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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.

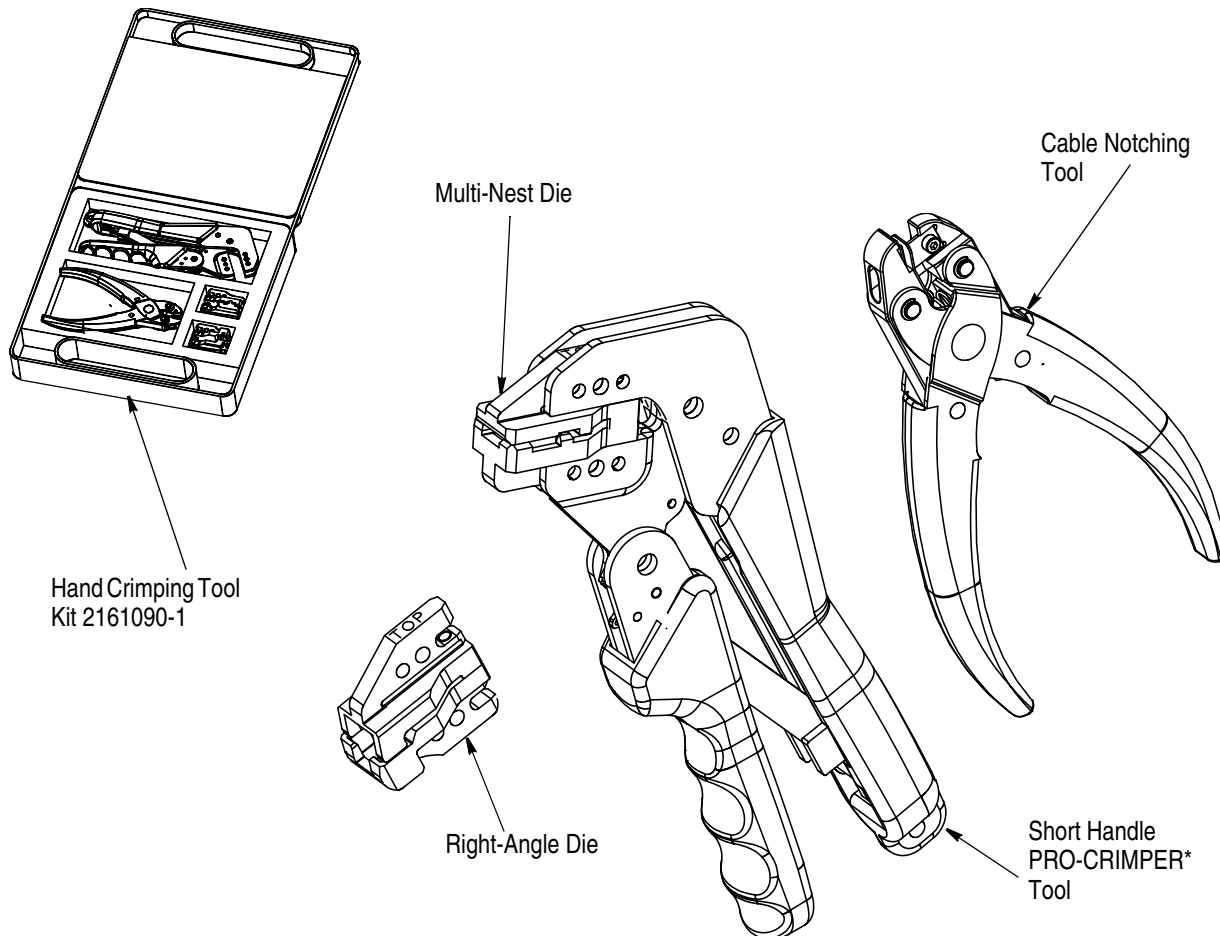


Figure 1

1. INTRODUCTION

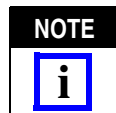
NEVALO Interconnect System Hand Crimping Tool Kit 2161090-1 (Figure 1) is designed to prepare cable and crimp connectors for the new NEVALO Interconnect System.

This document is intended to provide application and maintenance procedures for the tool kit. For information relating to the NEVALO Interconnect System, consult Application Specification 114-13290.

Read these instructions thoroughly before installing dies and using the tool kit.

