NUMBER: 108-5022

SECURITY CLASSIFICATION: Customer Release

Product Specification

108-5022

BNC Coaxial Connector, JIS Cable Type

This specification may change without notice as a result of product design change and product evaluation testing.

1. Scope :

1.1 Contents

This specification covers the requirements for product performance, test methods and quality assurance provisions of BNC Coaxial Connector, JIS Cable Type.
The applicable product descriptions and part numbers are as shown in Fig. 1 :

Product Parts No.	Description	Kind of plating		Hand Tool Parts No.
		BODY	CONTACT	
170865-4	BNC Coaxial Connector For JIS CABLE NO. 3C-2V	SILVER	SILVER	721107-1
170865-5		NICKEL	GOLD	721107-1
170865-6		NICKEL	GOLD	721107-1
177611-1		SILVER	SILVER	721107-1
177611-2		NICKEL	GOLD	721107-1
177611-3		NICKEL	GOLD	721107-1
1-413589-1		NICKEL	GOLD	852922-1
170866-4	BNC Coaxial Connector For JIS CABLE NO. 5C-2V	SILVER	SILVER	721106-1
170866-5		NICKEL	GOLD	721106-1
177612-1		SILVER	SILVER	721106-1
177612-2		NICKEL	GOLD	721106-1
1-413589-2		NICKEL	GOLD	852922-3
177668-1	BNC Coaxial Connector For JIS CABLE NO. 3D-2V	NICKEL	GOLD	
170900-1		SILVER	SILVER	721107-1
170900-2		NICKEL	GOLD	721107-1
177613-1		SILVER	SILVER	721107-1
177613-2		NICKEL	GOLD	721107-1
3-221128-1		NICKEL	GOLD	58465-1
176367-1	BNC Coaxial Connector For JIS CABLE NO. 3C-2T	SILVER	GOLD	721106-1
1-413589-3	BNC Coaxial Connector For JIS CABLE NO. 1.5C-2V	NICKEL	GOLD	852922-2
3-221128-2	BNC Coaxial Connector For JIS CABLE NO. 1.5D-2V	NICKEL	GOLD	58436-3

Fig. 1

LTR	REVISION RECORD	DR	CHK	DATE
F	Revised FJ00-0872-94	H.T	T.I	11/18/92
E	Revised J-1605	A.K	A.O	11/11/92

DR. 11/10/'92 A. Kawaguchi
CHK. 11/11/'92 A. Ohtsu
APP. 11/13/'92 S. Takagi

SHEET 1 OF 8

AMP
AMP (Japan), Ltd.
Kawasaki, Japan

LOC	LOC	NO.	REV.
J	A	108-5022	F

NAME: BNC Coaxial Connector, JIS Cable Type

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2. Applicable Documents :

The following documents form a part of this specification to the extent specified herein. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

2.1 AMP and Specifications :

A. 109-5000 Test Specification, General Requirements for Test Methods
B. 501-5024 Test Report

2.2 Military Standard and Specifications :

A. MIL-STD-202 Test Methods for Electronic and Electrical Component Parts

2.3 Commercial Standards and Specifications :

A. JIS C-3501 : Radio Frequency Coaxial Cable

B. JIS C-5412 : C02 Type Connectors for Radio Frequency Coaxial Cables

3. Requirements :

3.1 Design and Construction :

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

3.2 Materials :

A.	Beryllium Copper Plate	JIS H 3801	BeCuP-H
	Phosphor Bronze Rod	JIS H 3741	PBBI-H
	Brass Plate	JIS H 3201	BsPZA-1/2 H
	Free Cutting Brass Bar	JIS H 3422	BsBMIS
	Electrolytic Copper Tube	JIS H 3620	CuTE-0
	PTFE Rod	JIS K 6889	PTFE
	Silicone Rubber	ZZ-R-765	CLASS II A

B. Finish The surface finishing of each component is shown in Fig. 2

3.3 Ratings :

A. Voltage Rating : 500 VAC

B. Frequency Area : DC~4 GHz (Impedance : 50 Ω)

C. Temperature Rating : – 65 °C to + 165 °C

3.4 Performance and Test Descriptions :

The product shall be designed to meet the electrical, mechanical and environmental performance requirements specified in Fig. 3. All tests shall be performed in the room temperature unless otherwise specified.

