

# customer manual

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ORIGINAL INSTRUCTIONS

## SAFETY PRECAUTIONS — IMPORTANT SAFETY INFORMATION



**NOTE**

Keep all decals clean and legible, and replace them when necessary.



**DANGER**

**ELECTRIC SHOCK HAZARD**

This tool is not insulated. When using this unit near energized electrical lines, use proper personal protective equipment.



Failure to observe this warning could result in severe injury or death.



**DANGER**

**SKIN INJECTION HAZARD**

Do not use hands to check for oil leaks. Highly pressurized oil will puncture the skin causing serious injury, gangrene, or death. If injured, seek medical help immediately to remove the oil.



**DANGER**

**FIRE HAZARD**

Do not use solvents or flammable liquids to clean the crimping tool. Solvents or flammable liquids could ignite and cause serious injury or property damage.



Failure to heed these warnings could result in severe injury from harmful fumes or burns from flying debris.



**DANGER**

**FIRE HAZARD**

Do not dispose of batteries in a fire. They will vent fumes and will explode. Instead, dispose of batteries in an environmentally responsible manner or send the battery back to TE.



**DANGER**

Inspect the tool and dies/jaws before each use. Replace any worn or damaged parts. A damaged or improperly assembled tool can break and strike nearby personnel.

Failure to observe this warning could result in severe injury or death.



**CAUTION**

— Do not place the tool in a vise. The crimping tool is designed for hand-held operation.

— Protect the crimping tool from rain and moisture. Water will damage the crimping tool and battery.

Failure to observe these precautions may result in injury or property damage.



**CAUTION**

— Do not allow anything to contact the battery terminals.

— Do not immerse the batteries in liquid. Liquid may create a short circuit and damage the battery. If the batteries are immersed, contact your service center for proper handling.

— Do not place the battery into a pocket, tool pouch, or tool box with conductive objects. Conductive objects may create a short circuit and damage the battery.

— Do not place a battery on moist ground or grass. Moisture may create a short circuit and damage the battery.

Failure to observe these precautions may result in injury or property damage.



**CAUTION**

— Do not store the battery at more than 60°C [140°F]. Damage to the battery can result.

— Do not use another manufacturer's charger.

— Do not attempt to open the battery. It contains no user-serviceable parts.

Failure to observe these precautions may result in injury or property damage.



**CAUTION**

— Do not perform any service or maintenance other than as described in this manual. Injury or damage to the tool may result.

Failure to observe these precautions may result in injury or property damage.



Always wear approved eye protection while operating equipment.



Always wear approved hearing protection while using equipment.



Do not operate equipment if the guards are removed.



Read and understand this entire document before using equipment.

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## ***SAFETY PRECAUTIONS — AVOID INJURY***

Safeguards are designed into this application equipment to protect operators and maintenance personnel from most hazards during equipment operation. However, certain safety precautions must be taken by the operator and repair personnel to avoid personal injury, as well as damage to the equipment. For best results, application equipment must be operated in a dry, dust-free environment. Do not operate equipment in a gaseous or hazardous environment.

Carefully observe the following safety precautions before and during operation of the equipment:

- ALWAYS wear appropriate ear protection.
- ALWAYS wear approved eye protection when operating powered equipment.
- ALWAYS keep guard(s) in place during normal operation.
- ALWAYS insert power plug into a properly grounded receptacle to avoid electrical shock.
- ALWAYS turn off the main power switch and disconnect electrical cord from the power source when performing maintenance on the equipment.
- NEVER wear loose clothing or jewelry that may catch in moving parts of the application equipment.
- NEVER insert hands into installed application equipment.
- NEVER alter, modify, or misuse the application equipment.

### ***TOOLING ASSISTANCE CENTER***

***CALL TOLL FREE 1-800-722-1111 (CONTINENTAL UNITED STATES AND PUERTO RICO ONLY)***

The **Tooling Assistance Center** offers a means of providing technical assistance when required.

In addition, Field Service Specialists are available to provide assistance in the adjustment or repair of the application equipment when problems arise which your maintenance personnel are unable to correct.

