

Test Report

Report No.: GNBZ200515166EN

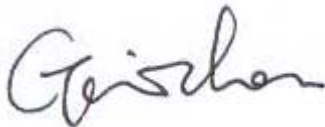
Date: 2020-06-30

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Applicant : Wenzhou FANKE Electrical Appliance Co., Ltd.
Address : No.4855 Binhai 3rd Road, Economic And Technological Development Zone,
: Wenzhou, Zhejiang, China
Sample Name : Electric Clipper
Tested Model : FK-8688T
Sample Receiving date : 2020-05-15
Test period : 2020-05-15 – 2020-06-28
Test Requirement : The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment, RoHS Directive 2011/65/EU and its amendment Directive (EU) 2015/863.
Test Method : Please refer to next page(s).
Test result : Please refer to next page(s).
Conclusion : Based on the verification results of the submitted sample(s), the results of Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(CrVI), Polybrominated biphenyls(PBBs), Polybrominated diphenyl ethers(PBDEs), Dibutyl phthalate(DBP), Butyl benzyl phthalate(BBP), Di-2-ethylhexyl phthalate(DEHP) and Di-iso-butyl phthalate(DIBP) content comply with the requirements as set by RoHS Directive 2011/65/EU and its amendment Directive (EU) 2015/863.
Note : The test results are related only to the tested items.

ORIGINAL

Authorized signature



Lab Manager: Gavin Zhou



2020-06-30

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A. Pb, Cd, Cr(VI), Hg, PBBs&PBDEs**Test Method:**

1. Disassembly, disjointment and mechanical sample preparation
 - Ref. to IEC 62321-2:2013, Disassembly, disjointment and mechanical sample preparation.
2. With reference to IEC 62321-1:2013, tests were performed for the samples indicated by the photos in this report.
 - (1) Screening – Lead, mercury, cadmium, total chromium and total bromine
 - Ref. to IEC 62321-3-1:2013, Screening for Lead, mercury, cadmium, total chromium and total bromine by X-ray fluorescence spectrometry.
 - (2) Wet chemical test method
 - a. Total Lead, Cadmium, Chromium and Mercury content
 - Ref. to IEC 62321-4:2013+A1:2017, determination of Mercury in polymers, metals and electronics by ICP-OES.
 - Ref. to IEC 62321-5:2013, determination of Cadmium, lead and chromium in polymers and electronics and cadmium and lead in metals by ICP-OES.
 - b. Chromium (VI) content
 - For Colourless and coloured corrosion-protected coatings on metals, Ref. to IEC 62321-7-1:2015, determination of presence of hexavalent chromium (Cr(VI)) in colourless and coloured corrosion-protected coatings on metals by the colorimetric method.
 - For polymers and electronics, Ref. to IEC 62321-7-2:2017, determination of hexavalent chromium (Cr(VI)) in polymers and electronics by the colorimetric method.
 - c. PBBs, PBDEs
 - Ref. to IEC 62321-6:2015, determination of polybrominated biphenyls and polybrominated diphenyl ethers in polymers by gas chromatography -mass spectrometry (GC-MS).

Test result(s):

Part No.	Part Description	Results of EDXRF					Chemical confirmation results (mg/kg)	Conclusion
		Pb	Cd	Hg	Cr	Br		
1	Silvery plating	BL	BL	BL	BL	---	---	Pass
2	Plastic (substrate)	BL	BL	BL	BL	BL	---	Pass
3	Metal (terminal)	23051 (OL)	28 (BL)	BL	BL	---	Pb: EX ^(^5)	Pass
4	Black plastic shell	BL	BL	BL	BL	BL	---	Pass
5	White foam	BL	BL	BL	BL	BL	---	Pass
6	Black plastic	BL	BL	BL	BL	BL	---	Pass
7	White silica gel	BL	BL	BL	BL	BL	---	Pass
8	Silvery plating	BL	BL	BL	BL	---	---	Pass
9	Black plastic	BL	BL	BL	BL	BL	---	Pass
10	White plastic	BL	BL	BL	BL	BL	---	Pass
11	Silvery plating	BL	BL	BL	BL	---	---	Pass
12	Black silica gel	BL	BL	BL	BL	BL	---	Pass
13	Silvery metal	BL	BL	BL	BL	---	---	Pass
14	Metal (screw)	BL	BL	BL	IN	---	Cr(VI): Negative	Pass
15	Metal (spring)	BL	BL	BL	IN	---	Cr(VI): Negative	Pass
16	Black plastic	BL	BL	BL	BL	BL	---	Pass
17	Black plastic	BL	BL	BL	BL	BL	---	Pass
18	Metal (spring)	BL	BL	BL	IN	---	Cr(VI): Negative	Pass
19	Silvery metal	BL	BL	BL	IN	---	Cr(VI): Negative	Pass
20	Silvery metal	BL	BL	BL	IN	---	Cr(VI): Negative	Pass
21	Silvery metal	BL	BL	BL	IN	---	Cr(VI): Negative	Pass
22	Blue plastic film	BL	BL	BL	BL	BL	---	Pass
23	Yellow tape	BL	BL	BL	BL	BL	---	Pass
24	White plastic	BL	BL	BL	BL	BL	---	Pass
25	Silvery metal	BL	BL	BL	BL	---	---	Pass
26	Soldering tin	332 (BL)	BL	BL	BL	---	---	Pass
27	SMD chip	BL	BL	BL	BL	BL	---	Pass
28	Diode	BL	BL	BL	BL	BL	---	Pass
29	Display tube	BL	BL	BL	BL	IN	PBBs: N.D. PBDEs: N.D.	Pass
30	SMD resistor	BL	BL	BL	BL	BL	---	Pass
31	SMD capacitor	BL	BL	BL	BL	BL	---	Pass

