

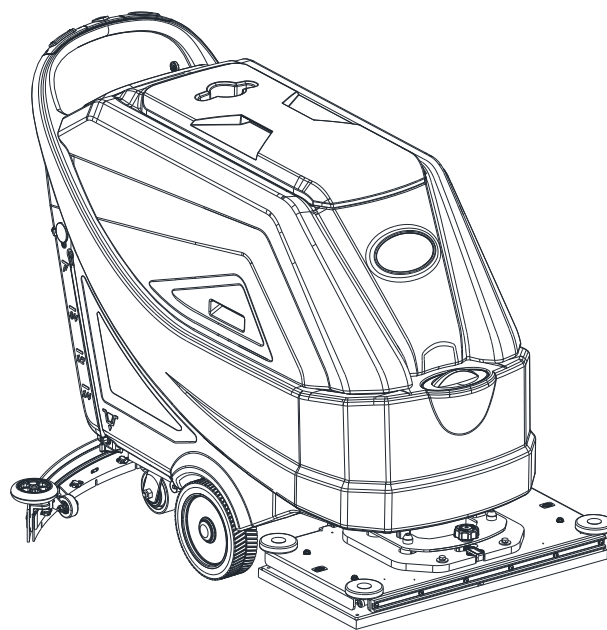
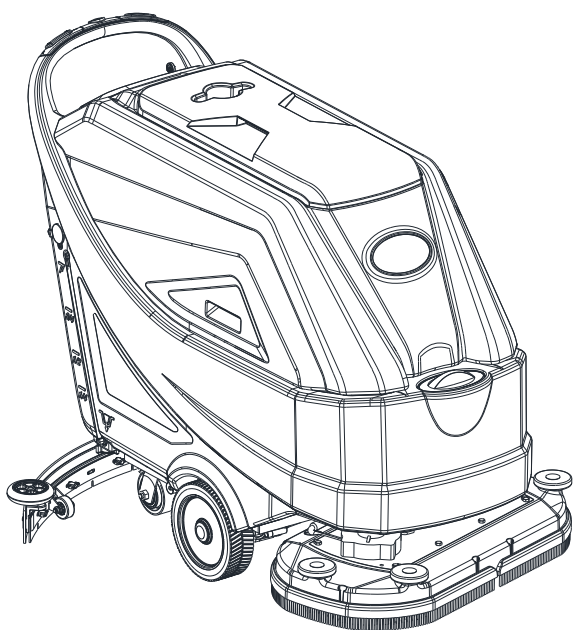
AS6690T & AS7690T / AS7190TO

INSTRUCTION FOR USE



AS6690T & AS7690T

AS7190TO



Model No.: 50000569/50000570/50000571/50000575

VS14024 Rev B



VIPER



EU / UE / EL / EC / EE / ES / EÚ / AB

Declaration of Conformity

Prohlášení o shodě
Konformitätserklärung
Overensstemmelseserklæring
Declaración de conformidad
Vastavusdeklaratsioon
Déclaration de conformité
Vaatimustenmukaisuusvakuutus

Декларация за съответствие
Δήλωση συμμόρφωσης
Megfelelősségi nyilatkozat
Izjava o skladnosti
Dichiarazione di conformità
Atitikties deklaracija
Atbilstības deklarācija
Samsvarserklæring
Conformiteitsverklaring

Declaração de conformidade
Deklaracja zgodności
Declaratie de conformitate
Декларация о соответствии
Försäkran om överensstämmelse
Vyhlásenie o zhode
Izjava o skladnosti
Uygunluk beyanı

Manufacturer / Výrobce / Hersteller / Fabrikant / Fabricante / Κατασκευαστής / Gyártó / Proizvođač / Fabbricante / Gamintojas / Ražotājs / Produsent / Fabrikant / Fabricante / Producent / Producător / производитель / Tillverkaren / Výrobca / Proizvajalec / Üretici firma:

**Nilfisk A/S, Kornmarksvej 1
DK-2605 Broendby, DENMARK**

Product / Produkt / Producto, Toode, Produit, Tuote / Продукт / Προϊόν / Termék / Proizvod / Prodotto / Produktas / Produkts / Artikel / Produtos / Produks / Izdelek / Ürün

AS6690T, AS7690T, AS7190TO

Description / Popis / Beschreibung / Beskrivelse / Descripción / Kirjeldus / La description / Kuvaus / Описание / Περιγραφή / Leirás / Opis / Descrizione / Aprašymas / Apraksts / Beschrijving / Descrição / Descriere / Beskrivning / Popis / Açıklama

**FC - Floor Scrubber/Sweeper - Battery
Working mode: 24V DC; Charging mode 100-240V
50-60Hz, IPX4**

- | | | |
|---|---|---|
| EN We, Nilfisk hereby declare under our sole responsibility, that the above mentioned product(s) is/are in conformity with the following directives and standards. | BG Ние, Nilfisk С настоящото декларираме на своя лична отговорност, че посочените по-горе продуктът е в съответствие със следните директиви и стандарти. | PT Nós, a Nilfisk declaramos, sob nossa exclusiva responsabilidade, que o produto acima mencionado está em conformidade com as diretrizes e normas a seguir. |
| CS My, Nilfisk prohlašujeme na svou výlučnou odpovědnost, že výše uvedený výrobek je ve shodě s následujícími směrnici a normami. | EL Εμείς, Nilfisk δηλώνουμε με αποκλειστική μας ευθύνη, ότι το προαναφερόμενο προϊόν συμμορφώνεται με τις ακόλουθες οδηγίες και πρότυπα. | PL My, Nilfisk Niniejszym oświadczamy z pełną odpowiedzialnością, że wyżej wymieniony produkt jest zgodny z następującymi dyrektywami i normami.. |
| DE Wir, Nilfisk erklären in alleiniger Verantwortung, dass das oben genannte Produkt den folgenden Richtlinien und Normen entspricht. | HU Mi, Nilfisk kijelentjük, egyedüli felelősséggel, hogy a fent említett termék megfelel az alábbi irányelveknek és szabványoknak | RO Noi, Nilfisk Prin prezenta declarăm pe propria răspundere, că produsul mai sus menționat este în conformitate cu următoarele standarde și directive. |
| DA Vi, Nilfisk erklærer hermed under eget ansvar at ovennævnte produkt(er) er i overensstemmelse med følgende direktiver og standarder. | HR Mi, Nilfisk izjavljujemo pod punom odgovornošću, da gore navedeni proizvod u skladu sa slijedećim direktivama i standardima. | RU Мы, Nilfisk настоящим заявляем под нашу полную ответственность, что вышеперечисленные продукция соответствует следующими директивам и стандартам. |
| ES Nosotros, Nilfisk declaramos bajo nuestra única responsabilidad que el producto antes mencionado está en conformidad con las siguientes directivas y normas | IT Noi, Nilfisk dichiara sotto la propria responsabilità, che il prodotto di cui sopra è conforme alle seguenti direttive e norme. | SV Vi Nilfisk förklarar härmed under eget ansvar att ovan nämnda produkt överensstämmer med följande direktiv och normer. |
| ET Meie, Nilfisk Käesolevaga kinnitame ja kanname ainuisikulist vastutust, et eespool nimetatud toode on kooskõlas järgmistele direktiivide ja | LT Mes, "Nilfisk pareiškiu vienašališkos atsakomybės, kad pirmiau minėtas produktas atitinka šias direktyvas ir standartus | SK My, Nilfisk prehlasujeme na svoju výlučnú zodpovednosť, že vyššie uvedený výrobok je v zhode s nasledujúcimi smernicami a normami. |
| FR Nilfisk déclare sous notre seule responsabilité que le produit mentionné ci-dessus est conforme aux directives et normes suivantes. | LV Mēs, Nilfisk šo apliecinu ar pilnu atbildību, ka iepriekš minētais produkts atbilst šādām direktīvām un standartiem | SL Mi, Nilfisk izjavljamo s polno odgovornostjo, da je zgoraj omenjeni izdelek v skladu z naslednjimi smernicami in standardi. |
| FI Me, Nilfisk täten vakuutamme omalla vastuulla, että edellä mainittu tuote on yhdenmukainen seuraavien direktiivien ja standardien mukaisesti | NO Vi, Nilfisk erklærer herved under eget ansvar, at det ovennevnte produktet er i samsvar med følgende direktiver og standarder | TR Nilfisk, burada yer alan tüm sorumluluklarımızı göze, yukarıda belirtilen ürünün aşağıdaki direktifler ve standartlara uygun olduğunu beyan ederiz. |
| NL We verklaren Nilfisk hierbij op eigen verantwoordelijkheid, dat het bovengenoemde product voldoet aan de volgende richtlijnen en normen | | |

2006/42/EC

EN 60335-1:2012+A11:2014+A13:2017

EN 60335-2-72:2012

2014/30/EU

EN 61000-3-2:2019

EN 61000-3-3:2013+A1:2019

EN 55012:2007+A1:2009

EN 61000-6-2:2019

Authorized signatory:

Pierre Mikaelsson, Executive Vice President, Global Products & Services, Nilfisk NLT

Nov 20, 2019



UK Declaration of Conformity

We,
Nilfisk Ltd
Nilfisk House, Bowerbank Way Gilwilly Industrial Estate
Penrith Cumbria
CA11 9BQ UK

Hereby declare under our sole responsibility that the

Products: FC - Floor Scrubber/Sweeper - Battery
Description: Working mode: 24V DC; Charging mode 100-240V 50-60Hz, IPX4
Type: AS6690T, AS7690T, AS7190TO

Are in compliance with the following standards:

EN 60335-1:2012+A11:2014+A13:2017
EN 60335-2-72:2012
EN 61000-3-2:2019
EN 61000-3-3:2013+A1:2019
EN 55012:2007+A1:2009
EN 61000-6-2:2019

Following the provisions of:

Supply of Machinery (Safety) Regulations 2008/1597
Electromagnetic Compatibility Regulations 2016/1091

Penrith, 25-1-2021

A handwritten signature in black ink, appearing to read "Stewart Dennett". The signature is written in a cursive style with a long horizontal stroke at the end.

Stewart Dennett
GM/MD

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INTRODUCTION



NOTE
The numbers in brackets refer to the components shown in Machine Description chapter.

GUIDE PURPOSE AND CONTENTS

The purpose of this instruction for use is to provide the operator with all basic information and technical characteristics, operation, machine inactivity, spare parts and safety conditions etc.
Before performing any procedure on the machine, the operators and qualified technicians must read the Instruction for Use manual. Contact our company in case of doubts concerning the interpretation of the instructions or for any further information.

HOW TO KEEP THIS INSTRUCTION FOR USE

The instruction for use must be kept near the machine, inside an adequate case, away from liquids and other substances that can cause any damage to it.

DECLARATION OF CONFORMITY

Declaration of Conformity is supplied with the machine and certifies machine conformity with the law in force.



NOTE
The copies of the original declaration of conformity are provided together with the machine documentation.

ACCESSORIES AND MAINTENANCE

All the necessary operation, maintenance and repair procedures must be made by qualified personnel, our company appointed repair center. ONLY original or approved spare parts and accessories can be used.
Contact our company customer service for any service or purchase of accessories or spare parts if necessary.

CHANGE AND IMPROVEMENT

We are committed to continuous improvement of our products, and the company reserves the right to machine changes and improvements without additional information.

SCOPE OF APPLICATION

The scrubber applies to commercial and industrial use. It is suitable for cleaning smooth and solid floor, operating by a qualified person in safe circumstances. It is not suitable for outdoor use or on carpet or rough floor cleaning.

MACHINE IDENTIFICATION DATA

The machine serial number and model name are marked on the serial label.
This information is useful. Use the following table to write down the machine identification data when requiring spare parts for the machine.

MACHINE MODEL.....
MACHINE SERIAL NUMBER.....

TRANSPORT AND UNPACKING

When the carrier delivers the machine, make sure the packaging and machine are both whole and undamaged. If any damage is observed, inform the carrier of the damage before accepting the goods, to reserve the right to compensation for the damage.

Follow the instructions on packaging strictly when unpacking the machine.

Check the package to ensure following items are included:

1. Technical documentation - Instruction for use, and Parts list.
2. Battery connection components.
3. Electronic battery charger manual (if installed) (*)

SAFETY

The following symbols indicate potentially dangerous situations. Always read this information carefully and take all necessary precautions to safeguard people and property.

VISIBLE SYMBOLS ON THE MACHINE**WARNING!**

Read all the instructions carefully before performing any operation on the machine.

**WARNING!**

Do not wash the machine with direct or pressurized water jets.

**WARNING!**

Do not use the machine on slopes with a gradient exceeding that is defined in the specifications section.

SYMBOLS THAT APPEAR ON THE INSTRUCTION FOR USE**DANGER!**

It indicates a dangerous situation with risk of death for the operator.

**WARNING!**

It indicates a potential risk of injury for people.

**CAUTION!**

It indicates a caution, or a remark related to important or useful functions.

Pay attention to the paragraphs marked by this symbol.

**NOTE**

It indicates a remark related to important or useful functions.

**CONSULTATION**

It indicates the necessity to refer to the Instruction for Use manual before performing any procedure.

GENERAL SAFETY INSTRUCTION

Specific warnings and cautions to inform about potential damages to people and machine are shown below.



DANGER!

