

NOVASTACK® 35-HDP

Part No. 20697-0**E-0#-#, 20698-0**E-0#

Test Report

Product Specification no. PRS-2187

9	T25078	October 22, 2025	C.Saito	-	S.Suzuki
8	T25040	May 12, 2025	T.Matsunaga	-	S.Suzuki
7	T24034	June 19, 2024	Y.Fukumoto	-	S.Suzuki
6	T22065	April 25, 2022	H.Lu	Y.Shimizu	M.Takemoto
Rev.	ECN	Date	Prepared by	Checked by	Approved by

1. 目的

依照 PRS-2187 对 NOVASTACK 35-HDP 连接器的性能进行评价。

2. 试样

- (1) NOVASTACK 35-HDP PLUG ASS'Y (P/N: 20697-0**E-0#-#)
- (2) NOVASTACK 35-HDP RECEPTACLE ASS'Y (P/N: 20698-0**E-0#)

3. 试验顺序

所有评价均按照表 1 的试验顺序实施。

4. 结果

参照表 2-1~2-4、图 1~26。试验条件详情参照 PRS-2187。n 数代表测量数据。

5. 结论

所有资料均满足产品标准（PRS-2187）的必要条件。

Table 1 试验顺序与试样数

试验项目	分组											
	A	B	C	D	E	F	G	H	J	K	L	M
接触电阻	2, 6		1, 3, 5	1, 5	1, 3	1, 5	1, 5, 7	1, 3	1, 3			
绝缘电阻				2, 6		2, 6	2, 8					
耐电压				3, 7		3, 7	3, 9					
温度上升												1
插入力	1, 5											
拔出力	3, 7											
耐久性	4						4 (10cycles)					
端子保持力		1, 3										
振动			2									
冲击			4									
热冲击				4								
高温寿命		2			2							
湿度 (稳定状态)						4						
湿度 (循环)							6					
盐水喷雾								2				
气体 (H ₂ S)									2			
可焊性										1		
焊锡耐热性											1	
试样数	5 pcs.	20 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	10 pcs.	10 pcs.	5 pcs.

※电缆表中的编号表示试验顺序。

Table 2-1. 试验结果

分组	测量内容		标准	单位	数量	n	数据						
							AVE.	MAX.	MIN.	S	X±3s		
A	耐久性												
	接触电阻												
	Signal contact	初始	40	MAX.	mΩ	5	210	15.223	17.22	14.15	0.690	17.293	
		试验后 30 次后	ΔR 40	MAX.				0.324	3.78	-2.91	1.568	5.028	
	Power contact	初始	20	MAX.			20	2.985	3.78	2.47	0.403	4.194	
		试验后 30 次后	ΔR 20	MAX.				0.115	0.61	-0.57	0.327	1.096	
	Shell	初始	20	MAX.			10	9.095	10.17	8.50	0.468	10.499	
		试验后 30 次后	ΔR 20	MAX.				1.162	1.78	0.38	0.434	2.464	
	插入力												
	Signal Contact 16P + Power Contact 4P	初始	32.0	MAX.	N	5	-	21.498	22.35	20.78	-	-	
		试验后 30 次后						9.630	10.36	9.04	-	-	
	Signal Contact 28P + Power Contact 4P	初始	32.0	MAX.			-	28.318	29.54	27.35	-	-	
		试验后 30 次后						11.012	12.12	10.24	-	-	
	Signal Contact 34P + Power Contact 4P	初始	38.0	MAX.			-	30.988	31.80	30.17	-	-	
		试验后 30 次后						12.738	13.33	12.54	-	-	
	Signal Contact 42P + Power Contact 4P	初始	46.0	MAX.			-	32.592	33.71	31.51	-	-	
		试验后 30 次后						14.194	14.66	13.42	-	-	
	Signal Contact 56P + Power Contact 4P	初始	60.0	MAX.			-	39.758	42.40	38.37	-	-	
		试验后 30 次后						19.596	21.23	18.08	-	-	
	Signal Contact 62P + Power Contact 4P	初始	66.0	MAX.			-	45.920	47.20	44.10	-	-	
		试验后 30 次后						21.840	23.00	21.30	-	-	
	拔出力												
	Signal Contact 16P + Power Contact 4P	初始	3.2	MIN.			N	5	-	10.180	10.42	9.99	-
		试验后 30 次后			6.456	6.81				5.89	-	-	
	Signal Contact 28P + Power Contact 4P	初始	3.2	MIN.	-	14.360			15.21	13.54	-	-	
		试验后 30 次后				10.226			11.32	9.43	-	-	
	Signal Contact 34P + Power Contact 4P	初始	3.8	MIN.	-	15.122			15.91	14.34	-	-	
		试验后 30 次后				10.824			11.39	9.99	-	-	
	Signal Contact 42P + Power Contact 4P	初始	4.6	MIN.	-	15.988			17.88	15.13	-	-	
		试验后 30 次后				9.942			10.40	9.30	-	-	
	Signal Contact 56P + Power Contact 4P	初始	6.0	MIN.		20.800			21.63	20.45	-	-	
		试验后 30 次后				13.340			13.93	12.94	-	-	
	Signal Contact 62P + Power Contact 4P	初始	6.6	MIN.	-	18.940			19.60	18.00	-	-	
		试验后 30 次后				18.060			19.30	16.50	-	-	

B	端子保持力										
	Plug										
	Signal contact	初始	0.6	MIN.	N	-	20	2.52 MIN.		-	-
		试验后						2.07 MIN.		-	-
	Power contact	初始						3.80 MIN.		-	-
		试验后						3.92 MIN.		-	-
	Receptacle										
	Signal contact	初始	0.1	MIN.	N	-	20	0.42 MIN.		-	-
		试验后						0.34 MIN.		-	-
	Power contact	初始						0.53 MIN.		-	-
试验后		0.48 MIN.						-	-		

