



Instruction manual

Scrubmaster E10 (7739.03)

Introduction

Preface

Dear Customer,

We are certain that the excellent qualities of the vehicle will justify the faith you have shown in us through your purchase.

Please read the Chapter "Safety Information" prior to starting the vehicle to ensure it is operated and used safely. Your safety, and that of others, basically lies in your ability to control and operate the vehicle. Before using the equipment for the first time, read this original manual thoroughly, act according to the information contained and keep it in a safe place for future reference or subsequent owners. The operating manual contains all the most important information regarding operation, maintenance and service. Throughout this manual, texts which concern safety are indicated by the corresponding danger pictogram. Should you have any questions in respect of the vehicle or operating instruction manual, your authorized Hako dealer is available to provide help at any time.

We explicitly point out that no legal claims may be asserted based on the information contained in this manual. Ensure only original spare parts are used should any repairs be necessary. Only such original spare parts warrant that the equipment is reliably ready to use at all times. We reserve the right to make technical modifications in the interest of further development.

Valid as of: May 2014

Hako GmbH D-23843 Bad Oldesloe Hamburger Str. 209-239 Telephone: +49 04531 806-0

Intended use

The Scrubmaster E10 is a scrubber dryer for the wet cleaning of hard floors. Any use beyond this is regarded as improper use. The manufacturer is not considered liable for any damage resulting from improper use; the user is solely responsible for all the potential risks involved. Intended use also includes maintaining and observing the operating, maintenance and repair conditions prescribed by the manufacturer. The Scrubmaster E10 may only be operated, serviced and repaired by personnel who are familiar with the work involved and are aware of the risks. The applicable accident prevention laws must be observed and any generally accepted health and safety directives must be maintained. Based on the conception, design and construction of the vehicle introduced onto the market by us, the vehicle complies with the applicable basic safety and health requirements stipulated in the EC Directive (refer to the Declaration of Conformity). This declaration is no longer considered valid in the event of modifications to the vehicle not authorized by us. The manufacturer is not

Introduction

deemed liable for any damage resulting from unauthorized modifications to the vehicle.



This mashine is not suitable for evacuation of dusts, which are explosive or dangerous to health!

Notes on warranty

The terms defined in the purchase agreement apply. Claims for compensation related to damage are excluded from the terms of warranty when the damage is the result of failure to observe regulations concerning service and maintenance. Maintenance work must be performed by authorized Hako service centers and confirmed in the "Maintenance Report" which serves as a warranty logbook.

The following are excluded from the terms of warranty: wear and tear through overuse, defective fuses, improper handling and use or unauthorized modifications. Claims under the terms of warranty are annulled when damage occurs to the vehicle resulting from the use of parts or accessories not explicitly approved by us or from failure to observe maintenance regulations.

Acceptance of the vehicle

The vehicle must be inspected directly after delivery for signs of transport damage. Replacements for transport damage will be made when confirmation is provided immediately by the transporting company with regard to the damage and you send the damage report to our authorized contractual partner together with the consignment note.

Disposal

Render the vehicle inoperable. It must not represent a source of danger for children. Dispose of the equipment in accordance with local regulations. For further information on handling and recycling, please contact the authorized Hako dealer where you purchased the vehicle.



Used batteries with the recycling symbol contain reusable commodities. The heavy metals contained represent a major risk both to people's health and to the environment. Never open or damage batteries. Never touch, inhale or

swallow the content of batteries. Health hazard! Do not allow batteries to get into the environment. Risk of contaminating the ground and water! In accordance with symbol with the crossed out garbage bin, these batteries must not be disposed of in domestic waste. Return and recycling of old batteries must be agreed on with Hako's authorized dealers in accordance with § 6 and § 8 BattG (Battery Law).

