

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 application of 36-Series and 50-Series Round-Cable Shielded Data Link (SDL) Plug Connectors. These connectors are available in 4-, 6-, 8-, and 16-position configurations. The plug connectors will mate with SDL Printed Circuit (PC) Board Receptacle Connectors.

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.

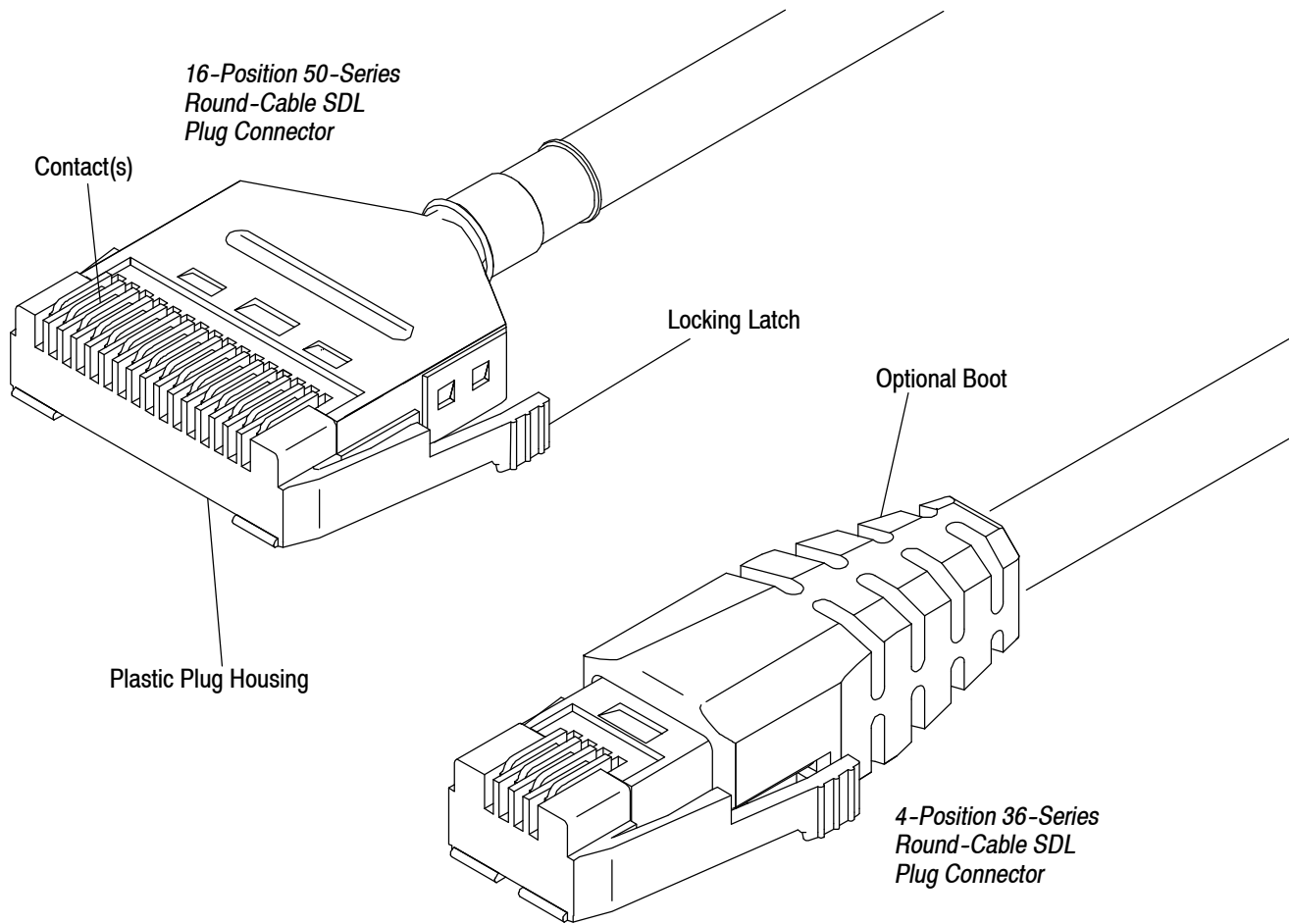


Figure 1

2. REFERENCE MATERIAL

2.1. Revision Summary

- Updated document to corporate requirements
- Added new text to Paragraph 3.10.2
- Added new note to Figure 9

2.2. Customer Assistance

Reference Base Part Numbers 520424, 520532, and Product Code 1004 are representative numbers of 36-Series and 50-Series Round-Cable SDL Plug 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 Tyco Electronics Representative 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 by Tyco Electronics, call the Product Information Center number at the bottom of page 1.

2.4. Specifications

Product specification 108-2047 provides product performance requirements and test information. Application Specification 114-2081 covers SDL Top-Entry and Side-Entry PC Board Receptacles, and Application Specification 114-2086 covers 36-Series and 50-Series Flat-Cable SDL Plug Connectors.

