

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 Coaxial Snap-Lock jack and plug connectors used to mate the electrical interface of a radio to the antenna in free-hanging applications. The connectors consist of a jack or plug body, spacer, and straight ferrule. Also available with the plug connector is a ferrule for right-angle applications. The spacer is used to prevent the contact from moving into the cable dielectric. The ferrules are terminated using manual hand-held tools. These plugs and jacks mate, and the plug is designed to also mate with the coaxial Snap-Lock pc (printed circuit) board jack.

The connectors accept jack (male) and plug (female) stamped and formed contacts. These contacts must be ordered separately. The serrations inside the contact wire barrel provide maximum contact and tensile strength after crimping. The contacts are available in reeled form for terminating with semi-automatic electrically-powered machines.

When corresponding with Tyco Electronics personnel about this product, 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.

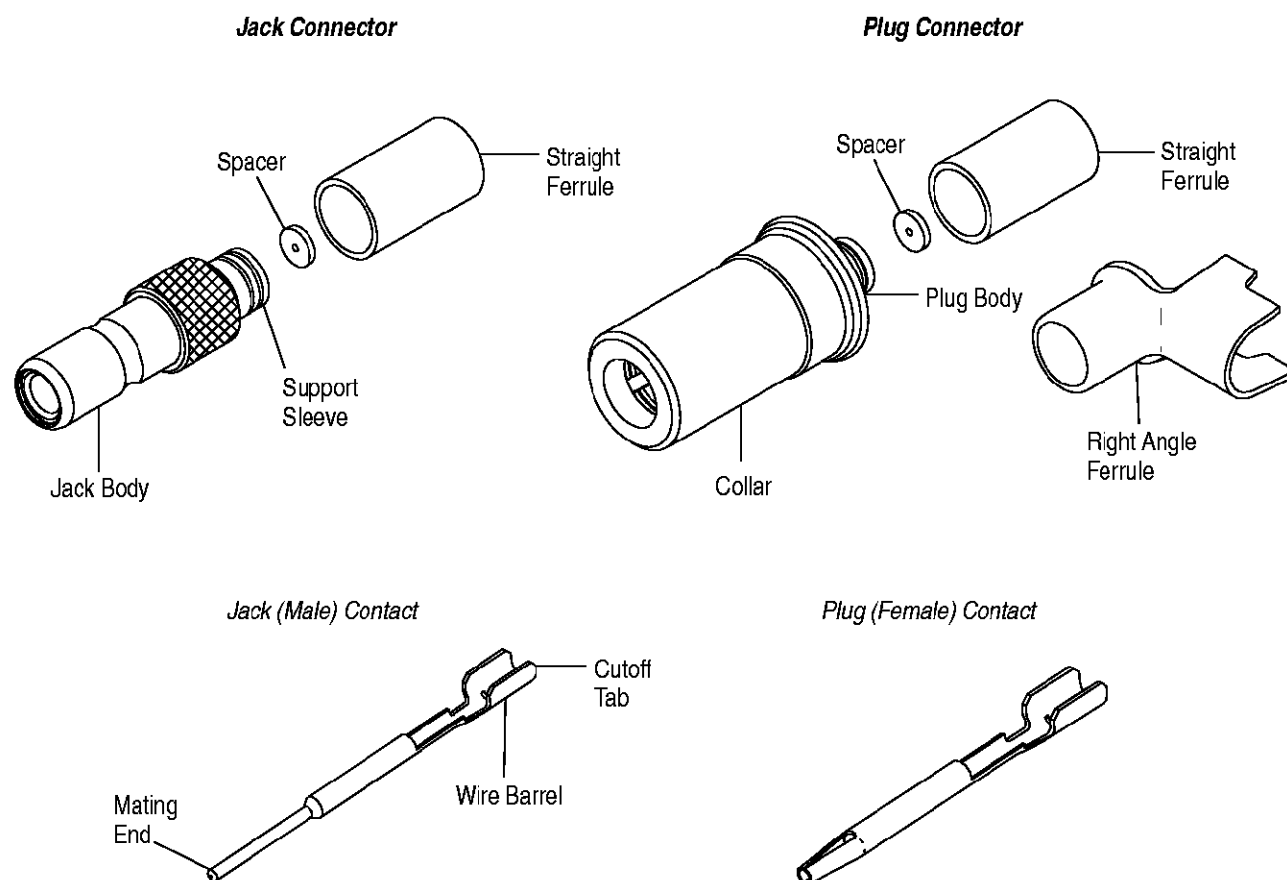


Figure 1

2. REFERENCE MATERIAL

2.1. Revision Summary

Revisions to this application specification per EC 0990-1682-01 include:

- Updated document to corporate requirements
- Changed product code in Paragraph 2.2
- Deleted obsolete Instruction Sheet 408-9866 from Paragraph 2.5
- Added new information to Figure 2
- Added new text to Paragraph 3.9.A
- Added new Paragraph 3.9.F
- Added new information to table and dimensions in Figure 7
- Added new Figure 8 and renumbered

2.2. Customer Assistance

Product Part Number 1274222 and Product Code D958 are representative of Snap-Lock connectors. 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 Representative (Field Service Engineer, Field Applications Engineer, etc.) or, after purchase, by calling the Product Information Center at the number at the bottom of page 1.

