

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 application of AMPLIMITE HDE-20 Contacts. These requirements are applicable to automatic machine application tooling. These crimp snap-in contacts are available with an insulation support barrel for strain relief. The contacts accept a wire size range of 26 to 18 AWG and may be terminated to either stranded or solid wire.

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

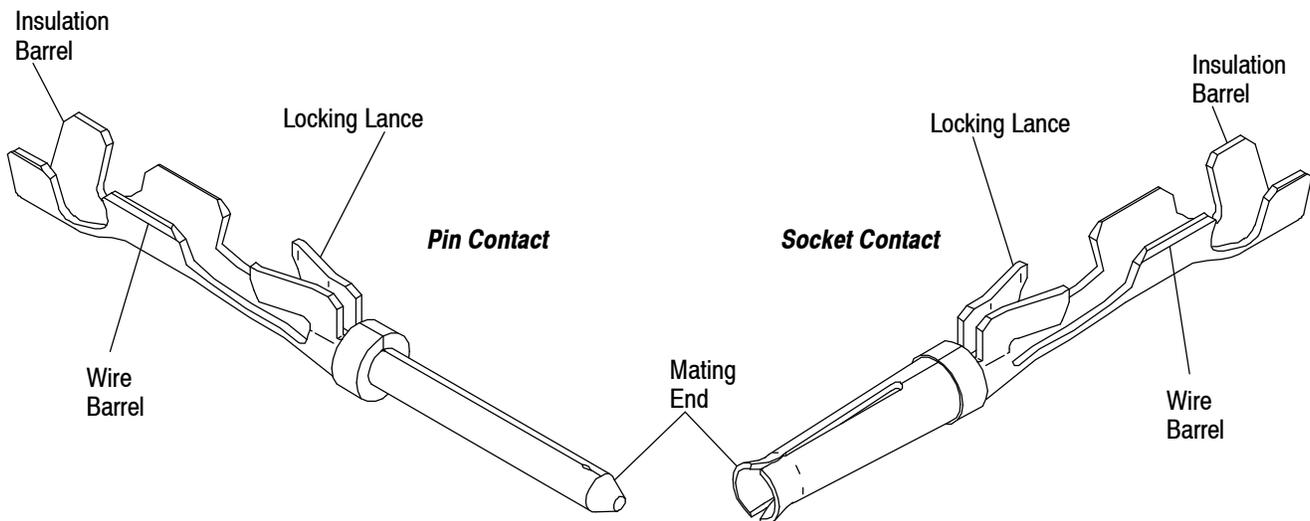


Figure 1

2. REFERENCE MATERIAL

2.1. Revision Summary

This paragraph is reserved for a revision summary covering the most recent additions and changes made to this specification which include the following:

- Updated document to corporate requirements
- New logo and format

2.2. Customer Assistance

Reference Base Part Number 745266 and Product Code 4942 are representative numbers of AMPLIMITE HDE-20 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 Electronics Representative or, after purchase, by calling the Product Information Center at the number at the bottom of this page.

2.3. Drawings

Customer Drawings for product part numbers are available from the service network. If there is a conflict between the information contained in the customer drawings and this specification or with any other technical documentation supplied, call the Product Information Center at the number at the bottom of page 1.

2.4. Specifications

Product Specifications 108-40011 and 108-40030 provide product performance requirements and test information.

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>
408-3295	Preparing Reel of Contacts for Application Tooling
408-6621	AMPLIMITE HDE-20 Insulation Displacement Connectors
408-7424	Checking Terminal Crimp Height or Gaging Die Closure
408-8040	Heavy Duty Miniature Quick-Change Applicators (Side-Feed Type) with Mechanical
408-8053	Miniature (Mini) Quick-Change Applicators
408-8059	General Preventive Maintenance for Applicators
408-9816	Handling of Reeled Products
409-5128	Basic AMP-O-ELECTRIC* Model "K" Terminating Machine 565435-5
409-5842	AMP-O-ELECTRIC Model "G" Terminating Machines 354500-[]
409-10012	AMP-O-MATIC* Side-Feed Stripper Crimper III Machine 1320895-[]
409-10016	Entry Level Terminator (ELT) Machine 1338600-[]
409-10027	Stripping Modules 1490500 and 1490502
409-10029	Stripping Modules 1490501 and 1490503

3. REQUIREMENTS

3.1. Storage

A. Ultraviolet Light

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

B. Reeled Contacts

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

C. 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.

D. Chemical Exposure

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

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

3.2. Wire Selection and Preparation

A. Type

The wire size range for AMPLIMITE HDE-20 Contacts is 26 through 18 AWG.