Contents

Preface	Description
Introduction	Controls 1
Proper Use	Detergent Infeed
General Safety Provisions Operation 5 Transport 6 Park Position 7 Handling Mains Cable 7	Change sealing Strips
	Operation
Operation Hakomatic	Operation
First Operation	Technical Data2
Assembly	Maintenance Maintenance Works
	EC-Declaration of Conformity 2

General Safety Instructions



General Safety Instructions

Apart from the information contained in this manual, the generally applicable legal provisions for safety and prevention of accidents must be adhered to. Do not put this manual aside without having read it, even if you did already operate similar ground cleaning equipment before. Allow yourself the time to do so in order to safe time at a later moment. The operator is responsible for all persons in the working area. Children have to keep clear of the Hakomatic in operation. Nobody is allowed to stay in the zone of danger.

The warning and instruction plates attached to the Hakomatic give important advice about safe operation. Replace lost or illegible stickers. Before starting to work, the operator has to check that the Hakomatic and its working implements are in proper and safe operating condition.

Machines with known defects must not be used. It will be of essence to make vourself familiar with all accessories and controls, as well as their functions, before you start working. Avoid the mess of having to read this book while trying to run the machine.

Operation

Ground cleaning machines may be run by qualified personnel only; such personnel will have to have evidenced their qualification for running the machine to the owner or his authorised representative: operators explicitly will have to be instructed by the owner or his authorized representative to use the machine.

The machine may be used for cleaning such surfaces approved by the owner or this authorised representative.

To prevent damages at the brushes as well as at the floor, do not let the Hakomatic run dry. The machine has been exclusively designed for wet scrubbing and vacuuming.



Turn the motors off, fold the support roller and the operating handle down and protect the machine against unintended move-

ments before leaving it unattended. Use genuine spare brushes as specified by the manufacturer. Use of other than the indicated brush types may affect safety.

When transporting the Hakomatic, shut down the motors of the working implements. The operator has to use the machine in accordance to its intended fields of application. During operation, he has to take account of the local conditions (stairs. obstacles) and of other persons, in particular to children. Turn off the machine before any passage over dormers.

Use cleaning agents only, which are suitable for automatic machines (low foaming), and adhere to the instructions for use, disposal and to the precautions specified by the manufacturer of the cleaning agent.

General Safety Instructions



Make sure to connect the Hakomatic to a socket equipped with earthed protective wire and to mains of adequate voltage and frequency.



Never collect explosive fluids, undiluted acids and solvents! This includes e.g. gasoline,

paint thinners or fuel oil, which - when penetrating the air being taken in - may form explosive vapours or mixtures; moreover acetone, undiluted acids and solvents if they should be aggressive to the material used for the machine components.



The machine may be used only on indoor hard floorings and for operation on level s with a maximum inclination of

grounds with a maximum inclination of up to 2%.



Using the machine on public roads and places is not admitted.

Qualified personnel only are admitted to perform maintenance and repair work.

Turn the machine off and disconnect the mains plug before cleaning and maintaining the machine, when replacing parts or when change over to another function.



Do not clean the machine by means of vapour jet or high pressure cleaning equipment.

Do not allow water penetrate the electrical parts.

The machine is splash-water proof (IPX3).

Use of the machine in areas endangered by explosion hazard is not admitted.



Transport



The front roller of the Hakomatic has been fitted for parking the machine only and precludes damages to the floor. It is thus recommended to lift up the brush head as represented before transporting the Hakomatic.

General Safety Instructions



Park Position

If not operated, the Hakomatic has to be stored in its park position. This position is attained by using the support roller located at the front of the machine as represented. Actuate the support by a lever located above the support roller (see Pos.1) and the brush head of the machine is lightly lifted. This is to preclude deformation of the brushes.



Handling Mains Cables

Make sure that the mains cables are not damaged by passing over them, by pinching pulling or other impacts. Check the mains cables for aging and damages at regular intervals. Replace them by the type H05VVF3Gx1.5 as specified by the manufacturer. When replacing the coupling plug of the mains cable or when connecting lines respect the splash water protection and the tensile strength of the components.

Hakomatic E 10

Wet cleaning of hard floorings requires equipment with squeegee and brushes suitable for the type of floor to be cleaned.

