

NOTE



All numerical values are in metric units [with U.S. customary units in brackets]. Dimensions are in millimeters [and inches]. Unless otherwise specified, dimensions have a tolerance of ± 0.13 [$\pm .005$] and angles have a tolerance of $\pm 2^\circ$. Figures and illustrations are for identification only and are not drawn to scale.

1. INTRODUCTION

This specification covers the requirements for the application of the Wire-to-Board Connectors which mate with Hermaphroditic Blade and Receptacle SMT Connectors. The contacts will accept stranded copper wire with a wire size range of 22-18 AWG. The contacts feature a locking lance to engage the housing and require no insertion tooling. Once terminated, the contacts are inserted into the BACK of the housings. The housings have single row cavities with a centerline spacing of 4.00 mm and are available in 2, 4, and 6 positions. The housing is available in two colors, natural and black. The housing has a latch which engages with a tab on the Hermaphroditic Blade and Receptacle Connector.

When corresponding with TE Personnel, use the terminology provided on this specification to help facilitate your inquiry for information. Basic terms and features of components are provided in Figure 1.

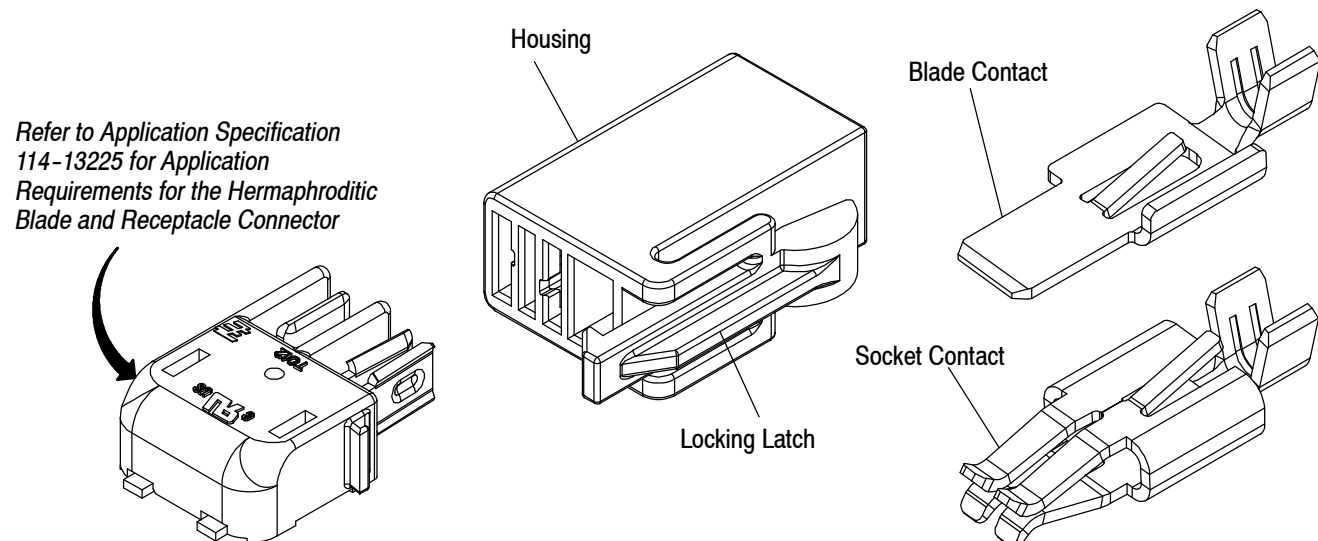


Figure 1

2. REFERENCE MATERIAL

2.1. Revision Summary

- Updated document to corporate requirements

2.2. Customer Assistance

Reference base part number 2058299 and product code L012 are representative numbers of the Wire-to-Board Connector. Use of these numbers will identify the product line and expedite your inquiries through a service network established to help you obtain product and tooling information. Such information can be obtained through a local TE Representative or, after purchase, by calling the Tooling Assistance Center or the Product Information number at the bottom of this page.

