



- 1 Gaveta
- 2 Ficha Máquina
- 3 Ficha das Baterias
- 4 Caixa Baterias
- 5 Tampa da Gaveta com Assento

Instalação de Bateria Sistemas de Bateria A e B

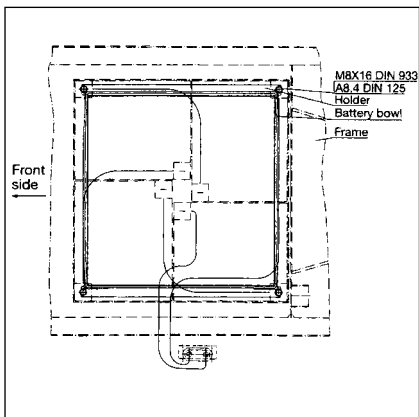
Como instalar a caixa de baterias 24 V / 320 Ah ou 24 V / 280 Ah

- Abra as portas do lado esquerdo e direito
 - Suba o assento do condutor e incline-o para a direita
 - Desmonte a gaveta (1) do lado esquerdo (4 parafusos)
 - Desligue a ficha do switch de segurança do banco do operador
 - Desmonte o braço (5) incluindo o assento do lado direito e ponha de parte (não remova o cinto)
 - Swivel device plug
 - Place tray battery (4) by means of a lifting unit or a fork-lift truck into the machine from the left side.
- Note:** Only use lifting and transporting facilities e.g. lifting tackle according to VDI 3616. Cells, connectors or cables must not be damaged by usage of hooks.
- Check the coding of battery, device and charger plugs and modify as required according to the instructions on page 41 and 42.
 - Link battery and device plugs (pay attention to tight fit)

- Mount left brace (1) and brace (5) including driver seat
- Connect the line to seat switch.
- Close side doors and tilt the driver seat downwards
Proceed to dismantling in inverse order

Battery system C and D

- Open the doors at the left and right side
- Tilt the driver seat upwards to the right
- Place the batteries 6 V/180 Ah or 6 V/240 Ah into the battery compartment and connect the poles with the battery lines
- Check the coding of battery, device and charger plugs and modify as required according to the instructions on page 41
- Close side doors and tilt the driver seat downwards
Proceed to dismantling in inverse order.



4 batteries 6 V/180 Ah

Battery systems E

Details see separate manual for battery exchange system.

Taking into operation, maintenance and service of batteries

See enclosed leaflet 88-60-2556 "Instructions for drive batteries"

Plug connection coding

All battery plugs at machines, batteries and battery charger units have to be coded with the colored coding pins according to the battery type and the nominal voltage.

The charger unit plugs are/will be set in the factory according to their characteristic such that a modification of the characteristic (in relation to the battery type) requires changing of the plug coding.

Plug case of **charger units**:

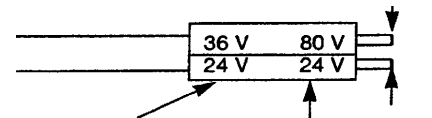
Gray for fluid-filled batteries
Green for maintenance-free Gel batteries

Plug case of **machine**:

Yellow for both battery types

Socket case of **battery**:

Gray for fluid-filled batteries
Green for maintenance-free Gel batteries



Nominal plug voltage is indicated on each side of the hexagon (letters upside down)

Indication for nominal socket voltage accordingly

Replacing the coding plug by pressing together the ends with pliers.

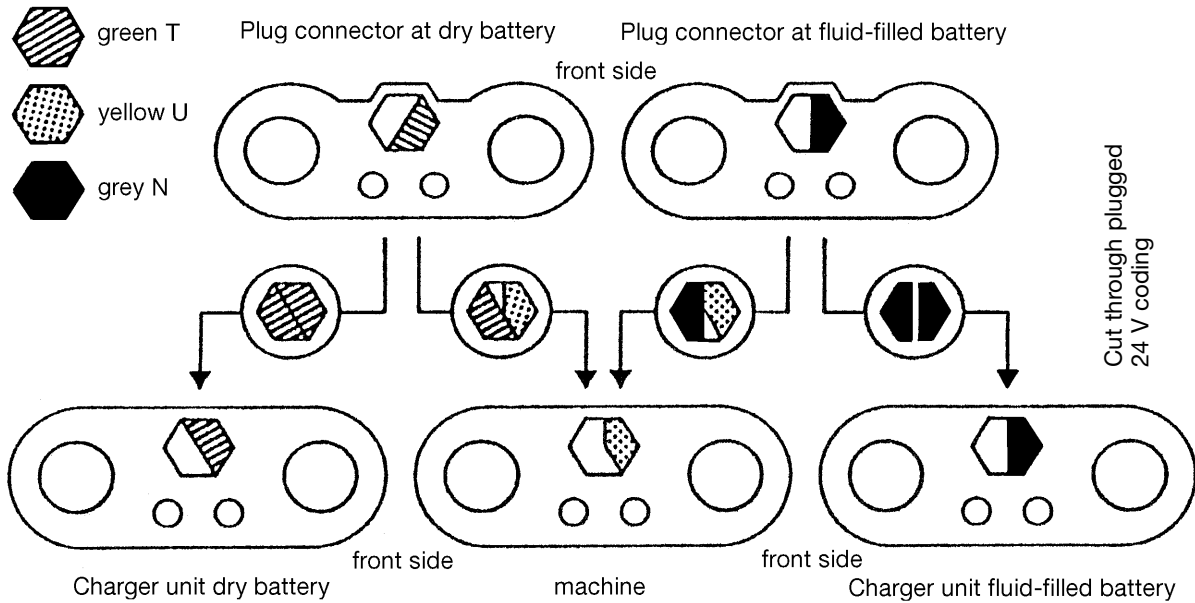
Press together for removal.

