AMERICAN ELECTRICAL, INC.

INDUSTRIAL ELECTRICAL ACCESSORIES

LC100 AUTOMATIC WIRE CUTTER

LC100
OPERATING MANUAL

CE

LC100
CONTENTS

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SAFETY

DESCRIPTION

OPERATION

MAINTENANCE

Basic information

The basic condition for safe use and proper operation of the LC100 is knowledge and attention to the safety details.

Important for Your Safety

The following safety information must be observed by all people who will work with the LC100.

All rules and instructions in the work place must be observed.

Symbols

This operating manual contains the following symbols:

⚠   Marks a special safety note.

!   Marks a special operating note.

Operation of Machine & Possible Danger

The LC100 complies with relevant safety standards and was subjected to a security check.

The LC100 must be used only:

- For dedicated ferrule crimping
- In safe proper working condition

All persons commissioning, operating and maintaining the LC100 must be:

- Appropriately qualified
- Consult this manual for its correct use

Designated use

The LC100 is intended exclusively for cross cutting cables, litz wires, shrink sleeves and similar profiles up to a diameter of 8 mm.

Only finely stranded copper litz wires up to 10 mm² and single-strand copper cables up to max. 2.5 mm² may be used. On no account may steel wires or similar be used, as these would destroy the cutting blade.

Dangers

The LC100 may only be used with the front door closed.

Unplug LC100 from power source before carrying out maintenance work.

Ensure that there are no foreign objects inside the housing.

Places for Use

Avoid operation in:

- Damp or dusty locations
- Location exposed to high or low temperatures or direct sunlight
     (operating range: 15 °C to 35 °C).

Condensation can form following a change of location from a cold to a warm place.

Before using the LC100, open the front door and allow condensation to evaporate.

Do not spill any liquid onto the LC100.

Do not subject the LC100 to strong vibrations and impacts.

Safety Devices

The LC100 is switched off by:

- The main power switch (0 pressed, display and red LED).
- Removing main power plug
- Opening the front door (via safety switch).

The front door is installed for the user's safety. Under no circumstances may it be modified, removed or bypassed.

Authorized User

Only authorized and instructed users are allowed to work with the LC100.

The user has a responsibility to all people operating the LC100.

We ask our customers to:

- Make the operating manual accessible to the user

- Assure that the user has read and understood the manual

Warranty

In general, our common terms of sale and delivery are valid.

Warranty is void if any of the following situations occur:

