NOVASTACK® 35-HDP 12

Part No. 21150-0**E-01, 21151-0**E-01

Test Report

Product Specification no. PRS-3005

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				-	
				-	
0	T26049	June 17, 2026	S.Abe	-	S.Suzuki
Rev.	ECN	Date	Prepared by	Checked by	Approved by

1. Purpose

To evaluate the performance of NOVASTACK 35-HDP 12Connector in accordance with PRS-3005.

2. Specimen

(1) NOVASTACK 35-HDP 12 PLUG ASS'Y (P/N: 21150-0**E-01)
(2) NOVASTACK 35-HDP 12 RECEPTACLE ASS'Y (P/N: 21151-0**E-01)

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-3005.
The “n” in the tables show the number of measurement points.

5. Conclusion

All the specimens met the requirements of PRS-3005.

Table 1 Test Sequence and Sample Quantity

※Numbers indicate sequence in which tests are performed.

Test Item	Group										
	A	B	C	D	E	F	G	H	J	K	L
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					
Dielectric withstanding voltage			3,7		3,7	3,9					
Temperature rising											1
Mating force	1,5										
Unmating force	3,7										
Durability	4					4 (10cycles)					
Vibration		2									
Shock		4									
Thermal shock			4								
High temperature life				2							
Humidity (Steady State)					4						
Humidity (Cycling)						6					
Saltwater spray							2				
H_2S gas								2			
Solder ability									1		
Soldering heat resistance										1	
Sample QTY.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	5 pcs.	10 pcs.	10 pcs.	5 pcs.

Table 2-1. Test result

Group	Contents of measurement		Spec.	Unit	Q'ty	n	Data AVE.	Data MAX.	Data MIN.	Data S	Data X±3s	Judge.
A	Durability											
	Contact resistance											
	Signal contact	Initial	40 MAX.	mΩ	5	310	14.990	17.20	13.70	0.640	16.910	Pass
		After 30 cycles	⊿R 40 MAX.				0.220	2.00	-0.70	0.500	1.720	Pass
	Power contact	Initial	20 MAX.			20	3.249	3.43	3.10	0.082	3.494	Pass
		After 30 cycles	⊿R 20 MAX.				-0.050	0.02	-0.02	0.026	0.027	Pass
	Shell	Initial	20 MAX.			10	1.576	1.71	1.40	0.090	1.847	Pass
		After 30 cycles	⊿R 20 MAX.				0.006	0.01	0.06	-0.015	-0.040	Pass
	Mating force											
	Signal Contact 22P + Power Contact 4P	Initial	32.0 MAX.	N	5	-	16.100	16.60	15.50	-	-	Pass
		After 30 cycles					9.620	10.20	8.50	-	-	Pass
	Signal Contact 56P + Power Contact 4P	Initial	60.0 MAX.			-	24.220	25.30	23.50	-	-	Pass
		After 30 cycles					16.620	17.10	15.90	-	-	Pass
	Signal Contact 62P + Power Contact 4P	Initial	66.0 MAX.			-	21.100	22.40	20.10	-	-	Pass
		After 30 cycles					16.080	17.50	15.50	-	-	Pass
	Unmating force											
	Signal Contact 22P + Power Contact 4P	Initial	3.2 MIN.			-	10.440	11.10	10.00	-	-	Pass
		After 30 cycles					8.080	8.80	7.40	-	-	Pass
	Signal Contact 56P + Power Contact 4P	Initial	6.0 MIN.			-	16.640	17.20	16.20	-	-	Pass
		After 30 cycles					12.780	13.80	12.20	-	-	Pass
	Signal Contact 62P + Power Contact 4P	Initial	6.6 MIN.			-	14.720	15.40	13.70	-	-	Pass
		After 30 cycles					11.720	12.10	11.00	-	-	Pass
B	Vibration → Shock											
	Contact resistance											
	Signal contact	Initial	40 MAX.	mΩ	5	310	17.392	25.94	13.95	2.012	23.428	Pass
		After vibration	⊿R 40 MAX.				-0.744	3.33	-11.18	1.932	5.052	Pass
		After shock					-1.132	3.92	-9.57	1.959	4.746	Pass
	Power contact	Initial	20 MAX.			20	3.489	4.33	3.14	0.298	4.384	Pass
		After vibration	⊿R 20 MAX.				-0.230	0.12	-1.02	0.277	0.603	Pass
		After shock					-0.275	-0.01	-1.02	0.252	0.480	Pass
	Shell	Initial	20 MAX.			10	1.533	1.60	1.45	0.038	1.646	Pass
		After vibration	⊿R 20 MAX.				0.004	0.10	-0.08	0.034	0.105	Pass
		After shock					0.009	0.08	-0.04	0.030	0.097	Pass
	Electrical discontinuity											
		During test	1 MAX.	μs	5	-	No discontinuity					Pass
	Appearance											
		After test	*	-	5	-	No abnormality					Pass

