

BE NICE TO PEOPLE

FLOORPUL[®]
INTERNATIONAL NV

adiate[®]
Design and innovation

R-QUARTZ

01 2023



Use and maintenance



Caution! Please read the instructions before use.

INTRODUCTORY COMMENT

Thank you for having chosen our machine. This floor cleaning machine is intended for **commercial use** and it is used for the industrial and civil cleaning and is able to clean any type of floor. During its advance movement, the combined action of the brushes and the detergent solution removes the dirt which is aspirated through the rear suction assembly, giving a perfectly dry surface.

The machine must be used only for such purpose. It gives the best performance if it is used correctly and maintained in perfect efficiency. We therefore ask you to read this instruction booklet carefully whenever difficulties arise in the course of the machine's use. In case of need, we ask you to contact our service department for all advice and servicing as may prove necessary.

CAUTION: This machine is for indoor use only

CAUTION: This machine shall be stored indoors only.

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GENERAL RULES OF SAFETY

GENERAL RULES OF SAFETY

The rules below have to be followed carefully in order to avoid injury to the operator and damage to the machine.

- Read the labels carefully on the machine. Do not cover them for any reason and replace them immediately if damaged.
- **WARNING:** The machine must be used exclusively by authorized staff that have been instructed on its correct and proper use.
- **WARNING:** Do not use the machine on areas having a higher gradient than the one stated on the number plate.
- The machine is not to be used by persons, children included, with reduced physical, sensorial or mental capabilities, or with lack of experience or knowledge.
- During the operation of the machine, pay attention to other people and especially to the children.
- Children cannot carry out cleaning and maintenance of the machine.
- Children should be supervised to ensure that they do not play with the appliance.

TRANSFER

- **WARNING:** Do not use the machine in areas where it is likely that the operator is hit by falling objects since the appliance is not provided with a falling object protective structure (FOPS).
- In order to prevent unauthorized use of the machine in parking position, take off the key. Machines left unattended shall be secured against unintentional movement.
- Do not use the machine as a means of transport.
- Adapt the working speed to the adhesion conditions: particularly, slow down before narrow curves have to be faced.

STORAGE AND DISPOSAL

- Storage temperature: between 0°C and +55°C (32°F and 131°F).
- Perfect operating temperature: between 0°C and +40°C (32°F and 104°F).
- The humidity should not exceed 95%.
- Provide for the scrapping of the material of normal wear following strictly the respective rules.
- The batteries need to be removed from the machine before its scrapping.
- When your machine has to stop activity, provide for the appropriate waste disposal of its materials, especially oils, batteries and electronic components, and considering that the machine itself has been, where possible, constructed using recyclable materials.

CORRECT USE

- Do not use the machine on surfaces covered with inflammable liquids or dusts (for example hydrocarbons, ashes or soot).
- In case of fire, use a powder-based fire-extinguisher. Do not use water.
- Do not use the machine in explosive atmosphere.
- The machine has to carry out simultaneously the operations of washing and drying. Different operations must be carried out in restricted areas prohibited to non-authorized personnel and the operator has to wear suitable shoes.
- Signal the areas of moist floors with suitable signs.
- Do not mix different detergents, avoiding harmful odours.
- Avoid brushes operation when the machine is standing still in order to prevent floor damages

MAINTENANCE

- If the machine does not work properly, check by conducting simple maintenance procedures. Otherwise, as for technical advice from an authorized assistance centre.
- For any cleaning and/or maintenance operation take off the power supply from the machine removing the battery connector.
- Where parts are required, ask for ORIGINAL spare parts from the distributor and/or from an authorized dealer.
- Use only ORIGINAL brushes.
- Do not take off the protections which require the use of tools for their removal.
- Do not wash the machine with direct water jets or with high water pressure nor with corrosive material.
- Every 200 working hours have a machine check by an authorized service department.
- Before using the machine, check that all panels and coverings are in their position as indicated in this use and maintenance catalogue.
- Restore all electrical connections after any maintenance operation.

TRANSPORTING THE MACHINE

WARNING: Before transporting the machine on an open truck or trailer, make sure that:

- All tanks are empty.
- Recovery tank cover is latched securely.
- The machine is tied down securely.
- The machine's electromagnetic brake is engaged (not manually overridden).

GENERAL RULES OF THE BATTERIES



- At any intervention on the batteries, use suitable acid-proof gloves and glasses.
- Do not smoke near the batteries and do not approach them with free flames.
- Check that a fire-extinguisher is available on site.
- Be very careful in case of leakages or liquid outlets because corrosive.
- Do not place any metallic tools onto the batteries. Risk of short circuit!
- It is compulsory to hand over exhaust batteries, classified as dangerous waste, to an authorized institution according to the current laws.

TECHNICAL FEATURES

	A-QUARTZ 66	A-QUARTZ 80
Working width.....mm	685.....	810.....
Squeegee width.....mm	900.....	965.....
Work capacity up to.....m ² /h	3425.....	3645.....
Brushes diameter.....mm	2 x 355.....	2 x 406.....
Brushes rpm.....giri/min	160.....	160.....
Brushes pressure (max).....kg	52.....	52.....
Brushes motor.....W	2 x 350.....	2 x 350.....
Suction motor.....W	570.....	570.....
Suction motor depression.....mbar	160.....	160.....
Traction motor.....W	500.....	500.....
Drive type.....	autonomo.....	autonomo.....
Movement speed.....km/h	5.....	5.....
Gradient (max).....%	10.....	10.....
Solution tank.....l	98.....	98.....
Detergente tank (3SD).....l	7.....	7.....
Recovery tank.....l	106.....	106.....
Machine lenght.....mm	1634.....	1597.....
Machine height.....mm	1350.....	1350.....
Machine width (without squeegee).....mm	922.....	922.....
Machine weight (empty tanks).....kg	213.....	218.....
Machine gross weight (IEC/EN 60335-2-72 clause 3.114).....kg	445.....	450.....
Battery voltage.....V	24.....	24.....
Battery capacity.....Ah ₅	330.....	330.....
Right battery van dimensions.....mm	532 x 190 x 325.....	532 x 190 x 325.....
Left battery van dimensions.....mm	532 x 190 x 325.....	532 x 190 x 325.....
Sound pressure level (in accordance with ISO 11201) L _{pa}dB	<70.....	<70.....
Class.....	III.....	III.....
Level of vibration left hand.....m/s ²	<2.5.....	<2.5.....
Uncertainty k.....m/s ²	<0.5.....	<0.5.....
Protection grade.....IP	X3.....	X3.....
Packed machine weight.....kg	424.....	429.....
Package dimensions.....cm	173 x 108 x 159,5.....	173 x 108 x 159,5.....

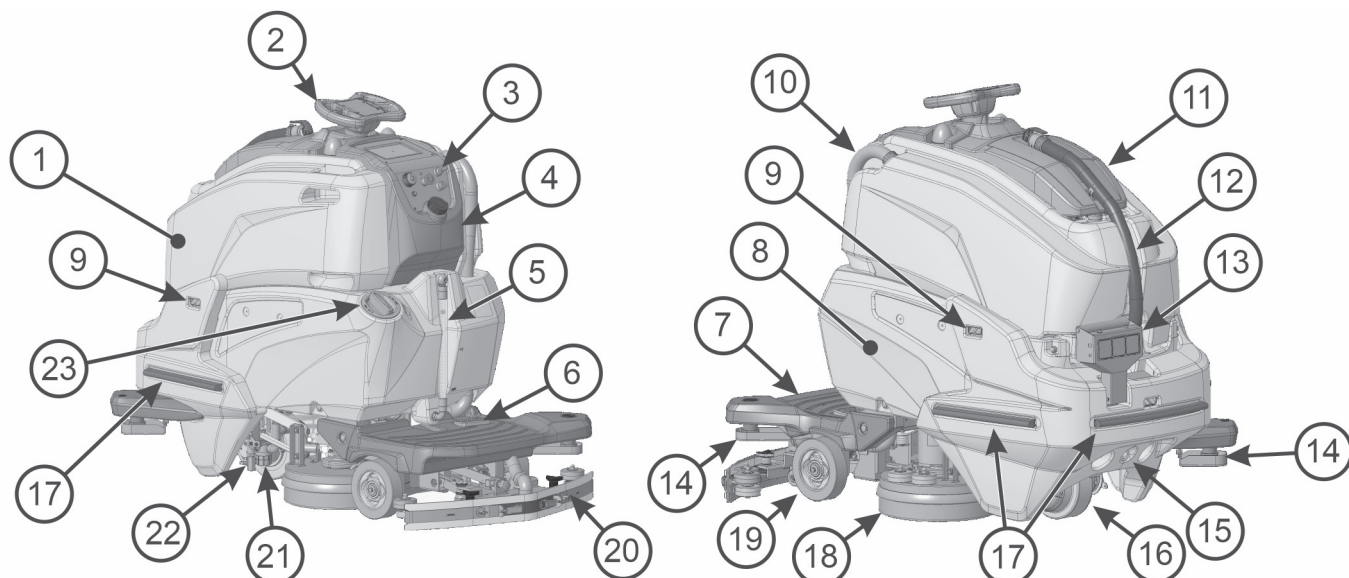
DISPLAY AND CONTROLS LEGEND

- | | |
|---|-----------------------|
| 1. TOUCHSCREEN DISPLAY | 5. KEY SWITCH |
| 2. SPEED ADJUSTMENT KNOB | 6. CLAXON |
| 3. EMERGENCY BUTTON | 7. DETERGENT LOAD CAP |
| 4. SPEED DIRECTION LEVER (FORWARD/BACKWARD) | |



MACHINE LEGEND

- | | |
|---------------------------|-------------------------------|
| 1. RECOVERY TANK | 12. DRAIN HOSE |
| 2. STEERING WHEEL | 13. 3D CAMERA |
| 3. DASHBOARD AND CONTROLS | 14. LRF SENSOR |
| 4. DETERGENT TANK | 15. POSITION LIGHT |
| 5. WATER LEVEL PIPE | 16. TRACTION WHEEL |
| 6. TRACTION PEDAL | 17. BUMPER |
| 7. DEAD MAN FOOTBOARD | 18. BRUSHES BASE ASSEMBLY |
| 8. CLEAN WATER TANK | 19. REAR WHEELS |
| 9. ULTRASONIC SENSORS | 20. SQUEEGEE ASSEMBLY |
| 10. SQUEEGEE HOSE | 21. DETERGENT SOLUTION FILTER |
| 11. RECOVERY TANK CAP | 22. SOLUTION DRAIN |
| | 23. SOLUTION LOAD CAP |

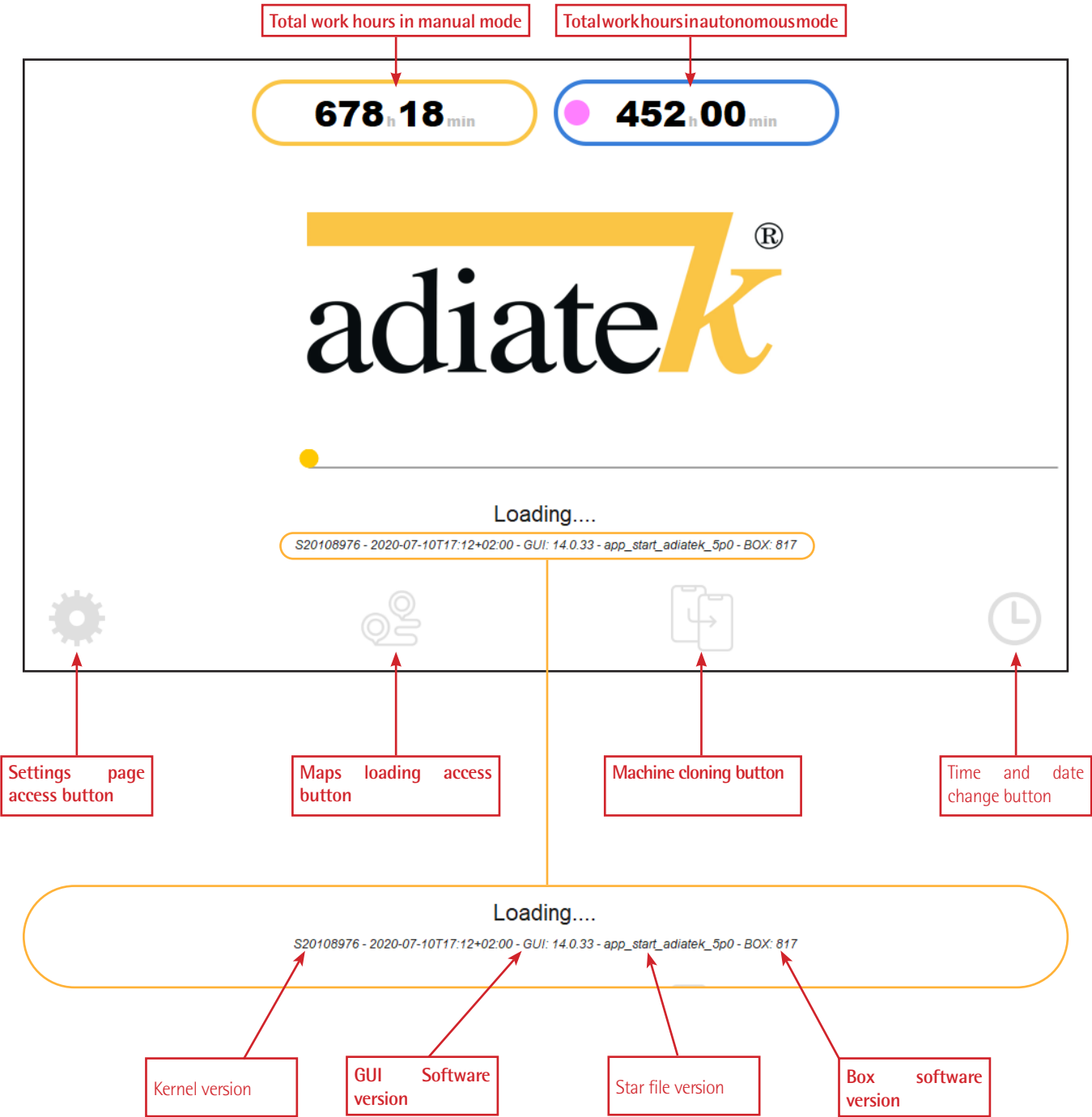


STARTING SEQUENCE

LOADING PAGE

When turning on the machine, after turning the key-switch to ON, the screen starts and the programs start to install. Once the communications with the peripheral devices are activated, will appear the indications of the several software versions installed and the three buttons that give access to the settings page, the loading maps page and the time/date setting page. By the time the three buttons appear, there will be 5 seconds available to press them, after which the software will automatically switch to the Manual Functions screen.

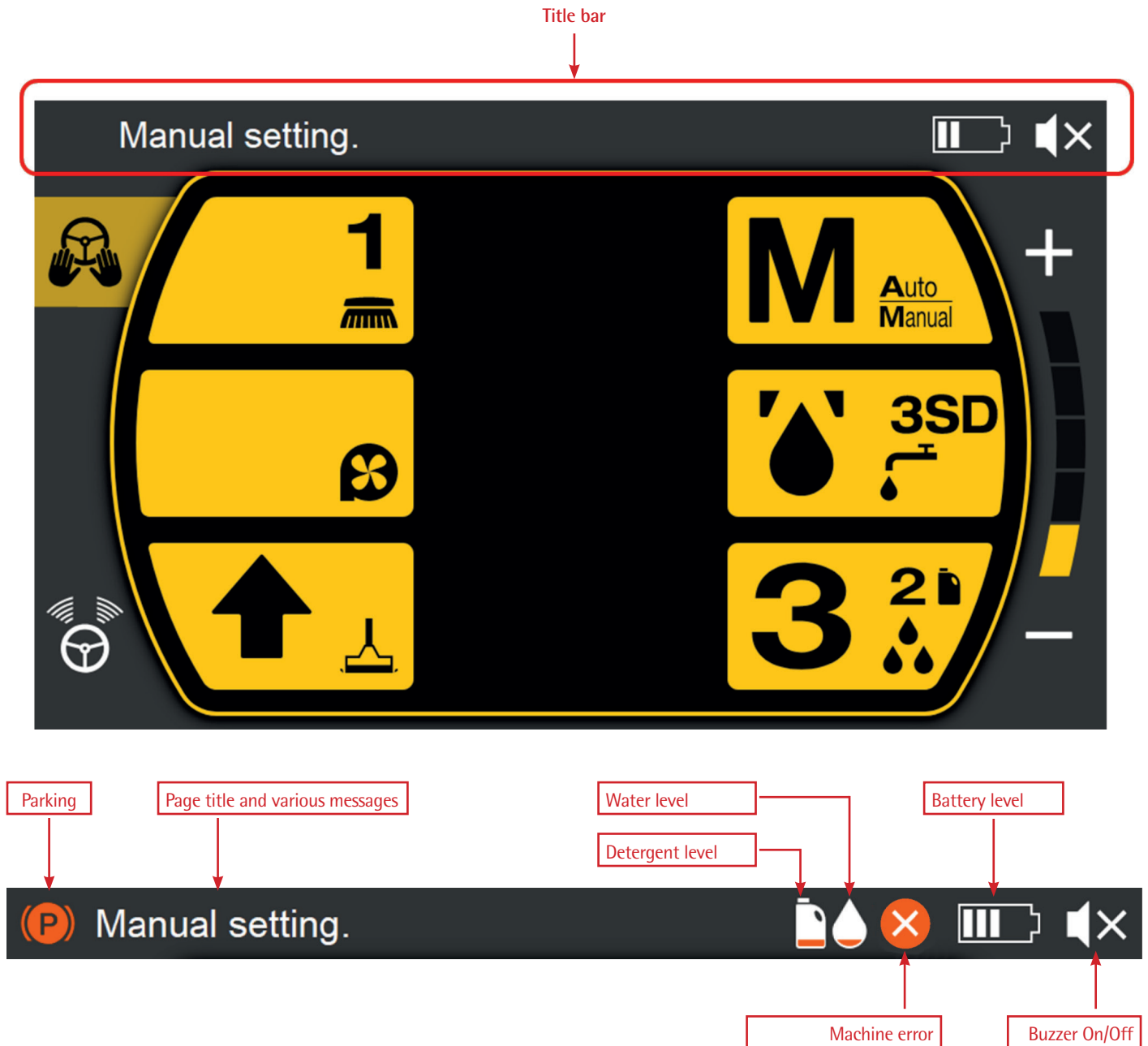
HOURLMETER



HOME SCREEN

TITLE BAR

The title bar is an area of the display which is common to all the functioning screens. It can be found on top of the page as shown in the example below.



Through the title bar, the following indications are available:

- Check if the machine is on parking mode or not. If so, the related icon will appear, as shown in figure, otherwise no icon will appear;
- See the title of the page of the temporary functioning messages. This will be shown in the space named "Page title and eventual messages", as reported in figure.
- Verify if the water or detergent level is critical or not. If so, the related icon will appear as shown in figure, otherwise it will not.
- Verify and access eventual error signals through the "Signal error" image. This is not only an image but a button also which, if present, when

pressed will show the message/s of error that are present (see chapter WARNING OR ERROR MESSAGE);

- Battery level indicator (for the battery levels see chapter "BATTERY CHARGE LEVEL INDICATOR")
- Buzzer On/Off. To change this status see chapter "VERIFY OR CHANGE THE BUZZER STATUS".

MANUAL SYMBOLOGY



Icon denoting the open book.
Indicates that the operator has to read the manual before the use of the machine.



Icon denoting the open book.
For the good functioning of the incorporated battery recharger (optional), read the manual of the constructor.



Warning Icon.
Read carefully the sections marked with this symbol, for the security of both the operator and the machine.



Warning Icon.
Risk of acid leakage from the batteries.



This icon points that it is imperative to disconnect the wiring from the batteries acting upon the connector before any operation on the machine.



Obligation symbol requiring the wear of protection glasses.



Obligation symbol requiring the wear of protection gloves.



Symbol preceding an information about the correct use of the machine.



Symbol indicating operations to be carried out only by qualified personnel.



Icon indicating the part of the manual related to the unboxing, preparation and start of the machine.



Icon related to the part of the manual regarding the use of the machine in MANUAL SETTING mode



Icon indication the part of the manual related to the use of the machine in AUTO CLEANING mode



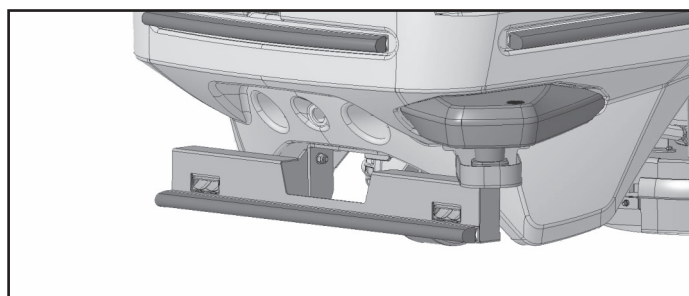
Icon indication the part of the manual related to the maintenance of the machine



Icon indicating the part of the manual related to the displaying of error and warning messages.

OPTIONAL EQUIPMENT

LOW-OBJECT AVOIDANCE SYSTEM



OZONE GENERATOR



The ozone generator is available on those machines which have been equipped with Lithium battery only.

BEFORE USE

HANDLING OF THE PACKED MACHINE

The machine is supplied with suitable packing foreseen for fork lift truck handling.

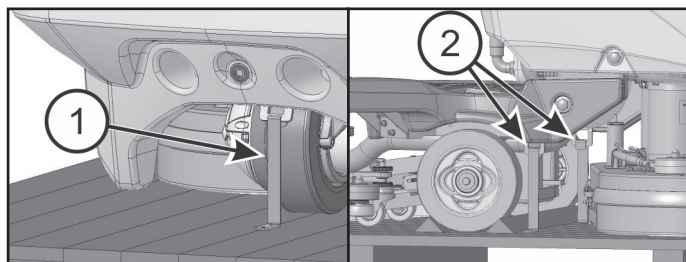
For the package dimensions please look at the "TECHNICAL DESCRIPTION" table.



Do not place more than 2 packages on top of each other.

UNPACKING AND REMOVING THE SAFETY BRACKETS

1. Removing the external box.
2. Unscrew the brackets (1+2) that fix the machine to the platform.



- Take off the squeegee hose (3) and lift the recovery tank, for further information see chapter "ACCESSING THE BATTERY VAN"

NOTE: As the steering is managed electronically it is not possible to move the machine without first connecting the batteries.

3. Connect the battery connector (4) to connect the batteries (5), for further information check the "CONNECTING THE BATTERIES" chapter.