- Improper usage of the LC100

- Improper places for use

- Inappropriate use and use beyond those described in the operating manual

- Any reconstruction of the LC100

- Continued use of the LC100 when faults are recognized

- Unauthorized repairs

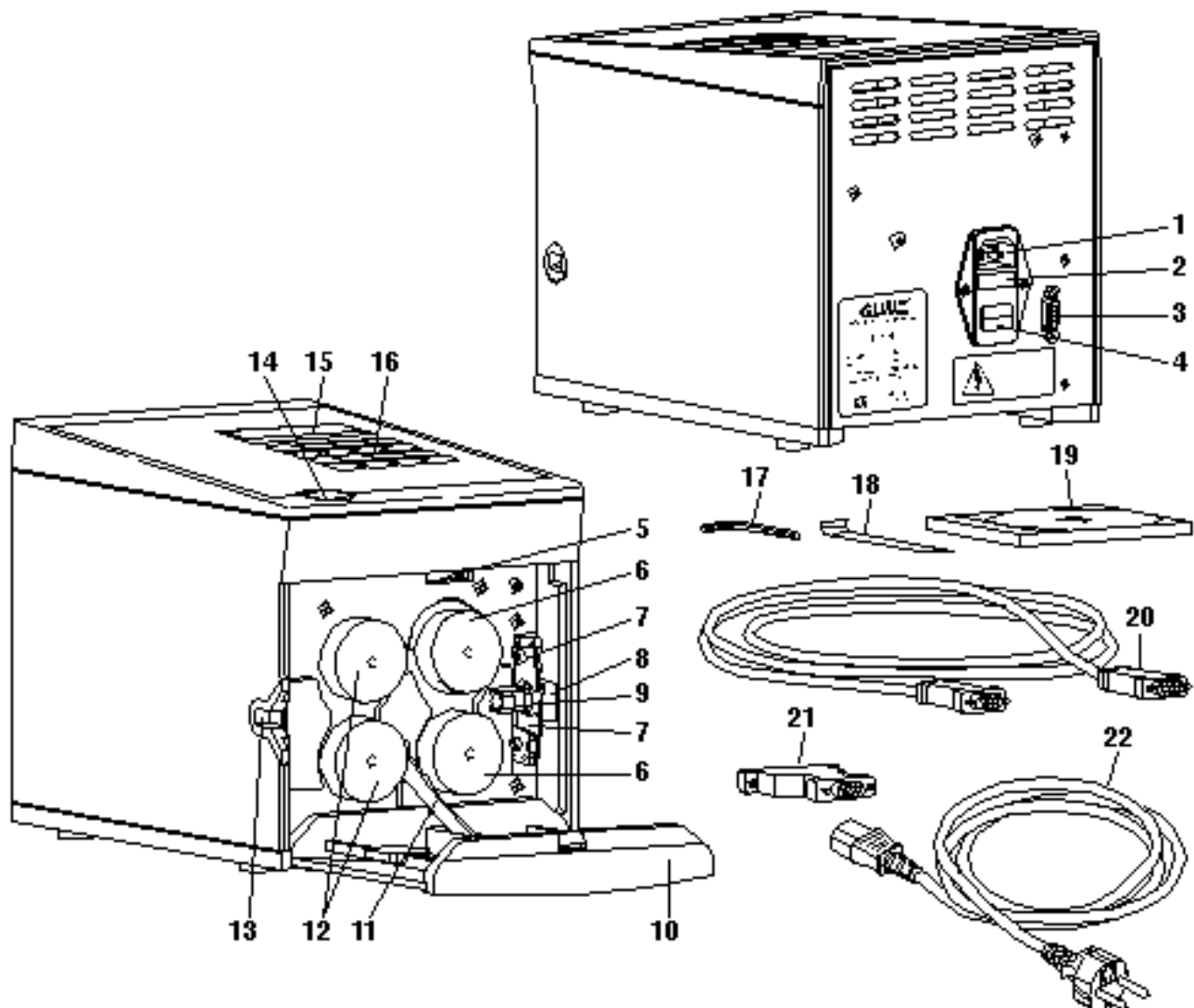**!**   **Only use original spare parts.**

Application

The LC100 cross cutting machine cuts cables, litz wires, shrink sleeves and similar profiles up to 8 mm in diameter, making is particularly well suited for series production.

The required length and number of wires is entered either directly on the LC100 via the keypad or can be processed and documented on the PC with the supplied software.

The LC100 can then be directly controlled and process the cutting commands from the PC via the integrated RS232 interface.

The LC100 is available for a main connection 230 V/50 Hz or 120 V/60 Hz.

Components

LC100
DESCRIPTION

1	**Main connection**	For main cable
2	**Main fuses**	(2 ea.)
3	**RS232 interface**	For PC connection
4	**Main switch**	Switches the power supply on (I pressed) or off (0 pressed). After switching on, the **display** and the red LED **stop** light up.
5	**Adjustment screw**	For stepless adjustment of the drive roller application pressure Top position → min. Bottom position → max.
6	**Drive rollers**	For cable feed
7	**Cutting blade**	For cross cutting the cable
8	**Outlet slot**	For removing the cable
9	**Guide**	For cable
10	**Front door**	
11	**Roller spreading mechanism**	For inserting the cable
12	**Measurement rollers**	For the cable length
13	**Insertion slot**	For cable
14	**Door opener**	For the front door
15	**Display**	To display the operating parameters
16	**Keypad**	To operate the LC 100

0 – 1   Number keys for entering operating parameters. The input point is indicated by the flashing cursor on the display. Inputs can be overtyped from left to right.

