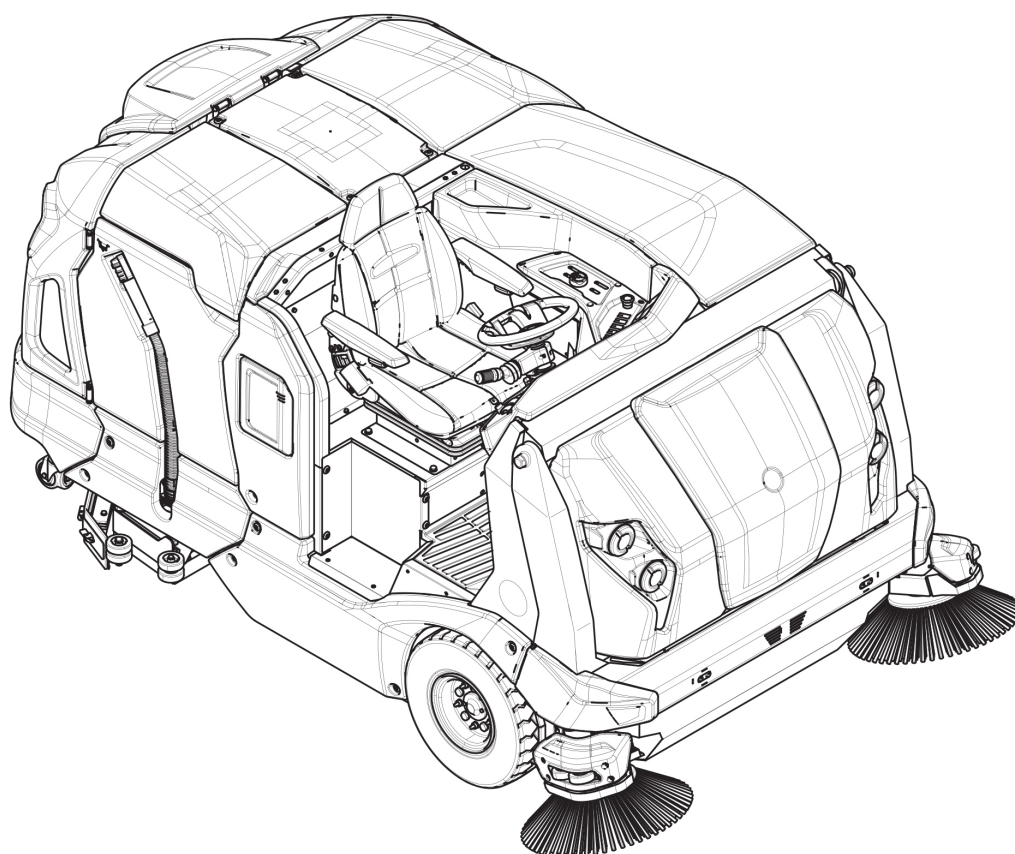




# COMBIMAC



SWEEPERS

## *USE AND MAINTENANCE MANUAL*



ORIGINAL INSTRUCTIONS DOC. 10144608 VER.AA 03/2025



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The company reserves the right to make changes of a technical nature and/or concerning the equipment supplied. The figures are provided for reference purposes only and are not binding in terms of design and equipment.

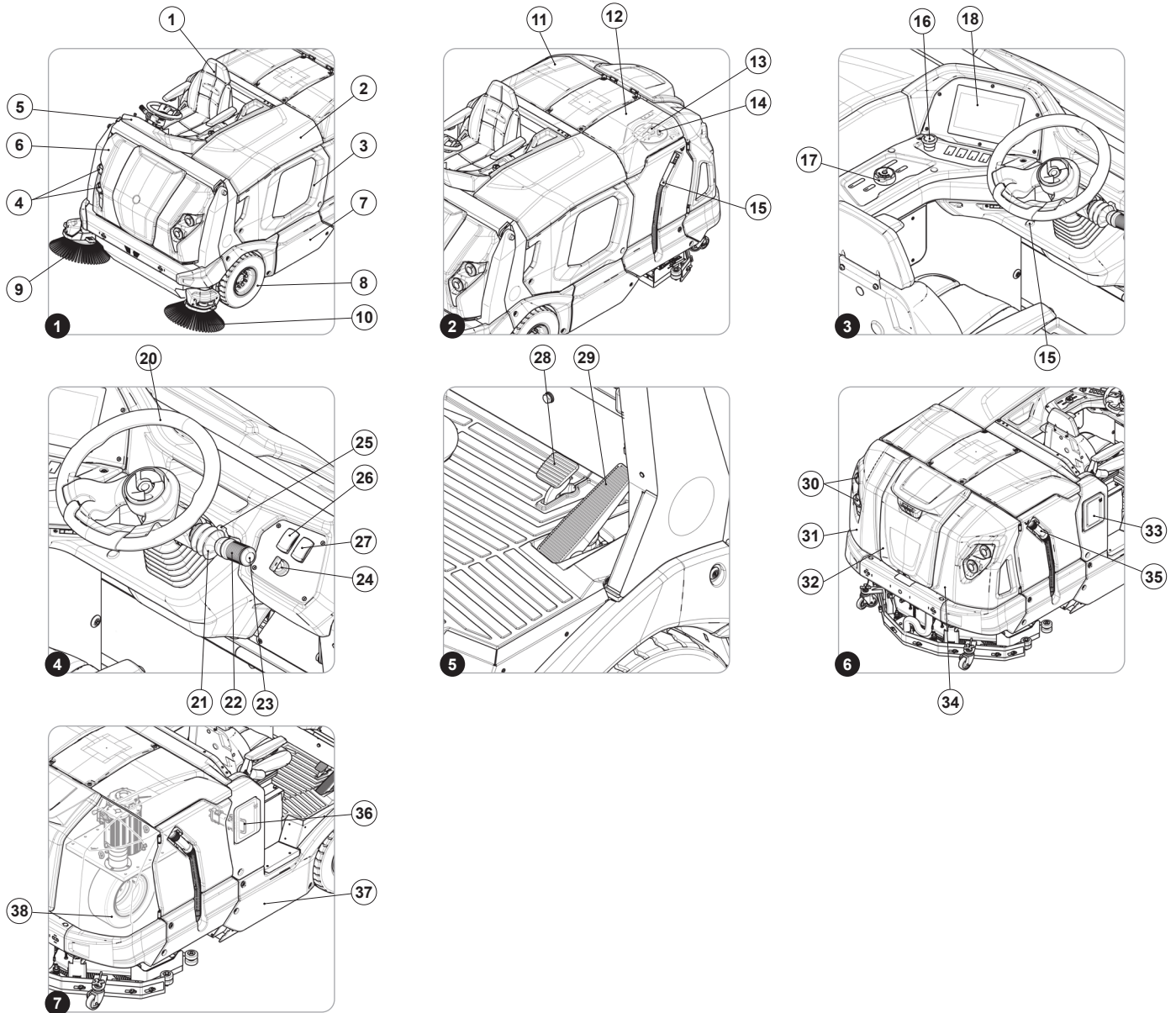
## GENERAL SAFETY RULES

Before using the machine, please read and follow the instructions in the following document carefully in addition to the instructions set out in the document provided with the machine, titled "GENERAL SAFETY RULES" (document code 10083659).

## SYMBOLS USED IN THE MANUAL

	<b>Open book symbol with an i:</b> this means the user must refer to the instructions for use.
	<b>Open book symbol:</b> this means the operator must read the user manual before using the appliance.
	<b>Indoor area symbol:</b> procedures highlighted with this symbol must always be performed indoors, in a dry area.
	<b>Information symbol:</b> this shows additional information for better use of the appliance.
	<b>Warning symbol:</b> read the sections highlighted by this symbol carefully and follow the instructions exactly to ensure safe operation for both the operator and the appliance.
	<b>Hazard symbol (corrosive substances):</b> this means the operator must always wear protective gloves to prevent serious hand injuries caused by corrosive substances.
	<b>Hazard symbol (battery acid leakage):</b> this means the operator must be aware of the risk of battery acid leakage and the risk of inhaling battery acid fumes during charging.
	<b>Hazard symbol (moving lifting trucks):</b> this means the packaged product must be handled using appropriate lifting trucks that comply with legal provisions.
	<b>Room ventilation symbol:</b> this means the operator must ensure the room is properly ventilated while the battery is charging.
	<b>Protective glove requirement symbol:</b> This means the operator must always wear protective gloves to prevent serious hand injuries caused by sharp objects.
	<b>Tool requirement symbol:</b> This means the operator is required to use tools that are not supplied with the machine.
	<b>No walking symbol:</b> This means the operator must not walk on the machine's components (to prevent the risk of serious injury).
	<b>Recycling symbol:</b> this means the operator must work in accordance with the environmental regulations in force in the area where the appliance is being used.
	<b>Waste disposal symbol:</b> read the sections highlighted by this symbol carefully for instructions on how to dispose of the appliance.

## MAIN MACHINE COMPONENTS

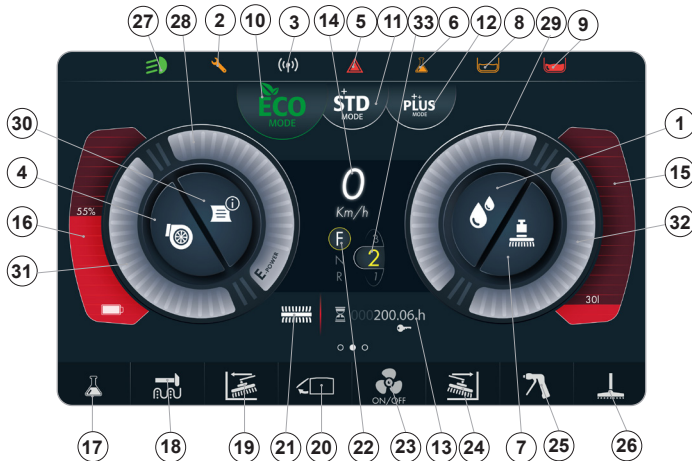


The machine features the following main components:

- |                                                   |                                                  |
|---------------------------------------------------|--------------------------------------------------|
| 1. Seat                                           | 24. Main switch (key-operated)                   |
| 2. Battery compartment cover                      | 25. Steering wheel adjustment lever              |
| 3. Battery compartment casing                     | 26. External light control button                |
| 4. Headlights                                     | 27. Safety button for lowering the hopper        |
| 5. Dashboard casing                               | 28. Service brake pedal                          |
| 6. Front body                                     | 29. Forward drive pedal                          |
| 7. LH side casing                                 | 30. Taillights                                   |
| 8. Front wheels                                   | 31. Electrical system cover                      |
| 9. RH side brush                                  | 32. Electrical system cover                      |
| 10. LH side brush                                 | 33. Battery connector cover                      |
| 11. Recovery solution tank cover                  | 34. Electrical system cover                      |
| 12. Detergent solution tank cover                 | 35. Drain hose for recovery solution compartment |
| 13. Water filler cap                              | 36. Battery connector                            |
| 14. Continuous float kit (optional)               | 37. RH side casing                               |
| 15. Drain hose for detergent solution compartment | 38. Drive wheel                                  |
| 16. Emergency button                              |                                                  |
| 17. Work mode dial (Drive Select)                 |                                                  |
| 18. Control panel                                 |                                                  |
| 19. Maintenance light control button              |                                                  |
| 20. Steering wheel                                |                                                  |
| 21. Gear direction selector lever                 |                                                  |
| 22. Forward drive speed selector knob             |                                                  |
| 23. Horn button                                   |                                                  |

## CONTROL PANEL COMPONENTS

The control panel features the following components:



1. Signal light for detergent solution flow rate adjustment in the machine's water system.
2. Maintenance overdue symbol: if this is showing, it means the scheduled maintenance deadline has passed.
3. CFC symbol: if this is showing, it means the "COMAC FLEET CARE" system is working.
4. Signal light for suction motor performance adjustment.
5. General alarm symbol: if an error occurs, this symbol will appear and remain visible until the error is resolved.
6. Empty detergent tank float symbol: only applies to machine versions with integrated CDS (COMAC DOSING SYSTEM).
7. Signal light for adjustment of weight applied to the deck.
8. Solution tank empty (float) symbol.
9. Recovery tank full (float) symbol.
10. ECO MODE work mode activation/deactivation button.
11. STANDARD MODE work mode activation/deactivation button.

12. PLUS MODE work mode activation/deactivation button.

13. Hour meter

14. Speedometer.

15. Detergent solution level indicator.

16. Battery charge level indicator.

17. COMAC DOSING SYSTEM system activation/deactivation button.

18. Filter shaker activation button

19. LH side brush activation/deactivation button

20. Button to view the hopper management page

21. Work mode set signal light

22. Machine travel direction signal light.

23. Suction deactivation button

24. RH side brush activation/deactivation button

25. Optional tank cleaning kit activation/deactivation button

26. Wet vacuum wand kit activation/deactivation button

27. Headlights ON signal light

28. Power consumption display field

29. Detergent solution flow rate display field

These readings change depending on the work mode selected (ECO, STANDARD, PLUS)

30. Button to view the partial work information page

31. Suction motor performance display field

These readings change depending on the work mode selected (ECO, STANDARD, PLUS)

32. Field displaying the weight applied to the scrubbing deck

These readings change depending on the work mode selected (ECO, STANDARD, PLUS)

33. Speedometer (forward drive)

## PURPOSE OF THE MANUAL AND CONTENTS

This manual is designed to provide the customer with all the information they need to use the machine properly, independently, and safely. This includes information regarding technical aspects, safety, operation, machine downtime, maintenance, spare parts, and disposal. Before carrying out any work on the machine, all operators and technicians must read the instructions in this manual carefully. If you are in any doubt as to the meaning of the instructions, please contact the nearest service centre for clarifications.

## TARGET READERS

This manual is intended for both operators and for maintenance technicians who are qualified to service the machine. Operators must not carry out any of the procedures that must be performed by qualified technicians. The manufacturer is not liable for any damage resulting from failure to comply with this prohibition.

## STORAGE OF THE USE AND MAINTENANCE MANUAL

This use and maintenance manual must be kept in the immediate vicinity of the machine, inside the sleeve provided and away from liquids and anything else that might affect legibility.

## ACCEPTANCE OF THE MACHINE

Upon receiving the machine, it is essential to immediately check that you have received all the materials stated on the accompanying documents and that the machine has not suffered any damage during carriage.

In the event of damage, please inform the carrier of the extent of this damage and notify our customer service department.

This action must be taken promptly in order to obtain the missing items and receive compensation for the damage.

## INTRODUCTION

A machine will only operate correctly and deliver optimal performance if it is used properly and serviced according to the procedures described in the accompanying documentation.

Please read this instruction manual carefully and reread it should difficulties arise when using the machine.

If necessary, please remember that our customer service (organised in partnership with our dealers) is always available to provide you directly with advice and assistance.

## IDENTIFICATION DATA

For technical assistance or to request spare parts, always quote the model, version, and serial number found on the identification plate.

## TECHNICAL DESCRIPTION

The **COMBIMAC 130** is a combined sweeper/washer, allowing users to sweep and wash surfaces in a single operation.


The machine is equipped with a dual-function system with independent operation.

The system consists of the sweeping system featured in a sweeper and the washing system featured in a scrubber.

## INTENDED USE

This machine is designed and built to sweep, wash, and dry surfaces in commercial, residential, and industrial settings.

The machine can be used both indoors and outdoors.

 **The machine **MUST NOT** be used to vacuum hazardous dust or flammable liquids in explosive environments. It is also not designed to transport goods or people.**

## SAFETY

The operator's cooperation is essential to prevent accidents.

No accident prevention campaign can be effective without the full cooperation of the person directly responsible for the machine's operation.

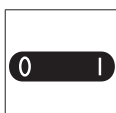
Most accidents that occur at work, whether during use or during travel, are caused by failure to follow the most basic safety rules.

Having an attentive, prudent operator is the best way of preventing accidents and is essential to ensure the success of a prevention campaign.

## CONVENTIONS

In this manual, all references to direction (forwards and backwards, front and rear, left and right) refer to the operator seated in the driving position with their hands on the steering wheel.

