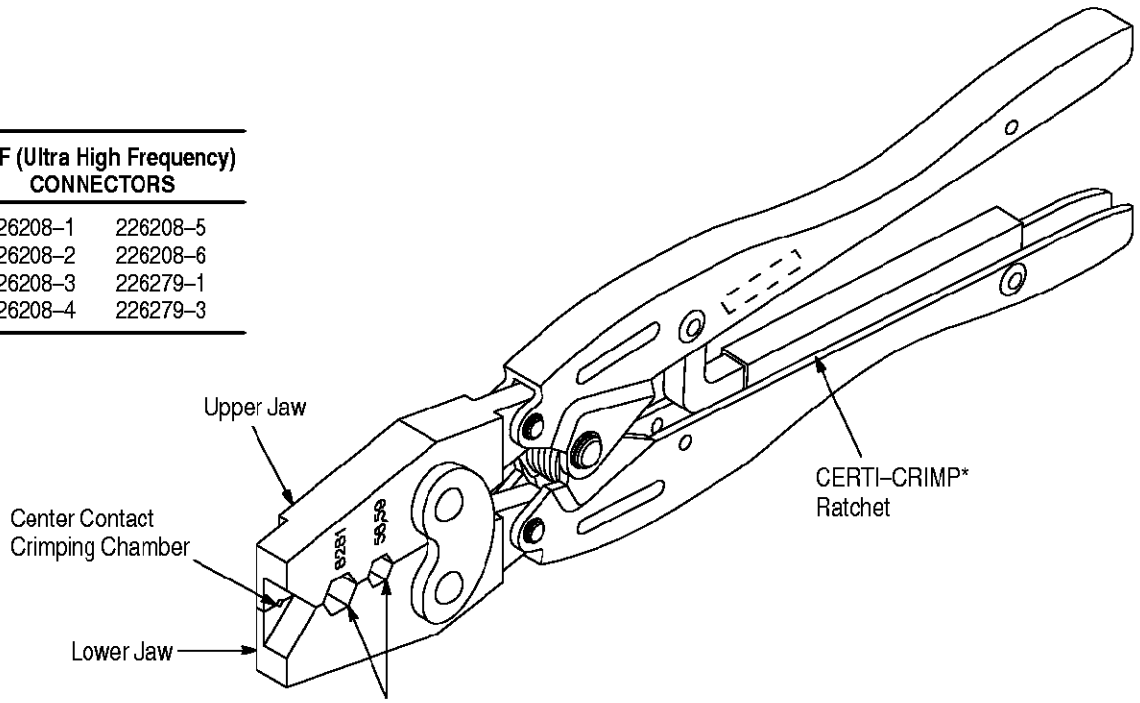
Hand Crimping Tools
220094–1, 220095–1, and 220095–2

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.

UHF (Ultra High Frequency) CONNECTORS	
226208–1	226208–5
226208–2	226208–6
226208–3	226279–1
226208–4	226279–3



■ Tool 220094–1 shown. Tools 220095–1 and 220095–2 have one braid crimping chamber.

Figure 1

1. INTRODUCTION

AMP* Hand Crimping Tools 220094–1, 220095–1, and 220095–2 are used to crimp UHF (ultra high frequency) connectors listed in Figure 1.

NOTE

Dimensions in this instruction sheet are in metric units [with U.S. customary units in brackets]. Figures are not drawn to scale.

Reasons for reissue of this instruction sheet are provided in Section 6, REVISION SUMMARY.

2. DESCRIPTION (Figure 1)

Each hand tool features a lower jaw, an upper jaw, and CERTI–CRIMP ratchet. The ratchet assures full crimping of the connector. Once engaged, the ratchet will not release until the tool handles have been FULLY closed.

CAUTION

The jaws bottom before the ratchet releases. This feature ensures maximum electrical and tensile performance of the crimp. Do NOT re–adjust the ratchet.

3. CRIMPING PROCEDURE

NOTE

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

1. Slide ferrule over cable, followed by collar. See Figure 2, Detail A.

2. Strip cable and flare braid as shown on instructions packaged with the connectors.

3. Insert the cable dielectric into the connector body until the dielectric butts against the dielectric inside the connector body. Fit braid over support sleeve.

