

USE AND MAINTENANCE MANUAL



ABILA 45-50-42-52 B-BT
ABILA 45 E 230V
ABILA 50 E 230V – 110V

ED. 02-2013

EN

ORIGINAL
INSTRUCTIONS
Doc. 10022288
Ver. AE



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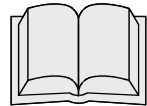
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Symbols used in the manual



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



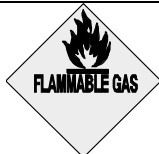
Open book symbol
Used to tell the operator to read the manual before using the machine



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



Warning symbol
Indicates danger of gas exhalation and leakage of corrosive liquids



Warning symbol
Indicates the danger of fire.
Do not go near with free flames



Warning symbol
Indicates that the packed product should be handled with suitable lifting means that comply with the legal requirements



CONTENTS

ON CONSIGNMENT OF THE MACHINE	5
SERIAL NUMBER PLATE	5
INTRODUCTORY COMMENT	5
INTENDED USE	5
TECHNICAL DESCRIPTION	6
TECHNICAL DESCRIPTION	6
TECHNICAL DESCRIPTION	7
SYMBOLS USED ON THE MACHINE	8
GENERAL SAFETY REGULATIONS	9
MACHINE PREPARATION	10
1. HANDLING OF THE PACKED MACHINE	10
2. HOW TO UNPACK THE MACHINE	10
3. HOW TO MOVE THE MACHINE	10
4. TYPE OF BATTERY (Versions B-BT)	11
5. BATTERY MAINTENANCE AND DISPOSAL (B-BT versions)	11
6. INSERTING/CONNECTING THE BATTERIES (B-BT versions)	11
7. CONNECTION OF THE BATTERIES	12
8. CONNECTION OF THE ELECTRICAL SYSTEM CONNECTOR	12
9. RECHARGING THE BATTERIES WITH AN EXTERNAL BATTERY CHARGER (VERSIONS WITHOUT BC)	12
10. RECHARGING THE BATTERIES WITH BUILT-IN BATTERY CHARGER (VERSIONS WITH BC)	13
11. BATTERY INDICATOR (B-BT VERSIONS)	14
12. INSTRUMENT PANEL COMPONENTS	15
13. REAR COMPONENTS	15
14. FRONT AND SIDE COMPONENTS	15
15. SQUEEGEE ASSEMBLY	16
16. ADJUSTING THE SQUEEGEE INCLINATION	16
17. ADJUSTING THE SQUEEGEE HEIGHT	16
18. RECOVERY TANK	17
19. SOLUTION TANK	17
20. SOLUTION TANK / DETERGENT SOLUTION (VERSIONS WITHOUT CDS)	17
21. SOLUTION TANK / DETERGENT SOLUTION (VERSIONS WITH CDS)	18
22. BRUSH ASSEMBLY (BRUSH HEAD WITH SINGLE BRUSH)	19
23. ASSEMBLY OF SINGLE BRUSH HEAD (SPLASH GUARD RUBBER)	19
24. ASSEMBLING THE BRUSH (BRUSH HEADS WITH DOUBLE DISC BRUSH)	19
25. ASSEMBLY OF DISC BI-BRUSH BASE SPLASH GUARD RUBBER	20
26. DETERGENT SOLUTION REGULATION (VERSIONS WITH WFC AND WITHOUT CDS)	20
27. DETERGENT SOLUTION REGULATION (VERSIONS WITHOUT WFC AND WITHOUT CDS)	21
28. DETERGENT SOLUTION REGULATION (VERSIONS WITH CDS BUT WITHOUT WFC)	21
29. DETERGENT PUMP CONNECTION (VERSIONS WITH CDS)	22
30. ADJUSTMENT OF POTENTIOMETER (BT VERSIONS)	23
31. REVERSE FUNCTION (BT VERSIONS)	23
WORK	24
1. PREPARING TO WORK	24
3. RECOVERY TANK OVERFLOW DEVICE	25
AT THE END OF THE WORK	26
1. AT THE END OF WORK	26
2. STORING OF THE MACHINE	26
DAILY MAINTENANCE	27
1. CLEANING THE RECOVERY TANK	27
2. CLEANING THE SUCTION FILTER	27
3. CLEANING THE SUCTION TUBE FILTER	27
4. DISASSEMBLING AND CLEANING THE SQUEEGEE	28
5. CLEANING THE CLEAN WATER FILTER	28
5. DISASSEMBLING THE BRUSH (BRUSH HEAD WITH SINGLE BRUSH)	28
6. DISASSEMBLING THE BRUSH (DUAL BRUSH HEAD)	29
WEEKLY MAINTENANCE	30
1. CLEANING THE SQUEEGEE TUBE	30
2. CHECKING THE WHEEL BRAKE	30
3. CLEANING THE SOLUTION TANK	30
4. REPLACING THE SQUEEGEE RUBBERS	30
EXTRAORDINARY MAINTENANCE	32
1. CLEANING THE DOSING SYSTEM (VERSIONS WITH CDS)	32
TROUBLESHOOTING	33
INSUFFICIENT WATER ON THE BRUSH	33



THE MACHINE DOES NOT CLEAN WELL	33
THE SQUEEGEE DOES NOT DRY PERFECTLY	33
EXCESSIVE FOAM PRODUCTION.....	33
ELECTRIC SYSTEM SAFETY (E versions).....	33
DISPOSAL	34
CHOOSING AND USING THE BRUSHES.....	35
EC DECLARATION OF CONFORMITY	36
EC DECLARATION OF CONFORMITY	37



On consignment of the machine

When the machine is delivered 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 been damaged 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

ABILA is a floor scrubbing machine which, via the mechanical action of the rotating brush and the chemical action of a water/detergent solution, can clean any type of flooring. As it advances, it also collects the dirt removed and the detergent solution not absorbed by the floor.

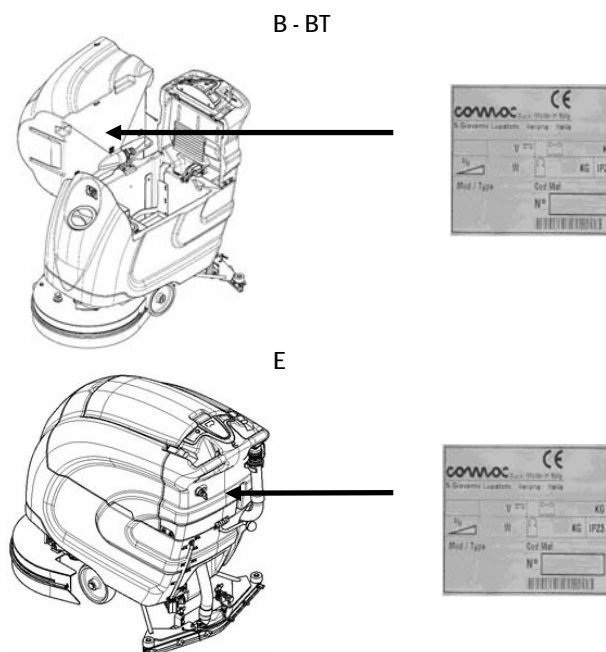
The machine must be used only for this purpose. Even the best machines will only work well if used correctly and kept in good working order. We therefore suggest you read this instruction booklet carefully and read it again whenever difficulties arise while using the machine. If necessary, remember that our assistance service (organised in collaboration with our dealers) is always available for advice or direct intervention.

Intended use

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

The machine is not suitable for use in the rain, or under water jets. It is **FORBIDDEN** to use the machine in places with a potentially explosive atmosphere, for picking up dangerous dusts or inflammable liquids. In addition, it is not suitable as a means of transport for people or objects.

Serial number plate





TECHNICAL DESCRIPTION	UM	Abila 45B	Abila 50B	Abila 42B	Abila 52B
Rated power	W	950	950	950	950
Working width	mm	420	500	400	500
Width of rear squeegee	mm	680	680	680	680
Working capacity, up to	m ² /h	1470	1750	1470	1750
Brushes (diameter and quantity)	Ø mm	420 x 1	500 x 1	210 x 2	255 x 2
Brush rotations	rpm	140	140	340	275
Pressure on the brushes	kg	20	20	20	22
Brush motor	V / W	24/400	24/400	24/400	24/400
Type of advance		Semiautomatic	Semiautomatic	Semiautomatic	Semiautomatic
Maximum gradient	%	2	2	2	2
Forward speed	km/h	-	-	-	-
Suction motor	V / W	24/330	24/330	24/330	24/330
Suction vacuum	mbar	90	90	90	90
Traction motor	V / W	-	-	-	-
Solution tank PE	l	48	48	48	48
Recovery tank PE	l	54	54	54	54
Machine net weight	kg	84	84	84	84
Gross weight of the machine ready for use	kg	195	195	195	195
Batteries (Voltage / Maximum capacity)	V / AhC5	12/105 (2)	12/105 (2)	12/105 (2)	12/105 (2)
Maximum weight of batteries	kg	63	63	63	63
Battery charger *	V/A	24/9	24/9	24/9	24/9
Battery compartment dimensions (Length / Height / Width)	mm	350x290x330	350x290x330	350x290x330	350x290x330
Machine dimensions (Length / Height / Width)	mm	1128x1005x490	1180x1005x490	1070x1005x490	1110x1005x490
Sound pressure level (ISO 11201)	dB (A)	62	62	62	62
Hand vibration level (ISO 5349)	m/s ²	0.75	0.75	0.75	0.75

* CB versions with built-in battery charger

TECHNICAL DESCRIPTION	UM	Abila 45BT	Abila 50BT	Abila 42BT	Abila 52BT
Rated power	W	1100	1100	1100	1100
Working width	mm	420	500	400	500
Width of rear squeegee	mm	680	680	680	680
Working capacity	m ² /h	1470	1750	1470	1750
Brushes (diameter and quantity)	Ø mm	420 x 1	500 x 1	210 x 2	255 x 2
Brush rotations	rpm	140	140	340	275
Pressure on the brushes	kg	20	20	20	22
Brush motor	V / W	24/400	24/400	24/400	24/400
Type of advance		Automatic	Automatic	Automatic	Automatic
Maximum gradient	%	2	2	2	2
Forward speed	km/h	4	4	4	4
Suction motor	V / W	24/330	24/330	24/330	24/330
Suction vacuum	mbar	90	90	90	90
Traction motor	V / W	24/150	24/150	24/150	24/150
Solution tank PE	l	48	48	48	48
Recovery tank PE	l	54	54	54	54
Machine net weight	kg	99	99	99	99
Gross weight of the machine ready for use	kg	210	210	210	210
Batteries	V / AhC5	12/105 (2)	12/105 (2)	12/105 (2)	12/105 (2)
Battery weight	kg	63	63	63	63
Battery charger *	V/A	24/9	24/9	24/9	24/9
Battery compartment dimensions (Length / Height / Width)	mm	350x290x330	350x290x330	350x290x330	350x290x330
Machine dimensions (Length / Height / Width)	mm	1128x1005x490	1180x1005x490	1070x1005x490	1110x1005x490
Sound pressure level (ISO 11201)	dB (A)	62	62	62	62
Hand vibration level (ISO 5349)	m/s ²	0.75	0.75	0.75	0.75

* CB versions with built-in battery charger



TECHNICAL DESCRIPTION	UM	Abila 45E	Abila 50E 230V	Abila 50E 110V
Rated power	W	1200	1200	1300
Working width	mm	420	500	500
Width of rear squeegee	mm	680	680	680
Working capacity	m ² /h	1470	1750	1750
Brushes (diameter and quantity)	Ø mm	420 x 1	508 x 1	508 x 1
Brush rotations	rpm	240	240	240
Pressure on the brushes	kg	20	20	20
Brush motor	V / W / Hz	230/750/50	230/750/50	110/750/50
Type of advance		Semiautomatic	Semiautomatic	Semiautomatic
Maximum gradient	%	2	2	2
Forward speed	km/h	-	-	-
Suction motor	V / W	230/450	230/450	110/550
Suction vacuum	mbar	90	90	90
Traction motor	V / W	-	-	-
Solution tank PE	l	48	48	48
Recovery tank PE	l	54	54	54
Machine net weight	kg	87	87	87
Gross weight of the machine ready for use	kg	135	135	135
Batteries	V / AhC5	-	-	-
Battery weight	kg	-	-	-
Battery charger	V/A	-	-	-
Battery compartment dimensions (Length / Height / Width)	mm	-	-	-
Machine dimensions (Length / Height / Width)	mm	1128x1005x490	1180x1005x490	1180x1005x490
Sound pressure level (ISO 11201)	dB (A)	60.2	60.2	60.2
Hand vibration level (ISO 5349)	m/s ²	1	1	1



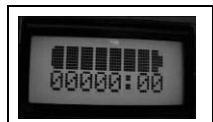
SYMBOLS USED ON THE MACHINE



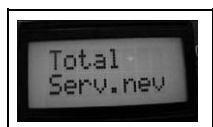
Tap symbol
Used to indicate water regulation changes (CDS versions)



Detergent symbol
Used to indicate detergent regulation changes (CDS versions)



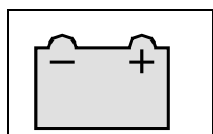
Indicator showing battery charge level on the upper line and hour meter on the lower line (B-BT versions)



Indicator showing the type of hour meter (total) on the upper line and the type of service (none) on the lower line



Indicator showing the type of technology of the batteries used (lead) (B-BT versions)



Battery symbol (B-BT versions)



Warning high voltage 110-220 Volt



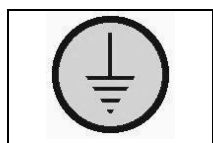
Indicates the maximum temperature of the detergent solution
Located near the solution tank inlet



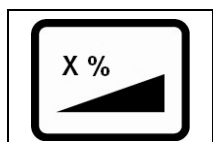
Indicates the risk of crushed hands



Indicates the instructions for dosing the detergent in the canister (CDS version)



Indicates the earth connection point of the electric system of the machine. (E versions)



Indicates the maximum gradient



GENERAL SAFETY REGULATIONS

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

WARNING:

- 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 exclusively used by authorised, trained personnel.
- The machine is designed for dry use only.
- Do not use the machine on surfaces with an inclination greater than the one shown on the plate.
- The machine is not suitable for cleaning rough or uneven floors. Do not use the machine on slopes.
- Avoid damaging the power supply cable by crushing or bending it, or applying stress.
- If the power supply cable of the battery charger is damaged, contact an Authorised service centre immediately.
- Do not let the power cable come into contact with the rotating brush.
- In the event of danger, quickly intervene on the handle located on the battery connector.
- For all maintenance interventions, switch off the machine and disconnect the battery connector and/or the power supply cable.
- Children must be supervised to ensure they do not play with the device.
- During the working of the machine, pay attention to other people and especially to children.
- Only use the brushes supplied with the machine, or those specified in the "CHOOSING AND USING THE BRUSHES" paragraph of the instruction manual. The use of other brushes could compromise safety levels.