B. Preparation

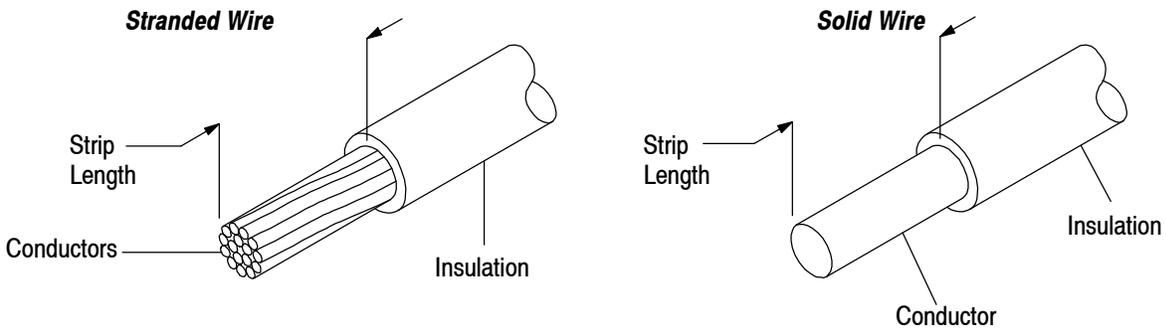
The wire must be stripped to the dimension provided in Figure 2.

CAUTION *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				WIRE BARREL CRIMP		INSULATION BARREL CRIMP		
SIZE		QTY	INSULATION DIA (MAX)	STRIP LENGTH	HEIGHT	WIDTH (NOM)	HEIGHT	WIDTH (MAX)
AWG	CMA							
18	---	1	1.78 [.070]	4.09-3.84 [.161-.151]	1.12-1.02 [.044-.040]	1.57 [.062]	2.54-1.78 [.100-.070]	2.03 [.080]
---	1900-1600	2	1.52 [.060] Each Wire					
20-22	---	1	1.78 [.070]	4.09-3.84 [.161-.151]	0.91-0.81 [.036-.032]	1.57 [.062]	2.54-1.78 [.100-.070]	2.03 [.080]
---	1500-600	2	1.52 [.060] Each Wire					
22	---	1	1.27 [.050]	4.09-3.84 [.161-.151]	0.81-0.71 [.032-.028]	1.40 [.055]	2.54-1.78 [.100-.070]	2.03 [.080]
---	800-600	2	1.52 [.060] Each Wire					
24-26	---	1	1.27 [.050]	4.09-3.84 [.161-.151]	0.69-0.64 [.029-.025]	1.40 [.055]	2.54-1.78 [.100-.070]	2.03 [.080]
---	500-200	2	1.52 [.060] Each Wire					

Figure 2

3.3. Crimped Contact Requirements

The contact shall be located in desired tooling and crimped according to the instructions packaged with that tooling. See Section 5, TOOLING, of this document for details on tooling options and instructional materials.



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. 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 evident 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

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 Figure 3, 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. Insulation crimp shall comply to width and height provided in Figure 3.

H. Wire Location

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.

