

ghibli & wirbel

HS MT 80

35.00.178



EN INSTRUCTION AND MAINTENANCE HANDBOOK

07/2023 REV.04



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GENERALITIES

Data for motor-sweeper identification

Fig.1 Motor-sweeper type plate



ghibli & wirbel		CE	
GHIBLI & WIRBEL S.p.A. Via Enrico Fermi, 43 - 37136 Verona (VR) - Italy			
MOTOSCOPIA - SWEEPER			
MODELLO MODEL	HS MT 80	PESO Kg WEIGHT	100
MATR. NR S/N	225374	ANNO YEAR	2019
32 A	12 V		
IP20	280 W		
18%	CATEGORIA U		
<small>MACCHINA PER SERVIZIO PESANTE PER USO COMMERCIALE O INDUSTRIALE</small>			

Important!

Take good care of this manual. It must always be available for consultation.



This symbol attracts attention to important safety regulations which must be applied to avoid injury or damage to your property or that of others.

Before starting work with your motor-sweeper, read all the instructions in this manual and the engine manual carefully, and follow them to the letter.

For optimum efficiency and the longest machine working life, comply in full with the routine maintenance table.

Thank you for choosing us, please do not hesitate to contact us for any requirements.



Caution!

1. This machine is intended for use as a sweeper only. We therefore accept no responsibility for any damage deriving from its use for any other purpose. All risks are for the user's account.
2. This motor-sweeper is not suitable for sweeping toxic substances. It is a U class machine.
3. The motor-sweeper must only be used by trained and authorised personnel.
4. Always switch the motor-sweeper OFF before performing any cleaning, maintenance, or part replacement operations.
5. Always park the motor-sweeper on a surface on which it stands perfectly stable.
6. Keep all bystanders, and particularly children, well clear of the motor-sweeper when in use.
7. Only charge the battery in a sheltered and ventilated area.
8. Remove the key when you finish work to avoid unauthorised use of the sweeper.
9. Make sure that the motor is stopped before opening the bonnet.
10. The motor-sweeper may be lifted or towed up a ramp to place it on a transport vehicle or rigidly anchored to a pallet lifted using an ordinary fork-lift truck or similar equipment.
11. When transporting the sweeper make sure that it is well secured to the vehicle.
12. Refuse disposal must be carried out in accordance with national laws.

TECHNICAL SPECIFICATIONS

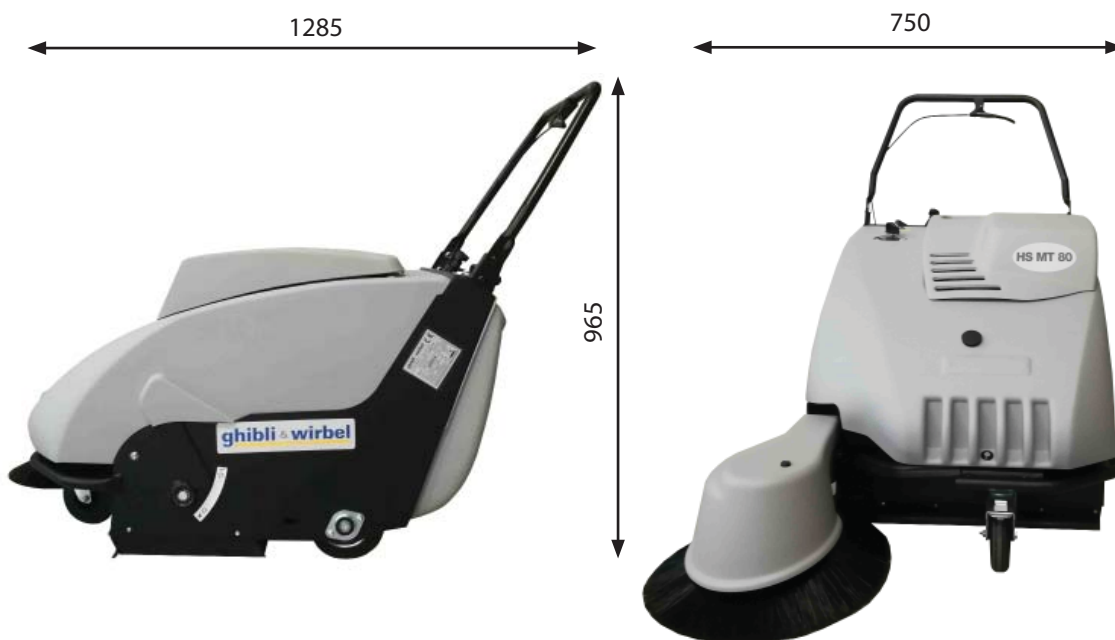
Dimensions

Width without side brush	mm 750
Length	mm 1285
Height	mm 965
Weight	kg 60-62(*)
(*) = machine weight with drive system	
105Ah Battery weight	Kg 37

Dimensions of packing

Width	mm 860
Length	mm 1220
Height	mm 825
Weight (packing only)	kg -

(Fig. 1 - Sweeper dimensions)



Bin capacity

Bin volume	L 40
------------	------

Performance

Working speed	km/h 0 ÷ 4
Min. turning circle	mm 1200
Max. negotiable gradient (occasional) with bin full and side brush raised	% 18

Cleaning data

Cleaning width, main brush only	mm 510
Cleaning width, main and side brush	mm 780