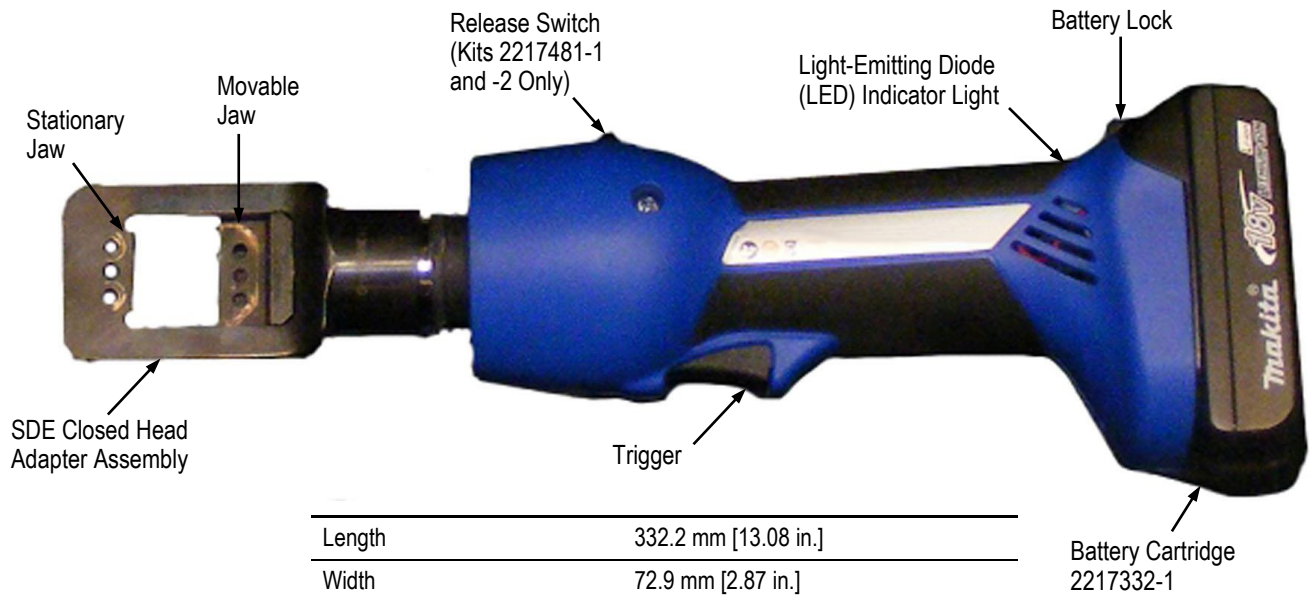
#### **INFORMATION REQUIRED WHEN CONTACTING THE TOOLING ASSISTANCE CENTER**

When calling the Tooling Assistance Center regarding service to equipment, it is suggested that a person familiar with the device be present with a copy of the manual (and drawings) to receive instructions. Many difficulties can be avoided in this manner.

When calling the Tooling Assistance Center, be ready with the following information:

1. Customer name
2. Customer address
3. Person to contact (name, title, telephone number, and extension)
4. Person calling
5. Equipment number (and serial number if applicable)
6. Product part number (and serial number if applicable)
7. Urgency of request
8. Nature of problem
9. Description of inoperative component(s)
10. Additional information/comments that may be helpful

**Crimping Tool Kit with Battery Cartridge Installed**



Length	332.2 mm [13.08 in.]
Width	72.9 mm [2.87 in.]
Depth	114 mm [4.5 in.]
Mass/Weight (with Battery)	1.72 kg [3.8 lbs]
Sound Level	70 dBA at 1 Meter
Vibration	< 2.5 m/s <sup>2</sup>
Hydraulic Oil	Shell Tellus T15 or RIVOLTA S.B.H. 11
Maximum Crimping Force	15.6 kN [1.75 tons]
Average Crimping Time	2-4 seconds
Average Crimps per Charge	85-170 (Approx.)
Charging Voltage	18 V
Charging Time	15 Min. – 1.3 AH/22 Min. – 3.0 AH

Figure 1

**1. INTRODUCTION**

SDE closed head lithium-ion battery-powered crimping tool kits 2217481-[ ] each consist of a battery crimping tool (with an SDE closed head adapter assembly installed), as well as two rechargeable battery cartridges used to power the tool. See Figure 1.

Each kit has a battery charger. The battery charger part number, its voltage, and the kit region of use are listed in Figure 2. The battery-powered crimping tool may or may not have a release switch to retract the ram.

When reading this manual, pay particular attention to DANGER, CAUTION, and NOTE statements.



**DANGER**

Denotes an imminent hazard that may result in moderate or severe injury.



**CAUTION**

Denotes a condition that may result in product or equipment damage.



**NOTE**

Highlights special or important information.

