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PRODUCT INFORMATION 1-800-522-6752

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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 approved eye protection while operating equipment.



Always wear appropriate ear protection while using equipment.



Moving parts can crush and cut. 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 the power source when performing repair or maintenance on the equipment.

Do not operate the equipment without guards in place.





Lift point for equipment.



Use caution when working with this equipment.



Never insert hands into installed equipment. Never wear loose clothing or jewelry that may catch in moving parts of the equipment.



Never alter, modify, or misuse the equipment.



Never enter the electrical enclosure immediately after turning off the machine power switch and disconnecting the electrical cord from the power source. High residual voltages may be present in the electrical enclosure. Read the warning label on the electrical enclosure lid before entering the enclosure.



Never stare at the bright light used for machine lighting. Bright light can damage the eye.



Never use the machine for other than what it is designed, which is pressing connectors to wire. Do not use the machine for crushing any items.



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 SUPPORT CENTER

When calling the Support 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 Support 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.



INTRODUCTION

The T5 Terminator machines are designed to be used as a stand-alone semi-automatic power unit for the crimping of electrical terminals onto wire and cables. The design of the terminator machine facilitates the easy exchange of terminations applicators and reels of terminals by operators for the crimping of terminals. The terminator machine supports the use of standard side-feed and end feed mini-applicators. Figure 1 shows an example of the T5 Terminator equipped with Crimp Quality Monitoring (CQM).



Figure 1: T5 Terminator 20kN, with CQM

Table 1			
Terminator Part Number	Description	Voltage	Plug
2475000-1	w/o Crimp Quality Monitor	120V, 60Hz Single Phase	NEMA 5-15P
2475000-2	w/o Crimp Quality Monitor	230V, 50Hz Single Phase	IEC 884/CEE7-VII
2475000-3	w/o Crimp Quality Monitor	230V, 50Hz Single Phase	BS 1363A
2475000-4	w/o Crimp Quality Monitor	100V, 50/60Hz Single Phase	JIS 8303
2475000-5	w/o Crimp Quality Monitor	230V, 50Hz Single Phase	AS3112
2476000-1	With Crimp Quality Monitor	100V, 50/60Hz Single Phase	NEMA 5-15P
2476000-2	With Crimp Quality Monitor	230V, 50Hz Single Phase	IEC 884/CEE7-VII
2476000-3	With Crimp Quality Monitor	230V, 50Hz Single Phase	BS 1363A
2476000-4	With Crimp Quality Monitor	100V, 50/60Hz Single Phase	JIS 8303
2476000-5	With Crimp Quality Monitor	230V, 50Hz Single Phase	AS3112

Table 2: Machine Technical Specifications

Parameter	Specification
Dimensions	439W x 420D x 1090H mm
Mass	50kg
Voltage	See Table 1
Power Consumption	750 Watts
Maximum Crimp Force	20kN*
Stroke	40mm
Temperature Range	-4°C to 40°C
Relative Humidity	≤ 95% (non-condensing)
Transportation and Storage	Store in a clean dry environment after coating surfaces lightly with rust preventing oil.

*Crimping exclusively applications that are at or near maximum crimp force may reduce the life of some components.

1. DESCRIPTION

1.1. Customer Manual Information

This customer manual contains information on the receiving, inspection, operation, adjustment, and preventative maintenance of the T5 Terminator Machine (reference Figure 1). Descriptions in this manual pertain to the controls and adjustments of the T5 Terminator machines described within only.

Descriptions and illustrations are intended only as examples and may differ from actual situations.

Information on the use, care, and maintenance of crimping applicators used with the T5 Terminator machine should be referenced prior to installation in the Terminator Machine.

1.2. Notation Conventions

Read and understand the entire manual before using the equipment.

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



DANGER

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

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



NOTE Highlights special or important information.

1.3. Machine Overview

The T5 Terminator machine is an electronically powered machine with an eccentric crank which provides a force needed to make crimp connections between terminals and wire or cables. See Figure 2 for a general description of components and their location on the machine.