4. Close the recovery tank and insert back the squeegee hose (3).

5. Put a slope behind the woodboard, the slope is not provided with the package.

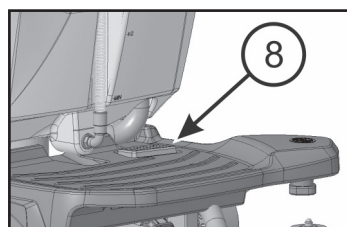
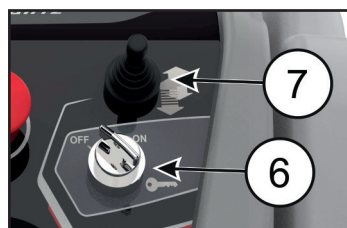
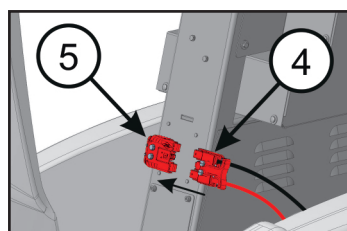
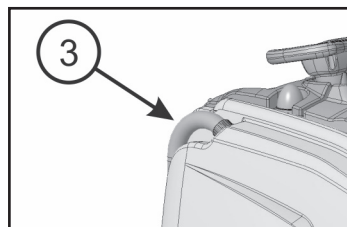
6. Step on the machine footboard.

7. Turn on the machine using the keyswitch (6).

8. Enable the backward movement using the drive direction lever (7).

9. Press on the drive pedal (8) to make the machine go down the slope.

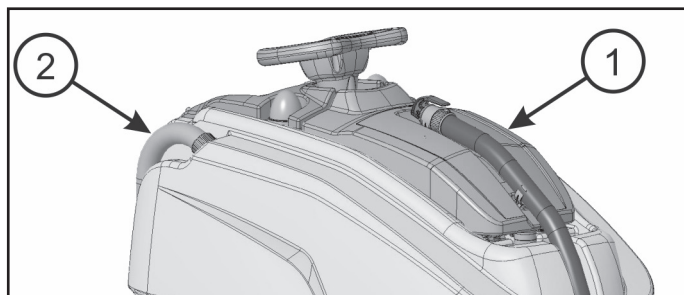
Keep the package for future transports.



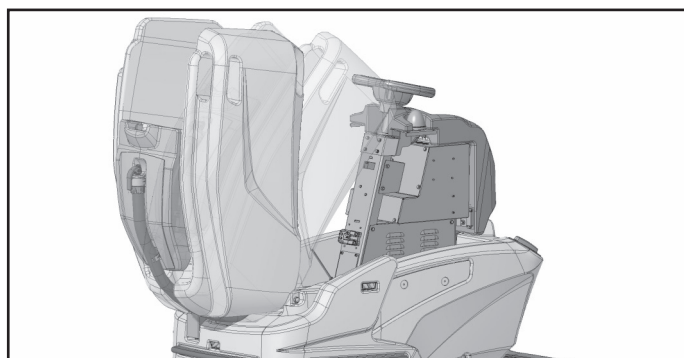
ACCESS TO THE BATTERY COMPARTMENT

To reach the battery compartment, first of all make sure that the recovery tank is empty by opening the cover (1).

If the tank is full, proceed as indicated under "RECOVERY TANK CLEANING", otherwise take off the squeegee hose (2) and lift the tank.



Thanks to a blocking system of 2 levels, the machine allows the battery charging with a partial tank opening.



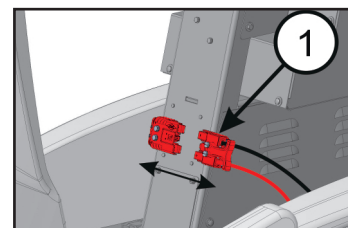
CONNECTING THE BATTERIES

The standard machine is provided with four Lithium batteries, already connected and housed in their dedicated vans under the recovery tank.

If there is the need to replace the batteries, rely on an authorized technical assistance center.

The Lithium batteries have to be replaced just with original spare parts.

Through the connector (1) the batteries can be connected or disconnected



BATTERY CHARGER



Generally the battery charger is provided with the machine.

If not, be sure that the battery charger is suitable with the batteries installed, with relation to its capacity and type (GEL or Lithium).

The appliance must only be supplied by a battery charger at safety extra low voltage corresponding to the marking on the appliance.

In the bag that includes the Use & Maintenance manual there is also the connector to mate the battery charger. This connector has to be assembled on your battery charger cables as per the dedicated instructions provided by the battery charger supplier.



BATTERY CHARGE LEVEL INDICATOR

The charge level of the batteries is shown on the display by the dedicating symbol in the title bar (see chapter "TITLE BAR").

The charge level indicator refers to the actual charge amount (Ah) left in the battery pack.

Machine with Lithium battery equipment

In case of lithium batteries, the display corresponds to the following charge levels:



Total charge $\leq$ 100%



Total charge $\leq$ 40%



Total charge $\leq$ 80%



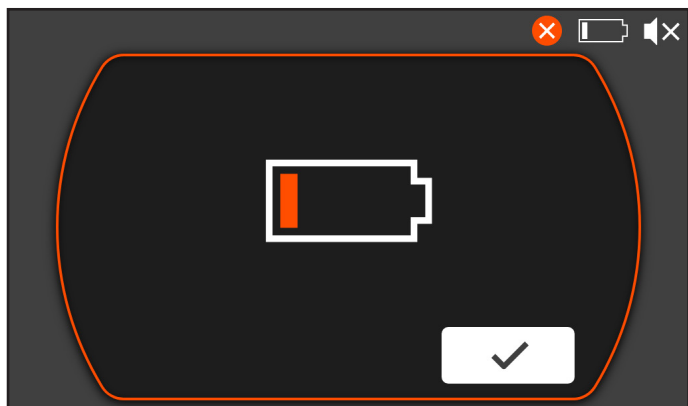
Total charge $\leq$ 20%



Total charge $\leq$ 60%

When the uploading decreases below 20%, a charge warning is shown and the operator receives the information on his own device through TELEMATICS.

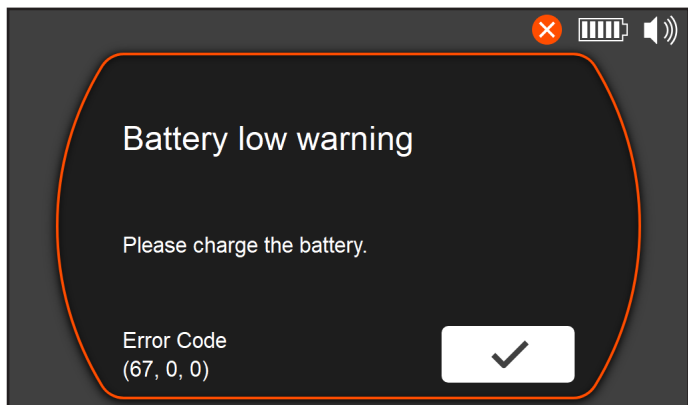
At this point of the charge, the machine allows autonomous work, however the teaching function remains deactivated.



When the uploading decreases below 10%, a charge warning is shown and the operator receives the information on his own device through TELEMATICS.

At this point, the machine interrupts the autonomous work in case it was performing it. It is no longer possible to enter the mode "AUTONOMOUS WORK" but only the "MANUAL SETTING".

Take the machine to recharge the batteries immediately.



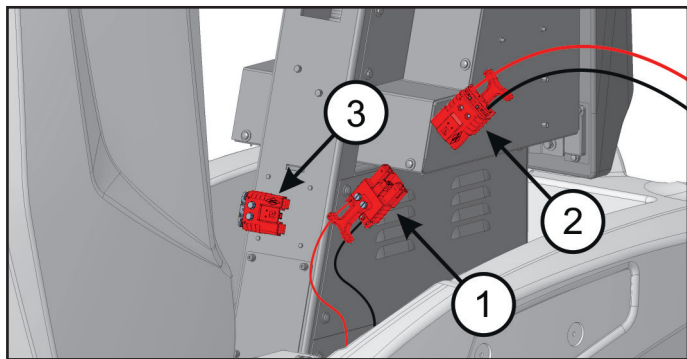
CHARGING THE BATTERIES



1. Plug the connector (2) of the charger with the batteries connector (1).
2. Proceed with the charge; with GEL batteries keep the the recovery tank open during the charge.

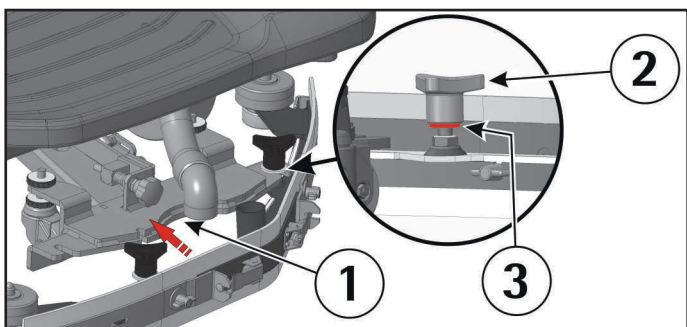
Once the charge is complete:

3. Disconnect the charger connector (2) from the batteries connecto (1).
4. Connect then the batteries connector (1) to the machine connector (3).

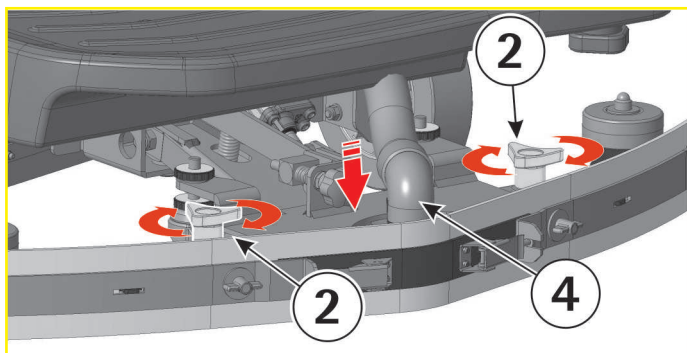


ASSEMBLING THE SQUEEGEE

1. Maintain the squeegee support (1) slightly lifted from the floor.
2. Insert the threaded parts of the two knobs (2) making them slide inside the two slots present on the support. Pay attention to put the washers (3) into position, they are two for each knob, so that they are assembled one under and the other on top of the two slots present on the support.

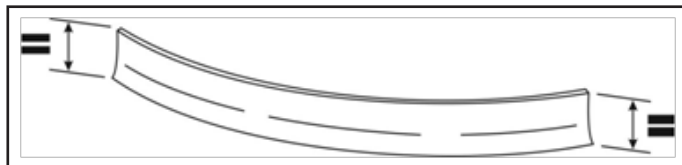


3. Block the squeegee by rotating the two knobs (2) clockwise.
4. Insert the squeegee hose (4) into its coupling, respecting its position as indicated in the figure.



ADJUSTING THE SQUEEGEE

In order to have a perfect drying result through the squeegee, the rear rubber must have the lower bending uniformly adjusted in all its length. For the adjustment, it is necessary to put oneself in working condition and therefore the suction motor has to be switched on and the brushes have to function together with the detergent solution.



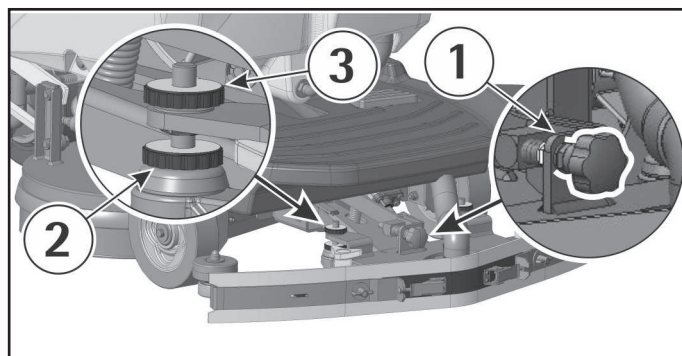
The bending is not uniform

Adjust the squeegee inclination rotating counterclockwise the knob (1) to increase the bending in the central part, or clockwise to increase the bending on the extremities.

Height adjustment

Once that the squeegee inclination has been adjusted, it is necessary to fix this optimum condition making touch slightly the wheels onto the floor. Release the wheels rotating counterclockwise the register (2), rotate the register (3) to raise or to lower the wheels until the desired bending is reached.

At the end block again the wheels through the register (2).



ASSEMBLING AND DISASSEMBLING THE SPLASHGUARDS



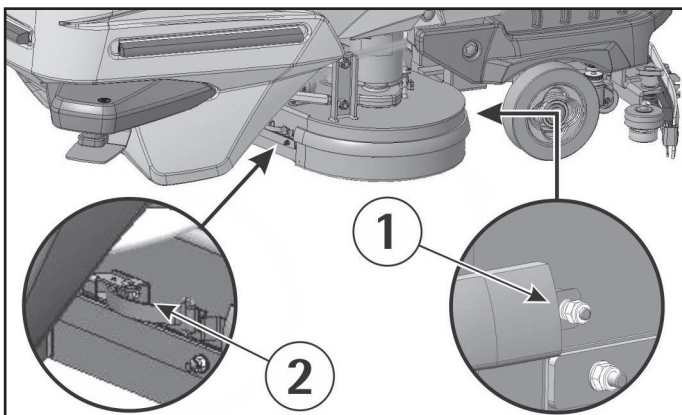
The two splash guards have to be assembled onto the brushes base group as indicated in the following figures. Insert the metal strips inside the suitable slots present on the rubber.

Fix the ends of the strip to the screw (1).

Lock the lever (2) to the ring placed at the free end of the meal strip.

These operations have to be done for both the splash guards. With the brushes assembled, the splash guards must slightly touch the floor.

To disassemble the splash guards do the same operations in reverse.



ASSEMBLING THE BRUSHES

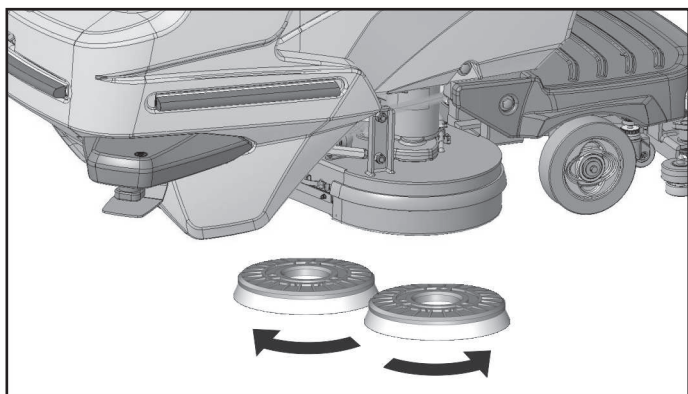


To assemble the brushes it is necessary that the brushes base is in the lifted position. If it is not lifted, proceed as follows:

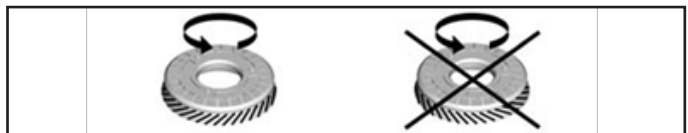
Without the operator seated, turning the key switch clockwise, the display comes on and after 3 seconds all working groups come off automatically and are lifted from the floor.

Switch off the machine turning the key counterclockwise.

With the brushes base group in lifted position lock the brushes rotating them as in the picture below.



For a longer life of the brushes we suggest to invert daily their position. Whenever brushes result to be de-formed we suggest reassembling them in the same position, in order to avoid that the different inclination of the bristles causes excessive motor overload or troublesome vibrations.



Use only brushes supplied with the machine or the ones indicated in the manual "RECOMMENDED BRUSHES". The use of other brushes can compromise the good washing result.

CHECKING AND CHANGING THE BUZZER STATUS

The machine can communicate with the operator or the people nearby through the buzzer.

To check or change the buzzer status, press the buzzer icon on the title bar (see chapter "TITLE BAR").



OFF



ON

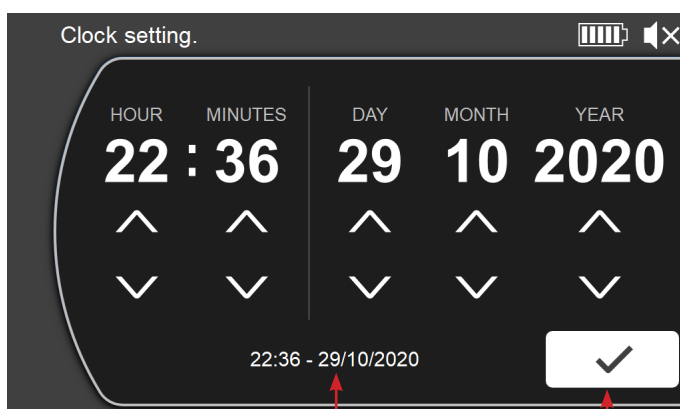
CHANGE THE TIME AND DATE

It is possible to change the time and date, during the loading screen, pressing the dedicated icon (for info on the Loading screen see chapter "LOADING SCREEN").

Point the time and date that are wanted to be set, changing the values using the dedicated arrows.

Once the time and date are selected, pressing the check button they will be confirmed and their slot will be updated to the new values.

Switch off and on the machine to operate it again.



Current date

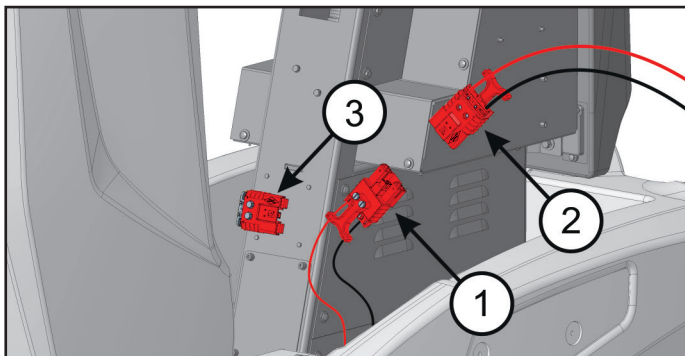
Check icon

PREPARING THE MACHINE FOR WORK

CONNECTING THE BATTERY CONNECTOR AND SWITCHING ON THE MACHINE

Once that the battery charge has been completed:

1. Disconnect the connector (2) of the battery recharger from the battery connector (1).
2. Connect then the battery connector (1) to the machine connector (3).

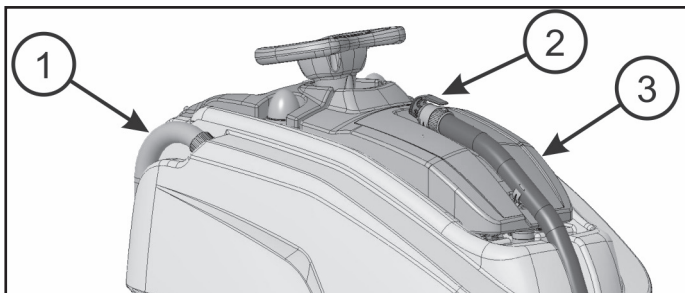


RECOVERY TANK



Verify that the squeegee hose coupling (1) is correctly inserted into its seat and that the exhaust hose plug (2) is well closed.

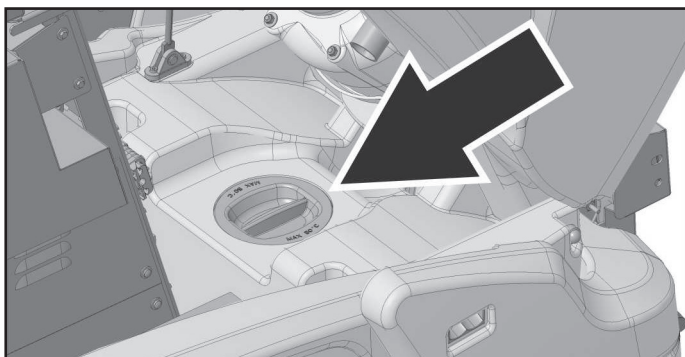
The recovery tank is provided with a cover (3) that blocks itself thanks to the vacuum created by the suction motor during the use.



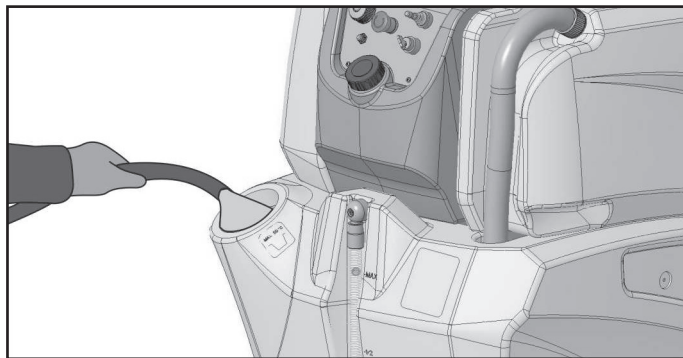
CLEAN WATER TANK

The clean water tank is provided with an inspection opening. This allows to clean the water exit hole.

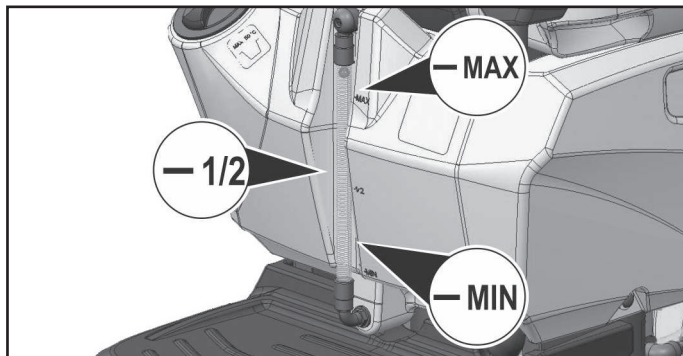
Be sure that the cap is properly closed after the cleaning.



The clean water tank capacity is indicated in the technical data sheet. Open the threaded cap on the left side of the machine and load the tank with clean water, at temperature not over 50°C.



On the rear part of the machine is placed a level hose that allows to see easily the solution quantity inside the tank both during the filling of the solution and during the working.



Screw the water tank cap.

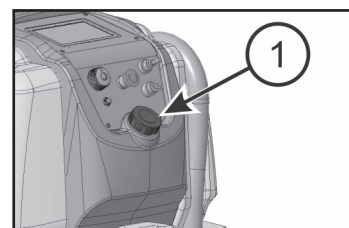
DETERGENT TANK



The machine is provided with a detergent tank.

To load the detergent unscrew the cap (1).

To drain the detergent see chapter "DRAINING THE DETERGENTE".



Protect yourself from accidental contacts with the detergent, using the protection devices provided by the detergent supplier.