Shell and RIVOLTA are trademarks of their respective owners.

CRIMPING TOOL KIT	REGION OF USE	BATTERY CHARGER	BATTERY CHARGER VOLTAGE	RAM RETRACT SWITCH
2217481-1	North America	2217331-1	110 V	Yes
2217481-2	Europe	2217331-2	220 V	
2217481-3	North America	2217331-1	110 V	No

Figure 2

Each kit is designed to accept interchangeable die assemblies used in PRO-CRIMPER\* hand tools, which crimp various types of product.



**NOTE**

*This kit cannot be used to crimp parallel splices.*



**NOTE**

*Dimensions in this customer manual are in metric units [with U.S. customary units in brackets]. Figures are not drawn to scale.*

## 2. RECEIVING AND INSPECTION

Each kit 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 tool. The following inspection should be performed as a safeguard against potential problems generated in transit.

1. In a well-lighted area, carefully uncrate the kit and inspect each component as it is removed from the crate.
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 Connectivity immediately.
3. Keep this manual and all drawings and product samples with the kit for the benefit of operation and maintenance personnel.

The crimping tool should be inspected at regularly scheduled intervals, depending on care, degree of operator skill, the type and size of the product to be crimped, and environmental conditions. At a minimum, the tool should be inspected after every 40 hours of use.

## 3. USER INTERFACE INFORMATION (PRE-OPERATION TESTING)

### 3.1. LED Indicators

#### A. White LED Work Light

This LED automatically turns on when the trigger is pulled. The indicator remains lit for ten seconds after the trigger is released.

#### B. Red LED Indicator

The tool is equipped with a special circuit board incorporating several important features. These features inform the user of the current status of the tool. The red LED will signal in the cases given in Figure 3.

WHAT HAPPENS	WHAT IT MEANS
Red LED flashes for two seconds.	The battery has been inserted in the tool.
Red LED is lit constantly for 20 seconds at the end of the cycle.	Battery charge is below 17 volts at the beginning of the cycle.
Tool will not start. Red LED light remains lit for 20 seconds after trigger is released	Battery charge is below 16 volts at the beginning of the cycle.
Tool will stop. Red LED light remains lit for 20 seconds after the trigger is released.	Battery voltage drops below 13 volts during the cycle.
Tool will stop. The LED will flash for 20 seconds after the trigger is released.	Motor current exceeds 20 A during the cycle.
	Circuit has become hot.

Figure 3

### 3.2. Pressure Sensor

The tool is equipped with a pressure sensor that alerts the user of an incomplete crimp.

— If the tool is manually retracted before completion of a crimp, the red LED will flash for two seconds and an audible alarm will sound for two seconds.

— If the tool is unable to reach the required crimp force, the red LED will flash for two seconds and an audible alarm will sound until after the trigger is released.



**NOTE**

*The tool has an on-board memory of previous crimp cycles and the cycle count. This information can be accessed and downloaded onto a computer using USB Adapter Module 2217896-1.*

## 4. OPERATION

### 4.1. Battery Installation and Removal



**NOTE**

*The batteries Directive 2006/66/EC introduces new requirements from September 2008 on removability of batteries from waste equipment in EU Member States. To comply with this Directive, this device is designed to allow the rechargeable battery pack to be easily removed by the end-user when it needs to be replaced.*

To install the battery, slide the battery into the bottom of the crimping tool until it can go no further. There will be an audible “click” from the battery lock to indicate that the battery has been properly installed.

To remove the battery, disengage the battery lock by applying pressure on the lock toward the bottom of the crimping tool and slide the battery away from the tool.



**DANGER**

*Always dispose of the old battery pack in an environmentally-responsible way, in accordance with local waste regulations. Where possible, please recycle the battery cartridge. Contact your local authority for details of battery recycling locations in your area.*

### 4.2. Die Assembly Installation and Removal



**DANGER**

*To avoid personal injury, be sure to exercise extreme caution when handling the crimping tool. Remove the battery before installing or removing the die assembly.*

Each kit is supplied with an SDE closed head adapter assembly installed on the battery-powered crimping tool. The only installation required is the die assembly.



**CAUTION**

*Do not operate the tool without the SDE closed head adapter assembly installed. Damage to the ram or seals can result.*

**CAUTION**

*Do not operate the tool without the die assembly installed. Damage to the closed head adapter assembly can result.*

The following instructions are specific to the use of TE SDE closed head die assemblies. Make sure to use only TE SDE die assemblies.

