

NUMBER: 108-5460

NUMBER:

CUSTOMER RELEASE

SECURITY CLASSIFICATION:

Product Specification

108-5460

187 Series Positive Lock (Mark-II) wire to wire type (with Housing Lock)

1. Scope :

1.1 Contents

This specification covers the requirements for product performance, test methods and quality assurance provisions of 187 Series Positive Lock (Mark- II) wire to wire type (with Housing Lock).

Applicable product descriptions 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. 114-5041 Application Specification
- C. 501-5167 Test Report

				DR.	13. Oct. '95	SHEET 1 OF 8	AMP AMP (Japan), Ltd. Kawasaki, Japan			
				M. Suzuki						
				CHK.	13. Oct. '95	LOC J	LOC A	NO. 108-5460	REV B	
				H. Taguchi						
PRINT DST.	B	Revised FJ00-3532-95	<i>MS</i>	<i>HT</i>	13.10.95	APP.	13. Oct. '95	NAME		
	A	Released FJ00-3270-95	M. S	H. T	13.10.95	H. Taguchi		187 Series Positive Lock (Mark-II) wire to wire type (with Housing Lock)		
	LTR	REVISION RECORD	DR	CHK	DATE					

NUMBER: 108-5460

CUSTOMER
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CLASSIFICATION:

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. Contact :

Rec. Contact : Pre-Tin Brass

Tab Contact : Pre-Tin Brass

B. Housing

Rec. Housing : 66 Nylon, UL 94 V-0

Tab Housing : 66 Nylon, UL 94 V-0

3.3 Ratings :

A. Voltage Rating : 300 V AC

B. Current Rating : 12 A, Refer to Fig. 2 for maximum allowable current to be applied.

C. Temperature Rating : -40 °C to 105 °C

D. Wire Range

Wire size (mm ²)	Insulation Dia (mm)
0.51~1.38	1.9~3.4

3.4 Performance and Test Descriptions :

The product shall be designed to meet the electrical, mechanical and environmental performance requirements specified in Fig. 1. All tests shall be performed in the room temperature unless otherwise specified.

SHEET	AMP AMP (Japan), Ltd. Kawasaki, Japan		
2 OF 8	LOC J	LOC A	NO. 108-5460
NAME			REV. B
187 Series Positive Lock (Mark-II) wire to wire type (with Housing Lock)			

NUMBER: 108-5460

Customer Release

SECURITY CLASSIFICATION:

3.5 Test Requirements and Procedures Summary :

Para.	Test Items	Requirements	Procedures		
3.5.1	Examination of Product	Product shall be conforming to the requirements of applicable product drawing and Application Specification.	Visually, dimensionally and functionally inspected per applicable quality inspection plan.		
Electrical Requirements					
3.5.2	Termination Resistance (Low Level)	3 mΩ Max. (Initial) 6 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	1000 MΩ Min. (Initial) 100 MΩ Min. (Final)	Impressed voltage 500 V DC. Test between contact/earth of mated connectors. AMP Spec. 109-5302 Fig. 5.		
3.5.4	Dielectric withstanding Voltage	No creeping discharge nor flashover shall occur. Current leakage : 1 mA Max.	2.2 kVAC for 1 minute. Test between contact/earth of mated connectors. AMP Spec. 109-5301 Fig. 5.		
3.5.5	Temperature Rising	30 °C Max. under loaded specified current or rating current.	Measure temperature rising by energized current. Fig. 3 AMP Spec. 109-5310-1		
Mechanical Requirements					
3.5.6	Crimp Tensile Strength	Wire Size		Apply an axial pull-off load to crimped wire of contact secured on the tester, Operation Speed : 10 mm / min. AMP Spec. 109-5205 Condition B	
		mm ²	(AWG)		Crimp Tensil (min.) N (kgf)
		0.5	#20		78.4 (8)
		0.75	#18		117.6 (12)
		1.25	#16	205.8 (21)	
3.5.7	Contact Retention Force	49.0 N (5 kgf) Min.	Apply an axial pull-off load to crimped wire. Operation Speed : 100 mm / min. AMP Spec. 109-5212		

Fig. 1 (to be continued)

SHEET 3 OF 8	AMP		AMP (Japan), Ltd. Kawasaki, Japan	
	LOC J	LOC A	NO. 108-5460	REV. B
NAME 187 Series Positive Lock (Mark-II) wire to wire type (with Housing Lock)				