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

Application Specification 114-13002 provides product description and application requirements for pc board jack connectors.

2.5. Instructional Material

Instruction Sheets (408-series) provide assembly instructions and Customer Manuals (409-series) provide machine setup and operation procedures. Documents available which pertain to this product are:

- | | |
|----------|---|
| 408-3295 | Preparing Reel of Contacts for Applicator Tooling |
| 408-4550 | Coaxial Snap-Lock Cable Jack Connectors |
| 408-4551 | Coaxial Snap-Lock Cable Plug Connectors |
| 408-7424 | Checking Terminal Crimp Height |
| 408-7538 | Hand Crimping Tool 90202-2 (for Wire Size RG 62/U) |
| 408-8053 | Miniature (Mini) Quick-Change Applicators |
| 408-8059 | General Preventative Maintenance for Applicators |
| 408-9231 | Hand Crimping Tool 90417-1 (for Wire Size RG 62/U Modified) |
| 408-9816 | Handling of Reeled Products |
| 409-5842 | AMP-O-LECTRIC* Model "G" Terminating Machine 354500-[] |

3. REQUIREMENTS

3.1. Safety

Do not stack component packages so high that the shipping containers buckle or deform.

3.2. Limitations

Connector assemblies are designed to operate in a temperature range of -40° to 85°C [-40° to 186°F].

3.3. Material

The plug body is made of phosphor bronze plated with bright tin lead, and the collar is made of PBT; the plug contact is made of phosphor bronze plated with tin lead. The jack body is made of brass plated with bright tin lead; the jack contact is made of brass plated with tin lead. The ferrule is made of copper or brass with tin plating. The spacer is made of nylon.

3.4. Storage

A. Ultraviolet Light

Prolonged exposure to ultraviolet light may alter the properties of the materials used in the connector.

B. Shelf Life

The connectors and contacts should remain in the shipping containers until ready for use to prevent deformation to the connectors or contacts. The connectors and contacts should be used on a first in, first out basis to minimize storage contamination that could adversely affect performance.

C. Reeled Contacts

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

3.5. Chemical Exposure

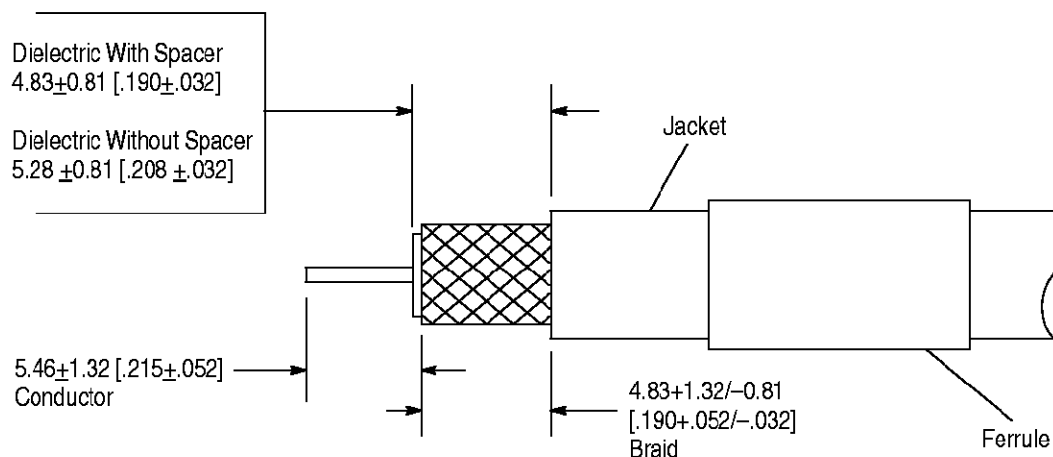
Do not store connectors or contacts near any chemical listed below as they may cause stress corrosion cracking in the connectors or contacts.

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

3.6. Cable Selection and Preparation

The connectors will accept the contacts crimped onto solid strand coaxial cable sizes RG 62/U or RG 62/U modified. The conductor must be straight and free of burrs. The cable must meet the following preparation requirements:

1. The ferrule must be assembled onto the unstripped cable.
2. Proper strip length is necessary to properly insert the center conductor into the contact. Reasonable care must be taken not to nick, scrape, or cut the center conductor or any strands of the braid during the stripping operation. The strip length of the cable is shown in Figure 2.
3. The spacer must be assembled onto the cable center conductor and bottomed on the cable dielectric.



Note: Not to Scale

Figure 2

3.7. Crimped Contact Requirements

The contact must be crimped to the cable according to instructions packaged with applicable tooling. These requirements apply equally to the plug and jack.

CAUTION

Cable jacket shall NOT be cut or broken during the crimping operation. Reasonable care should be taken to provide undamaged cable terminations.