2.5. Instruction Material

The following list includes available instruction sheets (408-series) that provide assembly procedures for product, operation, maintenance and repair of tooling, and customer manuals (409-series) that provide setup, operation, and maintenance of machines.

<u>Document Number</u>	<u>Document Title</u>
408-2095	Hand Crimping Tool 69710-1
408-2498	Crimping Head Cross Reference for Pneumatic Tools
408-4190	C-Head Pneumatic Adapter 318161-[]
408-4321	Pneumatic CERTI-CRIMP* Tool Holder 356304-1
408-9039	Crimping Die Assemblies 58166-[] for Shielded Data Link (SDL) Connectors
408-9072	SDL Plugs and Receptacles
408-9113	CERTI-LOK* Hand Crimping Tool 58194-1
408-9114	Crimping Die Assemblies 58195-1, -2, -3, and -6
408-9164	Die Holder Assembly 58201-1 for SDL Connector Crimping Dies
409-5843	2700-lb. Pneumatic Power Unit 312522-[]
409-5862	626 Pneumatic Tooling Assemblies 189721-[] and 189722-[]

3. REQUIREMENTS

3.1. Storage

A. Ultraviolet Light

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

B. Shelf Life

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

C. Chemical Exposure

Do not store connectors near any chemical 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

D. Stacking

Do not stack shipping containers so high that they bend or buckle and damage the product.

3.2. Materials

The internal contacts are made from copper alloy, and the connector shield is made from brass with bright tin or tin-lead over nickel. The connectors are molded from polycarbonate resin which can be adversely affected by strong commercial and industrial cleaners, solvents, and thinners containing hydrocarbons, amines, esters, and ketones. The use of these types of products should be avoided in the general area of any polycarbonate material. The following is a partial listing of approved commercially available products. For a more complete list, contact Tyco Electronics.

A. Cleaning Solvents

Heptane	Fisher Scientific Co, Cat. H20
Denatured Alcohol #1430	American Mineral Spirits
Methanol	Fisher Scientific Co. Cat. E412
Ethanol	Fisher Scientific Co. Cat. A405
Isopropyl Alcohol	Fisher Scientific Co. Cat. A416

B. Greases

G-692, G-623, G-660, G-624	G.E. Silicone Prod. Dept.
Marfak 3, Marfak 2	Texaco

C. Lubricating Oils

Hydrotherm Oil C	BP
A90 NR, Teresso 56	Exxon
Amberex 830, Vacuoline JJ	Mobil Oil Co.
Spirax 9CEP	Shell Oil Co.

3.3. Cable Selection

NOTE

Cables are not available from Tyco Electronics.



Straight round-wire cable and retractile cable shall meet the specifications provided in Figure 2 and the appropriate Tyco Electronics cable drawings. Retractable cable has the following exceptions:

1. Suggested Shielding Options

NOTE

Paper tape is permissible between the shield and outer jacket,



- (a) Aluminum/Mylar/Aluminum spiral wrap foil (percentage overlap per user requirements).
- (b) Aluminum/Mylar/Aluminum spiral foil and copper-served shield.
- (c) Copper-served shield alone.