Figure 2: Component Identification



т	2	h	2	З
1	a	υ	e	3

No.	Description	No.	Description
1	Terminal Reel Clutch	12	Mounting Bracket
2	Terminal Reel Support Rod	13	Scrap Collection Drawer
3	Motor	14	Safety Guard Assembly
4	CQM Head Unit (w/ CQM)	15	Shut Height Locking Screw
5	CQM Power Supply (w/CQM)	16	Shut Height Adjustment Nut
6	On/Off Switch	17	Ram Adaptor
7	Ram Jog Control	18	Light
8	Cycle Counter (Resettable)	19	Strain Sensor (w/CQM)
9	Warning Label	20	Terminal Infeed Guide (end-feed)
10	Terminal Infeed Guide (side-feed)	21	Quick Change Mounting Base
11	Applicator Clamp Knob	22	Foot Switch (not shown)

2. RECEIVING INSPECTION AND INSTALLATION

2.1. Receiving Inspection

These machines are thoroughly inspected during and after assembly. A final series of inspections is made to insure the proper machine functioning before packaging and shipping.



NOTE

To protect against damage that may have occurred during shipment, remove the machine from the crate and the machine for damage. If damage is evident, file a claim against the carrier and notify TE immediately.



2.2. Installation

Remove all mounting hardware securing the machine to the shipping pallet. The lift point of the machine is accessible from the top of the machine cover. Install an appropriately rated M10 threaded eyebolt (not provided) on top of the machine, see Figure 3.



Figure 3: Lift Point Location



CAUTION

NOTE

The machine is designed exclusively lifting by the eyebolt at the point of lifting shown. Every other lifting and anchor point can damage the machine and cause hazards to persons or property.



DANGER

Ensure the eyebolt is securely attached to the machine with all the threads engaged prior to lifting.

The lifting and transport of the machine must be carried out by gualified personnel in the industry.

Remove eyebolt once installed.

2.3. Considerations Affecting Placement of Bench Machines

The location of the machine in relation to the operator's position is extremely important in terms of both safety and maximum efficiency.

Studies have repeatedly shown that operator fatigue will be reduced, and greater efficiency achieved, if:

- 1. The bench is of appropriate height, preferably with sound-deadening rubber mounts.
- 2. The machine is properly located on the bench with ample work areas on both sides to facilitate workflow.
- 3. The operator uses a swivel chair with padded seat and back rest which are independently adjustable.
- 4. The foot switch, on machines so equipped, is placed on a rubber mat to maintain its movability, while preventing it from sliding unintentionally.

Below illustrates proper machine location, operator position, and recommended foot switch position. See Figure 4.



Figure 4: Proper Placement



A. Bench

The bench to be used should be of sturdy construction, preferably with rubber mounts to minimize noise. A height of 762 to 812.8mm [30 to 32 in.] is the most suitable for operator comfort and convenience. This height allows the operator to rest both feet on the floor, thereby providing for the shifting of weight and leg position.

B. Facilities Labeling

The machine part number, serial number, manufacture date, and electrical specification are given on the label on the left side of the machine.



DANGER

Machines should be securely bolted to the bench using the machine mounting brackets shown in Figure 2. Hardware is customer supplied. Machines should not extend beyond the front of the bench.

C. Operator's Chair

The operator's chair should swivel and have independent seat height and back rest adjustments. The seat and back rest should be padded, and the back rest should be large enough to provide support both above and below the waistline.

In use, the chair should be far enough under the bench, so the operator's back is straight and supported by the back rest.

D. Foot Switch

When the operator is correctly positioned in front of a machine equipped with a foot switch, the foot should rest on the switch comfortably. The foot switch should be movable, so that its location can be readily changed when the operator shifts position to minimize fatigue.

The preferred foot switch location varies to some extent among operators. Some operators prefer the switch located so that their foot rests on the switch when their feet are in the natural sitting position (calf of leg perpendicular to the foot). Others prefer the leg to be slightly in front of the natural position. The important thing to remember is that the foot should be at approximately 90° (right angle) to the calf when resting on the switch. Those operators who prefer the foot switch slightly in front of the natural position may require a wedge-shaped block placed under it.

E. Scrap Removal

The machine is equipped with a scrap collection tray located under the frame. Not all scrap will end up in this tray. It is suggested that a second tray be placed to the right side of the machine to help collect scrap chips.



