

Power Cord Receptacles

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 [± 0.005] 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 the application of Power Cord Receptacles. This one-piece receptacle conforms to the international configuration for 10-ampere appliance inlets. The receptacle will mate with power cord plugs conforming to the same international configuration.

The contact cavities in the back of the receptacle are coded to ensure correct location of wiring in accordance with standard wiring codes. The ground cavity is deeper than the other contact cavities to ensure grounding of the unit before the circuits are activated. The contacts will accept a wire size range of 20 to 14 AWG and may be manually or machine applied. Mounting flanges on the receptacle provide a means of either rack or panel mounting.

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

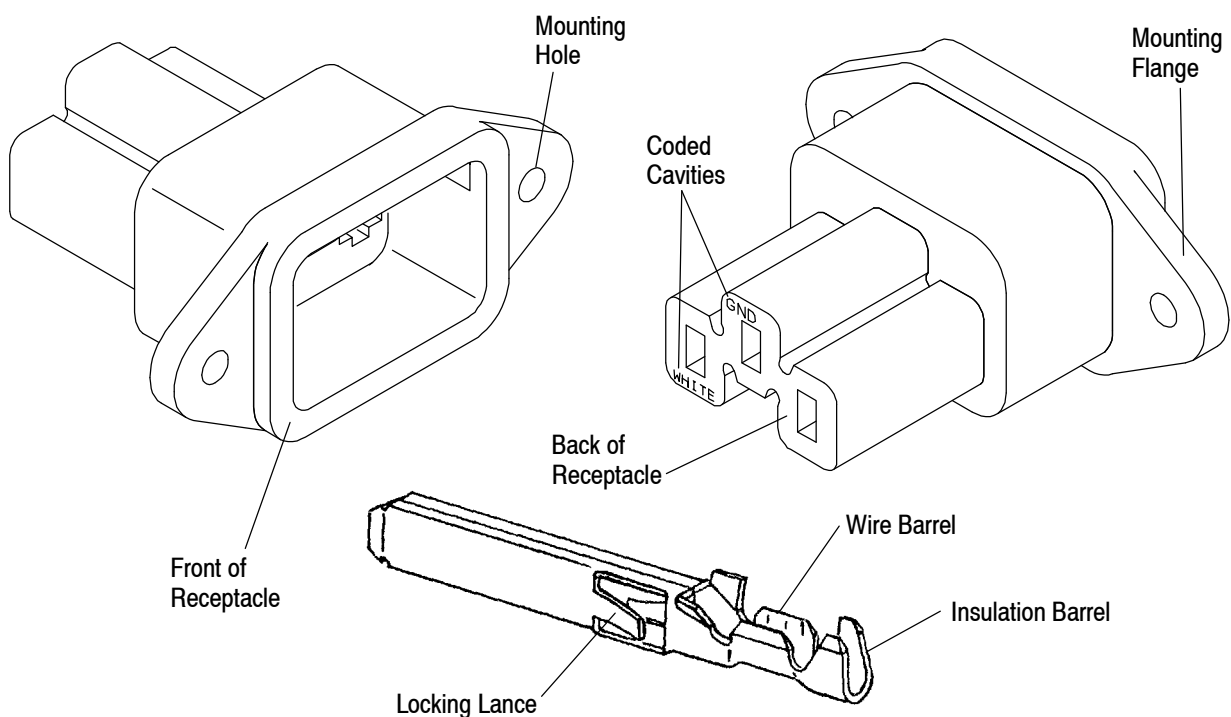


Figure 1

2. REFERENCE MATERIAL

2.1. Revision Summary

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

- Update application specification to corporate requirements
- New logo and format

2.2. Customer Assistance

Reference Part Number 206637 and Product Code 5089 are representative numbers of Power Cord Receptacles. 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 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

The Power Cord Receptacle is designed to the International Electrical Specification CEE-22.