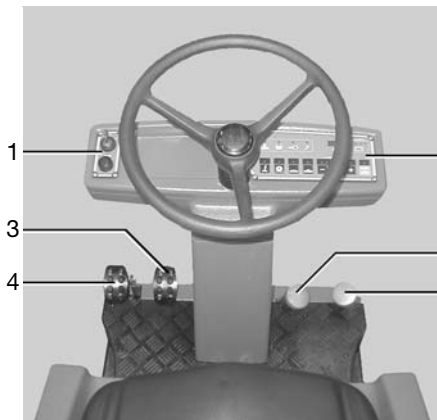
Insert coding plug such that the nominal voltage inscription is visible through the case window. Socket and plug only with the same nominal voltage!

The following three conditions must be fulfilled for the complete system:

- 1) Voltage coding must be the same for all sockets and plugs
- 2) Coding pin color in the machine = yellow
- 3) Coding pin color in the charger unit = the same as for the battery plug according to battery type

**Coding system in the charger unit for fluid-filled and dry batteries Gel batteries)
Example 24V**





- 1 Left-hand control panel
- 2 Right-hand control panel
- 3 Pedal for brush/pad pressure
- 4 Parking brake pedal
- 5 Forward drive pedal
- 6 Reverse drive pedal

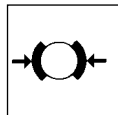
Operation

Operation elements

- 1 Left-hand control panel**
(Description see page 44)
- 2 Right-hand control panel**
(Description see page 44)



- 3 Pedal for brush/pad pressure** to adjust brush/pad pressure.
 - Slowly press pedal down until the pressure point is attained. Release pedal and it will lock. = increased brush/pad pressure and the yellow pilot lamp (I/C) alights
 - Actuate pedal beyond the pressure point and release. It will lift up to initial position. = normal brush/pad pressure and the pilot lamp extinguishes**Note:** An increased brush/pad pressure increases current consumption and brush/pad wear.



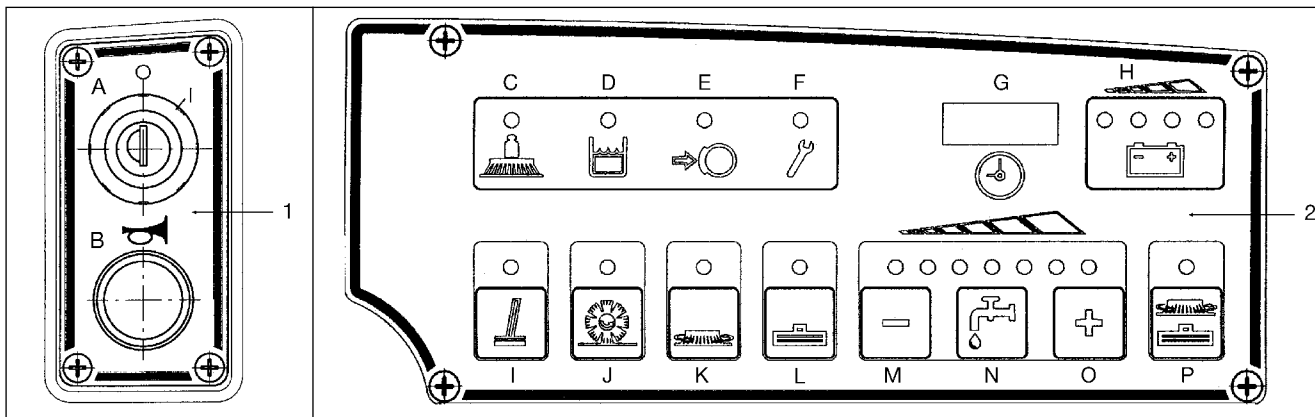
- 4 Parking brake pedal** actuates the parking brake at the rear wheels. Before leaving the machine the operator has to protect it by actuating the parking brake.

The pilot lamp (I/E) alights. When depressing the drive pedal a buzzer sounds. Depressing the blocking device will unlock the brake.

- 5 Forward drive pedal** allows modification of speed
 - slowly depress pedal until the required speed is attained.
 - release pedal and it will automatically return to the initial position and the machine slowing down simultaneously. Speed will be substantially reduced by actuating the reverse drive pedal.
- 6 Reverse drive pedal** allows modification of speed
 - slowly depress pedal until the required speed is attained and the buzzer sounds.
 - release pedal and it will automatically return to the initial position and the machine slowing down simultaneously.



The machine must only be started if the operator is seated down.



Control panels

Control panel 1

- A Key switch (ON/OFF)
- B Horn button

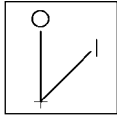
Control panel 2

- C Pilot lamp (yellow) for brush pressure
- D Pilot lamp (red) for max. filling level of soiled water tank
- E Pilot lamp (red) for parking brake
- F Pilot lamp (red) for fault display

- G Hourmeter/service display
- H Pilot lamp for battery charge condition
- I Key for additional scrubbing and vacuuming tool (ON/OFF) with pilot lamp (green)
- J Key for pre-sweeper (ON/OFF) with pilot lamp (green), optional*
- K Key for brush drive (ON/OFF) with pilot lamp (green)
- L Key for squeegee and suction turbine (ON/OFF) with pilot lamp (green)
- M Key for water flow reduction with pilot lamp (green)

- N Key for water infeed with pilot lamp (green)
- O Key for water flow raising with pilot lamp (green)
- P Key for brush drive, suction turbine (ON/OFF), with simultaneous brush head/squeegee (UP/DOWN) operation with pilot lamp (green)

* If the Hakomatic B 910 is not equipped with the pre-sweeper option this key is inoperable. If depressed, the hourmeter will display "OP".



A Key switch

turns the electrical system ON/OFF and protects the machine against unauthorized use; moreover it holds the hourmeter display. With the switch in OFF position, all control functions are reset to the initial state (reset).



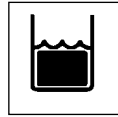
B Horn button

actuates the electric horn.



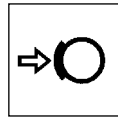
C Pilot lamp (yellow) for brush pressure

alights if the brush pressure pedal (II/3) is depressed



D Pilot lamp (red) for max. filling level

alights if the maximum filling level in the soiled water tank is attained.