2.4. Final Assembly and Component Integration

To save space during shipping the terminal reel bracket is separated from the machine. To install, place the main shaft of the bracket into the support bracket located on the back side of the machine. Align the protruding pins with the openings in the bracket. Lift and rotate the terminal reel bracket to switch between side-feed and end-feed applications.



Figure 5: Final Assembly

The machine is shipped with the foot switch and required power plug pre-installed, see Table 1 for plug configurations.



DANGER

Machines should be securely bolted to the bench using the machine mounting brackets shown in Figure 2. Hardware is customer supplied. Machines should not extend beyond the front of the bench.

If sourcing a machine equipped with a CQM, the CQM Power Supply is not provided with a IEC320-C14 3 pole AC cord. The correct power cord will have to be sourced locally based on the available connection.

3. OPERATION

3.1. Applicator Installation

Install the proper applicator in the quick-change mounting base as follows (see Figure 6):

- 1. Loosen the applicator clamp knob.
- 2. Open the hinged guard assembly.
- 3. Clean matting surface of the applicator and quick-change mounting base with a dry lint free cloth.
- 4. Place the applicator on the quick-change base plate, then slide it back until the two notches in the applicator base engage the stops at the back of the quick-change base plate. At the same time, guide the ram post into the ram post adapter.
- 5. Tighten the applicator clamp knob.
- 6. Close hinged guard assembly.



CAUTION

To prevent damage to wearable crimp tooling, it is recommended to fully rotate the crimp height adjustment ring counterclockwise (left-hand threads) increasing the crimper to anvil clearance before cycling machine.







NOTE

Applicators equipped with pneumatic feed must be connected to an external air supply providing approximately 5 Bars of dry filtered air. Machine is not equipped with pneumatic control, applicators used must have internal feed control.



NOTE

Installation of terminal reels including routing of terminal carrier strip is not shown. Install terminal reel support rod positioned in the side-feed or end-feed location accordingly. Install the terminal reel clutch, routing the terminal carrier strip through the terminal infeed guide, and into the applicator.

3.2. Guard Insert Adjustment

The machine is equipped with an adjustable guard insert to allow crimping of short breakout cables. After installation of the applicator (see Section 4.1), adjustment of the guard insert may be required. To adjust the guard inset, loosen the two locking screws located on the right side of the guard assembly. Slide the guard insert towards the applicator until it touches. Lock adjustment screws to prevent the guard insert from moving.



Figure 7: Guard Insert Adjustment



3.3. Machine Control

The T5 Terminator machine is equipped with a basic control. See Figure 2 for the location and description of the machine control features.

In summary the machine is equipped with the following controls:

On/Off Switch/Indicator: Lighted switch controls power to machine motor.

Ram Jog Control: Bi-directional momentary rotary switch is used to control the motor rotation direction during slow jog operations.

Counter: Counts each cycle, resettable to zero with push button.

Foot Switch (Not Shown): Initiates a complete cycle if guard interlock switch is engaged.



DANGER

Turning the On/Off Switch/Indicator to the off position does not completely remove power to the machine. To remove power, unplug the machine from the power source.



NOTE

When using the Ram Jog Control, peak force is not available. If the jog is not able to cycle through a complete, reverse the control to return the ram. Return the ram to the top of the stroke prior to attempting to start a crimping cycle.

4. PREVENTIVE MAINTENANCE

Preventive maintenance will keep the machine in good working order and ensure maximum reliability and service from all of its components.



DANGER

To avoid personal injury, electrical and pneumatic power must be DISCONNECTED at the source prior to performing maintenance.



DANGER

The electronics control assembly maintains high voltage after power has been removed. Accessing or servicing the electrical assembly should only be performed by qualified personnel.

4.1. Cleaning

Clean any debris from the applicator area daily.



DANGER

Compressed air used for cleaning must be reduced to less than 207Kpa [30 psi] and effective chip guarding and personal protective equipment (including eye protection) must be used.

If an air-feed applicator is installed, check and replace the pneumatic supply filter and dryer element, servicing as necessary.

Wipe off the guards with a clean, soft cloth.

Empty scrap collection tray.



