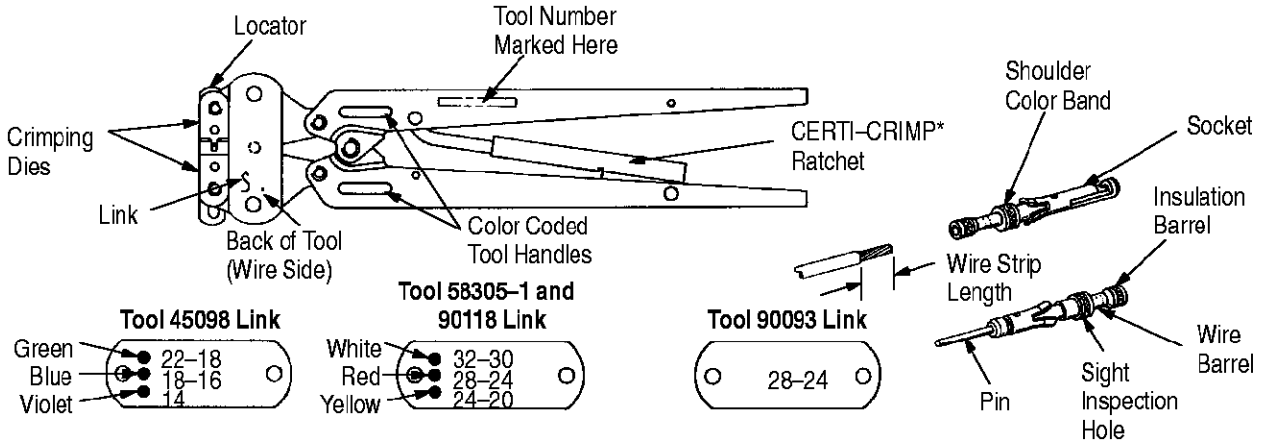
Hand Crimping Tools
45098, 58305–1, 90093, and 90118

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.



WIRE		CONTACT				TOOL		WIRE
SIZE (AWG)	INSULATION DIAMETER	PART NUMBER		COLOR BAND		PART NUMBER	HANDLE COLOR	STRIP LENGTH
		PIN	SOCKET	BBL	SHLDR			
32 to 30	.030 to .048	201625	—	Wht	Red	58305–1 or 90118†	Red	5.16 mm [.203 in.]
32 to 30	.030 to .048	201555	201554					
28 to 24	.035 to .055	201607	201609	Red				
	.048 to .065	201354	—					
	.035 to .055	201649	201613					
		201611						
	.048 to .065	201334	201332					
	.095 to .110	202410	202411	—	Grn	90093	Grn	
24 to 20	.040 to .062	201582	201584	Yel	Red	58305–1 or 90118†	Red	
		201647	201580					
		201578						
	.055 to .085	200334	200331					
		200679	201328					
		201330						
		204188						
22 to 18	No. Insul Bbl	—	201751	Grn	Blu	45098	Blu	6.35 mm [.250 in.]
(2) 18	No. Insul Bbl	202725	202726	—				
18 to 16	No. Insul Bbl	201591	201589	Blu				
		200335	200333					
		200681						
		200336						
		204274						
		204219	—					
14	No. Insul Bbl	201645	201568	Vio				
		201570						
		206029						

† Hand Tool 90118 does not crimp contact insulation barrel.

Figure 1

1. INTRODUCTION

The hand tools listed on this instruction sheet are designed for crimping the AMP* Type II loose–piece pin and socket contacts listed in Figure 1. Read these instructions thoroughly before crimping any contacts.

NOTE *Dimensions on this sheet are in metric units [with U.S. customary units in brackets].*

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

2. DESCRIPTION (Figure 1)

The BACK of the tool (wire side), into which the wire is inserted, has the applicable wire size and color code dots marked on the link. The tool number is marked on the tool handle.

Each tool features two crimping dies (crimpers and anvils), a contact locator, color–coded tool handles, and a CERTI–CRIMP ratchet. The contact locator positions the contact between the crimping dies. The color–coding on the tool handles matches the color band on the applicable contact shoulder. The CERTI–CRIMP ratchet assures 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.*

Two color bands appear on most contacts. The shoulder color band identifies the applicable hand tool by matching the color–coding on the handles. The insulation barrel or wire barrel color band designates the applicable wire size and matches the color code dot on the link of the hand tool.