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Part No.	Part Description	Results of EDXRF					Chemical confirmation results (mg/kg)	Conclusion
		Pb	Cd	Hg	Cr	Br		
32	SMD audion	BL	BL	BL	BL	BL	---	Pass
33	IC chip	BL	BL	BL	BL	BL	---	Pass
34	Inductor	BL	BL	BL	BL	BL	---	Pass
35-1	Black plastic button (touch switch)	BL	BL	BL	BL	BL	---	Pass
35-2	Silvery metal cover	BL	BL	BL	BL	---	---	Pass
35-3	Metal (reed)	BL	BL	BL	BL	---	---	Pass
35-4	Black plastic	BL	BL	BL	BL	BL	---	Pass
35-5	Metal (pins)	BL	BL	BL	BL	---	---	Pass
36	Soldering tin (wiring)	249 (BL)	BL	BL	BL	---	---	Pass
37	Soldering tin	253 (BL)	BL	BL	BL	---	---	Pass
38	Soldering tin (THC)	230 (BL)	BL	BL	BL	---	---	Pass
39	Soldering tin (SMD)	207 (BL)	BL	BL	BL	---	---	Pass
40	PCB board	BL	BL	BL	BL	IN	PBBs: N.D. PBDEs: N.D.	Pass
41	White plastic	BL	BL	BL	BL	BL	---	Pass
42-1	Metal (brush)	BL	BL	BL	BL	---	---	Pass
42-2	White paster	BL	BL	BL	BL	BL	---	Pass
43 ^{*1}	Soldering tin	170 (BL)	BL	BL	BL	---	---	Pass
44	Metal (bearing)	BL	BL	BL	BL	---	---	Pass
45	Golden metal	26089 (OL)	BL	BL	BL	---	Pb: EX ⁽⁴⁵⁾	Pass
46	Black rubber	BL	BL	BL	BL	BL	---	Pass
47	Black foam	BL	BL	BL	BL	BL	---	Pass
48	Silvery metal (switch shell)	BL	BL	BL	BL	---	---	Pass
49	Silvery metal	BL	BL	BL	IN	---	Cr(VI): Negative	Pass
50	Magnet	BL	BL	BL	BL	BL	---	Pass
51-1	Metal (commutator)	BL	BL	BL	BL	---	---	Pass
51-2	Plastic (support)	BL	BL	BL	BL	BL	---	Pass

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Part No.	Part Description	Results of EDXRF					Chemical confirmation results (mg/kg)	Conclusion
		Pb	Cd	Hg	Cr	Br		
51-3	Magnet ring	BL	BL	BL	BL	---	---	Pass
52	Soldering tin	186 (BL)	BL	BL	BL	---	---	Pass
53-1	Silicon steel sheet	BL	BL	BL	BL	---	---	Pass
53-2	White plastic support	BL	BL	BL	BL	BL	---	Pass
53-3	Copper coil	BL	BL	BL	BL	---	---	Pass
54	Metal (motor shaft)	BL	BL	BL	BL	---	---	Pass
55-1	Black plastic frame	BL	BL	BL	BL	BL	---	Pass
55-2	Metal (terminal)	BL	BL	BL	BL	---	---	Pass
56	Silvery metal	BL	BL	BL	BL	---	---	Pass
57	Metal (pins)	BL	BL	BL	BL	---	---	Pass
58	White plastic support	BL	BL	BL	BL	BL	---	Pass
59	Soldering tin	177 (BL)	BL	BL	BL	---	---	Pass
60	Black plastic frame	BL	BL	BL	BL	BL	---	Pass
61	Black plastic casing	BL	BL	BL	BL	BL	---	Pass
62	Black wire sheath	BL	BL	BL	BL	BL	---	Pass
63	White wire sheath	BL	BL	BL	BL	BL	---	Pass
64	Copper wire	BL	BL	BL	BL	---	---	Pass
65	Black plastic	BL	BL	BL	BL	BL	---	Pass
66	Black plastic	BL	BL	BL	BL	BL	---	Pass
67	Black plastic	BL	BL	BL	BL	BL	---	Pass
68	Silvery metal	BL	BL	BL	IN	---	Cr(VI): Negative	Pass
69	Silvery metal	BL	BL	BL	IN	---	Cr(VI): Negative	Pass
70	Black plastic	BL	BL	BL	BL	BL	---	Pass
71	Black plastic	BL	BL	BL	BL	BL	---	Pass
72	Black plastic	BL	BL	BL	BL	BL	---	Pass
73	Black plastic	BL	BL	BL	BL	BL	---	Pass
74	Black plastic	BL	BL	BL	BL	BL	---	Pass
75	Silvery metal	BL	BL	BL	IN	---	Cr(VI): Negative	Pass
76	White plastic	BL	BL	BL	BL	BL	---	Pass
77	White plastic	BL	BL	BL	BL	BL	---	Pass
78	Metal (net)	BL	BL	BL	IN	---	Cr(VI): Negative	Pass
79	Black rubber	BL	BL	BL	BL	BL	---	Pass
80	Silvery metal	BL	BL	BL	IN	---	Cr(VI): Negative	Pass

