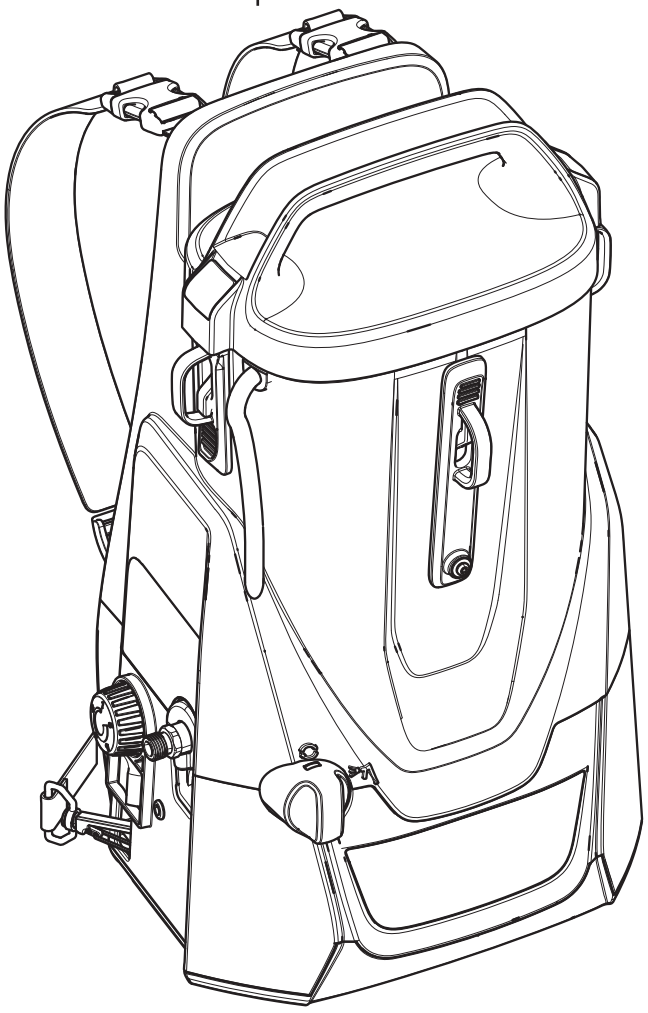
WAGNER

Service manual with electrical repair instructions for electrically instructed persons of the J. Wagner GmbH

CONTROL PRO 300 MOVE
SPRAYPACK 18V



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Contents

ELECTRICAL REPAIR INSTRUCTIONS

1. General Safety Instructions

Warning!

Read all safety notifications and instructions. Failure to comply with the safety notifications and instructions provided may result in electric shock, fire and/or serious injury. The term "power tool" used below covers both mains-operated power tools (with mains lead) and accumulator-operated power tools (without mains lead).

1. Work area safety

a) Keep work area clean and well lit. *Cluttered or dark areas invite accidents.*

b) Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust. *Power tools create sparks which may ignite the dust or fumes.*

c) Keep children and bystanders away while operating a power tool. *Distractions can cause you to lose control.*

2. Electrical Safety

a) Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools. *Unmodified plugs and matching outlets will reduce risk of electric shock.*

b) Avoid body contact with earthed or grounded surfaces, such as pipes, radiators, ranges and refrigerators. *There is an increased risk of electric shock if your body is earthed or grounded.*

c) Do not expose power tools to rain or wet conditions. *Water entering a power tool will increase the risk of electric shock.*

d) Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts. *Damaged or entangled cords increase the risk of electric shock.*

e) When operating a power tool outdoors, use an extension cord suitable for outdoor use. *Use of a cord suitable for outdoor use reduces the risk of electric shock.*

f) If operating a power tool in a damp location is unavoidable, use a residual current device (RCD) protected supply. *Use of an RCD reduces the risk of electric shock.*

3. Personal safety

a) Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication. *A moment of inattention while operating power tools may result in serious personal injury.*

b) Use personal protective equipment. Always wear eye protection. *Protective equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.*

c) Prevent unintentional starting. Ensure the switch is in the off-position before connecting to power source and/or battery pack, picking up or carrying the tool. *Carrying power tools with your finger on the switch or energising power tools that have the switch on invites accidents.*

d) Remove any adjusting key or wrench before turning the power tool on. *A wrench or a key left attached to a rotating part of the power tool may result in personal injury.*

e) Do not overreach. Keep proper footing and balance at all times. *This enables better control of the power tool in unexpected situations.*

f) Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing and gloves away from moving parts. *Loose clothes, jewellery or long hair can be caught in moving parts.*

g) If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used. *Use of dust collection can reduce dust-related hazards.*

h) Do not lull yourself into a false sense of security and do not think yourself above the safety rules for electric tools, even if you are familiar with the electric tool following extensive practical experience. *Careless use can lead to serious injuries in fractions of a second.*

4. Power tool use and care

a) Do not force the power tool. Use correct power tool for your application. *The correct power tool will do the job better and safer at the rate for which it was designed.*

b) Do not use the power tool if the switch does not turn it on and off. *Any power tool that cannot be controlled with the switch is dangerous and must be repaired.*

c) Disconnect the plug from the power source and/or the battery pack from the power tool before making any adjustments, changing accessories, or storing power tools. *Such preventive safety measures reduce the risk of starting the power tool accidentally.*

d) Store idle power tools out of reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool. *Power tools are dangerous in the hands of untrained users.*

e) Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use. *Many accidents are caused by poorly maintained power tools.*

f) Keep cutting tools sharp and clean. *Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.*

g) Use the power tool, accessories and tool bits etc. in accordance with these instructions, taking into account the working conditions and the work to be performed. *Use of the power tool for operations different from those intended could result in a hazardous situation.*

h) Keep the handles and grip surfaces dry, clean and free of oil and grease. Slippery handles and grip surfaces hamper safe operation and control of the electric tool in unforeseen situations.

5. Battery tool use and care

a) Recharge only with the charger specified by the manufacturer. *A charger that is suitable for one type of battery pack may create a risk of fire when used with another battery pack.*

b) Use power tools only with specifically designated battery packs. *Use of any other battery packs may create a risk of injury and fire.*

c) When battery pack is not in use, keep it away from other metal objects, like paper clips, coins, keys, nails, screws or other small metal objects, that can make a connection from one terminal to another. *Shorting the battery terminals together may cause burns or a fire.*

d) Under abusive conditions, liquid may be ejected from the battery; avoid contact. If contact accidentally occurs, flush with water. If liquid contacts eyes, additionally seek medical help. *Liquid ejected from the battery may cause irritation or burns.*

e) Do not use a battery pack or tool that is damaged or modified. *Damaged or modified batteries may exhibit unpredictable behaviour resulting in fire, explosion or risk of injury.*

f) Do not expose a battery pack or tool to fire or excessive temperature. *Exposure to fire or temperature above 130 °C may cause explosion.*

g) Follow all charging instructions and do not charge the battery pack or tool outside the temperature range specified in the instructions. *Charging improperly or at temperatures outside the specified range may damage the battery and increase the risk of fire.*

6. Service

a) Have your power tool serviced by a qualified repair person using only identical replacement parts. *This will ensure that the safety of the power tool is maintained.*

a) Never service damaged battery packs. *Service of battery packs should only be performed by the manufacturer or authorized service providers.*

Safety instructions for the charger and battery

Only use the tool with BOSCH AMPShare compatible ProCore 18V batteries with at least 2.0 Ah and suitable chargers. The battery voltage must match the battery charging voltage of the charger. Do not charge non-rechargeable batteries. Otherwise there is a risk of fire and explosion.

- **Only use the charger indoors and keep it away from moisture.** Water penetrating into a power tool increases the risk of an electric shock.
- **Keep the charger clean.** There is a risk of electric shock due to contamination.
- **Before every use, check the charger, cable and plug. Do not use the charger if it is damaged. Do not open the charger yourself and only have it repaired by qualified specialist personnel using original spare parts. Damaged chargers, cables and plugs increase the risk of electric shock.**
- **Do not operate the charger on easily combustible surfaces (e.g. paper, textiles, etc.) or in combustible environments. There is a risk of fire due to the heating of the charger during charging.**
- **The battery is delivered partially charged. To ensure full battery performance, fully charge the battery in the charger before first use.**
- **Only use the battery in the manufacturer's products. This is the only way to protect the battery from dangerous overloading.**
- **Keep batteries out of the reach of children.**
- **Do not open the battery. There is a risk of a short circuit.**
- **Vapours may also escape if the battery is damaged or used improperly. Take in fresh air and consult a doctor if you have any symptoms. The vapours may irritate the respiratory tract.**
- **If the battery is defective, liquid may leak out and wet adjacent objects. Check affected parts. Clean them or replace them if necessary.**
- **The battery can be damaged by sharp objects such as nails or screwdrivers or by external force. An internal short circuit may occur and the battery may burn, smoke, explode or overheat.**
- **Never service damaged batteries. All maintenance of batteries should only be carried out by the manufacturer or authorised service centres.**

- **Protect the battery from heat, e.g. also from permanent sunlight, fire, dirt, water and moisture. There is a risk of explosion and short circuit.**
- **Operate and store the battery only at an ambient temperature between -20°C and +50°C. Do not leave the battery in the car in summer, for example. At temperatures < 0°C, performance may be restricted depending on the unit.**
- **Charge the battery only at ambient temperatures between 0°C and +35°C. Charging outside the temperature range can damage the battery or increase the risk of fire.**
- **Lithium-ion batteries are subject to the Dangerous Goods Legislation requirements. The batteries are suitable for road-transport by the user without further restrictions. When shipping by third parties (e.g.: by air transport or forwarding agency), special requirements on packaging and labelling must be observed. For preparation of the item being shipped, consulting an expert for hazardous material is required. Dispatch battery packs only when the housing is undamaged. Tape or mask off open contacts and pack up the battery in such a manner that it cannot move around in the packaging. Please also observe the possibility of more detailed national regulations.**

Health protection

Caution! Wear breathing equipment: Paint mist and solvent vapors are damaging to health. Always wear breathing equipment and only work in well ventilated rooms or using supplementary ventilating equipment. It is advisable to wear working clothing, safety glasses, ear protection and gloves

Flammable materials

Do not use the spray guns to spray flammable substances.

Explosion protection

Do not use the unit in work places which are covered to the explosion protection regulations.

Danger of explosion and fire through sources of flame during spraying work

There may be no sources of flame such as, for example, open fires, smoking of cigarettes, cigars or tobacco pipes, sparks, glowing wires, hot surfaces, etc. in the vicinity.

Earthing the device

Earth the device with the enclosed earth cable if you are working with materials containing solvents.

Ventilation

Good natural or artificial ventilation must be ensured in order to avoid the risk of explosion or fire and damage to health during spray work.

Secure device and spray gun

All hoses, fittings, and filter parts must be secured before operating spray pump. Unsecured parts can eject at great force or leak a high pressure fluid stream causing severe injury.

Always secure the spray gun when mounting or dismounting the nozzle and in case of interruption to work.

Recoil of spray gun

In case of high operating pressure, pulling the trigger can effect a recoil force of up to 15 N.

If you are not prepared for this, your hand can be thrust backwards or your balance lost. This can lead to injury. Continuous stress from this recoil can cause permanent damage to health.

Max. operating pressure

Max. permissible operating pressure for spray gun, spray gun accessories and high-pressure hose may not fall short of the maximum operating pressure of 110 bar (11 MPa) stated on the unit.

Coating substance

Caution against dangers that can arise from the sprayed substance and observe the text and information on the containers or the specifications given by the substance manufacturer.

Do not spray any liquid of unknown hazard potential.

Do not use paints or solvents that contain halogenated hydrocarbons, such as chlorine, bleach, methylene chloride chloride and trichloroethane. They are not compatible with aluminium. Ask the supplier of the coating about the compatibility of the material with aluminium.

