

# CABLINE®-VSF

Part No. 3049-0\*\*# (SHELL ONLY) , 20645-0\*\*T-01 (SHELL ASS'Y)

## Test Report

Product Specification no. PRS-1878

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0	T17096	June 19, 2017	M.Kawasaki	T.Masunaga	H.Ikari
Rev.	ECN	Date	Prepared by	Checked by	Approved by

## 1. 目的 Purpose

CABLINE-VSF コネクタの製品性能を製品規格（PRS-1878）に基づき下記評価を行う。

To evaluate the performance of CABLINE-VSF Connector in accordance PRS-1878.

## 2. 試料 Specimen

2.1. PLUG(CABLINE-VSF) SHELL Only..... P/N : 3049-0\*\*#

SHELL ASS'Y(with LOCK BAR) ... P/N : 20645-0\*\*T-01

※FPC : 日本メクトロン(株)製 (Made by NIPPON MEKTRON ,Ltd.)

FPC 厚 (FPC Thickness) :  $t=0.30^{+0.03/-0.03}$  実測 (Actual measurement): 0.30~0.31mm

2.2. RECE(CABLINE-VS).....P/N : 20455-0\*\*E-#9#

## 3. 結論 Conclusion

全ての試料が、製品規格（PRS-1878）の必要条件を満足しております。

All the specimen met the requirements of PRS-1878.

## 4. 試験順序 Test Sequence

表 1 参照。See Table-1.

## 5. 結果 Result

表 2-1~2-3、グラフ 1~18 参照。

試験条件の詳細は、製品規格（PRS-1878）を参照。

表内の Set 数はサンプル数を意味し、n 数は測定データ数を意味する。

See Table.2-1~2-3 and Graph.1~18.

For the details of the testing conditions and requirements, see PRS-1878.

The Set number in a table means the number of samples,

and n means the number of measurement data.

表 1. 試験順序 (Table.1 Test Sequence)

試験項目 Test Item	グループ / Group								
	A	B	C	D	E	F	G	H	J
接触抵抗 C/T Resistance		2,6	1,3,5	1,3	1,3	1,5	1,5	1,3	1,3
絶縁抵抗 Insulation Resistance						2,6	2,6		
耐電圧 D. W. Voltage						3,7	3,7		
温度上昇 Temp. Life	1								
挿入力 Mating Force		1,5							
抜去力 Un mating Force		3,7							
耐久性 Durability		4							
振動 Vibration			2						
衝撃 Shock			4						
熱衝撃 Thermal Shock				2					
高温寿命 High Temp. Life					2				
湿度 (定常状態) Humidity (Steady State)						4			
湿度 (サイクリング) Humidity (Cycling)							4		
塩水噴霧 Salt Spray								2	
ガス (H <sub>2</sub> S) Gas (H <sub>2</sub> S)									2

※グループ表中の番号は、試験順序を示す。

The number of group is test sequence.

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表 2-1. 試験結果 (Table.2-1 Test result)

