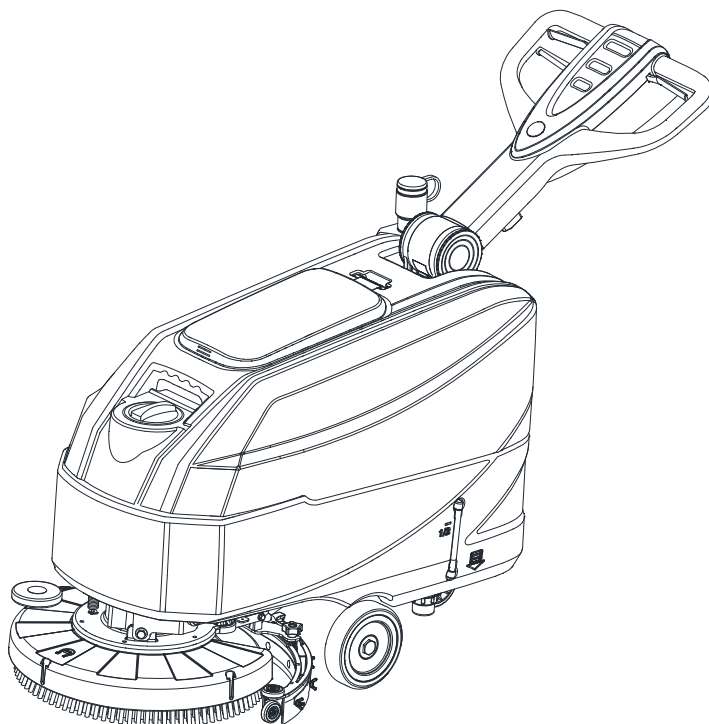




OWNERS MANUAL

IMPORTANT: READ OWNERS MANUAL CAREFULLY

86069



MODEL: Panther 17B

FOR YOUR CONVENIENCE, RECORD THE FOLLOWING

IMPORTANT INFORMATION

MODEL: _____

SERIAL NUMBER: _____

DATE PURCHASED: _____

PURCHASED FROM: _____

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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, operated 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 there is any damage, inform the carrier before accepting the goods, and 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 including 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 potential 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 allow the charging cable to become damaged by a door closing, or sharp 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 is a cleaning tool only, not for, and is not intended for any other purpose.
- 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.
- Operators shall be adequately instructed on the use of these machines.

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

- | | |
|------------------------------|--|
| 1. Handlebar | 21. Control panel |
| 2. Safety switch lever | 22. Accessory parts box (*) |
| 3. Handlebar adjusting lever | 23. Battery charge cable holder |
| 4. Recovery water drain hose | 24. Battery charge cable |
| 5. Recovery tank lid | 25. Security cover of charging jack |
| 6. Fresh water cover | 26. Charging signal lights |
| 7. Cover retention chain | 27. Deck lifting/lowering pedal |
| 8. Filling hose neck | a) Pedal position when deck is lowered |
| 9. Recovery tank | b) Pedal position when deck is lifted |
| 10. Solution tank | 28. Caster wheel |
| 11. Brush deck bumper wheel | 29. Recovery water drain hose |
| 12. Brush/pad-holder deck | 30. Outlet cover |
| 13. Brush/pad-holder | |
| 14. Solution level hose | |
| 15. Solenoid valve | |
| 16. Solution filter | |
| 17. Front wheels | |
| 18. Squeegee knobs | |
| 19. Squeegee lifting handle | |
| 20. Squeegee assembly | |

(*): Optional

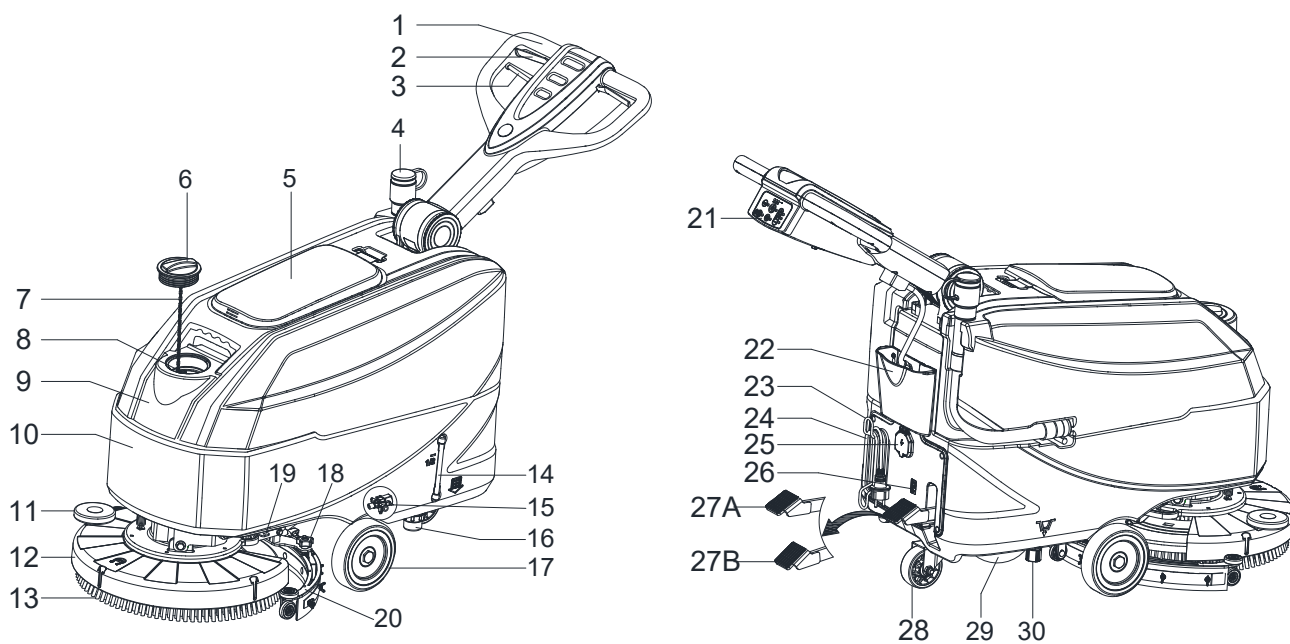
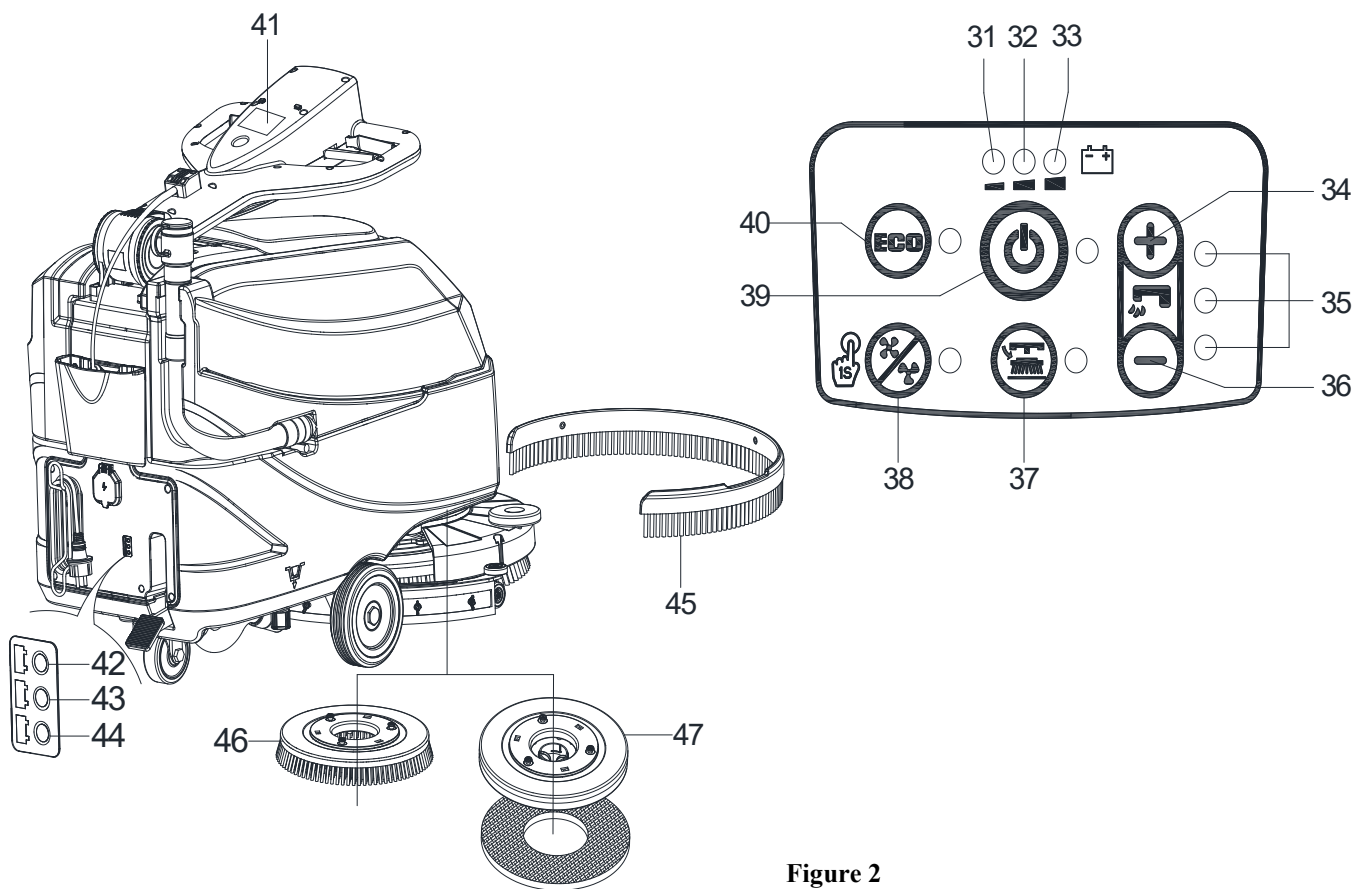


Figure 1

CONTROL PANEL (as shown in Figure 2)

- | | |
|--|--|
| 31. Discharged battery warning light (red) | 41. Serial number plate/technical data |
| 32. Semi-discharged battery warning light (yellow) | 42. Charging red LED |
| 33. Charged battery warning light (green) | 43. Charging yellow LED |
| 34. Flow increase switch | 44. Charging green LED |
| 35. Solution flow indicator | 45. Skirt (*) |
| 36. Flow decrease switch | 46. Brush |
| 37. Brush/pad-holder release switch | 47. Pad-holder (*) |
| 38. Normal vacuum motor model | |
| 39. One button starting | |
| 40. ECO mode | (*): Optional |

**Figure 2****DISPLAY WINDOW OF CHARGER INDICATON LIGHT (as shown in Figure 2)**

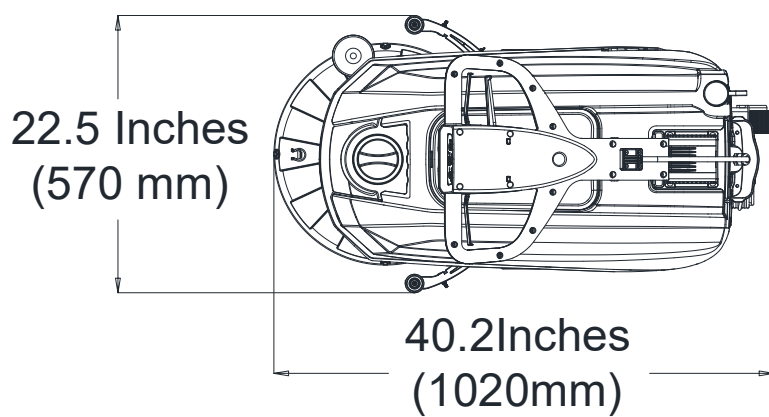
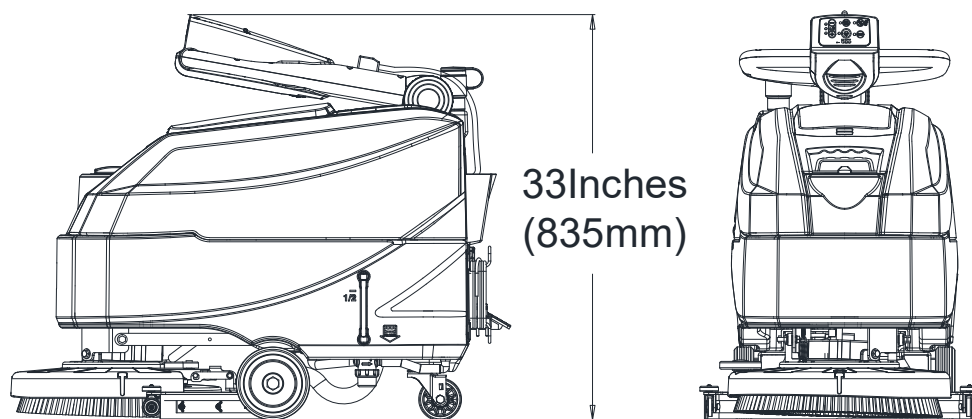
1. At the beginning of charging, the red LED (42) of charger is normally on. It is the first stage of charging.
2. After charging some time, the red LED (42) turns off, the yellow LED (43) turns on, this is the second stage of charging.
3. After the charging is finished, the yellow LED (43) is off, the green LED (44) turns on to indicate that the battery is fully charged.

**NOTE**

When charging, if the yellow LED (48) of charger is flashing, it may be caused by: Battery and charger does not match, battery is not connected well, or output is short-circuited.

The red LED of charger flashing may be caused by charger internal short circuit.