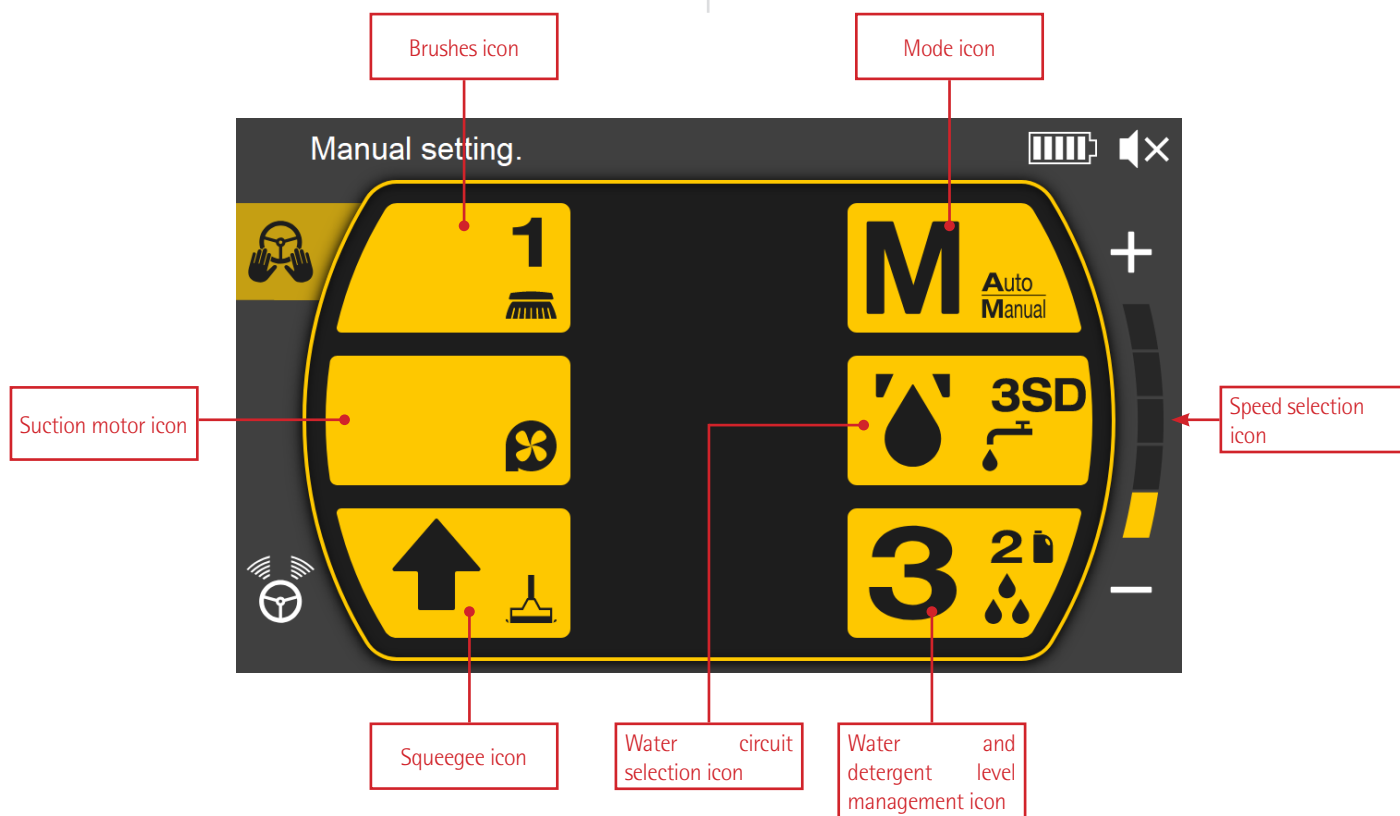
To safely avoid the production of foam, before starting the work add a minimum quantity of anti-foam liquid inside the tank.

Never use pure acid.

WORKING IN MANUAL MODE ("MANUAL SETTING")

The "MANUAL SETTING" work section is made of a single screen through which it is possible to carry out all the manual clean operations. Next is reported a picture of the MANUAL SETTING screen.

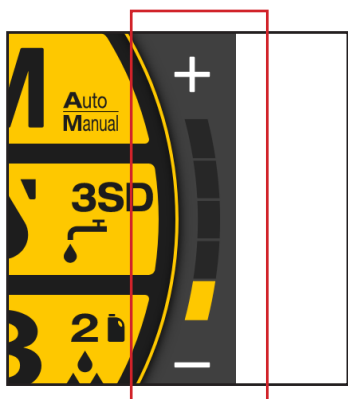
Attraverso il tasto "AUTO CLEANING" in basso a sinistra è invece possibile passare alla sezione "AUTO CLEANING", che sarà descritta nei paragrafi successivi.



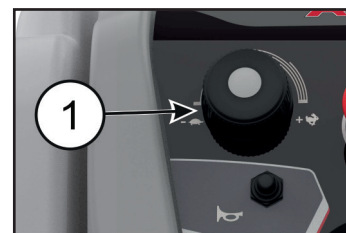
ADJUSTING THE SPEED

The speed adjustment during the manual use is set through two controls.

Using buttons + and - on the right of the "MANUAL SETTING" screen, it is possible to set the maximum drive speed of the machine.



Through the knob (1) on the dashboard, it is possible to increase or decrease the instant speed of the machine. The speed will change from the minimum to the maximum of the speed previously set and showed on the display..



BRUSHES ICON

This button allows to control the brushes base.
From the OFF status, the following operations can be made:

Lift/Lower the brushes base

With a single click, the brushes base can be lowered or lifted.
If it is down, it lifts.
If it is up, it lowers.

Change the brushes pressure level

To change the brushes pressure, double click on the button. Now on the titole bar "change brushes pressure" will appear and through single clicks the three brushes pressure levels can be set, from 1 to 3. After two seconds without clicking, the level will be memorized and the button will return to its initial state..

Automatic brushes disassembling



By keeping the button pressed for more than 2 seconds the brushes will unlock the "brushes unlock" will appear on the title bar.



OFF state



ON state

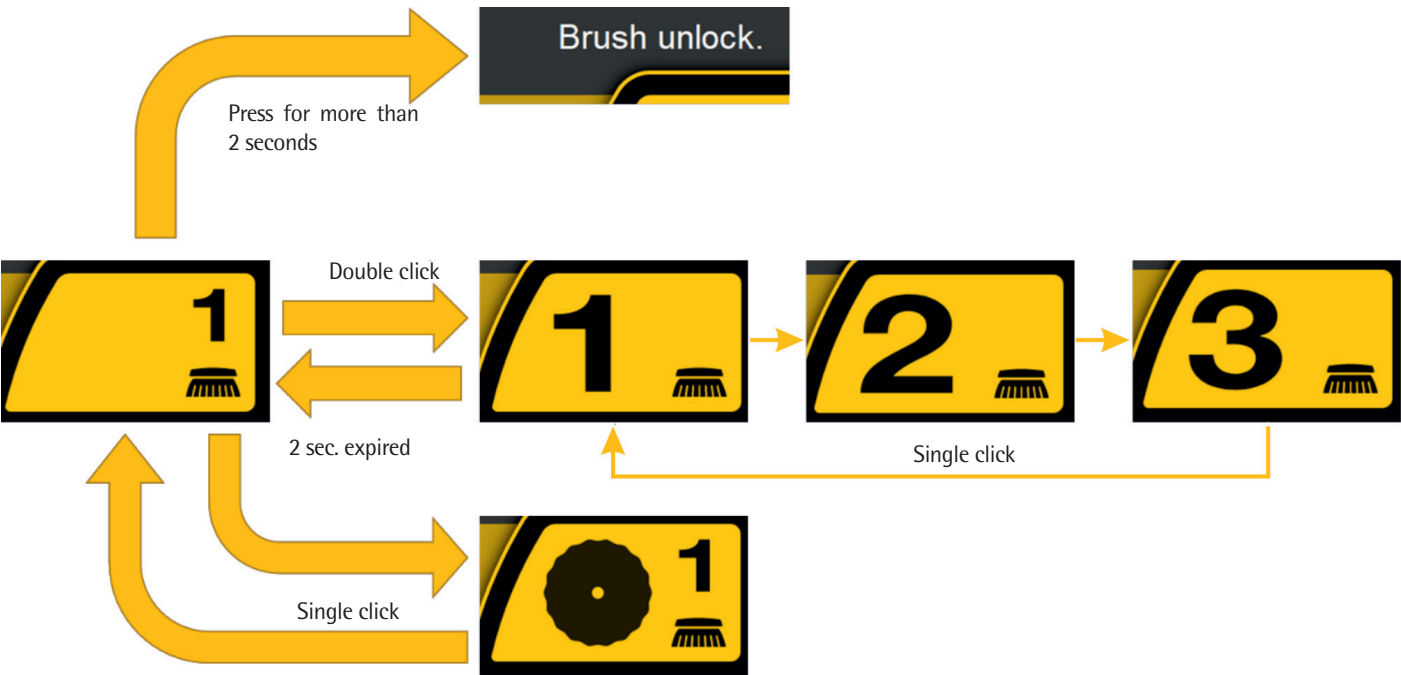


Brushes in motion



Brushes pressure

Next, the diagram that shows the use of the brushes button.



SUCTION MOTOR ICON

This button allows to control the turn on of the machine suction and its level.

Through this button the following operations can be made::

- Turn on and off the suction motor, with a single click.
- Change the suction level.



OFF

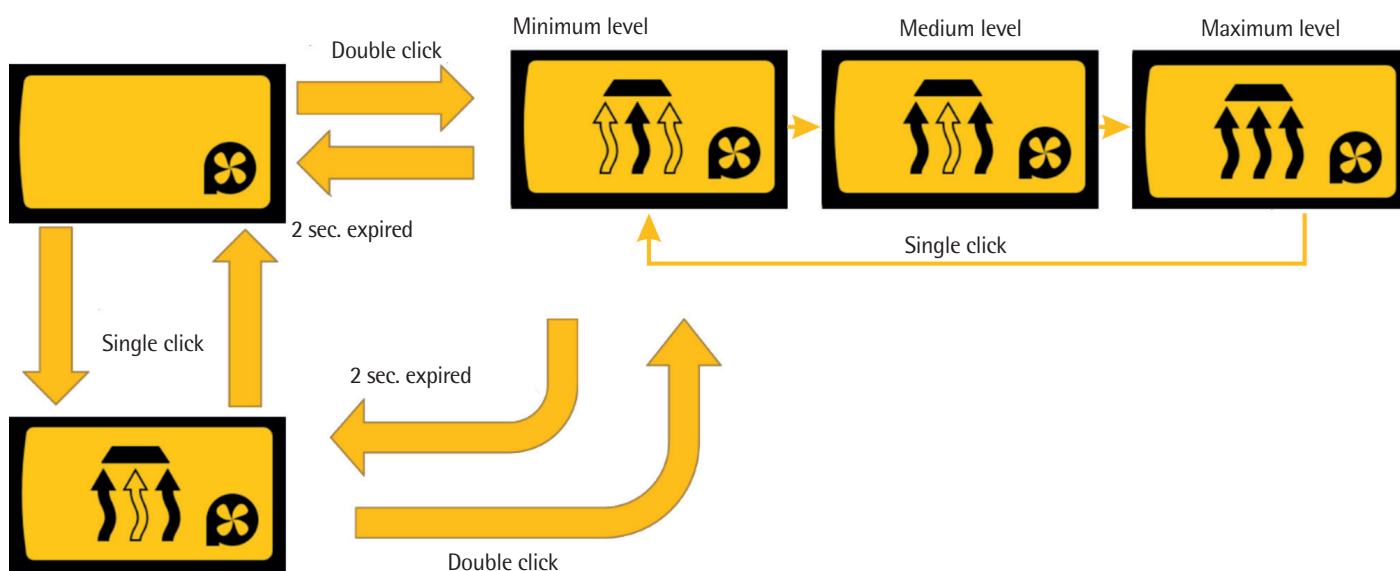


ON

Changing the suction level

To change the suction level, double click on the button. Now "change the suction level" will appear on the title bar and through single clicks the three level can be selected, from the minimum to the maximum. After two seconds without clicking, the level will be memorized and the button will return to its initial state..

Next, the diagram that shows the use of the suction button



SQUEEGEE ICON

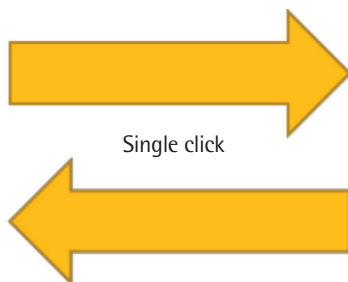
This button allows to lift or lower the squeegee with a single click.

When the squeegee is lifted the suction motor stops.

When the squeegee is lowered the suction motor starts.

Squeegee up

Squeegee down



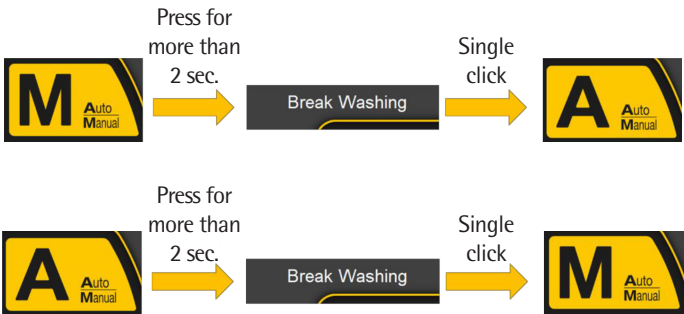
MANUAL OR AUTOMATIC MODE SELECTION

It is possible to switch from one mode to another with a single click.



BREAK WASHING MODE SELECTION

Pressing the button for more than 2 seconds, both from Automatic and Manual mode, activates the Break Washing mode. To exit Break Washing mode, press the button with a single click.

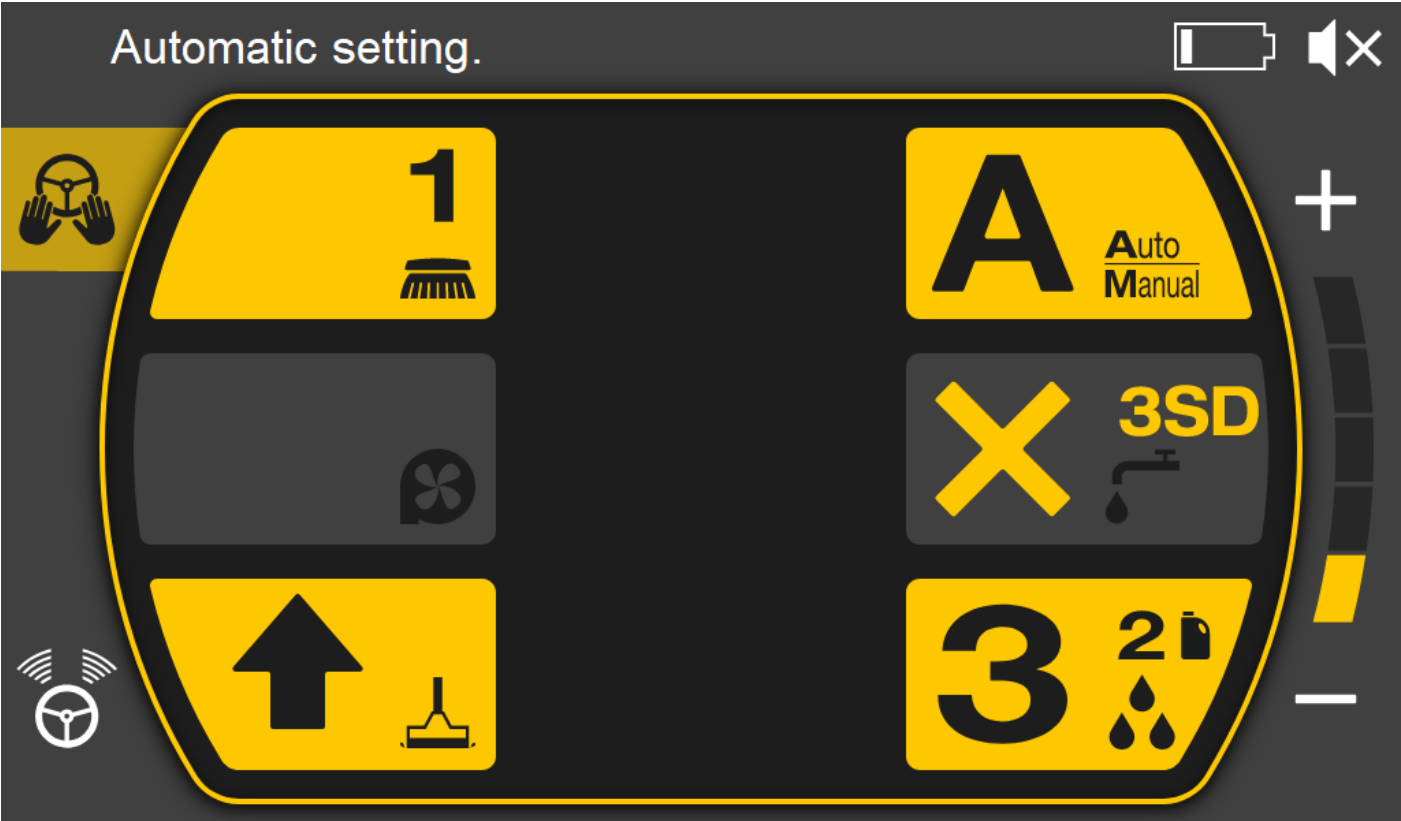


WORKING IN AUTOMATIC MODE

When switching to automatic mode the buttons functions can change and the screen is showed as follows.

- The buttons functions in automatic mode are the following:
- Brushes button: No matter what the brushes base status is, when pressing the button it return in Manual work mode and the brushes base goes OFF.
 - Suction button: disabled in this mode.
 - Squeegee button: No matter what the squeegee status is, when pressing

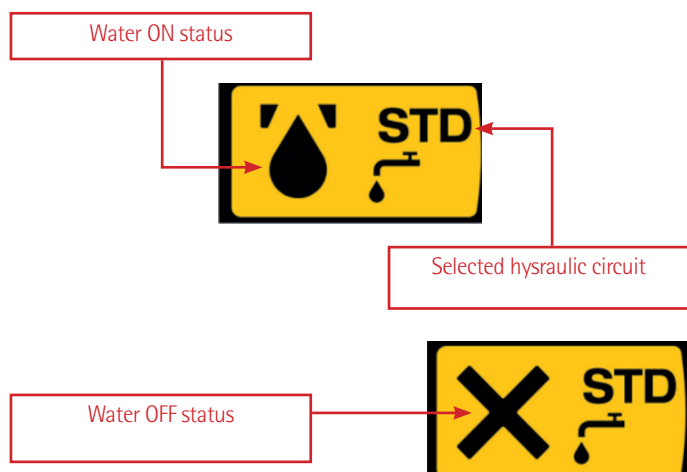
- the button it return in Manual work mode and the squeegee goes up.
- Water management and circuit selection button: disabled in this mode.
 - Wate and detergent level management button: same behavior of when in Manual mode.



WATER MANAGEMENT AND HYDRAULIC CIRCUIT SELECTION BUTTON

This button allows to enable or disable the water/detergent flow and select the desired circuit.

With a click the water is turned on/off. With a double click it is possible to choose the circuit.



Standard work mode selection

When the button is as in the picture, the standard hydraulic work circuit is selected. Water and detergent are loaded in the solution tank by the operator and are distributed together. The amount of solution distributed is constant and set by the operator, see chapter "WATER AND DETERGENT LEVEL MANAGEMENT BUTTON"



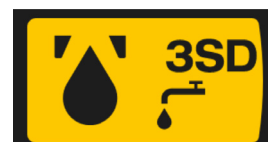
Solution Saving System (3S) work mode selection

When the button is as in the picture, the Solution Saving System (3S) hydraulic work circuit is selected. Water and detergent are loaded in the solution tank by the operator and are distributed together. The amount of solution distributed changes depending on the work speed. The maximum distribution is set by the operator, see chapter "WATER AND DETERGENT LEVEL MANAGEMENT BUTTON"



Solution Saving System Dispenser (3SD) work mode selection

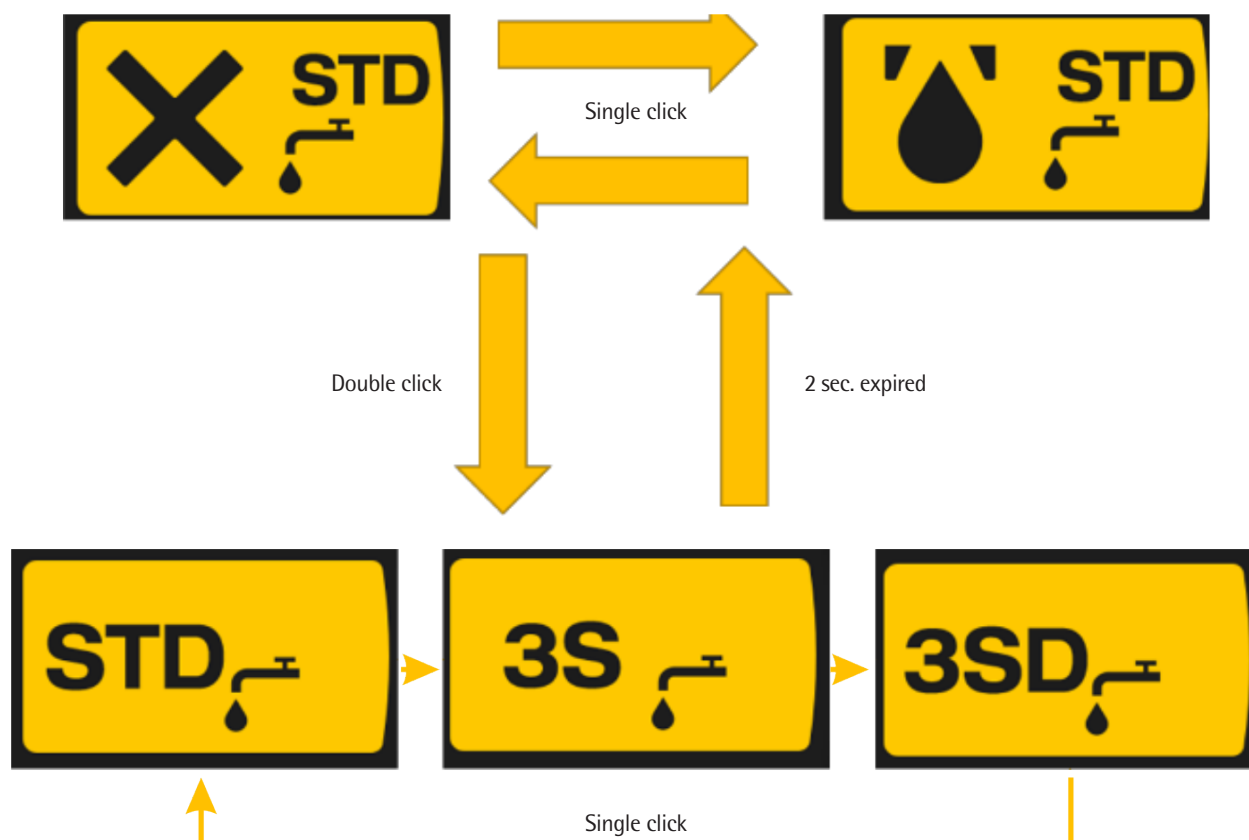
When the button is as in the picture, the Solution Saving System Dispenser (3SD) hydraulic work circuit is selected. Water and detergent are loaded by the operator in their dedicated tanks. The amount of solution distributed changes depending on the work speed. The maximum distribution is set by the operator.