A. Spacer Location

The spacer must be against the cable dielectric, and the end of the contact wire barrel must be no more than 0.71 [.028] from the spacer as shown in Figure 3.

B. Cable Braid

The end of the cable braid must be folded back over the cable jacket in order to access the applicator tooling.

C. Cutoff Tab and Burr

Cutoff tabs are the remaining portion of the carrier strip after the contact is cut from the strip. The following dimensional requirements will ensure proper application for these contacts:

1. The cutoff tab must not exceed the dimension shown in Figure 3.
2. The burr resulting from the cutoff tab shearing must not exceed the dimension shown in Figure 3.

D. Crimp Height

The crimp applied to the wire barrel is critical in ensuring optimum electrical and mechanical performance of the crimped contact. The crimp height must be within the dimensions provided in Figure 3.

E. Effective Crimp Length

Effective crimp length is defined as that portion of the wire barrel, excluding bellmouths, fully formed by the crimping tool. For optimum crimp effectiveness, the crimp must be within the area shown and must meet the dimensions provided in Figure 3.

F. Wire Barrel Seam

The seam between the two sides of the wire barrel must be completely closed, and there must be no evidence of the conductor protruding from the seam.

G. Bellmouths

The rear bellmouth and the front bellmouth must not exceed the dimensions show in Figure 3.

H. Flash

The flash on the wire barrel crimp must not exceed the dimension show in Figure 3.

I. Conductor Location

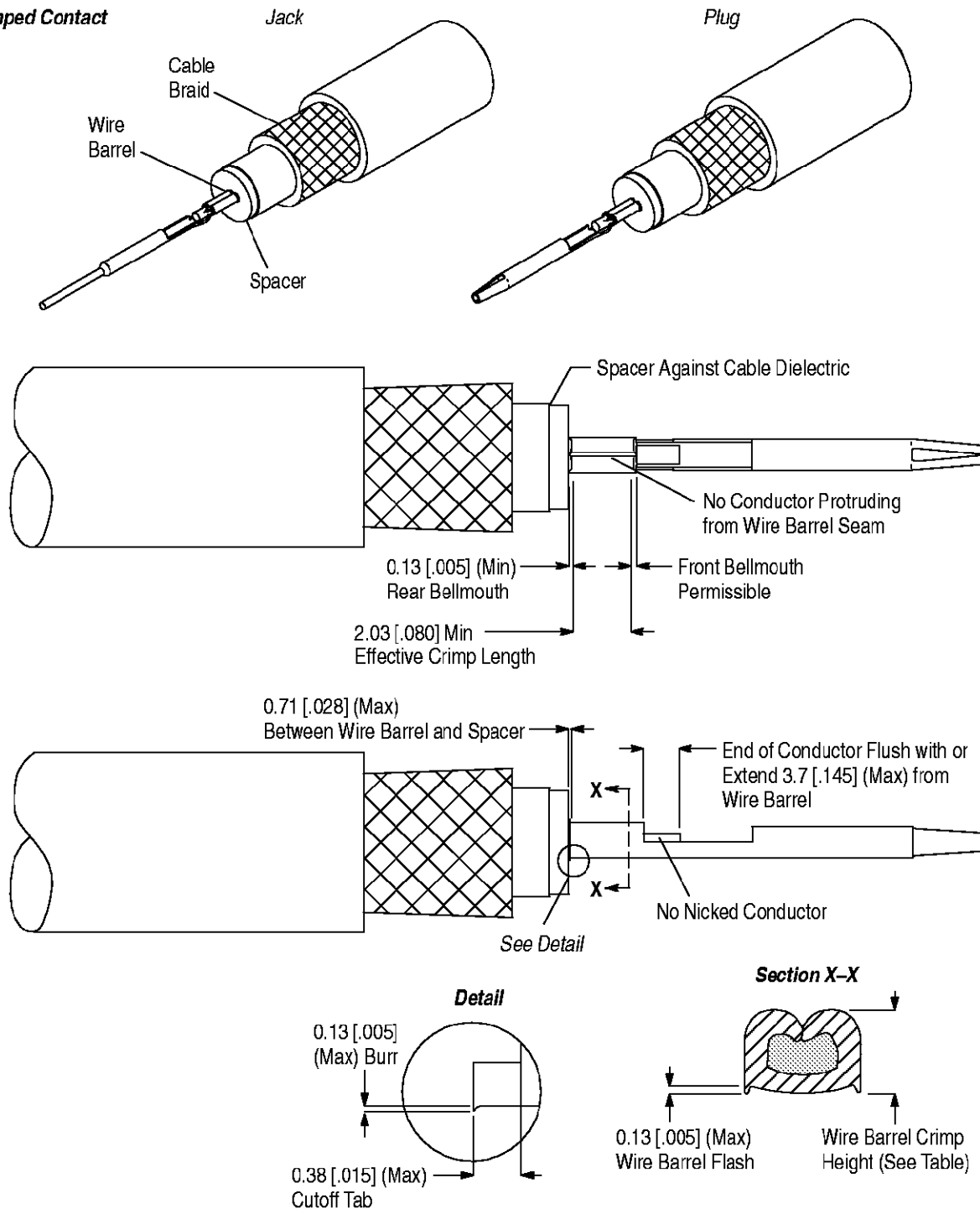
The conductor must be flush with or extend beyond the wire barrel to the maximum dimension shown in Figure 3.