MACHINE SIZE

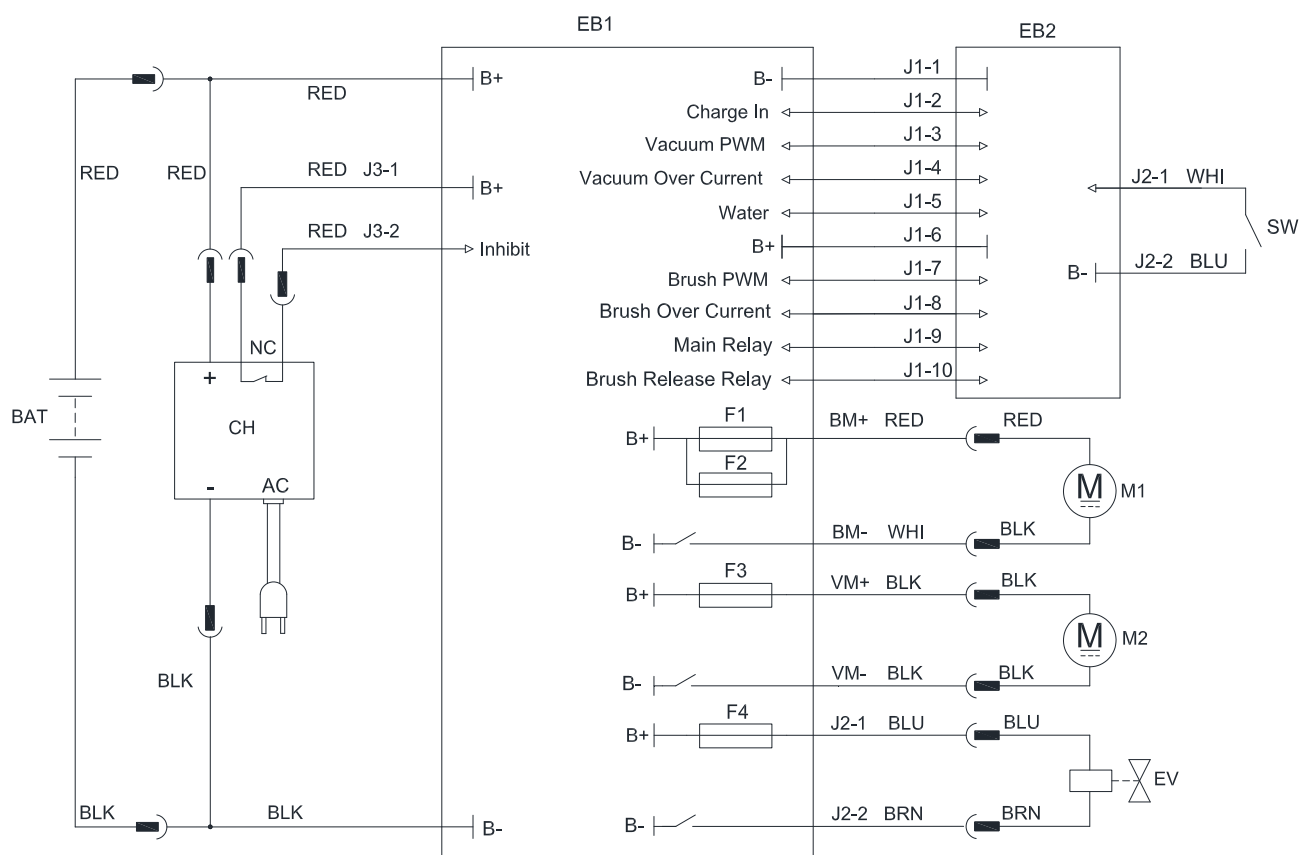


TECHNICAL PARAMETERS

Parameter Type	Units	Model
		86069
Solution tank capacity	L / Gal	25 L / 6.6 Gal.
Recovery tank capacity	L / Gal	25 L / 6.6 Gal.
Machine Length	mm/Inches	1020 mm / 40.1 Inches
Machine width with squeegee	mm/Inches	570 mm / 22.4 Inches
Machine width without squeegee	mm/Inches	485 mm / 19.1 Inches
Machine Height (without handle)	mm/Inches	647 mm / 25.5 Inches
Machine Height (with vertical handle)	mm/Inches	1182 mm / 46.5 Inches
Working width	mm/Inches	432 mm / 17 Inches
Driving wheel diameter	mm/Inches	153 mm / 6 Inches
Rear wheel diameter	mm/Inches	89 mm / 3.5 Inches
Brush/Pad diameter	mm/Inches	432 mm / 17 Inches
Brush/Pad pressure (max)	Kg/Lbs.	19 Kg / 41.8 Lbs
Solution Flow (max) per setting	L / Gal per minute	(0.59/0.69/1.11/1.68) Liters (0.16/0.18/0.29/0.44) 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%
Vacuum motor power	Watt / H.P.	300 W / 0.4 HP
Vacuum capacity	mm/In of H ₂ O	838 mm / 33±3 In of H ₂ O
Vacuum capacity in ECO mode or in silent mode	mm/In of H ₂ O	635 mm / 25±3 In of H ₂ O
Brush motor power	Watt / H.P.	400 Watt / 0.54 HP
Brush speed in normal mode	RPM	140 RPM
Brush speed in ECO mode	RPM	100 RPM
IP protection class	IP	IP24
Battery Compartment Size (L x W x H)	mm/Inches	(265 x 350 x 230) mm / 10.4 x 13.8 x 9.1 Inches
Voltage	DC	24 V
Batteries (*)	Ah	85Ah C20 / 67Ah C5
Battery run time (standard batteries) (*)	Hour	Up to 4 hours
On-Board Charger (*)	Volts/Amps	24V 10A
Productivity (max)	m ² /h	18,514 sq. ft./hr (1720 m ² /h)
Machine weight with empty tanks (without batteries)	Kg/Lbs.	58 Kg / 128 Lbs.
Gross Vehicle Weight (GVW)	Kg/Lbs.	134 Kg / 295 Lbs.
Shipping Weight	Kg/Lbs.	137 Kg / 302 Lbs.
Packing dimensions (L x W x H)	mm/Inches	(1130 x 730 x 1040 mm) / (44.5 x 28.7 x 41 Inches)

(*): Optional

WIRING DIAGRAM



COMPONENTS		COMPONENTS	
BAT	24V Battery	SW	Handle Switch
CH	Battery Charger	F1	Brush Motor Fuse
EB1	Control Board	F2	Brush Motor Fuse
EB2	Dashboard	F3	Vacuum Motor Fuse
M1	Brush Motor	F4	Solution Valve Fuse
M2	Vacuum Motor		
EV	Solution Valve		

Comment	
1	RED-Red
2	BLK-Black
3	BRN-Brown
4	WHI-white
5	BLU-Blue

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 of the 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 12 V batteries, connected according to the diagram (Figure 3).

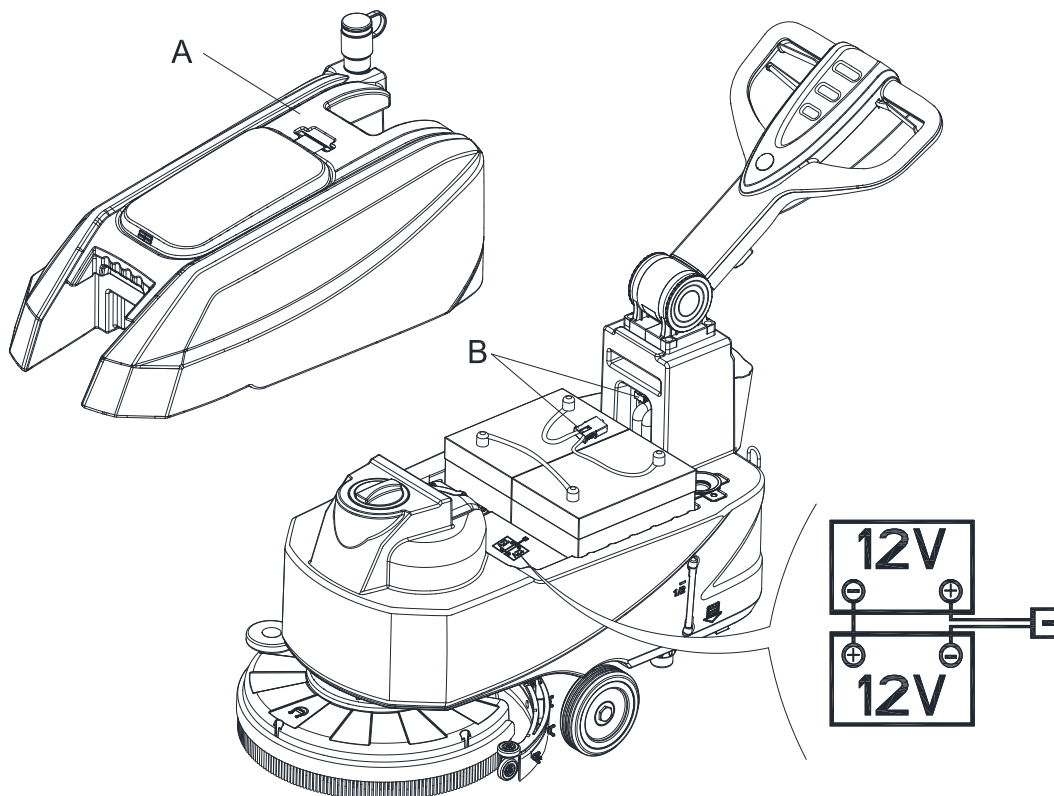


Figure 3

The machine can be supplied in one of the following modes:

A) Batteries (WET or GEL/ AGM) already installed and charged

1. Check that the batteries are connected to the machine with the connector (B, Figure 3).
2. Pressing the switch (39 Figure 2). If the green warning light (33) turns on, the batteries are fully charged. If the yellow (32) or red warning light (31) turns on, the batteries must be charged (see the procedure in Maintenance chapter).

B) Without batteries

1. Buy appropriate batteries (see the Technical Data paragraph).
2. For battery choice and installation, apply to qualified battery Retailers.
3. Set the machine and the battery charger according to the type of batteries (WET or GEL/ AGM), as shown in the next paragraph.

BATTERY INSTALLATION AND BATTERY TYPESETTING (WET OR GEL/ AGM)

According to the type of batteries (WET or GEL/AGM), set the machine and electronic board of the battery charger as follows:

Machine setting

When One-button Start S3 is turned off, press water volume + and - buttons (S5 and S6) at the same time, 0.5 seconds later, LED1, LED2 and LED3 are all lit up to enter the battery mode setting:

1. Then press water volume + or – to switch between “WET”, “GEL/AMG” and “DIS-EV”. In the the mode of “WET”, Red light is on. And “GEL/AGM”, light is green. “DIS-EV”, light is yellow.
2. Press One-button Start to finish setting and exit, turn off machine to store and update all battery setting, when it’s on, it will work as setting.



NOTE

Default battery type is GEL/AGM.

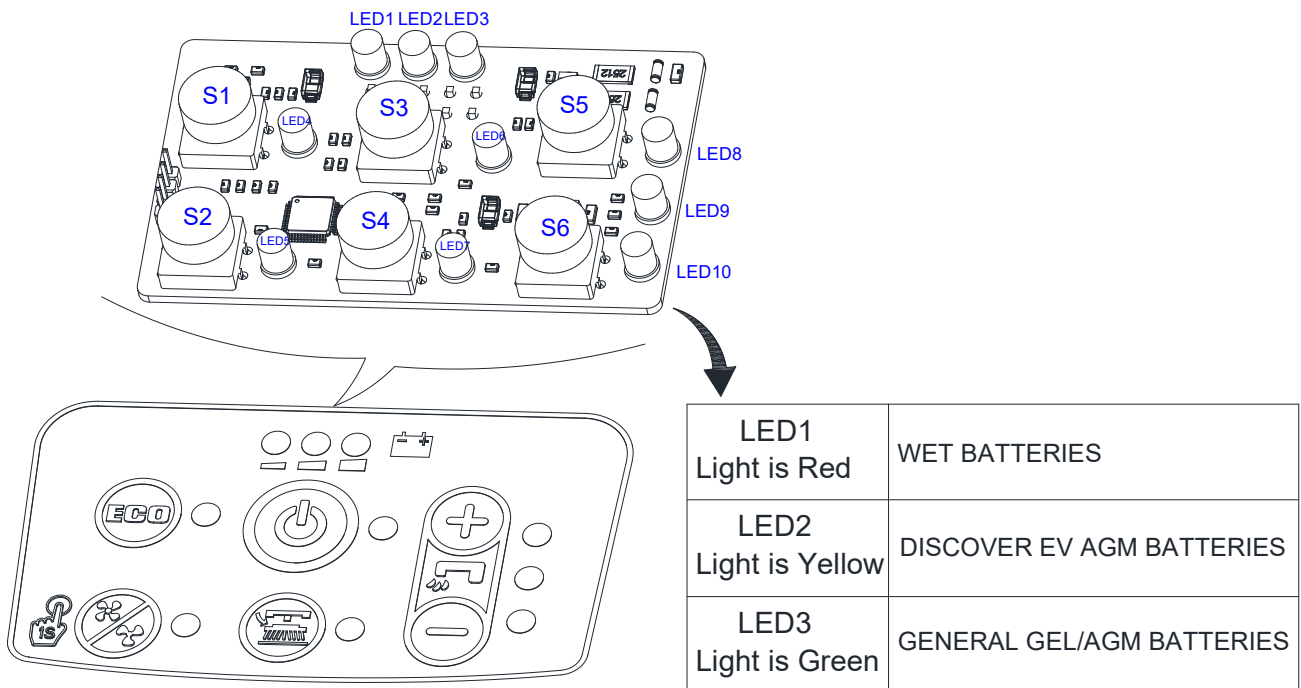


Figure 4

Battery installation

3. Open the recovery tank cover (5, Figure 1) and check that the recovery tank (9, Figure 1) is empty; otherwise empty it with the drain hose. (4, Figure 1)
4. Close the recovery tank cover (5, Figure 1).
5. Move the recovery tank kit (A, Figure 3) carefully.
6. The machine is supplied with cables suitable to install 2X12V batteries. Carefully put the batteries into the compartment, then install them correctly.
7. Route and install the battery cable as shown in (Figure3), then carefully tighten the nut on each battery terminal.
8. Place the protection cap on each terminal, then connect the battery connector (B, Figure 3).
9. Carefully put it back the recovery tank kit (A, Figure 3).

Battery charging

10. Charge the batteries. (See procedures in maintenance chapter).

**CAUTION!**

Cut off all the power of the machine before perform the following procedure!

Battery charger setting

11. Remove the screws (A, B, C, Figure 4.1).
12. Open the charger and find the sw1 (D, Figure 4.1).
13. Set the switches as the table of Figure 4.1.
14. Install the screws (A, B, C, Figure 4.1) after setting complete.

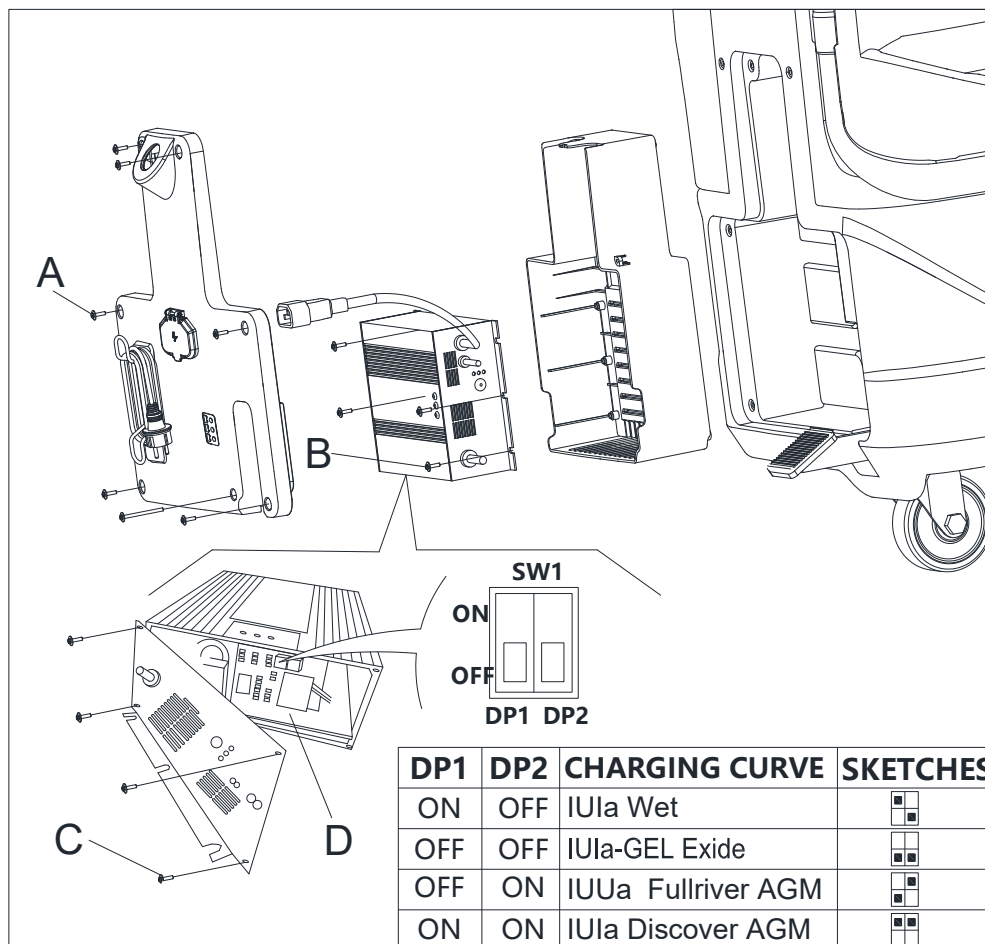


Figure 4.1

BRUSH/PAD-HOLDER INSTALLATION AND REMOVAL

**NOTE**

Install either the brush (A, Figure 5) or pad-holder (B and C, Figure 5) 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 lifting up the squeegee and the brush/pad-holder deck from the floor. The operator must be equipped with suitable personnel protection devices such as gloves to reduce the risk of accidents.

