

**PRODUCT SPECIFICATION**

**AMP POSITIVE LOCK TERMINAL MARK I WITH LATCHING DEVICE**


**1. SCOPE**

This product specification covers product performance requirements and test methods for "AMP POSITIVE LOCK REC. TERMINAL MK I WITH LATCHING DEVICE", manufactured by AMP Italy S.p.A.

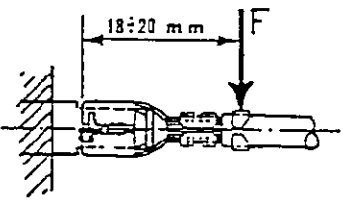
PRODUCT DESCRIPTION	PART NUMBER
REC. TERM.	281827-2
REC. TERM.	281828-2
REC. TERM.	281829-2
REC. TERM. (REDUCED INSUL. CABLE)	282162-1
REC. TERM. (REDUCED INSUL. CABLE)	282553-1

**2. MATERIAL USED AND SURFACE TREATMENT**

- 2.1 Rec. term.: Brass post tinned (2 µm min.)
- 2.2 Applicable wires: 0,5 - 6,0 mm<sup>2</sup> single wire
  - 0,5 - 1,5 mm<sup>2</sup> P/N 281827-2
  - 2,5 - 4,0 mm<sup>2</sup> P/N 281828-2
  - 4,0 - 6,0 mm<sup>2</sup> P/N 281829-2
  - 0,5 - 1,5 mm<sup>2</sup> P/N 282162-1 (reduced insul. cable)
  - 0,5 - 1,5 mm<sup>2</sup> P/N 282553-1 (reduced insul. cable special version for rec. hsg. P/N 281991-4)
- 2.3 Current rating: 30 A max (see also 4.1)
- 2.4 Operating temperature range: -30° +/-2°C, +105° +/-2°C max (ambient temperature + temperature rising due to application of current)
- 2.5 Product design feature, construction and dimensions: Shall be conforming to the applicable customer product drawing(s)
- 2.6 Test samples: All the samples to be tested shall conform to the applicable product dwg(s), and have a wire crimped according to the application specification 114.20029. No samples shall be released in the test, unless otherwise specified.
- 2.7 Maximum operating voltage: 24 V cc. For application at higher voltage please contact AMP

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					DR. C. TARTARI <i>C. Tartari</i> 6/6/1989	 AMP ITALIA S.p.A. Corso F.lli Cervi, 15 Collegno (TORINO)	
					CHK		
B	ACTIVE (ET00-0138-97)	R.W.	18-3 97	18-3 97	APP.	LOC. NUMBER 'I' 108-20051	REV. B
A	REVISED AND ADDED P/Ns 282162-1 & 282553-1 E.C. ET00-0004-94	C.I.	21-FEB.1994	C.T. 1994	SHEET 1 OF 5	NAME .250 SERIES POSITIVE LOCK RECEPTACLE CONTACT MARK I WITH LATCHING DEVICE	
0	FIRST ISSUE						
REV LTR	REVISION RECORD	DR	DATE	CHK	DATE		

