
Ergorapido
(12V)
NiMH Battery

Service Bulletin

Quality
Department
Europe

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1. General overview

1.1 Ergorapido 2in1 12V_(NiMH).

- This is the first generation, with **NiMH** (Nickel Metal Hydride) batteries (10 pcs of 1,2 V cells).
- Running time is 20 min in low power and 12 min. in high power.
- Charging Time is minimum 16 hours.



1.2 Exploded view



EV ErgoR NiMH
BRC.pdf

1.3 Available models in EU

Model denomination	Product Number Code	Battery cell type	Model denomination	Product Number Code	Battery cell type
AG811	900 055 110	NiMH	ZB271BF	900 055 088	NiMH
AG812	900 164 150	NiMH	ZB271GF	900 055 085	NiMH
AG813	900 164 350	NiMH	ZB271TF	900 055 087	NiMH
AG815	900 165 512	NiMH	ZB2811	900 055 082	NiMH
AG820	900 165 518	NiMH	ZB2812	900 164 152	NiMH
AG821	900 165 520	NiMH	ZB2813	900 164 154	NiMH
AG901	900 165 577	NiMH	ZB2815	900 164 366	NiMH
AG901	900 165 753	NiMH	ZB2820	900 165 514	NiMH
AG901	900 272 249	NiMH	ZB2821	900 165 516	NiMH
AG901G	900 272 131	NiMH	ZB2901	900 165 569	NiMH
AG902	900 165 579	NiMH	ZB2901G	900 272 003	NiMH
AG902	900 165 755	NiMH	ZB2902	900 165 571	NiMH
AG903	900 165 581	NiMH	ZB2903	900 165 573	NiMH
AG903	900 165 757	NiMH	ZB2905	900 165 589	NiMH
AG905	900 165 593	NiMH	ZB2906	900 165 767	NiMH
AG905	900 165 759	NiMH	ZB2907R	900 165 995	NiMH
AG906	900 165 769	NiMH	ZB2908W	900 165 997	NiMH
AG906	900 165 811	NiMH	ZB2923	900 272 065	NiMH
AG907R	900 165 999	NiMH	ZB2924	900 272 067	NiMH
AG907R	900 272 017	NiMH	ZB2925	900 272 153	NiMH
AG908W	900 272 001	NiMH			
AG908W	900 272 009	NiMH			
AG909	900 272 073	NiMH			
AG910	900 272 075	NiMH			
AG925	900 272 155	NiMH			
AG925	900 272 251	NiMH			

For further information please see attached file:



Ergorapido2in1 in EU.xlsx

2. Assembly process.

2.1 Nozzle

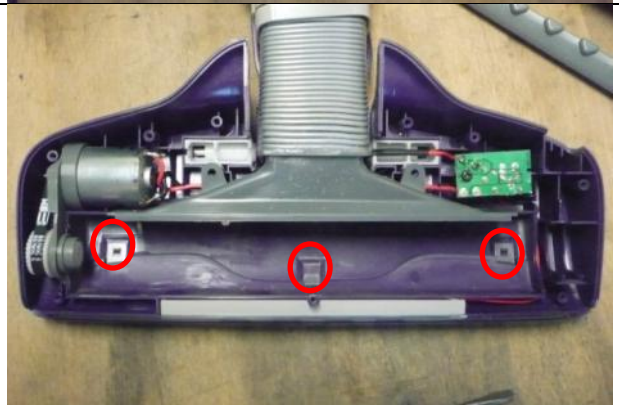
Step 1.
Push the *release button* to remove the brush




