

NOVASTACK® 35-HDP

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

Test Report

Product Specification no. PRS-2187

11	T26076	September 8, 2026	X.Zhang	-	S.Suzuki
10	T26051	June 23, 2026	X.Zhang	-	S.Suzuki
9	T25078	October 22, 2025	C.Saito	-	S.Suzuki
8	T25040	May 12, 2025	T.Matsunaga	-	S.Suzuki
Rev.	ECN	Date	Prepared by	Checked by	Approved by

1. Purpose

To evaluate the performance of NOVASTACK 35-HDPConnector in accordance with PRS-2187.

2. Specimen

- (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. Test Sequence

All the evaluations were performed in accordance with Table 1.Test Sequence.

4. Result

See Table 2-1 to 2-4, Graph 1 to 26. For the details of the testing conditions and requirements, see PRS-2187.
The “n” in the tables show the number of measurement points.

5. Conclusion

All the specimens met the requirements of PRS-2187.

Table 1 Test Sequence and Sample Quantity

Test Item	Group											
	A	B	C	D	E	F	G	H	J	K	L	M
Contact Resistance	2,6		1,3,5	1,5	1,3	1,5	1,5,7	1,3	1,3			
Insulation Resistance				2,6		2,6	2,8					
D. W. Voltage				3,7		3,7	3,9					
Temperature Rising												1
Mating Force	1,5											
Unmating Force	3,7											
Durability	4						4 (10cycles)					
Contact Retention Force		1,3										
Vibration			2									
Shock			4									
Thermal Shock				4								
High Temperature Life		2			2							
Humidity (Steady State)						4						
Humidity (Cycling)							6					
Salt Water Spray								2				
Gas (H ₂ S)									2			
Solderability										1		
Soldering Heat Resistance											1	
Sample QTY.	5 pcs.	20 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	10 pcs.	10 pcs.	5 pcs.

※Numbers indicate sequence in which tests are performed.

Table 2-1. Test result

Group	Contents of measurement			Spec.	Unit	Q'ty	n	Data					Judge.
								AVE.	MAX.	MIN.	S	X±3s	
A	Durability												
	Contact resistance												
	Signal contact	Initial	40	MAX.	mΩ	5	210	15.223	17.22	14.15	0.690	17.293	OK
		After 30 cycles	ΔR 40	MAX.				0.324	3.78	-2.91	1.568	5.028	OK
	Power contact	Initial	20	MAX.			20	2.985	3.78	2.47	0.403	4.194	OK
		After 30 cycles	ΔR 20	MAX.				0.115	0.61	-0.57	0.327	1.096	OK
	Shell	Initial	20	MAX.			10	9.095	10.17	8.50	0.468	10.499	OK
		After 30 cycles	ΔR 20	MAX.				1.162	1.78	0.38	0.434	2.464	OK
	Mating force												
	Signal Contact 16P + Power Contact 4P	Initial	32.0	MAX.	N	5	-	21.498	22.35	20.78	-	-	OK
		After 30 cycles		9.630				10.36	9.04	-	-	OK	
	Signal Contact 22P + Power Contact 4P	Initial	32.0	MAX.			-	25.444	26.64	24.18	-	-	OK
		After 30 cycles		9.277				9.77	7.67	-	-	OK	
	Signal Contact 28P + Power Contact 4P	Initial	32.0	MAX.			-	28.318	29.54	27.35	-	-	OK
		After 30 cycles		11.012				12.12	10.24	-	-	OK	
	Signal Contact 34P + Power Contact 4P	Initial	38.0	MAX.			-	30.988	31.80	30.17	-	-	OK
		After 30 cycles		12.738				13.33	12.54	-	-	OK	
	Signal Contact 42P + Power Contact 4P	Initial	46.0	MAX.			-	32.592	33.71	31.51	-	-	OK
		After 30 cycles		14.194				14.66	13.42	-	-	OK	
	Signal Contact 56P + Power Contact 4P	Initial	60.0	MAX.			-	39.758	42.40	38.37	-	-	OK
		After 30 cycles		19.596				21.23	18.08	-	-	OK	
	Signal Contact 62P + Power Contact 4P	Initial	66.0	MAX.			-	45.920	47.20	44.10	-	-	OK
		After 30 cycles		21.840				23.00	21.30	-	-	OK	
	Unmating force												
	Signal Contact 16P + Power Contact 4P	Initial	3.2	MIN.	N	5	-	10.180	10.42	9.99	-	-	OK
		After 30 cycles		6.456				6.81	5.89	-	-	OK	
	Signal Contact 22P + Power Contact 4P	Initial	3.2	MIN.			-	12.306	12.93	11.46	-	-	OK
		After 30 cycles		8.869				9.80	7.77	-	-	OK	
	Signal Contact 28P + Power Contact 4P	Initial	3.2	MIN.			-	14.360	15.21	13.54	-	-	OK
		After 30 cycles		10.226				11.32	9.43	-	-	OK	
	Signal Contact 34P + Power Contact 4P	Initial	3.8	MIN.			-	15.122	15.91	14.34	-	-	OK
		After 30 cycles		10.824				11.39	9.99	-	-	OK	
	Signal Contact 42P + Power Contact 4P	Initial	4.6	MIN.			-	15.988	17.88	15.13	-	-	OK
		After 30 cycles		9.942				10.40	9.30	-	-	OK	
	Signal Contact 56P + Power Contact 4P	Initial	6.0	MIN.			-	20.800	21.63	20.45	-	-	OK
		After 30 cycles		13.340				13.93	12.94	-	-	OK	
	Signal Contact 62P + Power Contact 4P	Initial	6.6	MIN.			-	18.940	19.60	18.00	-	-	OK
		After 30 cycles		18.060				19.30	16.50	-	-	OK	
B	Contact retention force												
	Plug												
	Signal contact	Initial	0.6	MIN.	N	-	20	2.52 MIN.		-	-	OK	
		After test						2.07 MIN.		-	-	OK	
	Power contact	Initial						3.80 MIN.		-	-	OK	
		After test						3.92 MIN.		-	-	OK	
	Receptacle												
	Signal contact	Initial	0.1	MIN.	N	-	20	0.42 MIN.		-	-	OK	
		After test						0.34 MIN.		-	-	OK	
	Power contact	Initial						0.53 MIN.		-	-	OK	
After test		0.48 MIN.						-	-	OK			

*Appearance Spec.: No abnormality adversely affecting the performance shall occur.

