NACECARE SOLUTIONS

OWNERS MANUAL
ST575/580

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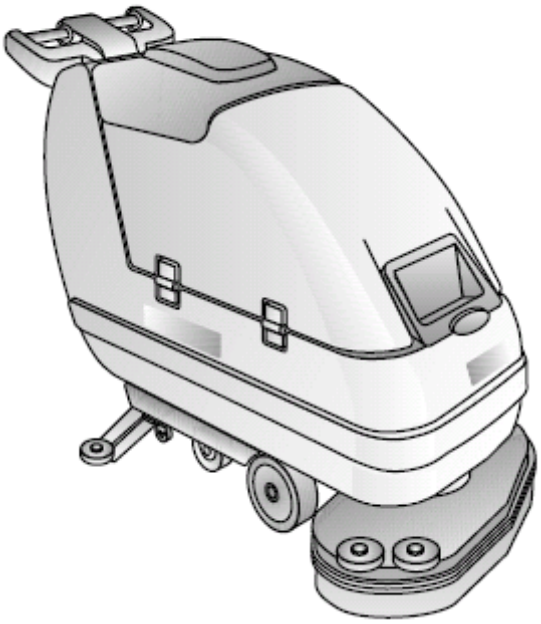
Phone: 1-800-387-3210 Fax: 1-800-709-2896



RECEIVING THE MACHINE

Immediately check, when receiving the machine, that all the materials indicated on delivery documents have been received and also that the machine has not been damaged in transit. If it has been damaged, this damage must be immediately reported to the shipper and also to our customer service department. Only acting promptly in this manner will make it possible to receive missing material and to be reimbursed for damage.

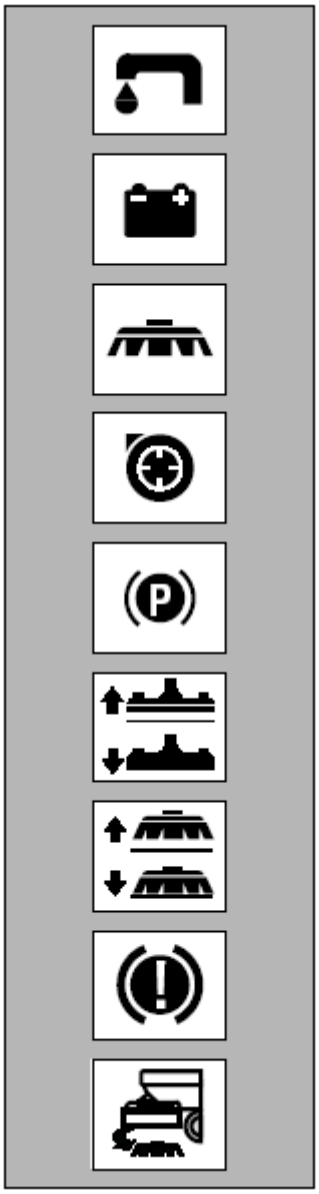
FORWARD

This is a floor-scrubbing machine that uses the mechanical scrubbing action either one or two rotating brushes and the chemical action of a water-detergent solution to clean any type of floor surface. As it moves forward it also gathers up the dirt removed from the floor and the detergent solution that has not been absorbed by the floor.

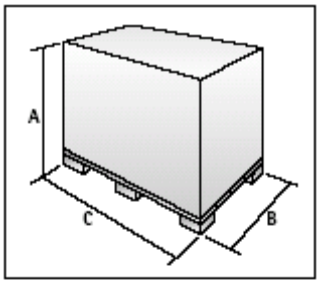
THE MACHINE MUST ONLY BE USED FOR THIS FUNCTION

Even the best machines will only operate efficiently and work with profit if they are used properly and kept in perfect operating order. Read this instruction booklet carefully and consult it every time problems arise with machine operation. Remember that, if necessary, our service organization, in collaboration with our agents, is always available for helpful hints or direct intervention.

