

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.

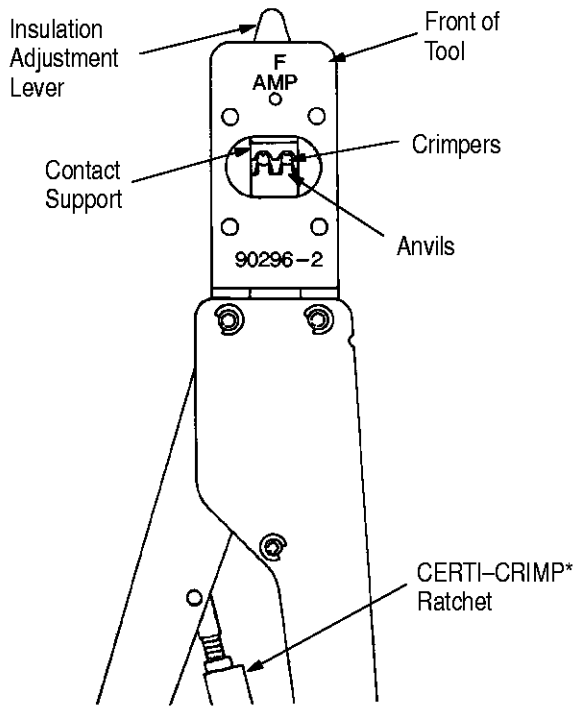


Figure 1

1. INTRODUCTION

This instruction sheet covers AMP* Hand Crimping Tool 90296-2 (Figure 1) which crimps AMP Universal MATE-N-LOK* and Universal MATE-N-LOK II loose-piece (LP) pin and socket contacts listed in Figure 2. Read these instructions thoroughly before starting.

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

NOTE

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

2. DESCRIPTION

The FRONT of the tool, into which the contact is inserted, has the tool number marked on it. The BACK of the tool (wire side), into which the wire is inserted, has the wire size marked above each crimp section.

The tool features two fixed dies (crimpers), two movable dies (anvils), an insulation crimp adjustment

lever, a contact support, a locator/insulation stop, and a CERTI-CRIMP ratchet. The insulation adjustment lever is used to regulate the crimp height of the contact insulation barrel. Refer to Paragraph 4.6.

The contact support prevents the contact from bending during the crimping operation. The locator/insulation stop has two functions: first, it positions the contact between the crimper and anvil before crimping; and, second, it limits the insertion distance of the stripped wire into the contact. In use, it rests in the locator slot of the contact (see Figures 2 and 3). The CERTI-CRIMP ratchet assures full crimping of the contact. Once engaged, the ratchet will not release until the handles have been FULLY closed.

CAUTION

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

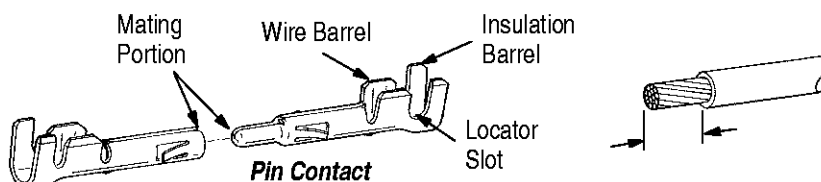
3. CRIMPING PROCEDURE

Refer to the table in Figure 2 and be sure that the wire of the specified size and insulation diameter is compatible with the contact. Strip the wire to the length indicated — do NOT cut or nick the wire strands. Identify the appropriate crimp section (according to the wire size marking on the BACK of the tool). Then proceed as follows:

1. Hold tool so BACK side (wire side) faces you. See Figure 3.
2. Ensure that tool ratchet is released by squeezing tool handles and allowing them to open FULLY.
3. Holding contact by its mating portion and looking straight into BACK of the crimp section, insert contact from the FRONT into BACK of appropriate crimp section. Position contact between crimpers so locator/insulation stop enters locator slot in contact. The wire barrel should butt against the locator/insulation stop.
4. Holding contact in this position, squeeze tool handles together until insulation barrel anvil starts entry into insulation crimper. Do NOT deform insulation barrel or wire barrel.

