

USE AND MAINTENANCE MANUAL



CS700 B
CS800 B

ED. 01-2012

EN

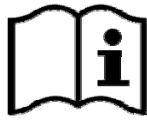
ORIGINAL
INSTRUCTIONS
Doc. 10031925
AC Version



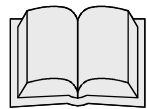
The descriptions contained in this document are not binding.
The company therefore reserves the right to make any modifications at any time to elements, details, or accessory supply, as considered necessary for reasons of improvement or manufacturing/commercial requirements.
The reproduction, even partial, of the text and drawings contained in this document is prohibited by law.

The company reserves the right to make any technical and/or supply modifications.
The images are for reference purposes only, and are not binding in terms of design and supply.

Symbols used in the manual



Open book symbol with an "i"
Indicates the need to consult the 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 and observe the indications, 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



Disposal symbol
Carefully read the sections marked with this symbol, for machine disposal



CONTENTS

ON CONSIGNMENT OF THE MACHINE	5
INTRODUCTORY COMMENT	5
IDENTIFICATION DATA	5
TECHNICAL DESCRIPTION	5
INTENDED USE	5
SERIAL NUMBER PLATE	5
TECHNICAL DESCRIPTION	5
SYMBOLS USED ON THE MACHINE	6
GENERAL SAFETY REGULATIONS	8
MACHINE PREPARATION	9
1. HANDLING OF THE PACKED MACHINE	9
2. HOW TO UNPACK THE MACHINE	9
3. HOW TO MOVE THE MACHINE	9
4. INSTRUMENT PANEL COMPONENTS	9
5. STEERING COLUMN COMPONENTS.....	10
6. FOOTBOARD FRONT-RIGHT COMPONENTS	10
7. FOOTBOARD FRONT-LEFT COMPONENTS	10
8. FOOTBOARD REAR COMPONENTS	10
9. SIDE COMPONENTS OF THE MACHINE	11
10. REAR COMPONENTS OF THE MACHINE	11
11. FRONT MACHINE COMPONENTS.....	11
12. TYPE OF BATTERY.....	11
13. BATTERY MAINTENANCE AND DISPOSAL	11
14. FITTING THE BATTERIES INTO THE MACHINE.....	12
15. BATTERY CONNECTION AND BATTERY CONNECTORS.....	13
16. BATTERY CHARGER CONNECTION (VERSIONS WITHOUT BC).....	13
17. BATTERY CHARGER CONNECTION (VERSIONS WITH BC)	14
18. BATTERY CHARGE LEVEL INDICATOR	15
19. WORKING FORWARD SPEED	15
20. REVERSE FUNCTION.....	15
21. SIDE BRUSH ASSEMBLY	16
22. SERVICE BRAKE AND PARKING BRAKE	16
23. FLASHING LIGHT (OPTIONAL)	16
WORK	17
24. PREPARING TO WORK	17
25. EMPTYING THE DEBRIS HOPPER (MANUAL MOVEMENT)	18
26. EMPTYING THE DEBRIS HOPPER (MANUAL MOVEMENT)	19
AT THE END OF THE WORK	21
27. AT THE END OF THE WORK (VERSIONS WITH MANUAL EMPTYING OF THE DEBRIS HOPPER).....	21
28. AT THE END OF THE WORK (VERSIONS WITH AUTOMATIC EMPTYING OF THE DEBRIS HOPPER).....	22
DAILY MAINTENANCE	24
29. CLEANING THE CENTRAL BRUSH	24
30. CLEANING THE SIDE BRUSH	25
WEEKLY MAINTENANCE	26
31. CLEANING THE PANEL FILTER (FP VERSIONS).....	26
32. CLEANING THE CLOTH FILTER (FS VERSIONS).....	27
33. CLEANING THE DEBRIS HOPPER (VERSIONS WITH MANUAL EMPTYING OF THE DEBRIS HOPPER)	28
34. CLEANING THE DEBRIS HOPPER (VERSIONS WITH AUTOMATIC EMPTYING OF THE DEBRIS HOPPER).....	28
35. SIDE BRUSH ADJUSTMENT	29
EXTRAORDINARY MAINTENANCE	31
36. CENTRAL BRUSH REPLACEMENT	31
37. SIDE BRUSH REPLACEMENT.....	32
TROUBLESHOOTING	33
38. THE MACHINE DOES NOT START	33



39. ELECTRIC FUSES AND THERMAL CUT-OUTS	33
40. THE MACHINE DOES NOT CLEAN WELL	33
41. THE MACHINE LIFTS DUST DURING OPERATION.....	33
42. EXCESSIVE OR ALTERED NOISE OF THE CENTRAL BRUSH.....	33
43. EXCESSIVE OR ALTERED NOISE OF THE SIDE BRUSH	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 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

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.

Identification data

For technical assistance or to request replacement parts, always give the model, the version and serial number written on the serial number plate.

Technical description

CS700 and CS800 are ride-on sweeping machines, powered electrically (with traction batteries) or with an internal combustion (endothermic) engine, for the cleaning of both internal and external surfaces with tiled, concrete or asphalt floors.

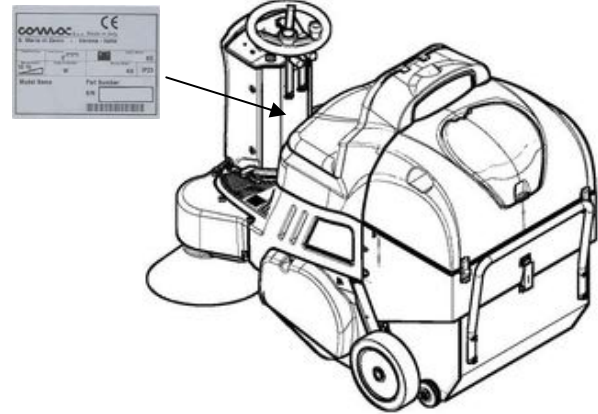
The machine must operate on dry surfaces, and if necessary can also work on wet surfaces making sure the vacuum action is not active. The machine features a central brush for the collection of brushed up material, a side brush for cleaning edges and corners, a vacuum system

with filter to avoid raising dust, and a debris hopper that can be manually removed by means of a mechanical leverage.

Intended use

The sweeping machine is designed to clean both inside and outside surfaces with tiled, concrete and asphalt floors, for professional use in industrial, commercial and public places. 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 for picking up dangerous dusts or inflammable liquids within places with a potentially explosive atmosphere. In addition, it is not suitable as a means of transport for people or objects.

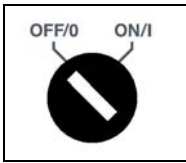
Serial number plate



TECHNICAL DESCRIPTION	UM	CS700 B	CS800 B
Working width without side brush	mm	700	800
Working width with right side brush	mm	846	946
Working width with left and right side brush	mm	1050	1116
Working capacity, up to	m ² /h	6300	6700
Central brush	∅ mm	280	280
Side brush	∅ mm	400	400
Central brush rpm	rpm	505	505
Side brush rpm	rpm	65	65
Brush motor	V/W	24/400	24/400
Traction motor	V/W	24/400	24/400
Traction wheel	∅ mm	220	220
Rear wheels	∅ mm	300	300
Forward speed	km/h	6	6
Maximum gradient	%	10	10
Vacuum motor	V/W	24/400	24/400
Filter shaker motor	V/W	24/80	24/80
Filtering surface (cloth filter)	m ²	4	5
Filtering surface (paper filter)	m ²	5	6
Debris hopper volume	l	60	70
Steering diameter	mm	2400	2500
Machine length	mm	1600	1600
Machine height	mm	1310	1310
Machine height with overhead guard	mm	1925	1925
Machine width	mm	940	1078
Battery compartment (l x L x h)	mm	389x524x385	389x524x385
Rated battery voltage	V	24	24
Battery weight (max)	kg	120	120
Machine weight (empty and without batteries)	kg	240	270
Machine weight in running order (machine + batteries + operator)	kg	430	460
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 (ON-I) or off (OFF-0)



Indicator showing battery charge level on the upper line and hour meter on the lower line



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 battery technology selected on the machine card (e.g. lead)



Symbol for machine display command
Indicates the command button for the display showing the battery charger or hour meter level



Symbol denoting vacuum motor
Used on the instrument panel to indicate the green three-way switch, showing that the left-hand vacuum motor is in operation



Filter shaker symbol
Used on the instrument panel to indicate the green three-way switch, showing that the filter shaker in the panel filter unit is in operation



Debris hopper lifting symbol
Is used on the instrument panel to indicate the yellow three-way momentary switch, which controls the movement of the debris hopper



Debris hopper tipping symbol
Is used on the instrument panel to indicate the yellow three-position momentary switch, which controls the rotation of the debris hopper



SYMBOLS USED ON THE MACHINE



Debris hopper tipping symbol

Is used on the instrument panel to indicate the yellow three-way momentary switch, which controls the rotation-movement of the debris hopper



Symbol denoting horn

Used to indicate the horn button



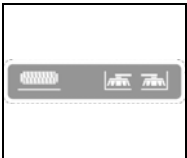
Parking brake symbol

Indicates the machines brake lever



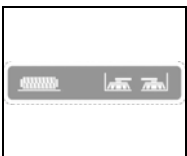
Symbol denoting treading ban

Used to indicate the area of the machine on which it is forbidden to tread or stand



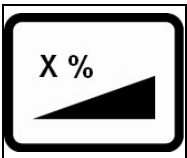
Central/side brush(es) motion symbol (idle position)

Used to indicate the movement linkage of the central/side brush(es)



Central/side brush(es) motion symbol (working position)

Used to indicate the movement linkage of the central/side brush(es)



Indicates the maximum gradient



Indicates the risk of crushed hands



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 used exclusively by authorised and 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.
- 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 battery charger cable must have a prescribed earth connection.
- 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 use the device to collect dangerous powders.
- 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.).
- 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.
- 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 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 350 kg (CS700 version without batteries)

The total mass of the machine with packaging is 350 kg (CS800 version without batteries)

