



**Hand Crimping Tool 90381-1**

**PROPER USE GUIDELINES**

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

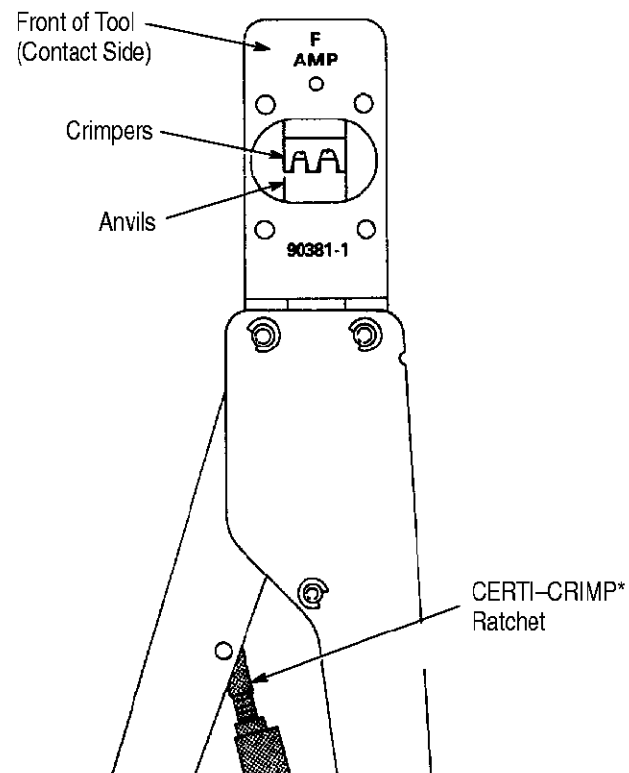


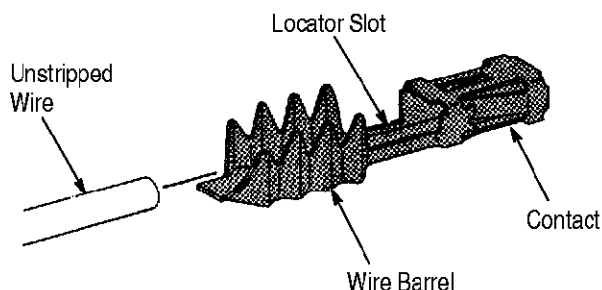
Figure 1

The tool features two fixed dies (crimpers), two movable dies (anvils), a locator/wire stop, and a CERTI-CRIMP ratchet.

The locator/wire stop serves two functions: first, it positions the contact between the crimping dies; and second, it aids in locating the wire in the contact. In use, it rests in the contact locator slot. See Figures 2 and 3.

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

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



**1. INTRODUCTION**

AMP\* Hand Crimping Tool 90381-1 is designed to crimp the AMPMODU\* MOD IV Insulation Piercing Crimp Contacts listed in Figure 2. Read these instructions thoroughly before using the hand tool.

**NOTE** *Measurements are in millimeters [followed by inch equivalents in brackets]. Figures and illustrations are for identification only and are not drawn to scale.*

Reasons for reissue are in Section 6, REVISION SUMMARY.

**2. DESCRIPTION**

The front of the tool (contact side), 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 an insulation diameter marking above each crimp section.

WIRE INSULATION DIAMETER	CONTACT PART NUMBER		CRIMP SECT (Insul Dia. Marking)
	LP	STRIP	
1.02 [.040]	102348-1	87107-2	.040
	102348-2	87107-5	
	102348-3	87107-6	
	102349-1	87770-3	
	102169-3	102169-1	
	102169-7	102169-5	
	1-102169-0	102169-8	
	1.40 [.055]	102348-1	
102348-2		87107-5	
102348-3		87107-6	
102349-1		87770-3	
102169-3		102169-1	
102169-7		102169-5	
1-102169-0		102169-8	

