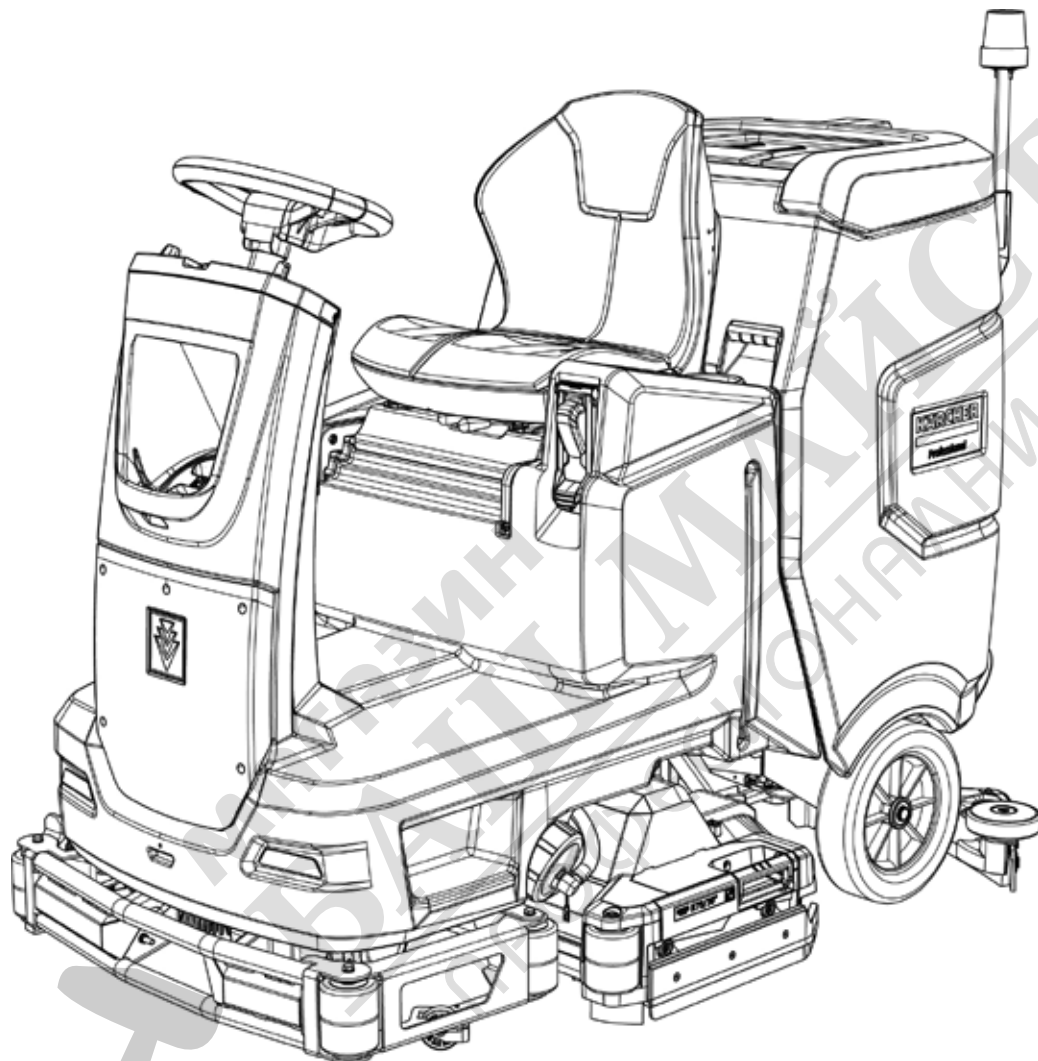


KÄRCHER

B 110 R

English 2
Français 27
Español 54



**Register
your product**
www.kaercher.com/welcome



59691690 (07/21)

Contents

IMPORTANT SAFETY INSTRUCTIONS	2
OPERATOR QUALIFICATIONS	3
OPERATOR TRAINING	3
EXAMINATION, RE-TRAINING AND APPLICATION	4
OPERATIONAL SAFETY RULES AND PRACTICES	4
MAINTENANCE AND RESTORATION ACTIVITIES	5
FIRE SAFETY STANDARD	6
Safety instructions	6
Function	7
Intended use	7
Environmental protection	8
Scope of delivery	8
Description of the unit	9
Installation	11
Initial startup	12
Operation	13
Finishing operation	16
Gray intelligent key	17
Transport	18
Storage	18
Care and service	19
Troubleshooting guide	21
Technical data	23
Accessories and spare parts	25
Warranty	26

IMPORTANT SAFETY INSTRUCTIONS

Observe all basic precautions when using the device, including the following:

READ ALL INSTRUCTIONS BEFORE USING THIS MACHINE

⚠ WARNING

- Risk of electric shock, burns and injuries
- Do not leave the device unattended with the mains plug inserted.
- Unplug from outlet when not in use and before servicing.
- Use the device indoors only.
- The device is not a toy. Exercise special care when using the device in the presence of children.
- Use only as described in this manual.
Use only accessories recommended by the manufacturer.
- Do not use with damaged battery charger output cord or plug. If appliance is not working as it should, has been dropped, damaged, left outdoors, or dropped into water, have the device checked by our Customer Service department before using it.
- Do not pull or carry by the battery charger output cord, do not use battery charger output cord as a handle, do not close a door on the battery charger output cord, or pull battery charger output cord around sharp edges or corners. Do not run appliance over battery charger output cord. Keep battery charger output cord away from heated surfaces.
- Do not unplug by pulling battery charger output cord. To unplug, grasp plug.
- Do not handle battery charger or appliance with wet hands.
- Never insert objects into the device openings. Do not use the device if the device openings are blocked. Keep

openings free of lint, hair, dust, and anything that obstructs airflow.

- Switch off the device before pulling out the mains plug.
- Keep hair, loose clothing, fingers, and all parts of the body away from openings and moving parts.
- Exercise caution when using the device on stairs.
- Do not use the device to pick up flammable or inflammable liquids, such as e.g. gasoline and do not use in areas where these fluids may be present.
- Only connect the device to a properly grounded socket (see chapter *Grounding regulations*).

ATTENTION

- This device complies with Part 15 of the FCC rules and the Industry Canada license, excluding the RSS standard.

Operation takes place under the following two conditions:

- 1 This device may not cause harmful interference, and
- 2 This device must receive any interference received, including interference that may cause undesired operation.

ATTENTION

- Changes or modifications to the device that have not been expressly approved by KÄRCHER will void the FCC approval for operating this device.

Note

- This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC rules.
- These limit values are designed to provide adequate protection against harmful interference in residential areas.
- This equipment generates, uses and can radiate radio frequency electricity. If it is not installed and used in accordance with the instructions, this can cause harmful interference to radio communications.
- However, there is no guarantee that interference will not occur in a particular application.
- If the device causes interference to radio or television reception, which can be determined by turning the device off and on, we recommend that you eliminate the interference by one or more of the following measures:
 - Change the orientation or location of the receiving antenna.
 - Increase the separation between the equipment and the receiver.
 - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
 - Contact a specialist dealer or an experienced radio / television technician.

SAVE THESE INSTRUCTIONS

Grounding regulations

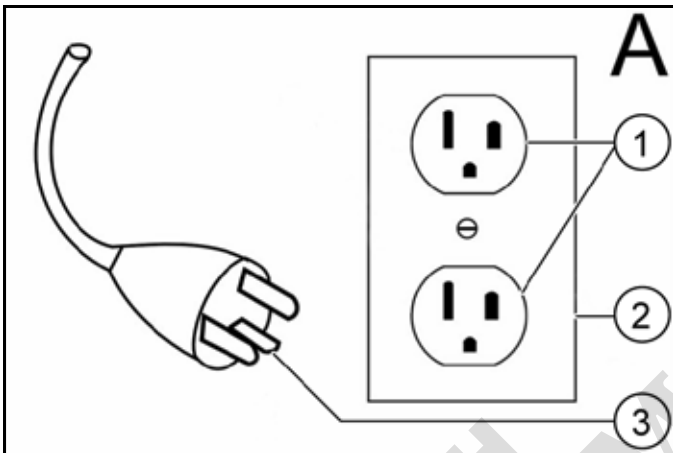
- This appliance must be grounded. If it should malfunction or break down, grounding provides a path of least resistance for electric current to reduce the risk of electric shock.
- This appliance is equipped with a cord having an equipment grounding conductor and ground plug.

- The plug must be inserted into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

⚠ WARNING

- Improper connection of the equipment grounding conductor can result in a risk of electric shock.
- Check with a qualified electrician or service person if you are in doubt as to whether the outlet is properly grounded.
- Do not modify the plug provided with the appliance.
- If it will not fit the outlet, have a proper outlet installed by a qualified electrician.
- This device is approved for use on a 120 V mains power circuit and has a plug as shown in Illustration A.
- Make sure the device is plugged into an outlet that has the same configuration as the plug.
- Do not use an adapter with this device.

ONLY CONNECT THE DEVICE TO A PROPERLY GROUNDED SOCKET



- ① Grounded socket
- ② Grounded socket housing
- ③ Ground pin

OPERATOR QUALIFICATIONS

Only trained and authorized persons are allowed to operate the powered floor cleaner. Operators of powered floor cleaners must be qualified with the visual, acoustic, physical and mental abilities needed to operate the equipment safely.

OPERATOR TRAINING

Personnel who have not been trained in the operation of powered floor cleaners may only use a floor cleaner for training purposes, under the direct supervision of the trainer. This training should be conducted in an area away from other trucks, obstacles and pedestrians.

The operator training program should include the user's guidelines for the location where the trainee will operate the floor cleaner, the operating conditions for that location, and the specific floor cleaner the trainee will operate. The training program must be presented to all new operators regardless of previous experience.

The training body must inform the trainee of the following:

- 1 The operator's primary responsibility is to use the powered floor cleaner safely as instructed in the training program.
- 2 Unsafe or improper operation of a powered floor cleaner can result in the following: Death or serious injury to the

operator or other persons; damage to the powered floor cleaner or other objects.

The training program should highlight safe and proper operation to prevent injury to the operator and others, and to prevent property damage, and should cover the following areas:

- 1 The basics of the powered floor cleaners that the trainee will operate:
 - The properties of powered floor cleaners, including variations between powered floor cleaners in the workplace
 - The similarities and differences to automobiles
 - The meaning of the type plate data, warnings and instructions affixed to the powered floor cleaner
 - The instruction manual and warnings in the instruction manual of the powered floor cleaner and the instructions for inspection and maintenance by the operator
 - The type of driving force and its properties
 - The steering method
 - The braking method and characteristics
 - The view forwards and backwards
 - The stability characteristics with and without load, with and without attachments
 - The positions of the control elements, the function, the type of operation, the identification of symbols
 - Charging of the battery
 - The isolating and non-isolating protective devices for the specific powered floor cleaner
 - Other properties for the specific powered floor cleaner
- 2 The operating environment and its effects on the operation of the powered floor cleaner including the following:
 - The soil conditions, including transient conditions
 - Ramps and gradients
 - The battery charging stations
 - Narrow aisles, doors, overhead lines, above-ground pipelines and other areas with limited space
 - The areas in which the powered floor cleaner is operated in the vicinity of other industrial trucks, other vehicles or pedestrians
 - The use and capacity of elevators
 - Operation near loading ramps or the edges of upgraded surfaces
 - Other special operating conditions and hazards that may arise
- 3 The operation of the powered floor cleaner including the following points:
 - Proper checks prior to each initial startup and authorized shutting down of a powered floor cleaner in need of repair
 - Driving, cornering
 - The parking and shutdown procedure
 - Other special operating conditions for the specific application
- 4 The rules and practices of operational safety including the following points:
 - The provisions of this standard in chapter *OPERATIONAL SAFETY RULES AND PRACTICES*
 - Other employer rules, regulations, or practices in the location where the powered floor cleaner is used
- 5 Company training practice, including the following:
 - If possible, practical training using the powered floor cleaner should take place in an area that is separate from other activities or personnel in the workplace.

- The practical training is to be carried out under the supervision of the trainer.
- The practical training should include the actual operation or the simulated execution of all tasks in the company, such as maneuvering, driving, stopping, starting and other activities under the conditions encountered when operating the powered floor cleaner.

EXAMINATION, RE-TRAINING AND APPLICATION

- 1 During the training, the employer must provide both performance tests and oral and / or written tests to measure the operator's skills and knowledge in meeting the requirements of the standard. Employers can delegate such tests to others, but remain responsible for the tests. Corresponding records are to be kept.
- 2 Operators are to be retrained when new equipment is introduced, existing equipment is upgraded, operating conditions change, or an operator's performance is unsatisfactory.
- 3 The user is responsible for ensuring the safe use of the powered floor cleaner in accordance with the provisions of this standard.

Note

Operator training information is available from sources such as powered floor cleaner manufacturers, government agencies dealing with employee safety, industrial trucking trade associations, public and private organizations, and safety advisers.

OPERATIONAL SAFETY RULES AND PRACTICES

Operator responsibility

Safe operation is the responsibility of the operator. The operator must develop safe work habits and be aware of dangerous conditions in order to protect himself, other personnel, the powered floor cleaner and other material. The operator must familiarize himself with the operation and function of all control elements and instruments before agreeing to operate the device. Before operating the device, operators must read and be familiar with the operating instructions for each device and observe the safety rules and practices in the following paragraphs. Before operating any equipment, the operator must be familiar with unusual operating conditions that may require additional safety precautions or special operating instructions.

