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**Multi-Interlock Mark II Connector for wire to wire termination**  
**マルチインターロックコネクタ マークⅡ (MIC)**

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**Contents**

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When only one of above versions is supplied to customers, this top sheet shall be attached.

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カスタマーに英語または日本語版の片方のみを提出する場合は、このトップシートが必ず添付されなければならない。

**Revision Record (改訂記録)**

| Revision Letter<br>(改訂記号) | EC number<br>(改訂記録番号) | Date<br>(日付) |
|---------------------------|-----------------------|--------------|
| B1                        | FJ00-1742-99          | 19 OCT 1999  |

**Outline of the latest revision (最新改訂の概要)**

Combine two language versions into one document. No change was made on product specification.

2ヶ国語の文書を一括管理とした。仕様内容に変更なし。

108-5166

NUMBER

AMP SECURITY CLASSIFICATION  
Customer Release

108-5166

**Product Specification**  
**Multi-interlock Mark II Connector**  
**For Wire-to-Wire Termination**

## 1. Scope:

This specification covers product performance requirements and test methods for AMP Multi-interlock Mark II Connector for wire-to-wire termination of the following part numbers.

## 2. Applicable Part Numbers:

The products of the part numbers specified in Para. 2.1 & 2.2 shall be governed under this specification,

## 2.1 Contact:

## 2.1.1 Receptacle Contacts:

P/N's 172773, 172774, 172775 & 172776

## 2.1.2 Tab Contacts:

P/N's 172777, 172778, 172779 & 172780

## 2.2 Housings:

| No. of Pos. | Plug Housing | Cap Housing                 | Panel Lock Type Cap Housing |
|-------------|--------------|-----------------------------|-----------------------------|
| 5           | 172494       | 172504                      | —//—                        |
| 7           | 172495       | 172505                      | 172827                      |
| 9           | 172496       | 172506<br>172513 (w/Flange) | 172828                      |
| 11          | 172497       | 172507<br>172514 (w/Flange) | 172829                      |
| 13          | 172498       | 172508<br>172515 (w/Flange) | 172830                      |
| 17          | 172500       | 172509<br>172516 (w/Flange) | 172832                      |
| 21          | 172501       | 172510<br>172517 (w/Flange) | 172518                      |
| 15          | 172499       | —//—                        | 172831                      |

## 3. Definition of Terms:

For the purpose of this specification, the following terms shall apply.

## 3.1 Contact:

A contact is an electrically conductive metallic component member to make circuit termination, being encapsulated in housing. Tab contact and receptacle contact are available.

|     |                      |    |     |         |
|-----|----------------------|----|-----|---------|
| B1  | Revised F100-1742-99 | KY | KK  | 10/9/99 |
| B   | Revised RFA 1946     |    |     | 1/27    |
| A2  | Revised RFA-1481     |    |     | 7-22-83 |
| A1  | Revised Para. 7.2.3  |    |     | 7-22-83 |
| A   | Revised per RFA-698  |    |     | 7-22-83 |
| O   | Released             |    |     | 7-22-83 |
| LTR | REVISION RECORD      | DR | CHK | DATE    |

|               |         |
|---------------|---------|
| DR            | 7-22-83 |
| CHK           | 7-22-83 |
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## 3.2 Housing:

A housing is an electrically insulating plastic component member that encapsulates contacts. Plug housing that encapsulates receptacle contacts and cap housing that encapsulates tab contacts, are available.

## 3.3 Connector:

A connector is an assembly of housing and contacts loaded in all contact positions. Plug connector assembly that contains receptacle contacts, and cap connector assembly that contains tab contacts, are available.

## 4. Material and Finish:

## 4.1 Contact:

Contacts are made of pre-tinned brass conforming to Copper Alloy 260 of ASTM B 36.

## 4.2 Housing:

Housing is made of molded Nylon resin.

## 5. Product Design Feature, Construction and Dimensions:

## 5.1 Contact:

Product design feature, construction and dimensions of contact shall be conforming to the applicable customer product drawing(s). All the contacts shall be interrelatively mated regardless of the difference of the wire sizes applied for termination.

## 5.2 Housing:

Product design feature, construction and dimensions of housing shall be conforming to the applicable customer product drawing(s). Housings shall be provided with polarizing key that prevent housings from mismatching, and locking device that ensures engagement of connector halves.

## 6. Rating:

## 6.1 Temperature Rating:

Temperature rating of the product connector shall be within the range of -30 thru +105°C, which includes temperature rising in addition to the ambient temperature where the connector is used.

## 6.2 Applicable Wires:

For the termination of the products used for product performance evaluation testing, the wires of the following sizes shall be used.

| Catalog No.                          | Applicable Wire Range                                                                                                                                                                             | Insulation Diameter (mm) |
|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 172773<br>172774<br>172777<br>172778 | 0.5 - 2.27mm <sup>2</sup> (#20-#14 AWG) one wire<br>or 0.5mm <sup>2</sup> + 0.5mm <sup>2</sup> (#20 AWG) X 2 wires<br>or 0.5mm <sup>2</sup> + 0.85mm <sup>2</sup> (#20 AWG) + (#18AWG)<br>2 wires | 2.1 - 3.4mm              |
| 172775<br>172776<br>172779<br>172780 | 0.3 - 0.89mm <sup>2</sup> (#22-#18 AWG) one wire                                                                                                                                                  | 1.5 - 2.6mm              |

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## 7. Product Performance Requirements and Test Methods:

When tested in accordance with the test methods specified in Para. 7.2, and test sequence specified in Para. 7.3, the performance requirements specified in Fig. 1 shall be met.

| Test Items<br>(Paragraph Number)                                      | Contact Performance                                                                                                                                                             | Connector Performance                                                                                                                                                                                                                                                                                                          |                                          |
|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
|                                                                       | Initial                                                                                                                                                                         | Initial                                                                                                                                                                                                                                                                                                                        | After Environmental Conditioning (Final) |
| Appearance:<br>(Para. 7.2.1)                                          | Visually and tactually inspect if cracks, breakage, damages, slacking and loose of parts, rust fusion and deformation that are detrimental to connector functions, are present. |                                                                                                                                                                                                                                                                                                                                |                                          |
| Contact or Connector Insertion Force<br>(Para. 7.2.2)                 | 2.9 - 7.8 N<br>(0.3 - 0.8 kgf)                                                                                                                                                  | 5-Position 59N (6.0 kgf)max.<br>7-Position 74N (7.5 kgf)max.<br>9-Position 88N (9.0 kgf)max.<br>11-Position 103N (10.5 kgf)max.<br>13-Position 123N (12.5 kgf)max.<br>17-Position 157N (16.0 kgf)max.<br>21-Position 186N (19.0 kgf)max.<br>22-Position = Addition of 9-Pos. & 13-Pos.                                         |                                          |
| Contact or Connector Extraction Force<br>(Para. 7.2.3)                | 2.0 - 7.8 N<br>(0.2 - 0.8 kgf)                                                                                                                                                  | 5-Position 6.9-59N(0.7 - 6.0 kgf)<br>7-Position 9.8-74N(1.0 - 7.5 kgf)<br>9-Position 12.7-88N(1.3 - 9.0 kgf)<br>11-Position 15.7-103N(1.6 - 10.5 kgf)<br>13-Position 19.6-123N(2.0 - 12.5 kgf)<br>17-Position 24.5-157N(2.5 - 16.0 kgf)<br>21-Position 31.4-186N(3.2 - 19.0 kgf)<br>22-Position = Addition of 9-Pos. & 13-Pos. |                                          |
| Connector Insertion Force<br>(Para. 7.2.2)(Additional)                | —//—                                                                                                                                                                            | 15-Position 142N(14.5 kgf)max.                                                                                                                                                                                                                                                                                                 |                                          |
| Connector Extraction Force<br>(Para. 7.2.3)(Additional)               | —//—                                                                                                                                                                            | 15-Position 21.6-142N(2.2 - 14.5 kgf)                                                                                                                                                                                                                                                                                          |                                          |
| Termination Resistance<br>(Para. 7.2.4)(Low Level)                    | 3.0 mΩ max.                                                                                                                                                                     | 3.0 mΩ max.                                                                                                                                                                                                                                                                                                                    | 6.0 mΩ max.                              |
| Termination Resistance<br>(Para. 7.2.5)(Rated Current)                | 3.0 mV/A max.                                                                                                                                                                   | 3.0 mV/A max.                                                                                                                                                                                                                                                                                                                  | 6.0 mV/A max.                            |
| Physical Touch/Feeling at Insertion/Extraction Handling (Para. 7.2.6) | No conflict or difficulties that are detrimental to insertion/extraction assembly operation, shall be perceived.                                                                |                                                                                                                                                                                                                                                                                                                                |                                          |
| Insulation Resistance<br>(Para. 7.2.7)                                |                                                                                                                                                                                 | 100 MΩ min.                                                                                                                                                                                                                                                                                                                    |                                          |
| Dielectric Strength<br>(Para. 7.2.8)                                  |                                                                                                                                                                                 | No abnormalities shall be evident after applying test potential of 1,800V AC for 1 minute.                                                                                                                                                                                                                                     |                                          |
| Current Leakage<br>(Para. 7.2.9)                                      |                                                                                                                                                                                 | 3 mA max.                                                                                                                                                                                                                                                                                                                      |                                          |
| Contact Retention Force<br>(Para. 7.2.10)                             |                                                                                                                                                                                 | 78.5N (8 kgf)min.                                                                                                                                                                                                                                                                                                              |                                          |

Fig. 1 (To be continued)