### 3. MECHANICAL PERFORMANCE REQUIREMENTS

TEST ITEM	TEST CONDITIONS & METHOD	STANDARD REQUIREMENT																
3.1 Contact insertion force	Secure the tab, mount the contact on a tensile tester, test at a speed of 25-50 mm a minute and measure the ins. and extr. force. Note that the contact must be unlocked when measuring the extract. force.	$\leq 35\text{N}$ ( $1^\circ$ insertion)																
3.2 Contact extraction force	Engage with the tab a contact having a 200 mm of an applicable wire whose cross-sectional area is more than 1 mm <sup>2</sup> , crimped, lock, secure the tab and pull the wire in the direction of the working axis of the contact at a speed of $\sim 50$ mm a minute. Measure a minimum load which causes the lock mechanism to fail or the contact to be disengaged from the tab	$\leq 35\text{N}$ ( $1^\circ$ extraction) $\geq 9\text{N}$ ( $10^\circ$ extraction)																
3.3 Contact lock strength	Engage with the contact having an applicable crimped wire, secure the tab, than apply a force F as 25 $\pm$ 30 N for 30 seconds minimum.	$\geq 70\text{N}$																
3.4 "Anti-overstress" latching strength	 <p>The diagram illustrates a contact assembly mounted on a base. A wire is crimped onto the contact. A force F is applied vertically downwards to the wire. A dimension line above the wire indicates a length of 18 ± 20 mm from the contact point to the point of application of force F.</p>	No deformation & Mechanical performance as test item 3.2 & 3.3																
3.5 Crimp tensile strength	Each sample shall have an applicable wire approximately 200 mm long crimped, and the crimp tensile strength shall be measured by pulling it in the direction of its working axis at a speed of $\sim 50$ mm/min. A minimum tensile load causing the wire to snap or come off from the contact shall be taken as the crimp tensile strength. No insulated area of the wire shall be crimped.	<table border="1"> <thead> <tr> <th>Wire size (mm<sup>2</sup>)</th> <th>Tensile (N min)</th> </tr> </thead> <tbody> <tr> <td>0,5</td> <td>70 N</td> </tr> <tr> <td>0,8</td> <td>90 N</td> </tr> <tr> <td>1</td> <td>115 N</td> </tr> <tr> <td>1,5</td> <td>155 N</td> </tr> <tr> <td>2,5</td> <td>235 N</td> </tr> <tr> <td>4</td> <td>320 N</td> </tr> <tr> <td>6</td> <td>400 N</td> </tr> </tbody> </table>	Wire size (mm <sup>2</sup> )	Tensile (N min)	0,5	70 N	0,8	90 N	1	115 N	1,5	155 N	2,5	235 N	4	320 N	6	400 N
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AMP ITALIA S.p.A.  
Corso F.lli Cervi, 15  
COLLEGNO (TORINO)

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#### 4. ELECTRICAL & ENVIRONMENTAL PERFORMANCE REQUIREMENTS

TEST ITEM	TEST CONDITIONS & METHOD	STANDARD REQUIREMENT																
4.1 Millivolt drop, specified current (Termination resistance)	Engage a contact with the tab, and measure termination using circuit shown in fig. 1.  <table border="1"> <thead> <tr> <th>wire size</th> <th>test current</th> </tr> </thead> <tbody> <tr> <td>0,5</td> <td>5A</td> </tr> <tr> <td>0,8</td> <td>8A</td> </tr> <tr> <td>1</td> <td>10A</td> </tr> <tr> <td>1,5</td> <td>14A</td> </tr> <tr> <td>2,5</td> <td>20A</td> </tr> <tr> <td>4</td> <td>25A</td> </tr> <tr> <td>6</td> <td>30A</td> </tr> </tbody> </table>	wire size	test current	0,5	5A	0,8	8A	1	10A	1,5	14A	2,5	20A	4	25A	6	30A	$\leq 2 \text{ mV/A}$
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6	30A																	
4.2 Current overload	For 1 hour apply a current of 1,5 times the one specified at test item 4.1.	- Millivolt drop $\leq 3\text{mV/A}$ - Mechanical performance as test item 3.2 and 3.3																
4.3 Thermal cycling	Subject engaged contact with the tab to 5 cycles. Each cycle consists of: 2 Hrs:+100 +/-2°C 2 Hrs:+40 +/-2°C at 95% RH 2 Hrs:-30 +/-2°C	- Millivolt drop $\leq 3\text{mV/A}$ - Mechanical performance as test item 3.3 (w/o durability)																
4.4 Temperature rising	Engage with the tab contact having an applicable wire (soldered), secure a thermocouple to the crimp area (or contact transition) and apply a rated current to measure temperature rising when an equilibrium is reached.	$\Delta t \leq 40 \text{ }^\circ\text{C}$																
4.5 Accelerated ageing	Subject engaged contact with the tab to 200 Hrs at 90 +/-2°C temp. environment.	- Millivolt drop $\leq 3\text{mV/A}$ - Mechanical performance as test item 3.3. (w/o durability).																
4.6 Corrosion salt spray	Subject engage contact with the tab to 72 hrs at 5% of concentration NaCl (Temperature 35 +/-2°C.)	- Millivolt drop $\leq 3\text{mV/A}$ - Mechanical performance as test item 3.3. (w/o durability).																
4.7 Vibration	Subject engaged contact with the tab to frequency: 10-200-10 Hz traversed in 5 minutes at 1,5 mm total excursion (amplitude) Test time: 2 hrs in each of 3 mutually perpendicular directions Acceleration: 10 g	- Millivolt drop $\leq 3\text{mV/A}$ - Mechanical performance as test item 3.2. and 3.3.																

