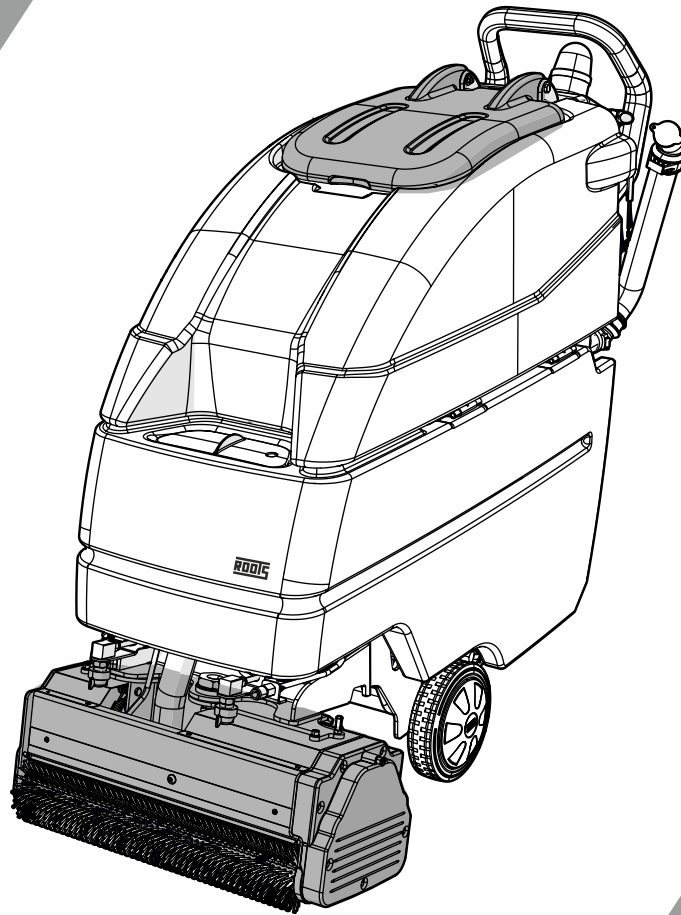


RootsScrub E4550 ES

Escalator/Travelator Cleaner
Electric



230V/50Hz
220V/60Hz

Operator's Manual & Illustrated Parts List

Read this manual completely and understand the
instructions before operating the machine.
"English Version"

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OPERATOR'S MANUAL:

ROOTS philosophy is to continually improve all of its products. For this reason we may modify the design, appearance and engineering of our products periodically. Therefore, some changes, modifications and improvements may not be covered in this manual.

For the latest Operator's Manual, visit:

www.rootsmulticlean.com/user-manual/

IMPORTANT NOTE:

Roots Multiclean Ltd. (RMCL) is not liable for any legal claims that may arise as a direct or indirect result of the contents of this manual.

Roots Multiclean Ltd.

R.K.G. Industrial Estate, Ganapathy,
Coimbatore - 641 006, India.

MACHINE DATA

Please fill at the time of installation for future reference:

Model No. - _____

Serial No. - _____

Accessories - _____

Installation Date - _____

P/N: 557520002-00, Rev: C, Date: 02/2020

Prepared by: KM-NPM TD Dept.



PREFACE

Dear Customer,

We are pleased with your having chosen the **RootsScrub E4550 ES** machine for your escalator cleaning requirements. Backed by our industry expertise that spans across decades, we assure you that the machine comes with our Roots promise of quality, efficiency and performance.

We advise you to carefully read through the instructions prior to the operation of the machine. This manual contains detailed instructions for the proper operation of the machine, along with important information regarding its handling, care, maintenance and service needs.

We are sure that you will find the machine and its performance to your utmost satisfaction. Once again, we thank you for choosing Roots Multiclean Ltd. (RMCL) as a trusted partner for your cleaning requirements and solutions.

USAGE, HANDLING AND MODIFICATIONS

Use of the product beyond the specified scope of functioning is deemed improper and the manufacturer cannot be held liable for any damages which may arise due to this.

This machine may be used only by persons who are trained or are familiar with the machine and are aware of the possible hazards involved. The appropriate Accident Prevention Regulations as well as applicable general regulations pertaining to Safety and Health at the work place must be adhered to by the user.

Modifications made to machine without the manufacturer's consent will relieve the manufacturer of responsibility and any possible liability for consequential damage.

NOTES ON DOMESTIC WARRANTY

Please refer to the **Limited Warranty card supplied along with the machine** for additional information. This Warranty Policy is applicable only for the product sold within India.

If the product requires repair or maintenance work to be performed, please ensure that you get the machine serviced from an authorised service center or dealer of RMCL to ensure that the warranty is not void.

ACCEPTANCE OF THE MACHINE

On arrival of the machine at the shipping address, please check for any damage that may have occurred as a result of transit. In the event of any such damage, the purchaser is bound by responsibility to send a claim letter to the concerned authorized branch/dealer with a copy of the invoice. The letter should be sent within 24 hours of receipt of the machine.

THE MANUAL

All information contained is without obligation. RMCL particularly reserves the right to modify any equipment, technical specifications, colours, shapes, materials and the like so as to adapt them to local conditions all without previous announcement and without giving reasons. RMCL may stop manufacturing certain models without previous notice.

The Operator's Manual corresponds to the latest information available for this machine at the time it was printed. Minor deviations resulting from enhancements of the design cannot be entirely represented.

The Operator's Manual is an integral part of the machine and must not be misplaced.

RMCL reserves the right to change the product or contents of this manual without prior information.

For Battery, Motors, Engines and other OEM components related kindly refer to their manufacturers manual supplied along with the machine for instructions regarding usage, maintenance and service.

NOTE:

- ➔ **ILLUSTRATIONS SHOWN IN THIS MANUAL ARE FOR REPRESENTATIVE PURPOSE ONLY. ACTUAL PRODUCT MAY VARY.**
- ➔ **ROOTS reserves the right to change the product or contents of this manual without prior information.**
- ➔ **For Engine, Battery, Motors, Blowers or other OEM components related information kindly refer to their manufacturers manual supplied along with the machine for instructions regarding usage, maintenance and service.**



Prior to first operation, read the manual carefully and strictly comply with the instructions contained.

The Operator's Manual is an integral part of the machine and must not be misplaced.



INTENDED USE

This escalator cleaner is intended for cleaning escalators and travelators, for example in airports, train stations, shopping malls, resorts, hotels, etc. It is designed to clean escalator steps/travelator pallets in an indoor/outdoor environment. This machine is not intended for scrubbing floors. Use only recommended brushes.

Do not use this machine in any other way other than described in this Operator's Manual.

TECHNICAL SPECIFICATION - 230V/50Hz



Rated voltage - **230 V**

Rated current - **8 A**



Frequency - **50 Hz**

Brush motor power (max) - **750 W**

Vacuum motor power (max) - **850 W**

Water pump power (max) - **100W**

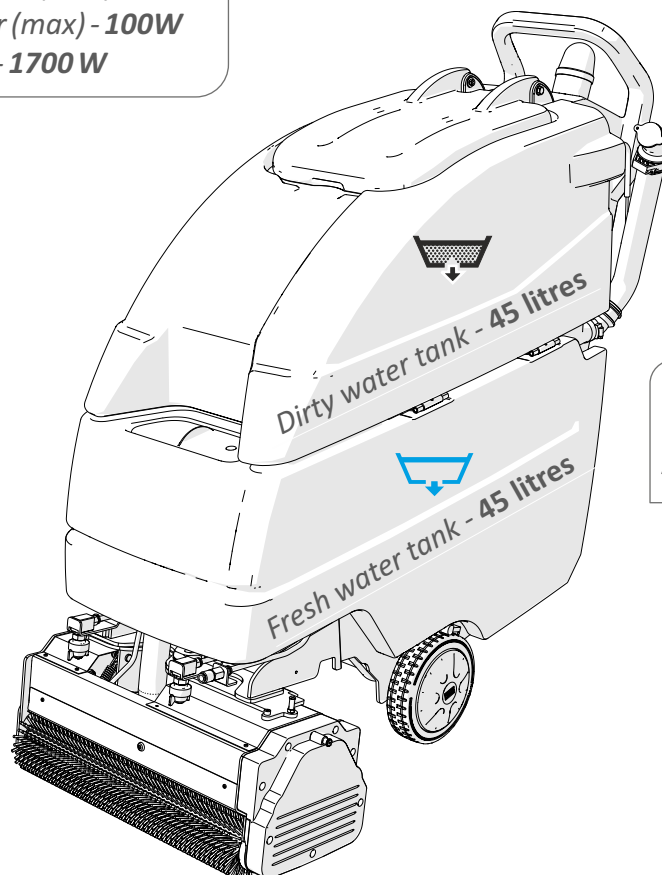
Total power (max) - **1700 W**



Vacuum pressure,
max. - **160 mm of Hg**

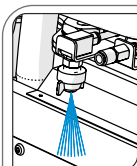


Noise level - **78 dB**



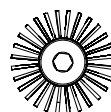
Dead weight, dry - **120 kg**

Total weight, ready to
operate - **160 kg**



Wet nozzle discharge - **0.46 lpm**

Suction nozzle discharge - **0.56 lpm**

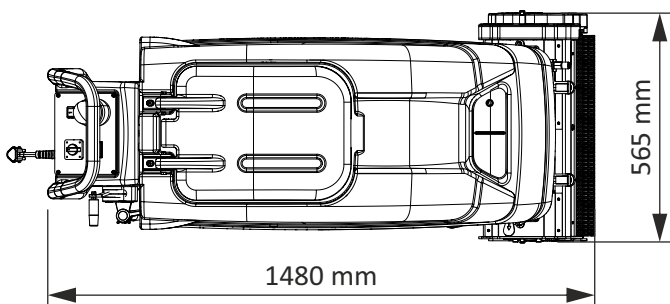
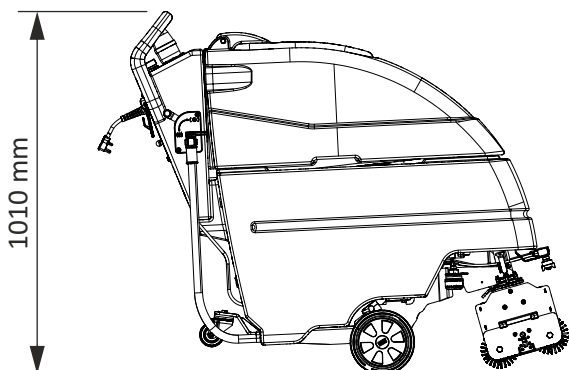


No. of brushes per machine - **2 sets**

Brush diameter - **115 mm**

Brush speed - **400 rpm**

Scrubbing width - **500 mm**



TECHNICAL SPECIFICATION - 220V/60Hz



Rated voltage - **220 V**

Rated current - **8 A**



Frequency - **60 Hz**

Brush motor power (max) - **750 W**

Vacuum motor power (max) - **850 W**

Water pump power (max) - **100W**

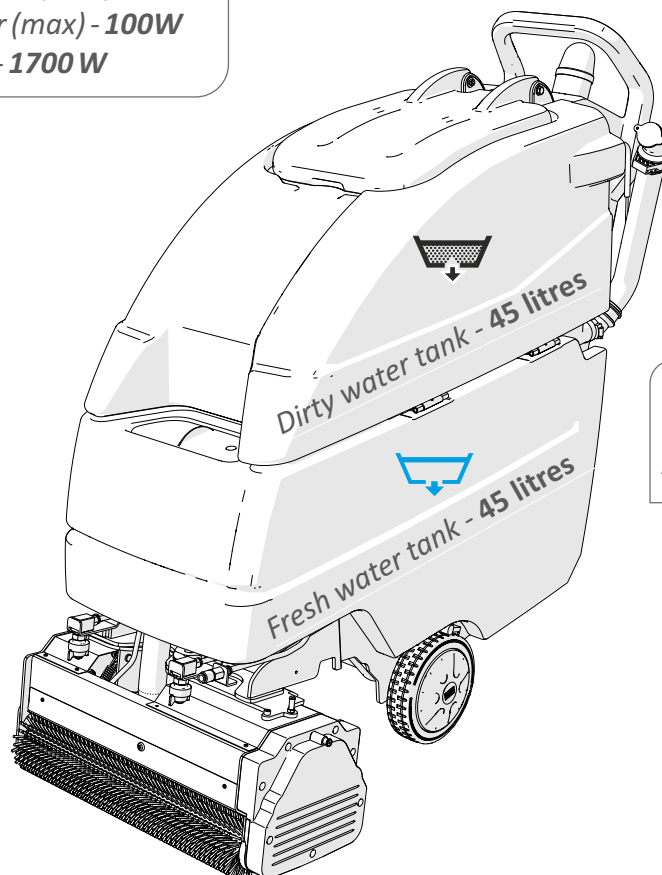
Total power (max) - **1700 W**



Vacuum pressure,
max. - **160 mm of Hg**

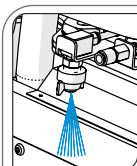


Noise level - **78 dB**



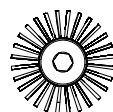
Dead weight, dry - **120 kg**

Total weight, ready to
operate - **160 kg**



Wet nozzle discharge - **0.46 lpm**

Suction nozzle discharge - **0.56 lpm**

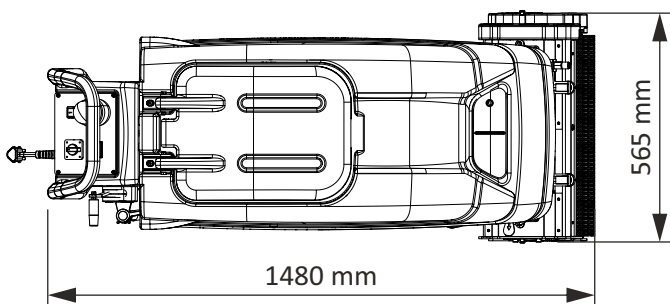
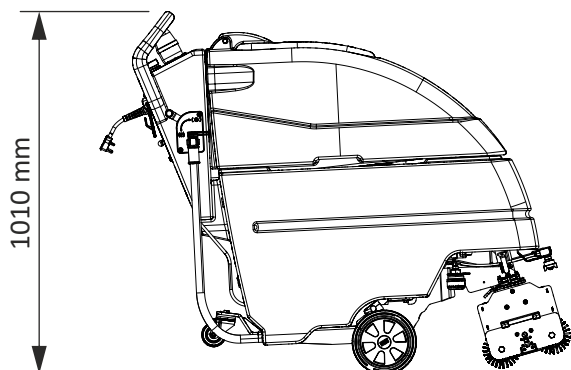


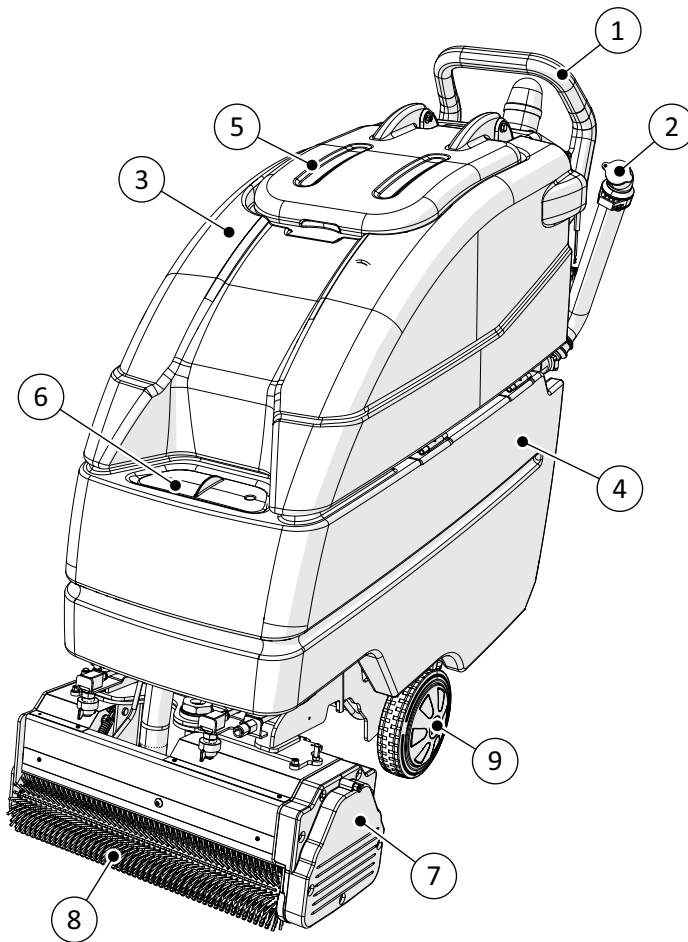
No. of brushes per machine - **2 sets**

Brush diameter - **115 mm**

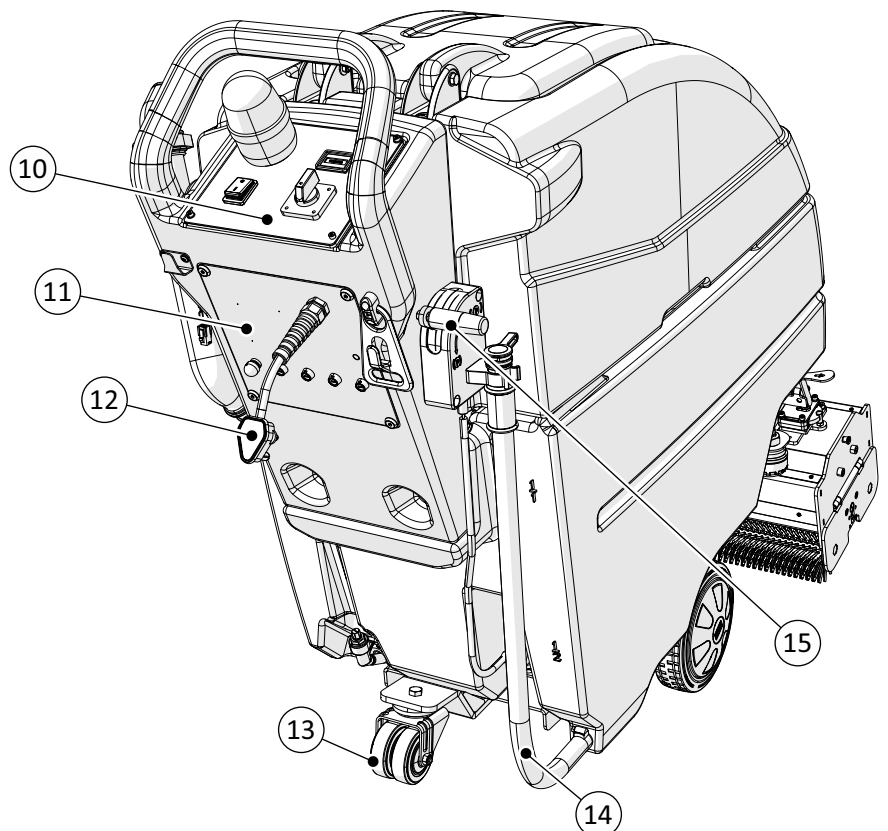
Brush speed - **478 rpm**

Scrubbing width - **500 mm**

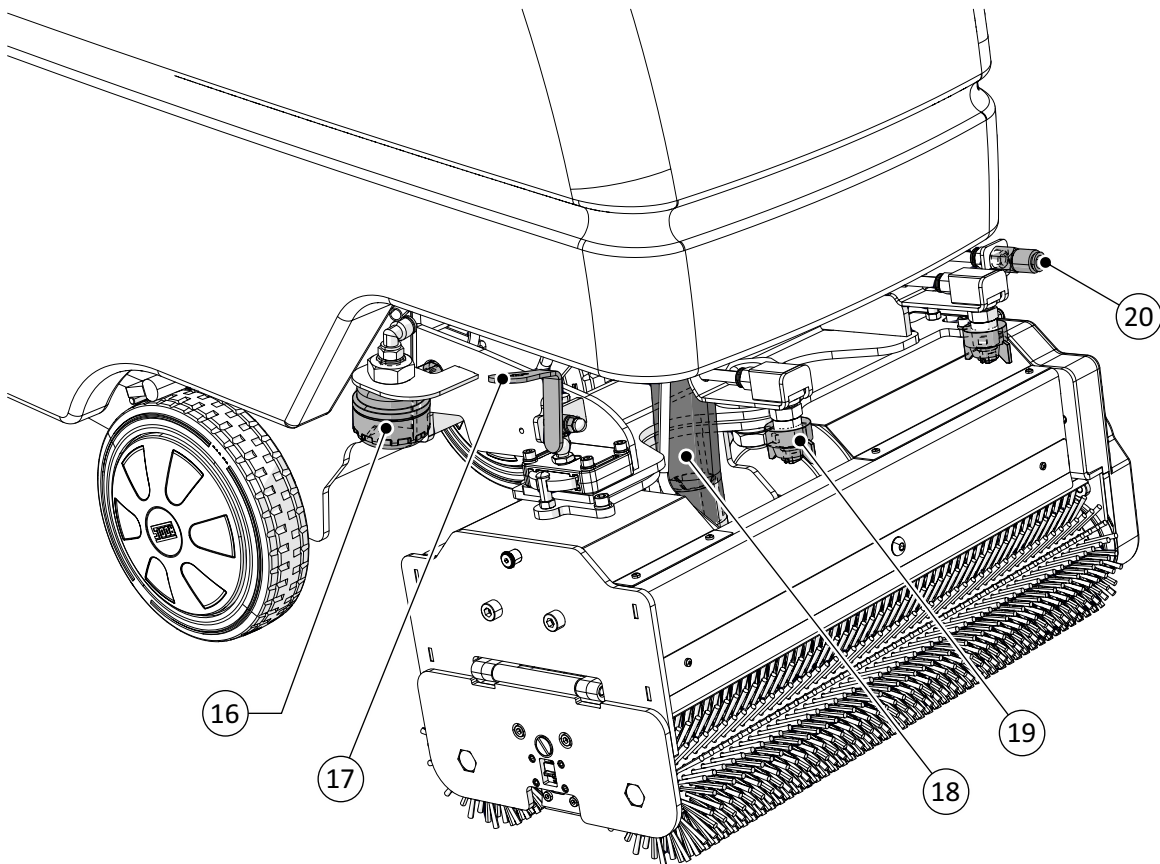




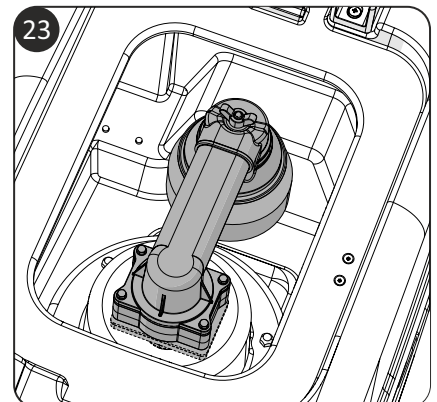
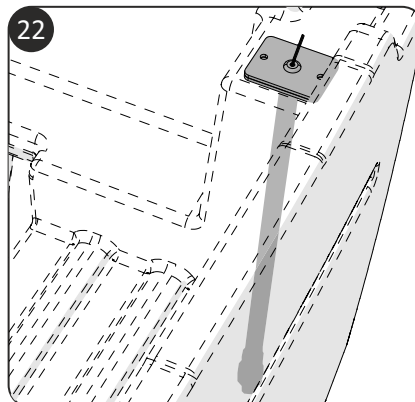
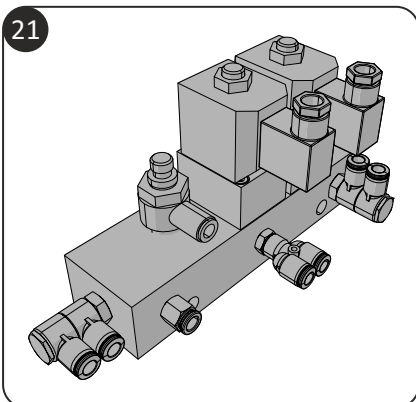
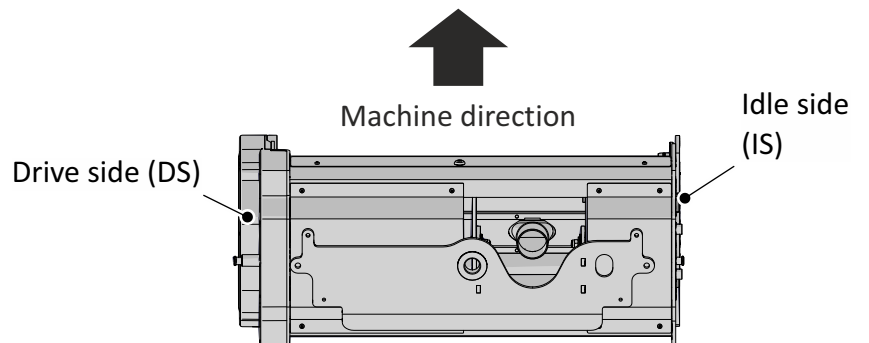
1. Handle
2. Dirty water drain hose
3. Dirty water tank
4. Fresh water tank
5. Dirty water tank lid
6. Fresh water fill port with filter
7. Swivel type brush head
8. Cylindrical brushes
9. Main wheel

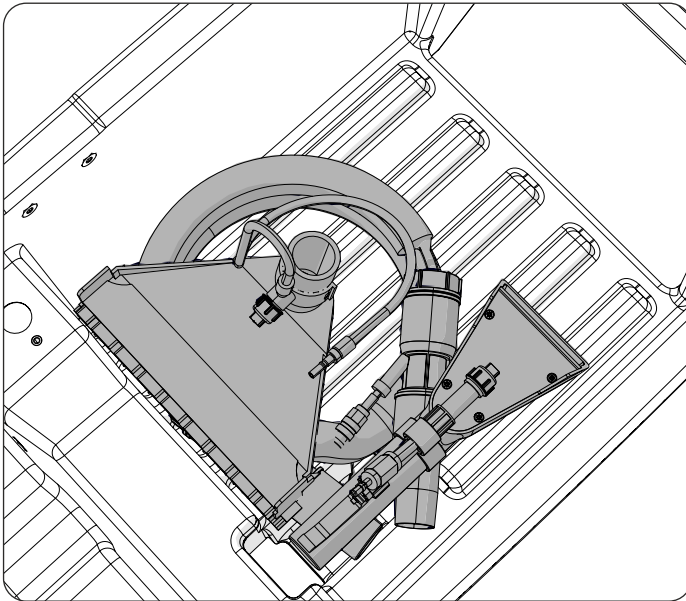
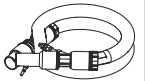


10. Control panel
11. Electrical fuse panel
12. Main power cord
13. Swivel castor wheel
14. Fresh water drain hose
15. Parking brake lever



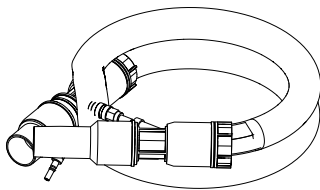
- 16. Filter for water pump
- 17. Lever to rotate brush head
- 18. Suction hose
- 19. Water spray nozzle
- 20. Accessories attachment point
- 21. Water manifold
- 22. Electrical float switch
- 23. Float for vacuum shut-off





Accessories storage location

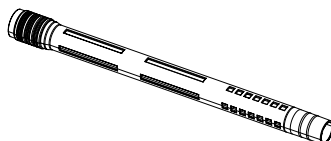
1. Hose assembly with adaptor: Flexible hose, used to extend the reach of the operator when using the external accessory while cleaning hard to reach areas.



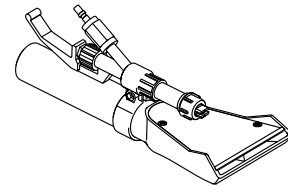
2. Raiser cleaner: Used to clean the riser section of the escalator step.



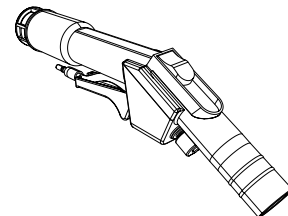
3. Extension handle - straight: Used to extend the reach of the operator to clean the escalator steps with an external accessory.



4. Floor cleaner: Used to clean the landing platform of the escalator unit. It can also be used to clean the spill.



5. Trigger assembly: Used to attach the hose with other accessories.



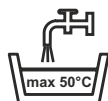
DECALS ON THE MACHINE



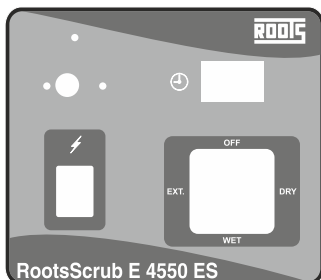
These labels appear on the machine in the locations indicated. If any label becomes damaged or illegible, install a new label in its place.



(1)



(2)



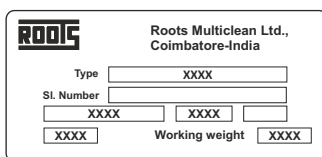
(3)



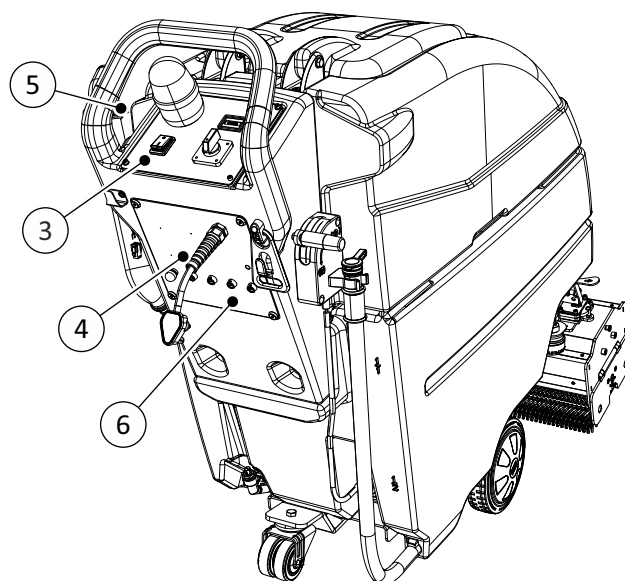
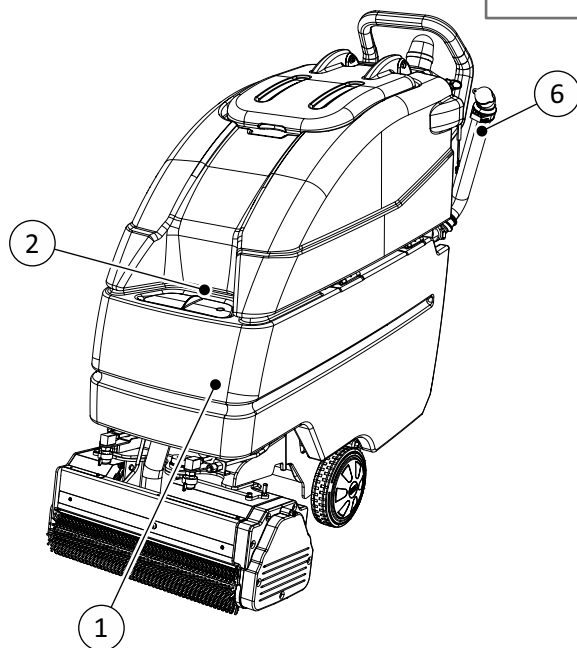
(4)



(5)



(6)



1. ROOTS logo
2. Max temperature for fresh water
3. Control panel sticker
4. WARNING - Read Manual
5. Dirty water drain
6. Nameplate sticker

SAFETY INSTRUCTIONS



SAFETY & WARNING SYMBOLS

All paragraphs in this manual referring to you personal safety, the safety of your machine and the environmental protection are attributed one of the following warning symbols:

Safety Provisions (persons and goods)



Safety provisions in dangerous situation caused by misuse inaccurate adherence of instruction or prescribed work routine.

Caution (the machine)



Important information on handling the machine in order to maintain operability.

Ecological Hazard (the environment)



Due to use of substances representing an inherent danger to health of environment.

Read Manual



Prior to first operation, read the manual carefully and strictly comply with the instructions contained.

SAFETY INSTRUCTIONS

Electrical Power Connection Safety Instructions:



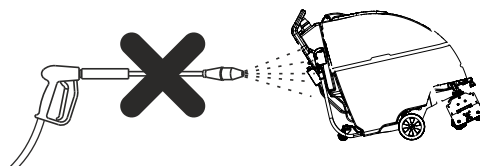
DANGER

- The voltage indicated on the name plate must correspond to the voltage of the electrical source.
- While working with fluids (such as detergents), we recommend the use of a safe socket with over current protection.
- Please use the mains cable authorized by the manufacturer; the same is also applicable when you replace the internal cables.
- Check the power cord with mains plug for damage before every use. If the power cord is damaged, please arrange immediately for the exchange by an authorized customer service or a skilled electrician.
- Never touch the mains plug with WET hands.
- Make sure that the power cord or extension cables are not damaged by running over, pinching, dragging or similar. Protect the cable from heat, oil, and sharp edges.

- The power cord must be checked regularly for damages, such as cracks or aging. If damage is found, the cable must be replaced before further use.
- If couplings of the power cord or extension cable are damaged replace the splash protection and the mechanical tightness must be ensured.



DO NOT CLEAN THE MACHINE WITH A WATER HOSE OR HIGH-PRESSURE WATER JET (DANGER OF SHORT CIRCUITS OR DAMAGE TO MACHINE).



Application Safety Instructions:



DANGER

- The water level indication hose must be cleaned regularly and checked for signs of damage.
- Never scrub or vacuum up explosive liquids, combustible gases, explosive dusts as well as undiluted acids and solvents! This includes petrol, paint thinner or heating oil which can generate explosive fumes or mixtures upon contact with the suction air. Acetone, undiluted acids and solvents must also be avoided as they can harm the materials on the machine.
- Do not scrub or vacuum up any burning or glowing objects.
- Do not use this machine as a vacuum cleaner.
- Humans and animals must not be scrubbed/vacuumed with this machine.
- This machine must not be used to scrub/vacuum floors.
- Only use chemicals recommended by the manufacturer and comply with their application, disposal and warning guidelines.
- Do not use the recommended detergents in an undiluted state. The products are safe for operations as they do not contain any acids, alkalis or environment hazardous substances. We recommend to keep the detergents out of reach of children. If the detergent comes in contact with the eyes, please rinse the eyes thoroughly with water, consult a doctor immediately if the detergent has been swallowed.



CAUTION

- This machine is not suitable for vacuuming dust. This endangers health.
- Please follow the regulations for disposing off dirty water.
- This machine is not a vacuum cleaner! Never suck in more fluid than what has been sprayed. Do not use to suck in dry dust!
- This machine must be used only on indoor escalators.

SAFETY INSTRUCTIONS



Operation Safety Instructions:

DANGER

- The operator must use the machine properly. The operator must consider the local conditions and must pay attention to third parties, in particular with children, when working with the machine.
- Always use appropriate gloves while working on the machine.
- The machine may only be used by persons who have been instructed in handling the machine or have proven qualification and expertise in operating the machine or have been explicitly assigned the task of handling the machine.
- The machine must not be operated by children or persons who have not been instructed accordingly.
- This machine is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge.
- Children should be supervised to prevent them from playing with the machine.
- Turn off the machine immediately in case of leaks.
- Caution! Switch the machine off immediately in case foam or liquid escape!
- Do not open the hood/guards when the motor is running.
- Before operating the machine ensure that the escalator is in perfect working condition.
- **The machine must be positioned only at the lower level of the escalator while cleaning.**
- Ensure that the parking brake is engaged before operation.