WARNING:

- 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.
- The machine must not be used or stored outdoors, in damp conditions or directly exposed to rain.
- 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%.
- The socket for the machine's power cable (electric version) or for the battery charger power cable (battery version) must be correctly earthed.
- Adapt the speed to the adhesion conditions.
- Do not use the machine as a means of transport.
- The machine does not cause harmful vibrations.
- Do not use the machine in an explosive atmosphere.
- Do not vacuum inflammable liquids.
- Do not use the device to collect dangerous powders.
- Do not mix different types of detergent as this may produce harmful gases.
- The machine is not suitable for cleaning carpets.
- Do not place any liquid containers on the machine.
- Avoid working with the brushes when the machine is standing still, so as not to damage the floor.
- 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. The operator must always be equipped with the appropriate safety devices (gloves, shoes, helmet, goggles, etc.).
- The machine is designed to carry out the scrubbing 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, ask for intervention of the authorised technical assistance centre.
- If you need to replace any components, request the ORIGINAL spare parts from an Authorised dealer and/or Retailer.
- Restore all electrical connections after any maintenance interventions.
- Before using the machine, check that all the hatches and covers are positioned as shown in this Use and Maintenance Manual.
- 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.
- To prevent scaling in the solution tank filter, do not fill the tank with detergent solution many hours before using the machine.
- Do not use acid or basic solutions that could damage the machine and/or harm people.
- Have the machine checked by an authorised technical assistance centre every year.
- When disposing of consumable materials, observe the laws and regulations in force.
- When your 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, taking into account 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.



MACHINE PREPARATION

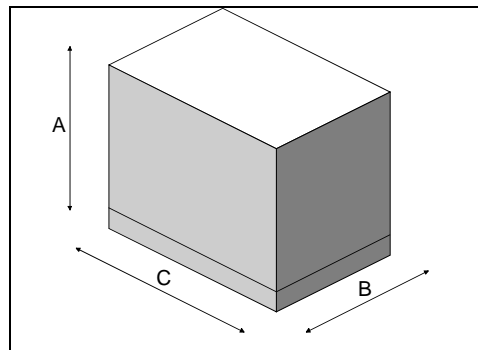
1. HANDLING OF THE PACKED MACHINE

The machine is contained within specific packaging.

It is not possible to place more than two packages on top of each other.

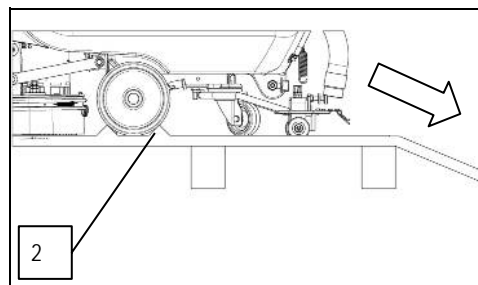
The overall dimensions of the package are:

	ABILA 2010
A	1145mm
B	665mm
C	1230mm



2. HOW TO UNPACK THE MACHINE

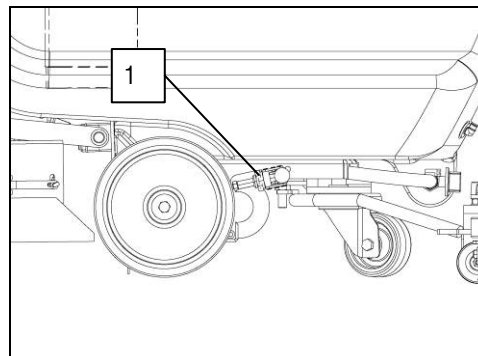
1. Remove the outer packaging
2. Disengage the parking brake, by means of the lever on the left wheel of the machine (1)
3. The machine is secured to the pallet with wedges that lock the wheels, remove these wedges (2)



4. Use a chute to get the machine down from the pallet, pushing it backwards. Do not assemble the rear squeegee before unloading the machine, and avoid violently jolting the brush head.
5. Keep the pallet for any future transport needs

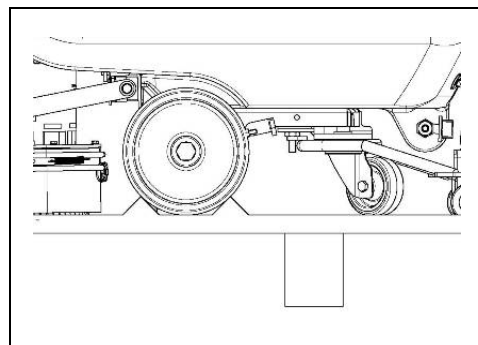


ATTENTION: if the product is delivered in cardboard containers, handle the packed product with suitable lifting means that comply with the legal requirements

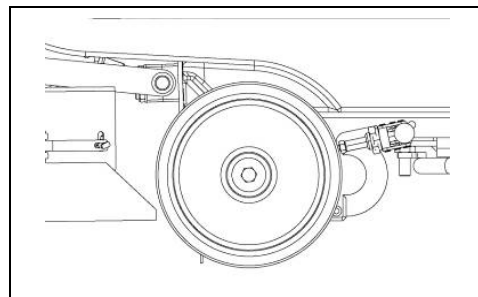


3. HOW TO MOVE THE MACHINE

1. To safely move the machine, you should use a pallet to support it (positioning wooden wedges to block the wheels, as shown in the previous paragraph).
2. Lower the squeegee by means of the lever at the rear of the machine. To assemble the squeegee, read the "ASSEMBLING THE SQUEEGEE" paragraph



3. Lower the brush head allowing the brushes to rest by means of the lever on the right rear of the machine.
4. Stop the machine by operating the brake lever located behind the left wheel of the machine.





MACHINE PREPARATION

4. TYPE OF BATTERY (Versions B-BT)

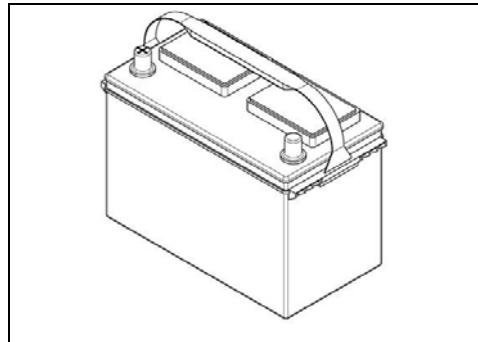
To power the machine it is necessary to use:

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

OTHER TYPES MUST NOT BE USED.

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

Every battery consists of DIN-type elements connected in series and providing the clamps with a power of 6 V. You are advised to use batteries with an electric capacity of 200 Ah (C5)



5. BATTERY MAINTENANCE AND DISPOSAL (B-BT versions)

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.

Proceed as follows when the battery is dead:

1. Disconnect the quick connector and remove the solution tank.
2. Open the battery compartment and disconnect the connector.
3. Remove the battery by using suitable devices, lifting it with the provided handles.

DEAD BATTERIES ARE CLASSIFIED AS DANGEROUS WASTE AND MUST BE DELIVERED 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

6. INSERTING/CONNECTING THE BATTERIES (B-BT versions)

The machine may be supplied with batteries and a built-in battery charger.

If batteries other than those supplied with the machine are used, have the battery charger and battery control card configuration checked by a qualified, COMAC-trained technician.

Perform a battery charging cycle before using the machine.

The batteries must be housed in the appropriate compartment beneath the recovery tank, and must satisfy the requisites of Standard CEI 21-5.

To insert the batteries you must:

1. Engage the machine's parking brake
2. Lower the squeegee and brush head (see the appropriate chapter)
3. Make sure the recovery tank is empty, otherwise empty it completely
4. release the hinges (1) on the handlebars.

Rotate the recovery tank as far as it will go, using the side handle (2).



ATTENTION: Before fitting the batteries, lift in the backing and connect the traction connector.

this process must be carried out by qualified personnel. An incorrect connection of the connector may cause problems with machine functioning.

This operation is possible for machines with traction only





MACHINE PREPARATION

5. Lift the batteries by means of the grips on the upper part
6. house the batteries in the compartment, positioning the poles "+" and "-" opposite each other



ATTENTION: you are advised to use airtight batteries only, to avoid the leakage of acids!

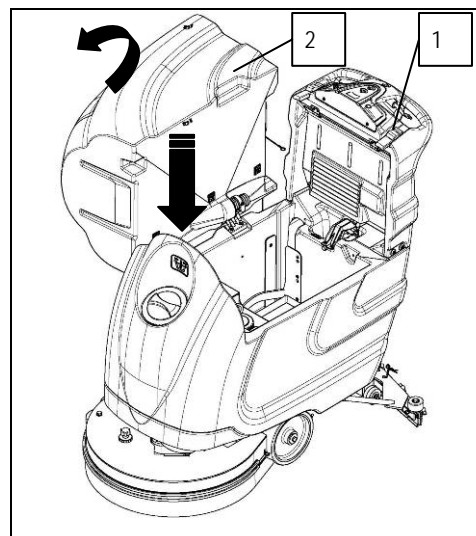
ATTENTION: you are advised to have the electric connections made by a qualified, COMAC-trained technician



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



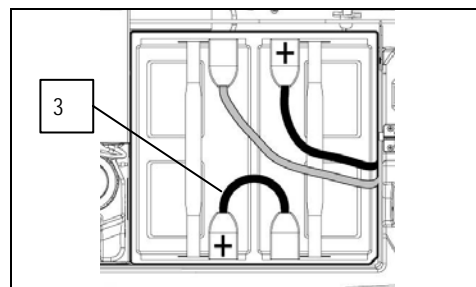
ATTENTION: You are advised to only lift and move the batteries with lifting and transportation means suitable for the specific weight and size



7. CONNECTION OF THE BATTERIES

To connect the batteries you must:

1. connect the batteries in series - using the jumper cables supplied (3) - to the poles "+" and "-"
2. Connect the battery connector cable to the terminal poles "+" and "-" to obtain a voltage of 24V on the terminals

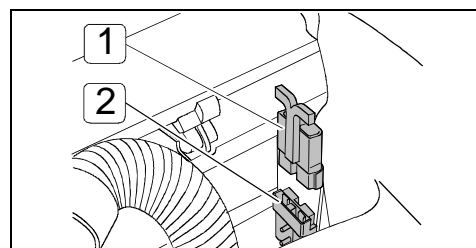


8. CONNECTION OF THE ELECTRICAL SYSTEM CONNECTOR

Beneath the recovery tank there is the battery connector (2), in which the electrical system connector (1) must be inserted.



ATTENTION: This process must be carried out by qualified personnel. An incorrect connection of the connector may cause problems with machine functioning.



9. RECHARGING THE BATTERIES WITH AN EXTERNAL BATTERY CHARGER (VERSIONS WITHOUT BC)

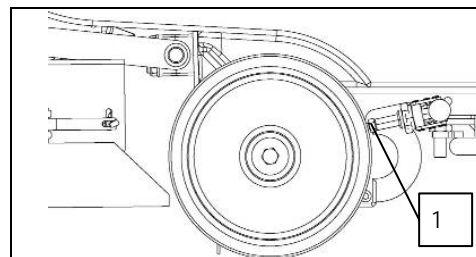
In order not to cause permanent damage to the batteries, it is essential to avoid their complete discharge: arrange the recharge within a few minutes of the switching on of the "discharged batteries" blinking light.



ATTENTION: never leave the batteries completely discharged, even if the machine is not being used. Check the battery charger is suitable for the batteries installed, in terms of both capacity and type.