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

Table 2-2. Test result

Group	Contents of measurement		Spec.	Unit	Q'ty	n	Data AVE.	Data MAX.	Data MIN.	Data S	Data X±3s	Judge.
C	Thermal shock											
	Contact resistance											
	Signal contact	Initial	40 MAX.	mΩ	5	310	14.870	16.62	13.60	0.517	16.421	Pass
		After test	⊿R 40 MAX.				0.788	4.30	-1.68	0.999	3.783	Pass
	Power contact	Initial	20 MAX.			20	3.209	3.37	3.10	0.079	3.445	Pass
		After test	⊿R 20 MAX.				0.007	0.23	-0.23	0.114	0.350	Pass
	Shell	Initial	20 MAX.			10	1.246	1.37	1.17	0.057	1.416	Pass
		After test	⊿R 20 MAX.				0.141	0.41	0.00	0.155	0.605	Pass
	Insulation resistance											
		Initial	1000 MIN.	MΩ	5	-	107000 Min.					Pass
		After test	500 MIN.				126000 Min.					Pass
	Dielectric Withstanding Voltage											
		After test	* *	-	5	-	No abnormality					Pass
	Appearance											
		After test	*	-	5	-	No abnormality					Pass
D	High temperature life											
	Contact resistance											
	Signal contact	Initial	40 MAX.	mΩ	5	310	15.594	19.50	13.53	1.009	18.622	Pass
		After test	⊿R 40 MAX.				1.980	10.80	-1.50	1.670	6.990	Pass
	Power contact	Initial	20 MAX.			20	3.160	3.40	2.80	0.130	3.550	Pass
		After test	⊿R 20 MAX.				0.140	0.50	-0.10	0.120	0.500	Pass
	Shell	Initial	20 MAX.			10	1.540	1.60	1.40	0.060	1.720	Pass
		After test	⊿R 20 MAX.				0.060	0.20	-0.10	0.070	0.270	Pass
	Appearance											
		After test	*	-	5	-	No abnormality					Pass
E	Humidity(steady state)											
	Contact resistance											
	Signal contact	Initial	40 MAX.	mΩ	5	310	14.940	16.90	13.70	0.610	16.770	Pass
		After test	⊿R 40 MAX.				0.750	13.60	-1.70	1.150	4.200	Pass
	Power contact	Initial	20 MAX.			20	3.220	3.50	3.10	0.090	3.490	Pass
		After test	⊿R 20 MAX.				-0.030	0.10	-0.30	0.100	0.270	Pass
	Shell	Initial	20 MAX.			10	1.270	1.50	1.20	0.090	1.540	Pass
		After test	⊿R 20 MAX.				0.260	0.40	0.10	0.090	0.530	Pass
	Insulation resistance											
		Initial	1000 MIN.	MΩ	5	-	135000 Min.					Pass
		After test	500 MIN.				119000 Min.					Pass
	Dielectric Withstanding Voltage											
		After test	* *	-	5	-	No abnormality					Pass
	Appearance											
		After test	*	-	5	-	No abnormality					Pass

*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

Group	Contents of measurement		Spec.	Unit	Q'ty	n	Data AVE.	Data MAX.	Data MIN.	Data S	Data X±3s	Judge.
F	Humidity(cycling)											
	Contact resistance											
	Signal contact	Initial	40 MAX.	mΩ	5	310	15.230	18.70	13.70	0.730	17.420	Pass
		After 10cycle	⊿R 40 MAX.				-0.330	3.20	-4.30	0.990	2.640	Pass
		After test					-0.110	3.50	-4.50	0.990	2.860	Pass
	Power contact	Initial	20 MAX.			20	3.220	3.30	3.10	0.060	3.400	Pass
		After 10cycle	⊿R 20 MAX.				-0.070	0.00	-0.20	0.070	0.140	Pass
		After test					-0.810	0.10	-3.20	1.400	3.390	Pass
	Shell	Initial	20 MAX.			10	1.500	1.60	1.40	0.050	1.650	Pass
		After 10cycle	⊿R 20 MAX.				0.040	0.20	-0.10	0.070	0.250	Pass
		After test					0.060	0.10	-0.10	0.080	0.300	Pass
	Insulation resistance											
		Initial	1000 MIN.	MΩ	5	-	128000 Min.					Pass
		After test	500 MIN.				104000 Min.					Pass
	Dielectric Withstanding Voltage											
		After test	＊＊	-	5	-	No abnormality					Pass
	Appearance											
		After test	＊	-	5	-	No abnormality					Pass
G	Salt water spray											
	Contact resistance											
	Signal contact	Initial	40 MAX.	mΩ	5	310	14.990	17.20	13.30	0.720	17.150	Pass
		After test	⊿R 40 MAX.				0.240	4.00	-1.80	0.850	2.790	Pass
	Power contact	Initial	20 MAX.			20	3.270	3.50	3.10	0.100	3.570	Pass
		After test	⊿R 20 MAX.				-0.060	0.10	-0.30	0.100	0.240	Pass
	Shell	Initial	20 MAX.			10	1.590	1.70	1.50	0.070	1.800	Pass
		After test	⊿R 20 MAX.				0.000	0.10	-0.10	0.040	0.120	Pass
	Appearance											
		After test	＊	-	5	-	No abnormality					Pass
H	Gas											
	Contact resistance											
	Signal contact	Initial	40 MAX.	mΩ	5	310	14.680	16.90	13.60	0.520	16.240	Pass
		After test	⊿R 40 MAX.				0.850	4.10	-1.70	0.880	3.490	Pass
	Power contact	Initial	20 MAX.			20	3.170	3.30	3.10	0.050	3.320	Pass
		After test	⊿R 20 MAX.				0.060	0.20	0.00	0.050	0.210	Pass
	Shell	Initial	20 MAX.			10	1.300	1.40	1.20	0.070	1.510	Pass
		After test	⊿R 20 MAX.				0.120	0.40	0.00	0.140	0.540	Pass
	Appearance											
		After test	＊	-	5	-	No abnormality					Pass