2. DESCRIPTION (Figure 1)

This tool kit features a short handle PRO-CRIMPER Hand Tool (2119991-1), a Cable Notching Tool (2119990-1), and two interchangeable die sets.



Hand Tool 2119991-1 will only accept Tyco Electronics dies that are designed for use with the NEVALO Interconnect System.

3. DIE INSTALLATION AND REMOVAL (Figure 2)

The dies are designed for quick and tool-less installation and removal. The short handle PRO-CRIMPER Hand Tool (2119991-1) has two pins installed in the die mounting area to retain the dies. Select the desired die assembly and proceed as follows:

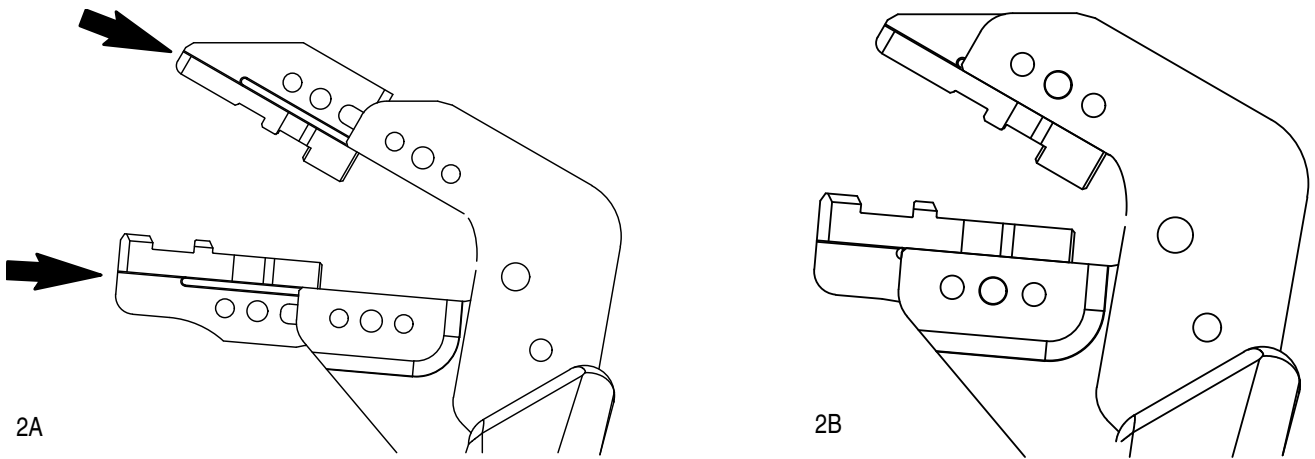


Figure 2

1. Place the die half marked "TOP" into the upper portion of the hand tool as shown in Figure 2A.
2. Slide the die toward the body of the tool until the die retaining feature engages. There will be an audible and tactile "click" when the die is installed properly. See Figure 2B.
3. Place the second die half (as identified by the color dot) in the moving jaw of the tool as shown in Figure 2A.
4. Slide the die toward the body of the tool until the die retaining feature engages. There will be an audible and tactile "click" when the die is installed properly. See Figure 2B.

To remove the dies, simply slide the dies away from the body of the tool.

4. NOTCHING THE CABLE (Figure 3)

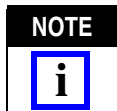
The Cable Notching Tool (Figure 1) provides a consistent and fast way to notch the ribbon cable. After selecting the proper location for the notch, proceed as follows:

1. Place the ribbon cable under the cable hold-down feature and into the cable nest (Figure 3).



Make sure the cable is fully seated in the cable nest to ensure the creation of a proper notch.

2. Squeeze the tool handles fully to notch the cable.



Material removed from the cable will fall out of the bottom of the tool.

