



Instruction Manual

Sweepmaster P900 R (6502.10)
Sweepmaster B900 R (6502.20)

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.

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. Please read the Chapter "Safety Information" prior to starting the vehicle to ensure it is operated and used safely.

The operating manual contains all the most important information regarding operation, maintenance and service. Throughout this operating manual, sections which concern safety are indicated by corresponding warning symbols. Should you have any questions in respect of the vehicle or operating manual, your authorized Hako dealer is available to provide help at any time.

Please be expressly advised that you cannot base any legal claims 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. Subject to modification as required by technical advancement.

Valid as of: April 2014

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Proper use

The Sweepmaster is a sweeping intended for commercial use and has been exclusively designed for sweeping up dry and wet refuse from areas such as production plants, warehouses, car parks and pedestrian precincts. 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 risks. The sweeping

vehicle must not be used to clear up toxic, inflammable or other substances which represent a potential health hazard. Intended use also includes maintaining and observing the operating, maintenance and repair conditions prescribed by the manufacturer.

The Sweepmaster may only be operated, serviced and repaired by personnel who are familiar with the work involved and are aware of the risks.

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.

Introduction

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 also 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 machine

Inspect the vehicle immediately on delivery for signs of transport damage. Replacement will be made when confirmation is provided immediately by the freight carrier with regard to the damage and the damage report is sent to

our authorized sales partner together with the consignment note.

Disposing of the machine

Render the machine inoperable. It must not represent a source of risks to children. Dispose of the machine in accordance with the applicable local regulations. For further information on disposal and recycling, contact the authorized Hako dealer where you purchased the machine.



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).

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Safety Information

1 Safety Information

1.1 Safety and warning symbols

All sections related to personal safety, safety of the vehicle and environmental protection are assigned the following symbols throughout the operating manual:

Symbol	Risks to ...	Definition
Safety information 	persons or property	Safety information on preventing hazardous situations caused by failure to follow instructions or prescribed working procedures accurately or at all.
Note 	the machine	Important information on handling the equipment in order to maintain its functionality.
Ecological hazard 	the environment	Ecological hazard through the use of substances which represent a potential hazard to health and the environment.

Safety Information

1.2 General information

- Apart from the provisions contained in this instruction manual, the general safety provisions and the accident prevention regulations as imposed by law have to be complied with.
- Before taking your machine into operation, carefully read the instruction manual and comply with all points mentioned there during work.
- Persons being trained by qualified Hako technicians only are authorised to operate, service and repair the machine.
- This vehicle is not intended to be used by persons (including children) with limited physical or mental capabilities or persons without sufficient experience and ability.
- You are advised to thoroughly study the safety instructions since precise knowledge only helps avoiding errors during operation of the machine and thus guarantee faultless usage of the machine.
- The operating instructions have to be at hand at the place of use of the machine, and therefore have to be kept readily available at the machine.

- When selling or letting the machine for rent, hand out these documents to the new owner/operator and have the transfer certified!
- The warning and instruction plates attached to the machine contain valuable advice about safe operation. Immediately replace incomplete or illegible labels.
- As far as safety standards are concerned, spare have to equal genuine spare parts!
- Keep clear of hazard zone of the Sweepmaster.
- Only use a mobile phone when the machine standing still.
- Passenger transport is not admitted.

1.3 Operating information

- Check the operational safety of the vehicle each time before starting it up! Clear any faults immediately!
- Before starting work, the operator must be fully familiar with all adjustment, operating and control elements as well as their respective function! It is too late to do this when the vehicle is actually in operation!
- Always wear heavy duty, non-slip footwear when working with the vehicle.

- The vehicle may only be driven on and the equipment used on those surfaces which have been approved by the contractor or person appointed by him.
- When using the vehicle, it is essential to pay attention to third parties, especially children.
- The vehicle is not suitable for clearing up hazardous, inflammable or explosive fluids, dust or substances.
- This vehicle must not be used as dust cleaner equipped with a dust filter insert (dust collector) to clear up dust which could represent a hazard to health.
- It is forbidden to use the vehicle in potentially explosive atmospheres.
- Remove the ignition key to prevent unauthorized use of the vehicle.
- The vehicle and its equipment must be checked in terms of perfect working condition and operational safety before being put into use. The vehicle must not be used if it is not in a proper working condition.
- Before putting the vehicle into operation, adjust the driver's seat so that you have a perfect view of the front

Safety Information

and rear path of travel and working area!

- For safety reasons, the driver's seat is equipped with a seat contact switch. The engine can only be started when the operator is sitting on the driver's seat. The function of the seat contact switch must not be bypassed.
- The seat contact switch is monitored electronically. Any attempt at manipulation can lead to the vehicle being automatically locked against use.
- Always switch off all the drives before starting the engine.
- The vehicle must only be started, put into motion and stopped from the seat.
- Ensure there is sufficient ventilation when sweeping in closed spaces (dust and exhaust fumes).
Risk of poisoning!
- The driving speed must always be adapted to the ambient conditions and load status.

Three-wheel vehicles are less stable than four-wheel vehicles, therefore: avoid sudden steering movements when driving at higher speeds, taking corners at too high a speed could

cause the vehicle to tip.

Only use the vehicles on level surfaces, never on gradients.

Drive up and down inclines in straight lines.

When driving up, down or across slopes, avoid turning corners suddenly or in jerks. There is a risk of tipping when in an inclined position!

- Do not drive the vehicle on slopes with a gradient steeper than the limit gradient indicated on the vehicle.
- The approved gross total weight and permissible axle loads must never be exceeded. Check the fill level of the sweepings container at frequent intervals.
- The filter may only be shaken when the sweepings container has been closed.
- Never exceed the max. load capacity of the container!
- When the vehicle is running at creeping speed, check the zero point adjustment of the accelerator.

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- Do not allow the engine to run in closed rooms! Risk of poisoning!
- Pay attention to hot parts, e.g. cooling water, exhaust manifold, etc.

- If you smell exhaust fumes, switch off the engine immediately and locate the cause. Check the exhaust system at regular intervals.

1.4 Maintenance information

- Operating personnel must complete the necessary daily and weekly maintenance work. All other maintenance work must be completed at your nearest Hako service center.
- The maintenance work and maintenance intervals prescribed in the operating manual must be adhered to.
- Allow the engine to cool down before starting cleaning and maintenance work. Hot surfaces represent a risk of burns!
- Pay attention to any rotating parts before starting cleaning and maintenance work. They represent a risk of crushing!
- Suitable tools must be used for cleaning and maintenance work.
- The vehicle must be inspected by a recognized technical expert in respect of operational safety, within the terms of the applicable accident prevention laws, at reasonable intervals (we recommend at least once a year) and following modification or

Safety Information

- repairs.
 - Spare parts must comply with the minimum technical requirements stipulated by the manufacturer! This is ensured by the use of original spare parts.
 - Only use the rotary brushes and side brushes recommended by the manufacturer (refer to Technical Data). The use of other rotary brushes and side brushes could impair safety.
 - The vehicle must be switched off prior to cleaning or servicing it or to replacing parts.
The ignition key must be removed.
 - The sweepings container must be cleaned regularly to prevent the accumulation of bacteria.
 - The vehicle is splashproof (IPX3). It is not permitted to clean the vehicle with a pressure washer or steam blaster.
 - If the Sweepmaster is jacked up with a jack, it must be properly supported.
 - No persons may be on the Sweepmaster when it is jacked or raised.
 - When changing wheels, the vehicle must be additionally secured from rolling away by placing wheel chocks against the wheels.
- Always change wheels on level, solid ground, where possible.
- Do not remove or replace tires or repair one on a rim. Always go to a proper workshop for work on tires and rims because they have specially trained personnel and special safety tools. Never loosen the screws in the two-part rims while the wheel is still mounted on the vehicle and there is air in the tires. Risk of severe injury!
 - Do not carry out any welding, drilling, sawing or grinding work on frame parts. Damaged parts may only be replaced by specialist workshops approved by Hako.
 - Only use original fuses. Using fuses which are too powerful could damage the electrical installation and lead to fires.
 - Always disconnect the negative pole of the battery when working on the electrical installation.
 - Never leave the batteries in a discharged state but recharge them as soon as possible.
 - Only refill distilled water.
When the cells are in good condition, never refill the battery acid.
- To prevent current leaks, always keep the battery clean and dry, protect it from soiling by metallic dust, for example.
 - Battery acid is very corrosive (keep out of reach of children).
Wear protective goggles when controlling the acid level. In the event of acid splashing in the eyes, rinse them with water for approx. 15 minutes and seek medical attention immediately.
Always wear appropriate protective clothing when handling the battery (e.g. protective gloves, -finger stalls). Never use an open flame (risk of explosion).
 - When installing or removing the battery or changing it, there is a risk of crushing and shearing.
 - Any fluids (fuel, hydraulic oil) escaping under high pressure can penetrate the skin and cause severe injuries. Seek medical attention immediately in order to prevent the risk of infection. Take care when draining hot oil - risk of burns.
 - Subject the brake system to a thorough inspection regularly! Adjustments and repairs to the brake

Safety Information

system may only be completed by specialist workshops approved by Hako or recognized brake service workshops.

- Subject the hydraulic system to a thorough inspection regularly! Adjustment and repair work on the hydraulic system may only be performed in specialist Hako workshops.
- Check hydraulic lines and hoses regularly for signs of damage and leaks. Replace damaged lines and hoses immediately.

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- Only use the air and oil filters recommended by the manufacturer (refer to Technical Data). The use of other filters could impair safety.
- The engine must be switched off when transporting the vehicle.
- Check the exhaust system at regular intervals.

1.5 Particular risks

Safety equipment

- Never operate the Sweepmaster without effective safety equipment (this includes the side door lock)!

Refueling (Sweepmaster P900 R)

- Take the utmost care when handling fuel - increased risk of fire! Never fill fuel in the vicinity of naked flames or ignitable sparks! Do not smoke when filling fuel! Switch off the engine, remove the ignition key and apply the parking brake before filling fuel. Never fill fuel in closed rooms! Clear up spilt fuel immediately!

Electronics

- Only use original fuses with the prescribed amperage.
- In the case of defects in the electrical installation, switch the vehicle off immediately and clear the fault.
- Work on the electrical equipment may only be carried out by electricians who have received the necessary training and in accordance with the electrical engineering regulations.
- The vehicle's electrical equipment must be inspected/checked at regular intervals. Defects, such as loose connections and cable damage, must be rectified immediately.
- Observe the information in the operating manual provided by the battery manufacturer.
- Never lay any metallic objects or

tools on batteries - risk of short circuit!

- Ensure sufficient ventilation in the charging area when charging the batteries – risk of explosion! Open the seat cover during the charging process.

1.6 Environmental protection

- A certain factual expertise is required in order to use substances which could represent a risk to health and the environment.
- Always observe legal regulations and local directives when disposing of cleaning agents, refer to the Water Resources Act.
- Used batteries with the recycling symbol contain reusable commodities. In accordance with symbol with the crossed out garbage 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).

