



**european space agency
agence spatiale européenne**

Pages 1 to 22

**CONNECTORS, ELECTRICAL, CIRCULAR,
BAYONET COUPLING, SCOOP-PROOF,
REMOVABLE CRIMP CONTACTS,
BASED ON MIL-C-38999 SERIES I**

ESA/SCC Detail Specification No. 3401/052



**space components
coordination group**

Issue/Rev.	Date	Approved by	
		SCCG Chairman	ESA Director General or his Deputy
Issue 2	June 2002		



ESC

ESA/SCC Detail Specification
No. 3401/052

PAGE 2
ISSUE 2

DOCUMENTATION CHANGE NOTICE

Rev. Letter	Rev. Date	Reference	CHANGE Item	Approved DCR No.
		This Issue supercedes Issue 1 and incorporates all modifications defined in Revisions 'A', 'B' and 'C' to Issue 1 and the changes agreed in the following DCRs:-		
		Cover page		None
		DCN		None
		Para. 4.5.4	: New characteristic, "(f) Contact information" added	221676
		Para. 4.5.4.6	: New paragraph, "Contact Information" added	221676



TABLE OF CONTENTS

	<u>Page</u>
1. <u>GENERAL</u>	5
1.1 Scope	5
1.2 Range of Components	5
1.3 Maximum Ratings	5
1.4 Parameter Derating Information	5
1.5 Physical Dimensions	5
2. <u>APPLICABLE DOCUMENTS</u>	5
3. <u>TERMS, DEFINITIONS, ABBREVIATIONS, SYMBOLS AND UNITS</u>	14
4. <u>REQUIREMENTS</u>	14
4.1 General	14
4.2 Deviations from Generic Specification	14
4.2.1 Deviations from Special In-process Controls	14
4.2.2 Deviations from Final Production Tests	14
4.2.3 Deviations from Burn-in and Electrical Measurements	14
4.2.4 Deviations from Qualification, Environmental and Endurance Tests	14
4.2.5 Deviations from Lot Acceptance Tests	14
4.3 Mechanical Requirements	14
4.3.1 Dimension Check	14
4.3.2 Weight	15
4.3.3 Contact Capability	15
4.3.4 Contact Retention	15
4.3.5 Mating and Unmating Forces	15
4.3.6 Insert Retention	15
4.3.7 Jackscrew Retention	15
4.3.8 Contact Insertion and Withdrawal Forces	15
4.3.9 Engagement and Separation Forces	15
4.3.10 Oversize Pin Exclusion	15
4.3.11 Probe Damage	15
4.4 Materials and Finishes	15
4.4.1 Shell, Coupling Ring and Nuts	15
4.4.2 Inserts	15
4.4.3 Contacts	16
4.4.4 Contact Retaining Clip	16
4.4.5 Guiding and Locking Devices	16
4.4.6 Magnetism Level	16
4.5 Marking	16
4.5.1 General	16
4.5.2 Contact Identification	16
4.5.3 The SCC Component Number	16
4.5.4 Characteristics	17
4.5.5 Traceability Information	18
4.5.6 Marking of Small Components	18
4.6 Electrical Measurements	18
4.6.1 Electrical Measurements at Room Temperature	18
4.6.2 Electrical Measurements at High and Low Temperatures	18
4.6.3 Circuit for Electrical Measurements	18
4.7 Burn-in and Electrical Measurements	18
4.8 Environmental and Endurance Tests	19
4.8.1 Measurements and Inspections on Completion of Environmental Tests	19
4.8.2 Measurements and Inspections at Intermediate Points during Endurance Tests	19
4.8.3 Measurements and Inspections on Completion of Endurance Tests	19



	<u>Page</u>
4.8.4 Conditions for Operating Life Test	19
4.8.5 Electrical Circuits for Operating Life Test	19
4.8.6 Conditions for High Temperature Storage Test	19

TABLES

1(a) Range of Components	6
1(b) Maximum Ratings	6
2 Electrical Measurements at Room Temperature	19
3 Not applicable	N/A
4 Not applicable	N/A
5 Not applicable	N/A
6 Measurements and Inspections on Completion of Environmental and Endurance Tests	20

FIGURES

1 Parameter Derating Information	7
2 Physical Dimensions -	8
2(a) Physical Dimensions - Receptables and Plugs	8
2(b) Physical Dimensions - Contact Arrangements	10
2(c) Physical Dimensions - Clocking Positions	13

APPENDICES (Applicable to specific Manufacturers only)

None.



1. GENERAL

1.1 SCOPE

This specification details the ratings, physical and electrical characteristics, test and inspection data for Connectors, Electrical, Circular, Bayonet Coupling, Scoop-proof, Removable Crimp Contacts, based on MIL-C-38999 Series I.

It shall be read in conjunction with:

- ESA/SCC Generic Specification No. 3401, Connectors, Electrical, Non-Filtered, Circular and Rectangular.
- ESA/SCC Detail Specification No. 3401/058, Contacts, Electrical, Crimp, for 3401/052 and /056 Connectors.
- ESA/SCC Detail Specification No. 3401/062, Accessories for Circular Connectors 3401/044, 3401/052 and 3401/056.

the requirements of which are supplemented herein.

1.2 RANGE OF COMPONENTS

The different sizes of connectors specified herein, which are also covered by this specification, together with their mechanical characteristics, are given in Table 1(a).

1.3 MAXIMUM RATINGS

The maximum ratings, which shall not be exceeded at any time during use or storage, applicable to the connector savers specified herein, are scheduled in Table 1(b).

1.4 PARAMETER DERATING INFORMATION

The applicable derating information for the connectors specified herein is shown in Figure 1.

1.5 PHYSICAL DIMENSIONS

The physical dimensions of the connectors specified herein are shown in Figure 2.

2. APPLICABLE DOCUMENTS

The following documents form part of this specification and shall be read in conjunction with it:-

- (a) ESA/SCC Generic Specification No. 3401, Connectors, Electrical, Non-Filtered, Circular and Rectangular.
- (b) ESA/SCC Detail Specification No. 3401/058, Contacts, Electrical, Crimp, for 3401/052 and /056 Connectors.
- (c) ESA/SCC Detail Specification No. 3401/062, Accessories for Circular Connectors 3401/044, 3401/052 and 3401/056.
- (d) MIL-STD-1560, Insert Arrangements for MIL-C-38999 and MIL-C-27599 Electrical Circular Connectors.
- (e) MIL-STD-1344, Test Methods for Electrical Connectors.