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
408-7424	Checking Terminal Crimp Height or Gaging Die Closure
408-7686	Power Cord Receptacle 206637-1
408-7691	Hand Crimping Tool 90315-1
408-7711	Extraction Tool 91106-1 for Power Cord Receptacles
408-8040	Heavy Duty Miniature Quick Change Applicators (Side-Feed Type)
408-8053	Conversion Guide for Miniature Quick-Change Applicators
408-9816	Handling Of Reeled Products
409-5128	Basic AMP-O-LECTRIC* Model "K" Terminating Machine
409-5842	AMP-O-LECTRIC Model "G" Terminating Machine 354500-[]

3. REQUIREMENTS

3.1. Storage

A. Ultraviolet Light

Prolonged exposure to ultraviolet light may deteriorate the chemical composition used in the receptacle connector material.

B. Reel Storage

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 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

NOTE



Where the above environmental conditions exist, phosphor-bronze contacts are recommended instead of brass if available.

3.2. Wire Selection and Preparation

A. Type

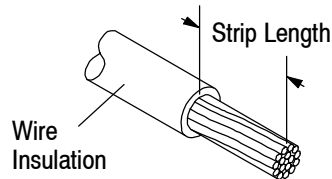
The wire size range for Power Cord Receptacles is 20 through 14 AWG and may be stranded or solid copper.

B. Preparation

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



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



NOTE: Not to Scale

WIRE SIZE, AWG	INSULATION DIAMETER	STRIP LENGTH (MAX)	WIRE BARREL CRIMP		INSULATION BARREL
			HEIGHT	WIDTH (MAX)	WIDTH (MAX)
20	2.03-3.43 [.080-.135]	4.75 [.187]	1.35-1.25 [.053-.049]	2.03 [.080]	3.56 [.140]
18	2.03-3.43 [.080-.135]	4.75 [.187]	1.35-1.25 [.053-.049]	2.03 [.080]	3.56 [.140]
16	2.03-3.43 [.080-.135]	4.75 [.187]	1.47-1.37 [.058-.054]	2.03 [.080]	3.56 [.140]
14	2.03-3.43 [.080-.135]	4.75 [.187]	1.8-1.7 [.071-.067]	2.03 [.080]	3.56 [.140]

Figure 2

3.3. 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.



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. 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 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.

