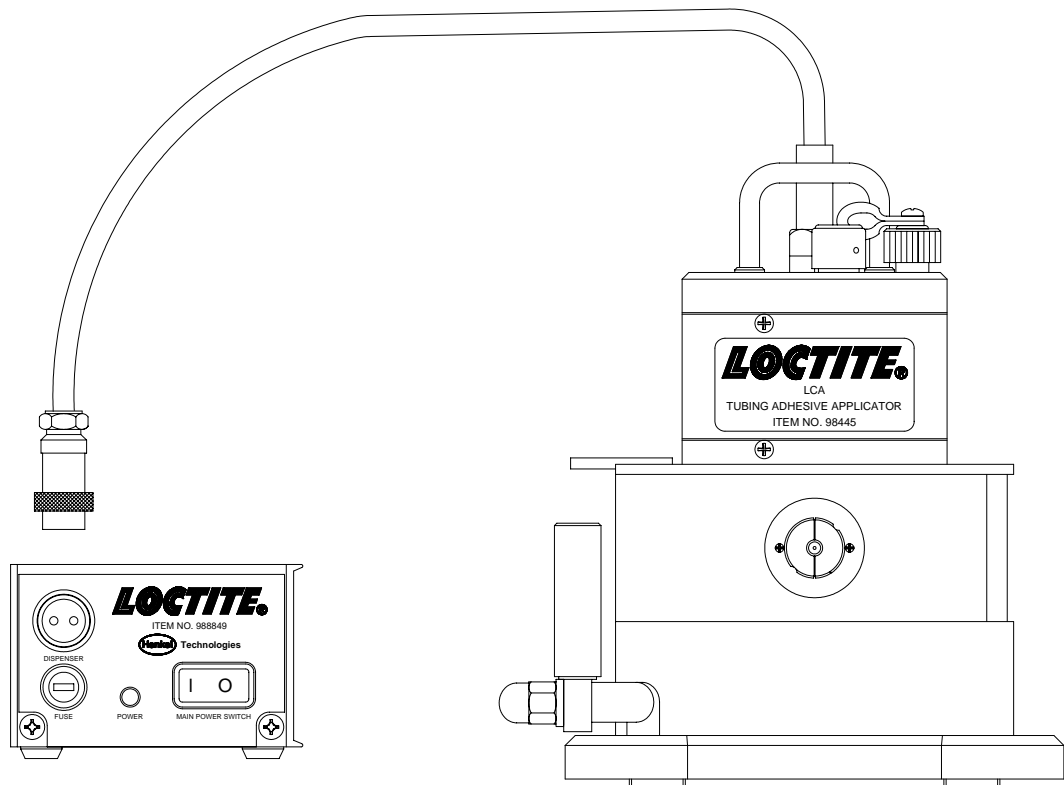




# EQUIPMENT Operation Manual

## Loctite ® LCA Tubing Adhesive Applicator

98445



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# 1. Please Observe the Following

## 1.1 Emphasized Sections

### **Warning!**

Refers to safety regulations and requires safety measures that protect the operator or other persons from injury.


### **Caution**


Emphasizes what must be done or avoided so that the unit or other property is not damaged.


### **Notice**


Gives recommendations for better handling of the unit during operation or adjustment as well as for service activities.

## 1.2 For Your Safety

 Ensure that all personnel involved in the installation, operation and maintenance of this machine, as well as those persons who act as supervisory personnel for those listed above, have read and fully understood these instructions before attempting to install, operate or perform maintenance on this machine.

 Always wear goggles when dispensing adhesive.

 Observe general safety regulations for the handling of chemicals such as Loctite® adhesives and sealants. Observe the manufacturer's instructions as stated in the Material Safety Data Sheet (MSDS).

 While under warranty, the unit may be repaired only by an authorized Loctite® service representative.

## 1.3 Items Supplied

Carefully remove the unit from its shipping carton and inspect it for any signs of damage. Any damage should be reported immediately to the carrier. Refer to the list of supplied parts below and compare to the contents. Report any missing parts promptly to the Loctite® customer service department at 1-800-LOCTITE.

- 1 LCA Tubing Adhesive Applicator
- 1 Bushing removal pliers
- 1 Transformer with an ON/OFF switch
- 1 Line cord
- 1 "T" hex key 2.5mm
- 1 Instruction Manual.

#### **1.4 Field of Application (Intended Use)**

The LCA Tubing Adhesive Applicator is a Light Cure adhesive dispenser that has been designed for precise, repeatable, and quick dispensing of Light Cure adhesive on tubing used for assembling products. The LCA Tubing Adhesive Applicator can dispense adhesive on the external surfaces of tubing, conical surfaces, needles, and various types of connectors and components.