NOTE

The end of the center conductor will extend from the end of the contact for inspection purposes on certain cable groups. See Figure 2, Detail B. After crimp is finished, center conductor should be trimmed flush with the end of the contact.

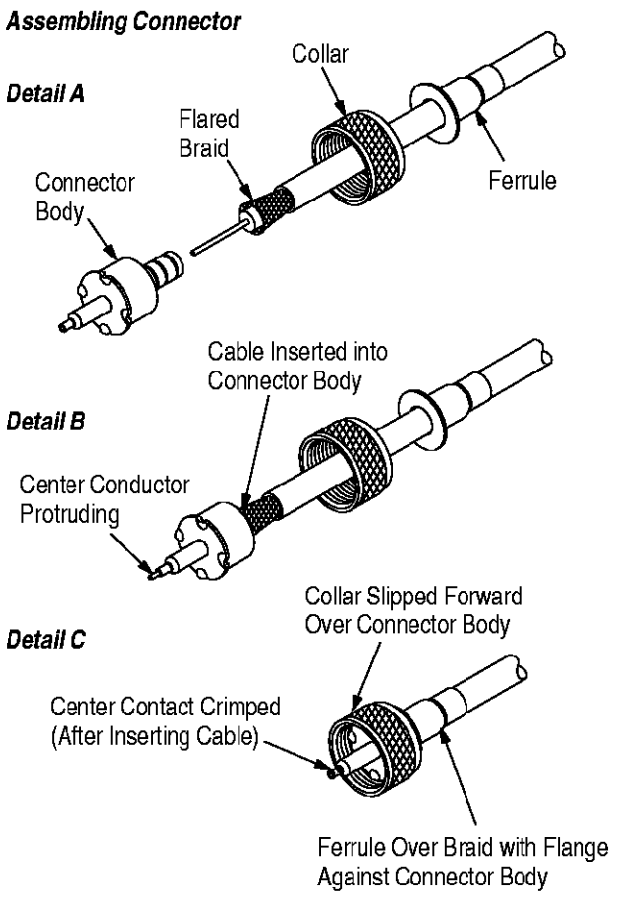


Figure 2

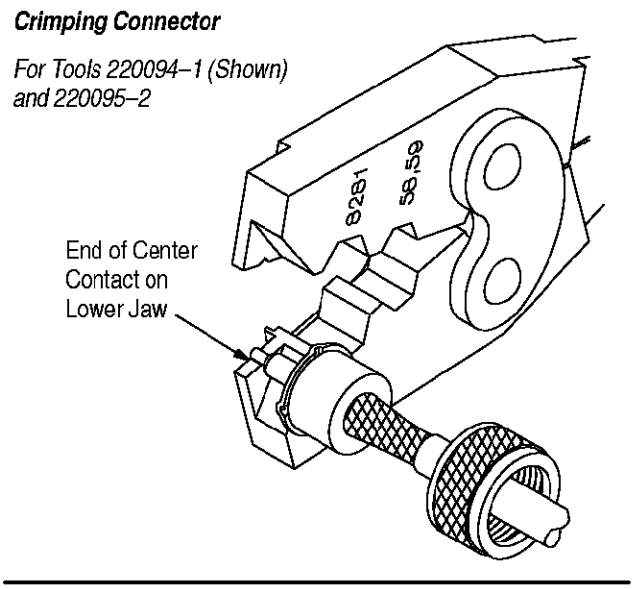


Figure 3

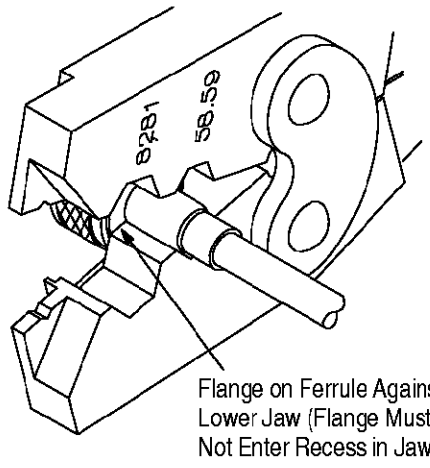


Figure 4

3.1. For Hand Tools 220094–1 and 220095–2

1. Open jaws by closing tool handles until ratchet on handles releases. Note that once ratchet is engaged, handles cannot be opened until fully closed.

