

PROPER USE GUIDELINES

Cumulative Trauma Disorders can result from the prolonged use of manually powered hand tools. AMP hand tools are intended for occasional use and low volume applications. AMP offers a wide selection of powered application equipment for extended-use, production operations.

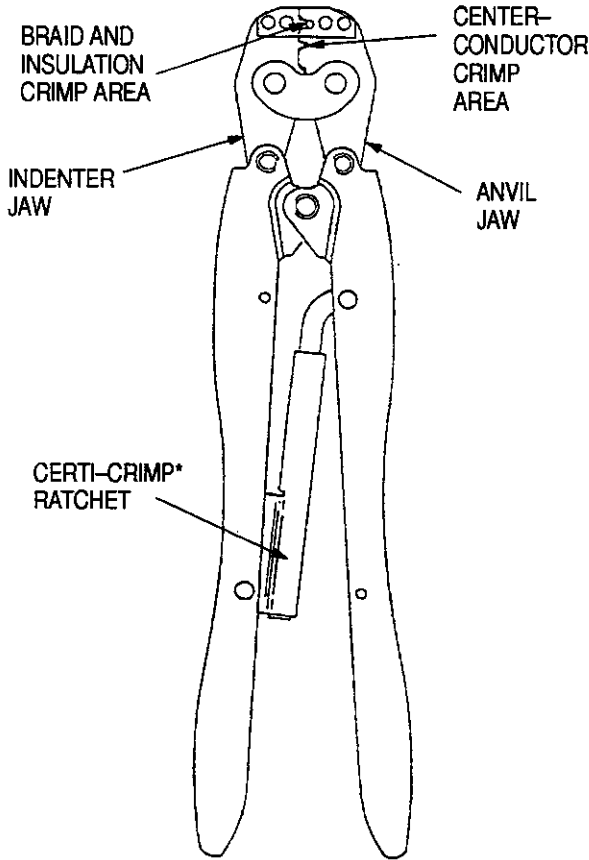


Figure 1

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1. INTRODUCTION

This instruction sheet covers the use of AMP Hand Crimping Tools 220141-1 and 220141-2 (see Figure 1) which are used to crimp the AMP Braid-Pic terminals listed in Figure 2. Read these instructions thoroughly before using the tool.

Reasons for reissue are provided in Section 6, REVISION SUMMARY.

NOTE

Dimensions on this sheet are in millimeters [with inches in brackets].

2. DESCRIPTION

Each tool features an anvil jaw and an indenter jaw with a center-contact crimp area, and a braid and insulation crimp area. The CERTI-CRIMP ratchet assures full crimping of the terminals. Once engaged, the ratchet will not release until the handles have FULLY closed.

CAUTION

The crimping dies bottom before the CERTI-CRIMP ratchet releases. This design feature assures maximum electrical and tensile performance of the crimp. Do NOT re-adjust the ratchet.

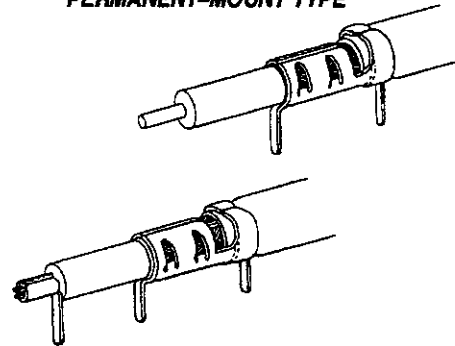
Terminals to be crimped with these tools are either permanent-mount type (with or without center-conductor terminations, depending upon application), or vertical connect/disconnect type (refer to Figure 2). For specific part numbers and assembly procedures, refer to instruction sheet 408-2472-1 (vertical connect/disconnect types) and instruction sheet 408-2472-2 (permanent-mount types).

3. CRIMPING PROCEDURE

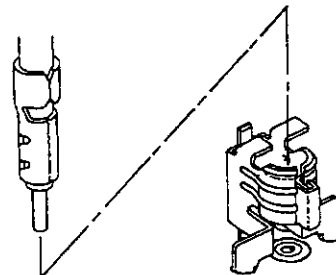
NOTE

Each hand tool is coated with a preservative to prevent rust or corrosion. Wipe this preservative from the tool, particularly from the crimping jaws, before using the tool.