Proceed as following:

1. Shut off the power switch (39, Figure 2).
2. Lift the deck by pressing the pedal (27, Figure 1).
3. Place the brushes (A, Figure 5) or the pad-holder (B, Figure 5) under the deck (12, Figure 1).
4. Lower the deck on the brushes/pad-holders by pressing the pedal (27, Figure 1).
5. Press the start switch (39, Figure 2).
6. Press one of the Brush/forward gear safety switch lever (2, Figure 1) to engage the brush/pad-holder, then release it. If necessary, repeat the procedure until the brushes/pad-holders are engaged.
7. If Step No.6 above proves to be difficult, use the manual method by turning the brush/pad-holder in the direction opposite to the normal turning direction, and it can be taken off. (as shown in Figure 5)

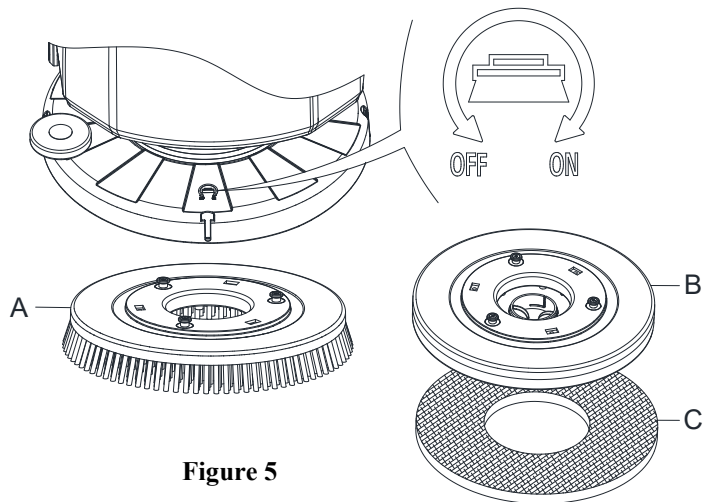


Figure 5

**WARNING!**

To engage the brush/pad-holder press the safety switch lever (2, Figure 1) which turns on the brush/pad-holder motor.

8. To remove the brush/pad-holder lift the deck by pressing the pedal (27, Figure 1), then press the switch (37, Figure 2), the brush/pad-holder will be removed.

SQUEEGEE ASSEMBLE INSTALLATION AND REMOVAL

**CAUTION!**

It is advisable to wear protective gloves when installation and removal the squeegee assemble because there may be sharp debris.

1. Push the machine to a level floor.
2. Ensure that the machine is off.
3. Lower the brush/pad-holder deck (12, Figure 1) by lifting the pedal (36), Brush on the floor.
4. Place squeegee in the place between brush deck and front wheel.
5. Fix stud A to the opening B, then fix another screw C to the opening D, fasten squeegee knob and connect recovery water drain hose F to the connector E (Figure 6).
6. Disconnect the squeegee in the reverse order of disassembly.

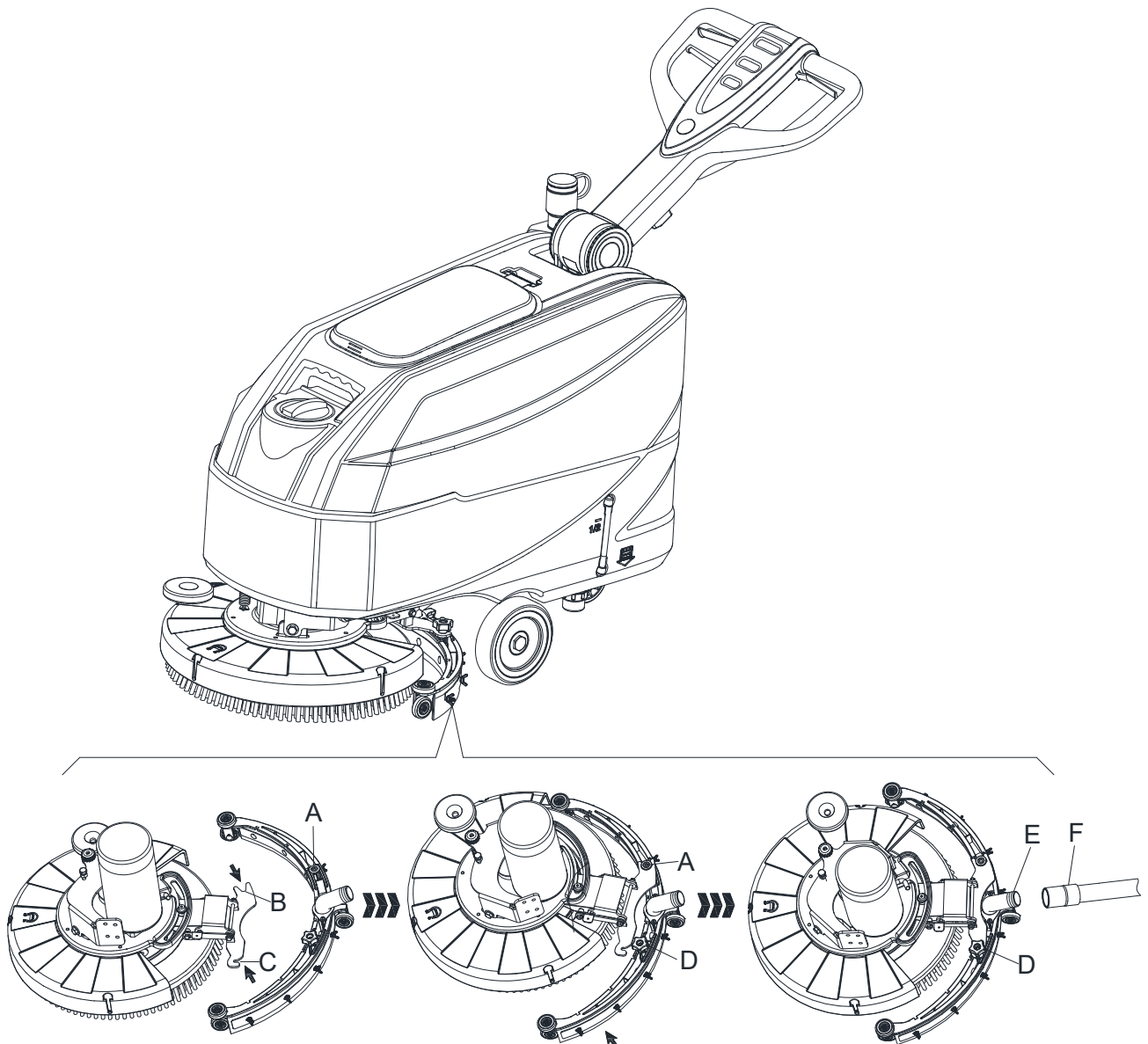


Figure 6

SOLUTION OR WASHING WATER TANK FILLING

1. Open the water inlet cover (A, Figure 7).
2. Fill with water or solution suitable for work performance.
The solution temperature must not exceed +104°F (+40°C).
3. Do not overfill the tank, refer to water level indicator (B, Figure 7) for the water volume.

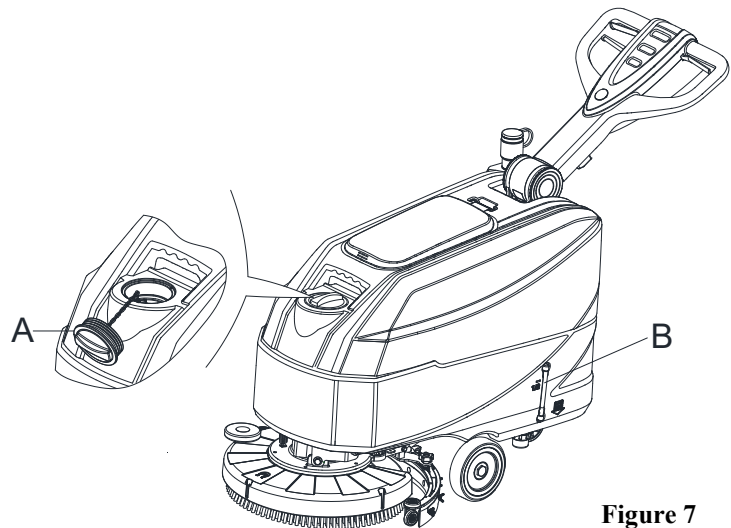


Figure 7



WARNING!

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

MACHINE START AND STOP

Starting the machine

1. Prepare the machine as shown in the previous paragraph.
2. Push the machine to the area to be cleaned, by pushing it with the hands on the handlebar (I, Figure 8).
3. Lower the brush/pad-holder deck (M, Figure 8) and the squeegee (L) by lifting the pedal (K).
4. Press the start switch (G, Figure 8). Check that the green warning light (C) turns on (charged battery). If the yellow (B) or red warning light (A) turns on, Shutoff the power switch (G, Figure 8) and charge the batteries (see the procedure in Maintenance chapter).
5. Press the washing water flow control switches (D, Figure 8) as necessary, depending on the type of cleaning to be performed.
6. Start cleaning by pushing the machine with the hands on the handlebar (I) and pressing the safety switch lever (J).

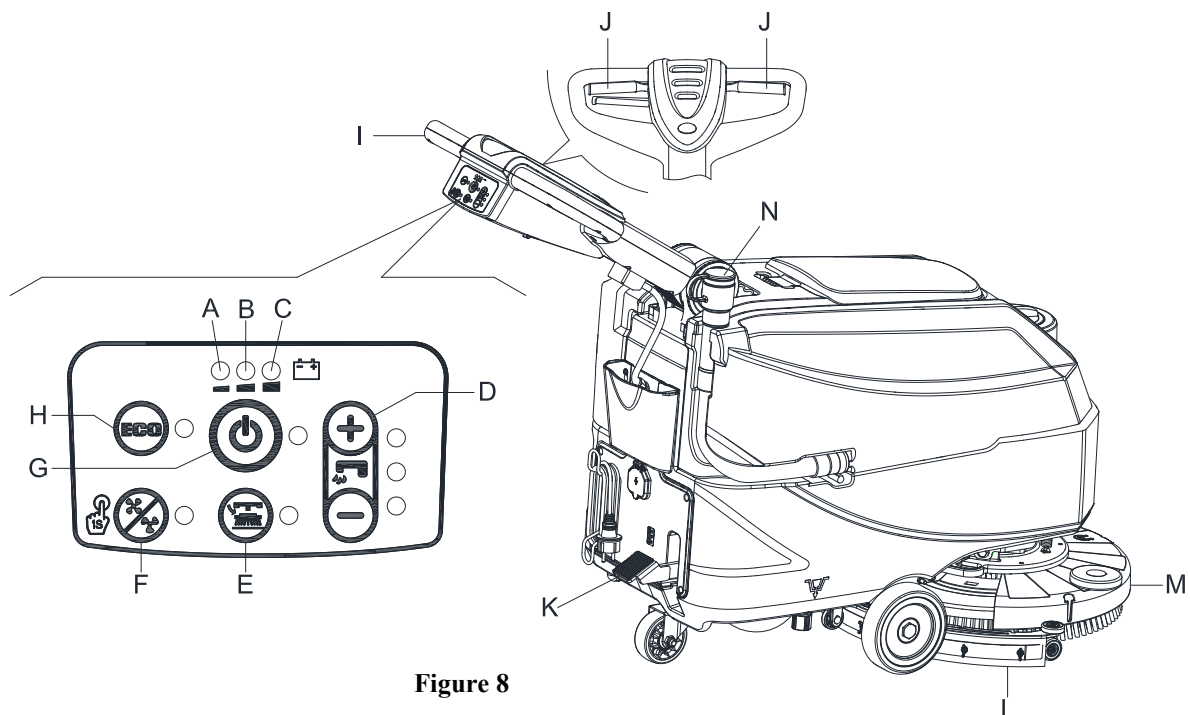


Figure 8

**NOTE**

To move the machine forward, press either the left or right safety switch lever (J, Figure 8) or both.

7. If necessary, press the handlebar adjusting lever (3, Figure 1) to adjusting the handlebar height.

Stopping the machine

8. Stop the machine by using the handlebar (I).
9. Stop the brushes and the vacuum system by pressing the switch (G). The vacuum system stops after a few seconds.
10. Lift the brush/pad-holder deck(M) and the squeegee (L) by pressing the pedal (K).
11. Make sure that the machine cannot move independently.

MACHINE OPERATION (SCRUBBING AND DRYING)

1. Start the machine as shown in previous paragraphs.
2. While keeping both hands on the handlebar press the safety switch lever (J, Figure 8), then manoeuvre the machine and start scrubbing/drying the floor.

**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 9) 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.

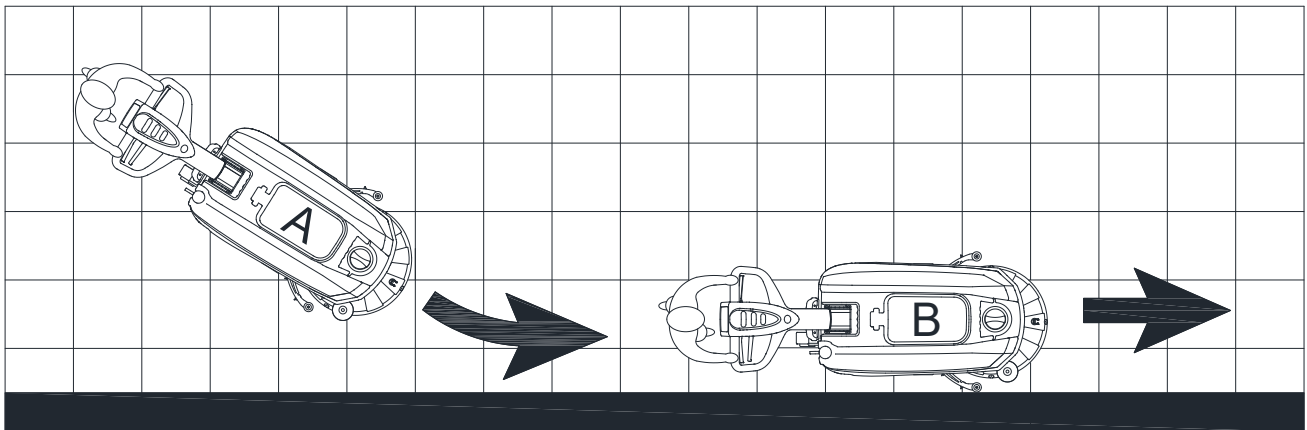


Figure 9

Battery discharge during operation

While the green warning light (C, Figure 8) stays on, the batteries allow the machine to work normally. When the green warning light (C) turns off, and the yellow warning light (B) turns on, it is advisable to charge the batteries, because the remaining charge will last for a few minutes (depending on battery characteristics and work to be performed). When the red warning light (A) turns on, batteries are fully discharged. After a few seconds, the brush/pad-holder is automatically turned off.