General

Before initial startup the powered floor cleaner:

- 1 Be in the operating position.
 - 2 Set the direction controller to the neutral position.
 - 3 Apply the brake.
 - 4 Set the switch to the "ON" position.
- Do not start the device or operate the device, its functions or attachments from a location other than the specified operator position.
- Keep hands and feet within the designated area for the operator or in the equipment compartment.
- Understand the limitations of the device and operate the device safely so as not to cause injury to personnel. Protect pedestrians at all times.

- 1 Do not drive a powered floor cleaner towards people standing in front of an object.
- 2 Before turning maneuvers, ensure that personnel stay away from the rear swivel range.
- 3 Particular caution is required at front aisles, doors and other places where pedestrians can step into the path of the powered floor cleaner.

Do not allow passengers to drive with powered floor cleaners unless the manufacturer has provided a safe place to drive.

A powered floor cleaner is supervised when the operator is in sight, less than 25 ft (7.6 m) from the device.

A powered floor cleaner will not be supervised if the operator is in sight more than 25 ft (7.6 m) from the device or whenever the operator leaves the device and it is not in sight.

Before leaving the driver's position:

- 1 Bring the device to a standstill.
- 2 Set the direction controller to the neutral position.
- 3 Apply the parking brake.
- 4 Stop the engine or switch off the controls.
- 5 If the machine has to be parked on an incline, lock the wheels.

Maintain a safe distance from the edge of ramps, platforms and similar work areas.

When powered floor cleaners are being driven on or off long distance trucks or trailers, apply the brakes on the truck or trailers and use wheel chocks or other safe mechanical means to prevent unintentional movement of the truck or trailer.

Whenever powered floor cleaners are driven on and off semi-trailers that are not coupled to a tractor, supports may be required to prevent corners from tipping or diving. Care must be taken that overhead installations such as lights, cables, pipes, sprinkler systems, etc. are not touched.

Report all accidents involving personnel, building structures and equipment to the supervisor or as instructed. Do not make any additions or modifications to the device. Do not block access to escape routes, stairs or fire extinguishers.

Driving

Observe all traffic regulations including the permitted speed limits. Drive on the right under normal traffic conditions. Maintain a safe distance based on the travel speed of the vehicle in front and keep the device under control at all times.

Give the right of way to pedestrians and emergency vehicles such as ambulances and fire engines.

Do not overtake another truck at intersections, blind spots or other dangerous places.

At the intersections of aisles and other places where visibility is impaired, reduce the travel speed and sound the acoustic warning device.

If possible, cross the railroad tracks at an angle. Park no closer than 6 ft (1800 mm) to the nearest rail of a railway line.

Travel up and down gradients slowly and with caution. If possible, avoid turning and be extremely careful on gradients, ramps or slopes; normally travel straight up and down the gradient.

Maintain a clear view of the route and pay attention to other traffic, personnel and safety distances.

Operate the device in driving conditions at a speed sufficient to bring the device to a safe stop.

Carry out starts, stops, rotations or turns in a gentle manner so as not to shift the load and / or overturn the powered floor cleaner.

Do not perform stunt rides or mischief.

Reduce the travel speed on wet and slippery floors.

Before driving over a slatted frame or a bridge plate, make sure that it is properly secured. Drive carefully and slowly over the slatted frame or bridge plate and never exceed the load-bearing capacity.

Do not drive the powered floor cleaner into an elevator unless expressly authorized. Drive slowly towards the elevator and then enter immediately after the elevator car has been properly leveled. As soon as you are in the elevator, put the control elements in neutral, switch off the power and apply the brakes. It is advisable that everyone else exits the elevator before the powered floor cleaner is allowed to enter or exit the elevator.

When cornering, reduce your speed to a safe level that is compatible with the operating environment. Take the curves gently. Except when maneuvering at very low speed, turn the steering moderately and smoothly.

The operation of a powered floor cleaner requires special safety aspects such as the following:

- 1 A powered floor cleaner can tip over if an operator does not slow down to a safe speed before cornering. Signs that a truck is being driven at excessive speed during turning maneuvers include:
 - Skidding of the tires
 - Device sliding away
 - Lifting of the wheels and
 - The need to firmly grip the steering wheel so as not to slip out of the seat
- 2 The chance of a side tipping is increased under any of the following conditions or a combination thereof:
 - Driving on an uneven surface
 - Driving at excessive speed
- 3 Tipping forward can occur and its likelihood is increased under the following conditions or a combination thereof:
 - The operator should stay with the powered floor cleaner if it falls off a loading ramp or ramp. The operator should hold on tight and lean away from the point of impact.
 - If the environment presents a serious hazard or other abnormal operating conditions exist, the user may need to use different and / or additional safety precautions and special operating instructions as appropriate for the conditions.

Maintenance of the device by the operator

At the beginning of each shift and before operating the powered floor cleaner, its condition must be checked, paying particular attention to the following:

- Condition of tires
- Check the tire pressure for pneumatic tires
- Warning and safety devices
- Lights
- Battery
- Controls
- Lifting and tipping systems
- Chains and cables
- Limit switches
- Brakes

- Steering mechanism
- Additional items or special equipment as specified by the user and / or manufacturer

If it is determined that the device is in need of repair, is in any way unsafe or contributes to an unsafe condition, the matter must be reported immediately to the user-designated authority and the device must not be put into service until it has been returned to a safe operating condition.

If the device becomes unsafe in any way during operation, the matter must be reported immediately to the authority designated by the user, and the device must not be put into service until it has been returned to a safe operating condition.

Do not make any repairs or adjustments unless expressly authorized.

Do not use an open flame when checking the electrolyte level in batteries.

MAINTENANCE AND RESTORATION ACTIVITIES

Operation of the device can be dangerous if maintenance is neglected or repairs, modifications or adjustments are not carried out in accordance with the manufacturer's design criteria. Therefore, maintenance facilities (on-site or off-site), trained personnel, and detailed procedures should be provided.

Parts manuals and maintenance manuals are available from the manufacturer of the powered floor cleaner.

In unusual cases that are not dealt with in the above manuals, contact the manufacturer of the powered floor cleaner. Maintenance and inspection of the device must be performed in accordance with the following practices:

- 1 A scheduled maintenance, lubrication and inspection system must be observed. Consult the manufacturer's recommendations.
- 2 Only trained and authorized personnel may maintain, repair, adjust and inspect the device in accordance with the manufacturer's instructions.

When lifting a powered floor cleaner for repair or inspection, the device must be lifted safely and stably. Removing components such as counterweights or posts changes the center of gravity and can lead to an unstable condition. Before starting the inspection and repair of the powered floor cleaner:

- 1 Raise the drive wheels off the ground, disconnect the battery, and use wheel chocks or other secure truck positioning device.
- 2 Block the chassis before working on it.
- 3 Disconnect the battery before working on the electrical system.
- 4 The charging plug may only be connected to the battery connection and never to the unit plug.

Operation of the powered floor cleaner to test the performance must be carried out in an approved area having a safe clearance.

- 1 Before initial startup:
 - Be in the operating position.
 - Apply the brake.
 - Set the direction controller to the neutral position.
 - Set the switch to the "ON" position.
 - Check the function of the lifting and tilting systems, steering, warning devices and brakes.
- 2 Before leaving the unit:
 - Stop the device.

- Set the direction controller to the neutral position.
- Apply the parking brake.
- Stop the engine or switch off the controls.
- Switch off the control circuit
- If the machine has to be parked on an incline, lock the wheels.

Avoid fire hazards and have fire protection equipment ready in the work area. Do not use an open flame to check the fluid level, especially of battery electrolytes. Do not use open pans of fuel or flammable cleaning fluids to clean parts.

Properly ventilate the work area, discharge exhaust gases and keep the workshop clean and dry.

The brakes, steering mechanisms, control mechanisms, warning devices, lighting, controls, protection and safety devices, stops for the articulated axles and the frame parts must be checked carefully and regularly and kept in a safe operating condition.

FIRE SAFETY STANDARD

Devices that are not in a safe operating state must be taken out of service.

Repairs may not be made in Class I, Class II, and Class III locations.

Repairs to the electrical system of battery-operated floor cleaners may only be made after the battery has been disconnected.

Operating temperature. If it is determined that any part of a powered floor cleaner is above its normal operating temperature and poses a hazard, the vehicle should be taken out of service and not restarted until the cause of such overheating has been eliminated.

Fire protection. The device must be kept in a clean condition and reasonably free of lint, excess oil and grease. Non-flammable agents are preferred for cleaning the device. Flammable liquids [those with flash points at or above 100 °F (37.8 °C)] are not permitted. Precautions regarding toxicity, ventilation and fire hazard must be appropriate for the agent or solvent used.

Visibility of the type plate. The type designations of the device stated on the type plate and the type markings must not be painted over so that their identification information is covered.

Changing and charging batteries. This section applies to batteries used in electric trucks. The two types of batteries are generally lead and nickel-iron batteries. They contain corrosive chemical solutions, either acidic or alkaline, and therefore pose a chemical hazard. While charging, they emit hydrogen and oxygen, which are explosive in certain concentrations. Battery charging systems must be located in designated areas; these areas must be kept free of combustible foreign matter.

Facilities must be provided for:

- 1 Flushing off spilled electrolyte
- 2 Fire protection
- 3 Protecting chargers from damage by trucks, and
- 4 Adequate ventilation to disperse the fumes from gas batteries

If on-board chargers are used, charging must take place at the designated locations, taking into account the electrical requirements for the charger and the fire protection equipment.

Exception: Rinsing facilities are not required if the charging process is carried out without removing the battery from the vehicle.

When handling acid concentrates with more than 50 percent acid (over 1,400 specific gravity), an eye-wash device must be provided.

A conveyor belt, ceiling hoist, or equivalent material handling equipment should be provided for handling batteries. Chain hoists must be equipped with load chain containers. When using a hand winder, uncovered batteries must be covered with a sheet of plywood or other non-conductive material to prevent the hand chain from shorting out the cell connections or terminals. A properly insulated spreader bar must be used with every ceiling hoist.

Reinstalled or new batteries must meet or exceed the battery type specified on the device. Newly inserted batteries must be properly positioned and secured in the device.

When using acid supplied in balloons, a balloon tipper or siphon must be provided. When concentrated sulfuric acid is diluted into electrolyte, the acid must ALWAYS be added to the water - not the other way around. Battery maintenance personnel must wear protective clothing such as eye protection, long sleeves and gloves.

Exception: No protective clothing is required for removing and replacing batteries.

Electrical installations must comply with NFPA 70, national electrical codes, and all local codes.

Trained and authorized personnel must change or charge the batteries.

The powered floor cleaner must be correctly positioned and the brakes must be applied before attempting to change or recharge the batteries.

When charging batteries, the vent caps must remain in place to prevent the electrolyte from spraying. Make sure that the vent caps work. The battery (or compartment) cover (s) must be open to dissipate heat and gas.

Smoking is prohibited in the charging area.

Precautions should be taken to prevent open flames, sparks, or electrical arcs in battery charging areas.

Tools and other metallic objects must be kept away from the lids of uncovered batteries.

The device must not be used in classified areas.

Safety instructions

Before using the device for the first time, read and observe these operating instructions and the accompanying brochure: Safety instructions for brush cleaning devices, No. 5.956-251.0.

The device is approved for operation on surfaces with a specified maximum incline (see chapter "Technical Data").

⚠ WARNING

The device can tip over

Danger of injury

Only operate the device on surfaces that do not exceed the permitted incline (see chapter "Technical Data").

⚠ WARNING

Risk of accident due to incorrect operation

People can be injured.

Operators must be properly trained on how to use this machine.

The device may only be operated when the hood and all covers are closed.

Safety devices

⚠ CAUTION

Missing or modified safety devices

Safety devices are provided for your own protection. Never modify or bypass safety devices.

Safety button

For immediate shut down of all functions: Set the safety button to "0".

- The device brakes hard when the safety button is switched off.
- The safety button acts directly on all unit functions

Seat switch

If the operator leaves the seat during work or while driving, the seat switch switches off the drive motor after a short delay.

Symbols on the device



ATTENTION

Risk of damage

Water will damage the suction turbine. Do not fill or splash water into this opening.



⚠ CAUTION

Danger of burns

Components marked with this notice become hot during operation.

Do not touch components marked in this way. Let these components cool down before working on the device.



⚠ DANGER

Danger of accident

On slopes, there is an increased risk of tipping over at high speed.

Drive slowly downhill.

Do not turn on a slope.

When driving fast, avoid jerky steering with a large steering angle.

Warning symbols

Observe the following warnings when handling the batteries:

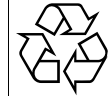
	Observe notes in the instructions of the battery, on the battery and in these operating instructions.
	Wear eye protection.
	Keep acids and batteries away from children.
	Risk of explosion
	Fire, sparks, open flames and smoking are prohibited.
	Risk of acid burns



First aid.



Warning



Disposal



Do not throw batteries in the bin.

Hazard levels

⚠ DANGER

- Indication of an imminent threat of danger that will lead to severe injuries or even death.

⚠ WARNING

- Indication of a potentially dangerous situation that may lead to severe injuries or even death.

⚠ CAUTION

- Indication of a potentially dangerous situation that may lead to minor injuries.