2.3. Drawings

Customer Drawings for specific products are available from the responsible TE Engineering Department via the service network. The information contained in the Customer Drawings takes priority if there is a conflict with this specification or with any other technical documentation supplied by TE.

2.4. Specifications

Design Objective 108-2387 provides expected product performance and test information. Application Specification 114-13225 provides information on Hermaphroditic Blade and Receptacle Connectors.

2.5. Instructional Material

The following list includes instruction sheets (408-series) that provide assembly procedures for product, operation, maintenance and repair of tooling; and customer manuals (409-series) that provide setup, operation, and maintenance of machines.

<u>Document Number</u>	<u>Document Title</u>
408-3295	Preparing Reel of Contacts for Application Tooling
408-7424	Checking Terminal Crimp Height Gaging Die Closure
408-8040	Heavy Duty Miniature Quick-Change Applicators (Side Feed Type)
408-9816	Handling of Reeled Products
408-10290	PRO-CRIMPER* III Hand Tool Assembly 2063778-1 with Die Assembly 2063778-2
409-5842	AMP-O-LECTRIC* Model "G" Terminating Machine 354500-[]

3. REQUIREMENTS

3.1. Storage

A. Reeled Contacts

When using reeled contacts, store coil wound reels horizontally and traverse wound reels vertically.

B. Shelf Life

The contacts should remain in the shipping containers until ready for use to prevent deformation to the contacts and/or damage to the housings. The products should be used on a first in, first out basis to avoid storage contamination that could adversely affect signal transmissions.

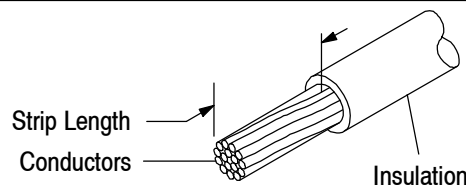
C. Chemical Exposure

Do not store contacts near any chemicals listed below, as they may cause stress corrosion cracking in the components.

Alkalies	Ammonia	Citrates	Phosphates	Citrates	Sulfur Compounds
Amines	Carbonates	Nitrites	Sulfur	Nitrites	Tartrates

3.2. Wire Size and Preparation

Contacts are available for the wire sizes specified in the table in Figure 2. Insulation shall be stripped for a length of 2.20-2.60 mm.



WIRE (Stranded Only)		WIRE BARREL CRIMP	
SIZE (AWG)	INSULATION DIAMETER	HEIGHT ± 0.05	WIDTH (Ref)
22	1.65-2.03	1.33	2.032
20		1.36	
18		1.48	

Figure 2



Reasonable care shall be taken not to nick, scrape, or cut any strands during the stripping operation.

3.3. Contact Crimping

Contacts accept stranded wire only. Strip form contacts are designed to be crimped with a miniature applicator in a semi-automatic or automatic machine and loose-piece contacts may be crimped using a hand tool. Refer to the table in Figure 8 for the appropriate hand tools and applicators. Refer to Paragraph 2.5, Instructional Material, for information on crimping procedures.

3.4. Crimp Requirements

NOTE

The applied crimp dimension (within the function range of the product) is dependent on the termination tooling being used. Refer to the documentation (applicator logs and instruction sheets) supplied with the termination tooling for the applied crimp height. See Section 5, TOOLING.

A. Wire Barrel Crimp

The crimp applied to the wire portion of the contact is the most compressed area and is most critical in ensuring optimum electrical and mechanical performance of the crimped contact. The contact wire barrel crimp height must be within the dimension provided in Figure 2.

B. Effective Crimp Length

For optimum crimp effectiveness, the crimp must be within the area shown and must meet the crimp dimensions provided in Figure 3. Effective crimp length shall be defined as that portion of the wire barrel, excluding bellmouth(s), fully formed by the crimping tool. Instructions for adjusting, repairing, and inspecting tools are packaged with the tools. See Section 5, TOOLING.

C. Bellmouths

Front and rear bellmouths shall be as shown and conform to the dimensions given in Figure 3.

D. Cutoff Tabs

The cutoff tab shall be cut to the dimensions shown in Figure 3.

E. Burrs

No burrs allowed.