## LABELS USED ON THE MACHINE



### Main switch symbol:

This symbol is used on the control panel located at the front of the machine to show the main switch."



### Horn control label:

this label is affixed to the machine, near the steering column, to show the horn control button.



### Detergent solution tap control label:

this label is affixed to the machine, near the steering column, to show the control lever for the detergent solution tap.



### Label showing the requirement to read the use and maintenance manual:

this label is affixed to the machine, near the steering column, to show that the operator has to read the use and maintenance manual before using the machine.



### No walking label:

this label is affixed to the machine to show surfaces that must not be walked on, to prevent the risk of injuries or damage to the machine.



### Hand crushing hazard warning label:

this shows the risk of injury to hands due to crushing between two surfaces.



### Warning label:

this label is affixed to the machine to instruct the operator to read this use and maintenance manual before using the machine for the first time.



### No vacuuming/collecting label:

this label is affixed to the machine to remind the operator that they must not use the machine to collect or vacuum flammable and/or explosive dust and/or liquids, or incandescent particles.



### Battery charging warning label:

this label is affixed to the machine to instruct the operator on how to charge the batteries.



### Battery charging warning label:

this label is affixed to the machine to warn the operator of the danger of flammable gas leaks during battery charging.



### Solution tank filter daily care warning label:

this label is affixed to the machine to remind the operator to clean the solution tank filter after each use.



### Suction motor filter label:

this label is applied to the inner side of the suction motor cover to identify the suction motor air filter. It also reminds the operator to always clean the filter after machine use.



### Brake system oil level check label:

this label is affixed near the brake system oil reservoir to remind the operator to check the oil level in the reservoir. The recommended brake system oil is stated at the bottom of the label.



### Service brake pedal position label:

this label is affixed to the machine to show the location of the service brake pedal.



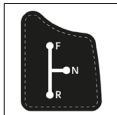
### Solution tank maximum filling temperature label:

this label is affixed to machine, on top of the solution tank, to show the maximum water temperature to fill the solution tank safely.



### Scrubbing deck movement risk label:

this label is affixed to the deck to warn the operator that the deck can move sideways.



**Machine direction selector label:**

this label is affixed near the steering wheel to show how to move the machine direction control lever.



**Courtesy light control (optional) label:**

this label is affixed near the steering wheel to identify the courtesy light control button.



**Spray gun (optional) location label:** this label is affixed to the machine, at the rear, to identify the spray gun holder.



**Wet vacuum wand (optional) location label:**

this label is affixed to the machine to identify the compartment where the wet vacuum wand is housed.



**Detergent tank location label (CDS versions):**

this label is affixed to the machine to show the location of the detergent tank.



**Curve speed adjustment sensor positioning label:**

this label is affixed to the machine and provides instructions on how to position the curve speed reduction sensor.



**Detergent usage percentage label (CDS versions):**

this label is affixed near the detergent tank and provides instructions for the use of standard or concentrated detergents.



**Water system use warning label (CDS versions):**

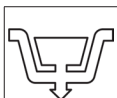
this label is affixed to the machine to advise the operator to read this use and maintenance manual before using the appliance with the automatic detergent metering system.



**pH label (CDS versions):**

this label is affixed above the detergent tank to advise the operator of the pH range of the detergent to be used.

## SYMBOLS USED ON THE MACHINE



**Recovery tank drain hose symbol:**

this label is affixed to the machine, at the rear, to identify the recovery tank drain hose.



**Solution tank drain cap symbol:**

this label is affixed to the machine, at the rear, to identify the solution tank drain cap.

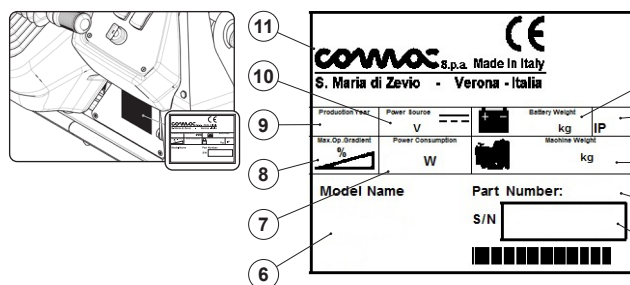


## SERIAL NUMBER PLATE

The serial number plate is located on the rear of the steering column. In addition to the serial number, it also contains the general machine specifications.

The serial number is a vital piece of information that must always be quoted when requesting assistance or spare parts.

The serial number plate contains the following information:



1. The weight of the appliance's batteries, stated in kg.
2. The appliance's IP rating.
3. The gross weight of the appliance, stated in kg.
4. The appliance's identification code.
5. The appliance's serial number.
6. The appliance's name.
7. The appliance's rated power consumption, stated in W.
8. The maximum slope the machine can operate on, stated in %.
9. The year in which the appliance was manufactured.
10. The appliance's rated voltage, stated in V.
11. The trade name and address of the manufacturer of the appliance.

## "EC" declaration of conformity



The undersigned manufacturer:

**COMAC S.p.A.**

Via Maestri del Lavoro, 13

37059 Santa Maria di Zevio (VR)

hereby declares, under its own exclusive responsibility, that the following products:

**SWEEPERS mod.  
COMBIMAC 130**

comply with the provisions of the following directives:

- 2006/42/CE: machinery directive.
- 2014/30/CE: electromagnetic compatibility directive.

They also conform to the following standards:

- EN 60335-1:2012/A11:2014
- EN 60335-2-72:2012
- EN 12100:2010
- EN 61000-6-2:2005/AC:2005
- EN 61000-6-3:2007/A1:2011/AC:2012
- EN 62233:2008/AC:2008

Person authorised to compile the technical file:

Mr. Giancarlo Ruffo

Via Maestri del Lavoro, 13

37059 Santa Maria di Zevio (VR) - ITALY

Santa Maria di Zevio (VR), 28/02/2023

Comac S.p.A.  
The legal representative  
Giancarlo Ruffo



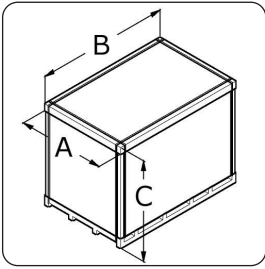
SPECIFICATIONS	U.d.M. [KMS]	COMBIMAC 130
Rated power	W	10500
Working capacity - up to	h	3,5
Working width (scrubbing deck)	mm	1300
Working width (sweeping deck)	mm	1180
Working width with one/two side brushes	mm	1580/1980
Hopper volume	l	180
Floor/ground squeegee width	mm	1510
Scrubbing deck brushes (number - Ø of external bristles)	nr – mm	4 - 355
Sweeping deck brushes (number - Ø of external bristles)	nr – mm	1 - 410
Scrubbing deck motor [number - (voltage - rated power) ]	V - W	4 – (36 – 750)
Sweeping deck motor [number - (voltage - rated power) ]	V - W	1 – (36 – 1000)
Scrubbing deck brush speed	rpm	300
Sweeping deck brush speed	rpm	400
Weight applied to the deck	kg	70 - 150
Drive motor (voltage - rated power)	V – W	36 - 4000
Maximum gradient (drive mode with empty tanks)	%	20
Maximum speed (drive mode)	km/h	10
Maximum work speed	km/h	8
Suction motor [number - (voltage - power) ]	V - W	2 – (36 – 500)
Vacuum pressure of scrubbing assembly suction unit	mBar	-
Vacuum pressure of sweeping assembly suction unit	mBar	-
Drain height	mm	1650
Filtering surface area	m <sup>2</sup>	8
Maximum solution tank capacity	l	300
Maximum recovery tank capacity	l	300
Maximum detergent tank capacity (CDS versions)	l	10
Turning radius (without front and rear bumpers and floor/ground squeegee assembly)	mm	3250
Machine dimensions (length - width (1) -height)	mm	3000 x 1760 x 2250
Battery compartment dimensions (length - width - usable height)	mm	870 x 630 x 560
Machine weight (2)	kg	1590
Machine weight during travel (3)	kg	2370
Machine weight during operation (4)	kg	2745
Maximum battery box weight (recommended)	kg	780
Sound pressure level (ISO 11201, EN 60335-2-72) (LpA)	dB (A)	-
Uncertainty, Kpa	dB (A)	-
Hand-Arm Vibration (ISO 5349-1, EN 60335-2-72)	m/s <sup>2</sup>	-
Whole-Body Vibration (ISO 2631-1, EN 60335-2-72)	m/s <sup>2</sup>	-
Vibration measurement uncertainty		1.5%

Notes:

- (1) Machine width: the width of the machine without the floor/ground squeegee mounted.
- (2) Machine weight: the total weight of the machine without the battery box, without an operator on board, and with both tanks empty.
- (3) Machine weight during travel: the total weight of the machine with the battery box fitted, without an operator on board, and with both tanks empty.
- (4) Machine weight during operation: the total weight of the machine with the battery box fitted, with the added weight 75 kg (165,35 lb) of an operator on board, with the solution tank full.



## HANDLING THE PACKED MACHINE



The total weight of the machine plus the packing materials is:

- COMBIMAC 130 = kg

The overall dimensions of the packed machine are:

**CAUTION:** keep all packing items for use in the event that the machine needs to be transported.

**CAUTION:** when handling the packed machine, always use handling trolleys that comply with legal requirements and with the dimensions and weight of the packaged item.

## HOW TO UNPACK THE MACHINE

The machine is supplied in specific packaging. To remove the machine from the packaging, proceed as follows:

1. Place the packed machine upright and in contact with the floor.

**NOTE:** use the pictographs printed on the box as a guide.

2. Remove the outer packaging.

**WARNING:** the machine is contained in specific packaging. Packaging items (plastic bags, staples, etc.) pose risks and must not be left within the reach of children or untrained persons.

**PRECAUTION:** you are advised to use appropriate PPE (personal protective equipment) for the work to be performed.

3. Place a ramp behind the machine.

**CAUTION:** the ramp must be angled so as to ensure there is no damage to the machine while being unloaded.

4. The machine is secured to the platform with wedges; remove these wedges.
5. Move the machine off the pallet using the ramp.

**PRECAUTION:** ensure no-one or nothing is near the machine during this procedure.

## HOW TO TRANSPORT THE MACHINE

To transport the machine safely, proceed as follows:

1. Make sure the hopper is empty. If it is not, empty it (see the section titled [“EMPTYING THE HOPPER”](#)).
2. Make sure the solution tank and the recovery tank are empty. If they are not, empty them (see the sections titled [“EMPTYING THE SOLUTION TANK”](#) and [“EMPTYING THE RECOVERY TANK”](#)).
3. Position the machine on the truck.

**WARNING:** complete the machine safety procedure in accordance with legal provisions in force in the country of use (e.g., 2014/47/EU) to prevent it slipping or overturning.

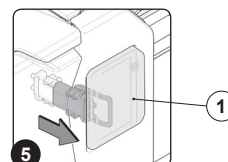
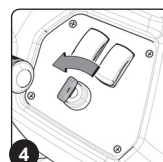
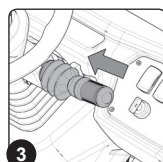
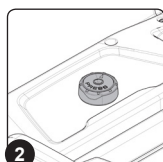
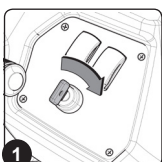
## MACHINE SAFETY

The following procedure must be completed to ensure machine safety and therefore work safety:

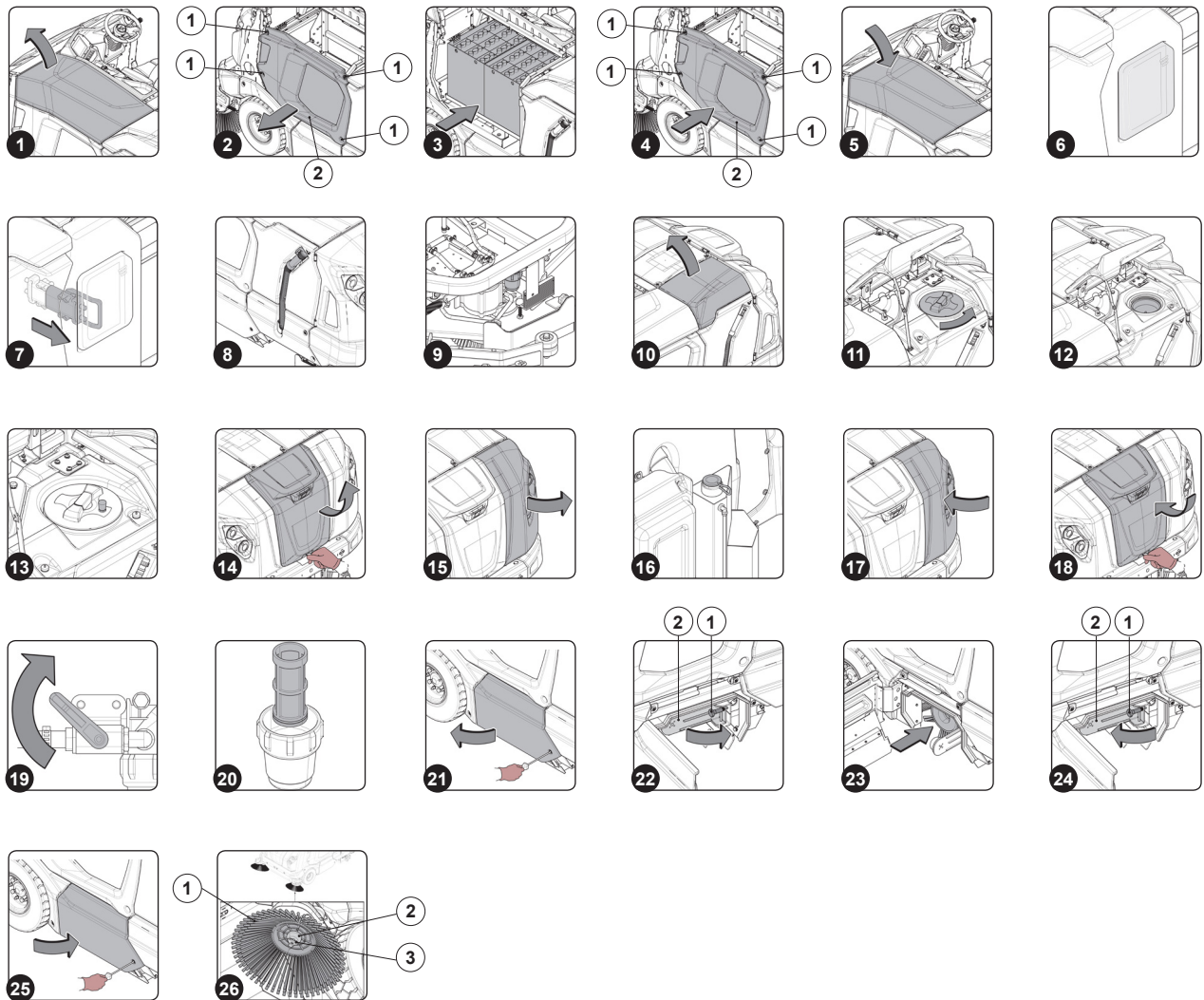
1. Make sure the hopper is empty. If it is not, empty it (see the section titled [“EMPTYING THE HOPPER”](#)).
2. Sit in the driver's seat.
3. Insert the key into the main switch on the control panel. Set the main switch in the “I” position by turning the key clockwise by a quarter turn (**Fig. 1**).
4. Using the i-drive control knob (**Fig.2**), select the “travel” mode (read the section titled [“DRIVE SELECT DIAL”](#)).

**NOTE:** this will return both the deck and the floor/ground squeegee assembly to the rest position.

5. First put the direction lever in the “neutral” position, then move it in the direction shown by the arrow (**Fig. 3**).
6. Set the main switch in the “0” position by turning the key anticlockwise by a quarter turn (**Fig. 4**). Remove the key from the main switch.
7. Open the cover (1) and disconnect the battery connector from the machine's main system connector (**Fig.5**).



## PREPARING THE MACHINE



## BATTERY TYPE

The batteries used must meet the requirements set out in the following standards: DIN/EN 60254-2 and IEC 254-2 series L.  
**For optimal performance, the machine must be powered by 36 V.** We recommend you use a 36 V 735 Ah C5 drive battery box.

