Made in Germany

**Optimas**® Paver Laying Machine

Pave smart.
Not hard.

# *Operation manual*

PaveJet S24


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Optimas®

# Content

# 1. CE Declaration of Conformity

**In accordance with the EC Machinery Directive 2006/42/EC**

**Manufacturer:**

**Optimas Maschinenfabrik GmbH**
**Industriestraße 12**
**DE – 26683 Saterland-Ramsloh**

**Person established in the Community who is authorized to compile the technical documentation:**

**E. Jungmann B. Sc. Optimas**
**GmbH Industriestr. 12**
**26683 Saterland**

**Description and identification of the machine**
**Product: Optimas PaveJet S24**
**Type: Paver Laying Machine**

**It is expressly declared that the machine complies with all relevant provisions of the following CE directives.**

**2006/42/EG**

**Directive 2006/42/EC of the European Parliament and of the Council of May 17, 2006 on machinery and amending Directive 95/16/EC (recast) (1)**

**The following standards and technical specifications were used:**

**EN ISO 12100-1 (ISO12100-1)/2003**

**Safety of machinery, basic concepts, general principles for design, Part 1: Basic terminology, methodology.**

**EN ISO 12100-2 (ISO 12100-2)/2003**

**Safety of machinery, basic concepts, general principles for design, Part 2: Technical principles and specifications.**

**DIN EN 294/1993 (ISO 13854/1997)**

**Minimum distances to prevent crushing of body parts**

**DIN EN 349/1997 (IEC 60204-1/1997)**

**Safety of machinery, electrical equipment of industrial machines. Part 1: General requirements**

**DIN 8563/10.78 (T1 + T2)**

**Ensuring the quality of welding work**

**DIN 15428/08.78**

**Lifting equipment Load suspension devices, technical delivery conditions**

**DIN 31001/04.83**

**Safety-oriented design of technical products; protective devices, terms, safety distances for adults and children**

**Saterland 2025**

**Place, Date**

**Sascha Brinkmann**

# 2. General information

## 2.1 Information about this manual

These instructions enable the safe and efficient use of machine. The instructions are an essential part of machine and must be kept in the direct reach of the personnel at all times. Personnel must have read and understood these instructions carefully before starting any work. The basic requirement for safe working is compliance with all the safety and handling instructions in this manual. In addition, the local accident prevention regulations and general safety regulations for the area of use of machines apply.

## 2.2 Safety instructions

Safety instructions in this manual are identified by symbols. The safety instructions are introduced by signal words that express the level of danger. Always follow the safety instructions and act with caution to avoid accidents, personal injury and damage to property.

| | | |
|---|---|---|
|  | **Danger** | Danger to life!<br>Indicates a danger. If it is not avoided, death or serious injury will result. |
|  | **Attention** | Dangerous situation!<br>Indicates a dangerous situation. If it is not avoided, injuries or material damage may result. |
|  | **Prohibition** | Prohibition!<br>Indicates a prohibition. If it is not observed, death, serious injury or material damage may result. |
|  | **Caution** | Risk of crushing hands |

## 2.3 Limitation of liability

All information and instructions in this manual have been compiled taking into account the current standards and regulations, the state of the art and our many years of knowledge and experience.

The manufacturer accepts no liability for damage caused by:

- Non-compliance with the instructions
- Improper use
- Use by untrained personnel
- Unauthorized modifications
- Technical modifications
- Use of unauthorized spare parts

The actual scope of delivery may be different from the explanations and illustrations described here in the case of special versions, the use of additional ordering options or due to the latest technical changes. The obligations agreed in the delivery contract as well as the manufacturer's general terms and conditions and the legal regulations valid at the time the contract is concluded shall apply. We reserve the right to make technical changes in the context of improvement, usage properties and further development.

# 3. Safety

**This section provides an overview of all important safety aspects for the optional protection of personnel and for safe and trouble-free operation. Failure to comply with the instructions and safety information in this manual can lead to serious hazards.**

### 3.1 Responsibility of the operator

**The appliance is used in the commercial sector. The operator of the appliance is therefore subject to the statutory occupational safety obligations.**

**In addition to the safety instructions in this manual, the safety, accident prevention and environmental protection regulations applicable to the area of use of machine must be observed. This applies in particular:**

- **The operator must inform himself about the applicable health and safety regulations and carry out a risk assessment to determine any additional hazards arising from the specific working conditions at the place of use of the appliance. These must be implemented in the form of operating instructions for the operation of the device.**
- **During the entire period of use of the device, the operator must check whether the operating instructions he has drawn up correspond to the current status of the regulations and adapt them if necessary.**
- **The operator must clearly define the persons responsible for installation, operation, maintenance and cleaning.**
- **The operator must ensure that all employees who work with machine have read and understood these instructions. In addition, he must train the staff at regular intervals and inform them about the dangers.**

### 3.2 Personnel requirements

**Attention**

**Dangerous situation!**
**Risk of injury due to insufficient qualification!**
**Improper handling can lead to considerable personal injury and damage to property.**
**Therefore, all work should only be carried out by qualified personnel.**

**The following qualifications are specified in the operating instructions for various areas of activity.**

- **Instructed person**

  **has been instructed by the operator about the tasks assigned to them and possible dangers in the event of improper behavior.**

- **Qualified personnel**

  **are able to carry out the work assigned to them and to recognize and avoid possible dangers independently due to their professional training, knowledge and experience as well as knowledge of the relevant regulations.**
  **Only persons who can be expected to carry out their work reliably are permitted as personnel. Persons whose ability to react is impaired, e.g. by drugs, alcohol or medication, are not permitted.**

### 3.3 Work safety instructions

- Wear safety shoes, work gloves and a helmet.
- Do not stand under the load. Always remain outside the danger zone of the load.
- Never transport people or animals.
- Only work with good visibility over the entire work area. Watch out for other people in the work area. Never carry the load over people or animals.

### 3.4 Intended use

The device is designed and constructed exclusively for the intended use described here. The appliance is intended exclusively for laying paving stones, concrete elements, natural stone, etc.

| | | |
|---|---|---|
|  | **Danger** | Dangerous situation!<br>Danger due to improper use! |

The Optimas PaveJet S24 paving machine is used in conjunction with the Optimas Multi6 M paving clamp for laying interlocking paving stones, in conjunction with the hydraulic kerb clamp for laying kerbs, in conjunction with the sweeper for efficient sweeping of sand when laying interlocking paving stones or in conjunction with the BE hydraulic vacuum laying unit for laying or picking up large-format concrete or natural stone elements and aluminium panels. Only Optimas attachments may be fitted to the PaveJet S24 paving machine. Any use of the appliance that goes beyond the intended use and/or any other use can lead to dangerous situations.

- The function and condition of machine must be checked before each use!
- Maintenance, lubrication and troubleshooting may only be carried out when machine is shut down!
- In the event of safety-related faults, machine may only be used again after the fault has been completely rectified!
- If there are cracks in load-bearing parts, machine must be withdrawn from use immediately!
- The operating instructions for machine must be available at the place of use at all times!
- Never remove machine plate!
- Unreadable warning signs must be replaced!

### 3.5 Safety during operation

#### General information

- Machine to be used at ground level only. Swinging of machine over people is prohibited.
- It is forbidden for people to remain in the working area during operation! Standing under a suspended load is generally prohibited. Danger to life!!!
- The load capacity of machine must not be exceeded.