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Part No.	Part Description	Results of EDXRF					Chemical confirmation results (mg/kg)	Conclusion
		Pb	Cd	Hg	Cr	Br		
81	Silvery metal	BL	BL	BL	BL	---	---	Pass
82	Black plastic shell	BL	BL	BL	BL	BL	---	Pass
83	Black plastic	BL	BL	BL	BL	BL	---	Pass
84	White plastic	BL	BL	BL	BL	BL	---	Pass
85	Black plastic	BL	BL	BL	BL	BL	---	Pass
86	Silvery metal	BL	BL	BL	IN	---	Cr(VI): Negative	Pass
87	Black plastic	BL	BL	BL	BL	BL	---	Pass
88	White plastic	BL	BL	BL	BL	BL	---	Pass
89	Golden metal	27230 (OL)	BL	BL	BL	---	Pb: EX ⁽⁴⁵⁾	Pass
90	White plastic	BL	BL	BL	BL	BL	---	Pass
91	Silvery metal	BL	BL	BL	IN	---	Cr(VI): Negative	Pass
92	Metal (spring)	BL	BL	BL	IN	---	Cr(VI): Negative	Pass
93	Silvery metal	BL	BL	BL	IN	---	Cr(VI): Negative	Pass
94	Silvery metal	BL	BL	BL	IN	---	Cr(VI): Negative	Pass
95	Silvery metal	BL	BL	BL	IN	---	Cr(VI): Negative	Pass
96	Black plastic	BL	BL	BL	BL	BL	---	Pass
97	Black plastic	BL	BL	BL	BL	BL	---	Pass
98	Black plastic (brush)	BL	BL	BL	BL	BL	---	Pass
99 ^{*2}	Black plastic	BL	BL	BL	BL	BL	---	Pass
100	Black plastic	BL	BL	BL	BL	BL	---	Pass
101	Transparent plastic	BL	BL	BL	BL	BL	---	Pass
102	Plastic (label)	BL	BL	BL	BL	BL	---	Pass
103	Transparent plastic	BL	BL	BL	BL	BL	---	Pass
104	Black plastic	BL	BL	BL	BL	BL	---	Pass
105	Specification	BL	BL	BL	BL	BL	---	Pass

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Remark:

(^1) “---” = Not Applicable;

(^2) (a) It is the result on total Br while test item on restricted substances is PBBs/PBDEs. It is the result on total Cr while test item on restricted substances is Cr(VI).

(b) The XRF screening test for RoHS elements-The reading may be different to the actual content in the sample be of non-uniformity composition.

(c) Results are obtained by EDXRF for primary screening, and further chemical testing by ICP-OES (for Pb, Cd, Hg), UV-VIS (for Cr(VI)) and GC/MSD (for PBBs, PBDEs) is recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321-3-1: 2013.

Attached table 1, XRF screening limits in mg/kg for regulated elements in various matrices:

Element	Polymer Materials	Metallic Materials	Electronics
Cd	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$LOD < X < (250+3\sigma) \leq OL$
Pb	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Hg	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Br	$BL \leq (300-3\sigma) < X$	N.A.	$BL \leq (250-3\sigma) < X$
Cr	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X$	$BL \leq (500-3\sigma) < X$

Note: ① BL “below limit” = the result less than the limit.

② OL “over limit” = the result greater than the limit.

③ IN = inconclusive, the region where need further chemical testing by ICP-OES (for Pb, Cd, Hg), UV-VIS (for Cr(VI)) and GC/MSD (for PBBs, PBDEs).

 ④ 3σ = Repeability of the analyser at the action level.

⑤ LOD = Limit of detection.

(^3) (a) mg/kg = ppm = 0.0001%;

(b) N.D. = Not detected (lower than RL);

(c) Reporting Limit (RL) and Limit of Directive 2011/65/EU.

Parameter	Unit	Limit	Reporting Limit (RL)
Lead (Pb)	mg/kg	1000	10
Cadmium (Cd)	mg/kg	100	10
Mercury (Hg)	mg/kg	1000	10
Chromium VI (Cr VI)	mg/kg	1000	R1
Group PBBs	mg/kg	1000	R2
Group PBDEs	mg/kg	1000	R2

 R1: Cr(VI) for metal sample, the reporting limit (RL) = Method Detection Limit (MDL) = $0.10 \mu\text{g}/\text{cm}^2$.

The reporting limit (RL) of Cr(VI) for polymers and electronics is 10mg/kg.

R2: The reporting limit (RL) for single compound of PBBs & PBDEs is 50mg/kg.

(d) According to IEC 62321-7-1:2015, result on Cr(VI) for metal sample is shown as Negative, Inconclusive or Positive: Negative = Absence of Cr(VI), Inconclusive = Maybe exist Cr(VI), Positive = Presence of Cr(VI).

Colorimetric result (Cr(VI) concentration)	Qualitative result
The sample solution is < the 0.10 ug/cm ² equivalent comparison standard solution	The sample is negative for Cr(VI)-The Cr(VI) concentration is below the limit of quantification. The coating is considered a non-Cr(VI) based coating.
The sample solution is ≥ the 0.10 ug/cm ² and ≤ the 0.13 ug/cm ² equivalent comparison standard solutions	The result is considered to be inconclusive – Unavoidable coating variations may influence the determination. Recommendation: if addition samples are available, perform a total of 3 trials to increase sampling surface area. Use the averaged result of the 3 trials for the final determination.
The sample solution is > the 0.13 ug/cm ² equivalent comparison standard solution	The sample is positive for Cr(VI)-The Cr(VI) concentration is above the limit of quantification and the statistical margin of error. The sample coating is considered to contain Cr(VI).

(^4) "EX" = Exemption item according to EU RoHS Directive 2011/65/EU.

(^5) Lead (Pb) was exempted by RoHS Directive 2011/65/EU based on Annex III/6(c): Copper alloy containing up to 4% lead by weight.

(*1) The samples were resubmitted on Jun.19, 2020.

(*2) The samples were resubmitted on Jun.24, 2020.

