	Charging lamp; open load
1244		12	7-9-2	Charging lamp; over temperature	Charging lamp; over temperature

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
1267		0	7-2-4	Fuel Balance Control integrator injector 7 (in firing order); maximum value exceeded	Fuel Balance Control integrator injector 7 (in firing order); maximum value exceeded
1269		1	7-2-4	Fuel Balance Control integrator injector 7 (in firing order); minimum value exceeded	Fuel Balance Control integrator injector 7 (in firing order); minimum value exceeded
1268		0	7-2-4	Fuel Balance Control integrator injector 8 (in firing order); maximum value exceeded	Fuel Balance Control integrator injector 8 (in firing order); maximum value exceeded
1270		1	7-2-4	Fuel Balance Control integrator injector 8 (in firing order); minimum value exceeded	Fuel Balance Control integrator injector 8 (in firing order); minimum value exceeded
1279		9		Timeout Error of CAN-Receive-Frame DM19Vol1; NOX sensor upstream	Timeout Error of CAN-Receive-Frame DM19Vol1; NOX sensor upstream
1283		9		Timeout Error of CAN-Receive-Frame DM19Vol2; NOX sensor downstream	Timeout Error of CAN-Receive-Frame DM19Vol2; NOX sensor downstream
1324		13	7-9-5	check of missing injector adjustment value programming (IMA) injector 7 (in firing order)	check of missing injector adjustment value programming (IMA) injector 7 (in firing order)
1325		13	7-9-6	check of missing injector adjustment value programming (IMA) injector 8 (in firing order)	check of missing injector adjustment value programming (IMA) injector 8 (in firing order)
1327		4	7-9-8	Injector cylinder bank 2 slave; short circuit	Injector cylinder bank 2 slave; short circuit
1328		12	7-9-9	Injector powerstage output Slave defect	Injector powerstage output Slave defect
1333		3	8-0-0	Injector 7 (in firing order); short circuit	Injector 7 (in firing order); short circuit
1335		4	8-0-0	High side to low side short circuit in the injector 7 (in firing order)	High side to low side short circuit in the injector 7 (in firing order)
1329		5	8-0-0	Injector 7 (in firing order); interruption of electric connection	Injector 7 (in firing order); interruption of electric connection
1334		3	8-0-1	Injector 8 (in firing order); short circuit	Injector 8 (in firing order); short circuit
1336		4	8-0-1	High side to low side short circuit in the injector 8 (in firing order)	High side to low side short circuit in the injector 8 (in firing order)
1330		5	8-0-1	Injector 8 (in firing order); interruption of electric connection	Injector 8 (in firing order); interruption of electric connection
1343		12	8-0-4	Too many recognized misfires in cylinder 7 (in firing order)	Too many recognized misfires in cylinder 7 (in firing order)
1344		12	8-0-5	Too many recognized misfires in cylinder 8 (in firing order)	Too many recognized misfires in cylinder 8 (in firing order)
1419		0	7-7-2	Zerofuel calibration injector 7 (in firing order); maximum value exceeded	Zerofuel calibration injector 7 (in firing order); maximum value exceeded
1421		1	7-7-2	Zerofuel calibration injector 7 (in firing order); minimum value exceeded	Zerofuel calibration injector 7 (in firing order); minimum value exceeded
1420		0	7-7-2	Zerofuel calibration injector 8 (in firing order); maximum value exceeded	Zerofuel calibration injector 8 (in firing order); maximum value exceeded

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
1422		1	7-7-2	Zerofuel calibration injector 8 (in firing order); minimum value exceeded	Zerofuel calibration injector 8 (in firing order); minimum value exceeded
56		7	8-5-6	Burner operation disturbed	Burner flame unintentional deleted
1255		7	8-5-7	Burner operation disturbed	Burner operation is interrupted too often
1254		1	8-5-8	Air pressure glow plug flush line; below limit	Air pressure glow plug flush line; below limit
1259		2	8-5-9	Air Pump; air flow is not plausible	Amount of air is not plausible to pump speed
1260		2	8-5-9	Air Pump; air flow is not plausible	Calculated amount of air is not plausible to HFM reading
1258		11	8-5-9	HFM sensor; electrical fault	HFM sensor; electrical fault
1265		12	8-6-0	Spark plug control unit (SPCU); internal error	Spark plug control unit (SPCU); electrical fault
1266		12	8-6-1	Spark plug control unit (SPCU); internal error	Spark plug control unit (SPCU); internal error
1219		14	7-8-6	DPF wasn´t regenerated, power reduction phase 1 (manuell regeneration request)	DPF wasn´t regenerated, power reduction phase 1 (manuell regeneration request)
1247		11	8-6-2	Air Pump; air lines blocked	Air Pump; air lines blocked
57		14	8-6-3	Engine power; Not enough oxygen for regeneration	Engine power; Not enough oxygen for regeneration
1263		11	8-6-4	Burner fuel line pipe leak behind Shut Off Valve	Burner fuel line pipe leak behind Shut Off Valve
1220		14	7-8-6	DPF wasn´t regenerated, power reduction phase 2 (manuell regeneration request)	DPF wasn´t regenerated, power reduction phase 2 (manuell regeneration request)
1221		14	7-8-6	DPF wasn´t regenerated, warning condition (manuell regeneration mode)	DPF wasn´t regenerated, warning condition (manuell regeneration mode)
1302		11	8-6-6	Deviation of the exhaust gas temperature setpoint to actual value downstream (DOC) too high	Deviation of the exhaust gas temperature setpoint to actual value downstream (DOC) too high
1481		5		DPF system; operating voltage error	DPF system; operating voltage error
805		14		Particulate filter; regeneration not succesful	Particulate filter; regeneration not succesful
1431		2	8-1-5	CAN message PROEGRActr; plausibility error	CAN message PROEGRActr; plausibility error
1432		2	8-1-5	Timeout Error of CAN-Receive-Frame ComEGRActr - exhaust gas recirculation positioner	Timeout Error of CAN-Receive-Frame ComEGRActr - exhaust gas recirculation positioner
1440		7		EGR actuator; internal error	EGR actuator; internal error
1441		13		EGR actuator; calibration error	EGR actuator; calibration error
1442		2		EGR actuator; status message "EGRCust" is missing	EGR actuator; status message "EGRCust" is missing

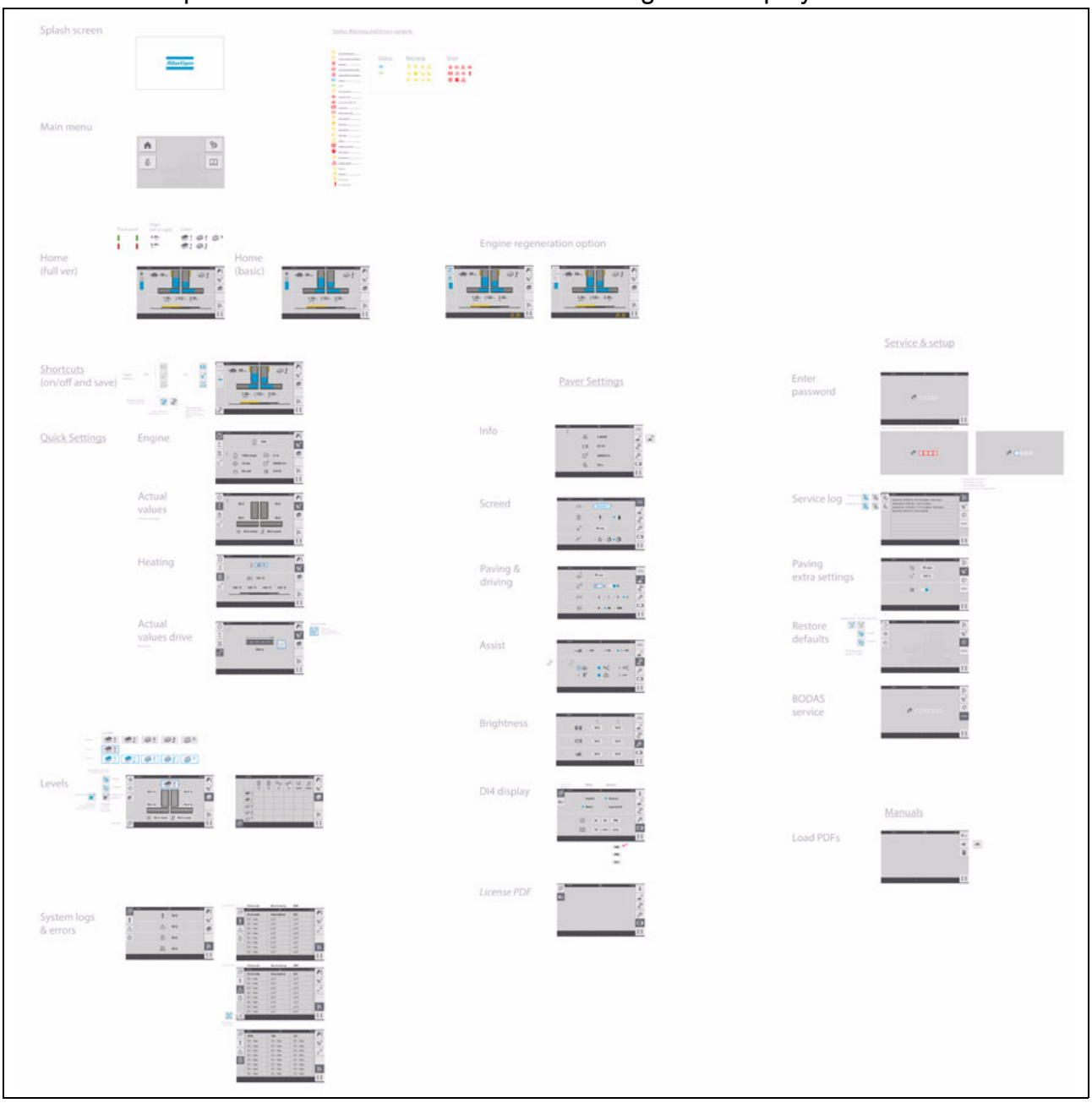
KWP	SPN	FMI	Code	Error Identification	Short Text Detail
1443		7		EGR actuator; due to overload in Save Mode	EGR actuator; due to overload in Save Mode
1438		3	8-1-6	Disc separator; short circuit to battery	Disc separator; short circuit to battery
1439		4	8-1-6	Disc separator; short circuit to ground	Disc separator; short circuit to ground
1436		5	8-1-6	Disc Separator; open load	Disc Separator; open load
1437		12	8-1-6	Disc Separator; powerstage over temperature	Disc Separator; powerstage over temperature
1341		12	5-5-5	Injector diagnostics; time out error in the SPI communication	Injector diagnostics; time out error in the SPI communication
1342		12		Injector diagnostics Slave; time out error in the SPI communication	Injector diagnostics Slave; time out error in the SPI communication
1477		3		Ashlamp; short circuit to battery	Ashlamp; short circuit to battery
1478		4		Ashlamp; short circuit to ground	Ashlamp; short circuit to ground
1474		5		Ashlamp; open load	Ashlamp; open load
1285		9		Timeout error of CAN-Receive-Frame ComMS_Sys1TO (error memory Slave); Master-Slave internal CAN message	Timeout error of CAN-Receive-Frame ComMS_Sys1TO (error memory Slave); Master-Slave internal CAN message
1286		9		Timeout error of CAN-Receive-Frame ComMS_Sys2TO (error memory Slave); Master-Slave internal CAN message	Timeout error of CAN-Receive-Frame ComMS_Sys2TO (error memory Slave); Master-Slave internal CAN message
1287		9		Timeout error of CAN-Receive-Frame ComMS_Sys3TO (error memory Slave); Master-Slave internal CAN message	Timeout error of CAN-Receive-Frame ComMS_Sys3TO (error memory Slave); Master-Slave internal CAN message
1288		9		Timeout error of CAN-Receive-Frame ComMS_Sys4TO (error memory Slave); Master-Slave internal CAN message	Timeout error of CAN-Receive-Frame ComMS_Sys4TO (error memory Slave); Master-Slave internal CAN message
1289		9		Timeout error of CAN-Receive-Frame ComMS_Sys5TO (error memory Slave); Master-Slave internal CAN message	Timeout error of CAN-Receive-Frame ComMS_Sys5TO (error memory Slave); Master-Slave internal CAN message
1290		9		Timeout error of CAN-Receive-Frame ComMS_Sys6TO (error memory Slave); Master-Slave internal CAN message	Timeout error of CAN-Receive-Frame ComMS_Sys6TO (error memory Slave); Master-Slave internal CAN message
1482		9		CAN message ComMS_Sys7 not received from slave	CAN message ComMS_Sys7 not received from slave
1291		9		Master-Slave CAN; Message-Counter-Error of CAN-Receive-Frame ComMSMoFOvR	Master-Slave CAN; Message-Counter-Error of CAN-Receive-Frame ComMSMoFOvR
1292		9		Master-Slave CAN; Checksum-Error of CAN-Receive-Frame ComMSMoFOvR	Master-Slave CAN; Checksum-Error of CAN-Receive-Frame ComMSMoFOvR
1293		9		Master-Slave CAN; Messsage-Length-Error of CAN-Receive-Frame ComMSMoFOvR	Master-Slave CAN; Messsage-Length-Error of CAN-Receive-Frame ComMSMoFOvR
1294		9		Timeout error CAN message ComMSMoFOvR1TO error memory Slave	Timeout error CAN message ComMSMoFOvR1TO error memory Slave

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
1295		9		Message copy error in the Master / Slave data transfer	Message copy error in the Master / Slave data transfer
1357		11		MS ECU reported internal error	Error memory Slave reports FID MSMonFC2; Shut-Off Path test error of fuel injection system
1368		11		MS ECU reported internal error	Error memory Slave reports FID MSMonFC3; timeout of engine state messages (ComMS_Sys1- 7) from master ECU
1485		11		MS ECU reported internal error	Master ECU and Slave ECU data sets or software are not identical
1457		4		Spark Plug Control Unit (SPCU); short circuit to ground	Spark Plug Control Unit (SPCU); short circuit to ground
1505		2		Electric fuel pump; fuel pressure build up error	Electric fuel pump; fuel pressure build up error
1479		12		EAT-system HMI disrupted	Regeneration inhibit switch not available; ComInhSwtNA
1480		12		EAT-system HMI disrupted	Regeneration release switch not available; ComRegSwtNA
1484		2		Master ECU and Slave ECU have been identified as the same types	Master ECU and Slave ECU have been identified as the same types
1345		9		Timeout Error of CAN-Receive-Frame MSMon_FidFCCTO; Master-Slave CAN communication faulty	Timeout Error of CAN-Receive-Frame MSMon_FidFCCTO; Master-Slave CAN communication faulty
1663		9		Timeout error of CAN-Transmit-Frame DPFBrnAirPmpCtl	Timeout error of CAN-Transmit-Frame DPFBrnAirPmpCtl
1664		9		Timeout error of CAN-Transmit-Frame ComDPFBrnPT	Timeout error of CAN-Transmit-Frame ComDPFBrnPT
1665		9		Timeout error of CAN-Transmit-Frame ComDPFC0	Timeout error of CAN-Transmit-Frame ComDPFC1
1666		9		Timeout error of CAN-Transmit-Frame ComDPFHisDat	Timeout error of CAN-Transmit-Frame ComDPFHisDat
1667		9		Timeout error of CAN-Transmit-Frame ComDPFTstMon	Timeout error of CAN-Transmit-Frame ComDPFTstMon
1674		9		Timeout error of CAN-Receive-Frame ComRxDPFBrnAirPmpCtl	Timeout error of CAN-Receive-Frame ComRxDPFBrnAirPmpCtl
1675		9		Timeout error of CAN-Receive-Frame ComRxDPFBrnAirPmp	Timeout error of CAN-Receive-Frame ComRxDPFBrnAirPmp
1676		9		Timeout error of CAN-Receive-Frame ComRxDPFCtl	Timeout error of CAN-Receive-Frame ComRxDPFCtl
1668		9		Timeout error of CAN-Transmit-Frame ComEGRMsFlw	Timeout error of CAN-Transmit-Frame ComEGRMsFlw
1677		9		Timeout error of CAN-Receive-Frame ComRxEGRMsFlw1	Timeout error of CAN-Receive-Frame ComRxEGRMsFlw1
1678		9		Timeout error of CAN-Receive-Frame ComRxEGRMsFlw2	Timeout error of CAN-Receive-Frame ComRxEGRMsFlw2

KWP	SPN	FMI	Code	Error Identification	Short Text Detail
1669		9		Timeout error of CAN-Transmit-Frame ComEGRTVActr	Timeout error of CAN-Transmit-Frame ComE-GRTVActr
1679		9		Timeout error of CAN-Receive-Frame ComRxEGRTVActr	Timeout error of CAN-Receive-Frame ComRx-EGRTVActr
1670		9		Timeout error of CAN-Transmit-Frame ComETVActr	Timeout error of CAN-Transmit-Frame ComET-VActr
1680		9		Timeout error of CAN-Receive-Frame ComRxETVActr	Timeout error of CAN-Receive-Frame ComRx-ETVActr
1671		9		Timeout ComITVActr	Timeout ComITVActr
1681		9		Timeout error of CAN-Receive-Frame ComRxITVActr	Timeout error of CAN-Receive-Frame ComRx-ITVActr
1659		9		Timeout error of CAN-Transmit-Frame A1DOC	Timeout error of CAN-Transmit-Frame A1DOC
1660		9		Timeout error of CAN-Transmit-Frame AT1S	Timeout error of CAN-Transmit-Frame AT1S
1661		9		Timeout error of CAN-Transmit-Frame SCR2	Timeout error of CAN-Transmit-Frame SCR2
1662		9		Timeout error of CAN-Transmit-Frame SCR3	Timeout error of CAN-Transmit-Frame SCR3
1672		9		Timeout error of CAN-Receive-Frame ComRxCM0	Timeout error of CAN-Receive-Frame ComRxCM1
1673		9		Timeout error of CAN-Receive-Frame ComRxCustSCR2	Timeout error of CAN-Receive-Frame ComRxCustSCR3
1682		9		Timeout error of CAN-Receive-Frame ComRxSCRHtDiag	Timeout error of CAN-Receive-Frame ComRx-SCRHtDiag
1683		9		Timeout error of CAN-Receive-Frame ComRxTrbChActr	Timeout error of CAN-Receive-Frame ComRx-TrbChActr
1684		9		Timeout error of CAN-Receive-Frame ComRxUQSens	Timeout error of CAN-Receive-Frame ComRx-UQSens

3 Menu structure of the setting and display menus

The following illustration shows the menu structure and serves to simplify operation and the procedure in the case of various settings and displays.



D 30.18 Operation

1 Operating elements on the paver finisher

1.1 Control elements on the operator's control station

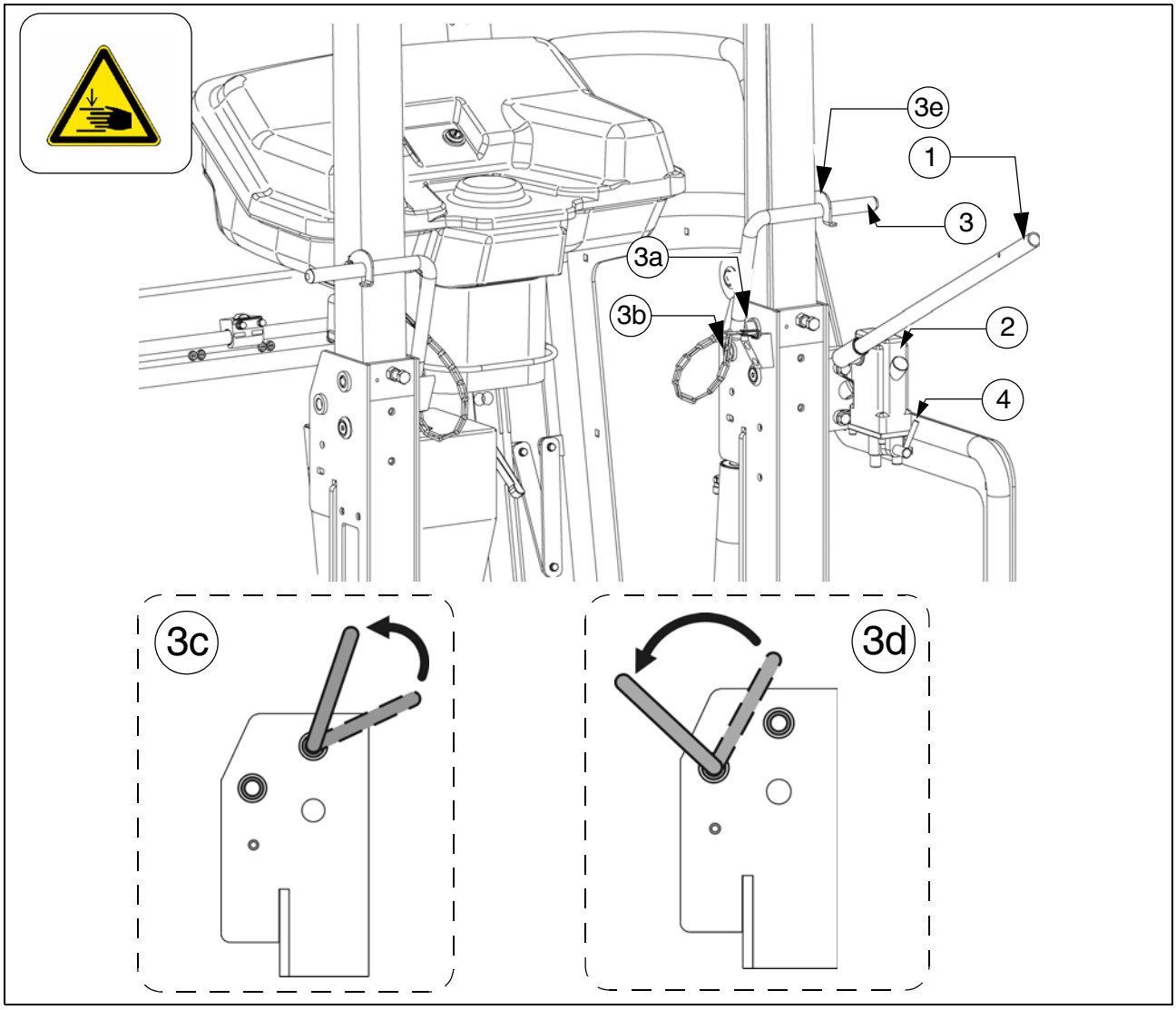
⚠ WARNING	**Danger of falling from the vehicle**
	Entering and leaving the vehicle and the driver's seat during operation poses a risk of falling from the vehicle, which can cause severe to fatal injuries! - During operation, the operator must be at the intended driver's seat and be seated properly. - Never jump onto or off a moving vehicle. - Keep accessible surfaces free of any soiling, e.g. operating substances, to avoid the risk of slipping. - Use the steps provided and hold onto the handrail with both hands. - Comply with all further information in these instructions and in the safety manual.

Protective roof (○)

NOTE	Caution! Possible collision of parts
	The following adjustments must be made before lowering the roof: - Both seat consoles pushed in. - Backrests and armrests of driver's seats tilted forwards. - Operating panel in lowest position and locked with the vandalism protection facility. - Front window closed. - Engine hood closed.

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

Version 1:



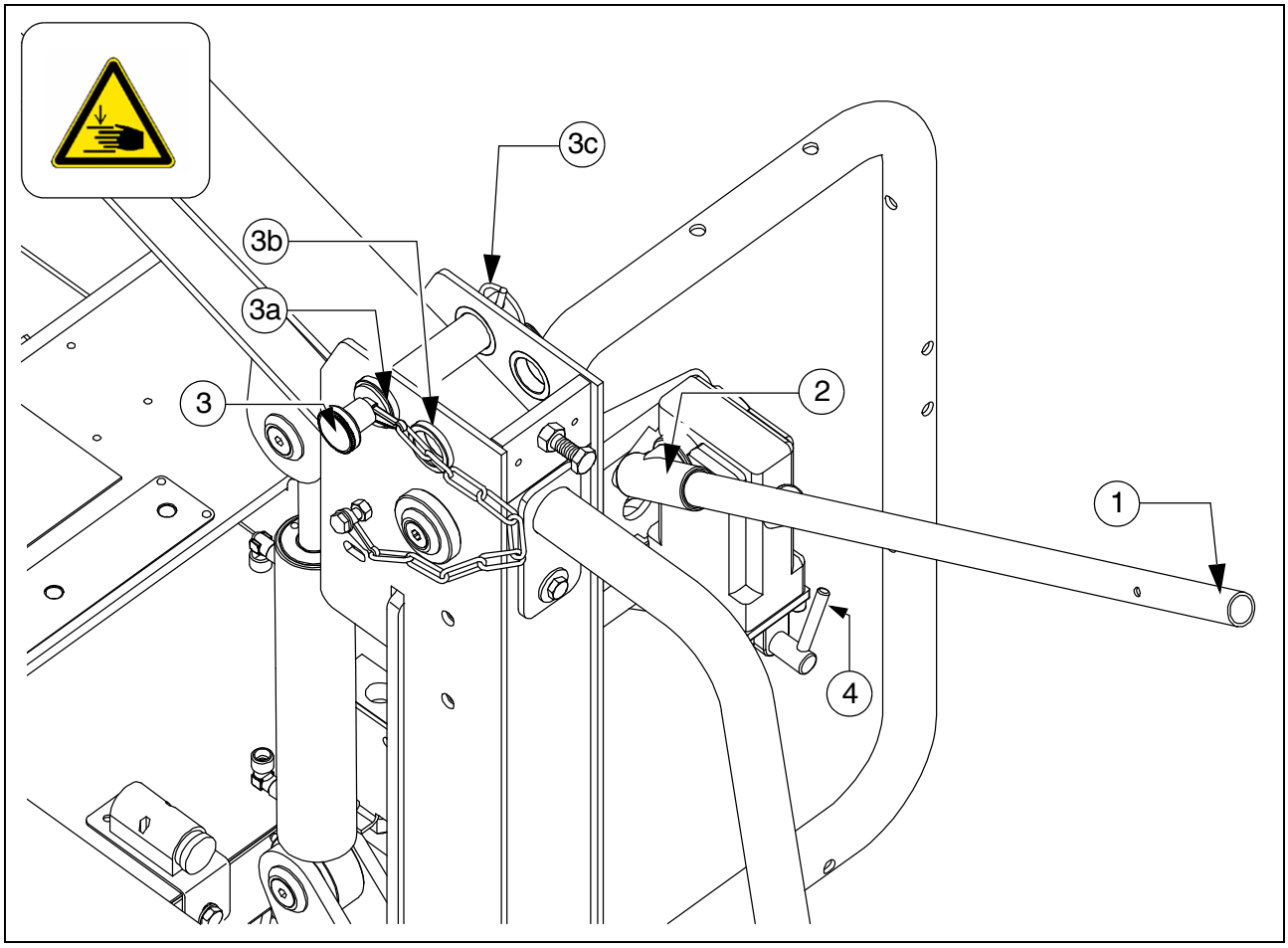
☞ The exhaust pipe is lowered or raised together with the roof.

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

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

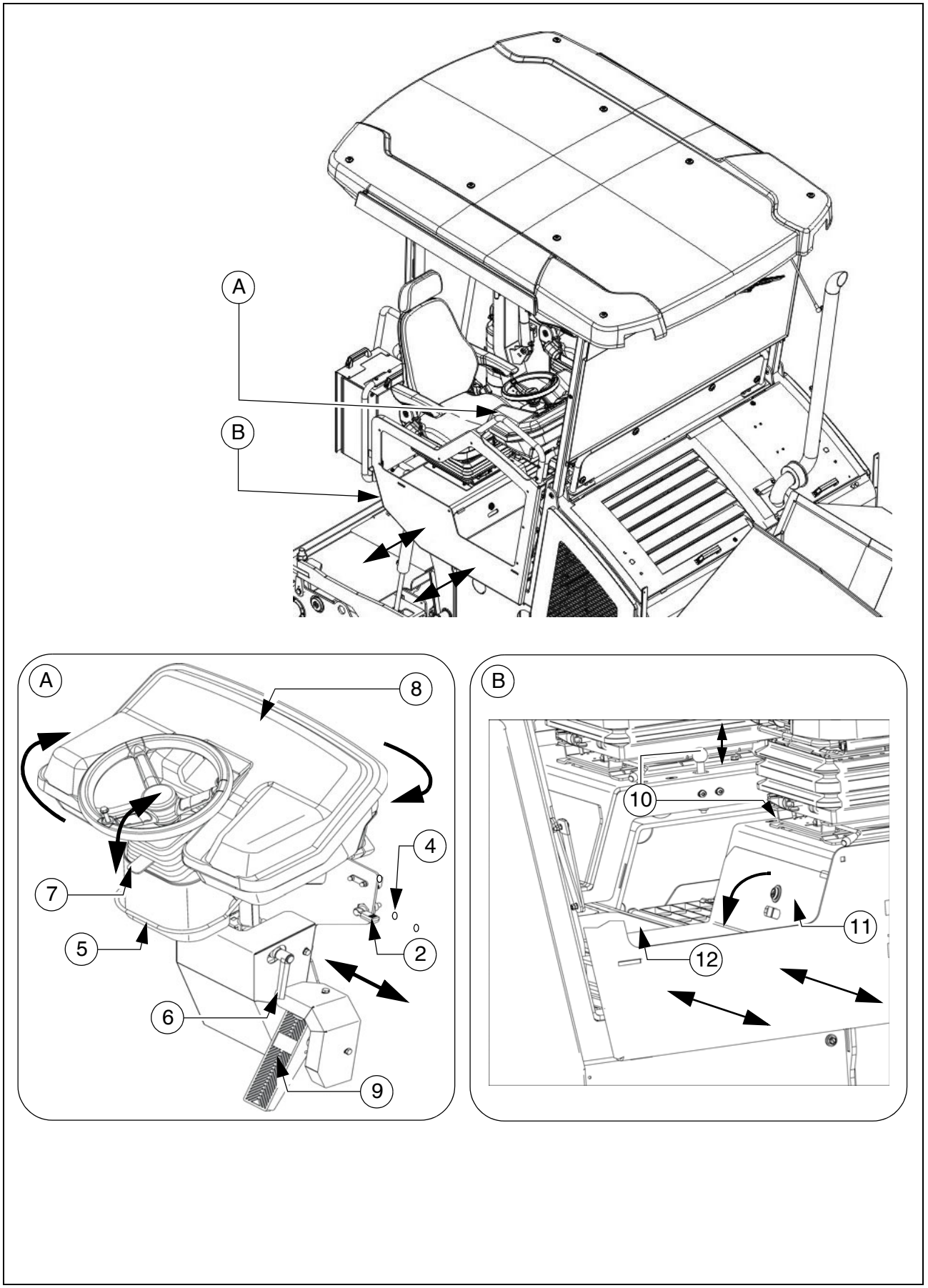
- Position (3c): Roof raised.
- Position (3d): Roof lowered.
- Secure bolt with hook (3e)

Version 2:



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

Control platform, telescoping seat consoles



Operating panel

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

⚠ Make sure it is latched properly!

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

Pushing the operating panel:

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

Swivelling the operating panel:

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

Raise/lower the operating panel:

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

Steering wheel, inclination adjustment (○):

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

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

Service brake ("foot brake") (○)

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

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

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

Seat console

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

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

⚠ Make sure it is latched properly!

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

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

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

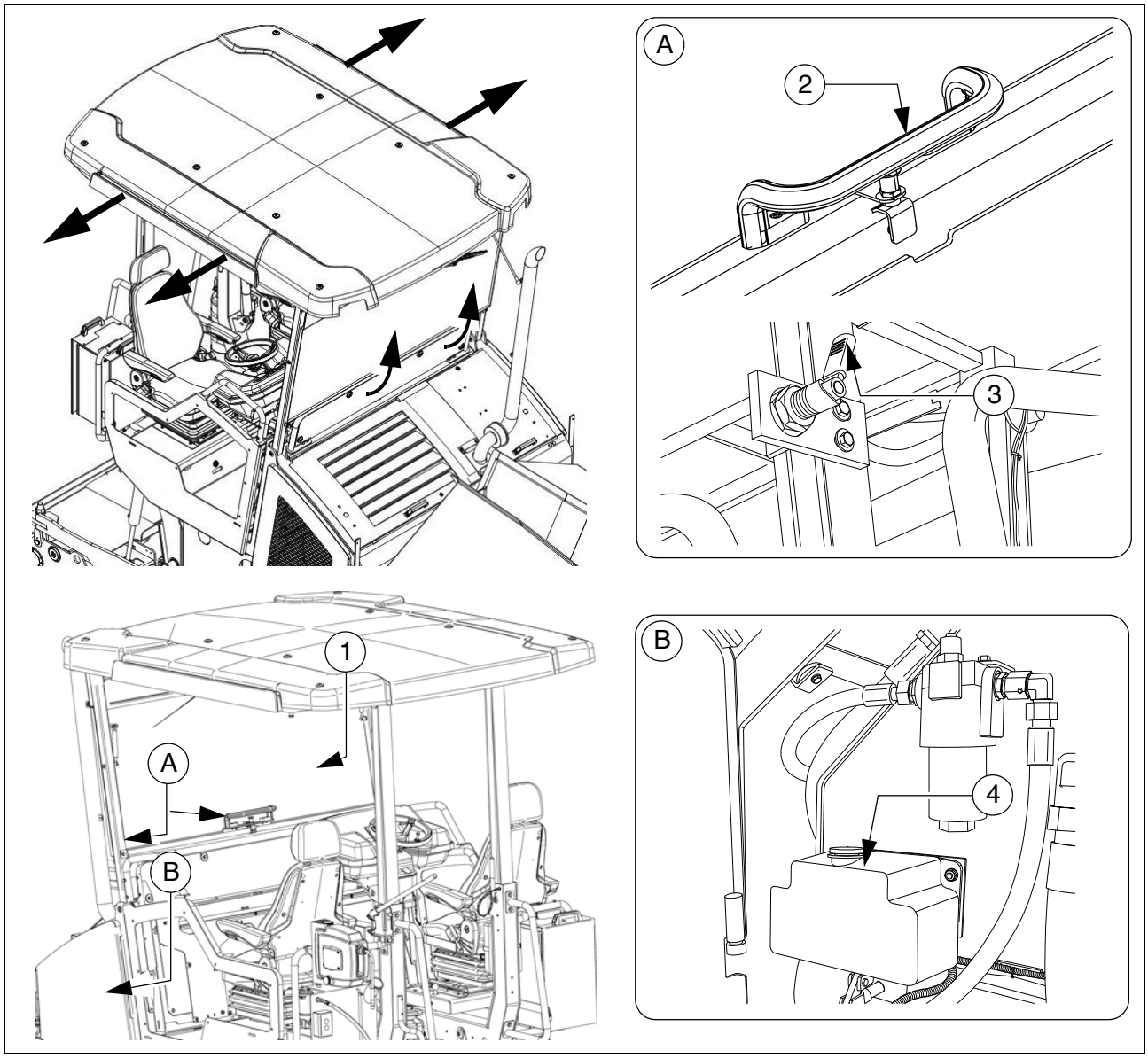
STOP During transportation in road traffic and when transporting the vehicle on transporters, the seat consoles must be secured in the retracted position!

Storage space

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

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

Protective roof (○)



CAUTION	Risk of crushing hands
	When closing the spring-loaded front window, there is a risk of crushing which can cause injuries! - Do not reach into the danger zone. - Set the latches correctly. - Comply with further instructions in the safety manual.

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

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

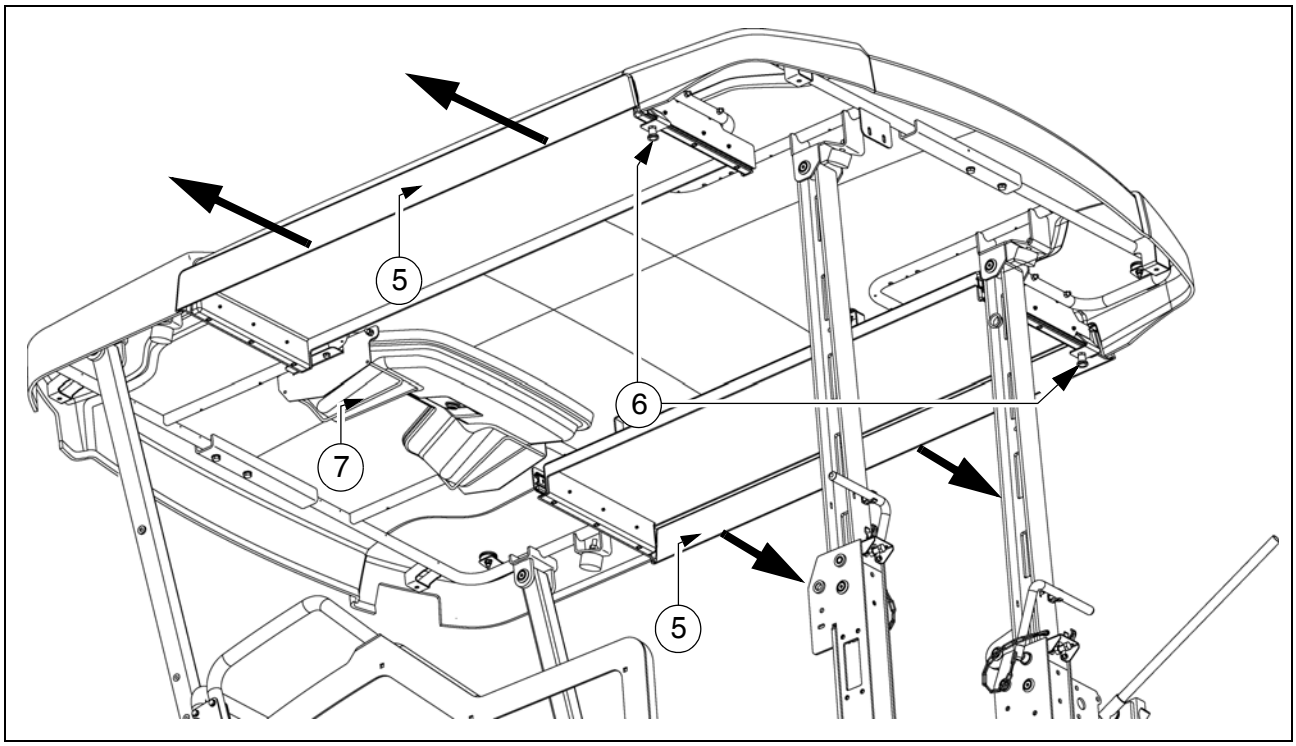
Windscreen wiper

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

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

⚠ Replace worn wiper blades immediately.

Sunshade



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

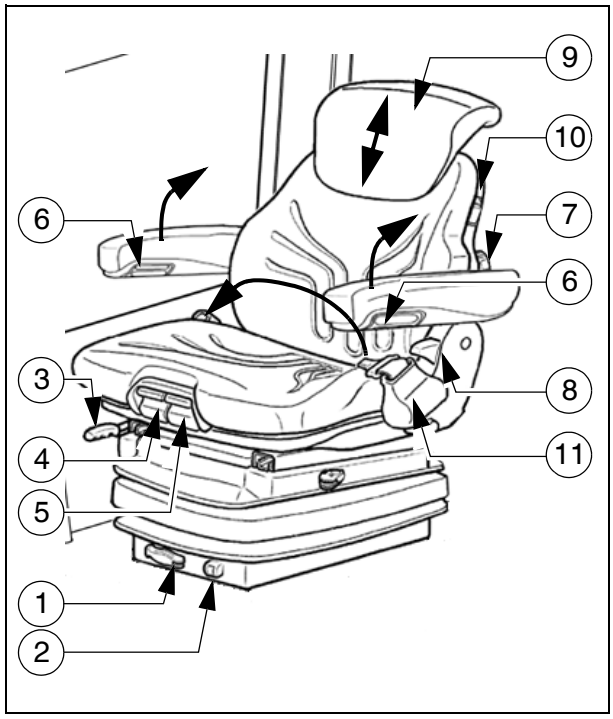
- Pull the latch (6) and extend the sunshade. Set the latches in one of the intended detent positions.

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

Holder for the vandalism protection facility

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

Driver's seat, type I



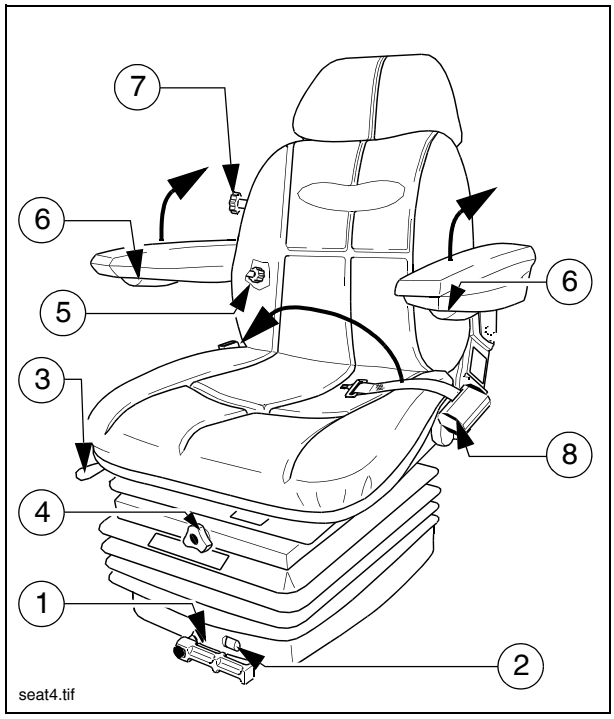
To avoid damage to health, the individual seat settings should be checked and adjusted before starting the vehicle.