J. Bend Allowance

The force applied during crimping may cause some bending between the wire barrel and cable. Such deformation is acceptable within the following limits:

1. Up and Down
The crimped portion must not be bent beyond the limits shown in Figure 4.
2. Side-to-Side
The crimped portion must not be bent from one side to the other beyond the limits shown in Figure 4.

Crimped Contact



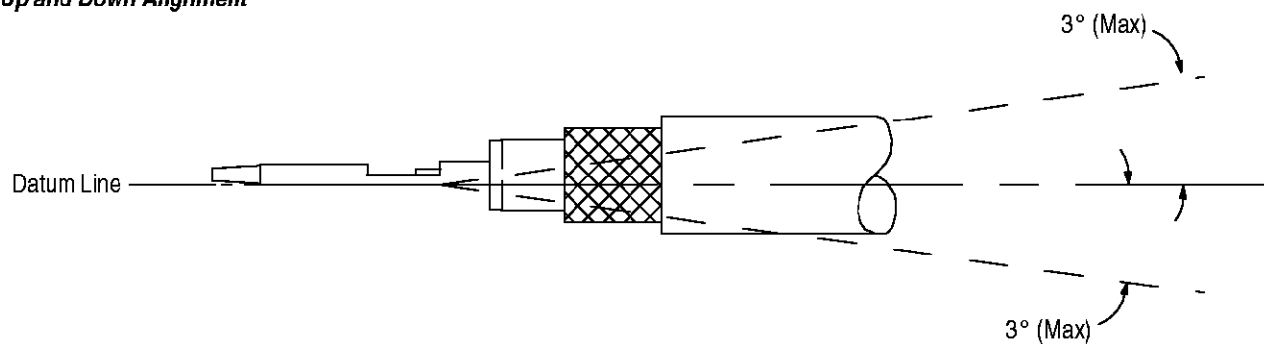
WIRE SIZE (RG/U)	CRIMP HEIGHT
62 Modified	0.58–0.66 [.023–.026]
62	0.91–1.02 [.036–.040]

Figure 3

NOTE

The developed crimp configurations result from using the specific tooling described in Section 5, TOOLING.

Up and Down Alignment



Side-to-Side Alignment

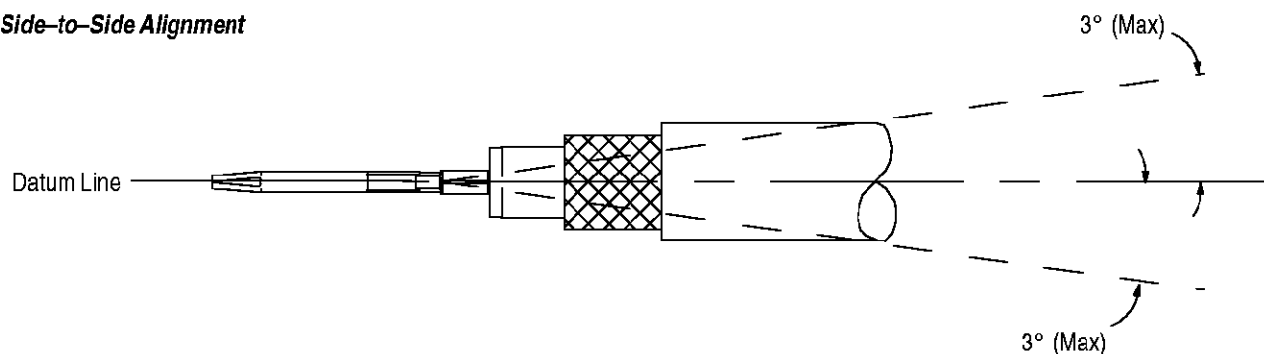


Figure 4

K. Twist and Roll

There should be no twist or roll of the wire barrel or mating portion of the crimped contact beyond the limits shown in Figure 5.

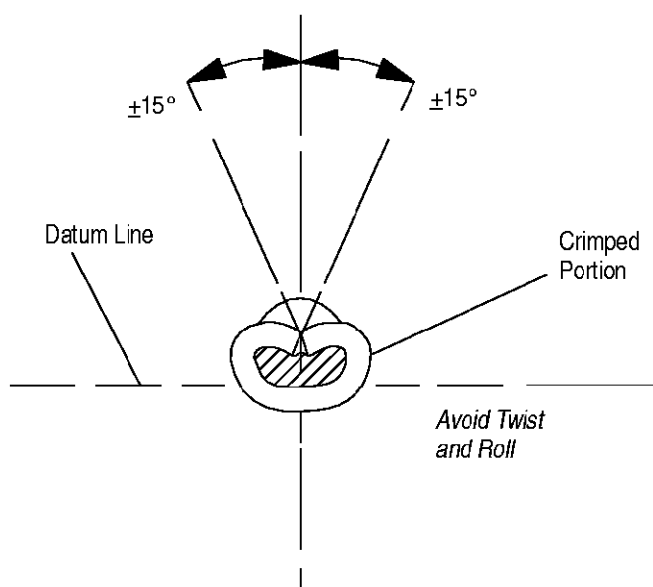


Figure 5

3.8. Placement of Crimped Contact in Connector

The contact must be inserted into the connector body with the following requirements that apply equally to the plug and jack:

1. The spacer must be against the connector dielectric.
2. The cable braid must be positioned over the support sleeve of the connector body. See Figure 6.

