

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 [.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 application of AMP* AMPMODU Mod. IV Pin Contacts. These contacts have a wire size range of 26 through 22 AWG with a maximum insulation diameter of 1.60 [.063]. AMPMODU Mod IV Pin Contacts are terminated with hand held tooling or automatic machines, and are mated with receptacle contacts used in a variety of connector housings.

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

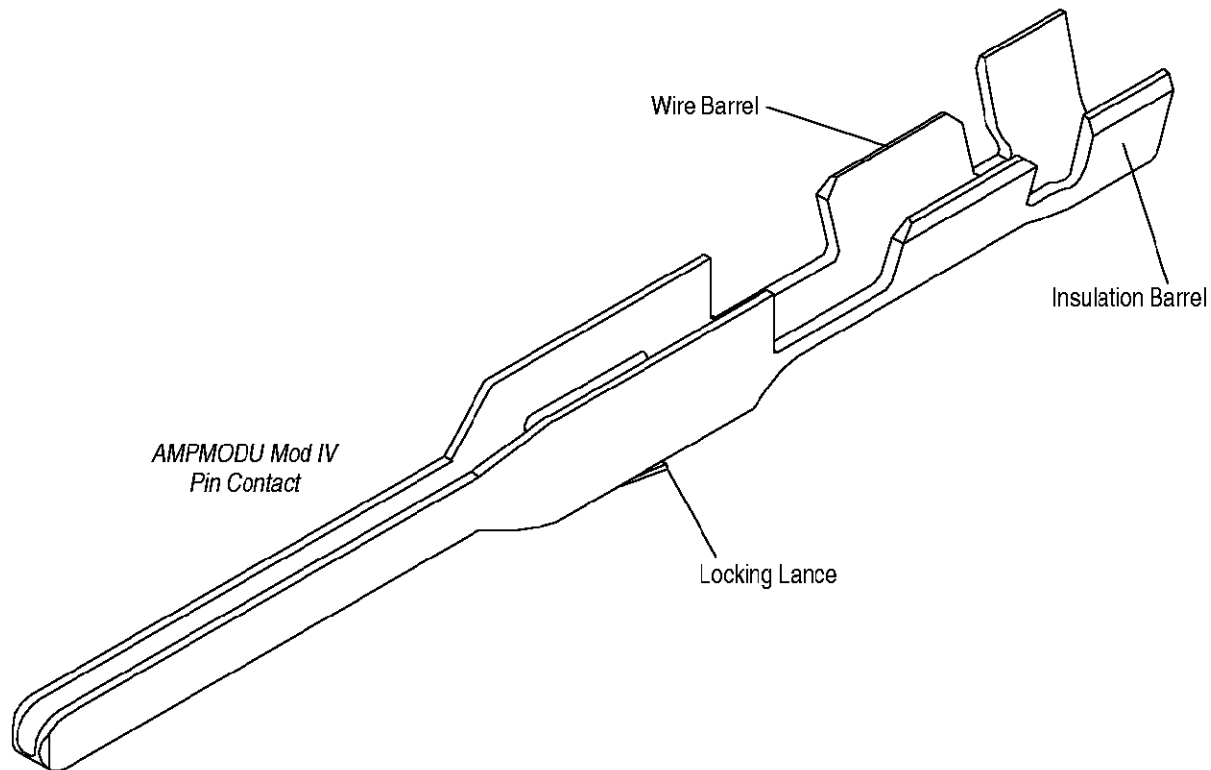


Figure 1

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.

Per EC 0990-1158-99:

- Updated document to corporate requirements
- Added new Sections 2, 3, 4, 5, and 6
- Added new art and information in Figures 1, 2, 3, 5, 6, 7, and 8
- Changed wire crimp length in Figure 3 from .085 to .080

2.2. Customer Assistance

Reference Part Number 102095 and Product Code 5207 are representative numbers of AMPMODU Mod. IV Pin Contacts. 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 Representative (Field Service Engineer, Field Applications Engineer, etc.) or, after purchase, by calling the Tooling Assistance Center or AMP FAX number at the bottom of page 1.

2.3. Drawings

Customer Drawings for specific products 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

Application Specification 114–25003 provides application information for AMPMODU Mod. IV, IV1/2, and V Receptacles and Housings.