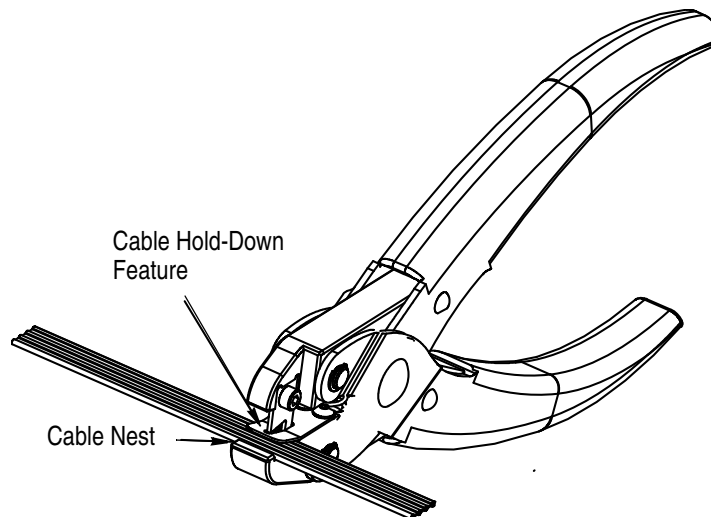


Figure 3

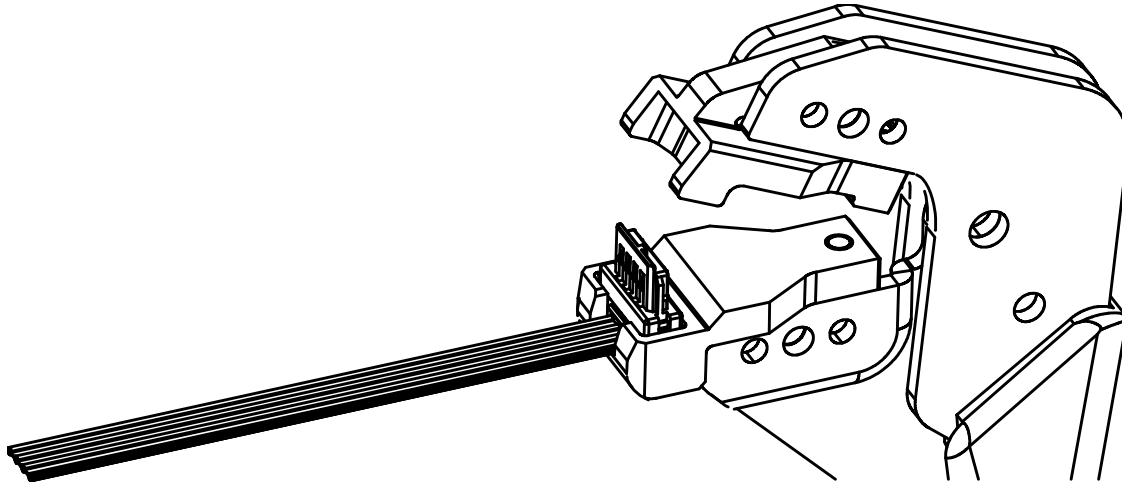


Figure 4

5. CRIMPING PROCEDURE

The right-angle die set (yellow dot) is designed to crimp the NEVALO Right-Angle Connector. The multi-nest die set (blue dot) is designed to crimp the NEVALO Feed-Thru Connector, Straight Connector, and Terminator.

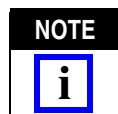
5.1. Crimping the Right-Angle Connector (Figure 4)

1. Install the right-angle die set (yellow dot) into the hand tool as specified in Section 3.
2. Place the right-angle connector in the die set nest with the cable insertion area facing away from the body of the tool as shown in Figure 4.
3. Place the prepared ribbon cable fully into the connector.
4. Squeeze the hand tool handles while keeping the ribbon cable fully inserted into the connector.

5. Release the handles to open the hand tool.
6. Remove the crimped connector from the die set.

5.2. Crimping the Feed-Thru Connector (Figure 5)

1. Install the multi-nest die set (blue dot) into the hand tool as specified in Section 3.
2. Notch the ribbon cable as specified in Section 4.
3. Place the cover half of the connector in the die nest (Figure 5A).



The TE logo should be facing the moving jaw of the hand tool.