Component Parts	Plating Specification			
	Silver PL. 5.1 μm MIN. All over plating.	All nickel under 1.3 μm MIN. Plating gold plating; 0.4 μm or 0.76 μm MIN.	All over nickel plate 5.1 μm MIN.	All over tin plating 3.8 μm MIN.
Body	170867-1 170867-2 177614-1 177614-2	——	170867-3 170867-4 177614-3 177614-4 413636-2	——
Contact	175147-2 175147-6 175147-8	222246-2 175147-4 175147-9 1-175147-2 1-175147-1	——	——
Ferrule	——	——	——	171738-1 171739-1 170872 221132-6

Fig. 2

Test Requirements and Procedures Summary :

Para.	Test Items	Requirements		Procedures
		Electrical Requirements		
3.4.1	Termination Resistance (Specified Current)	Test (A) Current: 1 A	Resistance (mΩ max.): 3	Measure initial millivolt drop of contact test circuit in mated connectors, Fig. 5. Signal and ground AMP Spec. 109-25
3.4.2	Insulation Resistance	1000 MΩ min. (Initial) 200 MΩ min. (Final)		Measure by applying test potential between the adjacent contacts, and between the contacts and ground in the unmated connector. MIL-STD-202, Method 302, Condition B
3.4.3	Dielectric Strength	Connector must withstand test potential of 1.5 k V AC for 1 minute.		Measure by applying test potential between the adjacent contacts, and between the contacts and ground in the unmated connectors. MIL-STD-202, Method 301
3.4.4	Voltage Standing Wave Ratio (V. S. W. R)	1.2 max. P/N 170900-1, -2 177668-1, 177613-1, -2 1-413589-1, 3-221128-1		Measure voltage standing wave ratio between 45 MHz and 2 GHz. See Fig. 6
3.4.5	Contact Locking Retention Force	7.84 N (0.8 kgf) min.		Apply axial load to contact by operating at a rate of 25 mm a minute. See Fig. 8
3.4.6	Contact Locking Force	29.4 N (3 kgf) max. per contact.		Apply axial load to contact as indicated in Fig. 8.
3.4.7	Crimp Tensile Strength	Test (A) Current	Crimp Tensile (min.) N (kgf) Signal / Ground	Apply an axial pull-off load to crimped wire of contact secured on the tester, Should not be come out cable. AMP Spec. 109-5205
		3C-2V	19.6 (2) / 245 (25)	
		3D-2V	19.6 (2) / 245 (25)	
		5C-2V	49 (5) / 294 (30)	
		3C-2T	19.6 (2) / 294 (30)	
		1.5C-2 V	— / 68.9 (7)	
		1.5D-2 V	— / 68.9 (7)	

Fig.3 (to be continued)

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Para.	Test Items	Requirements	Procedures
3.4.8	Durability (Repeated Mate / Unmating)	Termination Resistance (Final) 10 mΩ max.	Mate and unmate connectors for 5000 cycles at a maximum rate of 12 cycles minutes AMP Spec. 109-27
3.4.9	Connector Engaging Strength	245 N (25 kgf)	When loaded cable for 25 kg. Connector is no damage. AMP Spec. 109-49 See Fig. 7 c
3.4.10	Humidity-Temperature Cycling	Insulation Resistance (Final) 200 MΩ min. Must meet requirements for dielectric strength	Unmated connectors to 10 cycles of humidity-temperature changes between 25 ℃ and 65 ℃ at 95 % R. H. MIL-STD-202, Method 106 D
3.4.11	Salt Spray	Termination Resistance Signal 50 mΩ max. Ground 50 mΩ max. Must meet requirements for dielectric strength	Unmated connectors to 5 % salt concentration for 48 hours : After salt spray, to be repeated mate 10 times. MIL-STD-202, Method 101, Condition B.

Note : Tested products shall be conforming to the requirements of the visual inspection without physical damage, also meeting the requirements of the additional tests specified in the sequence tests specified in Fig. 4.

Fig. 3 (End)

3.5 Product Qualification and Requalification Tests.

Test or Examination	Test Group			
	1	2	3	4
	Test Sequence (a)			
Termination Resistance	1	1, 3	1, 4	
Dielectric Withstanding Voltage	2	5	2, 5	
Insulation Resistance	3	6		
* VSWR	4			
Durability		2		
Connector Mating Strength	5			
Crimp Tensil Strength	6			
Contact Rock Strength				1
Humidity Cycling		4		
Salt Spray			3	

(a) Numbers indicate sequence in which tests are performed.