**CAUTION!**

Do not use the machine with discharged batteries, to avoid damaging the batteries and reducing the battery life.

TANK EMPTYING

An automatic float shut-off system (B, Figure 10) blocks the vacuum system when the recovery water tank (C) 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 (G, Figure 8), then open the cover (A, Figure 10) and check that the float inside the grid (B) has gone down to the water level. Then close the cover (A) and turn on the vacuum system by pressing the switch (G, Figure 8).

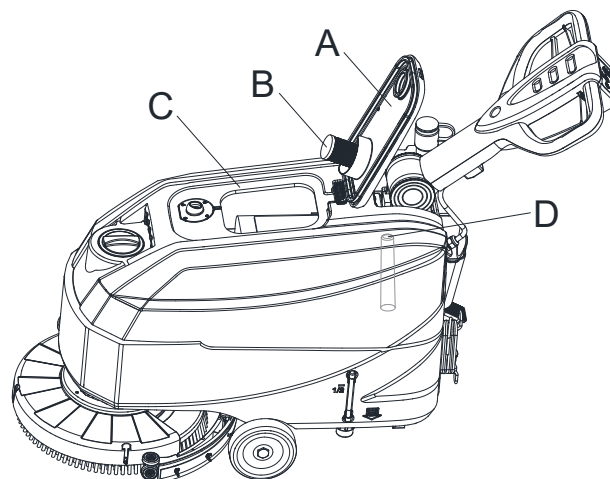


Figure 10

When the recovery water tank (C, Figure 10) is full, empty it according to the following procedure.

Recovery water tank emptying

1. Stop the machine.
2. Lift the brush/pad-holder deck (M, Figure 8) and the squeegee (L) by pressing the pedal (K).
3. Push the machine to the appointed disposal area.
4. Empty the recovery water tank with the hose (N, Figure 8). Then, rinse the recovery tank (C, Figure 10) with clean water.
5. Remove the recovery tank lid (A, Figure 10) and clean the inside of the cover and the filter floater grid (B) with clean water.
6. Check the recovery tank (D, Figure 10) whether there is foreign body jam and clean it.

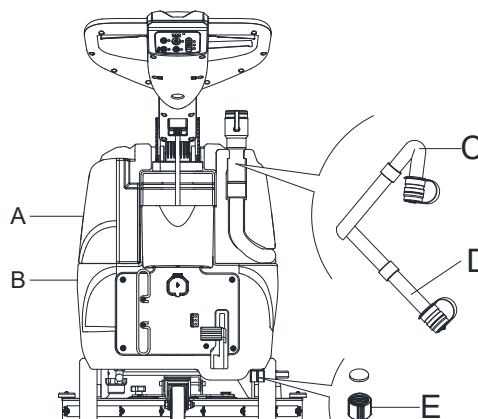


Figure 11



CAUTION!

When draining the wastewater, the vacuum tube for waste must be folded (C, Figure 11) and lowered to a lower position (D, Figure 11), 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.

7. Perform steps 1 to 4.

Solution/clean water tank emptying

8. Empty the solution tank with the outlet cover (E, Figure 11). After working, rinse the tank with clean water.

AFTER USING THE MACHINE

After working, before leaving the machine:

1. Remove the brushes/pad-holders.
2. Empty the tanks (A and B, Figure 11) as shown in the previous paragraph.
3. Perform the daily maintenance procedures (see the Maintenance chapter).
4. Store the machine in a clean and dry place, with the brushes/ pad-holders and the squeegee lifted or removed.

MACHINE 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 (B, Figure 3).

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.

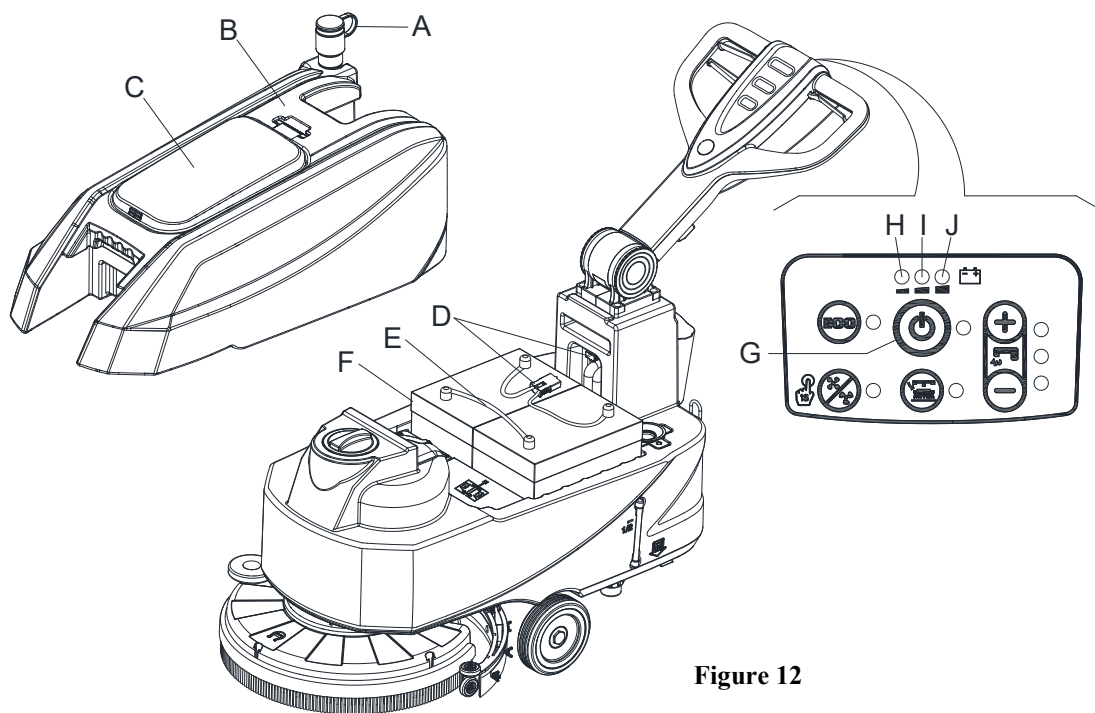
SCHEDULED MAINTENANCE TABLE**CAUTION!**

The procedure marked with (1) must be performed when the machine is used after 9 hours for the first time. The procedure marked with (2) must be done by Service Center that is 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				
Squeegee blade check and replacement				
Cleaning water filter cleaning				
Solution filter cleaning				
WET battery fluid level check				
Screw and nut tightness inspection			(1)	
Brush/Pad-holder carbon brush check or replacement				(2)
Suction motor carbon brush check or replacement				(2)

BATTERY CHARGING**Preliminary procedures**

1. Open the cover (C, Figure 12) and check that the recovery water tank (B) is empty, otherwise empty it with the drain hose (A).
2. Carefully move the recovery tank kit (B, Figure 12).
3. Connect the battery connector (D, Figure 12).
4. Carefully put it back the recovery tank kit (B, Figure 12).
5. Pushing the machine on a level floor.
6. Press the start switch (G, Figure 12).
7. For WET batteries only:
 - Check the level of electrolyte inside the batteries (F); if necessary, top up through the caps.
 - Leave all the battery caps open for next charging.
 - If necessary, clean the upper surface of the batteries (F).
8. Charge the batteries according to the following procedure.

**Figure 12****NOTE**

Charge the batteries when the yellow (I, Figure 12) or red warning light (H) turns on, or when finishing cleaning.

**CAUTION!**

Keeping the batteries charged makes 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.

Battery charging with battery charger installed on the machine

1. Connect the battery charger cable (C, Figure 13) to the electrical mains (A) the electrical mains voltage and frequency must be compatible with the battery charger values shown on the machine serial number plate (41, Figure 2). When the battery charger is connected to the electrical mains, all machine functions are automatically cut off. If the red warning light (E) on the battery charger control panel stays on, the battery charger is charging the batteries.
2. When the green warning light (D) turns on, the battery charging is completed.
3. When the battery charging is completed, disconnect the battery charger cable (C) from the electrical mains (A) and wind it round its housing (B).

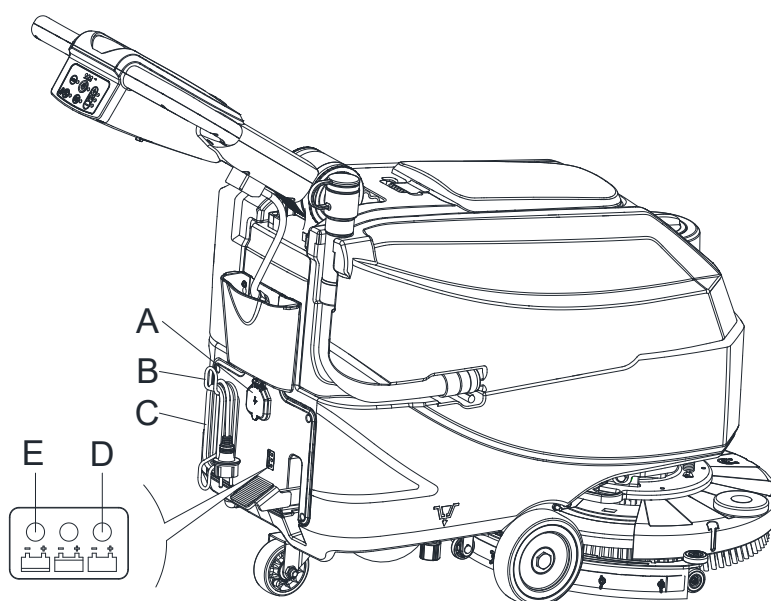


Figure 13

**NOTE**

For further information about the operation of the battery charger, see the relevant Manual.

BRUSH/PAD CLEANING**CAUTION!**

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

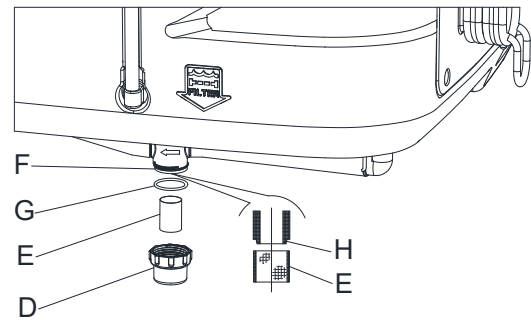
1. Remove the brush/pad from the machine, as shown in the Use chapter.
2. Clean and wash the brush/pad with water and detergent.
3. Check that the brushes/pads are in working condition and not excessively worn; if necessary replace them.

SOLUTION FILTER CLEANING

1. Pushing the machine on a level floor.
2. Ensure that the machine is off.
3. Emptying the solution tank (Advice).
4. Remove the cover (D, Figure 14), 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).

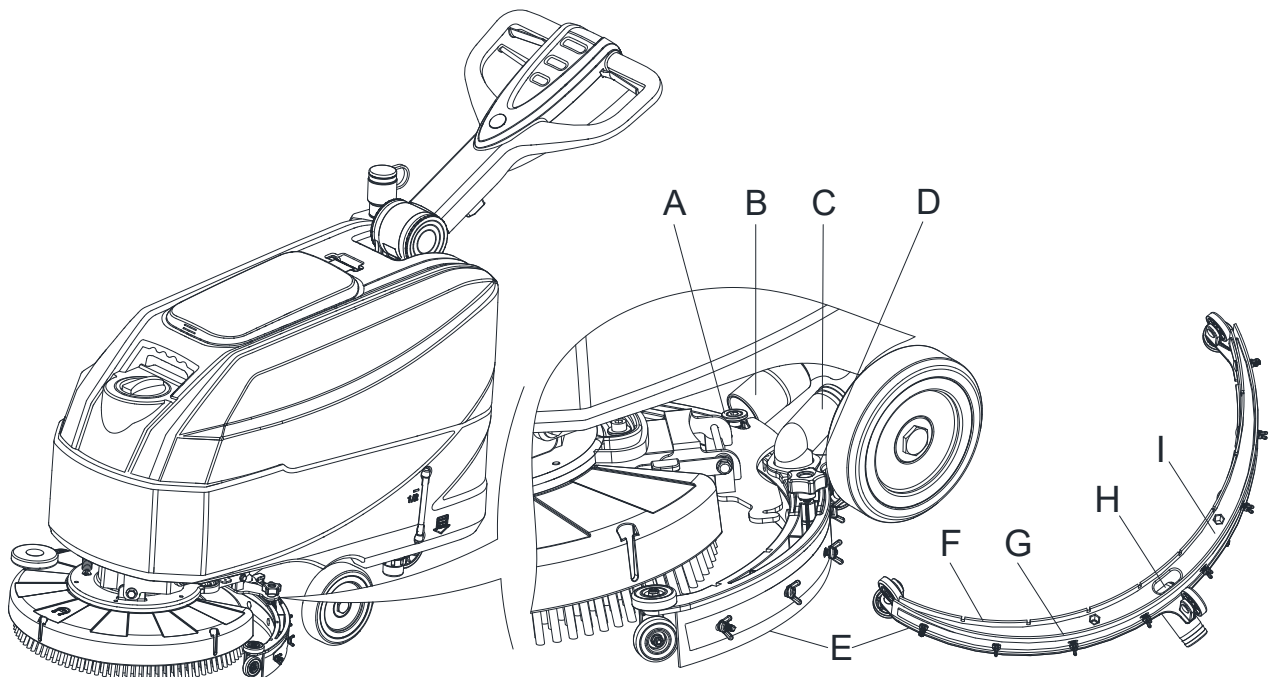
**Figure 14****SQUEEGEE CLEANING****NOTE**

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

**CAUTION!**

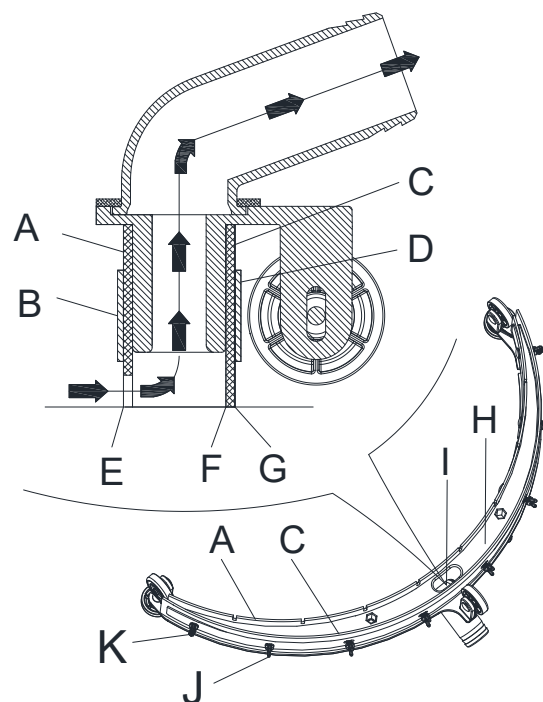
It is advisable to wear protective gloves when cleaning the squeegee because there may be sharp debris.

