

NOVASTACK® 35-HDN

Part No. Plug: 20864-0**E-0# Receptacle: 20865-0**E-0#

Test Report

Product Specification no. PRS-2607

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3	T20017	January 31, 2020	A.Kagoshima	T.Yayoshi	Y.Shimada
2	T19165	December 11, 2019	R.Itokawa	T.Yayoshi	Y.Shimada
1	T19106	September 25, 2019	R.Shioya	A.Kagoshima	Y.Shimada
Rev.	ECN	Date	Prepared by	Checked by	Approved by

1. Purpose

NOVASTACK 35-HDN コネクタの性能を PRS-2607 に基づいて評価する。

2. Specimen

- (1) NOVASTACK 35-HDN Plug Ass'y (Part No. 20864-0**E-0#)
- (2) NOVASTACK 35-HDN Receptacle Ass'y (Part No. 20865-0**E-0#)

3. Test Sequence

全ての評価は表 1 の試験順序に従って行った。

4. Result

Table2-1～2-3、Graph1～22 参照。試験条件の詳細は PRS-2607 参照。n 数は測定データ数を意味する。

5. Conclusion

全ての資料が製品規格（PRS-2607）の必要条件を満足した。

Table 1 試験順序と試料数

試験項目	グループ												
	A	B	C	D	E	F	G	H	J	K	L	M	N
接触抵抗		2,6		1,3,5	1,5	1,3	1,5	1,5	1,3	1,3			
絶縁抵抗					2,6		2,6	2,6					
耐電圧					3,7		3,7	3,7					
温度上昇	1												
挿入力		1,5											
抜去力		3,7											
耐久性		4											
端子保持力			1										
耐振動性				2									
耐衝撃性				4									
熱衝撃					4								
高温寿命						2							
湿度 (定常状態)							4						
湿度 (サイクリング)								4					
塩水噴霧									2				
硫化水素ガス										2			
半田付け性											1		
半田耐熱性												1	
手半田													1
試料数	5 pcs.	5 pcs.	20 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	10 pcs.	10 pcs.	10 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	Temperature Rising													
	10P Signal Contact 1.0A/Contact (Total:10.0A)	ΔT 30 MAX.	°C	5	-	ΔT	18.1	MAX.				Pass		
	20P Signal Contact 0.6A/Contact (Total:12.0A)		°C	5	-	ΔT	21.8	MAX.						
	30P Signal Contact 0.4A/Contact (Total:12.0A)		°C	5	-	ΔT	14.0	MAX.						
B Durability														
Contact Resistance														
Signal Contact	Initial	40 MAX.	mohm	5	50	8.225	10.11	6.66	0.755	10.491	Pass			
	After 10 cycles	ΔR 40 MAX.				-1.018	0.02	-2.66	0.626	-2.896	Pass			
Ground	Initial	20 MAX.				10	1.157	1.30	1.00	0.104	1.468	Pass		
	After 10 cycles	ΔR 20 MAX.					0.487	1.58	-0.70	0.722	2.655	Pass		
Mating Force														
10P	Initial	20.0 MAX.				N	5	-	15.788	16.94	14.78	-	-	Pass
	After 10 cycles		6.258	6.59	5.83				-	-	Pass			
20P	Initial	40.0 MAX.	N	5	-	17.771	18.475	17.177	-	-	Pass			
	After 10 cycles					8.544	9.682	7.188	-	-	Pass			
30P	Initial	60.0 MAX.	N	5	-	28.912	29.96	27.06	-	-	Pass			
	After 10 cycles					13.902	14.92	13.04	-	-	Pass			
Unmating Force														
10P	Initial	1.5 MIN.	N	5	-	8.920	9.75	7.93	-	-	Pass			
	After 10 cycles					5.054	5.81	4.54	-	-	Pass			
20P	Initial	3.0 MIN.	N	5	-	12.371	13.733	11.255	-	-	Pass			
	After 10 cycles					6.853	7.616	5.949	-	-	Pass			
30P	Initial	4.5 MIN.	N	5	-	18.084	19.02	17.32	-	-	Pass			
	After 10 cycles					11.642	11.92	11.13	-	-	Pass			
C Contact Retention Force														
Receptacle														
Signal Contact	Initial	0.1 MIN.	N	-	20	0.66 N MIN.					Pass			
	After Test					0.59 N MIN.					Pass			
Ground	Initial					1.13 N MIN.					Pass			
	After Test					1.04 N MIN.					Pass			
D Vibration → Shock														
Contact Resistance														
Signal Contact	Initial	40 MAX.	mohm	5	50	8.260	10.99	6.37	0.866	10.858	Pass			
	After Vibration	ΔR 40 MAX.				-0.228	1.56	-1.90	0.754	-2.490	Pass			
	After Shock					-0.332	0.95	-2.37	0.693	-2.411	Pass			
Ground	Initial	20 MAX.				10	1.405	2.39	1.03	0.483	2.854	Pass		
	After Vibration	ΔR 20 MAX.					0.412	1.12	-0.22	0.413	1.652	Pass		
	After Shock						0.369	1.33	-0.10	0.450	1.718	Pass		
Electrical Discontinuity														
	During Test	1 MAX.	μs	5	-	No Discontinuity					Pass			
Appearance														
	After Test	No Abnormality	-	5	-	No Abnormality					Pass			

