

## 1. INTRODUCTION

The MIC MARK IV dual lock connector was designed to supply the Automotive Industry with a reliable and compact cross-connection system, providing a variety of assembly possibilities.

The MIC dual lock connectors are male/female wire-to-wire or wire-to-equipment type connectors. They are designed to prevent contacts from locking improperly, from being deformed or assembled wrong while manufacturing and implementing the wire harnesses. The retention of the contacts in their housing is improved compared to other MIC connector versions.

However, some recommendations for use and storage should be observed so that the manufacturing and the assembling of the wire harnesses can be done properly.

## 2. PRODUCT PART NUMBERS

HOUSING (suffix depending on color)

| <b>Type</b><br><b>Number of channels</b> | <b>Tab holder</b>          | <b>Receptacle holder</b>   |
|------------------------------------------|----------------------------|----------------------------|
| 5                                        | 144 532-1 to 4             | 144 518-1 to 9             |
| 7                                        | 144 533-1 to 4             | 144 519-1 to 9             |
| 9                                        | 144 534-1 to 9             | 144 520-1 to 9             |
| 11                                       | 144 535-1 to 4             | 144 521-1 to 7 (except -6) |
| 13                                       | 144 536-1 to 7 (except -6) | 144 320-1 to 9             |

HOUSING COLORS

|               |             |             |            |           |             |            |              |              |
|---------------|-------------|-------------|------------|-----------|-------------|------------|--------------|--------------|
| -1<br>natural | -2<br>black | -3<br>brown | -4<br>grey | -5<br>red | -6<br>green | -7<br>blue | -8<br>orange | -9<br>yellow |
|---------------|-------------|-------------|------------|-----------|-------------|------------|--------------|--------------|

A mechanical keying device is associated to each color.

## CRIMP-ON CONTACTS

| Designation | Section                   | Strip              | Loose-piece        |
|-------------|---------------------------|--------------------|--------------------|
| Receptacle  | 0,35 to 1 mm <sup>2</sup> | 144 180-1          | -                  |
| Receptacle  | 1 to 3 mm <sup>2</sup>    | 144 181-1          | -                  |
| Receptacle  | 3 to 5 mm <sup>2</sup>    | 142 753-2          | -                  |
| Tab         | 0,35 to 1 mm <sup>2</sup> | 142 754-1<br>or -2 | 142 917-1<br>or -2 |
| Tab         | 1 to 3 mm <sup>2</sup>    | 142 755-1          | 142 918-1          |
| Tab         | 3 to 5 mm <sup>2</sup>    | 142 700-1          | -                  |

### Note

*MIC IV dual lock connectors can not be loaded with insulation displacement contacts.*

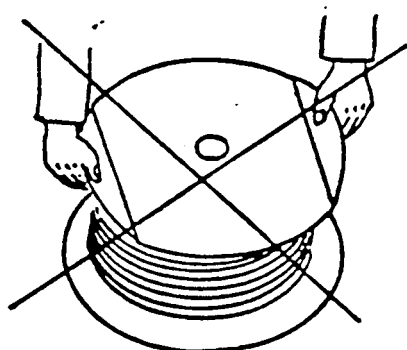
## 3. CONTACT CRIMPING OPERATION

Contacts must be crimped using AMP application tools and according to the procedures given in crimping specifications No. 114-15033, 114-15034 and 114-15044 for the tabs, and in crimping specifications No. 114-15035, 114-15036 and 114-15043 for the receptacles.

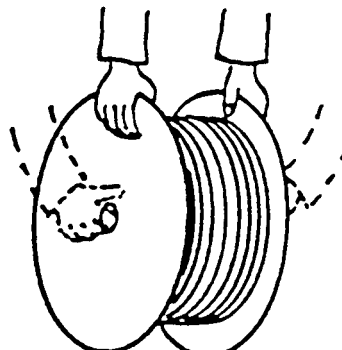
## 4. STORING AND HANDLING THE CONTACT REELS

4.1 Contact reels should not be left outside without the protection of a vinyl sheet or bag, for example.

4.2 To lift and carry contact reels, follow the directions given in the Figures below, in order to prevent reel flanges from being damaged, which could result in the displacement of the contact strip, and therefore an improper supply of the contacts to the applicator.