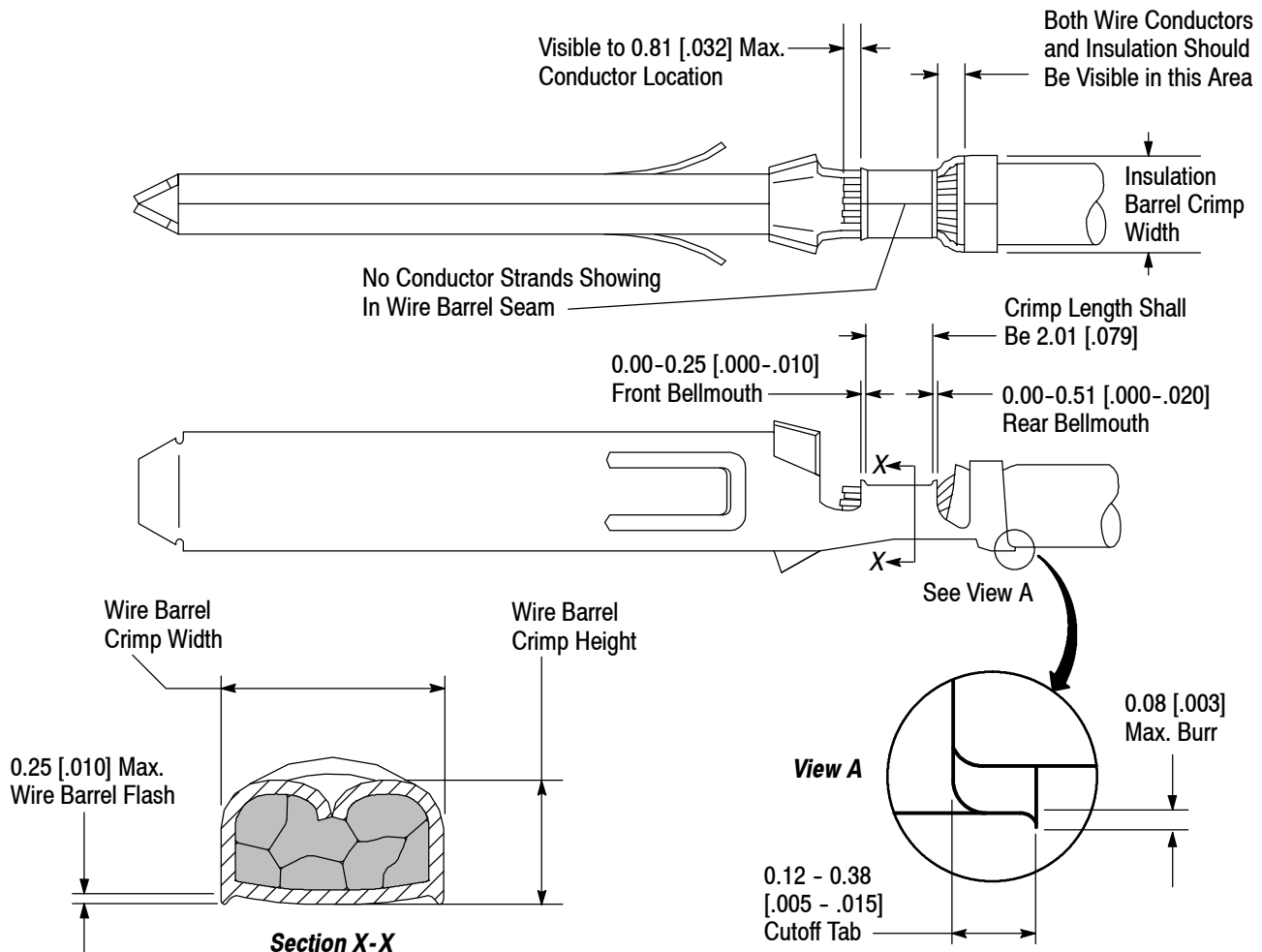


Figure 3

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 Figure 3 in Section X-X.

G. Wire Location

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

H. Conductor Location

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

I. Wire Barrel Seam

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

J. 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 4.

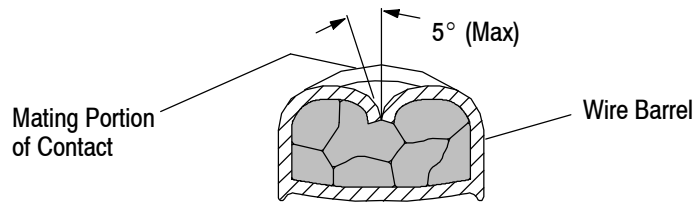


Figure 4

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.

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.

2. Side to Side

The side-to-side bending of the contact may not exceed the limits provided in Figure 5.