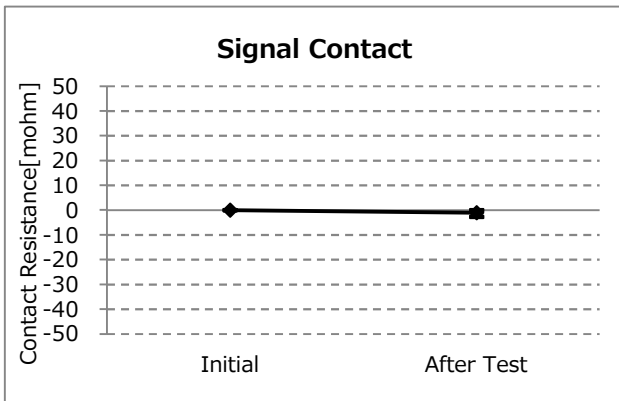
Table 2-2. 試験結果

Group	Contents of Measurement	Spec.	Unit	Q'ty	n	Data					Judge.				
						AVE.	MAX.	MIN.	S	X±3s					
E	Thermal Shock														
	Contact Resistance														
	Signal Contact	Initial	40 MAX.	mohm	5	50	8.280	9.51	7.00	0.706	10.398	Pass			
		After Test	ΔR 40 MAX.				0.749	3.09	-0.92	0.863	3.337	Pass			
	Ground	Initial	20 MAX.				10	1.413	2.11	1.05	0.309	2.341	Pass		
		After Test	ΔR 20 MAX.					0.539	1.48	-0.24	0.606	2.358	Pass		
	Insulation Resistance														
		Initial	1000 MIN.				Mohm	5	-	2.18 x 10 ⁴ MIN.					Pass
		After Test	500 MIN.							1.08 x 10 ⁴ MIN.					Pass
	Dielectric Withstanding Voltage														
		After Test	No Abnormality	-	5	-	No Abnormality					Pass			
Appearance															
	After Test	No Abnormality	-	5	-	No Abnormality					Pass				
F	High Temperature Life														
	Contact Resistance														
	Signal Contact	Initial	40 MAX.	mohm	5	50	8.862	10.73	7.35	0.951	11.714	Pass			
		After Test	ΔR 40 MAX.				1.301	2.88	-0.08	0.665	3.297	Pass			
	Ground	Initial	20 MAX.				10	1.465	1.93	1.05	0.274	2.287	Pass		
		After Test	ΔR 20 MAX.					0.651	1.39	-0.40	0.600	2.451	Pass		
	Appearance														
	After Test	No Abnormality	-				5	-	No Abnormality					Pass	
G	Humidity (Steady State)														
	Contact Resistance														
	Signal Contact	Initial	40 MAX.	mohm	5	50	8.769	11.01	6.83	0.880	11.410	Pass			
		After Test	ΔR 40 MAX.				-0.180	1.94	-1.87	0.737	-2.392	Pass			
	Ground	Initial	20 MAX.				10	1.647	2.14	1.21	0.281	2.490	Pass		
		After Test	ΔR 20 MAX.					0.918	2.04	0.43	0.514	2.460	Pass		
	Insulation Resistance														
		Initial	1000 MIN.				Mohm	5	-	1.15 x 10 ⁴ MIN.					Pass
		After Test	500 MIN.							1.58 x 10 ⁴ MIN.					Pass
	Dielectric Withstanding Voltage														
		After Test	No Abnormality	-	5	-	No Abnormality					Pass			
Appearance															
	After Test	No Abnormality	-	5	-	No Abnormality					Pass				