2. The following cable outer jacket materials are recommended in 70 to 90 durometer, Shore A, 15-second delay:

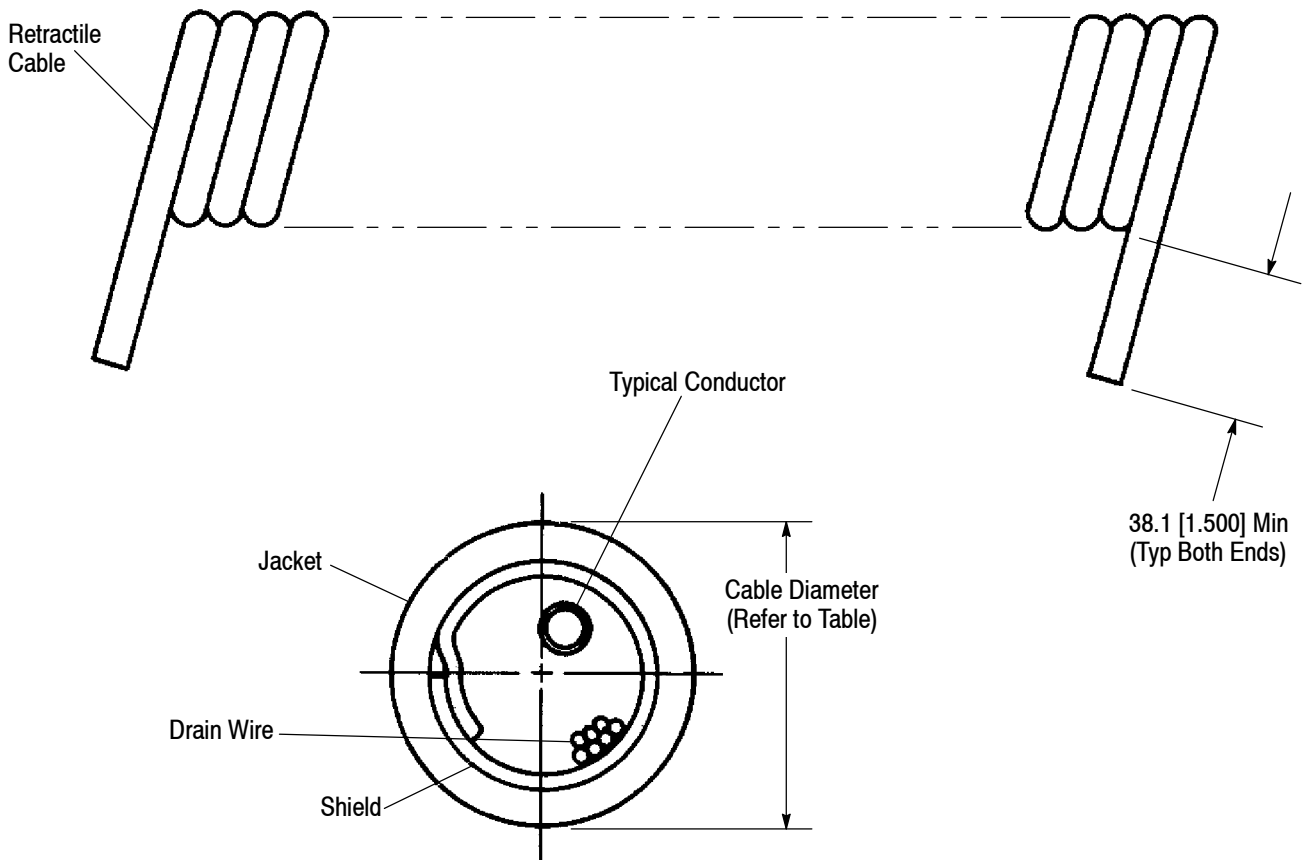
PVC
Polyurethane
Thermoplastic Rubber
Neoprene

CAUTION

No silicones are allowed.



For 36- and 50-Series SDL cables, refer to the table in Figure 2 for the correct cable.

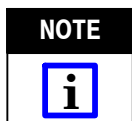


CONNECTOR SERIES TYPE	WIRE SIZE, AWG	STRAIGHT CABLE DRAWING NUMBER	POSITION	CABLE DIAMETER●
36	28	520730	4	5.08-4.72 [.200-.186]
		520731	6	5.72-5.36 [.225-.211]
		520732	8	6.20-5.69 [.244-.224]
		520733	16	7.82-7.32 [.308-.288]
	26	520725	4	5.08-4.72 [.200-.186]
		520726	6	5.72-5.36 [.225-.211]
		520727	8	6.20-5.69 [.244-.224]
50	24	520704	4	5.08-4.72 [.200-.186]
		520705	6	5.72-5.36 [.225-.211]
		520706	8	6.20-5.69 [.244-.224]
		520707	16	7.82-7.32 [.308-.288]

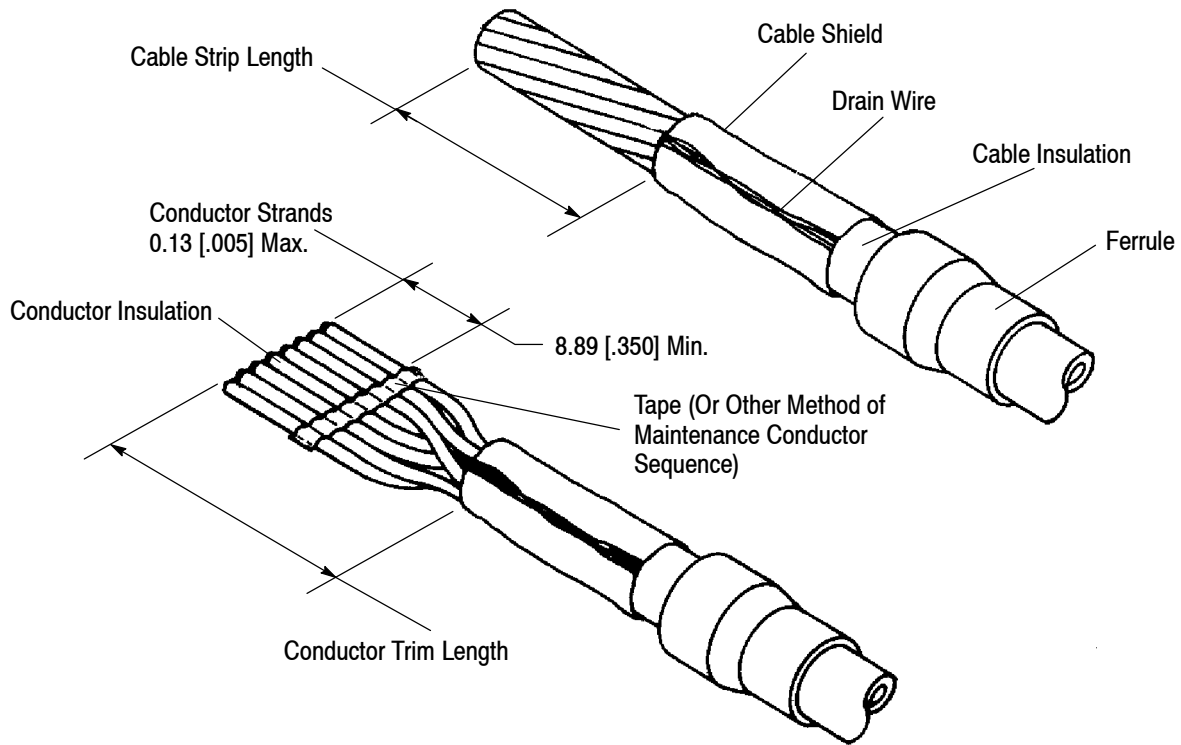
● For cable diameters falling outside these parameters, consult Tyco Electronics Engineering.

