



customer manual

SAFETY PRECAUTIONS — READ THIS FIRST! 2

SAFETY PRECAUTIONS — AVOID INJURY — READ THIS FIRST!..... 3

1. INTRODUCTION 4

2. DESCRIPTION 4

3 DIE SELECTION..... 5

4. CRIMPING PROCEDURE..... 5

5. INSPECTION AND MAINTENANCE..... 6

 5.1. Visual Inspection 7

 5.2. Daily Maintenance..... 7

 5.3. Crimping Pressure Inspection 7

 5.4. Lubrication..... 7

 5.5. Hydraulic Fluid Level Inspection/Fill..... 8

 5.6. Gaging the Crimping Chamber 9

6. REPLACEMENT AND REPAIR 10

7. REVISION SUMMARY 11

ORIGINAL INSTRUCTIONS

SAFETY PRECAUTIONS — READ THIS FIRST!

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

Inspect the tool and jaws/dies 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.

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.

SAFETY PRECAUTIONS — AVOID INJURY — READ THIS FIRST!

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.



Never alter, modify, or misuse the equipment.



Always wear appropriate ear protection while using equipment.



Do not operate equipment if the guards are removed.



Moving parts can crush and cut. Always keep guard(s) in place during normal operation.



Read and understand this entire document before using equipment.



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

SUPPORT CENTER

CALL TOLL FREE 1-800-522-6752 (CONTINENTAL UNITED STATES AND PUERTO RICO ONLY)

The **Support 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:

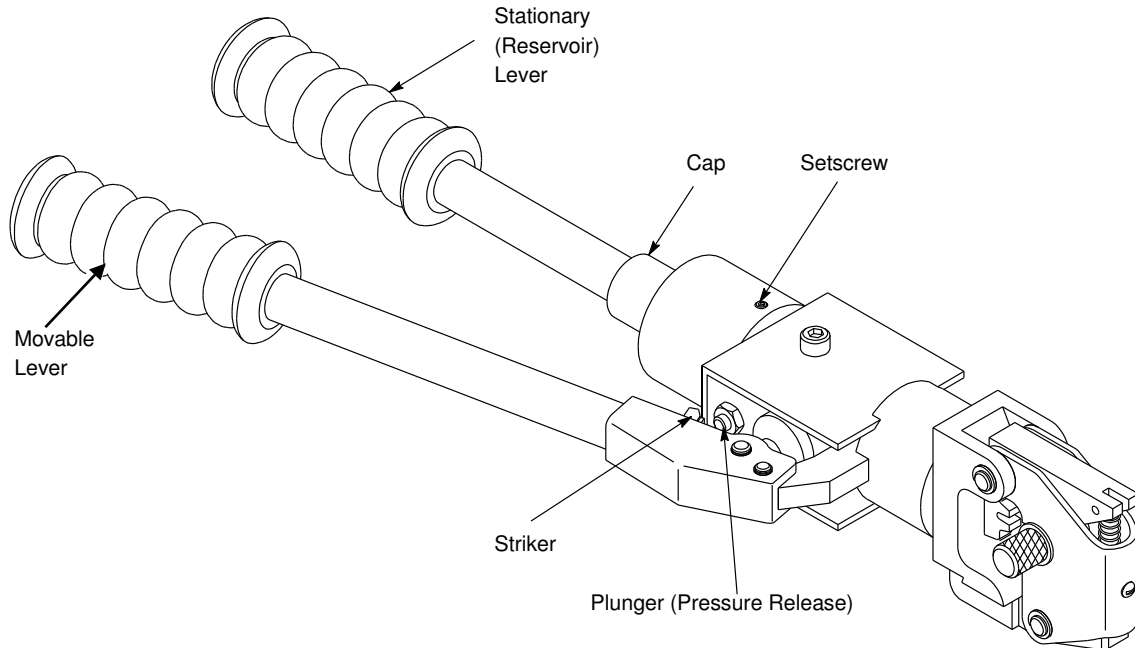
- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Customer Name 2. Customer Address 3. Person to contact (name, title, telephone number, and extension) 4. Person Calling 5. Equipment number (and serial number if applicable) | <ol style="list-style-type: none"> 6. Product part number (and serial 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 |
|--|--|