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

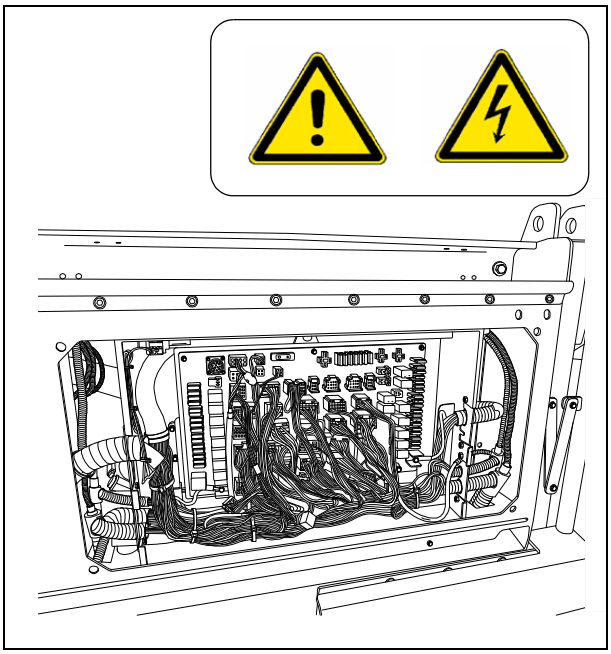
- **Weight setting (1):** The relevant driver's weight should be set by turning the weight adjustment lever when the driver's seat is unoccupied.
- **Weight indicator (2):** The set driver's weight can be read off at the viewing window.
- **Longitudinal adjustment (3):** Longitudinal adjustment is released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

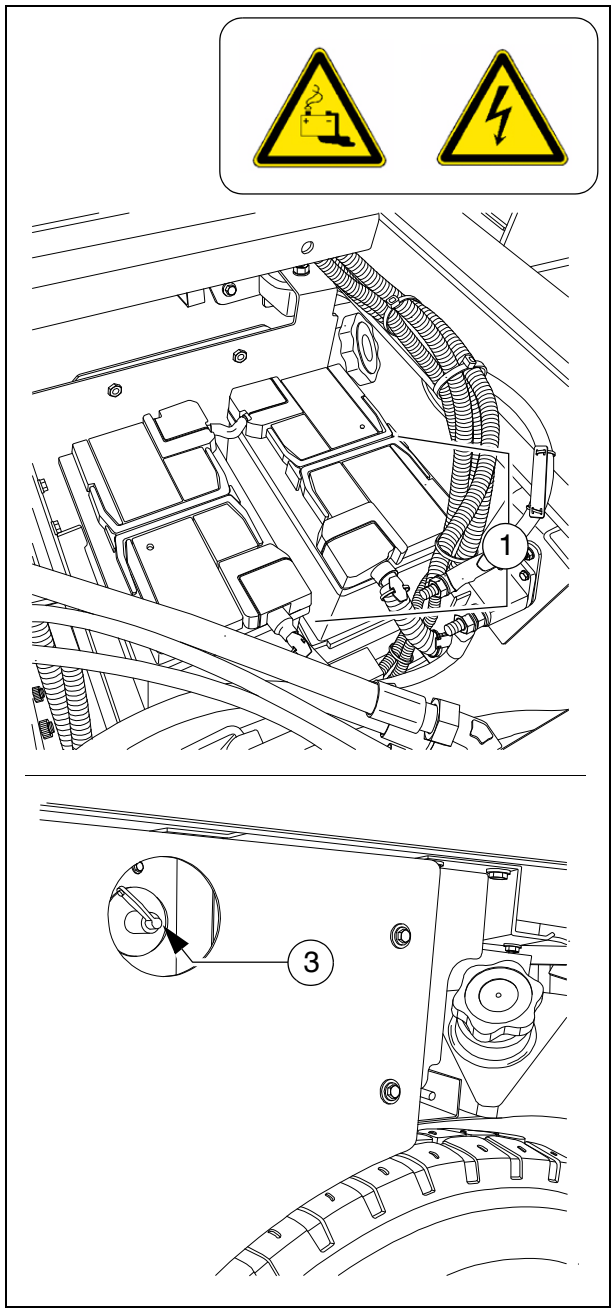
Main battery switch

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

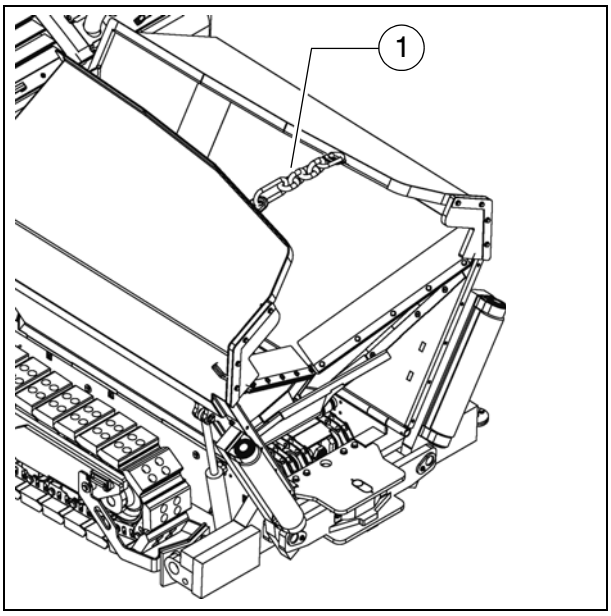
☞ For the assignment of all fuses, see chapter F.

- 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

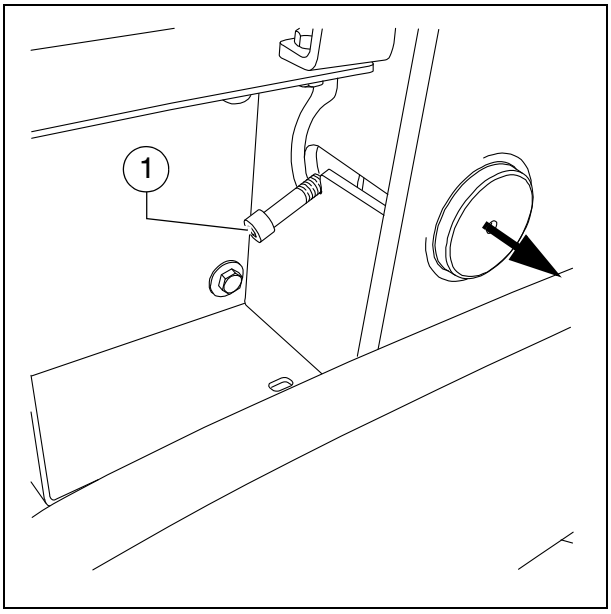


Before parking or transporting the paver finisher, the hopper lids must be swung upwards and the transport safeguards for the hopper must be inserted.

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

STOP Do not enter the hopper while the engine is running! Danger of being caught by the conveyor!
Without transport safeguards inserted, the hopper halves will slowly open; danger during transportation!

Screed lock, mechanical (○)



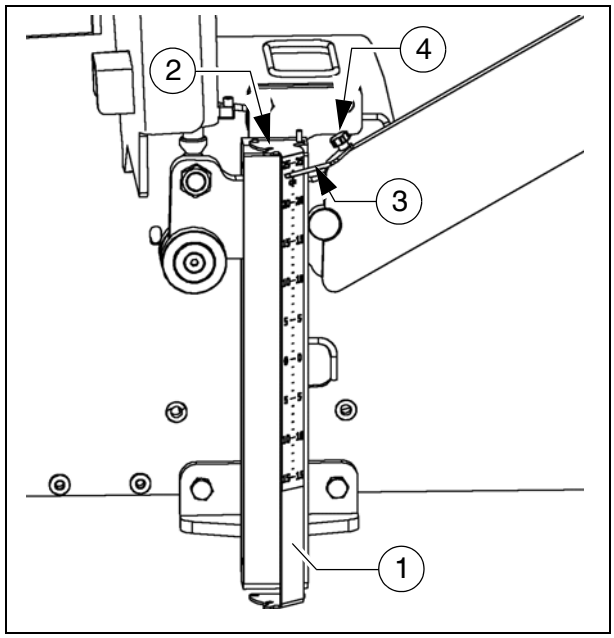
☞ The screed locks must additionally be engaged on both sides of the vehicle prior to transportation with the screed lifted.

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 crossbeam lock only at crown adjustment "zero"!
Crossbeam lock only for transportation!
Do not charge the screed or work under it if it is only secured by the crossbeam lock!
Danger of accidents!

Paving thickness indicator



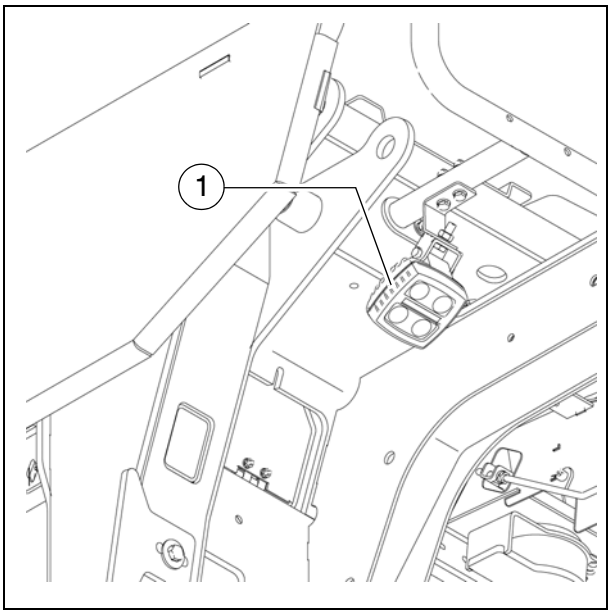
Two scales, on which the currently set paving thickness can be read off, are located on the left and right sides of the vehicle.

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

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

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

Auger lighting (○)

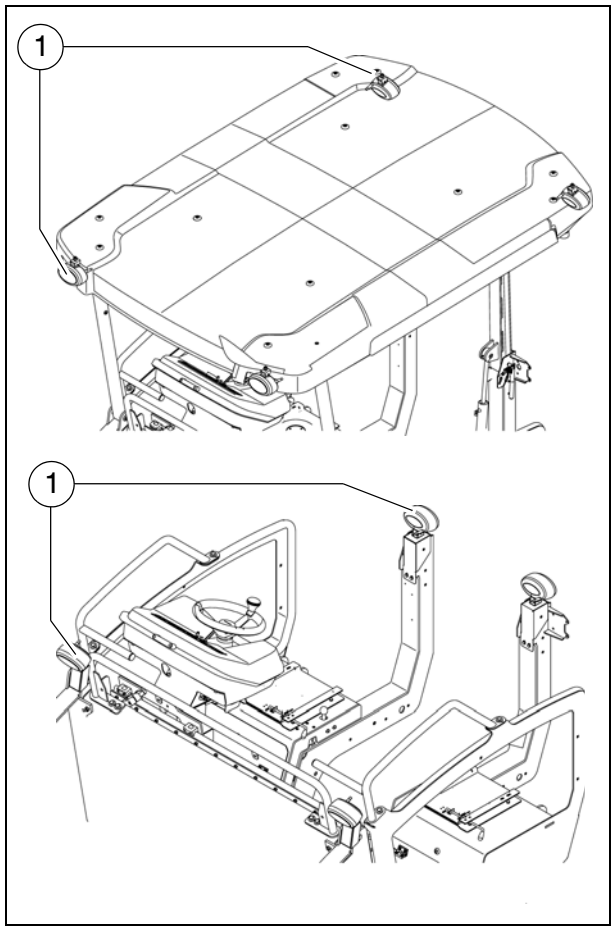


☞ Two swivelling headlights (1) are located at the back of the vehicle for illuminating the auger compartment.

- They are engaged together with the working lights.

LED working light (○)

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



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

Mechanical height adjustment, auger (○)

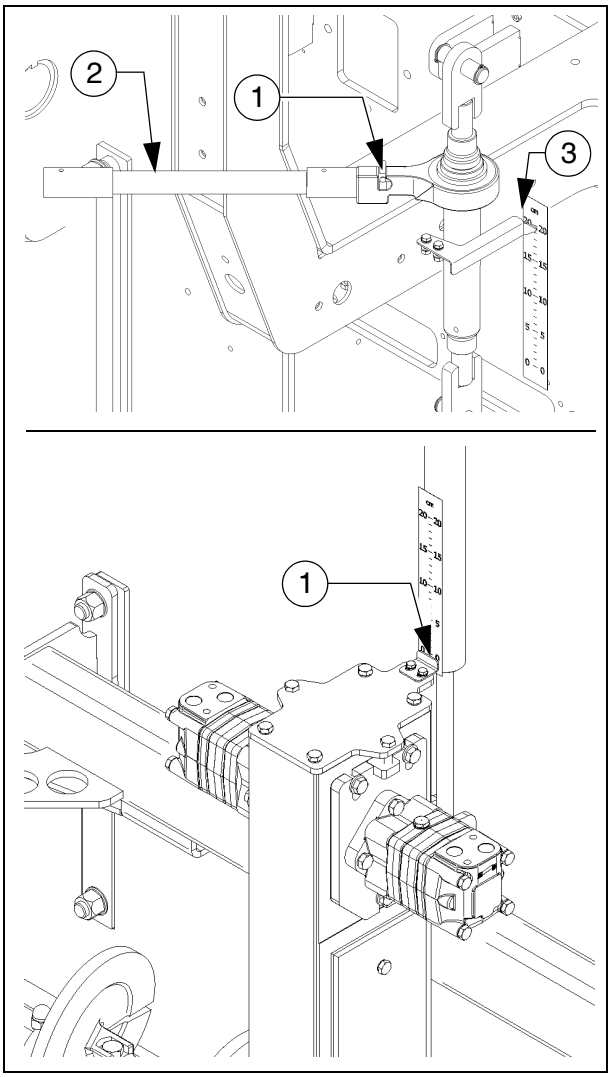
For mechanical adjustment of the auger height

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

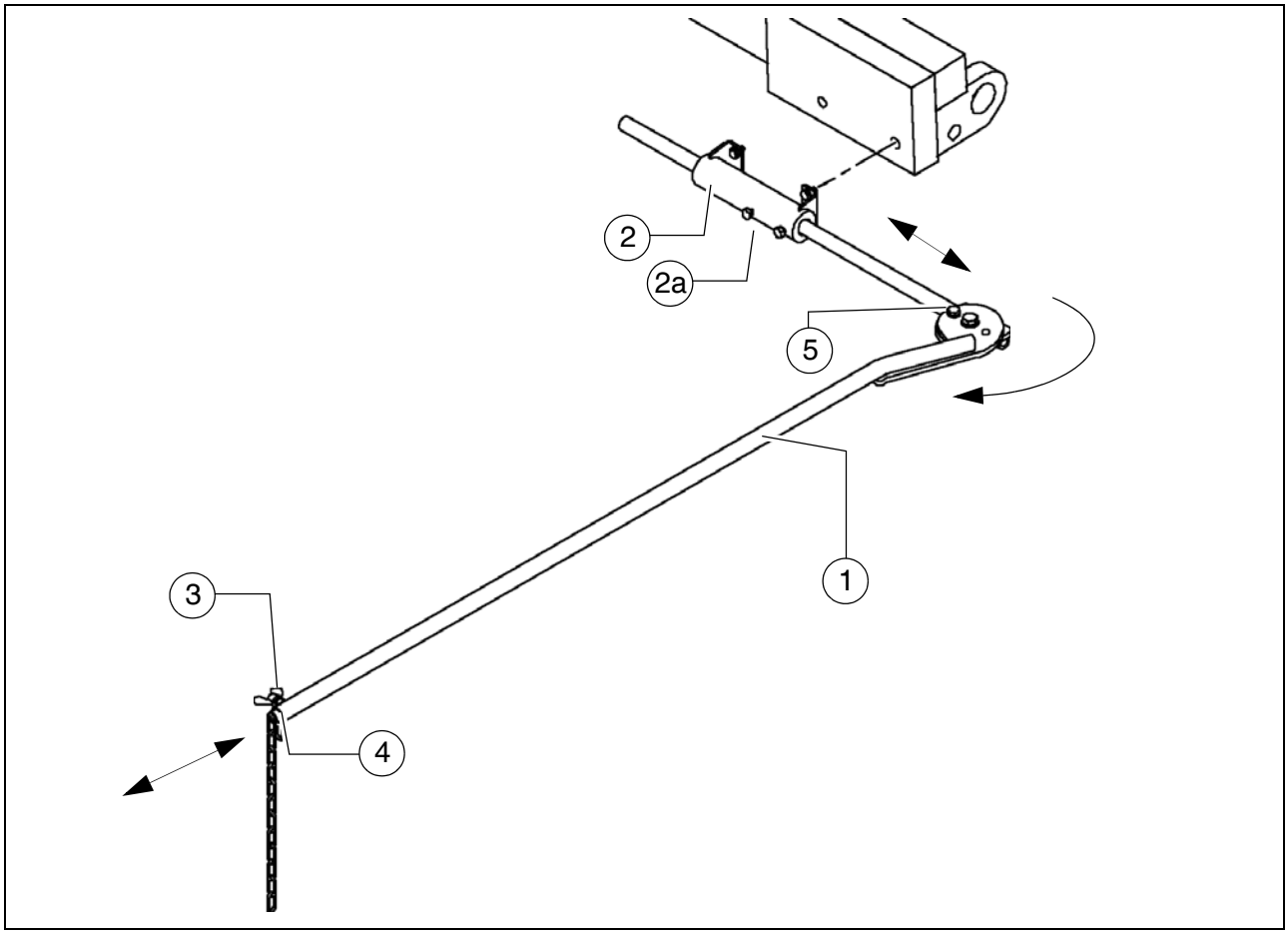
Hydraulic height adjustment:

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

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



Sensor rod / sensor rod extension



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

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

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

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

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

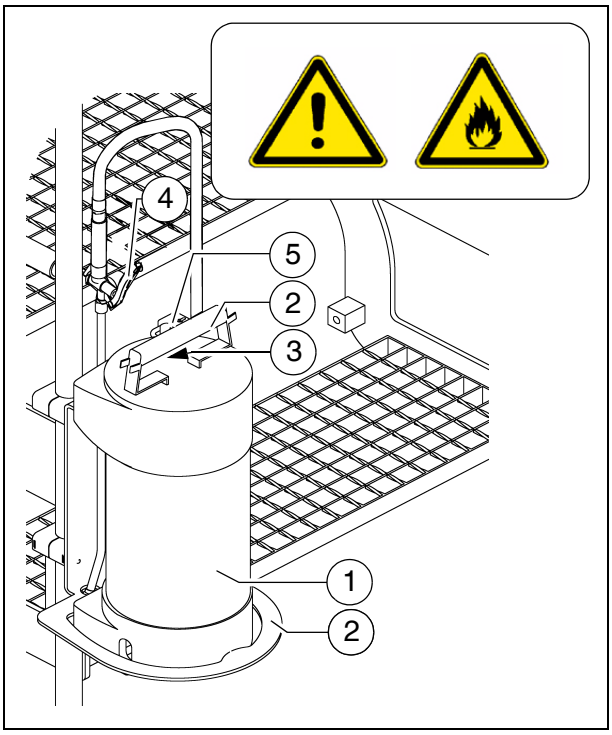
⚠ Tighten all assembly parts properly after setting up!

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

Manual separator fluid spray (○)

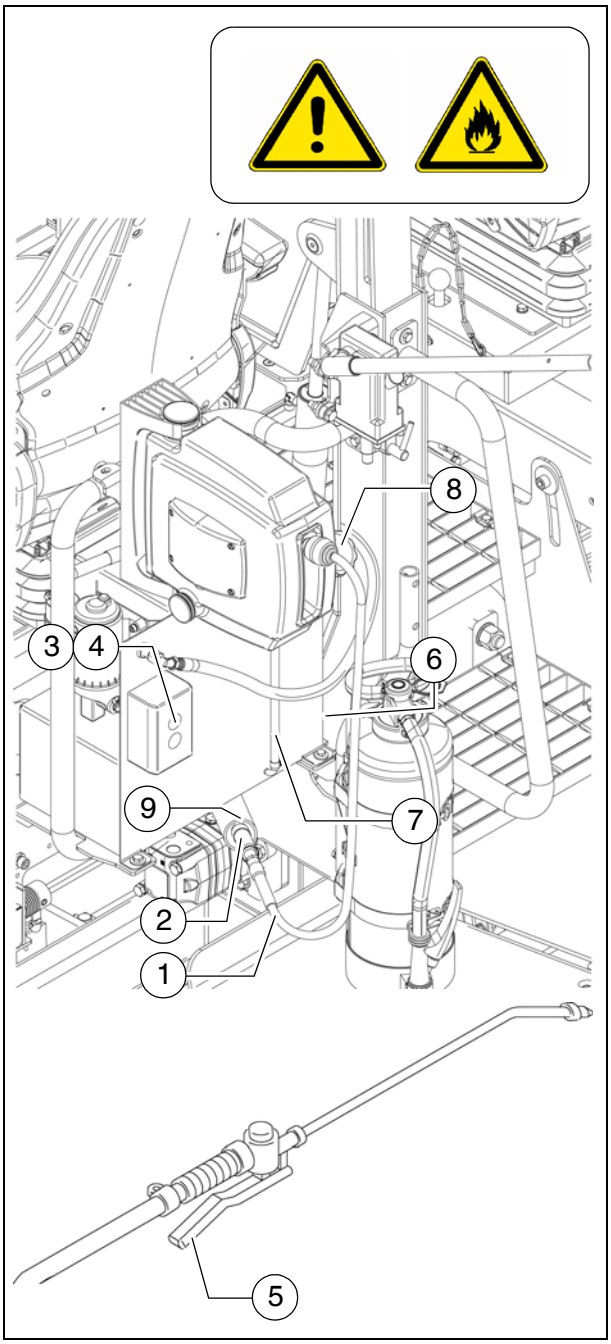
Used to spray the parts coming into contact with asphalt with a separator emulsion.

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



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 the hand piece (2).

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

- Pull the hose out of the device until a click is audible. When released, the hose automatically engages here. The hose is automatically retracted into the guide after pulling and discharging again.

- Actuate button (3) to activate and deactivate the pump.
  - The indicator lamp (4) lights up when the emulsion pump is running.
- Actuate the manual valve (5) to spray.

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

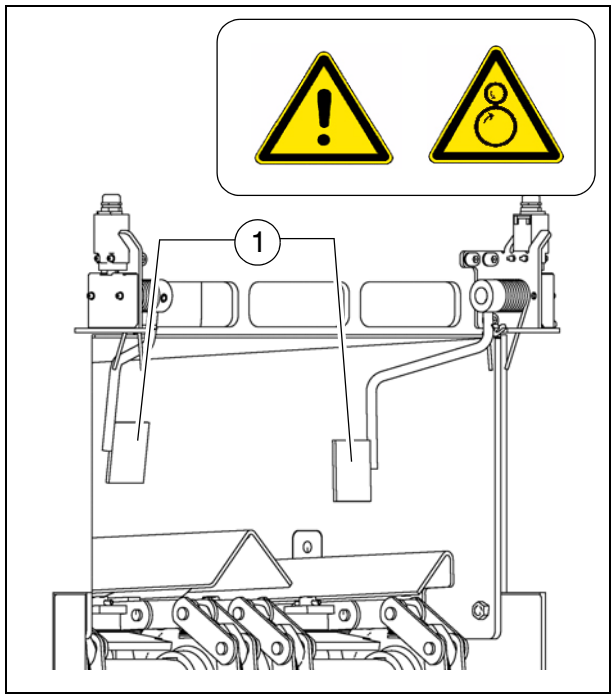
☞ The spraying system is fed by a canister (6) at the vehicle step. Check the level at the sight tube (7).
Unscrew the tank cover (8) to fill the tank.

STOP Refill the canister only while the vehicle is stationary!

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

Conveyor limit switches

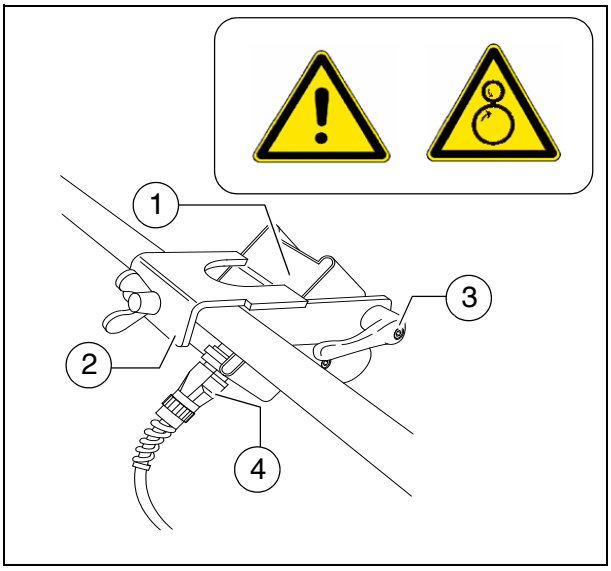
The mechanical conveyor limit switches (1) control the material flow on the relevant half of the conveyor.
The conveyors should stop when the material has roughly reached the area below the auger tube.



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

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

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



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

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

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

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

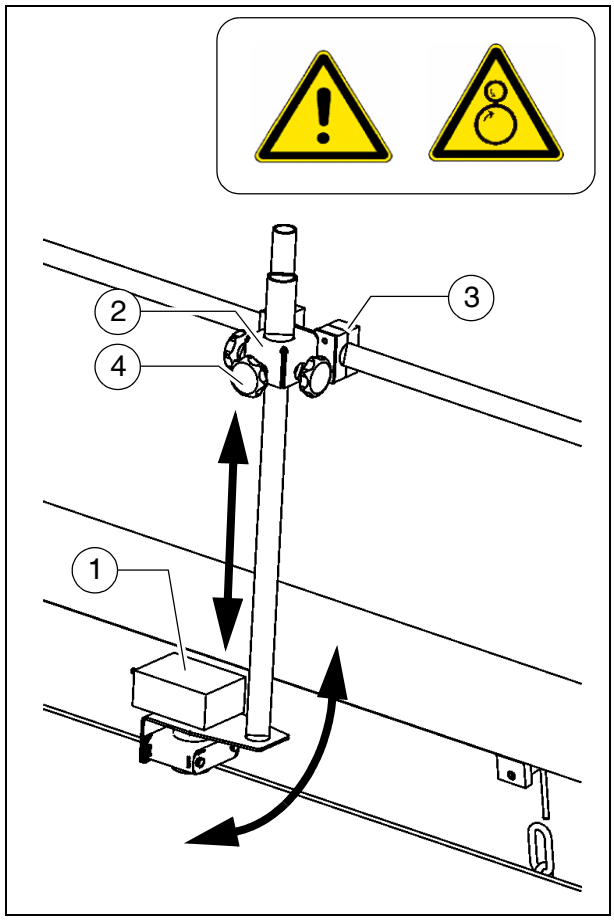
☞ The sensors should be adjusted so that 2/3 of the augers are covered with the paving material.

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

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

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

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



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

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

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

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

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

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

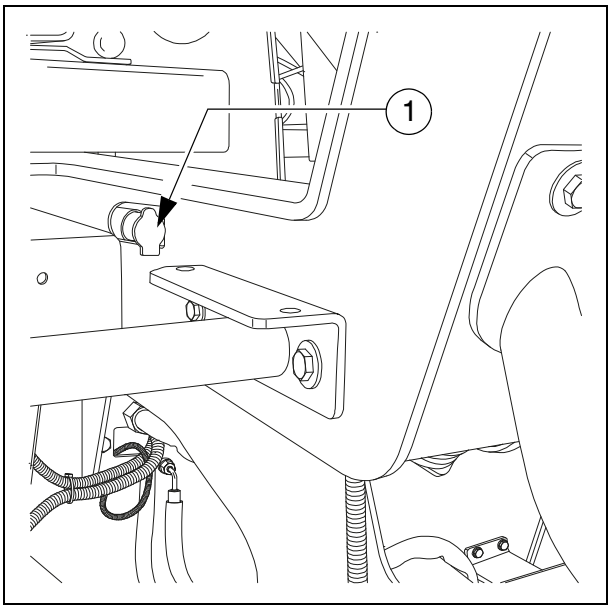
☞ We recommend adjusting the limit switch positions during material distribution.

24 volt / 12 volt sockets (○)

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

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

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



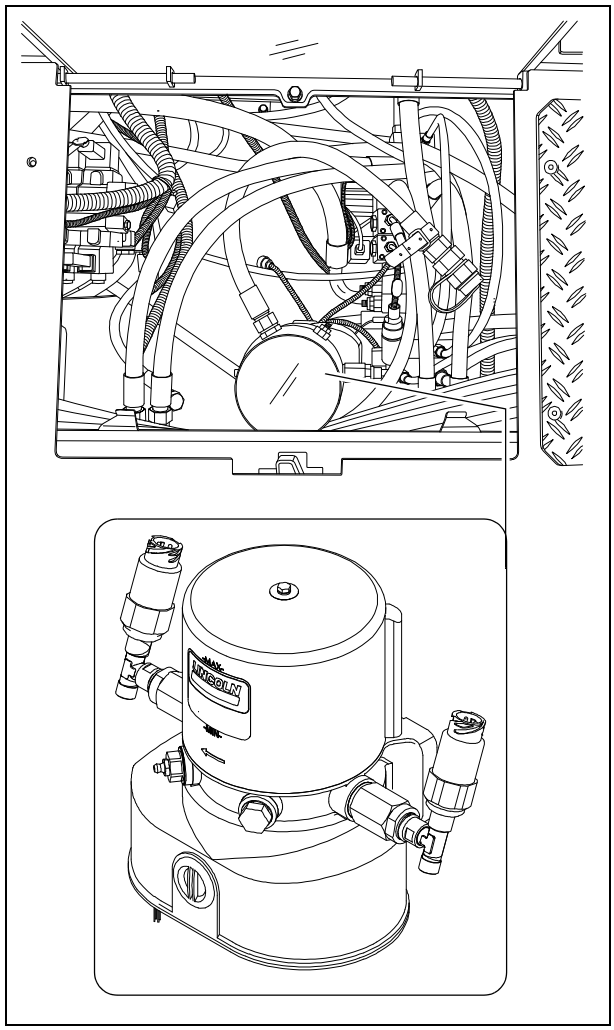
Central lubrication system (○)

☞ The central lubrication system is located under the maintenance flap on the operator's platform.

⚠ The pumping interval adjusted in the factory must be modified to the paving situation.

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

☞ The adjustment is carried out in the vehicle control (display) for PLC vehicles.



Pressure control valve for paving stop with relief

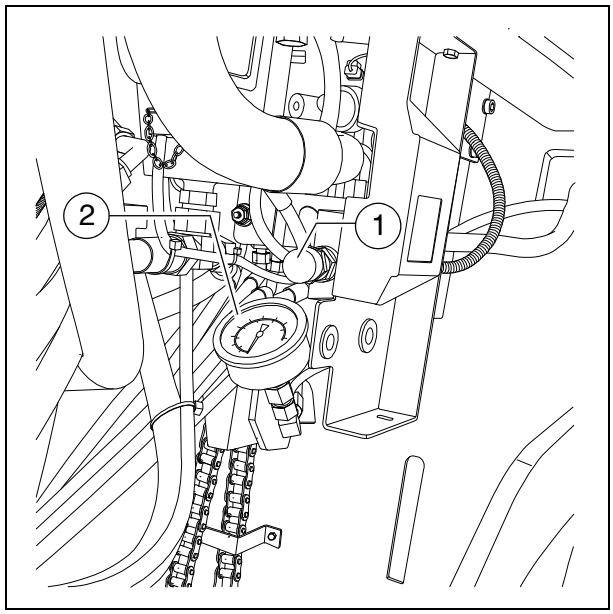
Adjusts the pressure for the screen control with paving stop - "floating stop with relief".

☞ Is engaged automatically with paving stop.

- Pressure adjustment with valve (1).

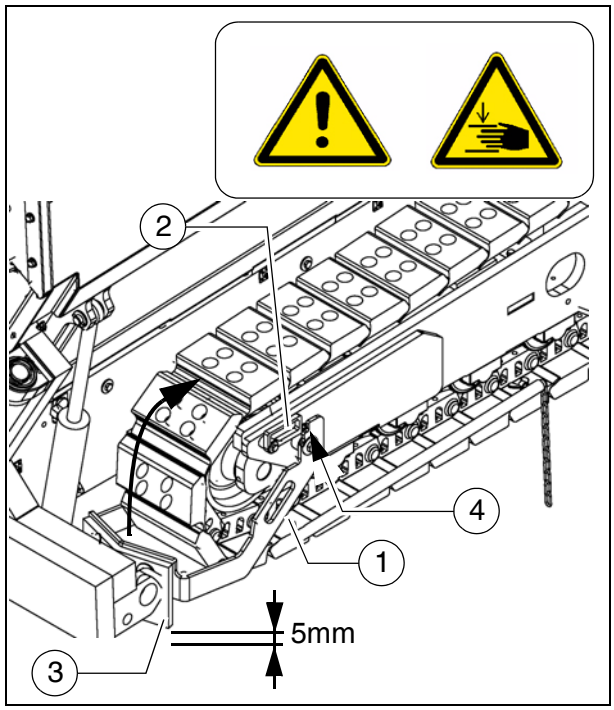
☞ Lock the valve with the corresponding nut after making the adjustment!

- For pressure indication, see manometer (2).



Lane clearer (○)

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



☞ The lane clearers should only be swivelled down during paving.

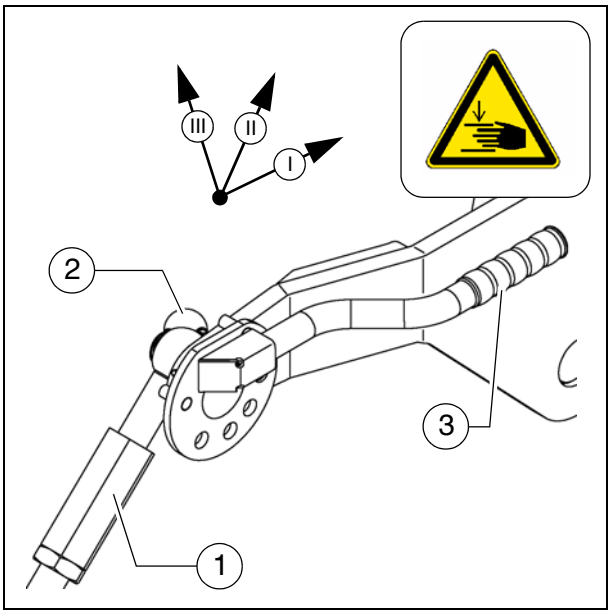
Swivelling the lane clearers:

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

NOTE	**Caution! Possible collision of parts**
	- The lane clearer must be adjusted in the lower setting with a few mm clearance between the ground and the blade (3). - When driving up inclines, lock the lane clearer in the upper position.

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

Screed eccentric adjustment



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

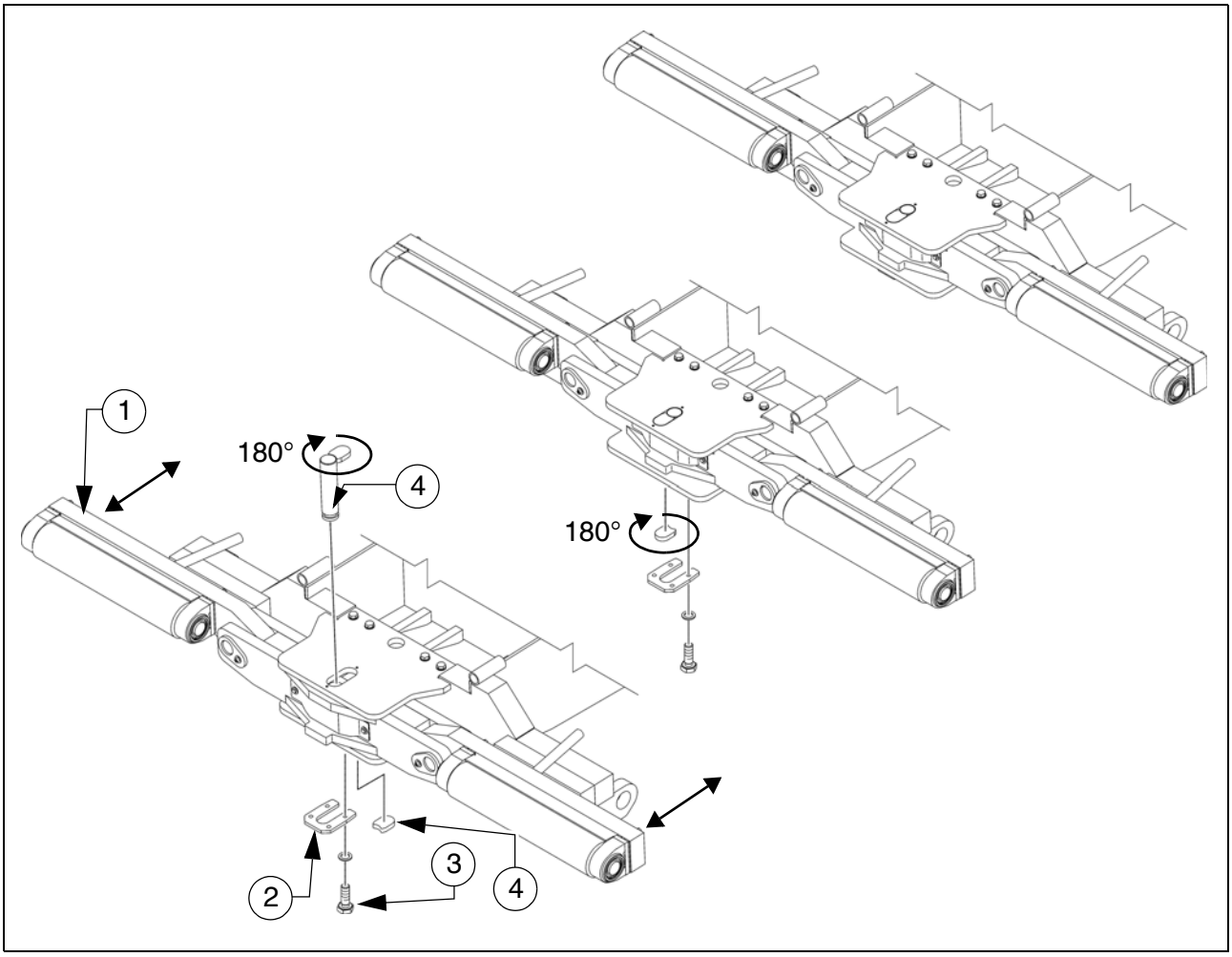
- Pos. I: Paving thickness up to approx. 7 cm
- Pos. II Paving thickness of approx. 7 cm to approx. 14 cm
- Pos. III Paving thickness above approx. 14 cm

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

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

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

Push roller crossbar, adjustable



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

☞ The adjustment travel is 60mm.

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

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

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

Push roller damping,
hydraulic (○)

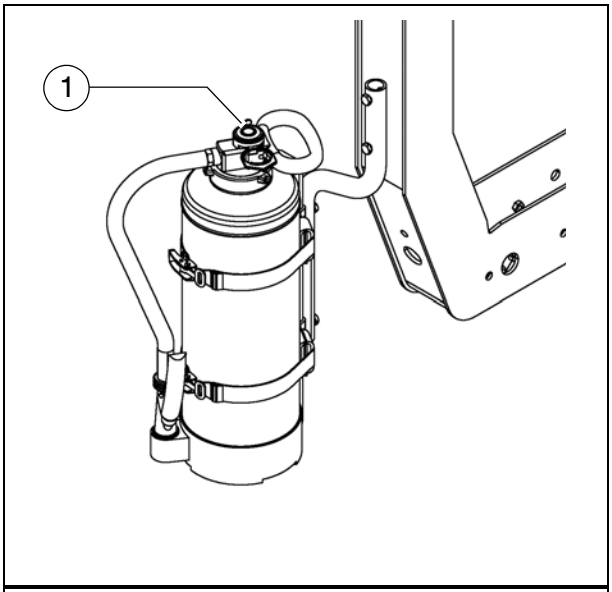
☞ Push roller damping hydraulically absorbs the shocks between the material truck and paver finisher.

- Activate the function on the operating panel as necessary.

Fire extinguisher (○)

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

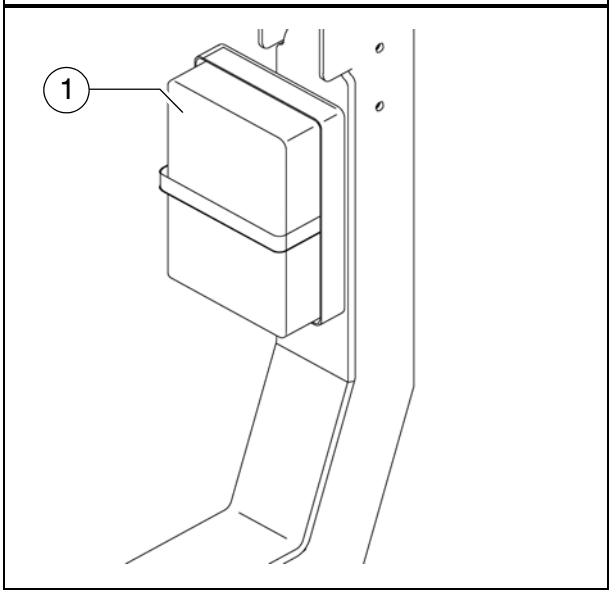
☞ Observe the inspection interval for the fire extinguisher!



First-aid kit (○)

STOP Any dressings that have been used must be replaced immediately!

☞ Heed the expiry date of the first-aid kit!