|                                                                                                  |          |            |                |                                   |  |
|--------------------------------------------------------------------------------------------------|----------|------------|----------------|-----------------------------------|--|
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|                                                    |                                      |                                                                                             |                                    |                                                                                                                                                                                              |                                                           |
|----------------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------------|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|
| NUMBER                                             | 108-5166                             | 7.1 (Continued)                                                                             |                                    |                                                                                                                                                                                              |                                                           |
|                                                    |                                      | Test Items<br>(Paragraph Number)                                                            | Contact Performance<br>Initial     | Connector<br>Initial                                                                                                                                                                         | Performance<br>After Environmental<br>Conditioning(Final) |
| Customer<br>Release                                | AMP SECURITY<br>CLASSIFICATION       | Crimp Tensile Strength<br>(Para. 7.2.11)                                                    | Wire Size<br>mm <sup>2</sup> (AWG) | Crimp<br>Tensile<br>Strength<br>(min.)                                                                                                                                                       | //                                                        |
|                                                    |                                      | 0.3 (#22)                                                                                   | 49N(5kgf)                          |                                                                                                                                                                                              |                                                           |
|                                                    |                                      | 0.5 (#20)                                                                                   | 88N(9kgf)                          |                                                                                                                                                                                              |                                                           |
|                                                    |                                      | 0.85 (#18)                                                                                  | 127N(13kgf)                        |                                                                                                                                                                                              |                                                           |
|                                                    |                                      | 1.25 (#16)                                                                                  | 177N(18kgf)                        |                                                                                                                                                                                              |                                                           |
|                                                    |                                      | 2.0 (#14)                                                                                   | 265N(27kgf)                        |                                                                                                                                                                                              |                                                           |
|                                                    |                                      | Housing Retention Force<br>(Para. 7.2.12)                                                   | //                                 | 98N (10 kgf) min.                                                                                                                                                                            |                                                           |
|                                                    |                                      | Current Cycling<br>(Para. 7.2.13)                                                           | //                                 | When tested in accordance with the test sequence specified in Fig. 12, termination resistance (low level) shall be 6 mΩ max., and termination resistance (rated current) shall be 6mV/A max. |                                                           |
|                                                    |                                      | Temperature Rising<br>(Para. 7.2.14)                                                        |                                    |                                                                                                                                                                                              |                                                           |
|                                                    |                                      | Repeated Insertion/<br>Extraction (Para. 7.2.15)                                            |                                    |                                                                                                                                                                                              |                                                           |
|                                                    |                                      | "Kojiri" Resistivity<br>(Para. 7.2.16)                                                      |                                    |                                                                                                                                                                                              |                                                           |
|                                                    |                                      | Heat Resistivity<br>(Para. 7.2.17)                                                          |                                    |                                                                                                                                                                                              |                                                           |
|                                                    |                                      | Cold Resistivity<br>(Para. 7.2.18)                                                          |                                    |                                                                                                                                                                                              |                                                           |
|                                                    |                                      | Thermal Shock<br>(Para. 7.2.19)                                                             |                                    |                                                                                                                                                                                              |                                                           |
|                                                    |                                      | Humidity (Steady State)<br>(Para. 7.2.20)                                                   |                                    |                                                                                                                                                                                              |                                                           |
| Salt Spray<br>(Para. 7.2.21)                       |                                      |                                                                                             |                                    |                                                                                                                                                                                              |                                                           |
| Dust and Sand Bombardment<br>(Para. 7.2.22)        |                                      |                                                                                             |                                    |                                                                                                                                                                                              |                                                           |
| Icing<br>(Para. 7.2.23)                            |                                      |                                                                                             |                                    |                                                                                                                                                                                              |                                                           |
| Vibration, High Frequency<br>(Para. 7.2.24)        |                                      |                                                                                             |                                    |                                                                                                                                                                                              |                                                           |
| Vibration, Low Frequency<br>Test I (Para. 7.2.25)  |                                      |                                                                                             |                                    |                                                                                                                                                                                              |                                                           |
| Vibration, Low Frequency<br>Test II (Para. 7.2.26) |                                      |                                                                                             |                                    |                                                                                                                                                                                              |                                                           |
| Current Overload<br>(Para. 7.2.27)                 | Sample shall not start inflammation. |                                                                                             |                                    |                                                                                                                                                                                              |                                                           |
| Panel Locking Retention<br>Force (Para. 7.2.28)    | //                                   | 196N (20 kgf) min.                                                                          |                                    |                                                                                                                                                                                              |                                                           |
| Contact Loading Force<br>(Para. 7.2.29)            | //                                   | 14.7N(1.5 kgf) max.                                                                         | //                                 |                                                                                                                                                                                              |                                                           |
| Fig. 1 (End)                                       |                                      |                                                                                             |                                    |                                                                                                                                                                                              |                                                           |
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## 7.2 Test Methods:

## 7.2.1 Appearance:

Visually and tactually inspect if detrimental abnormalities such as cracks, breakage, damages, slacking and loose of parts, rust, fusion and deformation are evident.

## 7.2.2 Contact or Connector Insertion Force:

Securely fasten one of the mating pair of contacts or connectors on the tensile testing machine, and apply an axial push in force to the counter-part contact or connector to mate with by operating the head to travel with the speed at a rate of 100mm a minute uniformly. For this test, locking device is not set in effect.

## 7.2.3 Contact or Connector Extraction Force:

Securely fasten one of the mated pair of contacts or connectors on the tensile testing machine, and apply an axial pull off load to the counter-part contact or connector to unmate from by operating the head to travel with the speed at a rate of 100mm a minute uniformly. For this test, locking device is not set in effect.

## 7.2.4 Termination Resistance: (Low Level):

Apply test current of 50mA maximum at open circuit voltage of 50mV maximum DC to the contacts in the mated pair of contacts or connectors, and measure by probing at the points 75mm apart from the wire crimp (across Y - Y' in Fig. 2). Termination resistance is obtained by calculation after deducting the resistance of the 75mm long wire used for termination. The measurement shall be done by probing the positions one by one respectively.

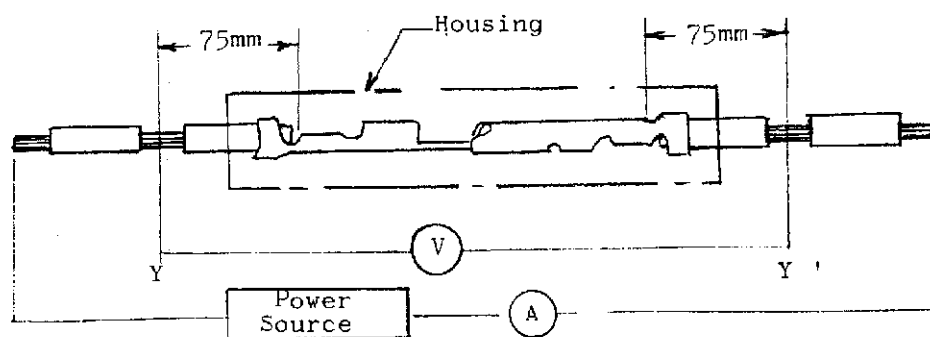


Fig. 2

## 7.2.5 Termination Resistance (Rated Current):

Apply test current of 1 A at open circuit voltage of 12V DC to the contacts or connectors in the mated condition, and after the temperature rising becomes stabilized, measure by probing at the point 75mm apart from the wire crimp (across Y - Y' in Fig. 2). Termination resistance is obtained by calculation after deducting the resistance of the 75mm long wire used for termination. The measurement shall be done one after one respectively.

|         |  |                                                                                             |   |                                  |          |
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### 7.2.6 Physical Touch/Feeling at Insertion/Extraction of Contact or Connector:

Tactually inspect the contacts or connectors by mating and unmating paired parts by hands for evidence of any conflict or difficulties perceptible during the operation.

### 7.2.7 Insulation Resistance:

Insulation resistance shall be tested by applying test potential of 500 V DC between the adjacent contacts and between the contacts and the ground of the mated pair of connectors shown in Fig. 3. Measurement shall be done by using insulation megohmmeter.

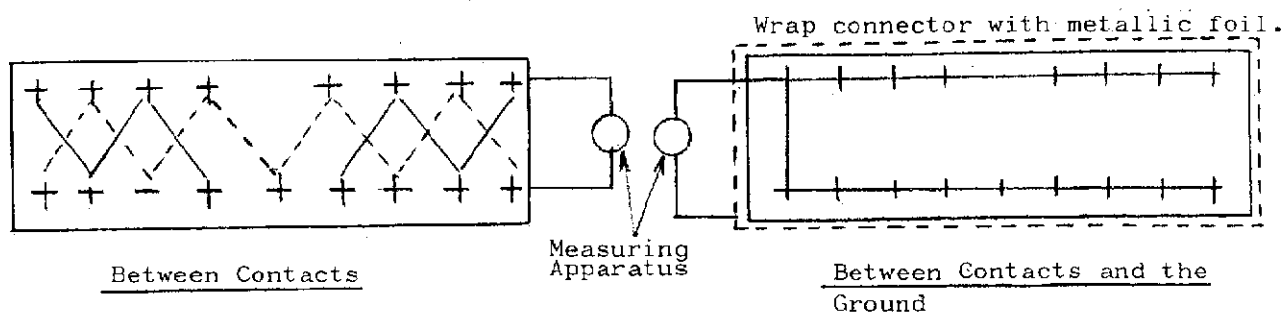


Fig. 3

### 7.2.8 Dielectric Strength:

Dielectric strength shall be measured by applying test potential of 1,800V AC in commercial frequency between the adjacent contacts and between the contacts and the ground of the circuit formed as shown in Fig. 3 in the mated pair of connectors for 1 minute.

### 7.2.9 Current Leakage:

After exposing the mated pair of connector: sample in the test chamber where  $60 \pm 5^{\circ}\text{C}$ , 90/95% R.H. is maintained for 1 hour, take out from the chamber and apply test potential of 12V DC between the adjacent contacts that are connected as shown in Fig. 4. Measure leakage of electric current.

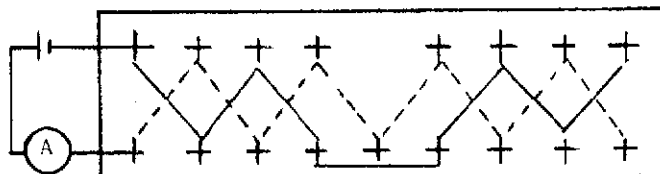


Fig. 4

### 7.2.10 Contact Retention Force:

Load contacts in housing that are crimped on approximately 100mm long, 0.85mm<sup>2</sup> or greater wire. Fasten the housing on the tensile testing machine, and apply an axial pull-off load to the crimped wire with the speed at a rate of 100mm a minute. Measure and record the force required to dislodge the contact from the contact position.

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## 7.2.11 Crimp Tensile Strength:

Fasten contact which is crimped on an approximately 100 mm long wire, on the tensile testing machine, and apply an axial pull-off load to the crimped wire by operating the head to travel with the speed at a rate of 100mm a minute uniformly. The force required to pull off the wire from the wire crimp or to break the wire shall be measured and recorded.

## 7.2.12 Housing Retention Force:

Fasten a pair of mated connectors on the tensile testing machine, and with one of the connectors securely held, pull the counterpart connector by operating the head to travel with the speed at a rate of 100mm a minute uniformly. The force required to pull off the wire from the wire crimp or to break the wire, shall be measured and recorded.

## 7.2.13 Current Cycling:

Apply the test current of calculated intensity obtained from Fig. 5, to the four positions in the middle of the testing sample connector, and to the remainder contact positions, apply a half intensity current of the specified value, for 15 minutes, and deenergize for 15 minutes. Making this a cycle, repeat for 200 cycles. The test shall be performed in a draft-free chamber.

| Wire<br>mm <sup>2</sup> | Size<br>(AWG) | Test Current (A)<br>DC |
|-------------------------|---------------|------------------------|
| 0.5                     | (#20)         | 11                     |
| 0.85                    | (#18)         | 14.5                   |
| 1.25                    | (#16)         | 18.5                   |
| 2.0                     | (#14)         | 25.0                   |

Fig. 5

| Number of<br>Positions | Coefficient of<br>Current Loading |
|------------------------|-----------------------------------|
| 1                      | 1                                 |
| 2 - 3                  | 0.75                              |
| 4 - 5                  | 0.6                               |
| 6 - 8                  | 0.55                              |
| 9 - 12                 | 0.5                               |
| 13 & Over              | 0.4                               |

Note: The test current to be loaded for the test is obtained by calculation of the specified intensity designated for the wire size to be used, multiplied by the number of positions and coefficient of current loading, shown in the above tables.

## 7.2.14 Temperature Rising:

Energize the test current of the intensity obtained from the calculation of the value in Fig. 5, to the circuits of the mated pair of connectors for 2 hours, and measure the temperature rising in the middle surface of the housing. From the measured value, subtract the value of room temperature, and confirm the remainder value is less than 65°C. This test shall be performed in the draft-free test chamber.

|                                                                                                  |          |            |                |                                   |  |
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## 7.2.15 Repeated Insertion/Extraction:

Securely fasten one of the mated pair of connectors on the tensile testing machine, and operate the head to apply an axial load to the counterpart connector to mate and unmate as the head is travelling at a rate of 100mm a minute. Repeat 50 cycles of insertion and extraction.

