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MAR 27 1963
File: CF-1398, 3-2
[redacted]9322
Completed: 2/5/63

692

T19322

MR. C. L. CARPENTER - 7125

Attn: Mr. S. L. Swysgood

Re: Environmental Testing of One CF-1398 Cable Designed by Sandia Corporation, Albuquerque, and Built by a British Firm in England

Object of Test

The object of this test is to determine if this shortened CF-1398 cable used as the pull-out cable between the carrier and the weapon meets the design requirements.

Authorization for Test

This test was requested by Division 7125 in an Environmental Test Order received 1/16/63. Mr. S. L. Swysgood was the consultant. The material for test was received 1/14/63.

Summary

One cable CF-1398 was subjected to Temperature Shock, Low Temperature, High Temperature, and Humidity exposures.

Electrical measurements were made before, during, and/or after each of the above environments.

No damage to the cable was noted as a result of these exposures.

Functional Measurements and Methods

Environmental equipment list used in this test is listed in Table I.

Once CF-1398 cable (See Figure 1) was tested in accordance with Cable Drawing Number 351988, the Environmental Test Order, and consultant's instructions.

Environmental conditions were in accordance with SC-4451A(M), Sandia Corporation Standard Environmental Tests.

Cable Resistance (Per Drawing 351988):
Measurements were made by the double lead method using a current flow of 1±0.1 amperes from a 6±0.5 volt DC source.

Insulation Resistance (Per Drawing 351988):
Measurements were made by applying 500±50 volts DC to each isolated cable circuit with the remaining circuits tied to a common ground. Leakage current was not to exceed 25 μa.

SANDIA SYSTEMATIC DECLASSIFICATION REVIEW
Determine Area (Circle Number): 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
Classification Changed to: U
Contains No DOE Classified Information
Contains With:
Contains UCNI? NO
Comments:
1st Review Date: 11/09/98
Authority: ☐ ADC ☐ ADD
Name: W. Lepse
2nd Review Date: 11/16/98
Authority: RBCraner
Name:
TC-NNT-(

SANDIA SYSTEMATIC DECLASSIFICATION REVIEW
DOWNGRADING OR DECLASSIFICATION STAMP
CLASSIFICATION CHANGED TO: U
AUTHORITY: RBCraner
PERSON CHANGING MARKING & DATE: Carmela Fallon 11/9/98
RECORD ID: 99SN0365
W C Lepse 12/16/98
PERSON VERIFYING MARKING & DATE
DATED: 11/16/98

RECEIVED
MAR 28 1963
NTRAL RECORD FILE

UNCLASSIFIED
CENTRAL RECORD FILE
ACCESSION NUMBER CARD
FILE No.
CF 1398
3-2

Procedure and Results

One CF-1398 cable was initially tested in accordance with the Functional Measurements and Method Section of this report. Electrical measurements are presented in Tables 2, 3, and 4.

Radiographic pictures were taken initially, after Temperature Shock, after Low Temperature and after High Temperature. These pictures indicated a satisfactory cable and are filed in Division 7322 Radiographic Files (Ref. Film No. 7299, 7385, 7399, and 7405).

Sequence of environmental tests was Temperature Shock, Low Temperature, High Temperature and Humidity.

Temperature Shock(Paragraph A5 of SC-4451A(M)):

The cable was subjected to three temperature shock cycles with less than five minutes between temperature extremes as follows:

Temperature (°F)	Time (Hours)
-65°	16
+160°	4
-65°	4
+160°	4
-65°	12
+160°	4

During this test, visual examination revealed no damage to the cable as a result of this environment. Electrical measurements are presented in Tables 2, 3 and 4.

Constant Low Temperature (Per ETO):

The cable was subjected to a constant temperature of -65°F for a period of 24 hours. No apparent damage to the cable was noted as a result of this environment. Electrical measurements are presented in Tables 2, 3, and 4.