#### **1.5 Features and Benefits**

- Easier and faster dispensing than other traditional methods or procedures for dispensing adhesive 360°. Adhesive is applied by simply inserting a tube or component into the bushing and immediately pulling it back for assembly operation. It is not necessary to wait or rotate the part inside the bushing.
- Reproducible bonding: when a tube (or component) is pushed into the bushing, a fixed stop determines the right dispensing length. A film of adhesive is accurately and uniformly dispensed to form a 360° band all around the surface of the tubing (or component).
- Operator training is minimal: the dispensing systems guarantee reproducible adhesive quantities and failure-proof adhesive.
- Optimal protection against light in order to prevent unwanted polymerization of U.V. adhesive inside the dispenser.
- This system is equipped with a protective ring that encloses the dispensing area. This allows for fume removal using optimal exhaust hosing and customer supplied ventilation, and prevents light exposure of the adhesive when the dispenser is not in use.
- Application rate adjustment: by simple rotating the knob, it is possible to increase or decrease the amount of the adhesive applied.
- Easy and simple cleaning and maintenance.
- Safe, noiseless and practical configuration: power supply from the transformer to the dispenser is low voltage.
- Benchtop configuration gives the user the ability to quickly and easily move the adhesive dispenser to wherever it is needed.
- No compressed air needed.

## 2. Description

### 2.1 Description of Unit

Figure 1 – LCA Tubing Adhesive Applicator 98445					
Item	Description	Item	Description	Item	Description
1	ON/OFF switch	7	Pumping system base	13	Reservoir cap
2	Indicator Light - Green LED	8	Fume exhaust manifold	14	Exhaust tube adapter (optional accessory)
3	Fuse holder	9	Dispensing bushing	15	Exhaust tubing (optional accessory)
4	Interface cable connector	10	Protective ring	16	Motor Assembly
5	Transformer	11	Screws, motor	17	Interface cable
6	Adhesive level indicator	12	Flow control knob		

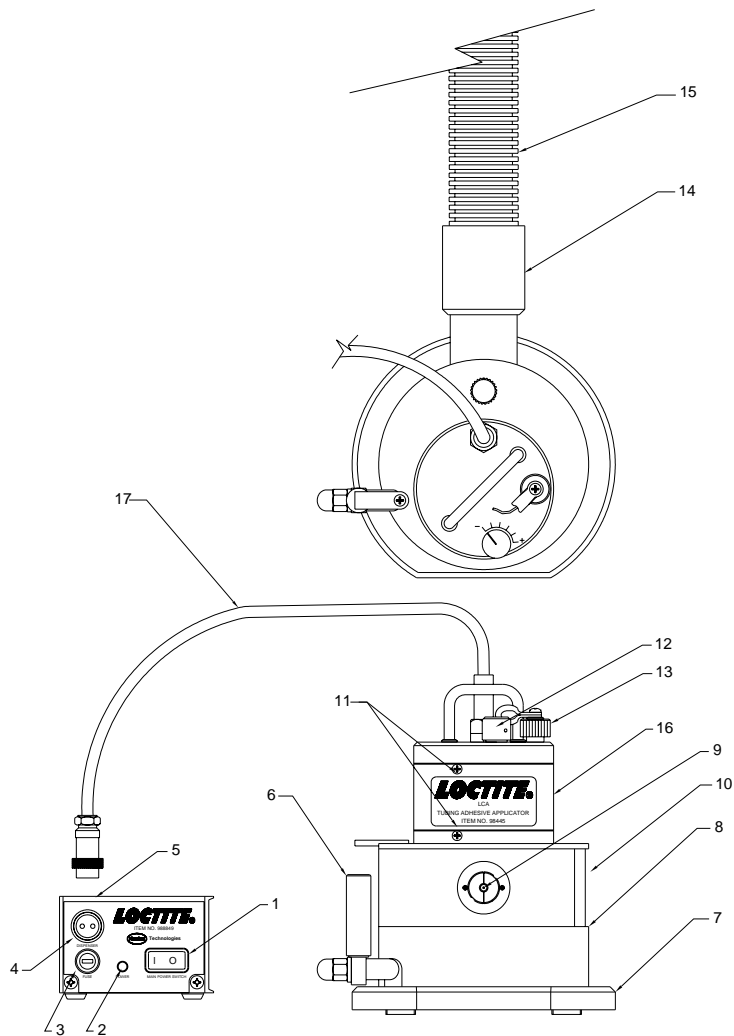
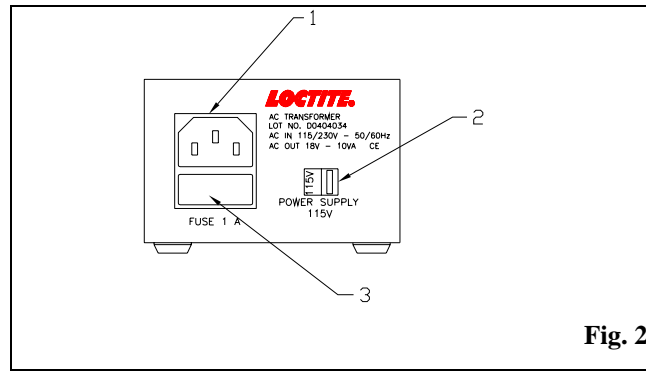
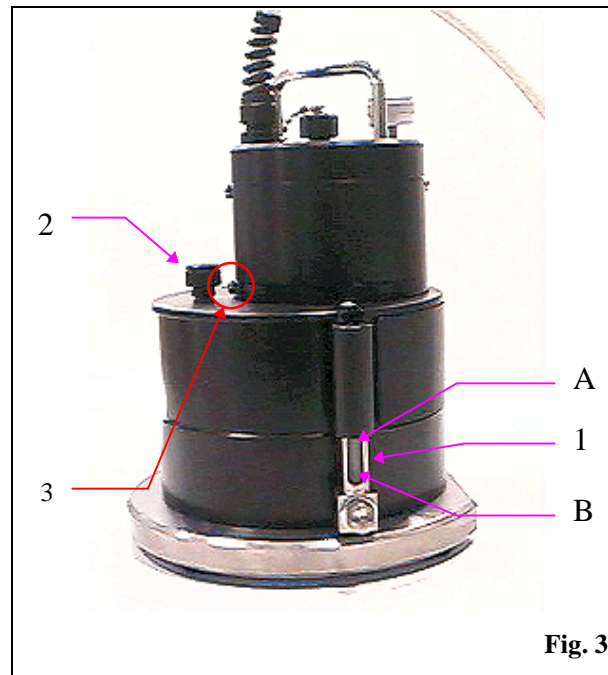