- This machine must be operated by trained and authorized personnel according to guidance of the manual.
- Before performing any cleaning, maintenance, repair or replacement procedure, read all the instructions carefully, ensure to turn the machine OFF and disconnect the battery connector.
- Do not operate the machine near toxic, dangerous, flammable and/or explosive powders, liquids or vapour. This machine is not suitable for collecting dangerous powders.
- Do not wear jewelry when working near electrical components.
- Do not work under the lifted machine without supporting it with safety stands.
- When using lead (WET) batteries, they may emit inflammable gas under normal use, must keep sparks, flames, smoking materials and radiating, illuminating and burning items away from the batteries.
- When charging lead (WET) batteries, they may emit hydrogen gas which may cause explosive. Must ensure the charging environment is well ventilated and away from flames.



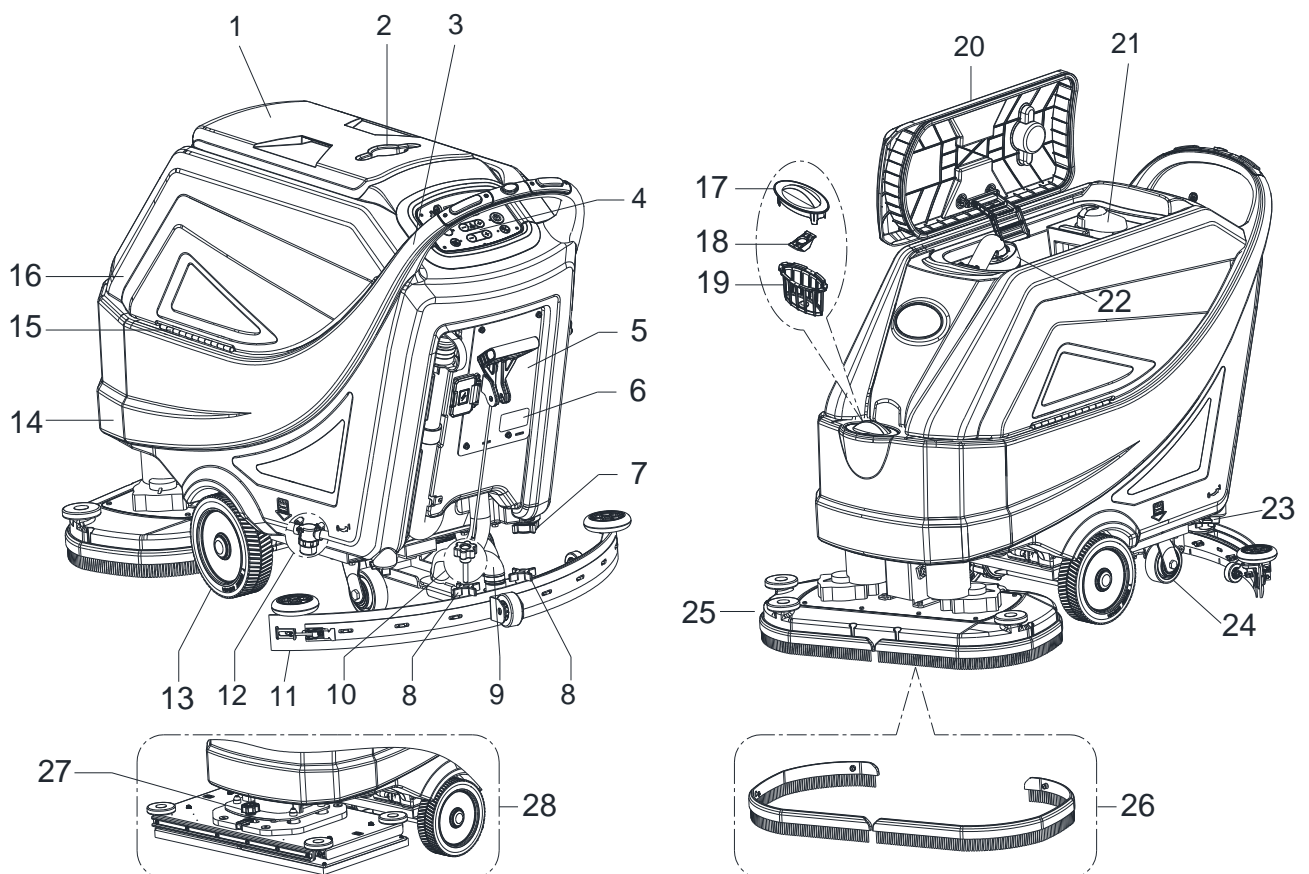
WARNING!

- This machine is intended for **COMMERCIAL USE**, for example in hotels, schools, hospitals, factories, shops, offices and rental businesses.
- Machines left unattended shall be secured against unintentional movement.
- In order to prevent unauthorized use of the machine, the power source shall be switched off or locked, for example by removing the key of the main switch or the ignition key.
- Check the machine carefully before each use. Ensure that all the components have been well assembled before use. Loose components may cause damage to people and properties.
- Before using the battery charger, ensure that the values of frequency and voltage indicated on the machine serial number label match those of mains.
- Never move the machine by pulling the battery charger cable. Do not pass the cable through a closed door or wind the cable around sharp edges or corners. Do not run the machine over the battery charger cable. Keep the battery charger cable away from heated surfaces.
Do not charge the batteries if the battery charger cable or the plug are damaged.
- To reduce the risk of fire, electric shock, or injury, make sure machine is off before leaving.
- Use or store the machine indoors in dry conditions, it is not allowed for outdoor use.
- The machine storage and working temperature must be between 0 °C and +40 °C, the humidity of air must be between 30% - 95%.
- Do not use the machine on slopes with a gradient exceeding the specifications shown.
- When using and handling floor cleaning detergents, follow the instructions on the labels of the detergent bottles and wear suitable gloves and other protective devices.
- Use brushes and pads supplied with the machine or defined in the manual. Using other brushes or pads could reduce safety.
- In case of machine malfunctions, ensure that these are not due to lack of maintenance. If necessary, request assistance from the authorized personnel or from an authorized Service Center.
- Take all necessary precautions to prevent hair, jewelry, and loose clothes from being caught by the machine moving parts.
- Do not use the machine in particularly dusty areas.

- Do not wash the machine with direct or pressured water jets, or with corrosive substances.
- Do not bump into shelves or scaffoldings, especially where there is a risk of falling objects.
- Do not lean liquid containers on the machine, use the relevant can holder.
- To avoid damaging the floor, do not allow the brush/pad to operate while the machine is stationary.
- In case of fire, use a dry powder fire extinguisher. Do not use liquid fire extinguishers.
- Do not remove or modify the machine stickers.
- Do not tamper with the machine safety guards and follow the scheduled maintenance instructions closely.
- Pay attention during machine transportation when temperature is below freezing point. The water in the recovery tank and in the hoses could freeze and cause serious damage to the machine.
- If spare parts need be replaced, order ORIGINAL spare parts from an Authorized Dealers or Retailers.
- Return the machine to the Service Center if it doesn't work as usual or it is in condition such as damaged, placed outdoors, dropped into water.
- To ensure machine proper and safe operation, the scheduled maintenance shown in the relevant chapter of this Manual, must be performed by the authorized personnel or an authorized Service Center.
- The machine must be properly disposed of, due to the presence of toxic-harmful materials (batteries, etc.), which are subject to standards that require disposal in special centers (see Scrapping chapter).
- This machine as a cleaning tool only, not for any other purpose use.
- Always keep the openings free from dust, hairs and any other foreign material which could reduce the air flow. Do not use the machine if the openings are clogged.
- Use the machine only where proper lighting is provided.
- This machine is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge.
- Close attention is necessary when used near children.
- Children should be supervised to ensure that they do not play with the machine.
- While using this machine, take care not to cause damage to people or objects.
- Cleaning and user maintenance shall not be made by children without supervision.

MACHINE DESCRIPTION**MACHINE STRUCTURE (as shown in Figure 1)**

- | | |
|---------------------------------------|---|
| 1. Recovery tank lid | 15. Hinge |
| 2. Can holder | 16. Recovery tank |
| 3. Handlebar | 17. Filter cover |
| 4. Control panel | 18. Filler hose holder |
| 5. Control box | 19. Filter support |
| 6. Serial number plate/technical data | 20. Tank cover gasket |
| 7. Outlet cover | 21. Debris collection box |
| 8. Squeegee knobs | 22. Float ball filter |
| 9. Squeegee vacuum hose | 23. Solution /clean water tap |
| 10. Squeegee balance adjusting knob | 24. Rear steering wheels |
| 11. Squeegee | 25. Brush system (only for disc machine) |
| 12. Solution filter | 26. Splash guard |
| 13. Driving wheels | 27. Orbital head adjusting knob |
| 14. Solution tank | 28. Orbital system (only for orbital machine) |

**Figure 1**

MACHINE STRUCTURE (as shown in Figure 2)

- 29. Battery connector (red)
- 30. Batteries (*)
- 31. Battery caps
- 32. Water level indicator tube
- 33. Tank safety cable
- 34. Vacuum system
- 35. Safety switch
- 36. Machine reverse switch
- 37. Recovery water drain hose
- 38. Security cover of charging jack
- 39. Squeegee lifting/lowering handle
- 40. Solution tank side filler cap
- 41. On-Board Charger (*)

(*): Optional

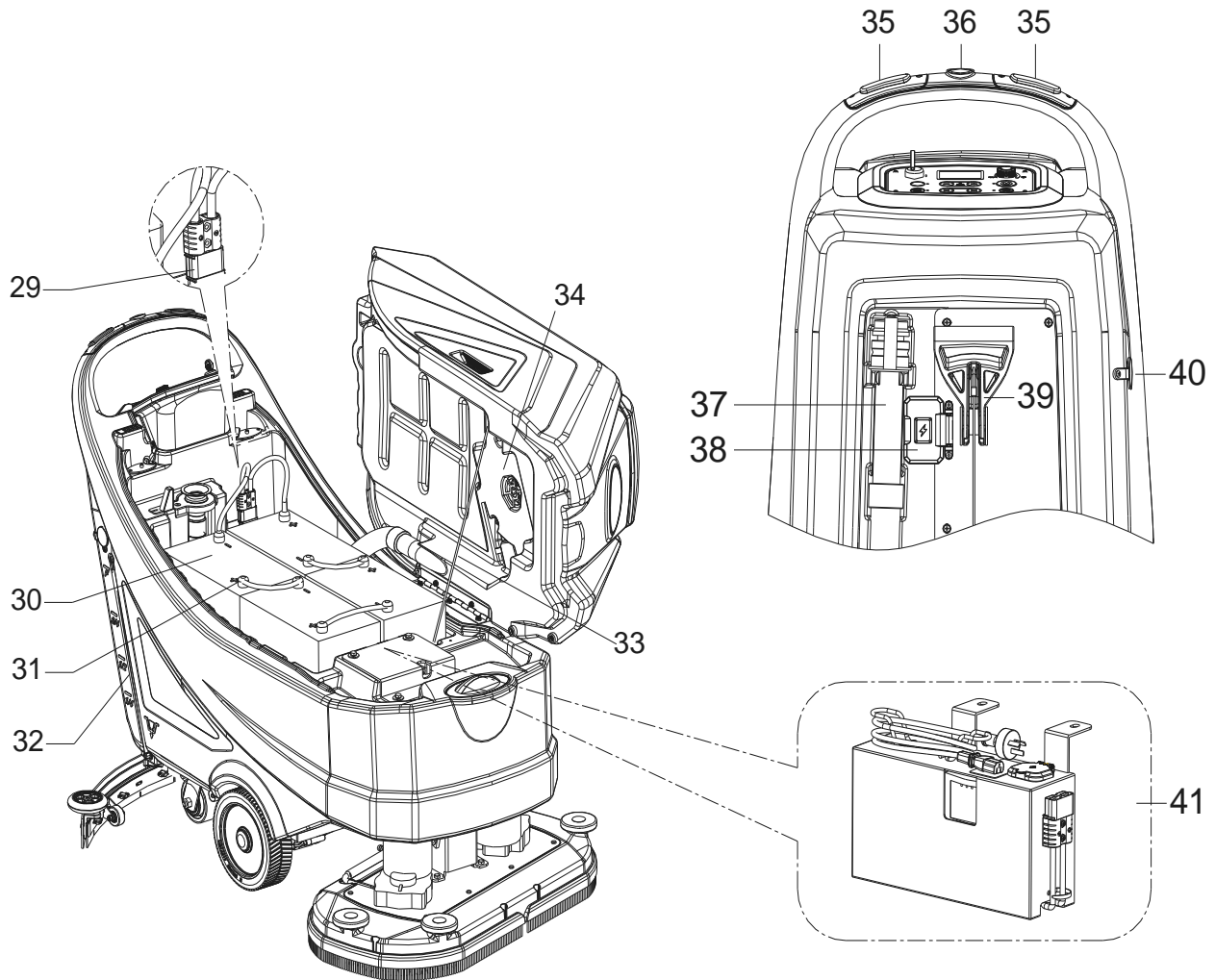


Figure 2

CONTROL PANEL (as shown in Figure 3)

41. Multifunction display
 - Items displayed:
 - A) Battery type
 - B) Battery charge level
 - C) Hours worked
 - D) ECO mode
 - E) Vacuum normal mode
 - F) Vacuum silence mode
 - G) Reverse mode
 - H) Extra pressure active
 - I) Detergent solution flow quantity
 - J) Brush work mode
 - K) Vacuum mode
 - L) Floor prep mode
42. Ignition key (0 - I)
43. ECO mode button
 - LED on-below function activated
 - water flow at minimum (level 1)
 - pressure at minimum (level 1)
 - The vacuum in silent mode
44. Brush/pad-holder release button (only for disc machine)
 - Flashing LED-Releasing system activated
45. Floor prep button (only for orbital machine)
 - Travel speed pre-set to 1Km/hour
 - LED on-below function activated
 - water flow at minimum (level 1)
 - pressure at maximum (level 3)
 - The vacuum in normal mode
46. Brush pressure adjusting button
47. Solution flow adjusting button
48. Speed adjuster
49. One-button start