Constant High Temperature +160°F (Per ETO):

The cable was subjected to a constant high temperature of +160°F for a period of 24 hours. During the last hour of this temperature exposure the cable was tested in accordance with Functional Measurements and Methods Section of this report. Electrical measurements are presented in Tables 2, 3, and 4.

Humidity (Per SC-4451A(M):

The cable was subjected to 96 hours of humidity as specified in SC-4451A( ) After this exposure and at room temperature the cable was tested in accordance with the Functional Measurements and Methods section of this report. Results are presented in Tables 2,3, and 4.

A. U. CHAVEZ - 7331-2

TEST PROJECT ENGINEER: A. K. ALBERTS - 7331-1

AUC:7331-2:pw

Encls: Figure 1
Tables 1 - 4

Copy to:
C. S. Williams, Jr., 1442
D. S. Bliss, 2344
E. H. Copeland, 7331
C. L. Johnson, 7523
Central Records File, 3421-3

[redacted]

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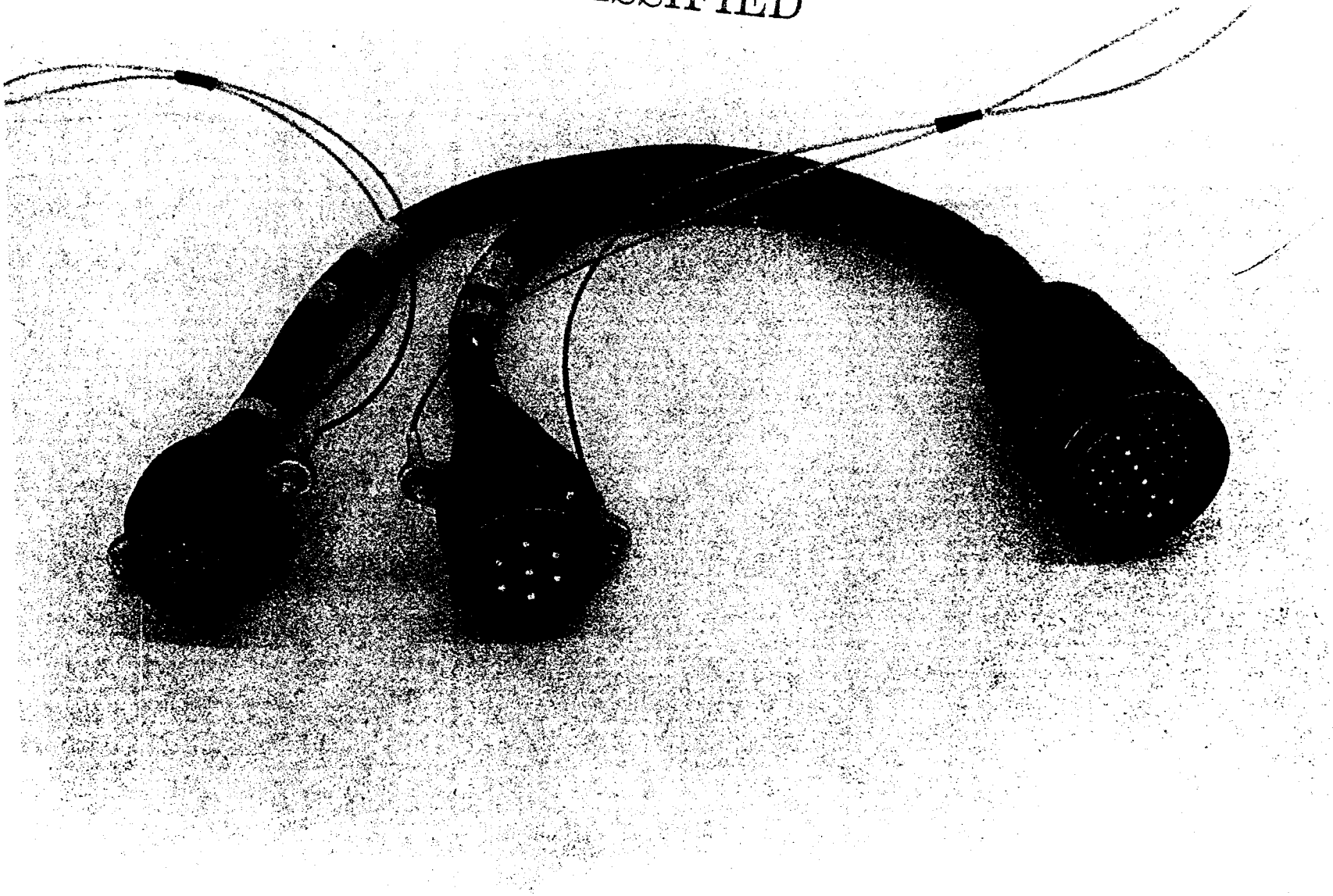

