CONNECTORS, ELECTRICAL, RECTANGULAR,

REMOVABLE CRIMP CONTACTS,

BASED ON TYPE D*MA

ESCC Detail Specification No. 3401/002

ISSUE 1

October 2002

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Pages 1 to 25

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ESA/SCC Detail Specification No. 3401/002

space components
coordination group

Issue/Rev.	Date	Approved by	
		SCCG Chairman	ESA Director General or his Deputy
Issue 5	September 1998		pp
Revision 'A'	February 2000		

DOCUMENTATION CHANGE NOTICE

Rev. Letter	Rev. Date	Reference	CHANGE Item	Approved DCR No.
		This issue supersedes Issue 4 and incorporates all modifications defined in Revisions 'A' and 'B' to Issue 4 and the changes agreed by the following DCR's:-		
		Cover page		None
		DCN		None
		Table 1(a)	: Note 1 amended	221475
		Figure 1	: Existing Figure deleted and new Figure added	221475
		Figure 2(a)	: Shell Size E , "Standard Mounting Holes" Subtitle added	221475
			, 'Fixed Mount' diagram amended	221475
			, Floating Mount deleted and "Rear Grommet Version" added	221475
			, In the Table, Dimension A amended, Dimensions 'N', 'P' and 'ØR' deleted, Dimension 'X' amended to 'X1' and Dimension X2 added	221475
			: Shell Size A , "Standard Mounting Holes" Subtitle added	221475
			, 'Fixed Mount' diagram amended	221475
			, Floating Mount deleted and "Rear Grommet Version" added	221475
			, In the Table, Dimensions 'N', 'P' and 'ØR' deleted, Dimension 'X' amended to 'X1' and Dimension 'X2' added	221475
			: Shell Size B , "Standard Mounting Holes" Subtitle added	221475
			, 'Fixed Mount' diagram amended	221475
			, Floating Mount deleted and "Rear Grommet Version" added	221475
			, In the Table, Dimensions 'N', 'P' and 'ØR' deleted, Dimension 'X' amended to 'X1' and Dimension 'X2' added	221475
			: Shell Size C , "Standard Mounting Holes" Subtitle added	221475
			, 'Fixed Mount' diagram amended	221475
			, Floating Mount deleted and "Rear Grommet Version" added	221475
			, In the Table, Dimensions 'N', 'P' and 'ØR' deleted, Dimension 'X' amended to 'X1' and Dimension 'X2' added	221475
			: Shell Size D , "Standard Mounting Holes" Subtitle added	221475
			, 'Fixed Mount' diagram amended	221475
			, Floating Mount deleted and "Rear Grommet Version" added	221475
			, In the Table, Dimensions 'N', 'P' and 'ØR' deleted, Dimension 'X' amended to 'X1' and Dimension 'X2' added	221475
			: Shell Size F , "Standard Mounting Holes" subtitle added	221475
			, 'Fixed Mount' diagram amended	221475
			, Floating Mount deleted and "Rear Grommet Version" added	221475
			, In the Table, Dimensions 'N', 'P' and 'ØR' deleted, Dimension 'X' amended to 'X1' and Dimension 'X2' added	221475
		Figure 2(c)	: New Figure added	221475
		Para. 4.4.2	: Text extended	221475
		Para. 4.5.4	: "(d)" changed to "Alternative designs." and "(h)" added	221475
			: "Contact Information (See Para. 4.5.4.8)" added to Coding	221475
		Para. 4.5.4.4	: Existing paragraph deleted and new paragraph added	221475
		Para. 4.5.4.8	: New paragraph added	221475
'A'	Feb. '00	P1. Cover page		None
		P2. DCN		None
		P17. Para. 4.4.2	: Text amended	221544

TABLE OF CONTENTS

1. GENERAL

1.1 SCOPE

This specification details the ratings, physical and electrical characteristics, test and inspection data for Connectors, Electrical, Rectangular with Removable Crimp Contacts, Standard (Gauge 20) and High Density (Gauge 22) Contact Arrangements,based on Type D*MA.

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. 3401/005, Contacts, Electrical, Crimp, for 3401/002 Connectors.

ESA/SCC Detail Specification No. 3401/022, Accessories for Rectangular Connectors 3401/001, 3401/002 and Connector Savers 3401/020.

the requirements of which are supplemented herein.

1.2 COMPONENT TYPE VARIANTS

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 connectors 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 for Connectors, Electrical, Non-Filtered, Circular and Rectangular.

(b) ESA/SCC Detail Specification No. 3401/005, Contacts, Electrical, Crimp, for 3401/002 Connectors.

(c) ESA/SCC Detail Specification No. 3401/022, Accessories for Rectangular Connectors 3401/001, 3401/002 and Connector Savers 3401/020.

(d) MIL-C-24308, Rack and Panel Connectors, Miniature.

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.

TABLE 1(a) - TYPE VARIANTS

SHELL SIZE (4)	MAX. WEIGHT (g) (1)		MATING FORCE (N. max)		UNMATING FORCE			
					N. min		N. max	
	Var. 01 (2)	Var. 02 (3)	Var. 01 (2)	Var. 02 (3)	Var. 01 (2)	Var. 02 (3)	Var. 01 (2)	Var. 02 (3)
E	6.0	6.0	30	46	3.5	3.4	20	28
A	8.3	8.0	50	77	4.5	4.5	34	46
B	13.6	12.0	83	127	8.0	7.9	55	77
C	18.9	17.0	123	177	11.0	11.3	83	109
D	22.3	20.0	166	222	14.5	14.7	120	136
F	-	25.0	-	295	-	20.3	-	177