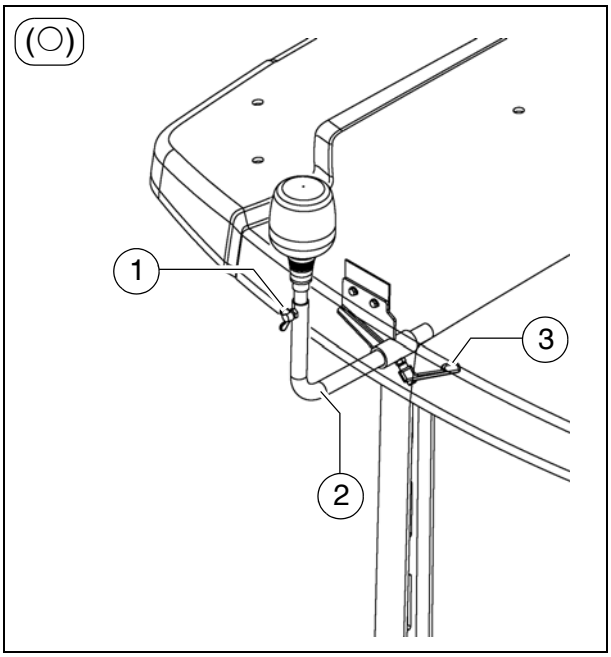


Rotary beacon (○)

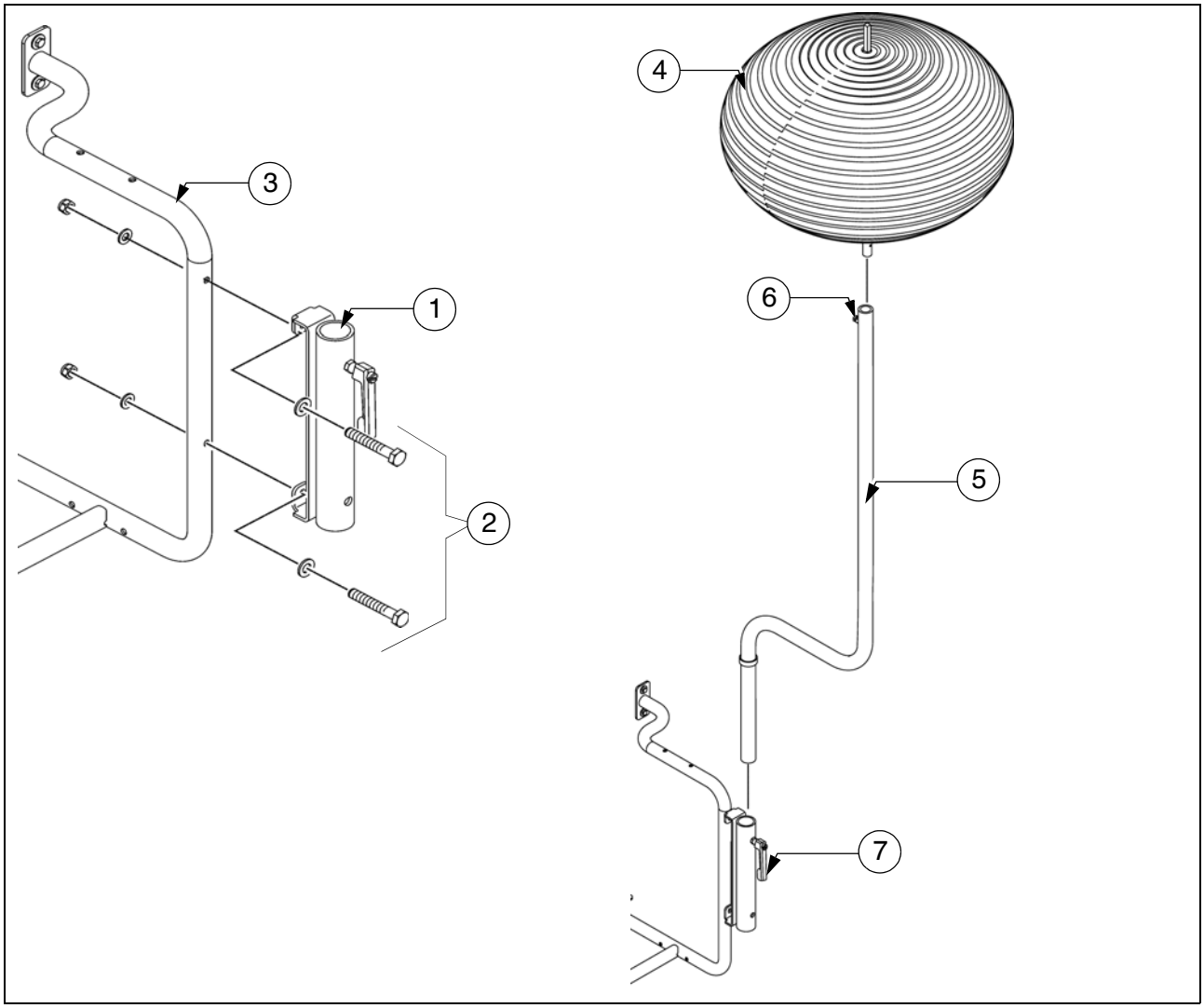
⚠ The function of the rotary beacon must be checked daily before starting work.

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

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



Illuminated balloon (○)



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

STOP The illuminated balloon makes the paver finisher higher and wider.

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

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

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

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

Danger due to electric shock. Voltage flashover poses the risk of severe or fatal injuries!
Adhere to the following safety distances from high-voltage lines:
< 125kV 5m
> 125kV 15m

The illuminated balloon must not be operated if the electric supply cables or connectors are damaged.

Before starting up, check that the zip fastener of the balloon skin is closed. If the skin is damaged, it must be repaired or replaced. The bulbs must be checked for firm seating and damage.

The balloon cannot be operated with a damaged skin.

Never operate the balloon unattended!

Maximum wind speed for using the balloon: 80 km/h.

Installation and operation

- Install the bracket (1) at the vehicle step (3) using the corresponding assembly material (2).
- Fasten the illuminated balloon (4) to the holding tube (5) and tighten the clamping bolt (6).
- Close the zip fastener in the balloon skin and smooth away any large wrinkles in the skin.
- Guide the holding tube (5) into the premounted holder (1) and tighten the clamping lever (7) correctly to fix the holding tube.
- Once the illuminated balloon is completely mounted and secured, connect the plug (8) of the illuminated balloon in the corresponding switch cabinet sockets (9).

Operation of the switch cabinet - see screed operating instructions.

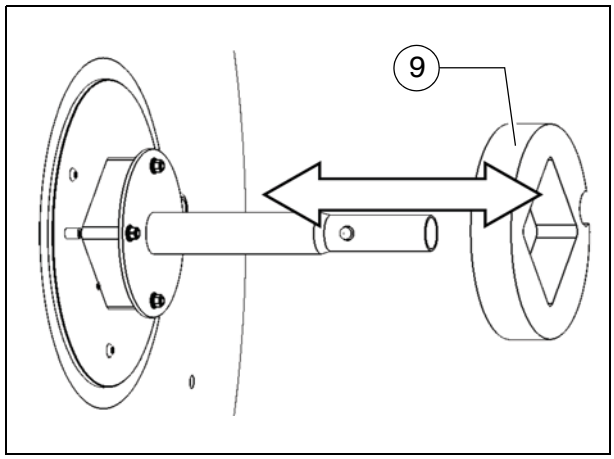
Route the supply lines so as to rule out any risk of stumbling or damage to the lines.

- After it has been engaged at the switch cabinet, the illuminated balloon inflates automatically.
- The skin of the illuminated balloon collapses again on being switched off.
- Remove the plug and open the zip of the balloon skin. Let the lamps cool down completely.
- Store any dry illuminated balloons that are not needed in the corresponding transport cover.

The holding tube must be removed during transportation!

Maintenance

⚠ Occasionally clean or replace the air filter (10) beneath the connection plate.



⚠ Do not use solvents to clean the balloon skin!

Replacing the lamp

- Disconnect the power cable and open the zip fastener of the skin.

STOP Let lamp cool down completely!

⚠ Always wear the supplied cotton glove to touch the lamp!

- Press the lamp down gently to remove it.
- Insert the new lamp in the socket.

- Close the zip fastener of the balloon skin.

D 43.18 Mode of operation

1 Preparing for operation

Required devices and aids

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

- Wheel loader for transporting heavy extension parts
- Diesel fuel
- Engine oil and hydraulic oil, lubricants
- Separator fluids (emulsion) and manual injector
- 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

⚠ CAUTION	**Danger due to restricted vision**
	Restricted vision poses a risk of injury! - Before starting work, arrange the intended driver's seat to ensure adequate vision. - Signalmen must be used when vision is restricted, also to the sides and when reversing. - Only reliable persons may be used as signalmen who must have been received instructions about their task before taking up their activity. This refers in particular to the hand signals to be used. Standardised hand signals must be used. - Adequate lighting must be provided when working at night. - Comply with all further information in these instructions and in the safety manual.

⚠ WARNING	**Danger of falling from the vehicle**
	Entering and leaving the vehicle and the driver's seat during operation poses a risk of falling from the vehicle, which can cause severe to fatal injuries! - The operator must be at the intended driver's seat during operation. - Never jump onto or off a moving vehicle. - Keep accessible surfaces free of any soiling, e.g. operating substances, to avoid the risk of slipping. - Use the steps provided and hold onto the handrail with both hands. - Comply with all further information in these instructions and in the safety manual.

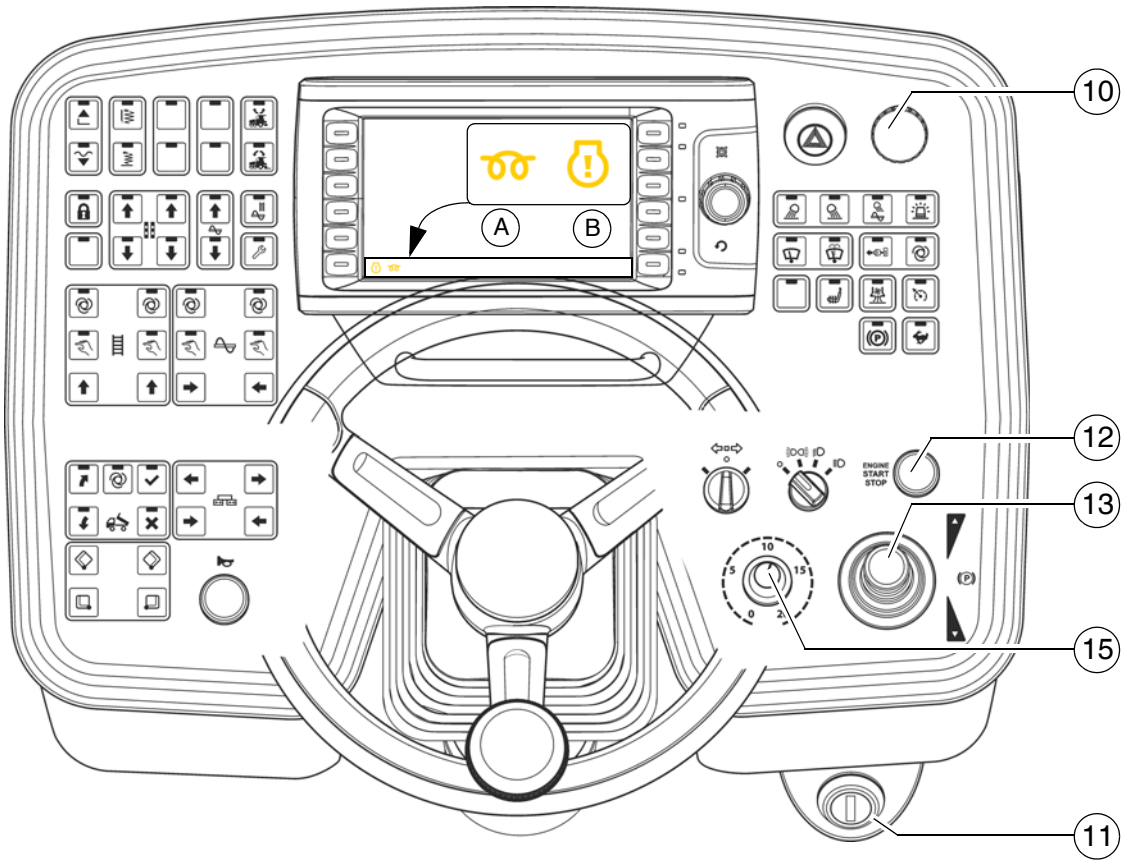
Before starting work
(in the morning or when starting paving)

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

Check list for the machine operator

Check!	How?
Emergency stop button - 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. Hazard warning flashers must flash.
Gas heater system (○): - Bottle holder - Bottle valve - Pressure reducer - Hose rupture protection - Closing valve - 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	Folding walkways must be present at the basic screed and all extension parts and folded down accordingly. Check that the side shields, the side plates and the covers are securely seated.
Screed transport safeguard	When the screed is raised / before transport, make sure that the cross-beam lock is fixed correctly.
Hopper transport safeguard	When the hopper is closed / before transport, the locks must be fixed correctly.
Protective roof	Both locking bolts must be in the provided bore hole.
Other facilities: - Engine panels - Lateral flaps	Check that the hoods and flaps are securely seated.
Accessories: - First aid box	Equipment must be present on the vehicle! ☞ Always observe the local regulations!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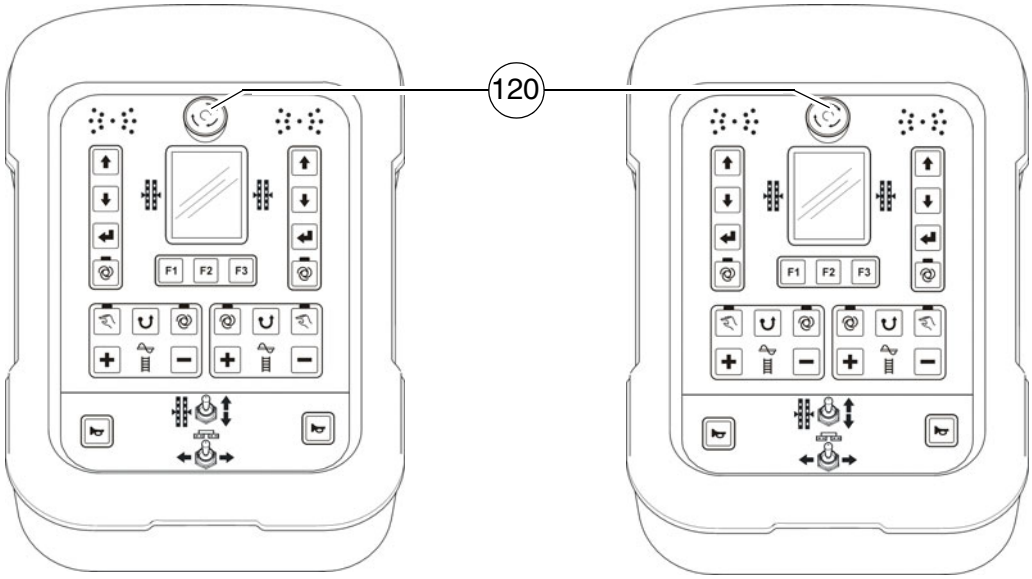

120
F1
F2
F3
F1
F2
F3

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 hours counter to determine whether further maintenance work should be conducted.

- Check the safety devices and protective devices.

"Normal" starting

- Set the drive lever (13) to the centre position and the travel drive preselector (15) to minimum.
- Insert the ignition key (11) in position "0".

☞ It is impossible to start the vehicle if an emergency stop button (10) / (120) is depressed.
(Error shown on the display)

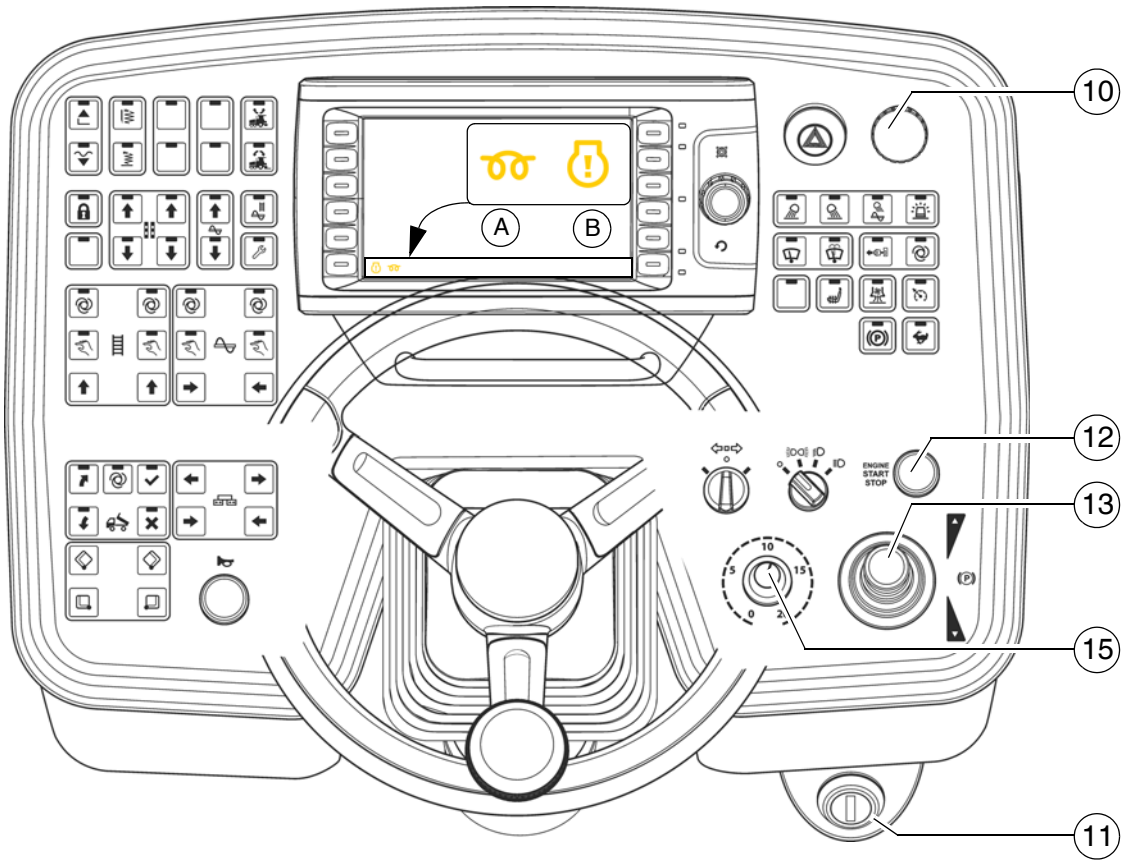
- Turn ignition key (11) to position 1 and wait for the preheat check (A) to go off.

- Press the starter button (12) to start the engine. Run the starter continuously for a maximum of 20 seconds, then take a break for 2 minutes!

☞ If the engine does not start and the error message indicator lamp (B) flashes, then the electronic engine control system has activated the start inhibit.
To deactivate the start inhibit, turn the system off with the ignition key (1) for approx. 30 s.

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

STOP Do not use aerosol types such as ether as starting aid. This can cause an explosion and lead to personal injuries.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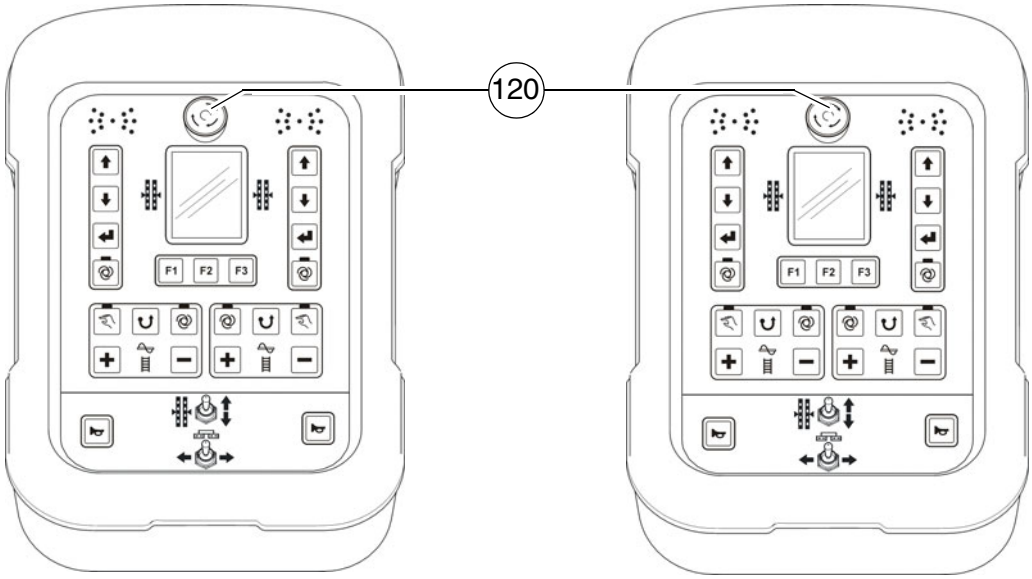
120
F1
F2
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F1
F2
F3

External starting (starting aid)

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

Suitable power sources are:

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

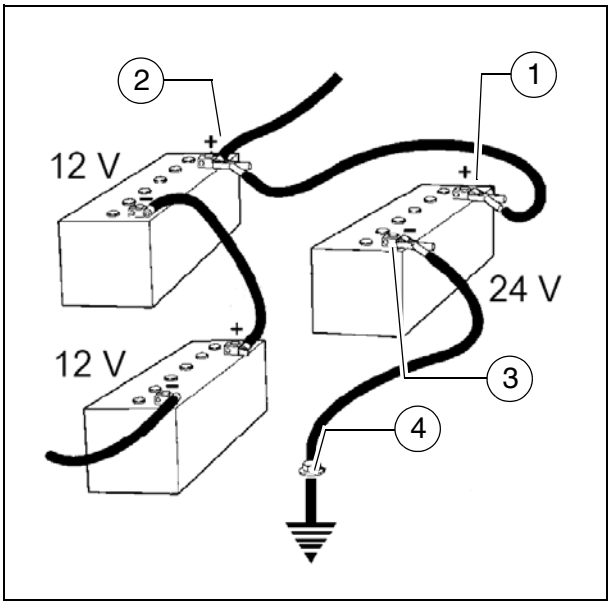
Standard chargers or quick chargers cannot be used for external starting.

To externally start the engine:

- Switch on the ignition (11), set the drive lever (13) to the centre position and the travel drive preselector (15) to minimum.

The starting aid cable must be connected to 24 V.

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



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

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

It is impossible to start the vehicle if an emergency stop button (10) / (120) is depressed.
(Error shown on the display)

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

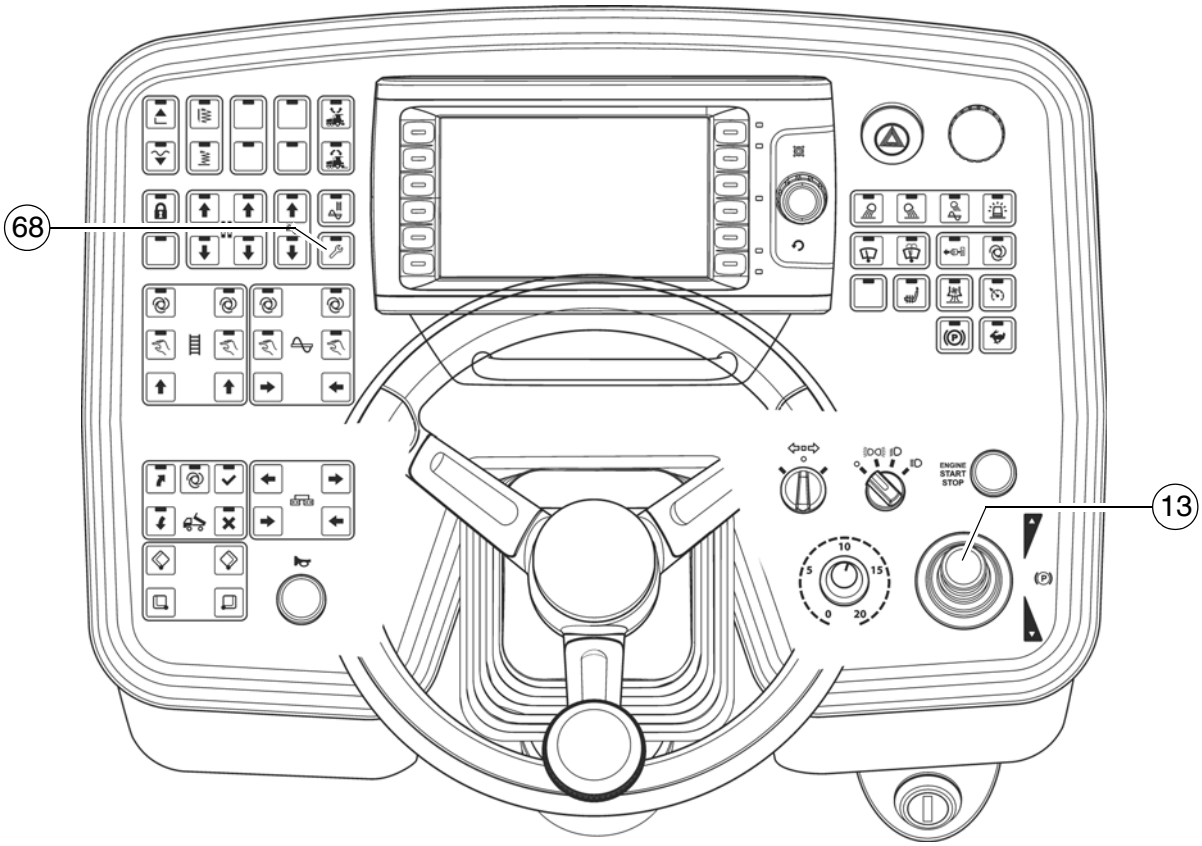
Now try to start the other vehicle:

- Turn ignition key (11) to position 1 and wait for the preheat check (A) to go off.
- Press the starter button (12) to start the engine. Run the starter continuously for a maximum of 20 seconds, then take a break for 2 minutes!

☞ If the engine does not start and the error message indicator lamp (B) flashes, then the electronic engine control system has activated the start inhibit.
To deactivate the start inhibit, turn the system off with the ignition key (1) for approx. 30 s.

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

- If the engine has started, disconnect the starting aid cable again in reverse order.


68
13
ENGINE START STOP

After starting

To increase the engine speed:

- Press button (68) to increase engine speed.

☞ The engine speed is increased to the preset value.

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


A
B
C
!
240 m
18:42
08.0
m/min
2
15 cm
15 cm
1.5
1.50 %
122 °C
2.35 %
1.5
15 cm
10 cm
800 cm

Observe indicator lamps

The following indicator lamps must be observed under all circumstances:

For further possible faults, see Engine's operating instructions.

Engine coolant temperature check (A)

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 lamp (B)

Must go out after starting when the engine revs up.

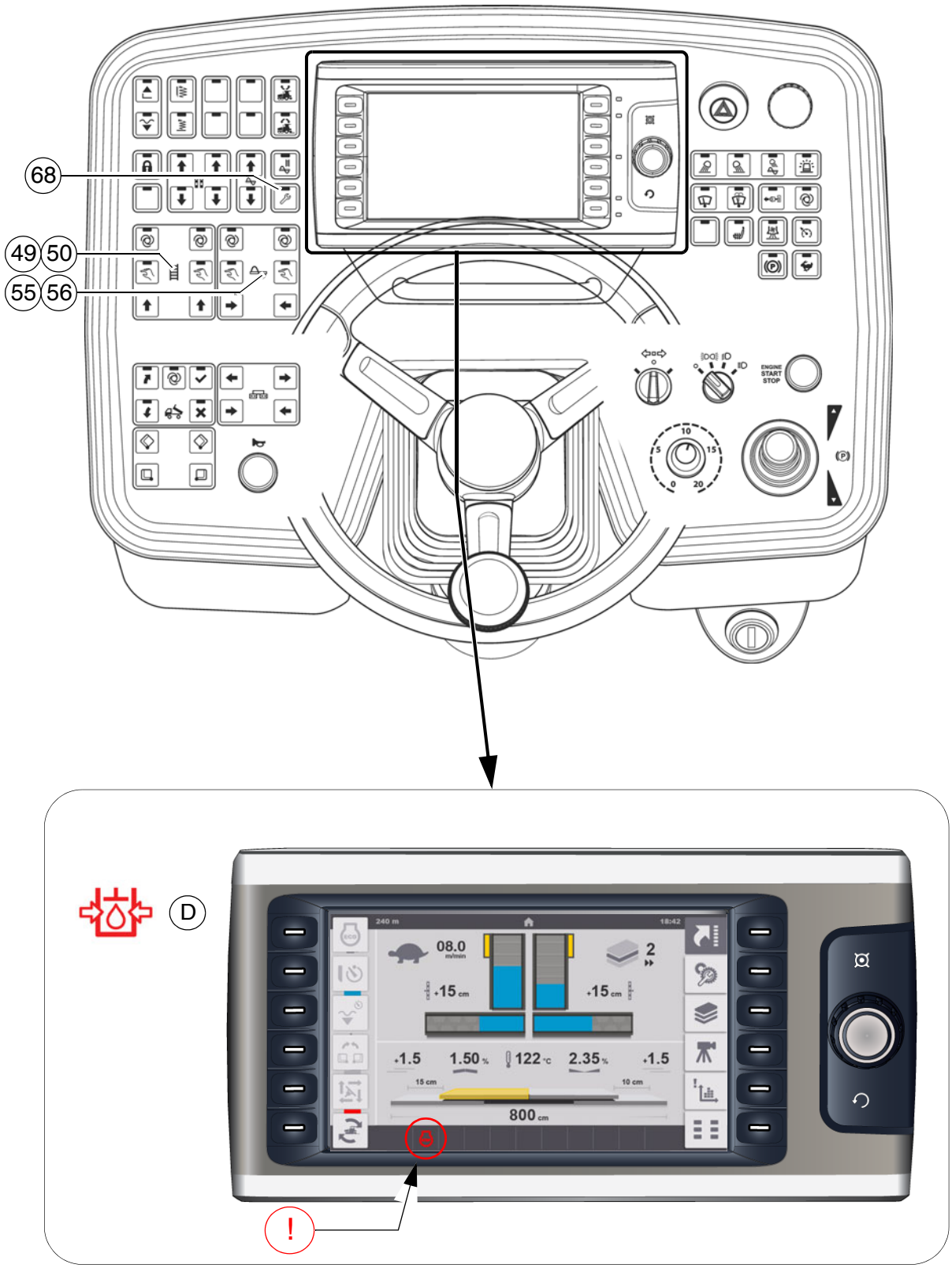
⚠ If the lamp does not go out or lights up during operation: Briefly rev up the engine. Switch off the engine and determine the fault if the lamp does not go out.

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

Diesel engine oil pressure indicator lamp (C)

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.


68
49
50
55
56
D
240 m
18:42
08.0
m/min
2
15 cm
15 cm
1.5
1.50 %
122 °C
2.35 %
1.5
15 cm
10 cm
800 cm
!

Travel drive oil pressure indicator lamp (D)

- Must go out after starting.

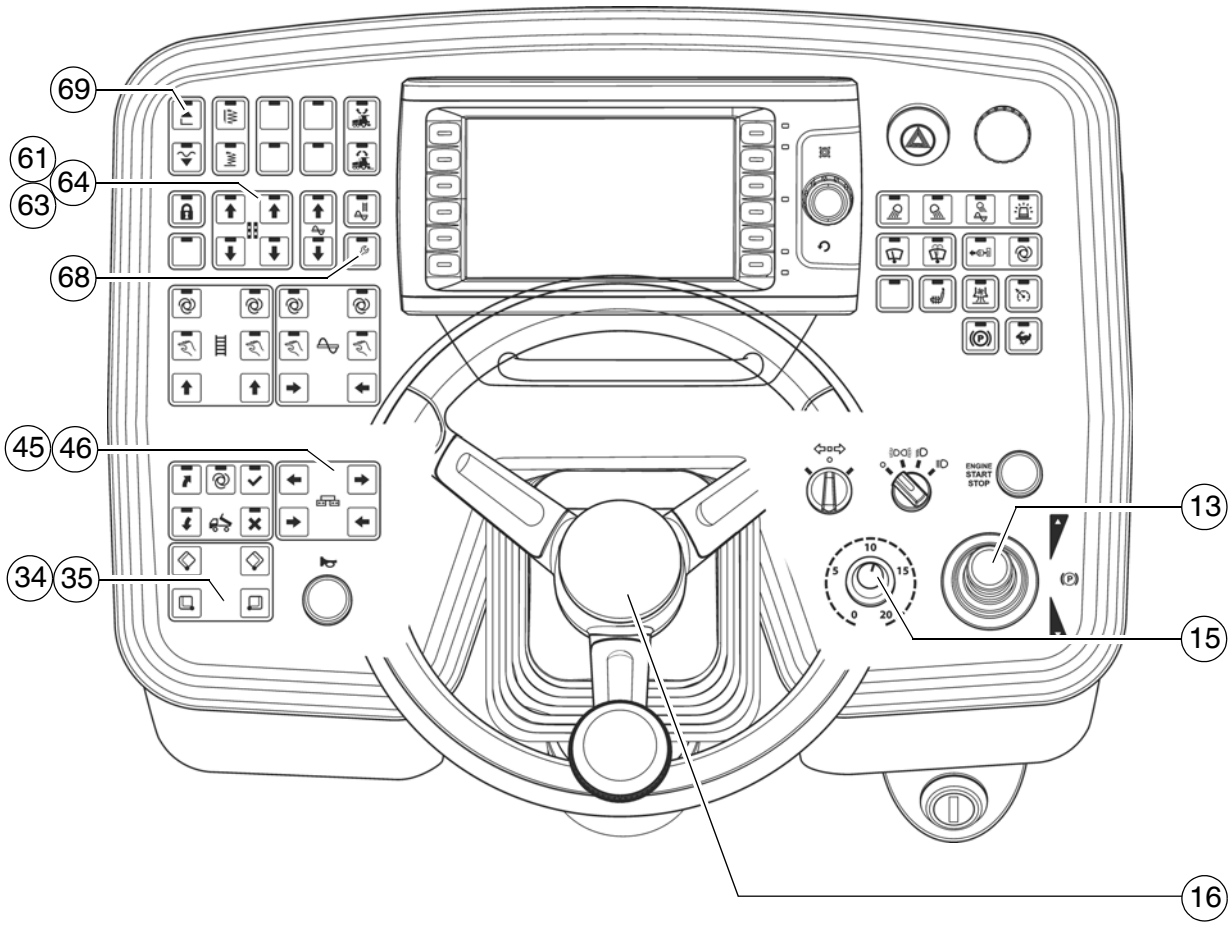
⚠ If the lamp does not go out:
Do not switch on the traction drive! Otherwise, the entire hydraulic system could be damaged.

When the hydraulic oil is cold:

- Activate set-up mode function (68).
- Set the conveyor function (49)/(50) to "manual" and the auger function (55)/(56) to "manual". Conveyor and auger start to operate
- Let the hydraulics warm up until the indicator lamp goes out.

☞ The Lamp goes out when the pressure drops below
2.8 bar = 40 psi.

For further possible malfunctions, refer to the section "Malfunctions".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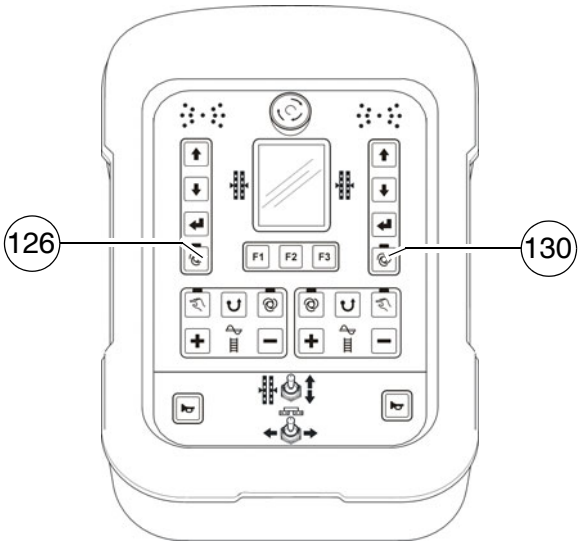
16


126
130
F1
F2
F3

1.2 Preparation for transportation

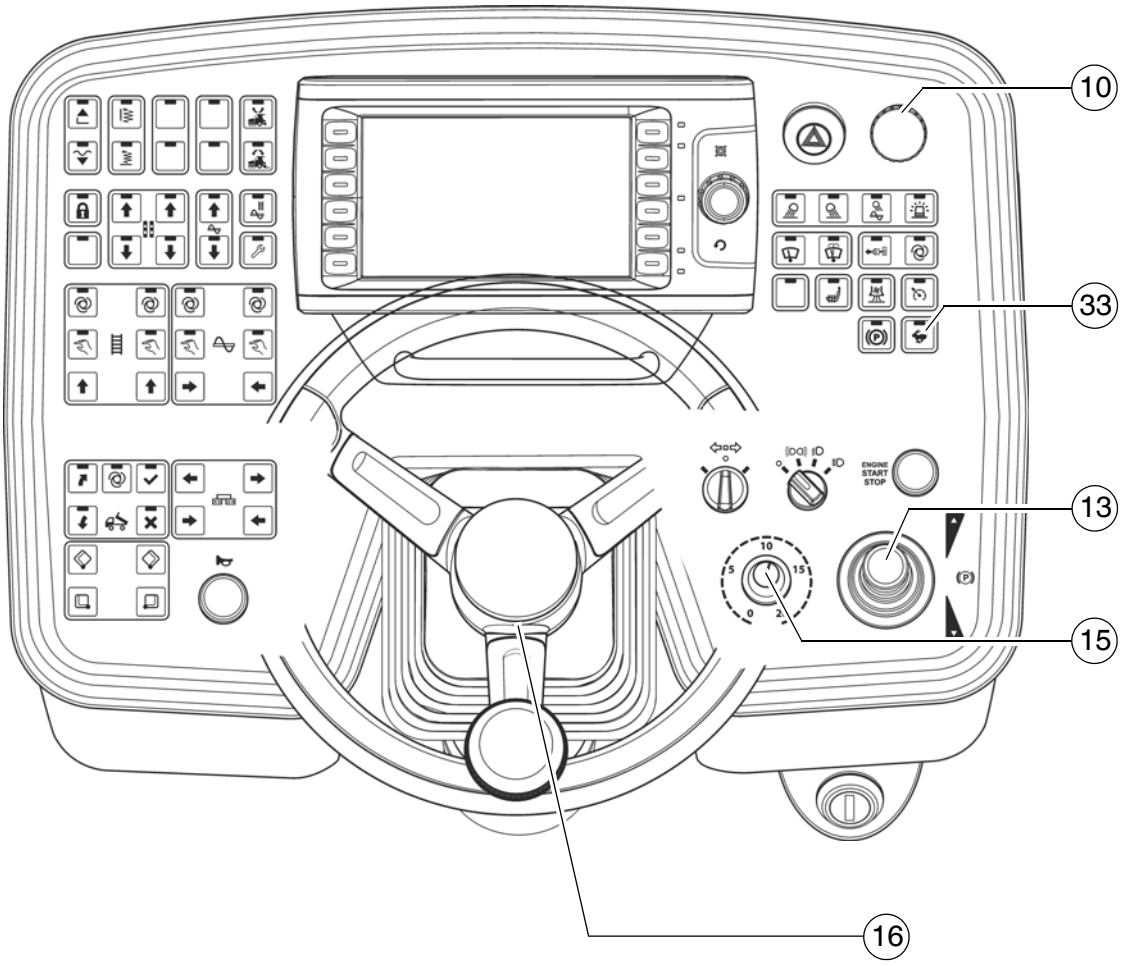
- Close the hopper with switch (34)/(35).
- Engage both hopper transport safeguards.
- Lift the screed completely using switch (69), set the crossbeam lock.
- Turn the travel drive preselector (15) to zero.
- Activate set-up mode function (68).
- Fully extend the levelling cylinders with switch (61),(63)/(64).

☞ To extend the levelling cylinders, levelling operating mode (126)/(130) must be switched to "MANUAL" (LED OFF) on the remote controls.

- Use switch (45)/(46) to adjust the screed to the basic width of the paver finisher.

⚠ Lift the auger if necessary!

☞ If the engine is started with the drive lever pivoted out, the travel drive is inhibited. To start the travel drive, first the drive lever must be returned to the centre position.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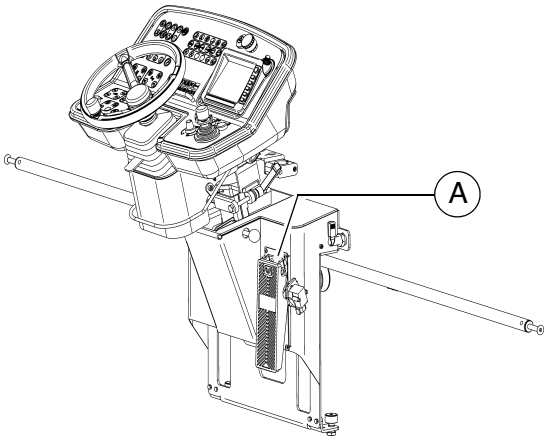
16


A

Driving and stopping the paver finisher

- Set the Fast/Slow switch (33) to "Hare".
- Set the preselector (15) to mark 10.
- For driving, carefully tilt the drive lever (13) forward or backward according to the drive direction desired.
  - Adjust the speed with the preselector (15).
- Carry out steering movements with the steering wheel (16).

In case of an emergency, press the emergency stop button (10)!

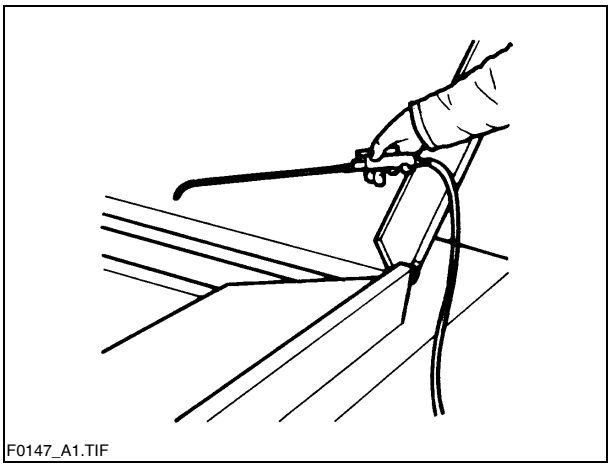
- To stop, press the service brake (A), set the preselector (15) to "0" and move the drive lever (13) into its centre position.

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

1.3 Preparations for paving

Separator fluid

Spray the parts coming into contact with asphalt (hopper, screed, auger, push roller) with a separator fluid.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⚠ Do not use diesel fuel as it dissolves the bitumen (prohibited in Germany!).

