

USE AND MAINTENANCE MANUAL



MR 60B

ED. 06-2010

EN



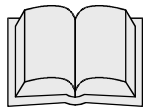
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Symbols used in the manual



Open book symbol with an "i":
Indicates that this document is an instruction manual



Open book symbol:
Used to tell the operator to read the manual before using the machine



Warning symbol
Carefully read the sections marked with this symbol, for the safety of the operator and the machine:



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On consignment of the machine

When the machine is consigned to the customer, an immediate check must be performed to ensure all the material mentioned in the shipping documents has been received, and also to check the machine has not suffered damage during transportation. If this is the case, the carrier must ascertain the extent of the damage at once, informing our customer service office. It is only by prompt action of this type that the missing material can be obtained, and compensation for damage successfully claimed.

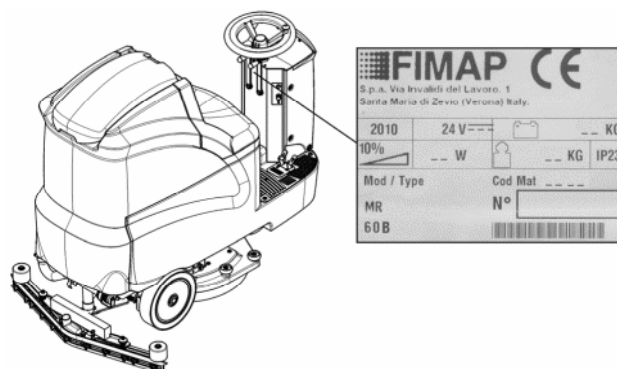
Introductory comment

This is a scrubbing machine that is able to clean a wide variety of types of flooring and types of dirt by using the mechanical action of two disc or cylindrical brushes, depending on the model, and the chemical action of a water-detergent solution. As it advances, it also collects the dirt removed and the detergent solution not absorbed by the floor.

The machine must be used only for this purpose.

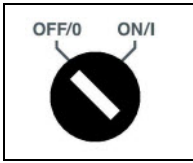
Even the best machines will only work well if used correctly and read this instruction booklet carefully and re-read it whenever difficulties arise while using the machine. If necessary, remember that our assistance service (organised in collaboration with our dealers) is always available for advice or direct intervention.

Serial number plate



TECHNICAL DESCRIPTION	UM	MR 60B
Working width	mm	610
Squeegee width	mm	780
Work capacity, up to	m ² /h	3660
Disk brush	No. / Ø mm	1 / 610
Brush rotations	rpm	170
Brush motor	V/W	24 / 450
Pressure on the brushes	kg	30
Traction motor	V/W	24 / 400
Traction wheel	Ø mm	220
Forward speed	km/h	0
Maximum gradient with full load	%	10
Suction motor	V/W	24 / 310
Suction vacuum	mbar	160
Rear elastic wheels	Ø mm	300x70
Solution tank	l	110
Recovery tank	l	125
Steering diameter	mm	1910
Machine length	mm	1495
Machine height	mm	1320
Machine width (without squeegee)	mm	680
Battery compartment (l x L x h)	mm	384x520x340
Rated battery voltage	V	24
Battery weight (max)	kg	136
Machine weight (empty and without batteries)	kg	223
Machine weight in running order (machine + batteries + water + operator)	kg	544
Noise level (in compliance with IEC 704/1)	dB (A)	
Hand vibration level	m/s ²	
Body vibration level	m/s ²	

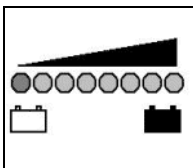
SYMBOLS USED ON THE MACHINE



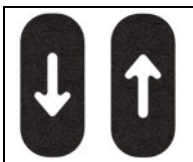
Main switch symbol (key switch)
Used on the instrument panel, to indicate the key switch for machine operation on (I) or off (O)



Base/squeegee movement symbols
Used to indicate the movement linkage of the base and squeegee



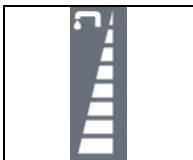
Symbol denoting battery electric charging



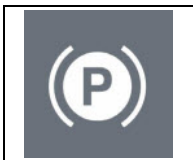
Pedal labels that indicate the forward and reverse direction of the machine
Used to indicate the direction of the machine



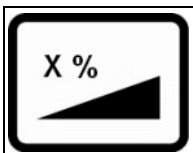
Symbol denoting acoustic alarm
Used to indicate the acoustic alarm button



Water quantity adjustment symbol
Used on the steering column to indicate the knobs for adjusting the quantity of water distributed on the brushes



Parking brake symbol
Used to indicate the machines brake lever



Indicates the maximum gradeability

SYMBOLS USED IN THE MANUAL



Indicates a dangerous situation



Indicates danger of gas exhalation and leakage of corrosive liquids



Indicates the danger of fire
Keep naked flames at a safe distance



Indicates to lift and move loads with lifting and transport means suitable for the mass and size



GENERAL SAFETY REGULATIONS

The regulations below must be carefully followed in order to avoid harm to the operator and damage to the machine.

- Read the labels on the machine carefully. Do not cover them for any reason and replace them immediately if they become damaged.
- The machine must be used exclusively by authorised and trained personnel.
- During the working of the machine, pay attention to other people and especially to children.
- The machine is not suitable for cleaning carpets.
- Do not mix different types of detergent as this may produce harmful gases.
- Do not place any liquid containers on the machine.
- The storage temperature must be between -25°C and +55°C; do not store outdoors in damp conditions.
- Conditions of use: room temperature between 0°C and 40°C with relative humidity between 30 and 95%
- Do not use the machine in an explosive atmosphere.
- Do not use the machine as a means of transport.
- Do not use acid solutions that could damage the machine and/or harm people.
- Avoid working with the brushes when the machine is standing still, so as not to damage the floor.
- Do not vacuum inflammable liquids.
- Do not use the device to collect dangerous powders.
- In the event of a fire, use a powder extinguisher. Do not use water.
- Do not knock against shelving or scaffolding, where there is a danger of falling objects. Use protective devices (helmet).
- Adapt the speed to the adhesion conditions.
- Do not use the machine on surfaces with an inclination greater than the one shown on the plate.
- When the machine is in parking mode, remove the key and insert the parking brake.
- If you notice any damage to the battery charger cable, contact a FIMAP technical assistance centre immediately.
- The machine is designed to carry out the washing and drying operations simultaneously. Different operations should only be carried out in areas where the passage of unauthorised persons is prohibited. Signal the presence of damp floors with suitable signs.
- If the machine does not work properly, check this is not caused by failure to carry out routine maintenance. Otherwise, request the intervention of the FIMAP technical assistance centre.
- If you need to replace any components, request the ORIGINAL spare parts from a FIMAP dealer and/or Authorised Retailer.
- Use original **FIMAP** brushes only indicated in the paragraph "CHOOSING AND USING THE BRUSHES".
- In the event of danger, activate the emergency lever (connector placed under the operator's seat) immediately.
- Before carrying out any maintenance work, switch off the machine and disconnect the battery connector.
- Restore all electrical connections after any maintenance interventions.
- Do not remove any protection devices which require the use of tools in order to be removed.
- Do not wash the machine with direct water jets or with pressurised water, nor with corrosive substances.
- Have the machine checked by a **FIMAP** assistance centre after at least every 200 hours of operation.
- To prevent scaling in the solution tank filter, do not fill the tank with detergent solution many hours before using the machine.
- Before using the machine, check that all the hatches and covers are positioned as shown in this Use and Maintenance Manual.
- Make sure the recovery tank is empty before lifting.
- When disposing of consumable materials, observe the laws and regulations in force.
- The machine does not cause harmful vibrations.
- When your **FIMAP** machine has reached the end of its long working life, dispose of the materials it contains (especially oils, batteries and electronic components) in an appropriate manner, and bearing in mind that the machine itself was constructed using 100% recyclable materials.
- The batteries must be removed from the machine before its disposal.
- The batteries must be disposed of in a safe manner, fully observing the laws and regulations in force.
- The machine is not suitable for use by children and persons with reduced physical, mental and sensory capabilities, or people who lack experience and knowledge.
- Children must be supervised to ensure they do not play with the device.

