

Figure 1

## 1. INTRODUCTION

Mini-Universal MATE-N-LOK connectors, shown in Figure 1, are available in plug housings and cap housings for wire-to-wire free-hanging and panel mount applications, and vertical pin headers and right-angle pin headers for wire-to-printed circuit (pc) board applications.

**NOTE** A complete list of current connector and contact part numbers cannot be maintained in this document. For all part numbers and their description, refer to the applicable catalog, or call **PRODUCT INFO** at the number at the bottom of this page.

**NOTE** Dimensions in this instruction sheet are in millimeters [with inches in brackets]. Figures are not drawn to scale.

Read these instructions, and those referenced, before assembling or disassembling the connectors.

Reasons for reissue of this instruction sheet are provided in Section 6, **REVISION SUMMARY**.

## 2. DESCRIPTION

The housings accept pin or socket contacts crimped onto stranded wire, and the pin headers contain through hole contacts for soldering onto the pc board.

The connectors (except the hermaphroditic) are polarized for proper mating. Keying plugs are available for the connectors to provide additional polarization for mating. The positive locking mechanisms (locking latch and locking tab) prevent accidental disengagement of mated connectors.

The cap housing features mounting ears and panel stops to aid in mounting to a panel.

## 3. ASSEMBLY

**NOTE** For specific application and inspection requirements, refer to *Application Specification 114-16017*.

### 3.1. Housings

#### A. Selection and Preparation

1. Select the appropriate contact according to the wire size and insulation diameter to be used. Refer to Figure 2.

| WIRE                       |   | CONTACT <sup>†</sup> (Loose Piece) <sup>‡</sup> |           |
|----------------------------|---|---|-----------|
| SIZE (AWG) RANGE           | INSUL DIA RANGE                                   | PIN   | SOCKET    |
| 30 - 26                    | 0.89 - 1.27<br>[.035 - .050]                      | 794059-[]                                       | 794058-[] |
| 26 - 22                    | 1.19 - 1.75<br>[.047 - .069]                      | 770985-[]                                       | 770986-[] |
| 22 - 18 or<br>22 (2 Wires) | 1.49 - 2.79<br>[.059 - .110] or<br>3.38 [133] Max | 770987-[]                                       | 770988-[] |
| 20 - 16 or<br>20 (2 Wires) | 2.00 - 3.20<br>[.079 - .126] or<br>4.78 [188] Max | 171638-[]                                       | 171639-[] |

<sup>†</sup> Contact part numbers listed are not intended to be a complete list. Refer to the applicable catalog.

<sup>‡</sup> If using strip form contacts, make sure that the cutoff tab length conforms to the requirements in 114-16017.

Figure 2

2. Strip the wire 3.20 to 3.71 [.126 to .146] for one-wire application and 3.50 to 3.99 [.138 to .157] for two-wire application. Reasonable care must be taken not to nick, scrape, or cut any strands during stripping.

3. Crimp the contact using the appropriate hand tool (for loose piece contacts) or machine (for strip form contacts). Refer to the instructions packaged with the tool or machine for crimping procedures.

**NOTE** For available tooling, refer to 114-16017. Consult your local representative for assistance in selecting the tool or machine that will best suit your needs.

**B. Contact Insertion and Removal**

Insert the contacts into the housing according to the following:

1. Align the contact with the desired contact cavity at the BACK (wire side) of the housing.
2. Grasp the wire-directly behind the contact insulation barrel-and push the contact straight into the cavity until it bottoms (there should be an audible click). Pull back lightly on the wire to be sure the contact is locked in place. See Figure 3.

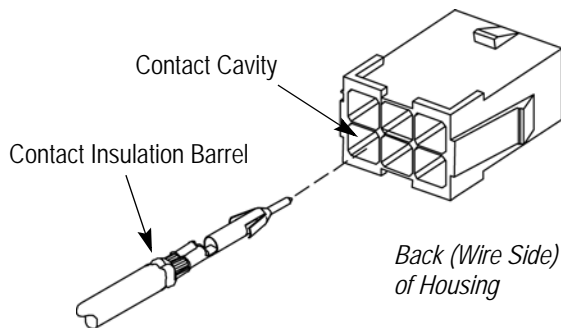


Figure 3

**NOTE** Insertion Tool 455830-1 is available for inserting contacts crimped onto small wire sizes or when the wire bundle is too large for hand insertion. For information on using the tool, refer to 408-7984.

3. If removal is necessary, use Extraction Tool 189727-1 to remove the contact from the housing. For information on using the tool, refer to 408-4118.

**C. Keying Plug Insertion and Removal**

Determine the applicable contact cavity to be keyed, and make sure that the cavity is empty. Then install the keying plug according to the following.

**NOTE** Corresponding cavities in the pin header or cap housing must be empty.

1. Align the tapered end of the keying plug with the desired contact cavity at the FRONT (mating face) of the housing. Insert the keying plug straight into the cavity until it snaps into position. Refer to Figure 4.