NOTE



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

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

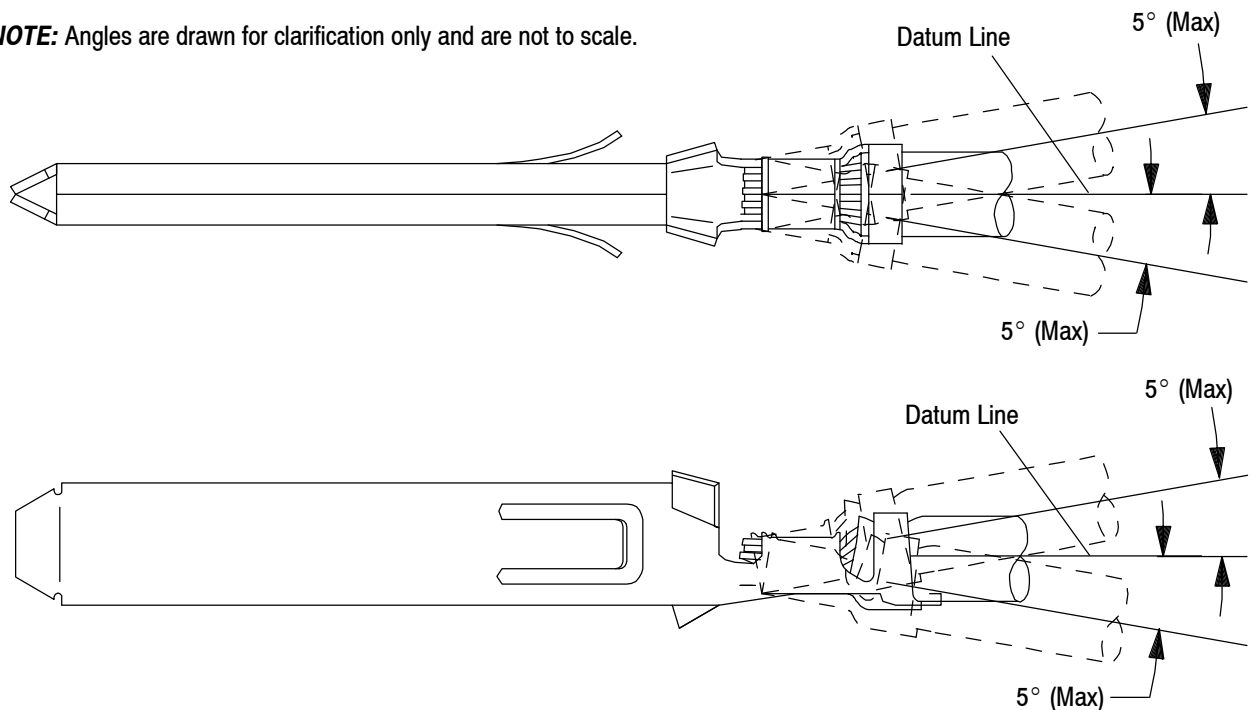


Figure 5

3.4. Housings

The Power Cord Receptacle housings are made of glass-filled polyester. The back of the receptacle is marked with codes to ensure proper insertion of the correct wire. A polarizing feature is designed in the housing to ensure proper mating with the plug connector. See Figure 6. Tyco Electronics also manufactures a 5-position power cord receptacle for special production requirements. Contact the Product Information number at the bottom of page 1 for information on the 5-position power cord receptacle.

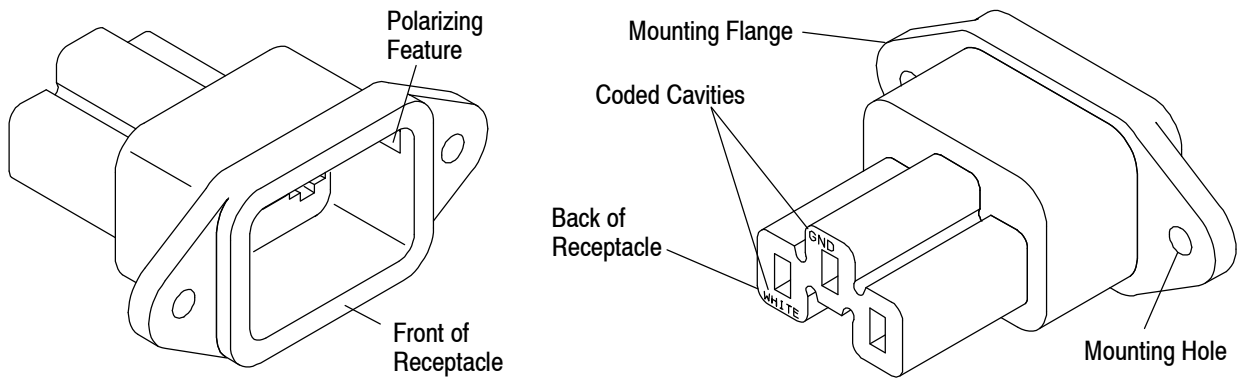


Figure 6

3.5. Rack and Panel Mounting

This receptacle is designed to be FRONT mounted only to a rack or panel. The receptacle may be mounted using suitable hardware such as screws, nuts and bolts, rivets, etc. See Figure 7 for mounting dimensions.