2.5. Instructional Material

The following list includes available 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 provide setup, operation, and maintenance of machines.

<u>Document Number</u>	<u>Document Title</u>
408–2498	Crimping Head Cross Reference for Pneumatic Tools
408–3295	Preparing Reel Of Contacts for Application Tooling
408–4106	Straight Action Crimp Head Adapter 217201–1
408–4190	C–Head Pneumatic Adapter 318161–1
408–4379	PRO–CRIMPER* II Hand Tool Assembly 58641–1 with Die Assembly 58641–2
408–7424	Checking Terminal Crimp Height or Gaging Die Closure
408–8040	Heavy Duty Quick–Change Applicator (Side–Feed Type)
408–8053	Miniature (Mini) Quick–Change Applicators
408–8059	General Preventative Maintenance for Applicators
408–9222	Straight Action Hand Tool 90418–1
408–9640	Crimp Quality Monitor Applicators for Side– and End–Feed Applications
408–9930	PRO–CRIMPER II Hand Crimping Tool Frame Assembly 354940–1
409–5128	Basic AMP–O–LECTRIC* Model “K” Terminating Machine 565435–5
409–5792	AMP–O–LECTRIC Model “K–II” and “K–IIA” Terminating Machine 852070–[]
409–5842	AMP–O–LECTRIC Model “G” Terminating Machines 354500–[] and 1213127–[]
409–5852	AMPOMATOR* CLS III–G Lead–Making Machine 122500–[]
409–5855	AMP–O–MATIC* Side–Feed Stripper–Crimper Model II Machine 854040–3 and –4
409–5862	626 Pneumatic Tooling Assemblies 189721–[] and 189722–[]
409–5878	AMPOMATOR CLS IV+ Lead–Making Machine 356500–[] and 1213400–[]
409–10012	AMP–O–MATIC Side–Feed Stripper–Crimper III Machine 1320895–[]

3. REQUIREMENTS

3.1. Material

The pin contact body is made of either beryllium copper or phosphor bronze and is selectively plated with gold in the contact area, with gold flash over nickel on the entire contact or bright tin–lead over nickel on the entire contact.

3.2. Storage

A. Ultraviolet Light

Prolonged exposure to ultraviolet light may deteriorate the chemical composition used in the contacts.

B. Shelf Life

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

C. Reel Storage

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

D. Chemical Exposure

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

Alkalies
Amines

Ammonia
Carbonates

Citrates
Nitrites

Phosphates
Sulfur Nitrites

Citrates
Sulfur Compounds
Tartrates

NOTE

Where the above environmental conditions exist, phosphor-bronze contacts are recommended.

3.3. Wire Selection and Preparation**A. Type**

The wire size range for AMPMODU Mod. IV Pin Contacts is 26 through 22 AWG.

B. Preparation

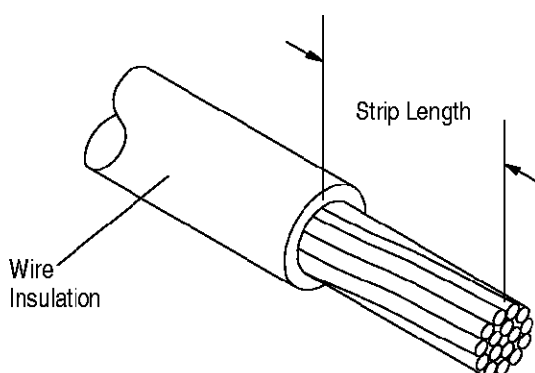
The wire must be stripped to the dimension provided in Figure 2.

NOTE

Do not nick, scrape, or cut the wire conductor during the stripping operation.

NOTE

The applied crimp dimension (within the functional 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.