Suspension

Wheels	no. 3
Suspension type	rigid
Superelastic front wheel	∅ mm 125/37.5-50
Superelastic rear wheel	∅ mm 160/40-80

Drive

Transmission to rear wheels	manual or mechanical
-----------------------------	----------------------

Steering

Type

handlebar

Brake

Parking brake

pedal type on front wheel

Dust filtering system

Panel filter

no. 1

Filter surface area

m² 2,25

Filter material

cellulose or polyester

Dust suction system

Centrifugal fan, suction capacity

m³/h 950

Fan speed

rpm 2800

Suction vacuum (filter body) (column of water)

mm 18

Fan diameter

mm 230

Suction shut-off

throttle

Filter cleaner

Type

manual

Electric motor

Power

12V - 280W

Motor speed

rpm 2800

Protection class

IP 20

GEL Battery

12V - 105Ah

Max. Battery charge time

4,5 h

Noise

Sound pressure level in operating position (EN ISO 11201/2010)

dB(A) < 70

Sound power level - measured / guaranteed (2000/14/CE All. V)

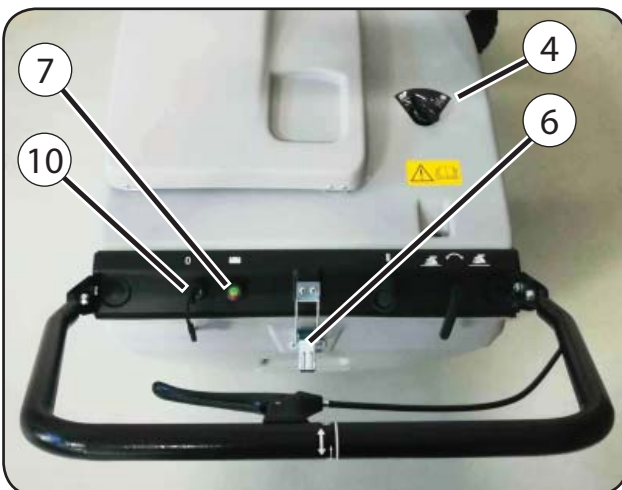
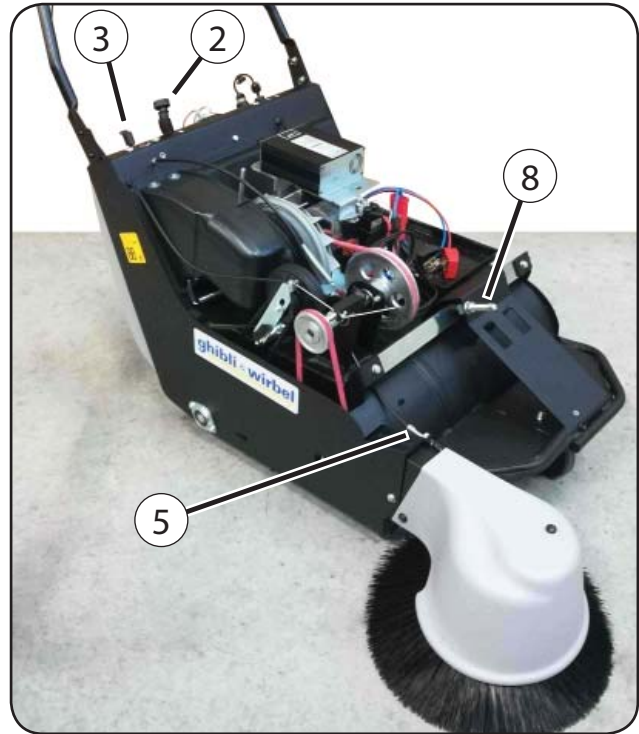
dB(A) 85 / 88

Vibrations

Frequency weighted acceleration value (EN ISO 13754/2008)

m/s² 2,5

CONTROLS (FIG.2)



1. Drive control lever
2. Filter cleaner knob
3. Side brush lifting and lowering lever
4. Suction off knob
5. Side brush adjuster
6. Refuse bin lock hook
7. Battery low indicator (red light)
8. Main brush adjusting knob
9. Parking brake
10. Starter key

GENERAL SAFETY REGULATIONS

The machine described in this manual has been constructed in accordance with the EC Directive on machines no. 2006/42/CE (Machinery Directive) and subsequent modifications.

The person in charge of the machine is responsible for complying with EEC directives and local regulations with regard to the working environment to ensure the health and safety of operatives.



Caution!

The machine may only be used by the authorized operator.

Never carry out modifications, transformations or applications on the machine which might impair its safety.

Before switching on and starting up the machine, check that its operation will not put anyone in danger.

Never work in any way which may impair the stability of the machine.



Danger!

Apart from the regulations envisaged, the person in charge of the machine must inform the operators of the rules which follow:

- The fixed housings must always be left in place, correctly secured.
- If the housings are removed, for any reason, they must be restored to working order before the machine is put back into operation.
- Only use the machine in technically correct conditions which conform to its intended use.
- Compliance with the intended use also requires operation in accordance with the instructions for use and maintenance, and the specified inspection and maintenance conditions.
- Use of the machine to suck up inflammable and/or toxic liquids and dusts is absolutely forbidden.
- Touching the moving or hot parts of the machine (engine-silencer) is hazardous and absolutely forbidden. If access to these parts is absolutely necessary, first remove the key from the dashboard.