試験項目 Test Item	測定内容 Contents of Measurement		規格 Specifications	Set	n	データ/Data					判定 Judge	
						AVE.	MAX.	MIN.	s	X±3s		
A Group 温度上昇 Temperature Rising	0.3A/Contact 12.0A/Connector		$\Delta T=30^{\circ}\text{C MAX.}$	5	5	$\Delta T=13.0^{\circ}\text{C MAX.}$					OK	
B Group 耐久性 Durability	接触抵抗 Contact Resistance (m $\Omega$ )	初期 Initial	60m $\Omega$ MAX.	5	200	12.036	14.86	9.45	1.396	16.224	OK	
		30 回挿抜後 After Testing	$\Delta R=40\text{m}\Omega$ MAX.			-0.720	4.01	-4.18	1.750	4.530	OK	
	GND 抵抗 GND Resistance (m $\Omega$ )	初期 Initial	60m $\Omega$ MAX.	5	5	4.450	5.27	3.68	0.660	6.430	OK	
		30 回挿抜後 After Testing	$\Delta R=40\text{m}\Omega$ MAX.			-0.414	0.80	-1.75	0.995	2.571	OK	
	30P	挿入力 Mating Force (N)	初期 Initial	24.00N MAX.	5	5	7.797	8.41	7.42	0.536	9.405	OK
			30 回挿抜後 After Testing	24.00N MAX.			6.257	6.61	5.89	0.360	7.337	OK
		抜去力 Unmating Force (N)	初期 Initial	1.80N MIN.	5	5	4.656	4.89	4.45	0.222	3.990	OK
			30 回挿抜後 After Testing	1.80N MIN.			4.137	4.55	3.63	0.467	2.736	OK
	40P	挿入力 Mating Force (N)	初期 Initial	32.00N MAX.	5	5	9.707	10.24	9.43	0.462	11.093	OK
			30 回挿抜後 After Testing	32.00N MAX.			6.723	7.34	5.98	0.689	8.790	OK
		抜去力 Unmating Force (N)	初期 Initial	2.40N MIN.	5	5	5.637	5.77	5.45	0.167	5.136	OK
			30 回挿抜後 After Testing	2.40N MIN.			4.607	4.95	3.98	0.544	2.975	OK
C Group 振動 Vibration ↓ 衝撃 Shock	接触抵抗 Contact Resistance (m $\Omega$ )	初期 Initial	60m $\Omega$ MAX.	5	200	12.160	15.09	9.51	1.668	17.164	OK	
		振動後 After Vibration	$\Delta R=40\text{m}\Omega$ MAX.			0.270	4.05	-3.16	1.439	4.587	OK	
		衝撃後 After Shock	$\Delta R=40\text{m}\Omega$ MAX.			-0.295	3.36	-3.82	1.603	4.514	OK	
	GND 抵抗 GND Resistance (m $\Omega$ )	初期 Initial	60m $\Omega$ MAX.	5	5	4.693	5.76	3.64	0.921	7.456	OK	
		振動後 After Vibration	$\Delta R=40\text{m}\Omega$ MAX.			0.102	1.34	-1.23	0.867	2.703	OK	
		衝撃後 After Shock	$\Delta R=40\text{m}\Omega$ MAX.			-0.283	1.70	-1.42	1.090	2.987	OK	
	電氣的瞬断 Electrical discontinuity	振動試験中 During Vibration	$1\mu\text{sec. MAX.}$	5	5	瞬断無し No Electrical discontinuity					OK	
		衝撃試験中 During Shock				瞬断無し No Electrical discontinuity					OK	
	外観 Appearance	振動後 After Vibration	異常無き事 Abnormality shall not occur.	5	5	異常無し No Abnormality					OK	
		衝撃後 After Shock				異常無し No Abnormality					OK	

\*温度上昇試験については、定格電流の 0.3A/Contact を隣接する 40 芯分 (コネクタ全体で 12.0A) 流した時の結果です。

The Temperature Rising Test is a result when applied ratings current (0.3A/contact) between the neighboring contacts for 40pos. (With the whole connector 12.0A.)

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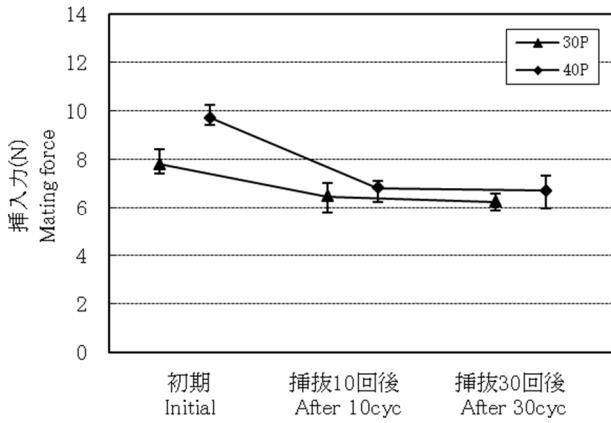
表 2-2. 試験結果(Table.2-2 Test result)

