

Figure 1

1. INTRODUCTION

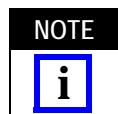
The TE Connectivity Modular T-Head 2161000-1 is designed to be attached to the Electro-Hydraulic Hand Tool (2031400-[]) and the CERTI-CRIMP* II Tool Head Adapter Assembly 2031480-1. Refer to Figure 1 for the hand tool, adapter, and Modular T-Head.

The Electro-Hydraulic Hand Tool and the CERTI-CRIMP II Tool Head Adapter Assembly must be ordered separately.

For specific information about the CERTI-CRIMP II Tool Head Adapter Assembly, refer to Instruction Sheet 408-10310.

Refer to Figure 2 for product types and wire sizes.

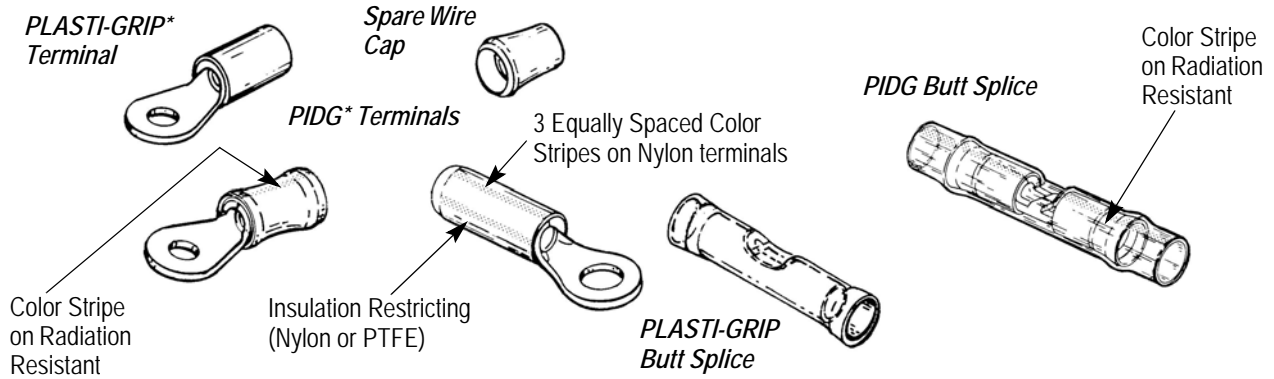
Refer to Customer Manual 409-10095 for information concerning Electro-Hydraulic Hand Tool 2031400-[].



All dimensions on this instruction sheet are in metric units [with inches in brackets]. Figures and illustrations are for identification only, and are not drawn to scale.

2. RECEIVING/INSPECTION

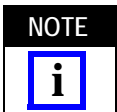
Modular T-Head 2161000-1 is thoroughly inspected during and after assembly. Prior to packaging and shipping a final series of tests and inspections is made to ensure proper function of the adapter. The following inspections should be performed as a safeguard against potential problems generated in transit.



PRODUCT	DOT CODE	WIRE SIZE RANGE (AWG)	WIRE INSUL DIA RANGE	INSUL COLOR CODE	WIRE STRIP LENGTH			
					TERMINALS		SPLICES	
					Min.	Max.	Min.	Max.
PIDG Insulation Restricting Nylon Terminals MS 7928/1-1 through -10	One	26	0.66-1.40 [.026-.055]	Yellow W/3 Black Stripes	6.35 [.250]	7.11 [.280]	---	---
		24	0.79-1.40 [.031-.055]	Yellow W/3 Blue Stripes				
PIDG Terminals MS 25036-143 through -147 (Class 1 Only)	One	26-24	---	Yellow	5.08 [.200]	5.84 [.230]	---	---
PIDG Radiation Resistant Terminals MS 7928/4-143 through 147				Natural W/ Yellow Stripe				
PIDG Vinyl and Nylon Terminals and Splices Also PLASTI-GRIP 22-16 and 16-14 Terminals	One	22-16	---	Red	5.08 [.200]	5.84 [.230]	6.35 [.250]	7.11 [.280]
	Two	16-14		Blue				
PIDG Radiation Resistant Terminals and Splices	One	26-24 Terminals Only		Natural W/ Yellow Stripe	5.08 [.200]	5.84 [.230]	---	---
		22-16	---	Natural W/ Red Stripe			6.35 [.250]	7.11 [.280]
	Two	16-14	---	Natural W/ blue Stripe				

Figure 2

1. In a well-lighted area, carefully unpack the attachment and inspect each component as it is unpacked.
2. Thoroughly inspect each component for evidence of damage that may have occurred in transit. If any of the components are damaged, file a claim against the carrier and notify TE immediately.



It is IMPORTANT that these instructions, and other documents shipped with the tooling (e.g., drawings, parts lists, tooling manual, etc.), remain with the adapter, head, and hand tool for the benefit of personnel responsible for installation, operation, and maintenance.

The Modular T-Head should be inspected at regularly scheduled intervals, depending on care, degree of operator skill, the type and size of product being crimped, and environmental conditions.

