



TEST REPORT

PRODUCT ENGINEERING
LABORATORY

RL.

130432

Rev. 1

Material / Parts description:

PN:

Drawing Issue

.250 series fastin-on tab / .250 series fastin-on rec

880636-2/1989880-X

F1/A1

Requester:

Dept:

Washington Stefani

APPLIANCES

Customer:

Supplier:

Several customers

TE - Brazil

Confidentiality:

- 1- CONFIDENTIAL
- 2- TYCO RESTRICTED
- 3- ADDRESSED CUSTOMER
-

- REQUESTER
- DM-TEC
-

Purpose:

- 1 - Process development
- 2 - First Sample
- 3 - Product Inspection
- 4 - Validation

Historic:

Samples produced with the alloy 272/274 and 1 micronmeter minimum surface finish. Objective is investigate the product performance with tin layer reduced.

Test(s):

Please, view page 2.

Specification (s):

Spec. 108-37015, Rev. A
Test Group: 3
Sequence: 1,3,4 and 5.

Conclusion:

Samples meet requirements.

In original tests, the samples were rejected because they presented a significant increase in contact resistance due to oxidation generated by industrial environment test. New samples were prepared (according to the responsible product engineer) using the appropriate housings and subjected to the tests again. The new samples have been approved.

Note: All values and measurements present in this test report belongs to tests executed with the samples with housing. All pictures containing the first samples (without housing) are just for comparative.

March 15th, 2013

Date

SIGNATURE ON FILE

Executed by

JÉSUS V. DE OLIVEIRA PRETO

LABORATORY ENGINEER

SIGNATURE ON FILE

Responsible

PAULO SÉRGIO DE ALMEIDA

LABORATORY COORDINATOR

Tests performed at Bragança Paulista Electrical Components Test Laboratory and at external laboratory.
Period: from December 2012 to March 2013.

Summary:

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1 General

1.1 Samples Identification

Sample Group	Samples	Part Number	Description
I	1~15	880636-2 / 1989880-X	Combination: .250 Series Fastin-on Tab + .250 Series Fastin-on Rec.