The rotating brushes and the cleaning lye scrub the dirt and clean the floor thoroughly while the squeegee collects the lye immediately. The floor is dry and clean can be stepped on immediately.

Useful Advice for Optimum Cleaning

Before wet cleaning, sweeping the floor is required. This is not only to improve the cleaning effect but to significantly reduce the wearing of the machine.

In case of heavy soiling or for wax removal (basic cleaning), a second treatment of the floor may be required. In the first cycle, the floor is scrubbed with a detergent solution adapted to the degree of soiling.

This cleaning agent acts on the floor according to the specifications of the manufacturer for about 5 to 10 minutes, then scrub the floor again with the squeegee being lowered.



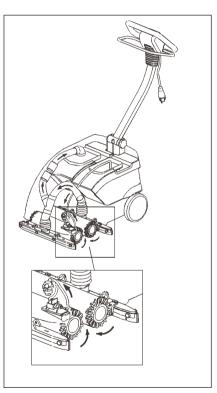
Comply with the instructions for correct dosage of detergent. Correct dosage will help

you save money and protect the environment.

Occurrence of great quantities of foam will affect functioning of your machine.

Actually, it indicates excessive dosage or improper suitability of dosing and degree of soiling. Unused detergent particles in the soiled water lead to formation of foam. Refer to the detergent reservoir for information on correct dosage. Take the manufacturer's recommendations as a first basis. Test made by yourself in practise will help you find the ideal type of detergent and the perfect dosage applicable to it.

Working Principle

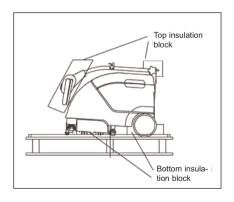


First Operation

Assembly

The Hakomatic is delivered in a cardboard box. The bottom is a wooden pallet to which the machine is fastened by plastic straps. Open the bottom side of the box and pull it upwards, then loosen the straps and take the machine from the pallet.

Before Operation

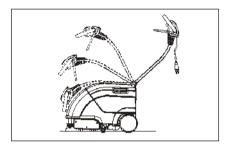


- 1. Upon delivery, the Hakomatic has been secured by insulation blocks at the bottom and the top to preclude unwanted movement of the machine. After taking the machine from the pallet:
- (I) Open the cardboard box at the top side
- (II) Remove the insulation blocks
- (III) Take the Hakomatic off the box and avoid any damage to the machine
- (IV) The operating handle of the Hakomatic is still in its transport position.



Caution: Mains-operated machine! Qualified personnel only is admitted to open the

machine; Any work such as e.g. maintenance or repair actions at the electric components have to be executed with adequate tools only and by qualified personnel only (e.g. for Germany: observe VED 0701 standard, parts 1 and 3).



2. After taking the Hakomatic to its park position, set the operating handle into its working position by releasing the button at the side. After the handle has been set into service position, engage the button again to preclude the handle from displacing. After operation, the handle can be folded back again as described above. In this folded position the handle is protected against damages and requires less storing space.

First Operation

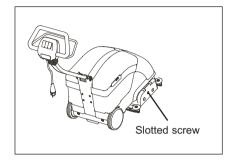
- 3. Open the lateral brush head cover by loosening the slotted screw using a coin. Then insert the enclosed brushes into the housing. The Hakomatic has been equipped with a slotted screw to facilitate removal and fastening of the brushes.
- 4. After folding of the lid, filling of the fresh water tank is possible. Before filling with fresh water, move the support roller out of its parking position.



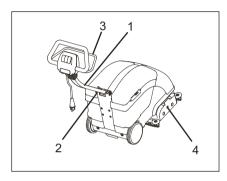
Make sure that all covers and flaps have been fitted before starting operation.



A damaged mains cable has to be replaced by a specific cable available at the manufacturer or an authorised service centre.