		ST575	ST580
		BS	BTS
Working width	mm	450	450
Squeegee width	mm	645	645
Working capacity	m^2/h	1350	1350
Water consumption	g/m^2	50	50
Brushes	Ø mm	100	100
Brush rpm	giri/min	780	780
Max. brush pressure	kg	30 max	30 max
Brush motor (tension)	V	24	24
Brush motor (power)	W	600	600
Drive motor (tension)	V	-	24
Drive motor (power)	W	-	150
Type of drive		semi-aut.	aut.
Forward and reverse speed	km/h	-	0-3
Max. gradient		2%	10%
Suction motor (tension)	V	24	24
Suction motor (power)	W	550	550
Suction vacuum	mbar	130	130
Solution tank	l	40	40
Recovery tank	l	50	50
Machine length	mm	1240	1240
Machine height	mm	985	985
Machine width	mm	560	560
Batteries	V/Ah	24/140	24/140
Battery weight	kg	80	80
Machine weight (empty and without batteries)	kg	112	116
Noise level (IEC 704/1)	dB (A)	73	73



- Water symbol indicates the water valve open signal lamp.
- Battery charge level symbol.
- Brush symbol indicates the brush motor switch.
- Vacuum motor symbol indicates the vacuum motor switch.
- Brake symbol indicates the hand brake engaged signal lamp. Used over the emergency brake lever.
- Squeegee lift/lower symbol indicates the squeegee lift lever.
- Brush base lift/lower symbol indicates the base lift lever.
- Brake symbol indicates the parking brake disengaged position.
- Automatic brush uncoupling symbol. Indicates the switch for automatic removal of brush.



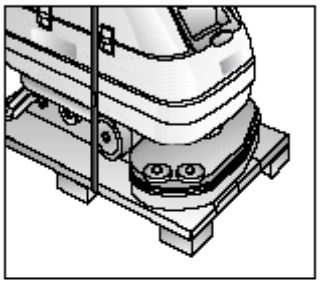
MOVING THE PACKAGED MACHINE

The machine is contained in specific packing with a platform so that a forklift can move it. No more than two packing crates can be stacked on each other. The total weight is 187 kg. for the machine. Packing dimensions are:

A: 1140 mm

B: 580 mm

C: 1400 mm

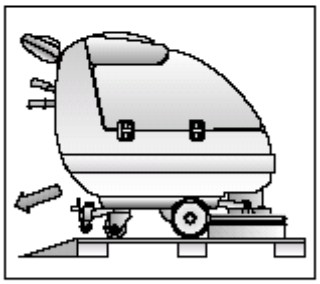


HOW TO UNPACK THE MACHINE

•Remove outer packing.

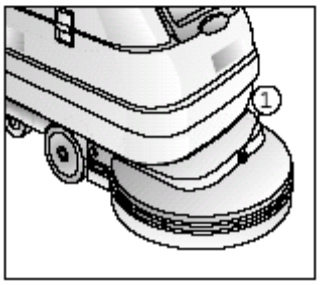
•The machine is strapped to its platform.

•Cut the strap.



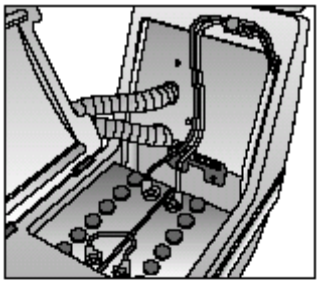
•Use a ramp to lower the machine off the platform, pushing it backwards in reverse. Avoid violent blows against the base.

•Keep the packing platform and the anchor brackets since it may become necessary to transport the machine again.



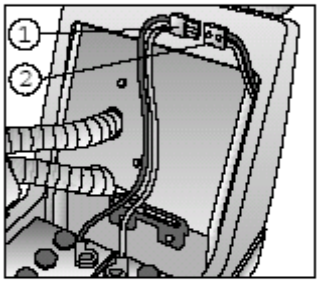
BRUSH COVER ASSEMBLY

(Only for single brush version) Because of packing reasons the brush cover is supplied separately from the machine. For assembly, position the control slits in the proper supports, as in the picture, and place the cover in the machine, jamming it with the knob.



PUTTING THE BATTERIES IN THE MACHINE
The batteries must be housed in the battery compartment below the recovery tank. Specialists must carry out all installation and maintenance procedures.