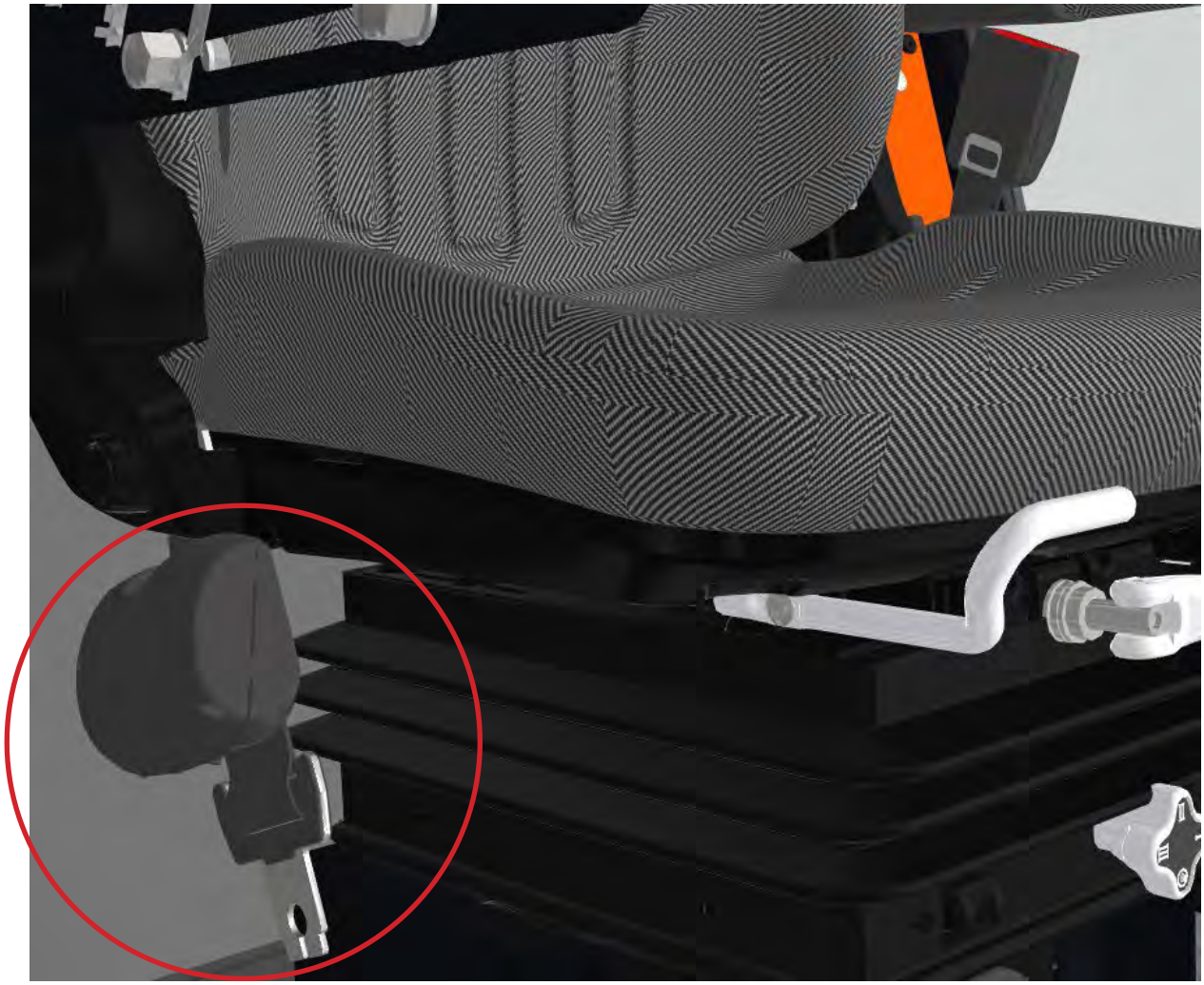
### 3.6 Unauthorized modifications

Machine is designed and constructed exclusively for the intended use described here.

| | | |
|---|---|---|
|  | **Prohibition** | Unauthorized modifications the device or the use of any additional devices that you may have built yourself endanger life and limb and are therefore strictly prohibited! |

### 3.7 Safety seat belt

**The seat belt must be fastened before the machine is set in motion! Its use is mandatory. Riding without a seat belt is strictly prohibited and poses a risk to life and limb!**



### 3.8 Boom safety mechanism

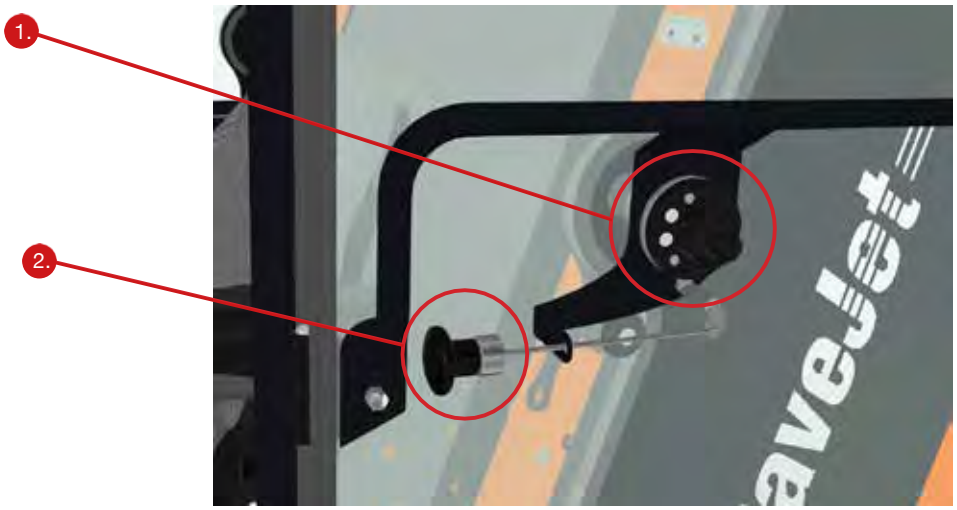
**The safety mechanism on the boom is a safety edge that reacts to gentle pressure.**
**When the safety edge is triggered, the boom stops and automatically raises again for one second. This eliminates the risk of crushing injuries between the cab roof and the boom.**
**After triggering, the switch lamp lights up. The boom can now no longer be raised or lowered in the 1st stage. To release the lock, the machine must be restarted.**
**The solenoid valve installed for this purpose is also used to lock the 1st stage. To do this, the switch must be pressed, and the lamp lights up. This valve is opened by electricity; if the ignition of the machine is off, the boom can not be lowered.**


### 3.9 Driving with open door

- When driving with opened door, make sure that it is properly secured! (see picture)
- Caution! If the door is not secured while driving, the window may break!


The door can be unlocked in two ways.

1. By pressing the button
2. By pulling the lever



# 4. Technical data

## 4.1 Machine number

**Motor type and serial number Motor**

**type:** _____

**Serial number:** _____

**Hydraulic pump type and serial number**

**Hydraulic pump type:** _____

**Serial number:** _____

**Machine type and serial number**

**Machine type:** _____

**Serial number:** _____

## 4.2 Engine data

| | |
|---|---|
| **Manufacturer:** | **Kubota** |
| **Type:** | **V1505 / 4 – cylinder water cooled** |
| **Fuel:** | **Diesel** |
| **Power:** | **18,5 KW / 25 HP** |
| **Displacement:** | **1498 cm³** |

## 4.3 Wheels

| | |
|---|---|
| **Wide tires:** | **20,5 x 10 x R10** |
| **Tire pressure:** | **4,0 bar** |

## 4.4 Filling capacity

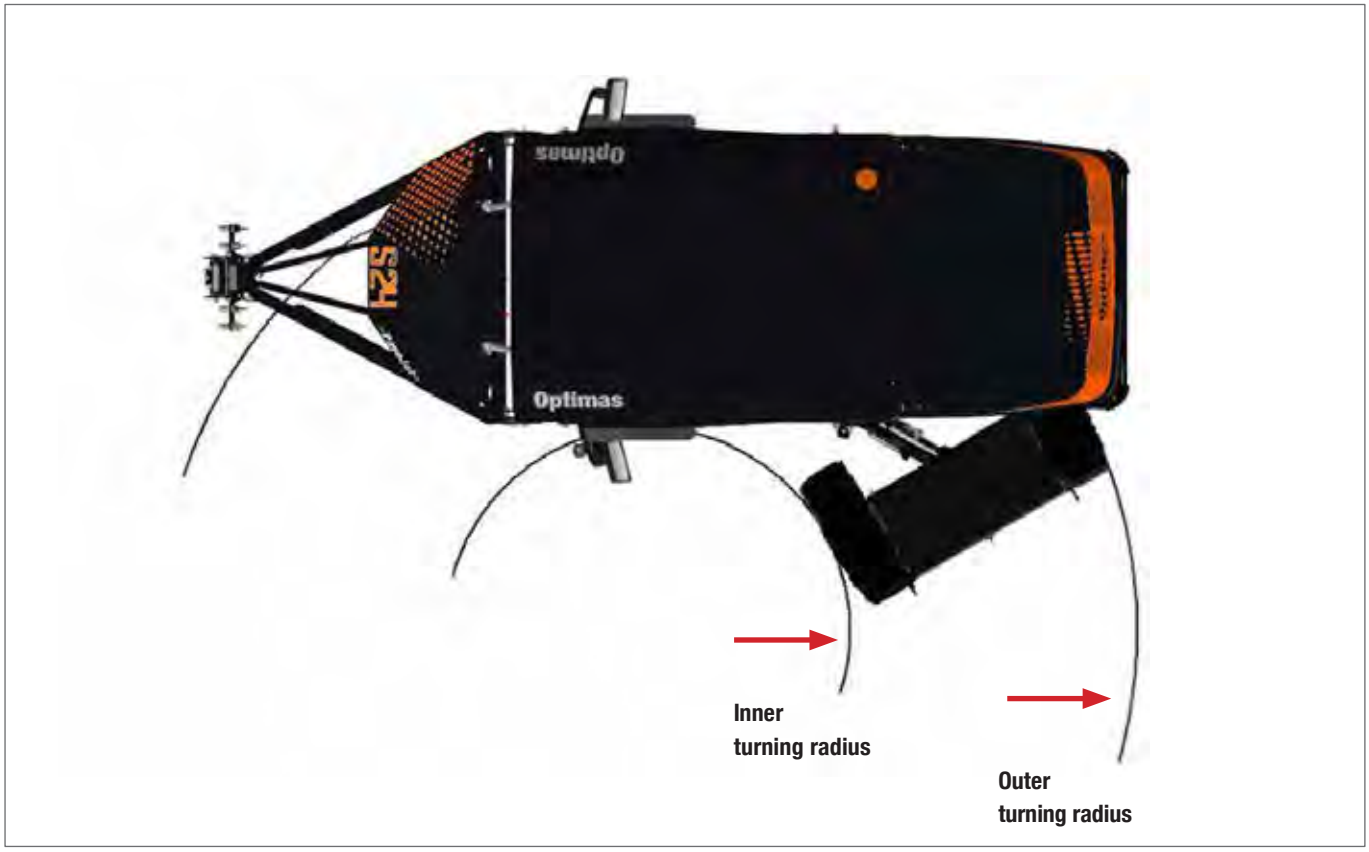
| | |
|---|---|
| **Fuel tank:** | **45 liter diesel** |
| **Hydraulic oil:** | **HVLP TSX46** |
| **Hydraulic tank:** | **20 liter** |
| **Engine oil:** | **4 liter 15W40** |
| **Electrical system:** | **12 V** |