Safety Information

1.7 Labels on the vehicle

The following safety and warning labels are attached to the vehicle where easily legible. Missing or illegible labels must be replaced immediately.

Company logo (Fig. 1/1), front and rear



Parking brake (Fig. 1/2)



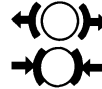
Front skirt (Fig. 1/3)



Read and observe the operating manual (Fig. 1/4)

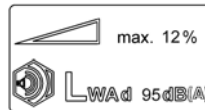


Brake (Fig. 1/5)

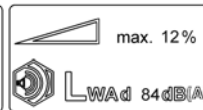


Sound power / Gradient (Fig. 1/6)

Sweepmaster P900 R



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Safety Information

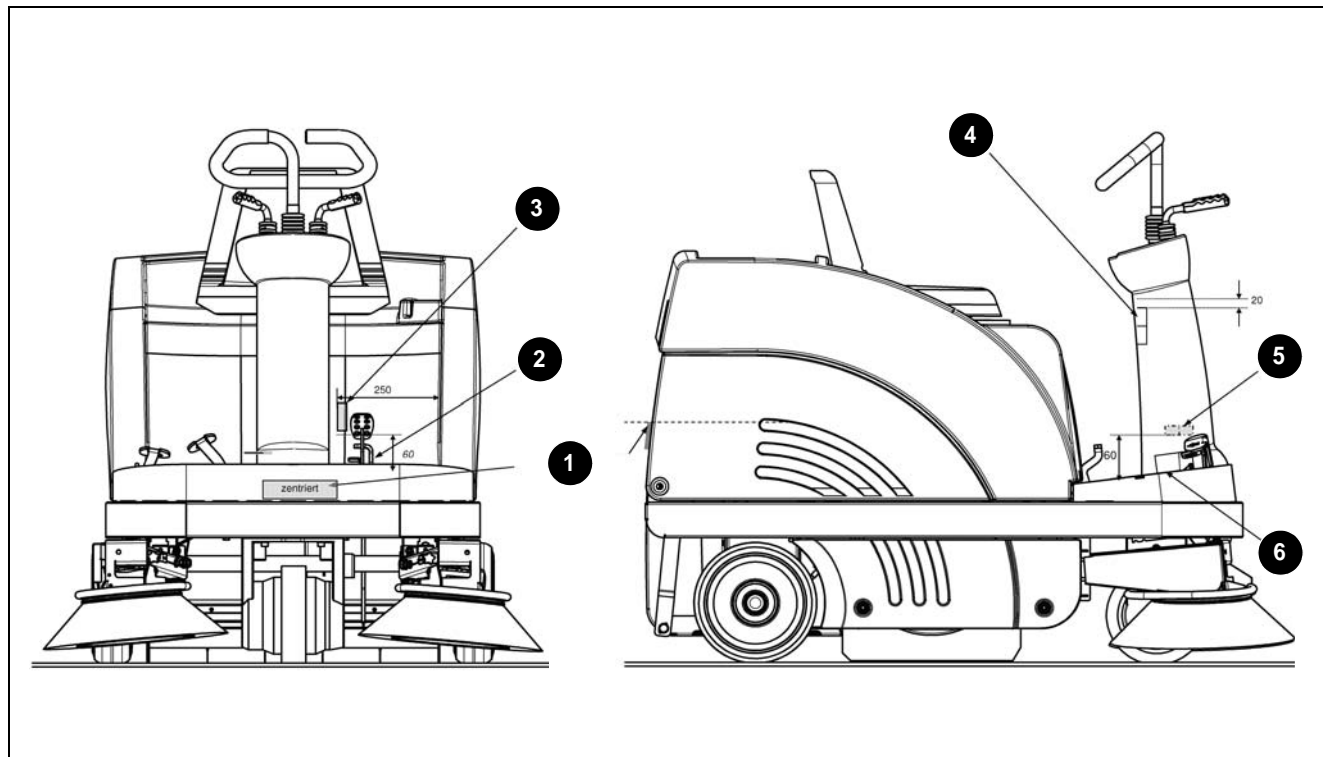


Fig.1

Safety Information

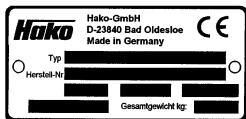
Rotating parts
(Fig. 2/1)



Brush wear compensation
(Fig. 2/2)



Rating plate (Fig. 2/3)



Machine model (Fig. 2/4)

Sweepmaster P900 R
Sweepmaster B900 R

High-pressure washer (Fig. 2/5)



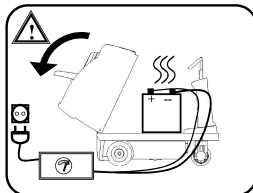
LDS battery setting (Fig. 2/6)



Label 24V (Fig. 2/7)

24V

Battery charging (Fig. 2/8)



Sweepmaster P900 R
Hydraulic fluid (Fig. 2/9)



Hot surface on exhaust manifold (Fig. 2/10)



Label 6 bar (Fig. 2/11)

6 bar

Safety Information

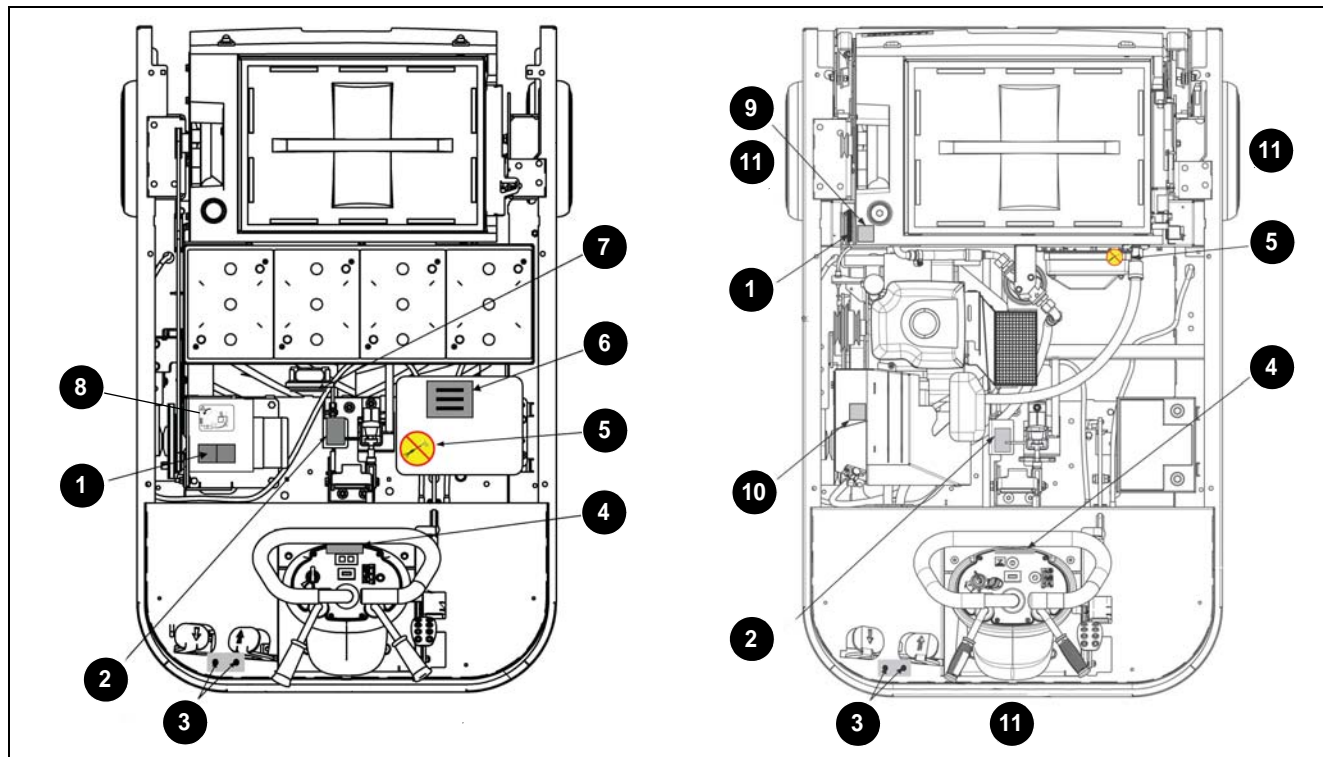


Fig.2

2 Operation

2.1 Instruction

Instructions to operators are required before putting the machine into service. Only technicians from your local authorized Hako dealer are allowed to provide initial instruction on the machine. The manufacturing plant will notify the dealer immediately after delivering the vehicle and the dealer will contact you to arrange a date.

2.1.1 General



Smoking and handling open flames is prohibited when filling fuel tanks and when working at or in the vicinity of fuel-containing components. Shut the motors down before filling fuel tanks

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Do not use the Sweepmaster P900 R at ambient temperatures of more than 40°C. Do not use the machine at temperatures of -5°C or less.

2.1.2 Fill Fuel

The fuel tank is located below the foldable seat hood.



Use clean fuel and store fuel in approved and closed reservoirs.

- Fold back seat hood.
- Fill unleaded regular (filling: approx. 4 litres).
- Open fuel cock below the fuel tank.



Shut the motors down before filling fuel tanks..



Smoking and handling open flames is prohibited when filling fuel tanks and when working at or in the vicinity of fuel-containing components.

Operation

2.1.3 Check Engine Oil Level

- Engine oil has been filled in the factory.
- To be on the safe side, check the oil level again (see paragraph "7.3.2 Check engine oil level" and following).
- In order to protect the engine, it is shut down in case of insufficient oil level.



Use clean oil when refilling. Do not use used oil. Store fuel in approved and closed reservoirs only.

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2.1.4 First Operation of Batteries

In order to attain an optimum of performance and service life of the battery, proceed to an initial charging following the filling.

The operating instructions enclosed to each charger unit describe in detail operation and function of the chargers.



Since batteries and charger units are matched, we recommend using batteries and chargers as prescribed by Hako. We grant full warranty only for these devices.

For further information on first operation, maintenance and service of batteries refer to the leaflet 88-60-2556 "Information on drive batteries"



Do not use the Sweepmaster B900 R at ambient temperatures of more than 40°C. Do not start the machine at temperatures of 0°C or less.