TABLE 1(a) - RANGE OF COMPONENTS

SHELL STYLE	SHELL SIZE	MAX. WEIGHT (g) (1)		MATING TORQUE MAX Nm	UNMATING TORQUE		TIGHT. TORQUE FOR MTG NUT SHELL 07 MAX Nm
		SHELL TYPE 00-03	SHELL TYPE 07		MAX Nm	MIN Nm	
Receptacle	09	11	15	-	-	-	6.0
Receptacle	11	17	20	-	-	-	8.0
Receptacle	13	22	26	-	-	-	10
Receptacle	15	25	34	-	-	-	13
Receptacle	17	38	44	-	-	-	16
Receptacle	19	40	49	-	-	-	18
Receptacle	21	52	60	-	-	-	20
Receptacle	23	54	63	-	-	-	22
Receptacle	25	58	70	-	-	-	24
		SHELL TYPE 06					
Plug	09	17		0.9	0.9	0.2	-
Plug	11	23		1.4	1.4	0.2	-
Plug	13	28		1.8	1.8	0.2	-
Plug	15	34		2.3	2.3	0.3	-
Plug	17	44		2.7	2.7	0.3	-
Plug	19	49		3.2	3.2	0.3	-
Plug	21	60		3.6	3.6	0.6	-
Plug	23	63		4.1	4.1	0.6	-
Plug	25	70		4.6	4.6	0.6	-

NOTES

1. Without contacts. See ESA/SCC Detail Specification No. 3401/058 for contact weights.

TABLE 1(b) - MAXIMUM RATINGS

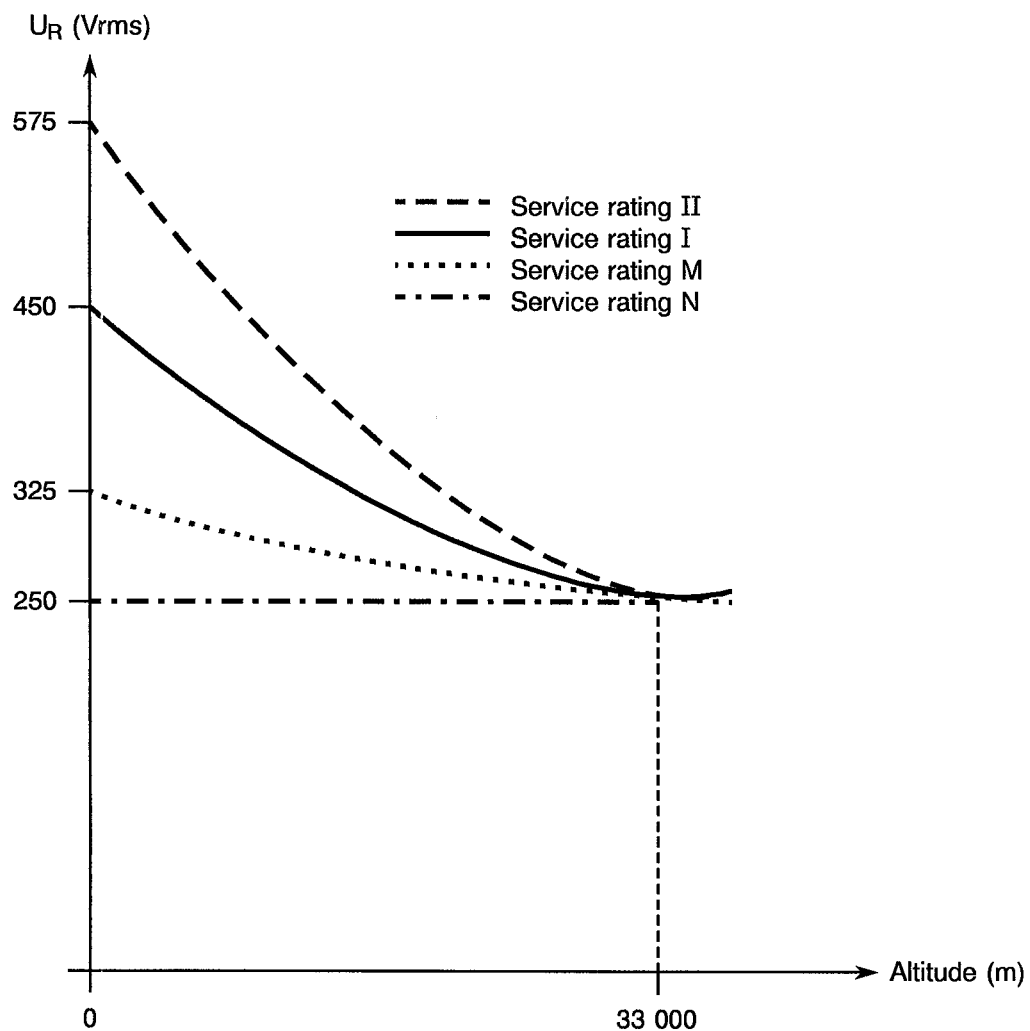
NO	CHARACTERISTICS	SYMBOL	MAXIMUM RATING		UNIT
			MIN	MAX	
1	Working Voltage (Sea Level) (1) Service rating N Service rating M Service rating I Service rating II	U_R	-	250 325 450 575	Vrms
2	Operating Temperature Range	T_{op}	-65	+200	°C
3	Storage Temperature Range	T_{stg}	-65	+200	°C
4	Tightening Torque for Mounting Nut Shell 07	T_q	See Table 1(a)		