Fig. 4

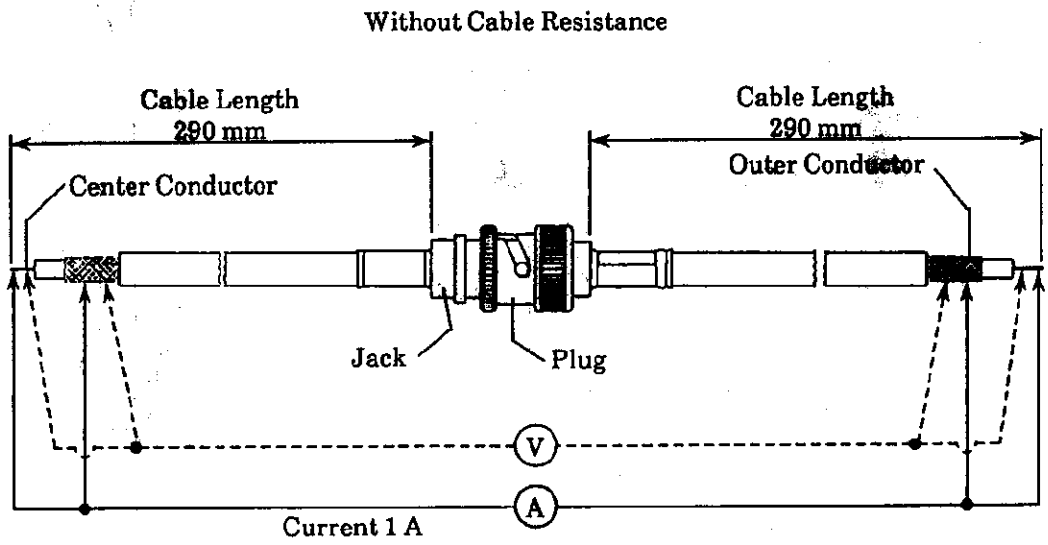

Fig. 5 Total Resistance Measurement

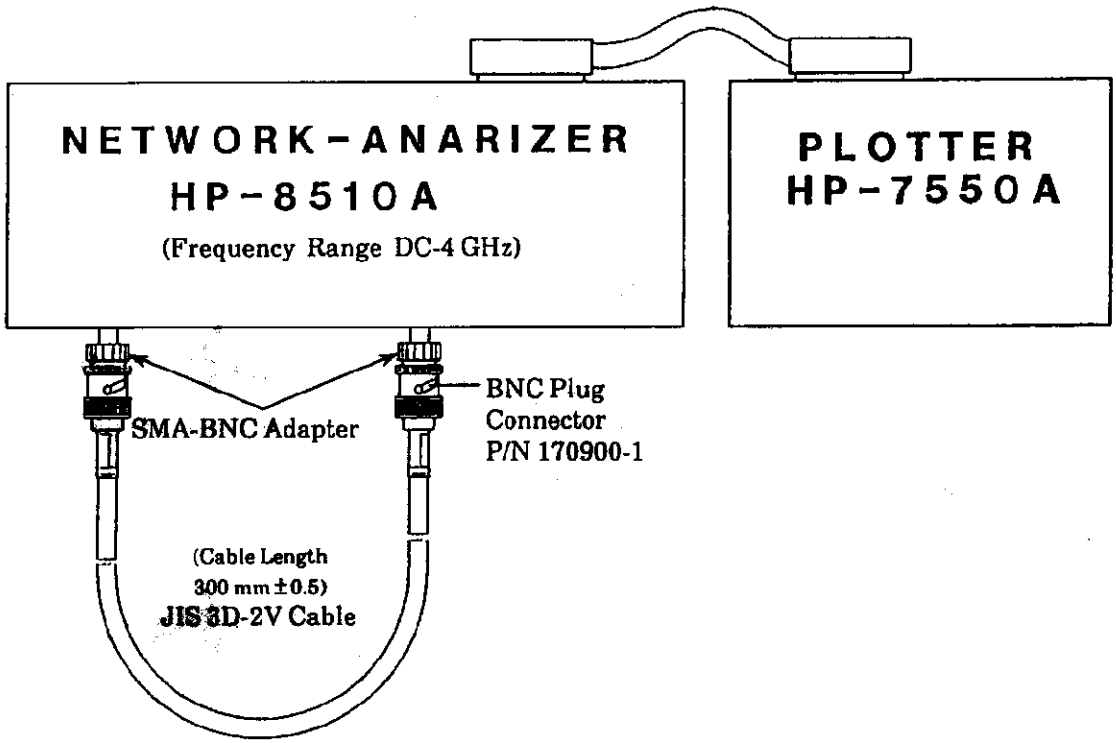

Fig. 6 RF Response Measurement

SHEET 7 OF 8	AMP	AMP (Japan), Ltd. Kawasaki, Japan			
	LOC J	LOC A	NO. 108-5022	REV. F	
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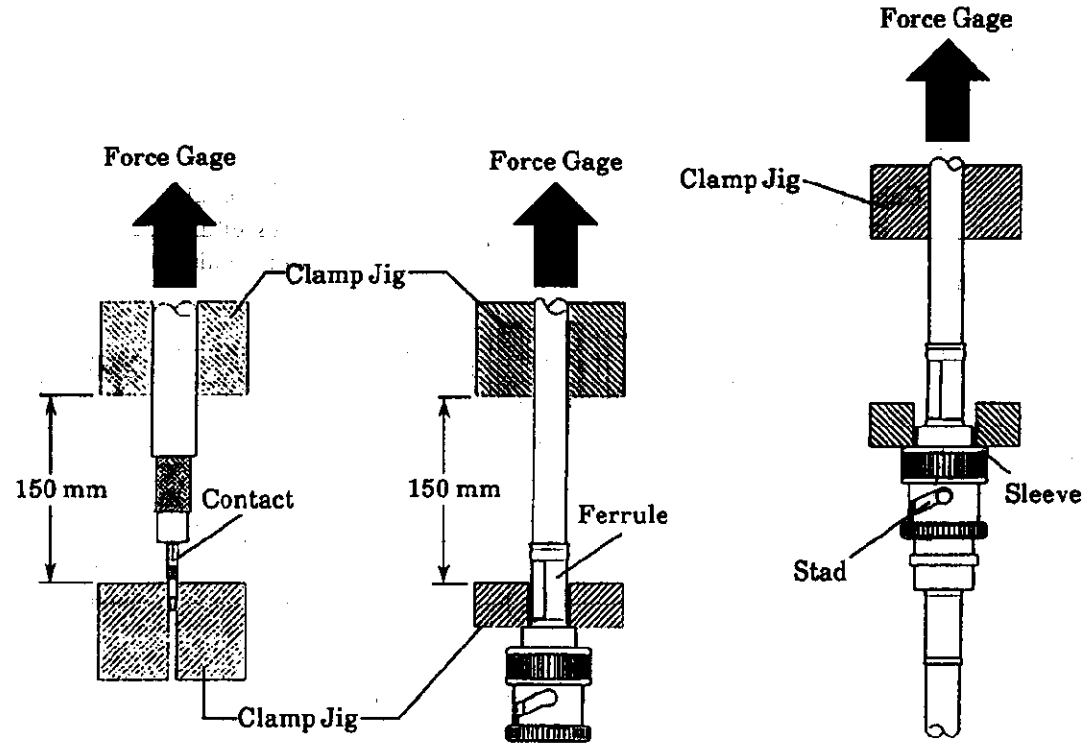