## BATTERY MAINTENANCE AND DISPOSAL

For battery maintenance and charging, follow the instructions provided by the battery manufacturer.  
When batteries are spent, have them disconnected by specialist, trained personnel, then remove them from the battery compartment using suitable lifting equipment.



**NOTE:** as spent batteries are classified as hazardous waste, they must be taken to an authorised disposal centre.

## INSERTING BATTERIES INTO THE MACHINE

The batteries must be housed in the specific compartment.  
The batteries must be handled using lifting equipment that is suitable for both their weight and their fastening system.









**HAZARD:** before handling the batteries, ensure compliance with the accident-prevention regulations in force in the country where you operate or with the respective standard (DIN EN 50272-3 and DIN EN 50110-1).

**WARNING:** to prevent accidental short circuits, use insulated tools to connect the batteries and do not place or drop metal objects on the battery. Remove any rings, watches, and clothing with metal parts that could come into contact with the battery terminals.

Carry out the operations described.





**NOTE:** the equipment to use is not supplied with the machine.








-  **WARNING:** the following procedures must be performed by qualified personnel.
  -  **NOTE:** before installing the battery, clean the battery compartment. Check that the contacts on the cables supplied work properly.
  -  **WARNING:** check that the specifications of the batteries you intend to use are suitable for the work to perform. Check the battery charge level and the condition of the battery contacts.
  -  **NOTE:** when lifting and handling batteries, always use lifting and transport equipment that is suitable for their weight and size.
  -  **WARNING:** lifting hooks must not damage blocks, connectors, or cables.
  -  **NOTE:** before inserting the batteries into the machine, remember to coat the terminals with a little grease to prevent external corrosion.
1. Complete the machine safety procedure (read the section titled "[MACHINE SAFETY](#)").
  2. Open the battery compartment cover (**Fig.1**).
  3. Unscrew the screws (1) and remove the battery compartment cover (2) (**Fig.2**).
  4. Place the two battery boxes in the battery compartment, positioning the "+" and "-" pins opposite one another.
  5. Position the battery compartment cover (2) and tighten the screws (1) (**Fig.4**).
  6. Close the battery compartment cover (**Fig.5**).

## BATTERY CHARGING

The batteries must be charged before their first use and when they no longer provide sufficient power for tasks that were previously performed easily.

-  **CAUTION:** to prevent permanent damage to the batteries, it is essential to ensure they never finish their charge completely. Always put them on charge within a few minutes of the low battery warning signal appearing.
-  **CAUTION:** never leave the batteries with no charge, even when the machine is not in use.

To charge the batteries, proceed as follows:

1. Take the machine to the battery charging area.
-  **NOTE:** park the machine indoors, on a flat, smooth surface. There must be nothing near the machine that could cause damage or be damaged by contact with the machine.
  -  **WARNING:** the battery charging area must comply with the specifications of CEI EN 50272-3 or the provisions in force in the country where the machine is used.
2. Complete the machine safety procedure (read the section titled "[MACHINE SAFETY](#)").
  3. Open the cover (**Fig.6**).
  4. Disconnect the battery connector from the machine's main system connector (**Fig.7**).
-  **WARNING:** the following procedures must be performed by qualified personnel. Misconnecting the connector may cause machine malfunctions.
5. Connect the external charger battery cable connector to the battery connector.
-  **NOTE:** the connector for coupling to the battery charger is supplied in the sleeve containing this instruction manual and must be mounted on the battery charger cables as per the instructions.
  -  **PRECAUTION:** before connecting the batteries to the charger, check that the charger is suitable for the batteries in use.
  -  **PRECAUTION:** read the use and maintenance manual for the battery charger in use carefully.
  -  **PRECAUTION:** keep the battery inspection cover open throughout the entire battery charging cycle to prevent gas fumes building up.
6. Once charging is complete, disconnect the external charger cable connector from the battery connector.
  7. Connect the battery connector to the machine's main system connector.

## FILLING THE SOLUTION TANK

Before filling the solution tank, proceed as follows:

1. Take the machine to the solution tank filling area.
2. Complete the machine safety procedure (read the section titled "[MACHINE SAFETY](#)").
3. Make sure the solution tank drain cap is properly closed; if it is not, tighten it (**Fig.8**).
4. Make sure the water system filter cap (located on the RH side of the machine, at the rear) is tightly closed; if it is not, tighten it (**Fig.9**).

5. Open the detergent solution tank cover (**Fig.10**).  
There are two ways to fill the solution tank with water:


- You can either remove the cap and fill it using a hose or bucket (**Fig. 11**). Remember to check that the filter is in place on the filler neck (**Fig. 12**).
- You can remove the cap above the quick coupling (**Fig.13**). Then connect the quick coupling on the water hose to the quick coupling on the machine. Remember to remove the cap to allow proper air venting.


6. Fill with clean water at with a temperature of between 10 °C (50 °F) and 50 °C (122 °F).


### DETERGENT SOLUTION (VERSION WITHOUT CDS)

After filling the solution tank with clean water, add liquid detergent to the tank according to the concentration and the instructions on the detergent manufacturer's label.

To prevent too much foam forming (which could damage the suction motor), use the lowest detergent concentration specified.

 **PRECAUTION:** you are advised to use appropriate PPE (personal protective equipment) for the work to be performed.


 **CAUTION:** always use detergents that are stated as intended for use with floor/ground scrubbers on the manufacturer's label. Do not use acidic, alkaline products, or solvents that are not stated as suitable for this use.

 **NOTE:** always use low-foam detergent. To be certain to prevent overfoaming, add a small amount of defoamer to the recovery tank before starting work. Do not use neat acids.


### FILLING THE DETERGENT TANK (CDS VERSION)


After filling the solution tank with clean water, proceed as follows:


1. Take the machine to the solution tank filling area.
2. Complete the machine safety procedure (read the section titled "[MACHINE SAFETY](#)").

 **PRECAUTION:** you are advised to use appropriate PPE (personal protective equipment) for the work to be performed.

3. Open the cover (**Fig.14**).
4. Open the cover (**Fig.15**).
5. Open the cap and fill with the desired detergent (**Fig.16**)

 **CAUTION:** always use detergents that are stated as intended for use with floor/ground scrubbers on the manufacturer's label. Do not use acidic, alkaline products, or solvents that are not stated as suitable for this use.

 **CAUTION:** the metering system is particularly useful for frequent maintenance cleaning. Either acidic or alkaline maintenance detergents can be used provided that they have a pH of between 4 and 10 and do not contain: oxidising agents, chlorine or bromine, formaldehyde, or mineral solvents. The detergents used must be suitable for floor scrubbers. If the system is not used daily, flush the circuit with water after use. The system can be disabled. If detergents with a pH of between 1-3 and 11-14 are used occasionally, use the scrubber in the conventional way, i.e. by adding the detergent to the clean water tank and disabling the metering circuit.


 **CAUTION:** always use low-foam detergent. To be certain to prevent overfoaming, add a small amount of defoamer to the recovery tank before starting work. Do not use neat acids.

6. Make sure the cap is fitted back on securely to prevent liquid leaking out during operation.
7. Close the cover (**Fig.17**).
8. Close the cover (**Fig.18**).

### FITTING THE WATER SYSTEM FILTER

Before using the machine for the first time, the water system filter must be re-assembled. For shipping purposes, the system is supplied with the filter cartridge and cap removed. To insert the filter cartridge into the water system filter body, proceed as follows:

1. Take the machine to the maintenance area.
2. Complete the machine safety procedure (read the section titled "[MACHINE SAFETY](#)").

 **PRECAUTION:** you are advised to use appropriate PPE (personal protective equipment) for the work to be performed.

3. Turn off the tap to stop the outlet flow and turn the lever (**Fig.19**) upwards.
4. Insert the filter cartridge into the seat in the cap (**Fig. 20**).

 **NOTE:** the O-ring on the filter cartridge must be positioned in the respective seat in the cap.

5. Screw the cap onto the detergent solution filter body (**Fig. 9**).

### FITTING THE SWEEPING DECK BRUSH AND THE SIDE BRUSHES

To fit the brush on to the deck, proceed as follows:

1. Take the machine to the maintenance area.

2. Complete the machine safety procedure (read the section titled "[MACHINE SAFETY](#)").

**⚠ PRECAUTION:** you are advised to use appropriate PPE (personal protective equipment) for the work to be performed.

3. Standing facing the left-hand side of the machine, open the casing (**Fig.21**).
4. Unscrew the knob (1) and pull out the retainer (2) (**Fig.22**).
5. Insert the brush into the sweeping deck until it locks onto the motor shaft (**Fig.23**).
6. Push in the retainer (2) and tighten the knob (1) (**Fig.24**).
7. Close the casing (**Fig.25**).

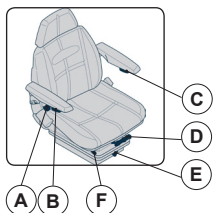
To fit the side brushes, proceed as described below.

8. Position and prop up the brush (1) - together with the washer (2) - on the brush support.
9. Tighten the knob (**Fig.26**).

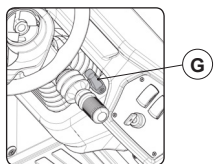
## ADJUSTING THE DRIVER'S SEAT

An incorrect posture while working will tire the operator and may result in poor machine use.

- i NOTE:** adjust the distance so that, when you fully press the pedals, your knees remain slightly bent (approximately 120°).
- i NOTE:** adjust the distance of the seat so that you can press the brake pedal fully in this position.  
This procedure must be carried out with the engine running, to pressurise the braking system.
- i NOTE:** if your knees are not bent enough, you are too far from the steering wheel; if they are bent by almost 90°, you are too close to the steering wheel.
- i NOTE:** position your feet with your heels on the footrest; the ball of your foot should be pressing on the pedals.
- i NOTE:** the ideal driving position is one that allows you to grip the steering wheel correctly, with your palms slightly lower than your shoulders. Holding the steering wheel firmly, your elbows should be bent at approximately 120°. Position yourself so that there is least 30 cm or 11.81" between the centre of the steering wheel and your sternum. In any case, this distance should not exceed 45 cm or 17.72".
- i NOTE:** the ideal headrest position is one where the top edge of the headrest is level with - or preferably even higher than - your head.



- A) Lever:** it is used to tilt the backrest.
- B) Wheel:** this is used to adjust the left armrest position.
- C) Wheel:** this is used to adjust the right armrest position.
- D) Lever:** this is used to position the seat lengthways.
- E) Knob:** this is used to raise and lower the seat.
- F) Knob:** this is used to adjust suspension firmness according to the operator's weight.



- G) Lever:** used to adjust the angle of the steering wheel.

## PREPARING FOR WORK

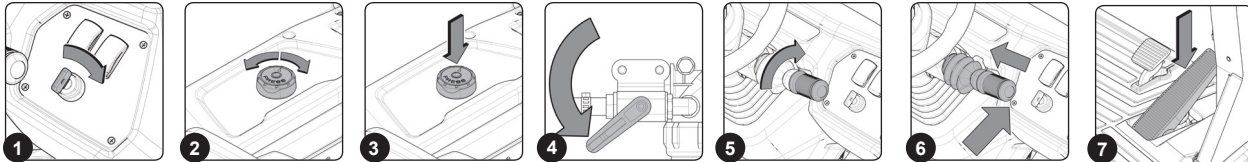
Before starting work, you must take the following action:

1. Check whether the recovery tank is empty and if it is not, empty it (see the section titled "[EMPTYING THE RECOVERY TANK](#)").
2. Check whether the amount of detergent solution in the solution tank is suitable for the type of work you wish to perform. If not, refill the solution tank (for versions without the CDS, read the sections titled "[FILLING THE SOLUTION TANK](#)" and "[DETERGENT SOLUTION FOR VERSION WITHOUT CDS](#)"; for versions with the CDS, read the sections titled "[FILLING THE SOLUTION TANK](#)" and "[FILLING THE DETERGENT TANK \(CDS VERSION\)](#)").
3. Check whether the rubber floor/ground squeegees are in good condition and fit for the job. If they are not, arrange for their maintenance (read the section "[REPLACING THE RUBBER BLADES ON THE FLOOR/GROUND SQUEEGEE ASSEMBLY](#)").
4. Check whether the rubber splash guards on the scrubbing deck are in good condition and fit for the job and if they not, service them (see the section titled "[REPLACING THE SCRUBBING DECK SPLASH GUARDS](#)").



5. Check whether the splash guards on the sweeping deck are in good condition and fit for the job. If they are not, arrange for their maintenance.
6. Check whether the brushes are in good condition and if they are not, service them (see the section titled [“REPLACING THE SCRUBBING DECK BRUSHES”](#)).
7. Check whether the sweeping deck brushes and the side brushes are in good condition and fit for the job. If they are not, arrange for their maintenance (see the section titled [“REPLACING THE SWEEPING DECK BRUSHES AND THE SIDE BRUSHES”](#)).
8. Make sure the hopper is empty. If it is not, empty it (see the section titled [“EMPTYING THE HOPPER”](#)).
9. Check whether the batteries are fully charged and if they are not, charge them (see the section titled [“BATTERY CHARGING”](#)).
10. Check whether the suction filter is clean and if it is not, clean it (see the section titled [“CLEANING THE SUCTION FILTER”](#)).

## WORK MODES



There are three work modes available, which can be selected on the control panel. Economy mode This is recommended for cleaning tasks that are primarily maintenance-related and do not require particular cleaning power.

- Standard mode: this is recommended when greater cleaning power is needed for moderately dirty surfaces.
  - Plus mode: this is recommended when greater cleaning power is needed, to tackle stubborn, stuck-on dirt.
- The choice depends on the type of work to be performed and the type of dirt.

**NOTE:** the information above notes is provided for illustrative purposes only.

**NOTE:** to switch on the desired mode, press the corresponding button. Once the button is pressed, the mode is selected (shown by a filled-in symbol).

1. Complete all the checks listed in the [“PREPARING FOR WORK”](#) section.
2. Sit in the driver's seat.
3. Insert the key into the main switch on the control panel. Set the main switch in the “I” position by turning the key clockwise by a quarter turn (Fig. 1).

**NOTE:** as soon as the machine is turned on, the control board runs a diagnostics session. If the diagnostics complete successfully, a clearance signal will sound to show that work can be started.

4. Turn the knob and select the desired work mode (read the section titled [“DRIVE SELECT DIAL”](#)) (Fig. 2).
5. Turn on the flow of detergent solution into the machine's water system by turning the tap control lever in the direction shown by the arrow (Fig. 4).
6. Select the speed (e.g., “step-01”), then turn the knob on the direction selection lever (located under the steering wheel, Fig.5).

**NOTE:** adjust the forward travel speed according to the grip on the ground/floor.

7. Select the desired machine travel direction; for example, if you want to move forwards, move the direction selection lever in the direction shown by the arrow (Fig. 6).

**NOTE:** to select forward travel (F) speed, you have to pull the lever upwards first, then move it in the direction shown by the arrow (Fig. 6).

8. Pressing the forward pedal will start the machine moving (Fig. 7).

If the selected work mode is “WASHING WITH DRYING,” the floor/ground squeegee and deck will lower until they are touching the floor/ground. As soon as the forward pedal is pressed, the drive motor, the deck motor, and the suction motor will start, and consequently so will the solenoid valve, and the detergent solution will be applied to the brushes.






During the first few metres of operation, check that the solution applied is enough and that the floor/ground squeegee is completely dry. The machine will now operate at full efficiency until the cleaning solution finishes or the batteries have no charge left.

**NOTE:** before cleaning, pick up any large waste. Also pick up any pieces of thread, ribbon, or string, any large pieces of wood, and other rubbish that could get wrapped around or tangled up in the brushes. Drive the machine in as straight a line as possible. Do not hit obstacles or scratch the sides of the machine. Make sure the cleaning paths overlap by several centimetres. Do not turn the steering wheel too sharply when the machine is in motion. The machine responds to input from the steering wheel quickly. Do not make sudden turns (except in an emergency). Adjust the machine speed, brush pressure, and solution flow rate according to the type of cleaning required. Drive the machine slowly on sloping surfaces. Use the brake pedal to control the machine's speed when moving downhill. On sloping surfaces, move uphill to clean rather than downhill.