NOTES

1. See Para. 4.5.4.3.



FIGURE 1 - PARAMETER DERATING INFORMATION



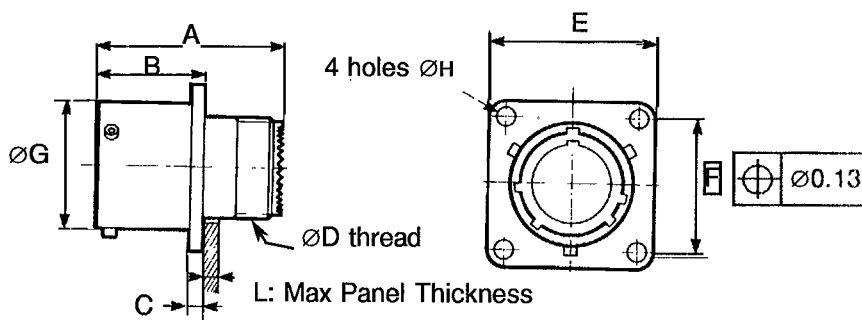
Working Voltage versus Altitude



FIGURE 2 - PHYSICAL DIMENSIONS

FIGURE 2(a) - RECEPTACLES AND PLUGS

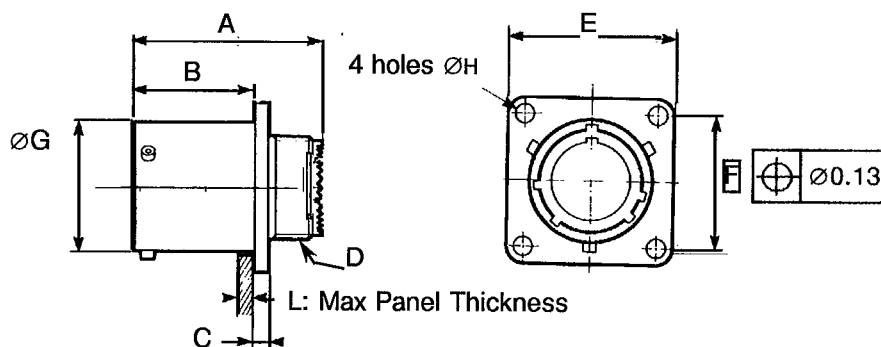
Shell type 00: Square flange receptacle



SHELL SIZE	09		11		13		15		17		19		21		23		25	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
A	-	32.02	-	32.02	-	32.02	-	32.02	-	32.02	-	32.02	-	32.02	-	32.02	-	32.02
B	-	18.53	-	18.53	-	18.53	-	18.53	-	18.53	-	18.53	-	18.53	-	18.53	-	18.53
C	-	2.50	-	2.50	-	2.50	-	2.50	-	2.50	-	2.50	-	3.20	-	3.20	-	3.20
ØD UNEF-2A	.4375-28		.5625-24		.6875-24		.8125-20		.9375-20		1.0625-18		1.1875-18		1.3125-18		1.4375-18	
E	23.95	24.55	26.30	26.90	28.70	29.30	31.05	31.65	33.45	34.05	36.60	37.20	39.80	40.40	42.95	43.55	46.20	46.70
F typical	18.26		20.62		23.01		24.61		26.97		29.36		31.75		34.93		38.10	
ØG	14.41	14.53	17.66	17.78	21.47	21.59	24.65	24.77	27.82	27.94	30.54	30.66	33.71	33.83	36.88	37.00	40.06	40.18
ØH	3.15	3.45	3.15	3.45	3.15	3.45	3.15	3.45	3.15	3.45	3.15	3.45	3.15	3.45	3.63	3.93	3.63	3.93
L	-	2.50	-	2.50	-	2.50	-	2.50	-	2.50	-	2.50	-	2.50	-	2.50	-	2.50

NOTES 1. All dimensions are in millimetres except thread ØD in inches.

Shell type 03: Square flange receptacle back mounting



SHELL SIZE	09		11		13		15		17		19		21		23		25	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
A	-	31.33	-	31.33	-	31.33	-	31.33	-	31.33	-	31.33	-	31.33	-	31.33	-	31.33
B	-	20.83	-	20.83	-	20.83	-	20.83	-	20.83	-	20.83	-	20.08	-	20.08	-	20.08
C	-	2.50	-	2.50	-	2.50	-	2.50	-	2.50	-	2.50	-	3.20	-	3.20	-	3.20
ØD UNEF-2A	.4375-28		.5625-24		.6875-24		.8125-20		.9375-20		1.0625-18		1.1875-18		1.3125-18		1.4375-18	
E	23.95	24.55	26.30	26.90	28.70	29.30	31.05	31.65	33.45	34.05	36.60	37.20	39.80	40.40	42.95	43.55	46.20	46.70
F typical	18.26		20.62		23.01		24.61		26.97		29.36		31.75		34.93		38.10	
ØG	14.41	14.53	17.66	17.78	21.47	21.59	24.65	24.77	27.82	27.94	30.54	30.66	33.71	33.83	36.88	37.00	40.06	40.18
ØH	3.15	3.45	3.15	3.45	3.15	3.45	3.15	3.45	3.15	3.45	3.15	3.45	3.15	3.45	3.63	3.93	3.63	3.93
L	-	2.50	-	2.50	-	2.50	-	2.50	-	2.50	-	2.50	-	2.50	-	2.50	-	2.50

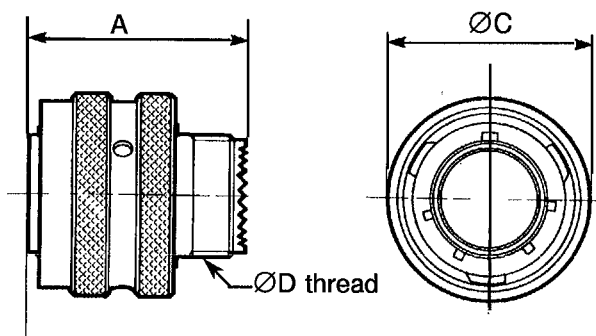
NOTES 1. All dimensions are in millimetres except thread ØD in inches.



FIGURE 2 - PHYSICAL DIMENSIONS (CONTINUED)

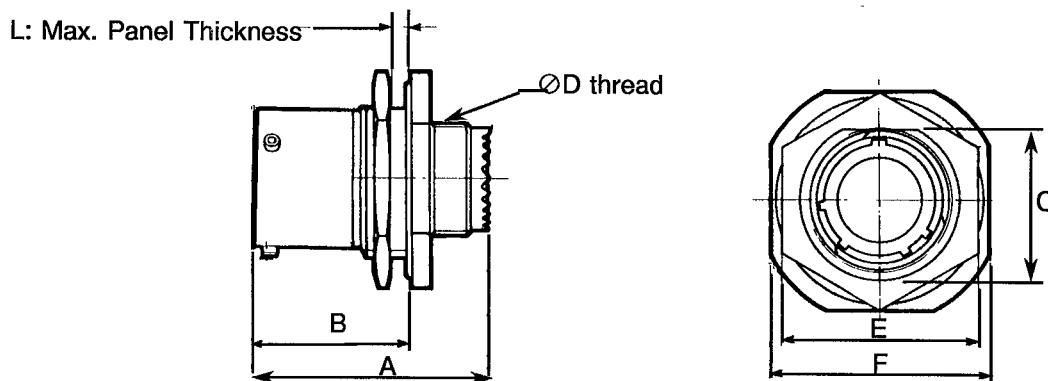
FIGURE 2(a) - RECEPTACLES AND PLUGS

Shell type 06: Plug



SHELL SIZE	09 MAX	11 MAX	13 MAX	15 MAX	17 MAX	19 MAX	21 MAX	23 MAX	25 MAX
A	31.32	31.32	31.32	31.32	31.32	31.32	31.32	31.32	31.32
$\varnothing C$	21.80	25.00	29.40	32.50	35.70	38.50	41.70	44.85	48.00
$\varnothing D$ UNEF-2A	.4375-28	.5625-24	.6875-24	.8125-20	.9375-20	1.0625-18	1.1875-18	1.3125-18	1.4375-18

