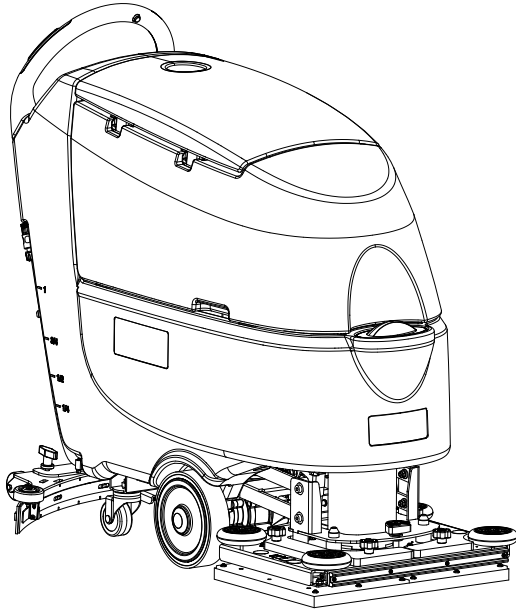
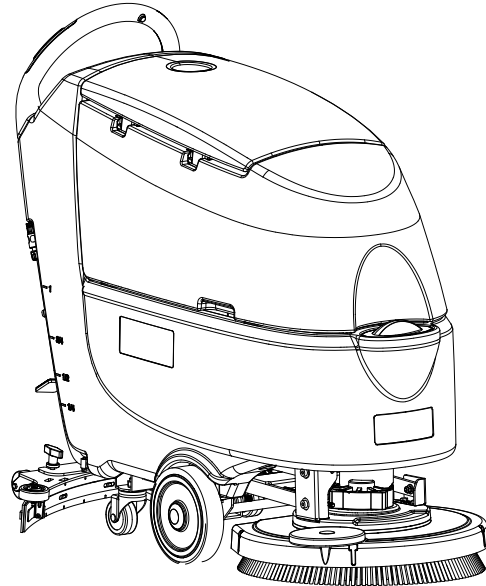


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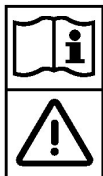
CA60 20B/CA60 24B



CA60 20D/CA60 20TD



Instructions For Use - Original Instructions / Instrucciones de uso / Mode d'emploi



READ THIS BOOK
LEA ESTE MANUAL
LISEZ CE MANUEL

EN English (1-24)
ES Español (25-48)
FR Français (49-72)

This book has important information for the use and safe operation of this machine. Failure to read this book prior to operating or attempting any service or maintenance procedure to your Clarke machine could result in injury to you or to other personnel; damage to the machine or to other property could occur as well. You must have training in the operation of this machine before using it. If your operator(s) cannot read this manual, have it explained fully before attempting to operate this machine.

All directions given in this book are as seen from the operator's position at the rear of the machine.

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INTRODUCTION



NOTE

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

MANUAL CONTENT AND PURPOSE

The purpose of this Instruction for Use Manual is to provide the operator with necessary information to use the machine properly and safely. It contains information about technical data, safety, operation, storage, maintenance, spare parts and how to scrap it.

Before performing any procedure on the machine, no matter the operators and qualified technicians must read this Manual carefully. Contact our company service center for any query about this manual or for any further information is needed.

The operators must not perform procedures that should be done by qualified technicians. Our company will not be answerable for damages coming from the non-observance of this prohibition.

HOW TO KEEP THIS MANUAL

The Manual 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 performed by qualified personnel, or by our company appointed service center. ONLY authorized spare parts and accessories should be used.

Contact our company customer service for any service or purchase of accessories or spare parts if necessary.

CHANGE AND IMPROVEMENT

We committed to continuous improvement of its products, the company reserves the right to the machine changes and improvements without informing in additional.

SCOPE OF APPLICATION

The scrubber applies to commercial and industrial use. It is suitable for cleaning smooth and solid floor, operating by a qualified personnel in safety circumstance. It is not suitable for outdoor use or 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 damaged, make the carrier know the damage and before accepting the goods, reserve the right in compensation of the damage.

Follow the instructions on packing strictly when unpacking the machine.

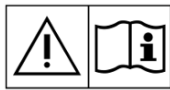
Check the package to ensure following items are included:

1. Technical documentations including Quick Start Guide manual, on-board charger manual if on-board charger is equipped.
2. Charger cable if on-board charger is equipped.
3. Two fuses, the low power circuit fuse (5A) and the Brush release fuse (20A/5A).

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 specification.

SYMBOLS THAT APPEAR ON THE INSTRUCTION FOR USE MANUAL



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 vapor. This machine is not suitable for collecting dangerous powders.
- Do not wear jewels 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 naked flames.

**WARNING!**

- Check the machine carefully before each use. Ensure that all the components have been well assembled before use. Or it may causes damages 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 let the cable through a closed door, or winding on sharp edges or corners. Do not run the machine on 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 both 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 as specification show.
- When using and handling floor cleaning detergents, follow the instructions on the labels of the detergent bottles and wear suitable gloves and protections.
- 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, jewels 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 ordinary maintenance instructions scrupulously.
- 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 seriously 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, because 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 a proper lighting is provided.**
- **This machine is not intended for use by persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the machine by a person responsible for their safety.**
- **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.**

MACHINE DESCRIPTION

MACHINE STRUCTURE (as shown in Figure 1)

- | | |
|--|-------------------------------|
| 1. Recovery tank lid | 20. Brush/pad-holder |
| 2. Can holder | 21. Brush/pad-holder deck |
| 3. Handlebar | 22. Recovery water drain hose |
| 4. Control panel | 23. Solution tank |
| 5. Squeegee lifting/lowering lever | 24. Hinge |
| 6. Garden coupling | 25. Recovery tank |
| 7. Power supply cable holder | 26. Filter support |
| 8. Power cable | 27. Filler hose holder |
| 9. Solution drain and level check hose | 28. Filter cover |
| 10. Deck lifting/lowering pedal(only for disc machine) | 29. Baseboard cleaner(*) |
| a) Pedal position when deck is lifted | 30. Tank cover gasket |
| b) Pedal position when deck is lowered | 31. Debris collection box |
| 11. Squeegee knobs | 32. Splash guard 510mm |
| 12. Serial number plate/technical data | 33. Float ball filter |
| 13. Squeegee vacuum hose | 34. Mop and trash kit (*) |
| 14. Squeegee | 35. Solenoid valve |
| 15. Squeegee balance adjusting knob | |
| 16. Solution/clean water tap | |
| 17. Rear steering wheels | |
| 18. Solution filter | |
| 19. Front wheels on fixed axle (A). | |
| Driving wheels (B) | |

(*): Optional
 (A): Only for disc machine without traction
 (B): Only for disc machine with traction

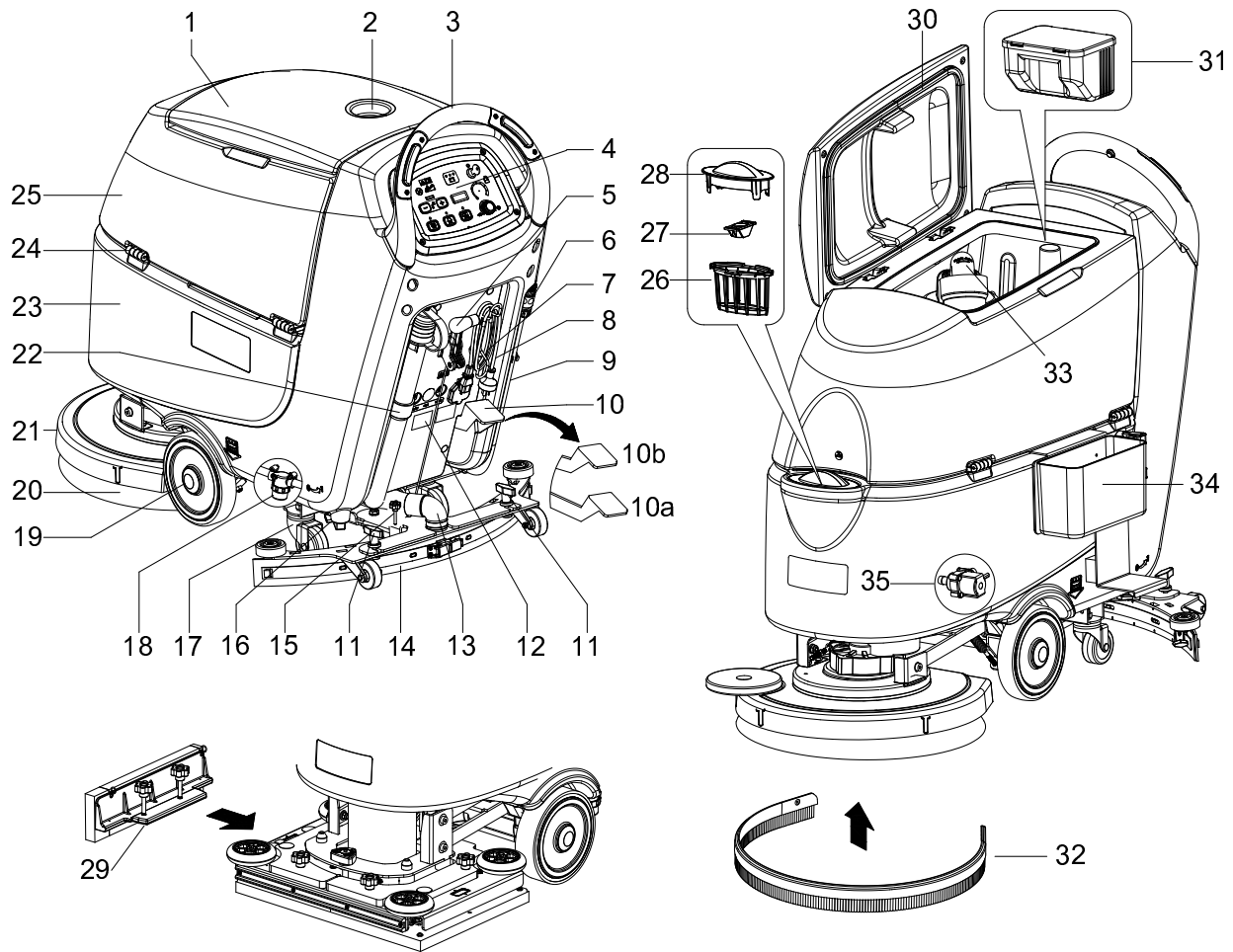


Figure 1

CONTROL PANEL (as shown in Figure 2)

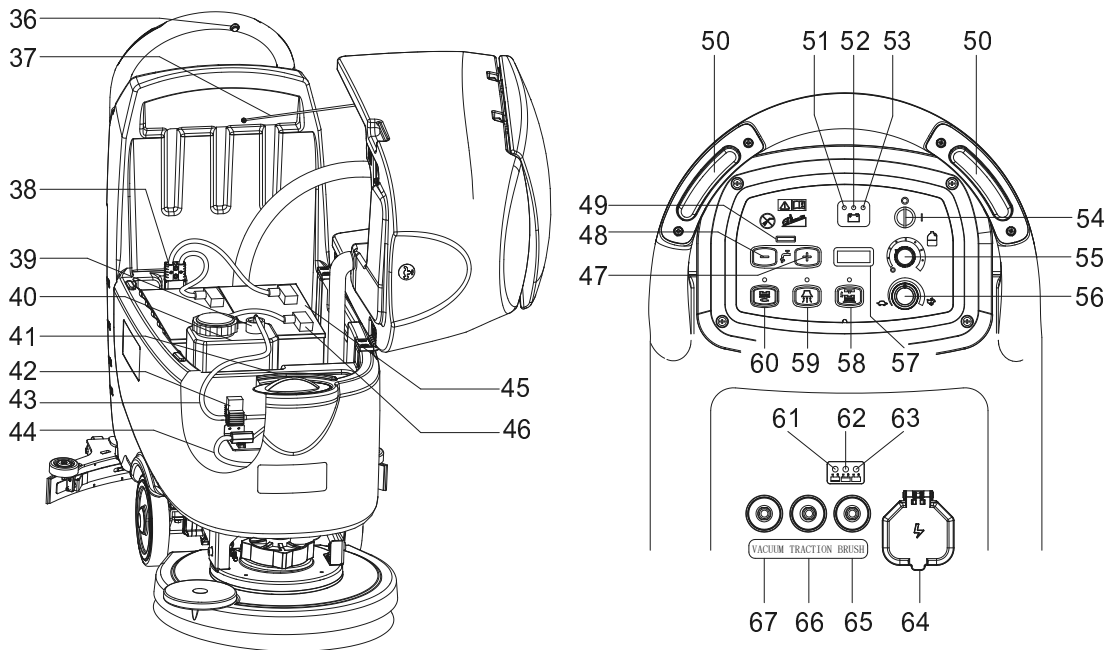
- 36. Machine backward switch (B)
- 37. Tank safety cable
- 38. Battery connector (red).
- 39. Detergent tank filler plug (**)
- 40. Detergent tank (**)
- 41. Reference table for detergent proportioning (**)
- 42. Detergent pump (**)
- 43. Detergent tank - pump connecting hose (**)
- 44. Detergent feed hose (**)
- 45. Batteries
- 46. Battery caps
- 47. Flow increase switch
- 48. Flow decrease switch
- 49. Solution flow indicator
- 50. Safe switch
- 51. Discharged battery warning light (red)
- 52. Semi-discharged battery warning light (yellow)
- 53. Charged battery warning light (green)
- 54. Ignition key (0 - I)
- 55. Detergent flow control knob (**)
- 56. Speed adjuster (B)
- 57. Hour meter
- 58. • Brush/pad-holder release switch(only for disc machine)
•Extra pressure active(only for orbital machine)
- 59. Vacuum system switch
- 60. • Brush/pad-holder and vacuum system switch(only for disc machine)
• Pad deck moving up/down and Brush/pad-holder and vacuum system switch(only for orbital machine)
- 61. Charging red LED
- 62. Charging yellow LED
- 63. Charging green LED
- 64. Security cover of charging jack
- 65. Overload protector of brush/pad
- 66. Overload protector of traction (B)
- 67. Overload protector of vacuum

(*): Optional

(**): Only for machines with Chemical Mixing System (optional)

(A): Only for machine without traction

(B): Only for machine with traction

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

1. At the beginning of charging, the red LED (61) of charger normally on. It is the first stage of charging.
2. After charging some time, the red LED (61) turns off, the yellow LED (62) turns on, this is the second stage of charging.
3. After charging finish, the yellow LED (62) off, the green LED (63) turns on to indicate that the battery is fully charged.

**NOTE**

When charging, if the yellow LED (62) of charger is on, 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.