3. INSTALLATION/REMOVAL OF ADAPTER ASSEMBLY AND CERTI-CRIMP II TOOL HEADS



Do not operate the Electro-Hydraulic Hand Tool without the Modular T-Head and adapter installed. Repeated operation in this manner may result in damage to the Electro-Hydraulic Hand Tool.



To avoid personal injury, be sure to exercise extreme caution when handling the Electro-Hydraulic Hand Tool. Remove the power source (and release hydraulic pressure, if applicable -- see Customer Manual 409-10095) before installing or removing the CERTI-CRIMP II tool head or Modular T-Head.

3.1. Adapter Installation/Removal

Refer to the Electro-Hydraulic hand tool Customer Manual 409-10095 for instructions on installing and removing the adapter assembly and the crimping heads.

3.2. CERTI-CRIMP II Hand Crimping Tool Ratchet Control Head Installation Removal

A. Installation


As supplied, the adapter assembly has three quick-release pins installed. Refer to Figure 3. The two outer pins will be used to secure the two outer housing tabs of the Modular T-Head to the adapter assembly.

The center pin will be used to secure the movable die of the Modular T-Head to the ram of the adapter assembly.

These pins must be removed prior to installing the Modular T-Head.

1. Remove the quick-release pins (see Figure 3).
2. Insert the Modular T-Head into the adapter cavity.
3. Insert the two outer quick-release pins through the holes in the adapter housing and the holes in the two outer tabs of the Modular T-Head. See Figure 3.

NOTE *The quick-release pins will "snap" into position when they are properly inserted.*



4. Press the terminal grip thumb button to release the adapter ram and allow it to move freely.
5. Insert the center quick-release pin into the adapter ram and through the movable die of the Modular T-Head.


B. Removal

1. Press the terminal grip thumb button to release the adapter ram and allow it to move freely.
2. Remove the quick-release pins.
3. Remove the Modular T-Head from the adapter cavity.

4. OPERATION (Operation of the Modular T-Head attached to the Electro-Hydraulic Hand Tool 2031400-[] and CERTI-CRIMP II Hand Tool Ratchet Control Head Adapter Assembly 2031480-1)

1. Strip the wire to the dimensions shown in Figure 2.
2. Center the terminal or splice wire barrel in the appropriate crimp chamber.
3. Press the terminal grip thumb button (Figure 3) to advance the lower tooling and hold the contact in place.

CAUTION *Do not deform the terminal insulation or wire barrel.*




4. Place the pre-stripped wire in the barrel of the terminal, making sure the wire insulation does not enter the wire barrel.


5. Depress and hold the trigger of the Electro-Hydraulic Hand Tool to complete the crimp. The crimp tool returns automatically to its initial position when the crimp is complete.

5. WIRE STRIPPING AND CRIMPING PROCEDURES

NOTE *Refer to Section 6 for insulation crimp adjustment.*




CAUTION *Do not re-terminate the splices or terminals.*



5.1. PIDG and PLASTI-GRIP Terminals and Splices

1. Strip wire to dimensions listed in Figure 2.

CAUTION *Do not use wires with nicked or missing conductor strands.*




2. Crimp the color coded terminals and splices in the matching color coded portion of the tool. Refer to Section 4.

3. Place terminal in crimping dies so that terminal tongue slides under locator. See Figure 4.


4. Raise locator and place splice under locator as shown in Figure 5. Splice window indent faces top of tool.

NOTE *To properly position pre-insulated sealed splice, apply and maintain pressure against end of splice until Step 5 is completed. See Figure 5.*




5. Press the terminal grip thumb (Figure 3) to advance the lower tooling and hold the contact in place.

CAUTION *Do not deform the terminal insulation or wire barrel.*



6. Insert stripped wire into terminal until conductor butts against locator. See Figure 4. Insert stripped wire into splice until conductor butts against wire stop. See Figure 5.