Table 2-2. Test result

C	Vibration → Shock												
	Contact resistance												
	Signal contact	Initial	40	MAX.	mΩ	5	210	15.200	17.04	13.96	0.685	17.255	OK
		After vibration	ΔR 40	MAX.				-0.500	0.32	-1.31	0.474	0.922	OK
		After shock						-0.505	0.44	-1.39	0.393	0.674	OK
	Power contact	Initial	20	MAX.			20	2.783	3.31	2.18	0.362	3.869	OK
		After vibration	ΔR 20	MAX.				0.166	0.72	-0.20	0.268	0.970	OK
		After shock						0.324	0.87	-0.29	0.363	1.413	OK
	Shell	Initial	20	MAX.			10	8.145	9.28	7.38	0.585	9.900	OK
		After vibration	ΔR 20	MAX.				0.149	0.55	-0.20	0.281	0.992	OK
		After shock						0.163	0.77	-0.27	0.288	1.027	OK
	Electrical discontinuity												
		During test	1	MAX.	μs	5	-	No discontinuity					OK
	Appearance												
		After test	*		-	5	-	No abnormality					OK

Group	Contents of measurement		Spec.	Unit	Q'ty	n	Data					Judge.	
							AVE.	MAX.	MIN.	S	X±3s		
D	Thermal shock												
	Contact resistance												
	Signal contact	Initial	40	MAX.	mΩ	5	210	15.962	18.86	13.46	1.198	19.556	OK
		After test	ΔR 40	MAX.				0.769	4.46	-2.70	1.376	4.897	OK
	Power contact	Initial	20	MAX.			20	2.680	3.48	1.67	0.537	4.291	OK
		After test	ΔR 20	MAX.				0.420	1.09	-0.15	0.308	1.344	OK
	Shell	Initial	20	MAX.			10	8.865	9.38	8.45	0.356	9.933	OK
		After test	ΔR 20	MAX.				-0.067	0.61	-0.84	0.413	1.172	OK
	Insulation resistance												
		Initial	1000	MIN.	MΩ	5	-	1.77 x 10 ³ Min.					OK
		After test	500	MIN.				1.43 x 10 ³ Min.					OK
	Dielectric Withstanding Voltage												
		After test	* *		-	5	-	No abnormality					OK
	Appearance												
		After test	*		-	5	-	No abnormality					OK

E	High temperature life												
	Contact resistance												
	Signal contact	Initial	40	MAX.	mΩ	5	210	15.949	18.73	13.20	1.215	19.594	OK
		After test	ΔR 40	MAX.				0.529	3.44	-2.26	1.110	3.859	OK
	Power contact	Initial	20	MAX.			20	2.718	3.33	2.21	0.363	3.807	OK
		After test	ΔR 20	MAX.				-0.095	0.76	-0.80	0.437	1.216	OK
	Shell	Initial	20	MAX.			10	8.208	8.67	7.46	0.441	9.531	OK
		After test	ΔR 20	MAX.				-0.098	0.75	-0.75	0.465	1.297	OK
	Appearance												
		After test	*	-	5	-	No abnormality						OK

*Appearance Spec.: No abnormality adversely affecting the performance shall occur.

**Dielectric Withstanding Voltage Spec.: No abnormalities such as creeping discharge, flashover, insulator breakdown occur.

Table 2-3. Test result

F	Humidity(steady state)												
	Contact resistance												
	Signal contact	Initial	40	MAX.	mΩ	5	210	16.158	18.74	13.94	1.143	19.587	OK
		After test	ΔR 40	MAX.				0.865	3.37	-1.63	1.103	4.174	OK
	Power contact	Initial	20	MAX.			20	2.786	3.62	2.18	0.393	3.965	OK
		After test	ΔR 20	MAX.				0.190	1.13	-0.84	0.582	1.936	OK
	Shell	Initial	20	MAX.			10	8.295	8.78	7.56	0.378	9.429	OK
		After test	ΔR 20	MAX.				-0.186	0.30	-0.91	0.420	1.074	OK
	Insulation resistance												
		Initial	1000	MIN.	MΩ	5	-	1.28 x 1(Min.					OK
		After test	500	MIN.				1.04 x 1(Min.					OK
	Dielectric Withstanding Voltage												
		After test	* *		-	5	-	No abnormality					OK
	Appearance												
		After test	*		-	5	-	No abnormality					OK

G	Humidity(cycling)													
	Contact resistance													
	Signal contact	Initial	40	MAX.	mΩ	5	210	15.793	17.74	13.74	0.842	18.319	OK	
		After 10cycle	ΔR 40					MAX.	-0.719	1.60	-2.52	0.786	1.639	OK
		After test							0.493	2.51	-1.63	0.881	3.136	OK
	Power contact	Initial	20	MAX.			20	2.982	3.70	2.33	0.426	4.260	OK	
		After 10cycle	ΔR 20					MAX.	-0.041	1.29	-1.08	0.643	1.888	OK
		After test							0.114	1.36	-1.18	0.626	1.992	OK
	Shell	Initial	20	MAX.			10	8.164	8.86	7.40	0.399	9.361	OK	
		After 10cycle	ΔR 20					MAX.	-0.070	1.04	-1.31	0.709	2.057	OK
		After test							0.134	1.33	-0.46	0.559	1.811	OK
	Insulation resistance													
		Initial	1000	MIN.	MΩ	5	-	1.15 x 1(Min.					OK	
		After test	500	MIN.				1.04 x 1(Min.					OK	
	Dielectric Withstanding Voltage													
	After test	* *		-	5	-	No abnormality					OK		
Appearance														
	After test	*		-	5	-	No abnormality					OK		