Figure 2

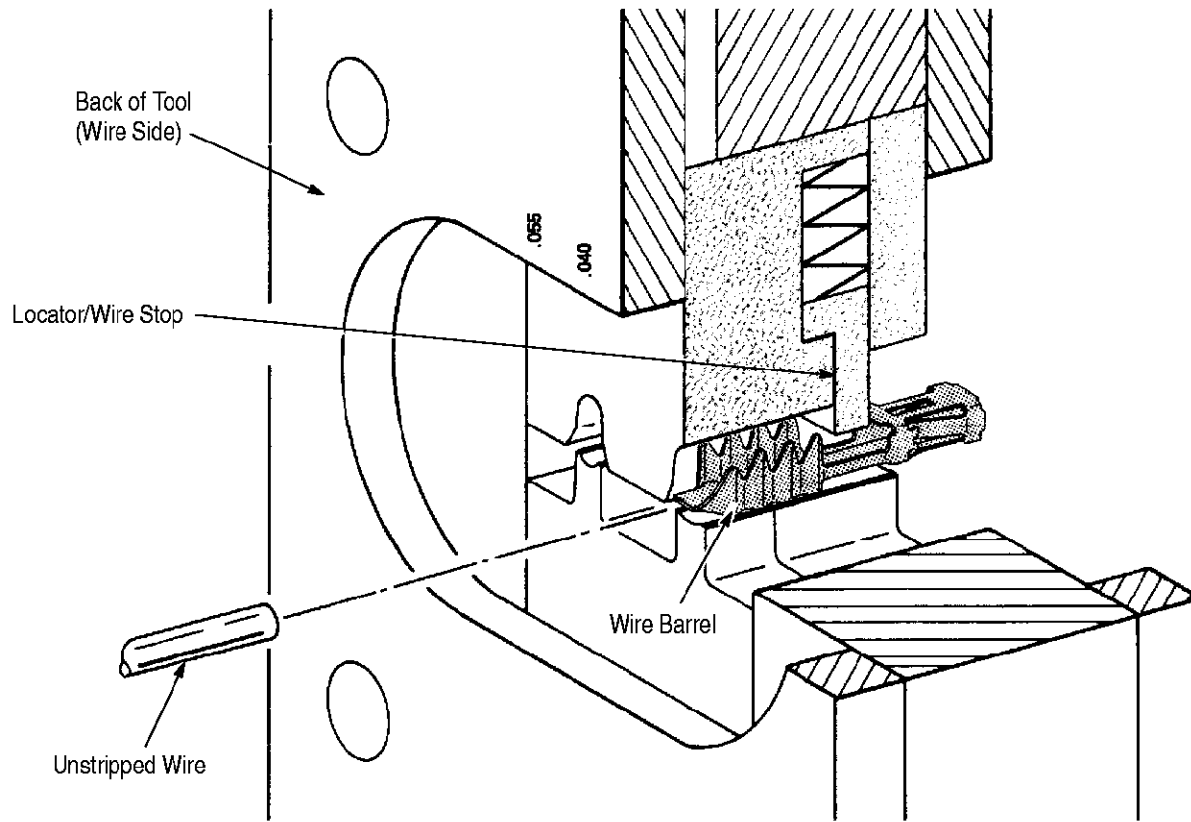


Figure 3

### 3. CRIMPING PROCEDURE

Refer to Figure 2 and select wire of the specified insulation diameter.

Select an applicable loose-piece contact and identify the appropriate crimp section (according to the specified insulation diameter marking on the back of the tool).

Refer to Figure 3 and proceed as follows:

1. Hold tool so that the back side (wire side) is facing you.
2. Make certain that the ratchet is released by squeezing the tool handles and allowing them to open fully.
3. Looking straight into the back of the appropriate crimp section, insert contact (wire barrel first) into the front of the crimp section. Position contact in crimpers so the locator enters the locator slot in the contact.
4. Holding the contact in this position, squeeze tool handles together until wire anvil starts entry into the wire crimper.

#### CAUTION

*Squeezing the handles together too much will deform the insulation barrel or wire barrel.*

5. Insert the wire into wire barrel of the contact until insulation butts against the locator/wire stop.

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

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

### 4. MAINTENANCE AND INSPECTION PROCEDURE

It is recommended that a maintenance and inspection program be performed periodically to ensure dependable and uniform terminations. Though recommendations call for at least one inspection a month, 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, it is recommended that the tool be inspected immediately upon arrival to ensure that the tool has not been damaged during shipment.

**4.1. Daily Maintenance**

1. Hand tool should be immersed (handles partially closed) in a reliable commercial degreasing compound to remove accumulated dirt, grease, and foreign matter. When degreasing compound is not available, tool may be wiped clean with a soft, lint-free cloth. Do NOT use hard or abrasive 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. Periodic Inspection**

**A. Lubrication**

Lubricate all pins, pivot points, and bearing surfaces with SAE 20 motor oil as follows:

- Tool used in daily production – lubricate daily
- Tool used daily (occasional) – lubricate weekly
- Tool 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.

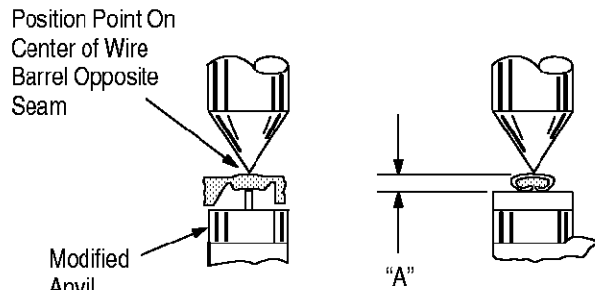
**B. Visual Inspection**

1. 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.
2. Inspect head assembly for worn, cracked, or broken dies. If damage is evident, return the tool for evaluation and repair. See Section 5, REPLACEMENT AND REPAIR.