OPERATING THE MOTOR-SWEEPER (FIG.3)

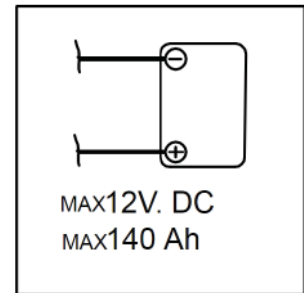
Perform the following checks before starting the motor-sweeper

Installing the battery

Install the battery according to the scheme on the machine.

Perform the following checks before starting the motor-sweeper:

- Check the level of water inside the battery.
- Raise the side brush by means of the lever 3 (Fig. 2).



Starting the motor

Insert the starter key (10, Fig. 2) and turn it clockwise. This powers the drive control system.

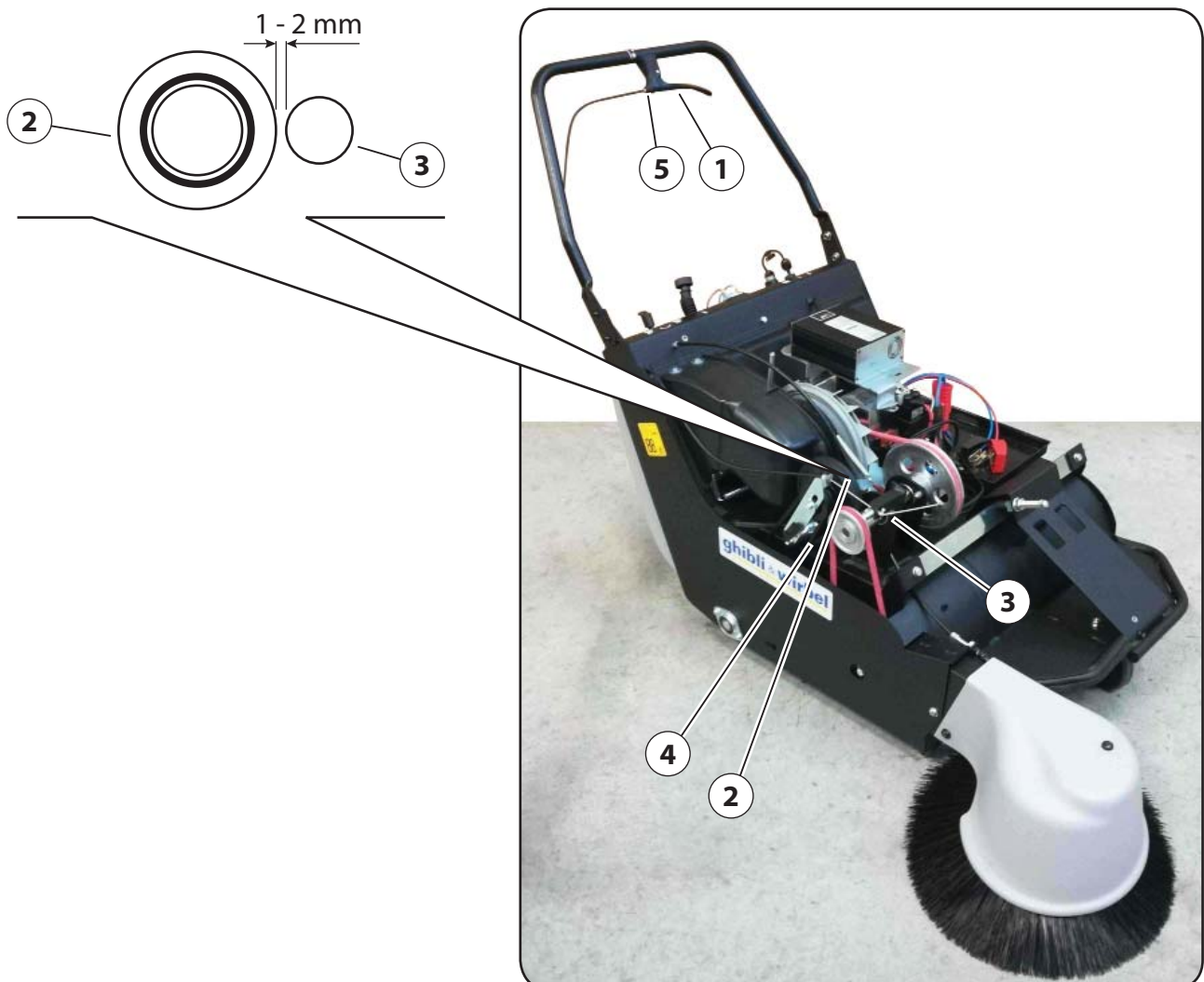
STARTING WORK (FIG.4)

Forward drive: If the sweeper is motor driven, pull lever 1.

This moves drive wheel 2 forward to engage roller 3, which drives the rear wheels via belt 4.

There must be a gap of 1 - 2 mm between drive wheel 2 and roller 3 when the motor-sweeper is at rest.

Regulate adjuster 5 as required to maintain this gap.



REGULATIONS TO BE FOLLOWED DURING OPERATION



Caution!