**CAUTION:** when working, slow down on ramps and slippery surfaces.  
Do not use the machine in areas with an ambient temperature above 43 °C or 110 °F  
Do not use the scrubbing functions in areas where the ambient temperature is below freezing 0 °C (32 °F).

## DRIVE SELECT DIAL

The selector can be used to switch on the following work modes.

	<b>Sweeping:</b> only the sweeping system is in use.
	<b>Combined:</b> the sweeping system is in use together with the scrubbing deck brushes and the floor/ground squeegee.
	<b>Washing with drying:</b> both the brushes and the floor/ground squeegee are in use.
	<b>Sweeping with scrubbing:</b> the sweeping system is in use together with the scrubbing deck brushes.
	<b>Drying:</b> only the floor/ground squeegee is in use.

To switch on a work mode, proceed as described below:

1. Turn the selector to the desired work mode (**Fig.2**).
2. Press the selector to switch on the selected work mode (**Fig.3**).

**NOTE:** if no work mode is switched on, the machine is in drive mode.

**NOTE:** when a work mode signal light appears on the control panel, it means the corresponding mode is switched on.

**CAUTION:** if you wish to switch from a scrubbing work mode (either scrubbing only or washing with drying) to drive mode, always remember to switch on the vacuum for as long as is necessary to vacuum up the detergent solution.





## HOUR METER



On the machine control panel display, in the lower right-hand corner of the workspace screen, there is a box that shows the partial machine operation time (1).

The numbers before the "." symbol are hours, while the numbers after it are minutes.

The (2) symbol shows which actuator is associated with the hour counter. Pressing the symbol (2) opens a pop-up window that allows you to select which partial runtime counter to display. You can choose between:

	Main switch.
	Drive motor.
	Brush motor.
	Suction motor.

## BATTERY CHARGE LEVEL INDICATOR



On the machine's control panel display, in the workspace screen, there is a battery charge level symbol.

The symbol is divided into three different coloured sectors:

1. Numerical value (1): the number displayed (0 ÷ 100) is the remaining battery charge (percentage).
2. Indicator: the remaining battery charge (percentage).

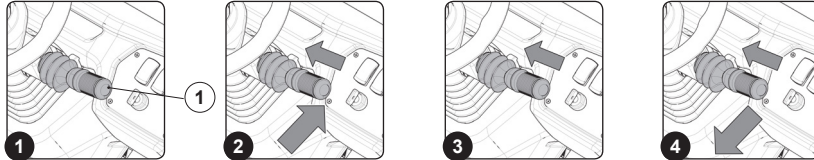
**CAUTION:** as soon as the battery charge level reaches 20 %, the deck motors will turn off, and the suction motor will keep running for a short time. The remaining charge can be used to drive the machine to the battery charging area.

**NOTE:** as soon as the battery charge level reaches 10%, a pop-up window will appear in the centre of the display, warning that the battery has reached a critical charge level.

## SELECTING THE TRAVEL DIRECTION

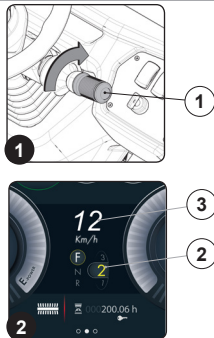
The vehicle has a lever-based direction selection system; the travel control lever (1) is located under the steering wheel (Fig. 1).

- i NOTE:** to select forward travel, you have to pull the lever upwards first, then move it in the direction shown by the arrow (Fig. 2).
- i NOTE:** to switch from forward travel to neutral, simply move the lever in the direction shown by the arrow (Fig. 3).
- i CAUTION:** to select reverse, you have to pull the lever upwards first, then move it in the direction shown by the arrow (Fig. 4). When reverse is engaged, if the travel pedal is pressed, a signal will sound and the white rear lights will turn on.



- ⚠ PRECAUTION:** in compliance with applicable workplace safety regulations, the reverse speed is much lower than the forward travel speed.
- i NOTE:** to disengage reverse mode, move the lever (1) under the steering wheel again (Fig. 1).
- i NOTE:** as soon as the lever (1) is moved to the reverse position, the beeper will sound to signal that the reverse mode is engaged.
- i NOTE:** if you engage the reverse mode when the floor/ground squeegee is in the operating position, as soon as you press the travel pedal, the machine will start to reverse and the floor/ground squeegee assembly will rise, returning to the rest position.
- i NOTE:** if you engage the reverse mode when the deck is in the working position, as soon as you press the travel pedal, the machine will start to reverse and the deck will remain in the operating position, but the solenoid valve will stop applying cleaning solution to the brushes.
- i NOTE:** if you engage the reverse mode with the optional camera featured, the camera images will be displayed full-screen.

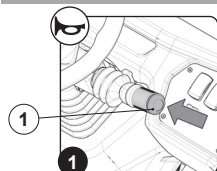
## ADJUSTING THE TRAVEL SPEED



To adjust the travel speed, use the knob (1) on the travel control lever (Fig. 1).

- i NOTE:** there are three forward travel speeds available and the speed selected is shown on the control panel by the indicator (2) (Fig. 2). The forward travel speed selected lights up yellow.
- i NOTE:** the field (3) displays the current machine speed, stated in km/hour (Fig. 2).
- ⚠ PRECAUTION:** adjust the forward travel speed according to the grip on the ground/floor.

## HORN



The machine is equipped with a horn; if you need to sound the horn, simply press the button (1) on the travel control lever (Fig. 1).



## ADJUSTING THE WORK PARAMETERS (IN MANUAL OPERATION MODE)



If you need to adjust the flow of detergent solution to the brushes during operation, simply press the symbol (1) on the control panel display (Fig. 1).

- NOTE:** pressing the symbol (1) activates the screen for adjusting the detergent solution flow rate (Fig. 2).
- NOTE:** moving the symbol (2) on the adjustment screen upwards will increase the flow of detergent solution to the brushes (Fig. 2).
- NOTE:** moving the symbol (2) on the adjustment screen downwards will decrease the flow of detergent solution to the brushes (Fig. 2).
- NOTE:** once the minimum level is reached, if you move the symbol (2) further downwards, to OFF, the detergent solution flow to the brushes is stopped.
- NOTE:** the number (3) is the delivery flow rate shown as a percentage of the maximum flow rate of the pump in the machine's water system (Fig. 2).
- NOTE:** the amount of detergent solution delivered must be set according to the type of floor or ground and the amount and type of dirt to clean.

If you need to adjust suction motor performance during operation, simply press the symbol (4) on the control panel display (Fig. 1).

- NOTE:** pressing the symbol (4) opens the suction motor performance adjustment screen (Fig. 3).
- NOTE:** moving the symbol (5) on the adjustment screen upwards increases the suction motor performance (Fig. 3).
- NOTE:** moving the symbol (5) on the adjustment screen downwards decreases the suction motor performance (Fig. 3).
- NOTE:** the number (6) is the suction motor performance shown as a percentage of the maximum speed (rpm) the motor can reach during operation (Fig. 3).
- NOTE:** in this screen, you can switch off the suction feature.
- NOTE:** to switch off the suction feature, the machine must be in washing with drying mode. Move the symbol (7) to the OFF position to switch off the suction (Fig. 3).

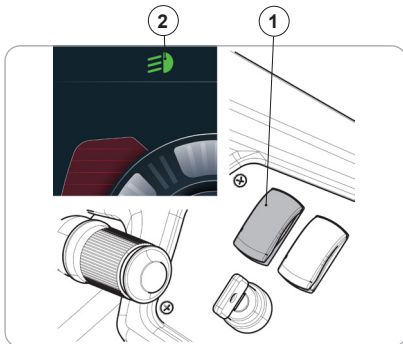
If you need to adjust the weight applied to the scrubbing deck during operation, simply press the symbol (7) on the control panel display (Fig. 1).

- NOTE:** pressing the symbol (8) switches on the screen for adjusting the weight applied to the scrubbing deck (Fig. 4).

- i NOTE:** moving the symbol (9) in the adjustment screen upwards increases the weight applied to the scrubbing deck (**Fig. 4**).
- i NOTE:** moving the symbol (9) in the adjustment screen downwards decreases the weight applied to the scrubbing deck (**Fig. 4**).
- i NOTE:** the number (10) is the weight applied to the deck as a percentage of the maximum weight that can be applied during operation (**Fig. 4**).



**CAUTION:** to prevent manual adjustment of the work parameters, switch off the "MANUAL MODE" (see the relative section in the programming handbook included with the machine).



## WORK LIGHTS

The machine is equipped with front and rear work lights. Press the switch (1) to turn on the work lights.

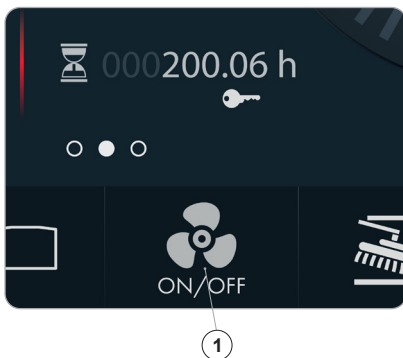
- i NOTE:** if this feature is switched on, the work light on symbol (2) appears on the control panel.
- i NOTE:** the parking lights switch on automatically when the machine is turned on.
- i NOTE:** press the switch (1) to turn off the work lamps.



## AUTOMATIC DETERGENT METERING SYSTEM

If you need to switch on the "AUTOMATIC DETERGENT METERING SYSTEM" during operation, press the scrubbing deck movement button (1) on the control terminal.

- i NOTE:** the CDS system switches on automatically when the electric pump in the machine's water system is switched on.
- i NOTE:** to switch off the CDS system, press the button (3) again.
- i NOTE:** before starting work, remember to switch on the CDS system.



## SWEEPING DECK ACTIVATION

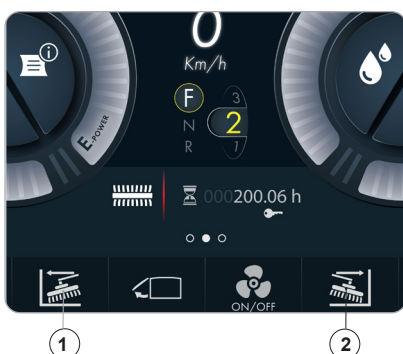
The sweeping deck can be operated in various work modes.

- Sweeping
- Combined
- Sweeping with scrubbing

When the sweeping system is switched on, the suction filter fan also switches on automatically.

- i NOTE:** when sweeping wet ground or if there is any water present, switch off the fan so that the suction filter does not get wet and dirty.

Press the button (1) to switch off the fan.



## SIDE BRUSH ACTIVATION

The side brushes only switch on if the sweeping system is on.

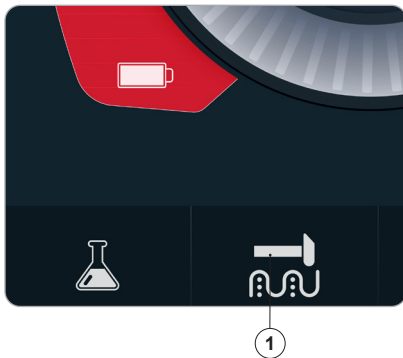
The side brushes can also be switched on separately.

Press the button (1) to switch on the LH brush.

Press the button (2) to switch on the RH brush.

- i NOTE:** re-press the button (1) and the button (2) to switch off the side brushes.
- i NOTE:** if the sweeping system is switched off, the side brushes also switch off automatically.

## SWITCHING ON THE FILTER SHAKER MANUALLY



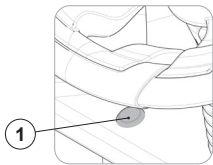
The filter shaker switches on automatically for a few seconds every time the sweeping system is switched off.

If necessary, the filter shaker can be switched on manually.

Press the button (1) to switch on the filter shaker.

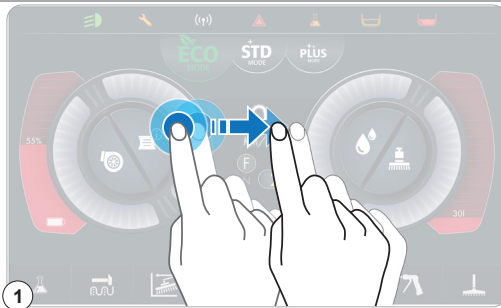
**i NOTE:** the filter shaker remains active for a few seconds, then switches off automatically.

## COURTESY LIGHTS (OPTIONAL)



The machine can be equipped with courtesy lights to increase the visibility of parts that may require inspection by the operator. To switch on these lights, simply press the switch (1) on the steering column (Fig. 1).

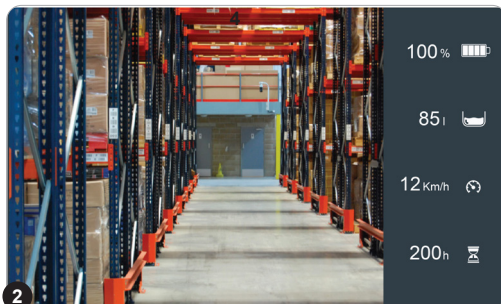
## REAR-VIEW CAMERA



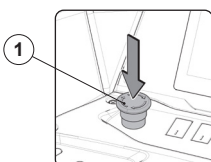
The machine can be equipped with an optional rear-view camera that allows you to view the condition of the floor or ground just driven over. It also facilitates reversing by showing obstacles during manoeuvring.

If you need to see the floor or ground that you have just washed, place one finger anywhere on the screen and then move it from left to right (Fig. 1). This starts the camera images showing, while the basic machine parameters remain visible on the right-hand side of the display.

**i NOTE:** the machine has a lever-operated forwards/reverse travel selection system. When reverse mode is engaged (see the "DIRECTION SELECTION" section for instructions on how to engage it), the camera images appear on the control panel display, while the basic machine parameters are still visible on the right-hand side of the display (Fig. 2).



## BATTERY DISCONNECT BUTTON



If any serious safety issues occur during operation, press the battery disconnect button (1).

**⚠ PRECAUTION:** this control disconnects the electrical circuit connecting the batteries to the appliance.

**i NOTE:** once you have stopped and resolved the problem, to resume work, switch off the machine and turn the button (1) as shown by the arrows on it.

## ANTI-COLLISION SYSTEM

Upon request, the machine can be equipped with an anti-collision system.

**⚠ PRECAUTION:** anti-collision systems detect the presence of obstacles or other approaching vehicles.

The machine has an ultrasound sensor mounted on the rear that continuously emits pulses, which rebound off the obstacles they encounter and return to the sensor.

Dedicated software uses the vehicle's speed and distance from the obstacle to determine whether it could pose a risk and - in the event - activates an alarm that increases in volume as it gets closer.



**i NOTE:** if the vehicle has a built-in rear-view camera, when the reverse travel mode is engaged, the camera images are automatically shown on the control panel display, and a stylised outline of the vehicle can be seen on the right-hand side of the display.

**i NOTE:** at the bottom of the outline, three curved lines (1) show how close the object is to the vehicle. Each curved line stands for a distance of approximately 50 cm (19.69 ").

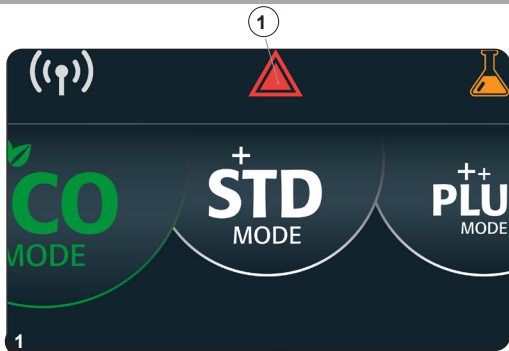
**i NOTE:** an orange line means the obstacle is within this distance. A grey line means there are no obstacles within this distance.

**i NOTE:** if the anti-collision system is active (set to "ON"), pressing the button (2) will temporarily switch on the "SLOWDOWN" feature. This feature automatically starts to slow down the machine when a set distance is reached.

**i NOTE:** if the anti-collision system is on (with the "SLOWDOWN" feature enabled), pressing the button (2) will temporarily switch off the "SLOWDOWN" feature. However, the nearby obstacle warning feature remains active.