### 4.5 Machine dimensions

| | |
|---|---|
| **Height:** | **1,99 m** |
| **Height without boom roof:** | **1,96 m** |
| **Width:** | **1,43 m** |
| **Length:** | **4,00 m** |
| **Total weight:** | **1.600 kg** |
| **Total weight with clamp:** | **1.825 kg** |
| **Boom load capacity:** | **700 kg (incl. clamp)** |

### 4.6 Turning radius

| | |
|---|---|
| **Inner turning radius:** | **920 mm** |
| **Outer turning radius:** | **2420 mm** |



### 4.7 Maximum angle of incline and decline

- **Pay attention to the maximum incline angle!**

  **Straight uphill at 35% maximum gradient**
  **Straight downhill at 35% maximum gradient**
  **Inclined drive to the slope at 15% maximum gradient**

- **Drive with caution!**

**Safety instructions when working on slopes**

- **Steer carefully.**

**35 % maximum uphill gradient**

**35 % maximum downhill gradient**

**15 % maximum gradient when driving on an incline**

**CAUTION WHEN TURNING IN!**

### 4.8 Boom outer dimensions



390 cm
256 cm
Optimas
PaveJet
S24

# 5. Operation PaveJet S24

## 5.1 Hydraulic oil warm-up times

Depending on the outside temperature (below 5°C), the following warm-up times for the hydraulic oil must be followed before the paving machine is started for the first time each day and before the first movement is performed:

- Outside temperature above 10°C: 5 min
- Outside temperature below 10°C: 10 min

## 5.2 Starting the engine

- Set the speed adjustment lever (throttle lever) to medium speed.
- Turn the ignition key to “preheating”. Leave the ignition key in this position and observe the indicator lamp for preheating.
- As soon as the lamp goes out, turn the ignition key to the “Start” position and start the engine.

## 5.3 Setting the 1st level

The 1st boom level is fixed on construction sites where the drive-through height is restricted, e.g. underground garages and roof overhangs. The switch to the left of the driver's seat is operated for this purpose.

The lift cylinder can be locked in any position so that only the 2nd level and the boom tip move up or down.

## 5.4 Hydraulic brake

The hydraulic brake is activated when the engine is switched off.

The red stop switch on the steering column can also be used to activate or deactivate the hydraulic brake when the engine is running.

## 5.5 Safe parking of the machine

Caution: Only leave the machine when the hydraulic brake is activated!

1. Always park the machine on a flat surface.
2. Always lower the boom completely.
3. Activate the hydraulic brake.

# 6. Touch display operation

**The S24 Pavejet paver laying machine is controlled via the touch display. The display has several pages, which in turn offer various functions and control and setting options.**

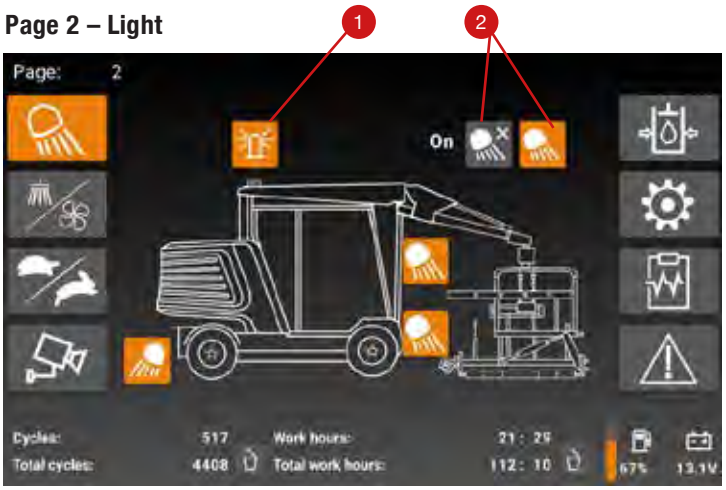
**All control panels are shown on the display, with or without functions depending on the equipment. All functions are explained in the following instructions.**


**Page 1 - „Home“ - Screen**

1. **Page 1 - Home-Screen**
2. **Page 2 - Light menu**
3. **Page 3 - Ventilation control / attachments**
4. **Page 4 –Drive character / Steer character**
5. **Page 5 - Rear view camera**
6. **Page 6 - Pressure settings / Automatic mode**
7. **Page 7 - General settings / system information**
8. **Page 8 – Diagnostics menu**
9. **Page 9 – Error log**
10. **Engine RPM**
11. **Speed display (km/h)**
12. **Hydraulic pressure**
13. **Diesel tank level**
14. **Battery voltage**

**To select a page, tap the icon of the desired page. To return to the home screen, tap the icon of the selected page again. The lower display with the number of daily cycles, total cycles, daily operating hours, total operating hours, diesel level and battery voltage is always visible on all pages. The daily values can be reset by briefly pressing and holding the control panel using the small recycle bin symbols.**

**Page 2 – Light**

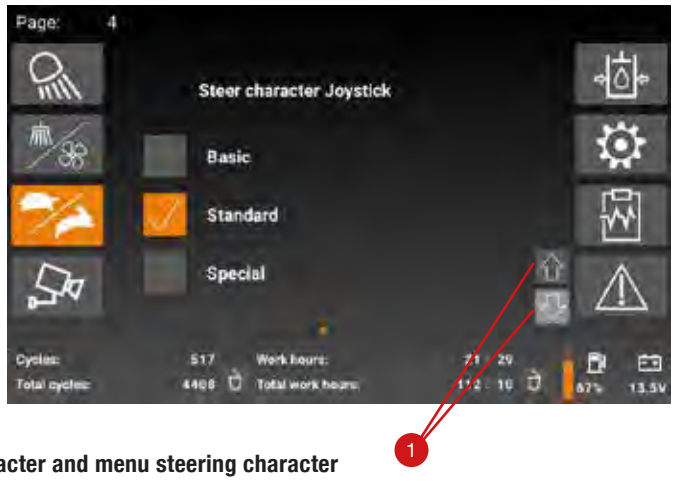



1. “Warning light” symbol - Switches the warning light on or off
2. “Lighting” symbol - Activates or deactivates the machine lighting

**Page 3 - Ventilation control / attachments**


1. Symbol „Ventilation“ - Setting the intensity of the ventilation
2. Symbol „Broom“ - Selection of the direction of rotation of the broom, if fitted and connected.
3. Symbol „Vacuum“ - Activate or deactivate the vacuum pump, if fitted and connected
4. Symbol „A/C“ - Activate or deactivate the air conditioning function only when the ventilation is switched on!
5. Symbol „All-wheel drive“ - Activate or deactivate the differential lock
6. Symbol „Automatic“ - Activate or deactivate automatic mode
7. Symbol „lateral alignment“ - Activate or deactivate the semi-automatic function
8. Symbol „Exterior mirrors“ - Activate or deactivate the exterior mirror heating
9. Symbol „Joystick steering“ - Activate or deactivate joystick steering
10. Symbol „Joystick lift / lower“ - Activate or deactivate joystick lift / lower

**Page 4 - Drive character / Steer character**


1. Symbol „Arrow up / down“ - switch between menu driving character and menu steering character

**Driving character**
**Selection between the driving modes “Basic”, “Standard” and “Special”**

**Steering character**
**Selection between the joystick steering modes “Basic”, “Standard” and “Special”**

**Page 5 - Rear view camera**

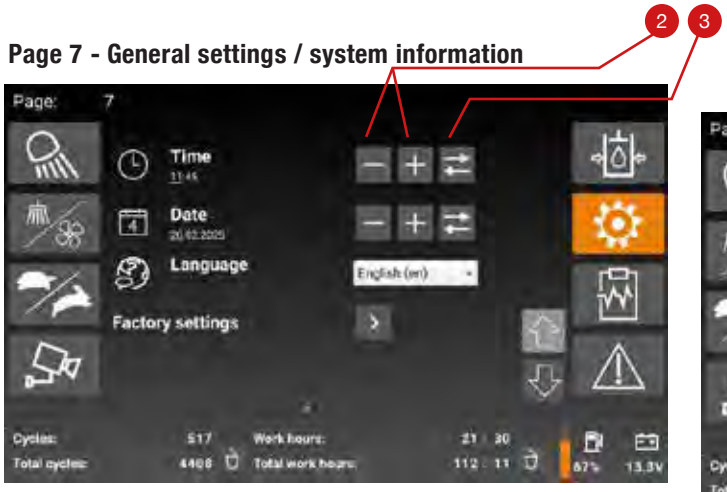
## Page 6 - Pressure settings / Automatic mode