C   Delete button for incorrect inputs. All inputs in the line marked by the cursor are set to 0
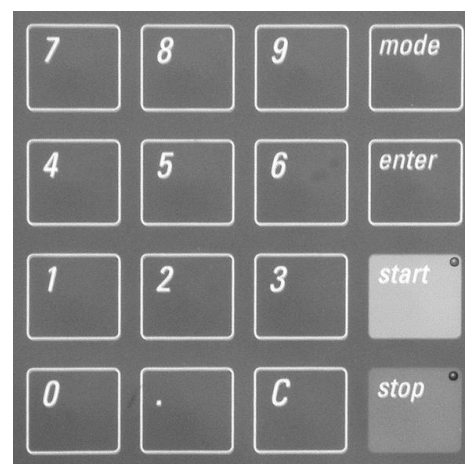

Fig. 2   Keypad

enter   Button for cursor control

mode   Button for operating mode selection

start   Button for operation start
(**green LED** lights up during operation, **red LED** goes out)

stop   Button for interrupting operation and deleting displays
(**red LED** lights up during operation stop, **green LED** goes out)

Accessories

17	**Hexagon spanner**	(Size 3) for cutting blade is located on the underside of the housing
18	**Removal hook**	For roller changes is located on the underside of the housing.
19	**CD-ROM**	For PC operation
20	**RS232 cable**	LC 100 / PC, 2 m
21	**Adapter**	(25-pol/Bu – 9-pol/St)
22	**Mains cable**	For the power supply

1. Selecting the installation location

- The installation location must be level and horizontal.

!   **The conditions outlined in the SAFETY section and places for use must be observed.**

2. Connecting / switching on the LC100

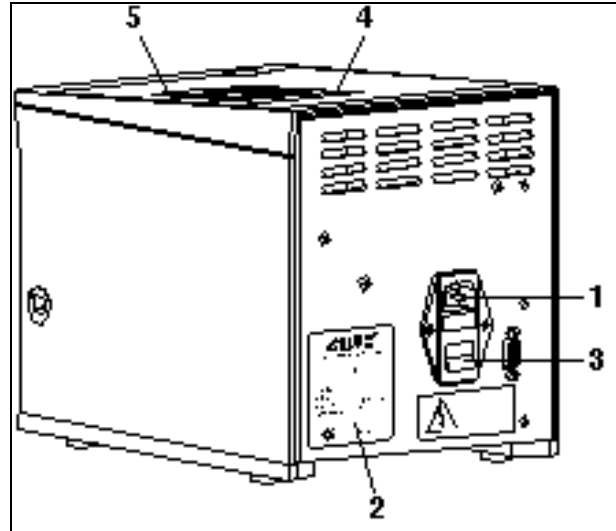- Connect the main plug on the main connection (1) and to the socket.

Figure 3   Connecting the LC 100

⚠ **Ensure that the main voltage is correct (see the rating plate (2)).**

- Switch on the LC100 with the main switch (3) (press I , the display (4) and the red LED stop (5) light up).

3. Selecting the operating mode

- After switching on, the display shows **Auto mode**.

```
QUANTITY: XXX      TO GO: XXX
LENGTH:  XXXXX  mm
```
Fig. 4 Auto mode

- The display shows **Manual mode** if the "mode" button is pressed 1x.

```
LENGTH:      (6)
CUTTING:     (2)
```
Fig. 5 Manual mode

- The display shows **PC mode** if the "mode" button is pressed 2x.

```
PROJECT:  X          D.REC: XX
QUANTITY: XXX      GO TO: XXX
LENGTH:  XXXXX mm
XXXX mm2   "Colour "
```
Fig. 6 PC mode

- The display shows **Adjustment mode** if the "mode" button is pressed for approx. 5 seconds.

```
ADJUSTMENT:       XXXX mm
SPEED HAND:       X
SPEED AUTOM.:    X
```
**Fig. 7 Adjustment mode**

⚠ **Repeatedly pressing the "mode" button enables the mode to be selected.**

- The present valid values "X" and the selected "color" are shown on the display.

- The buttons (6) and (2) are displayed in **Manual Mode**.

AUTO Mode

1. Inserting a cable

- Press the door opener (1).

- Fold down the front door (2). The rollers (3) are raised.

- Insert a cable between the rollers and pull it through the guide and out through the outlet slot (4).