**i NOTE:** if the button (2) is orange, it means that the "SLOWDOWN" feature is switched on, while if the button (2) is grey, it means the "SLOWDOWN" feature is switched off.

## ALARM SCREEN



For the bright versions, when an error occurs, the symbol (1) appears in the information field on the control panel display and remains visible until the error is resolved (**Fig. 1**).

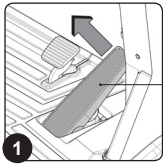
An "ERROR" pop-up (**Fig.2**) will also appear in front of the workspace screen, in overlay. The pop-up message contains the alarm number (2), the unit concerned, and a brief description (3).

Alarms can be broken down into the following macro groups:

- **Lock:** if this kind of error pop-up appears on the control panel display, simply tap any part of the touchscreen to return to the previous screen. This does not clear the error (the error will remain active and the symbol (1) will remain visible in the information field). The error can only be cleared by turning the machine off then restarting it.
- **Auto reset:** if this kind of error pop-up appears on the control panel display, to go back to the previous screen, simply resolve the cause of the error (for example, if the travel pedal is held down while turning the machine on, the "ALARM: 104 TRAVEL PEDAL PRESSED" screen will appear on the control panel display. In this case, simply release the travel pedal to clear the alarm screen).

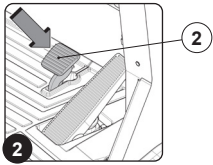
**i NOTE:** in the workspace screen, pressing the symbol (1), if visible, recalls the last "ERROR" pop-up displayed.

## BRAKING CONTROL

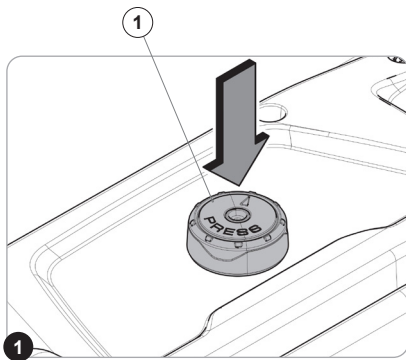


The machine is equipped with a mechanical brake and a brake encoder..

- If the machine is in motion and the accelerator pedal (1) is released (**Fig.1**), the machine brakes gradually until the encoder detects that the motion has stopped. The electric brake only engages when the encoder detects that the motion has stopped.
- If the machine is in motion and the brake pedal (2) is pressed (**Fig.2**), the machine's deceleration depends on the braking force of the mechanical system. The electric brake only engages when the encoder detects that the motion has stopped.



**⚠ PRECAUTION:** the electric brake is a parking brake only.



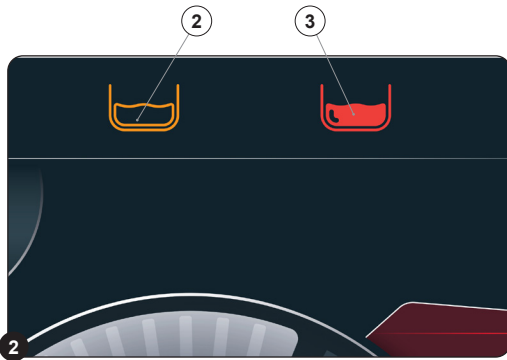
## LOW SOLUTION LEVEL IN TANK

The machine is equipped with an electronic device (a float located inside the solution tank) that switches on the 'solution tank float' signal light (2) on the control panel (**Fig.2**) when the detergent tank is empty.

In this case, proceed as follows:

1. Press the "DRIVE SELECT" dial (1) to set the drive mode (**Fig.1**).
2. Take the machine to the maintenance area and fill the solution tank with detergent (read the section titled ["FILLING THE SOLUTION TANK"](#)).

**⚠ CAUTION:** it is good practice to empty the recovery tank (using the drain hose) whenever the solution tank level is filled up.



## LOW DETERGENT LEVEL IN TANK

The machine is equipped with an electronic device (a float located inside the detergent tank) that switches on the 'detergent tank float' signal light (3) on the control panel (**Fig.2**) when the detergent tank is empty.

In this case, proceed as follows:

1. Press the "DRIVE SELECT" dial (1) to set the drive mode (**Fig.2**).
2. Take the machine to the maintenance area and fill the detergent tank with the chemical required (read the section titled ["FILLING THE DETERGENT TANK \(CDS VERSION\)"](#)).

## WET VACUUM WAND KIT (OPTIONAL)

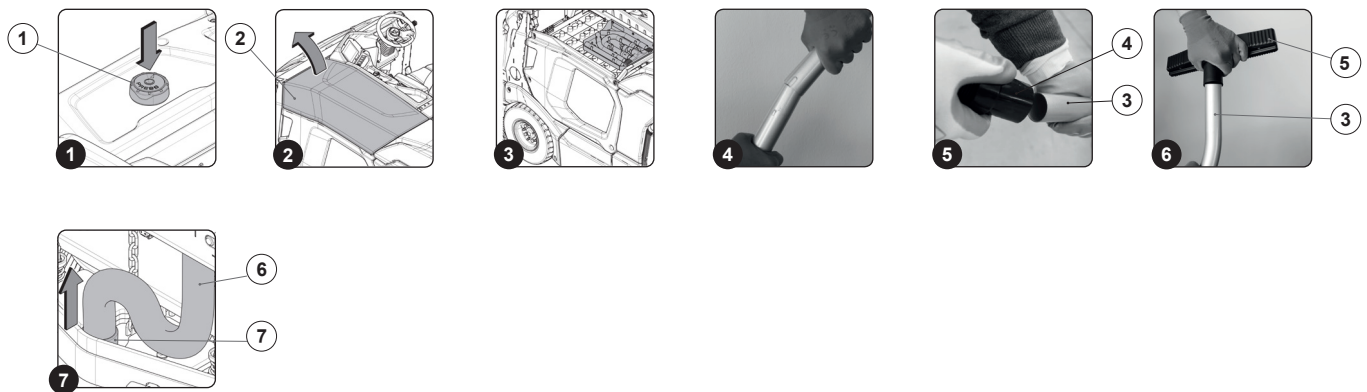
Upon request, the machine can be supplied with the WET VACUUM WAND system, which allows greater precision when vacuuming the cleaning solution applied earlier.

To switch it on, proceed as follows.

1. Press the "DRIVE SELECT" dial (1) to set the drive mode (**Fig.1**).
2. Open the battery compartment cover (2) (**Fig.2**).
3. Remove all the wet vacuum wand kit (**Fig.3**) components.
4. Fit the steel extension pipe (**Fig. 4**).
5. Connect the suction hose (4) to the extension pipe (3) (**Fig. 5**).
6. Insert the vacuum brush (5) into the extension pipe (3) (**Fig. 6**).

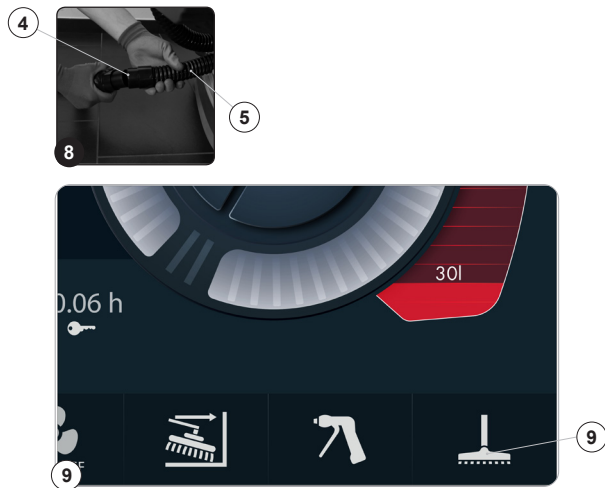


7. Remove the suction hose (6) from the sleeve (7) on the floor/ground squeegee assembly (Fig. 7).



8. Connect the suction hose from the wet vacuum wand kit (4) to the floor/ground squeegee suction hose (5) (Fig. 7).

9. Press the button (9) on the control panel to switch on the wet vacuum wand kit (Fig. 9).



**i** **NOTE:** as soon as you press the button (9), the suction motor will start and you can begin drying.

**i** **NOTE:** re-press the button (9) to switch off the wet vacuum wand kit.

**⚠** **WARNING:** never vacuum solid waste such as dust and powder, cigarette butts, paper, etc.

**⚠** **PRECAUTION:** never vacuum explosive or flammable gases, liquids, or dusts, or any acids or solvents. These include petrol, paint and varnish thinners, and fuel oil, which can form explosive vapours or mixtures when mixed with the intake air. Other substances include acetone, undiluted acids and solvents, and aluminium and magnesium dust/powder. These substances can also corrode the machine's structural materials.

**⚠** **PRECAUTION:** when using the machine in hazardous areas (e.g., fuel stations), always comply with applicable safety regulations. The machine must not be used in potentially explosive environments.

10. Once you have finished, disassemble the kit and return to its storage place.

## TANK CLEANING KIT (OPTIONAL)

Upon request, the machine can be equipped with a SPRAY GUN system. To switch the system on, proceed as follows.

**⚠** **PRECAUTION:** you are advised to use appropriate PPE (personal protective equipment) for the work to be performed.

1. Press the "DRIVE SELECT" dial (1) to set the drive mode (Fig.1).
2. Open the cover (2) (Fig.2).
3. Unhook the tank cleaning gun (3) - it is located at the rear of the machine (Fig.3).
4. Press the button (4) on the control panel to switch on the tank cleaning gun (Fig.4).

**i** **NOTE:** re-press the button (4) to switch off the tank cleaning gun.

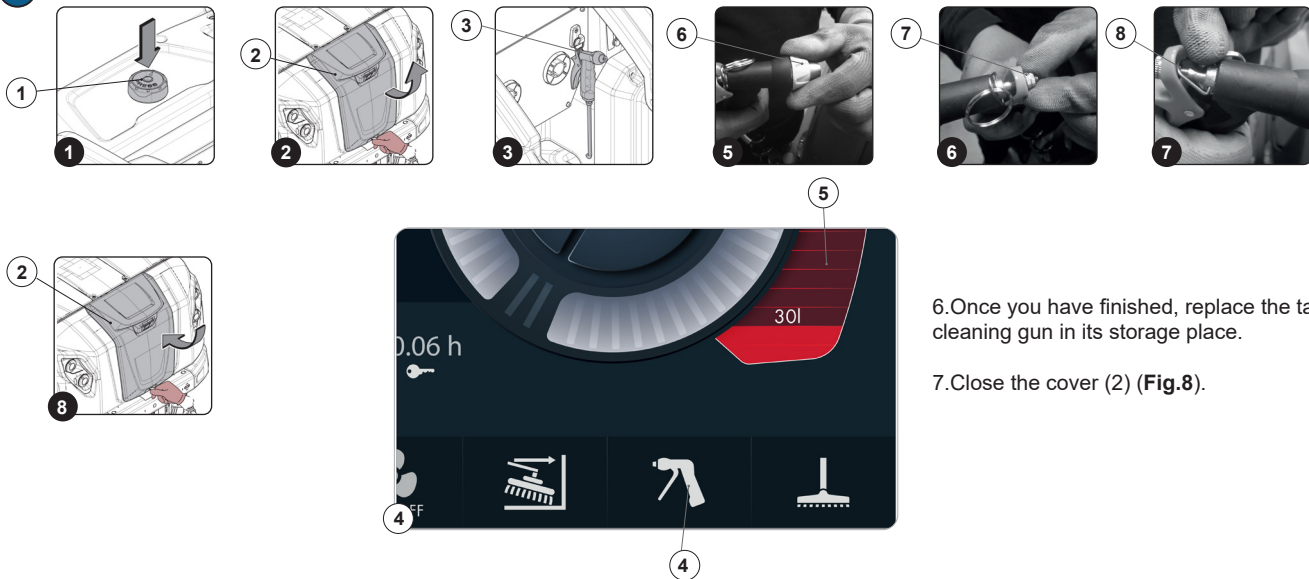
**i** **NOTE:** before activating the optional tank cleaning gun, check the solution level (Fig.4) using the level gauge (5) on the control panel.

5. Switch on the solution jet by squeezing the lever on the tank cleaning gun, making sure the gun is facing the desired direction.

**i** **NOTE:** to adjust the jet of solution delivered by the tank cleaning gun, use the knob (6) on the gun (Fig. 5).

**i** **NOTE:** to adjust the strength of the jet of solution delivered by the tank cleaning gun, use the knob (7) on the gun (Fig. 6).

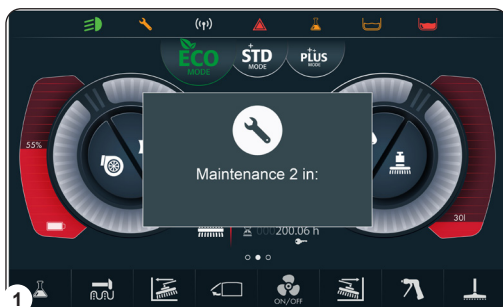
**NOTE:** to stop the solution jet, release the lever (8) on the tank cleaning gun (Fig. 7).



6. Once you have finished, replace the tank cleaning gun in its storage place.

7. Close the cover (2) (Fig. 8).

## PERIODIC MAINTENANCE FEATURE



If the "PERIODIC MAINTENANCE" feature is activated, you can set cyclical maintenance sessions and receive alerts before the set interval and once the interval has lapsed.

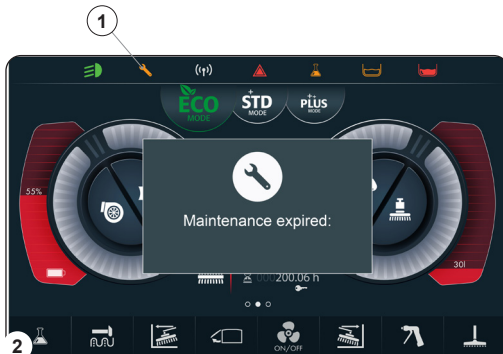
To switch on this feature, please call your local dealer.

**NOTE:** routine maintenance is necessary to ensure the machine is always ready to operate efficiently. The most important periodic checks are essential in order to monitor the machine's condition and confirm that all components work well together for optimal performance. This maintenance must not be overlooked and is also important to avoid incurring fines or forfeiting the manufacturer's warranty. In general, proper maintenance helps keep machine productivity, efficiency, and workplace safety levels high and is beneficial because it increases the machine's working life.

**NOTE:** shortly before the maintenance deadline, when you turn on the machine, a pop-up window will appear to notify you that maintenance is due (Fig. 1).

**NOTE:** after the maintenance deadline, when you turn on the machine, a pop-up window will appear to notify you that the deadline has passed (Fig. 2). The symbol (1) will also appear in the top bar of the display to show that the operator should contact your local dealer to have the scheduled maintenance carried out.

**NOTE:** the symbol (1) can only be cleared by the local dealer's service department (once the maintenance has been completed).



## END-OF-SHIFT ACTION

After completing work and before any maintenance is carried out, proceed as follows:

1. Press the "DRIVE SELECT" dial to set the machine to drive mode.
2. Make sure all work systems are in the resting position.
3. Take the machine to the wastewater disposal area and drain the recovery tank (read the section titled "[EMPTYING THE RECOVERY TANK](#)").
4. Take the machine to the waste disposal area and empty the hopper (read the section titled "[EMPTYING THE HOPPER](#)").
5. Carry out all the procedures listed in the "[RECOMMENDED MAINTENANCE](#)" section, in the section titled "DAILY; PRIOR TO A LONG PERIOD OF DISUSE".
6. Once the maintenance has been completed, take the machine to the storage area.

**CAUTION:** park the machine indoors, on a flat surface. There must be nothing nearby that could cause damage to or be damaged by contact with the appliance.