Figure 2

3.4. Cable Stripping



Be sure that the cable you use contains the same number of conductors as there are cavities in the plug you intend to use. If there are not enough conductors, the blank cavity(ies) must be filled with “dummy” wires having the same conductor insulation as the conductors in your cable. Refer to Figure 3.



NUMBER OF CONDUCTORS	MINIMUM STRIP LENGTH	TRIM LENGTH
4	22.86 [.900]	21.21-22.86 [.835-.900]
6	24.13 [.950]	21.21-24.13 [.835-.950]
8	25.4 [1.000]	21.21-25.4 [.835-1.000]
16	31.75 [1.250]	21.21-31.75 [.835-1.250]

Figure 3

3.5. Assembly Procedures

The assembly procedures for 36-Series and 50-Series Round-Cable SDL Plug Connectors are provided in Instruction Sheet 408-9072 (SDL Plug and Receptacle Connectors).

3.6. Crimp Requirements

After the contact crimping operation is complete using the recommended tooling provided in Section 5, TOOLING, the connector shall meet the requirements provided in Figure 4.

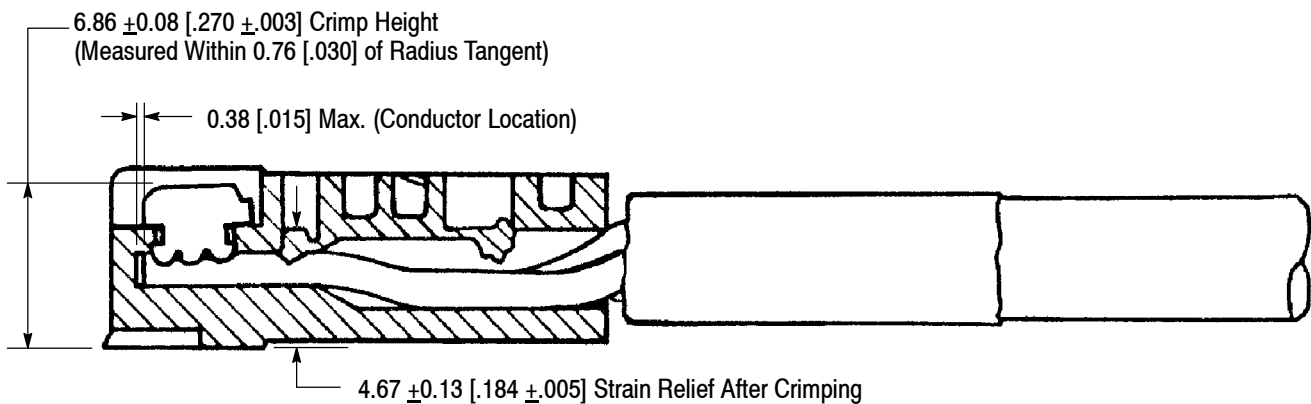
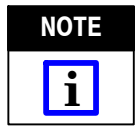


Figure 4

3.7. Ferrule Preparation

Refer to Figure 5 for preparation of the connector for ferrule crimping.



When using cables with spiral wrap foil and/or copper-served shielding, some portion of the shield must be placed over the area shown in Figure 5 prior to sliding the ferrule onto the shield.