PERMANENT-MOUNT TYPE



VERTICAL CONNECT/DISCONNECT TYPE



TERMINAL		CRIMPING TOOL
226286-3	226176-2	220141-1
226177-2	226176-3	
226176-4		220141-2

Figure 2

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These procedures provide instructions on the use of the hand tool for crimping terminals only. For information pertaining to the individual terminals, such as cable stripping dimensions and assembly, refer to instruction sheets 408-2472-1 and 408-2472-2. The crimping procedure may require two separate crimps. First, the center-conductor terminal must be crimped to the center conductor of the cable; then the braid terminal is crimped to the cable braid and insulation. If the cable assembly does not require a center-conductor terminal, proceed to Paragraph 3.2.

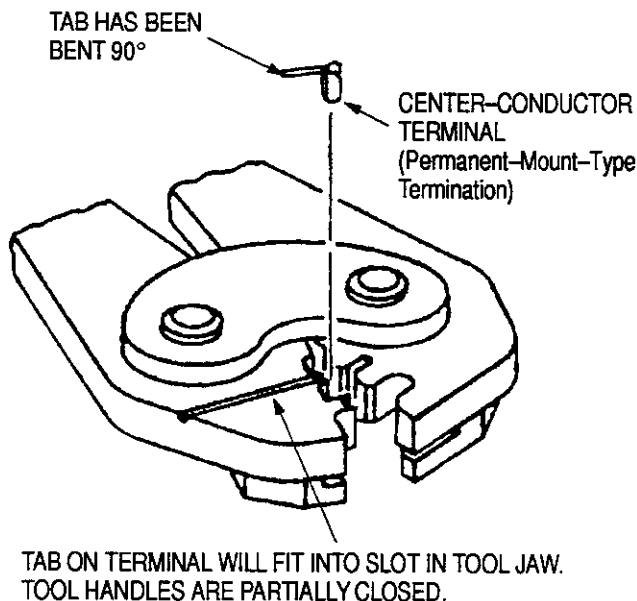


Figure 3

68-360

3.1. Crimping Center-Conductor Terminal

Refer to Figure 3 and proceed as follows:

1. Strip cable to appropriate dimensions and bend the solder tab on the center-conductor terminal at a 90° angle, as shown in Figures 2 and 3.
2. Open the tool's jaws by squeezing the handles until the ratchet releases and then allow the handles to open FULLY.
3. Close tool handles partially and insert center-conductor terminal into the center-conductor crimp area of the tool. Tab of terminal must rest in slot in tool jaw (refer to Figure 3).
4. Insert center conductor of stripped cable into center-conductor terminal until bottomed.
5. While holding cable and terminal in place, close tool handles until ratchet releases. Allow handles to open fully and remove crimped terminal assembly.

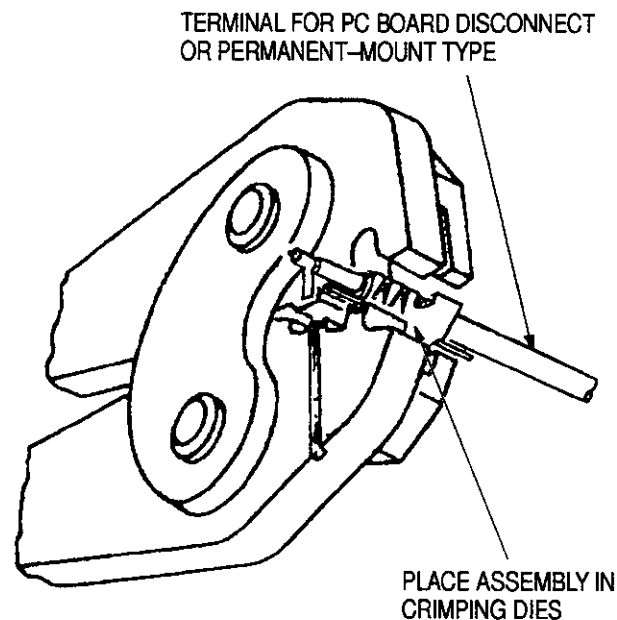


Figure 4

68-360

3.2. Crimping Braid Terminal

Refer to Figure 4 and proceed as follows:

1. Insert exposed braid portion of cable into the Braid-Pic terminal in a straight downward motion until braid is seated in "pick-type" barrel and outer insulation is seated in insulation barrel.

NOTE Solder tabs on terminal should NOT be bent until after crimping.

2. Open the tool's jaws by squeezing the handles until the ratchet releases and then allow the handles to open FULLY.
3. Place terminal and cable into tool crimping dies as shown in Figure 4.

NOTE The tool has braid and insulation dies which will simultaneously crimp both the braid and outer insulation.