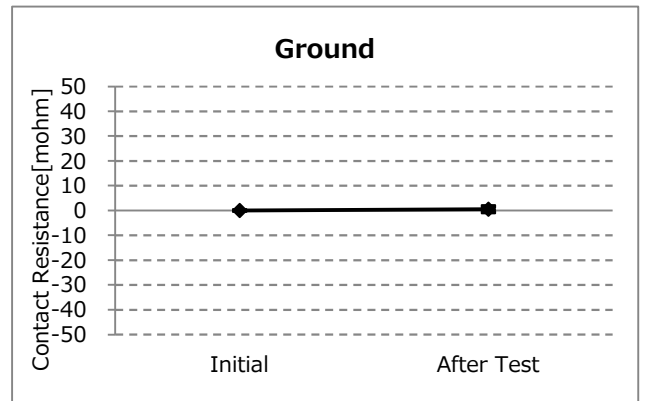
Table 2-3. 試験結果

Group	Contents of Measurement		Spec.	Unit	Q'ty	n	Data					Judge.			
							AVE.	MAX.	MIN.	S	X±3s				
H	Humidity (Cycling)														
	Signal Contact	Initial	40 MAX.	mohm	5	50	8.897	11.93	6.76	1.105	12.212	Pass			
		After Test	ΔR 40 MAX.				0.160	2.67	-1.87	0.907	2.882	Pass			
	Ground	Initial	20 MAX.				10	1.607	2.09	1.08	0.286	2.466	Pass		
		After Test	ΔR 20 MAX.					1.472	2.88	0.45	0.914	4.215	Pass		
	Insulation Resistance														
		Initial	1000 MIN.			Mohm	5	-	1.98 x 10 ⁴ MIN.					Pass	
		After Test	500 MIN.						5.24 x 10 ⁴ MIN.					Pass	
	Dielectric Withstanding Voltage														
		After Test	No Abnormality	-	5	-	No Abnormality					Pass			
Appearance															
	After Test	No Abnormality	-	5	-	No Abnormality					Pass				
J	Salt Water Spray														
	Contact Resistance														
	Signal Contact	Initial	40 MAX.	mohm	5	50	7.831	9.08	6.75	0.608	9.654	Pass			
		After Test	ΔR 40 MAX.				-0.507	0.60	-1.42	0.443	-1.837	Pass			
	Ground	Initial	20 MAX.				10	1.340	1.90	1.09	0.286	2.197	Pass		
		After Test	ΔR 20 MAX.					0.305	1.33	-0.83	0.664	2.298	Pass		
	Appearance														
	After Test	No Abnormality	-			5	-	No Abnormality					Pass		
K	H ₂ S Gas														
	Contact Resistance														
	Signal Contact	Initial	40 MAX.	mohm	5	50	8.697	11.67	6.78	1.092	11.973	Pass			
		After Test	ΔR 40 MAX.				-0.400	0.57	-1.73	0.564	-2.093	Pass			
	Ground	Initial	20 MAX.				10	1.685	2.11	1.30	0.267	2.486	Pass		
		After Test	ΔR 20 MAX.					0.473	1.40	-0.69	0.653	2.431	Pass		
	Appearance														
	After Test	No Abnormality	-			5	-	No Abnormality					Pass		
L	Solder Ability														
	Solder Wetting Area														
	After Test	95 MIN.	%	10	-	95 MIN.					Pass				
M	Resistance to Reflow Soldering Heat														
	Appearance														
	After Test	No Abnormality	-	10	-	No Abnormality					Pass				
N	Soldering Iron														
	Appearance														
	After Test	No Abnormality	-	10	-	No Abnormality					Pass				