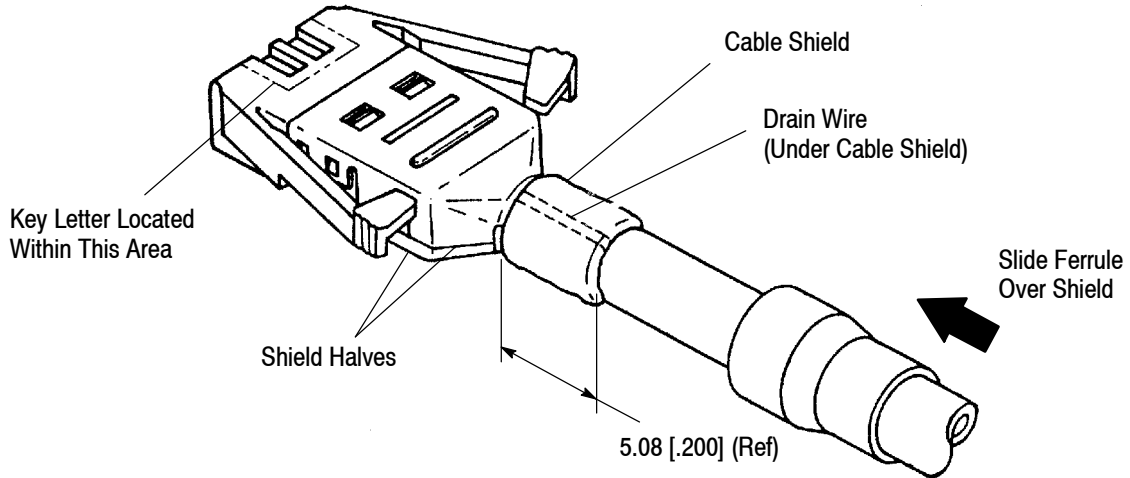
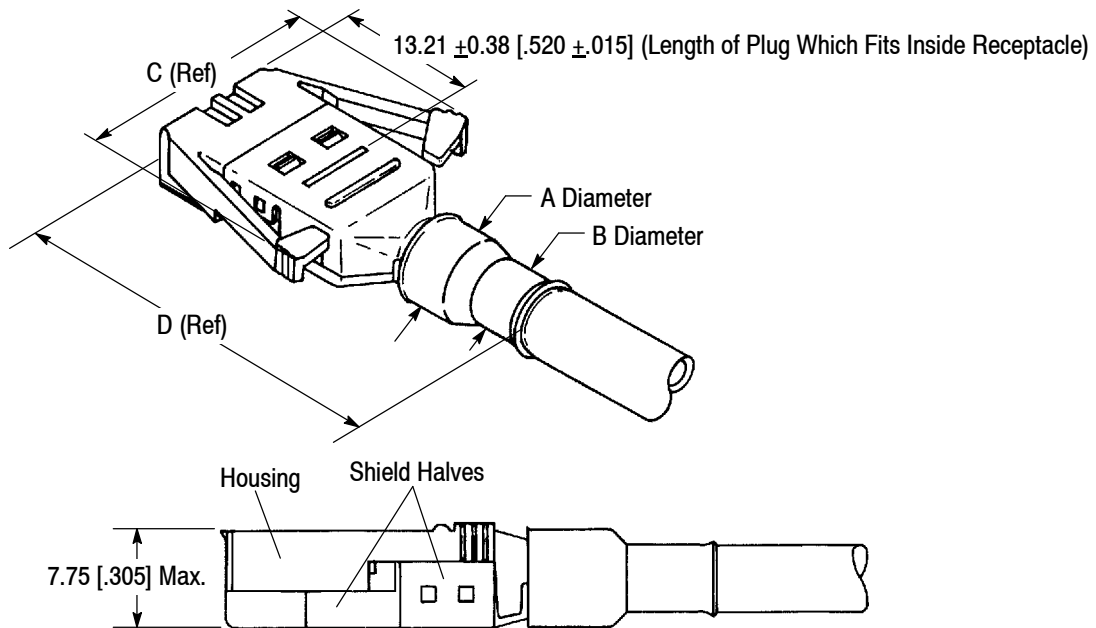


Figure 5

3.8. Completed Connector

The completed connector shall meet the requirements as shown in Figure 6.




NUMBER OF POSITIONS	"A" ± 0.05 [.002]	"B" ± 0.10 [.004]	"C"	"D"
4	6.48 [.255]	4.88 [.192]	17.40 [.685]	40.89 [1.610]
6	7.11 [.280]	5.49 [.216]	19.94 [.785]	42.42 [1.670]
8	7.39 [.291]	5.82 [.229]	22.48 [.885]	46.99 [1.850]
16	9.02 [.355]	7.21 [.284]	32.64 [1.285]	51.31 [2.020]

Figure 6

3.9. Keying Letter Codes

A keying letter code is visible in the area of the plastic housing indicated in Figure 5. The plug must be matched with the receptacle of the same number of positions and the same letter code.

CAUTION Do not force the plug into the receptacle. If the fit seems too tight, check the keying letter codes on both parts.




3.10. Workmanship

The following workmanship standards shall apply to the terminated plug:

1. There shall be no broken, cut, scraped, or sliced plastic or other visible damage to the housing.
2. The housing may exhibit cracking in the contact area. Cracking which is internal to the plug housing and does not extend to the front face is acceptable. Cracking which extends to the front face of the plug housing is unacceptable. Such unacceptable cracking is often caused by inadvertent exposure to one or more of the items in Paragraph 3.2.

CAUTION Damaged product should not be used. If damaged product is evident, it should be replaced.



3.11. Optional Boot

An optional boot is available for covering the completed SDL Plug. It is recommended that the boot be installed on the cable behind the ferrule prior to the stripping operation. Proper orientation and positioning of the boot is illustrated in Figure 7.