- Never suck up ropes, wire, straps, water, etc.
- To pick up large but light objects (such as paper, leaves, etc.), push down on the handlebar to raise the front of the machine slightly for just the time necessary to suck the objects up.
- Vibrate the panel filter from time to time by pressing the knob 2 (Fig. 2).
- If the ground to be swept is wet, shut off the fan suction using the knob 4 (Fig. 2), as otherwise the suction filter may be clogged.
- Never pick up glowing cigarette ends or red hot material.
- Do not allow outsiders to approach the machine.
- The machine must only be used by operators authorised by the person in charge of the machine, who are familiar with the contents of this manual.
- These operators must be physically and mentally suitable, and must not be under the influence of alcohol, drugs or medication.

Make sure that:

- There are no foreign bodies (such as tools, rags, equipment, etc.) on the machine;
- The machine does not make strange noises after switch-on; in this case, stop it immediately and trace the cause;
- All safety housings are properly closed.

Maintenance regulation

During cleaning and maintenance of the machine or the replacement of parts, always switch off the motor and remove the starter key.



Caution!

All maintenance, overhaul or repair work must only be carried out by specialised staff or an authorised service centre.



Caution! Machines equipped with a battery charger on board

When cleaning the machine, take care that no water enters the battery charger.



Caution!

When cleaning the machine, do not use a high-pressure water lance.

MAINTENANCE (FIG.5 - FIG.6)

Main brush (Fig.5)

The main brush sweeps dust and refuse into the bin at the rear of the motor-sweeper.



Caution!

Never sweep up string, wire, etc., which can become entangled in the brush and damage the bristles. Periodically check the condition of the brush.

Adjusting the main brush (Fig.5)

The main brush should just touch the floor. While the motor-sweeper is stationary on an even floor the section of floor covered by the bristles should be 3 cm wide (see picture). If the main brush no longer touches the floor, or leaves lines of dirt, it has worn down (5 mm) and must be lowered. Proceed as follows to lower the main brush:

- Slacken off nut 4
- Turn knob 5 clockwise by 1 notch (each notch corresponding to 2.5 mm lowering - 3 cm wide trace)
- Re-tighten nut 4.

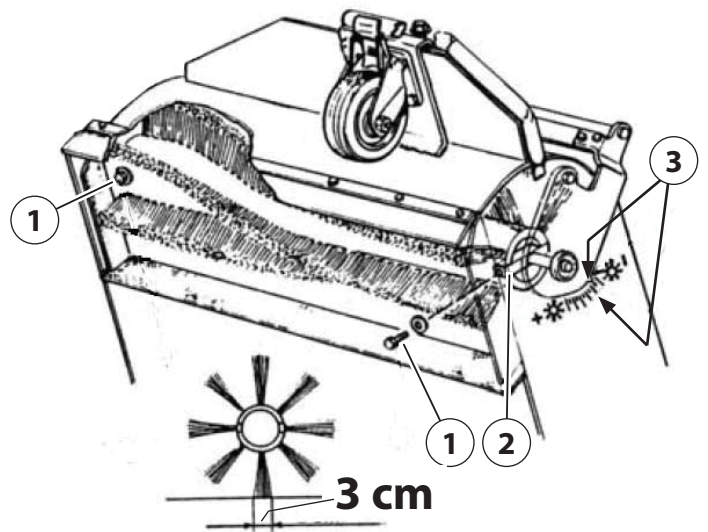


Caution!

the second notch and arrow 3 correspond to the work position with a new main brush (3 cm trace)

Replacing the main brush (Fig.5)

- Remove the refuse bin and lift up the motor-sweeper at the front.
- Remove the two bolts 1 securing the brush to the drive pins 2.
- Remove the old brush and mount the new one.



MAINTENANCE (FIG.5 - FIG.6)

Side brush (fig.6)

The side brush sweeps dirt from the edges of floors and from corners, and directs it to the centre of the sweeper where it can be picked up by the main brush.

Adjusting the side brush (fig.6)

Check that the shape of the trace left by the side brush is as shown the "trace A". As the bristles of the side brush wear down, adjust the height of the brush from the floor by means of cable adjuster 1 by slackening ring nut 2.