2. Place end of center contact in tool as shown in Figure 3.

NOTE *Original production tools contain a locator. For these tools, butt END of contact against locator.*

3. Push in slightly on cable, and hold connector body in place while closing tool handles.

4. Close handles until ratchet releases and tool handles open. Remove crimped assembly from tool.

5. Slide collar over connector body.

6. Slide ferrule over braid, butting flange against connector body as shown in Figure 2, Detail C.

7. Place assembly in tool as shown in Figure 4. The cable should extend from the side of the tool with cable identification.

8. Close handles until ratchet releases to complete crimp.

9. The protruding center conductor should be trimmed flush with end of contact. Inspect crimp according to Paragraph 3.3.

3.2. For Hand Tool 220095–1

1. Open jaws by closing tool handles until ratchet on handles releases. Note that once ratchet is engaged, handles cannot be opened until fully closed.

2. Place center contact in tool, with end of contact against locator. See Figure 5.

3. Push in slightly on cable and hold connector body in place while closing tool handles.

4. Close handles until ratchet releases and tool handles open. Remove crimped assembly from tool.

5. Slide collar over connector body.

6. Slide ferrule over braid, butting flange against connector body as shown in Figure 2, Detail C.

7. Place assembly in tool as shown in Figure 6. The cable should extend from the side of the tool with cable identification.

8. Close handles until ratchet releases to complete crimp.

9. Inspect crimp according to Paragraph 3.3.

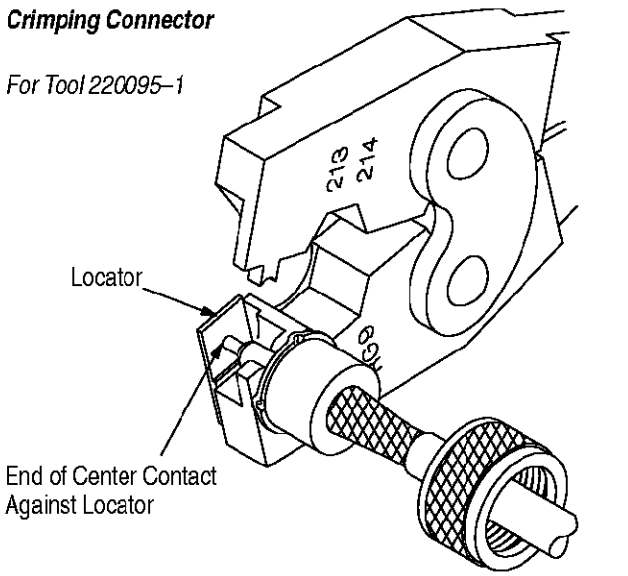


Figure 5

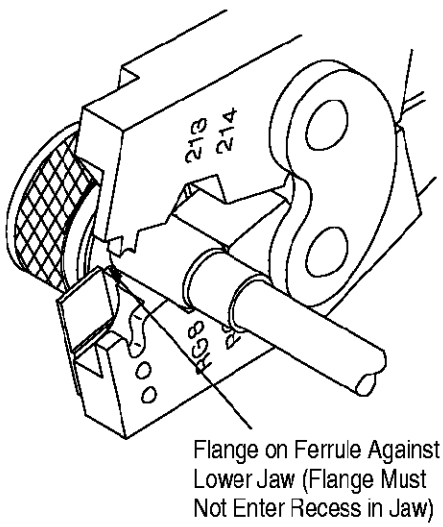


Figure 6

3.3. Crimp Inspection

Inspect crimped connectors by checking for the features described in Figure 7. Use only the connectors that meet conditions shown in the "ACCEPT" column. "REJECT" conditions can be avoided through careful use of instructions in Section 3, CRIMPING PROCEDURE, and by performing regular tool maintenance as instructed in Section 4, MAINTENANCE AND INSPECTION.

4. MAINTENANCE AND INSPECTION

It is recommended 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 from the plant; however, it is recommended that the tool be inspected immediately upon arrival at your facility to ensure that the tool has not been damaged during shipment.

