

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 requirements for application of Blade Contacts and Housings that are designed for contacts with a 3.18 x 0.51 mm [.125 x .020 in.] blade configuration. Assembled components produces a free-hanging cable connector.

There are contacts for insulated wire that have an insulation barrel and a wire barrel with three impressions to accommodate insulated stranded, fused stranded, and solid wire that is within the wire range of 18 through 14 AWG. There are AMPLIVAR* contacts for magnet wire that have 9 serrations in the wire barrel to accommodate a wire size range of 200 through 5000 CMA. The blade contacts feature a flat blade design and the receptacle contacts feature a concave center design that creates a friction fit on the mating blade. All contacts have a lance slot that engages the locking lance inside the housing and a wire barrel that produces a tight mechanical bond with the conductor of the wire. The contacts are available in strip form for automatic machine application.

The housings feature a single row of contact cavities on 5.59 mm [.220 in.] centers and are available in 4 positions. Other positions can be made available upon request. The housings have a locking lance inside each cavity to engage the contact lance slot, and number codes to identify the circuits. They are designed for cable to cable applications.

The blade housing features a blade shroud that protects the exposed blades when the contacts are fully inserted into the housing, a polarizing slot to prevent mismating, locking latches that engage the locking tabs on the mating receptacle housing, and guide tracks to keep the contact aligned. The receptacle housing features a mating polarizing bar, locking tabs, and guide slots.

When corresponding with Tyco Electronics Personnel, use the terminology provided in this specification to facilitate your inquiries for information. Basic terms and features of these components are provided in Figure 1.