ATTENTION

- Indication of a potentially dangerous situation that may lead to damage to property.

Function

This scouring and vacuum machine is used for wet cleaning or polishing of level floors.

The device can be adjusted to suit the respective cleaning task by setting the water volume and detergent volume appropriately. The detergent dosing unit is adjusted by adding detergent to the tank or via a dosing device ("Dose" option).

Brush irrigation is either speed-dependent or constant.

The working width and the capacity of the fresh and waste water tanks (see chapter "Technical Data") allow effective cleaning over long working times.

The device has a drive.

Note

The device can be equipped with various accessories to suit the respective cleaning order. Request a copy of our catalog or visit our Internet website at www.kaercher.com.


Intended use


This device is suitable for commercial and industrial use, e.g. in hotels, schools, hospitals, factories, shops, offices, and rental companies. Use the device only in accordance with the information in these operating instructions.

- The device may only be used for cleaning smooth surfaces that are insensitive to water and polishing.
- The device is designed for indoor use.
- The operational temperature range is between +5 °C and +40 °C.
- The device is not suitable for cleaning frozen floors (e.g. in cold stores).
- The device is suitable for a maximum water height of 1 cm. Do not drive into an area if there is a danger of exceeding the maximum water height.

- When using chargers or batteries, only the components approved in the operating instructions may be used. A different combination must be confirmed by the responsible supplier of the charger and/or battery.
- The device is not intended for cleaning public traffic routes.
- The device must not be used on pressure-sensitive floors. Take into account the permissible load per unit area of the floor. The load per unit area caused by the device is specified in the technical data.
- The device is not suitable for use in potentially explosive environments.
- The device is approved for operation on surfaces with a maximum incline (see chapter "Technical Data").

Environmental protection

 The packing materials can be recycled. Please dispose of packaging in accordance with the environmental regulations.

 Electrical and electronic appliances / devices contain valuable, recyclable materials and often components such as batteries, rechargeable batteries or oil, which - if handled or disposed of incorrectly - can pose a potential threat to human health and the environment. However, these components are required for the correct operation of the appliance / device. Appliances / devices marked by this symbol are not allowed to be disposed of together with the household trash.

Notes on the content materials (REACH)

Current information on content materials can be found at:
www.kaercher.de/REACH

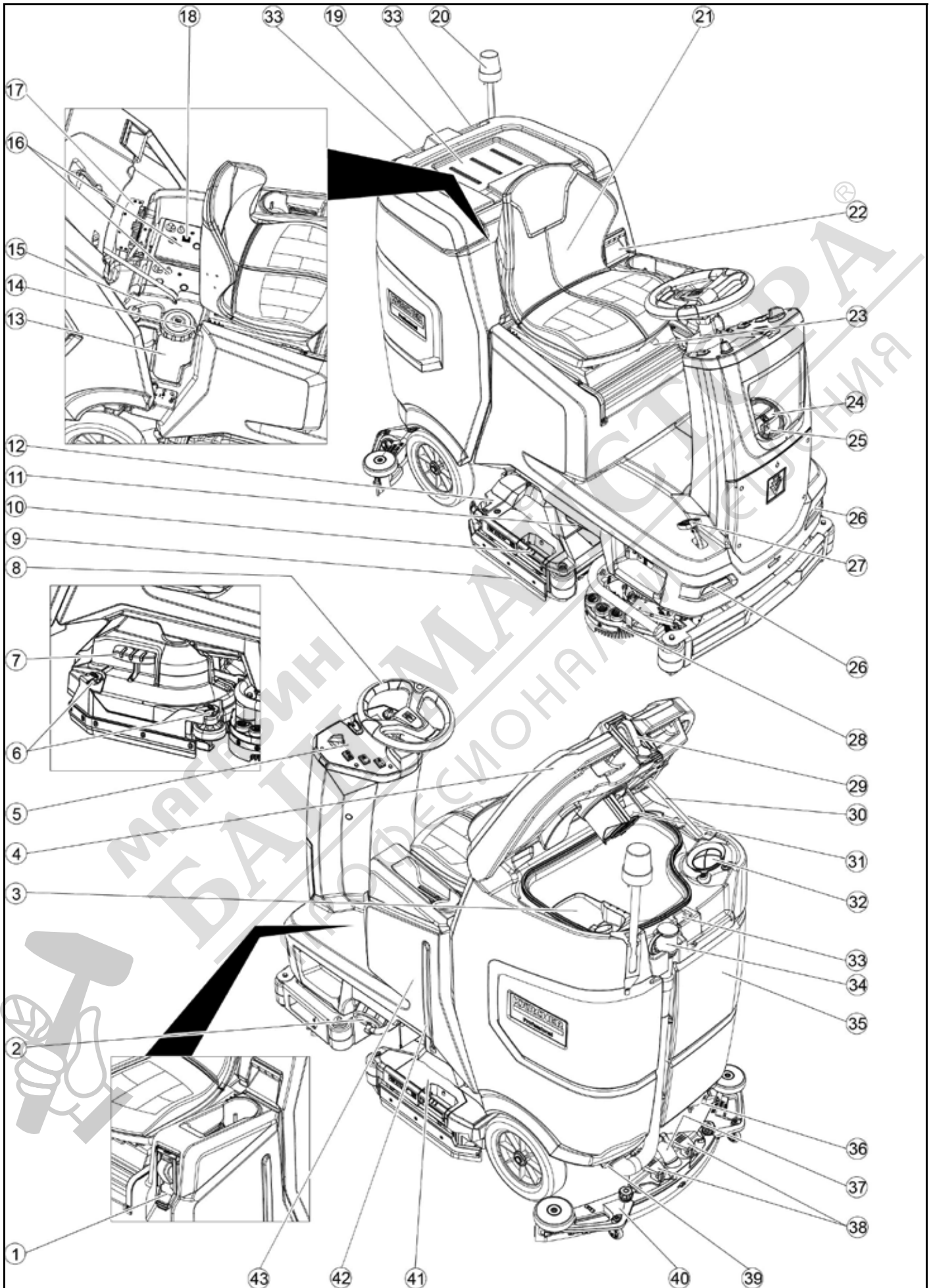
Scope of delivery

During unpacking, check the contents for completeness. If any accessories are missing or in the event of any shipping damage, please notify your dealer.



Description of the unit

Overview of the unit



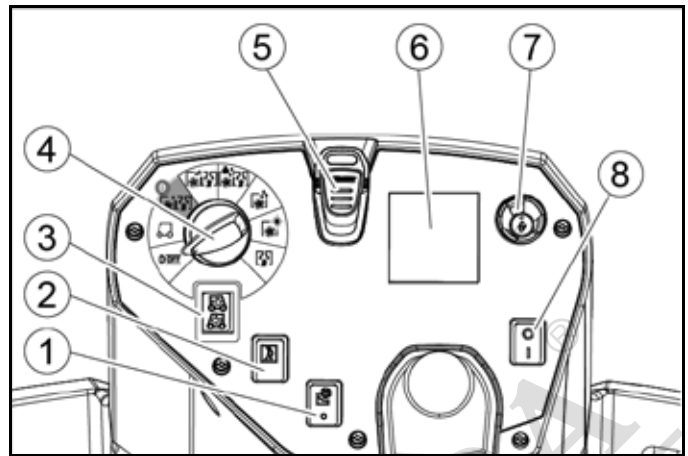
- ① * Filling system
 - ② Fresh water tank cap with fresh water filter
 - ③ Coarse dirt sieve
 - ④ Waste water tank cap
 - ⑤ Control panel
 - ⑥ Squeegee blade adjustment wheel (D cleaning head only)
 - ⑦ Brush replacement pedal (D cleaning head only)
 - ⑧ Steering wheel
 - ⑨ Squeegee blade
 - ⑩ Brush replacement handle (R cleaning head only)
 - ⑪ Sidelight
 - ⑫ Coarse dirt container (only with R cleaning head)
 - ⑬ Detergent canister
 - ⑭ Type plate
 - ⑮ Detergent suction hose
 - ⑯ Battery
 - ⑰ * Internal charger
 - ⑱ Battery connector (with external charger)
Charger mains cable (with internal charger)
 - ⑲ Storage area for "Homebase Box" cleaning set
 - ⑳ * Warning light
 - ㉑ Seat
 - ㉒ Waste water tank latch
 - ㉓ Seat adjustment lever
 - ㉔ Fresh water tank filling hole
 - ㉕ Hose switch
 - ㉖ Daytime running light
 - ㉗ Accelerator pedal
 - ㉘ * Side scrubbing deck
 - ㉙ * Water connection for waste water tank rinsing system
 - ㉚ Waste water tank lid support
 - ㉛ Float
 - ㉜ Fluff filter
 - ㉝ Storage for suction bar
 - ㉞ Waste water tank drain hose with dosing unit
 - ㉟ Waste water tank
 - ⓫ * Mop holder
 - ⓬ Suction hose
 - ⓭ Suction bar clamping lever
 - ⓮ Waste water tank lock
 - ⓯ Suction bar
 - ⓰ Cleaning head
 - ⓱ Fresh water filling level display
 - ⓲ Fresh water tank
- * optional

Color coding

- Control elements for the cleaning process are yellow.
- Control elements for maintenance and servicing are light gray.

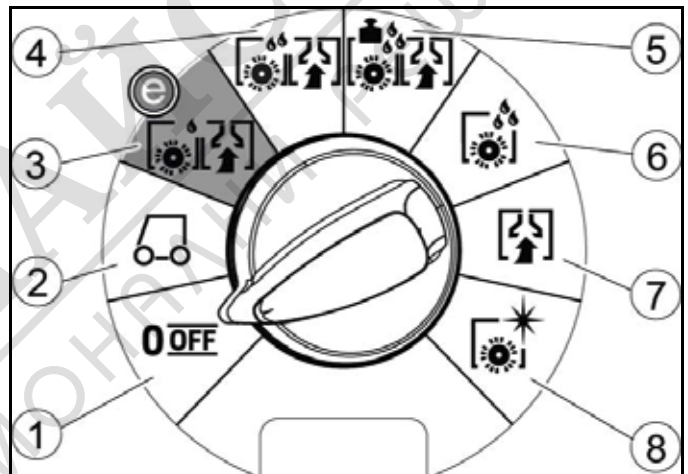


Control panel



- ① * Side scrubbing deck switch
- ② Horn
- ③ Travel direction switch
- ④ Program switch
- ⑤ Intelligent key
- ⑥ Display
- ⑦ Info button
- ⑧ Safety button

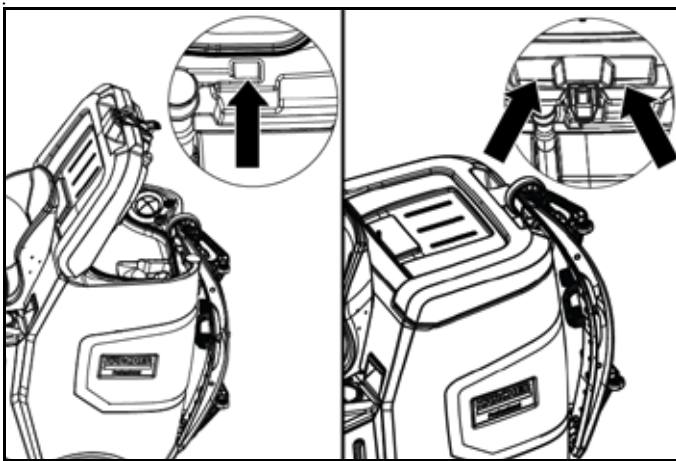
Program switch



- ① OFF
Device is switched off.
- ② TRANSPORT MODE
Drive to the operating location.
- ③ ECO MODE
Wet clean the floor (with reduced water quantity and reduced brush speed) and vacuum up waste water (with reduced suction performance).
- ④ NORMAL MODE
Wet clean floor and soak up waste water.
- ⑤ HEAVY MODE
Clean the floor wet (with increased brush contact pressure) and soak up the waste water.
- ⑥ SCRUB MODE
Presenting without absorbing
Clean the floor wet and let the detergent take effect.
- ⑦ SUCTION MODE
Soak up the dirt.
- ⑧ POLISH MODE
Polish floor without applying liquid at high brush speed.









Suction bar holder

- When driving through narrow spaces, the suction bar can be removed and hung in one of the openings on the lid of the waste water tank.



The suction bar can be hung in the recess on the waste water tank for storage.