CAUTION *Do not allow wire insulation to enter wire barrel.*



7. Hold wire in position and complete crimp by depressing the trigger until the crimp is complete.

8. Repeat Steps 1 through 7 to perform the second crimp on a butt splice. See Figure 5.

9. Refer to Section 7 and Figure 7 or Figure 8 for terminal or splice "Crimp Inspection" procedure.

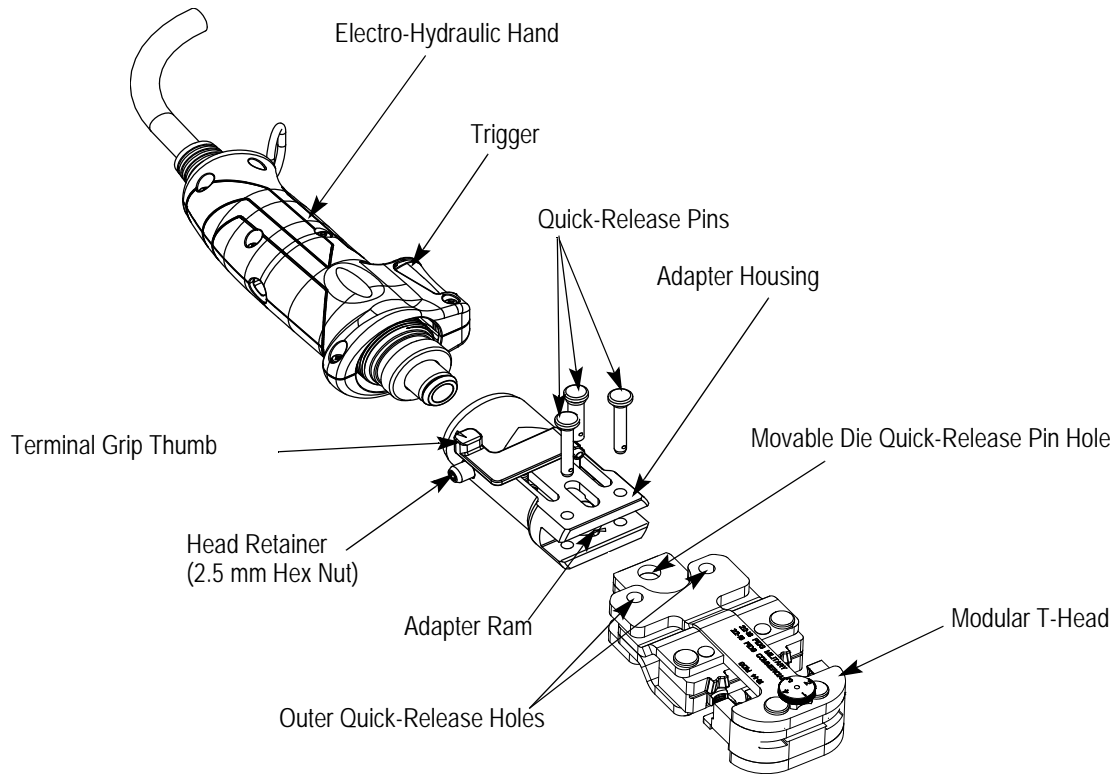


Figure 3

PIDG and PLASTI-GRIP Terminals

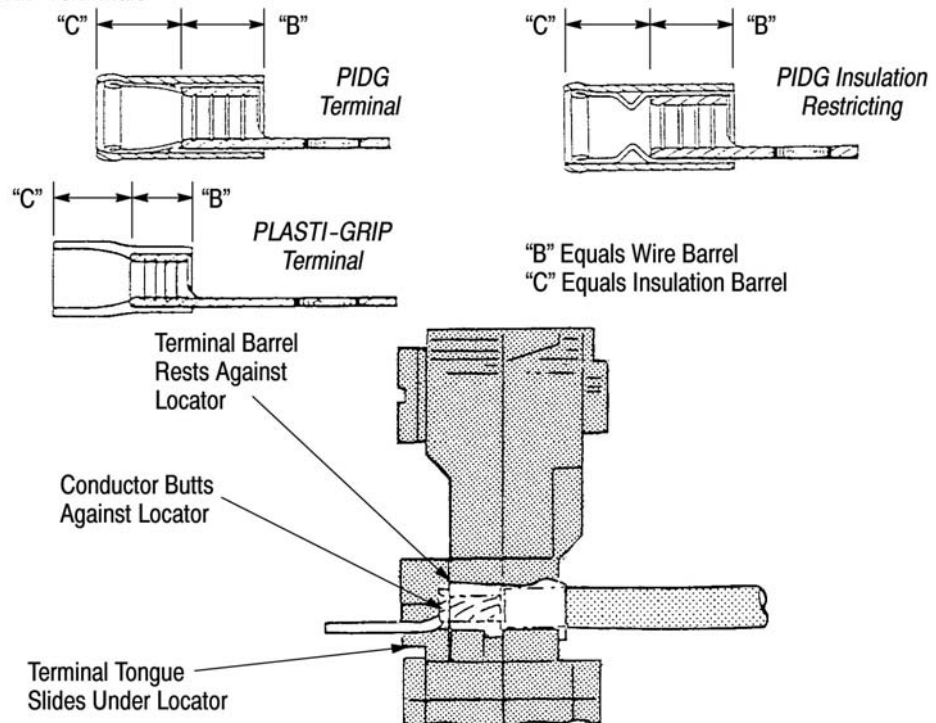
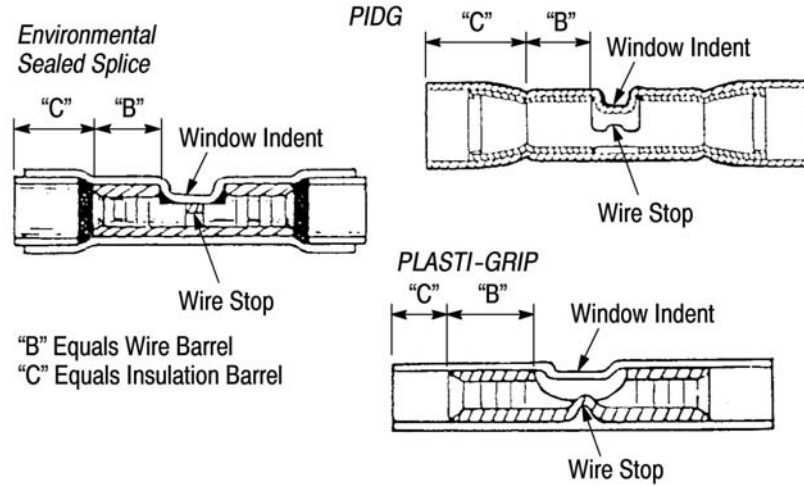
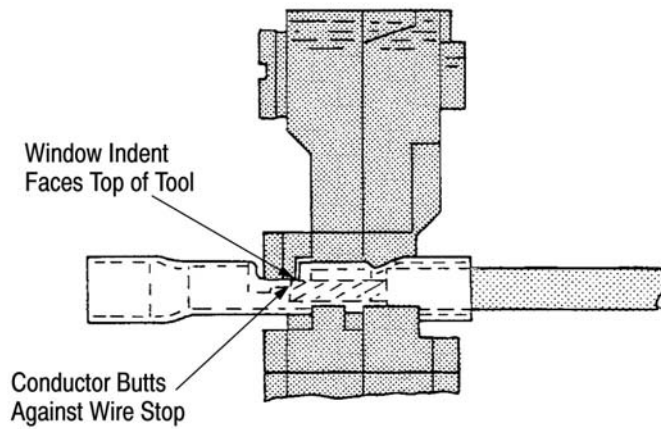


