

# NOVASTACK® 35-HDH

Part No. 21003-0\*\*E, 21004-0\*\*E

## Test Report

Product Specification no. PRS-2785

Rev.	ECN	Date	Prepared by	Checked by	Approved by
1	T24075	October 31, 2024	Y. Baba	-	S. Suzuki
0	T24008	March 13, 2024	Y. Baba	-	S. Suzuki

## 1. 目的

NOVASTACK 35-HDH コネクタの性能を PRS-2785 に基づいて評価する。

## 2. 試料

- (1) NOVASTACK 35-HDH PLUG ASSEMBLY (Part No. 21003-0\*\*E)
- (2) NOVASTACK 35-HDH RECEPTACLE ASSEMBLY (Part No. 21004-0\*\*E)

## 3. 試験順序

全ての評価は表 1 の試験順序に従って行った。

## 4. 結果

表 2-1～2-3、グラフ 1～17 参照。試験条件の詳細は PRS-2785 参照。n 数は測定データを意味する。

## 5. 結論

全ての資料が製品規格（PRS-2785）の必要条件を満足した。

Table 1 試験順序と試料数

No.	試験項目	グループ													
		A	B	C	D	E	F	G	H	J	K	L	M	N	
4.1.電気的性能	1	接触抵抗		2,6		1,3,5	1,5	1,3	1,5	1,5	1,3	1,3			
	2	絶縁抵抗					2,6		2,6	2,6					
	3	耐電圧					3,7		3,7	3,7					
	4	温度上昇	1												
4.2.機械的性能	1	挿入力		1,5											
		抜去力		3,7											
	2	耐久性		4											
	3	端子保持力			1										
	4	耐振動性				2									
5	耐衝撃性				4										
4.3.耐環境性能	1	熱衝撃					4								
	2	高温寿命						2							
	3	湿度（定常状態）							4						
	4	湿度（サイクリング）								4					
	5	塩水噴霧									2				
	6	硫化水素ガス										2			
4.4.その他	1	半田付け性											1		
	2	半田耐熱性												1	
	3	手半田													1
試料数			5	5	20	5	5	5	5	5	5	5	10	10	10
			pcs.	pcs.	pcs.	pcs.	pcs.	pcs.	pcs.	pcs.	pcs.	pcs.	pcs.	pcs.	pcs.

※グループ表中の番号は、試験順序を示す。

Table 2-1. 試験結果

Group	Contents of Measurement	Spec.	Unit	Q'ty	n	Data					Judge.				
						AVE.	MAX.	MIN.	S	X±3s					
A	温度上昇														
	60P Contact 0.2A/Contact (Total:12.0A)	ΔT 30 MAX.	℃	5	-	ΔT	10.3	MAX.			Pass				
	70P Contact 0.17A/Contact (Total:12.0A)		℃	5	-						7.3	Pass			
B	耐久性														
	Contact Resistance														
	Contact	Initial	50	MAX.	mohm	5	300	15.181	17.73	12.50	1.193	18.759	Pass		
		After 20 cycles	ΔR 50	MAX.				-1.762	1.26	-5.75	1.278	-5.597	Pass		
	Ground	Initial	20	MAX.				5	0.363	0.43	0.30	0.048	0.507	Pass	
		After 20 cycles	ΔR 20	MAX.					0.029	0.10	-0.07	0.066	0.226	Pass	
	Mating Force														
	60P	Initial	60.0	MAX.				N	5	-	19.66	20.9	18.3	-	-
		After 20 cycles			12.62	13.6	10.9				-	-	Pass		
	70P	Initial	70.0	MAX.	N	5	-	24.90	26.2	24.0	-	-	Pass		
		After 20 cycles						10.78	12.1	9.9	-	-	Pass		
	Unmating Force														
	60P	Initial	6.0	MIN.	N	5	-	23.62	24.5	22.4	-	-	Pass		
		After 20 cycles						16.20	17.4	15.5	-	-	Pass		
	70P	Initial	7.0	MIN.	N	5	-	21.92	25.1	20.1	-	-	Pass		
After 20 cycles		12.44						13.6	12.0	-	-	Pass			
C	端子保持力														
	Receptacle														
	Contact	0.1	MIN.	N	-	20	1.09		MIN.			Pass			
Ground (Shell)	1.62						Pass								
D	耐振動性 → 耐衝撃性														
	Contact Resistance														
	Contact	Initial	50	MAX.	mohm	5	300	14.652	16.74	11.93	0.871	17.266	Pass		
		After Vibration	ΔR 50	MAX.				-0.237	3.22	-3.16	1.115	-3.583	Pass		
		After Shock						0.315	3.78	-2.87	1.066	3.514	Pass		
	Ground	Initial	20	MAX.				5	0.430	0.45	0.41	0.016	0.477	Pass	
		After Vibration	ΔR 20	MAX.					0.011	0.06	-0.01	0.021	0.073	Pass	
		After Shock							0.013	0.08	-0.01	0.027	0.094	Pass	
	Electrical Discontinuity														
		During Test	1	MAX.	μs	5	-	No Discontinuity				Pass			
	Appearance														
	After Test	No Abnormality		-	5	-	No Abnormality				Pass				