Transport Safety Instructions:

WARNING

- The brush motor should be shut off and the brush head must be raised.
- All water systems must be shut off to prevent water spill/wastage
- Accessories if attached must be disconnected.

Maintenance Safety Instructions:

WARNING

- Switch off the power prior to performing any cleaning or maintenance tasks on the machine, replacing parts or switching over to another function. In the case of mains operated machines, remove the mains plug.
- Maintenance work may be carried out only by approved customer service outlets or experts in this field who are familiar with the respective safety regulations.
- Please observe the local safety regulations regarding portable commercially used machines.
- When performing any maintenance or service tasks ensure that the machine is away from the escalator.

Spare Parts & Accessories:

WARNING

Only use accessories and spare parts which have been approved by the manufacturer. The exclusive use of original accessories and original spare parts ensures that the appliance can be operated safely and trouble free.

Equipments With Rotating Brushes:

DANGER

- Use only brushes that are provided with the machine or specified in the Operations Manual. The use of other brushes can affect the safety of the machine.
- Please keep in mind that the power cord or extension cable can be damaged when run over while operating the cleaning head with rotating brushes or the escalator itself.

DANGER - Do Not Scrub Or Vacuum:
**Corrosive/Battery Fluids/Explosive/Flammable/
Magnetic/Radio-active/Biohazard Materials.**



Motorized Suction Head:

CAUTION



Safety Gear:







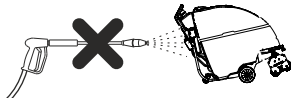
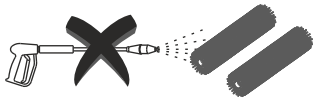
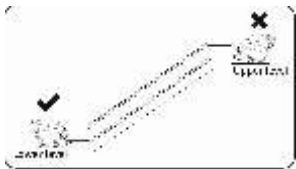





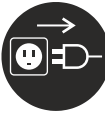

As necessary



SAFETY INSTRUCTIONS



SYMBOL & HAZARD PICTORIAL DEFINITIONS

 <p>Read the Operator's Manual</p>	 <p>General Warning</p>	 <p>Caution</p>	 <p>Ecological Hazard</p>
 <p>Motorized Brush Head</p>	 <p>Toxic Hazard</p>	 <p>Do Not Use High Pressure Jets</p>	 <p>Do Not Use High Pressure Jets</p>
 <p>Position Warning</p>	 <p>Reset Warning</p>	 <p>Electrical Hazard</p>	 <p>STOP No Access</p>
 <p>No Smoking</p>	 <p>Do not let powercord come in contact with water or other fluids.</p>	 <p>Disconnect Powercord</p>	 <div> <p>⚠ DANGER</p> <p>Electrical Shock or Burn Hazard.</p> <p>Turn off power supplying this equipment before working on it.</p> </div> <p>Electric Shock Hazard</p>

MACHINE OPERATION

OPERATOR RESPONSIBILITY

The operator's responsibility is to take care of the machine's daily maintenance and routine checkups to keep the machine in good working condition.

The operator must also inform the supervisor when scheduled maintenance of the machine is to be carried out.



Read this manual completely and understand before operating this machine. Also ensure that the persons who are going to operate this machine have also read and understood the contents of this manual.

**Do not use this machine to collect any external water.
Do not use this machine as a vacuum cleaner.**

**THIS MACHINE IS INTENDED TO CLEAN ESCALATOR STEPS
ONLY AND NOT FOR REGULAR FLOORS.**

Environmental Responsibility



The packaging material can be recycled. Please do not place the packaging into the ordinary refuse for disposal, but arrange for the proper recycling.



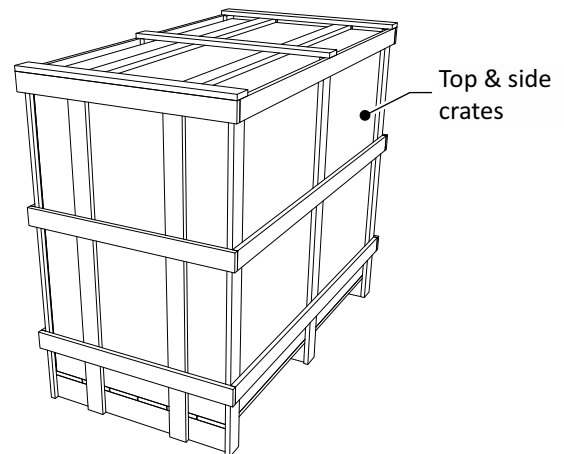
Old machines contain materials that can be recycled. Please arrange for the proper recycling of old machines. Batteries, electrical & electronic components contain substances that must not enter the environment. Please dispose off your old machine, batteries, electrical & electronic components using appropriate collection systems at the end of the product's life cycle.

UNLOADING

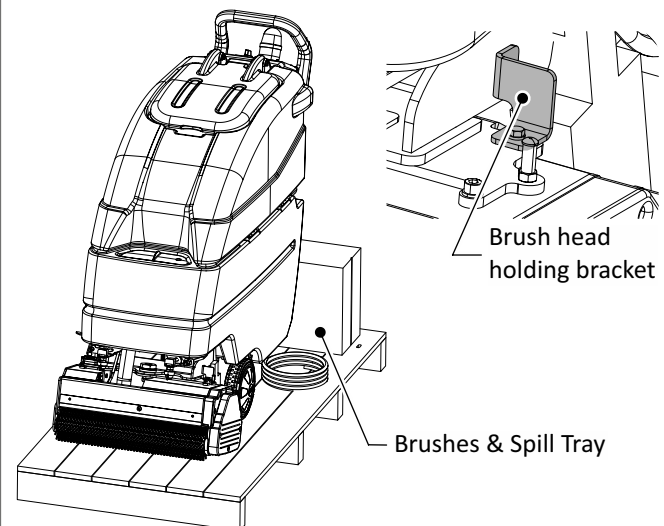


The machine is shipped in a packed condition to the customer's place. To unpack the machine follow the below steps:

- ➔ Remove the packing crates from the sides and the top.
- ➔ Remove the box containing the brushes and the spill tray.
- ➔ Remove the brush head holding brackets (2 nos).
- ➔ Cut the retaining straps at the front and rear.
- ➔ The main power cord is wound and strapped to pallet, ensure that the straps are removed.
- ➔ Carefully lift the machine from the pallet and place it on the floor.



(Packed condition)



NOTE

- ☞ Care should be taken when removing the packing crate as not to damage the machine.
- ☞ Ensure that sufficient man power is used to lift the machine. (Approximate weight of the machine is 120 kg.)
- ☞ Owner's personnel are not allowed to unpack the machine.

MACHINE OPERATION

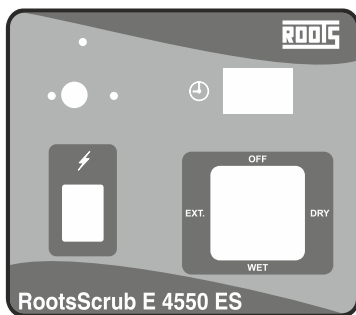
WORKING PRINCIPLE



Working Principle of the Machine

A pair of suitable brushes are required for dry/wet cleaning of the escalator steps. The rotating brush scrubs the escalator step thoroughly, removing dirt through suds, thereby cleaning the escalator step. The dirty water is drawn during the same cycle through the inbuilt suction system.

CONTROL PANEL SYMBOLS

These symbols identify controls switches on the machine:



 Power - Beacon light glows when the machine is turned On.	 Hour meter - Displays the total number of hours the machine has been used.
<u>OFF</u> OFF - All machine functions are in Off condition.	<u>DRY</u> DRY - Machine is operated in dry mode.
<u>WET</u> WET - Machine is operated in wet mode.	<u>EXT</u> EXT - Machine is operated using external accessories. (if equipped)

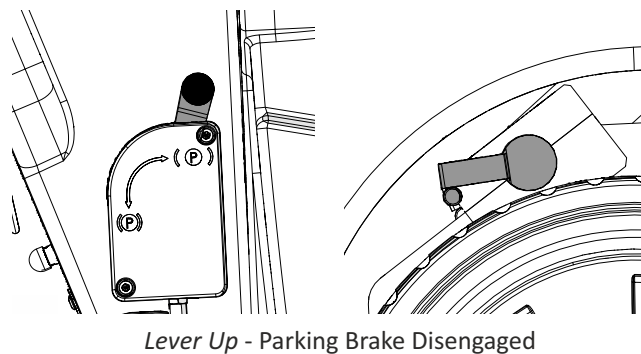
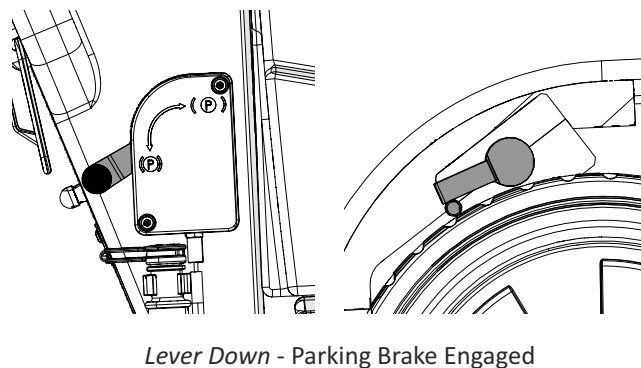
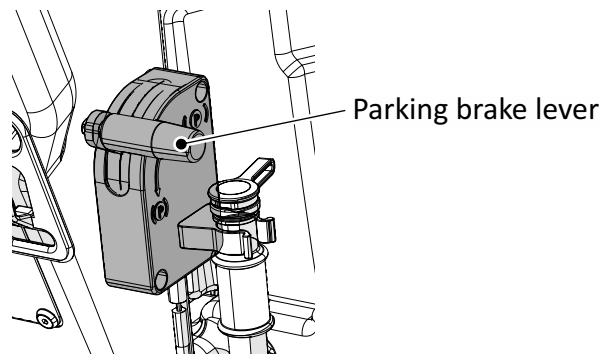
Parking Brake



The parking brake is used to prevent any unwanted movement of the machine during the cleaning operation.

A lever is used to operate the parking brake.

- *Lever position down* - parking brake engaged
- *Lever position up* - parking brake disengaged





Machine Operation:

It is the operator's responsibility to be knowledgeable of all potential operating hazards and to take every reasonable precaution to ensure safety of oneself, others, animals, and property.

This section of the Operator's Manual is designed to familiarize, instruct, and educate safe and proper machine use to the operator. The operator must be familiar with the machine operation and all associated safety practices before operating.

Proper operation of the machine, as detailed in this manual, will help ensure years of safe and satisfactory use of the machine.

READ, UNDERSTAND, and FOLLOW the safety messages. Serious injury or death may occur unless care is taken to follow the warnings and instructions stated in the safety messages. Always use good common sense to avoid hazards.



WARNING

Do not operate a damaged or malfunctioning machine. Risk of equipment failure or cause of injury or death or damage to property.

Operator Requirements:

Only qualified people are allowed to operate the machine. A qualified operator has to read and understand the owner's manual and should comply with its procedures. If any part of the operation and safe use of this equipment is not completely understood, consult an authorized dealer for a complete explanation.

If the operator cannot read the manuals for himself or does not completely understand the operation of the equipment, it is the responsibility of the supervisor to read and explain the manuals, safety practices, and operating instructions to the operator.

Employer Responsibilities:

- a. Train the employee to operate the machine in a safe way.
- b. Permit only qualified personnel to operate and service the machine.
- c. Instruct all operators to maintain the shields and guards in its proper working condition at all times.
- d. Ensure that the operators use approved Personal Protective Equipment at all times or whenever required.
- e. Forbid the operators to carry additional people on the truck or the machine.
- f. Ensure that nobody including the operator modifies or alters the machine or any of its function, doing so may cause fatal injury or death or it may damage the machine itself.
- g. Ensure that children do not operate the machine.

Before Starting the Machine:

Before operating the machine, ensure that the equipment is working properly and that you are prepared for sweeping operations by checking the Pre-operative checklist and testing the machine functions.



MACHINE OPERATION

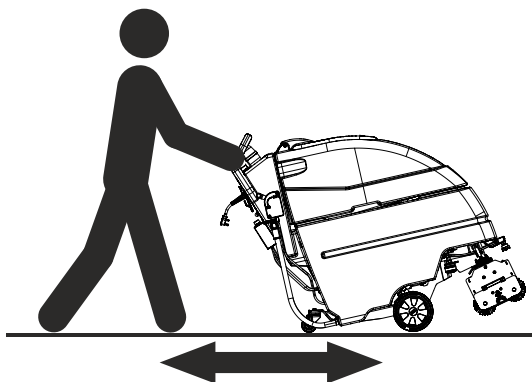
This section describes on how to use the machine under the following sections:

- ➔ Pre-scrubbing checkpoints
- ➔ Transporting the machine
- ➔ Filling of water and solution
- ➔ Water level setting
- ➔ Installation/Removal of brushes
- ➔ Raising/Lowering of brush head
- ➔ Scrubbing procedure
- ➔ End of scrubbing
- ➔ Draining of tanks

Pre-scrubbing Checkpoints

- Check the tank lid seals for damage and wear.
- Check the float for any stuck debris.
- Check the condition of the brushes. Remove any string, rope or other debris wrapped around them.
- Check the vacuum hose for blockage, damage.
- Ensure that the dirty water tank is drained and cleaned.
- Ensure that the electrical power rating matches that on the machine's nameplate.
- Check whether the brush head is locked securely before starting cleaning operations.
- Check the nozzles for any debris block.
- Check whether the debris tray is cleaned and locked in position.

Transporting the Machine



Use the handle provided to move the machine forward or backward. Steering the machine is enabled via a swivel castor wheel located at the rear of the machine.

Note: Ensure that the brush head is locked in position before transporting the machine.

- ➔ Care should be taken not to bump the machine onto the escalator, this will cause damage to the machine or the escalator itself.

! WARNING

Do not push or pull the machine at a fast pace if it is full of water, risk of tipping and damaging the machine or risk of running away and causing damage to property or persons.

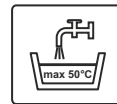
☞ CAUTION

Hold the handles tightly when going down or up a slope. Use industrial gloves for better grip (if required).

! WARNING

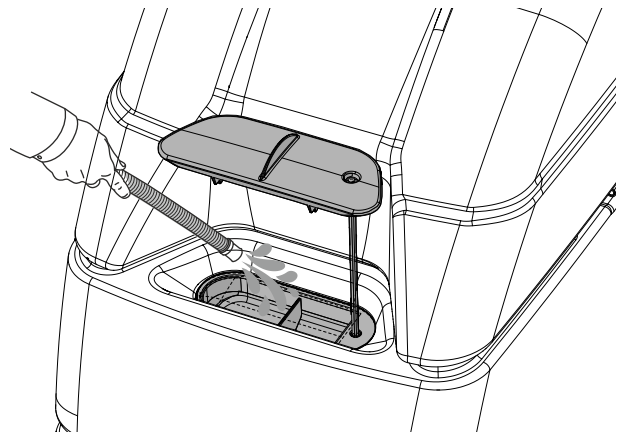
NEVER TRANSPORT THE MACHINE OVER THE ESCALATOR.

Filling of Water



Fill only clean fresh water with Max. 50°C in the fresh water tank. **DO NOT** fill dirty or contaminated water.

- Open the cover of the fresh water fill port.
- Fill in fresh water at a level of 45 liters. If required detergent can also be added.



- Close the cover of the fresh water fill port.

! WARNING

- **Do not remove the filter while filling fresh water, risk of contaminating the water with foreign object which may damage the water pump/manifold.**
- **Do not mix dirty water.**
- **Do not mix acids or heavy industrial de-greasers.**

Recommended detergents:

Ensure that only low-foaming, non corrosive detergents are used.



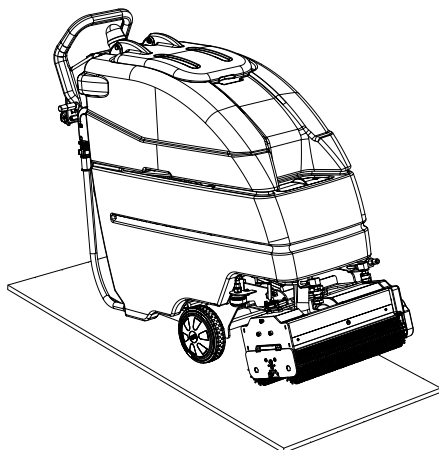
Installation/Removal of Brush

The Escalator Cleaner machine uses a cylindrical type of brush to clean the escalator steps.

To install or remove the cylindrical brush from the machine follow the steps below:

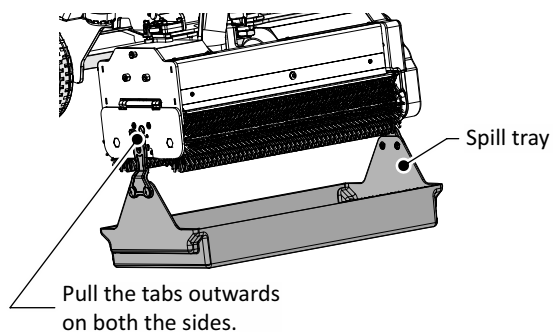
Step 1:

Position machine on a flat surface and apply parking brake.



Step 2:

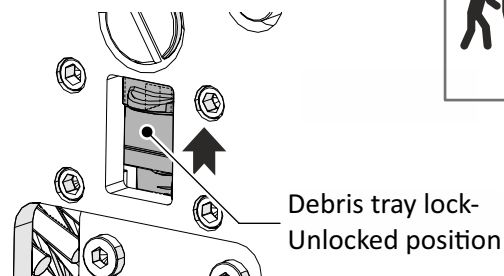
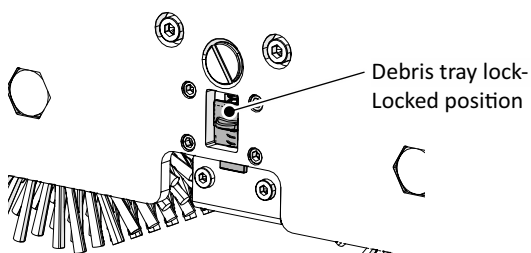
Remove the spill tray from the machine.



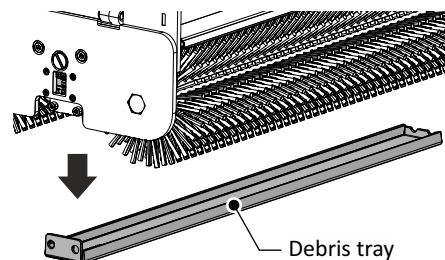
Step 3:

Remove the debris tray from the machine.

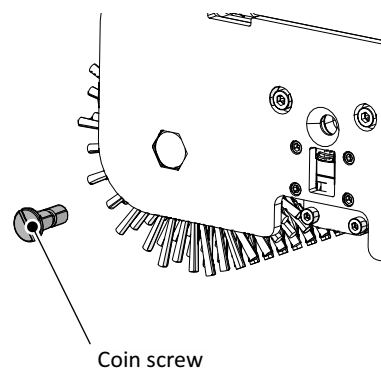
a. Pull the debris tray lock upwards to unlock.



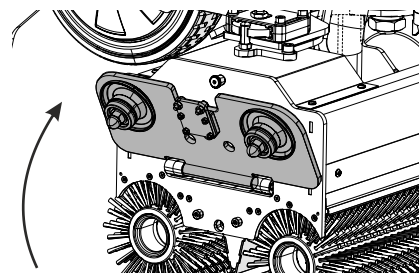
b. Pull the debris tray downwards.



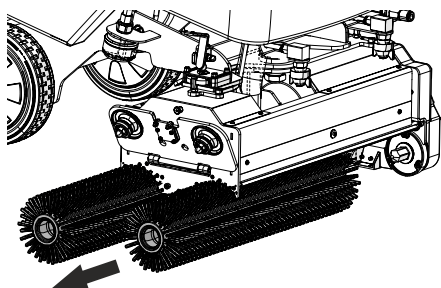
c. Use a coin and unscrew the coin screw.



d. Open the idler cover upwards.



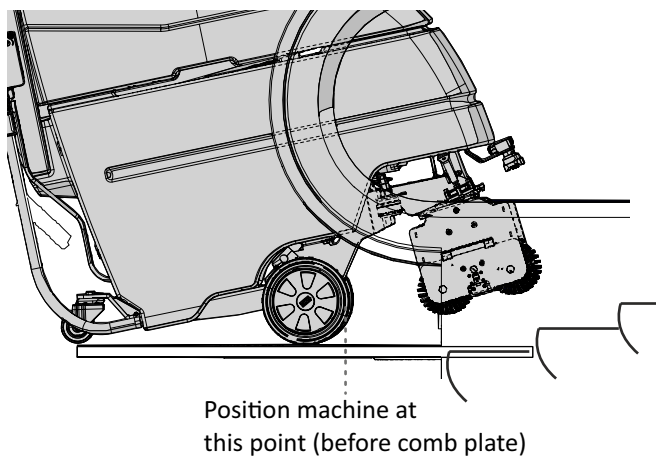
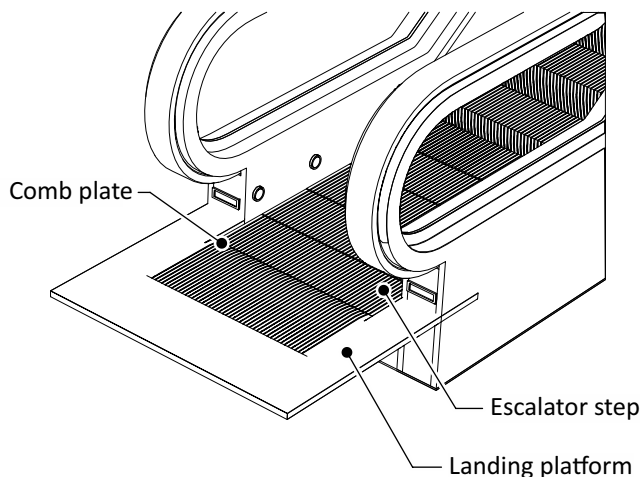
e. Pull out the brushes.



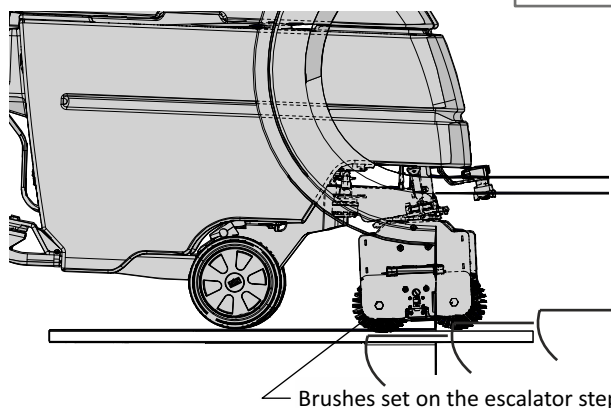
Raising/Lowering of Brush Head

To raise/lower the brush head, follow the steps below:

a. Move the machine towards the escalator.



b. Tip the machine downwards and engage the parking brake.



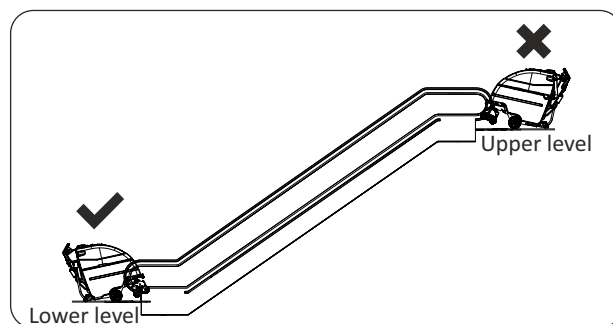
The machine will now rest on its operating position.

! CAUTION

Ensure sufficient care is taken when lowering the machine in position, might tip faster due to self weight.

! WARNING

THE RECOMMENDED POSITION OF THE MACHINE TO OPERATE IS AT THE LOWER LEVEL OF THE ESCALATOR.



→ Ensure that the motion of the escalator is directed towards the machine.

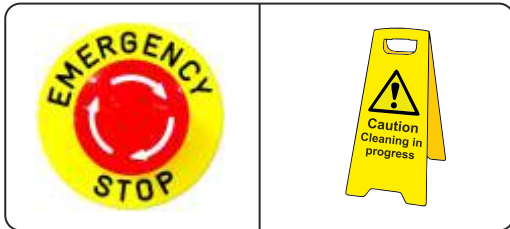


Scrubbing Procedure

The machine cleans the escalator steps in two methods, viz. Dry & Wet. Follow the below instructions to clean the escalator steps in its respective modes:

Before starting cleaning operation on the escalator kindly follow the below points for safety:

- Ensure that a safety sign “Cleaning in Progress” is placed on the lower and upper levels of the escalator.
- Ensure that no one steps on the escalator during the cleaning process.
- Ensure that the location of the emergency stop switch of the escalator is known to the person operating the machine, in case of an emergency.
- Ensure that the beacon lamp on the machine is in operating condition.
- Ensure that only genuine brushes are used.
- Ensure the function of the parking brake of the machine.
- Ensure that the operator wears only **tight fitting clothes**.



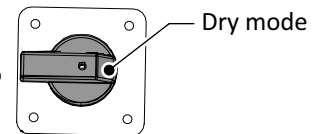
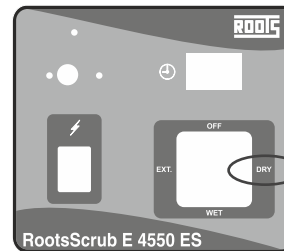
Useful tips for cleaning the escalator steps:

- Prior to wet cleaning mode, it is necessary to clean the escalator first in the dry mode to remove solid dust or debris.
- If any special cleaning agents are used, follow the instructions given by its manufacturer.
- Too much foam indicates excessive dosage of cleaning agent.
- Use only clean fresh water to maximize the cleaning solution's efficiency.

Dry Scrubbing:

The dry scrubbing procedure is used to initially remove the dirt stuck on the escalator steps.

- Brushes: Use only **Silicone Carbide** brushes for dry mode.
- Ensure that the fresh water tank is filled with clean water.
- Ensure that the dirty water tank is empty and clean.
- Clean the nozzle in the suction hose and ensure that water is sprayed properly.
- **After positioning the machine on the escalator, ensure that the parking brake is engaged.**
- **Ensure that the motion of the escalator is directed towards the machine.**
- Connect the main power cord to a specified power outlet that matches the current rating of the machine.
- Remove the debris tray. *(For dry mode only)*
- Switch On the escalator.
- Switch On the machine, the beacon lamp flashes.
- Set the switch to **DRY** mode in the control panel.
- The machine will start to dry scrub the escalator.
- In this dry mode the water will be sprayed inside the suction hose assembly to liquify the solid debris.
- The onboard vacuum system will then suck the liquified debris into the dirty water tank.

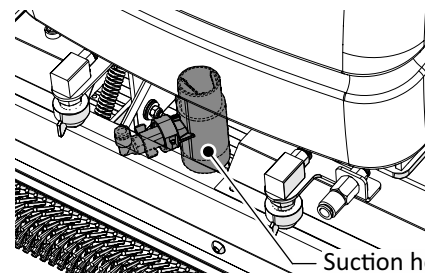


Continue cleaning till the escalator has completed two rounds for better cleaning results.

The suction will switch off when the dirty water tank reaches its maximum capacity or if the fresh water level gets empty.

Note:

- In this mode water will not be sprayed from the front nozzles.
- Also check the flow of water from the nozzle at the first start of the day.
- Upon completing the dry operation, remove the brushes and clean the bottom side of the brush head using the external accessory supplied. Place the spill tray under the brush head on doing so.



Suction hose assembly

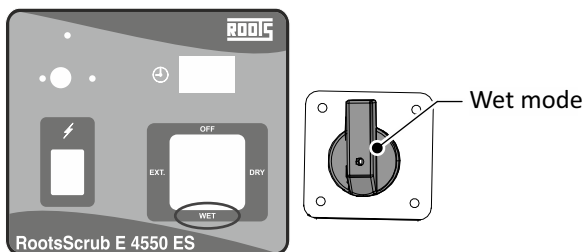


Wet Scrubbing:

The wet scrubbing procedure is used to scrub the escalator steps as a final cleaning operation.

- Brushes: Use only **Nylon** brushes for wet mode.
- Install the debris tray.
- **After positioning the machine on the escalator, ensure that the parking brake is engaged.**
- **Ensure that the motion of the escalator is directed towards the machine.**
- Switch the machine to **WET** mode using the knob on the control panel.
- Ensure that the debris tray is installed in the machine.
- Upon switching it can be noticed that the water is now sprayed from the forward nozzles located on top of the brush head.
- The onboard vacuum system will then suck the dislodged debris into the dirty water tank.

Note: Water pressure is factory set.



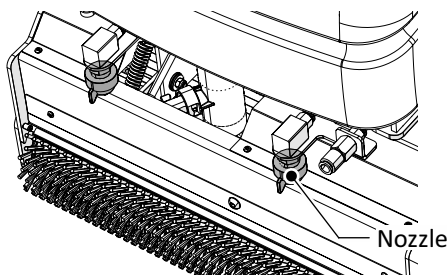
Continue cleaning till the escalator has completed two rounds for better cleaning results.

The suction will switch off when the dirty water tank reaches its maximum capacity or if the fresh water level gets empty.

The water flow to the front spray nozzles are timed for optimal machine performance. *It is factory set and should not be tampered.*

Note:

- *In this mode water will not be sprayed inside the suction hose assembly.*
- *Also check the flow of water from the nozzle at the first start of the day.*



Note:

- **Before switching to wet mode operation, ensure that the debris tray and brush head are cleaned.**
- **DO NOT use the wet mode for more than 3 minutes at a stretch, it may cause water to be collected on the escalator step.**
- **In case the suction and water systems are not working, it might be possible that the dirty water tank is full or the fresh water tank is empty.**

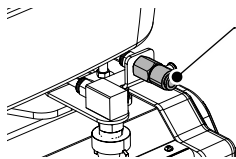
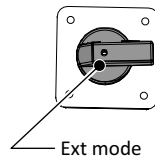
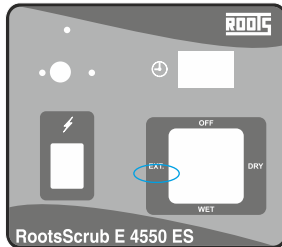
MACHINE OPERATION



Ext Cleaning Mode:

The Ext scrubbing procedure is used when external accessories are used.

- Set the switch position to EXT mode.
- Connect the required external accessory at the front port.
- Remove the suction hose from the brush head and connect it to the external accessory.
- Switch On the machine to use the connected accessory.



Water port for external accessory



External accessory attached to the machine.

In Ext. mode the water will be sprayed from the nozzles located on the accessory when the trigger is pressed. The suction will switch off when the dirty water tank reaches its maximum capacity or if the fresh water level gets empty.

Note:

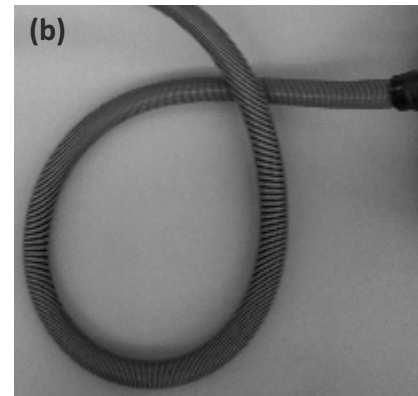
- In this mode water will be sprayed inside the suction hose assembly.
- Also check the flow of water from the nozzle at the first start of the day.

→ To connect the external accessory follow the below steps:

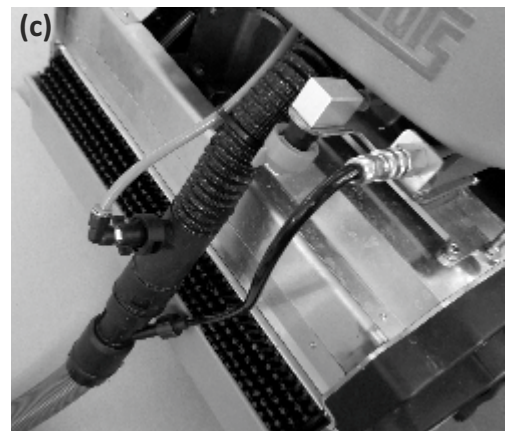
Disconnect the suction hose assembly from the brush head (a).



Connect the long suction hose to the disconnected hose assembly (b).

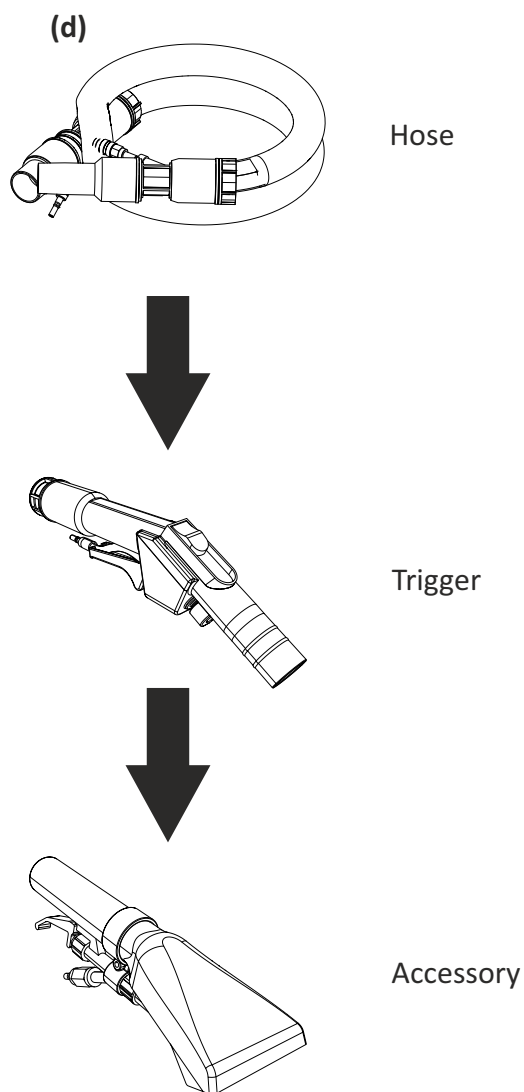


Connect the water supply hose at the port on the brush head as shown in the picture (c).





Connect trigger assy to the hose.
Connect the required accessory at the other end of the trigger,
also connect the water hose extension to the trigger assembly
(d).