## 7.2.16 "Kojiri" Resistivity:

Securely place one of the mated pair of connectors on the sturdy bench, and apply reciprocating force to the upper part of the free end of the connectors in the direction perpendicular to connector working axis, at every 1 mm graduation from the fully mated depth of the connector until they become unmated. The strokes shall be applied in back/forth direction with a 196N.cm(20kgf.cm)(T) torque. Making this one cycle and repeat for 50 cycles. After finishing in back/forth cycling, apply right/left "Kojiri" cycling with the same method for 50 cycles.

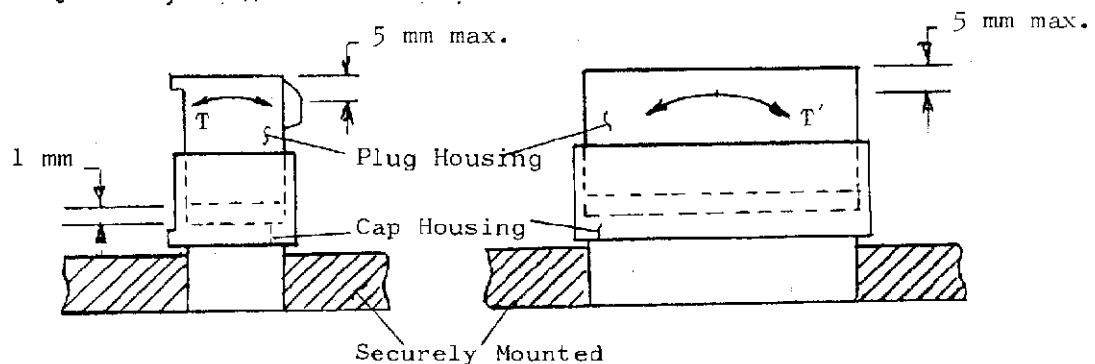


Fig. 6

## 7.2.17 Heat Resistivity:

Expose the mated pair of connector under the elevated temperature of 100°C in the test chamber for 2 hours. After the test duration, recondition in the room temperature and measure for the subsequent testing.

## 7.2.18 Cold Resistivity:

Expose the mated pair of connectors under the chilling temperature of -50°C in the test chamber for 2 hours. After the test duration, recondition in the room temperature and measure for the subsequent testing.

## 7.2.19 Thermal Shock:

Mated pair of connector shall undergo 5 cycles of temperature changes in the sequence specified in Fig. 7. After the conditioning, recondition in the room temperature and measure for the subsequent testing.

| Step | Test Condition                     |
|------|------------------------------------|
| 1    | 80 ± 5°C 2 hours                   |
| 2    | Room Temperature 5 minutes maximum |
| 3    | -30 ± 5°C 2 hours                  |
| 4    | Room Temperature 5 minutes         |

Fig. 7

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#### 7.2.20 Humidity (Steady State):

Form a circuit in the mated connectors as specified in Fig. 4., and with the test potential of 28V DC applied to the circuit, expose the sample connectors under the atmosphere of  $60 \pm 5^{\circ}\text{C}$ , with 90-95% relative humidity in the test chamber for 48 hours. After the test duration, recondition in the room temperature for the subsequent testing.

#### 7.2.21 Salt Spray:

Mated pair of connectors shall be exposed under 5% salt spray in accordance with the test method specified in JIS C 5028. The sample shall undergo exposure for 24 hours and after resting for 1 hour, expose under the salt spray condition for another 1 hour. After completion of the duration, rinse with the tap water to remove salty residue, dry in the room temperature for 1 hour. Then, measure for the subsequent testing.

#### 7.2.22 Dust and Sand Bombardment:

Suspend mated pair of connectors with wire entry of plug housing facing upward as shown in Fig. 8 in the closed test chamber whose dimensions are between 900mm and 1,200mm in width, height and depth, where the connectors are subject to ejection of Portland powdered cement conforming to JIS R 5210 gushed by the aid of compressed air blowing at a rate of 1.5kg per 10 seconds once every 15 minutes. The ejected cement is dispersed with the use of power-driven fan. The test duration should be 1 hour. After completion of test duration, replace the connector sample from the test chamber and measure for the subsequent testing.

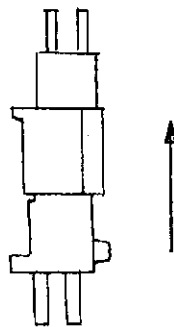


Fig. 8

|                                    |       |            |   |                                  |            |
|------------------------------------|-------|------------|---|----------------------------------|------------|
| SHEET                              |       | <b>AMP</b> |   | AMP (Japan) Ltd.<br>TOKYO, JAPAN |            |
| 9                                  | OF 15 | LOC        | A | NO                               | 108-5166   |
|                                    |       | J          |   |                                  | REPA<br>By |
| NAME Product Specification         |       |            |   |                                  |            |
| Multi-interlock, Mark II Connector |       |            |   |                                  |            |
| For Wire-to-Wire Termination       |       |            |   |                                  |            |

## 7.2.23 Icing:

Immerse mated pair of connectors in the boiling hot water for 1 hour, and soon after immersion, place the sample connector in the test chamber where the chilling temperature of  $-30 \pm 5^{\circ}\text{C}$  is controlled, and expose until the drenched water turns to ice. After the connector becomes frozen, take out of the test chamber and recondition in the room temperature to melt the ice completely. Measure for the subsequent testing.

## 7.2.24 Vibration, High Frequency:

Contact-loaded and series wired, mated pair of connectors are vibrated on the vibration testing machine. The vibration shall be such that the frequency range is changing from 20 to 200Hz. reciprocating one cycle a minute, with the accelerated velocity of 4.5G for 8 hours. During the vibration, test current of 0.1A at open circuit voltage of 12V DC shall be applied to flow through the circuit as shown in Fig. 9, and the circuit shall be monitored for electrical discontinuity greater than 1 millisecond taking place in the circuit.

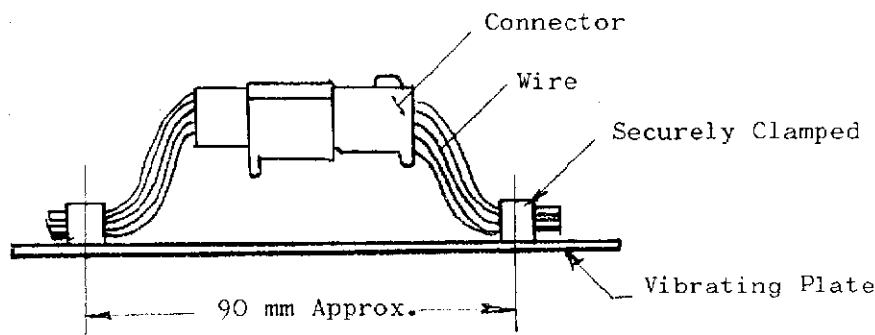


Fig. 9

## 7.2.25 Vibration, Low Frequency, Test I:

Contact-loaded, series wired, mated pair of connectors shall be tested in accordance with SAE J 577 by mounting securely on the vibration testing machine. The connector shall be vibrated by 750Hz, with the cam drop stroke of 3.2mm suspended by the spring tension ranging between 265N(27kgf) and 314N(32kgf) for 1 hour. During the vibration test, the circuit is energized with test current of 0.1A at open circuit voltage of 12V DC flowing through the circuit, and the circuit shall be monitored for electrical discontinuity greater than 1 millisecond taking place in the circuit.

## 7.2.26 Vibration, Low Frequency, Test II:

Contact-loaded, series wired, mated pair of connectors shall be tested by mounting securely on the vibration testing machine. The connector shall be vibrated with the changing frequency between 20-200Hz reciprocating one cycle a minute with accelerated velocity of  $44\text{m/s}^2$  (4.5G) for 8 hours. During vibration, the circuit shall be monitored for electrical discontinuity greater than 1 millisecond taking place in the circuit as the test current of 0.1A at open circuit voltage of 12V DC is energized during the vibration.

|                                                                                                  |  |            |   |                                   |            |
|--------------------------------------------------------------------------------------------------|--|------------|---|-----------------------------------|------------|
| SHEET                                                                                            |  | <b>AMP</b> |   | AMP (Japan), Ltd.<br>TOKYO, JAPAN |            |
| 10 OF 15                                                                                         |  | LOC<br>J   | A | NO<br>108-5166                    | REV.<br>B1 |
| NAME Product Specification<br>Multi-interlock, Mark II Connector<br>For Wire-to-Wire Termination |  |            |   |                                   |            |

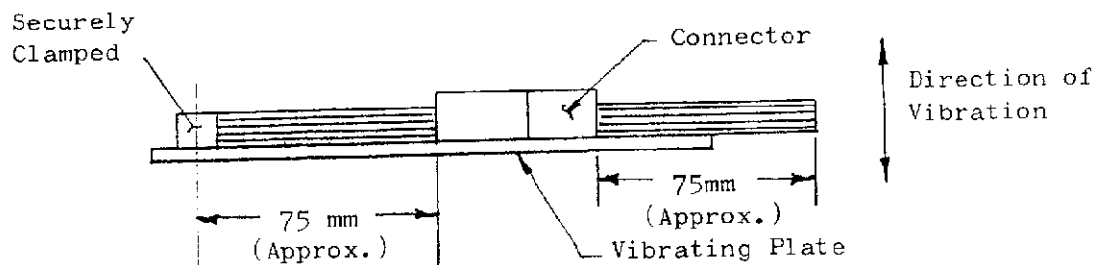


Fig. 10

## 7.2.27 Current Overload:

Hold the mated pair of connectors horizontally, and apply the test current specified in Fig. 11 to randomly selected contact position, and observe if the housing starts inflame combustion during energizing for 1 minute.

| Wire Size       |       | Test Current (DC A) |
|-----------------|-------|---------------------|
| mm <sup>2</sup> | (AWG) |                     |
| 0.5             | (#20) | 50                  |
| 0.85            | (#18) | 75                  |
| 1.25            | (#16) | 100                 |
| 2.0             | (#14) | 200                 |

Fig. 11

## 7.2.28 Panel Locking Retention Force (To be applied to panel-locking type, cap housing only):

Mount mated pair of connectors on the panel with normal engagement on counterpart holder. Apply an axial pull-off load to the free end of connector on the tensile testing machine by operating the head to travel with the speed at a rate of 100mm approximately a minute. The force required to disengage the connectors with or without break-off of locking device. (The counterpart holder shall be applied to the test after approval of AMP-Japan Engineering.)