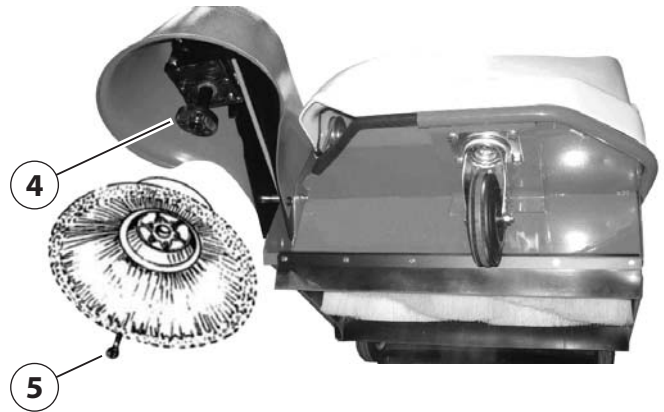
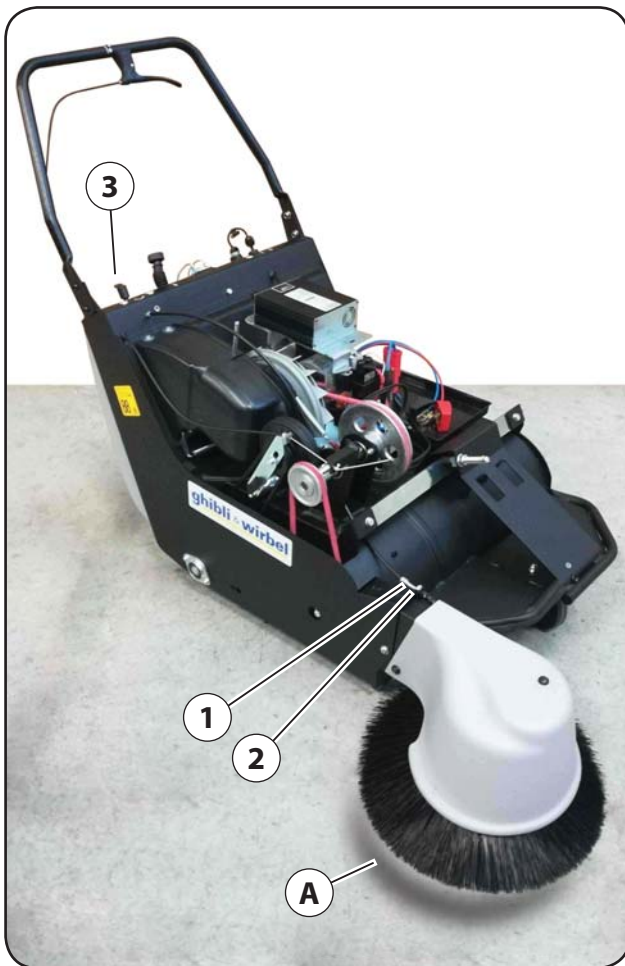
Replacing the side brush (fig.6)

- Remove the three screws 5 to free the brush from its support 4.



Caution!

when the motor-sweeper is not in use, the side brush must always be raised above the ground, to prevent its bristles from becoming bent.



SWEeper DRIVE SYSTEM (FIG.7)

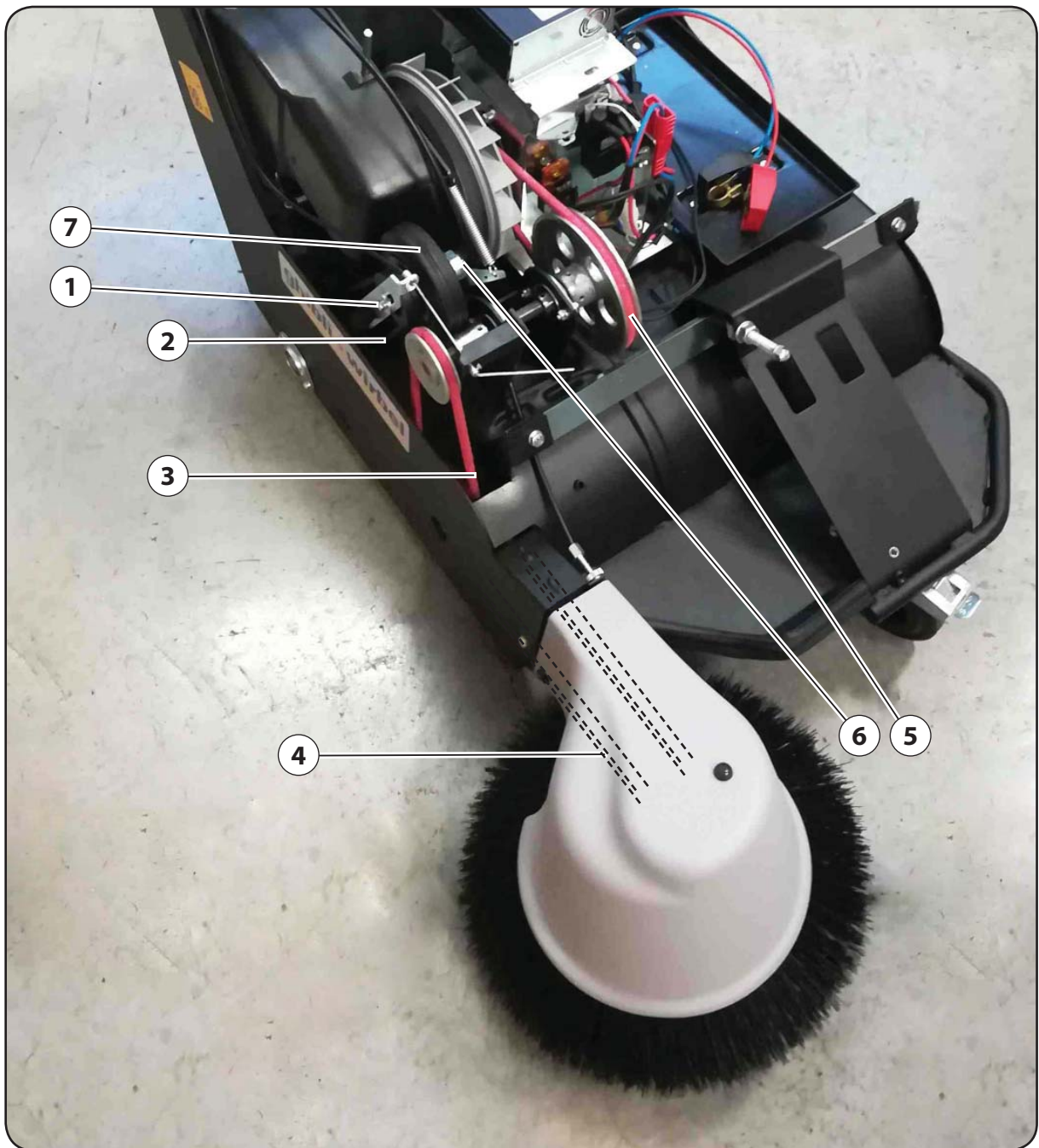
Drive belts

Check the tension of the drive belts every 100 - 150 hours work.
Belts 3, 4, and 5 are elastic and are kept tight automatically.
If necessary, tighten drive belt 2 as follows:

- Slacken screw 1 and nut 6.
- Push drive wheel 7 upward and re-tighten screw and nut .