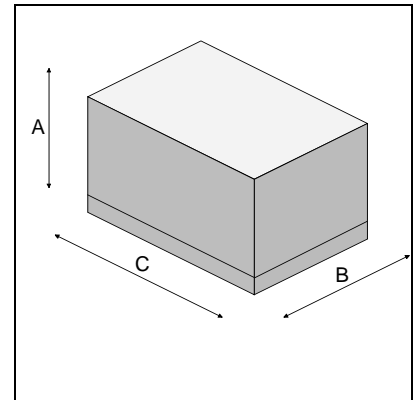
The dimensions of the packaging is as follows:

CS700 B – CS800 B

A: 1620mm

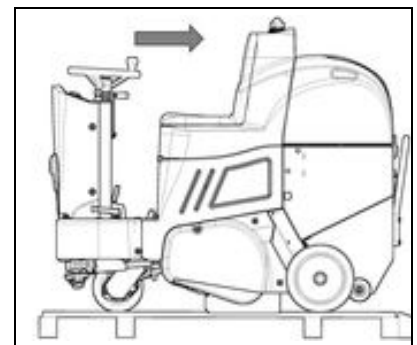
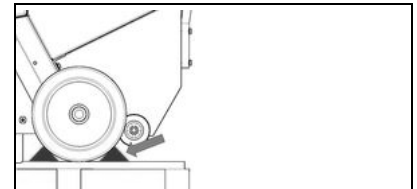
B: 1280mm

C: 2040mm



2. 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



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

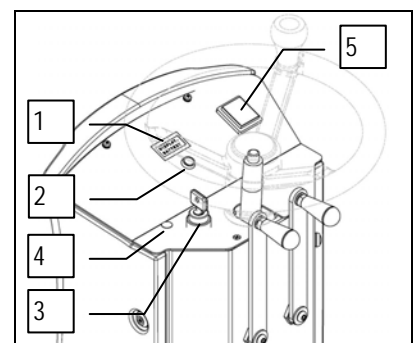
3. HOW TO MOVE THE MACHINE

1. Make sure the hopper is empty, otherwise empty it completely
2. Check that the central brush is lifted from the ground, if not lift it
3. Check that the side brush(es) are lifted from the ground, if not lift them
4. Place it on a pallet, using a chute
5. Make sure that the key switch is in the 0/OFF position, if not turn the key a quarter turn to the left and remove it
6. Engage the parking brake
7. Secure the machine to the pallet using wooden wedges

4. INSTRUMENT PANEL COMPONENTS

The instrument panel components are identified as follows:

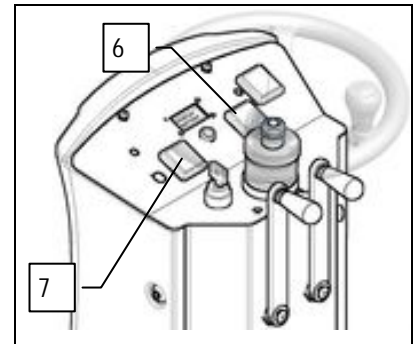
1. Battery level / hour meter display
2. Battery level hour meter display control button
3. Main key switch
4. Red warning light indicating that the parking brake is on
5. Three-way switch:
 - front: vacuum motor ON
 - middle: vacuum motor and filter shaker OFF
 - rear: filter shaker (in the panel filter pre-assembly) ON





MACHINE PREPARATION

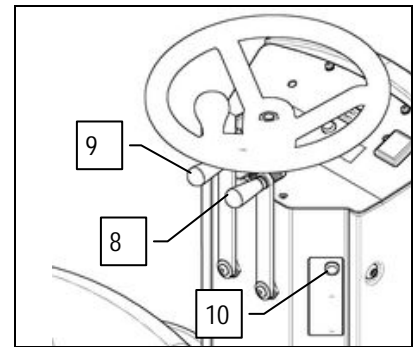
6. Three-way selector debris hopper lift-descent control:
 - front position debris hopper in lifting phase
 - intermediate position debris hopper movement not active
 - rear position debris hopper in descent phase
7. Three-way selector debris hopper rotation control:
 - front position debris hopper tilting, for emptying
 - intermediate position debris hopper rotation not active
 - rear position debris hopper returns to working position



5. STEERING COLUMN COMPONENTS

The steering column components are identified as follows:

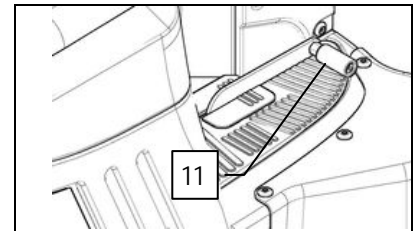
8. Lifting lever:
 - side brush (1SL version)
 - side brushes (2SL version)
9. Central brush lifting lever
10. Horn button



6. FOOTBOARD FRONT-RIGHT COMPONENTS

The components at the front right of the footboard are identified as follows:

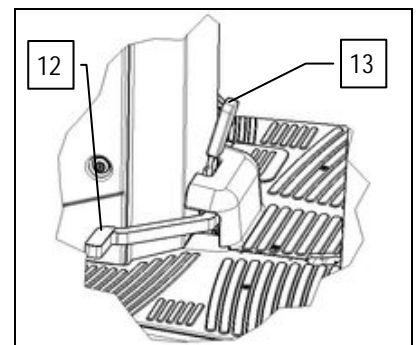
11. Accelerator pedal, forward – reverse



7. FOOTBOARD FRONT-LEFT COMPONENTS

The components at the front left of the footboard are identified as follows:

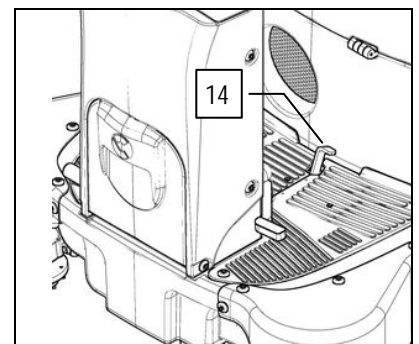
12. Brake pedal
13. Parking brake lever



8. FOOTBOARD REAR COMPONENTS

The components at the rear of the footboard are identified as follows:

14. Front flap lifting pedal



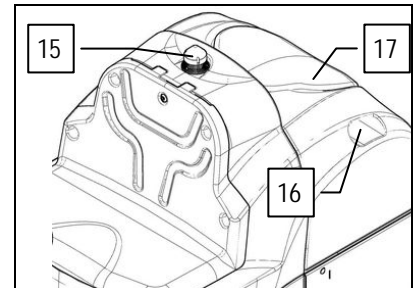


MACHINE PREPARATION

9. SIDE COMPONENTS OF THE MACHINE

The side components of the machine are identified as follows:

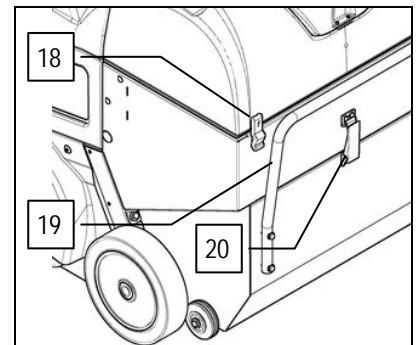
- 15. Blinking light (optional)
- 16. Rear carter lifting handle
- 17. Storage compartment carter



10. REAR COMPONENTS OF THE MACHINE

The rear components of the machine are identified as follows:

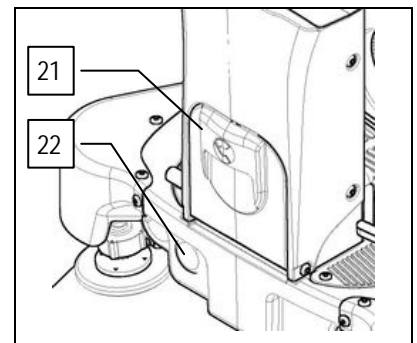
- 18. Rear carter retainer
- 19. Debris hopper handle
- 20. Debris hopper retainer



11. FRONT MACHINE COMPONENTS

The front components of the machine are identified as follows:

- 21. Steering column front carter
- 22. Front machine headlight



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

The battery compartment can house four 6V or two 12V batteries

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

13. BATTERY MAINTENANCE AND DISPOSAL

For maintenance and recharging, comply with 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. DEAD BATTERIES ARE CLASSIFIED AS DANGEROUS WASTE AND MUST BE DELIVERED TO THE AUTHORISED BODIES FOR CORRECT DISPOSAL.



MACHINE PREPARATION



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



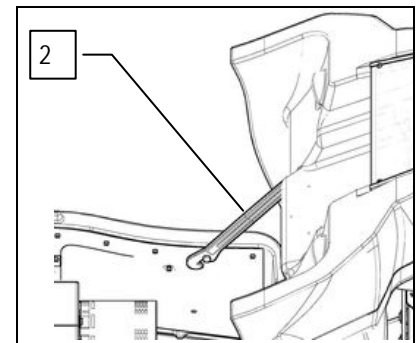
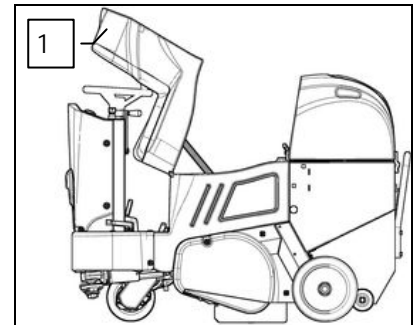
WARNING: You are advised to only lift and move the batteries with lifting and transportation means suitable for the specific weight and size

14. FITTING THE BATTERIES INTO THE MACHINE

The batteries must be housed in the special compartment beneath the seat casing. 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: 389 x 524 x H385 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 specialised personnel.



To insert the batteries you must:

1. Lock the machine engaging the brake lever
2. Make sure that the key switch is in the 0/OFF position, if not turn the key a quarter turn to the left
3. Check that the debris hopper is empty, if not empty it completely
4. Grip the rear part of the seat casing (1) to access the battery compartment
5. Rotate the seat casing until it hooks to its safety clamp (2)
6. House the batteries in the compartment, positioning the poles "+" and "-" opposite each other



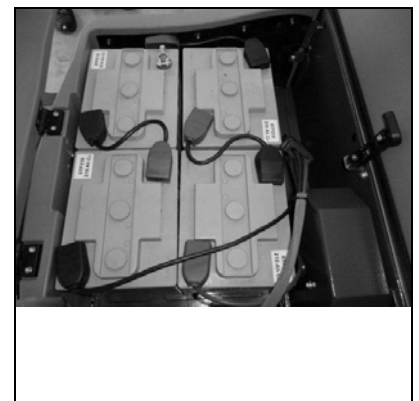
WARNING: you are advised to use airtight batteries only, to avoid the leakage of acids!