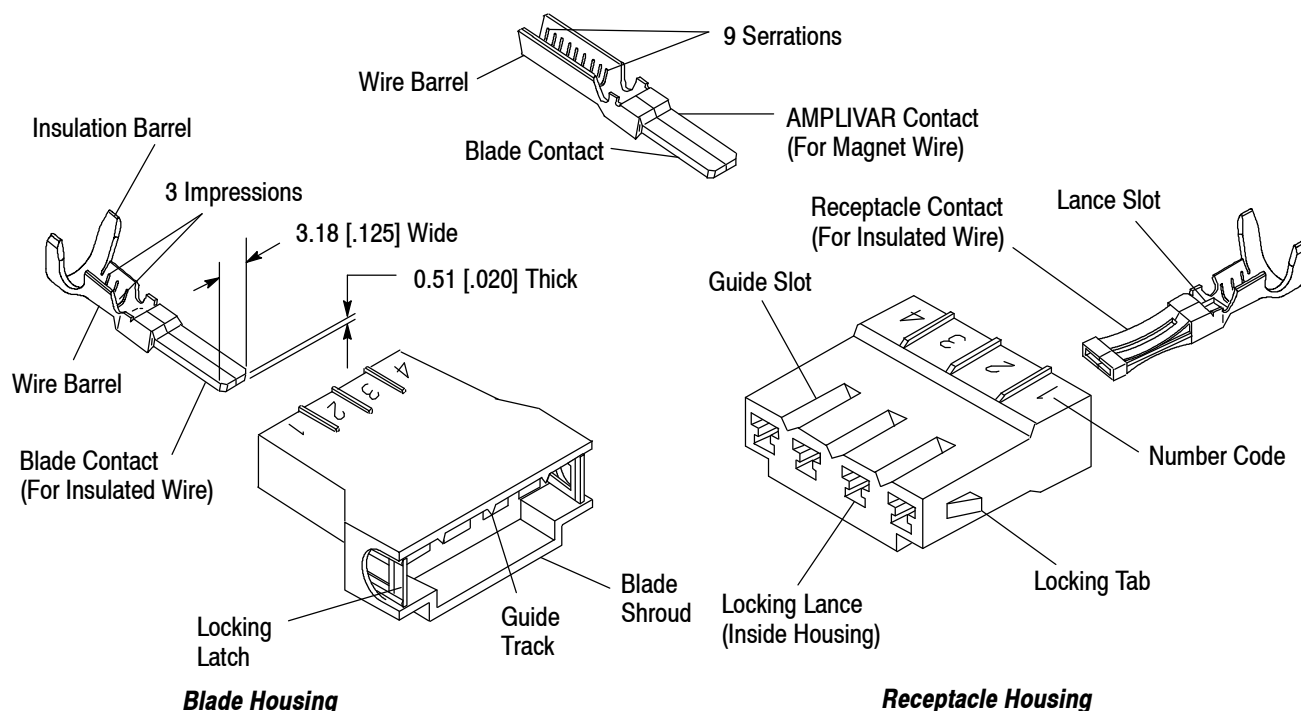


Figure 1

2. REFERENCE MATERIAL

2.1. Revision Summary

- Updated document to corporate requirements
- New logo and format

2.2. Customer Assistance

Reference Part Number 521047 and Product Code 1191 are representative numbers of Blade 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 or Product Information numbers 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. Specifications

Product Specification 108-1530 is available to inform you of test and performance results.

2.5. Instructional Material

The following is a list of Applicator Instructions and Instruction Sheets (408), and Customer Manuals (409) that provide tooling, application, and repair information.

A. Applicator Instructions

408-8040 – Applicator Setup and Operation Procedures

B. Instruction Sheets

408-3295 – Preparing Contact Reels
408-4069 – Blade Contact Extraction Tool 844751-3
408-7424 – Checking Contact Crimp Height
408-7497 – F Crimp Technique
408-9514 – Receptacle Contact Extraction Tool 844751-1
408-9816 – Storage and Handling of Contact Reels

C. Customer Manual

409-5128 – AMP-O-ELECTRIC* Model "K" Terminating Machine Power Unit
409-5842 – AMP-O-ELECTRIC Model "G" Terminating Machine Power Unit
409-5866 – AMPOMATOR* CLS IV Lead-Making Machine Power Unit

3. REQUIREMENTS

3.1. Material

The housings are made of black thermoplastic material with a 130°C [266° F] electrical temperature rating and 94 V, class 2 flammability rating. The contacts are made of hard brass alloy that is plated with tin.

3.2. Storage

The contacts and housings should remain in their shipping containers until ready for use. The coiled contact reels should be stored horizontally to prevent deformation during storage that could prevent proper feeding through the applicator. All components should be used on a first in, first out basis to prevent storage contamination.

3.3. Wire

A. Selection

Contacts with 3 impressions in the wire barrel are for insulated wires that have stranded, fused-stranded, or solid copper conductors and are available for the wire size range of 18 through 14 AWG. Contacts with 9 serrations in the wire barrel are designed to penetrate the exterior coating of magnet wire conductors, and are available for the wire size range of 18 through 14 AWG (200 through 5000 CMA).

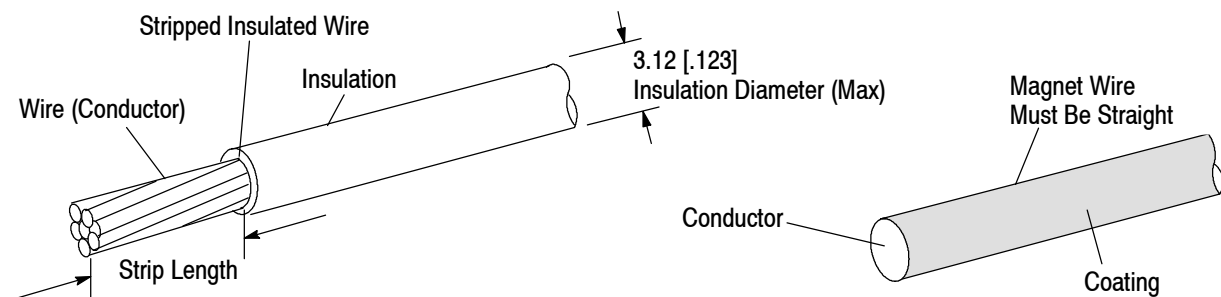
B. Preparation

1. Insulated Wire

Strip the wire according to the dimension provided. Do not cut, nick, or scrape the wire during the stripping process. See Figure 2.