4. To complete crimp, close handles until ratchet releases. Allow handles to open fully and remove crimped cable assembly.
5. On permanent-mount type terminals, bend the solder tabs at a 90° angle, as shown in Figure 2.

4. MAINTENANCE AND INSPECTION PROCEDURE

AMP recommends that a maintenance and inspection program be performed periodically to ensure dependable and uniform terminations. Frequency of inspection depends on:

1. The care, amount of use, and handling of the hand tool.

2. The presence of abnormal amounts of dust and dirt.
3. The degree of operator skill.
4. Your own established standards.

The hand tool is inspected before being shipped; however, AMP recommends that the tool be inspected immediately upon its arrival at your facility to ensure that the tool has not been damaged during shipment. Due to the precision design, it is important that no parts of these tools be interchanged except those replacement parts listed in Figure 6.

4.1. Daily Maintenance

1. Remove dust, moisture, and other contaminants with a clean brush, or a soft, lint-free cloth. Do NOT use objects that could damage the tool.
2. Make certain that the retaining pins are in place and that they are secured with retaining rings.
3. All pins, pivot points, and bearing surfaces should be protected with a thin coat of any good SAE No. 20 motor oil. Do not oil excessively.
4. When the tool is not in use, keep handles closed to prevent objects from becoming lodged in the crimping dies. Store the tool in a clean, dry area.

4.2. Lubrication

Lubricate all pins, pivot points, and bearing surfaces with SAE No. 20 motor oil as follows:

- Tools used in daily production – lubricate daily
- Tools used daily (occasional) – lubricate weekly
- Tools used weekly – lubricate monthly

Wipe excess oil from tool, particularly from crimping area. Oil transferred from the crimping area onto certain terminations may affect the electrical characteristics of an application.

4.3. Periodic Inspection

1. Hand tool should be immersed (handles partially closed) in a reliable commercial degreasing compound to remove accumulated dirt, grease, and foreign matter.
2. Close tool handles until ratchet releases and then allow them to open freely. If they do not open quickly and fully, the spring is defective and must be replaced. See Section 5, REPLACEMENT AND REPAIR.
3. Inspect head assembly for worn, cracked, or broken dies. If damage is evident, return the tool to AMP for evaluation and repair. See Section 5, REPLACEMENT AND REPAIR.

4.4. Crimping Die Closure Inspections

This inspection requires the use of plug gages conforming to the dimensions shown in Figure 5. AMP does not manufacture or market these gages.

To gage die closure, refer to Figure 5 and proceed as follows:

1. Remove traces of oil or dirt from the crimping chambers and plug gage.
2. Close the tool handles until it is evident that the jaws have bottomed; then hold in this position. Do NOT force the jaws beyond initial contact.
3. Align the GO element of the proper plug gage with the braid crimping chamber. Push element straight into the crimping chamber without using force. The GO element must pass completely through the crimping chamber.
4. Check the braid crimping chamber with the NO-GO gage in the same manner as step 3. The NO-GO element may start entry, but must not pass completely through the crimping chamber.
5. Check the insulation crimping chamber and the center-conductor crimping chamber using the proper plug gage in the same manner as steps 3 and 4.

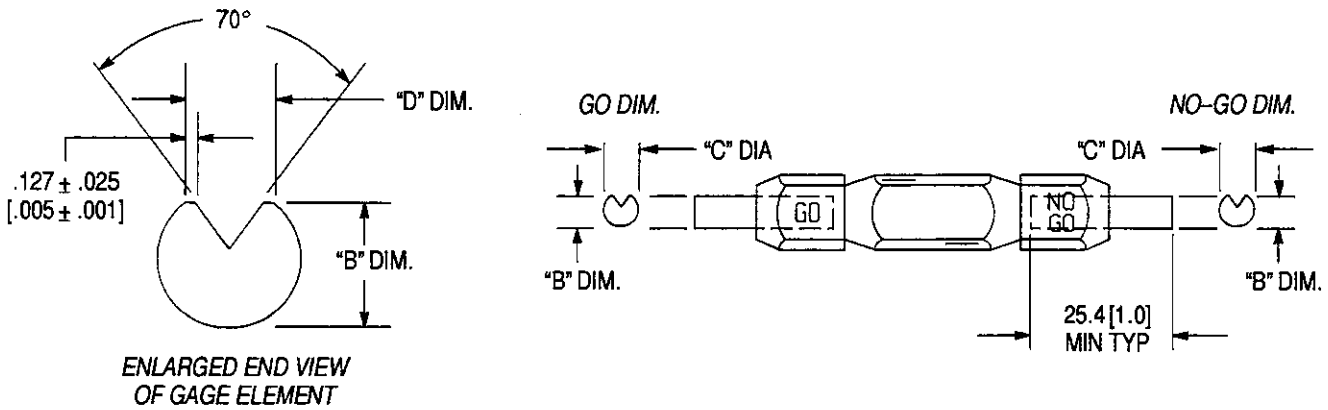
If die closures conform to the gage inspections, the crimping chambers are considered dimensionally correct. If not correct, the tool must be returned to AMP for further evaluation and repair. Refer to Section 5, REPLACEMENT AND REPAIR. For additional information regarding the use of a plug gage, refer to AMP instruction sheet 408-7424.

