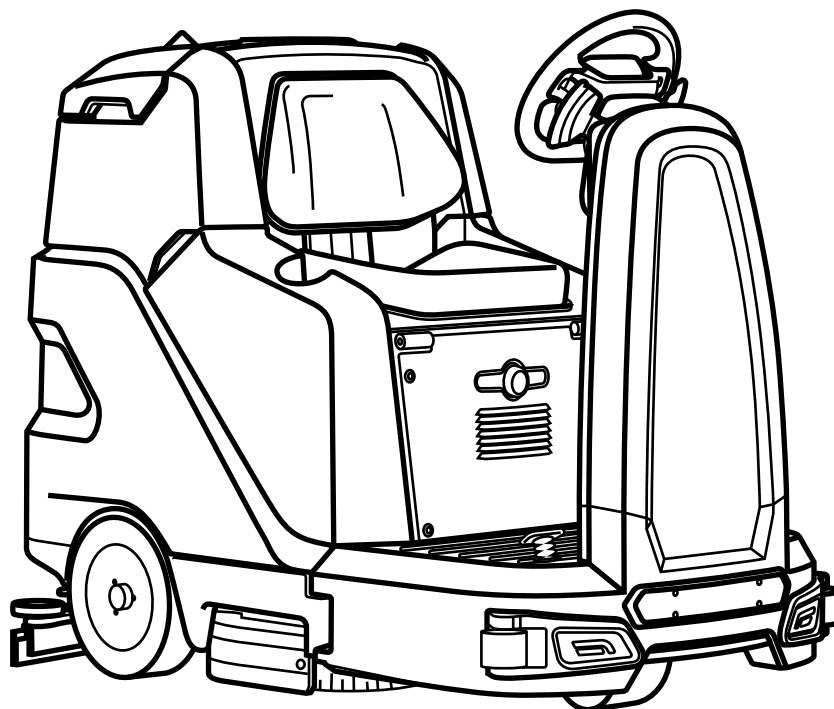


R30SC PLUS
R28SC PLUS
ORBITAL Technology



Scrubbing machine

Use and Maintenance manual

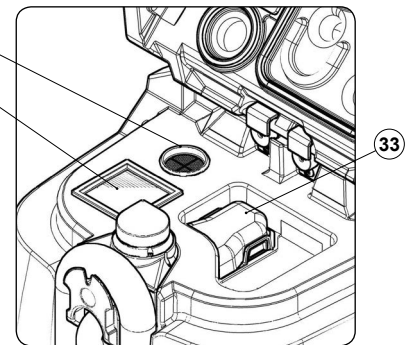
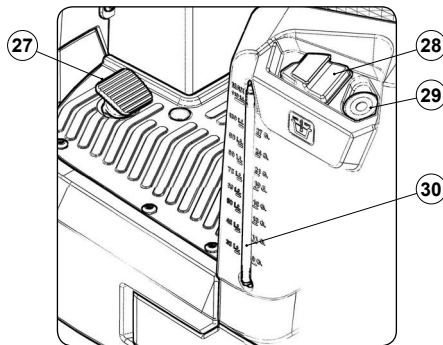
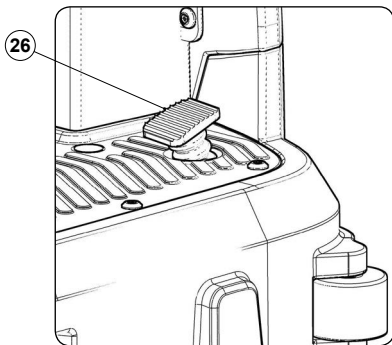
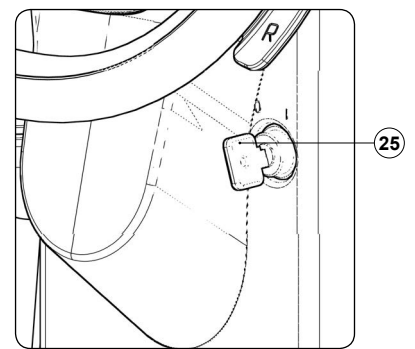
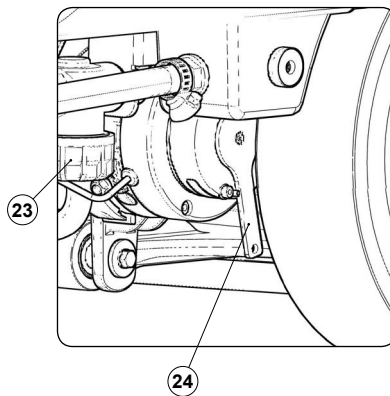
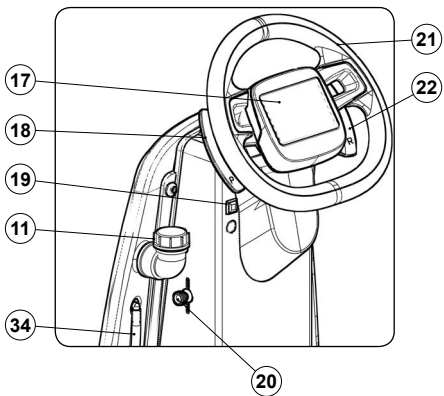
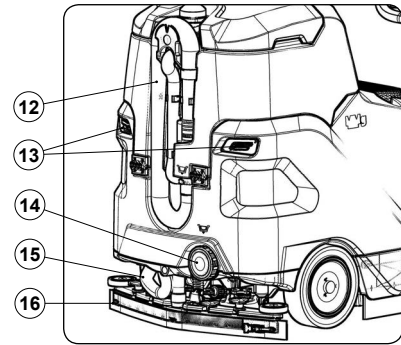
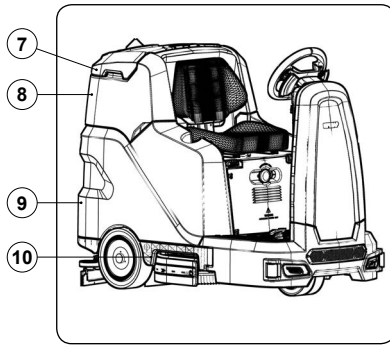


TRIDENT[®]

by HILLYARD



Original instructions - DOC. 10075405 - Ver. AA - 11-2017



MAIN MACHINE COMPONENTS

The machine's main components are the following:

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Front working lights. 2. Blinking light. 3. Operator seat. 4. Emergency button. 5. Service lights switch. 6. Left hatch. 7. Recovery tank lid. 8. Recovery tank. 9. Solution tank. 10. Right hatch. 11. Detergent tank cap (HDC version). 12. Recovery tank drainage hose. 13. Tail lights. 14. Solution tank drainage shaft cap. 15. Squeegee vacuum hose. 16. Squeegee body. | <ol style="list-style-type: none"> 17. Control display. 18. Brush head extra pressure selection lever. 19. Horn button. 20. Detergent solution tap control lever. 21. Steering wheel. 22. Reverse gear selection lever. 23. Detergent solution filter. 24. Electric brake control lever. 25. Main key switch. 26. Drive pedal. 27. Service brake pedal. 28. Solution tank cap. 29. Solution tank rapid filling hose. 30. Solution tank level hose. 31. Vacuum motor air duct filter. 32. Vacuum motor air intake filter. 33. Recovery tank filter. 34. Detergent level indicator (HDC version). |
|--|---|







CONTENTS

MAIN MACHINE COMPONENTS	3	ALARM SCREEN	23
CONTENTS	4	AT THE END OF THE WORK	23
GENERAL SAFETY REGULATIONS	5	RECOMMENDED MAINTENANCE OPERATIONS	23
RECHARGING THE BATTERIES.....	5	EMPTYING THE RECOVERY TANK.....	23
USING THE MACHINE.....	6	CLEANING THE SQUEEGEE BODY.....	24
DEACTIVATION OF THE MACHINE.....	8	CLEANING THE BRUSH HEAD BRUSHES (SCRUBBING VERSION).....	24
MAINTENANCE.....	8	CLEANING THE RECOVERY TANK FILTERS.....	24
TRANSPORT.....	10	CLEANING THE RECOVERY TANK.....	24
DISPOSAL.....	10	EMPTYING THE SOLUTION TANK.....	25
SYMBOLS USED IN THE MANUAL	11	CLEANING THE WATER SYSTEM FILTER.....	25
PURPOSE AND CONTENT OF THE MANUAL	11	CLEANING THE VACUUM TUBE.....	25
TARGET GROUP	11	EXTRAORDINARY MAINTENANCE WORK	26
PRESERVATION OF THE USER	11	REPLACING THE BRUSH HEAD BRUSHES (SCRUBBING VERSION).....	26
ON CONSIGNMENT OF THE MACHINE	11	ASSEMBLING THE ABRASIVE PAD.....	26
INTRODUCTORY COMMENT	11	REPLACING THE SQUEEGEE BODY RUBBER BLADES.....	26
IDENTIFICATION DATA	11	ADJUSTMENT INTERVENTIONS	26
TECHNICAL DESCRIPTION	11	ADJUSTING THE SQUEEGEE BODY'S RUBBER BLADES.....	26
INTENDED USE	11	DISPOSAL	27
SAFETY	11	CHOOSING AND USING BRUSHES	27
SERIAL NUMBER PLATE	11	TROUBLESHOOTING	28
REGULATIONS	11		
TECHNICAL DATA	12		
SYMBOLS USED ON THE MACHINE	14		
SYMBOLS USED ON THE SERIAL NUMBER PLATE	14		
SYMBOLS USED ON THE CONTROL DISPLAY	14		
MACHINE PREPARATION	15		
HANDLING THE PACKAGED MACHINE.....	15		
HOW TO UNPACK THE MACHINE.....	15		
HOW TO MOVE THE MACHINE.....	15		
SECURING THE MACHINE.....	16		
TYPE OF BATTERY TO BE USED.....	16		
BATTERY MAINTENANCE AND DISPOSAL.....	16		
INSERTING THE BATTERIES INTO THE MACHINE.....	16		
CONNECTING BATTERIES TO THE MACHINE.....	16		
RECHARGING THE BATTERIES.....	16		
ASSEMBLING THE SQUEEGEE BODY.....	17		
ASSEMBLING THE BRUSH HEAD BRUSHES (SCRUBBING VERSION).....	17		
ASSEMBLING THE ABRASIVE PAD.....	17		
FILLING THE SOLUTION TANK.....	17		
DETERGENT SOLUTION.....	17		
PREPARING TO WORK	18		
WORK	18		
TRANSFER.....	18		
SCRUBBING WITHOUT DRYING.....	19		
DRYING.....	19		
SCRUBBING WITH DRYING.....	20		
DS SELECTOR (DRIVE SELECT).....	20		
HILLYARD ECO MODE.....	20		
MANUAL MODE.....	21		
ZONE PROGRAM BUTTON.....	21		
REVERSE GEAR.....	21		
ACOUSTIC SIGNALLING DEVICE.....	21		
EXTRA BRUSH HEAD PRESSURE.....	21		
WORKING HEADLIGHTS.....	21		
SERVICE LIGHTS (OPTIONAL).....	22		
HILLYARD DOSING CONTROL (HDC).....	22		
TUTORIAL.....	22		
REAR VIDEO CAMERA (OPTIONAL).....	22		
EMERGENCY BUTTON.....	22		
HOUR METER.....	22		
BATTERY CHARGE LEVEL INDICATOR.....	23		
OVERFLOW DEVICE.....	23		



GENERAL SAFETY REGULATIONS

The following symbols are used to indicate any potentially hazardous situations. Always read this information carefully and take the necessary precautions to protect any people and/or objects that may be present.

Operator cooperation is paramount for accident prevention. No accident prevention programme can be effective without the full cooperation of the person directly responsible for the machine's operation. Most accidents that occur at the workplace, during work activities, or while in transit, are caused by the failure to respect the most basic safety regulations. An attentive, careful operator is most effective guarantee against accidents and is fundamental in order to implement any prevention programme.

-  **DANGER:** Indicates an imminent danger that could cause serious injury or death.
-  **WARNING:** Indicates a probable dangerous situation that could cause serious injury or death.
-  **CAUTION:** Indicates a probable dangerous situation that could cause minor injuries.
-  **ATTENTION:** Indicates a probable dangerous situation that could damage objects.
-  **N.B.:** Indicates a note regarding essential or useful functions.
-  **CONSULTATION:** Indicates the need to consult the Operator's Manual before performing any operation.

RECHARGING THE BATTERIES

-  **DANGER:**
 - If the battery charger power cable is damaged or broken, it should be replaced by the manufacturer, by authorised service personnel or else by a qualified person, in order to protect against hazards.
 - The socket for the battery charger cable must have a prescribed earth connection.
 - Keep sparks, flames, and incandescent materials at a safe distance from the batteries. Explosive gases are emitted during the charging phase.
 - highly explosive hydrogen gas is generated while charging the batteries. Keep the recovery tank in a maintenance position during the entire battery recharging cycle, and only perform the procedure in well-ventilated areas at a safe distance from any open flames.
 - Before charging check that the electric cable that connects the battery charger to the batteries is not damaged, and if it is damaged do not use it and contact technical assistance.
 - Before charging check that the electric cable that connects the battery charger to the mains is not damaged, and if it is damaged do not use it and contact technical assistance.
 - Do not disconnect the battery charger cable from the machine socket when the battery charger is operating. This is necessary in order to avoid electric arcs forming. To disconnect the battery charger when charging, first disconnect the power cable from the mains socket.
-  **WARNING:**
 - Do not use an incompatible battery charger since it could damage the batteries and potentially cause a fire.

- The batteries emit hydrogen gas. This gas can cause explosions or fires. Keep a safe distance from flames or sparks. Keep the recovery tank open for the duration of the battery recharging.
- For versions with a battery charger on-board, before charging make sure that the frequency and the voltage indicated in the battery charger user manual, (enclosed with the machine documentation) match the mains voltage.
- Keep the battery charger's cable at a safe distance from any hot surfaces.
- Never smoke in the machine's vicinity while the batteries are charging.
- Carefully read the user manual of the battery charger that you want to use before starting the charging operation.

USING THE MACHINE



DANGER:

- In the event of danger, take prompt action by pressing the emergency button near the operator's seat.
- Never collect gases, explosive/inflammable liquids or powders, nor acids and solvents! These include gasoline, paint thinners and fuel oil (which, when mixed with the vacuum air, can form explosive vapours or mixtures), and also non-diluted acids and solvents, acetones, aluminium and magnesium powders. These substances may also corrode the materials used to construct the machine.
- If the machine is used in dangerous areas (e.g. petrol stations), the relative safety standards must be observed. It is forbidden to use the machine in environments with a potentially explosive atmosphere.
- Never use the machine with the electro-magnetic brake disengaged.



WARNING:

- The machine can be used by children over the age of 8 and by people with limited physical, sensorial or mental capacity, or people without experience or the required knowledge, as long as they are supervised or have been instructed about safe machine use and the inherent dangers. Children must not play with the machine. The cleaning and maintenance that should be carried out by the user should not be done by unsupervised children.
- The machine must be exclusively used by authorised, trained personnel.
- Do not use the machine on surfaces with a slope greater than the one indicated on the serial number plate.
- The machine is not suitable for cleaning rough or uneven floors. Do not use the machine on slopes.
- In the event of a fire, use a powder extinguisher. Do not use water.
- Adapt the speed to the adhesion conditions.
- In order to prevent the unauthorised use of the machine, the power supply must be disconnected: switch the machine off using the main switch (by removing the key from the block) and disconnect the battery's connector from the electrical system's connector.
- Do not use the machine without the requisite knowledge and authorisations.
- Do not use the machine if you have not read and understood the following user manual.
- Do not use the machine under the influence of alcohol or drugs.
- Do not use the machine when using a mobile phone or other electronic devices.
- Do not use the machine if it is not working correctly.
- Do not use the machine in areas where there are inflammable vapours or liquids or combustible powders.

- Do not use the machine in areas that are too dark to see the controls or operate the machine safely, unless the work lights or the front headlights are on.

**CAUTION:**

- Children must be supervised to ensure they do not play with the machine.
- During the working of the machine, pay attention to other people and especially to children.
- The machine must only be powered with a voltage equal to that shown on the serial number plate.
- Read the labels on the machine carefully. Do not cover them for any reason, and replace them immediately if they become damaged.
- The machine must only be used and stored in an enclosed or covered environment.
- The machine must not be used or stored outdoors in damp conditions or directly exposed to rain.
- The machine does not cause harmful vibrations.
- Use the machine only in the way described in this manual.
- Do not pick up anything that is burning or smouldering, like cigarettes, matches or glowing embers.
- Reduce speed on slopes and dangerous corners.
- Reduce speed before making a turn.
- Keep all parts of your body inside when the machine is moving.
- Be careful when reversing.
- Do not transport passengers.
- Always follow the instructions for mixing, use and disposal on the containers of the chemical substances.