Symbols on the device

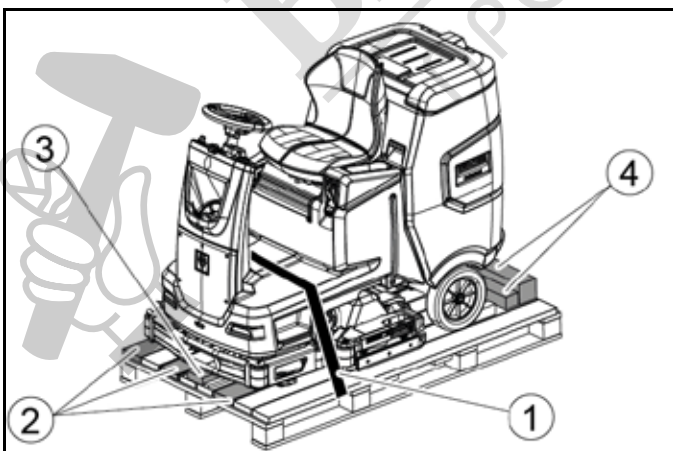
-  Fresh water tank drain opening
-  Waste water tank drain opening
-  Fresh water tank filling level (50%)
-  Eyelet point
-  * Mop holder
-  Filling system water connection
-  Waste water tank flushing system water connection
-  Brush replacement

* optional

Installation

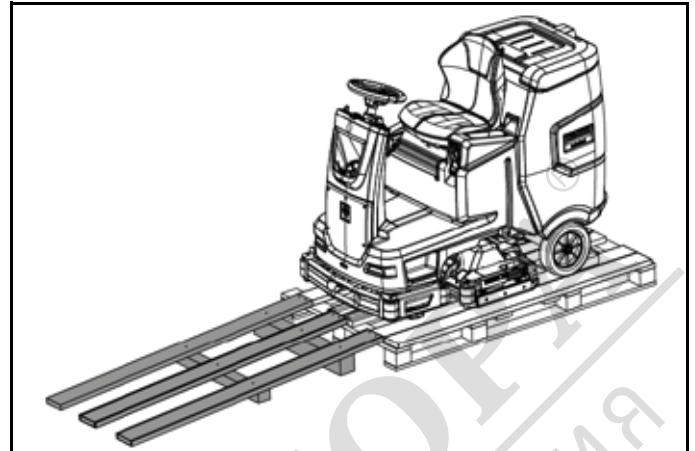
Unloading

1. Remove the packaging film.
2. Remove the strap.



- ① Strap
- ② Board
- ③ Block
- ④ Squared timber

3. Unscrew the block, squared timber and boards. The components to be unscrewed are marked in gray in the illustration.
4. Place a ramp in front of the pallet using the unscrewed boards and squared timber and fasten with chipboard screws.



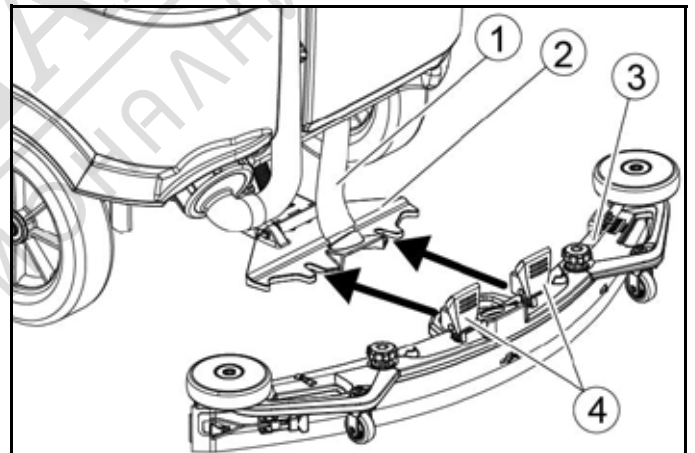
5. Install the batteries if the device was delivered without batteries (see chapter "Before initial startup/batteries").
6. Drive the device forward and off the pallet (see chapter "Operation / Driving").

Installing the brushes

1. Installation of the brushes is described in the chapter "Maintenance work".

Installing the suction bar

1. Pivot both clamping levers upwards.



- ① Suction hose
 - ② Suction bar suspension
 - ③ Suction bar
 - ④ Clamping lever
2. Insert the suction bar in the suction bar mount.
 3. Pivot both clamping levers downwards.

Batteries

Recommended battery packs

Description	Order no.	Volume (m ³)*	Airflow (m ³ /h)**
170 Ah - Maintenance-free, AGM	4.039-352.7	2.4	1.0
180 Ah - Maintenance-free, gel	4.039-354.7	3.8	1.6

Description	Order no.	Volume (m ³)*	Airflow (m ³ /h)**
285Ah - Maintenance-free, AGM	4.039-353.7	12.6	5.1

* Minimum volume of battery charging room

** Minimum air flow between battery charging room and environment

Installing and connecting batteries

⚠ CAUTION

Removing and installing the batteries

Unstable machine position

Ensure that the machine is positioned stably when removing and installing the batteries.

ATTENTION

Incorrect connection polarity

Destruction of the control electronics

Take care to ensure the correct polarity when connecting the batteries.

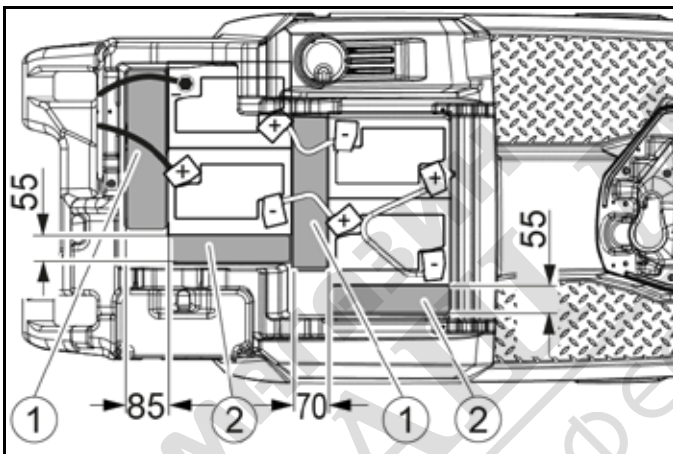
ATTENTION

Deep discharge

Risk of damage

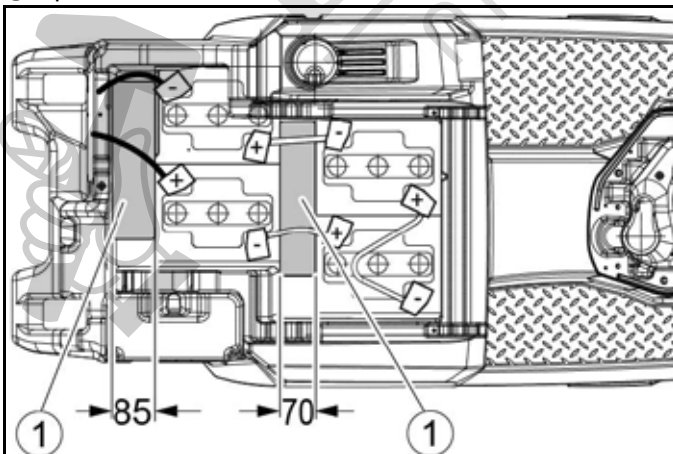
Charge the batteries before starting the device.

1. Drain the waste water.
2. Unlock the waste water tank and pivot it to the rear.
3. Place the battery in the device.



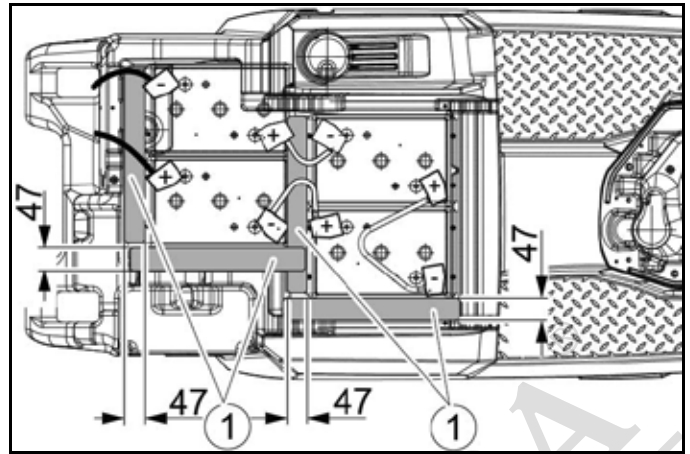
170 Ah, 4.039-352.7

- ① Spacer 310x85x70 mm
- ② Spacer 240x55x30 mm



180 Ah, 4.039-354.7

- ① Spacer 310x85x70 mm



285 Ah, 4.039-353.7

- ① Spacer 345x60x47

4. Insert the spacers at the locations shown in the picture between the battery and the device.
5. Connect the battery terminals using the connecting cables.
6. Clamp the connecting cable on the (+) and (-) battery terminals that are still free.

Note

For the 170 Ah 4.039-352.7 battery set, attach the connection cable to the negative pole with the insulated pole screw.

7. Connect the device-side battery connector to the battery-side battery connector.
8. Pivot the waste water tank forwards and close it.

Removing the battery

⚠ CAUTION

Removing and installing the batteries

Unstable machine position

Ensure that the machine is positioned stably when removing and installing the batteries.

1. Set the safety button to "0".
2. Drain the waste water.
3. Unlock the waste water tank and pivot it to the rear.
4. Pull out the battery plug.
5. Disconnect the cable from the minus terminal at the battery.
6. Disconnect the remaining cables from the battery.
7. Remove the battery.
8. Dispose of the used batteries in accordance with statutory provisions.

Initial startup

Charging the battery

⚠ DANGER

Inappropriate use of the charger

Electric shock

Adhere to the mains voltage and fuse values specified on the device type plate.

Only use the charger in dry rooms with sufficient ventilation.

Flammable gases are generated when the battery is charged

Risk of explosion

Only charge the battery in a suitable room. The room must have a minimum volume depending on the battery type

and an adequate air exchange rate with a minimum air flow (see "Recommended batteries").

ATTENTION

Accumulation of dangerous gases under the tank during the charging process

Risk of explosion

Pivot the waste water tank upwards before charging low-maintenance batteries.

The average charging time is approx. 10-15 hours.

The device cannot be used during the charging process.

Note

The device has deep discharge protection, i.e. the brush motor and turbine are switched off automatically when the permitted minimum capacity level is reached.

1. Drive the device directly to the charger and do not drive on slopes.

External charger

ATTENTION

Using an unsuitable charger

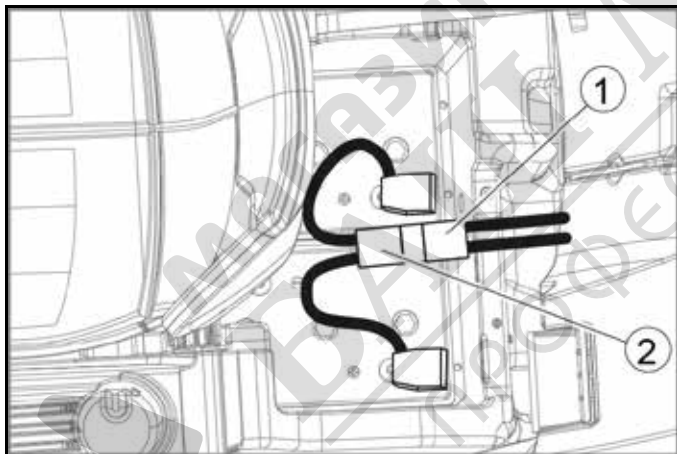
Risk of damage

Do not connect the charger to the device-side battery connector.

Use only a charger suitable for the type of battery installed. Read the operating instructions of the charger manufacturer and observe the safety instructions in particular.

Battery	Capacity	Charger
4.039-352.7	170 Ah	6.654-436.0
4.039-354.7	180 Ah	6.654-434.0
4.039-353.7	285Ah	6.654-419.0

1. Unlock the waste water tank and pivot it to the rear.
2. Pull out the device-side battery connector.



① Battery plug, device side

② Battery plug, battery side

3. Connect the battery-side battery connector to the charger.
4. Plug the mains plug of the charger into the socket.
5. Carry out the charging process in accordance with the operating instructions for the charger.
6. Connect the device-side battery connector to the battery-side battery connector.
7. Pivot the waste water tank forwards and close it.

Internal charger

1. Unlock the waste water tank and pivot it to the rear.
2. Plug the mains plug of the internal charger into the mains socket.
The charging state of the battery is shown on the control panel display.
3. Unplug the charger mains plug from the mains socket after the charging process.
4. Pivot the waste water tank forwards.

Low-maintenance batteries (wet batteries)

⚠ DANGER

Refilling discharged batteries with water

Danger of acid burns from escaping acid, destruction of clothes

Wear safety goggles, protective clothing and protective gloves when handling the battery acid.

Observe the applicable regulations.

Immediately rinse off any splashed acid from the skin or clothes using copious amounts of water.

ATTENTION

Using water with additives

Defective batteries, loss of warranty claim

Top up the batteries using only distilled or desalinated water (EN 50272-T3).

Do not use any foreign additives, so-called enhancing agents, because this will invalidate the warranty.

1. Add distilled water one hour before the charging process comes to an end. Observe the correct acid level according to the battery label.
All cells must produce gas at the end of the charging process.
2. Clean up any spilled water. To do this, proceed as described in the "Cleaning the batteries" section in the Care and Maintenance chapter.

Operation

⚠ DANGER

Falling objects

Danger of injury

Do not drive the device into areas where there is a possibility of the operating personnel being hit by falling objects.

ATTENTION

Risks during operation

Danger of injury

In the event of danger, set the safety button to "0".

Pushing the device

To push the device, the brake must be unlocked.