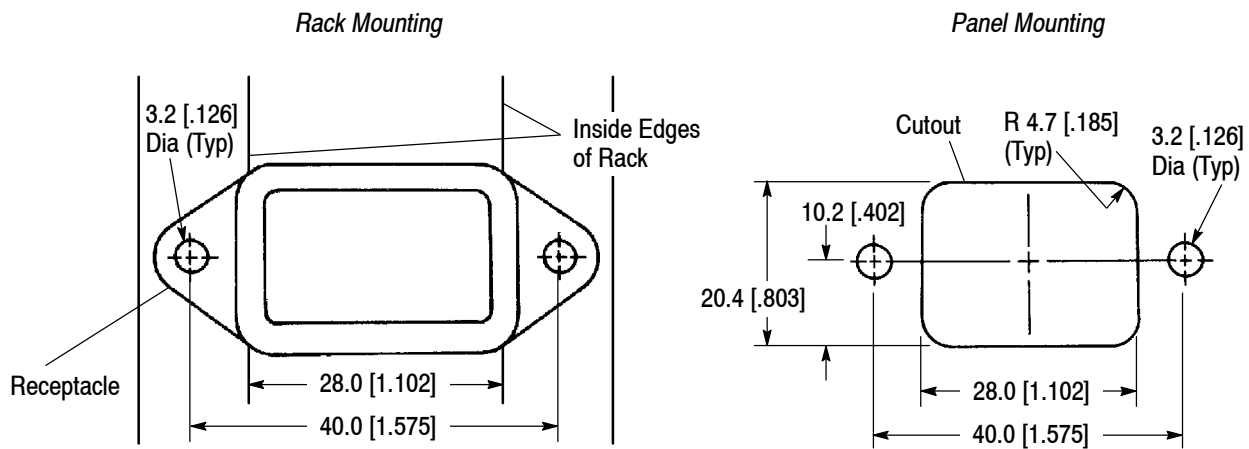


Figure 7

3.6. Contact Insertion

The contacts are inserted into the correct coded cavity in the back of the receptacle. When the contact bottoms in the receptacle housing, the locking lances will snap and lock in place. Gently pull back on each wire to be sure the locking lances of the contact have engaged the receptacle. Refer to Instruction Sheet 408-7686 for specific instructions on this assembly procedure. See Figure 8.

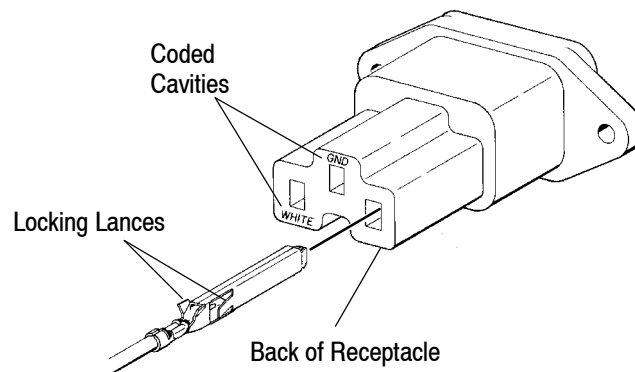


Figure 8

3.7. Repair

A damaged contact can be removed independently and replaced with a new one. All contacts must be removed from a damaged receptacle housing and the housing replaced with a new one. Refer to Instruction Sheet 408-7711 for specific instructions on contact removal. See Figure 9.

NOTE

If a damaged contact is apparent before the contacts are inserted into the receptacle, cut the wire in back of the contact and reterminate the wire end. If contacts or receptacle are damaged after insertion, the wire must be cut directly in back of the receptacle and reterminated with new contacts and receptacle. See Section 5, TOOLING.