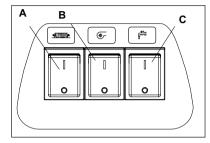


Controls



- 1 Adjustable handle
- 2 Button for handle
- 3 Squeegee governor (forward, reverse)
- 4 Slotted screw for brush removal

Control Panel



Brush motor, suction motor and water pump switches



- A. Brush motor switch ON/OFF
- Function is ON if switch "A" is in position "1"
- Function is OFF if switch "A" is in position "0"

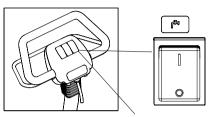


- B. Suction motor switch ON/OFF
- Function is ON if switch "B" is in position "1"
- Function is OFF if switch "B" is in position "0"



- C. Water pump switch ON/OFF
- Function is ON if switch "C" is in position "1"
- Function is OFF if switch "C" is in position "0"

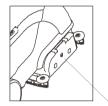
2 Detergent Infeed



Pump switch

• The Hakomatic allows mixing of cleaning lye and fresh water in the tank. The amount of detergent required for cleaning can be regulated by the pump switch. If the switch is set to position "1" the cleaning lye is continuously supplied.

Slotted Screw for Fitting the Brush

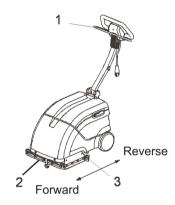


Slotted screw

Disconnect the mains plug before mounting or dismounting the brush. Loosen the slotted screw for fitting the brush before use of the machine and afterwards for removal of the brush. Change the brush position after each use in order to preclude one-side wearing..

- Loosen the slotted screw before dismounting the brush from the Hakomatic.
- Dismount the brush from the Hakomatic after every use. Take the machine into the park position before dismounting.

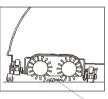
Squeegee Governor



- 1 Governing handle
- 2 Front squeegee
- 3 Rear squeegee

The front or the rear squeegee of the Hakomatic is lowered and has contact with the floor. The operator may change squeegee position according to the direction of travel of the machine.

 If the Hakomatic is in its working position and pushed forward, the rear squeegee has contact with the floor while the front squeegee is lifted.



Water

- End of operation
 Due to the counter-rotation of the
 brushes, some water remains be tween the brushes at the end of
 operation. Proceed thus as follows
 at the end of operation:
- Take machine into park position
- Turn suction motor ON
- Move the machine a little bit forward

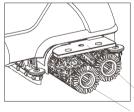
During this movement, the rear squeegee takes in the water.

Mount/Dismount Brushes

According to the type and degree of soiling, the Hakomatic E 10 can be equipped with brushes from the accessories. Refer to chapter "Technical Data" on page 24.

Mount Brush

 Use the support roller located at the handle side of the Hakomatic to set the machine into its park position.



Brush cover

Brush

- Remove slotted screw of the brush cover.
- Fasten supplied brushes at the drive rollers at the inside of the opposite cover.
- Close brush cover such that the guiding rollers and the brushes safely catch.



When mounting, check the safe catching of rollers and brushes.



Before cleaning or maintaining the machine as well as before replacing parts of it, turn the machine off and disconnect the plug.

Dismount Brushes

- Use the support roller located at the front side of the Hakomatic to set the machine into its park position.
- Loosen slotted screw by means of a coin.
- Open brush cover and remove brushes. Re-close cover and tighten slotted screw.



When inserting the brushes for the next operation, make sure to change position of the brush such that one-sided brush wearing is precluded.

Brush Maintenance

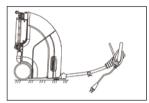


Fig. 1

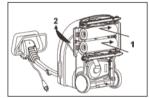


Fig. 2

- Remove fresh and soiled water tanks
- Use the support roller located at the front side of the Hakomatic to set the machine into its park position.
- Use the adjustment screw to set the operating handle of the machine into vertical position, and then tilt the machine down as represented.
- Loosen slotted screw and fix the brushes manually as represented in Fig. 2 in direction 1.

- Open brush cover in direction 2.
- Remove brushes
- Clean brush compartment
- Insert brushes, close brush cover and secure with slotted screw.
- Set Hakomatic in upright position.
- Use adjustment screw to set the operating handle into working position.
- Set front support roller into working position.
- Re-insert fresh and soiled water tanks

Squeegee

The Hakomatic E 10 has been equipped with a squeegee of 450mm working width. The squeegees can be lifted-out alternately.