CAUTION

DO NOT use any solvent to clean the guards. Solvents could cause irreparable damage.

4.2. Lubrication

The moving parts of the machine require regular lubrication to ensure reliable service and long life. The recommended grease is Kluber Lubrication Microlube GL 261.



NOTE Contact TE Engineering for 2nd choice grease alternatives.

NOTE

For operation in temperatures below 10°C [50°F], it will be necessary to use a No. 1 grease.



CAUTION

It is important to only use Lithium-Based grease with extreme pressure (EP) additives.

Every 250,000 cycles, apply grease using a grease gun to the areas identified in Figure 8.

Figure 8: Lubrication Locations





NOTE

For best distribution of grease around the main bearing, pump grease into the hole located at the top of the machine until grease can be seen coming out of the bearing race. Jog the ram to the lower position to see the bearing race prior to lubrication.



NOTE

Only a light coat of grease is required on the ram race ways.

Wipe off any excess grease or oil that may have accumulated prior to returning the machine to service.



NOTE

The gearbox is a non-serviceable item. Replacing of the oil in the gearbox is not required.



4.3. Safety System Check

There are periodic check of the safety system should be performed to verify integrity of the system. Perform the following check at least once per month:

- 1. Verify all guards and interlock switches are in place and untampered with.
- 2. Power ON the machine.
- 3. Close the guard Verify the machine functions as normal, completing a cycle, making sure jog functionality functions as expected.
- 4. Open the guard Verify the machine no longer functions, is not able to complete a cycle, or able to jog.



DANGER

If the preceding checks cannot be verified, DO NOT operate the machine. Failure to verify these system checks indicates a potential problem with the safety system. Contact TE Field Engineering personnel for assistance

5. ADJUSTMENTS

The following adjustments are necessary to maintain the machine in operating condition, and to setup the machine after replacing parts.

5.1. Shut Height

The T5 Terminator machine is equipped with an adjustment for shut height. The 135.788mm shut height is set at the factory and does not need changed unless the machine is disassembled for service.

A. Measuring

The shut height is the distance between the bottom surface of the ram adaptor and the top surface of the quick-change mounting base, see Figure 9.



Figure 9: Shut Height



NOTE

Shut Height Gage PN 679655-2 is recommended for measuring shut height (refer to 408-8535 for instructions on use of the gage).

- 1. To adjust the shut height, install shut height gage on quick-change mounting base.
- 2. Close the guards, using the jog switch to slowly bring the ram down.
- 3. Establish if shut height is within tolerance, if not proceed with adjustment in the next steps.
- 4. Raise ram to top position.
- 5. Loosen the locking screw (do not remove).
- 6. Insert a pin into adjustment screw, rotating to adjust the shut height (drag screws may need backed off if resistance is high).
- 7. Tighten locking screw.
- 8. Repeat step 2 until proper shut height is obtained.



Figure 10: Shut Height Adjustment

Adjusting Screw
Drag Screws
Locking Screw

6. TROUBLESHOOTING

Contact the Tooling Assistance Center 1-800-722-1111.

7. DISPOSAL

Contact TE for disposal.



8. REPLACEMENT AND REPAIR

Customer-replaceable parts are listed in the product drawing (see Table 1 for part number). Stock and control a complete inventory to prevent lost time when replacement of parts is necessary. Order or return parts through your TE representative or go to TE.com and click the **Shop TE Store** link at the top of the page.

For field service, go to the Service and Repair page on the TE website, or send an e-mail to the address for your region in Table 4.

Figure 11: Service and repair

Table 4: Field service e-mail addresses



Region	Address
Asia	Tefe1ap@te.com
EMEA (including India)	Tefe1@te.com
North America	Fieldservicesnortharmerica@te.com
South America	FSE@te.com

9. RESTRICTION ON HAZARDOUS SUBSTANCES (ROHS) INFORMATION

Information on the presence and location of any substances subject to RoHS can be found at the following website:

http://www.tycoelectronics.com/customersupport/rohssupportcenter/

Click on "Find Compliance Status" and enter equipment part number.

10. REVISION SUMMARY

Since the last revision of this document, the following changes were made:

• Updated "Bench Top Terminator" to "T5 Terminator" in all places.