

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 [± 0.005] 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 requirements for the application of Locking Clip 0.64-mm [.025-in.] (± 0.03 [± 0.001]) Square Contacts and Housings. The contacts are designed to mate with 0.64 [.025] square posts with a maximum corner radius of 8.08 mm [.003 in.]. The contacts feature a locking lance, contact spring, stabilizer, and wrap-around insulation barrel. The contact spring provides high contact-to-post retention, while the locking lance holds the contact in the housing. The stabilizer maintains alignment of the contact in the housing and the wrap-around insulation barrel is a feature which allows for wire with large insulation diameters.

Housings are available in various sizes (number of contact cavities) with single- and double-row contact cavities on 2.54 mm [.100 in.] centerlines. Double-row housings are available in three configurations: both ends closed, right end open, and left end open. Single-row housings are available only in both ends closed. Right end open configurations are designed with a key and left end open configurations are designed with a keyway. This design enables these housings to be stacked on the pc board for circuit grouping. Each contact cavity in the housing features a cavity rib for contact polarization, and when loaded, the housings mate with the posts. Each housing features an extraction slot which is used to remove individual contacts from the housing. These requirements apply to hand and semi-automatic application tooling.

Figure 1 provides terminology for contact and housing features that will be used throughout this specification. Use of these terms will facilitate assistance when corresponding with Tyco Electronics Representatives.

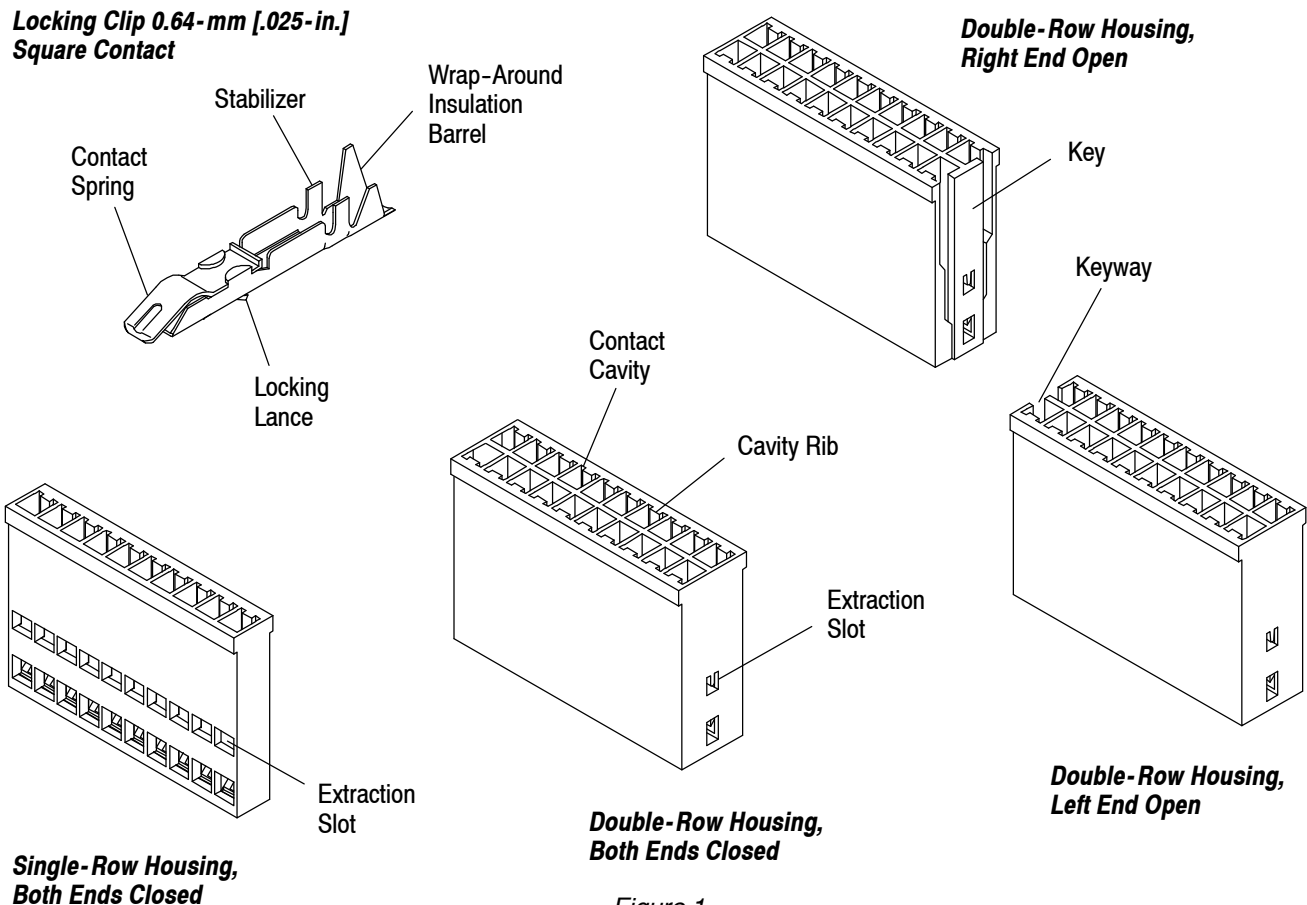


Figure 1

2. REFERENCE MATERIAL

2.1. Revision Summary

This paragraph is reserved for a revision summary of changes and additions made to this specification. The following changes were made for this revision.