**ATTENTION:**

- The machine is not suitable for use by people (including children) with limited physical, sensorial or mental, or by people who have no experience or the required knowledge, unless they are supervised or after they have been given instruction regarding using the machine by a person responsible for their safety.
- If the machine is to be used in the presence of other individuals, aside from the operator, the beacon light must be utilized.
- Always take appropriate measures to protect any individuals and/or objects that may be present while using this machine.
- Be careful to avoid collisions with shelving or scaffolding, above all if there is a risk of objects falling from heights.
- Do not place any liquid containers on the machine.
- The machine must only be used under temperature conditions ranging from 32 °F to +104 °F.
- When using detergents to clean the flooring, always follow the instructions and respect the warnings indicated on the containers' labels.
- Always use appropriate gloves and protective equipment when handling the detergents used to clean the floor.
- Do not use the machine as a means of transport.
- Avoid working with the brushes when the machine is standing still, so as not to damage the floor.
- In the event of a fire, use a powder fire extinguisher if possible, and avoid the use of water.
- Do not allow any objects to penetrate into the machine's openings. Do not use the machine is

the openings are obstructed.

- Keep the machine's openings free of any dust, lint, hairs, or any other foreign materials that could reduce the airflow.
- Do not remove or alter any labels affixed to the machine.
- This machine has not been approved for use on public streets or roadways.
- Only use the brushes and pad holders that have been supplied along with the machine or those specified in the Operator's Manual. The use of other brushes or felt pads could compromise the machine's safety conditions.
- Before starting to work check that there are no leaks.
- Before starting to work check that all the safety devices have been installed and are working correctly.
- Take all due precautions so that hair, jewellery, loose clothing do not get entangled in the machine's moving parts.
- Only use the machine in well-lit areas.

DEACTIVATION OF THE MACHINE



WARNING:

- Always protect the machine against sunlight, rain, and other atmospheric agents, both while it is stationary and while it is in function. Store the machine in a dry, sheltered place: this machine is only designed for use under dry conditions, and must not be used or stored outdoors under humid conditions.
- Do not park the machine near combustible materials, powders, gases or liquids.
- Stop the machine on a flat surface.
- Switch off the machine and remove the key from the instrument panel.
- If the machine is left unattended, it must be protected from any accidental movements



CAUTION:

- In order to prevent the unauthorised use of the machine, the power supply must be disconnected: switch the machine off using the main switch (by removing the key from the block) and disconnect the battery's connector from the electrical system's connector.



ATTENTION:

- The machine must only be stored under temperature conditions ranging from 32 °F to +104 °F. The humidity level must be between 30% and 95%.

MAINTENANCE



DANGER:

- In order to avoid short-circuits when working in the vicinity of electrical components, do the following: avoid the use of non-insulated tools; do not place or allow metallic objects to fall upon the electrically powered components; remove any rings, watches and/or clothing with metallic parts that might come into contact with the electrically powered components.
- Do not work underneath the raised machine without adequate fixed safety supports.



WARNING:

- Read all the relevant instructions carefully before performing any maintenance/repair operations.
- If the machine does not work properly, check this is not caused by failure to carry out routine

maintenance. Otherwise, ask for intervention of the authorised technical assistance centre.

- Restore all electrical connections after any maintenance interventions.



CAUTION:

- When doing maintenance work, switch off the machine using the main switch. Remove the key from the instrument panel and remove the battery connector from the electrical system connector.
- Avoid contact with moving parts. Do not wear loose clothing or jewellery and tie long hair back.
- Block the wheels before lifting the machine.
- Lift the machine with equipment that can sustain the weight to be lifted.



ATTENTION:

- Never tamper with the machine's protection devices for any reason; always follow the supplied routine maintenance instructions scrupulously.
- The electro-magnetic brake must be released in order to move the machine manually. Once the manual movement operations have been completed, the electro-magnetic brake must be re-engaged. Never use the machine with the electro-magnetic brake disengaged.
- If the machine needs to be pushed for maintenance purposes (batteries absent; discharged batteries; etc.), never exceed the speed of 2.49 mph.
- If any issues are encountered while using the machine, check to make sure that these are not due to a lack of proper maintenance. Otherwise, request the intervention of authorized personnel or an Authorized service centre.
- If any parts need to be replaced, always request ORIGINAL spare parts from an authorized Dealer or Retailer.
- In order to ensure the machine's safety and proper functionality, always have the scheduled maintenance interventions (specified in the appropriate section of this Manual) performed by authorized personnel or by an authorized Service Centre.
- Do not clean the machine with direct or pressurized jets of water, or with corrosive substances.
- If lead batteries (WET) have been installed on the machine, avoid tilting the machine beyond 30° with respect to the horizontal plane, as this could cause the highly corrosive liquid to leak out of the batteries.
- Avoid contact with the battery acid.
- Keep all metal objects away from the batteries.
- Use a non-conductive device for removing the battery.
- Use a hoist and suitable equipment when lifting the batteries.
- The battery must be installed by qualified personnel.
- Always observe the safety measures of the site regarding removing the battery.
- Remove the batteries if the machine needs to be tilted in order to perform maintenance procedures.
- Have the machine checked by an authorised technical assistance centre every year.
- When disposing of consumable materials, observe the laws and regulations in force. Once the machine has reached the end of its service life, the materials contained within it must be disposed of in an appropriate manner, keeping in mind that the machine itself has been built using fully recyclable materials.
- Do not push or tow the machine without an operator on the seat who can control the machine.
- Do not wash the machine with pressurised water or wet the machine near electrical components.
- All repairs must be carried out by qualified personnel.

- Do not physically change the design characteristics of the machine.
- Use spare parts supplied by Hillyard or by Hillyard service centres.
- Wear personal protective equipment as required and as suggested in the manual.

TRANSPORT



WARNING:

- Drain both tanks before transport.
- Bring both the squeegee and the brushes to a working position before securing the machine to the transport vehicle.
- Use a ramp, a truck or a trailer that can support the weight of the machine and the operator.
- To place the machine on the transport vehicle use a pulley. Do not drive the machine on or off a truck or trailer.
- The ramp for placing the machine on the transport vehicle should have such a slope that the machine does not get damaged.
- Engage the parking brake after loading the machine onto the transport vehicle.
- Secure the device according to the directives in force in the country of use, so that it cannot slide or tip over when being transported.



ATTENTION:

- Use caution when moving the machine under temperatures below freezing. The water contained in the water recovery tank or in the pipes could freeze, and could seriously damage the machine itself.

DISPOSAL



ATTENTION:

- The machine should not be left unattended at the end of its working cycle because of the presence of toxic-harmful materials inside it (batteries, etc.), which are subject to regulations regarding their disposal at special centres (see the chapter on Scrapping).

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The company reserves the right to make any technical and/or supply modifications. The images are shown as reference only and are not binding as to the actual design and/or equipment.

SYMBOLS USED IN THE MANUAL



Symbol of the open book with i:
Indicates the need to consult the instruction manual.



Symbol of the open book:
Tells the operator to read the user manual before using the device.



Covered place symbol:
The operations preceded by this symbol must always be carried out in a dry, covered area.



Information symbol:
Indicates additional information for the operator, to improve the use of the device.



Warning symbol:
Carefully read the sections preceded by this symbol meticulously following the instructions indicated for the safety of the operator and the device.



Danger symbol (corrosive substances):
The operator should always wear protective gloves to avoid the risk of serious injury to the hands caused by corrosive substances.



Danger symbol (battery acid leakage):
Indicates the danger of leaking acid or acid fumes from the batteries while they are being recharged.



Danger symbol (moving carriages):
Indicates that the packed product should be handled with suitable carriages that conform to legal requirements.



Mandatory room ventilation symbol:
Informs the operator that the room must be ventilated while the batteries are being recharged.



Symbol indicating the compulsory use of protective gloves:
Indicates that the operator should always wear protective gloves, to avoid the risk of serious injury to his hands from sharp objects.



Symbol indicating a treading ban:
Informs the operator that it is forbidden to tread on machine components, as this could lead to serious injury.



Recycling symbol:
Tells the operator to carry out the operations in compliance with environmental regulations in force in the place where the appliance is being used.



Disposal symbol:
Carefully read the sections marked with this symbol for disposing of the appliance.

PURPOSE AND CONTENT OF THE MANUAL

The aim of this manual is to provide customers with all the information needed to use the machine in the safest, most appropriate and most autonomous way. This includes information concerning technical aspects, safety, operation, downtime, maintenance, spare parts and scrapping. The operators and qualified technicians must carefully read the instructions in this manual before carrying out any operations on the machine. If in doubt about the correct interpretation of instructions, contact your nearest Customer Service Centre to obtain the necessary clarifications.

TARGET GROUP

This manual is written both for operators and for qualified machine maintenance technicians. Operators must not perform operations that should be carried out by qualified technicians. The manufacturer is not liable for damages resulting from failure to comply with this veto.

PRESERVATION OF THE USER

The Use and Maintenance Manual must be stored in its special pouch close to the machine, protected from liquids and anything else that could compromise its legibility.

ON CONSIGNMENT OF THE MACHINE

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

INTRODUCTORY COMMENT

Any floor scrubbing machine can only work properly and effectively if used correctly and kept in full working order by performing the maintenance operations described in the attached documentation. We therefore suggest you read this instruction booklet carefully and read it again whenever difficulties arise while using the machine. If necessary, remember that our assistance service (organised in collaboration with our dealers) is always available for advice or direct intervention.

IDENTIFICATION DATA


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


TECHNICAL DESCRIPTION

The **TRIDENT R30SC PLUS** is a floor scrubbing machine capable of handling a wide variety of floors and types of dirt thanks to the mechanical action of two or three brushes and the chemical action of a water-detergent solution. As it advances, it collects the dirt removed, as well as the detergent solution not absorbed by the flooring itself. **The machine must only be used for this purpose.**

INTENDED USE

This scrubbing machine was designed and built for the cleaning (scrubbing and drying) of smooth, compact flooring in the commercial, residential and industrial sectors by a qualified operator in proven safety conditions. The scrubbing machine is not suitable for cleaning rugs or carpet floors. It is only suitable for use in closed (or at least covered) places.

 **ATTENTION:** the machine is not suitable for use in the rain, or under water jets.

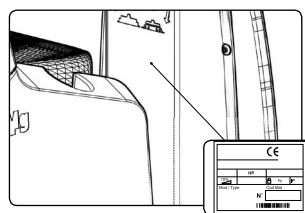
 **IT IS FORBIDDEN** to use the machine for picking up dangerous dusts or inflammable liquids in places with an explosive atmosphere. In addition, it is not suitable as a means of transport for people or objects.

SAFETY

Operator cooperation is paramount for accident prevention. No accident prevention programme can be effective without the full cooperation of the person directly responsible for machine operation. The majority of occupational accidents that happen either in the workplace or whilst moving are caused by failure to respect the most basic safety rules. An attentive, careful operator is most effective guarantee against accidents and is fundamental in order to implement any prevention programme.

SERIAL NUMBER PLATE

The serial number plate is located at the rear of the steering column, and indicates the machine's general characteristics, including its serial number. The serial number is a very important piece of information and should always be provided together with any request for assistance or to purchase spare parts.



REGULATIONS

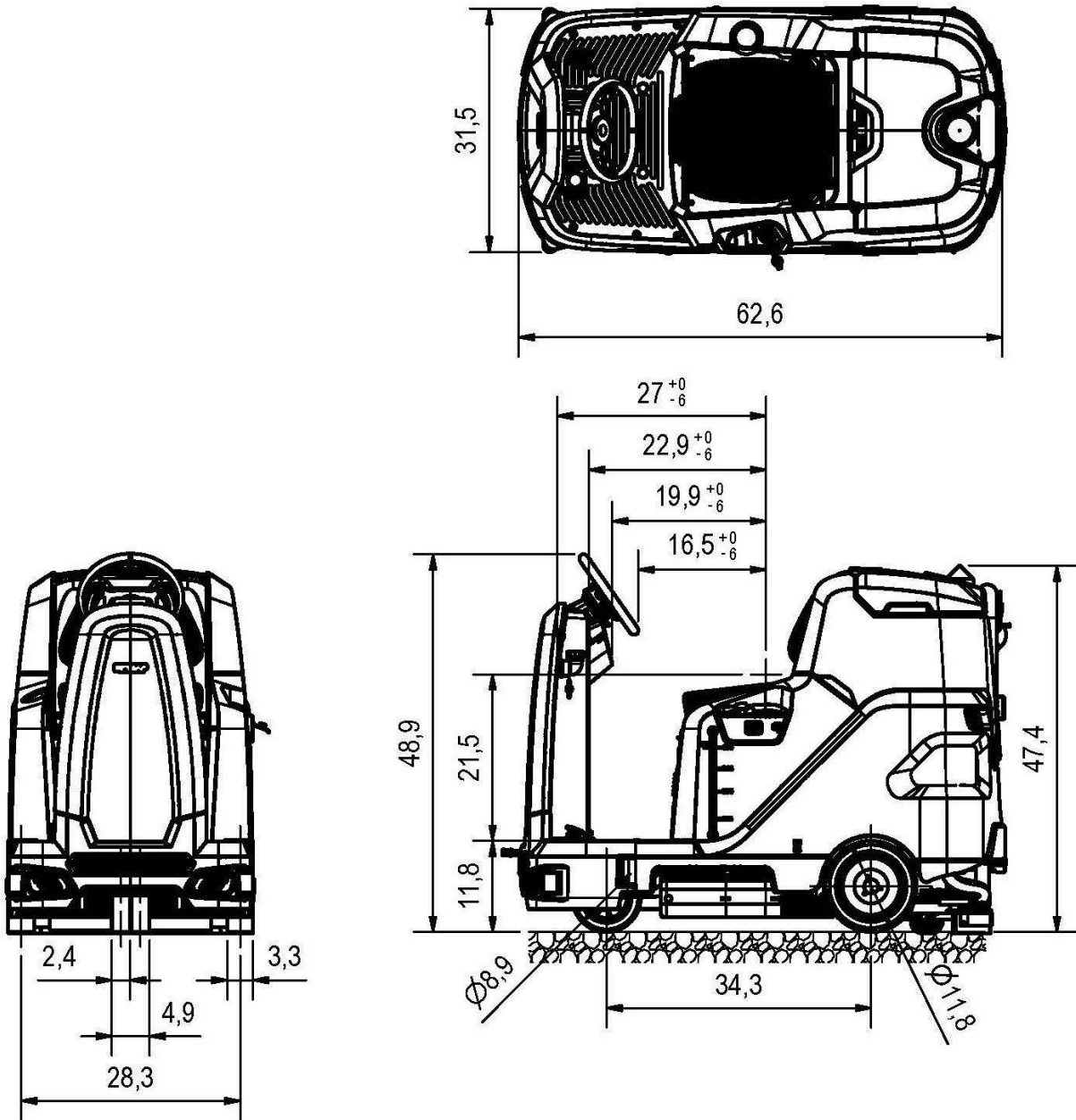
All references to forwards and backwards, front and rear, right and left indicated in this manual should be understood as referring to the operator in a driving position with his hands on the steering wheel.