Shell type 07: Single hole mounting receptacle



SHELL SIZE	09		11		13		15		17		19		21		23		25	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
A	-	31.68	-	31.68	-	31.68	-	31.68	-	31.68	-	31.68	-	31.68	-	31.68	-	31.68
B	-	23.36	-	23.36	-	23.36	-	23.36	-	23.36	-	23.36	-	23.36	-	23.36	-	23.36
C	16.43	16.63	18.97	19.17	23.72	23.92	26.87	27.07	30.05	30.25	33.22	33.42	36.40	36.60	39.57	39.77	42.75	42.95
$\varnothing D$ UNEF-2A	.4375-28		.5625-24		.6875-24		.8125-20		.9375-20		1.0625-18		1.1875-18		1.3125-18		1.4375-18	
E	22.25	22.45	25.45	25.65	30.20	30.40	33.35	33.55	36.55	36.75	39.70	39.90	42.90	43.10	46.05	46.25	50.85	51.05
F	26.95	27.75	31.70	32.50	34.91	35.71	38.09	38.89	41.23	42.03	45.97	46.77	49.18	49.98	52.36	53.16	55.53	56.33
L	-	3.20	-	3.20	-	3.20	-	3.20	-	3.20	-	3.20	-	3.20	-	3.20	-	3.20

NOTES

1. All dimensions are in millimetres except thread $\varnothing D$ in inches.



FIGURE 2 - PHYSICAL DIMENSIONS (CONTINUED)

FIGURE 2(b) - HIGH DENSITY CONTACT ARRANGEMENTS - FRONT VIEW MALE INSERT

09-35



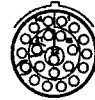
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11-35



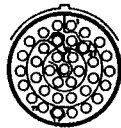
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13-35



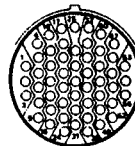
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15-35



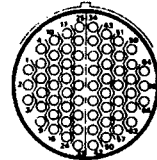
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17-35



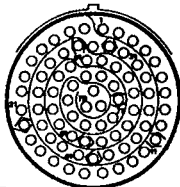
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19-35



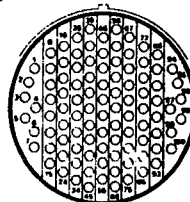
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21-35



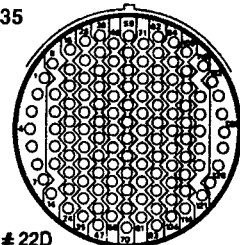
79 # 22D

23-35



100 # 22D

25-35



128 # 22D

NOTES

1. Contact locations and identifications in conformity with MIL-STD-1560.
2. Both sides of the inserts shall be marked.



FIGURE 2 - PHYSICAL DIMENSIONS (CONTINUED)

FIGURE 2(b) - STANDARD CONTACT ARRANGEMENTS - FRONT VIEW MALE INSERT

09-98



3 # 20

11-98



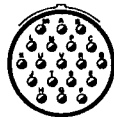
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13-98



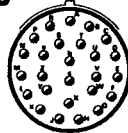
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15-19



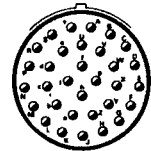
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17-26



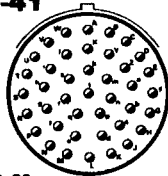
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19-32



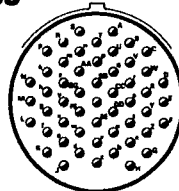
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21-41



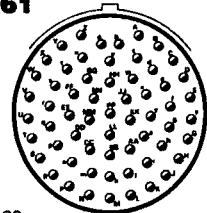
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23-53