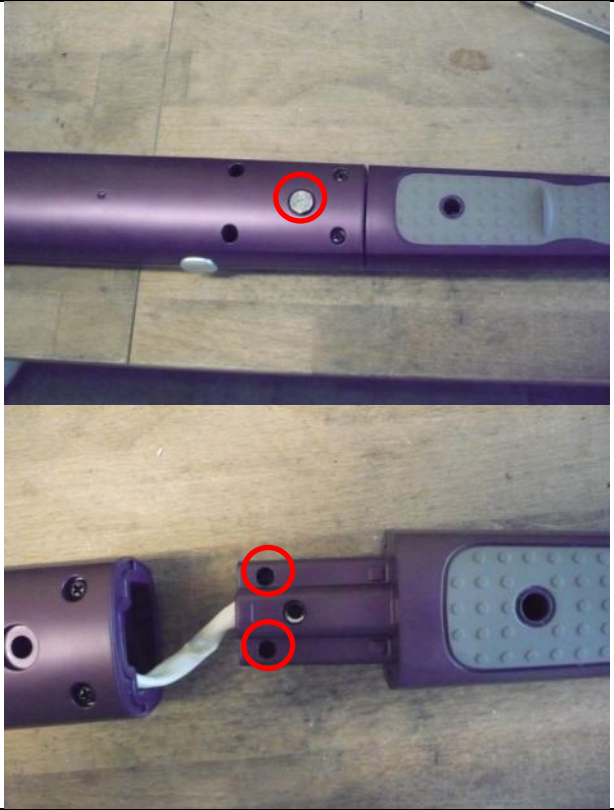
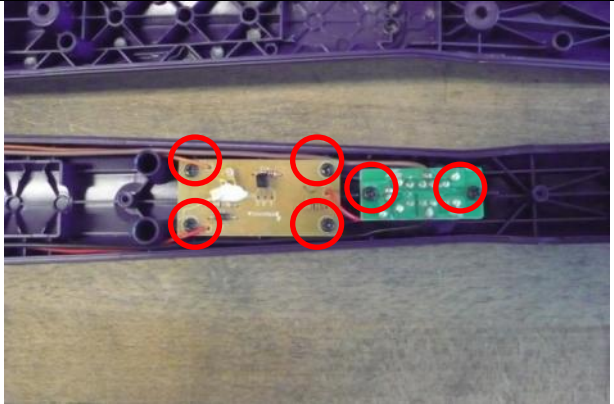
Step 2,
Remove the *wheels* (4 pcs) in order to reach to the *screws* placed under the wheels. Then remove all the screws. After that you can remove the *cover lower nozzle*.



Step 3.
After you removed the *cover lower nozzle*, possible to remove the *hose*, and the *motor*.
If you want to remove the *L.E.D* as well , you have to remove the *nozzle front window* before. Unlock the hooks of the window (3 pcs).



2.2 Upper Stick

<p>Step 1. Remove the <i>rubber inserts</i> (2pcs), and the screws (4 pcs).</p>	
<p>Step 2. Remove the rest of the screws.</p>	
<p>Step 3. You can take apart the upper <i>stick</i>. After it the <i>PCBA</i> and the <i>switch</i> parts are visible. Remove the screws which are fixed the boards.</p>	

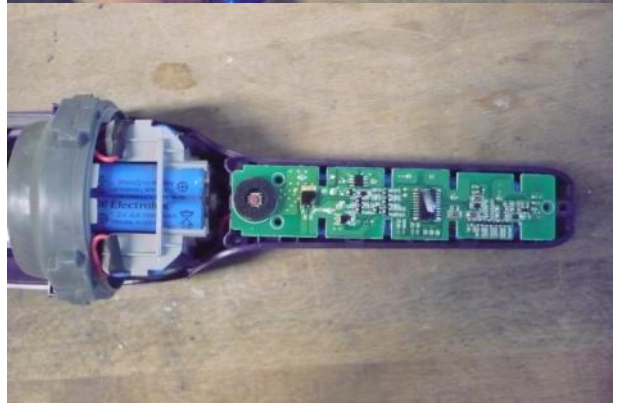
2.3 Hand held unit and the PCBA disassembly & assembly (spare pare kit)