試験項目 Test Item	測定内容 Contents of Measurement		規格 Specifications	Set	N	データ/Data					判定 Judge
						AVE.	MAX.	MIN.	s	X±3s	
D Group 熱衝撃 Thermal Shock	接触抵抗 Contact Resistance (mΩ)	初期 Initial	60mΩMAX.	5	200	11.876	14.80	9.34	1.451	16.229	OK
		試験後 After Testing	ΔR=40mΩ MAX.			-0.109	3.34	-3.61	1.621	4.754	OK
	GND 抵抗 GND Resistance (mΩ)	初期 Initial	60mΩMAX.	5	5	4.337	5.21	3.45	0.594	6.119	OK
		試験後 After Testing	ΔR=40mΩ MAX.			-0.332	0.78	-1.73	0.919	2.425	OK
E Group 高温寿命 High Temperature Life	接触抵抗 Contact Resistance (mΩ)	初期 Initial	60mΩMAX.	5	200	11.977	14.86	9.13	1.410	16.207	OK
		試験後 After Testing	ΔR=40mΩ MAX.			0.722	3.67	-2.29	1.460	5.102	OK
	GND 抵抗 GND Resistance (mΩ)	初期 Initial	60mΩMAX.	5	5	4.305	5.34	3.57	0.695	6.390	OK
		試験後 After Testing	ΔR=40mΩ MAX.			0.547	1.20	-0.10	0.536	2.155	OK
F Group 湿度 (定常状態) Humidity (Steady State)	接触抵抗 Contact Resistance (mΩ)	初期 Initial	60mΩMAX.	5	200	12.005	15.16	9.02	1.847	17.546	OK
		試験後 After Testing	ΔR=40mΩ MAX.			0.288	4.15	-3.31	1.650	5.238	OK
	GND 抵抗 GND Resistance (mΩ)	初期 Initial	60mΩMAX.	5	5	4.062	5.43	3.45	0.800	6.462	OK
		試験後 After Testing	ΔR=40mΩ MAX.			-0.175	1.17	-1.09	0.878	2.809	OK
	絶縁抵抗 Insulation Resistance (MΩ)	初期 Initial	1000MΩMIN.	5	100	1.1×10 <sup>5</sup> MΩMIN.					OK
		試験後 After Testing	500MΩMIN.			2.5×10 <sup>4</sup> MΩMIN.					OK
	耐電圧 D. W. Voltage	初期 Initial	異常無き事 Abnormality shall not occur.	5	100	異常無し No Abnormality					OK
		試験後 After Testing				異常無し No Abnormality					OK

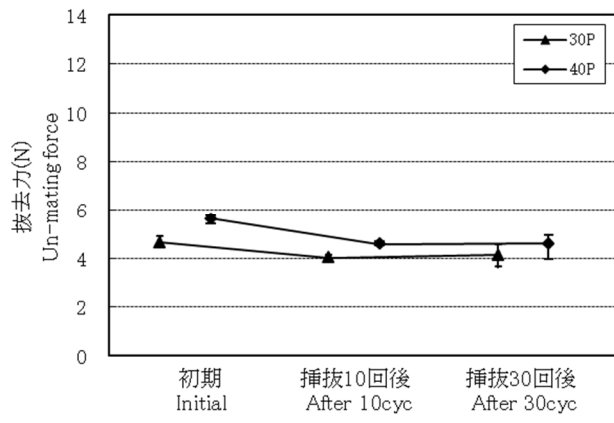
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表 2-3. 試験結果(Table.2-3 Test result)