TECHNICAL DATA

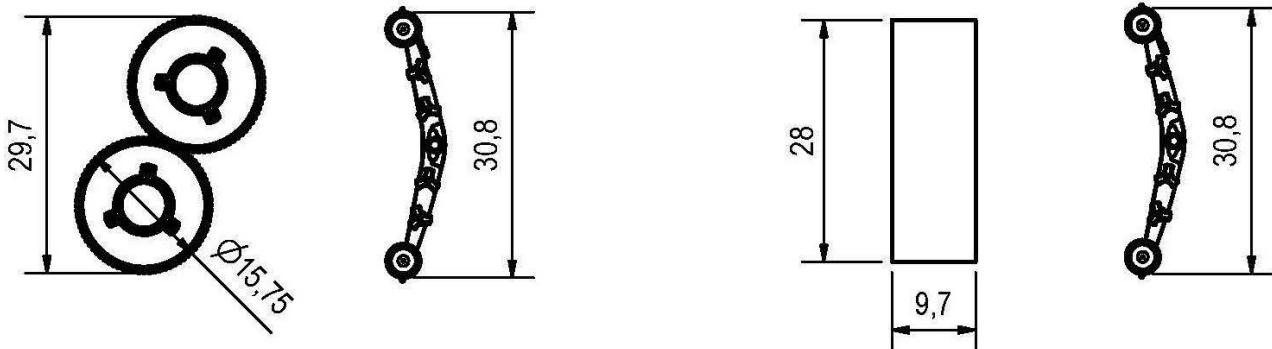
TECHNICAL DATA	SI [UM]	TRIDENT R30SC PLUS	TRIDENT R28SC ORBITAL PLUS
Rated machine power	W	1700	1800
Working capacity up to	sq.ft/h	48438	48438
Working width	in	29,7	28
Squeegee width	in	30,8	
Central brush head brushes (number -Ø external bristles)	No. / in	2 - Ø15,75	-
Rpm of the individual brush on the central brush head	rpm	140	-
Central brush head motor (voltage - nominal power rating)	V / W	24 - 500	24 - 600
Pad dimensions (length-width)	No. / in	-	1 - (28 - 9,7)
Number of central brush head oscillations	rpm	-	3500
Traction motor (voltage / rated power)	V / W	24 - 600	
Traction wheel (external Ø / width)	in	Ø11,8 - 3,3	
Maximum slope during ascent and descent with the transport programme (weight ⁽³⁾)	%	14	
Maximum slope during ascent and descent with the transport programme (weight ⁽²⁾ + operator)	%	18	
Maximum slope during ascent and descent with the working programme (weight ⁽³⁾)	%	7	
Maximum ambient temperature for machine operation	°F	104	
Minimum temperature for using the machine's scrubbing functions	°F	32	
Front wheel (external Ø - width)	in	Ø 8,9 - 4,9	
Maximum forward speed in transport mode	mph	5	
Vacuum motor (voltage - nominal power rating)	V / W	24 - 600	
Vacuum on vacuum head	psi	2,6	
Maximum solution tank capacity	gal	28	
Maximum recovery tank capacity	gal	25	
Turning circle	in	77	
Machine dimensions (length - width - height)	in	62,6 - 31,5 - 48,9	
Battery compartment dimensions (width - length - useful height)	in	20,7 - 15,2 - 11,8	
Nominal voltage rating of the battery (recommended)	n° - V / AhC5	4 - 6 / 200	
Machine weight ⁽¹⁾	lb	611	578
Machine weight during transport ⁽²⁾	lb	893	860
Machine weight during work operations ⁽³⁾	lb	1300	1268
Maximum battery weight (recommended)	lb	71	
Sound pressure level (ISO 11201) - L _{pA}	dB (A)	<70	<70
Uncertainty K _{pA}	dB (A)	1,5	1,5
Hand vibration level (ISO 5349)	m/s ²	<2,5	<2,5
Body vibration level (ISO 2631)	m/s ²	<0,5	<0,5
Vibration measurement uncertainty		1,5%	1,5%

Remarks:

- (1) Machine weight: refers to the overall weight of the machine, without the batteries or the operator on board, and with both tanks empty.
- (2) Machine weight during transport: refers to the overall weight of the machine with the batteries on board, without the operator on board, and with both tanks empty.
- (3) Machine weight during work operations: refers to the machine's overall weight with the batteries on board, with the solution tank full, with the detergent container full (valid for the HDC versions), with the recovery tank empty, and with the operator on board (theoretical weight of 70kg).
- (4) Lateral brush associated with the scrubbing brush head.
- (5) Lateral brush associated with the sweeping brush head.



TRIDENT R28SC ORBITAL PLUS



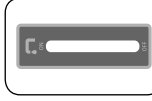
SYMBOLS USED ON THE MACHINE



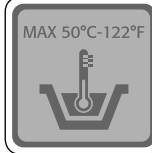
Main switch symbol:
Applied to the control panel, positioned on the front of the machine, to indicate the main switch.



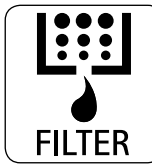
Acoustic signalling device control label:
Applied in the vicinity of the steering column to indicate the acoustic signalling device's control button.



Label for detergent solution tap command:
Applied in the vicinity of the control column to identify the detergent solution tap control lever.



Symbol for maximum temperature for filling the solution tank:
Applied to the left-hand side of the machine's solution tank to indicate the maximum temperature of the water that can be used to safely fill the solution tank.



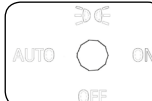
Filter body position symbol:
Applied to the left-hand side of the machine to indicate the position of the solution tank filter.



Extra pressure activation/deactivation lever position symbol:
Applied to the central brush head's extra pressure activation/deactivation lever.



Reverse gear activation/deactivation lever position symbol:
Applied to the reverse gear activation/deactivation lever.



Symbol for activation/deactivation of the service lights:
Applied to the front of the machine, to indicate the service lights switch.



Label indicating the need to read the Use and Maintenance Manual:
Applied in the vicinity of the steering column in order to remind the operator to read the user and maintenance manual before using the machine.



Treading ban label:
Located on the machine, to identify the surfaces that must not be trodden on (risk of personal injury or damage to the machine).



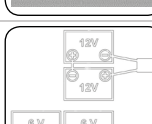
Label warning about the risk of crushed hands:
Indicates danger to hands due to crushing between two surfaces.



Recovery tank drainage hose symbol:
Applied to the back of the machine to identify the recovery tank's drainage hose.



Solution tank drainage cap symbol:
Applied to the back of the machine to identify the solution tank's drainage cap.



Battery connection symbol:
Applied beneath the recovery tank to indicate how to connect the 6V or 12V batteries in order to obtain a total voltage of 24V.



Warning label (versions without built-in battery charger):
Affixed to the machine in order to warn the operator to read the user and maintenance manual (this document) before using the machine for the first time. Also indicates the applicable procedures for properly caring for the machine itself.



Solution tank filter daily care warning label:
Applied to the machine to remind the operator to clean the solution tank after each use.



Warning label (versions with built-in battery charger):
Affixed to the machine in order to warn the operator to read the user and maintenance manual (this document) before using the machine for the first time. It also contains a **summary** of the procedures to be applied in order to properly charge the batteries.



Warning label (versions with built-in battery charger):
Applied to the machine to remind the operator of the applicable procedures for properly caring for the machine itself.

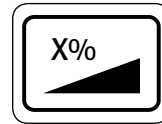


Vacuum motor filter label:
Applied inside the vacuum cover to identify the vacuum motor intake air filter, and also serves to remind the operator to clean the filter after each machine use.



Label for optional tank cleaning kit command:
Applied near the steering column to indicate the command button for the optional tank cleaning kit.

SYMBOLS USED ON THE SERIAL NUMBER PLATE



Maximum gradient symbol:
Used on the machine serial number plate, to indicate the maximum gradient that can be safely handled in working mode.

SYMBOLS USED ON THE CONTROL DISPLAY



1. HFM symbol, if visible it shows that the "HILLIARD FLEET MANAGEMENT" system is active.
2. HDC symbol, if visible it shows that the "HILLIARD DOSING CONTROL" system is active.
3. Lateral brush head symbol, if visible it shows that the lateral brush/es is/are operating.
4. Working lights symbol, if visible it shows that the working lights are on.
5. Hour meter.
6. battery charge level percentage.
7. General alarm symbol.
8. Recovery tank float symbol, if visible it shows that the recovery tank is full and that to continue you need to empty it.
9. Solution tank float symbol, if visible it shows that the recovery tank is empty and that to continue you need to fill it.
10. Detergent solution level symbol.
11. Vacuum motor performance level symbol.
12. HILLIARD ECO MODE program button.
13. Drive Select selector.
14. Rear camera symbol.
15. Menu screen activation symbol.
16. Text indicator.
17. Zone program selector button.
18. Brush head extra pressure level symbol.
19. Forward speed level symbol.

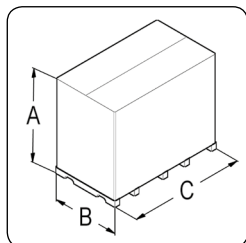
MACHINE PREPARATION

HANDLING THE PACKAGED MACHINE

The machine's overall weight including packaging is 660 lb.

N.B.: it is recommended that all the packaging components be kept for any future machine transportation.

DANGER: Move the packaged product with handling equipment that complies with legal requirements regarding size and mass of the packaging.



A	56 in
B	40.3 in
C	69.3 in

HOW TO UNPACK THE MACHINE

The machine is shipped in specific packaging. To remove it, proceed as follows:

1. Place the lower part of the outer packaging in contact with the floor.

N.B.: use the pictograms printed on the box as a reference.

2. Remove the outer package.

WARNING: the machine is contained in specific packaging materials, whose elements (plastic bags, staples, etc.) can pose potential hazards, and must not be left within reach of children, disabled persons, etc.

3. Remove the boxes containing the disc brushes and squeegee body from the machine.

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

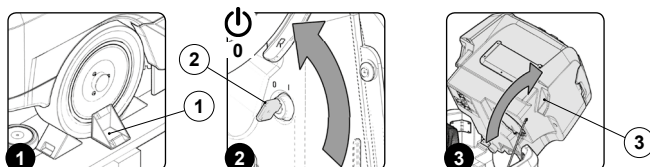
4. Insert a ramp in the rear part of the machine.

ATTENTION: the ramp gradient must not be such as to cause damage to the machine as it comes down.

5. The machine is fixed to the pallet with wedges (1) that block the wheels (Fig.1). Remove these wedges.

6. Check the main switch on the control panel is set to "0". If this is not the case, turn the key (2) to the left (Fig.2). Remove the key from the main switch.

7. Grip the handle (3) and raise the recovery tank to the maintenance position (Fig.3).



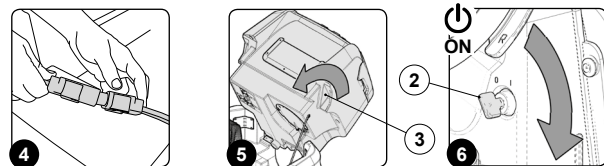
8. Connect the backup battery carriage's connector to the machine's main system connector (Fig.4).

9. Grip the handle (3) and lower the recovery tank to its working position (Fig.5).

10. Sit on the driver's seat.

11. Insert the key (1) into the main switch on the control panel. Set the main machine switch to its "I" position, by turning the key a quarter turn to the right (Fig.6).

12. A few seconds after ignition the password screen is displayed (Fig.7).



13. Enter the password and press the enter key (4) (Fig.7).

N.B.: to delete a wrong entry press the delete key (5) (Fig.7).

N.B.: it is possible to disable the password entry, contact the nearest assistance centre.

N.B.: the password entered by the manufacturer is 0000.

14. By default the machine is set to the transfer program (6) (Fig.8).

N.B.: in transfer mode both the brush head and the squeegee support will be in the resting position (raised from the pallet).

N.B.: in the DS selector the symbol of the transport program (6) is green (Fig.8).

N.B.: the grey symbols show working programs that are not active. the green symbols show working programs that are active.

15. Engage the reverse gear using the reverse gear activation/deactivation lever (7) (Fig.9).

16. Press the drive pedal (8) (Fig.10) to begin moving the machine.

17. Drive the machine down the ramp.

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

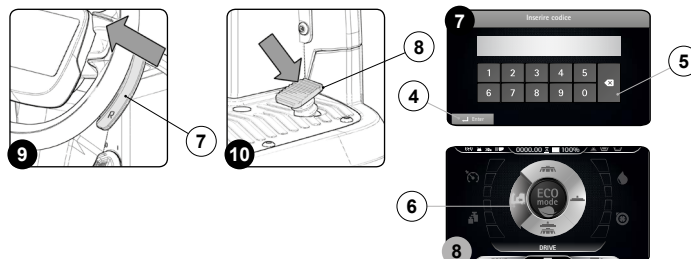
18. Set the main switch to "0", turning the key (1) to the left (Fig.2). Remove the key from the main switch.

19. Get off the machine.

20. Grip the handle (2) and raise the recovery tank to its maintenance position (Fig.3).

21. Disconnect the backup battery carriage's connector from the machine's main system connector (Fig.4).

22. Grip the handle (4) and lower the recovery tank to its working position (Fig.5).



HOW TO MOVE THE MACHINE

To transport the machine safely, proceed as follows:

DANGER: before starting any task, make sure the current regulations concerning the safe transport of dangerous substances are scrupulously observed.

1. Check to make sure that the solution tank and the recovery tank are empty. If this is not the case, empty them (see the sections titled "EMPTYING THE SOLUTION TANK" and "EMPTYING THE RECOVERY TANK").

2. Sit on the driver's seat.

3. Insert the key (1) into the main switch on the control panel. Set the main switch to "I" by turning the key (1) to the right (Fig.1).

4. Using the DS selector on the control display (Fig.2), select the "transfer" program (2).

N.B.: in this working program both the brush head and the squeegee support will be in the resting position (raised from the floor).

N.B.: in the DS selector the transport program symbol (2) is green (Fig.2).

N.B.: the grey symbols show working programs that are not active. the green symbols show working programs that are active.

5. Press the drive pedal (3) (Fig.3) to begin moving the machine.



6. Use a ramp to move the machine up onto the transport vehicle.

CAUTION: during this operation, check there are no people or objects near the machine.

N.B.: the ramp gradient must not be such as to cause damage to the machine as it goes up.

7. Once the machine is on the means of transport, set the main switch to its "0" position by turning the key (1) to the left (Fig.4). Remove the key from the main switch.

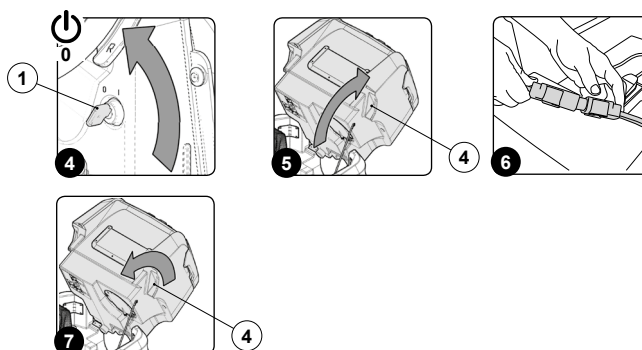
8. Get off the machine.

9. Grip the handle (4) and raise the recovery tank to the maintenance position (Fig.5).

10. Disconnect the battery connector from the machine's main system connector (Fig.6).

11. Grip the handle (4) and lower the recovery tank to its working position (Fig.7).

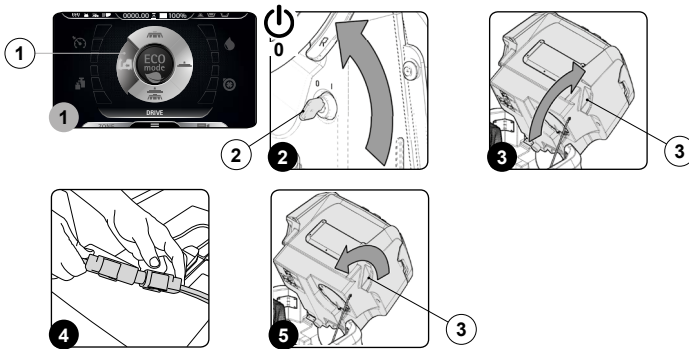
WARNING: secure the device according to the directives in force in the country of use, so that it cannot slide or tip over.



SECURING THE MACHINE

To ensure that work is carried out in the best safety conditions, proceed as follows:

1. Make sure the solution tank is empty. If this is not the case, empty it (read "[EMPTYING THE SOLUTION TANK](#)").
2. Make sure the recovery tank is empty. If this is not the case, empty it (read "[EMPTYING THE RECOVERY TANK](#)").
3. Using the DS selector on the control display (**Fig. 1**), select the "transfer" program" (1).
 - i** **N.B.:** in this working program both the brush head and the squeegee support will be in the resting position (raised from the floor).
 - i** **N.B.:** in the DS selector the symbol of the transport program (1) is green (**Fig. 1**).
 - i** **N.B.:** the grey symbols show working programs that are not active. the green symbols show working programs that are active.
4. Set the main switch to "0" position by turning the key (2) to the left (**Fig. 2**). Remove the key from the instrument panel.
5. Get off the machine.
6. Grip the handle (3) and raise the recovery tank to the maintenance position (**Fig.3**).
7. Disconnect the battery connector from the machine's main system connector (**Fig.4**).
8. Grip the handle (3) and rotate the recovery tank to its working position (**Fig.5**).



