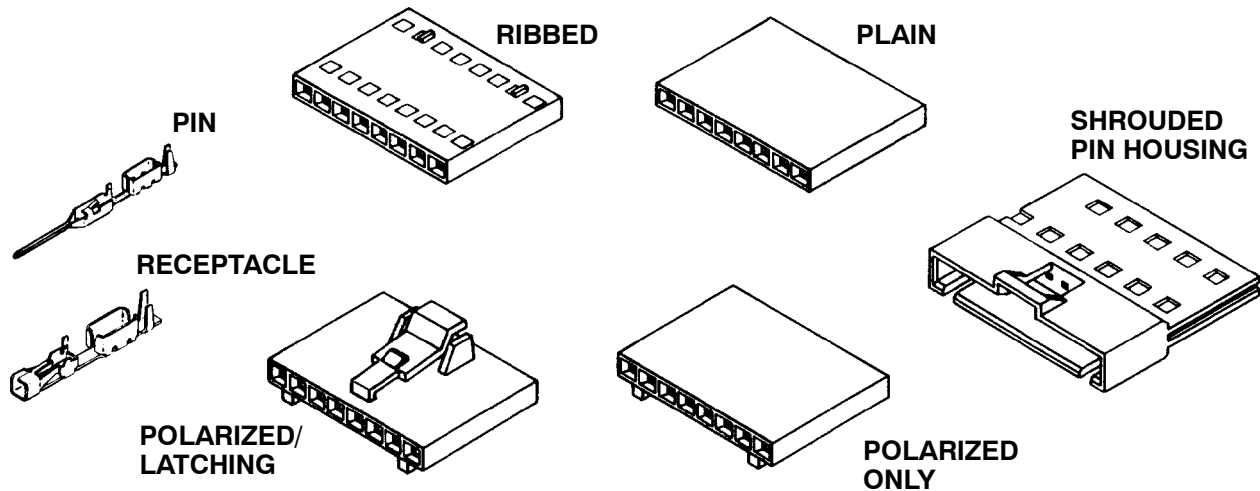


### PROPER USE GUIDELINES

Cumulative Trauma Disorders can result from the prolonged use of manually powered hand tools. Hand tools are intended for occasional use and low volume applications. A wide selection of powered application equipment for extended-use, production operations is available.



| WIRE SIZE (AWG) | CONTACT FINISH | CONTACT FORM | CONNECTOR ASSEMBLY PART NUMBERS |        |                                  |           |        |        |        |
|-----------------|----------------|--------------|---------------------------------|--------|----------------------------------|-----------|--------|--------|--------|
|                 |                |              | HOUSING WITH PIN CONTACTS       |        | HOUSING WITH RECEPTACLE CONTACTS |           |        |        |        |
|                 |                |              | POLARIZED/LATCHING              | RIBBED | POLARIZED/LATCHING               | POLARIZED | RIBBED | PLAIN  |        |
| 22 to 26        | TIN            | STRIP        | 103944                          | 103950 | 103956                           | 103962    | 103968 | 103974 | —      |
|                 |                | LP           | 103661                          | 103654 | 103645                           | 103647    | 103652 | 103687 | —      |
|                 | 15 m in. GOLD  | STRIP        | 103945                          | 103951 | 103957                           | 103963    | 103969 | 103975 | —      |
|                 |                | LP           | 103660                          | 103655 | 103644                           | 103646    | 103651 | 103686 | —      |
|                 | 30 m in. GOLD  | STRIP        | 103946                          | 103952 | 103958                           | 103964    | 103970 | 103976 | 104439 |
|                 |                | LP           | 103893                          | 103895 | 103734                           | 103898    | 103900 | 103902 | —      |
|                 | TIN            | STRIP        | 103947                          | 103953 | 103959                           | 103965    | 103971 | 103977 | —      |
|                 |                | LP           | 103659                          | 103656 | 103641                           | 103643    | 103650 | 103685 | —      |
| 26 to 30        | 15 m in. GOLD  | STRIP        | 103948                          | 103954 | 103960                           | 103966    | 103972 | 103978 | —      |
|                 |                | LP           | 103658                          | 103657 | 103640                           | 103642    | 103649 | 103684 | —      |
|                 | 30 m in. GOLD  | STRIP        | 103949                          | 103955 | 103961                           | 103967    | 103973 | 103979 | 104438 |
|                 |                | LP           | 103894                          | 103896 | 103897                           | 103899    | 103901 | 103903 | —      |

Figure 1

## 1. INTRODUCTION

This instruction sheet (IS) covers selection and assembly procedures for the AMPMODU MTE connectors listed in Figure 1. Read this sheet, and all referenced material, thoroughly before assembling and terminating any connectors.