**A. Installation**

1. Remove the battery from the crimping tool.
2. Remove the two die retaining screws from the closed head adapter assembly.

**NOTE**

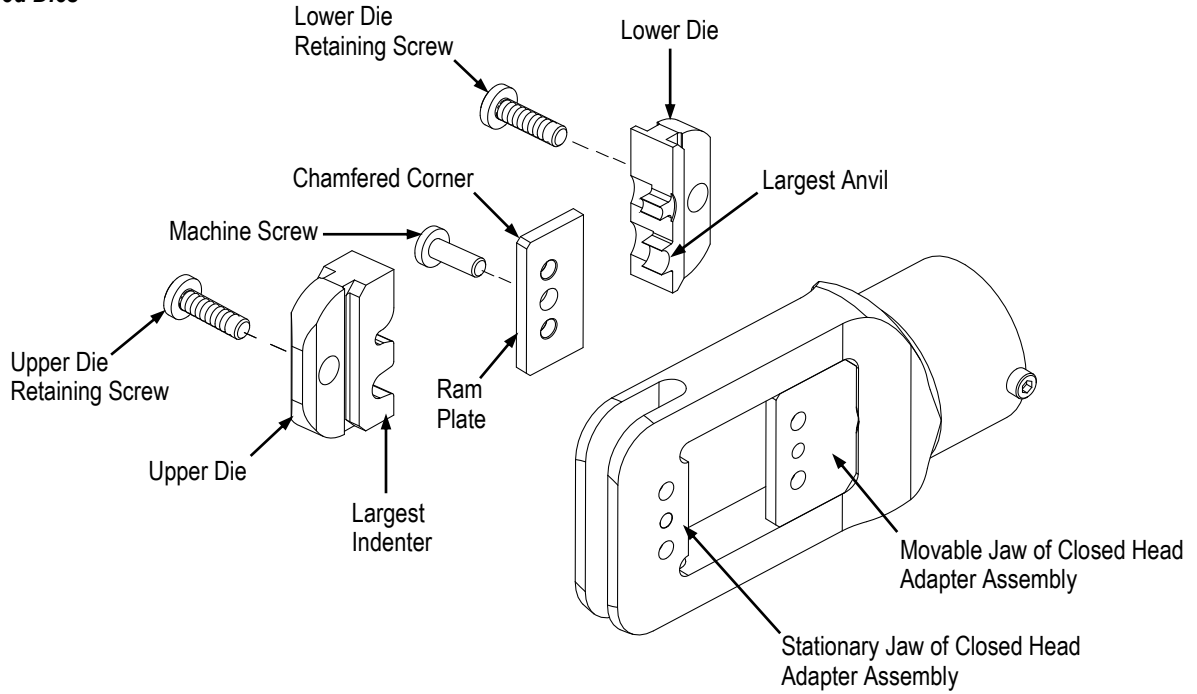
*These die retaining screws are not needed to install dies that include two die retaining pins; however, make sure to keep the die retaining screws for possible future use.*

3. Remove the ram plate from the movable jaw.
4. Slide the upper die (crimper) into the stationary jaw of the closed head adapter assembly. Orient the upper die so that the indenters face inward, with the largest indenter entering first, and the screw holes align. For dies that include two die retaining pins, ensure that the chamfered edges are aligned. See Figure 4.
5. Insert the upper (or long) die retaining screw into the hole of the stationary jaw and through the screw hole of the upper die. For dies that include two die retaining pins, insert the pins into the holes in the ram plate. Tighten the screw just enough to hold the die in place. Do NOT tighten the screw completely at this time.
6. Slide the lower die (anvil) in the movable jaw of the closed head adapter assembly. Orient the lower die so that the anvils face inward, with the largest anvil entering first, and the screw holes align. See Figure 4.
7. Place the ram plate on the moving jaw so that the chamfered corners are located adjacent to the die assembly, and secure it with the machine screw.
8. Insert the lower (or short) die retaining screw through the ram plate, through the screw hole of the lower die, and into the hole of the movable jaw. For dies that include two die retaining pins, insert the pins into the holes in the ram plate. Tighten the screw just enough to hold the die in place. Do NOT tighten the screw completely at this time.
9. Re-install the battery, then pulse the trigger to slowly close dies, making sure the indenters and anvils of the dies are properly aligned.
10. When the dies are aligned, tighten the die retaining screws.
11. To attach a locator assembly, slide the locator assembly onto the long die retaining screw and secure it with the hex nut. See Figure 4.

