

Nett Warrior O.C.H. Quick Disconnect Circular Connectors

1. SCOPE

1.1. Content

This specification defines performance, tests and quality requirements for the Nett Warrior Quick Disconnect Circular Plug and Receptacle Connectors.

1.2. Qualification

When tests are performed on the subject product line, procedures specified in Figure 1 shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

1.3. Qualification Test Results

Successful qualification testing on the subject product line has been completed between FEB/23/2015 and May/08/2015. The Qualification Test Report number for this testing is 502-134146.

2. APPLICABLE DOCUMENTS AND FORMS

The following documents and forms constitute a part of this specification to the extent specified herein. Unless otherwise indicated, the latest edition of the document applies.

2.1. TE Documents

- [501-134052](#): Nett Warrior O.C.H. Quick Disconnect Circular Plug and Receptacle Connectors
- [2226920](#): (Customer Drawing) Receptacle Connector Assembly Nett Warrior
- [2226910](#): (Customer Drawing) Plug Connector Assembly Nett Warrior

2.2. Industry Documents

- EIA-364: Electrical Connector/Socket Test Procedures Including Environmental Classifications
- MIL-STD-810: Environmental Engineering Considerations and Laboratory Tests, 31 October 2008 (with all update notices)
- MIL-STD-461: Requirements for Control of Electromagnetic Interference Characteristics of Subsystems and Equipment, 10 December 2007
- FED STD 595: Colors Used in Government Procurement, 31 July 2008
- Registry of Toxic Effects of Chemical Substances, National Institute for Occupational Safety and Health.
- NFPA 70: National Electric Code 2008 Edition
- Specification for Nett Warrior Interface Cable Assembly Version 1.2 18 February 2015

3. REQUIREMENTS

3.1. Design and Construction

Product shall be of the design, construction, materials and physical dimensions specified on the applicable product drawing.

3.2. Ratings

Voltage	Current	Temperature
15 Volts	5A	-18°C to 71°C

3.3. Test Requirements and Procedures Summary

Unless otherwise specified, all tests shall be performed at ambient environmental conditions.

Test Description	Requirement	Procedure
Initial examination of product.	Meets requirements of product drawing and Application Specification	EIA-364-18. Visual and dimensional (C of C) inspection per product drawing.
ELECTRICAL		
Voltage Drop at 1 Adc	Verify continuity	Four terminal measuring technique
Insulation Resistance at 500 Vdc	Minimum of 100 Megohms	All connector positions to be tested to the shell or adjacent contacts where applicable. Voltage is to be applied for minimum of 1 second
MECHANICAL		
Breakaway Force	Must equal 13±3 lbf	Rate 15 inches per minute
Strength	See note	Pre-load overmolded cable assemblies to 80 lbf at a rate of 2 inches per minute then apply 100 lbf at a rate of 0.5 inches per minute hold for 30 seconds. NON-overmolded cable assemblies are to be loaded to 21 lbf at a rate of 0.5 inches per minute; hold for 30 seconds.
Vibration – Procedure I	No discontinuities of one microsecond or greater	MIL-STD-810G, Method 514.7, Procedure I, using exposure profile for general use per Figure 1 in Annex E. Duration: 1 hr in two perpendicular axes.
Shock	See note	MIL-STD-810G, Method 516.6, Procedure IV
Vibration – Procedure II	See note	MIL-STD-810G, Method 514.6, Category 5, Procedure II
ENVIRONMENTAL		
Altitude – Procedure I	See note	MIL-STD-810G, Method 500.5, Procedure I simulated altitude of 40,000 feet hold 1 hour
Altitude – Procedure II	No discontinuities of one microsecond or greater	MIL-STD-810G, Method 500.5, Procedure II simulated altitude of 32,000 feet hold 1 hour
High Temperature – Procedure II	No discontinuities of one microsecond or greater	MIL-STD-810G, Method 501.5, Procedure II
High Temperature – Procedure I	See note	MIL-STD-810G, Method 501.5, Procedure I
Low Temperature – Procedure II	No discontinuities of one microsecond or greater	MIL-STD-810G, Method 502.5, Procedure II
Humidity – Induced Storage & Transit	See note	MIL-STD-810G, Method 507.5, Procedure I Three cycles with profile defined in Column B2 of Figure 26
Humidity – Natural Environment Operational	No discontinuities of one microsecond or greater	MIL-STD-810G, Method 507.5, Procedure I Profile defined in Column B2 of Figure 28
Salt Atmosphere	See note	MIL-STD-810G, Method 509.5
Rain	No discontinuities of one microsecond or greater	MIL-STD-810G, Method 506.5, Procedure II (Exaggerated).
Snow & Ice	No discontinuities of one microsecond or greater	MIL-STD-810G, Method 521.3

Test Description	Requirement	Procedure
Solar Radiation	See note	MIL-STD-810G, Method 505.5, Procedure I, Cycle A1, for three continuous cycles
Dust	See note	MIL-STD-810G, Method 510.5, Procedure I



NOTE

Shall meet visual requirements, show no physical damage, and meet requirements of additional tests as specified in the Product Qualification and Requalification Test Sequence shown in Figure 2.