Do not lift holding the same flange

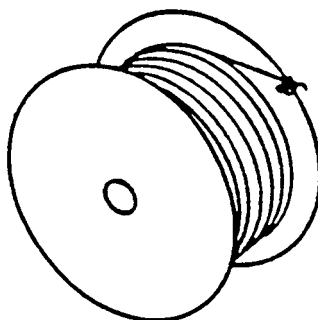


Lift holding both flanges or the center hole

4.3 Avoid storing reels in a humid or dusty room.

Store the reels in a dry and clean room, with temperatures between 5 and 35°C, and humidity between 45 and 85%. Reels should not be exposed to direct sunlight.

4.4 When reels are not used for a prolonged period, they should be removed from the machine and the contact strip end should be attached to the reel's edge by means of a thin copper wire, as shown in the Figure below.



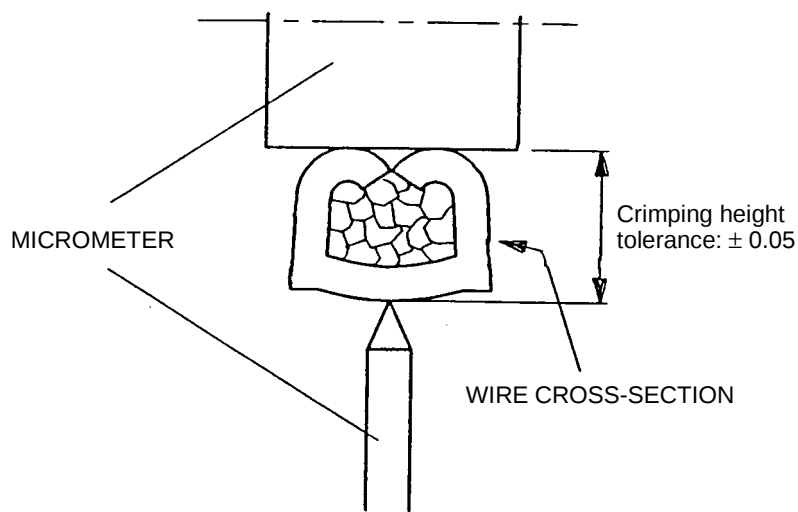
## 5. STRIPPING THE LEADS

When stripping the leads, do not nick, deform or cut the wire strands.

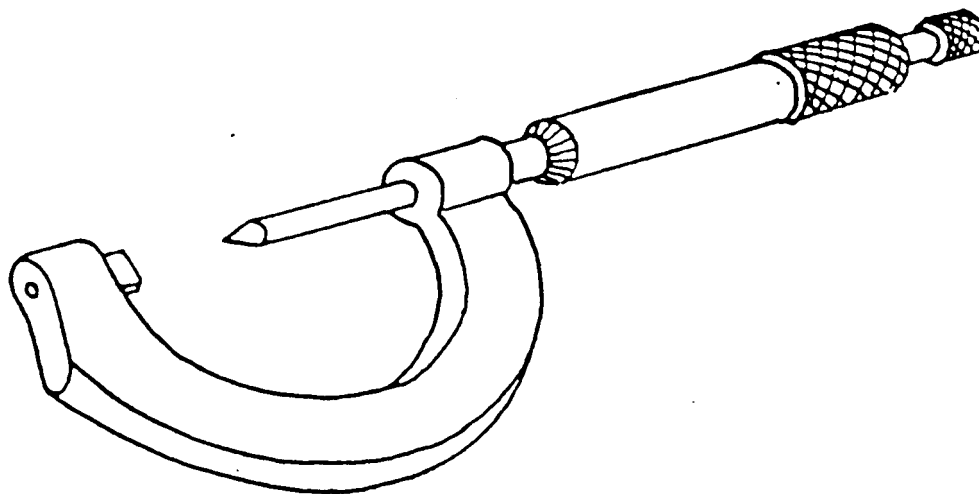
The stripping lengths are given in the crimping specifications.