MACHINE OPERATION



Swiveling the Brush Head:

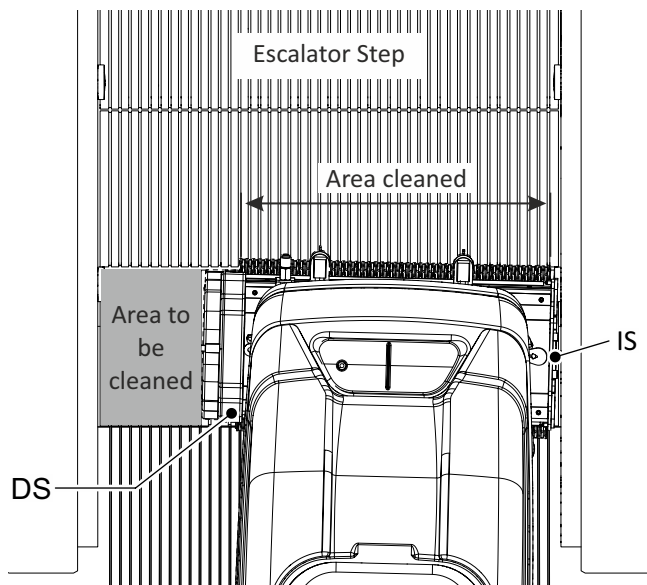
The brush head has a swiveling feature to facilitate cleaning the entire width of the escalator step.

Follow the below instruction to use the swivel brush head:

Position

Idle side - IS

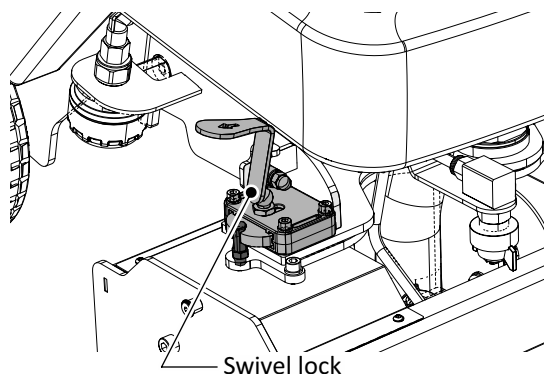
Drive side - DS



(A) Brush head position - 1

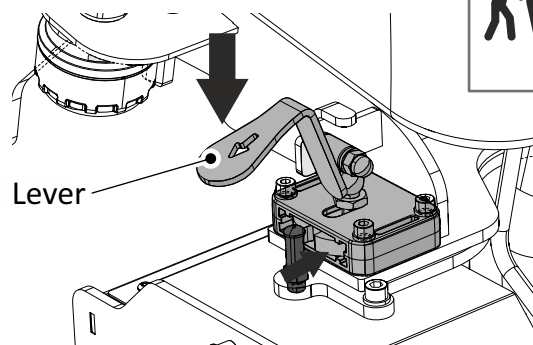
In this position the drive side of the brush head is facing the left hand side of the machine (viewed from the top). In this position only a half of the escalator step is cleaned (A).

To clean the other half of the escalator step the brush head must be swivelled, follow the below steps to do so:

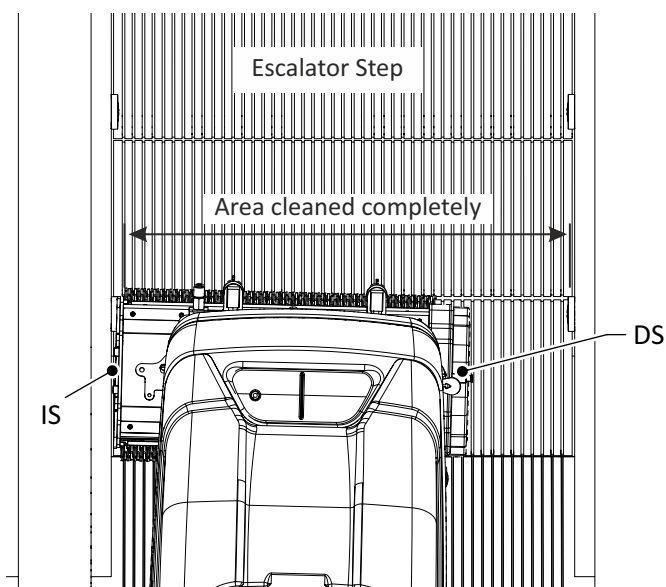
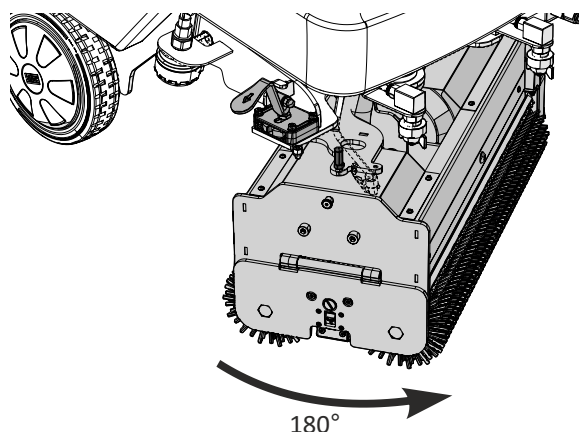


The swivel lock is located on top of the brush head assembly, it has a lever and a locking pin.

Press the lever downwards until the pin is released from the lock assembly, this is noticeable as the brush head will swivel a bit.



The brush head can now be swivelled at 180° and locked. This will enable the machine to clean the remaining half of the escalator step with a slight overlap in the center (B).



(B) Brush head position - 2

In this way it can be ensured that the escalator step is cleaned completely in both Dry and Wet mode.



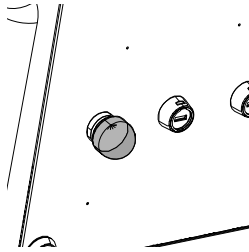
DO NOT MIX BRUSHES AND CLEAN THE ESCALATOR STEPS.



⚠ IMPORTANT ATTENTION

During scrubbing if the brush motor trips, reset it by pressing the circuit breaker switch.

➔ Wait for 30 seconds before reset.



⚠ WARNING

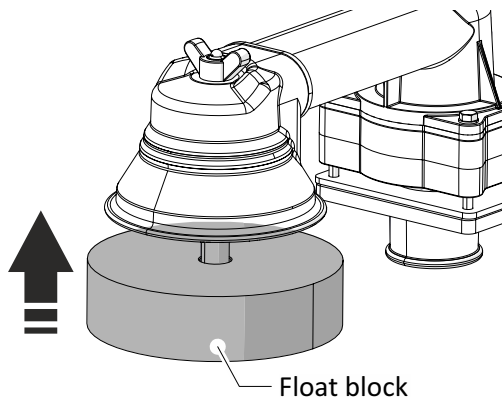
- ✓ If the motor trips frequently, stop the cleaning operation, disconnect the power cord and call an authorized service center for assistance.
- ✗ Do not look for the problem by yourself.

Float System

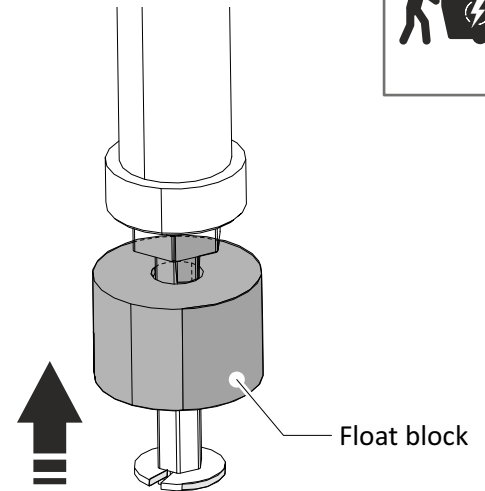
The machine is equipped with two floats for vacuum shut-off function.

1. Mechanical Float - The mechanical float is located inside the dirty water tank. It shuts off the vacuum immediately when the float block touches the top of the suction unit.

2. Electrical Float - The electrical float is located inside the fresh water tank. It switches off the machine as soon as the water level drops below the set value. This function is used to prevent any unwanted damage to the water pump.



Mechanical Float



Electrical Float



Water Monitoring System

The machine is equipped with a flow switch enabled water monitoring system to alert the operator during any malfunction. The system comprises of a flow switch, LED indicator with buzzer. The flow switch is connected to the main water manifold.

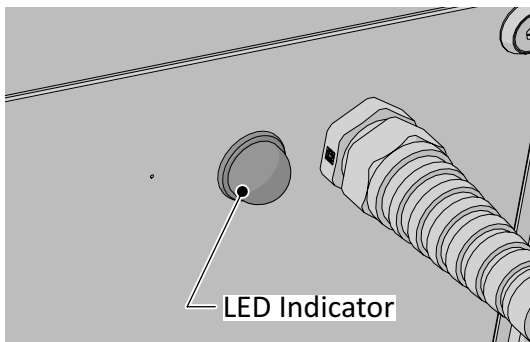
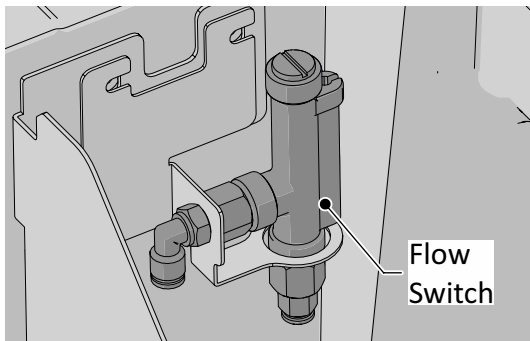
The below are the functions of the water monitoring system:

- Spray nozzles blocked completely
- Water pump failure
- Water pump fuse blown
- Solenoid valve malfunction
- Solenoid valve fuse blown

If any one of the above faults occur, the system alerts with an LED and audible warning.

LED Indicator:

RED	-	Fault in water system
GREEN	-	Function normal
BLUE	-	Fresh water tank empty or dirty water tank full.



End of Scrubbing

Shutting down the machine

- Set the rotary switch to Off position on the control panel.
- Switch Off the main switch on the control panel.
- Release the parking brake.
- Pull the machine backwards from its operating position onto the landing platform or on to a flat ground.
- Switch Off the mains on the wall outlet.

WARNING

Disconnect power cord after scrubbing operation is complete.





MAINTENANCE SAFETY



WARNING

- *Maintenance and/or repair operations must be done by skilled and authorized personnel; all operations on the electrical and mechanical devices are to be performed by specialized personnel only.*
- *Read this manual thoroughly before performing any repair or maintenance operations.*
- *For repair and/or maintenance of high reach areas of the machine, use a suitable work lift or working platforms.*
- *Use genuine Roots spare parts ONLY which are specifically designed for the machine.*
- *USE suitable PPE at all times when working or servicing the machine.*



IMPORTANT

- **ALWAYS SWITCH OFF MAINS AND DISCONNECT POWER CORD BEFORE PERFORMING ANY MAINTENANCE OR REPAIR WORK.**



SAFETY PRECAUTIONS

Do not allow unauthorized personnel to service or maintain this machine. Study the Operator's Manual and Maintenance Manual before starting, operating or servicing this machine. Always follow procedures and safety precautions detailed in the Maintenance Manual.

Always attach a '**DO NOT START**' or similar warning sign to ignition switch or a control before cleaning, lubricating or servicing the machine.

Never allow anyone to work on the machine while it is moving. Make sure no one is on the machine before working on it.





Maintenance

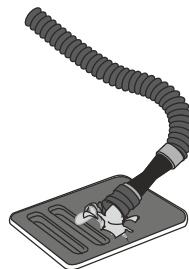
This section describes on maintenance of the machine under the following sections:

- Draining of dirty water tank
- Cleaning of the fresh and dirty water tanks
- Cleaning the brush, nozzles, in-feed filter
- Cleaning the machine
- Electrical maintenance
- Post-scrubbing checkpoints
- Storing the machine

Draining of Dirty Water Tank

- Move the machine to the designated waste disposal area.
- Lower the dirty water tank drain hose to the floor.
- Open the cap of the drain hose.
- Upon end of draining close the cap and secure the hose in its storage position.

WARNING



DO NOT DRAIN THE DIRTY WATER INTO THE ENVIRONMENT. RISK OF CONTAMINATING THE ENVIRONMENT.

Cleaning of Fresh and Dirty Water Tanks

- Move the machine to the designated cleaning area.
- Lower the dirty water tank drain hose to the floor.
- Lower the fresh water tank drain hose to the floor.
- Open the cap of the drain hoses.
- **Fresh Water Tank** - Open the lid of the filter assembly and remove the filter to gain access to the tank. Hose down the inside of the tank with clean water at normal pressure.
- **Dirty Water Tank** - Open the top lid of the dirty water tank and check for any solid debris around the walls and the float, if found remove them. Hose down the inside of the tank with clean water at normal pressure. If necessary use a mild detergent.

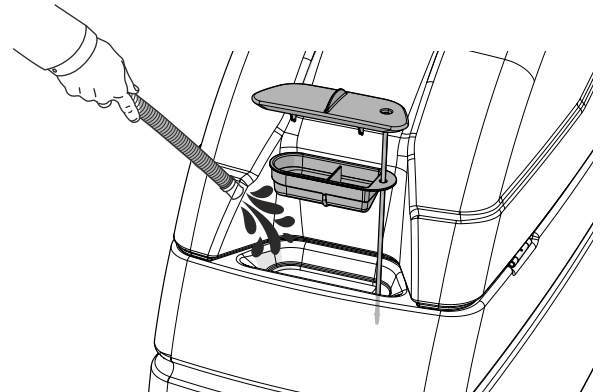
WARNING



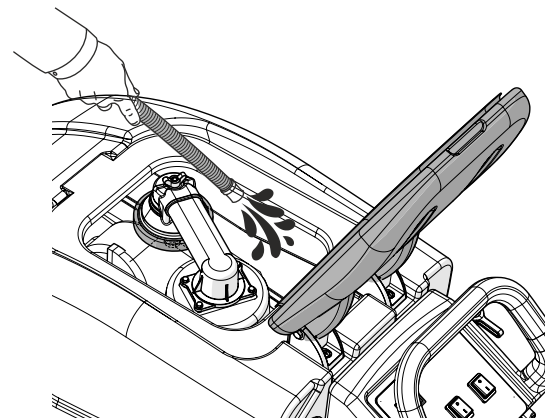
DO NOT DRAIN THE DIRTY WATER INTO THE ENVIRONMENT. RISK OF CONTAMINATING THE ENVIRONMENT.

CAUTION

*Ensure that the tanks are completely cleaned and no residual waste is accumulated.
Also ensure that the lids of the filter and tank are closed after cleaning is complete.*



Fresh water tank cleaning



Dirty water tank cleaning

WARNING

**DO NOT USE A HIGH PRESSURE JET CLEANER.
DO NOT USE A STEAM CLEANER.
DO NOT DIRECT WATER INTO THE ELECTRICAL PARTS.**

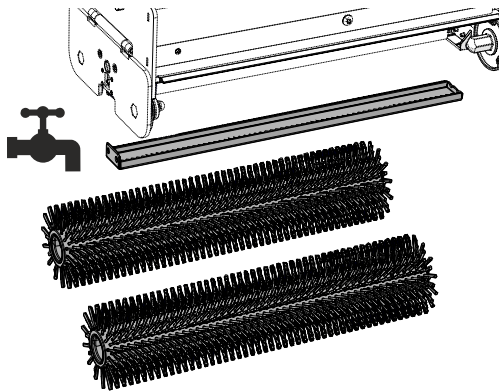
MAINTENANCE



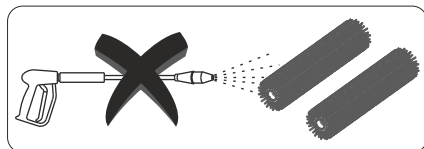
Cleaning the Brushes



- Move the machine to the designated maintenance area.
- Remove the debris tray from the brush head.
- Open the idler side cover to gain access to the brushes.
- Pull out the brushes from the brush head.
- Clean the brushes and the debris tray under running water and with detergent.

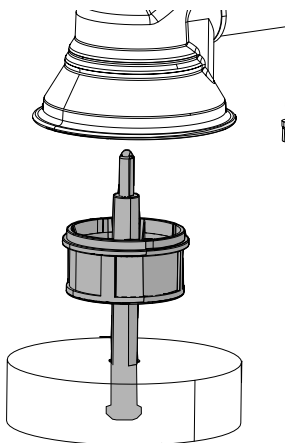


CAUTION



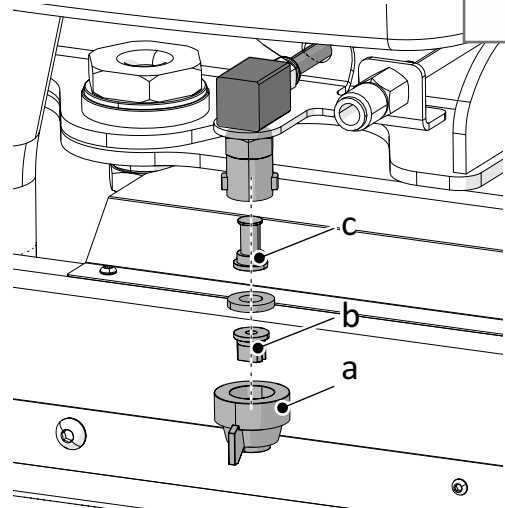
DO NOT clean the brushes with a high pressure washer.
DO NOT clean the brushes into the environment.

Cleaning the Float Filter



Remove the float filter by unscrewing the wing nut, and clean it under running water using a brush. Use mild detergent if required.

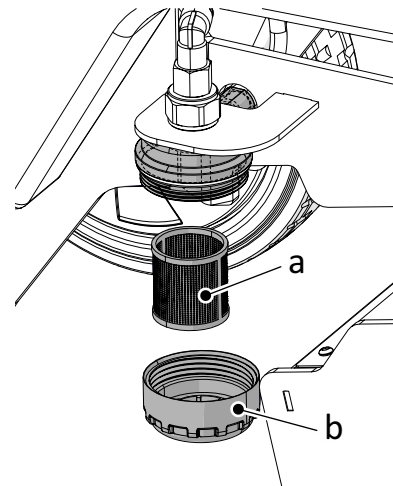
Cleaning the Nozzles



- Remove the nozzle adapter (a) by twisting it once anti-clockwise by hand.
- Remove the nozzle (b) and filter (c) from the union.
- Clean the nozzle and filter under fresh running water to remove any dirt or debris.
- Place the nozzle and filter back and secure it by placing the adapter back.

Note: Do not use harsh acidic solutions to clean the nozzle and filter.

Cleaning the Pump In-feed Filter



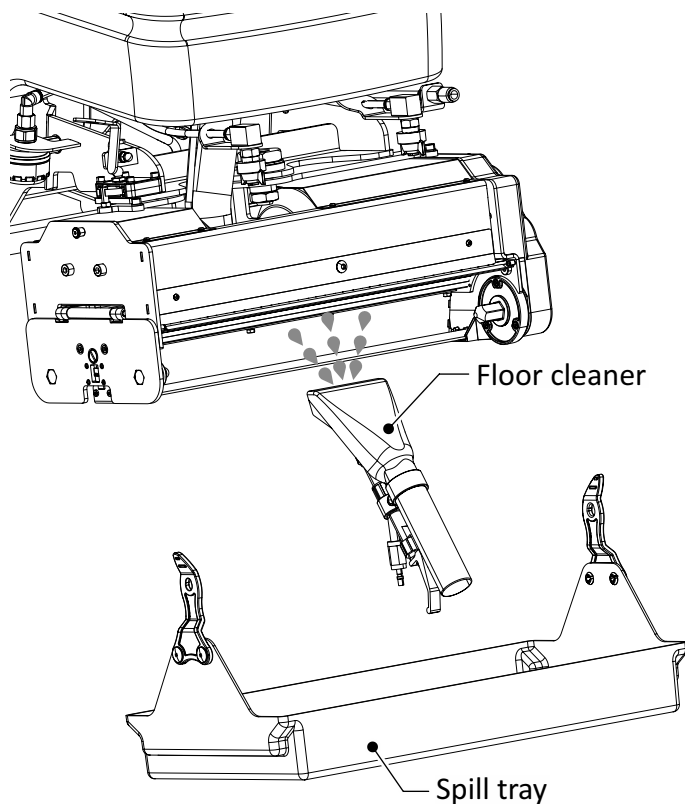
- Remove the mesh filter (a) by unscrewing the bottom cover (b).
- Clean the mesh filter under fresh running water to remove any dirt or debris.
- Place the cleaned mesh filter back and secure it with the bottom cover.

Note: Do not use harsh acidic solutions to clean the nozzle and filter.

MAINTENANCE



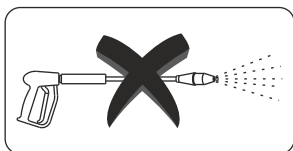
Cleaning the Brush Head



- Move the machine away from the escalator.
- Remove the brushes.
- Place the spill tray under the brush head.
- Attach the floor cleaner accessory to the machine.
- Switch On the machine.
- Direct water spray under the brush shield area to thoroughly clean away the dirt.
- Empty the spill tray into the drain and clean.



CAUTION



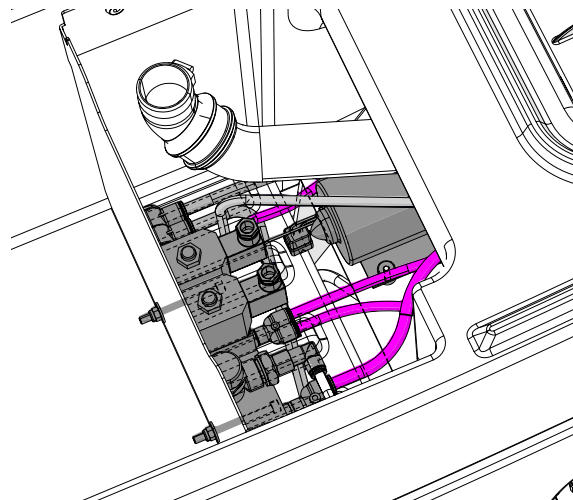
DO NOT clean the brush head with a high pressure washer.
DO NOT empty the spill tray into the environment.

Water Manifold

WARNING



- Visually check the water manifold and hoses for any leak.



WARNING: DO NOT TAMPER WITH THE SOLENOIDS OR THE PUMP.

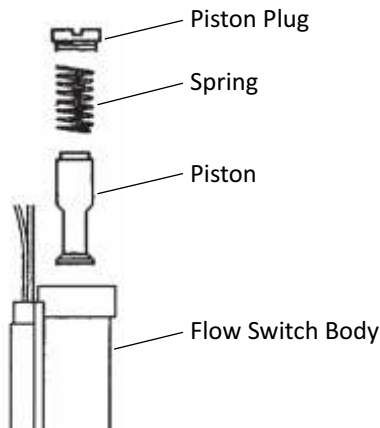


Cleaning the Flow Switch

WARNING



The only maintenance normally required is occasional cleaning when excessive contamination is present in the liquid.



CAUTION

Switch off key and unplug mains before accessing the flow switch.

Drain water from the water system before removing the plug for maintenance.

Do not remove the flow switch unit from the machine.

1. Remove piston plug.
2. Remove spring.
3. Remove the piston.
4. Clean the piston with water till contamination is cleared.
5. Assemble the components in reverse order.

NOTE

Use care when handling spring to prevent distortion.
Do not overtighten the plastic components. Risk of breakage!

Cleaning the Machine



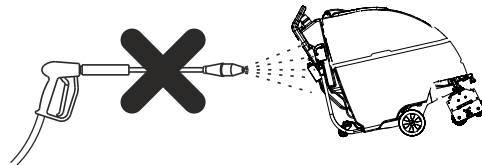
WARNING



- Move the machine to its designated cleaning area.
- Ensure that the machine is parked on a flat level surface.
- Take a damp cloth and wipe the machine's exteriors to remove any dust or dirt.
- Drain all the tanks.
- Rinse the dirty water tank with fresh water to remove all contamination.
- Clean the brushes.

WARNING:

Do not clean the machine by means of vapor jet or high pressure cleaning equipment.



NOTE:

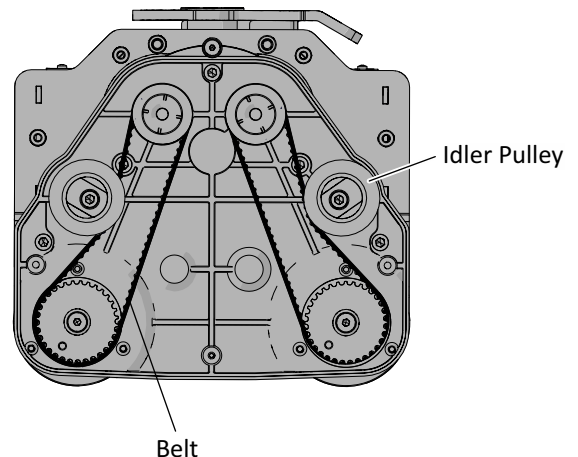
*Use only a soft cloth or a sponge.
Use only mild detergent.*



WARNING:

Disconnect power cord.

Belt Tension Adjustment:



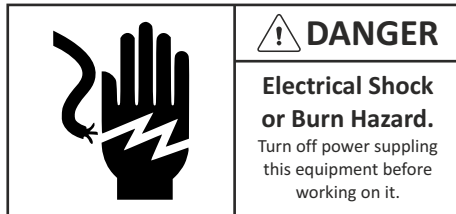
Set belt tension to 80 ± 20 N

Set the tension using Gates Meter. Turn the Idler pulley to set belt tension.

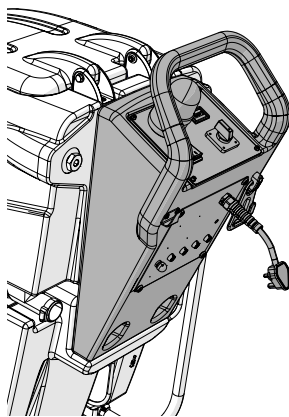


Electrical Maintenance

! DANGER



The electrical equipment is located at the control unit assembly of the machine.

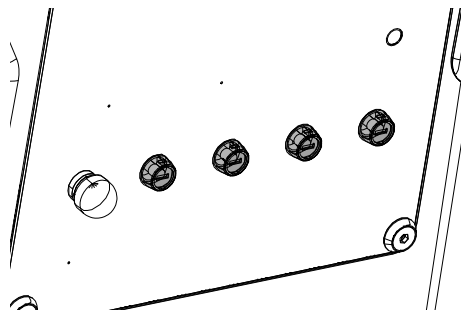


The electrical safety system consists of Fuse and a Circuit Breaker which are located on the rear panel assembly of the control unit.

Fuse:

A variety of fuses are used to protect the electrical systems in case of a failure.

To change the fuse: Remove the cap of the fuse holder by unscrewing it with a screwdriver. Remove the blown fuse and replace with a new one with the specified rating. Put the cap back in its place.



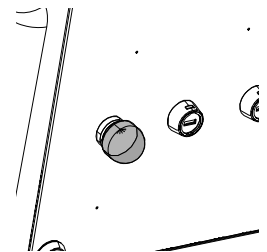
NOTE

If there should be repeated cases of failure, look for reason.

FUSE DETAILS		
FUSE	RATING	USED FOR
F1	4.0A	For Brush motor
F2	6.3A	For Vacuum motor
F3	1.0A	For Pump
F4	0.5A	For Solenoid valve
F5	0.5A	For Beacon lamp

Circuit breaker:

The circuit breaker is used to protect the brush motor in case of an overload. To reset the circuit breaker, press the red button at the rear panel of the machine. Wait 30 seconds before a reset.



NOTE

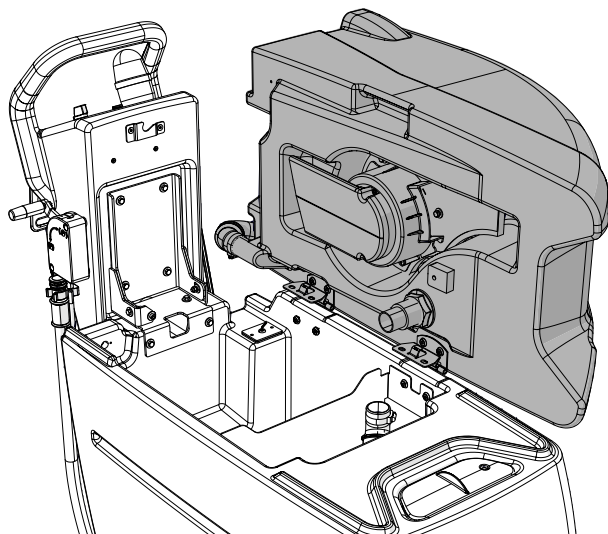
If there should be repeated cases of failure, look for reason.



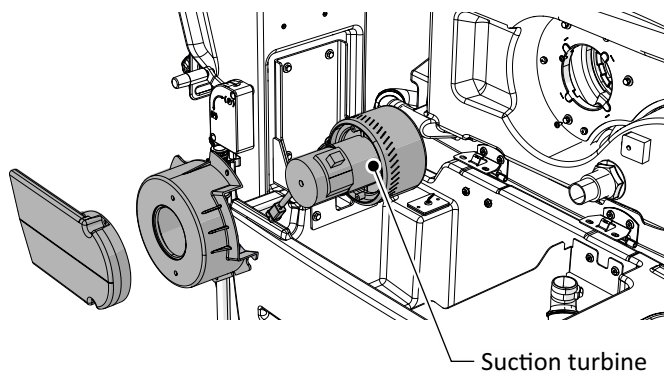
Suction turbine:

To access the suction turbine, follow the below procedure.

Step 1:



Step 2:



- Tilt the dirty water tank and secure it (Step 1).
- Remove the suction turbine assembly to perform electrical maintenance or to replace it (Step 2).

WARNING

Only RMCL authorized and RMCL skilled technicians are allowed to perform electrical maintenance tasks on the suction turbine.

Post-Scrubbing Checkpoints

- Check the tank lid seals for damage and wear.
- Clean the float.
- Check the condition of the brushes. Remove any string, rope or other debris wrapped around them.
- Check the vacuum hose for block/damage.
- Check if both the tanks are completely clean.
- Check the machine exteriors for any damages or dirt.

MAINTENANCE



Maintenance Schedule

Maintenance Work	Service Every (Hours)			
	Daily	50	100	200
Check connection - extension cables and plugs for good condition; discard defective cables immediately				
Drain and clean both fresh water tank and dirty water tank				
Check the suction hose for possible debris or blocks, clean if required				
Check the nozzles, filters and hoses for possible debris or blocks, clean if required				
Check the mechanical & electrical float for proper function				
Check the brush for tight fit and wear; replace if required				
Check the dirty water tank lid gasket for wear/damage; replace if required				
Check the fresh water infeed to the brush for any possible blocks; clean them if required				
Remove carbon dust from the suction turbine, check the carbon brush for any signs of wear/damage; replace if required				

 **To be carried out by RMCL Service Personnel ONLY.**



Storing the Machine

The below procedure explains the proper method to store the machine:

- Ensure that the fresh and dirty water tanks are drained and dry.
- Ensure that the brush head is lifted up and secured.
- Ensure that the brushes are clean and free from any debris.
- Ensure that the machine is always stored indoors only and not exposed to the environmental elements.
- Ensure that the machine is parked on a flat level surface and secured.



WARNING:
Disconnect power cord.



WARNING: PROTECT FROM



LIQUIDS



COLD



FIRE



WIND



HEAT



CHILDREN

NOTE: Do not expose the machine to rain, store indoors only.



NOTE: To prevent potential damage to the machine store the machine in a insect and rodent free environment.





Troubleshooting Table

Fault	Cause	Remedy
Machine does not start	Mains plug not connected	Check if the mains plug is connected.
	Power supply	Check if the power supply in the area matches that to the nameplate of the machine.
	Fuse	Check for any blown fuses.
	Circuit breaker	Check if the circuit breaker is tripped.
Insufficient water feed	Water level	Check fresh water level, refill if required.
	Block in hose	Check hose for blockages; clean them if required.
	Block in nozzle & filter	Check nozzle & filter for blockages; clean them if required.
	Block in water manifold	Check for blockages; clean them if required.
	Leak in water line	Check connector fittings and hoses for cracks, wear.
	Flow switch error	Check flow switch for blockage.
Insufficient vacuum performance	Sealing of tank lid gasket	Clean the seals between dirty water reservoir and cover and check for tightness, replace if required.
	Block in hose	Check hose for blockages; clean them if required.
		Check hose for tightness; replace if required.
	Mechanical & Electrical float	Check float for function, check and replace if required.
	Dirty water drain hose	Check if the cover of the dirty water drain hose is closed.
Poor cleaning performance	Damaged/Worn brushes	Check the brushes for any foreign object damage or wear; replace if required.
Brushes do not turn	Brush drive mechanism	Check for foreign object obstructing the mechanism.
Machine moves when cleaning the escalator	Parking brake weak	Check parking brake, adjust/replace if required.
Machine wobbles while moving	Worn tires	Check the tires and castors for damage; replace if required.

DO'S & DON'TS



DO'S

- ✓ Prior to wet mode cleaning, the escalator step has to be cleaned in dry mode first to remove loose debris.
- ✓ Use only Non foaming chemical for cleaning.
- ✓ Always check the condition of mains cable.
- ✓ Inspect the condition of float filter for any deposit of dirt.
- ✓ Dirty water to be drained if it reaches the cut-off stage.
- ✓ After cleaning, fresh & dirty waters have to be drained and cleaned.
- ✓ After usage of machine, float assembly and dirty water tank to be cleaned with fresh water.
- ✓ During transport brush head assembly should be in lifted position.
- ✓ Engage the parking brake of the machine while cleaning the escalator.
- ✓ Use extreme caution while operating the machine.

DON'TS

- ✗ Do not use inflammable liquids (thinner / kerosene) in fresh water tank for cleaning operation.
- ✗ During cleaning don't run the machine over the mains cable.
- ✗ After usage during cleaning the machine don't allow water to get into the panel board.
- ✗ Do not clean the machine with high water pressure jet equipments.
- ✗ Do not use the machine unless the main cable is in proper condition.
- ✗ Do not clean the escalator without the parking brake engaged.
- ✗ Do not pour water or solution directly on to the escalator.
- ✗ Do not use acids mixed with water, might damage the water hoses, nozzles or the manifold.
- ✗ Do not tamper with the water manifold settings.
- ✗ Do not keep the external accessory connected to the machine when not in use.
- ✗ Do not transport the machine over the escalator.
- ✗ Do not clean the escalator by keeping the machine at the upper level.
- ✗ Do not let children operate the machine as a toy.
- ✗ Do not mix different types of brushes to clean the escalator at once.
- ✗ Do not allow anybody to travel on the escalator when cleaning is under progress.
- ✗ Do not use the machine to clean floors.



Operator notes section with horizontal dotted lines for writing.