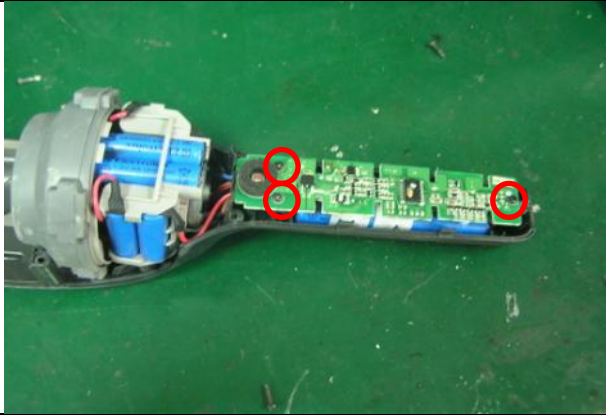
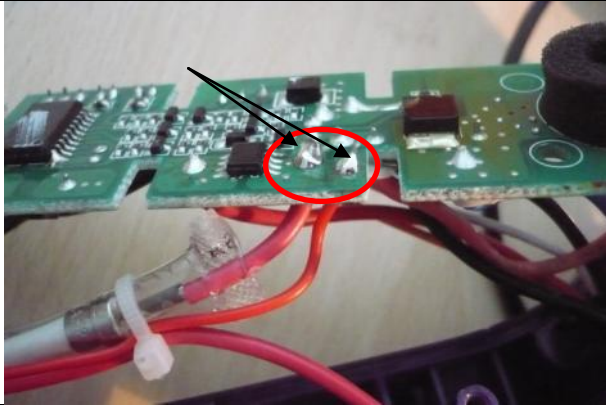
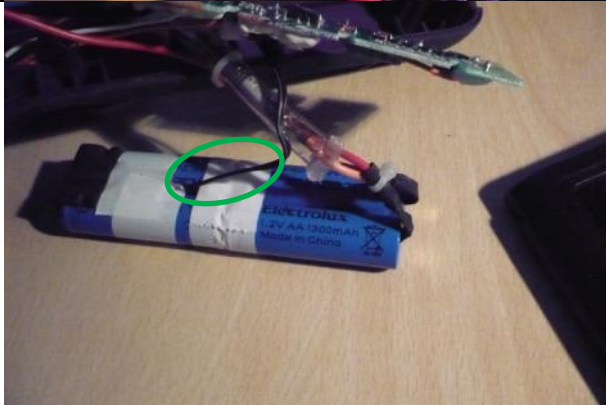
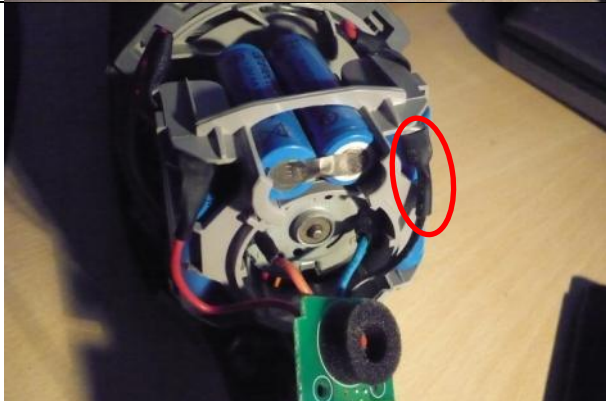
2.3.1 Disassembly

Step 1.
Remove the *Dust container* to avoid its damage and the dust flow.

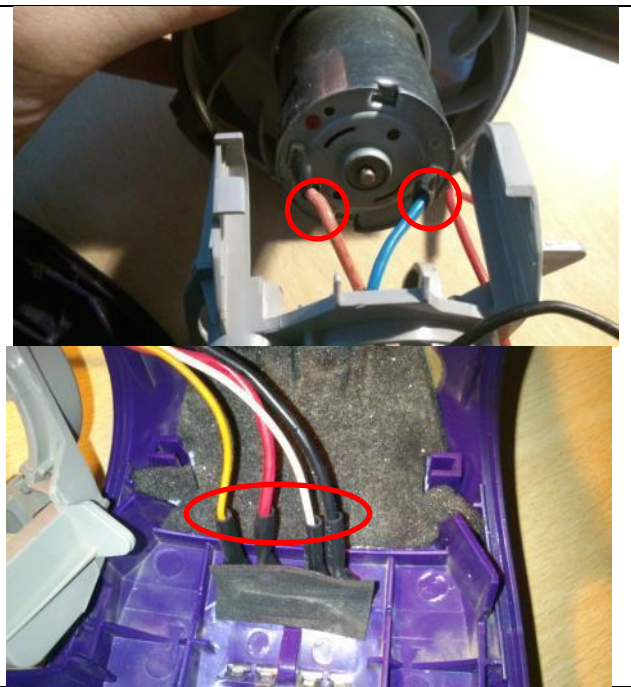


Step 2.
Remove the screws (5 pcs). If it is necessary, use a screwdriver or another hand tool at the end of the handle (see picture) to separate the plastic parts.



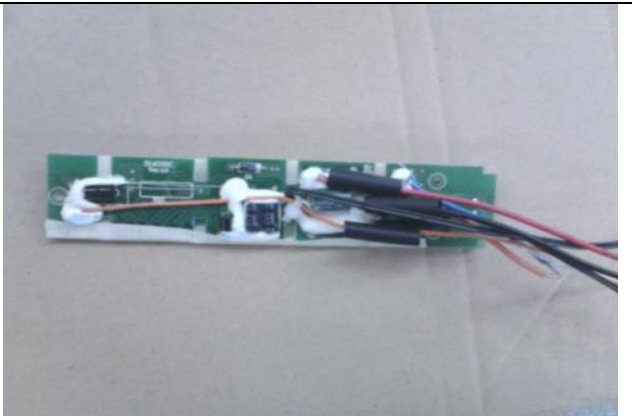
<p>Step 3. Dismantle the three screws in red circle</p>	
<p>Step 4. Take out the two wires with soldering iron.</p>	
<p>Step 5. Tear the white sticker and take out the black wire. DO NOT cut the black wire (thermometer), just pull out from the tape!</p>	
<p>Step 6. Disconnect the connections black wire (red circle).</p>	

Step 7.
Disconnect the rest of the connections 6 pcs (red circle). The PCBA is completely separated.