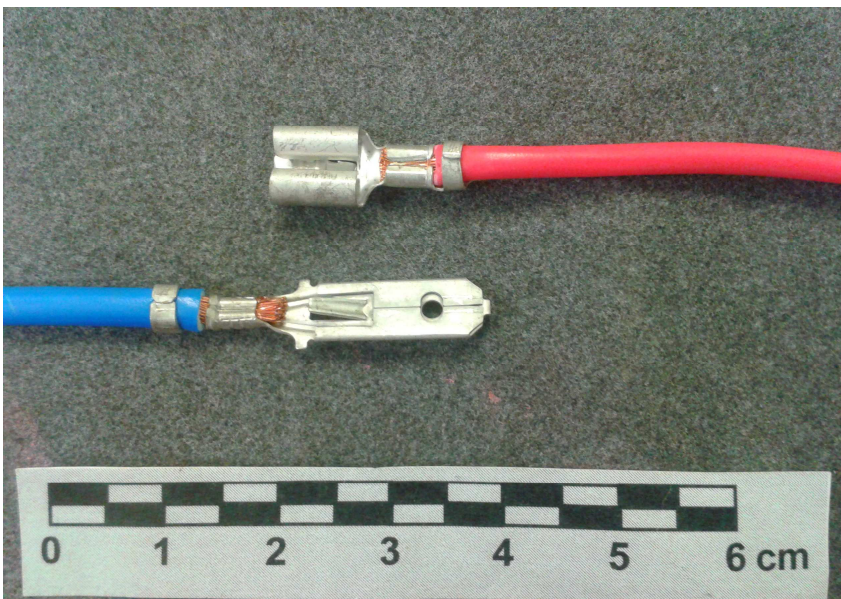


Figure 1: Samples unmated

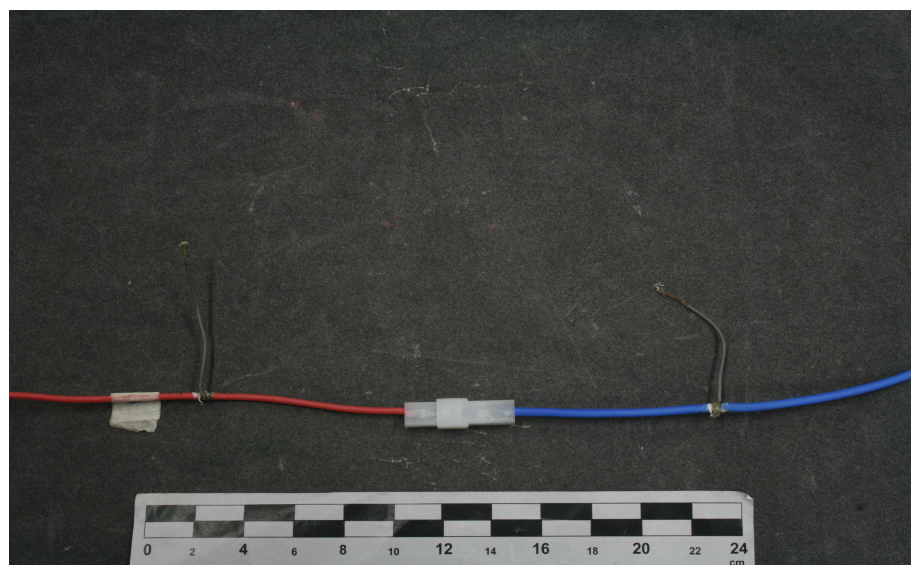
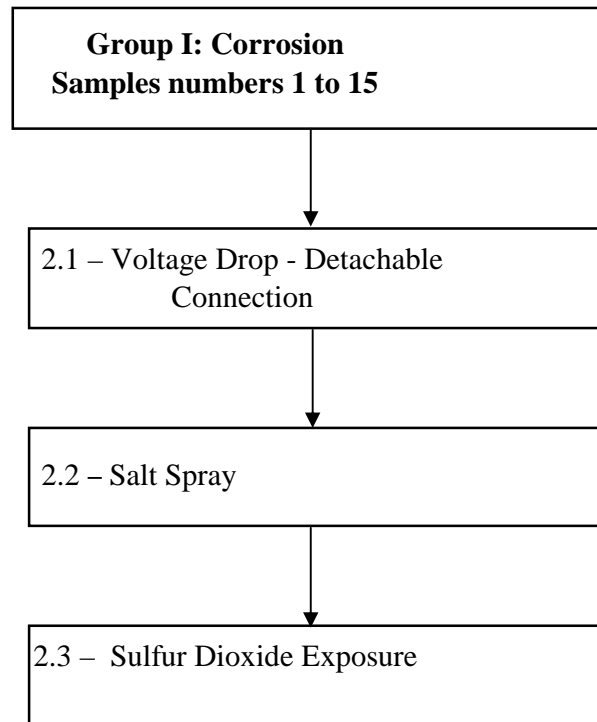


Figure 2: Samples mated and covered by the housing

2 - Group I: Corrosion

Sequence:



2.1 – Voltage Drop - Detachable Connection

Samples

15 parts, numbers 1 to 15.

Equipments

HP Digital Multimeter Model 34401A, TE reference Nr. 93-339033-031.

HP Power Supply, Model 6571A, TE reference Nr. 93-339036-021.

Specification

108-37015, Rev. A (modified).

Requirements

No requirements defined because the connector housing made the original measurement points unreachable.

Procedures

Measure the voltage drop between measurements points as indicated in figure 3. Test current: 10A