## 7.2.29 Contact Loading Force:

Insert wire-crimped contact into housing cavity, and measure the force required to insert and lock the contact in position by travelling the head with the speed at a rate of 100mm a minute approximately.

|       |       |                                   |   |                                   |          |
|-------|-------|-----------------------------------|---|-----------------------------------|----------|
| SHEET |       | <b>AMP</b>                        |   | AMP (Japan), Ltd.<br>TOKYO, JAPAN |          |
| 11    | OF 15 | LOC                               | J | NO                                | 108-5166 |
| NAME  |       | Product Specification             |   |                                   |          |
|       |       | Multi-interlock Mark II Connector |   |                                   |          |
|       |       | For Wire-to-Wire Termination      |   |                                   |          |

### 7.3 Test Sequence:

All the tests shall be performed in the sequence specified in Fig. 12.

| NUMBER                      | 108-5166         | Classification                                          |   | Sample Groups |    |    |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    |   |   |
|-----------------------------|------------------|---------------------------------------------------------|---|---------------|----|----|----|----|----|----|----|----|----|----|----|----|-----|----|----|----|----|----|----|----|----|----|----|---|---|
|                             |                  | Contact                                                 |   |               |    |    |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    |   |   |
| AMP SECURITY CLASSIFICATION | Customer Release | Test Item                                               | I | II            | I  |    |    |    |    |    | II |    |    |    |    |    | III |    |    |    |    |    | IV |    |    |    |    |   | V |
|                             |                  |                                                         |   |               |    |    |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    |   |   |
|                             |                  | Appearance                                              | 1 |               | 1  |    |    |    |    |    |    | 1  |    |    |    |    | 1   |    |    |    |    |    | 1  |    |    |    | 19 | 1 |   |
|                             |                  | Contact or Connector Insertion Force                    | 2 |               | 2  |    |    |    |    |    |    | 2  |    |    |    |    | 2   |    |    |    |    |    | 2  |    |    |    | 20 |   |   |
|                             |                  | Contact or Connector Extraction Force                   | 5 |               | 8  |    |    |    |    |    |    | 8  |    |    |    |    | 8   |    |    |    |    |    | 8  |    |    |    | 18 |   |   |
|                             |                  | Termination Resistance Low Level                        | 3 |               | 3  | 11 | 14 | 17 | 21 | 24 |    | 3  | 11 | 15 | 18 | 22 |     | 3  | 11 | 14 | 17 | 20 |    | 3  | 11 | 14 |    |   |   |
|                             |                  | Termination Resistance Rated Current                    | 4 |               | 4  | 12 | 15 | 18 | 22 | 25 |    | 4  | 12 | 16 | 19 | 23 |     | 4  | 12 | 15 | 18 | 21 |    | 4  | 12 | 15 |    |   |   |
|                             |                  | Physical Touch/Feeling at Insertion/Extraction of Conn. | 6 |               | 9  |    |    |    |    | 26 |    | 9  |    |    |    | 24 |     | 9  |    |    |    | 22 |    | 9  |    |    | 21 |   |   |
|                             |                  | Insulation Resistance                                   |   |               | 6  |    |    |    |    |    |    | 6  |    |    |    |    |     | 6  |    |    |    |    | 6  |    |    |    |    |   |   |
|                             |                  | Dielectric Strength                                     |   |               | 7  |    |    |    |    |    |    | 7  |    |    |    |    |     | 7  |    |    |    |    | 7  |    |    | 16 |    |   |   |
|                             |                  | Current Leakage                                         |   |               | 5  |    |    | 19 |    |    |    | 5  |    |    | 20 |    |     | 5  |    |    |    |    | 5  |    |    | 17 |    |   |   |
|                             |                  | Current Cycling                                         |   |               |    |    |    | 20 |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    |   |   |
|                             |                  | Temperature Rising                                      |   |               |    |    |    |    | 23 |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    |   |   |
|                             |                  | Contact Retention Force                                 |   |               |    |    |    |    |    | 28 |    |    |    |    | 25 |    |     |    |    |    |    | 23 |    |    |    |    |    |   |   |
|                             |                  | Crimp Tensile Strength                                  |   | 1             |    |    |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    |   |   |
|                             |                  | Housing Retention Force                                 |   |               |    |    |    |    |    | 27 |    |    |    |    | 26 |    |     |    |    |    |    | 24 |    |    |    |    |    |   |   |
|                             |                  | Repeated Insertion/Extraction Force                     |   |               |    |    |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    | 10 |    |    |    |    |   |   |
|                             |                  | "Kojiri" Resistivity                                    |   |               | 10 |    |    |    |    |    |    |    |    |    |    |    | 10  |    |    |    |    |    |    |    |    |    |    |   |   |
|                             |                  | Heat Resistivity                                        |   |               |    |    |    |    |    |    |    | 10 |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    |   |   |
|                             |                  | Cold Resistivity                                        |   |               |    |    |    |    |    |    |    |    | 14 |    |    |    |     |    |    |    |    |    |    |    |    |    |    |   |   |
|                             |                  | Thermal Shock                                           |   |               |    |    |    |    |    |    |    |    |    | 21 |    |    |     |    |    |    |    |    |    |    |    |    |    |   |   |
|                             |                  | Humidity(Steady State)                                  |   |               |    |    |    |    |    |    |    |    | 17 |    |    |    |     |    |    |    |    |    |    |    |    |    |    |   |   |
|                             |                  | Salt Spray                                              |   |               |    |    |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    | 13 |    |    |    |   |   |
|                             |                  | Dust and Sand Bombardment                               |   |               |    | 13 |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    |   |   |
|                             |                  | Icing                                                   |   |               |    | 16 |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    |   |   |
|                             |                  | Vibration, High Frequency                               |   |               |    |    |    |    |    |    |    |    |    |    |    |    | 13  |    |    |    |    |    |    |    |    |    |    |   |   |
|                             |                  | Vibration, Low Frequency Test I                         |   |               |    |    |    |    |    |    |    |    |    |    |    |    |     | 16 |    |    |    |    |    |    |    |    |    |   |   |
|                             |                  | Vibration, Low Frequency Test II                        |   |               |    |    |    |    |    |    |    |    |    |    |    |    |     |    |    | 19 |    |    |    |    |    |    |    |   |   |
|                             |                  | Current Overload                                        |   |               |    |    |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    | 22 |    |   |   |
|                             |                  | Panel Locking Retention Force                           |   |               |    |    |    |    |    | 29 |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    |   |   |
|                             |                  | Contact Loading Force                                   |   |               |    |    |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    | 2 |   |

Fig. 12

|                                                                                                  |          |            |                |                                   |  |
|--------------------------------------------------------------------------------------------------|----------|------------|----------------|-----------------------------------|--|
| SHEET                                                                                            |          | <b>AMP</b> |                | AMP (Japan), Ltd.<br>TOKYO, JAPAN |  |
| 12 OF 15                                                                                         | LOG<br>J | A          | NO<br>108-5166 | REV.<br>B <sub>1</sub>            |  |
| NAME Product Specification<br>Multi-interlock, Mark II Connector<br>For Wire-to-Wire Termination |          |            |                |                                   |  |

## 8. Quality Assurance Provisions:

## 8.1 Test Conditions:

Unless otherwise specified, all the tests shall be performed under any combination of the following test conditions.

|                      |             |       |             |
|----------------------|-------------|-------|-------------|
| Temperature          | 15          | -     | 35°C        |
| Relative Humidity    | 45          | -     | 75%         |
| Atmospheric Pressure | 86.7-107KPa | ( 650 | - 800mmHg ) |

## 8.2 Test and Samples:

## 8.2.1 Test Specimens:

The samples to be employed for the tests shall be prepared by using the normal products, prepared in accordance with AMP Application Specifications, 114-5072, Crimping Multi-interlock, Mark II, Tab Contact, and 114-5071, Crimping Multi-interlock, Mark II, Receptacle Contact, crimped on the wires of the sizes specified in Fig. 13.

Unless otherwise specified, no sample shall be reused.

## 8.2.2 Number of Samples:

The number of the samples to be used for the tests, shall consist of 10 sets minimum of the contacts of each group for testing contacts, and 2 sets minimum of the connectors of each group for testing connectors.

## 8.2.3 Applicable Wires:

The wires of the following sizes and composition shall be used for preparation of the samples for testing product performance in accordance with this specification.

| Wire<br>Nominal<br>mm <sup>2</sup> | Size<br>(AWG) | Composition of Strands    |                   | Calculated Cross-sectional Area of Wire |       |
|------------------------------------|---------------|---------------------------|-------------------|-----------------------------------------|-------|
|                                    |               | Diameter of a Strand (mm) | Number of Strands | mm <sup>2</sup>                         | CMA   |
| 0.3                                | (#22)         | 0.18                      | 12                | 0.31                                    | 602   |
| 0.3                                | (#22)         | 0.26                      | 7                 | 0.37                                    | 733   |
| 0.5                                | (#20)         | 0.32                      | 7                 | 0.56                                    | 1,111 |
| 0.85                               | (#18)         | 0.32                      | 11                | 0.88                                    | 1,746 |
| 1.25                               | (#16)         | 0.32                      | 16                | 1.28                                    | 2,540 |
| 2.0                                | (#14)         | 0.32                      | 26                | 2.09                                    | 4,128 |

Fig. 13

|                                                                                                  |  |            |   |                                  |                        |
|--------------------------------------------------------------------------------------------------|--|------------|---|----------------------------------|------------------------|
| SHEET                                                                                            |  | <b>AMP</b> |   | AMP (Japan) Ltd.<br>TOKYO, JAPAN |                        |
| 13 OF 15                                                                                         |  | LOC<br>J   | A | NO<br>108-5166                   | REV.<br>B <sub>1</sub> |
| NAME Product Specification<br>Multi-interlock, Mark II Connector<br>For Wire to-Wire Termination |  |            |   |                                  |                        |

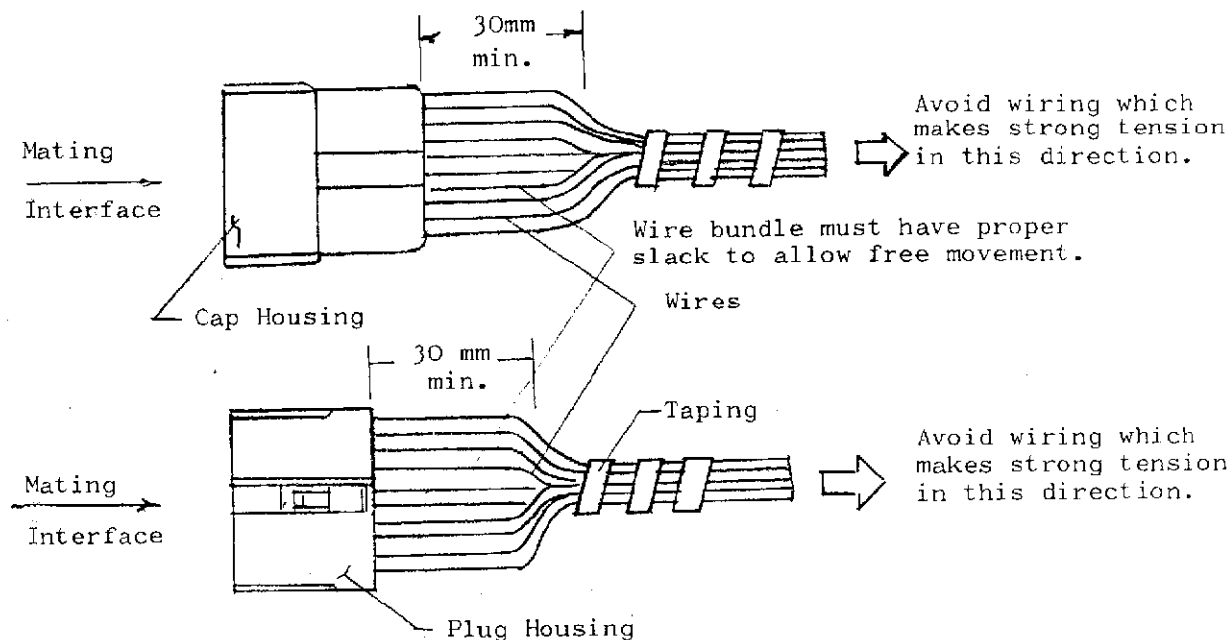
## 9. Handling Specification:

## 9.1 Crimping Operation:

In order to maintain designated performance capability of the product, crimping of Multi-interlock, Mark II, contact shall be controlled by AMP Application Specifications, 114-5071 and 114-5072, Crimping of AMP Multi-interlock, Mark II, Connector Contacts.