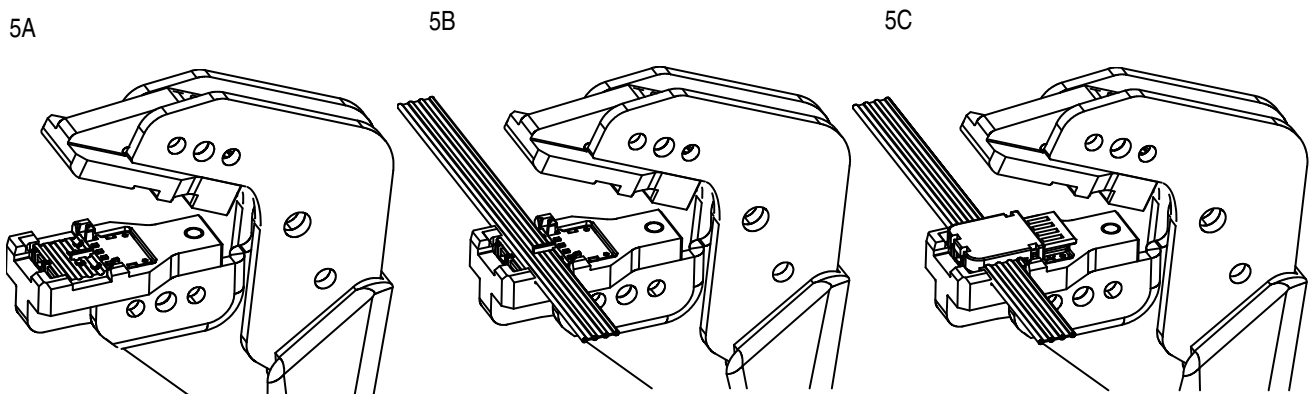


Figure 5

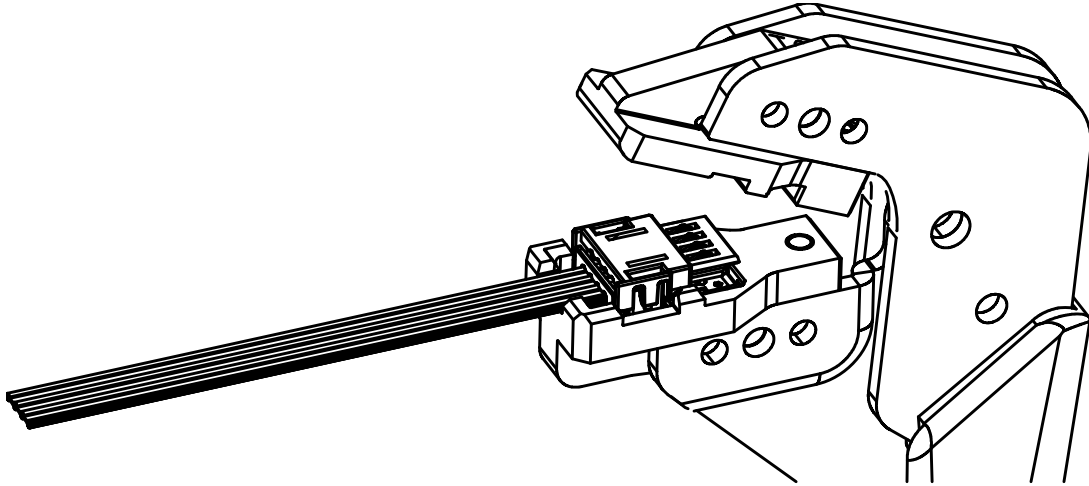
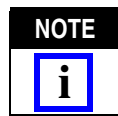


Figure 6

4. Place the notched ribbon cable in the connector with the notch being aligned with the connector post. See Figure 5B.
5. Place the base half of the connector in the die nest. See Figure 5C.
6. Hold the ribbon cable steady while squeezing the hand tool handles.
7. Release the handles to open the hand tool.
8. Remove the crimped connector from the die set.

5.3. Crimping the Straight Connector (Figure 6)

1. Install the multi-nest die set (blue dot) into the hand tool as specified in Section 3.
2. Place the connector in the die set nest as shown in Figure 6.



The TE logo should be facing the moving jaw of the hand tool.

3. Place the prepared ribbon cable fully into the connector.
4. Squeeze the hand tool handles while keeping the ribbon cable fully inserted into the connector.
5. Release the handles to open the hand tool.
6. Remove the crimped connector from the die set.