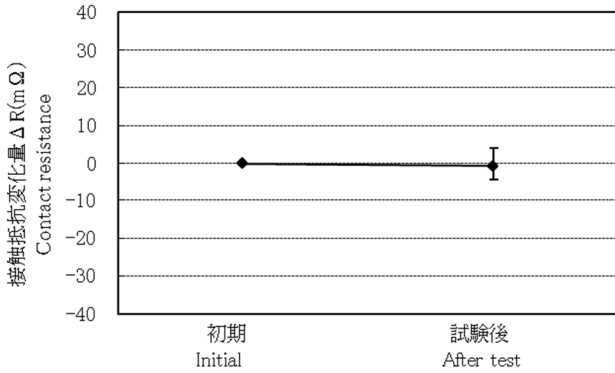
試験項目 Test Item	測定内容 Contents of Measurement	規格 Specifications		Set	N	データ/Data					判定 Judge
						AVE.	MAX.	MIN.	s	X±3s	
G Group 湿度 (サイクリング) Humidity (Cycling)	接触抵抗 Contact Resistance (mΩ)	初期 Initial	60mΩMAX.	5	200	11.705	14.46	9.24	1.307	15.626	OK
		試験後 After Testing	ΔR=40mΩ MAX.			0.206	4.18	-3.34	1.536	4.814	OK
	GND 抵抗 GND Resistance (mΩ)	初期 Initial	60mΩMAX.	5	5	4.285	4.89	3.91	0.420	5.545	OK
		試験後 After Testing	ΔR=40mΩ MAX.			0.138	1.32	-1.42	0.957	3.009	OK
	絶縁抵抗 Insulation Resistance (MΩ)	初期 Initial	1000MΩMIN.	5	100	1.0×10 <sup>5</sup> MΩMIN.					OK
		試験後 After Testing	500MΩMIN.			1.0×10 <sup>4</sup> MΩMIN.					OK
	耐電圧 D. W. Voltage	初期 Initial	異常無き事 Abnormality shall not occur.	5	100	異常無し No Abnormality					OK
		試験後 After Testing				異常無し No Abnormality					OK
H Group 塩水噴霧 Salt Water Spray	接触抵抗 Contact Resistance (mΩ)	初期 Initial	60mΩMAX.	5	200	12.462	14.96	9.27	1.452	16.818	OK
		試験後 After Testing	ΔR=40mΩ MAX.			0.183	3.69	-2.12	1.385	4.338	OK
	GND 抵抗 GND Resistance (mΩ)	初期 Initial	60mΩMAX.	5	5	4.582	5.67	3.47	0.744	6.814	OK
		試験後 After Testing	ΔR=40mΩ MAX.			0.277	1.11	-0.73	0.674	2.299	OK
J Group ガス(H <sub>2</sub> S) Gas(H <sub>2</sub> S)	接触抵抗 Contact Resistance (mΩ)	初期 Initial	60mΩMAX.	5	200	12.399	14.75	9.50	1.410	16.629	OK
		試験後 After testing	ΔR=40mΩ MAX.			0.296	4.45	-4.01	1.665	5.291	OK
	GND 抵抗 GND Resistance (mΩ)	初期 Initial	60mΩMAX.	5	5	4.237	5.51	3.43	0.824	6.709	OK
		試験後 After Testing	ΔR=40mΩ MAX.			0.527	1.05	-0.28	0.623	2.396	OK



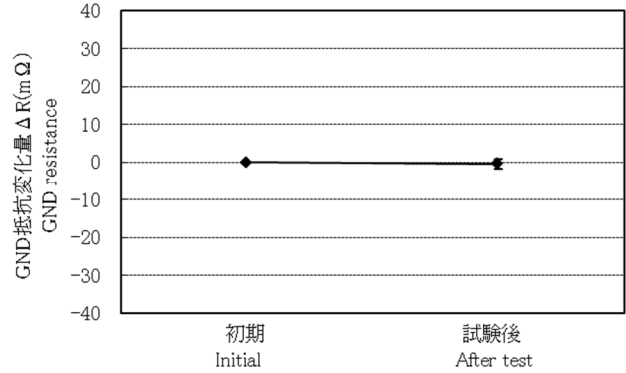
Graph1. 挿入力の変化 (B Group : 耐久性)  
A change of mating force (B Group:Durability)



