DESIGN OBJECTIVES

The product described in this document has not been fully tested to ensure conformance to the requirements outlined below. Therefore, AMP (Japan), Ltd makes no representation or warranty, express or implied, that the product will comply with these requirements. Further, AMP (Japan), Ltd. may change these requirements based on the results of additional testing and evaluation. Contact AMP Engineering for further details.

In case when "product specification" is referred to in this document, it should be read as "design objectives" for all times as applicable.

NUMBER: 108-5430

SECURITY CLASSIFICATION: Customer Release

108 - 5430
Design Objectives
Sealed Door Mirror Connector 2 Pos.
Locking Clip Contact

1. Scope :

1.1 Contents

This specification covers the requirements for product performance, test methods and quality assurance provisions of Sealed Door Mirror Connector 2 Pos. Locking Clip Contact.
Applicable product description and part numbers are as shown in Appendix 1.

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 Specifications :

A. 109-5000 Test Specification, General Requirements for Test Methods

B. 114-5211 Application Specification, 0.64 SQ, Locking Clip Contact

C. 501- Test Report :

2.2 Commercial Standards and Specifications :

A. JIS C 3406 Low-Voltage Cables for Automobiles

LTR	REVISION RECORD	DR	CHK	DATE
C	Revised FJ00-3837-95	[illegible]	[illegible]	1/23/96

DR. 2 Jun. '94 [illegible]
CHK. [illegible]
APP. 2 Jun. '94 [illegible]

SHEET 1 OF 9

AMP
AMP (Japan), Ltd.
Kawasaki, Japan

LOC	LOC	NO.	REV.
J	A	108-5430	C

NAME
Sealed Door Mirror Connector 2 Pos.
Locking Clip Contact

DIST.
PRINT

01-23-96

3. Requirements :

3.1 Design and Construction :

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

3.2 Materials :

A. Receptacle Contact Clip : Pretinned phospher-bronze

B. Clip : Stainless Steel

C. Post : Pretinned Brass

D. Housing : PBT

3.3 Ratings :

A. Current Rating : 3 A

B. Temperature Rating : – 30 °C to 105 °C

3.4 Performance Requirements and Test Descriptions :

The product shall be designed to meet the electrical, mechanical and environmental performance requirements specified in Fig. 2. All tests shall be performed in the room temperature, unless otherwise specified.

3.5 Test Requirements and Procedures Summary :

Para.	Test Items	Requirements	Procedures
3.5.1	Examination of Product	Meets requirements of product drawing and AMP Specification.	Visual inspection No physical damage
		Electrical Requirements	
3.5.2	Termination Resistance (Low Level)	10 m Ω Max. (Initial) 20 mΩ Max. (Final)	Subject mated contacts assembled in housing to 20 mV Max open circuit at 10 mA Fig. 3. AMP Spec. 109-5311-1
3.5.3	Insulation Resistance	100 MΩ Min. (Initial) 100 MΩ Min. (Final)	Impressed voltage 500 V DC. Mated connectors. Fig. 4 AMP Spec. 109-5302
3.5.4	Dielectric withstanding Voltage	No creeping discharge nor flashover shall occur.	1.0 kVAC for 1 minute. Mated connectors. Fig. 4 AMP Spec. 109-5301
3.5.5	Current Leakage	0.1 mA Max. (Initial) 1 mA Max. (Final)	12 V DC impressed Test between adjacent circuits of mated connector Condition : 60 °C, 90~95% 1 hr. AMP Spec. 109-5312
3.5.6	Temperature Rising	60 °C Max. under loaded specified current or rating current.	Measure temperature rising by energized current. Fig. 5 AMP Spec. 109-5310

Fig. 1 (CONT.)