5.4. Crimping the Terminator (Figure 7)

1. Install the multi-nest die set (blue dot) into the hand tool as specified in Section 3.

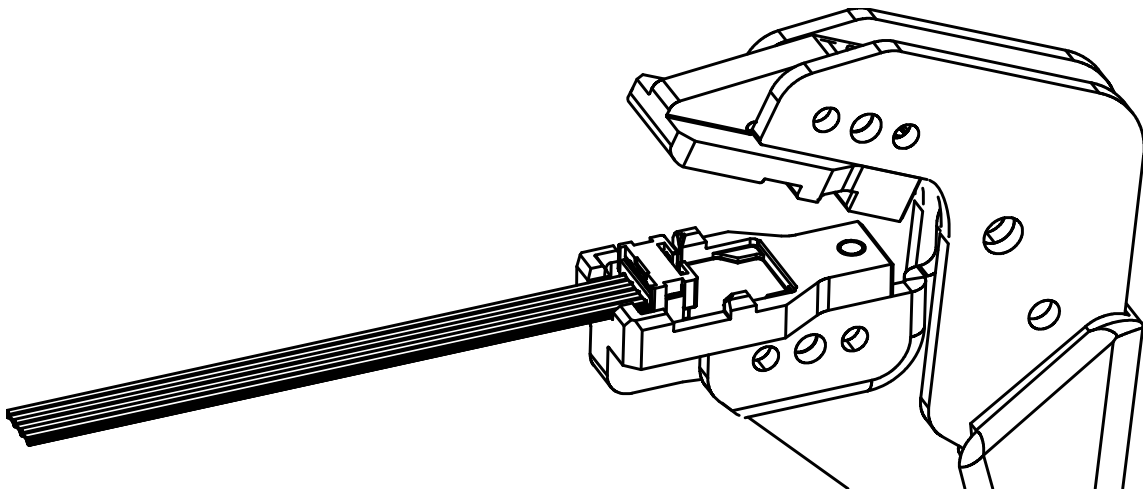


Figure 7

2. Place the connector in the die set as shown in Figure 7.
3. Place the prepared ribbon cable fully into the connector.



Alternately, the terminator can be placed on the end of the cable before placing the terminator and cable into the die set.

4. Squeeze the hand tool handles while keeping the ribbon cable fully inserted into the connector.
5. Release the handles to open the hand tool.
6. Remove the crimped connector from the die set.

6. MAINTENANCE/INSPECTION

6.1. Daily Maintenance

Tyco Electronics recommends that operators of the tool be made aware of, and responsible for, the following steps of daily maintenance:

1. Remove dust, moisture, and any other contaminants from the tool kit components with a clean, soft brush, or a clean, soft, lint-free cloth. Do NOT use hard or abrasive objects that could damage the components.
2. Make certain that the pivot pins are in place and that they are secured with retaining pins.
3. All pins, pivot points, and bearing surfaces should be protected with a thin coat of any good SAE No. 20 motor oil. Do not oil excessively.
4. When the tool kit is not in use, keep handles closed to prevent objects from becoming lodged in the crimping jaws. Store the tool in a clean, dry area.

6.2. Periodic Inspection

1. Regular inspections of the tool kit should be performed by quality control personnel. A record of scheduled inspections should remain with the kit or be supplied to supervisory personnel responsible for the kit. Inspection frequency should be based upon amount of use, working conditions, operator training and skill, and established company standards.
2. Remove all lubrication and accumulated film by immersing the tool (handles partially closed) in a suitable commercial degreaser that will not affect paint or plastic material.
3. Make certain that all pivot pins are in place and secured with retaining rings.

4. 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 8, PARTS REPLACEMENT.

5. Inspect the tool frame for wear or damage, paying particular attention to the tool jaws and pivot points. If damage is evident, refer to Section 6, PARTS REPLACEMENT. If tool is acceptable, lubricate and return to service.

7. RATCHET ADJUSTMENT

The ratchet mechanism features an adjustment wheel with eight settings. The adjustment wheel controls the amount of handle pressure exerted on the tool jaws and crimping dies during crimping. If the crimp is not acceptable, adjust the ratchet as follows:

1. Sufficiently loosen the screw at the ratchet adjustment wheel so that the wheel can be rotated above the post that engages the teeth in the wheel.
2. If the crimp is too loose, turn the wheel to a higher notch (for example, if the wheel is set at notch no. 5, move the wheel to notch no. 6). If the crimp is too tight, move the wheel to a lower notch.
3. Tighten the screw at the ratchet adjustment wheel.