E Pilot lamp (red) for parking brake

alights if the parking brake pedal (I/4) is depressed. If the travel drive assembly is switched on a buzzer sound in addition.



F Pilot lamp (red) for fault display

alights in case of one of the following faults occurring:

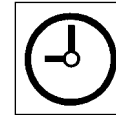
- thermostat switch of the brush or drive motor has closed

- one of the fuses is defective or one of the electronic circuit-breakers tripped
- other faults

Electronic circuit breakers

In addition to the fuses, the Hako-matic B 910 is equipped with electronic circuit-breakers for the main drives. In case of overload one of the electronic circuit breakers responds, the fault lamp (F) alights and an error code appears in the hourmeter display.

The reset can only be effectuated by turning the key switch to "OFF". If the electronic circuit-breaker trips again after re-starting, the cause has to be detected.



G Hourmeter/service display

displays the operation hours. The meter only counts if the consumers e.g. drive or brush motor, suction turbine or pre-sweeper are ON. A red dot at the right bottom of the display flashes simultaneously.

Service display

The service display is located in the hourmeter display.

When turning ON, the following sequence of information will appear in the hourmeter display:

- software status for 1 approx. second, e.g.

3. 0 1 5

- last error found, for approx. 2 seconds (points blink), e.g.

1. 2. 6. 1.

Note: If a defect is still existing, a buzzer sounds and the red display turns ON (F).

- hours run, e.g. during operation, the dot will blink.

0 2 1 5.

Note: on factory-new machines, the display may read when the key switch is turned to ON.

9 9 9 9.

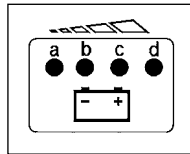
This is an internal control code; display will change to 0 hours after not more than one hour.

The Hakomatic is serviceable with this display.

Error display is active either.

If a malfunction occurs during operation, a 4-digit number will appear in the display, the 4 dots will start flashing simultaneously and the buzzer sounds.

Refer to page 61 for the error code numbers which you may remedy by yourself. If the machine does not operate correctly despite measures taken, denote the error code and advise your Hako service center.



H Pilot lamp for battery charge condition

Upon turning ON the key switch, all green pilot lamps (b to d) alight in case of a perfectly charged battery. During operation the lamps b, c and d will successively extinguish as the battery discharges.

A flashing red light (a) indicates that operation will soon be interrupted and the buzzer sounds. After 3 more minutes, the red lamp alights permanently and the brush drive and the suction turbine will be switched OFF. The travel drive assembly remains activated. We recommend to recharge the batteries at the charging station as soon as possible.



I Key for additional scrubbing and vacuuming tool

Note: this key is only operable if the Hakomatic is equipped with the "additional scrubbing and vacuuming tool" option and the Hako service center has programmed the machine accordingly. Otherwise, "-OP-" is displayed. This key turns the water pump and the suction turbine ON and OFF. The water and the vacuuming hose of the scrubbing tool have to be connected previously.



J Key for pre-sweeper with pilot lamp (green), optional*

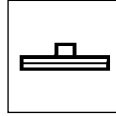
Note: this key is only operable if the Hakomatic is equipped with the "pre-sweeper" option and the Hako service center has programmed the machine accordingly. Otherwise, "-OP-" is displayed.

This key turns the pre-sweeper ON and OFF. The green pilot lamp alights if the pre-sweeper is turned ON. In case of a malfunction the fault lamp (F) alights and the error code appears in the service display.



K Key for brush drive with pilot lamp (green)

turns the brush drive ON and OFF. The green lamp alights if the brush head is lowered and the brushes rotate. In case of a malfunction the fault lamp (F) alights and the error code appears in the service display.

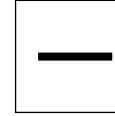


L Key for squeegee and suction turbine with pilot lamp (green)

is lowering/lifting the squeegee and turns the suction turbine ON and OFF. The green lamp alights if the squeegee is lowered and the suction turbine turned ON.

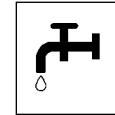
In case of a malfunction the fault lamp (F) alights and the error code appears in the service display.

Note: After lift-up of the squeegee the suction turbine continues operation for about 15 seconds and the pilot lamp (green) in the key flashes. This measure precludes soiled water from flowing out of the squeegee or the vacuuming hose back to the floor. If the soiled water tank is filled up, the suction turbine is switched off after approx. 3 to 5 seconds and the water supply of the brushes interrupted. These functions can be activated again after discharge of the tank.



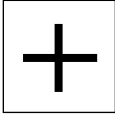
M Key for water flow reduction

is used to reduce the water quantity supplied to the brushes/pads. The water quantity may be reduced by 7 stages from 5.5 liters to 1.0 liter per minute, each stage corresponding to one lamp



N Key for water infeed with pilot lamp (green)

is used to turn on or off the water infeed. When switching on the brushes/pads the last set water quantity is supplied automatically but may be modified via the (M) and (O) keys. The tool mode features this memory function as well. There, the water infeed may be adjusted from 0.5l to 1.0l per minute.



O Key for water flow raising

is used to increase the water quantity supplied up to max. 5.5 liters/minute.

P Key for brush drive, suction turbine with pilot lamp (green)

turns the brush drive assembly and the squeegee ON/OFF with a simultaneous lowering/lifting of the brush head and the squeegee. The green pilot lamp alights if the units are ON and lowered. In case of a malfunction the fault lamp (F) alights and the error code appears in the service display.



- 1 Drain hose for soiled water
- 2 Connection for additional scrubbing and vacuuming tool
- 3 Drain hose for fresh water



1 Drain hose for soiled water
is used for draining the soiled water.

Note: When work is finished, the soiled water tank has to be drained and rinsed.

Drainage of soiled water: Unhinge the drain hose and open the seal. The quantity drained-off can be regulated by rotation of the seal, which is completely opened, if required, by swiveling.