53 # 20

25-61



61 # 20

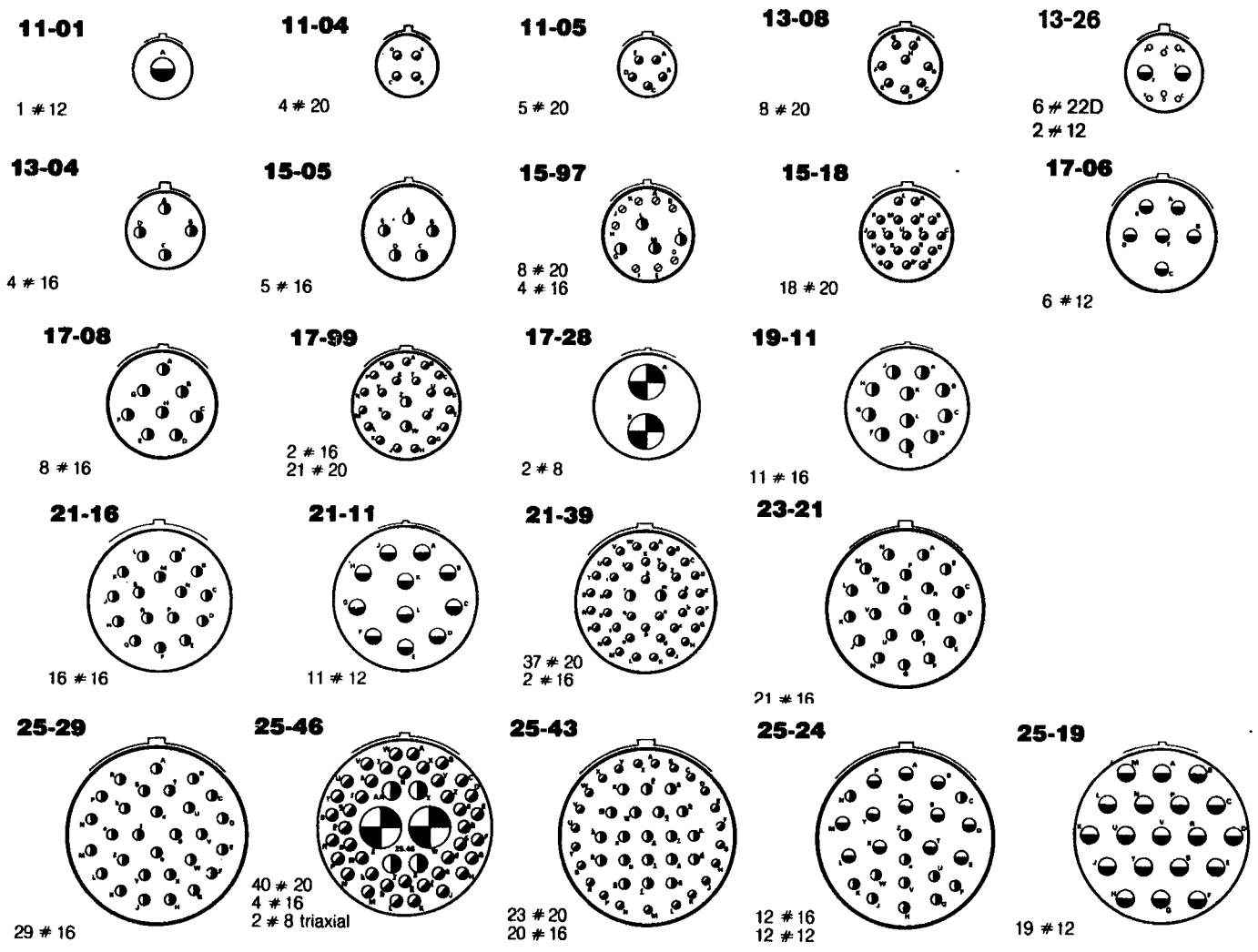
NOTES

1. Contact locations and identifications in conformity with MIL-STD-1560.
2. Both sides of the inserts shall be marked.



FIGURE 2 - PHYSICAL DIMENSIONS (CONTINUED)

FIGURE 2(b) - SPECIAL CONTACT ARRANGEMENTS -FRONT VIEW MALE INSERT



NOTES

- Contact locations and identifications in conformity with MIL-STD-1560.
- Both sides of the inserts shall be marked.

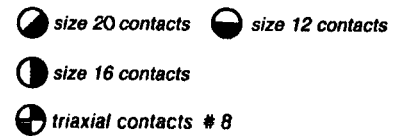
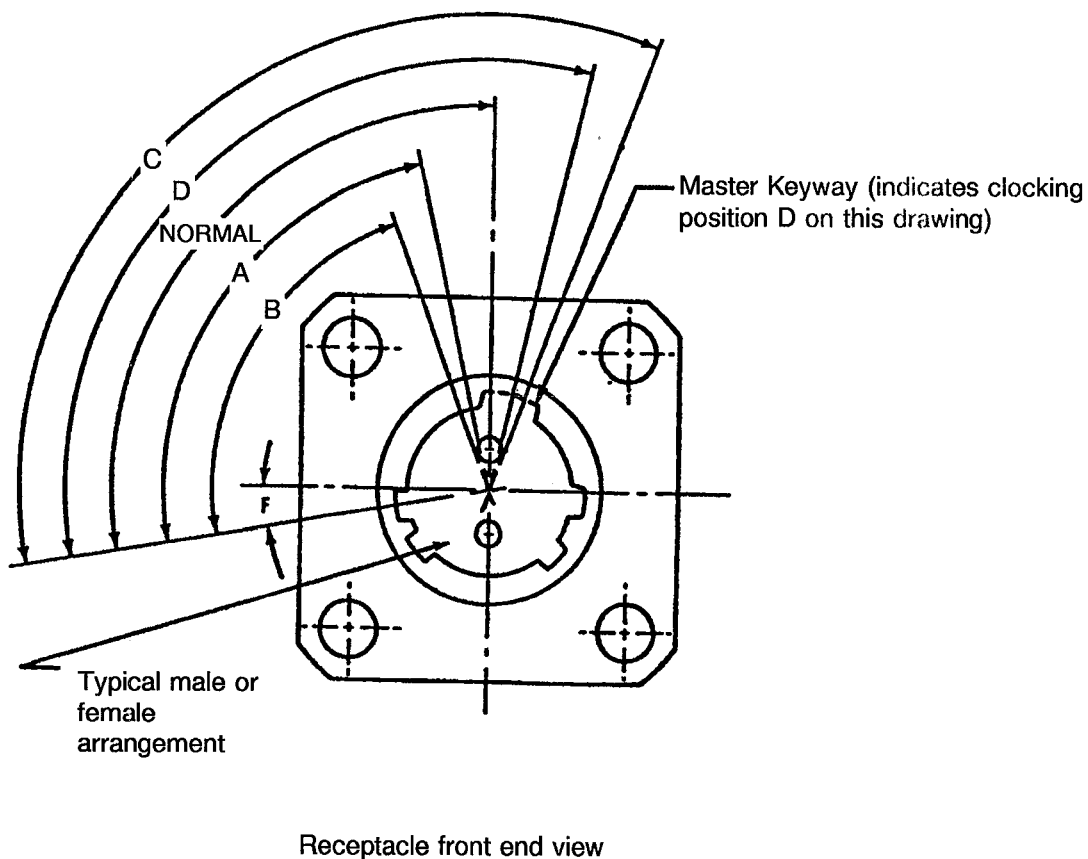




FIGURE 2- PHYSICAL DIMENSIONS (CONTINUED)

FIGURE 2(c) - CLOCKING POSITIONS



NOTES

1. The clocking position is determined by the master keyway position, the insert being always in the same position. The secondary keyway positions remain fixed.

SHELL SIZE	F (Ref)	NORMAL POSITION	CLOCKING POSITIONS (°)			
			A	B	C	D
09	5°	95°	77°	-	-	113°
11	5°	95°	81°	67°	123°	109°
13	5°	95°	75°	63°	127°	115°
15	5°	95°	74°	61°	129°	116°
17	5°	95°	77°	65°	125°	113°
19	5°	95°	77°	65°	125°	113°
21	5°	95°	77°	65°	125°	113°
23	5°	95°	80°	69°	121°	110°
25	5°	95°	80°	69°	121°	110°

**3. TERMS, DEFINITIONS, ABBREVIATIONS, SYMBOLS AND UNITS**

For the purpose of this specification, the terms, definitions, abbreviations, symbols and units specified in ESA/SCC Basic Specification No. 21300 shall apply.