7. Complete the machine safety procedure (read the section titled "[MACHINE SAFETY](#)").

## RECOMMENDED MAINTENANCE TASKS

INTERVAL	MACHINE COMPONENTS	PROCEDURE
DAILY; PRIOR TO A LONG PERIOD OF DISUSE	Floor/ground squeegee	Clean the suction chamber, the rubber floor/ground squeegees, and the suction port (read the section titled " <a href="#">CLEANING THE FLOOR/GROUND SQUEEGEE ASSEMBLY</a> ").
	Rubber splash guards on the side of the scrubbing deck	Clean the rubber splash guards on the side of the floor/ground squeegee assembly (read the section titled " <a href="#">CLEANING THE RUBBER SPLASH GUARDS ON THE SIDE OF THE SCRUBBING DECK</a> ").
	Scrubbing deck brushes	Clean the scrubbing deck brushes (read the section titled " <a href="#">CLEANING THE SCRUBBING DECK BRUSHES</a> ").
	Recovery tank	Empty the recovery tank at the end of each workday (read the section titled " <a href="#">EMPTYING THE RECOVERY TANK</a> ").
		At the end of each workday, after emptying the recovery tank, clean the suction system filters (read the section titled " <a href="#">CLEANING THE RECOVERY TANK FILTERS</a> ").
	Solution tank	Empty the solution tank at the end of each workday (read the section titled " <a href="#">EMPTYING THE SOLUTION TANK</a> ").
	Sweeping deck brushes and side brushes	Clean the brushes inside the sweeping deck and the side brushes (read the section titled " <a href="#">CLEANING THE SWEEPING DECK BRUSHES AND THE SIDE BRUSHES</a> ").
WEEKLY	Hopper	Empty the hopper at the end of each workday (read the section titled " <a href="#">EMPTYING THE HOPPER</a> ").
	Machine's water system	Clean the machine's water system filter (read the section titled " <a href="#">CLEANING THE WATER SYSTEM FILTER</a> ").
	Rubber blades on the floor/ground squeegee assembly	Check the rubber blades on the floor/ground squeegee assembly for wear and to ensure they are in good condition, replacing them if necessary (read the section titled " <a href="#">REPLACING THE RUBBER BLADES ON THE FLOOR/GROUND SQUEEGEE ASSEMBLY</a> ").
	Rubber side splash guards on sweeping deck	Check whether the rubber splash guards on the sweeping deck are in good condition and fit for the job. If they are not, arrange for their maintenance (see the section titled " <a href="#">REPLACING THE RUBBER SPLASH GUARDS ON THE SWEEPING DECK</a> ").
MONTHLY	Sweeping deck brushes and side brushes	Check the sweeping deck brushes and the side brushes for wear and tear, replacing them if necessary (read the section titled " <a href="#">REPLACING THE SWEEPING DECK BRUSHES AND THE SIDE BRUSHES</a> ").
	Levelling the rubber blades on the floor/ground squeegee assembly	Check that the blades on the floor/ground squeegee assembly are properly levelled and adjust if necessary (read the section titled " <a href="#">ADJUSTING THE RUBBER BLADES ON THE FLOOR/GROUND SQUEEGEES</a> ").
	Levelling the sweeping deck splash guards	Check that the sweeping deck splash guards are properly levelled and adjust if necessary (read the section titled " <a href="#">ADJUSTING THE SIDE SPLASH GUARDS ON THE SWEEPING DECK</a> ").

Before carrying out any routine or special maintenance, proceed as follows:

1. Take the machine to the maintenance area.



**NOTE:** the area designated for this procedure must comply with applicable environmental legislation.

2. Complete the machine safety procedure (read the section titled "[MACHINE SAFETY](#)").



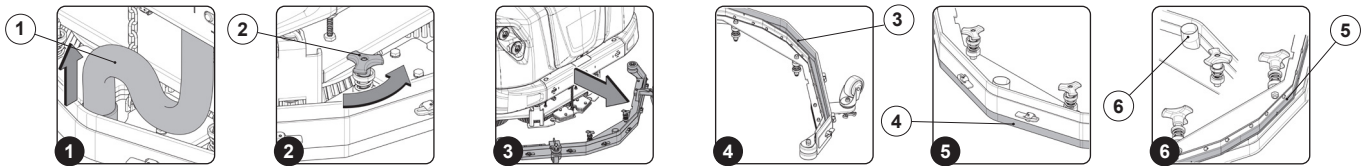
**PRECAUTION:** you are advised to use appropriate PPE (personal protective equipment) for the work to be performed.



## CLEANING THE FLOOR/GROUND SQUEEGEE ASSEMBLY

Thorough cleaning of the entire suction unit ensures better drying and cleaning of the floor or ground, as well as a longer life for the suction motor. To clean the floor/ground squeegee assembly, proceed as follows:

1. Remove the suction hose (1) from the suction port on the floor/ground squeegee assembly (**Fig. 1**).
2. Fully unscrew the knobs (2) on the pre-assembly of the floor/ground squeegee assembly (**Fig. 2**).
3. Detach the floor/ground squeegee assembly from the slots on the floor/ground squeegee coupling (**Fig. 3**).
4. Thoroughly clean the suction chamber (3) of the floor/ground squeegee assembly with a jet of water and then a damp cloth (**Fig. 4**).
5. Thoroughly clean the rear rubber blade (4) on the floor/ground squeegee assembly with a jet of water and then a damp cloth (**Fig. 5**).
6. Thoroughly clean the front rubber blade (5) on the floor/ground squeegee assembly with a jet of water and then a damp cloth (**Fig. 6**).
7. Clean the suction port thoroughly with a jet of water and then a damp cloth (6) (**Fig. 6**).
8. If you wish to use the tank cleaning gun to clean the floor/ground squeegee assembly, read the section titled "[TANK CLEANING KIT \(OPTIONAL\)](#)".
9. Follow the disassembly steps in reverse order to reassemble the components.

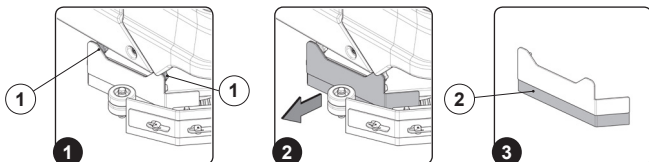


- i NOTE:** check the rear rubber blade (4) on the floor/ground squeegee assembly for wear. If the edge of the blade that is in contact with the floor is damaged, replace it (read the section titled "[REPLACING THE RUBBER BLADES ON THE FLOOR/GROUND SQUEEGEE ASSEMBLY](#)").
- i NOTE:** check the front rubber blade (5) on the floor/ground squeegee assembly for wear. If the edge of the blade that is in contact with the floor is damaged, replace it (read the section titled "[REPLACING THE RUBBER BLADES ON THE FLOOR/GROUND SQUEEGEE ASSEMBLY](#)").

## CLEANING THE RUBBER SPLASH GUARDS ON THE SIDE OF THE SCRUBBING DECK

Thorough cleaning of the rubber splash guards on the side of the scrubbing deck ensures better floor/ground cleaning performance. To clean the rubber splash guards on the side of the scrubbing deck, proceed as follows:

1. Stand facing the left-hand side of the machine, with the deck raised off the floor/ground.
2. Unscrew the knobs (1) (**Fig.1**).
3. Remove the side splash guard casing (**Fig.2**).
4. Clean the side splash guard thoroughly with a jet of water and then a damp cloth (2) (**Fig.3**).
5. Reassemble the disassembled components and repeat the procedure described above for the right-hand side casing.



## CLEANING THE SCRUBBING DECK BRUSHES

Thorough brush cleaning ensures better floor/ground cleaning performance and a longer life for the gear motor in the deck. To clean the brushes, proceed as follows:

1. Stand facing the right-hand side of the machine, with the deck raised off the floor/ground.
2. Unscrew the knobs (1) (**Fig.1**).
3. Remove the side splash guard casing (**Fig.2**).
4. Push the brush retaining pin (2) downwards (**Fig.3**).
5. While holding down the pin (2), rotate the brush clockwise until it locks in place (**Fig. 4**).
6. Turn the brush so that the button is pushed out of the fastening spring and the brush is released.
7. Clean the brush under running water and remove any impurities from the bristles. Check the bristles for wear and replace the brushes if a high level of wear is found (the bristles should protrude by at least 10 mm; this length is shown on the brush with a yellow band).
8. Once the brush is clean, refit it and move on to the left-hand brush.

- i NOTE:** the image (**Fig. 4**) shows the rotation direction to release the right-hand brush.

9. Go to the left-hand side of the machine.
10. Unscrew the knobs (3) (**Fig.5**).
11. Remove the side splash guard casing (**Fig.6**).
12. Push the brush retaining pin (4) downwards (**Fig.7**).
13. While holding down the pin (4), rotate the brush anticlockwise until it locks in place (**Fig.8**).

**i NOTE:** the image (Fig.8) shows the rotation direction to release the left-hand brush.

14. Remove the floor/ground squeegee assembly (see the section titled "[CLEANING THE FLOOR/GROUND SQUEEGEE ASSEMBLY](#) (Fig.1 - 2 - 3) ").
15. Push the brush retaining pin (5) downwards (Fig.9)
16. While holding down the pin (5), rotate the brush anticlockwise until it locks in place (Fig. 10).
17. Turn the brush so that the button is pushed out of the fastening spring and the brush is released.

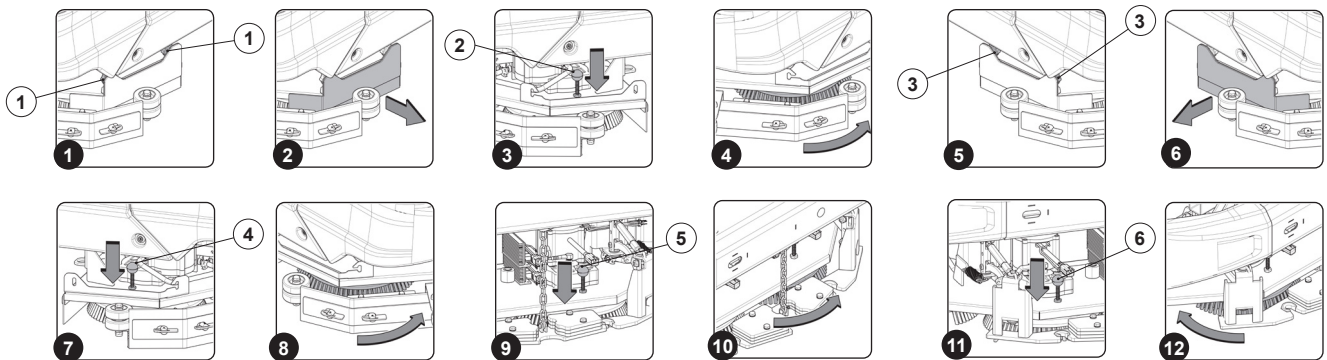
**i NOTE:** the image (Fig.10) shows the rotation direction to release the right-hand central brush.

18. While holding down the pin (6), rotate the brush clockwise until it locks in place (Fig. 11).
19. Turn the brush so that the button is pushed out of the fastening spring and the brush is released.

**i NOTE:** the image (Fig.12) shows the rotation direction to release the left-hand central brush.

**⚠ CAUTION:** if the brushes are not new and the brush block shape has changed, it is advisable to refit the brush in the same position as before to prevent the different angle of the brush block overloading the brush gear motor and causing excessive vibrations.

20. If you wish to use the tank cleaning gun to clean the brushes, read the section titled "[TANK CLEANING KIT \(OPTIONAL\)](#) ".
21. Follow the disassembly steps in reverse order to reassemble the components.



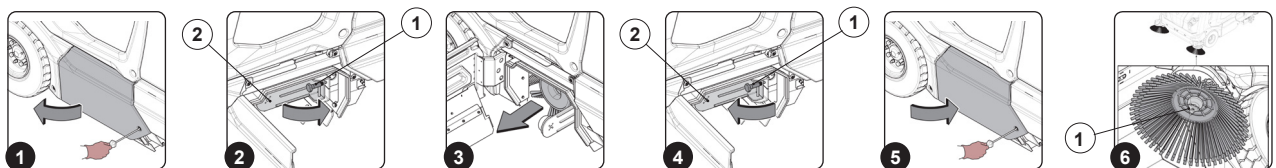
## CLEANING THE SWEEPING DECK BRUSHES AND THE SIDE BRUSHES

Thorough brush cleaning ensures better floor/ground cleaning performance and a longer life for the gear motors in the deck.  
To clean the brushes, proceed as follows:

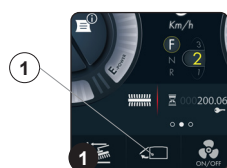
1. Standing facing the left-hand side of the machine, open the casing (Fig.1).
2. Unscrew the knob (1) and pull out the retainer (2) (Fig.2).
3. Remove the brush from the sweeping deck (Fig.3).
4. Clean the brush under running water and remove any impurities from the bristles. Check the bristles for wear and replace the brush if a high level of wear is found (the bristles should protrude by at least 10 mm; this length is shown on the brush with a yellow band). Read the section titled "[FITTING THE SWEEPING DECK BRUSHES AND THE SIDE BRUSHES](#)" to replace the brush.
5. Once the brush is clean, refit it.
6. Push in the retainer (2) and tighten the knob (1) (Fig.4).
7. Close the casing (Fig.5).

To clean the side brushes, proceed as follows:

8. Unscrew the knob (1) and remove the brush (Fig.6).
9. Clean the brush under running water and remove impurities from the bristles. Check the bristles for wear and replace the brushes if a high level of wear is found (the bristles should protrude by at least 10 mm; this length is shown on the brush with a yellow band). Read the section titled "[FITTING THE SWEEPING DECK BRUSHES AND THE SIDE BRUSHES](#)" to replace the brushes.
10. Once the brush is clean, refit it and move on to the other brush.



## EMPTYING THE HOPPER



**WARNING:** make sure there are no people or animals in the hopper emptying area.



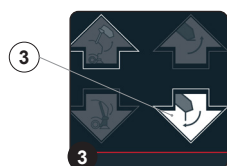
**WARNING:** empty the hopper with the machine standing on flat, solid ground.

To empty it, proceed as follows:

1. Set the machine to drive mode.
2. Take the machine to the waste disposal area.

**WARNING:** the area designated for this procedure must comply with applicable workplace safety and environmental legislation.

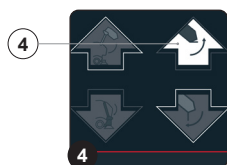
**WARNING:** carefully calculate the distance between the machine and the waste bin, taking into account the turning radius of the hopper during movement.



3. Press the button (1) (Fig.1). The hopper control panel screen appears.

4. Press the button (2) to raise the hopper into the unloading position (Fig.2).

**WARNING:** reduce the machine speed when the hopper is raised.



5. Position the machine near the waste bin.

6. Make sure the hopper is positioned over the waste bin deposit opening.

7. Press the button (3) to open the hopper unloading hatch (Fig.3).

8. Empty the hopper completely.

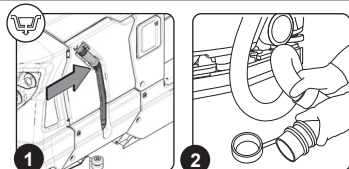
9. Drive away from the waste bin.

10. Press the button (4) to close the hopper unloading hatch (Fig.4).

11. Press the button (5) and the button (6) at the same time to lower the hopper (Fig.5).



## EMPTYING THE RECOVERY TANK



To empty the recovery tank, proceed as follows:

1. Release the recovery tank drain hose from the clips (Fig.1).

The hose is located on the right-hand side of the machine.

2. Bend the end of the drain hose to create a constriction and prevent leakage (Fig.2), then place the hose on the drain surface; unscrew the cap and gradually release the constriction.

3. Proceed as above in reverse order to return the components to their original place.

## CLEANING THE RECOVERY TANK FILTERS

To clean the filters in the recovery tank, proceed as follows:

1. Rotate the recovery tank cover until the strut (1) is in the position for servicing (Fig.1).

2. Remove the dirty water filter basket (2) (Fig. 2).

3. Remove the basket cover (3) from the filter basket (2) (Fig. 4).

4. Clean the filter basket (2) and the basket cover (4) under running water.

**NOTE:** in the event of stubborn dirt, use a scraper or a brush.

5. Using a cloth, dry the filter basket (2) and the basket cover (3) and place them back in the recovery tank.

6. Rotate the recovery tank cover until the strut (4) is in the position for servicing (Fig. 5).

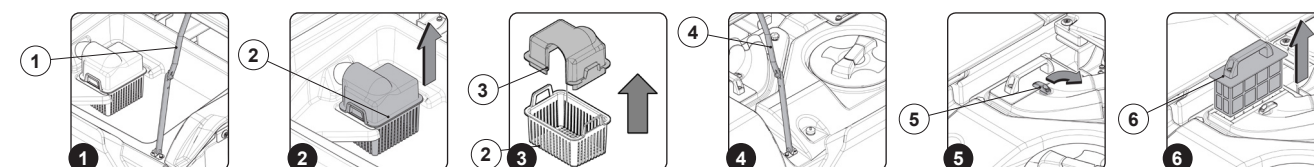
7. Rotate the fastener (5) (Fig.6).