## 6. MEASURING THE CRIMPING HEIGHT

6.1 The crimping height will be measured with a special micrometer, as shown in the Figure below.



## 6.2 Special micrometer for measuring the crimping height



## 7. STORING THE PRODUCTS AFTER THE CRIMPING PROCESS

7.1 After the crimping process, products should be stored in a clean and dry room. They should be covered with a vinyl sheet so that they can be protected against any outside contamination, or they should be stored in containers until they are used.

7.2 Crimped wires shall be grouped in layers, not exceeding on hundred wires. It is recommended to protect the end of each layer on the contact side with a vinyl bag for example.

7.3 Stacking too large a number of crimped wires should be avoided since it could result in damaged contacts, which could affect their proper performance.

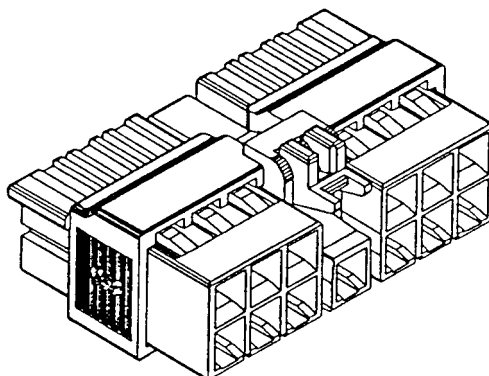
7.4 Contacts should not be mated outside of their housing, as this could damage them.

## 8. MANUFACTURING ASSEMBLIES

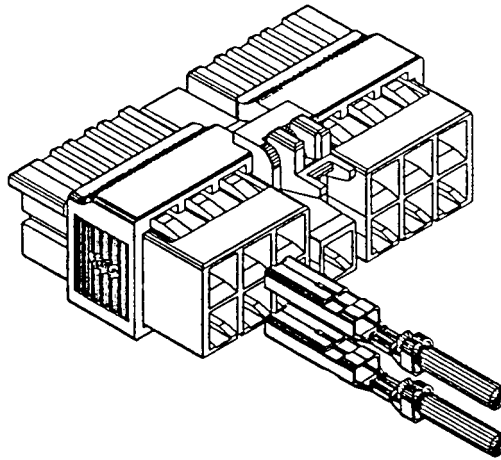
8.1 Inserting contacts in the receptacle-holder housings.

It is important to make sure that contacts are not deformed before inserting them, since this could result in the connection functioning badly. Crimping specifications provide the acceptable deformations of the barrels.

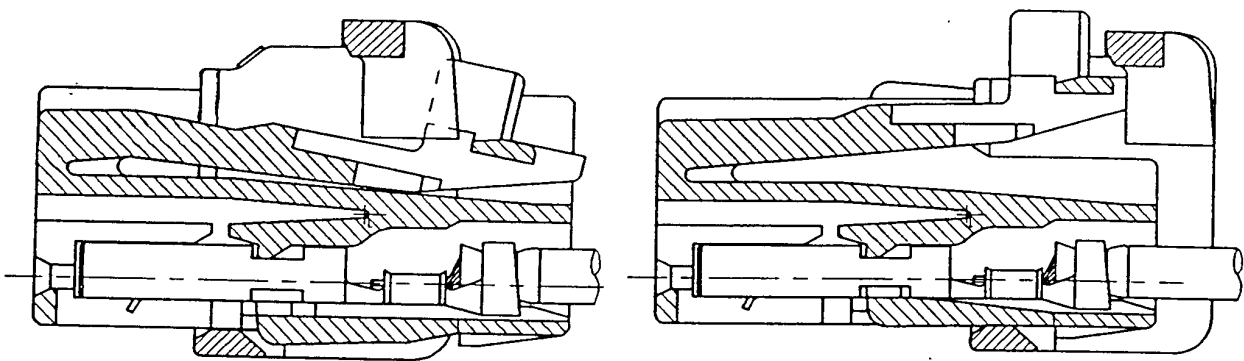
- Turn the housing so that the locking side is up. Make sure that the ZAMAC clamp is in the forward position (See Fig. 1).



