

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.

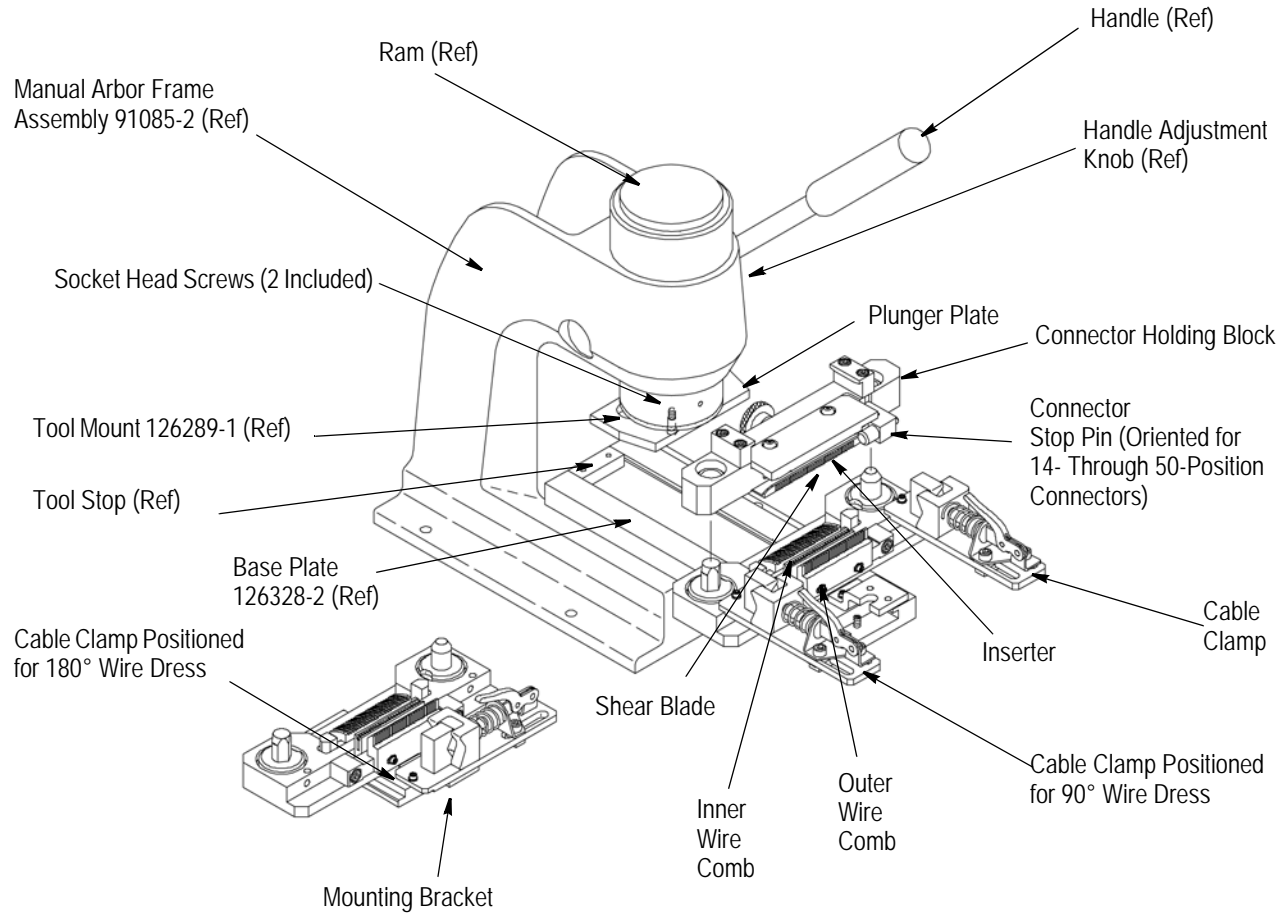
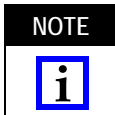


Figure 1

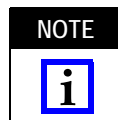
1. INTRODUCTION

CHAMP Connector Applicator 231593-[] is designed to terminate discrete wire cables to CHAMP cable connectors. The applicator is used with Manual Arbor Frame Assembly 91085-2.

Termination is made using the insulation displacement technique of inserting unstripped wire between two contact beams to displace the insulation and produce a reliable electrical path between the conductor and the contact.



The applicator can be ordered separately or combined with the manual arbor frame assembly as a unit. Refer to the table in Figure 7.