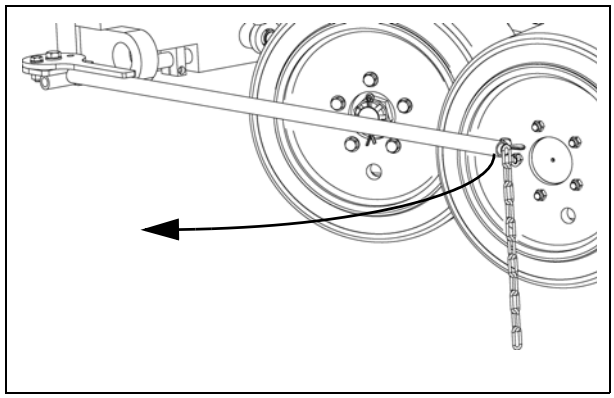
Screed heater system

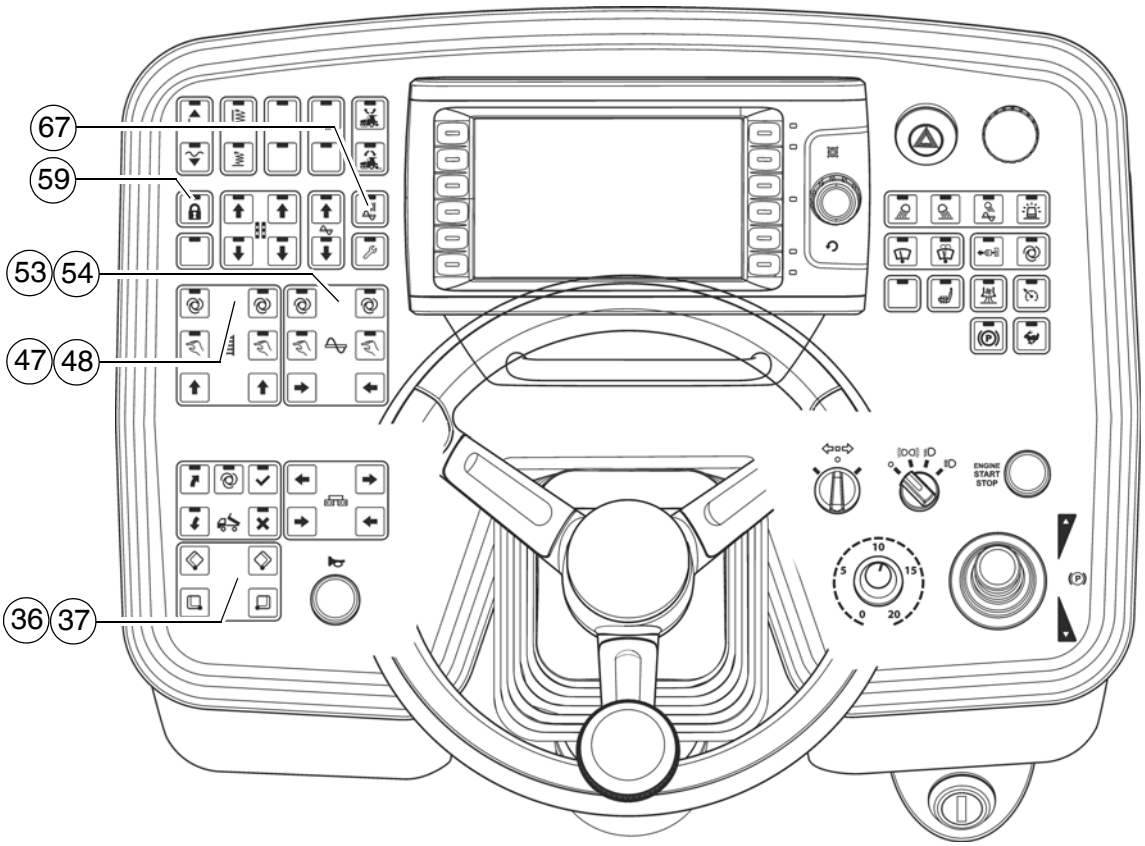
Switch on the screed heater approx. 15–30 minutes (depending on the ambient temperature) before paving begins. Warming up prevents the material from sticking to the screed plates.

Direction marks

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

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

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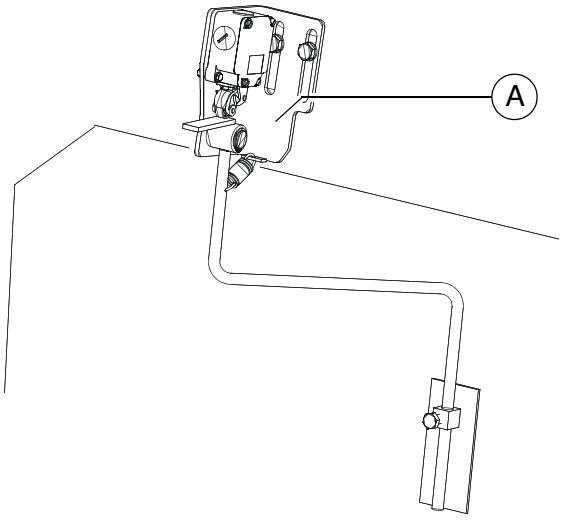
A

Loading/conveying material

- Button (59) has to be switched off.
- Use switch (36)/(37) to open the hopper.
  Instruct the truck driver to dump the material.
- Set the switches for the auger (53)/(54) and the conveyor (47)/(48) to "Auto".
- Activate function (67) to fill the vehicle for the paving process.

- 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.


71
70
72
53
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48
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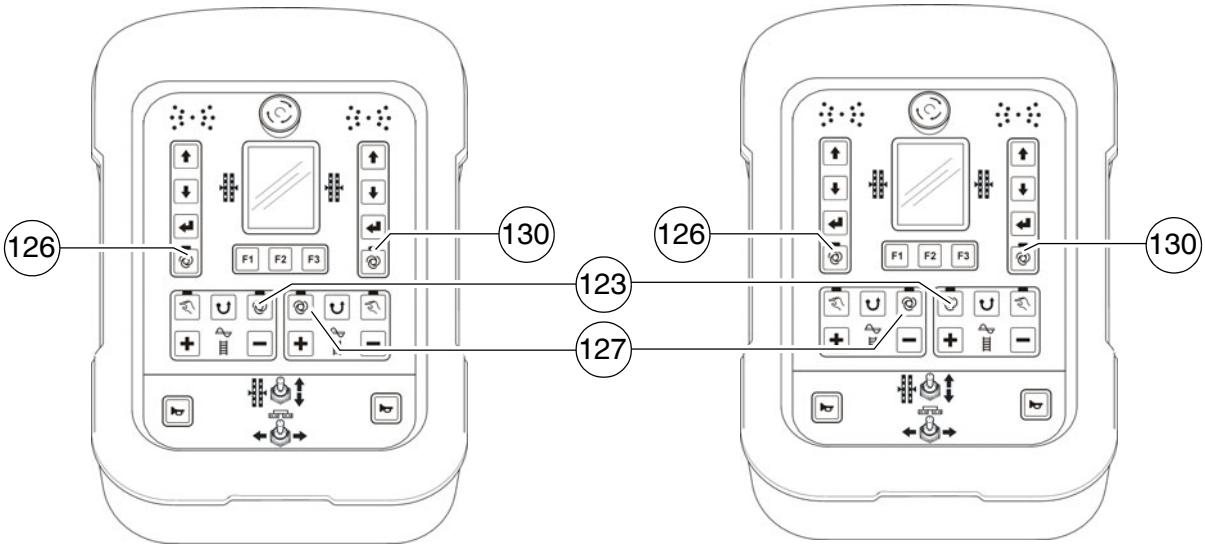

126
130
123
127
126
130

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
13	Drive lever	Centre position
33	Traction drive fast/slow	Tortoise-operating speed
15	Travel drive preselector	Mark 6-7
70	Preparation for screed floating position	LED ON
72	Vibration	LED ON
71	Tamper	LED ON
53/54	Auger left/right	auto
123		
47/48	Conveyor left/right	auto
127		
126 / 130	Levelling	auto
	Speed regulator, vibration	adapted to the paving situation
	Speed control for the tamper	adapted to the paving situation

- Push the drive lever (13) 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 / vibration) according to the required compaction ratio.
- Let the paving master check the paving thickness after 5–6 meters and correct if necessary.

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

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

☞ The basic setting is for asphalt material.

1.5 Checks during paving

The following points must be constantly observed during paving:

Paver function

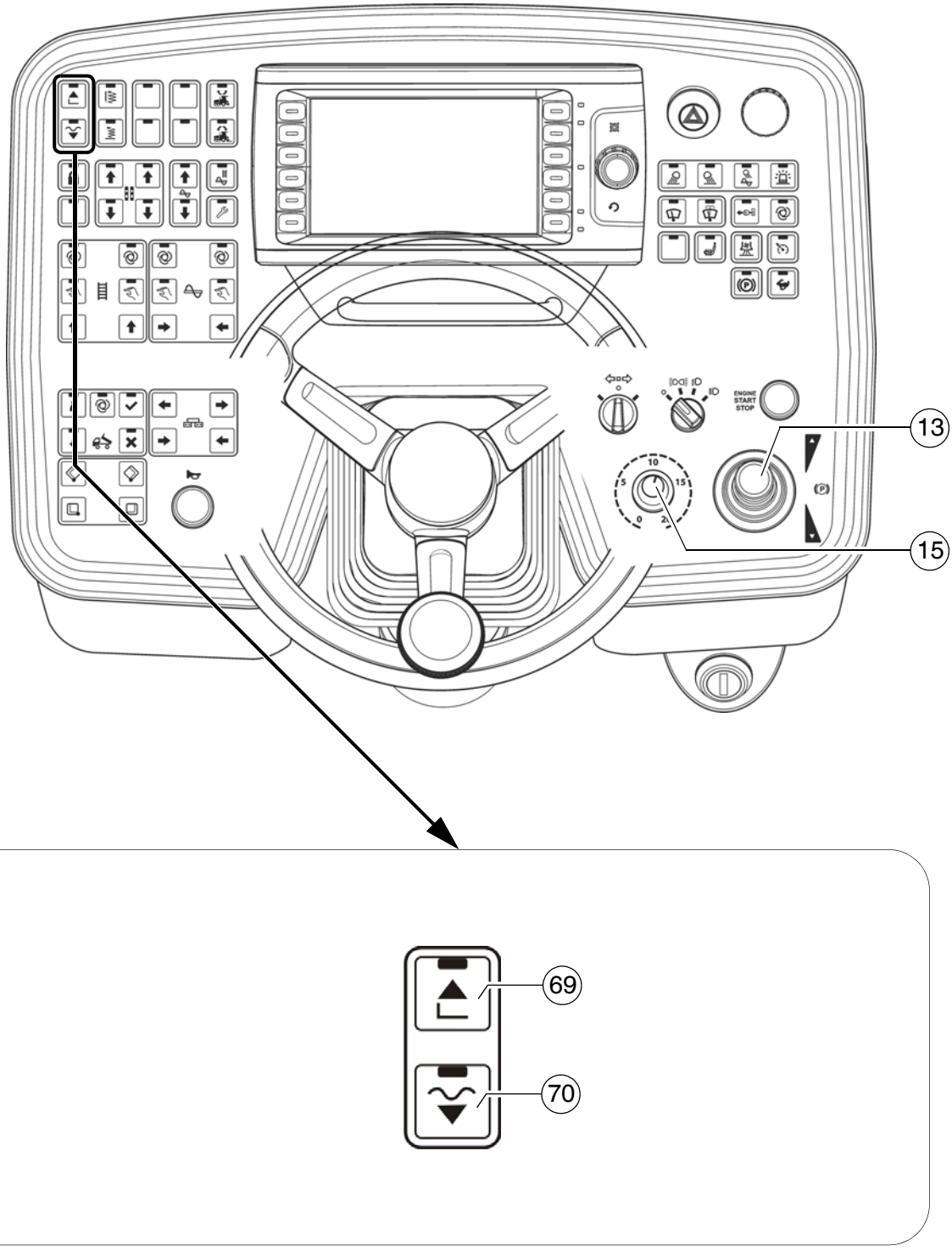
- Screed heater system
- Tamper and vibration
- Engine oil and hydraulic oil temperature
- The screed parts must be retracted and extended in time when obstacles are in the way
- Uniform material transport and distribution or supply to the screed; may require corrections to settings of the material switches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

☞ See the section "Malfunctions" when paver functions fail.

Quality of the layer

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

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


13
15
69
70

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

Button (70) can be used to activate the following functions:

- Screed stop / floating position (OFF)-->(LED OFF)
  - Screed is hydraulically held in position.

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

- Paving stop / floating paving (ON)-->(LED ON)

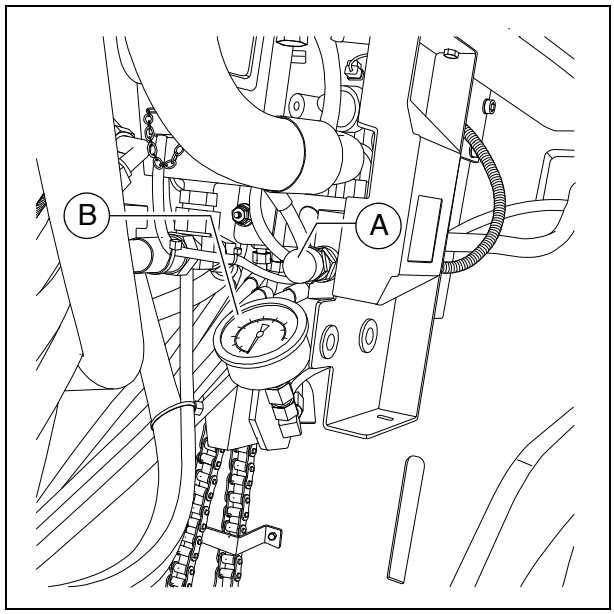
The following functions are active depending on operating status:

- "Paving stop": when the paver finisher is stationary.
  Screen is held hydraulically and by the counter pressure of the material.
- "Floating paving": during paving operation.
  Lower the screed to the floating position.

☞ Function for paving operation.

- To lift the screed press switch (69).
- To lower the screed:
  - Resting function: Keep button (70) pressed for longer than 1.5 seconds. The screed is lowered as long as the button is pressed. When the button is released, the screed is stopped again.
  - Button function: Press button (70) briefly - the screed is lowered. Press the button briefly again - the screed is stopped.

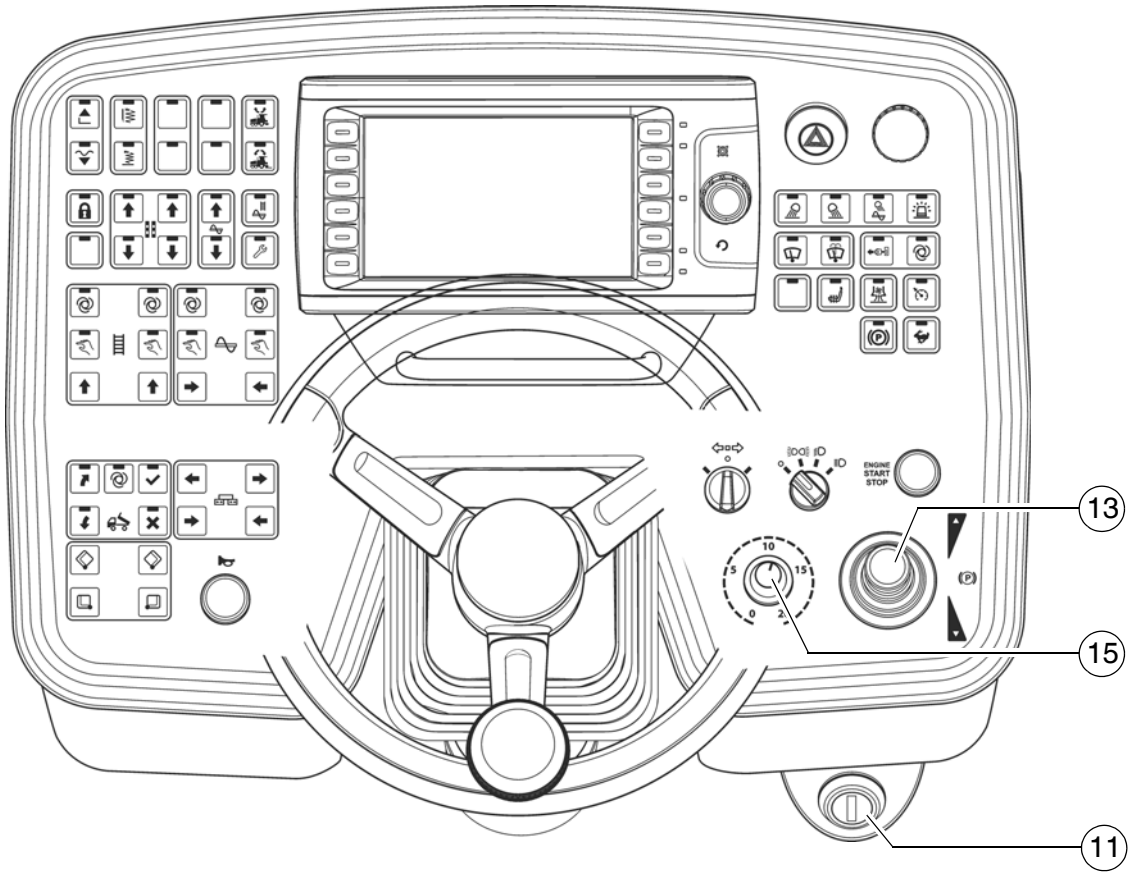
Setting pressure for screed control with paving stop + relieving:



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

- Set the drive lever (13) to the centre position.
- Start the diesel engine and set the traction controller (15) to zero.
- Activate the "floating position" (63) function (LED ON).
- Set the pressure using pressure regulating valve (A); read it off at the manometer (B).

☞ Adjustment range 0 - 100 bar.


13
15
11

1.6 Interrupting/terminating operation

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

- Determine the approximate duration.
- When cooling down of the material below the minimum paving temperature must be expected, run the paver finisher empty and create an edge like the end of a layer.
- Set the drive lever (13) to the centre position.

During longer breaks (e.g. lunch break)

- Set the drive lever (13) to the centre position and the speed adjuster (15) to minimum.
- Switch off the ignition (11).
- Switch the screed heater system off.
- With a screed with gas heating system (○) , close the bottle valves.

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


69
13
15
11

When work is finished

- Run the paver finisher empty and stop it.
- Lift the screed using switch (69), set the crossbeam lock.
- Retract the screed parts to the basic screed width and lift the auger. Where applicable, completely extend the levelling cylinders.
- Close hopper halves, set hopper transport safeguards.

  - While operating the tampers at a low speed, let any material residues drop out.

- Set the drive lever (13) to the centre position and the speed adjuster (15) to minimum.
- Switch the screed heater system off.
- Switch off the ignition (11).
- With a screed with gas heating system (○), close the the main shut-off valve and the bottle valve.
- 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.
- Read and check the operating hour meter 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 Problems during paving

Problem	Cause
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	Cause
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

2.2 Malfunctions on the paver finisher or screed

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

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

E 10.18 Set-up and modification

1 Special notes on safety

Danger to personnel by inadvertent starting of the engine, travel drive, conveyor, auger, screed or screed lifting devices.
Unless otherwise specified, work may only be performed when the engine is at a standstill!

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

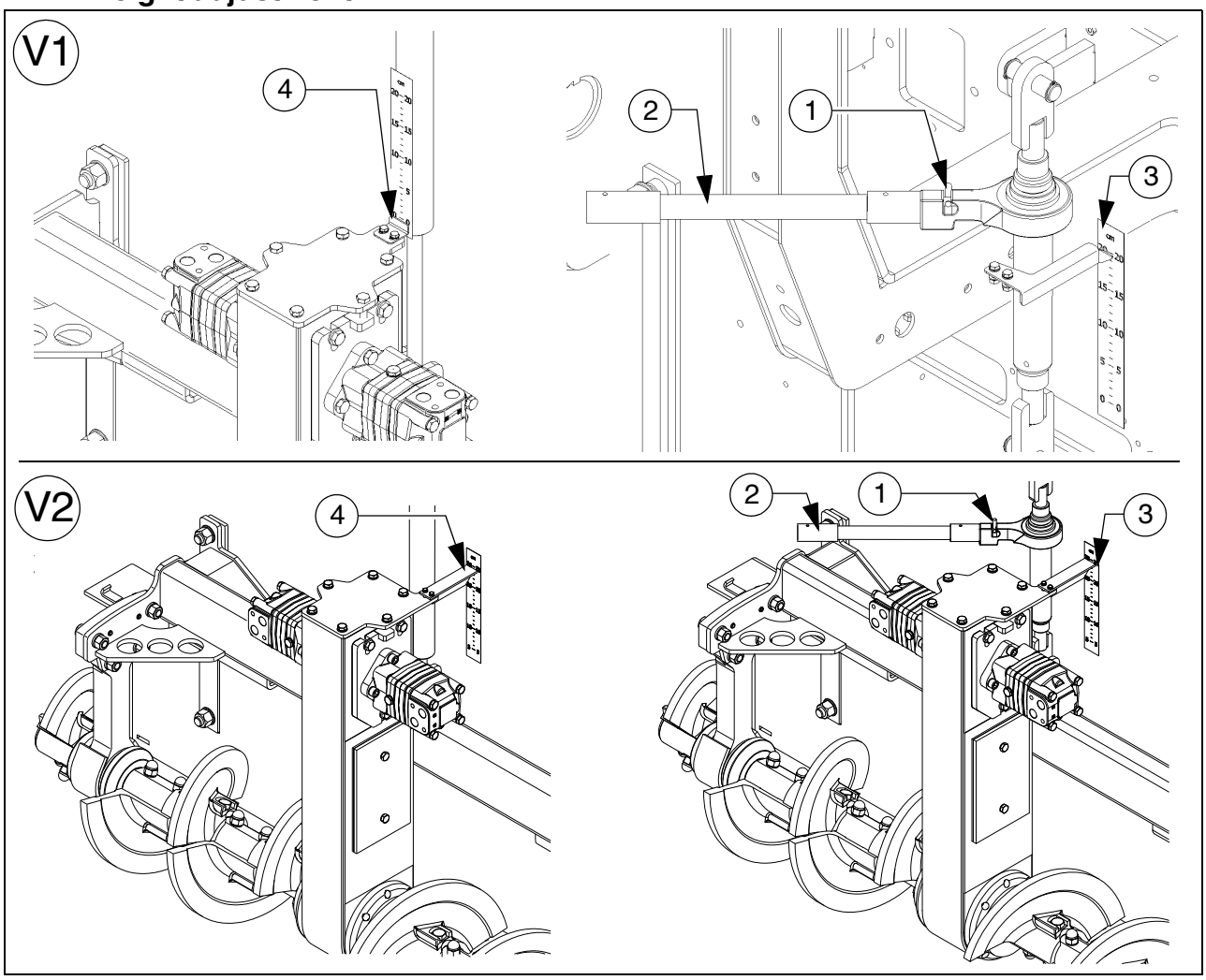
When connecting or disconnecting hydraulic hoses and when working on the hydraulic system, hot hydraulic fluid may spurt out at high pressure.
Switch off the engine and depressurise the hydraulic system! Protect your eyes!

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

DANGER	**Danger due to changes at the vehicle**
	Structural changes to the vehicle make the operating licence null and void and can cause severe to fatal injuries! - Only use original spare parts and approved accessories. - After maintenance and repair work, ensure that any dismantled protective and safety devices are all completely fitted again. - Comply with all further information in these instructions and in the safety manual.

2 Distribution auger

2.1 Height adjustment



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

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

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

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

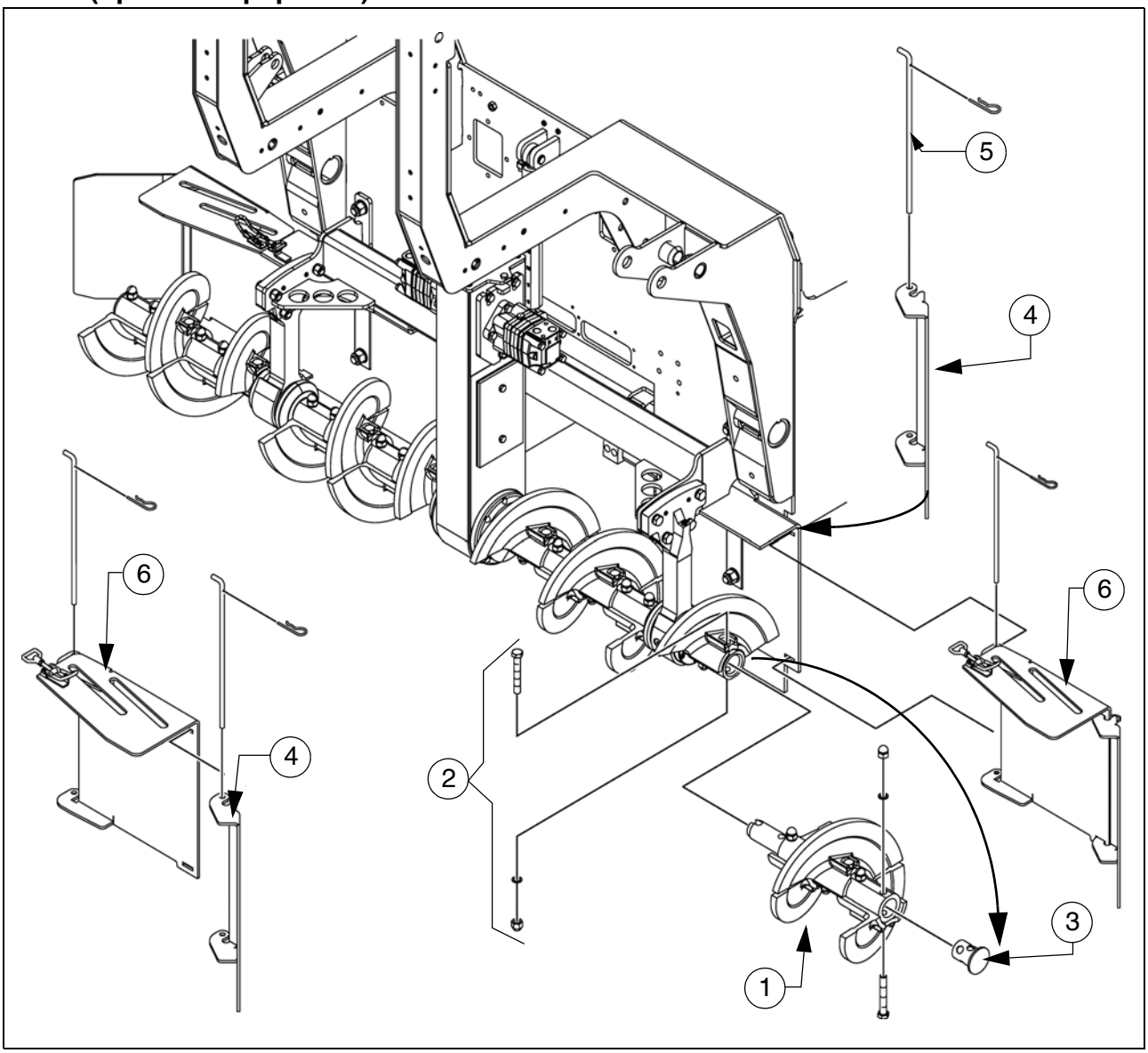
Mechanical height adjustment:

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

Hydraulic height adjustment:

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

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



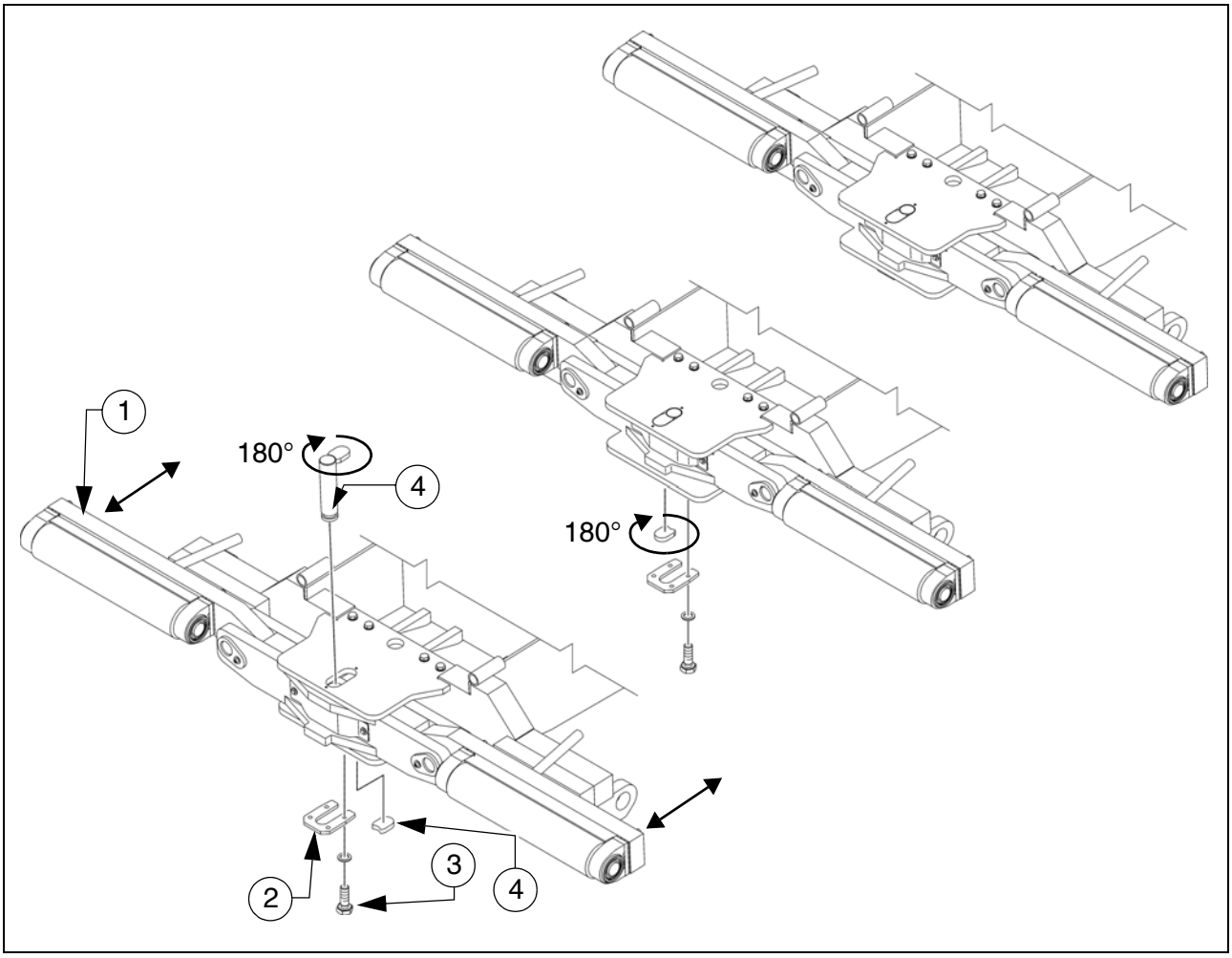
To fit auger extensions, an additional auger segment (1) is fitted to the auger shaft.

Assembly:

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

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

Push roller crossbar, adjustable



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

☞ The adjustment travel is 60mm.

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

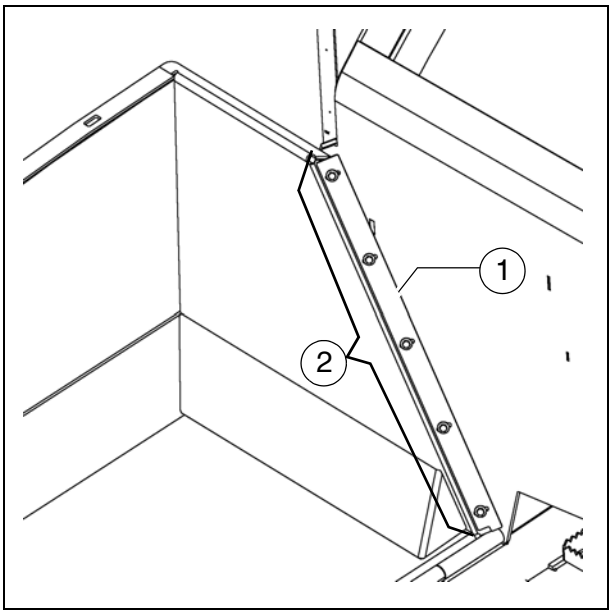
☞ Shift the push roller crossbar at the towing eye or use a suitable assembly lever in its guide (left and right) to push it into the corresponding position.

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

Hopper scraper

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

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

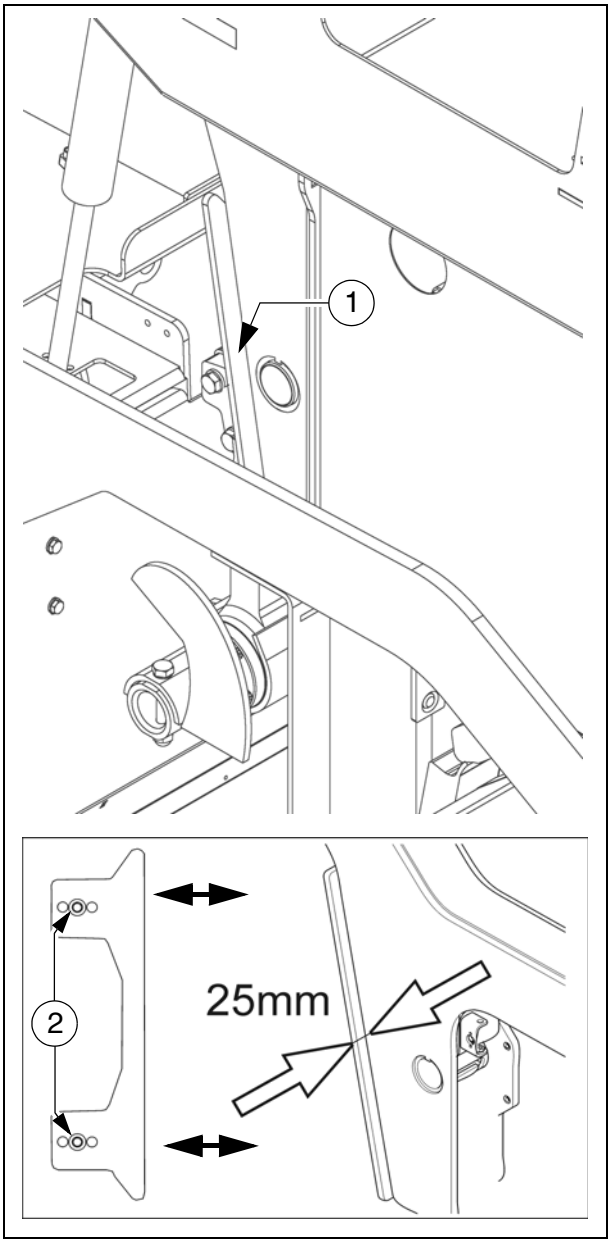


Risk of injury due to sharp-edged parts! Wear suitable safety gloves to protect your hands!

2.3 Crossbeam guide

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

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

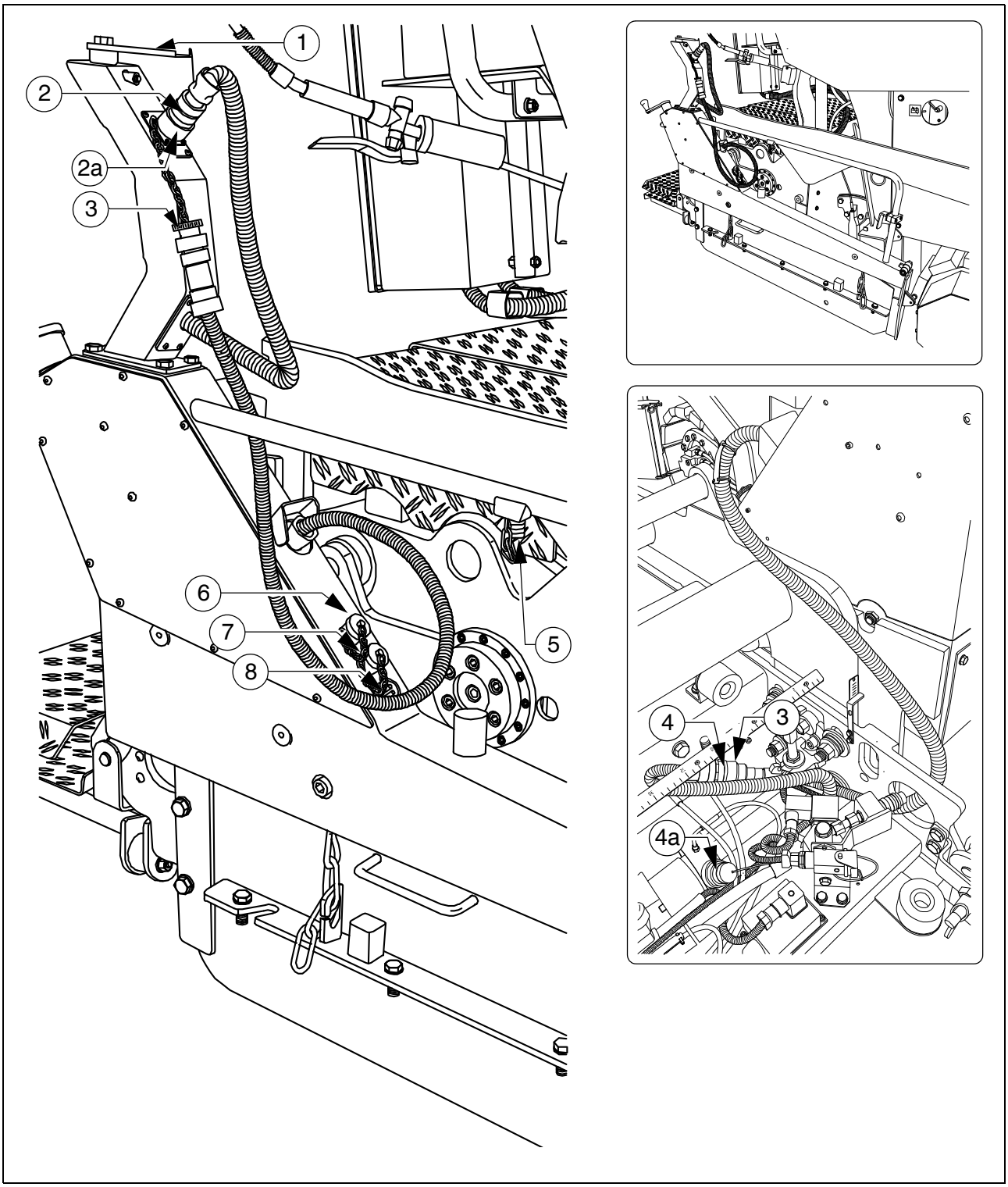


STOP Risk of injury due to sharp-edged parts! Wear suitable safety gloves to protect your hands!

3 Screed

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

4 Electrical connections



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

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

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

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

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

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

Other connection possibilities:

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

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

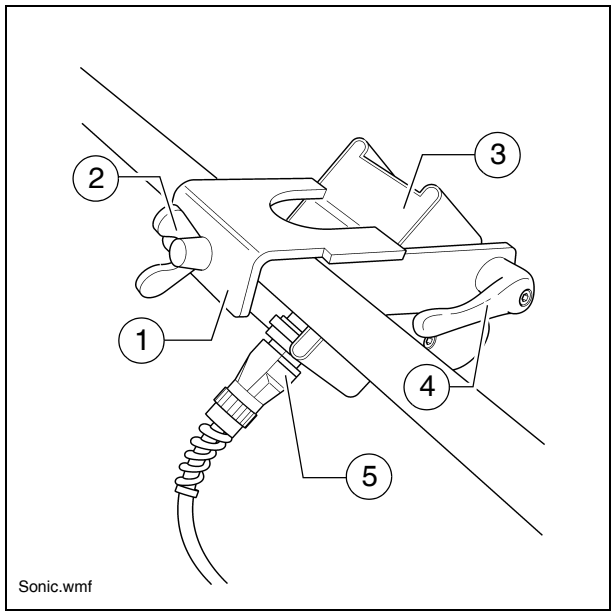
☞ Always seal unused sockets or plugs with the corresponding protective caps!

5 Limit switch

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

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

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



Sonic.wmf

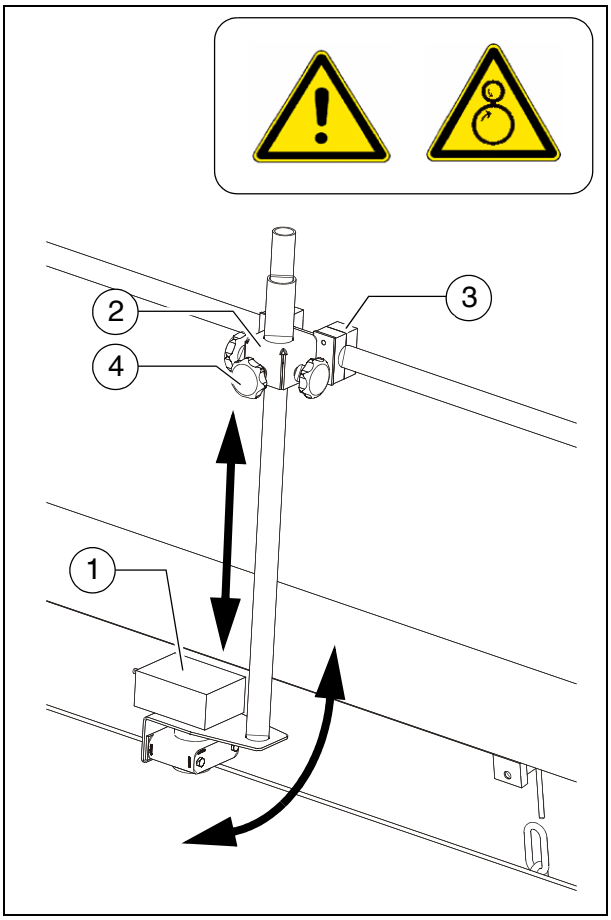
☞ The connection cables are connected to the relevant sockets on the remote control bracket.