Re-close the seal by rotation to the stop, and attach the drain hose.

2 Connection for water hose of additional scrubbing and vacuuming tool

is used for connection of the water hose. The vacuuming hose has to be linked with the unit's vacuuming hose by means of a cylindrical adaptation.

3 Drain hose for fresh water

is used to drain the lye from the fresh water tank.

Note: the tank requires rinsing at regular intervals in order to preclude formation of residues.

Drainage of lye: Unhinge the drain hose and open the seal. The quantity drained-off can be regulated by rotation of the seal, which is completely opened, if required, by swiveling.

Re-close the seal by rotation to the stop, and attach the drain hose.

Caution: The legal regulations and the local provisions have to be complied with when discharging detergents.

Driving with the Hakomatic B 910

Adjusting the driver seat

The driver seat has to be adjusted such that the operator is comfortably seated and the operation elements are within his reach.

Adjusting the driver seat lengthwise as follows:

- Tilt the seat upwards
- Unscrew the 4 screws below the seat and position it adequately, then tighten screws again

Starting

- Unplug battery plug from the charger unit and connect with the machine.



Before connecting the battery plug with the machine, switch off the machine by the key switch.

- The operator has to be seated on the Hakomatic's driver seat.

Note: The Hakomatic is equipped with a protective circuit via a seat switch. If the operator has left the seat for 2 seconds, any unit is switched off and the brush head and the squeegee lifted.

If the operator sits down again, he may drive again after restarting the functions by actuating the key (I/P).

If the seat switch is not actuated with the machine being ON, the hourmeter display flashes.

- Switch on the key switch
- Release parking brake
- Slowly depress driving pedal until the desired speed is attained.

Stopping

- Release the pedal and the machine is slowed down (pedal returns automatically to its initial position)

Note: The slowing effect may be increased by actuating the reverse drive pedal.

Only stop the machine at a slope for a short time otherwise the motor may be overheated. The Hakomatic should be stopped at a slope using the parking brake.

- Actuate the parking brake
- Switch off by key switch and withdraw the key.



Before leaving the machine, withdraw the key and actuate the parking brake on principle.

Only drive slowly on wet grounds especially when driving turns because of skidding hazard. Slow down when driving downhill turns because of the tilting risk.

Working with the Hakomatic B 910

The driver has to read this manual carefully. The operation elements are represented by comprehensible symbols and facilitate familiarization. Proceed to the first driving trials on a clear training ground or road until the driver is acquainted with the elements and their functions.



Comply with the following safety instructions

When using the Hakomatic B 910, the safety instruction generally applicable for using self-propelled working machines have to be complied with. Transporting persons on the Hakomatic B 910 is strictly prohibited. The warning and instruction plates attached to the Hakomatic give important advice about safe operation. Complying with the instructions is essential for your safety.

Before starting to work, the operator has to check that the Hakomatic B 910 and its working implements are in proper and safe operating condition. Do not operate the Hakomatic B 910 without protective devices being installed.

Detergents

Important note:

Use only detergents suitable for automatic machines (low foaming). We recommend using our agents for cleaning and care, which are adapted to the Hakomatic B 910. Those products comply with the provisions of the Detergents Act (WRMG applicable in Germany).

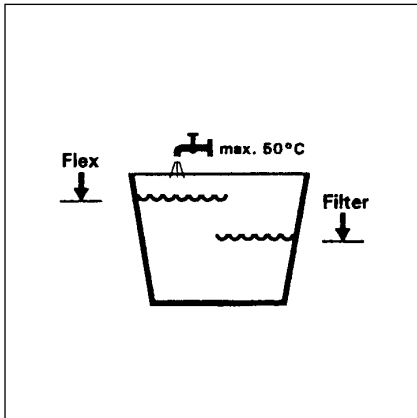
Comply with the instructions for correct dosage of detergent. If there is much foam, this will affect the performance of the machine. Actually it indicates that there is excessive dosage or improper suitability of detergent for the existing kind of dirt. Detergent particles contained in the soiled water and not being used will cause formation of foam.

Please take the manufacturer's recommendations as a first basis. Tests made by yourself in practice then soon will make you find the ideal detergent and the perfect dosage applicable to it. Correct dosage will help you to save money and to take care of the environment.

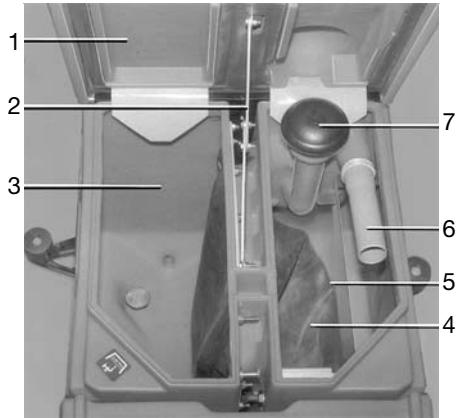
Refilling the fresh water tank

- Open tank cover (III/1) and protect with the supporting bar (III/2)
- Refill fresh water according to the requirements into the tank (III/3) with a max. temperature of 50°C.
- Add detergent according to the manufacturer's instruction.

Note: in the soiled water tank the filling level must not get beyond the maximum mark.



Filling level of the soiled water tank



III

- 1 Tank lid
- 2 Supporting bar for tank lid
- 3 Fresh water tank
- 4 Flexible pane
- 5 Soiled water tank
- 6 Soiled water inlet
- 7 Intake socket for suction motor

Actuate the following operation elements of the Hakomatic subsequently

- Turn the key switch ON
- Release parking brake (if locked)
- Actuate (I/P) key which enables the following functions:
 - brush head lowers
 - brushes rotate
 - squeegee lowers
 - suction turbine starts operation
 - lye blocking valve opens
- Turn On or OFF the lye supply by the (I/N) key and reduce by the (-) key or increase by the (+) key.
- Actuate the drive pedal until the desired speed is attained.