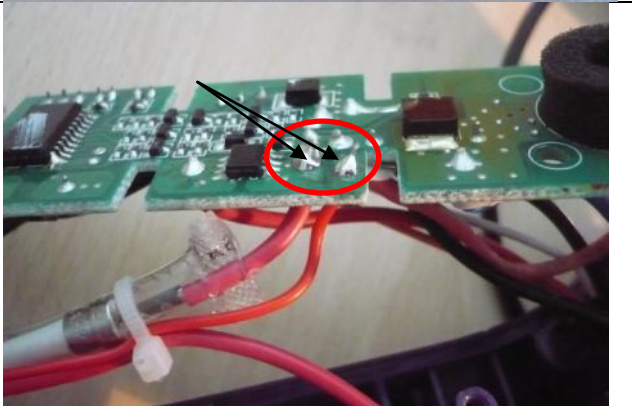


2.3.2 Assembly

Separate PCBA spare part



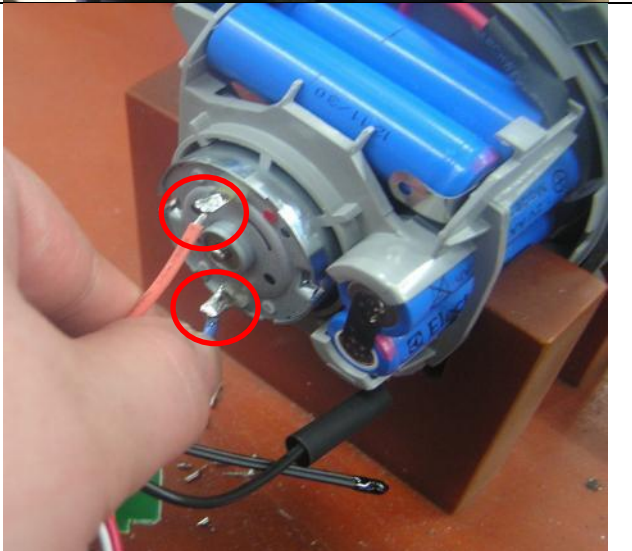
Step 1.
Welding the two red wires as the photo shows



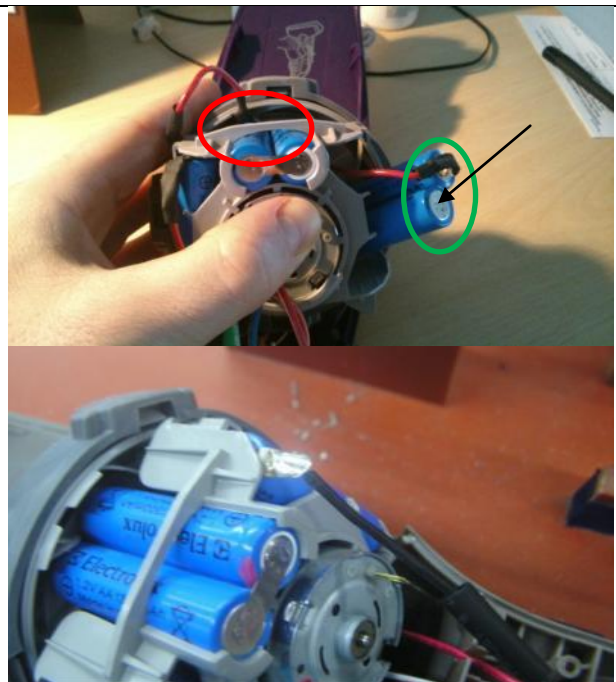
Step 2.
Welding the 4 wires, pay attention to the right colour sequence. (Orange, red, white, black)



Step 3.
Welding the orange and blue wires as the photo shows



Step 4.
Remove the right pair of cells from the battery holder, and welding the black wire back to the cell.



Step 5.
Put the black wire (Thermometer) of PCBA among the battery as it is on below photos.



Step 6.
Paste on the EVA to ensure its fixation.



