

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.

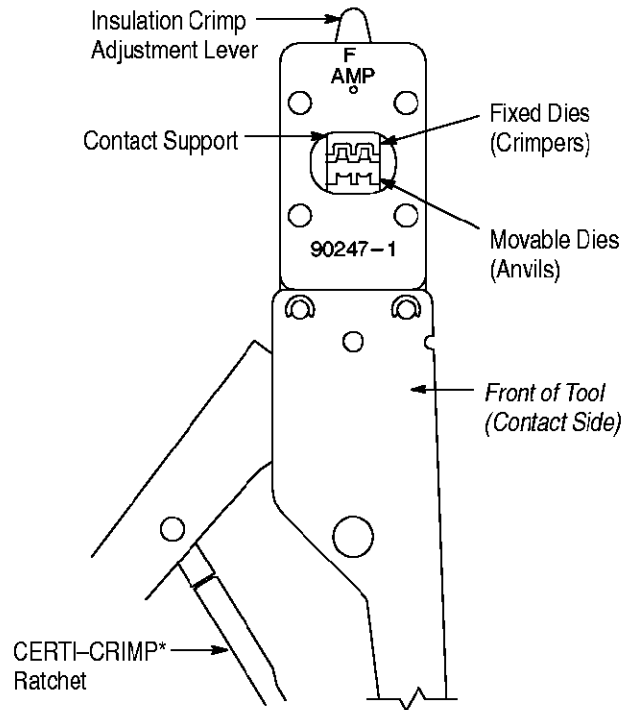


Figure 1

1. INTRODUCTION

AMP* Hand Crimping Tool 90247-1 (shown in Figure 1) is used to crimp MATE-N-LOK* .140 pin and socket contacts listed in Figure 1 onto wire sizes 20 through 14 AWG with an insulation diameter range of 2.54 through 4.56 mm [.100 through .180 in.]. Read these instructions thoroughly before using the tool.

NOTE

Dimensions in this instruction sheet are in millimeters [with inches in brackets]. Figures are not drawn to scale.

Reasons for reissue of this instruction sheet are provided in Section 7, REVISION SUMMARY.

2. DESCRIPTION

The tool features fixed dies (crimpers), movable dies (anvils), contact support, locator/insulation stop, insulation crimp adjustment lever, and CERTI-CRIMP ratchet. When mated, the dies form two crimping chambers.

The FRONT of the tool, into which the contact is inserted, has the tool number marked on it. The BACK of the tool, into which the wire is inserted, has the applicable wire size range marked above each crimping chamber.

The contact support prevents the contact from bending during the crimping operation. The insulation crimp adjustment lever is used to control the crimp height of the contact insulation barrel when crimped. The locator/wire stop positions the contact between the dies before crimping and limits the insertion distance of the stripped wire into the contact. In use, it rests in the locator slot of the contact.

The CERTI-CRIMP ratchet assures full crimping of the contact. Once engaged, the ratchet will not release until the handles have been FULLY closed.

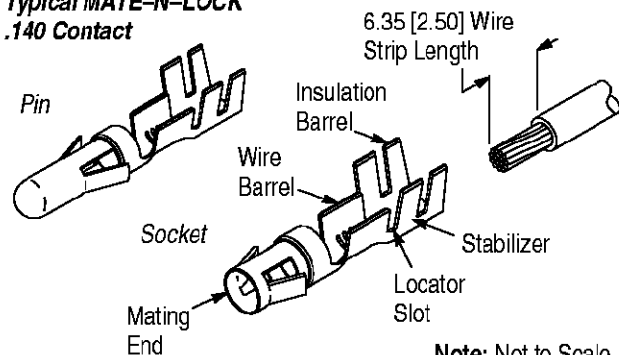
CAUTION

The dies 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

Make sure that the specified wire size and insulation diameter is compatible with the contact and tool. Strip the wire to the length indicated in Figure 2—do NOT cut or nick the wire strands.

Typical MATE-N-LOCK .140 Contact



Note: Not to Scale

WIRE		CONTACT		
SIZE (AWG)	INSUL DIA	TYPE	STRIP FORM	LOOSE PIECE
20-14	2.54-4.57 [.100-.180]	Pin	61627-[]	350389-[]
		Socket	61626-[]	350388-[]

Figure 2

NOTE

If using strip-form contact, the cutoff tabs **MUST** meet the dimension requirement stated in Application Specification 114-1007 or the customer drawing for the product.

Proceed as follows:

1. Hold tool so BACK of tool (wire side) is facing you.
2. Ensure that the tool ratchet is released by squeezing tool handles and allowing them to open FULLY.
3. Insert contact, mating end first, into the appropriate crimping chamber from the BACK of tool. Position contact between the dies so that the locator/insulation stop enters the contact locator slot. See Figure 3.