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





MACHINE PREPARATION

15. BATTERY CONNECTION AND BATTERY CONNECTORS

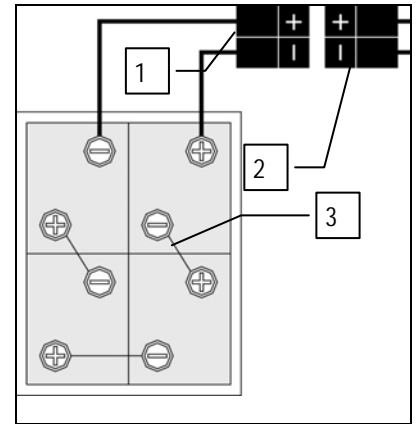
1. connect the batteries in series - using the jumper cables supplied (3) - to the poles "+" and "-"
2. Connect the battery connector cable (1) to the terminal poles "+" and "-" to obtain a voltage of 24V on the clamps
3. Connect the battery connector (1) to the machine connector (2).



ATTENTION: All installation and maintenance operations must be carried out by expert personnel, trained at the specialised assistance centre



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

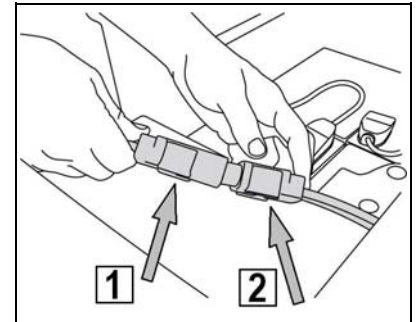


16. BATTERY CHARGER CONNECTION (VERSIONS WITHOUT BC)

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 flashing "discharged batteries" signal.



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. Lock the machine engaging the brake lever
2. Make sure that the key switch is in the 0/OFF position, if not turn the key a quarter turn to the left
3. Check that the debris hopper is empty, if not empty it completely
4. Grip the rear part of the seat casing to access the battery compartment
5. Rotate the seat casing until it hooks to its safety clamp
6. Disconnect the electrical connector from the battery connector
7. Connect the battery charger cable to the battery 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.

8. 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 seat casing open for the duration of the battery recharging cycle to allow gas fumes to escape

9. After recharging the batteries completely, the battery connector (1) must be connected to the machine connector (2)



MACHINE PREPARATION



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



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

17. BATTERY CHARGER CONNECTION (VERSIONS WITH 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 flashing "discharged batteries" signal.

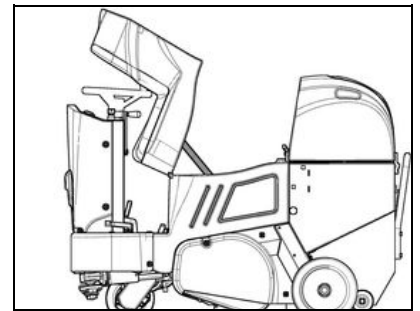


WARNING: never leave the batteries completely discharged, even if the machine is not being used. Check the battery charger is suitable for the batteries installed, in terms of both capacity and type.

To connect the batteries you must:

1. Lock the machine engaging the brake lever
2. Make sure that the key switch is in the 0/OFF position, if not turn the key a quarter turn to the left
3. Check that the debris hopper is empty, if not empty it completely
4. Grip the rear part of the seat casing to access the battery compartment
5. Rotate the seat casing until it hooks to its safety clamp
6. Connect the battery charger cable to the socket on the charger itself
7. Plug the battery charger cable into the mains socket

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.



WARNING: carefully read the use and maintenance manual of the charger that is delivered inside the bag containing this instruction booklet.



WARNING: before inserting the charger power cable into the socket, verify that there is no condensate or other forms of liquids.



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: keep the seat casing open for the duration of the battery recharging cycle to allow gas fumes to escape



MACHINE PREPARATION



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 specialised personnel.

ATTENTION: always make sure the green LED of the battery charger is on before using the machine again



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



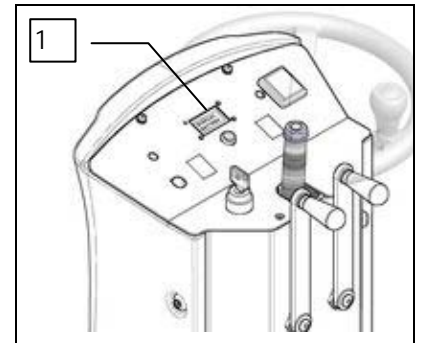
ATTENTION: danger of fire: do not go near with free flames

18. BATTERY CHARGE LEVEL INDICATOR

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.



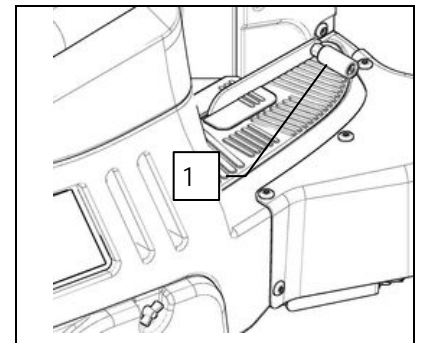
WARNING: a few seconds after the last indicator on the monitor has flashed, the brush motor will automatically switch off. With the remaining charge it is possible to move the machine to the location designated for its recharging.



19. WORKING FORWARD SPEED

This machine is equipped with electronic traction control.

To move the machine, after having turned the key in the 1/ON position, push the drive pedal (1) downwards adjusting the speed by pressing and releasing the pedal. The machine will then start moving.



20. REVERSE FUNCTION

To make a reverse manoeuvre, push the drive pedal (1) upwards adjusting the speed by pressing and releasing the pedal. The machine will start moving backwards. During reverse motion, the machine emits an acoustic signal.



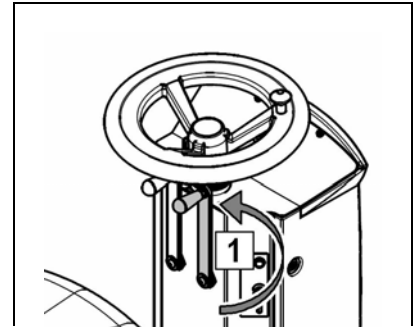
MACHINE PREPARATION

21. SIDE BRUSH ASSEMBLY

1. Check that the parking brake is engaged, if not engage it.
2. Make sure that the main switch is in the 0/OFF position, if not turn the key a quarter turn to the left.
3. Lift the side brush arm by turning the right lever (1) anticlockwise.



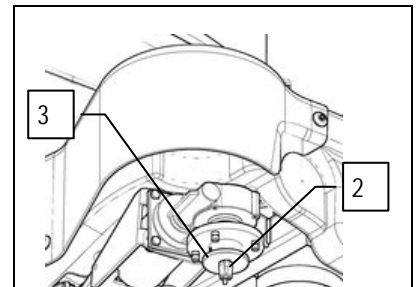
WARNING: during this operation, check there are no people or objects near the brush.



4. With the brush-holder arm up, loosen the wing nut (2) and remove the washer (3).
5. Insert the brush in the hub housing, making sure the four pins are inserted in their seats on the brush itself.
6. Insert the washer (3) and tighten the wing nut (2).



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



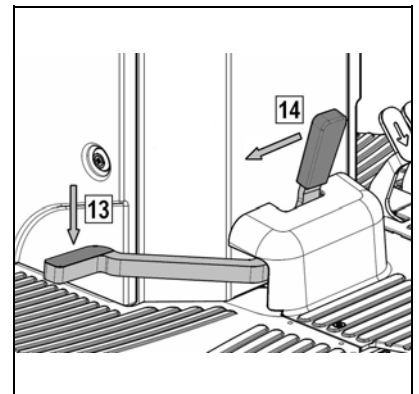
22. SERVICE BRAKE AND PARKING BRAKE

The machine has an electronic braking system. To brake, in normal conditions, just remove your foot from the accelerator pedal. Should removing your foot from the accelerator pedal not be enough, activate the mechanical brake pedal (13) pushing it downwards. To engage the parking brake, press the brake pedal (13) and lock it by pulling the lever (14) to the left. The red indicator light on the instrument panel will switch on.



ATTENTION: The mechanical brake pedal does not affect the traction of the machine. Before every operation, check that the parking brake is disengaged (lever 14) and avoid continuous and prolonged use of the mechanical brake pedal (pedal 13), in order to avoid damage to the traction wheel or to the traction motor.

WARNING: to avoid any damage to the machine, always disengage the parking brake before beginning to work or before making any transfer manoeuvres



23. FLASHING LIGHT (OPTIONAL)

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

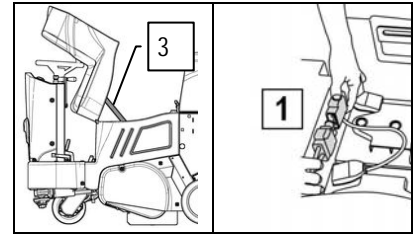




WORK

24. PREPARING TO WORK

1. Check that the debris hopper is empty, if not empty it completely
2. Check the parking brake is engaged; if not, engage it
3. Make sure the main machine switch is in the "0/OFF" position; if not, turn the key a quarter rotation to the left.
4. Grip the rear part of the seat casing
5. Rotate the seat casing until it hooks to its safety clamp (3)
6. Connect the battery connector (1) to the machine connector (for versions without built-in battery charger)
7. Sit on the driver's seat
8. Disengage the parking brake (2).
9. Turn the key of the main switch a quarter of a rotation clockwise (to position ON). Immediately, on the instrument panel, the display will turn on indicating the charge level of the batteries.



10. 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-counter (to display a different type, such as partial, contact the qualified, trained personnel at the technical assistance centre). The bottom line shows the "service" setting (in this case there is no setting).



11. The second screen displays what battery technology has been set for machine operation; in this case it is lead batteries (to set another type of battery - for instance gel - contact the qualified, COMAC-trained personnel).