4. REQUIREMENTS**4.1 GENERAL**

The complete requirements for procurement of the connectors specified herein are stated in this specification and ESA/SCC Generic Specification No. 3401. Deviations from the Generic Specification applicable to this specification only, are listed in Para 4.2.

Deviations from the applicable Generic Specification and this Detail Specification, formally agreed with specific Manufacturers on the basis that the alternative requirements are equivalent to the ESA/SCC requirements and do not affect the components' reliability, are listed in the Appendices attached to this specification.

4.2 DEVIATIONS FROM GENERIC SPECIFICATION**4.2.1 Deviations from Special In-process Controls**

None.

4.2.2 Deviations from Final Production Tests (Chart II)

(a) Para 9.5, Magnetism Level: Not applicable. Instead, a magnetic permeability test shall be performed in accordance with Method 3006 of MIL-STD-1344. The magnetic permeability of assembled connectors (with contacts and accessories as applicable) shall not exceed 2Mu. The test shall be performed on 1 sample per shell size.

4.2.3 Deviations from Burn-in and Electrical Measurements (Chart III)

Not applicable.

4.2.4 Deviations from Qualification Tests (Chart IV)

(a) Para. 9.11.2, Sinusoidal Vibration Testing

- 10-55Hz at 8.25mm double amplitude displacement.
- 56-2000Hz at 50g.
- 1 cycle (10-2000-10 Hz) per axis at a sweep rate of 1 octave per minute.

(b) Para. 9.11.3, Random Vibration Testing

- 20-100Hz at +6dB per octave.
- 100-2000Hz, constant at 1.0g²/Hz.
- 3 axes.
- 7 minutes per axis.

(c) Para 9.12.1, Shock: 75g, 11 milliseconds, half sine wave.

(d) Para. 9.24, Jackscrew Retention: Not applicable.

(e) Para. 9.31, Solderability: Not applicable.

4.2.5 Deviations from Lot Acceptance Tests (Chart V)

(a) Para. 9.31, Solderability: Not applicable.

4.3 MECHANICAL REQUIREMENTS**4.3.1 Dimension Check**

The dimensions of the connectors specified herein shall be verified in accordance with the requirements set out in Para 9.6 of ESA/SCC Generic Specification No. 3401 and shall conform to those shown in Figure 2 of this specification.



4.3.2 Weight

The maximum weight of the connectors specified herein, without contacts, shall be as specified in Table 1(a).

4.3.3 Contact Capability

As specified in ESA/SCC Detail Specification No. 3401/058.

4.3.4 Contact Retention (In Insert)

As specified in ESA/SCC Detail Specification No. 3401/058.

4.3.5 Mating and Unmating Forces

The forces applied for mating and unmating of the connectors (axial and torque) shall conform to the values specified in Table 1(a).

4.3.6 Insert Retention (In Shell)

Connector inserts shall withstand a pressure of 53.7N/cm² without being dislodged from the shell.

4.3.7 Jackscrew Retention

Not applicable.

4.3.8 Contact Insertion and Withdrawal Forces

As specified in ESA/SCC Detail Specification No. 3401/058.

4.3.9 Engagement and Separation Forces

As specified in ESA/SCC Detail Specification No. 3401/058.

4.3.10 Oversize Pin Exclusion

As specified in ESA/SCC Detail Specification No. 3401/058.

4.3.11 Probe Damage

As specified in ESA/SCC Detail Specification No. 3401/058.

4.4 MATERIALS AND FINISHES

The materials and finishes shall be as specified herein. Where a definite material is not specified, a material which will enable the connectors specified herein to meet the performance requirements of this specification shall be used. Acceptance or approval of any constituent material does not guarantee acceptance of the finished product.

4.4.1 Shell, Coupling Ring and Nuts

The shell, coupling ring and nuts shall be made of aluminium alloy, dull low-reflective electroless nickel plated.

4.4.2 Inserts

Bonded sandwich: Silicone/thermosetting or thermoplastic insert/silicone.

4.4.3 Contacts

As specified in the ESA/SCC Detail Specification No. 3401/058.

4.4.4 Contact Retaining Clip

The retaining clip shall be made of beryllium copper.

4.4.5 Guiding and Locking Devices

Not applicable.

4.4.6 Magnetism Level

Not applicable.



4.5 MARKING

4.5.1 General

The marking of all components delivered to this specification shall be in accordance with the requirements of ESA/SCC Basic Specification No. 21700 and the following paragraphs. Each component shall be marked in respect of:-

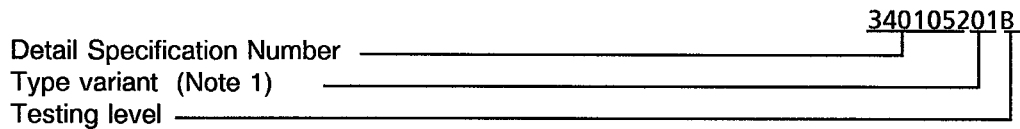
- (a) Contact Identification.
- (b) The SCC Component Number.
- (c) Characteristics.
- (d) Traceability information.

4.5.2 Contact Identification

Contact identification shall be marked in accordance with Figure 2(b).

4.5.3 The SCC Component Number

The SCC component number shall be constituted and marked as follows:



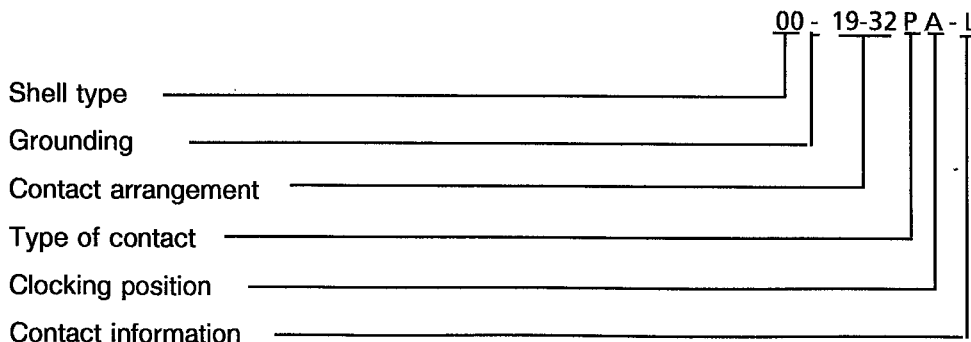
NOTES 1. Marking of the type variant number is mandatory. No further reference to type variant is made in this specification.