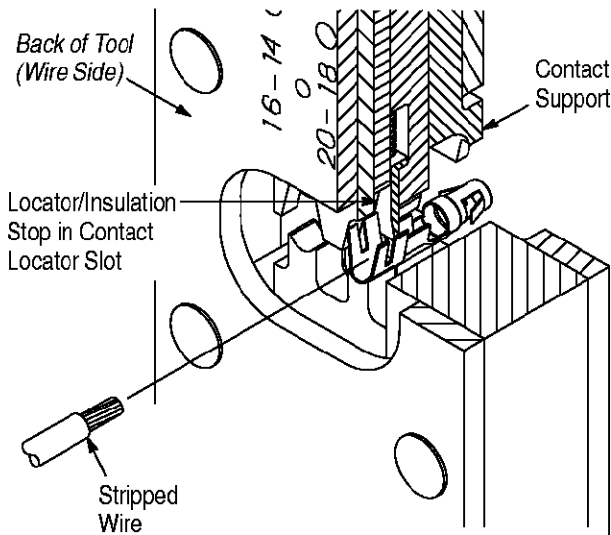
Crimping Contact

Figure 3

4. Holding the contact in position, squeeze the tool handles together until the dies close just enough to hold the contact in place. Do NOT deform contact wire barrel or insulation barrel.
5. Insert a properly stripped wire into the contact wire barrel until the wire insulation butts against the locator/insulation stop.
6. Holding the wire in place, squeeze the tool handles together until the ratchet releases. Allow tool handles to open FULLY.
7. Remove crimped contact from tool, and inspect the crimp according to Figure 4.

NOTE

For detailed crimp inspection requirements, refer to Application Specification 114-1007.

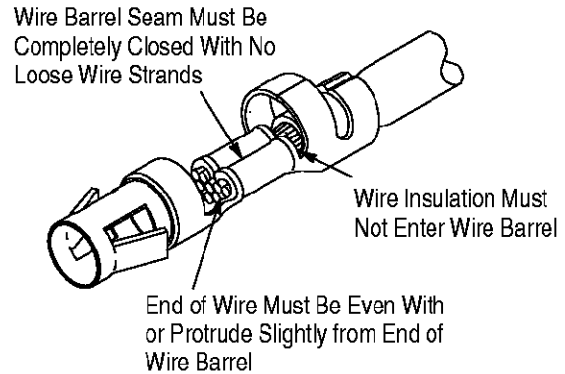
Crimp Inspection

Figure 4

4. INSULATION CRIMP ADJUSTMENT

The insulation barrel crimp height is regulated by the insulation crimp adjustment lever. To determine the proper setting, test crimp a contact using the setting which approximates the wire 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 wire insulation firmly without cutting into it.

5. MAINTENANCE AND INSPECTION

The tool is inspected before shipment. AMP recommends that the tool be inspected immediately upon arrival at your facility to ensure that the tool was not damaged during shipment.

5.1. Daily Maintenance

Remove all foreign particles with a clean, soft brush, or a clean, soft, lint-free cloth. Make sure the proper retaining pins are in place, and secured with the proper retaining rings. If foreign matter cannot be removed easily, or if the proper replacement parts are not available, refer to Section 6, REPLACEMENT AND REPAIR, for information on obtaining further evaluation and repair.

Make certain all pivot points and bearing surfaces are protected with a THIN coat of any good SAE 20 motor oil. Do NOT oil excessively. When tool is not in use, keep the handles closed to prevent objects from becoming lodged between the dies, and store the tool in a clean, dry area.

5.2. Periodic Inspection

Regular inspections should be performed by quality control personnel. A record of scheduled inspections should remain with the tool and/or be supplied to personnel responsible for the tool. Though recommendations call for at least one inspection a

month, the inspection frequency should be based on the amount of use, ambient working conditions, operator training and skill, and established company standards. These inspections should be performed in the following sequence:

A. Visual Inspection

1. Remove all lubrication and accumulated film by immersing the tool (handles partially closed) in a suitable commercial degreaser that will not affect paint or plastic material.
2. Make certain all retaining pins are in place and secured with retaining rings. If replacements are necessary, refer to parts listed in Section 6, REPLACEMENT AND REPAIR.

CAUTION

Do NOT remove the retaining pins as permanent damage to the tool may result.

3. Close the tool handles until the ratchet releases, then allow the tool handles to open freely. If handles do not open quickly and fully, the spring is defective and must be replaced (refer to Section 6, REPLACEMENT AND REPAIR).
4. Inspect the head assembly, with special emphasis on checking for worn, cracked, or broken dies. If damage to any part of the head assembly is evident, refer to Section 6 for information on obtaining customer repair service.