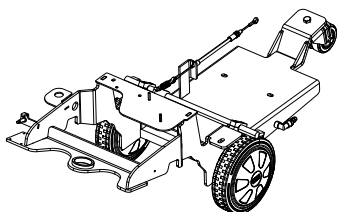


ILLUSTRATED PARTS LIST

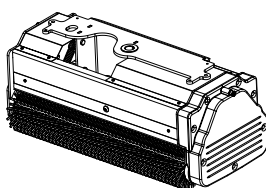
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SECTION OVERVIEW

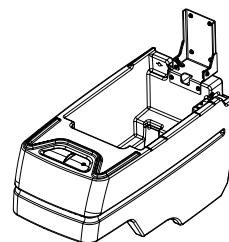
1. CHASSIS



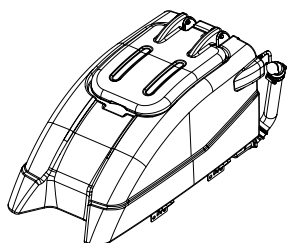
2. BRUSH HEAD



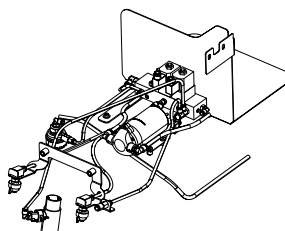
3. FRESH WATER TANK



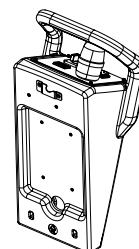
4. DIRTY WATER TANK



5. WATER SYSTEM



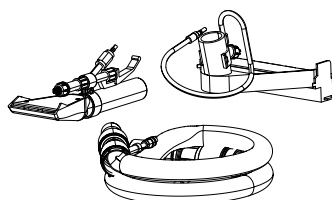
6. CONTROL UNIT



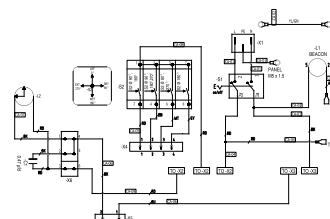
7. DECALS



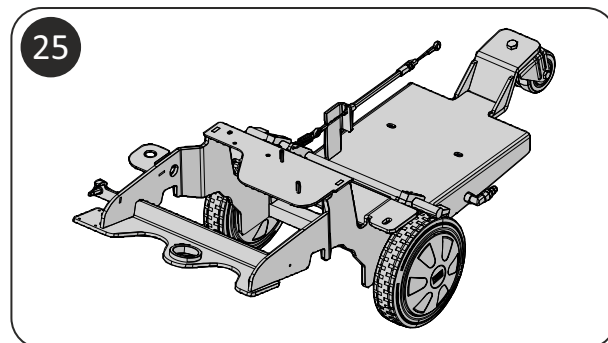
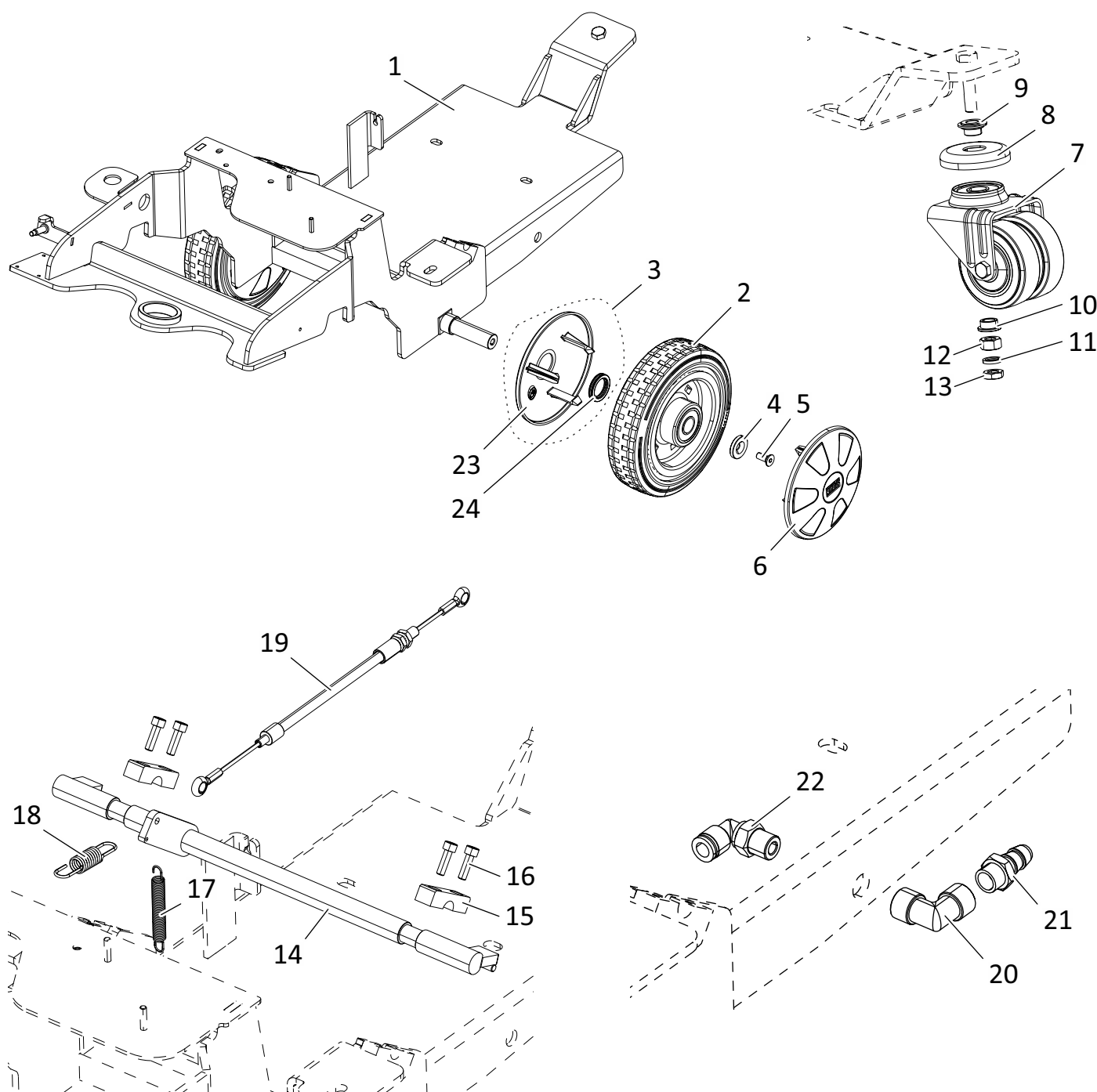
8. ACCESSORIES



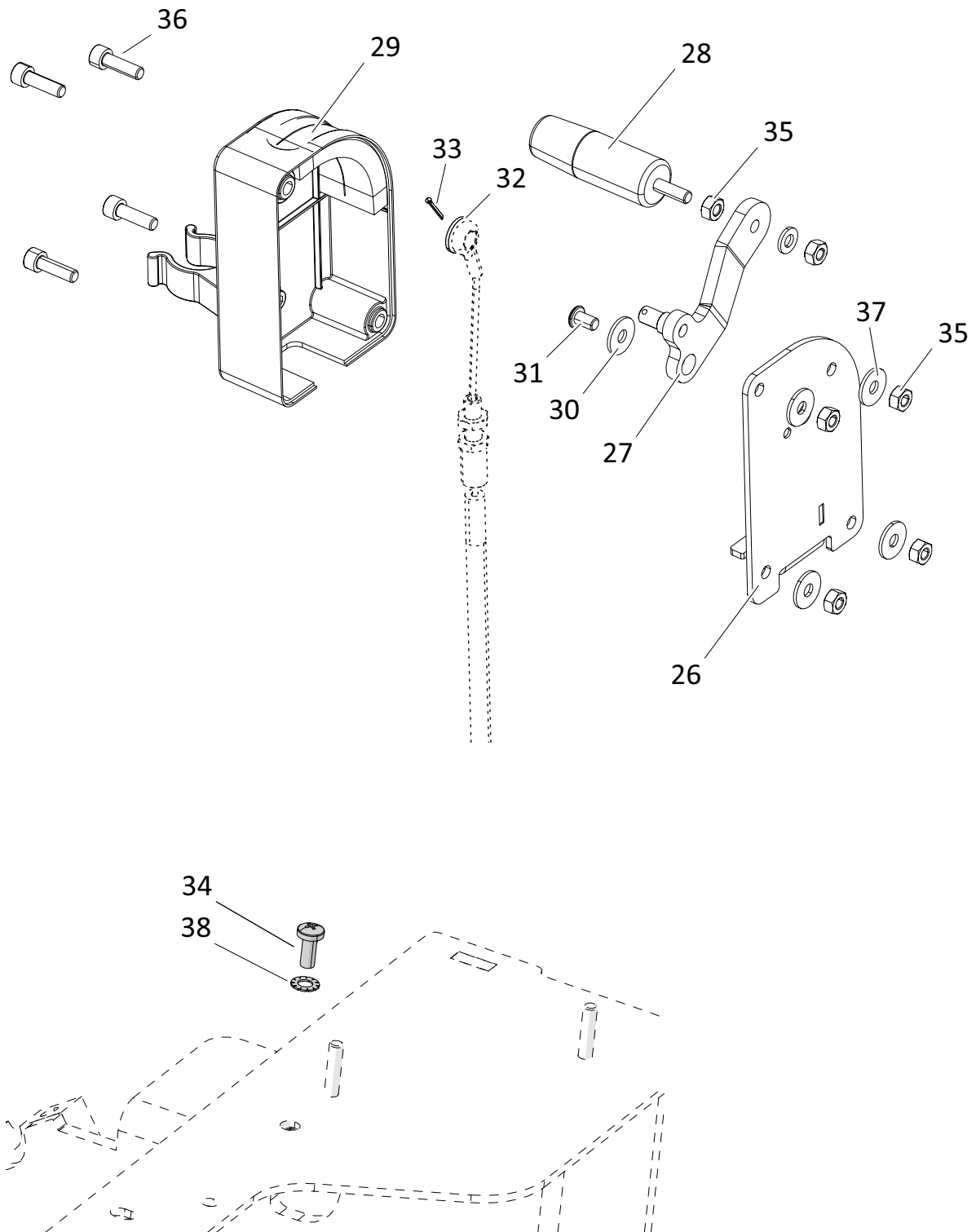
9. ELECTRICAL CIRCUIT



1. CHASSIS - WHEEL & BRAKE



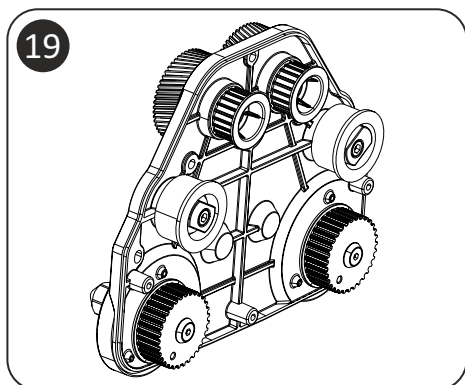
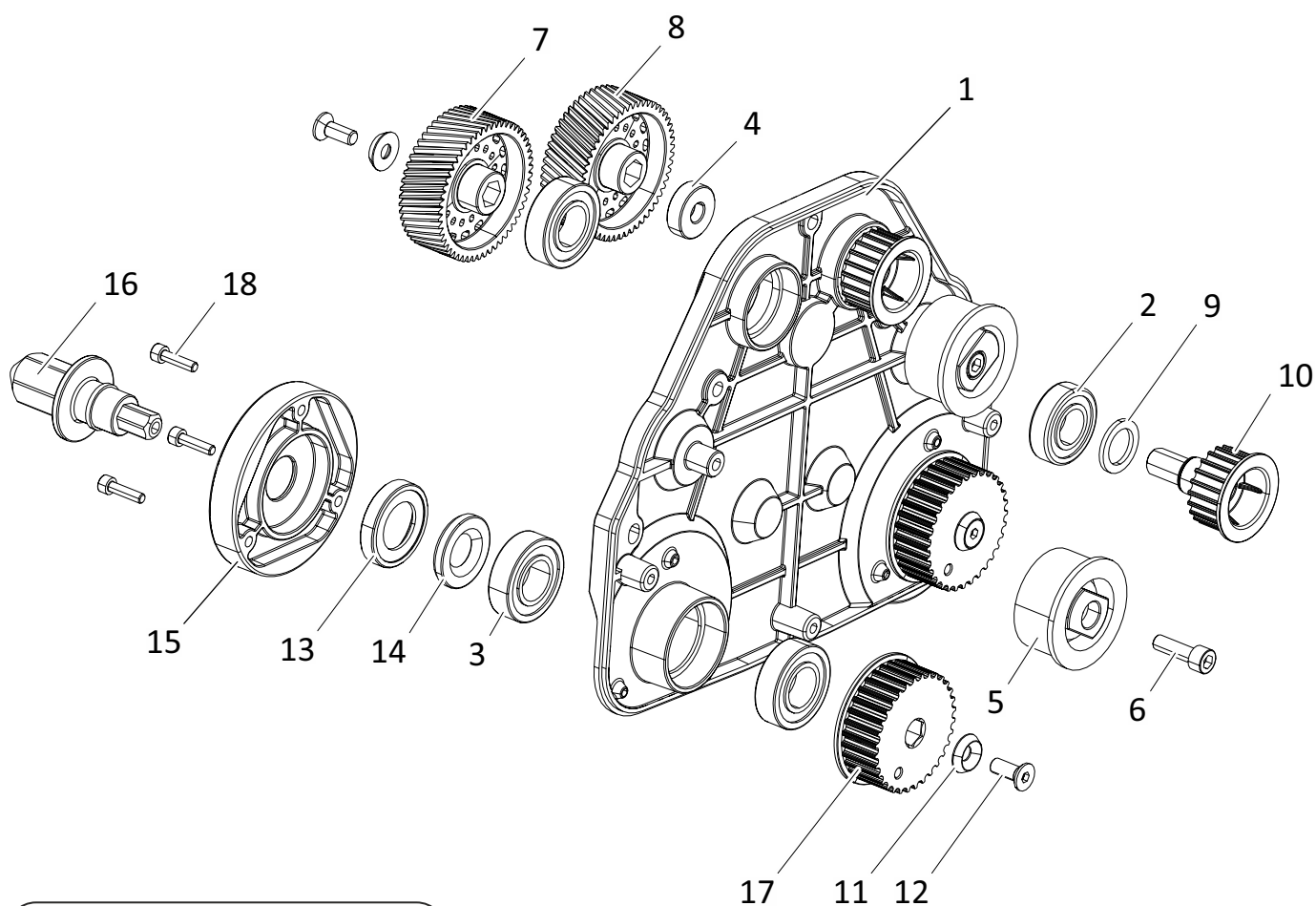
1. CHASSIS - WHEEL & BRAKE



1. CHASSIS - WHEEL & BRAKE

ITEM	PART NO	DESCRIPTION	QTY
1	558520003-00	CHASSIS WELDMENT	1
2	558350024-00	MAIN WHEEL (200X50XBB)	2
3	558350222-00	COVER-WHEEL-INNER-ASSY	2
4	553350019-00	WASHER-WHEEL	2
5	552220012-00	HEX SOC CSK HD SCREW - SS304 M8X20	2
6	553350347-00	COVER-WHEEL-OUTER	2
7	558350221-00	CASTOR WHEEL 75 X 28 T	1
8	553350346-00	PROTECTION CAP-CASTOR TOP	1
9	553350345-00	WASHER-CASTOR	1
10	553350785-00	WASHER - CASTOR BOTTOM	1
11	552510006-00	SPRING WAHSER - STEEL - M10	1
12	552170013-00	HEX NUT - STEEL GR. 8 M10	1
13	552250009-00	HEX LOCK NUT - STEEL GR. 08 - M10	1
14	558520005-00	SHAFT BRAKE - WELDMENT	1
15	553520017-00	SUPPORT BLOCK - BRAKE TOP	2
16	552230012-00	HEX SOC HEAD CAP SCREW STEEL -M6X20	4
17	553520018-00	SPRING - PARKING BRAKE CHASSIS	1
18	553520019-00	SPRING - PARKING BRAKE	1
19	558520006-00	CABLE ASSY - PARKING BRAKE	1
20	553520131-00	L CONNECTOR 1/4" F	1
21	553520130-00	CONNECTOR 1/4" M - DIA 12.0	1
22	552500100-00	ONE TOUCH L CONNECTOR 1/4"MALE (8.0)FESTO	1
23	553350348-00	COVER WHEEL - INNER	2
24	553350349-00	GROMMET - INNER COVER	2
25	558520002-00	CHASSIS ASSY COMPLETE - ES	1
26	558520012-00	BASE PLATE - WELDMENT	1
27	558520013-00	LEVER - PARKING BRAKE - WELDMENT	1
28	553520028-00	HANDLE - PARKING BRAKE	1
29	558520058-00	COVER - PARKING BRAKE WITH FOAM	1
30	552360022-00	WASHER SS304-6.4X18X1.6	1
31	552870097-00	BUTTON HEAD HEX SOC SCREW - SS 304 - M6 x 10	1
32	552350031-00	WASHER STEEL-8.4X17X1.6	1
33	552330003-00	COTTER PIN STEEL - 2 x 16	1
34	552140013-00	CR PAN HEAD SCREW - SS304 - M5X12	1
35	552170009-00	HEX NUT - STEEL GR.8 - M6	6
36	552230012-00	HEX SOC HEAD CAP SCREW-STEEL-M6X20	4
37	552350012-00	WASHER STEEL-6.4x18x1.6	6
38	552530003-00	EXTERNAL TOOTHED LOCK WASHER - M5	1

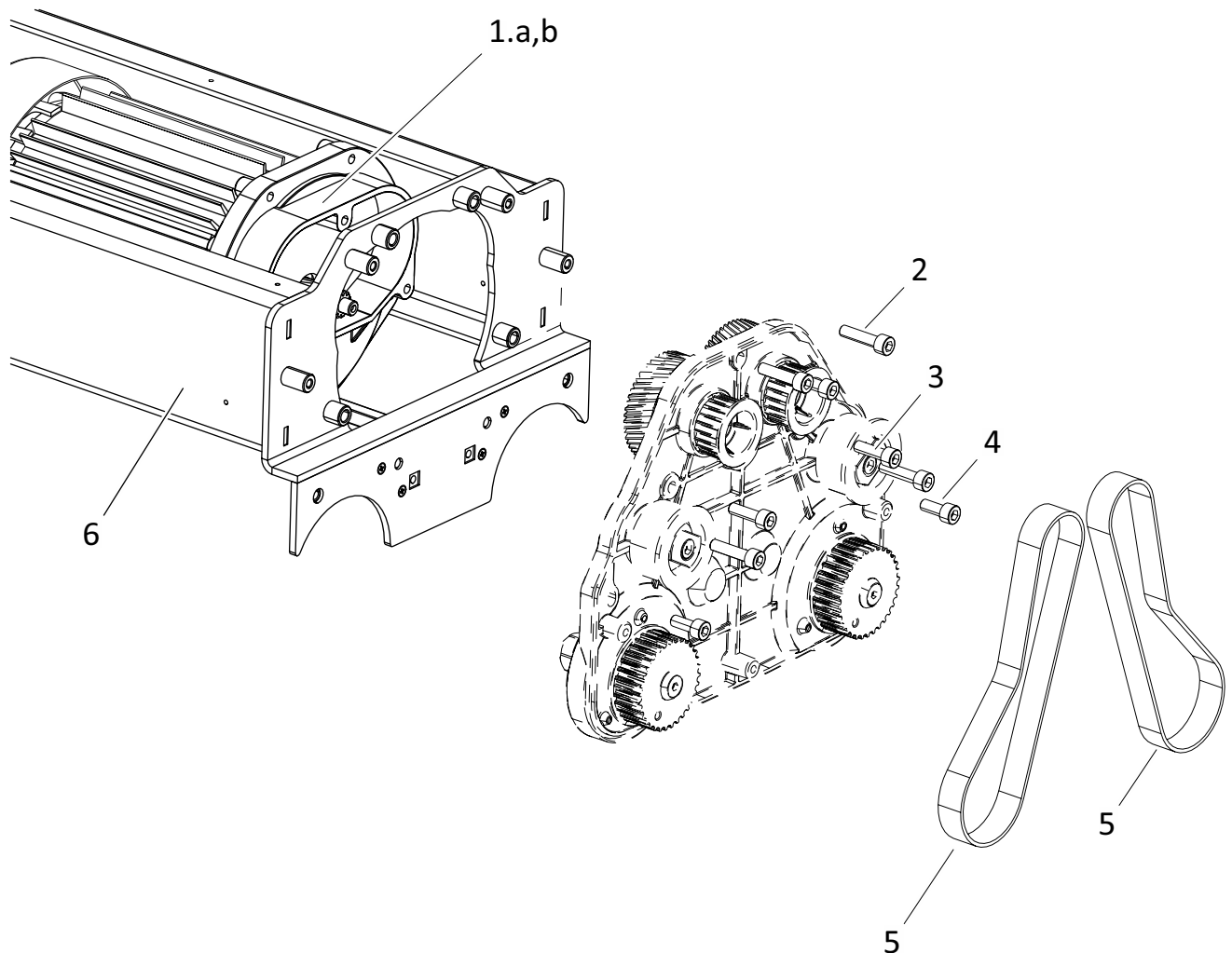
2. BRUSH HEAD - GEAR HOUSING ASSEMBLY



2. BRUSH HEAD - GEAR HOUSING ASSEMBLY

ITEM	PART NO	DESCRIPTION	QTY
1	553520072-00	BASE - GEAR HOUSING	1
2	552610009-00	DG BALL BEARING 6002-2RS	2
3	552610011-00	DG BALL BEARING 6003 2RS	8
4	553250493-00	BUSH GUIDE MOTOR SHAFT	1
5	558310046-00	IDLER ASSY - BELT	2
6	552240014-00	HEX SOC HEAD CAP SCREW-SS304-M6X20	2
7	553250567-00	GEAR LH - NEW	1
8	553250568-00	GEAR RH - NEW	1
9	553520073-00	WASHER 22.0 X 15.2 X 2.0	4
10	553520074-00	SPROCKET 21	2
11	553250009-00	WASHER-BRIDGE	4
12	552220008-00	HEX SOC CSK HD SCREW - SS304 -M6X16	4
13	553520162-00	SPACER - LIP SEAL	2
14	553250043-00	LIP SEAL 17	2
15	553520075-00	PROTECTION CAP	2
16	553520076-00	HEGAGON DRIVE - BRUSH	2
17	553520077-00	SPROCKET - 32	2
18	552240004-00	HEX SOC HEAD CAP SCREW-SS304-M4X16	6
19	558520036-00	GEAR HOUSING ASSY - COMPLETE	1

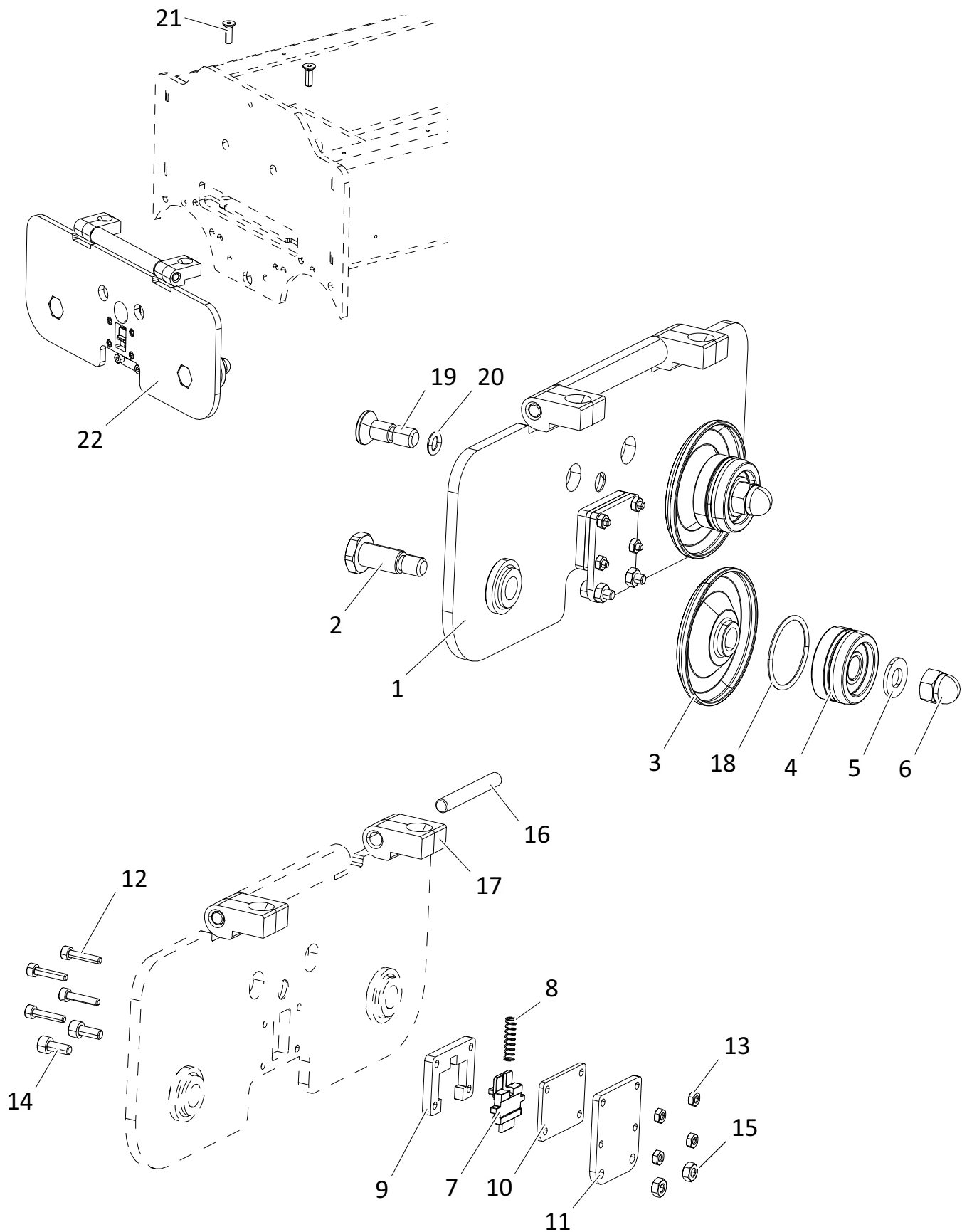
2. BRUSH HEAD - MOTOR, GEAR HOUSING & BELT MOUNTING



2. BRUSH HEAD - MOTOR, GEAR HOUSING & BELT MOUNTING

ITEM	PART NO	DESCRIPTION	QTY
1.a	558520035-00	BRUSH MOTOR ASSY - 230V/50Hz	1
1.b	558520108-00	BRUSH MOTOR ASSY - 220V/60Hz	1
2	552240015-00	HEX SOC HEAD CAP SCREW - SS304 - M6X25	4
3	552240014-00	HEX SOC HEAD CAP SCREW - SS304 - M6X20	3
4	552240013-00	HEX SOC HEAD CAP SCREW - SS304 - M6X15	2
5	553520111-00	BELT - 410	2
6	558520033-00	FRAME WELDED ASSY	1

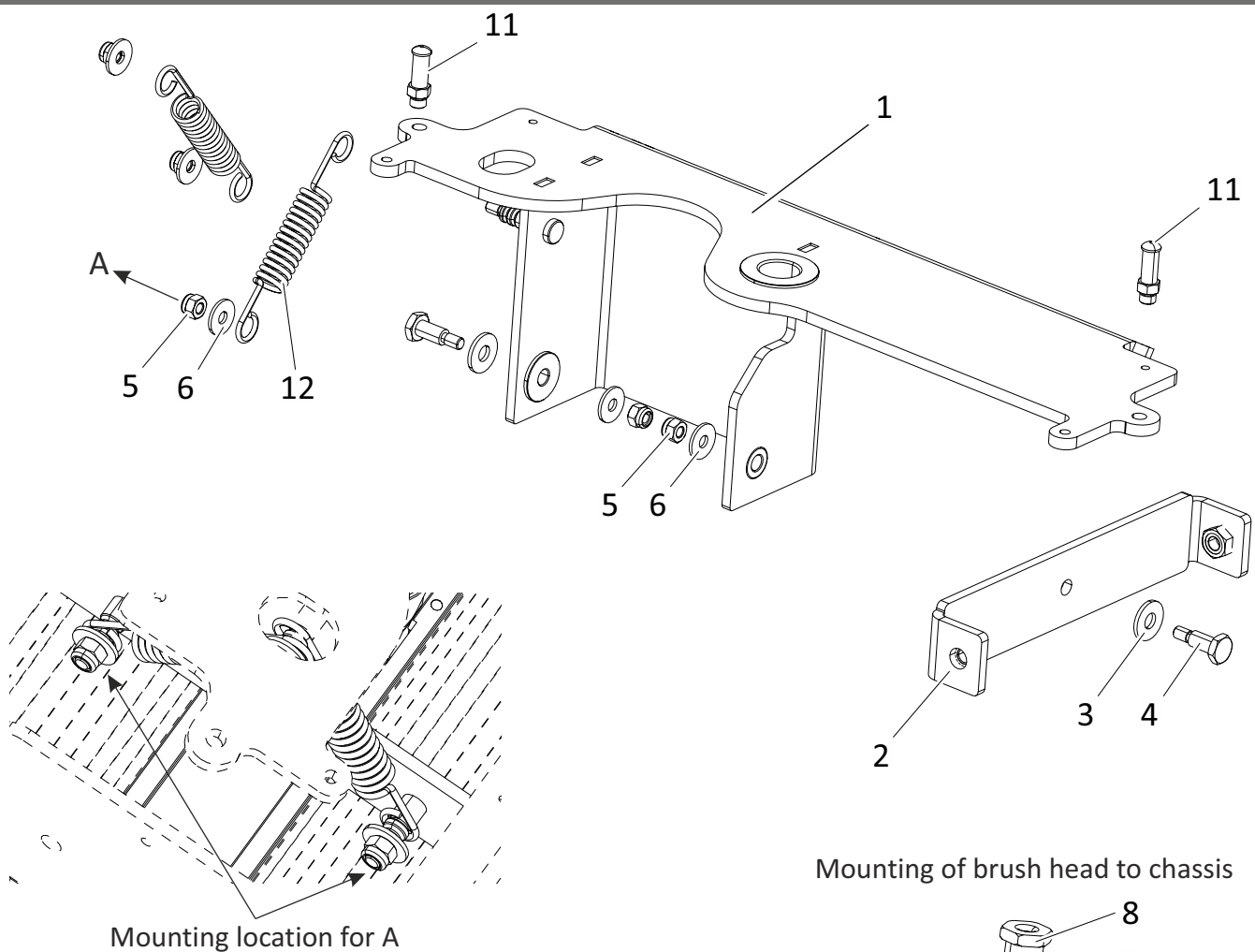
2. BRUSH HEAD - IDLER PLATE ASSEMBLY



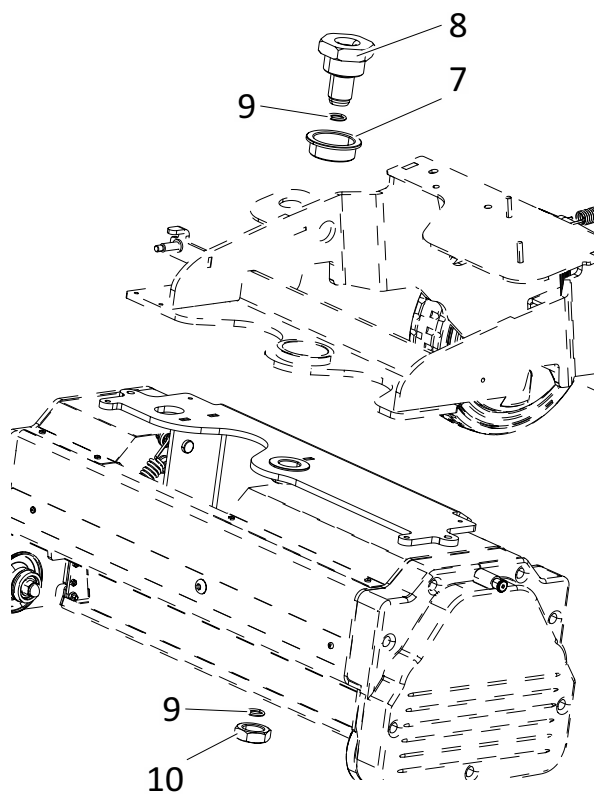
2. BRUSH HEAD - IDLER PLATE ASSEMBLY

ITEM	PART NO	DESCRIPTION	QTY
1	558520038-00	IDLER PLATE WELDMENT	1
2	553520081-00	PIN - IDLER	2
3	553520082-00	SPACER - IDLER	2
4	553520083-00	GUIDE - BRUSH	2
5	552360013-00	WASHER-SS304-8.4X17X1.6	2
6	552300004-00	DOMED CAP NUT-SS 304-M8	2
7	553520084-00	LOCK - COLLECTION TRAY	1
8	553520085-00	SPRING - LOCK	1
9	553520086-00	FRONT PLATE - LOCK - COLLECTION TRAY	1
10	553520087-00	MIDDLE PLATE - LOCK COLLECTION TRAY	1
11	553520088-00	BACK PLATE - LOCK COLLECTION TRAY	1
12	552240041-00	HEX SOC HD CAP SCREW -SS304 M3X15	4
13	552180002-00	HEX NUT - SS 304 - M3	4
14	552240002-00	HEX SOC HEAD CAP SCREW-SS304-M4X10	2
15	552180003-00	HEX NUT - SS 304 - M4	2
16	552420011-00	DOWEL PIN SS304 - 6 X 45	2
17	553520089-00	BASE - IDLER PLATE BOTTOM	2
18	552430045-00	O RING - 28 x 2	2
19	553520103-00	COIN SCREW - M8X25	1
20	552430008-00	O RING - 6 x 2	1
21	552220017-00	HEX SOC CSK HD SCREW - SS304 - M5X16	2
22	558520037-00	IDLER PLATE ASSY - COMPLETE	1