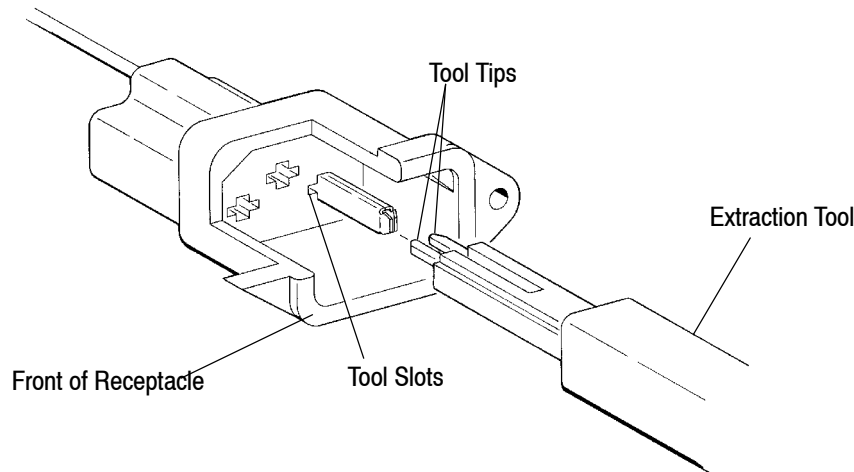


Figure 9

4. QUALIFICATIONS

Power Cord Receptacles are Recognized by Underwriters Laboratories Inc. (UL) in File E28476 and Certified by CSA International in File LR7189.

5. TOOLING

Figure 10 provides tool part numbers and instructional material related to wire size.

NOTE

Tyco Electronics Tool Engineers have designed machines for a variety of application requirements. For assistance in setting up prototype and production line equipment, contact Tyco Electronics Tool Engineering through your local Tyco Electronics 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

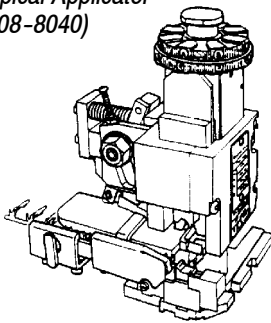


The Model "K" AMP-O-LECTRIC Terminating Machine PN 565435-5 has been superseded by the Model "G" Terminating Machine PN 354500-1 (Customer Manual 409-5842) for new applications. For existing applications, the Model "K" is still recommended because of the large number of installed machines.

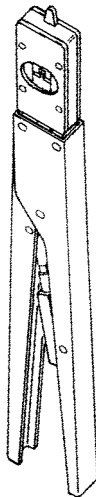
• Extraction Tools

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

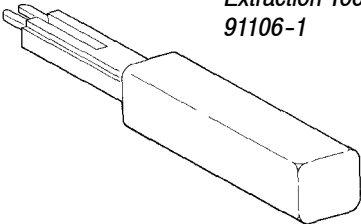
Typical Applicator
(408-8040)



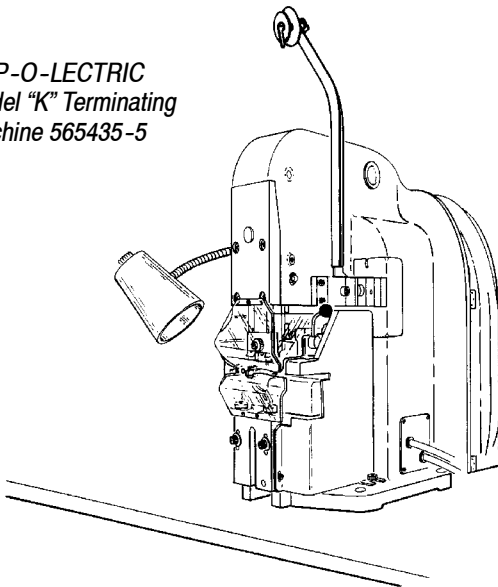
Hand Crimping
Tool 90315-1



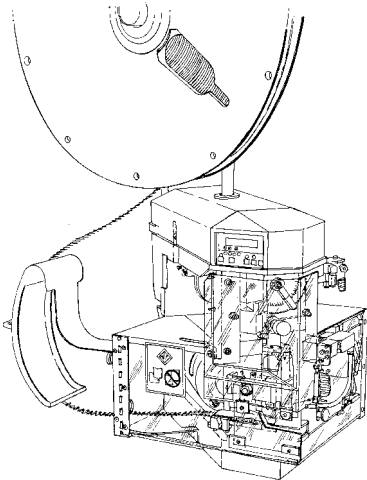
Extraction Tool
91106-1



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



AMP-O-LECTRIC
Model "G" Terminating
Machine 354500-1



WIRE SIZE, AWG	INSULATION DIAMETER	HAND TOOL (408-7691)	APPLICATOR (408-8040)	POWER UNIT (DOCUMENT)
20-16	2.03-3.43 [.080-.135]	90315-1	466136-2	354500-1 (409-5842) or 565435-5 (409-5128)
18-14	2.03-3.43 [.080-.135]	---	567188-2	

Figure 10

6. VISUAL AID

Figure 11 shows a typical application of an Power Cord Receptacle. 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.