2. Magnet Wire

No stripping or other preparation of magnet wire is necessary. The only requirement is that the wire end must be straight and without deformations.



WIRE TYPE	WIRE SIZE (AWG)	WIRE SIZE (CMA)	STRIP LENGTH (MAX.)	CRIMP HEIGHT 0.05 [± .002]	CRIMP WIDTH 0.05 [± .002]
INSULATED (Stranded, Fused Stranded, and Solid)	18	-	4.37 [.172]	1.40 [.055]	2.29 [.090]
	16	-		1.58 [.062]	
	14	-		1.91 [.075]	
MAGNET (Solid)	-	200 - 300	N/A	0.79 [.031]	1.40 [.055]
	-	400 - 600		0.84 [.033]	
	-	700 - 850		0.91 [.036]	
	-	400 - 1000		0.86 [.034]	2.29 [.090]
	-	1100 - 1600		0.99 [.039]	
	-	1400 - 2200		1.45 [.057]	2.79 [.110]
	-	2400 - 3200		1.58 [.062]	
	-	3400 - 3200		1.70 [.067]	
	-	4400 - 5000		1.83 [.072]	

Figure 2

3.4. Crimped Contact Criteria

A. Crimp Height

The crimp applied to the wire barrel 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 and crimp width must be within the dimensions provided in Figure 2.