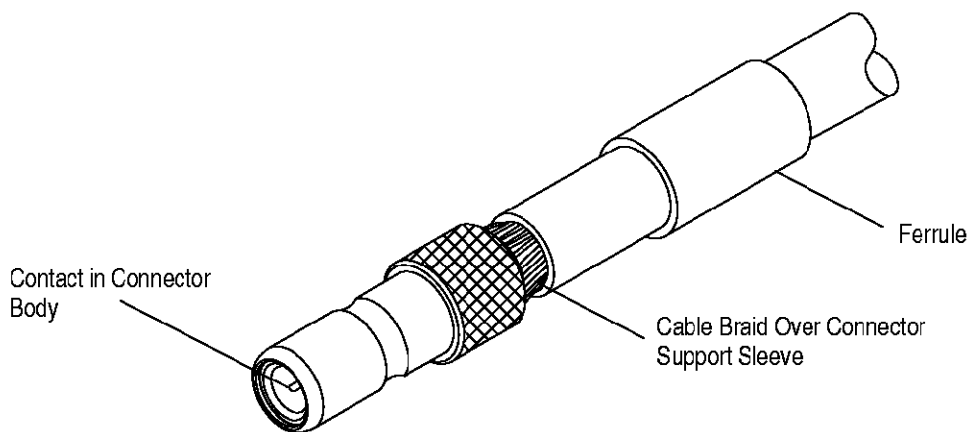


Figure 6

3.9. Crimped Ferrule Requirements

The ferrule is required for terminating the cable. The ferrule must be crimped onto the jacket of the cable according to instructions packaged with applicable tooling. The following requirements apply equally to the plug (with straight or right angle ferrule) and jack.

A. Ferrule Location

The ferrule must be over the cable braid with no braid strands showing, and the end of the ferrule must be over the support sleeve and pressed toward the shoulder of the connector body. The ferrule should be located 0.38–0.89 [.015–.035] from the connector shoulder. The overall dimension, measured from the front of the connector body to the end of the ferrule, must not exceed the dimension shown in Figure 7.

B. Crimp Height

The crimp applied to the ferrule is critical in ensuring optimum electrical and mechanical performance of the crimped ferrule. The crimp height must be within the dimensions provided in Figure 7.

C. Crimp Claw Crimp (Right Angle Ferrule Only)

The crimp claw on the right angle ferrule must be wrapped around the cable. See Figure 7.

D. Crimp Width

The crimp width must not exceed the dimension shown in Figure 7.

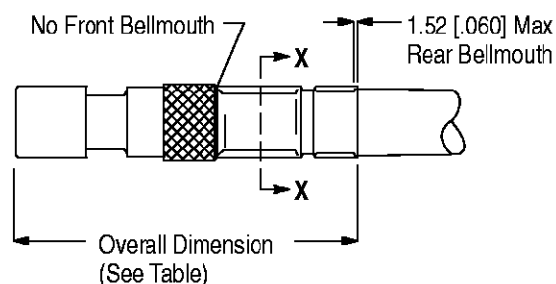
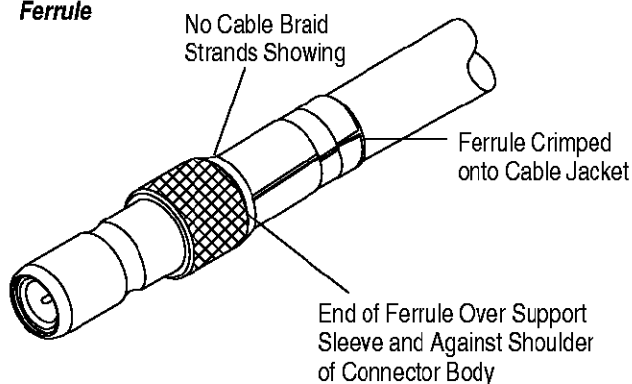
E. Bellmouths

There shall be no front bellmouth. The rear bellmouth shall be evident and conform to the dimensions given in Figure 7.