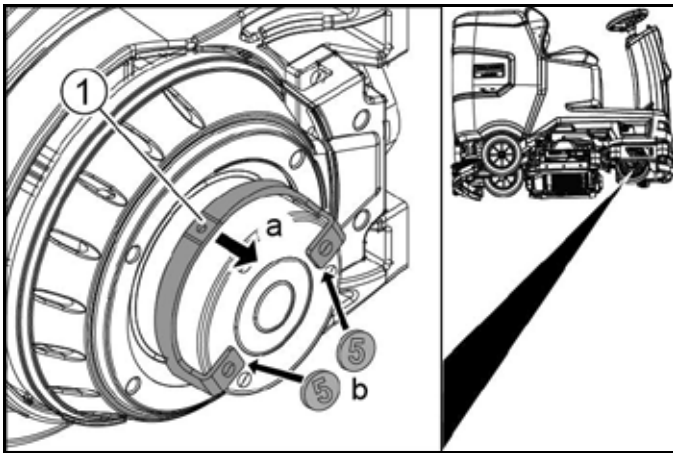
⚠ DANGER

Danger of accident

When the brake is unlocked, the function of the brake is permanently out of operation.

Be sure to remove the coins for unlocking immediately after pushing.

1. Pivot the release lever away from the wheel and hold it there.



- ① Release lever
2. Insert a coin between the housing and the lever at both ends of the lever.
3. Let go of the release lever.
4. Push the device.
5. Remove both coins immediately after pushing.

Adjusting the seat

Adjusting the height

1. Stand next to the device.
2. Raise the seat at the back.
3. Align the front seat bracket to the desired height of the device.
4. Lower the seat at the back.

Adjusting the position

1. Operate the seat adjustment lever and move the seat to the desired position.
2. Release the seat adjustment lever and latch the seat into position.

Switch on the device

1. Get in the driver's seat.
2. Insert the Intelligent Key.
3. Set the safety button to position "1".
4. Turn the program switch to the desired function.
5. If one of the indications below appears in the display, take your foot off the accelerator pedal, set the safety button to "0" and carry out the necessary maintenance work.

Display	Activity
maintenance squeegee	Clean the suction bar.
maintenance brush head	Check the brushes for wear and clean them.
maintenance squeegee blade	Check the suction lips for wear and adjustment.
maintenance turbine filter	Clean the fluff filter.
maintenance fresh water filter	Clean the filter with fresh water.

6. Press the info button.
7. Reset the counter for the corresponding maintenance (see "Gray Intelligent Key/Reset Maintenance Counter").

Note

If the counter is not reset, the maintenance indicator will re-appear each time the device is turned on.

Switching on the light

Daytime running light

The daytime running light is in operation when the device is switched on.

Sidelight

The sidelight lights up as soon as the program switch is set to a cleaning program.

Check parking brake

⚠ DANGER

Defective parking brake

Danger of accident

Before each operation, check the function of the parking brake on level ground.

1. Switch on the device.
2. Set the travel direction to "forward".
3. Set the program switch to "TRANSPORT MODE".
4. Press the accelerator pedal lightly.
The brake must release audibly. The device must roll off easily on the level.
5. Release the accelerator pedal.
The brake must engage audibly.

If this is not the case, put the device out of operation and call the customer service.

Driving

⚠ DANGER

Lack of braking effect

Accident risk

Be sure to check the parking brake before using the device. Never use the device if the parking brake is not working.

⚠ DANGER

Careless driving

Danger of tipping over

Only drive in the direction of travel and across the direction of travel on gradients up to maximum of 10%.

Do not turn on gradients.

Drive slowly in corners and on wet ground.

Only drive the device on stable ground.

Note

The travel direction can be changed during the journey operation. This allows very dull spots to be polished by moving back and forth several times.

1. Assume the sitting position.
2. Insert the Intelligent Key.
3. Set the safety button to "1".
4. Set the program switch to "TRANSPORT MODE".
5. Set the travel direction using the travel direction switch on the control panel.
6. Determine the travel speed by pressing the travel pedal.
7. Release the accelerator pedal.

The device stops.

In case of overload, the engine is switched off. A fault message appears in the display. If the control overheats, the affected engine is switched off.

8. Allow the device to cool down for at least 15 minutes.
9. Set the program switch to "OFF", wait briefly and set to the desired program.

Filling with fresh water

Filling with fresh water via the filling system

1. Connect the water hose to the connection nozzle of the filling system (maximum water temperature 50 °C).
2. Open the water inlet.
3. Monitor the device, the automatic filling system interrupts the water supply when the fresh water tank is full.
4. Close the water inlet.
5. Remove the water hose.

Filling with fresh water

1. Open the fresh water tank lock.
2. Fill fresh water (max. 50 °C) to the lower edge of the filling nozzle.
Note: The fresh water hose can be clamped in the hose switch during filling.
3. Close the fresh water tank lock.

Filling with detergent

Notes on detergents

⚠ WARNING

Unsuitable detergents

Health risk, damage to the device

Use only recommended detergents. The operator carries all increased risks relating to operational safety and increased risk of accidents if using other detergents. Use only detergents free of chlorine, solvents, salt and hydrofluoric acid.

Adhere to the safety instructions stated on the detergent packaging.

Note

Do not use heavily foaming detergent.

Recommended detergents

Usage	Detergent
Maintenance cleaning of all water-resistant floors	RM 746 RM 756 RM 780
Maintenance cleaning of polished hard surfaces (e.g. granite)	RM 755 es
Maintenance cleaning, intermediate cleaning and basic cleaning of industrial floors	RM 69 ASF
Maintenance cleaning and basic cleaning of fine stone tiles	RM 753
Maintenance cleaning of tiles in sanitary areas	RM 751
Coating removal on all alkaline-resistant floors (e.g. PVC)	RM 752
Coating removal on linoleum floors	RM 754

Fill in detergent with dosing device

Only variant DOSE:

Detergent is added to the fresh water on its way to the cleaning head by a dosing device.

1. Unlock the waste water tank and swing it backwards.
2. Fill the detergent canister with detergent.
3. Swivel the waste water tank forward.

Note

A maximum of 3% detergent can be added with the dosing device. For higher dosage, the detergent must be added to the fresh water tank.

Filling the detergent into the fresh water tank

1. Fill the detergent into the fresh water tank.

Note: The cap of the fresh water tank filling hole can be used for measuring the detergent. It is fitted with a scale on the inside.

Adjusting parameters

1. Set the program switch to the desired cleaning program.
2. Turn the Info button until the desired parameter is displayed.
3. Press the Info button.
The adjusted value flashes.
4. Set the desired value by turning the Info button.
5. Confirm the changed setting by pressing the Info button or wait until the set value is automatically accepted after 10 seconds.

Yellow Intelligent Key

The yellow Intelligent Key authorizes functions that are required for the cleaning task.

The parameters for the various cleaning programs are preset in the device. Individual parameters can be changed depending on the authorization of the yellow Intelligent Key.

The display texts for parameter settings are largely self-explanatory.

"FACT" parameters (only available with R cleaning head):

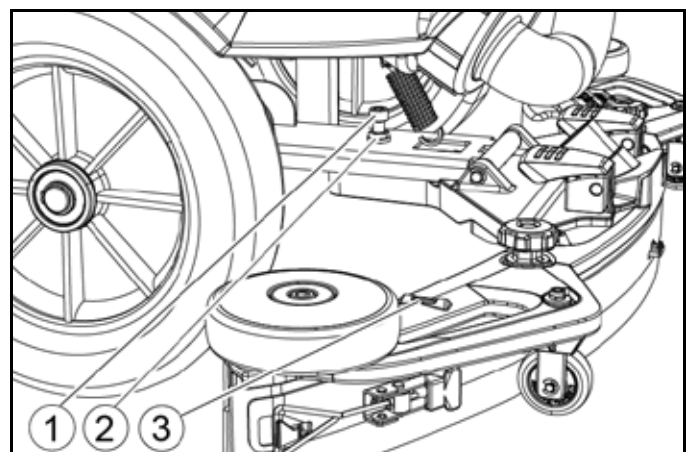
- "Fine Clean": Low brush speed for removing gray film from fine stone.
- "Whisper Clean": Medium brush speed for maintenance cleaning with reduced noise level.
- "Power Clean": High brush speed for polishing, crystallizing and sweeping.

Adjusting the suction bar

Adjusting the inclination

The inclination must be adjusted so that the suction lips of the suction bar make even contact with the floor over the entire length of the suction bar.

1. Park the device on a surface without a slope.
2. Turn the program switch to the "Vacuum" position.
3. Drive the device a small distance forwards.
4. Read the spirit level.



- ① Screw
- ② Nut
- ③ Spirit level
5. Unscrew the nut.
6. Adjust the screw so that the spirit level indicator is between the two lines.
7. Tighten the nut.

- To check the new setting, move the device forward again a short distance. Repeat the adjustment process if necessary.
- Turn the program switch to "OFF".

Adjusting the height

The height adjustment affects the bending of the suction lips on contact with the floor.

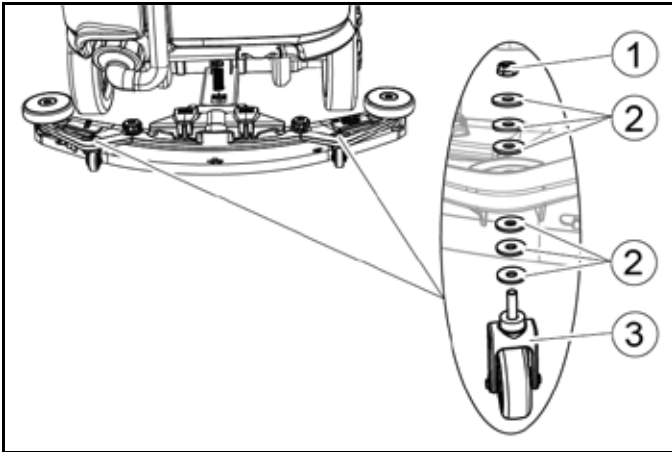
Note

Standard setting: 3 washers above, 3 washers below the suction bar.

Uneven floor: 5 washers above, 1 washer below the suction bar.

Very smooth floor: 1 washer above, 5 washers below the suction bar.

- Unscrew the nuts.



- Nut
- Washer
- Spacer roller with holder

- Place the desired number of washers between the suction bar and the spacer roller.
- Fit the remaining washers above the spacer roller.
- Screw on the nut and tighten.
- Repeat the entire procedure at the other spacer roller.

Note

Set both spacer rollers to the same height.

Adjusting the squeegee blades

The squeegee blades only need to be adjusted on the D cleaning head.

- Adjust the squeegee blades by turning the adjustment wheel so that the squeegee blade touches the ground.
- Turn the adjustment wheel an additional 1 turn downwards.

Cleaning

- Sit on the seat.
- Insert the Intelligent Key.
- Set the safety button to "1".
- Set the travel direction switch to forward travel.
- Set the program switch to the desired cleaning program.
- Determine the speed with the accelerator pedal.
- Determine the travel direction with the steering wheel.
- Drive over the surface to be cleaned.

Side scrubbing deck (option)

The side scrubbing deck makes working close to the edge easier.

Note

The side scrubbing deck is not active in the polish and vacuum cleaning programs.

- Operate the side scrubbing deck switch. The side scrubbing deck is activated.
- To finish working with the side scrubbing deck, set the side scrubbing deck switch to "0".

Finishing operation

Finishing cleaning

- Set the program switch to Drive.
- Continue moving a short distance. The residual water is vacuumed up.
- Turn the program switch to "OFF".
- Remove the Intelligent Key.
- Charge the batteries if necessary.

Draining the waste water

⚠ WARNING

Improper disposal of waste water

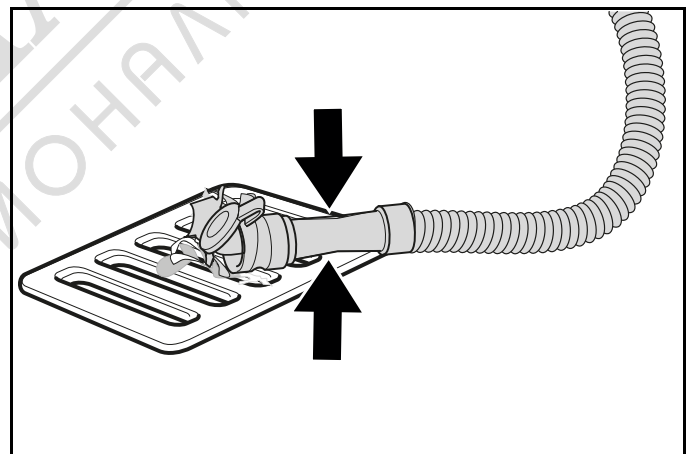
Environmental pollution

Observe the local waste water treatment regulations.

Note

When the waste water tank is full, the suction volume is interrupted by a float to prevent the waste water tank from overflowing. In this case, drain the waste water.

- Remove the waste water drain hose from the holder and open the cover of the drain hose.



- Squeeze the end of the hose and lower it over the disposal facility.
- Adjust the strength of the waste water jet by squeezing the end of the hose.
- Rinse the waste water tank with clear water.
- Close the drain hose cover.
- Press the waste water hose into the holder on the device.

Waste water tank rinsing system (option)

- Remove the waste water drain hose from the holder and open the cover of the drain hose.
- Close the cover of the waste water tank.
- Connect a water supply hose to the water connection of the waste water tank rinsing system.
- Open the water inlet and rinse the waste water tank for about 30 seconds.
- Repeat the rinsing process 2 to 3 times if necessary.

6. Close the water inlet.
7. Disconnect the water supply hose from the device.
8. Close the waste water drain hose and press it into the holder.