Figure 1



**Fig. 2**

Figure 2 – Transformer power modular.  
 1 Fig 2 – Main power modular  
 2 Fig 2 – 115/230V power switch  
 3 Fig 3 – Fuse



**Fig. 3**

Figure 3 – Pumping system/level indicator  
 1 Fig 3 – Adhesive level indicator  
     A. Maximum level  
     B. Minimum level  
 2 Fig 3 – Knob for clamping exhaust removal system  
 3 Fig 3 – Screw to secure electric motor

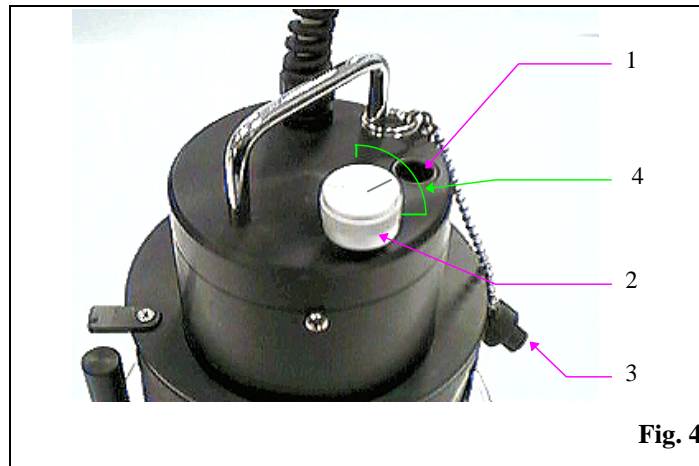


Figure 4 – Pumping System, Top View  
 1 Fig 4 – Reservoir Inlet  
 2 Fig 4 – Adhesive Flow Adjustment Knob  
 3 Fig 4 – Reservoir Cap  
 4 Fig 4 – Flow Control Range

