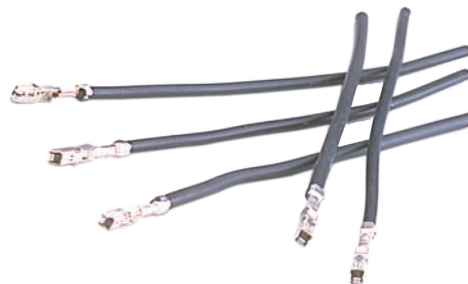
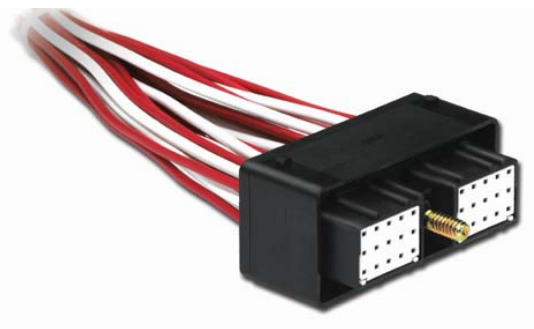




# SHS Connector Harness Assembly Manual



# SHS Connector Assembly Instructions

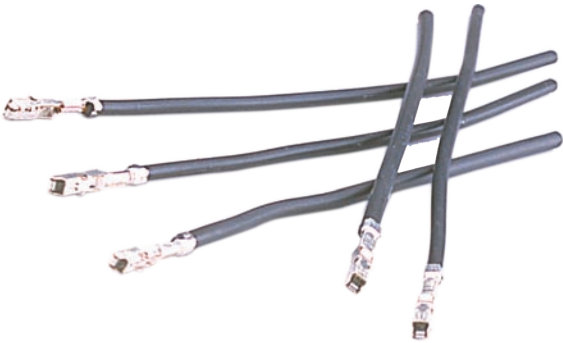


The Cinch 1.5mm SHS Harness Connector has been developed to respond to an industry preference for push-to-seat technology. The SHS connector offers ease of assembly and labor related cost reductions.

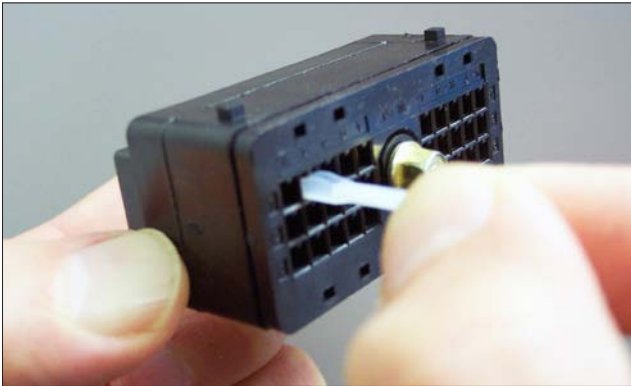
Product drawings, crimp and tooling information can be found on the Cinch website [www.cinch.com](http://www.cinch.com) under the Transportation product line.

For crimp information refer to Cinch drawing 4250000872S

This manual shows the 30 position SHS harness connector. The same instructions apply to the 18 position harness connector.



For technical or ordering information , contact Cinch Transportation marketing department at 1-800-323-9612 or 1-630-705-6000 or consult our website at [www.cinch.com](http://www.cinch.com).

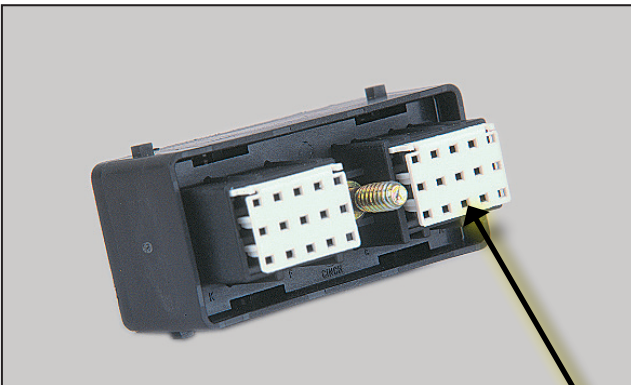


Install seal plugs in unused cavities before loading the wires. Insert seal plugs in all unused cavities.