WIRE SIZE RANGE (AWG)	INSULATION DIAMETER (MAX)	STRIP LENGTH	WIRE BARREL		INSULATION BARREL CRIMP WIDTH (Ref)
			CRIMP HEIGHT	CRIMP WIDTH (Ref)	
26–24	1.55 [.061]	2.77–4.37 [.109–.172]	0.81–0.71 [.032–.028]	1.07 [.042]	1.57 [.062]
22	1.55 [.061]	2.77–4.37 [.109–.172]	0.97–0.81 [.038–.032]	1.07 [.042]	1.57 [.062]

Figure 2

3.4. Crimped Contact Requirements

Locate the contact to be crimped in the appropriate tooling according to the instructions packaged with that tooling. Detailed instructions covering the placement of contacts in the tooling and the use of such tooling is packaged with each tool.

Terminate the contact according to the directions shipped with the appropriate tooling. See Section 5, TOOLING.

CAUTION

Wire insulation shall NOT be cut or broken during the crimping operation, nor shall the insulation be crimped into the contact wire barrel. Reasonable care should be taken by tooling operators to provide undamaged wire terminations.

A typical contact is shown as it should appear after crimping in Figure 3.

A. Crimp Height

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 crimp height must be within the dimensions provided in Figure 2.

B. 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 evident and conform to the dimensions given in Figure 3.

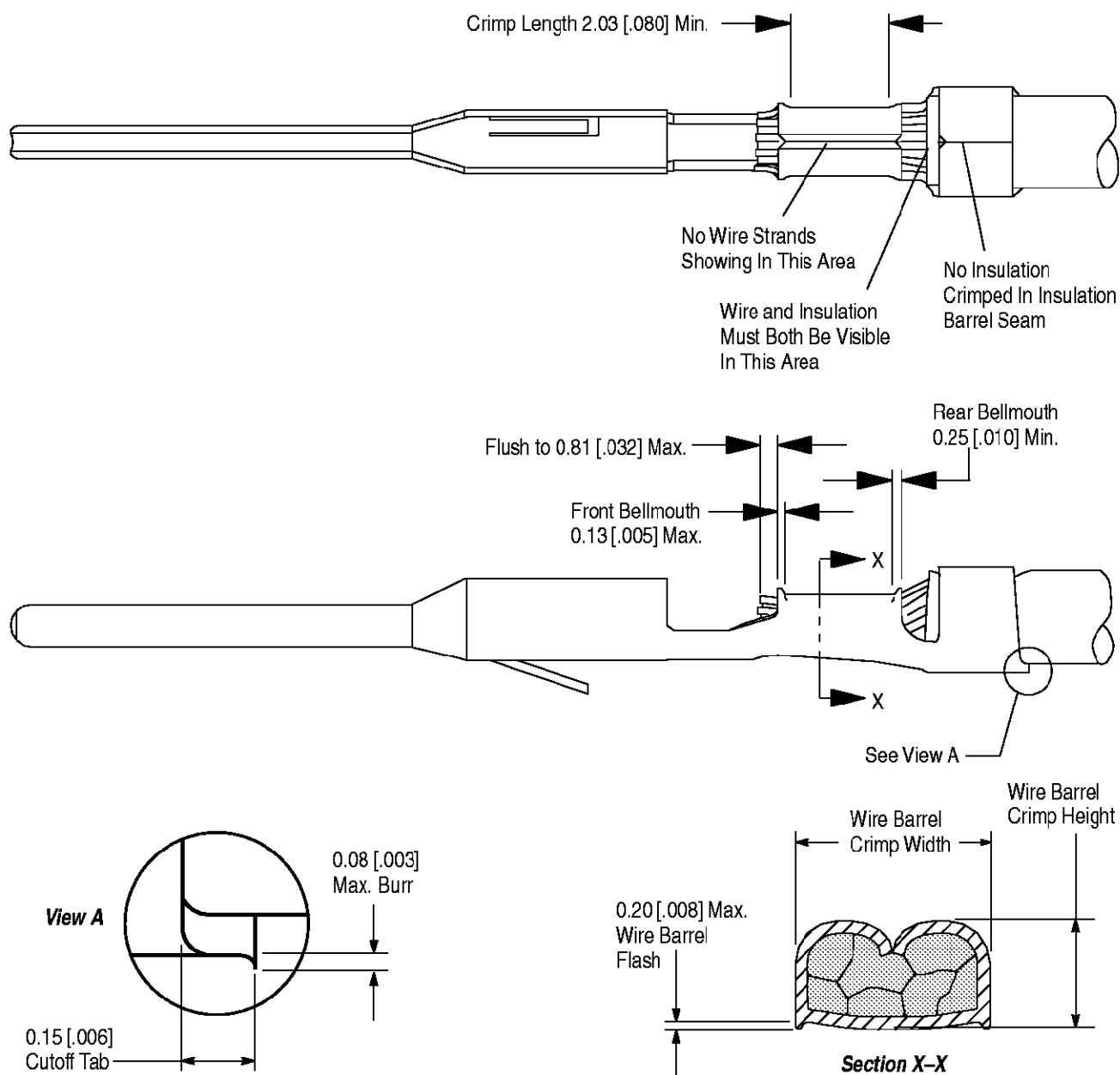


Figure 3

D. Cutoff Tab

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

E. Burrs

The cutoff burr shall not exceed the dimensions shown in Figure 3.

F. Wire Barrel Flash

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

G. Insulation Barrel Crimp

The insulation barrel shall grip the insulation firmly without cutting into it. Care must be taken to prevent cutting, nicking, or scraping of the insulation. The insulation barrel crimp width must be within the dimensions provided in Figure 2.

H. Wire Location

After crimping, the wire conductor and insulation must be visible in the transition area between the wire and insulation barrels.

I. Conductor Extension

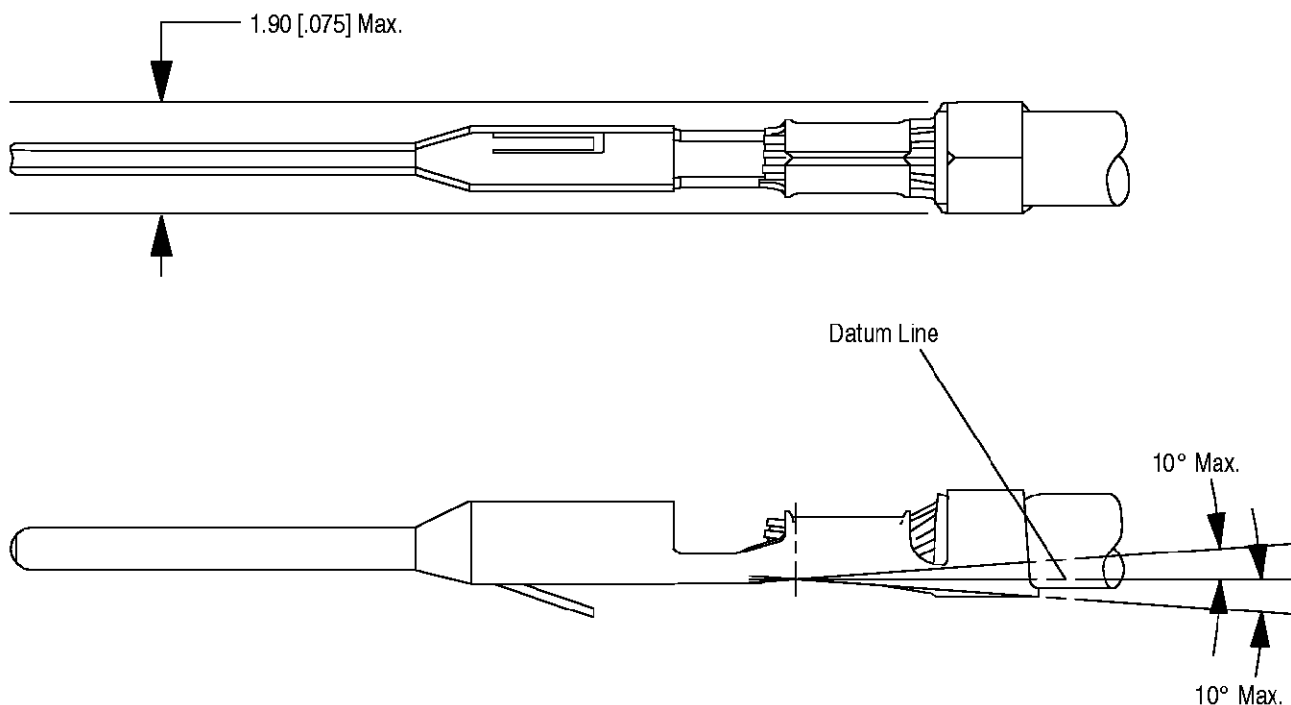
The conductor may extend beyond the wire barrel to the maximum shown in Figure 3.