4.5.4 Characteristics

The characteristics to be marked in the following order of precedence are:

- (a) Shell type.
- (b) Grounding.
- (c) Contact arrangement.
- (d) Type of contact.
- (e) Clocking position.
- (f) Contact information.

The information shall be constituted and marked as follows:-



**4.5.4.1 Shell Type**

The shell type shall be indicated by the numbers specified hereafter:

CODE NO	SHELL TYPE
00	Square flange receptacle front mounting
03	Square flange receptacle back mounting
06	Plug with RFI grounding spring
07	Single hole mounting receptacle

4.5.4.2 Grounding

Grounding is only applicable to plugs.

4.5.4.3 Contact Arrangements

The number of contacts shall be as shown in Figure 2(b) and contact arrangements shall be indicated by the codes specified hereafter:

CODE	SERVICE RATING
09-35	M
09-98	I
11-35	M
11-98	I
11-01	II
11-05	I
11-04	I
13-35	M
13-98	I
13-08	I
13-26	M
13-04	II
15-35	M
15-19	I
15-05	II
15-97	I
15-18	I
17-35	M
17-26	I
17-06	I
17-28	I
17-1T	Not Appl.

CODE	SERVICE RATING
17-08	II
17-99	I
19-35	M
19-32	I
19-11	II
21-35	M
21-41	I
21-16	II
21-11	II
21-39	I
23-35	M
23-53	I
23-21	II
25-35	M
25-61	I
25-19	I
25-29	I
25-43	I
25-24	I
25-46	N
25-03	I
25-07	I
25-2T	Not Appl.



4.5.4.4 Type of Contact
The contact type shall be indicated by the following code letters:-

CODE LETTER	CONTACT TYPE
P	Male
S	Female

4.5.4.5 Clocking Position

Clocking positions are as shown in Figure 2(c) and shall be designated by the following code letters: A, B, C, and D. Code letter N indicates the standard clocking position.

4.5.4.6 Contact Information

L = connector ordered without contacts (without an L = connector delivered with contacts).

This information shall be marked on the packaging and is not marked on the connector.

Contacts shall be obtained from the same Manufacturer as supplied the connector in which they are to be mounted and this shall be verified before assembly.

4.5.5 Traceability Information

Traceability information shall be marked in accordance with the requirements of ESA/SCC Basic Specification No. 21700.

4.5.6 Marking of Small Components

Where it is considered that a component is too small to accommodate the marking as specified above, as much as space permits shall be marked. The order of precedence shall be as specified in Para. 4.5.1. The marking information in full shall accompany each component in its primary package.

4.6 ELECTRICAL MEASUREMENTS

4.6.1 Electrical Measurements at Room Temperature

The parameters to be measured in respect of electrical characteristics are scheduled in Table 2. Unless otherwise specified these measurements shall be performed at $T_{amb} = +22 \pm 3 \text{ }^\circ\text{C}$.

4.6.2 Electrical Measurements at High and Low Temperatures (Table 3)

Not applicable.

4.6.3 Circuit for Electrical Measurements (Figure 4)

Not applicable.

4.7 BURN-IN AND ELECTRICAL MEASUREMENTS (TABLES 4 AND 5)

Not applicable.

**TABLE 2 - ELECTRICAL MEASUREMENTS AT ROOM TEMPERATURE**

NO	CHARACTERISTICS	SYMBOL	SPEC. AND/OR TEST METHOD	TEST CONDITION	LIMITS		UNIT
					MIN	MAX	
1	Insulation Resistance	R _i	ESA/SCC No. 3401 Para 9.1.1.1	Para 9.1.1.1	10 000	-	MΩ
2	Voltage Proof Leakage Current Service II Service I Service M Service N	I _L	ESA/SCC No. 3401 Para 9.1.1.2	2300Vrms 1800Vrms 1300Vrms 1000Vrms	- - - -	2.0 2.0 2.0 2.0	mA mA mA mA
3	Mated Shell Conductivity (1) (Voltage Drop)	V _d	ESA/SCC No. 3401 Para. 9.1.1.4	Para. 9.1.1.4	-	1.0	mV

NOTES

1. Applicable to mated connectors with grounding option.

TABLES 3, 4 AND 5

Not applicable

4.8 ENVIRONMENTAL AND ENDURANCE TESTS**4.8.1 Measurements and Inspections on Completion of Environmental Tests**

The parameters to be measured and inspections to be performed on completion of environmental testing shall be those specified in Table 6.

Unless otherwise specified, these measurements shall be performed at $T_{amb} = +22 \pm 3 \text{ }^\circ\text{C}$.

4.8.2 Measurements and Inspections at Intermediate Points during Endurance Tests.

Not applicable.

4.8.3 Measurements and Inspections on Completion of Endurance Tests

The parameters to be measured and inspections to be performed on completion of endurance tests shall be those specified in Table 6. Unless otherwise specified, these measurements shall be performed at $T_{amb} = +22 \pm 3 \text{ }^\circ\text{C}$.

4.8.4 Conditions for Operating Life Test (Part of Endurance Testing)

Not applicable.

4.8.5 Electrical Circuits for Operating Life Test

Not applicable.

4.8.6 Conditions for High Temperature Storage Test (Part of Endurance Testing)

The requirements for the high temperature storage test are specified in Section 9 of ESA/SCC Generic Specification No. 3401. The conditions for high temperature storage testing shall be the maximum storage temperature specified in Table 1(b) of this specification.