B Group / Durability

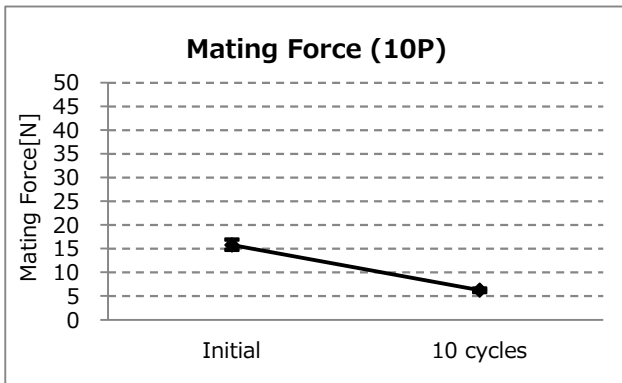


Graph-1. A Change of Signal Contact Resistance

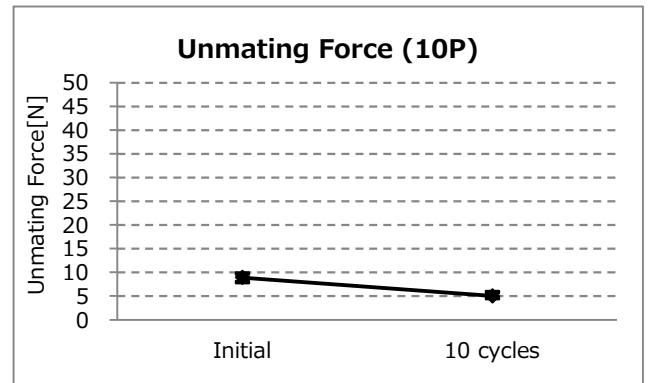


Graph-2. A Change of Ground Resistance

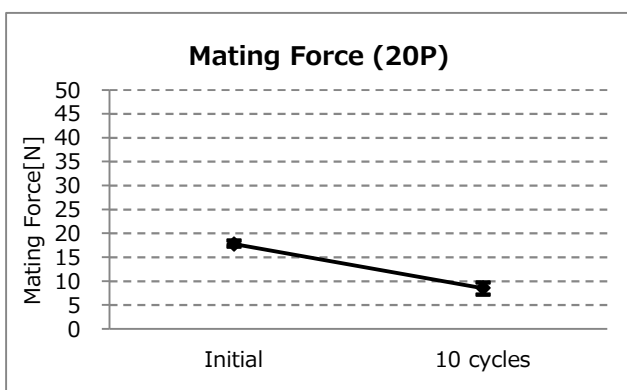
B Group / Durability



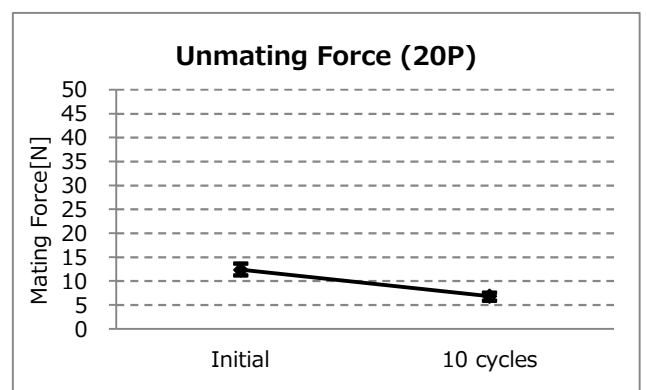
Graph-3. A Change of Mating Force (10P)