8. Remove the suction motor filter (6) (Fig. 7).

9. Clean the suction motor filter (6) with a jet of air, keeping the jet at least a 20 cm away from the filter.

**NOTE:** in the event of stubborn dirt, use a vacuum cleaner.

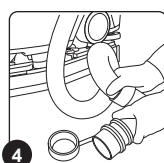
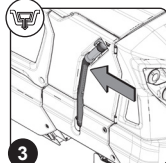
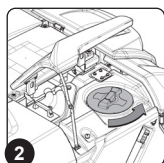
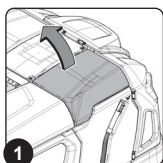
10. Proceed as above in reverse order to return the components to their original place.



## EMPTYING THE SOLUTION TANK

To empty the solution tank, proceed as follows:

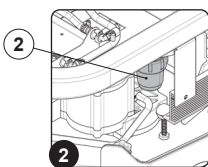
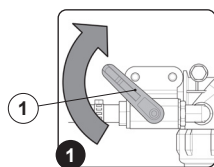
1. Open the cover (**Fig.1**).
2. Remove the solution tank filler cap (**Fig. 2**).
3. Release the solution tank drain hose from the clips (located at the rear of the appliance) (**Fig. 3**).
4. Bend the end of the drain hose to create a constriction and prevent leakage (**Fig.4**), then place the hose on the drain surface; unscrew the cap and gradually release the constriction.
5. Proceed as above in reverse order to return the components to their original place.



## CLEANING THE WATER SYSTEM FILTER

To clean the water system filter, proceed as follows:

1. Turn off the tap to stop the outlet flow and turn the lever (1) upwards (**Fig.1**).
2. Unscrew the detergent solution filter cap (2) (**Fig. 2**).



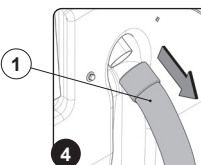
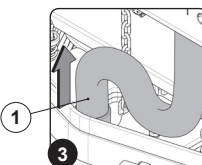
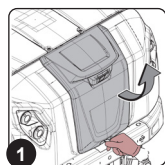
3. Remove the cartridge from the filter body and rinse it under running water; if necessary, use a brush to remove residues.
4. Once the filter cartridge is clean, proceed as above in reverse order to return the components to their original place.

## CLEANING THE SUCTION HOSE

Thorough cleaning of the suction hose ensures better floor/ground cleaning performance, as well as a longer life for the suction motor.

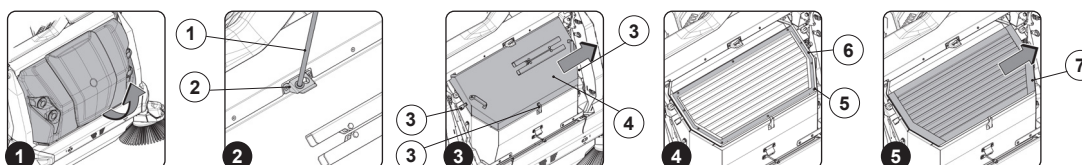
To clean the suction hose, proceed as follows:

1. Open the cover (**Fig.1**).
2. Open the cover (**Fig.2**).
3. Remove the suction hose (1) from the suction port on the floor/ground squeegee assembly (**Fig. 3**).
4. Remove the suction hose (1) from the hole in the rear of the recovery tank (**Fig. 4**).
5. Release the suction hose from the clips on the recovery tank.
6. Clean the inside of the suction hose with running water.
7. If you wish to use the tank cleaning gun to clean the suction hose, read the section titled [“TANK CLEANING KIT \(OPTIONAL\)”](#)
8. Proceed as above in reverse order to return the components to their original place.



## CLEANING THE SUCTION FILTER

Thorough suction filter cleaning improves suction turbine efficiency and extends its working life. To clean the suction filter, proceed as follows:



1. Go to the front of the machine and open the bonnet (front of vehicle) (**Fig.1**).
2. Insert the rotation lock pin (1) into the hole (2) in the bonnet (front of vehicle) (**Fig.2**).
3. Release the fasteners (3) and remove the suction cover (4) (**Fig.3**).

**⚠ WARNING:** the following procedures must be performed by qualified personnel.

**⚠ CAUTION:** two people are required to remove the filter.



4. Unscrew the screws (5) and remove the fastener (6) (Fig.4).
5. Remove the fabric filter (7) (Fig.5), making sure to disconnect it from the machine's electrical system before removing it completely.

**i NOTE:** place the fabric filter on a suitable support to hold it securely.

6. Clean the fabric filter with a vacuum cleaner.

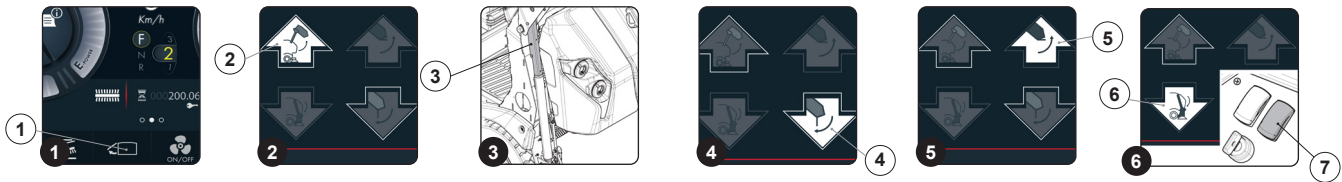
**i NOTE:** if necessary, clean the fabric filter with a jet of air, aimed from the inside outwards and held at least 20 cm away from the filter.

**⚠ CAUTION:** check that it is in good condition; if there are any tears, contact a COMAC service centre to have it replaced immediately.

7. Once the suction filter is clean, carry out the procedure in reverse order to refit it in its original place in the machine.

## CLEANING THE HOPPER

Thorough hopper cleaning improves suction turbine efficiency and extends its working life.  
To clean the hopper, proceed as follows:



1. Make sure the hopper is empty. If it is not, empty it (see the section titled [“EMPTYING THE HOPPER”](#)).
2. Complete the machine safety procedure (read the section titled [“MACHINE SAFETY”](#)).
3. Set the machine to drive mode.
4. Press the button (1) (Fig.1).  
The hopper control panel screen appears.
5. Press the button (2) to raise the hopper (Fig.2).
6. Place the safety retainers (3) on the jacks (Fig.3).
7. Press the button (4) to open the hopper unloading hatch (Fig.4).
8. Clean the inside of the hopper with a jet of water.
9. Once the hopper is clean and dry, press the button (5) to close the hopper unloading hatch (Fig.5).
10. Do not place the safety retainers on the jacks.
11. Press the button (6) and the button (7) at the same time to lower the hopper (Fig.6).

## SPECIAL MAINTENANCE WORK

Before carrying out any routine or special maintenance, proceed as follows:

1. Take the machine to the maintenance area.



**NOTE:** the area designated for this procedure must comply with applicable environmental legislation.

2. Complete the machine safety procedure (read the section titled [“MACHINE SAFETY”](#)).

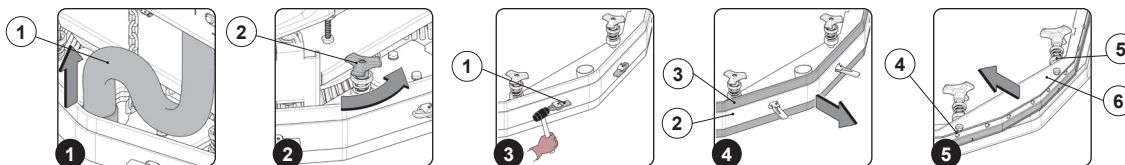
**⚠ PRECAUTION:** you are advised to use appropriate PPE (personal protective equipment) for the work to be performed.

## REPLACING THE RUBBER BLADES ON THE FLOOR/GROUND SQUEEGEE ASSEMBLY

Keeping the rubber blades on the floor/ground squeegee assembly in good condition ensures better drying and cleaning performance and a longer working life for the suction motor.

To replace the rubber blades on the floor/ground squeegee assembly, proceed as follows:

1. Remove the suction hose (1) from the suction port on the floor/ground squeegee assembly (Fig. 1).
2. Fully unscrew the knobs (2) on the pre-assembly of the floor/ground squeegee assembly (Fig. 2).
3. Detach the floor/ground squeegee assembly from the slots on the floor/ground squeegee coupling.
4. Push and turn the locking plates (1) (Fig.3).
5. Remove the rubber blade-retaining strip (2) and the rear rubber blade (3) (Fig.4).
6. Unscrew the screws (4) (Fig.5).
7. Remove the rubber blade-retaining strip (5) and the front rubber blade (6) (Fig.5).



8. Proceed as above in reverse order to return the components to their original place.

**i NOTE:** before using the machine, remember to adjust the floor/ground squeegee assembly (read the section titled [“ADJUSTING THE RUBBER BLADES ON THE FLOOR/GROUND SQUEEGEE ASSEMBLY”](#)).

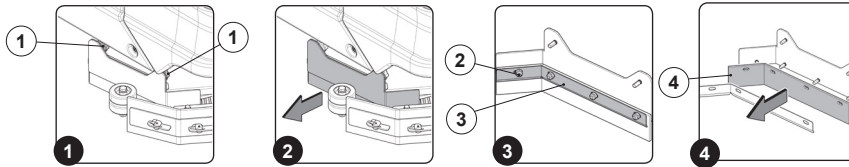
**i NOTE:** it is good practice to replace both rubber blades on the floor/ground squeegee assembly to ensure proper drying performance.

## REPLACING THE SCRUBBING DECK SPLASH GUARDS

If the rubber splash guards on the side casing of the deck are damaged, they will not work properly, which means they will not convey the dirty cleaning solution towards the floor/ground squeegee. Always check, therefore, that the rubber splash guards are in good condition.

To replace the deck splash guards, proceed as follows:

1. Go to the left-hand side of the machine.
2. Unscrew the knobs (1) (Fig.1).
3. Remove the side splash guard casing (Fig.2).
4. Unscrew the nuts (2) and remove the rubber blade-retaining strip (3) (Fig.3).
5. Remove the splash guard (4) from the left-hand splash guard body and replace it with a new one or turn it over (Fig.4).



6. Proceed as above in reverse order to return the components to their original place.
7. Repeat the same procedure for the right-hand side casing.

## REPLACING THE SCRUBBING DECK BRUSHES

If the scrubbing deck brushes are damaged, they will not work properly, which means they will not remove dirt from the floor or ground. Always check, therefore, that the brushes are in good condition. To replace the scrubbing deck brushes, proceed as follows:

1. Stand facing the right-hand side of the machine, with the deck raised off the floor/ground.
2. Unscrew the knobs (1) (Fig.1).
3. Remove the side splash guard casing (Fig.2).
4. Push the brush retaining pin (2) downwards (Fig.3).
5. While holding down the pin (2), rotate the brush anticlockwise until it locks in place (Fig. 4).
6. Turn the brush so that the button is pushed out of the fastening spring and the brush is released.

**NOTE:** the image (Fig. 4) shows the rotation direction to release the right-hand brush.

7. Fit the right-hand brush into the seat on the brush plate on the underside of the deck, turning it until the three pins fit into the recesses in the plate.
8. Rotate the brush until the pins engage with the fastening spring and it clicks into place (Fig.5).

**NOTE:** the illustration (Fig.5) shows the rotation direction to attach the right-hand brush.

9. Go to the left-hand side of the machine.
10. Unscrew the knobs (3) (Fig.6).
11. Remove the side splash guard casing (Fig.7).
12. Push the brush retaining pin (4) downwards (Fig.8).
13. While holding down the pin (4), rotate the brush anticlockwise until it locks in place (Fig. 9).

**NOTE:** the image (Fig.9) shows the rotation direction to release the left-hand brush.

14. Fit the left-hand brush into the seat on the brush plate on the underside of the deck, turning it until the three pins fit into the recesses in the plate.
15. Rotate the brush until the pins engage with the fastening spring and it clicks into place (Fig.10).

**NOTE:** the image (Fig.10) shows the rotation direction to release the left-hand brush.

16. Remove the floor/ground squeegee assembly (see the section titled "[CLEANING THE FLOOR/GROUND SQUEEGEE ASSEMBLY](#)" (Fig.1 - 2 - 3) ").
17. Push the brush retaining pin (5) downwards (Fig.11).
18. While holding down the pin (5), rotate the brush anticlockwise until it locks in place (Fig. 12).
19. Turn the brush so that the button is pushed out of the fastening spring and the brush is released.

**NOTE:** the image (Fig.12) shows the rotation direction to release the right-hand central brush.

20. Fit the right-hand central brush into the seat on the brush plate on the underside of the deck, turning it until the three pins fit into the recesses in the plate.
21. Rotate the brush until the pins engage with the fastening spring and it clicks into place (Fig.13).

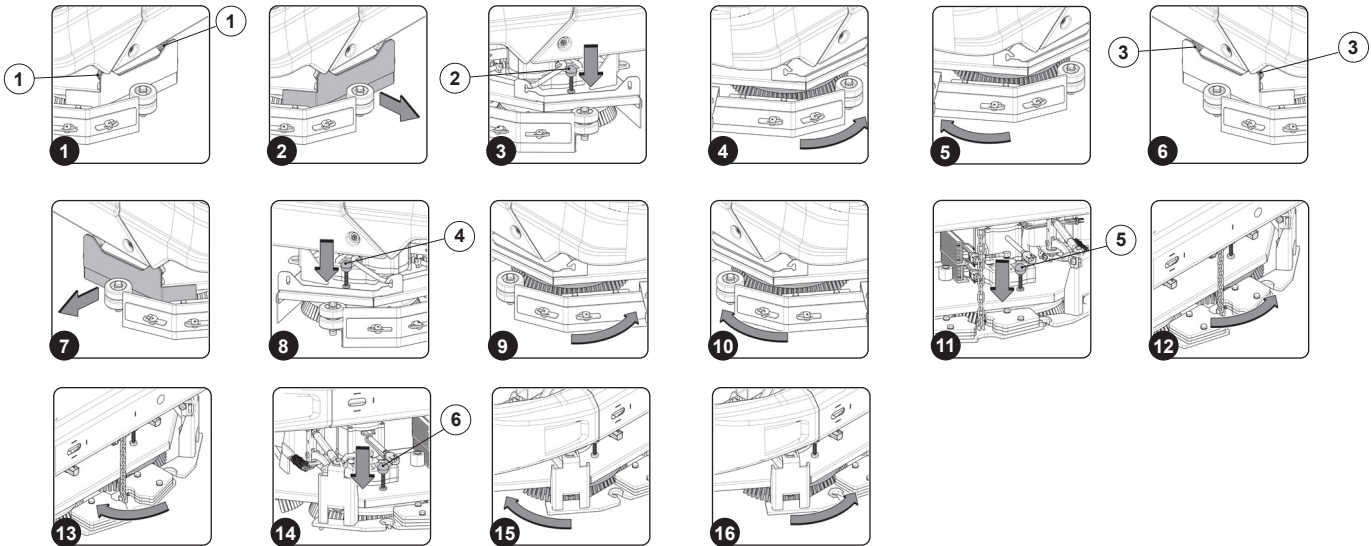
**NOTE:** the illustration (Fig.13) shows the rotation direction to attach the right-hand central brush.

22. Push the brush retaining pin (6) downwards (Fig.14).
23. While holding down the pin (6), rotate the brush clockwise until it locks in place (Fig. 15).

