# 70-pos.-coupling

## for Junior-Power-Timer Contact and Micro-Timer Contact

## Design Objectives

## -FOR SAAB ONLY-

SAAB SERIES JPT CONNECTORS

The product described in this document has not been fully tested to insure conformance to the requirements outlined below. Therfore AMP Incorporated takes no representations or warranty, expressed or implied, that the product will comply with these requirements. Further AMP Incorporated may change these requirements based on the results of additional testing and evaluation. Contact AMP Engineering for further details.

### 1. SCOPE

#### 1.1. CONTENT

This specification covers the performance, tests and quality requirements for the 70-position-coupling including Receptacle Housing (10 Junior-Power-Timer Contact and 60 Micro-Timer Contact) with Tab Header or Tab Housing (2,8 mm Tab) used by SAAB.

#### 1.2. QUALIFICATION

When tests are performed on the subject product line, the procedures specified in AMP 109- series specifications shall be used. All inspections shall be performed using the applicable inspection plan and product drawings.

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Product Code : -------

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| - | - | - | - | DR 21.03.96 J. Ulrich | AMP Deutschland GmbH D-63225 Langen | | |
| - | - | - | - | | | | |
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| - | - | - | - | APP - | NO 108-18113-1 | REV B | LOC |
| - | - | - | - | | | | |
| - | - | - | - | PAGE 1 OF 7 | TITLE 70 POS. COUPLING FOR JUNIOR-POWER-TIMER/MICRO-TIMER AND STITCH-TAB | | |
| B | Do Rework | - | 21.03.96 | | | | |
| LTR | REVISION RECORD | APP | DATE | | | | |

3/21/96

## 2. REFERENCES

### 2.1. APPLICABLE PRODUCTS

#### 2.1.1. AMP PRODUCTS

The following AMP products are covered by this specification

PN 963359 70 pos. Receptacle Housing
PN 963360 70 pos. Tab Header
PN 963484 70 pos. Tab Header
PN 965267 Mix.Tab Housing
PN 963361 Facial Seal for 70 pos. coupling

### 2.2. 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.

#### 2.2.1. AMP DOCUMENTS

a. 109-1: General requirements for test specifications
b. Product drawing 963359
c. Product drawing 963360
d. Product drawing 963484
d. Product drawing 965267
e. Product drawing 963361

#### 2.2.2. OTHER DOCUMENTS

a. GME 12590, 3rd. DRAFT

## 3. REQUIREMENTS

### 3.1. DESIGN AND CONSTRUCTION

Product shall be of the design, construction and physical dimensions specified on the applicable product drawings.

### 3.2. MATERIAL

#### 3.2.1. CONTACTS

| | |
|---|---|
| Junior-Power-Timer Contact: | pre tin plated CuSn or CuFe |
| Micro-Timer II Contact: | pre tin plated CuSn or CuFe |
| Stitch Tab: | pre tin plated CuSn |

## 2.2. HOUSINGS

| | |
|---|---|
| Receptacle Housing: | PBT |
| Tab Header: | PBT |
| Slide: | PBT |
| Mix. Tab Housing: | PBT |
| Facial Seal: | silicone rubber |

## 3.3. PERFORMANCE AND TEST DESCRIPTION

Connectors shall be designed to meet the electrical, mechanical and environmental performance requirements specified in 3.4.