MACHINE PREPARATION

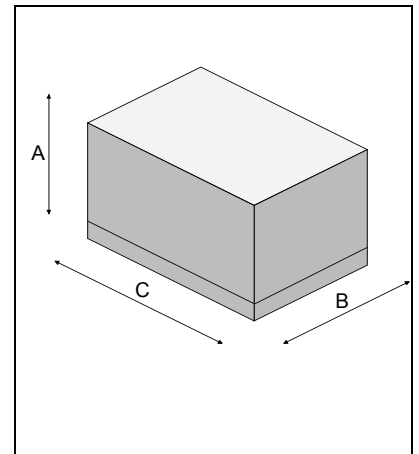
1. INTENDED USE

The scrubbing machine is designed exclusively for the professional cleaning of surfaces and floors in industrial, commercial and public environments. In addition, only use the machine in closed or at least covered environments.

2. HANDLING THE PACKED MACHINE

The machine is contained in specific packaging with a pallet for the handling with fork trucks. The packages cannot be placed on top of each other. The total mass of the machine with packaging is 240 kg (without batteries). The dimensions of the packaging is as follows:

MR60 B
A: 1610mm
B: 730mm
C: 1600mm

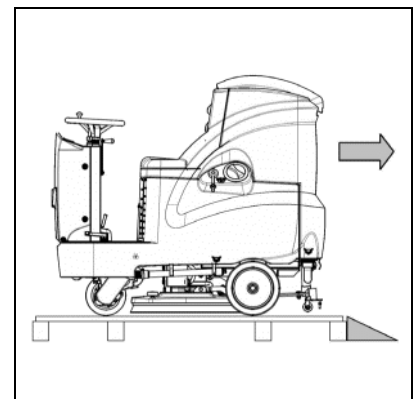


3. HOW TO UNPACK THE MACHINE

1. Remove the outer packaging.
2. The machine is fixed to the pallet with wedges which block the wheels.
3. Remove the wedges.



4. Use a chute to get the machine down from the pallet, pushing it backwards.
5. Keep the pallet for any future transport needs.



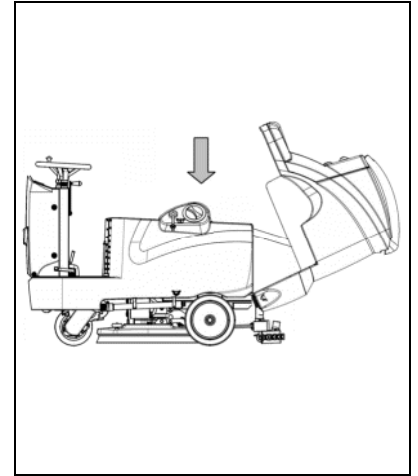
MACHINE PREPARATION

4. FITTING THE BATTERIES INTO THE MACHINE

The batteries must be housed in the special compartment beneath the recovery tank. They should be handled using lifting equipment that is suitable in terms of both weight and hook-up system. They must also satisfy the requirements of Standard CEI 21-5. The dimensions of the battery compartment are: 384 x 520 x H340 mm.

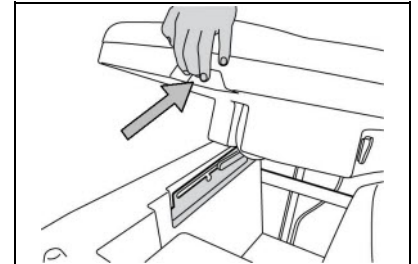


WARNING: For battery maintenance and daily recharging, you must fully respect the indications provided by the manufacturer or retailer. All installation and maintenance operations must be carried out by specialized personnel.



To insert the batteries you must:

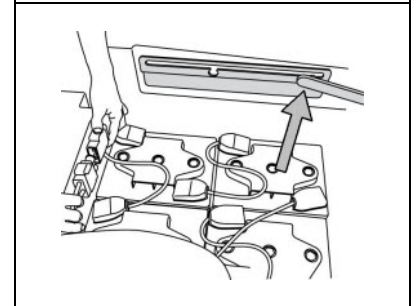
1. Lock the machine engaging the brake lever.
2. Make sure that the recovery tank is empty.
3. Grip the handle under the seat to open the recovery tank.
4. Lift the recovery tank until it hooks to the end of the safety clamp.
5. Position the batteries.



ATTENTION: You are advised to only lift and move the batteries with lifting and transportation means suitable for the specific weight and size.

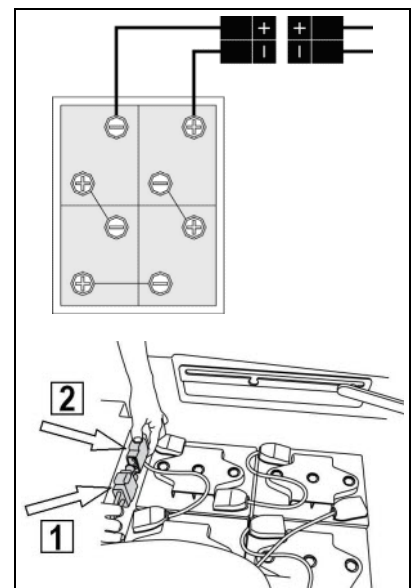


ATTENTION: You are advised to always wear protective gloves, to avoid the risk of serious injury to your hands.



5. BATTERY AND BATTERY CONNECTOR CONNECTION

1. Connect the battery terminals as per the diagram shown in figure.
2. Connect the battery connector (1) to the machine connector (2).



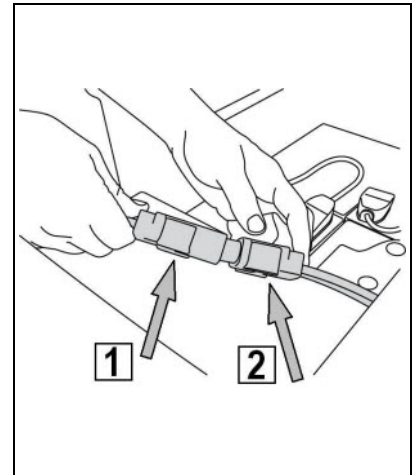
MACHINE PREPARATION

6. BATTERY CHARGER CONNECTION (only versions without CB)

The battery connector is found in the battery compartment by opening the recovery tank. The connector (1), connected to the batteries, must be detached from machine connector (2) and hooked up to the battery charger connector for charging. The coupling connector is delivered in a bag inside the battery compartment, and must be connected to the cables of the battery charger as indicated in the instructions (see the battery charger manual).



ATTENTION: This process must be carried out by qualified personnel. The incorrect or imperfect connection of the cables to the connector can seriously harm people and damage objects.



7. RECHARGING THE BATTERIES

In order not to cause permanent damage to the batteries it is essential to avoid their complete discharge: arrange the recharge within a few minutes of the switching on of the flashing "discharged batteries" signal.

NOTE: Never leave the batteries completely flat, even if the machine is not being used. Check the electrolyte level and top up with distilled water if necessary (batteries with electrolyte fluid) every 10 charges.