- Updated document to corporate requirements
- New logo and format

2.2. Customer Assistance

Reference Part Number 87124 and Product Code 5403 are representative numbers of Locking Clip 0.64-mm [.025-in.] Square Contacts and Housings. 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 Tyco Electronics Representative or, after purchase, by calling the Tooling Assistance Center number at the bottom of page 1.

2.3. Drawings

Customer Drawings for product part numbers are available from the service network. The information contained in Customer Drawings takes priority if there is a conflict with this specification or with any other technical documentation supplied by Tyco Electronics.

2.4. Instructional Material

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

- 408-7443 Hand Crimping Tool 90289-1
- 408-7604 Extraction Tool 91084-1
- 408-7627 Hand Crimping Tool 90295-1
- 408-8040 Quick-Change Applicator 466721-2
- 408-9388 Hand Crimping Tool 90431-1
- 409-5128 AMP-O-ELECTRIC* Model "K" Terminating Machine 565435-5

3. REQUIREMENTS

3.1. Storage

The heat limitation for the contacts and housings is -65° to 105°C [-85° to 221°F].

The contacts and housings should remain in the shipping containers until ready for use to prevent damage to the contact and housings. The contacts and housings should be used on a first in, first out basis to avoid storage contamination that could adversely affect signal transmissions. The contacts have a shelf life of two years from date of manufacture.

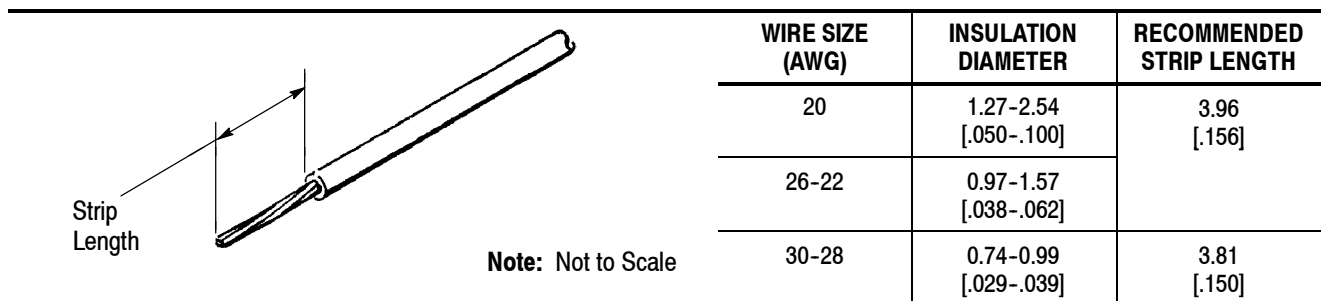


Figure 2

3.2. Wire Preparation

The contacts are designed to be used with discrete solid-conductor wire or stranded wire. The wire insulation must be stripped according to dimensions in Figure 2.

3.3. Square Posts

The centerline spacing between adjacent posts and the functional length of the posts for installing contacts with and without housing is shown in Figure 3.

NOTE

If the post is longer than the maximum specified, the post tip might butt against the wire.