**B. Removal**

1. Remove the battery from the crimping tool.
2. If a locator assembly was installed, remove the hex nut, then pull the locator assembly away from the long die retaining screw.
3. Remove the die retaining screws. For dies that include two die retaining pins, remove the die retaining pins.
4. Remove the ram plate, then slide the dies out of the jaws of the closed head adapter assembly.

**Shouldered Dies**



**Pinned Dies**

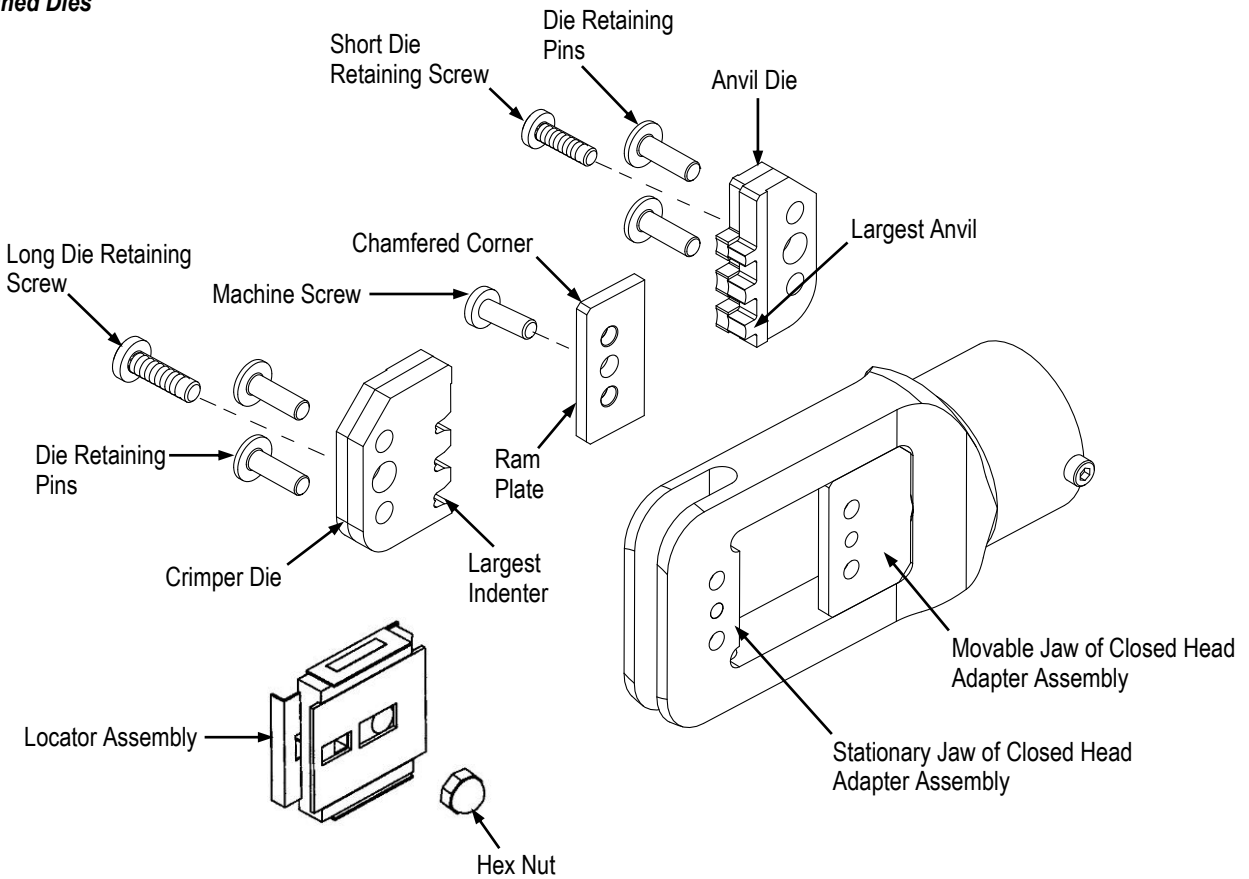


Figure 4



### 4.3. Crimping

The following procedure provides only general information concerning crimping. Refer to the instructions packaged with the crimping head for detailed information, including wire stripping dimensions and instructions for positioning the product to be crimped in the crimping area.