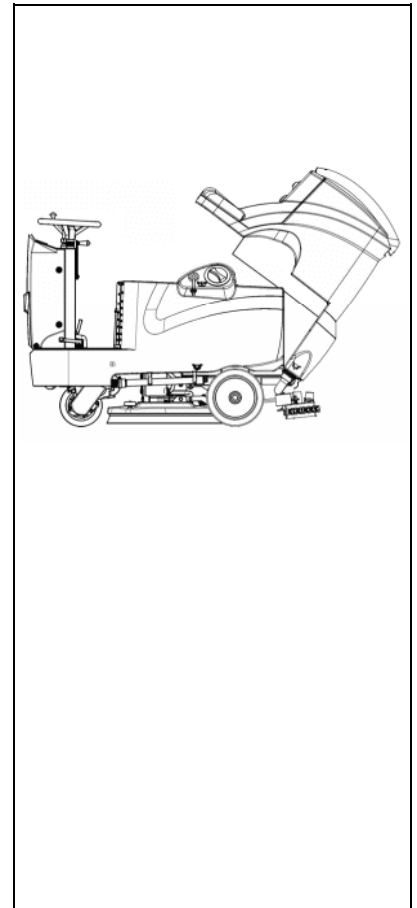
WARNING: During recharging, keep the tank lifted and blocked with the appropriate prop. Check the battery charger is suitable for the batteries installed, in terms of both capacity and type (lead/acid or GEL and equivalents). Never recharge GEL batteries with an unsuitable battery charger. Follow the instructions given by the battery/battery charger manufacturer with the utmost attention.



Danger of fire: Keep naked flames at a safe distance.



Danger of gas exhalation and leakage of corrosive liquids.



MACHINE PREPARATION

8. TYPE OF BATTERY

To power the machine it is necessary to use:

- liquidelectrolyte lead traction batteries;
- sealed traction batteries with gas recombination or gel technology.

OTHER TYPES MUST NOT BE USED.

The batteries must meet the requisites laid out in standards CEI EN 60254-1:2005-12 (CEI 21-5) + CEI EN 60254-2:2008-06 (CEI 21-7).

The battery compartment can house up to four batteries.

For a good operating performance, we suggest the use of four 6V/210 Ah C5 batteries

9. BATTERY MAINTENANCE AND DISPOSAL

For maintenance and recharging, respect the instructions provided by the battery manufacturer.

Particular attention must be paid when choosing the battery charger, if not supplied, since there are different kinds according to the type and capacity of the battery.

When the battery reaches the end of its working life, it must be disconnected by expert, trained personnel, then lifted (using the grips and suitable lifting devices) to remove it from the battery compartment. EXHAUSTED BATTERIES ARE CLASSIFIED AS DANGEROUS WASTE AND MUST BE CONSIGNED TO THE AUTHORISED BODIES FOR CORRECT DISPOSAL.



WARNING: You are advised to always wear protective gloves, to avoid the risk of serious injury to your hands.



WARNING: You are advised to only lift and move the batteries with lifting and transportation means suitable for the specific weight and size.

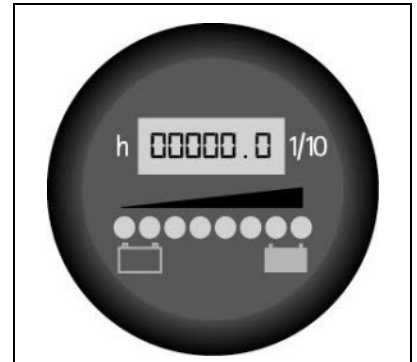
MACHINE PREPARATION

10. BATTERY CHARGE LEVEL INDICATOR

The battery indicator uses LEDs and has 8 positions (7 yellow - charged batteries, and 1 red - run down batteries).



WARNING: A few seconds after the red indicator light comes on, the brush motor switches off automatically. With the remaining charge it is possible to complete the drying process before recharging.



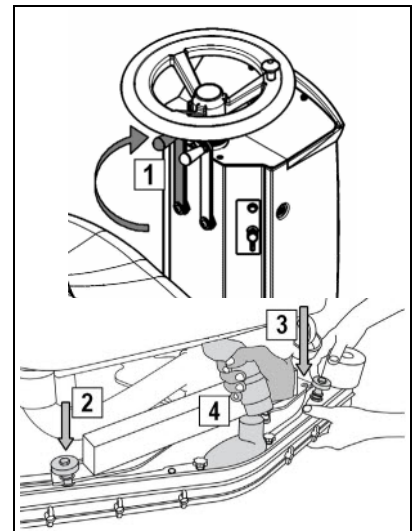
11. ASSEMBLING THE SQUEEGEE

For packaging reasons, the squeegee is supplied disassembled from the machine, and must be assembled as shown in the figure.

Raise the squeegee connection by means of the left lever (1) turning it clockwise into the vertical position.

Firstly insert the left pin (2) of the squeegee into the left slot on the arm and then the right pin (3) into the right slot, being careful to keep the spring and the washer above the arm's flat bar. This can be simplified by first loosening the handwheel on the pin. Then retighten the handwheel to block the squeegee in place.

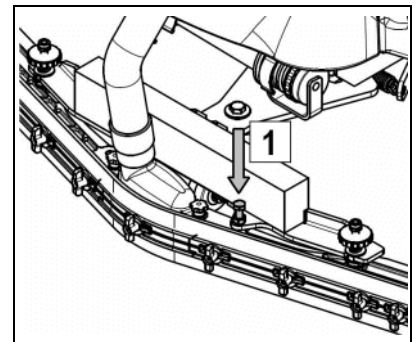
Insert the squeegee tube in the appropriate sleeve (4).



12. SQUEEGEE INCLINATION

During working operation, the rear rubber is slightly tilted backwards (by about 5mm) in a uniform way for its whole length.

If it is necessary to increase the bend of the rubber in the central part, you must tilt the squeegee backwards, rotating the adjuster screw (1) clockwise.



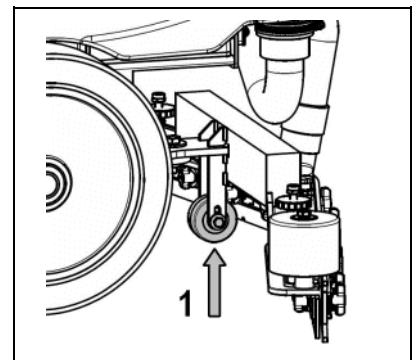
13. ADJUSTING THE SQUEEGEE SUPPORT HEIGHT

The height of the squeegee must be adjusted on the basis of the state of wear and tear of the rubber.

Carry out the following operations for adjustment:

- unscrew the locking nut
- raise or lower the wheel (1) by sliding it on the slot of the support
- block it by tightening the locking nut once the required height is reached.

Note: To facilitate the operation, completely lower the squeegee and put a spacer of a few millimetres (2 to 4 mm depending on the type of rubber) under the wheel.



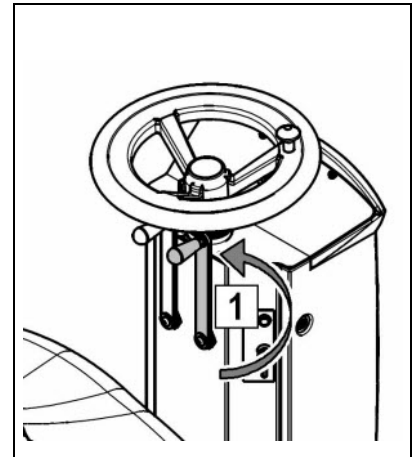
MACHINE PREPARATION

14. DISC BRUSH ASSEMBLY

1. Lift the base by turning the right lever (1) to move the base counterclockwise.



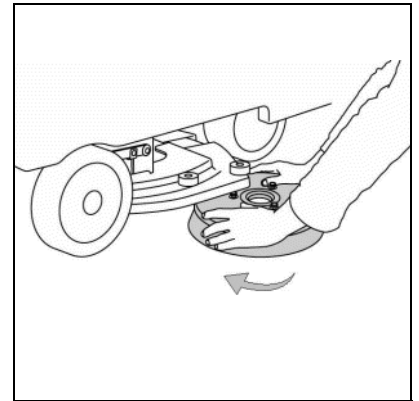
WARNING: During this operation, check there are no people or objects near the brush.



2. With the base up, insert the brushes in the plate housing beneath the base, turning them until the three pins enter the niches in the plate itself; turn the brush clockwise until the pin is pushed towards the coupling spring and is locked into place.