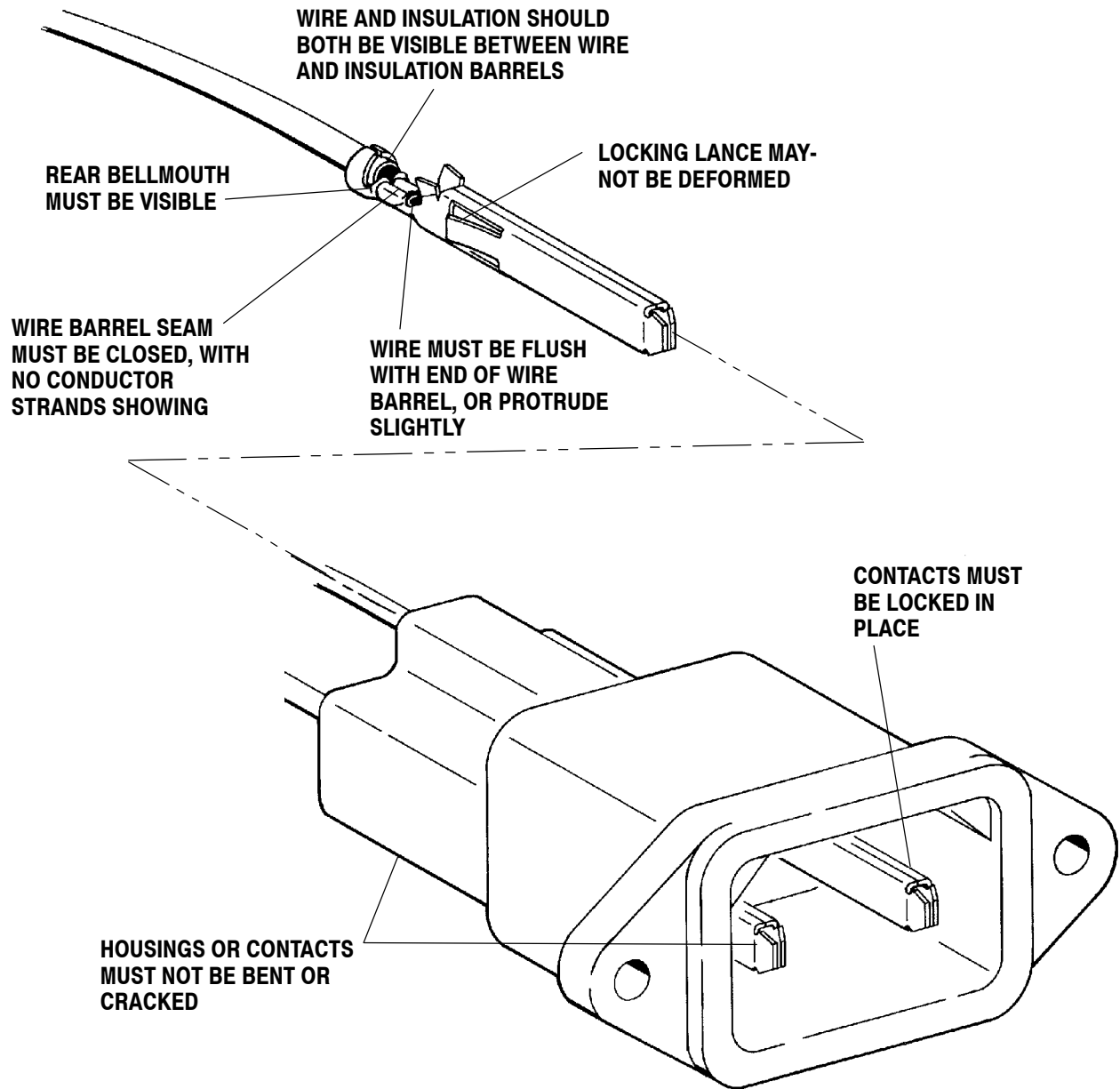


FIGURE 11. VISUAL AID