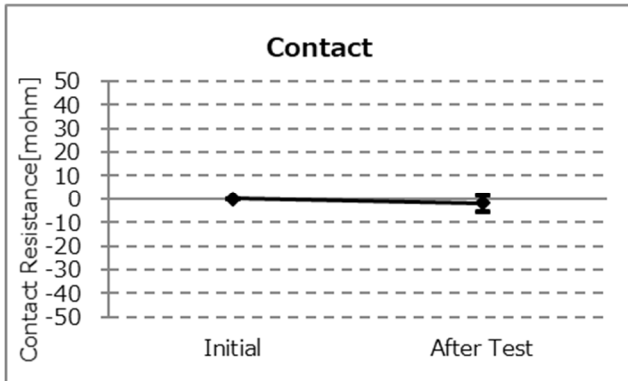
Table 2-2. 試験結果

Group	Contents of Measurement	Spec.	Unit	Q'ty	n	Data					Judge.				
						AVE.	MAX.	MIN.	S	X±3s					
E	熱衝撃														
	Contact Resistance														
	Contact	Initial	50 MAX.	mohm	5	300	14.793	16.28	12.96	0.650	16.745	Pass			
		After Test	ΔR 50 MAX.				0.222	2.57	-2.29	0.874	2.844	Pass			
	Ground	Initial	20 MAX.				5	5	0.376	0.40	0.36	0.017	0.426	Pass	
		After Test	ΔR 20 MAX.						0.022	0.09	0.00	0.035	0.126	Pass	
	Insulation Resistance														
		Initial	1000 MIN.				Mohm	5	-	6.8 × 10 <sup>4</sup> MIN.				Pass	
		After Test	500 MIN.			5.9 × 10 <sup>4</sup> MIN.				Pass					
	Dielectric Withstanding Voltage														
		After Test	No Abnormality	-	5	-	No Abnormality					Pass			
Appearance															
	After Test	No Abnormality	-	5	-	No Abnormality					Pass				
F	高温寿命														
	Contact Resistance														
	Contact	Initial	50 MAX.	mohm	5	300	14.739	16.27	13.21	0.679	16.775	Pass			
		After Test	ΔR 50 MAX.				0.583	3.35	-2.15	0.950	3.434	Pass			
	Ground	Initial	20 MAX.				5	5	0.374	0.39	0.36	0.011	0.408	Pass	
		After Test	ΔR 20 MAX.						0.033	0.09	0.00	0.039	0.151	Pass	
	Appearance														
		After Test	No Abnormality				-	5	-	No Abnormality					Pass
	G	湿度(定常状態)													
		Contact Resistance													
		Contact	Initial	50 MAX.	mohm	5	300	14.763	16.18	13.03	0.638	16.677	Pass		
After Test			ΔR 50 MAX.	0.212				2.15	-2.33	0.875	2.837	Pass			
Ground		Initial	20 MAX.	5				5	0.382	0.39	0.37	0.008	0.407	Pass	
		After Test	ΔR 20 MAX.						0.030	0.18	0.00	0.057	0.200	Pass	
Insulation Resistance															
		Initial	1000 MIN.	Mohm				5	-	10.3 × 10 <sup>4</sup> MIN.				Pass	
		After Test	500 MIN.				4.7 × 10 <sup>4</sup> MIN.				Pass				
Dielectric Withstanding Voltage															
		After Test	No Abnormality	-	5	-	No Abnormality					Pass			
Appearance															
	After Test	No Abnormality	-	5	-	No Abnormality					Pass				