## 9.2 Taping of Wires at Assembly of Harnesses:

In order to maintain proper engagement and retention capability of connectors, wire bundling by tapes, shall be controlled to allow slack of wire bundle just next to wire lead-out of housing as shown in Fig. 14. Do not apply jerking the wires strongly, or to bend the wires in a sharp angle when wiring.



## 9.3 Application Tooling:

For crimping contacts of this product line, use applicable crimping application tooling, i.e. applicator or hand tools.  
For extraction of contacts from loaded housing, use AMP specified extraction tools.

## 9.4 Disengagement of connectors:

When to unmate connectors, disconnect by holding the housings in both hands. Do not pull off by holding the wires, for prevention of the contacts from damages, deformation and breakage.

|                                     |          |            |                |                                   |  |
|-------------------------------------|----------|------------|----------------|-----------------------------------|--|
| SHEET                               |          | <b>AMP</b> |                | AMP (Japan), Ltd.<br>TOKYO, JAPAN |  |
| 14 OF 15                            | LOC<br>J | A          | NO<br>108-5166 | REV.<br>B1                        |  |
| NAME Product Specification          |          |            |                |                                   |  |
| Multi-interlock, Mark II, Connector |          |            |                |                                   |  |
| For Wire-to-Wire Termination        |          |            |                |                                   |  |

## 10. Reference Documents:

The following specifications form part of this specification, to the extent specified herein.

|            |                                                                  |
|------------|------------------------------------------------------------------|
| JASO D 605 | Multi-Pole Connectors for Automobiles                            |
| JASO 7101  | Test Methods for Plastic Molded Parts                            |
| JIS C 3406 | Low Voltage Wires and Cables for Automobiles                     |
| JIS D 0203 | Method of Moisture, Rain and Spray Test for Automobile Parts     |
| JIS D 0204 | Method of Low and High Temperature Test for Automobile Parts     |
| JIS D 1601 | Vibration Testing Method for Automobile Parts                    |
| JIS R 5210 | Portland Cement                                                  |
| JIS C 5028 | Salt Mist Testing Methods for Electronic Components              |
| JIS D 5500 | Lighting and Signaling Equipment for Automobile Parts            |
| 114-5071   | Crimping Multi-interlock, Mark II, Connector Receptacle Contacts |
| 114-5072   | Crimping Multi-interlock, Mark II, Connector Tab Contacts        |

|                                                                    |  |            |    |                                   |  |
|--------------------------------------------------------------------|--|------------|----|-----------------------------------|--|
| SHEET                                                              |  | <b>AMP</b> |    | AMP (Japan), Ltd.<br>TOKYO, JAPAN |  |
| 15 OF 15                                                           |  | LOC        | NO | 108-5166                          |  |
|                                                                    |  | J          | A  | B1                                |  |
| NAME Product Specification                                         |  |            |    |                                   |  |
| Multi-interlock, Mark II Connector<br>For Wire-to-Wire Termination |  |            |    |                                   |  |

## 社内標準

(技術標準)

管理基準：一般顧客用

日本エー・エム・ピー株式会社

## 製品規格

108-5166

マルチ・インターロック・コネクタ (M.I.C) マークⅡ

## 1. 適用範囲

本規格は、マルチ・インターロック・コネクタ (M.I.C) マークⅡの内、電線対電線中継接続用の下記型番のコンタクト及びハウジングについて規定する。

## 2. 対象型番及び名称

## 2.1 コンタクト

## 2.1.1 リセブタクル コンタクト (以下リセブタクルという)

型番：172773, 172774, 172775, 172776

## 2.1.2 タブ コンタクト (以下タブという)

型番：172777, 172778, 172779, 172780

## 2.2 ハウジング

| 極数 | 名称 | プラグハウジング | キャップハウジング                | パネルロックタイプ<br>キャップハウジング |
|----|----|----------|--------------------------|------------------------|
| 5  |    | 172494   | 172504                   | ---                    |
| 7  |    | 172495   | 172505                   | 172827                 |
| 9  |    | 172496   | 172506<br>172513 (フランジ付) | 172828                 |
| 11 |    | 172497   | 172507<br>172514 (フランジ付) | 172829                 |
| 13 |    | 172498   | 172508<br>172515 (フランジ付) | 172830                 |
| 17 |    | 172500   | 172509<br>172516 (フランジ付) | 172832                 |
| 21 |    | 172501   | 172510<br>172517 (フランジ付) | 172518                 |
| 15 |    | 172499   | ---                      | 172831                 |

|    |                     |    |        |         |               |                                        |
|----|---------------------|----|--------|---------|---------------|----------------------------------------|
|    |                     |    |        |         | 作成：           | 分類：                                    |
|    |                     |    |        |         | H. Sakamori   | 製品規格                                   |
| B1 | 改訂 FJ00-1742-99     | KK | KK     | 10/19   | 検閲：           | コード：                                   |
| B  | 改訂 RFA-1946         |    |        | 9/30/91 | H. Sakamori   | 108-5166                               |
| A1 | 改訂 RFA-1481         |    |        | 9/21/83 | 承認：           | 改訂                                     |
| A  | 改訂 RFA-698          |    |        | 1/24/82 | St. Taniguchi | B1                                     |
| 0  | 作成 RFA-589          |    |        | 1/24/82 |               | 名称：マルチ・インターロック<br>コネクタ (M.I.C)<br>マークⅡ |
| 改訂 | 改訂記録                | 作成 | 検閲     | 承認      | 年月日           |                                        |
| 配布 | 昭和 57 年 10 月 5 日 制定 | 15 | 頁中 1 頁 |         |               |                                        |

## 3. 用語の意味

本規格に適用する用語の意味は次の通りとする。

## 3.1 コンタクト

コネクタの構成部品である接触子をいう。これにはリセプタクルとタブがある。

## 3.2 ハウジング

コネクタの構成部品でコンタクトを収容するものをいう。これには、リセプタクルを収容するプラグ・ハウジングとタブを収容するキャップ・ハウジングがある。

## 3.3 コネクタ

電線を圧着したコンタクトをハウジングに全極アッセンブリしたものをいう。これには、リセプタクルとプラグ・ハウジングをアッセンブリしたものと、タブとキャップハウジングをアッセンブリしたものがある。

## 4. 使用材料，表面処理

## 4.1 コンタクト

コンタクトはASTM B36 COPPER ALLOY 260 に準拠する錫メッキ付黄銅条より製造される。

## 4.2 ハウジング

ハウジングはナイロン樹脂により製造される。

## 5. 形状，構造及び寸法

## 5.1 コンタクト

コンタクトの形状，構造及び寸法は図面に合致していること。又，全てのタブとリセプタクルは適用電線範囲に関係なく相互に嵌合できる。

## 5.2 ハウジング

ハウジングの形状，構造及び寸法は図面に合致していること。又，誤嵌合防止機構及びハウジング相互のロック機構を有する。

## 6. 使用条件

## 6.1 使用温度範囲

-30～105℃（周囲温度＋通電による温度上昇）但し，機械的性能評価を除く。

|      |                                    |          |     |       |
|------|------------------------------------|----------|-----|-------|
| 分類：  | 標準の名称：                             | 標準のコード：  | 改訂  | 2 頁   |
| 製品規格 | マルチ・インターロック・コネクタ (M.I.C)<br>マーク II | 108-5166 | B 1 | 15 頁中 |

## 6.2 適用電線範囲

| カタログ番号                               | 適用電線範囲                                                                                                           | 絶縁被覆外径       |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------|--------------|
| 172773<br>172774<br>172777<br>172778 | 0.5 ~ 2.27 mm <sup>2</sup> (AWG #20 ~ #14) 1本<br>または 0.5 + 0.5 mm <sup>2</sup> , 0.5 + 0.85 mm <sup>2</sup> 2本圧着 | 2.1 ~ 3.4 mm |
| 172775<br>172776<br>172779<br>172780 | 0.3 ~ 0.89 mm <sup>2</sup> (AWG #22 ~ #18) 1本                                                                    | 1.5 ~ 2.6 mm |

## 7. 性能及び試験方法

## 7.1 性能

第 7.2 項「試験方法」及び第 7.3 項「試験順序」に基づき試験した結果、Fig 1 の性能を満足すること。

Fig 1

| 項 目                | 分 類<br>試験方法                               | コンタクトの性能                                | コネクタの性能                                                                                                                                                                                                                                                                    |                     |
|--------------------|-------------------------------------------|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
|                    |                                           | 初 期 性 能                                 | 初 期 性 能                                                                                                                                                                                                                                                                    | 環境耐久試験後の性能          |
| 外 観                | 7.2.1                                     | 亀裂、割損、破損、がた、部品のはずれ、錆び、溶解等で機能を損う欠点のないこと。 |                                                                                                                                                                                                                                                                            |                     |
| コンタクト又は<br>コネクタ挿入力 | 7.2.2                                     | 2.9 - 7.8 N<br>(0.3 ~ 0.8 kgf)          | 5 極 — 59N ( 6 kgf) 以下<br>7 極 — 74N ( 7.5kgf) 以下<br>9 極 — 88N ( 9 kgf) 以下<br>11 極 — 103N (10.5kgf) 以下<br>13 極 — 123N (12.5kgf) 以下<br>17 極 — 157N (16 kgf) 以下<br>21 極 — 186N (19 kgf) 以下<br>22 極 — 9 極及び 13 極参照                                                              |                     |
| コンタクト又は<br>コネクタ引抜力 | 7.2.3                                     | 2.0 -7.8 N<br>(0.2 ~ 0.8 kgf)           | 5 極 — 6.9 ~ 59N (0.7 ~ 6 kgf)<br>7 極 — 9.8 ~ 74N (1 ~ 7.5kgf)<br>9 極 — 12.7 ~ 88N (1.3 ~ 9 kgf)<br>11 極 — 15.7 ~ 103N (1.6 ~ 10.5kgf)<br>13 極 — 19.6 ~ 123N (2 ~ 12.5kgf)<br>17 極 — 24.5 ~ 157N (2.5 ~ 16 kgf)<br>21 極 — 31.4 ~ 186N (3.2 ~ 19 kgf)<br>22 極 — 9 極及び 13 極参照 |                     |
| コネクタ挿入力(追加)        | 7.2.2                                     | ——                                      | 15 極 — 142N (14.5kgf) 以下                                                                                                                                                                                                                                                   |                     |
| コネクタ引抜力(追加)        | 7.2.3                                     | ——                                      | 15 極 — 21.6 ~ 142N (2.2 ~ 14.5kgf)                                                                                                                                                                                                                                         |                     |
| 分類：<br>製品規格        | 標準の名称：<br>マルチ・インターロック・コネクタ(M.I.C)<br>マークⅡ |                                         | 標準のコード：<br>108-5166                                                                                                                                                                                                                                                        | 改訂 3 頁<br>B 1 15 頁中 |