PROPER USE GUIDELINES



CAUTION

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.



| WIRE SIZE (AWG) | WIRE STRIP LENGTH mm [in.] | | | |
|-----------------|----------------------------|--------------|-----------------------------------|--------------|
| | TERMINALS | | BUTT SPLICES AND PARALLEL SPLICES | |
| | MINIMUM | MAXIMUM | MINIMUM | MAXIMUM |
| 8 | 8.33 [.328] | 9.14 [.360] | 10.31 [.406] | 11.13 [.438] |
| 6 | 9.91 [.390] | 10.72 [.422] | 11.91 [.469] | 12.70 [.500] |
| 4 | 11.51 [.453] | 12.29 [.484] | 13.49 [.531] | 14.30 [.563] |
| 2 | 13.11 [.516] | 13.89 [.547] | 15.09 [.594] | 15.88 [.625] |

Figure 1

1. INTRODUCTION

Hydraulic Hand Tool PN 59975-1 is designed for crimping SOLISTRAND* terminals and splices on AWG 8 through AWG 2 wire.



NOTE

Read these instructions thoroughly before using the hand tool.



NOTE

All dimensions on this sheet are in metric units [with U.S. customary units in brackets]. Figures and illustrations are for reference only and are not drawn to scale.

2. DESCRIPTION (Figure 1)

The hand tool has a stationary (reservoir) lever and a movable lever. These levers are compressed to pump hydraulic fluid behind the ram, moving it forward and thereby closing the dies. After the crimping is complete, the movable lever is turned to depress the plunger. The moving die retracts to its original position, completing the crimping cycle.

3. DIE SELECTION (Figure 2)

1. Press head latch and open crimping head as shown.
2. Pull back the die latch and turn thumb knob until desired die size appears (embossed wire size appears on side of each die position).

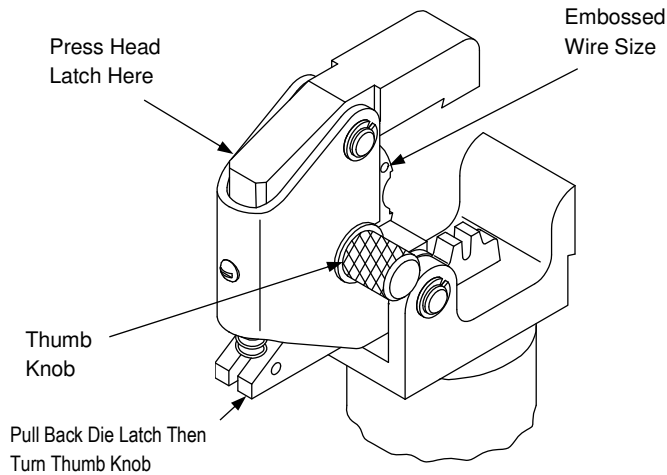


Figure 2

3. Rotate thumb knob left or right until die latch locks die wheel in desired position.
4. Close head.



NOTE

In order to close head, die latch must 'snap' into locked position.

4. CRIMPING PROCEDURE

1. Strip wires to dimensions listed in Figure 1.
2. Insert terminal or splice in upper die as shown in Figure 3.
3. Pump movable lever until moving (lower) die grips terminal or splice.
4. Insert stripped wire into wire barrel of terminal or splice



CAUTION

Do not deform wire barrel of terminal or splice

5. Continue pumping moveable lever. A slight 'click' may be heard, indicating the pump has shifted into the high-pressure stage. Continue pumping moveable lever. When dies have bottomed, an audible 'pop' will be heard. This indicates that the crimp is complete.



CAUTION

Potential damage to the tool may occur if the following Step 6 is not taken.

6. Retract movable die by opening the movable handle to the full open position. Turn the movable handle (to actuate striker), **DO NOT TURN THE MOVABLE HANDLE WHILE IN THE CLOSED POSITION AS YOU WILL DAMAGE THE PLUNGER (PRESSURE RELEASE)**, and compress handles to depress plunger (pressure release).