High-pressure hose (safety note)

Attention, danger of injury by injection! Wear and tear and kinks as well as usage that is not appropriate to the purpose of the device can cause leakages to form in the high-pressure hose. Liquid can be injected into the skin through a leakage.

High-pressure hoses must be checked thoroughly before they are used.

Replace any damaged high-pressure hose immediately.

Never repair defective high-pressure hoses yourself!

Avoid sharp bends and folds: the smallest bending radius is about 20 cm.

Do not drive over the high-pressure hose. Protect against sharp objects and edges.

Never pull on the high-pressure hose to move the device.

Do not twist the high-pressure hose.

Do not put the high-pressure hose into solvents. Use only a wet cloth to wipe down the outside of the hose.

Lay the high-pressure hose in such a way as to ensure that it cannot be tripped over.

Electrostatic charging of spray guns and the high-pressure hose is discharged through the high-pressure hose. For this reason the electric resistance between the connections of the high-pressure hose must be equal or lower than 197 kΩ/m (60 kΩ/ft.).

For reasons of function, safety and durability, only use genuine WAGNER high-pressure hoses and spray nozzles. For overview see „Spare parts lists“.

The risk of damage rises with the age of the high-pressure hose. Wagner recommends replacing high-pressure hoses after 6 years.

Positioning device

Danger

When working indoors:

Vapors containing solvents may not be allowed to build up in the area of the device. Ensure good ventilation.

When working outdoors:

Vapors containing solvents may not be allowed to blow toward the unit.

Note the direction of the wind.

Maintenance and repairs

Danger

Depressurise the device and remove the battery before carrying out any work on the device.

Cleaning the unit

Danger

Danger of short circuit through penetrating water!

Never spray down the unit with high-pressure or high-pressure steam cleaners.

Cleaning units with solvents

Danger

When cleaning the unit with solvents, the solvent should never be sprayed or pumped back into a container with a small opening (bunghole). An explosive gas/air mixture can be produced. The container must be earthed.
Do not use flammable materials for cleaning purposes.

Earthing of the object

The object to be coated must be earthed.

If liquids collect in the area underneath the outlet valve, this could be due to a leak in the set of pistons. If operations continue, the liquid can leak and dirt might get under the device.

2 TECHNICAL DATA

Technical data*	
Rechargeable battery (ProCore 18 V, 2.0 Ah):	Li-Ion, 18 V ⎓, 2.0 Ah
Charger (AL 1810 CV): Input voltage Output voltage Charging current	 220-240 V~, 50-60 Hz; 10.8-18 V 4000 mA
Charging time (rechargeable battery 18 V, 2.0 Ah):	approx. 24 min (80%), 35 min (100%)
Protection Class (charger):	⧈ / II
Maximum pressure	11 MPa (110 bar)
Max. delivery rate	0.9 l/min
Maximum temperature of coating material	43°C
Sound power level** Uncertainty	75 dBA K= 4 db
Sound pressure output** Uncertainty	88 dBA K= 4 db
Vibration*** Uncertainty	3.8 m/s^2 K = 1.5 m/s^2
Maximum ambient temperature	40°C
Pump system	piston pump
volume upper container, max.	4.7 l
Max. nozzle size	515 HEA (**HF**), 0.017 (inch) (**PF**)
Max. hose length	15 m
Empty weight **HF** (pump, hose, gun)	5.2 kg
Empty weight **PF** (pump)	4.2 kg

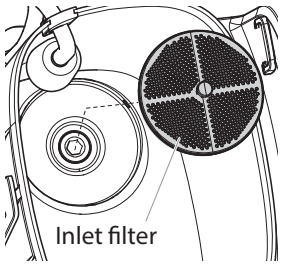
* When using a ProCore 18 V, 2.0 Ah battery and a charger GAL 18V-40
** Measured in accordance with EN 50580
*** Measured in accordance with EN 62841-1

3 REPAIRS AT THE UNIT

Danger	Switch off and depressurize the unit. Remove the battery from the unit before carrying out any repairs.

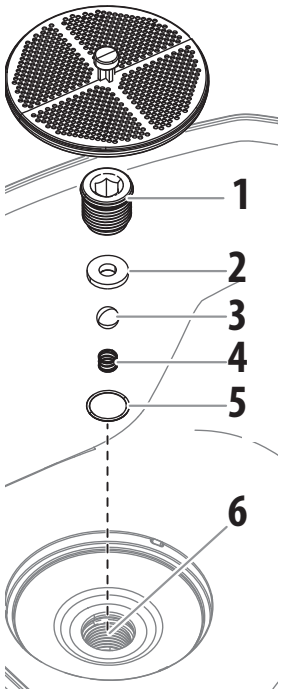
3.1 INLET VALVE

1) Remove the inlet filter from the bottom of the hopper.

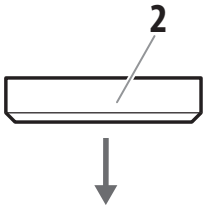


2) Loosen and remove the inlet valve housing (1) with an Allen key (8 mm).
3) Remove the valve seat (2), ball (3), spring (4) and O-ring seal (5) with a suitable tool (e.g. needle-nose pliers, tweezers).

Tip: alternatively, turn the device upside down with the cover on and release the parts by tapping on the underside of the device.

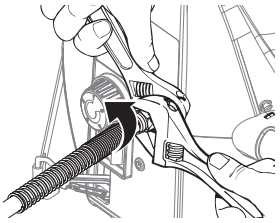


4) Check all parts and the valve area (6) in the container and clean thoroughly. Replace damaged parts.
5) Ensure the O-ring seal on the inlet valve housing (1) is well lubricated.
6) Replace all parts as shown in the illustration. **The conical side of the inlet valve seat (2) must point downwards.**
7) Securely re-tighten the inlet valve housing (1) with an Allen key (8 mm).

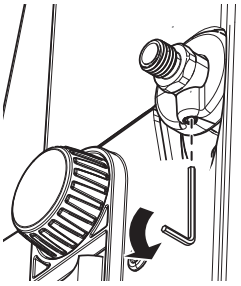


3.2 OUTLET VALVE

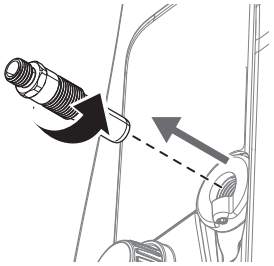
1) Remove the high-pressure hose from the outlet valve using two spanners.



2) Loosen the screw (2.5 mm Allen key) on the bottom of the outlet valve, **but do not remove it.**



3) Remove the outlet valve from the base unit using a spanner.
4) Check the outlet valve and clean thoroughly (especially the ball seat on the back). Replace if necessary.
5) Inspect the inside of the outlet valve housing. Remove any accumulated paint.
6) Reinsert the new or cleaned outlet valve (tighten into outlet valve housing with an adjustable wrench).
7) Re-tighten the screw.

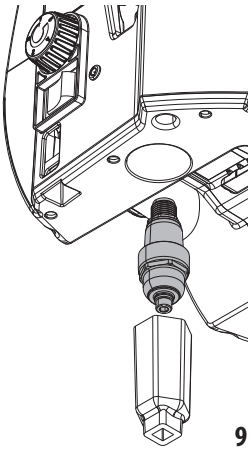


⚠WARNING

Securely tighten the screw to ensure grounding of the hose and gun.

3.3 PULSATION DAMPER

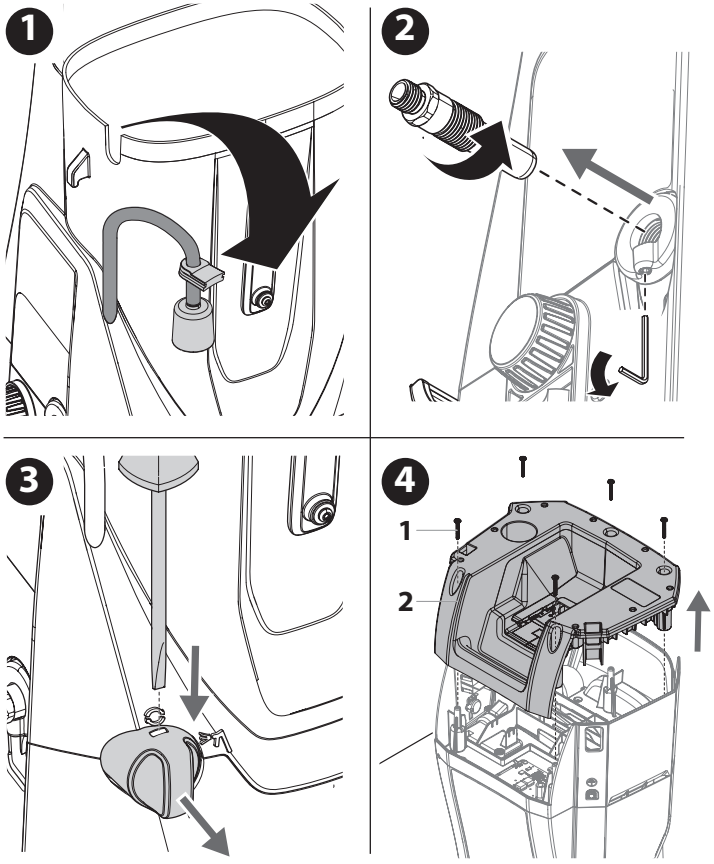
1) Unscrew the pulsation damper from the hole in the underside of the device using the tool included in the set.
2) Insert the new pulsation damper and screw it tight.

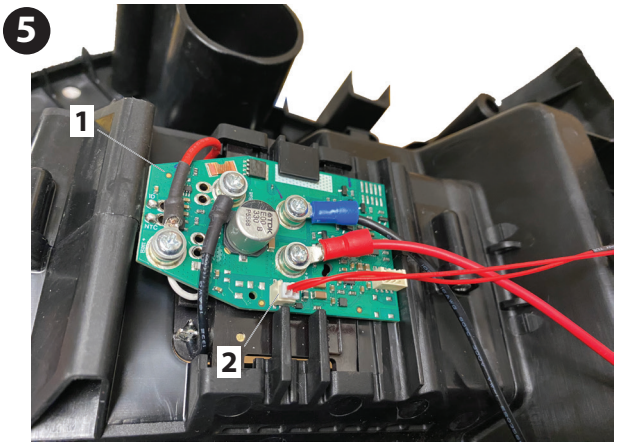


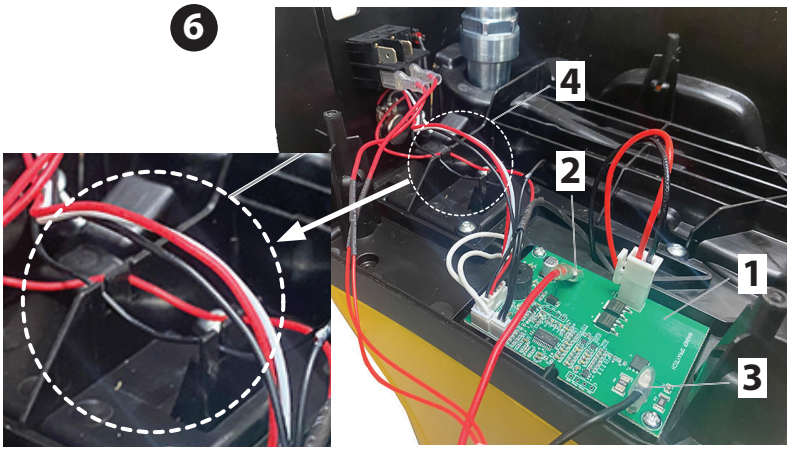
3.4 FLUID SECTION

REMOVAL

1. Remove the hopper lid and the backpack straps from the unit. Detach the grommet with return tube from the hopper. (Fig. 1)
2. Loosen **(but do not remove)** the set screw just underneath the outlet valve with a 2.5 mm allen wrench. Unscrew outlet valve from outlet valve housing using wrench. (Fig. 2)
3. Remove the brass seal behind the outlet valve housing also.
4. Remove any accumulated material inside outlet valve housing using appropriate solution for material being used. Pay particular attention to the ball and seat area at the end of the outlet valve (opposite the hose end).
5. Using flat end of the straight slot screwdriver, press the tab on the PRIME/SPRAY knob as shown. While tab is being pressed, turn the screwdriver and pull the PRIME/SPRAY knob off. (Fig. 3)
6. Flip the unit upside down so that the back lip of the hopper hangs over the edge of a work bench or table. With the T15 Torx driver, remove the five screws (1) that secure the bottom shroud (2). Carefully remove the bottom shroud. (Fig. 4)
7. Flip the bottom shroud over, taking care not to damage the electrical wires, exposing the Battery Management board (fig. 5, 1) and wires.
8. At the board, disconnect the wire that connects the board to the power switch (Fig 5, 2).
9. Disconnect the red (fig. 6, 2) and black wires (3) that connect the control board (1) to the Battery Management Board. The lower housing is now fully disconnected and can be set aside.
10. Remove the wires from the slotted wire holders (fig. 6, 4).







