

SERVICE MANUAL

SHIVA



Floor Care

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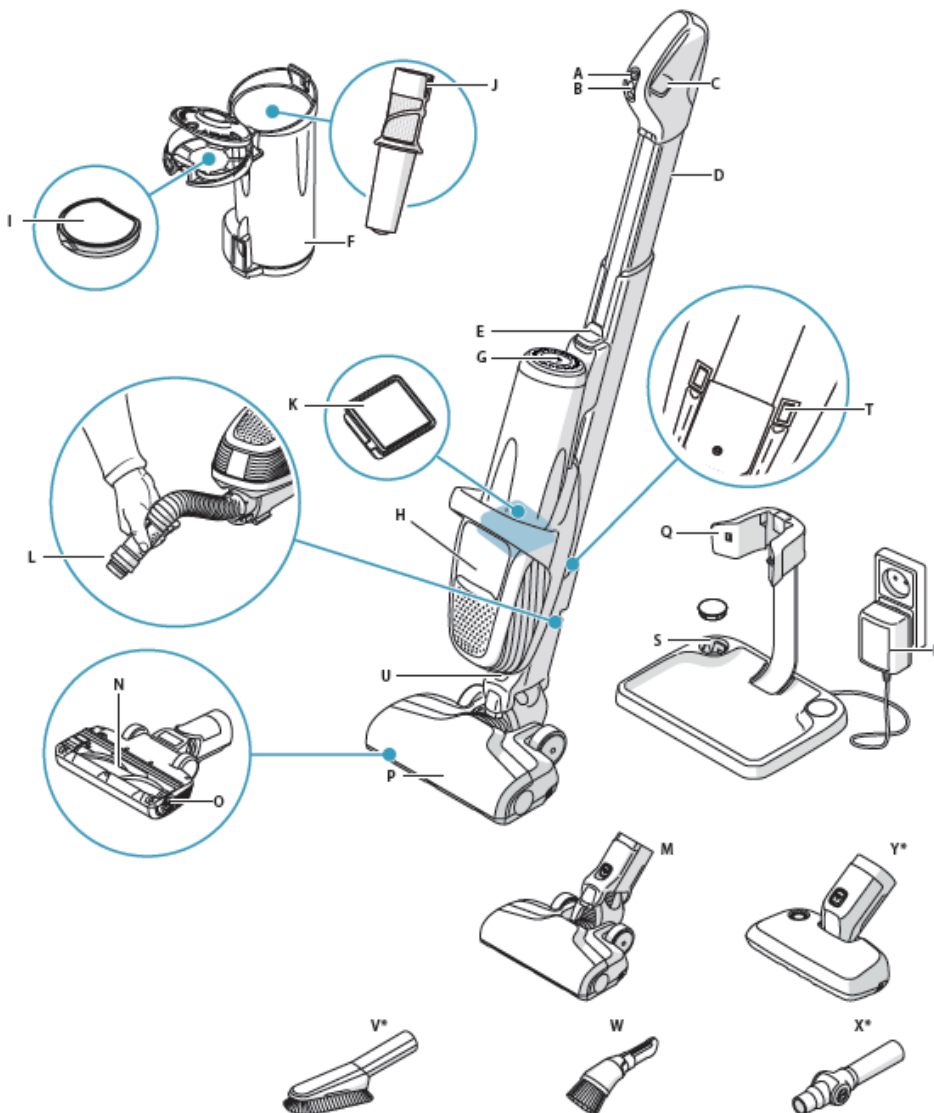
PURE F9
battery stick cleaner

