

**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  $\pm 0.13$  [ $\pm .005$ ] 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 Tandem Spring Receptacle Contacts (1.52 x 1.73 [.060 x .068]), and Mini-Tandem Spring Housings and Receptacle Contacts (1.52 [.060])-sq. All the receptacle contacts are designed to mate with 0.64 [.025]-sq. pins.

Tandem Spring contacts are all standard-pressure, and fit AMPMODU\* Mod IV closed entry single-row or double-row housings with minimum 2.54 [.100] centerline spacing.

Mini-Tandem Spring contacts are available in standard-pressure and high-pressure versions, and fit their own line of housings. These housings are available in three versions: single-row, double-row, and double-row with polarizing bar. All Mini-Tandem Spring housings are on 2.54 [.100] centers. Accessories are available for assembling two single-row housings to form a connector on 2.54 by 5.08 [.100 by .200] centers. Refer to Paragraph 3.6.

When corresponding with TE Connectivity Personnel, use the terminology provided in this specification to facilitate your inquiries for information. Basic terms and features of this product are provided in Figure 1.

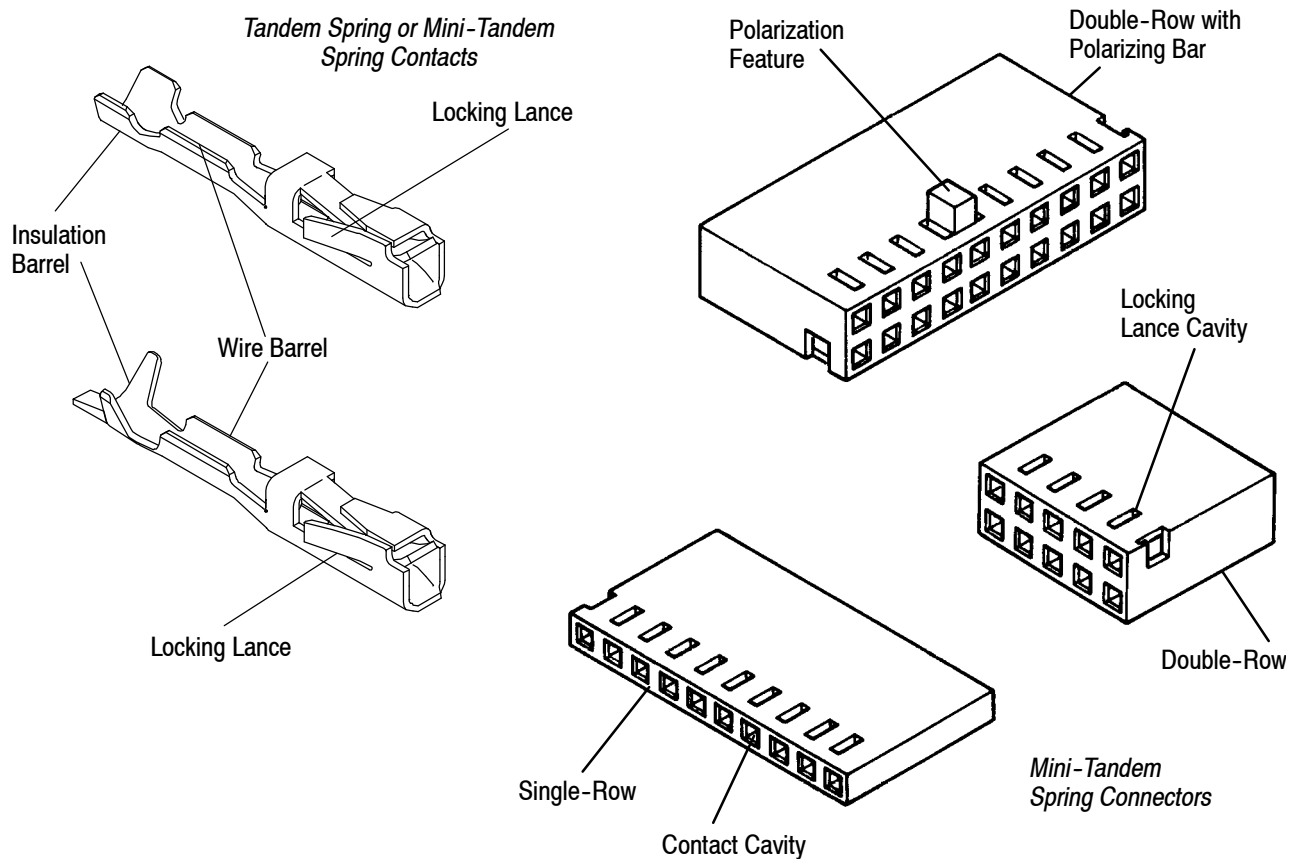


Figure 1

**2. REFERENCE MATERIALS**

**2.1. Revision Summary**

- Updated document to corporate requirements and new logo

## 2.2. Customer Assistance

Reference Part Number 530554 and Product Code G898 are representative numbers that identify the Tandem Spring and Mini-Tandem Spring Housings and Contacts product line. 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 Product Information 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 TE.

## 2.4. Specifications

Product Specification 108-25031 provides performance requirements and test data relating to this product line.

## 2.5. Instructional Material

The following is a list of Instructional Documents (408 Series) that provide assembly procedures for product, operation, maintenance and repair of tooling, as well as setup and operation procedures of applicators; and Machine Customer Manuals (409 Series) that provides 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-Wrap) Reel of Contacts for Applicator Tooling
408-4106	Straight Action Crimp Head Adaptor 217201-1
408-4190	C-Head Pneumatic Adapter 318161-[ ]
408-4321	Pneumatic CERTI-CRIMP* Tool Holder 356304-1
408-4390	Applicator 2000 for Side-Feed Applications
408-6660	Extraction Tools with Base Part Number 91156
408-7424	Checking Terminal Crimp Height or Gaging Die Closure
408-8040	Heavy Duty Miniature Quick-Change Applicators (Side-Feed Type)
408-8053	Conversion Guide For Miniature Quick-Change Applicators
408-8322	Heavy Duty Industrial (HD-I) Side-Feed Type Applicator
408-8547	CERTI-CRIMP III Straight Action Hand Tools
408-8816	Cable Tie Installation Tool 734587-1
408-8839	SDE Hand Tool Pneumatic Adapter 1583527-1
408-9230	Keying Tool 91417-1
408-9407	Hand Crimping Tools 58342-1 and 58342-2
408-9453	Extraction/Lance Reset Tools 843477-[ ], and 843996-2, -3, -4, and -5
408-9640	Crimp Quality Monitor Applicators for Side-Feed and End-Feed Applications
408-9816	Handling of Reeled Products
409-5842	AMP-O-LECTRIC* Model "G" Terminating Machine 354500-[ ]
409-5852	AMPOMATOR* CLS III-G Lead-Making Machines 122500-[ ]
409-5862	626 Pneumatic Tooling Assemblies 189721-[ ] and 189722-[ ]
409-5878	AMPOMATOR CLS IV+ Lead-Making Machines 356500-[ ] and 1213400-[ ]
409-10012	AMP-O-MATIC* Side-Feed Stripper-Crimper III Machine No. 1320895-[ ]
409-10029	Stripping Module 1490503-[ ] and 1490501-[ ]
409-10039	"Micro" Pneumatic Tooling Assembly 1490567-1
409-10055	CERTI-CRIMP III Battery Powered Crimp Tool Kit 1213805-[ ]

## 3. REQUIREMENTS

### 3.1. Storage

#### A. Reel Storage

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

#### B. Connector Storage

Store connector assemblies in the shipping containers until ready for use. Prolonged exposure to ultraviolet light will attack and break down the material used in the connector housing.

#### C. Shelf Life

The contacts should remain in the shipping containers until ready for use to prevent deformation to the contact. 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.