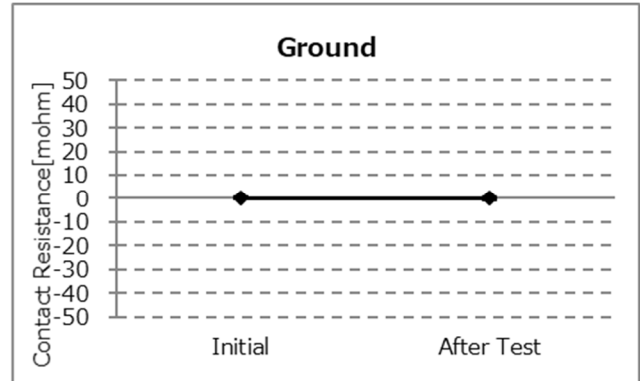
Table 2-3. 試験結果

Group	Contents of Measurement	Spec.	Unit	Q'ty	n	Data					Judge.		
						AVE.	MAX.	MIN.	S	X±3s			
H	湿度(サイクリング)												
	Contact resistance												
	Contact	Initial	50	MAX.	mohm	5	300	14.081	17.13	11.94	0.950	16.932	Pass
		After Test	ΔR 50	MAX.				0.129	5.33	-3.37	1.261	3.912	Pass
	Ground	Initial	20	MAX.	mohm	5	5	0.486	0.52	0.39	0.057	0.658	Pass
		After Test	ΔR 20	MAX.				0.055	0.18	0.00	0.066	0.254	Pass
	Insulation Resistance												
		Initial	1000	MIN.	Mohm	5	-	6.3 x 10 <sup>4</sup> MIN.				Pass	
		After Test	500	MIN.				12.0 x 10 <sup>4</sup> MIN.				Pass	
	Dielectric Withstanding Voltage												
	After Test	No Abnormality	-	5	-	No Abnormality					Pass		
Appearance													
	After Test	No Abnormality	-	5	-	No Abnormality					Pass		
J	塩水噴霧												
	Contact Resistance												
	Contact	Initial	50	MAX.	mohm	5	300	14.800	16.34	13.02	0.665	16.794	Pass
		After Test	ΔR 50	MAX.				-0.327	2.38	-2.96	1.057	-3.498	Pass
	Ground	Initial	20	MAX.	mohm	5	5	0.376	0.39	0.36	0.013	0.416	Pass
		After Test	ΔR 20	MAX.				0.016	0.11	-0.06	0.050	0.165	Pass
	Appearance												
	After Test	No Abnormality	-	5	-	No Abnormality					Pass		
K	硫化水素ガス												
	Contact Resistance												
	Contact	Initial	50	MAX.	mohm	5	300	14.662	16.26	13.14	0.644	16.594	Pass
		After Test	ΔR 50	MAX.				0.790	4.53	-2.26	1.282	4.635	Pass
	Ground	Initial	20	MAX.	mohm	5	5	0.384	0.40	0.37	0.013	0.424	Pass
		After Test	ΔR 20	MAX.				0.022	0.07	0.00	0.029	0.109	Pass
	Appearance												
	After Test	No Abnormality	-	5	-	No Abnormality					Pass		
L	半田付け性												
	Solder Wetting Area												
	After Test	95	MIN.	%	10	-	95 MIN.					Pass	
M	半田耐熱性												
	Appearance												
	After Test	No Abnormality	-	10	-	No Abnormality					Pass		
N	手半田												
	Appearance												
	After Test	No Abnormality	-	10	-	No Abnormality					Pass		