## 3.4. TEST REQUIREMENTS AND PROCEDURES SUMMARY

| TEST DESCRIPTION | REQUIREMENT |
|---|---|
| DELIVERY-CONDITIONS<br>ACC. TO GM 12590, SECTION 7.1.4. | ACC. TO GM 12590, SECTION 7.1.4.<br>TO CHECK WITHOUT OPTICAL EQUIPMENT |
| VISUAL EXAMINATION<br>ACC. TO GM 12590, SECTION 7.1.5. | ACC. TO GM 12590, SECTION 7.1.5.<br>TO CHECK WITHOUT OPTICAL EQUIPMENT |
| MATERIAL TEST<br>ACC. TO GM12590, SECTION 7.1.1. | ACC. TO GM 12590, SECTION 7.1.1. / 7.1.2.1. / 7.1.2.2.<br>CADMIUMFREE, ASBESTOSFREE |
| MARKING<br>ACC. TO GM12590, SECTION 7.1.3. | ACC. TO GM 12590, SECTION 7.1.3. |
| MOUNTING FORCE OF CONNECTOR<br>ACC. TO GM 12590, SECTION 7.2.1, 7.2.1.1.<br>FIRST AND ELEVENTH CONNECTION<br>CONNECTOR FULLY MATED WITH CONTACTS WITH TIN PLATED SURFACE<br>FORCE 90° TO LEVERLINE<br>FORCE 1cm IN FRONT OF END OF MAX. LEVERLINE<br>CONSTANT SPEED OF 100mm/min | F ≤ 150N |
| RETENTION FORCE OF CONNECTOR<br>ACC. TO GM 12590, SECTION 7.2.1, 7.2.1.1.<br>FIRST AND ELEVENTH DISCONNECTION<br>CONNECTOR FULLY MATED WITH CONTACTS WITH TIN PLATED SURFACE<br>FORCE 90° TO LEVERLINE<br>FORCE 1cm IN FRONT OF END OF MAX. LEVERLINE<br>CONSTANT SPEED OF 100mm/min | F ≤ 150N |
| TERMINAL RETENTION IN HOUSING<br>ACC. TO GM 12590, SECTION 7.2.4.<br>CONSTANT SPEED OF 100mm/min<br>ALL LOCKING DEVICES EFFECTIVE | Junior-Power-Timer Contact/Tab:<br>F > 60N<br>Micro-Timer II Contact/Tab:<br>F > 40N |
| TENSILE STRENGTH<br>ACC. TO GM 12590, SECTION 7.2.2.<br>CONSTANT SPEED OF 100mm/min | ACC. TO GM 12590, SECTION 7.2.2.<br>0.5mm²: F ≥ 90N<br>1.0mm²: F ≥ 180N |
| CHECKING OF POLARIZATON AND WRONG MATING-POSSIBILITIES OF CONNECTORS<br>TRYING TO FIT CONNECTOR HALFS TOGETHER<br>90°, 180° AND 270° TURNED<br>CONSTANT SPEED OF 100mm/min<br>F = 150N | NO MATING OF PARTS |
| VOLTAGE DROP<br>ACC. TO GM 12590, SECTION 7.3.2. | ACC. TO GM 12590, SECTION 7.3.2.<br>ΔR / R ≤ 5, RΩ ≤ 10mΩ |
| INSULATION RESISTANCE<br>ACC. TO GM 12590, SECTION 7.4.1. | R > 200MΩ |

Table 1

| TEST DESCRIPTION | REQUIREMENT |
|---|---|
| CURRENT LOADABILITY<br>ACC. TO GM 12590, SECTION 7.5.1.<br>2.5mm², 24A | ACC. TO GM 12590, SECTION 7.5.1. |
| DIELECTRIC WITHSTAND VOLTAGE<br>ACC. TO GM 12590, SECTION 7.4.2.<br>A.C. VOLTAGE OF 1kV | ACC. TO GM 12590, SECTION 7.4.2. |
| TEMPERATURE TEST<br>ACC. TO GM 12590, SECTION 7.5.2.<br>TEMPERATURE CLASS: C | ACC. TO GM12590, SECTION 7.5.2.<br>SEE REQUIREMENTS FOR VOLTAGE DROP AND TERMINAL RETENTION IN HOUSING |
| TEMPERATURE CYCLING TEST<br>ACC. TO GM 12590, SECTION 7.5.3.<br>TEMPERATURE CLASS: C | ACC. TO GM12590, SECTION 7.5.3.<br>SEE REQUIREMENTS FOR VOLTAGE DROP AND TERMINAL RETENTION IN HOUSING |
| HUMIDITY TEST<br>ACC. TO GM 12590, SECTION 7.7. | ACC TO GM 12590, SECTION 7.7.<br>SEE REQUIREMENTS FOR VOLTAGE DROP |
| CORROSION TEST<br>ACC. TO GM 12590, SECTION 7.8.<br>2 WEEK CYCLE | ACC TO GM 12590, SECTION 7.8.<br>SEE REQUIREMENTS FOR VOLTAGE DROP |
| VIBRATION TEST<br>ACC. TO GM 12590, SECTION 7.10., 7.10.2.<br>3 x 24h RANDOM VIBRATION TEST WITH TEMPERATURE CYCLING<br>10Hz - 0.217g,<br>1000Hz - 0.0022g, $g_{rms}$ = 3.26<br>CONTINUOS MONITORING AND MEASURING OF CONTACT INTERRUPTION MORE THAN 1ms DURING VIBRATION<br><br>TEMPERATURE CYCLING TEST 3 CYCLES ; PERIODICAL FROM -40°C UP TO +85°C, THE DURATION OF THE HIGH, RESP. LOW TEMPERATURE IS 3 HOURS, TEMP. GRADIENT 2°C / min<br><br>CONTACT RESISTANCE MEASUREMENT (20mV, METHOD ACC. TO IEC 512, PART 2), INITIAL, AFTER VIBRATION AND BETWEEN EACH DIRECTION<br><br>CONTINUOS MONITORING AND MEASURING OF CONTACT INTERRUPTION MORE THAN 1ms,<br><br>ELECTRICAL CONDITION:<br>SUPPLY VOLTAGE: 10V<br>ELECTRICAL LOADING OF CONTACTS: 100mA<br>THRESHOLD VALUE: 2.5V, RESP. 25W CONTACT RESISTANCE | ACC. TO GM 12590, SECTION 7.10, 7.10.2.<br>SEE REQUIREMENTS FOR VISUAL EXAMINATION AND VOLTAGE DROP<br><br>ACC. TO GM 12590, SECTION 7.10, 7.10.2.<br>SEE REQUIREMENTS FOR VISUAL EXAMINATION<br><br>NO CONTACT INTERRUPTION DURING VIBRATION<br><br>CONTACT RESISTANCE:<br>$\Delta R / R \leq 5$, $R0 \leq 10m\Omega$<br><br>NO SIGNS OF FRETTING CORROSION OR ABRASION CAUSING MISFUNCTION ON SURFACE OF TERMINALS VISIBLE |
| WATER TIGHTNESS<br>ACC. TO GM 12590, SECTION 7.9., 7.9.1.<br>SEALED CONNECTOR<br>TESTING TO BE REPEATED AFTER AGEING | ACC. TO GM 12590, SECTION 7.9., 7.9.1<br>NO COLOURCHANGE AT $H_2O$-INDICATION-PASTE |