7. Movable die will now retract.
8. Remove crimped terminal or splice.



NOTE

If terminal or splice sticks in die after crimping, apply a rocking action to remove it from die.

9. Inspect crimp for the following criteria:
 - Centering of crimp (crimp may be off center but not off end of wire barrel)
 - Wire size being used matches wire range stamped on die position and terminal
 - End of wire is flush with or extends slightly beyond end of wire barrel
 - There are no nicked or missing strands
10. Inspect crimped terminal or splice in accordance with inspection procedure on instruction sheet packaged with the dies.

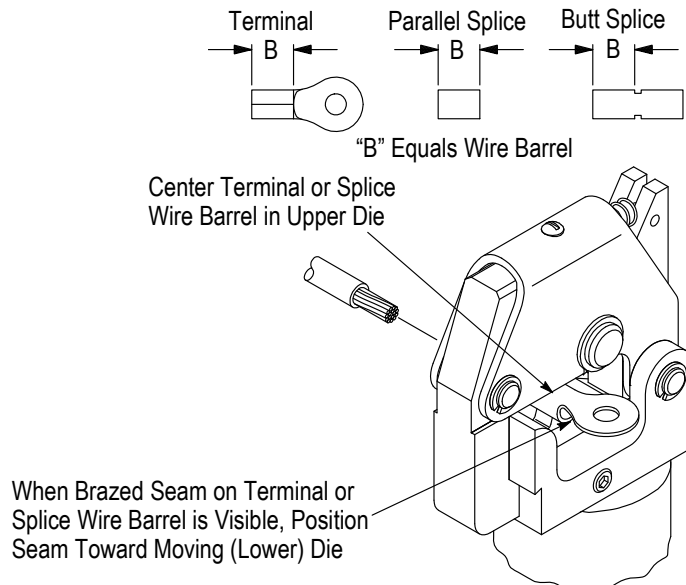


Figure 1

5. INSPECTION AND MAINTENANCE



DANGER

Make sure hydraulic pressure is released before following maintenance and inspection procedures, unless otherwise specified in the procedure.

It is recommended that an inspection and maintenance program be performed periodically to ensure dependable and uniform terminations. Though recommendations call for at least one inspection per month, frequency of inspection depends on:

- The care, amount of use, and handling of the hand tool,
- The presence of abnormal amounts of dust and dirt,
- The degree of operator skill, and
- Your own established standards.

The hand tool is inspected before being shipped; however, TE recommends that the tool be inspected immediately upon arrival at your facility to ensure that the tool has not been damaged during shipment.

5.1. Visual Inspection

1. Verify that all retaining pins are in place and secured with retaining rings. If replacements are necessary, refer to parts listed in Figure 6.
2. Inspect head assembly for worn, cracked, or broken areas. If damage is evident, return the tool for evaluation and repair. See Section 6, REPLACEMENT AND REPAIR.



NOTE

Once per year, or every 7,500 cycles (whichever comes first), the hydraulic head should be returned to TE for magnetic particle inspection. Additionally, inspect and service the head every month or 1,000 cycles.

5.2. Daily Maintenance

1. Hand tool should be immersed (handles partially closed) in a reliable commercial degreasing compound to remove accumulated dirt, grease, and foreign matter. When degreasing compound is not available, tool may be wiped clean with a soft, lint-free cloth. DO NOT use hard or abrasive objects that could damage the tool.
2. Make certain that the retaining pins are in place and that they are secured with retaining rings.



CAUTION

Do not remove the retaining pins as permanent damage to the tool could result.

3. All pins, pivot points, and bearing surfaces should be protected with a THIN coat of any good SAE 20 motor oil. DO NOT oil excessively.
4. When the tool is not in use, keep handles closed to prevent objects from becoming lodged in the dies. Store the tool in a clean, dry area.

5.3. Crimping Pressure Inspection

Check the crimping pressure to ensure that dies are fully bottomed before pressure is reduced by the internal bypass valve.