TYPE OF BATTERY TO BE USED

Power to the machine must be supplied by four sealed traction batteries with gas recombination or gel technology.
The batteries must meet the requirements laid out in the norms: CEI EN 60254-1:2005-12 (CEI 21-5) + CEI EN 60254-2:2008-06 (CEI 21-7). To ensure good results, you are advised to use four 6V MFP 210 Ah/C₅ batteries.

BATTERY MAINTENANCE AND DISPOSAL

For battery maintenance and recharging, respect the instructions provided by the battery manufacturer. When the batteries reach the end of their service life, they must be disconnected by specialized and properly trained personnel, and must be subsequently removed from the battery compartment using suitable lifting devices.

i **N.B.:** dead batteries are classified as dangerous waste and as such must be delivered to an authorised body for disposal.

INSERTING THE BATTERIES INTO THE MACHINE

The batteries must be housed in the special compartment beneath the recovery tank and should be handled using lifting equipment that is suitable in terms of both weight and its coupling system.

! **DANGER:** make sure that you comply with the accident prevention regulations in force in the country where you work or with DIN EN 50272-3 and DIN EN 50110-1, before any handling of the batteries.

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

The various phases for inserting the batteries in the battery compartment are as follows:

1. Make sure the machine is in a safe condition (read "[SECURING THE MACHINE](#)").
2. Move to the left hand side of the machine and open the left lateral carter (1) (**Fig.1**).
3. Check to make sure that the electronic brake is engaged, and turn the lever on the rear left portion of the machine (2) clockwise (**Fig.2**). Close the left lateral carter (1).
4. Grip the handle (3) and raise the recovery tank to the maintenance position (**Fig.3**).

i **N.B.:** for battery maintenance and daily recharging, you must fully respect the indications provided by the manufacturer or retailer.

! **CAUTION:** all installation and maintenance operations must be carried out by specialised personnel.

i **N.B.:** before installing the battery, clean the battery compartment. Check that the connectors on the cables supplied are functioning correctly.

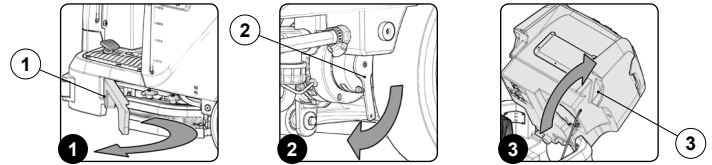
! **ATTENTION:** check that the characteristics of the battery that you are looking to use are appropriate for the type of work to be performed. Check the battery charge and the condition of the contacts on the battery.

i **N.B.:** you are advised to only lift and move the batteries with lifting and transportation means suitable for the specific weight and size

! **CAUTION:** the lifting hooks must not damage the blocks, connectors or cables.

i **N.B.:** before inserting the batteries, remember to cover the terminals with a little grease to protect them against external corrosion.

5. House the batteries in the compartment, positioning the poles "+" and "-" opposite each other.

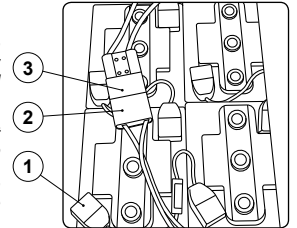


CONNECTING BATTERIES TO THE MACHINE

The batteries should be connected so as to obtain a total voltage of 24V.

! **ATTENTION:** it is recommended that all installation and maintenance operations be carried out by expert personnel, trained at the specialised assistance centre.

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



The stages for connecting the batteries to the machine's electrical system are as follows:

1. Using the supplied jumper cable (1), connect the batteries to the "+" and "-" poles in sequence.
2. Connect the batteries' connector cable (2) to the "+" and "-" poles to obtain a voltage of 24V at the terminals.
3. Connect the electric system connector (3) to the battery connector (2).

RECHARGING THE BATTERIES

The batteries must be charged prior to first use, and whenever they no longer provide sufficient power.

! **ATTENTION:** The control board and the battery charger, if present on-board, are set for lead-acid batteries. Contact the nearest technical assistance centre to modify the setting if you want to use gel batteries.

! **ATTENTION:** to avoid any permanent damage to the batteries, it is essential to avoid their complete discharge; begin recharging them within a few minutes of noting the "discharged batteries" signal.

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

1. Bring the appliance to the zone where the batteries are charged.
2. Make sure the machine is in a safe condition (read "[SECURING THE MACHINE](#)").

! **ATTENTION:** park the machine in an enclosed place, on a flat and level surface; near the machine there must be no objects that could either damage it, or be damaged through contact with it.

! **ATTENTION:** the room used to recharge the batteries must be adequately ventilated to prevent the accumulation of gases that leak from batteries.

3. Grip the handle (1) and raise the recovery tank to its maintenance position (**Fig.1**).

To recharge the batteries without the built-in battery charger, proceed as follows:

- A. Disconnect the electrical system's connector (2) from the battery connector (3) (**Fig.2**).

! **ATTENTION:** the following operations must be carried out by qualified personnel. An incorrect connection of the connector may cause a malfunction of the device.

- B. Connect the external battery charger cable to the battery connector.

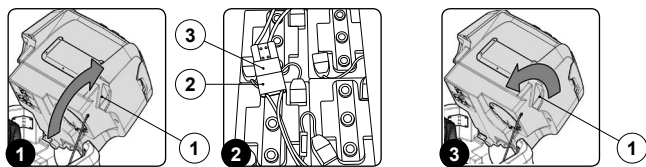
i **N.B.:** the coupling connector of the battery charger is consigned inside the bag containing this instruction booklet, and must be assembled on the cables of the battery charger as indicated in the instructions.

! **ATTENTION:** before connecting the batteries to the battery charger, make sure it is suitable for the batteries used.

i **N.B.:** carefully read the use and maintenance instructions of the battery charger that is used for charging.

! **CAUTION:** keep the recovery tank open for the duration of the battery recharging cycle to allow gas fumes to escape.

- C. Once the recharge cycle has been completed, disconnect the battery charger's cable from the battery connector.
- D. Connect the electrical system's connector (2) to the battery connector (3) (**Fig.2**).
- E. Grip the handle (1) and turn the recovery tank to its working position (**Fig.3**).



To recharge the batteries with the on-board battery charger proceed as follows:

ATTENTION: the following operations must be carried out by qualified personnel. An incorrect connection of the connector may cause a malfunction of the device.

N.B.: carefully read the use and maintenance instructions of the battery charger that is used for charging.

I. Remove the cap (4) from the battery charger socket (Fig.4).

CAUTION: before connecting the batteries to the battery charger, make sure it is suitable for the batteries used.

WARNING: Before inserting the battery charger's power cable into the socket (5), make sure that no condensate or other types of liquid are present (Fig.5).

N.B.: the battery charger power cable is delivered inside the bag containing this instruction booklet.

II. Connect the battery charger's power cable to the socket on the battery charger itself.

III. Plug the battery charger cable into the mains socket.

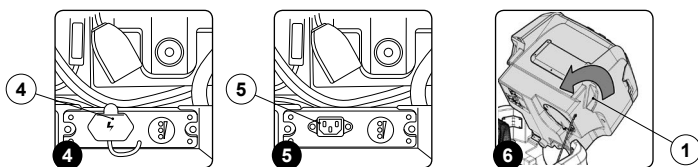
CAUTION: keep the recovery tank open for the duration of the battery recharging cycle to allow gas fumes to escape.

IV. When the recharge cycle is complete, disconnect the battery charger cable from the mains.

V. Disconnect the battery charger's power cable from the socket on the battery charger itself.

VI. Apply the cap (4) to the battery charger's socket (Fig.4).

VII. Grip the handle (1) and turn the recovery tank to its working position (Fig.6).



ASSEMBLING THE SQUEEGEE BODY

For packaging reasons, the squeegee body comes disassembled from the machine. In order to mount it on the squeegee support, do the following:

1. Make sure the machine is in a safe condition (read "SECURING THE MACHINE").

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

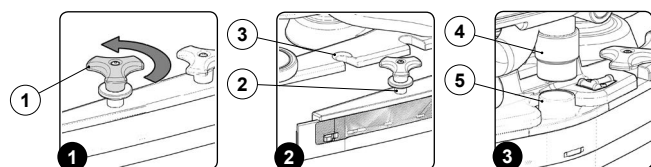
2. Unscrew the knobs (1) in the squeegee body pre-assembly (Fig.1).

3. First of all, insert the left-hand pin (2) on the squeegee body in the left slit (3) in the squeegee support (Fig.2), so that the bushing adheres to the walls of the slit.

4. Repeat the same operation for the right pin.

5. Insert the vacuum tube (4) in the sleeve (5) in the squeegee body (Fig.3).

N.B.: Although the squeegee comes pre-adjusted, it is nevertheless recommended to read the section titled "ADJUSTING THE SQUEEGEE BODY'S RUBBER BLADES".



ASSEMBLING THE BRUSH HEAD BRUSHES (SCRUBBING VERSION)

To assemble the brushes to brush head body, which for reasons of packaging are supplied dismantled from the machine, proceed as follows:

1. Make sure the machine is in a safe condition (read "SECURING THE MACHINE").

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

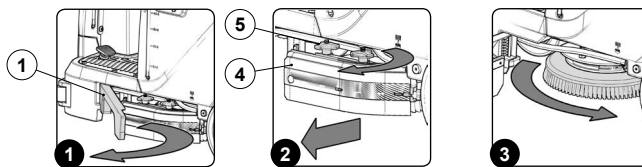
2. Move to the left hand side of the machine and open the left lateral carter (1) (Fig.1).

3. Remove the side splash guard support (2) by loosening the knobs (3) on it (Fig.2).

4. With the brush head UP, insert the brush in the plate housing underneath the brush head, turning it until the three buttons engage with the niches on the plate itself.

5. Turn in increments until the button is pushed towards the coupling spring and is locked in place (Fig.3).

NOTE: as soon as you have fitted the left-hand brush, go to the right side of the machine and repeat the procedure for the right-hand brush. Image 4 indicates the direction of rotation for coupling the left brush; the right brush must be turned in the opposite direction.



ASSEMBLING THE ABRASIVE PAD

For packaging reasons, the abrasive pad comes disassembled from the machine (if requested on the purchase order), and must be assembled on the brush head body by doing the following:

1. Make sure the machine is in a safe condition (read "SECURING THE MACHINE").

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

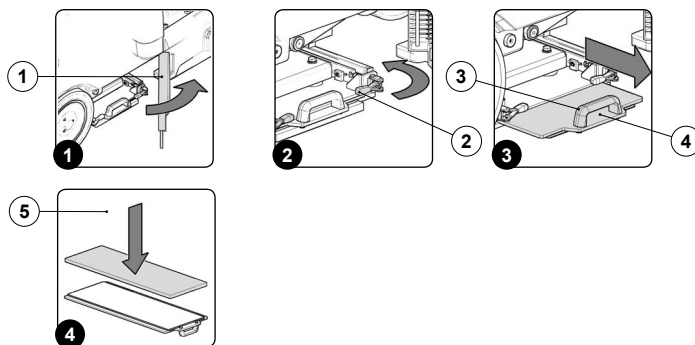
2. Move to the right-hand side of the machine and open the right-hand carter (1) (Fig.1).

3. With the brush head raised, release the pad support retainers (2) - (Fig.2) shows the rotation direction for releasing the front retainer.

4. Use the handle (3) to remove the pad support (4) (Fig.3).

5. Place the required pad (5) in the lower part of the support (Fig.4).

6. Repeat the operations in reverse order to reassemble all the parts.



FILLING THE SOLUTION TANK

Before filling the solution tank, carry out the following steps:

1. Take the machine to the usual place for filling the solution tank.

2. Make sure the machine has been secured (see the section titled "SECURING THE MACHINE").

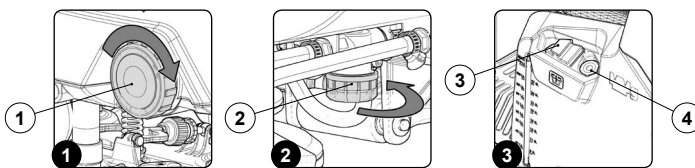
3. Check to make sure that the solution tank drainage cap (1) is closed. If this is not the case, close it (Fig.1).

4. Check to make sure that the water system's filter cap (2), located on the rear left-hand side of the machine, is closed, and close it if necessary (Fig.2).

The solution tank can be filled with water in two different ways:

- Removing the cap/measuring device (3) and filling the solution tank by means of a rubber hose or a bucket (Fig.3).
- Using the filler hose (4) (Fig.3), which supports the water hose on its own. In this case, be sure to remove the cap/measuring device (3) in order to allow the air to vent properly.

5. Fill with clean water, at a temperature not higher than 122°F and not lower than 50°F. The amount inside the tank can be seen by means of the level pipe on the front left of the seat.



DETERGENT SOLUTION

After filling the solution tank with clean water add the liquid detergent to the tank in the concentration and manner indicated on the detergent manufacturer's label. To prevent the formation of an excessive amount of foam that could damage the vacuum motor, use the minimum percentage of detergent required.

CAUTION: protective gloves should always be worn before handling detergents or acidic or alkaline solutions, to avoid serious injury to the hands.

ATTENTION: always use detergents whose manufacturer's label indicates their suitability for scrubbing machines. Do not use acid or alkaline products or solvents without this indication.

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

ATTENTION: The filler cap can be used as measuring device for the detergent to be added to the solution tank; the cap features moulded notches identifying the percentage of detergent, ranging from a minimum of 0.1% to a maximum of 0.5%.

For versions with HDC, fill the solution tank with clean water and then proceed as follows:

1. Make sure the machine is in a safe condition (read "[SECURING THE MACHINE](#)").

CAUTION: protective gloves should always be worn before handling detergents or acidic or alkaline solutions, to avoid serious injury to the hands.

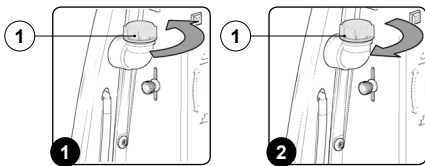
2. Remove the cap (1) of the detergent canister (Fig. 1).
3. Fill the canister with the required detergent.

ATTENTION: always use detergents whose manufacturer's label indicates their suitability for scrubbing machines. Do not use acid or alkaline products or solvents without this indication.

ATTENTION: the dosing system is suitable for frequent maintenance cleaning. Acid or alkaline maintenance detergent tank be used with pH values between 4 and 10 and that do not contain: oxidising agents, chlorine or bromine, formaldehyde, mineral solvents. The detergents used must be suitable for use with scrubbing machines. Wash the circuit with water after use if the system is not used daily. The system can be excluded. In case of sporadic use of detergents with pH between 1-3 or 11-14, use the floor scrubbing machine in the traditional way by adding the detergent in the clean water tank and excluding the dosing circuit.

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

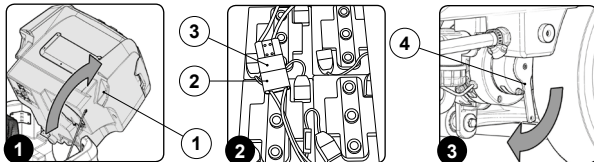
4. Close the cap (1) correctly to prevent liquid leaking out when working (Fig. 2).



PREPARING TO WORK

Before beginning to work, it is necessary to:

1. Make sure the recovery tank is empty. If this is not the case, empty it (read "[EMPTYING THE RECOVERY TANK](#)").
2. Check that the amount of detergent solution present in the solution tank is sufficient for the type of work to be performed. If this is not the case, top up the solution tank (see the sections titled "[FILLING THE SOLUTION TANK](#)" and "[DETERGENT SOLUTION](#)").
3. Check that the squeegee rubbers are in good working condition. If not, carry out maintenance (see "[REPLACING THE SQUEEGEE BODY RUBBER BLADES](#)").
4. Check that the status of the brushes is suitable for the work to be performed. If this is not the case, take appropriate measures to have them serviced.
5. Check the main switch on the control panel is set to "0". If this is not the case, turn the key to the left. Remove the key from the instrument panel.
6. Grip the handle (1) and raise the recovery tank to its maintenance position (Fig. 1).
7. Connect the battery connector (2) to the main system connector on the machine (3) (Fig. 2).
8. Grip the handle (1) and lower the recovery tank to its working position.
9. Make sure the electronic brake is engaged. If this is not the case, turn the lever (4) clockwise. The traction gearmotor is located on the rear left-hand side of the machine (Fig. 3)



WORK

To start working, do as follows:

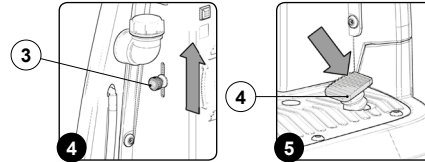
1. Make all the checks listed in "[PREPARING TO WORK](#)".
2. Sit on the driver's seat.
3. Insert the key (1) into the main switch on the control panel. Set the main machine switch to its "I" position, by turning the key a quarter turn to the right (Fig. 1)).
4. The first and second screen displayed allow you to check the software versions of the functions board and the display board.
5. The third screen is the so-called "Login" (Fig. 2), enter the password here to start work.