Para.	Test Items	Requirements	Procedures
		Mechanical Requirements	
3.5.7	Handling Ergonomics	No abnormalities allowed in manual mating / unmating handling.	Manually opearated
3.5.8	Crimp Tensile Strength	Wire Size: mm² (AWG) 0.3 (#22); Crimp Tensil (min.): N (kgf) 59 (6)	Apply an axial pull-off load to crimped wire of contact secured on the tester, Operation Speed : 100 mm / min. AMP Spec. 109-5205
3.5.9	Contact Locking Strength	21.5 N (2.2 kgf) Min.	Measure contact locking strength. Operation Speed : 100 mm/min.
3.5.10	Contact Retention Force	14.7 N (1.5 kgf) Min.	Apply an axial pull-off load to crimped wire. Operation Speed : 100 mm/min. AMP Spec. 109-5212
3.5.11	Connector Mating Force	2 Pos. : 44.1 N (4.5 kgf) Max.	Operation Speed : 100 mm / min. Measure the force required to mate connectors. AMP Spec. 109-5206
3.5.12	Connector Unmating Force	2 Pos. : 3.9~29.4 N (0.4~3 kgf)	Operation Speed : 100 mm / min. Measure the force required to unmate connectors. AMP Spec. 109-5206
3.5.13	Durability (Repeated Mate / Unmating)	20 mΩ Max. (Final)	Operation Speed : 100 mm/min. No. of Cycles : 30 cycles. AMP Spec. 109-5213
3.5.14	Vibration (High Frequency)	No electrical discontinuity greater than 1 μsec. shall occur. 20 mΩ Max. (Final)	Vibration Frequency : 20-200 Hz / 1 min. Accelerated Velocity : 44 m / s² (4.5 G) Vibration Direction : X. Y, Z Duration : X-4 hours, Y, Z -2 hrs each. AMP Spec. 109-5202 Mounting : Fig. 6

Fig. 1 (CONT.)

Para.	Test Items	Requirements	Procedures
	Environmental Requirements		
3.5.15	Thermal Shock	20 mΩ Max. (Final)	Mated connector −30 °C/120 min, 80 °C/120 min. Making this a cycle, repeat 5 cycles. AMP Spec. 109-5103
3.5.16	Resistance to Cold	20 mΩ Max. (Final)	Mated connector −50 °C±5 °C, 120 hours AMP Spec. 109-5108
3.5.17	Temperature Life (Heat Aging)	20 mΩ Max. (Final)	Mated connector 120 °C, Duration : 5 days AMP Spec. 109-5104
3.5.18	Humidity, Steady State	Insulation resistance (Final) 100 MΩ Min. Termination resistance 20 mΩ Max. (Final) Current Leakage 1 mA (Final)	Mated connector, 90-95 % R. H. 60 °C 96 hours AMP Spec. 109-5105
3.5.19	Dust Bombardment	20 mΩ Max. (Final)	Mated connector Subject JIS R 5210 cement blow of 1.5 kg per 10 seconds in 15 minutes intervals for 60 minutes. AMP Spec. 109-5110
3.5.20	Resistance to Oil	20 mΩ Max. (Final)	Immerse mated connectors in engine oil. (SAE 100) 50 °C for 120 minutes.
3.5.21	Water Splash	Current Leakage : 100 μA Max.	Expose mated connectors under 80 °C for 40 minutes, splash Water for 20 minutes. 48 cycles, Fig. 7 Condition JIS D 0203, S2

Fig. 1 (End)

4. Product Qualification Test Sequence

Test or Examination	Test Group								
	1	2	3	4	5	6	7	8	9
	Test Sequence (a)								
Examination of Product	1	1	1	1, 7	1, 7	1, 13	1, 11	1, 7	1
Termination Resistance (Low Level)			3	2, 4, 6	2, 4, 6	2, 7, 9	3, 6, 10	2, 6	
Dielectric withstanding Voltage						4, 12			
Insulation Resistance						3, 11		3, 5	
Current Leakage						5, 10			3
Temperature Rising			4						
Vibration (High Frequency)							5		
Connector Mating Force			2				2, 9		
Connector Unmating Force			5				4, 8		
Contact Locking Strength		2							
Contact Retention Force			6						
Crimp Tensile Strength	2								
Durability (Repeated Mate/Unmating)						6			
Thermal Shock				3					
Humidity (Steady State)				5		8			
Temperature Life (Heat Aging)					3				
Resistance to Cold					5				
Water Splash									2
Resistance to Oil								4	
Dust Bombardment							7		

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

5. Quality Assurance Provisions :

5.1 Test Specimens :

The test specimens to be used for performance evaluation testing shall be prepared in accordance with the requirements of applicable Application Specification, 114-5211, Crimping Conditions for Locking Clip Contacts, in full conformance.

5.2 Test Conditions :

Unless otherwise specified, all the tests shall be performed in any combination of the following environmental conditions specified below.