Socket Contact

Note: Not to Scale



WIRE		CONTACT PART NUMBER				CONTACT DESCRIPTION
SIZE (AWG)	INSUL DIA	PIN		SOCKET		
		STRIP	LP	STRIP	LP	
20 – 14	1.52 – 3.30 [.060 – .130]	350218–1	350547–1	350536–1	350550–1	Universal MATE–N–LOK Contacts
		350218–2	350547–2	350536–2	350550–2	
		350218–7	350547–7	350536–7	350550–7	
		350218–3	350547–3	350536–3	350550–3	
		350218–6	350547–6	350536–6	350550–6	
		350687–1	350705–1	—	—	Split Pin
		350687–2	350705–2	—	—	
		350687–7	350705–7	—	—	
		350654–1	350669–1	— —	— —	Grounding Pin
		770007–1	770250–1	770008–3	770251–3	Universal MATE–N–LOK II Contacts
		770007–2	770250–2	770008–4	770251–4	
		770193–1	770254–1	—	—	Universal MATE–N–LOK II Grounding Pin
770193–2	770254–2	—	—			

Figure 2

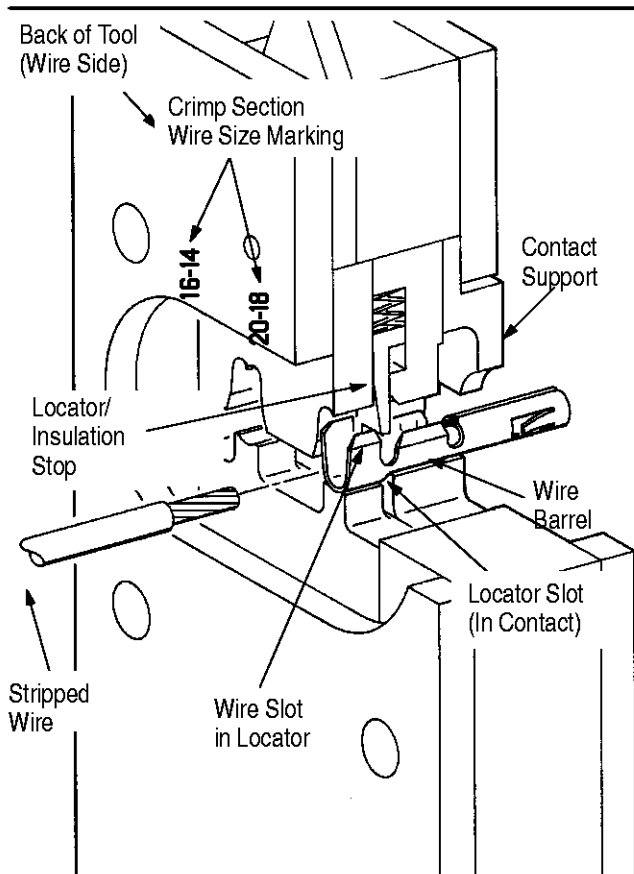


Figure 3

5. Insert a properly stripped wire through the wire slot in locator and into wire barrel of contact until insulation butts against the locator/insulation stop.

6. Holding wire in place, crimp contact to wire by squeezing tool handles together until ratchet releases.

7. Allow tool handles to open FULLY and remove crimped contact from tool.

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:

- The care, amount of use, and handling of the hand tool,
- The presence of abnormal amounts of dust and dirt,
- The degree of operator skill, and
- 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.

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 crimping dies. 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.

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. Crimp Height Inspection

This inspection requires the use of micrometer with a modified anvil as shown in Figure 4. AMP recommends use of Crimp Height Comparator RS-1019-5LP which can be purchased from:

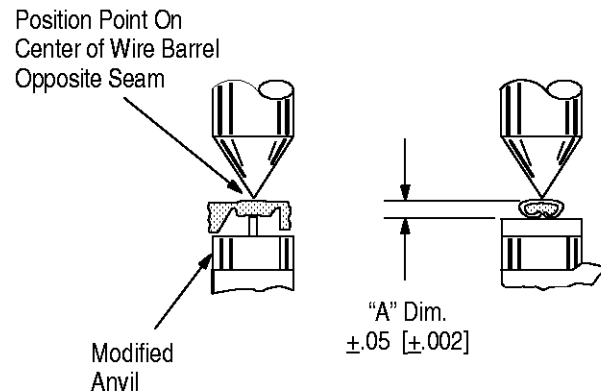
Shearer Industrial Supply Co. VALCO
20 North Penn Street or 1410 Stonewood Drive
York, PA 17401-1014 Bethlehem, PA 18017-3527

Proceed as follows:

1. Refer to the table in Figure 4 and select a contact and a wire (maximum size) for each crimp section listed in the chart.

2. Refer to Section 3, CRIMPING PROCEDURE, and crimp the contact(s) accordingly.

3. Using a crimp height comparator, measure wire barrel crimp height as shown in Figure 4. If the crimp height conforms to that shown in Figure 4, the tool is considered dimensionally correct. If the crimp height does *not* conform to the dimension above, return the tool to AMP for evaluation and repair (refer to Section 5, REPLACEMENT AND REPAIR).