Note: After lowering the brush head, move the Hakomatic immediately; otherwise the brushes might leave traces.

When work is finished:

- Stop the machine
- Lift up the brush head and the squeegee by the (I/P) key (the suction turbine continues operation for about 15 seconds)
- Turn OFF the key switch
- Actuate the parking brake
- Drain the soiled water tank and rinse
- Clean the sealing strips of the squeegee
- Check the intake filter (III/7) and clean if required

Note: Do not clean the machine by means of vapor jet or high pressure cleaning equipment but by means of a water hose (pressure: approx. 5 to 6 bar) and from the top to the bottom. Do not allow water to get into any opening, slits, on electronic modules, control panels or seals.

Do not allow water to get on the seat console as it may be collected on the battery stored below the seat, remove water if required.

Let the machine dry e.g. for the week-end. The use of aggressive and caustic detergents is not allowed. We recommend to clean the tanks at regular intervals (e.g. once daily after work has finished) in order to preclude accumulation of organisms dangerous to health.

Brushes			
degree of dirtiness	bristles fitted	PN	Qty.
light to medium	synthetic material PPN 0.5	7544	2
light to medium, structured-pattern floor	mixed synthetic material K 901	7547	2
medium to heavy	synthetic material PPN 0.8	7543	2
very heavy dirtiness and basic cleaning	SIC PA 6 grain 180, gray	7545	2
extremely heavy dirtiness and basic cleaning	SIC PA 6, 12 grain 120, green	7546	2
Super pads with drive plate			
cleaning method	colour	PN	Qty.
minor dirtiness	red	7551	2
maintenance cleaning	brown	7549	2
basic cleaning and heavy dirtiness	black	7550	2
Poly-pad (micro fibre pads)		7088	2
Accessories required: drive plate (pad holder) with Centerlock		7548	2

Brushes/pads

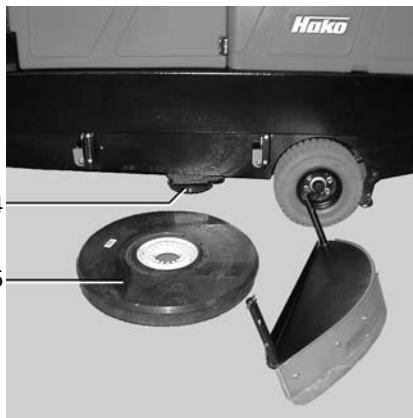
The Hakomatic B 910 must be equipped with brushes/pads from the accessories kit, as required by the degree of dirtiness and kind of ground.



Only use the brush/pad types described above. Using other brush/pad types may affect your safety.



- 1 Front lock
- 2 Cover
- 3 Rear lock



- 4 Catch
- 5 Brush/drive plate

IV

Removal of brushes /drive plate



Install and remove brushes/drive plate only with the brush drive being turned OFF.

- Open front and rear lock (IV/1 and 3)
- Lift cover (IV/2) slightly and remove
- Press the brush/drive plate evenly down (do not skew), unlock and remove
- Replace cover (IV/2) and lock.

Note: The brushes are equipped with a water retaining ring which reduces the water consumption during scrubbing significantly.

Installation of brushes/drive plate



Install and remove brushes/drive plate only with the brush drive being turned OFF.

- Open front and rear lock (IV/1 and 3)
- Lift cover (IV/2) slightly and remove
- Place brush/drive plate (IV/5) on the catch, rotate slightly until the teeth

take hold. Then pull upwards until the hooks lock. Rotate the brush/drive plate to check whether all hooks are locked.

- Replace cover (IV/2) and lock.



Do not operate the Hakomatic without covers

Soiled and fresh water tanks

The Hakomatic B 910 is equipped with a soiled water tank (III/5) and a fresh water (lye) tank (III/3).

Either tank is equipped with flexible pane. Soiled water is fed via the suction hose through the inlet socket (III/6) into the soiled water tank.

A floating switch in the soiled water tank precludes overflowing. If the floating switch is activated, the suction procedure is interrupted approx. 3 to 5 seconds later. This measure prevents the water from penetrating the suction turbine.

Note: When work is finished the soiled water tank on principle must be drained and rinsed.

Rinse the floating switch as well.

The seal at the outlet hose should be cleaned at regular intervals. If required grease the O ring slightly. Rinsing of the suction hose to the squeegee is possible from the top via socket (III/6). Refer to page 48 for detailed information on draining of the soiled water tank.



Caution! For disposal of soiled water and lye, the legal provisions have to be complied with.

Removal of the filter

- Remove cap of the intake socket (III/7)
- Remove ring filter and clean (replace defective filter)

Note: Upstream the fresh water outlet, the tank bottom is equipped with a sieve which can be unscrewed. Check this sieve at regular intervals and clean if required.

Squeegee

- 1 Squeegee
- 2 Star-shaped knob
- 3 Eccentric wheel for angle adjustment
- 4 Suction hose
- 5 Fastening device
- 6 Washers for height adjustment

Cleaning the Squeegee

Check the squeegee (Fig. 1/1) daily and clean as necessary.

To clean it lift the squeegee out, pull off the suction hose (Fig. 1/4), loosen the two star-shaped knobs (Fig. 1/2) and remove the squeegee.

Changing the Sealing Strips

Check the inner and outer sealing strips on the squeegee (Fig. 1/1) weekly for signs of wear. The sealing strips can be used fourfold by turning them.

1. Lift the squeegee out.
2. Pull off the suction hose, loosen the two star-shaped knobs and remove the squeegee.
3. Unlock the fastening device (Fig. 1/5) and remove the outer sealing strip. Turn the sealing strip or install a new one, as necessary. Change the inner sealing strip in the same way.

