UNSIGNED HARDCOPY
NOT CONTROLLED

Subject:	Taper Pins
APPROVED BY	Manager, Hardware Engineering
STATUS	Maintenance Revision
PURPOSE	Establishes the general assembly requirements for solid and formed taper pin terminations and shall be followed by L-3 Communications Corporation, Link Simulation & Training Division (hereafter referred to as Link) personnel when terminating taper pins.
AFFECTED FUNCTIONS	Hardware Engineering Manufacturing
REFERENCES	None
DEFINITIONS	None

INSTRUCTION

1. Requirements

1.1 Solid taper pins - (AMP).

a. AMP solid pins are manufactured with the following characteristics:

(1) With or without insulation support.

(2) Insulated or uninsulated.

NOTE: Pins without insulation support are uninsulated.

b. Solid pins (insulated or uninsulated) with insulation support shall have the wire insulation inserted to the maximum depth of the insulation support barrel. Wire strands shall be visible only at the inspection hole. (See Figure 1.)

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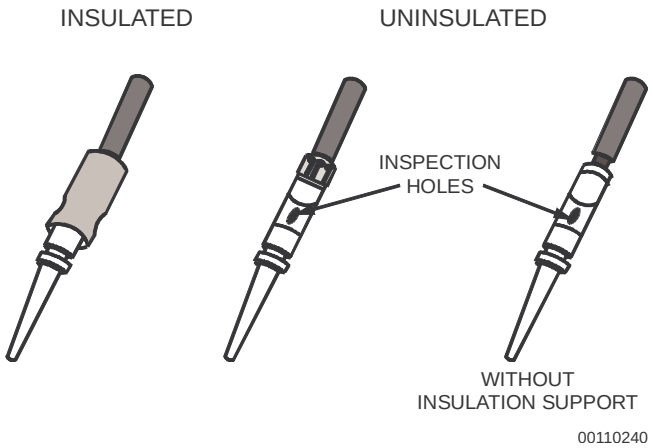

Figure 1 Wire Insertion Into Solid Taper Pins

c. Solid pins without insulation support shall have insulation clearance not exceeding the diameter of the wire insulation or 1/32 inch (0.079 cm), whichever is greater. (See Figure 2.)

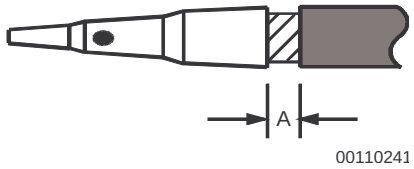

Figure 2 Insulation Clearance on Solid Taper Pins

1.2 Formed taper pins - (AMP).

a. Formed pins are manufactured with the following characteristics:

(1) With or without insulation support.

(2) Uninsulated only.

b. Formed pins with insulation support shall have the lead inserted in a manner allowing both wire and insulation to be visible in their respective holes. (See Figure 3.)

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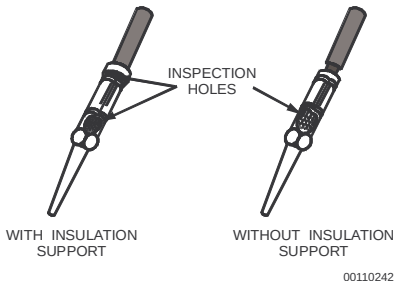

Figure 3 Wire Insertion Into Formed Taper Pins (AMP)

1.3 Solid taper pins - (KENT).

a. Kent solid pins are manufactured either with or without insulation. The insulated version is the most commonly used. Each pin is grooved, and the nylon insulating sleeve is color coded to identify the wire size range of that particular pin. (See Table I.)

Table 1 Color Coding Solid Taper Pins (KENT)

WIRE RANGE	NO. OF GROOVES	INSULATION COLOR
AWG 26-22	3	YELLOW
AWG 22-18	2	RED
AWG 16-14	1	BLUE

b. Prior to insertion into the pin, the wire must be stripped to allow the wire insulation to be inserted to the maximum depth of the insulated sleeve. (Wire shall not be tinned.) Wire strands shall be visible only at the inspection hole. (See Figure 4.)