J. Wire Barrel Seam

The wire barrel seam must be closed with no evidence of loose wire strands visible in the seam.

K. Straightness

The force applied during crimping may cause some bending between the crimped wire barrel and the mating portion of the contact. Such deformation is acceptable within the following limits, as shown in Figure 4.



NOTE: Angles are drawn for clarification only and are not to scale.

Figure 4

L. Twist and Roll

There shall be no twist, roll, deformation or other damage to the mating portion of the crimped contact that will prevent proper mating. See Figure 5.

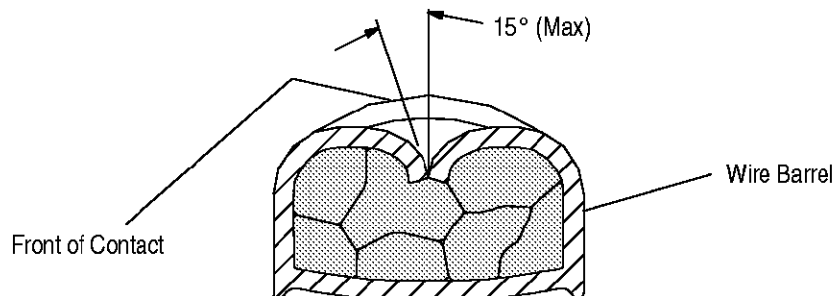


Figure 5

M. Tensile Strength

Crimped contacts must hold the wire firmly and have a crimp pull-out test value meeting that specified in Figure 6.

NOTE

Adjust tensile testing machine for head travel of 25.4 mm [1 inch] per minute. Directly and gradually apply force for one minute.

WIRE SIZE (AWG)	TENSILE FORCE (N [LB]) MIN
26	17.8 [4]
24	31.1 [7]
22	48.9 [11]

Figure 6

3.5. Repair

Contacts are not repairable once a termination has been made. Any defective contact should be removed and replaced with a new one.

4. QUALIFICATIONS

AMPMODU Mod. IV Pin Contacts do not require any agency certification.

5. TOOLING

Figure 7 provides tool part numbers and instructional material related to wire size.

NOTE

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

- **Hand Crimping Tool**

Hand crimping tools that accommodate the full wire size range are designed for prototype and low-volume applications such as repair of damaged contacts.

- **Applicator**

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.

NOTE

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.

- **Power Units**

A power unit is an automatic or semi-automatic device used to assist in the application of a product. Power unit includes the power source used to supply the force or power to an applicator.

NOTE

The Model "K" AMP-O-ELECTRIC Terminating Machine PN 565435-5 has been superseded by the Model "G" Terminating Machine PN 354500-1 (409-5842) for new applications. For existing applications, the Model "K" is still recommended because of the large number of installed machines.

WIRE SIZE RANGE, AWG	INSUL DIA (MAX)	HAND TOOL (DOCUMENT)	HEAD ADAPTER (DOCUMENT)	APPLICATOR (DOCUMENT)	POWER UNIT (DOCUMENT)
26-22	1.55 [.061]	58641-1 (408-4379) or 90418-1 (408-9222) or 189721-1 (409-5862) or 189722-1 (409-5862)	189928-1 (408-4190) or 217201-1 (408-4106)	466812-1 (408-8040)	122500-2, -3 (409-5852)
				466812-2 (408-8040)	356500-1, -2 (409-5878)
					1213400-1, -2 (409-5878)
					354500-1 (409-5842)
				466812-3 (408-8040)	565435-5 (409-5128)
				466967-1	354500-[] (409-5842)
					854040-3 (409-5855)
				567717-2 (408-8040)	1320895-[] (409-10012)
					354500-1 (409-5842)
					852070-1, -2 (409-5792)