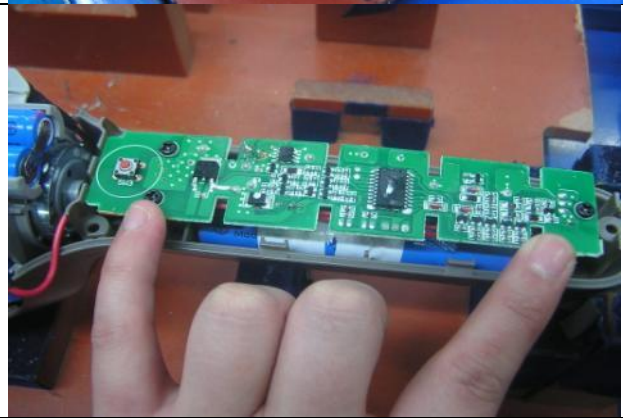
Step 7.
Tie the tape as on the photo



Step 8.
Well placed the 4 cells



Step 9.
Strike 3ps of screw



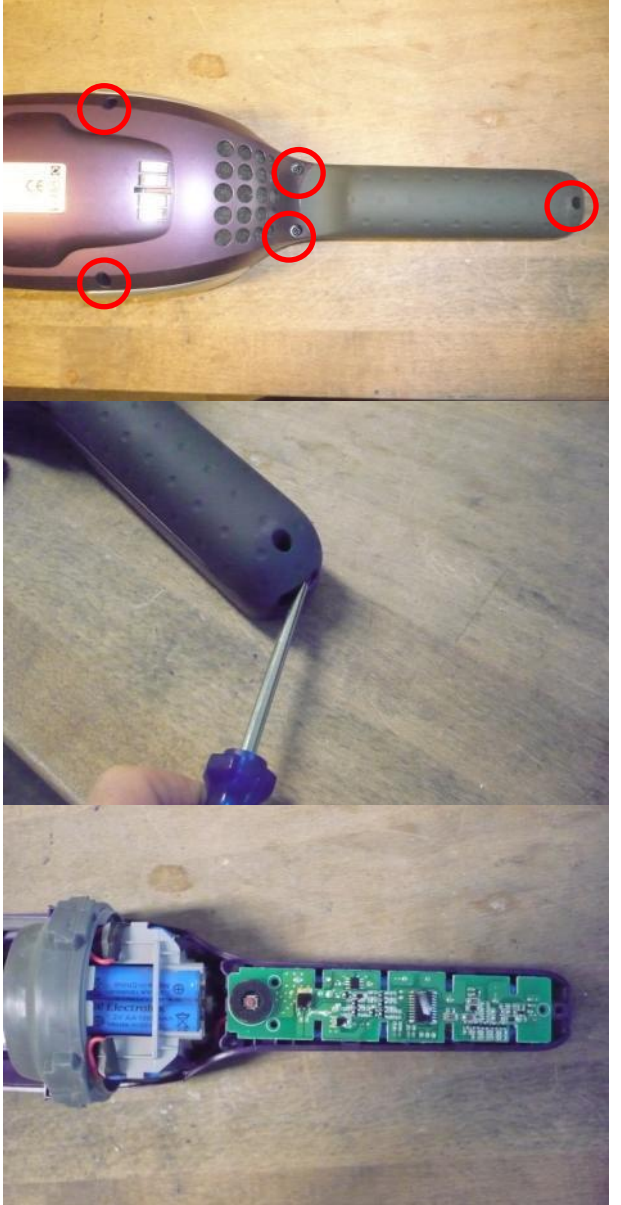
**2.4 Hand held unit and the batteries, disassembly & assembly
(spare pare battery kit)**


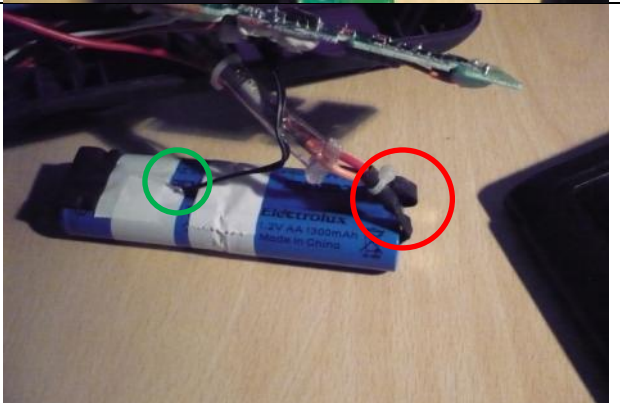
2.4.1 Disassembly

Step 1.
Remove the *Dust container* to avoid its damage and the dust flow.