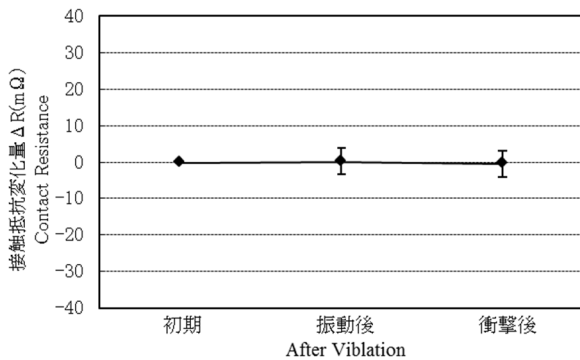
Graph 2. 抜去力の変化 (B Group : 耐久性)  
A change of un mating force (B Group:Durability)



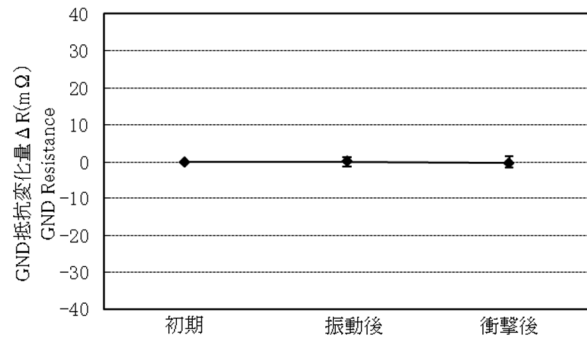
Graph3. 接触抵抗値の変化 (B Group : 耐久性)  
A change of contact resistance (B Group:Durability)



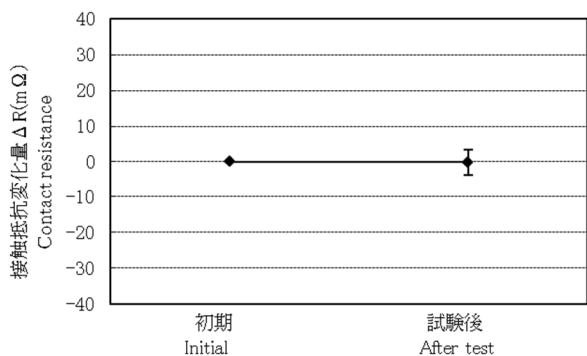
Graph4. GND 抵抗値の変化 (B Group : 耐久性)  
A change of GND resistance (B Group:Durability)



Graph5. 接触抵抗値の変化 (C Group : 振動・衝撃)  
A change of contact resistance(C Group:Vibration/Shock)

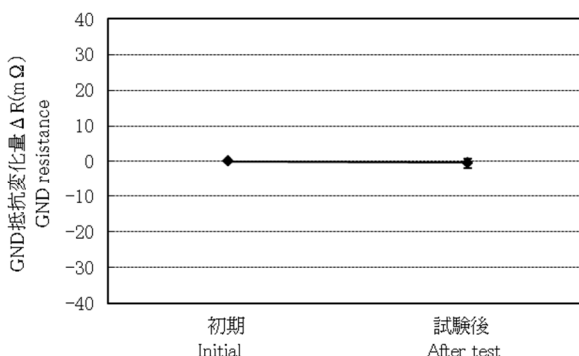


Graph6. GND 抵抗値の変化 (C Group : 振動・衝撃)  
A change of GND resistance(C Group:Vibration/Shock)



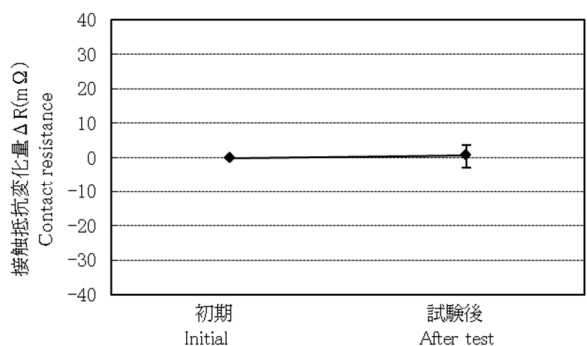
Graph7. 接触抵抗値の変化 (D Group : 熱衝撃)