Figure 4

BUTT Splices



First Crimp



Second Crimp

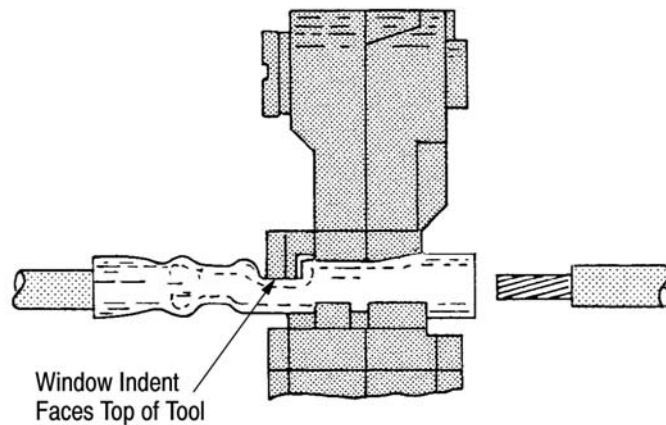


Figure 5

5.2. Spare Wire Caps

1. Strip wire to dimensions listed in Figure 2. Crimp the color coded portion of the tool. Refer to Section 4.



Do not use wire with nicked or missing conductor strands.

2. Place tool insulation adjustment indicator in Position 4.
3. Depress trigger until crimping jaws partially close, but leave enough space for cap to be inserted between dies.
4. Raise locator so that end of cap rests against the recessed surface of locator as shown in Figure 6.
5. Press the terminal grip thumb button (Figure 3) to advance the lower tooling and hold the contact in place.



Do not deform the terminal insulation or wire barrel

6. Insert stripped wire into cap until conductor bottoms in cap.
7. Hold wire in position and complete crimp by depressing the trigger until the crimp is complete.
8. Refer to Section 7 and Figure 8 for wire cap crimp inspection procedure.