C	震动 → 冲击												
	接触电阻												
	Signal contact	初始	40	MAX.			210	15.200	17.04	13.96	0.685	17.255	
		震动后	ΔR 40					MAX.		-0.500	0.32	-1.31	0.474
冲击后		-0.505								0.44	-1.39	0.393	0.674

*外观标准：没有损害功能的异常

Table 2-2. 试验结果

分组	测量内容		标准		单位	数量	n	数据				
								AVE.	MAX.	MIN.	S	X±3s
C	震动 → 冲击											
	接触电阻											
	Signal contact	初始	40	MAX.	mΩ	5	210	15.200	17.04	13.96	0.685	17.255
		震动后	ΔR 40	MAX.				-0.500	0.32	-1.31	0.474	0.922
		冲击后						-0.505	0.44	-1.39	0.393	0.674
	Power contact	初始	20	MAX.			20	2.783	3.31	2.18	0.362	3.869
		震动后	ΔR 20	MAX.				0.166	0.72	-0.20	0.268	0.970
		冲击后						0.324	0.87	-0.29	0.363	1.413
	Shell	初始	20	MAX.			10	8.145	9.28	7.38	0.585	9.900
		震动后	ΔR 20	MAX.				0.149	0.55	-0.20	0.281	0.992
		冲击后						0.163	0.77	-0.27	0.288	1.027
	供电瞬断											
		试验中	1	MAX.	μs	5	-	无瞬断				
外观												
	试验后	*		-	5	-	无瞬断					
D	热冲击											
	接触电阻											
	Signal contact	初始	40	MAX.	mΩ	5	210	15.962	18.86	13.46	1.198	19.556
		试验后	ΔR 40	MAX.				0.769	4.46	-2.70	1.376	4.897
	Power contact	初始	20	MAX.			20	2.680	3.48	1.67	0.537	4.291
		试验后	ΔR 20	MAX.				0.420	1.09	-0.15	0.308	1.344
	Shell	初始	20	MAX.			10	8.865	9.38	8.45	0.356	9.933
		试验后	ΔR 20	MAX.				-0.067	0.61	-0.84	0.413	1.172
	绝缘电阻											
		初始	1000	MIN.	MΩ	5	-	1.77 × 10 ⁵ Min.				
		试验后	500	MIN.				1.43 × 10 ⁵ Min.				
	耐电压											
		试验后	**		-	5	-	无异常				
外观												
	试验后	*		-	5	-	无异常					
E	高温寿命											
	接触电阻											
	Signal contact	初始	40	MAX.	mΩ	5	210	15.949	18.73	13.20	1.215	19.594
		试验后	ΔR 40	MAX.				0.529	3.44	-2.26	1.110	3.859
	Power contact	初始	20	MAX.			20	2.718	3.33	2.21	0.363	3.807
		试验后	ΔR 20	MAX.				-0.095	0.76	-0.80	0.437	1.216
	Shell	初始	20	MAX.			10	8.208	8.67	7.46	0.441	9.531
		试验后	ΔR 20	MAX.				-0.098	0.75	-0.75	0.465	1.297
	外观											
		试验后	*		-	5	-	无异常				

*外观标准：没有损害功能的异常
**耐电压标准：没有沿面放电、閃燃、绝缘体故障的异常

Table 2-3. 试验结果

分组	测量内容		标准		单位	数量	n	数据					判定
								AVE.	MAX.	MIN.	S	X±3s	
F	湿度(稳定状态)												
	接触电阻												
	Signal contact	初始	40	MAX.	mΩ	5	210	16.158	18.74	13.94	1.143	19.587	Pass
		试验后	ΔR 40	MAX.				0.865	3.37	-1.63	1.103	4.174	Pass
	Power contact	初始	20	MAX.			20	2.786	3.62	2.18	0.393	3.965	Pass
		试验后	ΔR 20	MAX.				0.190	1.13	-0.84	0.582	1.936	Pass
	Shell	初始	20	MAX.			10	8.295	8.78	7.56	0.378	9.429	Pass
		试验后	ΔR 20	MAX.				-0.186	0.30	-0.91	0.420	1.074	Pass
	绝缘电阻												
		初始	1000	MIN.	MΩ	5	-	1.28 x 10 ⁵ Min.					Pass
		试验后	500	MIN.				1.04 x 10 ⁵ Min.					Pass
	耐电压												
		试验后	* *		-	5	-	无异常					Pass
	外观												
		试验后	*		-	5	-	无异常					Pass

G	湿度(循环)															
	接触电阻															
	Signal contact	初始	40	MAX.	mΩ	5	210	15.793	17.74	13.74	0.842	18.319	Pass			
		耐久插拔10次后	ΔR 40	MAX.				-0.719	1.60	-2.52	0.786	1.639	Pass			
		试验后						0.493	2.51	-1.63	0.881	3.136	Pass			
	Power contact	初始	20	MAX.			20	2.982	3.70	2.33	0.426	4.260	Pass			
		耐久插拔10次后	ΔR 20	MAX.				-0.041	1.29	-1.08	0.643	1.888	Pass			
		试验后						0.114	1.36	-1.18	0.626	1.992	Pass			
	Shell	初始	20	MAX.			10	8.164	8.86	7.40	0.399	9.361	Pass			
		耐久插拔10次后	ΔR 20	MAX.				-0.070	1.04	-1.31	0.709	2.057	Pass			
		试验后						0.134	1.33	-0.46	0.559	1.811	Pass			
	绝缘电阻															
		初始	1000	MIN.	MΩ	5	-	1.15 x 10 ⁵ Min.					Pass			
		试验后	500	MIN.				1.04 x 10 ⁵ Min.					Pass			
	耐电压															
	试验后	* *		-	5	-	无异常					Pass				
外观																
	试验后	*		-	5	-	无异常					Pass				