Table 1

## 3.5. TEST SEQUENCE

| TEST | | | | | | | | | FUNCT. REQUIREMENT SECTION OF GM 12590 |
|---|---|---|---|---|---|---|---|---|---|
| TITLE | SECT. | A | B | C | D | E | F | G | |
| DELIVERY CONDITIONS | 7.1.4. | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 7.1.4. |
| VISUAL EXAMINATION | 7.1.5. | 2 | 2 | 2 | 2 | 2 | 2 | 2,4 | 7.1.5. |
| MATERIAL TEST | 7.1.1. | 3 | | | | | | | 7.1.1. |
| MARKING | 7.1.3. | 4 | | | | | | | 7.1.3. |
| POLARIZATION CHECK | (SEE TABLE 1) | 5 | | | | | | | (SEE TABLE 1) |
| MOUNTING FORCE | 7.2.1. | 6 | | | | | | | (SEE TABLE 1) |
| RETENTION FORCE | 7.2.1. | 7 | | | | | | | (SEE TABLE 1) |
| TENSILE STRENGTH | 7.2.2. | 8 | | | | | | | (SEE TABLE 1) |
| TERMINAL RETENTION | 7.2.4. | 9 | | 7 | | | | | (SEE TABLE 1) |
| VOLTAGE DROP | 7.3.2. | | 3 | 6 | 4 | 4 | | 5 | 7.3.2. |
| INSULATION RESISTANCE | 7.4.1. | | 4 | | | | | | (SEE TABLE 1) |
| CURRENT LOADABILITY | 7.5.1. | | | 3 | | | | | 7.5.1. |
| DIELECTRIC WITHSTAND VOLTAGE | 7.4.2. | | 5 | | | | | | 7.4.2. |
| TEMPERATURE TEST | 7.5.2. | | | 4 | | | | | 7.5.2. |
| TEMPERATURE CYCLING TEST | 7.5.3. | | | 5 | | | | | 7.5.3. |
| HUMIDITY TEST | 7.7. | | | | 3 | | | | 7.7. |
| CORROSION TEST | 7.8. | | | | | 3 | | | 7.8. |
| VIBRATION TEST | 7.10. | | | | | | | 3 | 7.10. |
| WATERTIGHTNESS | 7.9.2. | | | | | | 3 | | 7.9.1 |

Table 2

## 4. QUALITY ASSURANCE PROVISIONS

### 4.1. QUALIFICATION TESTING

**A. SAMPLE SELECTION**

Contacts shall be prepared in accordance with applicable Instruction Sheets. They shall be selected at random from current production using series tools. All tests group shall contain of 6 samples of each part number at least, testgroups D and E shall contain 3 samples, testgroup F shall contain 6 samples at least.

**B. TEST SEQUENCE**

Qualification inspection shall be verified by testing samples, as specified in 3.5.

**C. ACCEPTANCE**

All samples tested in accordance with this specifiaction shall meet the stated tolerance limit.

Failures attributed to equipment, test setup or operator deficiencies shall not disqualify the product. When product failure occurs, corrective action shall be taken and samples resubmitted for qualification.

### 4.2. QUALITY CONFORMANCE INSPECTION

The applicable AMP inspection plan will specify the sampling acceptable quality level to be used. Dimensional and functional requirements shall be in accordance with the applicable product drawing and this specification.