TABLE 6 - MEASUREMENTS AND INSPECTIONS ON COMPLETION OF ENVIRONMENTAL AND ENDURANCE TESTS

NO.	ESA/SCC GENERIC NO. 3401		MEASUREMENTS AND INSPECTIONS		SYMBOL	LIMITS		UNIT
	ENVIRONMENTAL AND ENDURANCE TESTS (1)	TEST METHOD AND CONDITIONS	IDENTIFICATION	CONDITIONS		MIN	MAX	
01	Wiring	Para. 9.10	ESA/SCC 3401/058			-	-	
02	Vibration	Para. 9.11 & Para. 4.2.4 of this spec	Initial Coupling Screw(s) Unlocking Torque	-	-	Not applicable		
			Final Full Engagement Coupling Screw(s) Unlocking Torque Drift Visual Examination	- - - -	Δ -	Not applicable	%	
03	Shock or Bump	Para. 9.12& Para. 4.2.4 of this spec	Full Engagement Visual Examination	- -		- -	- -	
04	Climatic Sequence	Para. 9.13	Dry Heat Insulation Resistance	Table 2 Item 1	Ri	1 000	-	M Ω
			Low Air Pressure Voltage Proof Leakage Curr.	250Vrms	I _L	Table 2 Item 2		
			Damp Heat Insulation Resistance	Table 2 Item 1 After 1-24 hrs Recovery	Ri	100	-	M Ω
			External Visual Inspection	ESA/SCC 3401 Para. 9.7	-	ESA/SCC 3401 Para. 9.7		
			Insulation Resistance Voltage Proof Leakage Curr.	Table 2 Item 1 Table 2 Item 2	Ri I _L	Table 2 Item 1 Table 2 Item 2		
05	Seal Test	Para. 9.9	ESA/SCC 3401 Para. 9.9			Not applicable		
06	Plating Thickness	Para. 9.14	Thickness			ESA/SCC 3401/058		
07	Joint Strength	Para. 9.15	ESA/SCC 3401 Para. 9.15			ESA/SCC 3401 Para. 9.15		
08	Rapid Change of Temperature	Para. 9.16	Visual Examination	-	-	-	-	
			Insulation Resistance Voltage Proof Leakage Curr.	Table 2 Item 1 Table 2 Item 2	Ri I _L	Table 2 Item 1 Table 2 Item 2		
09	Contact Retention (in insert)	Para. 9.17 & Para. 4.3.4 of this spec.	Contact Displacement			ESA/SCC 3401 Para. 9.17		
10	Endurance	Para. 9.18	Initial Mating/Unmating Forces		F	Para. 4.3.5 of this spec.		
			Low Level Contact Resist Mated Shell Conductivity	ESA/SCC 3401/058 Table 2 Item 3	Rcl Vd	Record Values Table 2 Item 3		
			Final Visual Examination	-	-	-	-	
			Mating/Unmating Forces		F	Para. 4.3.5 of this spec.		
			Low Level Contact Resistance Drift	ESA/SCC 3401/058	Δ Rcl	ESA/SCC 3401/058		
			Mated Shell Conductivity Insulation Resistance Voltage Proof Leakage Curr.	Table 2 Item 3 Table 2 Item 1 Table 2 Item 2	Vd Ri I _L	Table 2 Item 3 Table 2 Item 1 Table 2 Item 2		

NOTES 1. The tests in this table refer to either Chart IV or V and shall be used as applicable.



TABLE 6 - MEASUREMENTS AND INSPECTIONS ON COMPLETION OF ENVIRONMENTAL AND ENDURANCE TESTS

NO.	ESA/SCC GENERIC NO. 3401		MEASUREMENTS AND INSPECTIONS		SYMBOL	LIMITS		UNIT
	ENVIRONMENTAL AND ENDURANCE TESTS (1)	TEST METHOD AND CONDITIONS	IDENTIFICATION	CONDITIONS		MIN	MAX	
11	Permanence of Marking	Para. 9.19	As applicable		-	-	-	
12	Mating/Unmating Forces	Para. 9.20	Force		F	Para. 4.3.5 of this spec.		
13	High Temperature Storage	Para. 9.21	Initial Low Level Contact Resis. Mated Shell Conductivity Final Visual Examination Mating/Unmating Forces Low Level Contact Resistance Drift Rated Current Contact Resis. Mated Shell Conductivity Insulation Resistance Voltage Proof Leakage Curr. Contact Retention (in insert)	ESA/SCC 3401/058 Table 2 Item 3 - ESA/SCC 3401/058 ESA/SCC 3401/058 Table 2 Item 3 Table 2 Item 1 Table 2 Item 2 Para. 4.3.4 of this spec.	Rcl Vd - F ΔRcl Rcr Vd Ri I _L	Record Values Table 2 Item 3 - - Para. 4.3.5 of this spec. ESA/SCC 3401/058 ESA/SCC 3401/058 Table 2 Item 3 Table 2 Item 1 Table 2 Item 2 ESA/SCC 3401 Para. 9.17		
14	Corrosion	Para. 9.22	Visual Examination	-	-	-	-	
15	Insert Retention (in shell)	Para. 9.23 & Para. 4.3.6 of this spec.	Visual Examination	-	-	Para. 4.3.6		
16	Jackscrew Retention	Para. 9.24 & Para. 4.3.7 of this spec.	Visual Examination	-	-	Not applicable		
17	High Temperature Measurements	Para. 9.25	Insulation Resistance	Table 2 Item 1	Ri	500	-	MΩ

NOTES

1. The tests in this table refer to either Chart IV or V and shall be used as applicable.

TABLE 6 - MEASUREMENTS AND INSPECTIONS ON COMPLETION OF ENVIRONMENTAL AND ENDURANCE TESTS

NO.	ESA/SCC GENERIC NO. 3401		MEASUREMENTS AND INSPECTIONS		SYMBOL	LIMITS		UNIT
	ENVIRONMENTAL AND ENDURANCE TESTS (1)	TEST METHOD AND CONDITIONS	IDENTIFICATION	CONDITIONS		MIN	MAX	
18	Overload Test	Para. 9.26	Internal Temperature Rated Current Contact Resis. Mated Shell Conductivity Insulation Resistance Voltage Proof Leakage Curr.	ESA/SCC 3401/058 Table 2 Item 3 Table 2 Item 1 Table 2 Item 2	T Rcr Vd Ri I _L	-	+100	°C
19	Maintenance Aging	Para. 9.27	Visual Examination Contact Retention Contact Insertion & Withdrawal Forces	- Para. 4.3.4 of this spec Para. 4.3.8 of this spec	-	-	-	-
20	Engage/Separation Forces	Para. 9.28 & Para. 4.3.9 of this spec.	Force				Para. 4.3.9	
21	Oversize Pin Exclusion	Para. 9.29 & Para. 4.3.10 of this spec.					ESA/SCC 3401 Para. 9.29	
22	Probe Damage	Para. 9.30 & Para. 4.3.11 of this spec.	Contact Separation Force	Para. 4.3.9 of this spec.			Para. 4.3.9	
23	Solderability	Para. 9.31 & Para. 4.3.12 of this spec.					Para. 4.3.12	

NOTES

1. The tests in this table refer to either Chart IV or V and shall be used as applicable.