- Insert the contacts with their crimping wings facing upwards, until they reach the stop.



- Make sure that the contacts do not exceed the overall dimensioning of the housing.
- Do not force the insertion.  
When the insertion appears to be difficult, remove the contact and re-arrange its position.
- When the contact is inserted in its cavity, make sure that it is properly locked by slightly pulling the wire.
- When the contact locks into place, a slight click can be heard.
- In the event of an error in selecting the proper cavity, remove the contact only by means of the proper AMP extracting tool. See the relevant instruction sheet.
- Once all of the contacts are inserted in their cavities, push on the plastic locking flap of the housing until it retracts completely and push the ZAMAC clamp back until it locks in the rear position (See Figure 2).



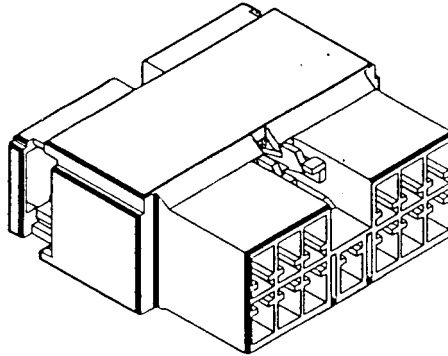
Make sure that the locking flap rises back up properly.

- Do not force the clamp when pushing it back.  
If this operation appears to be difficult ( $F > 50 \text{ N}$ ), one or more contacts are not properly locked in their cavities.  
If so, bring the clamp back to its initial position, and push each contact into its corresponding cavity.  
Then redo the procedure previously specified.

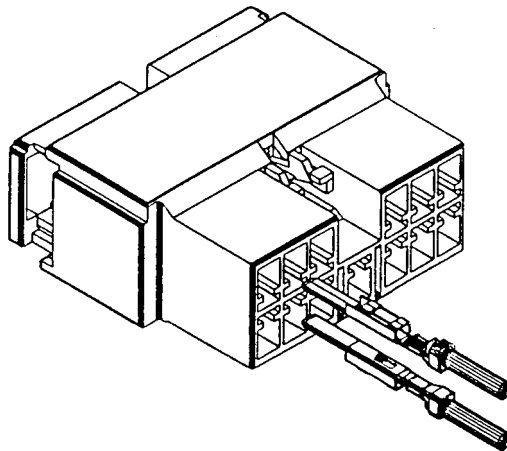
## 8.2 Inserting contacts in the tab-holder housing

It is essential to make sure that the contacts are not damaged before inserting them, since it could result in the connection functioning badly. The crimping specifications give the acceptable deformations for the barrels.

- Turn the housing so that the locking side is up. Make sure that the secondary lock is in the forward position (See Fig. 3).



- Insert the contacts until they reach the stop, the crimping wings facing upwards for the upper row (A) and downwards for the lower row (B) (See Figure IV).

