QUALIFICATION TEST REPORT

1 POS STANDARD POWER TIMER
FEMALE CONNECTOR

						DR BERTA D 25/03/1996	AMP Italia S p A
						CHK CATTANEO G P 25/03/1996	NUMBER 501-20010 / REV A
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A	ETOO-0196-96	DB	02/04/96	GPC	27/05/96	NAME 1 POS STANDARD POWER TIMER FEMALE CONNECTOR	
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1 INTRODUCTION

1.1 Purpose

This document summarizes all Testing Activities performed on the Subject AMP Product made by AMP Italia and estabilishes its conformance to the requirements of the relevant AMP Product Specification as reported below.

1.2 Scope

This report covers the electrical, mechanical and environmental performance of AMP Italia 1 Pos Standard Power Timer Female Connector, as required by the AMP Product Specification 108-20146, Rev. A.

1.3 Conclusion

The 1 Pos Standard Power Timer Female Connector meets all the mechanical, electrical and environmental performance requirements of AMP Product Specification 108-20146 Rev. A.

1.4 Product Description

The 1 Pos Standard Power Timer Female Connector is composed by a single piece housing including integral secondary lock obtained by hinged flap and whith a suitable cavity in which a Standard Power Timer Receptacle can be inserted
Latching system allows mounting onto a shrounded Tab of 0,8 mm thickness and 6,3 mm width placed onto FLAT counterpart.

1.5 Test Samples

Test samples were randomly selected from normal current production lots, and the following Part Numbers were used for test:

Test Group	Quantity	Part Number	Description
A	10 10	927824-3 60447-2	STD POWER TIMER REC CTC TAB STEEL CONTACT
B	4 4	927824-3 282533	STD POWER TIMER REC CTC 1 POS HOUSING
C	10 10	927824-3 282533	STD POWER TIMER REC CTC 1 POS HOUSING
D	6 6	927824-3 282533	STD POWER TIMER REC CTC 1 POS HOUSING
E	10 10	927824-3 60447-2	STD POWER TIMER REC CTC TAB STEEL CONTACT
F	4 4	927824-3 282533	STD POWER TIMER REC CTC 1 POS HOUSING
G	4 4	927824-3 282533	STD POWER TIMER REC CTC 1 POS HOUSING
H	10	927824-3	STD POWER TIMER REC CTC
I	6	282533	1 POS HOUSING

1.6 Qualification Test Sequence

	TEST GROUP								
TEST	A	B	C	D	E	F	G	H	I
VISUAL EXAMINATION	1,9	1,3	1,3	1,3	1,5	1,4	1,4	1,3	1,4
ENGAGING FORCE	3,6								
SEPARATING FORCE	4,7								
DURABILITY 10 CYCLES	5								
MATING FORCE									2
UNMATING FORCE									3
CONTACT EXTRACTION FORCE WITH ONLY PRIMARY LOCK ENGAGED		2				3			
CONTACT EXTRACTION FORCE WITH ONLY SECONDARY LOCK ENGAGED			2				3		
SECONDARY LOCK RETENTION				2					
CRIMP TENSILE								2	
MILLIVOLT DROP	2,8				2,4				
ACCELERATED AGEING					3	2	2		

The numbers inside each Test Group indicate the sequence in which Tests were performed

2 SUMMARY OF TESTING

All the below reported Tests were performed in agreement with AMP Specification 108-20146 Rev A

2 1 Examination of Product (all groups)

All samples submitted for testing were selected from normal current production lots. They were inspected and accepted by Quality Assurance as conformal to Drawings.

2 2 Engaging Force (group A)

Part Numbers involved	Standard Power Timer Rec Contact	P/N	927824-3
	Tab Contact	P/N	60447-2

Test was performed as indicated at point 3 2

The following values were found.

First Engaging Force	from 19,0 to 23,9 N	Average = 20,6 N	Requested 30 N Max
Tenth Engaging Force	from 8,5 to 15,2 N	Average = 11,0 N	

All measured forces were within specification limits

2 3 Separating Force (group A)

Part Numbers involved	Standard Power Timer Rec Contact	P/N	927824-3
	Tab Contact	P/N	60447-2

Test was performed as indicated at point 3 3.
The following values were found.