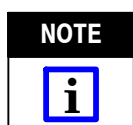
Alkalies	Ammonia	Citrates	Phosphates	Citrates	Sulfur Compounds
Amines	Carbonates	Nitrites	Sulfides	Nitrites	Tartrates

### 3.2. Wire Selection and Preparation

The contacts will accept a wire size range of 32 to 20 AWG and may be terminated to either stranded or solid wire. Contacts will accept a minimum insulation diameter of 0.64 [.025] and a maximum insulation diameter of 1.37 [.054] for wire size range of 32-28. Insulation diameter for wire size range 26-22 is 0.91-1.37 [.036-.054]. For 24-20 wire size range, the maximum diameter shall be 1.75 [.069] when used in the 15.24 [.600] Mod IV housing, and 1.40 [.055] when used in the 16.38 [.645] Mod IV housing. See Figure 2.

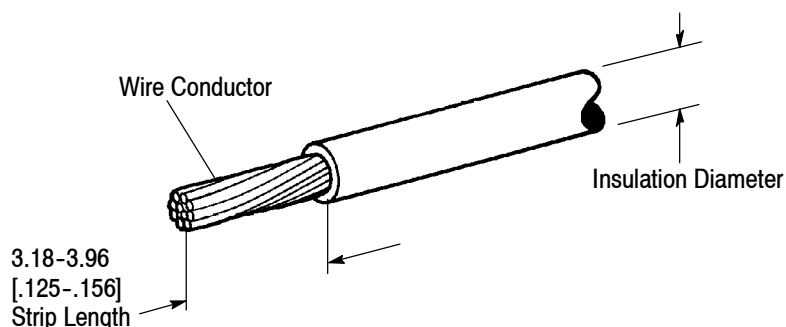


*When stripping the wire, use care to avoid scraping, nicking, or cutting the conductor. Care must also be used when handling the wire during stripping and crimping to prevent cracking or breaking of the conductor and insulation.*



*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.*

Note: Not to Scale



TYPE TANDEM SPRING CONTACT	WIRE		WIRE BARREL				INSULATION BARREL	
	RANGE (AWG)	SIZE	WIDTH (NOMINAL)	"F" CRIMP		TENSILE PULL OUT TEST (MIN) FORCE N [lbs]	TYPE	CRIMP WIDTH (NOMINAL)
				HEIGHT				
				HAND TOOL	MACHINE			
MINI AND STANDARD	32-28	32	0.84 [.033]	0.58-0.53 [.023-.021]	0.58-0.53 [.023-.021]	4.4 [1]	O	1.40 [.055]
				---	0.53-0.48 [.021-.019]			1.27 [.050]
		30	0.84 [.033]	0.58-0.53 [.023-.021]	0.58-0.53 [.023-.021]	6.7 [1.5]	O	1.40 [.055]
				---	0.53-0.48 [.021-.019]			1.27 [.050]
		28	0.84 [.033]	0.58-0.53 [.023-.021]	0.58-0.53 [.023-.021]	11.1 [2.5]	O	1.40 [.055]
				---	0.56-0.51 [.022-.020]			1.27 [.050]
MINI	26-22	26	1.07 [.042]	0.81-0.71 [.032-.028]	0.81-0.71 [.032-.028]	17.8 [4.0]	O	1.40 [.055]
		24	1.07 [.042]	0.81-0.71 [.032-.028]	0.86-0.76 [.034-.030]	31.1 [7.0]	O	1.40 [.055]
		22	1.07 [.042]	0.81-0.71 [.032-.028]	0.97-0.86 [.038-.034]	48.9 [11.0]	O	1.40 [.055]
MINI AND STANDARD	24-20	24	1.4 [.055]	0.71-0.61 [.028-.024]	0.74-0.64 [.029-.025]	31.1 [7.0]	O or F	1.57 [.062]
		22	1.4 [.055]	0.81-0.71 [.032-.028]	0.84-0.74 [.033-.029]	48.9 [11.0]	O or F	1.57 [.062]
		20	1.4 [.055]	0.81-0.71 [.032-.028]	0.94-0.84 [.037-.033]	77.8 [17.5]	O or F	1.57 [.062]

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.