### NOTE



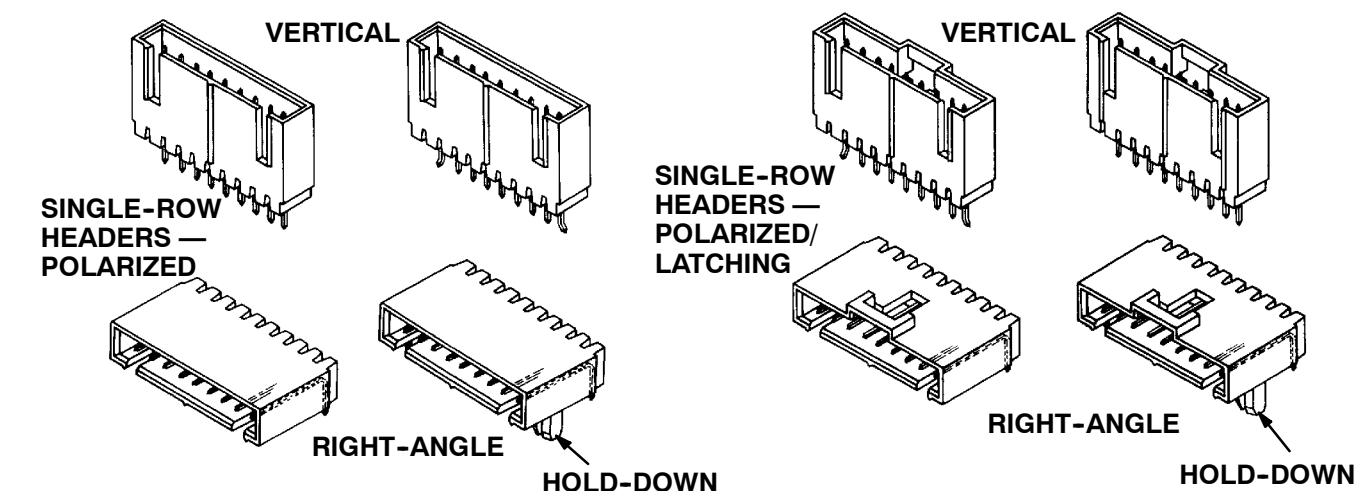
All dimensions on this sheet are in inches. Figures and illustrations are for identification only and are not drawn to scale.

## 2. DESCRIPTION

The connectors feature four receptacle housing styles: plain, polarized, latched and polarized, and ribbed. Two wire size ranges (22 through 26 AWG and 26 through 30 AWG) are available for the pin and receptacle contacts.

Plain housings are designed to mate with AMPMODU Breakaway Headers or with machine-applied posts.

The polarized and the latched-and-polarized housings listed in Figure 1 are designed to mate with the headers listed in Figure 2. Optional hold-down