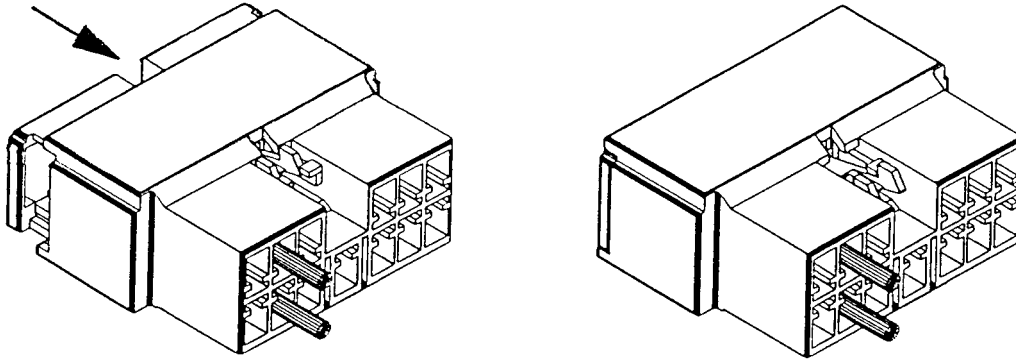


- Make sure that the contacts do not exceed the overall dimensioning of the housing.
- Do not force the insertion.  
When the insertion appears to be difficult, remove the contact and re-arrange its position.
- When the contact is inserted in its cavity, make sure that it is properly locked by slightly pulling the wire.

When the contact locks into place, a slight click can be heard.

- In the event of an error in the selection of the proper cavity, remove the contact only by means of the proper AMP extracting tool. See the relevant instruction sheet.

- Once all of the contacts are inserted in their cavities, push on the front side of the lock to fit it inside the housing.

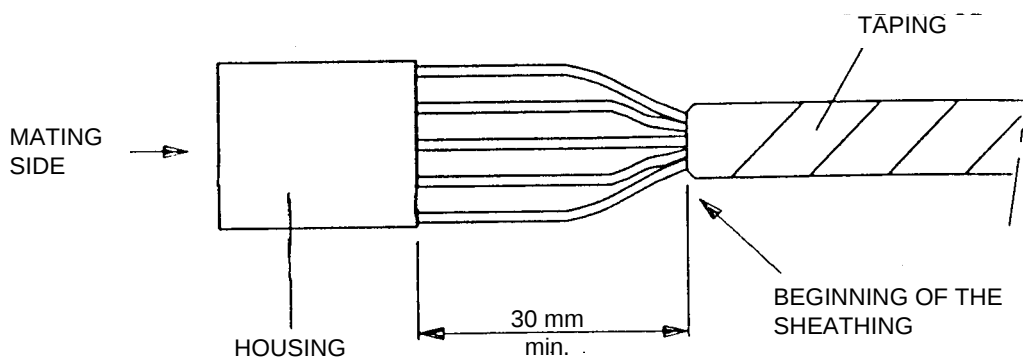


- Do not force the lock when pushing it back.
- If this operation appears to be difficult ( $F > 100 \text{ N}$ ), one or more contacts are not properly locked in their cavity. If so, bring the lock back to its initial position, and push each contact into its corresponding cavity. Then, redo the procedure previously specified.

### 8.3 Taping (or sheathing) the bundles

Bundles should be taped in order to avoid problems due to vibration and friction, which could result in the wiring functioning badly, or in short-circuits or electrical failures.

While taping the wires, do not start taping flush with the housing, but leave a minimum of 30 mm of free wire, so that there could be some clearance for the contacts and so a contact could easily be removed. No wire should be tight, since this could result in damaging the plastic locking lances of the contact.



## **9. TESTING AND STORING ASSEMBLED CONNECTORS**

### **9.1 Testing assembled harnesses**

9.1.1 It is not recommended to use a connector to test electrical continuity.

9.1.2 Never attempt to insert a test contact in a receptacle for continuity testing, since this could damage it.

### **9.2 Storing**

Assembled harnesses should be stored in a clean and dry room. Harnesses should always be covered or wrapped. To this effect, use a vinyl sheet or bag for example.

## **10. MATING AND UNMATING CONNECTORS**

Connectors should be mated or unmated by inserting both housings perfectly straight and by pushing or pulling the housings instead of the wires.

Mating is effective when the locking click can be heard.

Never exert any rocking or rotating actions during these operations.