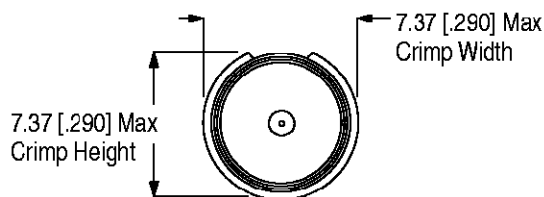
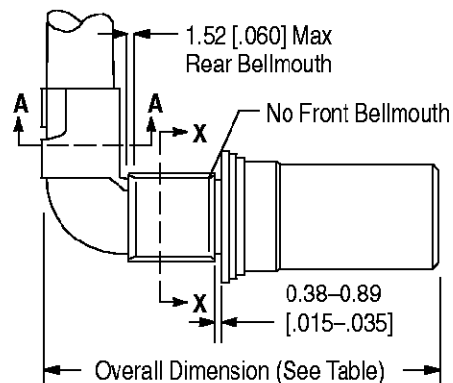
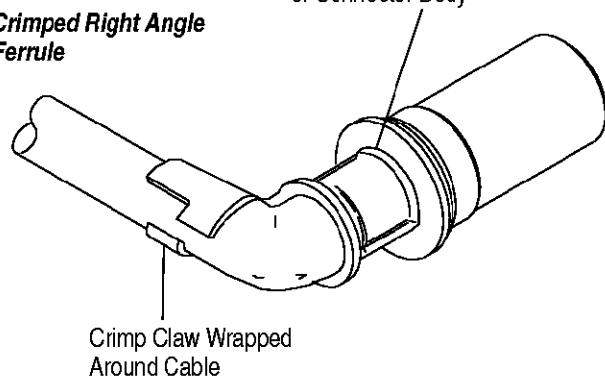
F. Plug Connector

The inside diameter of the ground clips inside the plug connector must be maintained after completion of the crimping process as shown in Figure 8.

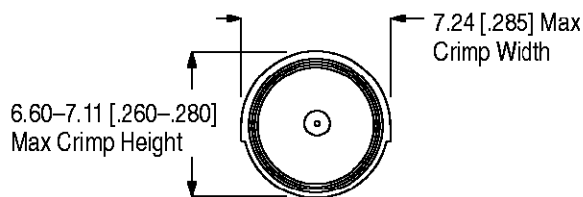
Crimped Straight Ferrule



Crimped Right Angle Ferrule



Section A-A



Section X-X

FERRULE TYPE	OVERALL DIMENSION (Max)	
	PLUG	JACK
Straight	36.7 [1.44]	35.0 [1.38]
Right Angle	39.2 [1.54]	—

Figure 7

NOTE

The developed crimp configurations result from using the specific tooling described in Section 5, TOOLING.

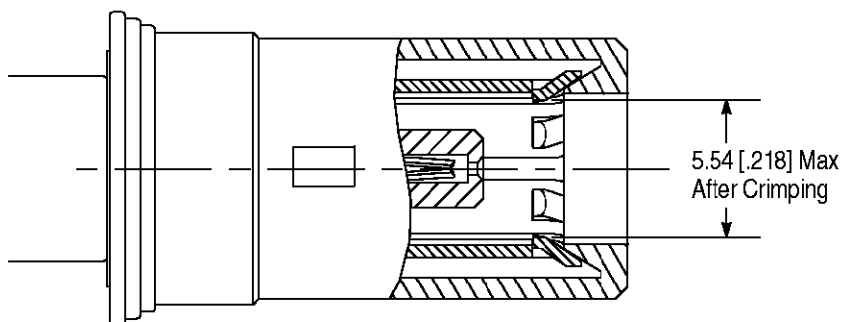


Figure 8

3.10. Mating and Unmating Connectors

The plug has internal locking latches that should be fully seated and latched to the jack after mating. When unmating connectors, the latches must be released by slightly pulling the collar of the plug away from the jack. See Figure 9.

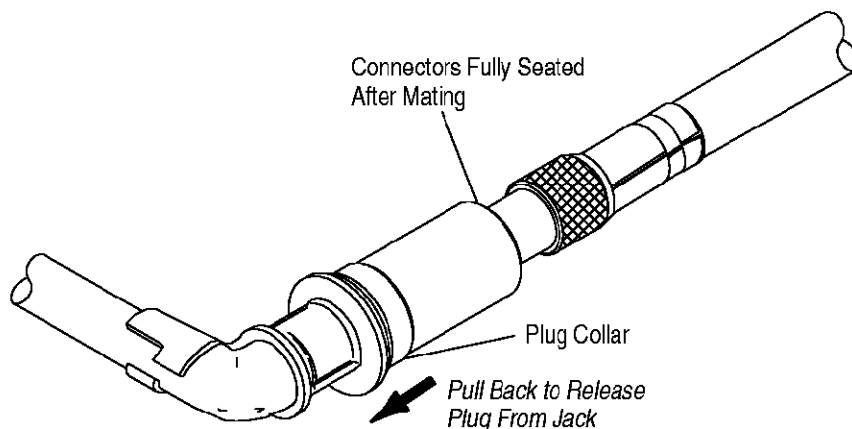


Figure 9

3.11. Repair

Damaged connectors must be removed, discarded, and replaced. Damaged or worn contacts must be replaced.

4. QUALIFICATION

Coaxial Snap-Lock Connectors are not required to be Listed or Recognized by Underwriters Laboratories Inc. (UL) or Certified to the Canadian Standards Association (CSA).