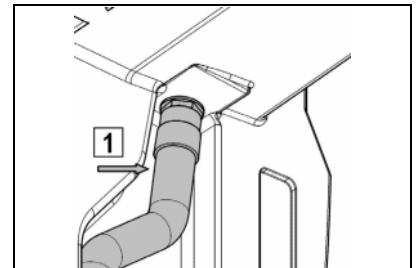


WARNING: You are advised to always wear protective gloves, to avoid the risk of serious injury to your hands.

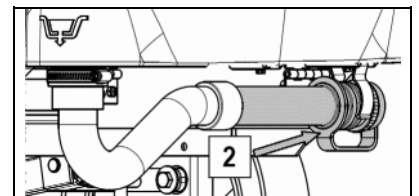


15. SOLUTION AND RECOVERY TANK

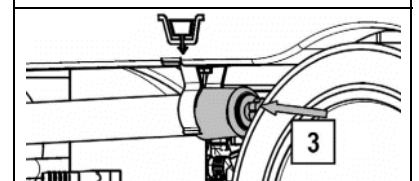
Check correct position of the suction tube (1), that must be inserted in the fitting of the squeegee.



Check that the knob of the cap on recovery tank drain pipe (2) on the back of the machine is screwed on.



Check that the knob of the cap on solution tank drain pipe (3) on the left side of the machine, is screwed on.



MACHINE PREPARATION

16. DETERGENT SOLUTION

Fill with clean water at a temperature not exceeding 50°C. The solution tank can be filled either through the opening (1) with a screw cap, or the rubber cap (2), which also supports the water hose. If the supply is made via the rubber cap, unscrew the cap to allow the air to vent correctly. Add the liquid detergent (3) into the solution tank, in the concentration and manner specified by the manufacturer. The formation of excess foam could damage the suction motor, so use only the minimum amount of detergent necessary.

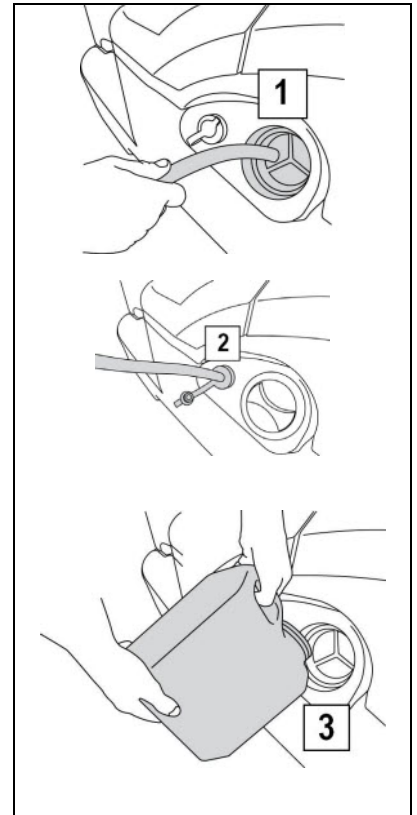
Make sure the recovery tank is empty, otherwise empty it completely.



WARNING: Always use detergents whose manufacturer's label indicates their suitability for scrubbing machines. Do not use acid or alkaline products or solvents without this indication. In addition, you are advised to always use low foam detergents. Do not use pure acids or detergents with a stronger gradation than that indicated on the label supplied.

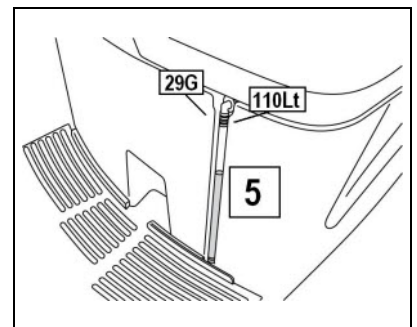


ATTENTION: Put on protective gloves before handling acid/alkaline detergents or solutions, to avoid the risk of burning your hands.



17. EMPTY SOLUTION TANK DEVICE

To check the quantity of water in the solution tank there is a special level indicator tube (5) next to the driver's seat.



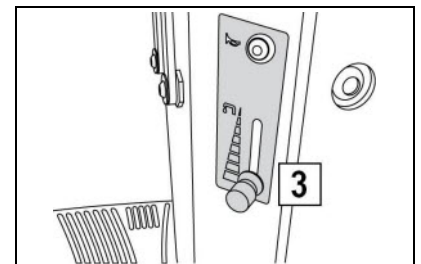
WORK

PREPARING TO WORK

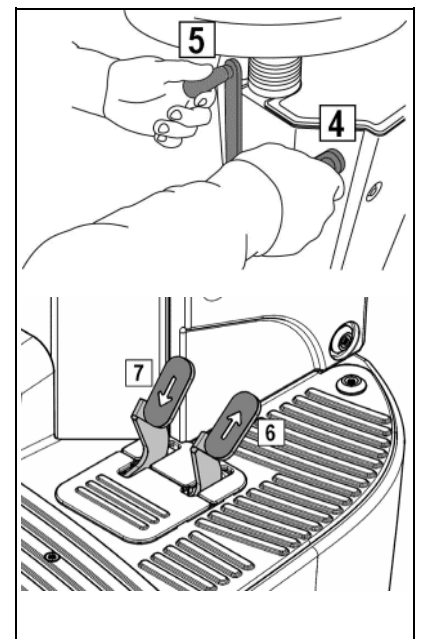
1. Carry out the operations to prepare the machine.
2. Connect the connector to the batteries (1).
3. Sit on the driver's seat.
4. Check the parking brake is released (2).
5. Turn the key of the main switch a quarter of a turn clockwise. Immediately, on the instrument panel, the display will turn on indicating the charge level of the batteries.



6. Move the tap lever (3) downwards and adjust the amount of water required.



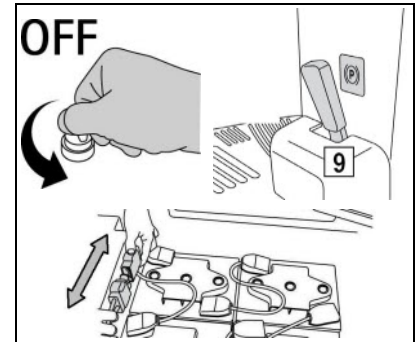
7. Lower the base by turning the right lever (4) clockwise, then lower the squeegee turning the left lever (5) counterclockwise.
8. Pressing the accelerator pedal (6 - right pedal), the machine starts moving and the brush will rotate.
9. To perform a reverse manoeuvre, lift the squeegee by turning the left lever (5) clockwise, then press both pedals (6 and 7) and the machine will start moving backwards.



During the first meters, check there is sufficient solution and that the squeegee dries perfectly. The machine will start working in good working order up to run out of detergent solution or until the battery is discharged.

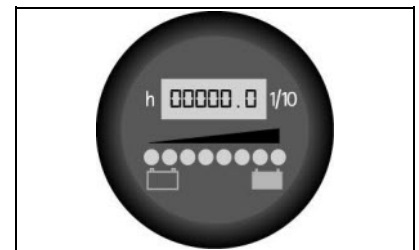
WORK

WARNING: If problems arise during operations, turn off the key, engage the parking brake by pushing the lever (9) to the left until the machine brakes and release the emergency lever placed below the operator. These commands block all moving machine parts. Having resolved the problem, to start working again, reconnect the connector, turn on the key and release the parking brake lever. The machine will not start if the operator is not properly seated.



A flashing red warning light appears on the display when the battery charge level is getting too low. The brush motor automatically turns off; batteries must be recharged as soon as possible.

