

## 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 may be available.

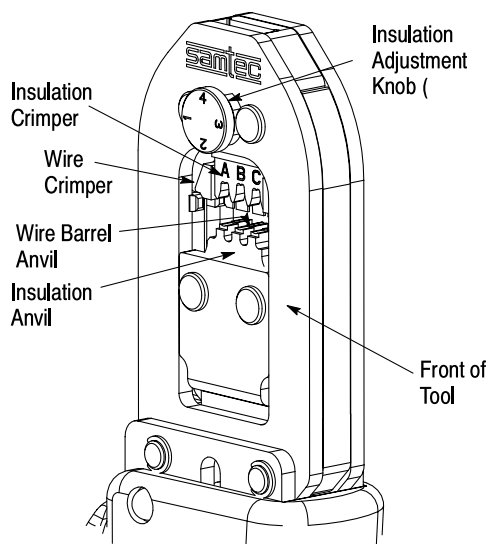


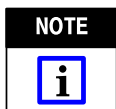
Figure 1

## 1. INTRODUCTION

CAT-HT-169-1620-11 (straight-action hand tool) was designed to crimp C-169 (IPDI-Series) terminals.



*The wire crimper bottoms against the anvil before the ratchet releases. This is a design feature that assures maximum electrical and tensile performance of the crimp. Do NOT re-adjust the ratchet.*



*Dimensions in these instructions are in metric units [with inches in brackets]. Figures are for reference only and are not drawn to scale.*

## 2. DESCRIPTION

The front of the tool, is marked with the tool part number, wire size ranges, and crimp height specifications.

The tool features a fixed die (crimper), a movable die (anvil), a locator/insulation stop, and a ratchet. Many tools feature an insulation adjustment knob which is used to regulate the crimp height of the contact

insulation barrel during the crimping operation. The locator/insulation stop positions the contact, and limits the insertion distance of the stripped wire into the contact. In use, the locator/insulation stop rests in the locator slot of the contact (See Figures 1 and 2). The ratchet assures full crimping of the contact. Once engaged, the ratchet will not release until the dies have been fully closed.

## 3. CRIMPING PROCEDURE



*Do NOT cut or nick the wire strands during wire stripping.*

Refer to Figure 2 for wire preparation information before applying the terminal.

1. Hold the tool so that the front side is facing you.
2. Ensure that the tool ratchet is released by squeezing the tool handles and allowing them to open *fully*.
3. Holding the contact by its mating portion and looking straight into the crimp section, insert the contact from the *back* of the tool into the appropriate crimp chamber.
4. Position the contact between the crimpers so that the locator/insulation stop enters the slot in the contact. The wire barrel should butt against the locator/insulation stop. Refer to Figure 1.
5. Holding the contact in this position, squeeze the tool handles together until the insulation anvil starts entry into the insulation crimper (usually two ratchet clicks). Do not deform the insulation barrel or wire barrel.
6. Insert a properly stripped wire through the locator slot and into the wire barrel of the contact until the insulation butts against the locator/insulation stop.
7. Holding wire in place, crimp contact to the wire by squeezing the tool handles together until the ratchet releases.
8. Allow tool handles to open *fully* and remove the crimped contact from the tool.

CONTACT NUMBER	WIRE SIZE mm <sup>2</sup> [AWG]	INSULATION DIAMETER	STRIP LENGTH	TOOL CRIMP SYMBOL	CRIMP HEIGHT	APPLICATION SPECIFICATION
C-179	0.20 [24]	1.35-1.50 [.053-.059]	2.92-3.68 [.115-.145]	A	0.79 ±0.05 [.031 ±.002]	STS-A-001
	0.50 [20]	1.65-1.83 [.066-.072]	2.92-3.68 [.115-.145]	B	0.91 ±0.05 [.036 ±.002]	
	0.35 [22]	1.50-1.63 [.059-.065]	2.92-3.68 [.115-.145]	C	0.86 ±0.05 [.034 ±.002]	



Damaged terminals should not be used. If a damaged terminal is evident, it should be cut from the wire and replaced with a new one.

9. If a terminal becomes jammed in a crimp nest, open the tool jaws using the "Emergency Ratchet Release Button" on the moving handle lever.

### Insulation Adjustment Procedure

On many tools, the insulation barrel crimp height is regulated by the insulation adjustment knob (Figure 3). The insulation crimp should hold the insulation firmly without cutting into the insulation. To determine the proper insulation crimp setting, test crimp a loose piece contact using the setting which corresponds to the insulation diameter: (1) — small; (2) and (3) — medium; or (4) — large. If the crimped insulation barrel is too tight or loose, change the setting by pulling out and rotating the adjustment knob to the desired setting.

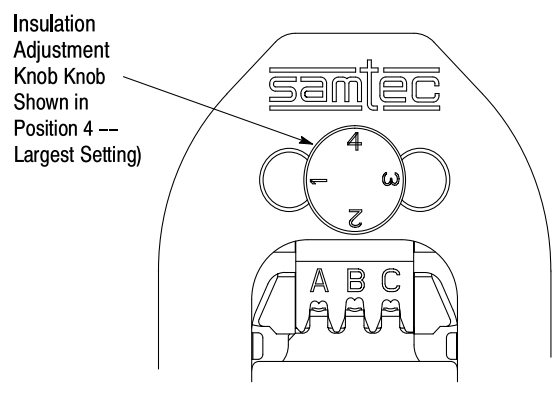


Figure 3

## 4. MAINTENANCE AND INSPECTION PROCEDURE

It is recommended that a maintenance and inspection program be performed periodically to ensure dependable and uniform terminations. Frequency of inspection depends on:

Figure 2

- The care, amount of use, and handling of the hand tool,
- The presence of abnormal amounts of dust and dirt,
- Your own established standards.