 - LED on below-function activated
 - water system minimum (level 1)
 - pressure at minimum (level 1)
 - vacuum system normal

50. Vacuum system adjustment button (press the button 1 second to activation)
 - LED on-normal mode
 - Flashing LED-Slient mode

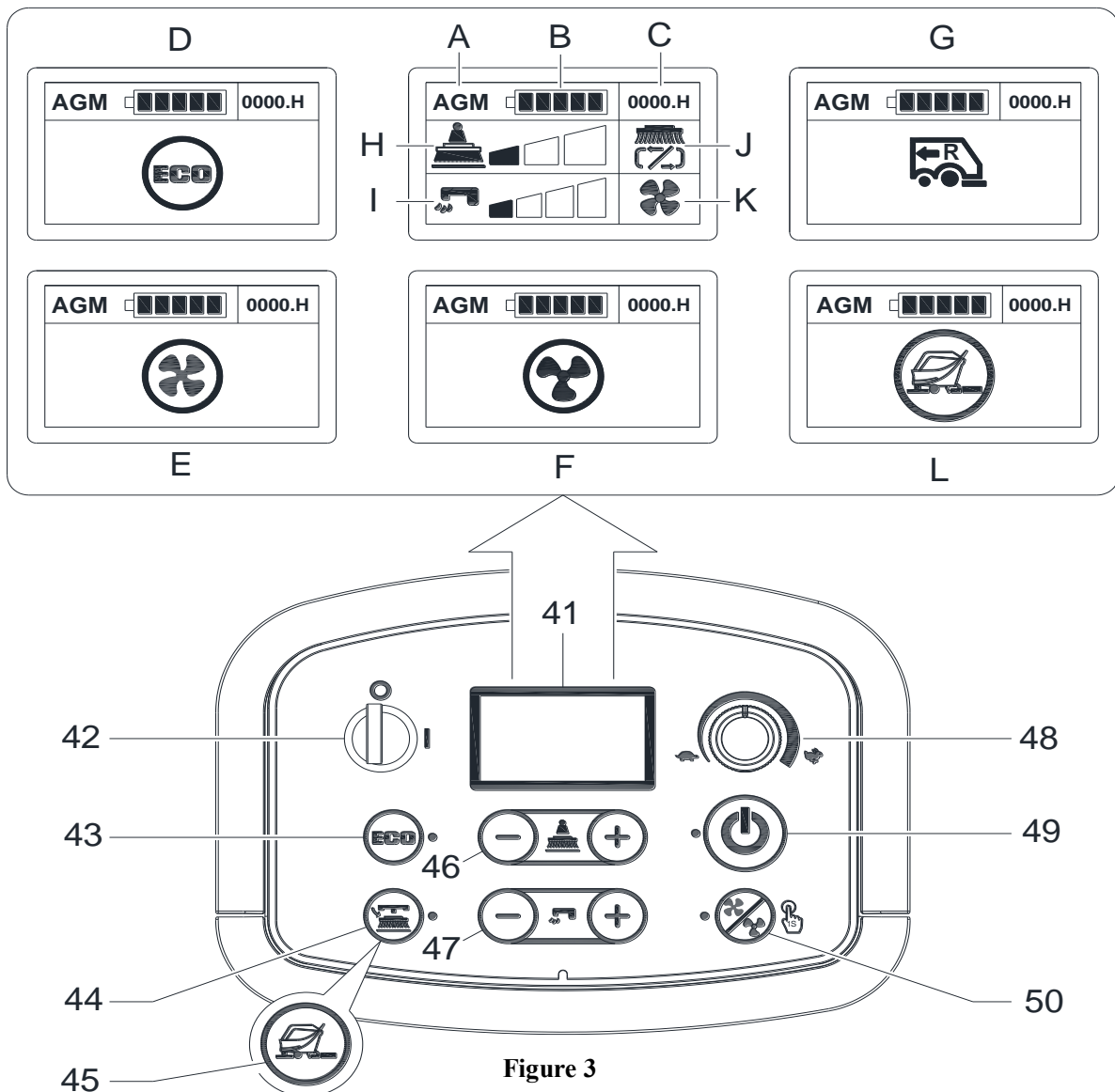
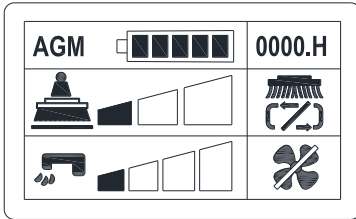
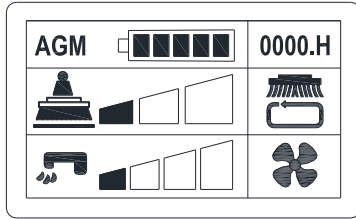
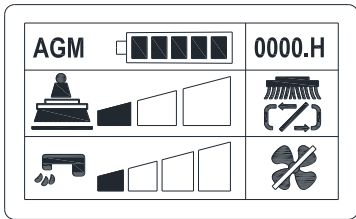
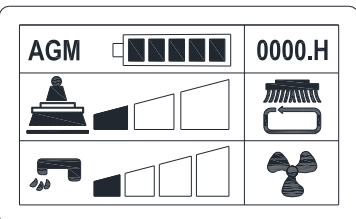
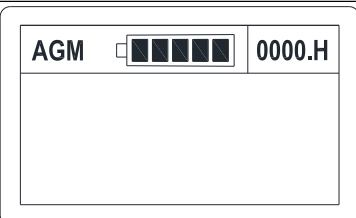
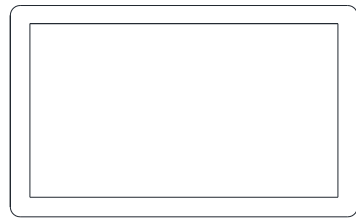
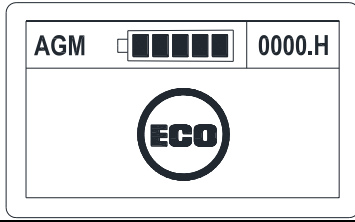
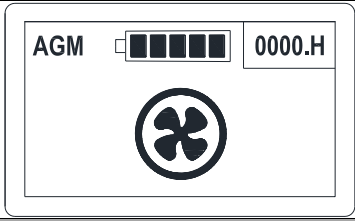
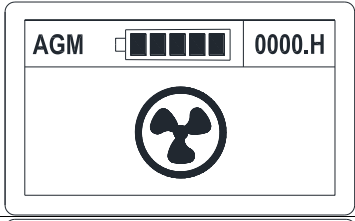
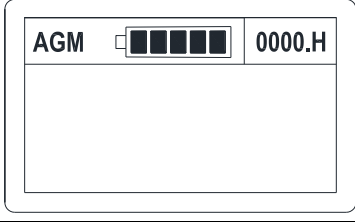
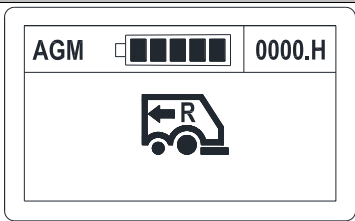
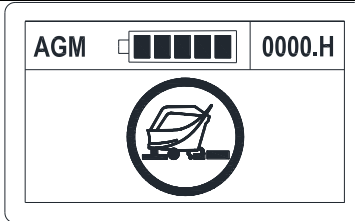


Figure 3

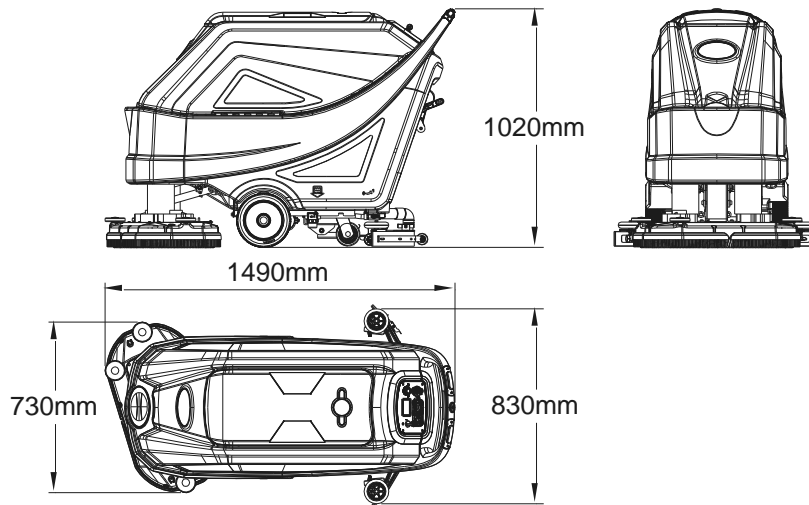
WORKING MODE DESCRIPTION

HOW TO OPERATE	DISPLAY	DESCRIPTION
Normal mode		
Key (42) on One button start (49)on		<ol style="list-style-type: none"> 1: Hour meter point does not flash. 2: The brush arrow does not rotate. 3: The fan does not flash. 4: The tap water does not flash. 5: The actuator puts down to the first level pressure.
Key (42) on One button start (49)on Safety switch(35)on		<ol style="list-style-type: none"> 1: Hour meter point flashes. 2: The brush arrow rotates. 3: The fan flashes. (Four blades) 4: The tap water flashes.
Silent mode		
Key (42) on One button start (49) on		<ol style="list-style-type: none"> 1: Hour meter point does not flash. 2: The brush arrow does not rotate. 3: The fan does not flash. 4: The tap water does not flash.
Key (42) on One button start (49) on Press vacuum system adjustment button (50) on for 1 second Safety switch (35) on		<ol style="list-style-type: none"> 1: Hour meter point flashes. 2: The brush arrow rotates. 3: The fan flashes. (Three blades) 4: The tap water flashes.
Off mode		
Safety switch (35) off One button start (49) off Key (42) on		<ol style="list-style-type: none"> 1: Hour meter point does not flash . 2: All panel button closure. (The vacuum motor delays 12 seconds to stop .) 3: The brush head puts up to the highest position.
Key (42) off		<ol style="list-style-type: none"> 1. The power cut off. 2. The display is off. <p>Note: After turning off the one button start (49), wait until the brush head raises to the full up position, before turning off the key (42).</p>

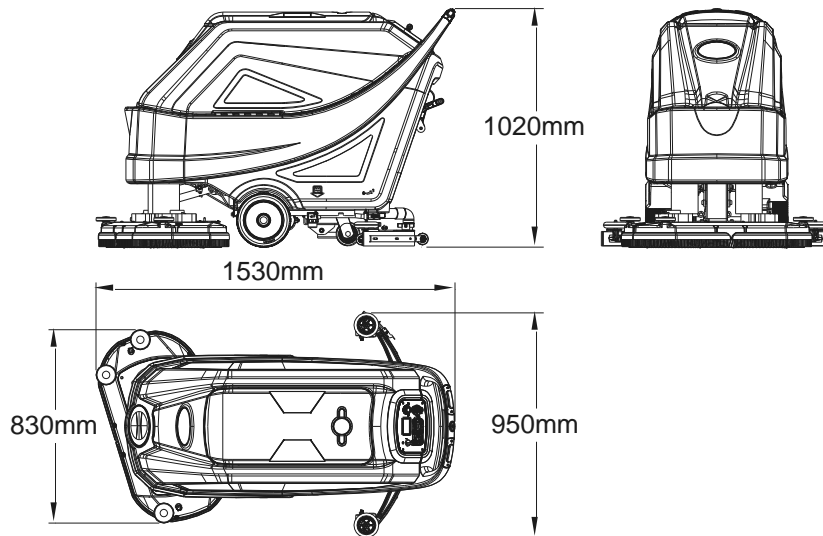
HOW TO OPERATE	DISPLAY	DESCRIPTION
ECO mode		
Key (42) on One button start (49) on ECO button (43) on		Water flow at minimum (level 1) Pressure at minimum (level 1) The vacuum in silent mode. Note: Turn on one button start (49), before turning on ECO button (43).
Vacuum system mode (press the button 1 second to activation)		
Normal mode		
Key (42) on One button start (49) off Press vacuum system adjustment button (50) for 1 second		The fan flashes (four blades)
Silent mode		
Key (42) on One button start (49) off Press vacuum system adjustment button (50) for 1 second		The fan flashes (three blades)
Vacuum system adjustment button (50) Off		NO fan Note: When the vacuum system adjustment button is off, the vacuum motor immediately stops.
Reverse mode		
Handle reverse button (36) on		1: Hour meter point flashes. 2: All the button LEDs shut down.
Floor prep mode (only for orbital machine)		
Key (42) on One button start (49) on Floor prep button (45) on		Machine working speed 1Km/h Water flow at minimum (level 1) Pressure at maximum (level 3) The vacuum in normal mode