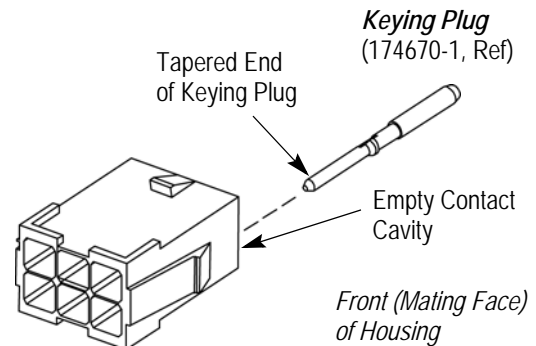


Figure 4

2. If removal is necessary, grip the keying plug with pliers at the FRONT of the housing, and pull straight out.

**D. Panel Mounting (Cap Housing Only)**

1. Design the panel using the dimensions provided on the customer drawing for the specific cap housing.
2. Insert the cap housing (mating face first) through the panel cutout in the same direction as the punch. Make sure that the panel stops are flush with the panel, and the mounting ears are against the panel. Refer to Figure 5.
3. If removal is necessary, deflect the mounting ears until they clear the panel, then pull the cap housing through either the front or back of the panel.

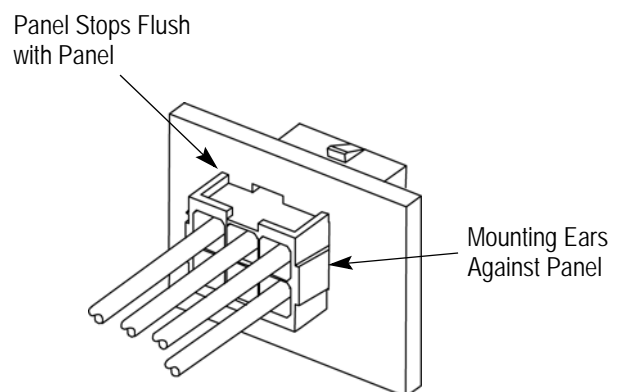



Figure 5


### 3.2. Pin Headers

1. Design the pc board using the dimensions provided on the customer drawing for the specific pin header.
2. Solder the pin header to the pc board according to Application Specification 114-16017.
3. If removal is necessary, use standard de-soldering methods.

### 3.3. Mating Connectors

**NOTE**  Check to be sure mating connectors have identical number of circuit positions.

1. Align the mating faces of the connectors.


**NOTE**  The end contact cavities of the cap housing are marked with the circuit position, and along the side of the plug housing is a raised alignment rib indicating Position 1.

2. Insert the plug housing straight into the mating connector until it bottoms and the locking latch engages and is fully seated on the locking tab of the mating connector. Refer to Figure 6.

3. If necessary, bundle wires together and support with cable ties or similar device. Make sure that the distance of the cable tie from the wire end of the connector is a minimum of 76.2 [3.0]. Refer to Figure 6. Keep the wires perpendicular to the connectors and avoid an excessively sharp bend radius. DO NOT stretch or confine the wires in any way.

### 4. DISASSEMBLY

To disengage mating connectors, release the locking latch of the plug housing from the locking tab of the mating connector, and pull the connectors apart.

**CAUTION**  DO NOT pull the connectors by the wires.

### 5. REPLACEMENT AND REPAIR

The contacts and connectors are not repairable. Discard and replace any defective or damaged contacts or connectors. DO NOT re-use a terminated contact by removing the wire.

DO NOT re-use pin headers after removal from the pc board.

### 6. REVISION SUMMARY

Since the previous version of this document, the following changes were made:

- Updated document to corporate requirements.

*Free Hanging Application Shown  
Requirements Apply Equally to PC Board Applications*

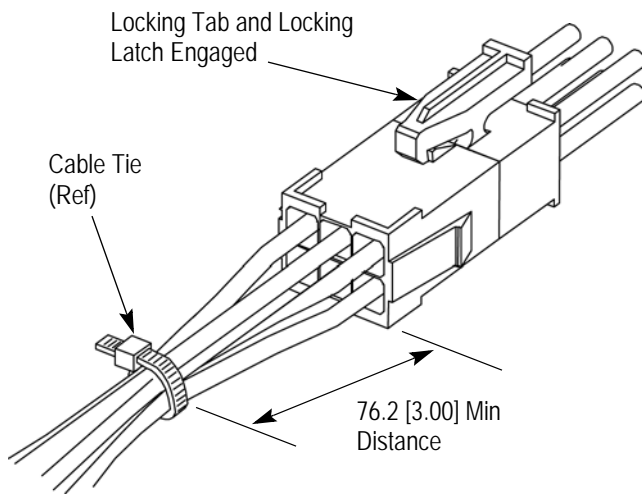


Figure 6