To connect the batteries you must:

1. Make sure the recovery tank is empty, otherwise empty it completely
2. Move the machine near to the battery charger
3. Make sure that the key switch in the "0" position
4. Engage the parking brake located on the left side of the machine (1)
5. open the rear hinge that closes the upper tank
6. Rotate the tank as far as it will go, using the side handle





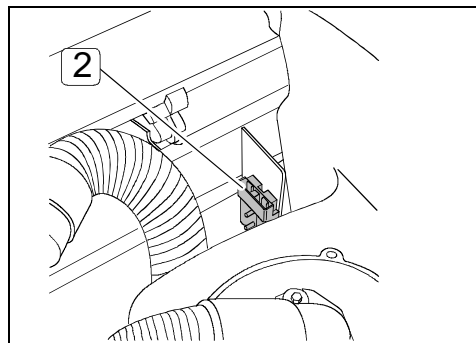
MACHINE PREPARATION

7. Disconnect the electrical system connector from the battery connector (2)
8. Connect the battery charger cable connector

The coupling connector of the battery charger is consigned inside the bag containing this instruction booklet, and must be assembled on the cables of the battery charger as indicated in the instructions.



ATTENTION: This process must be carried out by qualified personnel. An incorrect connection of the connector may cause problems with machine functioning.



9. Connect the recently wired cable to the external battery charger



ATTENTION: Carefully read the use and maintenance instructions of the battery charger that is used for charging.



ATTENTION: Keep the recovery tank open for the duration of the battery recharging cycle to allow gas fumes to escape

10. After the charging cycle is complete, the battery connector (2) must be connected to the electrical system connector



ATTENTION: danger of gas exhalation and leakage of corrosive liquids.



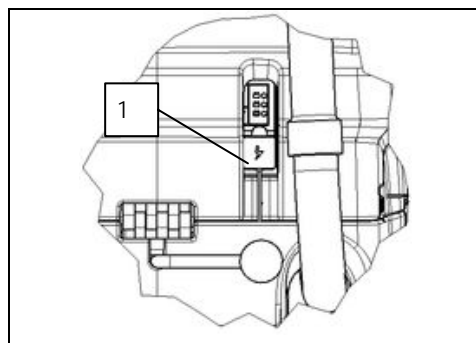
ATTENTION: danger of fire: do not go near with free flames

10. RECHARGING THE BATTERIES WITH BUILT-IN BATTERY CHARGER (VERSIONS WITH BC)

The machine is shipped with the battery connector (if supplied) disconnected, connect the battery connector to the machine connector (see previous paragraph).

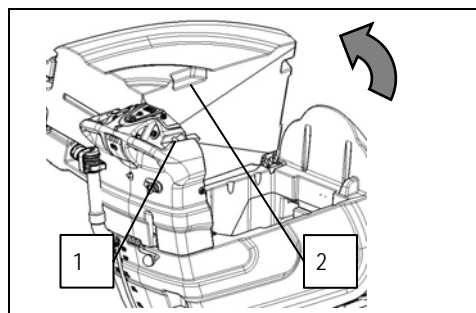
To charge the gel battery proceed as follows:

1. Engage the parking brake.
2. Check that the machine's master switch is in the "0" position.
3. Lift the battery charger socket guard (1) on the back of the machine.
4. Plug the battery charger cable into the electrical system of the machine.
5. Plug the power supply cable of the charger into the mains socket.



To charge the lead acid batteries proceed as follows:

1. Engage the parking brake.
2. Check that the machine's master switch is in the "0" position.
3. Lower the brush head by means of the pedal on the back of the machine
4. Lower the squeegee by means of the lever on the back of the machine
5. Check the recovery tank is empty, otherwise empty it (see the appropriate chapter)
6. release the hinges (1) on the handlebars.
7. Rotate the tank as far as it will go, using the side handle (2).





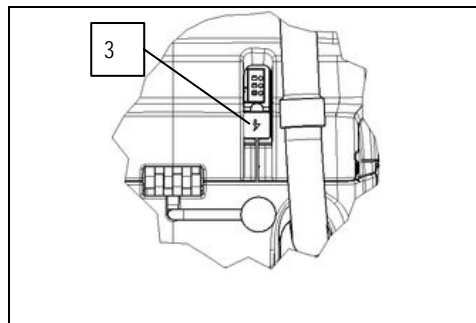
MACHINE PREPARATION

8. Lift the battery charger socket guard (3) on the back of the machine.
9. Plug the battery charger cable into the electrical system of the machine.
10. Plug the power supply cable of the charger into the mains socket.

When replacing the battery, be sure to use batteries suitable for the battery charger installed.



ATTENTION: the machine is equipped with an automatic system that disconnects the power supply from the electrical system while the batteries are being recharged



ATTENTION: 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.

ATTENTION: never leave the batteries completely discharged, even if the machine is not being used.



ATTENTION: for the daily recharging of the batteries, you must fully respect the indications provided by the manufacturer or retailer. All installation and maintenance operations must be carried out by expert personnel, trained at the COMAC assistance centre

WARNING Make sure that the battery charger green LED is on before using the machine again



ATTENTION: danger of exhalation of gas and leakage of corrosive liquids.



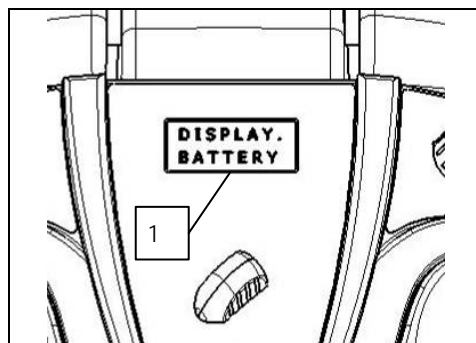
ATTENTION: danger of fire: do not go near with free flames

11. BATTERY INDICATOR (B-BT VERSIONS)

On the instrument panel of the machine there is a monitor (1) indicating (amongst other things) the battery charge status. If the upper line contains 8 light indicators, the battery charge level is 100%. If the edges of the indicators are flashing, this means the batteries are run down.



ATTENTION: a few seconds after the last indicator on the monitor has flashed, the brush motor will automatically switch off. With the remaining charge it is possible to complete the drying process before recharging





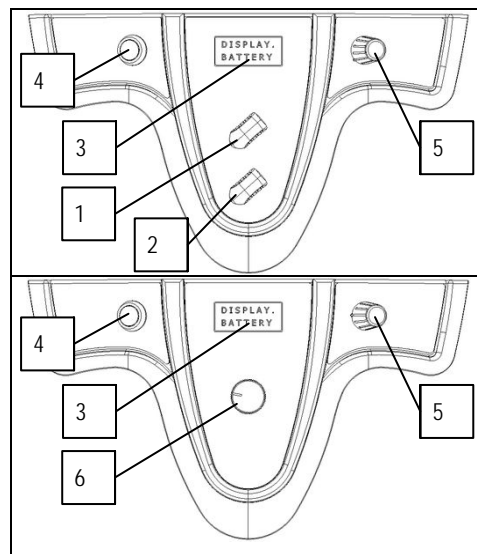
MACHINE PREPARATION

12. INSTRUMENT PANEL COMPONENTS

The instrument panel components are identified as follows:

1. Water outlet regulation switch (CDS versions)
2. Detergent outlet regulation switch (CDS versions)
3. Battery level / hour-counter display
4. Battery level hour meter display control button
5. Speed level key (BT versions)

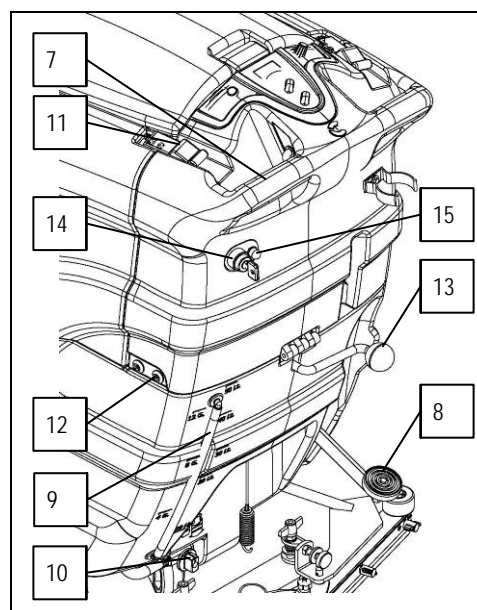
6. Detergent solution flow quantity level adjustment knob



13. REAR COMPONENTS

The rear components are identified as follows:

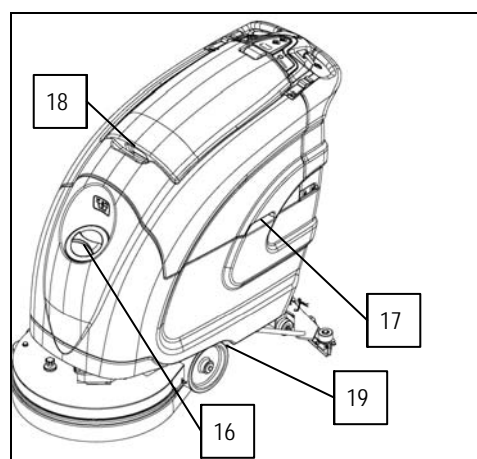
7. Levers to activate brushes/traction (located beneath the grip)
8. Brush lifting pedal
9. Water/solution level tube
10. Water tap
11. Tank closure hinges
12. Handlebar fastening screws
13. Squeegee lifting lever
14. Key operated switch
15. Brush head motor thermal circuit breaker (electric version)



14. FRONT AND SIDE COMPONENTS

The side components are identified as follows:

16. Water/solution inlet cap
17. Recovery tank lifting handle
18. Suction unit lifting handle
19. Parking brake lever



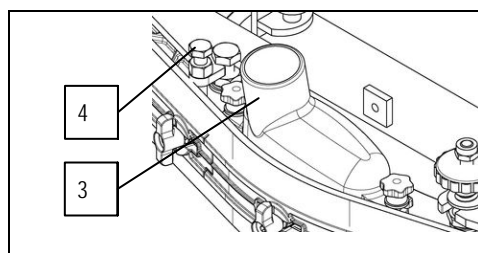
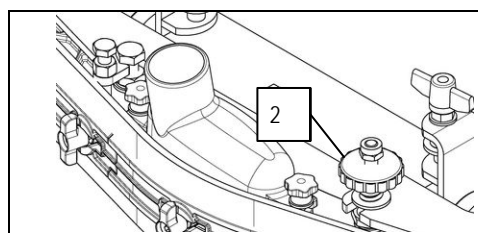
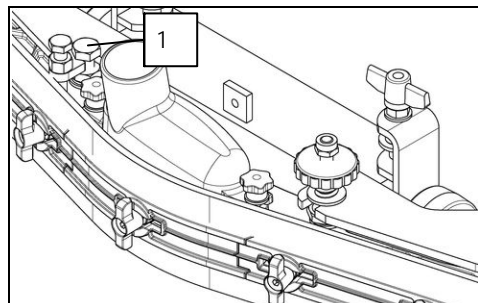


MACHINE PREPARATION

15. SQUEEGEE ASSEMBLY

The squeegee, that for reasons of packaging comes disassembled from the machine, must be assembled while assembling the machine. Proceed as follows for assembly:

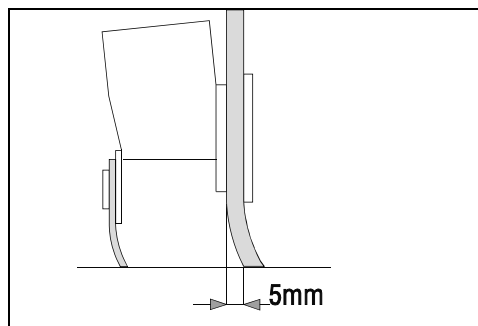
1. Turn the key of the master switch anticlockwise to the "0" position.
2. Engage the parking brake located on the left side of the machine.
3. Lift the squeegee connection by means of the lever at the rear of the machine.
4. First insert the left pin of the squeegee (1) into the left slot on the squeegee coupling.
5. The right pin (2) into the right slot, being careful to keep the spring and washer on the plate of said arm. This can be simplified by first loosening the handwheel on the pin.
6. Tighten the handwheel to block the squeegee in place.
7. Insert the suction tube in the appropriate joint (3) on the squeegee, ensuring that the suction tube lies to the right of the lifting cable.



ATTENTION: these operations must be carried out using protective gloves to avoid any possible contact with the edges or tips of metal objects.

16. ADJUSTING THE SQUEEGEE INCLINATION

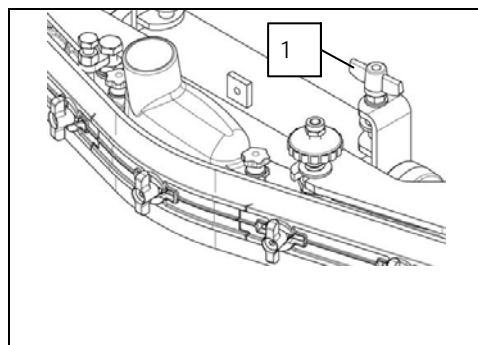
During working operation, the rear rubber is tilted slightly backwards (by about 5 mm) in a uniform way for its whole length. If it is necessary to increase the bend of the rubber in the central part, you must tilt the squeegee backwards, rotating the adjuster (4) anticlockwise. To increase the bend of the rubber at the sides of the squeegee, rotate the set screw clockwise.