MACHINE SIZE

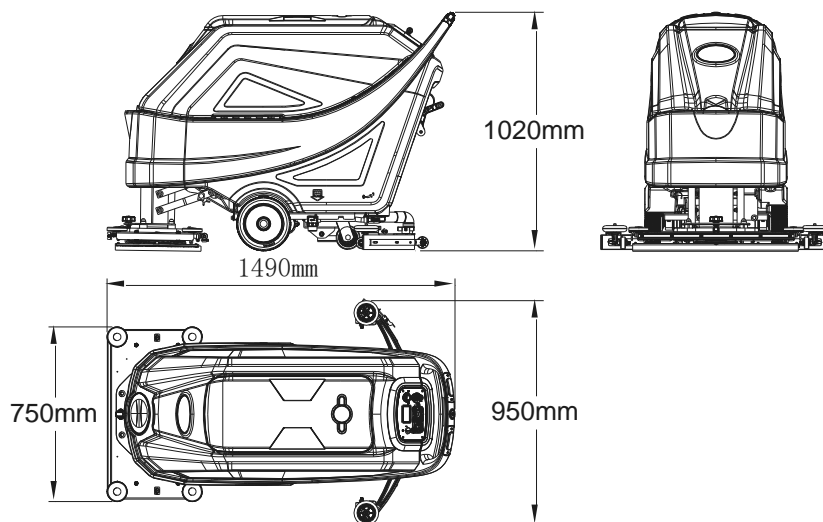
AS6690T



AS7690T



AS7190TO

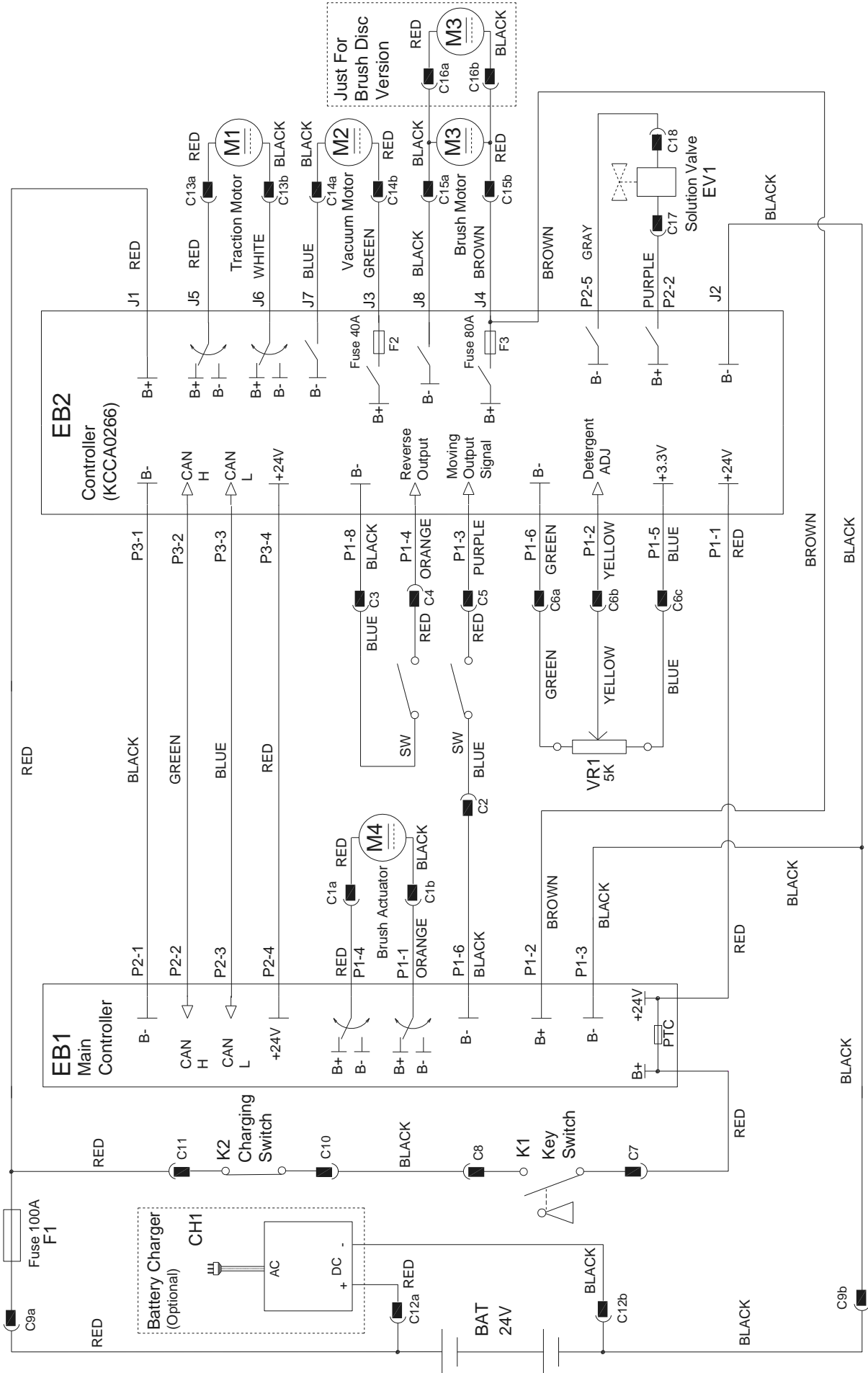


TECHNICAL PARAMETERS

Parameter Type	Units	Model		
		AS6690T	AS7690T	AS7190TO
Solution tank capacity	L / Gal	85 L / 22 Gal.		
Recovery tank capacity	L / Gal	90 L / 24 Gal.		
Machine Length	mm/Inches	1490 mm/59 Inches	1550mm/61 Inches	1490 mm/59 Inches
Machine width with squeegee	mm/Inches	830 mm/33 Inches	950 mm/38 Inches	
Machine width without squeegee	mm/Inches	730 mm/29 Inches	830mm/33 Inches	750mm/30 Inches
Machine Height	mm/Inches	1020 mm / 40 Inches		
Working width	mm/Inches	660 mm / 26 Inches	760 mm / 30 Inches	710 mm / 28 Inches
Driving wheel diameter	mm/Inches	230 mm / 9 Inches		
Driving wheel specific pressure on the floor	N/mm ²	0.67 N/mm ²		
Rear wheel diameter	mm/Inches	101 mm / 4 Inches		
Rear wheel specific pressure on the floor	N/mm ²	0.82 N/mm ²		
Brush/Pad diameter	mm/Inches	330 mm x 2 / 13 Inches x 2	380mm x 2 / 15 Inches x 2	355x710 mm / 14x28 Inches
Brush/Pad pressure (max)	Kg/Lbs.	32 Kg /71 Lbs 41 Kg /90 Lbs 49 Kg /108 Lbs	35 Kg /77 Lbs 43 Kg /95 Lbs 51 Kg /112 Lbs	42 Kg / 93 Lbs 54 Kg / 120 Lbs 65 Kg / 143 Lbs
Solution Flow (max) per setting	L / Gal per minute	(0.9/1.5/2.2/3) Liters (0.24/0.39/0.58/0.79) Gallons		(0.6/1.1/1.9/2.5) Liters (0.16/0.29/0.5/0.66) Gallons
Sound pressure level	dB (A)	69 ± 3 dB (A)		
Sound pressure level in ECO mode or in silent mode	dB (A)	65 ± 3 dB (A)		
Handle Vibration Level (max)	m/s ²	< 2.5 m/s ²		
Climbing capacity (max)	% grade	2%		
Min. aisle turn	cm/Inches	155cm/61 Inches	165 cm/65 Inches	160 cm/63 Inches
Drive motor Power	Watt / H.P.	250 W / 0.33 HP		350 W / 0.47 HP
Working Speed	Km / Miles per hour	0 - 4.0 Km / 0 – 2.5 Miles per hour		0 – 3.2 Km / 0 – 2.0 Miles per hour
Forward speed	Km / Miles per hour	0 - 4.0 Km / 0 - 2.5 Miles per hour		
Reverse speed	Km / Miles per hour	0 - 2.0 Km / 0 - 1.25 miles per hour		
Vacuum motor power	Watt / H.P.	500 W / 0.66 HP		
Vacuum capacity	mm/In of H ₂ O	1500 mm / 60 In of H ₂ O		
Vacuum capacity in ECO mode or in silent mode	mm/In of H ₂ O	900 mm / 35 In of H ₂ O		
Brush motor power	Watt / H.P.	500 x 2 Watt / 0.66 x 2 HP		750 Watt / 1.0 HP
Brush speed in normal mode	RPM	200 RPM		2200 RPM
Brush speed in ECO mode	RPM	160 RPM		1600 RPM
IP protection class	IP	IP24		
Battery Compartment Size with Off-board charger (L x W x H)	mm/Inches	(620 x 385 x 390) mm / 24.4 x 15.1 x 15.3 Inches		
Battery Compartment Size with on-board charger (L x W x H) (*)	mm/Inches	(535 x 385 x 390) mm / 21 x 15.1 x 15.3 Inches		
Voltage	DC	24 V		
Batteries (*)	Ah	N/A		
Battery run time (standard batteries) (*)	Hour	Up to 4 hours		
On-Board Charger (*)	Volts/Amps	24V 25A		
Productivity (max)	m ² /h	2640 m ² /h	3040 m ² /h	2272 m ² /h
Machine weight with empty tanks (without batteries)	Kg/Lbs.	135 Kg / 298 Lbs.	138 Kg/304 Lbs.	148 Kg/326 Lbs.
Gross Vehicle Weight (GVW)	Kg/Lbs.	347 Kg / 765 Lbs.	350 Kg / 772 Lbs.	360 Kg / 794 Lbs.
Shipping Weight	Kg/Lbs.	202 Kg / 444 Lbs.	205 Kg / 451 Lbs.	215 Kg / 473 Lbs.
Packing dimensions (L x W x H)	mm/Inches	(1620 x 810 x 1200 mm) / (64 x 32 x 48 Inches)	(1660 x 910 x 1200 mm) / (66 x 36 x 48 Inches)	

(*) : Optional

WIRING DIAGRAM



OPERATING GUIDE

**WARNING!**

On some points of the machine there are some adhesive plates indicating:

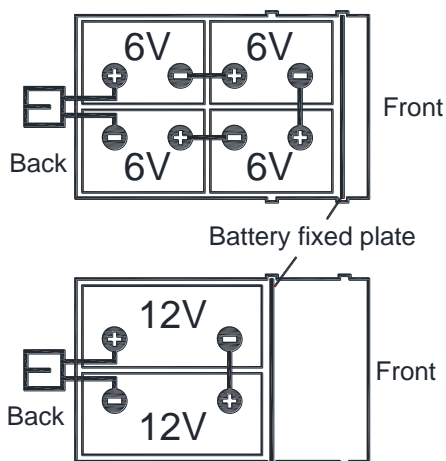
- DANGER!
- WARNING!
- CAUTION!
- CONSULTATION

While reading this Manual, the operator must pay particular attention to the symbols shown on the plates. Do not cover these plates for any reason and immediately replace them if damaged.

BATTERY CHECK/SETTING ON A NEW MACHINE

**WARNING!**

The electric components of the machine can be seriously damaged if the batteries are either improperly installed or connected. The batteries must be installed by qualified personnel only. Set the function electronic board and the built-in battery charger according to the type of batteries used (WET or GEL/AGM batteries). Check the batteries for damage before installation. Disconnect the battery connector and the battery charger plug. Handle the batteries with great care. Install the battery terminal protection caps supplied with the machine.

**NOTE**

The machine requires two 12V batteries or four 6V Batteries, connected according to the diagram (Figure 4). Put the battery fixed plate correctly as(Figure. 4).

Figure 4

Batteries already installed on the machine

1. Ensure that the battery connector (29, Figure. 2) is connected.
2. When first using the machine with new batteries, perform a full charging cycle (see the procedure in Maintenance chapter).

Without batteries

1. Buy appropriate batteries (see “Technical Data” paragraph). For battery choice and installation, apply to qualified battery Retailers.
2. Set the machine according to the type of batteries installed as shown in the Super User key section of the Maintenance chapter.

BATTERY INSTALLATION AND BATTERY TYPE SETTING (WET OR GEL/ AGM)**Battery installation**

1. Open the recovery tank lid (1, Figure. 1) and check that the recovery tank (16) is empty; otherwise empty it with the drain hose. (37, Figure. 2)
2. Close the recovery tank lid (1, Figure. 1).
3. Raise the recovery tank (16, Figure. 1) carefully.
4. The machine is supplied with cables suitable to install two 12V batteries or four 6V batteries. Carefully put the batteries into the compartment, then install them correctly. Put the battery fixed plate correctly as (Figure. 4).
5. Route and install the battery cable as shown in (Figure 4), then carefully tighten the nut on each battery terminal.
6. Place the protection cap on each terminal, then connect the battery connector (29, Figure. 2).
7. Carefully lower the recovery tank (16, Figure. 1).

Battery type setting (WET OR GEL/AMG)**Access to select battery mode**

According to the type of batteries (WET or GEL/AGM), set the machine as follows:

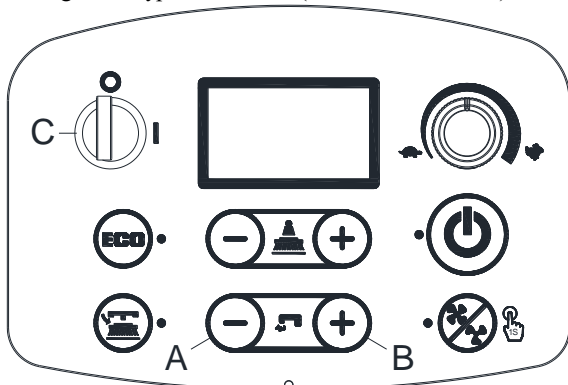


Figure 5

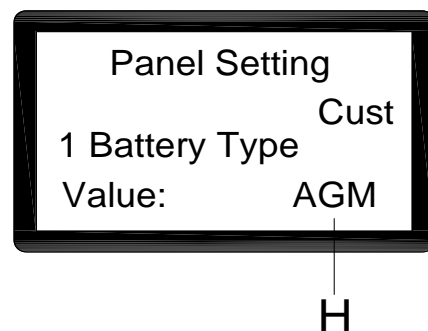
Access to select battery mode

Figure 6

1. Press water flow button "+"(A, Figure. 5) and "-"(B, Figure. 5) at the same time .
2. Insert the ignition key (C, Figure. 5) and turn it to "I".
3. Several seconds later enter to the screen of selecting battery mode (Figure. 6)
4. Press water flow button "-"(A, Figure. 5) and "+"(B, Figure. 5) to select battery mode (H, Figure. 6)
5. 3 seconds later show " Update OK" means setting succeeds, turn on to restart. (C, Figure. 5)

Battery charger setting (only for on-board charger if installed)**WARNING!**

Do not set charger unless you have professional training

1. Turn off the machine and disassemble the On-board charger (A, Figure. 7) from the machine. Then pry open the label on the charger cover (B, Figure. 7) you will find the 2 sets of dipswitches (SW1 and SW2) in the charger.
2. Only the set of dipswitch SW1 (the one on the left side) has effect on charging curve selection accordingly to the table below.