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

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

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

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



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

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

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

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

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

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

F 10 Maintenance

1 Notes regarding safety

DANGER	Danger due to changes at the vehicle
	Structural chances to the vehicle make the operating licence null and void and can cause severe to fatal injuries! - Only use original spare parts and approved accessories. - After maintenance and repair work, ensure that any dismantled protective and safety devices are all completely fitted again. - Comply with all further information in these instructions and in the safety manual.

DANGER	Danger due to incorrect vehicle maintenance
	Incorrectly performed maintenance and repair work can cause severe or fatal injuries! - Ensure that maintenance and repair work is always only carried out by trained, specialist staff. - All maintenance, repair and cleaning work should only be carried out with the engine turned off. Remove ignition key and main switch. - Affix a sign "Do not start" to the vehicle. - Perform a visual inspection and check all functions every day. - Proceed with all maintenance tasks according to the maintenance schedule. - Proceed with expert inspection every twelve months. - Eliminate all ascertained faults straight away. - Do not restart the vehicle until all ascertained faults have been eliminated. - Failure to comply with the prescribed inspection and maintenance work renders the operating licence null and void! - Comply with all further information in these instructions and in the safety manual.

⚠ CAUTION	**Hot surfaces!**
	Surfaces including those behind covering parts, together with combustion fuels from the engine or screed heater can be very hot and cause injuries! - Wear your personal safety gear. - Do not touch hot parts of the vehicle. - Only perform maintenance and repair work after the vehicle has cooled down. - Comply with all further information in these instructions and in the safety manual.

⚠ CAUTION	**Danger due to electric shock**
	Injuries can be caused by touching live parts directly or indirectly! - Do not remove any protective safeguards. - Never spray water on electric or electronic components. - Maintenance work to the electric system should only be carried out by trained specialist staff. - When equipped with electric screed heater, check the insulation monitoring every day according to the instructions. - Comply with all further information in these instructions and in the safety manual.

STOP **Cleaning:**Do not use any inflammable substances (such as petrol).
Avoid directly cleaning electrical parts and insulation material with a steam jet; cover them up beforehand.

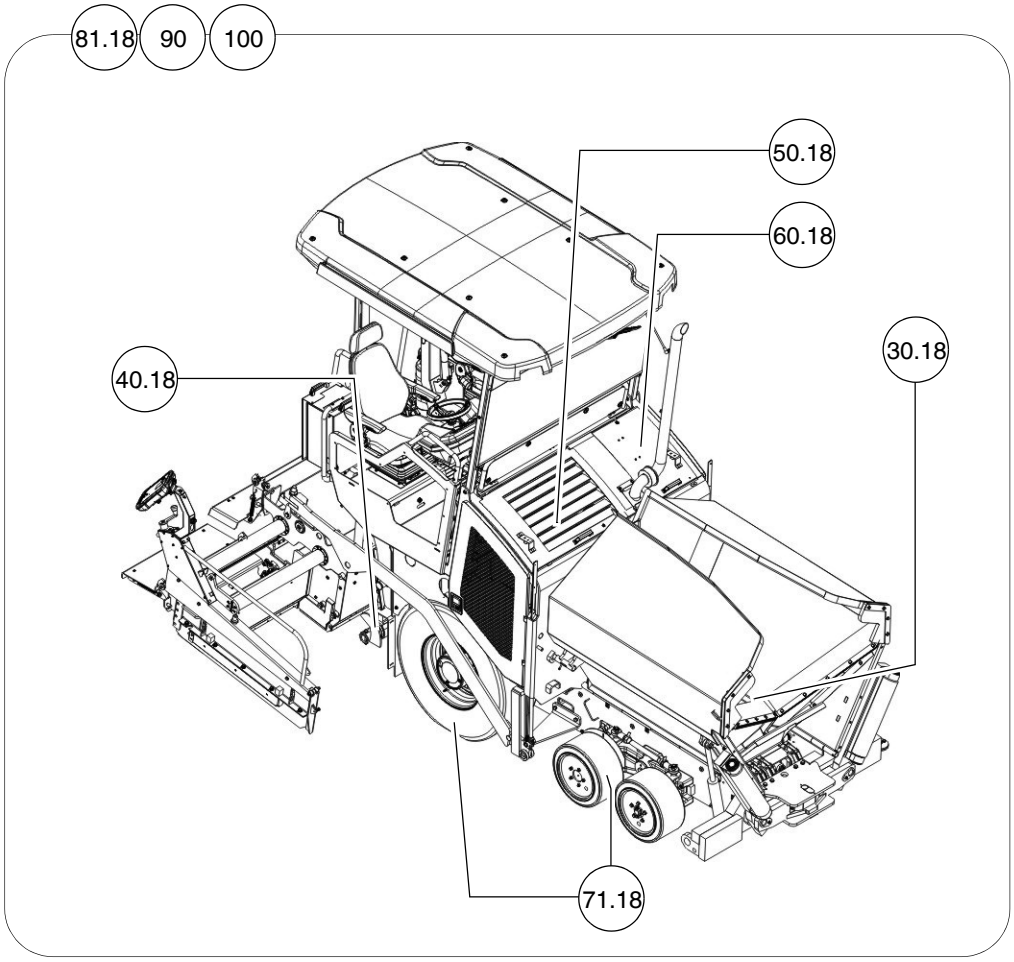
STOP **Working in enclosed environments:** Exhaust fumes must be conducted into the open air. Propane gas bottles must not be stored in closed rooms.

⚠ 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 23.18 Maintenance review

1 Maintenance review



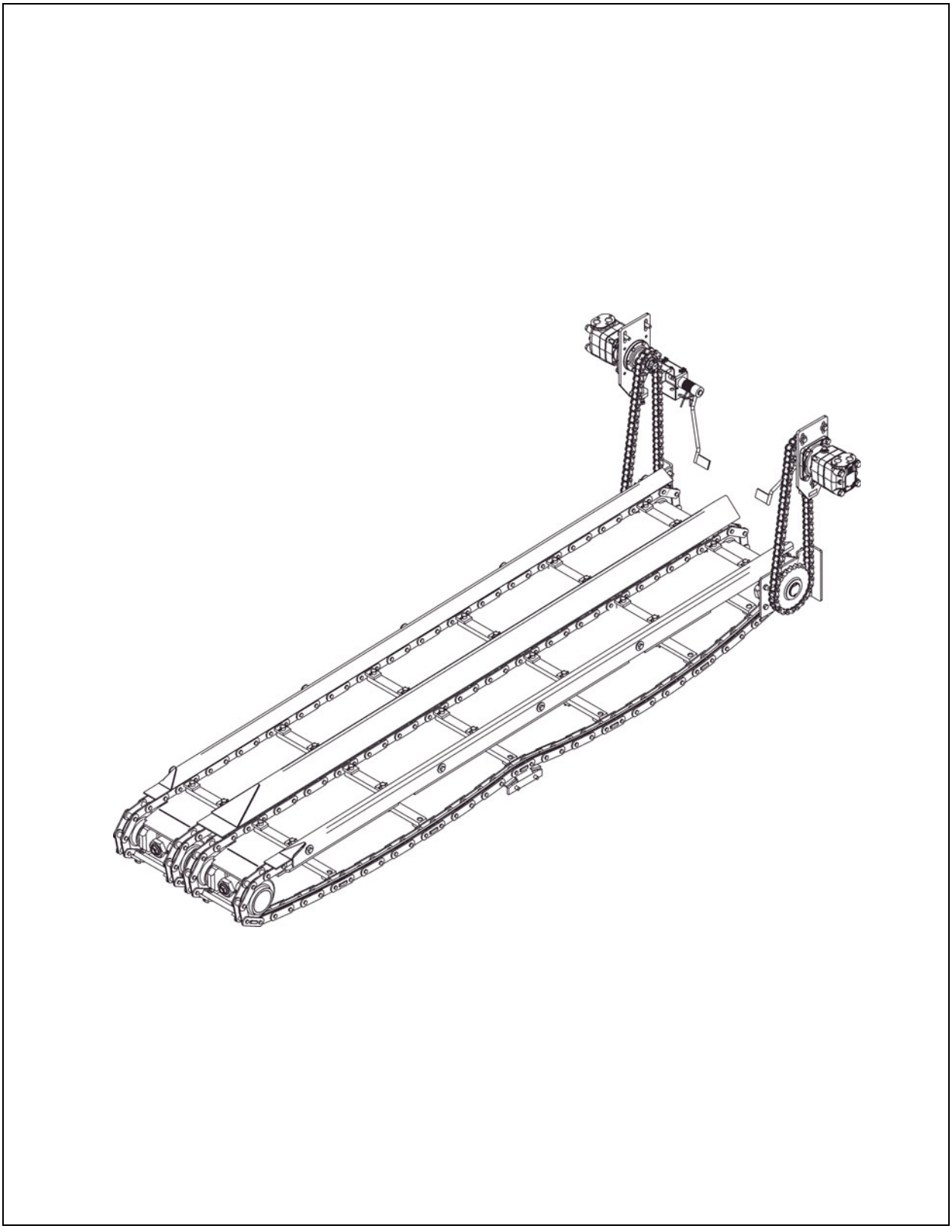
Assembly	Chapter	Maintenance necessary after operating hours									
		10	50	100	250	500	1000 / annually	2000 / every 2 years	5000	20000	If necessary
Conveyor	F31.18	■		■							■
Auger	F40.18	■	■	■			■				■
Engine	F50.18	■			■	■	■	■			■
Hydraulic system	F60.18	■	■	■		■	■	■			■
Wheel chassis	F71.18	■	■	■		■	■				■
Electrical system	F81.18	■	■	■	■						■
Lubrication points	F90	■	■					■			■
Checking/stopping	F100	■					■				■

Maintenance required	■

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

F 30.18 Maintenance - conveyor

1 Maintenance - conveyor



⚠ WARNING	**Danger of being pulled in by rotating or conveying vehicle parts**
	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. - Stop the engine and remove the ignition key before any maintenance work. - Comply with all further information in these instructions and in the safety manual.

⚠ CAUTION	**Danger from heavy loads**
	Lowering vehicle parts may cause injuries! - When the vehicle is parked and during maintenance and transport, close both hopper lids and fit the corresponding hopper transport safeguards. - When the vehicle is parked and during maintenance and transport, raise the screen and fit the corresponding screed transport safeguards. - Ensure that opened hoods and covering parts are locked properly. - Comply with all further information in these instructions and in the safety manual.

⚠ CAUTION	**Hot surfaces!**
	Surfaces including those behind covering parts, together with combustion gases from the engine or screed heater can be very hot and cause injuries! - Wear your personal safety gear. - Do not touch hot parts of the vehicle. - Only perform maintenance and repair work after the vehicle has cooled down. - Comply with all further information in these instructions and in the safety manual.

1.1 Maintenance intervals

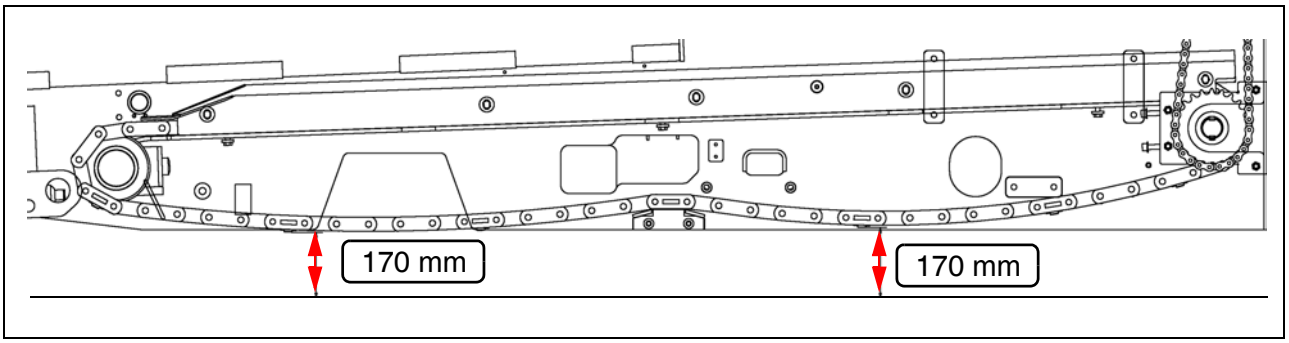
Item	Interval								Maintenance point	Note
	10	50	100	250	500	1000 / annually	2000 / every 2 years	If necessary		
1	■								- Conveyor chain - Check tightness	
								■	- Conveyor chain - Adjust tension	
								■	- Conveyor chain - Replace chain	
2			■						- Conveyor drive - drive chains - Check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

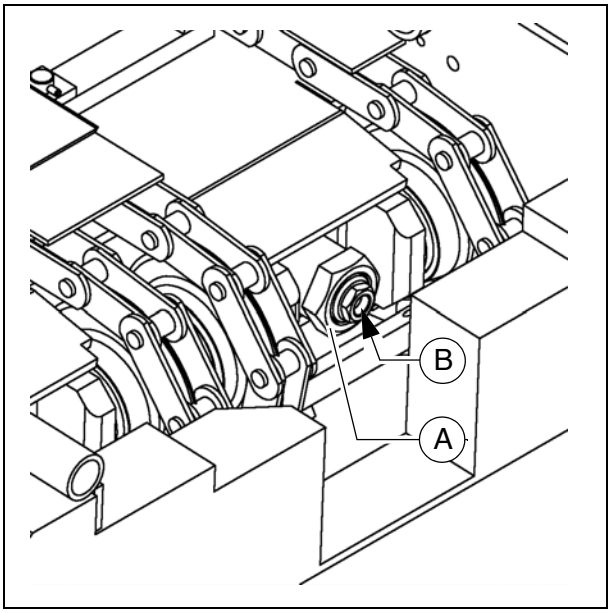
Check chain tension:



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

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

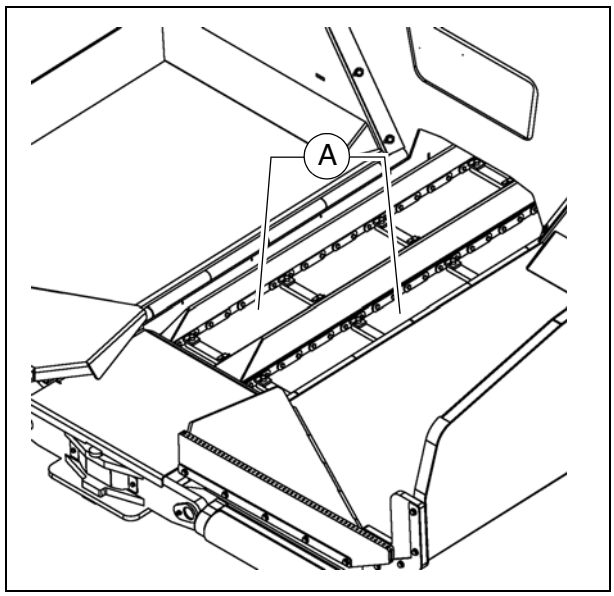
☞ The adjusting screws are located at the reversal behind the crossbeam.

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

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

Check / replace chain:

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



⚠ Chain links must not be removed to shorten the chain!
Incorrectly dividing the chains would destroy the drive wheels!

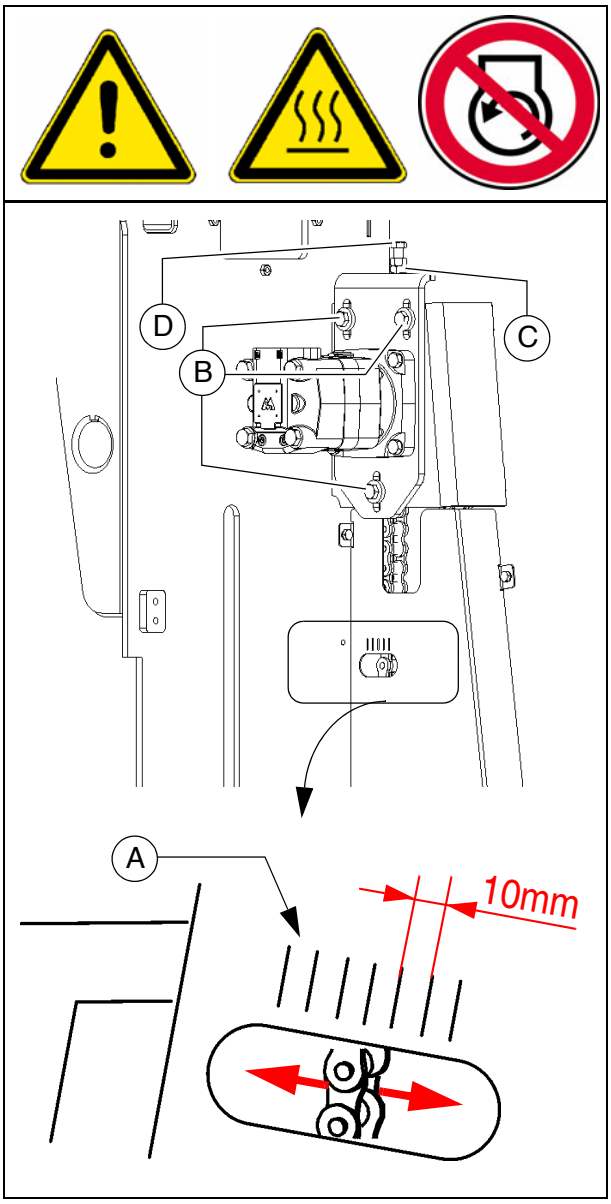
⚠ If components have to be replaced as a result of wear, the following components should always be replaced in sets:

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

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

Conveyor drive - drive chains (2)

To **check the chain tension**:



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

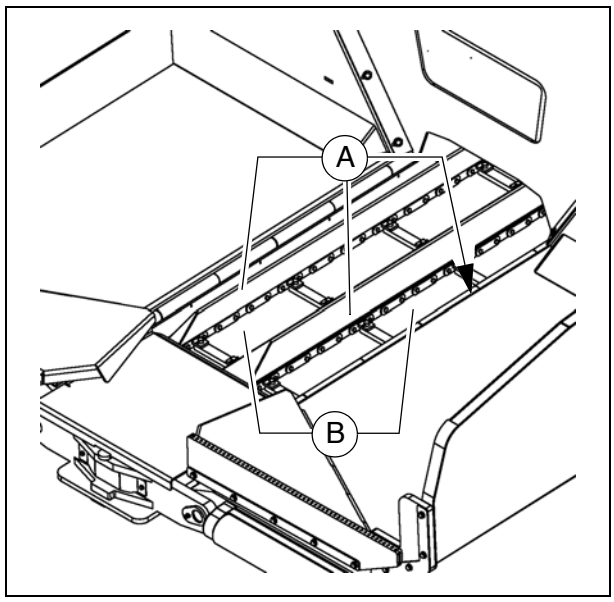
- Move the chain in the oblong hole of the chain guard:
  If the tension has been set properly, the chain must be able to move freely approx. 10 - 15 mm.

To **re-tension** the chains

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

Conveyor deflectors / conveyor plates (3)

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



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

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

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

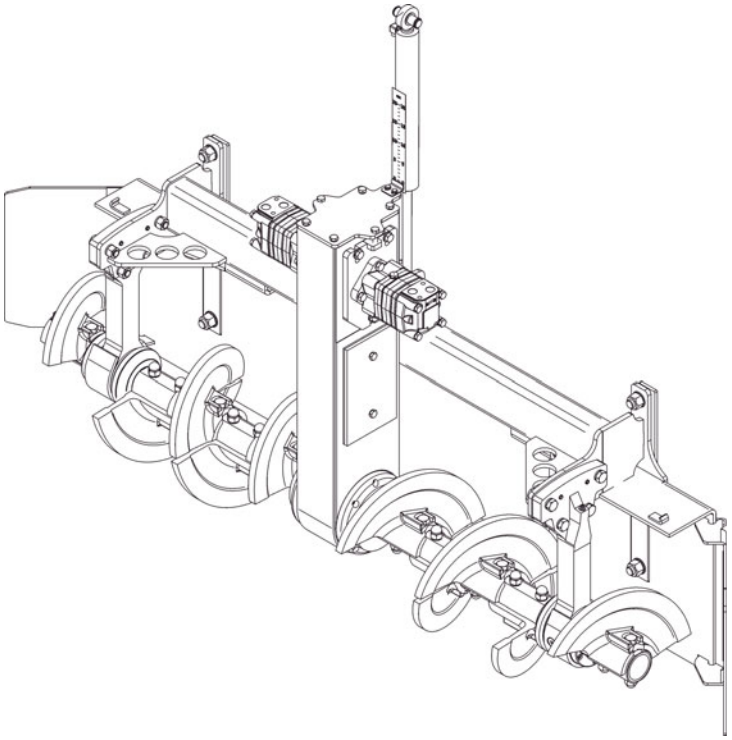
⚠ If components have to be replaced as a result of wear, the following components should always be replaced in sets:

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

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

F 40.18 Maintenance - auger assembly

1 Maintenance - auger assembly



⚠ WARNING	**Danger of being pulled in by rotating or conveying vehicle parts**
	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. - Stop the engine and remove the ignition key before any maintenance work. - Comply with all further information in these instructions and in the safety manual.

⚠ CAUTION	**Hot surfaces!**
	Surfaces including those behind covering parts, together with combustion gases from the engine or screed heater can be very hot and cause injuries! - Wear your personal safety gear. - Do not touch hot parts of the vehicle. - Only perform maintenance and repair work after the vehicle has cooled down. - Comply with all further information in these instructions and in the safety manual.

1.1 Maintenance intervals

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

Maintenance	■
Maintenance during the running-in period	▼

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

Maintenance	■
Maintenance during the running-in period	▼

1.2 Points of maintenance

Auger drive chains (1)

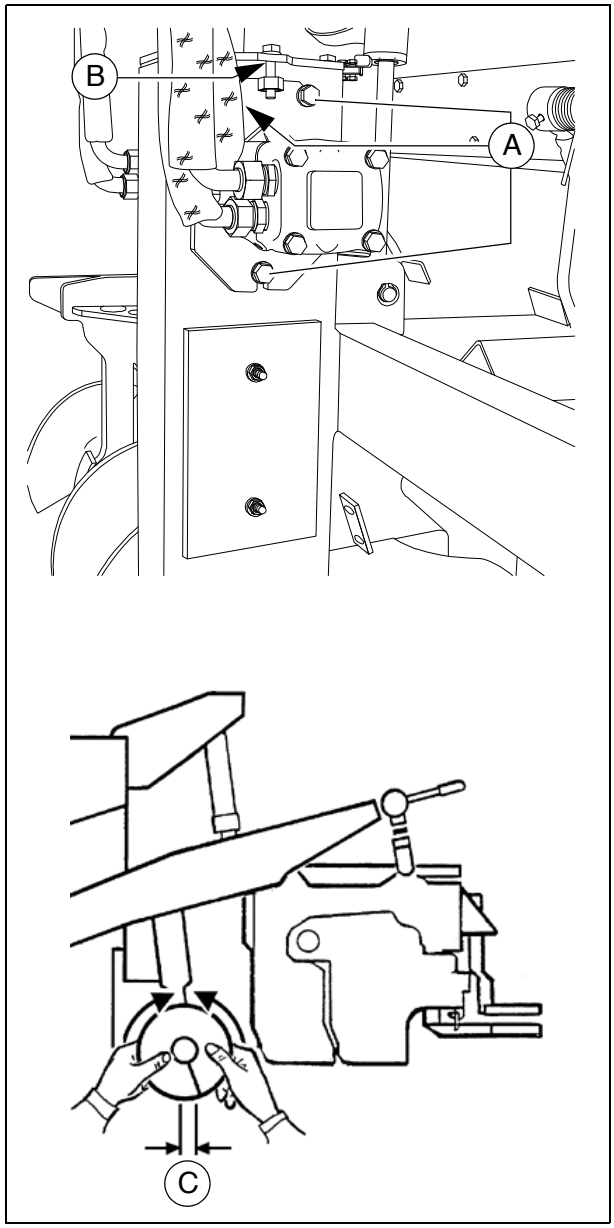
To **check the chain tension**:

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

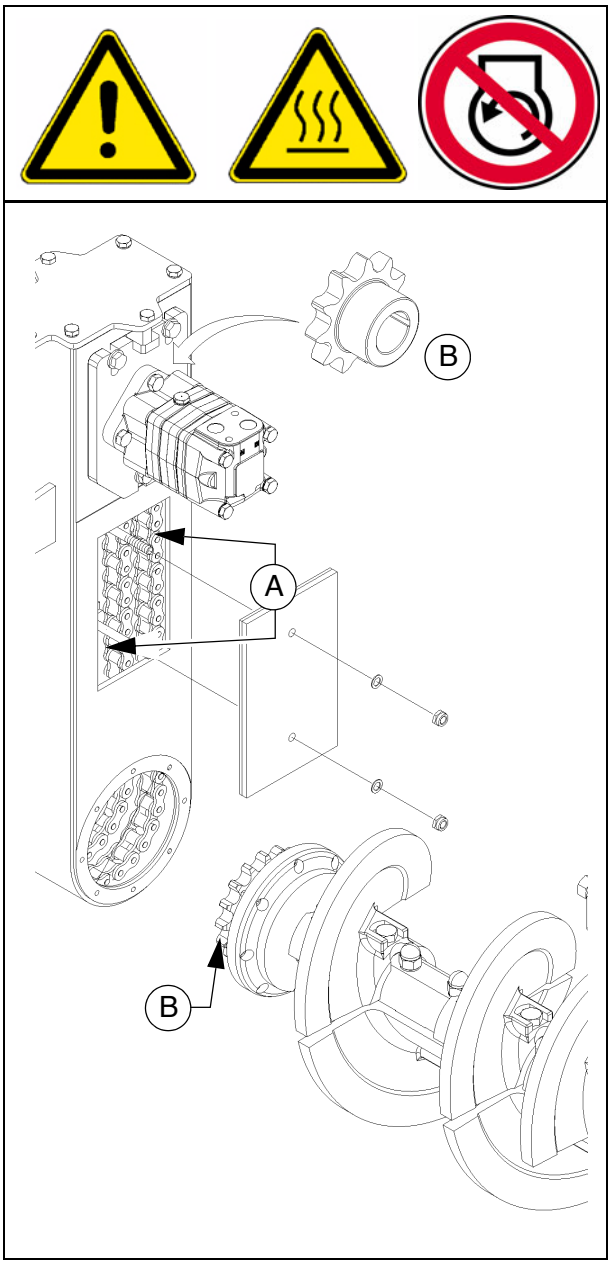
STOP Risk of injury due to sharp-edged parts!

To **re-tension** the chains

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



Check / replace chain:



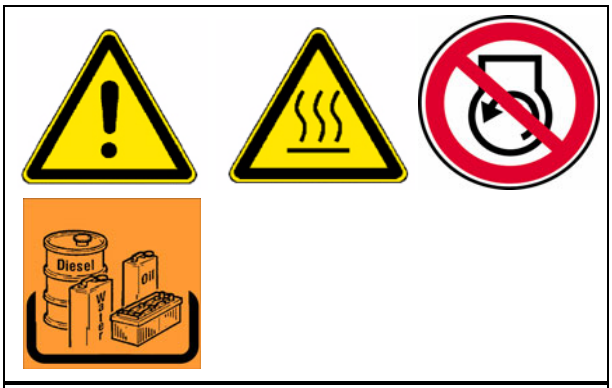
☞ The drive chains (A) must be replaced at the latest when:

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

⚠ Chains and chain sprockets must always be replaced in sets.

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

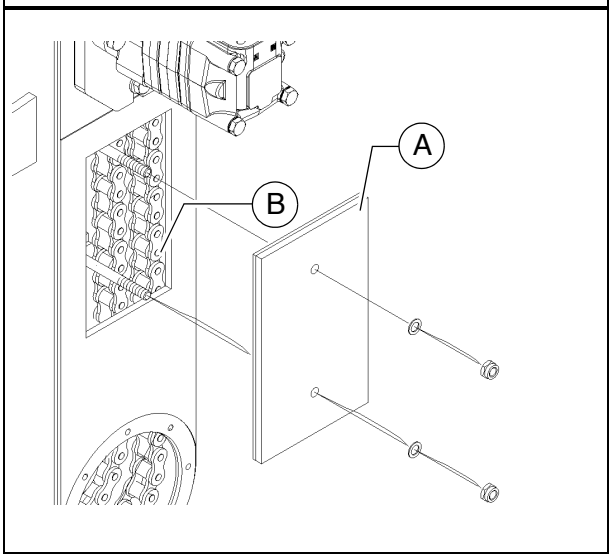
Auger box (2)



Check grease fill

To **check** the grease fill:

- Remove side cover (A)



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

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

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

Change grease

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

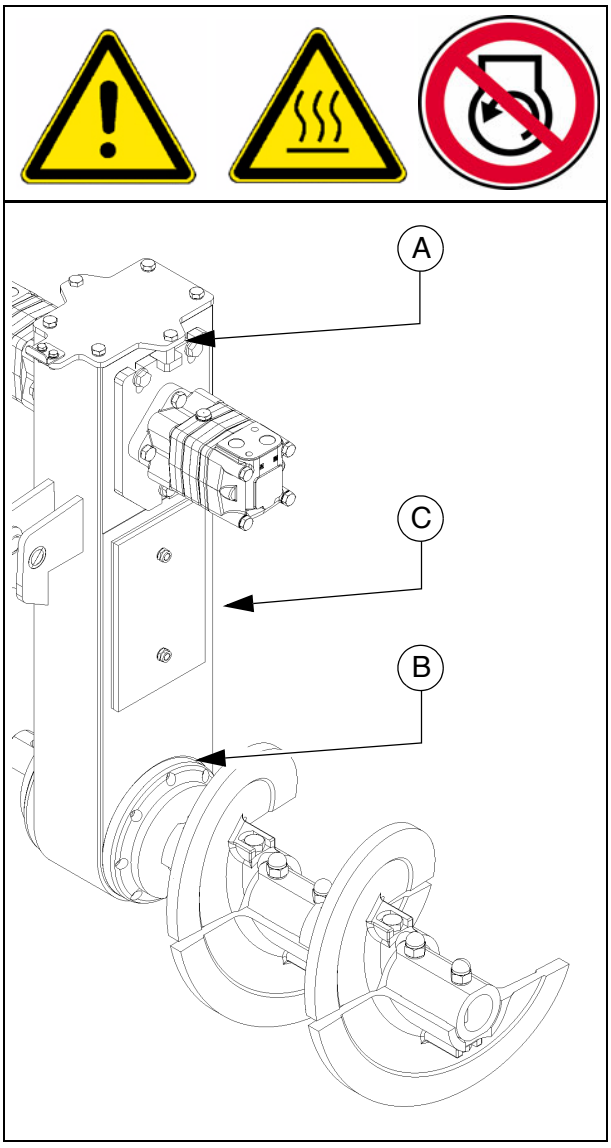
- After dismantling the worn parts, clean the auger box on the inside.
- Once all parts have been mounted, fill with new grease, then fit cover (A).

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

Seals and sealing rings (3)

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

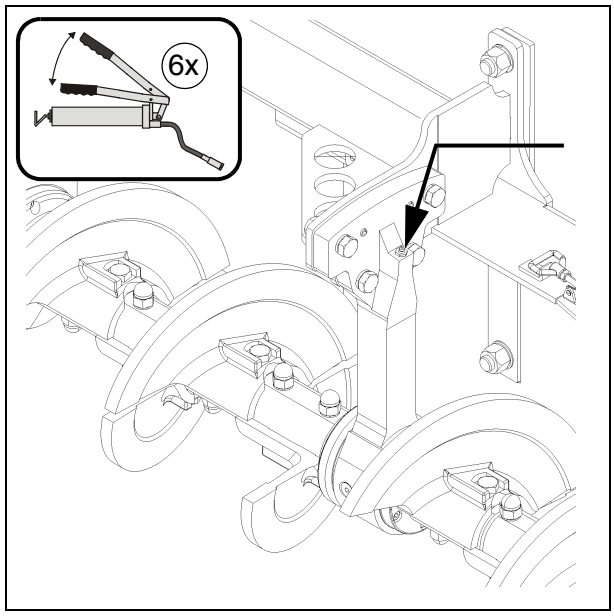
⚠ In case of visible leaks, e.g. between the flange surfaces (A) of the drive, auger shaft (B) or at the side cover (C), replacement of the seals and sealing rings is necessary.



Outer auger bearing (4)

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

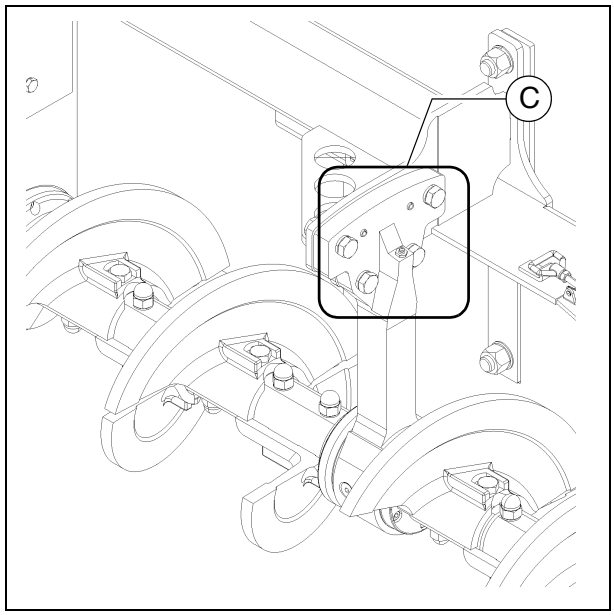
These nipples must be lubricated at the end of work to force out any bitumen residues which may have entered and to supply the bearings with fresh grease when warm.



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

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

Mounting screws - outer augur bearing Check tightening (5)



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

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

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

Auger blade (6)

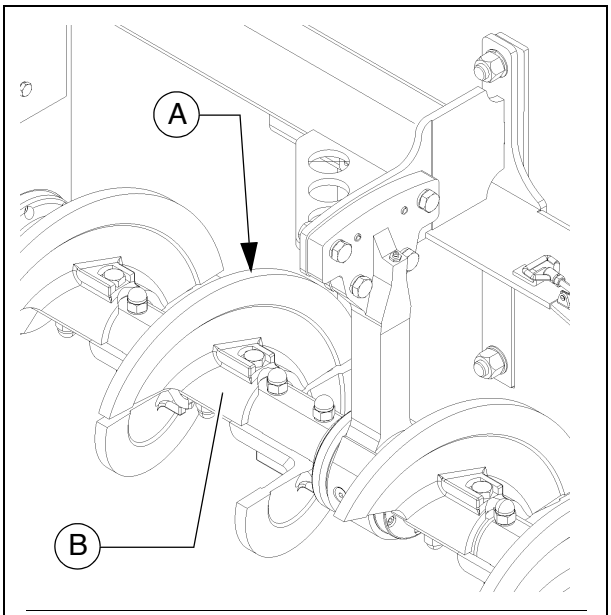
If the surface of the auger blade (A) becomes sharp-edged, the diameter of the auger is reduced and the blades (B) have to be replaced.

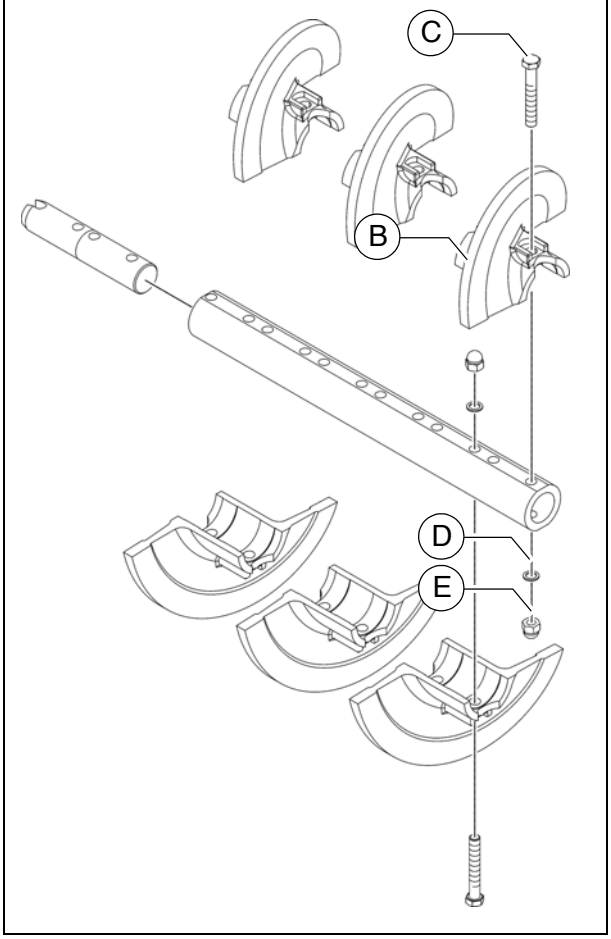
- Remove the bolts (C), washers (D), nuts (E) and auger blade (B).

Risk of injury due to sharp-edged parts!

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

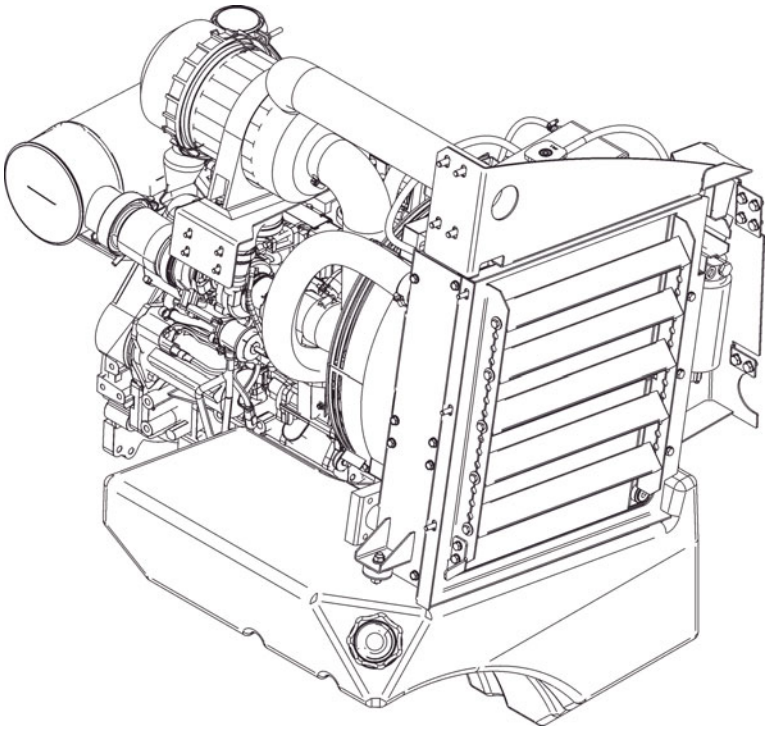
- Install the new auger blade (B); replace the bolts (C), washers (D) and nuts (E) if necessary.





F 50.18 Maintenance - engine assembly

1 Maintenance - engine assembly



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

⚠ WARNING	**Danger of being pulled in by rotating or conveying vehicle parts**
	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. - Stop the engine and remove the ignition key before any maintenance work. - Comply with all further information in these instructions and in the safety manual.

⚠ CAUTION	**Hot surfaces!**
	Surfaces including those behind covering parts, together with combustion gases from the engine or screed heater can be very hot and cause injuries! - Wear your personal safety gear. - Do not touch hot parts of the vehicle. - Only perform maintenance and repair work after the vehicle has cooled down. - Comply with all further information in these instructions and in the safety manual.

1.1 Maintenance intervals

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

Maintenance	■
Maintenance during the running-in period	▼

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

Maintenance	■
Maintenance during the running-in period	▼

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

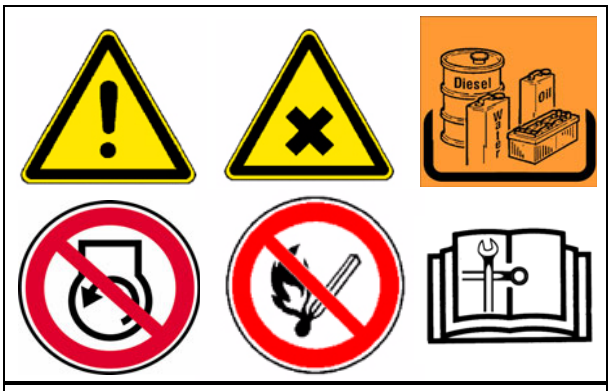
☞ Fill the fuel tank each time before starting work so that the fuel system cannot "run dry" and time-consuming venting (bleeding) can therefore be avoided.