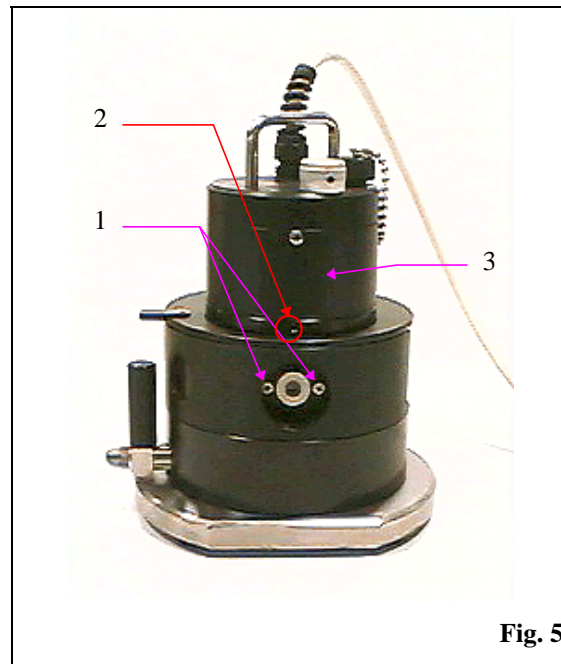


Figure 5 – Pumping System, Front Side  
 1 Fig 5 – The dispensing bushing fastening screws  
 2 Fig 5 – Electric motor mounting screw.  
 3 Fig 5 – Electric motor group

## 2.2 Theory of Operation

The LCA Tubing Adhesive Applicator 98445 consists of an adhesive delivery system, tube bushing, with a remote power transformer. The adhesive delivery system is connected to the power supply by a solvent resistant 18-volt interface cable. The adhesive delivery system consists of an electric motor mounted on a 30ml reservoir that houses a submersible pump. A fine exhaust manifold encloses the reservoir and allows for adhesive vapors to be transported through an exhaust tube to air handling system (sold separately).

The adhesive is continuously circulated through the dispense bushing by means of the electric pumping system. Adhesive is carefully and precisely dispensed on medical tubing and components through a custom made dispense bushing. The tubing or component is inserted into the bushing and immediately removed. This action allows adhesive to flow onto the part applying a consist film of adhesive for a given length and preparing the part for the assembly operation. A flow control knob, located at the top of the pumping system, regulates the amount of adhesive.

The dispense bushing is the “heart” of the dispenser, and can dispense adhesive on the external surface of tubing and components surfaces from 2.0 to 6.0 mm in diameter. Each diameter of tubing requires its own dispensing bushing. Bushings are easily and quickly interchangeable. Standard maximum dispensing length is 8 mm. Dispense bushing for non-standard dispensing lengths are available upon request.

## 3. Technical Data

### 3.1 Technical Specifications

Electric supply to transformer	AC 115/230V – 50/60Hz
Electrical supply to dispenser	AC 18V – 10VA
Protection to transformer	2 – 5mm x 20mm 1 A fuses
Protection to dispenser	1 – 5 mm x 20mm fuse of T0500mA (delayed action)
Regulatory	CE
Construction materials	
Dispense Bushings	stainless steel
Pumping System	anodized aluminum, acetal resin (Delrin <sup>®</sup> ) and PTFE (Teflon <sup>®</sup> )
Transformer ext. dimensions	125 x 55 x 90 mm [5 x 2.2 x 3.6 in.]
Pumping System ext. dimensions	225 x 140 mm dia. [9 x 5.5]
Transformer weight	0.55 Kg [1.25 lb.]
Dispenser weight	3.5 Kg [7.7 lb.]
Maximum viscosity of adhesive	1500 cP [1500 mPas]



## 4. Setup and Operation

### 4.1 Setup


- The LCA Tubing Adhesive Applicator is designed for clean room use. The dispenser must be used in an environment suitable for the Light Cure Adhesive. Refer to the adhesive technical data sheet.
- Dust or excess moisture in the working environment can affect the dispenser operation.
- The dispenser has to be placed on a flat surface. Tilting the dispenser when in operation may cause adhesive to spill.


#### 4.1.1 Electrical Connections

- Connect interface cable from pumping system to transformer.
- Insure that the power switch, located on the transformer is in the OFF position.
- Connect line cord to transformer.
- Connect line cord to main electrical supply.


#### 4.1.2 Filling the Reservoir


- Turn the transformer power switch to the ON position [1 Fig. 1]
- Remove the reservoir cap. [3 Fig. 4]
- Use a syringe to fill the reservoir with adhesive [1 Fig. 4] Do not exceed the maximum level indicator. [A Fig. 3]

 NOTE: At the first dispenser start-up, and after each complete cleaning, it may be necessary to rotate the dispenser body 45°, 2 or 3 times, so as to let the air go out from the dispensing system.

 NOTE: The internal capacity of the dispenser is 30ml. This corresponds to the max. level indicator. [A Fig. 3]

#### 4.1.3 Installing of Bushing

 NOTE: Each diameter range of tube or component requires its own bushing.