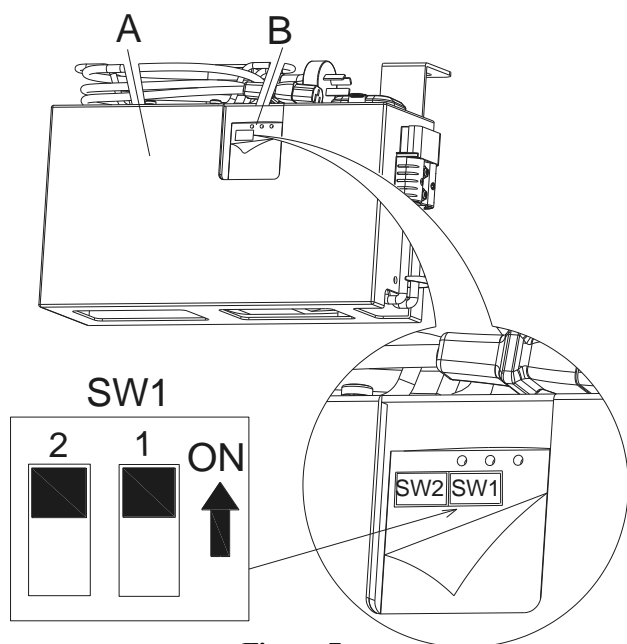


Figure 7

DP1	DP2	CHARGING CURVE
ON	OFF	IUIa-ACD for Lead-acid (Wet)batteries
OFF	OFF	IUIa-GEL for Gel batteries of Exide-Sonnenschein
OFF	ON	IUU0-GEL for HAZE Gel and AGM batteries of other manufacturers
ON	ON	IUIUa-AGM for Discover AGM batteries

Battery charging

Fully charge the batteries (see the procedure in Maintenance chapter).

Battery discharge

When the batteries pattern is full (G, Figure 8), the batteries allow the machine to work normally. When the batteries pattern is low (H, Figure 8), the batteries must be charged. A few seconds after the low battery pattern shows, the brush/pad-holder is automatically turned off, while the drive system stays on. Drive the machine to the appointed recharging area immediately.

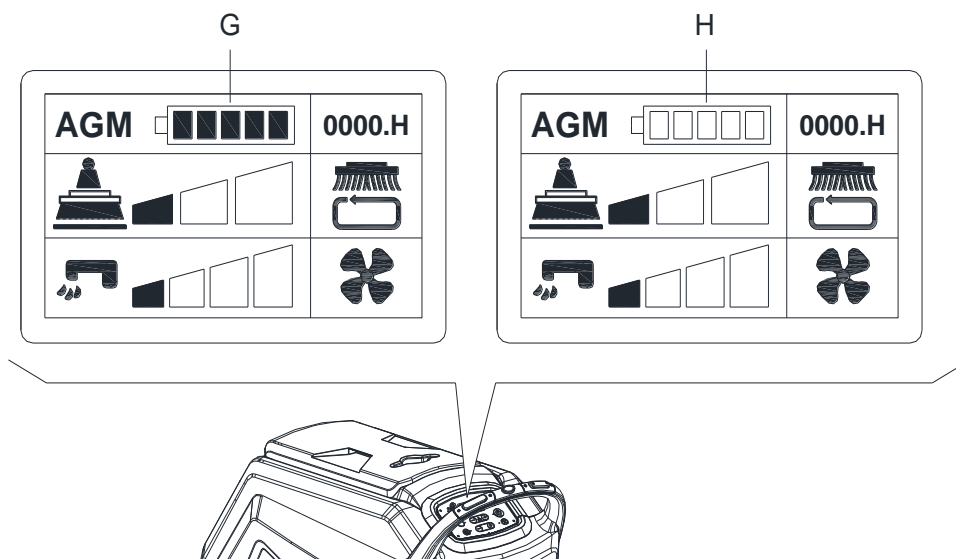


Figure 8



CAUTION!

When the batteries are discharged, charge them as soon as possible, as that condition makes their life shorter. Check for battery charge at least once a week.

BRUSH/PAD-HOLDER INSTALLATION AND REMOVAL (only for disc machine)**NOTE**

Install either the brush (A, Figure 9) or pad-holder (B and C, Figure 9) according to the type of floor to be cleaned.

**CAUTION!**

Before installation or removal of brush or pad-holder, make sure all the switches on machine are in off position and the squeegee is lifted off the floor. The operator must be equipped with suitable personnel protection devices, such as gloves to reduce the risk of accidents.

Proceed as following:

INSTALLATION:

1. Insert the ignition key (42, Figure 3) and turn it to "I". Lift the deck. Turn off the machine by removing the ignition key (42).
2. Turn the speed adjuster (48) to idle by turning it counter-clockwise.
3. Place the brushes (A, Figure 9) or the pad-holder (B) under the deck.
4. Use the manual method by turning the brush/pad-holder in the direction opposite to the normal turning direction, and it can be installed. (as shown in Figure 9)

REMOVAL:

1. Insert the ignition key (42, Figure 3) and turn it to "I". To remove the brush/pad-holder lift the deck by pressing the Brush/pad-holder release button (44), the brush/pad-holder will be automatically released.

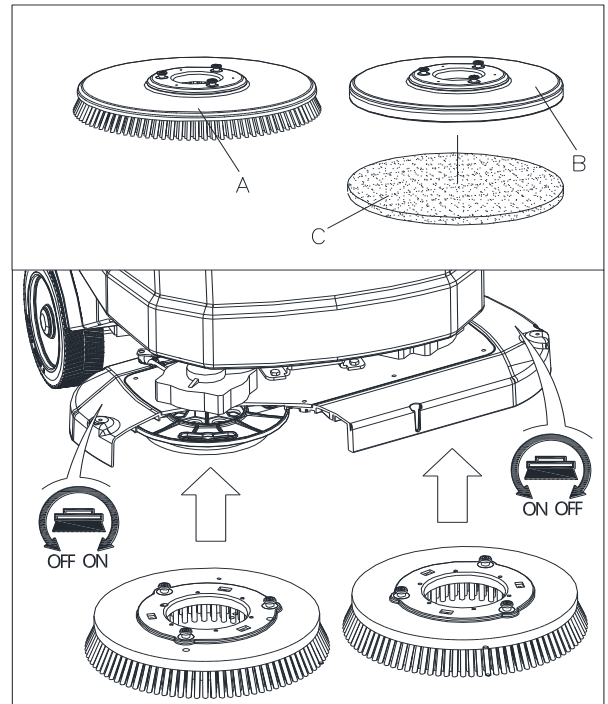


Figure 9

PAD INSTALLATION AND REMOVAL (only for orbital machine)

1. Insert the ignition key (42, Figure 3) and turn it to "I". Lift the deck. Turn off the machine by removing the ignition key.
2. Use the manual method to install or remove the pad as (Figure 10)

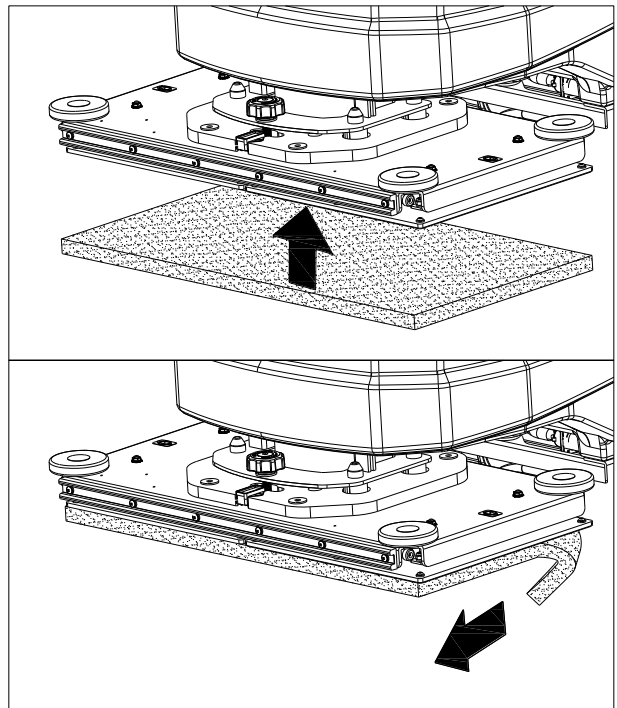
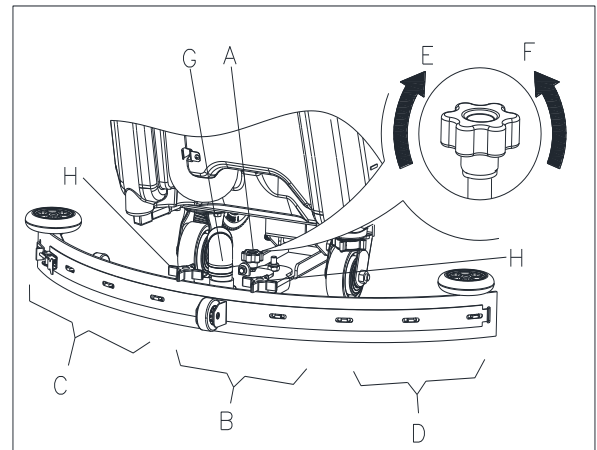


Figure 10

ADJUSTING THE BALANCE OF SQUEEGEE

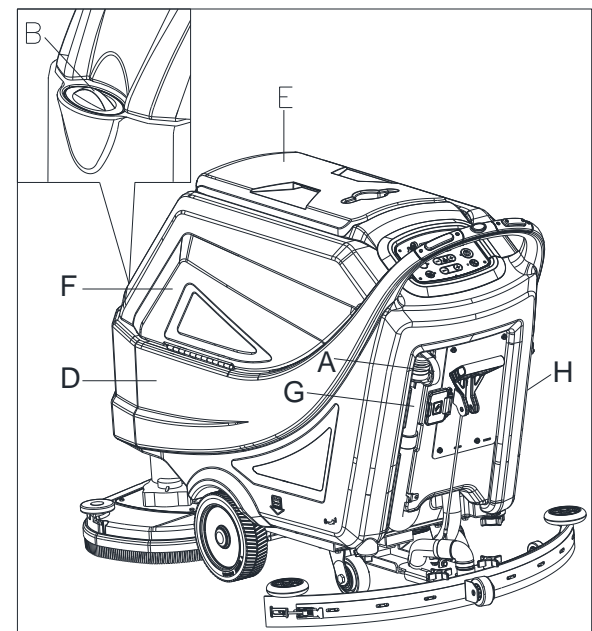
1. Install the squeegee and tighten up the nuts (H, Figure 11), then connect the vacuum hose (G) to the squeegee.
2. Adjust the squeegee by squeegee adjusting handle (A, Figure 11).
 - a) If there is gap between the ground and middle section of rear squeegee blade (B), adjust the knob (A) in counterclockwise direction (F) until all sections of the rear squeegee blade make good contact with the ground, the front blade touches the ground slightly.
 - b) If there is gap between the ground and both end section of rear blade (C and D), adjust the knob (A) in clockwise direction (E) until all sections of the rear squeegee blade make good contact with the ground, the front blade touches the ground slightly.

**Figure 11****FILLING SOLUTION TANK**

1. Open the water inlet cover (B, Figure 12).
2. Fill with water or solution suitable for work performance through the water inlet with filter.
The solution temperature must not exceed +104F (+40°C).
3. Do not overfill the tank, refer to water level indicator (H) for the water volume.

**WARNING!**

Use only low-foam and non-flammable detergents, intended for automatic scrubber applications.

**Figure 12****MACHINE START AND STOP****Starting the machine**

1. Prepare the machine as shown in the previous paragraph.
2. Insert the ignition key (A, Figure 13) and turn it to "I". Check Batteries status from display screen. If necessary charge the batteries (see the procedure in Maintenance chapter).
3. Drive the machine to the working area:
 - By pushing either safety switch (F) to move forward or pressing the safety switch (F) together with the reverse switch (G) to move backward. The forward speed can be adjusted with the adjuster (H).
4. Lower the squeegee (I) with the Squeegee lifting/lowering handle (J).
5. Lower the brush/pad-holder deck (K) by pressing the one button start (L)
6. Press the solution flow control buttons (O) as necessary, depending on the type of cleaning to be performed.
7. Start cleaning:
 - Press either safety switch (F) to activate the machine drive. If necessary, the forward speed can be adjusted with the adjuster (H).

**NOTE**

To move the machine forward, press either the left or right safety switch (F, Figure 13) or both.

Stopping the machine

8. Stop the machine by releasing the safety switches (F, Figure 13)
9. The brushes stop. The vacuum system stops after a few seconds.
10. Lift the brush/pad-holder deck (K) by pressing the one button start (L).
11. Lift the squeegee (I) with the Squeegee lifting/lowering handle (J).
12. Turn the ignition key (A) to "0".
13. Make sure that the machine cannot move independently.