H	盐水喷雾												
	接触电阻												
	Signal contact	初始	40	MAX.	mΩ	5	210	15.093	17.07	13.23	0.890	17.763	Pass
		试验后	ΔR 40	MAX.				0.201	3.68	-3.49	1.670	5.211	Pass
	Power contact	初始	20	MAX.			20	2.952	3.36	2.46	0.255	3.717	Pass
		试验后	ΔR 20	MAX.				-0.037	0.98	-0.53	0.382	1.109	Pass
	Shell	初始	20	MAX.			10	8.050	8.70	7.55	0.404	9.262	Pass
		试验后	ΔR 20	MAX.				0.036	0.77	-0.61	0.444	1.368	Pass
	外观												
		试验后	*		-	5	-	无异常					Pass

*外观标准: 没有损害功能的异常

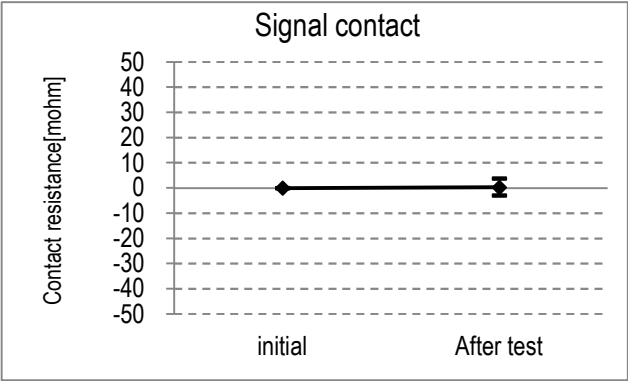
**耐电压标准: 没有沿面放电、閃燃、绝缘体故障的异常

Table 2-4. 试验结果

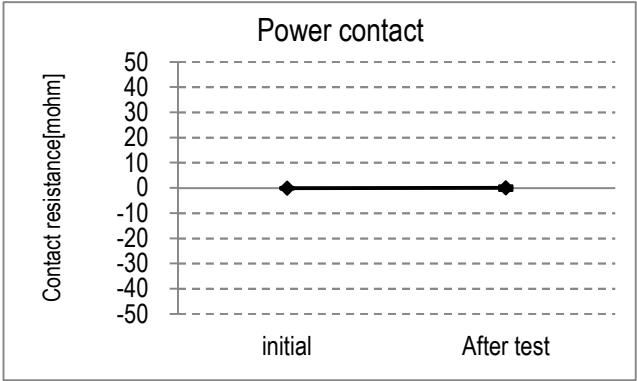
分组	测量内容		标准	单位	数量	n	数据					判定	
							AVE.	MAX.	MIN.	S	X±3s		
J	气体 (H2S)												
	接触电阻												
	Signal contact	初始	40	MAX.	mΩ	5	210	15.721	17.80	13.61	0.920	18.481	Pass
		试验后	ΔR 40	MAX.				0.599	3.41	-2.34	1.115	3.944	Pass
	Power contact	初始	20	MAX.			20	2.961	3.84	2.24	0.345	3.996	Pass
		试验后	ΔR 20	MAX.				-0.124	0.92	-1.06	0.550	1.526	Pass
	Shell	初始	20	MAX.			10	8.001	8.52	7.50	0.335	9.006	Pass
		试验后	ΔR 20	MAX.				0.303	0.96	-0.28	0.418	1.557	Pass
外观													
	试验后		*	-			5	-	无异常				
K	可焊性												
	焊锡湿润面积												
		试验后	95	MIN.	%	10	-	95 MIN.					Pass
L	焊锡耐热性												
	外观												
		试验后		*	-	10	-	无异常					Pass
M	温度上升												
	Signal Contact 16P + Power Contact 4P (Signal:0.30A,Power:2.20A)		ΔT 30	MAX.	℃	5	-	8.9 Max.					Pass
	Signal Contact 28P + Power Contact 4P (Signal:0.30A,Power:2.20A)							8.7 Max.					Pass
	Signal Contact 34P + Power Contact 4P (Signal:0.30A,Power:2.20A)							8.7 Max.					Pass
	Signal Contact 42P + Power Contact 4P (Signal:0.29A,Power:2.20A)							8.5 Max.					Pass
	Signal Contact 56P + Power Contact 4P (Signal:0.22A,Power:2.20A)							6.9 Max.					Pass
	Signal Contact 62P + Power Contact 4P (Signal:0.19A,Power:2.20A)							5.8 Max.					Pass

*外观标准：没有损害功能的异常

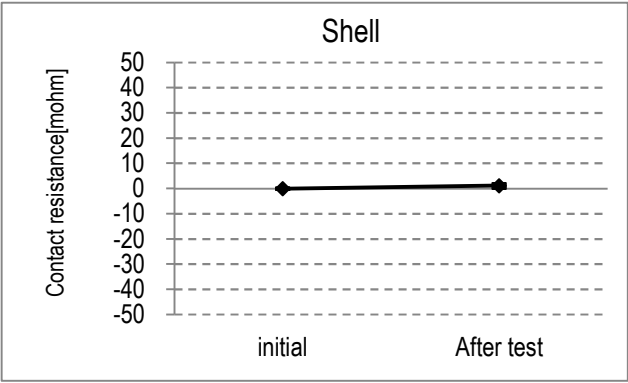
A Group / Durability



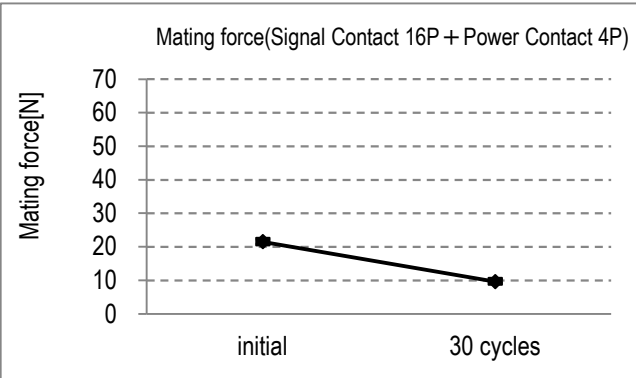
Graph-1. A change of signal contact resistance