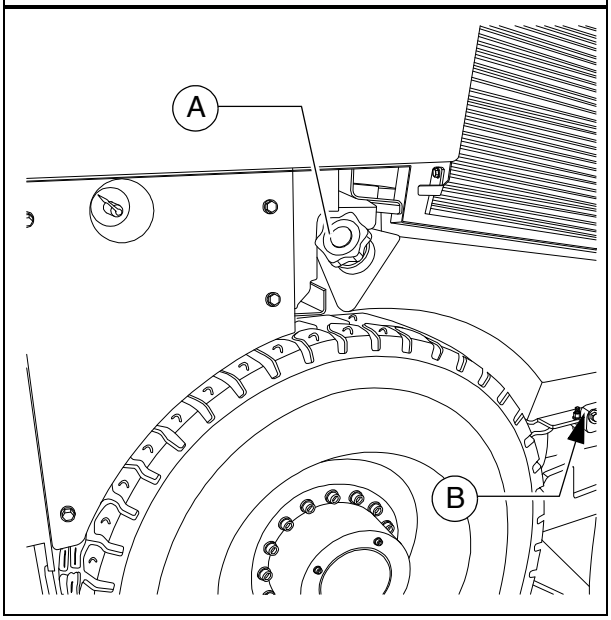
For **filling with** fuel:

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

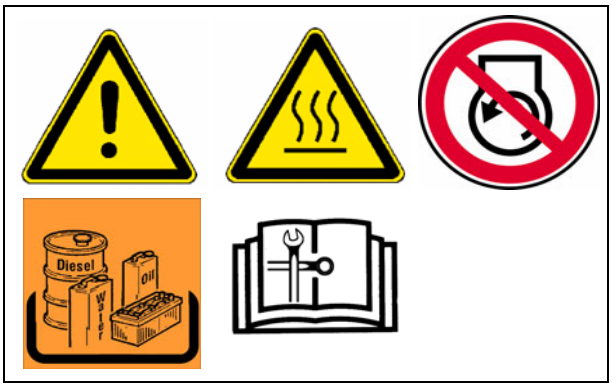
Clean the tank and system:

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





Engine lube oil system (2)



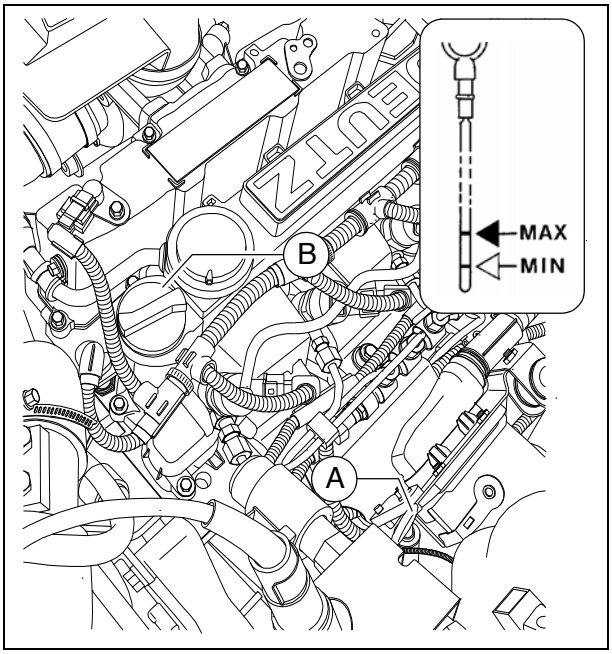
Check oil level

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

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

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

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



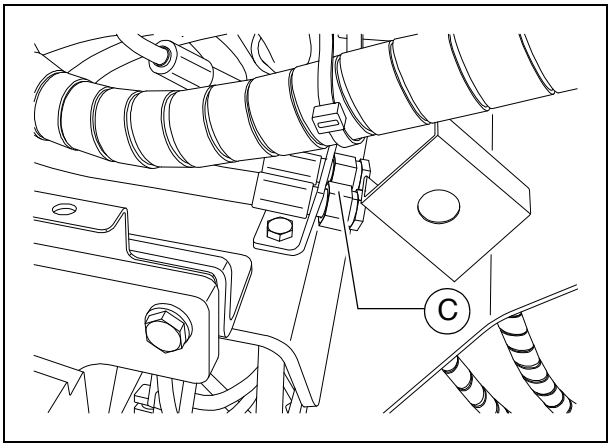
For **filling with** oil:

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

Oil change:

☞ The oil should be changed when at operating temperature.

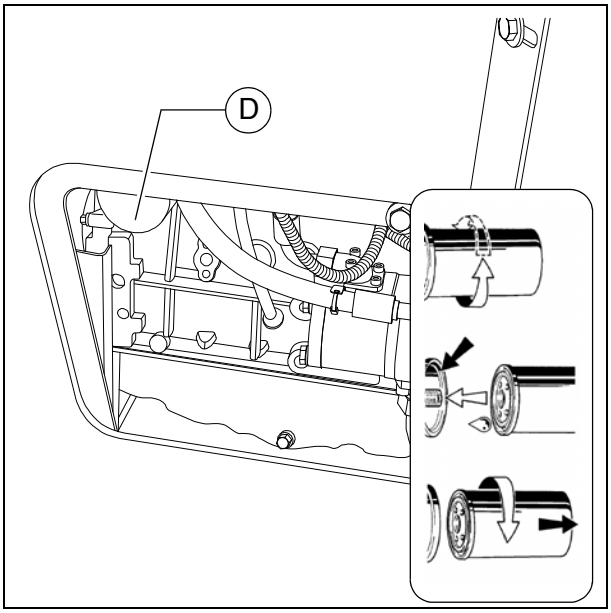
- Place the end of the oil drain port hose (C) in the collection container.
- Remove the screw cap with a wrench and allow the oil to drain completely.
- Replace the screw cap and tighten properly.
- Fill in the specified quality of oil through the filler opening (B) on the engine until the oil level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



Changing the oil filter:

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

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



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

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

Engine fuel system (3)

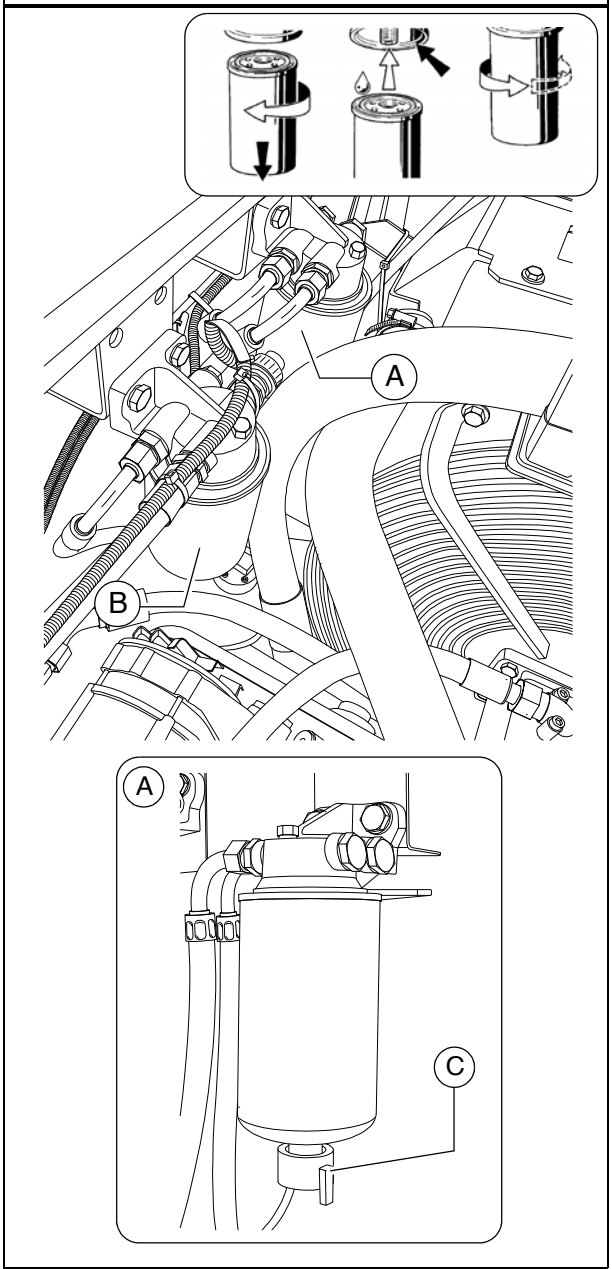
☞ The fuel filter system consists of two filters:

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

Prefilter - draining of water

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

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



Changing the prefilter:

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

Bleed the fuel system:

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

- Ignition "ON"

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

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

- Ignition "OFF"

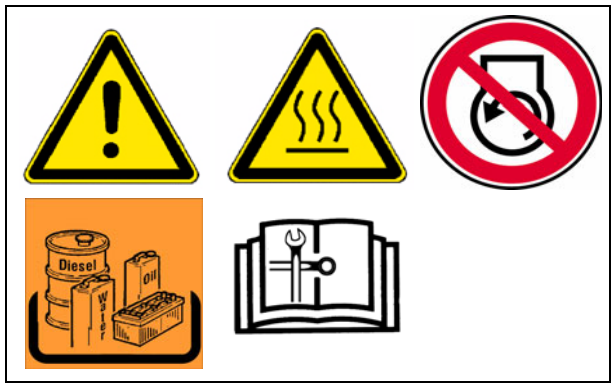
☞ Repeat at least twice until the fuel system is bled.

Replacing the main filter:

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

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

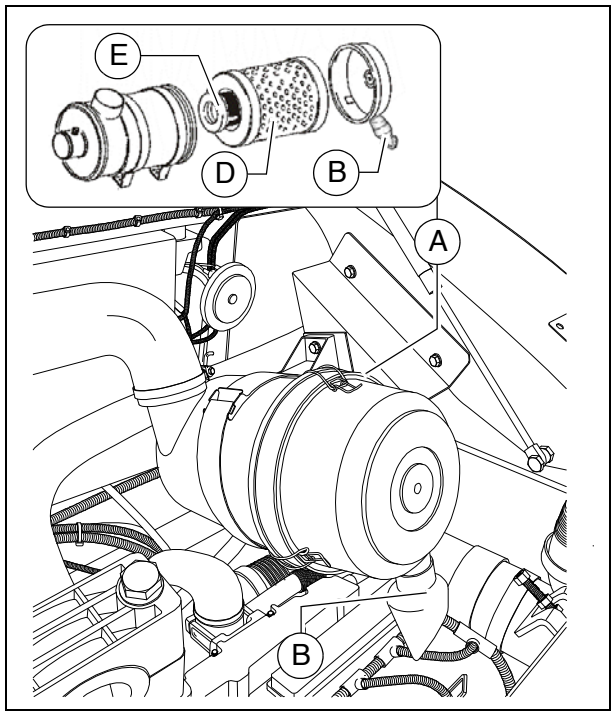
Engine air filter (4)



Empty dust collector

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

☞ Clean the discharge port from time to time.



Cleaning / replacing the air filter cartridge

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

☞ Filter maintenance becomes necessary if:

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

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

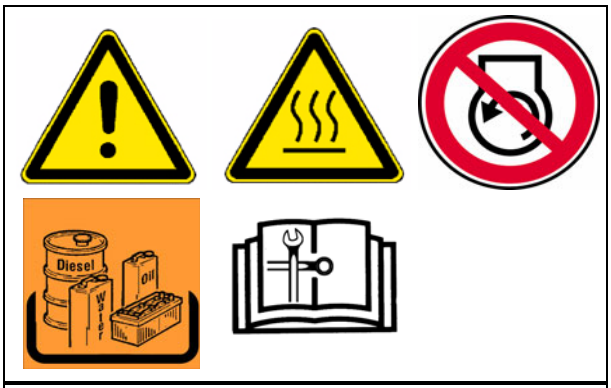
- Blow out with dry pressure air (max. 5 bar) from inside out or tap it (in case of emergency only).

☞ Do not damage cartridge when doing so.

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

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

Engine cooling system (5)

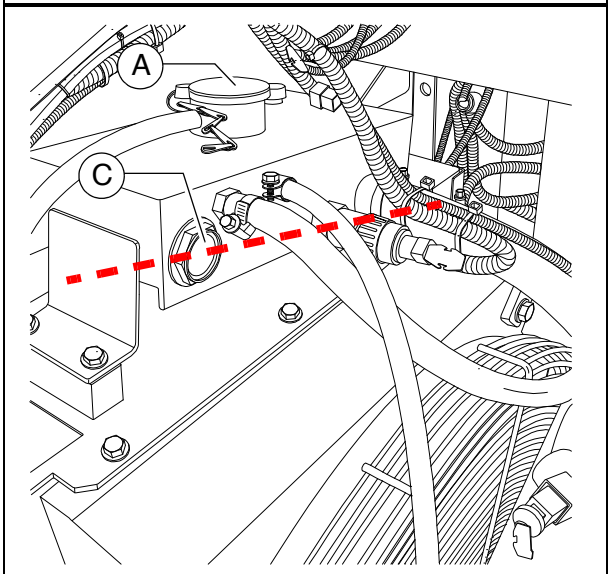


Checking / topping up coolant

The cooling water level must be checked when the system is cold. Make sure that the anti-freeze and anti-corrosive liquid is sufficient (-25°C).

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

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



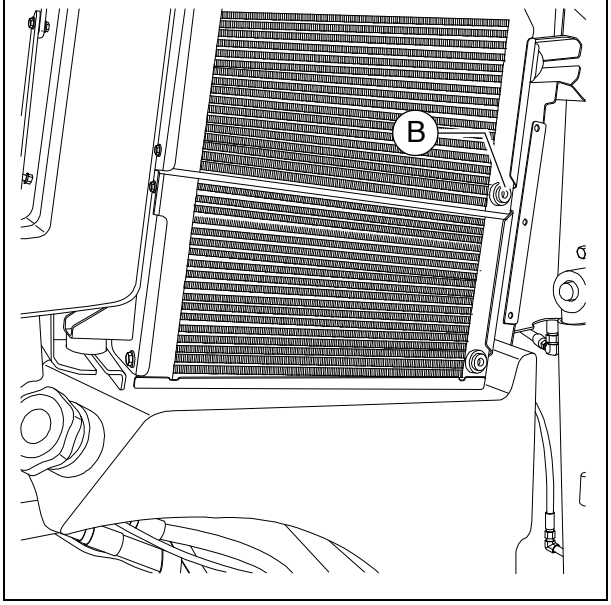
Change coolant

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

⚠ Use only approved coolants!

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

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



⚠ The air is only able to escape completely from the cooling system once the engine has reached its operating temperature (at least 90°C).
Check the fluid level again, top up if necessary.

Checking and cleaning the radiator fins

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

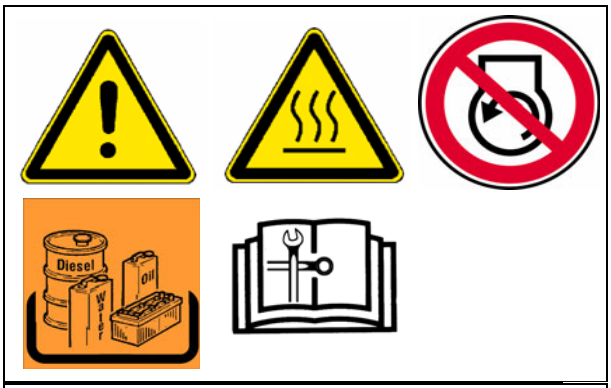
☞ Observe engine's operating instructions

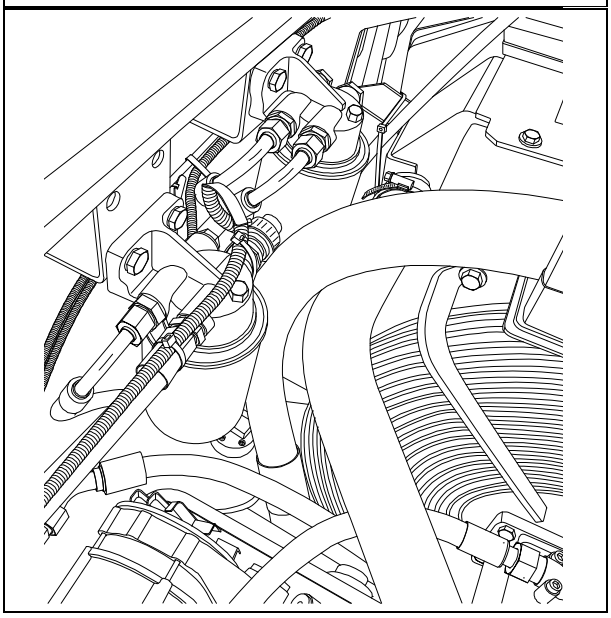
Checking coolant concentration

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

☞ Observe engine's operating instructions

Engine drive belt (6)





Check drive belt

- Check the drive belt for damage.

☞ Small transverse cracks in the belt are acceptable.

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

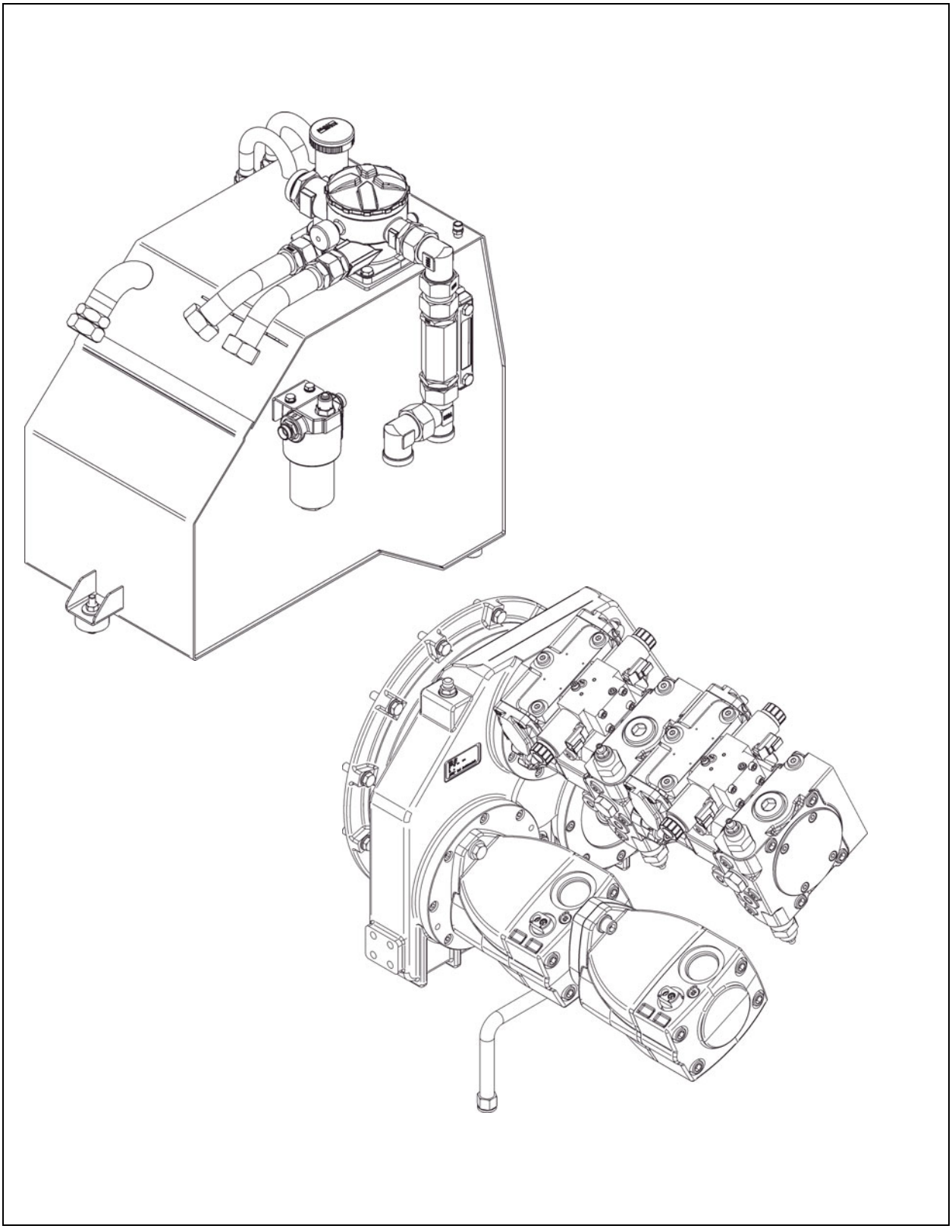
☞ Observe engine's operating instructions

Replace drive belt

☞ Observe engine's operating instructions

F 60.18 Maintenance - hydraulic system

1 Maintenance - hydraulic system



⚠ WARNING	**Danger due to hydraulic oil**
	Hydraulic oil under high pressure can cause severe to fatal injuries! - Only competent staff should work on the hydraulic system! - Any hydraulic hoses that are cracked or soaked through must be replaced immediately. - Depressurise the hydraulic system. - Lower screed and open hopper. - Stop the engine and remove the ignition key before any maintenance work. - Secure the vehicle to prevent it being switched on again. - Consult a doctor immediately if injured. - Comply with all further information in these instructions and in the safety manual.

⚠ CAUTION	**Hot surfaces!**
	Surfaces including those behind covering parts, together with combustion gases from the engine or screed heater can be very hot and cause injuries! - Wear your personal safety gear. - Do not touch hot parts of the vehicle. - Only perform maintenance and repair work after the vehicle has cooled down. - Comply with all further information in these instructions and in the safety manual.

⚠ WARNING	**Danger from residual pressure in hydraulic lines**
	Residual pressure in the hydraulic system can cause severe or fatal injuries! - Proceed as follows before working on the hydraulic system: - Depressurise the hydraulic system for maintenance: 2. Open hopper. 3. Move levelling cylinder to lower limit position. 4. Retract screed. 5. Lower the screed to the floating position. 6. Set crowning to 0°. 7. Move front hopper cylinder to lower limit position. - Stop the engine and remove the ignition key before any maintenance work. - Secure the vehicle to prevent it being switched on again. - Let the hydraulic oil cool down. ☞ After depressurising, begin slowly and carefully when opening the threaded connections in the hydraulic lines. Continue to loosen the threaded connections with caution in order to notice possible dangers resulting from any still remaining pressure in the hydraulic fluid (here it may help to knock gently on the threaded connection) so that precautions can be taken. Do not continue loosening the threaded connection if there is still any remaining pressure in the system. Depressurise the system again and check once more that this has been effective.

7.1 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	
						■			- Hydraulic oil tank - Change ventilation filter	
2	■								- Hydraulic oil tank - Check maintenance indicator	
						■		■	- Hydraulic oil tank - Change and vent the suction/return flow hydraulic filter	
3	■								- High-pressure filter - Check maintenance indicator	
						■		■	- High-pressure filter - Replace filter element	
4		▼			▼	■		■	- High-pressure filter (mesh filter) - Replace filter element	(○)

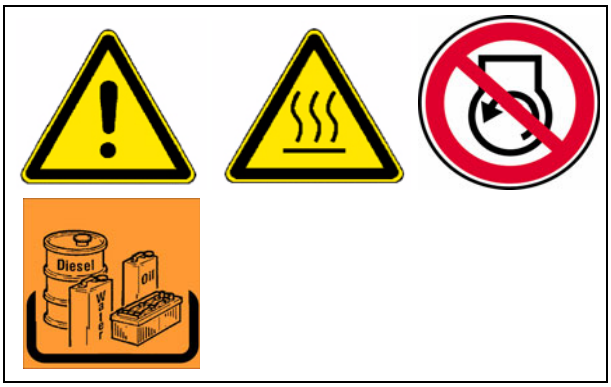
Maintenance	■
Maintenance during the running-in period	▼

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

Maintenance	■
Maintenance during the running-in period	▼

7.2 Points of maintenance

Hydraulic oil tank (1)

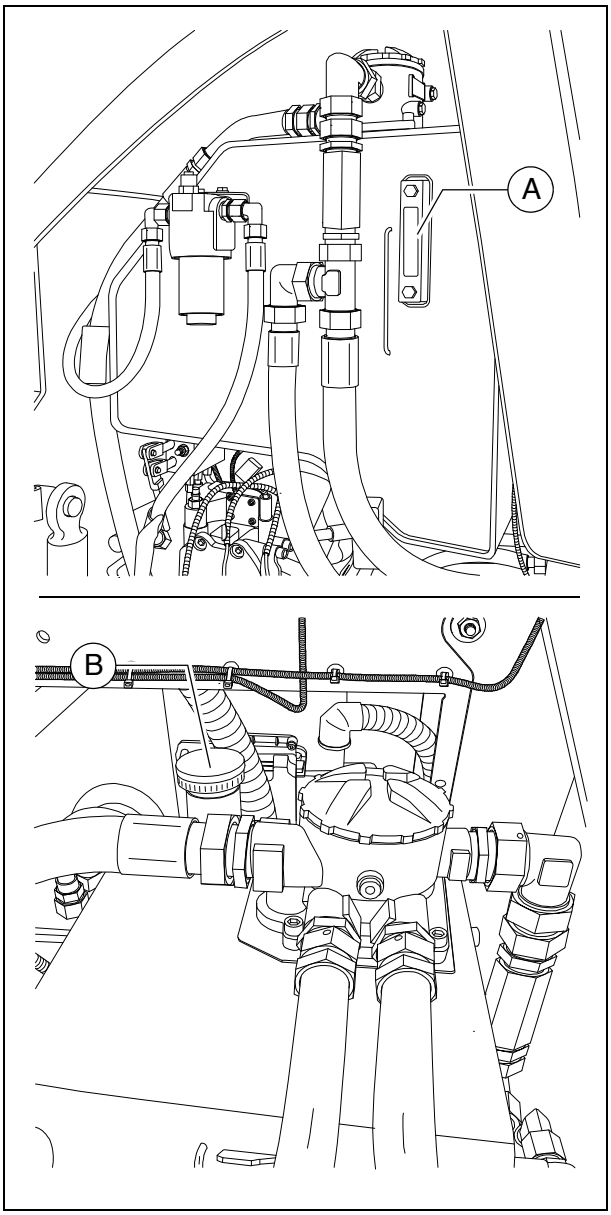


- **Check oil level** at sight glass (A).

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

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

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



For **filling** with oil:

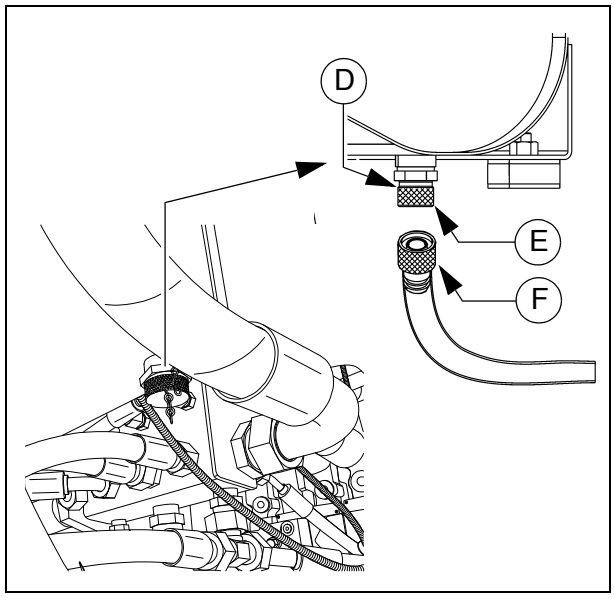
- Remove cap (B).
- Fill in oil through the filler opening until the oil level rises to the centre of the sight glass (A) (+/- 5 mm).
- Screw cap (B) on again.

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

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

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

To **change** oil:



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

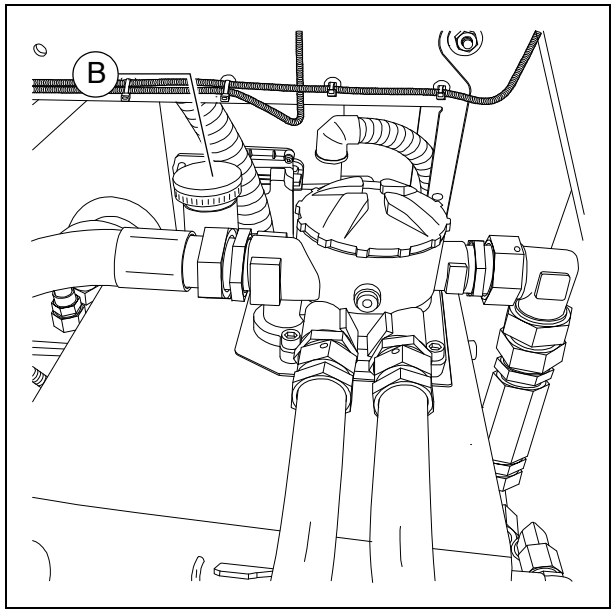
☞ When using the drainage hose (○):

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

☞ The oil should be changed when at operating temperature.

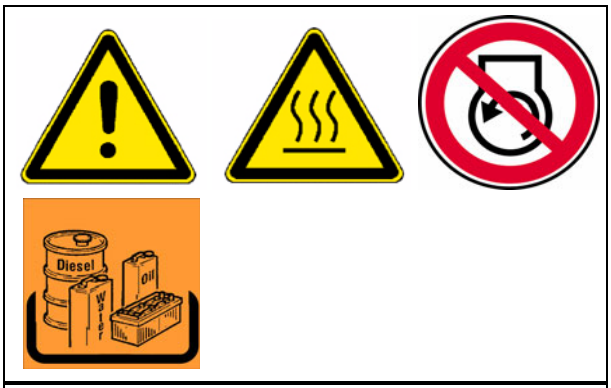
⚠ When changing the hydraulic oil also change the filter.

Ventilation filter

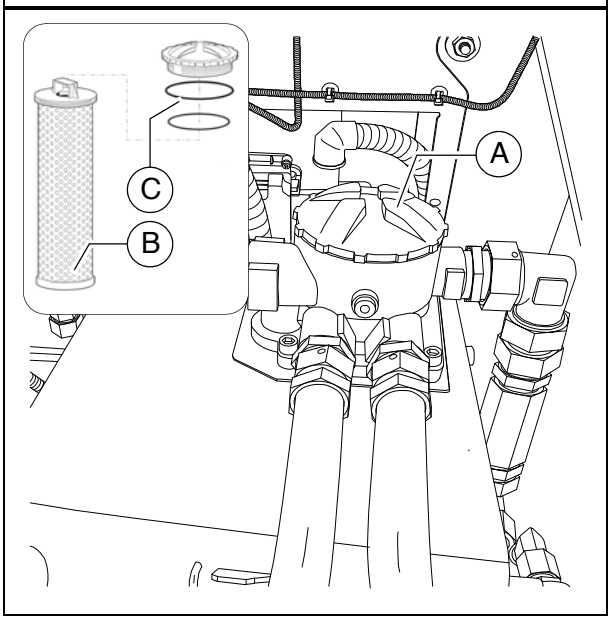


☞ The ventilation filter is integrated in the cover (B).
The cover must be replaced according to the maintenance interval.

Suction/return flow hydraulic filter (2)



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



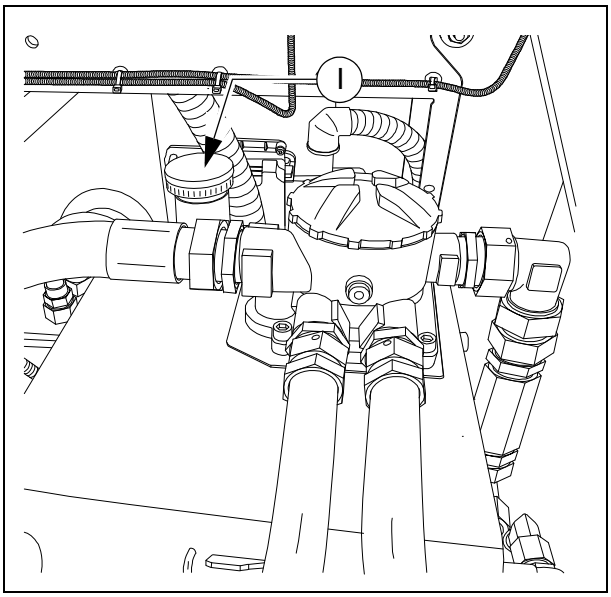
- Remove cover (A).
- Pull filter element (B) out of the housing.
- Clean filter element and cover.
- Check O-rings (C), replace if necessary.
- Coat the sealing surfaces and O-rings with clean operating fluid.
- Fill the opened filter housing with hydraulic oil up to approx. 2 cm below the top edge.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

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

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

⚠ Ensure seal integrity is good after changing the filter.

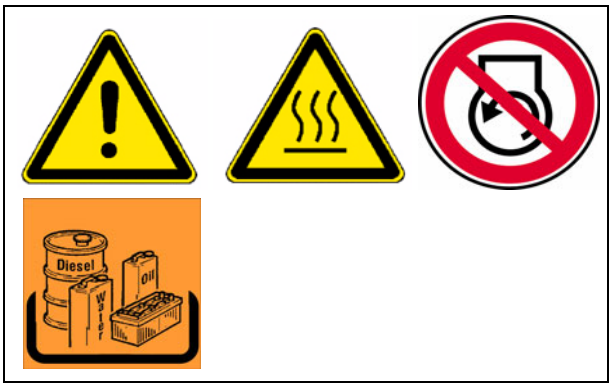
Ventilation filter



☞ The ventilation filter is contained in the filler cap.

- Replace ventilation filter / filler cap.

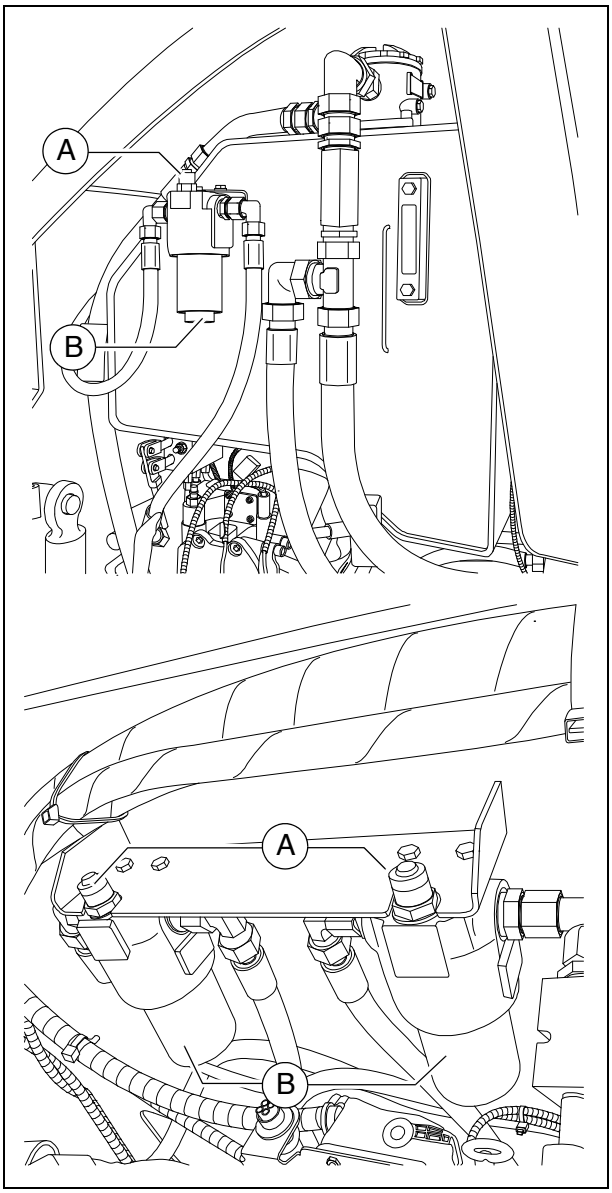
High-pressure filter (3)



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

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

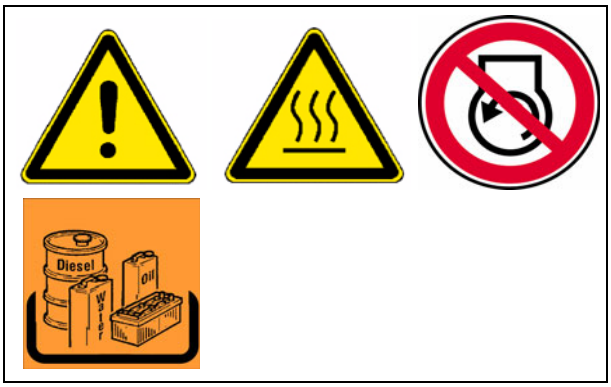
- Unscrew filter housing (B).
- Remove the filter cartridge.
- Clean the filter housing.
- Insert the new filter cartridge.
- Replace the seal ring of the filter housing.
- Turn on the filter housing by hand and tighten it using a wrench.
- Start trial operation and check the tightness of the filter.



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

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

High-pressure filter (4)



Replace the filter elements when the interval has been reached

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

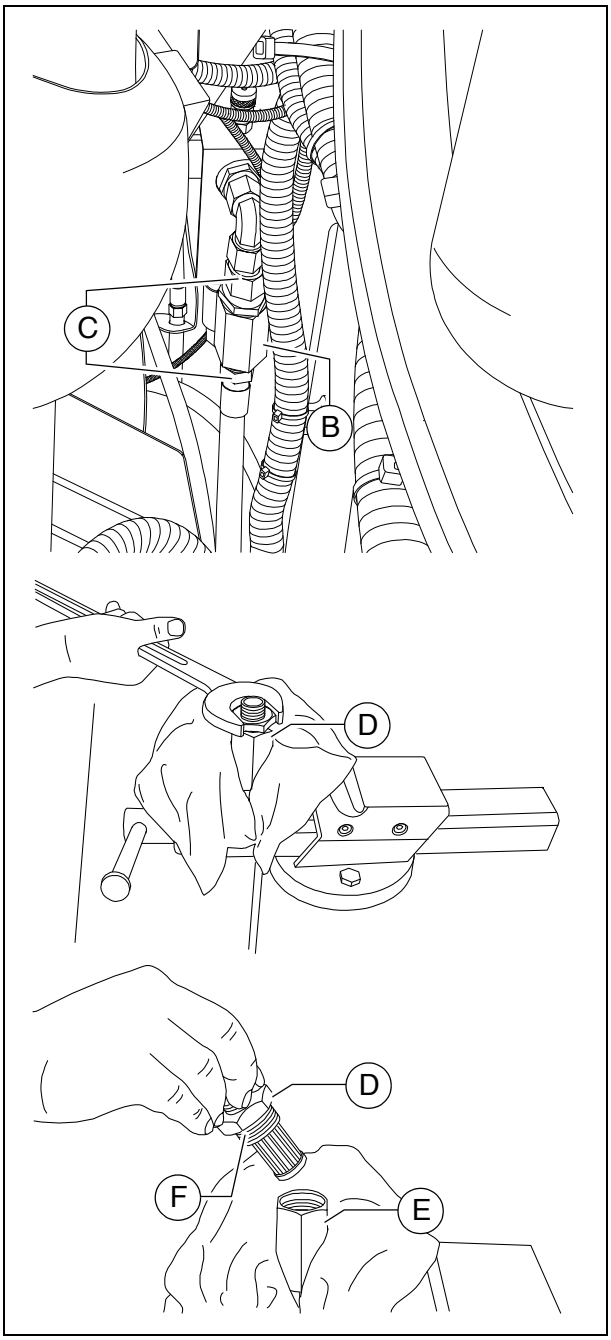
☞ During the run-in time, the filter element can be cleaned with cleaning solvent, later it will have to be changed.

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

☞ Put a vessel underneath to collect the draining oil.

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

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



Pump distribution gear (5)

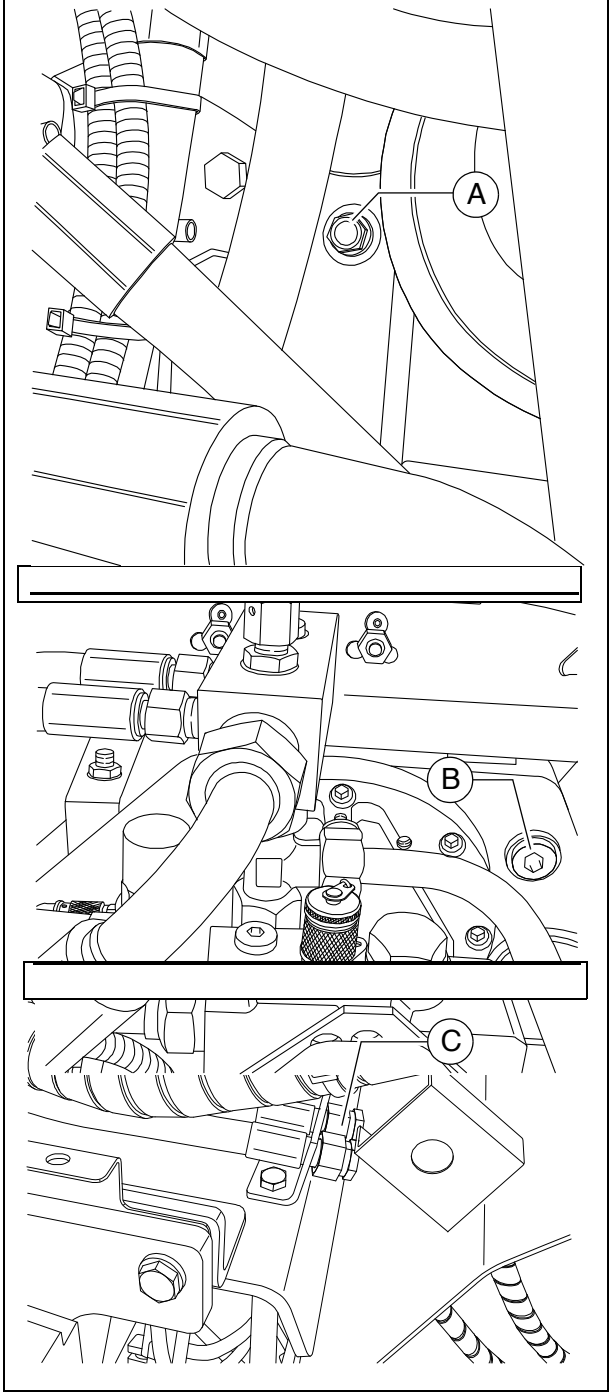
- **Check the oil level** at the sight glass (A) (at the side of the gear housing).