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Figure 1

CF-1398 Cable

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TABLE 1

Functional and Environmental Equipment List

Item No.	Name	Mfr and Model	S No./ Ser. No.	Date of Last Cal	Cal by	Accuracy	Range	Remarks	
1	Hi-Pot and Continuity Tester	Sandia Corp. Section 7312-1	Universal Tester No. 11	Hi-Pot before Test Continuity before Test	Section 7331-2	Hi-Pot 3% Continuity Yu%	—		
2	Chamber No. 6	Despatch Oven Co.	S-43314	Calibrated Monthly	Division 7322		Ambient to 350°F		
3	Chamber No. 12	Murphy Miller Co.	S-97483	Calibrated Monthly	Division 7322		-100°F to +500°F		
4	Chamber No. 7	Despatch Oven Co.	S-43313	Calibrated Monthly	Division 7322		Ambient to 350°F		
5	Chamber No. 17	Hieatt Co.	S-88325	—	—	—	—		

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TABLE 2

SERIAL NO. _____

CIRCUIT RESISTANCE OF MC-1398 CABLE

T-19322

	Test Cable A	Circuit		Spec. Max. V Drop @ 1 amp		Initial	Temp @ -65°	Shock @ +160°	During Lo-Temp @ -65°	During Hi-Temp @ +160°	After 96 hrs in Hum			
1	1-2	P1-h	P103-B	.013		.010	.0076	.013	.0094	.012	.010			
2	3-4	P1-S	P10s-P	To		.0062	.0047	.0077	.0058	.0067	.0062			
3	5-6	P1-A	P103-D	.020		.010	.0076	.013	.0095	.012	.010			
4	7-8	P1-G	P103-C	"		.011	.0076	.013	.0095	.012	.010			
5	9-10	P1-L	P104-G	"		.0094	.0070	.012	.0090	.011	.011			
6	11-12	P1-0	P104-B	"		.0040	.0029	.0048	.0037	.0042	.0038			
7	13-14	P1-b	P104-D	"		.0094	.0067	.012	.0084	.010	.0090			
8	15-16	P103-L	P103-K	"		.0022	.0020	.0027	.0023	.0024	.0022			
9	17-18	P103-M	P103-N	"		.0022	.0018	.0027	.0023	.0023	.0023			
10	19-20	P1-A	P1-Y	"		.0051	.0036	.0059	.0051	.0050	.0047			
11	21		P1-Z	"		.0039	.0028	.0045	.0041	.0037	.0035			
12	22-23	P1-D	P1-B	"		.0035	.0025	.0040	.0037	.0032	.0032			
13	24		P1-d	"		.0045	.0033	.0053	.0047	.0044	.0042			
14	25-26	P1-P	P1-H	"		.0031	.0023	.0036	.0030	.0029	.0027			
15	27		P1-k	"		.0030	.0023	.0035	.0029	.0028	.0028			
16	28-29	P1-R	P1-C	"		.0031	.0027	.0035	.0029	.0028	.0028			
17	30		P1-E	"		.0026	.0020	.0030	.0026	.0024	.0024			
18	Test Cable B													
19	1-2 (Fuse)	P1-f	P103-P	"		.024	.018	.029	.026	.027	.024			
20	3-4 (Fuse)	P1-W	P103-V	"		.024	.019	.029	.026	.027	.025			
21	5-6 (Fuse)	P1-c	P103-H	"		.026	.019	.031	.028	.029	.026			
22	7		P104-C	"		.0091	.0065	.011	.0075	.010	.090			
23	8-9 (Fuse)	P1-T	P103-E	"		.024	.018	.028	.021	.027	.026			
24	10 (Fuse)		P103-T	"		.024	.018	.028	.021	.027	.025			
25	11		P104-A	"		.0041	.0032	.0047	.0037	.0044	.0041			
26	12		P104-F	"		.0038	.0030	.0045	.0035	.0040	.0038			