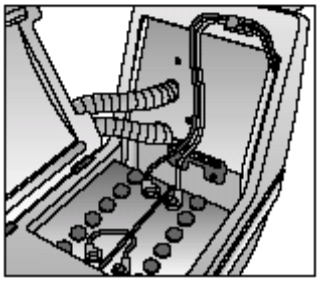
CONNECTING THE DRIVE MOTOR CABLE
This job must be done by a service technician.



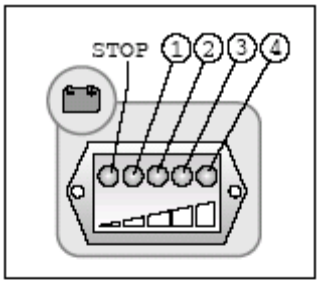
CONNECTING THE BATTERY CONNECTOR
The battery connector (1) should be connected to the machine connector (2).

CONNECTING THE BATTERY CHARGER
The battery connector (1) must fit into the corresponding connector on the battery charger. The battery charger connector is delivered inside the bag that contains this instruction booklet. It must be fitted to the battery charger cables according to instructions.

BATTERY RECHARGING
To avoid permanent harm to the batteries, they should never be totally discharged. They should be recharged within a few minutes after the battery discharged signal starts to flash.

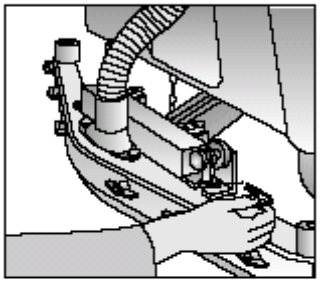


NOTE: Never leave the batteries completely discharged, not even if the machine is not being used. When recharging, first empty the recovery tank and then open the recovery tank. Check the level of battery electrolyte every 20 recharges. Top up with distilled water as necessary. (WET LEAD ACID ONLY)



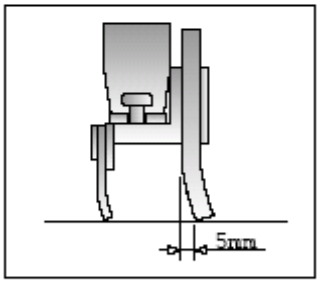
BATTERY CHARGE LEVEL GAUGE

The battery charge level gauge works with a microprocessor. The led display indicates the charge level:
4= maximum charge, 3= 3/4 charge, 2= 2/4charge,1= 1/4 charge, 0 = batteries discharged (flashing).
IMPORTANT: the brush motor automatically turns off a few seconds after the flashing "0"appears. The remaining charge can be used to terminate drying operations before recharging.

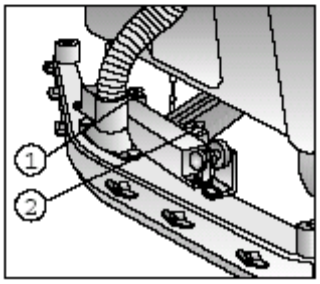


SQUEEGEE

The squeegee is supplied separately, dismantled from the machine, for packing reasons. It must be installed as illustrated, threading the retaining pin into the squeegee column. Put the vacuum tube into its sleeve.



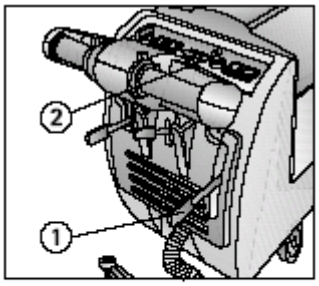
The rear rubber, during operation, must be slightly and uniformly bent back about 5 mm. along its entire length. It may be necessary, to increase curvature of the rubber in its central section, to slope the squeegee body backwards. This is done by rotating adjustment unit (1) counter-clockwise. To increase curvature on the outside sections of the rubber just rotate adjustment unit (1) clockwise.



REGULATION SQUEEGEE HEIGHT

The squeegee has to be regulated depending on the wearing of the rubber. To adjust this:
•Rotate the wing nuts clockwise to lift the squeegee and counter clockwise to lower it.