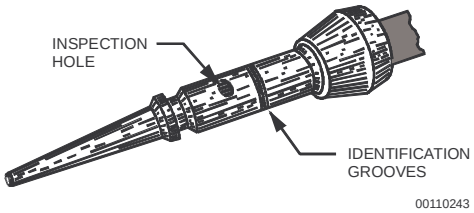

Figure 4 Solid Taper Pin (KENT)

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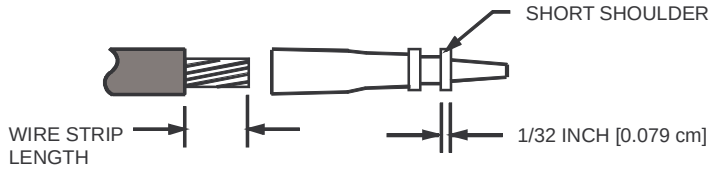
1.4 Crimping tools - (AMP).

a. Hand tool selection. Select the proper hand-crimping tool from those defined in Figure 5.

b. The locator of the tool may be placed in either of two positions: one for crimping long taper pins and the other for crimping short taper pins.

c. Pneumatic tool selection. Select the proper tool and dies from those defined in Figure 5.

NOTE: Check dies at least once each day to be sure screws are tight.



TAPER PINS LISTED BELOW HAVE SHORT SHOULDERS.

PART NUMBERS ARE AMP WITH RAYTHEON PART NUMBERS IN PARENTHESIS.

00110244

WIRE SIZE	TAPER PIN NUMBER	TAPER PIN INSULATION COLOR	WIRE INSULATION DIAMETER	+1/32 INCH, -0 [0.079 cm] WIRE STRIP LENGTH	PNEUMATIC TOOL NUMBER AND DIES	CRIMP CODE	HAND TOOL	
							NUMBER	HANDLE COLOR
AWG 24-22	42574-3 (257648)	YELLOW	.040 - .080 IN. [0.102 - 0.203 cm]	5/32 IN. [0.397 cm]	69118-2 45306	1 DOT	46222 (432993)	BLUE & YELLOW
AWG 20-18	42575-3 (257651)	WHITE	.060 - .100 IN. [0.152 - 0.254 cm]	3/16 IN. [0.476 cm]	69118-2 45305	2 DOTS	46223 (432994)	WHITE & BLACK
AWG 16	42637-3 (443090)	BLACK	.080 - .115 IN. [0.203 - 0.292 cm]	3/16 IN. [0.476 cm]	69118-2 45305	2 DOTS	46223 (432994)	WHITE & BLACK

Figure 5 Selection of Crimping Tools

1.5 Crimping procedure using hand tool - AMP.

a. Open the crimping jaws of the tool by squeezing the handles until the certi-crimp ratchet releases. (See Figure 6.)

NOTE: Once the ratchet is engaged, the handles cannot be opened.

b. Place the taper pin in the dies so that the tip of the taper pin goes through the locator, and the shoulder rests against the locator as shown in Figure 6.

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c. Close the handles until the taper pin is held firmly in place. Do not deform the barrel.

d. Strip wire to length shown in Figure 5 and insert the stripped wire into the taper pin barrel. Be sure the bare wire passes through the insulation barrel and into the wire barrel.

e. Hold the wire in position and complete the crimp by squeezing the handles until the certi-crimp ratchet releases.

f. When a taper pin is crimped properly in the recommended tool, a dot coding will appear on the taper pin as listed in Figure 5.

1.6 Crimping procedure using pneumatic tool - (AMP).

a. Depress tape guide lever and slip first feed notch in bottom edge of tape strip over first tooth on the sprocket of the feeding mechanism. Release the tape guide lever. (See Figure 7.)

b. Press and release the operating lever with knee until the terminal is advanced or indexed into the crimping position.

c. Insert the stripped wire into the terminal pin barrel. Be sure the bare wire passes through the insulation barrel and into the wire barrel. (See Figure 7, “B.”)

d. Press and release trigger with knee. The ram will advance, and the dies will bottom and return.

e. Crimped terminal will be automatically indexed to the left into position for removal from tape strip. The next terminal is now in crimping position.

f. When the tape is empty or the last terminal has been crimped, press the trigger as many times as required to automatically index the tape strip out of tool. If the tape is to be removed before it is used up, depress both tape guide levers and lift tape out of tool.