J. Wire Barrel Seam

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

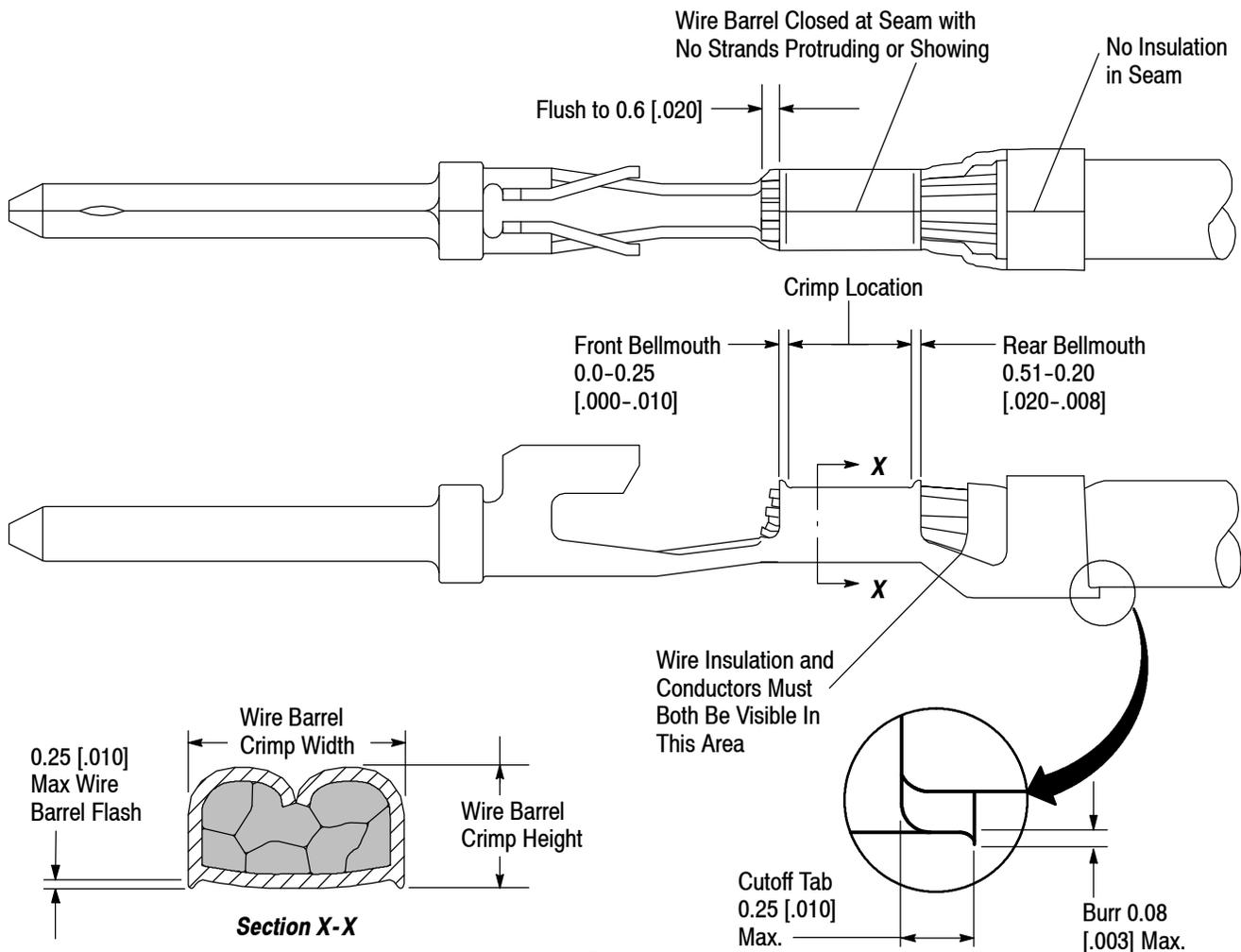


Figure 3

K. Twist and Roll

There shall be no twist, roll, deformation or other damage to the mating portion of the crimped contact that will impair usage of the contact. See Figure 4.