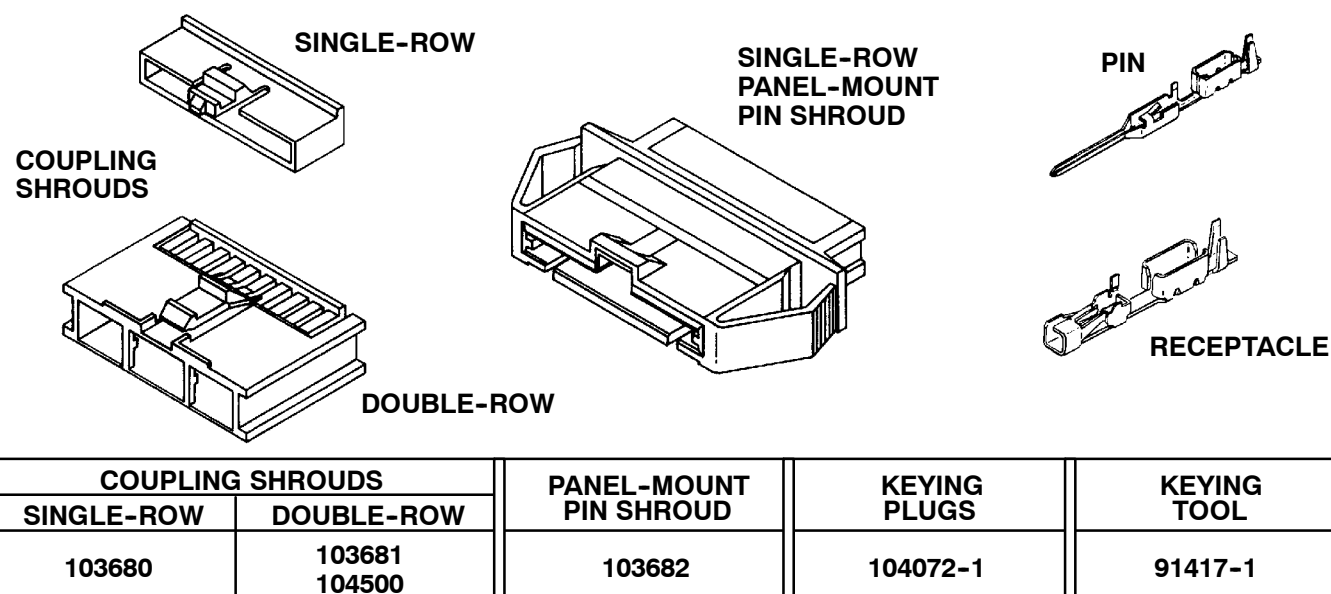
| HEADER MOUNTING TYPE | CONTACT FINISH    | POLARIZED HEADER   |                 | POLARIZED/LATCHING HEADER |         |                 |         |
|----------------------|-------------------|--------------------|-----------------|---------------------------|---------|-----------------|---------|
|                      |                   | WITHOUT HOLD-DOWNS | WITH HOLD-DOWNS | WITHOUT HOLD-DOWNS        |         | WITH HOLD-DOWNS |         |
|                      |                   | STANDARD           | STANDARD        | STANDARD                  | HI-TEMP | STANDARD        | HI-TEMP |
| VERTICAL             | TIN               | 103637             | 103668          | 103639                    | —       | 103669          | —       |
|                      | 15 $\mu$ in. GOLD | 103636             | 103664          | 103638                    | 104363  | 103670          | 104362  |
|                      | 30 $\mu$ in. GOLD | 103910             | 103909          | 103735                    | —       | 103908          | 104391  |
| RT ANGLE             | TIN               | 103633             | 103671          | 103634                    | —       | 103672          | —       |
|                      | 15 $\mu$ in. GOLD | 103632             | 103665          | 103635                    | —       | 103673          | 104361  |
|                      | 30 $\mu$ in. GOLD | 103907             | 103905          | 103906                    | —       | 103904          | —       |

Figure 2

features are available to retain the headers on the printed circuit (pc) board prior to wave soldering.