Group	Contents of measurement	Spec.	Unit	Q'ty	n	Data					Judge.		
						AVE.	MAX.	MIN.	S	X±3s			
H	Salt water spray												
	Contact resistance												
	Signal contact	Initial	40	MAX.	mΩ	5	210	15.093	17.07	13.23	0.890	17.763	OK
		After test	ΔR 40	MAX.				0.201	3.68	-3.49	1.670	5.211	OK
	Power contact	Initial	20	MAX.			20	2.952	3.36	2.46	0.255	3.717	OK
		After test	ΔR 20	MAX.				-0.037	0.98	-0.53	0.382	1.109	OK
	Shell	Initial	20	MAX.			10	8.050	8.70	7.55	0.404	9.262	OK
		After test	ΔR 20	MAX.				0.036	0.77	-0.61	0.444	1.368	OK
	Appearance												
		After test	*	-	5	-	No abnormality					OK	

*Appearance Spec.: No abnormality adversely affecting the performance shall occur.

**Dielectric Withstanding Voltage Spec.: No abnormalities such as creeping discharge, flashover, insulator breakdown occur.

Table 2-4. Test result

J	Gas													
	Contact resistance													
	Signal contact	Initial	40 MAX.	mΩ	5	210	15.721	17.80	13.61	0.920	18.481	OK		
		After test	ΔR 40 MAX.				0.599	3.41	-2.34	1.115	3.944	OK		
	Power contact	Initial	20 MAX.			20	2.961	3.84	2.24	0.345	3.996	OK		
		After test	ΔR 20 MAX.				-0.124	0.92	-1.06	0.550	1.526	OK		
	Shell	Initial	20 MAX.			10	8.001	8.52	7.50	0.335	9.006	OK		
		After test	ΔR 20 MAX.				0.303	0.96	-0.28	0.418	1.557	OK		
	Appearance													
		After test	*	-	5	-	No abnormality					OK		

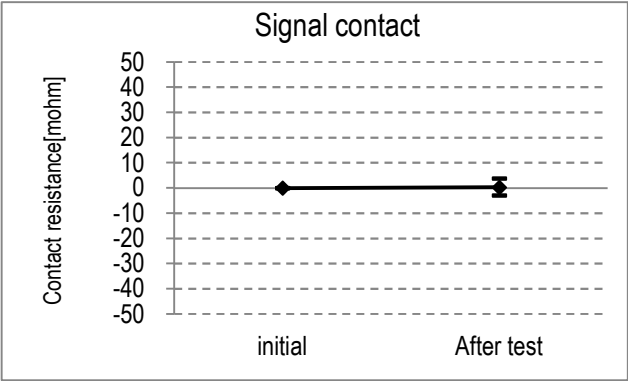
K	Solder ability													
	Solder wetting area													
	After test	95 MIN.	%	10	-	95 MIN.					OK			

L	Resistance to reflow soldering heat													
	Appearance													
	After test	*	-	10	-	No abnormality					OK			

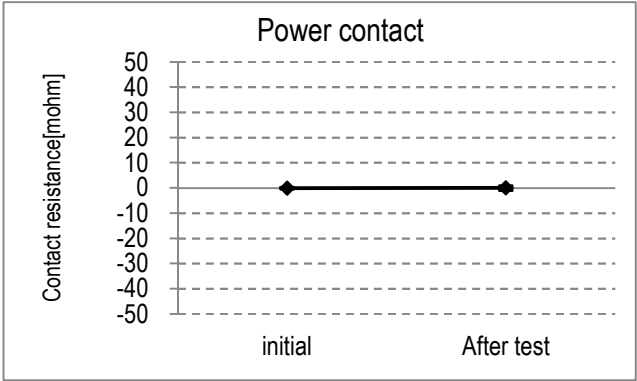
M	Temperature rising													
	Signal Contact 16P + Power Contact 4P (Signal:0.30A,Power:4.50A)		ΔT 30 MAX.	℃	5	-	23.09 Max.					OK		
	Signal Contact 22P + Power Contact 4P (Signal:0.30A,Power:4.50A)						25.18 Max.					OK		
	Signal Contact 28P + Power Contact 4P (Signal:0.30A,Power:4.50A)						25.56 Max.					OK		
	Signal Contact 34P + Power Contact 4P (Signal:0.30A,Power:4.50A)						26.74 Max.					OK		
	Signal Contact 42P + Power Contact 4P (Signal:0.29A,Power:4.50A)						21.66 Max.					OK		
	Signal Contact 56P + Power Contact 4P (Signal:0.22A,Power:4.50A)						22.89 Max.					OK		
	Signal Contact 62P + Power Contact 4P (Signal:0.19A,Power:4.50A)						21.69 Max.					OK		

*Appearance Spec.: No abnormality adversely affecting the performance shall occur.

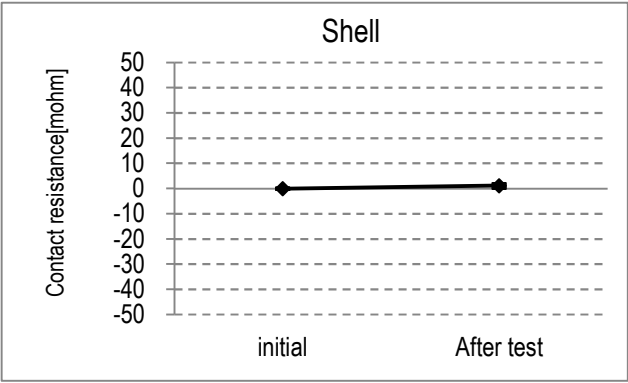
A Group / Durability



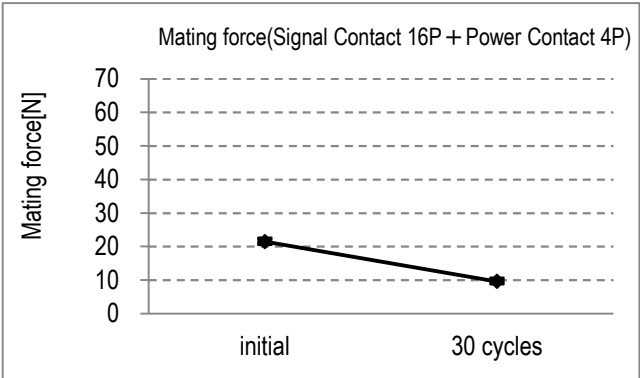
Graph-1. A change of signal contact resistance