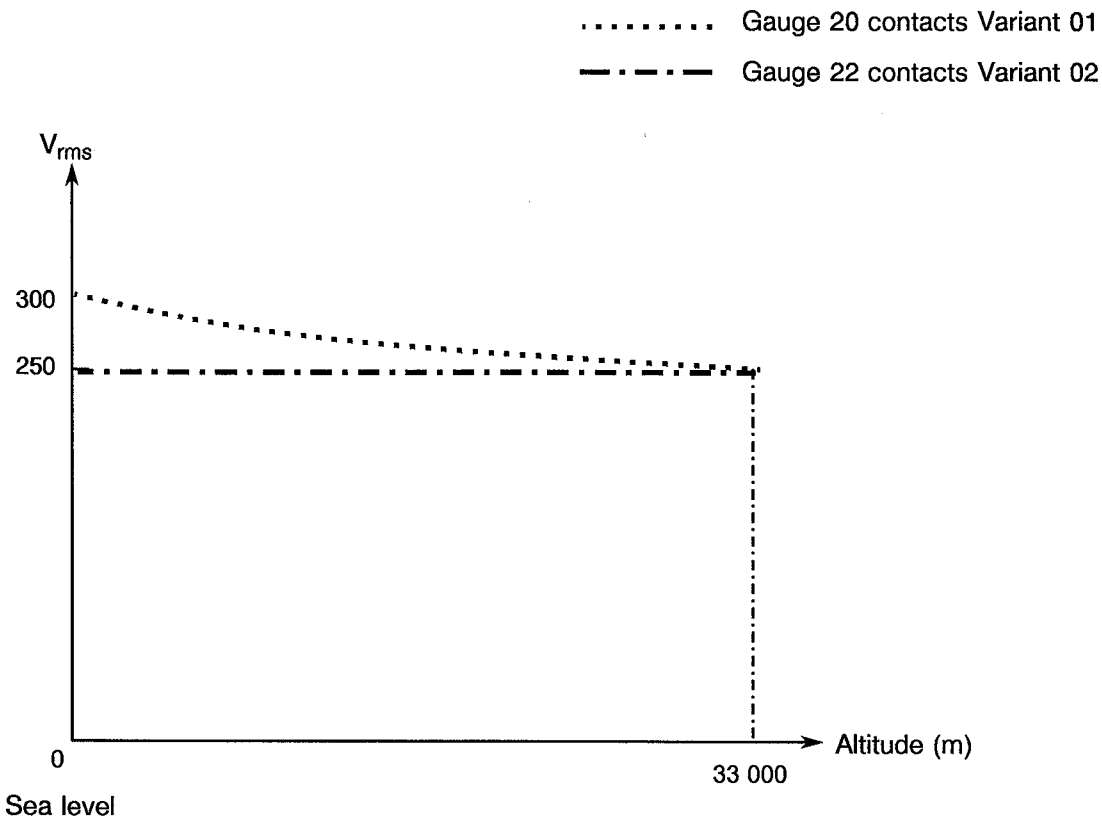
NOTES

1. Without contacts but see Para. 4.5.4.8. See ESA/SCC Detail Specification No. 3401/005 for contact weights.
2. Standard contact arrangements.
3. High density contact arrangements.
4. See Figure 2.

TABLE 1(b) - MAXIMUM RATINGS

No.	CHARACTERISTICS	SYMBOL	MAXIMUM RATING		UNIT
			MIN.	MAX.	
1	Working Voltage (Sea Level) - Variant 01 - Variant 02	U_R	 - -	 300 250	 Vrms Vrms
2	Operating Temperature Range	T_{op}	−55	+125	°C
3	Storage Temperature Range	T_{stg}	−65	+125	°C

FIGURE 1 - PARAMETER DERATING INFORMATION



Working Voltage versus Altitude

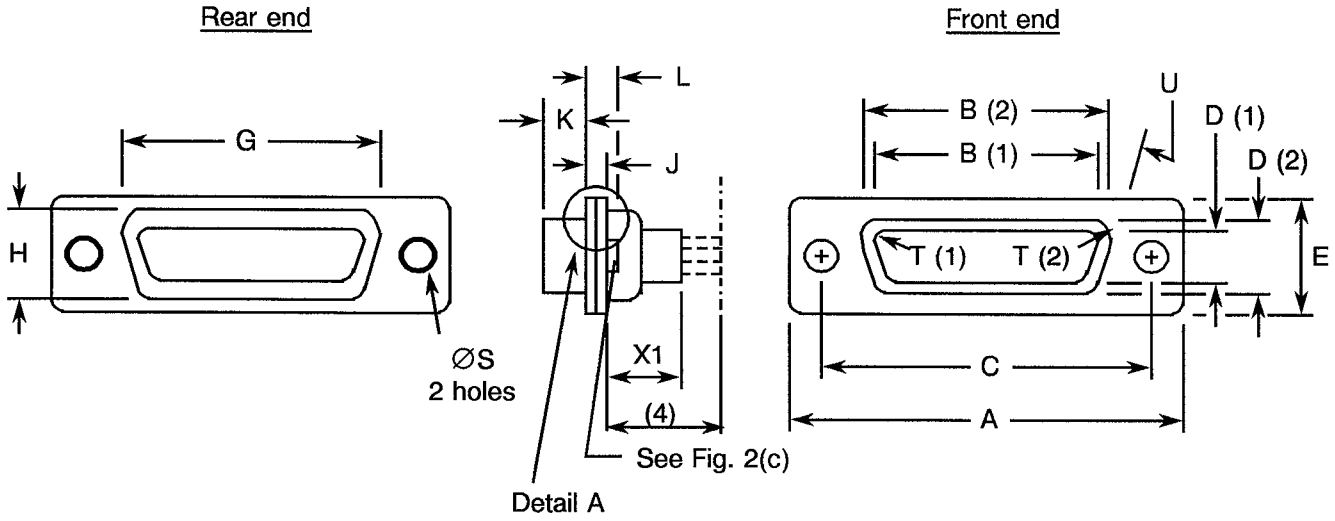
FIGURE 2 - PHYSICAL DIMENSIONS

FIGURE 2(a) - RECEPTACLES AND PLUGS

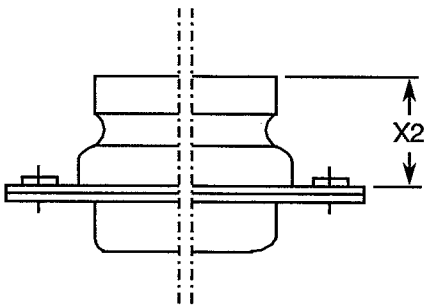
SHELL SIZE E

STANDARD MOUNTING HOLES

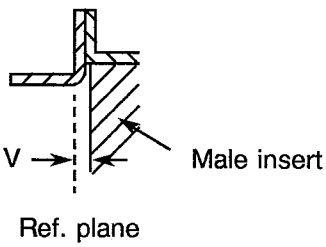
FIXED MOUNT



REAR GROMMET VERSION



DETAIL A



CONTACT TYPE	SYMBOL/ DIM.	A	B	C	D	E	G	H	J	K	L	ØS	T	U °	V	X1	X2
Male	min.	30.43	16.79	24.87	8.23	12.17	19.02	10.46	0.51	5.82	0.89	2.92	2.59	9.0	0	-	-
	max.	31.26	17.04	25.12	8.48	12.93	19.53	10.97	1.02	6.13	1.52	3.20	2.69	11.0	0.4	9.53	15.18
Female	min.	30.43	16.21	24.87	7.77	12.17	19.02	10.46	0.51	5.87	0.89	2.92	2.46	9.0	-	-	-
	max.	31.26	16.46	25.12	8.03	12.93	19.53	10.97	1.02	6.30	1.52	3.20	2.62	11.0	-	9.53	15.18

NOTES

1. Inside dimension for connectors with male contacts.
2. Outside dimension for connectors with female contacts.
3. All dimensions are in millimetres (angles in degrees).
4. Contacts 340100505B and 340100506B protrude 16.5mm maximum.
5. Underlined dimensions, in table, are critical to ensure intermateability.