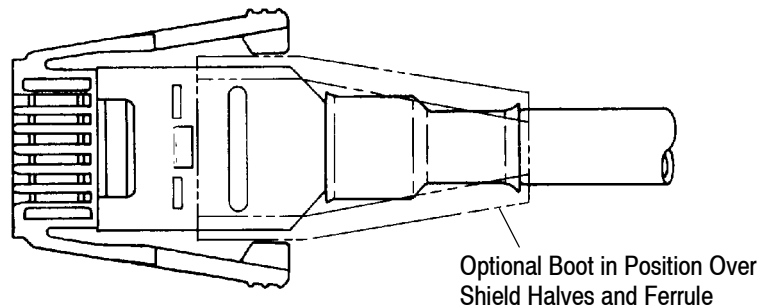


Figure 7

4. QUALIFICATION

36-Series and 50-Series Round-Cable SDL Plug Connectors are Recognized by Underwriters Laboratories Inc. (UL) in File E28476, and Certified by CSA International in File LR7189.

5. TOOLING

Figure 8 provides tooling part numbers and related instructional material to terminate 36-Series and 50-Series Round-Cable SDL Plug Connectors and ferrules.

CONNECTOR		TOOLING FOR CONTACTS AND STRAIN RELIEF (DOCUMENT)			
SERIES	POSN	DIE ASSEMBLY (408-9114)	DIE HOLDER ASSEMBLY (408-9164)	PNEUMATIC POWER UNIT (409-5843)	HAND TOOL (408-9113)
36-Series or 50-Series	4	58195-1	58201-1	312522-[]	58194-1
	6	58195-2			
	8	58195-3			
	16	58195-6			

Figure 8 (cont'd)

CONNECTOR			TOOLING FOR FERRULE (DOCUMENT)				
SERIES	POSN	INSUL RANGE	DIE ASSEMBLY (408-9039)	PNEUMATIC TOOL HOLDER ASSEMBLY	"C"-HEAD ADAPTER (408-4190)	PNEUMATIC POWER UNIT (409-5862)	HAND TOOL (408-2095)
36-Series or 50-Series	4	3.73-4.42 [.147-.174]	58166-1	189928-1 (408-2498) or 356304-1 (408-4321)	318161-1 (Dies Open) or 318161-2 (Dies Closed)	189721-2 (Hand) or 189722-2 (Foot)	69710-1
		4.72-5.08 [.186-.200]	58166-2				
	6	4.27-5.08 [.168-.200]	58166-3				
		5.36-5.72 [.211-.225]	1-58166-1				
	8	4.55-5.38 [.179-.212]	58166-5				
		5.69-6.20 [.224-.244]	1-58166-2				
	16	5.82-6.91 [.229-.272]	58166-7				
		7.32-7.82 [.288-.308]	1-58166-3				