B. Crimp Height Inspection

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

Shearer Industrial Supply Co.
20 North Penn Street
York, PA 17401-1014

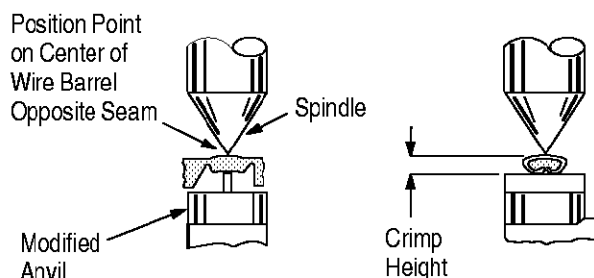
or

VALCO
1410 Stonewood Drive
Bethlehem, PA 18017-3527

Proceed as follows:

1. Select a contact and *maximum* size wire for the crimping chamber.
2. Refer to Section 3, CRIMPING PROCEDURE, and crimp the contact accordingly.
3. Using a crimp height comparator, measure wire barrel crimp height as shown in Figure 5. If the crimp height conforms to that shown, the tool is considered dimensionally correct. If not, refer to Section 6 for information on obtaining evaluation and repair.

For additional information concerning the use of the crimp height comparator, refer to 408-7424.



WIRE SIZE (AWG) (Max)	CRIMP HEIGHT DIMENSION (± 0.08 [$\pm .003$])
18	1.40 [.055]
14	1.68 [.066]

Figure 5

C. CERTI-CRIMP Ratchet Inspection

Obtain a 0.0254 [.001] shim that is suitable for checking the clearance between the bottoming surfaces of the crimping dies. Proceed as follows:

1. Select a contact and *maximum* size wire for the tool.
2. Position the contact and wire between the dies, according to Section 3, CRIMPING PROCEDURE. Holding the wire in place, squeeze the tool handles together until the ratchet releases. Hold the tool handles in this position, maintaining just enough pressure to keep the dies closed.
3. Check the clearance between the bottoming surfaces of the dies. If the clearance is 0.0254 [.001] or less, the ratchet is satisfactory. If clearance exceeds 0.0254 [.001] the ratchet is out of adjustment and must be repaired (see Section 6, REPLACEMENT AND REPAIR).

If the tool conforms to these inspection procedures, lubricate it with a THIN coat of any good SAE 20 motor oil and return it to service.

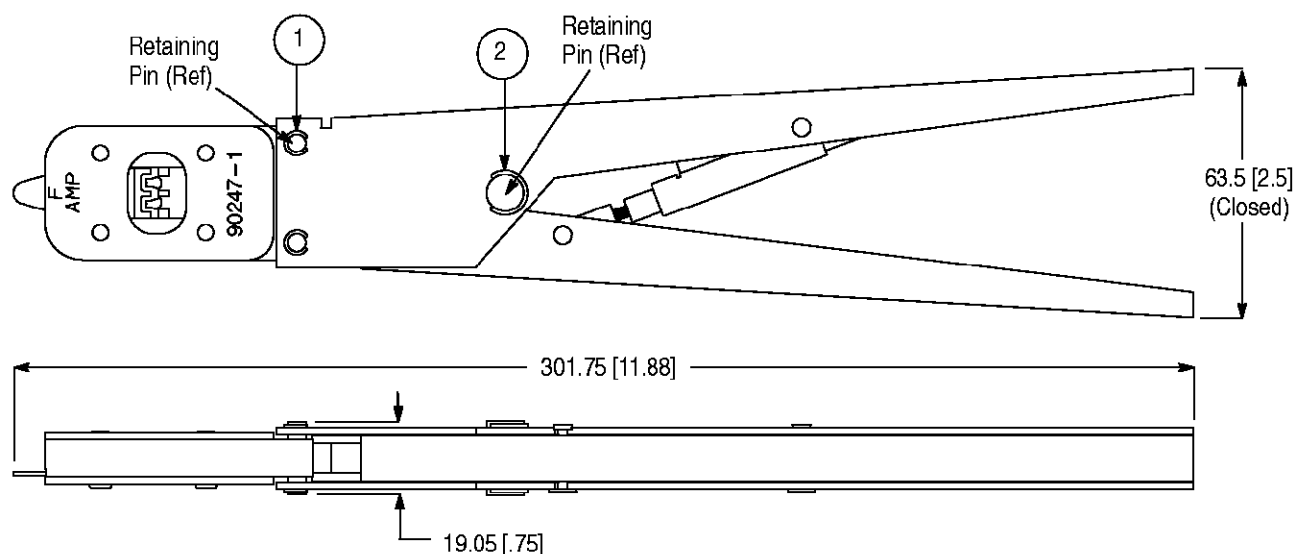
6. REPLACEMENT AND REPAIR

Customer-replaceable parts are listed in Figure 6. 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 by AMP to ensure quality and reliability. Order replacement parts through your AMP 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 an AMP representative at 1-800-526-5136.

CAUTION: Do NOT remove retaining pins as permanent damage to the tool may result.



Weight: 509 g [1 lb, 4 oz]

REPLACEMENT PARTS

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

Figure 6

7. REVISION SUMMARY

Revisions to this instruction sheet per EC 0990-1202-99 include:

- Updated document to corporate requirements
- Changed title of document
- Added NOTE to Section 3
- Added Figure 4
- Changed York Machinery to Shearer Industrial in Paragraph 5.2, B
- Removed replacement parts kit from Figure 5
- Changed quantity per kit to quantity per tool in Figure 5
- Replaced customer repair address with phone number