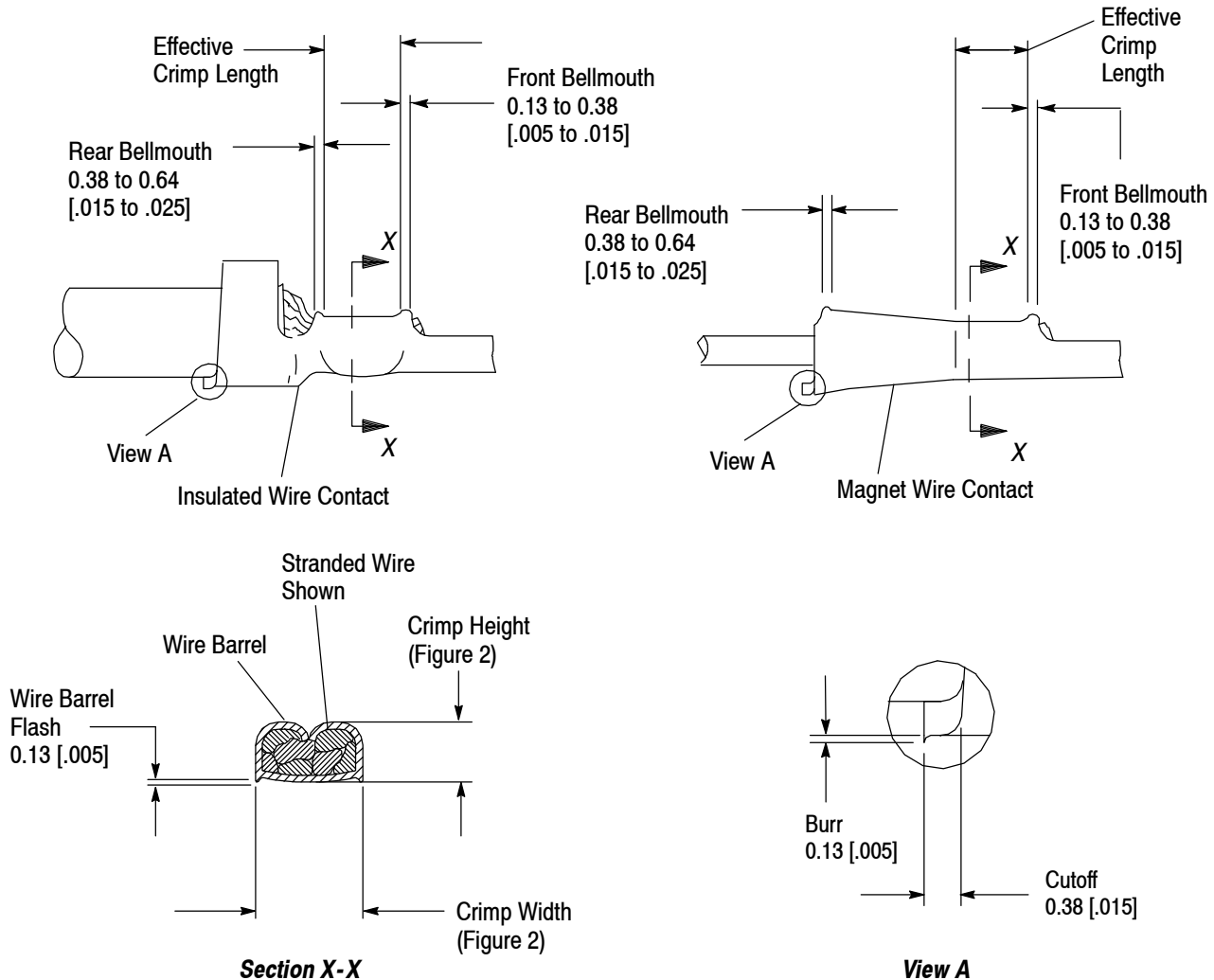


Figure 3

B. Effective Crimp Length

The effective crimp length is the area where the crimp pressure is applied over the length of the wire barrel. It should be approximately centered and does not include the bellmouths. See Figure 3.

C. Bellmouths

The front and rear bellmouths are caused by the extrusion of metal during crimping and must be within the range specified in Figure 3.

D. Cutoff Tab and Burr

The cutoff tab and burr resulting from the contact being cut from the carrier strip must be within limits shown to allow the contact to be fully inserted and seated in the housing. See Figure 3, View A.

E. Wire Barrel Flash

The wire barrel flash at the bottom of the wire barrel results from applied crimp pressure and must be within the dimension provided in Figure 3, Section X-X.

F. Insulation Barrel Crimp

The insulation barrel must support the insulation of the wire without cutting into it. The ends of the insulation barrel must touch the insulation of the wire but they must not penetrate through it. Care must be taken to prevent cutting, nicking, or scraping of the insulation during the crimping procedure.

G. Wire Location

After crimping insulated wire, the conductor and insulation must be visible in the transition area between the wire barrel and insulation barrel. The conductor end of both the insulated wire and magnet wire must be within the limit provided in Figure 4.

NOTE



Insulated stranded conductor wire and applicable contacts are shown in Figures 4, 5, and 6. The data presented is applicable to solid magnet wire contacts, with the exception that magnet wire contacts do not have an insulation barrel.

H. Wire Barrel Seam

Wire barrel seam shall be completely closed with no conductor strands protruding from it. See Figure 4.