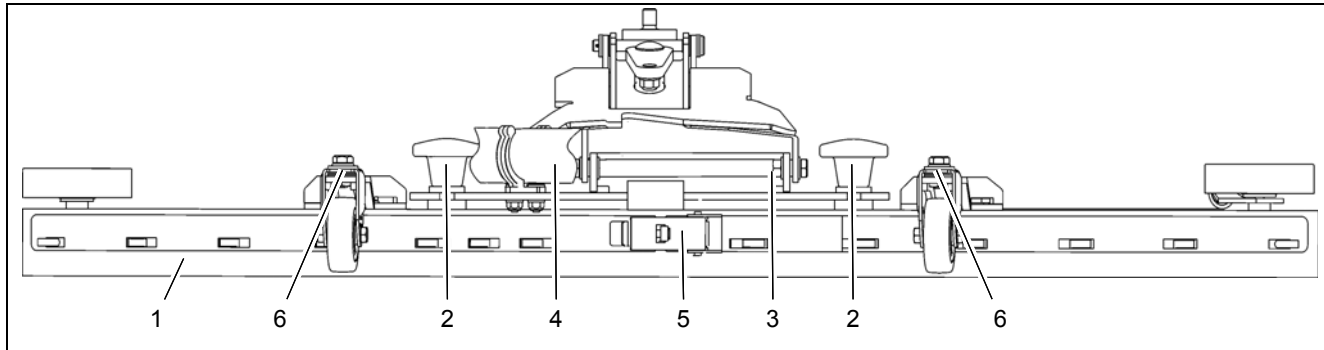


Fig.1

Adjusting the Sealing Strips Angle Adjustment

The angle adjustment is the decisive factor in ensuring that the sealing strips on the squeegee lie evenly on the floor.

1. Park the machine on a level surface and lower the squeegee.
2. Loosen the screws on the eccentric wheel (Fig. 2/1) and adjust the squeegee using the eccentric wheel (SW13) so that the ends of the sealing strips still have contact with the floor.

Figure A: Turn the eccentric wheel in the front top position: The clearance between sealing strip and floor is reduced in the centre.

Figure B: Turn the eccentric wheel in the behind top position: The clearance between sealing strip and floor is increased in the centre.

3. Switch the machine on and check the suction pattern. When the machine is in operation, the entire surface of the sealing strips (centre and outer areas) must be applied as evenly as possible.
4. Tighten the screws on the eccentric wheel at 5 lb ft.

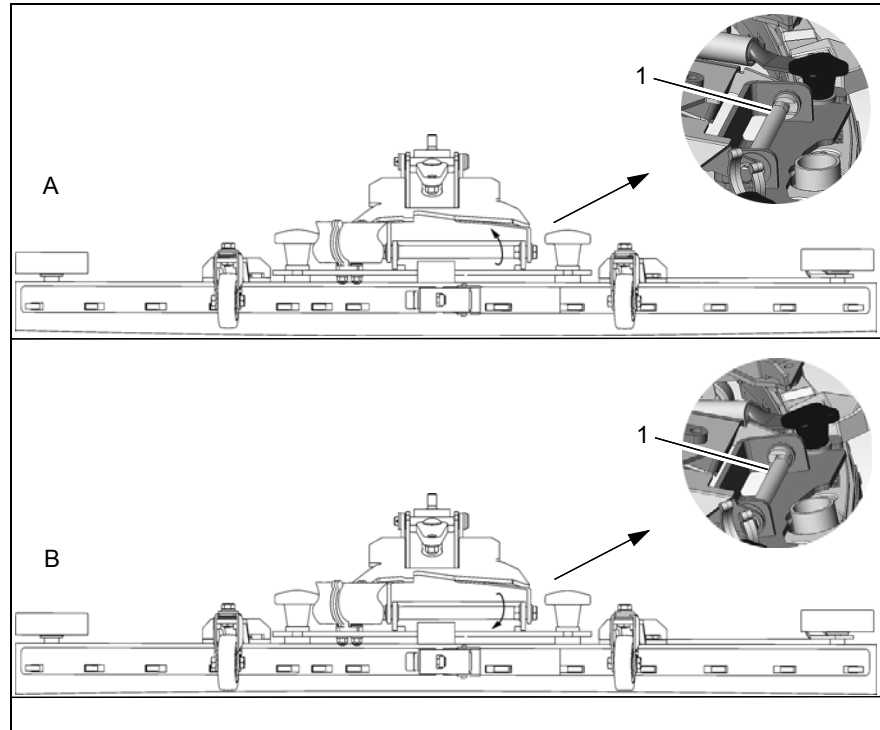


Fig.2

Height Adjustment

The height adjustment is set to 3 mm at the factory. If streaks are produced, despite an optimum angle adjustment, the clearance between the rollers and floor must be adjusted by changing the number of washers on the holder.

In the case of very smooth floors, e.g. finished floors, PVC, linoleum, etc. Number of washers = 2. This corresponds to a clearance of approx. 2 mm.

In the case of very uneven floors, e.g. poorly laid tiles (water does not run off) Number of washers = 4. This corresponds to a clearance of approx. 4 mm.



The Squeegee 110 cm is equipped with two additional rollers which are adjusted at the factory to a distance of 10 mm to the floor by means of spacers.