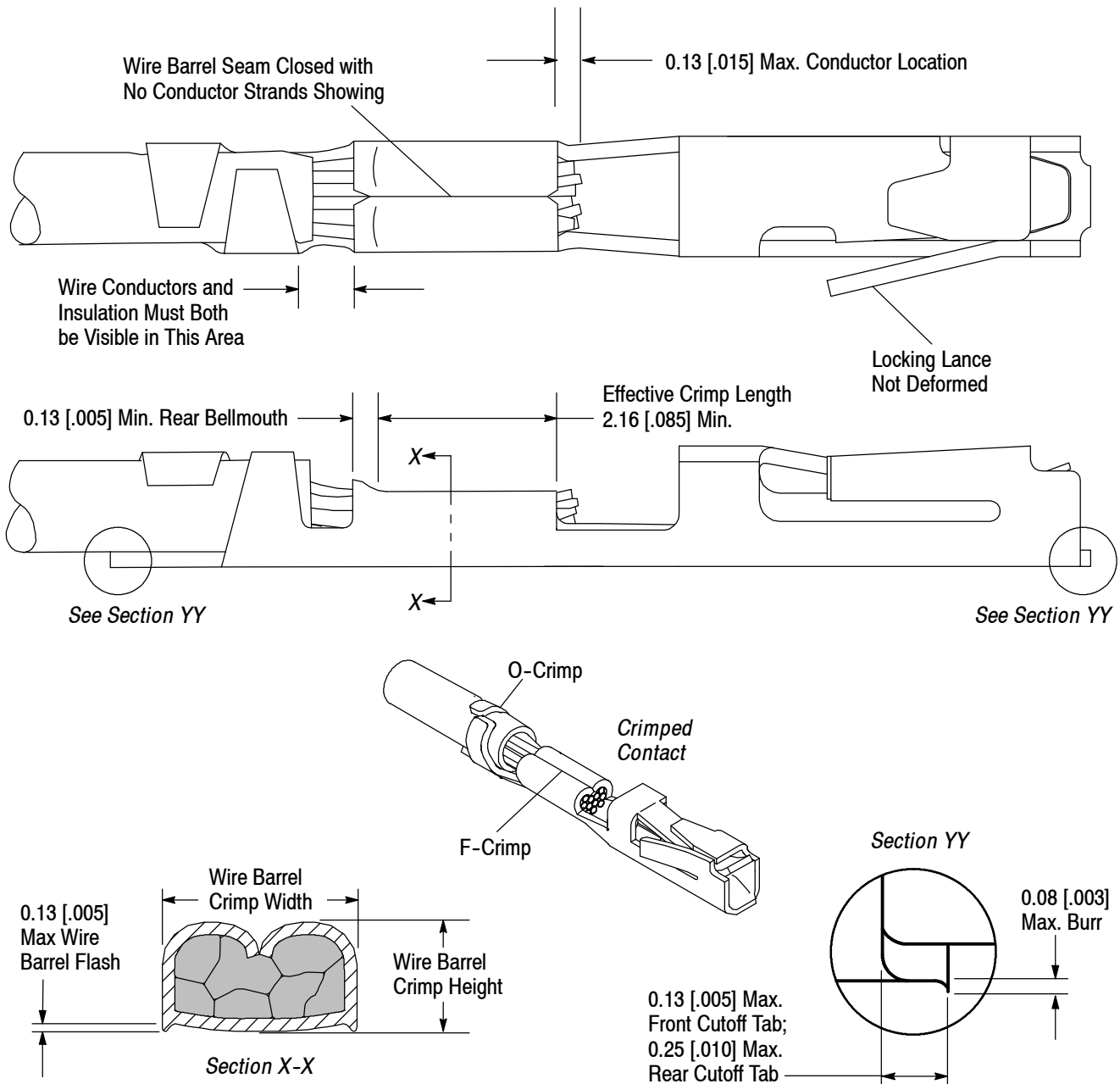


Figure 3

## 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.

## 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.

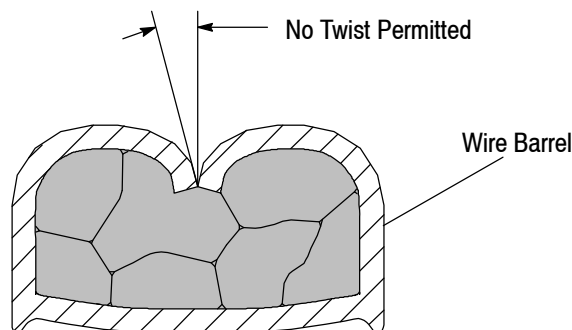


Figure 4

## 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.

1. The up and down 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.

2. The side-to-side bend of the contact may not exceed the limits provided.

**NOTE**

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

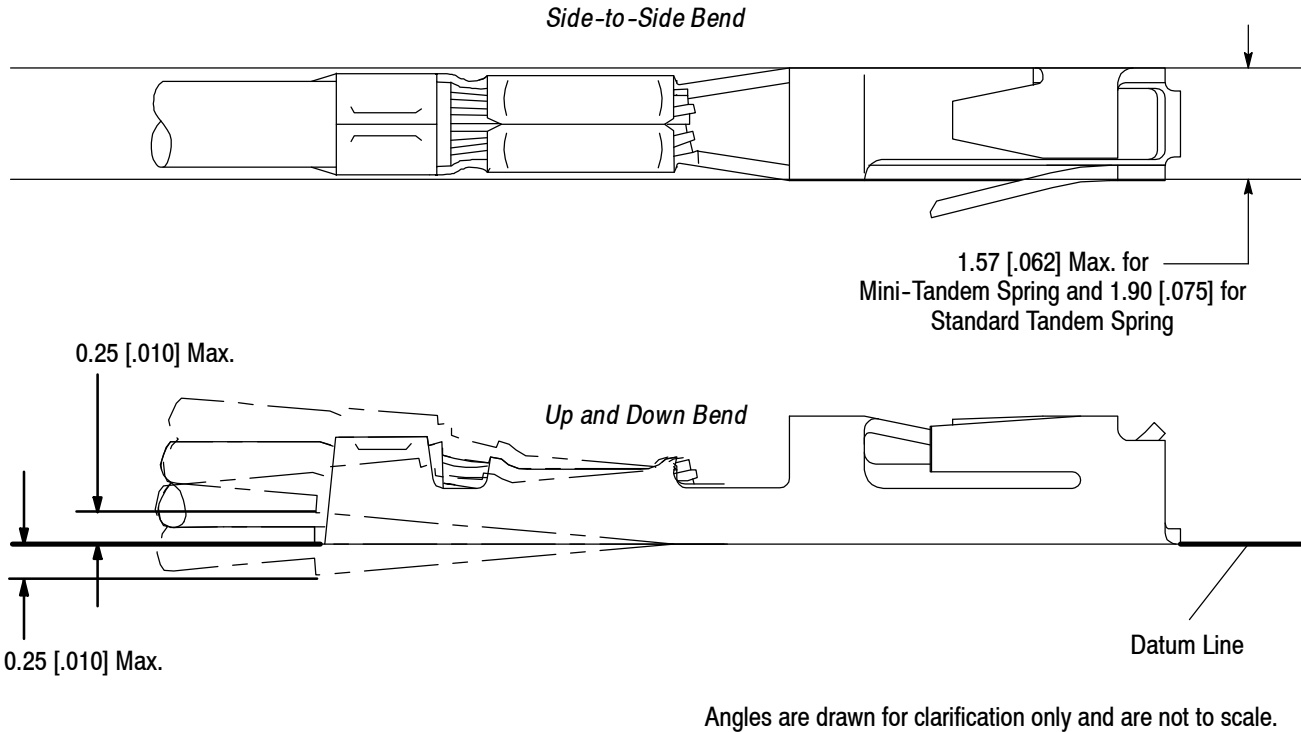


Figure 5

**3.4. Placement of Crimped Contact in Housing**

The contact must be inserted with the locking lance oriented toward the locking lance window in the housing. When fully inserted, the locking lance will engage the housing and prevent backing out during mating of the connector. See Figure 6.

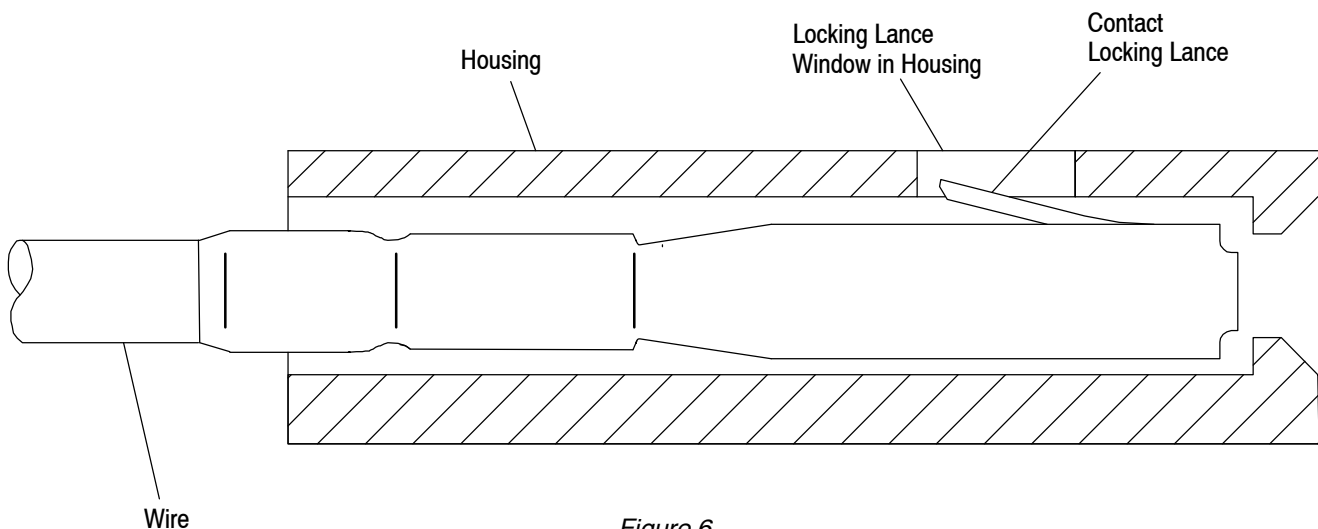


Figure 6

### 3.5. Connector Keying

The Mini-Tandem Spring Housings may be keyed as desired using Keying Plug 531226-1. These plugs insert directly into the empty housing contact cavities, rather than into the loaded receptacles. Refer to Figure 7.

**NOTE** *The same keying plugs fit the AMPMODU Mod IV Housings, which accommodate the standard Tandem Spring Contacts.*

Mating posts in the pin connector which correspond to keyed receptacle cavities must be removed using Keying Tool 91417-1. The procedures for use of this tool are contained in Instruction Sheet 408-9230. When removing box connector pin contacts, use Extraction Tool 91156 and refer to Instruction Sheet 408-6660 for procedures.

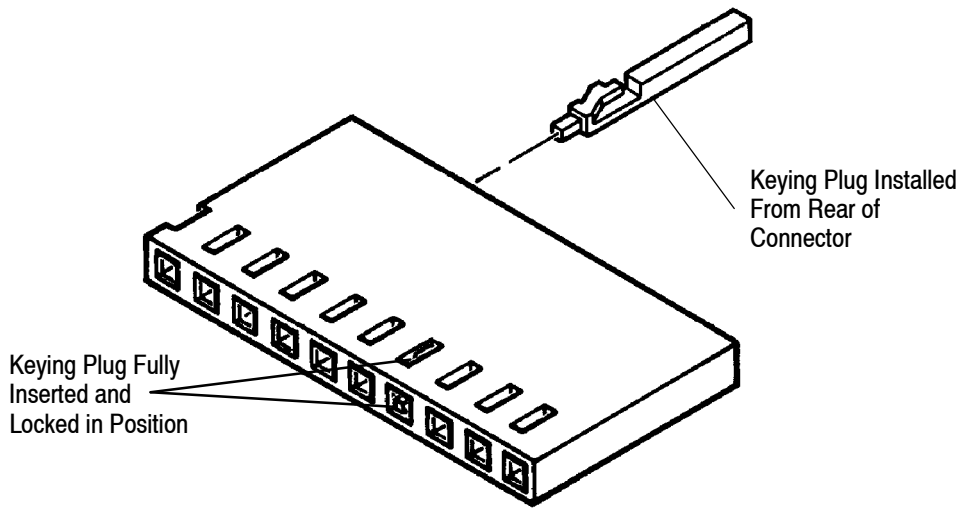


Figure 7

### 3.6. Connector Accessories

Figure 8 shows the assembly of two single-row Mini-Tandem Spring Housings to form a connector on 2.54 x 5.08 [.100 x .200] centerlines. To accomplish this, two stacking clips (part number 530552-1) are used. One or two AMP-TY\* Cable Ties may be used to provide optional strain relief. Part numbers and capacities are listed in the table in Figure 8.