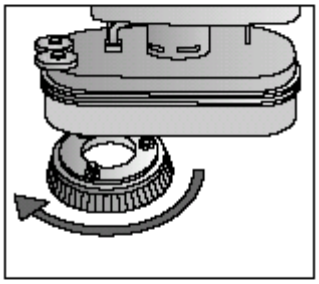
Note: The right and left wheels must be regulated the same amount so that the squeegee works in parallel to the floor



MANUAL BUSH INSTALLATION

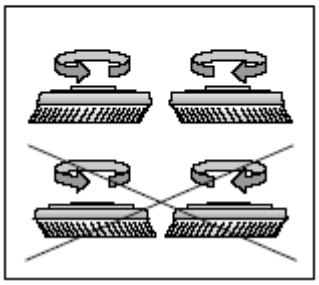
•Use lever (1) to lift the base (lever downwards).

•Turn key (2) to OFF and remove it from the control panel (installing the brushes with power on may cause injury to the hands).



•With the base raised thread the brushes into the seat on the plate below the base, turning them until the three buttons enter the holes on the plate. Turn them abruptly to push the button towards the retaining spring so that the brush locks in place. The photo shows the direction of rotation for installing the right brush. Rotate the opposite direction to install the left brush.

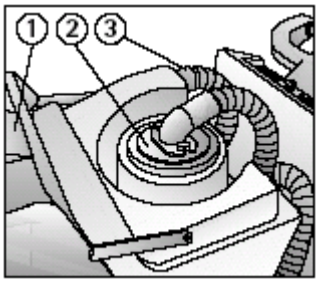
•For the single brush models the procedure is the same and the rotation direction for the brush coupling is indicated on the picture.



•(Only for double brush machines) we recommend inverting right and left brushes every day and vice versa. If brushes are not new and have distorted bristles then it is best to install them always in the same position (the right brush on the right side and the left brush on the left side) to prevent bristles with a different slope from overloading the brush motor and causing excess vibrations.

ASSEMBLY OF THE BRUSHES WITH AUTOMATIC COUPLING-RELEASE

(Optional) Place the brushes under the base after taking out the splashguard with the proper spring hook, so that the brushes are centred with the brush holders. This assembly can also occur placing the brushes under the base and moving forward the machine until the brushes are dragged along by the machine, which means that they are automatically centred under the brush holders (only on machines provided with the OPTIONAL automatic coupling system). Pushing the control lever, lower the base. Now just switch on brush motor and they will be automatically fastened to brush holders and work can start.

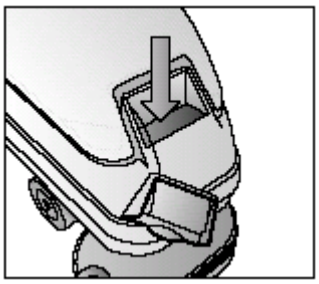


RECOVERY TANK

Open hood (1). Check:

•That plug (2) is properly anchored (it must not pull out when it is lifted, otherwise turn it clockwise)

•That aspiration tube (3) is inserted in its seat.



SOLUTION TANK

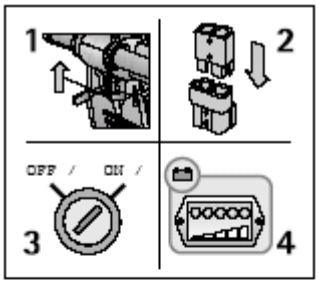
Fill the solution tank with clean water at a temperature not in excess of 50°C. Add liquid detergent in the amounts and using the procedures recommended by the detergent manufacturer. Use only a minimal percentage of detergent to prevent formation of an excess quantity of foam since too much foam may damage the vacuum motor. **NOTE:** Always use low-foam detergent. Introduce a small amount of anti-foam detergent in the recovery tank before starting to work. Be sure to prevent foam from being generated. **Never use pure acids.**

Follow these regulations carefully to avoid harm to the operator and damage to the machine.