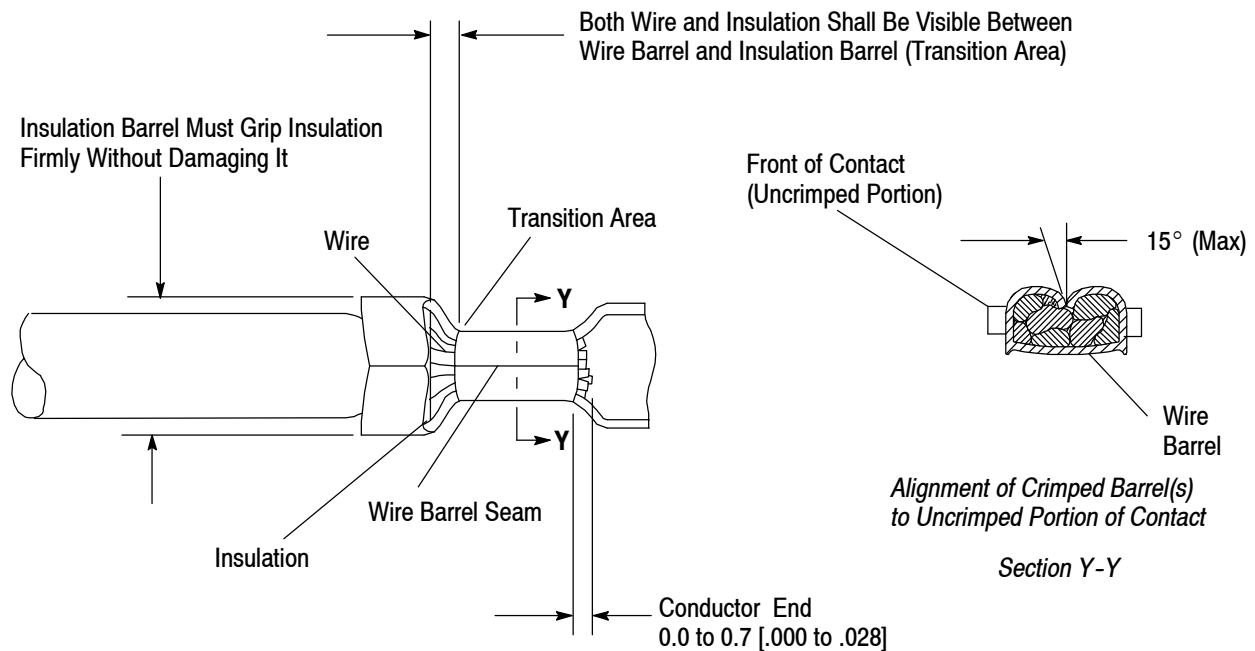


Figure 4

I. Twist or Roll

The crimped wire and insulation barrels must be aligned with the uncrimped portion of the contact to within the limit shown in Figure 4.

J. Straightness

The force applied during crimping may cause some bending between the crimped wire barrel and the uncrimped portion of the contact. Such deformation is acceptable within the up and down, and side to side limits provided in Figures 5 and 6.