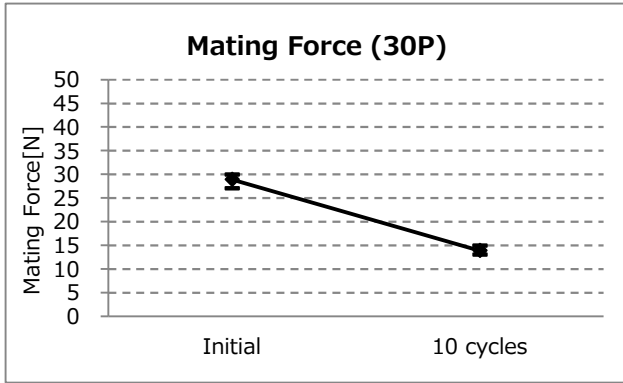
Graph-4. A Change of Unmating Force (10P)



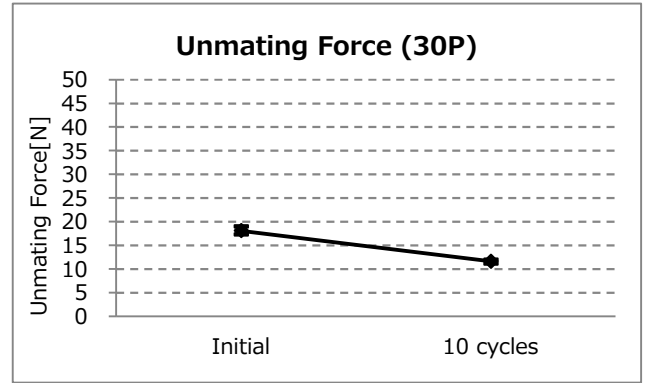
Graph-5. A Change of Mating Force (20P)



Graph-6. A Change of Unmating Force (20P)

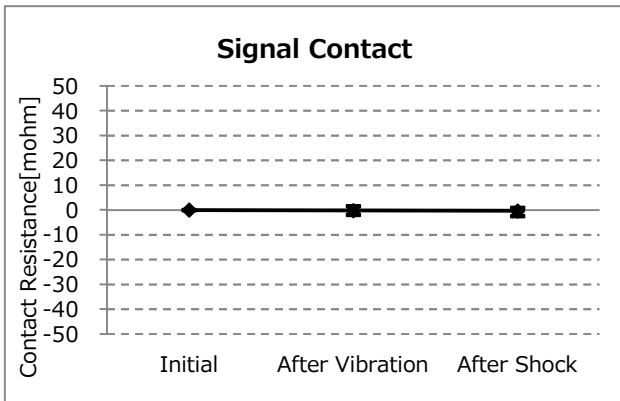


Graph-7. A Change of Mating Force (30P)

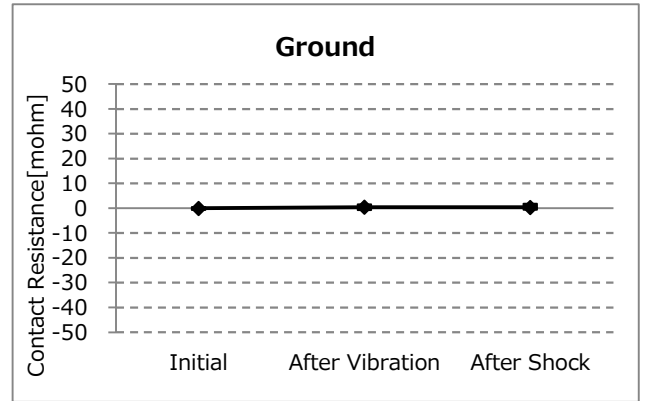


Graph-8. A Change of Unmating Force (30P)