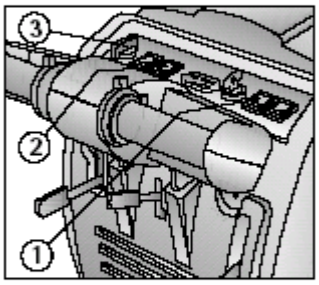
- Read the labels on the machine with attention.
- Never cover them for any reason and always immediately replace them if they are damaged.
- Never mix different types of detergents: this could generate noxious gases.
- Never set containers of liquid on the machine.
- Always remove the recovery tank when performing battery recharging or maintenance.
- Machine storage temperature must be between -25°C and +55°C.
- Optimum operating temperature is between0°C and 40°C.
- Relative humidity must be between 30-and95%.
- Never use the machine in an explosive environment.
- Never use the machine to transport goods.
- Never use acid solutions that could damage the machine.
- Avoid running the brushes with the machine stopped: this could damage the floor.
- Never aspirate flammable liquids.
- Use a powder fire extinguisher in case of fire. Do not use water.
- Do not hit against shelving or scaffolding when there is a danger of falling objects.
- Suit operating speed to traction conditions.
- Never exceed the maximum slope limits: this could cause instability.
- Whenever you park the machine, remove the key. (On the machines with traction apply the parking brake).
- The machine must perform washing and drying operations simultaneously. Any other operations must be done in zones where the presence of unauthorized persons is prohibited. Signal wet floors with suitable signs.
- Whenever the machine has operating troubles check to make sure these are not

GENERAL RULES OF SAFETY

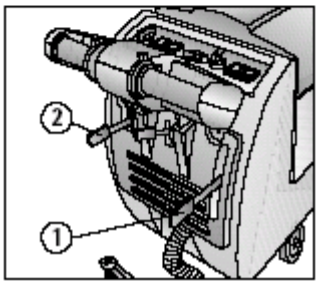
- When replacing machine parts always ask for ORIGINAL spare parts from your Authorized Agent and/or Retailer.
- For machines with a traction motor, in case of danger, immediately engage the emergency brake.
- Always cut out the electric power supply to the machine whenever maintenance is performed.
- Never remove guards that require tools for removal.
- Never wash the machine with direct or pressurized jets of water or with corrosive substances.
- Have you're nearest service centre check the machine every 200 operating hours.
- This machine does not generate harmful vibrations to the operator



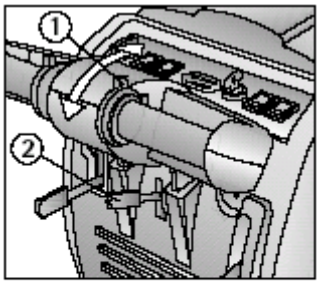
•Set the machine up for operation.
•Check that the parking brake is released (1).
•Connect the connector to the batteries (2).
•Turn the main switch key (3) a quarter turn clockwise. The battery led display immediately comes on.



•Press brush switch (1).
•Press vacuum motor switch (2).
•Use knob (3) to adjust water flow



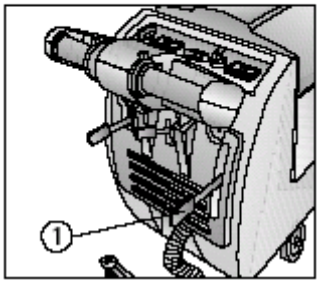
•Push the lever (1) to lower the base.
•Pushing the lever, lower the squeegee assembly (2).



•(Only machines with traction motor) The machine will start to move when deadman lever (1) is pushed forward. Check, during the first few meters of wash, that brush pressure is adequate (see "BRUSHPRESSURE" below), that the amount of water is sufficient and that the squeegee dries the floor perfectly. The machine will now start to work at full efficiency until the solution water is finished. Immediately apply emergency brake (2) on the left side of the machine whenever problems arise during operation. This control stops forward movement by the machine. To start to work again, after solving the problem, just raise level (2) and push deadman lever (1) forward.

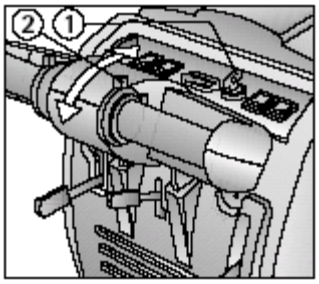
OVERFLOW DEVICE

The machine has a float that trips whenever the recovery tank is full. This causes the vacuum float to close. In this case you should empty the recovery tank.



