中国认可
国际互认
检测
TESTING
CNAS L6478

TEST REPORT

Reference No.	:	WTF19F03017466C
Applicant	:	Mid Ocean Brands B.V.
Address	:	7/F., Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong
Manufacturer	:	114036
Sample Name	:	Pedometer bracelet
Model No.	:	MO9136
Test Requested	:	In accordance with the RoHS Directive 2011/65/EU and its amendment (EU) No. 2015/863.
Test Method	:	1) With Reference to IEC 62321-2:2013,disassembly, disjointment and mechanical sample preparation 2) With Reference to IEC 62321-3-1:2013, screening - Lead, mercury, cadmium, total chromium and total bromine by X-ray fluorescence spectrometry 3) With reference to IEC 62321-4:2013+AMD1:2017 CSV, determination of Mercury by ICP-OES 4) With reference to IEC 62321-5:2013, determination of Lead and Cadmium by ICP-OES 5) With reference to IEC 62321-7-2: 2017 and IEC 62321-7-1: 2015, determination of Hexavalent Chromium by UV-Vis 6) With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS 7) With reference to IEC 62321-8:2017, determination of Phthalates content by GC-MS.
Test Conclusion	:	Pass (Based on the performed tests on the submitted samples, the results comply with the RoHS Directive 2011/65/EU and its amendment (EU) No. 2015/863)
Date of Receipt sample ...	:	2019-03-26
Date of Test	:	2019-03-26 to 2019-04-01
Date of Issue	:	2019-04-01
Test Result	:	Please refer to next page (s)

Remarks:

Prepared By:

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Compiled by: Approved by:

Nelson.Liang/ Project Engineer

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Test Results:

1. Lead, Mercury, Cadmium, Hexavalent Chromium, PBBs and PBDEs

Part No.	Part Description	Result of XRF		Result of Wet Chemical Testing (mg/kg)	Conclusion on RoHS
1	Silvery metal sheet of buckle	Cd	BL	Cr^{6+} : Negative	Comply
		Pb	BL		
		Hg	BL		
		Cr	IN		
		Br	BL		
2	Black rubber watch band	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
3	Silvery metal strip of buckle	Cd	BL	Cr^{6+} : Negative	Comply
		Pb	BL		
		Hg	BL		
		Cr	IN		
		Br	BL		
4	Black rubber sheet	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
5	Silvery metal cover	Cd	BL	Cr^{6+} : Negative	Comply
		Pb	BL		
		Hg	BL		
		Cr	IN		
		Br	BL		
6	Silvery metal tube	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
7	Silvery metal spring	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
8	Black plastic shell	Cd	BL	PBBs : ND PBDEs : 6	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	IN		

Part No.	Part Description	Result of XRF		Result of Wet Chemical Testing (mg/kg)	Conclusion on RoHS
9	Black plastic button	Cd	BL	PBBs : ND PBDEs : 8	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	IN		
10	Transparent plastic cover of screen	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
11	Transparent glass sheet of screen	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
12	Dark grey plastic film of screen	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
13	Silvery metal film of screen	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
14	Black rubber sheet of screen	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
15	Silvery metal sheet	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
16	Silvery body of oscillator	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		

Part No.	Part Description	Result of XRF		Result of Wet Chemical Testing (mg/kg)	Conclusion on RoHS
17	Silvery metal pin of oscillator	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
18	Silvery metal strip	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
19	Transparent plastic film	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
20	Silvery metal sheet	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
21	Chip capacitor	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
22	Chip IC	Cd	BL	PBBs : ND PBDEs : ND	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	IN		
23	Chip capacitor	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
24	Solder	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		

Part No.	Part Description	Result of XRF		Result of Wet Chemical Testing (mg/kg)	Conclusion on RoHS
25	Green-orange PCB	Cd	BL	PBBs : ND PBDEs : ND	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	IN		
26	Silvery metal sheet	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
27	Silvery metal sheet	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
28	Silvery metal screw	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		
29	Silvery metal screw	Cd	BL	NA	Comply
		Pb	BL		
		Hg	BL		
		Cr	BL		
		Br	BL		