Note: Not to Scale

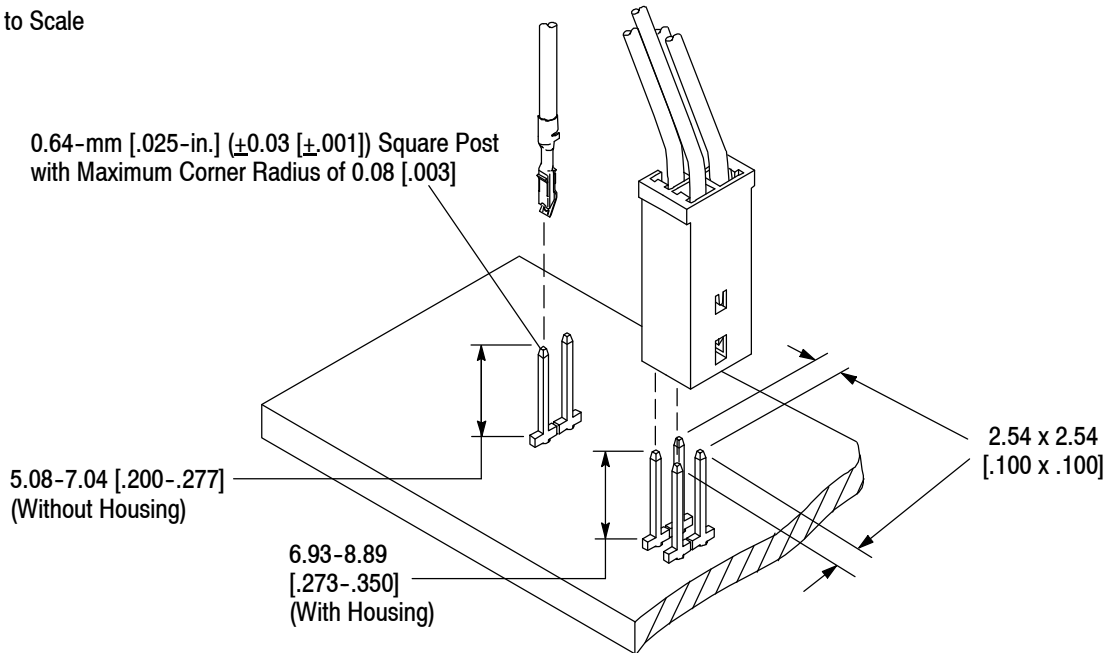


Figure 3

3.4. Terminated Conductor Requirements

A. Carrier Cutoff Tab and Burr

Cutoff tabs are the remaining portion of the carrier strip after the contact is cut off. The cutoff tab and burr shall not exceed the dimensions given in Figure 4.

B. Wire Barrel Crimp

1. Crimp Dimensions

The wire barrel must be measured for crimp height and width. The wire barrel crimp height and width are provided in Figure 4.

2. Tensile Strength

The wire must be retained in the contact wire barrel within the tensile strength pull force listed in Figure 4.

3. Wire Conductor Location

After crimping, the end of the wire conductor must be flush with the front end of wire barrel or slightly extended. Both insulation and conductor must be visible between the insulation barrel and wire barrel. The maximum allowable wire conductor protrusion is given in Figure 4.

CAUTION

DO NOT crimp insulation in the wire barrel.



4. Wire Barrel Seam

Wire barrel seam must be completely closed and with no evidence of loose wire or wire strands visible in the seam. See Figure 4.

5. Wire Barrel Flash

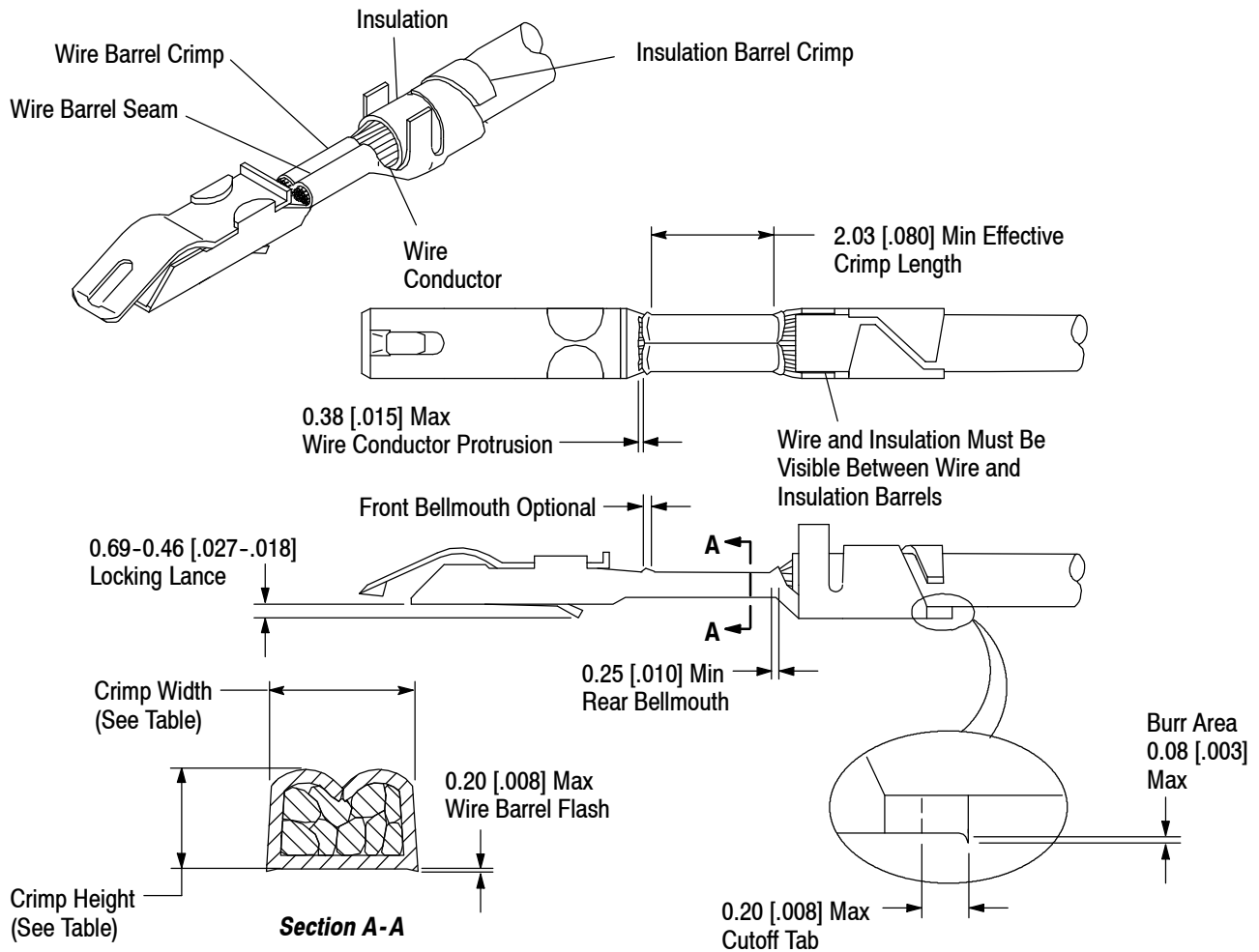
Wire barrel flash is the formation that may appear on both sides of the wire barrel as the result of the crimping process. It must not exceed the limit shown in Figure 4.