4.5. CERTI-CRIMP Ratchet Inspection

The CERTI-CRIMP ratchet feature on AMP hand tools should be checked to ensure that the ratchet does not release prematurely, allowing the crimping jaws to open before they have fully bottomed. Obtain a 0.025-mm [.001-in.] shim that is suitable for checking the clearance between the bottoming surfaces of the crimping jaws. Proceed as follows:

1. Select a terminal and cable (maximum size) for the tool.
2. Position the terminal and cable into the crimping chamber, as described in Paragraph 3.2, Crimping Braid Terminal.
3. Hold the terminal and cable in place and squeeze the handles until the CERTI-CRIMP ratchet releases. Hold the handles in this position, maintaining just enough tension to keep the jaws closed.
4. Check the clearance between the bottoming surfaces of the crimping jaws. If the clearance

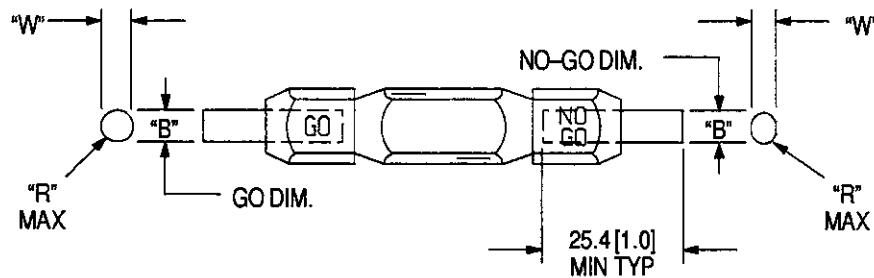
SUGGESTED PLUG GAGE DESIGN - CENTER CONDUCTOR CRIMP



CENTER CONDUCTOR CRIMP DIMENSIONS

HAND TOOL	GAGE ELEMENT DIMENSIONS "B"		"C" DIA		"D" DIM.
	GO	NO-GO	GO	NO-GO	
220141-1	.686 - .693	.836 - .838	.914	.991	.767
220141-2	[.0270 - .0273]	[.0329 - .0330]	[.0360]	[.0390]	[.0302]