**A connector without plugs in the unused cavities will not be sealed.**

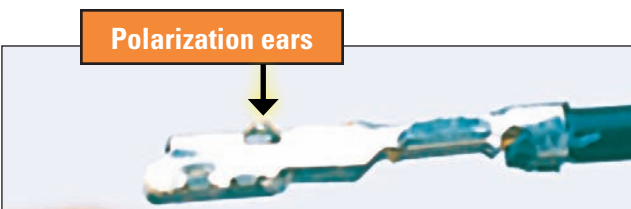


Push the plug all the way in.



In order to insert the contacts, the secondary locks must be in pre-stage/open position. (as shipped)

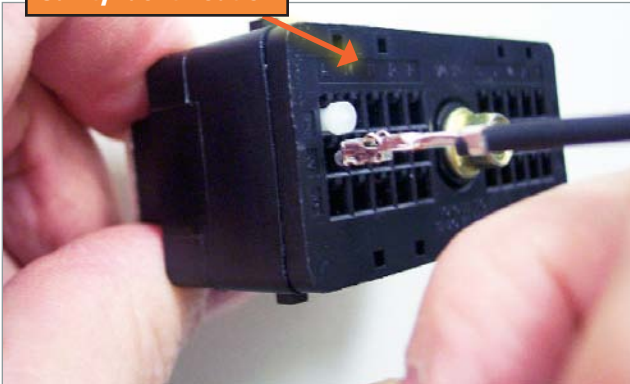
**Secondary Lock in open position**



The contact only has one orientation position in the connector cavity.

Orientation is defined by the terminal, 2 polarization "ears".

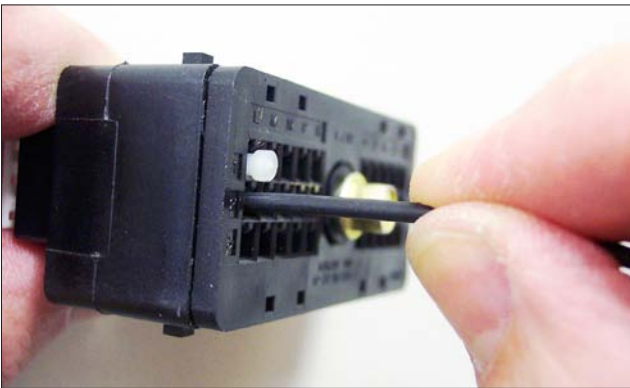
### Cavity Identification



**Insert wires starting with the middle row, smaller diameter wires first.**

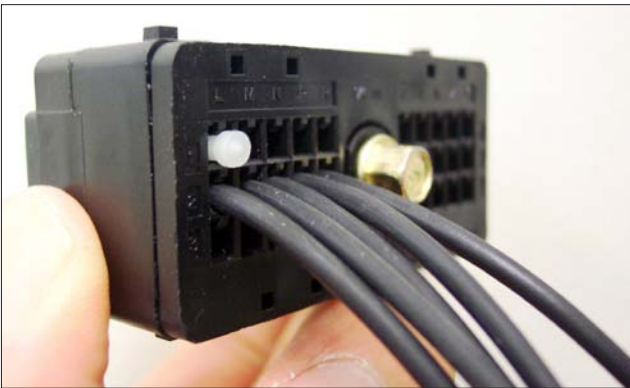
Hold the connector in one hand, or in the assembly fixture, with the cavity identification letters and numbers in the upright position.

Grasp the terminated wire closely behind the crimp with the polarization "ears" in the upright position.



Insert wire straight in. Complete terminal insertion by pushing the wire through the connector backplate and wire grommet until the terminal bottoms out into the cavity.