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

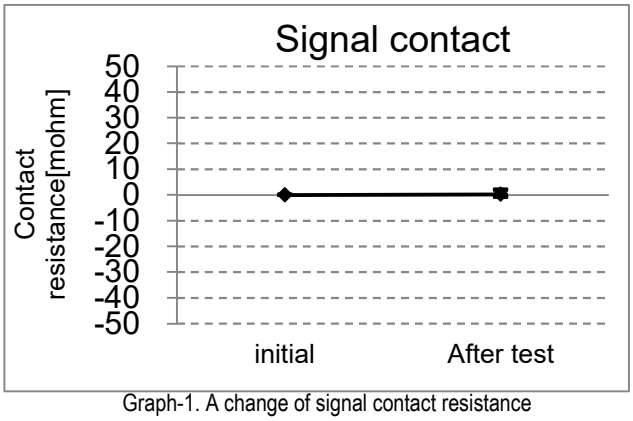
**Dielectric Withstanding Voltage Spec.: No abnormalities such as creeping discharge, flashover, insulator breakdown occur.

Table 2-4. Test result

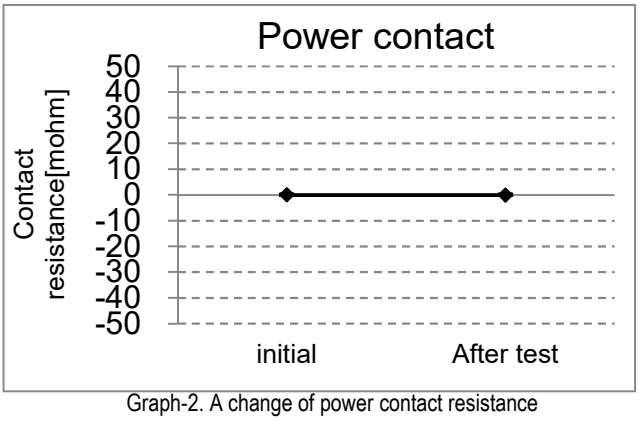
Group	Contents of measurement		Spec.	Unit	Q'ty	n	Data					Judge.
							AVE.	MAX.	MIN.	S	X±3s	
J	Solder ability											
	Solder wetting area											
		After test	95 MIN.	%	10	-	95 MIN.					Pass
K	Resistance to reflow soldering heat											
	Appearance											
		After test	*	-	10	-	No abnormality					Pass
L	Temperature rising											
	22P (Signal:0.30A,Power:4.5A)		⊿T 30 MAX.	℃	5	-	28.8 Max.					Pass
	56P (Signal:0.22A,Power:4.5A)						24.9 Max.					Pass
	62P (Signal:0.19A,Power:4.5A)						24.7 Max.					Pass

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

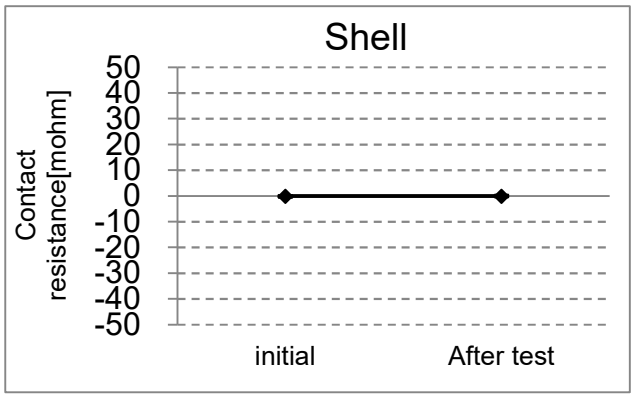
A Group / Durability



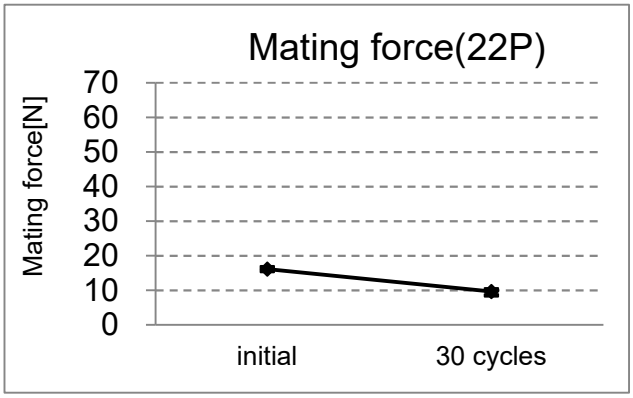
Graph-1. A change of signal contact resistance



