2-7 POS. SPLASH PROOF FEMALE CONNECTORS WITH SEC. LOCKING DEVICE (FOR JUNIOR POWER TIMER CONTACTS)

1. SCOPE

This specification covers features and performances of Splash Proof connectors with the following AMP P/N:

C-282190 : 2 pos. connector (with internal spring - Type B)
C-282648 : 2 pos. connector (with internal spring - Type B, ref. Hitachi injector)
C-282189 : 2 pos. connector (with external spring - Type A)
C-282680 to 282685 : 2 pos. connector (with external spring - Type A)
C-282762 : 2 pos. connector (with external spring - Type A)
C-282191 : 3 pos. connector (with external spring - Type A)
C-282545 : 3 pos. connector (with external spring - Type A)
C-282651 : 3 pos. connector (with external spring - Type A)
C-282686 to 282689 and 282800 : 3 pos. connector (with external spring - Type A)
C-282729 : 3 pos. connector (with external spring - Type A)
C-282192 : 4 pos. connector (with external spring - Type A)
C-282342 : 4 pos. connector (with external spring - Type A)
C-282764 : 4 pos. connector (with external spring - Type A)
C-282765 : 4 pos. connector (with external spring - Type A)
C-282765 : 4 pos. connector (with external spring - Type A)
C-282996 : 4 pos. connector (with external spring - Type A)
C-282193 : 5 pos. connector (with external spring - Type A)
C-282766 : 5 pos. connector (with external spring - Type A)
C-282236 : 6 pos. connector (with external spring - Type A)
C-282767 : 6 pos. connector (with external spring - Type A)
C-282194 : 7 pos. connector (with external spring - Type A)
C-282768 : 7 pos. connector (with external spring - Type A)

with the relevant contacts - wire seals with AMP P/N :

C-929939-3 : contact "AMP Junior Power Timer" wire range 0,5-1,0 mm²
C-929937-3 : contact "AMP Junior Power Timer" with wire range > 1,0-2,5 mm²
C-929937-1 : contact "AMP Junior Power Timer" wire range > 1,0-2,5 mm²
C-828904-1 : wire seal for single wire 0,5 - 1,0 mm²
C-828905-1 : wire seal for single wire 1.5 - 2,0 mm² (1,0 mm² admittable too)
C-282536-1 : wire seal for single wire 2,5 mm² only
C-828906-2 : cavity plug to close connector cavity (or, in alternative, P/N C-282081-1)

These connectors are suitable for header counterparts, as shown on above mentioned drawings.

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PRODUCT CODE 2004

REV LTR	REVISION RECORD	DR	CHK	DATE
E	HOUSING MATERIAL NOTE UPDATING (PAGE 2)	M.P.	M.G.	24-03 2014
D	REVISED PER EC ET00-0284-98	M.P.	R.M.	21-10 '98
C	REVISED PER EC ET00-0149-97	R.M.	C.T.	24-3 97
B	REVISED PER EC ET00-0359-96	R.M.	C.T.	2-9 96
A	ACTIVE PER EC ET00-0019-94	R.M.	C.T.	27-1 94
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DR R. MARTINI 28 May 93
CHK C. TARTARI 31 May 93
APP.

TE Connectivity

LOC. I | NUMBER 108 - 20091 | REV. E

SHEET 1 OF 7

NAME SPLASH PROOF CONN. WITH SEC. LOCK FOR JUNIOR POWER TIMER CONTACTS, 2-7 POS. PRODUCT SPECIFICATION

2. CONNECTOR FEATURES :

2.1 Materials : - contacts : Phosphor Bronze, or Cu Fe alloy for contact 929937-1, bright tin plated (with external reinforcement spring in stainless steel).
- housings : PA 6.6 (and retaining spring in stainless steel and frontal sealing in silicone rubber)
- single wire seals : silicone rubber.