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B. Phthalates—DBP, BBP, DEHP & DIBP

Test Method: Ref. to IEC 62321-8: 2017

Determination of Phthalates in polymers by Gas Chromatography-Mass Spectrometry (GC-MS)

Test result:

Test item	DBP	BBP	DEHP	DIBP
Maximum Permissible Limit (mg/kg)	1000	1000	1000	1000

Part No.	Test item (mg/kg)				Conclusion
	DBP	BBP	DEHP	DIBP	
2+4+6	N.D.	N.D.	N.D.	N.D.	Pass
5	N.D.	N.D.	560	N.D.	Pass
7	N.D.	N.D.	N.D.	N.D.	Pass
9+10	N.D.	N.D.	N.D.	N.D.	Pass
12+46+79	N.D.	N.D.	N.D.	N.D.	Pass
16+17	N.D.	N.D.	N.D.	N.D.	Pass
22+23	N.D.	N.D.	N.D.	N.D.	Pass
24	N.D.	N.D.	N.D.	N.D.	Pass
35-1+35-4	N.D.	N.D.	N.D.	N.D.	Pass
40	N.D.	N.D.	N.D.	N.D.	Pass
41+51-2+53-2	N.D.	N.D.	N.D.	N.D.	Pass
42-2	N.D.	N.D.	N.D.	N.D.	Pass
47	N.D.	N.D.	150	N.D.	Pass
55-1+60	N.D.	N.D.	140	N.D.	Pass
58	N.D.	N.D.	N.D.	N.D.	Pass
61	N.D.	N.D.	N.D.	N.D.	Pass
62+63	N.D.	N.D.	N.D.	N.D.	Pass
65+66+67	N.D.	N.D.	N.D.	N.D.	Pass
70+71+72	N.D.	N.D.	N.D.	N.D.	Pass
73+74	N.D.	N.D.	N.D.	N.D.	Pass
76+77	N.D.	N.D.	N.D.	N.D.	Pass
82+83+84	N.D.	N.D.	N.D.	N.D.	Pass
85+87	N.D.	N.D.	N.D.	N.D.	Pass
88+90	N.D.	N.D.	N.D.	N.D.	Pass

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Part No.	Test item (mg/kg)				Conclusion
	DBP	BBP	DEHP	DIBP	
96+97+99 ^{*2}	N.D.	N.D.	N.D.	N.D.	Pass
98	N.D.	N.D.	N.D.	N.D.	Pass
100+101	N.D.	N.D.	N.D.	N.D.	Pass
102	N.D.	N.D.	N.D.	N.D.	Pass
103+104	N.D.	N.D.	N.D.	N.D.	Pass
105	N.D.	N.D.	N.D.	N.D.	Pass

- Remark:
1. Reporting Limit (RL) for DBP, BBP, DEHP, DIBP = 50mg/kg.
 2. N.D. = Not Detected (<RL).
 3. *2 = The samples were resubmitted on Jun.24, 2020



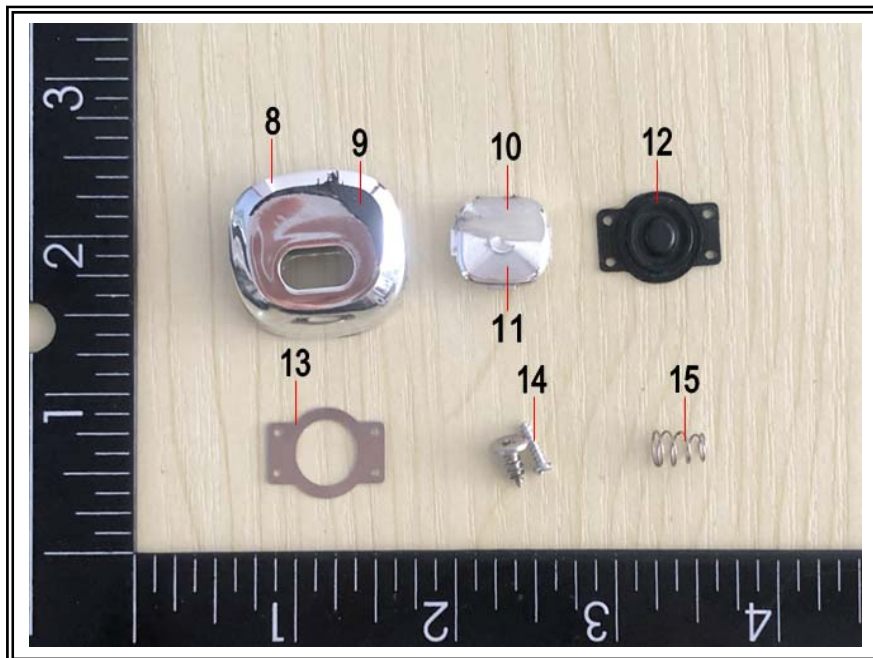
Sample photo(s):