F. Wire Barrel Flash

The wire barrel flash shall not exceed the dimensions shown in Figure 3, Section X-X.

G. Conductor Extension

The conductor may extend beyond the wire barrel to the maximum shown. No strands may extrude over the height of the conductor crimp.

H. Wire Barrel Seam

The wire barrel seam shall be closed adequately to confine all strands of the wire. There shall be no loose strands. Wire strands should not be embedded in the outside of the wire barrel.

I. Locking Lance

The locking lance shall not be deformed.

Socket Contact Shown, Blade Contact Has Same Requirements

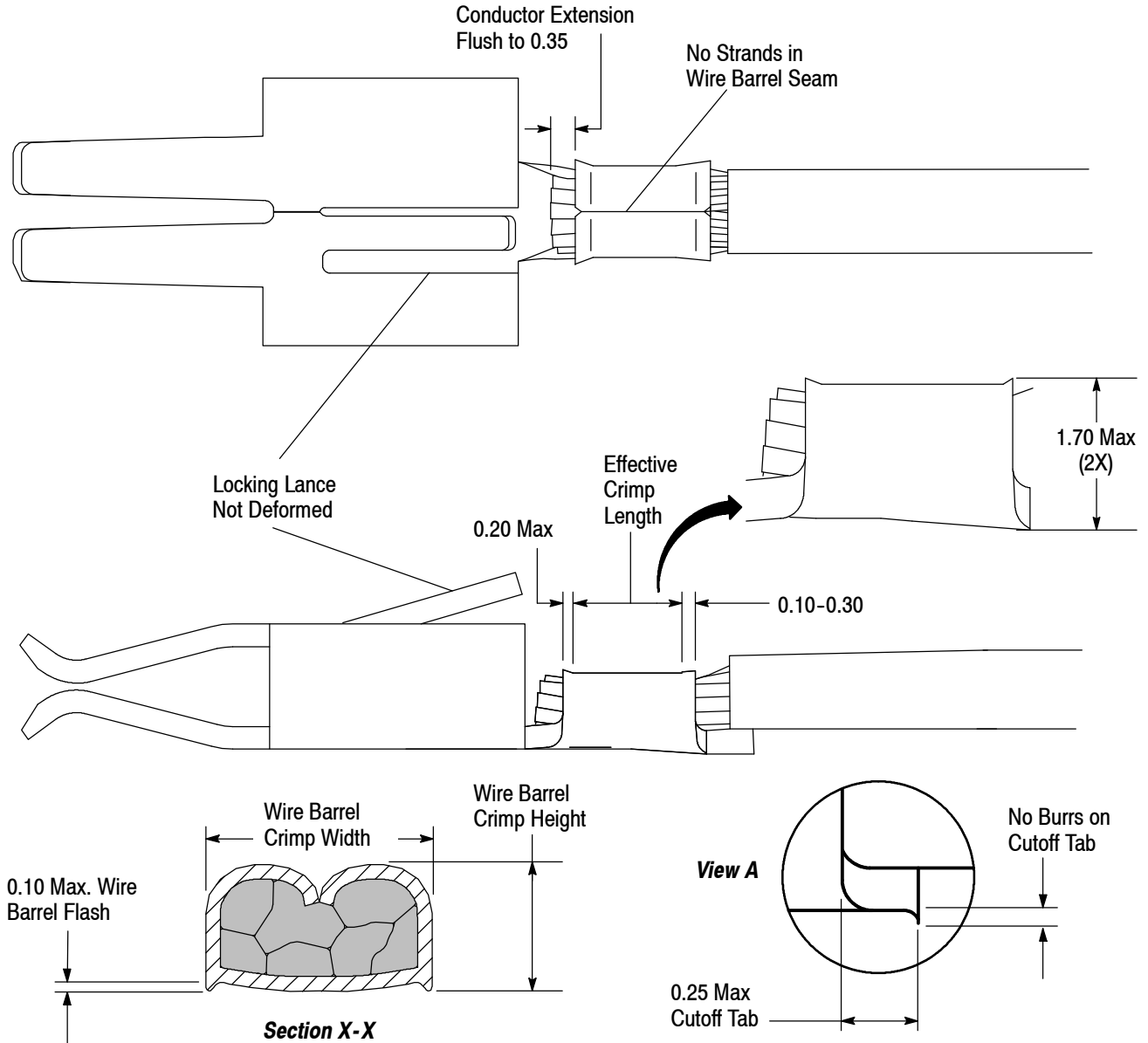


Figure 3

J. Twist and Roll

There shall be no twist or roll in crimped portion that will impair usage of the contact. See Figure 4.