First Separating Force (N)	from 3,2 to 4,1 N	Average = 3,5 N	Requested 15 N Max
Tenth Separating Force (N)	from 3,1 to 5,3 N	Average = 3,6 N	Requested 2,5 N Min

All measured forces were within specification limits

2 4 Mating Force (group I)

Part Numbers involved	1 Pos Housing	P/N	282533
	Counterpart of Customer FIAT		

Test was performed as indicated at point 3 4

The following values were found

Mating Force (N)	from 16,4 to 20,2 N	Average = 19,0 N	Requested 30 N Max

All measured forces were within specification limits

2 5 Unmating Force (group I)

Part Numbers involved	1 Pos Housing Counterpart of Customer FLAT	P/N	282533

Test was performed as indicated at point 3 5

The following values were found

Unmating Force (N)	from 333,4 to 392,2 N	Average = 370,1 N	Requested 80 N Min

All measured forces were within specification limits

2 6 Contact Extraction Force with only Primary Lock device engaged (Group B)

Part Numbers involved	Standard Power Timer Rec Contact	P/N	927824-3
	1 Pos Housing	P/N	282533

Test was performed as indicated at point 3 6

The following values were found

Contact insertion force	from 155,1 to 187,7 N	Average = 172,7 N	Requested 70 N Min

All tested samples were within specification limits

2 7 Contact Extraction Force with only Secondary Lock device engaged (Group C)

Part Numbers involved	Standard Power Timer Rec Contact	P/N	927824-3
	1 Pos Housing	P/N	282533

Test was performed as indicated at point 3 7

The following values were found

Contact insertion force	from 132,0 to 219,1 N	Average = 188,3 N	Requested 30 N Min

All tested samples were within specification limits

2 8 Secondary Lock retention (Group D)

Part Numbers involved Standard Power Timer Rec Contact P/N 927824-3
1 Pos Housing P/N 282533

Test was performed as indicated at point 3 8

All tested specimens passed the Test without loosing the Secondary Lock retention

Following the tensile Test, the values of extraction force were found
from 116,9 to 163,1 N Average = 132,5 N

All tested samples were within specification limits

2 9 Crimp Tensile Strength (group H)

Part Numbers involved Standard Power Timer Rec Contact P/N 927824-3

Test was performed as indicated at point 3 9

The following values were found

Crimp Tensile Force from 388,2 to 461,3 N Average = 429,8 N Requested 235 N Min

All tested samples were within specification limits

2 10 Millivolt Drop (group A,E)

Part Numbers involved Standard Power Timer Rec Contact P/N 927824-3
Tab Contact P/N 60447-2

Test was performed as indicated at point 3 10
Test current of 12 A

The following values were found

Initial from 1,03 to 2,56 mV/A Average = 1,59 mV/A Requested 6 mV/A Max

After 10 Durability cycling
from 0,84 to 1,75 mV/A Average = 1,32 mV/A Requested 6 mV/A Max

After Accelerated Ageing
from 3,22 to 7,00 mV/A Average = 5,65 mV/A Requested 9 mV/A Max

All tested samples were within specification limits

2 11 Accelerated Ageing (group G)

Part Numbers involved	Standard Power Timer Rec Contact	P/N	927824-3
	1 Pos Housing	P/N	282533

Test was performed as indicated at point 3 11

No evidence of physical damage to either the contacts or the connectors was visible as a result of exposure to Hight Temperature and the Millivolt Drops were in the limit as reminded at point 2 10

3 TEST METHODS

3 1 Examination of Product

Product drawings and inspection plan were used to examine the samples They were examined visually and functionally

3 2 Engaging Force

The force required to engage the single Tab Contact onto the Receptacle Contact was measured using a free floating fixture with a rate of 25 4 mm/min of travel speed

3 3 Separating Force

The force required to separate the single Tab Contact from the Receptacle Contact was measured using a free floating fixture with a rate of 25 4 mm/min of travel speed

3 4 Mating Force

The force required to mate the 1 Pos Housing without the Receptacle Contact inside with Customer counterpart without inserted Tab Contact was measured using a free floating fixture with a rate of 25 4 mm/min of travel speed

3 5 Unmating Force

The force required to extract the 1 Pos Housing without the Receptacle Contact inside from Customer counterpart without inserted Tab Contact was measured using a free floating fixture with a rate of 25 4 mm/min of travel speed

3 6 Extraction Force with only Primary Lock engaged

The axial force required to extract a single wired contact from the housing cavity with only the Primary Lock engaged was measured using a free floating fixture with a rate of travel of 25,4 mm/min

3 7 Extraction Force with only Secondary Lock engaged

The axial force required to extract a single wired contact from the housing cavity with only the Secondary Lock engaged was measured using a free floating fixture with a rate of travel of 25,4 mm/min

3 8 Secondary lock Retention

Test has been performed loading a wired contact inserted into cavity with an increasing force up to 50 N, applied at right angle with the axis of connector and holding it for one minute Then, the force required to extract contac from cavity was measured using a free floating fixture with a rate of travel of 25,4 mm/min

3 9 Crimp Tensile Strength

The force required to pull out Contacts from the relevant wires was measured using a free floating fixture with a rate of travel of 25,4 mm/min

3 10 Millivolt Drop

The Millivolt Drops were measured on both loose Tab and Rec Contacts, mated togheter
The insulation of the applied wires was stripped at the distance of 5 mm from the insulation barrel
Test current was 12 A as required by the Product Specification

3 11 Accelerated Ageing

The mated connectors were submitted to 200 hours of exposure at 105 °C (+/- 2 °C) into a Steady State oven