D Group / Vibration → Shock

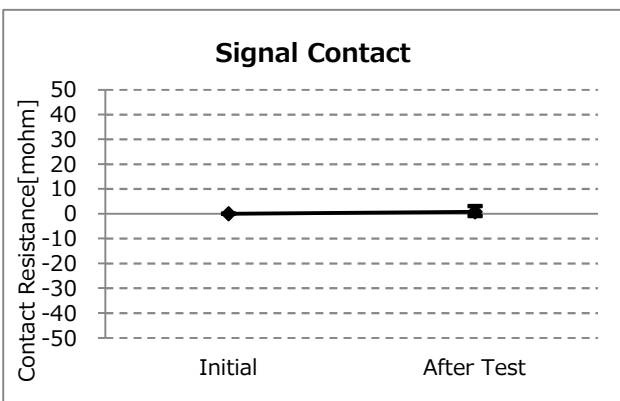


Graph-9. A Change of Signal Contact Resistance

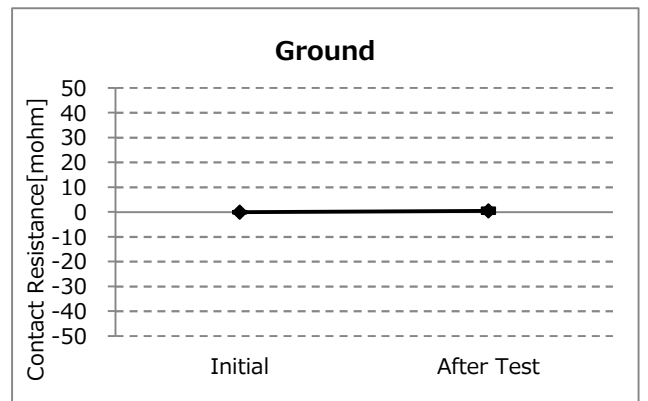


Graph-10. A Change of Ground Resistance

E Group / Thermal Shock

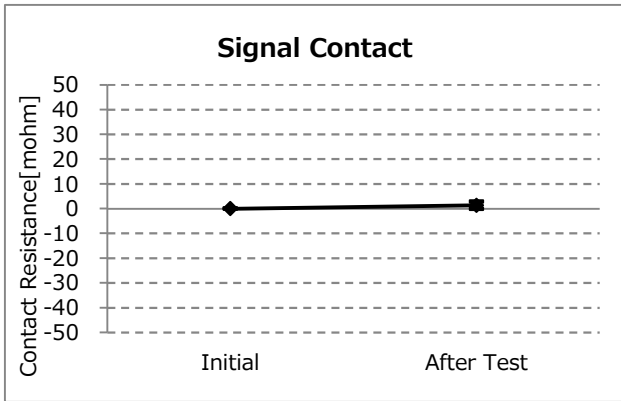


Graph-11. A Change of Signal Contact Resistance

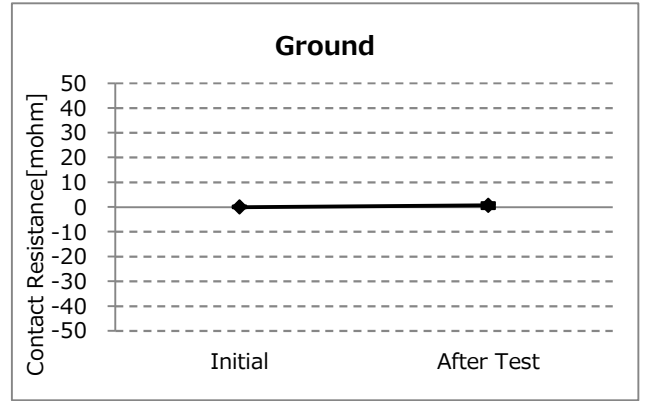


Graph-12. A Change of Ground Resistance

F Group / High Temperature Life