1. Up and Down

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

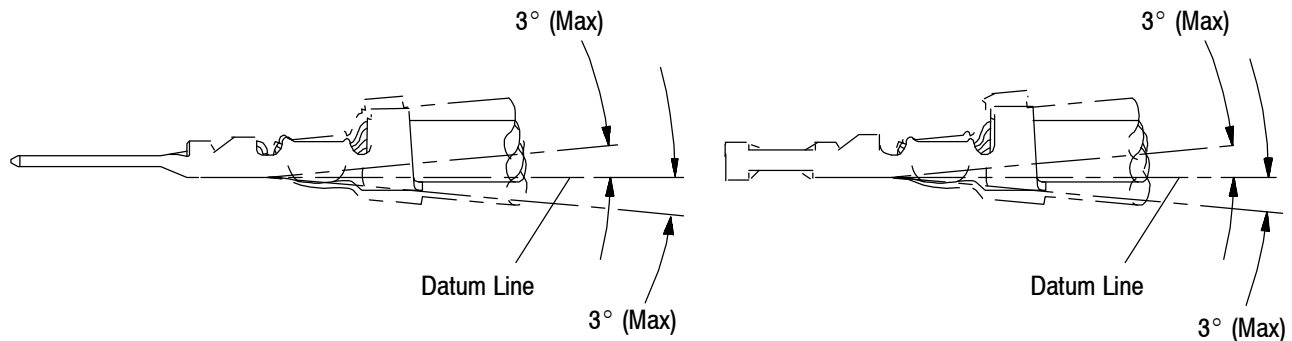


Figure 5

2. Side-to-Side

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

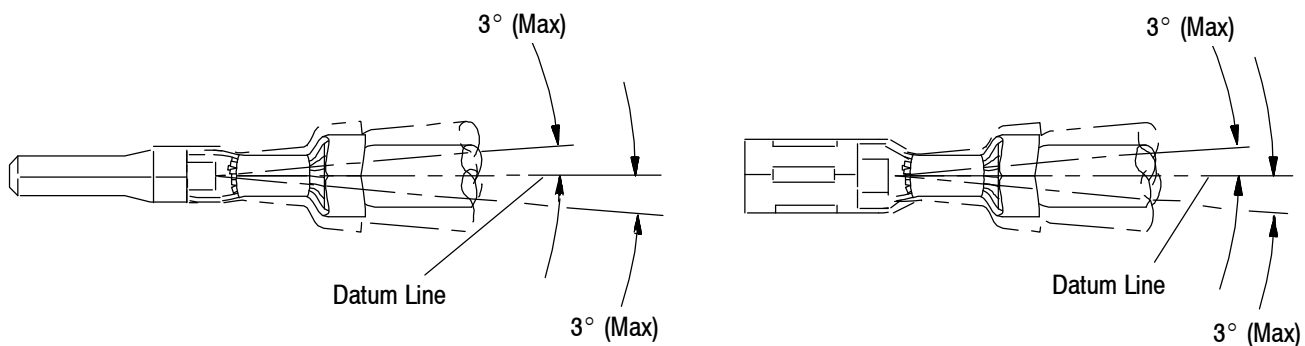


Figure 6

3.5. Repair

Damaged contacts, or contacts attached to damaged wire can be removed and replaced with new ones using the tools shown in Figure 5. Note that there is an extraction tool for blade contacts and another for receptacle contacts. When cutting a contact from the wire, cut the wire as close as possible to the damaged area to preserve as much wire as possible.

4. QUALIFICATION

Blade Connectors are Listed by Underwriters Laboratories Inc. in File E28476 and have been Certified by CSA International in File LR7189. No other qualifications have been specified.