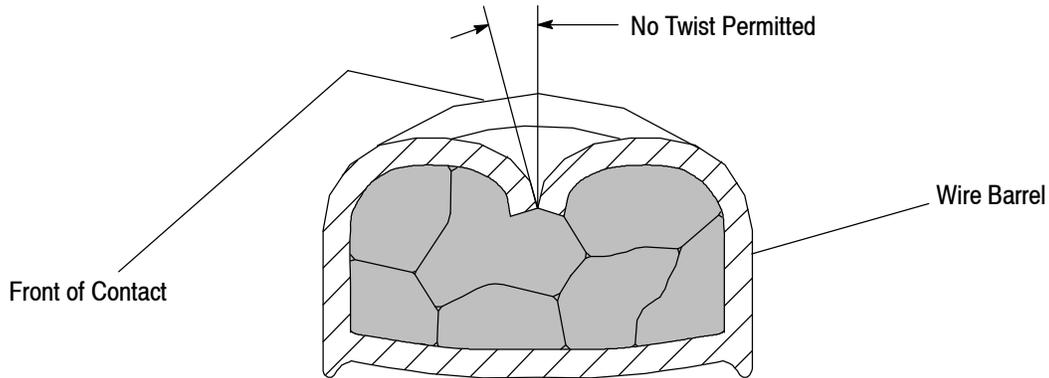


Figure 4

L. 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 limits provided in Figure 5.

The up and down bend or the side-to-side bend of the crimped contact, including cutoff tab and burr, shall not be bent above or below the datum line more than the amount shown.



Periodic inspections must be made to ensure crimped contact formation is consistent as shown.

NOTE: Pin contact shown, socket contact has the same requirements.

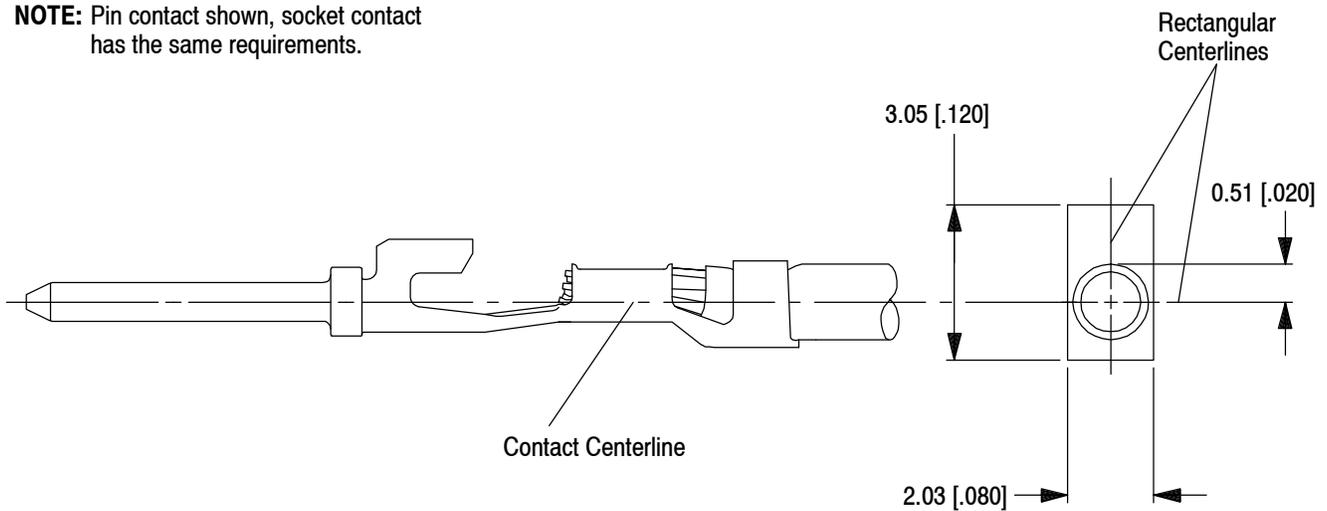


Figure 5

3.4. Contact Repair

Once a contact has been damaged, it can not be used or reterminated. It must be cut from the wire and replaced with a new contact.

4. QUALIFICATIONS

AMPLIMITE HDE-20 Contacts not required to be agency approved.

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 6.

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

• **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.