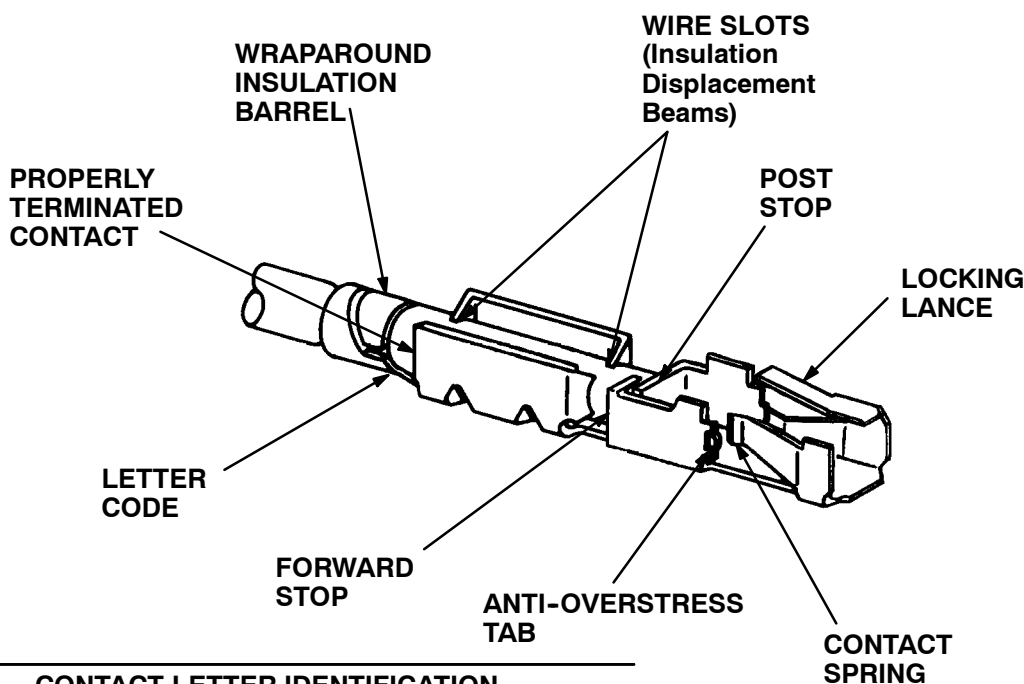
The ribbed housing allows a modular packaging approach when using coupling shrouds. After termination, the ribbed housings can be inserted into the single-row or double-row coupling shrouds to form a larger, one-piece connector.

For example, two 5-position housings could be stacked end-to-end inside a single-row coupling shroud to form a 10-position connector. This 10-position, modular connector could then be mated to a 10-position, single-row AMPMODU MTE shrouded header with latch.



| COUPLING SHROUDS |                  | PANEL-MOUNT PIN SHROUD | KEYING PLUGS | KEYING TOOL |
|------------------|------------------|------------------------|--------------|-------------|
| SINGLE-ROW       | DOUBLE-ROW       |                        |              |             |
| 103680           | 103681<br>104500 | 103682                 | 104072-1     | 91417-1     |

Figure 3



| CONTACT LETTER IDENTIFICATION |             |            |          |
|-------------------------------|-------------|------------|----------|
| WIRE SIZE<br>(AWG)            | LETTER CODE |            | PRESSURE |
|                               | PIN         | RECEPTACLE |          |
| 22 - 26                       | D           | B          | Standard |
|                               | —           | F          | High     |
| 26 - 30                       | C           | A          | Standard |
|                               | —           | G          | High     |

**NOTE:** Contact removed and enlarged for clarity.

Figure 4

Similarly, two 10-position ribbed housings could be stacked back-to-back inside a double-row coupling shroud to form a 20-position, double-row connector. This 20-position, double-row connector could then be mated to any shrouded, double-row AMPMODU header with a .318-in. mating post length and a .150-in. end dimension.

**NOTE**



*The .150-in. end dimension is measured from the centerline of the last post to the inside of the end shroud wall.*

Other sizes of contact housings may be combined in this manner to form the desired number of positions.

Figure 3 shows typical coupling shrouds, and lists the base part numbers of the shrouds. For information on specific sizes of coupling shrouds, refer to Catalog 85-773.

Two housing types are available for pin contacts. One is a fully-shrouded housing and the other is a ribbed housing. After termination, the ribbed housing (with the pin contacts protruding out of its front) is inserted into the panel-mount shroud. One or more ribbed housings may be used, as is done with the coupling

shrouds. A typical panel-mount shroud is shown in Figure 3.

The shroud can then be snapped into a panel to form a bulkhead connector. The mating half is again the latching-style receptacle or the single-row coupling shroud.

Both pin and receptacle contacts feature insulation-displacement termination for the conductors and are preloaded in the .100-in. centerline, single-row housings. During manufacturing, the contacts are partially inserted, leaving their termination areas exposed at the back of the housing. Final contact insertion into the housings is done by the termination tooling (except when using a hand crimping tool or bench mount power assembly).