6. Bellmouth

The front and rear bellmouths result from the protrusion of the metal of the wire barrel after the crimping process. The dimensions must not exceed the limits shown in Figure 4.

7. Effective Crimp Length

Effective crimp length is defined as that portion of the wire barrel, excluding bellmouth, which is fully formed by the crimping tool; it is shown in Figure 4.



WIRE SIZE RANGE, AWG	INSULATION DIAMETER	WIRE BARREL CRIMP				INSULATION BARREL CRIMP	
		WIDTH	HEIGHT (HAND TOOL)	HEIGHT (APPLICATOR)	TENSILE STRENGTH (N [lbs])	WIDTH	HEIGHT (Max)
30	0.61-0.99 [.024-.039]	1.07 [.042]	0.94-1.04 [.037-.041]	---	7.56 [1.7]	1.40 [.055]	1.83 [.072]
28	0.97-1.57 [.038-.062]			---	12.01 [2.7]		
26		0.71-0.81 [.028-.032]	0.71-0.81 [.028-.032]	17.79 [4.0]			
24		0.71-0.91 [.028-.036]	0.81-0.91 [.032-.036]	31.14 [7.0]			
22		0.97-1.07 [.038-.042]	---	48.93 [11.0]			
20	1.27-2.54 [.050-.100]	---	77.84 [17.5]				

Figure 4

8. Vertical Alignment

The contact, including the cutoff tab and burr, may not be bent above or below the datum line more than is shown in Figure 5.

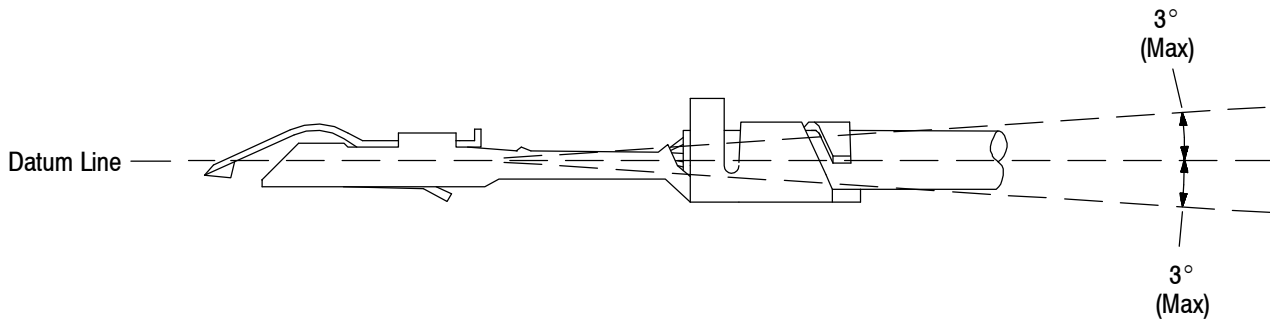


Figure 5

9. Horizontal Alignment

The side to side bending of the contact may not exceed the limits shown in Figure 6.