Factory:
HUV

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1 General description

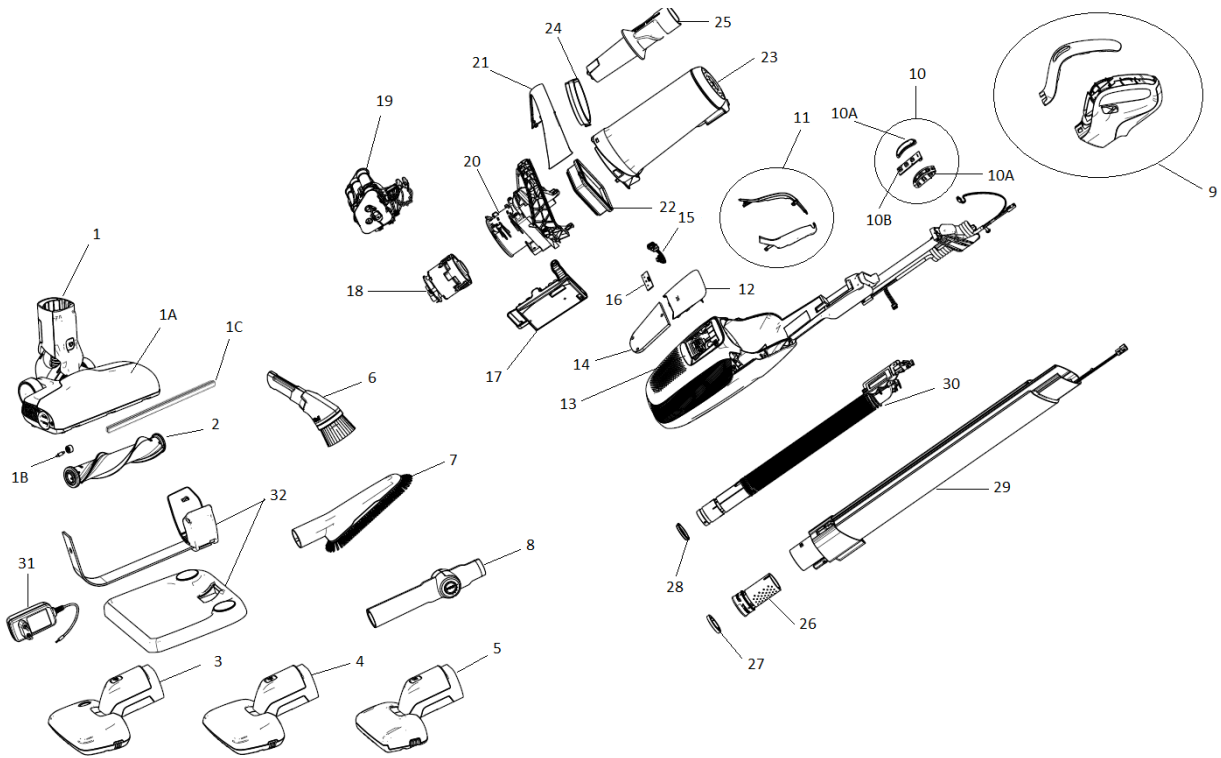


DESCRIPTION OF PUREF9®

- | | |
|---|--|
| A. ON/OFF button | M. Main nozzle |
| B. Power regulation button | N. Brush roll |
| C. Button to extend telescopic tube | O. Release button to remove brush roll |
| D. Telescopic tube | P. Nozzle front lights |
| E. Release button to unlock main unit from upper position | Q. Charging station |
| F. Dust container | R. Charging adapter |
| G. Release button, dust container | S. Slot for accessory storage |
| H. Charging indicator | T. Charging connectors |
| I. Multilayer filter | U. Release button, floor nozzle |
| J. Cyclone | V. Delicate dusting brush* |
| K. Emission Filter | W. Delicate brush |
| L. Pull out hose | X. Angled tube* |
| | Y. Bed nozzle* |

1.1 Exploded view

Available spare parts:



Pos	Denomination	Pos	Denomination
1	Main nozzle	15	Service DCPM wire
1A	Lid nozzle	16	PCB led
1B	Front wheel + shaft	17	Main PCB
1C	Plush strip	18	Motor
2	Roller brush	19	Battery pack
3	Bed nozzle with UV	20	Motor hose
4	Bed nozzle without UV	21	Handle body
5	Pet nozzle	22	HEPA filter
6	Multi 3 in 1 nozzle	23	Dust container
7	Delicate nozzle	24	Filter dust container
8	Angle tube	25	Filter mesh
9	Handle	26	Hose connection (nozzle)
10	Complete switch	27	Sealing hose connection
10A	Knob handle	28	Fixing ring hose connection
10B	PCB handle	29	Tube
11	Lid side	30	Hose
12	Display	31	Charger
13	Lid decoration	32	Charging stand

2 ACCESSABILITY

Please check doc: 599821259, where you can find disassembling process that step by step will allow the Technician to completely dismantle the vacuum cleaner.

ATTENTION:

Boards and electronic devices could be damaged by electrostatic discharges. Don't touch any components without any ESD protection.

Necessary tools: flat head screw driver, TORX 20 type screw driver.