- N.B.:** to delete a wrong entry press the delete key (2) (Fig. 2).
 - N.B.:** it is possible to disable the password entry. Contact your nearest HILLYARD assistance centre.
 - N.B.:** the password selected by the manufacturer is 0000.
6. If the password is correct you pass to the "MAIN" screen (Fig. 3).
 - N.B.:** by default the machine is set to the transfer program (Fig. 3).



7. Select the desired working program with the DS selector device (read the section "DS SELECTOR").
8. If the "SCRUBBING WITH DRYING" or "SCRUBBING WITHOUT DRYING" program is selected, open the flow of the detergent solution into the machine's water system, shift the knob (3) upwards (Fig. 4).
9. Press the drive pedal (4) to begin moving the machine (Fig. 5).

If the program selected is "SCRUBBING WITH DRYING", the squeegee and brush head will lower until they touch the floor. As soon as the drive pedal is pressed, the traction motor, brush head motor and vacuum motor will start working. As a result, the solenoid valve will also be activated and detergent solution will be dispensed onto the brushes. During the first few metres, check that there is sufficient solution and that the squeegee is drying correctly. The appliance will now begin to work with full efficiency until the battery is flat or until the detergent solution has finished.



TRANSFER



Selecting the program "TRANSFER", the control display screen will appear as shown in the figure.

- N.B.:** with this working program both the brush head and the squeegee support are put in the rest position (raised off the floor) and the motors switch off with the respective switching off delays (even if the drive pedal is not pressed). When the drive pedal is pressed only the traction motor is powered.
- N.B.:** in the DS selector the transport program symbol (A) is green.
- N.B.:** the grey symbols show working programs that are not active. the green symbols show working programs that are active.

The icons that could be visible are:

1. HFM symbol, if visible it shows that the system is operating.
2. HDC symbol, if visible it shows that the system is operating.
3. Side brush/es, if visible it shows that the side brush/es is/are enabled.
4. Working lights symbol, if visible it shows that the working lights are on.
5. General alarm symbol.

ATTENTION: if visible, stop the machine, to continue working (read the section "[ALARM SCREEN](#)").

6. Recovery tank full float symbol.

ATTENTION: if visible it shows that the solution level in the tank has reached a level beyond which the vacuum motor could be compromised, therefore the tank needs to be emptied before continuing the work (read the section "[EMPTYING THE RECOVERY TANK](#)").

7. Solution tank empty float symbol.

ATTENTION: if visible it shows that the detergent solution in the tank has reached a level beyond which the solenoid valve might not deliver solution onto the brushes, therefore the tank needs to be filled up before continuing the work (read the section "[FILLING THE SOLUTION TANK](#)").

8. HILLYARD ECO MODE button.

N.B.: if the HILLYARD ECO MODE button (8) is pressed in the transfer mode the scrubbing with drying program is started in economic mode.

9. Menu button.
10. Rear camera button.

N.B.: pressing the rear camera button (10) if present the video camera on the back of the machine will start, read the section "[REAR VIDEO CAMERA \(OPTIONAL\)](#)" to continue working.

11. Zone button.

N.B.: if the Zone button (11) is pressed in the transfer mode, the window for selecting the zone opens (read the section "[ZONE PROGRAM BUTTON](#)"), after selecting a zone you pass to scrubbing with drying mode with the program of the zone selected.

12. Text indicator.

- N.B.:** in the text indicator (12) it is possible to see that the zone program has been selected or whether you are in transport mode if there is the word "DRIVE".

SCRUBBING WITHOUT DRYING



Selecting the program "SCRUBBING WITHOUT DRYING", the control display screen will appear as shown in the figure.

- N.B.:** with this working program pressure on the drive pedal only brings the brush heads to the work position (in contact with the floor), while the squeegee remains in the rest position (raised from the floor). The brush head solenoid valve and the water system pump are powered up (only if the detergent solution is other than zero). When the drive pedal is pressed the brush heads, the solenoid valve, the electric pump and the traction motor are powered up.
- N.B.:** in the DS selector the symbol of the scrubbing without drying program (B) is green.
- N.B.:** the grey symbols show working programs that are not active. the green symbols show working programs that are active.
- N.B.:** when the drive pedal is released all the brush head motors stop with the respective delays. After the "Reset Delay" time all the brush heads are taken to the rest position (raised off the floor). Pressing the drive pedal you start working again with the working program that was previously used and with the same parameters that had been set before stopping.
- N.B.:** if you reverse with this program active the brush head body will remain in contact with the floor, the motor will continue working but the solenoid valve will not deliver the detergent solution to the brushes.

The icons that could be visible are:

- HFM symbol, if visible it shows that the system is operating.
- HDC symbol, if visible it shows that the system is operating.
- Side brush/es, if visible it shows that the side brush/es is/are enabled.
- Working lights symbol, if visible it shows that the working lights are on.
- General alarm symbol.

ATTENTION: if visible, stop the machine, to continue working (read the section "ALARM SCREEN").

- Recovery tank full float symbol.

ATTENTION: if visible it shows that the solution level in the tank has a reached a level beyond which the vacuum motor could be compromised, therefore the tank needs to be emptied before continuing the work (read the section "EMPTYING THE RECOVERY TANK").

- Solution tank empty float symbol.

ATTENTION: if visible it shows that the detergent solution in the tank has a reached a level beyond which the solenoid valve might not deliver solution onto the brushes, therefore the tank needs to be filled up before continuing the work (read the section "FILLING THE SOLUTION TANK").

- HILLYARD ECO MODE button.

- N.B.:** if you press the HILLYARD ECO MODE button (8) you start the working program currently in use in economic mode, to remove the economic mode read the section "HILLYARD ECO MODE".

- Menu button.
- Rear camera button.

- N.B.:** pressing the rear camera button (10) if present the video camera on the back of the machine will start, read the section "REAR VIDEO CAMERA (OPTIONAL)" to continue working.

- Zone button

- N.B.:** if you need to change the program used when working, press the Zone button (11) (read the section "ZONE PROGRAM BUTTON").

- Text indicator.

- N.B.:** in the text indicator (11) it is possible to see that the zone program has been selected or whether you are in transport mode if there is the word "DRIVE".

- N.B.:** If you need to activate the dipped headlights when working, read the section "WORKING LIGHTS".

- N.B.:** If you need to use the side brush when working, read the section "SIDE BRUSH 1SL (SCRUBBING VERSION)" for the scrubbing versions, while for sweeping versions see "SIDE BRUSH 2SL (SWEEPING VERSIONS)".

ATTENTION: never switch off the machine with the squeegee and/or brush head in contact with the floor

DRYING



Selecting the program "DRYING", the control display screen will appear as shown in the figure.

- N.B.:** with this working program pressure on the drive pedal only brings the squeegee to the work position (in contact with the floor), while the brush head remains in the rest position (raised from the floor). When the drive pedal is pressed both the vacuum motor and the traction motor are powered.
- N.B.:** in the DS selector the drying program symbol (C) is green.
- N.B.:** the grey symbols show working programs that are not active. the green symbols show working programs that are active.
- N.B.:** when the drive pedal is released the vacuum motor will stop with the respective delay. After the "Reset Delay" time all the squeegee support is taken to the rest position (raised off the floor). Pressing the drive pedal you start working again with the working program that was previously used and with the same parameters that had been set before stopping.
- N.B.:** if you reverse with this program active, the squeegee support is put in the rest position (raised off the floor) and the vacuum motor is switched off with the relative delay.

The icons that could be visible are:

- HFM symbol, if visible it shows that the system is operating.
- HDC symbol, if visible it shows that the system is operating.
- Side brush/es, if visible it shows that the side brush/es is/are enabled.
- Working lights symbol, if visible it shows that the working lights are on.
- General alarm symbol.

ATTENTION: if visible, stop the machine, to continue working (read the section "ALARM SCREEN").

- Recovery tank full float symbol.

ATTENTION: if visible it shows that the solution level in the tank has a reached a level beyond which the vacuum motor could be compromised, therefore the tank needs to be emptied before continuing the work (read the section "EMPTYING THE RECOVERY TANK").

- Solution tank float symbol.

ATTENTION: if visible it shows that the detergent solution in the tank has a reached a level beyond which the solenoid valve might not deliver solution onto the brushes, therefore the tank needs to be filled up before continuing the work (read the section "FILLING THE SOLUTION TANK").

- HILLYARD ECO MODE button.

- N.B.:** if you press the HILLYARD ECO MODE button (8) you start the working program currently in use in economic mode, to remove the economic mode read the section "HILLYARD ECO MODE".

- Menu button.
- Rear camera button.

- N.B.:** pressing the rear camera button (10) if present the video camera on the back of the machine will start, read the section "REAR VIDEO CAMERA (OPTIONAL)" to continue working.

- Text indicator.

- N.B.:** in the text indicator (11) it is possible to see that the zone program has been selected or whether you are in transport mode if there is the word "DRIVE".

- N.B.:** If you need to activate the dipped headlights when working, read the section "WORKING LIGHTS".

ATTENTION: The drying without scrubbing operation should only be carried out if the device was used beforehand to carry out a scrubbing without drying operation.

ATTENTION: never switch off the machine with the squeegee in contact with the floor

SCRUBBING WITH DRYING



Selecting the program "SCRUBBING WITH DRYING", the control display screen will appear as shown in the figure.

- N.B.:** with this working program pressure on the drive pedal brings the brush heads and the squeegee to the work position (in contact with the floor). When the drive pedal is pressed, all the motors are powered. The brush head solenoid valve and the water system pump are powered up (only if the detergent solution is other than zero).
- N.B.:** in the DS selector the scrubbing with drying program (D) is green.
- N.B.:** the grey symbols show working programs that are not active. the green symbols show working programs that are active.
- N.B.:** when the drive pedal is released all the brush head motors and the vacuum motor stop with the respective delays. After the "Reset Delay" time all the brush heads and the squeegee body are taken to the rest position (raised off the floor). Pressing the drive pedal you start working again with the working program that was previously used and with the same parameters that had been set before stopping.
- N.B.:** if you reverse with this program active the brush head body will remain in contact with the floor, the motor will continue working but the solenoid valve will not deliver the detergent solution to the brushes. The squeegee support is put in the rest position (raised off the floor) and the vacuum motor is switched off with the relative delay.

The icons that could be visible are:

1. HFM symbol, if visible it shows that the system is operating.
2. HDC symbol, if visible it shows that the system is operating.
3. Side brush/es, if visible it shows that the side brush/es is/are enabled.
4. Working lights symbol, if visible it shows that the working lights are on.
5. General alarm symbol.

ATTENTION: if visible, stop the machine, to continue working (read the section "ALARM SCREEN").

6. Recovery tank full float symbol.

ATTENTION: if visible it shows that the solution level in the tank has reached a level beyond which the vacuum motor could be compromised, therefore the tank needs to be emptied before continuing the work (read the section "EMPTYING THE RECOVERY TANK").

7. Solution tank float symbol.

ATTENTION: if visible it shows that the detergent solution in the tank has reached a level beyond which the solenoid valve might not deliver solution onto the brushes, therefore the tank needs to be filled up before continuing the work (read the section "FILLING THE SOLUTION TANK").

8. HILLYARD ECO MODE button.

N.B.: if you press the HILLYARD ECO MODE button (8) you start the working program currently in use in economic mode, to remove the economic mode read the section "HILLYARD ECO MODE".

9. Menu button.
10. Rear camera button.

N.B.: pressing the rear camera button (10) if present the video camera on the back of the machine will start, read the section "REAR VIDEO CAMERA (OPTIONAL)" to continue working.

11. Zone button

N.B.: if you need to change the program used when working, press the Zone button (11) (read the section "ZONE PROGRAM BUTTON").

12. Text indicator.

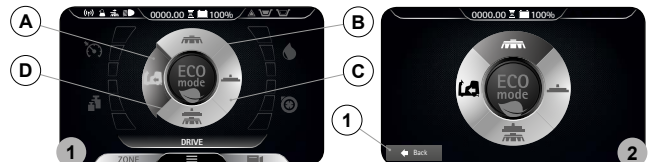
N.B.: in the text indicator (11) it is possible to see that the zone program has been selected or whether you are in transport mode if there is the word "DRIVE".

N.B.: If you need to activate the dipped headlights when working, read the section "WORKING LIGHTS".

N.B.: If you need to use the side brush when working, read the section "SIDE BRUSH 1SL (SCRUBBING VERSION)" for the scrubbing versions, while for sweeping versions see "SIDE BRUSH 2SL (SWEEPING VERSIONS)".

ATTENTION: never switch off the machine with the squeegee and/or brush head in contact with the floor

DS SELECTOR (DRIVE SELECT)



Using the DS selector it is possible to select one of the following working programs:

- A. Transfer: movement of the machine without working.
- B. Scrubbing only: using only the brushes in the brush head.
- C. Drying: using the squeegee only.
- D. Scrubbing with Drying: using both the brushes and the squeegee.

Pressing one of the symbols in the selector you pass from the working screen (Fig. 1) to the program selection screen (Fig. 2). On this screen it is possible to:

1. Confirm the selected program.

N.B.: to confirm the program press the icon just selected once again.

N.B.: once the selection is confirmed you return to the working screen (Fig. 1).

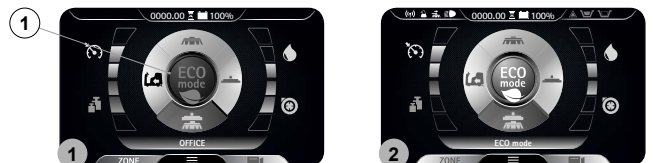
2. Cancel the selection and return to the working screen

N.B.: to cancel the selection press the "back" button (1) (Fig. 2) and you return to the working screen without changing the program being used.

N.B.: to cancel the selection wait 5 seconds without selecting anything and you will return to the working screen without changing the program being used.

3. Select a mode other than the one highlighted.

HILLYARD ECO MODE



In the centre of the DS selector there is the HILLYARD ECO MODE (1) key, pressing it will start the economic function that provides the best possible performance in terms of consumption and cleaning.

N.B.: if the ECO-MODE button (1) is pressed in any working program, you will pass from the ZONE mode (Fig.1) to the economic one (Fig.2).

N.B.: the grey HILLYARD ECO MODE key means that the HILLYARD ECO MODE is not active. The green HILLYARD ECO MODE key means that the HILLYARD ECO MODE is active.

N.B.: in the HILLYARD ECO MODE the ZONE button is not active.

N.B.: if you press key (1) when in the transfer mode you pass to scrubbing with drying mode in HILLYARD ECO MODE with default program selector.

N.B.: when in any working program with the eco mode active, if the ECO-MODE button (1) is pressed you pass from the ECO-MODE (Fig.2) to MANUAL MODE (Fig.3).



MANUAL MODE



In the middle of the DS selector there is the HILLYARD ECO MODE button (1), if in any HILLYARD ECO MODE program you press the button (1) you pass from HILLYARD ECO MODE to MANUAL mode, with manual management of the individual parameters.

N.B.: the grey HILLYARD ECO MODE key means that the HILLYARD ECO MODE is not active. The green HILLYARD ECO MODE key means that the HILLYARD ECO MODE is active.

N.B.: in MANUAL-MODE the ZONE and ECO buttons are not active.

In manual mode the visible buttons are:

2. Adjusting the detergent solution.
3. Vacuum motor performance level.
4. Pressure level exercised on the central brush head.
5. Maximum forward movement speed level.