MACHINE OPERATION (SCRUBBING AND DRYING)

1. Start the machine as shown in previous paragraphs.
2. While pressing either safety switch (35, Figure 2), maneuver the machine and start scrubbing/drying the floor.
3. If necessary, stop the machine then adjust squeegee according to section "Adjusting balance of squeegee".

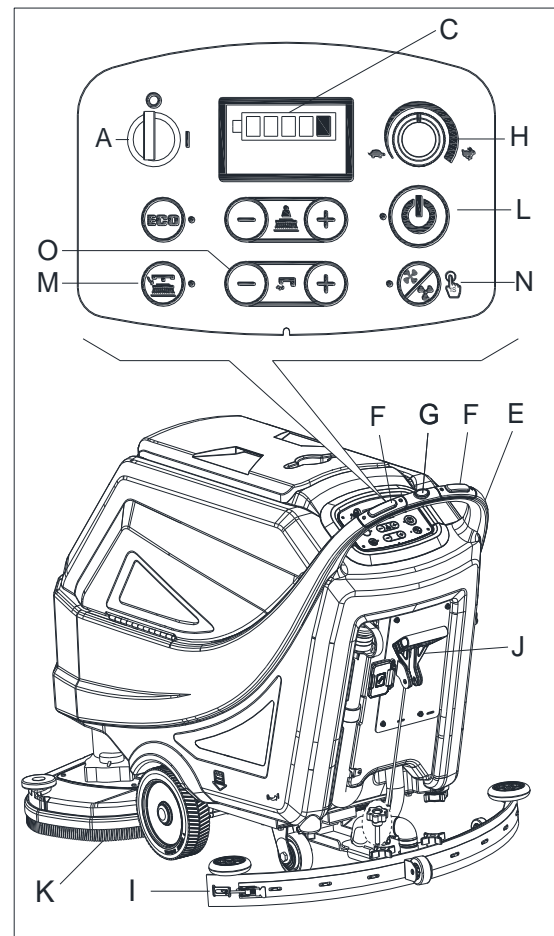


Figure 13

ADJUSTING THE LEVEL OF ORBITAL DECK (ONLY FOR ORBITAL MACHINE)

1. Insert the ignition key (42) and turn it to "I".
Lower the brush/pad-holder deck (25) by pressing the one button start (49)
2. Adjust the level of orbital deck by adjusting handle (A, Figure 14) so that the bubble is in the center (B Figure 14).

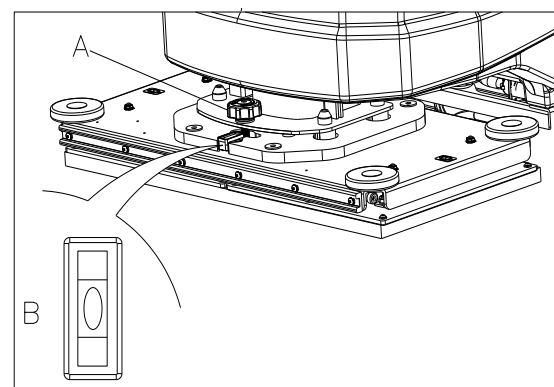


Figure 14

**NOTE**

For correct scrubbing/drying of floors at the sides of the walls. It is suggested to go near the walls with the right side of the machine (A and B, Figure 15) as shown in the figure.

**CAUTION!**

To avoid any damage to the floor surface, turn off the brushes/pad-holders when the machine stops in one place.

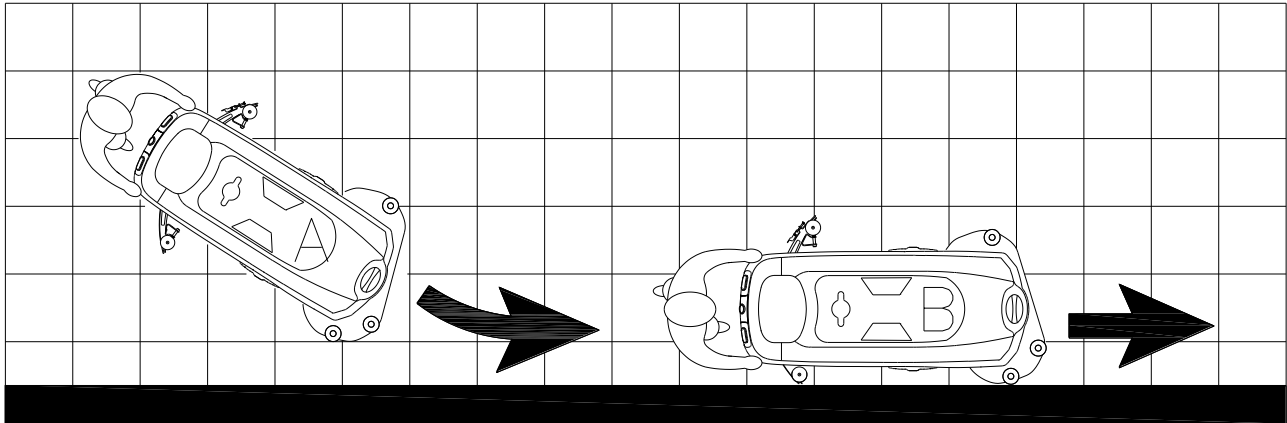


Figure 15

TANK EMPTYING

An automatic float shut-off system (A, Figure 16) blocks the vacuum system when the recovery water tank (B) is full. The vacuum system deactivation is signaled by a sudden increase in the vacuum system motor noise frequency, also the floor has not dried.

**CAUTION!**

If the vacuum system turns off accidentally (for example, when the float is activated because of a sudden machine movement), to resume the operation: turn off the vacuum system by pressing the switch (50, Figure 3), then open the cover (C, Figure 16) and check that the float inside the grid (A) has gone down to the water level. Then close the cover (C) and turn on the vacuum system by pressing the switch (50, Figure 3).

When the recovery water tank (B, Figure 16) is full, empty it according to the following procedure.

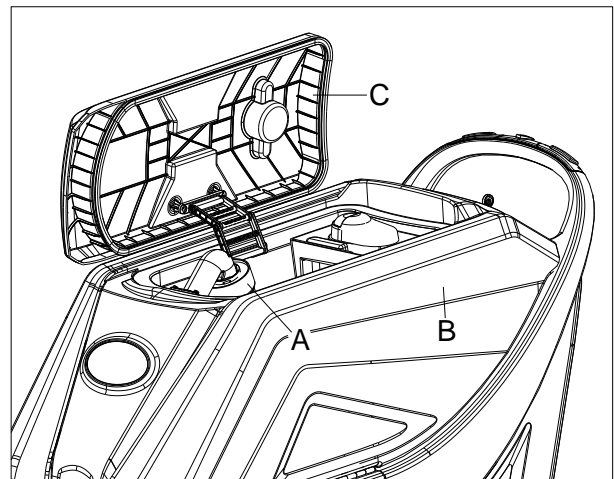


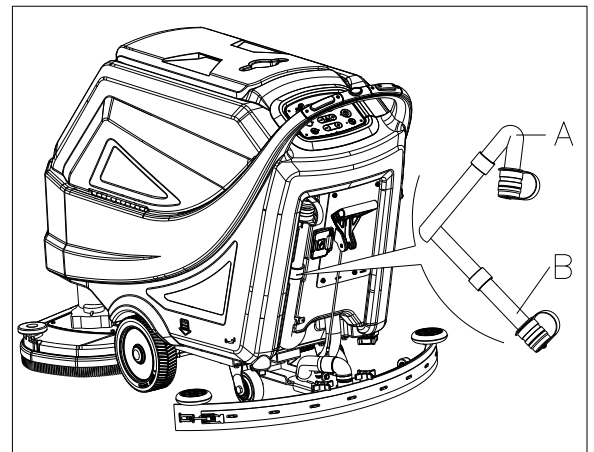
Figure 16

Recovery water tank emptying

1. Stop the machine.
2. Lift the brush/pad-holder deck (25, Figure 1) by pressing the one-button start (49, Figure 3) or restart the machine by Ignition key (42, Figure 3).
3. Lift the squeegee (11, Figure 1) with the squeegee lifting/lowering handle (39, Figure 2).
4. Drive the machine to the appointed disposal area.
5. Empty the recovery water tank with the hose (A, Figure 17). Then, rinse the tank (B, Figure 16) with clean water.

**CAUTION!**

When draining the wastewater, the vacuum tube for waste must be folded (A, Figure 17) and lowered to a lower position (B, Figure 17), and then open the lid of the vacuum tube for waste to drain the water. Do not make the outlet of the vacuum tube for waste face upward to drain the water vertically. This is to avoid wastewater spilling onto the operator.

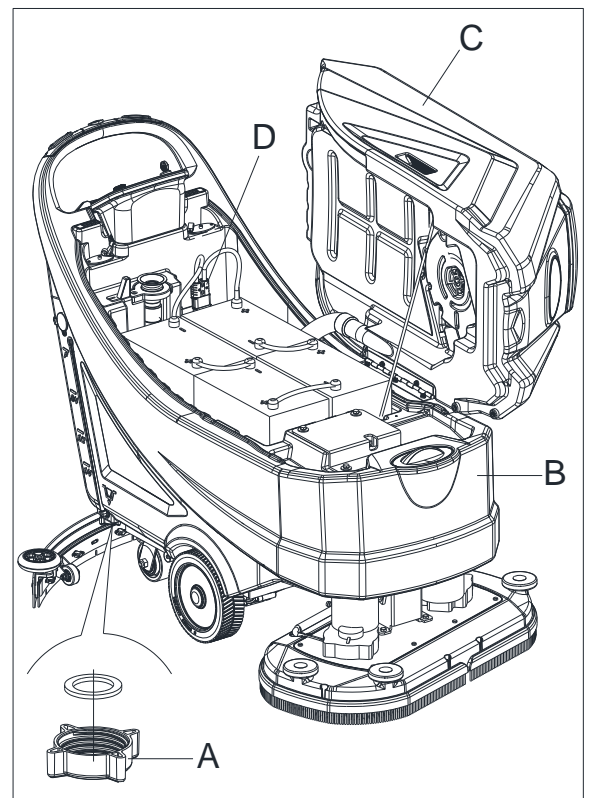
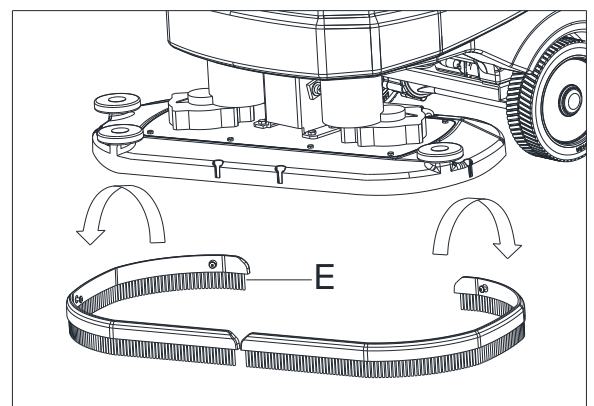
**Figure 17****Solution/clean water tank emptying**

1. Empty the solution tank with the outlet cover (A, Figure 18). After working, rinse the tank with clean water.

AFTER USING THE MACHINE

After working, before leaving the machine:

1. Remove the brushes/pad-holders by pressing the release button (44, Figure 3) and clean them (only for disc machine).
2. Remove the splash guard as (E, Figure 19) and cleaning it. (only for disc machine)
3. Remove the Pad and clean it. (only for orbital machine)
4. Empty the tanks (B and C, Figure 18) as shown in the previous paragraph.
5. Perform the daily maintenance procedures (see the Maintenance chapter).
6. Store the machine in a clean and dry place, with the brushes/ pad-holders and the squeegee lifted or removed.

**Figure 18****Figure 19**

MACHINE STORAGE DURING LONG INACTIVITY

If the machine is not going to be used for more than 30 days, proceed as follows:

1. Perform the procedures shown in After Using the machine paragraph.
2. Disconnect the battery connector (29, Figure 2).

FIRST PERIOD OF USE

After the first 8 hours, check the machine fastening and connecting parts for proper tightening and check the visible parts for wear and leakage.

MAINTENANCE**WARNING!**

Maintenance procedures must be performed after the machine is turned off and the battery charger cable is disconnected. In addition, carefully read the safety chapters in the manual.

All scheduled or extraordinary maintenance procedures must be performed by qualified personnel or an authorized Service Center. This manual only describes the general and common maintenance procedures.

For other maintenance procedures that are not in below maintenance schedule table, please refer to the Service Manual that can be consulted at any our company Service Center.

SCHEDULED MAINTENANCE TABLE**CAUTION!**

The procedure marked with (1) must be performed when the machine is used after 8 hours for the first time. The procedure marked with (2) must be done by Service Center that qualified by our company.

Procedure	Daily, after each use	Weekly	semiannually	Yearly
Battery charging				
Squeegee cleaning				
Brush/Pad-holder cleaning				
Tank cleaning				
Tank sealing strip inspection				
Float ball filter cleaning				
Pad cleaning				
Splash guard cleaning (only for disc machine)				
Squeegee blade check and replacement				
Cleaning water filter cleaning				
Suction filter cleaning				
WET battery fluid level check				
Screw and nut tightness inspection			(1)	
Lower Isolator (only for orbital machine)			(2)	
Brush motor carbon brush check or replacement				(2)
Vacuum motor carbon brush check or replacement				(2)
Drive system motor carbon brush check or replacement				(2)

BATTERY CHARGING**NOTE**

Charge the batteries when the battery is low.

**CAUTION!**

Keeping the batteries charged make their life last longer.