**NOTE** *For permanent application, bond stacking clips to housings using epoxy or a nylon solvent.*

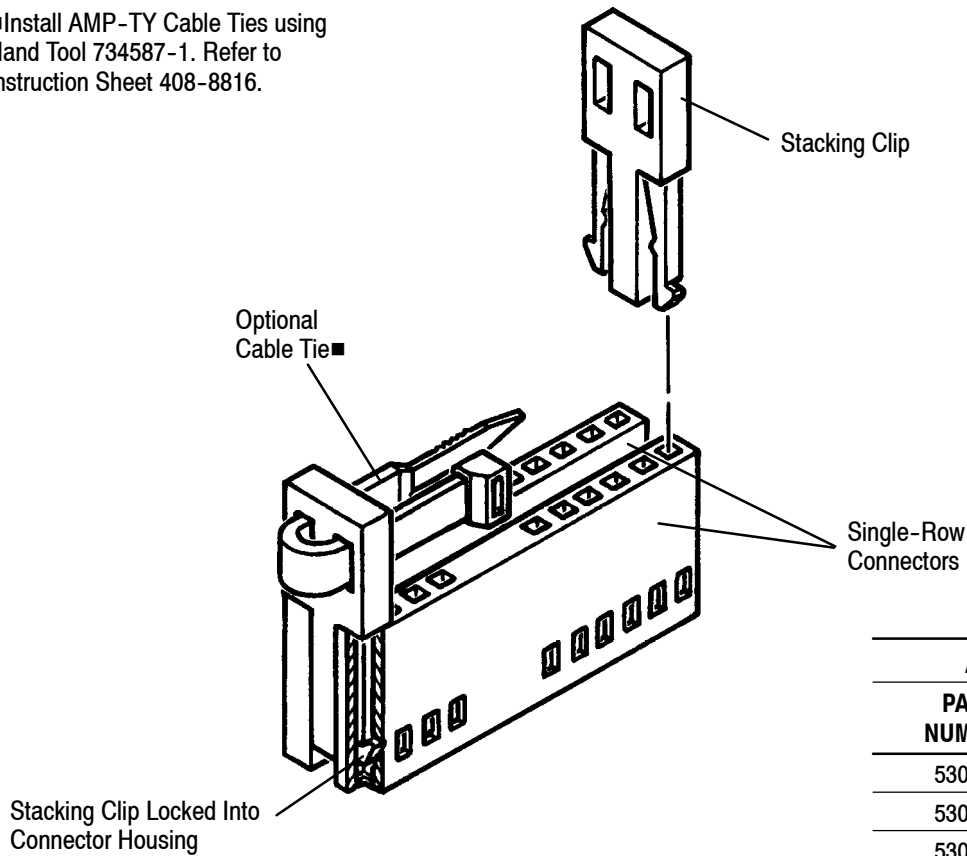
**DANGER** *AVOID PERSONAL INJURY! TE strongly recommends against using formic acid to bond stacking clips to connector housings. Formic acid presents health and fire/explosion safety hazards. A [Material Safety Data Sheet](#) outlining problems associated with this chemical product is available from the product manufacturer. Read it before considering using formic acid for this or any purpose.*

### 3.7. Repair/Replacement

Damaged crimped contacts or housings must be removed, discarded, and replaced with new components. Remove any damaged contacts by referring to the procedures given in Instruction Sheet 408-9453 using Extraction/Lance Reset Tools 843477-[ ], and 843996-2, -3, -4, and -5.

**NOTE** *If a damaged contact is apparent before the contacts are inserted into the housing, cut the wire in back of the contact and reterminate the wire end. Do NOT reterminate contacts. If contacts or housing are damaged after insertion, the wire must be cut directly in back of the housing and reterminated with new contacts and housing. See Section 5, TOOLING.*

■ Install AMP-TY Cable Ties using Hand Tool 734587-1. Refer to Instruction Sheet 408-8816.



AMP-TY CABLE TIES	
PART NUMBER	CAPACITY (Max Bundle Dia)
530045	0.875
530047	2.000
530049	4.125


Figure 8

#### 4. QUALIFICATIONS

Mini-Tandem Spring Housings are Recognized by the Component Program of Underwriters Laboratories, Inc. (UL) in File No. E28476.


#### 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 9.

**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 TE Representative or call the Tooling Assistance Center number at the bottom of page 1.

- **Applicators**

Applicators are designed 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 at the bottom of page 1 for specific changes.

- **Hand Tools**

Hand crimping tools are designed for prototype, low-volume applications, and repair.



- **Crimping Die Assemblies**

Crimping Die Assemblies for crimping the contacts are available for the full wire size range. They are designed for easy installation and removal in hand crimping tool frame assemblies or applicators.

- **Extraction Tools**

Extraction Tools are designed to release the contact inside the connector housing without damaging the housing or contacts.

- **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. The following Power Unit List provides active machines that will accept the applicators listed in the table in Figure 9. For other power units which may also work with the specified applicators, contact the TE Tooling Assistance Center number at the bottom of page 1.

**Power Unit List: USG (Document)**

- 354500-1 AMP-O-LECTRIC Model "G" Terminating Machine (409-5842)
- 354500-9 AMP-O-LECTRIC Model "G" Terminating Machine (409-5842)
- 1-354500-1 AMP-O-LECTRIC Model "G" Terminating Machine (409-5842)
- 1490501-1 Stripping Module (409-10029)
- 1490501-9 Stripping Module (409-10029)
- 1-1490501-1 Stripping Module (409-10029)

**Power Unit List: USK (Document)**

- 1583090-2 (N/A)

**Power Unit List: USO (Document)**

- 122500-2 AMPOMATOR CLS III-G Lead-Making Machine (409-5852)
- 122500-3 AMPOMATOR CLS III-G Lead-Making Machine (409-5852)
- 356500-1 AMPOMATOR CLS IV+Lead-Making Machine (409-5878)
- 356500-2 AMPOMATOR CLS IV+Lead-Making Machine (409-5878)

**Power Unit List: USQ (Document)**

- 122500-2 AMPOMATOR CLS III-G Lead-Making Machine (409-5852)
- 122500-3 AMPOMATOR CLS III-G Lead-Making Machine (409-5852)
- 356500-2 AMPOMATOR CLS IV+Lead-Making Machine (409-5878)

**Power Unit List: USS (Document)**

- 1320895-1 AMP-O-MATIC Side-Feed Stripper-Crimper III Machine (409-10012)
- 1320895-3 AMP-O-MATIC Side-Feed Stripper-Crimper III Machine (409-10012)

**Power Unit List: UST (Document)**

- 1320895-2 AMP-O-MATIC Side-Feed Stripper-Crimper III Machine (409-10012)
- 1320895-4 AMP-O-MATIC Side-Feed Stripper-Crimper III Machine (409-10012)

PRODUCT LINE	WIRE SIZE (AWG)	INSUL DIA.	TOOLING (DOCUMENT IF AVAILABLE)								
			HAND TOOL	HEAD	DIE ASSY	PNEU HOLDER	APPLICATOR	POWER UNIT●	EXT. TOOL		
TANDEM SPRING	32-28	0.5-1.02 [.020-.040]	---	---	---	---	---	677693-1	---	---	
								677693-2	---		
								680292-1 (408-8040)	USO		
								680292-2 (408-8040)	USK		
								680292-3 (408-8040)	USG		
								878280-9	---		
								2-878280-2	---		
								2-878280-3	---		
	24-20	1.4 [.055] Max.	---	---	---	---	---	---	567936-1	USS	---
									573945-1	---	
									677683-1	---	
									677683-2	---	
									677683-3	---	
									677734-1	---	
									677734-2	---	
									677734-3	---	
									680555-1 (408-8040)	USO	
									680555-2 (408-8040)	USK	
									680555-3 (408-8040)	USG	
									1157547-1 (408-4390)	---	
									1238071-1 (408-8322)	USO	
									1238071-6 (408-8322)	USO	
									7-1238071-1 (408-8322)	USO	
									7-1238071-6 (408-8322)	USO	
1385340-1	USO										
1385340-2	USK										
1385340-3	USG										
1426012-1 (408-8322)	USO										

●Refer to the beginning of Section 5, TOOLING for descriptions of the Power Units.