Spare Wire Caps

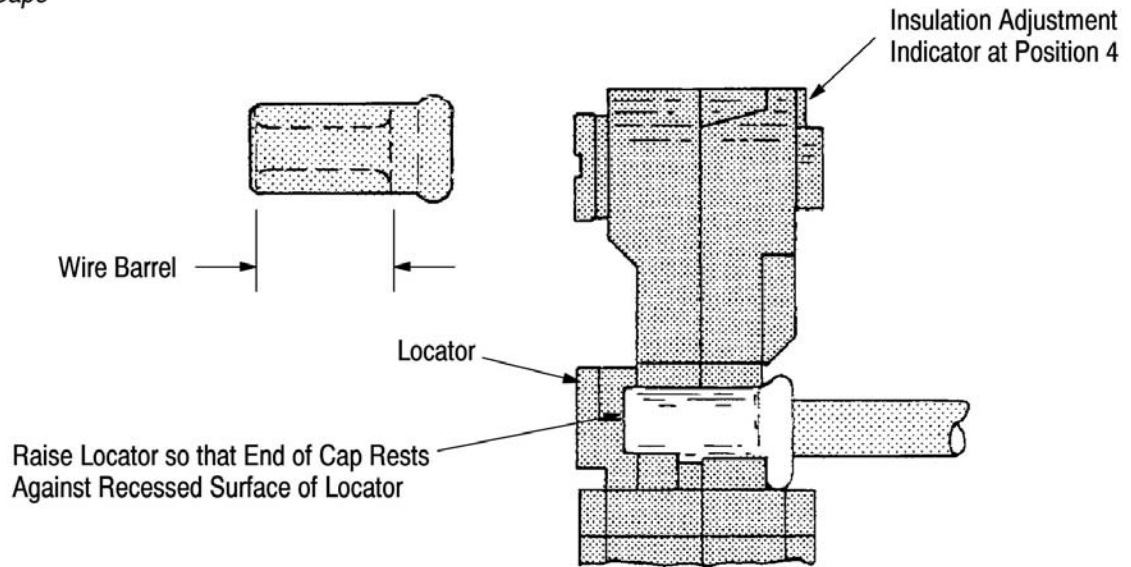


Figure 6

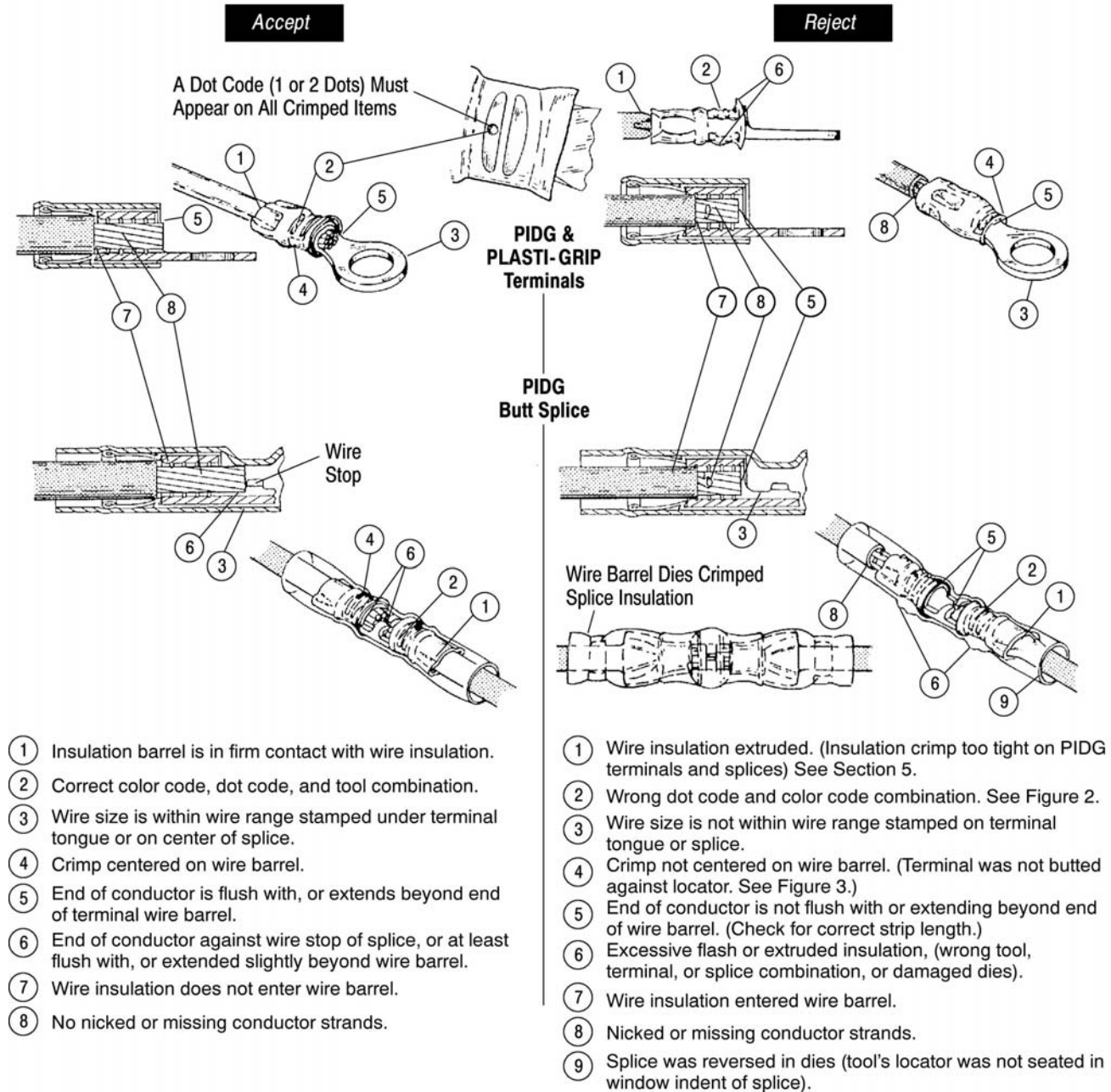


Figure 7

6. INSULATION CRIMP ADJUSTMENT

6.1. PIDG Terminals and Splices



PIDG terminals and splices feature a wire "insulation grip".

Each tool has four insulation crimp positions.

1. Loosen insulation adjustment locking screw (see top of tool) and turn indicator to Position 4.

2. Place terminal or splice in tool dies.

3. Insert UNSTRIPPED wire into ONLY the insulation barrel (see Figure 4 or Figure 5) of terminal or splice.

4. Perform a crimp (Section 5). Remove crimped terminal or splice and check insulation grip as follows: Bend the wire back and forth once. Terminal or splice should retain grip on wire insulation.