a. Contact Retension Force b. Ferrule Retension Force c. Connector Engaging Strength

Fig. 7 Cable Retension Force & Engaging Force

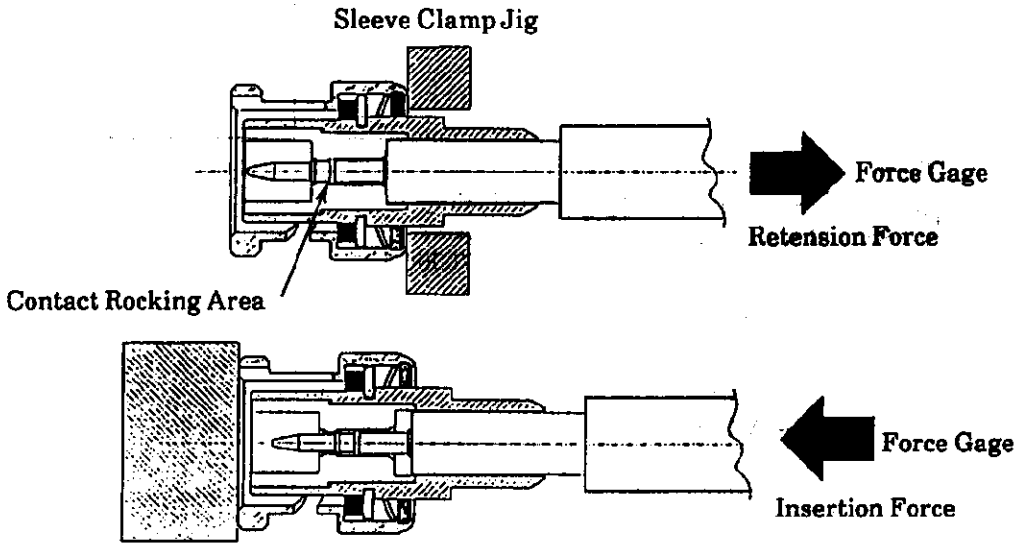

Fig. 8 Contact Rocking Strength

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	LOC J	LOC A	NO. 108-5022	REV. F	
NAME BNC Coaxial Connector, JIS Cable Type					