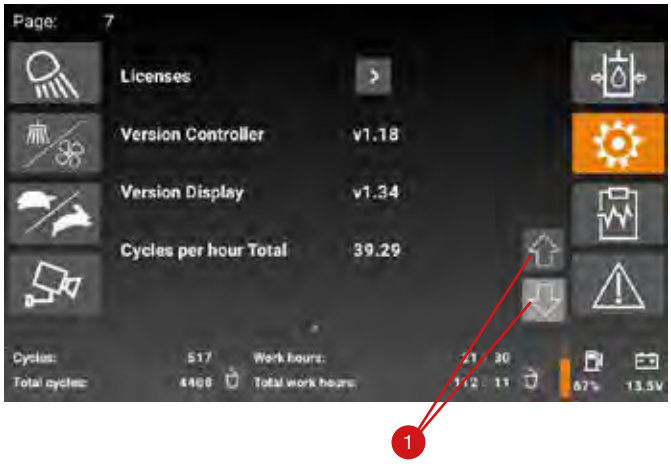


1. Symbol „Arrow up / down“ - switch between the menu pages
2. Symbol „Plus / Minus“ - increase / decrease the value

The contact pressure of the clamp and the lateral alignment is set on the first menu page.
The times for automatic mode can be optimized on the second menu page.

## Page 7 - General settings / system information

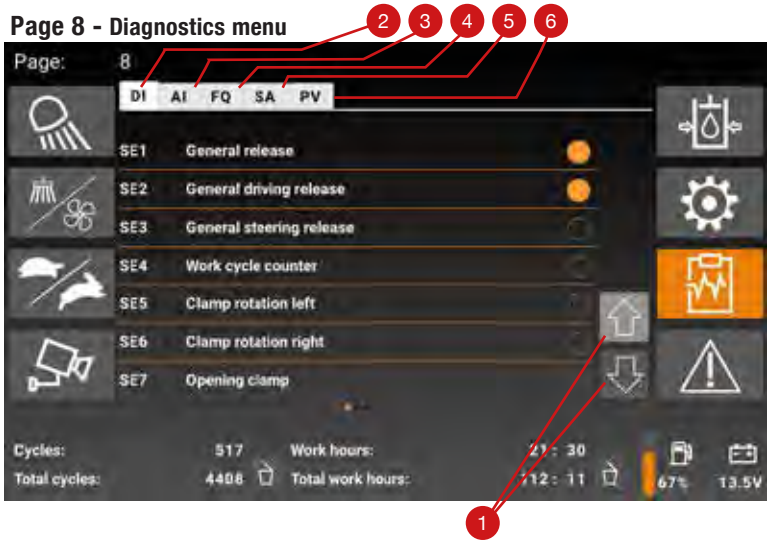



1. Symbol „Arrow up / down“ - switch between menu pages
2. Symbol „Plus / Minus“ - increase / decrease the value
3. Symbol „left / right“ - selection of the value to be changed

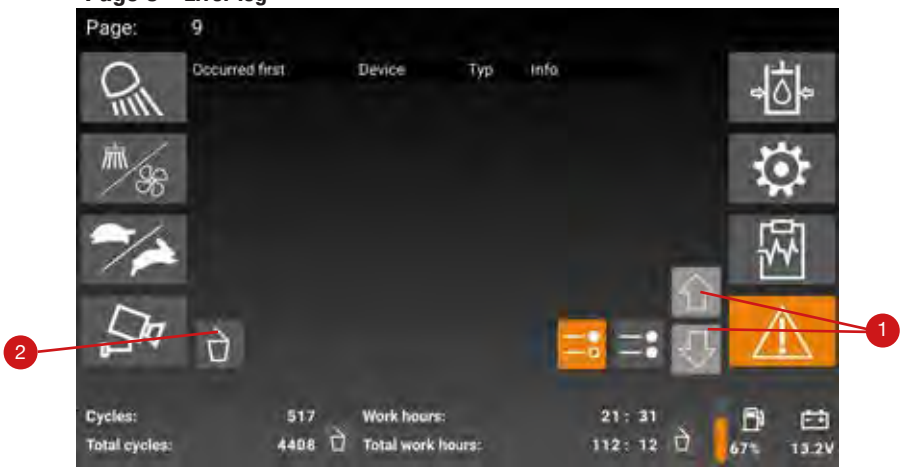
The first menu page contains setting options for the time, date and language.
Under “Factory settings”, all settings selected by the user are reset to the original values.
The second menu page contains the system information and the total cycles per hour.

**Page 8 - Diagnostics menu**




1. Symbol „arrow up / down“ - switch between the menu pages
2. DI - Switch input
3. AI - Analog input
4. FQ - Frequency input
5. SA - Switch output
6. PV - Proportional valve input

**Page 9 - Error log**



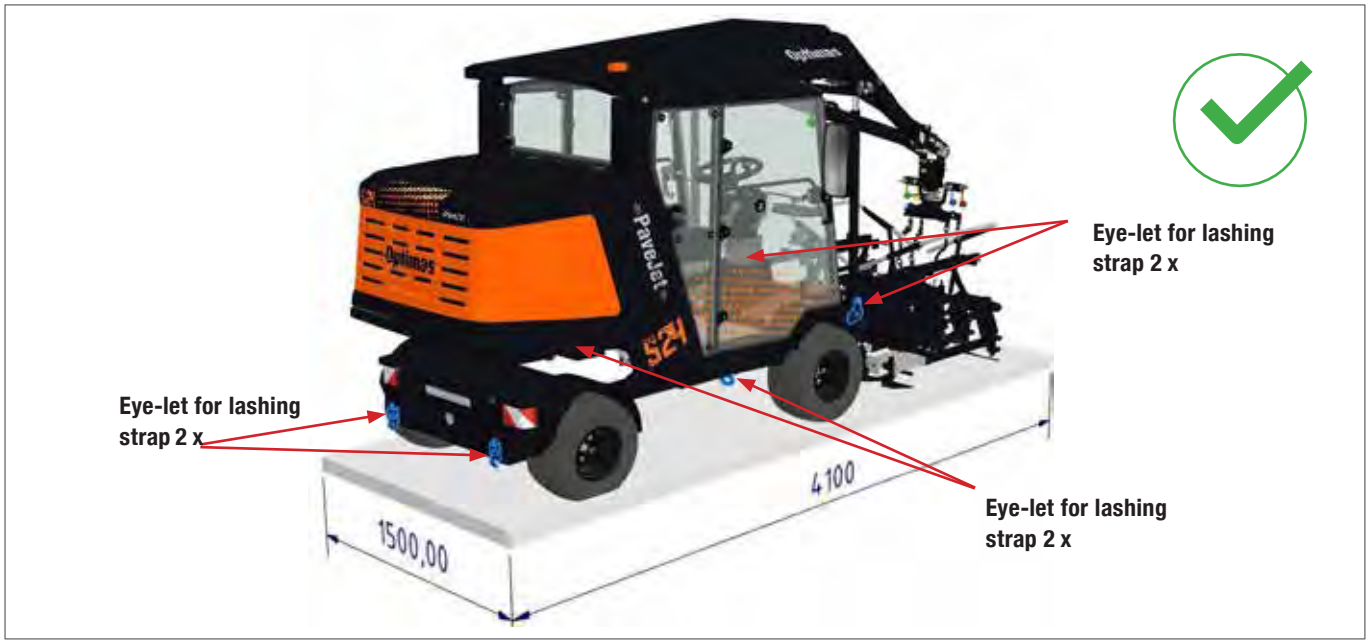

1. Symbol „arrow up / down“ - switch between the menu pages
2. Symbol „Recycle bin“ - press and hold briefly to reset the error log