Figure 9 (cont'd)

PRODUCT LINE	WIRE SIZE (AWG)	INSUL. DIA.	TOOLING (DOCUMENT IF AVAILABLE)							
			HAND TOOL	HEAD	DIE ASSY	PNEU HOLDER	APPLICATOR	POWER UNIT●	EXT. TOOL	
TANDEM SPRING	24-20	1.4 [.055] Max.	---	---	---	---	---	1426012-6 (408-8322)	USO	---
								7-1426012-1 (408-8322)	USO	
								7-1426012-6 (408-8322)	USO	
								1528423-1	USO	
								1528423-6	USO	
								7-1528423-1	USO	
								7-1528423-6	USO	
MINI-TANDEM SPRING	32-28	0.64-1.37 [.025-.054]	58342-2 (408-9407)	---	---	---	---	---	---	---
			91540-1 (408-8547)	---	---	---	---	---	---	
			189721-1 (408-2498) (409-5862)	217201-1 (408-4106)	58342-4	189928-1 (408-2498) (408-4190)	---	---		
						356304-1 (408-4321)				
			1583527-1 (408-8839)	91540-3 (408-8547)	189928-1 (408-2498) (408-4190)	---	---			
					356304-1 (408-4321)					
			189722-1 (408-2498) (409-5862)	217201-1 (408-4106)	58342-4	189928-1 (408-2498) (408-4190)	---	---		
						356304-1 (408-4321)				
			1583527-1 (408-8839)	91540-3 (408-8547)	189928-1 (408-2498) (408-4190)	---	---			
					356304-1 (408-4321)					
			1213805-1 (409-10055)	---	91540-3 (408-8547)	---	---	---		
			1213805-2 (409-10055)							
			1490567-1 (409-10039)	217201-1 (408-4106)	58342-4	356304-1 (408-4321)	---	---		
				1583527-1 (408-8839)	91540-3 (408-8547)					

●Refer to the beginning of Section 5, TOOLING for descriptions of the Power Units.

Figure 9 (cont'd)

PRODUCT LINE	WIRE SIZE (AWG)	INSUL. DIA.	TOOLING (DOCUMENT IF AVAILABLE)								
			HAND TOOL	HEAD	DIE ASSY	PNEU HOLDER	APPLICATOR	POWER UNIT●	EXT. TOOL		
MINI-TANDEM SPRING	32-28	0.64-1.37 [.025-.054]	---	---	---	---	466723-1 (408-8040)	USK	---		
			---	---	---	---	466952-1 (408-8040)	USS			
			---	---	---	---	567728-1 (408-8040) (408-9640)	USQ			
			---	---	---	---	567728-3 (408-8040) (408-9640)	USG			
			---	---	---	---	567833-1	UST			
	26-22	0.91-1.37 [.036-.054]	91531-1 (408-8547)	---	---	---	---	---	---	91156-2 (408-6660)	
			91540-1 (408-8547)	---	---	---	---	---	---		
			189721-1 (408-2498) (409-5862)	217201-1 (408-4106)	58342-3	189928-1 (408-2498) (408-4190)	---	---	---		---
						356304-1 (408-4321)					
			1583527-1 (408-8839)	91531-3 (408-8547)	189928-1 (408-2498) (408-4190)	---	---	---	---		
					356304-1 (408-4321)						
			91540-3 (408-8547)	189928-1 (408-2498) (408-4190)	---	---	---	---	---		
				356304-1 (408-4321)							
			189722-1 (408-2498) (409-5862)	217201-1 (408-4106)	58342-3	189928-1 (408-2498) (408-4190)	---	---	---		---
356304-1 (408-4321)											
1583527-1 (408-8839)	91531-3 (408-8547)	189928-1 (408-2498) (408-4190)	---	---	---	---					
		356304-1 (408-4321)									
91540-3 (408-8547)	189928-1 (408-2498) (408-4190)	---	---	---	---	---					
	356304-1 (408-4321)										

●Refer to the beginning of Section 5, TOOLING for descriptions of the Power Units.

Figure 9 (cont'd)

PRODUCT LINE	WIRE SIZE (AWG)	INSUL DIA.	TOOLING (DOCUMENT IF AVAILABLE)								
			HAND TOOL	HEAD	DIE ASSY	PNEU HOLDER	APPLICATOR	POWER UNIT●	EXT. TOOL		
MINI-TANDEM SPRING	26-22	0.91-1.37 [.036-.054]	1213805-1 (409-10055)	---	91531-3 (408-8547)	---	---	---	---	91156-2 (408-6660)	
					91540-3 (408-8547)						
			1213805-2 (409-10055)	---	91531-3 (408-8547)	---	---	---	---		---
					91540-3 (408-8547)						
			1490567-1 (409-10039)	---	217201-1 (408-4106)	---	58342-3	356304-1 (408-4321)	---		---
					1583527-1 (408-8839)		91531-3 (408-8547)				
			---	---	---	---	---	---	466819-1 (408-8040)		USO
									466819-2 (408-8040)		USK
			---	---	---	---	---	---	466819-4 (408-8040)		USK
			---	---	---	---	---	---	466819-5 (408-8040)		USG
			---	---	---	---	---	---	466943-1 (408-8040)		USS
			---	---	---	---	---	---	567607-1 (408-8040)		USQ
			---	---	---	---	---	---	567811-1		UST
			---	---	---	---	---	---	677600-1		---
			---	---	---	---	---	---	677600-2		---
			---	---	---	---	---	---	677600-3		---
			---	---	---	---	---	---	878297-2		---
			---	---	---	---	---	---	878297-3		---
			---	---	---	---	---	---	878297-8		---
			---	---	---	---	---	---	878297-9		---
			---	---	---	---	---	---	1-878297-0		---
			---	---	---	---	---	---	5-878297-8		---
			---	---	---	---	---	---	1385645-1		USO
---	---	---	---	---	---	1385645-2	USK				
---	---	---	---	---	---	1385645-3	USG				

●Refer to the beginning of Section 5, TOOLING for descriptions of the Power Units.