**CAUTION!**

When the batteries are discharged, charge them as soon as possible, as that condition makes their life shorter. Check for battery charge at least once a week.

**WARNING!**

WET battery charging produces highly explosive hydrogen gas. Charge the batteries in well-ventilated areas and away from naked flames. Do not smoke while charging the batteries. Keep the tank open while charging the batteries.

**WARNING!**

Pay careful attention when charging the batteries as there may be battery fluid leakages. The battery fluid is corrosive. If it comes in contact with skin or eyes, rinse thoroughly with water and consult a physician.

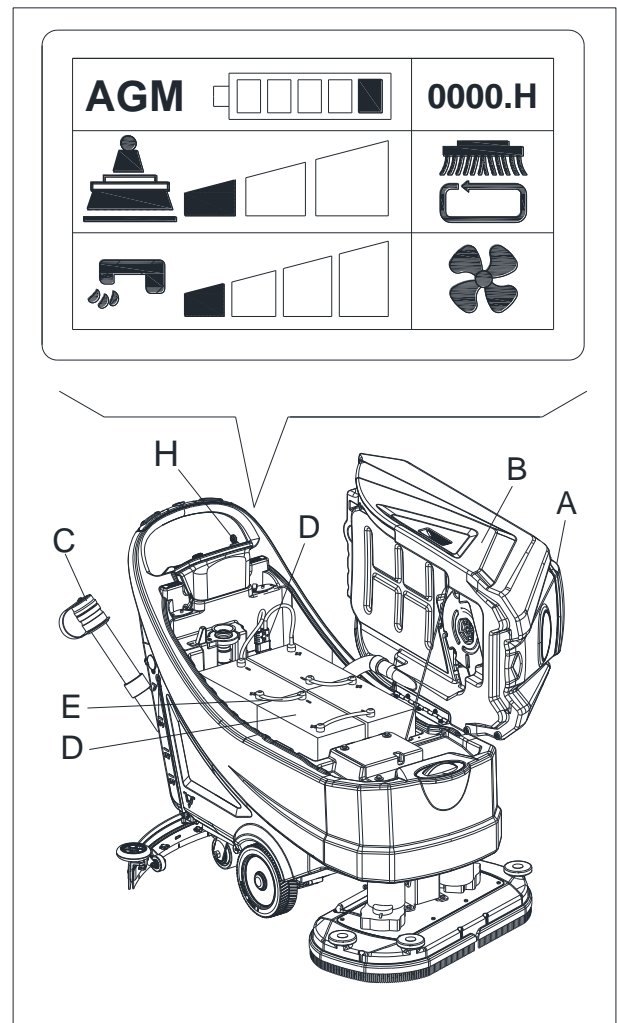


Figure 20

Preliminary procedures

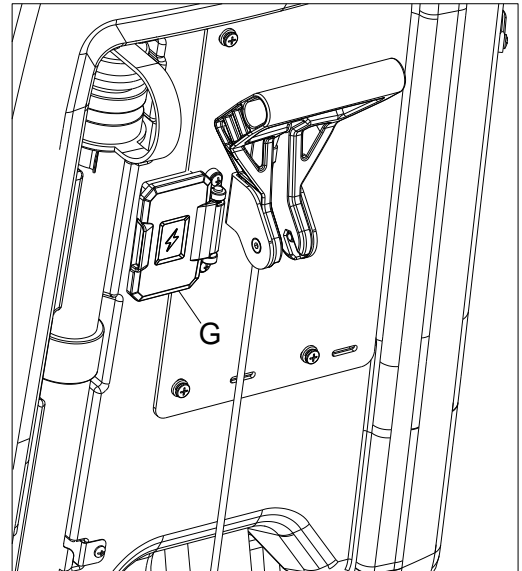
1. Open the cover (A, Figure 20) and check that the recovery water tank (B) is empty, otherwise empty it with the drain hose (C).
2. Drive the machine on a level floor.
3. Turn the ignition key (H) to "0".
4. Carefully lift the tank (B).
5. Charge the batteries according to the following procedure.

Battery charging (The machine with off-board charger)

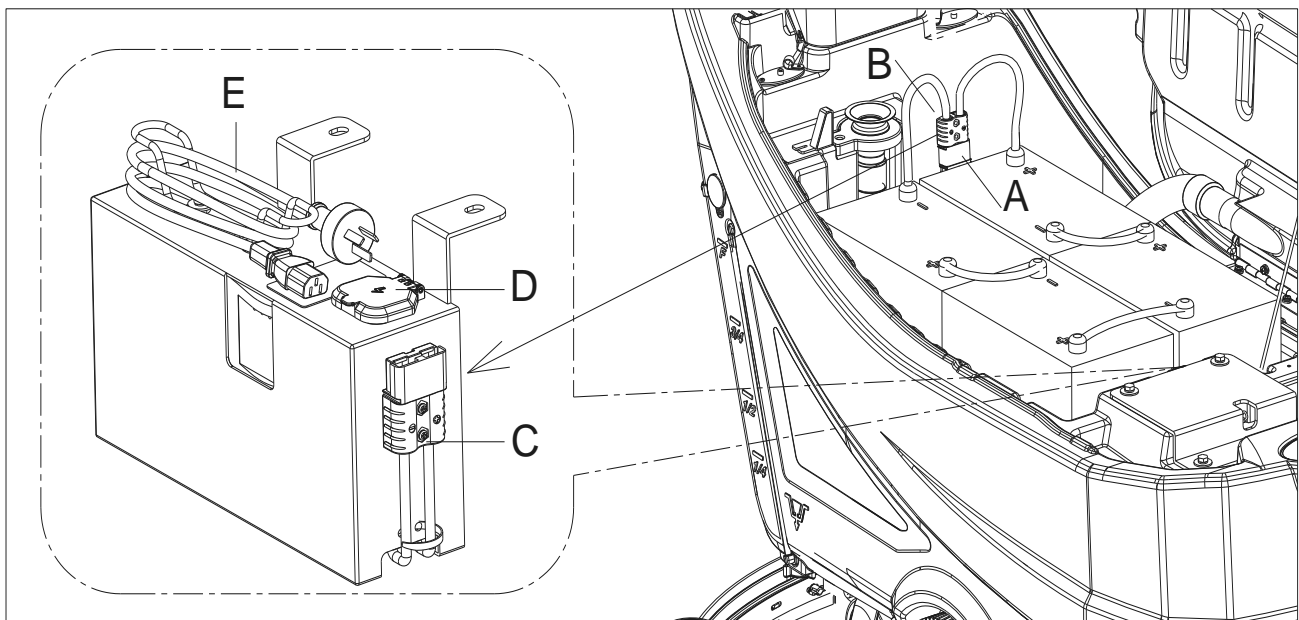
6. Connect the battery charger cable to the electrical mains (G, Figure 21) (the electrical mains voltage and frequency must be compatible with the battery. When the battery charger is connected to the electrical mains, all machine functions are automatically cut off).
7. When the battery charging is completed, disconnect the battery charger cable from the electrical mains (G)
8. Electrolyte levels should be checked after the batteries are charged.
9. Insert the ignition key (42) and turn it to "P". Check the status of batteries on display screen (B, Figure 3)
10. Carefully lower the tank.

**NOTE**

If the machine is not equipped with on-board battery charger, please choose an external battery charger suitable for the type of batteries installed.

**Figure 21****Battery charging (The machine with on-board charger)(*)**

1. Change the battery connections (B, Figure 22) from (A) to (C).
2. Connect the battery charging cable (E) to (D) and connect the other end of the cable to the electrical outlet.
3. When the battery charging is completed, the green warning light on the charger turns on. Disconnect the battery charger cable (E) and Change the battery connections (B) from (C) to (A).
4. Electrolyte levels should be checked after the batteries are charged.
5. Insert the ignition key (42, Figure 3) and turn it to "I". Check the status of batteries on display screen (B), Figure 3)
6. Carefully lower the tank.

**Figure 22**

BRUSH/PAD CLEANING**CAUTION!**

It is advisable to use protective gloves when cleaning the brush/pad because there may be sharp debris.

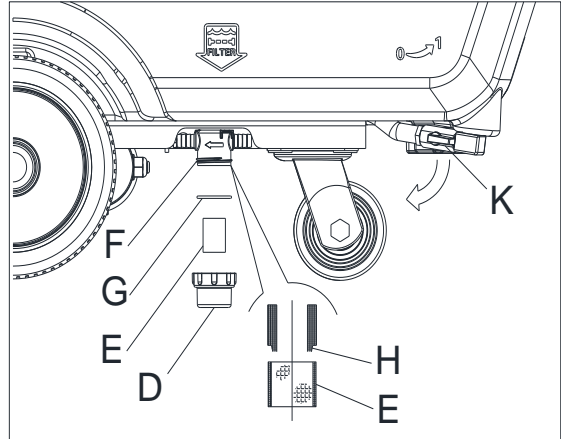
1. Remove the brush/pad from the machine, as shown in the Use chapter.
2. Clean and wash the brush/pad with water and detergent.
3. Check that the brushes/pads are in working condition and not excessively worn; if necessary replace them.

SOLUTION FILTER CLEANING

1. Drive the machine a level section of floor.
2. Ensure that the machine is off and the ignition key (42, Figure 3) has been removed.
3. Empty the solution tank or turn off the tap (K, Figure 23)
4. Remove the transparent cover (D), then remove the filter strainer (E). Clean and install them on the support (F).

**NOTE**

The filter strainer (E) must be correctly positioned on the housing (H) of the support (F).

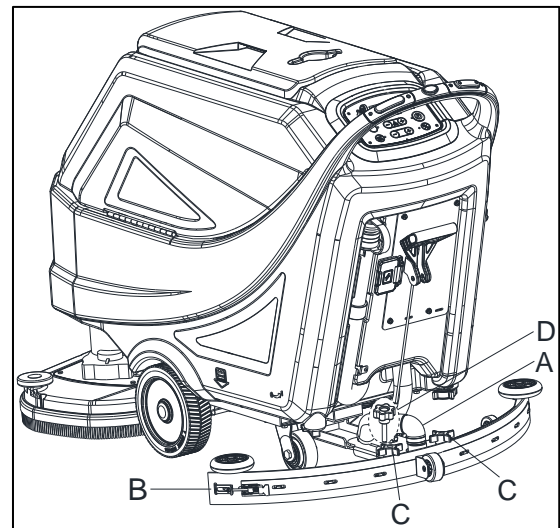
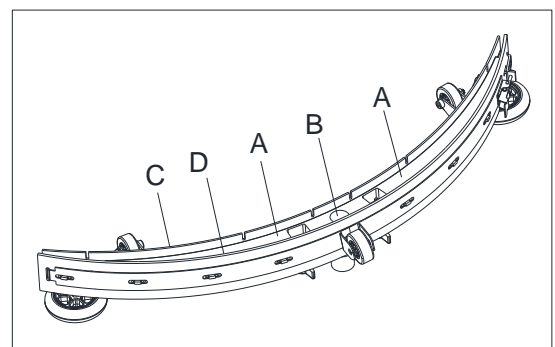
**Figure 23****SQUEEGEE CLEANING****NOTE**

The squeegee must be clean, and its blades must be in good conditions in order to get good drying action.

**CAUTION!**

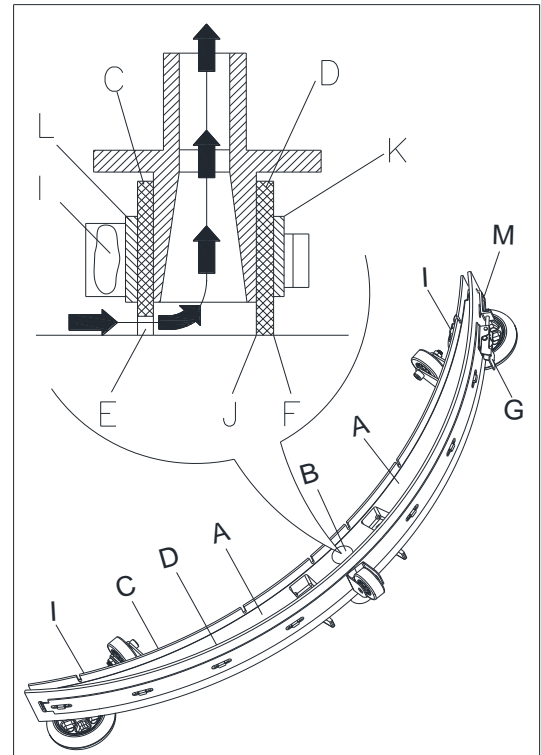
It is advisable to wear protective gloves when cleaning the squeegee because there may be sharp debris.

1. Drive the machine to a level section of floor.
2. Turn the ignition key (42, Figure 3) to "0".
3. Lower the squeegee (11, Figure 1) with the squeegee lifting/lowering handle (39, Figure 2).
4. Loosen the knobs (C, Figure 24) and remove the squeegee (B).
5. Disconnect the vacuum hose (A) from the squeegee.
6. Clean the steel or aluminum squeegee (Figure 25). Clean the compartments (A) and the hole (B) especially. Check the front blade (C) and the rear blade (D) for integrity, cuts and tears; if necessary replace them (see the procedure in the following paragraph).
7. Assemble the squeegee in the reverse order of disassembly.