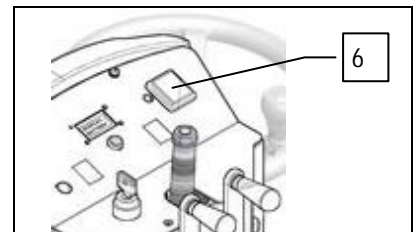
12. The third and last screen (known as "work") displays the battery charge status and the total functioning time. When the batteries supplied are fully charged, the upper line contains 8 light indicators that represent a battery. As the batteries gradually run down, the indicators go out and, with the 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-counter is counting the machine functioning time.



13. Activate the vacuum head by pressing the switch (6) on the instrument panel.



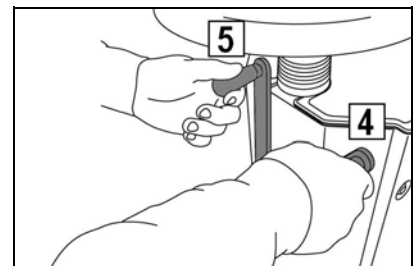
WARNING! Shut off the vacuum function when you are about to clean wet or damp surfaces, to avoid ruining the filter. Shut off the vacuum function without activating the filter shaker.



14. Lower the central brush by turning the left lever (5) anticlockwise.
15. Lower the right side brush (1SL versions), or both side brushes (2SL versions), by turning the right lever (4) clockwise.



ATTENTION: use the side brush or brushes (according to machine version) only on edges, as it is not assisted by the vacuum action.



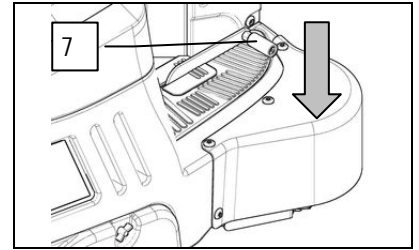


WORK

16. Pressing the accelerator pedal (7), the machine starts moving and the central and side brushes will rotate.



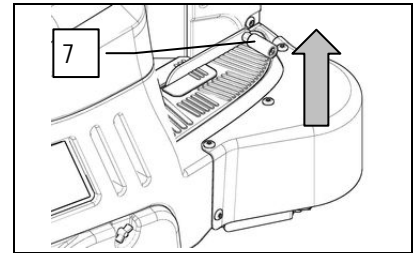
ATTENTION: adjust the working speed according to the amount of waste and debris to be collected



To make a reverse manoeuvre, pull the accelerator pedal (7) upwards. The machine will begin to move backwards.



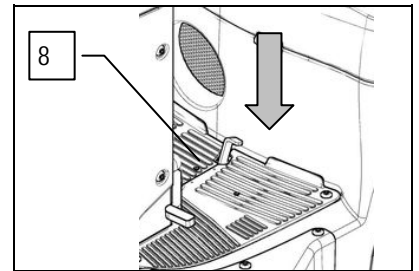
ATTENTION! The reverse speed is lower than the forward speed to comply with current health and safety standards.



Press the front flap-raiser pedal (8) when working with bulky waste, to allow the central brush to reach and collect it.



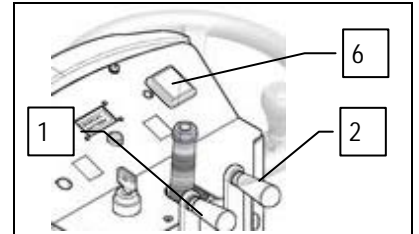
WARNING! Do not hold the pedal for long.



In order to achieve a correct vacuum action, clean the filter every 10 minutes and always before any discharge of the debris hopper.

To do this, proceed as follows:

1. Stop the machine and engage the parking brake
2. Lift the central brush by turning the left lever (1) clockwise
3. Lift the side brush if lowered, by rotating the right lever (2) clockwise
4. Activate the filter shaker on the filter by pressing the switch (6) on the instrument panel; this will stop the vacuum action automatically.



WARNING! Do not keep the switch (6) pressed longer than ten seconds, repeat this operation two or three times.

Periodically check the filling of the tray and if necessary proceed to empty it. Keep in mind that the weight of the waste collected is proportional to the specific weight of the material swept. In the case of heavy material such as sand, earth, gravel, etc. the tray should ideally not be filled more than 70%, otherwise it may be difficult to empty.

25. EMPTYING THE DEBRIS HOPPER (MANUAL MOVEMENT)

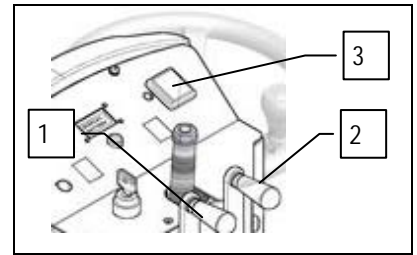
The machine is NOT equipped with a device to warn you when the debris hopper is full, so it is a good idea to empty it frequently while working.



WORK

In order to empty the debris hopper, proceed as follows:

1. Stop the machine and engage the parking brake
2. Lift the central brush by turning the left lever (1) clockwise
3. Lift the side brush if lowered, by rotating the right lever (2) clockwise
4. Activate the filter shaker on the filter by pressing the switch (3) on the instrument panel; this will stop the vacuum action automatically.
5. Set the main machine switch to the "0/OFF" position by turning the key a quarter rotation to the left



WARNING! Do not keep the switch (3) pressed longer than ten seconds; repeat this operation two or three times.

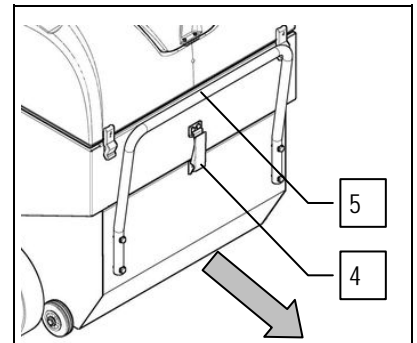


WARNING: before performing any maintenance, remove the keys from the panel and disconnect the battery connector of the machine.

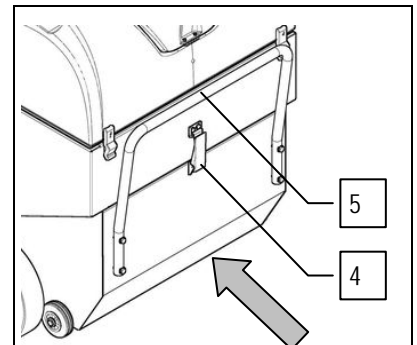
6. Release the hinge (4) on the back of the machine.
7. Grip the handle (5) on the hopper in order to remove it from the machine.
8. Take the hopper to the location designated for its draining and empty it.



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



9. By gripping the handle (5) on the hopper, insert it in the machine.
10. Hook the hinge (4) on the back of the machine.

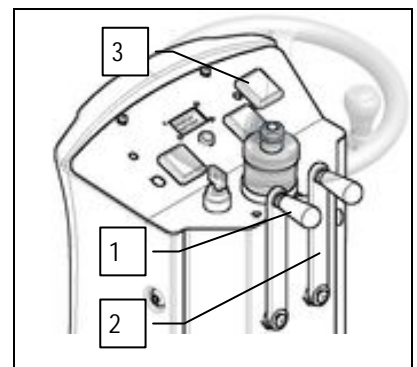


26. EMPTYING THE DEBRIS HOPPER (MANUAL MOVEMENT)

The machine is NOT equipped with a device to warn you when the debris hopper is full, so it is a good idea to empty it frequently while working.

In order to empty the debris hopper, proceed as follows:

1. Stop the machine and engage the parking brake
2. Lift the central brush by turning the left lever (1) clockwise
3. Lift the side brush if lowered, by rotating the right lever (2) clockwise
4. Activate the filter shaker on the filter by pressing the switch (3) on the instrument panel; this will stop the vacuum action automatically.





WORK



WARNING! Do not keep the switch (3) pressed longer than ten seconds, repeat this operation two or three times.

5. Disengage the parking brake
6. Bring the machine close to the waste container which has been prepared for unloading
7. Stop the machine and engage the parking brake



WARNING! Calculate the distance between the machine and the waste container correctly, bearing in mind the rotation radius of the debris hopper when moving.

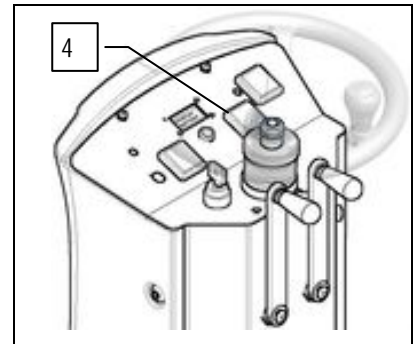
8. Move the switch (4) forward, until the debris hopper is in the desired position
9. Disengage the parking brake
10. Bring the machine close to the waste container, so that the debris hopper is inside the container's refill opening



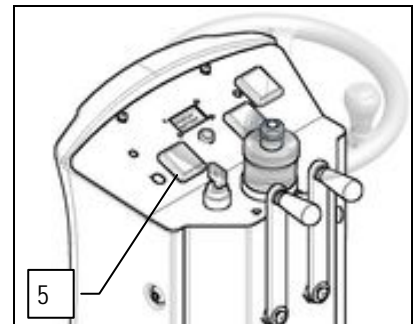
WARNING! Reduce the machine's movement speed when the debris hopper is lifted off the ground.

WARNING! Avoid unloading the debris while the machine is sloped.

WARNING! Do not activate the filter shaker while the debris hopper is lifted off the ground.



11. Stop the machine and engage the parking brake
12. Move the switch (5) forward, until the debris hopper is completely tilted
13. Move the switch (5) backward, until the debris hopper has returned to the working position



14. Disengage the parking brake
15. Move the machine forward while the debris hopper encounters no obstacles in its trajectory to return to the working position



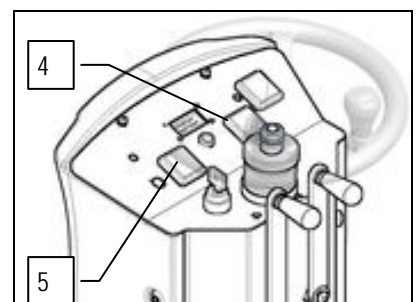
WARNING! Calculate the distance between the machine and the waste container correctly, bearing in mind the rotation radius of the debris hopper when moving.

16. Stop the machine and engage the parking brake

17. Move the switches (4) and (5) backward, until the debris hopper has returned to the working position



WARNING! If the debris hopper is not in the correct position the machine will not work to its full potential.