Receptacle contacts feature a dual-beam receptacle box with anti-overstress features, integral wraparound insulation barrel, a post stop, and a forward contact stop. The post stop prevents the mating post from disturbing the wire bundle at the end of the IDC crimp. The forward contact stop prevents the contact from being overinserted prior to termination. Pin contacts feature the wraparound insulation barrel and forward contact stop as well.

| DESCRIPTION                                               | MAXIMUM<br>TERMINATIONS<br>PER CYCLE | WIRE SIZE<br>(Solid or<br>7 Strand) | PART NUMBER                                              |
|-----------------------------------------------------------|--------------------------------------|-------------------------------------|----------------------------------------------------------|
| Self-Indexing<br>Manual Pistol<br>Grip Tool<br>58074-1    | 1                                    | 22 - 30 AWG                         | Terminating<br>Head 58336-1                              |
| Self-Indexing<br>Pneumatic Pistol<br>Grip Tool<br>58338-1 | 1                                    |                                     | Terminating<br>Head 58336-1                              |
| Manual Bench<br>Applicator                                | 25                                   |                                     | 91416-1                                                  |
| Single Lead<br>Bench Machine                              | 1                                    |                                     | 817900-1                                                 |
| Automatic<br>Cable Assembly<br>Machine                    | 25                                   | ↓                                   | Contact TE<br>Engineering for<br>Specific<br>Information |

Figure 5

**NOTE**


For detailed information on housings and contacts, refer to TE Catalog 85-773.

Keying plugs and a keying tool are available for the connector assemblies. Refer to Figure 3 for part numbers for these items.

### 3. TERMINATION TOOLING

During termination, the stripped wire enters the two wire slots of the insulation displacement beams, and the insulation barrel forms around the insulation of the wire. Refer to Figure 4 (receptacle contact shown).

**NOTE**


Read the instructional material packaged with the termination tooling **BEFORE** attempting to terminate any contacts.

The available tooling for terminating the wires is listed in Figure 5. Production requirements will determine the tooling necessary for your application. For assistance in selecting the tooling that will best suit your needs, contact your local TE Representative.

### 4. ASSEMBLY PROCEDURE

Determine the wire size to be terminated and the housing type desired by referring to the table in Figure 1. Obtain the required tooling for contact termination and proceed as follows:

1. Ensure that the contacts are properly seated in the housing, with the contact locking lances visible in the preload windows, that the front locator stops are against the back of the housing, and that the contact carrier strips are properly interlocked. Refer to Figure 6.
2. Position the housing in the tooling according to the instructions provided with the tooling.
3. Locate the wires in the tooling in accordance with the tooling instructions.
4. Make all of the required terminations.
5. Remove the terminated housing from the tooling.

**NOTE**


If using Terminating Head 58336-1, the contact carrier strip must be bent downward and broken off after the contacts are terminated. The contacts must then be inserted the remaining distance into the housing until the locking lances engage the locking lance window.