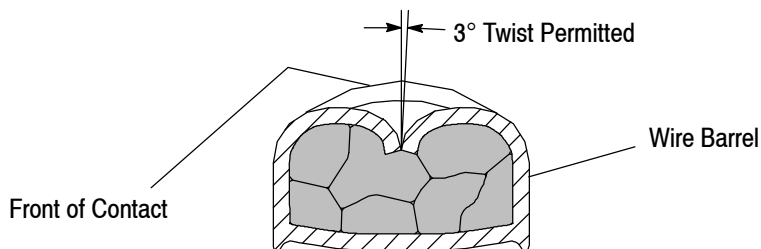


Figure 4

K. Straightness

The contact, including the cutoff tab, shall not be bent above or below the datum line more than the amount shown in Figure 5.

Socket Contact Shown, Blade Contact Has Same Requirements

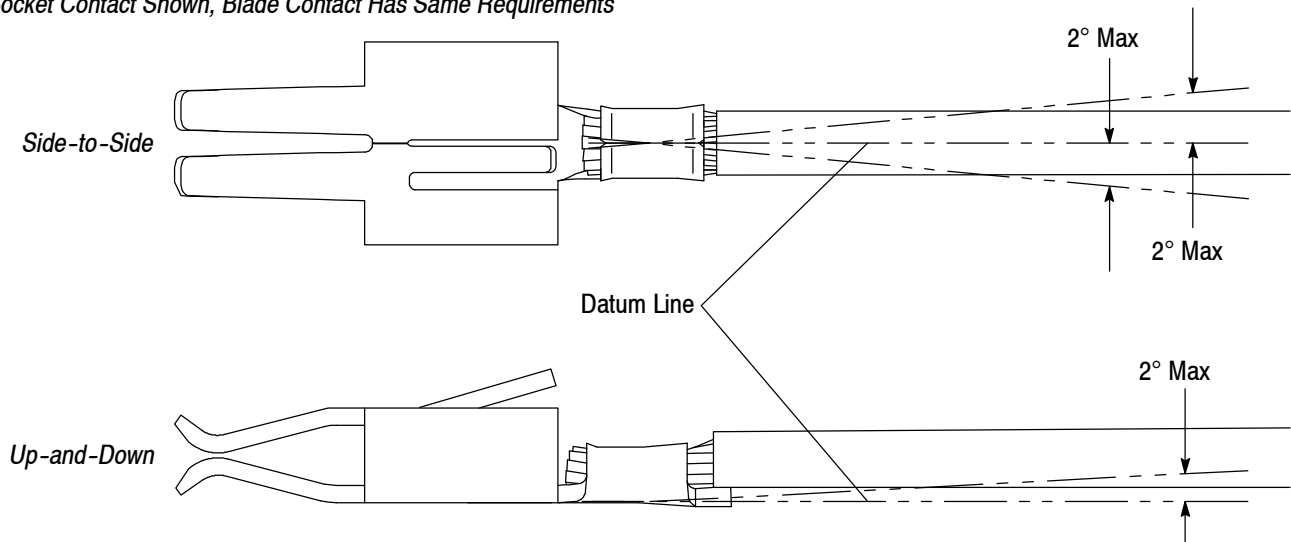


Figure 5

3.5. Assembly Procedures

Insert a crimped contact (blade or socket) by aligning it with the desired contact cavity in the BACK (wire side) of the housing. Grasp the wire – directly behind the wire barrel – and push the contact straight into the cavity until it bottoms (an audible click). Pull back lightly on the wire to be sure the contact is locked in place. See Figure 6.