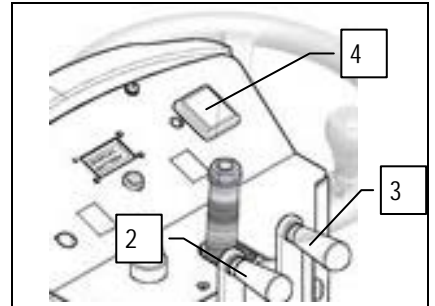


AT THE END OF THE WORK

27. AT THE END OF THE WORK (VERSIONS WITH MANUAL EMPTYING OF THE DEBRIS HOPPER)

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

1. Bring the machine to the place provided for its draining
2. Stop the machine and engage the parking brake
3. Lift the central brush by turning the left lever (2) clockwise
4. Lift the side brush if lowered, by rotating the right lever (3) clockwise
5. Activate the filter shaker on the filter by pressing the switch (4) on the instrument panel; this will stop the vacuum action automatically.

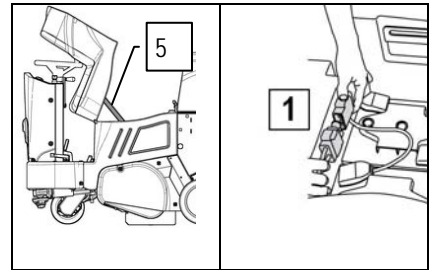


WARNING! Do not keep the switch (3) pressed longer than ten seconds, repeat this operation two or three times.

6. Set the main machine switch to the "0/OFF" position by turning the key a quarter rotation to the left
7. Grip the rear part of the seat casing
8. Rotate the seat casing until it hooks to its safety clamp (5)
9. Disconnect the battery connector from the machine connector (1)



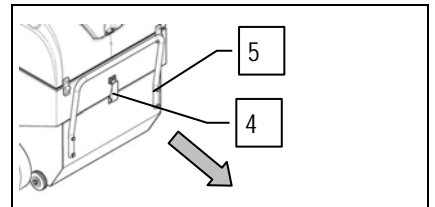
WARNING: before performing any maintenance, remove the keys from the panel and disconnect the battery connector of the machine.



10. Release the hinge (4) on the back of the machine.
11. By gripping the handle (5) on the hopper, remove it from the machine.
12. Take the hopper to the location designated for its draining and empty it.



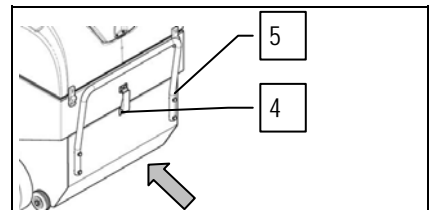
ATTENTION: this operation must be carried out using gloves to protect against contact with dangerous substances.



13. By gripping the handle (5) on the hopper, insert it in the machine.
14. Hook the hinge (4) on the back of the machine.



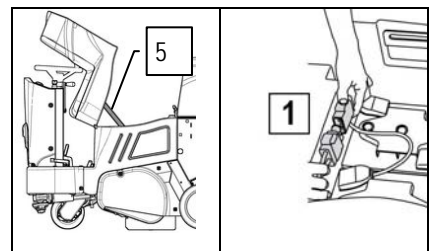
WARNING! Periodically check that the sealing ring of the debris hopper and of the frame, if it is worn or damaged replace it immediately.



15. Take the machine to the designated machine storage place.
16. Engage the parking brake.
17. Set the main machine switch to the "0/OFF" position by turning the key a quarter rotation to the left.



WARNING! Park the machine in a closed place, on a flat and level surface, where it cannot cause harm to people or damage to other property, but also be protected from any accidental fall of objects.



18. Rotate the seat casing until it hooks to its safety clamp (5)
19. Disconnect the battery connector from the machine connector (1)

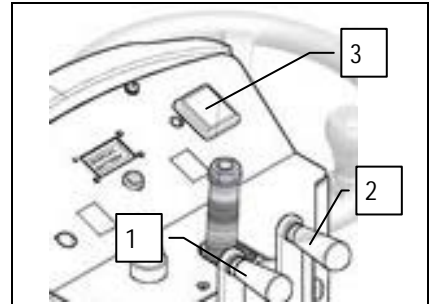


AT THE END OF THE WORK

28. AT THE END OF THE WORK (VERSIONS WITH AUTOMATIC EMPTYING OF THE DEBRIS HOPPER)

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

1. Bring the machine to the place provided for its draining
2. Stop the machine and engage the parking brake
3. Lift the central brush by turning the left lever (1) clockwise
4. Lift the side brush if lowered, by rotating the right lever (2) clockwise
5. Activate the filter shaker on the filter by pressing the switch (3) on the instrument panel; this will stop the vacuum action automatically.



WARNING! Do not keep the switch (3) pressed longer than ten seconds, repeat this operation two or three times.

6. Disengage the parking brake
7. Bring the machine close to the waste container which has been prepared for unloading
8. Stop the machine and engage the parking brake



WARNING! Calculate the distance between the machine and the waste container correctly, bearing in mind the rotation radius of the debris hopper when moving.

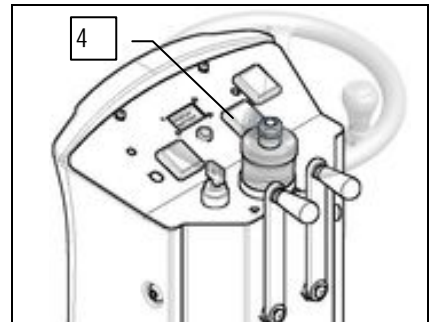
9. Move the switch (4) forward, until the debris hopper is in the desired position
10. Disengage the parking brake
11. Bring the machine close to the waste container, so that the debris hopper is inside the container's refill opening



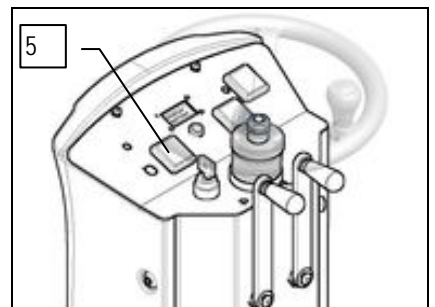
WARNING! Reduce the machine's movement speed when the debris hopper is lifted off the ground.

WARNING! Avoid unloading the debris while the machine is sloped.

WARNING! Do not activate the filter shaker while the debris hopper is lifted off the ground.



12. Stop the machine and engage the parking brake
13. Move the switch (5) forward, until the debris hopper is completely tilted
14. Move the switch (5) backward, until the debris hopper has returned to the working position



15. Disengage the parking brake
16. Move the machine forward while the debris hopper encounters no obstacles in its trajectory to return to the working position



WARNING! Calculate the distance between the machine and the waste container correctly, bearing in mind the rotation radius of the debris hopper when moving.

17. Stop the machine and engage the parking brake

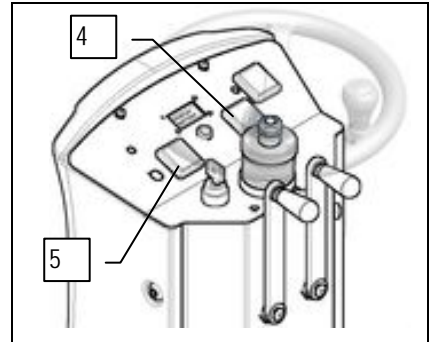


AT THE END OF THE WORK

18. Move the switches (4) and (5) backward, until the debris hopper has returned to the working position



WARNING! If the debris hopper is not in the correct position the machine will not work to its full potential.





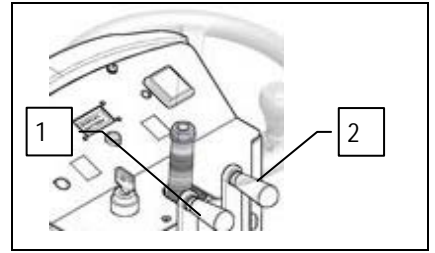
DAILY MAINTENANCE

PERFORM ALL MAINTENANCE OPERATIONS IN SEQUENCE

29. CLEANING THE CENTRAL BRUSH

Proceed as follows in order to clean the central brush:

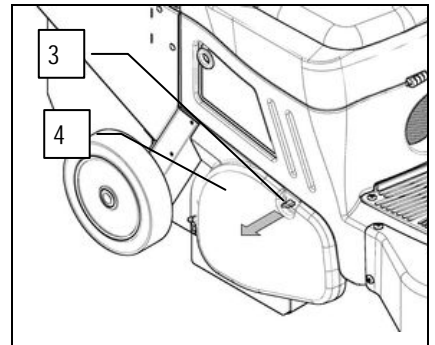
1. Engage the parking brake.
2. Make sure that the main switch is in the "0/OFF" position, if not turn the key a quarter turn to the left.
3. Lift the central brush by turning the left lever (1) clockwise.
4. Lift the side brush if lowered, by rotating the right lever (2) clockwise.



5. Loosen the wing nuts (3) fixing the right side casing.
6. Remove the right side casing (4) from the machine.



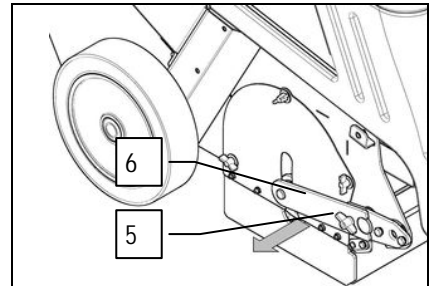
ATTENTION: this operation must be carried out using gloves to protect against contact with dangerous substances.



7. Loosen the wing nuts (5) fixing the idle support (6) of the central brush.
8. Remove the idle support (6) of the central brush from the machine.



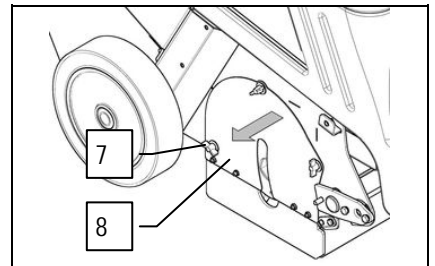
ATTENTION: this operation must be carried out using gloves to protect against contact with dangerous substances.