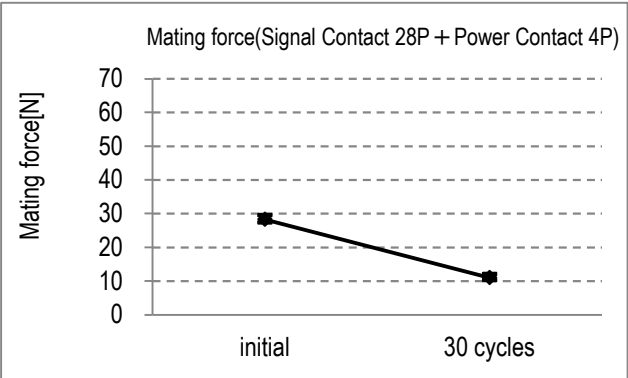
Graph-2. A change of power contact resistance



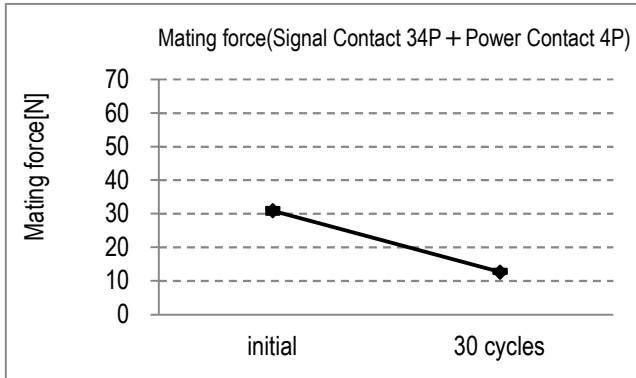
Graph-3. A change of Shell contact resistance



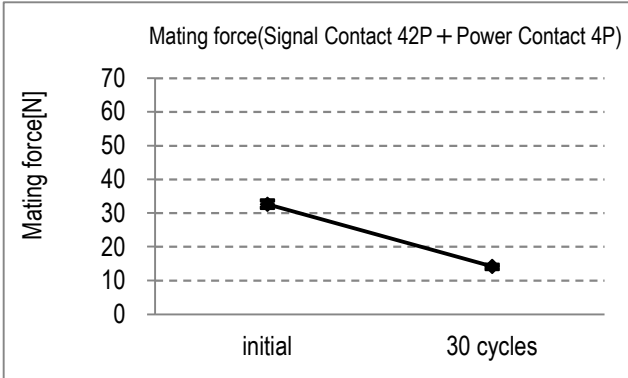
Graph-4-1. A change of mating force Signal Contact 16P + Power Contact 4P



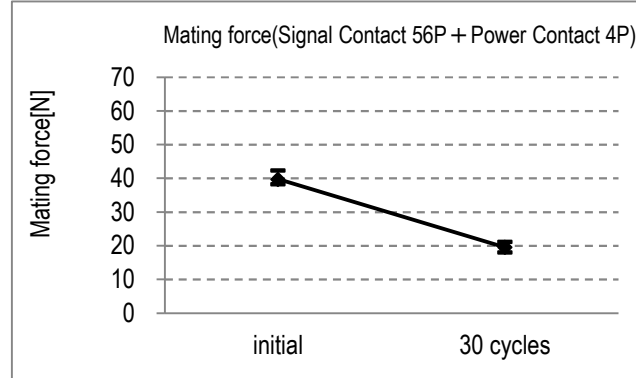
Graph-4-2. A change of mating force Signal Contact 28P + Power Contact 4P



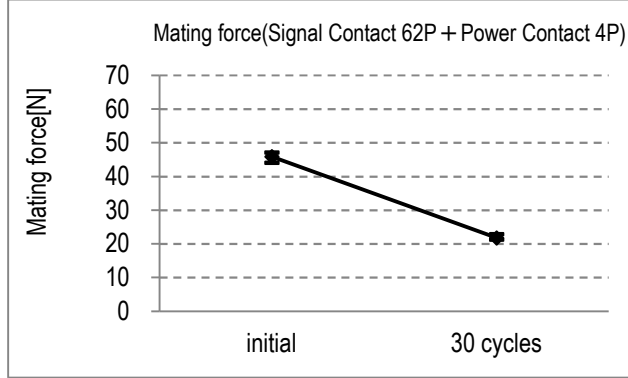
Graph-4-1. A change of mating force Signal Contact 34P + Power Contact 4P



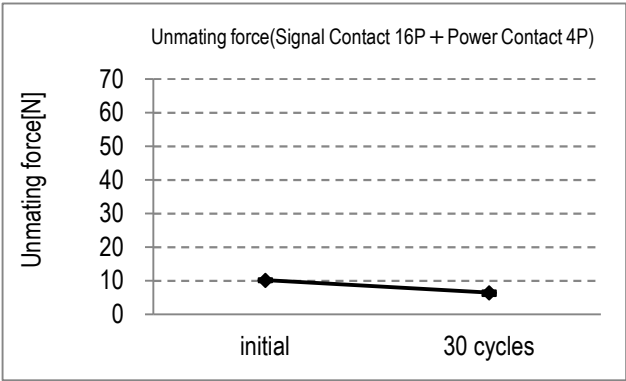
Graph-4-2. A change of mating force Signal Contact 42P + Power Contact 4P