⚠ Caution!

After this adjustment, check and adjust as necessary the gap between the wheel 7 and the drive roller (see Fig. 4).



PANEL TYPE DUST FILTER (FIG.8)

The dust filter removes the dust from the air sucked through the motorsweeper. The filter must be kept permanently efficient.



Caution

If any dust comes out of the sweeper, the filter is dirty and must be cleaned.

Cleaning the panel type filter

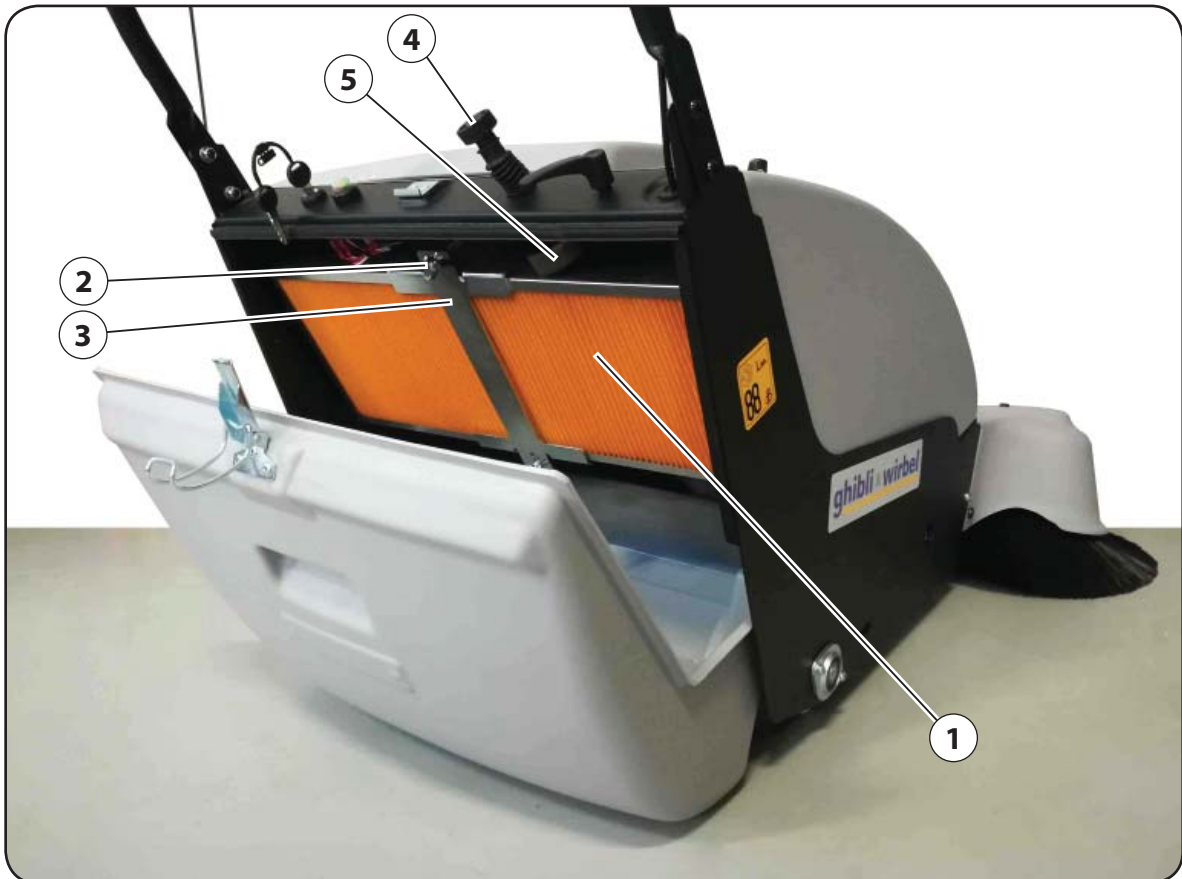
Proceed as follows to clean the dust filter:

- Pull the knob 4 out as far as it will come and release it. This causes filter striker 5 to strike against filter 1 frame, and shake dust off the filter.
- About once a month, remove filter 1 and clean it with a jet of compressed air or better still a vacuum cleaner.

Disassembling the panel filter

Disassemble the filter as follows:

- Remove the refuse bin.
- Unscrew both wing-nuts 2 and remove filter retainer 3.
- Take out filter 1.