TECHNICAL PARAMETERS

MODEL	Units	CA60 24B	CA60 20B	CA60 20D	CA60 20TD
Packing dimensions (Lx W x H)	mm	1370x700x1300	1370x600x1300		
Machine height	mm	1080			
Machine length	mm	1260			
Machine width (without squeegee)	mm	650	550		
Machine weight with empty tanks (without batteries)	Kg	124	122	91	97
Gross vehicle weight (GVW)	Kg	243	241	208	214
Shipping weight	Kg	170	154	121	127
Solution tank capacity	Liter	61			
Recovery tank capacity	Liter	61			
Vacuum motor power	Watt	350			
Vacuum capacity	mm H ₂ O	1200			
Climbing capacity (Max)	%	2%			
Front wheel diameter	mm	200			
Rear wheel diameter	mm	76			
Sound level	dB(A)	69±3			
Solution/ Flow(Max)	Liter/ Min	(0.7) (1.2) (1.7) (2.2)			
Working width	mm	610	510	530	
Squeegee width	mm	760			
Brush/pad diameter	mm	610X360	510X360	530/508	
Brush motor power	Watt	750		450	
Brush speed	Rpm	2200		150	
Brush/pad pressure(Max)	Kg	40-50		27	23
Drive motor power	Watt	250		/	150
Working speed	Km/h	0-3.2		/	0-4
Forward speed	Km/h	0-4		/	0-4
Reverse speed	Km/h	0-2		/	0-2
Handle Vibration Level(Max)	m/S ²	2.5		2.5	
Voltage	V	24V			
Battery(Optional)	Ah	105/130 WET, 105/140 AGM C20			
Battery charger	V/A	24V/13A			
Battery compartment size (L x W x H)	mm	350X350X300			

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 (38) and the battery charger plug (8). 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).

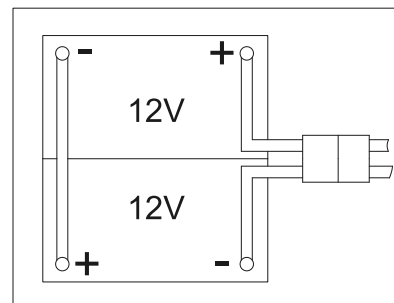


Figure 3

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 (38).
2. Insert the ignition key (54) and turn it to "I". If the green warning light (53) turns on, the batteries are fully charged. If the yellow (52) or red warning light (51) 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 TYPE SETTING (WET OR GEL/ AGM)

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

**NOTE**

Regarding the factory setting, learn the battery type from boot time display according to above table

1. Press both the buttons (A, Figure. 4) and (B) at the same time, Insert the ignition key (D) and turn on the power, after 0.5 second, enter battery setting mode. LED display during setting(C),Release the buttons.
2. The mode can be shift from 0 to 5 by pressing button (B), or shift from 5 to 0 by pressing button (A). After the battery mode setting is completed, turn off the power (D) and the new setting of battery mode can be saved automatically.
3. The battery type setting is completed.

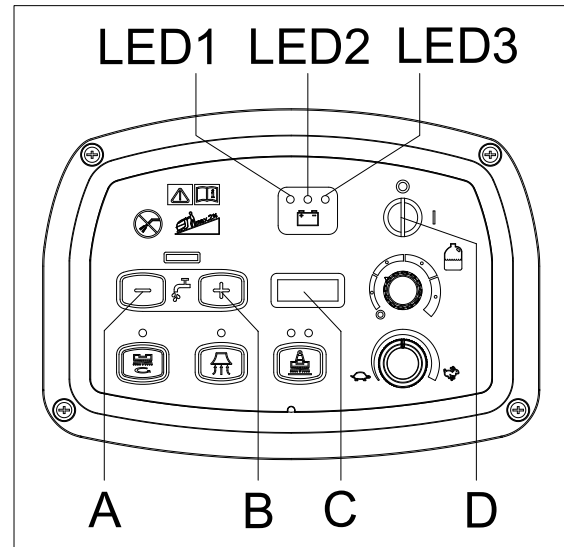


Figure 4

Mode	Battery type/Battery manufacturer	Battery charging curve	LED display during setting(C, Figure. 4)	Boot time display
0	WET	General WET curve	WET 0	LED1 blink twice
1	GEL/AGM	General GEL/AGM curve	AGM 1	LED2 blink twice
2	DISCOVER	DISCOVER	d 15 2	LED3 blink twice
3	OPTIMA	OPTIMA	OPT 3	Both LED1 and LED2 blink twice
4	EXIDE	EXIDE	EXI 4	Both LED1 and LED3 blink twice
5	FULLRIVER	FULLRIVER	FUL 5	Both LED2 and LED3 blink twice

Battery installation

4. Open the recovery tank cover (1) and check that the recovery tank (25) is empty; otherwise empty it with the drain hose. (22)
5. Close the recovery tank cover (1).
6. Overturn the recovery tank (25) carefully.
7. The machine is supplied with cables suitable to install 2×12 V batteries. Carefully put the batteries into the compartment, then install them correctly.
8. Route and install the battery cable as shown in (Figure3), then carefully tighten the nut on each battery terminal.
9. Place the protection cap on each terminal, then connect the battery connector (38).
10. Carefully lower the recovery tank (25).

Battery charging

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

BRUSH/PAD-HOLDER INSTALLATION AND UNINSTALLATION (only for disc machine)**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 uninstallation of brush or pad-holder, make sure all the switches on machine are in off position and lifting up the squeegee 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. Insert the ignition key (54) and turn it to "O".
2. Lift the deck by pressing the pedal (10).
3. If equipped, turn the speed adjuster (56) to idle by turning it counter-clockwise.
4. Place the brushes (A, Figure. 5) or the pad-holder (B) under the deck (21).
5. Lower the deck on the brushes/pad-holders by pressing the pedal (10).
6. Turn the ignition key (54) to "I".
7. Press the Brush/pad-holder and vacuum system switch (60).
8. Press one of the safe switch (50) to engage the brush/pad-holder, then release it. If necessary, repeat the procedure until the brushes/pad-holders are engaged.

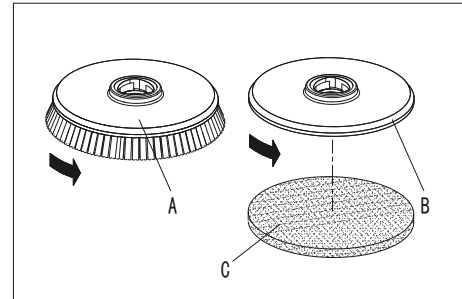


Figure 5

**WARNING!**

(Only for machine with traction): Turn the speed adjuster (56) counter-clockwise to drive the machine at the minimum speed.

Slightly press the safe switch (50), otherwise the machine starts to move.

To engage the safe switch (50) which turns on the brush/pad-holder motor.

9. To remove the brush/pad-holder lift the deck by pressing the pedal (10), then press the switch (58), the brush/pad-holder will be remove.

PAD INSTALLATION AND UNINSTALLATION (only for orbital machine)

1. Lift the deck by pressing the switch (60) .
2. Install and uninstall the pad (A, Figure. 5.1)

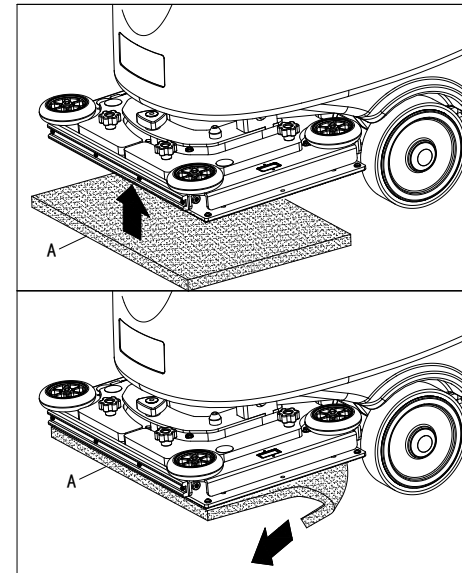


Figure 5.1

ADJUSTING THE BALANCE OF SQUEEGEE

1. Install the squeegee and screw up the nut (H), then connect the vacuum hose (G) to the squeegee.
2. Adjust the squeegee by squeegee adjusting handle (A, Figure 6).
 - 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 section of rear squeegee blade good contact with ground, the front blade touch 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 section of rear blade good contact with the ground, the front blade touch the ground slightly.

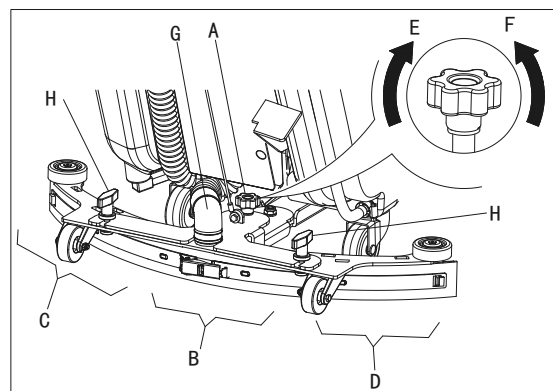


Figure 6

SOLUTION OR WASHING WATER TANK FILLING

**NOTE**

If the machine is equipped with **Chemical Mixing System (optional)** the tank must be filled with clean water, otherwise the tank can be filled with solution.

1. Open the filler neck (B, Figure.7).
2. (For machines without Chemical Mixing System) Use the front filler neck (B) and the rear filler neck (H) to fill the tank (D) with a solution suitable for the work to be performed. Refill to the reference mark "1" of the level check hose (H). Always follow the dilution instructions on the label of the chemical product used to prepare the solution. The solution temperature must not exceed +104°F (+40°C).

**WARNING!**

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

3. (For machines with Chemical Mixing System) Fill the tank (D) with clean water by using the filler neck (B) and the rear filler neck (H). Refill to the reference mark "1" of the level check hose (H). The water temperature must not exceed +104°F (+40°C).

DETERGENT TANK FILLING (FOR MACHINES WITH CHEMICAL MIXING SYSTEM)

1. Open the cover (E) and check that the recovery tank (F) is empty, otherwise empty it with the drain hose (G).
2. Carefully overturn the recovery tank (A, Figure. 8).
3. Open the cap (B).
4. Replace or fill the jug (C) with any standard gallon container of detergent suitable for the work to be performed (highly concentrated detergents). Do not fill the detergent tank completely, leave a few centimeters from the edge.

**WARNING!**

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

**NOTE**

To install a new jug container, determine the cap size and if it is the smaller cap, remove the reducing adapter from the hose cap (B). Insert the suction tube into the jug (C). Pushdown firmly on the cap (B) and twist at the same time to put the cap back onto the jug (C). In case of new system, system emptied for cleaning, etc., wait for the hoses to fill up, before starting the Chemical Mixing System.

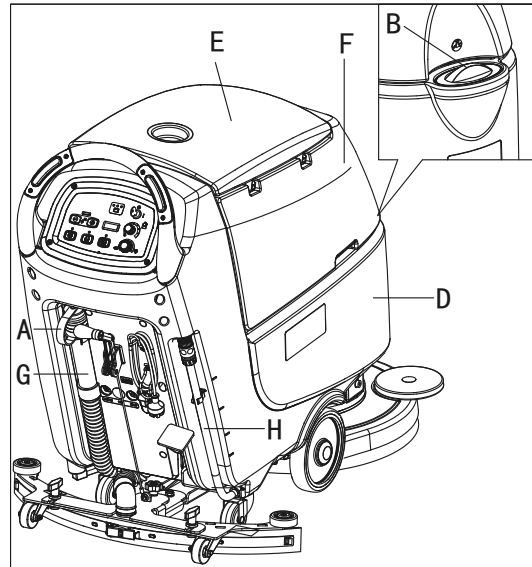


Figure 7

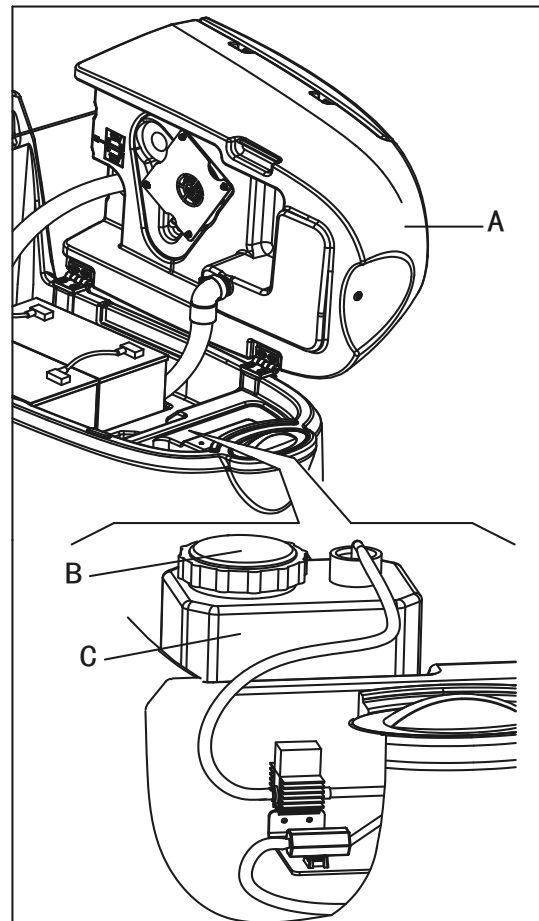


Figure 8

MACHINE START AND STOP**Starting the machine**

1. Prepare the machine as shown in the previous paragraph.
2. Insert the ignition key (A, Figure. 9) and turn it to "I". Check that the green warning light (B) turns on (charged battery). If the yellow (C) or red warning light (D) turns on, turn the ignition key back to "0" and charge the batteries (see the procedure in Maintenance chapter).
3. Drive the machine to the working area:
 - By pushing it with the hands on the handlebar (E) (only for machine without traction).
 - By pushing it with the hands on the handlebar (E) and pressing the switch (F) to move forward, or pressing the switch (F) together with the switch (G) to move backward (only for machine with traction). The forward speed can be adjusted with the adjuster (H).
4. Lower the squeegee (I) with the lever (J).
5. Lower the brush/pad-holder deck (K) by lifting the pedal (L). (only for disc machine)
6. Press the brush/pad-holder switch (M) and the vacuum system switch (N).
7. Press the washing water flow control switches (O) as necessary, depending on the type of cleaning to be performed.
8. Start cleaning:
 - (only for machine without traction) by pushing the machine with the hands on the handlebar (E) and pressing the switch (F).
 - (only for machine with traction) by pushing the machine with the hands on the handlebar (E) and by pressing the switch (F). If necessary, the forward speed can be adjusted with the adjuster (H).