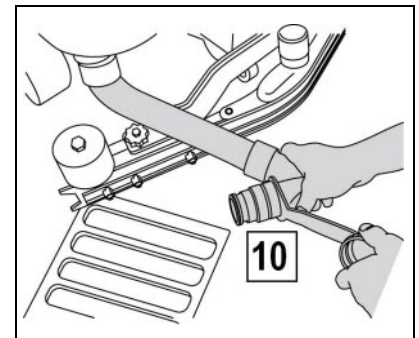
A residual charge remains so you can complete the drying operation and move the machine to the recharging point.



OVERFLOW DEVICE

The machine is not equipped with an overfill device, because the capacity of the recovery tank is greater than the capacity of the solution tank. In extreme cases, there is a mechanical device (float) on the lid that closes the passage of air to the engine intake protecting it when the recovery tank is full. In this case, turn the working knob to transfer (movement of the machine without working), and the engine turns off after about 15-25 seconds. Then proceed with emptying the recovery tank through a special drainage pipe (10).

It is good practice when restoring the level of the solution tank, to empty the recovery tank through the special drainage pipe (10).

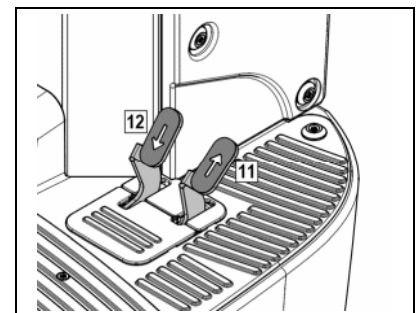


TRACTION

This machine is equipped with electronic traction control.

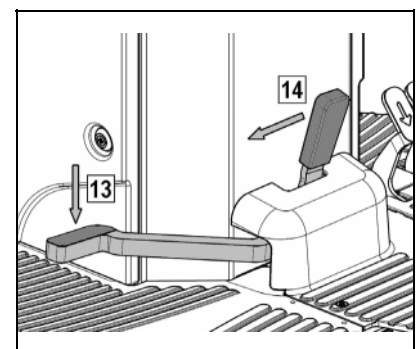
To move the machine, after having turned the key, push the drive pedal (11) adjusting the speed by pressing the pedal more or less. The machine will then start moving.

To make a reversing manoeuvre, press both pedals (11 and 12) the machine will then start moving backwards. During reverse motion, the machine emits an acoustic signal.



BRAKES

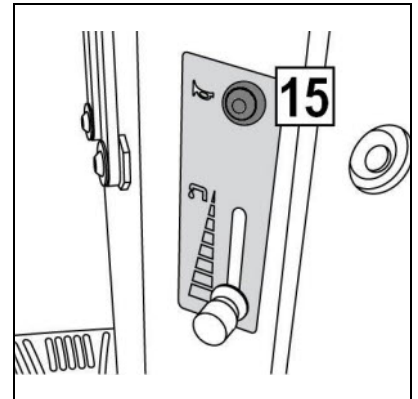
The machine has an electronic braking system. To brake, in normal conditions, just remove your foot from the accelerator pedal. If the service brake does not operate properly or in case of need (parking, danger, etc.) actuate the mechanical brake pedal (13) by pushing it down and locking it by pulling the lever (14) to the left until the pedal (13) is locked.



WORK

ACOUSTIC ALARM

The machine is equipped with a buzzer controlled by button (15) on the right side of the steering column.



FLASHING LIGHT (on request)

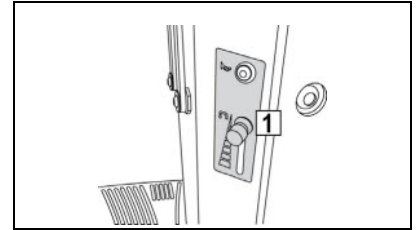
The machine is equipped for a flashing light that turns on automatically when the key in the main switch is turned on.



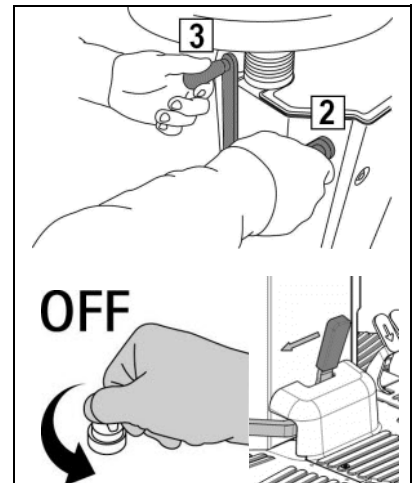
AT THE END OF THE WORK

At the end of the work, and before carrying out any type of maintenance, perform the following operations:

1. Close the tap (1).



2. Lift the base by turning the right lever (2) counterclockwise, then lift the squeegee turning the left lever (3) clockwise. The suction motor turns off after a few seconds.
3. Take the machine to the location designated for draining the water.
4. Turn the machine off by turning the key one quarter counterclockwise and remove it from the panel.
5. Engage the parking brake.

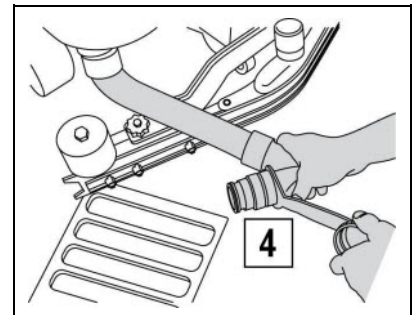


WARNING: Before performing any maintenance, remove the keys from the panel and disconnect the battery connector of the machine.

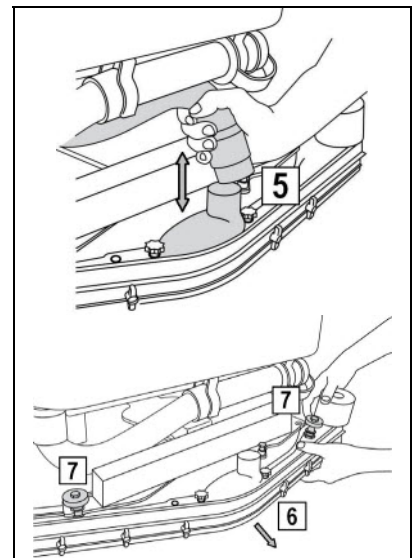
6. Disconnect the tube (4) from its seat, unscrew the drainage cap and empty the recovery tank.



WARNING: This operation must be carried out using gloves to protect against contact with dangerous solutions.



7. Slide the suction tube (5) from the squeegee sleeve.
8. Remove the squeegee (6) from the support arm by unscrewing the handwheel (7).
9. Clean well both the squeegee and the rubbers with a jet of water.
10. After cleaning the squeegee and rubbers, replace the squeegee on the initial support, firstly inserting the left pin of the squeegee in the left slot of the arm, then the right pin in the right slot, being careful to keep the spring and washer on the plate of the arm. This can be simplified by first loosening the handwheel on the pin. Then retighten the handwheel to block the squeegee in place.
11. Finally insert the squeegee tube in the special sleeve.



DAILY MAINTENANCE

CLEANING THE RECOVERY TANK

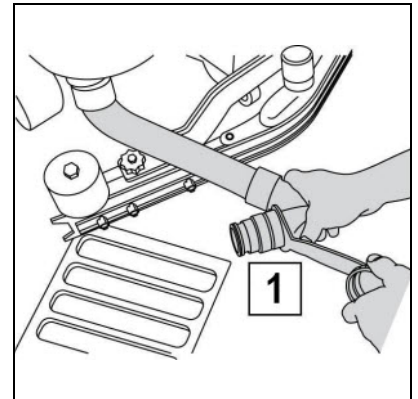
1. Disconnect the tube (1) from its seat, unscrew the drainage cap and empty the recovery tank.



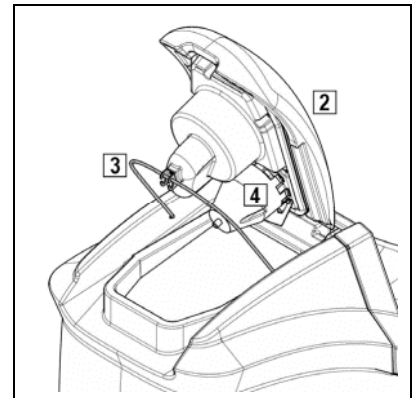
WARNING: This operation must be carried out using gloves to protect against contact with dangerous solutions.