17. ADJUSTING THE SQUEEGEE HEIGHT

The height of the squeegee must be adjusted on the basis of the state of wear and tear of the rubber. To do this, turn the knob (1) anticlockwise to raise the squeegee, and clockwise to lower it.

Note: the right and left wheels must be adjusted to the same level, so the squeegee can work parallel to the floor.





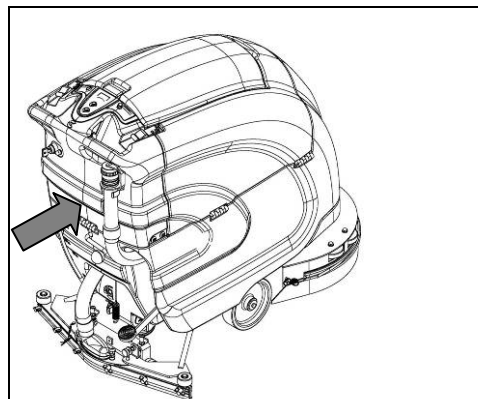
MACHINE PREPARATION

18. RECOVERY TANK

Make sure the recovery tank is empty, otherwise empty it completely.
Check the drainage tube cap (on the rear of the machine) is correctly closed.

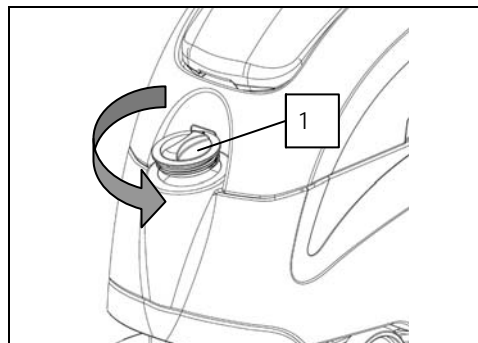


ATTENTION: To avoid foam production, put a minimum quantity of antifoam liquid in the recovery tank before starting to clean.



19. SOLUTION TANK

The recovery tank must be completely empty each time the solution tank is filled.
Remove the front-mounted hopper and check the solution filter is correctly fitted.
Check the filter cap (beneath the solution tank, at the back) is correctly closed.



20. SOLUTION TANK / DETERGENT SOLUTION (VERSIONS WITHOUT CDS)

Proceed as follows to fill the solution tank:

1. Turn the key of the master switch anticlockwise to the "0" position.
2. Engage the parking brake.
3. Remove the front-mounted hopper and check the solution filter (1) is correctly assembled.
4. Verify that the filter cover (beneath the solution tank) is correctly closed
5. Fill with clean water, at a temperature not exceeding 50°C. It is possible to see the quantity in the tank through the rear pipe.
6. The recovery tank must be completely empty each time the solution tank is filled.

The solution tank has a maximum capacity of about 48 litres. Add the liquid detergent to the tank in the concentration and manner indicated on the detergent manufacturer's label. The formation of excess foam could damage the suction motor, so use only the minimum amount of detergent necessary.



ATTENTION: 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: Protective gloves should always be worn before handling detergents or acidic or alkaline solutions to avoid serious injury to hands.



MACHINE PREPARATION



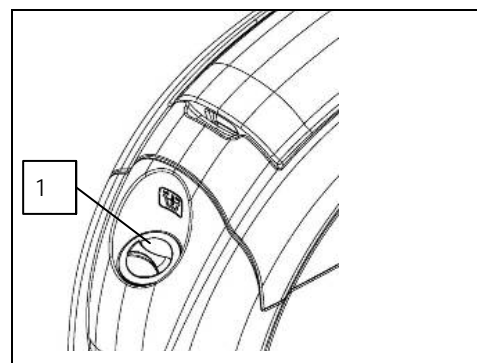
ATTENTION: always use low foam detergent. To avoid the production of foam, before starting to clean, put a minimum quantity of anti-foam liquid into the recovery tank. Do not use pure acids.

21. SOLUTION TANK / DETERGENT SOLUTION (VERSIONS WITH CDS)

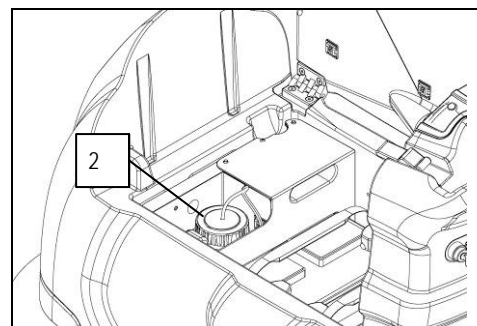
Proceed as follows to fill the solution tank:

1. Turn the key of the master switch anticlockwise to the "0" position.
2. Engage the parking brake.
3. Remove the cap of the front-mounted hopper (1) and check the solution filter is correctly assembled.
4. Verify that the filter cover (beneath the solution tank) is correctly closed
5. Fill with clean water, at a temperature not exceeding 50°C. It is possible to see the quantity in the tank through the rear pipe.

The solution tank has a maximum capacity of about 48 litres.



6. The recovery tank must be completely empty each time the solution tank is filled.
7. Unscrew the cap (2) of the canister in the compartment (in front of the batteries) and fill it with liquid detergent in the manner indicated on the label supplied with the machine. Check the screw cap is well closed, to avoid any liquid leaking out while the machine is being used.



To regulate the water/detergent mixture, carefully read the "REGULATING THE DETERGENT WITH THE CDS SYSTEM" paragraph

ATTENTION: The DS automatic dosing system is designed to work with any liquid detergent. For this reason, the percentage of detergent in the solution is subject to a maximum error of 5% compared with the nominal value selected.



WARNING: The dosing system is suitable for frequent maintenance cleaning. Acid or alkaline maintenance detergent tank be used with pH values between 4 and 10 and that do not contain: oxidising agents, chlorine or bromine, formaldehyde, mineral solvents.

The detergents used must be suitable for use with scrubbing machines. Wash the circuit with water after use if the system is not used daily. The system is excludable. In case of sporadic use of detergents with pH between 1-3 or 11-14, use the scrubbing machine in the traditional way by adding the detergent in the clean water tank and excluding the dosing circuit.

Detergente standard Standard detergent	Detergente concentrato Concentrated detergent
0.5%	0.1%
1%	0.2%
1.5%	0.3%
2%	0.4%
2.5%	0.5%
3%	0.6%
3.5%	0.7%

MODALITÀ D'USO:
Immettere la tanica a versare direttamente il detergente nella tanica da 5 litri in dotazione. Caricare il serbatoio sul cruscotto, la % diluizione detergente indicata tra i valori indicati nella tabella.

INSTRUCTIONS:
Insert the can or pour directly the detergent into the 5 liter can. Select with the knob on the instrument panel the dilution % you need among the values indicated in the table.

MODALITÀ D'USO:
Mesure 1 litre de détergent concentré et remplissez complètement d'eau la tanica da 5 litri in dotazione. Sélectionnez, l'indicateur sur le cruscotto, la % diluizione détergente indiquée tra i valori indiqués dans le tableau.

INSTRUCTIONS:
Pour 1 litre de détergent concentré et remplissez complètement le réservoir de 5 litres avec de l'eau. Sélectionnez avec la molette sur le tableau de bord la dilution % dont vous avez besoin parmi les valeurs indiquées dans le tableau.

pH
min 4
max 10



ATTENTION: 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: Protective gloves should always be worn before handling detergents or acidic or alkaline solutions to avoid serious injury to hands.

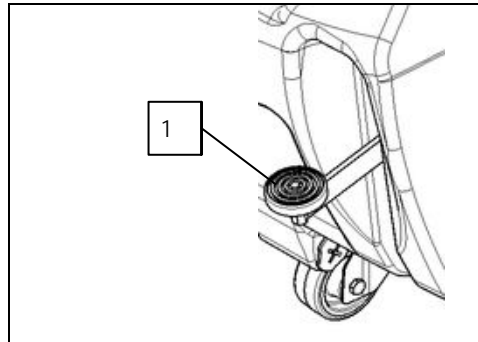


MACHINE PREPARATION

22. BRUSH ASSEMBLY (BRUSH HEAD WITH SINGLE BRUSH)

Proceed as follows to assemble the brush:

1. Raise the brush head by means of the pedal (1)
2. With the brush head up, position the brush in line with the coupling on the machine
3. Lower the brush head by means of the pedal (1) again
4. Turn the key to position "1"



5. Using the dead man's lever (2), the brush is automatically hooked up

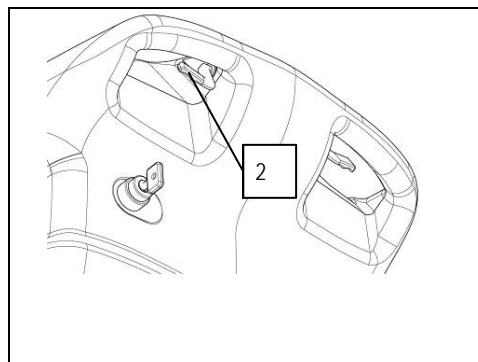


ATTENTION: during this operation, check there are no people or objects near the brush.

ATTENTION: Check the brush is correctly inserted. If this is not the case, the machine could move in an irregular, sudden manner.



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

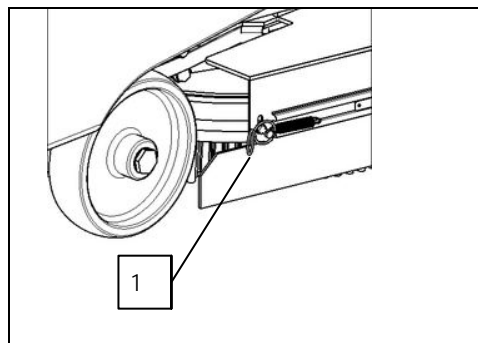


23. ASSEMBLY OF SINGLE BRUSH HEAD (SPASH GUARD RUBBER)

For packaging reasons, the splash guard rubbers are supplied disassembled from the machine. Remove the spring hook (1) from the connection screw on the right side of the brush head, wrap the rubber around the brush head and position it so that it is symmetrical to the brush. Replace the previously removed strip securing the spring hook (1) to the screw connection.



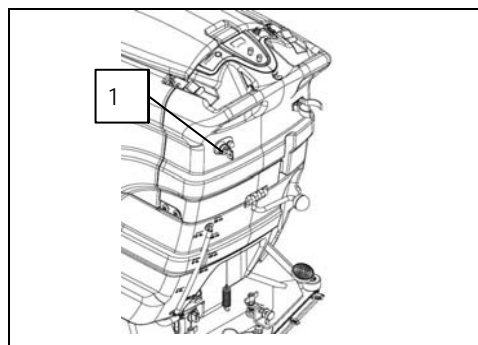
ATTENTION: you are advised to always wear protective gloves, to avoid the risk of serious injury to your hands.



24. ASSEMBLING THE BRUSH (BRUSH HEADS WITH DOUBLE DISC BRUSH)

Proceed as follows to assemble the brushes:

1. Use the side parking brake lever to stop the machine
2. Raise the brush head by means of the appropriate pedal
3. Check that the key is in the "0" position (1).
4. With the brush head up, place the brushes into the plate housing beneath the brush head, turning the brushes until the three pins enter the niches in the plate itself; turn until the pin is pushed towards the coupling spring and is locked into place.





MACHINE PREPARATION

The figure shows the rotation direction for coupling the right-hand brush; for the left-hand one, rotate in the opposite direction.

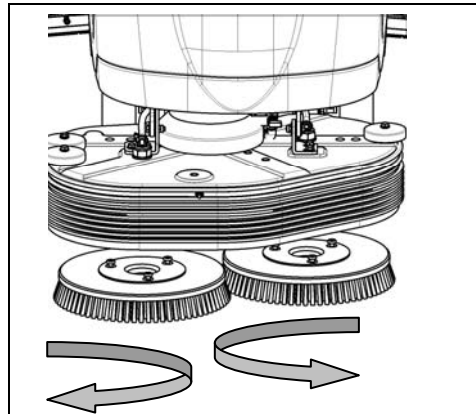


ATTENTION: during this operation, check there are no people or objects near the brush.

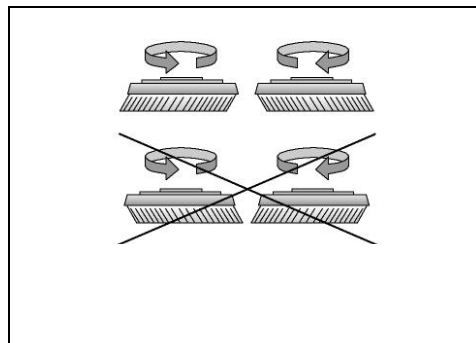
ATTENTION: Make sure the brushes are correctly connected. If this is not the case, the machine could move in an irregular, sudden manner.



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



5. You are advised to invert the right and left-hand brushes every day. If the brushes are not new however, and have deformed bristles, it is better to reassemble them in the same position (the right-hand one on the right, and the left-hand one on the left), to prevent the different inclination of the bristles producing an overload on the brush motor as well as excessive vibrations.