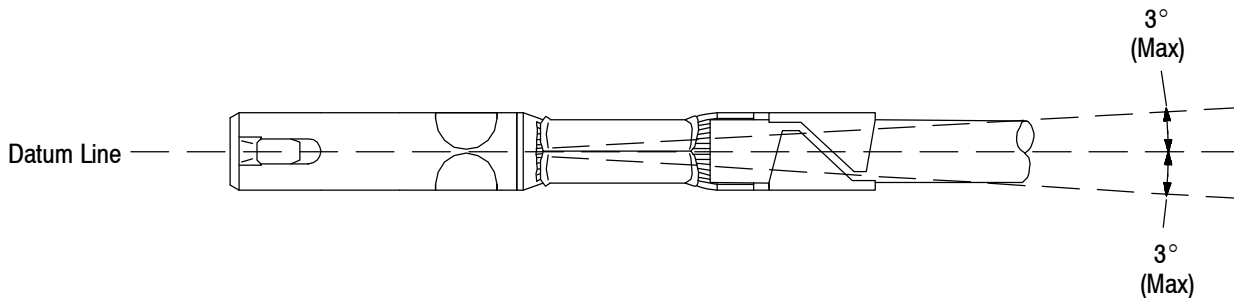


Figure 6

10. Twist or Roll

There should be no twist or roll of the crimped portion in relation to the uncrimped portion of contact that could impair its use. See Figure 7 for limits.

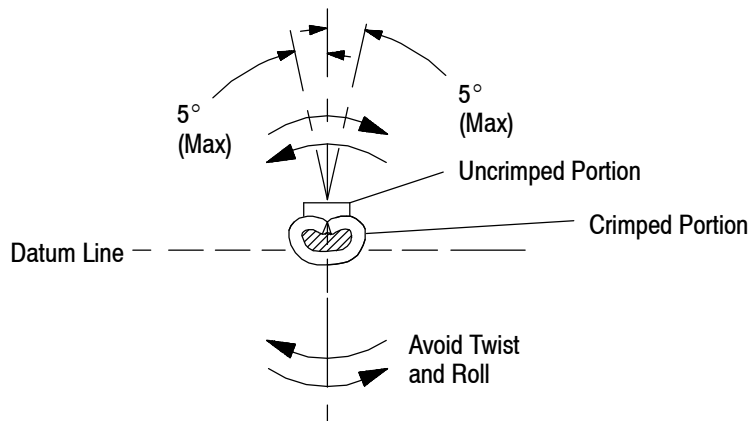


Figure 7

C. Insulation Barrel Crimp

The insulation barrel crimp height and width are given in Figure 4.



CAUTION DO NOT cut or break the insulation while crimping contact.

D. Locking Lance

Locking lance may not be deformed or damaged. Dimensions are given in Figure 4.

E. Stabilizer

After crimping, the stabilizer may not be deformed. See Figure 8.

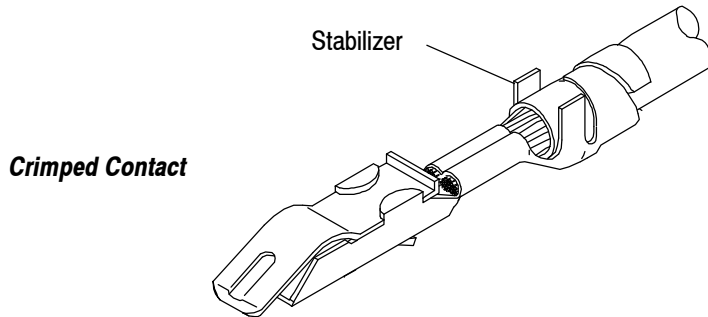


Figure 8

3.5. Housing

A. Keying Plugs

Keying plugs provide housing identification and polarization by not allowing a post to enter the contact cavity where the keying plug is installed. The latch must be oriented with the extraction slot cavity. The plug can be removed with the extraction tool. See Figure 9.