**NOTE**

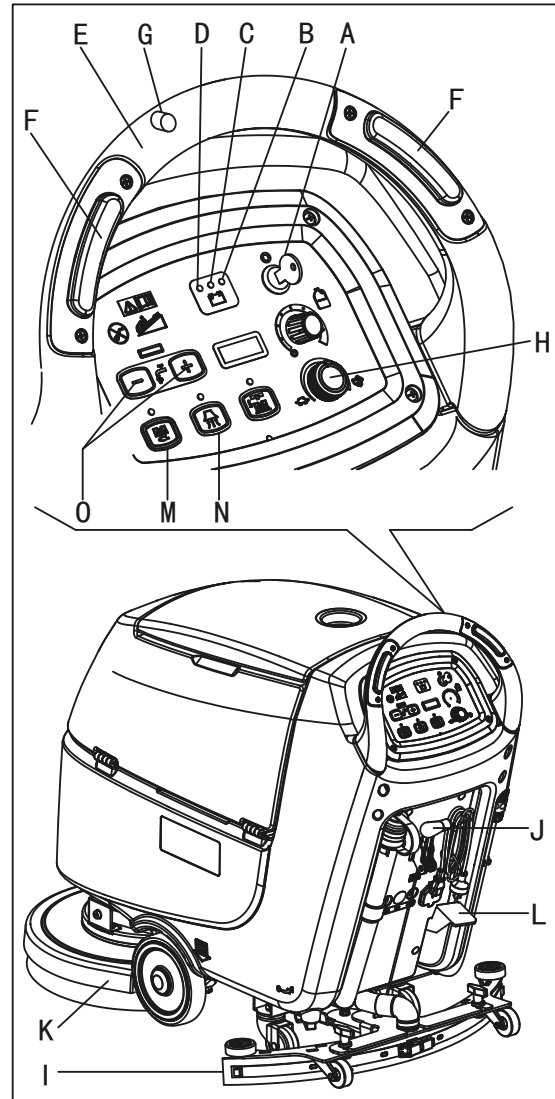
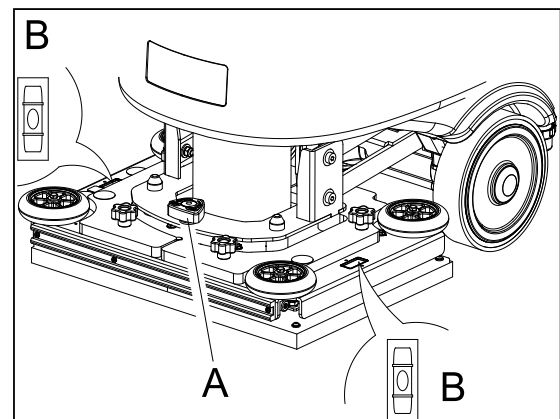
To move the machine forward, press either the left or right switch (F) or both.

Stopping the machine

9. Stop the machine by using the handlebar (E) (only for machine without traction). Stop the machine by releasing the switches (F) (only for machine with traction).
10. Stop the brushes and the vacuum system by pressing the switch (M). The vacuum system stops after a few seconds.
11. Lift the brush/pad-holder deck (K) by pressing the pedal (L). (only for disc machine)
12. Lift the squeegee (I) with the lever (J).
13. Turn the ignition key (A) to "0".
14. Make sure that the machine cannot move independently.

ADJUSTING THE LEVEL OF ORBITAL DECK (only for orbital machine)

1. Lower the brush/pad-holder deck by press the brush/pad-holder switch (M, Figure. 9)
2. Adjust the level of orbital deck by adjusting handle (A, Figure 9.1) . made the bubble in the middle (B, Figure 9.1).

**Figure 9****Figure 9.1**

MACHINE OPERATION (SCRUBBERING AND DRYING)

1. Start the machine as shown in previous paragraphs.
2. While keeping both hands on the handlebar press the safety switch (F, Figure. 9), then 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”.

**NOTE**

For correct scrubbing/drying of floors at the sides of the walls, Suggests to go near the walls with the right side of the machine (A and B, Figure. 10) 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.

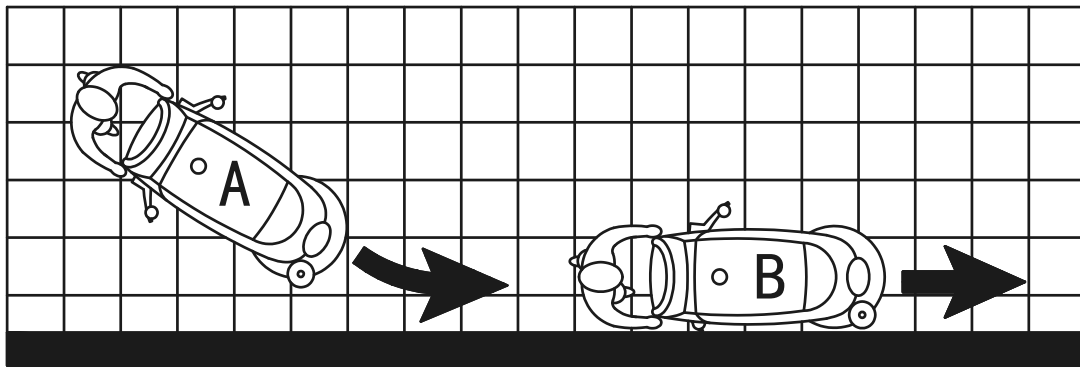


Figure 10

**Detergent flow adjustment
(For machines with Chemical Mixing System)**

1. Turn the knob (A, Figure. 11) clockwise or counter-clockwise to increase or decrease the detergent concentration.
2. The average detergent concentration values, matching the 4 colored areas of the scale (B), are shown in the figure.
3. To set the detergent quantity to zero, fully turn the knob (A) counter-clockwise.

**NOTE**

The detergent concentration is kept constant even if the washing water flow is changed with the switches (C) or (D).

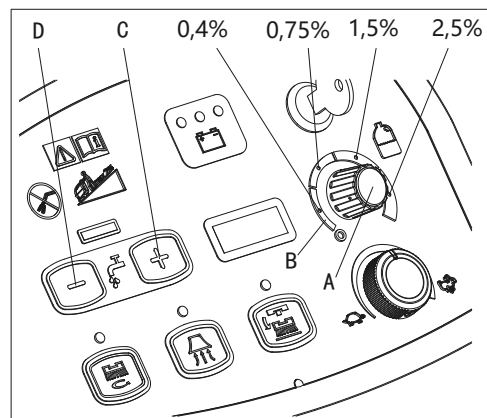


Figure 11

Battery discharge during operation

Until the green warning light (A, Figure. 12) stays on, the batteries allow the machine to work normally. When the green warning light (A) 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 (C) turns on, batteries are fully discharged. After a few seconds, the brush/pad-holder is automatically tuned off, while (only for machine with traction) the drive system stay on, to finish drying the floor and drive the machine to the appointed recharging area.



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 (A, Figure. 13) 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 (D, Figure. 12), then open the cover (C, Figure. 13) 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 (D, Figure. 12).

When the recovery water tank (B, Figure. 13) is full, empty it according to the following procedure.

Recovery water tank emptying

1. Stop the machine.
2. Lift the brush/pad-holder deck (E, Figure.12) by pressing the pedal (F). (only for disc machine)
3. Lift the squeegee (G) with the lever (H).
4. Drive the machine to the appointed disposal area.
5. Empty the recovery water tank with the hose (I). Then, rinse the tank (B, Figure. 13) with clean water.

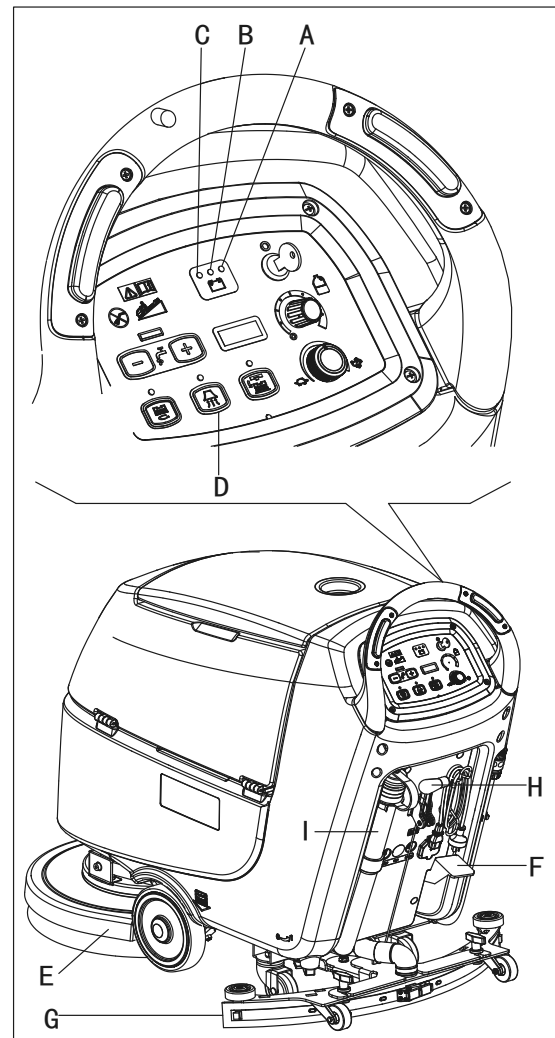


Figure 12

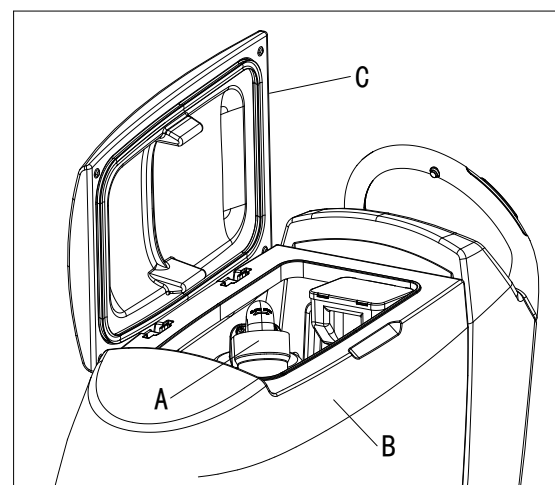


Figure 13

**CAUTION!**

When draining the wastewater, the vacuum tube for waste must be folded (A, Figure. 14) and lowered to a lower position (B, Figure. 14), 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.

6. Perform steps 1 to 4.

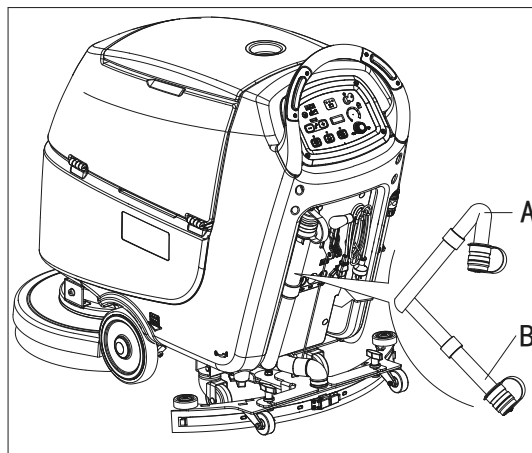


Figure 14

Solution/clean water tank emptying

7. Empty the solution tank with the hose (A, Figure. 15). 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 (B and C, Figure. 15) 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 (38).

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.

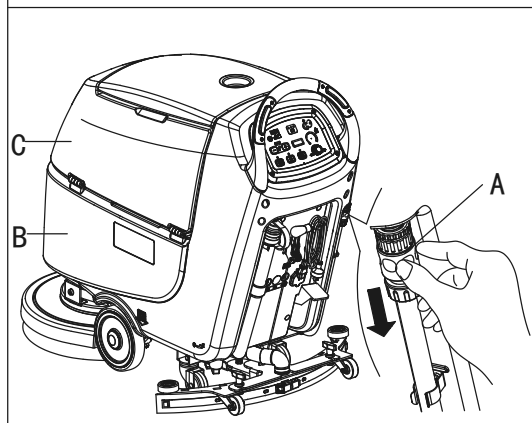
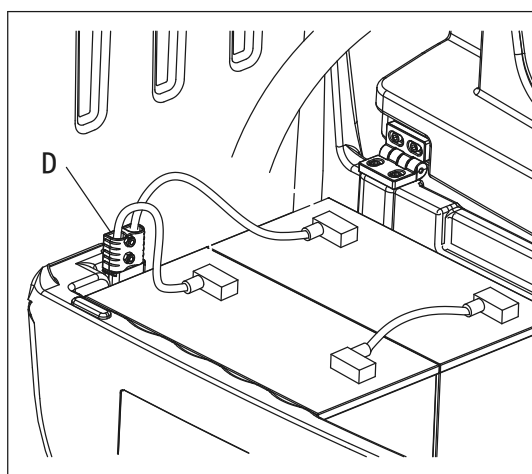


Figure 15

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 9 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				
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			(2)	
Brush/Pad-holder carbon brush check or replacement				(2)
Suction motor carbon brush check or replacement				(2)
Drive system motor carbon brush check or replacement (only for machine with traction)				(2)

BATTERY CHARGING**NOTE**

Charge the batteries when the yellow (G, Figure. 16) or red warning light (H) turns on, or when finishing cleaning.

**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!**

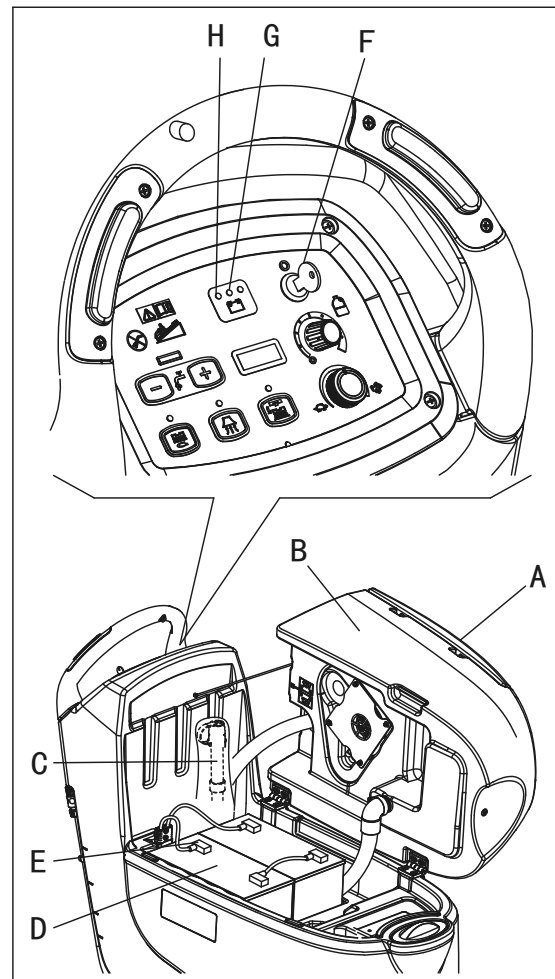
WET battery charging produces highly explosive hydrogen gas. Charge the batteries in well-ventilated areas and away from naked flames. Do not smoke while charging the batteries. Keep the tank open while charging the batteries.