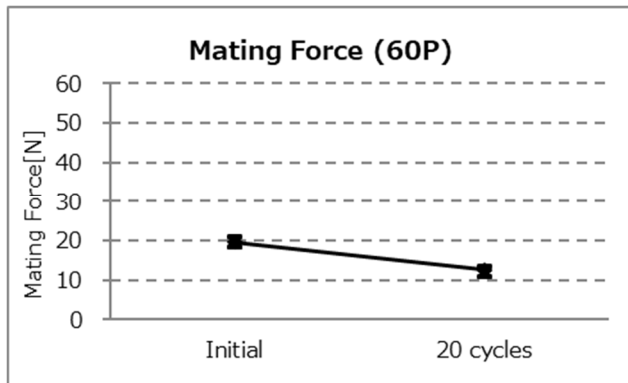
## B Group / 耐久性



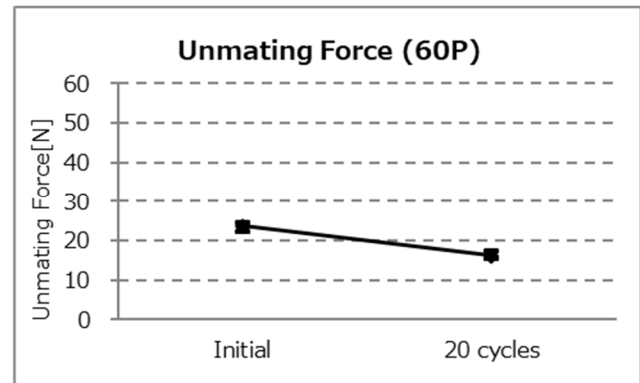
Graph-1. A change of contact resistance



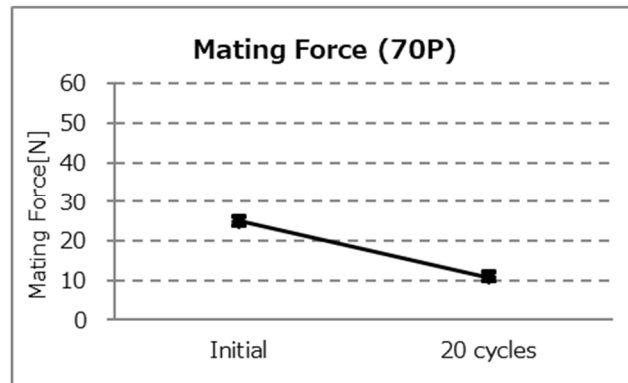
Graph-2. A change of power GND contact resistance