1. Select the largest wire and terminal size that will be crimped in the tool.
2. Select dies in accordance with Section 3, DIE SELECTION.
3. Place terminal or splice in dies in accordance with the instructions in Section 4, CRIMPING PROCEDURE.
4. Perform crimping procedure as described in Steps 3 thru 5 of Section 4, CRIMPING PROCEDURE. DO NOT release hydraulic pressure at this time.
5. When ram is fully extended and Steps 1 thru 4 are completed, a scribe line should appear on the ram at the base of the cylinder head. This indicates that the pressure requirement has been met.



CAUTION

If the scribe is NOT visible, the tool is not performing properly and should be repaired as described in Section 6, REPLACEMENT AND REPAIR.

If the tool conforms to these inspection procedures, lubricate it with a THIN coat of any good SAE 20 motor oil and return it to service.

5.4. Lubrication

Keep all pins, pivot points, and bearing surfaces lubricated with SAE 20 motor oil as follows:

- Tool used in daily production: lubricate daily
- Tool used daily (occasionally): lubricate weekly
- Tool used weekly: lubricate monthly

Wipe excess oil from tool, particularly from crimping area.



CAUTION

Oil transferred from the crimping area onto certain terminations may affect the electrical characteristics of an application.

5.5. Hydraulic Fluid Level Inspection/Fill (Figure 4)

1. Turn the tool upside down and clamp it in a vise so the tool levers are in an upright position.
2. Release all pressure in tool in accordance with instructions in Section 4, CRIMPING PROCEDURE, Step 6.

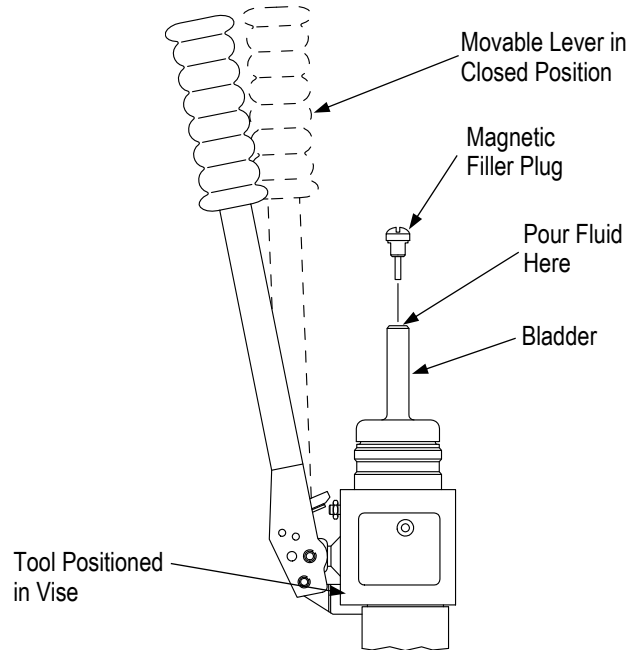


Figure 4

3. Turn the movable lever and allow the lever to close until it stops. DO NOT depress the plunger when closing the lever.



NOTE

Keep lever in CLOSED position for remaining steps in this procedure.

4. Loosen the setscrew in cap of stationary (reservoir) lever (see Figure 1).
5. With a view from the lever grip end, turn the lever COUNTERCLOCKWISE and remove the entire reservoir lever to expose the bladder.
6. Remove the magnetic filler plug.
 - If the bladder is full, no further check is necessary and tool can be re-assembled.
 - If fluid level is low, proceed to the next step.
7. Fill the bladder with fluid.



NOTE

Use care to prevent air bubbles from forming while pouring the fluid.



NOTE

The current fluid used is AW Hydraulic Oil ISO 46.

8. Refill the bladder to point of overflow, and replace the filler plug.
9. Re-assemble the stationary lever and tighten the cap setscrew.
The tool is now ready for use.

5.6. Gaging the Crimping Chamber

This inspection requires the use of a plug gage conforming to the dimensions in Figure 5.