**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.

Preliminary procedures

1. Open the cover (A, Figure. 16) 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 (F) to "0".
4. Carefully lift the tank (B).
5. For WET batteries only:
 - Check the level of electrolyte inside the batteries (D); if necessary, top up through the caps (E).
 - Leave all the battery caps (E) open for next charging.
 - If necessary, clean the upper surface of the batteries (D).
6. Charge the batteries according to the following procedure.

**Figure 16**

Battery charging with battery charger installed on the machine

7. Connect the battery charger cable (A, Figure. 17) to the electrical mains (G) (the electrical mains voltage and frequency must be compatible with the battery charger values shown on the machine serial number plate (F)). When the battery charger is connected to the electrical mains, all machine functions are automatically cut off. If the red warning light (B) on the battery charger control panel stays on, the battery charger is charging the batteries.
8. When the green warning light (C) turns on, the battery charging is completed.
9. When the battery charging is completed, disconnect the battery charger cable (A) from the electrical mains (G) and wind it round its housing (D).
10. Carefully lower the tank.



NOTE

For further information about the operation of the battery charger (E, Figure. 17), see the relevant Manual.

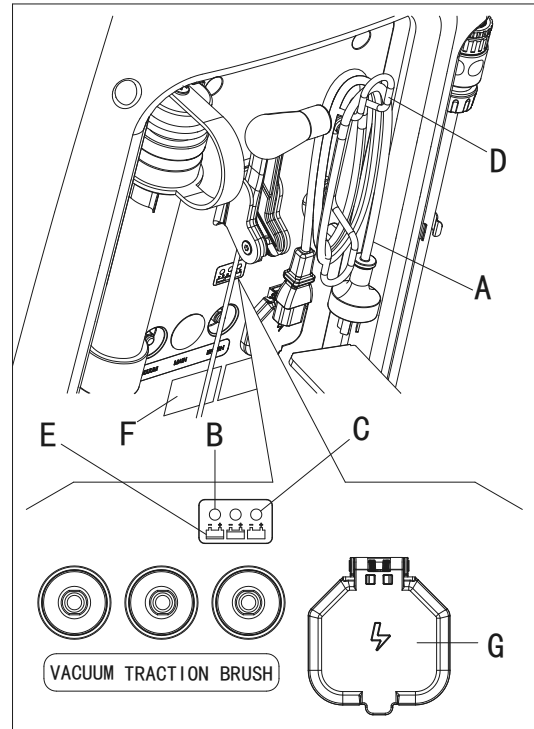


Figure 17

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 on a level floor.
2. Ensure that the machine is off and the ignition key (54) has been removed.
3. Close the solution tap (A, Figure. 18) under the machine, behind the right rear wheel. The tap (A) is closed when it is on the position (B) and it is open when it is on the position (C).
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).

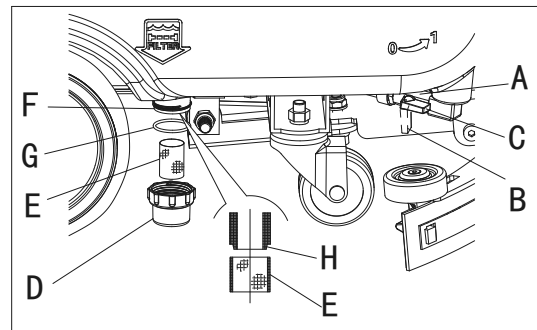


Figure 18

5. Open the tap (A).

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. Drive the machine on a level floor.
2. Turn the ignition key (A, Figure. 19) to "0".
3. Lower the squeegee (B) with the lever (C).
4. Loosen the knobs (D) and remove the squeegee (B).
5. Disconnect the vacuum hose (E) from the squeegee.
6. Clean the steel or the aluminum squeegee (Figure. 20). 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.

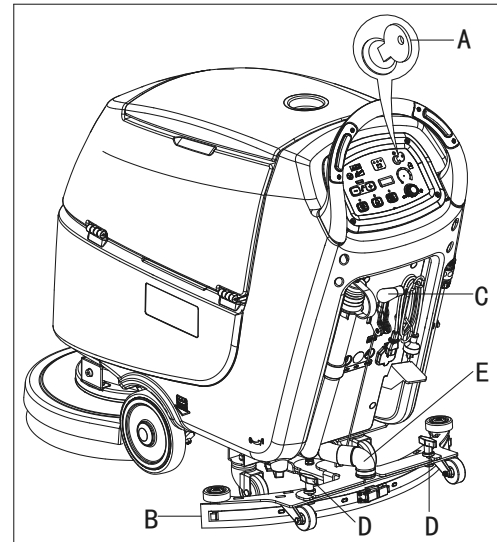


Figure 19

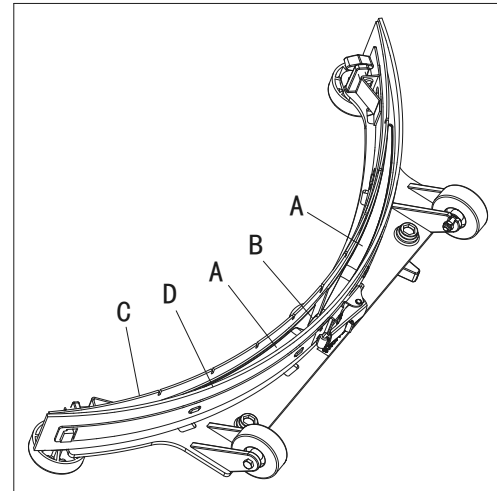


Figure 20

SQUEEGEE BLADE CHECK AND REPLACEMENT

1. Clean the steel or the aluminum squeegee, as shown in the previous paragraph.
2. Check that the edges (E, Figure. 22) 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 corner (J) of the rear blade (D) 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 tie rod (G), disengage the fasteners (M) and remove the retaining strip (K), then replace/overturn 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 overturning), adjust the height as shown in the previous step.
4. Connect the vacuum hose (A, Figure. 21) to the squeegee.
5. Install the squeegee (B) and screw down the knobs (C).
6. If necessary, adjust the squeegee balance adjusting knob (D).

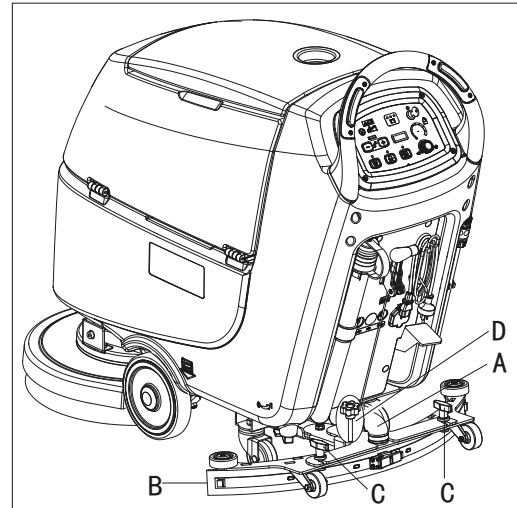


Figure 21

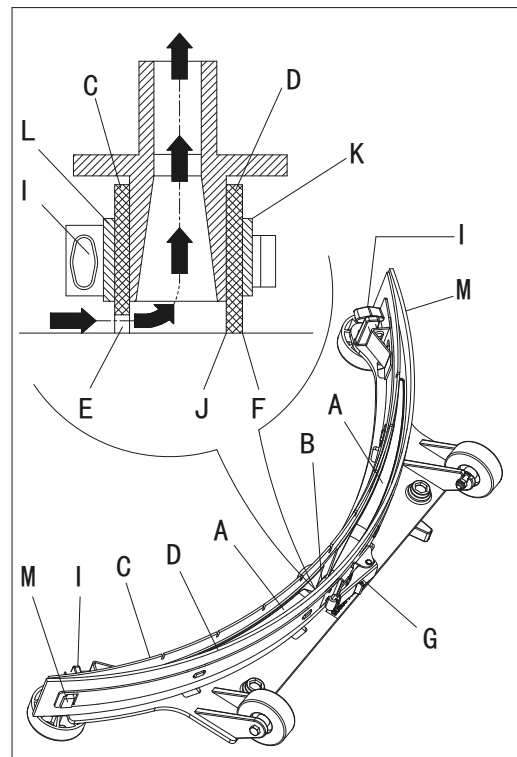


Figure 22

TANK AND VACUUM GRID WITH 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 (54) has been removed.
3. Turn the recovery tank lid (A, Figure23) 90 degree position where it can be took off from the tank, and then take down the float ball filter (P) from the tank.
4. Clean the recovery tank lid (A), recovery tank (B), clean water tank(C) and the float ball filter support frame (E). Empty the recovery tank with the drain hose (22).
5. .If necessary, follow the symbols “OPEN” and “CLOSE” as shown in (Figure23) 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 sewage suction hose (M).
6. Inspect the integrity of the tank sealing strip.

**NOTE**

Tank sealing strip (G) makes to produce the vacuum inside the tank when suction motor works. The tank must be sealed can effectively absorb the water from the ground to recovery tank.

7. Check whether the contact surface of sealing strip (G) is integrity and sealing is sufficient. If necessary, take the sealing strip of the tank out of the groove (H) and replace it. Assembly the new sealing strip as shown in (Figure23), the joint should be back in the middle area.
8. Close the recovery tank lid (A).

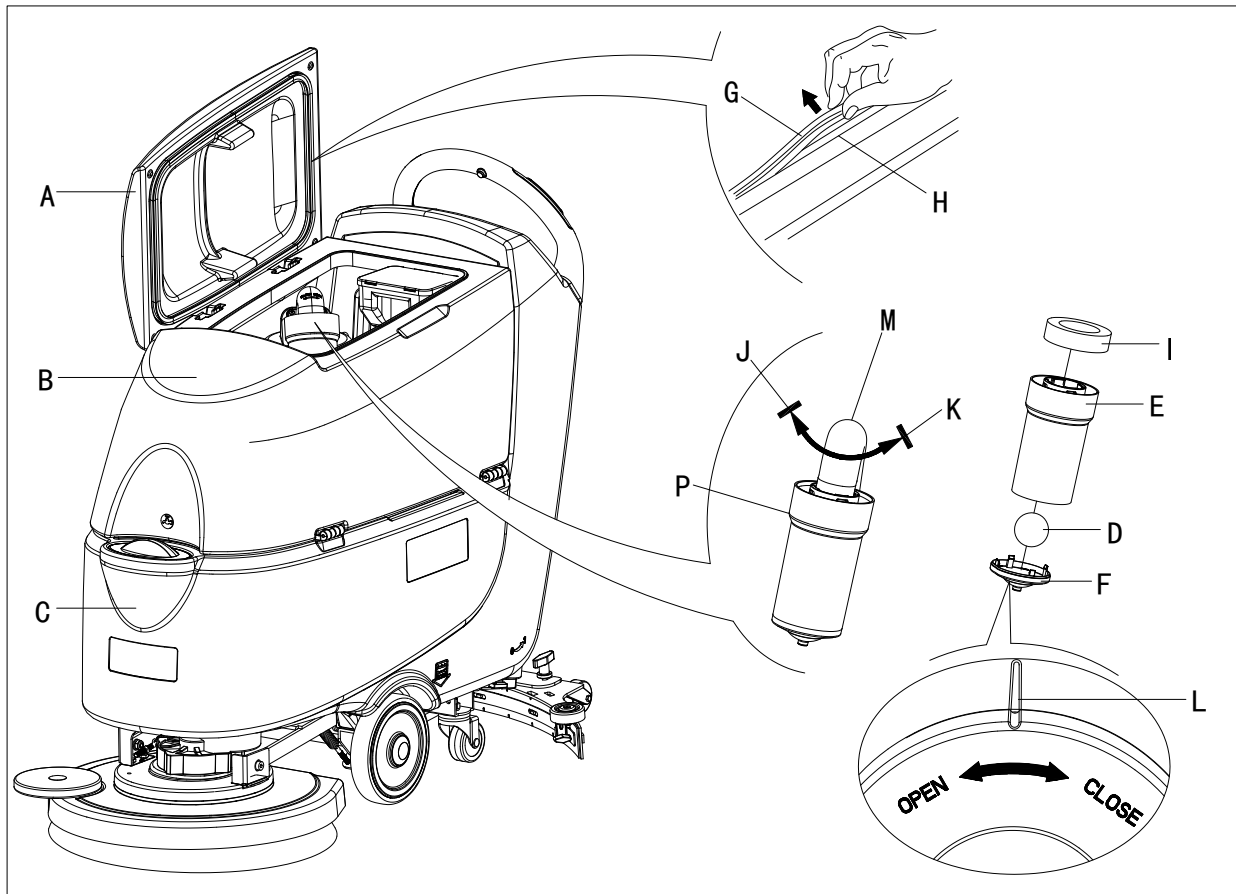


Figure 23

DETERGENT TANK CLEANING

(For machines with Chemical Mixing System)

Clean the detergent tank (G, Figure. 24) as shown below:

1. Drive the machine on a level floor.
2. Turn the ignition key (A) to "0".
3. Open the cover (B) and check that the recovery water tank (C) is empty; if necessary empty it with the drain hose (D). Close the cover (B).
4. Carefully lift the tank (C).
5. Unscrew the plug (E) and disconnect the hose (F) from the tank (G).
6. Remove the tank.
7. Wash the tank in the appointed disposal area.
8. Install the tank (G) and connect the hose (F).
9. After draining the detergent tank, drain the Chemical Mixing System too by running the system with clean water only.

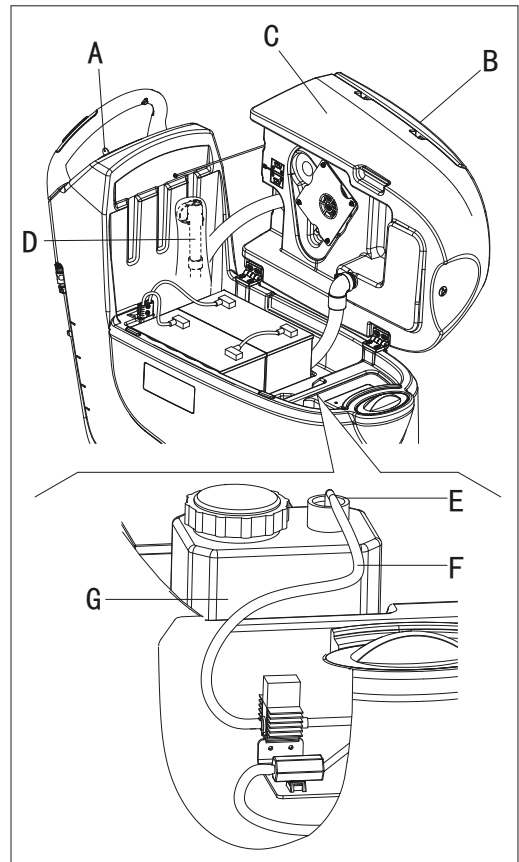


Figure 24

MACHINE WORKING HOUR CHECK

1. Turn the ignition key (A, Figure. 25) to "I".
2. Press the switch (B), the hour meter (C) begins to work and it at the same time shows the total number of working hours (scrubbing/drying) performed by the machine.
3. Release the switch (B).
4. Turn the ignition key (A) to "0".