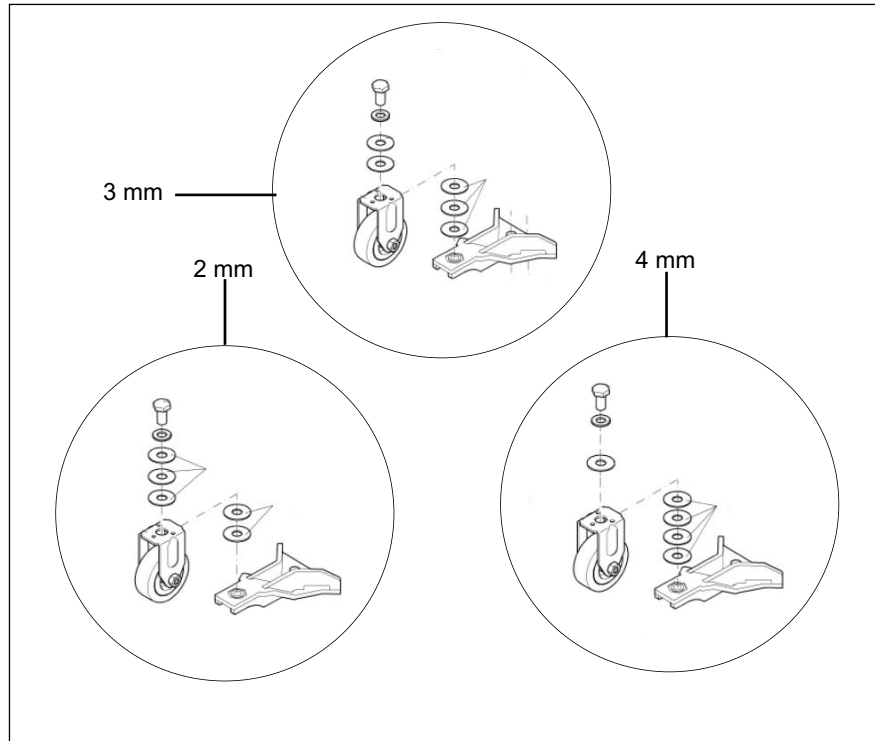


Fig. 3

Electrical equipment

The electrical equipment of the Hakomatic B 910 uses a tension of 24 V. Three types of battery systems may be used (refer to "Battery systems", page 39).

Towing

If the Hakomatic has to be towed e.g. due to discharged batteries or faulty drive assembly, proceed as follows:

- Remove the front right and left bolts and the deflector rollers
- Pull the belt through the lower holes for the bolts

Note: Tow the Hakomatic at a speed of max. 2 km/h and for a short distance only. Otherwise the drive motor may be damaged. If the machine is pushed too fast, the drive assembly may block.

Technical data		
Dimensions length with squeegee and sweeper width without/with squeegee height above driver seat	cm cm cm	191/237 93/110 137
Working width brush head squeegee	cm cm	88 110
Surface performance theoretical at 6km/h, up to max. Running time, up to	m ² /h hours	5300 4
Weights deadweight dry, without batteries	kg	350
Total weight (operational)	kg	750
Performance data driving speed forward/reverse, up to max. uphill ride capacity, max. full (operational)/empty (1 minute max.) ramp angle without/with squeegee (max.) front/rear turning circle diameter (external) with squeegee	km/h % degree m	6/2.8 10/15 10.5/9 2.8
Wheels drive wheels		3.00-4
diameter specific wheel pressure front/rear	∅ N/mm ²	250 0.44/0.62

Technical data

<p>Tank capacities Flexible pane tank fresh and soiled water tank flow rate, max.</p>	<p>I l/min.</p>	<p>138 5.5</p>
<p>Brush head number of brushes/diameter brush speed brush pressure, up to max. specific brush pressure</p>	<p>Qty./cm ¹/min kg N/cm²</p>	<p>2/46 240 60 0.25</p>
<p>Vacuum suction air throughput vacuum pressure</p>	<p>m³/h mbar (mm C.W.)</p>	<p>110 162/1620</p>
<p>Electrical equipment service voltage wattage (max.) protection class brush motor M4/M5 suction turbine M3 drive motor M1 water pump M2 lifting element (brush) M6 lifting element (squeegee) M8 pre-sweeper M7 fuse F1 / total fuse F2 / travel drive fuse F3 / pre-sweeper fuse F4 / horn fuse F5 / drive control circuit</p>	<p>Volt/DC W VDE 0700 W W W W W W W W W A A A A A</p>	<p>24 3500 III 2x820 550 820 100 15 15 200 125 63 10 10 5</p>

<p>Noise level</p> <p>sound pressure as per DIN 45635 part 1 under normal conditions of use at the operating area</p>	<p>dB (A)</p>	<p>66</p>
<p>Vibrations</p> <p>The frequency weighted acceleration measured according to EN 1033 which have an effect upon the upper limbs (hand-arm-system) amounts under normal working conditions not more than</p> <p>The frequency weighted acceleration measured according to EN 1032 which have an effect upon the body (feet and backside) amounts under normal working conditions not more than</p>	<p>m/s²</p> <p>m/s²</p>	<p>2.5</p> <p>0.5</p>

Maintenance work

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 Hako service center; the people there will be glad to perform that work for you. There, well-trained personal and genuine Hako spare parts are at your disposal. In case of any inquiries or orders for spare parts, please always quote the machine's serial number mentioned on the nameplate. The nameplate is fixed to the right front part in the battery compartment.



When cleaning or servicing the machine, and when replacing any parts, shut off the motors and on principle disconnect the battery plug; moreover

take precautions so as to protect the unit against unintentional movements or against being inadvertently started. For reasons of safety during cleaning and/or maintenance work in or on the tank, the tank lid – when lifted – must be secured so as to prevent accidental closing or tilting down. The machine may be taken into operation only if all guarding devices are fitted and in protective position. As far as possible, cleaning should not be done by hand, but using appropriate tools or equipment. Maintenance, repair and adjustment work may be carried out only by means of suitable tools and by people trained in the factory.

When using or replacing batteries, battery connection cables, battery charger units comply with the manufacturer's instructions. For reasons of safety, only genuine Hako spare parts must be used.

Note: Do not clean the machine by means of vapor jet or high pressure cleaning equipment but by means of a water hose (pressure: approx. 5 to 6 bar) and from the top to the bottom. Do not allow water to get into any opening, slits, on electronic modules, control panels or seals.

Do not allow water to get on the seat console as it may be collected on the battery stored below the seat. Let the machine dry after cleaning e.g. for the week-end. The use of aggressive and caustic detergents is not allowed.

The legal regulations and the local provisions have to be complied with when discharging detergents. The Hakomatic B 910 is equipped with a service display. If a malfunction occurs during operation, e.g. a defective fuse, a 4-digit number will appear in the display (hourmeter), the 4 dots will start flashing simultaneously and the buzzer sounds. This 4-digit number advises the service technician in detail on the last error found. This facilitates fast repair action. The following table lists some of the possible errors displayed. You may eventually remedy yourself.