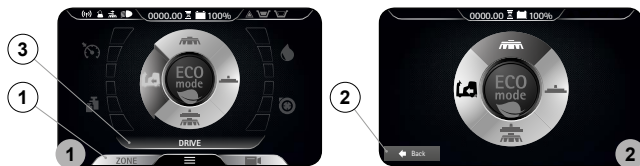
N.B.: the four keys are always present but can be selected depending on the working mode selected. Particularly:

- Transfer: the visible button will be that of the maximum speed.
- Scrubbing without drying: the buttons visible will be those of the maximum speed, the detergent solution adjustment and the pressure exercised on the central brush head.
- Drying: the buttons visible will be those of the maximum speed and the vacuum motor performance level.
- Scrubbing with Drying: the buttons visible will be those of the maximum speed, the detergent solution adjustment, the pressure exercised on the central brush head and performance level of the vacuum motor.

N.B.: the disabled buttons and the respective indicators are grey.

N.B.: each time one of the enabled keys is pressed, it increases the relative level in a cyclical manner. Only the detergent solution adjustment permits zero level.

ZONE PROGRAM BUTTON



The zone programs are programs saved in the machine's memory, the parameter levels:

- Pressure exercised on the central brush head
- Forward speed
- Adjustment of the detergent solution flow
- Vacuum motor efficiency

they are fixed and have been created based on the type of environment in which you want to work. To select one of the zone programs, do as follows:

1. From any screen, press the "ZONE" button (1) (Fig. 1).
2. As soon as the button (1) is pressed, the "ZONE SELECTION" menu will be displayed (Fig. 2), select one of the four programs in memory.

N.B.: the name of the zone program selected is displayed in the text indicator (3) (Fig. 1).

N.B.: to exit the zone program:

- From the zone program menu select the "EXIT" key
- Enable and then disable the HILLYARD ECO MODE key.

N.B.: the light blue ZONE key shows that the selected zone is active, in this case the HILLYARD ECO MODE button is not active.

REVERSE GEAR

This machine is equipped with electronic traction control. To reverse, proceed as follows:

1. Engage the "REVERSE GEAR ACTIVATION/DEACTIVATION" lever (1) underneath the steering wheel (Fig.1).
2. Press the drive pedal (2) (Fig.2) to start the machine moving in reverse.

CAUTION: the reverse speed is lower than the forward speed to comply with current health and safety standards.

N.B.: In order to disengage the reverse gear, disengage the lever (1) underneath the steering wheel (Fig. 1).

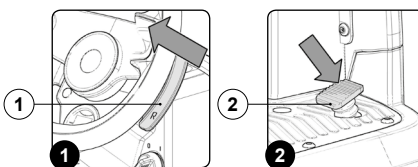
N.B.: Once the lever has been engaged (1), the acoustic signalling device will be activated in order to signal that the machine's reverse gear has been engaged.

N.B.: If the reverse gear is engaged with the squeegee in its working position, once the drive pedal is pressed, the machine will begin to move in reverse and the squeegee body will be raised into its resting position.

N.B.: If the reverse gear is engaged with the brush head body in its working position, once the drive pedal is pressed, the machine will begin to move in reverse and the brush head will remain in its working position, but the solenoid valve will stop dispensing detergent solution to the brushes.

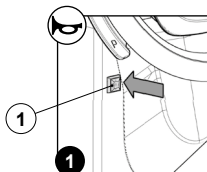
N.B.: if you reverse with the video camera accessory (optional), the image is shown full screen.

N.B.: if you reverse using the anti-collision system (optional) a special function activates that manages the ON/OFF frequency of the buzzer. Every 50 ms a trigger signal is sent to the ultrasound sensor, the sensor returns a signal that remains active for a period that is inversely proportional to the distance of the reflecting object.



ACOUSTIC SIGNALLING DEVICE

The machine is equipped with an acoustic signalling device. If an acoustic signal needs to be emitted, simply press the button (1) on the control panel (Fig.1).



EXTRA BRUSH HEAD PRESSURE

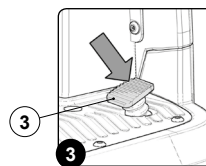
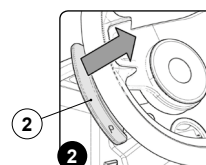
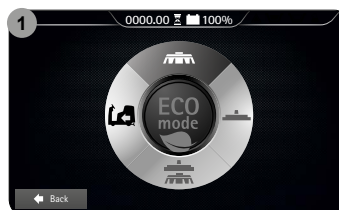
This machine is capable of increasing the pressure exerted upon the brushes during the work cycle. This can be done in the following manner:

1. Check that the brush head body is in contact with the floor, if not select in the DS selector the programs "SCRUBBING WITH DRYING" OR "SCRUBBING WITHOUT DRYING" (Fig. 1).
2. Shift the "EXTRA-PRESSURE ACTIVATION/DEACTIVATION" lever (1) underneath the steering wheel (Fig.2).
3. Press the drive pedal (2) (Fig.3) to start the machine work cycle.

N.B.: as soon as the lever (1) is shifted the control display will show the "POWER" screen (Fig. 4), in the middle of the screen there is a graphic symbol (3) and a numeric symbol (4), these represent a countdown.

N.B.: when the extra-pressure function is activated the countdown starts, during this period of time a pressure stronger than the standard pressure is exerted on the brush head body.

N.B.: at the end of the countdown you return to the working screen that was previously used and the pressure on the brush head goes back to standard.



WORKING HEADLIGHTS

The machine is equipped with front and rear working lights. To start them do as follows.

1. With the machine on, press the menu button (1) on the working screen (Fig. 1).
2. Press the working lights activation - deactivation button (2) (Fig. 2).

N.B.: if the symbol (2) is grey the working lights are not active, if the symbol (2) is green the working lights are active.

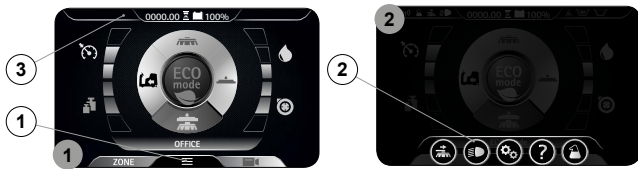
N.B.: to exit the menu screen wait a short time without pressing anything, or else press on any point of the display (except one of the displayed buttons).

N.B.: the sidelights come on when the machine is started.

N.B.: if the side lights are activated the relative symbol (3) is displayed.

N.B.: if you want to switch off the lights press the button (2).

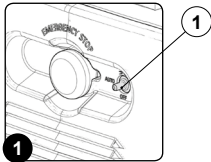
N.B.: to return to the working screen press on any point of the screen, except the edges of the display or else wait three seconds without touching anything.



SERVICE LIGHTS (OPTIONAL)

The machine has service lights to increase visibility of the parts that could require controlling by the operator. The switch (1) on the front of the machine (Fig. 1) has three positions:

1. ON: the service lights are always on.
2. AUTO: the service lights come on only the relative inspection hatches are opened (e.g. recovery tank).
3. OFF: the service lights are always off.



HILLIARD DOSING CONTROL (HDC)

Upon request, the machine can be fitted with the vvv DOSING CONTROL (HDC), a system that allows you to dose in a separated way the detergent with the water in the solution tank. To start it do as follows.

1. With the machine on, press the menu button (1) on the working screen (Fig. 1).
2. Press the HDC system activation/deactivation button (2) (Fig. 2).

N.B.: if the symbol (2) is grey the HDC system is not active, if the symbol (2) is green the HDC system is active.

N.B.: to exit the menu screen wait a short time without pressing anything, or else press on any point of the display (except one of the displayed buttons).

N.B.: the HDC system activates when the electric pump in the machine's water system starts.

N.B.: if the HDC system is activated, the relative symbol (3) is displayed in the working screen.

N.B.: if you want to deactivate the HDC system press button (2) again.

ATTENTION: before starting any work, remember to start the HDC system.

N.B.: to return to the working screen press on any point of the screen, except the edges of the display or else wait three seconds without touching anything.



TUTORIAL

The machine's internal memory contains tutorials that explain:

- The initial commissioning of the machine (document in IT-EN-ES-FR-DE).
- The routine maintenance to be carried out (document in IT-EN-ES-FR-DE).
- The machine's use and maintenance manual (document in IT-EN-ES-FR-DE).

To start them do as follows.

1. With the machine on, press the menu button (1) on the working screen (Fig. 1).
2. Press the TUTORIAL button (2) (Fig. 2).

N.B.: to return to the working screen press on any point of the screen, except the edges of the display or else wait three seconds without touching anything.



3. On the tutorial screen (Fig. 3) select the topics you want to study:

- A. Using the machine.
- B. Daily maintenance.
- C. Extraordinary maintenance.

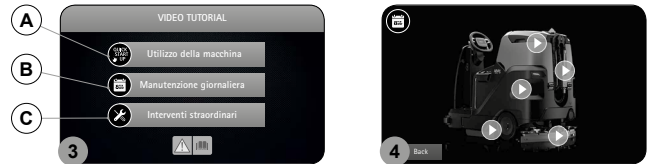
N.B.: select the "USING THE MACHINE" key (A) to view the video explaining the stages of preparing the machine for work (Fig. 3).

N.B.: select the "DAILY MAINTENANCE" KEY (B) to view the video explaining the maintenance to be carried out every day (Fig. 3). When this button is selected the screen regarding the selection of the videos to view will be displayed (Fig. 4), you can view the following tutorial videos:

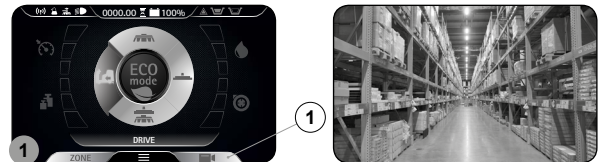
- Draining and cleaning the recovery tank.
- Cleaning the vacuum tube and the squeegee body.
- Cleaning the vacuum motor filter.
- Draining and cleaning the solution tank and the water system filter.

N.B.: select the "EXTRAORDINARY MAINTENANCE" key (C) to view the video explaining the maintenance to be carried out daily (Fig. 3). When this button is selected the screen regarding the selection of the videos to view will be displayed (Fig. 4), you can view the following tutorial videos:

- Replacing the squeegee rubber blades.
- Replacing the brush head brushes.
- Adjusting the squeegee rubber blades.



REAR VIDEO CAMERA (OPTIONAL)



Upon request, the machine can be fitted with a rear video camera, which allows you to view the condition of the floor where you have just passed, it also helps reversing, allowing you to identify any obstacles.

To activate the rear video camera, proceed as follows:

1. On any screen, press the "VIDEO CAMERA" button (1) (Fig. 1).
2. As soon as the button (1) is pressed, the video camera image is shown full screen.

N.B.: to exit the video camera screen, press on any point of the screen, except the edges of the display.

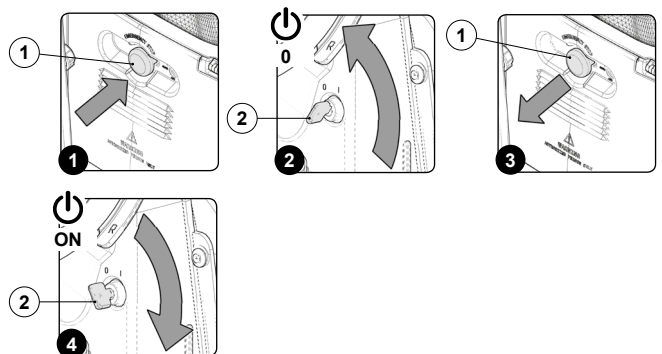
EMERGENCY BUTTON

If any serious problems are encountered during the work operations, press the emergency button (1) on the electrical system's carter (Fig. 1).

CAUTION: This command interrupts the electrical circuit between the batteries and the machine system.

N.B.: After having stopped and resolved the problem, the work operations can be resumed by doing the following:

- Set the main switch to "0" position by turning the key (2) to the left (Fig. 2).
- Disengage the mushroom-head emergency button (1) (Fig. 3).
- Set the main switch to "I", turning the key (2) to the right (Fig. 4).



HOUR METER

The control display is in the control panel, at the top in the middle it is possible to observe the total time the machine has been used.

The numbers before the "." symbol identify hours, while the number that follows it indicates hour decimals (an hour decimal corresponds to six minutes).

When the "hour glass" symbol (1) is flashing it indicates that the hour meter is counting the appliance's operating time.

BATTERY CHARGE LEVEL INDICATOR

The control display is in the control panel, at the top in the middle it is possible to observe the charge level of the batteries.

The indicator is composed of two charge level symbols, the first represented by a graphic symbol (2), the second by a number that indicated the charge percentage (3).
With a low charge level the graphic symbol (2) will start to flash and after a few seconds it will switch off, in these conditions take the machine to the place where its batteries can be recharged.

(i) N.B.: A few seconds after the battery charge reaches the critical level, the brush motors switch off automatically. With the remaining charge it is possible to complete the drying process before starting the recharge.

(i) N.B.: A few seconds after the battery charge reaches the discharge level, the vacuum motor switches off automatically.



OVERFLOW DEVICE

The machine is equipped with an electro-mechanical device (float), located in the back of the recovery tank, which deactivates the vacuum motor's control circuit when the recovery tank is full.

(i) N.B.: The electro-mechanical float only deactivates the electrical circuit when they mechanical device (float) is engaged for at least four seconds. When the electric circuit remains open, the symbol (1), regarding the critical level of the solution in the recovery tank, is displayed on the working screen (Fig. 1).

If this is the case, proceed as follows:

- From the DS control panel select the TRANSFER mode (A) (Fig. 2).
- Bring the machine to the designated place for emptying the recovery tank.
- Switch off the machine by making a quarter turn to the left with the key (2) on the main switch (Fig.3).
- Empty the recovery tank (see the section titled "EMPTYING THE RECOVERY TANK").

(i) N.B.: The machine will only resume functioning correctly after the next start-up.



ALARM SCREEN

When an error occurs the symbol (1) is displayed in the information field (Fig. 1), it remains visible until the error is resolved.

The "ERROR" window will also be displayed in superimposition (Fig. 2), in it are described the number of the alarm, the group it belongs to and a brief description.

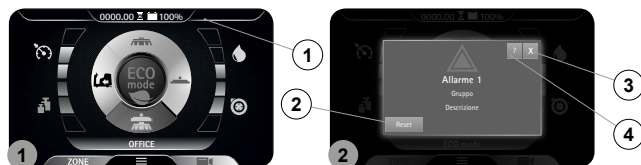
When an error occurs, do as follows:

- Stop the machine and press the button (2) (Fig. 2).
- If the error persists, switch off the machine, wait for at least ten seconds and switch on the machine.

(i) N.B.: to close the error screen press the button (3) (Fig. 2).

- If the error persists contact the nearest service centre.

(i) N.B.: the symbol (1) (Fig. 1) remains visible until the error is resolved.



AT THE END OF THE WORK

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

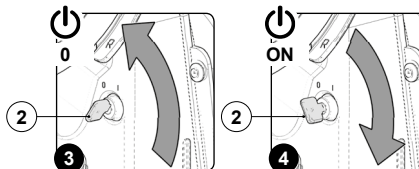
- From the DS control panel select the TRANSFER mode (A) (Fig. 1).
- Press the drive pedal (1) (Fig.2) to begin moving the machine.



- Take the appliance to the dedicated dirty water drainage area.
- Switch off the machine turning the key (2) of the main switch to the left (Fig. 3). Remove the key from the instrument panel.
- Carry out all the procedures listed in the paragraph "RECOMMENDED PERIODIC MAINTENANCE" indicated in the column "AT THE END OF THE WORK".
- Sit on the driver's seat.
- Insert the key (2) into the main switch on the control panel. Set the main switch to "I", turning the key (2) to the left (Fig. 4).
- Press the drive pedal (1) (Fig.1) to begin moving the machine.
- Take the appliance to the designated machine storage place.

(i) ATTENTION: Park the machine in an enclosed place, on a flat surface, and at a safe distance from any objects that could either damage it or be damaged due to contact with the machine itself.

- Secure the machine, see the section titled "SECURING THE MACHINE".



RECOMMENDED MAINTENANCE OPERATIONS

TYPE OF MAINTENANCE	AT THE END OF THE WORK	DAILY	WEEKLY	BEFORE A LONG PERIOD OF NON-USE	TRANSPORT
EMPTYING THE RECOVERY TANK	X			X	X
CLEANING THE SQUEEGEE BODY	X	X		X	
CLEANING THE BRUSH HEAD BRUSHES (SCRUBBING VERSION)		X		X	
CLEANING THE RECOVERY TANK FILTERS		X		X	
CLEANING THE RECOVERY TANK		X		X	
EMPTYING THE SOLUTION TANK		X		X	X
(1) RECHARGING THE BATTERIES		X			
CLEANING THE WATER SYSTEM FILTER		X		X	
CLEANING THE VACUUM TUBE		X		X	

Note:

- In any event check the battery charge level when working.