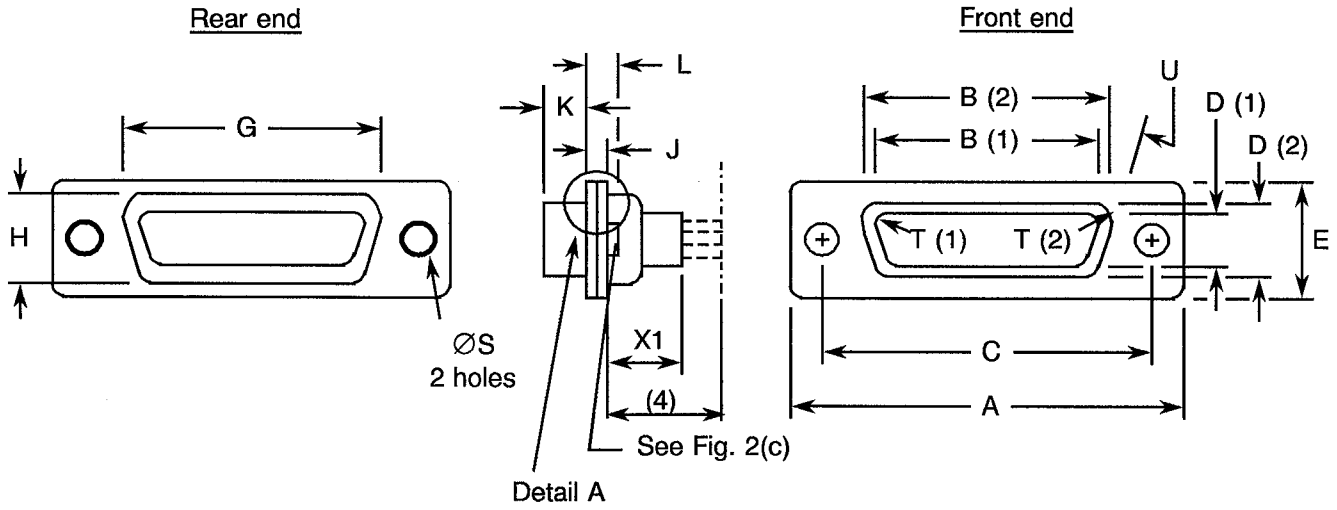
FIGURE 2 - PHYSICAL DIMENSIONS (CONTINUED)

FIGURE 2(a) - RECEPTACLES AND PLUGS (CONTINUED)

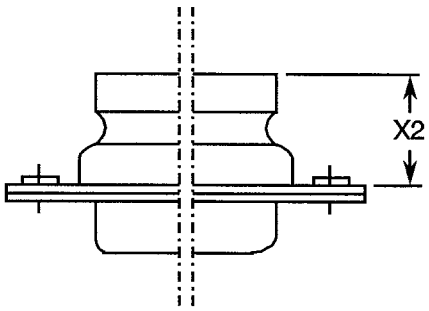
SHELL SIZE A

STANDARD MOUNTING HOLES

FIXED MOUNT



REAR GROMMET VERSION



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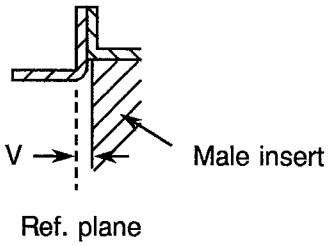


CONTACT TYPE	SYMBOL/ DIM.	A	B	C	D	E	G	H	J	K	L	ØS	T	U °	V	X1	X2
Male	min.	38.76	25.12	33.20	8.23	12.17	27.25	10.46	0.51	5.82	0.89	2.92	2.59	9.0	0	-	-
	max.	39.52	25.37	33.45	8.48	12.93	27.76	10.97	1.02	6.13	1.52	3.20	2.69	11.0	0.4	9.53	15.18
Female	min.	38.76	24.54	33.20	7.77	12.17	27.25	10.46	0.51	5.87	0.89	2.92	2.46	9.0	-	-	-
	max.	39.52	24.79	33.45	8.03	12.93	27.76	10.97	1.02	6.30	1.52	3.20	2.62	11.0	-	9.53	15.18

NOTES

1. Inside dimension for connectors with male contacts.
2. Outside dimension for connectors with female contacts.
3. All dimensions are in millimetres (angles in degrees).
4. Contacts 340100505B and 340100506B protrude 16.5mm maximum.
5. Underlined dimensions, in table, are critical to ensure intermateability.

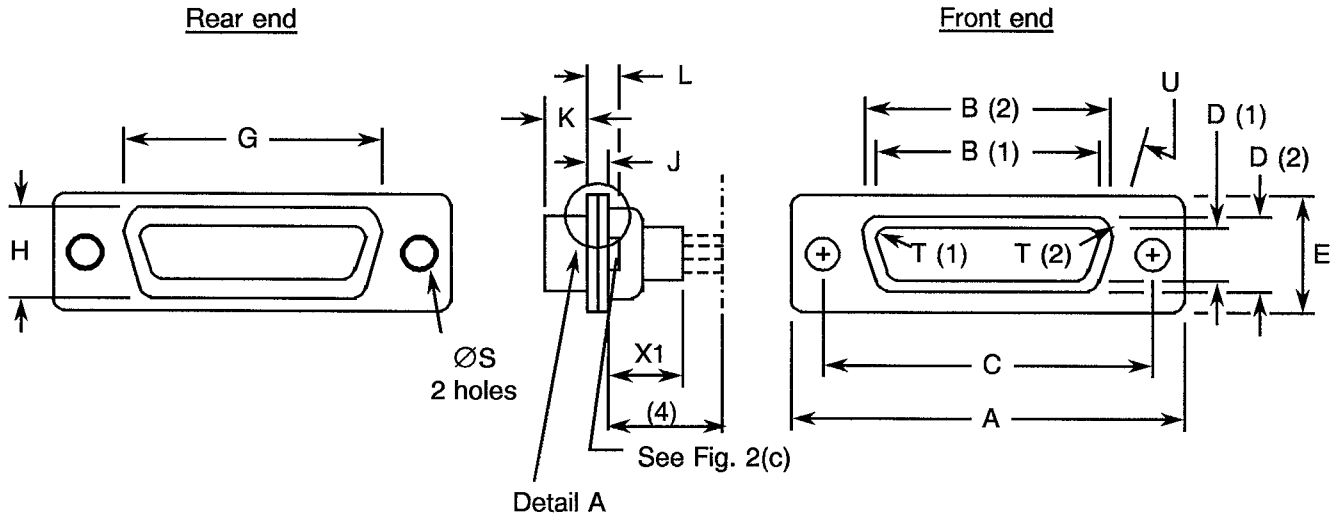
FIGURE 2 - PHYSICAL DIMENSIONS (CONTINUED)