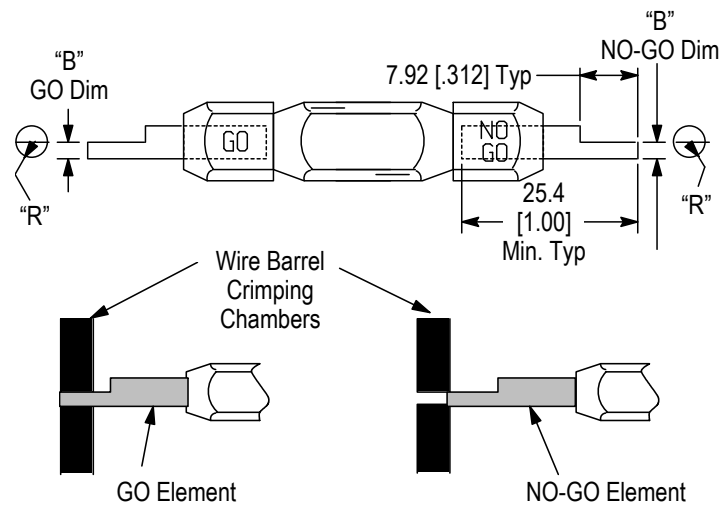


NOTE
TE Connectivity does not manufacture or market these gages.

Proceed as follows:

1. Clean oil or dirt from die closure surfaces and plug gage elements.
2. Rotate knob on tool to select die closure to be inspected. (Refer to Section 3, DIE SELECTION.)
3. Actuate tool until dies are closed and an audible 'pop' is heard.
4. Align the GO element with the wire barrel crimping chamber. Push element straight into the crimping chamber without using force.

The GO element must pass completely through the crimping chamber as shown in Figure 5.



| DIE SIZE | GAGE ELEMENT DIMENSIONS "B" (mm [in.]) | | RADIUS "R" |
|----------|--|---------------------------|-------------|
| | GO | NO-GO | |
| 8 | 2.184-2.192 [.0860-.0863] | 2.537-2.540 [.0999-.1000] | 3.58 [.141] |
| 6 | 3.124-3.132 [.1230-.1233] | 3.477-3.480 [.1369-.1370] | 3.96 [.156] |
| 4 | 4.039-4.046 [.1590-.1593] | 4.392-4.394 [.1729-.1730] | 5.56 [.219] |
| 2 | 4.826-4.834 [.1900-.1903] | 5.179-5.182 [.2039-.2040] | 6.35 [.250] |