The hand tool is inspected before being shipped; however, it is recommended 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 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 jaws.
5. Store the tool in a clean, dry area.

### 4.2. Lubrication

Lubricate all pins, pivot points, and bearing surfaces with SAE 20 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. The hand tool may be immersed (handles partially closed) in a reliable commercial degreasing compound (suitable for plastics) to remove accumulated dirt, grease and foreign matter.

2. Close tool handles until the ratchet releases and then allow the handles to open freely. If they do not open quickly and fully, the spring is defective and must be replaced.

3. Inspect the head assembly for worn, cracked, or broken jaws. If damage is evident, return it for evaluation and repair.

#### 4.4. Crimp Height Inspection

This inspection requires the use of micrometer with a modified anvil as shown in Figure 4.

A recommended Crimp Height Comparator is RS-1019-5LP, which can be purchased from:

Manufacturer	Telephone
Shearer Industrial Supply Co	717-767-7575
VALCO	610-691-3205

Proceed as follows:

1. Select a contact and a wire (maximum size) for each crimp section.
2. Refer to the Section 3, and crimp the contact(s).
3. Using a crimp height comparator, measure wire barrel crimp height as shown in Figure 4. If the crimp height conforms to that marked on the tool, the tool is considered dimensionally correct.

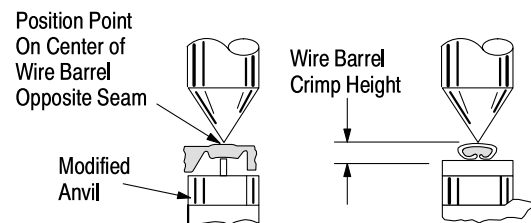


Figure 4

#### 4.5. Ratchet Inspection

The ratchet feature on these 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:

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1. Select the maximum size wire and strip it according to the dimensions listed in the drawing shipped with the tool.
2. Select the contact and crimp section corresponding to the selected wire size (refer to the drawing shipped with the tool).
3. Position the contact and wire in the crimping dies, as described in Section 3, CRIMPING PROCEDURE.
4. Hold the wire in place and squeeze the handles until the 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 wire crimper and the wire anvil. See Figure 1. If the clearance is 0.025 mm [.001 in.] or less (on at least two of the bottoming surfaces), the ratchet is satisfactory. If clearance exceeds 0.025 mm [.001 in.], the ratchet is out of adjustment and must be repaired.

#### NOTE



*The insulation crimper does not bottom on the insulation anvil.*

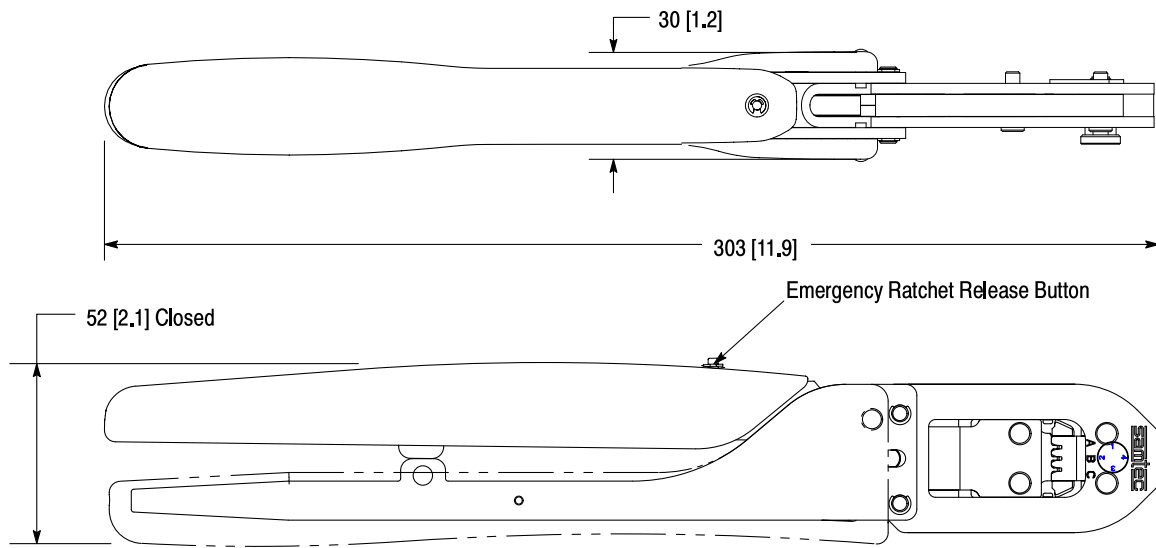
#### 5. TOOL DIMENSIONS

Refer to Figure 5 for tool dimensions.

#### 6. REVISION SUMMARY

Since the previous release of this document, the following changes have been made:

- Updated document to corporate requirements
- Changed views in Figure 5
- Changed titles in table in Figure 2



**Weight:** Approx. 622.6 g [1 lb. 6 oz.]

*Figure 5*