WARNING: Before performing any maintenance, remove the keys from the panel and disconnect the battery connector of the machine.



2. Raise the cap (2) until the hook is secured to the prop (3) of the recovery tank.
3. Make sure to clean the filter inside the lid (4). To access the filter, remove the protection of the intake filter turning it clockwise, remove it and clean it under running water.
4. Clean and rinse the recovery tank and the suction pipe (connecting pipe between the squeegee and the tank).
5. Reposition the cap on the drainage tube and lower the suction cap. To lock the prop (3) just slightly raise the cap, release the prop (3) and lower the cap up to close it.



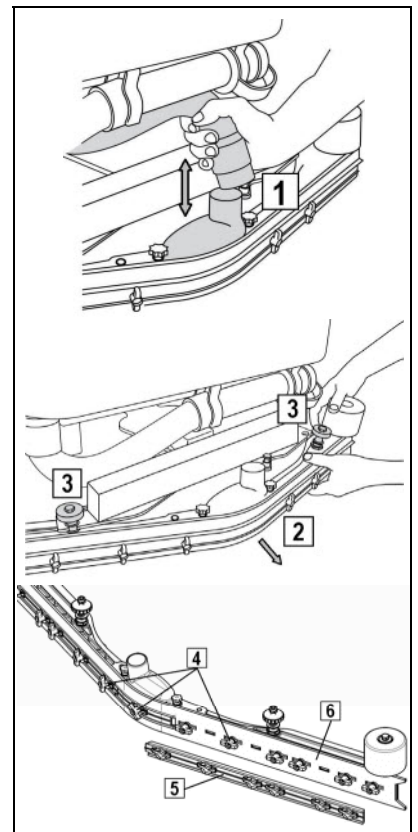
CLEANING THE SQUEEGEE

The careful cleaning of the whole suction group ensures better drying and cleaning of the floor as well as greater duration of the suction motor. Proceed as follows for cleaning:

1. Slide the suction tube (1) from the squeegee sleeve.
2. Remove the squeegee (2) from the support arm by unscrewing the handwheel (3).
3. Check the wear of the rubbers. If the edge of the rubber is ruined, the rear rubber can be turned on all four corners. If the rubbers are completely worn proceed with the replacement. To remove the rubber, turn the wing nuts (4) in a horizontal position, remove the rubber-pressing blade (5) and then remove the rubber to turn it or replace it.
4. Proceed in reverse to replace the rubber.
5. After cleaning, replace the squeegee (2) on the initial support, firstly inserting the left pin of the squeegee in the left slot of the arm, then the right pin in the right slot, being careful to keep the spring and washer on the plate of the arm. This can be simplified by first loosening the handwheel (3) on the pin. Then retighten the handwheel (3) to block the squeegee in place.
6. Finally insert the squeegee tube in the special sleeve.



WARNING: Before performing any maintenance, remove the keys from the panel and disconnect the battery connector of the machine.



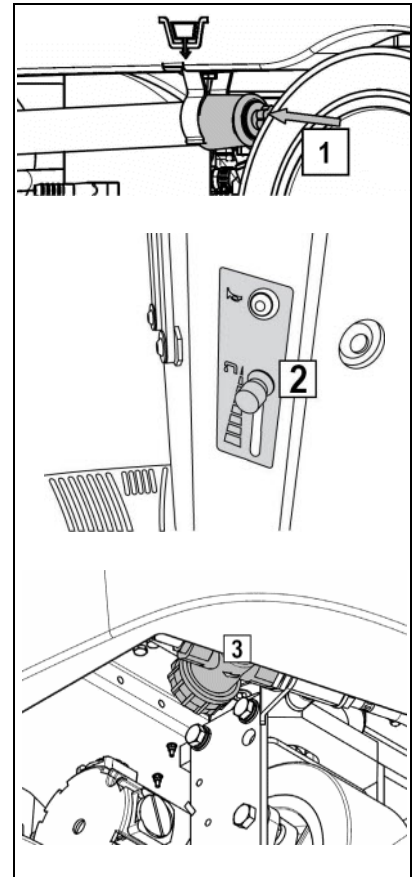
DAILY MAINTENANCE

CLEANING THE SOLUTION TANK AND FILTER:

1. Disconnect the clean water drainage pipe (1) from its housing on the left side of the machine, unscrew the cap and empty the tank.
2. Remove the plug from the solution tank refill opening.
3. Rinse the inside of the tank with a jet of water.
4. Close the drainage pipe with the cap and put it in place.
5. Close the water tap (2).
6. Unscrew the filter (3) at the front of the machine.
7. Remove the internal filter cartridge and rinse everything thoroughly with running water.
8. Reassemble everything, repeating the above-mentioned operations in the reverse order.



WARNING: Before performing any maintenance, remove the keys from the panel and disconnect the battery connector of the machine.



DISC BRUSH DISASSEMBLY

1. Lift the base by turning the right lever (1) to move the base counterclockwise.



WARNING: Before performing any maintenance, remove the keys from the panel and disconnect the battery connector of the machine.

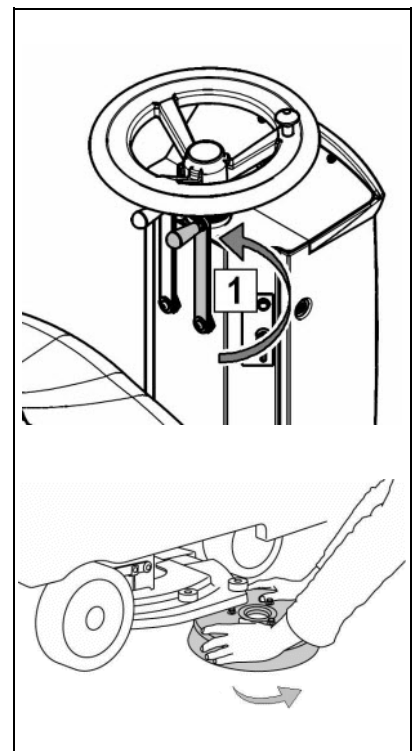


WARNING: During this operation, check there are no people or objects near the brush.

2. Rotate the brush counterclockwise until it comes out of the brush-holder plate seat, as shown in the figure.



WARNING: You are advised to always wear protective gloves, to avoid the risk of serious injury to your hands.



WEEKLY MAINTENANCE

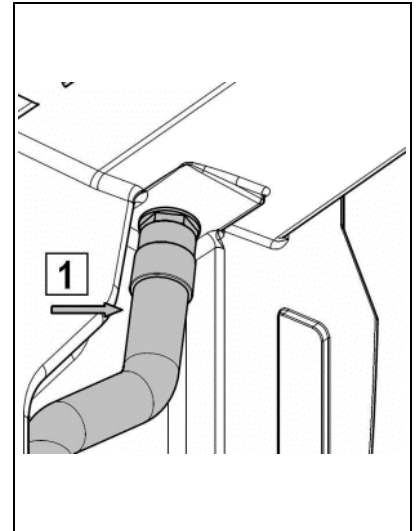
CLEANING THE SUCTION TUBE

Whenever suction seems to be unsatisfactory, check that the suction tube (1) is not obstructed. If necessary clean with a jet of water as follows:

1. Detach the aspiration tube from the seat on the recovery tank.
2. Clean it with a water jet introduced from the side where it is connected to the tank.
3. Reassemble everything, carrying out the above-mentioned operations in the reverse order.