Remark:

(1) Results are obtained by EDXRF for primary screening, and further chemical testing by ICP (for Cd, Pb, Hg), UV-VIS (for Cr^{6+}) and GC-MS (for PBBs, PBDEs) is recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321-3-1: 2013 (unit: mg/kg)

Element	Polymer	Metal	Composite Materials
Cd	BL ≤ (70-3σ) < IN < (130+3σ) ≤ OL	BL ≤ (70-3σ) < IN < (130+3σ) ≤ OL	LOD < IN < (150+3σ) ≤ OL
Pb	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (500-3σ) < IN < (1500+3σ) ≤ OL
Hg	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (500-3σ) < IN < (1500+3σ) ≤ OL
Cr	BL ≤ (700-3σ) < IN	BL ≤ (700-3σ) <IN	BL ≤ (500-3σ) < IN
Br	BL ≤ (300-3σ) < IN	--	BL ≤ (250-3σ) < IN

BL= Below Limit OL= Over Limit LOD = Limit of Detection -- = Not Regulated

(2) "IN" expresses the inconclusive region, and further chemical testing to confirm whether it complies with the requirement of RoHS Directive.

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

(4) mg / kg =milligram per kilogram=ppm, based on the dry weight of tested sample.

(5) ND = Not Detected, less than the value of Method Detection Limit.

(6) NA = Not Applicable, as the XRF screening test result was below the limit, it was not need to conduct the wet chemical testing.

(7) MDL= Method Detection Limit in wet chemical test.

Test Items	Pb	Cd	Hg	Cr^{6+}		PBB	PBDE
Units	mg/kg	mg/kg	mg/kg	mg/kg	$\mu g/cm^2$	mg/kg	mg/kg
MDL	2	2	2	2	0.1	5	5

The MDL for single compound of PBBs and PBDEs is 5mg/kg, MDL of Cr^{6+} for polymer and composite sample is 2mg/kg and MDL of Cr^{6+} for metal sample is 0.1μg/cm^2.

(8) According to IEC 62321-7-1:2015, determined of Cr^{6+} on metal sample by boiling water extraction test method, and result is shown as Positive/Negative.

Boiling water extraction:

Negative = Absence of Cr^{6+} coating, the detected concentration in boiling water extraction solution is less than 0.10ug/cm^2.

Positive = Presence of Cr^{6+} coating, the detected concentration in boiling water extraction solution is greater than 0.13ug/cm^2.

Information on storage conditions and production date of the tested sample is unavailable and thus Cr^{6+} results represent status of the sample at the time of testing.

2. Phthalates (DEHP, BBP, DBP, DIBP)

Test items	Result (mg/kg)		Limit (mg/kg)
	No.2	No.4	
Bis(2-ethylhexyl)-phthalate (DEHP)	<50	<50	1000
Dibutyl phthalate (DBP)	<50	<50	1000
Benzylbutyl phthalate (BBP)	<50	<50	1000
Diisobutyl phthalate (DIBP)	<50	<50	1000

Test items	Result (mg/kg)		Limit (mg/kg)
	No.8+No.10△	No.9	
Bis(2-ethylhexyl)-phthalate (DEHP)	<50	<50	1000
Dibutyl phthalate (DBP)	<50	<50	1000
Benzylbutyl phthalate (BBP)	<50	<50	1000
Diisobutyl phthalate (DIBP)	<50	<50	1000

Test items	Result (mg/kg)		Limit (mg/kg)
	No.12	No.14	
Bis(2-ethylhexyl)-phthalate (DEHP)	<50	<50	1000
Dibutyl phthalate (DBP)	<50	<50	1000
Benzylbutyl phthalate (BBP)	<50	<50	1000
Diisobutyl phthalate (DIBP)	<50	<50	1000