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 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 jaws. Store the tool in a clean, dry area.

4.2. Lubrication

Lubricate all pins, pivot points, and bearing surfaces with SAE 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.

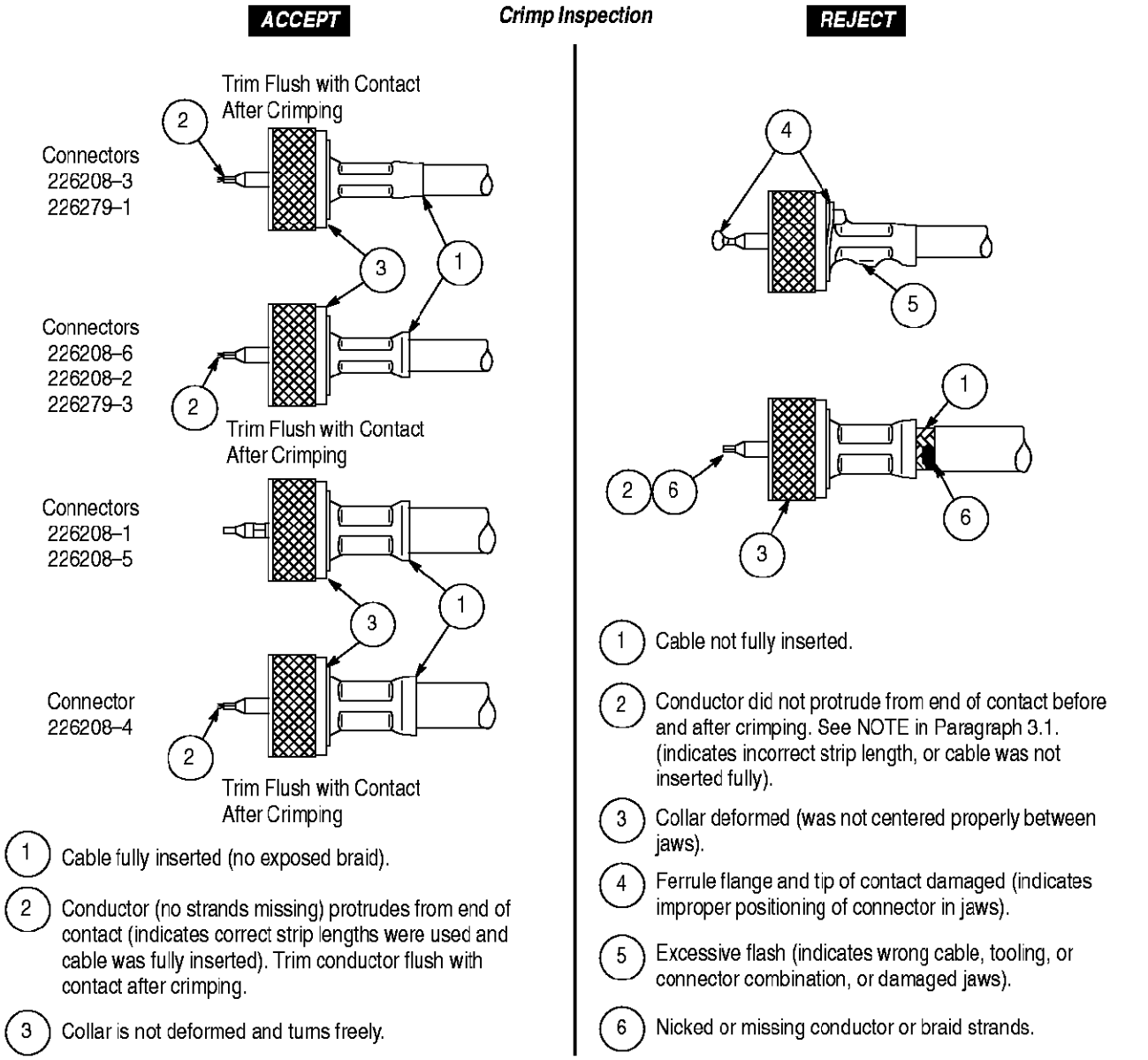


Figure 7

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 jaws. If damage is evident, see Section 5, REPLACEMENT AND REPAIR, for information on obtaining further evaluation and repair.