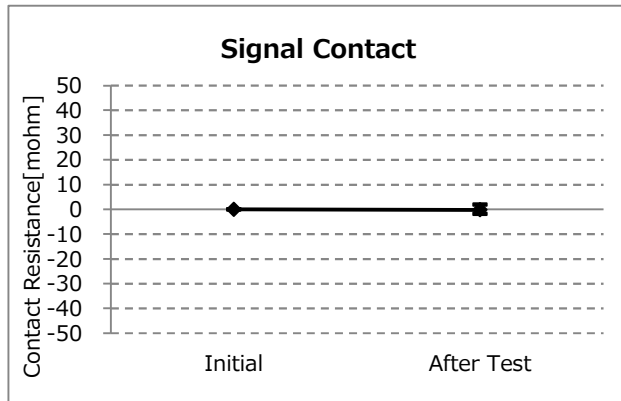


Graph-13. A Change of Signal Contact Resistance

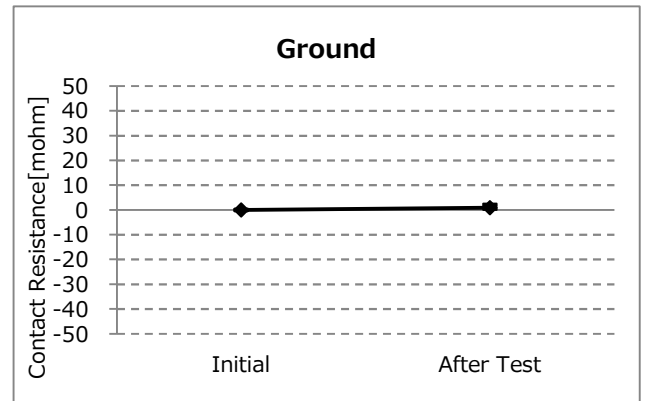


Graph-14. A Change of Ground Resistance

G Group / Humidity (Steady State)

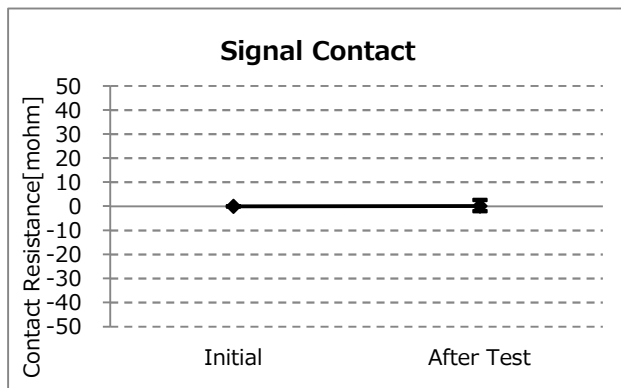


Graph-15 A Change of Signal Contact Resistance

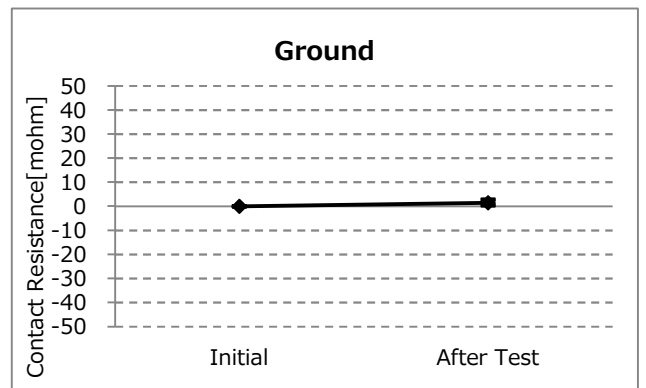


Graph-16. A Change of Ground Resistance

H Group / Humidity (Cycling)