SECURITY CLASSIFICATION: Customer Release NUMBER: 108-5460	Para.	Test Items	Requirements	Procedures
	3.5.8	Contact Insertion Force	19.6 N (2 kgf) Max.	Measure the force required to insert contact into housing. AMP Spec. 109-5211
	3.5.9	Connector Mating Force	Initial 9.8~49.0 N (1.0~5.0 kgf) Max. 6 th 7.8~41.2 N (0.8~4.2 kgf) Max.	Operation Speed : 100 mm / min. Measure the force required to mate connectors. AMP Spec. 109-5206 Condition B
	3.5.10	Connector Unmating Force	Initial 5.9~53.9 N (0.6~5.5 kgf) Min. 6 th 3.9~45.1 N (0.4~4.6 kgf) Min.	Operation Speed : 100 mm / min. Measure the force required to unmate connectors. AMP Spec. 109-5206 Condition B
	3.5.11	Vibration (Low Frequency)	No electrical discontinuity greater than 1 μ sec. shall occur. 6 m Ω Max. (Final)	Subject mated connectors to 10-55-10 Hz traversed in 1 minute at 1.52 mm amplitude 2 hours each of 3 mutually perpendicular planes. 100 mA applied. AMP Spec. 109-5201 Mounting : Fig. 4
	3.5.12	Housing Locking Strength	14.7 N (1.5 kgf) Min.	Measure Housing locking strength Operation Speed : 100 mm/min.
	3.5.13	Contact Locking Strength	58.8 N (6 kgf) Min. Initial 49.0 N (5 kgf) Min. Final	Mesure Contact locking Strength Operation Speed : 100 mm/min.

Fig. 1 (to be continued)

SHEET	AMP AMP (Japan), Ltd. Kawasaki, Japan		
4 OF 8	LOC J	LOC A	NO. 108-5460
NAME			REV. B
187 Series Positive Lock (Mark-II) wire to wire type (with Housing Lock)			

Para.	Test Items	Requirements	Procedures
Environmental Requirements			
3.5.14	Thermal Shock	6 mΩ Max. (Final)	Mated connector - 40 °C/30 min. 105 °C/30 min, Making this a cycle, repeat 5 cycles. AMP Spec. 109-5103 Condition H
3.5.15	Humidity, Steady State	Insulation resistance (Final) 100 MΩ Min. Termination resistance 6 mΩ Max. (Final) Dielectric withstanding Voltage No creeping discharge nor flashover shall occur.	Mated connector, 90~95 % R. H. 40 °C 96 hours AMP Spec. 109-5105 Condition A
3.5.16	Salt Spray	6 mΩ Max. (Final) Contact Locking Strength 49.0 N (5 kgf)	Subject mated connectors to 5 % salt concentration for 96 hours : AMP Spec. 109-5101 Condition B

Fig. 1 (End)

SHEET	AMP AMP (Japan), Ltd. Kawasaki, Japan		
5 OF 8	LOC J	LOC A	NO. 108-5460
REV. B			
NAME 187 Series Positive Lock (Mark-II) wire to wire type (with Housing Lock)			

NUMBER:
108-5460

NUMBER:

Customer
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CLASSIFICATION:

3.6 Product Qualification Test Sequence

NUMBER: 108-5460
 SECURITY CLASSIFICATION: Customer Release

Test Examination	Test Group					
	1	2	3	4	5	6
	Test Sequence (a)					
Examination of Product					1	1
Termination Resistance (Low Level)						2, 4, 6, 8, 10
Dielectric withstanding voltage					8, 11	
Insulation Resistance					7, 10	
Temperature Rising				1		
Vibration (Low Frequency)						3
Connector Mating Force					3, 5	
Connector Unmating Force					4, 6	
Contact Insertion Force					2	
Contact Retention Force		1				
Crimp Tensile Strength	1					
Housing Locking Stregnth		2				
Contact Locking Stregnth			1			11
Thermal Shock						7
Humidity (Steady State)					9	5
Salt Spray						9

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

Applicable Wire (mm ²)	0.5	0.75	1.25
Current (A)	5	7	12

Fig. 2

SHEET 6 OF 8	AMP AMP (Japan), Ltd. Kawasaki, Japan		
	LOC J	LOC A	NO. 108-5460
REV. B			
NAME 187 Series Positive Lock (Mark-II) wire to wire type (with Housing Lock)			

NUMBER: 108-5460

SECURITY CLASSIFICATION:

Customer Release

Customer Release

Termination Resistance, Temperature Rising

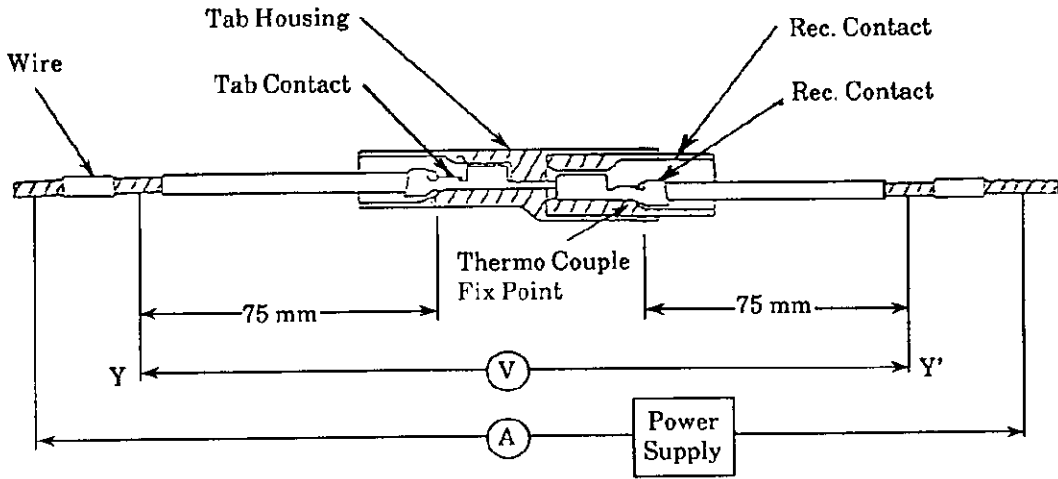


Fig. 3

Vibration

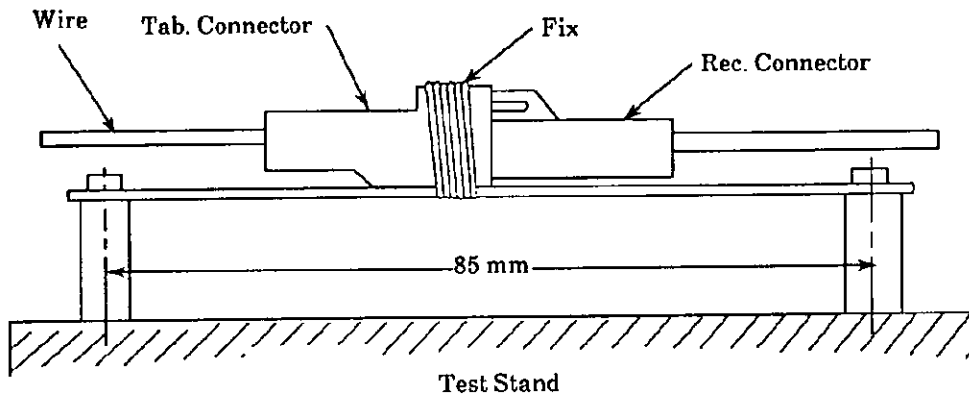


Fig. 4

SHEET	AMP			AMP (Japan), Ltd.
				Kawasaki, Japan
7 OF 8	LOC J	LOC A	NO. 108-5460	REV. B
NAME 187 Series Positive Lock (Mark-II) wire to wire type (with Housing Lock)				

108-5460

NUMBER:

Customer Release

SECURITY CLASSIFICATION:

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

Product Part No	Description
170325-X	Rec. Contact (AWG #20~#16)
175179-X	Tab. Contact (AWG #20~#16)
179183-X	1 Pos. Rec. Housing (with Housing Lock)
179182-X	1 Pos. Tab. Housing (with Housing Lock)

Appendix 1

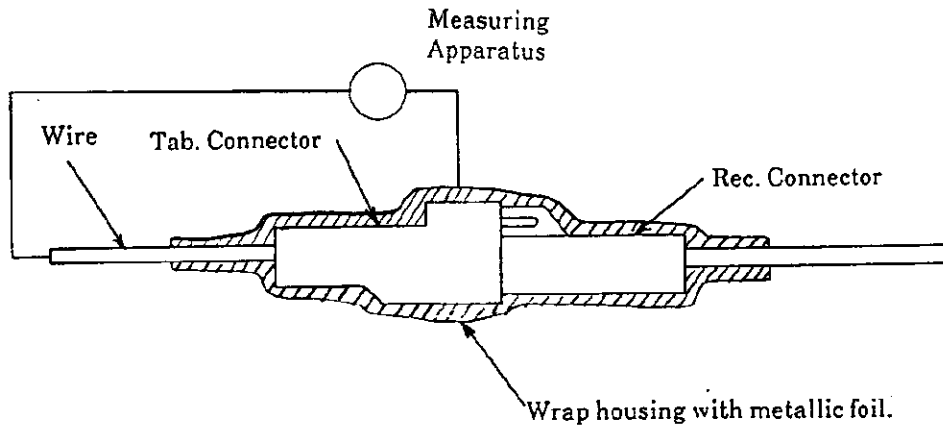


Fig. 5

SHEET	AMP			AMP (Japan), Ltd. Kawasaki, Japan
	8 OF 8	LOC J	LOC A	NO. 108-5460
NAME		REV. B	187 Series Positive Lock (Mark-II) wire to wire type (with Housing Lock)	