SUGGESTED PLUG GAGE DESIGN - BRAID AND INSULATION CRIMPS



BRAID AND INSULATION CRIMP DIMENSIONS

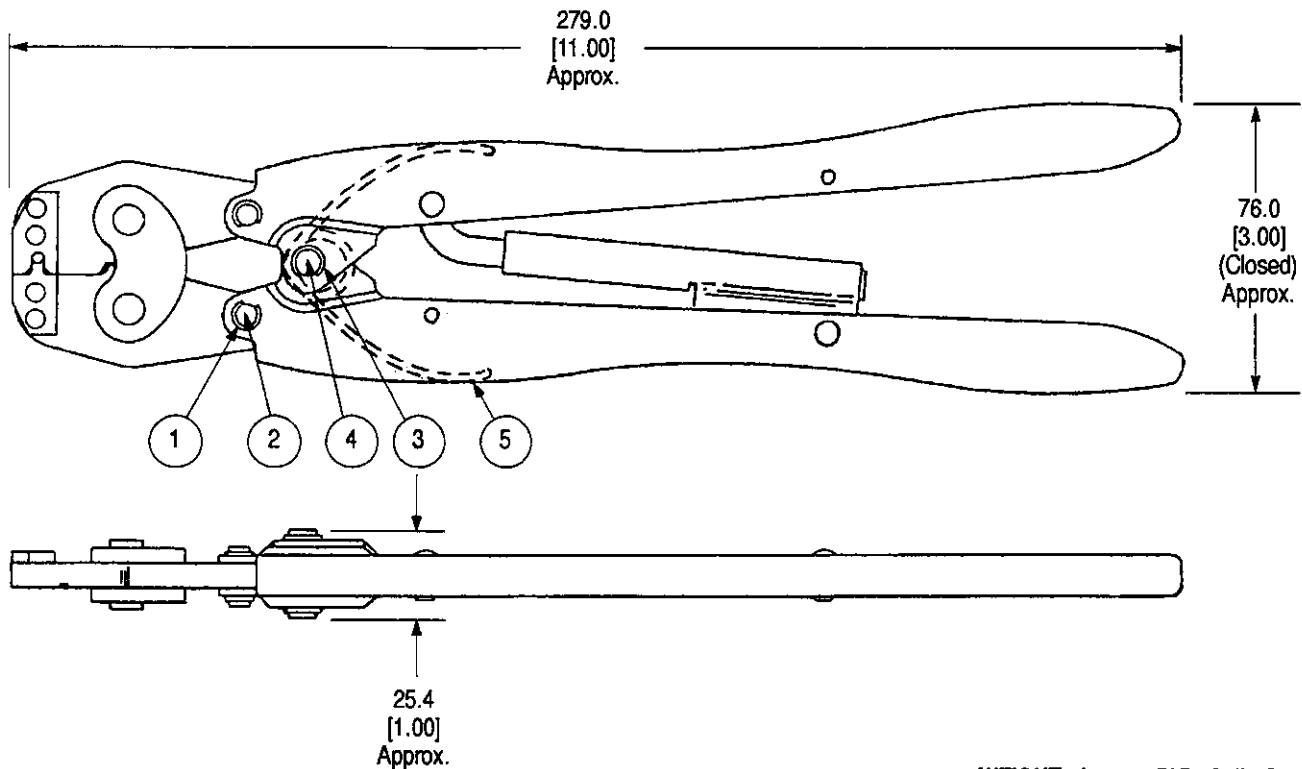
HAND TOOL	CRIMP SECT	GAGE ELEMENT DIMENSIONS "B"			
		DIMENSION "B"		"W" (Max)	RADIUS "R" (Max)
		GO	NO-GO		
220141-1	Braid	2.31 - 2.32 [.0910 - .0913]	2.461 - 2.464 [.0969 - .0970]	2.29 [.090]	1.14 [.045]
	Insul	4.055 - 4.067 [.1030 - .1033]	4.996 - 5.00 [.1269 - .1270]	2.54 [.100]	1.27 [.050]
220141-2	Braid	2.31 - 2.32 [.0910 - .0913]	2.461 - 2.464 [.0969 - .0970]	2.29 [.090]	1.14 [.045]
	Insul	4.33 - 4.34 [.1100 - .1103]	5.114 - 5.118 [.1299 - .1300]	2.54 [.100]	1.27 [.050]

Figure 5

is 0.025 mm [.001 in.] or less, the ratchet is satisfactory. If clearance exceeds 0.025 mm [.001 in.], the ratchet is out of adjustment and must be repaired. See Section 5, REPLACEMENT AND REPAIR.

5. REPLACEMENT AND REPAIR

Replacement parts are listed in Figure 6. Parts other than those listed in Figure 6 should be replaced by AMP to ensure quality and reliability of the tool. Order



WEIGHT: Approx. 595 g [1 lb. 5 oz.]

ITEM	PART NUMBER	DESCRIPTION	QTY
1	21045-3	RING, Retaining	1
2	1-23619-6	PIN, Retaining	1
3	21045-6	RING, Retaining	1
4	2-23620-9	PIN, Retaining	1
5	39364	SPRING	1

Figure 6

82-92A

replacement parts through your AMP representative, or call 1-800-526-5142, or send a facsimile of your purchase order to 1-717-986-7605, or write to:

CUSTOMER SERVICE (38-35)
 AMP INCORPORATED
 P.O. BOX 3608
 HARRISBURG, PA 17105-3608

For tool repair service or CERTI-CRIMP ratchet adjustment, return the tool, with a written description of the problem, to:

CUSTOMER REPAIR (01-12)
 AMP INCORPORATED
 1523 NORTH 4TH STREET
 HARRISBURG, PA 17102-1604

6. REVISION SUMMARY

Since the previous release, the following changes were made to this document:

Per EC 0150-3259-94:

- Changed GAGE ELEMENT "B" (GO and NO-GO) DIMENSIONS for Insulation Crimp Sections in Figure 5