5. TOOLING

Tooling for manual application of the ferrules and contacts and semi-automatic machines for power assisted application of reeled contacts are available to cover the full cable size range. Tooling part numbers and instructional material packaged with the tooling are shown (in parenthesis) in Figure 10.

NOTE

Modified designs and additional tooling concepts may be available to meet other application requirements. For assistance in setting up prototype and production line equipment, contact the Tooling Assistance Center at the number at the bottom of page 1.

5.1. Hand Crimping Tools

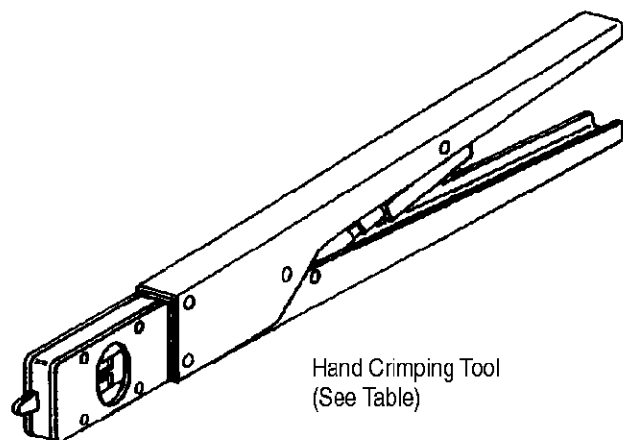
The hand crimping tools for the center conductor contacts consist of a handle assembly and head which contains integral dies to crimp the contact onto pre-stripped cable. The hand crimping tools for the ferrules are hand crimping frames with interchangeable die assemblies. These tools have a ratchet to ensure full crimping pressure is applied to the crimp.

5.2. Power Units

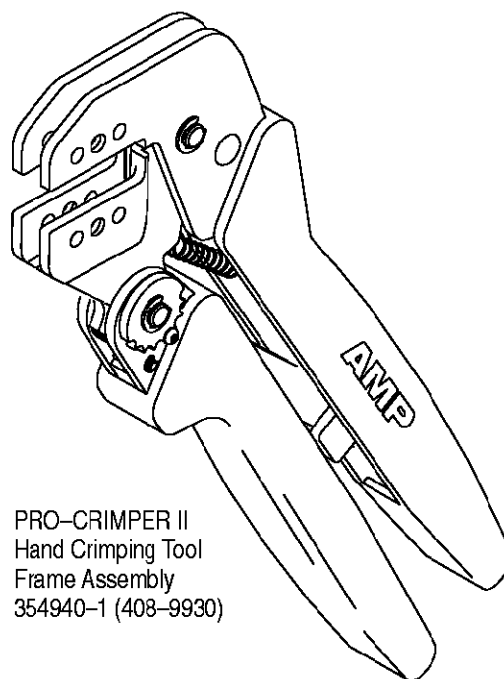
The AMP-O-ELECTRIC machine is a semi-automatic, electrical power unit designed for terminating pre-stripped cable to reel-fed contacts. It is designed to be bench mounted and used for high volume applications.

5.3. Applicators

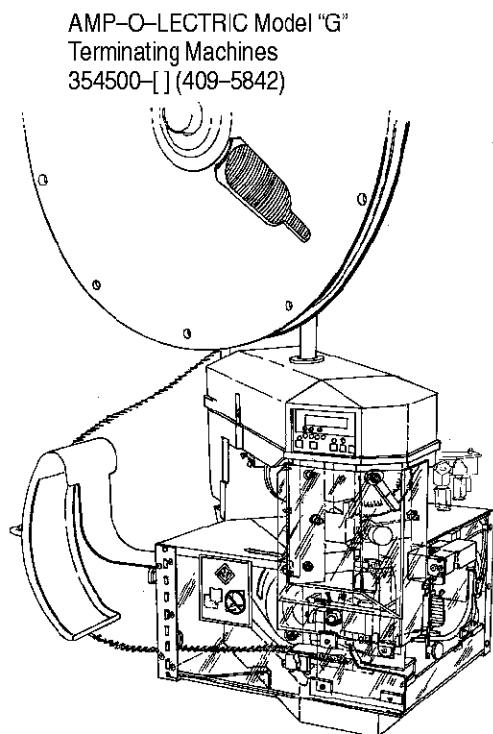
The applicator is designed to crimp reeled contacts onto pre-stripped cable, and provides for high volume, heavy duty production requirements. The applicator must be installed onto a power unit. The applicator used to crimp the contacts includes the crimping dies.