Operation

2.1.5 Insert Batteries

- Turn engine off and remove key.
- Secure machine by engaging the parking brake.
- Fold back seat hood.
- Insert batteries according to draft into the battery tray:

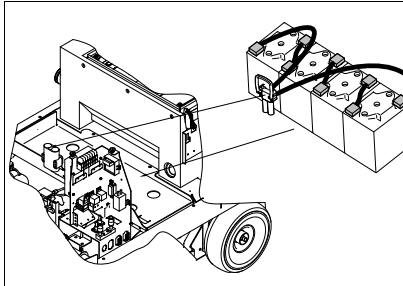


Fig.3 Insert Batteries

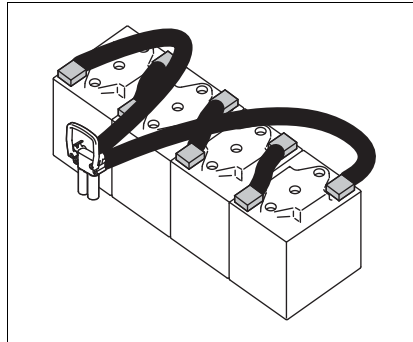


Fig.4 6 V/175 Ah, PzS
6 V/180 Ah, GiV, maintenance-free

- Connect batteries and cable set according to terminal diagram.
- Connect charging plug of the battery connection cable and cable of the charger unit and proceed to initial charging.
- After charging of the batteries, connect charger plug and device plug for electrical connection.
Now the Sweepmaster B900 R is operable.

3 Operation

3.1 Functional Description

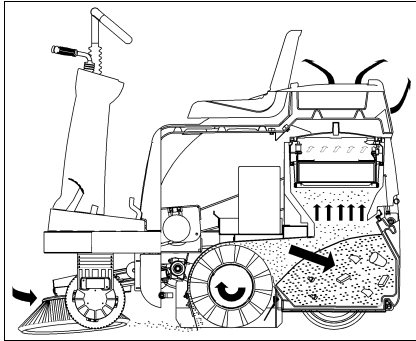


Fig.5

The side brushes are used to collect dirt at borders and to enlarge the working width as well as to increase the area performance at large spaces.

The cylinder broom transports the debris into the dirt hopper. The suction fan vacuums the fine dirt which is separated by a filter system. The air returned into the environment is clean



This sweeper operates dust-free

3.1.1 Cylinder Broom

The cylinder broom is equipped with six rows of bristles arranged in V-shape.

The cylinder broom width amounts to 700 mm and its diameter 345 mm.

3.1.2 Side Brush

The standard version, the side brush is located at the front right. The operator lifts and lowers it by hand lever.

The side brush is to have a light inclination.

The pivoting area of the side brush arm is limited by stop screws.

The side brush is driven by V-belt.

For special application, fitting of a second side brush at the left is possible.

Operation

3.1.3 Filter System / Dust Evacuation

The filter system is located in the filter case above the dirt hopper. The suction filter transports the fine dust raised by the cylinder broom to the plate filter and separated there. The fine dusts sets at the outsides of the filter blades.



In case of heavy dusting, check and clean the plate filter at regular intervals.

3.1.4 Shaking System

Due to normal working vibration the set dust partly falls off into the dirt hoper.

To ensure working in a dust-free ambience, however, actuate the shaking system regularly.

3.1.5 Steering

Steerage is effectuated from steering wheel to front wheel via fork head.

3.1.6 Wheels Sweepmaster B900 R

Front wheel : Solid tires

Rear wheels: Solid tires
Sweepmaster P900 R

Front wheel: pneumatic tire 4.00-4

Rear wheels: pneumatic tire 4.00-4
Special tires:
Solid rubber tires
3 wheels with rim

3.1.7 Brake

The Sweepmaster is equipped with a service brake.

This brake has been constructed as shoe brake and equally serves as parking brake.

It is located at the rear wheels and is actuated via cables.

A special adjustment screw is situated at the right-hand rear wheel..



Works at the braking system have to be executed by qualified persons in a qualified workshop only.

3.1.8 Travel Drive Assembly

Der Sweepmaster P900 R The Sweepmaster P900 R is equipped with a hydrostatic driven by a pump and a combustion engine.

The Sweepmaster B900 R is equipped with an electric drive assembly with continuous regulation.

Operation

3.1.9 Battery Systems

Sweepmaster B900 R	Pieces	Order no.
6 Volt/175 Ah, PzS block battery	4	6458
24 V/35 A charger unit variable IUlola and IUloU characteristic, 230 V AC	1	4003
6 V/189 Ah GiV block battery, maintenance-free	4	7411
24 V/35 A charger unit, variable IUlola and IUloU characteristic, 230 V AC	1	4003



Before commencing any work on the electrical system disconnect battery plug of the Sweepmaster B900 R. Do not use open flames when handling batteries and especially when checking the battery acid level.

Provide for sufficient ventilation in rooms where batteries are charged. Spilled (straight) battery acid must not get into the sewage system before having been neutralised.

Comply with the regulations imposed by law and observe local provisions.

3.1.10 Low Discharge Signal Sender

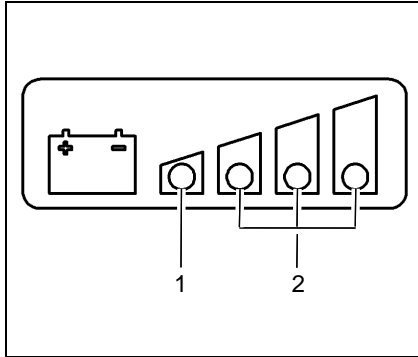


Fig.6 Low Discharge Signal Sender

The machine is equipped with a total discharge signal transducer to protect the battery against total discharge. The total discharge signal transducer is integrated in the electronics.

Battery discharge status

During operation, the machine electronics indicates the discharge status of the battery by means of a red LED (Fig.5/1) and three green LEDs (Fig.5/2). When all three green LEDs light up, the batteries are fully charged. As the batteries become progressively discharged, the LEDs go out in succession from right to left. When the last green LED goes out, the red LED starts to flash (early warning of imminent shutdown). After a certain time, the red LED lights up continuously indicating the "battery empty" status. Shortly afterwards, the drive motor is automatically switched off to protect the battery from a total discharge.

The machine should only be restarted when the battery have been charged..

Operation

3.1.11 Plug Connection Coding

The machine's, the battery's and the charger unit's plugs have to be coded with coloured pins according to the battery type and the nominal voltage.

The charger unit's plugs are/will be coded in the factory according to the characteristic curve such that a modified characteristic curve (according to the battery type) always requires modification of the plug coding.

Charger unit plug colour:

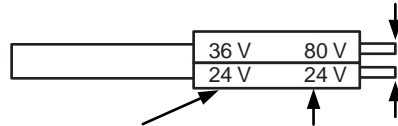
- grey for wet batteries
- green for maintenance-free Gel batteries

Machine plug colour:

- yellow for both battery types

Battery socket case:

- grey for wet batteries
- green for maintenance-free Gel batteries



Nominal voltage value for plug printed on each side of the hexagon (letters upside down)

Inscription for nominal voltage for sockets accordingly

Remove the coding pin by pressing the ends together by means of pliers.

Press together for removal.

Insert pin such that the nominal voltage inscription is visible through the case window. Socket and plug always with the same nominal voltage.

The following three requirements have to be met:

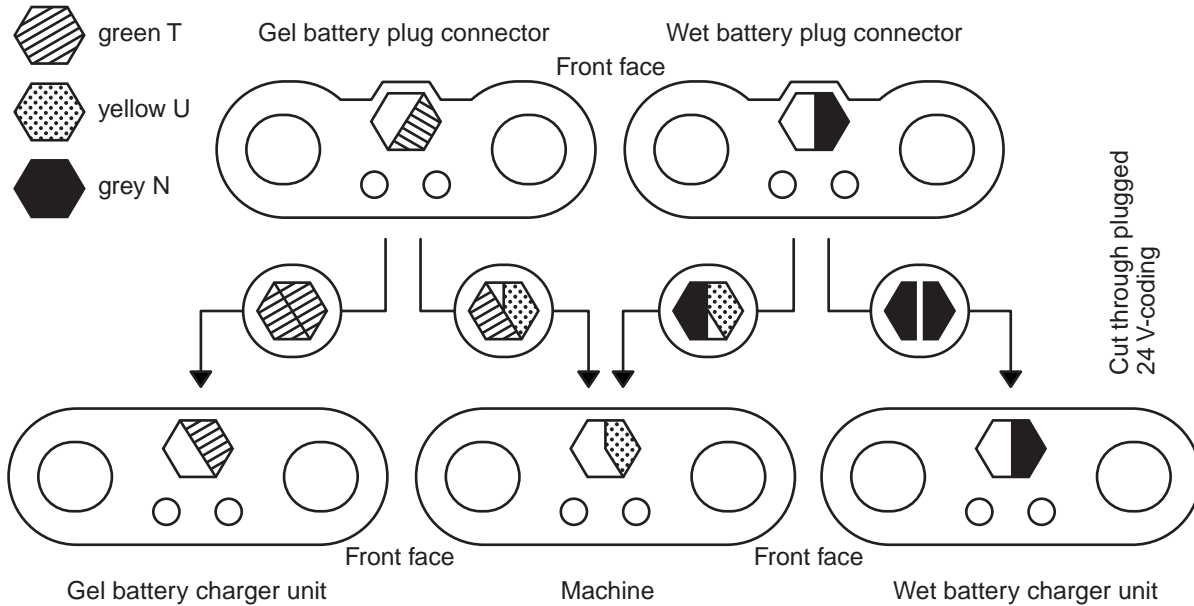
- 1 Voltage coding is the same for all plugs and sockets
- 2 Coding pin colour in the machine = yellow
- 3 Coding pin colour of the charger unit = the same as in the battery plug according to the battery type



Before first operation of the machine, the batteries have to be adequately charged by an initial charging procedure. Please observe the instructions of the charger unit's operating manual. Hako rejects any claim for warranty on battery damages caused by unfulfilled initial charging.

Operation

Coding system in charging plug device for wet and dry batteries (Gel batteries) Example 24 V



Operation

3.2 Controls

- 1 Actuator for folding apron
- 2 Service brake/parking brake lock
- 3 Service brake/parking brake pedal
- 4 Drive pedal, reverse
- 5 Drive pedal, forward
- 6 Control panel
- 7 Seat adjustment

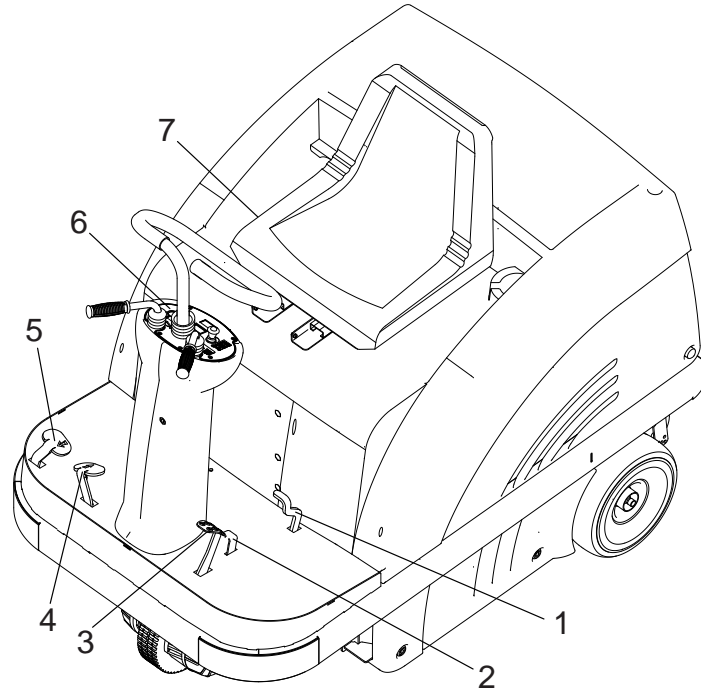


Fig.7

Controls

Operation

- 1 Actuator for folding apron**
to open and close the folding apron for collecting coarse dirt.
- 2 Service brake/parking brake lock**
to lock the service brake. If locked, the service brake works as parking brake. Release the lock by depressing the brake pedal (Fig. 7/3).
- 3 Service brake/parking brake pedal**
to actuate the service brake at the rear wheels. Before leaving the machine unattended, engage the service brake and lock.
- 4 Drive pedal, reverse**
to change direction to reverse ride and with continuous regulation of velocity at the same time. If the driver lets the pedal go it returns to initial position and the machine slows down to standstill.
- 5 Drive pedal, forward**
to change direction to forward ride and with continuous regulation of velocity at the same time. If the driver lets the pedal go it returns to initial position and the machine slows down to standstill.
- 6 Control panel**
Refer to chapter see paragraph 3.3
- 7 Seat adjustment**
to adjust the seat position to drivers of different height.