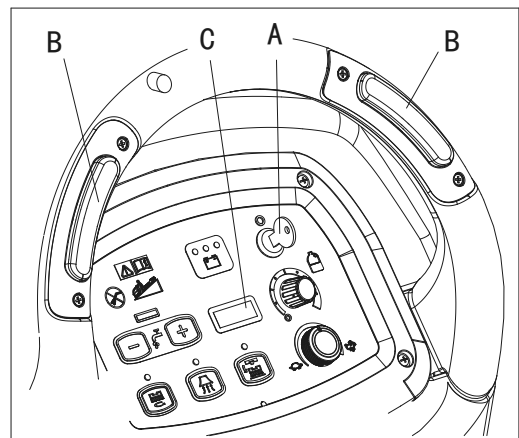


Figure 25

FUSE CHECK/REPLACEMENT

1. Turn the ignition key (A, Figure. 26) to "0".
2. Disconnect the power supply cable (C, Figure. 26) from the electrical mains.
3. Remove the screws (C .Figure27) on control panel (D), then turn over the PCB to find the fuse (A, B, Figure 27).
4. Check/replace the following fuses:
 - A) F1 fuse, low power circuit fuse:(5A)
 - B) F3 fuse, Brush release fuse: (20A) (only for disc machine)
 - B) F3 fuse, Brush fuse: (5A) (only for orbital machine)
5. Perform steps 1 to 3 in the reverse order.
6. Check/press down or replace the following breakers:
 - E) F5breaker, vacuum motor circuit breaker: (30A)
 - F) •F4 breaker, traction system circuit breaker: (12A) (*)
(only for disc machine)
 - F4 breaker, traction system circuit breaker: (17A) (*)
(only for orbital machine)
 - G) F2breaker, brush motor circuit breaker: (30A)

(*): Only for machine with traction

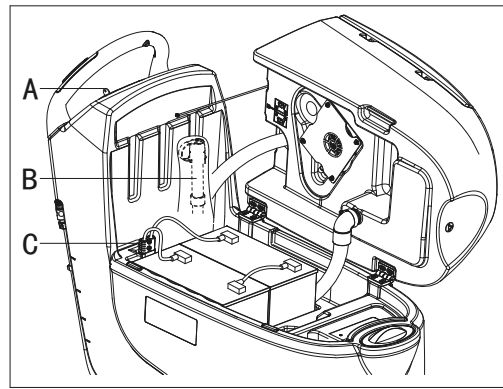


Figure 26

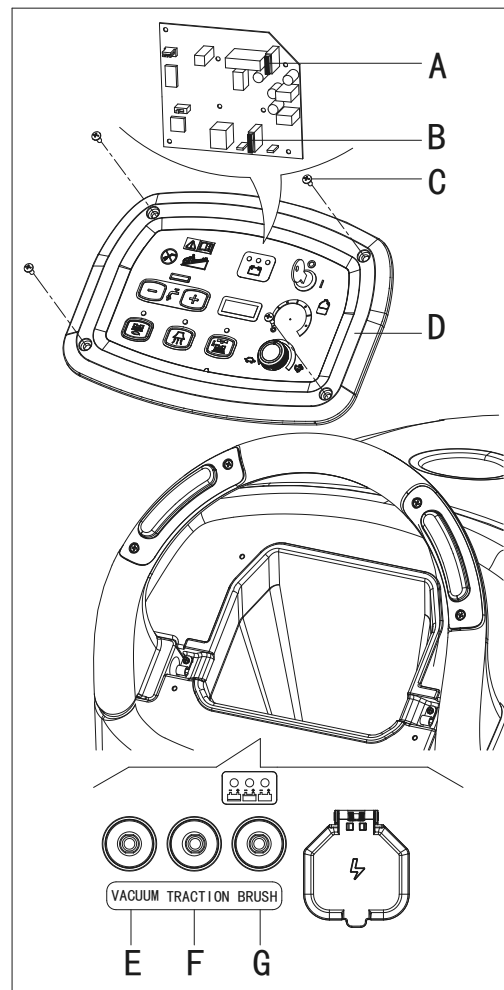
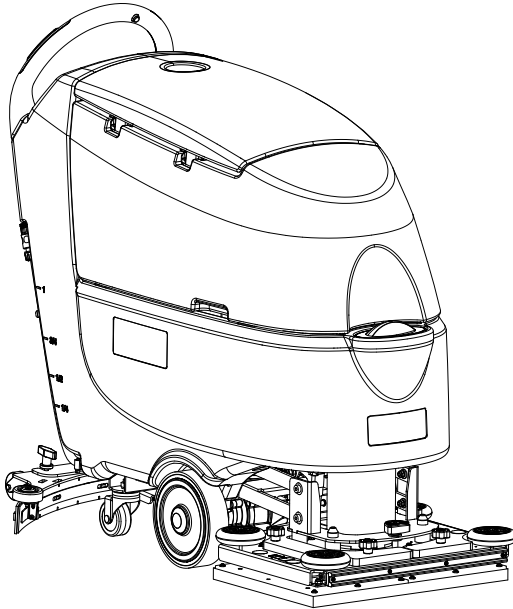


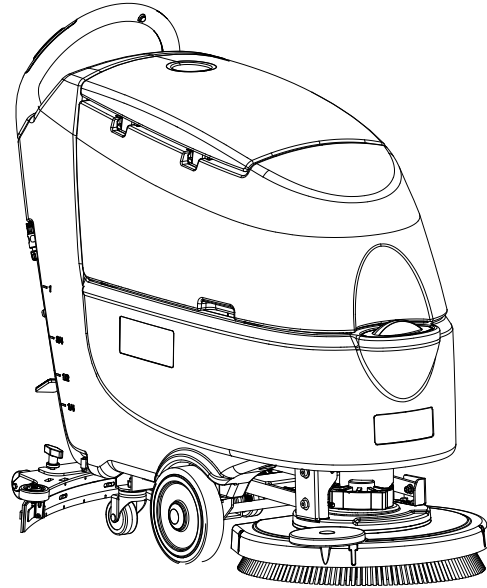
Figure 27

Clarke®

CA60 20B/CA60 24B



CA60 20D/CA60 20TD



Parts List

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.

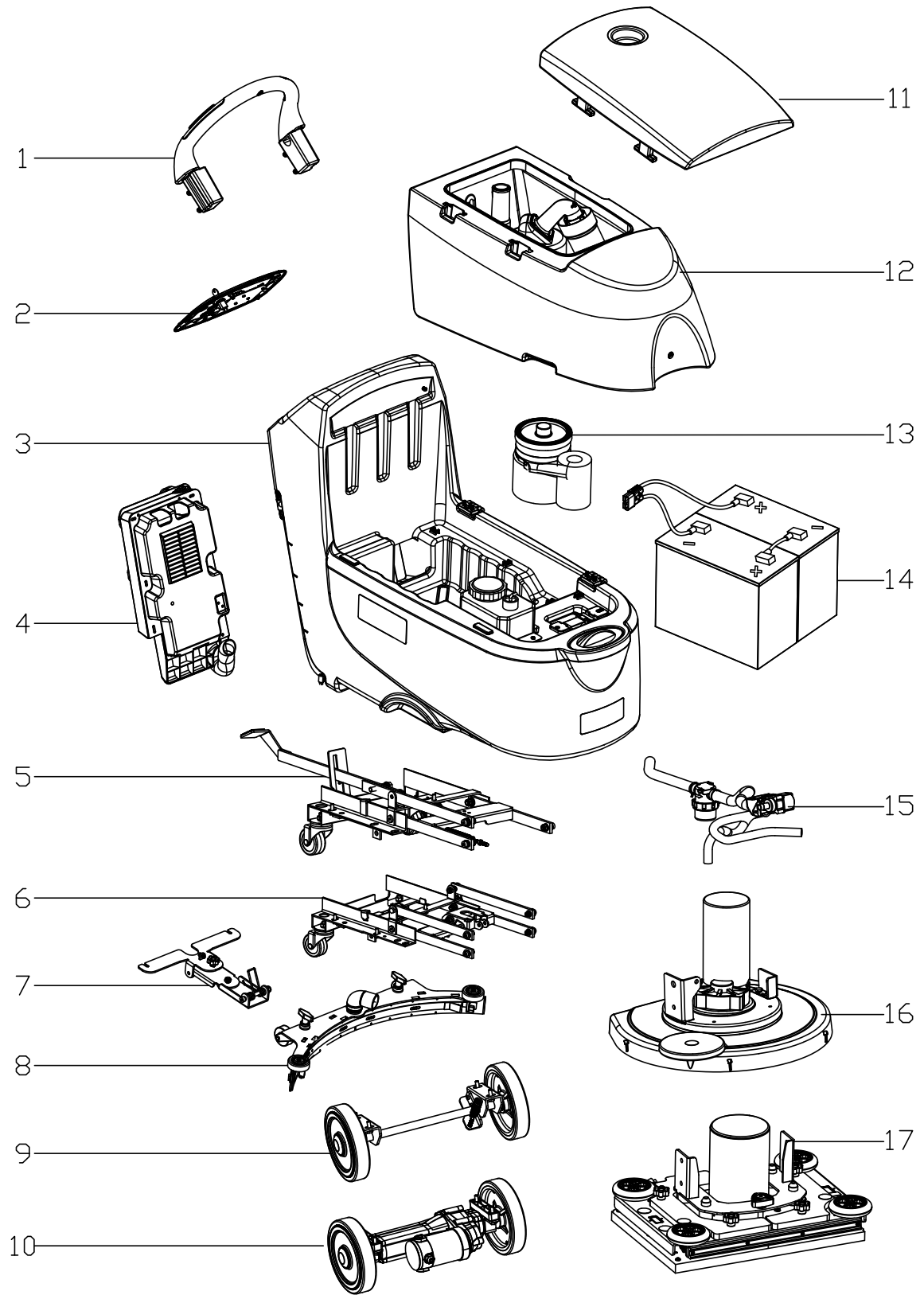
Model

Serial No.

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

PARTS LIST

GENERAL VIEW



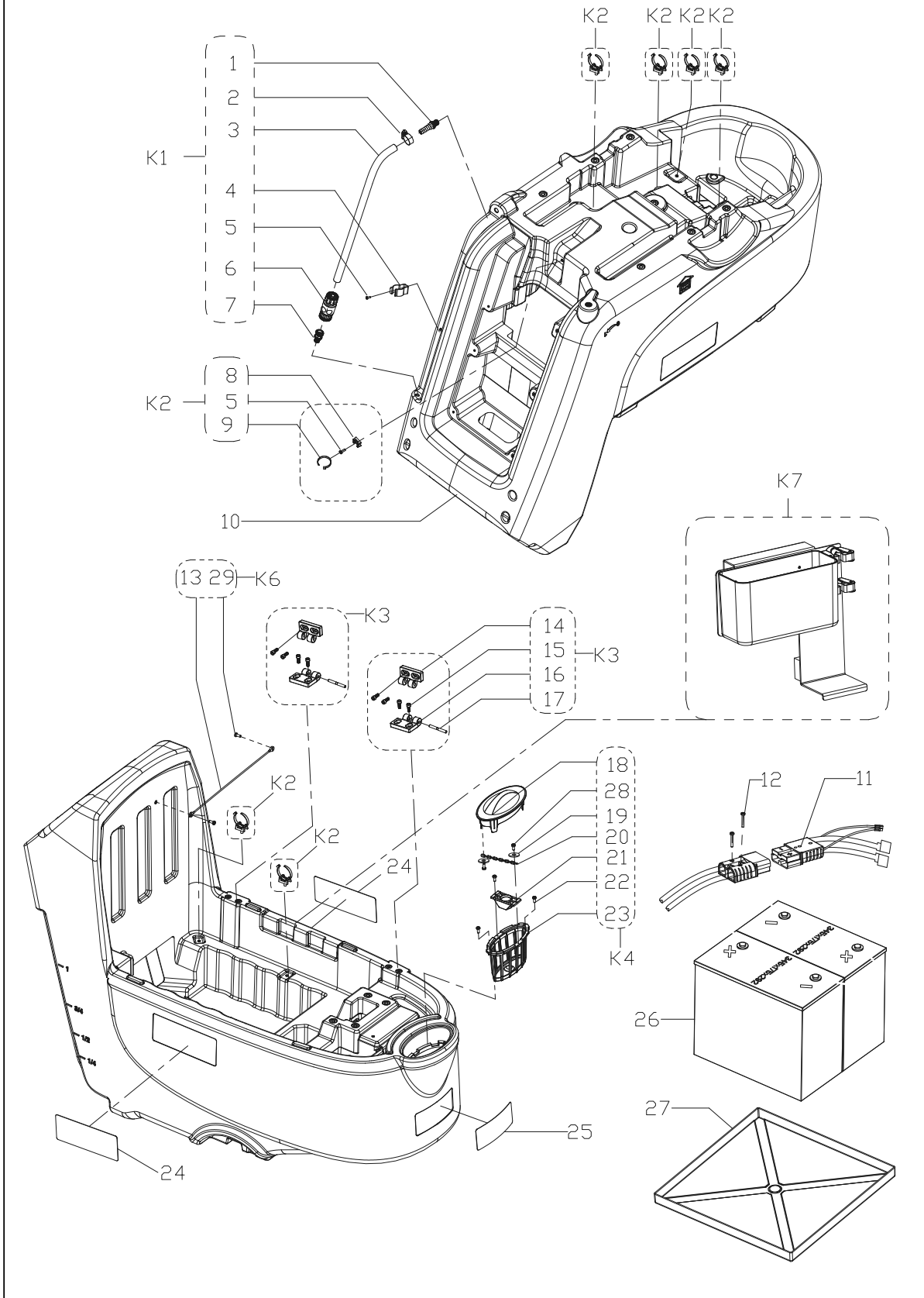
PARTS LIST

GENERAL VIEW

KIT	Item	Part No.	Description	Qty
	1		HANDLE BAR ASSEMBLY	1
	2		CONTROL PANEL ASSEMBLY	1
	3		SOLUTION TANK ASSEMBLY	1
	4		CONTROL BOX ASSEMBLY	1
	5		CHASSIS ASSEMBLY (ONLY FOR DISC MACHINE)	1
	6		CHASSIS ASSEMBLY (ONLY FOR ORBITAL MACHINE)	1
	7		SQUEEGEE HOLDER ASSEMBLY	1
	8		SQUEEGEE ASSEMBLY	1
	9		WHEEL ASSEMBY WITHOUT TRACTION	1
	10		WHEEL ASSEMBY WITH TRACTION	1
	11		RECOVERY TANK LID ASSEMBLY	1
	12		RECOVERY TANK ASSEMBLY	1
	13		VACUUM MOTOR ASSEMBLY	1
	14		BATTERIES	1
	15		SOLUTION SYSTEM ASSEMBLY	1
	16		BRUSH DECK ASSEMBLY	1
	17		ORBITAL DECK ASSEMBLY	1