25. ASSEMBLY OF DISC BI-BRUSH BASE SPLASH GUARD RUBBER

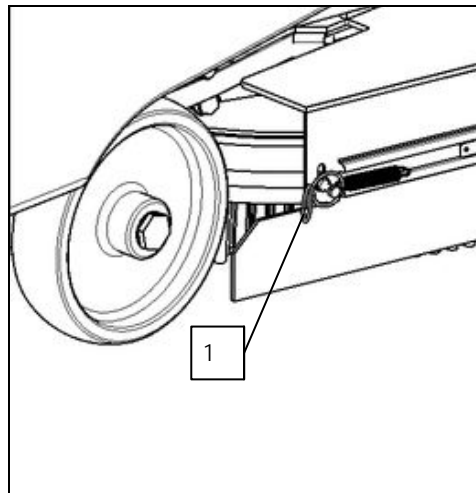
For packaging reasons, the splash guard rubbers are supplied disassembled from the machine. Proceed as follows to assemble the splash guard rubber:

1. Use the side parking brake lever to stop the machine
2. Remove the rubber retaining strips by slipping off the spring hook (1) from the connecting screw
3. Wind the rubber all around the base, inserting the base fixing screw in the central hole
4. Reattach the rubber retaining strips starting from the centre of the base, attach the spring (1) of the connecting screw

Be careful not to invert the right blade with the left one, as they are not the same.

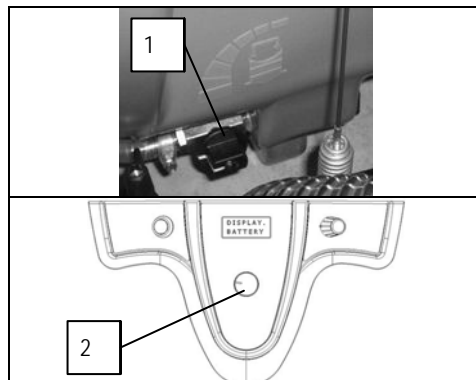


WARNING: you are advised to always wear protective gloves, to avoid the risk of serious injury to your hands.



26. DETERGENT SOLUTION REGULATION (VERSIONS WITH WFC AND WITHOUT CDS)

First of all, fully open the tap in the rear part of the machine, by turning the knob (1) anticlockwise, pressing the dead man's levers to activate the brushes and begin moving the machine. In the first few metres, check that the quantity of solution is sufficient to wet the floor, but not so much that it exits the splash guard, the amount of detergent can be adjusted by turning the knob (2) on the instrument panel (clockwise to increase the flow or anticlockwise to reduce the flow). Bear in mind that the correct amount of solution is always depends on the nature of the floor, the degree of dirt and the forward speed. Warning, by turning the knob all the way to the left the flow of detergent is not completely shut off, but a small amount comes out.

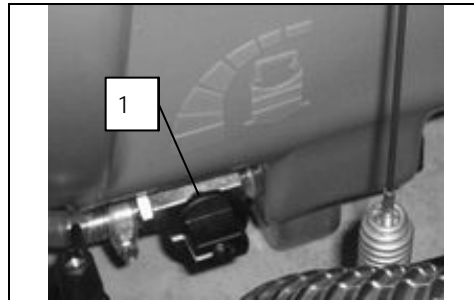




MACHINE PREPARATION

27. DETERGENT SOLUTION REGULATION (VERSIONS WITHOUT WFC AND WITHOUT CDS)

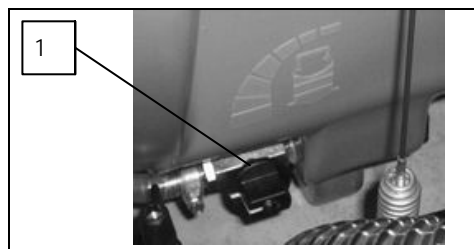
First of all, turn the tap in the rear part of the machine fully on, by turning its knob (1) anticlockwise. By pressing the dead man's levers the brushes are activated, the machine starts to move and the detergent is expelled. In the first few metres, check that the quantity of solution is sufficient to wet the floor, but not too much that it exits the splash guard. The amount of detergent can be adjusted by turning the knob (1) clockwise to increase the flow or anticlockwise to reduce the flow. If turned fully to the right the flow of detergent is closed. Bear in mind that the correct amount of solution is always depends on the nature of the floor, the degree of dirt and the forward speed.



28. DETERGENT SOLUTION REGULATION (VERSIONS WITH CDS BUT WITHOUT WFC)

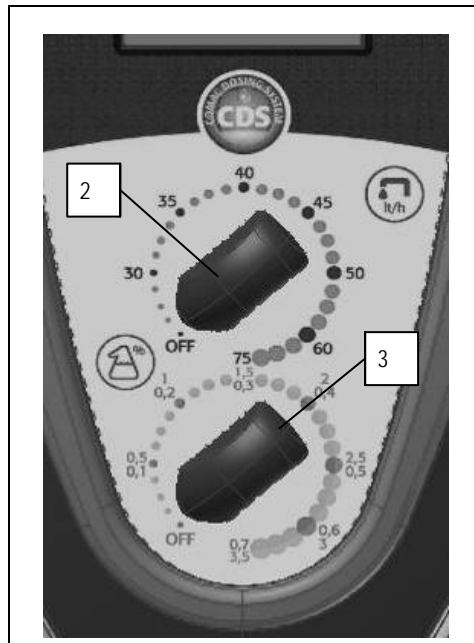
First of all, turn the tap in the rear part of the machine fully on, by turning the knob (1) anticlockwise. Position the water flow adjustment knob (2) to zero. Position the detergent adjustment knob (3) to zero. By pressing the dead man's levers, the brushes are activated, the machine begins to move and the detergent is expelled.

During the first metres:



1. Regulate the flow of detergent solution to the brushes by rotating the upper knob (2) clockwise. The quantity of solution varies from a minimum of 30 litres/hour to a maximum of 75 litres/hour, with 7 set measurement points. The right solution flow should be proportional to the degree of dirt on the floor. In addition, remember that the time available for continuous working depends on the quantity of water in the tank: for example, working endurance with a full tank (about 48 litres) and the selector (2) on 30 is about 1.5 hours.
2. Regulate the percentage of liquid detergent in the solution by rotating the lower knob (3) clockwise. The lower value is equal to 0.5% (for standard detergents) or 0.1% (for a concentrated detergent, diluted as indicated on the label supplied with the machine), while the higher value is equal to 3.5% or 0.7%, with 7 set points. Use high detergent percentages to remove very greasy dirt from the floor.

To avoid any tampering with the set regulation, you can remove the two switches and cover the two holes with the plastic caps supplied with the machine.

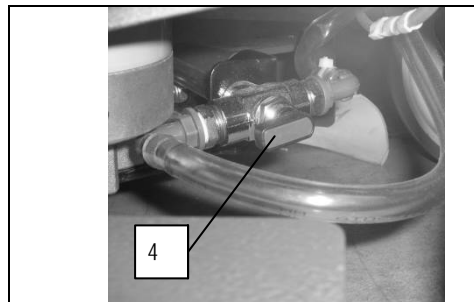


ATTENTION: Check that the tap lever is fully opened, the lever is positioned at the rear of the machine.

ATTENTION: In case of failure of the CDS system, or if you want to work without this device, you can act on the tap (4) mounted on the brush head near the motor.

ATTENTION: before regulating the solution, check there is detergent in the inner can, and that the side water tap is turned on. To avoid any tampering with the set regulation, you can remove the two rubber knobs that command the two switches and cover the two holes with the plastic caps supplied with the machine.

To resolve any malfunctioning of the CDS system, contact the COMAC assistance centre



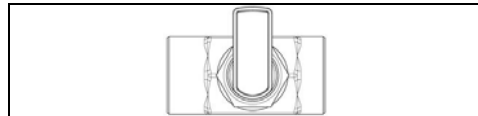
ATTENTION: By positioning the tap lever in this way, the FSS dosing system is excluded and the detergent solution is expelled onto the brushes. Rotate the knobs (2) and (3) anticlockwise, to the "0" position.



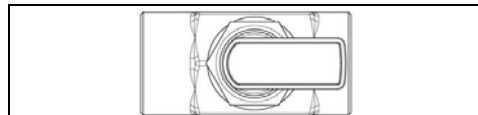


MACHINE PREPARATION

ATTENTION: By positioning the tap lever in this way the detergent is not expelled onto the brushes. Rotate the knobs (2) and (3) anticlockwise, to the "0" position.



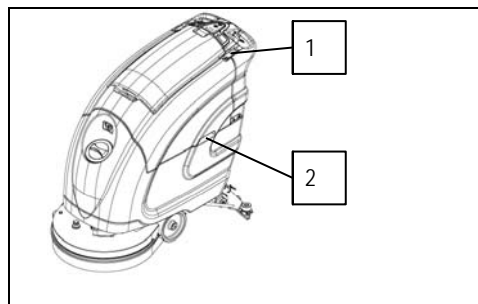
ATTENTION: By positioning the tap lever in this way the FSS dosing system is on.



29. DETERGENT PUMP CONNECTION (VERSIONS WITH CDS)

Before starting work the detergent pump must be primed, to do so proceed as follows:

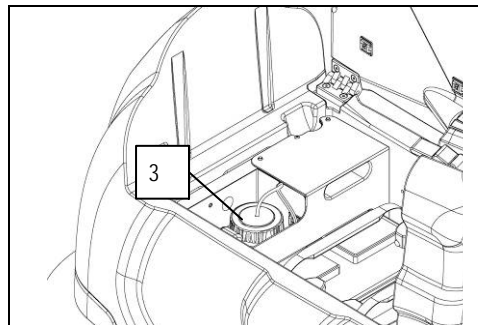
1. Check that the main switch is in the "Off – 0" position
2. Check that the battery connector is disconnected from the machine connector
3. Check the parking brake is correctly engaged
4. Make sure the recovery tank is empty, otherwise empty it completely
5. Release the recovery tank closure hinges (1). By gripping the handle (2) on the left side of the machine, turn the recovery tank



6. Unscrew the cap of the detergent canister (3) and fill it with the desired product

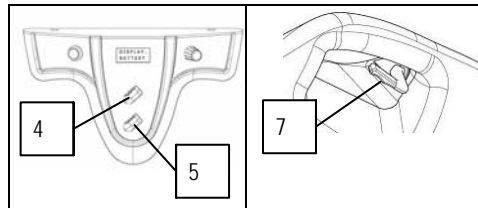


WARNING: always use low foam detergent. To avoid the production of foam, before starting to clean, put a minimum quantity of antifoam liquid into the recovery tank. Do not use pure acids.



7. Close the cap of the detergent canister, taking care that the suction filter is positioned at the bottom of the canister
8. Make sure there is clean water in the solution tank

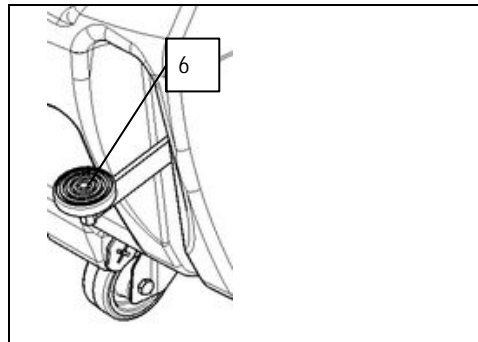
9. Check that the tap lever is fully opened, the lever is positioned at the rear of the machine
10. Check that the by-pass tap is in the "dosing system" position
11. Turn the water flow rate adjustment knob (4) to the maximum position
12. Turn the detergent percentage adjustment knob (5) to the maximum position
13. Insert the battery connector into the machine connector
14. Place the main switch in position "ON – I"
15. Disengage the parking brake



16. Lower the brush head body by means of the pedal (6)
17. Activate the dead man's levers (7) to allow the operation of the brush head and the dosing system
18. Wait a few moments keeping the dead man's levers pressed (normally 20 to 40 seconds) to allow the insertion of the system
19. Proceed with the desired adjustment for normal cleaning



WARNING: During this operation the machine will deliver the solution





MACHINE PREPARATION

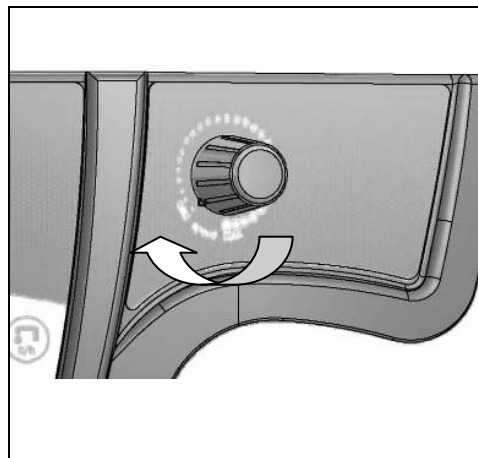
30. ADJUSTMENT OF POTENTIOMETER (BT VERSIONS)

Proceed as follows to adjust the forward speed with the potentiometer:

1. Check that the potentiometer knob is placed on minimum
2. Check that the brush head and squeegee are lifted off the ground
3. Turn the key operated master switch to "ON"
4. Engage the dead man's levers on the handlebars, so the machine starts to move
5. Adjust the desired forward speed by turning the knob gradually clockwise



WARNING! The reverse speed was reduced compared to that of forward speed in order to comply with existing safety at work standards. If the potentiometer is adjusted while reversing, the adjustment of the forward speed will be automatically changed.