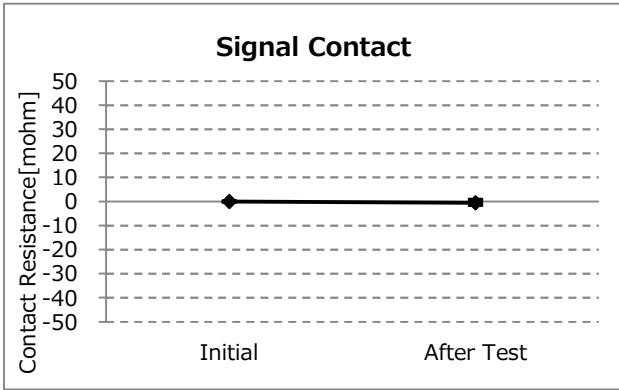


Graph-17. A Change of Signal Contact Resistance

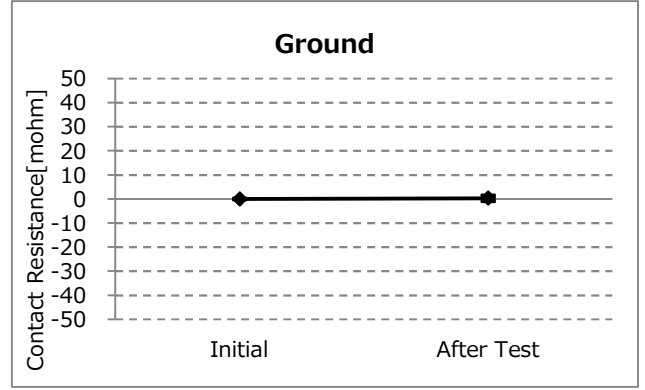


Graph-18. A Change of Ground Resistance

J Group / Salt Water Spray

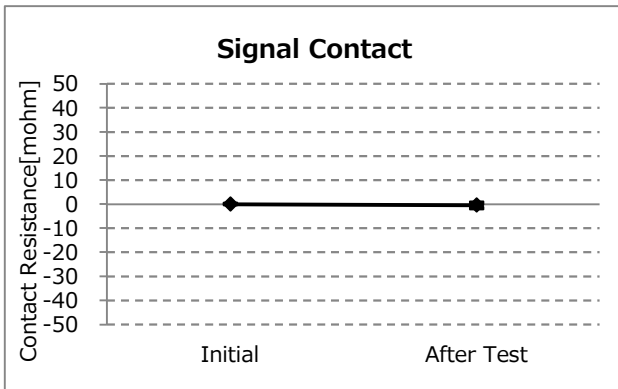


Graph-19. A Change of Signal Contact Resistance

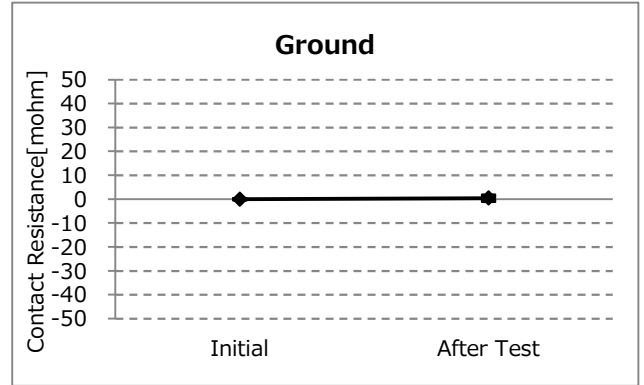


Graph-20. A Change of Ground Resistance

K Group / H₂S Gas



Graph-21. A Change of Signal Contact Resistance



Graph-22. A Change of Ground Resistance