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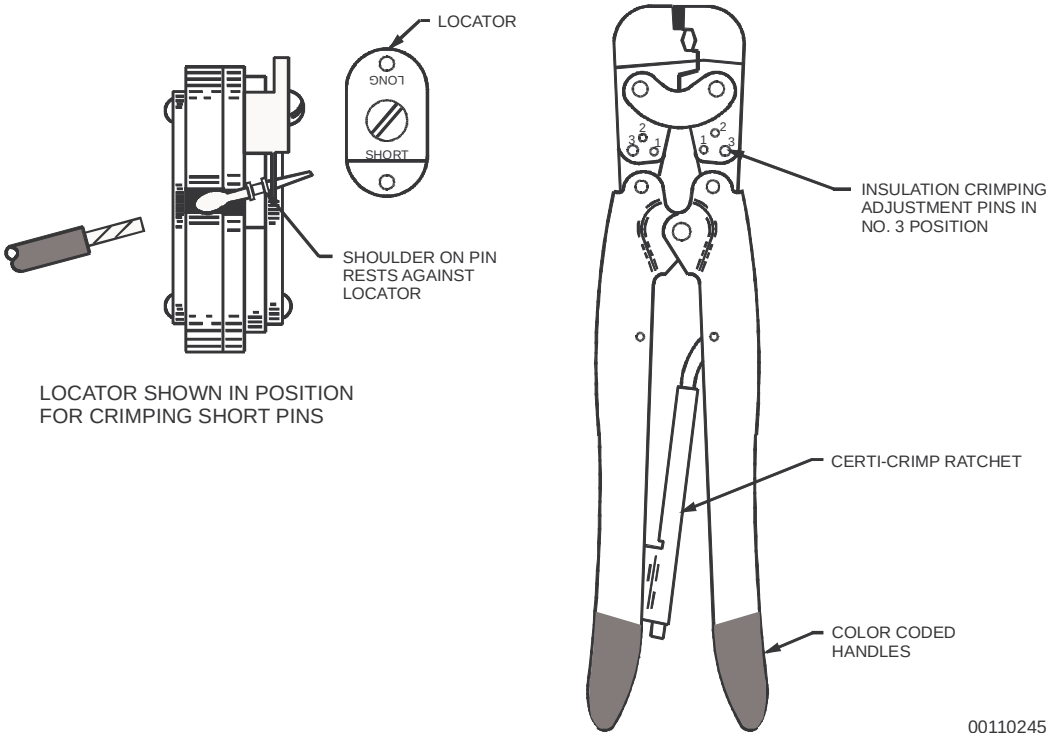

Figure 6 Hand Crimping Tool (AMP)

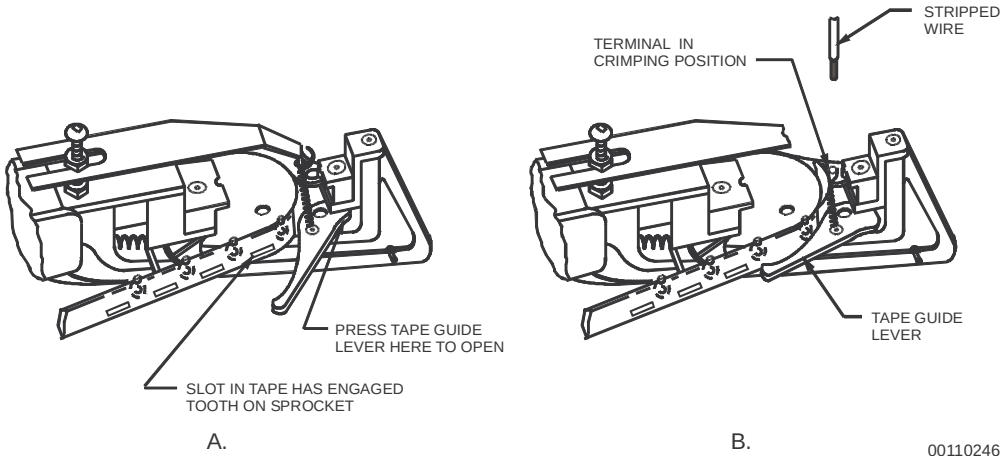

Figure 7 Pneumatic Crimping Tool (AMP)