Operation

3.3 Control Panel Sweepmaster P900 R

- 1 Suction fan/shaking system knob
- 2 Cylinder broom lever
- 3 Side brush lever
- 4 Ignition lock
- 5 Hourmeter
- 6 Choke flap knob

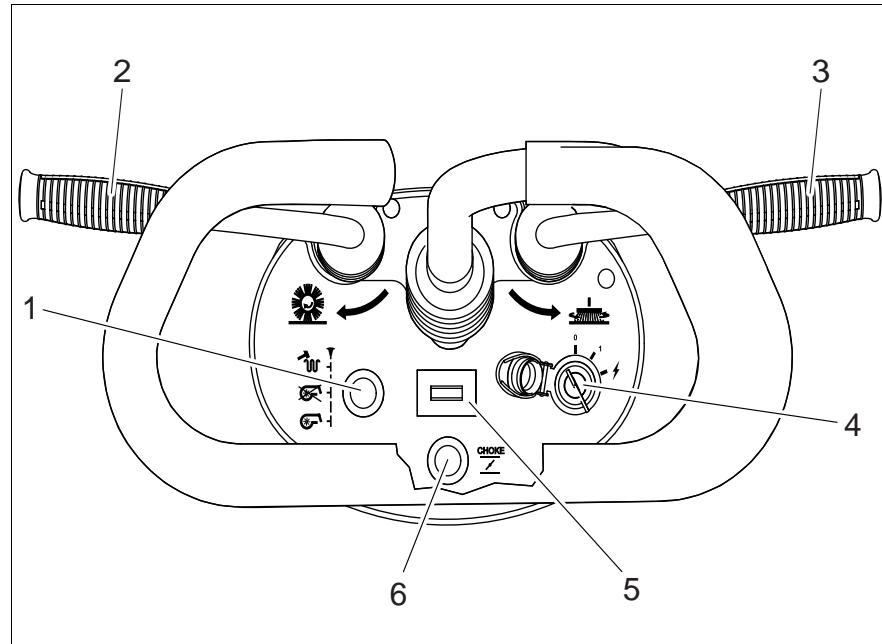
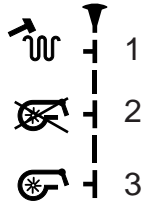


Fig.8 Control Panel

Operation



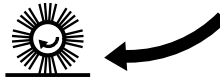
1 Suction fan/shaking system knob

Knob position (from top to bottom position):

- 1 Shaking system ON (hold knob).
- 2 Deactivated vacuuming function (flap has to be opened before sweeping wet surfaces and collecting wet dirt).
- 3 Activated vacuuming function (flap has to be closed before sweeping dry surfaces or collecting dry dirt).



Turn off main broom before jolting. Filter cleaning is improved by interrupting the jolting procedure several times. Turn off the combustion engine of the Sweepmaster P900 R.



2 Cylinder broom lever

- to lift and lower as well as to switch on and off the cylinder broom and the side brush.
- Lower cylinder broom as well as switch on cylinder broom and side brush = push lever.
 - Lift cylinder broom as well as switch off cylinder broom and side brush = pull lever.



3 Side brush lever

- to lift and lower the side brush.
- Lower side brush = push lever.
 - Lift side brush = pull lever.

Operation



4 Ignition lock

to switch on and off ignition, to start and stop engine as well as to secure against unauthorised use.



For safety reasons, the Sweepmaster P900 R is equipped with a seat contact switch. Starting the engine is possible only when the driver is seated. If the seat contact opens while engine is running, the engine is stopped and has to be restarted.



5 Hourmeter

to indicate the operating hours. The counter works with the driver being seated and if ignition is switched on.

CHOKE



6 Choke flap knob

to actuate the choke flap (cold start aid)

- Knob down
choke flap not actuated
- Knob up
choke flap actuated for cold start



Do not actuate choke flap with warm engine.



With temperatures below zero degree, the machine attains final speed after some minutes only.

Operation

3.4 Control Panel Sweepmaster B900 R

- 1 Suction fan/shaking system knob
- 2 Cylinder broom lever
- 3 Side brush lever
- 4 Key switch
- 5 Low discharge signal sender
- 6 Battery charge status

The levers 1 to 3 equal the control elements of the Sweepmaster P900 R. Find these controls described there.

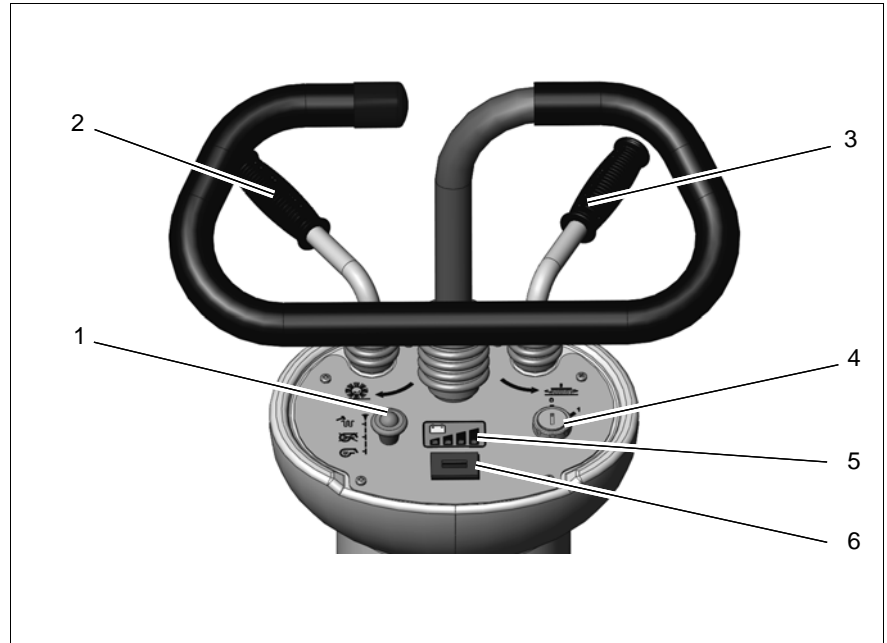
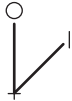


Fig.9 Control Panel

Operation



4 Key switch

to switch the electric system on and off, to secure the machine against unauthorised use as well as to acknowledge released seat contact switch.



For safety reasons, the Sweepmaster B900 R is equipped with a seat contact switch. Starting the engine is possible only when the driver is seated. If the seat contact opens while the electro-motor runs, the key switch of the Sweepmaster B900 R has to be turned off and on again.



To protect the electro-motors, do not start the Sweepmaster B900 R at ambient temperatures of 0°C and less



6 Battery charge status

to indicate the status of battery charge.

Green case:
battery charged, Sweepmaster B900 R is operable

Red case:

- flashing red light: ride the machine to recharging at 50% driving speed. After this delay has elapsed, the rush motor is stopped.
- permanent red light: discharging status of the machine attained; riding is still possible at reduced

speed only, but no operation.

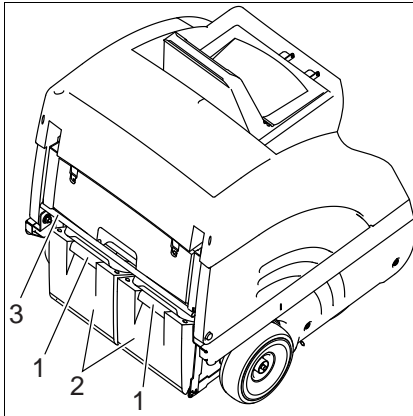


Fig.10 **Dirt Hoppers**

- 1 Recessed grip in dirt hopper
- 2 Dirt hopper
- 3 Bow to lift/lower dirt hoppers

3.5 Empty Dirt Hoppers



Lift cylinder broom before removal of the dirt hoppers.

- Fold bow (Fig. 10/3) up and the dirt hoppers (Fig. 10/2) are lowered.
- Use the recessed grip (Fig. 10/1) of one of the hoppers to lift it lightly and extract it.
- Take the hopper at its bow-type handle to disposal and empty.
- Empty second dirt hopper as described above.
- Re-insert dirt hopper (Fig. 10/2) and fold down the bow (Fig. 10/3).



Clean dirt hoppe at regular intervals!

Operation

3.6 Working With the Sweepmaster

The driver is requested to carefully read this operator's manual. All controls are marked with easy-to-understand symbols that ease familiarization. First driving attempts should be limited to clear areas until you are familiar with all controls and their functions..



Please comply with the following safety provisions:
When working with the Sweepmaster all safety measures generally applicable for handling vehicles and fuels have to be observed. No passenger transport admitted with the Sweepmaster. Warning and instruction labels attached to the machine contain important information about safe operation and guarantee your personal safety.

Before commencing work, the operator has to make sure that the machine and its accessories are in proper and safe condition and comply with the provision for safety at work. Do not operate the Sweepmaster without protective devices

3.6.1 Sweepmaster P900 R

Before Starting the Engine

Open seat hood and check the following:

- engine oil level
- visual check of V-belts
- fuel level
- close seat hood

Start Engine

For safety reasons, the Sweepmaster P900 R is equipped with a seat contact switch. Starting the engine or running engine is possible only when the driver is seated.

- Switch all levers and witches to neutral position, actuate parking brake.
- Open fuel cock
- Actuate choke (with cold engine only)
- Turn ignition key to first position on the right - ignition ON
- Turn ignition key further to the right and the engine fires

If the start procedure has to be repeated or if the engine stops, re-starting is possible only after the ignition has been switched off. The ignition lock is equipped with a start repeat lock to prevent actuation of the starter while the engine is running.

Operation



Do not exceed a limit of approx. 10 seconds of continuous starting. Pause after each starting in order to spare the battery.