All dimensions on this sheet are in millimeters [with inch equivalents in brackets]. Figures and illustrations are for identification only and are not drawn to scale.

Reasons for reissue of this sheet are provided in Section 10, REVISION SUMMARY.

2. DESCRIPTION

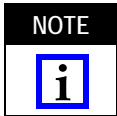
The tooling assembly features both a 90° and a 180° wire dress option. The tooling will accept connector sizes with 14, 24, 36, and 50 positions, and by using the conversion kit included with the tooling, the 64-position connector size will also be accepted.

The upper tooling includes a plunger plate that is attached to the tool mount with two socket head cap screws. The lower tooling slides into the base plate

and features two cable clamps, an inserter, an outer comb, a removable connector-holding block, and a shear blade.

The upper tooling applies even pressure on the housing assembly. The lower tooling maintains alignment of the wires and housing assembly. The inserter pushes the conductors into the contacts and the shear blade trims the wire ends during termination.

3. SETUP PROCEDURES (Figure 1)



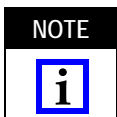
The tooling assembly is compatible with connectors ranging between 14 and 50 positions. To terminate a 64-position connector, install the conversion kit, packaged with the tooling assembly, according to Section 8, TOOL CONVERSION.

Once the connector size to be terminated and the wire dress option have been determined, proceed as follows:

1. For the 90° wire dress option, install cable clamps on the left and right side of the lower tooling. For the 180° wire dress option, install the mounting bracket and one cable clamp in the center of the lower tooling.
2. Secure the upper tooling to the tool mount and install the lower tooling in the base plate.
3. Loosen the handle adjustment knob, adjust the handle to a convenient position, and tighten the adjustment knob.
4. Slide the lower tooling away from the frame.
5. Remove the connector-holding block from the lower tooling.

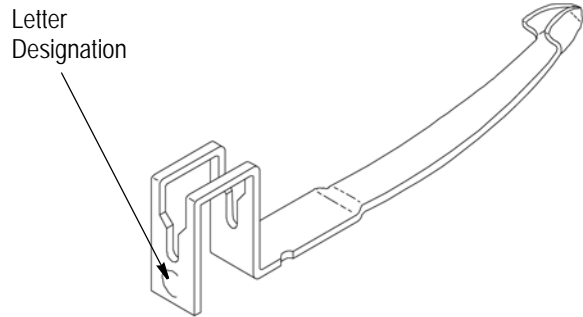
4. CABLE PREPARATION

Contacts are designed to accept specific solid or stranded wire sizes. Refer to the table in Figure 2 for the appropriate wire sizes according to the letter designation stamped on the contact's termination section.



The following procedure has been prepared for standard color-coded wires. The same method of operation will apply for non-standard color-coded wires, but the wire groups MUST be defined in some other way.

1. If the cable is jacketed, remove approximately 200 [8.000] of the cable jacket. Do NOT cut the insulation of the individual wires.
2. Separate the wires into color groups (predominantly white in one group, predominantly red in one group, etc).
3. Wrap a piece of wire around each group to keep the groups separated.



INSULATION	WIRE SIZE (AWG)		LETTER DES
	SOLID	7 STRAND	
1.14 [.045]	22	22	C
	24 to 26	24	B
	--	26-27-28	E

Figure 2

5. INSTALLING WIRES

Make sure that the connector and wire to be laced are compatible. Refer to Figure 3 and proceed as follows:

1. Install the cable.

For a 90° wire dress, open the RIGHT cable clamp and insert the cable so that the cable jacket extends within 6.35 [.250] of the outer wire comb. Close the cable clamp.

For a 180° wire dress, open the cable clamp and insert the cable so that the cable jacket extends within 12.7 [.500] of the outer wire comb. Close the cable clamp.