4.4. Gaging the Crimping Chamber

This inspection requires the use of plug gages conforming to the dimensions provided in Figures 8 and 9. AMP does not manufacture or market these gages. To gage the crimping chamber, proceed as follows:

A. Center Contact Crimping Chamber

1. Remove traces of oil or dirt from the crimping chamber 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 beyond initial contact.

3. With jaws bottomed, check the center contact crimping chamber using the proper plug gage. Hold

gage in straight alignment with the tool and carefully try to insert, without forcing, the GO element. The GO element must pass completely through the center contact crimping chamber, as shown in Figure 10, Detail A.

4. Try to insert the NO–GO element. The NO–GO element may enter partially, but must not pass completely through the length of the center contact crimping chamber.

B. Braid Crimping Chamber

1. Remove traces of oil or dirt from the crimping chamber 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 beyond initial contact.

3. With jaws bottomed, check the braid crimp crimping chamber using the proper plug gage. Hold gage in straight alignment with the tool and carefully try to insert, without forcing, the GO element. The GO element must pass completely through the crimping chamber, as shown in Figure 10, Detail B.

4. Try to insert the NO–GO element. The NO–GO element may enter partially, but must not pass completely through the crimping chamber.

If the crimping chambers conform to the gage inspection, the tool may be considered dimensionally correct and should be lubricated with a THIN coat of any good SAE 20 motor oil. If the crimping chambers do NOT conform to the gage inspection, refer to Section 5 for information on obtaining further evaluation and repair.

For additional information regarding the use of a plug gage, refer to instruction sheet 408–7424.

4.5. CERTI–CRIMP Ratchet Inspection

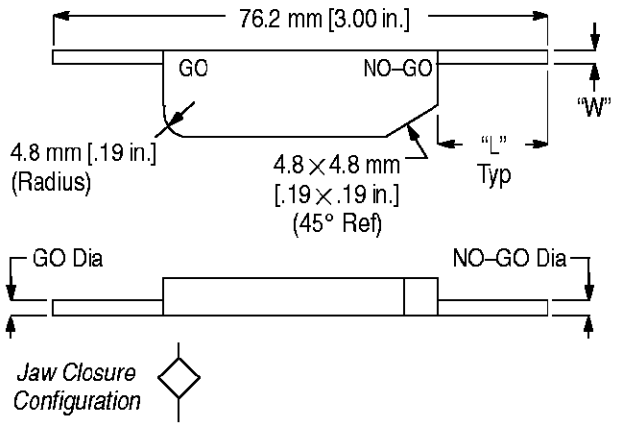
The CERTI–CRIMP ratchet feature on these hand tools should be checked to ensure that the ratchet does not release prematurely, allowing the jaws to open before they have fully bottomed. Obtain a 0.025–mm [.001–in.] shim that is suitable for checking the clearance between the bottoming surfaces of the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

1. Select a connector and *maximum* size wire for the tool.

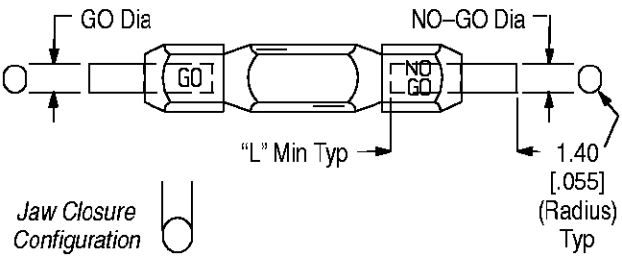
2. Position the connector and wire between the jaws, as described in Section 3, CRIMPING PROCEDURE.