- Run up the engine while pushing choke knob slowly down.

Stop Engine

- Turn ignition key to the left.

Sweep

- Start engine



Initially, the vacuuming function is inactive. Open the flap when sweeping wet surfaces and collecting wet dirt.

- Lower cylinder broom and side brush.
- Release parking brake.
- Slowly depress drive pedal until desired speed has been attained.
- Regularly actuate shaking device to clean filter.
- Check contents of the dirt hopper and empty if required.

Stop and Park

- Release drive pedal which returns automatically into its neutral position and the machine slows down to standstill



It is possible to brake the Sweepmaster by opposing with drive pedal or service brake.

- Actuate parking brake
- Lift main and side brush
- Stop engine



When leaving the machine unattended, remove ignition key to avoid unauthorised use.

Displace

- If towing of the Sweepmaster P900 R should be necessary with the engine being stopped, actuate the drive pedal.



When pushing the machine forward, actuate the forward ride pedal; when pushing backwards actuate the reverse ride pedal.

Operation

3.6.2 Sweepmaster B900 R

Switch Electro-Motor On and Off



For safety reasons, the Sweepmaster B900 R is equipped with a seat contact switch. Starting the engine is possible only when the driver is seated. If the seat contact opens while the electro-motor runs, the key switch of the Sweepmaster B900 R has to be turned off and on again.

- Set all levers and switches to neutral.
- Engage parking brake.
- Turn key switch to "I".



Make sure that the drive pedal is in neutral position.

Sweep

- Lower cylinder broom.
- Release parking brake.
- Slowly depress drive pedal until desired speed has been attained.
- Regularly actuate shaking device to clean filter.
- Check contents of the dirt hopper and empty if required.

Stop and Park

- Release drive pedal (returns automatically into its neutral position and the machine slows down to near standstill)
- and actuate service brake.
- Actuate parking brake.
- Lift main and side brush.
- Turn key switch to "O".



Remove the key before leaving the machine unattended.

Technical Data

4 Technical Data

		Sweepmaster P900 R	Sweepmaster B900 R
Dimensions and weights			
Length with side brush	mm	1520	1520
Width with 1 side brush	mm	1120	1120
Height above steering wheel	mm	1340	1340
Deadweight incl. equipment	kg	370	460
Total weight	kg	600	(acc. to battery type) 650
Driving and sweeping performance			
Forward speed	km / h	6,0	6,0
Reverse speed	km / h	4,0	4,0
Sweeping speed (reference: 4 km/h)	km / h	6,0	6,0
Sweeping tack w / o 1 side brush	mm	700 / 970	700 / 970
with 2 side brushes	mm	1240	1240
Theoretical sweeping perf. with 1 or 2 side brushes	m ² / h	5800 / 7450	5800 / 7450
without side brush	m ² / h	4200	4200
Gradability, max. (for 1 min. max.- with Sweepmaster B900 R)	%	12	12

Technical Data

		Sweepmaster P900 R	Sweepmaster B900 R
Filter system			
Filtering surface	m ²	2,8	2,8
Plate filter	piece	1	1
Cylinder broom			
Length / diameter	mm	700 / 345	700 / 345
Wearing limit	mm	approx. 290	approx. 290
Speed	rpm	approx. 530 ± 20	approx. 530 ± 20
Sweeping track	mm	50 + 10	50 + 5
Quantity of bristle rows		6 v-shape	6 v-shape
Serial bristling		PA	PES
Ground clearance of sealing strips at broom compartment			
Sealing strips, left, right, rear	mm	1 / 1 / 4	1 / 1 / 4
Sealing strip, front		with contact to the floor	

Technical Data

		Sweepmaster P900 R	Sweepmaster B900 R
Filter system			
Filtering surface	m ²	2,8	2,8
Plate filter	piece	1	1
Cylinder broom			
Length / diameter	mm	700 / 345	700 / 345
Wearing limit	mm	approx. 290	approx. 290
Speed	rpm	approx. 530 ± 20	approx. 530 ± 20
Sweeping track	mm	50 + 10	50 + 5
Quantity of bristle rows		6 v-shape	6 v-shape
Serial bristling		PA	PES
Ground clearance of sealing strips at broom compartment			
Sealing strips, left, right, rear	mm	1 / 1 / 4	1 / 1 / 4
Sealing strip, front		with contact to the floor	

Technical Data

		Sweepmaster P900 R	Sweepmaster B900 R
Side brushes			
Diameter	mm	460	460
Speed	rpm	90	90
Serial bristling		PA	PES
Dirt hopper			
Hopper volume	Litres	2 x 30	2 x 30
Drive wheels			
Pneumatic tires with tube: tire size	bar	4.00 - 4 6PR	
Inflation pressure		6	
Solid tires		optional	4.00 - 4
Tire			Ø 250 / 60

Technical Data

		Sweepmaster P900 R	Sweepmaster B900 R
Engine			
Manufacturer		Briggs & Stratton	
Type		Intek Pro 6,5 HP	
Working process / number of cylinder		4-stroke / 1-cyl.	
Cubic capacity	ccm	206	
Performance	KW/HP	4,9 / 6,5	
Service speed (with cylinder broom, side brushes and suction fan ON)	rpm	2475 ± 25	
Fuel tank volume (regular unleaded)	Litres	4	
Fuel consumption	Litres/h	1	
Engine oil / filling amount	Litres	15W-40 / 0,6	
Spark plugs (Champion RC 12 YC)	Order - no.	113-520	
Air cleaner insert	Order - no.	113-234	
	Order - no.	113-235	

Technical Data

		Sweepmaster P900 R	Sweepmaster B900 R
Hydraulic system			
Hydraulic fluid, e.g. Mobiloil		DTE 15 M (or equivalent)	
Tank capacity	Litres bar	10 100	
Electrical system			
Starter battery	V / Ah	12 / 45	
Generator current	A	5-6	
Electric drive			
Service voltage	DC / V		24
Travel drive assembly	KW		0,6
Suction fan motor / sweeping	KW		0,75
Total power consumption	KW		1,9

Technical Data

Noise emission values		Sweepmaster B900 R	Sweepmaster P900 R
The sound pressure level (LpA) (at the ear of the operator) measured according to DIN IEC 60335-2-72 under normal working conditions is:	dB (A)	68	76
Measurement inaccuracy (KpA):	dB (A)	2	2
The sound power level (LwAd) measured according to DIN EN 60335-2-72 under normal working conditions is:	dB (A)	84	95
The sound power level (LwAd) measured according to 2000/14/EC under normal working conditions is:	dB (A)	84	95
Vibration values			
The weighted, effective value of the acceleration, established in accordance with ISO 5349-1, to which the upper limbs (hand-arm) are exposed under normal working conditions is:	m/s ²	< 2,5	< 2,5
The weighted, effective value of the acceleration, established in accordance with ISO 2631-1 to which the body (feet-seat surface) is exposed under normal working conditions is:	m/s ²	< 0,5	< 0,5

5 Maintenance/Service

5.1 Maintenance Instructions

Compliance with our recommendations concerning maintenance work will give you the certitude of having an effective and dependable machine at your disposal.

It is better to take precautions than repairing damages – and it saves money!



Compliance with our recommendations concerning maintenance work (according to para. 57, BGV D29) will give you the certitude of having an effective and dependable machine at your disposal. It is better to take precautions than repairing damages – and it saves money.

In case of questions or orders for spare parts, please always have your machine's chassis and engine's serial on hand. You will find the serial on the data plate which is located under the mat at the right side in the front of the machine

Please contact your local Hako distributor if you cannot do the maintenance works as prescribed in the maintenance schedule in-house. He will have these works done for you and has qualified personnel at disposal.



When cleaning or servicing the machine, or replacing parts, have the engine stopped, the key pulled and the service brake (parking brake) engaged.

Sweepmaster B900 R: disconnect battery plug.



Wipe away spilled oil and fuel and provide for adequate disposal of these substance.

Use appropriate tools for servicing, maintenance and adjusting work only. Spare parts at least will have to be of the same quality as genuine parts are. Do not remove or install tires or repair a rim. Take the wheel and rim to a Hako service centre where qualified personnel and the required specific tools are available.

Before commencing any work on the electrical system disconnect the negative lead of the battery or disconnect the battery plug.

5.2 Sweepmaster allgemein

5.2.1 Mount/Dismount Cylinder Broom

The cylinder broom is accessible from the left side of the machine and is to be dismantled as follows:

- Lower cylinder broom
- Remove ignition key and protect by engaging parking brake
- Open lateral flap
- Remove cover

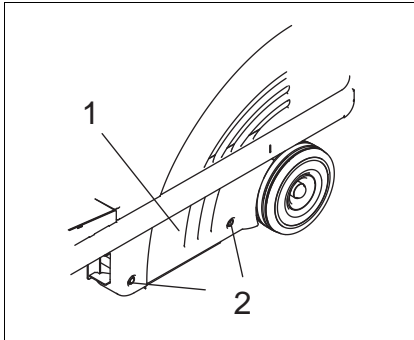


Fig.11 Abdeckung abnehmen

- Open locks (Fig. 11/2) by enclosed square spanner (counter-clockwise)
- Remove cover (Fig. 11/1)

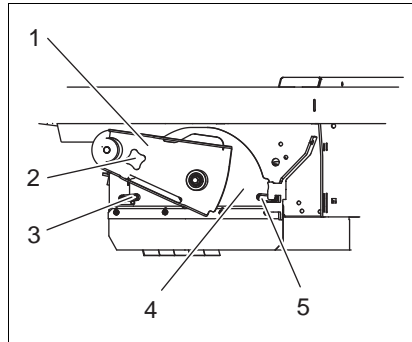


Fig.12 Kehrwalze ausbauen

- Loosen star knob (Fig. 12/2) and remove
- Remove cylinder broom seating (Fig. 12/1)
- Turn handle (Fig. 12/3 + 5) upwards and unlock
- Remove plate with sealing strip (Fig. 12/4)
- Remove cylinder broom by pulling.

For mounting the cylinder broom proceed in inverse order.

5.2.2 Adjust Sweeping Track

An adjustment device allows adaptation to the different sweeping conditions. The cylinder broom is to adjust according to normal use and with regard to a low degree of wearing as described in the following. Check the broom adjustment on level ground as described in the following:

Maintenance/Service



Before checking:
Mark level surface for broom adjustment check by chalk.

Sweepmaster P900 R
Check inflation pressure of tires (6 bar)..

- Lower cylinder broom and let it run dry.
- Lift cylinder broom and forward the Sweepmaster a bit.
- With the correct broom adjustment the parallel sweeping marks have to appear on the floor (sweeping track)

The sweeping track width is to be
- Sweepmaster P900 R = 50 mm
- Sweepmaster B900 R = 50 mm
breit sein.