A change of contact resistance (D Group:Thermal shock)



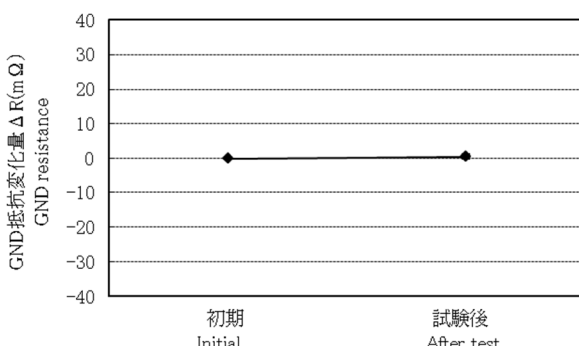
Graph8. GND 抵抗値の変化 (D Group : 熱衝撃)

A change of GND resistance (D Group:Thermal shock)



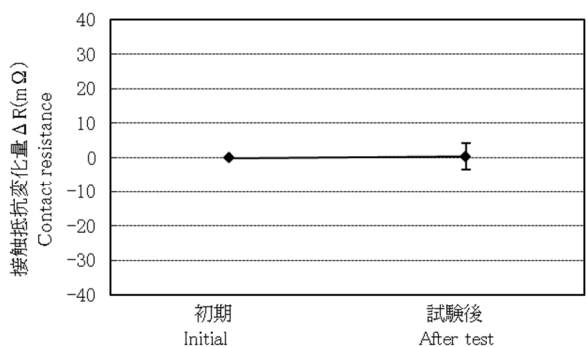
Graph9. 接触抵抗値の変化 (E Group : 高温寿命)

A change of contact resistance (E Group:High temp.life)



Graph10. GND 抵抗値の変化 (E Group : 高温寿命)

A change of GND resistance (E Group:High temp.life)

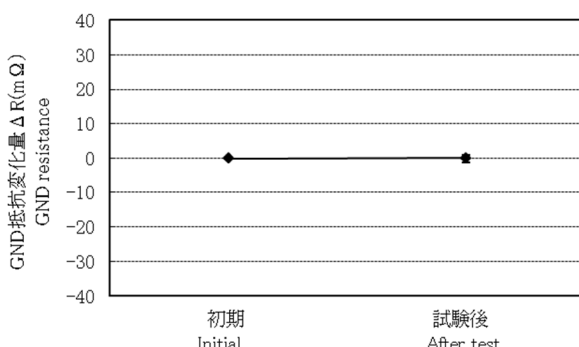


Graph11. 抵抗値の変化

(F Group : 湿度(定常状態))

A change of contact resistance

(F Group: Humidity(Steady state))



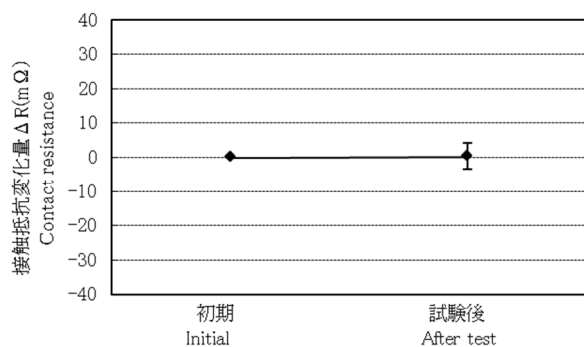
Graph12. GND 抵抗値の変化

(F Group : 湿度(定常状態))

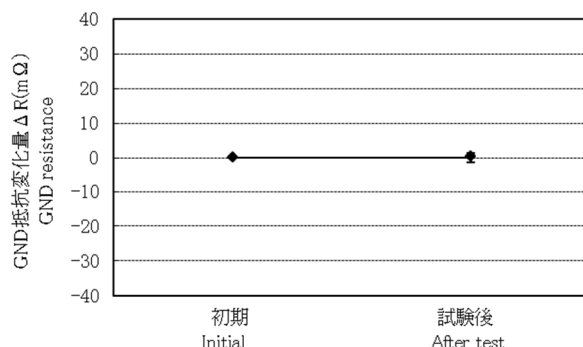
A change of GND resistance

(F Group: Humidity(Steady state))

