

**ECU-1 1 mm Socket Contact**
**NOTE**


All numerical values are in metric units [with U.S. customary units in brackets]. Dimensions are in millimeters. Unless otherwise specified, dimensions have a tolerance of  $\pm 0.13$  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 the ECU-1 1 mm Socket Contact. The ECU-1 1 mm Socket Contacts are used in the ECU-1 plug connector assemblies. These requirements are applicable to hand or automatic machine crimping tools.

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

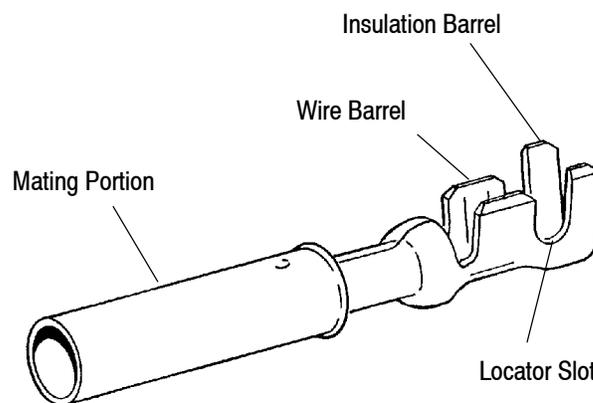


Figure 1

**2. REFERENCE MATERIALS**
**2.1. Revision Summary**

- Updated document to corporate requirements
- New logo and format

**2.2. Customer Assistance**

Reference Base Part Numbers 776235, 776326, 776342, and 776348 and Product Code 2155 are representative numbers that identify the ECU-1 1 mm Socket Contact product line. These numbers are used in the customer service network to access tooling and product application information. This service is provided by your local Tyco Electronics Representative or, after purchase, by calling the Tooling Assistance Center number at the bottom of this page.

**2.3. Drawings**

Customer Drawings for specific products are available from the responsible Engineering department via the service network. The information contained in the Customer Drawings takes priority if there is a conflict with this specification or with any other technical documentation supplied by Tyco Electronics.

**2.4. 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>
408-4563	Application and Maintenance for Hand Crimping Tool 90718-1
408-8040	Heavy Duty Miniature Quick-Change Applicators (Side-Feed)
408-9613	Setting Shut-Height on Model "K II" AMP-O-ELECTRIC* Machine
408-9762	Application and Maintenance for Hand Crimping Tool 90433-1
409-5128	AMP-O-ELECTRIC Model "K" Terminating Machine 565435-[ ]
409-5842	AMP-O-ELECTRIC Model "G" Terminating Machine 354500-[ ]
409-5878	AMPOMATOR* CLS IV+ Machine

### 3. REQUIREMENTS

#### 3.1. Special Considerations

Plug contact 776235 is equivalent to Ford■■ contact XL2T-14487-AA and is designed for wire sizes 20 through 18 AWG. Contact 776342 is equivalent to Jaguar▲ contact 2X4T-14487-AA and is designed for 22 AWG. Contacts with a "-4" suffix are reeled for the tooling listed in Section 5. Contact 776348 is designed only for 20 AWG, solid strand, alumel and chromel thermocouple wire. Contact 776326 is designed only for 16 and 18 AWG, SAEJ1128GXL wire.

#### 3.2. Wire

##### A. Wire Selection

The contacts will accept wire sizes 22 through 16 AWG. Wire insulation minimum and maximum diameters shall be as indicated in Figure 2.

##### B. Wire Preparation

The wire strip length shall be as indicated in Figure 2. Reasonable care shall be taken during the stripping operation to ensure the conductor is not nicked, scraped, or cut.

#### NOTE



*The applied crimp dimension (within the function 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.*

#### 3.3. Crimped Contact

Contacts shall be crimped in accordance with the instructional material packaged with the tooling. Specifications for contact crimping and inspection are listed in Figure 2.

##### A. Carrier Cutoff Tab

Cutoff tab shall be as shown in Figure 2.

##### B. Carrier Cutoff Burr

Cutoff burr shall not exceed the dimensions as shown in Figure 2.

##### C. Wire Barrel Crimp Inspection

Contacts shall be crimped in accordance with the instructions packaged with the tooling; refer to Figure 4.