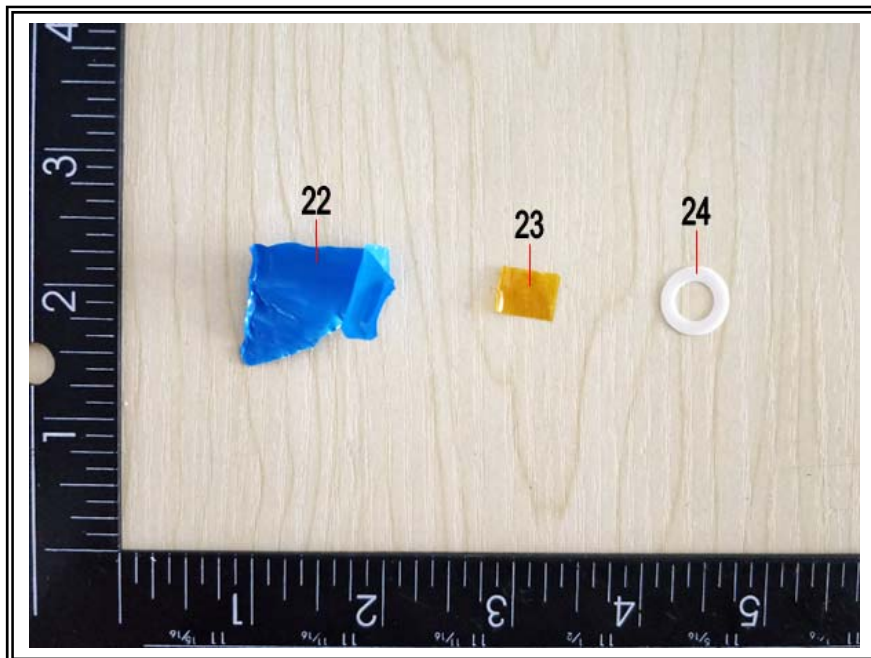
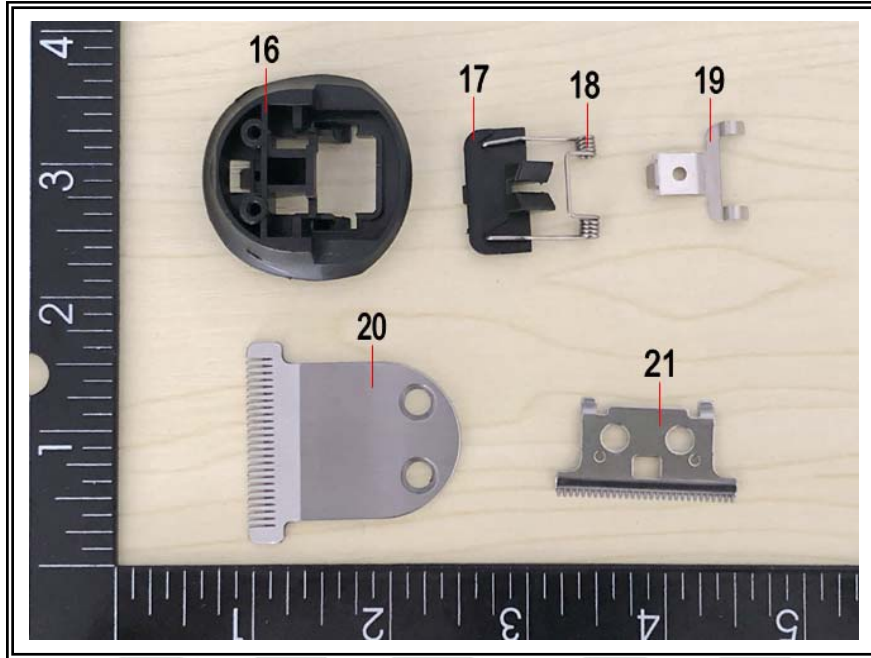
Test item: Electric Clipper