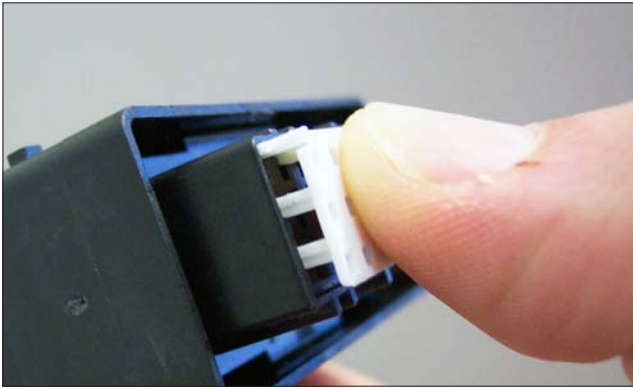
Verify proper terminal seating with a **light tug** on the wire. (Push-Click-Tug)



**Populate middle row, then continue with outer rows.**

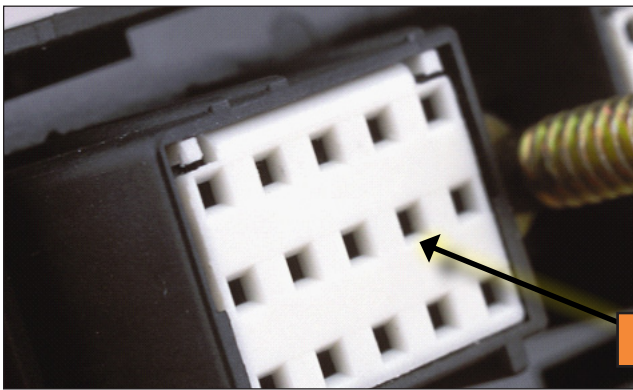


## Closing the Secondary Locks



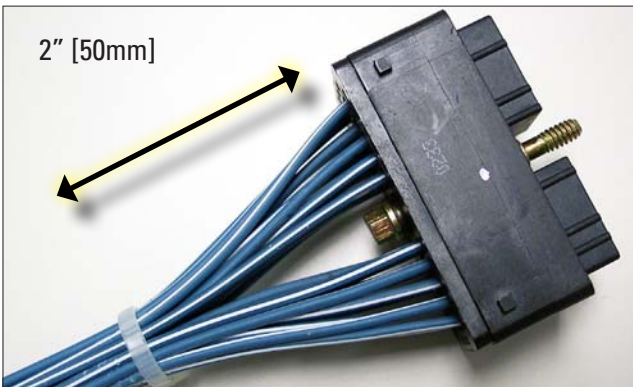
Once all wires and seal plugs are inserted, secure the wires by closing the secondary locks.

If a resistance is felt while closing the secondary locks, do not force to close: Check for unseated terminals. Check all the wires with a **light** push-click-tug.

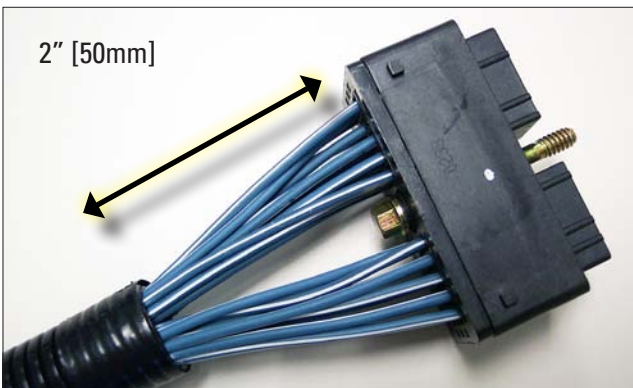


Secondary Lock in closed position

## Dressing the Wires



Leave a minimum distance of 2" [50mm] between the back of the connector and the tie point.



Depending on bundle size and/or harness routing use common sense to leave a minimum distance of 2" [50mm] between the back of the connector and the tie point.