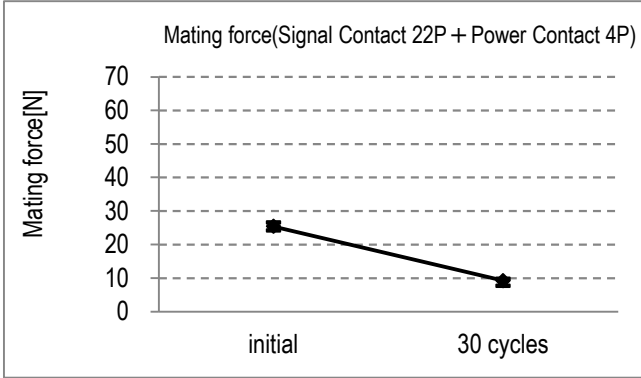
Graph-2. A change of power contact resistance



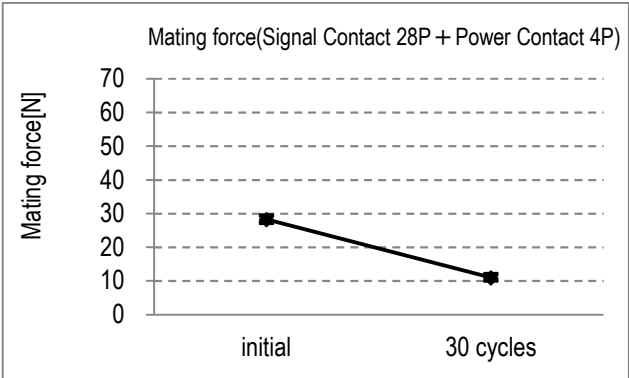
Graph-3. A change of Shell contact resistance



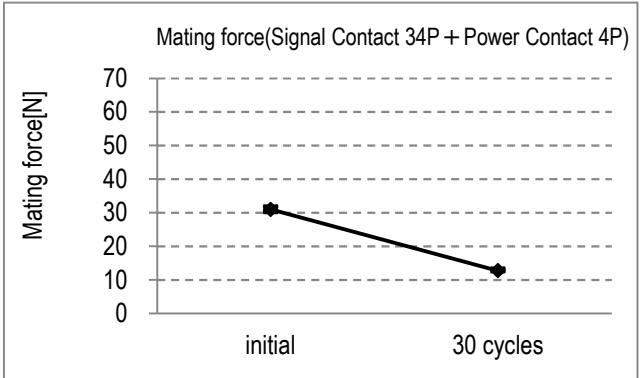
Graph-4-1. A change of mating force Signal Contact 16P + Power Contact 4P



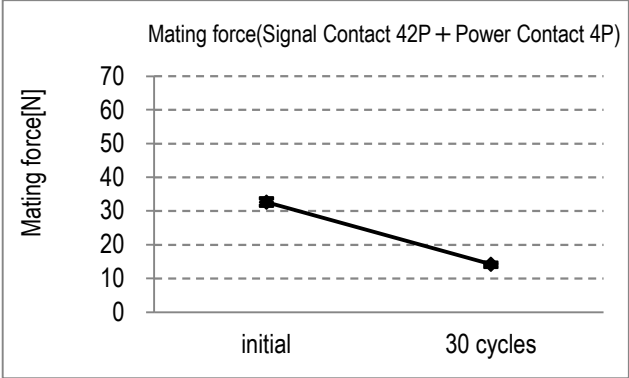
Graph-4-2. A change of mating force Signal Contact 22P + Power Contact 4P



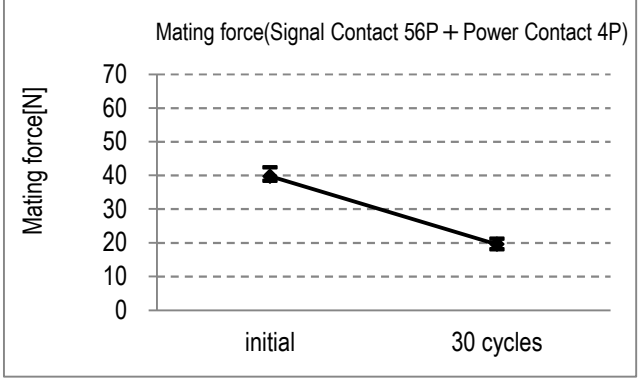
Graph-4-3. A change of mating force Signal Contact 28P + Power Contact 4P



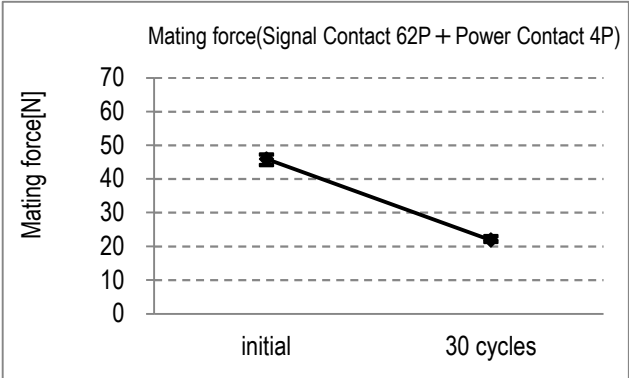
Graph-4-4. A change of mating force Signal Contact 34P + Power Contact 4P