 **Warning!** Switch OFF the dispenser, by means of transformer POWER SWITCH [2 Fig. 2]

- Rotate the protective ring until the big hole [B Fig. 7] is in line with the bushing.
- Remove fastening screws from the dispensing bushing [1 Fig. 5]

- Remove the dispensing bushing from its housings, using the tool provided [Fig. 6].
- Put the required bushing into the housing paying attention that the little notch is positioned as shown in 1 Fig. 6. Now push and rotate clockwise the bushing until the small pin [2 Fig. 6] goes into its housing; then push the bushing until it dead ends. Make sure that the two marks [3 Fig. 6] are vertically aligned.
- Put the screws fixing the bushing [1 Fig. 5] back in place.

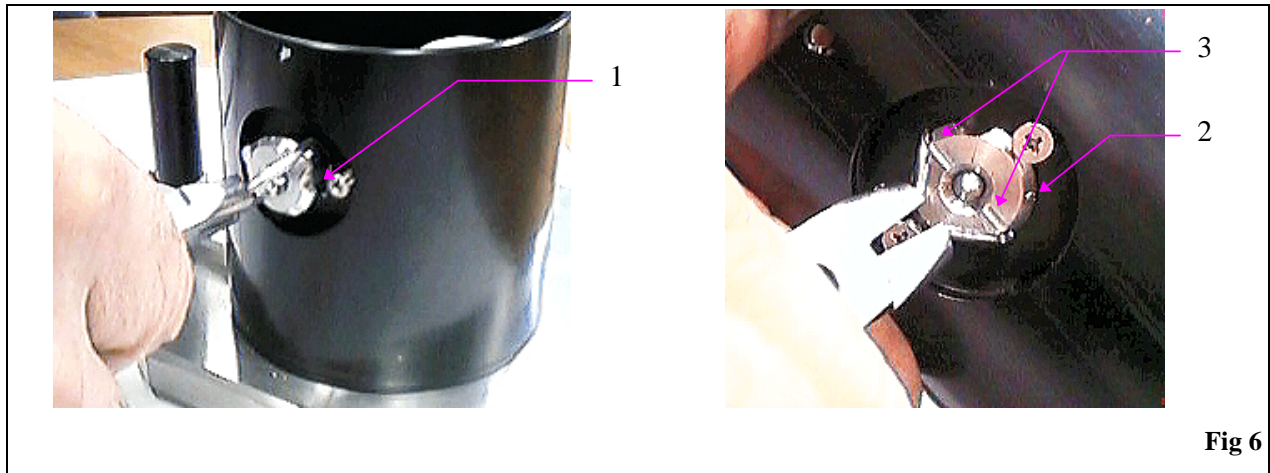


Fig 6

#### 4.1.4 Fume Exhaust Housing

The dispenser is also equipped with an exhaust housing that allows ventilation of the equipment.

- Connect optional exhaust hose from the clean air room system to the adapter [15 Fig. 1].
- Connect the adapter to the exhaust port on the rear side of the pumping system [14 Fig. 1].


#### 4.1.5 Adjusting the Dispense Flow

It is impossible to increase or decrease the flow of adhesive being dispensed by the bushing, rotating the knob [2 Fig. 4] from 0° to 90°, as shown in 4 Fig. 4.

- Rotate the knob clockwise to increase the quantity of adhesive in the bushing.
- Rotate the knob counterclockwise to decrease the quantity of adhesive in the bushing.

## 4.2 Operation

- The LCA Tubing Adhesive Applicator is ready to be used.
- To dispense the adhesive, insert the tubing or component into the dispense bushing until it stops, and immediately pull it back for an assembly operation.


 NOTE: Usually, it is not necessary to rotate the tube or component into the bushing; but if this should happen, it will not affect the adhesive dispensing quality.

- During use, the adhesive level in the dispenser body will decrease. Fill the reservoir with adhesive before the minimum level [B Fig. 3] is reached.

## 4.3 Shut Down

For Short Breaks

- It is always possible to stop the work cycle. After pulling back the last piece from the dispensing bushing rotating the protective ring until the bushing is no longer visible.

 NOTE: For short breaks, it is advisable to cover the dispense bushing, so as to keep the adhesive protected from light.