The sweeping track width can be adjusted by the star knob (Fig. 13/2) as follows:

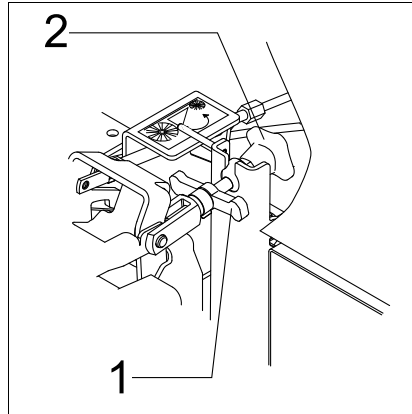


Fig.13 Broom adjustment

- Open seat hood
- Loosen handle (Fig. 13/1)
- Turns star knob (Fig. 13/2)
- Fix handle (Fig. 13/1)
- to the left = wider sweeping track
- to the right = smaller sweeping track



With one turn of the knob, the track widens or broadens by approx. 10 mm.

Sweepmaster B900 R:
When exceeding the sweeping track width, the engine protection may be activated.

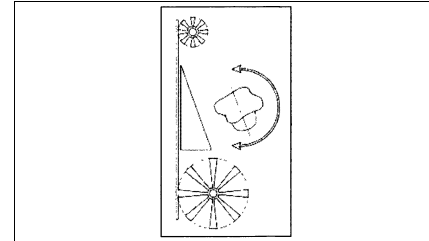


Fig.14 Sweeping track adjustment

5.2.3 Sealing Strips for Broom Compartment

In order to assure good function of the sweeper, a perfect condition of the sealing strips is required, especially in order to attain the prescribed vacuum in the broom compartment, a clean sweeping result and the less possible wear of the sealing strips (check the sealing strips of the broom compartment for wearing and damages in regular intervals).

Replace defective sealing strips.

The ground clearance of the lateral and of the rear sealing strips is adjustable (oblong holes in the sealing strips).

Ground clearance =

sides: approx. 1mm

rear: approx. 4mm.

Proceed to adjustment at the Sweepmaster B900 R with the battery set being mounted

Height of the front sealing strip (at folding apron) cannot be adjusted. Being dragged, it has contact with the floor.

5.2.4 Folding Apron Adjustment

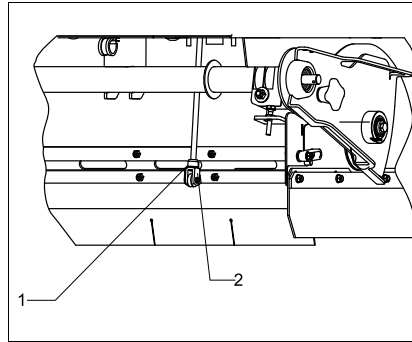


Fig.15 Adjust folding apron

- Turn engine off and remove key
- **Sweepmaster B900 R**: disconnect battery plug
- Remove cover (as described in the paragraph "Mount/Dismount Cylinder Broom").
- Remove bolt (Fig. 15/2).
- Modify adjustment by turning the fork head (Fig. 15/1).

Modify adjustment such that the cylinder broom does not retract the sealing strip of the folding apron during operation.

5.2.5 Replace Side brush

The side brush is located at the front right of the machine (standard version). Use the lever to lift and lower the side brush, see paragraph 3.3. The side brush is to be lightly inclined in forward and in outward direction. The pivoting area of the side brush arm is limited by stop screws. The side brush is driven by a V-belt. Fitting of a second side brush for specific appliances is possible.

Proceed as follows for dismounting of the side brush:

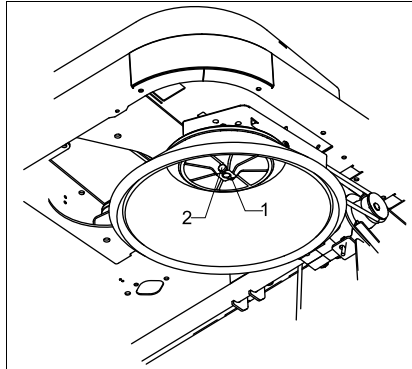


Fig.16 Replace side brush

- Turn engine off and remove key.
- Secure machine by engaging parking brake
- Sweepmaster B900 R: disconnect battery plug
- Remove right-hand cover (as described in the paragraph "Dismount/Mount Cylinder Broom").
- Side brush lifted
- Loosen hexagonal nut (Fig. 16/1) und remove together with washer
- Remove bolt (Fig. 16/2)
- Remove side brush

Proceed in inverse order for mounting of the side brush.

5.2.6 Dismount Plate Filter

Proceed as follows for dismounting of the plate filter:

- Open seat hood.
- Remove cover.
- Loosen fillister head screws (Fig. 17/2) and remove.
- Fold back frame with shaking motor (Fig. 17/3).
- Hook frame at indicated position (Fig. 17/4).
- Remove plate filter (Fig. 17/5).

For mounting of plate filter proceed in inverse order.

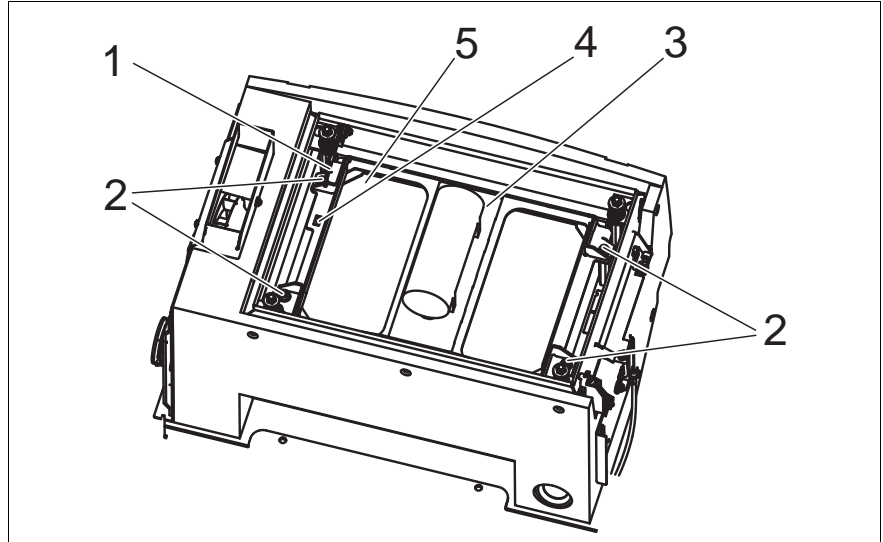


Fig.17 Plate Filter

- 1 Detent hook
- 2 Fillister head screws
- 3 Frame with shaking motor
- 4 Opening holding the detent hook
- 5 Plate filter

5.2.7 Basic Cleaning of Plate Filter

Hold the plate filter (Fig. 18/1) in vertical position and let it fall down from a height of 1 m to the even floor as represented in (Fig. 18/).



The soiled side of the filter has to point to the bottom.

n.

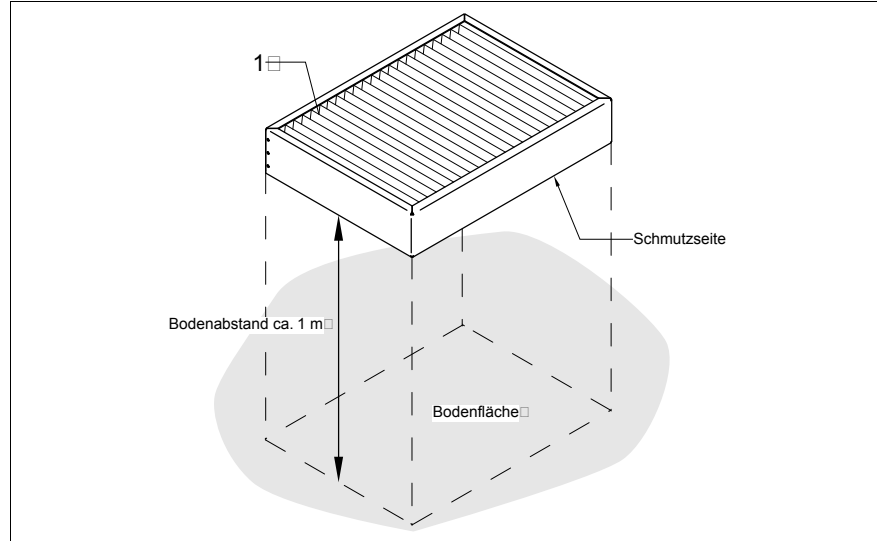


Fig.18 Basic cleaning of plate filter

1 Plate filter

5.3 Sweepmaster P900 R

5.3.1 Engine

The engine is a robust four-stroke engine and easy-to-maintain. Maintenance work is to execute at regular intervals.

Find the details described in the following.



Before cleaning or maintaining the machine as well as before replacing parts, turn the engine off and pull the ignition key. Use appropriate tools for maintenance, service, setting etc. As far as aspects of safety are concerned, spare parts will have to be at least of the same quality as the genuine spare parts.

5.3.2 Check Engine Oil Level

Position the machine on level ground before checking the engine oil level as follows:

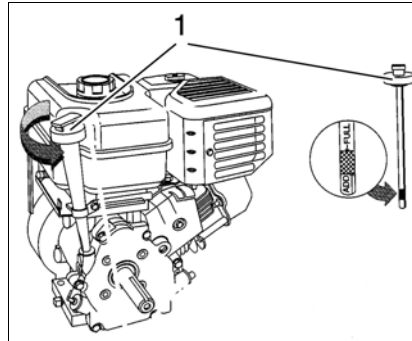


Fig.19 Engine oil level check

- Open seat hood.
- Unscrew plug (Fig. 19/1) with dipstick.
- Wipe dipstick, screw it into opening until stop and unscrew it again.
- Oil level has to attain the upper mark (groove), refill engine oil if required.
- Screw plug again.



In order to protect the engine, it is shut down in case of insufficient oil level.

5.3.3 Change Engine Oil

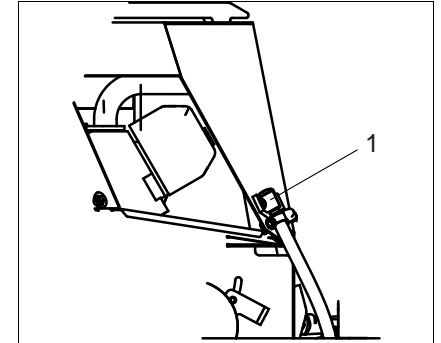


Fig.20 Engine oil changing

- Open seat hood.



Caution !
Burning hazard at muffler pipe.

- Unscrew plug (Fig. 19/1) with dipstick.

Maintenance/Service

- Remove drain hose (Fig. 21/1) from holding clamp and lead it downwards through the vehicle frame.
- loosen clamp, pull the drain plug from the hose and drain oil.
- Close drain hose (Fig. 21/1) by plug and protect with clamp.
- Fasten drain hose (Fig. 21/1) at holding clamp.
- Fill engine oil into check opening with the machine standing on level ground.
- Check oil level with dipstick:

Engine oil: SAE 15 W-40
Filling: approx. 0,6 Liter

5.3.4 Air cleaner

The air cleaner is located in the engine's compartment. Clean the filtering insert after every 100 hours of operation or in shorter intervals with heavy dust formation.