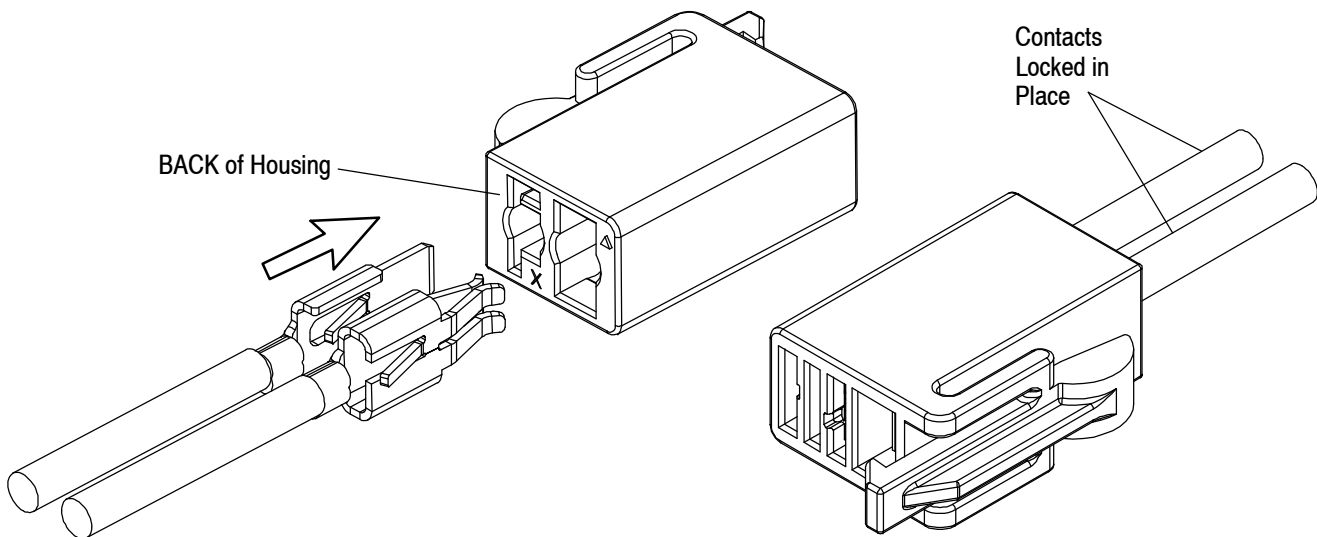


Figure 6

3.6. Keying, Engagement, and Disengagement

A. Keying

The housing cavity for the blade contact is keyed where by the blade contact can only be inserted in one orientation.

B. Engagement

The mating connectors must have an identical number of circuit positions. Polarizing features must be properly oriented. Insert the Wire-to-Board Connector straight towards Hermaphroditic Connector until it bottoms and the locking latch and locking tab engage. See Figure 7A.

C. Disengagement

Pinch the locking latch on the Wire-to-Board Connector and pull straight out to disengage the connectors. See Figure 7B.

D. Contact Removal

For contact removal, insert extraction tool into housing in areas shown in Figure 7C. Remove wire and contact as shown in Figure 7D.