End of Work Day

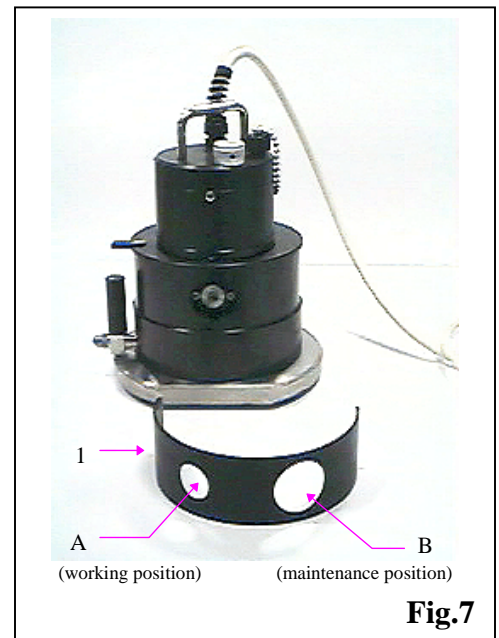
- Let the adhesive flow freely in the dispensing bushings for a few seconds.
- Turn off the dispenser by placing the POWER SWITCH of the transformer in the OFF position.
- Make sure the adhesive is not at the minimum level. Top off reservoir with adhesive.
- Close the dispense bushing zone by rotating the protective ring until the bushing is no longer visible, so as to keep the adhesive protected from light.

Figure 7 – Pumping System with protective ring

1 Fig 7 – Protective Ring

A Fig 7 – Working position

B Fig 7 – Maintenance position



**Fig.7**

## 5. Care, Cleaning and Routine Inspection

### 5.1 Cleaning and Dispense Bushing

The pumping system and the internal configuration of the dispenser allows the bushing to be continuously “washed” by the adhesive. However, dust or traces of plastic material from the tubes and/or components could reduce the adhesive flow. This can be easily seen, because the adhesive dispensed on the tube (or component) will decrease over time. If this happens, it will be necessary to clean the dispensing bushing.

To clean the dispensing bushing, follow the instructions below:

- Remove the dispensing bushing as described in Section 4.1.3, points 1 to 3.
- Place the bushing in isopropyl alcohol, or acetone and let it soak.
- Take the bushing and blow it with compressed air until it has completely dried.
- Install the bushing in the dispenser.

### 5.2 Remove the Protective Ring Assembly

To carry out cleaning operations, it is possible to remove the exhaust rings as follows:


- Remove screws, which secure the motor group [3 Fig 3 and 2 Fig 5].
- Unscrew the knob [2 Fig 3].
- Remove the ring assembly.

### 5.3 Cleaning the Pumping System




**Warning!** Switch OFF the dispenser, by means of the transformer POWER SWITCH [1 Fig 1].

1. Disconnect interface cable between the pumping system and the transformer.
2. Remove the electric motor group [3 Fig 5] by removing the two screws at the base of the motor [3 Fig 3 and 2 Fig 5] and lift out of housing.
3. Remove bushing holder: Unscrew the cap socket screws [1 Fig 8] using the 2.5mm hex key.


 **NOTE:** To reassemble, insert feed tube into bushing holder then into the pump group.

4. Pull 'up' to remove bushing holder body [4 Fig 8].
5. Remove the piston [3 Fig 8] and the relevant spring [1 Fig 9].

 **NOTE:** After cleaning, make sure to align the piston with the locating pin within the cylinder. Piston must move freely in the cylinder.

6. Unscrew the internal screw [1 Fig 10] locking the cylinder liner.
7. Lift the cylinder liner up carefully.


### 5.3 Cleaning the Pumping System (Cont'd)

 NOTE: A small o-ring is located on the cylinder screw and a larger o-ring is located on the cylinder inlet boss.

8. Remove the screw securing the pump group [2 Fig 8].

9. Lift pump group straight 'up' off locating pin.

10. Pull up to remove the black ring holder.

 NOTE: During reassembly, insure the black ring sits squarely in the reservoir.

11. To remove level indicator use a 10mm wrench to unscrew the acorn nut.


Remove metal serrated washer, plastic seal and pull indicator of the post.

12. To remove indicator post, use a 9mm wrench.

13. Soak all the removed parts (see Fig 12) in isopropyl alcohol or acetone. Clean the inside of the dispenser using a cloth wet with alcohol or acetone.

14. Dry each part using compressed air, then put them back in their place in the right sequence (see point from 10 to 1).

**!** **Caution:** Do not use paper or cloth that may leave particles inside the dispenser.

 NOTE: It is advisable to completely empty adhesive and clean the dispenser if it will not be used for a long time or if it has to be shipped elsewhere.