3.4. Product Qualification and Requalification Test Sequence

Test or Examination	Test Group (a)				
	1	2	3	4	5
	Test Sequence (b)				
Examination of product	1,5	1,5,9,13,17,21	1,5,9,13	1,5,9,13,17	1,5,9,13,17
Voltage Drop at 1 Adc	2	2, 6, 10, 14, 18, 22	2, 6, 10, 14	2, 6, 10, 14,18	2, 6, 10, 14, 18
Insulation Resistance at 500 Vdc	3	3, 7, 11, 15, 19, 23	3, 7, 11, 15	3, 7, 11, 15,19	3, 7, 11, 15, 19
Breakaway Force Strength	4			16	
Altitude – Procedure I		4			
Altitude – Procedure II		8			
Vibration – Procedure I		12			
Shock		16			
Vibration – Procedure II		20			
High Temperature – Procedure II			4		
High Temperature – Procedure I			8		
Low Temperature – Procedure II			12		
Humidity – Induced Storage & Transit				4	
Humidity – Natural Environment Operational				8	
Salt Atmosphere				12	
Rain					4
Snow & Ice					8
Solar Radiation					12
Dust					16



NOTE

- (a) Each test group contain 2 samples. Test groups 1, 3, 4 will be terminated with 8 inches of 6-conductor cable. Any “pig-tail” specimens will be mated to double-ended production cable assemblies approximately 20 inches in length.
- (b) Numbers indicate sequence in which tests are performed.

From MIL-STD-810H:

2.2 Selecting Procedures

This Method consists of two procedures, Procedure I (Induced (Storage and Transit) and Natural Cycles), and Procedure II (Aggravated). Determine the procedure(s) to be used.

The Natural Cycle B2 is shown here, matching Figure 28 in the 502-134146.

Table 507.6-I. High humidity diurnal categories.

Time	Natural ¹									Induced (Storage and Transit)																			
	High Humidity						Hot Humid (Cycle B3)			Constant Temp. (Cycle B1)			Cyclic High RH (Cycle B2)			Hot Humid (Cycle B3)													
	Constant Temp. (Cycle B1)			Cyclic High RH (Cycle B2)																									
	Temp	RH		Temp	RH		Temp	RH		Temp	RH		Temp	RH		Temp	RH												
°C	°F	%	°C	°F	%	°C	°F	%	°C	°F	%	°C	°F	%	°C	°F	%												
0100	Nearly constant at 24°C (75°F) throughout the 24 hours						31	88	88	Nearly constant at 27°C (80°F) throughout the 24 hours																			
0200							100	26	79										100	31	88	88	100	33	91	69	35	95	67
0300							100	26	79										100	31	88	88	100	32	90	70	34	94	72
0400							100	26	79										100	31	88	88	100	31	88	72	34	93	77
0500							100	26	78										100	31	88	88	100	30	86	74	33	92	79
0600							100	29	78										100	32	90	85	100	31	88	75	33	91	80
0700							98	27	81										94	34	93	80	98	34	93	64	36	97	70
0800							97	29	84										88	36	96	76	97	38	101	54	40	104	54
0900							95	31	87										82	37	98	73	95	42	107	43	44	111	42
1000							95	32	89										79	38	100	69	95	45	113	36	51	124	31
1100							95	33	92										77	39	102	65	95	51	124	29	57	135	24
1200							95	34	94										75	40	104	62	95	57	134	22	62	144	17
1300							95	34	94										74	41	105	59	95	61	142	21	66	151	16
1400							95	35	95										74	41	105	59	95	63	145	20	69	156	15
1500							95	35	95										74	41	105	59	95	63	145	19	71	160	14
1600							95	34	93										76	41	105	59	95	62	144	20	69	156	16
1700							95	33	92										79	39	102	65	95	60	140	21	66	151	18
1800							95	32	90										82	37	99	69	95	57	134	22	63	145	21
1900							97	31	88										86	36	97	73	97	50	122	32	58	136	29
2000							98	29	85										91	34	94	79	98	44	111	43	50	122	41
2100							100	28	83										95	33	91	85	100	38	101	54	41	105	53
2200							100	28	82										96	32	90	85	100	35	95	59	39	103	58
2300							100	27	81										100	32	89	88	100	34	93	63	37	99	62
2400							100	27	80										100	31	88	88	100	33	91	68	35	95	63

¹ Temperature and humidity values are for ambient air.

² For chamber control purpose, 100 percent RH implies as close to 100 percent RH as possible, but not less than 95 percent.

Procedure II Aggravated has dwells at 60°C and high humidity throughout:

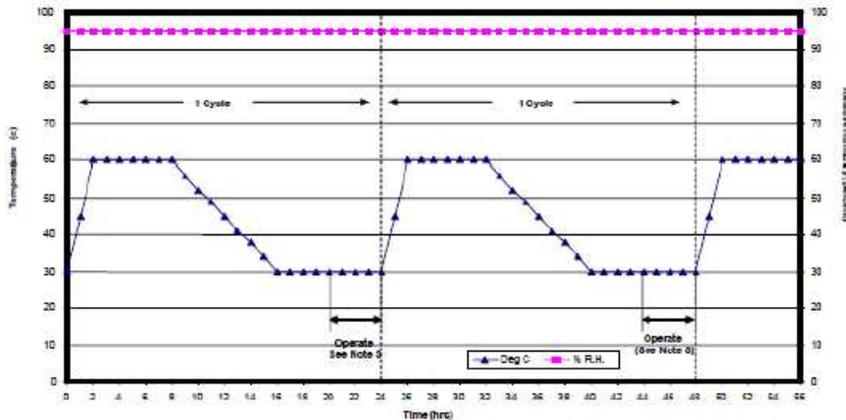


Figure 507.6-7. Aggravated temperature-humidity cycle.