1. Crimp height and width shall be as shown in Figure 2.
2. The wire barrel seam shall be closed adequately to confine all strands of the wire. There shall be no loose wire strands. Wire strands should not be embedded in the seam of the wire barrel.
3. The front and rear bellmouth shall be as shown in Figure 2.
4. Both insulation and conductor shall be visible between the insulation barrel and wire barrel. Care shall be taken not to allow insulation to be crimped in the wire barrel.
5. Wire barrel flash shall not exceed the dimension shown in Figure 2.

##### D. Insulation Barrel Crimp Inspection

1. Crimp width shall be as shown in Figure 2.

■■Ford Motor Company

▲Jaguar Cars Limited, Coventry England

2. Care shall be taken not to cut or break the insulation during the crimping operation.



Wire stripping tool jaws may leave corrugated indentations on the surface of the wire insulation. If these indentations occur at the location of the wire seal, leakage may result. Insulation surfaces within 26 mm from the tip of the contact must be smooth and free of residual indentations.



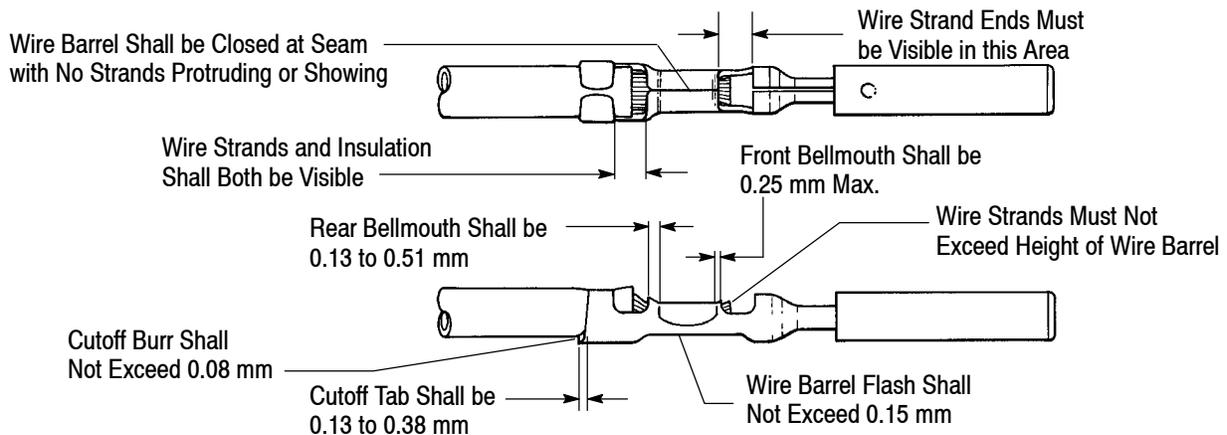
It is important in any application that the far end of the cable be sealed or otherwise isolated from the environment, and that the insulation is not cut or damaged.



Care shall be taken to ensure that the wire insulation is not cut or broken during the crimping operation, and to ensure that the insulation is not crimped into the wire barrel.



The ends of the insulation barrel shall be wrapped around the wire insulation, leaving no sharp points to damage the rubber wire seal.



SIZE		STRIP LENGTH ± 0.5	WIRE		WIRE BARREL		INSULATION BARREL	
mm <sup>2</sup>	AWG		SPECIFICATION NO. (WIRE TYPE)	INSULATION THICKNESS	CRIMP WIDTH ± 0.08	CRIMP HEIGHT ± 0.05	CRIMP WIDTH (REF)	CRIMP HEIGHT (REF)
1.0	16	5.7	SAEJ1128GXL	0.58 Nom	1.88	1.50	2.67	2.80
0.81	18	5.7	SAEJ1128GXL	0.58 Nom		1.37	2.54	2.54
0.81	18	5	ESB-M1L123-A**	0.41 Nom	1.88	1.37	2.21	2.30
			MS8288					
			WSB-M1L134-A1**	0.25 Nom				
0.52	20	5	WSS-M1L135-A1**	0.41 Nom	1.24	1.24	2.10	
			ESB-M1L123-A**					
			MS8288	0.25 Nom				1.85
0.35	22	5	WSB-M1L134-A1**	0.41 Nom	1.65	1.09	1.78	1.85
			WSS-M1L135-A1**	0.22 Min				
0.52	20	5	PP-20-KX-SP-FW9576 (Alumel and Chromel)	0.50 Nom	1.65	1.09	2.21	2.10

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▲Jaguar Cars Limited, Coventry England

Figure 2

**3.4. Alignment**

The axial concentricity of the crimped contact shall fall into an area defined by a 2.8 mm diameter circle whose center is the centerline of the contact as shown in Figure 3.