# Terminal Removal Instructions

## Removal Tools

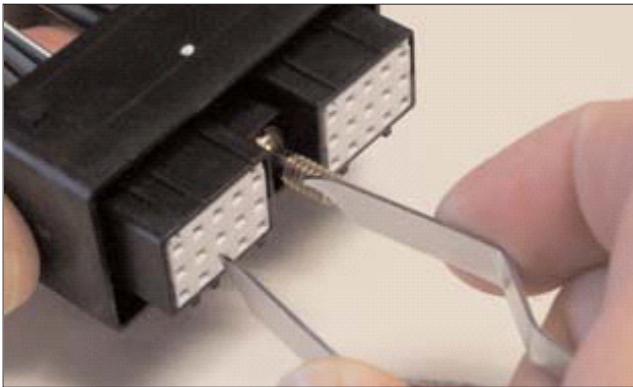


Tool P/N	Description
5991111628	Secondary lock removal tool "Tweezer"
5810118920	Terminal removal tool

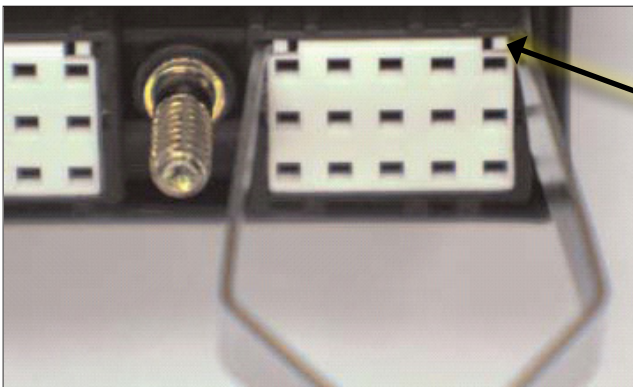
Removing a terminal from the connector is a two step process. The first step is removing the secondary lock. The second step is removing the terminal itself.

Specific Cinch tools are required for both operations. Tools work for both the 18 and the 30 position harness connector.

## Removing the Secondary Lock



Position connector so the secondary lock locking tabs are in the upright position



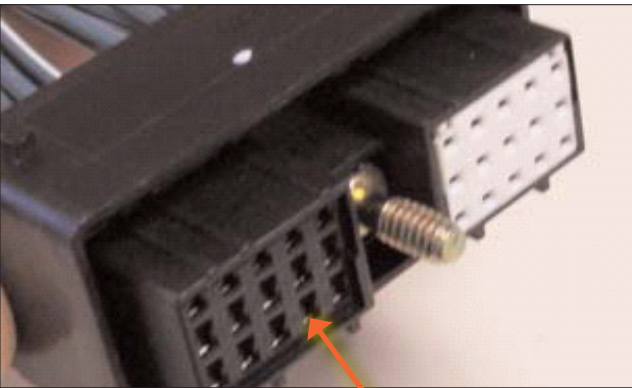
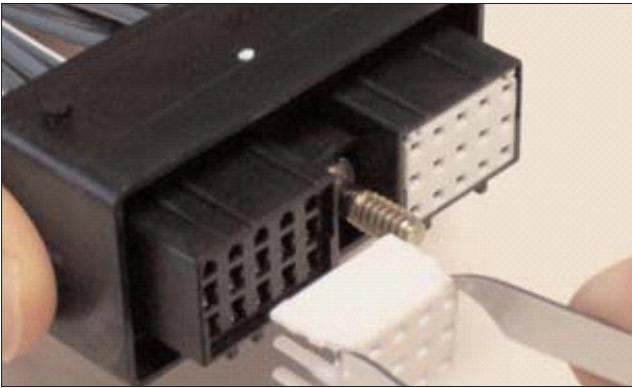
**Locking Tab (x2)**

Insert the tips of the Tweezer besides the secondary lock tabs

## Removing the Secondary Lock Continued



Push Tweezer in and squeeze to depress the locking tabs.  
Hold squeeze and pull secondary lock out of the connector.