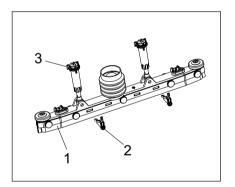
Check the squeegee for collected foreign particles and for proper condition before start of operation.

Mount Squeegee (Initial Fitting)

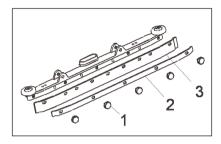
- Lift squeegee and hold it to the squeegee holders (3).
- Mount squeegee (1) to the squeegee holder by means of fixing clip (2) as represented-
- Check the smooth running of the bottom sleeve at the squeegee holders for perfect hinging.

Dismount Squeegee

- Lift brush head of the Hakomatic in order to access the squeegee screws.
- Remove both screws (2) as represented.
- Pull squeegee to the bottom to remove it from the machine.



- 1 Squeegee
- 2 Fixing clip
- 3 Squeegee holder



- 1 Knurled screw
- 2 Support strip
- 3 Sealing strip

Change Sealing Strips

- No tools are required for dismounting the sealing strips.
 Proceed as follows:
- Dismount squeegee (refer to paragraph "Dismount Squeegee").
- Unscrew knurled screw (1)
- Remove support strip

- Proceed to mounting of new sealing strip in inverse order.
- Tighten the knurled screws (by hand) and from the centre towards the outsides (slotted sealing strips point to the front, plain ones to the back)



The rear sealing strip can be turned round if worn at the front edge.

Nozzle

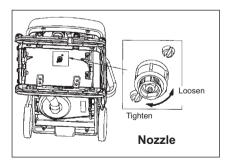
The Hakomatic E 10 has been equipped with a nozzle by which the water is sprayed between the brushes.

Clean Nozzle

The nozzle clogs after some hours of operation. It is thus required to clean the nozzle at daily intervals before start of operation.

Proceed as follows for cleaning thenozzle:

- (I) Remove nozzle
- Dismount brushes from the Hakomatic (see "Dismount/Mount Brushes").
- Lift machine and lay down on its back as represented.
- Turn the nozzle to the left

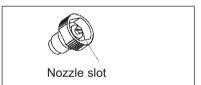


(II) Clean nozzle

 Clean nozzle by compressed air or water.

(III) Mount nozzle

- After cleaning, insert nozzle by screwing clockwise.
- Make sure that the nozzle slot is as the mounting direction of the brushes.
- Upright machine





Fill Water

Fill fresh water and detergent as described below before start of operation.

- Open tank lid and fold back.
- Fill fresh water tank with water (50°C max.) and detergent in relation to the dirt encountered and according to the specifications by the manufacturer.

Filling amount: 10 litres max.



Use detergents suitable for automatic machines (low foaming) in order to preclude damages at the suction turbine. We recommend Hako detergents for cleaning and care, which are perfectly adapted to the Hakomatic. These products fulfil the requirements of the Detergents Act (WMRG applicable in Germany).

Operation

- Use the button to take the support into working position.
- Turn switch "A" ON to make the brush rotate.
- Turn switch "C" ON to open supply of fresh water with or without detergent. Press and hold switch "C" in position "(1)" for simultaneous water spraying.
- Turn switch "B" ON to start suction turbine running.

Turn all switches OFF after operation and remove the brushes from the Hakomatic. Mount the brushes in inverse order of dismounting before next operation. This measure extends service life of the brushes.



Start operation of the Hakomatic by pushing forward immediately after switching on. This measure extends service life of the brush motor. When pushing in reverse direction lift the rear squeegee with the squeegee governor.

Make sure that during operation of the machine the mains cable always lies behind the operator.



Turn the brush drive off before passing over dormers of a height of 10mm and more.



Danger when passing over the mains cable with rotating brushes.

Start cleaning in the socket area and clean by stripes. If the surface is not obstructed, start at the borders and forward counter-clockwise. Clean the remaining surface by stripes and starting in the socket area.