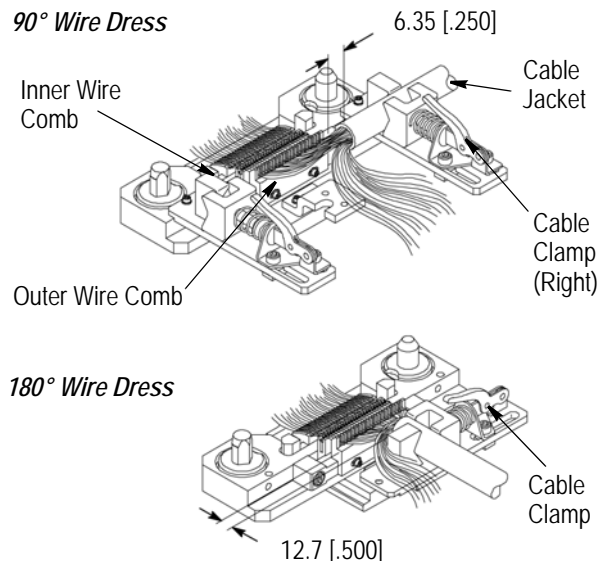


Figure 3

2. Separate the wires into two groups -- one group for each side of the housing assembly.
3. Lace each wire into the appropriate outer wire comb and secure each wire by pulling the wire downward into the corresponding position in the inner wire comb. While keeping the wire taut, bend the wire under the inner comb.

6. TERMINATION PROCEDURES

Refer to Figure 4 and terminate the connector as follows:

1. Loosen the thumbscrew in the connector-holding block.

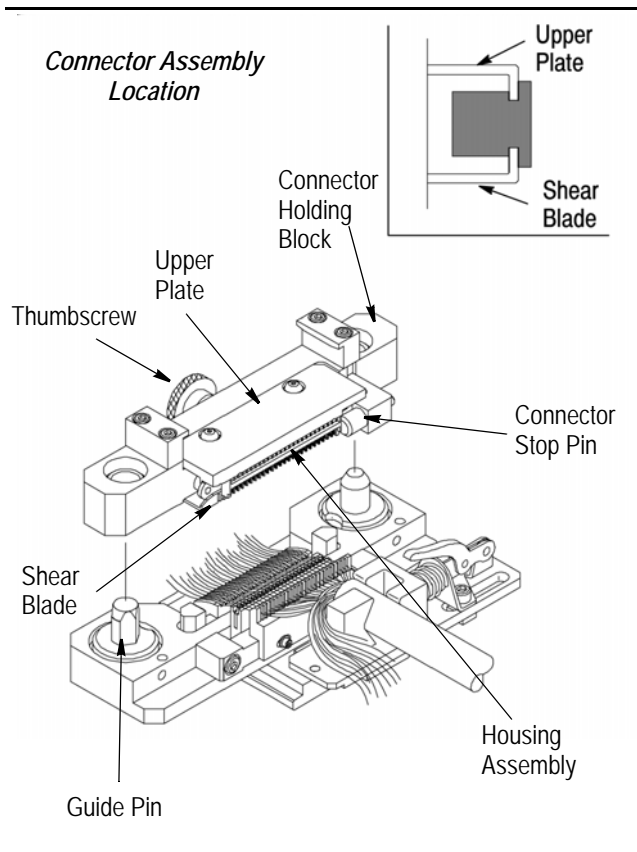


Figure 4

2. Orient the connector assembly so that the side to be terminated first is toward the color-coded wires laced in the combs.
3. Insert the connector assembly between the upper plate and the shear blade until the connector bottoms against the connector stop pin.
4. Hold the connector assembly in position and tighten the thumbscrew in the connector-holding block.
5. Orient the connector-holding block so that the shear blade is facing downward and toward the cable clamp(s).

6. Insert the connector holding block onto the guide pins.
7. Slide the lower tooling toward the frame until the tooling bottoms against the tool stop in the base plate. The upper tooling should enter the slots in the connector holding block, as shown in Figure 5.

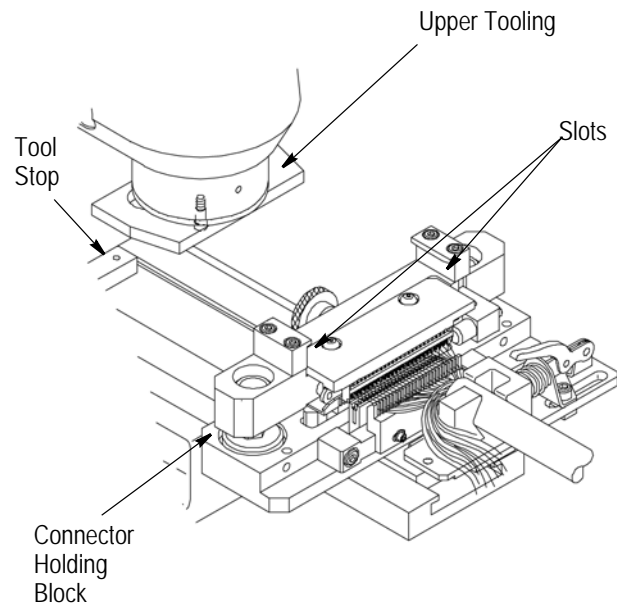


Figure 5

8. Rotate the arbor frame assembly handle forward until the connector-holding block bottoms on the lower tooling.
9. Return the arbor frame assembly handle to the starting (upper) position.
10. Slide the lower tooling away from the frame until it bottoms against the stop screws.
11. Release the cable clamp, remove the connector-holding block from the lower tooling assembly, and peel away any scrap cable.
12. Loosen the thumbscrew and remove the connector assembly.
13. Install the cable.