Test items	Result (mg/kg)		Limit (mg/kg)
	No.19	No.11+No.16+No.21△	
Bis(2-ethylhexyl)-phthalate (DEHP)	<50	<50	1000
Dibutyl phthalate (DBP)	<50	<50	1000
Benzylbutyl phthalate (BBP)	<50	<50	1000
Diisobutyl phthalate (DIBP)	<50	<50	1000

Test items	Result (mg/kg)	Limit (mg/kg)
	No.22+No.23+No.25△	
Bis(2-ethylhexyl)-phthalate (DEHP)	<50	1000
Dibutyl phthalate (DBP)	<50	1000
Benzylbutyl phthalate (BBP)	<50	1000
Diisobutyl phthalate (DIBP)	<50	1000

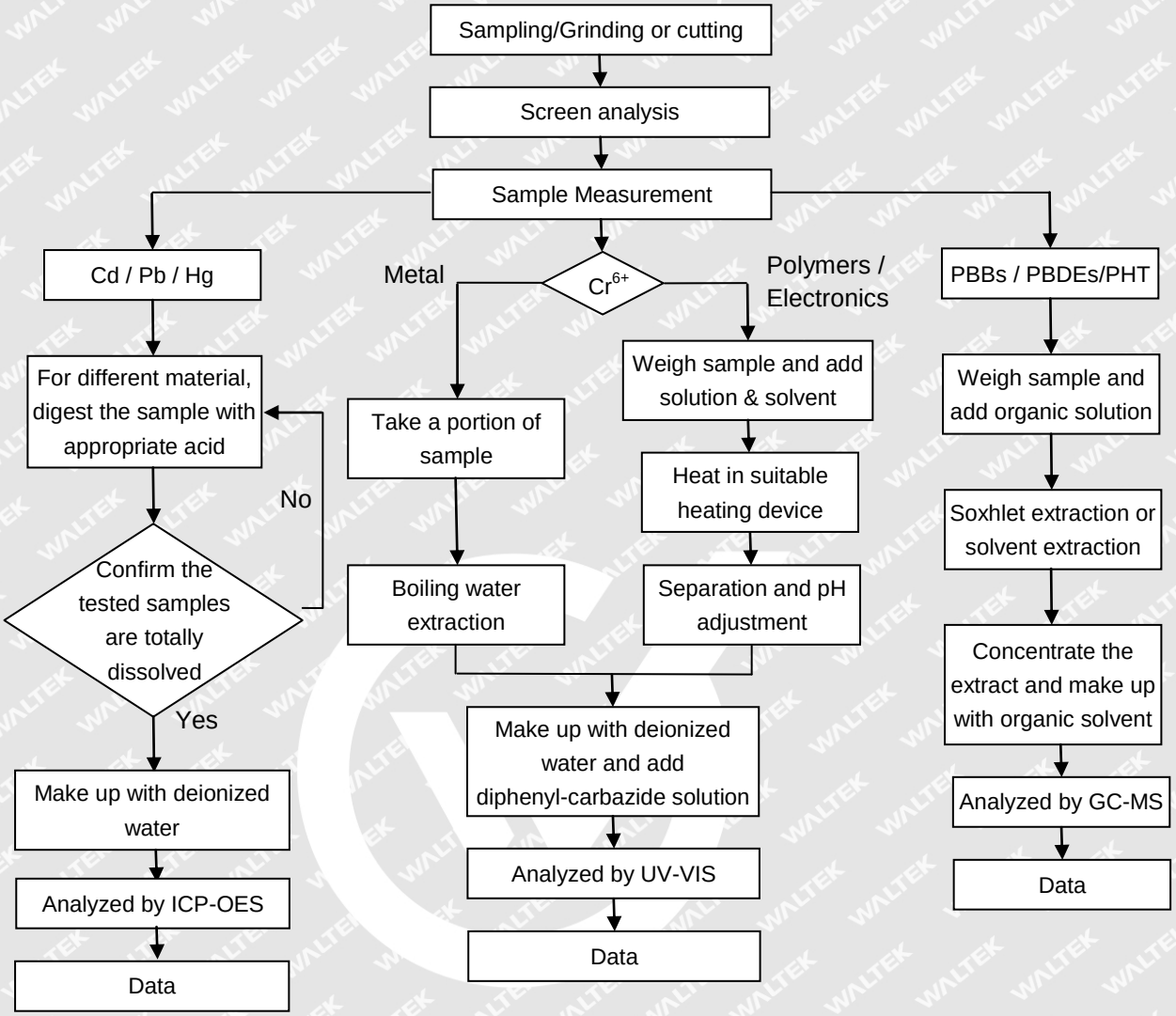
Note:

(1) "<" = less than

(2) mg/kg = milligram per kilogram= ppm

(3) "△"= As client's requirement, the testing was conducted based on mixed components, the test result is for reference only.

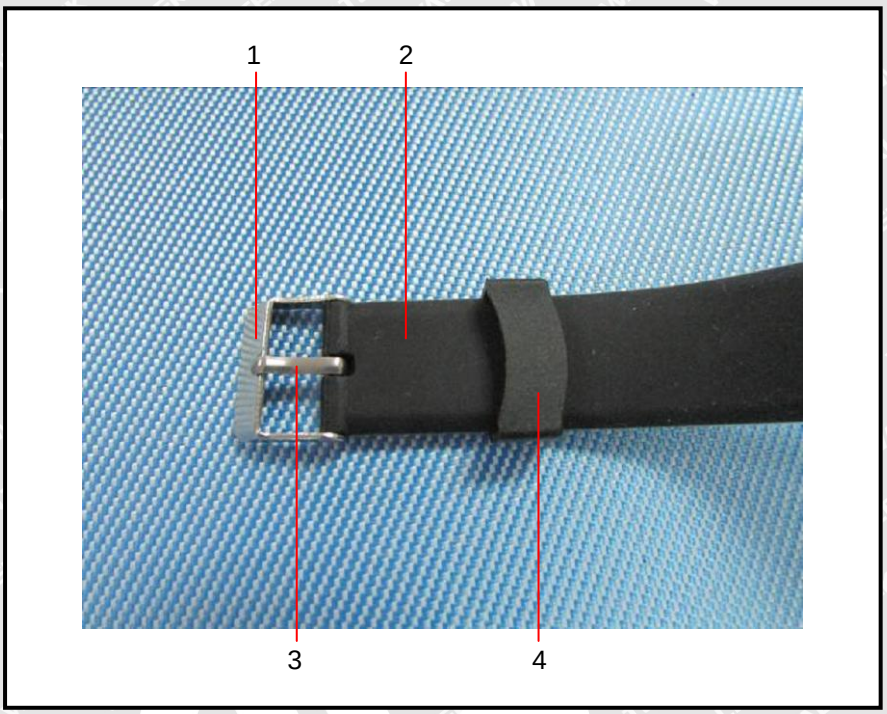
Measurement Flowchart:

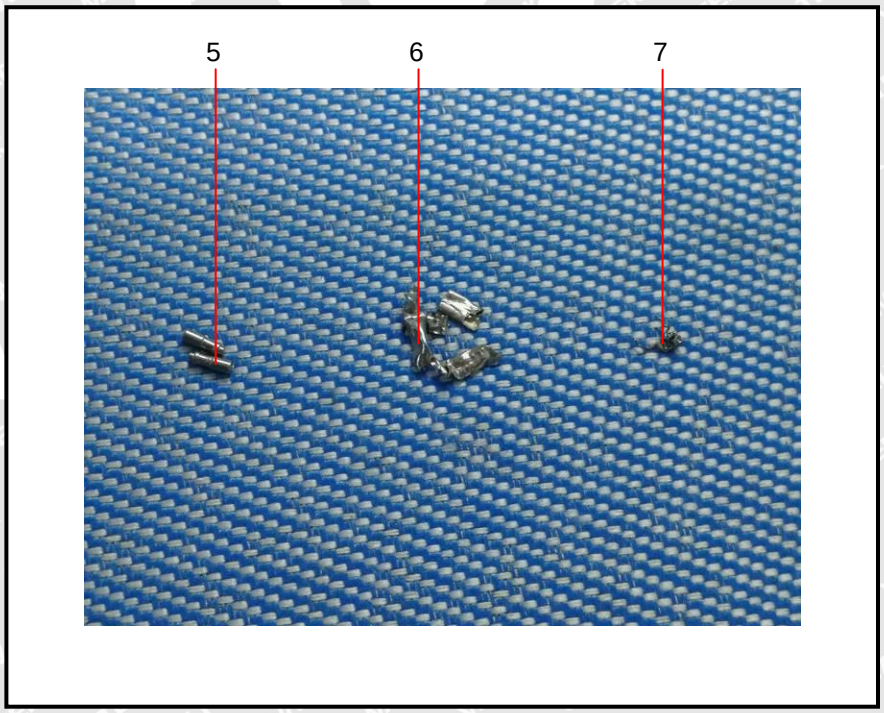


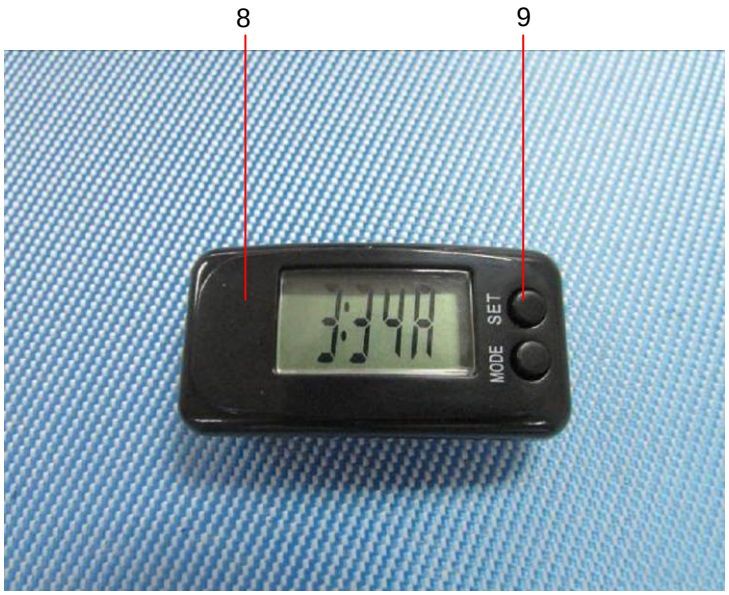
Sample Photo:

Product pictures provided by client:

Photograph of parts tested:



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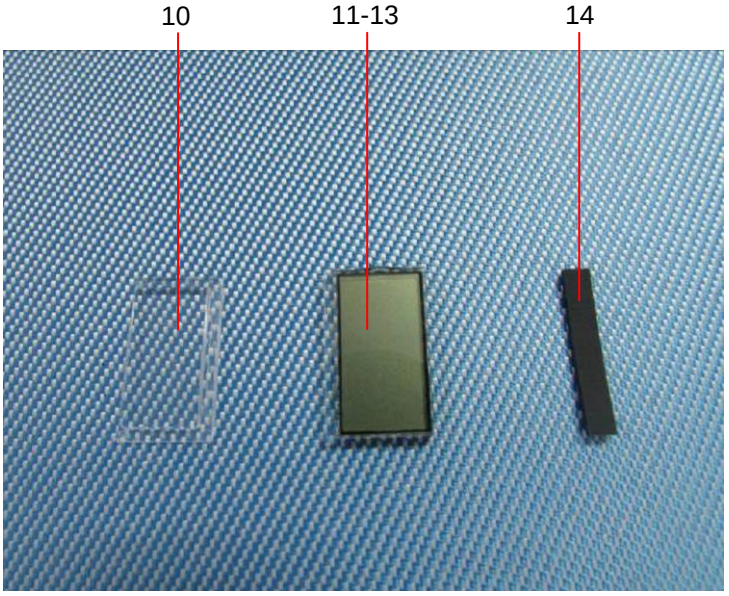
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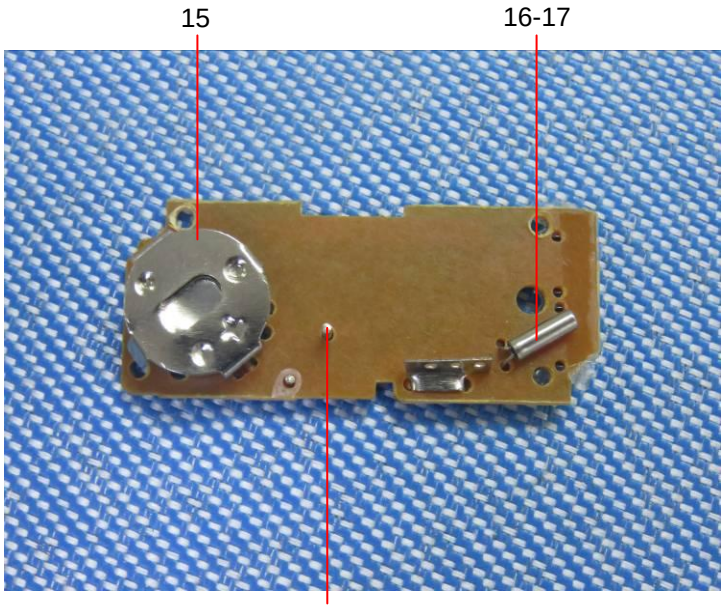
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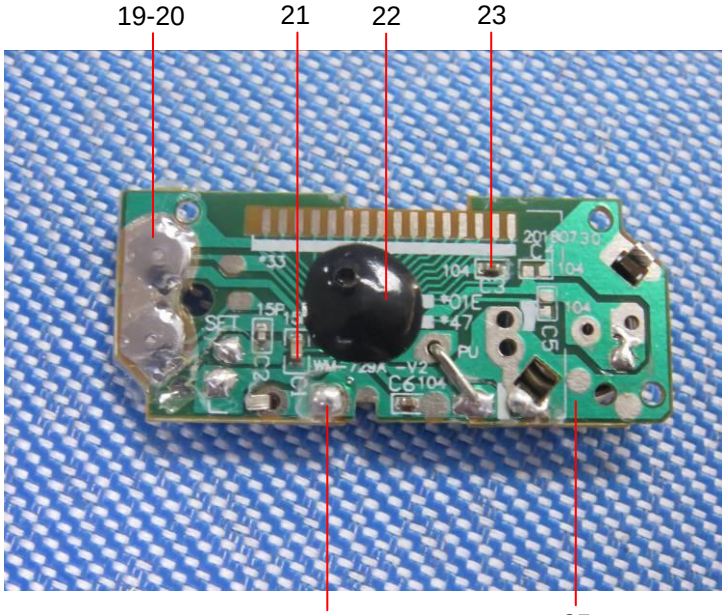
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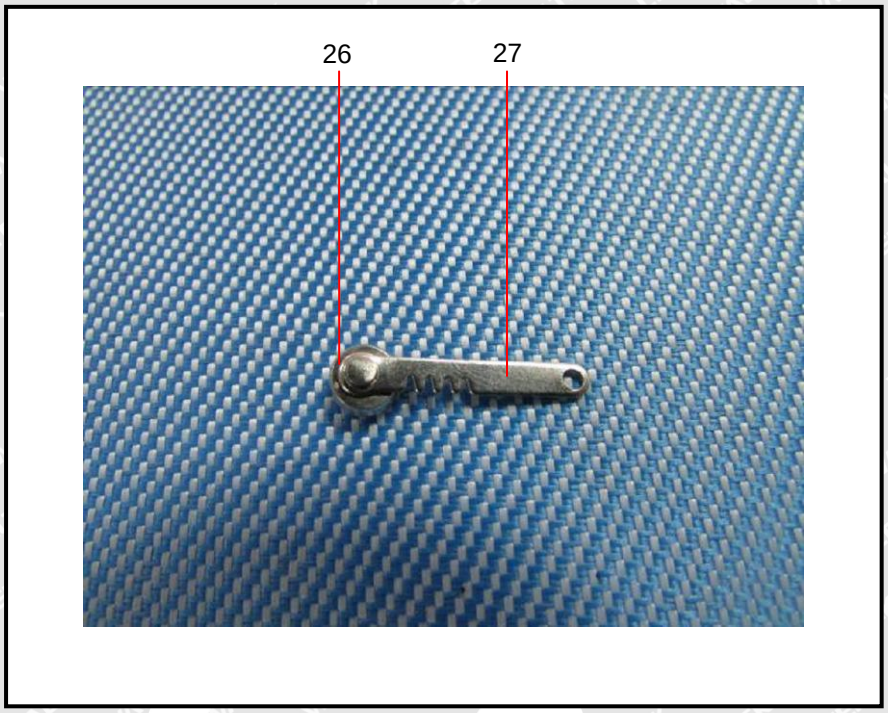