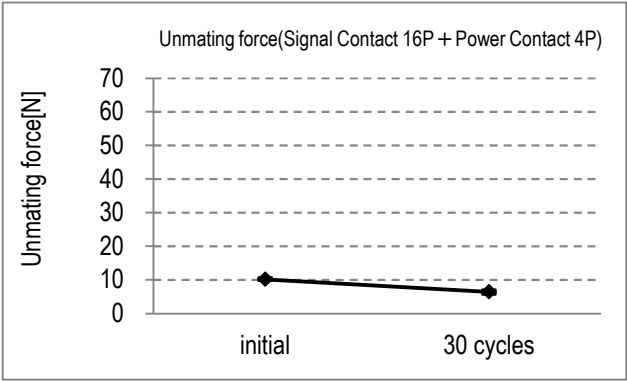
Graph-4-5. A change of mating force Signal Contact 42P + Power Contact 4P



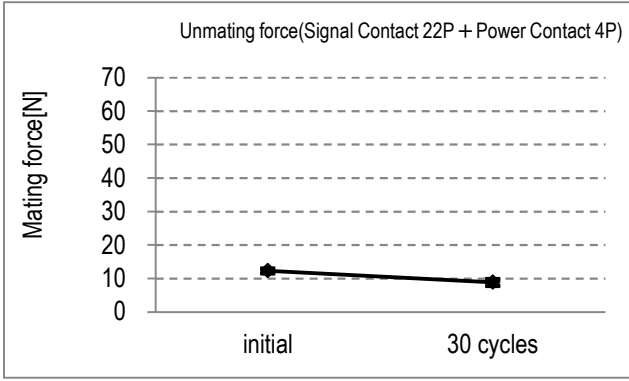
Graph-4-6. A change of mating force Signal Contact 56P + Power Contact 4P



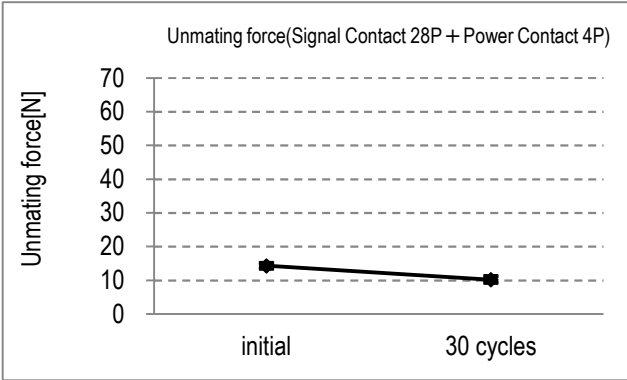
Graph-4-7. A change of mating force Signal Contact 62P + Power Contact 4P



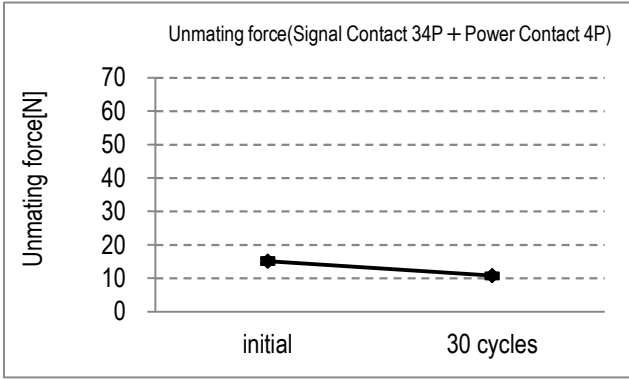
Graph-5-1. A change of unmating force Signal Contact 16P+Power Contact 4P



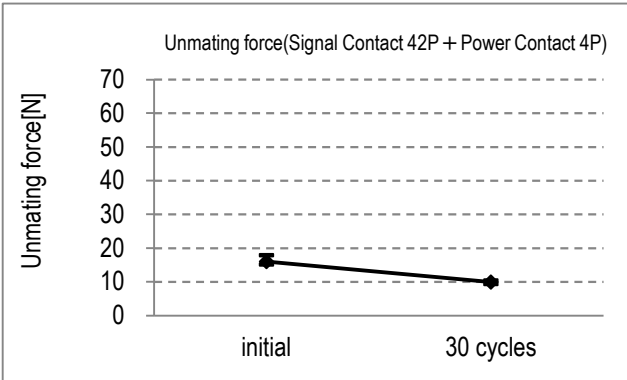
Graph-5-2. A change of unmating force Signal Contact 22P+Power Contact 4P



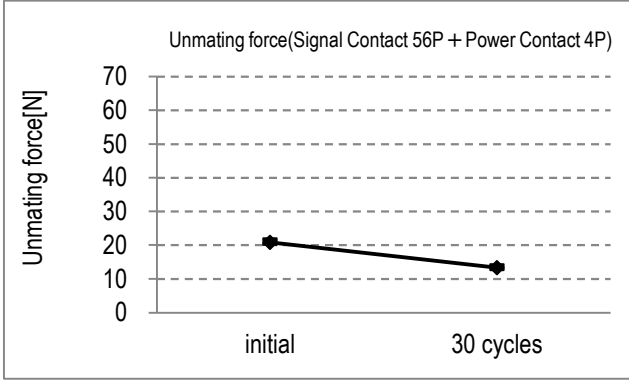
Graph-5-3. A change of unmating force Signal Contact 28P+Power Contact 4P



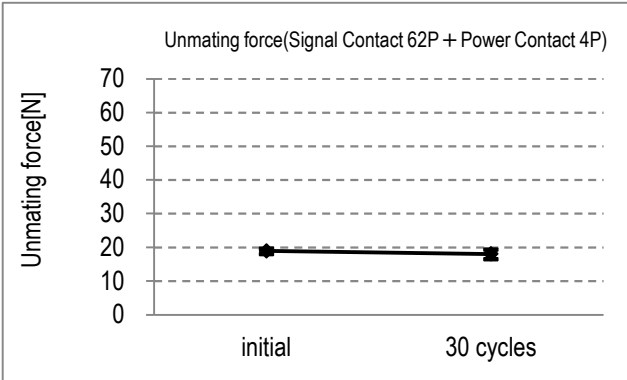
Graph-5-4. A change of unmating force Signal Contact 34P+Power Contact 4P