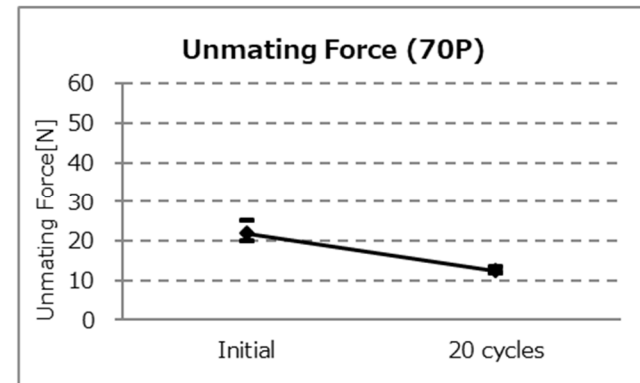
Graph-3-1. A change of mating force 60P



Graph-3-2. A change of unmating force 60P

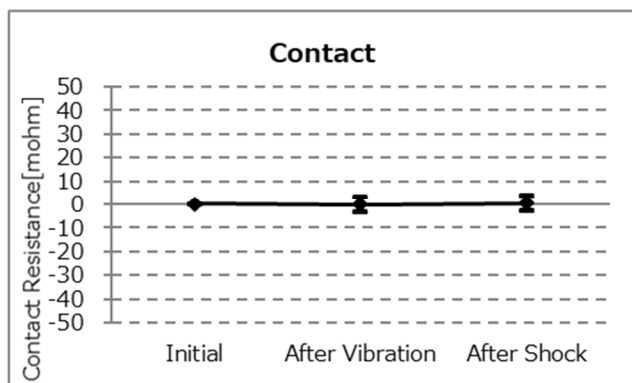


Graph-3-3. A change of mating force 70P

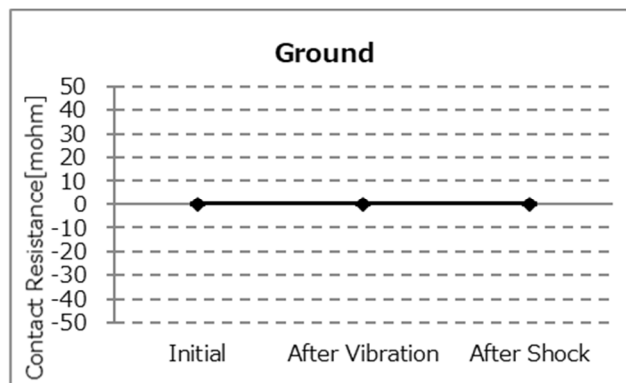


Graph-3-4. A change of unmating force 70P

## D Group / 耐振動性 → 耐衝撃性

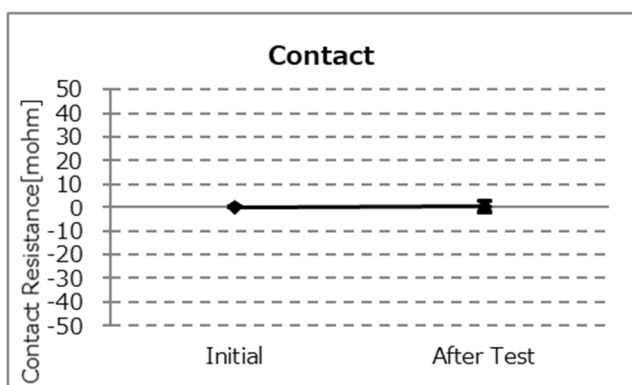


Graph-4. A change of contact resistance

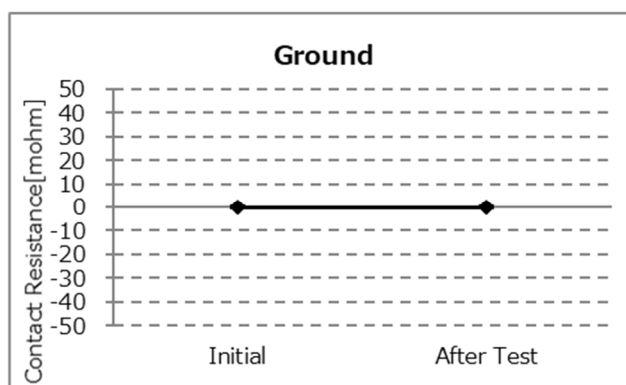