PARTS LIST

SOLUTION TANK ASSEMBLY



PARTS LIST

SOLUTION TANK ASSEMBLY

Kit	Item	Part No.	Description	Qty
K1	1	VF85105	FITTING PIPE	1
K1	2		CLAMP	1
K1	3		TUBING L485mm	1
K1	4		WATER HOSE HOLDER	1
K1/K2/K6	5		SCREW TM5X12	4
K1	6	VS13603	GARDEN COUPLING	1
K1	7		FITTING PIPE	1
K2	8		FLAT TIE HOLDER	1
K2	9		CLAMP	1
	10A/10B	VS13301A	SOLUTION TANK	1
	10C/10D	VS13325	SOLUTION TANK ORBITAL	1
	11	VS10227	BATTERY CONNECTIONS	1
	12		SCREW TM4X25	2
K6	13	VF85435	RECOVERY TANK CABLE	1
K3	14		HINGE_B	2
K3	15		SCREW TM6X15	8
K3	16		HINGE_A	2
K3	17		PIN	2
K4	18	VS13320	FILTER COVER	1
K4	19		WASHER Ø9XØ4.25X0.8	2
K4	20		ZIPPER	1
K4	21		INLET PIPE FRAME	1
K4	22		SCREW ST4X15	2
K4	23	VS10313	FILTER SUPPORT	1
	24A	VS13095	MODEL LABEL CA60 20D	2
	24B	VS13096	MODEL LABEL CA60 20TD	2
	24C	VS13093	MODEL LABEL CA60 20B	2
	24D	VS13094	MODEL LABEL CA60 24B	2
	25	VS13081	FRONT LABEL	1
	26*		BATTERIES	2
	27	VS10329	TRAY BATTERY	1
K4	28		SCREW TA3.5X12	3
	29		SCREW TM5X12	2
	K1	VS13701	WATER LEVEL PIPE KIT	1
	K2	VS13702	WIRE CLASPS KIT	7
	K3	VS13703	HINGE KIT	1
	K4	VS13732	FILTER COVER KIT	1
	k6	VF85007	TANK CABLE KIT	1
	K7*	9100002280	MOP AND TRASH KIT	1

A: ONLY FOR DISC MACHINE WITHOUT TRACTION (CA60 20D)

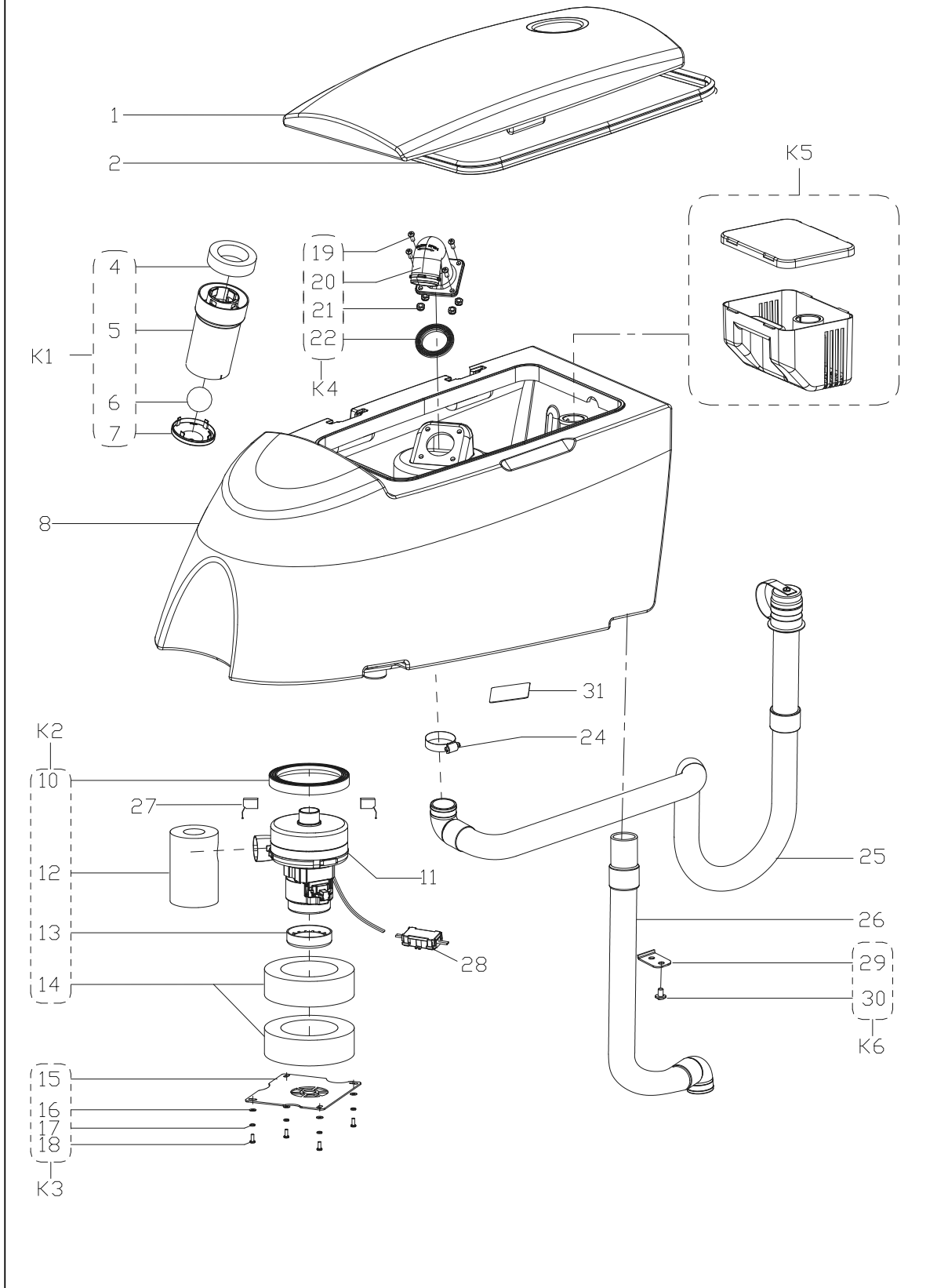
B: ONLY FOR DISC MACHINE WITH TRACTION (CA60 20TD)

C: ONLY FOR 20INCH ORBITAL MACHINE (CA60 20B)

D: ONLY FOR 24INCH ORBITAL MACHINE (CA60 24B)

PARTS LIST

RECOVERY TANK ASSEMBLY



PARTS LIST

RECOVERY TANK ASSEMBLY

Kit	Item	Part No.	Description	Qty
	1	VS13303A	RECOVERY TANK LID	1
	2	VS13607	GASKET	1
K1	4	VF90530	CAGE,FLOAT COMPLETE	1
K1	5		FLOAT BRACKET	1
K1	6	30010021	FLOATE	1
K1	7		FLOATE BRACKET COVER	1
	8A/8B	VS13304A	RECOVERY TANK	1
	8C/8D	VS13329	RECOVERY TANK ORBITAL	1
K2	10		GASKET	1
	11	VF90520	VACUUM MOTOR	1
K2	12	VF85319	ACOUSTIC INSULATION PIPE	1
K2	13		TOP GASKET OF SUCTION MOTOR	1
K2	14	VS10007	ACOUSTIC INSULATION PIPE	2
k3	15	VS10419	VACUUM MOTOR COVER	1
K3	16		WASHER Ø6XØ18X1.5	4
K3	17		SPRING WASHER Ø5	4
K3	18		SCREW TM5X15	5
K4	19		SCREW TM6X20	4
K4	20		ELBOW ADAPTOR,FLOAT	1
K4	21		NUT LOCK M6	4
K4	22		FLOAT GASKET	1
	24	VA20304	CLAMP	1
	25	VS13602	DRAIN HOSE	1
	26	VS10601	SUCTION HOSE	1
	27	VF90522	CARBON BRUSH KIT	2
	28	VR27100	WATERPROOF CASE	1
	29		HOSE CLAMP	1
	30		SCREW TM5X12	1
	31	VS13097	BATTERIES CHANGING WARNING LABEL	1
	K1	VF90534	FLOAT KIT	1
	K2	VS10112	GASKET VACUUM MOTOR KIT	1
	K3	VS10113	VACUUM MOTOR COVER KIT	1
	K4	VS13720	ELBOW ADAPTOR KIT	1
	K5*	VS13758	TRAY DEBRIS KIT	1
	K6	VS13794	HOSE CLAMP KIT	1

A: ONLY FOR DISC MACHINE WITHOUT TRACTION (CA60 20D)

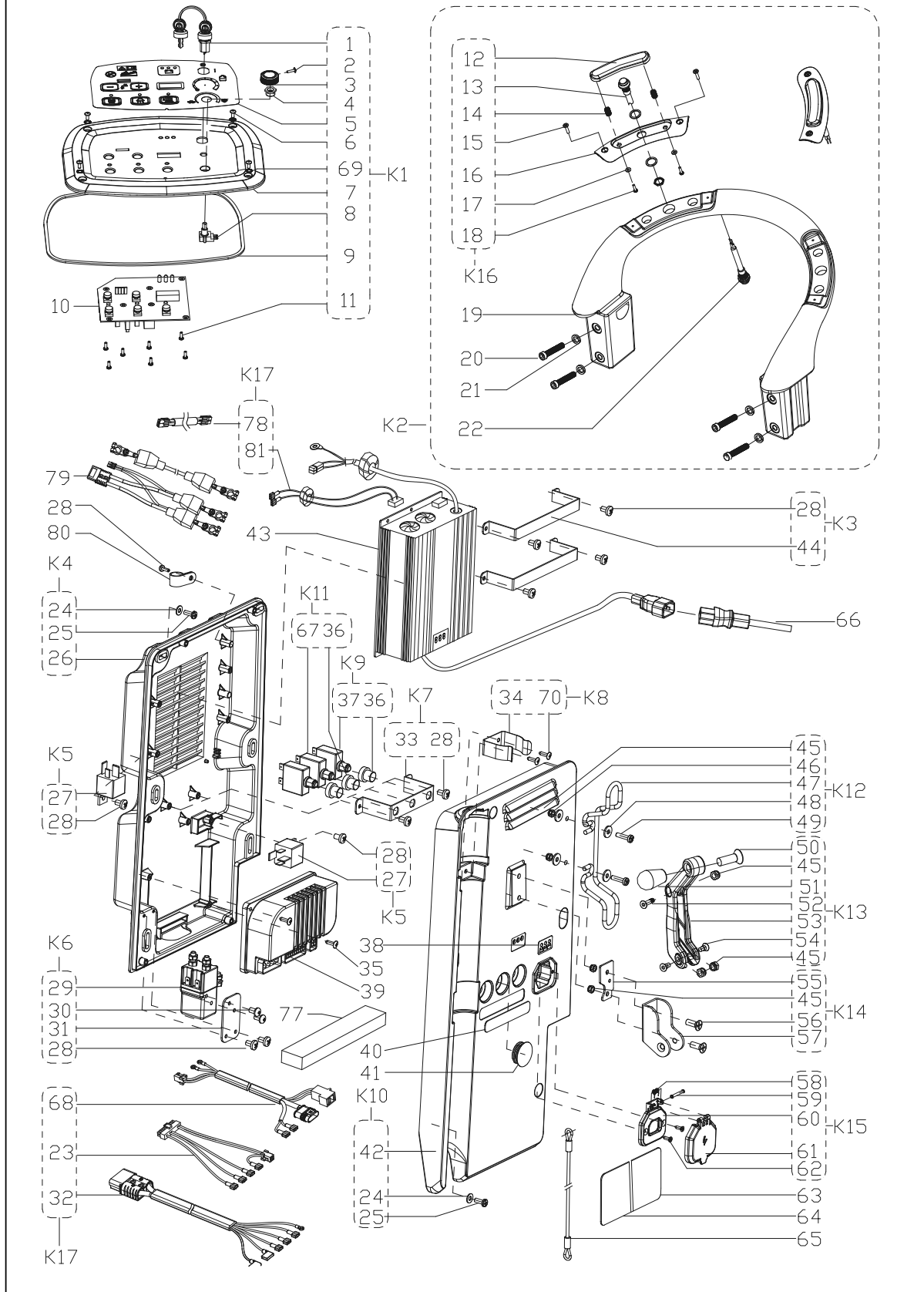
B: ONLY FOR DISC MACHINE WITH TRACTION (CA60 20TD)

C: ONLY FOR 20INCH ORBITAL MACHINE (CA60 20B)

D: ONLY FOR 24INCH ORBITAL MACHINE (CA60 24B)

PARTS LIST

HANDLE BAR AND CONTROL SYSTEM AND ELECTRICAL SYSTEM



PARTS LIST

HANDLE BAR AND CONTROL SYSTEM AND ELECTRICAL SYSTEM

Kit	Item	Part No.	Description	Qty
K1	1	9100001354	KEY SWITCH	1
K1	2B/2C/2D		SCREW ST3.5X12	1
K1	3B/3C/3D	VS10315	ADJUST SPEED KNOB	1
K1	4B/4C/4D		KNOB NUT	1
K1	5A	VS13035	CONTROL PANEL DECAL WITHOUT TRACTION DISC	1
K1	5B	VS13083	CONTROL PANEL DECAL WITH TRACTION DISC	1
K1	5C/5D	VS13036	CONTROL PANEL DECAL ORBITAL	1
K1	6		SCREW M4X10	4
K1	7	VS13317	CONTROL PANEL	1
K1	8B/8C/8D	VS10213	POTENTIOMETER	1
	9	VS13604	EVA GASKET	1
K1	10A/10B	VS13251	CONTROL PANEL BOARD DISC	1
	10C/10D	VS13250	CONTROL PANEL BOARD ORBITAL	1
K1	11		SCREW ST3.5X9.5	7
K16	12		SAFETY SWITCH KNOB	1
K16	13	VS10202	SWITCH	1
K16	14		SPRING	2
K16	15		SCREW ST3.5X12	2
K16	16		SAFETY SWITCH COVER	1
K16	17		WASHER Ø3.6XØ8X0.5	2
K16	18		SCREW PA3X12	2
K2	19A	VS13302A	HANDLEBAR WITHOUT TRACTION	1
K2	19B/19C/19D	VS13309A	HANDLEBAR WITH TRACTION	1
K2	20		SCREW M8X40	4
K2	21		SPRING WASHER Ø8	4
K2	22B/22C/22D	VS10202	SWITCH	1
K17	23A	VS10218	HARNESS CONTROL CIRCUIT WITHOUT TRACTION	1
K17	23B/23C/23D	VS10208	HARNESS CONTROL CIRCUIT WITH TRACTION	1
K4/K10	24		WASHER Ø4	10
K4/K10	25		SCREW M4X16	10
K4	26		CONTROL BOX BOTTOM	1
K5	27	VS10201	RELAY 24V	1
K3/K5/K6K7	28	VF13544	SCREW ST4X10	9
K6	29	9095127000	ELECTROMAGNETIC SWITCH 24V	1
K6	30		SCREW PM4X8	2