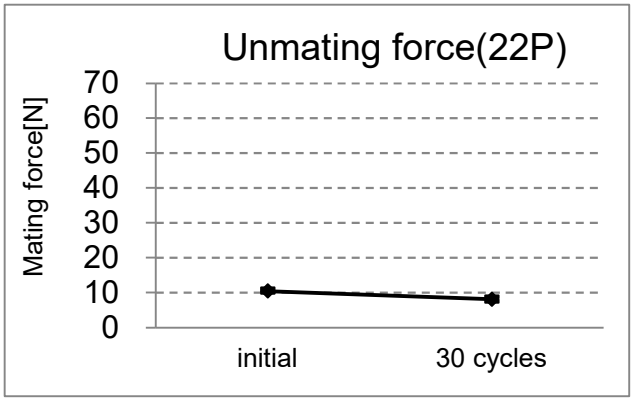
Graph-2. A change of power contact resistance



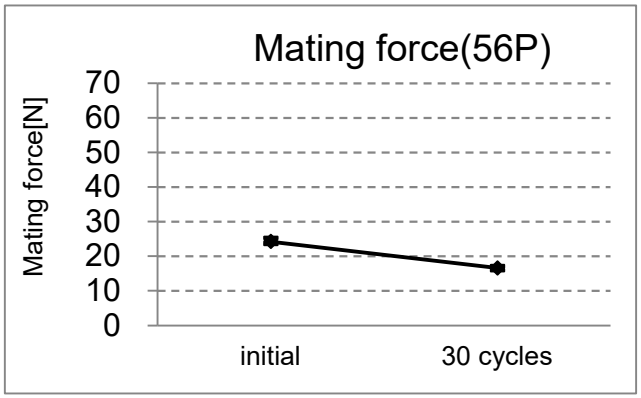
Graph-3. A change of Shell contact resistance



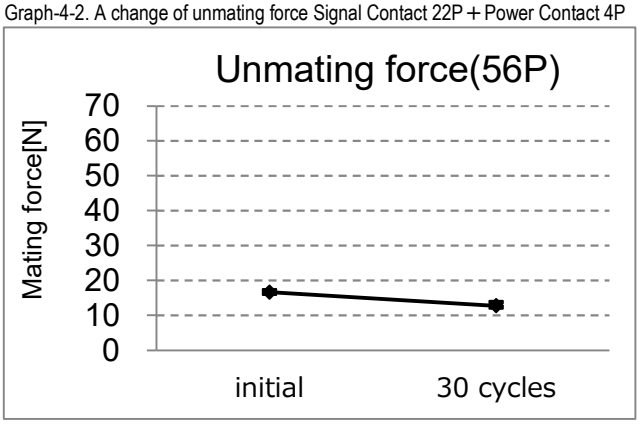
Graph-4-1. A change of mating force Signal Contact 22P＋Power Contact 4P



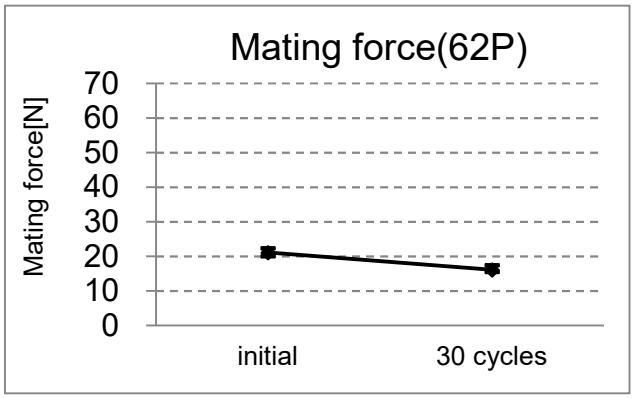
Graph-4-2. A change of unmating force Signal Contact 22P＋Power Contact 4P