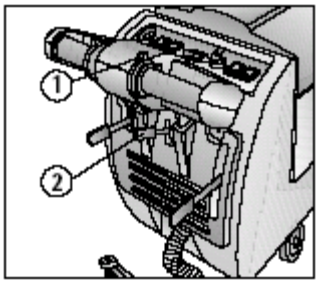
BRUSH PRESSURE

Use lever (1) to adjust brush pressure. There are three preset positions. The greatest pressure is when the lever is in its highest position. Pressure should be selected depending on the type of floor and the amount of dirt. Too much pressure causes increased brush wear and greater energy consumption.



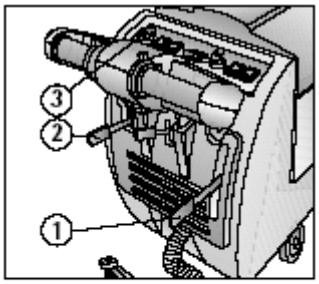
TRACTION

(Only machines with traction motor) These machines are equipped with electronically commanded traction, and continuous speed variation. To move the machine, it is necessary to act upon the key (1), wait for 3 seconds and then rotate forwards (forward movement) or backwards (rear movement) the lever (2) on the handle bar. In reverse motion, the speed movement is reduced.



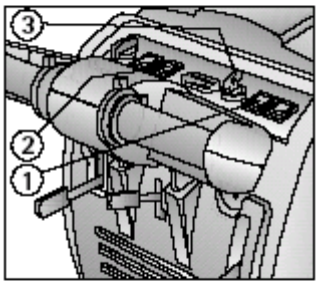
BRAKES

(Only machines with traction motor) The machine has two braking systems: a working electronic brake integrated in the drive system and an emergency brake which works by pushing downwards the lever, which works also as parking brake when it is fixed in the proper hooking down on the right.

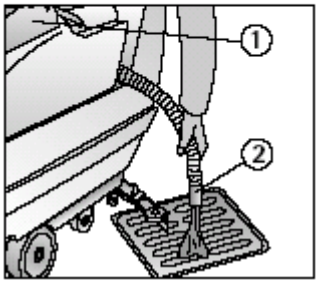


At the end of the work day, before performing any type of maintenance:

•Close water valve (3).
•Raise the base (1).
•Raise the squeegee (2).

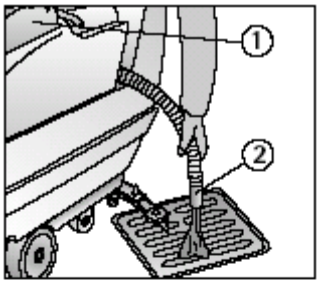


•Turn off the brush switch (1).
•Turn off the vacuum motor switch (2).
•Move the machine to the water disposal point.
•Turn key (3) to the off position.

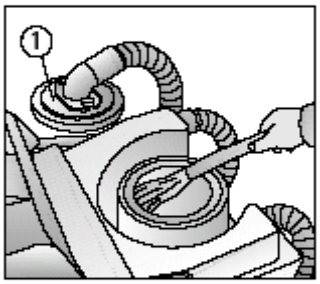


•Lift the hood (1). This frees recovery tank drain tube (2).
•Remove the drain tube from its seat, unscrew the drain plug and empty the recovery tank (Lift the left side of the tank a few centimetres to accelerate final emptying phases). These operations must be performed wearing rubber gloves to protect against contact with dangerous solutions.
•The squeegee should be raised when the machine is not in use to prevent permanent distortion of the rubber strips.
•Remove the brushes and clean them with a jet of water (see "BRUSH REMOVAL" below).

CLEANING THE RECOVERY TANK

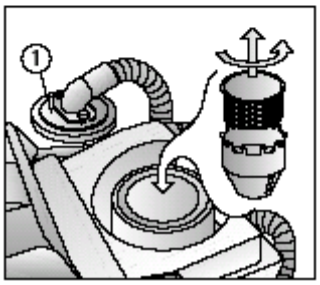


•Open the hood (1).
•Remove the drain tube (2) from its seat. Empty the tank through the drain tube by turning the knob a few turns and then pulling out the plug.