Service display

Error code displayed	Malfunction	Possible cause	Remedy
1. 2. 5. 2.	Brushes stop	<ul style="list-style-type: none"> ● Cord or other matter accumulated between brush and shaft ● Rubber protector at the external brush head side loosened and slipped under the brush 	<ul style="list-style-type: none"> ● Remove cord or other matter ● Adjust rubber protector and fasten (ground clearance 2 to 3 mm)
1. 2. 6. 1.	Brushes stop	<ul style="list-style-type: none"> ● Brushes blocked by foreign matter 	<ul style="list-style-type: none"> ● Check brush head for foreign matter and remove
3. 4. 5. 1.	Cleaning function turns OFF	<ul style="list-style-type: none"> ● Parking brake actuated ● Drive chain wheels stuck by foreign matter 	<ul style="list-style-type: none"> ● Release parking brake ● Remove foreign matter
1. 2. 6. 3.	Brush lift-out and brush motor turn OFF	<ul style="list-style-type: none"> ● Foreign matter between brush head and machine ● Brush head stuck 	<ul style="list-style-type: none"> ● Remove foreign matter ● Take machine from the step on a higher step
1. 4. 6. 1.	Squeegee lift-out and suction turbine turn OFF	<ul style="list-style-type: none"> ● Squeegee stuck or foreign matter between squeegee and machine 	<ul style="list-style-type: none"> ● Adjust squeegee or remove foreign matter
2. 2. 5. 2.	Broom in the pre-sweeper turns OFF (only with pre-sweeper equipment)	<ul style="list-style-type: none"> ● Cord or other wrapped around the broom and blocking it 	<ul style="list-style-type: none"> ● Remove foreign matters and switch on circuit-breaker

Maintenance work	daily	service hours		
		every 50	every 200	every 500
Recharge the batteries according to the charger unit indications	●			
Empty and clean (rinse) the soiled water tank	●			
Check the sealing strips of squeegee for good condition	●			
Check the squeegee for possibly collected foreign matter and clean it, if required	●			
Check the strainer in the fresh water tank and the ring filter in the intake socket of the soiled water tank; clean it if required	●			
Check battery acid level, top up with distilled water as required (only with PzS)		●	●	●
Clean battery poles and grease them adequately if required		●	●	●
Check the suction hose between squeegee and soiled water tank for tight fit and possible damages		●	●	●
Check the squeegee sealing strips for wear, renew them if required		●	●	●
Check the sealing strip of the brush head cover; renew them if required		●	●	●
Check the brushes and the water retaining ring for tight fit and for wear, renew if required		●	●	●

Maintenance work	daily	service hours		
		every 50	every 200	every 500
Check the float switch for proper operation		●	●	●
Check the tank lid seal; renew if required		●	●	●
Check brake and pedal locking for proper operation		●	●	●
Grease squeegee holder and all hinge points of brake and brush pressure pedal		●	●	●
Check wheel attaching screws and tighten if required (25 Nm)		●	●	
Check the flexible pane (diaphragm) for possible damages. Note: Renew the diaphragm pane immediately if defective!		●	●	●
Check steering for slackness, adjust pinion of the steering chain or replace if required		●	●	
Grease steering chain		●	●	
Grease steering bearing				●
Check fresh water supply to the brushes (solenoid valve and pump function)		●	●	●
Check roller chain for travel drive for tension, adjust or renew and grease if required		●	●	

Maintenance work	daily	service hours		
		every 50	every 200	every 500
Check direction of brush rotation		●		
Remove carbon dust from electric motors; check the carbon brushes for easy operation and wear; renew the carbon brushes as required				●
Remove carbon dust from travel drive motor; check the carbon brushes for easy operation and wear; renew the carbon brushes as required, renew carbon brushes every 1000 hours				●
Clean ventilation grating of the brush motors from flyings or dirt			●	

Hakomatic B 910

Changes Due to Machine Directive 2006/42/EC



Clean ahead

Preface

Modified text in paragraph Preface:
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.

Intended use

Modified text in paragraph Intended Use:

Based on the conception, design and construction of the model introduced onto the market by us, the machine complies with the applicable basic safety and health requirements stipulated in the EC Directive (refer to Declaration of Conformity). This declaration is no longer considered valid in the event of modifications to the machine not authorized by us. The manufacturer is not deemed liable for any damage resulting from unauthorized modifications to the machine.

General safety information

The machine may be used only for operation on plane areas with a maximum inclination of up to 7 %.

Disposal

New text in Chapter Introduction:

Render the machine inoperable. It must not represent a potential source of danger for children.

Dispose of the device according to the applicable local regulations. For further information on handling and recycling, please contact your authorized Hako dealer where you purchased the device.

Used batteries with the recycling symbol contain reusable commodities. The heavy metals contained simultaneously represent a serious risk to health and to the environment. Never open batteries or damage them. Never touch, inhale or swallow any material inside batteries.

Health hazard! Never allow batteries to pollute the environment. Risk of contaminating the ground and water! In accordance with the symbol with the crossed out bin, these batteries must not be disposed of in domestic waste.

The return and recycling of old batteries must be agreed on with your authorized Hako dealer in accordance with the Battery Law § 6 and § 8 (BattG)

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: 63 dB (A)

Measurement inaccuracy (KpA):

2 dB (A)

Sound power level (LwAd) measured according to DIN EN 60335-2-72 under maximum working conditions:

81 dB (A)

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:

< 2,5 m/s²

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:

< 0,5 m/s²

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

Hakomatic B 910, Typ 7744

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
EN 55012
EN 61000-6-2

Bad Oldesloe, 27.10.2010



Dr. Rainer Bavendiek
Director R&D

Name of the authorized person who compiles technical documents for Hako:

Ludger Lüttel



Spitzentechnik für eine saubere und schönere Umwelt

Superior technology for a cleaner and better environment



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