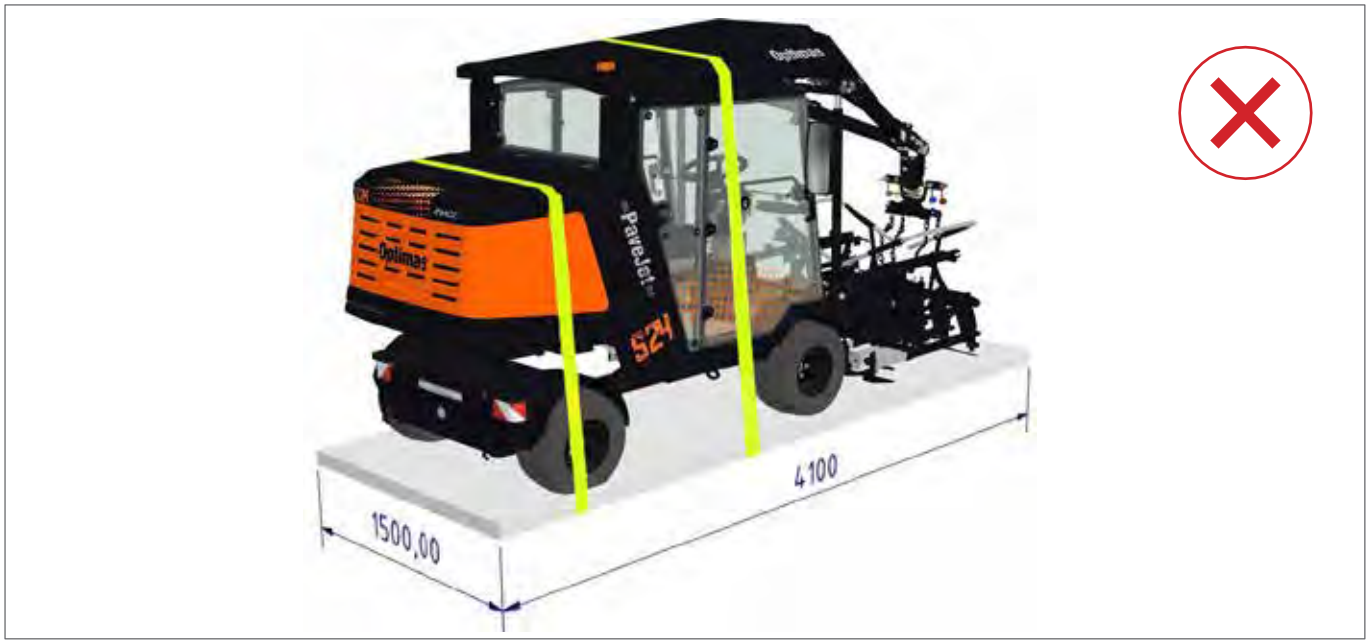
# 6. Machine transport

### 6.1 Minimum loading/transport space

**Weight:** 1825 kg

**Note:** Fasten machine at its designated eye-lets only!



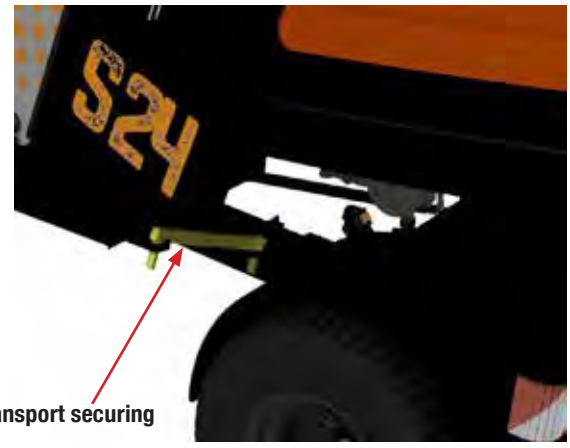



### 6.2 Safe machine loading

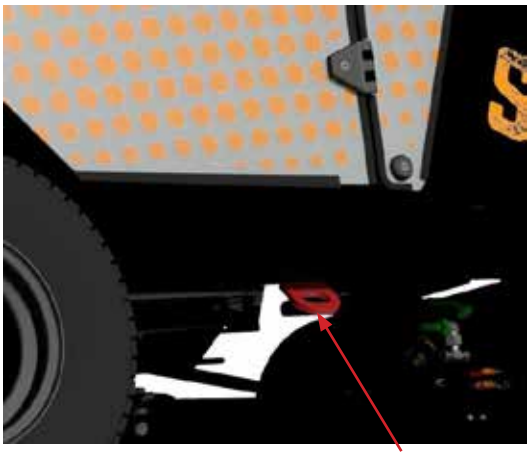
- Fasten machine with lashing straps or chains (see pic. 1a and 1b)
- Retract the boom and fasten the Multi6 M Clamp as well
- Close and lock cabin doors and engine hood
- Fix transport securing (see pic. 2)
- Loading and disloading on straight and tight ground only
- Lashing spots are indicated with the following yellow sticker:


Pic. 1a


Pic. 1b Bild 1b




Pic. 2




Pic. 3

### 6.3 Crane loading-/ disloading

**For crane loading there is Optimas eye-let set required.**

*Can be ordered optional art.-no.: 120707*

**Optimas eye-lets to be fixed at spots designated with following yellow sticker:**

**(see pic. 1a - 1d)**

**Pic. 1a**


**Pic. 1b**

**Pic. 1c**

**Pic. 1d**

**Optimas eye-let set includes round slings as per pics. below.**
**Wrap sling at the upper side of lifting cylinder around the boom as per pic. 2a/2c. Slings to be fixed with bolts at the lower side of lifting cylinder, see pic. 2b/2d.**

**Bild 2a**

**Bild 2b**

**Bild 2c**

**Bild 2d**

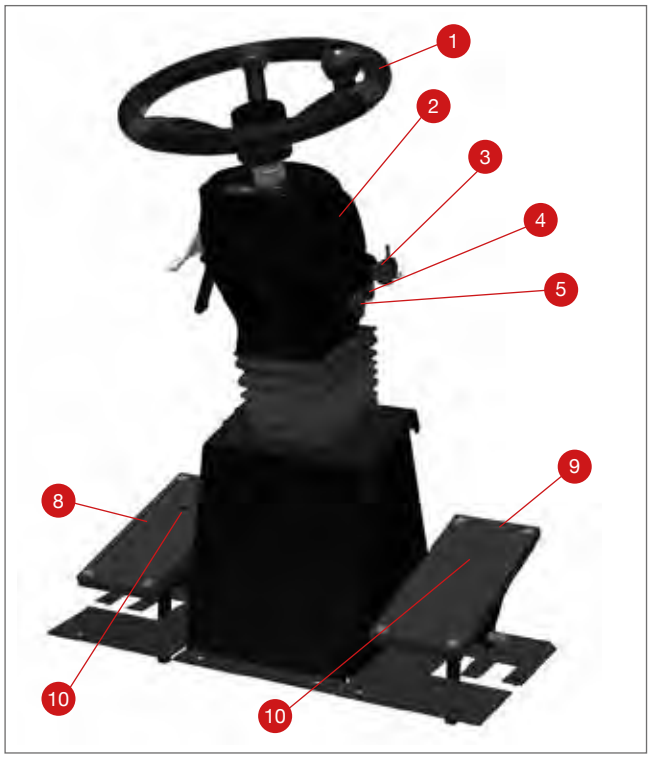
**Extend/drive out lifting cylinders of boom until both slings are on tension/tensioned.**

**Now machine is ready to be lifted.**


# 7. Machine operation

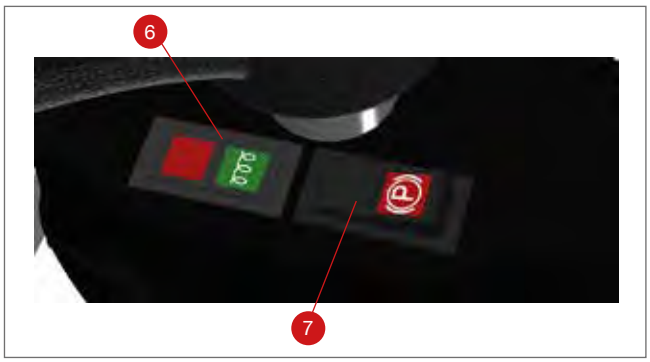
## 7.1 Steering column and pedals

- Adjustable steering wheel (1) and adjustable steering column (2). Losen lever (12) to adjust both to its wished/designated position and tighten lever (12) again.
- Pedal (8) (lifting / retracting of boom) pedal (9) drive of machine back/forth. Pedal adjustments (inclination of pedal) per adjustment screws (10).
- Switch for parking brake on top of steering column (7).

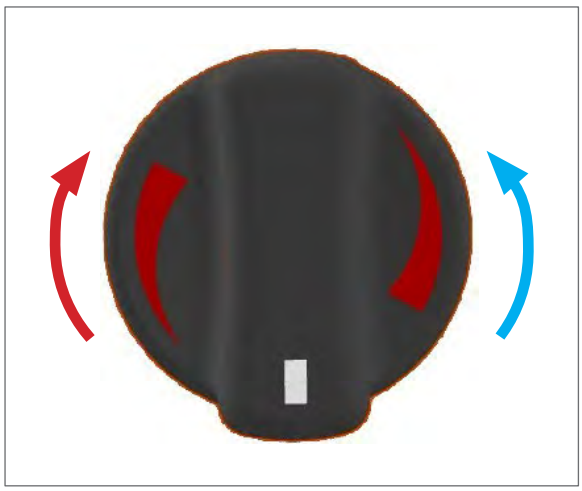




1. Steering wheel
2. Steering column
3. Ignition lock
4. 12 volt electric supply
5. USB port
6. Pre-heating control lamp
7. Hydraulic brake
8. Left pedal
9. Right pedal
10. Screws pedal adjustment (inclination of pedal)
11. Throttel lever
12. Adjustment lever for steering column and-wheel



### 7.2 Heating controller



- Location of heating controller at the left side of drivers seat.
- Temperature regulation by rotation to left/right.