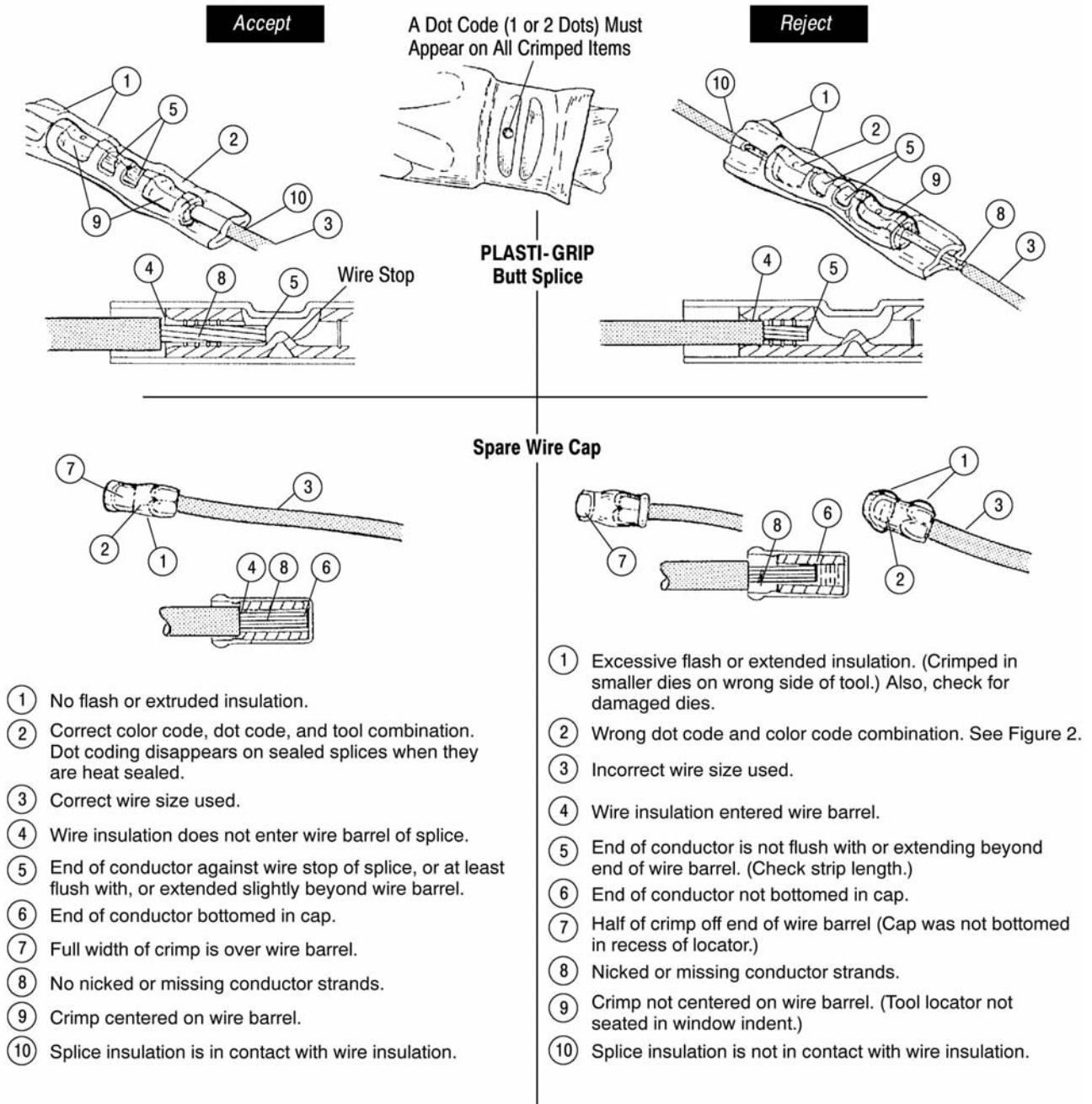


Figure 8

5. If wire pulls out, set insulation adjustment indicator to next tighter position - Position 3.

6. Perform a crimp and repeat adjustment as necessary until desired insulation grip is obtained. Do not use a tighter setting than required.

7. Tighten insulation adjustment locking screw (see top of tool).

6.2. PLASTI-GRIP Terminals and Splices



PLASTI-GRIP terminals and splices feature a wire "insulation support" only.

1. Set insulation adjustment indicator in Position 4 for wire having a large insulation diameter.
2. Set insulation adjustment indicator in Position 3 for wire having a medium insulation diameter.
3. Set insulation adjustment indicator in Position 2 for wire having a small insulation diameter.
4. Set insulation adjustment indicator in Position 1 for wire having thin wall insulation. Terminal or splice insulation should ideally be in contact with wire insulation.