2. BRUSH HEAD - HINGE ASSEMBLY



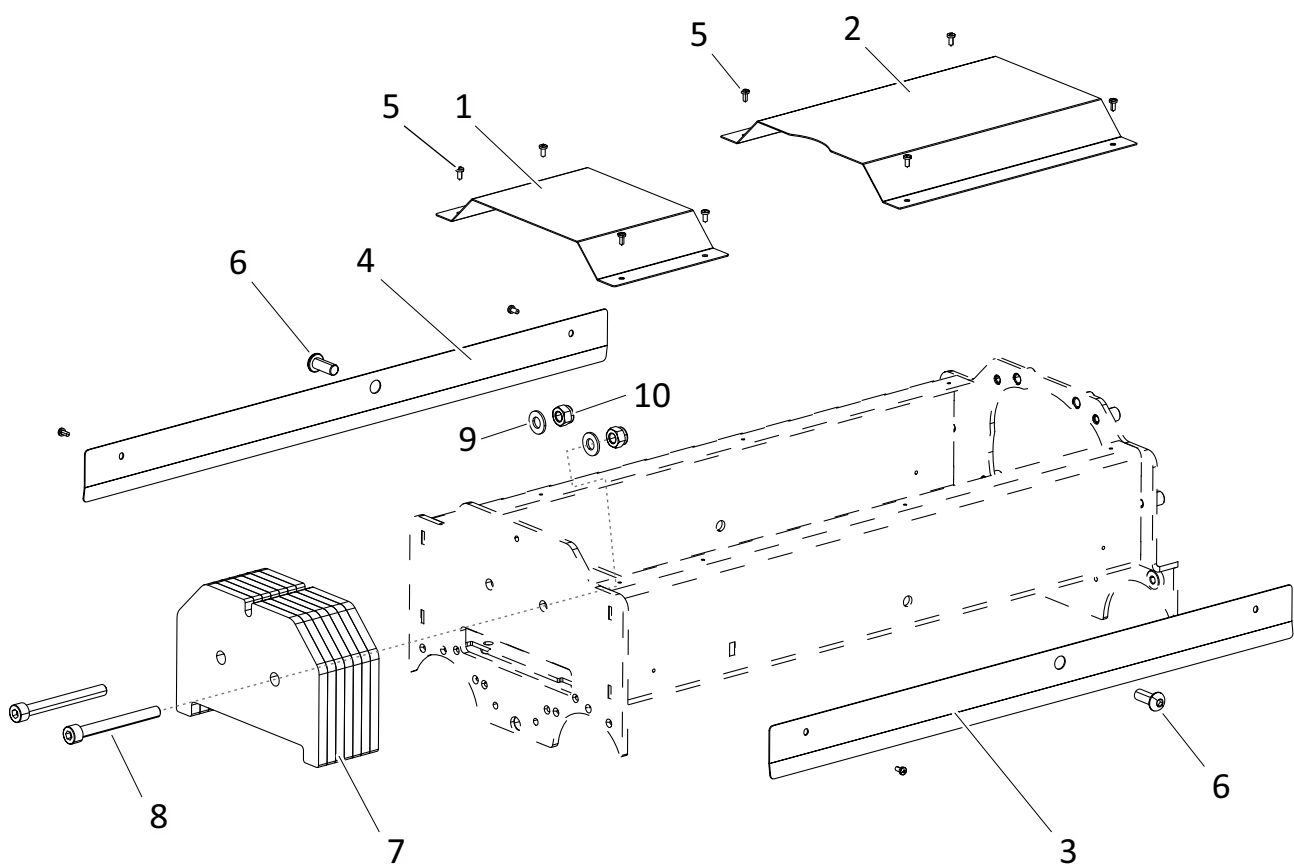
Mounting of brush head to chassis



2. BRUSH HEAD - HINGE ASSEMBLY

ITEM	PART NO	DESCRIPTION	QTY
1	558520041-00	HINGE WELDMENT	1
2	558520042-00	CENTER SUPPORT - WELDMENT	1
3	552360014-00	WASHER-SS304-8.2X20X2	1
4	553520160-00	STUD - BUSH SWING	1
5	552540003-00	HEX NYLOCK NUT SS304 - M6	5
6	552360022-00	WASHER-6.4X18X1.6-SS 304	5
7	553520114-00	INNER BUSH - SUPPORT - BRUSH HEAD	1
8	553520113-00	BUSH - BRUSH HEAD	1
9	552430049-00	O RNG 12.5 X 2.5	2
10	553520115-00	LOCK NUT - M22	1
11	553520127-00	PIN - LOCK - BRUSH HEAD	2
12	553520096-00	SPRING - CHASSIS - BRUSH HEAD	2

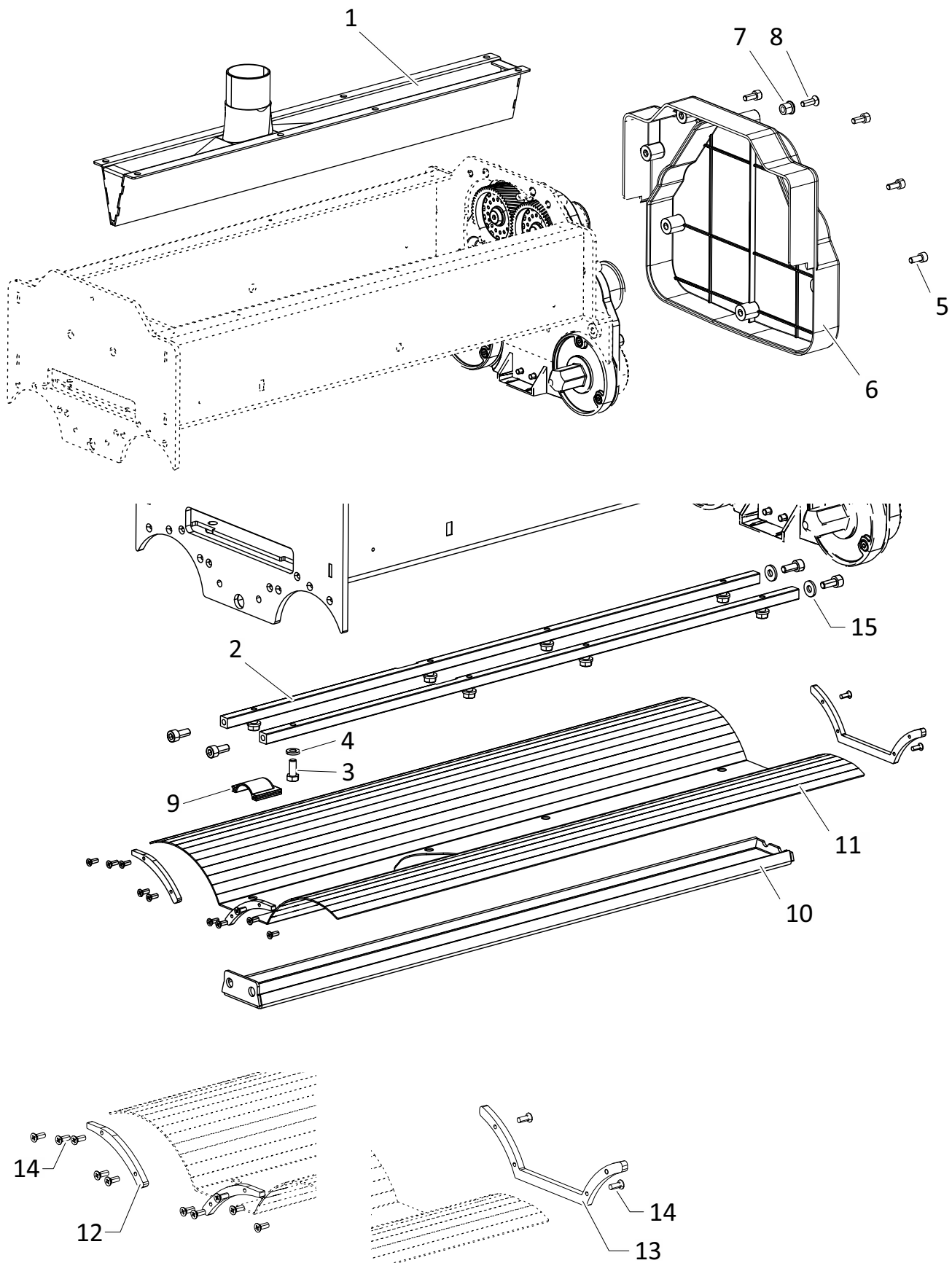
2. BRUSH HEAD - COUNTER WEIGHT, TOP COVER & STRIP ASSEMBLY



2. BRUSH HEAD - COUNTER WEIGHT, TOP COVER & STRIP ASSEMBLY

ITEM	PART NO	DESCRIPTION	QTY
1	553520109-00	COVER - TOP - IDLE	1
2	553520110-00	COVER - TOP - DRIVE	1
3	553520107-00	FRONT STRIP	1
4	553520108-00	REAR STRIP	1
5	552140002-00	CR PAN HEAD SCREW - SS304 - M3X6	12
6	552870063-00	BUTTON HEAD HEX SOC SCREW - SS304 - M8X20	2
7	553520090-00	COUNTER WEIGHT - BRUSH HEAD	7
8	552240042-00	HEX SOC HEAD CAP SCREW - SS304 - M8X75	2
9	552360013-00	WASHER - SS304 - 8.4X17X1.6	2
10	552540004-00	HEX NYLOCK NUT - SS304 - M8	2

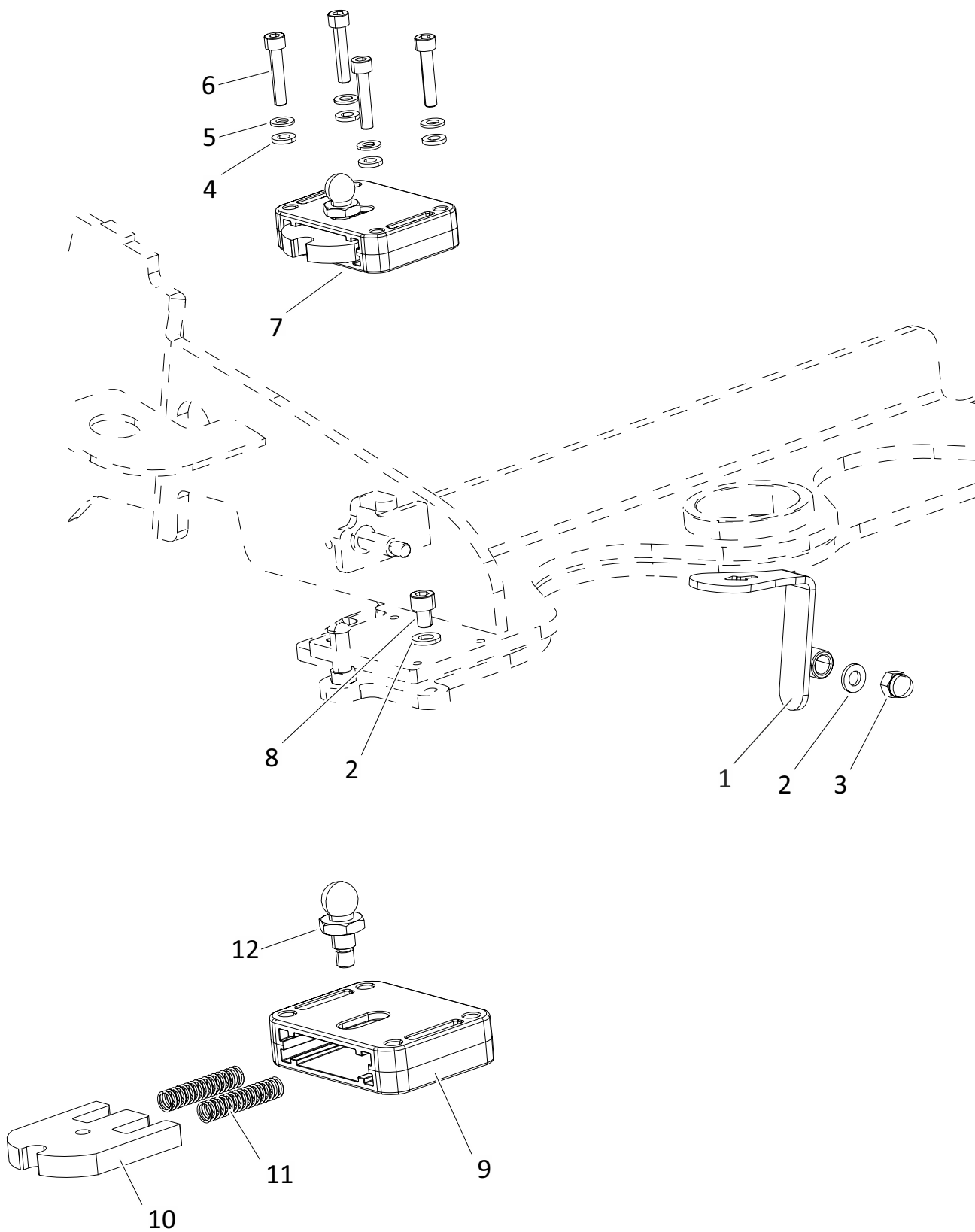
2. BRUSH HEAD - SHIELD BRUSH, GEAR COVER & DEBRIS TRAY



2. BRUSH HEAD - SHIELD BRUSH, GEAR COVER & DEBRIS TRAY

ITEM	PART NO	DESCRIPTION	QTY
1	558520043-00	SUCTION TRAY - WELDMENT	1
2	553520067-00	SQ. ROD - SHIELD BRUSH	2
3	552040053-00	HEX HEAD SCREW - SS304 - M5X12	8
4	552360010-00	WASHER - SS304 - 5.2X10X1.6	8
5	552240006-00	HEX SOC HEAD CAP SCREW - SS304 - M5X12	11
6	553520112-00	COVER - GEAR HOUSING	1
7	553520164-00	BUSH - STRAP - SPILL TRAY	2
8	552220017-00	HEX SOC CSK HD SCREW SS304-M5X16	2
9	553520049-00	GROMMET - SHIELD BRUSH	1
10	553520106-00	COLLECTION TRAY	1
11	553520097-00	SHIELD - BRUSH - ES	1
12	553520065-00	STRIP - SHIELD BRUSH - IDLE	2
13	553520098-00	STRIP - SHIELD BRUSH - DRIVE	1
14	552110010-00	CR CSK HEAD SCREW-SS304-M3x8	14
15	552360035-00	WASHER - SS304 - 5.2X12X1.6	2

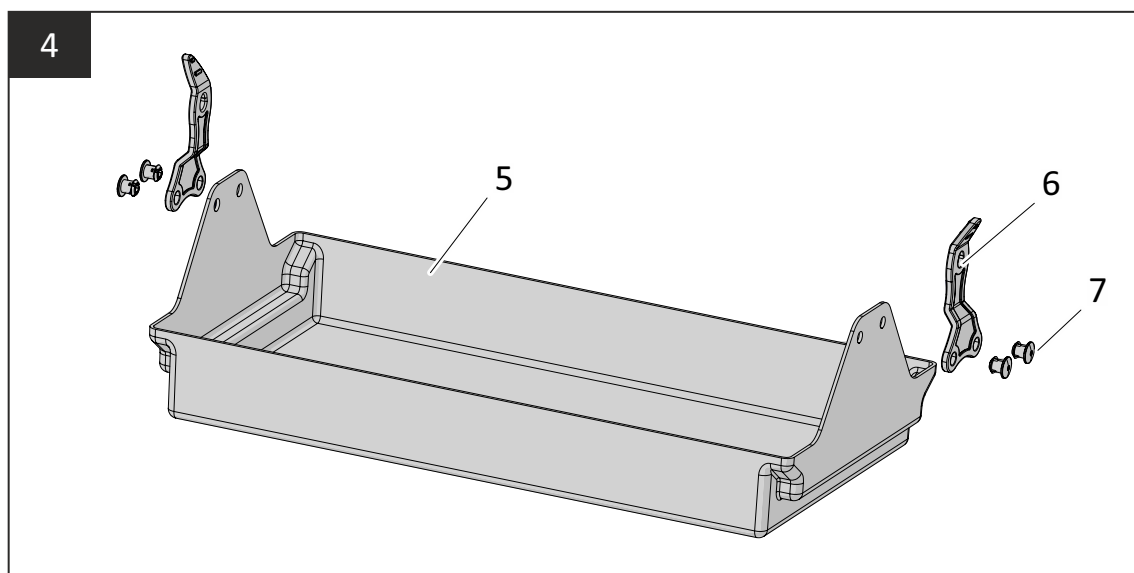
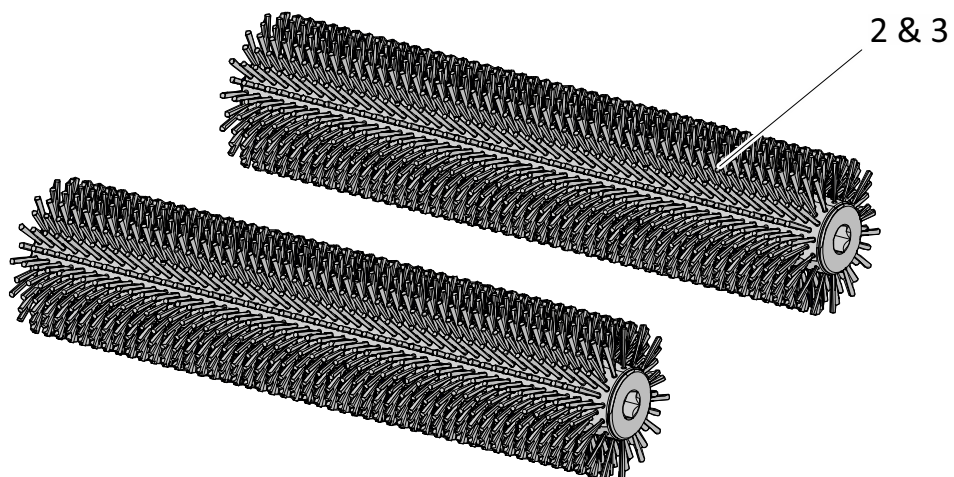
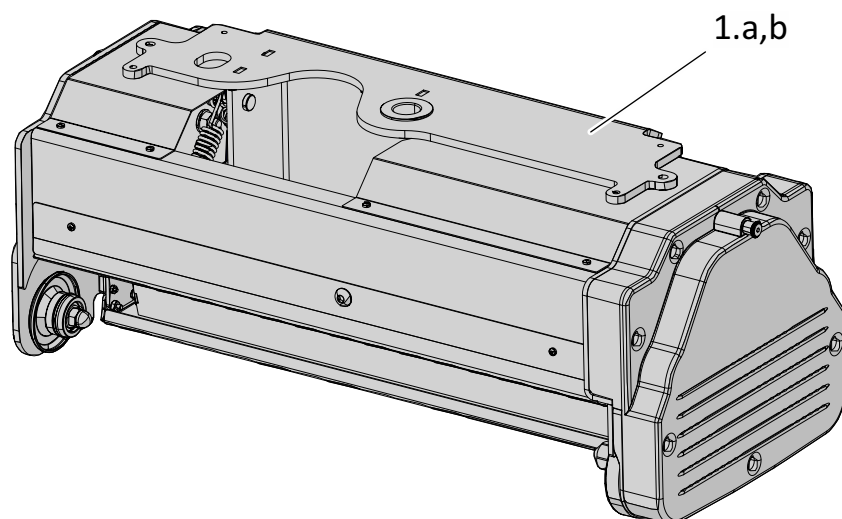
2. BRUSH HEAD - SLIDER LOCK ASSEMBLY



2. BRUSH HEAD - SLIDER LOCK ASSEMBLY

ITEM	PART NO	DESCRIPTION	QTY
1	558520049-00	LEVER SLIDER LOCK - WELDMENT	1
2	552360011-00	WASHER - SS304 - 6.4X12X1.6	3
3	552300002-00	DOME CAP NUT - SS304 - M6	1
4	552350009-00	WASHER - STEEL - 5.3X10.0X1.6	4
5	552350008-00	WASHER - STEEL - 5.3X10.0X1.0	4
6	552230049-00	HEX SOC HEAD CAP SCREW - STEEL - M5X25	4
7	558520048-00	SLIDER LOCK ASSY	1
8	552240043-00	HEX SOC HEAD CAP SCREW - SS304 - M6X8	2
9	553520121-00	BASE - SLIDER LOCK	1
10	553520122-00	SLIDER	1
11	553520123-00	SPRING - SLIDER LOCK	2
12	553520124-00	PIN - SLIDER LOCK	1

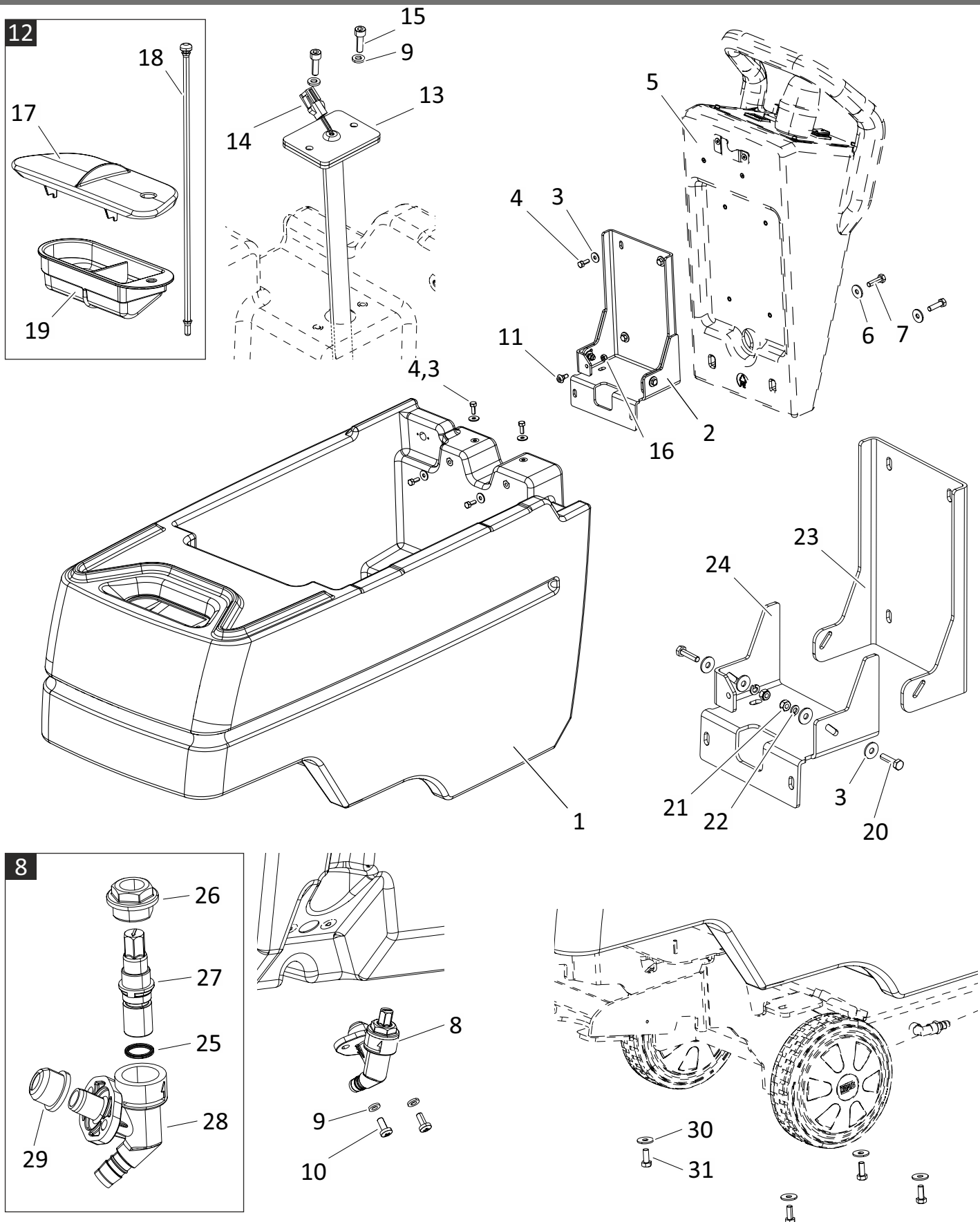
2. BRUSH HEAD - BRUSH HEAD ASSY, BRUSH & SPILL TRAY



2. BRUSH HEAD - BRUSH HEAD ASSY, BRUSH & SPILL TRAY

ITEM	PART NO	DESCRIPTION	QTY
1.a	558520032-00	BRUSH HEAD ASSY - ES - 230V/50Hz	1
1.b	558520109-00	BRUSH HEAD ASSY - ES - 220V/60Hz	1
2	558520075-00	BRUSH ASSY - SiC - 0.58 - GREY	2
3	558520097-00	BRUSH ASSY - NYLON - 0.5 - BLACK	2
4	558520060-00	SPILL TRAY - ASSY	1
5	553520138-00	SPILL TRAY	1
6	553520163-00	STRAP - SPILL TRAY	2
7	553520137-00	LOCK - STRAP - SPILL TRAY	4

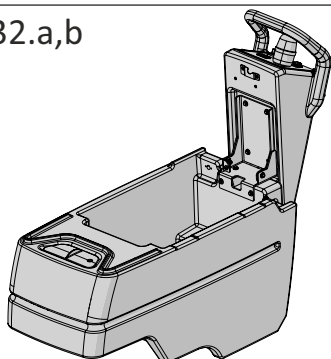
3. FRESH WATER TANK ASSEMBLY



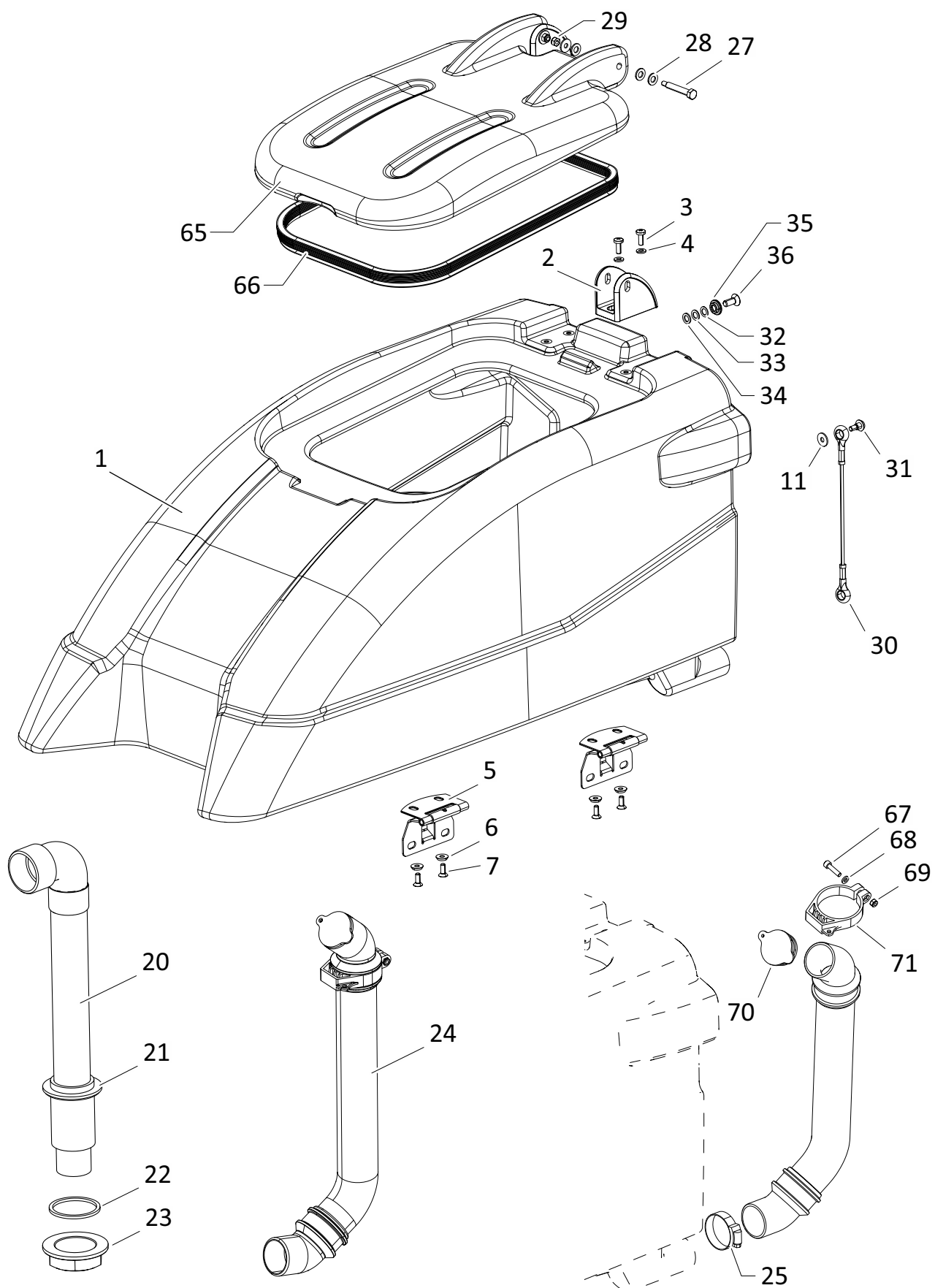
3. FRESH WATER TANK ASSEMBLY

ITEM	PART NO	DESCRIPTION	QTY
1	553520178-00	FRESH TANK - ES	1
2	558350528-00	BRACKET ASSY - EB 4545	1
3	552350012-00	WASHER - STEEL - 6.4X18X1.6	12
4	552020007-00	HEX HEAD SCREW - STEEL 8.8 - M6X16	8
5	558520008-00	CONTROL UNIT ASSY	1
6	552360015-00	WASHER - SS304 - 8.2X24X2.2	2
7	552040029-00	HEX HEAD SCREW - SS304 - M8X30	2
8	558350406-00	VALVE ASSY	1
9	552360010-00	WASHER - SS304 - 5.2X10X1.6	4
10	552140013-00	CR PAN HEAD SCREW - SS304 - M5X12	2
11	553430123-00	DRIVE LEVER STUD	1
12	558350440-00	FILTER WITH COVER	1
13	558520100-00	FLOAT SWITCH ASSY - FRESH TANK - SPARE	1
14	553520173-00	TWO WAY MOLEX CONNECTOR - MALE	1
15	552240007-00	HEX SOC HEAD CAP SCREW - SS304 - M5X16	2
16	552170009-00	HEX NUT - STEEL GR. 8 - M6	1
17	553350697-00	COVER - FILTER	1
18	553350698-00	STOPPER PIN - FILTER	1
19	553350707-00	FILTER - FRESH TANK	1
20	552020009-00	HEX HEAD SCREW - STEEL 8.8 - M6X25	2
21	552480006-00	HEX NYLOCK NUT - STEEL GR.6 - M6	2
22	552510004-00	SPRING WASHER - STEEL - M6	2
23	553350756-00	BRACKET - TOP	1
24	553350757-00	BRACKET BOTOM EB4545	1
25	552430020-00	QUAD RING-10X2 (IDXT)-SILICON RUBBER - ORANGE	1
26	553350675-00	CAP-VALVE BODY	1
27	553350676-00	VALVE - CONTROLLER	1
28	553350677-00	VALVE - BODY	1
29	553350678-00	GASKET - VALVE	1
30	552350017-00	WASHER - STEEL - 8.4X24X2	4
31	552020016-00	HEX HEAD SCREW - STEEL - M8X20	4
32.a	558520007-00	FRESH WATER TANK ASSY - 230V/50Hz	1
32.b	558520114-00	FRESH WATER TANK ASSY - 220V/60Hz	1

32.a,b

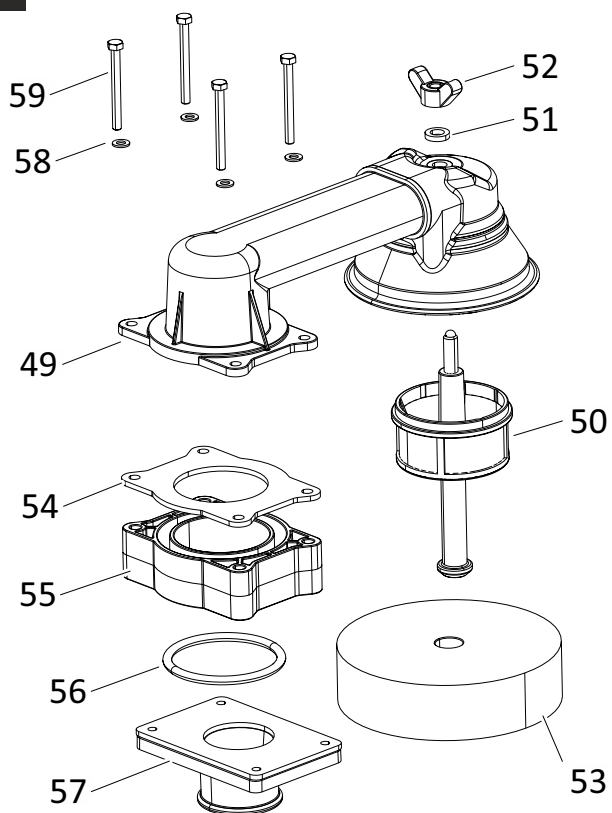


4. DIRTY WATER TANK ASSEMBLY

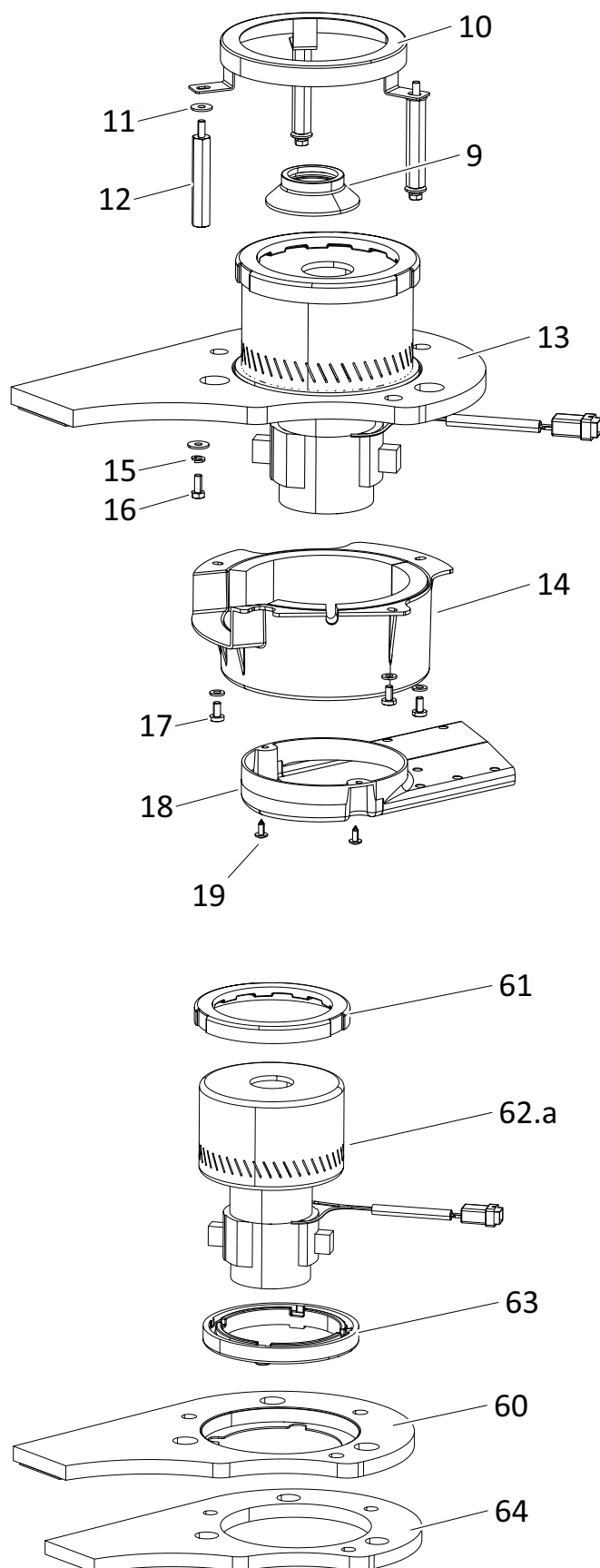
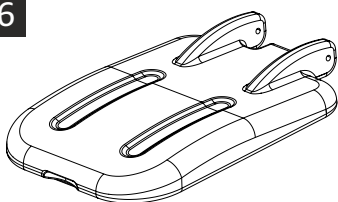