**NOTE:** the image (Fig.15) shows the rotation direction to release the left-hand central brush.

24. Fit the left-hand central brush into the seat on the brush plate on the underside of the deck, turning it until the three pins fit into the recesses in the plate.
25. Rotate the brush until the pins engage with the fastening spring and it clicks into place (Fig.16).

**NOTE:** the illustration (Fig.16) shows the rotation direction to attach the left-hand central brush.



## REPLACING THE SWEEPING DECK BRUSHES AND THE SIDE BRUSHES

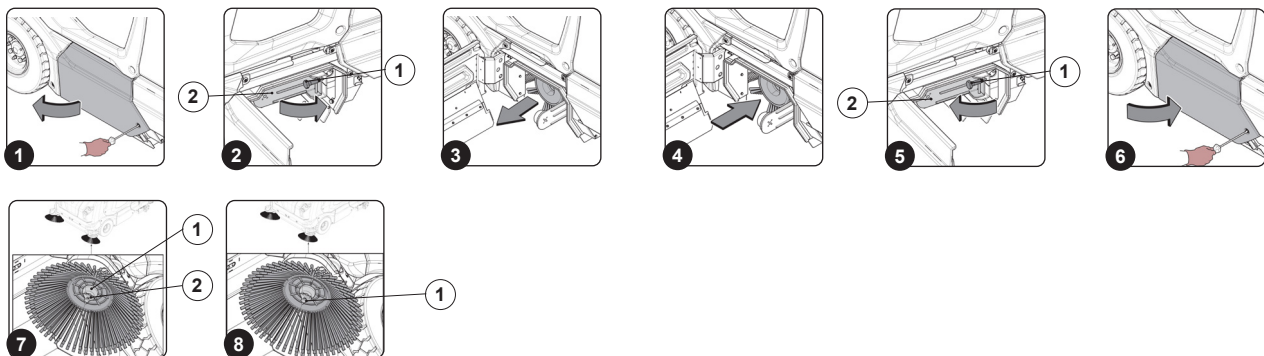
If the sweeping deck brush and the side brushes are damaged, they will not work properly, which means they will not remove dirt from the floor or ground. Always check, therefore, that the brushes are in good condition.

To replace the sweeping deck brush and the side brushes, proceed as follows:

1. Standing facing the left-hand side of the machine, open the casing (**Fig.1**).
2. Unscrew the knob (1) and pull out the retainer (2) (**Fig.2**).
3. Remove the brush from the sweeping deck (**Fig.3**).
4. Insert the new brush into the sweeping deck until it locks onto the motor shaft (**Fig.4**).
5. Push in the retainer (2) and tighten the knob (1) (**Fig.5**).
6. Close the casing (**Fig.6**).

To replace the side brushes, proceed as follows:

7. Unscrew the knob (1) and remove the worn brush (**Fig.7**).
8. Place and hold the new brush - together with the washer (1) - on the brush support (**Fig.8**).
9. Tighten the knob (1) (**Fig.8**).
10. Proceed as before to replace the other side brush.



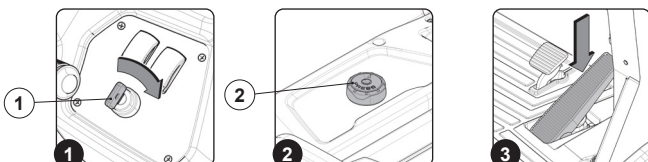
## ADJUSTMENTS

### ADJUSTING THE RUBBER BLADES ON THE FLOOR/GROUND SQUEEGEE ASSEMBLY

Accurate adjustment of the rubber blades on the floor/ground squeegee assembly ensures better cleaning performance.

To replace the rubber blades on the floor/ground squeegee assembly, proceed as follows:

1. Sit in the driver's seat.
2. Insert the key (1) into the main switch on the control panel. Set the main switch to the "I" position (**Fig.1**).
3. Using the dial (2) on the control panel (**Fig.2**), select the "WASHING WITH DRYING" mode.
4. Pressing the forward pedal will start the machine moving (**Fig. 3**).



5. Once the deck and floor/ground squeegee assembly are in the operating position, complete the machine safety procedure (read the section titled ["MACHINE SAFETY"](#)).

**⚠ PRECAUTION:** you are advised to use appropriate PPE (personal protective equipment) for the work to be performed.

6. Go to the rear of the machine.

#### Adjusting the height of the floor/ground squeegee assembly:

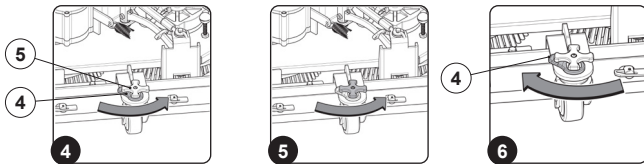
7. Loosen the locking lever (4) on the floor/ground squeegee height adjustment knob (5) (**Fig. 3**).
8. Adjust the off-ground height of the rubber blade by loosening or tightening the knobs (5) (**Fig. 5**).

**i NOTE:** Figure 5 shows the rotation direction to decrease the off-ground height of the floor/ground squeegee holder; turn in the opposite direction to increase it.

**i NOTE:** by decreasing the off-ground height of the floor/ground squeegee holder and the floor, the rubber blades on the floor/ground squeegee assembly move closer to the floor.

**i NOTE:** the right- and left-hand knobs must be rotated by the same number of turns to ensure the floor/ground squeegee is parallel to the floor.

9. Once adjustment is complete, tighten the locking lever (4) (**Fig. 6**).

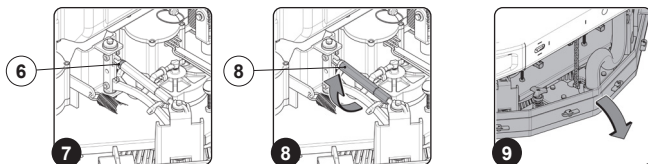


#### Adjusting the tilt of the floor/ground squeegee assembly:

10. Loosen the nut (6) (**Fig. 7**).
11. Adjust the tilt of the rubber blades on the floor/ground squeegee assembly with respect to the floor by tightening or loosening the stud bolts (8) (**Fig. 8**) until the rubber blades on the floor/ground squeegee assembly are bent outwards uniformly along their entire length, at approximately 30° to the floor.

**i NOTE:** the figure 8 shows the rotation direction to tilt the floor/ground squeegee towards the rear of the machine (**Fig. 9**). Turn in the opposite direction to rotate the floor/ground squeegee towards the front of the machine.

12. Once adjustment is complete, tighten the nut (7) (**Fig. 7**).



### ADJUSTING THE RUBBER SPLASH GUARDS ON THE SIDE OF THE SCRUBBING DECK

If the splash guards on the side of the deck are not positioned correctly with respect to the floor or ground, they will not work properly, i.e. they will not convey the dirty detergent towards the floor/ground squeegee properly. Take care, therefore, to adjust the height of the splash guards. This procedure can be performed with the deck in the working position by proceeding as follows:

1. Sit in the driver's seat.
2. Insert the key (1) into the main switch on the control panel. Set the main switch to the "I" position (**Fig. 1**).
3. Using the dial (2) on the control panel (**Fig. 2**), select the "WASHING WITH DRYING" mode.
4. Pressing the forward pedal will start the machine moving (**Fig. 3**).
5. Once the deck and floor/ground squeegee assembly are in the operating position, complete the machine safety procedure (read the section titled ["MACHINE SAFETY"](#)).

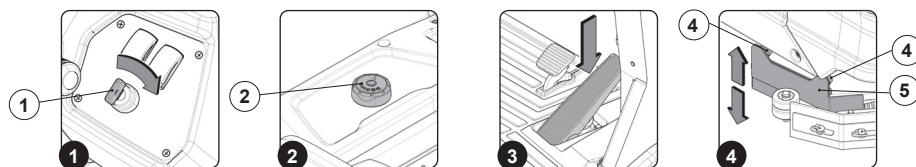
**⚠ PRECAUTION:** you are advised to use appropriate PPE (personal protective equipment) for the work to be performed.

6. Go to the left-hand side of the machine.
7. Unscrew the knobs (4), adjust the off-ground height of the splash guard (5) until it is just touching the floor evenly, along its entire length (**Fig. 4**).
8. Tighten the knobs (4) (**Fig. 4**).

**i NOTE:** the front and the rear splash guard must both be at the same height off the floor/ground.

9. Repeat the same procedure for the right-hand side splash guard.



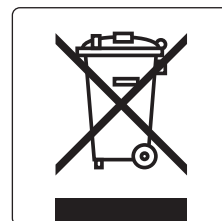


## DISPOSAL

For end-of-life processing, take the machine to an authorised metal recycling facility or waste disposal centre. Before doing so, remove and separate the following materials and send them to the appropriate waste collection facility in compliance with applicable environmental hygiene legislation:

- Brushes
- Felt.
- Electrical and electronic parts\*
- Batteries
- Plastic parts.
- Metal parts.

(\*) For information on disposing of electrical and electronic parts in particular, contact the distributor.



## CHOICE AND USE OF BRUSHES

### POLYPROPYLENE (PPL) BRUSH

This brush can be used on all kinds of flooring and paving. It is particularly resistant to wear and hot water (no hotter than 50 °). PPL is non-absorbent and therefore retains its characteristics even when used in wet conditions.

### ABRASIVE BRUSH

The bristles of this brush are impregnated with extremely harsh abrasives. It is used to clean very dirty floors and paving. To prevent damage to the flooring or paving, you are recommended to apply very little pressure, just the bare minimum required.

### BRISTLE THICKNESS

Coarser bristles are stiffer and therefore should be used on smooth flooring and paving types or those with narrow joints. On uneven or textured floors or paving ridges or those with deep joints, softer bristles are advised, as they access deeper recesses. Bear in mind that when the brush bristles wear down, they become stiffer and can no longer clean deeply. This is also because (in the same way as bristles that are too thick) the brush tends to skip over the surface.

### DRIVER DISC

The driver disc is recommended when cleaning shiny surfaces. There are two types of driver disc available:

1. The conventional driver disc is equipped with a series of anchor points to hold the abrasive disc during operation.
2. The CENTRE LOCK driver disc, meanwhile, has both anchor points that hold the abrasive disc in place and a plastic snap-lock system that keeps it perfectly centred, without any risk of detachment. This type of driver disc is especially suitable for machines with multiple brushes, where centring the abrasive discs is difficult.

### RED PAD

This is suitable for frequent use on relatively clean floors. It also dry-cleans and polishes, removing marks.

### GREEN PAD

This is suitable for removing surface-level wax and preparing the floor for subsequent re-treatment. It is used damp.

### BLACK PAD

This is suitable for wet-scraping to remove built-up layers of wax. It removes old finishes and eliminates cement residues.

MACHINE	CODE	BRISTLE TYPE	Ø BRISTLE	Ø BRUSH	LENGTH.	NOTES
COMBIMAC 130 SCRUBBING DECK	423260	PPL	0.3	355 mm		BLUE BRUSH
	423248	PPL	0.6	355 mm		WHITE BRUSH
	423261	PPL	0.9	355 mm		BLACK BRUSH
	423262	TYNEX - ABRASIVE	-	355 mm		
	423581	DRIVER DISC WITH CENTRE LOCK	-	355 mm		
COMBIMAC 130 SWEEPING DECK	461070	PPL 1,1 - 0,7		410		CENTRAL BRUSH
	455695	PPL 1,1 - 0,7		220		BLADE BRUSH

## TROUBLESHOOTING

This section sets out the most common problems relating to the machine's use. If you are unable to solve the problem with the information below, please contact your local service centre.

PROBLEM	POSSIBLE CAUSE	SOLUTION
The machine does not turn on	The emergency switch is active.	To reset the emergency switch, rotate it in the direction shown by the arrows printed on it.
	The machine's main circuit board has detected an alarm.	Read the section titled "VIEW ALARM LIST" and contact your local Comac service centre.
	Low battery	Charge the batteries (read the section titled " <a href="#">BATTERY CHARGING</a> ").
	The battery connector is disconnected from the machine's electrical system connector.	Connect the battery connector to the machine's electrical system connector; this operation must be performed by a specialist Comac technician or a qualified member of staff.
	One of the battery jump leads is not connected correctly.	Check the battery connection; this procedure must be carried out by a specialist Comac technician or a qualified member of staff.
	Faulty batteries.	Contact a Comac service centre to have the batteries replaced.
Insufficient or no detergent solution collected.	The rubber blades on the floor/ground squeegee assembly are worn.	Replace the rubber blades on the floor/ground squeegee assembly (read the section titled " <a href="#">REPLACING THE RUBBER BLADES ON THE FLOOR/GROUND SQUEEGEE ASSEMBLY</a> ").
	The floor/ground squeegee assembly is not positioned correctly.	Adjust the floor/ground squeegee assembly (read the section titled " <a href="#">ADJUSTING THE RUBBER BLADES ON THE FLOOR/GROUND SQUEEGEE ASSEMBLY</a> ").
	The floor/ground squeegee assembly is clogged.	Clean the floor/ground squeegee assembly (read the section titled " <a href="#">CLEANING THE FLOOR/GROUND SQUEEGEE ASSEMBLY</a> ").
	The suction hose is clogged.	Clean the suction hose (read the section titled " <a href="#">CLEANING THE SUCTION HOSE</a> ").
	The suction hose is not connected properly.	Connect the suction hose to the suction port in the floor/ground squeegee assembly and fit it into the hole at the rear of the recovery tank.
	The suction motor filter is clogged.	Clean the suction motor filter (see the section titled " <a href="#">CLEANING THE RECOVERY TANK FILTERS</a> ").
	The recovery tank cover is not closed properly.	Tighten the hinges on the side of the recovery tank, or check for obstructions that prevent it being tightened properly.
The suction motor does not turn on.	Check which work mode is in use.	Select one of the following work modes: WASHING WITH DRYING or DRYING.
	The recovery tank is full.	Empty the recovery tank (read the section titled " <a href="#">EMPTYING THE RECOVERY TANK</a> ").
	The recovery tank is full of foam.	Empty the recovery tank (read the section titled " <a href="#">EMPTYING THE RECOVERY TANK</a> ").
		Use less detergent or change the detergent.
		Use a defoamer.

PROBLEM	POSSIBLE CAUSE	SOLUTION
The flow of detergent solution to the brushes is low or there is no flow at all.	The solution tank is empty.	Fill the solution tank (read the section titled <a href="#">"FILLING THE SOLUTION TANK"</a> ).
	Detergent solution flow turned off.	Turn the tap control lever to the ON position. Check on the control panel display that the detergent solution flow is not set to zero.
	The detergent solution delivery lines are clogged.	Flush the machine's water system.
	The water system filter is clogged or blocked.	Flush the filter cartridge (read the section titled <a href="#">"CLEANING THE WATER SYSTEM FILTER"</a> ).
Poor cleaning.	There is dirt trapped in the brushes.	Remove the dirt from the brushes (read the section titled <a href="#">"CLEANING THE SCRUBBING DECK BRUSHES"</a> ).
	The brush is not the right type for the job.	Contact a Comac service centre for information on the type of brush to use for the job.
	The bristles on the scrubbing deck brushes are worn.	Replace the brushes (read the section titled <a href="#">"REPLACING THE SCRUBBING DECK BRUSHES"</a> ).
	The pressure on the brushes is too high.	Reduce the pressure applied to the deck.
	The battery charge level is low.	Fully charge the batteries (read the section titled <a href="#">"BATTERY CHARGING"</a> ).
	The hopper is full.	Empty the hopper (read the section titled <a href="#">"EMPTYING THE HOPPER"</a> ).
	The bristles on the sweeping deck brushes and the side brushes are worn.	Replace the brushes (read the section titled <a href="#">"REPLACING THE SWEEPING DECK BRUSHES AND THE SIDE BRUSHES"</a> ).
Operating autonomy (time) is low.	The batteries are not fully charged.	Fully charge the batteries (read the section titled <a href="#">"BATTERY CHARGING"</a> ).
	The batteries are faulty.	Contact a Comac service centre to have the batteries replaced.
	The batteries require maintenance.	Contact a Comac service centre to have the batteries serviced.
	The battery charger is faulty.	Contact a Comac service centre to have the batteries replaced.

## NOTES