9. Loosen the wing nuts (7) fixing the right side splash guard pre-assembly.
10. Remove the right side splash guard pre-assembly (8) from the machine.



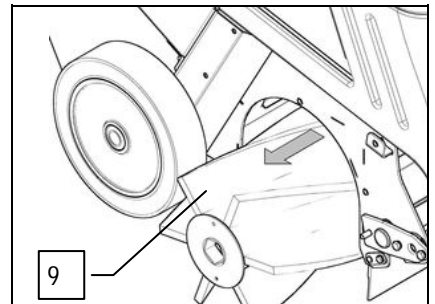
ATTENTION: this operation must be carried out using gloves to protect against contact with dangerous substances.



11. Remove the central brush (9) from the machine.
12. Clean it under running water and remove any impurities.



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



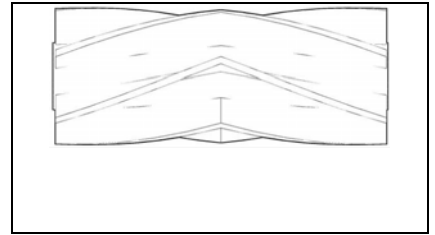


DAILY MAINTENANCE

13. Reassemble all the elements.



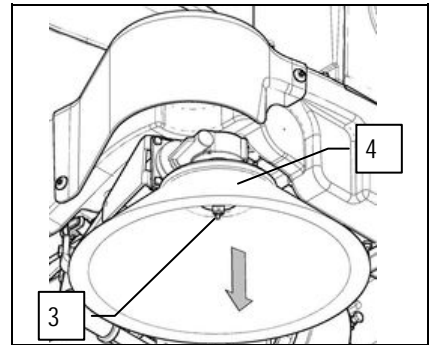
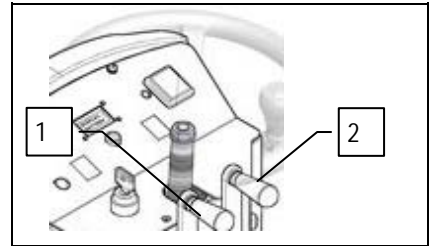
ATTENTION: The brush is correctly fitted when, seen from above, the cusp forms an upturned "V" (refer to the picture)



30. CLEANING THE SIDE BRUSH

Proceed as follows in order to clean the side brush:

1. Engage the parking brake.
2. Make sure that the main switch is in the "0/OFF" position, if not turn the key a quarter turn to the left.
3. Lift the central brush by turning the left lever (1) clockwise.
4. Lift the side brush if lowered, by rotating the right lever (2) clockwise.
5. Loosen the wing nut (3) fixing the side brush to the geared motor, then remove it together with the washer.
6. Remove the side brush (4) from the machine.



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

7. Clean it under running water and remove any impurities.



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

8. Reassemble all the elements.



WEEKLY MAINTENANCE

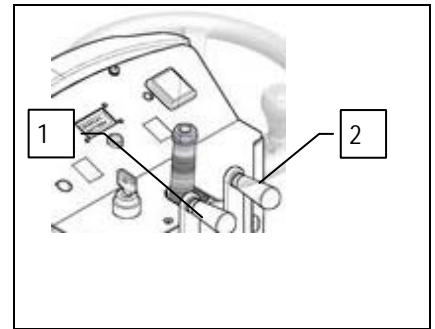
31. CLEANING THE PANEL FILTER (FP VERSIONS)

Whenever the vacuum action seems to be unsatisfactory, check that the vacuum filter is not obstructed. If necessary clean with an air jet as follows:

1. Engage the parking brake.
2. Make sure that the main switch is in the "0/OFF" position, if not turn the key a quarter turn to the left.



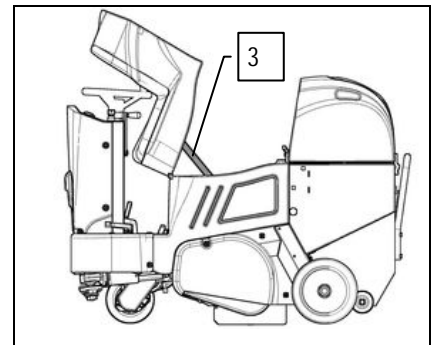
WARNING: before performing any maintenance, remove the keys from the panel and disconnect the battery connector of the machine.



3. Lift the central brush by turning the left lever (1) clockwise.
4. Lift the side brush if lowered, by rotating the right lever (2) clockwise.
5. Check that the debris hopper is empty, if not empty it completely
6. Grip the rear part of the seat casing
7. Rotate the seat casing until it hooks to its safety clamp (3)



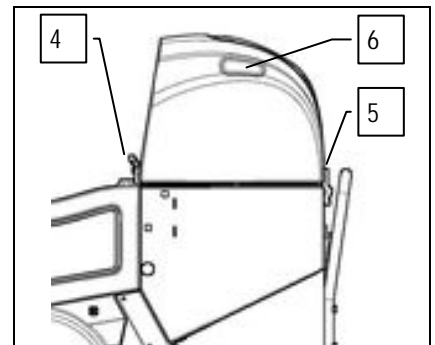
ATTENTION: this operation must be carried out using gloves to protect against contact with dangerous substances.



8. Remove the retainer (4) on the front of the casing
9. Remove the retainers (5) on the rear of the casing
10. Grip the handles (6), remove the rear casing pre-assembly and rest it on the floor



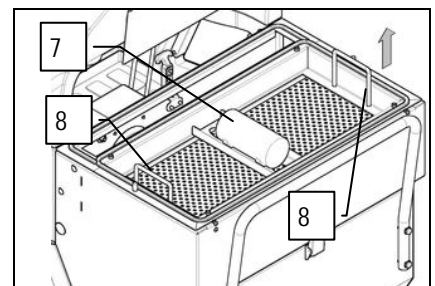
ATTENTION: this operation must be carried out using gloves to protect against contact with dangerous substances.



11. Disconnect the filter shaker (7) from the electric system of the machine
12. Grip the handles (8), remove the panel filter pre-assembly and rest it on the floor



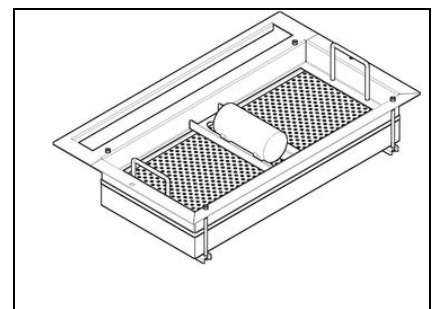
ATTENTION: this operation must be carried out using gloves to protect against contact with dangerous substances.



13. Clean the panel filter with an air jet from a distance of more than 20cm.
14. Reassemble all the elements



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





WEEKLY MAINTENANCE

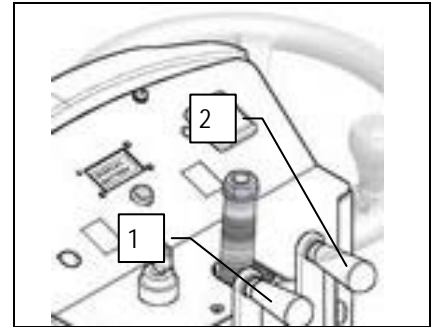
32. CLEANING THE CLOTH FILTER (FS VERSIONS)

Whenever the vacuum action seems to be unsatisfactory, check that the vacuum filter is not obstructed. If necessary clean with an air jet as follows:

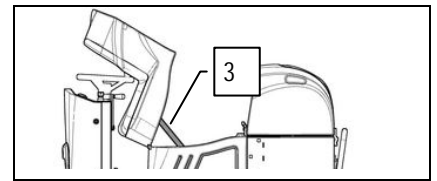
1. Engage the parking brake.
2. Make sure that the main switch is in the "0/OFF" position, if not turn the key a quarter turn to the left.



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



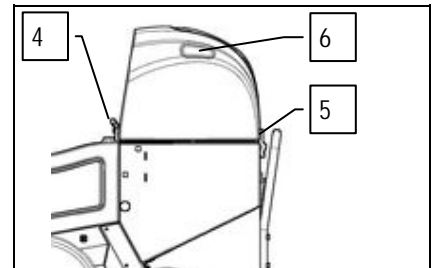
3. Lift the central brush by turning the left lever (1) clockwise.
4. Lift the side brush if lowered, by rotating the right lever (2) clockwise.
5. Check that the debris hopper is empty, if not empty it completely
6. Grip the rear part of the seat casing
7. Rotate the seat casing until it hooks to its safety clamp (3)



8. Remove the retainer (4) on the front of the casing
9. Remove the retainers (5) on the rear of the casing
10. Grip the handles (6), remove the rear casing pre-assembly and rest it on the floor



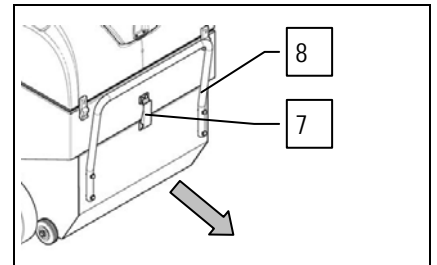
ATTENTION: this operation must be carried out using gloves to protect against contact with dangerous substances.



11. Release the hinge (7) on the back of the machine.
12. By gripping the handle (8) on the hopper, remove it from the machine.
13. Disconnect the filter shaker from the electric system of the machine



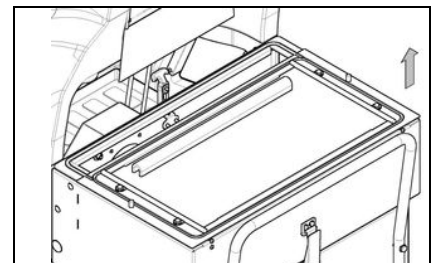
ATTENTION: this operation must be carried out using gloves to protect against contact with dangerous substances.



14. Lift the filter pre-assembly
15. Disconnect the filter shaker from the electric system of the machine
16. Remove the filter pre-assembly and rest it on the floor



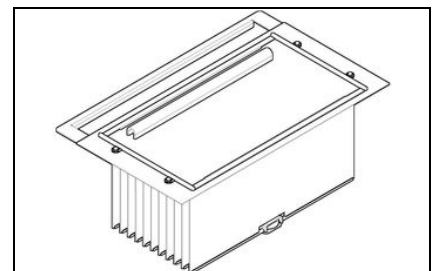
ATTENTION: this operation must be carried out using gloves to protect against contact with dangerous substances.