Graph-5. A change of power GND contact resistance

## E Group / 熱衝擊

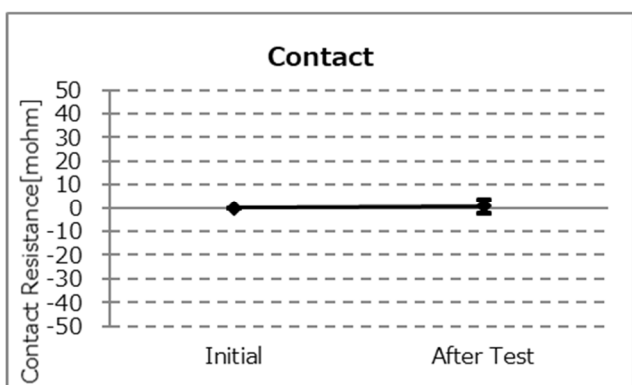


Graph-6. A change of contact resistance

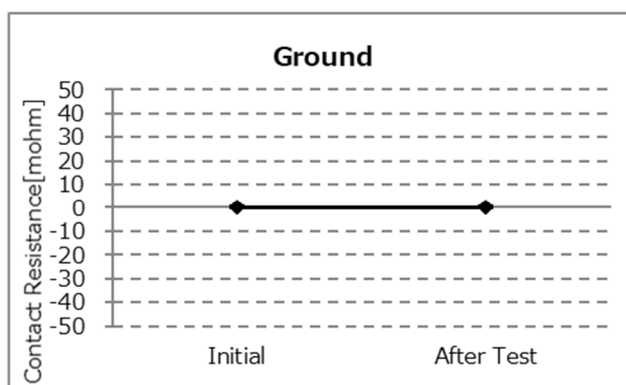


Graph-7. A change of GND contact resistance

## F Group / 高温寿命



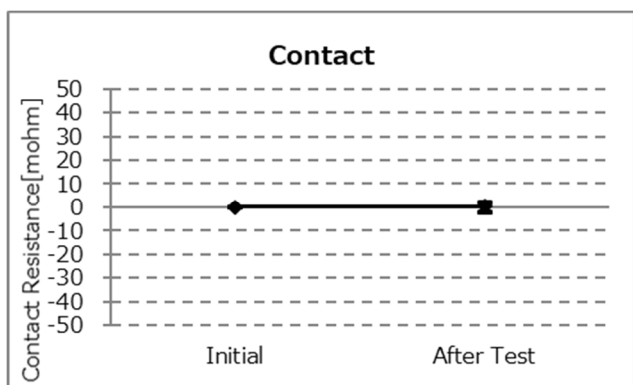
Graph-8. A change of contact resistance



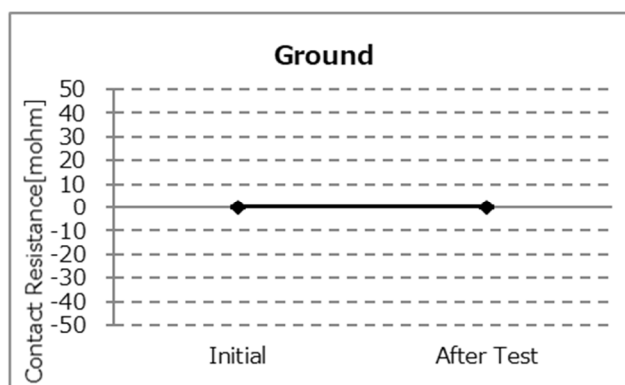
Graph-9. A change of GND contact resistance