2.2 Wire Range : - stranded cable acc. to FIAT normation table n° 91107/03 and 91107/05

0.5 mm²	reduced insul. cable	"	phase 3	"	dia. 1.6 - 1.7 mm
0.75	"	"	"	"	1.9 - 2.0 mm
1.0	"	"	"	"	2.0 - 2.1 mm
1.5	"	"	"	"	2.3 - 2.4 mm
2.0	"	"	"	"	2.6 - 2.7 mm
2.5	"	"	"	"	2.9 - 3.0 mm

2.3 Current Rating : 20 A (with 2.5 mm² wire and contact 929937-1)

2.4 Working Temperature : -30 to +125 °C (with included the temperature increasing due to working current flow).

2.5 Degree of Protection : IP 5.4 according to IEC 529.

2.6 Socket Housings (2 - 7 pos.) : provided with secondary locking device like a door moulded at hinge and integral with housing body.
The sec. locking device hooks on the housing body after the complete introduction of contacts into their cavity; if contacts are partially or wrongly inserted into the cavity the sec. lock doesn' t hook in a right way to the housing body. Besides, it ensures a correct holding of contacts in their cavity in case of primary lock bad working.

2.7 Maximum operating voltage: 24 V dc. For application at higher voltage please contact AMP.

3. FEATURES AND TEST CONDITIONS

FEATURES	TEST CONDITIONS	LIMITS
3.1 Connector Mating Force (with contacts inserted)	In working condition with header counterpart. Speed 25 - 50 mm/minute Direction equal to contact axis. (tab cont. as shown in Fig. 1).	2 pos. ≤ 50 N (type B) 2 pos. ≤ 70 N (type A) 3 pos. ≤ 85 N (type A) 4 pos. ≤ 100 N (type A) 5 pos. ≤ 115 N (type A) 6 pos. ≤ 130 N (type A) 7 pos. ≤ 145 N (type A)
3.2 Connector Unmating Force (with contacts inserted)	a) like point 3.1 --- b) like point 3.1, but pressing on the retaining spring. --- c) like point 3.1, but without pressing on the retaining spring.	2 pos. ≥ 30 N (type B) Ist extr. --- Type A Ist extr. Xth extr. 2 pos. ≤ 20 N ≥ 8 N 3 pos. ≤ 35 N ≥ 12 N 4 pos. ≤ 50 N ≥ 16 N 5 pos. ≤ 65 N ≥ 20 N 6 pos. ≤ 80 N ≥ 24 N 7 pos. ≤ 95 N ≥ 30 N --- ≥ 20 N per no. of position of the connector, Ist extr.
3.3 Single Contact Mating Force	Single cont. (tab as shown in Fig.1)	≤ 18 N Ist insertion
3.4 Single Contact Unmating Force	Single cont. (tab as shown in Fig.1)	Ist extr. ≤ 18 N Xth extr. ≥ 4 N
3.5 Retention Force of the single contact from the housing	At temperature + 23 ± 5 °C and at tensile speed of 25 - 50 mm/minute	Only with primary locking dev. ≥ 70 N Only with secondary locking dev. ≥ 30 N
3.6 Crimping Tensile Strength	Tensile speed 25 - 50 mm/minute	0.5 mm² ≥ 70 N 1.0 mm² ≥ 115 N 1.5 mm² ≥ 155 N 2.5 mm² ≥ 235 N
3.7 Voltage Drop	Between a point on the wire at 1 cm from the connector edge and a point on the tab very closed to the connector edge (see Fig.2)	≤ 3 mV/A on new contacts and after 10 insertions/extractions

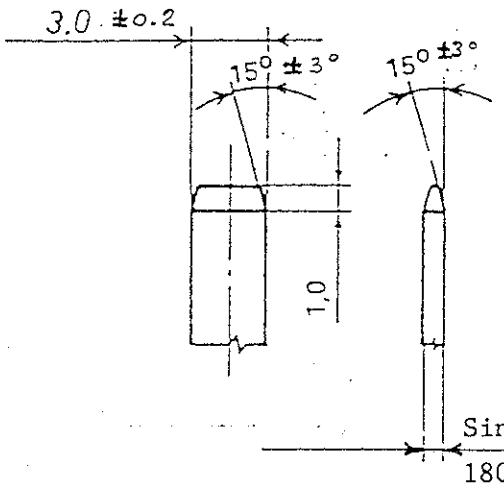
FEATURES	TEST CONDITIONS	LIMITS
3.8 Insulation Resistance	Between two adjacent contacts apply 500 Vdc for 1 minute.	≥ 10 MΩ
3.9 Dielectric Breakdown Resistance	Between two adjacent contacts apply voltage for 1 minute	≥ 1000 Vac
3.10 High Temperature Resist. with current load. (example of 6 pos.conn.)	On all ways contemporarily : -Not airy ambient-with a test temp. of 80 ± 2 °C : -Test current on each way : 14 A (with a 1.5 mm² wire) or 20 A (with a 2.5 mm² wire) -Duration: 5 hours	Temperature increasing detected: ≤ 50 °C (thermocouple placed on transition between receptacle contact body and wire barrel) Voltage drop within limits indicated for new contacts. No damaging.
3.11 Current Overload	On one way only w/o housing : - Test current : 21 A (with a 1.5mm² wire) or 30 A (with a 2.5 mm² wire). - Duration: 500 cycles composed of 45' current "ON" 15' current "OFF".	Temperature increasing ≤ 60 °C on transition between contact body and wire barrel Voltage drop ≤ 4.5 mV/A No damaging
3.12 Thermal Cycling Resistance	a) 5 cycles composed of : 2 hrs. at +125 °C ± 2 °C 2 hrs. at -30 °C ± 2 °C b) 5 cycles composed of : 2 hrs. at +125 °C ± 2 °C 2 hrs. at + 40 °C ± 2 °C and 90-95% R.H. 2 hrs. at -30 °C ± 2 °C Note: time interval in passing from one ambient temperature to the next one must not exceed 3 minutes. (connector mated with header counterpart).	No deformation or cracking of the female connector. Voltage drop ≤ 4.5 mV/A Insulation resistance, dielectric breakdown resistance, and mechanical features at points 3.2.c and 3.5, within limits indicated for new contacts.