7. CRIMP INSPECTION

Inspect crimped terminals, splices and spare wire caps by checking the features described in Figure 7 or Figure 8.

Use only the crimped items that meet the conditions shown in the ACCEPT column.

REJECT terminals, splices, and spare wire caps can be avoided through careful use of instructions and by performing regular tool maintenance as instructed in this document.

8. MAINTENANCE AND INSPECTION

TE recommends that a maintenance/inspection program be performed periodically to ensure dependable and uniform terminations. Tools should be inspected at least once a month. Frequency of inspection may be adjusted to suit certain requirements through experience. Frequency of inspection is dependent upon:

1. The care, amount of use, and handling of the tool.
2. The type and size of the products crimped.
3. The degree of operator skill.
4. The presence of abnormal amounts of dust and dirt.
5. User established standards.

All tools are inspected before packaging. Since there is a possibility of tool damage in shipment, new tools should be inspected in accordance with Section 8 upon arrival. Due to the precision design, it is important that no parts of these tools be interchanged.

8.1. Cleaning

Clean the tool, removing accumulations of dirt and grease on the head, particularly in areas where terminals are crimped. Wipe the tool frequently with a clean, lint-free cloth.

8.2. Visual Inspection

1. Visually inspect the tool for missing parts, then operate the tool and note the return action of the tool.
2. Visually inspect the die closure surfaces for flattened, broken, pitted, or chipped conditions. Although dies may gage within permissible limits, worn or damaged die closure surfaces are objectionable and can affect the quality of the crimp. Examples of possible damaged die closure surfaces are shown in Figure 9.

8.3. 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.

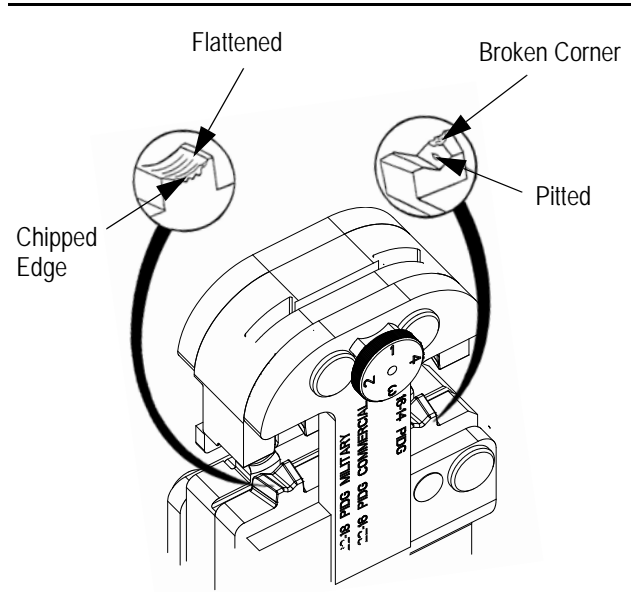
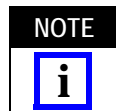


Figure 9

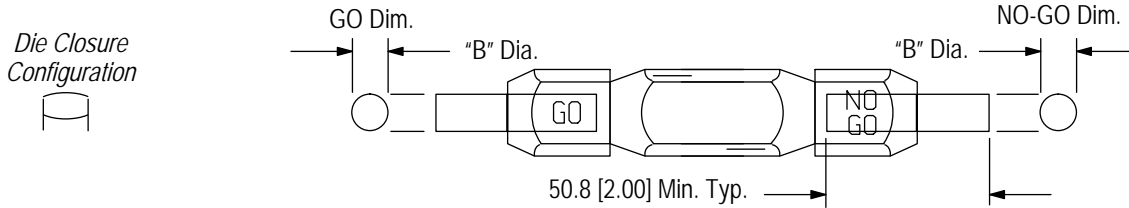
8.4. Gaging the Crimping Chamber

Each tool is inspected for proper die closures before packaging. An inspection should be performed periodically to check the tool die closures for excessive wear.



The following plug gaging information for insulation crimping chambers is provided for customers specifically requiring this information. If plug gaging is not required, inspect the die closures using an alternate procedure, i.e., performing the "Insulation Crimp Adjustment" (see Section 6) and "Visual Inspection" (see Paragraph 8.2).

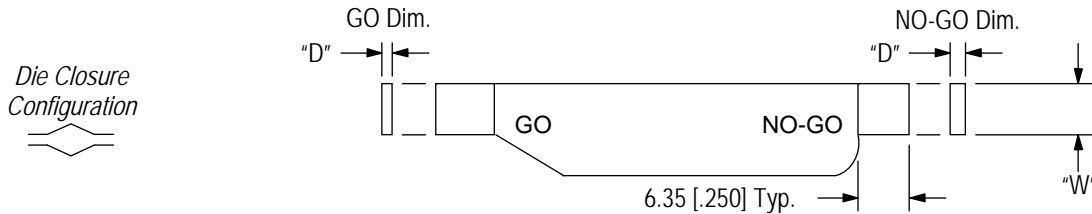
Suggested Plug Gage Design - Wire Barrel Crimping Chamber