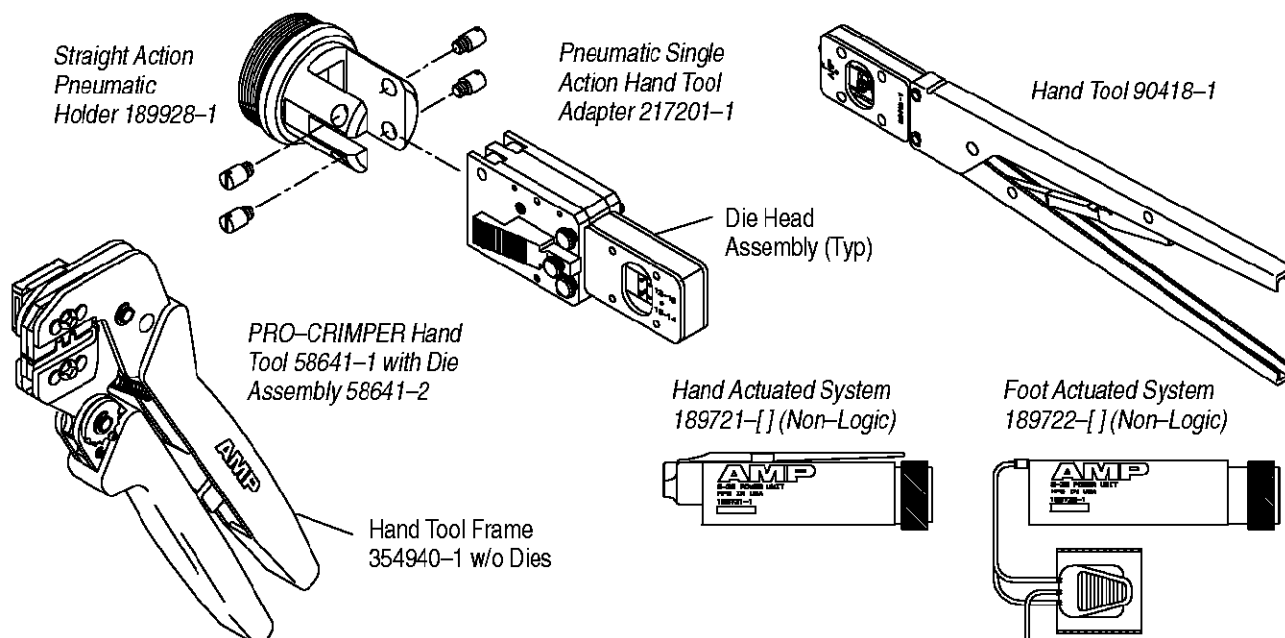
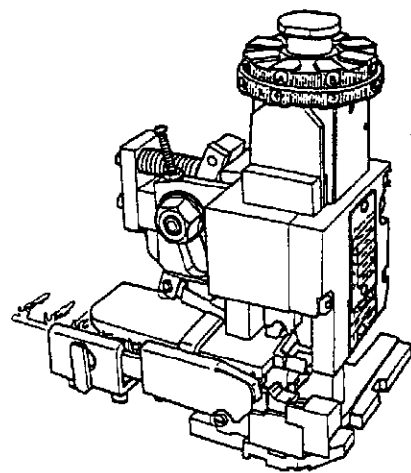
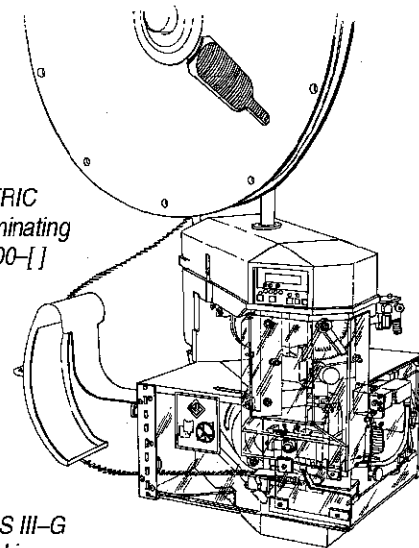


Figure 7 (cont'd)