Rotation right: increase temperature

Rotation left: reduce temperature

### 7.3 Opening engine hood

Lever for opening engine hood located at the lower right corner of drivers seat.

7.4

Radio – operation, see radio manual

Document clip

Wrench 30mm

Crank for Multi6 M clamp adjustments

7.5 Drivers seat

Standard-seat (art.-no.: 51250)

Comfort-seat (art.-no.: 54555)

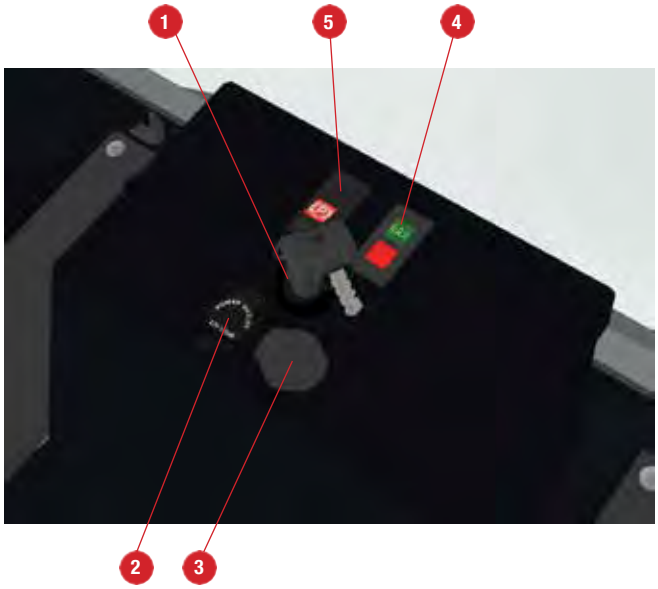
Seat type per picked machine feature package, adjustment possibilities per particular seat type operation manual.

## 7.6 Joystick steering (art.-no.: 119263 / 119264)

**Joystick steering is available in two versions:**

**Version exclusive steering wheel and column - art.-no.: 119263**
**Version including steering wheel and column - art.-no.: 119264**

**Version excl. steering wheel**




1. **Ignition lock**
2. **12 volt electric supply**
3. **USB port**
4. **Pre-heating lamp**
5. **Hydraulic brake**

Version including steering wheel

**At version incl. steering wheel, steering wheel is connected by a quick release to steering column. To remove steering wheel press button marked in red circle on pic. above and turn quick release leftwise. After removal of steering wheel cover quick release with designated cap due to protection against dirt and dust.**
**For refastening of steering wheel place wheel on quick release push button maked in red circle and turn steering wheel to right.**

**Enabling/disabling of joystick steering at the touch-display (Page 18 – display page 3 - point 9)**

### 7.7 Joystick for boom operation up/down S24 (art.-no.: 119262)

**Joystick for boom operation up/down replaces the standard joaystick. Boom raises by pushing joystick backwards, boom lowering by pushing joystick forward. Enabling/disabling of joystick steering at the touch-display (Page 18 – display page 3 - point 10). Boom operation up/down by left pedal (8) still always possible.**


### 7.8 Air-conditioning (A/C) (art.-no.: 117265)

**As option S24 can be equipped with A/C.**

**Enabling of A/C as following:**

1. **Set heating controller to lowest temperature adjustment (Pic. 1)**
2. **Enable fan (Pic. 2, point A)**
3. **Enable A/C (Pic. 2, point B)**
4. **Temperature settings via adjustment knob of blower unit. (Pic. 3)**

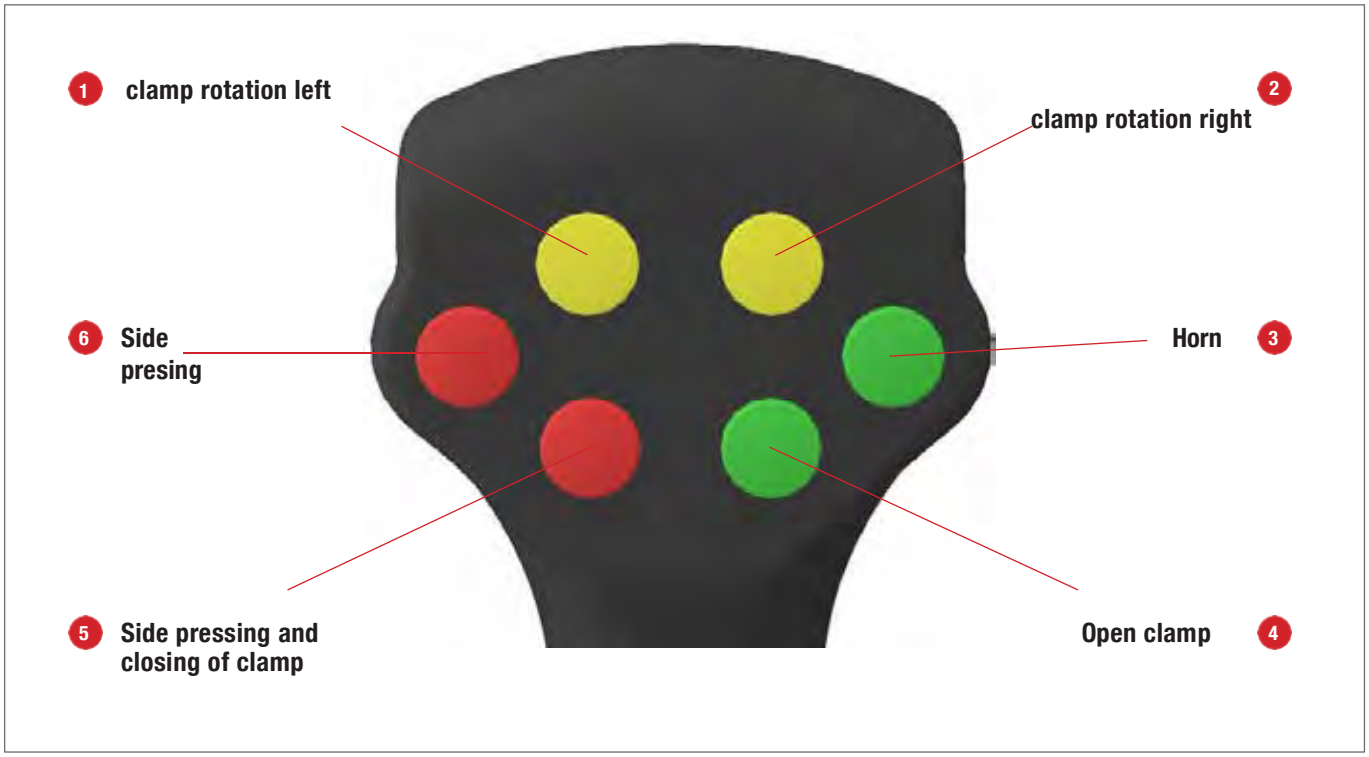
**Pic. 1**


**Pic. 2**

**Pic. 3 – By right rotation = lower temperature**

# 8. Paver laying

## 8.1 Joystick operation




## 8.2 Work cycle with semi automatic

1. Enable semi automatic. (Page 18 – display page 3 – point 7, touch symbol for semi automatic.
2. Place clamp on paver package.
3. By pushing the button side pressing and closing of clamp (5) paver layer will be lateral aligned and gripped.
   Keep button pressed until clamp gripped the pavers.
4. Press left foot pedal back to raise the boom.
5. Align clamp at laying edge and lower the clamp.
6. Drop layer/install paver layer by using open clamp button (4).