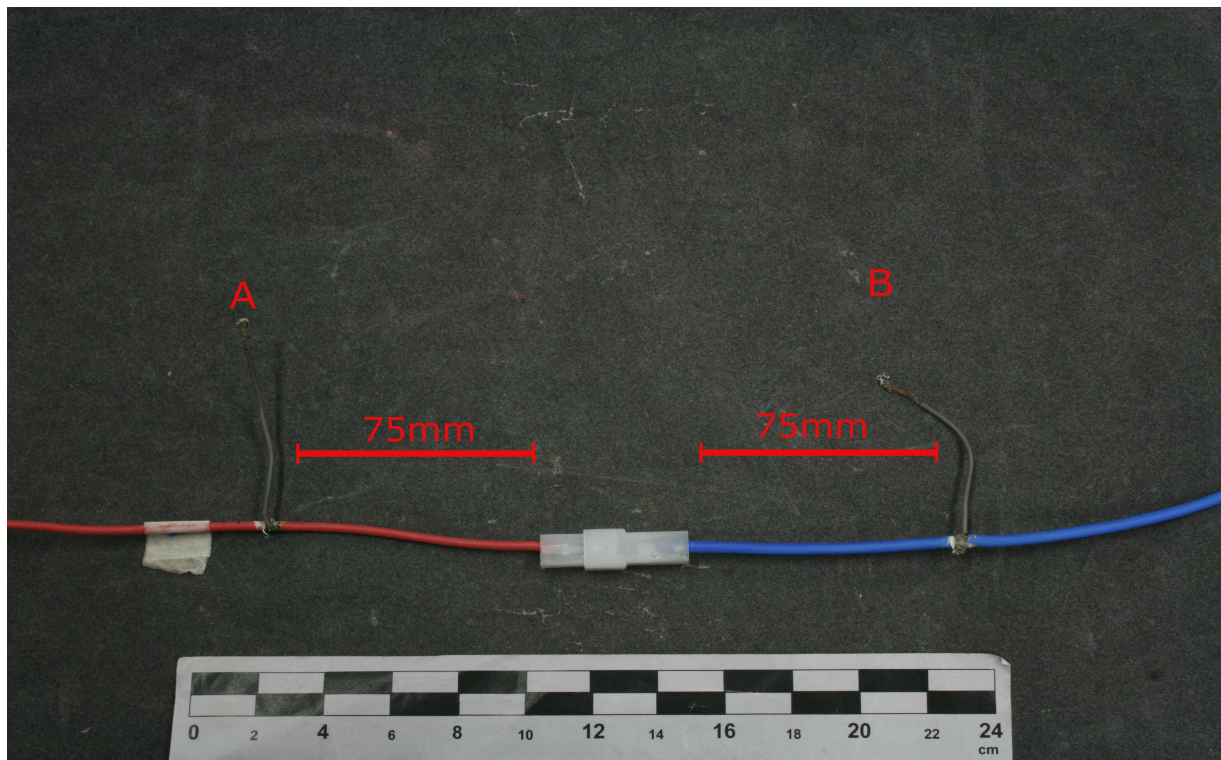


Figure 3: Measurement points for Voltage Drop - Detachable Connection test

Results

Sample	Voltage Drop (mV)		
	Wire + Connection	Wire	Connection
1	25,01	13,40	11,61
2	30,19	13,40	16,79
3	30,95	13,40	17,55
4	27,65	13,40	14,25
5	27,13	13,40	13,73
6	31,36	13,40	17,96
7	26,13	13,40	12,73
8	31,61	13,40	18,21
9	30,80	13,40	17,40
10	27,54	13,40	14,14
11	28,75	13,40	15,35
12	30,63	13,40	17,23
13	29,39	13,40	15,99
14	28,30	13,40	14,90
15	28,15	13,40	14,75

2.2 – Salt Spray

Samples

Same samples used in item 2.1

Equipments

Bass Salt Spray Chamber, Te reference Nr. 92-339032-001.

Specification

108-37015, Rev. A

Requirements

Voltage Drop Detachable Connection needs to be < 1,25 x initial measurements.

Procedures

Soak the samples to 96hrs at salt spray exposure in accordance to TE 109-24 spec.

Results

Note: "Ratio" refers to the proportion between before and after salt spray exposure measurements.

Sample	Voltage Drop (mV)			
	Wire + Connection	Wire	Connection	Ratio
1	25,93	13,60	12,33	1,06
2	27,93	13,60	14,33	0,85
3	33,35	13,60	19,75	1,13
4	28,00	13,60	14,40	1,01
5	23,71	13,60	10,11	0,74
6	28,06	13,60	14,46	0,81
7	25,21	13,60	11,61	0,91
8	33,19	13,60	19,59	1,08
9	30,95	13,60	17,35	1,00
10	24,34	13,60	10,74	0,76
11	26,04	13,60	12,44	0,81
12	27,80	13,60	14,20	0,82
13	30,63	13,60	17,03	1,07
14	24,25	13,60	10,65	0,71
15	29,03	13,60	15,43	1,05

Conclusion

Samples meet requirements.

2.3 – Sulfur Dioxide Exposure

Samples

Same samples used in item 2.2

Equipments

Test performed in external test laboratory. Please see Bass attached test report E-13020-A.

Specification

108-37015 Rev. A

Requirements

Voltage Drop Detachable Connection needs to be < 1,5 x initial measurement.

Procedures

Subject mated contact to 6 cycles of 24hrs according to DIN 50018

Results

Note: "Ratio" refers to the proportion between before and after sulfur dioxide exposure measurements.