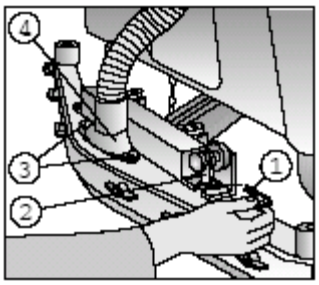


•Remove plug (1) from the recovery tank.
•Pull out the filter with its foam-protection unit.
•Rinse the inside of the tank thoroughly with a jet of water. Slightly lift the tank, using its handle, to improve dirt removal.
•Put the tank back in the machine and put the plug back on the drain tube.

CLEANING THE RECOVERY TANK FILTER



•Remove plug (1) from the recovery tank.
•Pull out the filter with its foam-protection unit.
•Turn the filter inside the foam-protection unit counter-clockwise to release it and pull it out.
•Use a jet of water to clean the walls and the bottom of the filter. Clean all parts thoroughly and carefully.
•Replace everything by following the above-indicated procedure in reverse order.



CLEANING THE SQUEEGEE

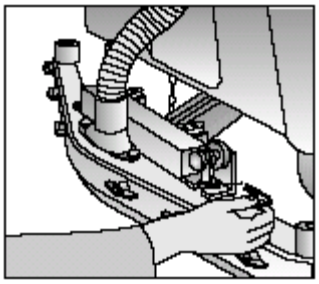
The squeegee must be in perfect working condition to achieve a good drying process: it must be clean and its rubbers must be in good condition. Proceed as follows to clean the squeegee:

•Remove it from the machine by pulling pin (1) out from column (2). Clean the interior with a jet of water.

•Loosen knobs (3) remove block (4) and check that there is no dirt inside.

•Check the condition of the rubbers and replace them as necessary.

•Replace everything on the machine.



REPLACEMENT OF THE SQUEEGEE RUBBERS

Check the squeegee rubbers wear and if necessary, change them. To replace them:

•Take off the suction hose from its coupling.

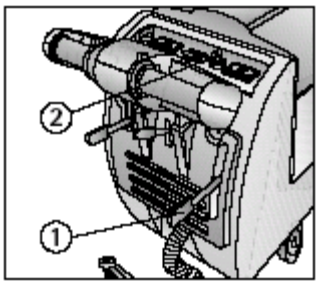
•Take off the pin from the stud bolt.

•Remove the squeegee from its support.

•Remove the wing nuts which block the rubber blades and take them off.

•Replace the rubbers.

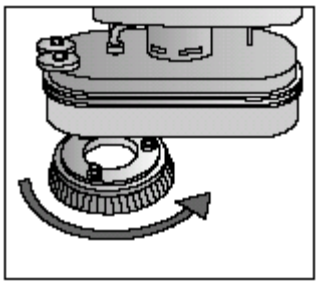
•To reassemble the squeegee repeat the above-mentioned operations.



MANUAL BRUSH REMOVAL

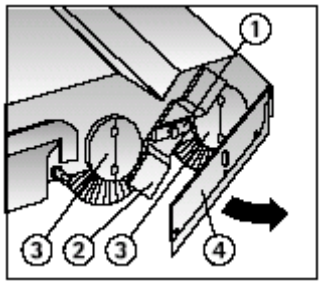
•Push lever (1) down to raise the base.

•Turn key (2) to OFF and remove it from the control panel (removing the brushes with power on may cause injury to the hands).

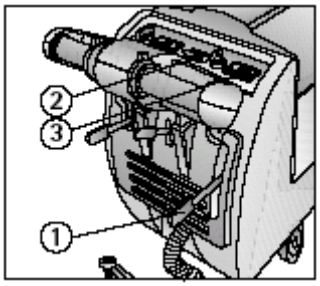


•Rotate the brush, with the base raised, until it exits from the brush-bearing plate as illustrated. The picture shows the direction of rotation for releasing the right brush. Rotate in the opposite direction for the left brush.

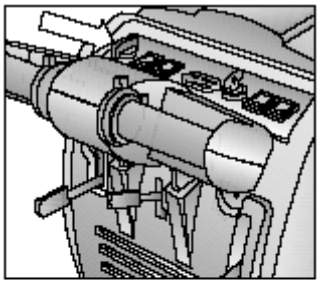
•For single brush versions the procedure is the same and the rotation direction for brush release is indicated on the picture.