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### 8.3 Work cycle „automatic“

**With the ”Optimas Automatic” function, all clamp functions are performed fully automatically. Important: Only enable the automatic when the clamp is open. Before activating the "Automatic", do the gripping manually once.**

1. **Activate automatic (Page 18 – display page 3 - point 6)**
2. **Move the clamp over the package with the ”Raise - Lower” foot pedal.**
3. **Lower the clamp so that it is laying on the package of paving stones.**
4. **Automatic function**

- **The layer of paving stones is aligned sideways.**
- **The layer of paving stones is grabbed.**
- **The layer of paving stones is raised.**

5. **Align the layer of paving stones at the paving edge and lower the clamp until it touches the ground.**

6. **Automatic funktion**

    - **The clamp opens.**
    - **The clamp raises.**

7. **The next work cycle can be performed.**

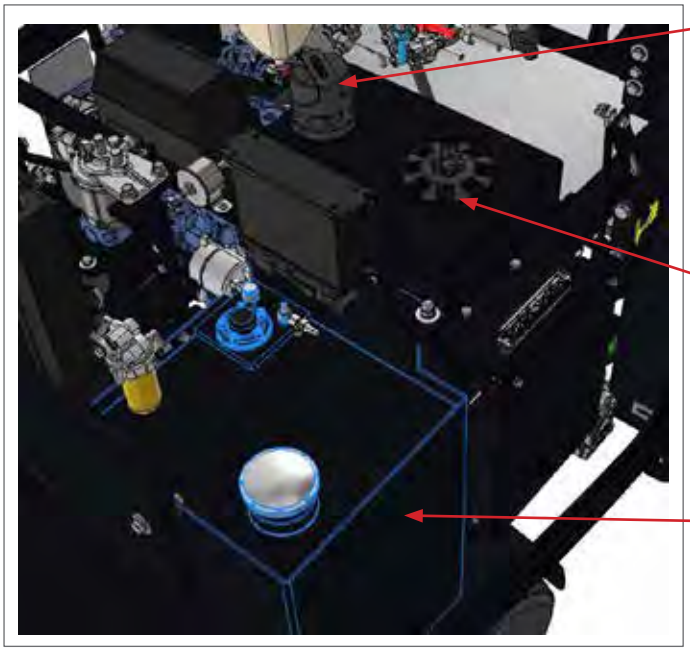
# 9. Designation engine compartment

## 9.1 Fuse box

Fuse box is located at the right side of engine compartment.

| | |
|---|---|
| 1. Battery / Ignition lock | 15A |
| 2. Light | 10A |
| 3. MMC | 15A |
| 4. MMA | 10A |
| 5. Heated seat / Compressor | 10A |
| 6. Fan radiator | 30A |
| 7. Air conditioning | 20A |
| 8. Spare slot | 30A |

## 9.2 Hydraulic-and fuel tank



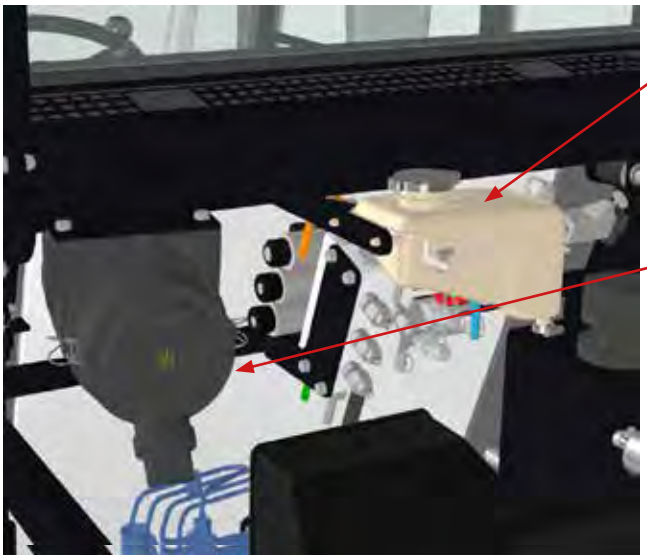
Hydraulic oil level to be checked at filler neck.
Correct oil level within designated/marked range
at the dipstick.

Hydraulic oil filter

Diesel tanks location is right behind hydraulic oil tank.

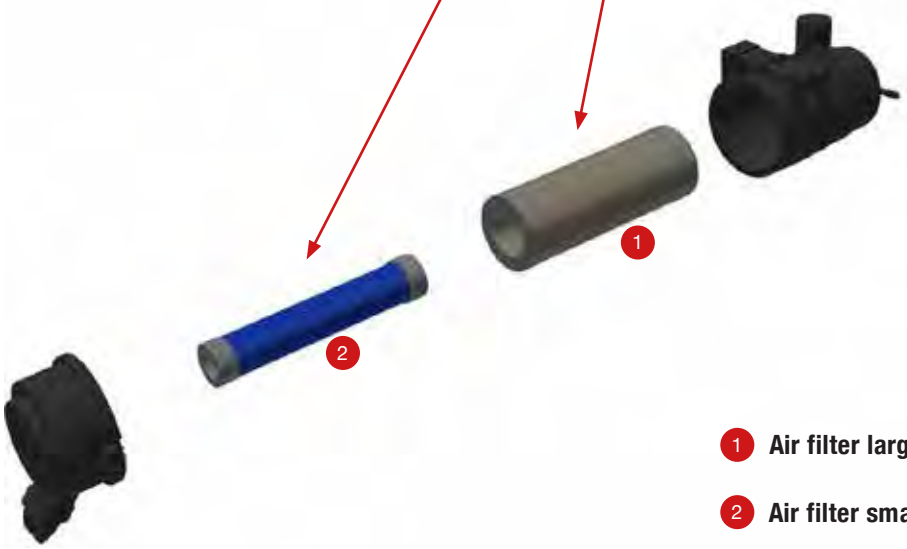
Important: diesel only to be filled!

### 9.3 Aif filter and coolent tank



Collent tank is located in center area of engine compartment.

Air filter housing is located at front left side of engine compartment. Housing includes one small and one large filter.




1 Air filter large - art.-no.: 48009

2 Air filter small - art.-no.: 48010

# 10. Service and maintenance

## 10.1 Daily service

**Machine should be serviced and maintained as recommended. Following checks to be performed every time before operation.**

**To be checked:**

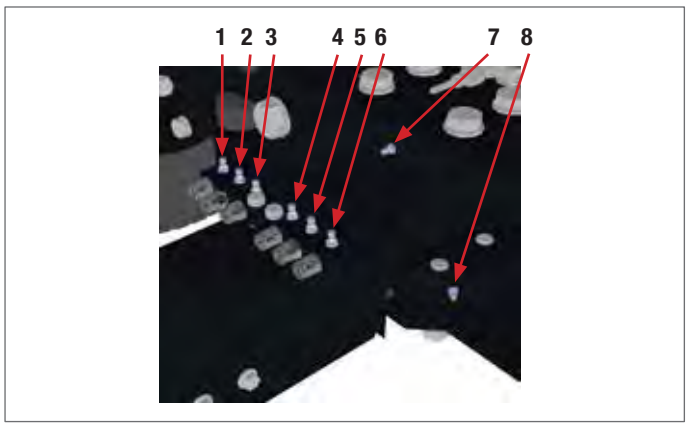
- **Cooling water level**
- **Hydraulic oil level**
- **Diesel level**
- **Engine oil level**
- **Function of hydraulic brake**
- **Steering-and boom lifting cylinders**

**Lubrication of machine every 25 – 30 working hours:**


**Central lubrication of steering system:**

**Grease nipples are located at the rear of cross-axle and the rear-axle. For lubrication steer machine completely to left.**

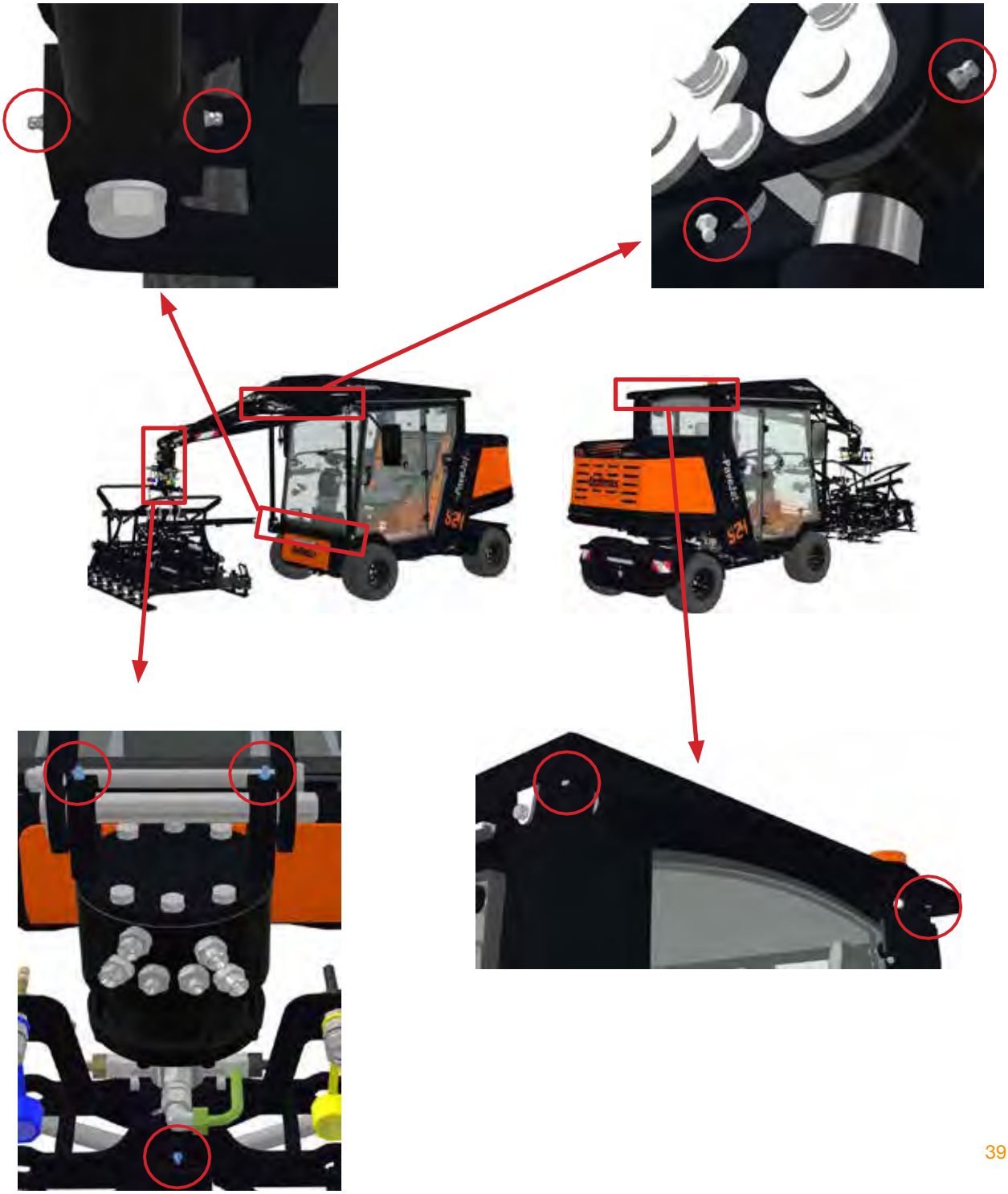
| | | |
|---|---|---|
| **Grease nipples 1,2,5,6:** | **-** | **2 strokes** |
| **Grease nipples 3,4,7,8:** | **-** | **6 strokes** |