11. Using an adjustable wrench, remove the pulsation damper (fig. 7, 1).

12. Using a T15 Torx driver, remove the ten screws (fig. 8, 1) that secure the base plate (2) to the main unit. Remove the base plate.

13. Using a Phillips screwdriver, remove the screw that secures the fluid section grounding wire (fig. 9, 1) to the ground area on the main unit.

14. Remove the guide wheel (fig. 10, 1) and pin (2). Swivel the piston clip (3) off the piston (4) and remove the connector (5) and piston clip (3).

15. Using a 1/4" socket, remove the ground screw and ground wire from the fluid section assembly. (Fig. 11). The fluid section assembly can now be fully removed.

16. Lift the fluid section up enough to expose the return tube clip (1). Using a pliers, pinch the clip to loosen it and remove the return tube assembly (2).

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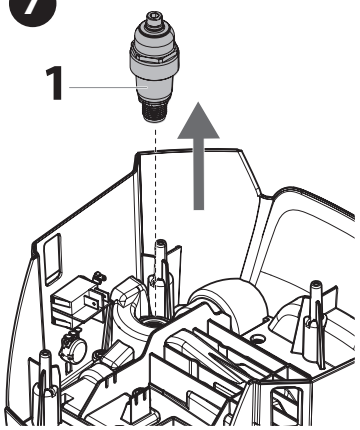

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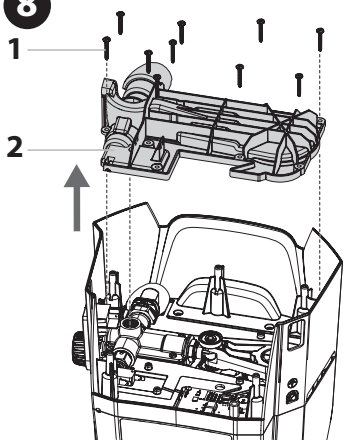

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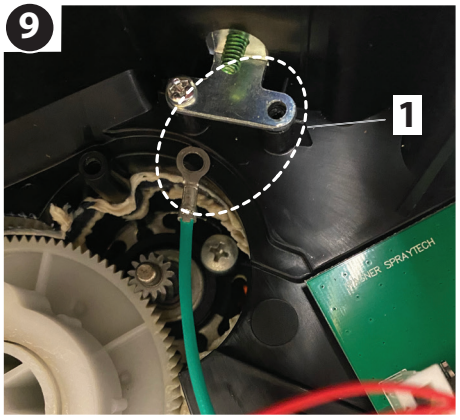

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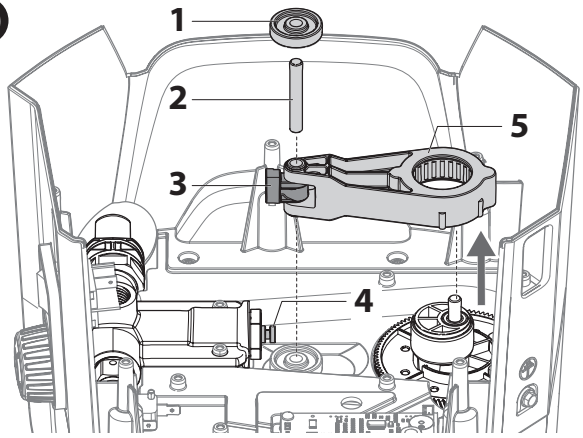

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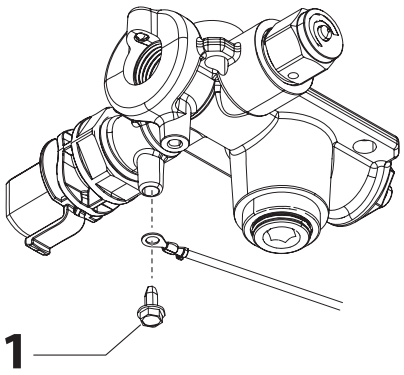

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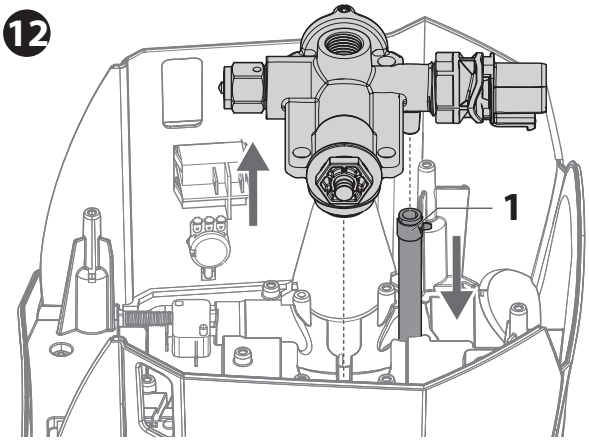

INSTALLATION

To reinstall all of the components, reverse the previous steps.

1. Reinstall the return tube onto the fluid section and secure with the clip.
2. Reinstall the ground wire and ground screw into the fluid section. Set the fluid section in place, taking care not to let the grounding wire interfere with any of the moving parts.

The other end of the grounding wire will need to be rerouted to the other side of the unit so leave enough wire for it to reach.

3. Replace the piston clip into the connecting rod and secure with the pin. When reinstalling, make sure the piston clip slides securely over the piston. Make sure the pin gets inserted into the hole of the bottom slider. Install the top slider onto the pin.
4. Reconnect the ground wire (fig. 9, 1) removed in the previous section. Make sure the wire does not interfere with any of the moving parts.
5. Replace the baseplate and with a T15 Torx driver, secure with the 10 screws.
6. Reinstall the pulsation damper and tighten with an adjustable wrench.
7. Retrieve the bottom housing that contains the Battery Management board. Reconnect the red and black wires to the control board (refer to figure 6, items 2 and 3). Secure wires to their slots (fig. 6).
8. Reconnect the wire that connects the power switch to the Battery Management board (refer to figure 5, item 2).
9. Replace the bottom housing and with a T15 Torx driver, secure it with the five screws. Turn the unit back right side up.
10. Replace the PRIME/SPRAY knob.
11. Replace the outlet valve assembly. Make sure the brass washer is installed between the fluid section and outlet valve.
12. Reinstall the grommet with the return tube attached to its position on the hopper.

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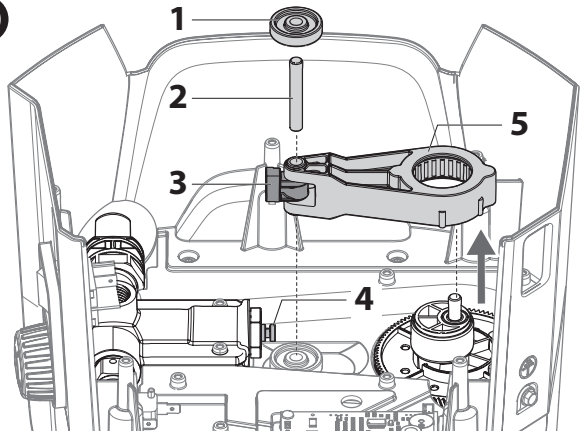

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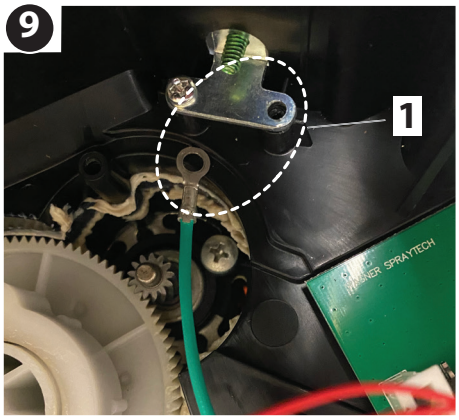

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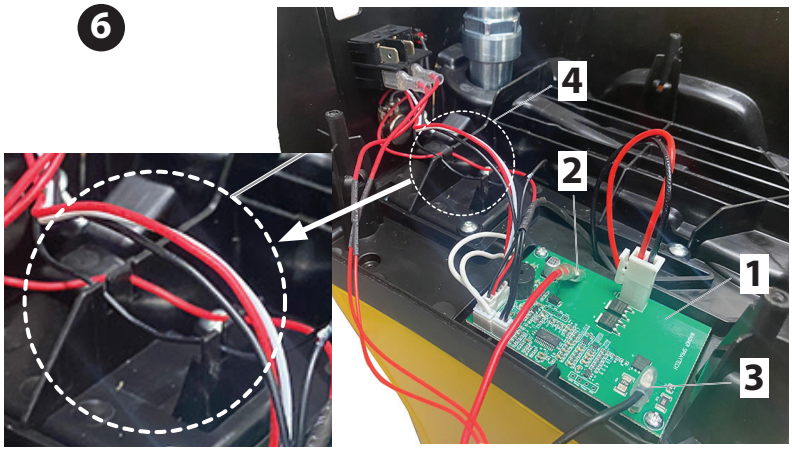