Step 2.
Remove the screws (5 pcs). If it is necessary, use a screwdriver or another hand tool at the end of the handle (see picture), to separate the plastic parts.



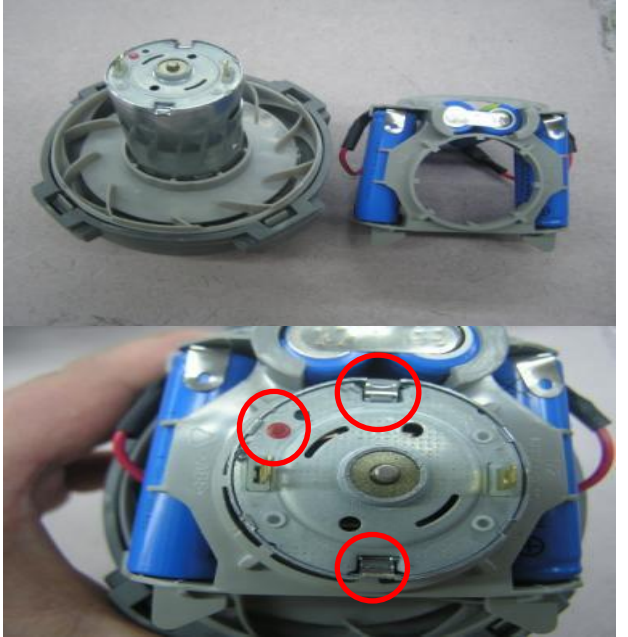


<p>Step 3. Disconnect the connections of the cells (red circle). After the batteries (6pcs) are removable from the <i>battery holder</i>.</p> <p>If it is necessary the <i>battery holder</i> can be removable after when the connection (green circle) are disconnected.</p>	 A close-up photograph of the battery holder assembly. Six blue AA batteries are inserted into the holder. Two red circles highlight the electrical connections between the batteries and the holder. Two green circles highlight the connection points on the green PCB where the holder is attached.
<p>Step 4. There are further cells (4pcs) under the PCBA. Disconnect the connections (red circle) and remove the black wire (green circle). DO NOT cut the black wire (thermometer), just pull out from the tape!</p>	 A photograph of the battery pack, which is a blue and white tape-wrapped unit. Two red circles highlight the electrical connections on the right side of the pack. One green circle highlights a black wire on the left side of the pack.

2.4.2 Assembly

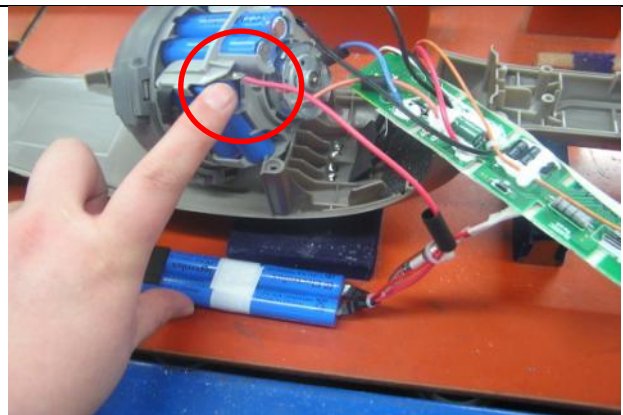
Step 1.
Assemble the battery *assy* as the pictures shows

Note:
During the battery *assy* preparation, please pay special attention to avoid battery short circuit.

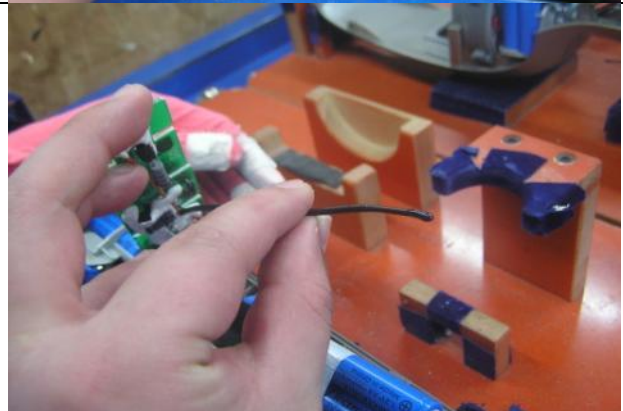


<p>Step 2. Prepare the <i>motor</i> and <i>battery holder assy.</i> Assemble the battery holder assy into the motor. Pay attention to the <i>position</i> in red circle</p>	
<p>Step 3. Assemble the battery and motor into the lower cover. Joining the black wire of PCBA (hand held unit) as the red circle.</p>	
<p>Step 4. Welding the orange and blue wires as the photo shows</p>	

Step 5.
Weld the red wire of another battery assy in the terminal



Step 6.
Put the black wire (*Thermometer*) of PCBA among the battery as on the photo.