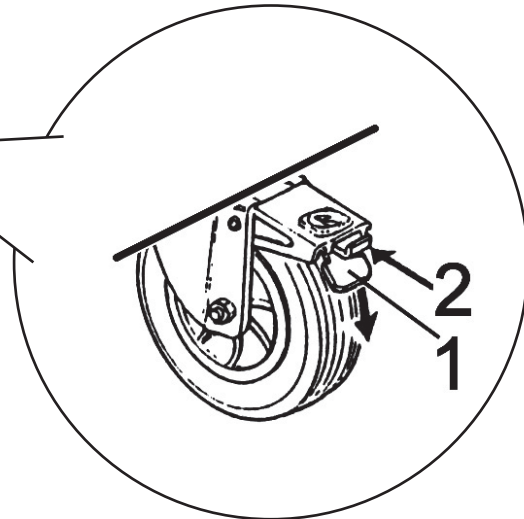


PARKING BRAKE (FIG.9)

When the motor-sweeper is out of use, the parking brake must be engaged on the front wheel.

Proceed as follows:

- To brake the wheel, press lever 1 with your foot until the catch is tripped.
- To release, press position 2 with your toe.



REFUSE CONTAINER (FIG.10)

When the machine leaves dust on the ground this indicates that the refuse container is full, it is necessary to empty it:

- Switch off the engine and take off the container 1 by unhooking it from the chassis by clamp 2



Caution!

Always stop the engine when taking out the container.

- Re-fit the container on its seat paying attention to couple it correctly with the chassis of the machine and re-hook the clamp 2.



ELECTRIC SYSTEM AND WIRING DIAGRAM (FIG.11)

Charging the batteries

When the low battery charge warning light 2 shows red, fit plug 9 into socket 6 and recharge the battery with a 12 V, 30 A charger.



Caution!

Connect the cables of plug 9 to the battery charger before plugging it into socket.

Battery maintenance

Keep the battery dry and clean. Pay particular attention to the terminals and terminal bolts etc.. About once a week (depending on how much the motor-sweeper is used), remove a few of the battery caps and check the level of the electrolyte. Top up with distilled water if necessary. Periodically check the efficiency of the battery charger.

Make sure that the area in which the battery is charged is well ventilated and keep the cover open.

Keep naked flames or lit cigarettes well away from the battery, especially while it is being charged.

Never let batteries completely exhausted: when the machine is not used regularly the battery must be recharged at least every 30 days.



Danger!

The fluid is corrosive. The battery gases can cause explosions. Avoid short-circuits. Never reverse poles.

Autonomy

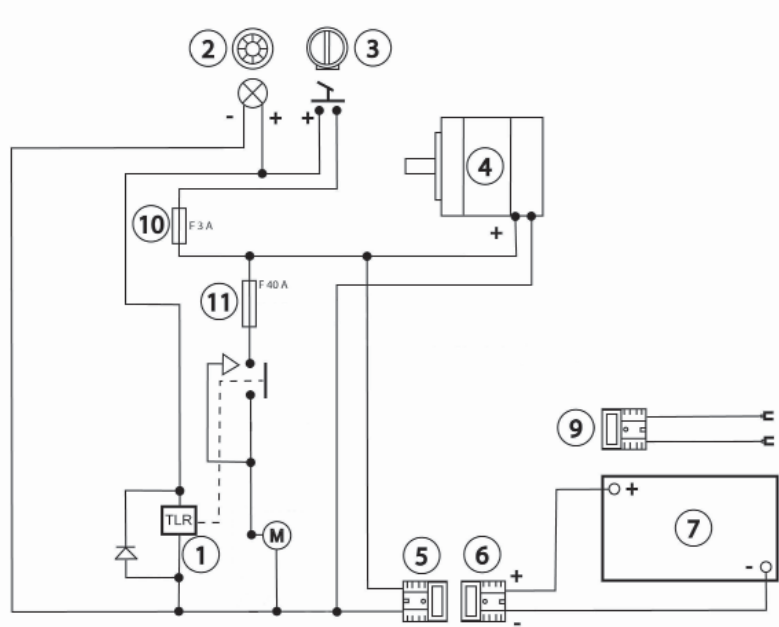
The motor-sweeper has a working autonomy of about 4,5 hours.

Perform the following checks if autonomy drops below the specified value:

- Check that the brush is not pressing too hard on the floor.
- Check that there is no string or wire, etc., entangled in or around the main brush which might cause friction and increase power consumption.
- Check that the battery is fully charged when you start work.

Electric wiring description

1. Remote control switch
2. Low battery charge warning light
3. Starting key
4. 280 W – 12V electric motor
5. Plug
6. Socket
7. 12V - 105Ah Gel battery
8. -
9. Plug and cables for battery charger
10. 3A Fuse
11. Maxi 40A Fuse



ROUTINE CONTROL AND MAINTENANCE OPERATIONS AND SAFETY CHECKS

! Caution!

1. The motor-sweeper must be inspected by a skilled technician who checks its safety or for any damage or defects in the following cases:
 - before it is put into operation.
 - after modifications or repairs.
 - at regular intervals, as indicated in the "Routine maintenance and control operations" table.

2. Every six months check that the safety devices are in good working order.
To ensure that the safety devices are operating properly, the machine must be overhauled by specialist staff every 5 years.

3. The person in charge of the machine must make an annual check on its condition. During this check, he must decide whether the motor-sweeper still complies with the technical safety regulations, and then apply a marker plate to the machine to indicate that the check has been made.