Battery scrapping steps:

1. Remove the insulation plate from the battery pack.
2. Remove wires and contact plates from cells. Omitted metal parts may damage insulation!
3. Remove plastic parts from both end of the cells.
4. Insulate both poles of the cells.
5. Stick together the cells by glue-tape (max. 10 cells).
6. Insulate both poles of cells by glue tape. **Safety: without it short circuit may occur!**
7. Put insulated cells into a plastic bag and close it by glue tape.
8. Collect closed plastic bags in plastic barrel. **Safety: Forbidden to use metal barrels (short circuit)! Do not mix Li-ion cells and NiMh cells!**



3 Levels of electronic control

Shiva is a Premium product. It have a BLDC-motor, high capacity cells, accessory nozzles and outstanding cleaning performance (for a battery product). There is three technical level.

Level 1 LOW:

- Voltage: 32.4V, 9cell
- Cell capacity: 2100mAh
- Recharge time: 6 hour
- Charge indication: 4 step LED
- Power levels: high mid low
- Main Motor type: brushless. Nozzle motors: DC motor

Level 2 HIGH:

- Voltage: 36V, 10cell
- Cell capacity: 2500mAh
- Recharge time: 6 hour
- Charge indication: 4 step LED
- Power levels: high mid low
- Main Motor type: brushless. Nozzle motors: DC motor

Level 3 HIGH AUTO:

- Voltage: 36V, 10cell
- Cell capacity: 2500mAh
- Recharge time: 6 hour
- Charge indication: 4 step LED
- Power levels: high mid low AUTO
- Main Motor type: brushless. Nozzle motors: DC motor



3.1.1 Basic Software functionality

- ON/OFF button.
- When started by pressing On/off button, the cleaner runs in Middle mode.
- Using Power Regulation Button, the Power can be increased to Max mode or decrease to Min Mode.
- Maximum mode has highest power level and Min mode has lowest power level.
- During running mode, the 10-Nozzle Front LEDs always turn ON. When remove and attach again the main nozzle need to start the unit again otherwise the nozzle will not switch on.
- The Running indicator shows the battery capacity during discharge:
 - Three LEDs on the display.
- The Running indicator shows the charging state during charging:
 - Three LEDs on the display.

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3.1.2 Motor power regulation and LED-functionality

1. Press the On/Off button to start the Cleaner:

- Both Motor should Turn ON in Middle Mode.
- Nozzle Front LED Turn ON.
- Running LED light should turn ON depending upon battery capacity.
 - All three LED are solid Turn On i.e. battery has full capacity (75-100% capacity).
 - Two LED are solid Turn On i.e. battery has still good capacity (50-75% capacity).
 - One LED are Solid Turn ON, i.e. battery is close to empty (25-50% capacity).
 - Motor running and the left LEDs start blinking i.e. battery is close to empty (<25%).
 - Motor stop and the left LEDs start blinking i.e. battery is empty. Need to charge.

2. Power Regulation Button:

- Press On/off switch to start cleaner.
- Press the Plus power regulation button, cleaner running mode change from Middle to Max mode.
- Press the Minus power regulation button, cleaner running mode change to lower mode.
- Press the On/Off button to Turn Off the cleaner.
- AUTO version: Press "Auto" button, and the product will run on auto setting. LED indicating "Auto" on the main body. Press the button for Power regulation button again and it will resume the last power setting.

3.1.3 Charging and LED-functionality

3. Unit is kept at charging stand and connect with correct adapter as recommended.

- Battery starts charging and LED starts indication as below:
 - All the nozzle LEDs light up twice for one second when put the unit into charging stand.
 - During CC mode, the 3 charging LEDs shall be in running state as shown in the diagram below:



As indicated in diagram above, following steps will be repeated every 4 seconds:

- For 1st second, LED1 shall be ON and LED2 and LED3 shall be OFF.
 - For 2nd second, LED1 and LED2 shall be ON and LED3 shall be OFF.
 - For 3rd second, all 3 LEDs shall be ON.
 - For 4th second, all 3 LEDs shall be OFF.
- Then the cycle repeats continuously till the unit charge up fully.

- All three LED start to light up at every 10sec, i.e. battery is fully charged and cleaner is in standby mode, which consumes very low power from adapter.

- Charger

The adapter output is limited to 35V for both 9Cells and 10Cells to charge the system to full voltage the voltage is boost to suitable voltage.

A charging stand will be used to connect the wall adapter to the main unit.

For both 10cell and 9cell version the adapter have 35V/500mA.

Charging time maximum 6 hours.

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- **Accessories**

The active nozzle is exchangeable between Floor, Bed and Pet nozzles. Several non-active versions will be available too. UVC LED is included in the BED nozzle.