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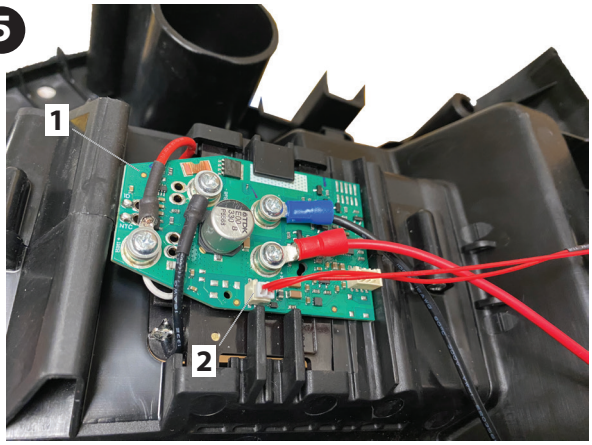
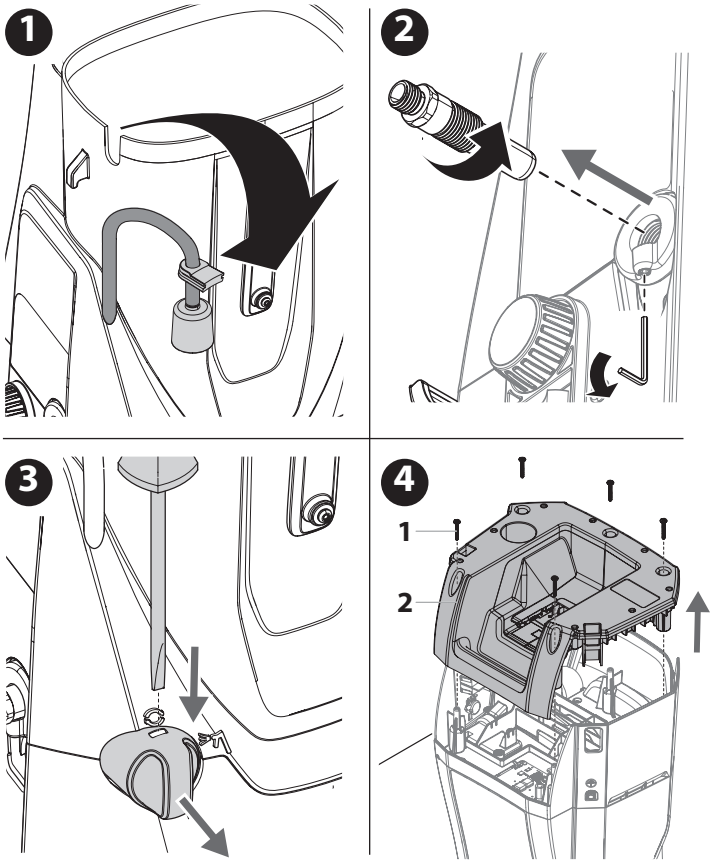
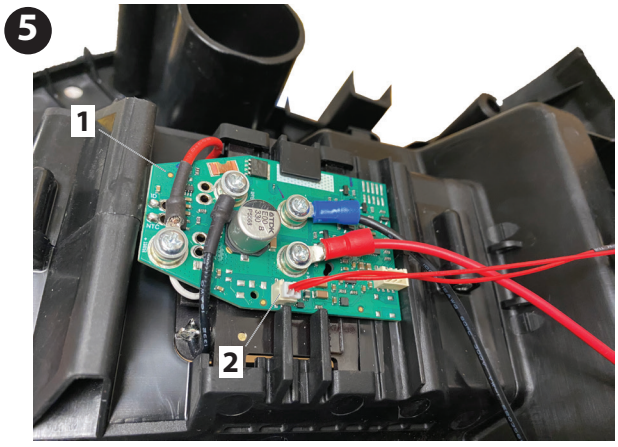


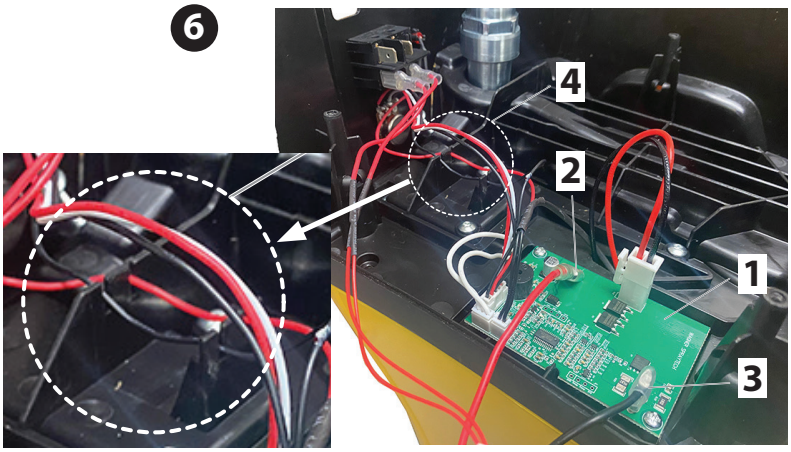
3.5 MOTOR

REMOVAL

1. Remove the hopper lid and the backpack straps from the unit. Detach the grommet with return tube from the hopper. (Fig. 1)
2. Loosen **(but do not remove)** the set screw just underneath the outlet valve with a 2.5 mm allen wrench. Unscrew outlet valve from outlet valve housing using wrench. (Fig. 2)
3. Remove the brass seal behind the outlet valve housing also.
4. Remove any accumulated material inside outlet valve housing using appropriate solution for material being used. Pay particular attention to the ball and seat area at the end of the outlet valve (opposite the hose end).
5. Using flat end of the straight slot screwdriver, press the tab on the PRIME/SPRAY knob as shown. While tab is being pressed, turn the screwdriver and pull the PRIME/SPRAY knob off. (Fig. 3)
6. Flip the unit upside down so that the back lip of the hopper hangs over the edge of a work bench or table. With the T15 Torx driver, remove the five screws (1) that secure the bottom shroud (2). Carefully remove the bottom shroud. (Fig. 4)
7. Flip the bottom shroud over, taking care not to damage the electrical wires, exposing the Battery Management board (fig. 5, 1) and wires.
8. At the board, disconnect the wire that connects the board to the power switch (Fig 5, 2).
9. Disconnect the red (fig. 6, 2) and black wires (3) that connect the control board (1) to the Battery Management Board. The lower housing is now fully disconnected and can be set aside.
10. Remove the wires from the slotted wire holders (fig. 6, 4).







11. Using an adjustable wrench, remove the accumulator (fig. 7, 1).

12. Using a T15 Torx driver, remove the ten screws (fig. 8, 1) that secure the base plate (2) to the main unit. Remove the base plate.

13. Using a Phillips screwdriver, remove the screw that secures the fluid section grounding wire (fig. 9, 1) to the ground area on the main unit.

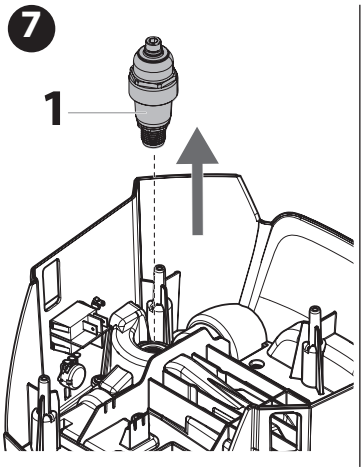
14. Remove the guide wheel (fig. 10, 1) and pin (2). Swivel the piston clip (3) off the piston (4) and remove the connector (5) and piston clip (3).

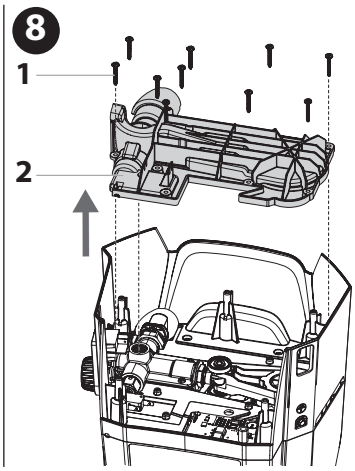
15. Remove the pin (fig. 11, 1), upper bearing (2), bearing sleeve (3), output gear (4), and lower bearing (4).

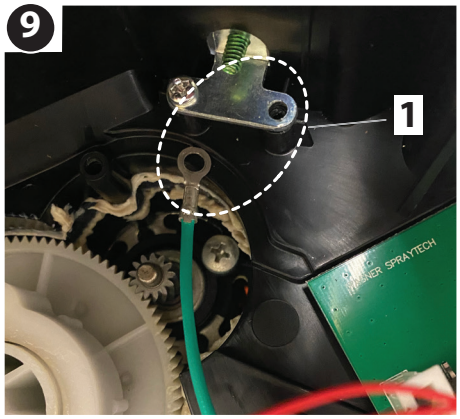
16. Using a T15 Torx driver, remove the four screws (fig. 12, 1) that hold top shroud (2) and hopper assembly (3) together. Separate the top shroud from the hopper assembly. The motor (4) will still be attached to the top shroud.

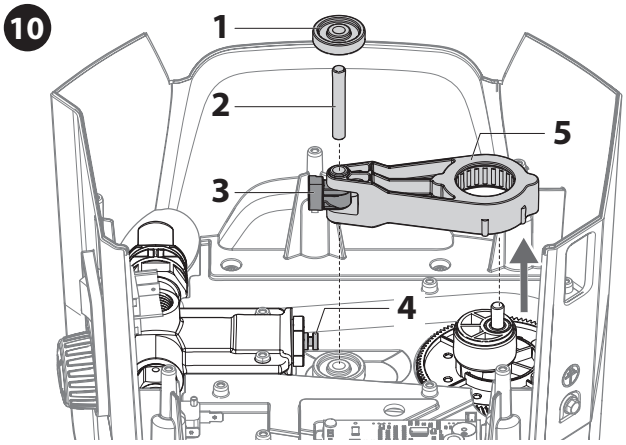
17. Using a Phillips screwdriver, remove the two screws (fig. 13, 1) that secure the motor (2) to the top shroud (3). Pull the motor wires back through the orifice (4) and remove the motor.

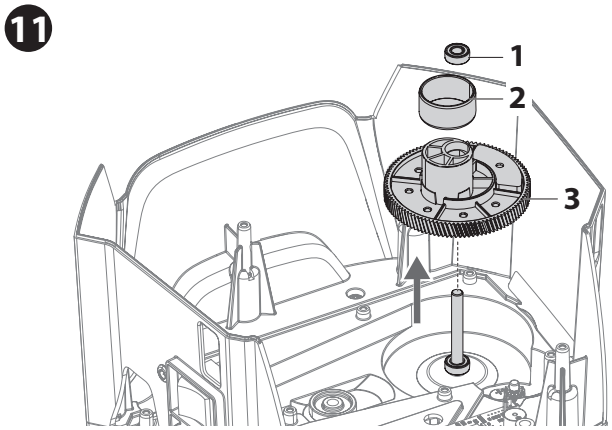
18. Remove the wire assembly from the motor and set aside (it will be reused).

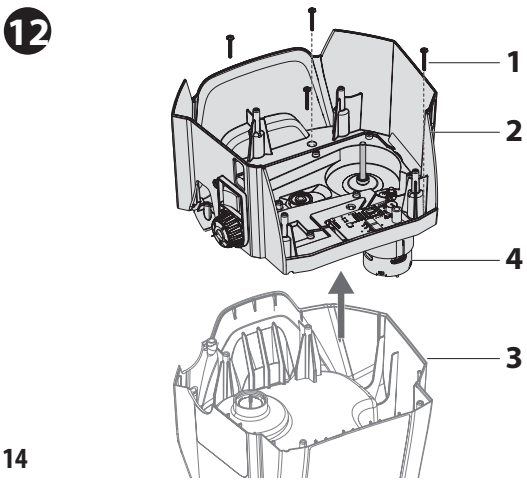


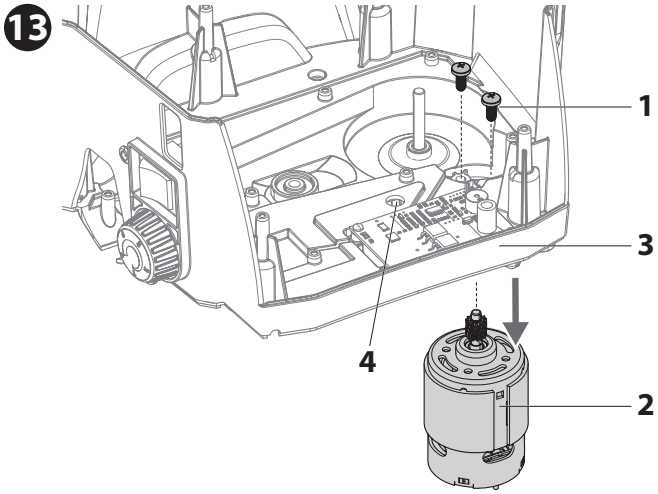












INSTALLATION

To reinstall all of the components, reverse the previous steps.