Access for terminal removal

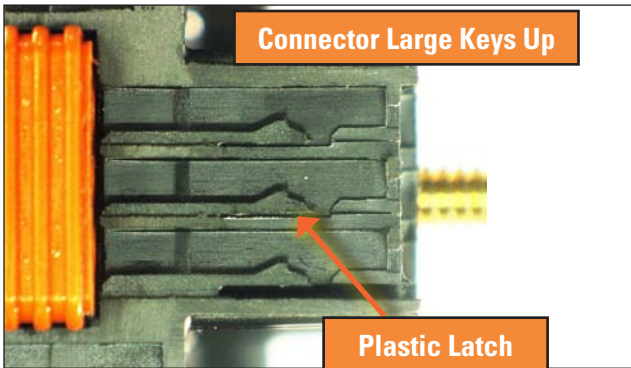
# Terminal Removal Instructions

## Removing the Terminal

Terminal Removal Tool

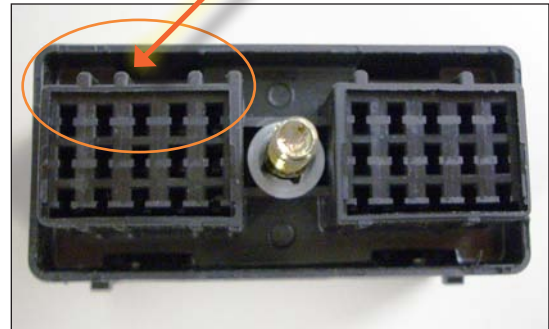


Connector Large Keys Up

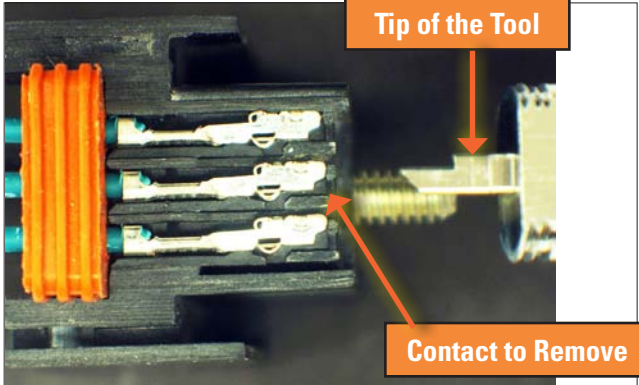


Plastic Latch

Large Keys Facing Up

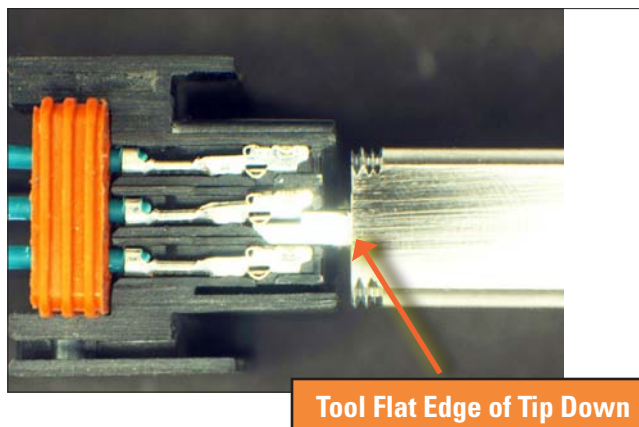


Tip of the Tool



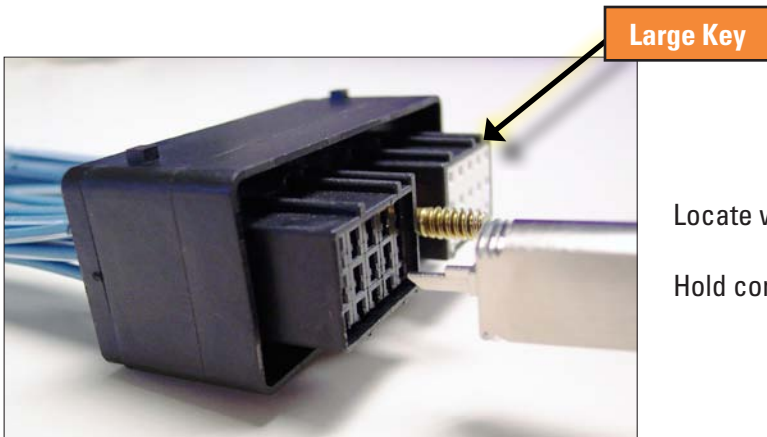
Contact to Remove

Tool Flat Edge of Tip Down

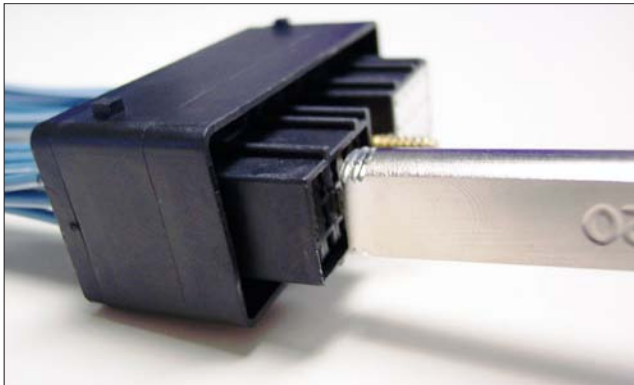


Holding the connector with the large keys facing up, insert the tip of the tool underneath the contact and push in to release.



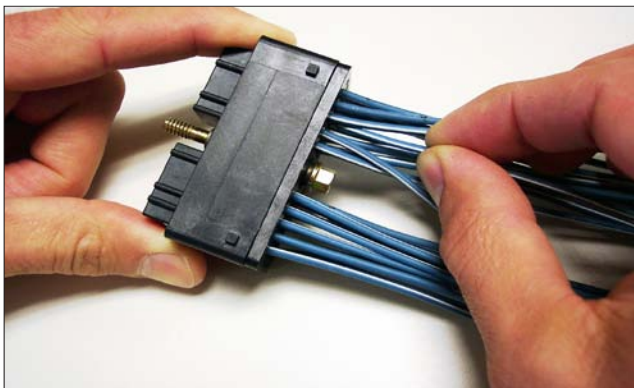


Locate wire to be extracted and its cavity in the front of the connector.  
Hold connector with large keys in the upright position.

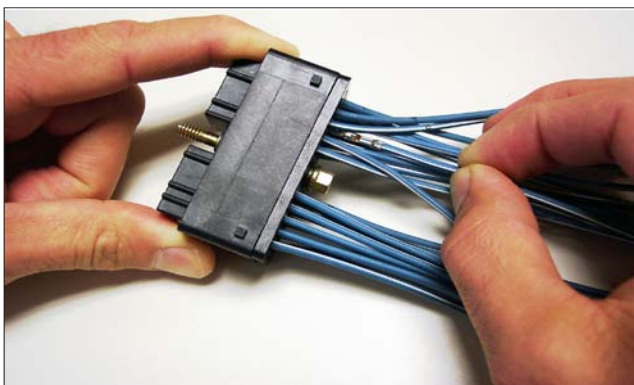


Insert removal tool straight in, with the flat edge of the tip down on the floor of the cavity, underneath the terminal as shown above and on the detail of the connector cavity. (pictures on previous page)

Push the tool in to release the contact.



Pull on the wire to remove the contact



If the repair is done on a finished wire assembly with a tied bundle of wires, it might be necessary to hold the tool in place while pulling the wire out.  
Wires might need to be untied for ease of repair.



Hand Tool P/N	Terminal P/N	Crimp Locator	Wire Gage
5991111615	4250000872	20 18 16	20 AWG GXL 18 AWG TXL 16 AWG TXL
5991111616	4250000873	18/16 18/16 16	18 AWG GXL 16 AWG GXL 16 AWG TXL

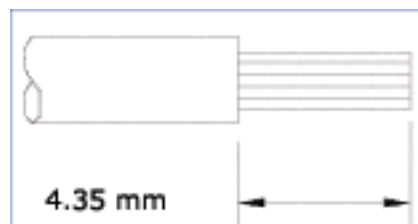
## Hand Crimping



Grip the hand crimp tool securely and squeeze, ratcheting the mechanism until it bottoms out. Then release and allow the tool to open completely.



Wire must be stripped to 4.35 mm [0.191"]



Terminal Holder



With the hand tool in the ready position (open handle), open the terminal holder.  
Insert an individual terminal into the proper cavity as directed by the crimp loctor.  
Terminal can only be inserted with the crimp wings facing up.