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 dies, before using the tool.*

Refer to the table in Figure 1 and check the selected wire (solid or stranded), contact, and crimping tool for compatibility.

Wire size and insulation diameter must be within the specified range for the contact. Strip the wire to the length indicated, taking care not to nick or cut the wire strands or conductor.

Refer to Figure 2 and proceed as follows:

1. Hold the tool so that the BACK (wire side) is facing you.

2. Make sure that the CERTI–CRIMP ratchet is released by squeezing the tool handles together and allowing them to open FULLY.

3. Slide contact into slot in locator until it bottoms. Push forward until contact shoulder butts against locator.

4. Hold the contact in this position and squeeze tool handles together just enough to have crimping dies hold the contact in place. Do NOT deform insulation barrel or wire barrel of contact.

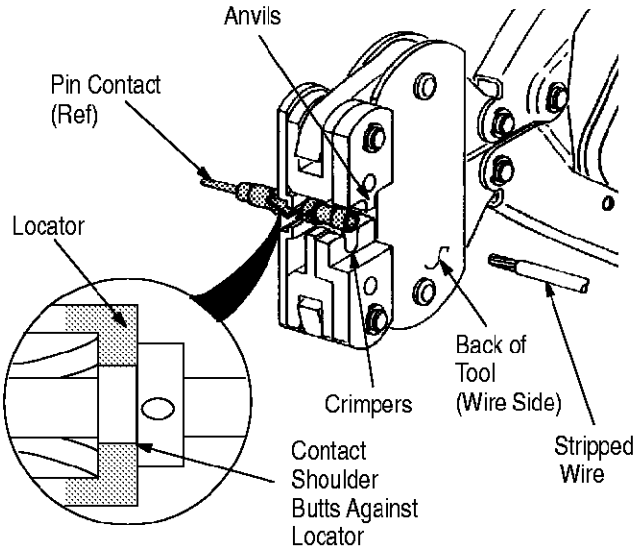


Figure 2

5. Insert a properly stripped wire into the contact wire barrel until it bottoms.

6. Holding the wire in place, squeeze the tool handles together until the CERTI–CRIMP ratchet releases.

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

8. Inspect crimped contact to be sure that wire is visible inside the sight inspection hole of the contact.

4. MAINTENANCE/INSPECTION

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.

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. Gaging the Crimping Chamber

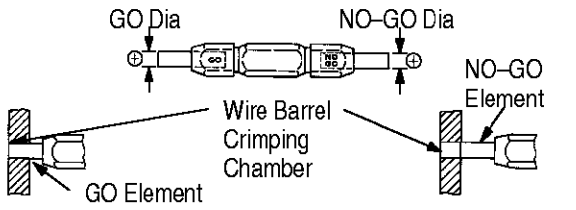
This inspection requires the use of a plug gage conforming to the dimensions provided in Figure 3. AMP does not manufacture or market these gages. To gage the crimping chambers, proceed as follows:

1. Close the tool handles until it is evident that the dies have bottomed, then hold them in this position. Do NOT force the dies beyond the point of initial contact.

2. Align the GO element with the wire barrel crimping chamber. Push element straight into the crimping chamber without using force. The GO element must pass completely through the crimping chamber, as shown in Figure 3.

3. Align the NO–GO element and try to insert it straight into the same crimping chamber. The NO–GO element may start entry, but must not pass completely through the crimping chamber. See Figure 3.

Suggested Plug Gage Design



WIRE SIZE (Max)	CONTACT NUMBER		HAND TOOL	ELEMENT DIA	
				GO	NO–GO
24	202410	202411	90093	0.99 [.039]	1.09 [.043]
20	201582 200334 201647 201578 200679 204188	201584 200331 201580 201328 201330	58305–1 or 90118		
14	201645 201570	201568 206029	45098	1.49 [.0585]	1.61 [.0635]

Figure 3

If the crimping chambers conform to the gage inspection, the crimping chambers are considered dimensionally correct, and should be lubricated with a THIN coat of any good SAE 20 motor oil. If not, 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 instruction sheet 408–7424.