Tooling for Contacts and Strain Relief

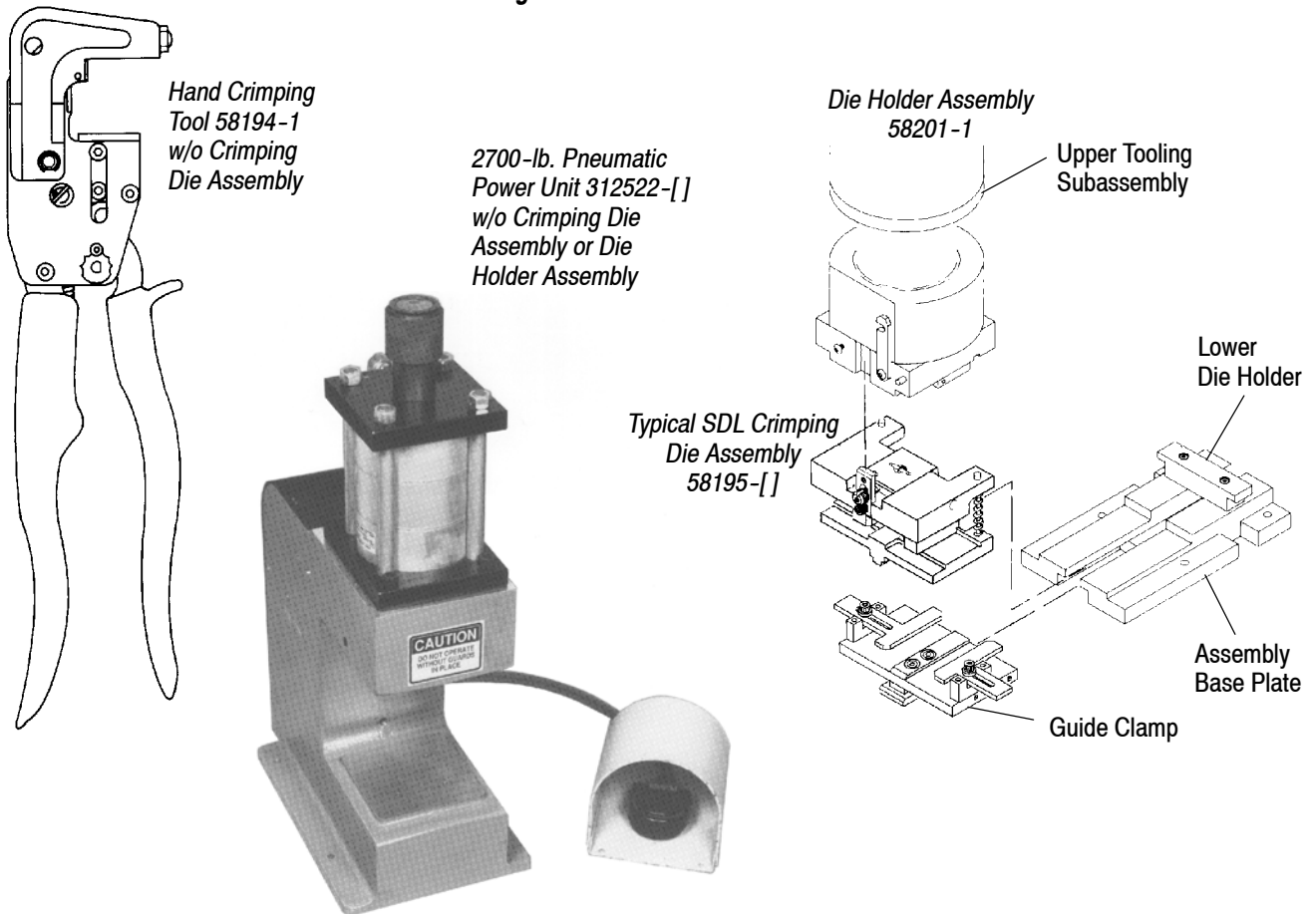


Figure 8 (cont'd)