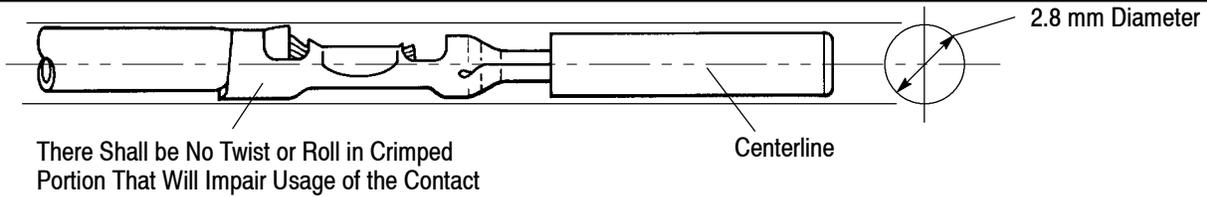


Figure 3

**3.5. Repair/Replacement**



*Damaged contacts should not be used. If a damaged contact is evident, it must be cut from the wire and replaced with a new one. Contacts must not be re-terminated.*

**4. QUALIFICATIONS**

ECU-1 1 mm Socket Contacts are not required to be agency approved.

**5. TOOLING**

Loose piece contacts are designed to be crimped with Hand Tool 90433-1. This hand tool is recommended only for 18-20 AWG contact termination. Use Hand Tool 90718-1 for solid strand alugel and chromel wire. Use Hand Tool 91359-1 for contact 776326, 16 and 18 AWG, SAEJ1128GXL wire. Strip form contacts are designed to be crimped with a miniature applicator used in a semi-automatic or automatic machine. Tooling, applicators, and instruction material are listed in Figure 4.



*The Model "K" AMP-O-LECTRIC Terminating Machine 565435 and have been superseded by the Model "G" Terminating Machine 354500 (409-5842). However, because of the large number of machines and applicable applicators still in use, the Model "K" is still being recommended.*