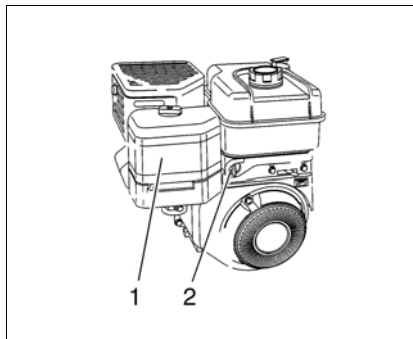


Fig.21 Air cleaner

- 1 Air cleaner
- 2 Fuel cock



A soiled filtering insert may lead to reduced performance and heavy smoking of the engine. Never let the engine run without filtering insert.

Replace filtering insert as required. Proceed as follows for dismantling the filtering insert:

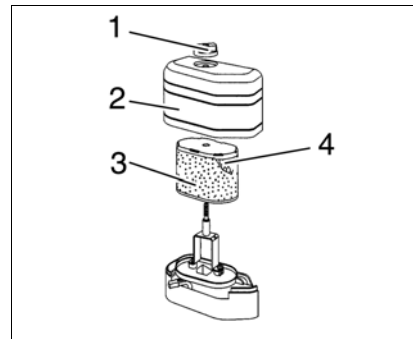


Fig.22 Air cleaner components

- 1 Fixing nut
- 2 Filter cap
- 3 Pre-filter
- 4 Air cleaner

- Unscrew fixing nut (Fig. 22/1) and remove filter cap (Fig. 22/2).
- Remove pre-filter and air cleaner (Fig. 22/3 + 4) by pulling and proceed to dry cleaning or replace if required.

5.3.5 Hydraulic System

The hydraulic units are maintenance-free and the hydraulic filters only are concerned by maintenance work. Premature failure can be prevented by regular inspection and periodical maintenance (see maintenance schedule page 56 and following).



We recommend having all other works at the hydraulic system done by qualified personal.

5.3.6 Refill Hydraulic Fluid

- Unscrew plug with dipstick (Fig. 23/1)
- Wipe with clean cloth
- Re-screw plug with dipstick until stop
- And unscrew it again to check filling level of hydraulic fluid

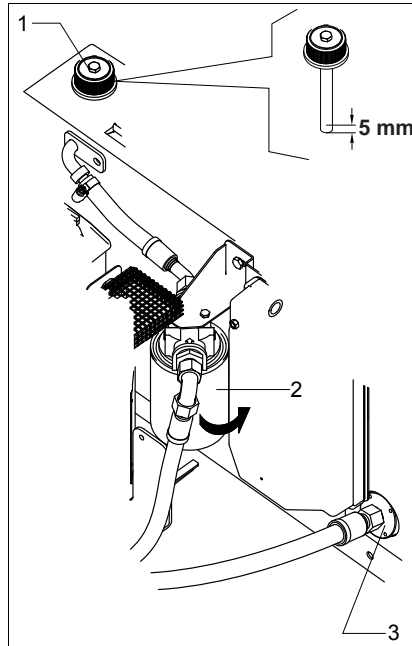


Fig.23 Hydraulic fluid filter

- 1 Filler neck
- 5 Hydraulic oil filter
- 6 Suction filter

5.3.7 Change Hydraulic Fluid Filter

The hydraulic fluid filter is located in the return line and equipped with a bypass valve in order to guarantee fluid supply of the travel drive assembly even if the fluid filter is soiled. Change the fluid filter after the first 100n hours of operation.

- Turn hydraulic fluid filter (Fig. 23/2) counter-clockwise to loosen it and unscrew
- Screw new filter
- Ride the machine a short distance
- Refill sufficient hydraulic fluid
- Check fluid filling level

5.3.8 V-belt drive

Sweepmaster P900 R

- 1 Suction fan V-belt (40 Hz)
- 2 Tensioning roller
- 3 V-belt pulley
- 4 Hydraulic pump V-belt (75 Hz)
- 5 Belt guide
- 6 V-belt for brushes
- 7 Belt pulley for hydraulic pump
- 8 Tensioning / coupling roller
- 9 Tensioning roller lever
- 10 Tension spring
- 11 Cylinder broom belt pulley
- 12 Cylinder broom V-belt
- 13 Belt pulley
- 14 Side brush V-belt
- 15 Hexagonal nut
- 16 Screws
- 17 Tensioning roller lever
- 18 Fillister head screw
- 19 Lever for hydraulic pump tensioning
- 20 Tensioning roller lever

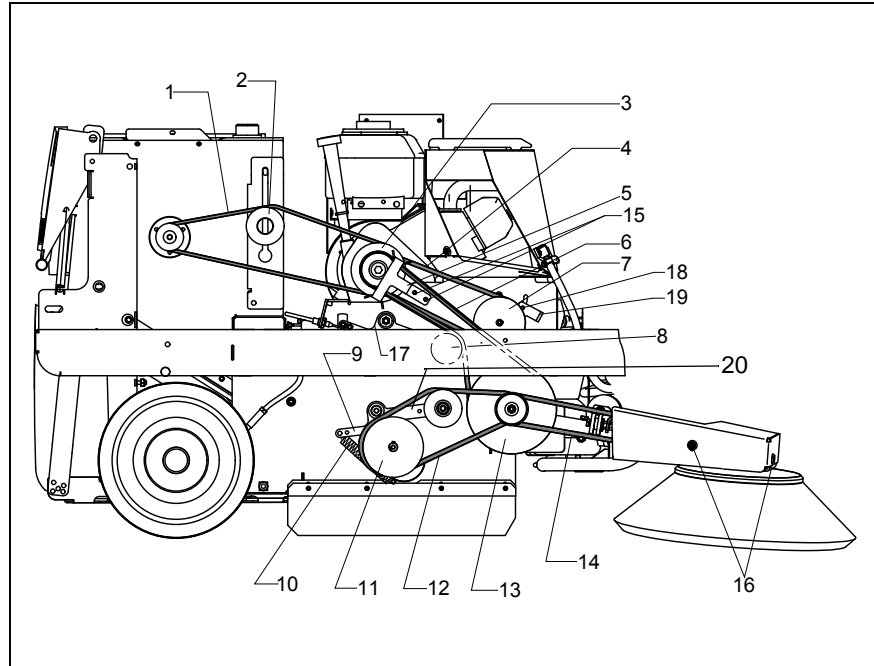


Fig.24 V-belt drive

Maintenance/Service

5.3.9 Replace Cylinder Broom V-Belt

- Turn engine off and remove key.
- Secure machine by engaging parking brake
- Remove bottom right cover (turn locks counter-clockwise by square spanner).
- Detent tensioning spring (Fig. 24/10) by left hand while taking the V-belt off the tensioning roller with right hand
- Remove V-belt (Fig. 24/12)

Proceed in inverse order for mounting of the side brush.

5.3.10 Replace Side Brush V-Belt

- Turn engine off and remove key.
- Secure machine by engaging parking brake
- Remove bottom right cover (turn locks counter-clockwise by square spanner).
- Remove cylinder broom V-belt (as described in paragraph "Replace Cylinder Broom V-Belt")
- Loosen screws (Fig. 24/16) at the cover plate and remove
- Remove cover plate
- Push side brushes in direction of the machine to detent V-belt (Fig. 24/14)
- Remove V-belt (Fig. 24/14)

Proceed in inverse order for mounting of the V-belt.

5.3.11 Replace Suction Fan V-Belt

- Turn engine off and remove key.
- Secure machine by engaging parking brake
- Open seat hood
- Loosen hexagonal nuts (Fig. 24/15) and remove together with belt guide (Fig. 24/5)
- Use tensioning roller lever (Fig. 24/17) to detent V-belt (Fig. 24/6) and remove from V-belt pulley (Fig. 24/3)
- Loosen tensioning roller (Fig. 24/2) to detent V-belt (Fig. 24/1) and remove

Proceed in inverse order for mounting of the V-belt.

Maintenance/Service



Sweepmaster B900 R only
Observe the following when
mounting:

At first, adjust tension of V-belt
(Fig. 24/4) then tension of V-
belt (Fig. 24/2).

Replace Hydraulic Pump V-Belt

- Turn engine off and remove key
- Secure machine by engaging parking brake
- Open seat hood
- Loosen hexagonal nuts (Fig. 24/15) and remove together with belt guide (Fig. 24/5)
- Use tensioning roller lever (Fig. 24/17) to detent V-belt (Fig. 24/6) and remove from V-belt pulley (Fig. 24/3)
- Loosen tensioning roller (Fig. 24/2) to detent V-belt (Fig. 24/1) and remove
- Loosen fillister head screw (Fig. 24/18)
- Detent V-belt (Fig. 24/4) by lever (Fig. 24/19) and remove

Proceed in inverse order for mounting of the V-belt.

5.3.12 Electrical System

Fuses

The fuses F1 to F5 are located below the seat hood on the rear right at the filter case.

- 1 F1 Shaking motor (30 A)
- 2 F2 Pre-fuse (20 A), ignition lock
- 3 F3 Engine cut-off/hourmeter (5 A)
- 4 F4 Shaking / controller (5 A)
- 5 F5 not assigned
- 6 Relay (K 3), engine shutdown
- 7 Relay (K 5), shaking motor
- 8 Relay (K 1), starter

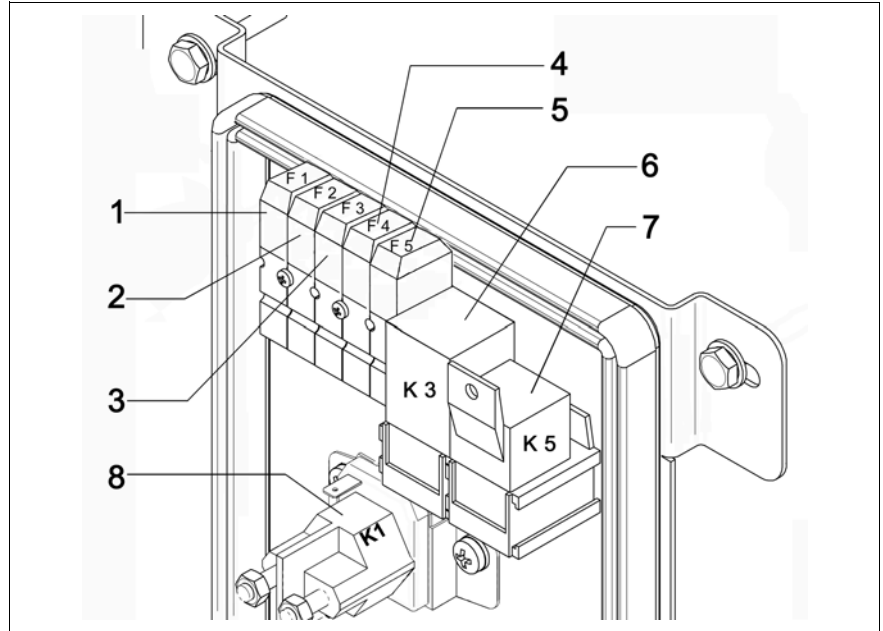


Fig.25 Fuses

Maintenance/Service

5.3.13 Maintenance Schedule

Maintenance Sweepmaster P900 R	hours of operation				
	daily	after first	every 100	every 200	every 600
Check engine oil level and refill if required	X				
Check fuel level and refill if required (regular unleaded)	X				
Change fuel filter if required				X	
Change engine oil (0.6 litre engine oil SAE 15-W-40)		5	X		
Check soiled engine air cleaner and clean it if required (tap it, do not use compressed air), replace filtering insert as required	X				
Visual check of engine, pump and wheel motor for oil leakage				X	
Check idling and service speed, adjust if required				X	
Check distance between spark plugs and electrodes (0.75 mm)			X		
Replace spark plugs				X	
Check valve clearance (inlet 0.1 - 0.15 mm; outlet 0.23 - 0.28 mm)				X	
Check starter battery acid level and top with distilled water if required, clean and grease battery terminals			X		
Change hydraulic fluid filter and refill fluid (changing fluid is not generally required)		100			X
Check cables for damages and screwed connections for tight fit				X	