Step 7.
Paste the wire to ensure its fixation. (use a foam, as in the picture)



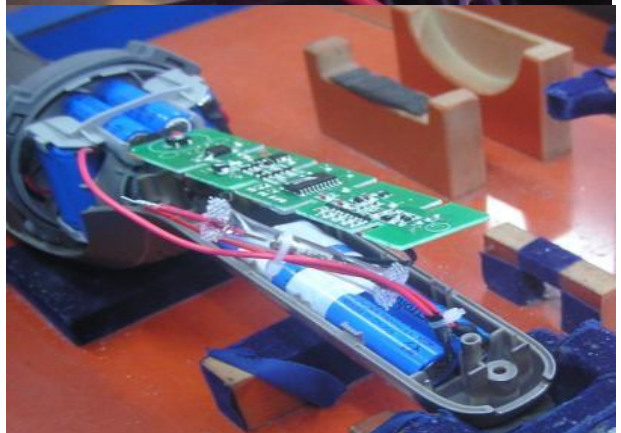
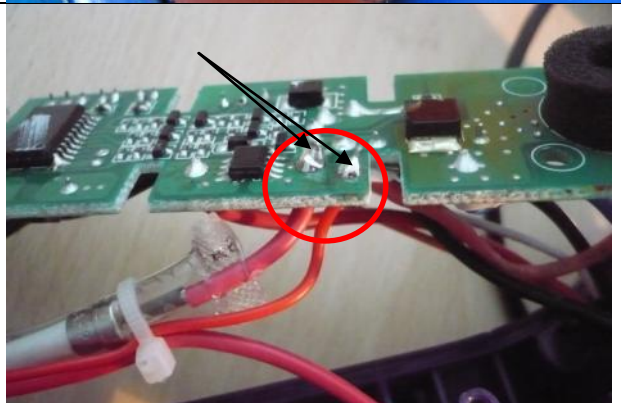
Step 8.
Tie the tape as the photo shows



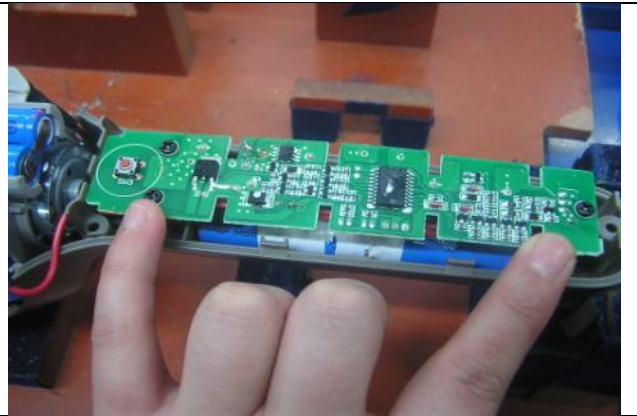
Step 9.
Well placed the 4 cells



Step 10.
Welding those two red wires!



Step 11.
Strike 3ps of screws



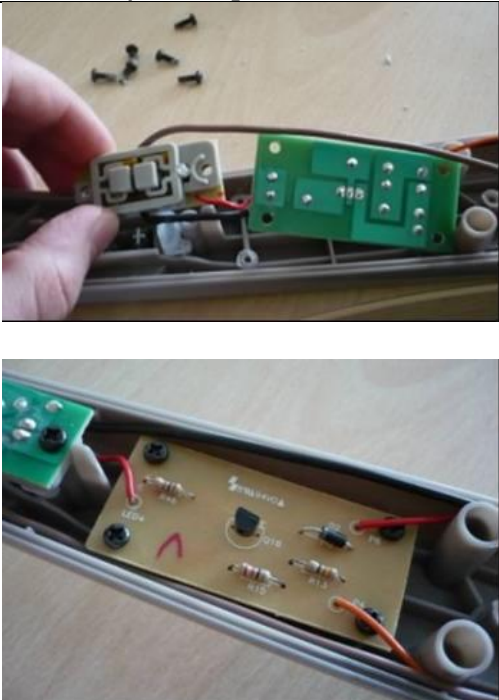
3. Failure analyse in general

- Please make sure that the cleaner is fully charged.
- When the charging process done: 1 blue L.E.D are 3s ON (flashing)/57s OFF.
- Please always check the price level before ordering (complete hand held unit vs. separate component like batteries or PCBA) from economical point of view.