With this mode it is possible to set a fixed amount of detergent depending on how much water is distributed.

To set the maximum quantity of solution and detergent, see chapter "WATER AND DETERGENT LEVEL MANAGEMENT BUTTON"

Next is reported the interaction with the button:



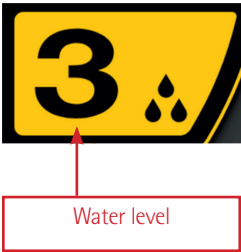
WATER AND DETERGENT LEVEL MANAGEMENT BUTTON

This button allows to change the level of the water and detergent quantity, to select and enable the circuit see chapter "WATER MANAGEMENT AND HYDRAULIC CIRCUIT SELECTION BUTTON".

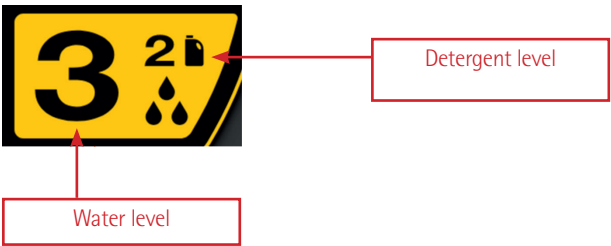
- With a single click, the amount of water can be chosen from level 1 to 7.
 - The button can have the "detergent level" function enabled or disabled, depending on the selected circuit. When the 3SD circuit is selected, it is possible also to manage the detergent level.
- With a double click the detergent amount can be selected, choosing from level 0 to 5. Level 0 is equal to the OFF status of the detergent pump and it is represented by a X.



Solution Saving System (3S) button in standard mode



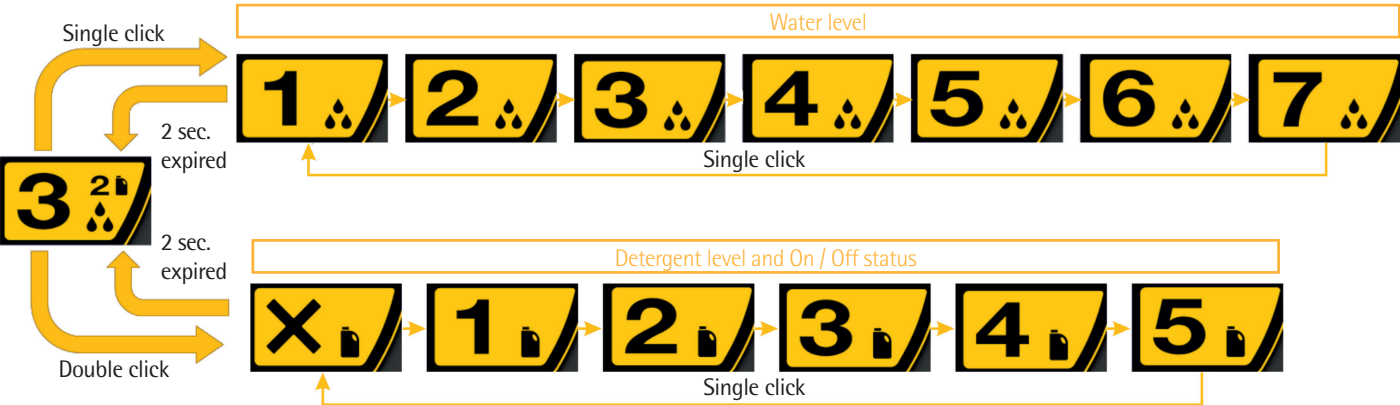
Solution Saving System Dispenser (3SD) button in standard mode



The interaction with the button in standard mode and Saving Solution System (3S) is shown below:



Next is reported the interaction with the button in Solution Saving System Dispenser (3SD) mode:



TREATMENT WITH OZONE (OPTIONAL)

In order to use the ozone system at best, please proceed as follows:

1. Ensure that the solution tank is clean inside, in case rinse it out by filling and then emptying it at least twice.
2. Fill the solution tank with tap water (do not add any detergent).
3. Select Ozone treatment, see chapter "OZONE WORKING MODE (OPTIONAL)"
4. Start the treatment

The Ozone generation begins soon after the water flows and, when it happens, the machine warns it by switching on the green led on the machine control board.

This led is only displayed on the machine when the ozone system is assembled.



The ozone is a gas which has a very penetrating smell and may cause irritation.

Ozonated water is a strong oxidant, therefore in order to prevent the metal parts of the machine from oxidation (rust), it is recommended to rinse with water the entire low part of the machine at least once a week.

At the end of the treatment, it is not necessary to empty the solution tank.



WORKING IN AUTONOMOUS MODE ("AUTO CLEANING")

With "AUTO CLEANING" it meant the automatic execution by the machine of a route or a sequence of cleaning routes.
In this manual the cleaning route is defined as "COURSE".

It is possible to memorize up to 128 courses.
In order to execute two or more courses in sequence, it is necessary for the final point of one course to be the same as the starting point of the next one (see chapter "CREATE A LIST OF THE COURSES TO MAKE".
The position tolerance of the final point of one course and another is of about 1m (translation) and 15° tilt).

The "AUTO CLEANING" is then the menu section that allows to manage:

- The teaching activity, so the creation and saving of a course;
- The display and change of all the courses memorized in the machine;
- The creation of a list of courses to be made in automatic;
- An "AUTO CLEANING" start.

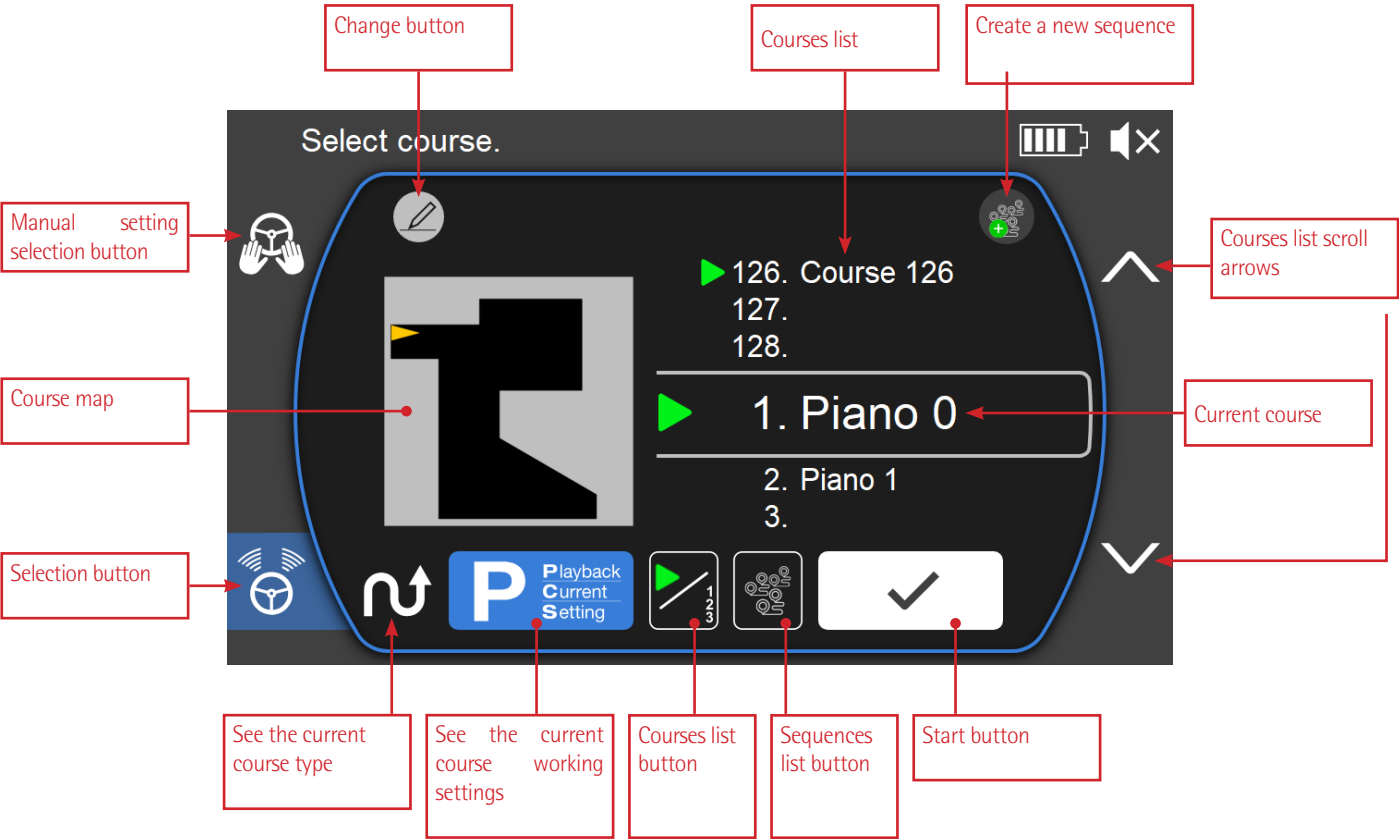
To enter the "AUTO CLEANING" section, press the "AUTO CLEANING" button from the "MANUAL SETTING" section; next is reported the main screen that is showed after entering this section.

In this screen, scrolling the courses list using the dedicated side arrows, all the memorized courses can be seen.

By pressing an arrow for more than 1 second, the fast scroll mode is entered.
Each course is identified by a number (from 1 to 128) and a name. If when creating a new course (see the "TEACHING" chapter) a nome is not given, the default name of the course will be "Course X" where X is the number of the slot where the course is (a number from 1 to 128).
The slots that do not have a text, represent a free space in which there are not courses memorized and where it is possible to create a new one.

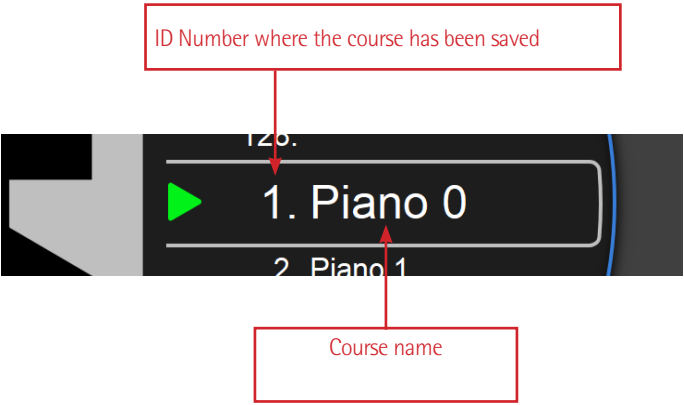
For each course it is possible to see and/or modify the following features:

- See Number and Name of the course and change the Name;
- See the course map;
- See the course type;
- See and modify the cleaning settings (the possible settings change depending on the type of course);
- Add/delete the course from the list of courses to make.

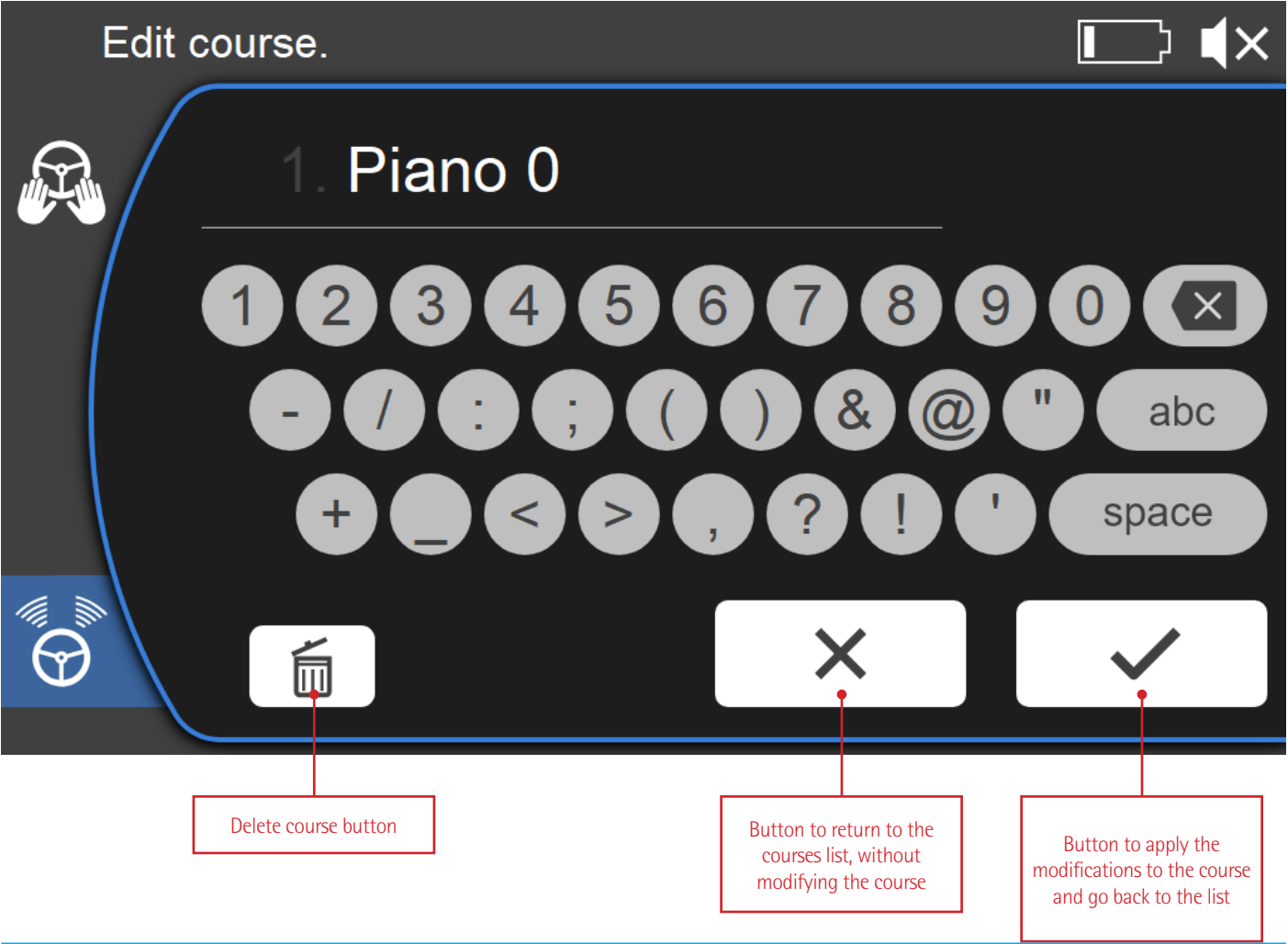
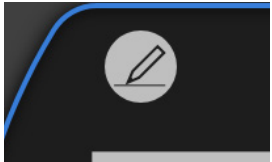


CHANGE THE NAME OF THE COURSE OR DELETE IT

Using the scroll button, select the course to modify or delete.
A course is identified as follows:



Pressing the "change button" a screen with a keyboard through which it is possible to change the name of the course or delete it.



COURSE MAP

The map reproduces the route registered in a schematic way.



TYPE OF COURSE (PERIMETER AND PLAYBACK)

The machine has two ways of registering a course:

Course type	Icon	Description
Perimeter		In "PERIMETER" mode the operator during the "TEACHING" defines a closed perimeter for the cleaning. The machine will then elaborate a cleaning route that includes the "teaching" perimeter and all the area inside such perimeter.
Playback		In "PLAYBACK" mode the operator during the "TEACHING" defines a continuous work trajectory, not necessarily closed. The machine will then reply the cleaning route the same as the teaching trajectory. Also the cleaning conditions used during the "teaching" will be replied during the "AUTOCLEANING" procedure (see chapter "CLEANING SETTINGS").

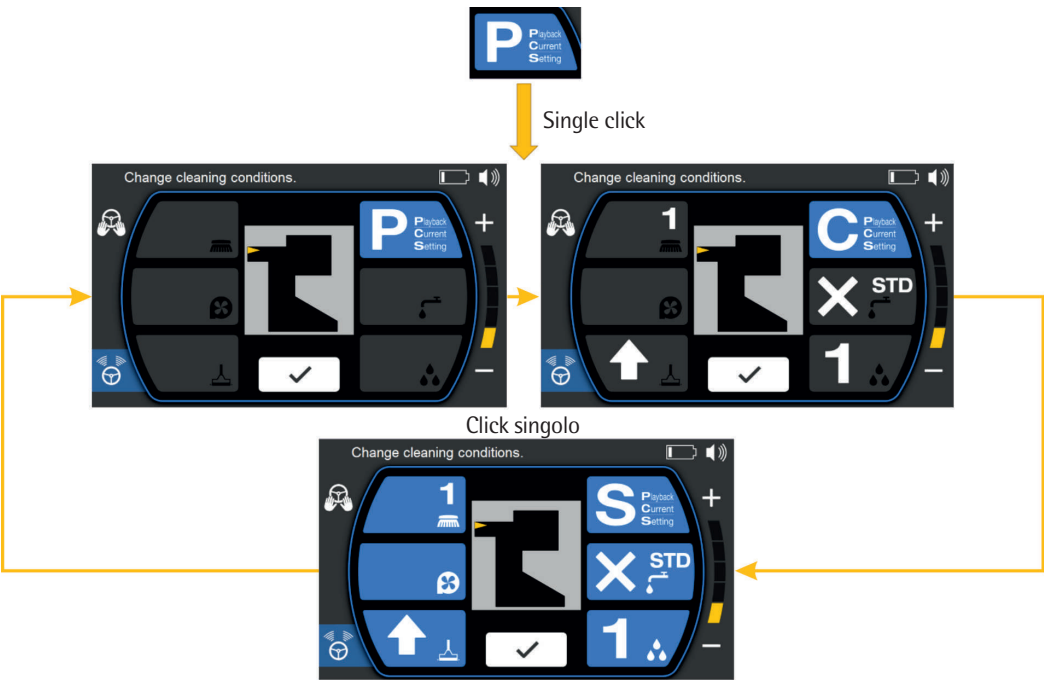
CLEANING SETTINGS

The cleaning settings are the following:

Cleaning settings	Types of playback course	Types of perimeter course	Description
Playback		If the course is registered in "Perimeter", this kind of settings can not be applied	During the automatic execution of the course, the cleaning settings used during the teaching will be replied.
Current			During the automatic execution of the course will be used the cleaning settings previously set in the Manual settings section.
Setting			During the automatic execution of the course will be used the cleaning settings that were set for that course.

The cleaning settings for a course can be modified by pressign this button. Once pressed, scroll through the two or three cleaning settings options (depending on the type of course). In case of the cleaning settings in Setting

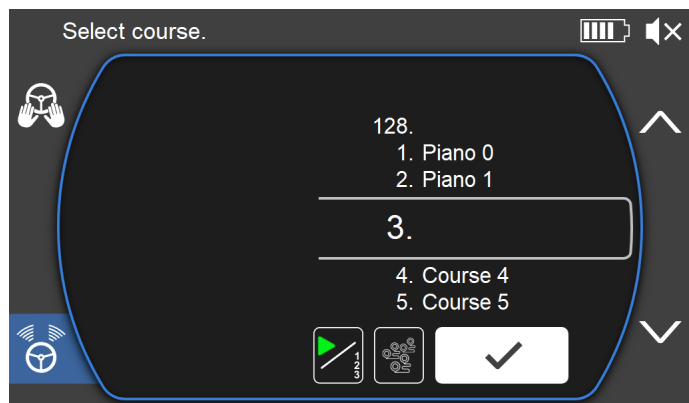
mode, the screen allows to set the single cleaning functions, the same as it is done in the "MANUAL SETTING" section.



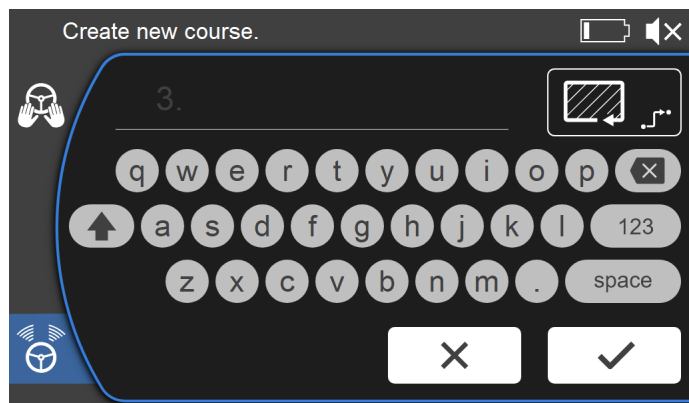
TEACHING

To record a new course, proceed as follows:

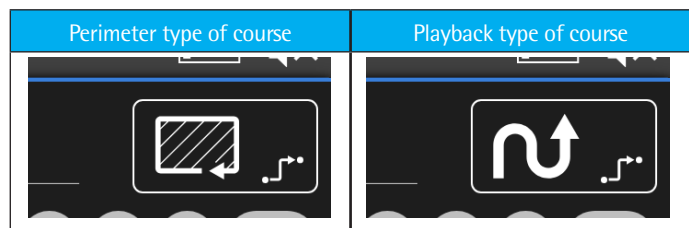
1. Click on one of the empty slots in the course list screen, in the following example we choose the free slot n. 3:



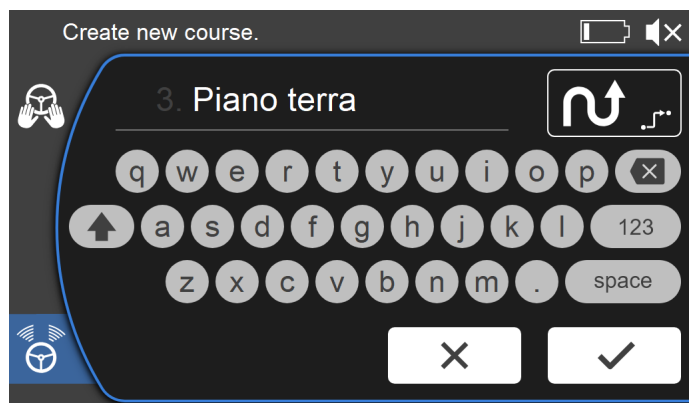
2. After pressing on the slot will appear a screen where it is possible to add a name to the course.