Empty the coarse dirt container

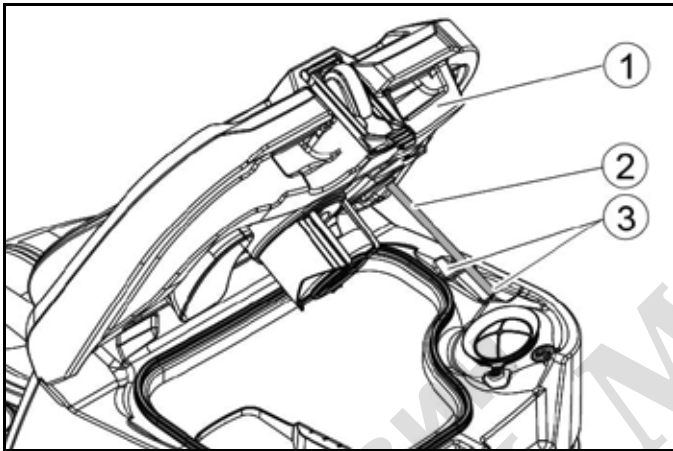
1. Lift the coarse dirt container and pull it out.
2. Empty the coarse dirt container.
3. Reinstall the coarse dirt container.

Draining fresh water

1. Open the fresh water tank cap.
2. Drain the fresh water.
3. Clean the filter.
4. Fit the fresh water tank cap.

Shutting down the device

1. Turn the program switch to "OFF".
2. Remove the Intelligent Key.
3. Secure the device against rolling away.
4. Open the lid of the waste water tank and secure it with the support so that the waste water tank can dry out. To do this, swing the support down and position the lower end at the desired level when swinging down the cover.



- ① Waste water tank cap
 - ② Support
 - ③ Level
5. Charge the batteries if necessary.

Gray intelligent key

The gray Intelligent Key grants the supervisory staff extended authorizations and setting options.

1. Insert the Intelligent Key.
2. Select the desired function by turning the info button.

Transport trip

1. Set the program switch to "TRANSPORT MODE".
2. Press the info button.

The following functions can be performed in the TRANSPORT MODE menu:

- Set maximum speed
- Display operating hours counter
- Delete maintenance counter
- Show software versions
- Set R or D cleaning head
- Switch speed-dependent water dosing on/off
- Set after-running times
- Set language
- Key management
- Switch attachment kits on/off
- Activate factory setting

Maximum speed

In the menu "max speed" the maximum speed can be limited.

1. Turn the info button until "max speed" is shown in the display.
2. Press the info button.
3. Turn the info button until the desired maximum speed is displayed.
4. Press the info button.

Note

The working speed cannot exceed the set maximum speed.

Resetting the maintenance counter

If a maintenance task shown in the display has been carried out, the corresponding maintenance counter must then be reset.

1. Turn the info button until "maintenance count." is displayed.
2. Press the info button.
The meter readings are displayed.
3. Rotate the info button until the counter to be deleted is highlighted.
4. Press the info button.
5. Select "yes" by rotating the info button.
6. Press the info button.
The counter is deleted.

Adjusting the cleaning head

1. Turn the info button until "brush head" is displayed in the menu.
2. Press the info button.
3. Turn the info button until the type of cleaning head installed is highlighted.
"Roll" = R cleaning head
"Disc" = D cleaning head
4. Press the info button.

Speed-dependent water dosing

If the speed-dependent water metering is switched on, the brush watering changes proportionally with the speed. The water dosage is additionally influenced by the setting of the respective cleaning program (0...100%).

Setting	ON [ml/m ²]	OFF [l/min]
0%	0	0
10%	7.5	0.675
20%	15	1.35
30%	22.5	2.025
40%	30	2.7
50%	37.5	3.375
60%	45	4.05
70%	52.5	4.725
80%	60	5.4
90%	67.5	6.075
100%	75	6.75

Set speed-dependent or constant water dosing:

1. Turn the info button until "water dosage mode" is shown in the display.
2. Press the info button.
3. Turn the info button until the desired function is marked...
4. Press the info button.

After-running times

1. Turn the info button until the menu item "delay times" is shown in the display.
2. Press the info button.
3. Turn the info button until the desired assembly is marked.
4. Press the info button.
5. Turn the info button until the desired after-running time is displayed.
6. Press the info button.

Set language

1. Turn the info button until the menu item "language" is shown in the display.
2. Press the info button.
3. Turn the info button until the desired language is marked.
4. Press the info button.

Key management

In the menu item "key menu" the authorizations for yellow Intelligent Keys as well as the language of the display are released.

1. Insert the gray Intelligent Key.
2. Turn the info button until the menu item "key menu" appears in the display.
3. Press the info button.
4. Remove the gray Intelligent Key and insert the yellow Intelligent Key to be personalized.
5. Select the menu item to be changed by turning the info button.
6. Press the info button.
7. Select the setting of the menu item by turning the info button.
8. Confirm the setting by pressing the menu item.
9. Select the next menu item to be changed by turning the info button.
10. After all settings have been made, call up the menu "save" by turning the info button.
11. Press the info button.
The authorizations are saved.

Switch attachment kits on / off

1. Turn the info button until the desired attachment kit is shown on the display.
2. Press the Info button.
3. Turn the info button until the desired function of the attachment kit is selected.
4. Press the Info button.

Factory setting

The factory setting of all cleaning parameters is restored.

1. Turn the info button until the menu item "factory settings" is displayed.
2. Press the info button.
3. Turn the info button until "yes" is highlighted.
4. Press the info button.

Set parameters for cleaning programs

All parameters for cleaning programs are retained until another setting is selected.

1. Set the program switch to the desired cleaning program.
2. Press the info button.
The first adjustable parameter is displayed.
3. Press the info button
The set value flashes.

4. Set the desired value by turning the info button.
5. Confirm the changed setting by pressing the info button or wait until the set value is automatically accepted after 10 seconds.
6. Select the next parameter by turning the info button.
7. After changing all desired parameters, turn the info button until the menu item "exit" is displayed.
8. Press the info button.
The menu is exited.

Transport

⚠ DANGER

Driving on slopes

Danger of injury

Observe the maximum permissible gradient when driving the device on gradients for loading and unloading purposes (see chapter "Technical data").

Drive slowly.

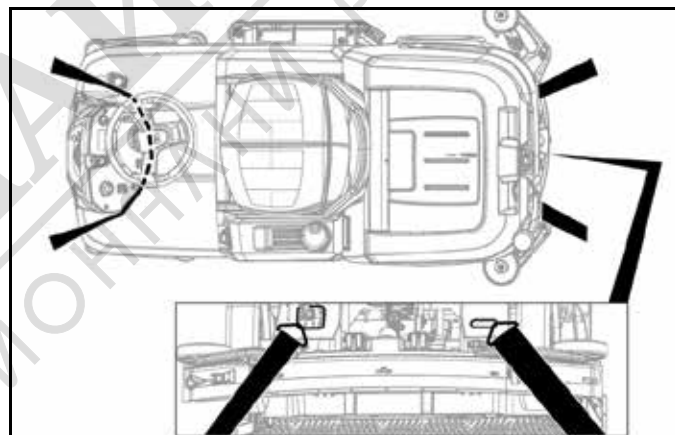
⚠ CAUTION

Failure to observe the weight

Risk of injury and damage

Be aware of the weight of the device during transportation.

1. With the D cleaning head installed, remove the disc brushes from the brush head.
2. When transporting in vehicles, secure the device against slipping and tipping over according to the applicable guidelines.



Storage

⚠ CAUTION

Failure to observe the weight

Risk of injury and damage

Be aware of the weight of the device during storage.

ATTENTION

Frost

Destruction of the device through freezing water

Drain all water from the device.

Store the device in a frost-free location.

- This device may only be stored indoors.
- Fully charge the batteries before storing them for a long period.
- Fully charge the batteries at least every month during storage.

⚠ DANGER

Inadvertently starting up device

Risk of injury, electric shock

Turn the program switch to the "OFF" position.

Remove the Intelligent Key prior to all work on the device.

Pull out the charger mains plug.

Unplug the battery connector.

- Drain and dispose of the waste water and fresh water.

Maintenance intervals

Each time after use

ATTENTION

Incorrect cleaning

Risk of damage.

Do not spray the device with water.

Do not use aggressive detergents.

A detailed description of the individual maintenance work is provided in the chapter "Maintenance Work".

- Drain the waste water.
- Rinse the waste water tank with clear water.
- Clean the coarse dirt sieve.
- Only with R cleaning head: Remove the coarse dirt container and empty it.
- Clean the exterior of the device using a damp cloth, wetted with a mild washing lye.
- Check the suction lips, check for wear and tear and replace if necessary.
- Clean the squeegee blades, check for wear and tear and replace if necessary.
- Clean the brushes, check for wear and tear and replace if necessary.
- Charge the battery.
 - If the charging state of the battery is below 50%, charge the battery fully and without interruption.
 - If the charging state of the battery is above 50%, only recharge the battery if the entire operating duration will be required when next used.

Weekly

- When used regularly, charge the battery fully and without interruption at least once a week.

Monthly

A detailed description of the individual maintenance work is provided in the chapter "Maintenance Work".

- If the device is temporarily shut down: Perform equalization charging of the battery.
- Check battery poles for oxidation, brush off if necessary. Make sure the connection cables are firmly in place.
- Clean the seals between the waste water tank and the cover, check for leaks and replace if necessary.
- Drain the fresh water tank and flush out deposits.
- Clean the fresh water filter.
- Check the acid density of the cells if the batteries are not maintenance-free.
- Only with R cleaning head: Clean the brush tunnel.
- Only with R cleaning head: Clean the water distribution strip on the cleaning head.
- For a longer downtime, shut down the device when the battery is fully charged. Fully charge the battery at least once a month.

Annually

- Have the prescribed inspection performed by Customer Service.

Safety inspection/maintenance contract

You can agree on regular safety inspections or close a maintenance contract with your dealer. Please seek advice on this.

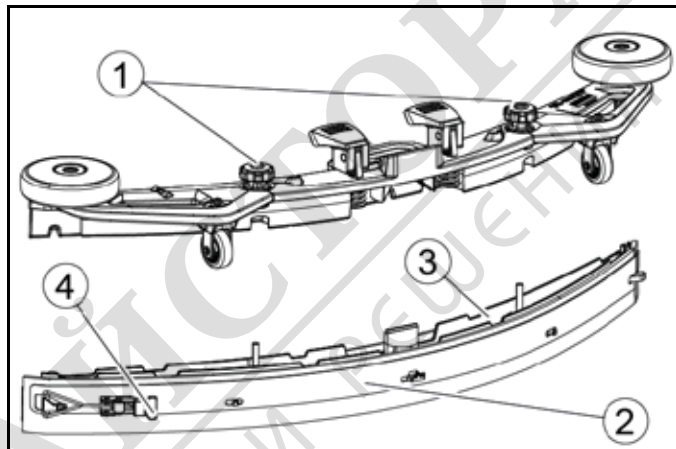
Maintenance work

Turn or replace suction lips

If the suction lips are worn, they must be turned over or replaced.

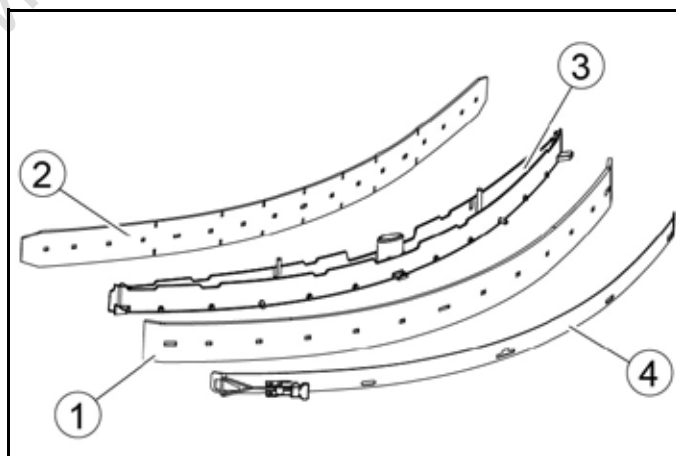
The suction lips can be turned 3 times until all 4 edges are worn.

1. Remove the suction bar.
2. Unscrew the star handles.



- ① Star grip
- ② Tension band
- ③ Inner part suction bar
- ④ Tension lock

3. Pull out the inner part of the suction bar.
4. Open the tension lock.
5. Remove the tension band.
6. Detach the suction lips from the inner part.

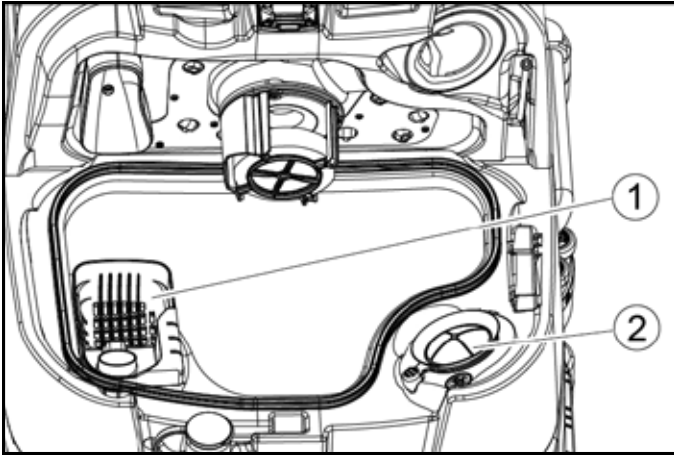


- ① Squeegee blade
- ② Support lip
- ③ Inner part suction bar
- ④ Tension band

7. Press the turned or new suction lips onto the nubs of the inner part of the suction bar.
8. Attach the tension band.
9. Push the inner part of the suction bar into the upper part.
10. Screw in and tighten the star handles.