Graph-5-5. A change of unmating force Signal Contact 48P+Power Contact 4P

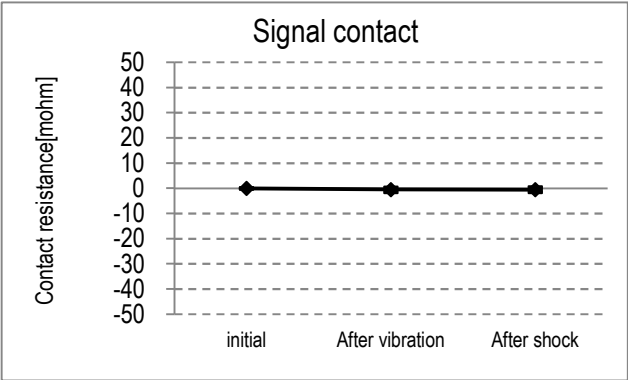


Graph-5-6. A change of unmating force Signal Contact 56P+Power Contact 4P

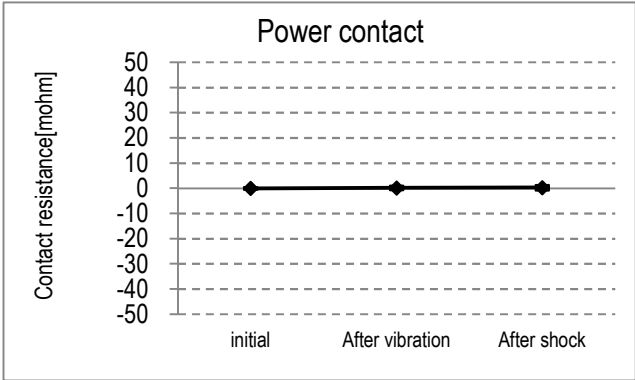


Graph-5-7. A change of unmating force Signal Contact 62P+Power Contact 4P

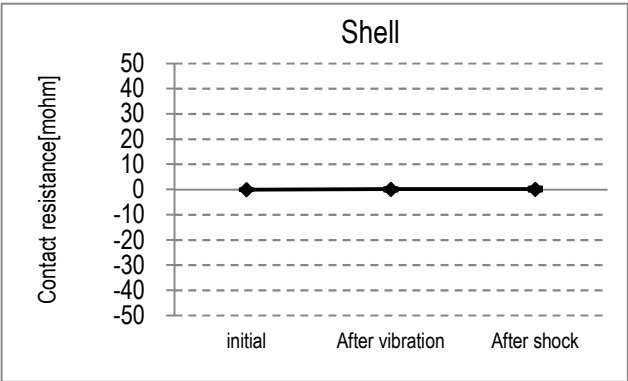
C Group / Vibration → Shock



Graph-6. A change of signal contact resistance

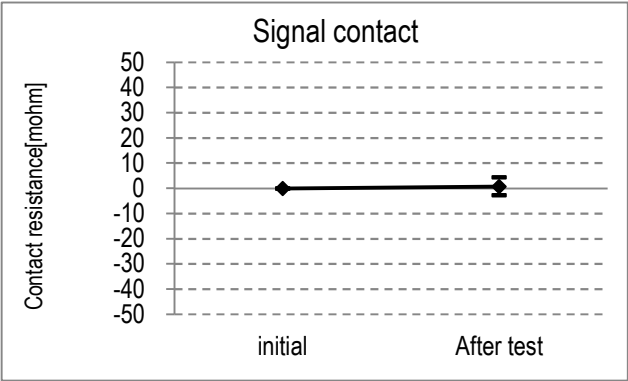


Graph-7. A change of power contact resistance

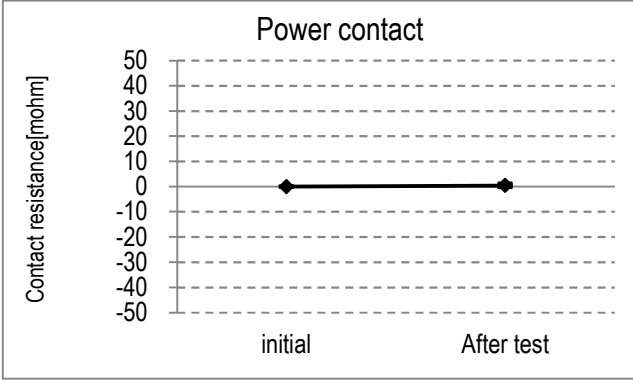


Graph-8. A change of Shell contact resistance

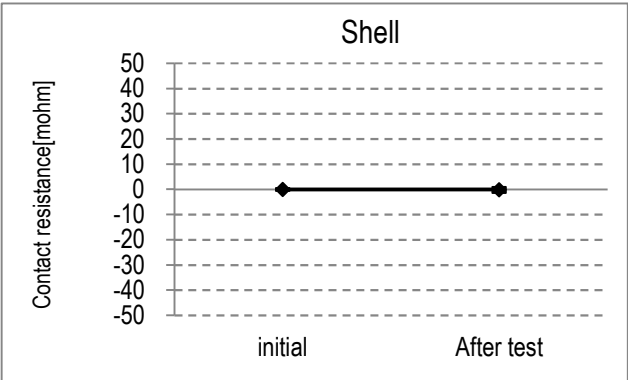
D Group / Thermal Shock



Graph-9. A change of signal contact resistance

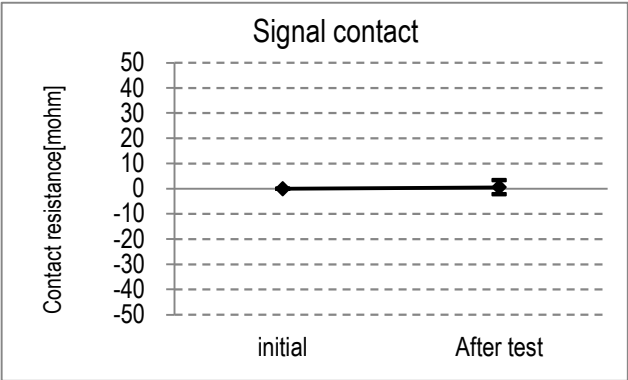


Graph-10. A change of power contact resistance