WIRE				TOOLING (DOCUMENT)	
SIZE		QTY	INSULATION DIA (MAX)	APPLICATOR	POWER UNIT
AWG	CMA				
18	---	1	1.78 [.070]	466978-1 (---) or 567180-2 (408-8040)	1320895-1, -3 (409-10012) or 354500-1 (409-5842) 565435-5 (409-5128) 1338600-3, -4 (409-10016)
---	1900-1600	2	1.52 [.060] Each Wire		
20-22	---	1	1.78 [.070]		
---	1500-600	2	1.52 [.060] Each Wire	466977-1 (---) or 567179-2 (408-8040)	1320895-1, -3 (409-10012) or 354500-1 (409-5842) 565435-5 (409-5128) 1338600-3, -4 (409-10016)
22	---	1	1.27 [.050]		
---	800-600	2	1.52 [.060] Each Wire		
24-26	---	1	1.27 [.050]		
---	500-200	2	1.52 [.060] Each Wire		

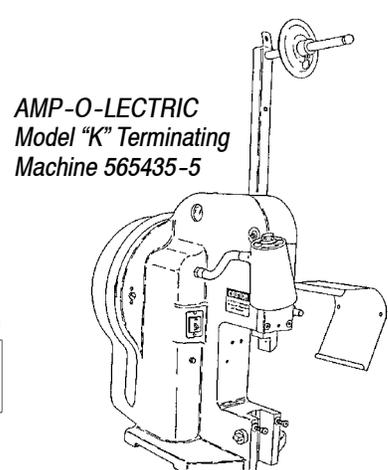
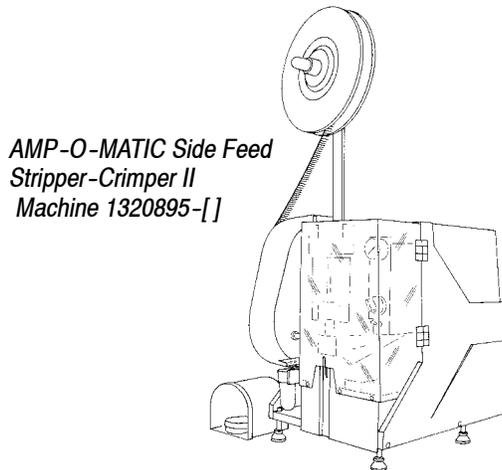
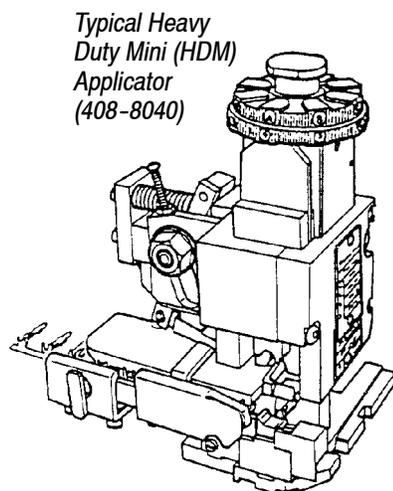
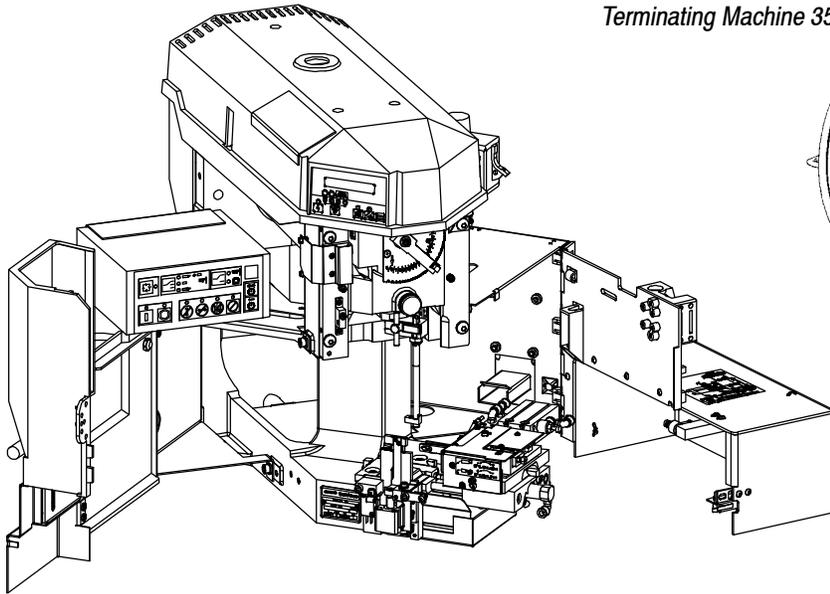
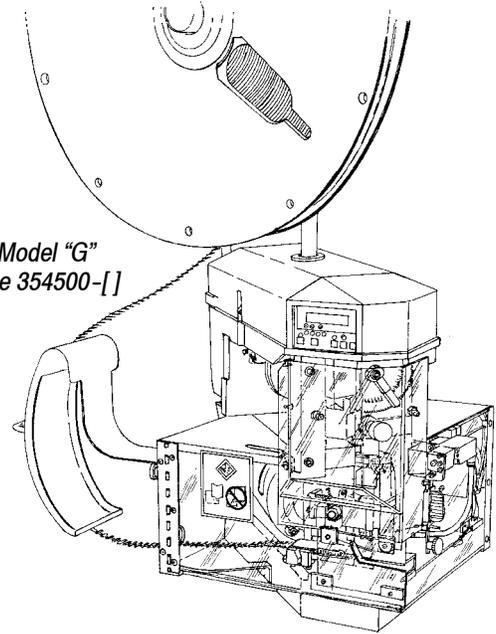