Close the terminal holder.



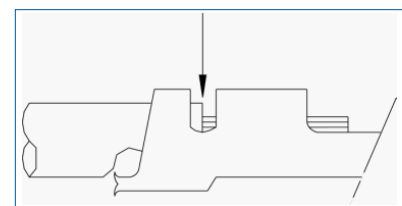
Insert the pre-stripped wire into the terminal crimp area.

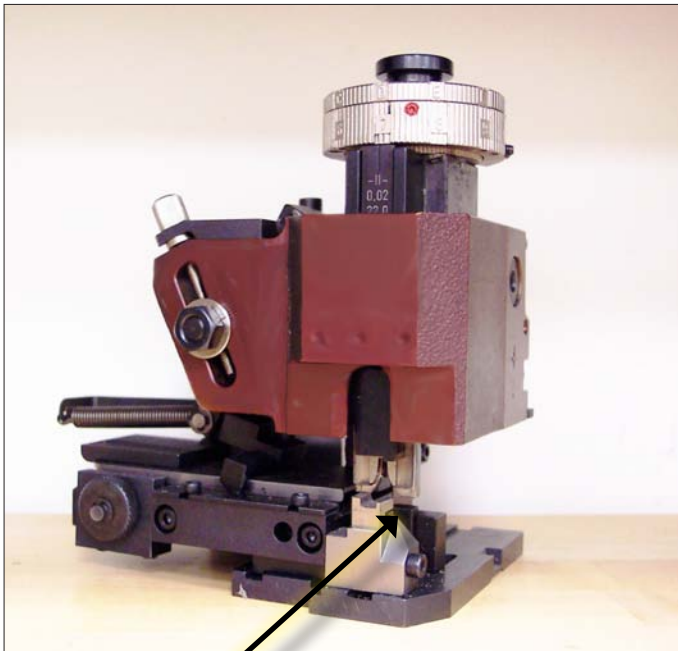


Hold wire in position until the crimp captures the wire and squeeze the tool handle. Complete the crimp by squeezing the tool until the ratchet release and the tools opens. Remove the terminated wire form the tool.



Inspect the crimp: A properly terminated wire should look similar to the drawing below. The arrow shows the approximate point where the end of the wire insulation should be placed.





Punch/Anvil kit

Mini-applicators are used for the series production of the cable processing.

Quick change tool with transverse feed for any crimp machine with a 40 mm stroke. The indexed rotary head allows for independent crimp height adjustment of both the wire and insulation.

Tool	Features
Contact Feeding	Transverse
Unreel Direction	From left
Stroke	40 mm (any press)
Bolster Plate	For quick change system

Contact Cinch or visit [www.cinch.com](http://www.cinch.com) for additional tooling and crimp information.

Tool P/N	Description
5991111621	Applicator for terminal 4250000872
5991111622	Applicator for terminal 4250000873
5991111623	Replacement punch/anvil kit for 4250000872
5991111624	Replacement punch/anvil kit for 4250000873



## **P r o v e n   E x c e l l e n c e**

**For over 70 years, Cinch has been a supplier of quality connector and interconnect products to the computer, telecom, aerospace military and transportation industries. We are a multi-national manufacturer with facilities in the US, Mexico and the UK supplying global customers.**

**Cinch applies its extensive expertise in interconnection technology to engineer and manufacture connectors, cables and harnesses using state of the art technology and tooling. Mechanical design is accomplished using Pro/E 3D solid modeling supported by nonlinear and linear Finite Element Analysis and Mold Flow software.**

**Our engineers utilize in-house capabilities in high frequency interconnect simulation, SPICE model generation and high frequency testing to develop the optimum product.**

**All products are validated in Cinch's first article, mechanical, electrical, and environmental test facilities ensuring the finished products meet our customers' most stringent specifications.**

**Simply stated, your connectors are manufactured in state of the art facilities that are committed to customer satisfaction and continuous improvement.**

**[www.cinch.com](http://www.cinch.com)**

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