3. Clicking on the upper right icon it is possible to choose whether the course to record will be a "Perimeter" or "Playback" one.

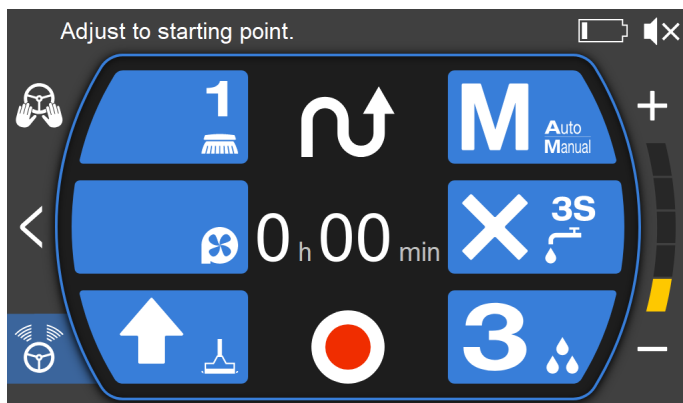


In the following example we choose to name the course "Piano Terra" and to make it in "Playback" mode.



4. Click on the check button to confirm.

The following screen with the clean setting chosen in "MANUAL SETTINGS" will show.

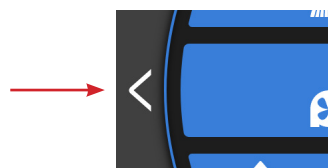


- To start recording, click on the REC button.

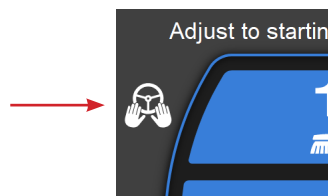


All the other buttons have the same function as when in the "MANUAL SETTING" mode, as it is possible to perform the cleaning during the recording. In the Playback course, the clean settings using during the record will be also saved.

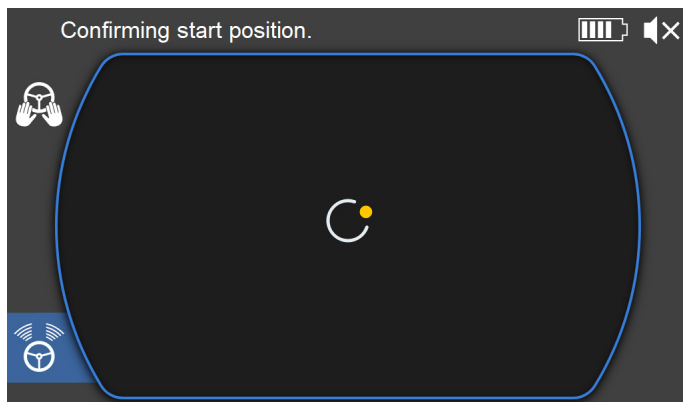
From this page, clicking on the left arrow, it is possible to return to the "name and type of course" screen, in order to eventually modify them.



Clicking on the "MANUAL SETTING" button, will be displayed a message asking if to interrupt the teaching and going back to the MANUAL SETTING section without saving the course.



Now the machine will analyze the starting point where it finds itself. During this operation, the following screen will appear.



Once the starting point is confirmed, the following recording screen will appear:



If the machine does not confirm the starting point as valid, the following warning will appear, which will ask to move the machine.



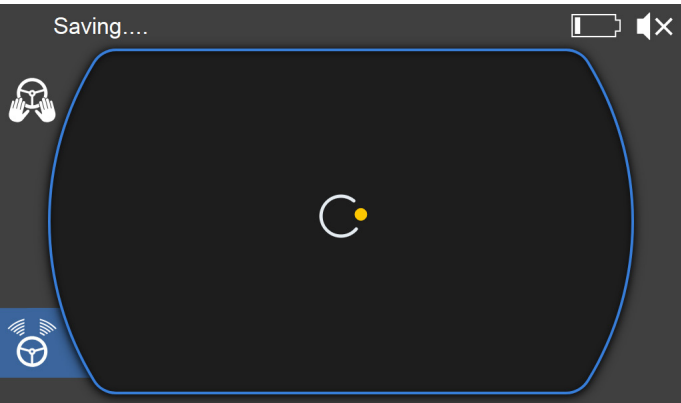
Once the starting point is confirmed, the recording will start when the machine will start to move, through the drive pedal.
During a teaching record, just the following indications will be enabled:

- Cancel the record going back to the "MANUAL SETTING" section, clicking the "MANUAL SETTING" button;

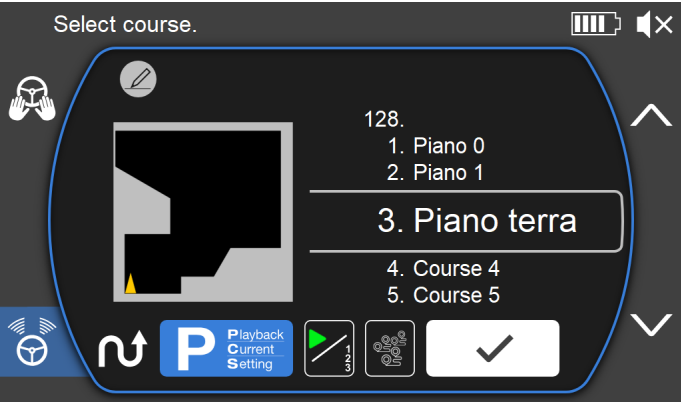
- Pausa and/or restart the record, using the Pause/Play button;

- Stop and save the course, clicking the STOP button.


Once pressed the STOP button, the machine will enter the saving mode and the waiting screen will appear:



Once finished the record saving, the machine will return to the courses list screen; where before there was the empty slot 3, now there is the new course saved:

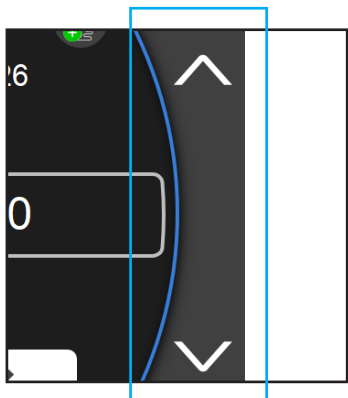


AUTO CLEANING EXECUTION

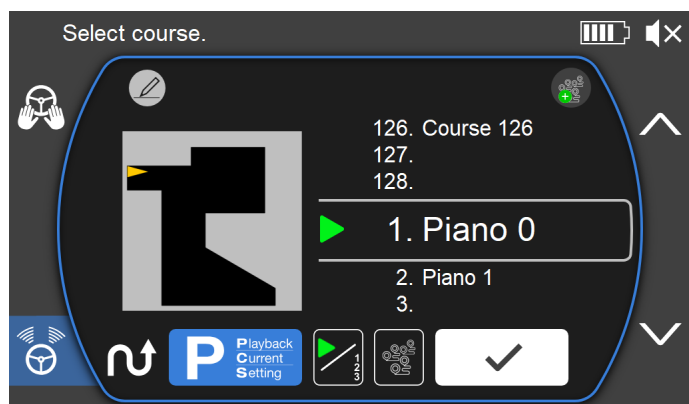
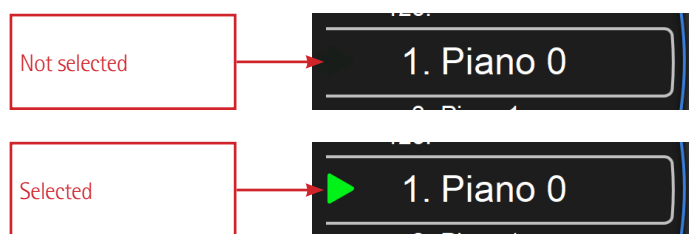
To perform the AUTO CLEANING it is necessary to bring the machine to the point dedicated to the course it is wanted to perform.

Once reached the starting point, select the course to perform.

To select a course, scroll through the courses list using the arrows.

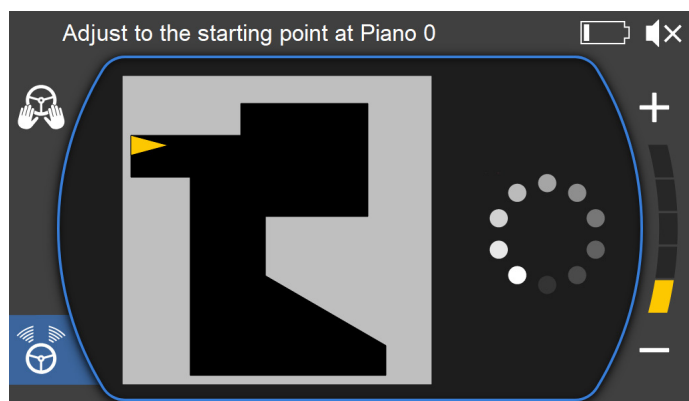


Once the desired course is showed, click on the route name to select it. When the green icon appears, it means that course has been selected

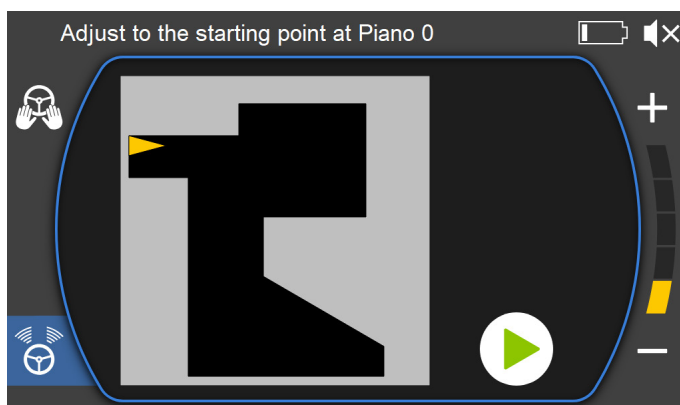


Clicking the AUTO CLEANING start button, the AUTO CLEANING section starts.

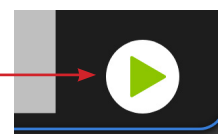
A screen like the following will appear, where there is the name of the course and the map of the course to perform.



Once the machine has recognized the starting point, the start button will appear. If the machine moves from the starting point, the start button will disappear and the "waiting" icon will appear.

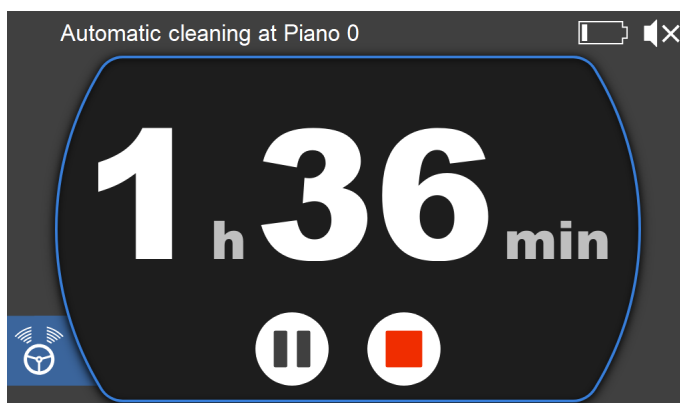


Now it is possible to start the auto cleaning by clicking on the start button.

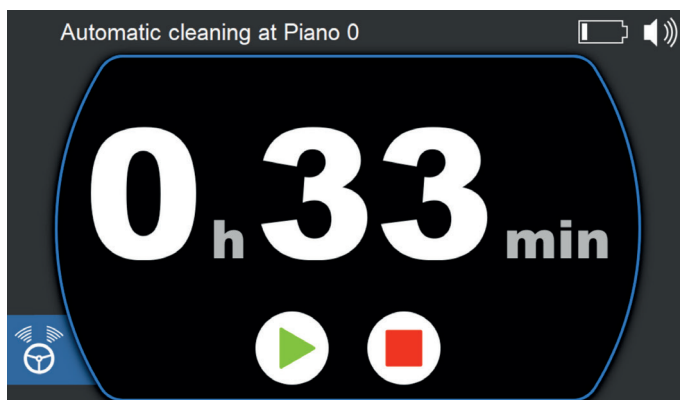
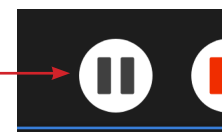


Once the AUTO CLEANING procedure starts, the machine will perform the selected course without the need of the operator.

During the whole 'AUTO CLEANING' time, a screen like the following will be displayed, where there are the name of course and the remaining AUTO CLEANING" time.



Using the "PAUSE" button it is possible to pause and restart the auto cleaning procedure



Using the STOP button it is possible to stop the AUTO CLEANING procedure. When the AUTO CLEANING procedure is stopped with the STOP button, it returns to the MANUAL SETTING section.

During the AUTO CLEANING procedure, the machine can intercept an obstacle or a step.. In that case, the following screen will appear:



In both the PAUSE and STOP screens, the PAUSE and STOP button keep the same function mentioned above.

The procedure is automatically interrupted from the machine, in the following situations:

- Once all the courses in the list are completed and the machine goes back the MANUAL SETTING screen;
- If an error is detected: in this case the error screen will be displayed and when the operator presses on the check button on the error screen, it will return to the MANUAL SETTING section;
- If, once completed the course, the machine can not find the starting point of the next course. In this case it will automatically return to the MANUAL SETTING section and on the title bar "starting point not confirmed" will appear.

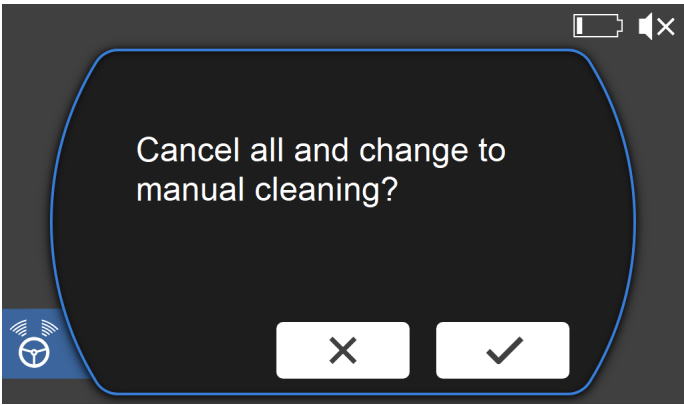
EXIT THE AUTO CLEANING SECTION

The exit from the AUTO CLEANING can be performed in the following ways:

- clicking the MANUAL SETTING button;
- clicking the STOP button during the AUTO CLEANING procedure;
- automatically when detecting an error by the machine.

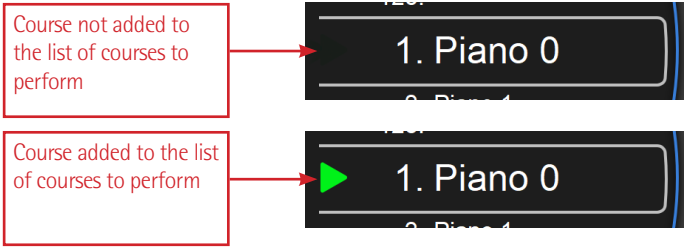
When going out the 'AUTO CLEANING, the list of the courses to perform and the cleaning settings set for each course, are lost. The machine keeps in memory just the name and the route of every course recorded.

When going out using the MANUAL SETTING button, before the exit the message "Cancel all and change to manual cleaning?" will appear. This message asks the operator if it is sure to go out and return to the MANUAL SETTING section;

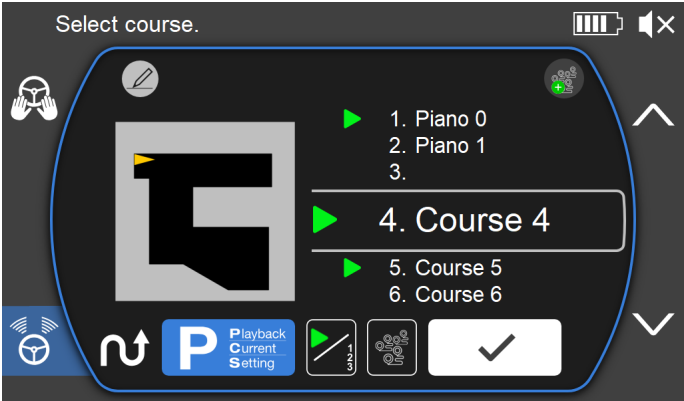


CREATING A COURSES SEQUENCE

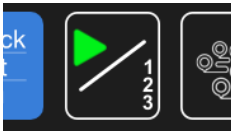
Once the courses are memorized (see the "TEACHING" chapter), it is possible to create a work session with several courses in sequence. To do that, it is necessary that final point of a course matches with the starting point of the next one. Clicking on the central slot, it is possible to add or delete a course from the list of courses to perform.

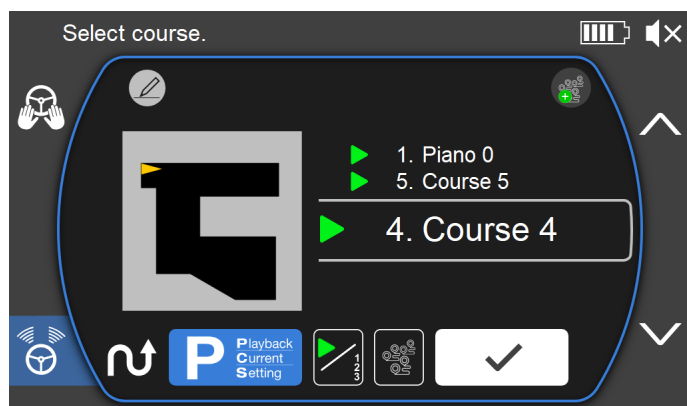


If the list of courses to perform is empty, it is always possible to add a new course. If there are already courses in the list, the addition of a new course is first checked by the machine. If it is not possible to add that course in that position on the list, "impossible to proceed with the course" will appear on the title bar. The courses added on the list have a green arrow near the course, as showed below.



Clicking on the "courses to perform" button, if there is at least a course on that list, a screen with only the courses added is showed. The order with which they will be performed is the same as the one in which they were selected.





Through this screen it is possible to carry out the same operation described for the previous screen, except adding or deleting a course from the list of courses to perform.

Clicking again on the courses list button, it return to the previous screen.

When a course is deleted from the list of courses to perform, all the courses after that one will be deleted and unmarked too.

If, for example, the list of courses is made of the courses:

23->5->65->4

if the 5 course il deselected, even courses 65 and 4 will be deselected.

The same happens if a course that was selected is deleted.

If, for example, the list of courses to perform is made of the courses:

23->5->65->4

if the 5 course il deselected, even courses 65 and 4 will be deselected.

It will be possible to add up to 10 courses in a sequence.

If an eleventh course is selected, "list of courses full" will appear.

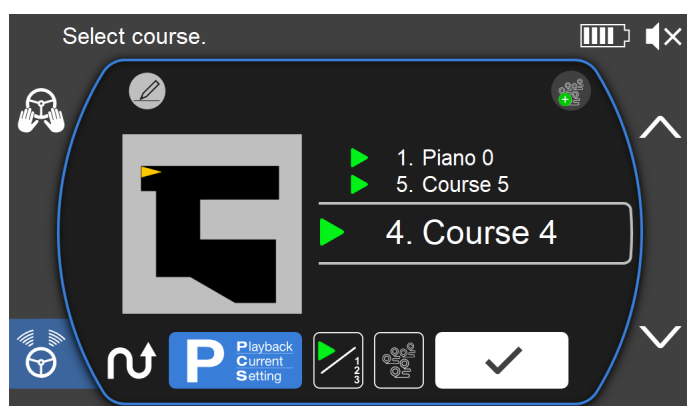
It is possible to save the sequence before starting it, to do that see chapter "MEMORIZING A COURSES SEQUENCE", while to start a sequence already memorized see chapter "PERFORM A MEMORIZED COURSES SEQUENCE".

Clicking on the "start" button the sequence is started and, once finished, the sequence is canceled.

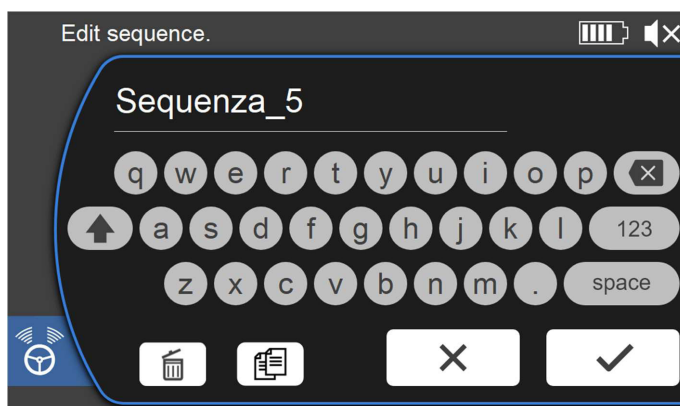
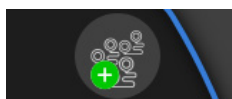
MEMORIZING A COURSES SEQUENCE

Once a sequence is made (see chapter "CREATING A COURSES SEQUENCE"), it is possible to memorize the sequence to reply it many times without always repeating the creation procedure.

After selecting the courses and clicking on the "courses to perform" button, verify verify the desidered list using this screen.



Clicking on the "creatie a courses sequence" button, the screen to save a sequence is showed.



Clicking the "start" button a new sequence is created and the sequences list page will open, with the new sequence.

By clicking on the X button it goes back without memorizing the course; the information of the sequencey will be memorized while remaining in the AUTO CLEANING section and will be lost when entering the MANUAL SETTING section.



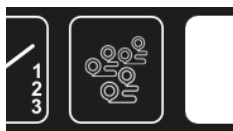
MEMORIZED SEQUENCES LIST

To accede to this page, press the "MEMORIZED SEQUENCES LIST" button from the courses list page or from the selected courses page, in case there is at least a sequence memorized. If there are not memorized sequences this button does not have any effect.

When a new sequence of courses to perform is created, the information are lost whenever going out from the auto section or an AUTO CLEANING is finished. This happens if the sequence is made without being memorized (see chapter "CREATING A COURSES SEQUENCE").