For a 90° wire dress, open the LEFT cable clamp and insert the cable so that the cable jacket extends within 6.35 [.250] of the outer wire comb. Close the cable clamp.

For a 180° wire dress, open the cable clamp and insert the cable so that the cable jacket extends within 12.7 [.500] of the outer wire comb. Close the cable clamp.

14. Lace each wire into the appropriate outer wire comb and secure each wire by pulling the wire downward into the corresponding position in the

inner wire comb. While keeping the wire taut, bend the wire under the inner comb.

15. Turn the connector assembly so that the unterminated contacts are toward the shear blade, then re-insert the connector assembly into the connector-holding block until the connector assembly bottoms against the connector stop pin.

16. Repeat Steps 4 through 12 to complete the connector termination procedure.

7. INSPECTION OF TERMINATIONS

Visually inspect the wire terminations in the connector assembly for the following:

1. Make certain that each wire is inserted evenly so that the insulation is below the V-shaped lead-in on both the contact slot and the strain-relief slot.
2. Check that all wires have been sheared to the proper length and that no exposed conductor strands are visible.
3. Check that the insulation is NOT cut in any area other than in the slot insertion area.
4. Check to be sure that the contacts are NOT deformed or crushed.
5. Make certain that the conductors have NOT been cut above the strain-relief slots in the contacts.

NOTE



If any of the wires are NOT properly terminated, re-insert them using T-Handle Insertion Tool 229384-1. Refer to Application Specification 114-6041 as a visual aid for inspection of terminations.

6. Install the strain relief, cover, or additional hardware as described in the instructions packaged with the connector assembly.

8. TOOL CONVERSION (For 64-Position Connectors)

To convert the tooling assembly to terminate the 64-position connector size, refer to Figure 6 and proceed as follows:

1. Loosen the two socket head cap screws used to secure the inserter clamp to the lower tooling.
2. Lift the inserter straight out of the tooling; do NOT remove shims when changing the inserter.

NOTE



When removing components, retain and identify each so that the components can be used to return the tool to the original configuration.

3. Align the inserter, supplied with the conversion kit, with the slot between the guide pin base plate and the inserter clamp. Make sure that the polarizing slot is aligned with the polarizing pin, and that the sharp edge of the inserter is toward the guide pin base plate.

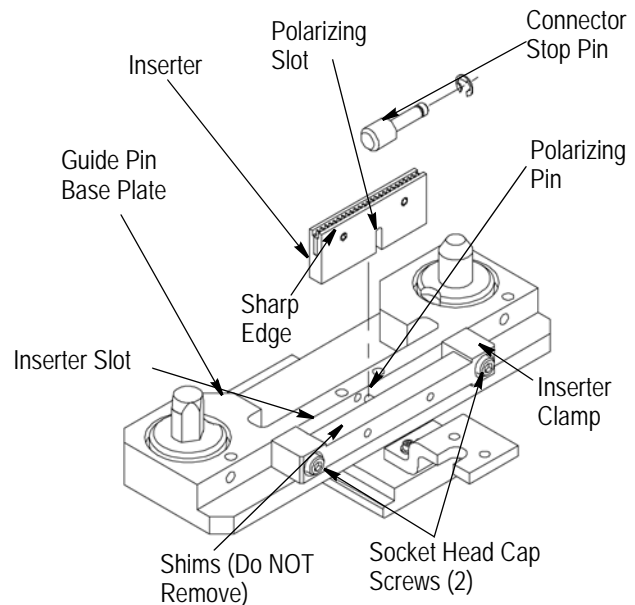


Figure 6

4. Slide the inserter into position and secure the two inserter clamp screws.

5. Remove the socket head cap screws and the inner and outer wire combs.

6. Insert the two-piece (64-position) inner combs and the two-piece (64-position) outer combs on the lower tooling, and secure the combs with the socket head cap screws. Do NOT tighten the screws at this time.

7. Align the combs by inserting wire down on the outer comb, across the inserter assembly, and down on the inner comb. Make sure that the wire is aligned over the proper inserter, then tighten the socket head cap screws. Repeat for the other end of the combs.