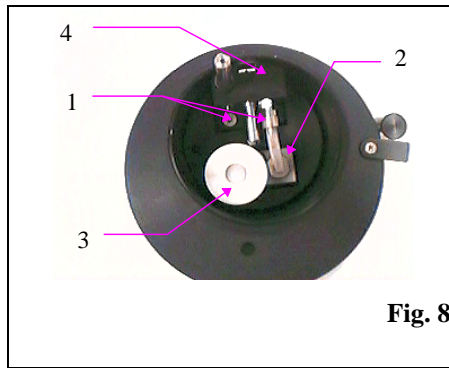


Figure 8 – Pumping System, Internal

- 1 Fig 8 – Bushing holder mounting screws
- 2 Fig 8 – Pump Assembly
- 3 Fig 8 – Piston Assembly
- 4 Fig 8 – Bushing holder body

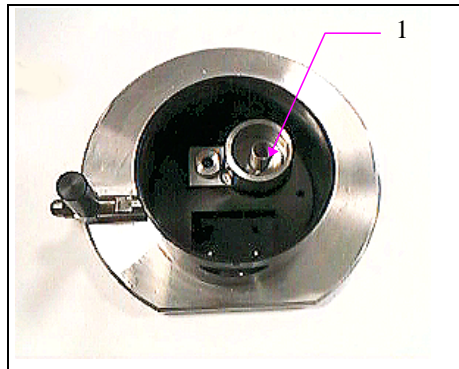


Figure 9 – Pumping System, Spring

- 1 Fig 9 – Spring

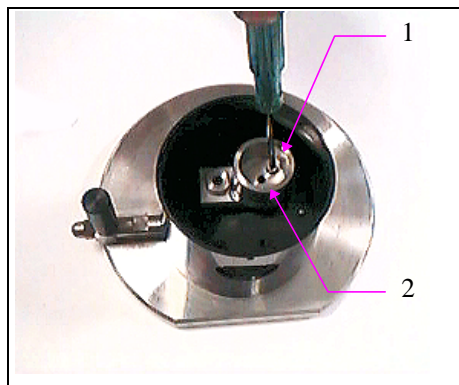


Figure 10 - Pumping System, Cylinder Liner

- 1 Fig 10 – Screw
- 2 Fig 10 – Cylinder liner

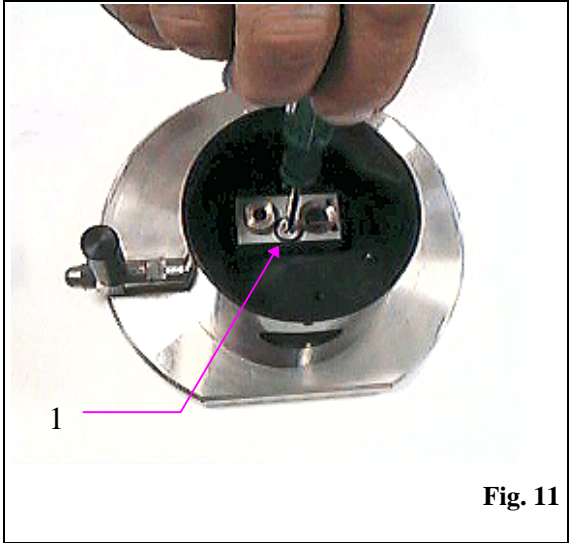


Figure 11 – Pump Removal  
1 Fig 11 – Mounting screw for pump

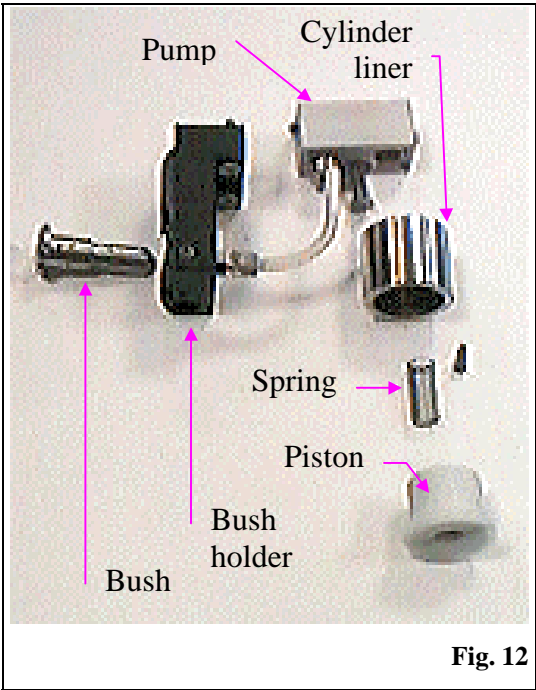


Figure 12 – Pumping System Components

## 6 Maintenance Repair

### 6.1 Pumping System

The pumping system inside the dispenser has been made with materials that are resistant to wear. If the pumping action should be sufficient or if there is no pumping, remove the dispense bushing and clean it as described in Section 5. If the problem is not solved, clean the entire dispenser in Section 5.3.