3.1 Switch failure

The vacuum cleaner can not be switched on by the handle but the single handheld unit operates well.

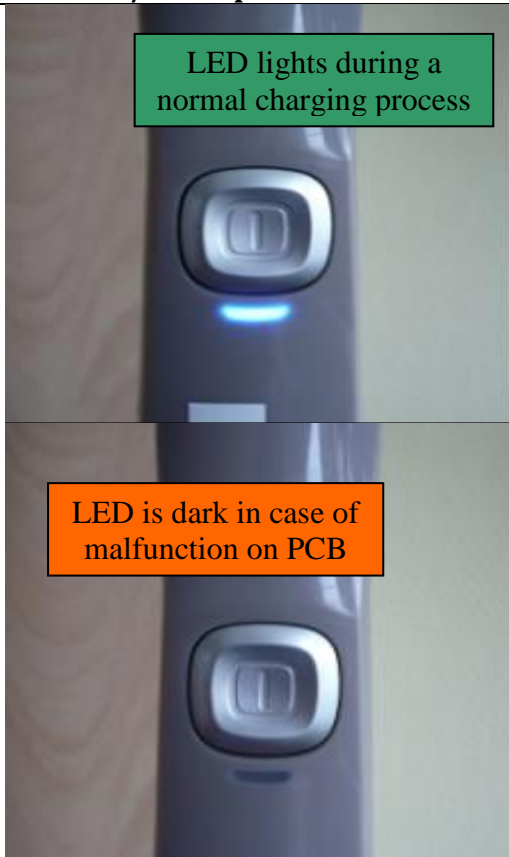

Coding instructions

To do	Correct coding	Pictures / examples
Replace the main switch electronics on handle part.	No operation : 608 Main Switch 17 defect code: Will not switch on	 The top photograph shows a hand holding a white plastic switch component with a metal contact, positioned over a green printed circuit board (PCBA) with several electronic components. The bottom photograph shows a close-up of the main switch electronics board, which is a yellowish-brown PCB populated with various components including resistors, capacitors, and integrated circuits, all mounted within a metal housing.

3.2 PCB Failures

Handheld unit cannot be switched on; the LED on handle remains dark when charging


Coding instructions

To do	Correct coding	Pictures / examples
Replace the complete handheld unit	No operation : 573 Circuit board 31 defect code: Software fault (hand held PCBA)	
After the HH unit is replaced and LED still does not light also replace the small PC boards on handle part (<i>see switch failure</i>) In this case the malfunction occurred on the LED.	No operation : 503 Indicator lamp / LED 17 defect code: Will not switch on	

3.3 Adapter failure

No charging because of the error of the adaptor/Charging stand

Coding instructions

To do	Correct coding	Pictures / examples
<p>Charger Adaptor: Plug the charger and measure it with the Digital Multimeter.(Direct voltage) If the value is 20-22V DC the charger working well. If not, please use the following code:</p>	<p>Wrong charger: 571 Transformer 85 defect code: Does not charge</p>	
<p>Charging Stand : If the charger is working well, check the voltage value of the contact pin of the Stand. It must be the same as you measure on the charger (20-22 V DC), no extra electronics in between the charger and the stand</p>	<p>Wrong charging stand: 574 charging stand 85 defect code: Does not charge</p>	
<p>If it is some damages visible on the cord then use the following code:</p>	<p>Transformer cord: 575 21 defect code: Mechanical fault</p>	

3.4 Low running time

Measuring:

- Always check if the cleaner was used as the IFU says
- The unit is fully charged (min. 16 hrs)
- Measuring in high speed
- Brush roll is in the air or on the hard floor (10 min first year /8 min 2 year)
- The filters are clean

Coding instructions

To do	Correct coding	Pictures / examples
Put the cleaner on the charger, charged fully and check whether the product can be operated	Component code 572 - Battery set Defect code - 55 Not meeting the customers expectations	

3.5 No failure found

Coding instructions

To do	Correct coding	Pictures / examples
If no any electrical/mechanical fault found after studying the cleaner, then use following coding	Product: 901 Please use correct defect code to describe problem details, such as 53 (Customer misuse), 54 (Instructions missing or unclear), 55 (Not meeting expectations), 57 (No fault found), 16 (Smell)	