FIGURE 2(a) - RECEPTACLES AND PLUGS (CONTINUED)

SHELL SIZE B

STANDARD MOUNTING HOLES

FIXED MOUNT



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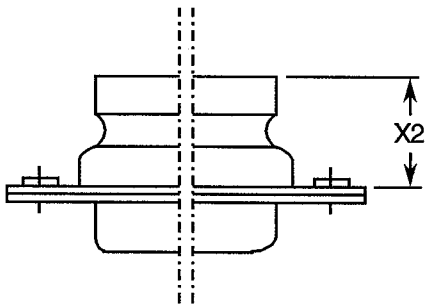
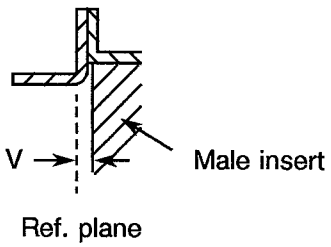


DETAIL A



CONTACT TYPE	SYMBOL/ DIM.	A	B	C	D	E	G	H	J	K	L	ØS	T	U °	V	X1	X2
Male	min.	52.65	38.84	46.91	8.23	12.17	41.02	10.46	0.51	5.69	1.05	2.92	2.59	9.0	0	-	-
	max.	53.42	39.09	47.17	8.48	12.93	41.53	10.97	1.24	6.13	1.78	3.20	2.69	11.0	0.6	9.53	15.18
Female	min.	52.65	38.25	46.91	7.77	12.17	41.02	10.46	0.51	5.87	0.89	2.92	2.46	9.0	-	-	-
	max.	53.42	38.51	47.17	8.03	12.93	41.53	10.97	1.02	6.30	1.52	3.20	2.62	11.0	-	9.53	15.18

NOTES

1. Inside dimension for connectors with male contacts.
2. Outside dimension for connectors with female contacts.
3. All dimensions are in millimetres (angles in degrees).
4. Contacts 340100505B and 340100506B protrude 16.5mm maximum.
5. Underlined dimensions, in table, are critical to ensure intermateability.

FIGURE 2 - PHYSICAL DIMENSIONS (CONTINUED)

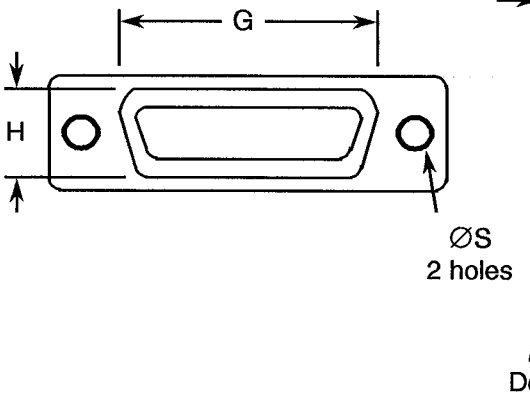
FIGURE 2(a) - RECEPTACLES AND PLUGS (CONTINUED)

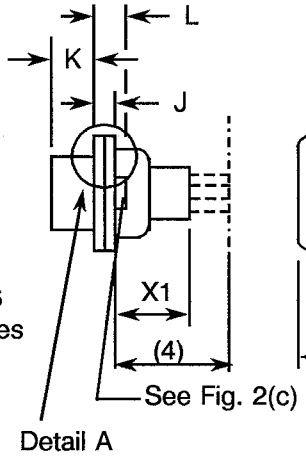
SHELL SIZE C

STANDARD MOUNTING HOLES

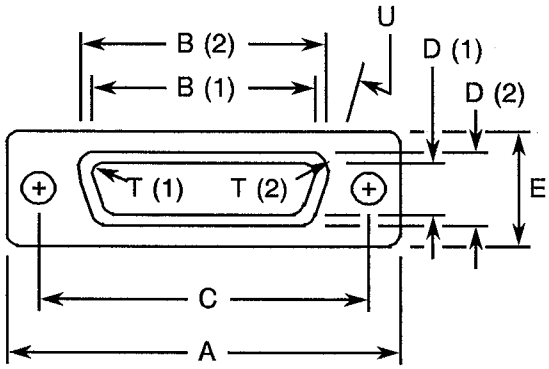
FIXED MOUNT

Rear end

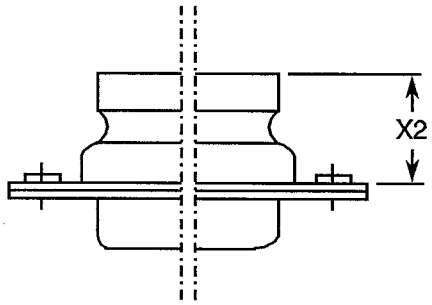




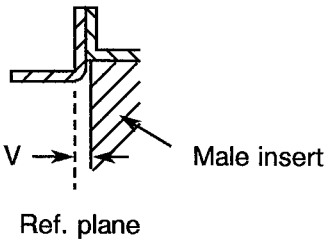
Front end



REAR GROMMET VERSION



DETAIL A



CONTACT TYPE	SYMBOL/ DIM.	A	B	C	D	E	G	H	J	K	L	ØS	T	U °	V	X1	X2
Male	min.	68.94	55.30	63.37	8.23	12.17	57.45	10.46	0.51	5.69	1.05	2.92	2.59	9.0	0	-	-
	max.	69.70	55.55	63.63	8.48	12.93	57.96	10.97	1.24	6.13	1.78	3.20	2.69	11.0	0.6	9.53	15.18
Female	min.	68.94	54.71	63.37	7.77	12.17	57.45	10.46	0.51	5.87	0.89	2.92	2.46	9.0	-	-	-
	max.	69.70	54.97	63.63	8.03	12.93	57.96	10.97	1.02	6.30	1.52	3.20	2.62	11.0	-	9.53	15.18

NOTES

1. Inside dimension for connectors with male contacts.
2. Outside dimension for connectors with female contacts.
3. All dimensions are in millimetres (angles in degrees).
4. Contacts 340100505B and 340100506B protrude 16.5mm maximum.
5. Underlined dimensions, in table, are critical to ensure intermateability.