5. TOOLING

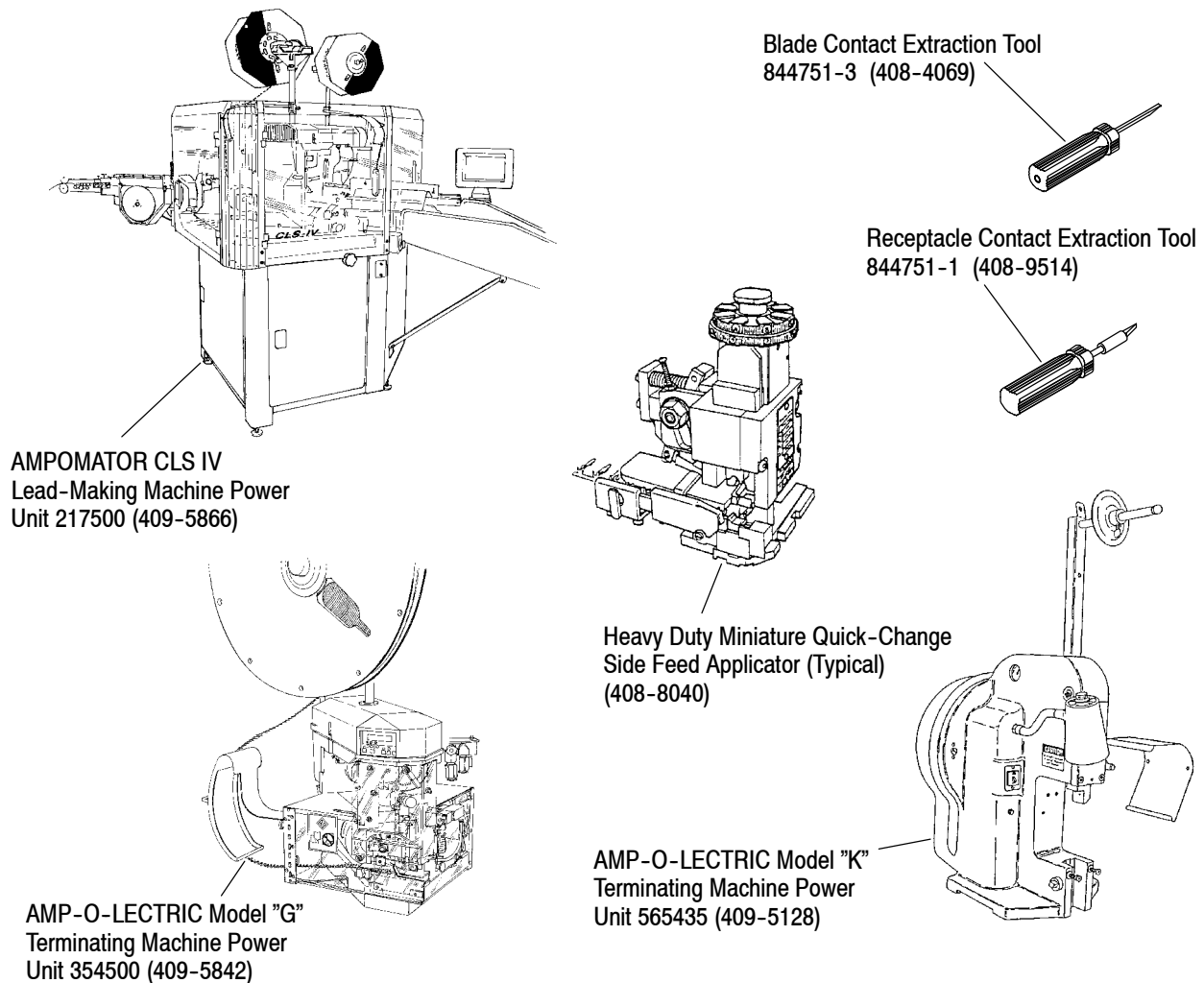
The contacts are designed to be crimped with Miniature Quick-Change Applicators, which can be used in various Power Units. Extraction Tools have been designed for each contact and housing combination. They are designed to ease extraction and avoid damage to the components. The recommended tooling and instructional material is provided in Figure 7.

NOTE

The Model "K" AMP-O-LECTRIC Terminating Machine (Part Number 565435) has been superseded by the Model "G" Terminating Machine (Part Number 354500) for new applications. The Model "K" may still be recommended because of the large number of installed machines.

NOTE

Each 6 digit power unit number provided in Figure 7 represent basic a power unit design from which a modification - represented by a dash number - is built for a specific application requirement. Some modifications are adaptable to a large variety of applications and some are for very specific applications. We recommend that you call and discuss your specific requirements with one of our representative from the Tooling Assistance Center Number listed on Page 1.



WIRE SIZE	TOOL DESCRIPTION AND PART NUMBER			
	POWER UNITS 	AMPOMATOR CLS IV 217500	AMP-O-LECTRIC Model "K" 565435	AMP-O-LECTRIC Model "G" 354500
18-14 AWG	APPLICATORS 	567349-4	567349-5	567349-9
200-850 CMA		N/A	680198-2	680198-3
400-1600 CMA		N/A	680245-2	680245-3
1500-5000 CMA		N/A	680196-2	680196-3

Figure 7

6. VISUAL AID

Figure 8 is to be used by production personnel to ensure properly applied product. 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 or tooling.