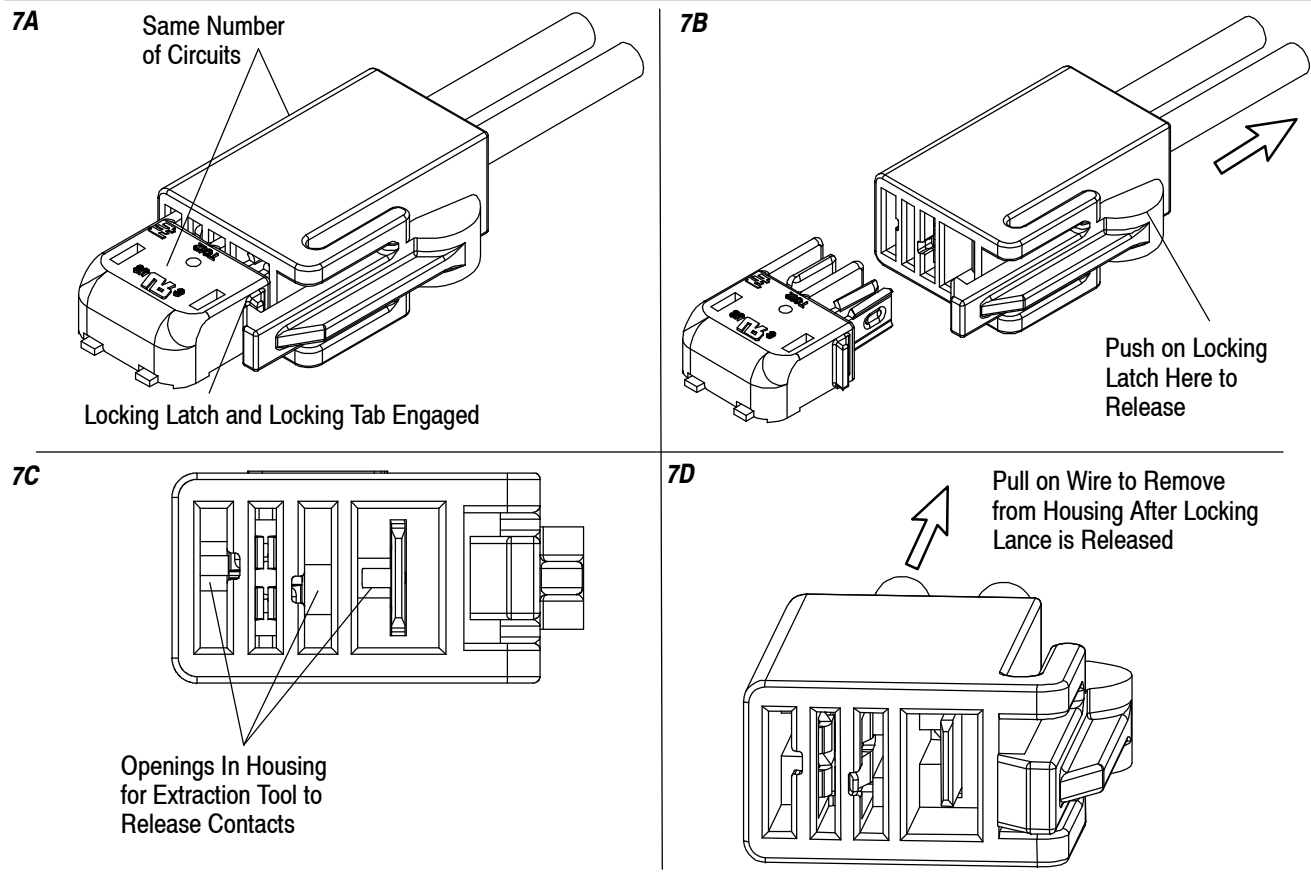


Figure 7

3.7. Repair/Replacement



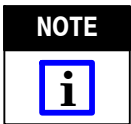
Damaged, worn, or improperly crimped contacts and damaged housings may not be used. Such components should be removed, discarded, and replaced with new components.

4. QUALIFICATIONS

These Wire-to-Board Connectors are Component Recognized by CSA International/Underwriters Laboratories, Inc. (UL) in file E28476, Vol. 67.

5. TOOLING

This section provides a selection of tools for various application requirements. Modified designs and additional tooling concepts may be available to meet other application requirements. A list of tooling recommendations and instructional material packaged with the tooling covering the full wire size range is provided in Figure 8.



TE Tool Engineers have designed machines for a variety of application requirements. For assistance in setting up prototype and production line equipment, contact TE Tool Engineering through your local TE Representative, or call the Tooling Assistance Center number at the bottom of page 1.

5.1. Hand Crimping Tools

Hand crimping tools that accommodate the full wire size range are designed for prototype and low volume applications.