4.5. CERTI–CRIMP Ratchet Inspection

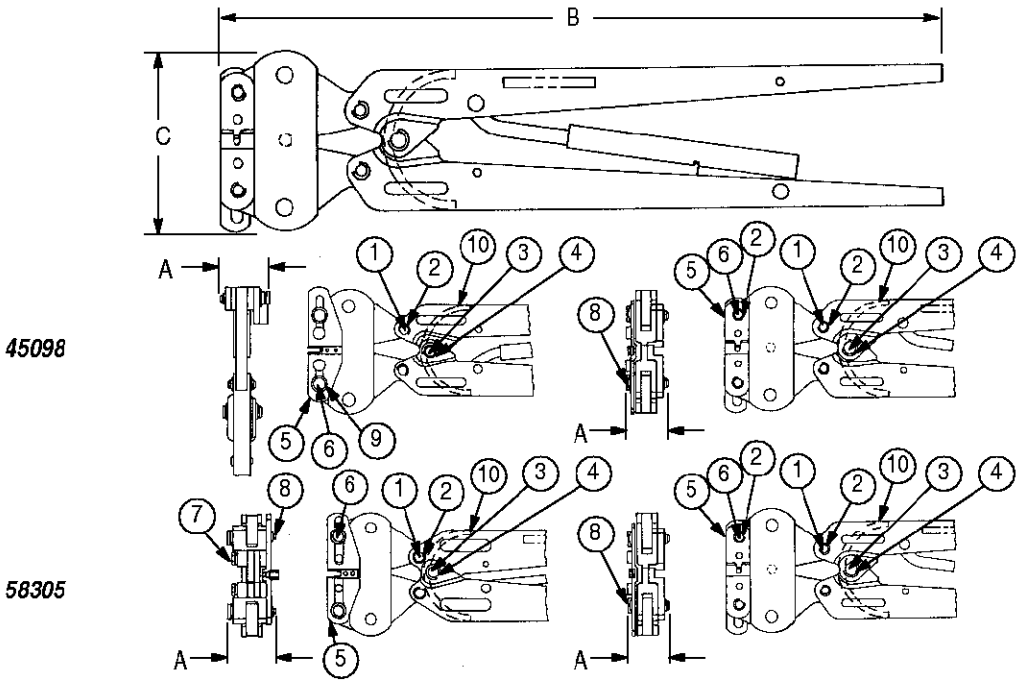
The CERTI–CRIMP ratchet feature on AMP hand tools should be checked to ensure that the ratchet does not release prematurely, allowing the dies to open before they have fully bottomed. Obtain a 0.025–mm [.001–in.] shim that is suitable for checking the clearance between the bottoming surfaces of the crimping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

1. Refer to Figure 3 and select a contact and **maximum** size wire for the tool.

2. Position the contact and wire between the crimping dies, as described in Section 3, CRIMPING PROCEDURE.

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 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.



DIMENSIONS (Approx.)								CUSTOMER REPLACEABLE PARTS						
								PART NUMBER						
TOOL NO. 45098		TOOL NO. 58305–1		TOOL NO. 90093		TOOL NO. 90118		ITEM	TOOL NO. 45098	TOOL NO. 58305–1	TOOL NO. 90093	TOOL NO. 90118	DESCRIPTION	QTY PER ASSY
A	31.8 [1.25]	A	28.58 [1.125]	A	25.4 [1.00]	A	25.4 [1.00]	1	8–59558–2	8–59558–2	8–59558–2	8–59558–2	PIN, Retaining	2
								2	21045–3	21045–3	21045–3	21045–3	RING, Retaining	6
								3	2–23620–9	2–23620–9	2–23620–9	2–23620–9	PIN, Retaining	1
B	247.6 [9.75]	B	247.6 [9.75]	B	247.6 [9.75]	B	247.6 [9.75]	4	21045–6	21045–6	21045–6	21045–6	RING, Retaining	2
								5	305809–3	305809–3	125321–1	125321–1	LOCATOR	1
								6	304197	304197–8	304197–8	304197–8	PIN, Retaining	2
C	63.5 [2.50]	C	63.5 [2.50]	C	63.5 [2.50]	C	63.5 [2.50]	7	—	1–21018–2	—	—	NUT, Hex	2
								8	—	24088–7	23911–7	23911–7	DISC, Spring	2●
WEIGHT (All Tools – Approx.)								9	24088–8	—	—	—	WASHER, Curved	2
679 g [1 lb 8 oz.]								10	39364	39364	39364	39364	Spring	1

●Quantity required for 24088–7 is 4

Figure 4

5. REPLACEMENT AND REPAIR

Replacement parts are listed in Figure 4. Parts other than those listed in Figure 4 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

For tool repair service, please contact an AMP representative at 1–800–526–5136.

6. REVISION SUMMARY

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

Per EC 0990–0816–99

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