Sample	Voltage Drop (mV)			Ratio
	Wire + Connection	Wire	Connection	
1	26,23	13,60	12,63	1,09
2	28,13	13,60	14,53	0,87
3	33,45	13,60	19,85	1,13
4	28,30	13,60	14,70	1,03
5	23,91	13,60	10,31	0,75
6	28,16	13,60	14,56	0,81
7	25,51	13,60	11,91	0,94
8	33,39	13,60	19,79	1,09
9	31,05	13,60	17,45	1,00
10	24,64	13,60	11,04	0,78
11	26,24	13,60	12,64	0,82
12	27,90	13,60	14,30	0,83
13	30,93	13,60	17,33	1,08
14	24,45	13,60	10,85	0,73
15	29,13	13,60	15,53	1,05

Pictures after test:



Figure 4: Samples without housing (original test) after sulfur dioxide exposure test
FORMBR-0697 Mar/2007



Figure 5: Samples with housing (removed to take the picture) after sulfur dioxide exposure test
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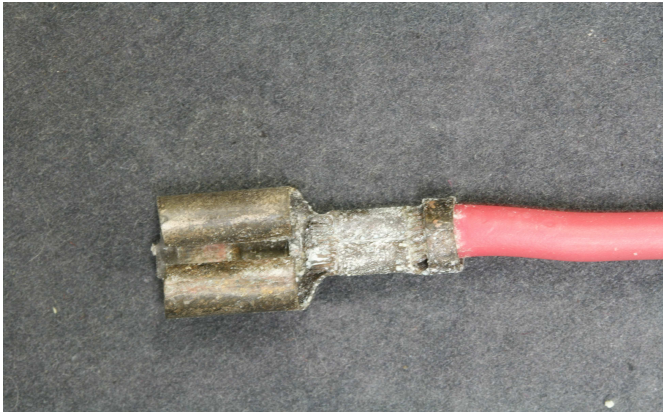


Figure 6: .250 Fastin-on Rec (housing removed)
after sulfur dioxide exposure test



Figure 7: .250 Fastin-on Tab (housing removed)
after sulfur dioxide exposure test

Conclusion

Samples with housing met voltage drop requirements. Samples without housing don't met requirements. The pictures above showing the corrosion level are just informative, since it doesn't have no visual requirement.

Attachment (in Portuguese):

Pág.02/04.

Número Relatório:	Data Relatório:	Número Páginas:
FC-E-13020-A-SE-308	20/02/2013	4

(Continuação):

DESCRIÇÃO ENSAIO:

Item:	Condição:	Temperatura:	Duração:
A	Ácido (SO ₂)	40°C	8hs
B	Ambiente	Ambiente	16hs

DURAÇÃO ENSAIO:

Quantidade de Gás Utilizado	Quantidade de Ciclos:	Total de Horas Ensaio:
02 Litros por ciclo	6 Ciclos.	144 horas.

EQUIPAMENTO(S) UTILIZADO(S) NO ENSAIO:

Descrição:	Modelo:
Câmara Umidade Saturada	BASS-UK-MP-01/2006
Certificado Calibração:	Certificado Conformidade:
Anexo.	Anexo.
Temperatura Local Ensaio	Local Ensaio
23,0° C (média durante o período de ensaio).	Laboratório BASS. Barueri / SP / BRASIL.

BASS Equipamentos Ltda.

Escritório, Fábrica e Laboratório:

Rua Lapa, 452 - Barueri / São Paulo - BRASIL.

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Número Relatório:	Data Relatório:	Número Páginas:
FC-E-13020-A-SE-308 (Continuação):	20/02/2013	4

Ocorrências Durante o Ensaio:

Nenhuma.

PROCEDIMENTOS FIM ENSAIO:

Limpeza:	Secagem:
Nenhuma.	Não

OBSERVAÇÕES FINAIS:

Pecas:	Procedimento Ensaio:
# Todas as amostras apresentaram sinais de corrosão nos conectores.	Fluiu sem nenhuma ocorrência relevante.

RESPONSÁVEIS:

Técnico:	Operador:	Relatório:
Eng. Carlos A Maciel	Silvio Francisco	Silvio Francisco Junior

Atenciosamente,

Eng. Carlos Alberto Maciel.

CREA # 0682519020.

Membro da ABNT CB 4 e CB 43.

CM/em.

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