Periodical maintenance checks table		Intervals in hours				
		8	40	150	500	1500
1	Check belts		√			
2	Check that the main brush is free from wires, strings, etc.	√				
3	Check dust filter	√				
4	Replace dust filter					√
5	Check main and side brushes trace width		√			
6	Check the battery liquid	√				
7	Check motor brushes			√		

TROUBLESHOOTING

Fault	Cause	Corrective action
The motor-sweeper fails to pick up large particles of dirt or leaves traces of dirt behind.	Travel speed too high	Reduce travel speed
	Brush pressure too light	Adjust brush pressure (trace on floor)
	Brush worn	Lower or replace brush
	Bristles bent, or string or wire, etc., entangled in brush.	Remove string or wire and straighten bristles in warm water.
Sweeper leaves dust on floor or dust comes out from side flaps.	Filter clogged	Clean filter
	Flaps worn out or broken	Replace flaps
Dust comes out of the suction fan	Filter torn	Replace filter
Motor-sweeper throws dirt forwards	Front flap broken	Replace front flap
The main brush lifts the front flap	Front flap too long	Replace front flap
Rapid brush wear	Excessive brush pressure	Reduce brush pressure (narrower trace).
Main brush noise different or excessive.	Material wound around brush	Remove entangled material
The main brush does not turn	Drive belt broken	Fit new drive belt
Battery does not maintain its charge	Electrolyte level low	Top up electrolyte level
	Battery cell burned out	Replace battery
	Motor over-loaded	Check motor current absorption
	Battery terminals loose	Check and tighten battery terminals
	Material entangled in main brush	Remove entangled material
	Bearings seized	Replace bearings
	Excessive brush pressure	Reduce brush pressure (narrower trace)
Battery discharges quickly	Insufficient charge time	Increase charge time
	Battery terminals loose or oxidized	Clean terminals and tighten

SAFETY INFORMATION

Cleaning:

When cleaning and washing the machine, take care when using aggressive detergents, acids, etc. Follow the instructions provided by the detergent producer, and wear protective clothing if appropriate (e.g. overalls, gloves, goggles, etc.).

Explosive atmosphere:

The machine is not constructed to work in environments where there is a risk that there might be explosive gases, dusts or vapours, and so its use in an explosive atmosphere is FORBIDDEN.

Disposal of harmful substances:

Comply with the laws in force on waste disposal and treatment when disposing of the material collected, the machine filters and spend material such as batteries, engine oil, etc.


Scrapping the machine:

If the machine is scrapped, subdivide the types of materials of which it consists (EEC Directives) according to the disposal method, so that they can be disposed of in accordance with the laws in force.

Consign hazardous materials such as batteries, spent oils, etc to operators authorized to dispose of these substances.

INFORMATION FOR USERS (for "PROFESSIONAL" products)



In accordance with art. 13 of Legislative Decree no. 151 dated 25th July 2005 "Implementation of Directives 2002/95/CE, 2002/96/CE and 2003/108/CE, relating to the use of dangerous substances in electric and  electronic equipment, as well as the disposal of waste.

The symbol of the barred rubbish bin on the equipment or on the package indicates that, at the end of its lifetime, the product must be collected separately from other waste.

The separate waste collection of this equipment at the end of its lifetime is organised and managed by the manufacturer. The user wanting to throw away this equipment must therefore contact the manufacturer and follow the system adopted by the latter, in order to allow separate collection of the equipment at the end of its lifetime.

Suitable separate collection for subsequent sending of the equipment cast off for recycling, treatment and environmentally compatible disposal, contributes to preventing possible negative effects on the environment and health and promotes the re-use and/or recycling of the materials of which the equipment is made.

Illicit disposal of the product by the holder leads to the application of administrative sanctions according to Legislative Decree no. 22/1997 (article 50 and subsequent articles of Legislative Decree no.22/1997)



The packing of the machine is manufactured by recycling materials. Consign the spent materials to operators authorized to dispose.

OPTIONAL PARTS

Battery charger on board "CBHD1"

Use the battery charger 1 when the battery is discharged (see warning light 6) Proceed as follows:

! READ CAREFULLY THE OPERATIONS MANUAL 2 OF THE BATTERY CHARGER 1.

Make sure that the electric power supply is 220V.

Lift the bonnet and connect the plug 7 of the charger to the socket of the electric power supply, the battery charger makes a self-checking before start, subsequently switches on the red light 3 and starts to recharge the battery.

During the charging operation the leds coming from Red 3 to Yellow 4 to Green 5.

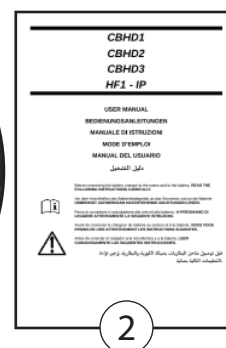
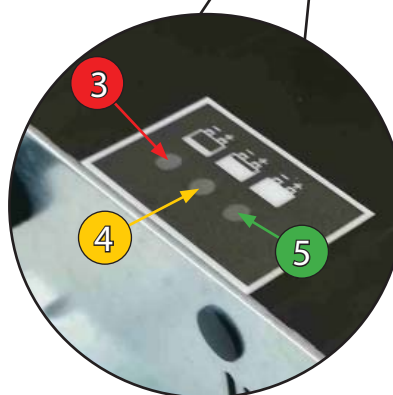
The battery is completely charged when the green light is "ON", the battery charger switches off automatically.

Disconnect the plug from the power supply.

Check the battery electrolyte.

! Caution!

For safety reasons the starting of the machine is excluded during the charging procedure.



DEALER



4ed 07/2023

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