Divide partly obstructed surfaces into areas in the reach of the mains cable. Within shortest time, the operator will know to avoid unnecessary hindrance caused by the mains cable.

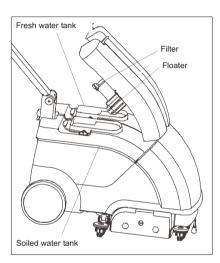
At the end of cleaning:

- Turn machine off and set it to its park position
- Empty and rinse soiled water tank (see paragraph "Soiled and Fresh Water Tanks")
- Clean sealing strips of the squeegee
- Check the sieve at the inlet opening of the fresh water tank and clean if required in order to maintain suction performance.



Do not clean the machine by means of a water jet or high-pressure cleaning equipment to avoid endangering your safety and the operability of the machine.

Soiled and Fresh Water Tanks



The Hakomatic E 10 is equipped with a soiled and a fresh water tank (lye tank). The filling amounts to 10 litres. Do not fill beyond the maximum mark and do not exceed a water temperature of 50°C.

A suction hose delivers the soiled water into the soiled water tank.



Do not take in larger amounts of secondary water (water pools)



To avoid settling of residues empty and rinse the soiled and fresh water tanks after work on principle.



Comply with the legal provisions for disposal of soiled water. Check and clean the suction filter in the tank lid for soiling in regular intervals.

Clean Soiled and Fresh Water Tanks



 Slowly tilt the tank as represented to drain water before cleaning the tank.

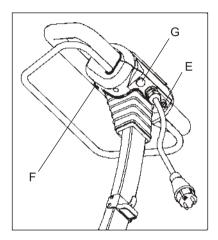


Empty Soiled Water Tank



- Hold the tank as represented.
- Open the cap and drain water
- Close cap

Electric System



E Suction motor fuse F Pump fuse

G Brush motor cut-out

The electric system of the Hakomatic E 10 operates at a mains voltage of 230V/50Hz.

After opening the machines top, the brush motor and the suction turbine are well accessible.

A T 6.3 A fuse (E) protects the suction turbine and has to be replaced by the same type if blown (T stands for slow-blow).

The suction turbine is a low-maintenance type; its carbon brushes only have to be checked after every 200 hours of operation.

The brush motor is protected by a cutout (G) which can be manually reset. In case of tripped cut-out, detect the cause and remedy before re-starting the machine.

The pump is protected by a T0.5A fuse (F). Replace by the same type of fuse.

Reset the cut-out by pushing down the transparent dome of the fuse box. After tripping, wait for approx. 30 seconds before resetting.



In case of repeated fuse blowing detect the cause. We recommend having all work at the electric system done by qualified personnel only.



Before staring work at the electric system, disconnect the mains plug. After work at the electric system is finished, proceed to a safety test according to VDE standard 0701, paragraph 1 and 3.

Dimensions Length Width Height	mm mm mm	700 470 540	
Working width Squeegee Scrubbing	mm mm	450 350	
Area performance Theoretical	m²/h	1400	
Driving speed	up to km/h	5	

Weights (with closed handle)		
Empty weight, dry	kg	40
Total weight, operable, wet	kg	50
Wheels		
Rear wheel, diameter	mm	175
Real wheel, diameter	111111	175
Tank capacities		
Fresh water tank	Litre	10
Soiled water tank	Litre	11
Throughput, max.	Litre/min	0,22
Brush head		
No. of brushes	Qty.	2
Brush diameter	mm	100
Brush speed	rpm	650
Brush pressure, max. up to	kg (N)	20
Low pressure		
Air volume	l/sek.	46.6
Low pressure	mbar	186