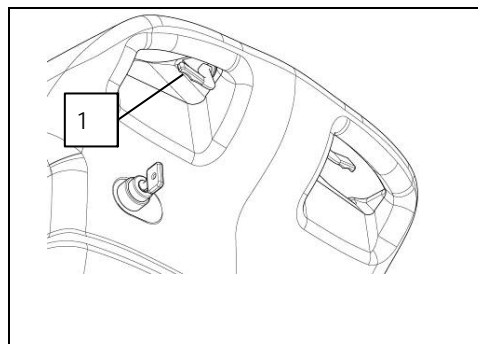


31. REVERSE FUNCTION (BT VERSIONS)

To activate the reverse direction, just push the command levers (1) downwards.



ATTENTION: When moving backwards even for brief moments, check that squeegee is raised, and check the brush head is also raised when the machine is not working.





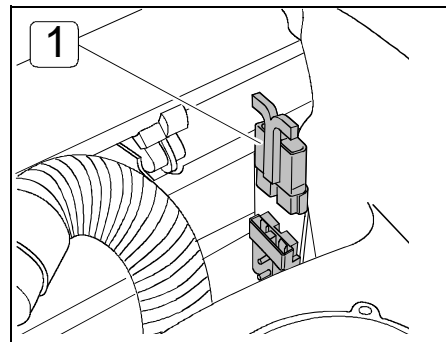
WORK

1. PREPARING TO WORK

1. Connect the connector (1) to the batteries (versions without a built-in battery charger), insert the machine plug into the mains socket for the electric versions.



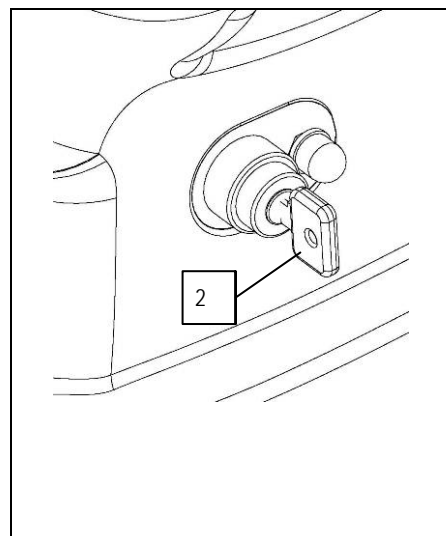
ATTENTION: before using the machine, the operators must be suitable trained. We therefore suggest you read this instruction booklet carefully and read it again whenever difficulties arise while using the machine.



2. Rotate the key of the master switch (2) to the "1" position (clockwise). The monitor display on the instrument panel will immediately come on.



ATTENTION: if the machine is used in places where there is a risk of falling objects, the operator must be provided with all the appropriate protection devices as laid out in the legal requirements



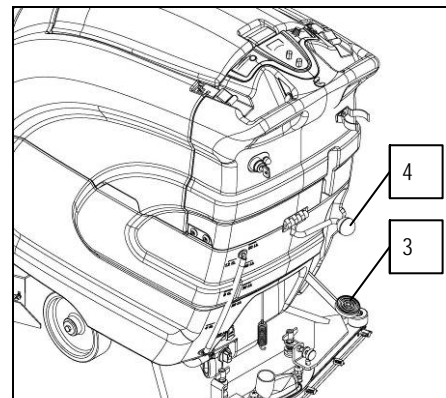
3. With switch-on, three consecutive screens are visualised on the monitor. The first screen shows (on the top line) what type of hour meter has been set; in this case it's a total hour meter (to visualise a different type - for instance partial - contact the qualified, COMAC-trained personnel). The bottom line shows the "service" setting (in this case there is no setting).
4. The second screen visualises what battery technology (or mains supply) has been set for machine operation. In this example, it's lead batteries (to set another type of battery - for instance gel - contact the qualified, COMAC-trained personnel).
5. The third and last screen (known as "work") visualises the battery charge status (if it's a battery supplied machine) and the total functioning time. When the batteries supplied are fully charged, the upper line contains 8 light indicators that represent a battery. As the batteries gradually run down, the indicators go out and, with the batteries completely run down, only the battery outline flashes. The bottom line indicates the hours and minutes of functioning. The flashing ":" symbol indicates that the hour meter is counting the machine functioning time.



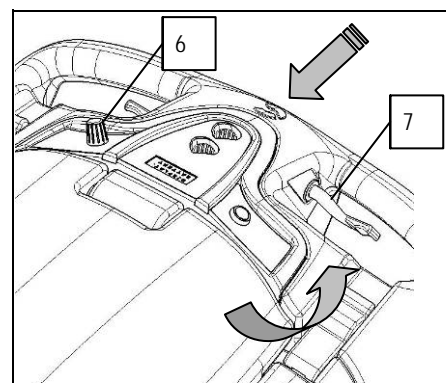
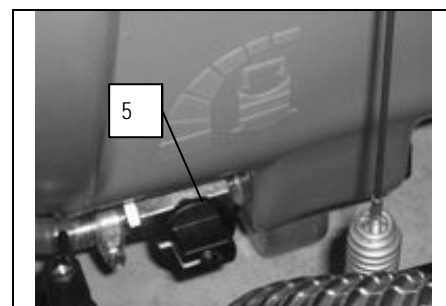


WORK

6. Release the lever (3) and lower the base.
7. Lower the squeegee, turning the lever (4) anticlockwise. The suction motor will start when fully lowered. To switch off the suction motor, turn the key to position "0" once the work is finished.
8. Check the parking brake is released.
9. Adjust the detergent solution coming out to its maximum by using the lever (5) in the rear of the machine.



10. Turn the speed regulation knob (6) to set the working speed. If the speed is inadequate, the adjustment knob can be turned even with the machine in motion.
11. Press the dead man's levers (7) to activate the brushes; the machine will begin to move. For the first few metres, check that the amount of the solution is sufficient to wet the floor, but not so much that it exits the splash guard, to adjust the flow of the detergent solution coming out read the sections "DETERGENT SOLUTION REGULATION (VERSIONS WITH WFC WITHOUT CDS)" and "DETERGENT SOLUTION REGULATION (VERSIONS WITHOUT WFC AND WITH CDS)" and "DETERGENT SOLUTION REGULATION (VERSIONS WITHOUT WFC AND WITHOUT CDS)".



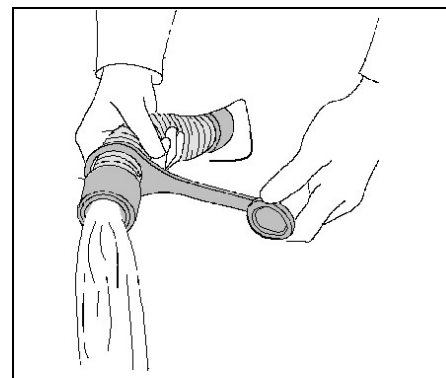
3. RECOVERY TANK OVERFLOW DEVICE

The machine is equipped with a float which intervenes when the recovery tank is full, which will make the suction motor sound deeper.

In this case the recovery tank must be emptied.



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



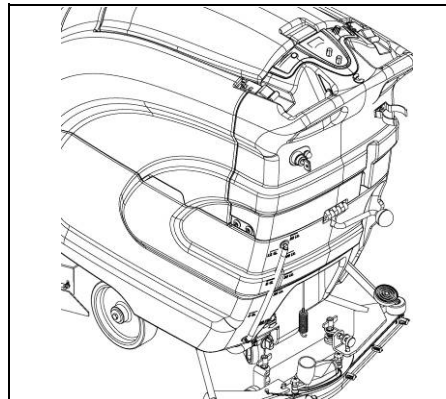


AT THE END OF THE WORK

1. AT THE END OF WORK

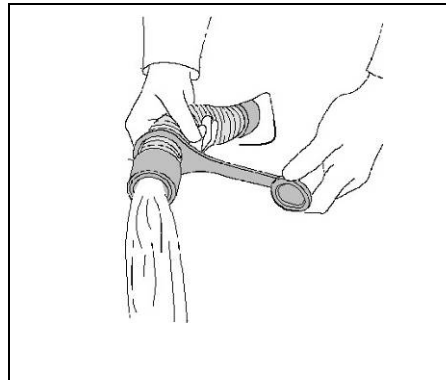
At the end of the work, and before carrying out any type of maintenance:

1. Turn the key of the master switch to the "0" position and then immediately to the "1" position, this will disable the suction motor.
2. Raise the squeegee by turning the lever at the rear of the machine clockwise.
3. Raise the brush head by levering the appropriate pedal with the foot.
4. Take the machine in an area designated for the disposal of liquids.
5. Turn the key of the master switch to the "0" position, and remove the key, for the electric versions disconnect the plug from the mains socket.
6. Engage the parking brake, by means of the lever on the side of the machine.
7. Disconnect the pipe from its hook, unscrew the discharge plug and empty the recovery tank.



To simplify the draining operation, you are advised to keep the tube bent with one hand and, with the other, unscrew the knob and remove the plug.

Slowly straighten the tube and the liquid will start draining at the desired speed.



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

8. Disassemble the brushes and clean them with a jet of water (to disassemble the brushes, see "DISASSEMBLING THE BRUSHES" below).

9. At the end of the work, park the machine in a closed place.

10. Engage the parking brake.

Do not leave the squeegee and brush head resting on the floor for a long time.



ATTENTION: do not leave the machine unattended without first removing the start-up switch key and applying the parking brake. In addition, do not park the machine in open places or on sloping floors.

2. STORING OF THE MACHINE

Proceed as follows to store the machine at the end of work:

1. Place the machine in a place where it can not cause damage or injury
2. Position the machine where the accidental fall of objects do not cause damage
3. Engage the parking brake
4. Turn the key switch to the "0" position
5. Disconnect the machine connector
6. Lift the brush head and squeegee



DAILY MAINTENANCE

PERFORM ALL MAINTENANCE OPERATIONS IN SEQUENCE

1. CLEANING THE RECOVERY TANK

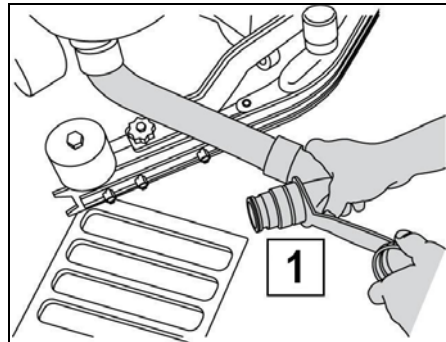
1. Take the machine in an area designated for the disposal of liquids



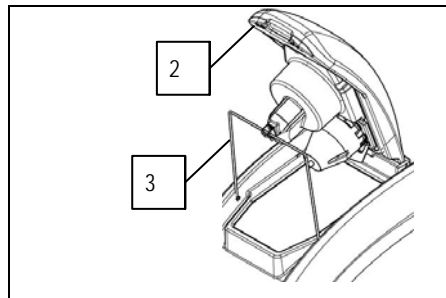
ATTENTION: Before performing any maintenance, remove the keys from the panel and disconnect the battery connector of the machine.



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



2. Engage the parking brake.
3. Lift the brush head and squeegee from the ground.
4. Raise the cap (2) until the hook is secured to the prop (3) of the recovery tank.
5. Clean and rinse the recovery tank and the suction pipe (connecting pipe between the squeegee and the tank).
6. 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.



2. CLEANING THE SUCTION FILTER

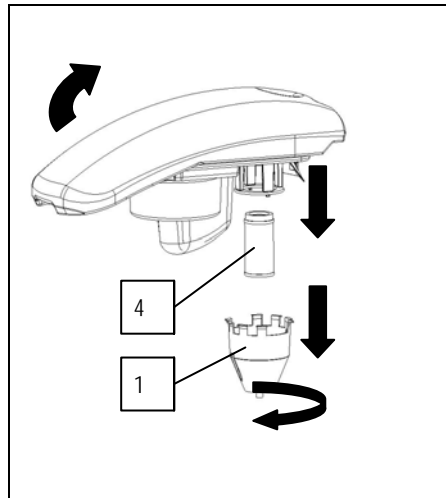
1. Engage the parking brake.
2. Lift the brush head body and the squeegee body off the ground.
3. Raise the cap (2) until the hook is secured to the prop (3) of the recovery tank.
4. Remove the suction filter protection (1) by rotating it clockwise.
5. Remove the suction filter (4) from its seat.
6. Use a jet of water to clean the walls and brush head of the filter.
7. Reassemble all the elements.



WARNING: Before carrying out any type of maintenance, disconnect the machine's power supply cable.



ATTENTION: These operations must be carried out using gloves to protect against contact with dangerous solutions.



3. CLEANING THE SUCTION TUBE FILTER

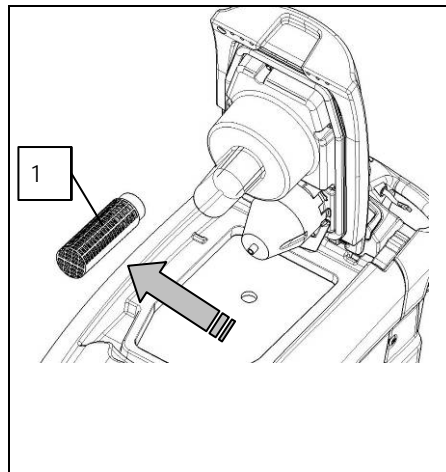
1. Raise the suction cover and block it as indicated in the previous paragraph.
2. Check that the parking brake is engaged.
3. Rotate the inner filter (1) and remove it.
4. Carry out the cleaning operations carefully.
5. Reassemble all the elements.