Tooling for Ferrule

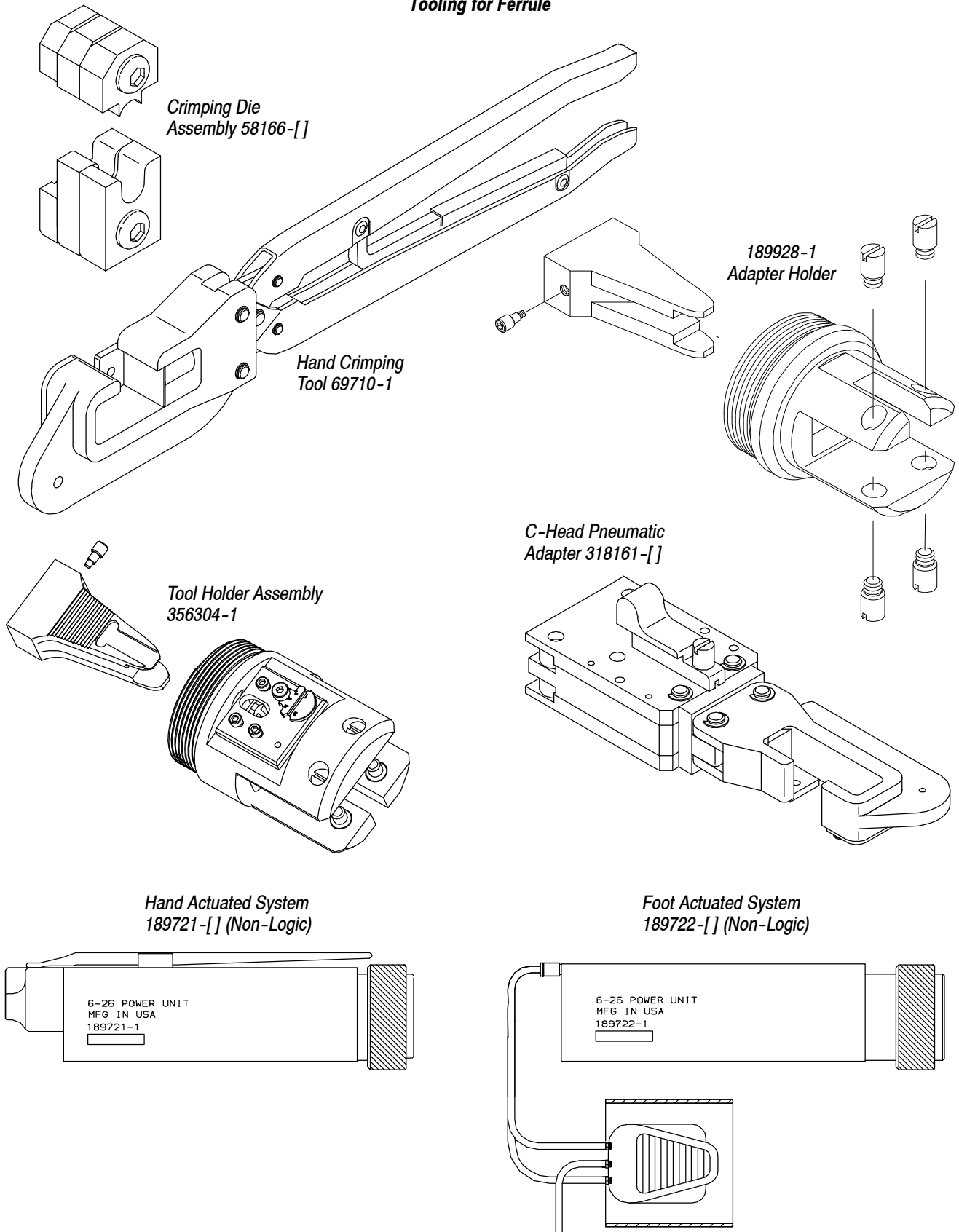
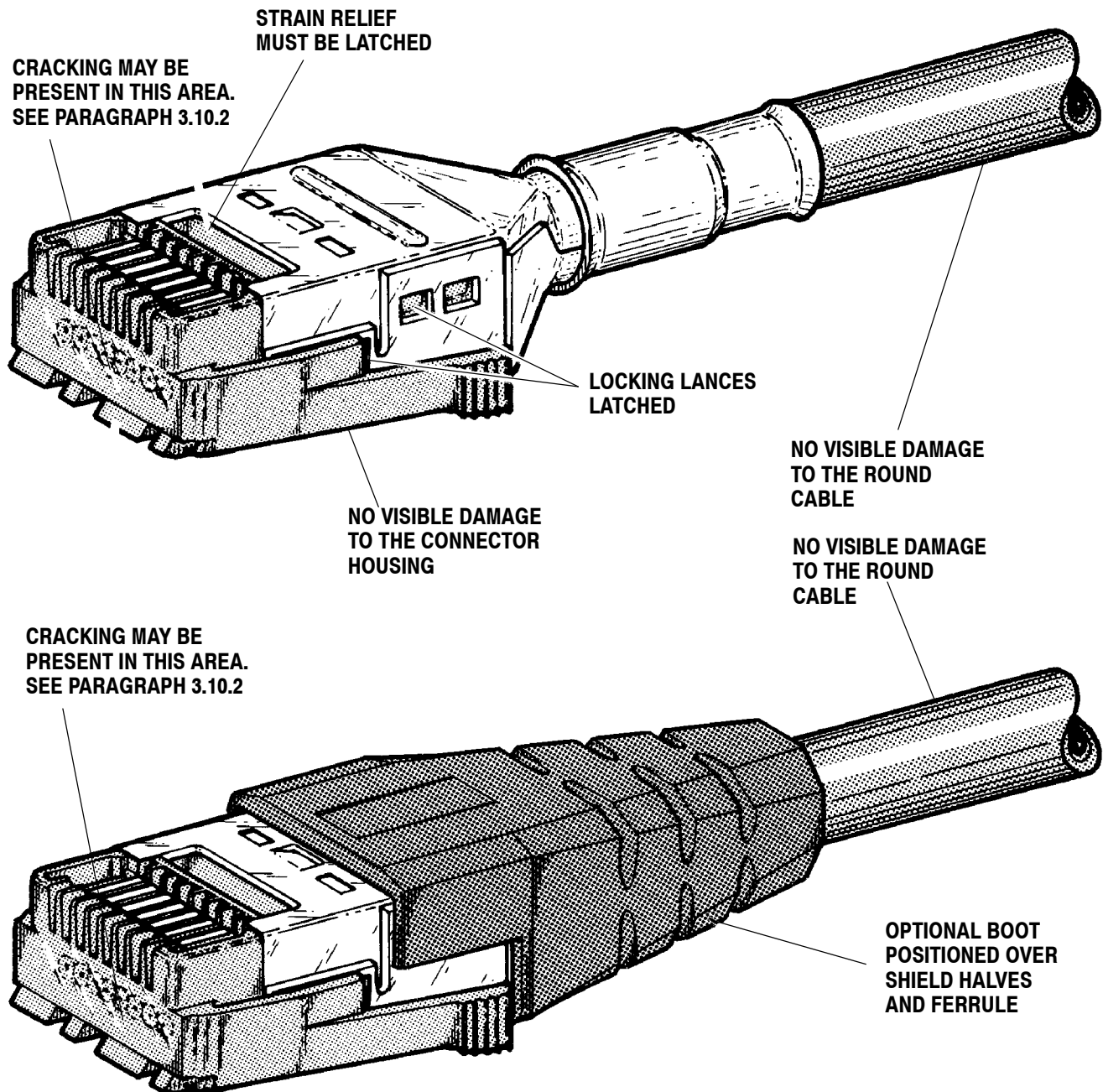


Figure 8 (end)

6. VISUAL AID

Figure 9 shows a typical application of a Round-Cable SDL Plug Connector. 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.



NOTE: CRACKING WHICH IS INTERNAL TO THE PLUG HOUSING AND DOES NOT EXTEND TO THE FRONT FACE IS ACCEPTABLE. CRACKING WHICH EXTENDS TO THE FRONT FACE OF THE PLUG HOUSING IS UNACCEPTABLE.

FIGURE 9. VISUAL AID