1. Push the machine to a level floor.
2. Ensure that the machine is off.
3. Lower the brush/pad-holder deck (M, Figure 8) and the squeegee (L) by lifting the pedal (K).
4. Disconnect the vacuum hose (B, Figure 15) from the squeegee (C).
5. Loosen the knobs (D) and remove the squeegee (E).
6. Clean the steel or the plastic squeegee (E, Figure 15). Clean the compartments (I) and the hole (H) especially. Check the front blade (F) and the rear blade (G) 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 15**

SQUEEGEE BLADE CHECK AND REPLACEMENT

1. Clean the steel or the plastic squeegee, as shown in the previous paragraph.
2. Check that the edges (E, Figure 16) of the front blade (A) and the edges (F) of the rear blade (C) lay down on the same level, along their length; if necessary adjust their height according to the following procedure:
 - Loosen the all wing nuts (J) and adjust the front blade (A) and rear blade (C), then tighten the all wing nuts.
3. Check the front blade (A) and rear blade (C) for wear, cuts and tears; if necessary replace them according to the following procedure. Check that the front corner (E) or the rear corner (F) is not worn; if necessary, overturn the blade to replace the worn corner with an integral one. If the other corners are worn too, replace the blade according to the following procedure:
 - Remove the all wing nuts (J) and the screw (K), remove the retaining strip (B), then replace/overturn the front blade (A). Assemble the blade in the reverse order of disassembly.
 - Remove the all wing nuts (J) and the screw (K), remove the retaining strip (D), then replace/overturn the rear blade (C). Assemble the blade in the reverse order of disassembly. After the blade replacement (or overturning), assemble the squeegee as shown in the previous step.
4. Install the squeegee (E, Figure 15) and screw down the knobs (D, Figure 15).
5. Connect the vacuum hose (B, Figure 15) to the squeegee (C, Figure 15)

**Figure 16****TANK AND VACUUM GRID WITH FLOAT CLEANING, AND COVER GASKET CHECK**

1. Push the machine to a level floor.
2. Ensure that the machine is off.
3. Turn the recovery tank lid (A, Figure 17) 90 degrees position where it can be taken off from the recovery tank, and then take out the float ball filter (B) from the recovery tank lid.
4. Clean the recovery tank lid (A), recovery tank (C), clean solution tank (D) and the float ball filter (B). Empty the recovery tank with the drain hose (D, Figure 11).
5. Install the float ball filter (B) and the recovery tank lid (A).
6. Inspect the integrity of the tank sealing strip.

**NOTE**

The tank sealing strip (E) produces the vacuum inside the tank when the vacuum motor works. The tank must be sealed so it can effectively absorb the water from the ground to recovery tank.

7. Check whether the contact surface of sealing strip (E) has integrity and sealing is sufficient. If necessary, take the sealing strip of the tank out of the groove (F) and replace it. Assemble the new sealing strip as shown in (Figure 17), the joint should be back in the middle area.
8. Close the recovery tank lid (A).

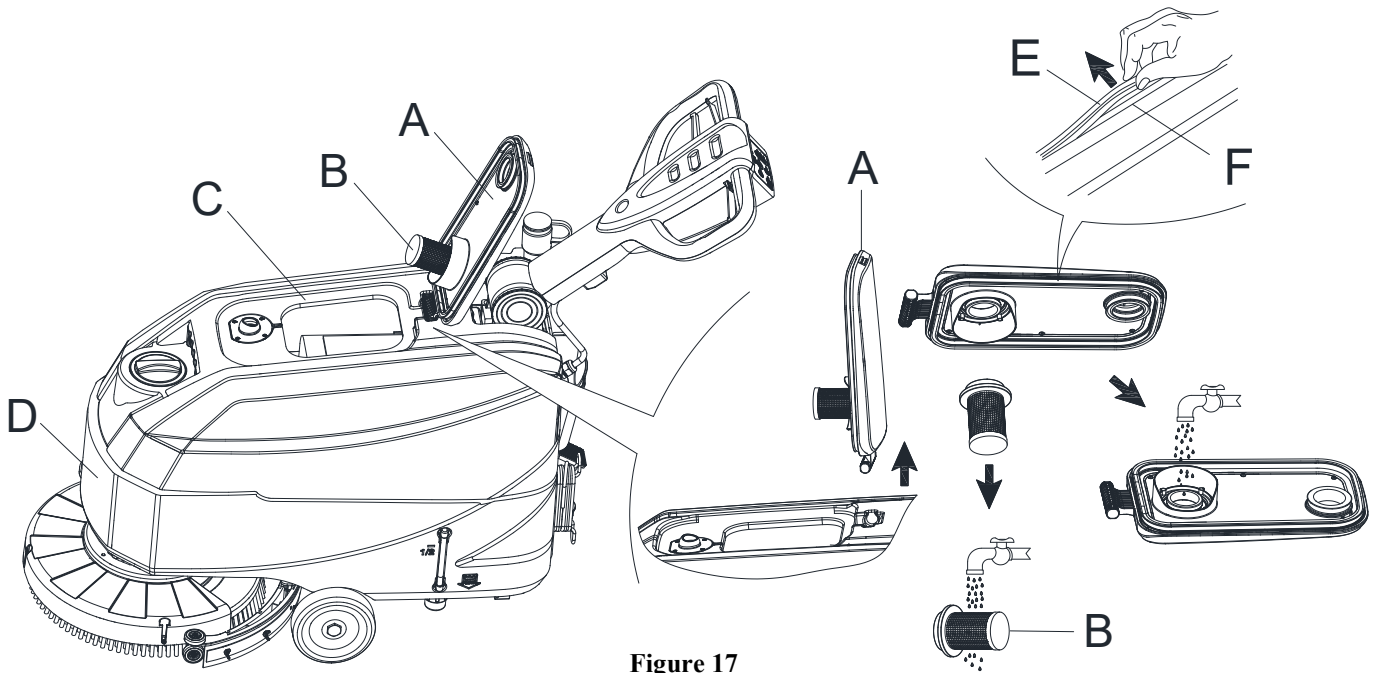


Figure 17

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. GEL/AGM batteries
2. Pads of different materials
3. Brush of different materials
4. On-board charger
5. Squeegee blades of different materials

TROUBLESHOOTING

Trouble	Probable causes	Remedy
The motors do not work; no warning light turns on.	The battery connector is disconnected.	Connect the battery connector.
	The batteries are completely discharged.	Charge the batteries.
Press one-start button S3, Indicator light flashes and power indicator light is on.	Brush motor overload, Vacuum motor overload.	Use less aggressive brushes, check if vacuum motor or brush motor is in working.
	Foreign materials (tangled threads, etc.) which may prevent the brush from rotating.	Clean the brush hub.
The brushes do not work, the red warning light is on.	The batteries are discharged.	Charge the batteries.
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 Bend tube is clogged.	Close the cover correctly or replace the gasket or clean the Bend tube.
	The recovery water tank is dirty.	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.
Power indicator lights are all on.	High battery Voltage.	Choose suitable battery voltage.



NOTE

Machine with battery charger installed, cannot operate if the charger is not on board. In case of battery charger malfunction, contact an authorized Service Center.

For further information refer to the Service Manual, available at any 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	86069 weight percentage%
Aluminium	100%	2%
Electric motors-various	29%	23%
Ferrous materials	100%	32%
Wiring harness	80%	1%
Liquids	100%	0%
Plastic-non-recyclable material	0%	1%
Plastic-recyclable material	100%	38%
Rubber	20%	3%

PARTS LIST

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WHEN ORDERING PARTS

- *Use the part numbers from the "Part. No." columns in this parts list.
- *Specify the model and serial number of the machine.
- *Use the space below to record the model and serial number for future reference.

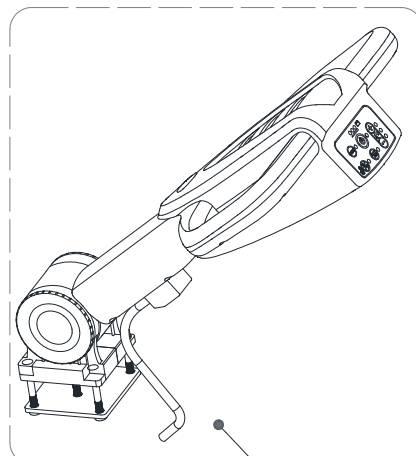
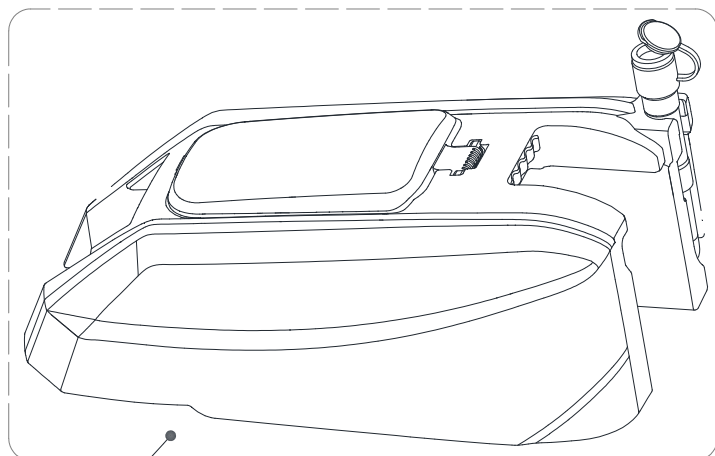
Model

Serial No.

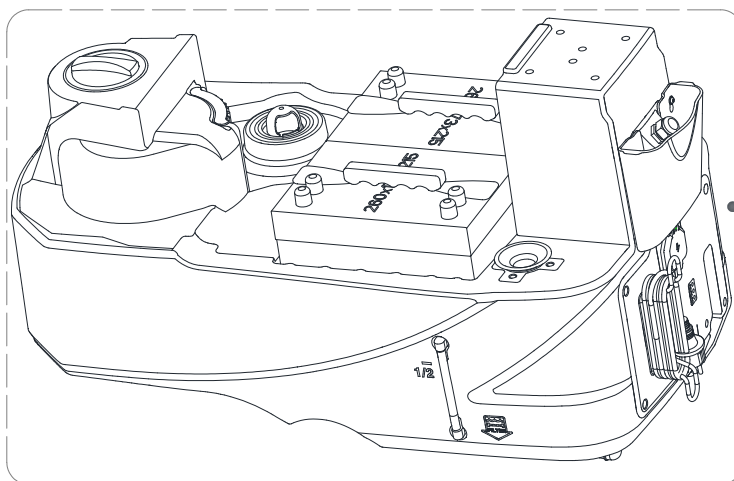
- * = Optional
- # = Modified item No. or New Item No.
- [] = Not shown

PARTS LIST

86069 GENERAL VIEW

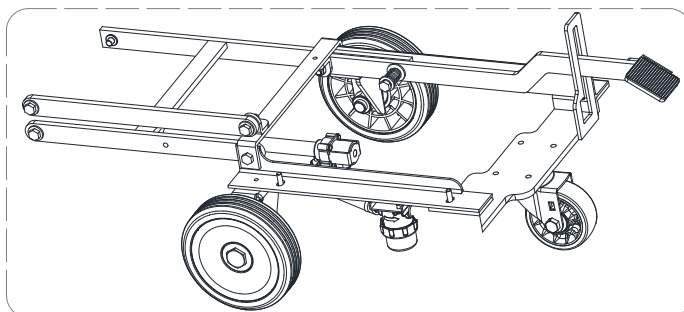


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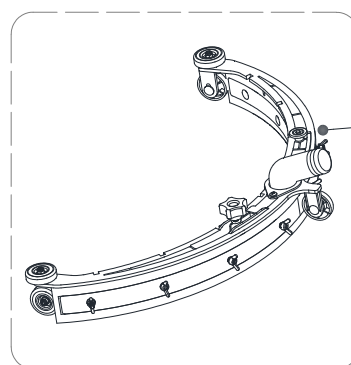
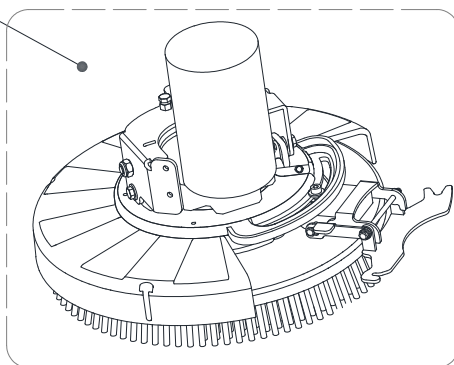
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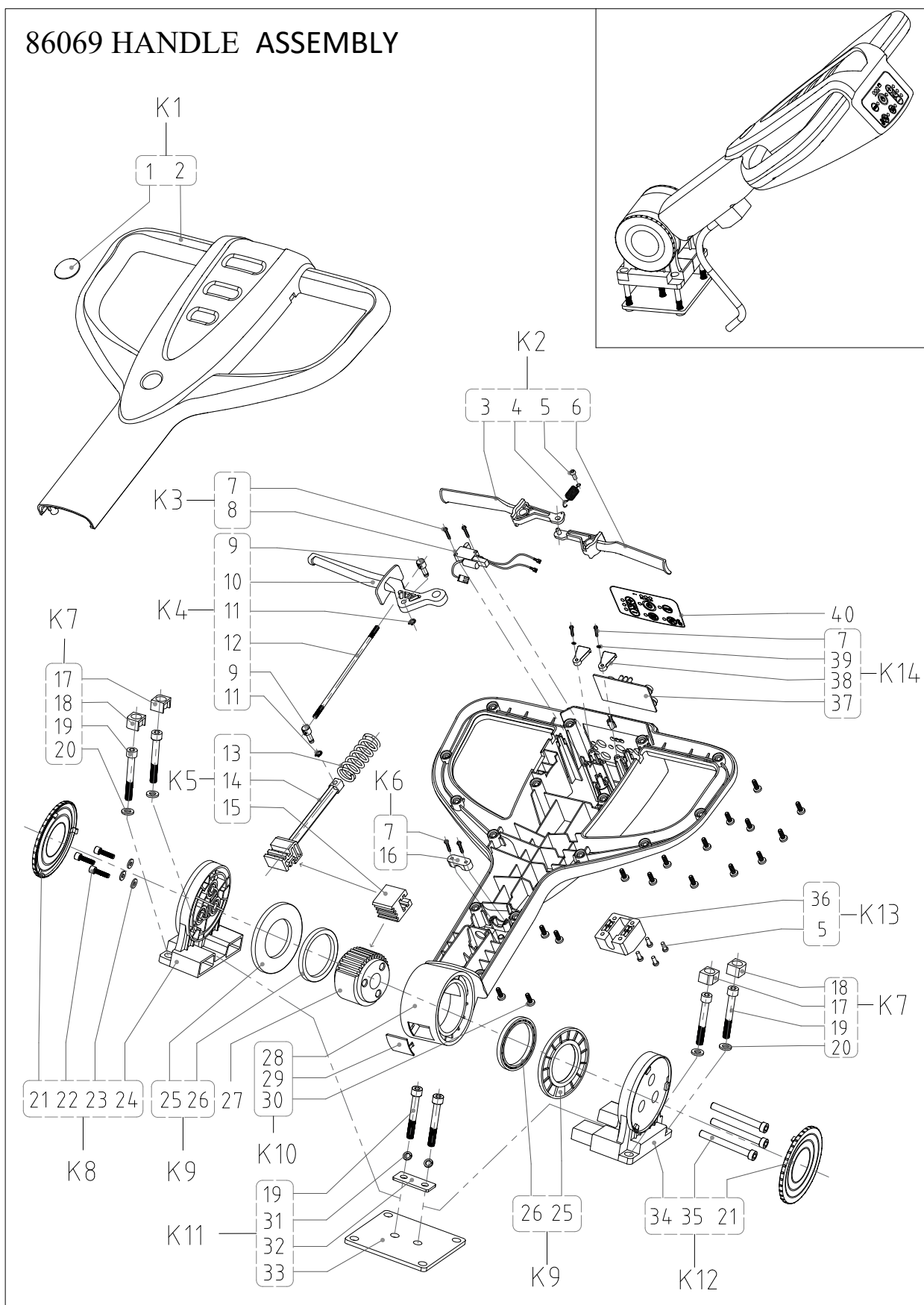
PARTS LIST