EMPTYING THE RECOVERY TANK

Proceed as follows to empty the recovery tank:

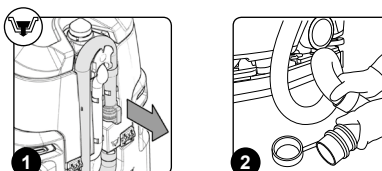
- Take the machine to the maintenance area.
- Make sure the machine has been secured (see the section titled "SECURING THE MACHINE").

(i) CAUTION: users are advised to always wear protective gloves, to avoid the risk of serious injury to hands.

- Detach the recovery tank drainage tube (on the back of the machine) from the retainers holding it in place (Fig.1).
- Bend the end of the drainage tube in order to create a choke and prevent the content from coming out (Fig.2), then position the tube on the discharge surface, unscrew the cap, and gradually release the tube.

(i) N.B.: the place designated for this operation must comply with current environmental protection regulations.

- Repeat the operations in reverse order to reassemble all the parts.



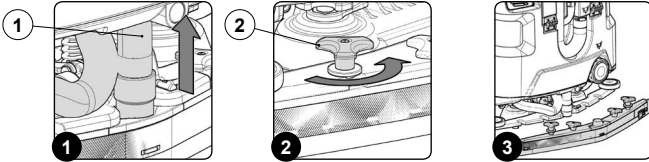
CLEANING THE SQUEEGEE BODY

The careful cleaning of the whole vacuum unit ensures better drying and cleaning of the floor as well as a longer vacuum motor life. To carry out the cleaning of the squeegee body, proceed as follows:

1. Take the machine to the maintenance area.
2. Make sure the machine has been secured (see the section titled "SECURING THE MACHINE").

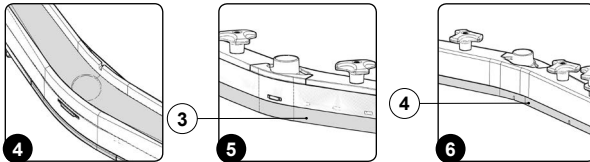
CAUTION: these operations must be carried out using protective gloves to avoid any possible contact with the edges or tips of metal objects.

3. Extract the vacuum hose (1) from the vacuum nozzle on the squeegee body (Fig.1).
4. Completely unscrew the knobs (2) in the squeegee body's pre-assembly (Fig.2).
5. Remove the squeegee body from the slits in the squeegee connector (Fig.3).
6. Thoroughly clean the squeegee body vacuum chamber (4) with a jet of water, and then with a damp cloth (Fig.4).



N.B.: the place designated for this operation must comply with current environmental protection regulations.

7. Thoroughly clean the squeegee body's rear rubber blade (5) with a jet of water, and then with a damp cloth (Fig.5).
8. Thoroughly clean the squeegee body front rubber blade (6) with a jet of water, and then with a damp cloth (Fig.6).
9. Thoroughly clean the vacuum nozzle with a jet of water, and then with a damp cloth.
10. Proceed in the opposite order to reassemble all the parts.



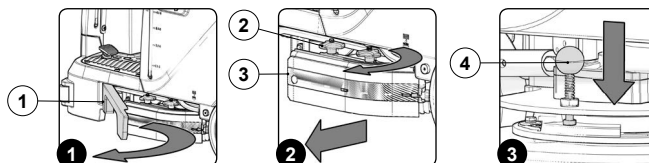
CLEANING THE BRUSH HEAD BRUSHES (SCRUBBING VERSION)

Careful cleaning of the brush guarantees better cleaning of the floor as well as a longer brush head gearmotor lifespan. To clean the brush, proceed as follows:

1. Take the machine to the maintenance area.
2. Make sure the machine has been secured (see the section titled "SECURING THE MACHINE").

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

3. Open the machine's left lateral carter (1) (Fig.1).
4. Remove the side splash guard support (2) by loosening the knobs (3) on it (Fig.2).
5. Press the brush locking pin (4) (Fig.3).
6. Keeping the pin (4) pressed, turn the brush clockwise until it is locked (Fig.4).
7. Turn until the button is pushed towards the outside of the coupling spring and is locked into place.

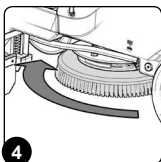


8. Clean the brush under a stream of running water to remove any impurities from its bristles. Check the wear status of the bristles and replace the brushes if they are excessively consumed (the bristles' protrusion must not be less than 10 mm; this distance is indicated on the brush by the yellow band). Read the paragraph "BRUSH HEAD BRUSHES REPLACEMENT (SCRUBBING VERSION)".
9. After checking to make sure that the brush is clean, reassemble it and move on to the one on the right hand side.

NOTE: you are advised to invert the right and left-hand brushes every day.

NOTE: image 4 shows the rotation direction for uncoupling the left brush; the right brush must be turned in the opposite direction.

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



CLEANING THE RECOVERY TANK FILTERS

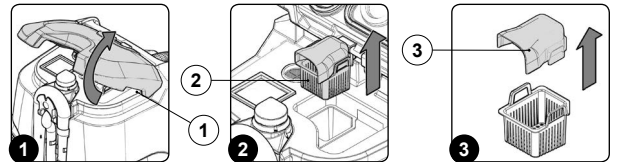
In order to clean the filters present inside the recovery tank, do the following:

1. Take the machine to the maintenance area.
2. Make sure the machine has been secured (see the section titled "SECURING THE MACHINE").

CAUTION: users are advised to always wear protective gloves, to avoid the risk of serious injury to hands.

N.B.: the place designated for this operation must comply with current environmental protection regulations.

3. Grip the handle (1) and raise the recovery tank's lid to its maintenance position (Fig.1).
4. Remove the dirty water basket/filter from the support (2) (Fig.2).
5. Remove the basket cover (3) from the basket/filter (2) (Fig.3).
6. Clean the basket/filter (2) and the basket cover (3) under a jet of water.



N.B.: Use a spatula or brush to eliminate any dirt that is particularly difficult to remove.

7. Use a dry cloth to dry the basket/filter (2) and the basket cover (3) and place them back inside the recovery tank.
8. Remove the vacuum motor filter from the support (4) (Fig.4).
9. Extract the dirt present inside the vacuum motor's filter (4).

N.B.: Use a jet of water to eliminate any remaining dirt, and use a spatula or a brush with soft bristles to eliminate any dirt that is particularly hard to remove.

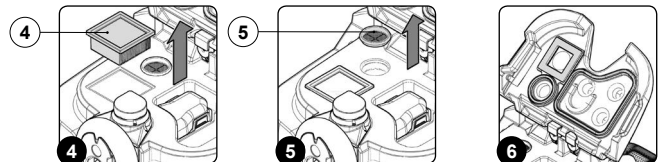
10. Wait for the vacuum motor's filter to dry, if necessary, and then place it back on its support.

ATTENTION: Wait for the filter to dry completely before using it again, or else use a spare.

11. Remove the vacuum motor's duct filter from its support (5) (Fig.5).
12. Clean the vacuum motor's duct filter under a jet of water (5).

N.B.: Use a spatula to eliminate any dirt that is particularly difficult to remove.

13. Dry the vacuum motor's duct filter with a dry cloth (5) and place it back on its support.
14. Clean the lower part of the vacuum cover with a damp cloth, and carefully clean the filter gaskets (Fig.6).
15. Grip the handle (1) and turn the recovery tank's cover to its working position.



CLEANING THE RECOVERY TANK

To clean the recovery tank (without the optional tank cleaning kit), proceed as follows:

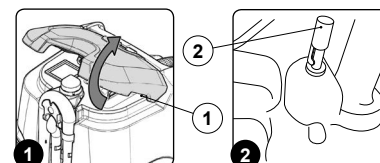
1. Perform the procedure for emptying the recovery tank (see the section titled "EMPTYING THE RECOVERY TANK").
2. Make sure the machine has been secured (see the section titled "SECURING THE MACHINE").

CAUTION: users are advised to always wear protective gloves, to avoid the risk of serious injury to hands.

3. Once the recovery tank has been emptied, grip the handle (1) and raise the recovery tank's lid to its maintenance position (Fig.1).
4. Rinse the inside of the recovery tank with a jet of water. If necessary, use a spatula to remove any sludge that may have accumulated at the bottom of the tank.

ATTENTION: Be sure to also clean the electro-mechanical floats (2) present inside the tank (Fig.2).

5. Repeat the operations in reverse order to reassemble all the parts.



To clean the recovery tank (with the optional tank cleaning kit), proceed as follows:

1. Take the machine to the maintenance area.

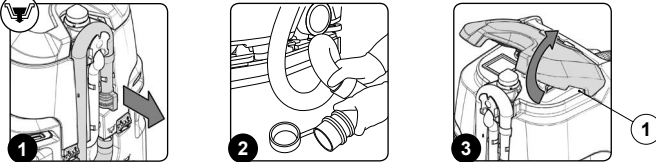
CAUTION: leave the transfer program active.

CAUTION: users are advised to always wear protective gloves, to avoid the risk of serious injury to hands.

2. Detach the recovery tank drainage tube (on the back of the machine) from the retainers holding it in place (Fig.1).
3. Bend the end of the drainage tube in order to create a choke and prevent the content from coming out (Fig.2), then position the tube on the discharge surface, unscrew the cap, and gradually release the tube.

NOTE: the place designated for this operation must comply with current environmental protection regulations.

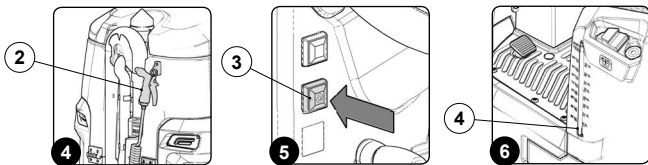
4. Once the recovery tank has been emptied, grip the handle (1) and raise the recovery tank cover to its maintenance position (Fig.3).



5. Release the tank cleaning accessory (2) (at the back of the machine) from the retainers (Fig.4).
6. Activate the optional tank cleaning kit ON/OFF pump by pressing the button (3) on the front left part of the machine (Fig.5).

CAUTION: when using the optional tank cleaning kit, you are advised to always wear goggles to avoid any risk of serious injury to your eyes.

NOTE: before activating the optional tank cleaning kit, check the level indicator (4) to see how much solution there is in the recovery tank (Fig.6).

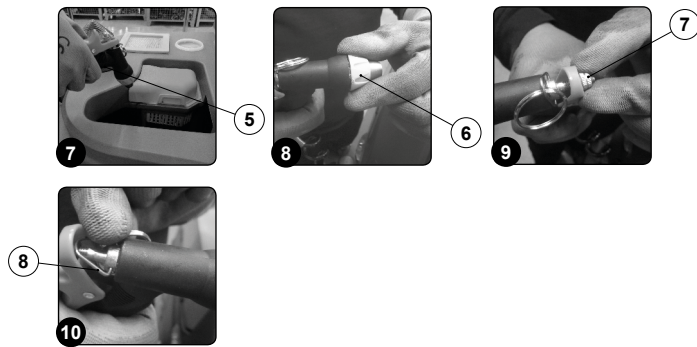


7. Activate the solution jet by pressing the lever (5) in the tank cleaning accessory (2) (Fig.7). Make sure the jet is pointing into the tank before pressing the lever.
8. Clean the inside of the tank with the jet, replacing all the parts when you have finished.

NOTE: to adjust the jet from the tank cleaning accessory (2), turn the knob (6) on the accessory itself (Fig.8).

NOTE: to adjust the intensity of the jet from the tank cleaning accessory (2), turn the knob (7) on the accessory itself (Fig.9).

NOTE: to stop the solution jet, use the lever (8) on the accessory itself (Fig.10).



EMPTYING THE SOLUTION TANK

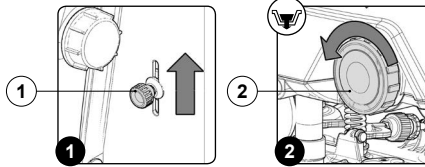
Proceed as follows to empty the solution tank:

1. Take the machine to the maintenance area.
2. Make sure the machine has been secured (see the section titled "SECURING THE MACHINE").

CAUTION: users are advised to always wear protective gloves, to avoid the risk of serious injury to hands.

1. Open the tap's output flow to maximum, and shift the knob on the left hand side of the steering column (1) (Fig.1) upward.
2. Unscrew the cap (2) for the solution tank dumping system (Fig.2); the cap is located at the rear of the machine.

NOTE: the place designated for this operation must comply with current environmental protection regulations.



In order to clean the solution tank (versions without FLR), do the following:

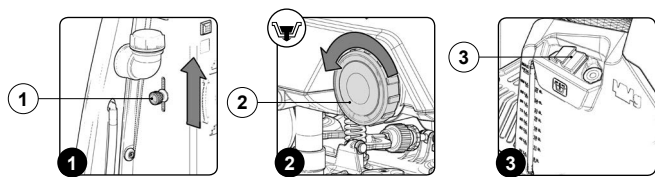
1. Take the machine to the maintenance area.
2. Make sure the machine has been secured (see the section titled "SECURING THE MACHINE").

CAUTION: users are advised to always wear protective gloves, to avoid the risk of serious injury to hands.

1. Open the tap's output flow to maximum, and shift the knob on the left hand side of the steering column (1) (Fig.1) upward.
2. Unscrew the cap (2) for the solution tank dumping system (Fig.2); the cap is located at the rear of the machine.

N.B.: the place designated for this operation must comply with current environmental protection regulations.

3. Remove the cap/measuring device (3) (Fig.3), located on the left-hand side of the machine.
4. Rinse the inside of the solution tank with a jet of water
5. With the solution tank empty, repeat the operations in the reverse order to reassemble all the parts.



CLEANING THE WATER SYSTEM FILTER

In order to clean the water system's filter, do the following:

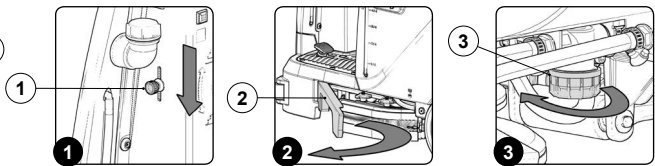
1. Take the machine to the maintenance area.
2. Make sure the machine has been secured (see the section titled "SECURING THE MACHINE").

CAUTION: users are advised to always wear protective gloves, to avoid the risk of serious injury to hands.

3. Close the tap's output flow, and shift the knob (1) on the left hand side of the steering column (Fig.1) downward.
4. Open the machine's left lateral hatch (2) (Fig.2).
5. Unscrew the detergent solution filter cap (3) (Fig.3).
6. Rinse the filter cartridge under a jet of water, and use a brush to eliminate any impurities, if necessary.

NOTE: the place designated for this operation must comply with current environmental protection regulations.

7. Once the filter cartridge is clean, repeat the operations in the opposite order to reassemble all the parts.



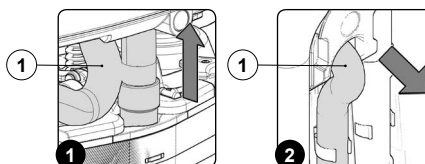
CLEANING THE VACUUM TUBE

Careful cleaning of the vacuum hose guarantees better cleaning of the floor as well as a longer vacuum motor life. Proceed as follows to clean the vacuum hose:

1. Take the machine to the maintenance area.
2. Make sure the machine has been secured (see the section titled "SECURING THE MACHINE").

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

3. Remove the vacuum hose (1) from the vacuum nozzle (2) on the squeegee body (Fig.1).
4. Remove the vacuum tube (1) via the hole on the back of the recovery tank (Fig.2).
5. The vacuum hose from the retainers present inside the recovery tank.
6. Rinse the inside of the vacuum hose with a jet of running water.
7. Repeat the operations in reverse order to reassemble all the parts.