Cleaning the coarse dirt sieve

1. Open the waste water tank cover.

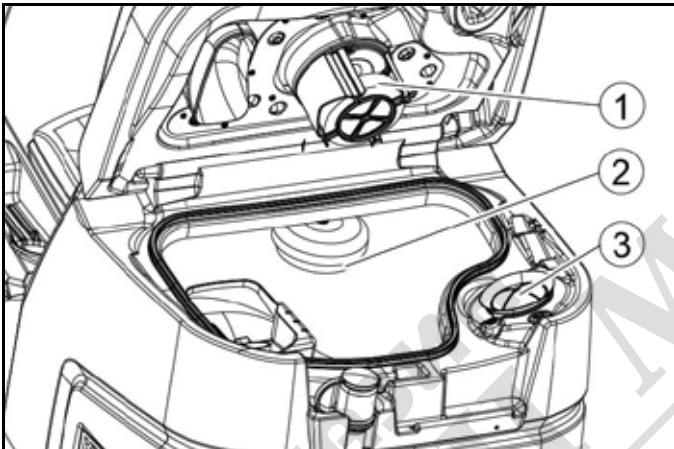


- ① Coarse dirt sieve
- ② Fluff filter

2. Pull the coarse dirt sieve upwards and off.
3. Rinse off the coarse dirt sieve under running water.
4. Reinsert the coarse dirt sieve into the waste water tank.

Clean the float and fluff filter

1. Open the waste water tank cover.



- ① Float
- ② Float switch
- ③ Fluff filter

2. Rinse the float with clear water.
3. Rinse the float switch with clear water.
4. Remove and clean the fluff filter.

Replacing the disc brush

Note

Replace the disc brushes when the bristle length has reached 10 mm.

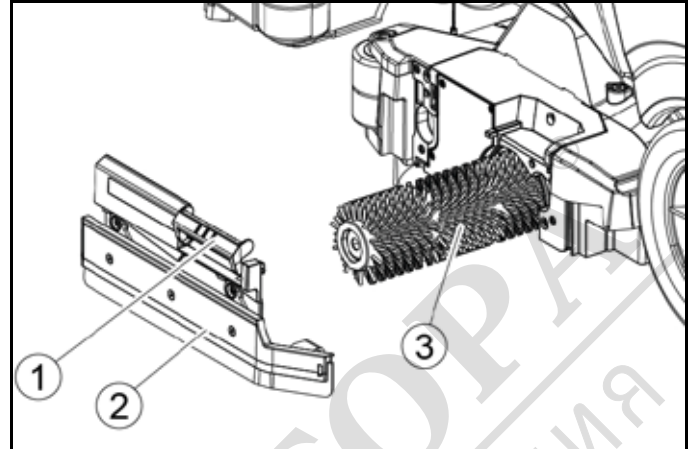
1. Raise the cleaning head.
2. Push the brush replacement pedal downwards.
3. Pull the disc brush sideways and out from underneath the cleaning head.
4. Hold the new disc brush under the cleaning head, then press upwards and latch it into position.

Replace roller brushes

Note

Replace the roller brushes when the bristle length has reached 10 mm.

1. Lift the cleaning head.
2. Pull out the brush replacement handle.



- ① Brush replacement handle
 - ② Bearing cover with squeegee blade
 - ③ Roller brush
3. Remove the bearing cover together with the squeegee blade.
 4. Pull out the roller brush.
 5. Insert the new roller brush and center it on the driver.

- ① Driver
- ② Locating mandrel

6. Fit the bearing cover with squeegee blade.

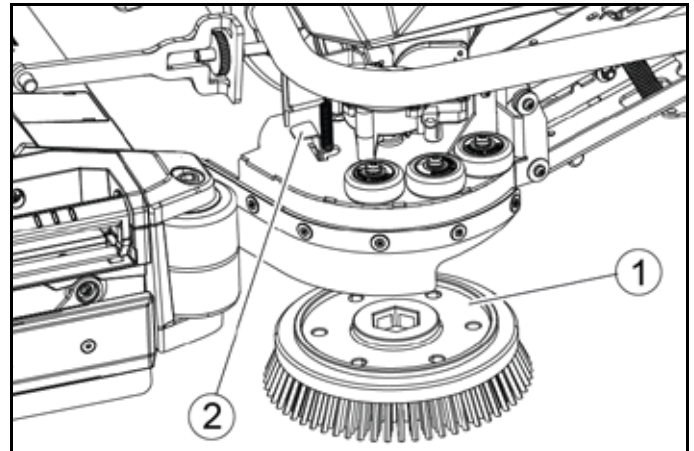
Note

Make sure the roller brush is on the locating mandrel and not underneath.

7. Swing the brush replacement handle up and engage.
8. Repeat the procedure on the opposite side.

Replacing the side scrubbing deck brush (option)

1. Press the brush replacement lever downwards.



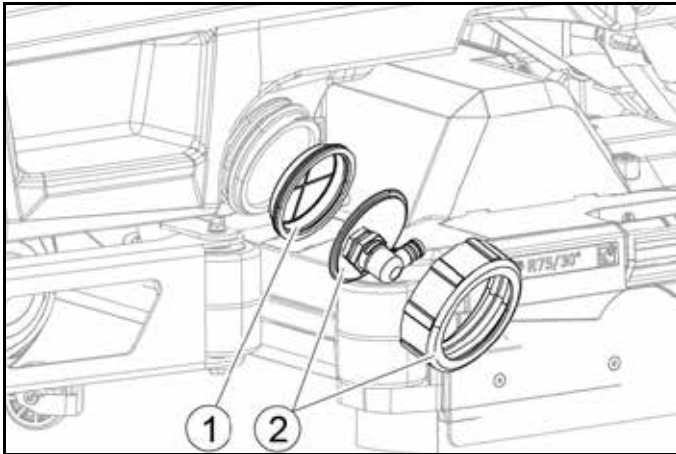
- ① Side scrubbing deck brush
- ② Brush replacement lever

The brush falls out of the holder.

2. Hold the new brush under the side scrubbing deck, then press upwards and latch it into position

Cleaning the fresh water filter

1. Drain the fresh water (see chapter "Draining fresh water").
2. Unscrew the fresh water tank lock.

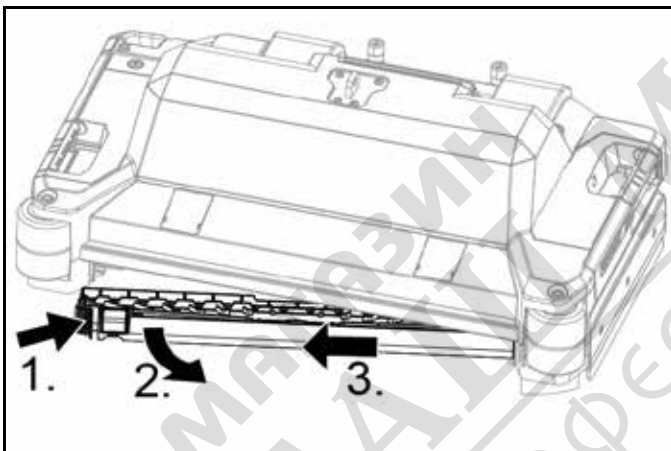


- ① Fresh water filter
- ② Fresh water tank lock
3. Pull out the fresh water filter and rinse with clean water.
4. Insert the fresh water filter.
5. Fit the fresh water tank lock.

Note: Ensure that the hose connection in the fresh water tank lock lies at the lowest point after screwing tight.

Cleaning the water distribution strip

1. Press the latch in the direction of the arrow and hold it there.



2. Pivot the water distribution strip forwards.
3. Pull out the water distribution strip longitudinally.

Malfunction	Rectification
fresh water empty	1. Refill the fresh water tank
water valve blocked	1. Set the program switch to "OFF". 2. Wait 10 seconds. 3. Set the program switch to the desired program.
overload brush head	1. Reduce the contact pressure of the brushes.
blocked main brush	1. Check whether a foreign object is blocking the brushes, remove the foreign object if necessary. 2. Set the program switch to "OFF". 3. Wait 10 seconds. 4. Set the program switch to the desired program.
overload side brush	1. Reduce the contact pressure of the side scrub deck brush.

4. Clean the water distribution strip.
5. Fit the water distribution strip back into the cleaning head and snap the lock into place.

Cleaning batteries

1. Wear safety goggles, protective clothing and protective gloves.
2. Keep the battery cell plugs closed.
3. Remove the batteries.
4. Clean the plastic parts of the batteries and the battery compartment using only water or water-soaked cleaning cloths without additives.
5. Dry the surfaces after cleaning.
6. Reinstall the batteries.

Resetting the maintenance counter

If maintenance work shown in the display has been carried out, the corresponding maintenance counter must then be reset.

Note

Resetting of the maintenance counter is described in the chapter "Gray Intelligent Key".

Troubleshooting guide

⚠ DANGER

The device can start unintentionally

People working on the device can be injured.

Remove the Intelligent Key prior to all work on the device. Pull the mains plug of the internal charger out of the socket before performing any work.

Disconnect the battery connector before performing any work.

1. Drain the waste water.
2. Drain the remaining fresh water.

Note

If the fault cannot be remedied with the following information, notify customer service.

Malfunctions with information shown on the display

If the displayed fault is not in the following list, carry out the following steps:

1. Turn the program switch to "OFF".
2. Wait 10 seconds.
3. Set the program switch to the previous function.
4. If the fault persists, notify customer service.

Malfunction	Rectification
blocked side brush	<ol style="list-style-type: none"> 1. Check whether a foreign object is blocking the brush, remove the foreign object if necessary. 2. Set the program switch to "OFF". 3. Wait 10 seconds. 4. Set the program switch to the desired program.
waste water tank full	<ol style="list-style-type: none"> 1. Empty the waste water tank.
overload drive motor	<ol style="list-style-type: none"> 1. The slope is too steep. <ol style="list-style-type: none"> a For cleaning operation: Cancel cleaning. b For transport travel: Find a path with a lower gradient.
blocked drive motor	<ol style="list-style-type: none"> 1. Check the wheels for blockage, remove foreign bodies. 2. Set the program switch to "OFF". 3. If the engine is overheated, allow it to cool down for at least 15 minutes, otherwise wait 10 seconds. 4. Set the program switch to the desired program.
battery low	<ol style="list-style-type: none"> 1. Set the program selector switch to TRANSPORT MODE. 2. Drive the device directly to the charger (or to the socket in the case of an internal charger). Avoid inclines. 3. Charge the battery.
battery empty	<ol style="list-style-type: none"> 1. Set the program selector switch to TRANSPORT MODE. 2. Drive the device to the charger (or in the case of an internal charger, to the socket) by the shortest route. Avoid inclines. 3. Charge the battery.
seat switch open	<ol style="list-style-type: none"> 1. Briefly relieve the driver's seat so that the control can check the function of the seat contact switch.
switch on!	<ol style="list-style-type: none"> 1. Set the safety button to "1".
restart machine	<ol style="list-style-type: none"> 1. Set the program switch to "OFF". 2. Wait 10 seconds. 3. Set the program switch to the desired program.
release throttle	<ol style="list-style-type: none"> 1. Release the accelerator pedal.

Faults not shown in the display

Malfunction	Rectification
The device cannot be started	<ol style="list-style-type: none"> 1. Sit in the driver's seat. 2. Take your foot off the accelerator before switching on the safety button. 3. Turn the safety button to "1". 4. Check the battery and charge if necessary. 5. Set the program switch to "OFF". 6. Wait 10 seconds. 7. Set the program switch to the desired program. 8. If possible, only drive the device on level ground. 9. Check the parking brake if necessary. If the fault still occurs, call Customer Service.
The device no longer moves, display shows "battery empty"	<ol style="list-style-type: none"> 1. Set the program switch to "OFF". 2. Wait 10 seconds. 3. Set the program switch to "TRANSPORT MODE". 4. Drive to the charging station. 5. If the device still does not move, charge the battery on site or unlock the brake (see "Operation/Pushing the Device") and push the device to the charging station.
The device moves unevenly (jerks) when starting and stopping.	<ol style="list-style-type: none"> 1. Reverse the brake release (see "Operation/Pushing the device").
The fresh water display shows the wrong filling level after manual tank emptying	<ol style="list-style-type: none"> 1. Use device. During operation, the hose system vents and the filling level display corrects itself.
The bar of the filling level display flashes, display "fresh water empty"	<ol style="list-style-type: none"> 1. Refill the fresh water tank.