**C. Crimp Height Inspection**

This inspection requires the use of a modified micrometer with a modified anvil and spindle, as shown in Figure 4. A recommendation is the 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



CONTACT NUMBER	INSUL DIA.	CRIMP SECT (Insul Dia. Marking)	CRIMP HEIGHT DIMENSION "A"
102348-1 102169-3	1.02 [.040]	.040	1.17 ± 0.05 [.046 ± .002]
102348-2 102169-7			
102348-3 1-102169-0			
102349-1			
102348-1 102169-3	1.40 [.055]	.055	1.27 ± 0.05 [.050 ± .002]
102348-2 102169-7			
102348-3 1-102169-0			
102349-1			

Figure 4

Proceed as follows:

1. Refer to the table in Figure 2 and select a contact and a wire (maximum size) for each crimp section listed in the table.
2. Refer to Section 3, CRIMPING PROCEDURE, and crimp the contact(s) accordingly.
3. Using a crimp height comparator, measure the wire barrel crimp height as shown in Figure 4. If the crimp height conforms to that height, the tool is considered dimensionally correct. If not, the tool must be returned for evaluation and repair. See Section 5, REPLACEMENT AND REPAIR.

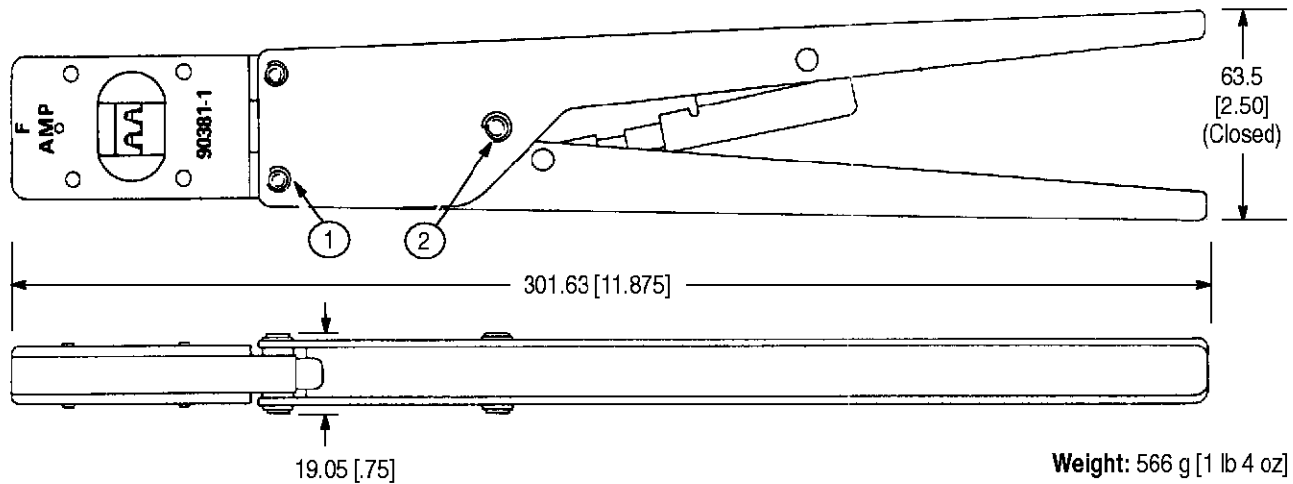
For additional information concerning the use of the crimp height comparator, refer to instruction sheet 408-7424.

**D. CERTI-CRIMP Ratchet Inspection**

The CERTI-CRIMP ratchet feature on the hand tools should be checked to ensure that the ratchet does not release prematurely, allowing the dies to open before they have fully bottomed. Obtain a 0.025 [.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 wire (maximum size) for the tool. See Figure 2.
2. Position the contact and wire between the crimping dies, as described in Section 3, CRIMPING PROCEDURE.

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



**REPLACEMENT PARTS**

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

Figure 5

3. 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.

4. Check the clearance between the bottoming surfaces of the crimping dies. If the clearance is 0.025 [.001] or less, the ratchet is satisfactory. If clearance exceeds 0.025 [.001], 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 5. Parts other than those listed in Figure 5 should be replaced by Tyco to ensure quality and reliability of the tool. Order replacement parts through your 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)  
 TYCO ELECTRONICS CORPORATION  
 P.O. BOX 3608  
 HARRISBURG, PA 17105-3608

For tool repair service, please contact a representative at 1-800-526-5136.

**6. REVISION SUMMARY**

Since the previous release of this sheet, the following changes were made:

Per EC 0990-0032-00

- Updated document to corporate requirements
- Changed document title
- Changed tool repair service information in Section 5, REPLACEMENT AND REPAIR