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

For **filling** with oil:

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

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

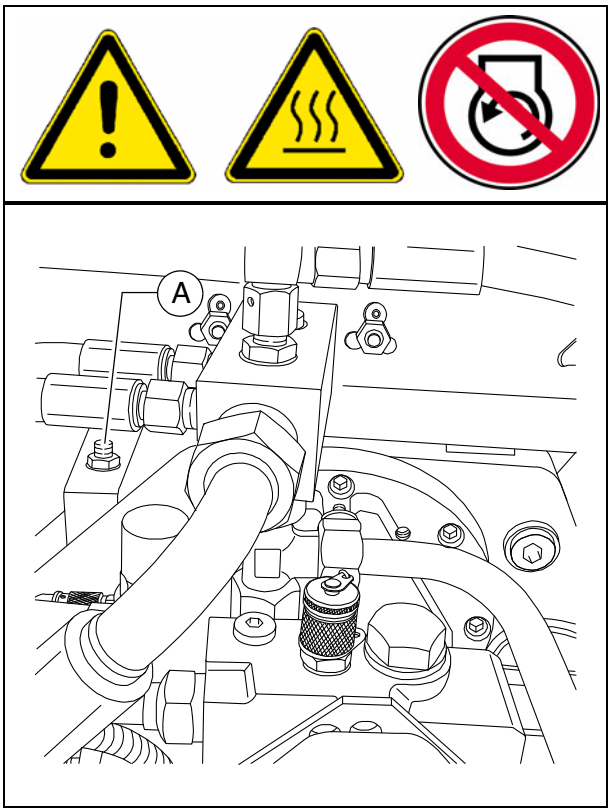


Oil change:

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

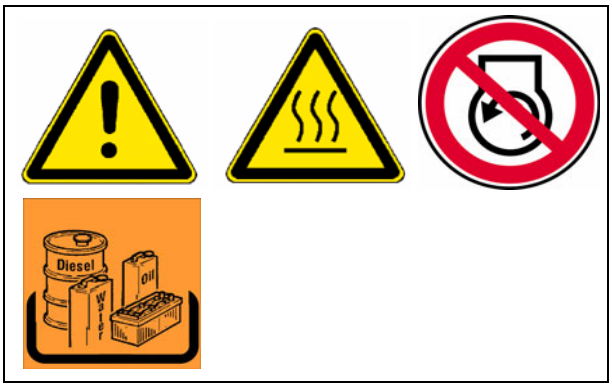
☞ The oil should be changed when at operating temperature.

Bleeder



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

Hydraulic hoses (6)



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

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

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

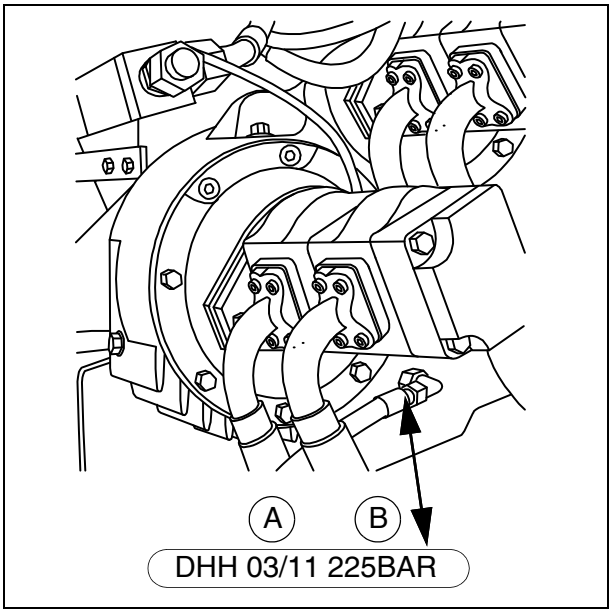
☞ See the section on "Marking hydraulic hoses".

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



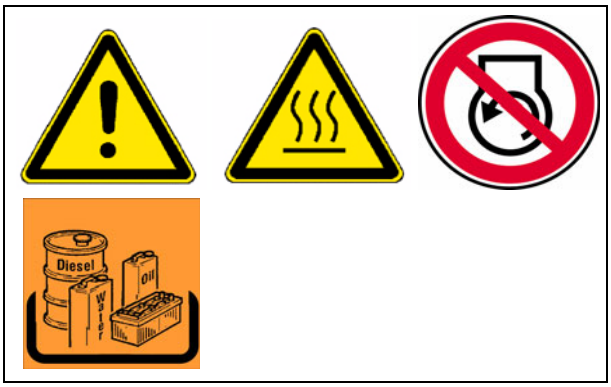
A number stamped onto the screwed connection provides information about the date of manufacture (A) (month / year) and the maximum pressure permitted for this hose (B).

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

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

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

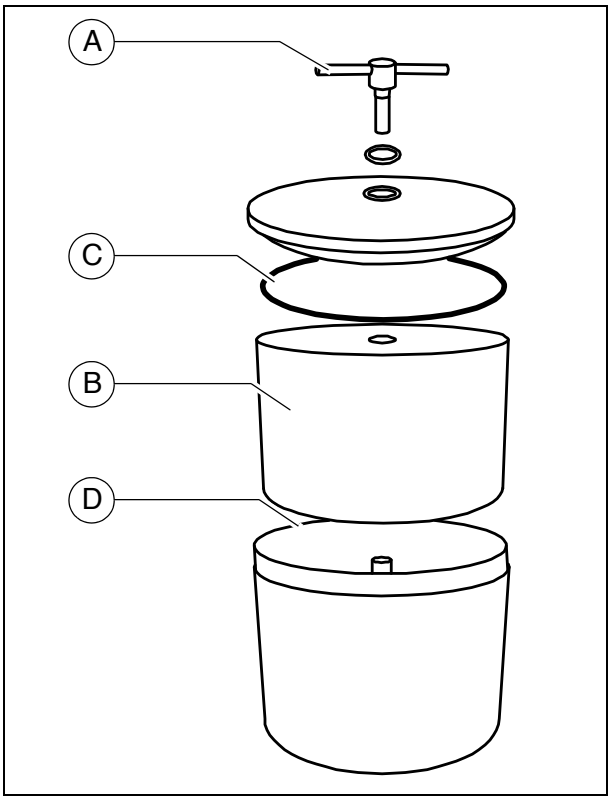
Auxiliary flow filter (6)



☞ The hydraulic oil change is omitted on use of an auxiliary flow filter!
The quality of the oil must be checked regularly.
The oil level must be topped up if necessary!

Replacing filter element:

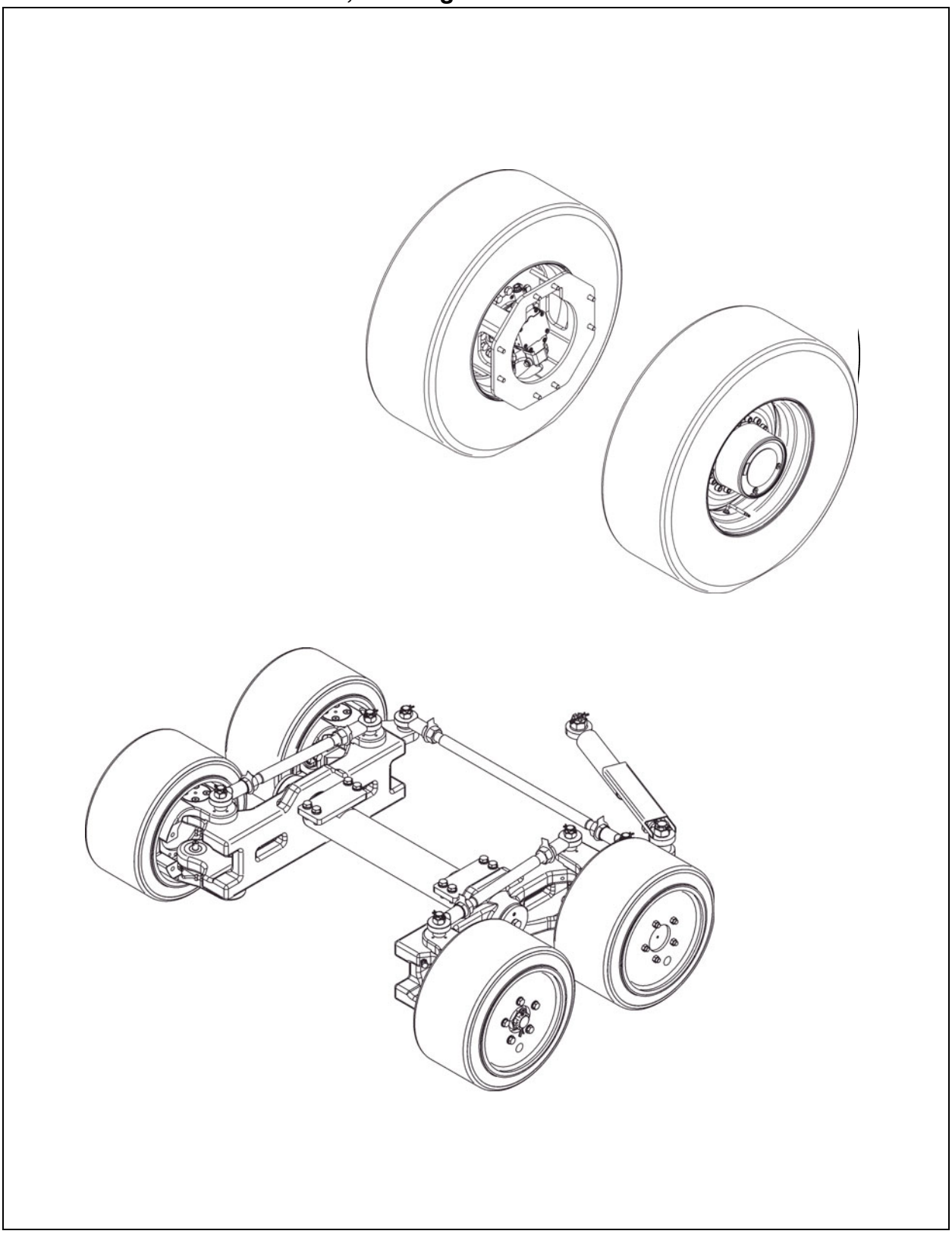
- Release the threaded cover connection (A) then open the non-return valve briefly to lower the oil level in the filter, then close the non-return valve again.
- Replace filter element (B) and sealing ring (C):
  - Turn filter element clockwise with the help of carrier straps and, at the same time, raise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



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

F 71.18 Maintenance - travel drive, steering

1 Maintenance - travel drive, steering



⚠ WARNING	**Danger of being pulled in by rotating or conveying vehicle parts**
	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. - Stop the engine and remove the ignition key before any maintenance work. - Comply with all further information in these instructions and in the safety manual.

⚠ CAUTION	**Danger from heavy loads**
	Lowering vehicle parts may cause injuries! - When the vehicle is parked and during maintenance and transport, close both hopper lids and fit the corresponding hopper transport safeguards. - When the vehicle is parked and during maintenance and transport, raise the screen and fit the corresponding screed transport safeguards. - Ensure that opened hoods and covering parts are locked properly. - Comply with all further information in these instructions and in the safety manual.

⚠ CAUTION	**Hot surfaces!**
	Surfaces including those behind covering parts, together with combustion gases from the engine or screed heater can be very hot and cause injuries! - Wear your personal safety gear. - Do not touch hot parts of the vehicle. - Only perform maintenance and repair work after the vehicle has cooled down. - Comply with all further information in these instructions and in the safety manual.

1.1 Maintenance intervals

Item	Interval								Maintenance point	Note
	10	50	100	250	500	1000 / annually	2000 / every 2 years	If necessary		
1		■							- Planetary gear - Check oil level	
								■	- Planetary gear - Top up oil	
			▼			■			- Planetary gear - Change oil	
					■				- Planetary gear - Check oil quality	

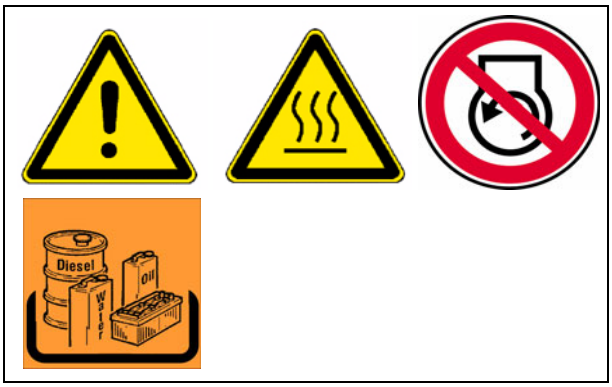
Maintenance	■
Maintenance during the running-in period	▼

Item	Interval								Maintenance point	Note
	10	50	100	250	500	1000 / annually	2000 / every 2 years	If necessary		
2	■								- Drive wheels - Check tyres for damage	
								■	- Drive wheels - Replace tyres	
		■							- Drive wheels - Check air pressure	
								■	- Drive wheels - Adjust air pressure	
	▼								- Drive wheels - Check wheel nuts	
								■	- Drive wheels - Tighten wheel nuts	
3		■							- Lubricating points - Lubricate king pins	
		■							- Lubricating points - Lubricate steering	
		■							- Lubricating points - Lubricate floating axle	
		■							- Lubricating points - Lubricate wheel bearings (○)	

Maintenance	■
Maintenance during the running-in period	▼

1.2 Points of maintenance

Planetary gear (1)



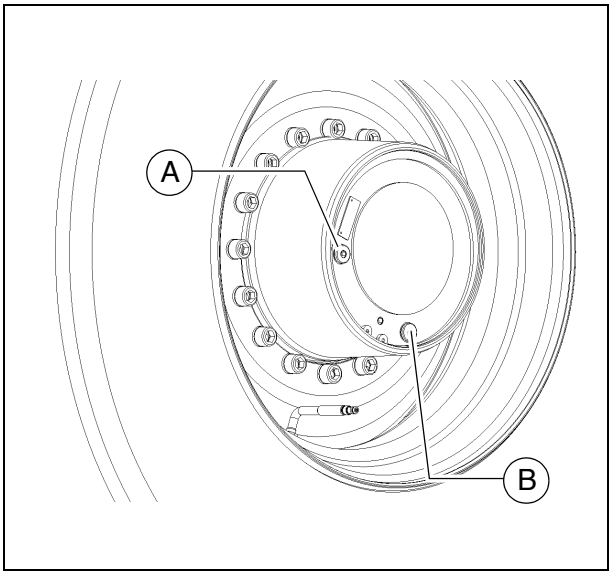
⚠ Before checking the oil level, let the hot gear cool down for about 5 minutes.

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

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

For **filling** with oil:

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



Oil change:

☞ The oil should be changed when at operating temperature.

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

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

Drive wheels (2)

Check tyres / replace tyres:

- Check the tyres on a daily basis for signs of damage, cracks or blister formation.
  Regularly check compliance with the minimum profile depth.

⚠ Replace damaged or worn tyres immediately.

Replacing/dismantling and installing the wheels

The jack must be rated for at least 10t.

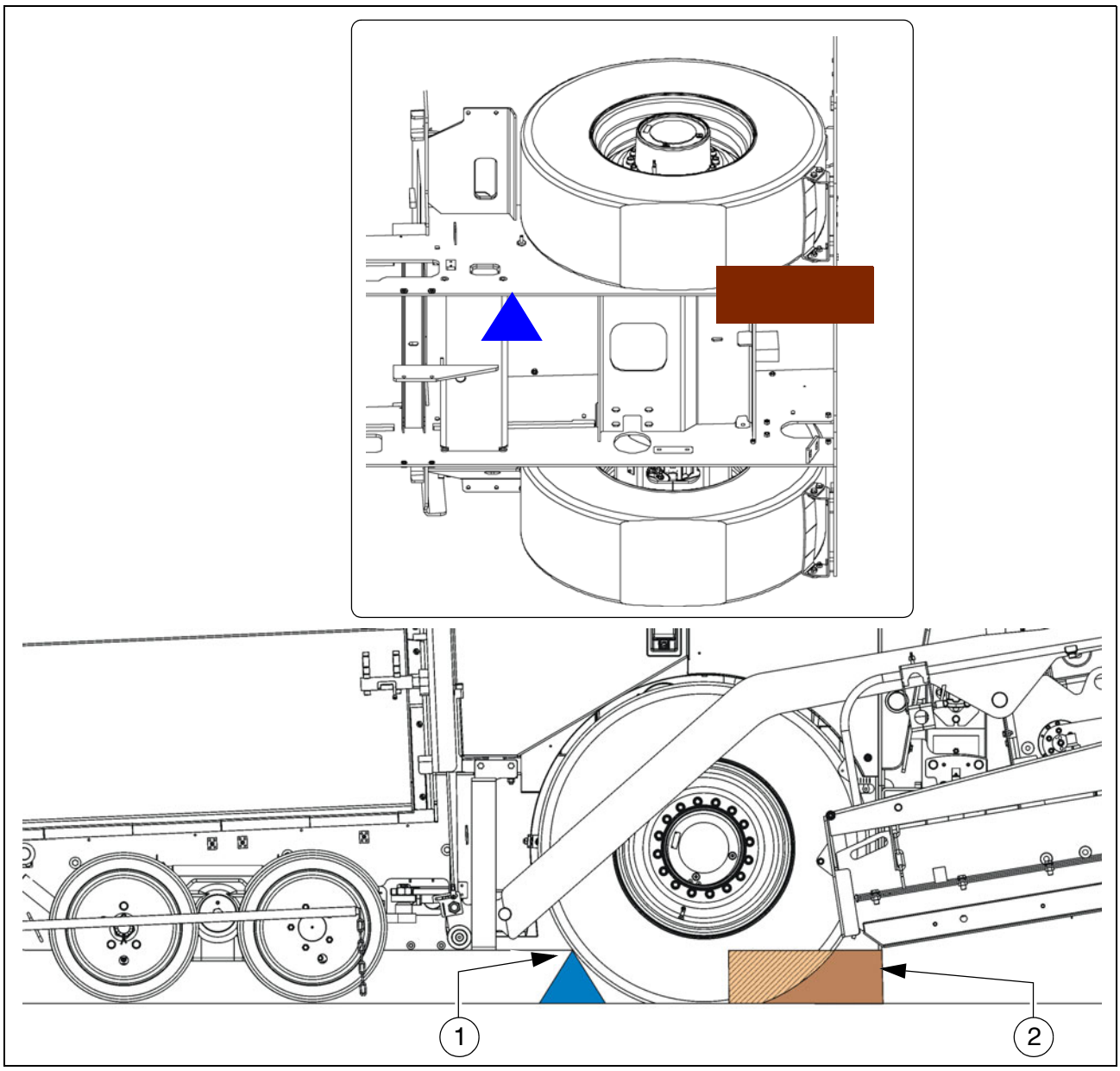
The jack is only intended to lift a load and not as a support. Work should only be performed to and under raised vehicles when they have been secured and correctly supported to prevent them from tilling over and rolling or sliding away.

The jack must only be used on smooth, firm ground.

Roller-type jacks must not be moved when under load.

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.

There must not be anyone on the vehicle while it is being lifted.



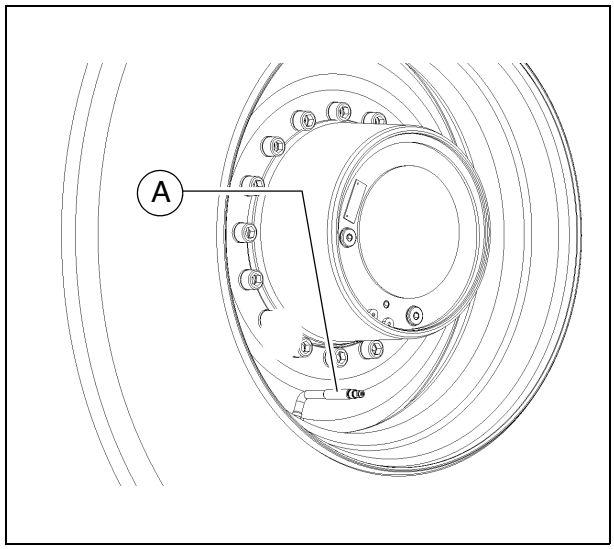
- Lower screed, remove screed and crossbeam.
- Lift the machine with the jack at the intended position (1) under the machine frame.
- Place a wooden block under the raised wheel as a safeguard.
- Place another wooden block under the machine frame at point (2).

⚠ The wooden block must support the vehicle frame at the side wall and rear wall.

- Remove the wooden block under the raised wheel and gently lower the vehicle onto the remaining wooden block (2).
- Dismantle the wheel nuts and remove the wheel.

☞ Reassemble in reverse order.

Check air pressure / adjust air pressure:



⚠ Never work with the tyre pressure too high or too low!

☞ Please consult the following tables for the necessary air pressures.

Check the air pressure at valve (A), adjust if necessary.

☞ Check the tyre pressure in cold condition. A slight increase in tyre pressure during operation is normal and there is no need to relieve pressure.

STOP Only ever set the tyre pressure using a self-regulating filler connection. Never stand directly in front of the tyres when filling them with air!

STOP Please comply with the safety instructions for checking and adjusting the air pressure!

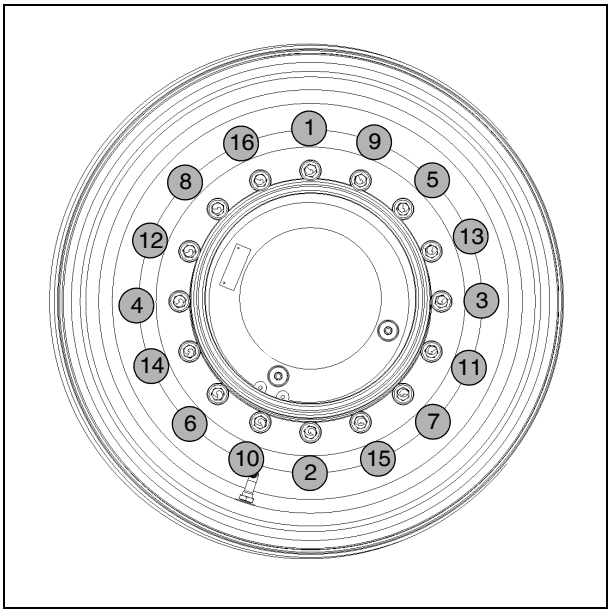
☞ Bear in mind that tyres may be filled with water!

**Check wheel nuts /
tighten wheel nuts:**

☞ Following wheel replacement, check the wheel nuts after the running-in time.

- Check / tighten all wheel nuts using a torque wrench as shown.

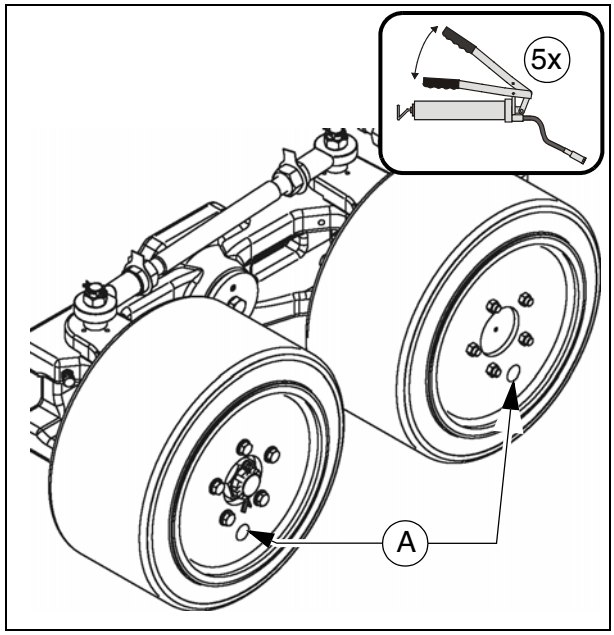
☞ Adjust the torque to 288 Nm.



Lubrication points (3)

☞ Manual lubrication does not apply for vehicles with central lubrication system.

Wheel bearings (○)

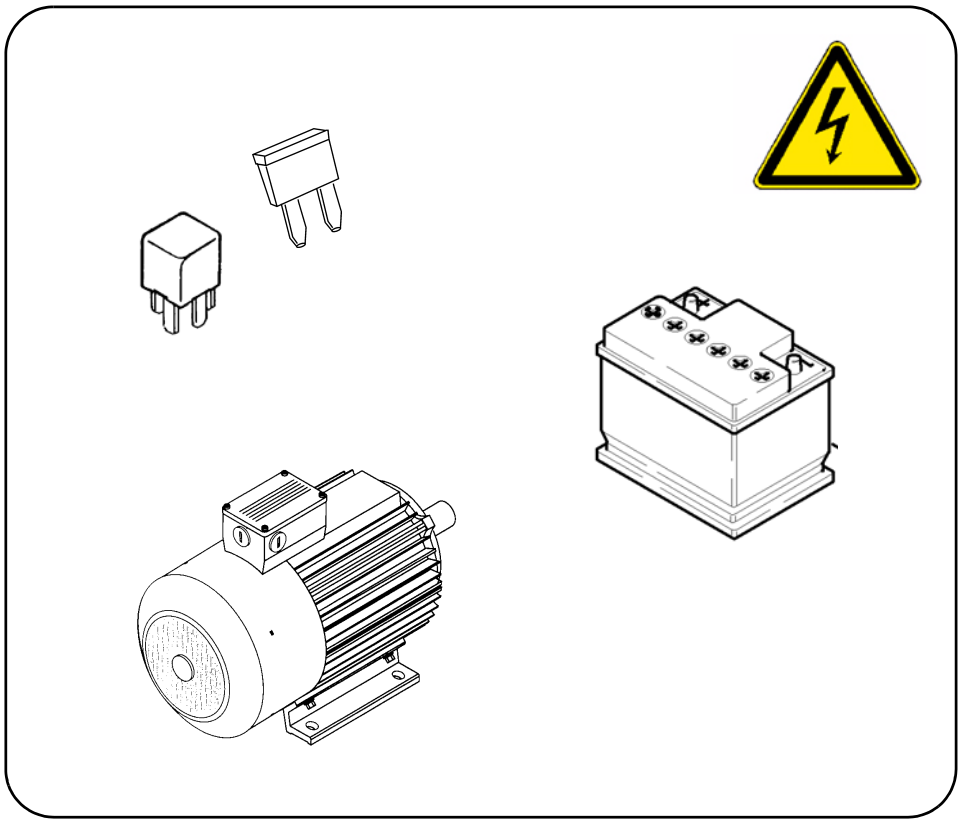


☞ The lube nipples (A) are accessible through a hole in the wheel rim.

☞ The number of lube nipples depends on whether the vehicle is equipped with / without front wheel drive.

F 81.18 Maintenance - electrical system

1 Maintenance - electrical system



⚠ WARNING	**Danger of being pulled in by rotating or conveying vehicle parts**
	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. - Stop the engine and remove the ignition key before any maintenance work. - Comply with all further information in these instructions and in the safety manual.

⚠ CAUTION	**Danger due to electric shock**
	Injuries can be caused by touching live parts directly or indirectly! - Do not remove any protective safeguards. - Never spray water on electric or electronic components. - Maintenance work to the electric system should only be carried out by trained specialist staff. - When equipped with electric screed heater, check the insulation monitoring every day according to the instructions. - Comply with all further information in these instructions and in the safety manual.

⚠ CAUTION	**Danger from batteries**
	Incorrect handling of the batteries poses a danger of injuries! - Wear your personal safety gear. - Do not smoke, avoid any open flames. - Ensure the working area is well ventilated after opening the battery compartment. - Avoid short-circuiting the battery terminals. - Comply with all further information in these instructions and in the safety manual.

1.1 Maintenance intervals

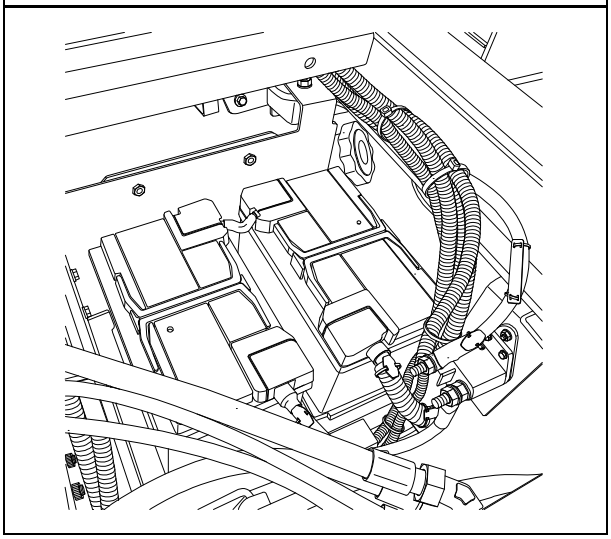
Item	Interval								Maintenance point	Note
	10	50	100	250	500	1000 / annually	2000 / every 2 years	If necessary		
1				■				■	Check batteries	
								■	Apply grease to battery terminals	
2	■								- Alternator Insulation monitoring, check electric system is functioning	(○)
		■							- Alternator Visual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

Maintenance	■
Maintenance during the running-in period	▼

1.2 Points of maintenance

Batteries (1)

Maintenance of batteries



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

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

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

☞ Keep the battery surfaces clean and dry, use only a damp or antistatic cloth forad-just if necessarcleaning.

⚠ Do not open batteries without plugs!

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

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

Recharging the batteries

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

Always keep batteries upright during transport!

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

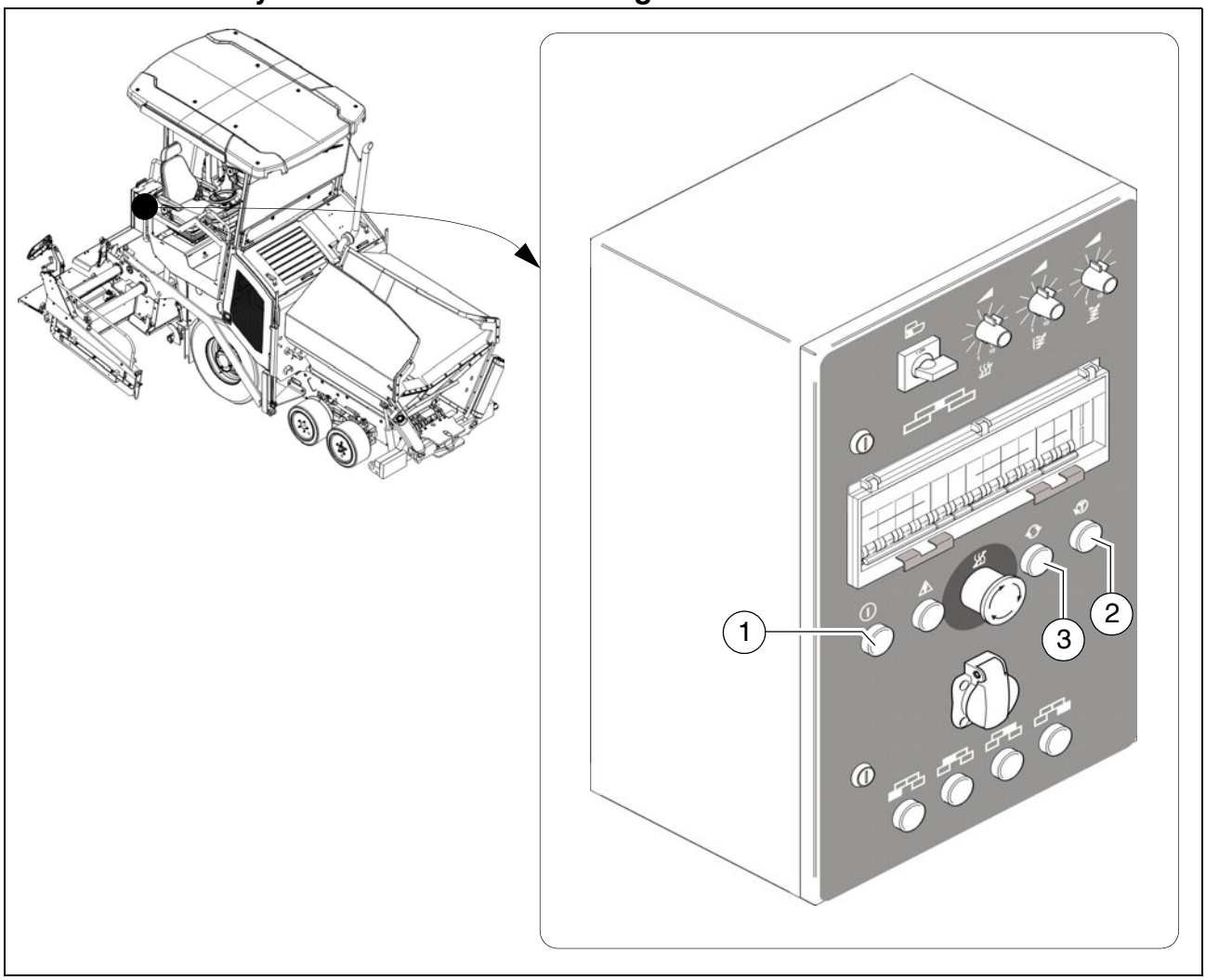
When recharging batteries, every cell must be opened, i.e. plugs and/or covers must be removed.

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

Preferably use the slow recharging procedure and adjust the charge current according to the following rule of thumb:
Battery capacity in Ah divided by 20 results in the safe charge current in A.

Alternator (2)

Electrical system insulation monitoring



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

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

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

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

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

Danger from electric voltage

Non-adherence to the safety precautions and safety regulations when operating the electric screed heating system leads to a risk of electric shock.
Danger to life.
All maintenance and repair work on the screed's electrical system may be carried out by a specialist electrician only.

Insulation faults

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

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

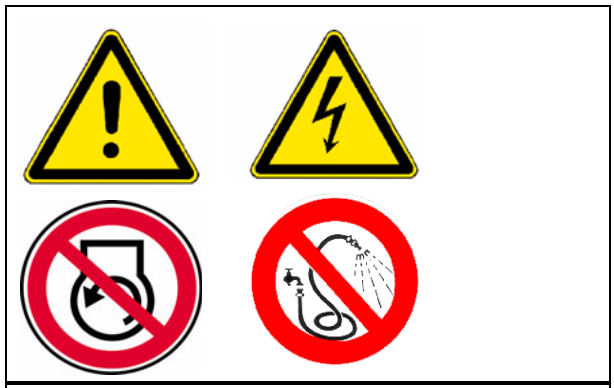
STOP No further work may be carried out.

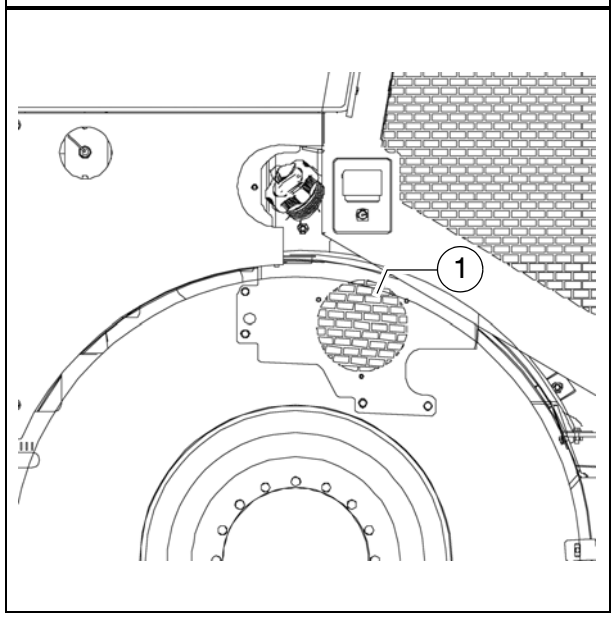
- If the indicator lamp goes out, the switches of the heating system and external equipment can be switched back to ON one after another until a message again appears and the system is shut-down.
- The equipment found to be faulty must be removed or must not be engaged, and the reset button must be pressed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

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

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

Cleaning the alternator





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

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

⚠ Cleaning with a high-pressure cleaner is not permissible!

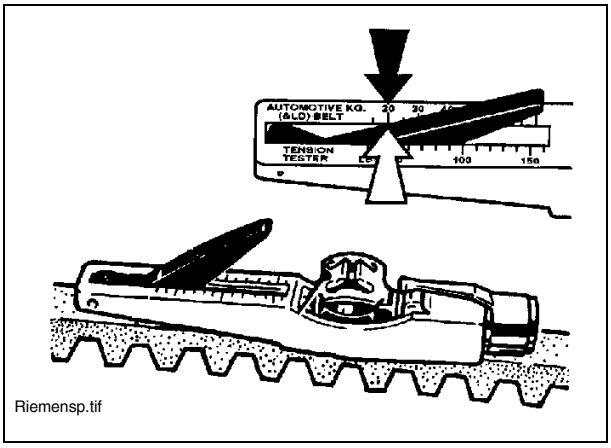
Drive belts

Checking / adjusting belt tension:

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

Checking belt tension

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



Riemensp.tif

Specified tension:

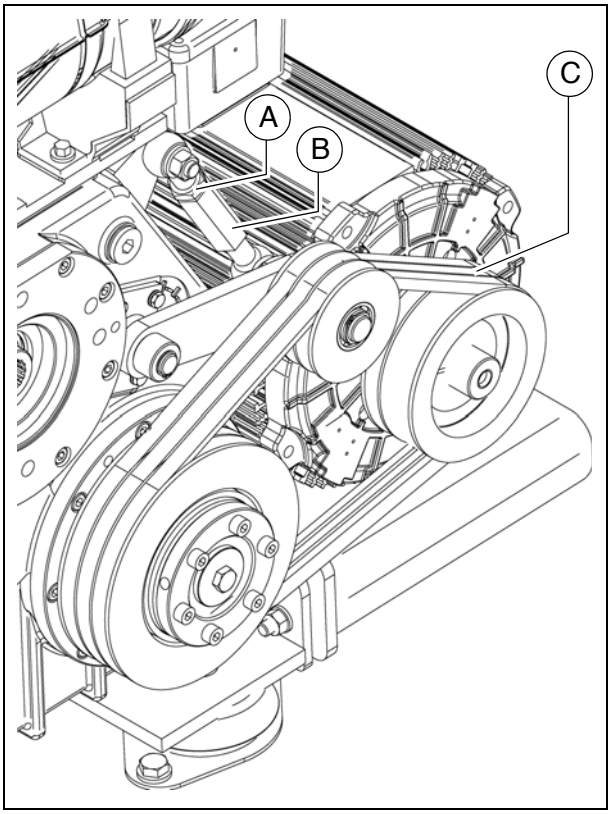
- In case of initial assembly: 550N
- after run-in period / maintenance interval: 400N

☞ Instructions for checking tightness in the pretention measuring instrument instructions.

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

If necessary, adjust the belt tension:

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



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

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

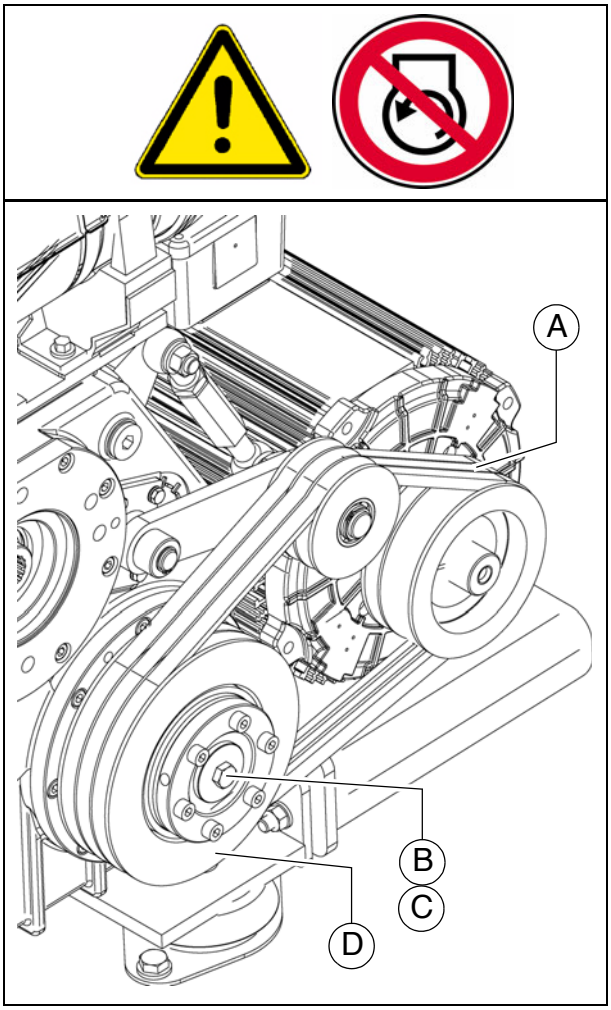
Replacing belt

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

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

- Check / adjust belt tension.

Replace friction clutch



- Reduce belt tension and remove drive belt (A).
- Unscrew mounting screw (B), remove lock washer (C).
- Pull friction clutch (D) with belt pulley off the shaft.

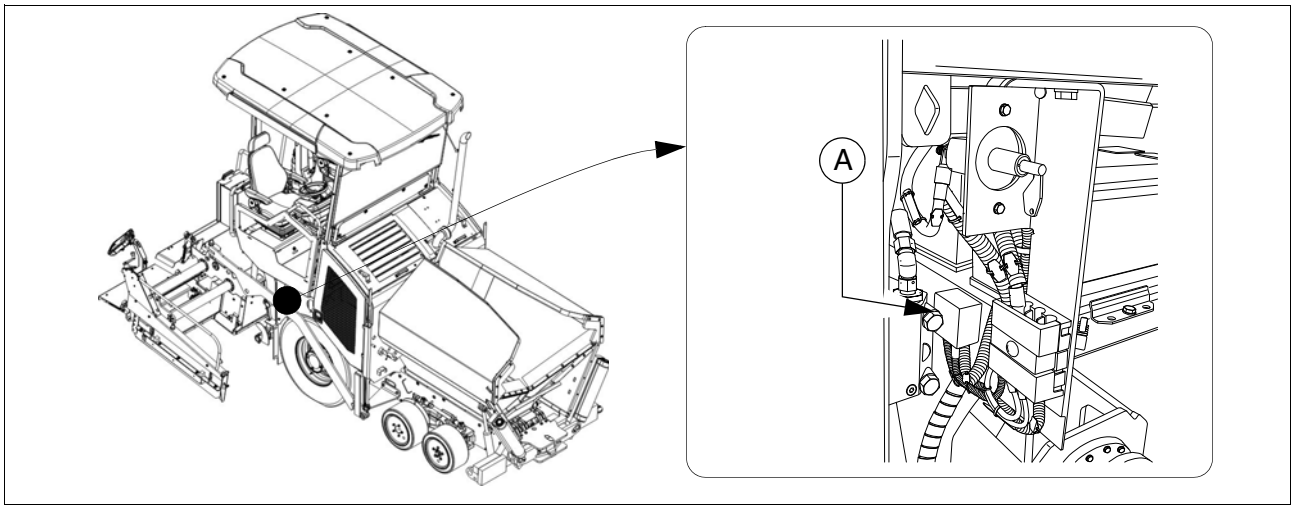
☞ If necessary, use a suitable assembly lever to press the friction clutch away from the shaft.