Every sequence is characterized by:

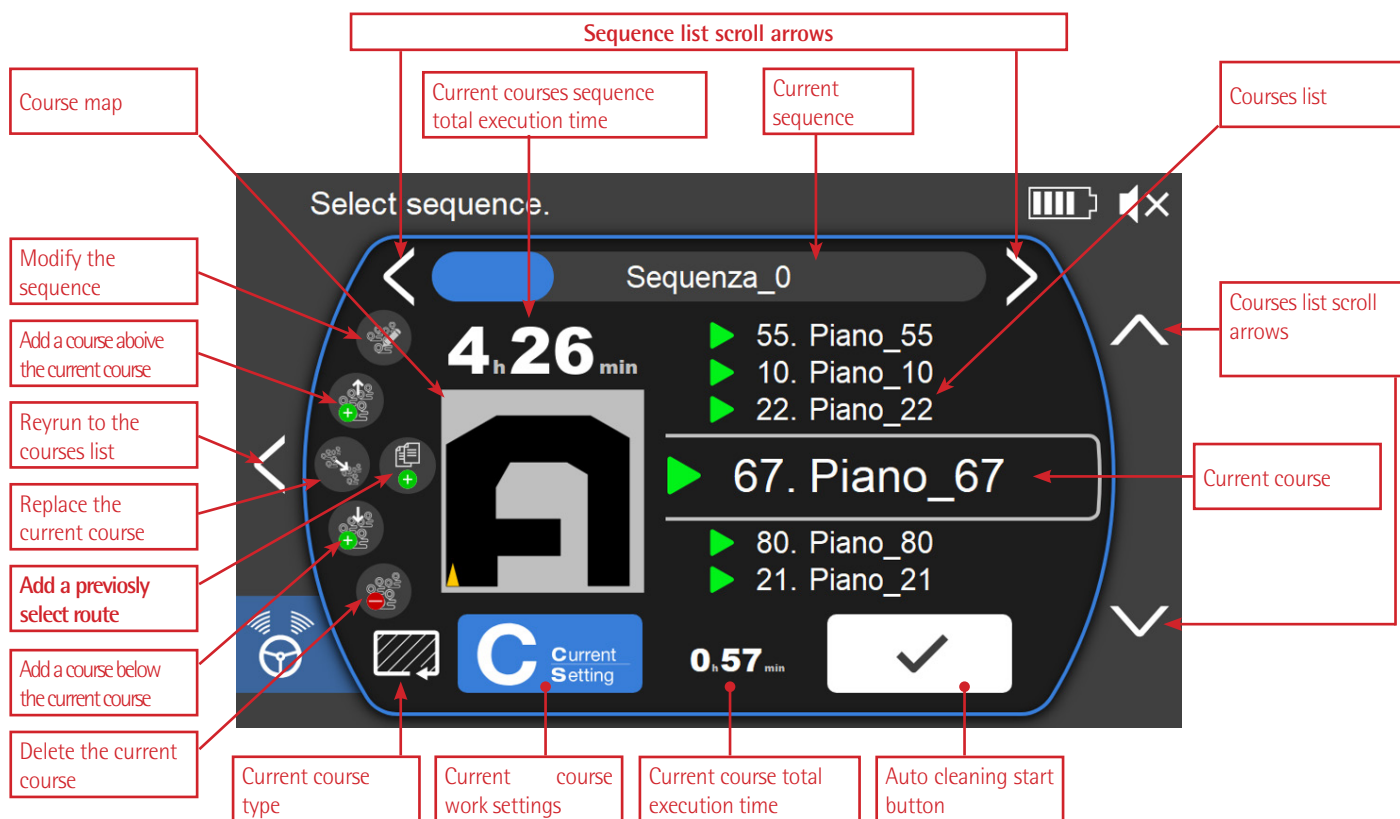
- A name that identifies it
- A list of the courses to perform
- The cleaning information for each course of which it is made



From this page it is possible to:

- See all the memorized sequences
- For each sequence selected, check:
 - The courses which it is made of
 - The total execution time of the sequence
 - The map of each course
 - The time of each course
 - The type of each course
 - The cleaning settings of each course
- Modify a sequence::
 - Name
 - Add, delete or replace courses
 - The cleaning settings of each course
- Delete a sequence
- Copy a sequence
- Launch the execution of a sequence
- Return to the courses list page

The sequence list screen is the following:



Using the "courses list scroll arrows" it is possible to scroll through the memorized sequences. The blue bar indicates the current position of the sequence selected in the memorized sequences list.

Using the "courses list scroll arrows" it is possible to scroll through the courses that belong to the current sequence and it is possible to see all the information for each course.

Clicking the "modify sequence" button, it is showed to page that allows to modify the sequence or to delete it (see chapter "MODIFYING A SEQUENCE"). Clicking the "add a course above the current one" button, is showed the page that allows to select the course that is wanted to be added to the sequence above the current course (see chapter "ADDING A COURSE TO A SEQUENCE").

Clicking the button "Add a course below the current course", is showed the page

that allows to select the course that is wanted to be added to the sequence below the current course (see chapter "ADDING A COURSE TO A SEQUENCE"). Clicking the "Reyrun to the courses list" button it goes back to the courses list.

By pressing the "Add a previously selected course" button, it is possible to add the same course currently selected, so as to have one or more repetitions of the same course within a sequence (refer to the chapter, "REPEATING A PREVIOUSLY SELECTED Course").

Clicking the "cleaning settings" button, we accede the screens for the sequence's; see chapter "MODIFYING THE CLEANING SETTINGS OF A COURSE PRESENT IN MORE SEQUENCES".

- A course present in more sequences can have different cleaning parameters for in every sequence.

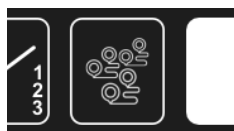
- When a course is erased from the machine, all the memorized sequences that include that course will be updated accordingly. So from every sequence that include that course also the courses after that one will be erased..
- The name of a course belongs to just the course itself. That is why the name of a course can be changed onl from the courses list page and all the sequences memorized which include this course will be updated accordingly (see chapter "Modifying or erasing a course").

MAKE A MEMORIZED COURSES SEQUENCE

To operate a squence previously memorized, click on the "memorized sequences list" button.

To navigate through the list of courses associated to the sequence desisder, use the "sequence scrolling arrows".

Click on the "Start auto cleaning" button to start the selected sequence.



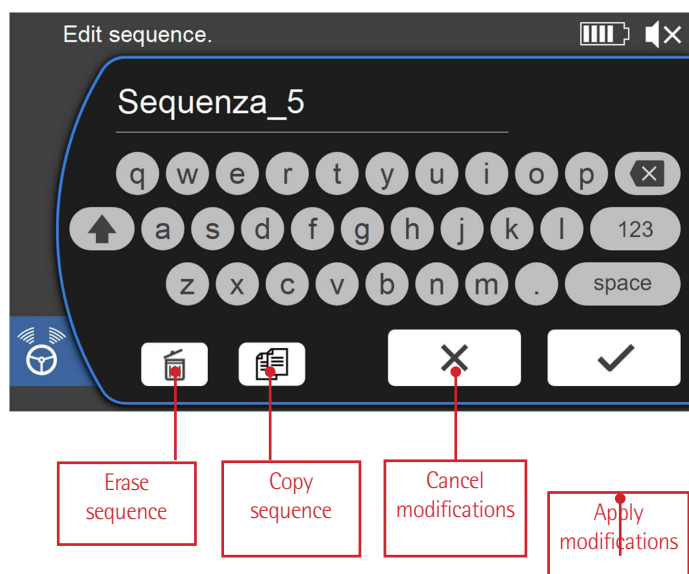
MODIFYING OR ERASING A SEQUENCE

To modify a memorized sequence, navigate in the associate courses list to the sequence using the "courses scroll arrows" until the course to modify is reached.

Click on the button "Modify sequence" to modify the selected sequence.

From this windows is possible to:

- erase the sequence;
- modify the name of the sequence;
- copy a sequence.

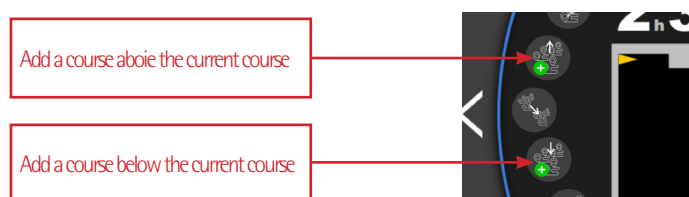


ADDING A COURSE TO A SEQUENCE

To add a new memorized course to a pre-esisting sequence, naviagte through the sequences list using the scrolling arrows, until the sequence to modify is reached.

Scroll through the list of courses already present in the sequence using the arrows, until the course, above or below, is reached..

Press the button "add course above the current course" or "add course below the current course".



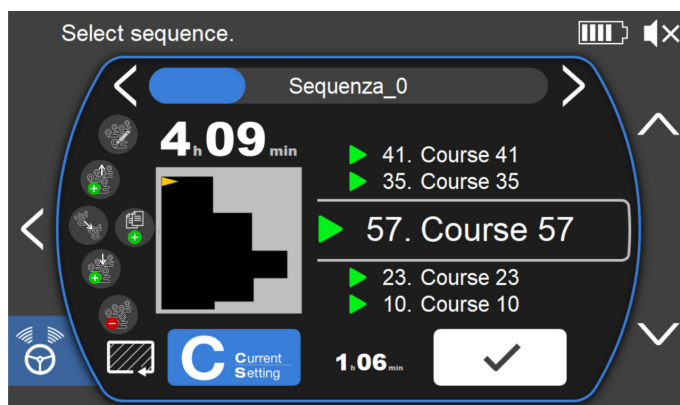
If the sequence is already made of 10 courses, it will not be possible to add others. In that case, pressing one of the two adding buttons, in the title bar "list full" will appear".

Once the related button is pressed, the page with all the memorized courses is displayed. Scrolling through the list it is possible to add to the sequence the course showed in central slot.

The courses that already belong to the sequence are highlited with a grey arrow and can not be added.

For example, to add the "Course 55" to the "Sequenze_0" sequence before the course "Course_57", proceed as follows:

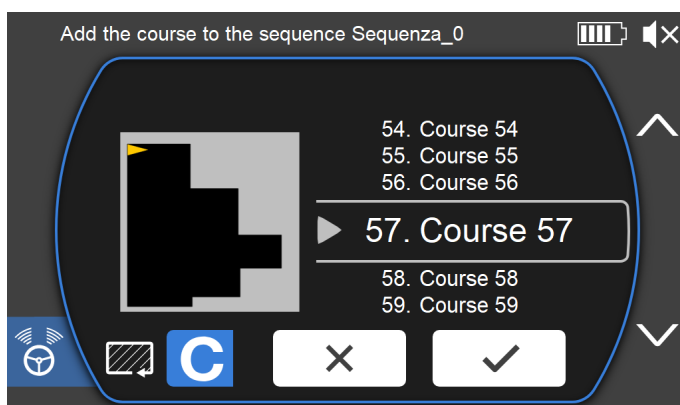
Scroll through the list of the sequences using the arrows, until "Sequenza_0" is found.



Click the button "Add a course above the current course"

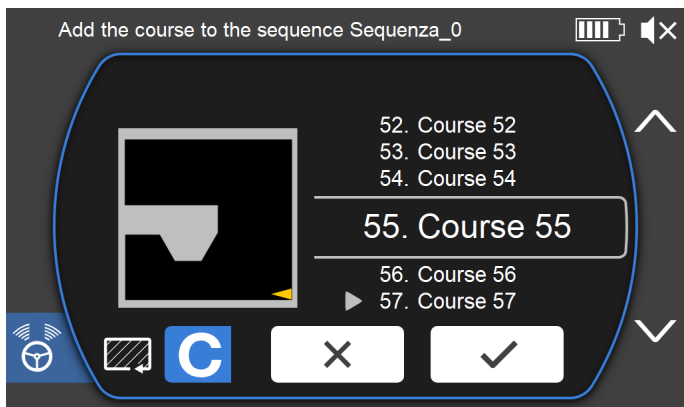


The list of the thing that can be added will be shown. The courses already present in the sequence present the grey color indicator and can not be added. Also, the symbols that represent the type of memorized course and the cleaning settings are showed.

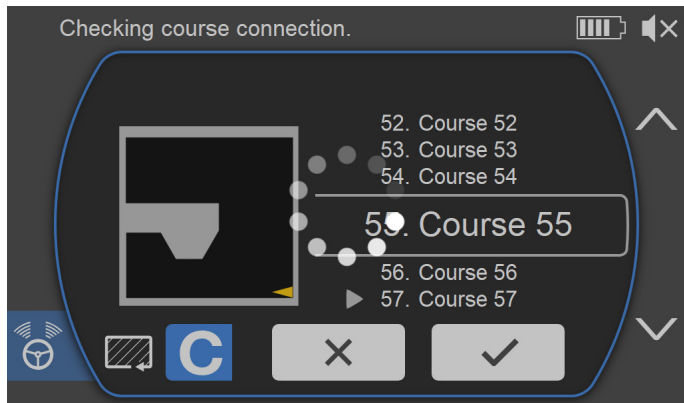


From this screen is not possible to modify the cleaning settings.

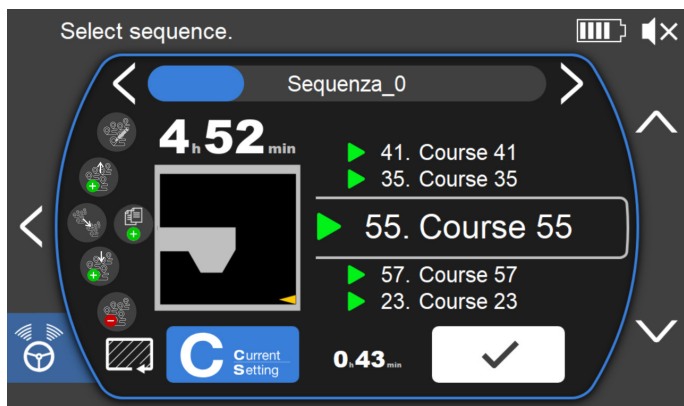
To select "Course 55", scroll through the list up to the course and press "start". To cancel the operation press "X".



The machine will verify if this course can be added in this position.



After the check, if succesfull, it will return to the list of sequences page and course 55 will be added where we wanted. If it is not possible to add the course, in the title bar "impossible to add course" will appear..

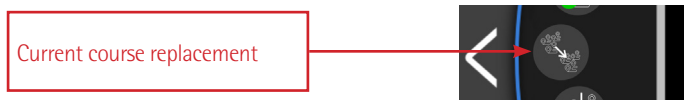


REPLACE A COURSE WITH ANOTHER ONE

To replace a new memorized course to a pre existing sequence, scroll through the list of sequences using the arrows untile the sequence to modify is reached.

Scroll through the list of courses already present in the sequence using the arrows until reaching the course to replace with a new one.

Press the "current course replacemente" button.



Once the button is pressed, a page with all the courses memorized in showed.

Scroll to the new course.

Press "start" to confirm the replacement.



This operation can be combined with "copy sequence" (see chapter "MODIFYING OR COPYING A SEQUENCE") to manage the work variations, without compromising the planning.

MODIFYING THE CLEANING SETTINGS OF A COURSE PRESENT IN DIFFERENT SEQUENCES

To modify the cleaning settings of a route that belong to a specific sequence, scroll through the sequence selection screen, using the arrows, until the sequence to modify is reached.

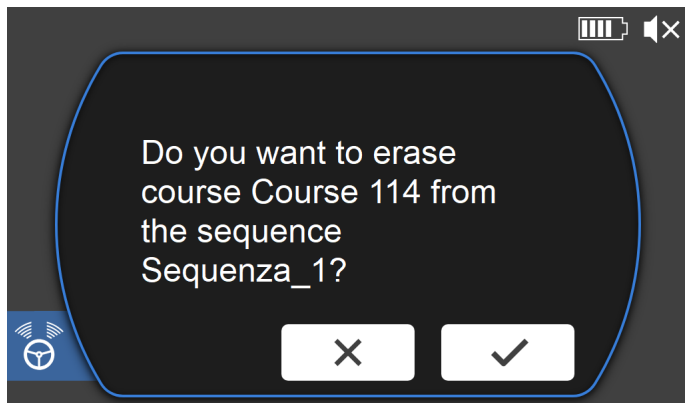
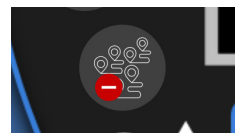
Press the "cleaning settings" button.

It will be possible to accede the screens for the modification of the cleaning settings related to the current course, as pointed in the "CLEANING SETTINGS" chapter. The cleaning settings will change just for the execution of the this course in this sequence. If the same course belongs also to other sequences, the cleaning settings of that course will not be modified in the other memorized sequences.

ERASING A COURSE FROM A MEMORIZED SEQUENCE

To erase a course from a memorized sequence, scroll through the list of courses associated to the sequence, using the arrows, until the course to erase is reached.

When clicking on "erase current course" the message "do you want to erase course *** from the sequence ***?"



Click on the check button to erase the current course from the sequence and all the courses after the erased one. The operation is canceled if pressing "X".

RESUMING AN INTERRUPTED COURSE (RESUME MODE)

The RESUME function allows the user to recommence an interrupted route, whether this be a single run or part of a sequence.

In the case of a sequence, R-Quartz will also perform the subsequence stored routes, as would occur during a normal auto-cleaning operation.

The route can still be resumed even after the machine has been turned off using the key switch. It will continue to be possible to resume the route until the operator decides either to recommence the interrupted task or to erase the stored data, choosing not to enable the RESUME mode when prompted.

A route may be interrupted in two ways:

- Intentional mode: the operator presses the STOP button to halt the auto-cleaning process to recharge the battery, for example, or load/discharge the solution.
- Automatic mode: in this case, it is an alarm that interrupts the auto-cleaning procedure.



The AUTO button might not flash on the main screen after an alarm has been triggered.

This is due to an alarm that does not allow the interrupted route to be resumed; the issue that caused the interruption must first be resolved.

When the route is suspended, the machine will display MANUAL SETTING mode and the AUTO CLEANING mode icon will flash.



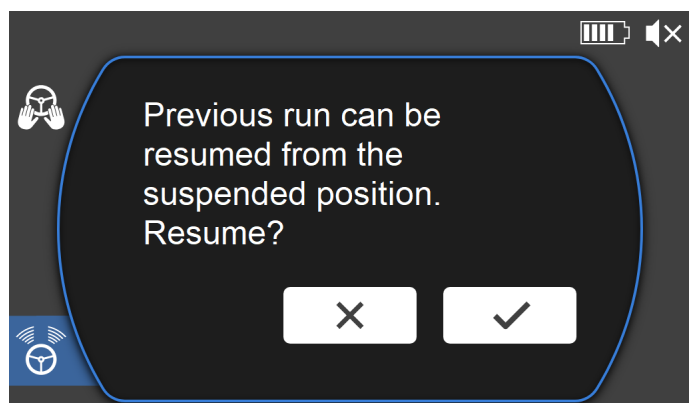
Should a route be suspended and the machine be moved from the spot on which the route was interrupted in the MANUAL SETTING mode, R-Quartz must be returned to the place where the route was interrupted.



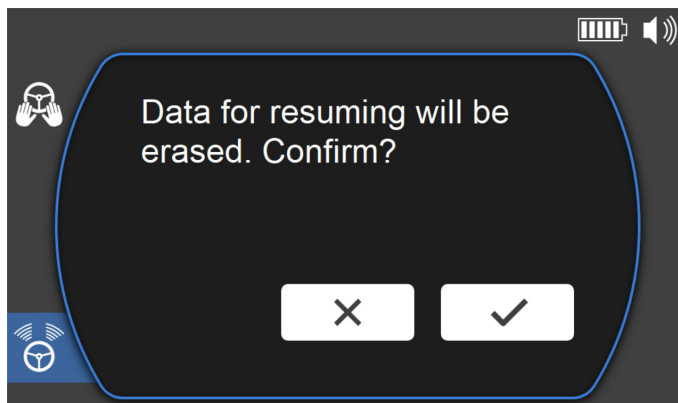
All the following operations must be performed with the operator properly positioned on the machine footboard.

Follow these instructions in order to recommence a suspended route:

1. Press the flashing AUTO CLEANING button.
2. The following message will notify the operator that the route can be resumed. Press the CHECK button to enter the "RESUME mode".



On the other hand, if the CANCEL button is clicked on, the following Message will be displayed.



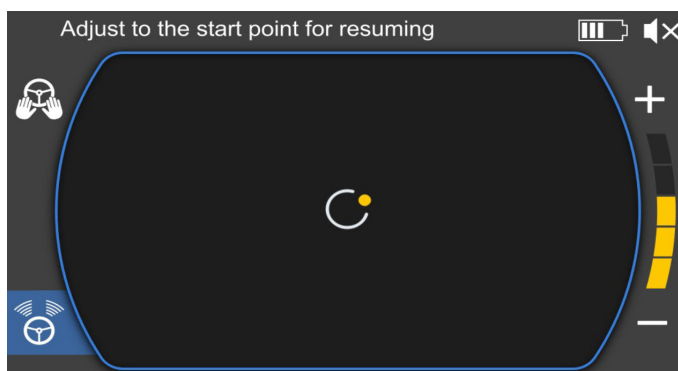
On the other hand, if the CANCEL button is clicked on, the following Message will be displayed.

If confirmed, all the data relative to the route or sequence being performed will be erased and the task will be terminated.

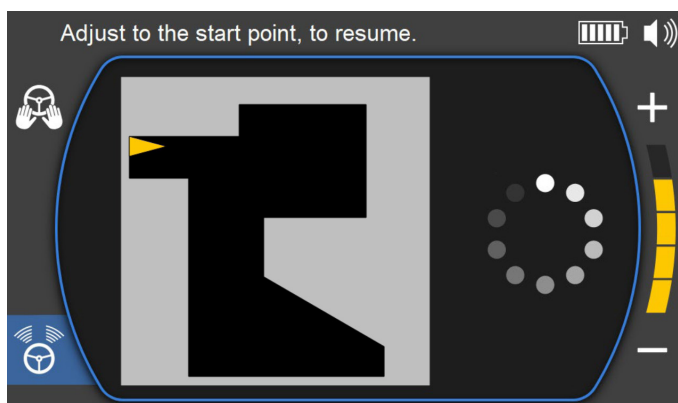
A new route or sequence can be begun, or the route/sequence begun but not resumed can be started afresh.

When both messages are displayed, you can return to manual mode by pressing on the MANUAL SETTING button without erasing the stored data relating to the interrupted route.