4. DIRTY WATER TANK ASSEMBLY

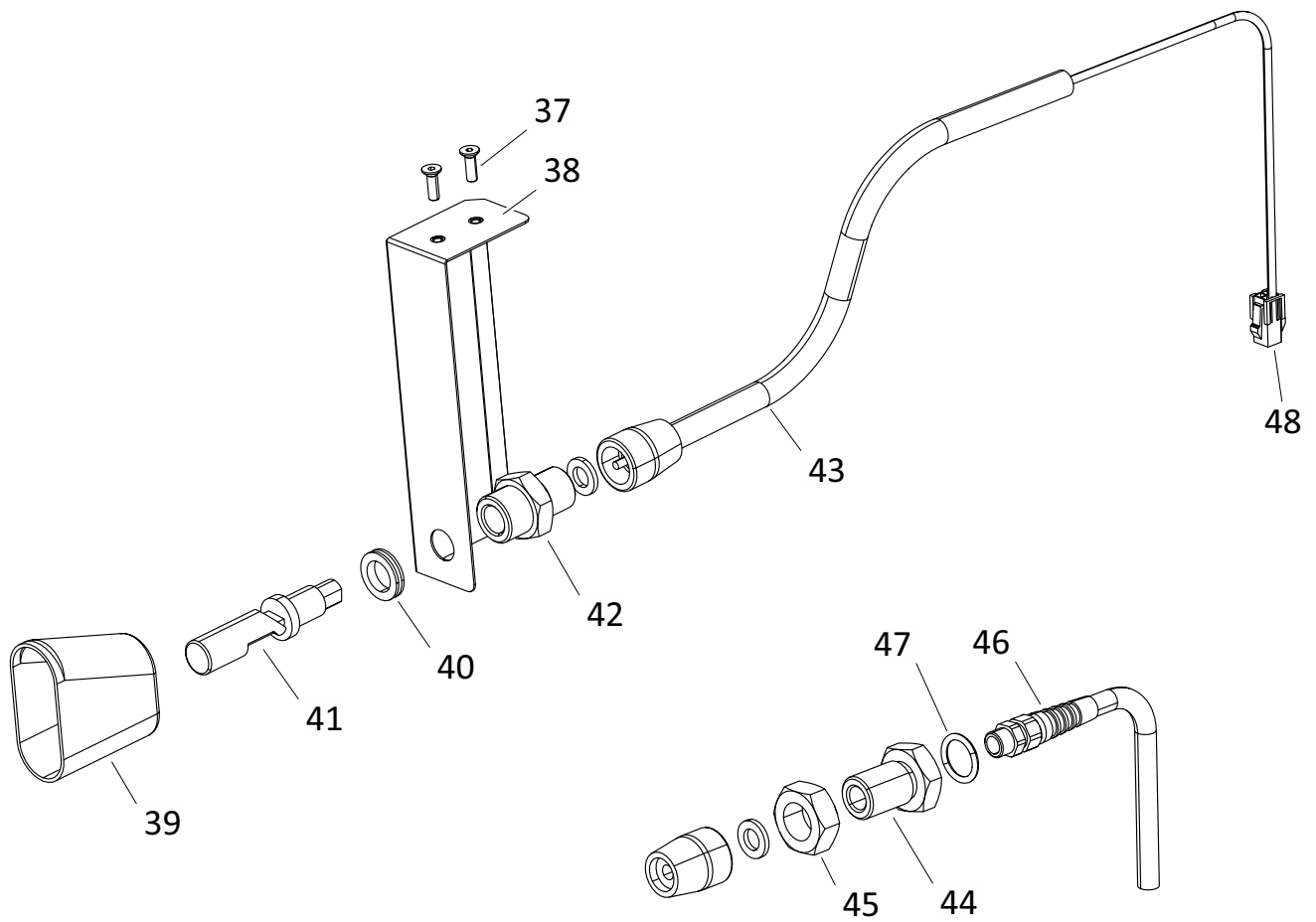
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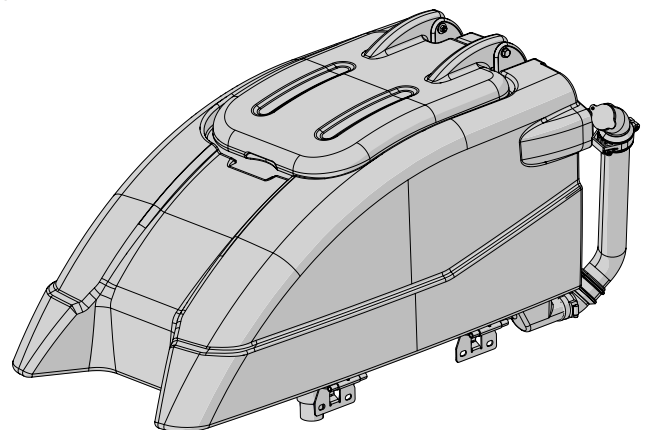
26



4. DIRTY WATER TANK ASSEMBLY



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4. DIRTY WATER TANK ASSEMBLY

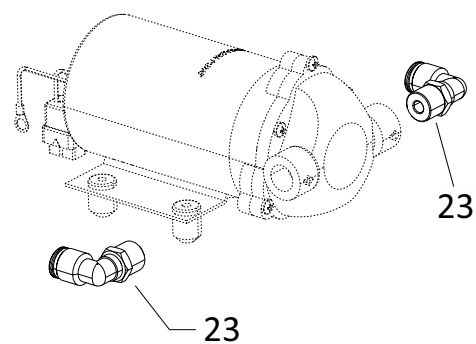
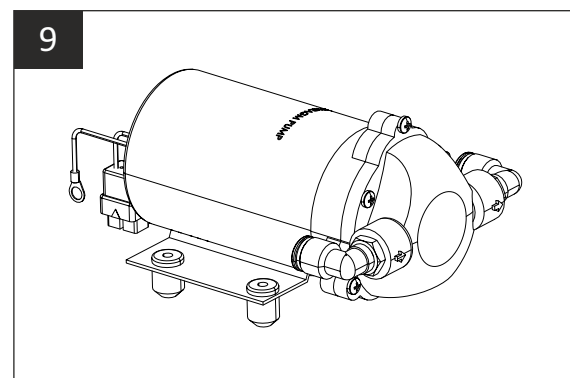
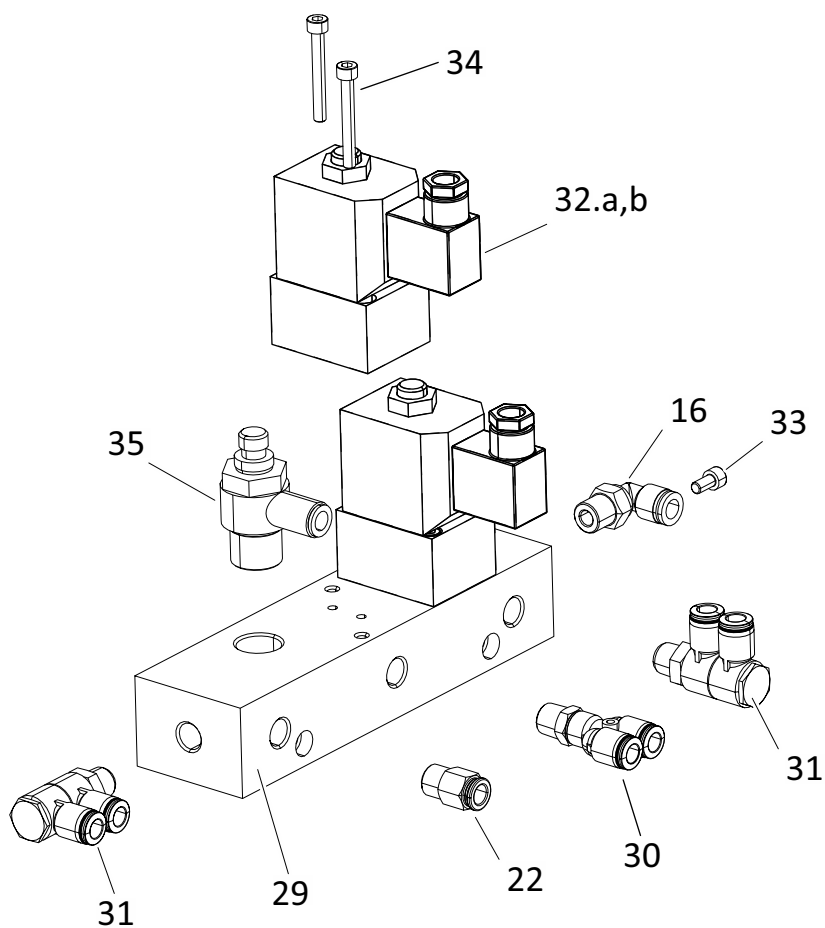
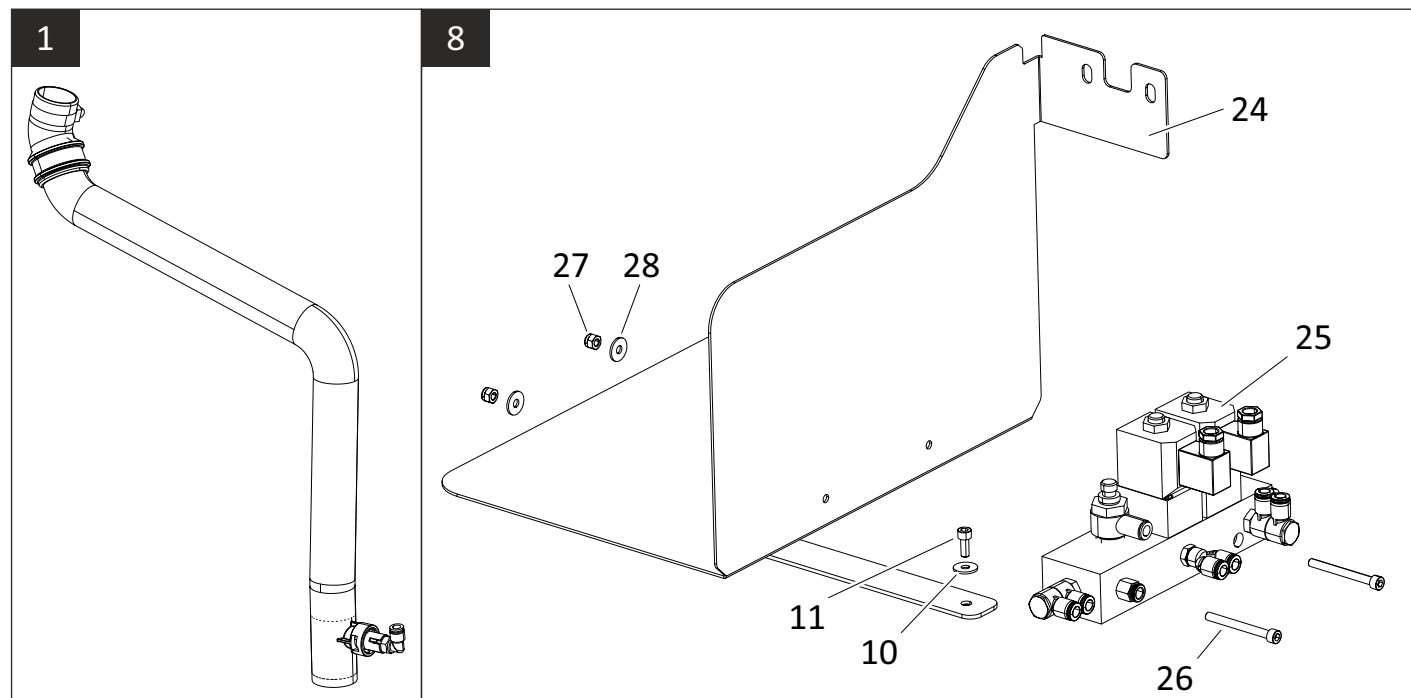
ITEM	PART NO	DESCRIPTION	QTY
1.a	553520037-00	COLLECTION TANK - ES	1
1.b	553520231-00	COLLECTION TANK - ES - BLUE	1
2	553350123-00	HINGE TOP COVER	2
3	552350011-00	WASHER - STEEL - 6.4X12.5X1.6	7
4	552130018-00	CR-PAN HEAD SCREW - STEEL - M6X16	4
5	558350421-00	HINGE ASSY - EB450	2
6	553250009-00	WASHER-BRIDGE	8
7	552220008-00	HEX SOC CSK HD SCREW - SS304 - M6X16	8
8	558520022-00	FLOAT KIT ES	1
9	553320233-00	SEAL-VACUUM MOTOR INLET	1
10	558350592-00	RING VM WELDMENT - 45/60	1
11	552350012-00	WASHER - STEEL - 6.4X18X1.6	9
12	553520068-00	STUD VM - 3 STAGE	3
13	558520071-00	VM ASSY - ES	1
14	558350241-00	HOUSING-EXHAUST-VM	1
15	552520004-00	SPRING WASHER - SS304 - M6	3
16	552040008-00	HEX HEAD SCREW - SS304 - M6X15	3
17	552130017-00	CR PAN HEAD SCREW - STEEL - M6X12	3
18	553350382-00	DUCT-HOUSING-VM-INLET	1
19	553210109-00	SELF TAPPING SCREW W/COLLAR 4.8X13	2
20	558520024-00	SUCTION PIPE ASSY	1
21	553320608-00	GASKET FLANGUE VACUM PIPE	1
22	553320630-00	GASKET LOCK NUT (ROTO)	1
23	553320607-00	LOCK NUT	1
24	558350248-00	DRAIN HOSE	1
25	552670022-00	HOSE CLAMP 32-45	1
26	558350396-00	TOP COVER ASSY	1
27	553350128-00	LOCKING PIN - TOP COVER	2
28	552360013-00	WASHER - SS304 - 8.4X17X1.6	4
29	552480006-00	HEX NYLOCK NUT - STEEL - M6	2
30	558350417-00	ROPE ASSY - CT TO CU	1
31	553430123-00	DRIVE LEVER STUD	1
32	553350762-00	OPTIONAL WASHER LOCKING BUSH 0.5 mm	1
33	553350763-00	OPTIONAL WASHER LOCKING BUSH 1.0 mm	1
34	553350764-00	OPTIONAL WASHER LOCKING BUSH 1.6 mm	1

4. DIRTY WATER TANK ASSEMBLY

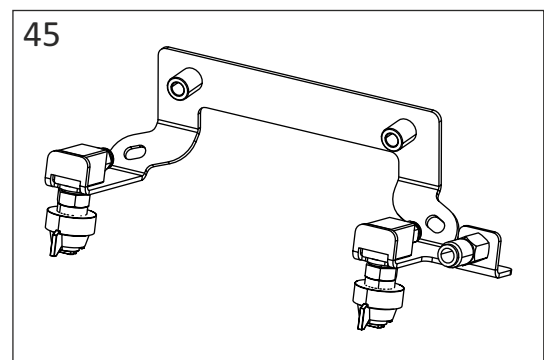
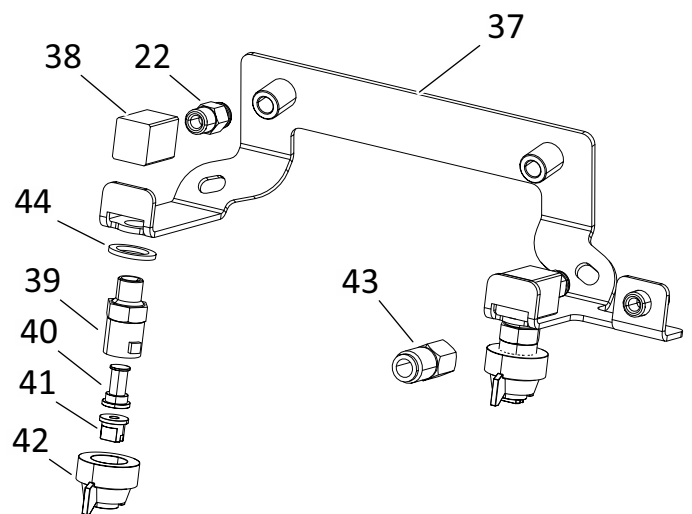
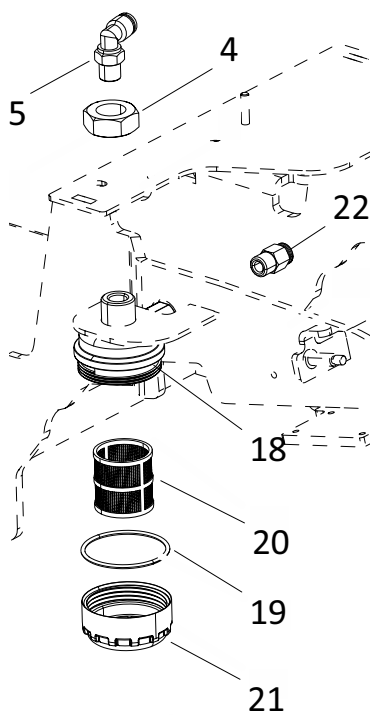
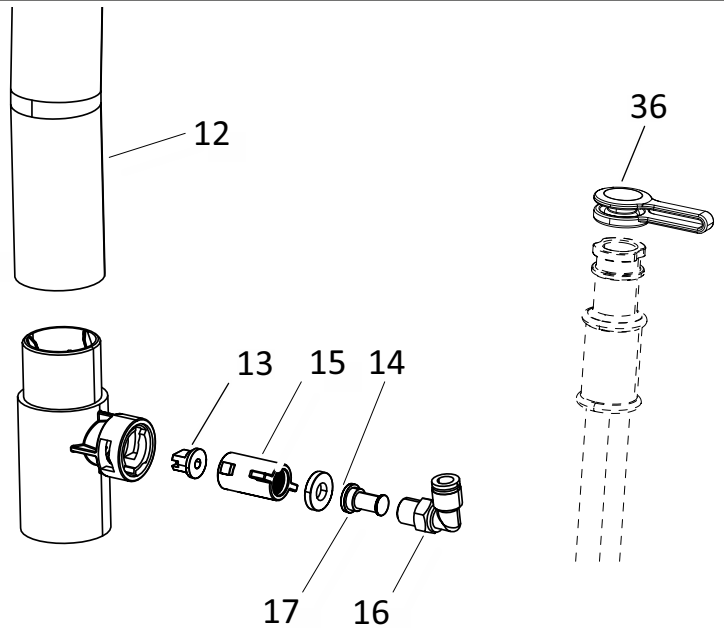
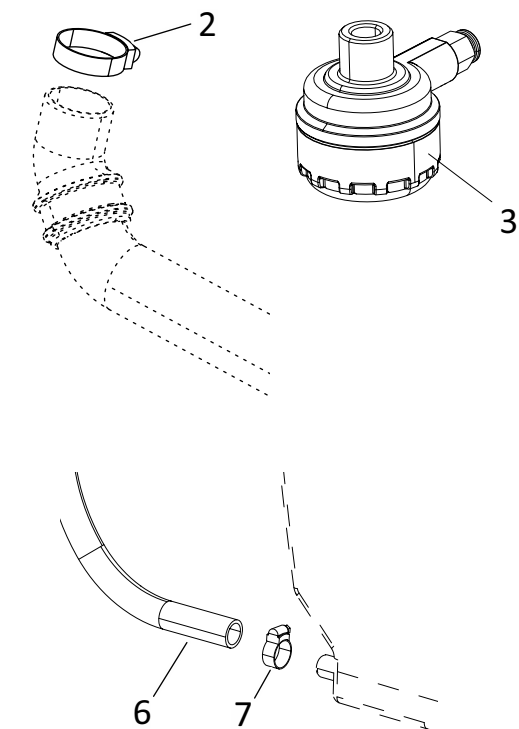
ITEM	PART NO	DESCRIPTION	QTY
35	553350755-00	LOCKING BUSH - CT	1
36	552220012-00	HEX SOC CSK HD SCREW - SS304 - M8X20	1
37	552220017-00	HEX SOC CSK HD SCREW - SS304 - M5X16	2
38	558520004-00	BRACKET - FLOAT SWITCH WELDMENT	1
39	553320459-00	COVER-FLOAT SWITCH	1
40	553320460-00	GASKET- FLOAT SWITCH	1
41	558520092-00	CABLE ASSY CA 21 (FLOAT SWITCH)	1
42	553520141-00	CONNECTOR - FLOAT FRONT	1
43	553520139-00	HOSE - FLOAT SWITCH	1
44	553520135-00	CONNECTOR - FLOAT REAR	1
45	553520142-00	NUT - CONNECTOR FLOAT	1
46	552900001-00	CABLE GLAND SPIRAL PG 7 PVC	1
47	552430042-00	O-RING - 18 X 3	1
48	553520177-00	FOUR WAY MOLEX CONNECTOR - MALE	1
49	558350530-00	HOUSING WITH SUCTION UNIT	1
50	553350760-00	FLOAT GUIDE	1
51	553350766-00	GASKET - FLOAT	1
52	552670135-00	WING NUT M8 (PLASTIC)	1
53	553100054-00	FLOAT BLOCK	1
54	553520038-00	GASKET - SPACER - FLANGE FLOAT	1
55	553520039-00	SPACER - FLANGE FLOAT	1
56	552430029-00	O' RING - 60 x 5	1
57	558350262-00	FLANGE-VM	1
58	552360009-00	WASHER - SS304 - 5.3X10X1	4
59	552040056-00	HEX HEAD SCREW - SS304 - M5X50	4
60	558350593-00	PLATE SUPPORT VM WELDMENT - EB4545	1
61	553350788-00	GASKET BOTTOM - VM	1
62.a	558520072-00	VACUUM MOTOR WITH CONNECTOR ASSY	1
62.b	552670097-00	CARBON BRUSH EMB 230V, 400V	2
63	553350789-00	GASKET TOP - VM	1
64	557350210-00	FOAMS - EB4545	1
65	553350629-00	TOP COVER	1
66	553530136-00	GASKET - TOP COVER	1
67	552240008-00	HEX SOC HEAD CAP SCREW-SS304-M5X20	1
68	552360010-00	WASHER-SS304-5.2X10X1.6	1
69	552480005-00	HEX NYLOCK NUT-STEEL GR.8 -M5	1
70	558320053-00	CAP WITH CHAIN ASSY	1
71	553320588-00	CLAMP-DRAIN HOSE	1
72.a	558520021-00	COLLECTION TANK ASSY ES - COMPLETE	1
72.b	558520123-00	COLLECTION TANK ASSY ES - COMPLETE - BLUE	1

Note: Item No. 62.b is not shown in the drawing.

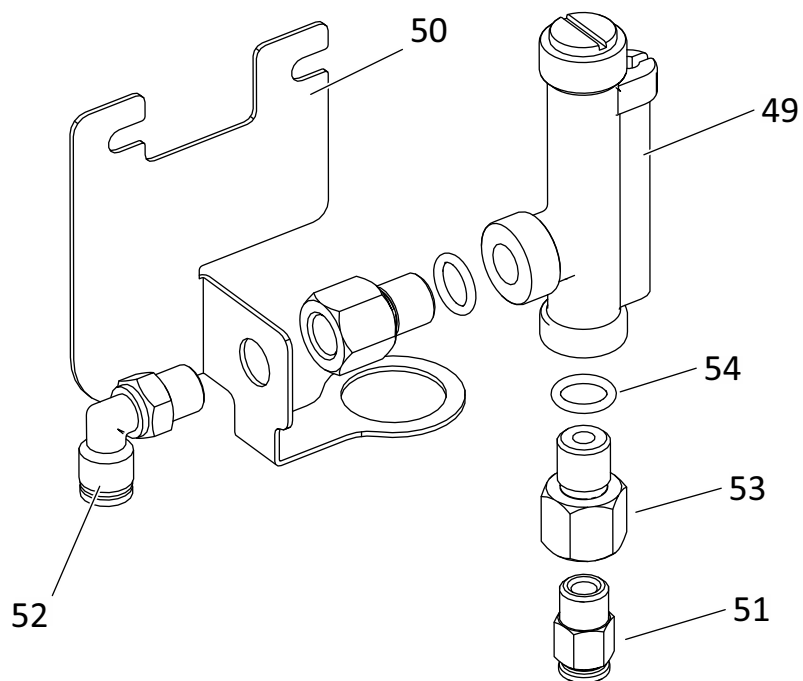
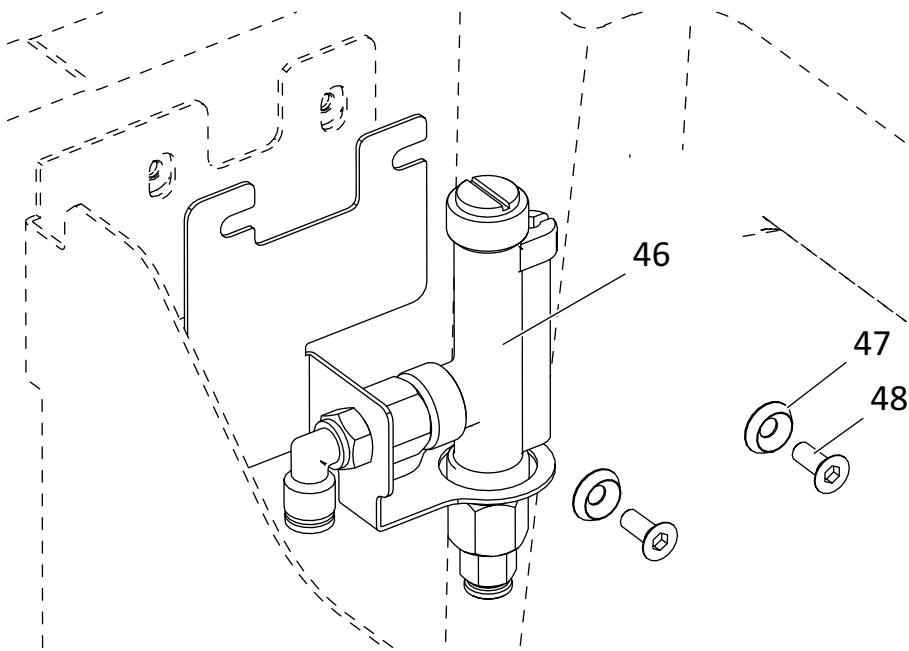
5. WATER SYSTEM



5. WATER SYSTEM



5. WATER SYSTEM



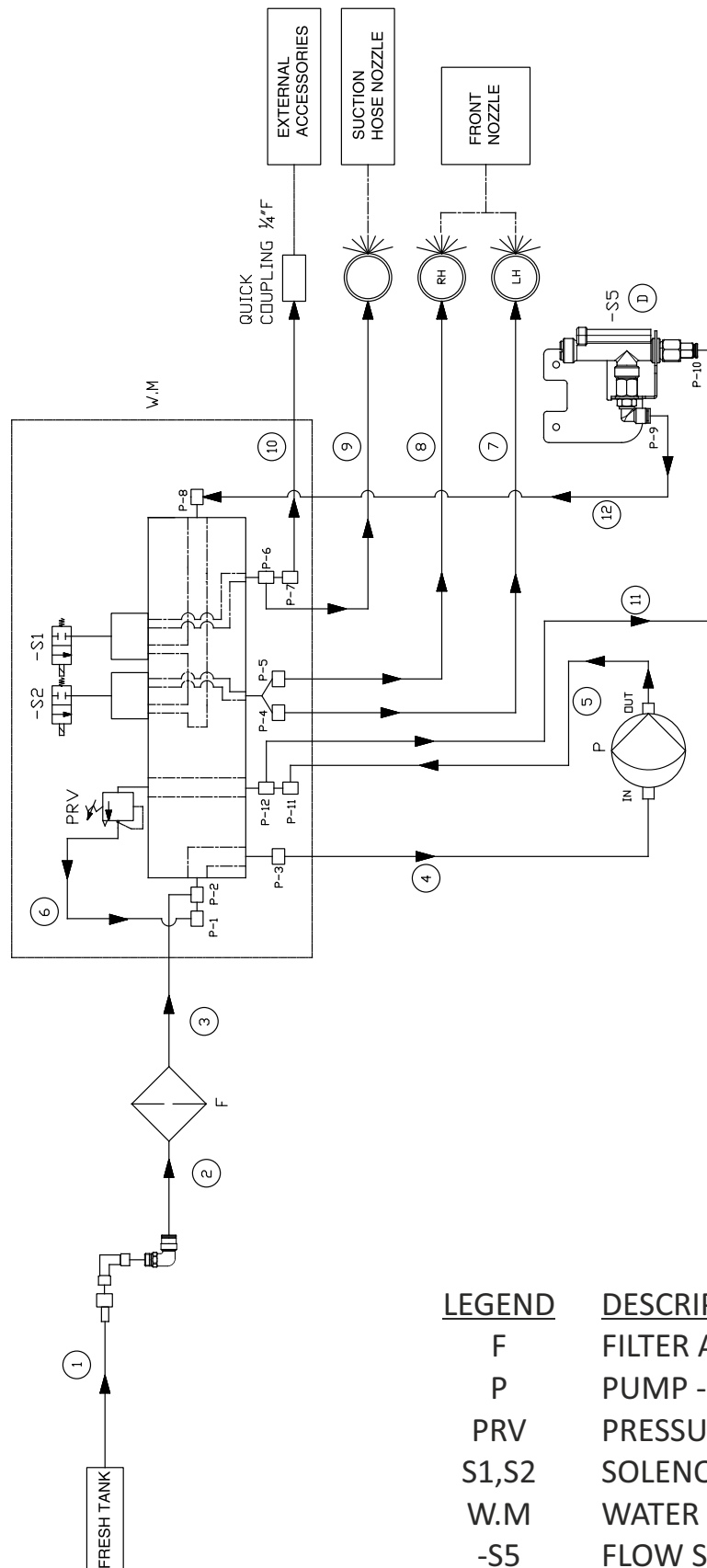
5. WATER SYSTEM

ITEM	PART NO	DESCRIPTION	QTY
1	558520045-00	SUCTION HOSE WITH CONNECTOR ASSY	1
2	552670022-00	HOSE CLAMP 32-45	1
3	558520028-00	FILTER ASSY	1
4	553520142-00	NUT - CONNECTOR FLOAT	1
5	552500100-00	ONE TOUCH L CONNECTOR (8.0) - 1/4" M	1
6	558520020-00	HOSE - WATER LEVEL ASSY	1
7	552670054-00	HOSE CLAMP 25-35	1
8.a	558520026-00	CHAMBER PLATE WITH MANIFOLD ASSY - 230V/50Hz	1
8.b	558520117-00	CHAMBER PLATE WITH MANIFOLD ASSY - 220V/60Hz	1
9	558520070-00	PUMP WITH CONNECTOR ASSY	1
10	552360022-00	WASHER - SS304 - 6.4X18X1.6	1
11	552240013-00	HEX SOC HEAD CAP SCREW - SS304 - M6X15	1
12	558520018-00	SUCTION HOSE	1
13	553520146-00	FAN TIP 110 - 01 NOZZLE	1
14	553520117-00	GASKET - NOZZLE SUCTION HOSE	1
15	553520118-00	HOLDER NOZZLE - SUCTION HOSE	1
16	552500100-00	ONE TOUCH L CONNECTOR 1/4"MALE (8.0)FESTO	2
17	553520147-00	FILTER NOZZLE	1
18	553520035-00	BODY FILTER - ES	1
19	552430013-00	O RING - 48 X2.5	1
20	553350178-00	MESH - FILTER	1
21	553350176-00	FILTER CAP	1
22	552500098-00	ONE TOUCH CONNECTOR 1/4" MALE (8.0)FESTO	5
23	552860044-00	SWIVEL ELBOW 3/8" X PU 8	2
24	558520025-00	CHAMBER PLATE - WELDMENT	1
25.a	558520029-00	WATER MANIFOLD ASSY - 230V/50Hz	1
25.b	558520116-00	WATER MANIFOLD ASSY - 220V/60Hz	1
26	552240046-00	HEX SOC HD CAP SCREW - SS304 - M6X60	2
27	552540003-00	HEX NYLOCK NUT - SS304 - M6	2
28	552360022-00	WASHER - SS304 - 6.4X18X1.6	2
29	553520051-00	WATER MANIFOLD	1
30	552500102-00	ONE TOUCH Y CONNECTOR 1/4" MALE (8.0)	1
31	552500104-00	ONE TOUCH 2 PORT MULTI DIS. 1/4" MALE (8.0)	3
32.a	558520091-00	CABLE ASSY CA 20 (SV1, SV2) - For 230V/50Hz	1
32.b	558520115-00	CABLE ASSY CA 20 (SV1,SV2) - For 220V/60Hz	1
33	552240006-00	HEX SOC HD CAP SCREW - SS304 - M5X12	1
34	552240039-00	HEX SOC HD CAP SCREW - SS304 - M5X40	4
35	553520166-00	PRESSURE RELIEF VALVE	1
36	553350226-00	CAP - DRAIN HOSE	1
37	558520047-00	BRACKET NOZZLE - WELDMENT	1
38	553520034-00	MANIFOLD NOZZLE	2
39	553520132-00	HOLDER - NOZZLE	2
40	553520147-00	FILTER NOZZLE	2

5. WATER SYSTEM

ITEM	PART NO	DESCRIPTION	QTY
41	553520133-00	FAN TIP 65 - 005 NOZZLE	2
42	553520134-00	ADAPTOR WITH SEAL - NOZZLE	2
43	553520128-00	QUICK COUPLING 1-4" F	1
44	553520073-00	WASHER - SS304 - 22.0X15.2X2.0	2
45	558520046-00	BRACKET - NOZZLE ASSY	1
46	558520101-00	FLOW SWITCH ASSY - ES	1
47	553250009-00	WASHER - BRIDGE	2
48	552220008-00	HEX SOC CSK HD SCREW M6x16-SS	2
49	558520107-00	FLOW SWITCH WITH CONNECTOR	1
50	553520216-00	BKT - FLOW SWITCH	1
51	552500098-00	ONE TOUCH CONNECTOR (8.0) - 1/4" M	1
52	552500100-00	ONE TOUCH L CONNECTOR (8.0) - 1/4" M	1
53	553520217-00	CONNECTOR - FLOW SWITCH	2
54	552430049-00	O RING 12.5 X 2.5	2