Fig 1 (続き)

| 項 目          | 分 類    | コネクタの性能                                                          |                         |            |       |                |       |
|--------------|--------|------------------------------------------------------------------|-------------------------|------------|-------|----------------|-------|
|              | 試験方法   | 初 期 性 能                                                          | 初 期 性 能                 | 環境耐久試験後の性能 |       |                |       |
| 総合抵抗(ローレベル)  | 7.2.4  | 3mΩ以下                                                            | 3mΩ以下                   | 6mΩ以下      |       |                |       |
| 総合抵抗(規定電流)   | 7.2.5  | 3mV/A以下                                                          | 3mV/A以下                 | 6mV/A以下    |       |                |       |
| 挿抜のフィーリング    | 7.2.6  | 有害な引掛り等のないこと。                                                    |                         |            |       |                |       |
| 絶 縁 抵 抗      | 7.2.7  | -----                                                            | 100MΩ以上                 |            |       |                |       |
| 耐 電 圧        | 7.2.8  |                                                                  | AC 1,800V, 1分間にて異常なきこと。 |            |       |                |       |
| リ ー ク 電 流    | 7.2.9  |                                                                  | 3mA以下                   |            |       |                |       |
| コンタクト保持力     | 7.2.10 |                                                                  | 78.5N(8kgf)以上           |            |       |                |       |
| 圧着部引張強度      | 7.2.11 | 0.3 mm <sup>2</sup> - 49N(5kgf)以上                                | -----                   |            |       |                |       |
|              |        | 0.5 mm <sup>2</sup> - 88N(9kgf)以上                                |                         |            |       |                |       |
|              |        | 0.85 mm <sup>2</sup> - 127N(13kgf)以上                             |                         |            |       |                |       |
|              |        | 1.25 mm <sup>2</sup> - 177N(18kgf)以上                             |                         |            |       |                |       |
|              |        | 2 mm <sup>2</sup> - 265N(27kgf)以上                                |                         |            |       |                |       |
| ハウジング保持力     | 7.2.12 | -----                                                            | 98N(10kgf)以上            |            |       |                |       |
| 電 流 サ イ ク ル  | 7.2.13 | -----                                                            |                         |            |       |                |       |
| 温 度 上 昇      | 7.2.14 |                                                                  |                         |            |       |                |       |
| 繰 返 し 挿 抜    | 7.2.15 |                                                                  |                         |            |       |                |       |
| 耐 こ じ り 性    | 7.2.16 |                                                                  |                         |            |       |                |       |
| 耐 熱 性        | 7.2.17 |                                                                  |                         |            |       |                |       |
| 耐 寒 性        | 7.2.18 |                                                                  |                         |            |       |                |       |
| 熱 衝 撃        | 7.2.19 |                                                                  |                         |            |       |                |       |
| 耐 湿 性(定常状態)  | 7.2.20 |                                                                  |                         |            |       |                |       |
| 塩 水 噴 霧      | 7.2.21 |                                                                  |                         |            |       |                |       |
| 耐 塵 性        | 7.2.22 |                                                                  |                         |            |       |                |       |
| ア イ シ ン グ    | 7.2.23 | Fig.12 に示す順序で試験を行ったとき総合抵抗(ローレベル)は6mΩ以下, 総合抵抗(規定電流)は6mV/A以下であること。 |                         |            |       |                |       |
| 高 周 波 振 動    | 7.2.24 |                                                                  |                         |            |       |                |       |
| 耐 衝 撃 性 (I)  | 7.2.25 |                                                                  |                         |            |       |                |       |
| 耐 衝 撃 性 (II) | 7.2.26 |                                                                  |                         |            |       |                |       |
| 過 電 流 耐 力    | 7.2.27 |                                                                  |                         |            |       |                |       |
| 着火の          | 7.2.27 |                                                                  |                         |            | 着火の   |                |       |
| パネルロック保持力    | 7.2.28 |                                                                  |                         |            | ----- | 196N(20kgf)以上  |       |
| コンタクト装着力     | 7.2.29 |                                                                  |                         |            | ----- | 14.7(1.5kgf)以下 | ----- |
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Fig.12 に示す順序で試験を行ったとき総合抵抗(ローレベル)は6mΩ以下、総合抵抗(規定電流)は6mV/A以下であること。

着火のないこと。

## 7.2 試験方法

## 7.2.1 外 観

外観を目視及び触覚により観察し、有害な亀裂、割損、破損、がた、部品のはずれ、錆、溶解及び変形等の有無を確認する。

## 7.2.2 コンタクト又はコネクタ挿入力

コンタクト又はコネクタの一方を固定し、他方を軸方向に毎分約100mmの一定速度で操作する。なお、ハウジングのロック機構のあるコネクタはこれを作用させて行なう。

## 7.2.3 コンタクト又はコネクタ引抜力

コンタクト又はコネクタの一方を固定し、他方を軸方向に毎分約100mmの一定速度で操作する。なお、ハウジングのロック機構は作用させないで行なう。

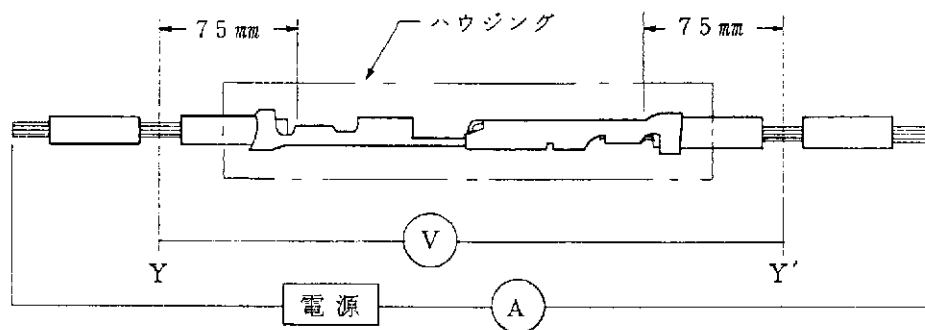
## 7.2.4 総合抵抗（ローレベル）

コンタクト又はコネクタを嵌合した状態で開放電圧DC 50mV以下、短絡電流50mA以下を通電し、圧着部より75mm離れた点で抵抗を測定する。

（Fig 2のY-Y'間）

ローレベル抵抗は、Y-Y'間の抵抗から150mmの電線の抵抗分を差引いて算出する。なお、測定は1極ずつ行なうものとする。

Fig 2



## 7.2.5 総合抵抗（規定電流）

コンタクト又はコネクタを嵌合した状態で開放電圧DC 12V、短絡電流1Aを通電しコンタクトの温度が安定した後、圧着部より75mm離れた点で電圧降下を測定する。（Fig 2のY-Y'間）

総合抵抗はY-Y'間の電圧降下から150mmの電線の電圧降下を差引いて算出する。

なお、測定は1極ずつ行なうものとする。

## 7.2.6 挿抜のフィーリング

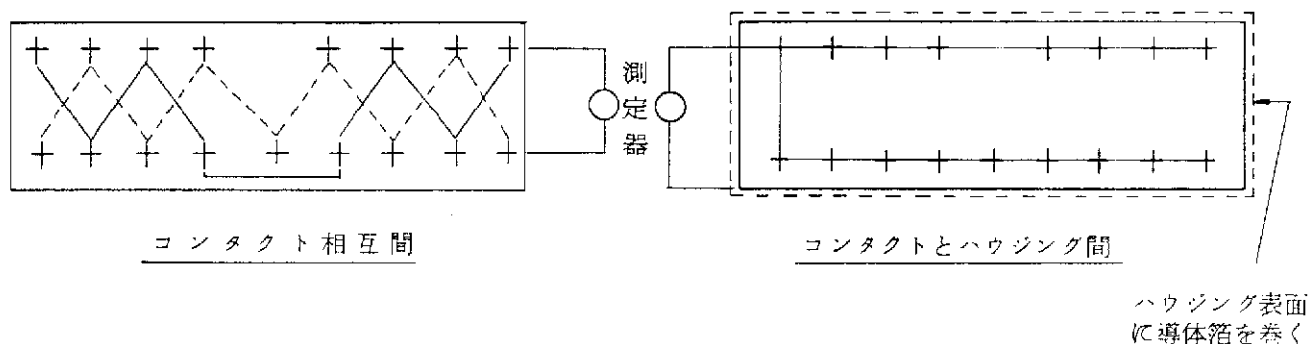
コンタクト又はコネクタの挿入，引抜きを手動にて行ない，そのフィーリングを触感にて確認する。

## 7.2.7 絶縁抵抗

コネクタを嵌合した状態で，Fig 3 の如く隣接するコンタクト相互間及びコンタクト対ハウジング間（対アース間）を測定する。

なお，測定電圧はDC 500Vとする。

Fig 3



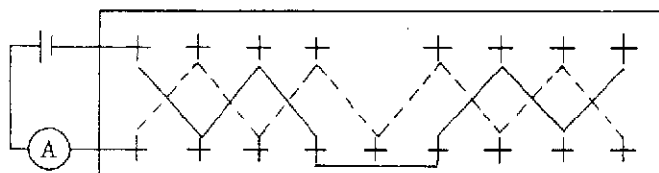
## 7.2.8 耐電圧

コネクタを嵌合した状態で，Fig 3 の如く隣接するコンタクト相互間及びコンタクト対ハウジング間（対アース間）に商用周波数の AC 1,800 V を 1 分間印加する。

## 7.2.9 リーク電流

コネクタを嵌合した状態で，温度  $60 \pm 5^\circ\text{C}$ ，湿度 90～95% に保たれた恒温恒湿槽中に 1 時間放置した後，槽内で Fig 4 の如く隣接するコンタクト相互間に DC 12V を印加する。

Fig 4



|      |                                 |          |    |       |
|------|---------------------------------|----------|----|-------|
| 分類：  | 標準の名称：                          | 標準のコード：  | 改訂 | 6 頁   |
| 製品規格 | マルチ・インターロック・コネクタ (M.I.C) マーク II | 108-5166 | B4 | 15 頁中 |

## 7.2.10 コンタクト保持力

ハウジングに、約 100mm の長さ、0.85mm<sup>2</sup> 以上の断面積の電線を圧着したコンタクトが組込まれたコネクタを固定し、電線を軸方向へ毎分約 100 mm の一定速度で引張り、コンタクトがハウジングから抜けた時の荷重を測定する。

## 7.2.11 圧着部引張強度

約 100 mm の長さの電線を圧着したコンタクトを固定し、電線を軸方向に毎分約 100 mm の一定速度で引張り、電線の破断又は圧着部から電線の引抜けた時の荷重を測定する。

## 7.2.12 ハウジング保持力

コネクタを嵌合し、ロック機構の作用した状態で一方を固定し、他方を軸方向に、毎分約 100 mm の一定速度で引張り、ロック機構の外れ又は破損して嵌合の外れた時の荷重を測定する。

## 7.2.13 電流サイクル

コネクタを嵌合した状態で中心 4 極に Fig 5 から算出される電流を他の回路には、その 1/2 の電流を通電する。通電 45 分間、休止 15 分間を 1 サイクルとして 200 サイクル行なう。なお、試験は無風状態で行なう。

Fig 5

| 電線サイズ (mm <sup>2</sup> ) | 電流値 (DCA) |
|--------------------------|-----------|
| 0.5                      | 1.1       |
| 0.85                     | 1.45      |
| 1.25                     | 1.85      |
| 2                        | 2.5       |

| 極 数    | 減少係数 |
|--------|------|
| 1      | 1    |
| 2 ~ 3  | 0.75 |
| 4 ~ 5  | 0.6  |
| 6 ~ 8  | 0.55 |
| 9 ~ 12 | 0.5  |
| 13 以上  | 0.4  |

(注)：通電電流は、各電線サイズに対応する電流値と極数に対応する減少係数との積から算出される。

分類：

製品規格

標準の名称：

マルチ・インターロック・コネクタ (M.I.C)  
マーク II

標準のコード：

108-5166

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B4

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## 7.2.14 温度上昇

コネクタを嵌合した状態で Fig 5 から算出される電流を 2 時間通電し、ハウジング中央、表面部の温度を測定する。この測定された温度から室温を差引いた値が  $65^{\circ}\text{C}$  以下であるか確認を行なう。