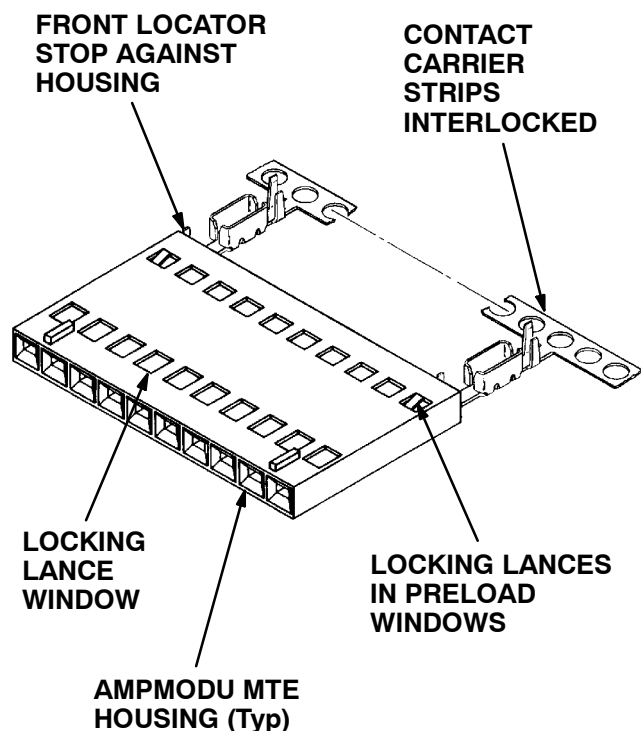


Figure 6

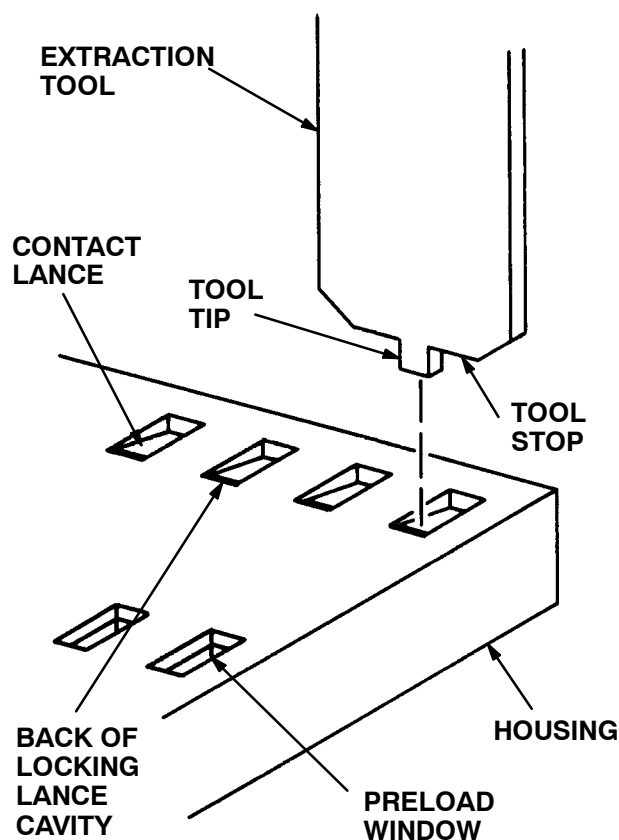


Figure 7

## 5. EXTRACTING CONTACTS (Figure 7)

The contacts can be removed from the contact housings by using Extraction/Reset Tool 843477-1. Refer to Instruction Sheet IS 9453, which is packaged with the tool, for detailed extraction procedure.

The tool is designed to depress the locking lance of the contact without deforming or overstressing the contact. Briefly, the procedure is as follows:

1. Align the tool tip with the back of the locking lance cavity.
2. Insert the tool tip into the locking lance cavity until the tool stop bottoms on the housing.
3. Keeping the tool in this position, carefully move the contact to the preload window of the housing.
4. Repeat Steps 1 and 2 at the preload window of the housing to remove the contact completely.

## 6. CONTACT REPLACEMENT

In the event that a contact becomes damaged, it may be replaced by performing the following procedure:

1. Extract the damaged contact by following the procedure described in Paragraph 5, EXTRACTING CONTACTS.
2. Obtain a preloaded contact housing with the contact type (pin or receptacle) and wire size (22 through 26 or 26 through 30 AWG) desired.
3. Carefully terminate the wire onto the first position of the contact housing by using AMP Manual Pistol Grip Tool 58074-1, equipped with Terminating Head 58336-1.
4. Cut the carrier strip to free the first (terminated) contact from the other contacts on the strip. The remaining contacts may be used for replacements in the future if desired.
5. Break off the replacement contact's carrier strip, and then extract the terminated replacement contact by following the procedure described in Paragraph 5, EXTRACTING CONTACTS.
6. Reset the locking lance height as described in Instruction Sheet IS 9453.
7. Carefully insert the replacement contact fully into the contact housing cavity, ensuring that the locking lance is properly oriented.

8. Pull back lightly on the wire to ensure that the contact locking lance is engaged in the locking lance cavity.

9. Tandem Spring contacts may also be used for contact replacement, in accordance with Application Specification 114-25021.

## 7. KEYING

AMPMODU MTE receptacle and header assemblies may be keyed by using the following technique:

### A. Receptacle Assembly

1. Remove a contact from the housing position to be keyed. Refer to Paragraph 5, EXTRACTING CONTACTS, for the procedure.
2. Insert Keying Plug 87077-2 into the selected contact cavity until the plug's locking lance

engages in the locking lance window of the housing.

### B. Header Assembly

Remove the mating pin contact from the header assembly position being keyed by using Extraction tool 91417-1.

#### NOTE



*For additional information regarding AMPMODU MTE Connectors, contact your local TE Representative for Product Specification 108-25034.*

## 8. REVISION SUMMARY

Since the previous revision of this document, the following has been changed:

- Updated document to corporate requirements.