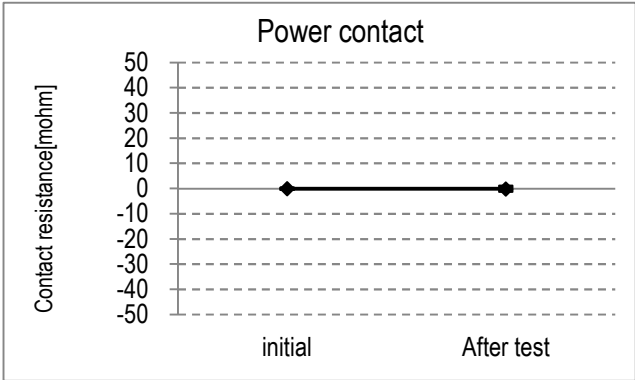


Graph-11. A change of Shell contact resistance

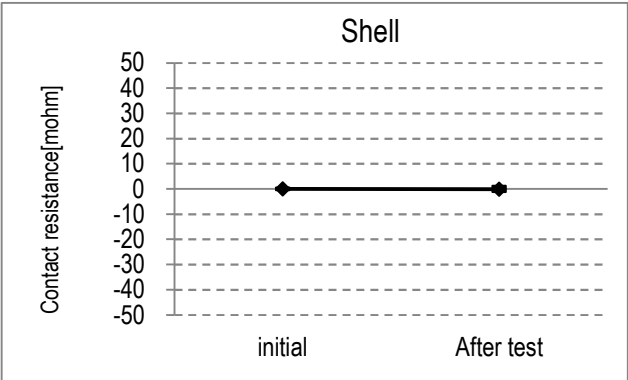
E Group / High Temperature Life



Graph-12. A change of signal contact resistance

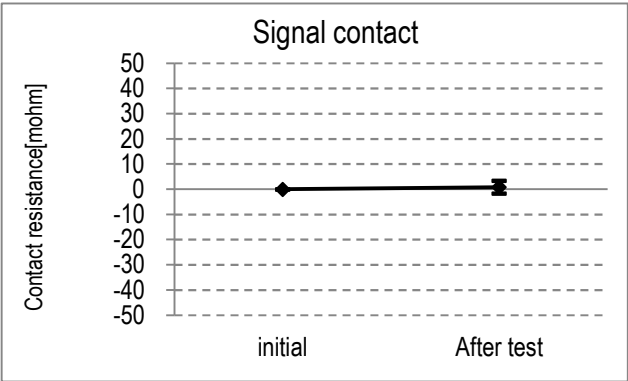


Graph-13. A change of power contact resistance

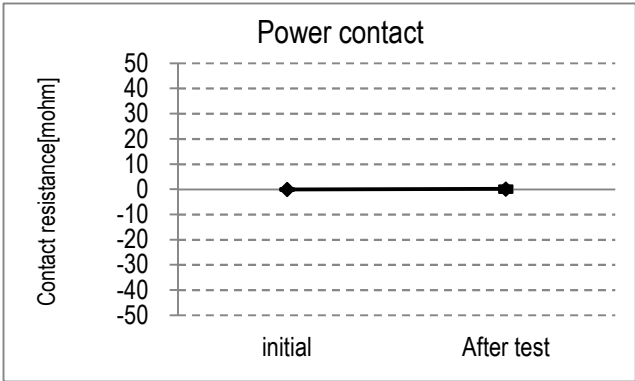


Graph-14. A change of Shell contact resistance

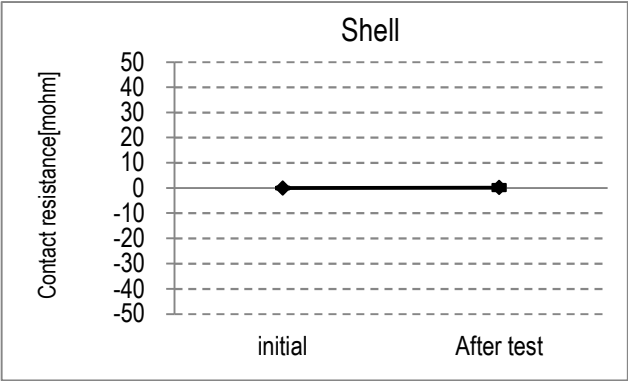
F Group / Humidity (Steady State)



Graph-15. A change of signal contact resistance

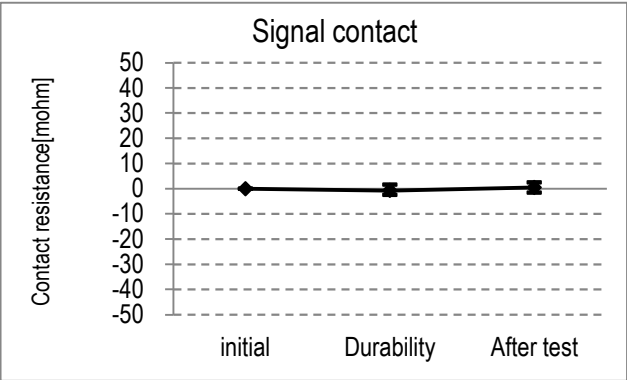


Graph-16. A change of power contact resistance

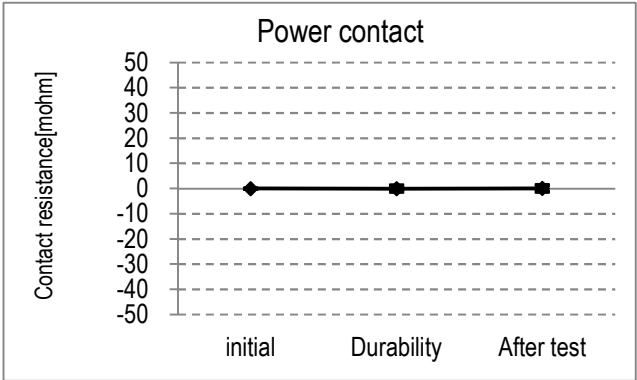


Graph-17. A change of Shell contact resistance

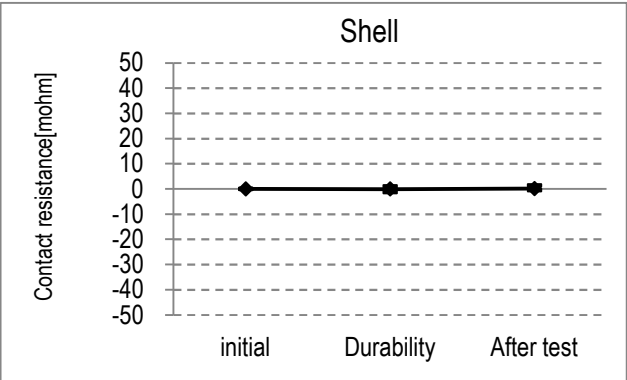
G Group / Humidity (Cycling)