Tested Model No.:FK-8988T

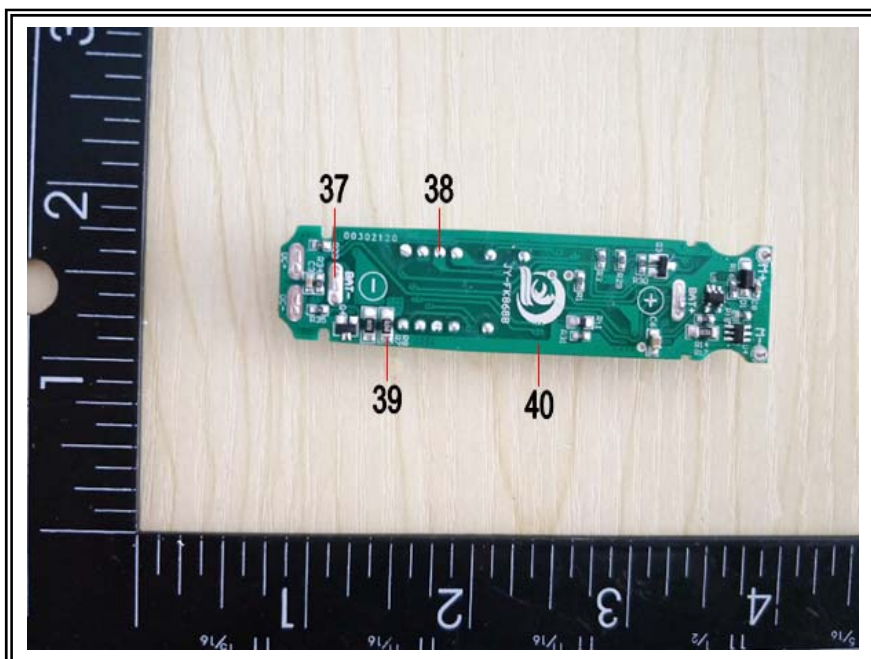
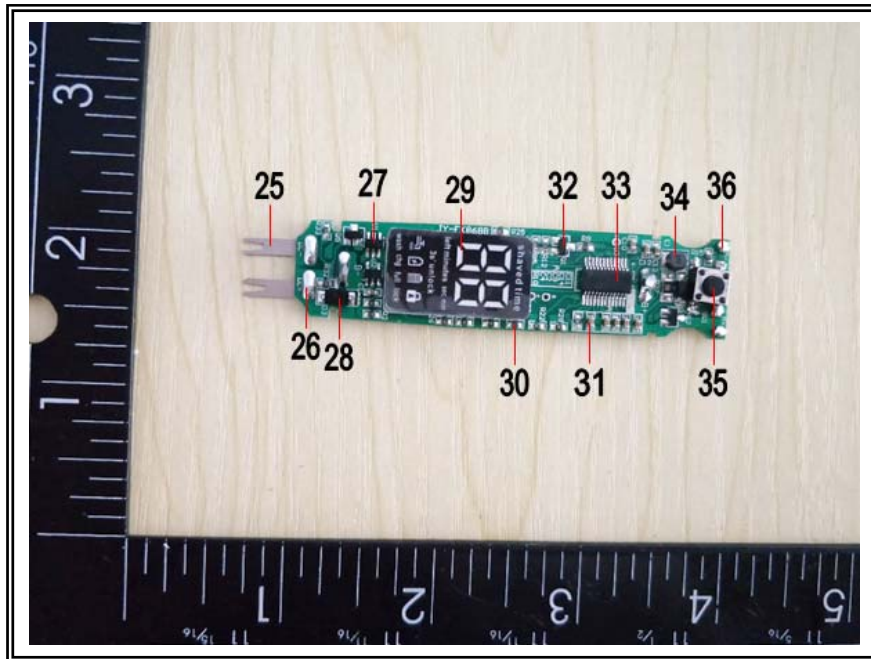
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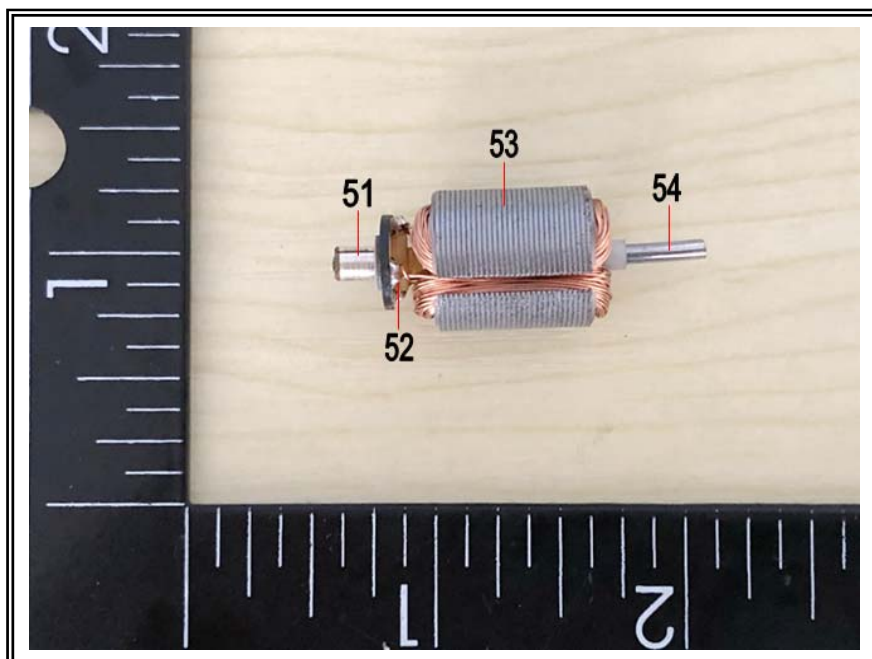
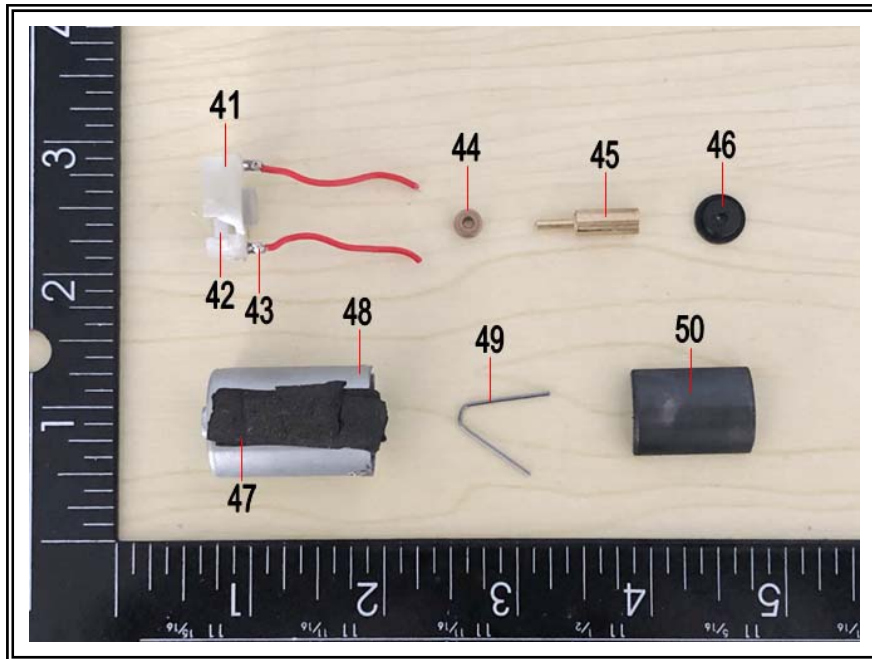