17. Clean the panel filter with an air jet from a distance of more than 20cm.
18. Reassemble all the elements



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



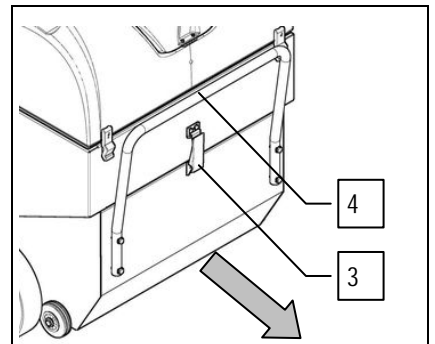
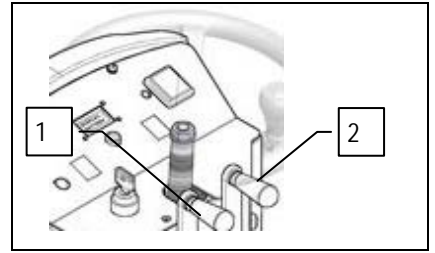


WEEKLY MAINTENANCE

33. CLEANING THE DEBRIS HOPPER (VERSIONS WITH MANUAL EMPTYING OF THE DEBRIS HOPPER)

Clean the debris hopper every week as follows:

1. Engage the parking brake.
2. Make sure that the main switch is in the "0/OFF" position, if not turn the key a quarter turn to the left.
3. Lift the central brush by turning the left lever (1) clockwise.
4. Lift the side brush if lowered, by rotating the right lever (2) clockwise.
5. Release the hinge (3) on the back of the machine.
6. By gripping the handle (4) on the hopper, remove it from the machine.
7. Take the hopper to the location designated for its draining and clean it with a jet of water.



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

8. Reassemble all the elements

34. CLEANING THE DEBRIS HOPPER (VERSIONS WITH AUTOMATIC EMPTYING OF THE DEBRIS HOPPER)

Clean the debris hopper every week as follows:

1. Bring the machine close to the place provided for its draining
2. Stop the machine and engage the parking brake

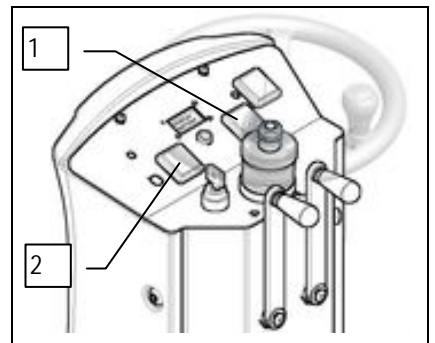


WARNING! Position the machine correctly so that the debris hopper encounters no obstacles while moving

3. Move the switch (1) forward, until the debris hopper is in the desired position
4. Move the switch (2) forward, until the debris hopper has rotate in the desired position
5. Set the main switch to the "0/OFF" position by turning the key a quarter turn to the left
6. Rinse the inside of the hopper with a jet of running water



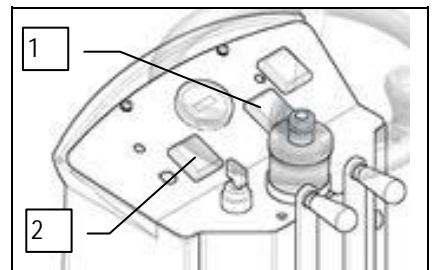
ATTENTION: This operation must be carried out using gloves to protect against contact with dangerous substances.



7. Move the switch (2) backward, until the debris hopper has returned to the working position
8. Move the switches (2) and (1) backward, until the debris hopper has returned to the working position



WARNING! If the debris hopper is not in the correct position the machine will not work to its full potential.



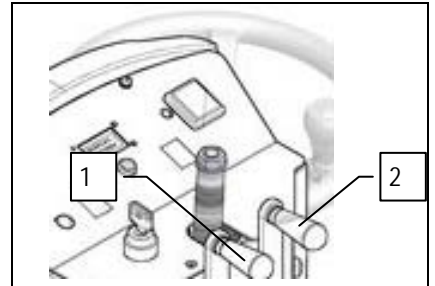


WEEKLY MAINTENANCE

35. SIDE BRUSH ADJUSTMENT

If the side brush does not channel the dirt efficiently towards the centre of the machine, you must adjust its height in relation to the ground, as follows:

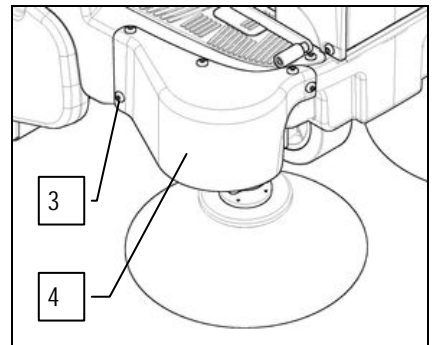
1. Engage the parking brake.
2. Make sure that the main switch is in the "0/OFF" position, if not turn the key a quarter rotation to the left.
3. Lift the central brush by turning the left lever (1) clockwise.
4. Lift the side brush if lowered, by rotating the right lever (2) clockwise.



5. By using the right equipment, remove the side brush casing (4), removing the screws (3)



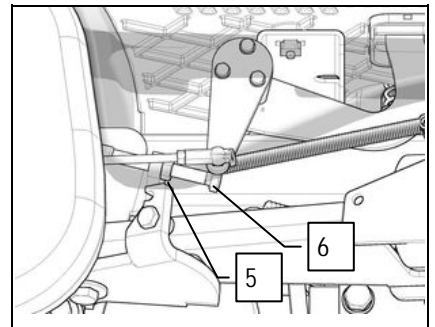
ATTENTION: this operation must be carried out using gloves to protect against contact with dangerous substances.



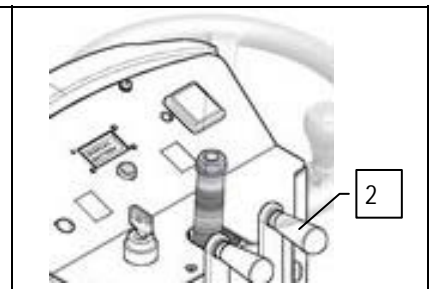
6. By using the right equipment, loosen the counter nut (5) and the adjustment screw (6)



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



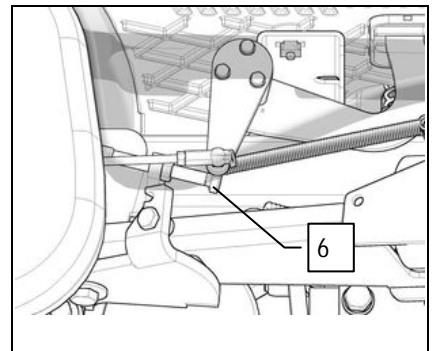
7. Lower the side brush by turning the right lever (2) clockwise.



8. Using a suitable tool, loosen the adjustment screw (6) until the brush bristles are pressed onto the floor by about 2cm.



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



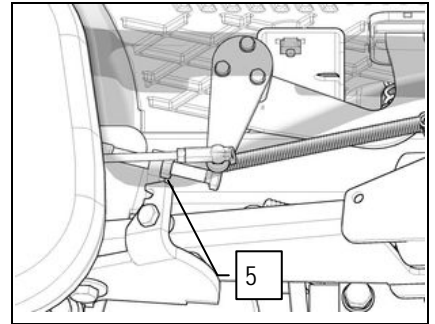


WEEKLY MAINTENANCE

9. Fix the counter nut (5) by using the right equipment.



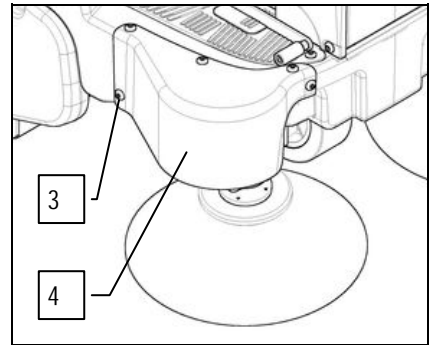
ATTENTION: this operation must be carried out using gloves to protect against contact with dangerous substances.



10. By using the right equipment, assemble the side brush casing (4), fixing the screws (3)



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



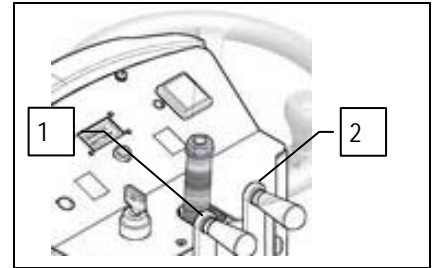


EXTRAORDINARY MAINTENANCE

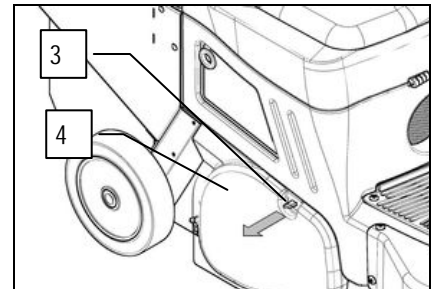
36. CENTRAL BRUSH REPLACEMENT

If the central brush is worn, this will affect its performance. Proceed as follows to replace:

1. Engage the parking brake.
2. Make sure that the main switch is in the "0/OFF" position, if not turn the key a quarter turn to the left.
3. Lift the central brush by turning the left lever (1) clockwise.
4. Lift the side brush if lowered, by rotating the right lever (2) clockwise.

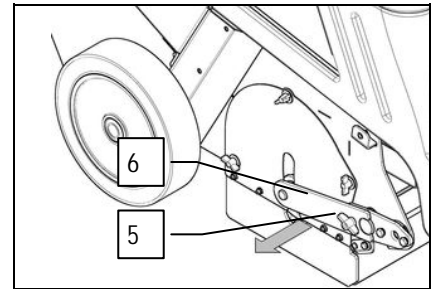


5. Loosen the wing nuts (3) fixing the right side casing.
6. Remove the right side casing (4) from the machine.



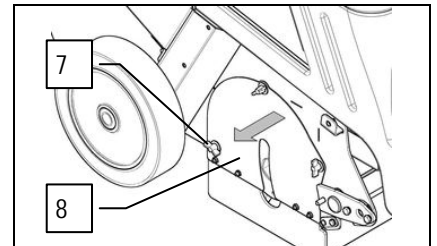
ATTENTION: this operation must be carried out using gloves to protect against contact with dangerous substances.