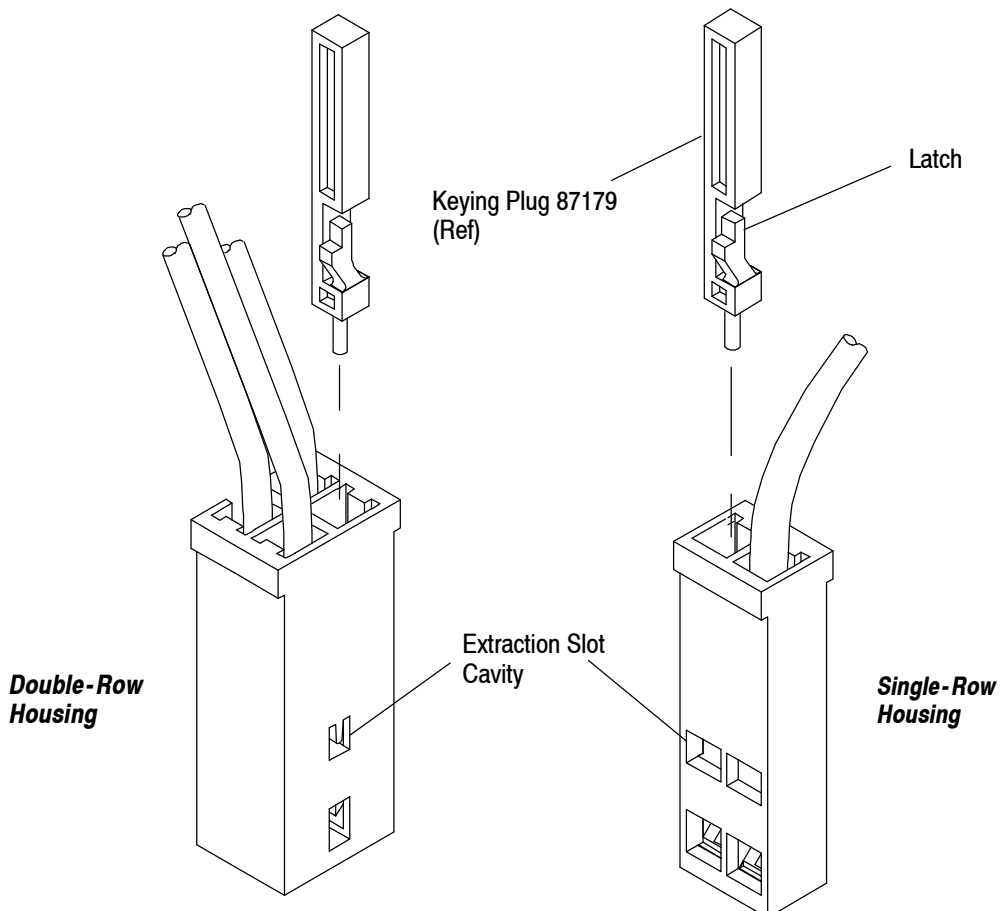


Figure 9

B. Strain Relief

If required, the wires can be bundled together with cable ties and secured to a panel with fixed clamps. The wires must not be confined in any way that would restrict floating action of the contact in the housing.

1. Cable Ties

The minimum distance for the cable tie, measured from the back of the housing to the first cable tie, is shown in Figure 10.

2. Fixed Clamps

The minimum distance for the fixed clamp is measured from the top of the post to the first fixed clamp. There must be slack in perpendicular wire bundles when the housing is fully installed. Refer to Figure 10.