5.2. Applicators

Applicators are designed for the full wire size range of strip-fed, precision formed contacts, and provide for high volume, heavy duty production requirements. The applicators can be used in bench or floor model power units. See Figure 8.



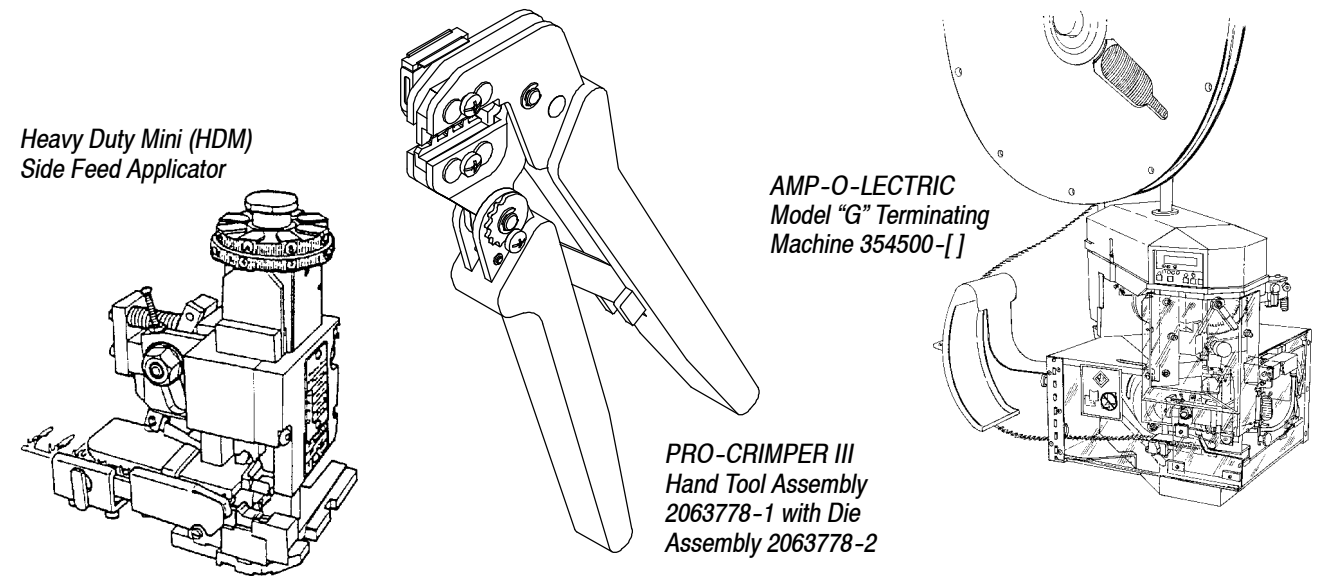
Each applicator is shipped with a metal identification tag attached. DO NOT remove this tag or disregard the information on it. Also, a packet of associated paperwork is included in each applicator shipment. This information should be read before using the applicator; then it should be stored in a clean, dry area near the applicator for future reference. Some changes may have to be made to the applicators to run in all related power units. Contact the Tooling Assistance Center number located at the bottom of page 1 for specific changes.

5.3. Power Units

A power unit is an automatic or semi-automatic machine used to assist in the application of a product. Power units provide the force required to drive the applicator. See Figure 8.

5.4. Extraction Tools

Extraction tools are designed to release the locking lance inside the connector housing without damaging the housing or contacts. Customers may use their own extraction tools, in which case the tool must fit in a 1.10 x 0.70 mm opening in the housing. The tool must be long enough to release the locking lance which is located at a depth of 10.50 mm in the housing.



WIRE		TOOLING (DOCUMENT)		
SIZE (AWG)	INSULATION DIA.	APPLICATOR	POWER UNIT	HAND TOOL
22	1.65-2.03	1852817-3 (408-8040)	354500-1 (409-5842)	2063778-1 (408-10290)
20	1.65-2.03			
18	1.65-2.03			

Figure 8

6. VISUAL AID

Figure 9 shows a typical application of a Wire-to-Board Connector and contact. This illustration should be used by production personnel to ensure a correctly applied product. Applications which DO NOT appear correct should be inspected using the information in the preceding pages of this specification and in the instructional material shipped with the product.