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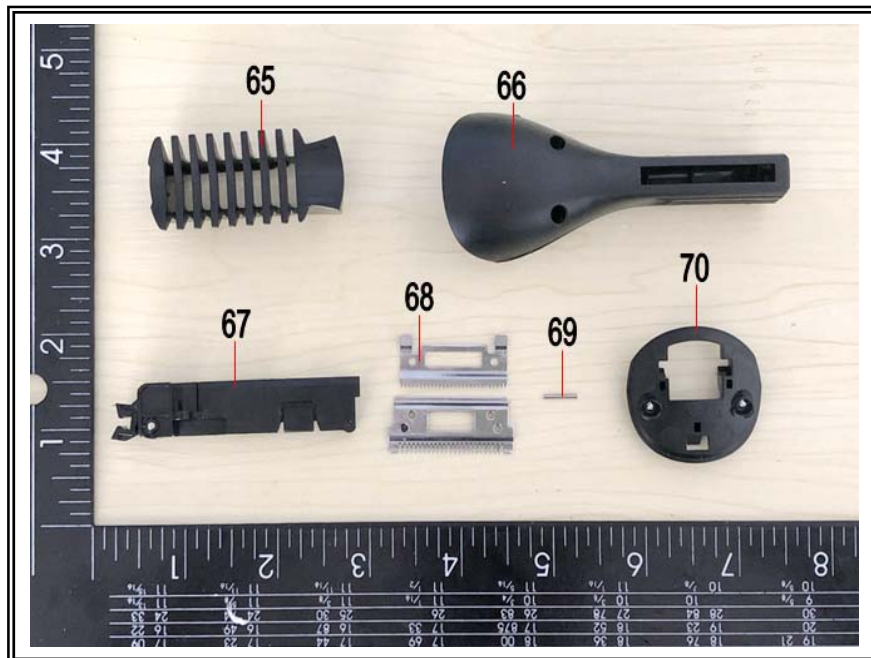
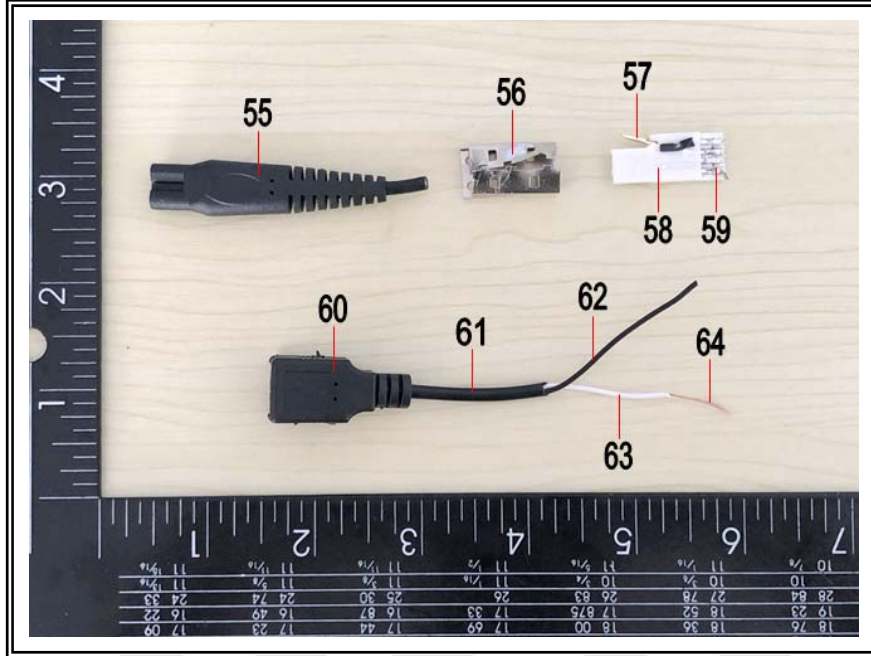
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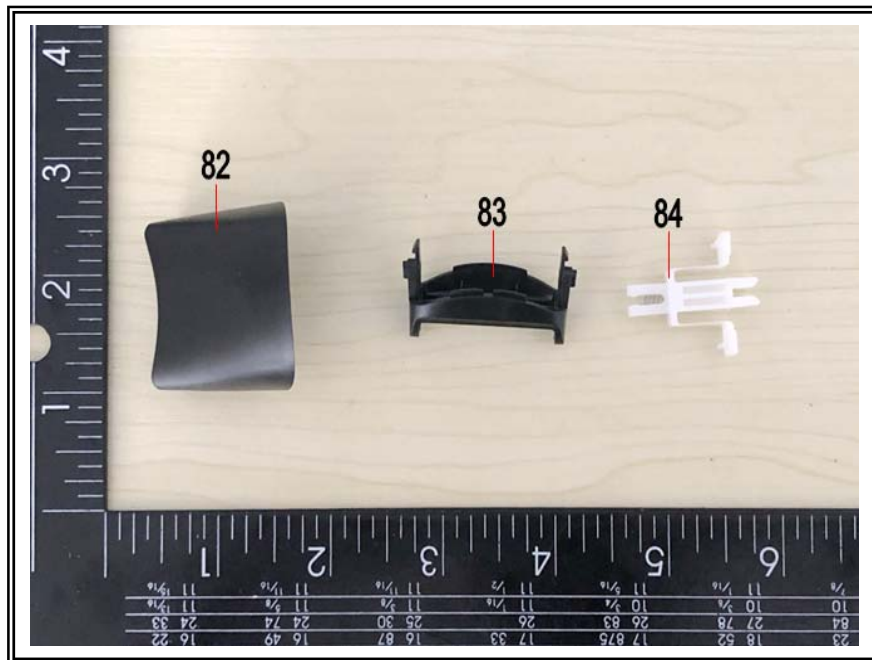
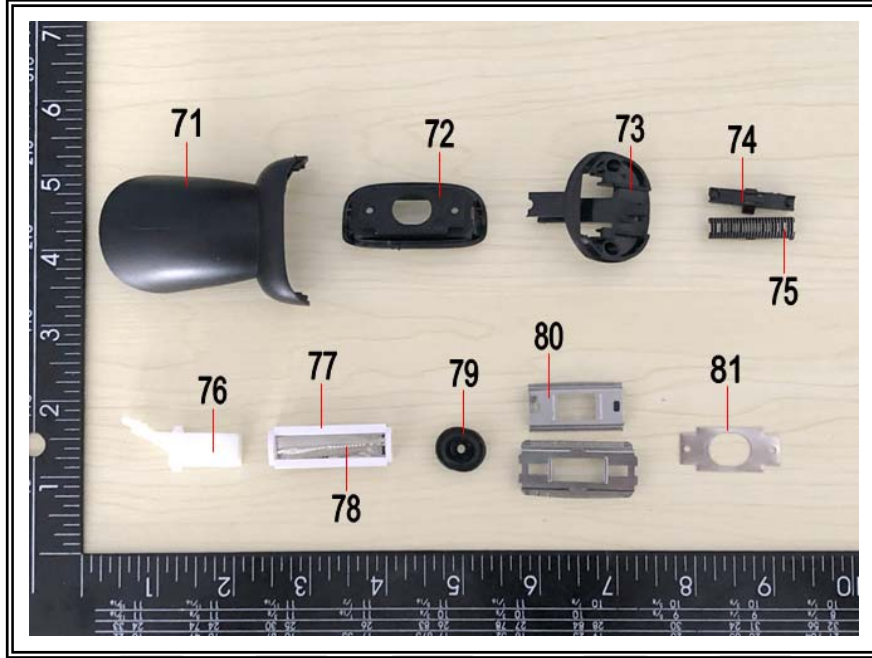