GENERAL VIEW

Item	Description	Qty
1	86069 HANDLE ASSEMBLY	1
2	86069 RECOVERY TANK ASSEMBLY	1
3	86069 SOLUTION TANK ASSEMBLY	1
4	86069 CHASSIS ASSEMBLY	1
5	86069 SQUEEGEE ASSEMBLY	1
6	86069 BRUSH ASSEMBLY	1

PARTS LIST

86069 HANDLE ASSEMBLY



PARTS LIST

86069 HANDLE ASSEMBLY

Kit	Item	Part No.	Description	Qty
K1	1		STICKER DROP GLUE	1
K1	2	VS15137	FRONT COVER HANDLE	1
K2	3	VS15132	RIGHT LEVER BRUSH SWITCH	1
K2	4		SPRING	1
K2/K13	5		SCREW ST4X10MM	5
K2	6	VS15131	LEFT LEVER BRUSH SWITCH	1
K3/K6/K14	7		SCREW ST3X16MM	6
K3	8	VV81432	MICRO SWITCH	1
K4	9		FIXING END OF PULLING ROD	2
K4	10	VS15133	ADJUST LEVER HANDLE	1
K4	11		LOCKWASHER	2
K4	12		PULLING ROD	1
K5	13		SPRING COMPRESSION	1
K5	14	VS15135	CONNECTION ROD	1
K5	15	VS15193	RACK	1
K6	16		CLAMP	1
K7	17		RUBBER SLEEVE SCREW ROD EDGE	2
K7	18		RUBBER SLEEVE SCREW ROD	2
K7/K11	19		SCREW ROD M8	6
K7	20		WASHER OD15.7XID8.5XT1.5MM	4
K8/K12	21	VS15142	DECORATION COVER HANDLE	2
K8	22		SCREW M5X20MM	3
K8	23		WASHER ID5XOD12XT1MM	3
K8	24	VS15144	RIGHT FIXING BASE HANDLE	1
K9	25		ANTI ABRATION CIRCLE	2
K9	26		INNER FIXING CIRCLE OF GEAR	2
	27	VS15192	GEAR	1
K10	28	VS15136	REAR COVER HANDLE	1
K10	29	VS15141	SEALING COVER HANDLE	1
K10	30		SCREW PB5X14MM	16
K11	31		WASHER Ø8MM	2
K11	32		CONNECTION PLATE OF FIXING BASE	1
K11	33		FIXING PLATE OF FIXING BASE	1

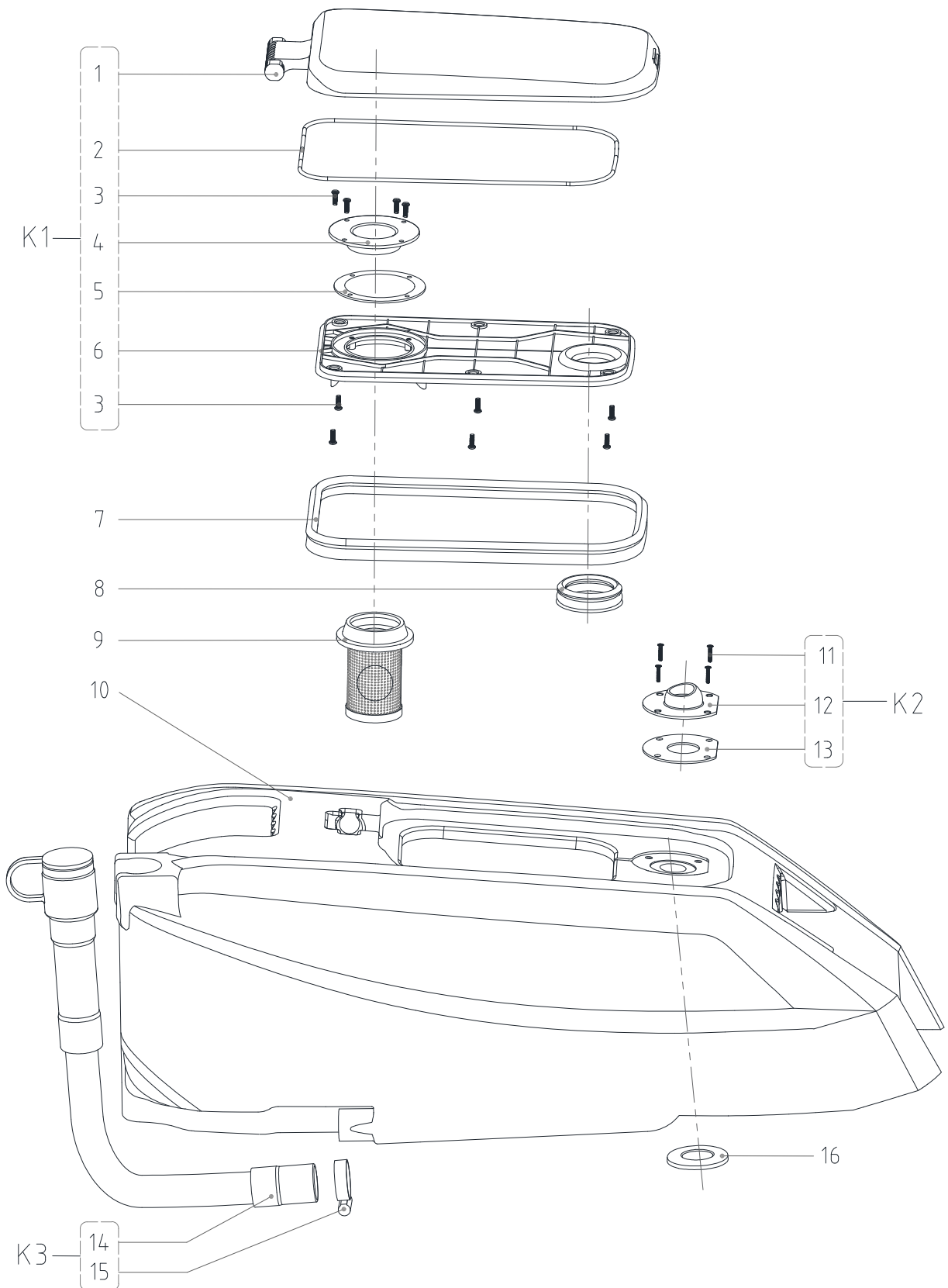
PARTS LIST

86069 HANDLE ASSEMBLY

Kit	Item	Part No.	Description	Qty
K12	34	VS15143	LEFT FIXING BASE HANDLE	1
K12	35		FIXING SCREW ROD OF GEAR	3
K13	36		CABLE FIXING BRACKET	1
K14	37	VS15025	DASH BOARD 24V AGM	1
K14	38		PCB FIXING PLATE	2
K14	39		WASHER	2
	40	VS15216	DECAL CONTROL PANEL BATTERY VERSION	1
	K1	VS15383	FRONT COVER HANDLE KIT	1
	K2	VS15384	LEVER BRUSH SWITCH KIT	1
	K3	VV81063	MICRO SWITCH KIT	1
	K4	VS15385	ADJUST LEVER HANDLE KIT	1
	K5	VS15386	CONNECTION ROD KIT	1
	K6	VA21517A	CLAMP KIT	1
	K7	VS15387	RUBBER SLEEVE SCREW ROD KIT	2
	K8	VS15388	RIGHT FIXING BASE KIT	1
	K9	VS15389	INNER FIXING CIRCLE OF GEAR KIT	2
	K10	VS15390	REAR COVER HANDLE KIT	1
	K11	VS15391	FIXING PLATE OF FIXING BASE KIT	1
	K12	VS15392	LEFT FIXING BASE KIT	1
	K13	VS15393	CABLE FIXING BRACKET KIT	1
	K14	VS15394	DASH BOARD 24V AGM KIT	1

PARTS LIST

86069 RECOVERY TANK ASSEMBLY



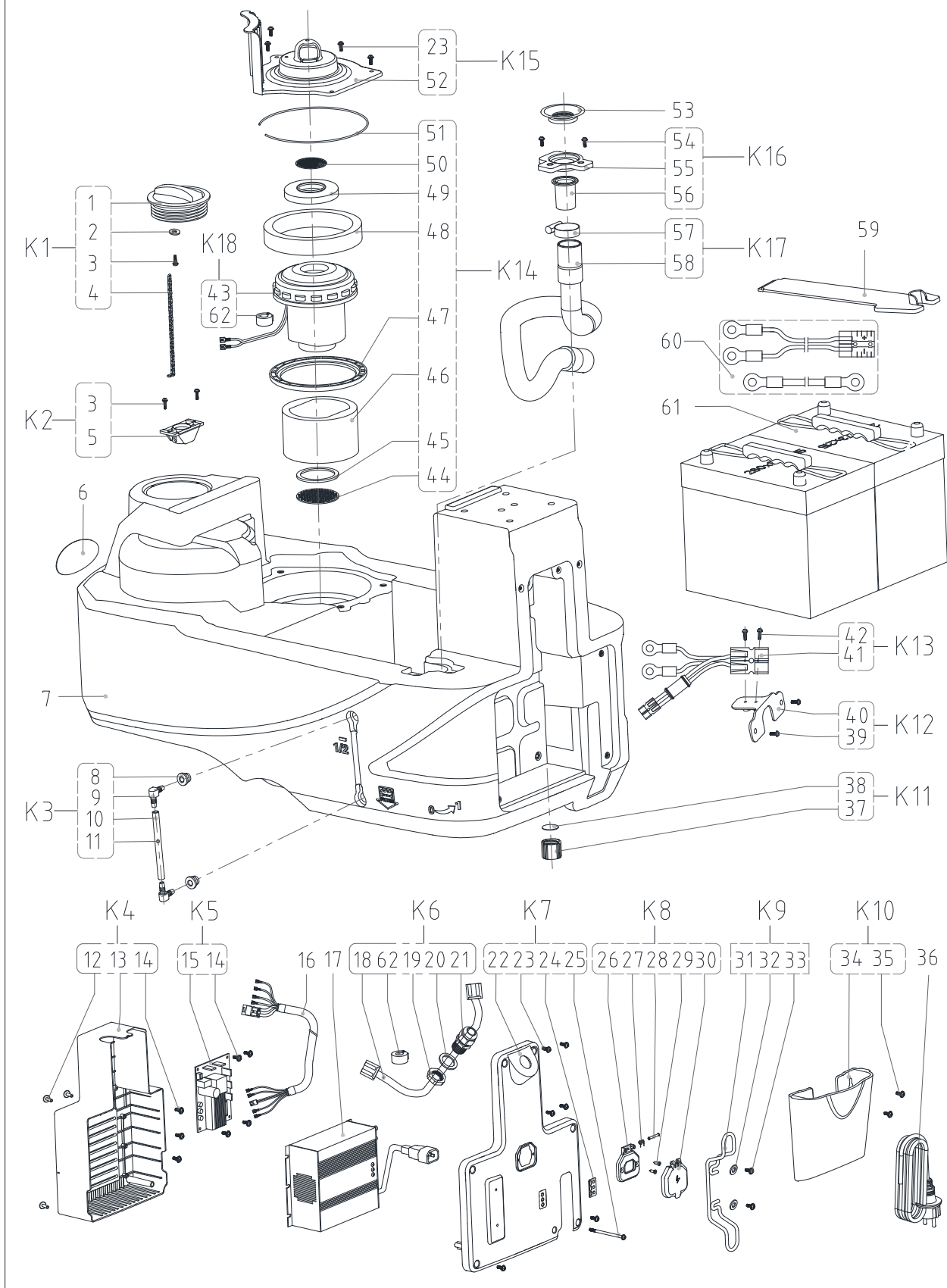
PARTS LIST

86069 RECOVERY TANK ASSEMBLY

Kit	Item	Part No.	Description	Qty
K1	1		RECOVERY TANK LID	1
K1	2		INNER GASKET OF RECOVERY TANK LID	1
K1	3		SCREW ST4X12MM	10
K1	4		FLOAT CUP ADAPTOR	1
K1	5		RUBBER GASKET OF ADAPTOR	1
K1	6		BOTTOM BASE OF RECOVERY TANK LID	1
	7	VS15225	GASKET OF RECOVERY TANK LID	1
	8	VS15226	SUCTION PORT ROUND GASKET	1
	9	VS15323	VACUUM GRID WITH AUTOMATIC SHUT-OFF FLOAT	1
	10	VS15341	RECOVERY TANK 25L DARK GREY	1
K2	11		SCREW M4X12MM	4
K2	12		SUCTION PORT	1
K2	13		SUCTION PORT GASKET	1
K3	14		DRAIN HOSE	1
K3	15	VS15271	CLAMP21-38MM,SUS304	1
	16	VS15320	HIGH ELASTIC GASKET, OD101XID65X8MM,CR30	1
	K1	VS15398	RECOVERY TANK LID ASSEMBL	1
	K2	VS15399	SUCTION PORT KIT	1
	K3	VS15400	DRAIN HOSE KIT	1

PARTS LIST

86069 SOLUTION TANK ASSEMBLY



PARTS LIST

86069 SOLUTION TANK ASSEMBLY

Kit	Item	Part No.	Description	Qty
K1	1		SOLUTION COVER	1
K1	2		WASHER4X12X1MM	1
K1/K2	3		SCREW TA3.5X12MM	3
K1	4		ZIPPER	1
K2	5		INLET PIPE FRAME	1
	6		LOGO LABEL	1
	7	VS15148	SOLUTION TANK 25L DARK GREY	1
K3	8		JOINTS GASKET	2
K3	9		ELBOW, 90°	2
K3	10		HOSE FRESH WATER LEVEL	1
K3	11		FLOATING BALL OF WATER LEVEL	1
K4	12		SCREW PB4.0X12MM	3
K4	13		MOUNTING BASE OF CHARGER	1
K4/K5	14		SCREW PB4.0X10MM	9
K5	15	VS15026	CONTROLLER MAIN MACHINE	1
	16	VS15012	CONNETION WIRE ASSEMBLY	1
	17	VS15018	CHARGER 10A	1
K6	18		COMMUNICATION CABLE	1
K6	19		CABLE STRAIN RELIEF NUT	1
K6	20		GASKET	1
K6	21		CABLE STRAIN RELIEF	1
K7	22		CHARGE REAR COVER	1
K7/ K15	23		SCREW PWM4.0X12MM	10
K7	24	VS15459	CHARGING DISPLAY LABEL	1
K7	25		SCREW M4X70MM	1
K8	26		CHARGER SOCKET FIX	1
K8	27		SPRING	1
K8	28		PIN	1
K8	29		SCREW ST4.0X16MM	2
K8	30		CHARGER SOCKET COVER	1
K9	31		CABLE SUPPORT	1
K9	32		WASHER ID4.0XOD12X1MM	2
K9	33		SCREW ST4.0X16MM	2
K10*	34		BACK ACCESSORY BOX	1