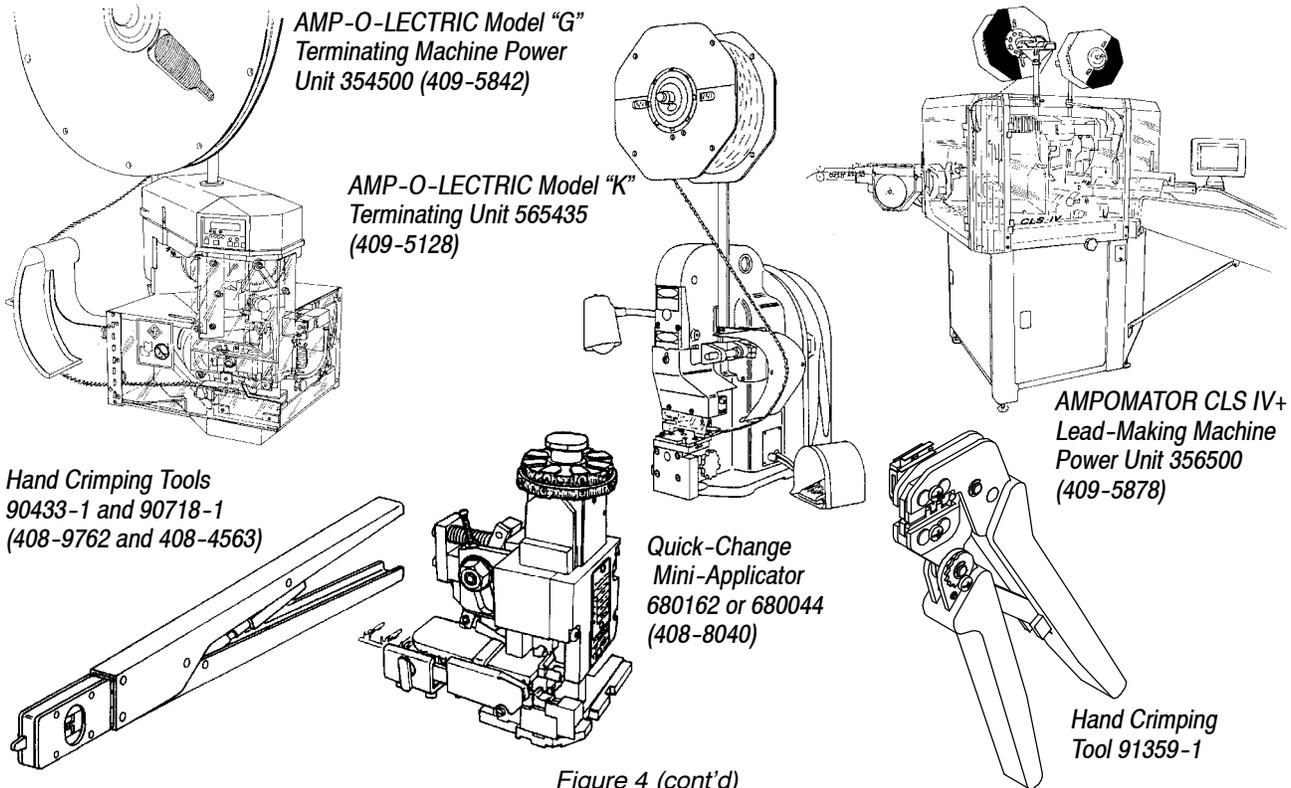


Figure 4 (cont'd)

WIRE SIZE		INSULATION THICKNESS	HAND TOOL (DOCUMENT)	APPLICATOR □ (DOCUMENT)	POWER UNITS (DOCUMENT)
mm <sup>2</sup>	AWG				
0.35	22	0.25 - 0.41	--	680162-[ ] (408-8040)	354500-1 (409-5842)
0.52/0.81	20/18	0.22 - 0.41	90433-1 (408-9762)	680044-[ ]●● (408-8040)	
0.52	20	0.50 NOM	90718-1 (408-4563)	--	--
0.81/1.0	18/16	0.58 NOM	91359-1	--	--

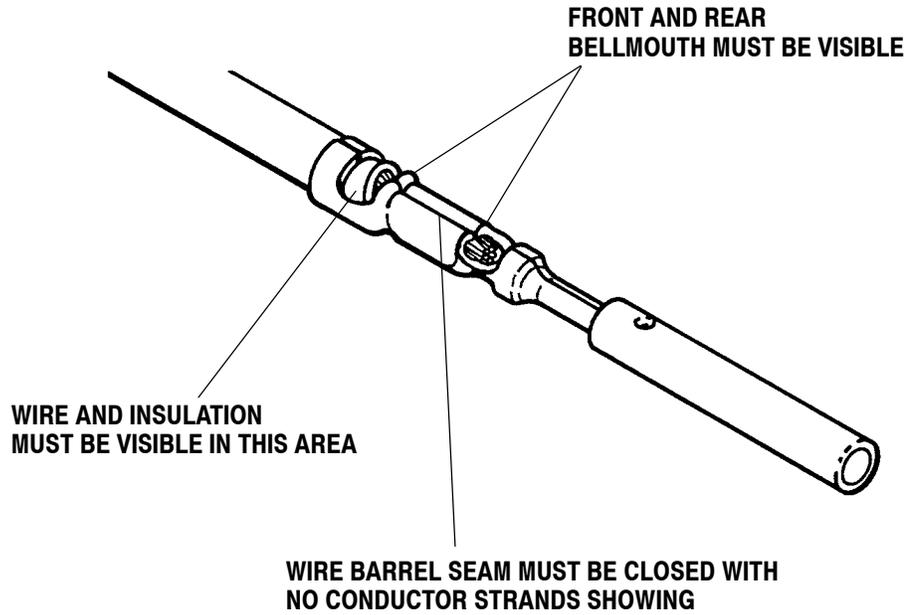
●● For limited prototypes and small production quantities for 18 and 20 AWG applications, use Hand Tool 90433-1 (Instruction Sheet 408-9762)

□ Dash 1 applicators are used with AMPOMATOR automatic lead-making machine. Dash 2 applicators are used with the AMP-O-LECTRIC terminating unit.

*Figure 4 (end)*

**6. VISUAL AID**

Figure 5 is to be used by production personnel to ensure properly applied product. The view shows requirements for correct applications. 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 5. VISUAL AID**