8. Remove the retaining ring and the connector stop pin from the connector-holding block.

9. Insert the connector stop pin (small end facing toward the connector) into the connector-holding block until the pin bottoms.

10. Secure the connector stop pin with the retaining ring.

9. REPLACEMENT AND REPAIR

CHAMP Applicator 231593-1, -2 (for discrete wire) has been inspected before shipment and should be verified with the information provided in Figure 7. The assembly should be inspected upon its arrival at your facility, and at regularly scheduled intervals, to make sure that it has not been damaged through shipment and use.

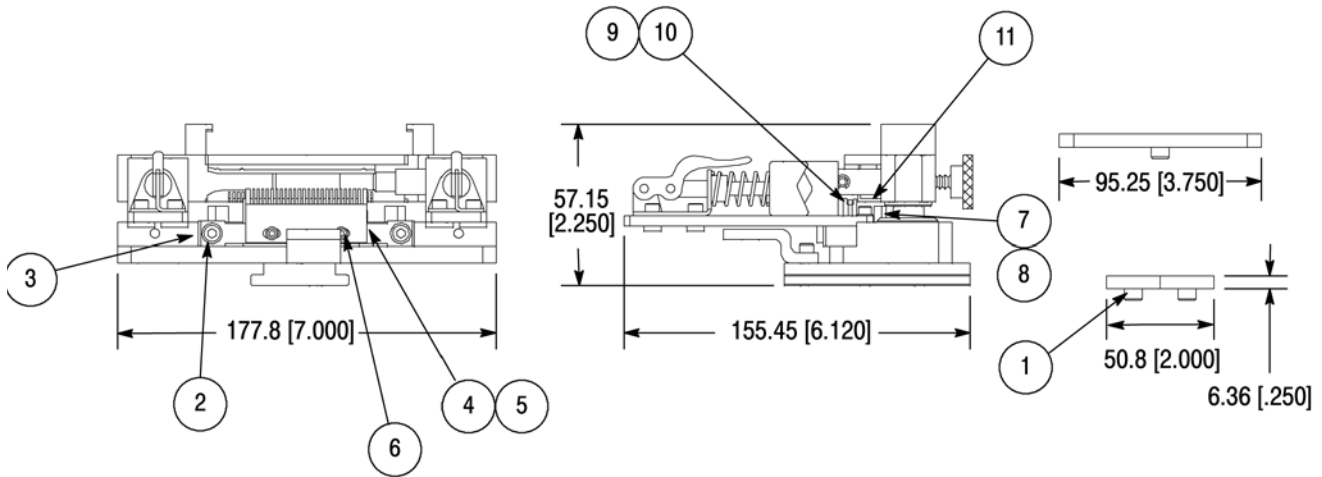
Order replacement parts through your Tyco Electronics Representative, or call 1-800-526-5142, or send a facsimile of your purchase order to: 1-717-986-7605, or write to:

CUSTOMER SERVICE (038-035)
 TYCO ELECTRONICS CORPORATION
 PO BOX 3608
 HARRISBURG PA 17105-3608

Tools may also be returned for evaluation and repair. For tool repair service, contact a Tyco Electronics Representative at 1-800-526-5136.

10. REVISION SUMMARY

- Updated document to corporate requirements
- Applied the new corporate logo



CHAMP APPLICATOR TOOLING		ITEM	DESCRIPTION	PART NO.	QTY PER TOOL
DESCRIPTION	PART NO.				
Applicator with Manual Arbor Frame Assy	231593-1	1	SCREW, Skt Hd Cap, No. 4-40 x 6.35 mm {.25 in.}	1-21000-3	2
Applicator Only	231593-2	2	SCREW, Skt Hd Cap, No. 10-31 x 15.75 mm [.62 in.]	3-21000-6	2
		3	SHIM	230404	As Req
		4	COMB, Outer Wire (14 to 50 posn)	229406-1	1
		5	COMB, Outer Wire (64 posn)	229406-2	1
		6	SCREW, Skt Hd Cap, No. 6-32 x 9.52 mm [.375 in.]	1-21000-9	2
		7	COMB, Inner Wire (14 to 50 posn)	229399-1	1
		8	COMB, Inner Wire (64 posn)	229399-2	1
		9	ASSY, Inserter (14 to 50 posn)	230398-4	1
		10	ASSY, Inserter (64 posn)	230398-5	1
		11	PLATE, Shear	230379-1	1

Figure 7