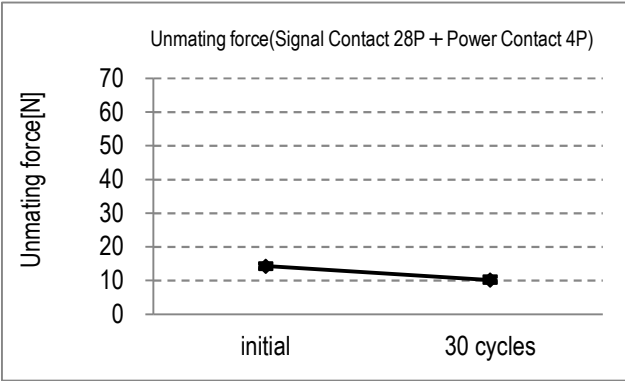
Graph-4-1. A change of mating force Signal Contact 56P + Power Contact 4P



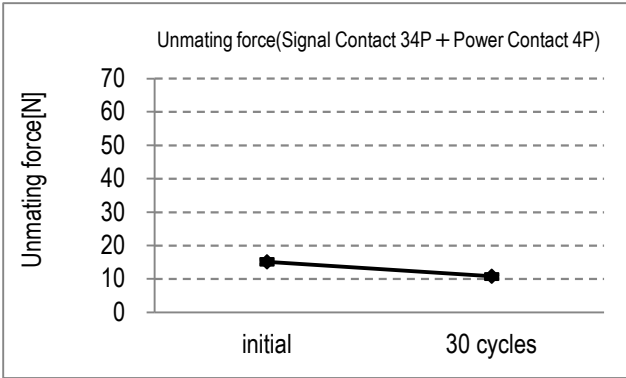
Graph-4-2. A change of mating force Signal Contact 62P + Power Contact 4P



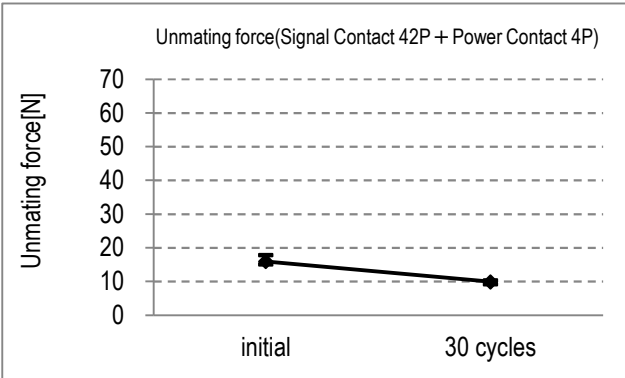
Graph-4-1. A change of unmating force Signal Contact 16P + Power Contact 4P



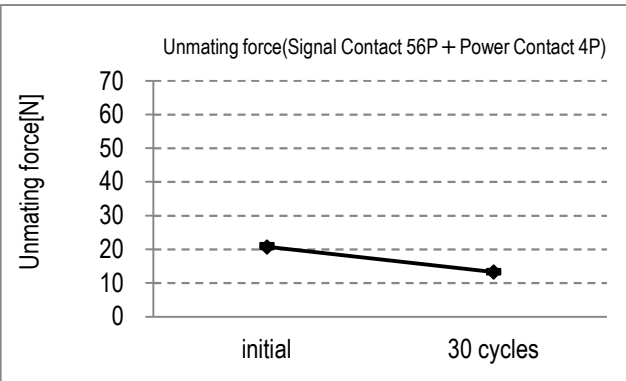
Graph-4-2. A change of unmating force Signal Contact 28P + Power Contact 4P



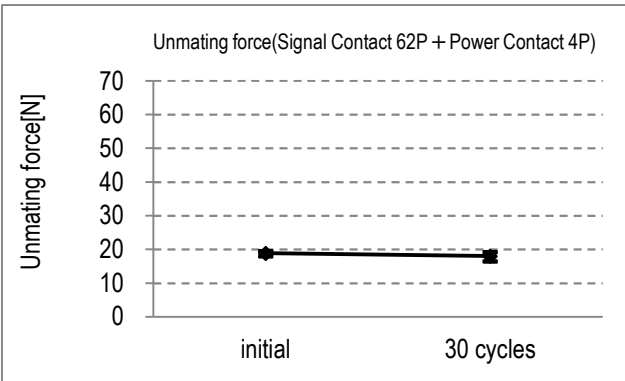
Graph-4-1. A change of unmating force Signal Contact 34P + Power Contact 4P