### 6.2 How to Replace the Fuses

If the fuses have burned out, open the fuse holder (3 Fig 2) and replace them with 2, 1 A fuses.

## 7. Troubleshooting

Problem	Possible Cause	Correction
No adhesive is dispensed.	<ul style="list-style-type: none"><li>• No power to unit</li><li>• Power switch is in Off position<ul style="list-style-type: none"><li>• Product reservoir is empty.</li><li>• Piston and cylinder improperly installed</li></ul></li><li>• Check valve may be locked up</li><li>• Motor is not working</li></ul>	<ul style="list-style-type: none"><li>• Plug unit to main power source</li><li>• Move power switch to ON</li><li>• Fill product reservoir</li><li>• Align the piston and cylinder. The pin in the cylinder must act as the piston's guide.</li><li>• Clean pump assembly</li><li>• Check both fuses [3 Fig. 1 and 3 Fig. 2]</li></ul>
Insufficient Adhesive	<ul style="list-style-type: none"><li>• Flow control is set to minimum</li><li>• Bushing is clogged</li><li>• Pump is clogged</li></ul>	<ul style="list-style-type: none"><li>• Increase flow control setting</li><li>• Clean dispense bushing</li><li>• Clean pumping system</li></ul>
Too Much Adhesive	<ul style="list-style-type: none"><li>• Flow control is set to maximum</li><li>• Bushing may be over sized</li></ul>	<ul style="list-style-type: none"><li>• Decrease flow control setting</li><li>• Replace bushing</li></ul>



## 8. Spare Part and Accessories List

### 8.1 Spare Parts

Figure	Description	Part No.
Fig. 12	Pump Assembly Kit <ul style="list-style-type: none"><li>• Pump Assembly</li><li>• Feed tube</li><li>• Mounting screw</li></ul>	988850
Fig. 12	Cylinder / Piston Assembly Kit <ul style="list-style-type: none"><li>• Cylinder Assembly</li><li>• Piston Assembly</li><li>• Spring</li><li>• Spring cap</li><li>• Two o-rings</li><li>• Mount screw</li></ul>	988851
Fig. 12	Bushing Holder with mounting screws	988852
16 Fig. 1	Motor Assembly – 24 Volt motor with drive shaft	988853
1 Fig. 1	Line cord	983680
5 Fig. 1	Transformer	988849

### 8.2 Accessories

Description	Part No.
2mm Bushing	989038
3mm Bushing	989039
4mm Bushing	989040
5mm Bushing	989041
6mm Bushing	989042
15 feet of exhaust tubing with end cuffs	988854
Bushing Removal Pliers	989377
2.5mm Hex Key	989376

Henkel Loctite can supply custom made dispensing bushing manufactured according to customer tubing or components specifications.

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**9.****Warranty**

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Henkel expressly warrants that all products referred to in this Instruction Manual for (98445 Henkel Loctite® LCA Tubing Adhesive Applicator) (hereafter called “Products”) shall be free from defects in materials and workmanship. Liability for Henkel shall be limited, as its option, to replacing those Products which are shown to be defective in either materials or workmanship or to credit the purchaser the amount of the purchase price thereof (plus freight and insurance charges paid therefor by the user). The purchaser’s sole and exclusive remedy for breach of warranty shall be such replacement or credit.

A claim of defect in materials or workmanship in any Products shall be allowed only when it is submitted in writing within one month after discovery of the defect or after the time the defect should reasonably have been discovered and in any event, within (12) months after the delivery of the Products to the purchaser. This warranty does not apply to perishable items, such as (fuses). No such claim shall be allowed in respect of products which have been neglected or improperly stored, transported, handled, installed, connected, operated, used or maintained. In the event of unauthorized modification of the Products including, where products, parts or attachments for use in connection with the Products are available from Henkel, the use of products, parts or attachments which are not manufactured by Henkel, no claim shall be allowed.

No Products shall be returned to Henkel for any reason without prior written approval from Henkel. Products shall be returned freight prepaid, in accordance with instructions from Henkel.

NO WARRANTY IS EXTENDED TO ANY EQUIPMENT WHICH HAS BEEN ALTERED, MISUSED, NEGLECTED, OR DAMAGED BY ACCIDENT, OR IF THE SYSTEM WAS USED TO DISPENSE ANY LIQUID MATERIAL OTHER THAN LOCTITE® PRODUCTS.

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