1. Reattach the wire assembly to the motor. Take note of the red (+) and black (-) markings.
2. Set the motor in place on the top shroud and using a Phillips screwdriver, secure with the two screws. Bring all the motor wires back through the orifice in the top shroud.
3. Put the top shroud in place on the hopper and using the T15 Torx driver secure it with the four screws (fig. 12,1)
4. Replace the gear, bearing sleeve and top bearing (fig. 11).
5. Replace the piston clip into the connecting rod and secure with the pin. When reinstalling, make sure the piston clip slides securely over the piston. Make sure the pin gets inserted into the hole of the bottom slider. Install the top slider onto the pin.
6. Reconnect the ground wire (fig. 9, 1) removed in the previous section. Make sure the wire does not interfere with any of the moving parts.
7. Replace the baseplate and with a T15 Torx driver, secure with the 10 screws.
8. Reinstall the accumulator and tighten with an adjustable wrench.
9. Retrieve the bottom housing that contains the Battery Management board. Reconnect the red and black wires to the control board (refer to figure 6, items 2 and 3). Secure wires to their slots (fig. 6).
10. Reconnect the wire that connects the power switch to the Battery Management board (refer to figure 5, item 2).
11. Replace the bottom housing and with a T15 Torx driver, secure it with the five screws. Turn the unit back right side up.
12. Replace the PRIME/SPRAY knob.
13. Replace the outlet valve assembly. Make sure the brass washer is installed between the fluid section and outlet valve.
14. Reinstall the grommet with the return tube attached to its position on the hopper.

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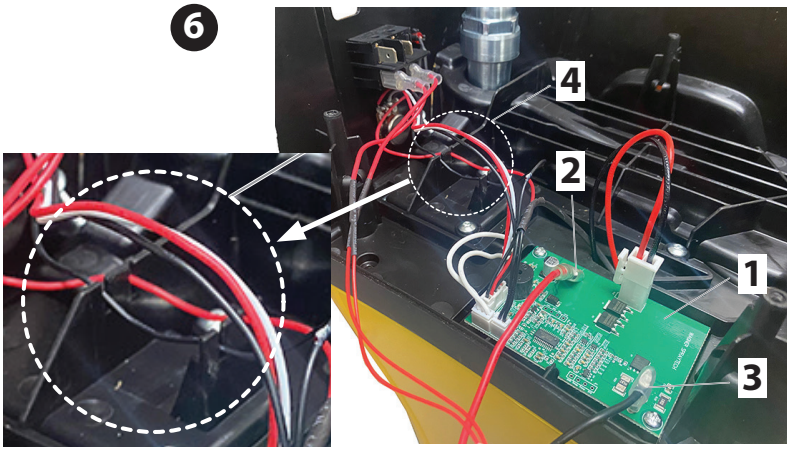

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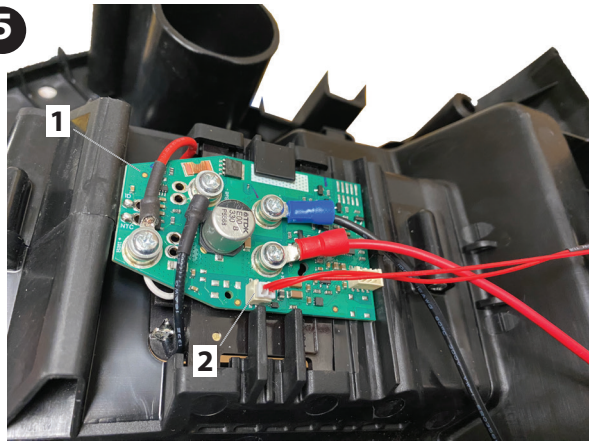
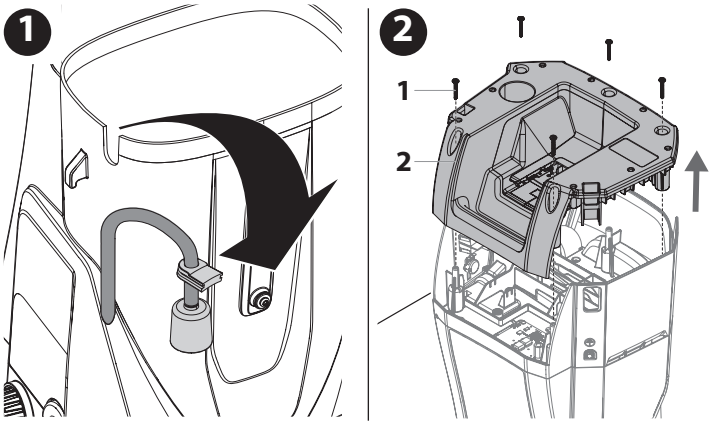
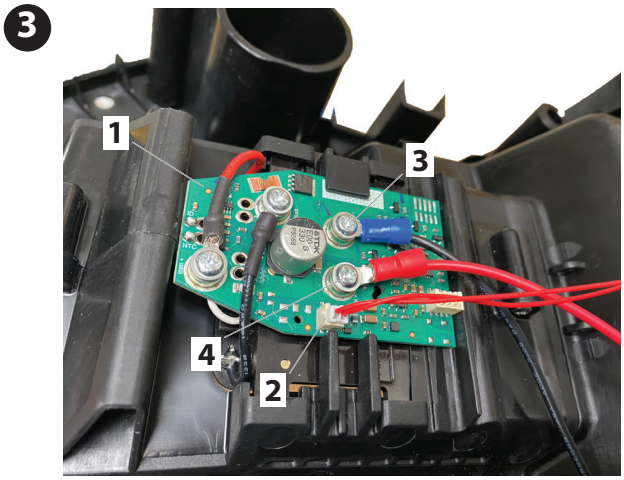


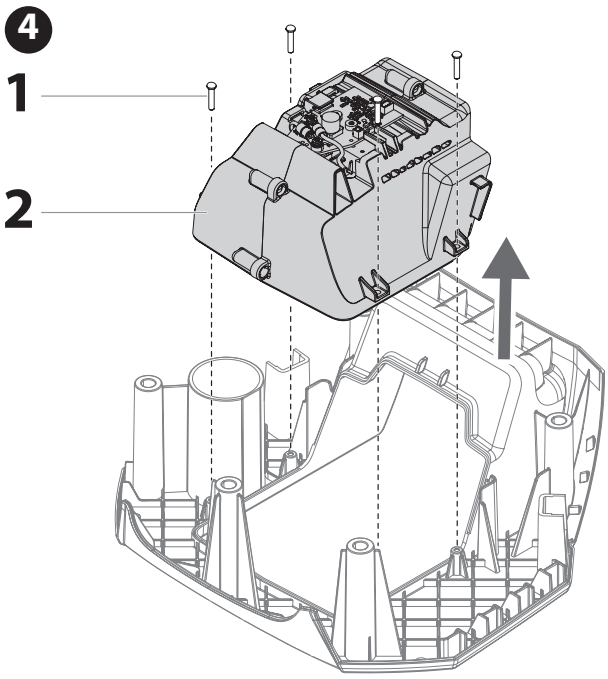
3.6 BATTERY MANAGEMENT BOARD

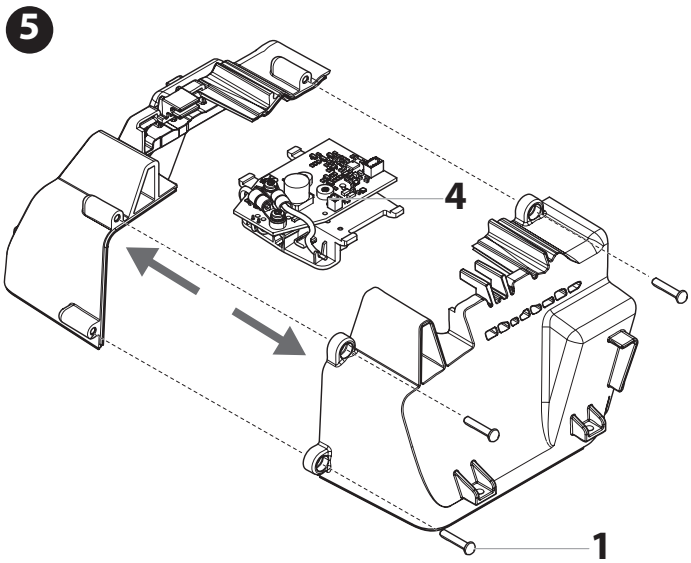
REMOVAL

1. Remove the hopper lid and the backpack straps from the unit. Detach the grommet with return tube from the hopper. (Fig. 1)
2. Flip the unit upside down so that the back lip of the hopper hangs over the edge of a work bench or table. With the T15 Torx driver, remove the five screws (1) that secure the bottom shroud (2). Carefully remove the bottom shroud. (Fig. 2)
3. Flip the bottom shroud over, taking care not to damage the electrical wires, exposing the Battery Management board (fig. 3, 1) and wires.
4. At the board, disconnect the wire that connects the board to the power switch (Fig 3, 2).
5. Using a Phillips screwdriver, disconnect the black (3) and red wires (4) from the Battery Management Board.
6. Using a Phillips screwdriver, remove the four screws (fig. 4, 1) that secure the battery holder (2) to the main unit. Carefully remove the battery holder (2).
7. Using a Phillips screwdriver, remove the three screws (fig. 5, 1) that secure the two battery holder case halves together.
8. Take the two halves apart and remove the battery management board (4).









INSTALLATION

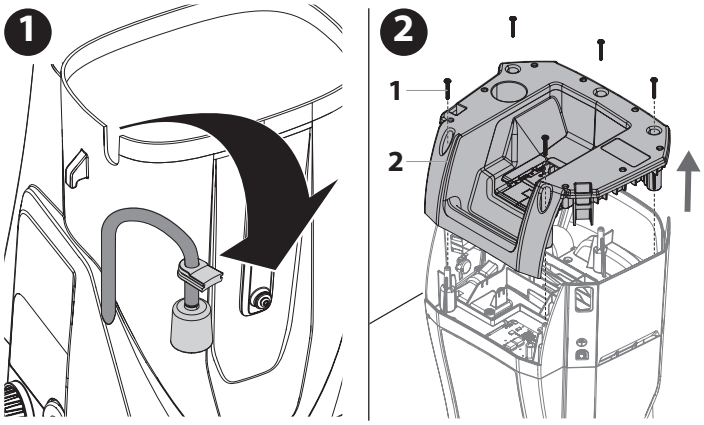
To install the new Battery Management Board, reverse the previous steps.

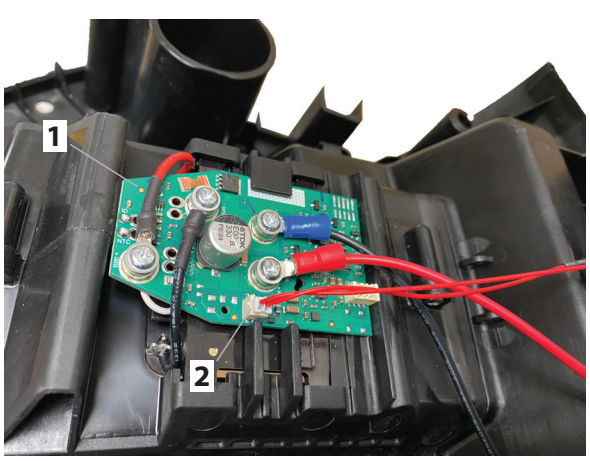
1. Reinstall the new Battery Management Board in its location between the two battery holder case halves.
2. Using the Phillips screwdriver, reinstall the three screws that secure the two battery holder case halves together.
3. Replace the battery holder and secure it with a Phillips screwdriver and 4 screws.
4. Reconnect the power switch wire, and the black and red wires disassembled (refer to fig. 3).
5. Replace the bottom housing and with a T15 Torx driver, secure it with the five screws. Turn the unit back right side up.
6. Reinstall the grommet with the return tube attached to its position on the hopper