Hand Crimping Tool
(See Table)

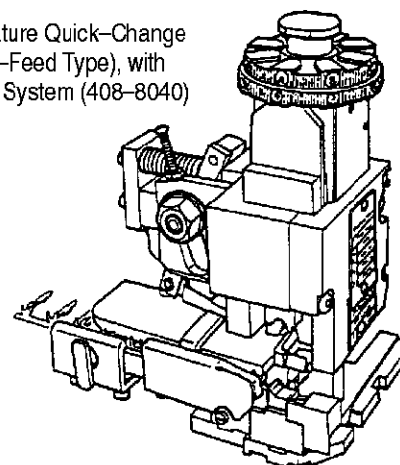


PRO-CRIMPER II
Hand Crimping Tool
Frame Assembly
354940-1 (408-9930)



AMP-O-ELECTRIC Model "G"
Terminating Machines
354500-[] (409-5842)

Heavy Duty Miniature Quick-Change
Applicators (Side-Feed Type), with
Mechanical Feed System (408-8040)



TOOLING FOR CONTACT		
WIRE SIZE (RG/U)	HAND CRIMPING TOOL	APPLICATOR FOR AMP-O-ELECTRIC Model "G" Terminating Machine 354500-[]
62 Modified	90417-1 (408-9231)	680901-1
62	90202-2 (408-7538)	680900-1

TOOLING FOR FERRULE	
TYPE	DIE ASSEMBLY
Straight	1338120-1
Right Angle	1338120-1 for straight portion 1338650-1 for crimp claw

Figure 10

6. VISUAL AID

Figure 11 shows a typical application of Snap-Lock 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.

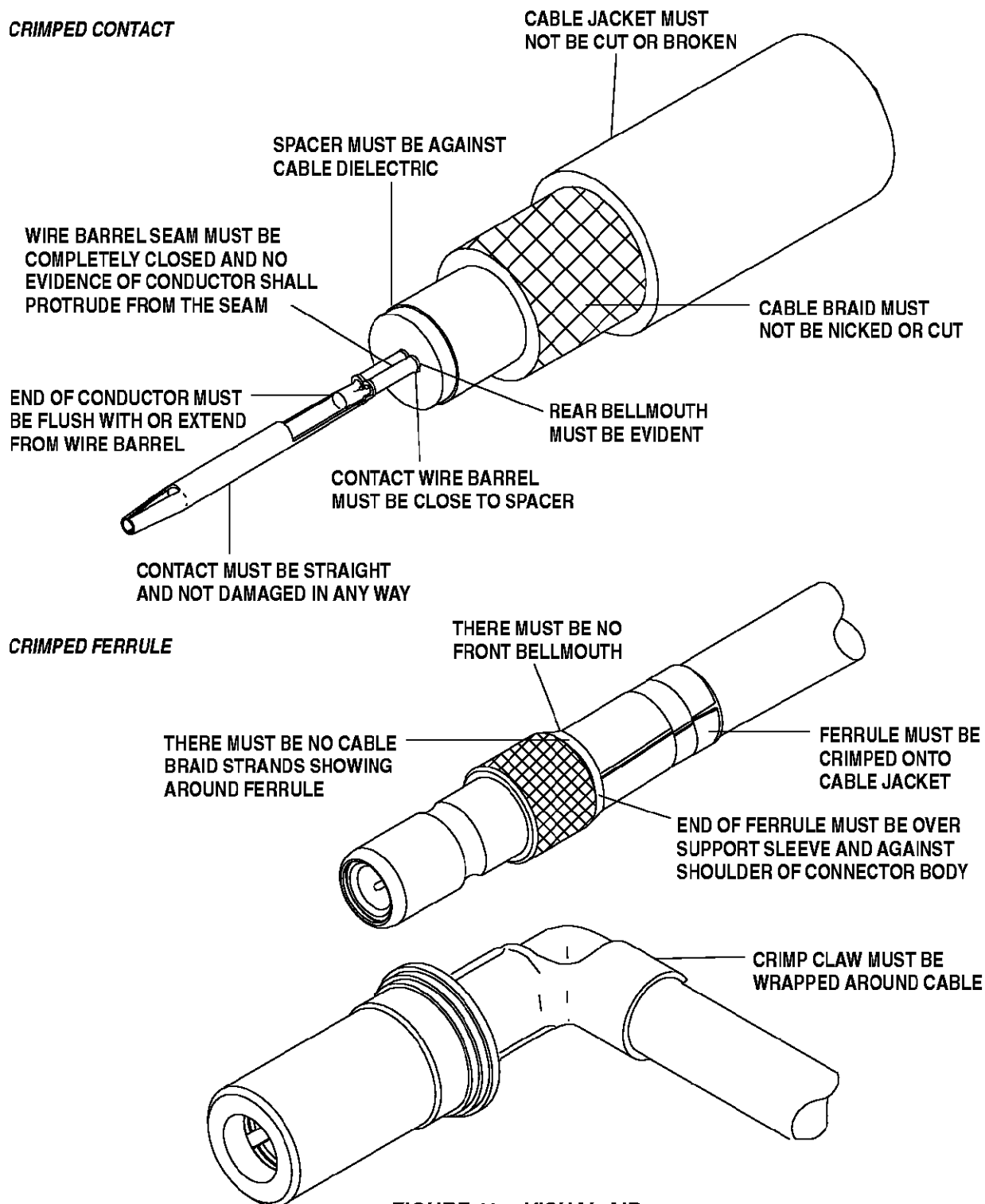


FIGURE 11. VISUAL AID