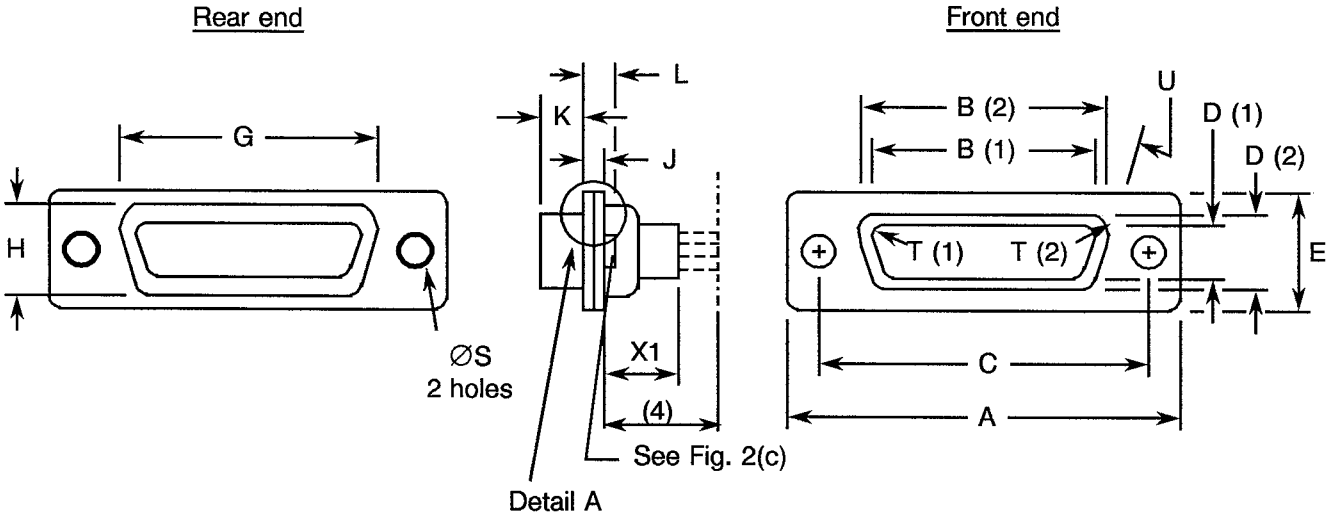
FIGURE 2 - PHYSICAL DIMENSIONS (CONTINUED)

FIGURE 2(a) - RECEPTACLES AND PLUGS (CONTINUED)

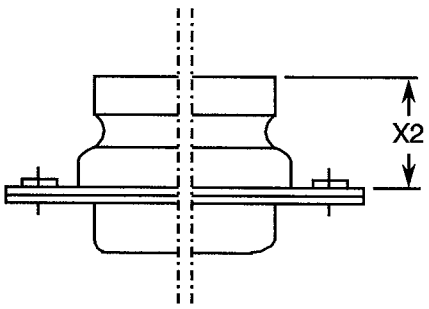
SHELL SIZE D

STANDARD MOUNTING HOLES

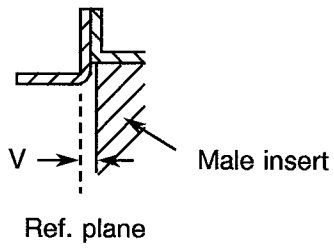
FIXED MOUNT



REAR GROMMET VERSION



DETAIL A



CONTACT TYPE	SYMBOL/ DIM.	A	B	C	D	E	G	H	J	K	L	ØS	T	U °	V	X1	X2
Male	min.	66.55	52.68	60.99	10.95	14.99	55.07	13.31	0.51	5.69	1.05	2.92	2.59	9.0	0	-	-
	max.	67.31	52.93	61.24	11.33	15.75	55.58	13.82	1.24	6.13	1.78	3.20	2.69	11.0	0.6	9.53	15.18
Female	min.	66.55	52.30	60.99	10.62	14.99	55.07	13.31	0.51	5.87	0.89	2.92	2.46	9.0	-	-	-
	max.	67.31	52.55	61.24	10.87	15.75	55.58	13.82	1.02	6.30	1.52	3.20	2.62	11.0	-	9.53	15.18

NOTES

1. Inside dimension for connectors with male contacts.
2. Outside dimension for connectors with female contacts.
3. All dimensions are in millimetres (angles in degrees).
4. Contacts 340100505B and 340100506B protrude 16.5mm maximum.
5. Underlined dimensions, in table, are critical to ensure intermateability.

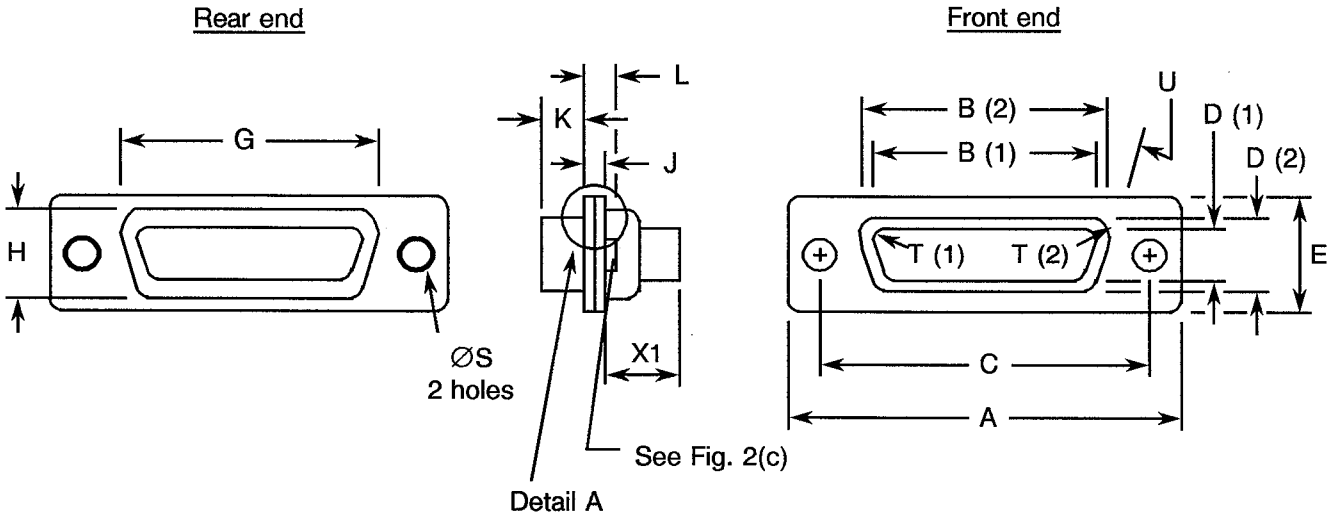
FIGURE 2 - PHYSICAL DIMENSIONS (CONTINUED)