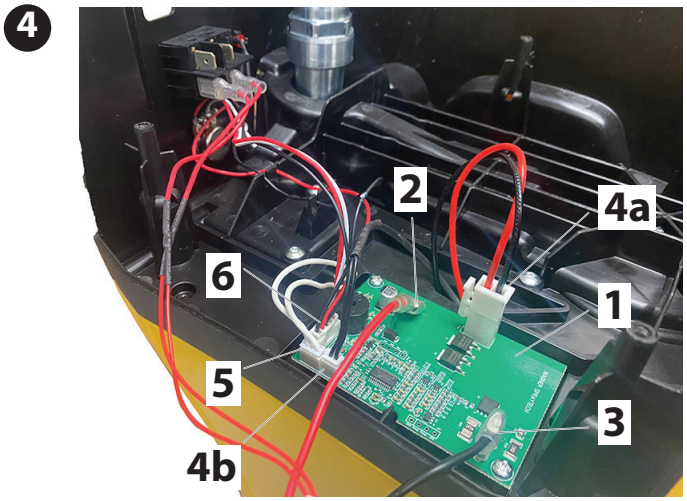
3.7 CONTROL BOARD

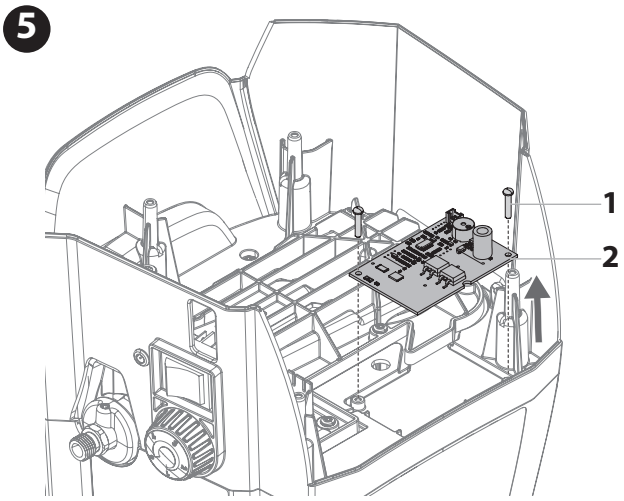
REMOVAL

1. Remove the hopper lid and the backpack straps from the unit. Detach the grommet with return tube from the hopper. (Fig. 1)
2. Flip the unit upside down so that the back lip of the hopper hangs over the edge of a work bench or table. With the T15 Torx driver, remove the five screws (1) that secure the bottom shroud (2). Carefully remove the bottom shroud. (Fig. 2)
3. Flip the bottom shroud over, taking care not to damage the electrical wires, exposing the Battery Management board (fig. 3, 1) and wires.
4. At the board, disconnect the wire that connects the board to the power switch (Fig 3, 2).
5. Disconnect the red (fig 4, 2) and black wires (3) that connect the control board to the Battery Management Board.
6. Remove the connectors that connect the control board to the motor (fig. 4, 4a/4b), the microswitch (5) and the potentiometer (6).
7. Using the Phillips screwdriver, remove the two screws (fig. 5, 1) that secure the control board (2) to the main unit. Remove the control board.









INSTALLATION

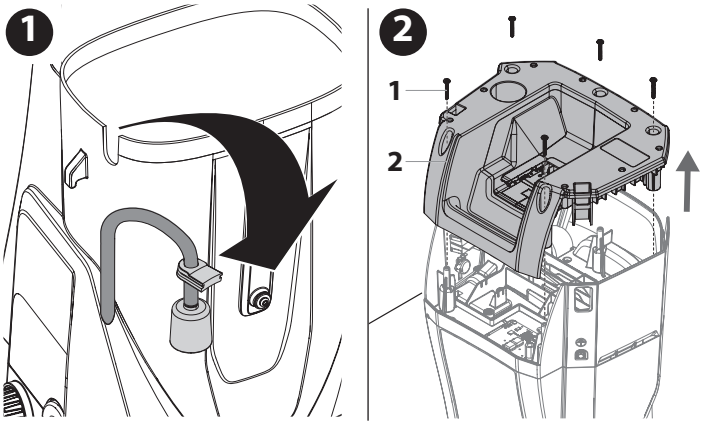
To install the new control board, reverse the previous steps.

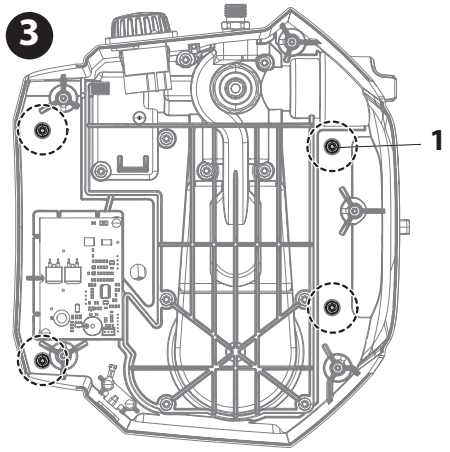
1. Reinstall the new control board in its location on the main unit and secure with the two screws (fig. 5, 1).
2. Reconnect all the wires (refer to picture 4).
3. Reconnect the power switch wire to the Battery Management Board (refer to picture 3).
4. Replace the bottom housing and with a T15 Torx driver, secure it with the five screws. Turn the unit back right side up.
5. Reinstall the grommet with the return tube attached to its position on the hopper.

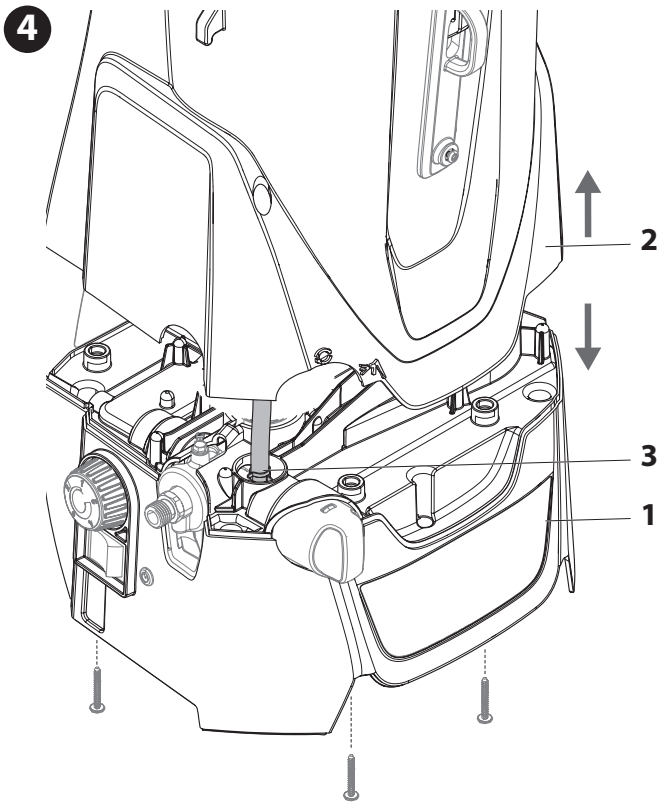
3.8 RETURN TUBE

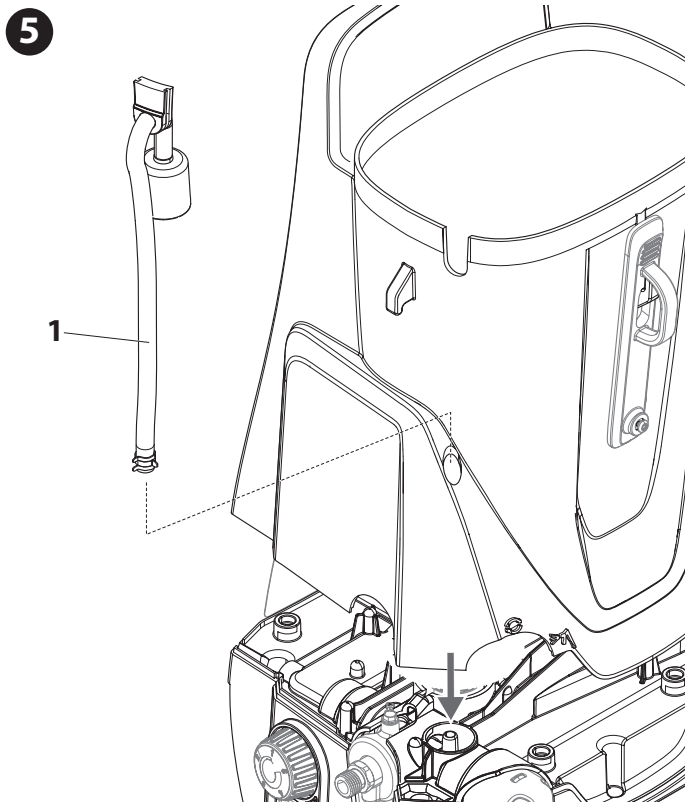
REMOVAL

1. Remove the hopper lid and the backpack straps from the unit. Detach the grommet with return tube from the hopper. (Fig. 1)
2. Flip the unit upside down so that the back lip of the hopper hangs over the edge of a work bench or table. With the T15 Torx driver, remove the five screws (1) that secure the bottom shroud (2) . Carefully remove the bottom shroud. (Fig. 2)
3. With the T15 Torx driver, remove the four screws (fig. 3, 1) that secure the top shroud to the hopper assembly.
4. Carefully separate the top shroud (fig. 4, 1) from the hopper (2) just enough to expose the return tube clip (3). Using a pliers, remove the clip and remove the return tube assembly from the fluid section.
5. Insert the tube end of the new return tube (fig. 5, 1) through the orifice on the hopper. Secure the return tube onto the fluid section nipple with the clamp.









REASSEMBLY

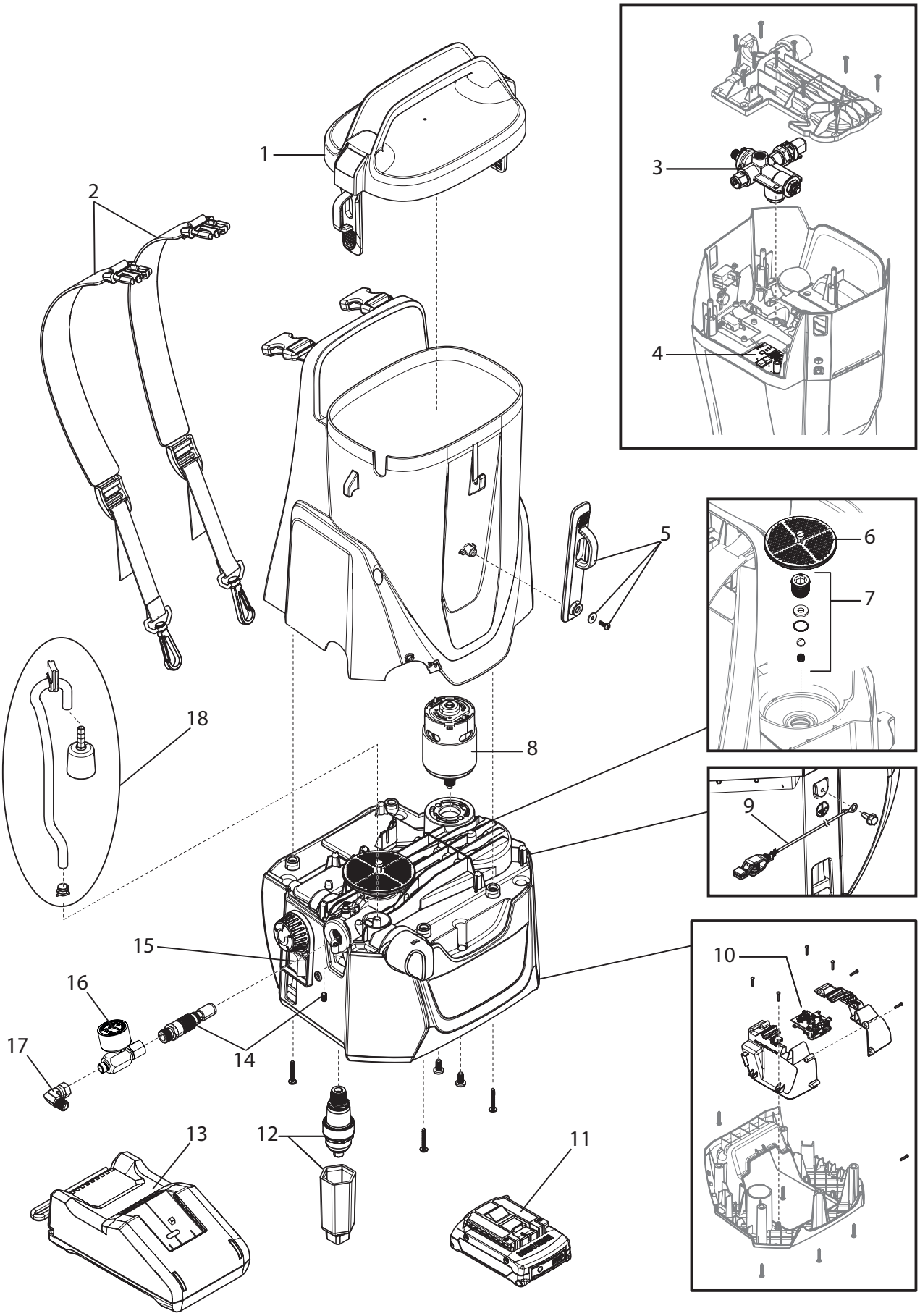
To install the new control board, reverse the previous steps.