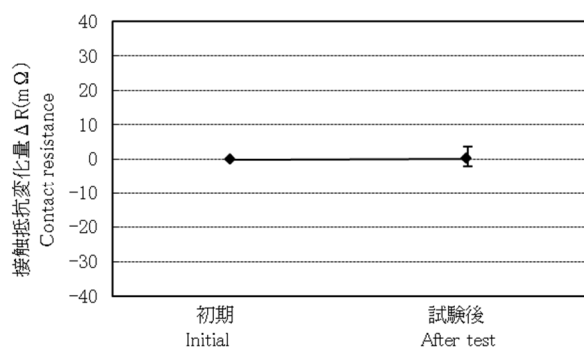




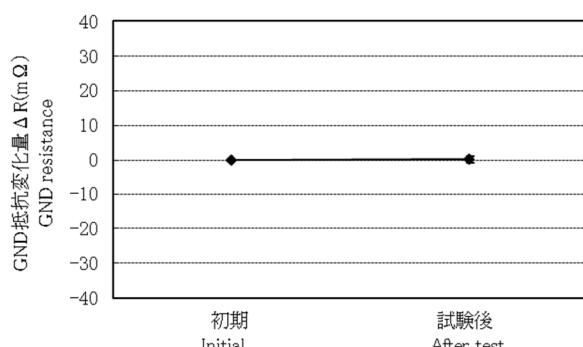
Graph 13. 接触抵抗値の変化 (G Group : 湿度(サイクリング))  
A change of contact resistance (G Group:Humidity(Cycling))



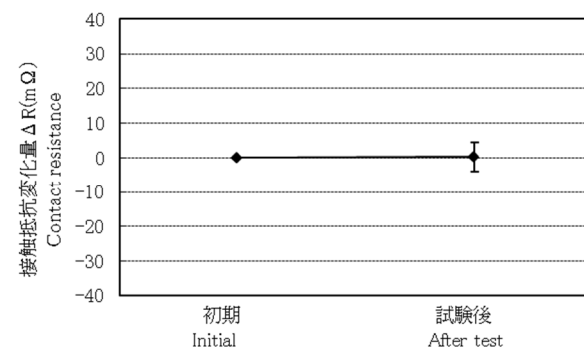
Graph14. GND 抵抗値の変化 (G Group : サイクリング)  
A change of GND resistance (G Group:Humidity(Cycling))



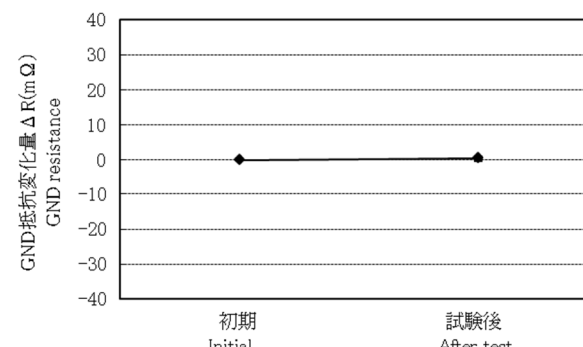
Graph15. 接触抵抗値の変化 (H Group : 塩水噴霧)  
A change of contact resistance (H Group:Salt spray)



Graph16. GND 抵抗値の変化 (H Group : 塩水噴霧)  
A change of GND resistance (H Group:Salt spray)



Graph17. 接触抵抗値の変化 (J Group : ガス(H<sub>2</sub>S))  
A change of contact resistance (J Group:Gas(H<sub>2</sub>S))



Graph18. GND 抵抗値の変化 (JGroup : ガス(H<sub>2</sub>S))  
A change of contact resistance (J Group:Gas(H<sub>2</sub>S))