FIGURE 2(a) - RECEPTACLES AND PLUGS (CONTINUED)

SHELL SIZE F

STANDARD MOUNTING HOLES

FIXED MOUNT



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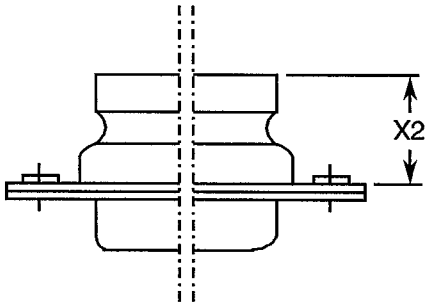

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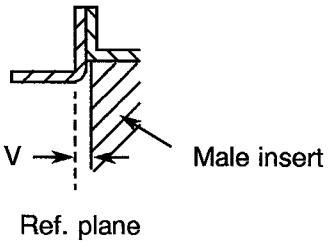


CONTACT TYPE	SYMBOL/ DIM.	A	B	C	D	E	G	H	J	K	L	ØS	T	U °	V	X1	X2
Male	min.	68.94	56.06	63.37	12.65	16.59	58.22	14.22	0.74	5.69	1.05	2.92	2.59	9.0	0	-	-
	max.	69.70	56.31	63.63	12.90	17.35	58.72	15.39	1.24	5.99	1.78	3.20	2.69	11.0	0.6	9.53	15.18
Female	min.	68.94	55.47	63.37	12.19	16.59	58.22	14.88	0.51	6.05	0.89	2.92	2.46	9.0	-	-	-
	max.	69.70	55.73	63.63	12.45	17.35	58.72	15.39	1.02	6.30	1.52	3.20	2.62	11.0	-	9.53	15.18

NOTES

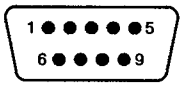
1. Inside dimension for connectors with male contacts.
2. Outside dimension for connectors with female contacts.
3. All dimensions are in millimetres (angles in degrees).
4. Underlined dimensions, in table, are critical to ensure intermateability.

FIGURE 2 - PHYSICAL DIMENSIONS (CONTINUED)

FIGURE 2(b) - CONTACT ARRANGEMENTS

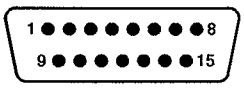
VARIANT 01 - STANDARD CONTACT ARRANGEMENTS
FRONT VIEW MALE INSERT

E



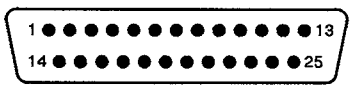
9 Contacts Gauge 20

A



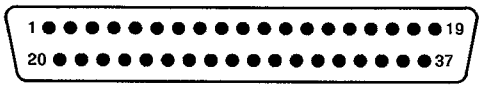
15 Contacts Gauge 20

B



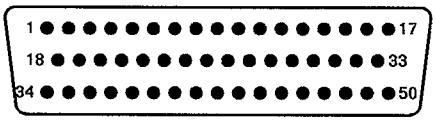
25 Contacts Gauge 20

C



37 Contacts Gauge 20

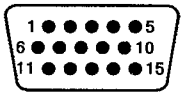
D



50 Contacts Gauge 20

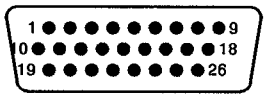
VARIANT 02 - HIGH DENSITY CONTACT ARRANGEMENTS
FRONT VIEW MALE INSERT

E



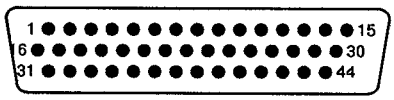
15 Contacts Gauge 22

A



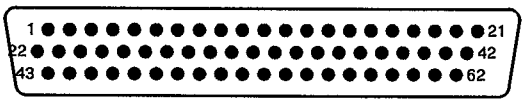
26 Contacts Gauge 22

B



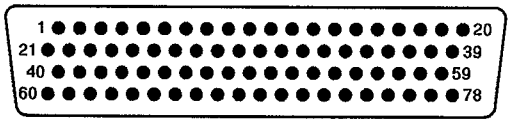
44 Contacts Gauge 22

C



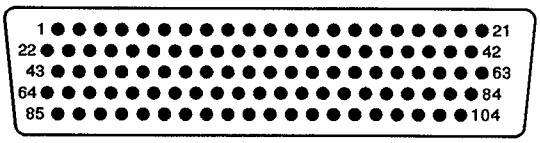
62 Contacts Gauge 22

D



78 Contacts Gauge 22

F



104 Contacts Gauge 22

NOTES

1. Contact locations are in conformity with MIL-C-24308 specification sheets and shall not be checked during procurement.
2. Both sides of the insert shall be marked with the minimum marking shown.