Figure 9 (cont'd)

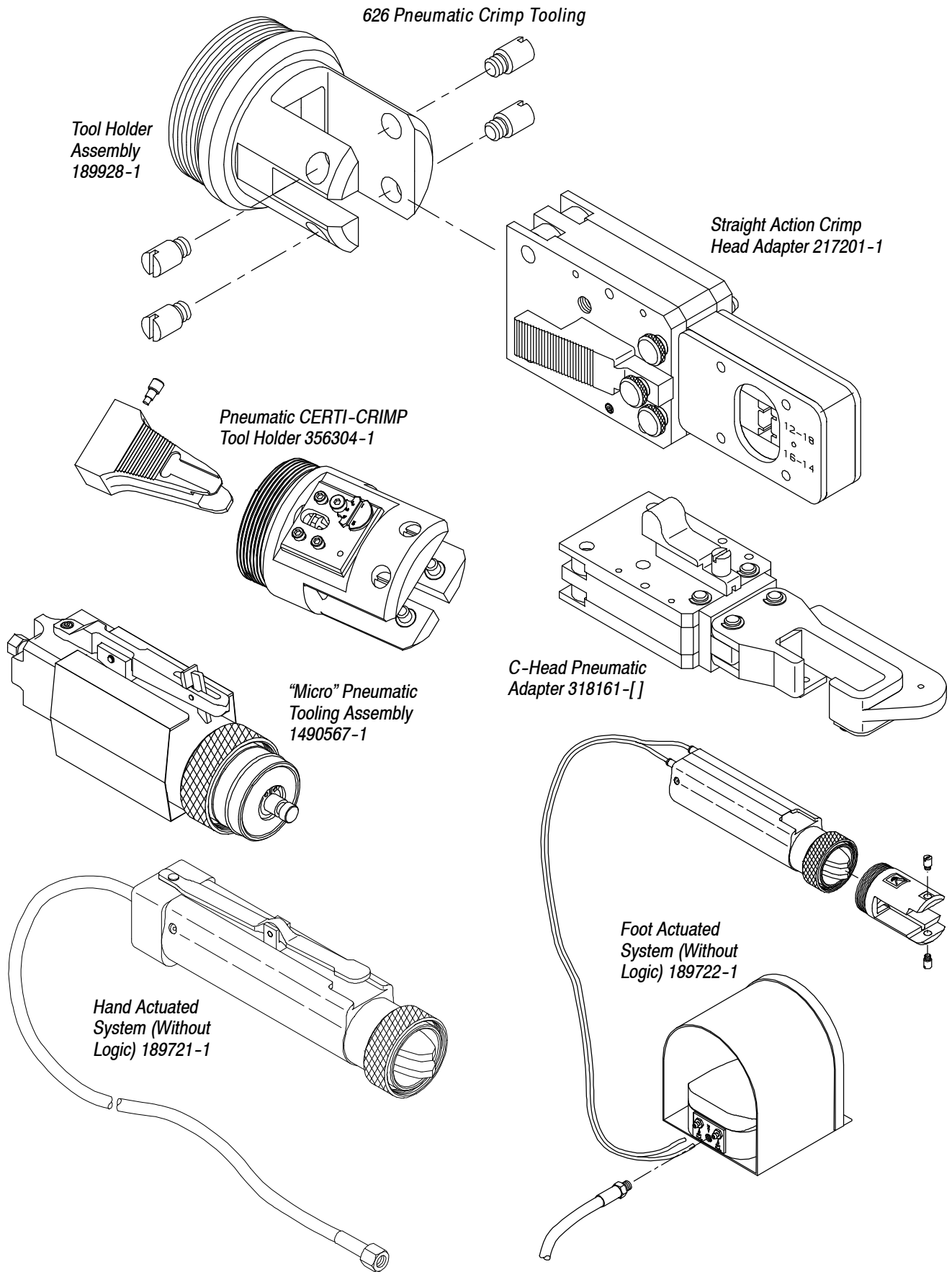
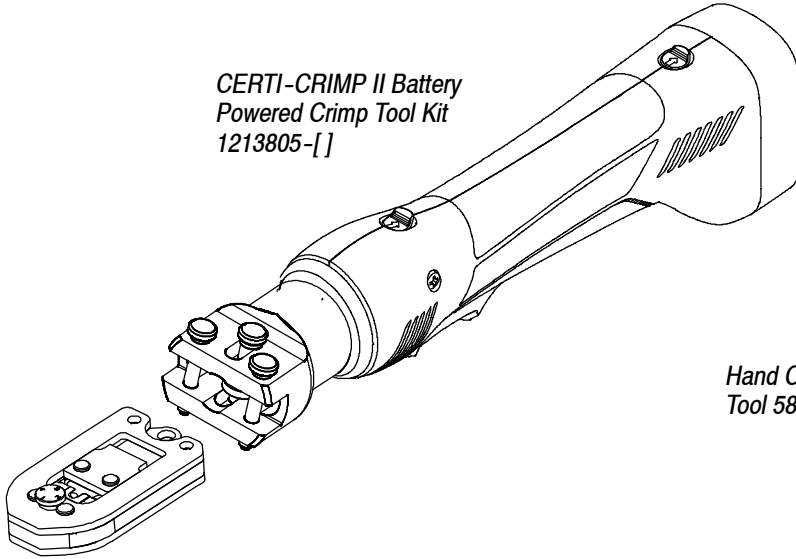


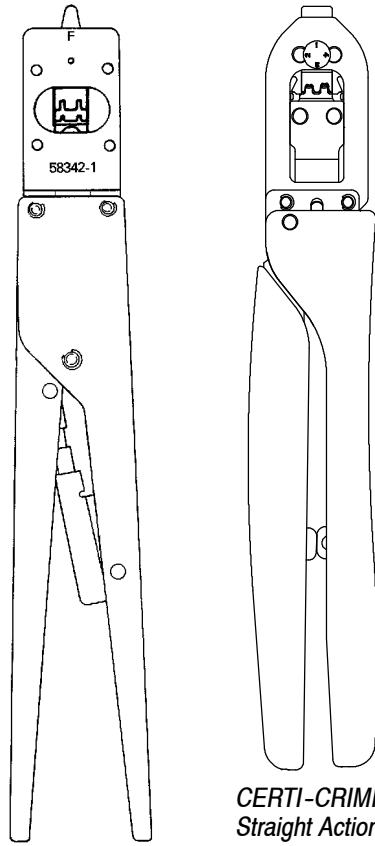
Figure 9 (cont'd)

Hand Tools

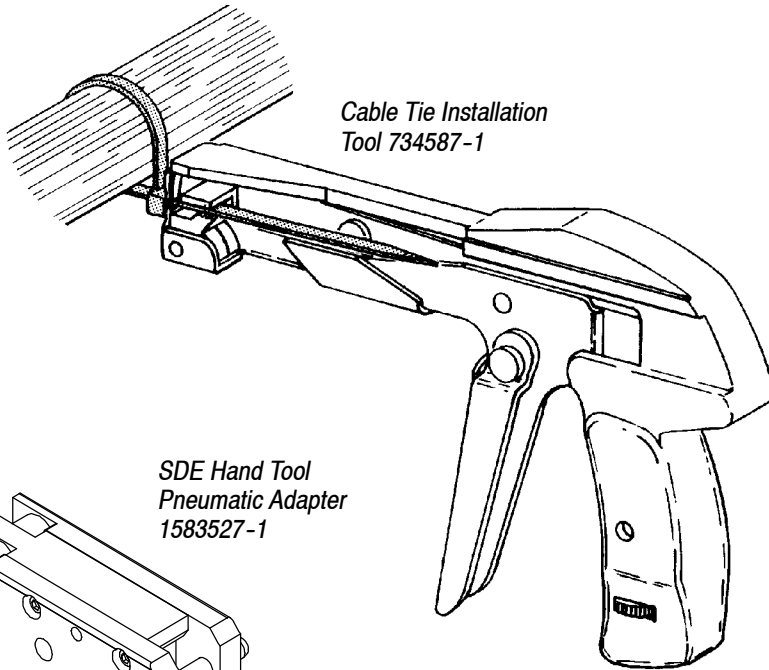
CERTI-CRIMP II Battery  
Powered Crimp Tool Kit  
1213805-[]



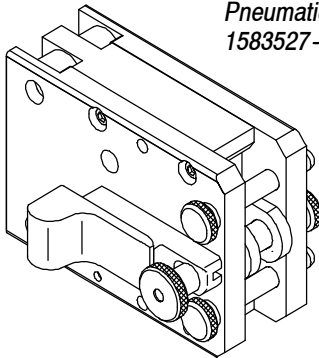
Hand Crimping  
Tool 58342-[]