FEATURES	TEST CONDITIONS	LIMITS
3.13 Accelerated Ageing Test	200 hours at +125 °C ± 2 °C (Connector mated with header counterpart).	Deformation or cracking of female connector and plastic material discoloring are not admitted. Voltage drop ≤ 4.5 mV/A Dielectric breakdown resistance and mechanical features at points 3.2c - 3.5, within limits indicated for new contacts
3.14 Kesternich corrosion	4 cycles composed of : 8 hrs of exposure to an atmosphere with 0.66% of SO_2 at 40 ± 2 °C (method acc. to DIN 50118) 16 hrs in free air. (Connector mated with header counterpart)	Voltage drop ≤ 4.5 mV/A Insulation resistance within indicated limits.
3.15 Salt Spray Corrosion Test	150 hrs of salt mist at 35 °C ± 2 °C, 5% of NaCl, pH 6.5-7.2 class 2. (Connector mated with header counterpart)	Voltage drop ≤ 4.5 mV/A Insulation resistance within indicated limits.
3.16 Vibration Test	2 hours for each axis : Freq: 10-500-10 Hz in 5 minutes Displacement : 1.5 mm pick to pick Acceleration : 25 g (FIAT norm.7.Z8510).	Voltage drop ≤ 3 mV/A No circuit break greater than 1µs
3.17 Water Resistance	Acc. to IEC norm.529 para. 7.4 and para. 8.4. Duration 2 hours. Test device acc. to Fig.4 Position of the conn.,connected with header counterpart, as required on the relevant Customer Dwg. NOTE : This test must be carried out after tests 3.12 + 3.13	Insulation resistance within indicated limits. Dielectric breakdown resistance within indicated limits. Voltage drop ≤ 4.5 mV/A No water infiltration inside the connector.

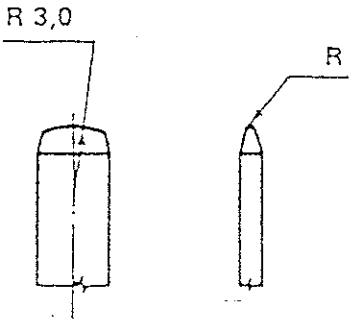
NOTE : - Each test must be carried out, if not otherwise specified, at an ambient temperature of 23 ± 5 °C, relative humidity of 45-75% and atmospheric pressure of 860-1060 mbar .

- See also page 7 for test groups and sequences.