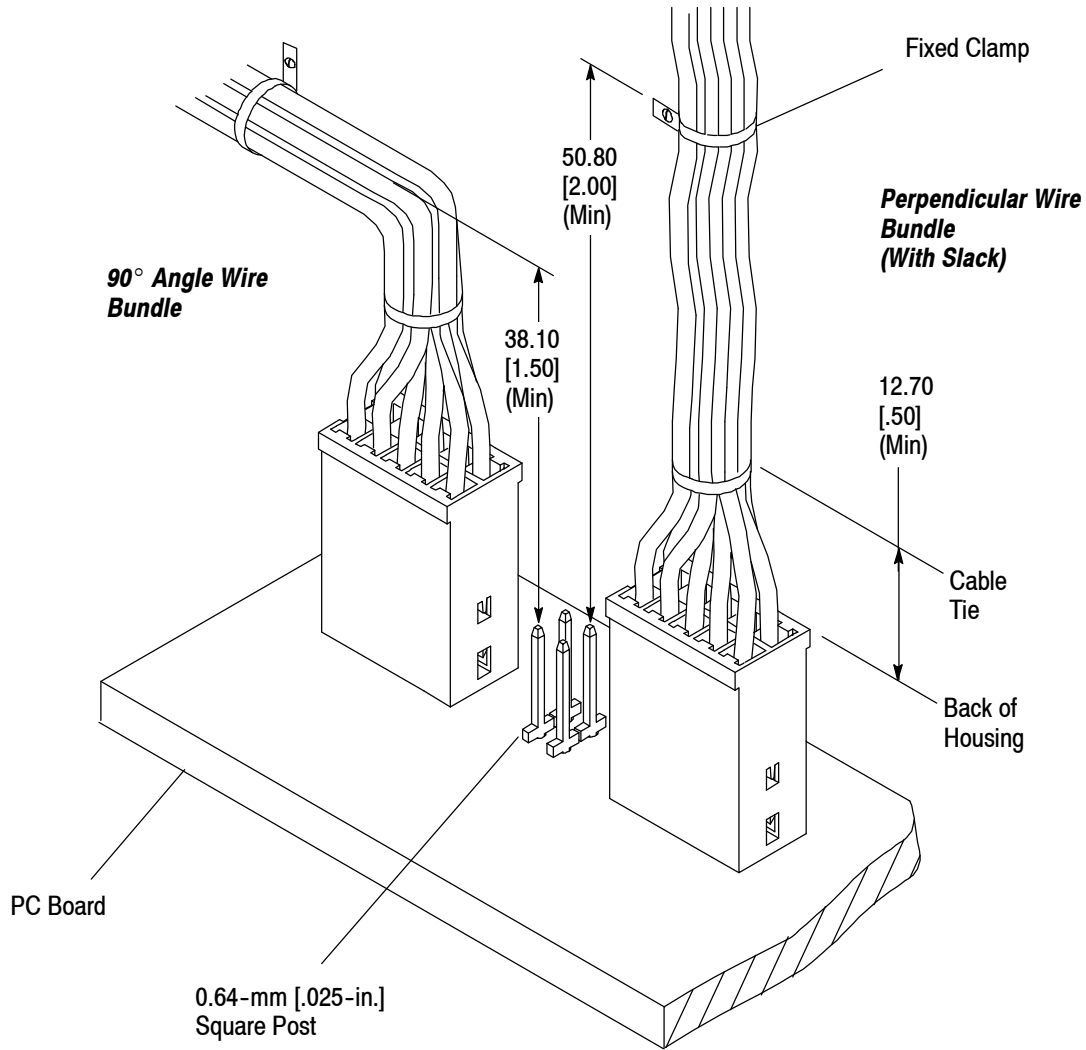


Figure 10

C. Stacking

Right end open and left end open housing configurations can be placed end-to-end on the pc board and maintain the required 2.54 mm [.100 in.] distance between the contact cavity centers. Right end open (with a key) are used to stack housings to the left and left end open (with a keyway) are used to stack housings to the right. Both ends closed housing configurations are not designed for stacking. Refer to Figure 11.

NOTE



Single-row housings cannot be stacked with double-row housings. In order to stack housings, keys must be aligned with keyways.

Stacking Double-Row Housings

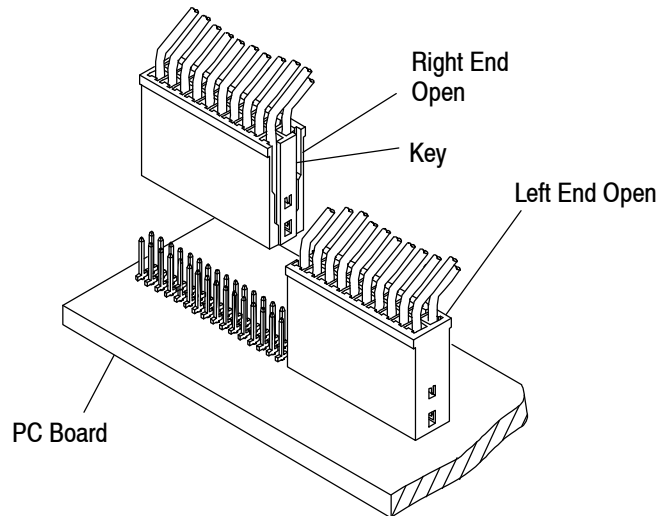


Figure 11

3.6. Repair

A damaged contact can be removed independently of all other contacts and replaced with a new one. All contacts must be removed from a damaged housing and the housing replaced with a new one.

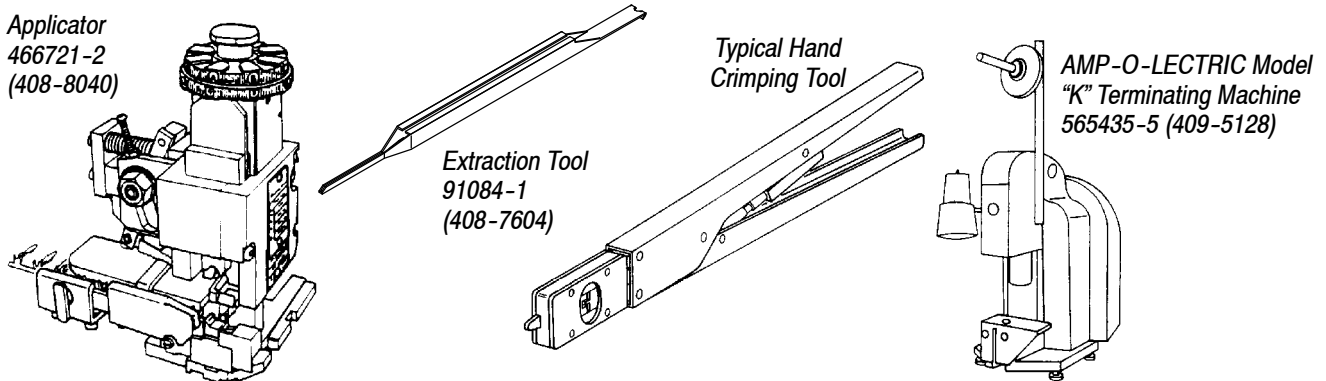
4. QUALIFICATIONS

Locking Clip Contact and Housing Assemblies are Component Recognized by Underwriters Laboratories Inc. (UL) in File E28476 and Certified by CSA International in File LR7189.