-Main nozzle



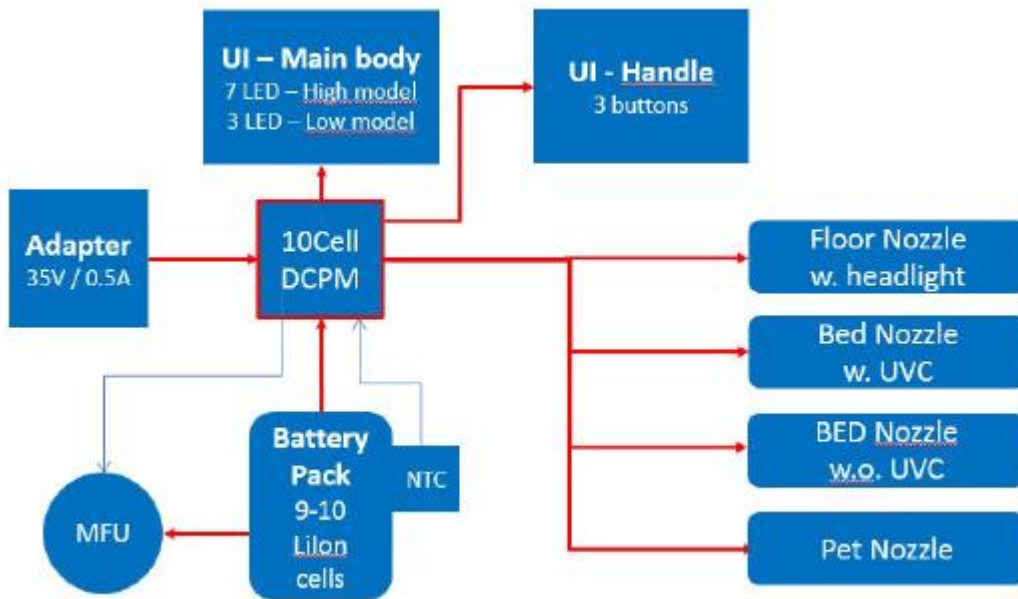
-Bed nozzle



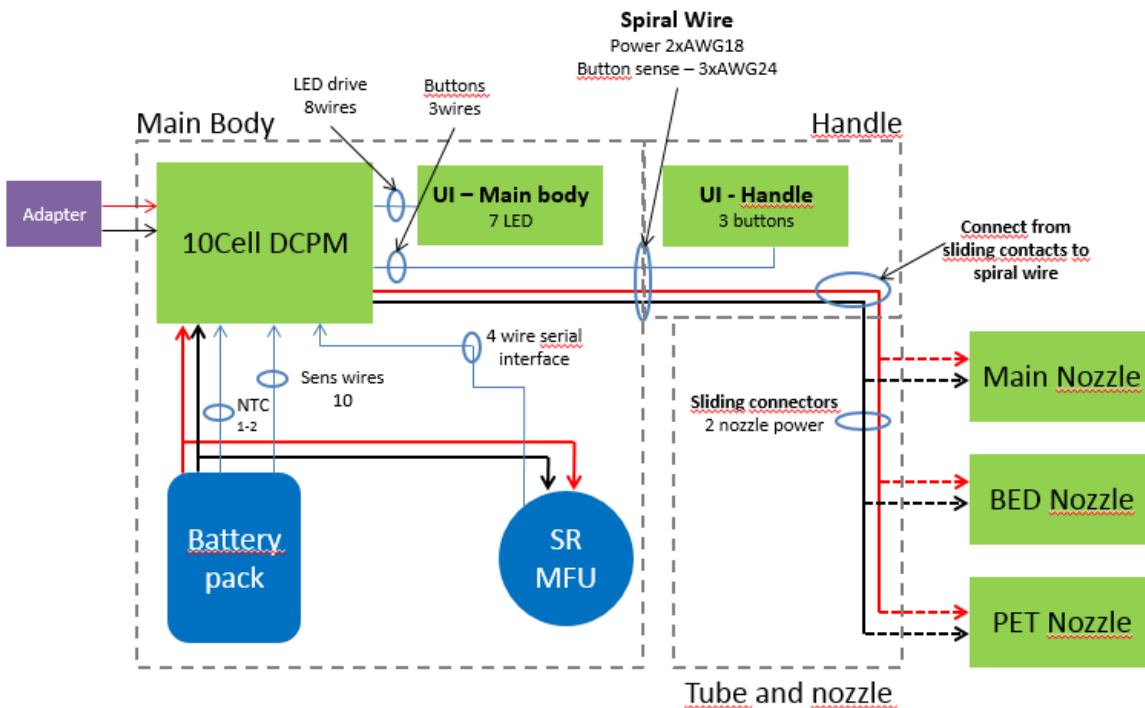
-UV Bed nozzle -Pet nozzle

During running mode when deattach or change the nozzles need to start the unit again, otherwise the nozzle will doesn't work.