CONTACT		WIRE SIZE AWG (Max)	CRIMP SECT (Wire Size Marking)	CRIMP HGT DIM. "A"
350547-1	350550-1	18	20-18	1.27 [.050]
350547-2	350550-2			
350547-7	350550-7			
350547-3	350550-3			
350547-6	350550-6			
350705-1	770251-3			
350705-2	770251-4	14	16-14	1.60 [.063]
350705-7	770250-1			
350669-1	770250-2			
770254-1	770254-2			

Figure 4

The insulation barrel crimp height is regulated by the insulation adjustment lever. To determine the proper setting, test crimp a contact using the setting which approximates the insulation size: (1) small, (2) medium, or (3) large. If the crimped insulation barrel is too tight or too loose, change the setting accordingly. The crimp should hold the insulation firmly without cutting into it.

For additional information concerning the use of the crimp height comparator, 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

dies 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 dies. Proceed as follows:

1. Select the maximum size wire and strip it according to dimensions listed in Figure 4.
2. Select contact and crimp section corresponding to the selected wire size (refer to Figure 4).
3. Position the contact and wire between the crimping dies, as described in Section 3, CRIMPING PROCEDURE.
4. Hold the wire 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 dies closed.
5. Check the clearance between the bottoming surfaces of the crimping dies. 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.

4.6. Insulation Crimp Adjustment

The insulation barrel crimp height is controlled by the insulation adjustment lever. To determine the proper setting, test crimp a contact using the setting which approximates the insulation size (1—small, 2—medium,

3—large). If the crimped insulation barrel is too tight or too loose, change the setting accordingly. The crimp should hold the insulation firmly without cutting into it.

5. REPLACEMENT AND REPAIR

Replacement parts are listed in Figure 5. Parts other than those listed in Figure 5 should be replaced by AMP to ensure quality and reliability of the tool. Order 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

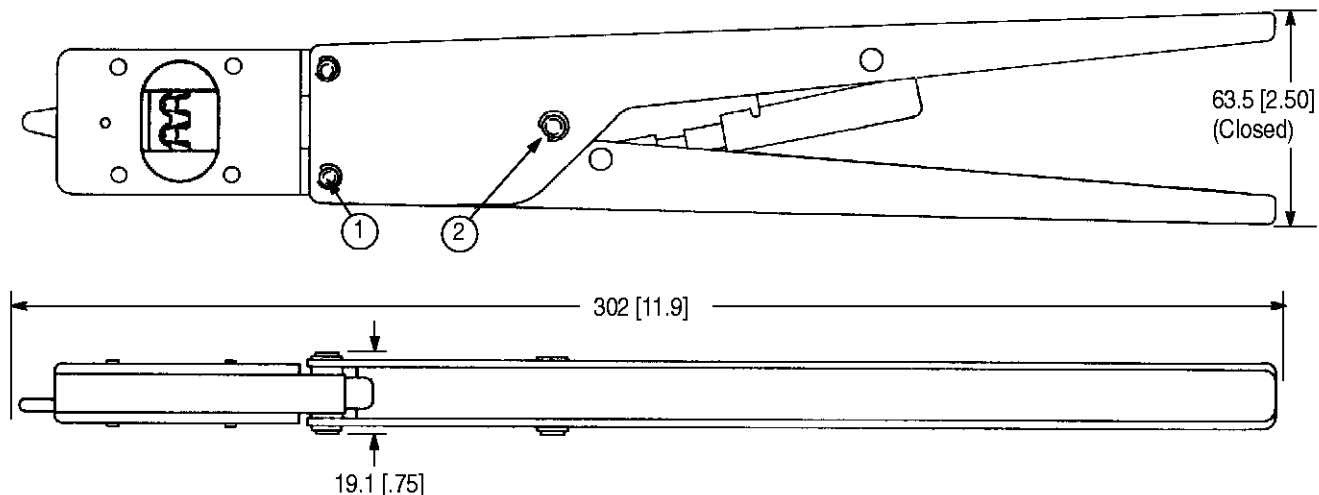
Tools may also be returned to AMP for evaluation and repair. For tool repair service, contact an AMP representative at: 1-800-526-5136.

6. REVISION SUMMARY

The following changes were made since the previous release of this sheet:

Per EC 0990-0771-99

- Changed tool repair service information in Section 5, REPLACEMENT AND REPAIR
- Updated document format



WEIGHT: Approx. 567 g [1 lb. 4 oz.]

ITEM	PART NUMBER	DESCRIPTION	QTY PER ASSY
1	21045-3	RING, Retaining	4
2	21045-9	RING, Retaining	2

Figure 5