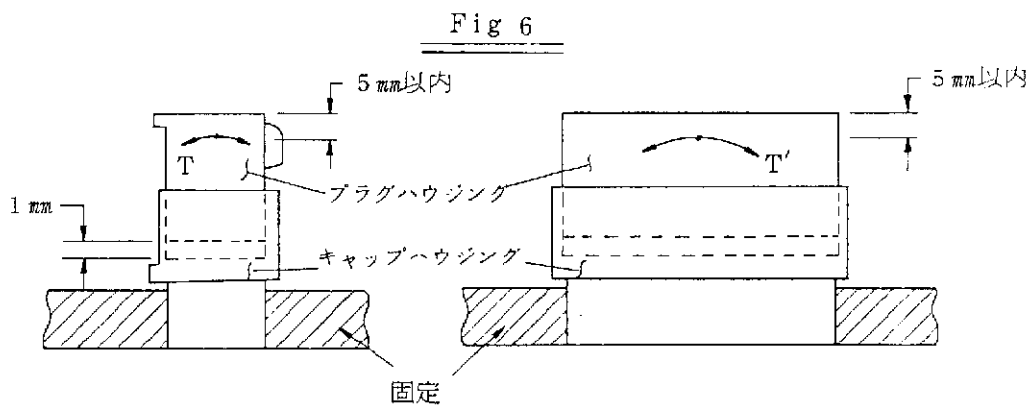
なお、試験は無風状態で行なう。

## 7.2.15 繰り返し挿抜

コネクタの一方を固定し、他方を軸方向に毎分約  $100\text{ mm}$  の一定速度で操作し、挿入、引抜きを 50 回行なう。

## 7.2.16 耐こじり性

コネクタを引抜時に Fig 6 の如くコネクタの一方を固定し、他方を  $1\text{ mm}$  間隔でコンタクト同志の嵌合がはずれるまで引抜きながら、各段階で前後方向に 1 往復、 $196\text{ N}\cdot\text{cm}$  ( $20\text{ kgf}\cdot\text{cm}$ ) ( $T$ ) のトルクを加える。これを 1 サイクルとして 50 サイクル行なう。次に左右方向も同様に 1 往復  $196\text{ N}\cdot\text{cm}$  ( $20\text{ kgf}\cdot\text{cm}$ ) ( $T'$ ) のトルクを加える。これを 1 サイクルとして 50 サイクル行なう。



## 7.2.17 耐熱性

コネクタを嵌合した状態で  $100^{\circ}\text{C}$  に保たれた恒温槽に 2 時間放置し、その後取り出して常温に戻るまで放置する。

## 7.2.18 耐寒性

コネクタを嵌合した状態で  $-50^{\circ}\text{C}$  に保たれた恒温槽に 2 時間放置し、その後取り出して常温に戻るまで放置する。

## 7.2.19 熱衝撃

コネクタを嵌合した状態で Fig 7 に示す試験を 1 サイクルとして、これを 5 サイクル行なった後、室温に戻るまで放置する。

|      |                                    |          |    |       |
|------|------------------------------------|----------|----|-------|
| 分類：  | 標準の名称：                             | 標準のコード：  | 改訂 | S 頁   |
| 製品規格 | マルチ・インターロック・コネクタ (M.I.C)<br>マーク II | 108-5166 | B  | 15 頁中 |

Fig 7

| 試験順序 | 試験方法       |
|------|------------|
| 1    | 80±5℃ 2時間  |
| 2    | 室温 5分以内    |
| 3    | -30±5℃ 2時間 |
| 4    | 室温 5分以内    |

## 7.2.20 耐湿性（定常状態）

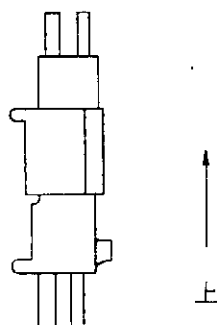
コネクタを嵌合し Fig 4 の如く接続，DC 28V を印加した状態で，温度  $60 \pm 5^\circ\text{C}$ ，湿度 90～95% に保たれた恒温恒湿槽中に 48 時間放置した後，取り出して常温に戻るまで放置する。

## 7.2.21 塩水噴霧

コネクタを嵌合した状態で，JIS C 5028 に基づいて 5% の塩水を 24 時間噴霧，1 時間休止，24 時間噴霧し，塩の堆積物を水洗した後 1 時間常温にて乾燥する。

## 7.2.22 耐塵性

縦，横，高さがそれぞれ 900～1,200mm の密閉タンク内にコネクタを嵌合した状態で Fig 8 の如く吊し，ボルトランドセメント（JIS R 5210）1.5kg を 15 分毎に 10 秒間圧縮空気を噴射し，ファン等で一様に拡散させ，これを 1 時間行った後密閉タンク内から取り出す。

Fig 8

分類：

製品規格

標準の名称：

マルチ・インターロック・コネクタ (M.I.C)  
マーク II

標準のコード：

108-5166

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## 7.2.23 アイシング

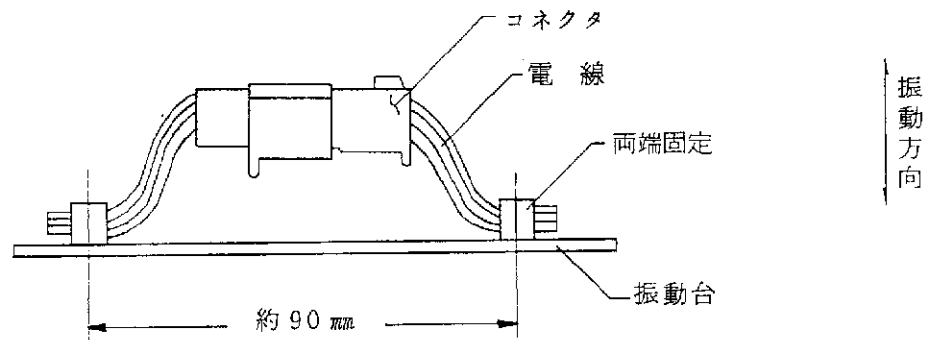
嵌合したコネクタを沸騰している水に1時間浸漬した後、直ちに $-30 \pm 5^{\circ}\text{C}$ の恒温槽に入れ附着した水が氷結するまで放置する。

その後取り出して、氷が融解するまで放置する。

## 7.2.24 高周波振動

コネクタを嵌合、全極直列に接続し、開放電圧DC 12V、短絡電流0.1Aを通電した状態でFig 9の如く振動試験機に取り付ける。振動加速度は4.5g、振動周波数は20~200Hzを往復1分間でスイープさせる。これを8時間行い1msec以上の瞬断の有無を観察する。

Fig 9



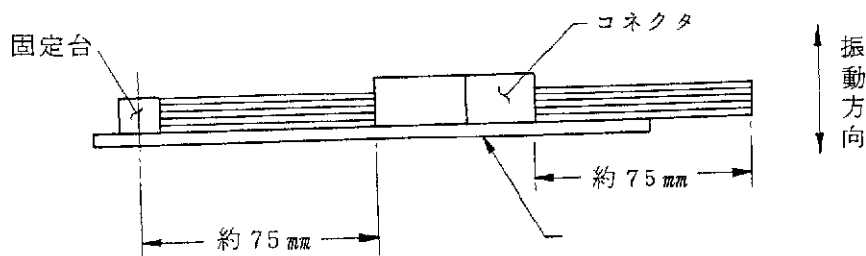
## 7.2.25 耐衝撃性(I)

コネクタを嵌合、全極直列に接続し開放電圧DC 12V、短絡電流0.1Aを通電した状態でFig 9の如くSAE J 577による試験装置に取り付け、振動数750Hzカム落下3.2mm、衝撃台の端でのスプリング張力265~314N(27~32kgf)で1時間行い、1msec以上の瞬断の有無を確認する。

## 7.2.26 耐衝撃性(Ⅱ)

コネクタを嵌合，全極直列に接続し開放電圧 DC 12V，短絡電流 0.1 A を通電した状態で Fig10 の如く振動試験機に取り付ける。振動加速度は  $44\text{m/s}^2$  (4.5G)，振動周波数は 20～200 Hz を往復 1 分間でスイープさせる。これを 8 時間行ない，1 msec 以上の瞬断の有無を観察する。

Fig 10



## 7.2.27 過電流耐力

コネクタを嵌合した状態で水平に保ち，1 極に Fig11 の電流を 1 分間通電し，ハウジングへの着火の有無を観察する。

Fig 11

| 電線サイズ ( $\text{mm}^2$ ) | 過電電流 (DC A) |
|-------------------------|-------------|
| 0.5                     | 50          |
| 0.85                    | 75          |
| 1.25                    | 100         |
| 2                       | 200         |

## 7.2.28 パネルロック保持力 (パネルロックタイプキャップハウジングのみに適用)

相手側ホルダーと嵌合した状態で一方を固定し他方を軸方向に毎分約 100 mm の一定速度で引張り，ロック機構の外れ又は破損して嵌合の外れた時の荷重を測定する。(相手側ホルダーは AMP で確認したものを使用すること)