- Position new friction clutch, correctly fit washer (C) and bolt (D).
- Position belt (D) and adjust correct tension.

☞ see Check / adjust belt tension.

2 Electrical fuses

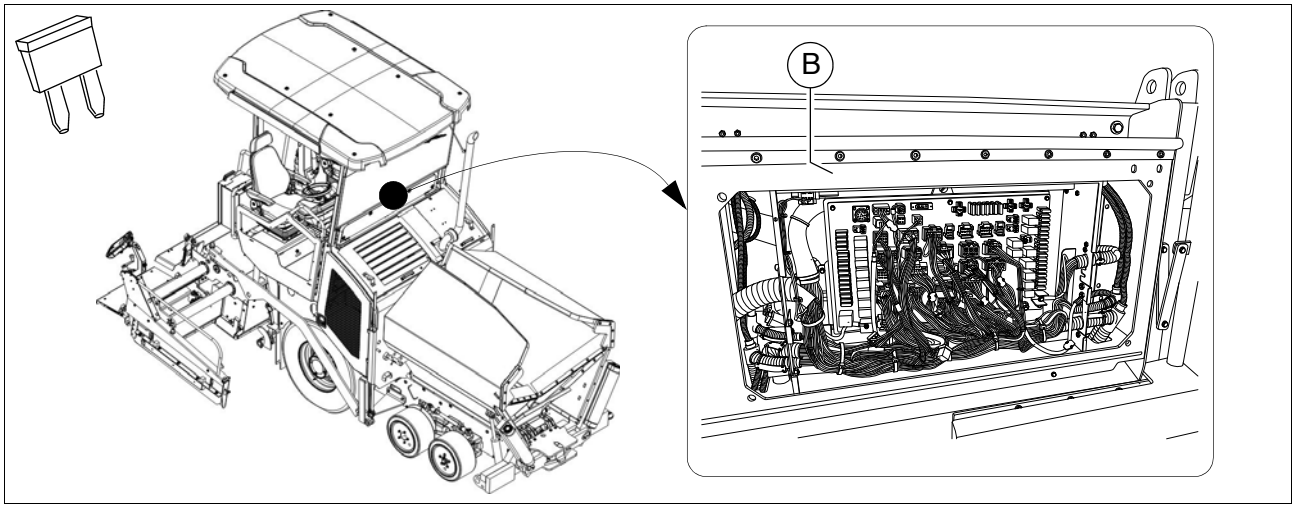
2.1 Main fuses



Main fuses (A)

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

2.2 Fuses in main terminal box

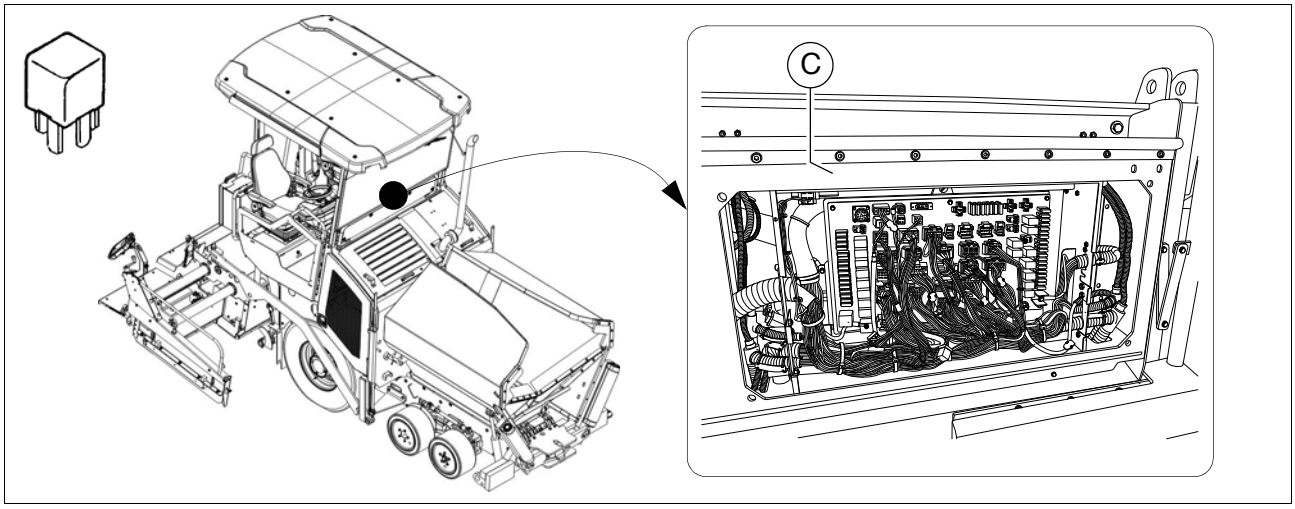


Fuse carrier (B)

F		A
F1	Screed	10
F2	Screed	10
F3	Screed	10
F4	Starter	5
F5	Brake pedal	5
F6	Auger + screed light	10
F7	Hazard flashers	10
F8	Screed, steering sensor, hopper emergency STOP	5
F9	Levelling system, emulsion spraying system	10
F10	Traction unit sensors	5
F11	Screed	10
F13	24V socket left	10
F14	Power supply A7 (slave)	5
F15	Brake light	5
F16	24V socket	10
F17	Power supply A1 (master)	5
F19	12V socket	10
F20	Rotary beacon	7.5
F21	Power supply A1 (master)	25

F		A
F22	Power supply A7 (slave)	25
F23	Horn	10
F24	Diesel pump	10
F25	Windscreen wiper + screen wash	10
F26	Power supply A2 (engine control unit)	30
F27	Ignition	2
F28	Hazard flashers	10
F29	Keyboard, display, steering potentiometer, preselection potentiometer, horn button, GPS module	3
F30	Reverse buzzer	5
F31	Central lubrication	5
F32	Power supply A1 (master)	5
F33	Upstream fuse, lighting	25
F34	Seat heating	7.5
F35	Protective roof rear light	10
F36	Protective roof front light	10
F37	Interface - engine diagnosis - A2	2
F38	Interface - engine diagnosis - A2	2
F39	Left-hand parking lights	7.5
F40	Parking lights, right	7.5
F41	Instrument panel illumination	5
F42	Low-beam headlights, left/right	
F43	High-beam headlights, left/right	

Relays in main terminal box

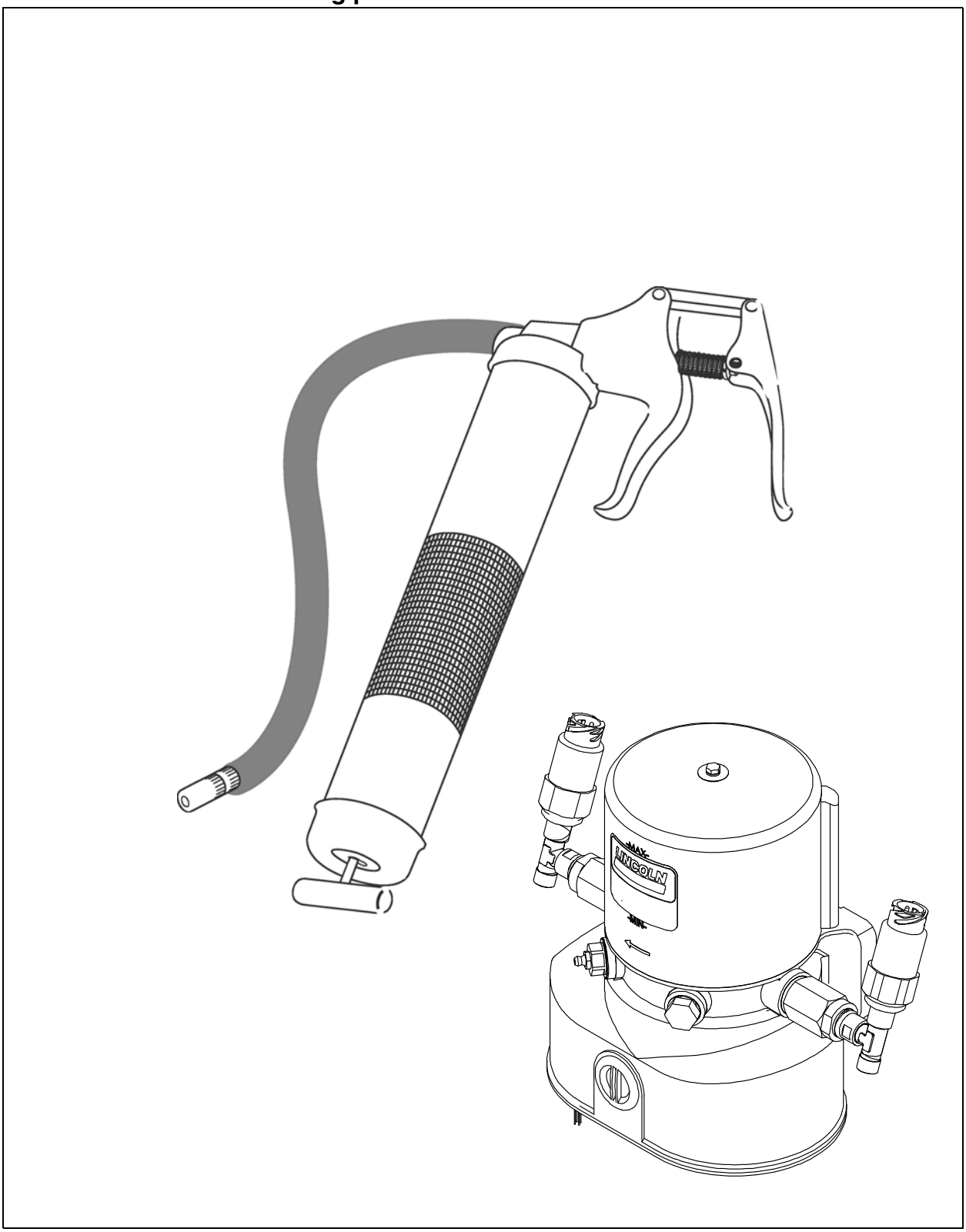


Relays (C)

K	
K0	Engine start
K1	Switched positive
K2	Engine start / stop
K3	Control unit voltage
K4	Emergency stop
K5	Front working lights
K6	Rear working lights
K7	Auger working light
K8	Horn
K9	Brake light
K16	Rotary beacon
K17	Seat heating
K18	Windscreen wiper
K19	Windscreen wiper
K20	Reverse buzzer
K21	Central lubrication
K23	High-beam headlights
K24	Lighting ON
K25	Flashers
K26	Fuel pump
K27	Engine pre-heating function

F 90.18 Maintenance - lubricating points

1 Maintenance - lubricating points



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

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

1.1 Maintenance intervals

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

Maintenance	■
Maintenance during the running-in period	▼

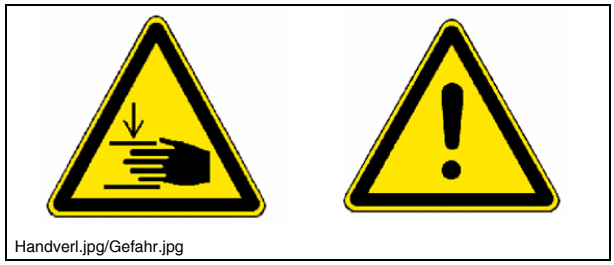
1.2 Points of maintenance

Central lubrication system (1)

Danger of injuries!

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

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


Handverl.jpg/Gefahr.jpg

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

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

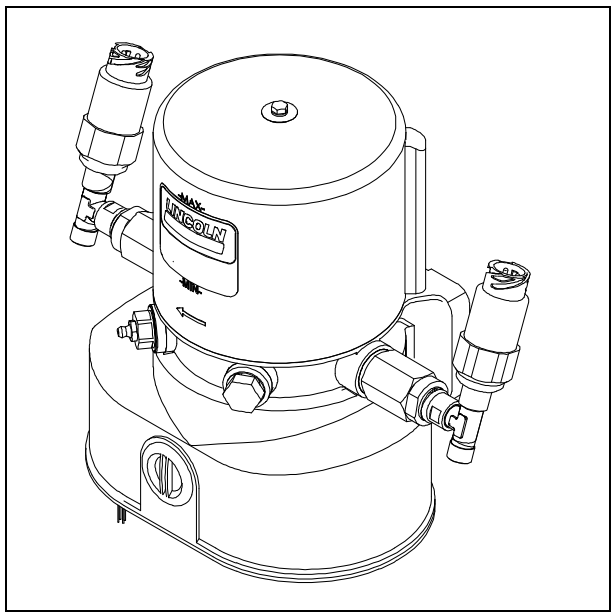
Ensure that the diesel engine cannot be started when working on the system!

Observe safety regulations for handling hydraulic systems!

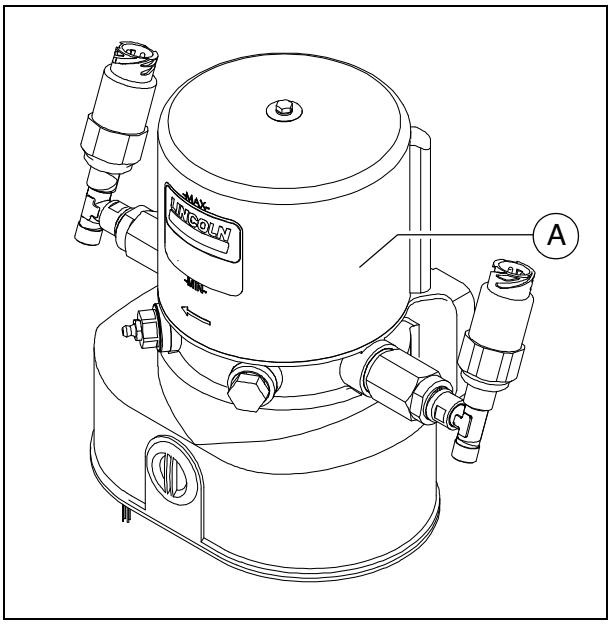
Ensure maximum cleanliness when working on the central lubrication system!

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

- Auger
- Screed (tamper / vibration)



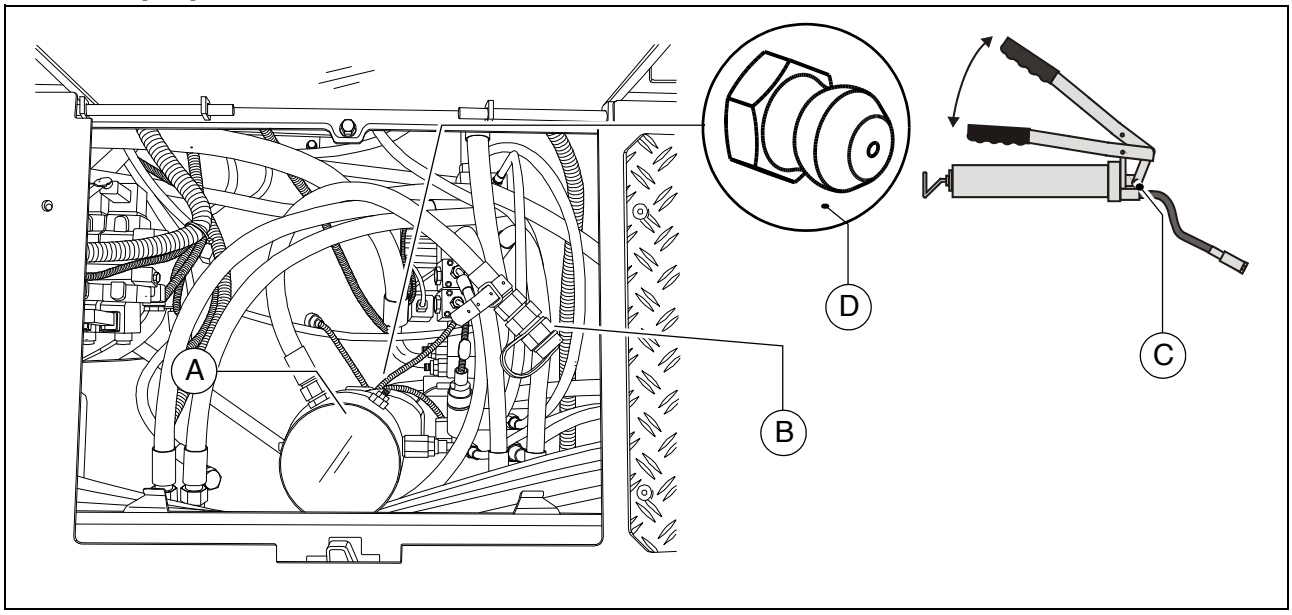
Central lubrication system
Check filling level



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

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

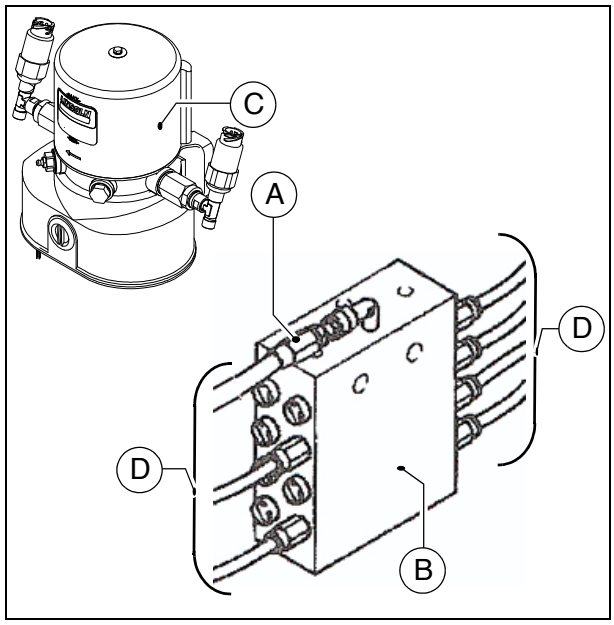
Top up lubricant tank



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

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

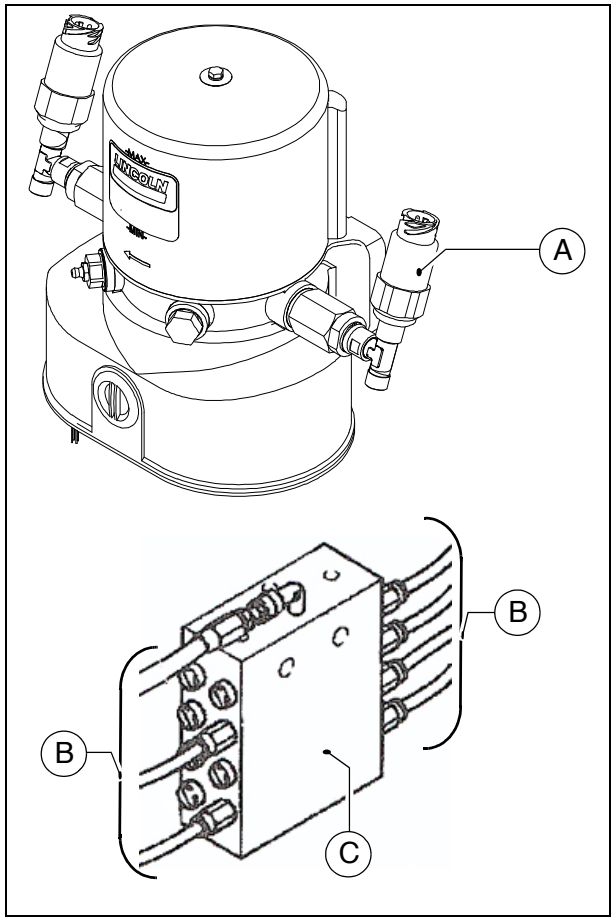
Bleed central lubrication system



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

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

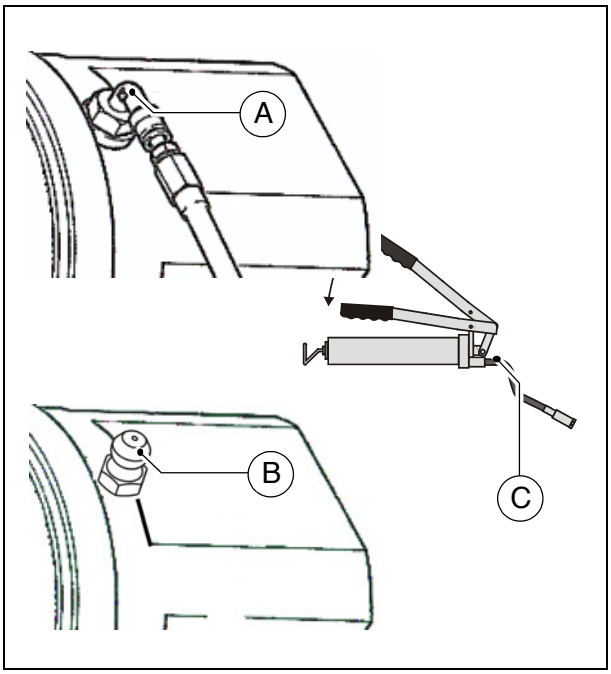
Check pressure limiting valve



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

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

Check the flow of lubricant at the consumers

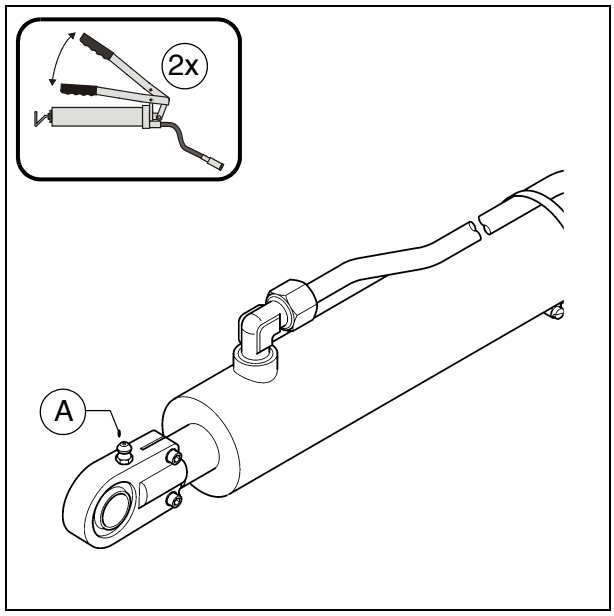


Each lubrication channel at the consumers must be checked as regards clearance.

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

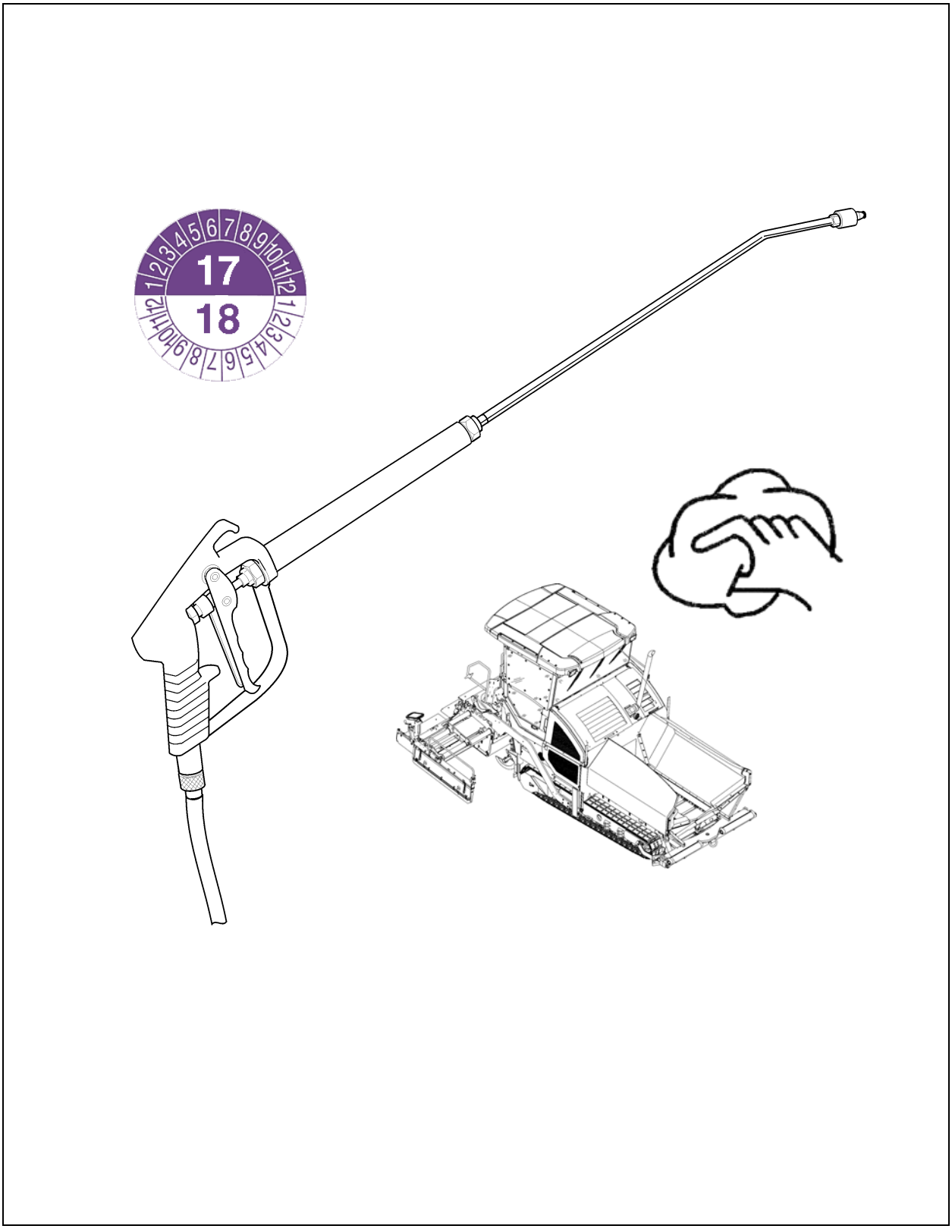
Bearing points (2)

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



F 100 Tests, stopping ...

1 Tests, checks, cleaning, stopping



1.1 Maintenance intervals

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

Maintenance	■
Maintenance during the running-in period	▼

2 General visual inspection

The daily routine should comprise a visual inspection around the entire paver finisher. The following items must be checked:

- Are components or controls damaged?
- Are there leaks on the engine, the hydraulics, the gearbox, etc.?
- Are all fastening points (conveyor, auger, screed, etc.) in order?
- Are the warnings affixed to the vehicle complete and legible?
- Are the non-slip surfaces at ladders, steps, etc. in correct condition, not worn or soiled?

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

3 Check that the bolts and nuts fit firmly

Bolts and nuts must be checked regularly to ensure that they fit firmly; retighten them if necessary.

☞ The spare parts catalogue states the special torques at the corresponding parts.

☞ For the necessary standard torques, please refer to the section "Bolts - torques"

4 Inspection by an expert

☞ Have finisher, screed and optional gas or electric system checked by a trained specialist

- when required (according to the operating conditions and the nature of application),
- however, at least once a year, check that they are all in good operational condition.

5 Cleaning

- Clean all parts coming into contact with paving material.
  - Spray contaminated parts with the separator fluid spraying system (○).

⚠ **Before** cleaning work with the high pressure cleaner, grease all lube points acc. to specification.

- Clean the vehicle with water after laying mineral aggregates, lean-mixed concrete, etc.

⚠ Do not spray bearing points, electrical or electronic components with water.

- Remove residual paving material.

⚠ **After** cleaning work with the high pressure cleaner, grease all lube points acc. to specification.

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

WARNING	**Danger of being pulled in by rotating or conveying vehicle parts**
	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. - Stop the engine and remove the ignition key before any maintenance work. - Comply with all further information in these instructions and in the safety manual.

CAUTION	**Hot surfaces!**
	Surfaces including those behind covering parts, together with combustion fuels from the engine or screed heater can be very hot and cause injuries! - Wear your personal safety gear. - Do not touch hot parts of the vehicle. - Only perform maintenance and repair work after the vehicle has cooled down. - Comply with all further information in these instructions and in the safety manual.

5.1 Cleaning the hopper

Clean the hopper regularly

To clean the hopper, park the vehicle on a smooth surface with the hopper open. Switch off the engine.

5.2 Cleaning the conveyor and auger

Clean the conveyor and auger regularly.

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

There must always be an assistant at the operator's platform whenever cleaning work is being carried out to intervene in the event of any potential danger.

5.3 Cleaning optical or acoustic sensors

Heavily soiled sensors can have a negative effect on measuring results or functions.

⚠ Daily cleaning with a dry, lint-free cloth.

6 Preserving the paver finisher

6.1 Shutdowns for up to 6 months

- Park the vehicle in a place where it is protected from great exposure to direct sunlight, wind, humidity and frost.
- Grease all lube points in accordance with specifications. Allow optional central lubricating unit to run if necessary.
- Change oil in diesel engine.
- Seal exhaust silencer to make it airtight.
- Remove batteries, charge them and store them in a well ventilated place at room temperature.

⚠ Recharge removed batteries every 2 months.

- Protect all bare metal components, e.g. piston rods on hydraulic cylinders, with a suitable corrosion inhibitor.
- If it is not possible to park the vehicle 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.

6.2 Shutdowns lasting from 6 months to 1 year

- Carry out all the actions listed for "Shutdowns of up to 6 months".
- Once the engine oil has been drained off, fill the diesel engine with a manufacturer-approved grade of preserving oil.

6.3 Recommissioning the machine

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

7 Environmental protection, disposal

7.1 Environmental protection

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

☞ Always observe the local regulations!

7.2 Disposal

☞ Correctly sorted disposal must be carried out after replacing wear and spare parts and after the machine has been withdrawn from service (scrapped).
The materials must be sorted correctly according to metal, plastic, electronic scrap, various operating substances etc.
Any oily or greasy parts (hydraulic hoses, lube pipes etc.) must be treated separately.

☞ Electric devices, accessories and packaging should be recycled in an environment-friendly manner.

☞ Always observe the local regulations!

8 Bolts - torques

8.1 Standard metric threads - strength class 8.8 / 10.9 / 12.9

Treatment	dry/lightly oiled						Molykote ®					
	Torque (Nm)	Permitted deviation (+/- Nm)	Torque (Nm)	Permitted deviation (+/- Nm)	Torque (Nm)	Permitted deviation (+/- Nm)	Torque (Nm)	Permitted deviation (+/- Nm)	Torque (Nm)	Permitted deviation (+/- Nm)	Torque (Nm)	Permitted deviation (+/- Nm)
Strength class	8.8	8.8	10.9	10.9	12.9	12.9	8.8	8.8	10.9	10.9	12.9	12.9
M3	1	0,3	1,5	0,4	1,7	0,4	1	0,3	1,4	0,4	1,7	0,4
M4	2,4	0,6	3,5	0,9	4	1	2,3	0,6	3,3	0,8	3,9	1
M5	5	1,2	7	1,7	8	2	4,6	1,1	6,4	1,6	7,7	1,9
M6	8	2,1	12	3	14	3	7,8	1,9	11	2,7	13	3,3
M8	20	5	28	7,1	34	8	19	4,7	26	6,6	31	7,9
M10	41	10	57	14	70	17	37	9	52	13	62	16
M12	73	18	97	24	120	30	63	16	89	22	107	27
M14	115	29	154	39	195	45	100	25	141	35	169	42
M16	185	46	243	61	315	75	156	39	219	55	263	66
M18	238	60	335	84	402	100	215	54	302	76	363	91
M20	335	84	474	119	600	150	304	76	427	107	513	128
M22	462	116	650	162	759	190	410	102	575	144	690	173
M24	600	150	817	204	1020	250	522	131	734	184	881	220
M27	858	214	1206	301	1410	352	760	190	1067	267	1281	320
M30	1200	300	1622	405	1948	487	1049	262	1475	369	1770	443
M33	1581	395	2224	556	2669	667	1400	350	1969	492	2362	590
M36	2000	500	2854	714	3383	846	1819	455	2528	632	3070	767

8.2 Fine metric threads - strength class 8.8 / 10.9 / 12.9

Treatment	dry/lightly oiled						Molykote ®					
	Torque (Nm)	Permitted deviation (+/- Nm)	Torque (Nm)	Permitted deviation (+/- Nm)	Torque (Nm)	Permitted deviation (+/- Nm)	Torque (Nm)	Permitted deviation (+/- Nm)	Torque (Nm)	Permitted deviation (+/- Nm)	Torque (Nm)	Permitted deviation (+/- Nm)
Strength class	8.8	8.8	10.9	10.9	12.9	12.9	8.8	8.8	10.9	10.9	12.9	12.9
M3x0,35	1,2	0,3	1,7	0,4	2,1	0,5	1,1	0,3	1,5	0,4	1,8	0,5
M4x0,5	2,8	0,7	3,9	1	4,7	1,2	2,5	0,6	3,5	0,9	4,2	1
M5x0,5	5,7	1,4	8	2	9,6	2,4	5,1	1,3	7,1	1,8	8,5	2,1
M6x0,75	9,2	2,3	12,9	3,2	15,5	3,9	8,3	2,1	11,6	2,9	13,9	3,5
M8x1	21,7	5,4	30,6	7,6	36,7	9,2	19,5	4,9	27,4	6,8	32,8	8,2
M10x1,25	42,1	10,5	59,2	15	71	17,8	37,7	9,4	53	13	63,6	15,9
M12x1,25	75,7	18,9	106,2	26	127	31,9	67,2	16,8	94,5	24	113	28,3
M14x1,5	119	29,7	167	42	200	50,1	106	26	149	37	178	44,6
M16x1,5	183	45,6	257	64	308	77	162	40	227	57	273	68,2
M18x1,5	267	66,8	376	94	451	112,7	236	59	331	83	398	99,4
M20x1,5	373	93,2	524	131	629	157,3	328	82	461	115	553	138,3
M22x1,5	503	126	707	177	848	212,1	442	110	621	155	745	186,3
M24x2	630	158	886	221	1063	265,8	556	139	782	195	938	234,5
M27x2	918	229	1290	323	1548	387,1	807	202	1136	284	1363	340,7
M30x2	1281	320	1802	450	2162	540,6	1124	281	1581	395	1897	474,3
M33x2	1728	432	2430	607	2916	728,9	1514	378	2128	532	2554	638,5
M36x3	2126	532	2990	747	3588	897,1	1876	469	2638	659	3165	791,3

F 111.18 Lubricants and operating substances

1 Lubricants and operating substances

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

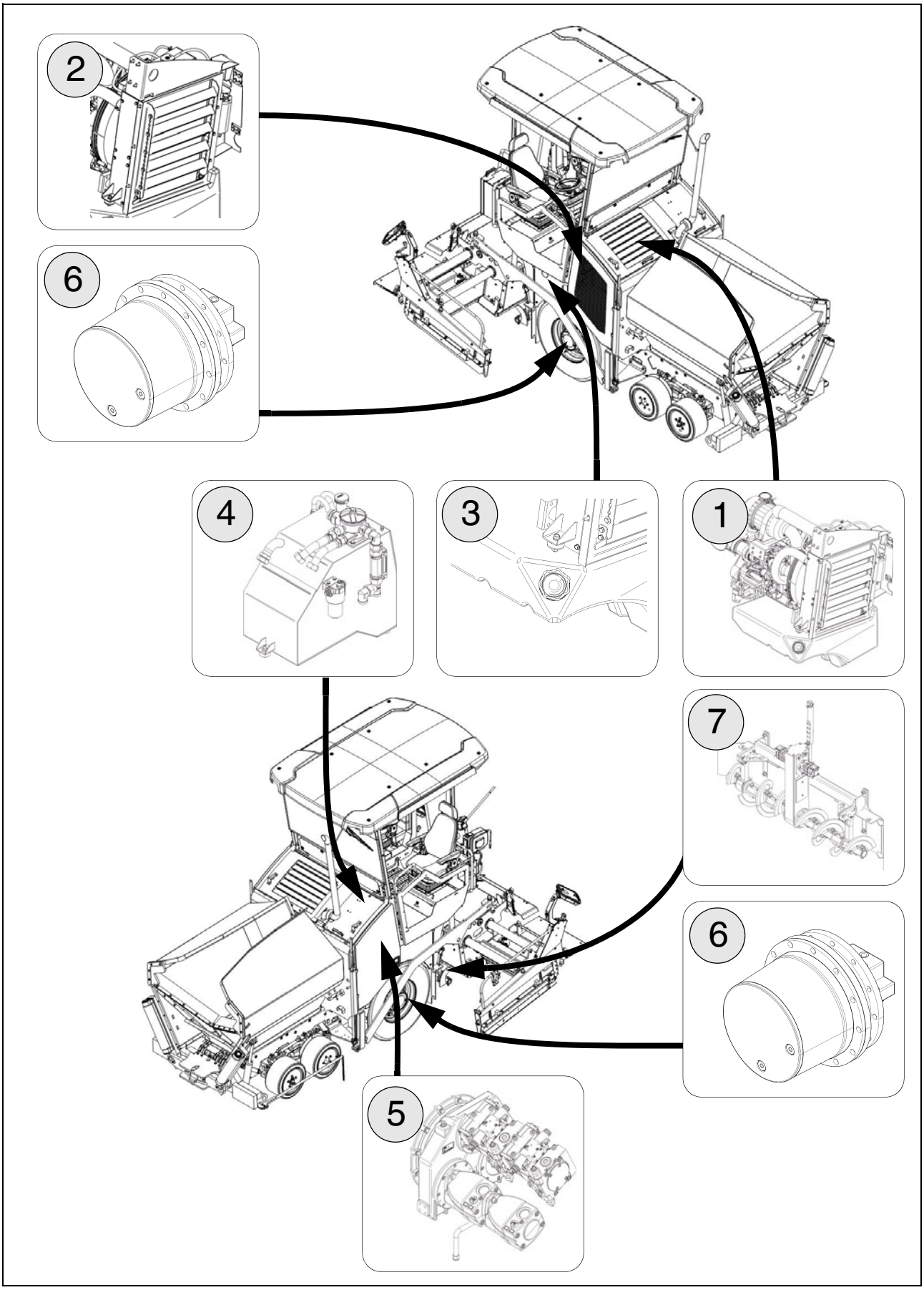
⚠ Only use containers which are clean on inside and outside for filling oil or fuel.

☞ Note capacities (see section "Capacities").

⚠ Incorrect oil or lubricant levels promote rapid wear and paver finisher failure.

⚠ Never mix synthetic oils with mineral oils!

⚠ Please heed the equipment-related fuel specification requirements!


2
6
4
3
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7
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1.1 Capacities

		Substance	Volume
1	Diesel engine (with oil filter change)	Engine oil	8.2 litres
2	Engine cooling system	Cooling liquid	12.0 litres
3	Fuel tank	Diesel fuel	50.0 litres
4	Hydraulic oil reservoir	Hydraulic oil	90.0 litres
5	Pump distribution gear	Gearbox oil	2.0 litres
6	Planetary gear Traction unit	Gearbox oil	approx. 2.4litres (1.2 l per side)
7	Auger box	Liquid grease	3.5 kg
	Batteries	Distilled water	

⚠ Note specifications on the following pages!

2 Operating substance specifications

2.1 Notes on diesel fuel

Danger of explosion! Never mix diesel fuel with ethanol, petrol or alcohol!

Diesel fuel contaminated with water or dirt can cause serious damage to the fuel system! Keep fuel and fuel system free of water and impurities!

Observe the instructions for fuel recommendations and the specification in the maintenance instructions of the engine manufacturer!

2.2 Drive engine TIER III (○) fuel specification

Permissible diesel fuels

Specifications				
Diesel fuel as specified in the engine manufacturer's requirements * sulphur level max. 2000mg/kg	EN 590	ASTM D975	JIS K 2204 HFRR max. 460µm	

* Detailed information at:

http://www.deutz.com

de	\Service\Betriebsstoffe und Additive\Kraftstoffe
en	\Service\Operating Liquids and Additives\Fuels

2.3 Drive engine TIER IV (○) fuel specification

Low-sulphur diesel fuel is prescribed for correct operation of the exhaust-gas treatment system!
The maximum sulphur level must not exceed 15 ppm!
If low-sulphur diesel fuel is not used, the prescribed exhaust values cannot be met and damage will be caused to the engine and to the exhaust-gas treatment system!

Permissible diesel fuels

Specifications				
EN 590	ASTM D975 S15	JIS K 2204 HFRR max. 460µm		

2.4 Engine - lubricating oil

Dynapac	Aral	BP	Esso / Exxon	Fuchs	Mobil	Shell	
Paroil E Emission Green (*)							

☞ (*) = recommended

⚠ Observe the instructions for lubricant recommendations and the specification in the maintenance instructions of the engine manufacturer!

2.5 Cooling system

Dynapac	AGIP	Chevron	Caltex	Delo	Petronas		
Coolant 100 (*)	-Antifreeze Special	Extended Life Coolant	Extended Life Coolant	Extended Life Coolant	Frost G12		

☞ (*) = recommended

2.6 Hydraulic system

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

☞ (*) = recommended

2.7 Pump distribution gear

Dynapac	Aral	BP	Esso / Exxon	Fuchs	Mobil	Shell	
Gear Oil 200 (*)						-Omala S2 GX 220	

☞ (*) = filled in at the factory

2.8 Drive unit planetary gear

Dynapac	Aral	BP	Esso / Exxon	Fuchs	Mobil	Shell	
Gear Oil 200 (*)						-Omala S2 GX 220	

☞ (*) = recommended

2.9 Auger box

Dynapac	Aral	BP	Esso / Exxon	Fuchs	Mobil	Shell	
Auger Grease (*)						Gadus S5 V142W 00	

☞ (*) = recommended

2.10 Grease

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

☞ (*) = recommended

2.11 Hydraulic oil

Preferred hydraulic oils:

a) Synthetic hydraulic liquids based on ester, HEES

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

☞ (*) = recommended

b) Mineral oil pressure fluids

Manufacturer	ISO viscosity class VG 46
Dynapac	Hydraulic 100 (*)
Shell	Tellus S2 VX 46
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!

Parts & Service

Training

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
FAYAT GROUP