Figure 6 (cont'd)

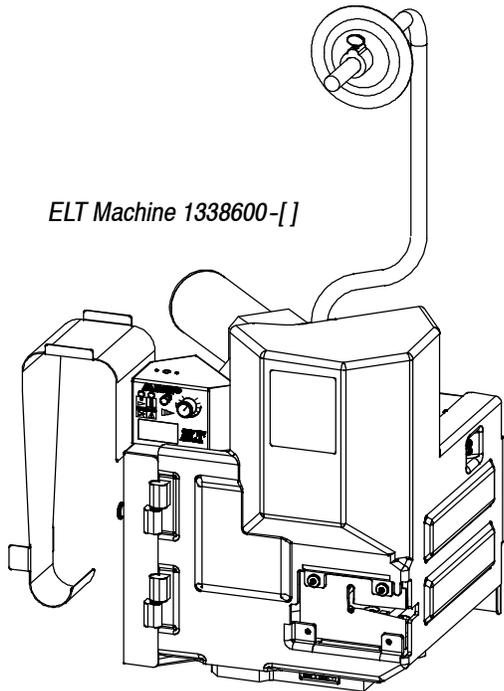
*AMP-O-LECTRIC Model "G"
Terminating Machine 354500-[]
with Optional Stripping Module*



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



ELT Machine 1338600-[]



*ELT Machine 1338600-[] with
Optional Stripping Module*

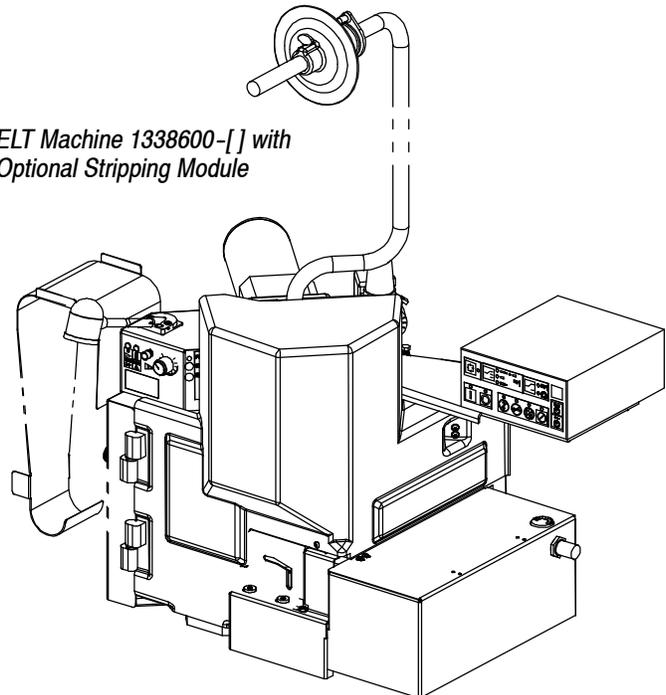


Figure 6 (end)

6. VISUAL AID

Figure 7 shows a typical application of an AMPLIMITE HDE-20 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.