1.7 Taper pin insertion - (AMP).

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a. This procedure covers the insertion of AMP series 53 taper pins (Link PN 257646 through 257651) into the Elco printed circuit connector, series 7009, into the bus bars.

b. Tools. Proper taper pin insertion tools are AMP number 380430-2 (Link PN 442220) and 380430-1 (Link PN 442221).

c. Place wire barrel of terminal into the slot in the tip of tool. (See Figure 8.) End of tip must butt against the shoulder on the terminal.

d. Insert the wire through the side of the tip. Hold the terminal in the tip with finger. (See Figure 8.)

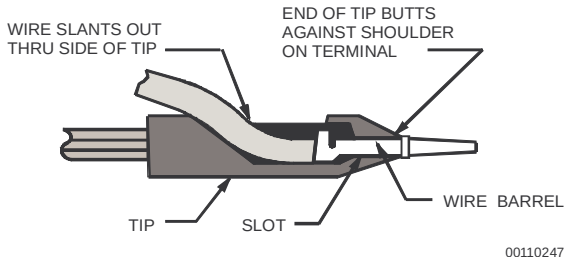

Figure 8 Inserting Taper Pin Into Insertion Tool

e. Align the tool to provide clearance for removing from terminal after insertion.

f. Insertion into bus bars. Brace bus bar on opposite side with a heavy piece of metal such as brass or steel. (See Figure 9.)

g. With terminal in tip, insert terminal into receptacle. (See Figure 9.)

h. While inserting terminal, keep tool, terminal, and receptacle in a straight line.

i. With a straight, steady motion, push tool towards receptacle until tool trips. Use three strokes for each insertion.

NOTE: Tests conducted in Quality Assurance indicate three strokes give an optimum pull test. More or less strokes reduce the pull test.

j. Remove tool from terminal. Do not bend or twist terminal. If terminal is bent or twisted during removal of tool, remove and reinsert terminal.

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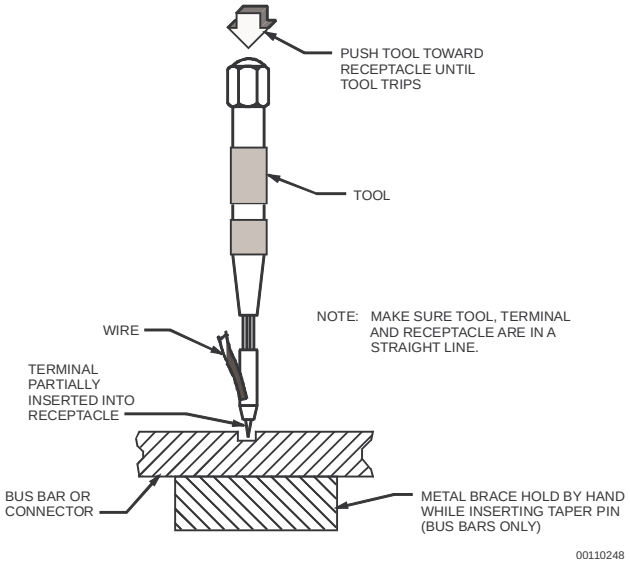

Figure 9 Taper Pin Insertion

2. Quality Assurance Provisions

   2.1 The Quality Assurance Organization shall be responsible for performing all tests necessary to assure the workmanship and requirements conform to this instruction.

3. Preparation For Delivery (Not Applicable)

4. Notes

   4.1 Parenthetical identities are for reference only.

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