If the crimp cannot be made to conform to the dimensions provided in the appropriate product application specification, the tool and/or dies are defective and must be replaced.

8. PARTS REPLACEMENT

The NEVALO Interconnect System Hand Crimping Tool Kit 2161090-1 is inspected prior to shipment. It is recommended that it be inspected upon arrival to ensure that it has not become damaged during shipping.

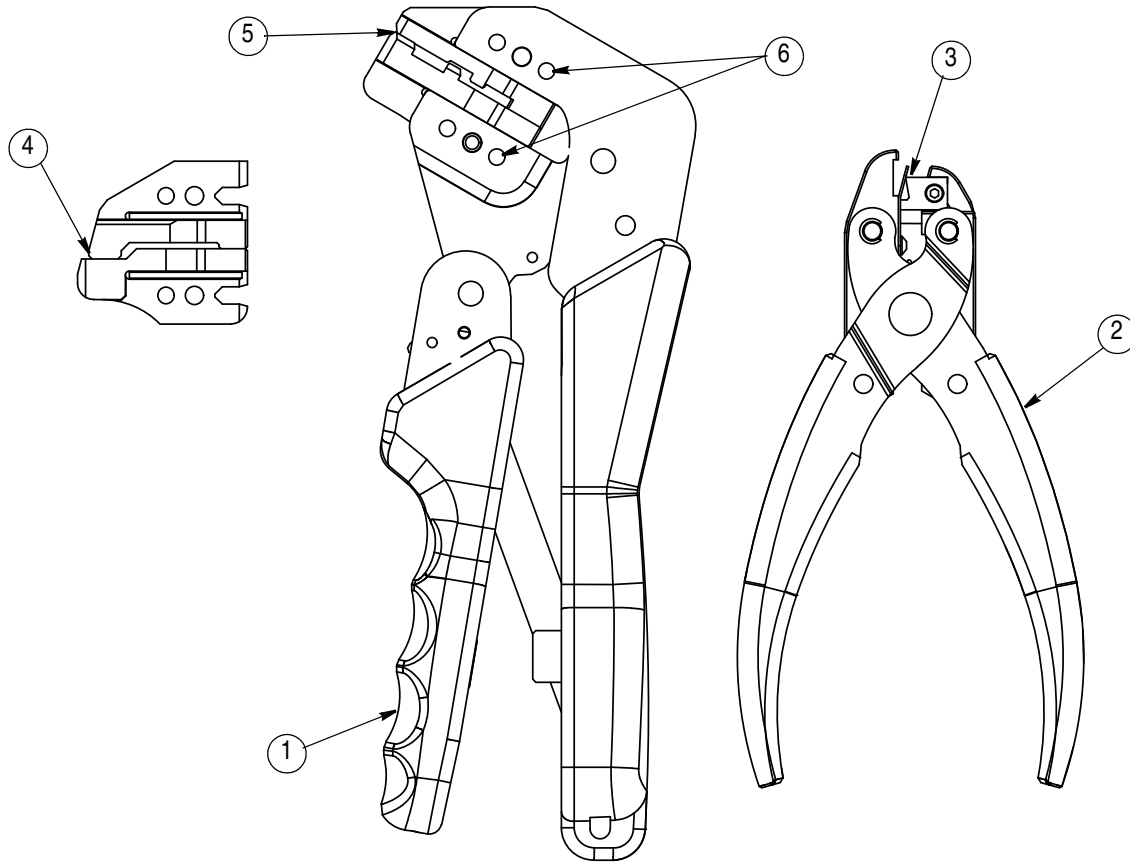
Refer to the parts list in Figure 8 to determine the part number for the item to be replaced.

Additional tools and parts may be ordered from:

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

9. REVISION SUMMARY

- Initial release of document



ITEM	DESCRIPTION	PART NUMBER	QTY PER KIT
1	TOOL, S/H PRO-CRIMPER	2119991-1‡	1
2	TOOL, Notching	2119990-1	1
3	BLADE, Notching Tool	2119980-1	1
4	DIE SET, Right-Angle	2161085-1	1
5	DIE SET, Multi Nest	2161080-1	1
6	PIN, Die Holding	6-21028-8	2

‡Hand tool 2119991-1 has two die holding pins (6-21028-8) installed in the die mounting area.

Figure 8