5. WATER SYSTEM - SCHEMATIC



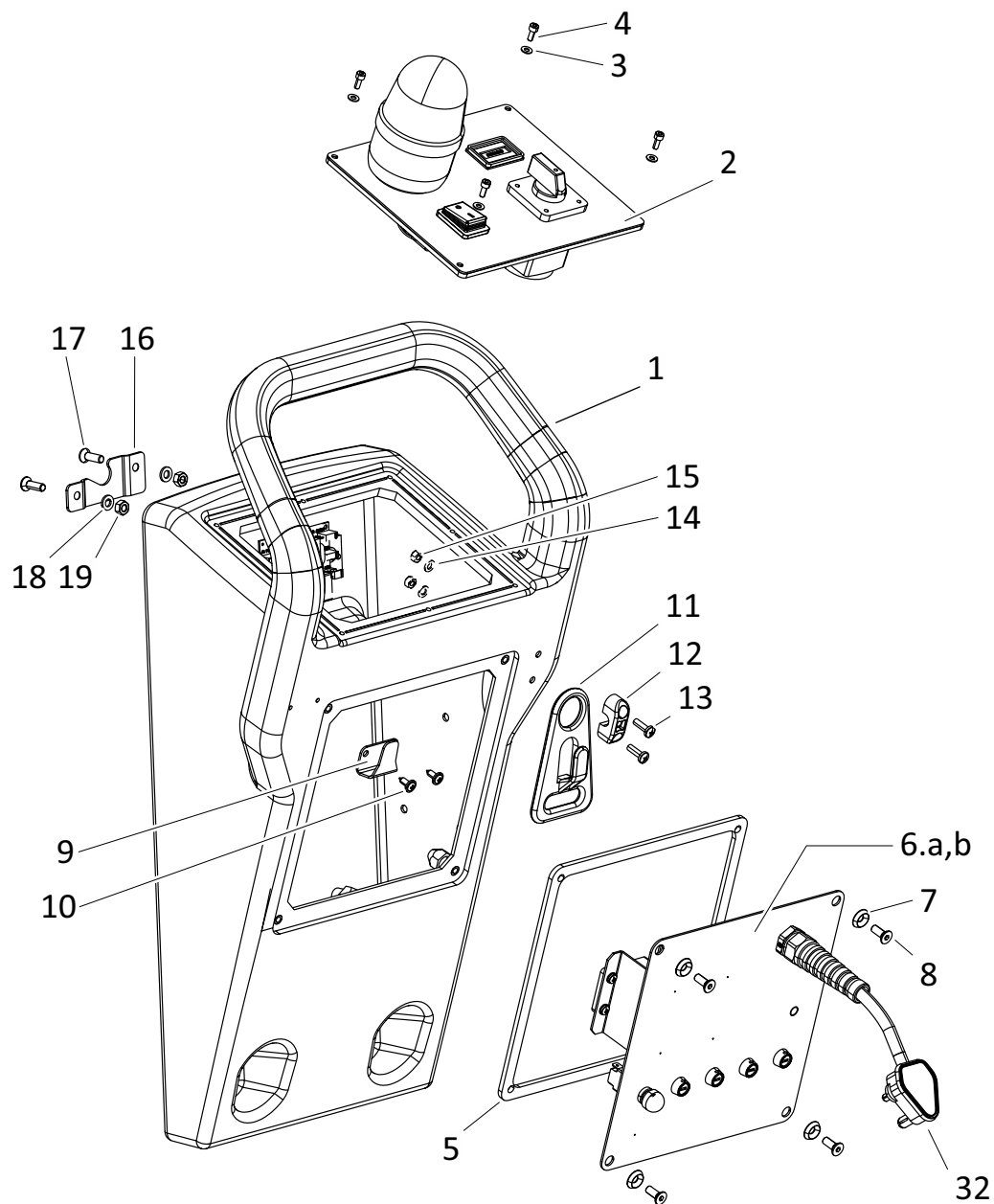
LEGEND

F	FILTER ASSY
P	PUMP - ES
PRV	PRESSURE RELIEF VALVE
S1,S2	SOLENOID VALVE
W.M	WATER MANIFOLD ASSY
-S5	FLOW SWITCH

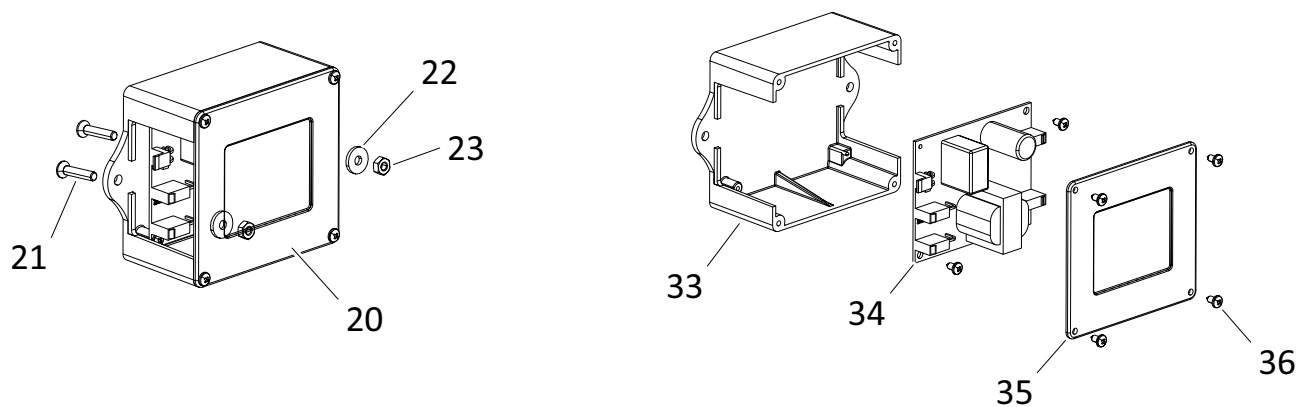
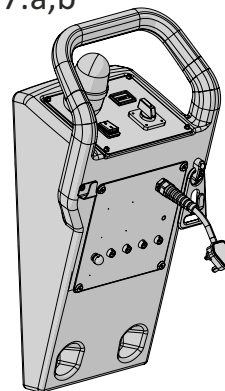
5. WATER SYSTEM - SCHEMATIC

ITEM	PART NO	DESCRIPTION	QTY
1	553520185-00	HOSE - FRESH TANK OUTLET	1
2	553520192-00	PU HOSE 8 x 1.25 FRESH TANK TO FILTER	1
3	553520186-00	PU HOSE 8 x 1.25 FILTER TO PORT 2	1
4	553520193-00	PU HOSE 8 x 1.25 - PORT 3 TO PUMP IN	1
5	553520194-00	PU HOSE 8 x 1.25 - PUMP OUT TO PORT 11	1
6	553520187-00	PU HOSE 8 x 1.25 PRV OUT TO PORT 1	1
7	553520188-00	PU HOSE 8 x 1.25 PORT-4 TO LH NOZZLE	1
8	553520189-00	PU HOSE 8 x 1.25 PORT-5 TO RH NOZZLE	1
9	553520190-00	PU HOSE 8 x 1.25 PORT-6-SUCTION HOSE NOZZLE	1
10	553520191-00	PU HOSE 8 x 1.25 PORT-7 TO QUICK COUPLING	1
11	553520226-00	PU HOSE 8 x 1.25 PORT-10 TO PORT-12	1
12	553520227-00	PU HOSE 8 x 1.25 PORT-8 TO PORT-9	1

6. CONTROL UNIT ASSEMBLY - 230V/50Hz & 220V/60Hz

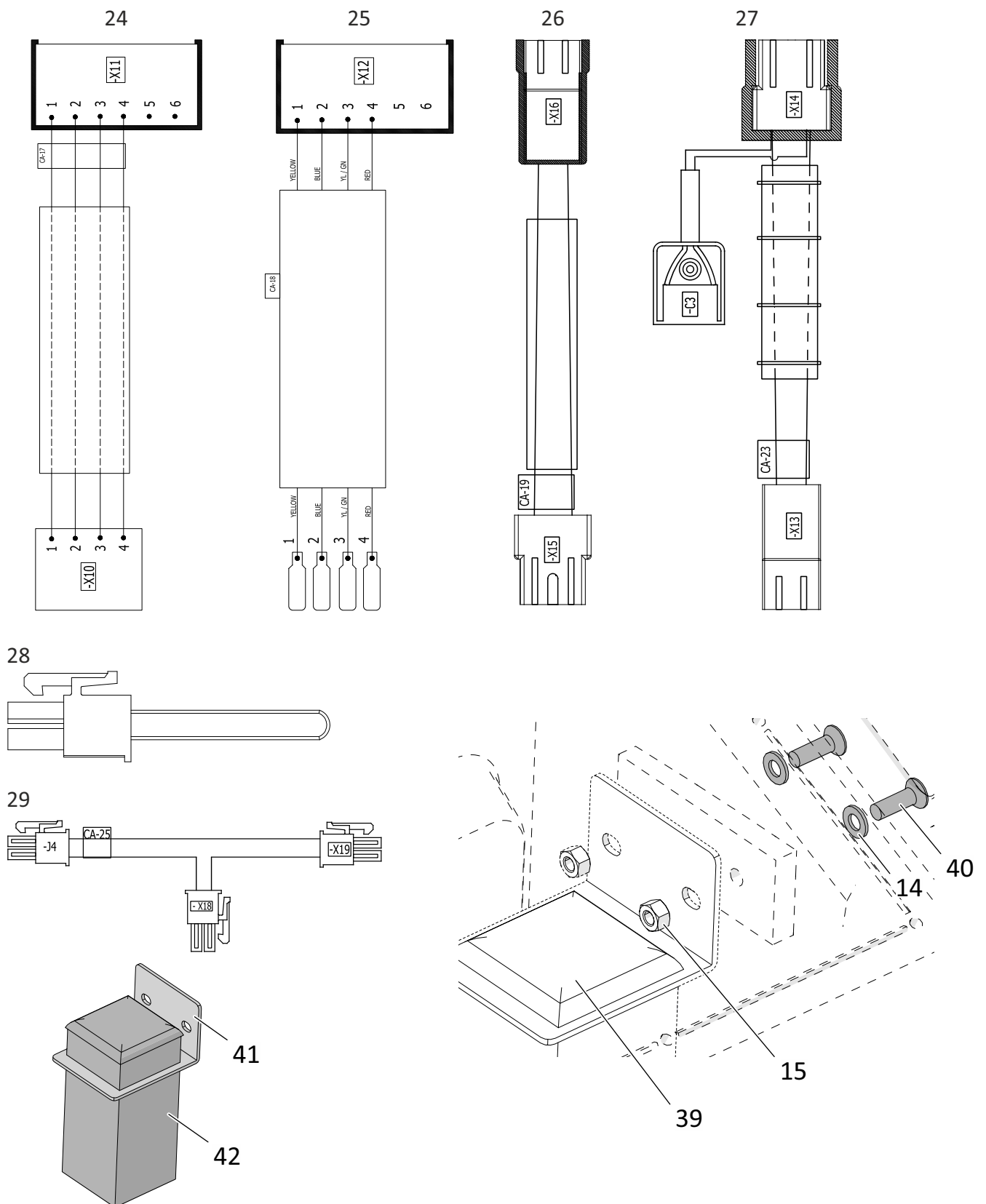


37.a,b



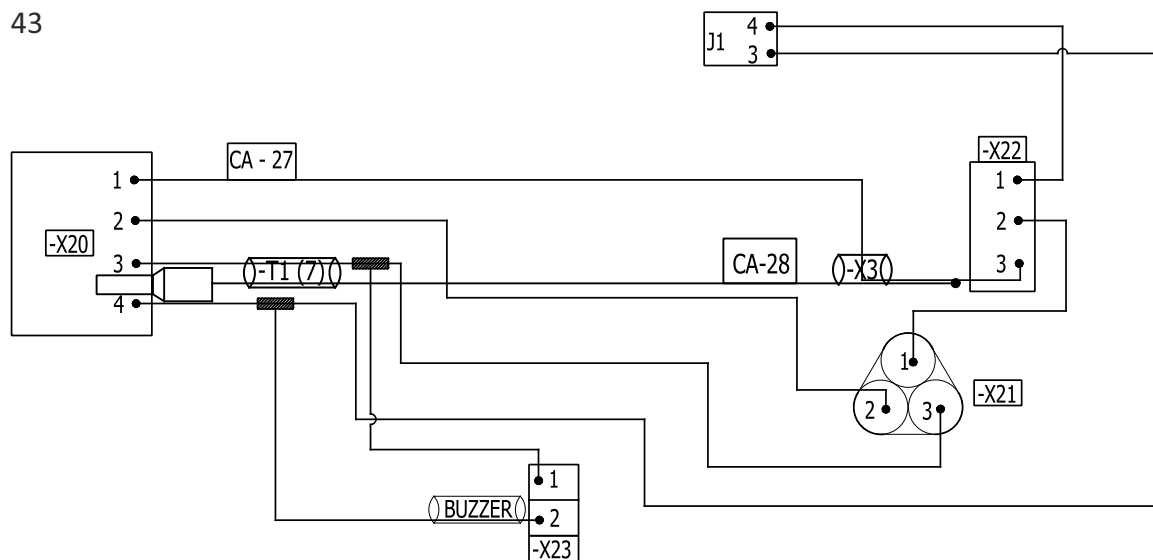
6. CONTROL UNIT ASSEMBLY - 230V/50Hz & 220V/60Hz

Cable Assemblies

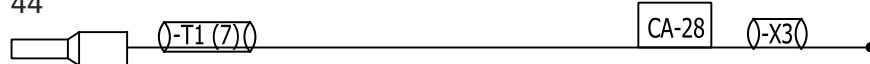


6. CONTROL UNIT ASSEMBLY - 230V/50Hz & 220V/60Hz

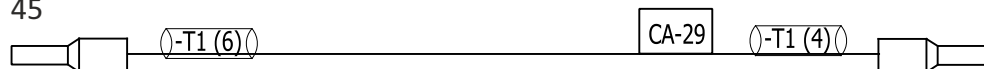
43



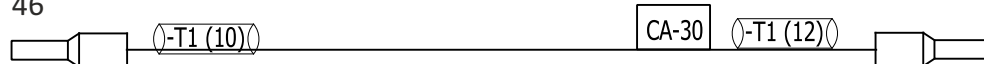
44



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6. CONTROL UNIT ASSEMBLY - 230V/50Hz & 220V/60Hz

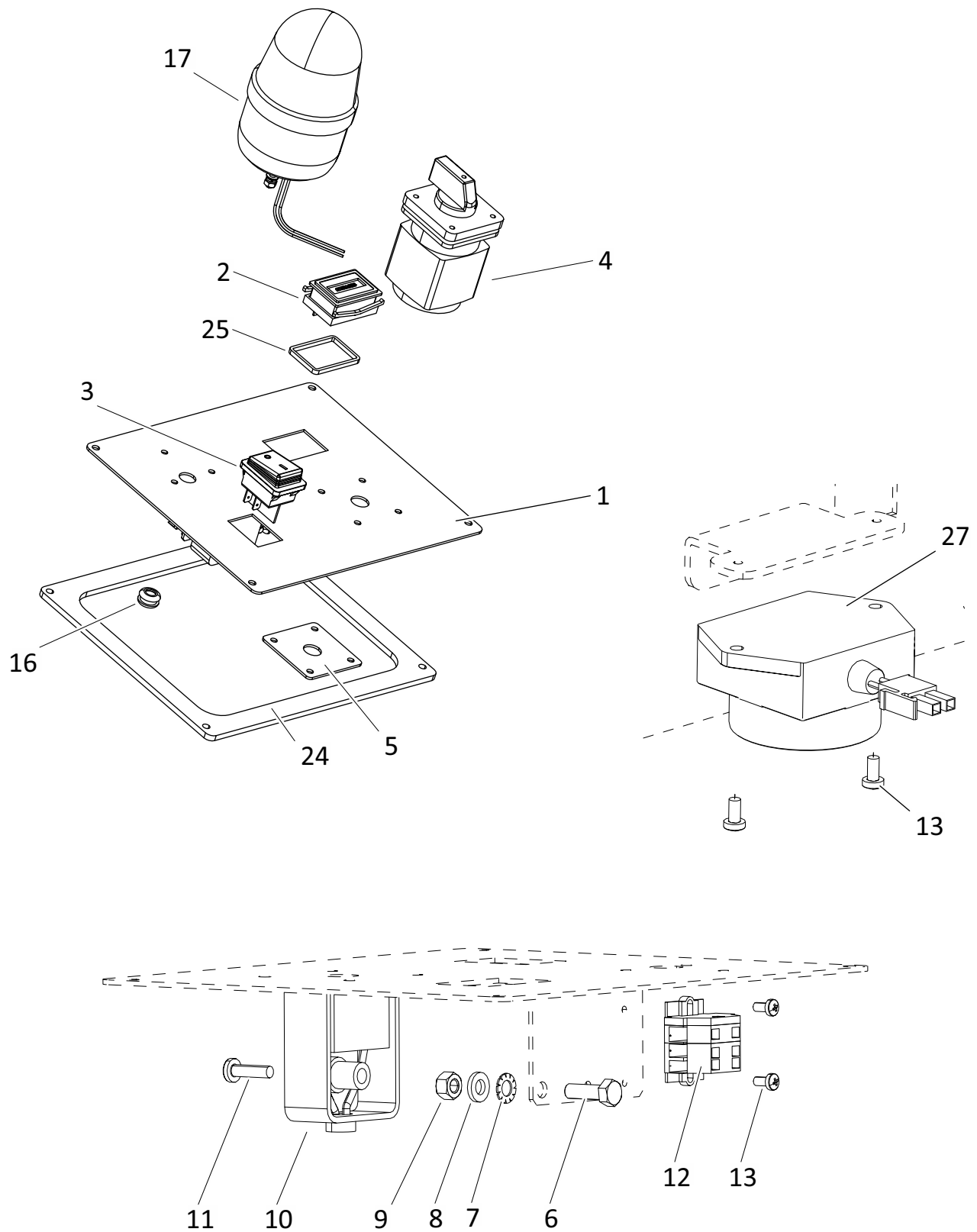
ITEM	PART NO	DESCRIPTION	QTY
1	553520020-00	CONTROL UNIT	1
2	558520009-00	BOARD ASSY - TOP	1
3	552360004-00	WASHER-SS304-4.3X9X0.8	4
4	552240002-00	HEX SOC HEAD CAP SCREW-SS304-M4X10	4
5	553230010-00	GASKET-FRAME	1
6.a	558520014-00	BOARD ASSY - REAR - 230V/50Hz	1
6.b	558520112-00	BOARD ASSY - REAR - 220V/60Hz	1
7	553250009-00	WASHER-BRIDGE	4
8	552220008-00	HEX SOC CSK HD SCREW - SS304 -M6X16	4
9	553350086-00	HOOK- DRAIN HOSE	1
10	553210109-00	SELF TAPPING SCREW W/COLLAR 4.8X13	2
11	553320198-00	RETAINER-ELECTRIC CABLE	1
12	553350049-00	GUIDE-TOPSQG FOR NOZZLE	1
13	552130013-00	CR PAN HEAD SCREW STEEL -M5X20	2
14	552350008-00	WASHER-STEEL-5.3X10X1	4
15	552170007-00	HEX NUT - STEEL GR. 8 - M5	4
16	553350754-00	BRACKET LOCK CONTROL UNIT	1
17	552220009-00	HEX SOC CSK HD SCREW - SS304 -M6X20	2
18	552360011-00	WASHER-SS304-6.4X12.5X1.6	2
19	552170009-00	HEX NUT - STEEL GR. 8 - M6	2
20	558520011-00	PCB - 230V ASSY	1
21	552220021-00	HEX SOC CSK HD SCREW - SS304 -M4x20	2
22	552360005-00	WASHER-SS304-4.2X12X1.6	2
23	552180003-00	HEX NUT - SS 304 - M4	2
24	558520088-00	CABLE ASSY CA-17 (-X10 TO -X11)	1
25	558520089-00	CABLE ASSY CA-18 (-X11 TO -X12)	1
26	558520090-00	CABLE ASSY CA - 19 (-X15 TO -X16)	1
27	558520094-00	CABLE ASSY CA 23 (-X13 TO -X14)	1
28	558100356-00	WIRE ASSY (TWO WAY MOLEX - LOOP)	1
29	558520030-00	CABLE ASSY - CA 25 (-J4 TO -X18, -X19)	1
30	552640005-00	SIX WAY MALE CONNECTOR	1
31	553350373-00	BOOT- 6 WAY MALE CONNECTOR	1
32	558520017-00	CABLE ASSY CA - 01	1
33	553360087-00	HOUSING CONTROL PANEL	1
34	553520201-00	PCB - CONTROL PANEL - 230V - ES	1
35	553360088-00	TOP HOUSING CONTROL PANEL	1

6. CONTROL UNIT ASSEMBLY - 230V/50Hz & 220V/60Hz

ITEM	PART NO	DESCRIPTION	QTY
36	552270009-00	CRPH SELF TAPPING SCREW-STEEL-2.9 X 6.5	6
37.a	558520099-00	CONTROL UNIT ASSY - 230/50 - ES - SPARE	1
37.b	558520121-00	CONTROL UNIT ASSY - 220/60 - ES - SPARE	1
38	558520098-00	CABLE ASSY - KIT	1
39	558520102-00	TIMER ASSY - ES	1
40	552100013-00	CR CSK HEAD SCREW - STEEL - M5X16	2
41	553520219-00	PLATE - TIMER	1
42	553520225-00	TIMER - PROGRAMMED	1
43	558520106-00	CABLE ASSY CA-27 (LED TO FLOW SWITCH)	1
44	558520118-00	CA - 28 (-T1(7) TO -X3)	1
45	558520119-00	CA - 29 (-T1(6) TO -T1(4))	1
46	558520120-00	CA - 30 (-T1(10) TO -T1(12))	1

Note: Item No. 30, 31 & 38 are not shown in the drawing.

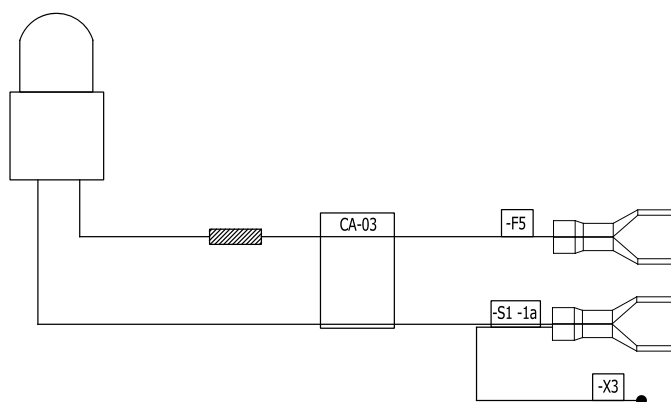
6. CONTROL UNIT - BOARD ASSY TOP



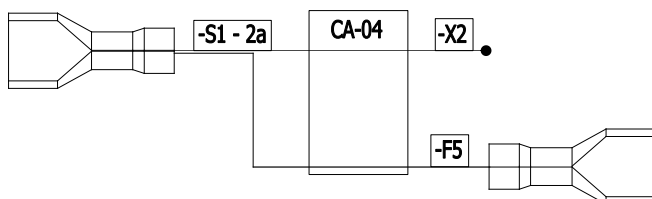
6. CONTROL UNIT - BOARD ASSY TOP

Cable Assemblies

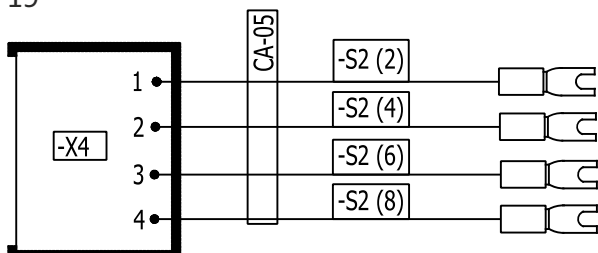
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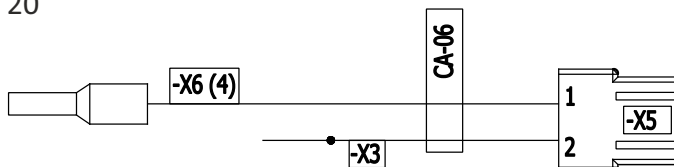
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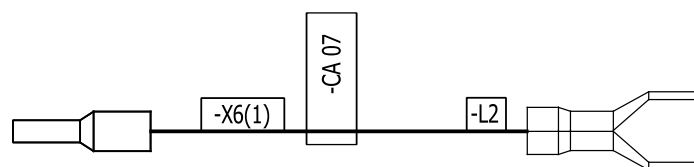
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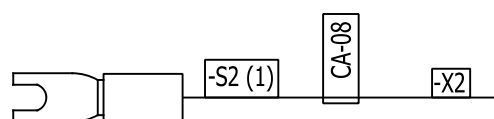
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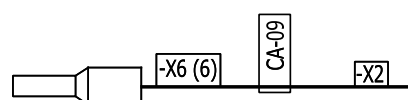
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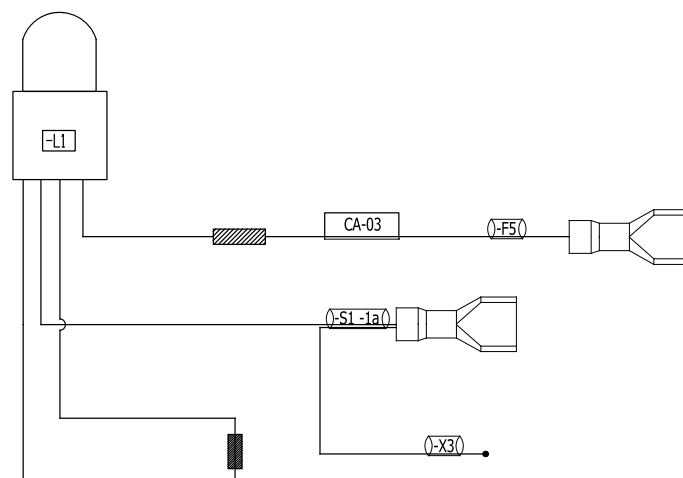
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26



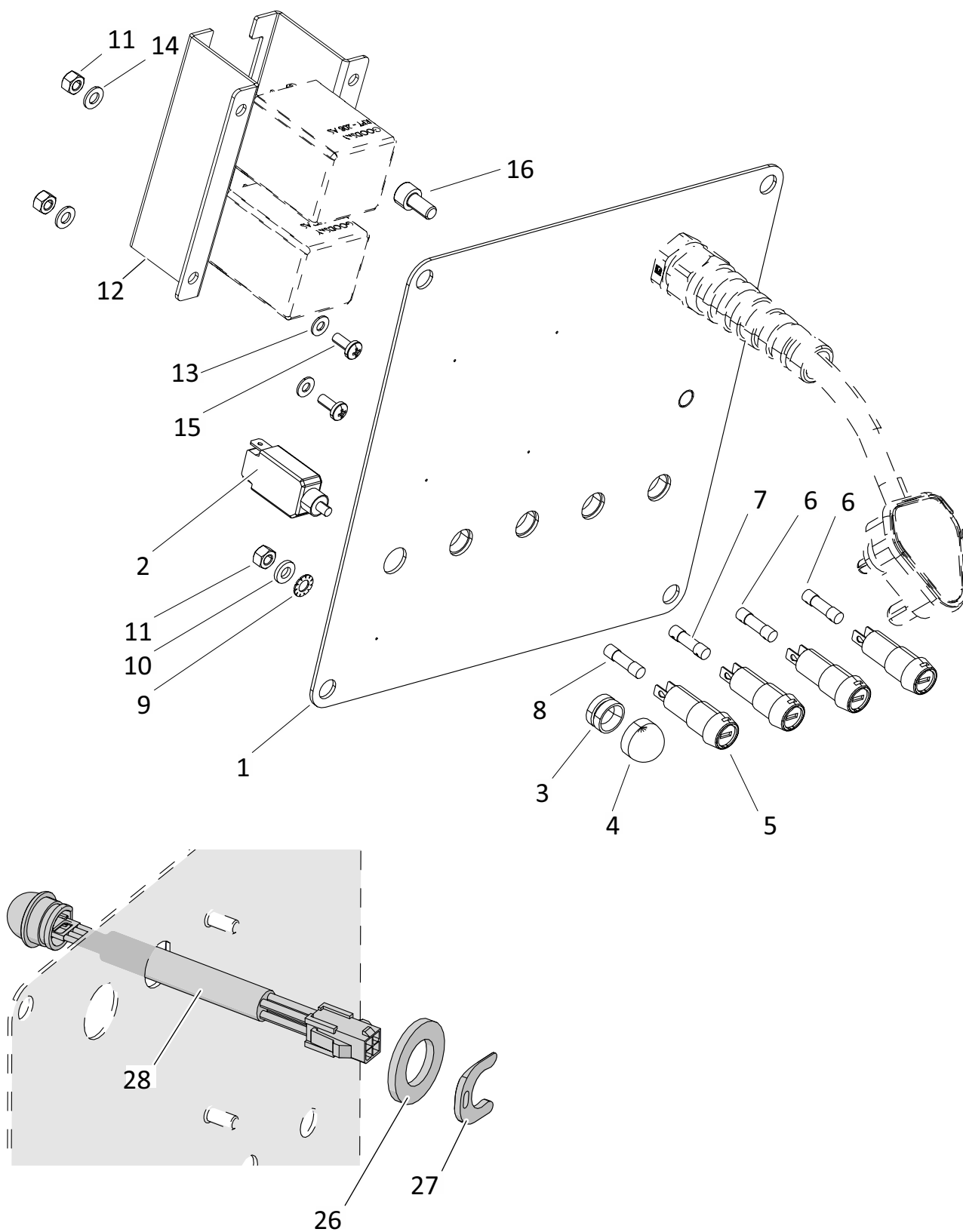
6. CONTROL UNIT - BOARD ASSY TOP

ITEM	PART NO	DESCRIPTION	QTY
1	558520010-00	TOP PANEL - WELDMENT	1
2	553350233-00	HOUR METER	1
3	553350070-00	SWITCH	1
4	553520145-00	ROTARY SWITCH	1
5	553520172-00	SPACER - ROTARY SWITCH	1
6	552020005-00	HEX HEAD SCREW - STEEL 8.8 - M5X16	1
7	552530003-00	EXTERNAL TOOTHED LOCK WASHER - M5	1
8	552350009-00	WASHER-STEEL-5.2 X 10 X 1.6	1
9	552170007-00	HEX NUT - STEEL GR. 8 - M5	1
10	558350151-00	C4 CAPACITOR ASSY	1
11	552130006-00	CR PAN HEAD SCREW - STEEL - M4X15	1
12	558350149-00	X12 CONNECTOR	1
13	552140002-00	CR PAN HEAD SCREW - SS304 - M3X6	4
14	552640002-00	CONNECTOR BLOCK 5 TERMINAL - 2.5 SQ. MM	2
15	552670017-00	WIRE TIE - 75MM	10
16	553250100-00	GROMMET	1
17	558520069-00	CABLE ASSY CA - 03	1
18	558520077-00	CABLE ASSY CA - 04	1
19	558520078-00	CABLE ASSY CA - 05 (-X4 TO -S2)	1
20	558520079-00	CABLE ASSY CA - 06	1
21	558520080-00	CABLE ASSY CA - 07 (-X6(1) TO -L2)	1
22	558520081-00	CABLE ASSY CA - 08 (-S2(1) TO -X2)	1
23	558520082-00	CABLE ASSY CA - 09 (-X6(6) TO -X2)	1
24	553520195-00	GASKET - TOP PANEL	1
25	553350771-00	GASKET - HOUR METER	1
26	558520105-00	CA-03 (BEACON LIGHT- 220V 50/60Hz)	1
27	558100140-00	BUZZER WITH CONNECTOR ASSY	1

Note: Item No. 14 & 15 are not shown in the drawing.

Item No. 26 is for 220V/60Hz version only.