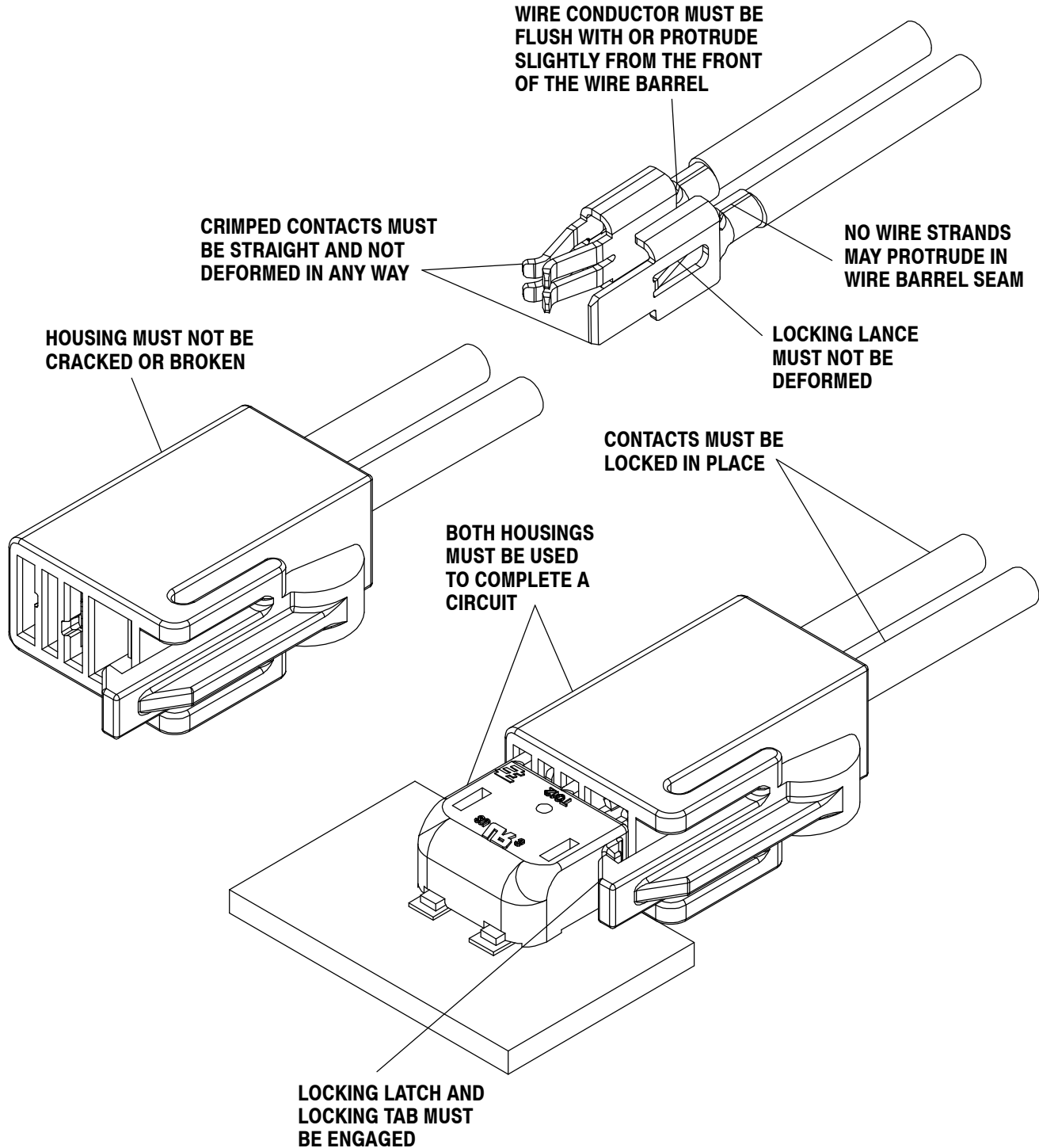


FIGURE 9. VISUAL AID