1. Replace the top housing onto the hopper and secure it with a T15 Torx driver and four screws.
2. Replace the bottom housing and with a T15 Torx driver, secure it with the five screws. Turn the unit back right side up.
3. Reinstall the grommet with the return tube attached to its position on the hopper.

4 SPARE PARTS

4.1 SPARE PARTS LIST

ITEM	ORDER NO.	DESIGNATION
1	2463792	Hopper lid assy.
2	2463604	Carrying straps
3	2464055	Fluid section
4	2464794	Control board
5	2463215	Retaining strap assy.
6	2399777	Inlet filter
7	2399783	Inlet valve kit
8	2463224	Motor assy.
9	2466094	Earthing cable
10	2464793	Battery management board
11	2432720 2454461	Battery (ProCore 18 V, 2,0 Ah) Battery (ProCore 18 V, 4,0 Ah)
12	2465928	Pulsation damper assy.
13	2454460 2454650 2433983	Charger (GAL 18V-40) EU Charger (GAL 18V-40) UK Charger (GAL 18V-40) AUS
14	2399767 2467370	Outlet valve kit (ControlPro 300) Outlet valve kit (SprayPack 18V)
15	2461655	ON/OFF switch
16	2467255	Pressure gauge
17	2467276	Elbow
18	2463213	Return tube assy.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1 BASIC PRINCIPLES

1.1 ELECTRICALLY INSTRUCTED PERSON

In order to carry out work on electrical systems and equipment, a person must at least have training as an electrically instructed person.

However, an electrically instructed person is not authorised to autonomously set up, modify or repair electrical systems and equipment. Such tasks may only be performed under the direction and supervision of a skilled electrician.

The electrically instructed person must be trained on all systems and equipment. This training is carried out by the senior skilled electrician, who highlights the hazards and special features. The senior skilled electrician also ensures that the requirements and guidelines in respect of UVV, VDE and EN standards have been complied with.

All electrically instructed persons must receiving training at least once a year on the hazards, safe handling and correct conduct in relation to electrical systems.

Documents and work instructions must also be made available to electrically instructed persons. These must relate to the exact machine type and indicate potential hazards and special features. The work instructions must include safe and correct replacement of a connecting cable, for example.

1.2 SKILLED ELECTRICIAN FOR DEFINED TASKS

In order to autonomously carry out work on electrical systems and equipment, a person must have training as a skilled electrician for defined tasks.

However, the skilled electrician for defined tasks must also, like the electrically instructed person, be trained on all systems and equipment. This training is carried out by the senior skilled electrician, who highlights the hazards and special features. The senior skilled electrician also ensures that the requirements and guidelines in respect of UVV, VDE and EN standards have been complied with.
It is also necessary for a responsible skilled electrician to assume professional responsibility.

1.3 LEGAL FOUNDATIONS

Once a system and its equipment has been repaired, modified or set up, it must not constitute any hazard for users and their environment. To ensure that safety can still be guaranteed, an annual inspection is required for mobile systems and equipment.

1.4 WHICH TESTS MUST BE PERFORMED

A test in accordance with the guidelines of BGV A3 **must** be performed and verified. This test must be performed on all electrical equipment, even if "only" a mechanical repair has been carried out.

Contents of BGV A3: The test as per BGV A3 is divided into a visual and a metrological test.

Visual inspection:	- Protective conductors (protection class I)
	- Insulating parts
	- Housing
	- Connecting cables
	- Typeplate
	- Machine-specific components
Metrological test:	- Short-circuit test
	- Protective conductor resistance (RSL)
	- Equivalent leakage current (IEA)
	- Insulation resistance (Riso)
	- Functional test

Attention! If one of the above-specified criteria cannot be fulfilled, then the test is **considered a failure.**
If the customer refuses the necessary repair, he must be informed in writing to this effect. Clear reference must be made to the fact that safe operation of the system cannot be assured. This must be counter-signed by the operating company.
You must fulfil this obligation as you, as an expert, will be required to produce evidence in the event of damage.

1.5 FIVE SAFETY RULES

The Five Safety Rules are more than just rules. They are the precondition for working on electrical systems and appliances. Please take these rules seriously - they are essential for your safety.

Isolation

Isolation means all-pole disconnection of a system from live parts.
All live cables must be disconnected at all poles at the place of work before starting work. This can be done by means of main switches, expert removal of fuses, disconnection of plug connectors etc.

Protecting against restarting

In order to prevent inadvertent restarting of a system on which work is being carried out, restarting must be prevented reliably and safely. For example the unscrewed fuse elements can be replaced with lockable disabling elements or circuit-breakers can be masked with adhesive film. A "Please do not switch on - work in progress" sign can also be affixed. For appliances which are connected to the network by a plug connector, it is sufficient to store the unplugged connector on the machine in such a way that it cannot be mixed up with another connector. In addition, the connector must always be kept in the worker's immediate vicinity.

Verification of safe isolation from the supply

Verification of safe isolation from the supply in low-voltage networks, i.e. systems with operating voltages below 1000 V, must only be carried out using devices or equipment suitable for this purpose. A two-pole measuring instrument must be used. The voltage detectors used must comply with the respective rated voltage and must be tested before and after verification of safe isolation from the supply. I.e. the function of the detectors must be tested on a reliable live source.

Earthing and short-circuiting

After ensuring safe isolation from the supply, the conductors and earthing must be connected together with short-circuit-proof earthing and shorting jumpers. With this measure, the upstream overcurrent protective devices trigger and the system is immediately isolated in the event of inadvertent restoration of power. It should be noted that earthing is carried out first, then short-circuiting.

Cover or shield any adjacent live parts.

Often inadmissible approach to adjacent live system parts cannot be easily prevented. In such cases these system parts must be protected against accidental contact by permanent and securely fitted insulating covers.

1.6 CATEGORISATION OF PROTECTION CLASSES

Legal basis
In electrical engineering, protection classes enable the categorisation and identification of electrical equipment (for example, devices and installation components) in relation to the existing safety measures for protection against electric shock.
The protection classes are defined for all electrical equipment in DIN EN 61140 (VDE 0140-1).
A distinction is made between four protection classes for electrical equipment. Symbols are provided in order to identify equipment with the relevant protection class. These symbols are defined in IEC 60417. The use of safety precautions in the different classes of electrical equipment is described in DIN EN 61140 (VDE 0140-1):2007-03, section 7.

Protection class 0
There is no special protection against electric shock in addition to the basic insulation. Connection to the protective conductor system is not possible. Appliances with this protection class are not permitted in Germany and Austria. This protection class will not be included in any international standards in future. There is no symbol for protection class 0.

Protection class I 

All electrically conductive housing parts of the equipment are connected to the protective conductor system of the fixed electrical installation, which is at earth potential. Mobile appliances in protection class I have a plug connector with a protective conductor contact or an earthing pin plug. These must be executed so that the protective conductor connection is established as the first connection on plugging in. It must also be ensured that in the event of damage the protective conductor connection is disconnected last. The connecting cable entry into the appliance must be mechanically strain-relieved

Protection class II 

Equipment in protection class II has reinforced or double insulation around live parts, so that no conductive parts can be live even in fault conditions. This is also referred to as total insulation. Appliances in protection class II do not have a protective conductor contact.

Protection class III 

Appliances in protection class III operate with safety extra-low voltage (SELV).
Safety extra-low voltage means voltages that do not exceed 50 V AC (alternating voltage) or 120 V DC (direct voltage). This voltage must be generated by a safety transformer as per DIN VDE 0570-2-6 or EN 61558-2-6 for a mains-operated appliance.
Safety extra-low voltage taken from batteries or accumulators belongs to protection class III without the need for further measures.

1.7 EXPLANATION OF ELECTRIC VARIABLES AND COMPONENTS

Dimensional unit	Arithmetic unit	Explanation
A	I	Electric current in ampere
V	U	Electric voltage in volts
KV	U	Electric voltage in kilo-volts
VA	S	Apparent electric power
W	P	Electric power in watts
KW	P	Electric power in kilowatts
KWh	P	Electric power in kilowatt hours
Ω	R	Electric resistance in ohms
KΩ	R	Electric resistance in kiloohms
MΩ	R	Electric resistance in megaohms

Designation	Explanation
L1	External conductor
L2	External conductor
L3	External conductor
N	Neutral conductor
PE	Protective conductor
3~	Threephase AC voltage

1.8 EXPLANATION OF ELECTRICAL TERMS

Rated current
The rated current In is the rated value for a system, a power circuit or electrical equipment.

Operating current
The operating current Ib is the current that must flow during uninterrupted operation.

Overcurrent
Overcurrent is any current that exceeds the permissible current loading.
Overcurrent is the generic term.
Overload current is an overcurrent that occurs in an electrically fault-free power circuit.
Short-circuit current is an overcurrent that can occur due to an error.

Operating voltage
The operating voltage is the voltage present between the conductors during full function.

External conductor
External conductors are live conductors.

Neutral conductor
A neutral conductor is connected to the neutral point and star point, and is capable of contributing to the transmission of electrical energy.

Protective conductor
A protective conductor is necessary for certain protective measures against shock currents, in order to establish an electrical connection to one of the following parts.
- exposed conductive part of the electrical equipment
- external conductive parts
- earth electrodes, equipotential bonding

Earth fault
An earth fault is an electrical connection between an external conductor or neutral conductor to the protective conductor.

Interwinding fault
An interwinding fault is a short in a winding of the motor. This winding has a different resistance to the other windings.

PEN conductor
A PEN conductor is an earthed conductor which performs the function of protective conductor and neutral conductor simultaneously.

Active part (of an electrical system)
An active part is a live part of an electrical system or device (e.g. fuses, terminals, switches, capacitors, etc.) through which current flows during normal operation

Emergency switch, emergency stop
This switch is identified by its colouring (red on yellow) and serves to stop hazardous states or hazardous movements. The emergency switch does not serve for switching during normal operation or isolation in accordance with the Five Safety Rules (1.5).

Isolation
This is the disconnection of a system or its equipment from all sources.

Basic insulation
This is the insulation of active parts during normal operation to protect against direct contact.

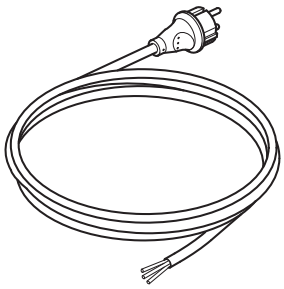
Direct contact
This is direct contact between an active part of an electrical system (an external conductor/phase) and the human body in normal operation.