Temperature	;	15~35 °C
Relative Humidity	;	45~75 %
Atmospheric Pressure	;	86.7~107 kPa (650~800 mmHg)

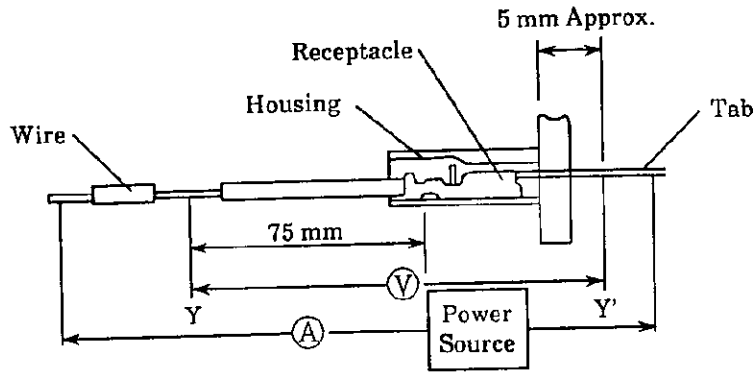

Fig. 3

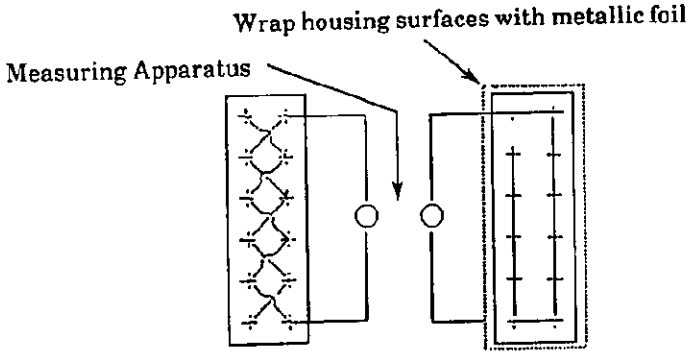

Fig. 4

Reduction Coefficient (Kd)

No. of Pos.	Reduction Coefficient
1	1
2~3	0.75

Note
The intensity of applicable electrical current can be obtained by the rated current for the corresponding number of positions multiplied by the reduction coefficient.

Fig. 5

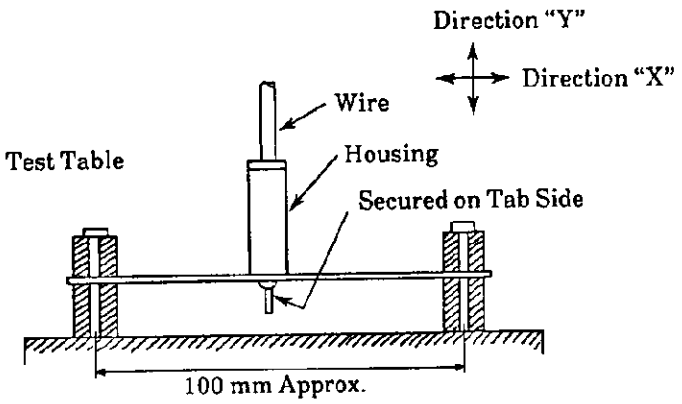

Fig. 6

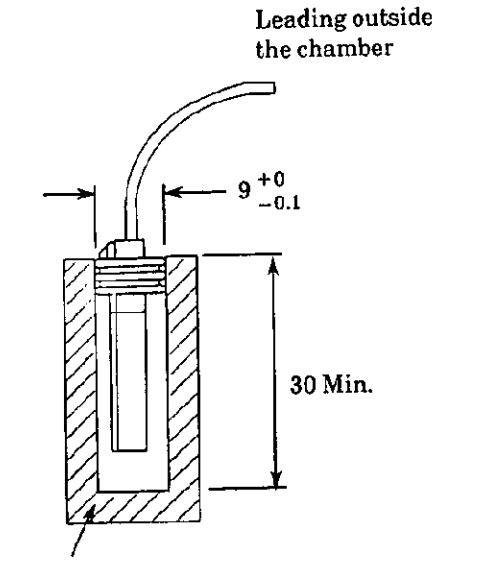

Fig. 7

The applicable product descriptions and part numbers are as shown in Appendix. 1.

Product Part No.	Description
87124	Locking Clip Contact
917849	2 Pos. Plug Housing
316157	Seal Rubber, 2 Pos.
644456-2	Post Header, 2 Pos.
316590-1	Post Header, 2 Pos. (Box Type)

Appendix. 1

AMP (Japan), Ltd.
Kawasaki, Japan

LOC	LOC	NO.	REV.
J	A	108-5430	C

NAME
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