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RECEPTACLE CONTACT

FIG. 1

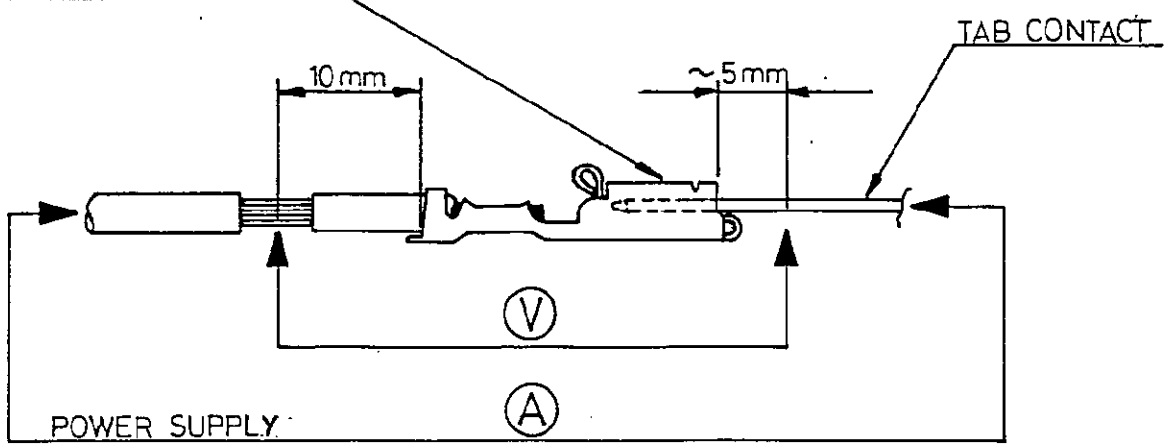


FIG. 2

TAB CONTACT 6.3x0.8 mm ACCORDING TO  
 SPEC. ISO/DIS/8092/1 :FOR ELECTRICAL  
 ENVIRONMENTAL TEST ( P/N 140736-2)

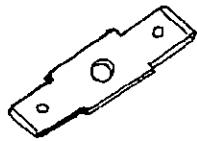
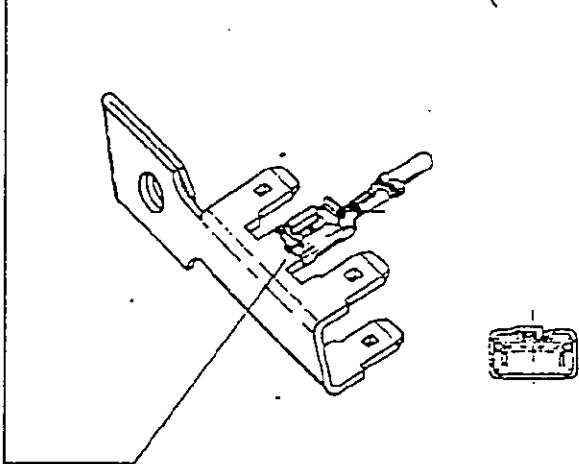


FIG. 3

"ANTI-OVERSTRESS MECHANISM (LATCHING BRACKETS)



GROUND CONNECTION : TYPICAL "CUSTOMER TERMINAL BOARD" FOR MECHANICAL  
 TEST (IN ALTERNATIVE TO STEEL GAGE SHOWN ON  
 PAGE 5)