Figure 2

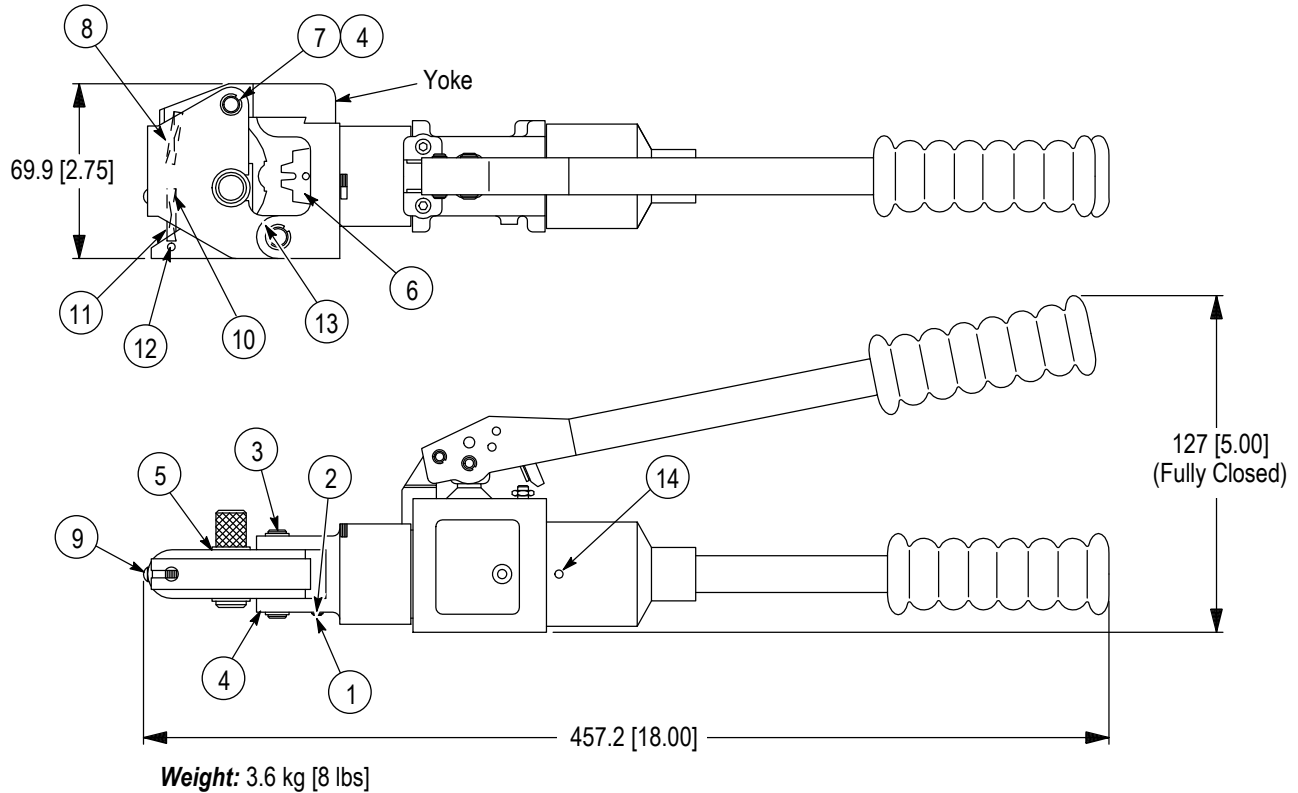
5. Now align the NO-GO element and try to insert it straight into the same crimping chamber. The NO-GO element may start entry, but **MUST NOT PASS** completely through as shown in Figure 5.
6. Repeat Steps 2 through 5 for each die size listed in the chart.
 - If the crimping chamber conforms to the gage inspection, the tool is considered dimensionally correct and should be lubricated with a THIN coat of any good SAE 20 motor oil.
 - If the crimping chamber does not conform to the gage inspection, the tool **MUST BE** repaired before returning it to service. See Section 6, REPLACEMENT AND REPAIR.

6. REPLACEMENT AND REPAIR

The parts listed in Figure 6 are customer-replaceable. A complete inventory can be stocked and controlled to prevent lost time when replacement of parts is necessary. Order replacement parts through your TE representative or call 1-800-526-5142, or send a facsimile of the purchase order to 1-717-986-7605, or write to:

CUSTOMER SERVICE (038-035)
 TE CONNECTIVITY CORPORATION
 PO BOX 3608
 HARRISBURG PA 17105-3608

For customer repair service, contact a TE representative at 1-800-526-5136.



| REPLACEMENT PARTS | | | |
|-------------------|-------------|------------------------------------|--------------|
| ITEM | PART NUMBER | DESCRIPTION | QTY PER ASSY |
| 1 | 4-305927-0 | Screw | 1 |
| 2 | 21025-4 | Washer, Lock, Internal Tooth No. 8 | 1 |
| 3 | 301710 | Pin, Retaining | 1 |
| 4 | 21045-8 | Ring, Retaining | 4 |
| 5 | 1-21045-3 | Ring, Retaining | 2 |
| 6 | 47322 | Indenter | 1 |
| 7 | 301707 | Pin, Retaining | 1 |
| 8 | 301712 | Spring | 1 |
| 9 | 2-305927-5 | Screw | 1 |
| 10 | 304028 | Stop, Spring | 1 |
| 11 | 304029 | Spring | 1 |
| 12 | 3-21028-5 | Pin, Roll, .094 Dia X .438 Length | 1 |
| 13 | 2-21028-4 | Pin, Roll, .078 Dia X .812 Length | 1 |
| 14 | 4-21006-9 | Screw, Set | 1 |

Figure 3

7. REVISION SUMMARY

- Format based on 409 Series documents
- Data obtained from 408-6758