## 7.2.29 コンタクト装着力

電線を圧着したコンタクトをハウジングに装着し，ランスが引掛るまでの力を装着力として測定する。

力は電線の軸方向へ毎分約 100 mm の一定速度で加えるものとする。

## 7.3 試験順序

試験順序はFig12に示すグループ毎の順序に従って行うものとする。

Fig 12

| 区 分             |  | コネクタ<br>単体              |    | コネクタ試験順序 |    |    |    |    |    |    |    |          |    |     |    |    |    |    |    |    |    |     |    |   |
|-----------------|--|-------------------------|----|----------|----|----|----|----|----|----|----|----------|----|-----|----|----|----|----|----|----|----|-----|----|---|
| 項 目             |  | I                       | II | I        |    |    |    |    | II |    |    |          |    | III |    |    |    |    | IV |    |    |     |    | V |
| 外 観             |  | 1                       | 1  |          |    |    |    |    | 1  |    |    |          |    | 1   |    |    |    |    | 1  |    |    |     | 19 | 1 |
| コンタクト又はコネクタ挿入力  |  | 2                       | 2  |          |    |    |    |    | 2  |    |    |          |    | 2   |    |    |    |    | 2  |    |    |     | 20 |   |
| コンタクト又はコネクタ引抜き力 |  | 5                       | 8  |          |    |    |    |    | 8  |    |    |          |    | 8   |    |    |    |    | 8  |    |    |     | 18 |   |
| 総合抵抗（ローレベル）     |  | 3                       | 3  | 11       | 14 | 17 | 21 | 24 | 3  | 11 | 15 | 18       | 22 | 3   | 11 | 14 | 17 | 20 | 3  | 11 | 14 |     |    |   |
| 総合抵抗（規定電流）      |  | 4                       | 4  | 12       | 15 | 18 | 22 | 25 | 4  | 12 | 16 | 19       | 23 | 4   | 12 | 15 | 18 | 21 | 4  | 12 | 15 |     |    |   |
| 挿抜のフィーリング       |  | 6                       | 9  |          |    |    |    | 26 | 9  |    |    |          | 24 | 9   |    |    |    | 22 | 9  |    |    |     | 21 |   |
| 絶縁抵抗            |  |                         | 6  |          |    |    |    |    | 6  |    |    |          |    | 6   |    |    |    |    | 6  |    |    |     |    |   |
| 耐電圧             |  |                         | 7  |          |    |    |    |    | 7  | 13 |    |          |    | 7   |    |    |    |    | 7  |    |    |     | 16 |   |
| リーク電流           |  |                         | 5  |          |    | 19 |    |    | 5  |    |    | 20       |    | 5   |    |    |    |    | 5  |    |    |     | 17 |   |
| 電流サイクル          |  |                         |    |          |    | 20 |    |    |    |    |    |          |    |     |    |    |    |    |    |    |    |     |    |   |
| 温度上昇            |  |                         |    |          |    |    | 23 |    |    |    |    |          |    |     |    |    |    |    |    |    |    |     |    |   |
| コンタクト保持力        |  |                         |    |          |    |    |    | 28 |    |    |    |          | 25 |     |    |    |    | 23 |    |    |    |     |    |   |
| 圧着部引張強度         |  | 1                       |    |          |    |    |    |    |    |    |    |          |    |     |    |    |    |    |    |    |    |     |    |   |
| ハウジング保持力        |  |                         |    |          |    |    |    | 27 |    |    |    |          | 26 |     |    |    |    | 24 |    |    |    |     |    |   |
| 繰返し挿抜           |  |                         |    |          |    |    |    |    |    |    |    |          |    |     |    |    |    |    |    | 10 |    |     |    |   |
| 耐こじり性           |  |                         | 10 |          |    |    |    |    |    |    |    |          |    | 10  |    |    |    |    |    |    |    |     |    |   |
| 耐熱性             |  |                         |    |          |    |    |    |    | 10 |    |    |          |    |     |    |    |    |    |    |    |    |     |    |   |
| 耐寒性             |  |                         |    |          |    |    |    |    |    | 14 |    |          |    |     |    |    |    |    |    |    |    |     |    |   |
| 熱衝撃             |  |                         |    |          |    |    |    |    |    |    |    |          | 21 |     |    |    |    |    |    |    |    |     |    |   |
| 耐湿性（定常状態）       |  |                         |    |          |    |    |    |    |    |    | 17 |          |    |     |    |    |    |    |    |    |    |     |    |   |
| 塩水噴霧            |  |                         |    |          |    |    |    |    |    |    |    |          |    |     |    |    |    |    |    | 13 |    |     |    |   |
| 耐塵性             |  |                         |    | 13       |    |    |    |    |    |    |    |          |    |     |    |    |    |    |    |    |    |     |    |   |
| アイソシング          |  |                         |    |          | 16 |    |    |    |    |    |    |          |    |     |    |    |    |    |    |    |    |     |    |   |
| 高周波振動           |  |                         |    |          |    |    |    |    |    |    |    |          |    |     | 13 |    |    |    |    |    |    |     |    |   |
| 耐衝撃性（Ⅰ）         |  |                         |    |          |    |    |    |    |    |    |    |          |    |     |    | 16 |    |    |    |    |    |     |    |   |
| 耐衝撃性（Ⅱ）         |  |                         |    |          |    |    |    |    |    |    |    |          |    |     |    |    | 19 |    |    |    |    |     |    |   |
| 過電流耐力           |  |                         |    |          |    |    |    |    |    |    |    |          |    |     |    |    |    |    |    |    |    |     | 22 |   |
| パネルロック保持力       |  |                         |    |          |    |    |    | 29 |    |    |    |          |    |     |    |    |    |    |    |    |    |     |    |   |
| コンタクト装着力        |  |                         |    |          |    |    |    |    |    |    |    |          |    |     |    |    |    |    |    |    |    |     |    | 2 |
| 分類：             |  | 標準の名称：                  |    |          |    |    |    |    |    |    |    | 標準のコード：  |    |     |    |    |    |    |    |    |    | 改訂  |    |   |
| 製品規格            |  | マルチ・インターロック・コネクタ（M.I.C） |    |          |    |    |    |    |    |    |    | 108-5166 |    |     |    |    |    |    |    |    |    | B 1 |    |   |
|                 |  |                         |    |          |    |    |    |    |    |    |    |          |    |     |    |    |    |    |    |    |    | 12頁 |    |   |
|                 |  |                         |    |          |    |    |    |    |    |    |    |          |    |     |    |    |    |    |    |    |    | 15頁 |    |   |

分類：

製品規格

標準の名称：

マルチ・インターロック・コネクタ(M.I.C)  
マークⅡ

標準のコード：

108-5166

改訂

B 1

12 頁

15 頁中

## 8. 品質保証条件

## 8.1 試験条件

特に指定のない場合は、下記に示す環境条件のもとで性能試験を行なうものとする。

|      |                              |
|------|------------------------------|
| 温 度  | 15～35℃                       |
| 相対湿度 | 45～75%                       |
| 気 圧  | 86.7～107KPa<br>(650～800mmHg) |

## 8.2 試 験

## 8.2.1 試 料

性能試験に用いる試料は、「マルチ・インターロック・コネクタ(M.I.C) マークⅡ・コンタクト圧着条件114-5071および114-5072」に基づいてFig 13に示す電線に圧着した正規の試料であること。

いずれの試料も規定された順序以外の他の試験に用いてはならない。

## 8.2.2 試 料 数

性能試験に用いる試料数は各グループ毎にコンタクト単体の場合10セット、コネクタの場合2セット以上で行なうものとする。

## 8.2.3 使用電線

性能試験に用いる電線はFig 13に示す電線にて行なうものとする。

Fig 13

| 電線サイズ |     | 素線構成    |     | 断 面 積           |      |
|-------|-----|---------|-----|-----------------|------|
| 呼 び   | AWG | 素線径(mm) | 素線数 | mm <sup>2</sup> | CMA  |
| 0.3   | #22 | 0.18    | 12  | 0.31            | 602  |
| 0.3   | #22 | 0.26    | 7   | 0.37            | 733  |
| 0.5   | #20 | 0.32    | 7   | 0.56            | 1111 |
| 0.85  | #18 | 0.32    | 11  | 0.88            | 1746 |
| 1.25  | #16 | 0.32    | 16  | 1.28            | 2540 |
| 2     | #14 | 0.32    | 26  | 2.09            | 4128 |

分類：

製品規格

標準の名称：

マルチ・インターロック・コネクタ(M.I.C) マークⅡ

標準のコード：

108-5166

改訂

B

13頁

15頁中

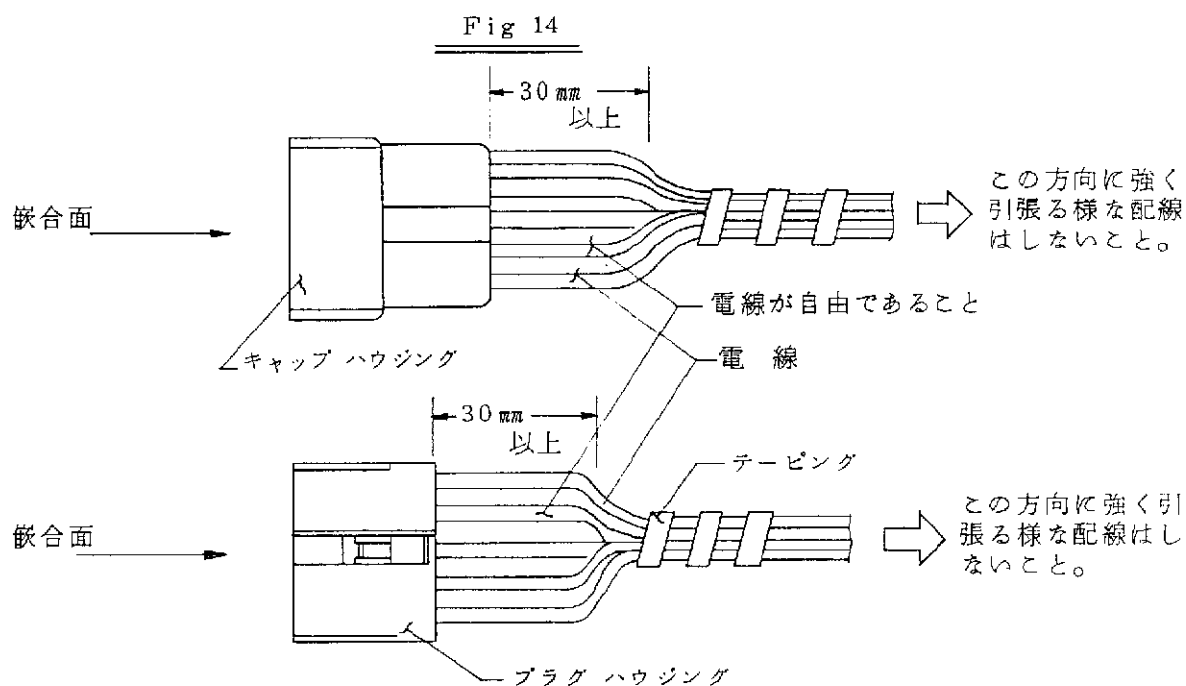
## 9. 取扱い上の注意事項

## 9.1. 圧着及び取扱い

ハウジングとコンタクトの保持性能及びコネクタの接触性能を維持するため、コンタクトの圧着は「マルチ・インターロック・コネクタ(M.I.C) マークⅡ・コンタクト 圧着条件 114-5071 及び 114-5072」に基づいて作業を行なうこと。

## 9.2. ハーネス作業上

コネクタ同志の嵌合性能及び諸性能を維持するため、電線のテーピングはFig 14の範囲にとどめる。電線を強く引張ったり、急に曲げる様な配線はしないこと。



## 9.3. 工 具

コンタクトの圧着及びハウジングからコンタクトを引き抜く場合は、AMP 指定の引抜工具を使用すること。

## 9.4. コネクタ引抜き作業

コネクタを引抜く際は、電線およびコンタクトの損傷を防ぐため、原則としてハウジングを持って引抜くこと。

但し、電線を持って引抜く場合は 3 本以上持って行なうこと。

|      |                              |          |    |       |
|------|------------------------------|----------|----|-------|
| 分類：  | 標準の名称：                       | 標準のコード：  | 改訂 | 14 頁  |
| 製品規格 | マルチ・インターロック・コネクタ(M.I.C) マークⅡ | 108-5166 | B4 | 15 頁中 |

## 10. 参考規格

- JASO D 605 : 「自動車用多極コネクタ」
- JASO 7101 : 「プラスチック成形部品の試験方法」
- JIS C 3406 : 「自動車用低圧電線」
- JIS D 0203 : 「自動車部品の耐湿および耐水試験方法」
- JIS D 0204 : 「自動車部品の高温および低温試験方法」
- JIS D 1601 : 「自動車部品振動試験方法」
- JIS R 5210 : 「ボルトランド セメント」
- JIS C 5028 : 「電子機器用部品の塩水噴霧試験方法」
- JIS D 5500 : 「自動車用ランプ」
- 114 - 5071 : 「マルチ・インターロック・コネクタ(M.I.C) マークⅡ・  
コンタクト圧着条件」
- 114 - 5072 : 「マルチ・インターロック・コネクタ(M.I.C) マークⅡ・  
コンタクト圧着条件」

|             |                                           |                     |    |      |
|-------------|-------------------------------------------|---------------------|----|------|
| 分類：<br>製品規格 | 標準の名称：<br>マルチ・インターロック・コネクタ(M.I.C)<br>マークⅡ | 標準のコード：<br>108-5166 | 改訂 | 15頁  |
|             |                                           |                     | B4 | 15頁中 |