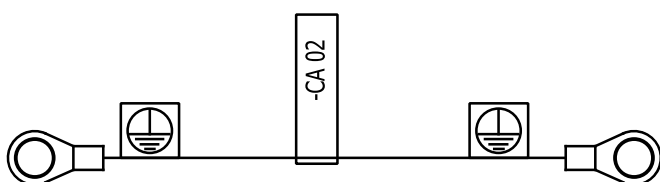
6. CONTROL UNIT - BOARD ASSY REAR - 230V/50Hz & 220V/60Hz



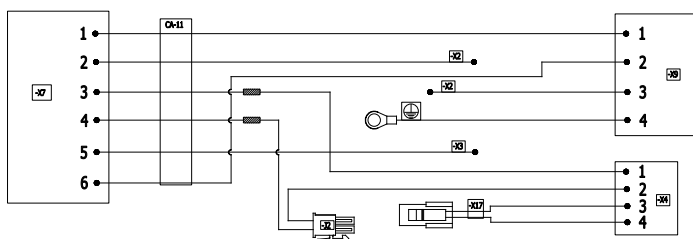
6. CONTROL UNIT - BOARD ASSY REAR - 230V/50Hz & 220V/60Hz

Cable Assemblies

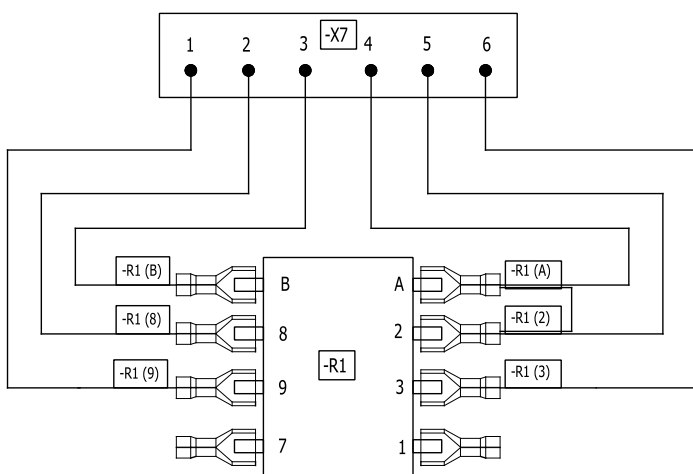
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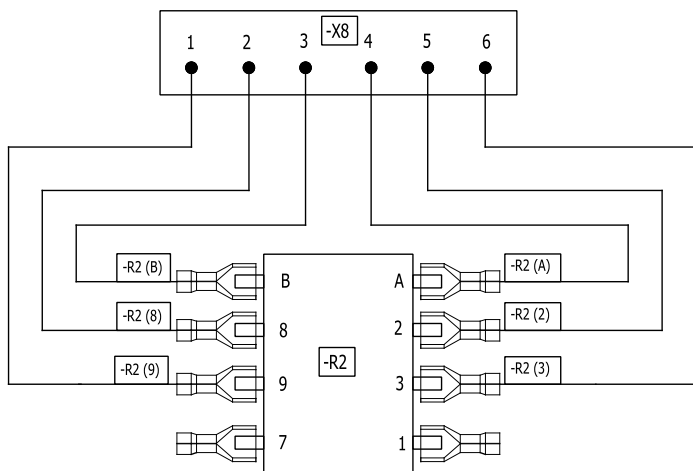
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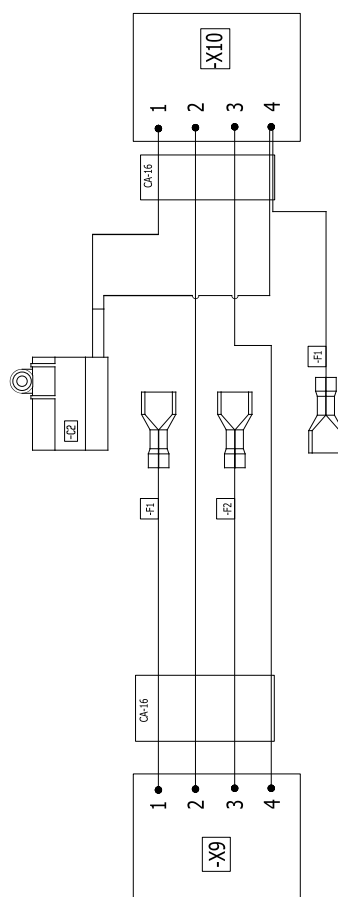
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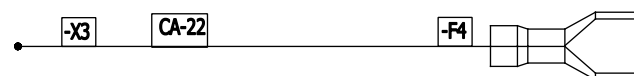
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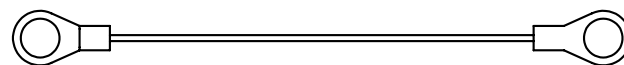
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24

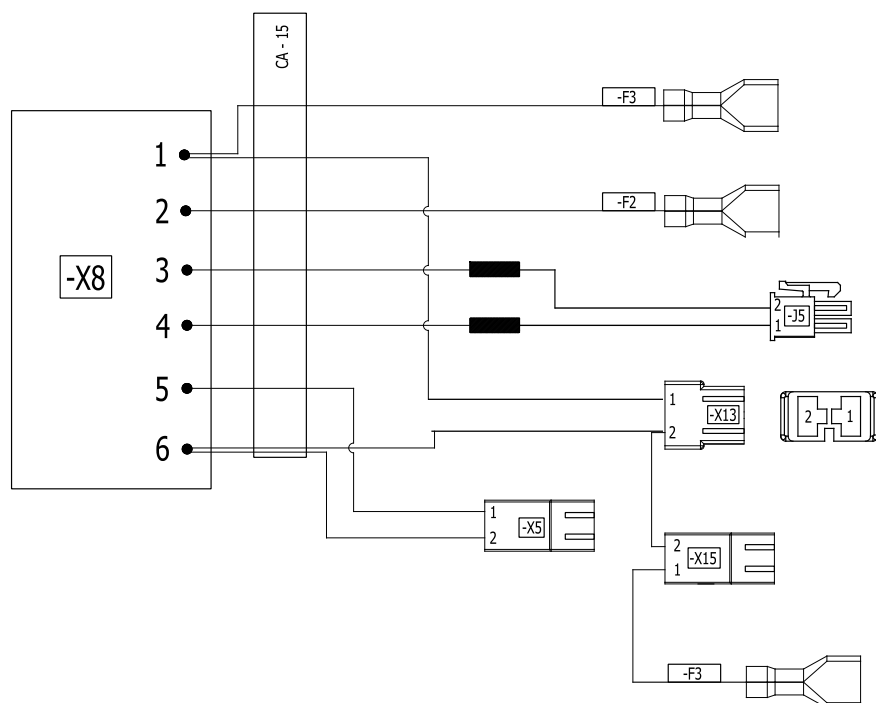


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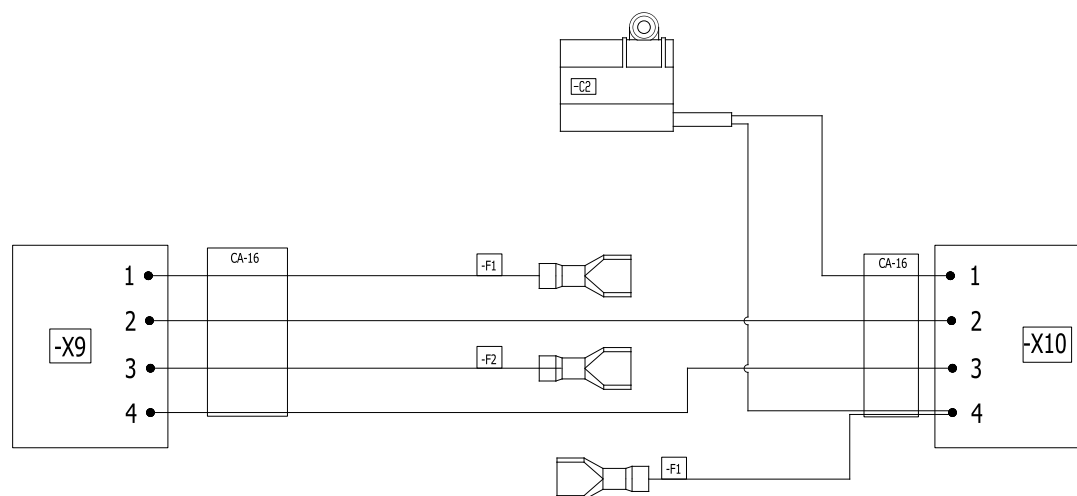
6. CONTROL UNIT - BOARD ASSY REAR - 230V/50Hz & 220V/60Hz

22



For 220V/60Hz

29

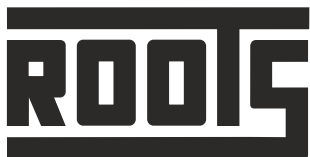


6. CONTROL UNIT - BOARD ASSY REAR - 230V/50Hz & 220V/60Hz

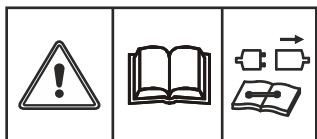
ITEM	PART NO	DESCRIPTION	QTY
1	558520015-00	REAR PANEL BOARD - WELDMENT	1
2	553520224-00	CIRCUIT BREAKER, 4A	1
3	553250370-00	NUT-CIRCUIT BREAKER	1
4	553250108-00	CAP-CIRCUIT BREAKER	1
5	553320339-00	FUSE HOLDER-6.3A	4
6	553310199-00	GLASS FUSE - T0.5A	2
7	553100331-00	FUSE - T - 1A	1
8	553320153-00	GLASS FUSE-T6.3A	1
9	552530003-00	EXTERNAL TOOTHED LOCK WASHER - M5	1
10	552360010-00	WASHER-SS304-5.2X10X1.6	1
11	552170007-00	HEX NUT - STEEL GR. 8 - M5	5
12	553520179-00	BRACKET RELAY - 230 - ES	1
13	552350005-00	WASHER-STEEL-4.3X9.0X0.8	4
14	552350008-00	WASHER-STEEL-5.3X10X1	4
15	552130004-00	CR PAN HEAD SCREW - STEEL - M4X10	4
16	552230009-00	HEX SOC HEAD CAP SCREW-STEEL -M6X12	1
17	552670017-00	WIRE TIE - 75MM	10
18	558520019-00	CABLE ASSY CA - 02	1
19	558520083-00	CABLE ASSY CA-11 (-X7. -X9, -X4)	1
20	558520084-00	CA-12 - R1 RELAY CABLE ASSY	1
21	558520085-00	CA-14 - R2 RELAY CABLE ASSY	1
22	558520086-00	CABLE ASSY CA-15 (-X8 TO -X5 -X13, -X15)	1
23	558520087-00	CABLE ASSY CA-16	1
24	558520093-00	CABLE ASSY CA 22 (-X3 TO -F4))	1
25	558520096-00	CABLE ASSY CA - 26 (EARTH CABLE)	1
26	552350025-00	WASHER STEEL-17.0X30.0X3.0	1
27	553250528-00	CLAMP CAP LED	1
28	558520103-00	LED PCB ASSY 12V DC	1
29	558520111-00	CABLE ASSY CA-16 - 220V	1

Note: Item No. 17 is not shown in the drawing.
Item No. 29 is for 220V/60Hz version only.

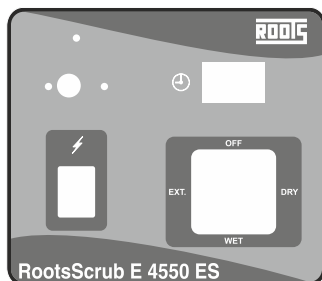
7. DECALS



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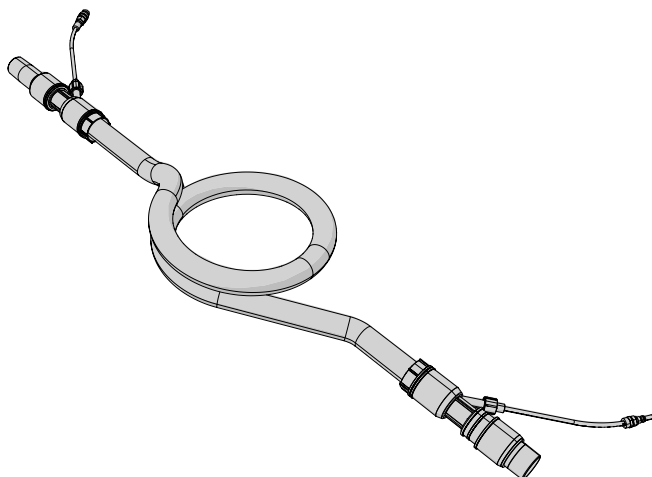
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7. DECALS

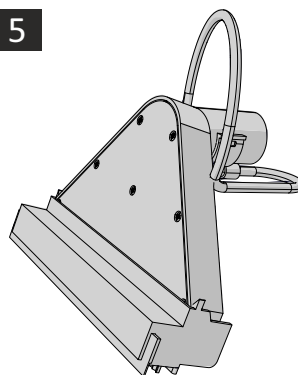
ITEM	PART NO	DESCRIPTION	QTY
1	552790034-00	ROOTS LOGO - 40 X 80 mm - ORANGE	1
2	557310008-00	STICKER - SAFETY INSTRUCTION	1
3	557520014-00	PANEL STICKER - E4550 ES	1
4	557250172-00	LABEL RESET INSTRUCTION - WHITE	1
5	557250173-00	LABEL RESET PRESS - WHITE	1
6	557310012-00	STICKER - TANK FRESH	1
7	557310018-00	STICKER - DIRTY WATER DRAIN	1
8	557350003-00	LABEL - WATER LEVEL	1

8. ACCESSORIES

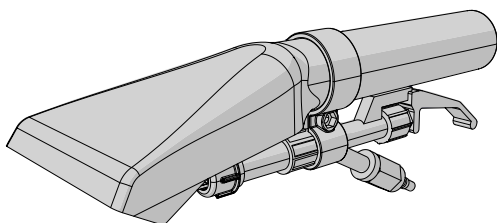
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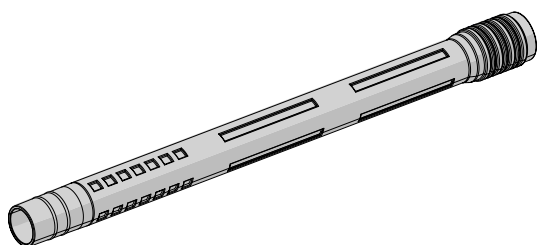
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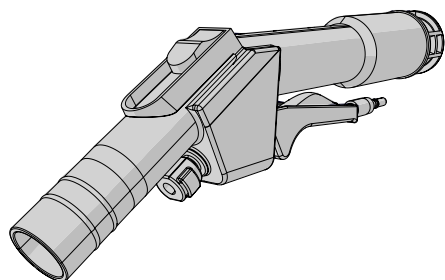
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4



8. ACCESSORIES

ITEM	PART NO	DESCRIPTION	QTY
1	558520053-00	HOSE ASSY WITH ADAPTOR	1
2	553520149-00	LANDING PLATE CLEANER	1
3	553520150-00	EXTENSION HANDLE - STRAIGHT	1
4	553520184-00	TRIGGER	1
5	558520095-00	RISER CLEANER	1

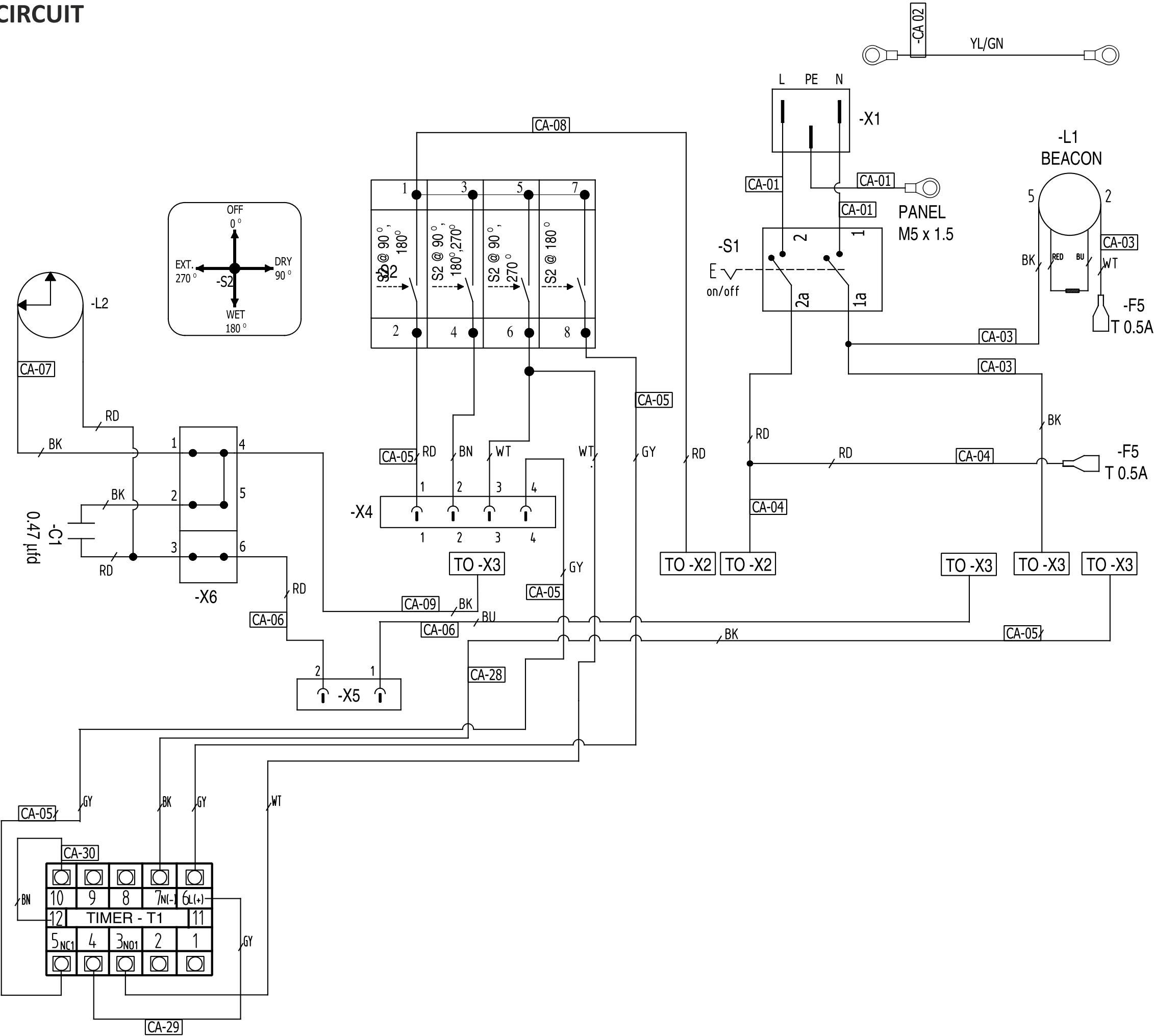
9. ELECTRICAL CIRCUIT - SCHEMATIC - 230V/50Hz

LEGEND	DESCRIPTION	LEGEND	DESCRIPTION
-M1	BRUSH MOTOR WITH CONNECTOR ASSY	-CA 04	CABLE ASSY CA-04
-M2	VACUUM MOTOR WITH CONNECTOR ASSY	-CA 05	CABLE ASSY CA-05 ES-TIMER & ROTARY S/W WIRE ASSY
-P	PUMP WITH CONNECTOR ASSY	-CA 06	CABLE ASSY CA-06
-SV1, -SV2	SOLENOID VALVE ASSY	-CA 07	CABLE ASSY CA-07 (-X6 TO -L2)
-S1	SWITCH VM AND PUMP	-CA 08	CABLE ASSY CA-08 (-S2(1) TO -X2)
-S2	ROTARY SWITCH	-CA 09	CABLE ASSY CA-09(-X6(6) TO -X2)
-S3	FLOAT SWITCH	-CA 11	CABLE ASSY CA-11 (-X7, -X9, -X4)
-S4	FLOAT LEVEL SWITCH PLASTIC	-CA 12	CA-12 -R1 RELAY CABLE ASSY
-R1, R2	RELAY 240 V - ES	-CA 14	CA-14 -R2 RELAY CABLE ASSY
-X1	POWER CORD INDIA	-CA 15	CABLE ASSY CA-15 (-X8 TO -X5, -X13, -X15)
-X2	WAGO 5 WAY CONNECTOR	-CA 16	CABLE ASSY CA-16
-X3	WAGO 5 WAY CONNECTOR	-CA 17	CABLE ASSY CA-17 (-X10 TO -X11)
-X4	4 WAY MOLEX MALE, FEMALE CONNECTOR	-CA 18	CABLE ASSY CA-18(-X11 TO -X12)
-X5	2 WAY LAPP MALE, FEMALE CONNECTOR	-CA 19	CABLE ASSY CA-19(-X15 TO -X16)
-X6	CONNECTOR BLOCK	-CA 20	CABLE ASSY CA-20 (SV1, SV2)
-X7	6 WAY LAPP MALE, FEMALE CONNECTOR	-CA 21	CABLE ASSY CA-21 (FLOAT SWITCH)
-X8	6 WAY LAPP MALE, FEMALE CONNECTOR	-CA 22	CABLE ASSY CA-22 (-X3 TO -F4)
-X9	4 WAY LAPP MALE, FEMALE CONNECTOR	-CA 23	CABLE ASSY CA-23 (-X13 TO -X14)
-X10	4 WAY LAPP MALE, FEMALE CONNECTOR	-CA 24	CABLE ASSY CA-24 (FW-FLOAT SWITCH)
-X11	6 WAY LAPP MALE, FEMALE CONNECTOR	-CA 25	CABLE ASSY CA-25 (J4 TO -X18, -X19)
-X12	6 WAY LAPP MALE, FEMALE CONNECTOR	-CA 26	CABLE ASSY CA-26 (EARTH CABLE)
-X13	2 WAY LAPP MALE, FEMALE CONNECTOR	-X20	4 WAY MOLEX MALE, FEMALE CONNECTOR
-X14	2 WAY LAPP MALE, FEMALE CONNECTOR	-X21	3 WAY BESMAK MALE, FEMALE CONNECTOR
-X15	2 WAY LAPP MALE, FEMALE CONNECTOR	-X22	3 WAY MOLEX SINGLE ROW MALE, FEMALE CONNECTOR
-X16	2 WAY LAPP MALE, FEMALE CONNECTOR	-X23	2 WAY MOLEX MALE, FEMALE CONNECTOR
-X17	2 WAY MOLEX MALE, FEMALE CONNECTOR	CA 27	CA 27 - (LED TO FLOW SWITCH)
-X18	2 WAY MOLEX MALE, FEMALE CONNECTOR	CA 28	CA-29 (-T1(7) TO -X3)
-X19	4 WAY MOLEX MALE, FEMALE CONNECTOR	CA 29	CA-29 (-T1(6) TO -T1(4))
-F1	CIRCUIT BREAKER 4.0 A	CA 30	CA-30 (-T1(10) TO -T1(12))
-F2	GLASS FUSE T6.3 A	-S5	FLOW SWITCH
-F3	FUSE T1.0 A	-T1	TIMER - PROGRAMMED
-F4, -F5	GLASS FUSE T0.5 A	-L3	LED PCB ASSY 12V DC
-L1	BEACON LIGHT 220V 50 / 60Hz	-B1	BUZZER WITH CONNECTOR ASSY
-L2	HOURLMETER (DIGITAL)		
-PCB	PCB CONTROL PANEL 230V - ES		
-C1	CAPACITOR ASSY		
-C2	CAPACITOR 13 MFD		
-C3	CAPACITOR - 0.47/ 400V ASSY		
-RC	SNUBBER ASSY 230V		
-CA 01	CABLE ASSY CA-01		
-CA 02	CABLE ASSY CA-02		
-CA 03	CABLE ASSY CA-03		

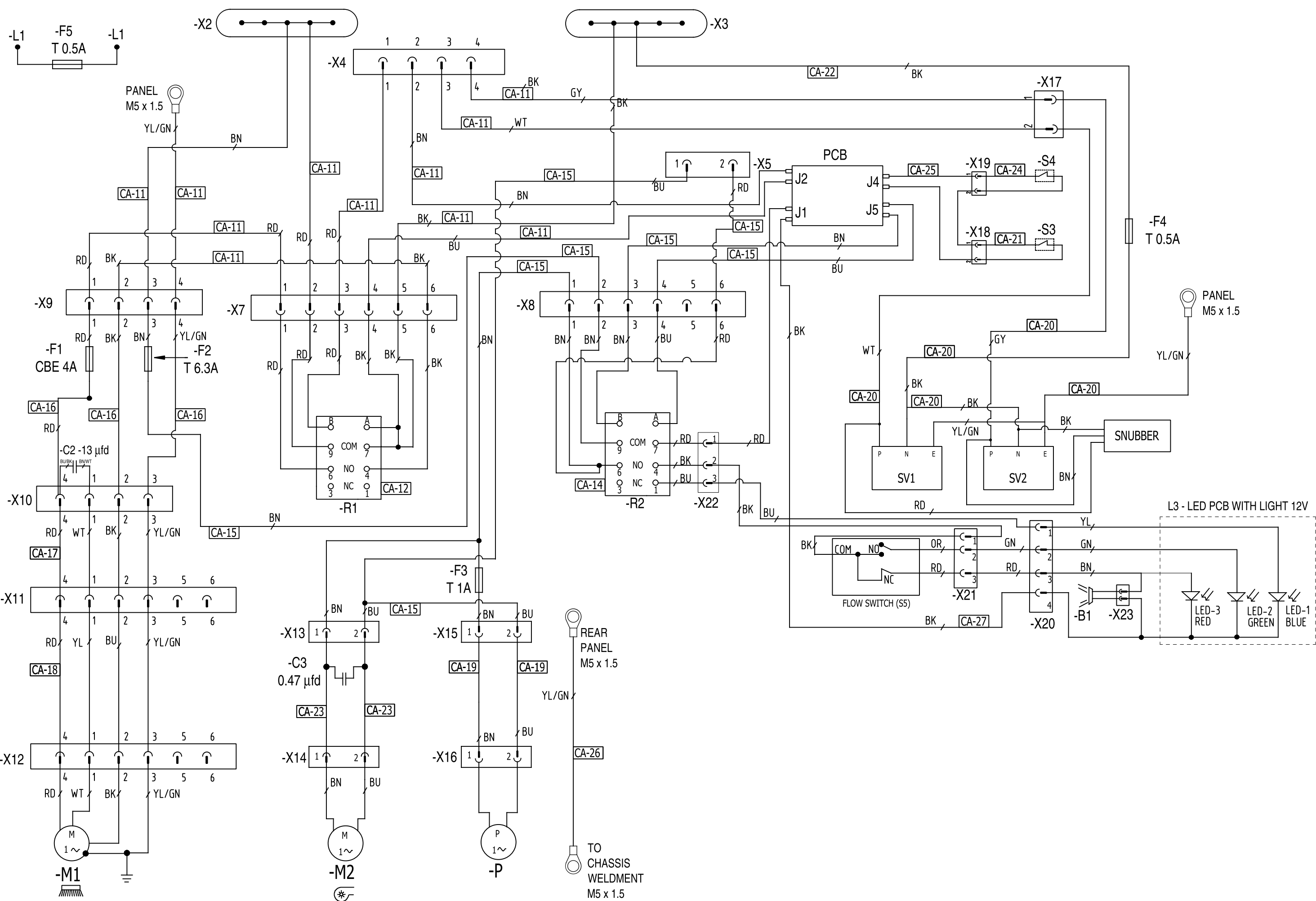
9. ELECTRICAL CIRCUIT - SCHEMATIC - 220V/60Hz

LEGEND	DESCRIPTION	LEGEND	DESCRIPTION
-M1	BRUSH MOTOR WITH CONNECTOR ASSY	-CA 04	CABLE ASSY CA-04
-M2	VACUUM MOTOR WITH CONNECTOR ASSY	-CA 05	CABLE ASSY CA-05 ES-TIMER & ROTARY S/W WIRE ASSY
-P	PUMP WITH CONNECTOR ASSY	-CA 06	CABLE ASSY CA-06
-SV1, -SV2	SOLENOID VALVE ASSY	-CA 07	CABLE ASSY CA-07 (-X6 TO -L2)
-S1	SWITCH VM AND PUMP	-CA 08	CABLE ASSY CA-08 (-S2(1) TO -X2)
-S2	ROTARY SWITCH	-CA 09	CABLE ASSY CA-09(-X6(6) TO -X2)
-S3	FLOAT SWITCH	-CA 11	CABLE ASSY CA-11 (-X7, -X9, -X4)
-S4	FLOAT LEVEL SWITCH PLASTIC	-CA 12	CA-12 -R1 RELAY CABLE ASSY
-R1, R2	RELAY 240 V - ES	-CA 14	CA-14 -R2 RELAY CABLE ASSY
-X1	POWER CORD INDIA	-CA 15	CABLE ASSY CA-15 (-X8 TO -X5, -X13, -X15)
-X2	WAGO 5 WAY CONNECTOR	-CA 16	CABLE ASSY CA-16
-X3	WAGO 5 WAY CONNECTOR	-CA 17	CABLE ASSY CA-17 (-X10 TO -X11)
-X4	4 WAY MOLEX MALE, FEMALE CONNECTOR	-CA 18	CABLE ASSY CA-18(-X11 TO -X12)
-X5	2 WAY LAPP MALE, FEMLAE CONNECTOR	-CA 19	CABLE ASSY CA-19(-X15 TO -X16)
-X6	CONNECTOR BLOCK	-CA 20	CABLE ASSY CA-20 (SV1, SV2)
-X7	6 WAY LAPP MALE, FEMALE CONNECTOR	-CA 21	CABLE ASSY CA-21 (FLOAT SWITCH)
-X8	6 WAY LAPP MALE, FEMALE CONNECTOR	-CA 22	CABLE ASSY CA-22 (-X3 TO -F4)
-X9	4 WAY LAPP MALE, FEMALE CONNECTOR	-CA 23	CABLE ASSY CA-23 (-X13 TO -X14)
-X10	4 WAY LAPP MALE, FEMALE CONNECTOR	-CA 24	CABLE ASSY CA-24 (FW-FLOAT SWITCH)
-X11	6 WAY LAPP MALE, FEMALE CONNECTOR	-CA 25	CABLE ASSY CA-25 (J4 TO -X18, -X19)
-X12	6 WAY LAPP MALE, FEMALE CONNECTOR	-CA 26	CABLE ASSY CA-26 (EARTH CABLE)
-X13	2 WAY LAPP MALE, FEMLAE CONNECTOR	-X20	4 WAY MOLEX MALE, FEMALE CONNECTOR
-X14	2 WAY LAPP MALE, FEMLAE CONNECTOR	-X21	3 WAY BESMAK MALE, FEMALE CONNECTOR
-X15	2 WAY LAPP MALE, FEMLAE CONNECTOR	-X22	3 WAY MOLEX SINGLE ROW MALE, FEMALE CONNECTOR
-X16	2 WAY LAPP MALE, FEMLAE CONNECTOR	-X23	2 WAY MOLEX MALE, FEMALE CONNECTOR
-X17	2 WAY MOLEX MALE, FEMALE CONNECTOR	CA 27	CA 27 - (LED TO FLOW SWITCH)
-X18	2 WAY MOLEX MALE, FEMALE CONNECTOR	CA 28	CA-29 (-T1(7) TO -X3)
-X19	4 WAY MOLEX MALE, FEMALE CONNECTOR	CA 29	CA-29 (-T1(6) TO -T1(4))
-F1	CIRCUIT BREAKER 4.0 A	CA 30	CA-30 (-T1(10) TO -T1(12))
-F2	GLASS FUSE T6.3 A	-S5	FLOW SWITCH
-F3	FUSE T1.0 A	-T1	TIMER - PROGRAMMED
-F4, -F5	GLASS FUSE T0.5 A	-L3	LED PCB ASSY 12V DC
-L1	BEACON LIGHT 220V 50 / 60Hz	-B1	BUZZER WITH CONNECTOR ASSY
-L2	HOURLMETER (DIGITAL)		
-PCB	PCB CONTROL PANEL 230V - ES		
-C1	CAPACITOR ASSY		
-C2	CAPACITOR 13 MFD		
-C3	CAPACITOR - 0.47/ 400V ASSY		
-RC	SNUBBER ASSY 230V		
-CA 01	CABLE ASSY CA-01		
-CA 02	CABLE ASSY CA-02		
-CA 03	CABLE ASSY CA-03		

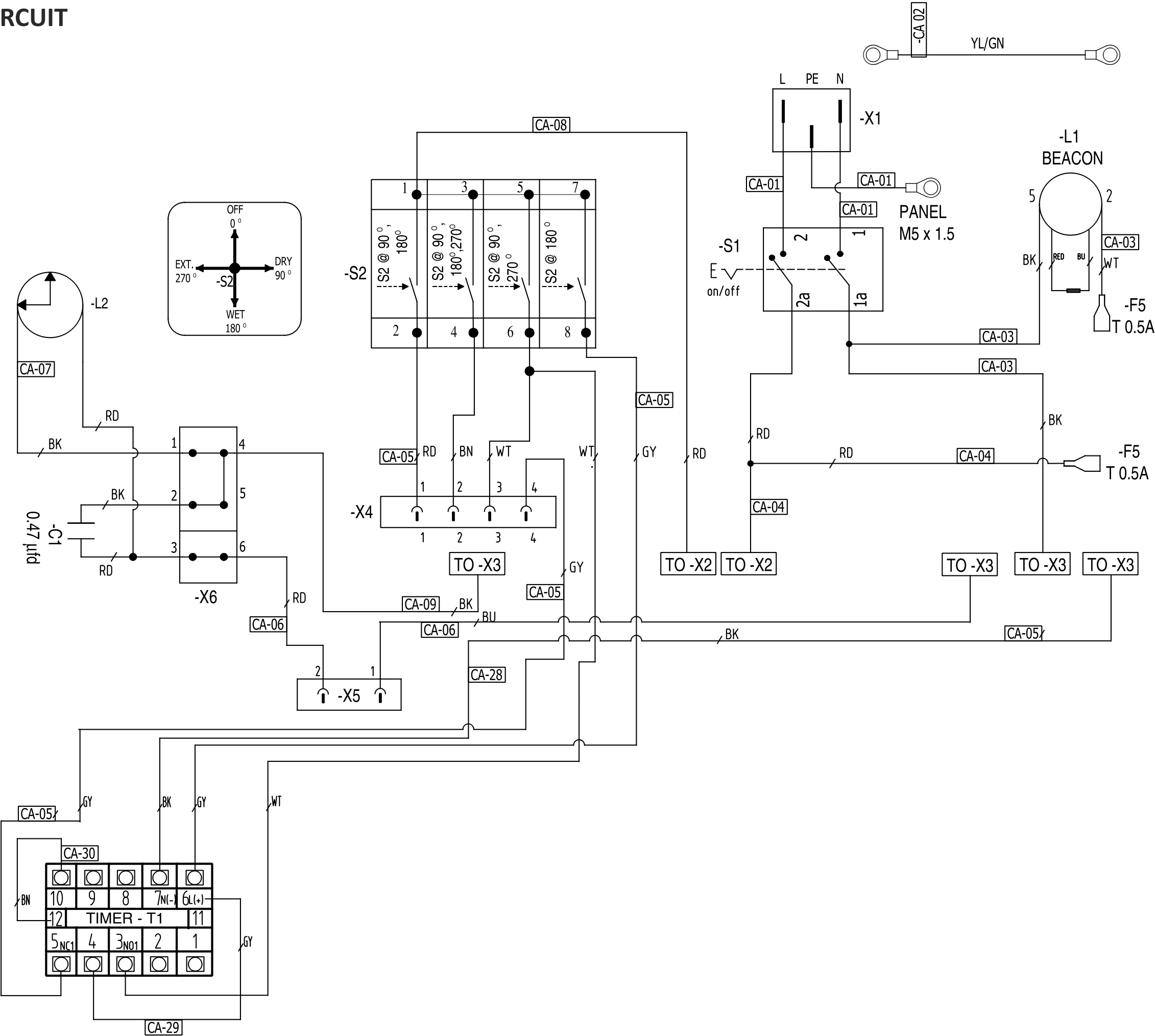
TOP PANEL CIRCUIT



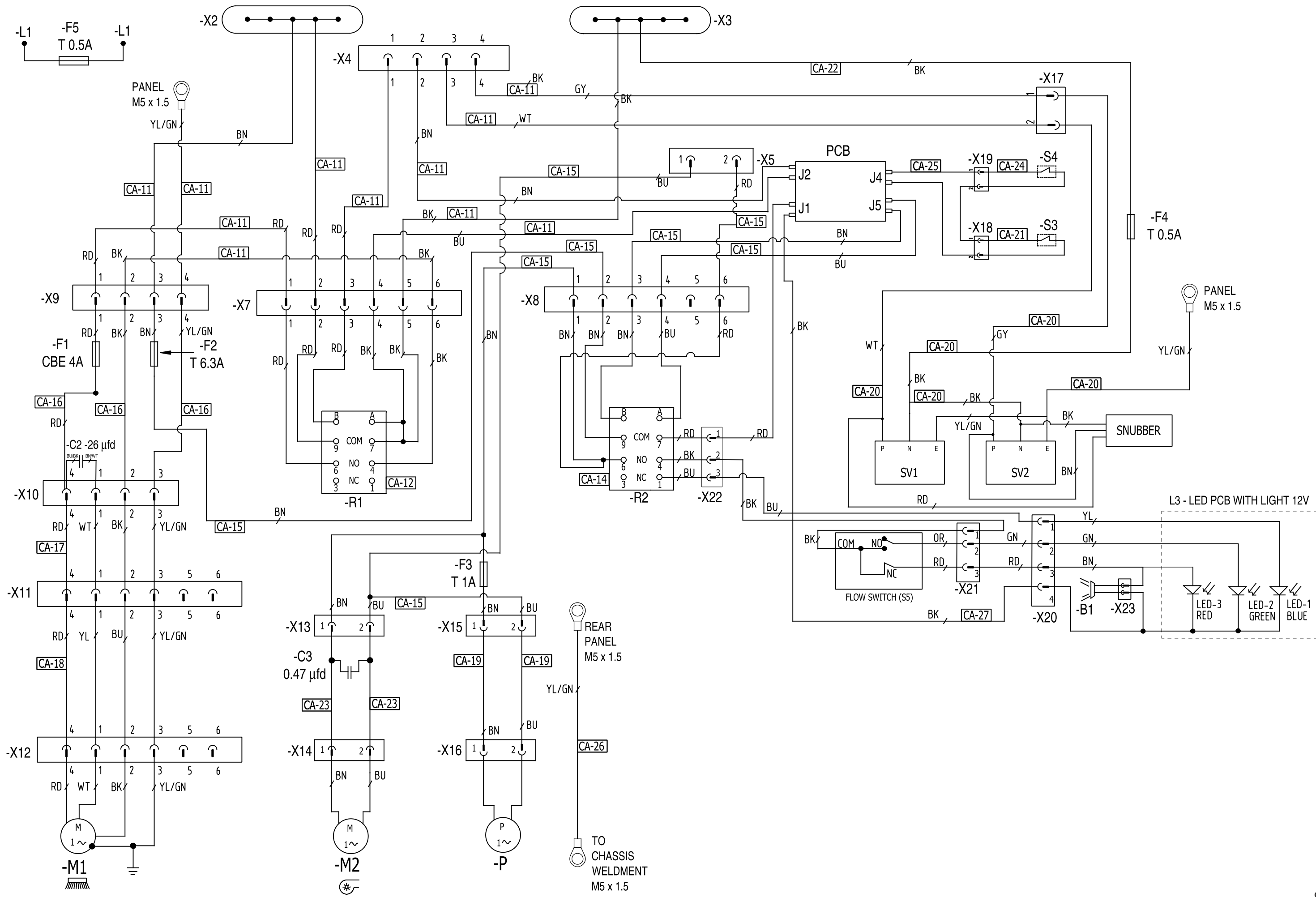
REAR PANEL CIRCUIT

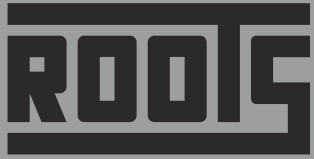


TOP PANEL CIRCUIT



REAR PANEL CIRCUIT





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