TAB CONTACT IN BRIGHT TINNED BRASS



ALTERNATIVE SHAPE



Single piece material thk 0,8 ± 0,05 (or 180° bended piece material thk 0,4)

FIG. 1

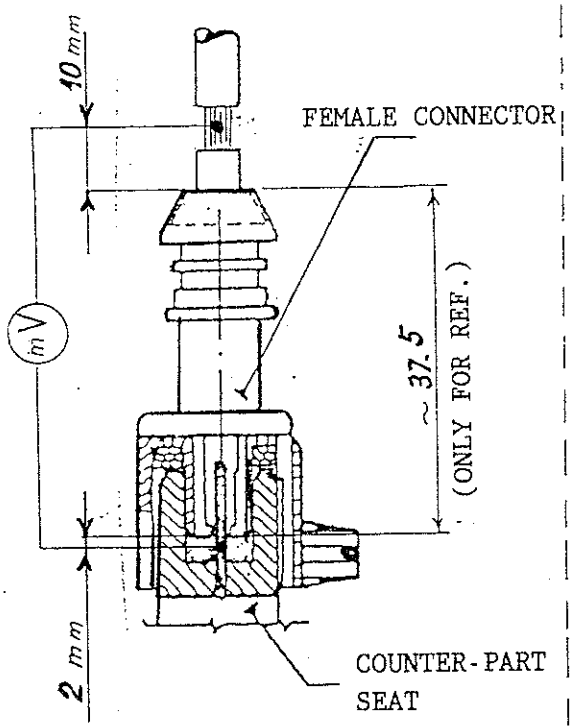
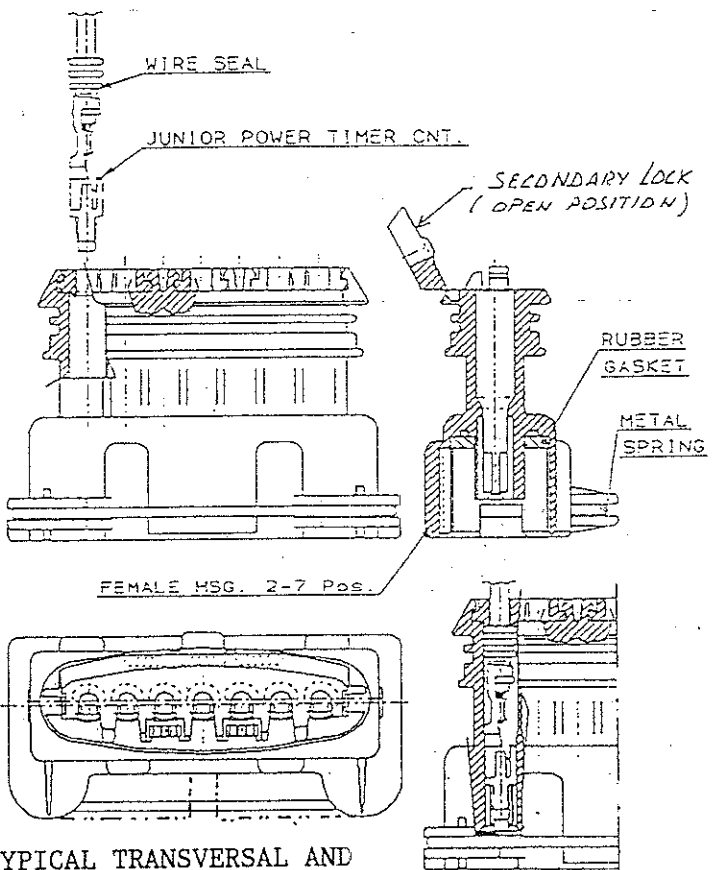


FIG. 2



TYPICAL TRANSVERSAL AND LONGITUDINAL CONNECTOR SECTION (ONLY FOR REF.)

IEC 035 2.83

TEST TO BE CARRIED OUT	TEST GROUP AND SEQUENCY											
	A	B	C	D	E	F	G	H	I	L	M	N
- Visual examination	1 , 5	1 , 7	1 , 6	1 , 3	1 , 4	1 , 4	1 , 9	1 , 8	1 , 6	1 , 6	1 , 5	1 , 9
- Single contact mating force	2	2										
- Single contact unmating force	3	4										
- Connector mating force with contacts inserted			2									
- Connector unmating force with contacts inserted			3				5	5				
- Mechanical duration (10 cycles)	4	5	4									
- Voltage drop		3 , 6			3	3	2 , 4	2 , 4	2 , 4	2 , 4	2 , 4	2 , 6
- Retention force of the single contact in the housing			5				8	7				
- Crimping tensile strength				2								
- Insulation resistance							6		5	5		7
- Dielectric breakdown resist.							7	6				8
- High temperature resistance with current load					2							
- Current overload						2						
- Thermal cycling							3					3
- Accelerated ageing test								3				4
- Kesternich corrosion									3			
- Salt spray test										3		
- Vibration test											3	
- Water resistance												5