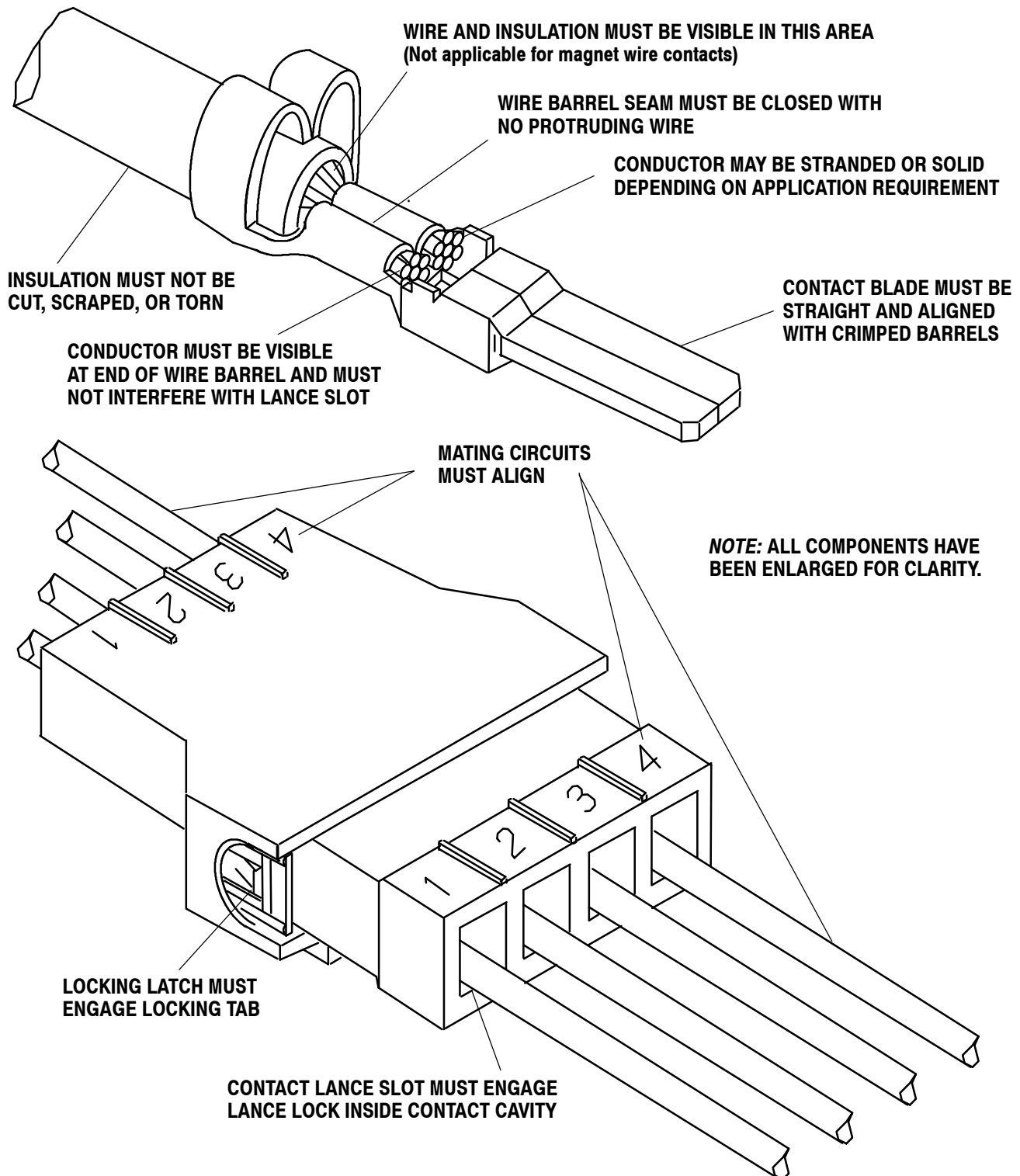


FIGURE 8. VISUAL AID