Malfunction	Rectification
The water volume is insufficient	<ol style="list-style-type: none"> 1. Check the fresh water filling level, if necessary fill the tank completely so that the air is pressed out. 2. Remove and clean the fresh water filter. 3. Insert the filter and screw on the cap. 4. Only with R cleaning head: Pull off the water distribution strip on the cleaning head. 5. Only with R cleaning head: Clean the water channel. 6. Check the hoses for clogging and clean if necessary.
The suction performance is too low	<ol style="list-style-type: none"> 1. Clean the seals between the waste water tank and the cover, check for leaks and replace if necessary. 2. Check the fluff filter for contamination and clean if necessary. 3. Clean the suction lips at the suction bar, turn over or replace if necessary. 4. Close the lid on the waste water drain hose. 5. Close the cover of the waste water tank rinsing system. 6. Check the suction hose for clogging and clean if necessary. 7. Check the suction hose for leaks and replace if necessary. 8. Check the adjustment of the suction bar.
The cleaning results are unsatisfactory	<ol style="list-style-type: none"> 1. Set the appropriate cleaning program for the cleaning task. 2. Use suitable brushes for the cleaning task. 3. Use a suitable detergent for the cleaning task. 4. Reduce the driving speed. 5. Adjust the contact pressure. 6. Adjust the squeegee blades. 7. Check the brushes for wear and tear and replace if necessary. 8. Check the water output.
The brushes do not rotate	<ol style="list-style-type: none"> 1. Reduce the contact pressure. 2. Check if the brushes are blocked by a foreign body and remove the foreign body if necessary. 3. If the motor is overloaded, let the motor cool down. 4. Set the program switch to "OFF". 5. Wait 10 seconds. 6. Set the program switch to the desired program. 7. Check that the plug of the device is plugged into the cleaning head.
The device does not brake	<ol style="list-style-type: none"> 1. Undo the brake lock (see "Operation / Pushing the device").
The waste water drain hose is clogged	<ol style="list-style-type: none"> 1. Open the dosing unit cover at the drain hose. 2. Pull the suction hose off the suction bar and close it by hand. 3. Set the program switch to "Vacuum". The blockage is sucked out of the drain hose into the waste water tank.
The "Dose" detergent dosing unit does not work	<ol style="list-style-type: none"> 1. "Dose" version only: Call Customer Service.

Technical data

		B 110 R 65	B 110 D 65	B 110 R 75	B 110 D 75
Allgemein					
Driving / cleaning speed	km/h	6	6	6	6
Transport speed	km/h	6	6	6	6
Travel speed, backwards	km/h	4	4	4	4
Theoretical surface performance	ft ² /h (m ² /h)	41979 (3900)	41979 (3500)	48438 (4500)	48438 (4500)
Theoretical surface coverage with side scrubbing deck	ft ² /h (m ² /h)	-	-	54896 (5100)	54896 (5100)
Practical surface coverage	ft ² /h (m ² /h)	29385 (2730)	29385 (2730)	33906 (3150)	33906 (3150)
Fresh water tank volume	gal (l)	29 (110)	29 (110)	29 (110)	29 (110)
Waste water tank volume	gal (l)	29 (110)	29 (110)	29 (110)	29 (110)
Coarse dirt container volume	gal (l)	0,4 (1,6)	-	0,5 (1,8)	-
Volume of detergent tank (Dose option)	gal (l)	1,3 (5)	1,3 (5)	1,3 (5)	1,3 (5)
Detergent dosing unit	%	0,25...3	0,25...3	0,25...3	0,25...3
Water dosing	gpm (l/min)	0,04...1,5 (0,15...5,7)	0,04...1,5 (0,15...5,7)	0,04...1,5 (0,15...5,7)	0,04...1,5 (0,5...5,7)

		B 110 R 65	B 110 D 65	B 110 R 75	B 110 D 75
Load per unit area (with driver and full fresh water tank)					
Surface pressure	N/mm ²	0,62...0,66	0,62...0,66	0,62...0,66	0,62...0,66
Area load (weight / parking area)	kg/m ²	470...542	470...524	470...542	470...542
Dimensions					
Length	ft (mm)	5,38 (1640)	5,38 (1640)	5,38 (1640)	5,38 (1640)
Width	ft (mm)	2,43 (740)	2,43 (740)	2,43 (740)	2,43 (740)
Suction bars width	ft (mm)	3,12 (950)	3,12 (950)	3,12 (950)	3,12 (950)
Height	ft (mm)	4,30 (1310)	4,30 (1310)	4,30 (1310)	4,30 (1310)
Working width	ft (mm)	2,13 (650)	2,13 (650)	2,46 (750)	2,46 (750)
Working width with side scrubbing deck	ft (mm)	-	-	2,79 (850)	2,79 (850)
Packaging dimensions lxxwxh	ft (mm)	5,74x3,25x4,8 4 (1750x990x14 75)	5,74x3,25x4,8 4 (1750x990x14 75)	5,74x3,25x4,8 4 (1750x990x14 75)	5,74x3,25x4,8 4 (1750x990x14 75)
Turning circle	ft (mm)	5,74 (1750)	5,74 (1750)	5,74 (1750)	5,74 (1750)
Battery compartment dimensions lxxwxh	ft (mm)	2x(1,03x1,27x 1,23) (2x(315x386x 375))	2x(1,03x1,27x 1,23) (2x(315x386x 375))	2x(1,03x1,27x 1,23) (2x(315x386x 375))	2x(1,03x1,27x 1,23) (2x(315x386x 375))
Tires					
Front wheel, width	ft (mm)	0,30 (90)	0,30 (90)	0,30 (90)	0,30 (90)
Front wheel, diameter	ft (mm)	0,82 (250)	0,82 (250)	0,82 (250)	0,82 (250)
Rear wheel, width	ft (mm)	0,25 (75)	0,25 (75)	0,25 (75)	0,25 (75)
Rear wheel, diameter	ft (mm)	0,95 (290)	0,95 (290)	0,95 (290)	0,95 (290)
Weight					
Approved total weight	lbs (kg)	1433 (650)	1433 (650)	1433 (650)	1433 (650)
Net weight (transport weight)	lbs (kg)	1058 (480)	1058 (480)	1058 (480)	1058 (480)
Typical operating weight	lbs (kg)	1190 (540)	1190 (540)	1190 (540)	1190 (540)
Brush contact pressure, max.	N (kg)	736 (75)	736 (75)	736 (75)	736 (75)
Brush contact pressure, max.	N / m ² (g / cm ²)	581 (570)	51 (50)	510 (500)	41 (40)
Device performance data					
Nominal voltage	V	24	24	24	24
Battery capacity	Ah (5 h)	170 / 285	170 / 285	170 / 285	170 / 285
Mean power input	hp (W)	3,15 (2350)	3,15 (2350)	3,15 (2350)	3,15 (2350)
Nominal power	hp (W)	3,35 (2500)	3,35 (2500)	3,35 (2500)	3,35 (2500)
Engine power	hp (W)	0,80 (600)	0,80 (600)	0,80 (600)	0,80 (600)
Suction turbine power	hp (W)	0,80 (600)	0,80 (600)	0,80 (600)	0,80 (600)
Brush drive power	hp (W)	2 x 0,80 (2 x 600)	2 x 0,80 (2 x 600)	2 x 0,80 (2 x 600)	2 x 0,80 (2 x 600)
Protection class		IPX3	IPX3	IPX3	IPX3
Suctioning					
Suction performance, air quantity	CFM (l/s)	~53 (~25)	~53 (~25)	~53 (~25)	~53 (~25)
Vacuum (max.)	psi (bar)	~2,47 (~0,17)	~2,47 (~0,17)	~2,47 (~0,17)	~2,47 (~0,17)
Vacuum (in operation)	psi (bar)	~0,73 (~0,05)	~0,73 (~0,05)	~0,73 (~0,05)	~0,73 (~0,05)
Cleaning brushes					
Brush diameter	ft (mm)	0,33 (100)	1,16 (355)	0,33 (100)	1,26 (385)
Brush length	ft (mm)	1,98 (605)	-	2,31 (705)	-
Brush speed	1/min	1200	180	1200	180
Side scrubbing deck brush diameter	ft (mm)	-	-	0,72 (220)	0,72 (220)
Side scrubbing deck brush speed	1/min	-	-	220	220
Internal charger					
Cable length	ft (m)	6,5 (2)	6,5 (2)	6,5 (2)	6,5 (2)
Nominal voltage	V	100...240	100...240	100...240	100...240

		B 110 R 65	B 110 D 65	B 110 R 75	B 110 D 75
Frequency	Hz	50-60	50-60	50-60	50-60
Power input	hp (W)	1 (750)	1 (750)	1 (750)	1 (750)
Charging current	A	28	28	28	28
Degree of efficiency	%	92	92	92	92
Ambient conditions					
Permissible temperature range	°F (°C)	41...104 (5...40)	41...104 (5...40)	41...104 (5...40)	41...104 (5...40)
Water temperature max.	°F (°C)	122 (50)	122 (50)	122 (50)	122 (50)
Filling system water pressure (Option)	psi (bar)	145 (10)	145 (10)	145 (10)	145 (10)
Waste water tank flushing system water pressure (option)	psi (bar)	145 (10)	145 (10)	145 (10)	145 (10)
Relative humidity	%	20...90	20...90	20...90	20...90
Incline					
Max. working area slope	%	10	10	10	10
Short distance incline (max. 10 m) transport, loading	%	22	22	22	22
Determined values in acc. with EN 60335-2-72					
Hand-arm vibration value	m/s ²	<2,5	<2,5	<2,5	<2,5
Seat vibration value	m/s ²	<2,5	<2,5	<2,5	<2,5
Uncertainty K	dB(A)	0,2	0,2	0,2	0,2
Sound pressure level L _{pA} eco operation	dB(A)	59,2	59,2	59,2	59,2
Sound pressure level L _{pA} normal operation	dB(A)	63,6	63,6	63,6	63,6
Uncertainty K _{pA}	dB(A)	1,6	1,6	1,6	1,6
Sound power level L _{WA} + Uncertainty K _{WA} eco operation	dB(A)	74,1	74,1	74,1	74,1
Sound power level L _{WA} + Uncertainty K _{WA} normal operation	dB(A)	78,7	78,7	78,7	78,7
Side scrubbing deck					
Power	hp (W)	-	-	0,19 (140)	0,19 (140)
Brush contact pressure, max.	N (kg)	-	-	88 (9)	88 (9)
Brush contact pressure, max.	N / m ² (g / cm ²)	-	-	30,6 (30)	30,6 (30)

Subject to technical changes without notice.

Information on accessories and spare parts can be found at www.kaercher.com.

Accessories and spare parts

Only use original accessories and original spare parts. They ensure that the appliance will run fault-free and safely.

Accessories, cleaning head with roller brushes

A: Packaging unit, B: Number required by the device

Designation	R 65 Part no.	R 75 Part no.	Description	A	B
Roller brush, red (medium, standard)	4.035-604.0	4.035-605.0	For maintenance cleaning of even heavily soiled floors.	1	2
Roller brush, white (soft)	6.907-770.0	6.907-771.0	For polishing and maintenance cleaning of sensitive floors.	1	2
Roller brush, orange (high/low)	6.907-726.0	6.907-730.0	For scrubbing textured floors (safety tiles, etc.).	1	2
Roller brush, green (hard)	6.907-727.0	6.907-731.0	For basic cleaning of heavily soiled floors and for decoating (e.g. waxes, acrylics).	1	2
Roller brush, black (very hard)	6.907-728.0	6.907-732.0		1	2
Microfiber roller	4.114-054.0	4.114-007.0	For maintenance cleaning of smooth floors.	1	2
Pad roller shaft	4.762-626.0	4.762-627.0	To accommodate roller pads.	1	2
Roller pad, yellow (soft)	6.369-454.0	6.369-454.0	For polishing floors	20	96; 106
Roller pad, red (medium)	6.369-456.0	6.369-456.0	For cleaning lightly soiled floors.	20	96; 106

Designation	R 65 Part no.	R 75 Part no.	Description	A	B
Roller pad, green (hard)	6.369-455.0	6.369-455.0	For cleaning normally to heavily soiled floors.	20	96; 106

Accessories, cleaning head with disc brushes

A: Packaging unit, B: Number required by the device

Designation	D 65 Part no.	D 75 Part no.	Description	A	B
Disc brush, natural (soft)	4.905-012.0	4.905-020.0	For polishing floors.	1	2
Disc brush, white	4.905-011.0	4.905-019.0	For polishing and maintenance cleaning of sensitive floors.	1	2
Disc brush, red (medium, standard)	4.905-010.0	4.905-018.0	For cleaning slightly soiled or sensitive floors.	1	2
Disc brush, black (hard)	4.905-013.0	4.905-021.0	For cleaning heavily soiled floors.	1	2
Diamond pad fine, green	6.371-235.0	6.371-236.0	For refreshing lime-containing coverings and epoxy resin-coated floors.	5	2
Diamond pad coarse, white	6.371-250.0	6.371-252.0		5	2
Diamond pad medium, yellow	6.371-251.0	6.371-253.0		5	2
Pad drive board	4.762-446.0	4.762-447.0	For holding pads.	1	2

Accessories, suction bar

A: Packaging unit, B: Number required by the device

Designation	Part no.	Description	A	B
Suction lip set, front PU (red), rear Linatex	4.039-366.0	Standard	Pair	1 pair
Suction lip set, Linatex	4.039-356.0	tear-proof	Pair	1 pair
Suction lip set, PU	4.039-357.0	oil-proof	Pair	1 pair

Warranty

The warranty conditions issued by our relevant sales company apply in all countries. We shall remedy possible malfunctions on your appliance within the warranty period free of cost, provided that a material or manufacturing flaw is the cause. In a warranty case, please contact your dealer (with the purchase receipt) or the next authorized customer service site.

(See overleaf for the address)