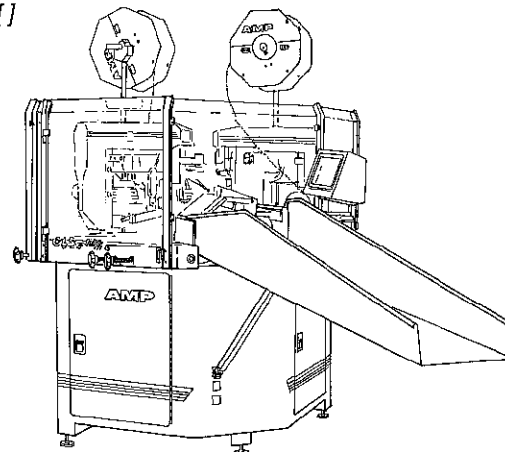


Side-Feed
Applicator (Typ)

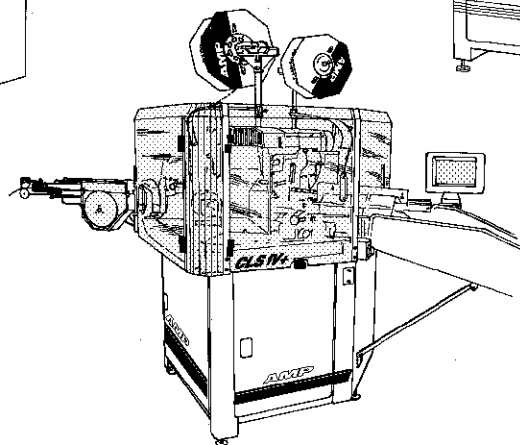
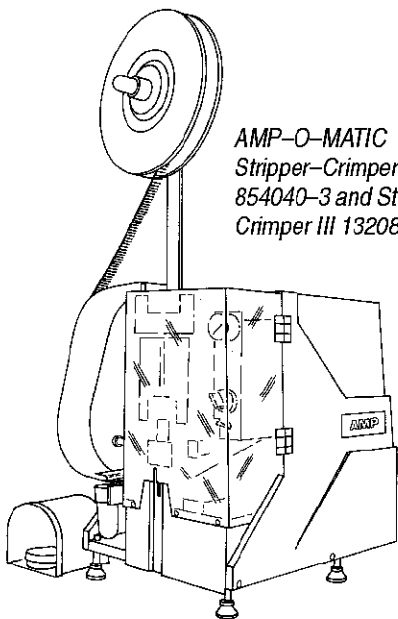
AMP-O-LECTRIC
Model "G" Terminating
Machine 354500-[]



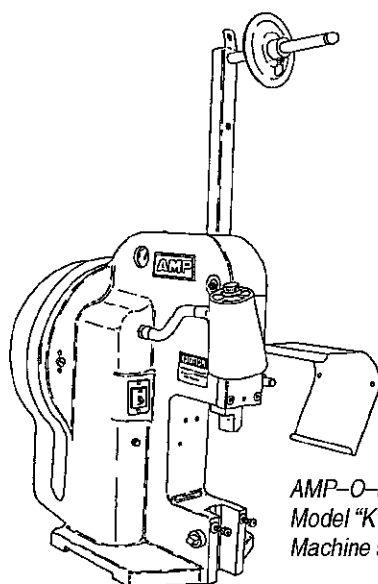
AMPOMATOR CLS III-G
Lead-Making Machines
122500-[]



AMP-O-MATIC
Stripper-Crimper II
854040-3 and Stripper-
Crimper III 1320895-[]



AMPOMATOR CLS IV)
Lead-Making Machines
356500-[] and 1213400-[]



AMP-O-LECTRIC
Model "K" Terminating
Machine 565435-5

AMP-O-LECTRIC
Model "K-II" and "K-IIA"
Terminating Machine
852070-[]

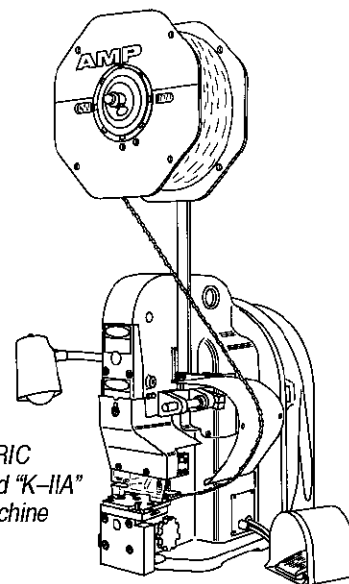


Figure 7 (end)

6. VISUAL AID

Figure 8 shows a typical application of an AMPMODU Mod. IV Pin 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 or tooling.