Graph-4-2. A change of unmating force Signal Contact 42P + Power Contact 4P

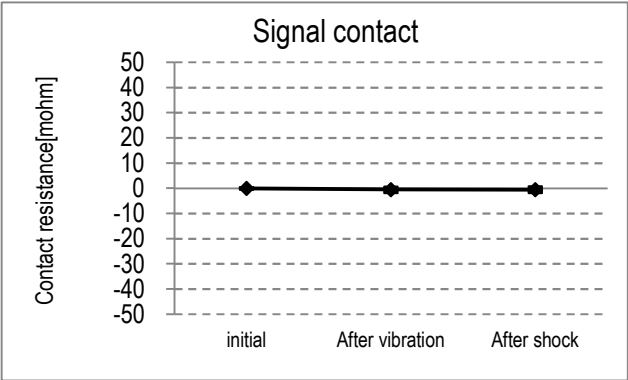


Graph-4-1. A change of unmating force Signal Contact 56P + Power Contact 4P

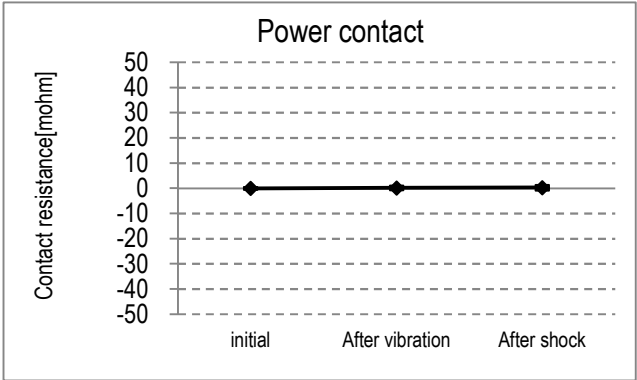


Graph-4-2. A change of unmating force Signal Contact 62P + Power Contact 4P

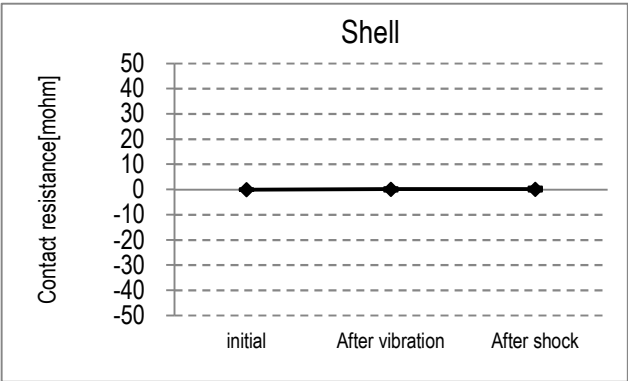
C Group / Vibration → Shock



Graph-6. A change of signal contact resistance

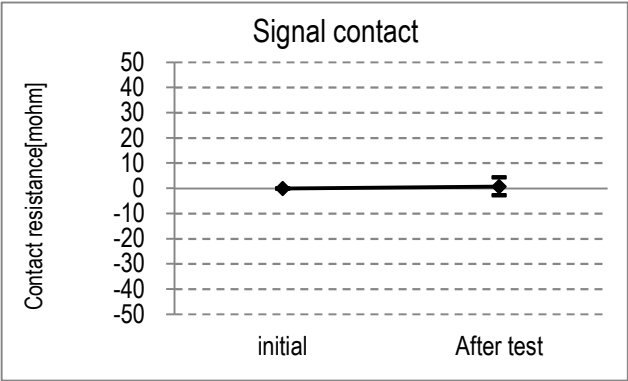


Graph-7. A change of power contact resistance

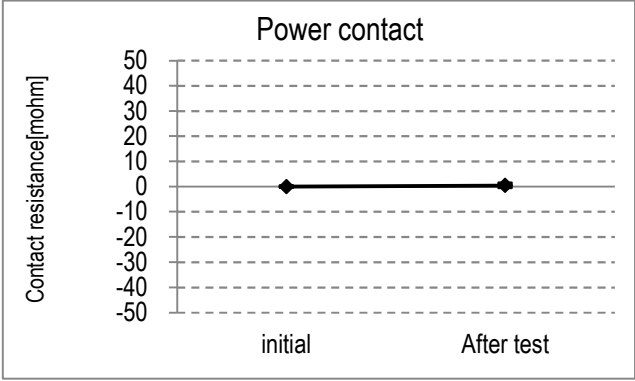


Graph-8. A change of Shell contact resistance

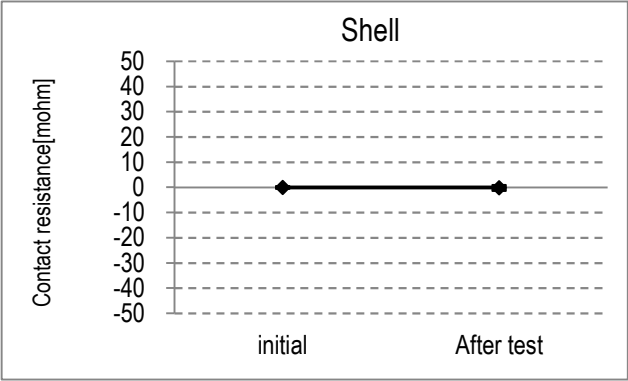
D Group / Thermal Shock



Graph-9. A change of signal contact resistance

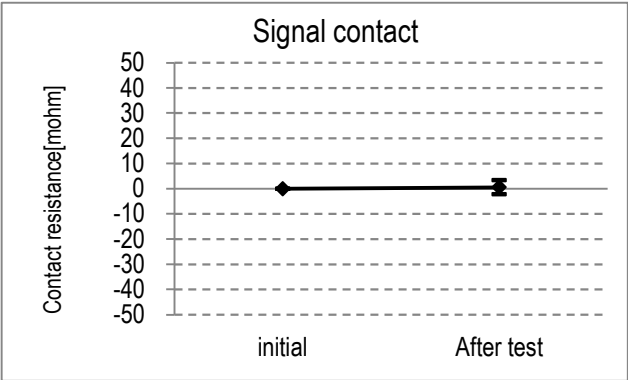


Graph-10. A change of power contact resistance