WARNING: Before carrying out any type of maintenance, disconnect the machine's power supply cable.



ATTENTION: These operations must be carried out using gloves to protect against contact with dangerous solutions.



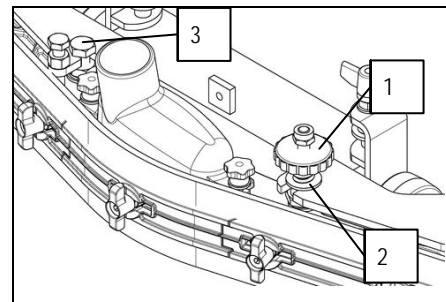


DAILY MAINTENANCE

4. DISASSEMBLING AND CLEANING THE SQUEEGEE

Check the squeegee is always clean, for better drying results. To clean it you must:

1. Raise the squeegee body by turning the lever anticlockwise.
2. Check that the parking brake is engaged.
3. Remove the suction tube from the squeegee.
4. Turn the handwheel counterclockwise (1) and remove the pin (2) from its housing in the squeegee coupling.
5. Remove the pin (3) from its housing in the squeegee coupling.



6. Check the state of wear of the front squeegee rubber. If the edge of the rubber is damaged or in case of total wear of the rubber, proceed with the replacement. To remove the front rubber (section on "REPLACING THE SQUEEGEE RUBBER").
7. Check the state of wear of the rear squeegee rubber. If the edge of the rubber is damaged or in case of total wear of the rubber, proceed with the replacement. To remove the front rubber (section on "REPLACING THE SQUEEGEE RUBBER").
8. Thoroughly clean the squeegee rubbers and the vacuum chamber.
9. Reassemble all the elements.



WARNING: Before carrying out any type of maintenance, disconnect the machine's power supply cable.

5. CLEANING THE CLEAN WATER FILTER

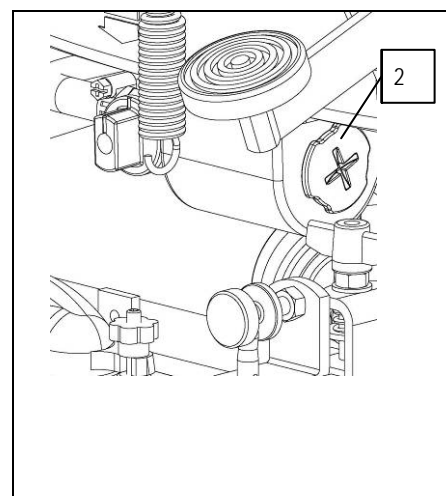
1. Turn the key of the master switch to the anticlockwise to the "0" position, and remove the key, for the electric versions disconnect the plug from the mains socket.
2. Check that the parking brake is engaged.
3. Make sure that the solution tank is empty.
4. Unscrew the filter cap (1).
5. Rinse the filter cartridge with running water.
6. Reassemble all the elements.



WARNING: Before carrying out any type of maintenance, disconnect the machine's power supply cable.



ATTENTION: These operations must be carried out using gloves to protect against contact with dangerous solutions.



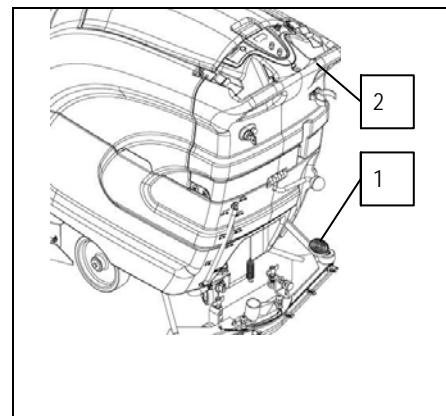
5. DISASSEMBLING THE BRUSH (BRUSH HEAD WITH SINGLE BRUSH)

To disassemble the brush, proceed as follows:

1. Turn on the machine by means of the key switch
2. keep the base slightly up, using the lever (1)
3. Press the working operation and base command levers (2) then release them immediately
4. Upon release, the brush will be automatically detached from the base



ATTENTION: Before carrying out any type of maintenance, disconnect the machine's battery connector.





DAILY MAINTENANCE

6. DISASSEMBLING THE BRUSH (DUAL BRUSH HEAD)

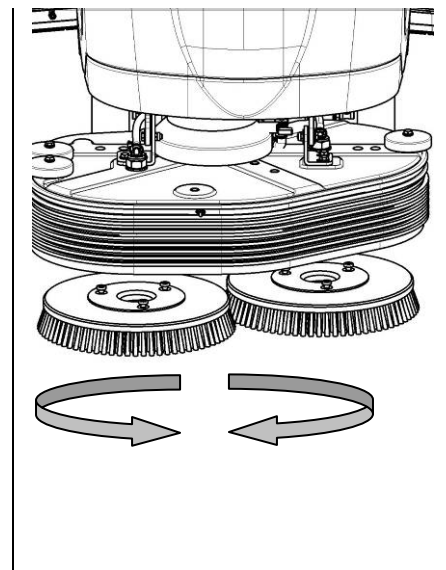
1. Turn the key of the master switch to the anticlockwise to the "0" position, and remove the key, for the electric versions disconnect the plug from the mains socket.
2. Check that the parking brake is engaged.
3. raise the brush head, using the lever
4. With the base up, rotate the brush until it comes out of the brush-holder plate seat, as shown in the figure. The drawing shows the rotation direction to uncouple the brush of duel-brush heads, the rotation direction for single-brush heads is anticlockwise.
5. Always check the bristles for signs of wear. You are advised to replace the brushes when the bristles are less than 15 mm long.



WARNING: Before carrying out any type of maintenance, disconnect the machine's power supply cable.



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





WEEKLY MAINTENANCE

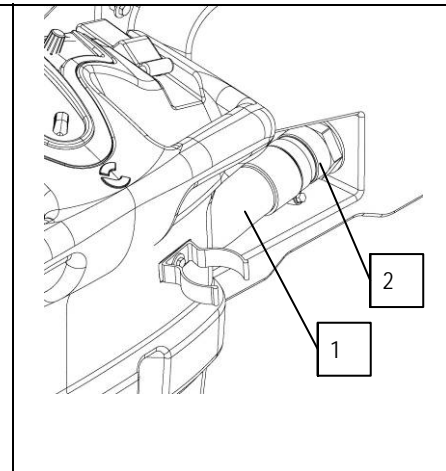
1. CLEANING THE SQUEEGEE TUBE

Every week, or whenever suction seems to be unsatisfactory, check the squeegee tube is not obstructed. To clean it, proceed as follows:

1. remove the tube from the sleeve on the squeegee.
2. Release the hinges on the upper part of the machine.
3. Open the recovery tank.
4. Remove the other end of the tube (2) from the hose connector (1) of the recovery tank.
5. Wash the inside of the tube with running water to remove any impurities that prevent proper suction
6. Reassemble all the elements.



WARNING: Before carrying out any type of maintenance, disconnect the machine's power supply cable.

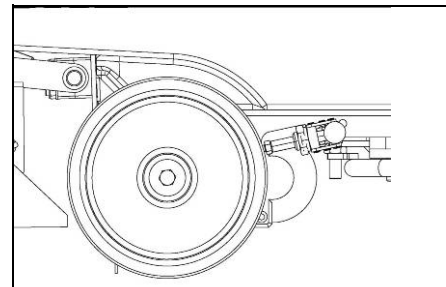


2. CHECKING THE WHEEL BRAKE

Every week, check the distance between the work brake pads and the wheels. If necessary, adjust them by means of the nuts, so they are at a distance of 3mm when homed.



WARNING: Before carrying out any type of maintenance, disconnect the machine's power supply cable.



3. CLEANING THE SOLUTION TANK

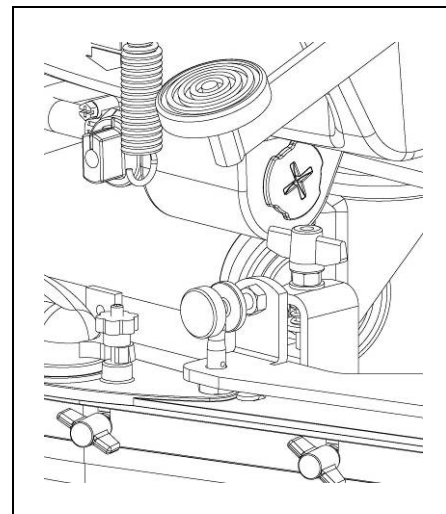
1. Engage the parking brake.
2. Loosen the front cap of the solution tank.
3. Remove the clean water filter.
4. Unscrew the filter cap at the rear of the machine.
5. Rinse the inside of the tank with a jet of water
6. Insert the cap and the filter at the front of the tank and screw the cap on the rear of the machine.



WARNING: Before carrying out any type of maintenance, disconnect the machine's power supply cable.



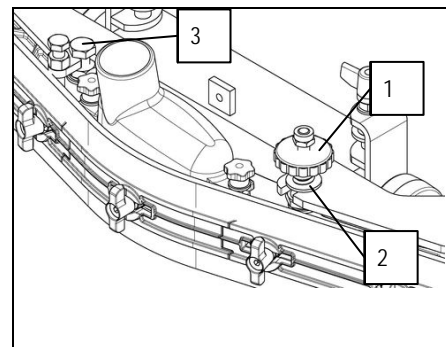
ATTENTION: These operations must be carried out using gloves to protect against contact with dangerous solutions.



4. REPLACING THE SQUEEGEE RUBBERS

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

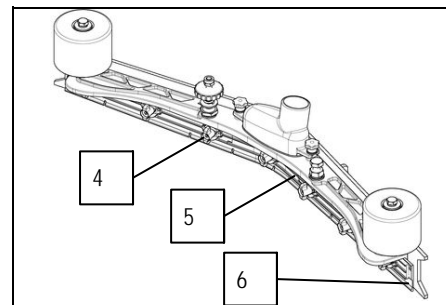
1. Raise the squeegee body by turning the lever anticlockwise.
2. Check that the parking brake is engaged.
3. Remove the suction tube from the squeegee.
4. Turn the handwheel counterclockwise (1) and remove the pin (2) from its housing in the squeegee coupling.
5. Remove the pin (3) from its housing in the squeegee coupling.





WEEKLY MAINTENANCE

6. Turn the wing nuts (4) in the horizontal position
7. Remove the front rubber-pressing blades (5)
8. Remove the rubber (6) and replace it
9. Proceed in reverse to replace the rubber



WARNING: before carrying out any type of maintenance, put the main switch on "OFF" and disconnect the machine battery connector (battery-operated version) or disconnect the power supply cable from the mains socket (electric version).

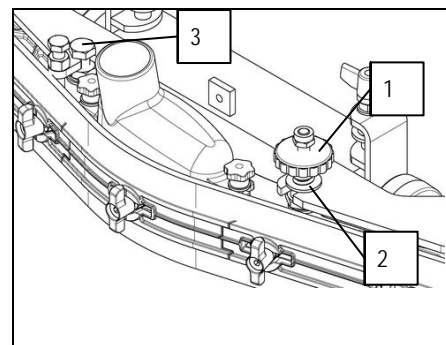


WARNING: These operations must be carried out using gloves to protect against contact with dangerous solutions.

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. Raise the squeegee body by turning the lever anticlockwise.
2. Check that the parking brake is engaged.
3. Remove the suction tube from the squeegee.
4. Turn the handwheel counterclockwise (1) and remove the pin (2) from its housing in the squeegee coupling.
5. Remove the pin (3) from its housing in the squeegee coupling.



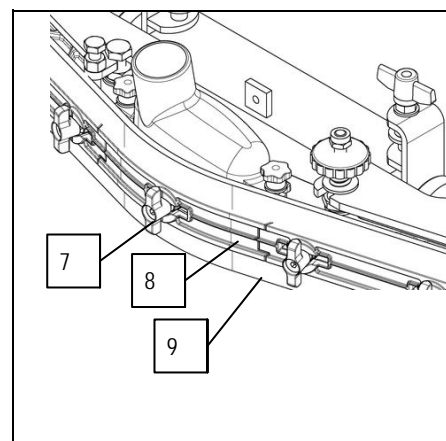
6. Turn the wing nuts (7) in the horizontal position
7. Remove the rear rubber-pressing blades (8)
8. Remove the rubber (9) and replace it
9. adjust the height of the squeegee depending on the rubber (see "ADJUSTING THE HEIGHT OF THE SQUEEGEE SUPPORT")



WARNING: Before performing any type of maintenance, turn the main switch to "OFF" and disconnect the battery connector of the machine (battery version), disconnect the power cord from the mains socket (electric version).



ATTENTION: These operations must be carried out using gloves to protect against contact with dangerous solutions.