## G Group / 湿度 (定常状態)

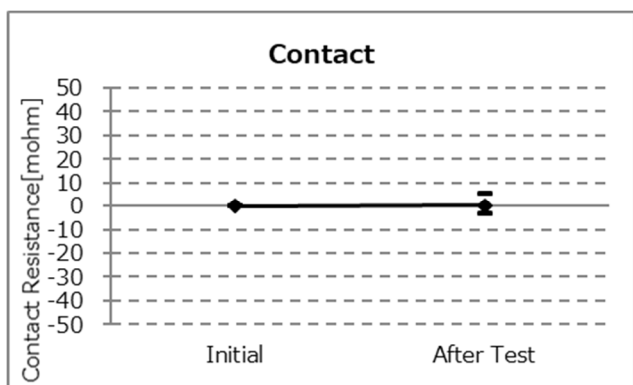


Graph-10. A change of contact resistance

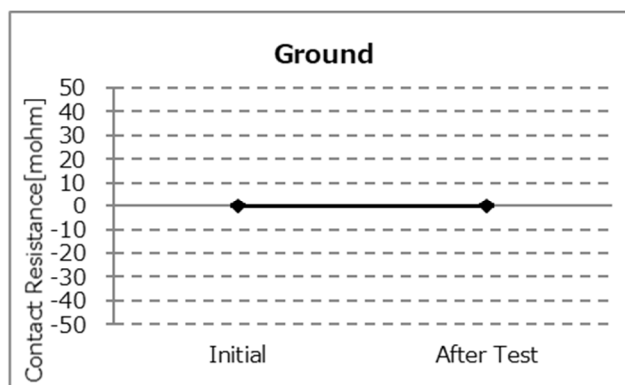


Graph-11. A change of GND contact resistance

## H Group / 湿度 (サイクリング)

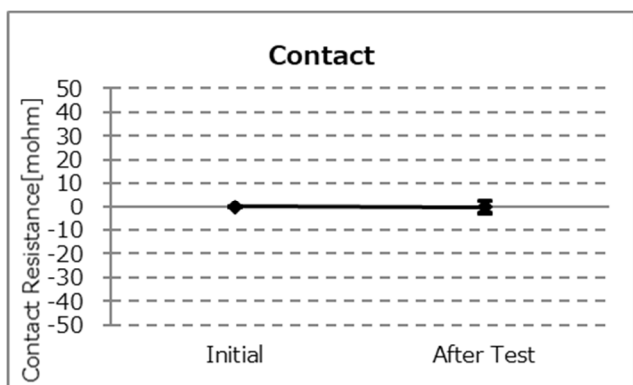


Graph-12. A change of contact resistance

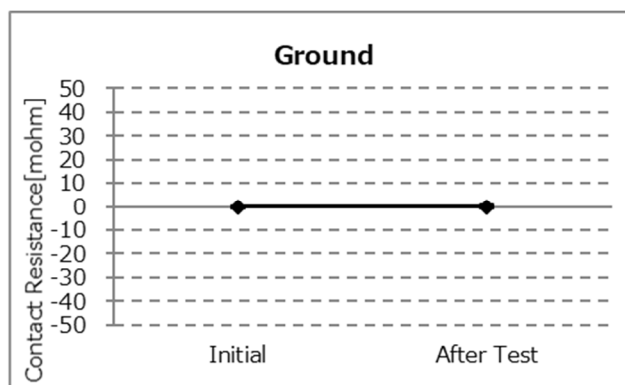


Graph-13. A change of GND contact resistance

## J Group / 塩水噴霧

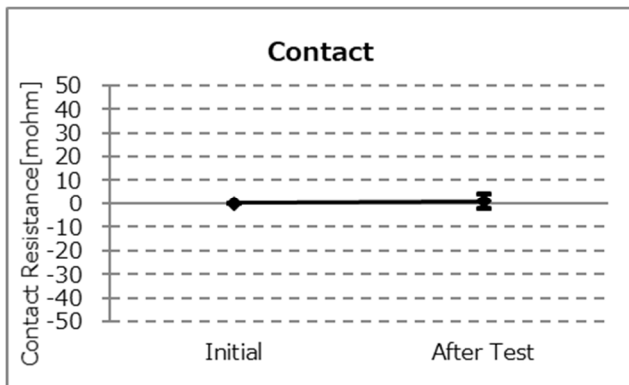


Graph-14. A change of contact resistance

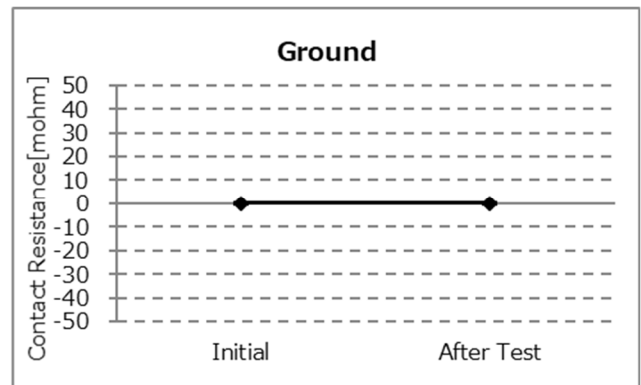


Graph-15. A change of GND contact resistance

K Group / 硫化水素ガス



Graph-16. A change of contact resistance



Graph-17. A change of GND contact resistance