PARTS LIST

86069 SOLUTION TANK ASSEMBLY

Kit	Item	Part No.	Description	Qty
K10*	35		SCREW WITH WASHER	2
	36	VF89724	BATTERY CHARGING CABLE US	1
K11	37		SOLUTION OUTLET COVER	1
K11	38		GASKET	1
K12	39		SCREW M4.0X12MM	2
K12	40		BRACKET CHARGER PLUG	1
K13	41		HARNESS 24V INPUT	1
K13	42		SCREW ST3X16MM	2
K18	43	VS15003	VACUUM MOTOR 24V 350W	1
K14	44		INTLET AIR FILTER GRIM	1
K14	45		INTLET AIR GASKET	1
K14	46		BOTTOM ACOUSTIC INSULATION PIPE	1
K14	47		MIDDLE GASKET	1
K14	48		UP ACOUSTIC INSULATION PIPE	1
K14	49		TOP GASKET MOTOR	1
K14	50		UP INLET AIR FILTER FRIM	1
K14	51		EVA GASKET	1
K15	52		VACUUM MOTOR COVER	1
	53	VS15240	DRAIN HOSE HORN GASKET	1
K16	54		SCREW PM4.0X12MM	2
K16	55		BRACKET SUCTION HOSE	1
K16	56		CONNECTOR SOCKET SUCTION HOSE	1
K17	57	VS15271	CLAMP21-38MM,SUS304	1
K17	58		SUCTION HOSE	1
	59	VS15248	CABLE COVER PLATE	1
	60	VS15009	BATTERY CONNECTIONS	1
	61	VF90223	BATTERIES	2
K6/K18	62		EMIFIL	2
	K1	VS15401	SOLUTION COVER KIT	1

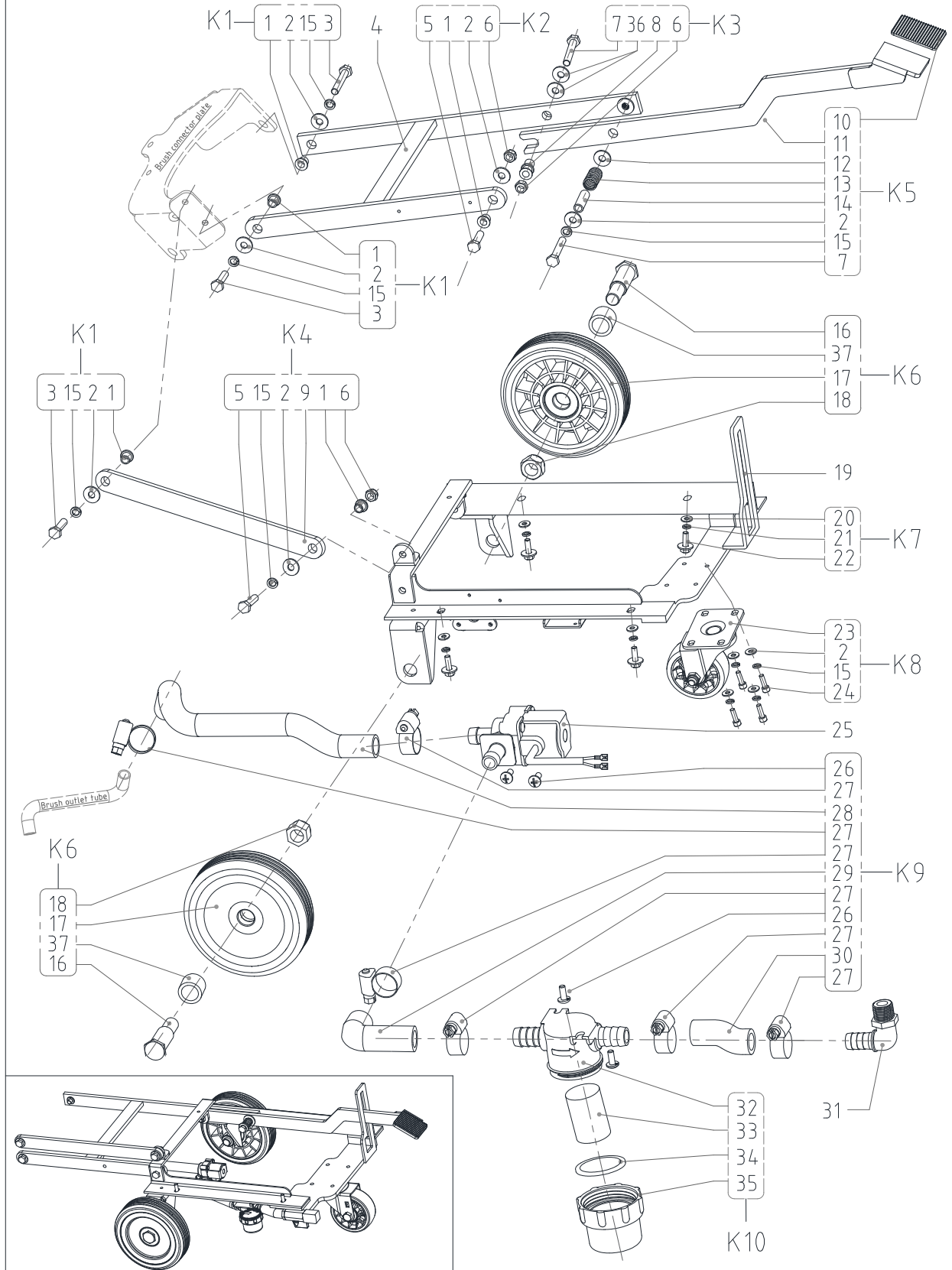
PARTS LIST

86069 SOLUTION TANK ASSEMBLY

Kit	Item	Part No.	Description	Qty
	K2	VS15402	INLET PIPE FRAME KIT	1
	K3	VS15403	HOSE FRESH WATER LEVEL KIT	1
	K4	VS15404	MOUNTING BASE OF CHARGER KIT	1
	K5	VS15405	CONTROLLER MAIN MACHINE KIT	1
	K6	VS15406	MAIN CONNECTION CABLE KIT	1
	K7	VS15407	CHARGE REAR COVER KIT	1
	K8	VS10126	CHARGER SOCKET KIT	1
	K9	VS15408	CABLE SUPPORT KIT	1
	K10*	VS15409	BACK ACCESSORY BOX KIT	1
	K11	VF89110A	SOLUTION OUTLET COVER KIT	1
	K12	VS15410	BRACKET CHARGER PLUG KIT	1
	K13	VS15411	HARNESS 24V INPUT KIT	1
	K14	VS15412	GASKET VACUUM MOTOR KIT	1
	K15	VS15413	VACUUM MOTOR COVER KIT	1
	K16	VS15414	BRACKET SUCTION HOSE KIT	1
	K17	VS15415	SUCTION HOSE KIT	1
	K18	VS15381	VACUUM MOTOR 24V KIT	1

PARTS LIST

86069 CHASSIS ASSEMBLY



PARTS LIST

86069 CHASSIS ASSEMBLY

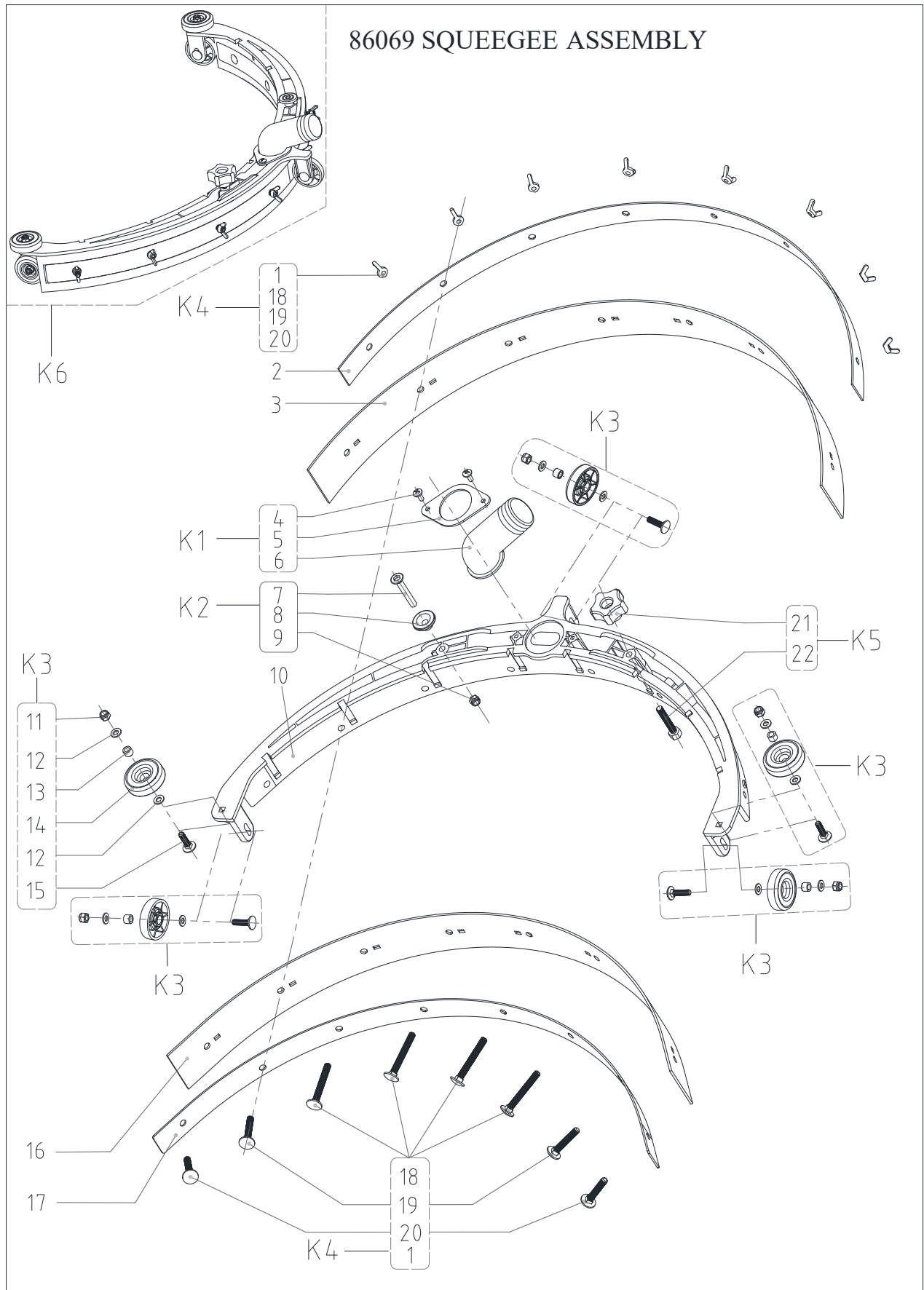
Kit	Item	Part No.	Description	Qty
K1/K2/K4	1		BUSHING	5
K1/K2/ K4/K5/K8	2		WASHER	10
K1	3		SCREW M8X25MM	3
	4	VS15101	BRUSH LIFTING SUPPORT	1
K2/K4	5		SCREW M8X30MM	2
K2/K3/K4	6		NUT M8	3
K3/K5	7		SCREW M8x50MM	2
K3	8		STEPS BUSHING	1
K4	9	VS15102	FRONT PEDAL BRUSH LIFTING	1
K5	10	VS10613	PEDAL LEVER GASKET	1
K5	11	VS15103	BACK PEDAL BRUSH AND SQUEEGEE LIFTING	1
K5	12		WASHER Ø12X Ø24X2MM	1
K5	13		RESET SPRING	1
K5	14		BUSHING	1
K1/K4/K5/K8	15		WASHER DIAMETER 8MM	9
K6	16		WHEEL SHAFT	2
K6	17	VS15430	WHEEL 6 INCH	2
K6	18		NUT M16	2
	19	VS15100	CHASSIS	1
K7	20		SPRING WASHER	4
K7	21		WASHER DIAMETER 6MM	4
K7	22		SCREW M6X25MM	4
K8	23	VS15327	3.5 INCH CASTER	1
K8	24		SCREW M8X20MM	4
	25	VS15021	24V DC SOLENOID VALVE	1
K9	26		SCREW M4X10MM	4
K9	27	VV10114	CLAMP 3/8"	6
K9	28		HOSE Ø 20MM L400mm	1
K9	29		HOSE WITH SPRING L130mm	1
K9	30		OULET HOSE Ø20MM	1
	31	VF81403P	ELBOW 90 PLASTIC	1
K10	32		FILTER BASE	1
K10	33	VF90608	FILTER NET	1
K10	34	VF90607	O-RING	1

PARTS LIST

86069 CHASSIS ASSEMBLY

Kit	Item	Part No.	Description	Qty
K10	35	VF90603	FILTER COVER	1
K2	36		PA WASHER	2
K6	37		BUSHING1	2
	K1	VS15422	SCREW KIT 1	3
	K2	VS15423	SCREW KIT 2	1
	K3	VS15424	FORNT PEDAL BRUSH LIFTING SCREW KIT	1
	K4	VS15425	SCREW KIT 3	1
	K5	VS15426	BACK PEDAL BRUSH LIFTING KIT	1
	K6	VS15427	WHEEL 6 INCH KIT	2
	K7	VS15428	SCREW KIT 4	1
	K8	VS15429	3.5 INCH CASTER KIT	1
	K9	VS15433	SOLUTION HOSE KIT	1
	K10	VF90621	FILTER KIT	1