**DANGER**

*To avoid personal injury, keep fingers clear of the crimping area.*

1. Position the product to be crimped in the appropriate crimping chamber.
2. Depress the trigger to advance the ram. This closes the dies in order to hold the product to be crimped in place. Do not deform the wire barrel.
3. Insert a stripped wire in the wire barrel of the product to be crimped; making sure that the wire insulation does not enter the wire barrel.

**CAUTION**

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

4. Hold the wire in position, then depress and hold the trigger to complete the crimp. The crimping tool will return automatically to the first position of its cycle when the crimp is complete.

**NOTE**

*If it is necessary to retract the ram before a crimping cycle is completed, push the release switch. Pushing the release switch will result in the complete retraction of the ram. Only kits -1 and -2 have a release switch.*

**CAUTION**

*This tool is not designed for continuous operation. After 100 cycles, allow the crimping tool to cool for 15 minutes.*

**CAUTION**

*Do not re-terminate the crimped product.*

## 5. PREVENTIVE MAINTENANCE

### 5.1. Daily Maintenance

Perform the following maintenance on a daily basis:

1. Inspect the closed head adapter assembly jaws and dies for wear or damage such as cracks, gouges, or chips.
2. Inspect the tool for damage or leaks. If damage is detected, return the tool to TE for repair.
3. Clean the tool, removing accumulations of dirt and grease from the closed head adapter assembly, particularly in areas where the closed head adapter assembly is installed and the product is crimped. Wipe the entire tool frequently with a clean, lint-free cloth.

### 5.2. Yearly Maintenance

Once a year or every 10,000 cycles (whichever comes first), the crimping tool should be returned to TE for inspection.

### 5.3. Lubrication

Lubricate all pins, pivot points, and bearing surfaces with high-quality grease. We recommend the use of Molykote paste, which is a commercially available lubricant.

Molykote is a trademark.

Lubricate the closed head adapter assembly according to the following schedule:

Closed head adapter assembly used in daily production should be lubricated daily

Closed head adapter assembly used occasionally in daily production should be lubricated weekly

Closed head adapter assembly used weekly should be lubricated monthly

## 6. TROUBLESHOOTING

Prior to beginning troubleshooting procedures, be sure the battery is operational.

1. Be sure that the battery is charged. Re-check the battery after several minutes to ensure that the battery is holding its charge.
2. Use a nonflammable contact cleaner or pencil eraser to clean the electrical contacts on the battery and crimping tool.
3. Re-install the battery, and check the crimping tool again.

Refer to Figure 5 for problems, probable causes, and remedy.

PROBLEM	PROBABLE CAUSE	REMEDY
Tool is inoperative.	Dirt, contaminants, etc., in ram area of tool.	Return tool to TE for evaluation.
	Tool battery contacts damaged.	Reform the contacts.
	Tool components are worn or damaged.	Return tool to TE for evaluation.
Jaws stop during operation.	Oil level is low.	Return tool to TE for evaluation.
	Air in the hydraulic system.	Pull trigger and hold retract button simultaneously. Hold for approximately 10 seconds.
Tool loses oil.	Damaged internal seal.	Return tool to TE for evaluation.

Figure 5

## 7. REPLACEMENT AND REPAIR



### **DANGER**

To avoid personal injury, ALWAYS remove the battery cartridge from the tool BEFORE performing any maintenance on the crimping tool.

Kit replacement parts are identified in Figure 6. Order replacement parts through or return parts to your TE Representative, or call 1-800-526-5142, or send a facsimile of your purchase order to 717-986-7605. Or write to:

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

PART NUMBER	DESCRIPTION
2217332-1	Battery
2217331-1	Charger, 120 V, North America
2217331-2	Charger, 220 V, Europe

Figure 6

## 8. DECOMMISSIONING

In compliance with the regulations in force in the country where the tool is used, the user must make sure that waste produced during operation is correctly disposed. Disposal of lubricants and parts removed must be carried out in compliance with the standards in force in the country where the tool is used.

## 9. RESTRICTION ON HAZARDOUS SUBSTANCES (RoHS) INFORMATION

Information on the presence and location of any substances subject to RoHS can be found at <http://www.te.com/customersupport/rohssupportcenter/>

- (1) Click “Check Product Compliance and Get Statements of Compliance (SoC)”
- (2) Then click “Check Product Compliance Search Tool”

## 10. REVISION SUMMARY

- Updated document to corporate requirements
- Updated information in table in Figure 1