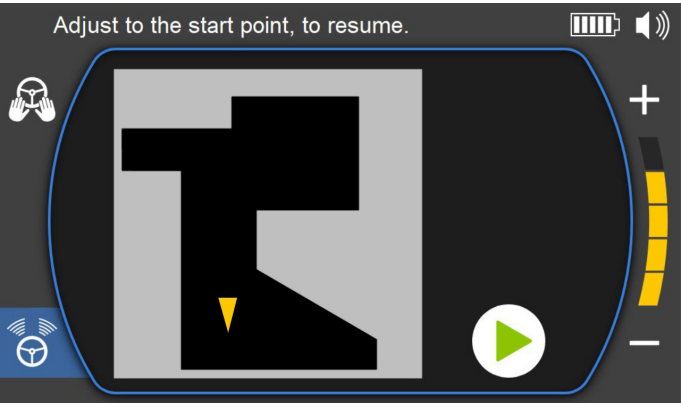
3. Once the CHECK button with the resume message has been pressed, the repositioning procedure will begin on the spot where the route was interrupted. If the machine has not been moved, the spot already coincides with the position it is in. The following standby screen will be displayed while the route map is uploaded.



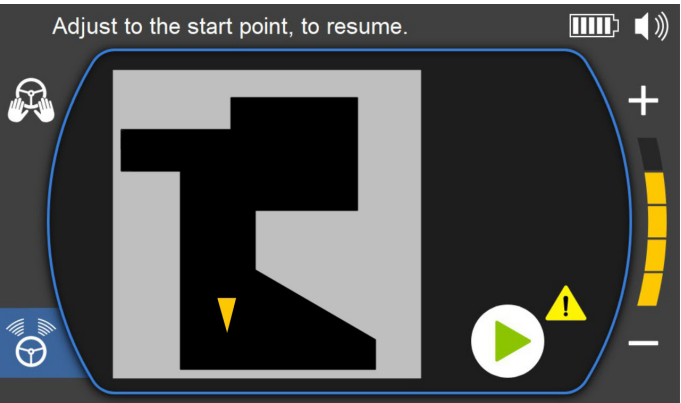
4. When the map has been uploaded, the screen showing the route preview will appear, helping the operator to find the spot from which to resume the route. The operator may move the machine while this screen is displayed.



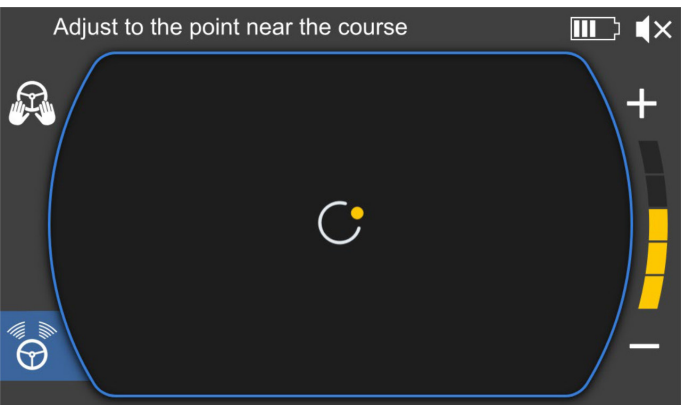
5. As soon as the exact spot has been detected, the standby icon will vanish and the start button will appear.



Should the spot be in an environment which has greatly changed since the route teaching session took place, or should the machine find itself in a non-mapped area, a warning icon will be displayed next to the start button. If the task is resumed at this point, the machine will recommence the route but it will be more sensitive to changes in its environment.

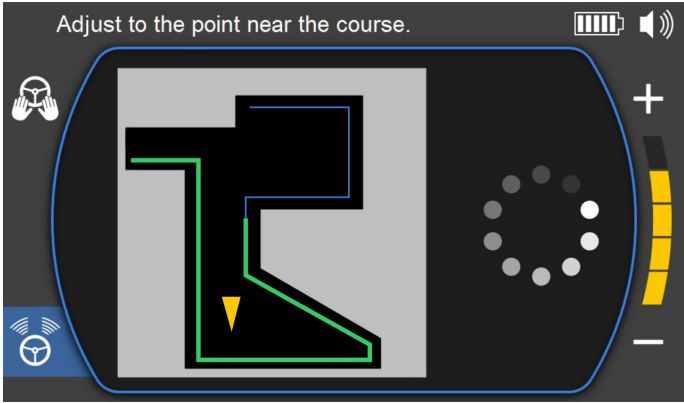


6. Press the START button and the machine will display the following screen:

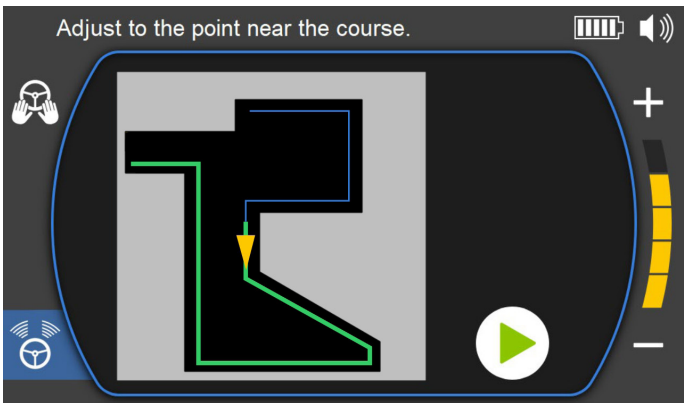


7. The map preview will display a depiction of the route that R-Quartz performed during the teaching session:

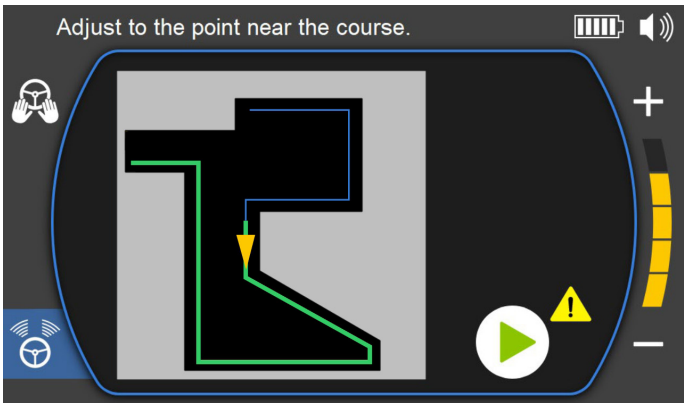
- Thin light-blue line: route already covered.
- Thick green line: route still to be completed.



8. Position R-Quartz on the thick green line. As soon as a spot close to the route is detected, the standby icon will vanish and the start button will appear.



In some circumstances, a warning icon could pop up next to the start button:



Should the spot happen to be in an environment which has greatly changed since the route teaching session took place, or should the machine find itself in a non-mapped area, a warning icon will be displayed next to the start button. If the task is resumed at this point, the machine will recommence the route but it will be more sensitive to changes in its environment. The machine can be kept moving along the green line until the warning icon disappears.

9. Press the START button and the machine will recommence where it left off.

INTENTIONAL STOP DUE TO A WARNING
When the machine notifies the user of low battery levels or lack of water or detergent, a route underway can be interrupted. Once the operator has finished doing what is needed, the route can be recommenced using RESUME mode (see chapter: "RESUMING AN INTERRUPTED ROUTE").

REPEATING A PREVIOUSLY SELECTED ROUTE

A route can be:

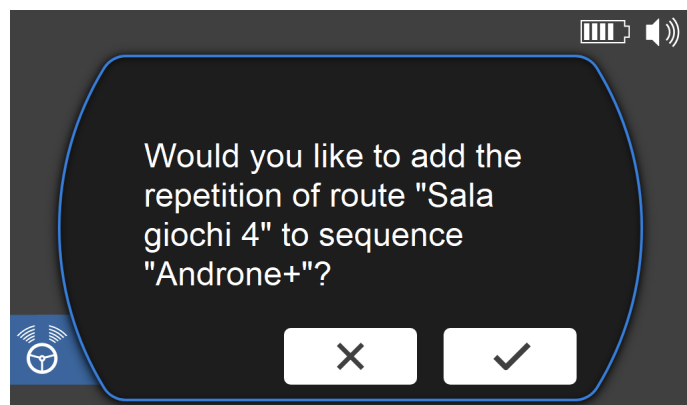
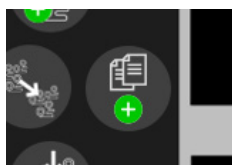
- present several times in the same sequence and in any point of the sequence;
- present any number of times without exceeding the maximum number of 10 routes.

Below are a few examples in which the ID numbers of the routes making up the sequence are indicated:

- Sequence 1: 18, 18, 18, 18
- Sequence 2: 5, 5, 5, 5, 5, 5, 5, 5, 5
- Sequence 3: 21, 4, 4, 3, 21, 21, 21, 7

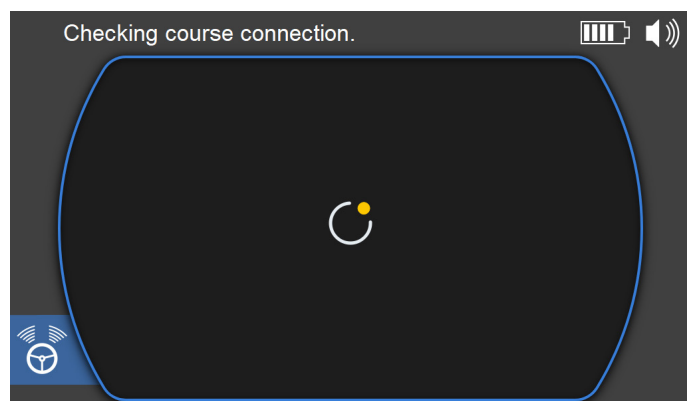
Each route that appears several times in the same sequence can have, in each position in which it lies within the sequence, different cleaning parameters (refer to the chapter, "CLEANING SETTINGS").

To repeat a route that is already present, click on the "Repetition of a previously selected route" button and the following message will appear: "Would you like add the repetition of route (name course) to sequence (name sequence)?"



Press the CHECK button to confirm, otherwise press CANCEL to cancel the operation.

If the procedure is confirmed, the machine will verify whether the route can be added to the sequence.



Should this not be possible, the programme will return to the sequence page and the "title bar" will show for 2 seconds a message revealing that the route cannot be added in that point of the sequence.

When the operations ends successfully, the repetition of the route will have been added and the central box will be positioned on the route that has just been added.

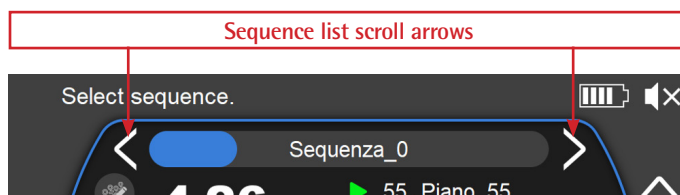
MODIFYING THE CLEANING SETTINGS OF A ROUTE ADDED TO A SEQUENCE

For a route added to a sequence, it is possible to set different cleaning settings to those memorised during the teaching phase.

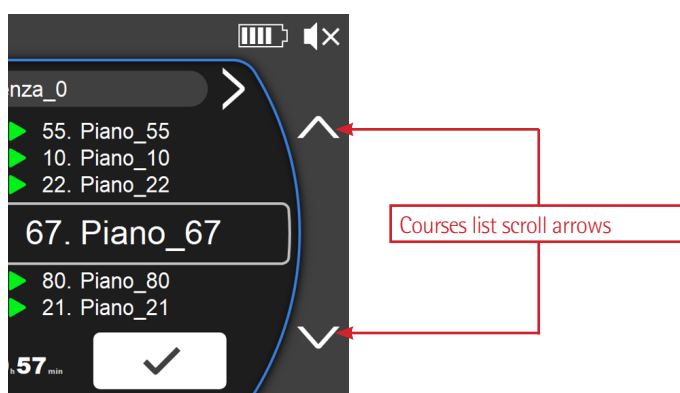
The change will only apply to the sequence in which that route is inserted and will always be recalled with the setting with which it was recorded; this change will not modify the settings of the route present in any other sequences.

To vary the setting of a route for a specific sequence, intervene as follows:

1. Navigate up to the desired sequence.



2. Scroll the list of routes until you reach the desired route.



Modify the cleaning settings as explained in the chapter, "CLEANING SETTINGS".

If the route has been repeated several times within a sequence (refer to the chapter, "REPEATING A PREVIOUSLY SELECTED ROUTE"), the change will only apply to the course highlighted; all the other repetitions will not be modified.

To vary all repetitions present in a sequence, it is necessary to intervene on each individual route.

STOP THE MACHINE AFTER THE CLEANING

BREAK WASHING MODE

The BREAK WASHING mode is specific for the transfer of the machine after the cleaning operations.

NOTE: all those phases are carried out with the machine moving, so the squeegee can dry the interested floor areas and also the suction hose can dry from the dirt liquid.

It is possible to interrupt the BREAK WASHING mode at any time, by interrupting the drive.

For the BREAK WASHING mode management see chapter "Selecting the Break Washing mode".

CLEANING THE LIDAR SENSORS

After at least every two use of the machine, it is suggested to clean the LIDAR sensors.

The presence of dirt or dust can affect the accuracy of the detection.



WARNING: a wrong cleaning of the sensors can compromise the good functioning of the machine; it is necessary to carefully follow the following instructions:

PREPARE THOSE TOOLS:

1. Compressed air blower (for the dust)
2. Soft or microfiber cloth
3. We recommend BEMCOT M-3 II, supplied by Asahi Kasei Fibers Corp.
4. A neutral detergent (for oil and hard stains)

HOW TO CLEAN

1. Prepare 3 or more cloth for a delicate cleaning, a moist wipe and a dry one
2. Use the blower to remove the dust on the surface
3. In case of oil or hard dirt, wet the cloth with the neutral detergent diluted with water and squeeze it to remove the water in excess, until it stops dripping. Use only water for the normal dirt.
4. Horizontally wipe the optical lenses, with a cloth previously prepared.
5. If at point (3) the neutral detergent was used, wipe with a cloth wet just with water to remove the detergent.
6. Please wipe the dry cloth and check that no wet areas were left.



PREPARE THOSE TOOLS:

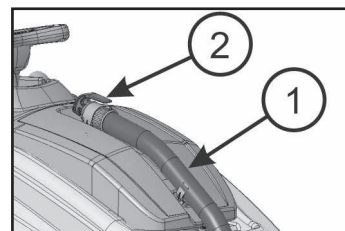
- If the machine is installed in dark areas and does not receive direct light, it is difficult to see the dirt on the lenses. Please use a LED light to check the lenses conditions.
- The lenses are made of polycarbonate so alkaline detergent or solvents (alcohol etc.) must not be used.
- Remove the neutral detergent with a wet cloth completely. If left on the optical lenses it may cause cracks as the lenses are made of plastic material.
- Wiping the dry lenses only with a dry cloth may cause static electricity and the dust can attach easily to the lenses.
- Be careful not to scratch the lenses as the scratches might be detected as objects by the sensors.
- Please disconnect the lenses from the machine during the cleaning process.

DAILY MAINTENANCE

DRAINING AND CLEANING THE RECOVERY TANK



1. Handle the drain hose (1) placed on the right part of the machine, after taking it from its support.
2. Unscrew the drain hose cap by opening the lever (2) placed on the cap and drain the recovery tank in a dedicated container, conforming to the current norms related to the waste of liquids.
3. Wash the tank with a water jet.



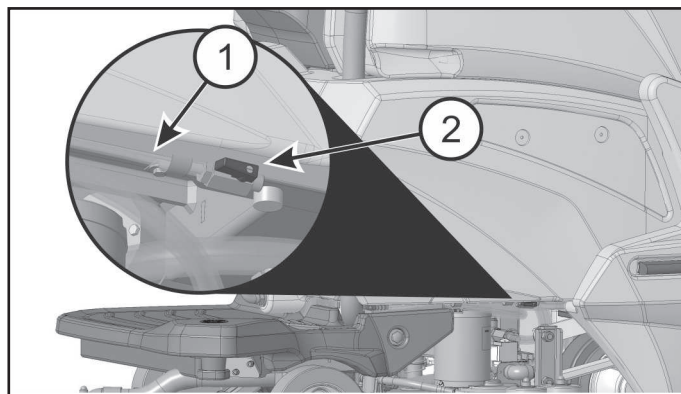
DRAINING AND CLEANING THE DETERGENT TANK (3SD)



If there is the need to use a different detergent or to leave the machine steady for long periods of time, it is necessary to drain the detergent contained in its dedicated tank.

To drain the tank:

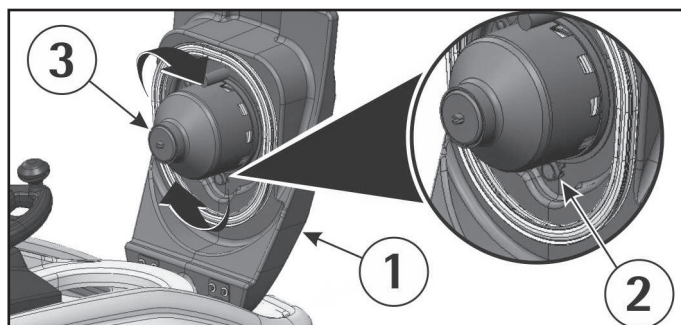
1. Handle the drain hose (1) placed on the right part of the machine, after taking it from its support.
2. Open the valve (2) of the drain hose and drain the detergent inside a recovery container.
3. Wash the tank with a water jet.
4. Once it's completely drained, close the valve (2).



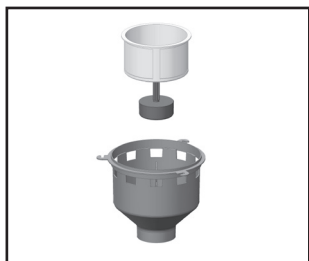
CLEANING THE SUCTION FILTER



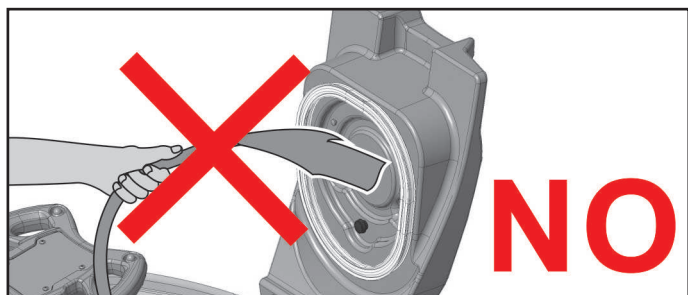
1. Open the cap (1) and unscrew the knob (2) to free the filter protection (3).
2. Rotate the filter protection clockwise to free it.



3. Take off the filter and its protection.
4. Clean everything with a water jet, in particular the sides and the bottom of the filter.
5. Operate the cleaning carefully.
6. Reassemble everything.



Absolutely do not clean the inside of the recovery tank cap, otherwise the motor would get critically damaged.

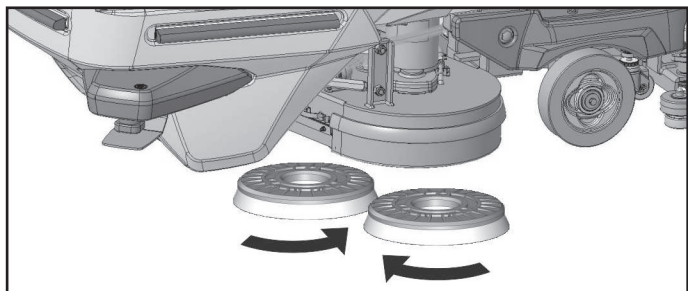


MANUAL DISASSEMBLY OF THE BRUSHES



With the brushes base lifted from the floor (see chapter "BRUSHES MANAGEMENT BUTTON") vigorously rotate the brushes in order to lock them from lock spring, to take them off and clean them with a water jet. The picture indicates the rotation direction to unlock the brushes.

For the automatic disassembly see chapter "BRUSHES MANAGEMENT BUTTON".



CLEANING THE BRUSHES



Take off the brushes and clean them with a water jet.

To disassemble the brushes see chapters "AUTOMATIC DISASSEMBLY OF THE BRUSHES" or "MANUAL DISASSEMBLING OF THE BRUSHES".

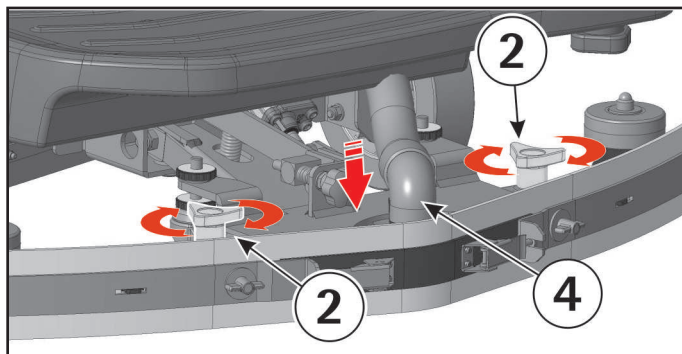
CLEANING THE SQUEEGEE



Keeping a clean squeegee grants a better drying.

To clean it, it is necessary to:

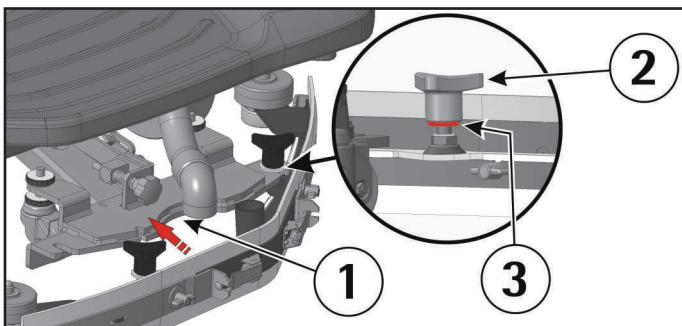
1. Take off the squeegee hose (4) from the coupling.
2. Take off the squeegee from the support (1) turning the knobs counterclockwise (2) and make the threaded parts slide in their dedicated buttonholes, until they are free.



3. Carefully clean the inside of the joint of the squeegee, cleaning any eventual dirt deposit.

4. Carefully clean the squeegee rubbers.

5. Reassemble everything paying attention to place the washers (3) upon the two buttonholes that are on the support.



WEEKLY MAINTENANCE

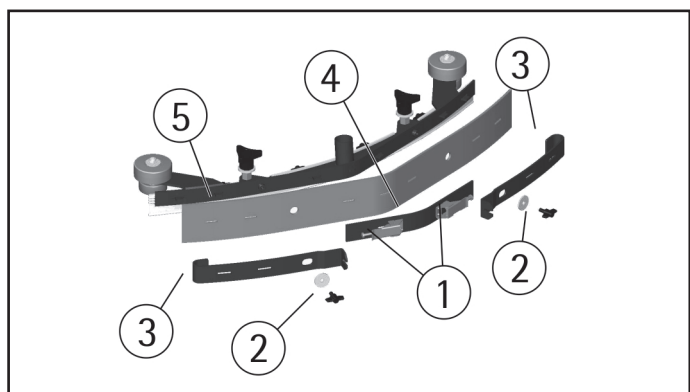
CHECK THE SQUEEGEE REAR RUBBER



Check the wearing status of the squeegee rubber and eventually reverse or replace it.