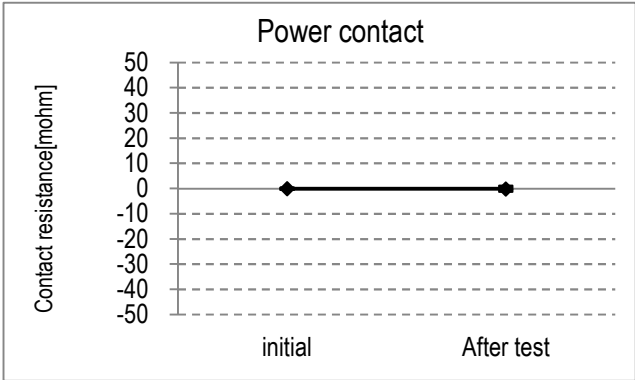


Graph-11. A change of Shell contact resistance

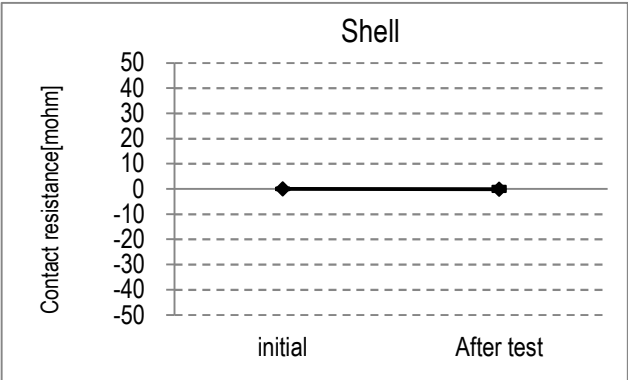
E Group / High Temperature Life



Graph-12. A change of signal contact resistance

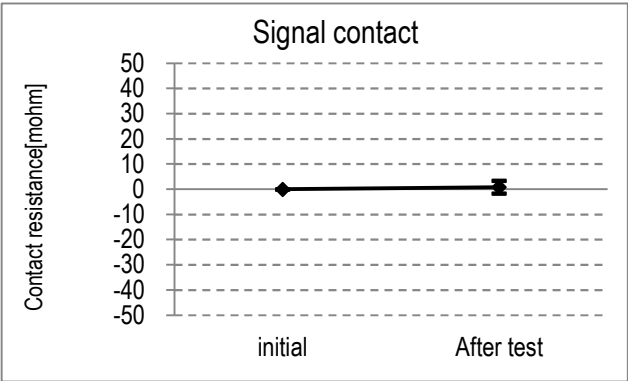


Graph-13. A change of power contact resistance

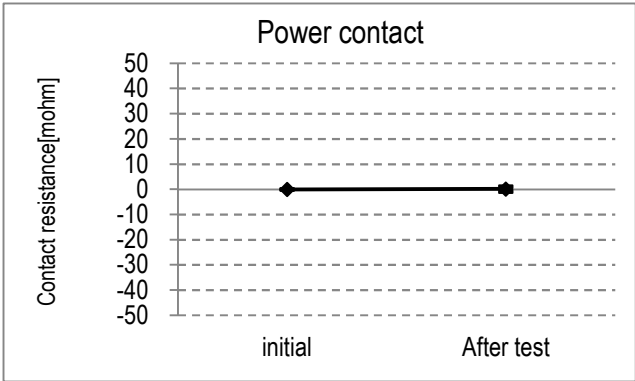


Graph-14. A change of Shell contact resistance

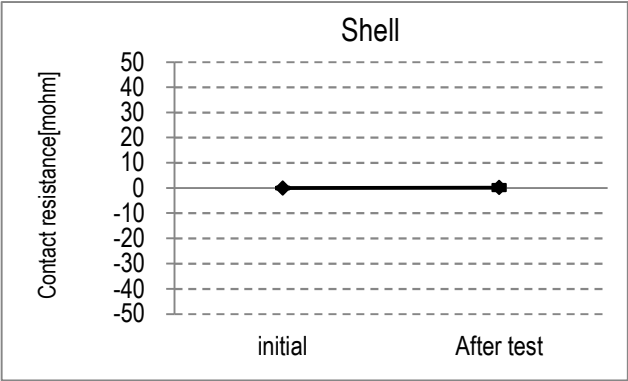
F Group / Humidity (Steady State)



Graph-15. A change of signal contact resistance

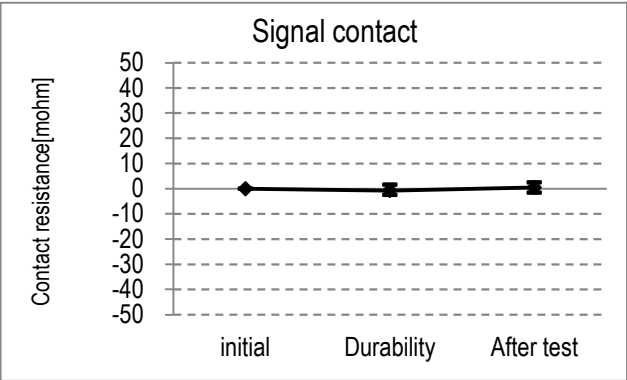


Graph-16. A change of power contact resistance

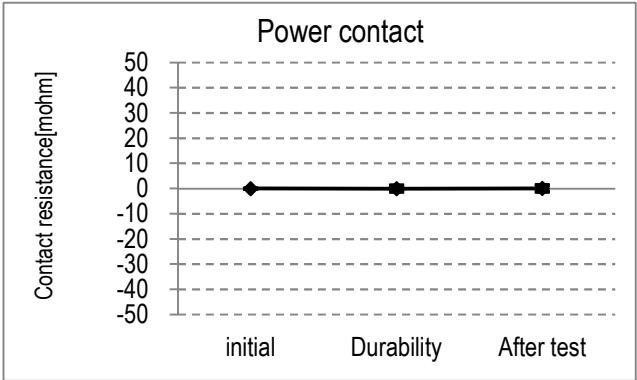


Graph-17. A change of Shell contact resistance

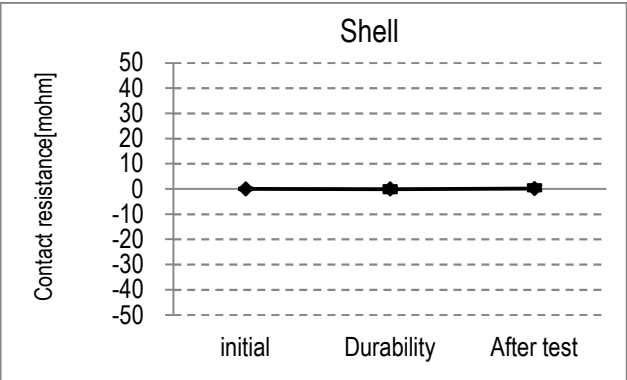
G Group / Humidity (Cycling)