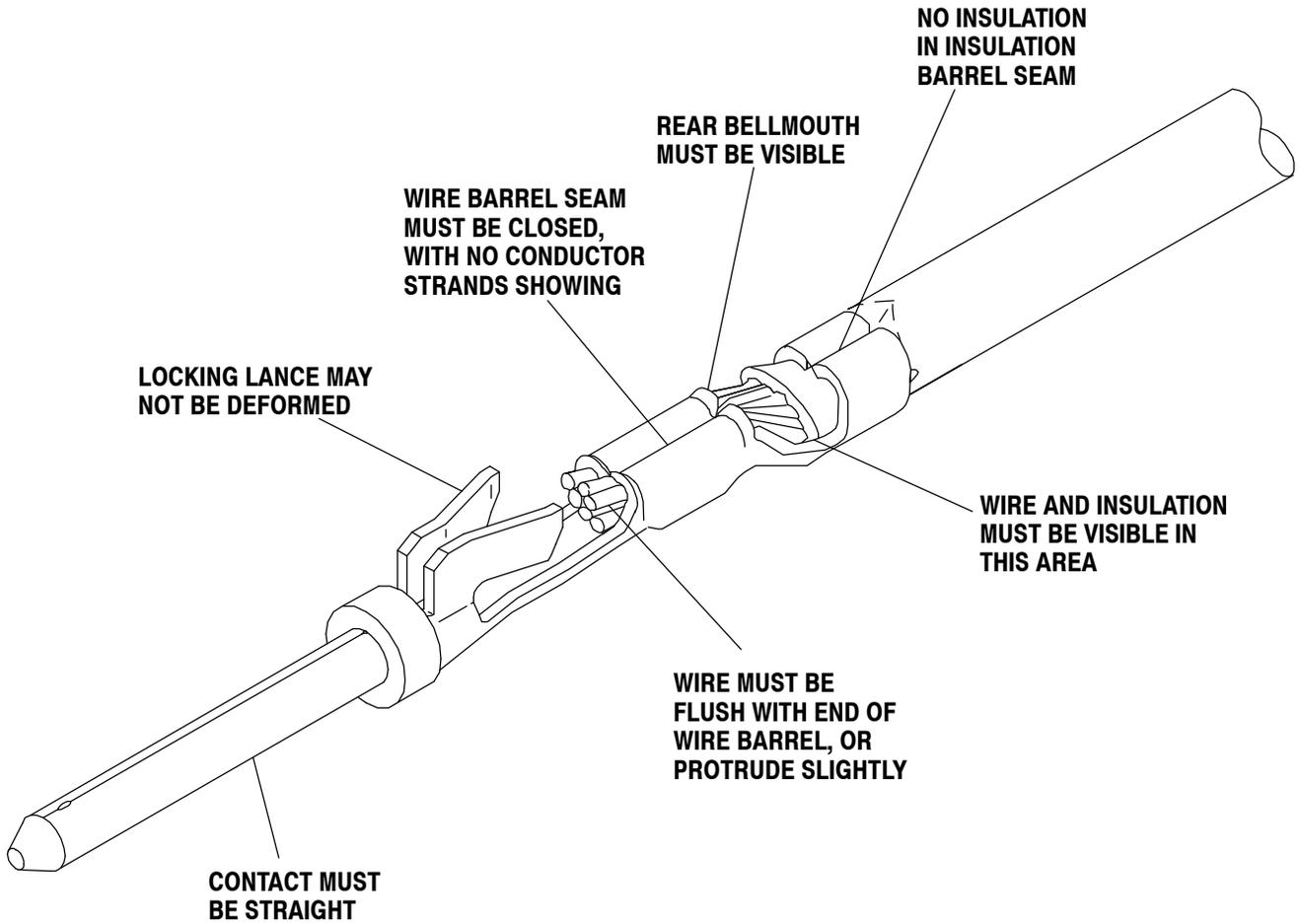


FIGURE 7. VISUAL AID