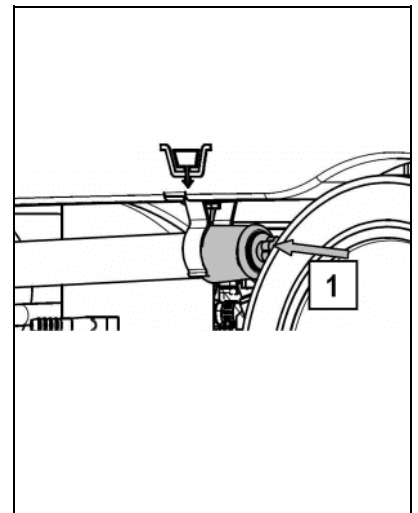
WARNING: This operation must be carried out using gloves to protect against contact with dangerous solutions.



CLEANING THE SOLUTION TANK

At least once a week, it is necessary to carefully clean the solution tank in order to keep the machine in perfect state:

1. Disconnect the clean water drainage pipe (1) from its housing on the left side of the machine, unscrew the cap and empty the tank.
2. Remove the plug from the solution tank refill opening.
3. Rinse the inside of the tank with a jet of water.
4. Close the drainage pipe with the cap and put it in place.
5. Close the tank by placing the filter and the cap.



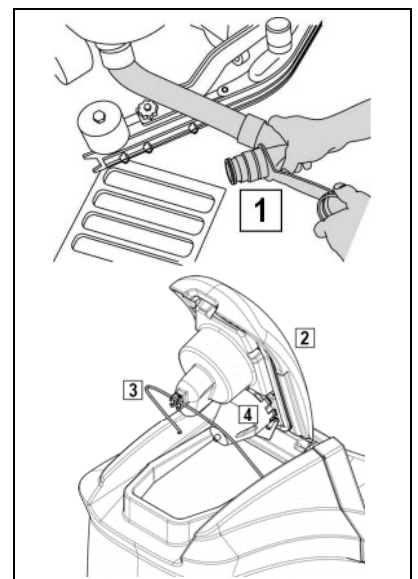
CLEANING THE RECOVERY TANK

1. Disconnect the tube (1) from its seat, unscrew the drainage cap and empty the recovery tank.



WARNING: This operation must be carried out using gloves to protect against contact with dangerous solutions.

2. Raise the cap (2) until the hook is secured to the prop (3) of the recovery tank.
3. Check the filter inside the cover (4) is clean and, if necessary, loosen the cover fixing screws and carefully rinse the filter.
4. Clean and rinse the recovery tank and the suction pipe (connecting pipe between the squeegee and the tank).
5. Reposition the cap on the drainage tube and lower the suction cap. To lock the prop (3) just slightly raise the cap, release the prop (3) and lower the cap up to close it.

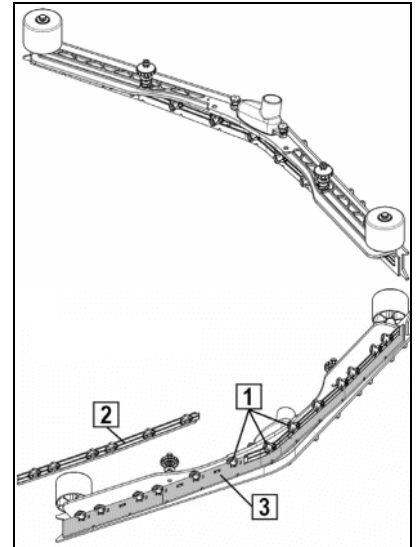


EXTRAORDINARY MAINTENANCE

REPLACING THE FRONT SQUEEGEE RUBBER

Suction will be poor and the machine will not dry perfectly if the front squeegee rubber is worn. Proceed as follows to replace:

1. Remove the squeegee from the support arm by unscrewing the handwheel.
2. Turn the wing nuts (1) in the horizontal position.
3. Remove the front rubber-pressing blades (2).
4. Remove the rubber (3) and replace it.
5. Proceed in reverse to replace the rubber.

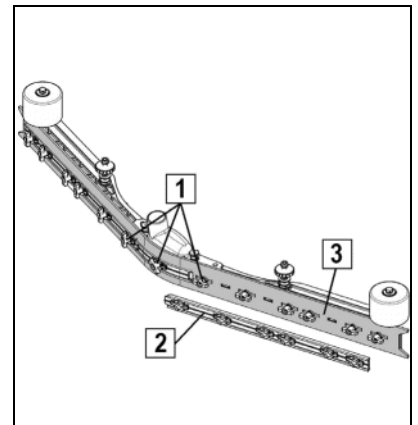


REPLACING THE REAR SQUEEGEE RUBBER

If the squeegee rear rubber is worn and does not dry well, it is possible to change the drying edge using one of the 4 edges of the rubber.

This operation can be done both with a squeegee fitted or removed as follows:

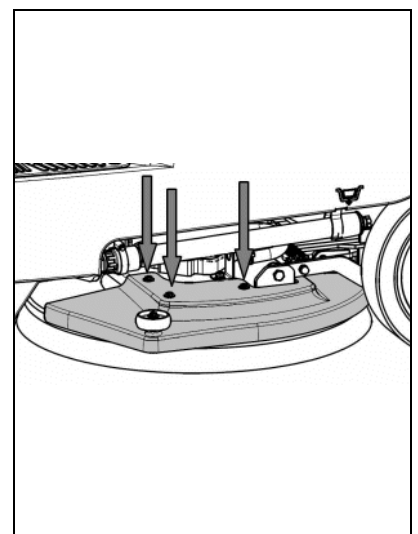
1. Turn the wing nuts (1) in the horizontal position.
2. Remove the rear rubber-pressing blades (2).
3. Remove the rubber (3) and replace it.
4. Proceed in reverse to replace the rubber.
5. Adjust the height of the squeegee depending on the rubber (see "ADJUSTING THE HEIGHT OF THE SQUEEGEE SUPPORT").



REPLACING THE BASE SPLASH GUARD

Periodically check the condition of the base casings that serve as protection to the rotation of the brushes. To replace proceed as follows:

1. With the base lowered, remove the fixing screws of the casing to the base.
2. Remove the casing.
3. Fit the new casing with the screws previously removed.



WARNING: Before performing any maintenance, remove the keys from the panel and disconnect the battery connector of the machine.

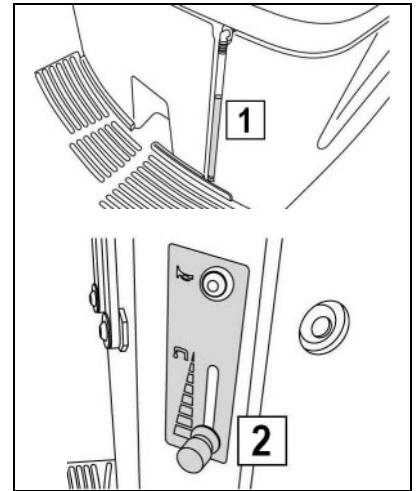


WARNING: The housing can prevent damage to persons or property. Always check for wear.

TROUBLESHOOTING

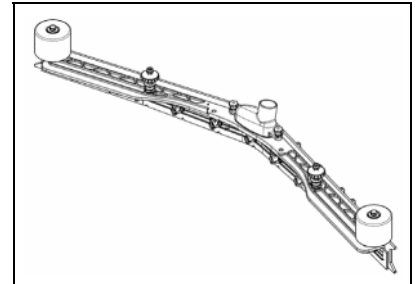
INSUFFICIENT WATER ON THE BRUSHES

1. Check there is water in the solution tank (1).
2. Check that the tap (2) is open.
3. Clean the solution filter located at the front of the machine.