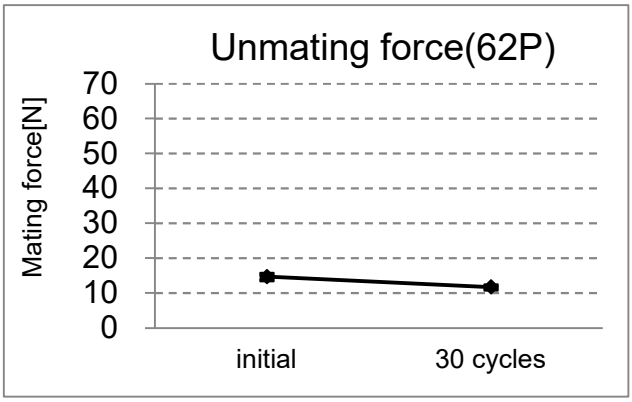
Graph-4-1. A change of mating force Signal Contact 56P＋Power Contact 4P



Graph-4-2. A change of unmating force Signal Contact 56P＋Power Contact 4P

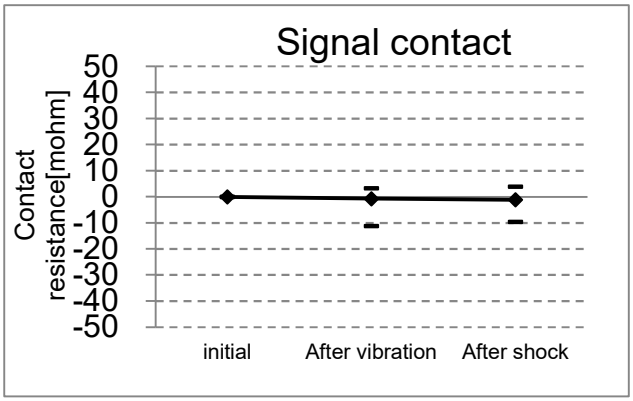


Graph-4-1. A change of mating force Signal Contact 62P＋Power Contact 4P

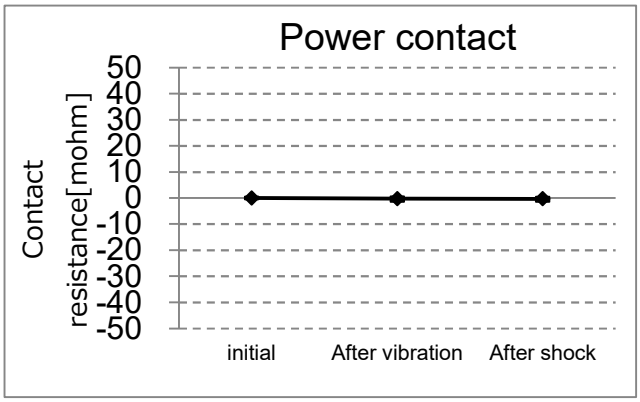


Graph-4-2. A change of unmating force Signal Contact 62P＋Power Contact 4P

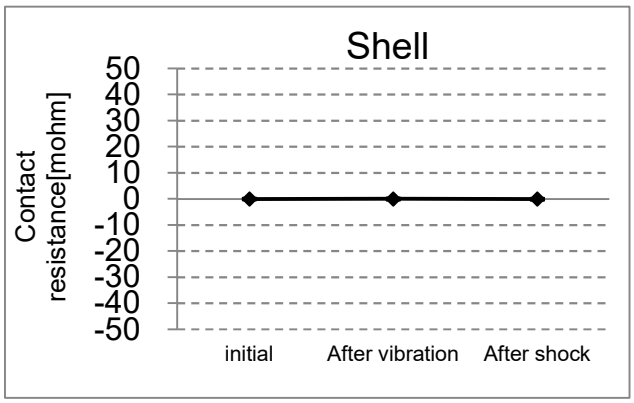
C Group / Vibration → Shock



Graph-6. A change of signal contact resistance

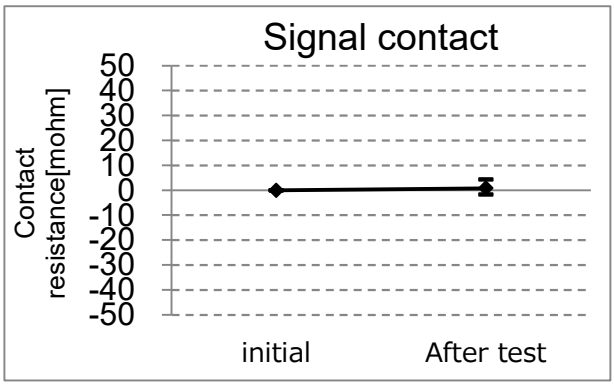