3.1.4 Electronic system structure



Electrical connections



4 Troubleshooting

Problem	Checks
Discharging Status	
Cleaner doesn't start, no light indication	<ul style="list-style-type: none"> - Battery pack temperature is more than 65 ° Celsius <ul style="list-style-type: none"> - Allow the unit to cool down for some time and then restarts - Battery pack temperature is below 5 degree Celsius <ul style="list-style-type: none"> - The cleaner is not supposed to run below 5 ° Celsius - If not, open the unit and check all cables are properly connected. - Check battery pack voltage level - Check the on/off switch PCB in the handle
During start-up, motor starts and stops in few secs	<ul style="list-style-type: none"> - Check if there is any Obstacle in Brush roll, remove it and try again. - Remove the nozzle and try to start the unit. - If not, open the unit and check all cables are properly connected. - Check that Fan motor rotor is rotating. Check fan motor is connected properly.
During start-up, motor starts and stops in few secs / doesn't start at all and LED's starts flashing	<ul style="list-style-type: none"> - This indicates an under voltage condition of battery pack where the battery pack is not charged enough to run the motors. - Put the unit on the charging stand and let it charge for few hours then retry. Battery temperature level should be between 36° Celsius and 5° Celsius. The charging function working only between this temperature range. - If even after charging for few hours the unit exhibits same behaviour, it indicates that battery pack has gone bad and needs a replacement.
Charging Status	
While the unit is put on charging stand and none of the LED's turn on	<ul style="list-style-type: none"> - Check the unit is in charging position. The connector from the back of the main unit are connected to the charging stand. - Check if the adaptor is present, powered on and is physically connected to the charging stand. - If adaptor is present check the contacts between cleaner mechanical and charging stand mechanical. - If none of the above works there is some problem with the charging adaptor and it is out of range of normal operating voltage. Connect another charging adaptor and try again. If it works with the new charging adaptor replace the old adaptor with new one. <hr/> <ul style="list-style-type: none"> - This could be also because of communication failure between DCPM and other components. <ul style="list-style-type: none"> - Check the mechanical contacts of battery pack (battery pack – and + wire, sense wire, and the temperature sensor wire) - Check that the main nozzle is connected well with the appliance. - This could be because of over temperature condition during charging which persisted for more than 6 Hrs. <hr/> <ul style="list-style-type: none"> - Cells too low to charge (not able to review in pre charging states, may be some of the cells have gone bad) <ul style="list-style-type: none"> - Try replacing another battery pack and if it works fine further investigation will be required for the battery pack - Short circuit between Cells <ul style="list-style-type: none"> - Try replacing another battery pack and if it works fine further investigation will be required for the battery pack - Other reasons like too long CC time <ul style="list-style-type: none"> - Try replacing another battery pack and if it works fine further investigation will be required for the battery pack

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Other failure phenomenon	
Cleaner doesn't start; no light indication	<ul style="list-style-type: none"> - Investigate if the plastic knob reaches the ON/OFF switch. - Check contact between DCPM and handle wire. - Change switch PCB in the handle.
Not possible to change power level	<ul style="list-style-type: none"> - Investigate if the plastic knob reaches the power regulation switch. - Check the connection of the wires at handle PCB. - Check contact between DCPM and handle wire. - Change switch PCB in the handle.
Short running time	<p>Check battery pack voltage. In case of 9cell unit if it's under 22,5V need to change battery pack. In case of 10cell unit if it's under 25V need to change battery pack. If the pack voltage is over this limit need to charge up fully with the appliance, then check running time.</p> <ul style="list-style-type: none"> - Check the all wire connections and contacts. - Change battery pack.
Low suction	<ul style="list-style-type: none"> - Check the dustbin or filter if replacement is needed. - Check nozzle bellow and hose if it's blocked need to clean out.
Nozzle motor doesn't start	<ul style="list-style-type: none"> - Check wiring from nozzle to DCPM. There is a connector under handle cover. Check it as well. Check the connector in the telescopic tube. - Check brush roll, is there any obstacle on it. - Change nozzle. - If every connection is fine and the unit didn't work with another nozzle, then change the DCPM.