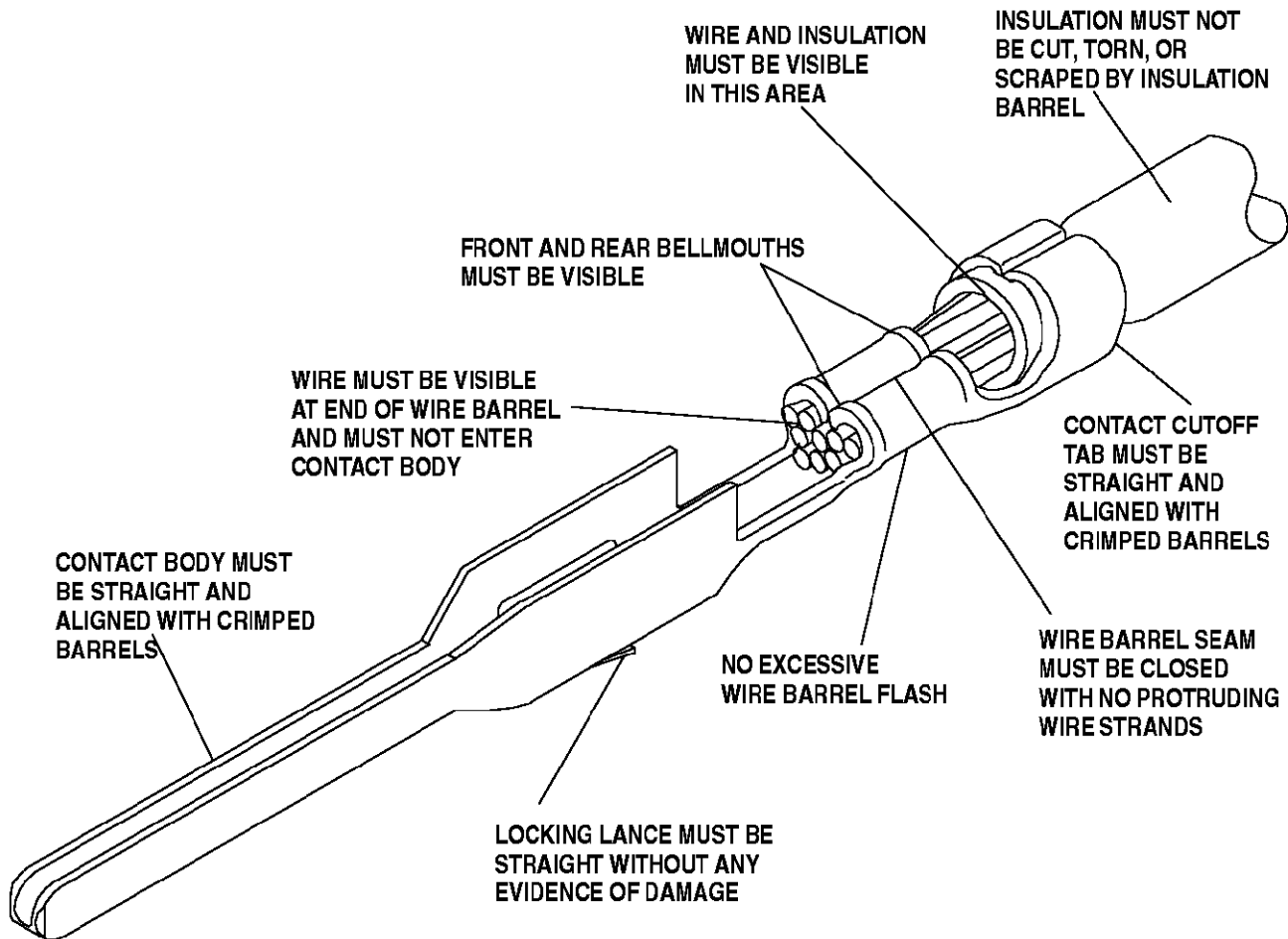


FIGURE 8. VISUAL AID