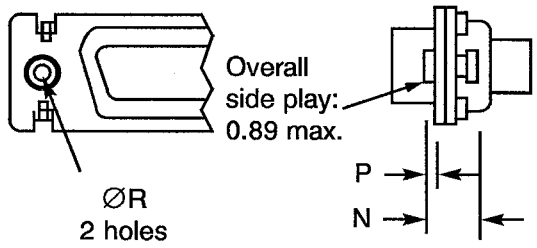
FIGURE 2 - PHYSICAL DIMENSIONS (CONTINUED)

FIGURE 2(c) - RECEPTACLES AND PLUGS

SHELL SIZES E, A, B, C, D AND F

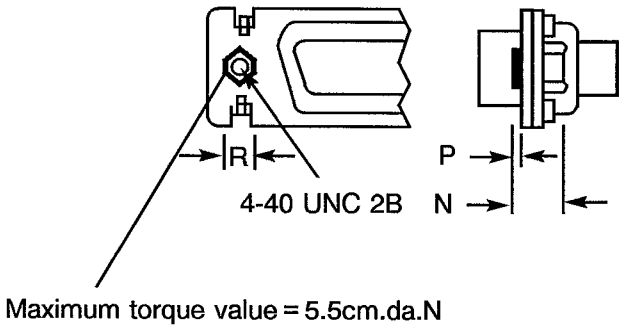
OTHER MOUNTING TYPES

FLOATING MOUNT - TYPE 'Y'



Contact Type	Symbol/ Dim.	N	P	ØR
Male	Min.	2.4	0.76	2.2
	Max.	3.3	0.86	2.3
Female	Min.	2.4	0.76	2.2
	Max.	3.3	0.86	2.3

CAPTIVE NUT - TYPE 'E'



Maximum torque value = 5.5cm.da.N

Contact Type	Symbol/ Dim.	N	P	R
Male	Min.	3.4	0.2	4.3
	Max.	4.2	0.4	4.7
Female	Min.	3.4	0.2	4.3
	Max.	4.2	0.4	4.7

NOTES

1. See Figure 2(a) for other dimensions.

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. 9.1.1.4, Mated Shell Conductivity: Not applicable.

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. 9.1.1.4, Mated Shell Conductivity: Not applicable.

(b) Para. 9.9, Seal Test: Not applicable.

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

4.2.5 Deviations from Lot Acceptance Tests (Chart V)

(a) Para. 9.1.1.4, Mated Shell Conductivity: Not applicable.

(b) Para. 9.9, Seal Test: 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 3401 and shall conform to those shown in Figure 2 of this specification. Only the underlined dimensions shall be checked during procurement.

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. 3401/005.

4.3.4 Contact Retention (In Insert)

As specified in ESA/SCC Detail Specification No. 3401/005.

4.3.5 Mating and Unmating Forces

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

4.3.6 Insert Retention (In Shell)

Connector inserts shall withstand a pressure of 42.8N/cm^2 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. 3401/005.

4.3.9 Engagement and Separation Forces

As specified in ESA/SCC Detail Specification No. 3401/005.

4.3.10 Oversize Pin Exclusion

As specified in ESA/SCC Detail Specification No. 3401/005.

4.3.11 Probe Damage

As specified in ESA/SCC Detail Specification No. 3401/005.

4.3.12 Solderability

As specified in ESA/SCC Detail Specification No. 3401/005.

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 Shells

Shells shall be made of brass.

The plating shall be 0.7µm minimum gold over 1.0µm minimum of copper.

4.4.2 Inserts

Inserts shall be made of glass-fibre filled diallylphthalate resin or a suitable thermoplastic material. The rear grommet shall be made of silicone elastomer.

4.4.3 Contacts

As specified in ESA/SCC Detail Specification No. 3401/005.

4.4.4 Contact Retaining Clip

The retaining clip shall be made of beryllium copper.

4.4.5 Guiding and Locking Devices

As specified in ESA/SCC Detail Specification No. 3401/022.

4.4.6 Magnetism Level

The allowable value of magnetism shall not exceed that specified for the relevant level (see Para. 4.5.4.7). Only magnetism levels NMC and NMD are verified.

4.5 MARKING

4.5.1 General

The marking of all components delivered to this specification shall be in accordance with with the requirements of ESA/SCC Basic Specification No. 21700 and the following paragraphs. When the component is too small to accommodate all of the marking specified, as much as space permits shall be marked and the marking information, in full, shall accompany the component in its primary package.

The information to be marked and the order of precedence, shall be as follows:-

(a) Contact Identification.

(b) The SCC Component Number.

(c) Characteristics.

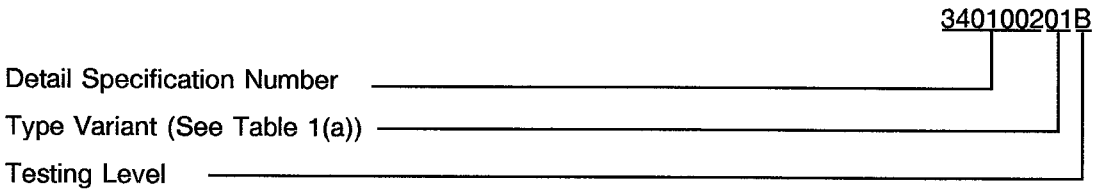
(d) Traceability Information.

4.5.2 Contact Identification

Contact identification shall be marked in accordance with Figure 2.

4.5.3 The SCC Component Number

Each component shall bear the SCC Component Number which shall be constituted and marked as follows:

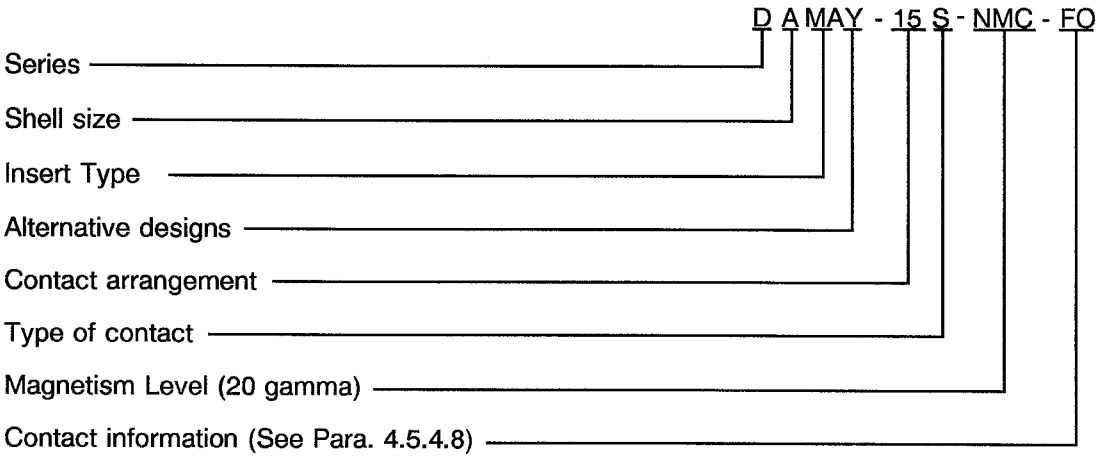


4.5.4 Characteristics

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

(a) Series.
(b) Shell size.
(c) Insert type.
(d) Alternative designs.
(e) Contact arrangement.
(f) Type of contact.
(g) Magnetism Level.
(h) Contact information.