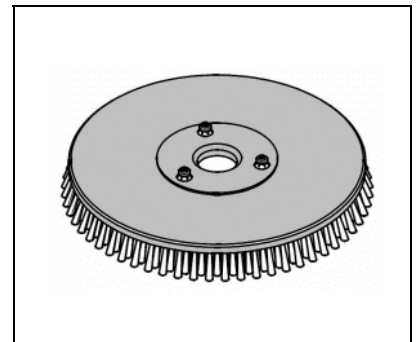
THE SQUEEGEE DOES NOT DRY PERFECTLY

1. Check the squeegee is clean.
2. Check the regulation of the squeegee (see "MACHINE PREPARATION").
3. Clean the entire suction unit (see "WEEKLY MAINTENANCE").
4. Replace the rubbers, if worn.



THE MACHINE DOES NOT CLEAN WELL

1. Check the state of wear and tear of the brush and, if necessary, replace it. The brush should be changed when the bristles are about 15mm high. For replacement see "BRUSH DISASSEMBLY" and "BRUSH ASSEMBLY". Working with an over-worn brush may cause damage to the floor.
2. Use a different kind of brush to the one fitted as standard. For cleaning floors where the dirt is particularly resistant, we recommend the use of a special brush supplied upon request and according to needs (see "CHOOSING AND USING THE BRUSHES").



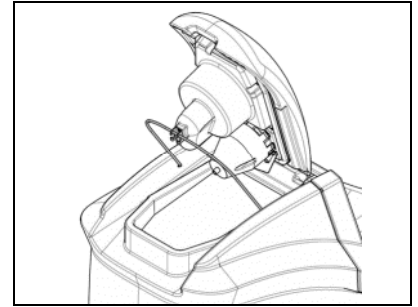
EXCESSIVE FOAM PRODUCTION

Check that a low foam detergent has been used. If necessary, add a small quantity of antifoam liquid to the recovery tank. Remember that, when the floor is not very dirty, more foam is generated. In this case the detergent solution should be more diluted.

TROUBLESHOOTING

THE SUCTION MOTOR DOES NOT FUNCTION

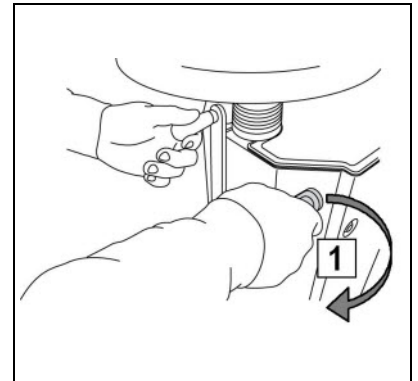
1. Check whether the recovery tank is full and, if necessary, empty it.
2. Check the float switch on the suction cap (see also "CLEANING THE RECOVERY TANK" in the chapter "DAILY MAINTENANCE").



THE BRUSH MOTOR DOES NOT WORK

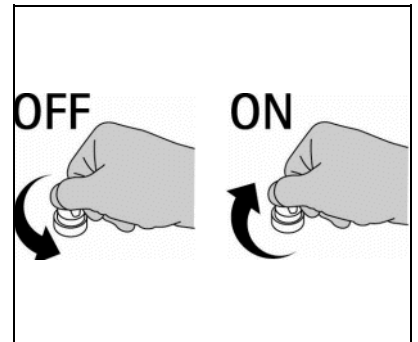
ATTENTION To avoid damaging the floor, the motor only starts up when the machine is moved forwards.

1. Check that the base is lowered during the forward movement with the right lever (1) turned clockwise.
2. The operator must be properly seated in the driving position.
3. Check no thermal protection device has intervened.
4. Check the correct connection of the motor to the terminal under the footboards.



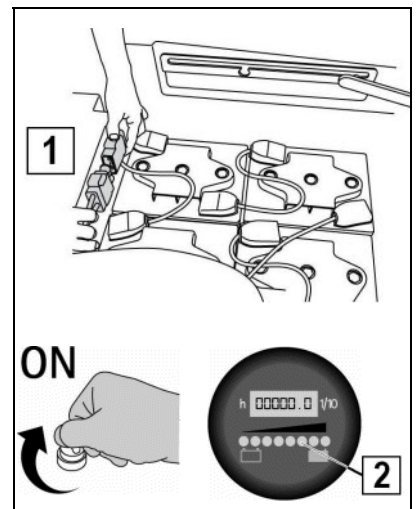
IT IS IMPOSSIBLE TO RAISE OR LOWER THE BASE OR SQUEEGEE

The machine is fitted with electrical protection devices that control the base and squeegee ascent/descent motor reducers. In the event of overloading, the fuses interrupt the power supply. After checking and removing the reason for the problem, to reset them just switch the machine off then on again. If the problem persists, contact the FIMAP technical assistance centre.



THE MACHINE DOES NOT START

1. Check that connector (1) is connected to the batteries.
2. Check the key switch is ON/I.
3. Check that batteries (2) are charged.



TROUBLESHOOTING

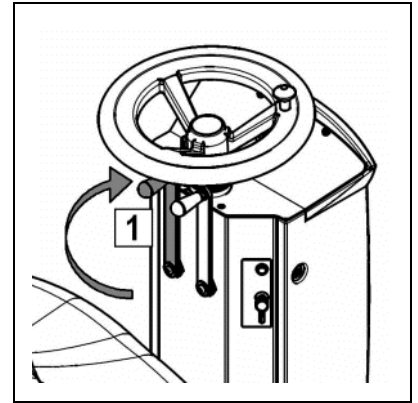
ELECTRIC FUSES AND THERMAL CUT-OUTS

In addition to general 80 A fuses, the machine is also fitted with self-restoring safety fuses located on the boards in the electric system that interrupt the power supply to the brush and suction motors when the machine exceeds the predetermined load. To restore the power supply to the motor, switch off the machine and wait for the fuses to cool down (about 40 seconds). If the switch disconnects the current again, contact the **FIMAP** technical assistance centre.

THE MACHINE DOES NOT REVERSE

WARNING To avoid damage to the squeegee, the reverse movement is disabled and only works when the squeegee is lifted.

1. Check that the squeegee is lifted during the reverse movement with the left lever (1) turned clockwise.
2. The operator must be properly seated in the driving position.
3. Check no thermal protection device has intervened.





CHOOSING AND USING THE BRUSHES

POLYPROPYLENE BRUSH (PPL)

Used on all types of floors. Good resistance to wear and tear, and hot water (no greater than 60°C). The Polypropylene brush is non-hygroscopic and therefore retains its characteristics even when working in wet conditions.

NYLON BRUSH

Used on all types of floors. Excellent resistance to wear and tear, and hot water (even over 60°C). The nylon is hygroscopic and so tends to lose its characteristics over time when working in wet conditions.

ABRASIVE BRUSH

The bristles of this type of brush are charged with highly aggressive abrasives. It is used to clean very dirty floors. To avoid floor damage, work only with the pressure strictly necessary.

THICKNESS OF THE BRISTLES

Thicker bristles are more rigid and are therefore used on smooth floors or floors with small joints.

On uneven floors or those with deep joints, it is advisable to use softer bristles which can enter the gaps more easily.

Remember that when the bristles are worn and therefore too short, they will become rigid and are no longer able to penetrate and clean deep down. In this case, like with over-large bristles, the brush tends to jump.

PAD HOLDER

The pad holder is recommended for cleaning shiny surfaces.

There are two types of pad holder:

1. The traditional pad holder is fitted with a series of anchor points that allow the abrasive floor pad to be held and dragged while working.
2. The CENTRE LOCK type pad holder not only has anchor points, but also a snap-type central locking system in plastic that allows the abrasive floor pad to be perfectly centred and held without any risk of it becoming detached. This type of holder is especially suitable for machines with several brushes, where the centring of the grinding wheels is difficult.

TABLE FOR CHOOSING THE BRUSHES

Machine	No. of brushes	Code	Type of bristles	ØBristles	Ø Brush	Length	Notes
MR - 60	1	405630	PPL	0.6	610		CENTRE LOCK
		405629	PPL	0.9	610		
		405627	NYLON	0.9	610		
		405628	TYNEX		610		
		405519	(ABRASIVE) PAD HOLDER		585		