Elektric system		
Service voltage	AC/Volt	230 ± 10%
Mains frequency	HZ	50
Protection class, compl. machine	EN 60335-2-72	1
Protection type, compl. machine	EN 60335-2-72	IP X3
Nominal rating, total, max.	W	1340
Fuse for brush motor	Α	5
Fuse for suction motor	Α	T 6.3
Fuse for pump	Α	T 0.5
Brush motor	W	600
Suction turbine	W	850
Pump	W	16
Noise emission value		
The sound pressure level (LpA) (at the ear of the operator) measured according to DIN IEC 60335-2-72 under normal working conditions:	dB (A)	72
Measurement inaccuracy (KpA):	dB (A)	2
Vibration		
The weighted effective value of acceleration, measured in accordance with ISO 5349-1, to which the upper parts of the body (hand-arm) are exposed under normal working conditions:	m/s²	< 2,5
The weighted effective value of acceleration, measured in accordance with ISO 2631-1, to which the upper parts of the body (feet-seat) are		
exposed under normal working conditions:	m/s²	< 0,5

		Parts number	
Brushes			
Polyamide brushes	7740		
Polypropylene brushes	7741		
Silicon carbide brushes	7742		

Maintenance

Maintenance Information

Compliance with our recommendations concerning maintenance work will give you the certitude of always having a machine at your disposal which is ready to work and in good operating condition.

It is better to take precautions than to repair damages - and less expensive! Please contact your local contract dealer; the people there will be glad to perform that work for you. There, well-trained personnel and genuine spare parts are at your disposal.

In case of any inquiries or orders for spare parts, please always quote the machine's serial number indicated on the nameplate. The nameplate is located at the rear of the machine.



Turn the machine off and disconnect the mains plug before cleaning or maintaining the machine.

For safety reasons, secure the lifted tank lid against inadvertently closing or lowering during all cleaning or maintenance work in or at the tank. Operate the machine only with all safety devices being fitted and in protective position. Do not proceed to cleaning by hand but use appropriate tools or auxiliary means. Maintenance or repair work has to be done using appropriate tools and by qualified personnel only. For safety reasons use genuine spare parts.







Before proceeding to the maintenance and/or inspection or repair works mentioned in the following, execute a functional check of all operating elements and units in order to detect eventual failures.

After repair work has finished, operate the machine after having performed a safety check only.

Maintenance

Maintenance Works		Operating hours		
	Daily	every 50	every 100	every 200
Check connections, extension cable and plug for condition, replace defective cable	×			
Empty and clean (rinse) soiled water tank	Х			
Check sealing strips at the squeegee for condition	Х			
Check squeegee for collected foreign matters and clean if required	×			
Check floater for function	Х			
Check filter sieve of the fresh water tank and clean if required	×			
Check squeegee sealing strips for wearing and replace if required.		Х	Х	Х
Check brush for tight fit and wearing and replace if required. Clean brush casing by brush	×	×	×	×

Maintenance

Maintenance Works		Operating hours		
	Daily	every 50	every 100	every 200
Check tank lid gasket and replace if required			Х	Х
Check fresh water infeed to the brushes		Х	Х	Х
Clean suction motor from carbon dust and check carbon brushes for smooth operation and wearing. Replace carbon brushes if required				×
Clean nozzle	Х			



Disconnect the mains plug before executing maintenance or repair work. After these works have finished, proceed to a safety check according to VDE standard 0701.

EC Declaration of Conformity (corresponds to EC Directive 2006/42/EC)

Hako GmbH Hamburger Straße 209-239 D-23843 Bad Oldesloe

declares that the products

Scrubmaster E10, Typ 7739.03

to which this declaration relates, conform to the relevant provisions of the safety and health requirements stipulated in EC Directive 2006/42/EC and is in accordance with 2004/108/EC.

Reference was made to the following standards and/or norms and/or technical specifications to ensure proper implementation of the safety and health requirements in the EC Directive:

EN 60335-2-72: 2010-01 EN 55014-1: 2012-05 EN 55014-2: 2009-06 EN 61000-3-2: 2010-03 EN 61000-3-3: 2009-06 EN 62233: 2008-11

Bad Oldesloe, 22.04.2014

Raine Raverdin

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Notes



Spitzentechnik für eine saubere und schönere Umwelt

Advanced Technology for a Cleaner, Better Environment