Maintenance/Service

Maintenance Sweepmaster P900 R	hours of operation				
	daily	after first	every 100	every 200	every 600
Check exhaust system			X		
Check function of seat contact switch				X	
Check inflation pressure (6bar)	X				
Check cylinder broom for wearing or foreign particles (e.g. wire, straps) and replace broom if required	X				
Check sweeping track and adjust if required			X		
Check sealing strips at the broom compartment, adjust if required or replace defective sealing strips			X		
Check sealing strips at dirt hopper, replace defective sealing strips				X	
Check side brush adjustment and brush bristles for wearing, adjust if required or replace side brush			X		
Visual check of V-belts	X				
Check V-belt for wearing and correct tension and re-adjust if required		5	X		
Check service/parking brake and re-adjust if required			X		
Check filter system for tightness			X		
Dismount plate filter and clean if required			X		
Check tread of wheels				X	

5.4 Sweepmaster B900 R

5.4.1 Electrical System

Circuit-breakers and fuses

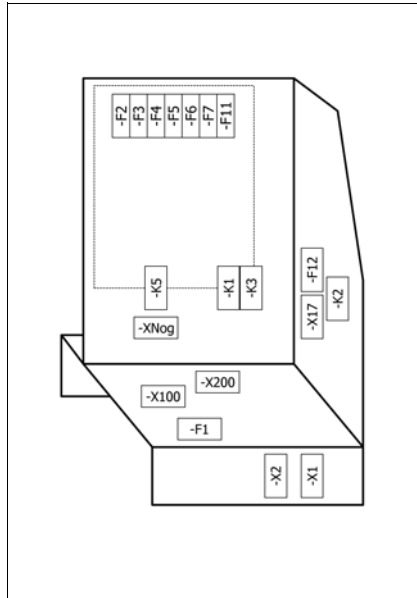


Fig.26 Fuses

- F1 Drive control power module (63A)
- F2 Pre-fuse (20A)
- F3 Travel drive assembly control voltage (10A)
- F4 Shaking function control voltage (5A)
- F5 LDS (5A)
- F6 LDS indication
- F7 not assigned
- F11 Shaking motor (30A)
- F12 Brush motor (60A)



Before leaving the machine unattended, engage the parking brake and remove key.

5.4.2 Brake

It is located in the rear wheels and is actuated via cables. A special adjustment screw is situated at the right-hand rear wheel.

5.4.3 V-belt drive

- 1 Tension roller
- 2 Suction fan V-belt (20Hz)
- 3 V-belt pulley
- 4 V-belt for brushes (130 Hz)
- 5 Side brush V-belt
- 6 Pulley
- 7 Cylinder broom V-belt
- 8 Tensioning roller follower
- 9 Pulley
- 10 Tension spring
- 11 Hexagonal nut
- 12 Hexagonal socket screw
- 13 Screws

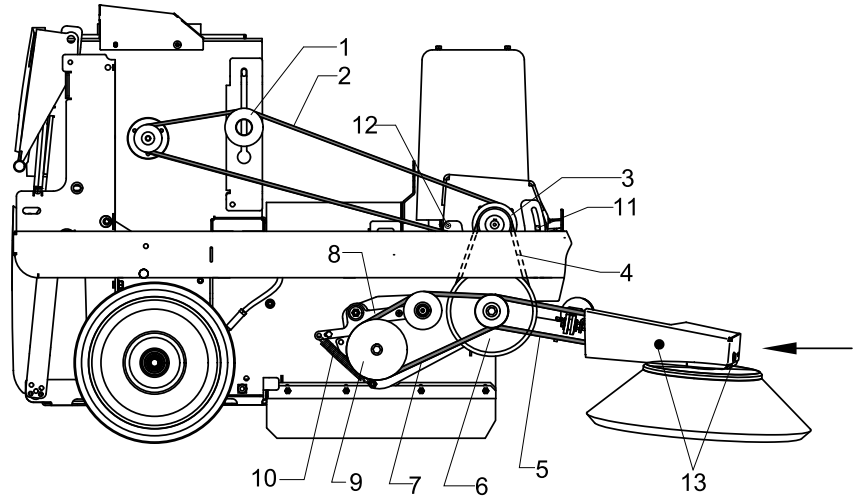


Fig.27 V-belt drive

Maintenance/Service

Replace Cylinder Broom V-Belt

- Turn engine off and remove key.
- Secure machine by engaging parking brake
- Unplug battery plug
- Remove bottom right cover (turn locks counter-clockwise by square spanner).
- Detent tensioning spring (Fig. 27/10) by left hand while taking the V-belt off the tensioning roller with right hand
- Remove V-belt (Fig. 27/7)

Proceed in inverse order for mounting of the side brush.

Replace Side Brush V-Belt

- Turn engine off and remove key.
- Secure machine by engaging parking brake
- Unplug battery plug
- Remove bottom right cover (turn locks counter-clockwise by square spanner).
- Remove cylinder broom V-belt (as described in paragraph "Replace Cylinder Broom V-Belt")
- Loosen screws (Fig. 27/13) at the cover plate and remove
- Remove cover plate
- Push side brushes from the front towards the machine to detent V-belt (Fig. 27/5)
- Remove V-belt (Fig. 27/5)

Proceed in inverse order for mounting of the V-belt.

Replace Suction Van V-Belt

- Turn engine off and remove key.
- Secure machine by engaging parking brake
- Unplug battery plug
- Loosen tensioning roller (Fig. 27/1)
- Loosen hexagonal nut (Fig. 27/11) and hexagon socket screw (Fig. 27/12) and detent V-belt (Fig. 27/4)
- Remove V-belt (Fig. 27/4) from belt pulley (Fig. 27/3)
- Remove V-belt (Fig. 27/2)

Proceed in inverse order for mounting of the V-belt.

Do not exceed tension of the V-belt



Observe the following when mounting:

At first, adjust tension of V-belt (Fig. 27/4) then tension of V-belt (Fig. 27/2).

Maintenance/Service

5.4.4 Maintenance Schedule

Maintenance Sweepmaster B900 R	hours of operation			
	daily	after first	every 100	every 200
Check battery acid level and top with distilled water if required (with fully charged battery only)	X			
Check battery for non-spillability			X	
Clean and grease battery terminals			X	
Check cables for damages and screwed connections for tight fit				X
Check function of seat contact switch			X	
Visual check of front tires			X	
Check cylinder broom for wearing or foreign particles (e.g. wire, straps) and replace broom if required	X			
Check sweeping track and adjust if required			X	
Check sealing strips at the broom compartment, adjust if required or replace defective sealing strips			X	
Check sealing strips at dirt hopper, replace defective sealing strips				X
Check side brush adjustment and brush bristles for wearing, adjust if required or replace side brush			X	

Maintenance/Service

Maintenance Sweepmaster B900 R	hours of operation			
	daily	after first	every 100	every 200
Check V-belts for wearing and required tension or re-adjust if required		5	X	
Visual check of V-belts	X			
Check service/parking brake and re-adjust if required			X	
Check filter system for tightness (visual check)			X	
Dismount plate filter and clean if required			X	
Clean travel drive assembly, brush motor, shaking motor			X	
Check tread of wheels				X
Check electro-motor for functioning, check carbon brushes for smooth running and wearing, clean motor from carbon dust, replace carbon brushes if required		500		X
Check carbon brushes of travel drive assembly (by qualified personnel only)		500		X

Maintenance/Service

5.5 Maintenance report

<p>Hako-System-Maintenance 100 operating hours, one-off Workshop Stamp</p> <p>completed on:</p> <p>at _____ operating hours</p>	<p>Hako-System-Maintenance 200 operating hours Workshop Stamp</p> <p>completed on:</p> <p>at _____ operating hours</p>	<p>Hako-System-Maintenance 300 operating hours Workshop Stamp</p> <p>completed on:</p> <p>at _____ operating hours</p>	<p>Hako-System-Maintenance 400 operating hours Workshop Stamp</p> <p>completed on:</p> <p>at _____ operating hours</p>
<p>Hako-System-Maintenance 500 operating hours Workshop Stamp</p> <p>completed on:</p> <p>at _____ operating hours</p>	<p>Hako-System-Maintenance 600 operating hours Workshop Stamp</p> <p>completed on:</p> <p>at _____ operating hours</p>	<p>Hako-System-Maintenance 700 operating hours Workshop Stamp</p> <p>completed on:</p> <p>at _____ operating hours</p>	<p>Hako-System-Maintenance 800 operating hours Workshop Stamp</p> <p>completed on:</p> <p>at _____ operating hours</p>
<p>Hako-System-Maintenance 900 operating hours Workshop Stamp</p> <p>completed on:</p> <p>at _____ operating hours</p>	<p>Hako-System-Maintenance 1000 operating hours Workshop Stamp</p> <p>completed on:</p> <p>at _____ operating hours</p>	<p>Hako-System-Maintenance 1100 operating hours Workshop Stamp</p> <p>completed on:</p> <p>at _____ operating hours</p>	<p>Hako-System-Maintenance 1200 operating hours Workshop Stamp</p> <p>completed on:</p> <p>at _____ operating hours</p>

Maintenance/Service

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

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

declares that the product

Sweepmaster P900 R
Typ: 6502.10
Sweepmaster B900 R
Typ: 6502.20

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:

DIN EN 60335-2-72
DIN EN 61000-6-2
DIN EN 55012

Bad Oldesloe, 22.04.2014



Dr. Rainer Bavendiek
Director R&D

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

Ludger Lüttel

Hako

Clean ahead

Spitzentechnik für eine saubere und schönere Umwelt

Advanced Technology for a Cleaner, Better Environment



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