Graph-18. A change of signal contact resistance

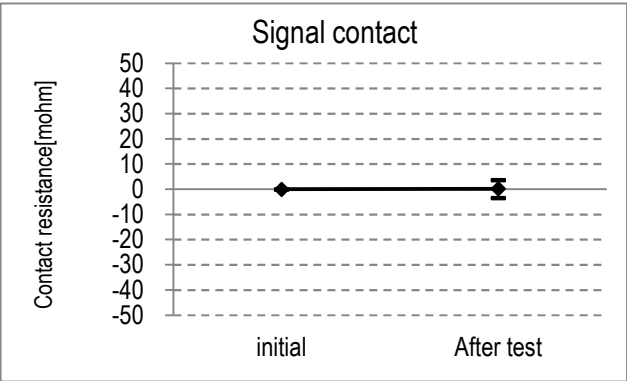


Graph-19. A change of power contact resistance

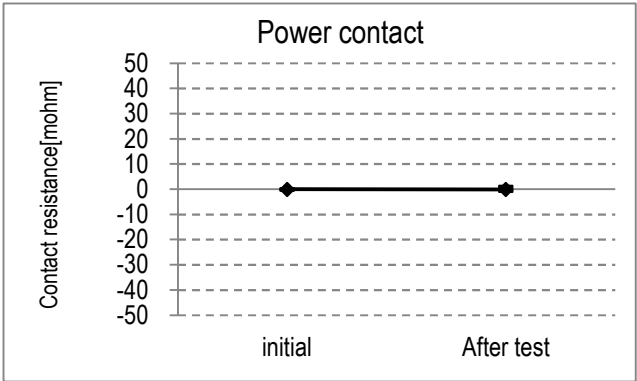


Graph-20. A change of Shell contact resistance

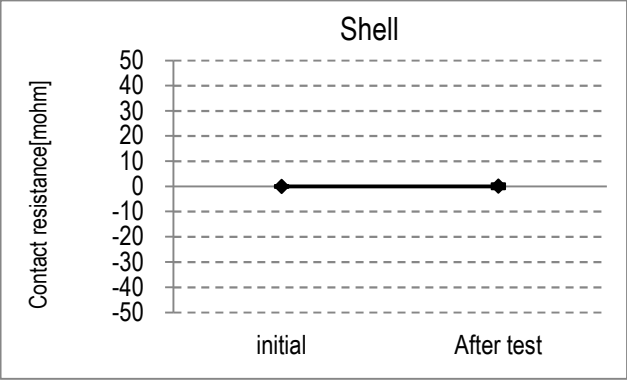
H Group / Salt Water Spray



Graph-21. A change of signal contact resistance

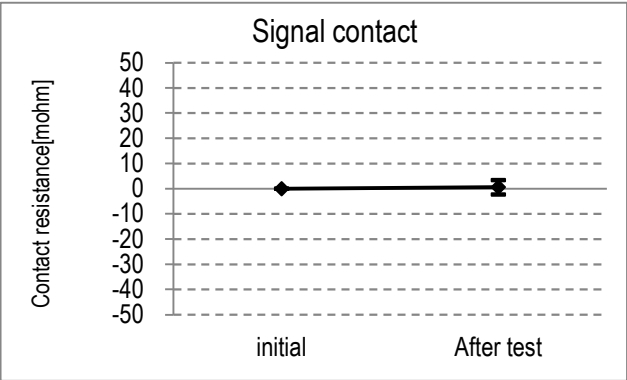


Graph-22. A change of power contact resistance

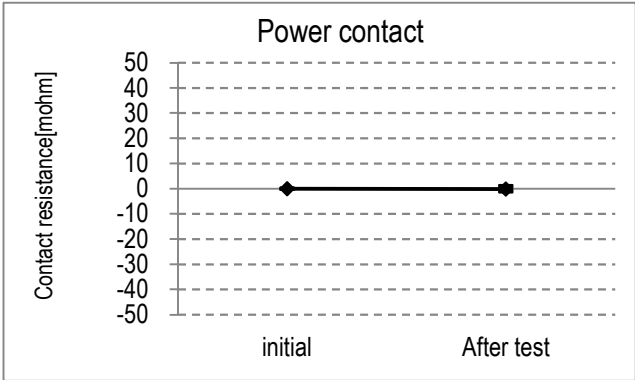


Graph-23. A change of Shell contact resistance

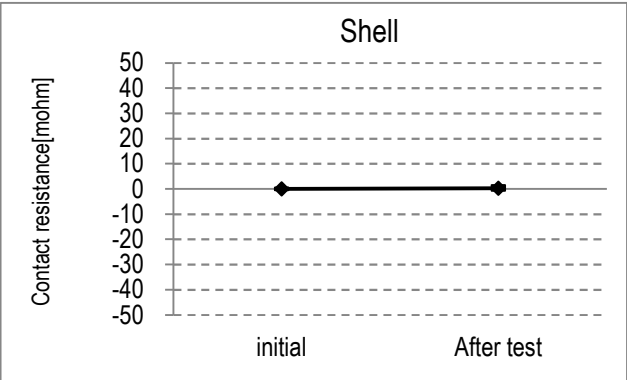
J Group / Gas



Graph-24. A change of signal contact resistance



Graph-25. A change of power contact resistance



Graph-26. A change of Shell contact resistance