5. TOOLING

The hand crimping tools for these contacts are designed for service and repair work. Hand tools and applicators include integral dies. The semi-automatic machine, equipped with the applicator, is designed for production assembly. The use of the extraction tool is designed to remove individual contacts from posts and for extracting keying plugs and contacts from the housings.

The hand tools, machine and applicator, and the instructional material are shown in Figure 12. The hand tools are listed as they relate to wire size.



HAND CRIMPING TOOL	INSTRUCTION SHEET	WIRE SIZE RANGE, AWG
90295-1	408-7627	30-28
90289-1	408-7443	26-22
90431-1	408-9388	24-20

Figure 12

6. VISUAL AID

Figure 13 shows a typical application of Locking Clip 0.64-mm [.025-in.] Square Contacts and Housings. 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.

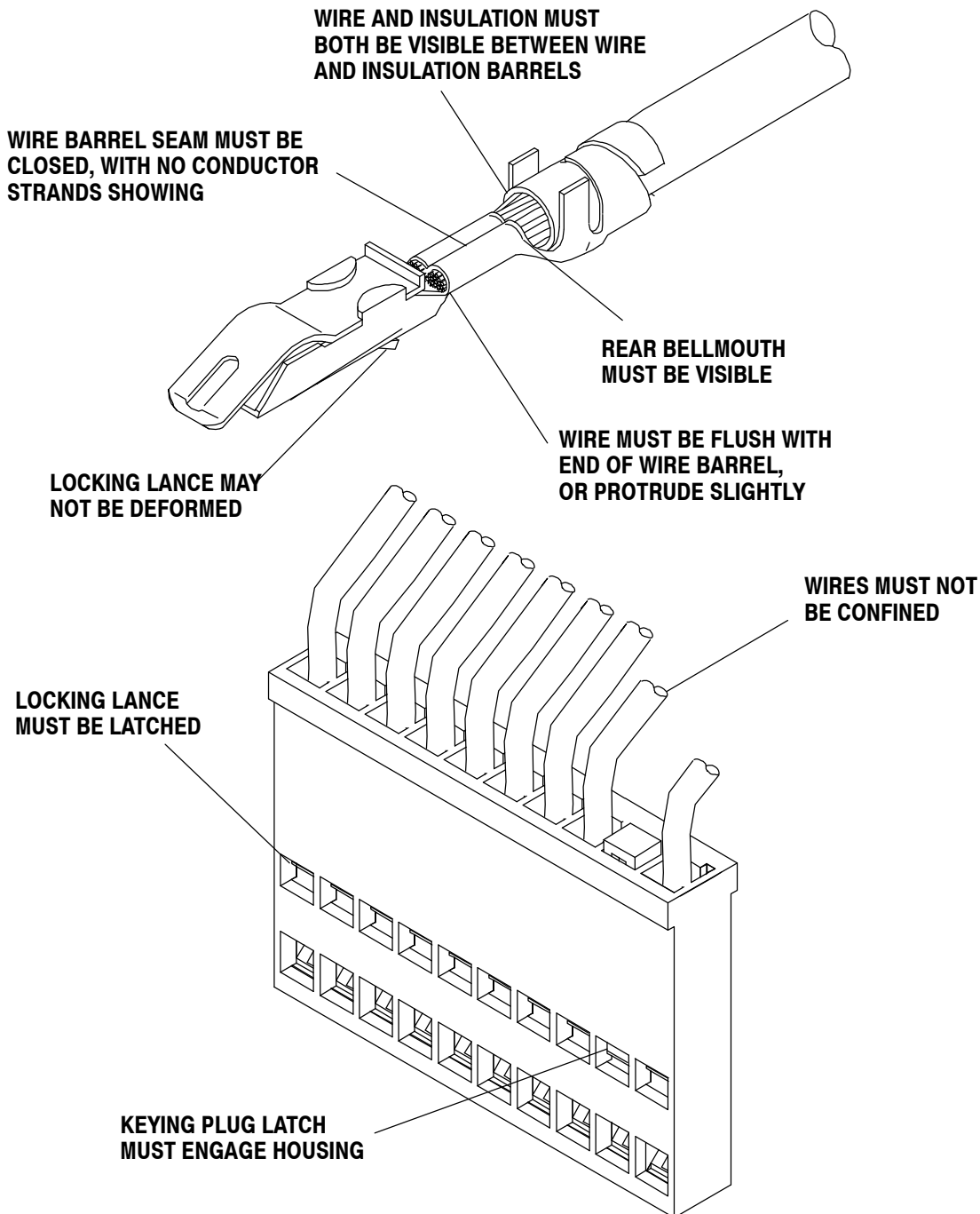


FIGURE 13. VISUAL AID