EXTRAORDINARY MAINTENANCE WORK

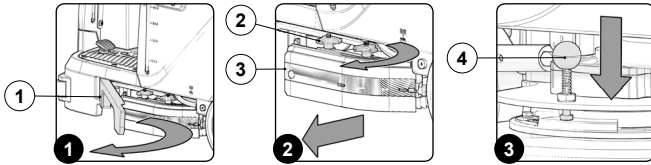
REPLACING THE BRUSH HEAD BRUSHES (SCRUBBING VERSION)

Ensuring the integrity of the brush will guarantee better floor cleaning results, and will extend the service life of the brush head's gearmotor. To replace the brush, proceed as follows:

1. Take the machine to the maintenance area.
2. Make sure the machine has been secured (see the section titled "SECURING THE MACHINE").

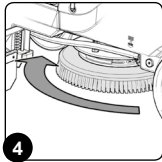
CAUTION: these operations must be carried out using protective gloves to avoid any possible contact with the edges or tips of metal objects.

3. Open the machine's left lateral carter (1) (Fig.1).
4. Remove the side splash guard support (2) by loosening the knobs (3) on it (Fig.2).
5. Press the brush locking pin (4) (Fig.3).
6. Keeping the pin (4) pressed, turn the brush clockwise until it is locked (Fig.4).



7. Turn until the button is pushed towards the outside of the coupling spring and is locked into place.
8. When replacing the brushes, refer to "ASSEMBLING THE BRUSH HEAD BRUSHES".

NOTE: image 4 shows the rotation direction for uncoupling the left brush; the right brush must be turned in the opposite direction.



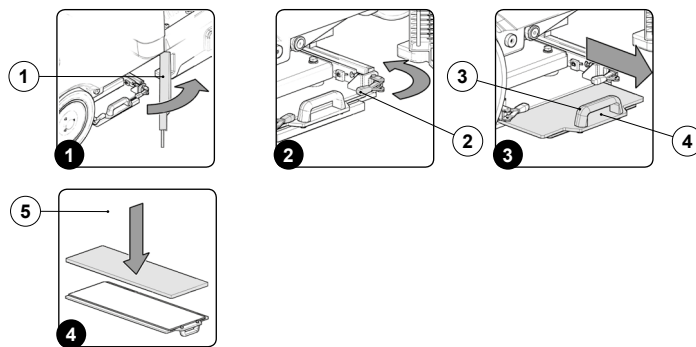
ASSEMBLING THE ABRASIVE PAD

Ensuring the good condition of the abrasive pad will guarantee better floor cleaning results, and will extend the service life of the brush head motor. To replace the abrasive pad, proceed as follows:

1. Take the machine to the maintenance area.
2. Make sure the machine is in a safe condition (read "SECURING THE MACHINE").

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

3. Move to the right-hand side of the machine and open the right-hand carter (1) (Fig.1).
4. With the brush head raised, release the pad support retainers (2) - (Fig.2) shows the rotation direction for releasing the front retainer.
5. Use the handle (3) to remove the pad support (4) (Fig.3).
6. Remove the worn pad and replace it with a new one (5) (Fig.4).
7. Repeat the operations in reverse order to reassemble all the parts.



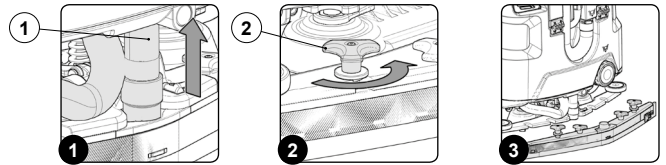
REPLACING THE SQUEEGEE BODY RUBBER BLADES

Ensuring the integrity of the squeegee body's rubber blades guarantees better floor cleaning and drying results, as well as a longer service life for the vacuum motor. In order to replace the squeegee body's rubber blades, do the following:

1. Take the machine to the maintenance area.
2. Make sure the machine has been secured (see the section titled "SECURING THE MACHINE").

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

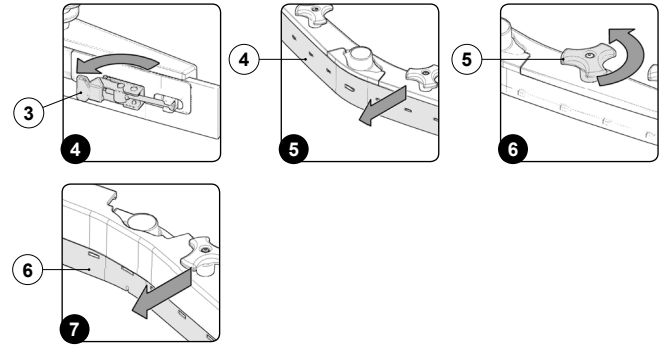
3. Extract the vacuum hose (1) from the vacuum nozzle on the squeegee body (Fig.1).
4. Completely unscrew the knobs (2) in the squeegee body's pre-assembly (Fig.2).
5. Remove the squeegee body from the slits in the squeegee connector (Fig.3).
6. Remove the rear rubber blade compression plate, and release the stopper (3) at the rear of the squeegee (Fig.4).



7. Remove the rear rubber blade (4) from the squeegee body (Fig.5).
8. Completely unscrew the knobs (5) in the squeegee body's pre-assembly (Fig.6).
9. Remove the front rubber blade (6) from the squeegee's internal body (Fig.7).
10. Repeat the operations in reverse order to reassemble all the parts.

N.B.: Before using the machine, remember to adjust the squeegee body: see the section titled "ADJUSTING THE SQUEEGEE BODY'S RUBBER BLADES".

N.B.: It is recommended to replace both squeegee body blades in order to ensure good results when drying the floor.



ADJUSTMENT INTERVENTIONS

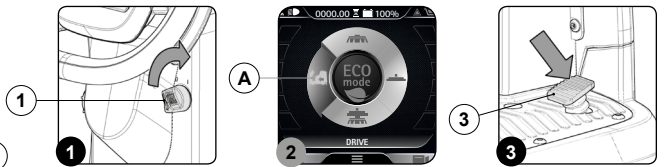
ADJUSTING THE SQUEEGEE BODY'S RUBBER BLADES

The careful adjustment of the squeegee body rubber blades guarantees better cleaning of the floor. To adjust the squeegee body blades, proceed as follows:

1. Sit on the driver's seat.
2. Insert the key (1) into the main switch on the control panel. Set the main switch to "1" by turning the key (1) to the right (Fig. 1).
3. Using the DS selector, select the SCRUBBING WITH DRYING mode (D) (Fig. 2).
4. Press the drive pedal (3) (Fig.3) to begin moving the machine.
5. As soon as the brush head and the squeegee have reached their working positions, perform the procedure for securing the machine (see the section titled "SECURING THE MACHINE").

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

6. Stand at the back of the machine.



Adjusting the height of the squeegee body:

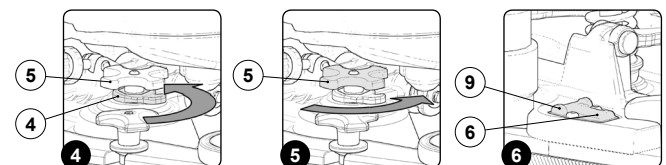
7. Release the stopper lever (4) for the squeegee's height adjustment knob (5) (Fig.4).
8. Adjust the height of the rubber blade in relation to the floor by loosening or tightening the knobs (5) (Fig.5).

N.B.: Figure 5 indicates the direction of rotation for decreasing the distance between the squeegee support and the floor. This distance can be increased by turning it in the opposite direction.

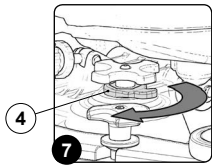
N.B.: By decreasing the distance between the squeegee support and the floor, the rubber blades present in the squeegee's body move closer to the floor.

N.B.: the right-hand and left-hand knobs must be rotated the same number of times, so that the squeegee is parallel to the floor when it is working.

N.B.: Check for proper adjustment by looking at the instrument (6) positioned on the squeegee body (Fig.6).



9. Once the adjustment has been completed, engage the stopper lever (4) (Fig.7).



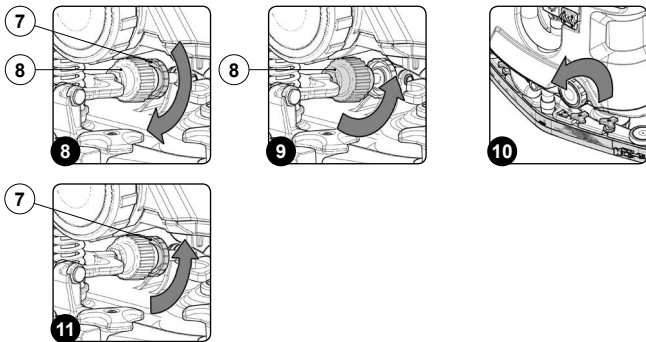
Adjusting the tilt of the squeegee body:

10. Loosen the stopper knob (7) for the squeegee's tilt adjustment knob (8) (Fig.8).
11. In order to adjust the tilt of the squeegee body's rubber blades in relation to the floor, tighten or loosen the knob (8) until the squeegee body's rubber blades are bent outwards by about 30° in relation to the floor, in an even manner along their entire length (Fig.9).

(i) N.B.: Figure 9 indicates the direction of rotation for tilting the squeegee towards the rear of the machine (Fig.10). Turn it in the opposite direction to rotate the squeegee towards the front of the machine.

(i) N.B.: Check for proper adjustment by looking at the instrument (9) positioned on the squeegee body (Fig.6).

12. Once the adjustment has been completed, tighten the stopper knob (7) (Fig.11).

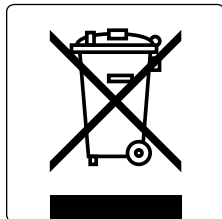


DISPOSAL

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

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

- Brushes
- Felt
- Electric and electronic parts*
- Batteries
- Plastic parts (tanks and handlebars)
- Metal parts (levers and frame)



(*) In particular, contact your distributor when scrapping electric and electronic parts.

CHOOSING AND USING BRUSHES

POLYPROPYLENE BRUSH (PPL)

Used on all types of floors. Good resistance to wear and tear, and hot water (no greater than 50 °C.). The polypropylene is non-hygroscopic and therefore retains its characteristics even when working in wet conditions.

ABRASIVE BRUSH

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

THICKNESS OF THE BRISTLES

Thicker bristles are more rigid and are therefore used on smooth floors or floors with small joints. On uneven floors or those with deep joints, it is advisable to use softer bristles which can enter the gaps more easily. Remember that when the bristles are worn and therefore too short, they will become rigid and are no longer able to penetrate and clean deep down. In this case, like with over-large bristles, the brush tends to jump.

PAD HOLDER

The pad holder is recommended for cleaning shiny surfaces.

There are two types of pad holder:

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

MACHINE	CODE	QTY	BRISTLE	NOTES
TRIDENT R30 SC PLUS	414270	2	PPL 0.6	CENTRAL BRUSH HEAD BRUSH (WHITE)
	414271	2	ABRASIVE	CENTRAL BRUSH HEAD BRUSH
	414272	2	PPL 0.3	CENTRAL BRUSH HEAD BRUSH (LIGHT BLUE)
	414273	2	PPL 0.3	CENTRAL BRUSH HEAD BRUSH (BLACK)
	405508	2		PAD HOLDER
TRIDENT R28 SC ORBITAL PLUS	437864	1		ABRASIVE BUFFER 28"x9,6" (RED)
	442484	1		ABRASIVE BUFFER 28"x9,6" (GREEN)
	442810	1		ABRASIVE BUFFER 28"x9,6" (BLACK)
	444025	1		ABRASIVE BUFFER 28"x9,6" (WHITE)
	444027	1		ABRASIVE BUFFER 28"x9,6" (BROWN)

TROUBLESHOOTING

This chapter lists the most common problems linked with the use of the machine. If you are unable to resolve the problems with the information given here, please contact your nearest assistance centre.

PROBLEM	POSSIBLE CAUSE	SOLUTION
THE MACHINE DOES NOT START	The main switch is set to "0".	Make sure that the main switch is at "I", if not turn the key to the left.
	Check that when switched on there are no alarm messages on the control display.	Stop the machine immediately, and contact a specialised service centre.
	Make sure that the batteries are correctly connected to each other and that the battery connector is connected to the electrical system connector.	Make sure that the batteries are properly connected inside the machine (see the section titled INSERTING THE BATTERIES INTO THE MACHINE).
	Check the charge level of the batteries.	If the battery charge level is critical, perform a complete recharge cycle (see paragraph CHARGING THE BATTERIES).
THE BATTERIES ARE NOT CHARGED CORRECTLY (VERSIONS WITHOUT AN ON BOARD BATTERY CHARGER)	The connector of the battery charger cable is not properly inserted in the battery connector.	Connect the battery charger cable connector to the battery connector again.
	The plug on the battery charger's power cable is not correctly inserted into the electrical outlet.	Check that the battery charger power supply cable plug is connected to the mains socket.
	The characteristics of the mains power supply do not correspond to those required by the battery charger.	Check that the characteristics in the battery charger plate are the same as those of the mains supply.
	The LEDs of the battery charger blink repeatedly.	Referring to the battery charger use and maintenance manual, check the meaning of the flashing signals that the battery charger emits during the battery recharge stage.
THE BATTERIES ARE NOT CHARGED CORRECTLY (VERSIONS WITH AN ON BOARD BATTERY CHARGER)	The plug on the battery charger's cable is not correctly inserted into the socket on the battery charger itself.	Reconnect the battery charger's power cable.
	The plug on the battery charger's power cable is not correctly inserted into the electrical outlet.	Check that the battery charger power supply cable plug is connected to the mains socket.
	The characteristics of the mains power supply do not correspond to those required by the battery charger.	Check that the characteristics in the battery charger plate are the same as those of the mains supply.
	The LEDs of the battery charger blink repeatedly.	Referring to the battery charger use and maintenance manual, check the meaning of the flashing signals that the battery charger emits during the battery recharge stage.
THE MACHINE HAS A VERY LOW WORKING AUTONOMY	Check the battery charge level, check the symbol on the control display.	If the battery charge level is critical, perform a complete recharge cycle (see paragraph CHARGING THE BATTERIES).
THE MACHINE DOES NOT MOVE	The machine does not start.	Read the section " THE MACHINE DOES NOT START ".
	There is an issue on the drive pedal.	Contact your nearest service centre.
INSUFFICIENT DETERGENT SOLUTION ON THE BRUSHES	The quantity of detergent solution in the water system is not sufficient for the work to be carried out.	Check that the amount of detergent solution present in the machine's water system is sufficient for the work to be carried out.
	Detergent solution filter obstructed.	Check that the detergent solution filter is not obstructed; if it is, clean it (read " CLEANING THE DETERGENT SOLUTION FILTER ").
THE MACHINE DOES NOT CLEAN CORRECTLY	The machine does not start.	Read the section " THE MACHINE DOES NOT START ".
	Not enough detergent solution comes out.	Read the section " INSUFFICIENT DETERGENT SOLUTION ON THE BRUSHES ".
	The brushes have not been inserted correctly in the machine.	Check that the disc brushes have been correctly inserted into the machine (see the section titled " ASSEMBLING THE BRUSH ").
	The type of brush used is not suitable for the dirt to be cleaned.	Make sure that the brushes fitted on the machine are suitable for the work to be carried out. Read " CHOOSING AND USING THE BRUSHES ".
	The brush bristles are excessively worn.	Check the state of wear of the brush and, if necessary, replace it.
THE SQUEEGEE DOES NOT DRY PERFECTLY	The vacuum unit is obstructed.	Make sure the squeegee is free of obstructions (read " CLEANING THE SQUEEGEE BODY ").
		Make sure the vacuum tube is free of obstructions (read " CLEANING THE SQUEEGEE BODY VACUUM TUBE ").
		Make sure that the vacuum cap filter is free of any obstructions (see the section titled " CLEANING THE RECOVERY TANK'S FILTER ").
		Make sure the vacuum motor filter is free of obstructions (read " CLEANING THE VACUUM MOTOR FILTER ").
	The cap on the recovery tank drainage tube is not properly positioned.	Check that the cap on the recovery tank drainage tube is positioned properly.
	The recovery tank lid is not positioned correctly.	Check that the recovery tank lid is properly positioned on the machine.
EXCESSIVE PRODUCTION OF FOAM	The detergent being used is not suitable.	Check that a low foam detergent has been used. If necessary, add a small quantity of antifoam liquid to the recovery tank.
	The floor is not very dirty.	Dilute the detergent more.
THE MACHINE DOES NOT VACUUM CORRECTLY	The recovery tank is full.	Empty the recovery tank (read " EMPTYING THE RECOVERY TANK ").
	The vacuum device is obstructed	Read the section " THE SQUEEGEE DOES NOT DRY PERFECTLY ".

NOTES



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