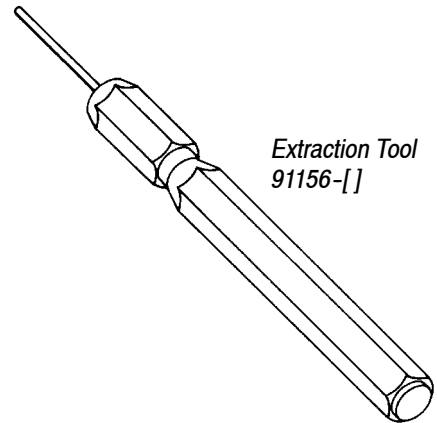
Cable Tie Installation  
Tool 734587-1



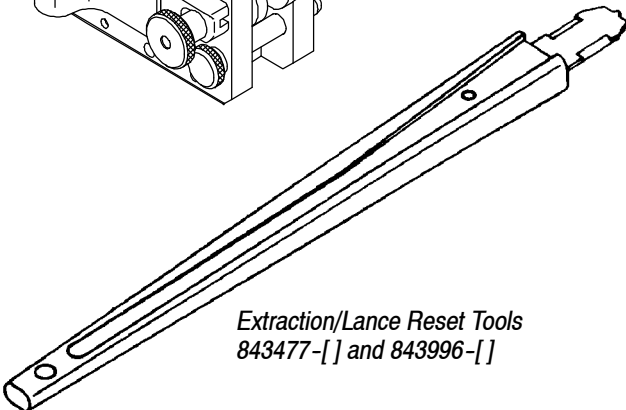
SDE Hand Tool  
Pneumatic Adapter  
1583527-1



Extraction Tool  
91156-[]



Extraction/Lance Reset Tools  
843477-[] and 843996-[]



Keying Tool 91417-1

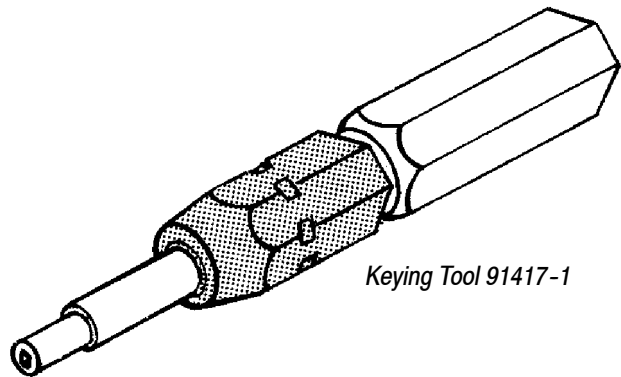
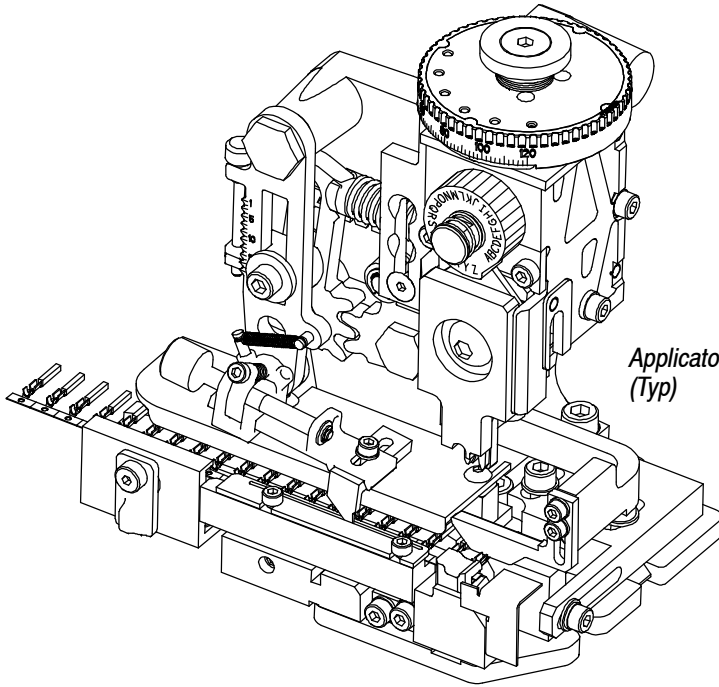
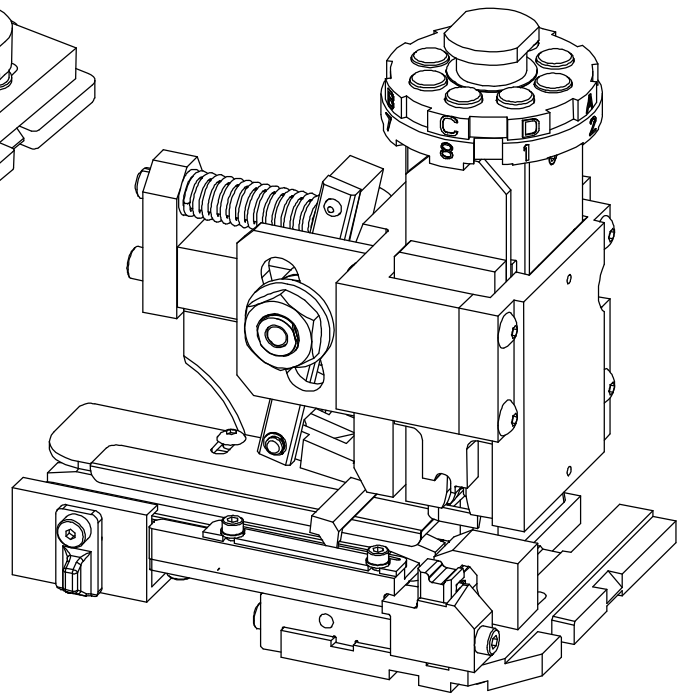


Figure 9 (cont'd)

*Applicators for Power Units*

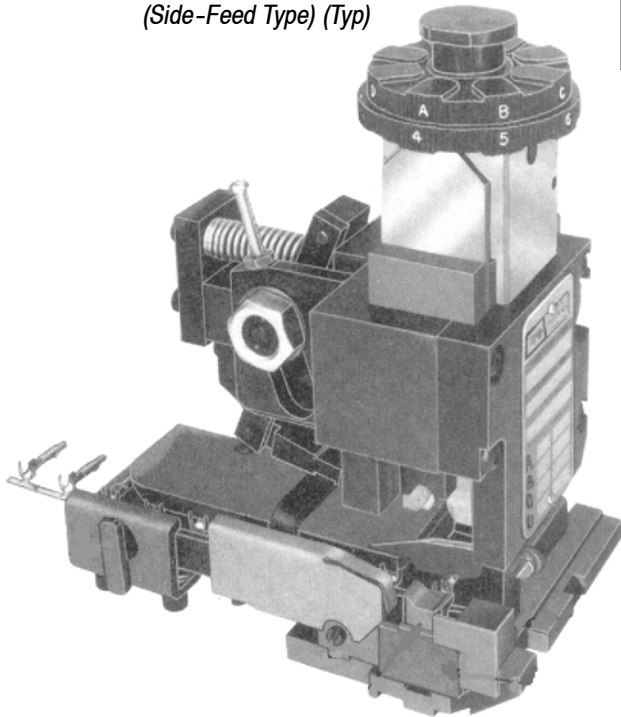


*Applicator 2000  
(Typ)*



*Heavy Duty Industrial (HD-I)  
Quick-Change Applicator  
(Side-Feed Type) (Typ)*