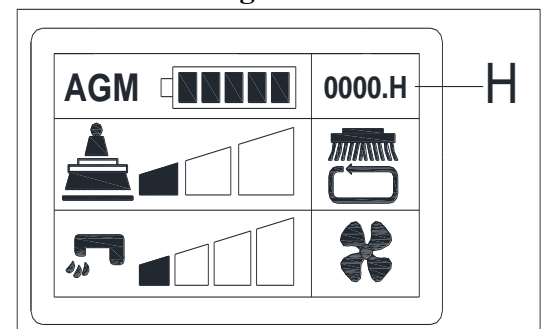
**Figure 24****Figure 25**

SQUEEGEE BLADE CHECK AND REPLACEMENT

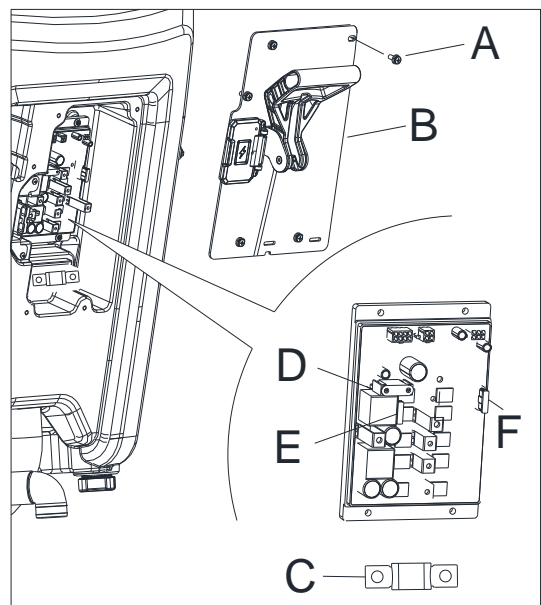
1. Clean the steel or aluminum squeegee, as shown in the previous paragraph.
2. Check that the edges (E, Figure 26) of the front blade (C) and the edges (F) of the rear blade (D) lay down on the same level, along their length; if necessary adjust their height according to the following procedure:
 - Remove the tie rod (G), disengage the fasteners (M) and adjust the rear blade (D), then engage the fasteners (M) and install the tie rod (G).
 - Loosen the knobs (I) and adjust the front blade (C), then tighten the knobs.
3. Check the front blade (C) and rear blade (D) for wear, cuts and tears; if necessary replace them according to the following procedure. Check that the front edge (J) of the rear blade (D) is not worn; if necessary, turn the blade over to replace the worn edge with an integral one. If the other edges are worn too, replace the blade according to the following procedure:
 - Remove the tie rod (G), disengage the fasteners (M) and remove the retaining strip (K), then replace the rear blade (D). Assemble the blade in the reverse order of disassembly.
 - Unscrew the knobs (I) and remove the retaining strip (L), then replace the front blade (C). Assemble the blade in the reverse order of disassembly. After the blade replacement (or turning over), adjust the height as shown in the previous step.
4. Connect the vacuum hose (A, Figure 24) to the squeegee.
5. Install the squeegee (B) and screw down the knobs (C).
6. If necessary, adjust the squeegee balance adjusting knob (D).

**Figure 26****MACHINE HOUR CHECK**

1. Turn the ignition key (42, Figure 3) to "I".
2. Press the switch (35, Figure 2), the hour meter begins to work and it at the same time shows the total number of working hours (H, Figure 27) on the display screen.
3. Release the switch (35).
4. Turn the ignition key (42) to "0".

**Figure 27****FUSE CHECK/REPLACEMENT**

1. Turn the ignition key (42, Figure 3) to "0".
2. Disconnect the Battery connector (red) (29, Figure 2) from the electrical mains.
3. Remove the screws (A, Figure 28) on control box cover (B).
4. Check/replace the following fuses:
 - a) F1 fuse (D, Figure 28), brush fuse(80A)
 - b) F2 fuse (E, Figure 28), vacuum fuse(40A)
 - c) F3 fuse (F, Figure 28), control board fuse(2A)
 - d) F4 fuse (C, Figure 28), main fuse(100A)

**Figure 28**

TANK AND BALL FLOAT CLEANING, AND COVER GASKET CHECK

1. Drive the machine on a level floor.
2. Ensure that the machine is off and the ignition key (42, Figure 3) has been removed.
3. Open the recovery tank lid (A, Figure 29) to a 90degree position, and then remove the ball float filter (P) from the tank.
4. Clean the recovery tank lid (A), recovery tank (B), and the float ball filter support frame (E). Empty the recovery tank with the drain hose.
5. If necessary, follow the symbols "OPEN" and "CLOSE" as shown in (Figure 29) to open the bottom cover (F) of float ball filter and then clean the float ball (D), filter support frame (E) and filter sponge (I). After cleaning, fix the float ball (D) into the filter support frame (E) and then align the mark groove (L) of the bottom cap (F) of the float ball filter with the mark groove (L) of the float filter support frame (E). Screw the bottom cap of the float ball filter tight, and fix the filter sponge (I) onto the float filter support frame (E). Finally, connect it to the vacuum standpipe (M).
6. Inspect the integrity of the tank sealing strip.

**NOTE**

Tank sealing strip (G) is critical to produce the suction inside the tank when the vacuum motor works. The tank must be sealed so it can effectively move the water from the ground to recovery tank.

7. Check whether the contact surface of sealing strip (G) is good condition and sealing is sufficient. If necessary, take the sealing strip out of the groove (H) and replace it. Assembly the new sealing strip as shown in (Figure 29), the joint should be back in the middle area.
8. Close the recovery tank lid (A).

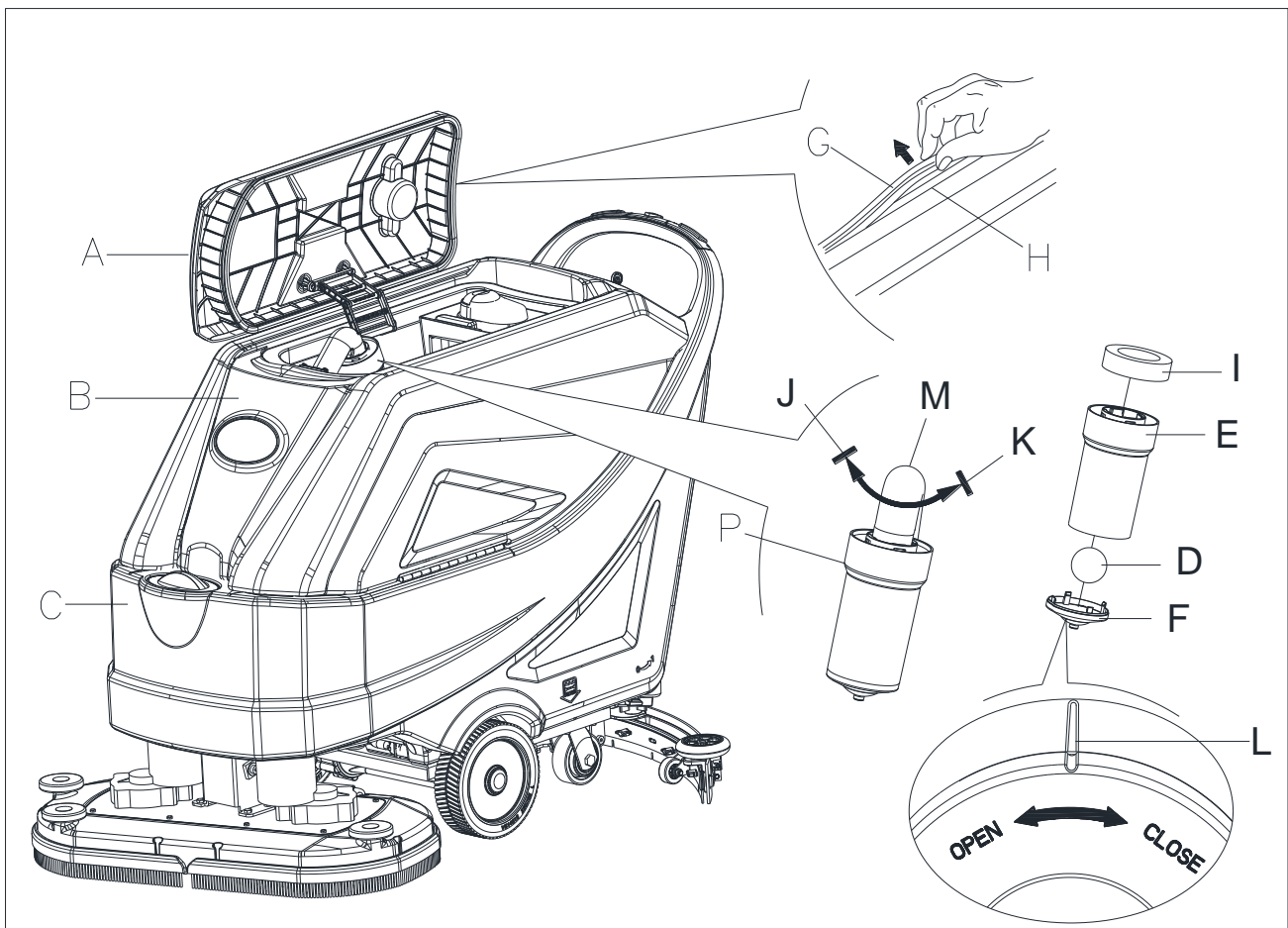


Figure 29

ACCESSORIES/OPTIONS

In addition to the standard components, the machine can be equipped with the following accessories/options, according to the machine specific use:

For further information concerning the above-mentioned optional accessories, contact an authorized Retailer.

ACCESSORIES/OPTIONS

See "Parts List" section

1. Brush of different materials
2. Battery tray
3. On-board charger
4. Blade of different materials

TROUBLESHOOTING

Trouble	Probable causes	Remedy
The motors do not work, error code on display	The battery connector is disconnected.	Connect the battery connector.
	The batteries are completely discharged.	Charge the batteries.
	Error code see the table	Restart the machine
The machine does not move	The machine has been turned on by using the ignition key and by keeping one of the switches pressed.	Turn the ignition key to "0", then try to start the machine again without pressing the switches.
The recovery water vacuuming is insufficient.	The recovery water tank is full.	Empty the tank.
	The hose is disconnected from the squeegee.	Connect.
	The vacuum grid is clogged or the float is stuck closed.	Clean the grid or check the float.
	The squeegee is dirty or the squeegee blades are worn or damaged.	Clean and check the squeegee.
	The tank cover is not properly closed, or the gasket is damaged, or the standpipe tube is clogged.	Close the cover correctly, or replace the gasket or clean the Bend tube.
	The vacuum hose is clogged.	Clean.
The solution flow to the brushes is insufficient.	The solution/clean water filter is dirty.	Clean the filter.
The squeegee leaves marks on the floor.	There are debris under the squeegee blades.	Remove the debris.
	The squeegee blades are worn, chipped or torn.	Replace the blades.
	The squeegee has not been adjusted with the knob.	Adjust.

**NOTE**

If the machine is installed with the optional on-board charger, and when the on-board charger is defective, the machine can not be operated. In case of battery charger malfunction, contact an authorized Service Center.

ERROR CODE OF DISPLAY

Error#	Error Description	Notes
Error 1	Valve Overload	Valve short or overload
Error 2	Brush Motor Overload	Brush motor short or overload
Error 3	Vacuum Motor Overload	Vacuum motor short or overload
Error 4	Traction Motor Overload	Traction motor short or overload
Error 5	Brush Deck Motor Overload	Brush deck motor short or overload
Error 6	Battery Low	Low battery voltage
Error 7	Brush Motor Open	Brush motor is open
Error 8	Vacuum Motor Open	Vacuum motor is open
Error 9	Valve Open	Water valve is open
Error 11	Change Traction Motor Carbon	Remind user to change traction motor carbon
Error 12	Change Brush Motor Carbon	Remind user to change brush motor carbon
Error 13	Change Vacuum Motor Carbon	Remind user to change vacuum motor carbon
Error 14	Controller EEPROM Error	EEPROM error or parameter setting error
Error 15	Panel EEPROM Error	EEPROM error or parameter setting error
Error 16	Communication Error	1. Communication wire broken 2. Wrong wiring 3. Controller power off
Error 17	Controller Self-Test NG	1. Accelerator fault 2. Internal relay welded 3. Mosfet or other hardware fault
Error 18	Controller Overheat	1. Controller over heat 2. Mosfet overheat
Error 19	Battery High	battery >34V
Error 20	Machine Sleep Mode	Machine enter sleep mode, must cycle power to recover
Error 27	Water Pump Error	Water pump short or overload
Error 31	Speed Potentiometer broken or Mismatch	Speed potentiometer is out of range(100+/-20K)
Error 34	Machine Locked	Machine is locked (IoT module function)
Error 35	IoT module Missing	IoT module is missing (IoT module function is enabled)
Error 37	Safety SW SRO	Push safe button before the key on

**NOTE**

When the screen displays an error code. Restart the machine by Ignition key (42, Figure 3). If the error can not be eliminated. Please contact our company service center.

SCRAPPING

Scrap the machine by the qualified waste treatment institution.

Before the machine is scrapped, please take away and segregate below subassembly that relevant laws and regulations request must be disposed in appropriate way.

- Battery
- Brush/Pad-holder
- Plastic hose and plastic parts
- Electrical and electronic components (*)

(*) Please contact our company service center destroying any electrical and electronic components.

Machine material composition and recyclability

Type	Recyclable percentage	AS6690T/AS7690T weight percentage%	AS7190TO weight percentage%
Aluminium	100%	2%	4%
Electric motors-various	29%	23%	15%
Ferrous materials	100%	32%	42%
Wiring harness	80%	1%	1%
Liquids	100%	0%	0%
Plastic-non-recyclable material	0%	1%	1%
Plastic-recyclable material	100%	38%	34%
Rubber	20%	3%	3%

Company information:
www.vipercleaning.eu
info-eu@vipercleaning.com