Suggested Plug Gage Design for Center Contact Crimping Chamber

Tools 220094–1 and 220095–2



Tool 220095–1



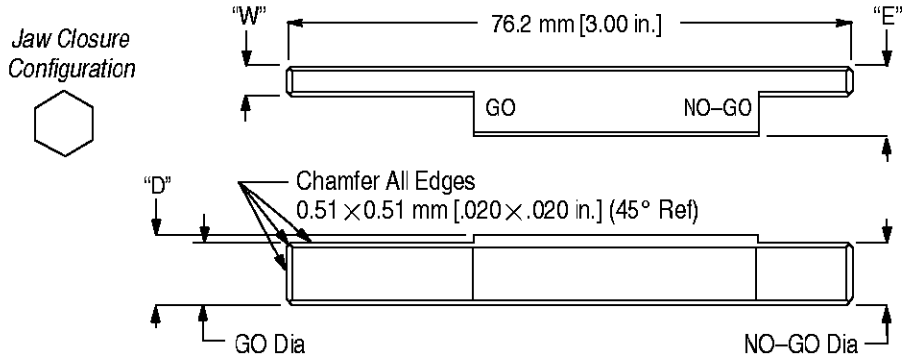
TOOL	GAGE ELEMENTS DIMENSIONS (mm [in.])		L (Length) (mm [in.])	W (Width) (mm [in.])
	GO	NO–GO		
220094–1	1.346–1.354 [.0530–.0533]	1.598–1.600 [.0629–.0630]	19.05 [.750]	1.17 [.046]
220095–1	2.819–2.827 [.1110–.1113]	2.969–2.972 [.1169–.1170]	2.54 [.100]	—
220095–2	1.702–1.709 [.0670–.0673]	1.953–1.956 [.0769–.0770]	19.05 [.750]	1.57 [.062]

Figure 8

3. Hold the wire in place and squeeze the handles until the 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 jaws. If the clearance 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.

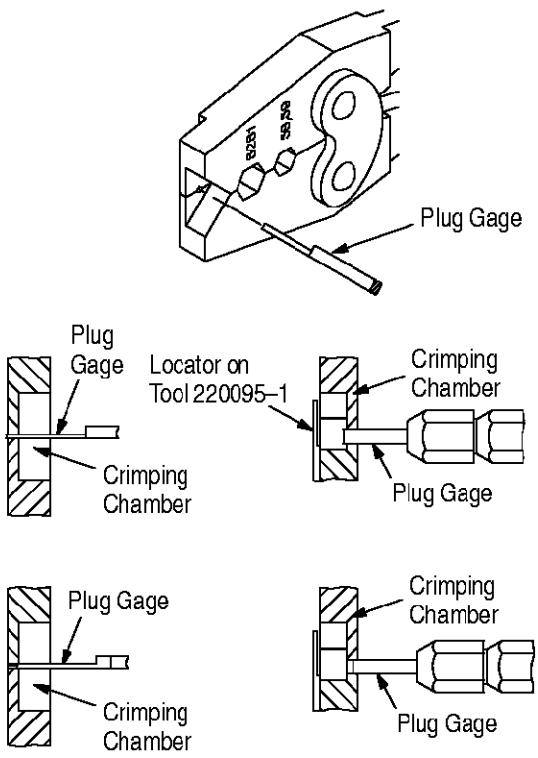
Suggested Plug Gage Design for Braid Crimping Chamber



TOOL	TOOL CRIMPING CHAMBER MARKING	GAGE ELEMENT DIMENSIONS (mm [in.])		W (Width) Max (mm [in.])	D (mm [in.])	E (mm [in.])
		GO	NO–GO			
220094–1	58, 59	6.325–6.332 [.2490–.2493]	6.576–6.579 [.2589–.2590]	3.18 [.125]	6.58+0.15/–0.00 [.259+.006/–.000]	6.73 [.265]
	8281	8.204–8.212 [.3230–.3233]	8.456–8.458 [.3329–.3330]	3.96 [.156]	8.46+0.25/–0.00 [.333+.010/–.000]	8.71 [.343]
220095–1	—	9.982–9.990 [.3930–.3933]	10.234–10.236 [.4029–.4030]	5.16 [.203]	10.24+0.08/–0.00 [.403+.003/–.000]	10.31 [.406]
220095–2						

Figure 9

Inspection of Center Contact Crimping Chamber

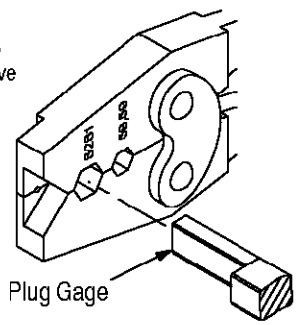


GO element must pass completely through the crimping chamber.