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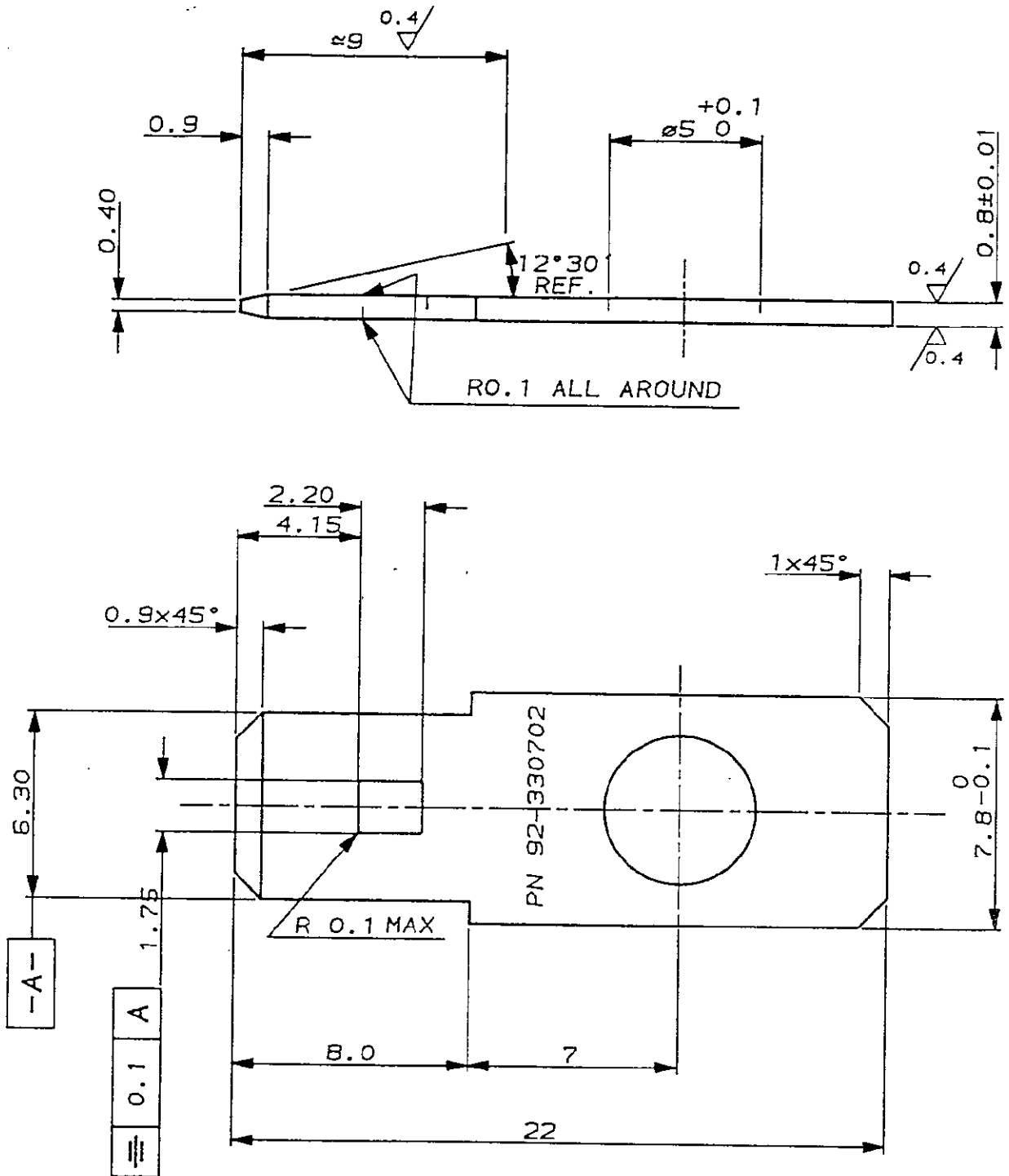
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FIG. 4

STEEL GAGE FOR IN-OUT TEST



MATERIAL: UNI U85MV8 or similar

HT. TR.: HRC 58 ≈ 63

SURFACE TEXTURE: unless otherwise specified  $\sqrt{3.2}$

TOLERANCES: unless otherwise specified

0 DEC. PLACE	±0.3
1 DEC. PLACE	±0.1
2 DEC. PLACE	±0.05
ANGLES ±0° 30'	

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