Graph-7. A change of power contact resistance

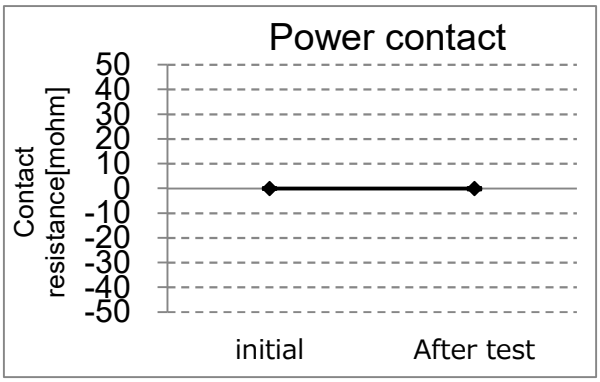


Graph-8. A change of Shell contact resistance

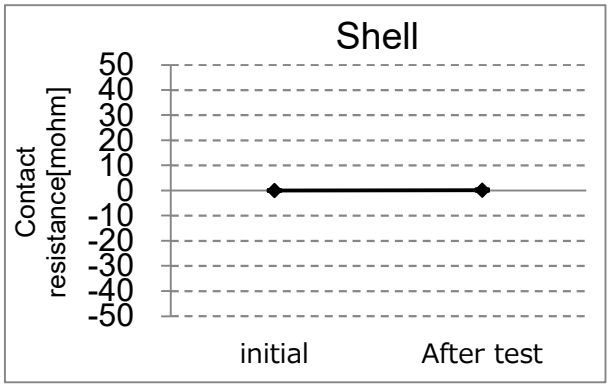
D Group / Thermal Shock



Graph-9. A change of signal contact resistance

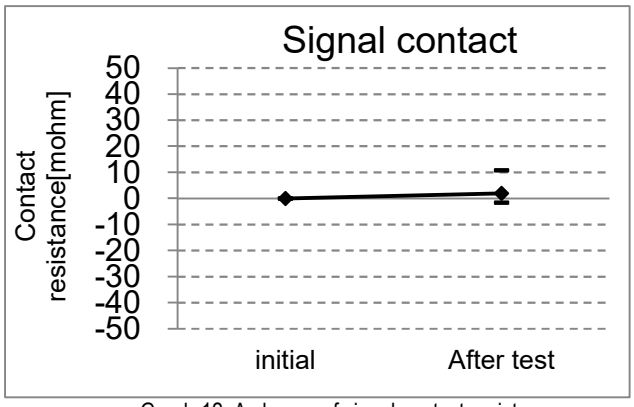


Graph-10. A change of power contact resistance

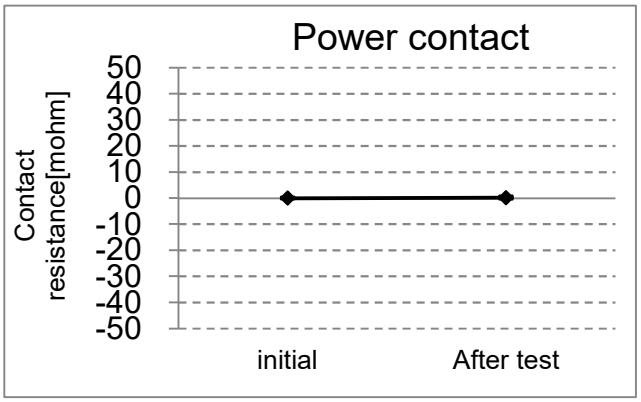


Graph-11. A change of Shell contact resistance

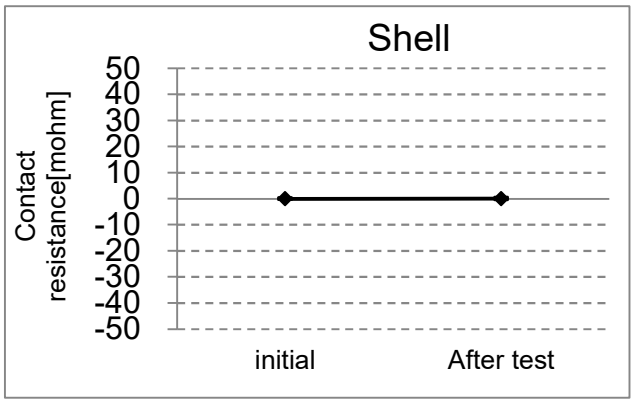
E Group / High Temperature Life



Graph-12. A change of signal contact resistance