NO–GO element may enter partially, but must not pass completely through the crimping chamber.

Inspection of Braid Crimping Chamber

Tool 220094–1 shown. Tools 220095–1 and 220095–2 have one braid crimping chamber.



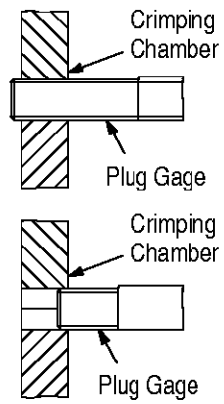


Figure 10

5. REPLACEMENT AND REPAIR

Customer–replaceable parts are listed in Figure 11. A complete inventory should be stocked and controlled to prevent lost time when replacement of parts is necessary. Parts other than those listed should be replaced to ensure quality and reliability. Order replacement parts through your representative, or call 1–800–526–5142, or send a facsimile of your purchase order to 717–986–7605, or write to:

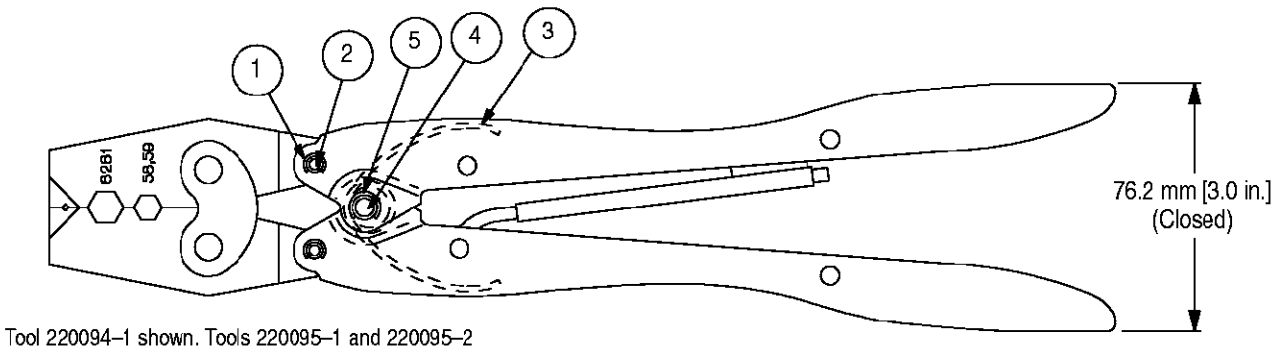
CUSTOMER SERVICE (038–035)
AMP INCORPORATED
PO BOX 3608
HARRISBURG PA 17105–3608

For customer repair service, please contact a representative at 1–800–526–5136.

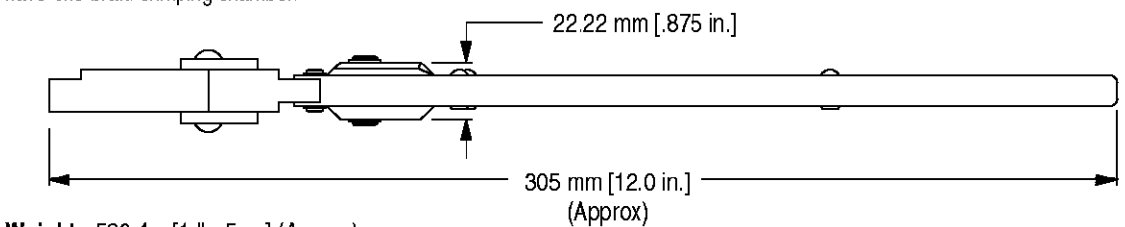
6. REVISION SUMMARY

Revisions to this instruction sheet per EC 0990–1421–99 include:

- Updated document to corporate requirements
- Replaced customer repair address with phone number



Tool 220094–1 shown. Tools 220095–1 and 220095–2 have one braid crimping chamber.



Weight: 582.4 g [1 lb, 5 oz] (Approx)

REPLACEMENT PARTS

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

Figure 11