WIRE SIZE RANGE (AWG)	GAGE ELEMENT DIMENSION "B"	
	GO	NO-GO
22-16	2.769-2.776 [.1090-.1093]	2.918-2.921 [.1149-.1150]
16-14	3.023-3.030 [.1190-.1193]	3.172-3.175 [.1249-.1250]

Figure 10

Suggested Plug Gage Design - Insulation Crimping Chamber



WIRE SIZE RANGE (AWG)	GAGE ELEMENT DIMENSION "D"		WIDTH "W" (Max.)
	GO	NO-GO	
22-16	0.762-0.770 [.0300-.0303]	2.791-2.794 [.1099-.1100]	3.18 [.125]
16-14	1.016-1.024 [.0400-.0403]	3.045-3.048 [.1199-.1200]	

Figure 11

This inspection requires the use of plug gages conforming to the dimensions listed in Figure 10 and Figure 11. TE does not manufacture or market these gages.

To gage the crimping area(s), refer to Figure 12 and proceed as follows:

1. Clean oil or dirt from the crimping chamber and plug gage.
2. Depress the trigger of the tool to advance the ram until the wire barrel dies bottom. Do NOT continue to depress the trigger once the dies have bottomed.
3. With wire barrel dies bottomed, inspect the wire barrel crimping chamber using the proper plug gage. Lift the spring-loaded locator and hold gage in straight alignment with the crimping chamber. Carefully try to insert, without forcing, the GO element. See Figure 12, Detail A. The GO element

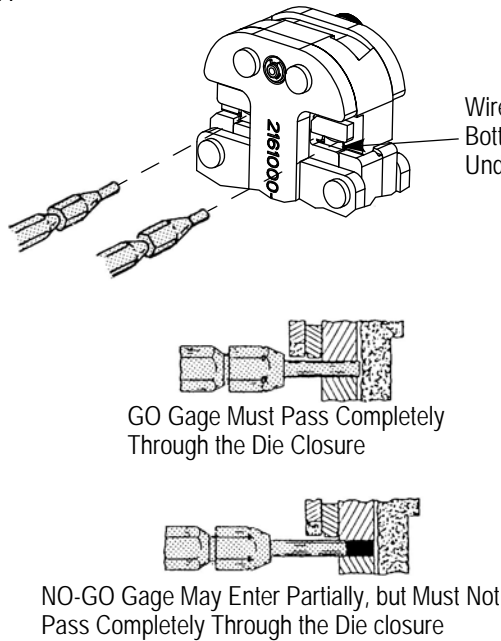
must pass completely through the crimping area. Try to insert the NO-GO element. The NO-GO element may enter partially, but must not pass completely through the crimping area.

4. Set insulation adjustment indicator in Position 1. Measure both insulation crimping chambers with the proper GO plug gages in the same manner as Steps 2 and 3. See Figure 12, Detail B.
5. Set insulation adjustment indicator in Position 4. Measure both insulation crimping chambers with the proper NO-GO plug gages in the same manner as Steps 2 and 4. See Figure 12, Detail B.

If the crimping areas conform to the gage inspection, the tool is considered dimensionally correct. If the crimping areas do not conform to the inspection, the tool must be repaired. Refer to Section 11, RETURN.

Inspection of Wire Barrel Crimping Dies

Detail A



Inspection of Insulation Crimping Dies

Detail B

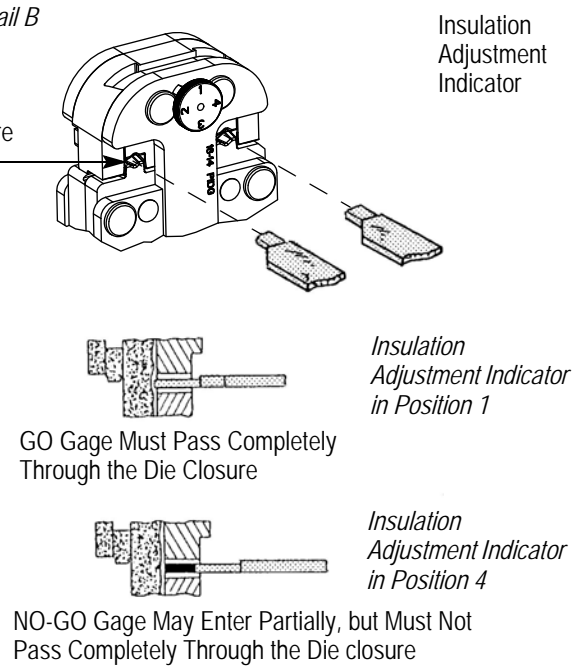


Figure 12

9. SPARE PARTS

There are no recommended spare parts for the Modular T-Head.

10. TROUBLESHOOTING

Refer to the instruction sheets for the Electro-Hydraulic Hand Tool and the CERTI-CRIMP II Tool Head Adapter Assembly for tool system troubleshooting.

11. RETURN

Order replacement parts through your TE 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

12. REVISION SUMMARY

- Material changed to PTFE