The information shall be constituted and marked as follows:-



4.5.4.1 Series

This connector series shall be designated by the letter 'D'.

4.5.4.2 Shell Size

The shell size shall be indicated by the letters specified hereafter.

Code	E	A	B	C	D	F

4.5.4.3 Insert Type

This connector type with crimp contacts is defined by the letters 'MA'.

4.5.4.4 Alternative Designs

The letter 'E' indicates captive nuts.

The letter 'Y' indicates floating mounts.

The letter 'G' indicates a rear grommet dust proof version.

The letters 'YG' indicate floating mounts and rear grommet dust proof version.

If the shell has standard mounting holes, these letters shall be omitted.

4.5.4.5 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.

SHELL SIZE	CODE	
	Variant 01	Variant 02
E.	9	15
A	15	26
B	25	44
C	37	62
D	50	78
F	-	104

4.5.4.6 Type of Contact

The contact types shall be indicated by the following code letters.

CODE LETTER	CONTACT TYPE
P	Male
S	Female

4.5.4.7 Magnetism Level

The following codes shall be used for magnetism level.

CODE	DEFINITION
NMB	Magnetism Level: ≤ 200 gamma (1)
NMC	Magnetism Level: ≤ 20 gamma
NMD	Magnetism Level: ≤ 2 gamma

NOTES

1. Guaranteed, but not measured.

4.5.4.8 Contact Information

FO = Connector ordered without contacts. This information shall be only marked on the packaging and is not marked on the connector.

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

4.5.5 Traceability Information

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

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 $T_{amb} = +22 \pm 3$ °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.

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, the measurements shall be performed at $T_{amb} = +22 \pm 3$ °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, the measurements shall be performed at $T_{amb} = +22 \pm 3$ °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 2 - ELECTRICAL MEASUREMENTS AT ROOM TEMPERATURE

No.	CHARACTERISTIC	SYMBOL	SPECIFICATION AND TEST METHOD	TEST CONDITION	LIMITS		UNIT
					MIN.	MAX.	
1	Insulation Resistance	Ri	ESA/SCC 3401 Para. 9.1.1.1	Para. 9.1.1.1	5000	-	MΩ
2	Voltage Proof Leakage Current Variant 01 Variant 02	I_L	ESA/SCC 3401 Para. 9.1.1.2	 1250Vrms (1) 1000Vrms	 - -	 2.0 2.0	mA
3	Mated Shell Conductivity (Voltage Drop) (2)	Vd	ESA/SCC 3401 Para. 9.1.1.4	Para. 9.1.1.4	Not applicable		mV

NOTES

1. When connectors are equipped with 340100505B or 340100506B contacts, each crimp barrel shall be isolated from adjacent contacts with insulating material.
2. Applicable to mated connectors with grounding option.

TABLES 3, 4 AND 5

Not applicable.

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

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 3401/005			-	-	
02	Vibration	Para. 9.11	**Initial Measurements**	-				
			Coupling Screw(s)					
			Unlocking Torque		-	Record Values		
			Final Measurements					
			Full Engagement	-				
			Coupling Screw(s)					
			Unlocking Torque Drift	-	Δ	-25	+25	%
			Visual Examination	-	-	-	-	
03	Shock or Bump	Para. 9.12	Full Engagement	-		-	-	
			Visual Examination	-		-	-	
04	Climatic Sequence	Para. 9.13	**Dry Heat**					
			Insulation Resistance	Table 2 Item 1	Ri	1 000	-	MΩ
			Low Air Pressure					
			Voltage Proof Leakage Curr.	Figure 1	I_L	Table 2 Item 2		
			Damp Heat	**Immediately after test**				
			Insulation Resistance	Table 2 Item 1	Ri	100	-	MΩ
				After 1-24 hrs Recovery				
			External Visual Inspection	ESA/SCC 3401 Para. 9.7	-	ESA/SCC 3401 Para. 9.7		
			Insulation Resistance	Table 2 Item 1	Ri	Table 2 Item 1		
			Voltage Proof Leakage Curr.	Table 2 Item 2	I_L	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 3401/005		
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	Table 2 Item 1	Ri	Table 2 Item 1		
			Voltage Proof Leakage Curr.	Table 2 Item 2	I_L	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 Measurements**					
			Mating/Unmating Forces		F	Para. 4.3.5 of this spec.		
			Low Level Contact Resist	ESA/SCC 3401/005	Rcl	Record Values		
			Mated Shell Conductivity	Table 2 Item 3	Vd	Not applicable		
			Final Measurements					
			Visual Examination	-	-	-	-	
			Mating/Unmating Forces		F	Para. 4.3.5 of this spec.		
			Low Level Contact Resistance Drift	ESA/SCC 3401/005	ΔRcl	ESA/SCC 3401/005		
			Mated Shell Conductivity	Table 2 Item 3	Vd	Not applicable		
			Insulation Resistance	Table 2 Item 1	Ri	Table 2 Item 1		
			Voltage Proof Leakage Curr.	Table 2 Item 2	I_L	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 TESTING (CONTINUED)

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 Measurements**					
			Low Level Contact Resis.	ESA/SCC 3401/005	Rcl	Record Values		
			Mated Shell Conductivity	Table 2 Item 3	Vd	Not applicable		
			Final Measurements					
			Visual Examination	-	-	-	-	
			Mating/Unmating Forces		F	Para. 4.3.5 of this spec.		
			Low Level Contact Resistance Drift	ESA/SCC 3401/005	ΔRcl	ESA/SCC 3401/005		
			Rated Current Contact Resis.	ESA/SCC 3401/005	Rcr	ESA/SCC 3401/005		
			Mated Shell Conductivity	Table 2 Item 3	Vd	Not applicable		
			Insulation Resistance	Table 2 Item 1	Ri	Table 2 Item 1		
			Voltage Proof Leakage Curr.	Table 2 Item 2	I_L	Table 2 Item 2		
			Contact Retention (In Insert)	Para. 4.3.4 of this spec.		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 TESTING (CONTINUED)

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 3401/005 Table 2 Item 3 Table 2 Item 1 Table 2 Item 2	T Rcr Vd Ri I_L	- ESA/SCC 3401/005 Not applicable Table 2 Item 1 Table 2 Item 2	+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	-	-	- ESA/SCC 3401 Para. 9.17 Para. 4.3.8	
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.