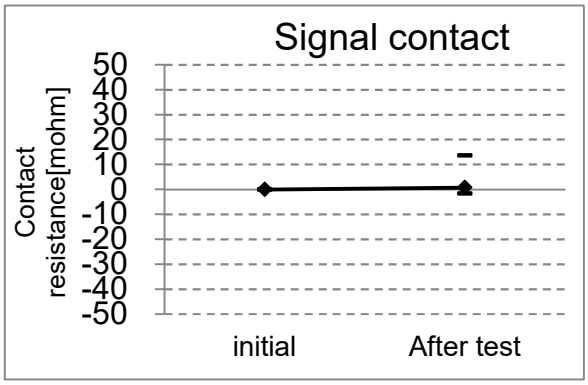


Graph-13. A change of power contact resistance

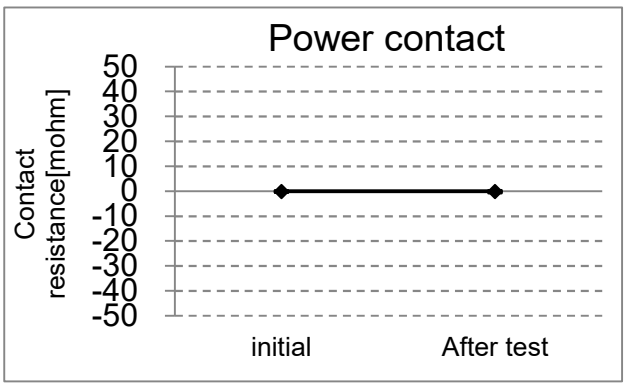


Graph-14. A change of Shell contact resistance

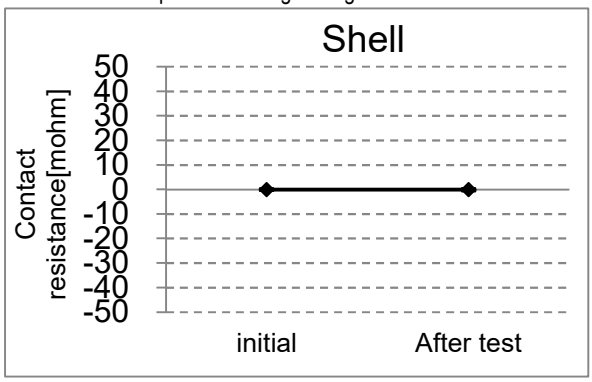
F Group / Humidity (Steady State)



Graph-15. A change of signal contact resistance

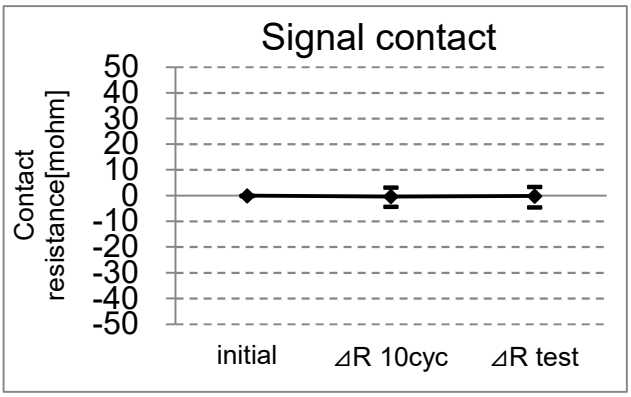


Graph-16. A change of power contact resistance

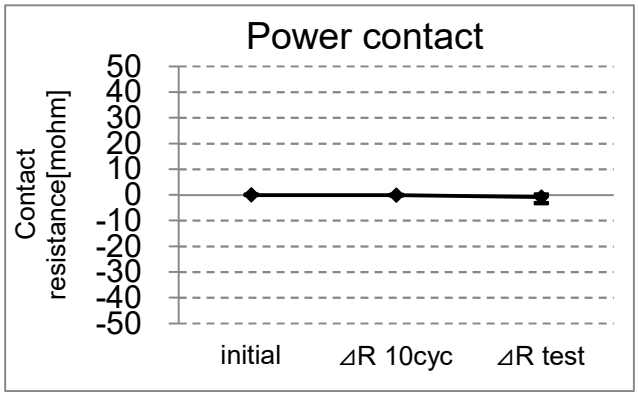


Graph-17. A change of Shell contact resistance

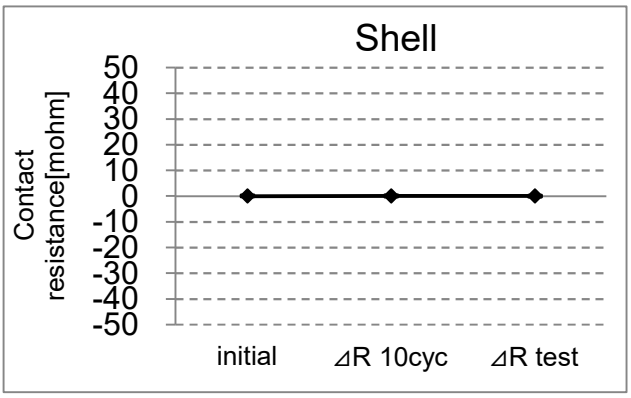
G Group / Humidity (Cycling)