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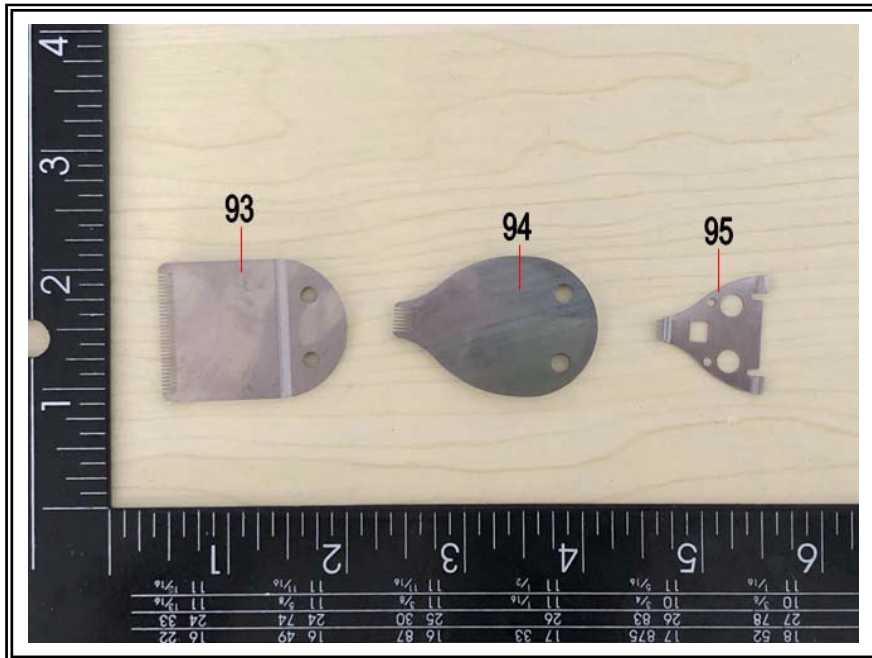
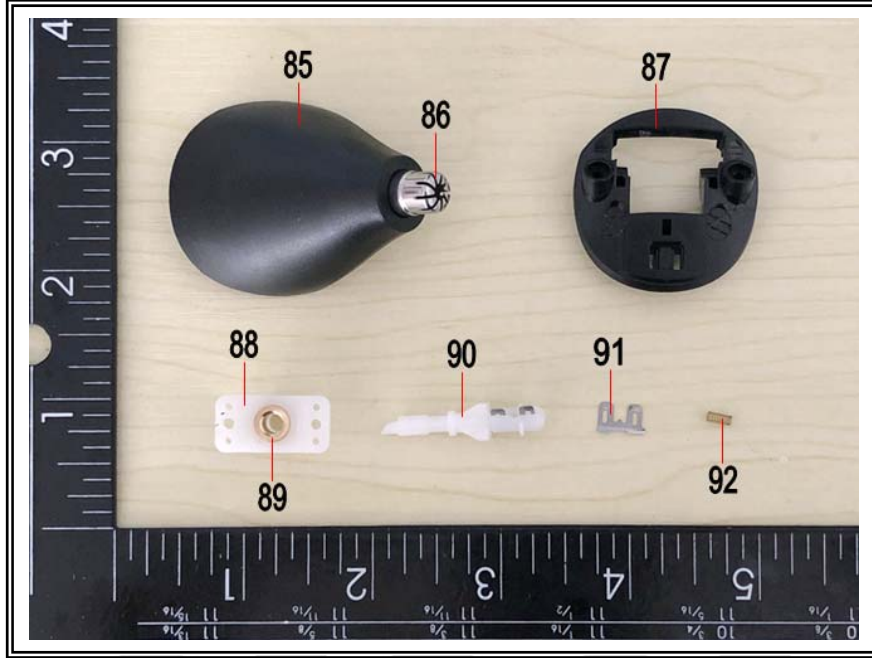
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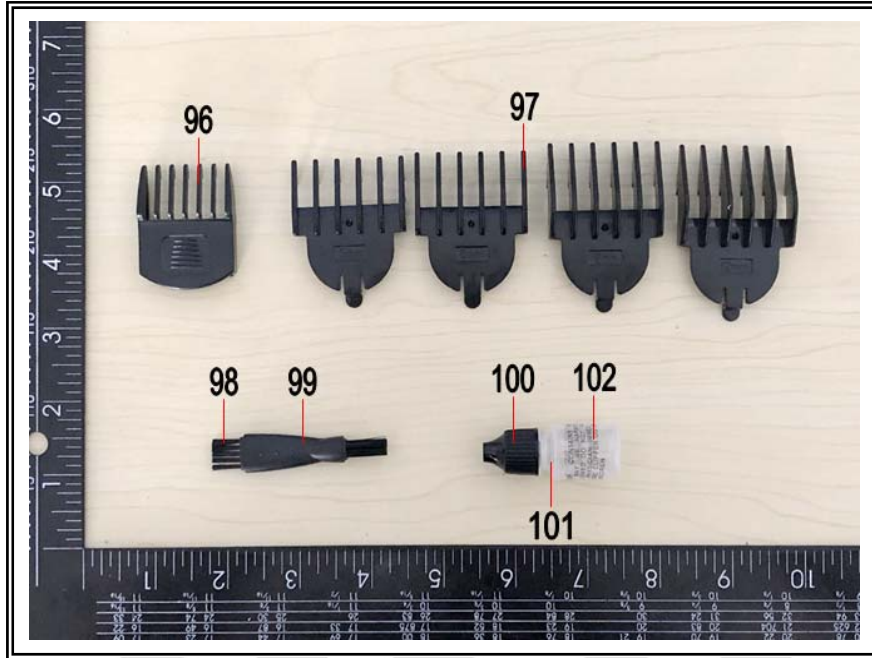
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