PARTS LIST



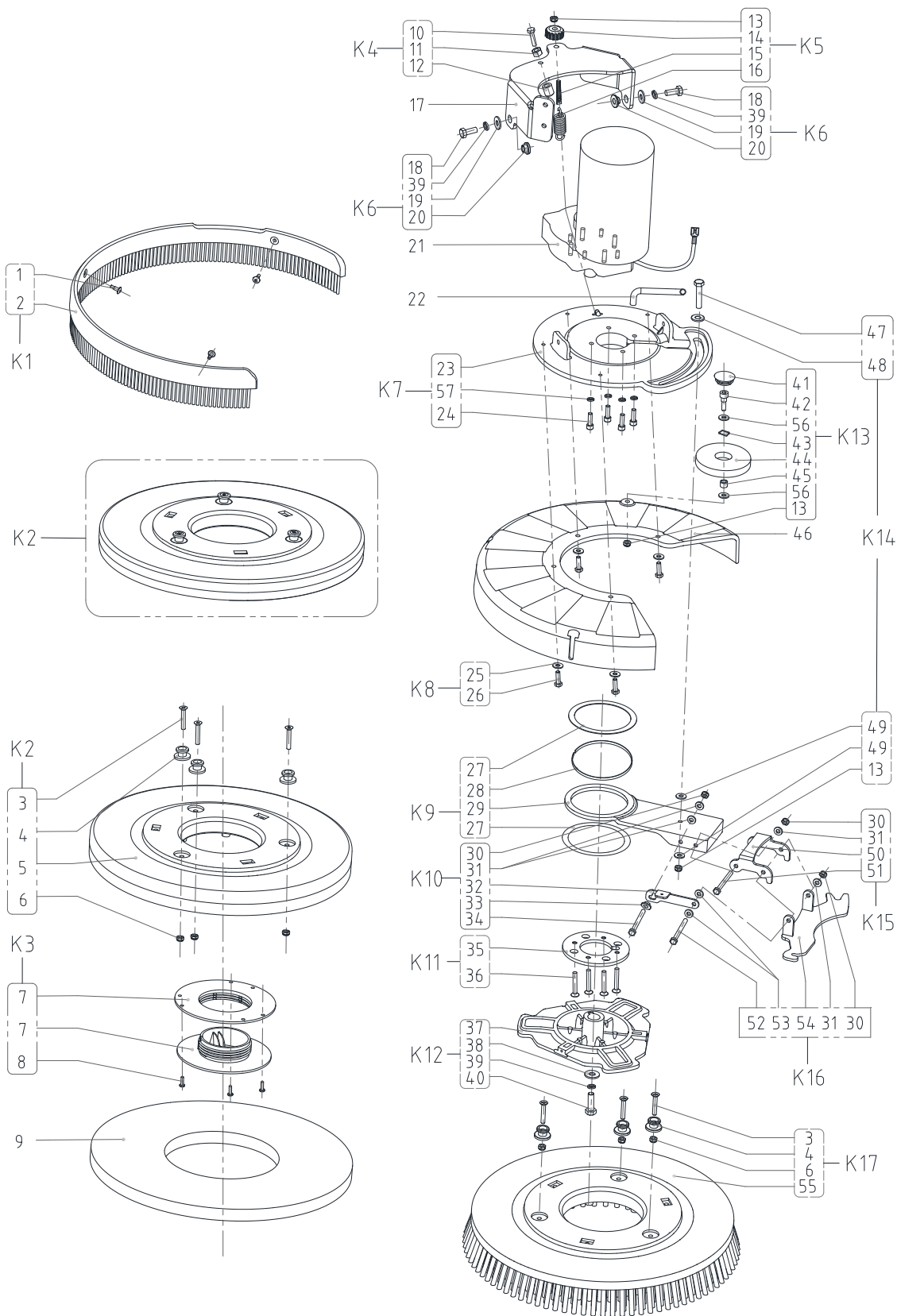
PARTS LIST

86069 SQUEEGEE ASSEMBLY

Kit	Item	Part No.	Description	Qty
K4	1	VS15267	WING NUT M5	8
	2	VS15109	SQUEEGEE REAR STRAP	1
	3a	VS15204	BLADE REAR NATURAL RUBBER	1
	3b*	VS15205	BLADE REAR PU	1
K1	4		SCREW TM4X12MM	2
K1	5		RETAINER	1
K1	6	VS15160	BEND CONNECTOR	1
K2	7		SCREW M6X40MM	1
K2	8		STUD	1
	9		NUT M6	1
	10	VS15252	SQUEEGEE TOOL	1
K3	11		NUT M5	5
K3	12		WASHER OD14.7XID5.5XT1.2MM	10
K3	13		SPACER	5
K3	14	VS15158	SQUEEGEE WHEEL	5
K3	15		SCREW M5X20MM	5
	16a	VS15201	BLADE FRONT NATURAL RUBBER	1
	16b*	VS15202	BLADE FRONT PU	1
	17	VS15108	SQUEEGEE FRONT STRAP	1
K4	18		SCREW M5X40MM	4
K4	19		SCREW M5X30MM	2
K4	20		SCREW M5X25MM	2
K5	21	VS15159	SQUEEGEE KNOB	1
K5	22		SCREW M6X40MM	1
	K1	VS15434	BEND CONNECTOR KIT	1
	K2	VS15435	STUD KIT	1
	K3	VS15436	SQUEEGEE WHEEL KIT	5
	K4	VS15437	SQUEEGEE SCREW KIT	1
	K5	VS15438	SQUEEGEE KNOB KIT	1
	K6	VS15373	SQUEEGEE ASSEMBLY	1

PARTS LIST

86069 BRUSH ASSEMBLY



PARTS LIST

86069 BRUSH ASSEMBLY

Kit	Item	Part No.	Description	Qty
K1	1		SCREW M4	3
K1	2		SKIRT DECK	1
K2/K17	3		SCREW M6X40MM	6
K2/K17	4	VS15332	STUD	6
K2	5		PAD HOLDER 17 INCH	1
K2/K17	6		NUT M6	6
K3*	7*	VF99003A	RETAINER PAD	1
K3*	8*	VA13477	SCREW ST4X15MM	3
	9*		PAD 17 INCH	1
K4	10		SCREW M8X40MM	1
K4	11		NUT M8	1
K4	12	VF80241	PLASTIC REGULATING FULCRUM	1
K5/K13/K14	13		NUT M6	3
K5	14	VP11007	STRAIGHT MOVING ADJUSTING KNOB	1
K5	15		SCREW	1
K5	16		SPRING	1
	17	VS15104	BRACKET BRUSH MOTOR	1
K6	18		SCREW M8X25MM	2
K6	19		WASHER ID8XOD20XT2MM	2
K6	20		SPACER	2
	21	VS15032	BRUSH MOTOR 24V DC ASSEMBLY	1
	22	VS15111	INLET TUBE	1
K7	23		MOTOR FIXING PLATE	1
K7	24		SCREW M6X20MM	4
K8	25		WASHER ID6XOD15XT1.5MM	4
K8	26		SCREW M6X20MM	4
K9	27	VS15154	WEAR RESISTANT WASHER	2
K9	28	VS15329	ROTATION CIRCLE	1
K9	29	VS15155	SQUEEGEE ROTATION ARM	1
K10/K15/K16	30		NUT M5	3
K10/K15/K16	31		WASHER ID5XOD10XT1.0MM	4
K10	32	VS15112	LIFTING HANDLE FOR SQUEEGEE	1
K10	33		SPACER	1

PARTS LIST

86069 BRUSH ASSEMBLY

Kit	Item	Part No.	Description	Qty
K10	34		SCREW Ø 6XM5X104mm	1
K11	35		SQUEEGEE TRAY	1
K11	36		SCREW M6X16MM	4
K12	37	VS15253	HUB BRUSH GEAR MOTOR	1
K12	38		WASHER ID8.4XOD28XT2MM	1
K6/K12	39		WASHER DIAMETER 8mm	3
K12	40		SCREW M8X16MM	1
K13	41	VF85128	CAP. BLACK	1
K13	42		SCREW M6X25MM	1
K13	43		LOCKWASHER	1
K13	44		ROLLER BUMPER	1
K13	45		SPACER	1
	46	VS15156	BRUSH DECK	1
K14	47		SCREW	1
K14	48		WASHER	1
K14	49		WASHER ID6XOD22X1.5MM	2
K15	50	VS15105	SQUEEGEE CONNECTION FRAME	1
K15	51		SCREW Ø 6XM5X96.5MM	1
K16	52		SCREW Ø 6XM5X114MM	1
K16	53		WASHER ID6XOD13X2MM	2
K16	54	VS15106	SQUEEGEE BRACKET	1
K17	55		BRUSH DISC PPL Ø0.7 BLACK 17IN	1
K17*	55*		BRUSH DISC GRIT 180 GRAY 17IN	1
K13	56		WASHER ID6XOD18XT1.5MM	2
K7	57		WASHER DIAMETER 6MM	4
	K1	VS15439	SKIRT BRISTLE KIT	1
	K2	VS15440	PAD HOLDER 17IN NO RETAINER KIT	1
	K3*	VS15441	RETAINER PAD KIT	1
	K4	VS15442	REGULATING FULCRUM KIT	1
	K5	VS15443	DECK ADJUSTING KNOB KIT	1
	K6	VS15444	SCREW KIT1	2
	K7	VS15445	MOTOR FIXING PLATE KIT	1
	K8	VS15446	SCREW KIT2	1

PARTS LIST

86069 BRUSH ASSEMBLY

Kit	Item	Part No.	Description	Qty
	K9	VS15447	SQUEEGEE ROTATION ARM KIT	1
	K10	VS15448	LIFTING HANDLE FOR SQUEEGEE KIT	1
	K11	VS15449	SQUEEGEE TRAY KIT	1
	K12	VS15450	HUB BRUSH R.GEARMOTOR RIGHT KIT	1
	K13	VS15455	ROLLER BUMPER KIT	1
	K14	VS15451	SCREW KIT3	1
	K15	VS15452	SQUEEGEE CONNECTION FRAME KIT	1
	K16	VS15453	SQUEEGEE BRACKET KIT	1
	K17	VS15374	BRUSH DISC PPL Ø0.7 BLACK 17IN KIT	1
	K17*	VS15338	BRUSH DISC GRIT 180 GRAY 17IN KIT	1

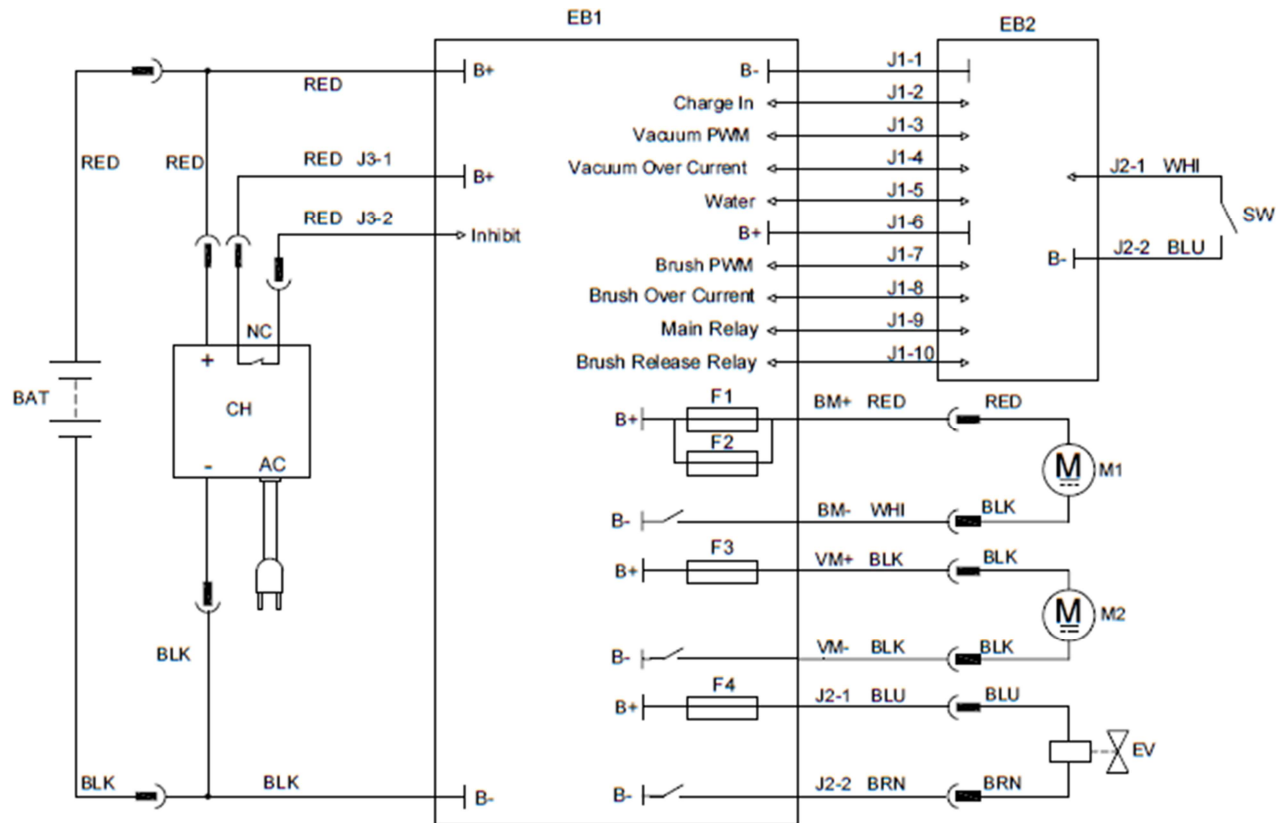
PARTS LIST

WEAR AND TEAR PARTS

Kit	Item	Part No.	Description	Qty
	1	VS15132	RIGHT LEVER BRUSH SWITCH	1
	2	VS15131	LEFT LEVER BRUSH SWITCH	1
	3	VV81432	MICRO SWITCH	1
	4	VS15133	ADJUST LEVER HANDLE	1
	5	VS15192	GEAR	1
	6	VS15025	DASH BOARD 24V AGM	1
	7	VS15386	CONNECTION ROD KIT	1
	8	VS15225	GASKET OF RECOVERY TANK LID	1
	9	VS15323	VACUUM GRID WITH AUTOMATIC SHUT-OFF FLOAT	1
	10	VS15400	DRAIN HOSE KIT	1
	11	VS15026	CONTROLLER MAIN MACHINE	1
	12	VS15018	CHARGER 10A	1
	13	VF89724	BATTERY CHARGING CABLE US	1
	14	VS15003	VACUUM MOTOR 24V 350W	1
	15	VS15403	HOSE FRESH WATER LEVEL KIT	1
	16	VF89110A	SOLUTION OUTLET COVER KIT	1
	17	VS15415	SUCTION HOSE KIT	1
	#18	VS15430	WHEEL 6 INCH	1
	19	VS15327	3.5 INCH CASTER	1
	20	VS15021	24V DC SOLENOID VALVE	1
	21	VF90621	FILTER KIT	1
	22	VS15204	BLADE REAR NATURAL RUBBER	1
	23	VS15160	BEND CONNECTOR	1
	24	VS15201	BLADE FRONT NATURAL RUBBER	1
	25	VS15159	SQUEEGEE KNOB	1
	26	VS15436	SQUEEGEE WHEEL KIT	5
	27	VS15437	SQUEEGEE SCREW KIT	1
	28	VS15253	HUB BRUSH GEAR MOTOR	1
	29	VS15032	BRUSH MOTOR 24V DC ASSEMBLY	1

PARTS LIST

86069 WIRING DIAGRAM



AS4325B WIRING DIAGRAM

Kit	Item	Part No.	Description	Qty
	BAT	VF90223	BATTERIES 12V 85AH/20H	2
	CH	VS15018	CHARGER 100-240V 50/60HZ 24V 10A AGM	1
	EB1	VS15026	CONTROLLER MAIN MACHINE	1
	EB2	VS15025	DASH BOARD 24V AGM	1
	M1	VS15032	BRUSH MOTOR 24VDC 400W	1
	M2	VS15003	MOTOR VACUUM 24V 300W	1
	EV	VS15021	SOLENOID VALVE 24V DC	1
	SW	VV81432	MICRO SWITCH	1