Indirect contact
This is indirect contact between an active part and the human body due to an existing insulation fault. The housing of an electrical device which is not live under normal conditions is contacted (fault).

2 FUNCTIONAL TEST WORK INSTRUCTION

2.1 FUNCTIONAL TEST OF CORD SET

1. Ensure safe isolation from the supply before commencing work.
2. A multimeter or test buzzer should be used for testing. The function should be checked first of all.
3. Attach a measuring lead to one of the two pins on the connector.
4. Attach the second measuring lead to one of the device terminals N (blue) or L1 (brown). If no tone is audible or if the measuring device indicates an infinitely high resistance, the measuring lead must be attached to the other terminal, as it is not possible to tell to which pin the respective wire is connected on the earthing pin plug. If a tone is now audible or if the measuring device actuates, this wire is ok. Move the connecting cable in order to rule out a defective contact; if no interruption is discernible, this wire is ok. Repeat with the other wire N (blue) or L1 (brown).
5. Repeat point four in order to verify the functionality of the protective conductor (green/yellow). This is only necessary for equipment class I. See chapter 4.3
6. If an interruption or defective contact is found in one of the wires, then the wire is defective.
7. The defective component must be made inoperative in order to prevent further use.

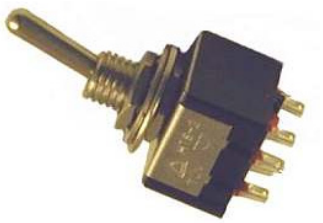


2.2 FUNCTIONAL TEST OF THE CAPACITOR

1. Ensure safe isolation from the supply before commencing work.
2. An insulation resistance tester (e.g. Metriso 500) must be used for the measurement.
3. The capacitor must be electrically isolated from the device. To do this, disconnect the plug connector on the capacitor.
4. Set the measuring device (Metriso 500) to measuring range III.
5. Connect the two test probes of the measuring device to the two terminal lugs on the capacitor.
6. To start the measurement, press the test button on the handle.
7. The measuring device deflects fully, then after approx. 20 sec. the pointer begins to wander to the left. The measurement is only complete when the pointer has moved all the way to the left (zero deflection).
8. Now disconnect the measuring device from the capacitor and switch to the Volt (V=) position.
9. After approx. two minutes, reconnect the test probes to the capacitor (point 5). The display begins to wander from right (full deflection) to left (zero deflection).
10. If a deviation is found at point seven, for instance if the pointer remains at full deflection (right) or zero deflection (left) for more than a minute, then this capacitor is defective.
11. The defective component must be made inoperative in order to prevent further use.

2.3 FUNCTIONAL TEST OF SWITCHES/BUTTONS

1. Ensure safe isolation from the supply before commencing work.
2. A multimeter or test buzzer should be used for testing. The function should be checked first of all.
3. First disconnect all electrical connections at the switch or button.
4. With the switch in the 0 position, all of the switch connections must be checked against each other. If a continuity is found, the switch is defective.
5 In position I of the switch the superimposed switch connections must have continuity. If no continuity is found, the switch is defective.
6. The defective component must be made inoperative in order to prevent further use.



2.4 FUNCTIONAL TEST OF EARTHING CONTACT SOCKET

1. Ensure safe isolation from the supply before commencing work.
2. First perform a visual inspection of the socket for damage.
3 If no mechanical damage is found, work through chapter1.5 (The Five Safety Rules) in the reverse order.
4. A two-pole measuring instrument should be used to check the electrical functionality. If a multimeter is used, it should be set to V~ or VAC.
5. Now check the voltage present between L1 and N. If this is 230 V AC then the voltage between L1 and PE must also be checked.
6. If a deviation is found in point 2 or point 5, there is a defect.
7. The defective component must be made inoperative in order to prevent further use.

2.5 FUNCTIONAL TEST OF THE MOTOR OVERCURRENT PROTECTION SWITCH

1. Ensure safe isolation from the supply before commencing work.
2. First perform a visual inspection of the motor protection switch for damage.
3. A multimeter or test buzzer should be used for testing. The function should be checked first of all.
4. Connect one test probe of the test buzzer to terminal N and the second one to terminal U1/Z1.
5. Now switch the motor overcurrent protection switch on and off two or three times. The buzzing tone sounds when the switch is at one; no buzzing tone should be audible in the OFF position.
6. Now connect the test probes to terminals L1 and U2. Repeat point 5 as a check.
7. If a deviation is found in relation to point 5 or 2, there is a defect.
8. The defective component must be made inoperative in order to prevent further use.

2.6 FUNCTIONAL TEST OF THE THREEPHASE MOTOR

1. Ensure safe isolation from the supply before commencing work.
2. A multimeter should be used for testing; this must be set to ohm (Ω) and tested.
3. In order to obtain a reliable and meaningful measurement, all cables of the motor must be disconnected first of all. Note down the connection plan.
4. In order to determine an interwinding fault, the Y/Δ jumpers must be removed. Note down the connection plan.
5. Measure all motor cables to the housing; if a continuity is found, then the motor has an earth fault and is defective.
6. Measure all three windings individually; they must present the same resistance. If a deviation of ≥ 2.0% is found, the motor has an interwinding fault and is defective.
7. If the motor is equipped with a thermal link, this must be tested for continuity. If no continuity is present or a resistance of ≥ 5Ω is present, the motor is defective.

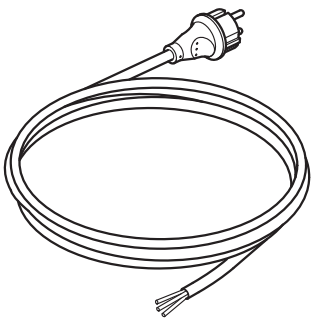
2.7 FUNCTIONAL TEST OF AC MOTOR

1. Ensure safe isolation from the supply before commencing work.
2. A multimeter should be used for testing; this must be set to ohm (Ω) and tested.
3. In order to obtain a reliable and meaningful measurement, all cables of the motor must be disconnected first of all. Note down the connection plan.
4. Measure all cables to the housing; if a continuity is found, then the motor has an earth fault and is defective.
5. Measurement of the individual windings is not possible, as they are internally bridged.
6. If the motor is equipped with a thermal link, this must be tested for continuity. If no continuity is present or if a high resistance is present, the motor is defective.

3 REPAIR WORK INSTRUCTION

3.1 REPLACING A CORD SET

1. Ensure safe isolation from the supply before commencing work.
2. Remove the old cable, noting the contact configuration.
3. Strip new cord set to desired length, taking care not to damage the insulation of the wires.
4. Shorten conductors N (blue) and L1 (brown) by 1.5 cm, to ensure that when there is a tensile load on the cable, the protective conductor (yellow/green) is disconnected from the machine last.
5. Press on the wire end ferrules, to ensure secure contact.
6. Install strain relief in order to prevent the connecting cable from being pulled out. Make sure that the strain relief is not excessively tightened, which could cause the cable to shear off.
7. Ensure secure contact when connecting the individual wires.
8. After completing the repair a measurement in accordance with BGV A3 must be carried out, in order to ensure electrical safety and functionality.
9. The defective component must be made inoperative in order to prevent further use.



3.2 REPLACING A 400 V CORD SET

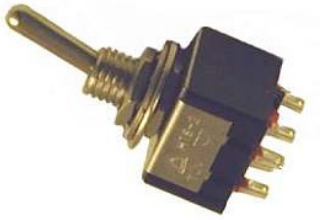
1. Ensure safe isolation from the supply before commencing work.
2. First of all loosen the strain relief until the cable can be freely moved.
3. Disconnect the defective cable, noting the exact pin assignment.
4. Strip the new cable to the desired length, taking care not to damage the insulation of the individual wires.
5. First shorten wires L1, L2, L3 and N by 1.5 cm. This ensures that when there is a tensile load on the cable, the protective conductor (PE) is disconnected last.
6. Now strip the individual wires to the desired length.
7. Now press the wire end ferrules on, making sure that the wires terminate flush with the sleeve and that no individual wires protrude.
8. Now connect the cable in accordance with the pin assignment noted in point 3. Make sure that secure contact is achieved.
9. Now tighten the strain relief - but not too much, as this could cause the cable or an individual wire to shear off.
10. After completing the repair a measurement in accordance with BGV A3 must be carried out, in order to ensure electrical safety and functionality. See chapter 1.4

3.3 REPLACING THE CAPACITOR

1. Ensure safe isolation from the supply before commencing work.
2. Remove the wires (plug connector on capacitor).
3. Loosen the fixing nut on the front of the capacitor.
4. Remove the capacitor.
5. Now install and connect the new capacitor in the reverse order.
6. After completing the repair a measurement in accordance with BGV A3 must be carried out, in order to ensure electrical safety and functionality. See chapter 1.4.
7. The defective component must be made inoperative in order to prevent further use.

3.4 REPLACING SWITCHES / BUTTONS

1. Ensure safe isolation from the supply before commencing work.
2. Remove the individual wires at the switch, noting the contact configuration.
3. Remove the switch, noting its installation position.
4. Install the new switch.
5. Establish the electrical connection, observing the contact configuration of point 2.
6. After completing the repair a measurement in accordance with BGV A3 must be carried out, in order to ensure electrical safety and functionality. See chapter 1.4
7. The defective component must be made inoperative in order to prevent further use.



3.5 REPLACING THE EARTHING CONTACT SOCKET

1. Ensure safe isolation from the supply before commencing work.
2. Loosen the fastening screws and remove the socket from the housing.
3. Loosen and remove all cables at the earthing contact socket, noting the contact configuration.
4. Establish the electrical connection to the new earthing contact socket, ensuring correct and safe contacting.
5. The earthing contact socket can now be re-installed in the housing.
   Pay attention to the installation position of the socket. This must ensure the best possible splash protection, even in operating status.
6. After completing the repair a measurement in accordance with BGV A3 must be carried out, in order to ensure electrical safety and functionality.
7. The defective component must be made inoperative in order to prevent further use.

3.6 REPLACING THE MOTOR PROTECTING SWITCH

1. Ensure safe isolation from the supply before commencing work.
2. Mark the individual wires with the relevant terminal designation of the motor protecting switch, in order to prevent mix-up.
3. Now disconnect all electrical connections from the motor protecting switch.
4. The motor protecting switch can now be removed.
5. Now install the new motor protecting switch and restore the electrical connection.
6. After completing the repair a measurement in accordance with BGV A3 must be carried out, in order to ensure electrical safety and functionality.
7. In order to prevent further use of the defective motor protecting switch, it must be made unserviceable and disposed of.

3.7 REPLACING THE THREEPHASE MOTOR

1. 1. Ensure safe isolation from the supply before commencing work.
2. First disconnect the defective motor, noting the exact pin assignment.
3. Now replace the motor.
4. Ensure correct positioning of the Y/Δ jumpers on the motor terminal board.
5. Observe the pin assignment noted in point 2 when connecting the individual wires. Make sure that secure contact is achieved.
6. After completing the repair a measurement in accordance with BGV A3 must be carried out.
7. If the direction of rotation of the motor is incorrect, external conductors L1 and L2 and U and V must be swapped over.
8. In order to exclude further use of the defective motor, all wires must be disconnected directly at the motor.
9. After completing the repair a measurement in accordance with BGV A3 must be carried out, in order to ensure electrical safety and functionality See chapter 1.4

3.8 REPLACING THE AC MOTOR

1. Ensure safe isolation from the supply before commencing work.
2. First disconnect the defective motor, noting the exact pin assignment.
3. Now replace the motor.
4. Observe the pin assignment noted in point 2 when connecting the individual wires.Also ensure secure contact when connecting the wires.
5. After completing the repair a measurement in accordance with BGV A3 must be carried out.
6. In order to exclude further use of the defective motor, all wires must be disconnected directly at the motor.

4 MACHINE-SPECIFIC DOCUMENTS

4.1 CONNECTION DIAGRAM