- A: ONLY FOR DISC MACHINE WITHOUT TRACTION (CA60 20D)
 B: ONLY FOR DISC MACHINE WITH TRACTION (CA60 20TD)
 C: ONLY FOR 20INCH ORBITAL MACHINE (CA60 20B)
 D: ONLY FOR 24INCH ORBITAL MACHINE (CA60 24B)

PARTS LIST

HANDLE BAR AND CONTROL SYSTEM AND ELECTRICAL SYSTEM

Kit	Item	Part No.	Description	Qty
K6	31		RELAY FIXED PLATE	1
K17	32A	VS13206	HARNESS CONNECTOR WITHOUT TRACTION	1
K17	32B/32C/32D	VS13202	HARNESS CONNECTOR WITH TRACTION	1
K7	33		FIX BRACKET	1
K8	34		CLAMP DRAIN HOSE	1
K8	35		SCREW 3.5X16	4
K9	36		CIRCUIT BREAKER CAP	1
K9	37	ZD48320	CIRCUIT BREAKER	1
	38		LABEL BATTERY LEVEL	1
	39B	VS10209	ELECTRONIC BOARD TRACTION SYSTEM DISC	1
	39C/39D	VS13215	ELECTRONIC BOARD TRACTION SYSTEM ORBITAL	1
	40A		RESET LABEL WITHOUT TRACTION	1
	40B/40C/40D		RESET LABEL WITH TRACTION	1
	41 A		CAP BLACK	1
K10	42		CONTROL BOX COVER	1
K18	43	VS13260	CHARGER 24V 13A US	1
K3	44		CHARGER FIX BRACKET	2
K12/K13/K14	45		NUT LOCK M5	5
K12	46		WASHER Ø5X Ø12X1	2
K12	47		CABLE SUPPORT	1
K12	48		WASHER Ø6.2X Ø16X1	2
K12	49		SCREW M5X16	2
K13	50		SCREW M10X30	1
K13	51		KNOB	1
K13	52		SCREW M5X20	1
K13	53		HANDLE LIFT	1
K13	54		SCREW M5	2
K14	55		HAND FIX PANEL	1
K14	56		SCREW M5X25	2
K14	57		HAND BRACKET	1
K15	58		SPRING	1
K15	59		ROLLER	1
K15	60		CHARGER SOKET FIX	1
K15	61		CHARGER SOKET COVER	1
K15	62		SCREW ST4X16 KA	2
	63		WARNING LABEL	1
	64		SERIAL NUMBER LABEL	1

- A: ONLY FOR DISC MACHINE WITHOUT TRACTION (CA60 20D)
 B: ONLY FOR DISC MACHINE WITH TRACTION (CA60 20TD)
 C: ONLY FOR 20INCH ORBITAL MACHINE (CA60 20B)
 D: ONLY FOR 24INCH ORBITAL MACHINE (CA60 24B)

PARTS LIST

HANDLE BAR AND CONTROL SYSTEM AND ELECTRICAL SYSTEM

Kit	Item	Part No.	Description	Qty
	65	VS13503	CABLE SQUEEGEE LIFT	1
	66	VF89724	BATTERY CHARGING CABLE	1
K11	67B	VF99012	CIRCUIT BREAKER WITH TRACTION DISC	1
	67C/67D	VF99010C	CIRCUIT BREAKER WITH TRACTION ORBITAL	1
K17	68A/68B		HARNESS BRUSH MOTOR DISC	1
	68C/68D		HARNESS BRUSH MOTOR ORBITAL	1
K1	69		WASHER Ø5.5XØ11X0.8	4
K8	70		SCREW M4X16	2
K18	77		SPONGE	1
K18	78		EXTENSION WIRE	1
K18	79		BATTERY CONNECTIONS	1
K18	80		CABLE CLIP	1
	81		CHARGER WIRE	1
	K1A	VS13779	CONTROL PANEL KIT WITHOUT TRACTION DISC	1
	K1B	VS13780	CONTROL PANEL KIT WITH TRACTION DISC	1
	K1C/K1D	VS13781	CONTROL PANEL KIT ORBITAL	1
	K2A	VS13727	HANDLE KIT WITHOUT TRACTION	1
	K2B/K2C/K2D	VS13728	HANDLE KIT WITH TRACTION	1
	K3	VS10125	CHARGER FIX BRACKET KIT	1
	K4	VS10121	CONTROL BOX BOTTOM KIT	1
	K5A	VS10230	RELAY KIT	1
	K5B/K5C/K5D	VS10230	RELAY KIT	2
	K6	VS10231	ELECTROMAGNETIC SWITCH KIT	1
	K7	VS10122	FIX BRACKET KIT	1
	K8	VF90275	CLAMP DRAIN HOSE KIT	1
	K9	VS10232	CIRCUIT BREAKER KIT	2
	K10	VS13729	CONTROL BOX COVER KIT	1
	K11B	VS11201	CIRCUIT BREAKER KIT WITH TRACTION DISC	1
	K11C/K11D	VS13783	CIRCUIT BREAKER KIT WITH TRACTION ORBITAL	1
	K12	VF90280	CABLE SUPPORT KIT	1
	K13	VS13730	LEVER SQUEEGEE LIFTING KIT	1
	K14	VF90276	HAND BRACKET KIT	1
	K15	VS10126	CHARGER SOKET KIT	1
K2	K16	VS13731	SWITCH HANDLE ASSY	2
	K17A	VS13789	HARNESS MACHINE KIT WITHOUT TRACTION DISC	1
	K17B	VS13790	HARNESS MACHINE KIT WITH TRACTION DISC	1
	K17C/17D	VS13782	HARNESS MACHINE KIT ORBITAL	1

A: ONLY FOR DISC MACHINE WITHOUT TRACTION (CA60 20D)

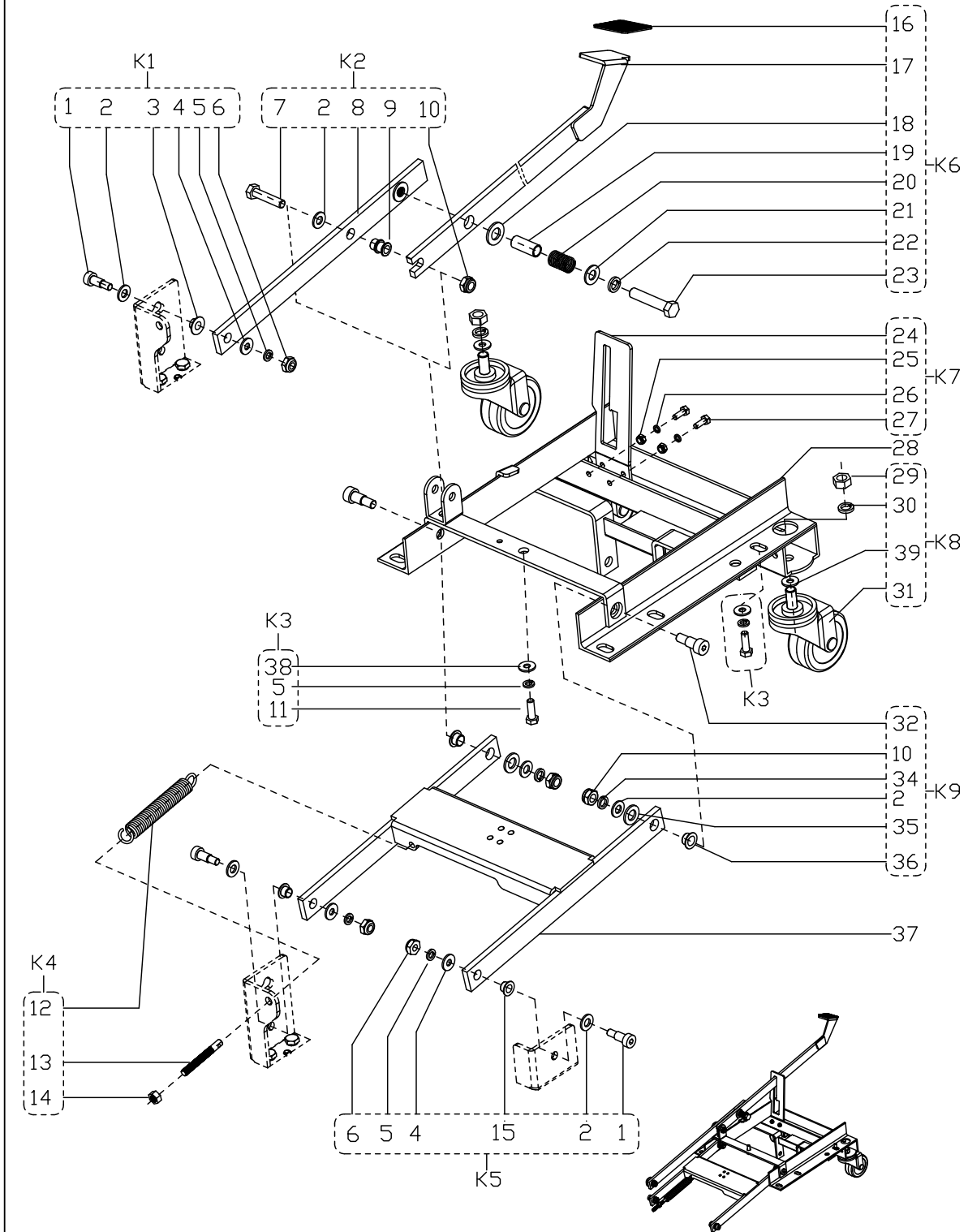
B: ONLY FOR DISC MACHINE WITH TRACTION (CA60 20TD)

C: ONLY FOR 20INCH ORBITAL MACHINE (CA60 20B)

D: ONLY FOR 24INCH ORBITAL MACHINE (CA60 24B)

PARTS LIST

CHASSIS ASSEMBLY (ONLY FOR DISC MACHINE)



PARTS LIST

CHASSIS ASSEMBLY (ONLY FOR DISC MACHINE)

Kit	Item	Part No.	Description	Qty
K1/K5	1		SCREW Ø10X16XM8	3
K1/k2/K5/k9	2		WASHER Ø10.3XØ25X2	4
K1	3		BUSHING	1
K1/ K5	4		WASHER Ø8XØ20X2	3
K1/K3/K5	5		SPRING WASHER Ø8	5
K1/K5	6		NUT LOCK M8	2
K2	7		SCREW M10X45	1
K2	8		FRONT PEDAL BRUSH LIFTING	1
K2	9		BUSHING	1
K2/K9	10		NUT LOCK M10	2
K3	11		SCREW M8X25	3
K4	12		SPRING	1
K4	13		AXIS	1
K4	14		NUT M8	1
K5	15		FLANGE BEARING	2
K6	16		PEDAL LEVER GASKET	1
K6	17		BACK PEDAL BRUSH LIFTING	1
K6	18		WASHER Ø15XØ28X2.5	1
K6	19		BUSHING	1
K6	20		RESET SPRING	1
K6	21		WASHER Ø12XØ24X2	1
K6	22		SPRING WASHER Ø12	1
K6	23		SCREW M12X60	1
K7	24		PEDAL SUPPORT	1
K7	25		NUT LOCK M6	2
K7	26		SPRING WASHER Ø6	2
K7	27		SCREW M6X22	2
	28	VS10406	CHASSIS	1
K8	29		NUT M12	2
K8	30		SPRING WASHER Ø12	2
K8	31	VS10501	3 INCH CASTER	2
K9	32		SCREW Ø12X16XM10	2
K9	34		SPRING WASHER Ø10	2
K9	35		NYLON PAD	2
K9	36		FLANGE BEARING	2
	37	VS10404	BRUSH LIFTING SUPPORT	1

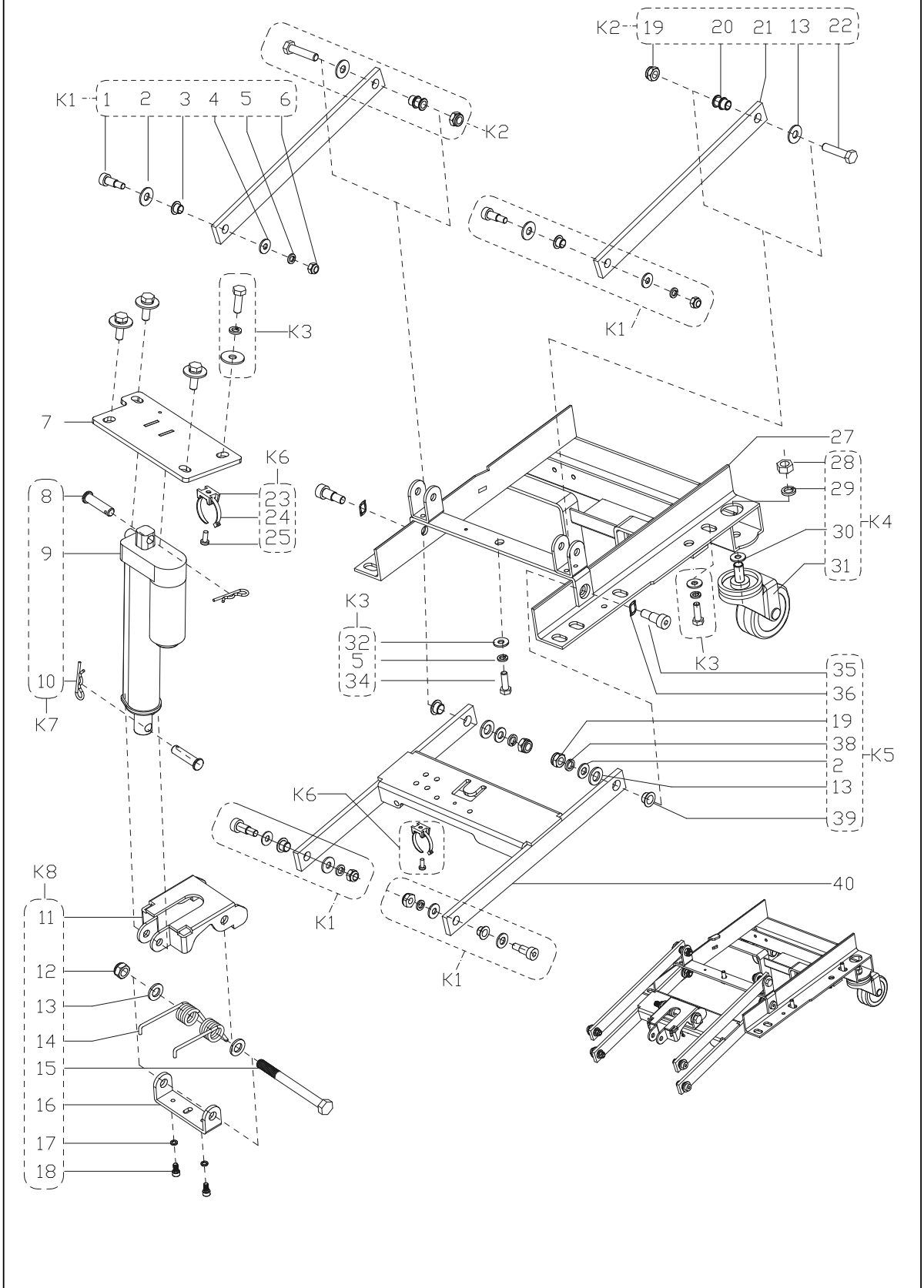
PARTS LIST

CHASSIS ASSEMBLY (ONLY FOR DISC MACHINE)