*Heavy Duty Miniature  
Quick-Change Applicator  
(Side-Feed Type) (Typ)*

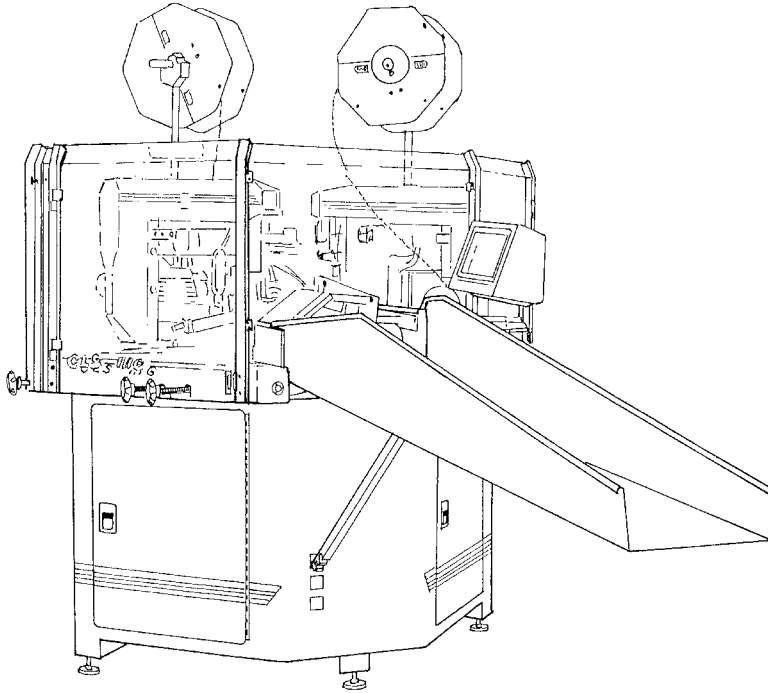


*Figure 9 (cont'd)*

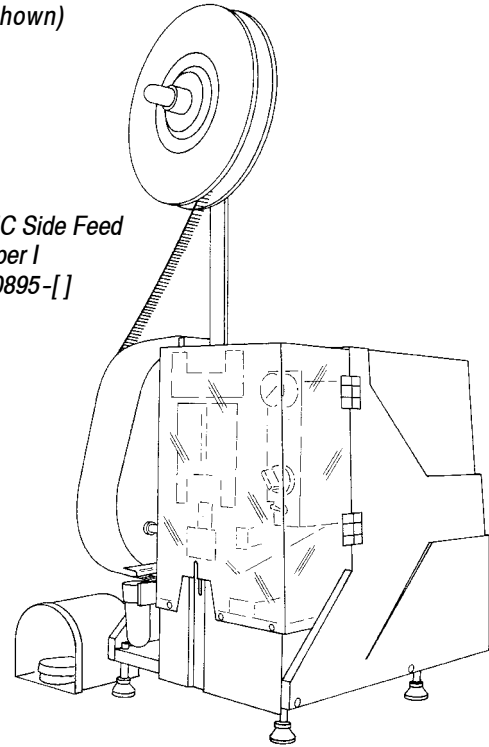


*Power Units  
(Power Unit 1583090-2 Not Shown)*

**AMPOMATOR CLS III-G  
Lead-Making Machines  
122500-[] and 356500-[]**



**AMP-O-MATIC Side Feed  
Stripper-Crimper I  
Machine 1320895-[]**



**AMP-O-LECTRIC Model "G"  
Terminating Machine 354500-[]  
with Optional Stripping Module  
1490501-[] (Stripping Module  
Only 1490503-[])**

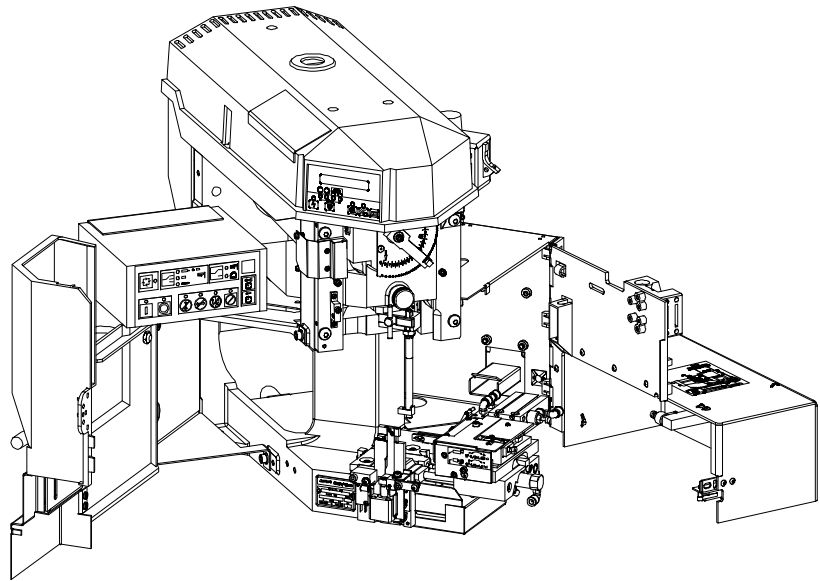
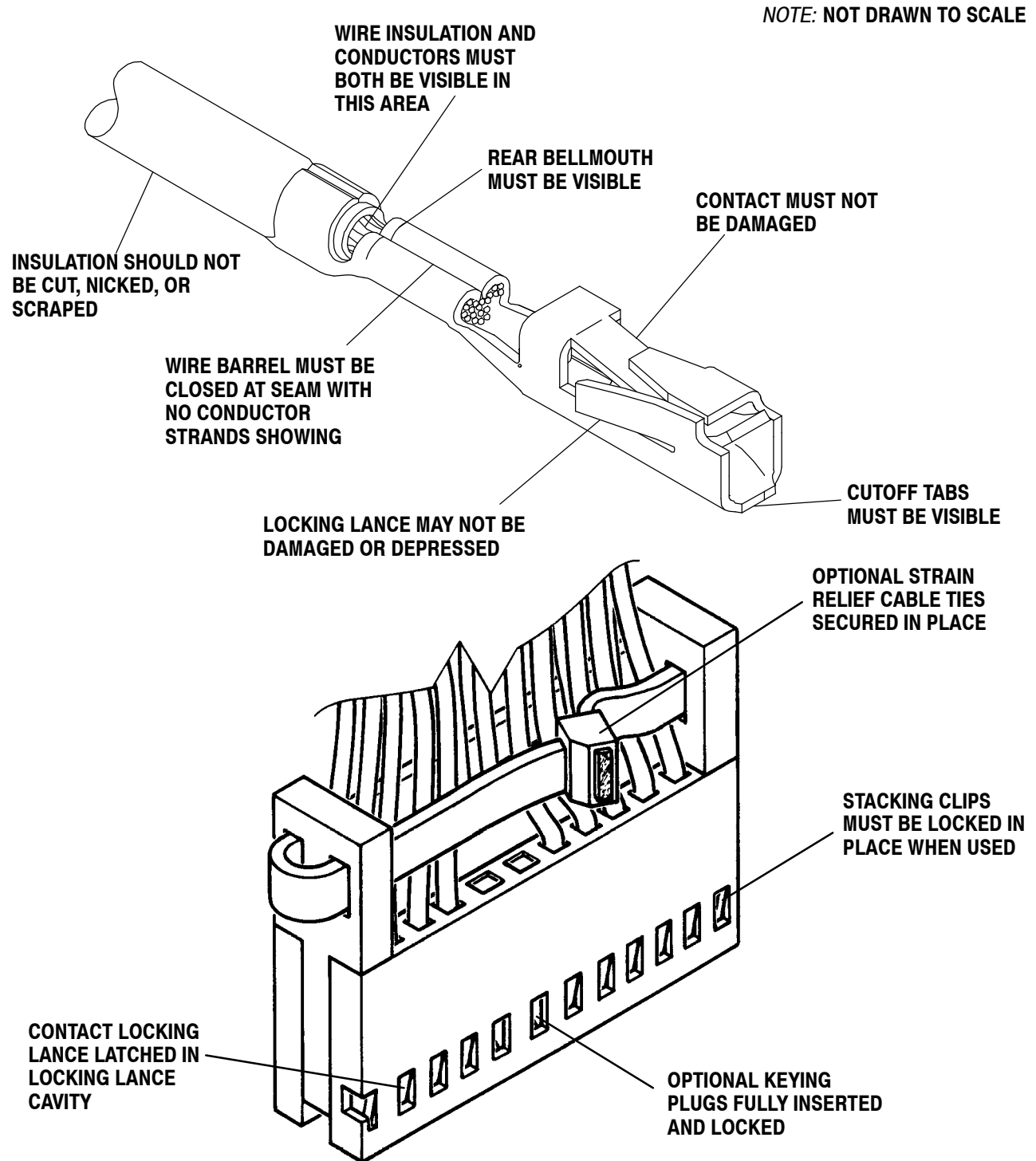


Figure 9 (end)

**6. VISUAL AID**

Figure 10 shows a typical application of Tandem Spring and Mini-Tandem Spring Contacts and Connectors. 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 10. VISUAL AID**