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INSULATION RESISTANCE OF MC-1398 CABLE

T-19322

Test Cable A	Circuit		Spec Max Current Leakage 500vDC	Initial	Temp @ -65°	Shock @ +160°	During Lo-Temp @ -65°	During Hi-Temp @ +160°	After 96 hrs of Hum			
1	P1	h	25 ua	<1 ua	<1 ua	<2 ua	<1 ua	<1 ua	<3 ua			
3	P1	S	"	"	"	"	"	"	"			
5	P1	A	"	"	"	"	"	"	"			
7	P1	G	"	"	"	"	"	"	"			
9	P1	L	"	"	"	"	"	"	"			
11	P1	O	"	"	"	"	"	"	"			
13	P1	b	"	"	"	"	"	"	"			
15	P103	E	"	"	"	"	"	"	"			
17	P103	M	"	"	"	"	"	"	"			
19	P1	a	"	"	"	"	"	"	"			
22	P1	D	"	"	"	"	"	"	"			
25	P1	P	"	"	"	"	"	"	"			
28	P1	R	"	"	"	"	"	"	"			
Test Cable B												
1 (Fuse)	P1	f	"	"	"	"	"	"	"			
3 (Fuse)	P1	W	"	"	"	"	"	"	"			
5 (Fuse)	P103	H	"	"	"	"	"	"	"			
8 (Fuse)	P1	T	"	"	"	"	"	"	"			
unused pins	P1	F	"	"	"	"	"	"	"			
13	P1	g	"	"	"	"	"	"	"			
14	P1	J	"	"	"	"	"	"	"			
15	P1	U	"	"	"	"	"	"	"			
16	P1	V	"	"	"	"	"	"	"			
17	P1	K	"	"	"	"	"	"	"			
18	P1	M	"	"	"	"	"	"	"			
19	P1	N	"	[redacted]			"	"	"			

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SERIAL NO. INSULATION RESISTANCE OF MC-1398 T-19322

Test Cable B	Circuit		SPEC MAX CURRENT LEAKAGE @500vDC		Initial	Temp @ -65°	Shock @ +160°	During Lo-Temp @ -65°	During Hi-Temp @ +160°	After 96 hrs of Hum			
20	P1	N	25ua		<1ua	<1ua	<2ua	<1ua	<2ua	<3ua			
21	P1	I	"		"	"	"	"	"	"			
22	P1	X	"		"	"	"	"	"	"			
23	P1	e	"		"	"	"	"	"	"			
24	P1	j	"		"	"	"	"	"	"			
25	P103	G	"		"	"	"	"	"	"			
26	P103	F	"		"	"	"	"	"	"			
27	P103	R	"		"	"	"	"	"	"			
28	P103	S	"		"	"	"	"	"	"			
29	P103	A	"		"	"	"	"	"	"			
30	P103	U	"		"	"	"	"	"	"			
31	P104	E	"		"	"	"	"	"	"			
34	P1	shell	✓		✓	✓	✓	✓	✓	✓			
35	P103	shell	✓		✓	✓	✓	✓	✓	✓			
36	P104	shell	✓		✓	✓	✓	✓	✓	✓			

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