Kit	Item	Part No.	Description	Qty
K3	38		WASHER Ø8xØ26x2	3
	39		WASHER Ø812xØ24x2	2
	K1	VS10134	SCREW KIT 1	1
	K2	VS10138	FORNT PEDAL BRUSH LIFTING KIT	1
	K3	VS10135	SCREW KIT 2	1
	K4	VS10139	SPRING KIT	1
	K5	VS10136	SCREW KIT 3	2
	K6	VS10140	BACK PEDAL BRUSH LIFTING KIT	1
	K7	VS10141	PEDAL SUPPORT KIT	1
	K8	VS10142	3 INCH CASTER KIT	2
	K9	VS10137	SCREW KIT 4	2

PARTS LIST

CHASSIS ASSEMBLY (ONLY FOR ORBITAL MACHINE)



CHASSIS ASSEMBLY (ONLY FOR ORBITAL MACHINE)

Kit	Item	Part No.	Description	Qty
K1	1		SCREW Ø10X16XM8	4
K1/K5	2		WASHER Ø10.3XØ25X2	4
K1	3		BUSHING	4
K1	4		WASHER Ø8XØ20X2	4
K1/K3	5		SPRING WASHER Ø8	4
K1	6		NUT LOCK M8	4
	7	VS13402	ACTUATOR HOLDER	1
K7	8		PIN	2
K7	9	VS10704	ACTUATOR	1
K7	10		SPLIT PIN	2
K8	11		SWING ARM	1
K8	12		NUT LOCK M12	1
K8/ K2/K5	13		NYLON WASHER	2
K8	14	VS13613	TORSIONAL SPRING	1
K8	15		SCREW M12X115	1
K8	16		SWING ARM HOLDER	1
	17		SPRING WASHER Ø 6	2
	18		SCREW M6X12	2
K2/K5	19		NUT LOCK M10	2
K2	20		BUSHING	2
K2	21		CONNECTING ROD	2
K2	22		SCREW M10X45	2
K6	23		FLAT TIE HOLDER	1
K6	24		CLAMP	1
K6	25		SCREW TM5X12	1
	27	VS13431	CHASSIS	1
K4	28		NUT M12	2
K4	29		SPRING WASHER Ø12	2
K4	30		WASHER Ø12xØ24x2	2
K4	31	VS13623	3 INCH CASTER	2
K3	32		WASHER Ø8xØ26x2	9
K3	34		SCREW M8X25	9
K5	35		SCREW Ø12X16XM10	2
K5	36		WAVE WASHER	2
K5	38		SPRING WASHER Ø 10	2
K5	39		BUSHING	2
	40	VS10404	BRUSH LIFTING SUPPORT	1
	K1	VS10136	SCREW KIT 1	4
	K2#	VS13760	CONNECTING ROD WITH SCREW K2	2
	K3	VS10135	SCREW KIT 3	9

: REVISED OR NEW SINCE LAST UPDATE

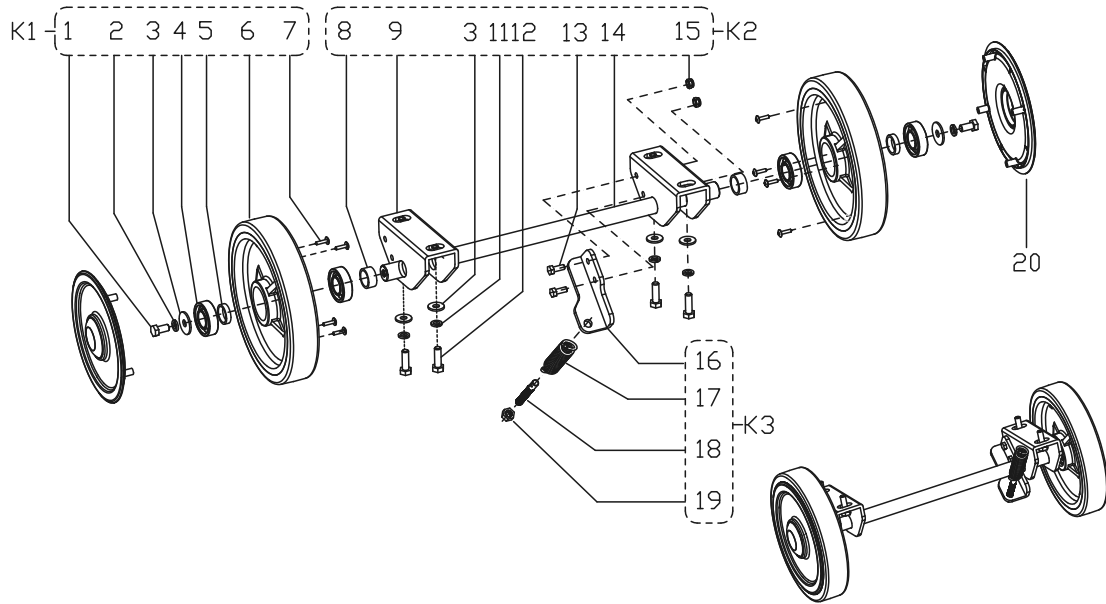
CHASSIS ASSEMBLY (ONLY FOR ORBITAL MACHINE)

Kit	Item	Part No.	Description	Qty
	K4	VS13757	3 INCH CASTER KIT	2
	K5#	VS13761	SCREW KIT 4 FOR CHASSIS	2
	K6	VS13702	WIRE CLASPS KIT	2
	K7	VS13762	ACTUATOR KIT	1
	K8	VS13763	SPRING HOLDER KIT	1

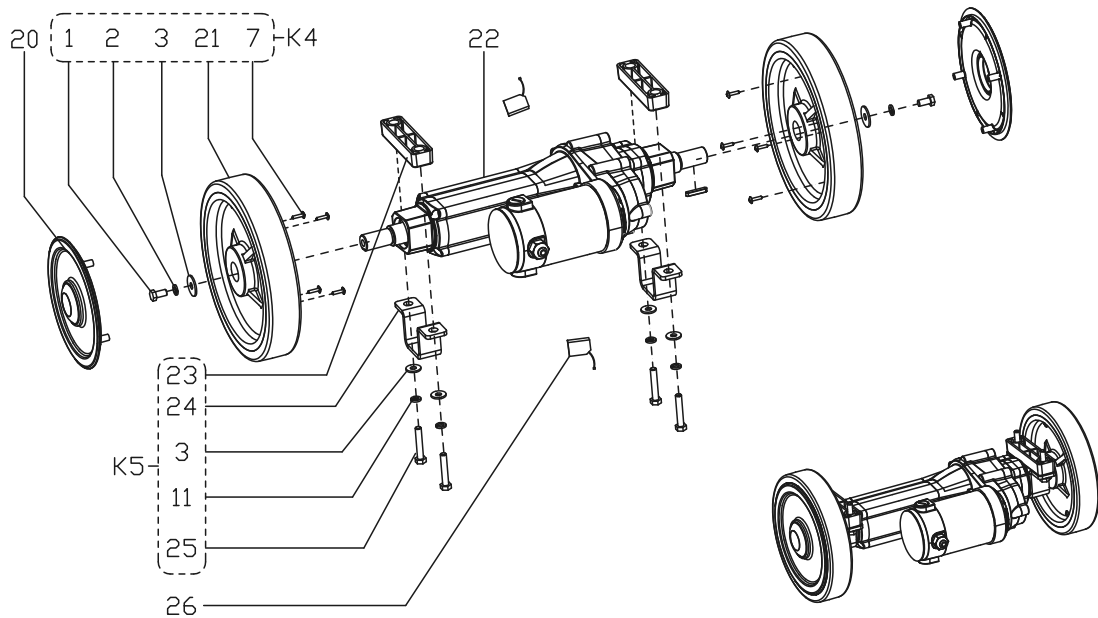
: REVISED OR NEW SINCE LAST UPDATE

PARTS LIST

WHEEL ASSEMBLY (ONLY FOR DISC MACHINE WITHOUT TRACTION)



WHEEL ASSEMBLY (ONLY FOR DISC MACHINE WITH TRACTION)



PARTS LIST

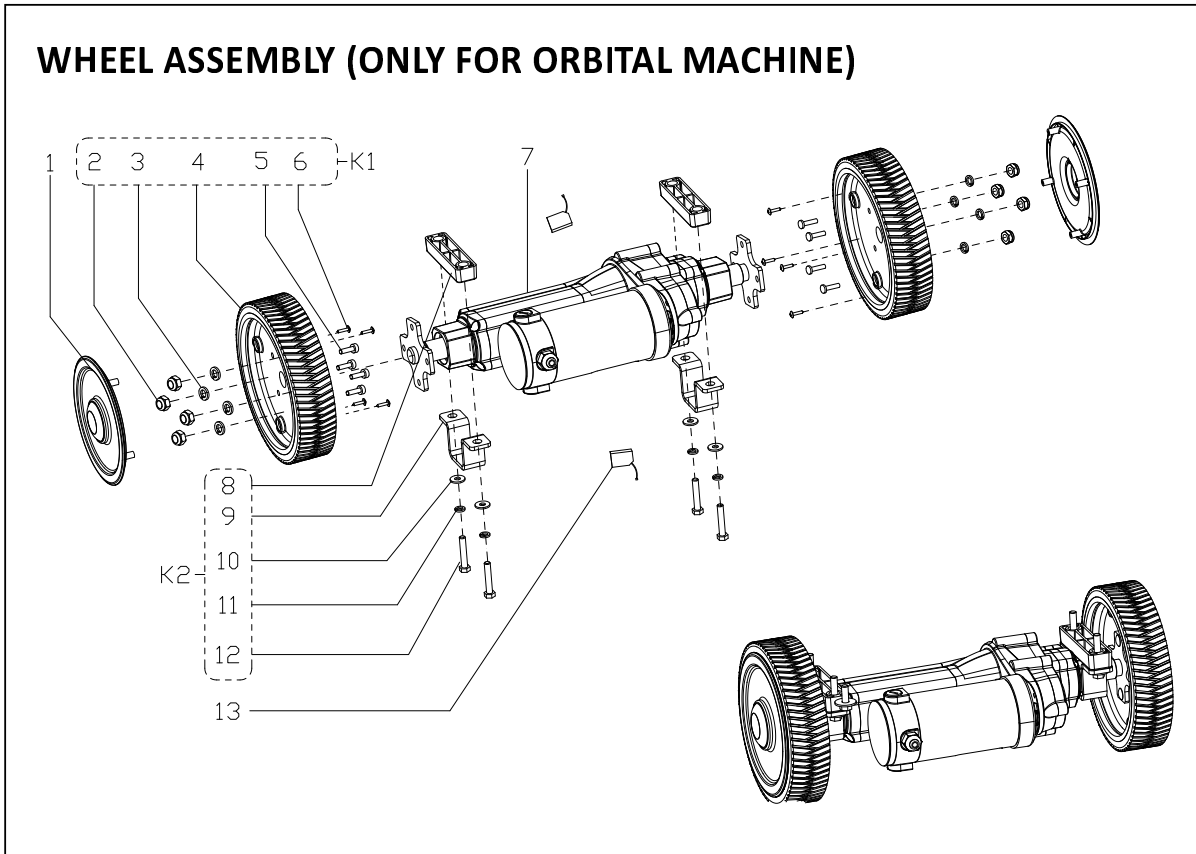
WHEELS ASSEMBLY (ONLY FOR DISC MACHINE)

Kit	Item	Part No.	Description	Qty
K1/K4	1		SCREW M8X16	2
K1/K4/K2	2		SPRING WASHER Ø8	2
K1/K4	3		WASHER Ø8XØ26X2	8
K1	4A	VF14075	BEARING 6004RS	2
K1	5A		SPACER Ø20XØ24.5X6	1
K1	6A		8 INCH WHEEL	1
K1/K4	7		SCREW ST3.5X16	8
K2	8A		SPACER Ø20XØ24.5X15	2
K2	9A		WHEEL SHAFT FIXED PLATE	2
K2/K5	11		SPRING WASHER Ø8	8
K2	12A		SCREW M8X25	4
K2	13A		SCREW M6X16	2
K2	14A		SHEEFT WHEEL	1
K2	15A		NUT LOCK M6	2
K3	16A		PRESSURE SPRING FIXED BLOCK	1
K3	17A		SPRING	1
K3	18A		AXIS	1
K3	19A		NUT M8	1
	20	VS13314	WHEEL COVER	2
	21B		8 INCH WHEEL	2
	22B	VS11702	MOTOR TRACTION	1
K5	23B		TRACTION MOUNT BLOCK	2
K5	24B		TRACTION MOUNT	2
K5	25B		SCREW M8X45	4
	26	VS11703	CARBON BRUSH KIT	2
	K1A	VS13754	8 INCH WHEEL WITHOUT TRACTION KIT	2
	K2A	VS10144	WHEEL SHAFT FIXED PLATE KIT	1
	K3A	VS10145	SPRING KIT	1
	K4B	VS13755	8 INCH WHEEL WITH TRACTION KIT	2
	K5B	VS10147	TRACTION MOUNT KIT	2

A: ONLY FOR DISC MACHINE WITHOUT TRACTION (CA60 20D)

B: ONLY FOR DISC MACHINE WITH TRACTION (CA60 20TD)

PARTS LIST



WHEELS ASSEMBLY (ONLY FOR ORBITAL MACHINE)

Kit	Item	Part No.	Description	Qty
	1	VS13314	WHEEL COVER	2
K1	2		NUT LOCK M6	8
K1	3		WASHER Ø6	8
K1	4	VS13624	8 INCH WHEEL WITH TRACTION	2
K1	5		SCREW M6	8
K1	6		SCREW ST3.5X16	8
	7	VS11704	250W MOTOR TRACTION	1
K2	8		TRACTION MOUNT BLOCK	2
K2	9		TRACTION MOUNT	2
K2	10		WASHER Ø8XØ26X2	4
K2	11		SPRING WASHER Ø8	4
K2	12		SCREW M8X45	4
	13	VS11703	CARBON BRUSH KIT	2
	K1	VS13756	8 INCH WHEEL TRACTION KIT	2
	K2	VS10147	TRACTION MOUNT KIT	2

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