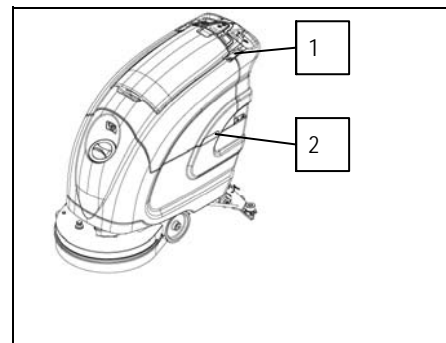


EXTRAORDINARY MAINTENANCE

1. CLEANING THE DOSING SYSTEM (VERSIONS WITH CDS)

The dosing system should be cleaned if the machine is not used for a long period (more than 48 hours), proceed as follows to do so:

1. Check that the main switch of the machine is set to "Off – 0"
2. Verify that the battery connector is disconnected from the machine connector
3. Check that the parking brake is correctly engaged
4. Make sure the recovery tank is empty, otherwise empty it completely
5. Disconnect the tank closure hinge (1). By gripping the handle (2) on the left side of the machine, turn the recovery tank

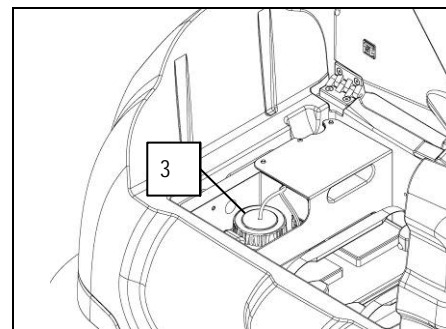


6. Unscrew the cap of the detergent canister (3) and fill it with clean water

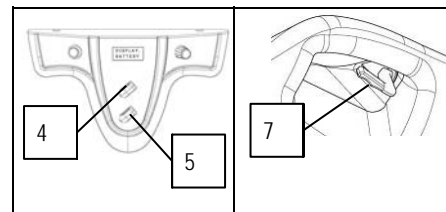


WARNING: always use low foam detergent. To avoid the production of foam, before starting to clean, put a minimum quantity of antifoam liquid into the recovery tank. Do not use pure acids.

7. Close the cap of the detergent canister, taking care that the suction filter is positioned at the bottom of the canister
8. Make sure there is clean water in the solution tank



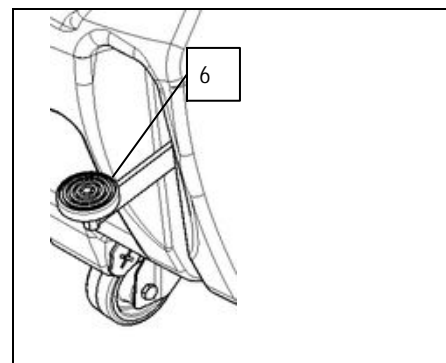
9. Check that the tap lever is fully opened, the lever is positioned at the rear of the machine
10. Check that the by-pass tap is in the "dosing system" position
11. Turn the water flow rate adjustment knob (4) to the maximum position
12. Turn the detergent percentage adjustment knob (5) to the maximum position
13. Insert the battery connector into the machine connector
14. Place the main switch in position "ON – I"
15. Disengage the parking brake



16. Lower the brush head body by means of the pedal (6)
17. Activate the dead man's levers (7) to allow the operation of the brush head and the dosing system
18. Wait a few minutes keeping the dead man's levers pressed (normally 2 to 4 minutes) to allow the cleaning of the dosing system
19. Empty the solution and detergent canister completely
20. Place the machine in the parking area and make it secure



WARNING: During this operation the machine will deliver the solution

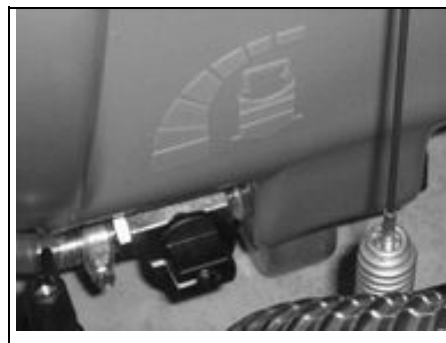




TROUBLESHOOTING

INSUFFICIENT WATER ON THE BRUSH

1. Check that the tap – located beneath the symbol – is turned on
2. Check there is water in the solution tank
3. Check that the solution tank filter cartridge is clean



THE MACHINE DOES NOT CLEAN WELL

1. Check the state of wear and tear of the brush and, if necessary, replace it (the brush must be replaced when the bristles are about 15mm long)
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 special brushes supplied upon request and according to needs (see "CHOOSING AND USING THE BRUSHES").

THE SQUEEGEE DOES NOT DRY PERFECTLY

1. Check the squeegee rubbers are clean
2. Adjust the inclination of the squeegee (see "SQUEEGEE" under "MACHINE PREPARATION")
3. Check the suction tube is correctly inserted in its housing on the recovery tank
4. Check the inner filter of the recovery tank is not dirty and, if necessary, clean it thoroughly
5. Disassemble the entire suction unit and clean it
6. Replace the rubbers, if worn
7. Check the suction motor switch is turned on
8. Check wheel adjustment

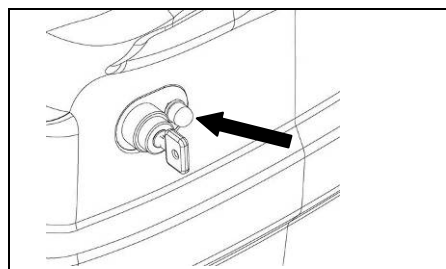
EXCESSIVE FOAM PRODUCTION

Check that a low foam detergent has been used. If necessary, add a small quantity of anti-foam 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.

ELECTRIC SYSTEM SAFETY (E versions)

The machine is fitted with a thermal trip unit with manual reset, located in the rear part of the machine near the main switch. The brush motor is reset by pressing the thermal trip unit button. If the machine stops repeatedly in a short space of time, you must contact the COMAC technical assistance centre.





DISPOSAL

To dispose of the machine, take it to a demolition centre or an authorised collection centre.

Before scrapping the machine it is necessary to remove and separate the following materials and send them to the appropriate collection centres in accordance with the environmental hygiene regulations currently in force:

- brushes
- felt
- electric and electronic parts*
- batteries
- plastic parts (tanks and handlebars)
- metal parts (levers and frame)

(*) In particular, to scrap the electric and electronic parts, contact your area distributor.



CHOOSING AND USING THE BRUSHES

POLYPROPYLENE BRUSH (PPL)

Used on all types of floor, it has good resistance to wear and tear and hot water (no greater than 60°C). PPL is non-hygroscopic and therefore retains its characteristics even 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 overlarge 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 dragging device is recommended above all for machines with more than one brush, where the centring of the abrasive discs is difficult.

TABLE FOR CHOOSING THE BRUSHES

Machine	No. of brushes.	Code	Type of bristles	Ø Bristles	Ø Brush.	Length.	Notes
Abila 2010 45 B-BT	1	405644	PPL	0.3	420	-	LIGHT BLUE
		405659		0.45			
		405645		0.6			WHITE
		405653		0.7			WHITE
		405646		1			BLACK
		405657	ABRASIVE				
Abila 2010 50 B-BT	1	427602	PPL	0.6	508	-	WHITE
		427605		0.3			LIGHT BLUE
		427604		0.9			BLACK
		427708	ABRASIVE				
Abila 2010 42 B-BT	2	405580	NYLON	0.8	210	-	WHITE
		405578	PPL	0.3			LIGHT BLUE
		405579		0.5			WHITE
		405581	ABRASIVE				
Abila 2010 52 B-BT	2	405601	PPL	0.3	255	-	BLUE
		405604		0.5			GREEN
		405602		0.9			BLACK
		405603	ABRASIVE				
Abila 2010 45E	1	405644	PPL	0.3	420	-	LIGHT BLUE
		405659		0.45			
		405645		0.6			WHITE
		405653		0.7			WHITE
		405646		1			BLACK
		405657	ABRASIVE				
Abila 2010 50E	1	427606	PPL	0.3	508	-	BLUE
		427602		0.6			WHITE
		427604		0.9			BLACK
		427708	ABRASIVE				

PAD HOLDER SELECTION TABLE

Machine	No. Pad	Code	Description	Ø Pad	Height	Center	Notes
Abila 2010 45B-BT	1	405529	PAD HOLDER D=420 H=40	420	40		
		405530	PAD HOLDER D=420 H=60		62		
Abila 2010 50B-BT	1	405542	PAD HOLDER D=500	500	61		
Abila 2010 42B-BT	2	405510	PAD HOLDER D=210	200	24		
		405531	PAD HOLDER D=200		-		
Abila 2010 52B-BT	2	405513	PAD HOLDER D=255	255	-		
Abila 2010 45E	1	405540	PAD HOLDER D=430	430	57		
Abila 2010 50E	1	405542	PAD HOLDER D=500	500	61		



EC DECLARATION OF CONFORMITY

The undersigned company:

COMAC S.p.A.

Via Maestri del Lavoro n.13

37059 Santa Maria di Zevio (VR)

declares under its sole responsibility that the

FLOOR SCRUBBER-DRYER

mod. ABILA 42B - 42BT - 52B - 52BT - 45B - 45BT - 50B - 50BT

complies with the requirements of the following Directives:

- 2004/108/EC: Electromagnetic Compatibility Directive and subsequent modifications.
- 2006/95/EC: Low Voltage Directive.
- 2006/42/EC: Machinery Directive

They also comply with the following standards:

- EN 60335-1: Household and similar electrical appliances - Safety. Part 1: Generic standards.
- EN 60335-2-72: Household and similar electrical appliances. Part 2: Generic standards for automatic machines for floor treatment for commercial and industrial use.
- EN 60335-2-29: Household and similar electrical appliances. Part 2: Special standards for battery chargers.
- EN 12100-1: Safety of Machinery - Basic concepts, general principles for design - Part 1: Basic terminology and methodology.
- EN 12100-2: Safety of Machinery - Basic concepts, general principles for design - Part 2: Technical principles.
- EN 55014-1: Electromagnetic compatibility - Regulations for household appliances, electrical devices and similar equipment. Part 1: Emission - Regulation for product family.
- EN 55014-2: Electromagnetic compatibility - Regulations for household appliances, electrical devices and similar equipment. Part 2: Immunity - Regulation for product family.
- EN 61000-6-2: Electromagnetic compatibility (EMC) - Part 6-2: Generic standards – Immunity for industrial environments.
- EN 61000-6-3: Electromagnetic compatibility (EMC) - Part 6-3: Generic standards — Standard emission for residential, commercial and light-industrial environments.
- EN 61000-3-2: Electromagnetic compatibility (EMC) - Part 3-2: Limits – Limits for harmonic current emissions (Equipment with input current ≤ 16 A per phase).
- EN 61000-3-3: Electromagnetic compatibility (EMC) - Part 3-3: Limits – Restriction of voltage variations and flicker in low voltage power supply systems for devices with a rated current ≤ 16 A.
- EN 62233: Household and similar electrical appliances - Electromagnetic fields Methods for evaluation and measurement.

The person authorised to compile the technical file:

Sig. Giancarlo Ruffo
Via Maestri del Lavoro, 13
37059 Santa Maria di Zevio (VR) - ITALY

Santa Maria di Zevio (VR), 27-06-2011

COMAC S.p.A.
Legal representative
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EC DECLARATION OF CONFORMITY

The undersigned company:

COMAC S.p.A.

Via Maestri del Lavoro n.13

37059 Santa Maria di Zevio (VR)

declares under its sole responsibility that the

FLOOR SCRUBBER-DRYER

mod. ABILA45 E 230V – ABILA50 E 230V – ABILA50 E 110V

complies with the requirements of the following Directives:

- 2004/108/EC: Electromagnetic Compatibility Directive and subsequent modifications.
- 2006/95/EC: Low Voltage Directive.
- 2006/42/EC: Machinery Directive.

They also comply with the following standards:

- EN 60335-1: Household and similar electrical appliances - Safety. Part 1: Generic standards.
- EN 60335-2-72: Household and similar electrical appliances. Part 2: Generic standards for automatic machines for floor treatment for commercial and industrial use.
- EN 12100-1: Safety of Machinery - Basic concepts, general principles for design - Part 1: Basic terminology and methodology.
- EN 12100-2: Safety of Machinery - Basic concepts, general principles for design - Part 2: Technical principles.
- EN 55014-1: Electromagnetic compatibility - Regulations for household appliances, electrical devices and similar equipment. Part 1: Emission - Regulation for product family.
- EN 55014-2: Electromagnetic compatibility - Regulations for household appliances, electrical devices and similar equipment. Part 2: Immunity - Regulation for product family.
- EN 55022: Devices for information technology – Radio interference characteristics – Limits and measurement methods.
- EN 61000-6-2: Electromagnetic compatibility (EMC) - Part 6-2: Generic standards – Immunity for industrial environments.
- EN 61000-6-3: Electromagnetic compatibility (EMC) - Part 6-3: Generic standards – Standard emission for residential, commercial and light-industrial environments.
- EN 61000-3-2: Electromagnetic compatibility (EMC) - Part 3-2: Limits – Limits for harmonic current emissions (Equipment with input current ≤ 16 A per phase).
- EN 61000-3-3: Electromagnetic compatibility (EMC) - Part 3-3: Limits – Restriction of voltage variations and flicker in low voltage power supply systems for devices with a rated current ≤ 16 A.

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