**1 and 6: Grease nipples for steering cylinder rear**
**2 and 5: Grease nipples for steering cylinder front**
**3 and 4: Grease nipples for front axle bolt 7:**
**Grease nipple for upper bearing**
**8: Grease nipple for lower bearing**

**Boom lubrication**

**Grease nipples are located at lower and upper side of lifting cylinder. In addition at rear swivel joint of boom and at hydraulic rotator head.**



### 10.2 First inspection after 50 working hours

- Clean or replace air filter
- Change motor oil and oil filter
- Check water cooler fins for dirt and grime
- Check cooling water level and antifreeze (every year before the first frost), refilling if necessary
- Check generator V-belt tension
- Check hydraulic oil level, refill if necessary
- Check hydraulic pipes and hoses, tighten if necessary
- Check front axle bearings and adjust if necessary
- Check instruments and operating equipment
- Check function of foot pedals
- Check automatic function (if present)
- Check tire-air pressure (4.0 bar front and rear)
- Check machine for damaged connections and leaks
- Check machine for damaged or deformed components and abnormal noises
- Replace any missing bolts and nuts, and tighten any loose nuts
- Check battery and battery connections

### 10. Continuing inspection after every 200 working hours

- Change motor oil and oil filter
- Check hydraulic oil level, refilling if necessary
- Replace hydraulic oil filter (after the first 200 hours, after that every 1000 hours)
- Replace fuel filter
- Check water cooler fins for dirt and grime
- Replace air filter
- Check battery and battery connections
- Check generator V-belt tension, and replace V-belt if necessary
- Check cooling water level and antifreeze (every year before first frost), refill if necessary
- Check rear axle bearing bolts
- Check front axle bearings and adjust if necessary
- Check grease lubrication points of front and rear axles in intervals of 25 – 30 hours
- Check function of hydraulic parking brake
- Check tire-air pressure (4.0 bar front and rear)
- Check machine for damaged connections and leaks
- Check tire profile, replace tires if necessary
- Check lights, replace if necessary
- Check instruments and operating equipment
- Check machine for damaged or deformed components and abnormal noises
- Replace any missing bolts and nuts, and tighten any loose nuts

### 10.3 Continuing inspection after every 1000 working hours

- Change motor oil and oil filter
- Check hydraulic oil level, refill if necessary
  (change hydraulic oil every 1000 hours or once per year)
- Replace hydraulic oil filter
- Replace fuel filter
- Check water cooler fins for dirt and grime
- Replace generator V-belt
- Check generator, replace if necessary
- Check cooling water level and antifreeze (every year before the first frost), refill if necessary
- Check rear axle bearing bolts
- Check front axle bearings
- Check disk springs at front axle, replace if necessary
- Check linkage on the foot pedal, replace if necessary
- Checl grease lubrication points for front and rear axles in intervals of 25 – 30 hours
- Check function of hydraulic parking brake
- Check tire pressure (4.0 bar front and rear)
- Check machine for damaged connections and leaks
- Check tire profile, replace tires if necessary
- Check lights, replace if necessary
- Check instruments and operating equipment
- Check machine for damaged or deformed components and abnormal noises
- Replace any missing bolts and nuts, and tighten any loose nuts
- Clean fuel tank
- Replace rubber buffer of cabin door pane fixation

# 11. Accessoiries / optional accessoiries

## 11.1 Hydraulic and water connections


Hydraulic and water connections are located behind front grill

## 11.2 Mounting Joint Filling Device respectively Clean-Sweeper

- **The mounted equipment is fastened to the boom or to the cylinder mount. Clean-Sweeper can only be mounted using an adapter.**
- **The hydraulic hoses are connected to the green and yellow connections.**
- **A cable is mounted at boom for raising.**

### 11.3 Attachments

Hydraulic Paver-Clamp

Hydraulic Kerb-Clamp

Paver-Joint Filling Device incl. water tank (optional)

Vakuum Unit

Weed Brush

Clean-Sweeper (optional with dirt collector)

Mechanical Joint-Filling Broom

## 12. Trouble shooting

| Problem | Cause | Solution |
|---|---|---|
| Motor starts poorly or not at all, motor does not run smoothly | - Wrong fuel | - Use the right fuel |
| | - Low battery voltage | - Check the generator<br>- Recharge or install a new battery |
| | - Error in the preheating unit or a defective glow plug<br>- Water, dirt or air in the fuel system or a clogged filter | - Repair glow plugs or install new ones<br><br>- Bleed, clean and/or replace the filter |
| | - Clogged air intake-system | - Clean/replace the filter and air system |
| | - Starter does not work | -Check the starter |
| Operating temperature is too high | - Air filter clogged | - Clean/replace the air filter |
| | - Cooling water level too low | - Refill |
| | - Deposits in the fins of the water cooler | - Clean the cooler |
| | - Cooling water system has a leak | - Plug/eliminate the leak |
| - Grab clamps before the sideways pressing is finished | - Open width setting of the grab is set too small | - see the Operating Instructions for the grab |
| | - Timing relay is set not correctly | - see the Operating Instructions, Chapter 6 |

| Problem | Cause | Solution |
|---|---|---|
| - Machine has no power when driving forwards or backwards | - Pressure limit valve in the HP pump sticking or is defective | - Consult the manufacturer |
| | - Hydraulic brake is not released | - Consult the manufacturer |
| | - Hydraulic oil filter is very dirty | - Consult the manufacturer |
| - “Press sideways” presses with too much or too little force | - Pressure limit valve set incorrectly | - Consult the manufacturer |
| - Layer of paving stones cannot be lifted up | - Pressure limit valve set too low | - Consult the manufacturer |
| | - Foot pedal set incorrectly | - Consult the manufacturer |
| - Foot pedal travel too short or too long | - Rod on the foot pedal | - Consult the manufacturer |
| Hydraulic pumps make a loud noise | - Check the hydraulic oil level | - Add hydraulic oil |
| | - Hydraulic oil filter dirty | - Replace hydraulic oil filter |
| Battery will not charge, discharges by itself | - Loose or corroded cable connection | - Clean and tighten |
| | - Battery voltage too low | - Recharge or replace battery |
| | - Generator V-belt loose | - Tighten or replace V-belt |
| | - Generator does not charge | - Check the generator |

| Problem | Cause | Solution |
|---|---|---|
| Open /close grab does not work or operates slowly | - Quick-release coupling on the boom defective or not bolted | - Replace quick-release coupling or tighten |
| | - Pressure switch defective or set incorrectly | - Consult the manufacturer |
| | - Pressure limit valve set incorrectly | - Consult the manufacturer |
| | - 4-way 2-port solenoid valve sticking, is defective, or has no electrical power | - Consult the manufacturer |
| Tip of boom raises and first and then retracts when a load is applied | - Pressure follow-up valve not set or set incorrectly | - Consult the manufacturer |
| Boom raises too fast – layer of paving stones is not grabbed (in Automatic mode) | - Pressure follow-up valve not set or set incorrectly | - Consult the manufacturer |
| The lowering of the layer of paving stones with the boom is too slow | - The foot pedal stop is set too far out | - Consult the manufacturer |

# 13. Hydraulic scheme