For the replacement it is necessary:

1. Lift the squeegee (see chapter "SQUEEGEE MANAGEMENT BUTTON").
2. Unlock the locks (1).
3. Unscrew the wing nuts (2) to remove the outer rubber-press terminals (3) and then the rubber-press blade in the middle (4).
4. Take off the rubber (5) to reverse or replace it.
5. To reassemble the squeegee repeat the above mentioned operations, in reverse

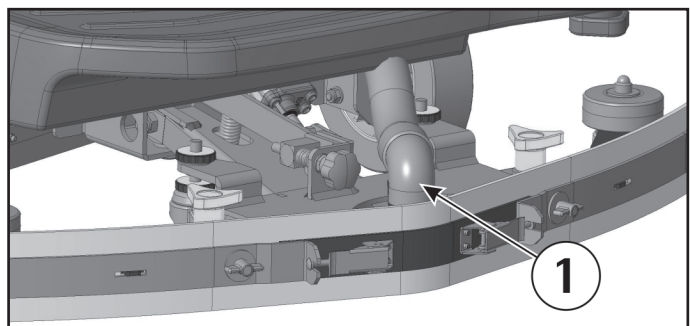


CLEANING THE SQUEEGEE HOSE

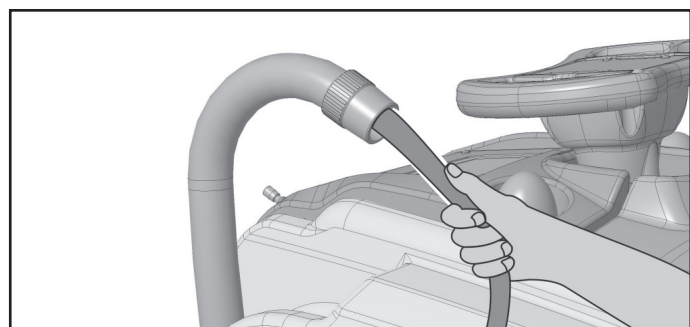


Every week, or when the suction is not enough, it is necessary to check that the squeegee hose is not clogged. Eventually to clean it proceed as it follows:

1. Take off the hose (1) from the squeegee coupling.



2. Clean the inside of the hose with a water jet.



3. Per rimontare il tubo ripetere all'inverso le operazioni sopra descritte.



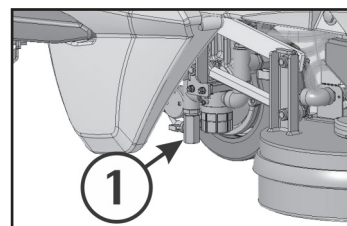
Do not clean the hose that goes from the suction motor to the recovery tank.

CLEANING THE SOLUTION TANK

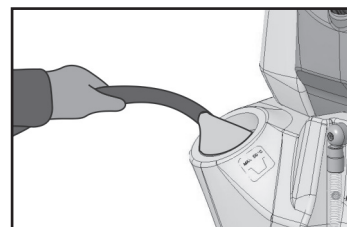


Bring the machine to the place where to drain the detergent solution.

1. Unscrew the loading cap of the solution tank.
2. Open the detergent flow valve (1).



3. Wash the solution tank with a water jet.

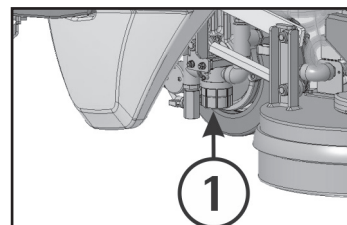


4. Once the cleaning is finished, close the valve and the cap.

CLEANING THE OUTER FILTER



1. Unscrew the filter cap (1) and take off the filter.
2. Wash the filter components with a water jet.
3. Reassemble everything.



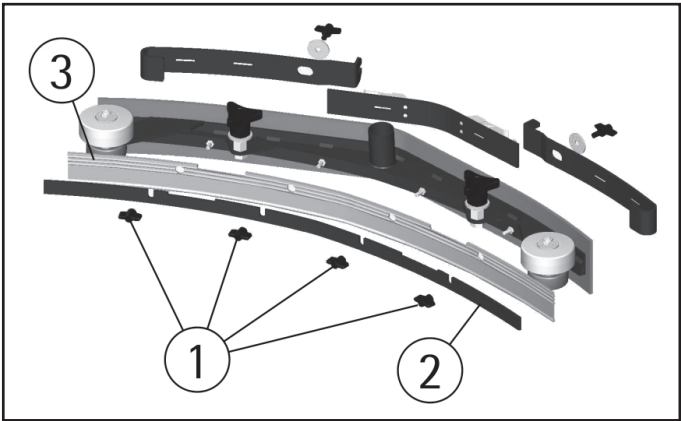
BIMONTHLY MAINTENANCE

SQUEEGEE FRONT RUBBER CHECK



Check the wearing status of the squeegee rubber and eventually replace it. For the replacement it is necessary to:

1. Take off the squeegee (see chapter "CLEANING THE SQUEEGEE").
2. Disassemble the rear part of the squeegee (see chapter "SQUEEGEE REAR RUBBER CHECK").
3. Unscrew the wing nuts (1) and take off the rubber-press steel blade (2).
4. Replace the front rubber (3).
5. To reassemble the squeegee repeat the above mentioned operations, in reverse.



HALF YEARLY MAINTENANCE

SPLASH GUARD RUBBERS CHECK



With the brushes installed, the splash guards have to slightly touch the floor. If they are worn, the rubbers have to be replaced. It is enough to unlock the lever in the rear part of the cleaning assembly, from the ring placed on the free end of the steel lath, in order to take off the old rubbers and put the new ones (see chapter "ASSEMBLING AND DISASSEMBLING THE SPLASH GUARDS"). The operation has to be made for both the splash guard rubbers.



FUNCTION CHECK



The verification of the proper function of the machine is made by the authorized technical assistance center.

Never leave the batteries discharged for a long period of time. If alarms are shown, contact the assistance center.



If, with the key switch turned clockwise to turn on the machine, the display is not activated and so any other function, check the batteries connection to the machine (see chapter "CONNECTING THE BATTERIES"). If the problem persists, contact the authorized technical assistance center.

THE SUCTION MOTOR DOES NOT WORK

1. Verify that the emergency button (1) is not engaged.



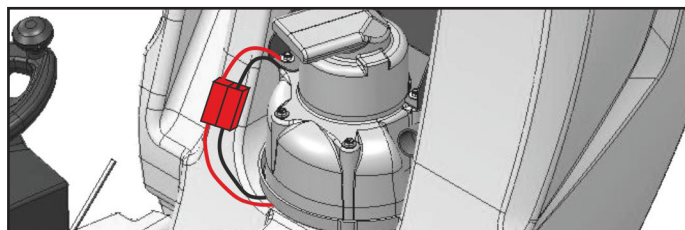
2. Switch off and on the machine using the key-switch (2).



3. Check the battery charge status on the display.



4. Check that on the button the suction motor start icon is active.
5. Verify the proper connection of the suction motor.



If the problem persists, contact the authorized technical assistance center.

THE BRUSHES MOTOR DOES NOT WORK

1. Verify that the emergency button (1) is not engaged.



2. Switch off and on the machine using the key-switch (2).



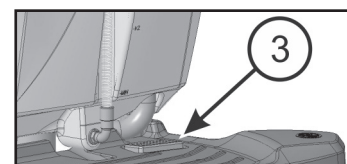
3. Check the battery charge status on the display.



4. Verify on the display that the brushes motor icon is enabled.



5. Press the drive pedal (3) on the footboard, to start the machine.



If the problem persists, contact the authorized technical assistance center.

THE TRACTION MOTOR DOES NOT WORK

1. Step on the footboard.

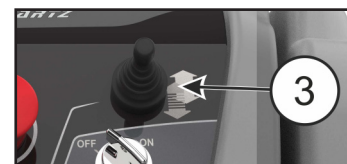
2. Verify that the emergency button (1) is not engaged.



3. Switch off and on the machine using the key-switch (2).



4. Verify the lever position (3)

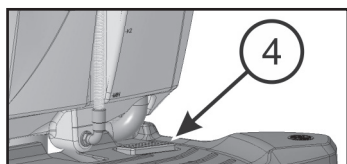


When there are alarm signal it is necessary to switch off and on the machine to restore its functions.

5. Check the battery charge status on the display.



- Press the drive pedal (4) on the footboard, to start the machine.



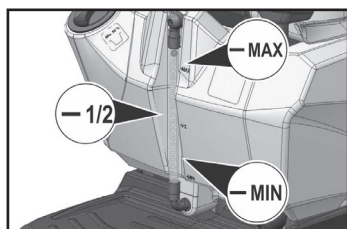
THE SOLUTION IS NOT SPILLED ON THE BRUSHES

The machine is equipped with a solenoid valve so to make the solution spill it is necessary for the brushes to turn.

- Check on the display that the solenoid valve is enabled.



- Check the liquid level inside the solution tank.



- Check that the solution filter is clean (see the paragraph "CLEAN THE OUTER FILTER").

If the problem persists, contact the authorized technical assistance center.

THE MACHINE DOES NOT CLEAN PROPERLY

- The brushes bristles do not have the proper dimensions: contact the authorized technical assistance center.
- The brushes bristles are worn. Check the brushes status and eventually replace them (the brushes have to be replaced when the bristles reach a length of 15mm).
- To replace the brushes see the chapters "DISASSEMBLING THE BRUSHES" and "ASSEMBLING THE BRUSHES".

- The detergent solution is not enough: open the valve more (see chapter "ADJUSTING THE DETERGENT SOLUTION FLOW").
- Check that the detergent is provided with the suggested percentage.
- Increase the brushes base pressure (see chapter "BRUSHES BASE PRESSURE ADJUSTMENT").

For any suggestion, contact the authorized technical assistance center.

THE SQUEEGEE DOES NOT DRY PROPERLY

- Check that the squeegee rubbers are clean.
- Check the height and the tilt adjustment of the squeegee (see "ADJUSTING THE SQUEEGEE" in "BEFORE THE USE").
- Check that the suction hose is properly inserted in its housing on the recovery tank and/or that is not clogged.
- Clean the suction filter.

- Replace the rubbers if worn.



- Check that the suction motor icon is active on the display.



- Set a higher suction level.
- Check that the suction motor cap is closed.

If the problem persists, contact the authorized technical assistance center.

EXCESSIVE FOAM PRODUCTION

Check if a controlled foam detergent has been used. Eventually had a minimum quantity of defoam liquid in the recovery tank. Please consider that a higher foam production verifies when the floor is not so dirty. In that case, dilute more the detergent solution.

SCHEDULED MAINTENANCE

STANDARD PERIODIC MAINTENANCE CHART

INTERVENTION	DAILY	PERIODIC
CLEAN THE RECOVERY TANK	•	
CLEAN THE SUCTION FILTER	•	
CLEAN THE SOLUTION FILTER		•
CLEAN THE BRUSH	•	
DISASSEMBLE AND CLEAN THE BRUSHES	•	
CLEAN THE SQUEEGEE	•	
SQUEEGEE FRONT RUBBER CHECK		•
SQUEEGEE REAR RUBBER CHECK		•
SPLASHGUARD RUBBERS CHECK		•
SQUEEGEE ADJUSTMENT CHECK		•
CLEAN THE SQUEEGEE HOSE		•
CLEAN THE SOLUTION TANK		•

WARNING OR ERROR MESSAGES



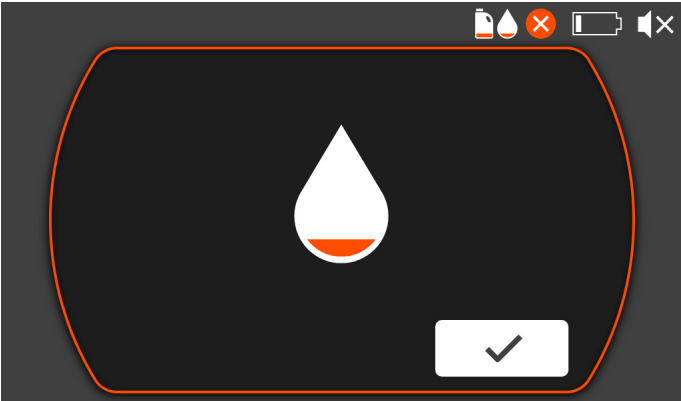
The check of the machine function is made by the authorized technical assistance center.

If the following messages are shown, call the assistance center and tell the errors codes and descriptions.

WATER IS RUNNING LOW

This message appears when the water level is lower than the safety threshold.

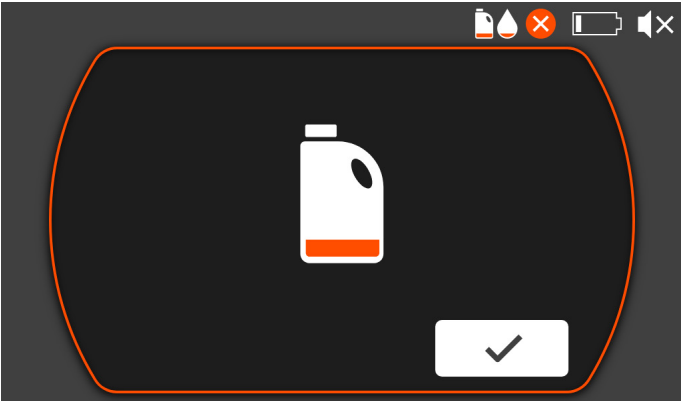
Press the check button to proceed to load the water tank in order to exit the message, see chapter "CLEAN WATER TANK".



DETERGENT IS RUNNING LOW

This message appears when the detergent level is lower than the safety threshold.

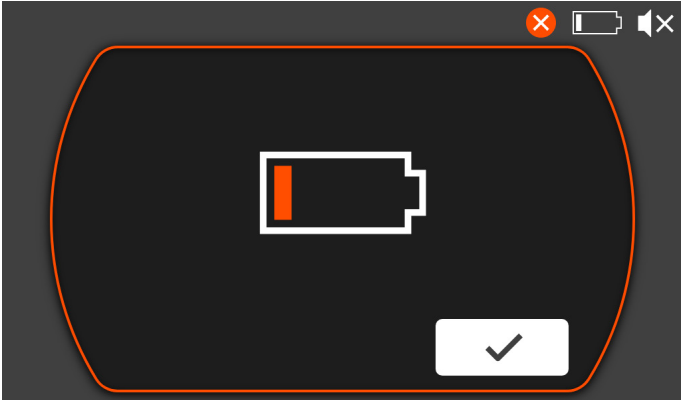
Press the check button to proceed to load the detergent tank in order to exit the message, see chapter "DETERGENT TANK".



BATTERY IS RUNNING LOW

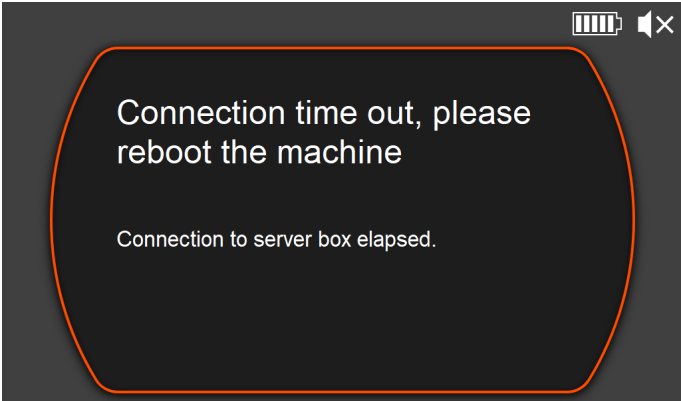
This message appears when the battery level is lower than the safety threshold.

Press the check button to proceed to charge the batteries in order to exit the message, see chapter "CHARGING THE BATTERIES".



COMMUNICATION ERROR BETWEEN THE DISPLAY AND THE NAVIGATION BOX

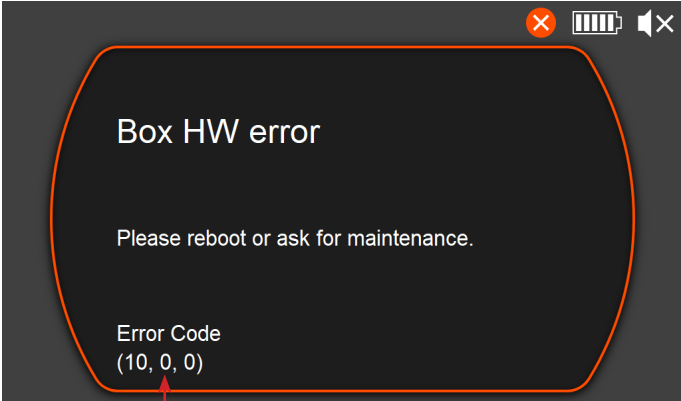
Error title: Connection timeout, reboot the machine



CRITICAL ERROR SENT FROM THE NAVIGATION BOX

Error title: System hardware error

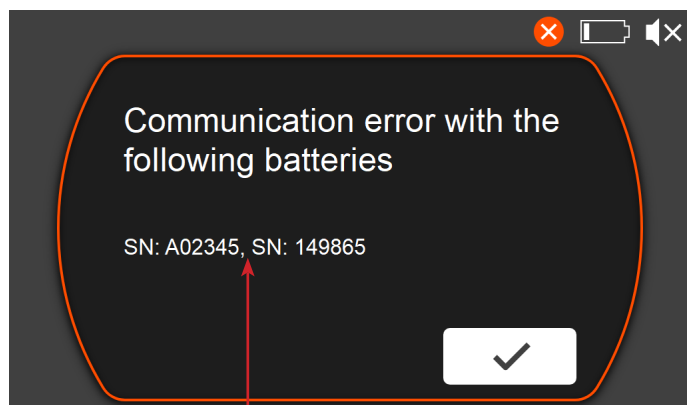
Error description: Reboot or ask for maintenance.



Error code

BATTERIES COMMUNICATION ERRORS

Error title: Communication error with the following batteries

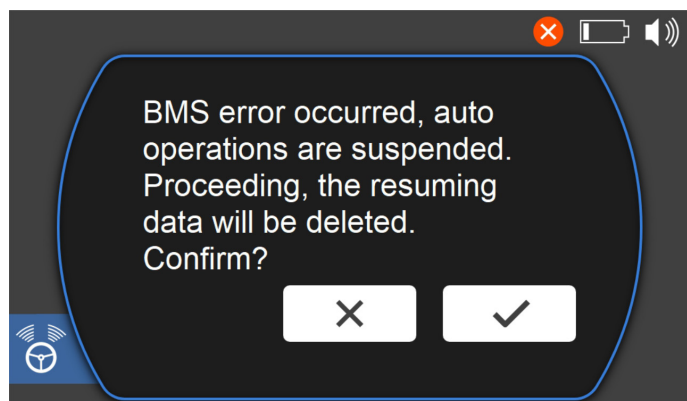


Serial number of the batteries which are not communicating

BMS ALARM

When the machine shows the battery communication error (see chapter "BATTERY COMMUNICATION ERRORS"), it does not allow the resetting operation until the alarm is solved.

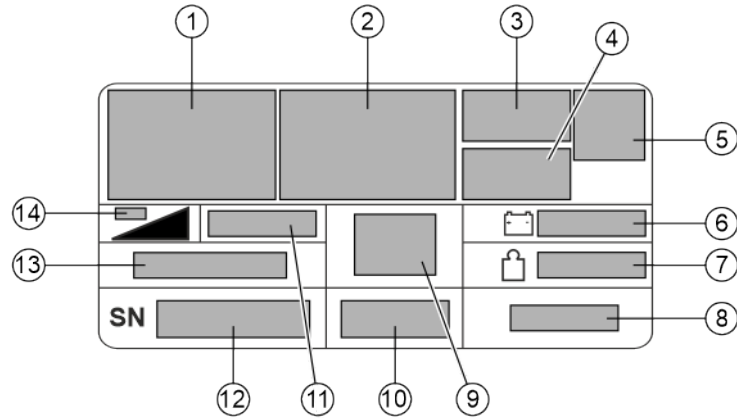
In this case the following warning message appears:



By pushing the button CHECK, you delete the operator control to be resumed and it turns on at the section control Lists, even if it is not possible to perform any automatic operation.

By pushing X, instead, you return to the Manual section and the sequence to be restored is kept into memory.

LEGEND SERIAL NUMBER PLATE



1	Name of the producer
2	Manufacturer's registered office
3	Country of production
4	CE labelling
5	Waste disposal regulations
6	Maximum weight for suitable batteries
7	Gross weight of the machine (IEC/EN 60335-2-72 clausola 3.114)
8	Power in force
9	Electrical safety class of the machine
10	Safety degree of the machine against water and dust
11	Battery voltage and circuit type
12	Serial number of the machine
13	Model of the machine
14	Maximum gradient allowed

How to read the Serial Number (Pos. 12)

SN	2	0	x	x	z	z	z	z
----	---	---	---	---	---	---	---	---

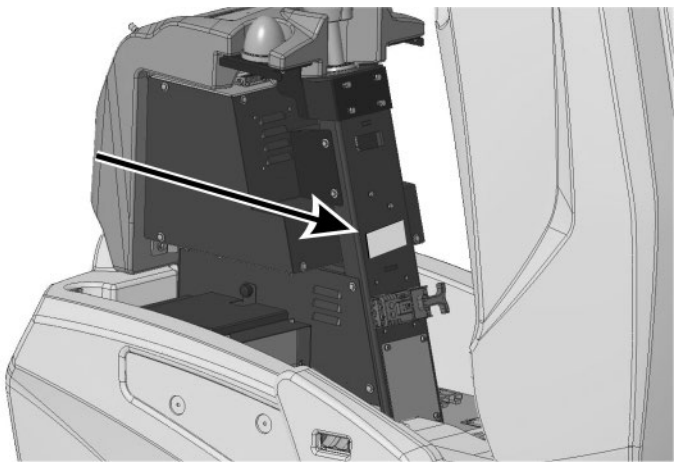
20xx = they mark the year of manufacture of the machine (inserted in to the Serial Number as per regulation CEI EN 60335-2-72).
 zzzz = they mark the progressive number of that machine produced in its year of construction.

How to read the model of the machine (Pos. 13)

xxxx	zz
------	----

xxxx = name of the machine range
 zz = number identifying the model

POSITION OF THE SERIAL NUMBER PLATE ON THE MACHINE



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