Graph-18. A change of signal contact resistance

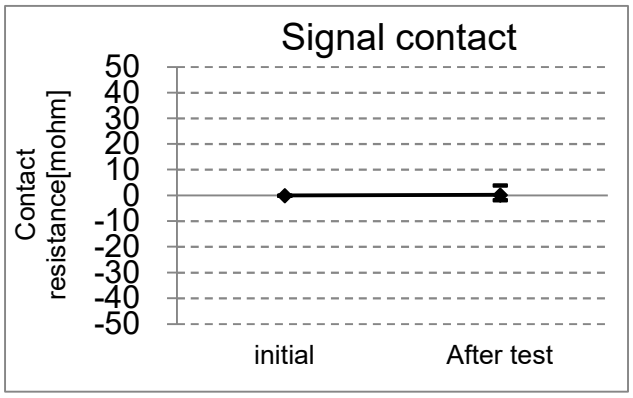


Graph-19. A change of power contact resistance

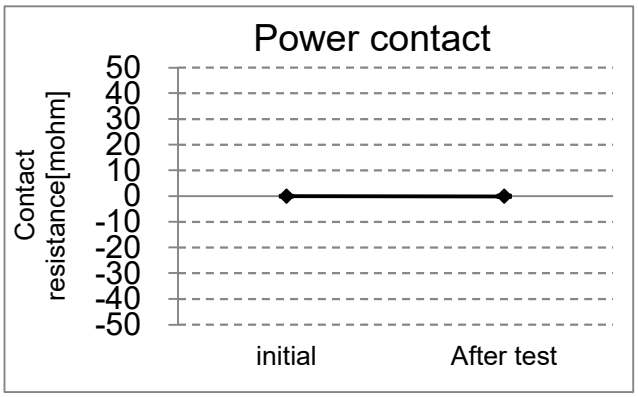


Graph-20. A change of Shell contact resistance

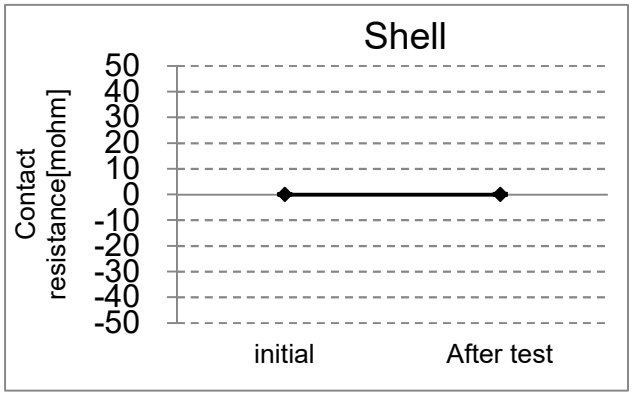
H Group / Salt Water Spray



Graph-21. A change of signal contact resistance

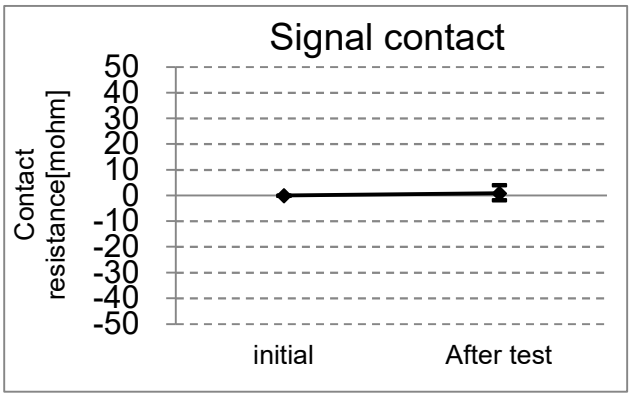


Graph-22. A change of power contact resistance

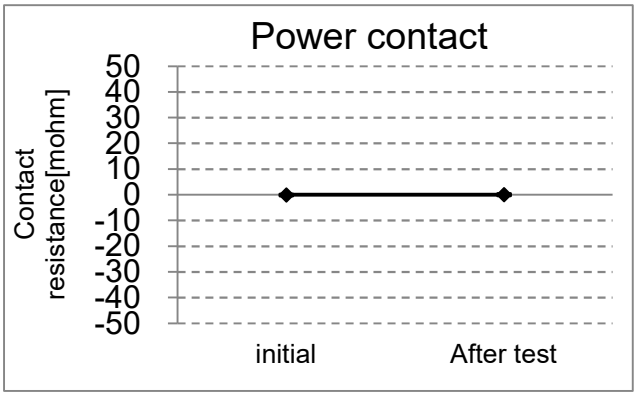


Graph-23. A change of Shell contact resistance

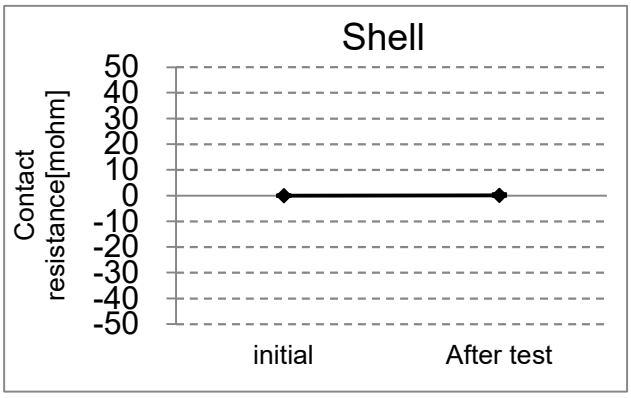
J Group / Gas



Graph-24. A change of signal contact resistance



Graph-25. A change of power contact resistance



Graph-26. A change of Shell contact resistance