Graph-18. A change of signal contact resistance

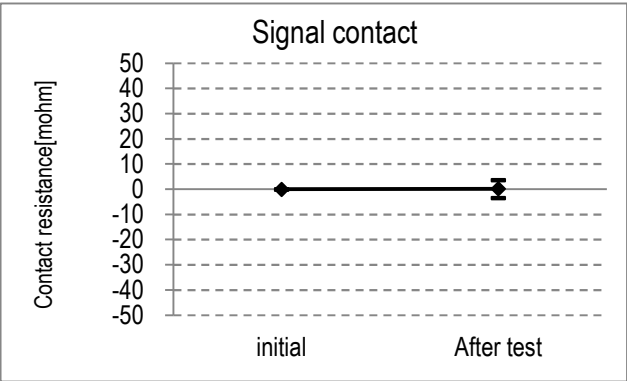


Graph-19. A change of power contact resistance

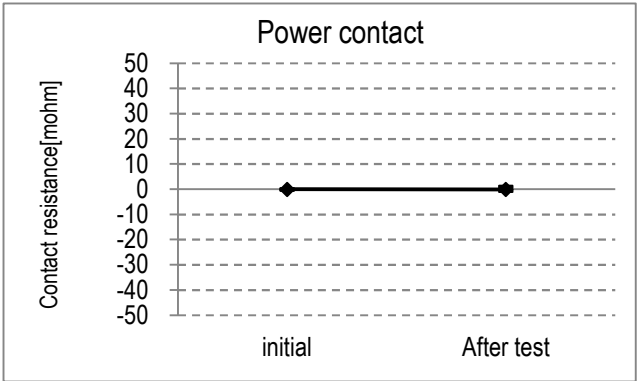


Graph-20. A change of Shell contact resistance

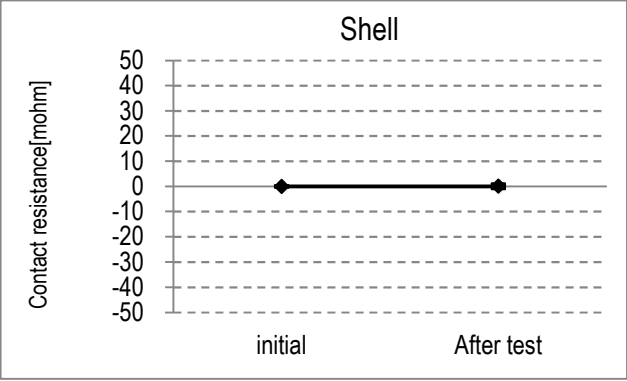
H Group / Salt Water Spray



Graph-21. A change of signal contact resistance

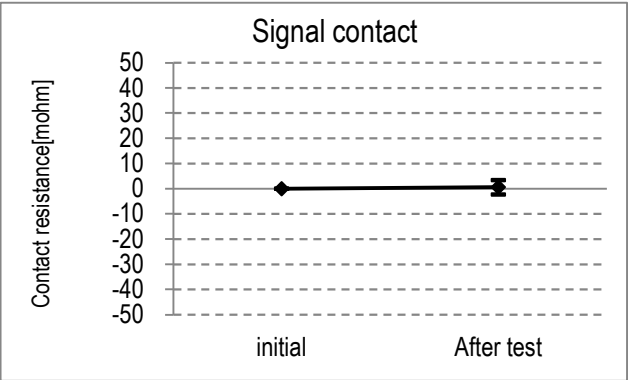


Graph-22. A change of power contact resistance

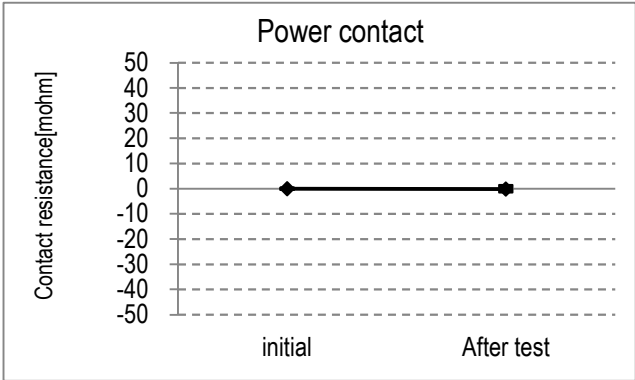


Graph-23. A change of Shell contact resistance

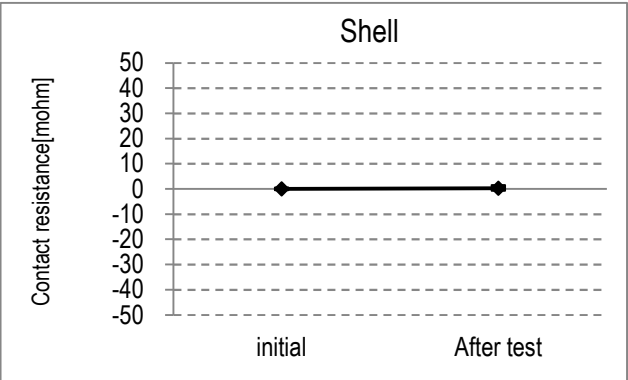
J Group / Gas



Graph-24. A change of signal contact resistance



Graph-25. A change of power contact resistance



Graph-26. A change of Shell contact resistance