DISASSEMBLY OF THE BRUSHES
(Only cylindrical brush models)
•Pull the handle (4) as illustrated and release the side bar.
•Unscrew the wing nut (1).
•Rotate the spring (2)
•Take off the pins (3).
•Lift the machine and remove the brushes.
•Reassemble everything again repeating the above-mentioned operations inversely. Be careful not to invert the brushes (white brush in the front part and the blue one in the rear part).

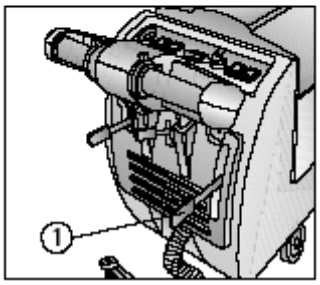


BRUSH REMOVAL WITH AUTOMATICCOUPLING-RELEASE
(Optional)•Turn the brushes switch off and press the brushes/brush release button until the brushes release.



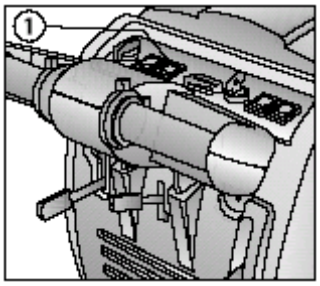
INSUFFICIENT WATER TO THE BRUSHES
•Check that the valve is open (signal lamp on).
•Check that there is water in the solution tank.

MACHINE DOES NOT CLEAN WELL
•Check the condition of the brushes and replace if necessary (brushes must be replaced when bristles are 15 mm. high).
•Check that brush pressure is sufficient. Increase as necessary using lever (1).



•Use another type of brush rather than the standard brush. We recommend, to clean floors with exceptionally difficult dirt, the use of special brushes that are supplied on request and according to your specific needs (see "BRUSH SELECTION AND USE" below).

SQUEEGEE DOES NOT DRY PERFECTLY
•Check that the squeegee is clean.
•Check all adjustments (see "PREPARING THEMACHINE").
•Clean the entire aspiration unit (see "DAILYMAINTENANCE").
•Replace worn rubbers.



SUCTION MOTOR DOES NOT WORK
•Check if the suction motor switch (1) is ON. Check if the main key switch is ON.
•Check if the recovery tank is full.

TOO MUCH FOAM IS FORMING
Check that low-foam detergent is used. Add, if necessary, a small quantity of anti-foam liquid to the recovery tank. Remember that more foam is generated when the floor to be cleaned is not very dirty. In this case use a more diluted detergent solution.

POLYPROPYLENE BRUSHES

(PPL)These are used on all types of floors and offer good resistance to wear and to hot water (not more than 60°C). PPL is not hygroscopic and preserves its characteristics even when wet.

NYLON BRUSHES

These are used on all types of floors and offer good resistance to wear and to hot water (even more than 60°C). Nylon is hygroscopic and consequently tends, over a period of time, to lose its characteristics when working on wet floors.

TYNEX BRUSHES

The bristles on these brushes are impregnated with highly aggressive abrasives. These are used to clean very dirty floors. We recommend using only the bare pressure necessary to prevent damage to the floor.

STEEL BRUSHES

Bristles are made of steel wire or flat blades or are mixed steel and synthetic fibres. The steel wire brush is used to remove scale from badly uneven floors or floors with wide joints between tiles. Brushes with flat steel bristles (stiffer) are used to clean the toughest scale.

BRUSH THICKNESS

Thicker bristles are stiffer and should be used on smooth floors or floors with narrow joints between tiles. We recommend using softer bristles when floors are uneven or have deep joints or raised edges. Softer bristles penetrate easier into joints. Remember that when brush bristles are worn and become too short they become stiffer and are no longer able to penetrate in depth. This is also because, as when using bristles that are too big, the brush tends to jump and skip.

PAD HOLDERS

Pad holders are recommended for cleaning polished surfaces. There are two types of pad holder:

- Traditional pad holders with sets of anchor stubs that retain and drive the abrasive disk during operation.
- CENTER LOCK pad holders, which, in addition to anchor stubs, also have a plastic snap-in centre, lock system. This permits perfect entering of the abrasive disk and ensures it is kept anchored without detaching. This type of pad holder is best for machines with several brushes where it is difficult to centre the abrasive disks.