7. Loosen the wing nuts (5) fixing the idle support of the central brush.
8. Remove the idle support (6) of the central brush from the machine.



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

9. Loosen the wing nuts (7) fixing the right side splash guard pre-assembly.
10. Remove the right side splash guard pre-assembly (8) from the machine.

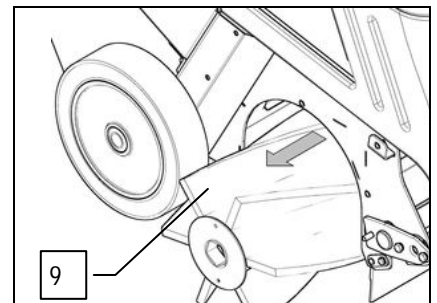


ATTENTION: this operation must be carried out using gloves to protect against contact with dangerous substances.

11. Remove the central brush (9) from the machine.



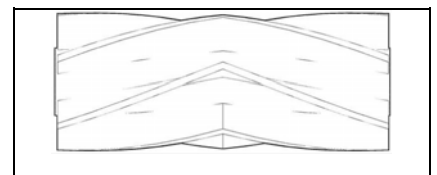
ATTENTION: this operation must be carried out using gloves to protect against contact with dangerous substances.



12. Replace the old brush with the new one.
13. Reassemble all the elements.



ATTENTION: the brush is correctly fitted when, seen from above, the top forms an upturned "V" (refer to the picture)



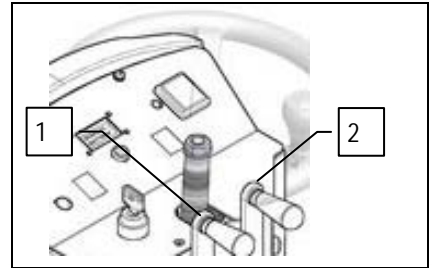


EXTRAORDINARY MAINTENANCE

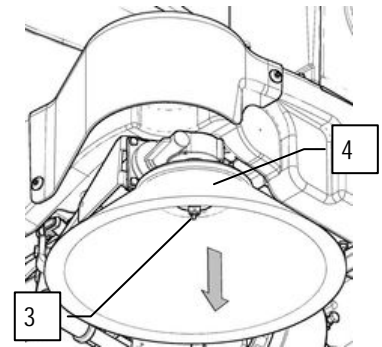
37. SIDE BRUSH REPLACEMENT

If the side brush is worn, this will affect its performance. Proceed as follows to replace it:

1. Engage the parking brake.
2. Make sure that the main switch is in the "0/OFF" position, if not turn the key a quarter turn to the left.
3. Lift the central brush by turning the left lever (1) clockwise.
4. Lift the side brush if lowered, by rotating the right lever (2) clockwise.
5. Loosen the wing nut (3) fixing the side brush to the geared motor, then remove it together with the washer.
6. Remove the side brush (4) from the machine.



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



7. Replace the old brush with the new one.



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

8. Reassemble all the elements.
9. Read the "SIDE BRUSH ADJUSTMENT" paragraph in order to position the brush correctly and ensure a correct operation.



TROUBLESHOOTING

38. THE MACHINE DOES NOT START

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

39. 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 vacuum motor 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 several times in a row, contact the specialised technical assistance centre.

40. THE MACHINE DOES NOT CLEAN WELL

4. Check the state of wear and tear of the brushes and, if necessary, replace them. The brushes should be changed when the bristles are about 15mm long. To replace them, see "CENTRAL BRUSH REPLACEMENT", or "SIDE BRUSH REPLACEMENT". Working with over-worn brushes may cause damage to the floor.
5. 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").
6. The side brush is worn, to adjust it see "SIDE BRUSH ADJUSTMENT".
7. The debris hopper is full, empty it completely.

41. THE MACHINE LIFTS DUST DURING OPERATION

1. The flaps that ensure efficient vacuum action are worn: replace them.
2. The front flap is broken and the machine projected heavy dirty bodies forward: replace them.
3. The filter is blocked: clean the filter thoroughly.
4. The debris hopper position is not correct

42. EXCESSIVE OR ALTERED NOISE OF THE CENTRAL BRUSH

1. Material wrapped around the brush: remove it.

43. EXCESSIVE OR ALTERED NOISE OF THE SIDE BRUSH

1. Material wrapped around the brush: remove it.



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)

It is used on every type of floors and has good resistance to wear. The Polypropylene brush is non-hygroscopic and therefore retains its characteristics even when working in wet conditions.

THICKNESS OF THE BRISTLES

The thicker bristles are more rigid and should therefore be used on surfaces with solid or heavy dirt (e.g gravel; drinking cans; etc.).

Softer bristles are recommended for surfaces with light dirt or dust.

Remember that when the bristles are worn, and therefore too short, they become rigid and cannot pick up the dirt efficiently.

The central brush has bristles of 1.1mm and of 0.7mm to comply with both characteristics.

TABLE FOR CHOOSING THE BRUSHES

Machine	No. of brushes	Code	Type of bristles	Ø Bristles	Ø Brush	Length	Notes
CS700 B 1SL	1	433761	PPL + Bronze	1.1 + 0.7	280	678	Central brush
		435164	PPL + Bronze	0.7	280	678	Central brush, white
435165		PPL + Bronze	1.4	280	678	Central brush, black	
435166		PPL + Steel	0.7	280	678	Central brush, black	
	1	435433	PPL	1	400	-	Side brush, black
		435432	PPL + Steel	1.1 + 0.7	400	-	Side brush, black
CS700 B 2SL	1	433761	PPL + Bronze	1.1 + 0.7	280	678	Central brush
		435164	PPL + Bronze	0.7	280	678	Central brush, white
435165		PPL + Bronze	1.4	280	678	Central brush, black	
435166		PPL + Steel	0.7	280	678	Central brush, black	
	2	435433	PPL	1	400	-	Side brush, black
		435432	PPL + Steel	1.1 + 0.7	400	-	Side brush, black
CS800 B 1SL	1	434685	PPL + Bronze	1.1 + 0.7	280	788	Central brush
		435462	PPL + Bronze	0.7	280	788	Central brush, white
435464		PPL + Bronze	1.4	280	788	Central brush, black	
435465		PPL + Steel	0.7	280	788	Central brush, black	
	1	435433	PPL	1	400	-	Side brush, black
		435432	PPL + Steel	1.1 + 0.7	400	-	Side brush, black
CS800 B 2SL	1	434685	PPL + Bronze	1.1 + 0.7	280	788	Central brush
		435462	PPL + Bronze	0.7	280	788	Central brush, white
435464		PPL + Bronze	1.4	280	788	Central brush, black	
435465		PPL + Steel	0.7	280	788	Central brush, black	
	2	435433	PPL	1	400	-	Side brush, black
		435432	PPL + Steel	1.1 + 0.7	400	-	Side brush, black



EC DECLARATION OF CONFORMITY

The undersigned manufacturer:
COMAC S.p.A.
Via Maestri del Lavoro, 13
37059 Santa Maria di Zevio (VR)
declares under its sole responsibility that the product

SWEEPING MACHINES mod. CS700 B

comply with the requirements of the following Directives:

- 2006/42/EC: Machinery Directive.
- 2004/108/EC: Electromagnetic Compatibility Directive.
- 2000/14/EC: Directive by the European Parliament and Council date 8th May, 2000. Noise emission by machines and equipment for outdoor use.

Falling into the category of road sweeper as defined in Annex 46 of Directive 2000/14/EC of the European Parliament and the Council, is subject to noise marking only.

Conformity assessment was carried out as set out in Annex III.B.46 of the said directive.

MODEL	LwA [dB(A)]	LwA, guaranteed [dB(A)]

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: Machine safety - Fundamental concepts, fundamental principles of design - Part 2: Technical principles.
- 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 62233: Household and similar electrical appliances - Electromagnetic fields Methods for evaluation and measurement.

The person authorised to compile the technical file:

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

Santa Maria di Zevio (VR), 08/11/2011

Legal representative
Giancarlo Ruffo

COMAC S.p.A.



EC DECLARATION OF CONFORMITY

The undersigned manufacturer:
COMAC S.p.A.
Via Maestri del Lavoro, 13
37059 Santa Maria di Zevio (VR)
declares under its sole responsibility that the product

SWEEPING MACHINES mod. CS800 B

comply with the requirements of the following Directives:

- 2006/42/EC: Machinery Directive.
- 2004/108/EC: Electromagnetic Compatibility Directive.
- 2000/14/EC: Directive by the European Parliament and Council date 8th May, 2000. Noise emission by machines and equipment for outdoor use.

Falling into the category of road sweeper as defined in Annex 46 of Directive 2000/14/EC of the European Parliament and the Council, is subject to noise marking only.

Conformity assessment was carried out as set out in Annex III.B.46 of the said directive.

MODEL	LwA [dB(A)]	LwA, guaranteed [dB(A)]

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: Machine safety - Fundamental concepts, fundamental principles of design - Part 2: Technical principles.
- 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 62233: Household and similar electrical appliances - Electromagnetic fields Methods for evaluation and measurement.

The person authorised to compile the technical file:

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

Santa Maria di Zevio (VR), 08/11/2011

Legal representative
Giancarlo Ruffo

COMAC S.p.A.



COMAC spa
Via Maestri del Lavoro, 13 – 37059 Santa Maria di Zevio – Verona – ITALY
Tel. +39 045 8774222 – Fax +39 045 8750303 - E-mail: com@comac.it o info@comac.it - www.comac.it



COMAC spa
Via Maestri del Lavoro, 13 – 37059 Santa Maria di Zevio – Verona – ITALY
Tel. +39 045 8774222 – Fax +39 045 8750303 - E-mail: com@comac.it o info@comac.it - www.comac.it



COMAC spa
Via Maestri del Lavoro, 13 – 37059 Santa Maria di Zevio – Verona – ITALY
Tel. +39 045 8774222 – Fax +39 045 8750303 - E-mail: com@comac.it o info@comac.it - www.comac.it