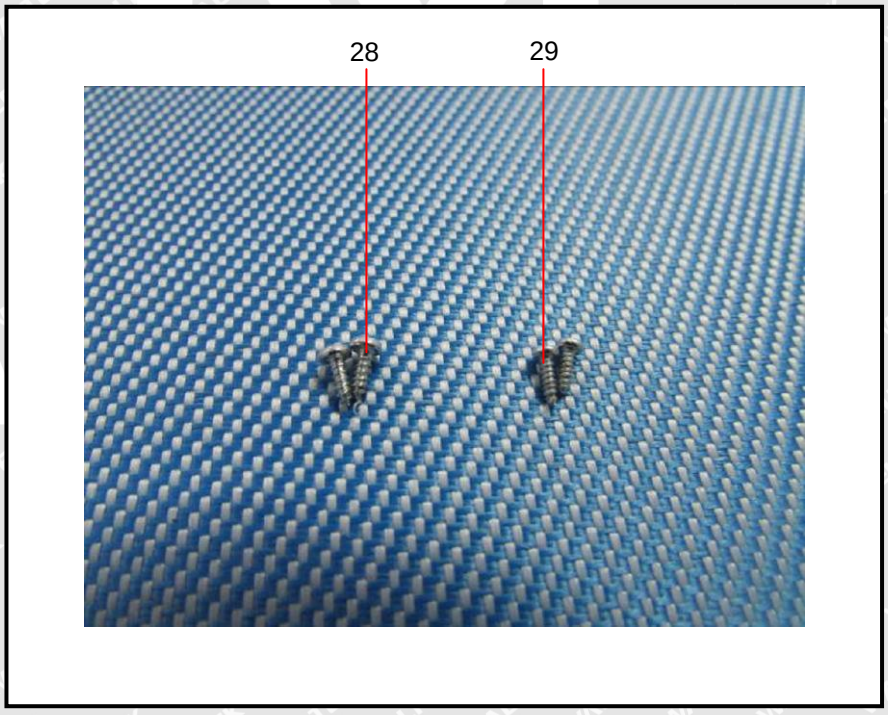

====== End of Report ======