- Close the front door (5). The rollers (6) clamp the cable firmly.
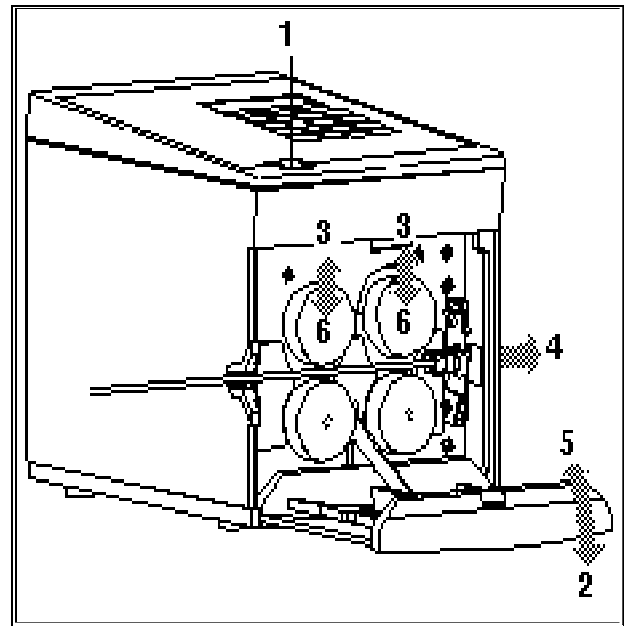
2. Entering operating parameters

- Enter the "Quantity" and "Length" of the cut cable sections with the number keys "0" to "9". When doing so, move the cursor with the "Enter" button.

```
QUANTITY:          GO TO:
LENGTH:
```

Fig. 9 Entering Auto mode

- The input can be overwritten or deleted with the "C" button.
- The "Remainder" display can be set to 0 by pressing the "Stop" button for 2 seconds.

3. Start cable cut

- Press the "Start" button. The cable cut runs automatically (green LED lights up). A "zero cut" is performed first, followed by the cable cut. In the display, "Remainder" shows the remaining cable cuts.

- The cable cut can be interrupted with the "Stop" button.

```
TRANSPORT ERROR
WIRE END ?
ACKNOWLEDGE WITH ENTER
```

Fig. 10 Transport error / wire end ?

- At the end of the cable or if there is a transport error, the cable cut stops and the display shows the above message (Fig. 10) (red LED lights up). Insert a new cable and press "Enter". The cable cut is continued. In the event of a "Transport error " or the message "Cutting error", refer to the section **TROUBLESHOOTING**.

AUTO Mode cont'd

4. End cable cut

- The cable cut is automatically ended as soon as "Remainder": shows 0 (red LED lights up).

- After the end of the cable cut, open the front door and remove the cable.

- A new cut or another operating mode can then begin.

- To turn off unit, switch off the main switch (press 0).

MANUAL MODE

1. Inserting a cable

- Press the door opener (1).

- Fold down the front door (2). The rollers (3) are raised..

- Insert a cable between the rollers and pull it through the guide and out through the outlet slot (4).

- Fold up the front door (5). The rollers (6) clamp the cable firmly.
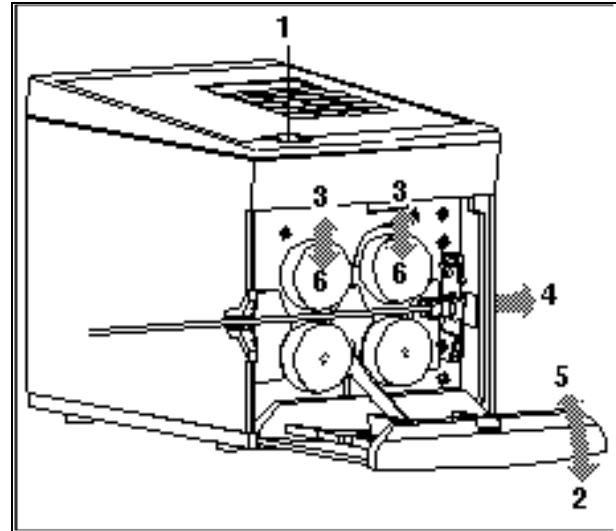
2. Performing a cable cut

- Press the number key "6" until the required cable length is transported.

```
LENGTH:     (6)
CUTTING:    (2)
```

Fig. 12   Input, Manual Mode

- To cut off the cable, press the number key "2".

- In manual Mode there is no fault display "Transport error / Wire end ?" (Fig. 10). In the event of the message "Cutting error", refer to the section TROUBLESHOOTING.

3. End cable cut

- After the end of the cable cut, open the front door and remove the cable.

- A new cut or another operating mode can then begin.

- To turn off unit, switch off the main switch (press 0).

PC MODE

1. Connecting the PC

- Connect the PC to the RS232 interface (1) via the RS232 cable and, if necessary, via the adapter from the accessories.

- Project the cable cuts to the PC using the CD-ROM from the accessories.
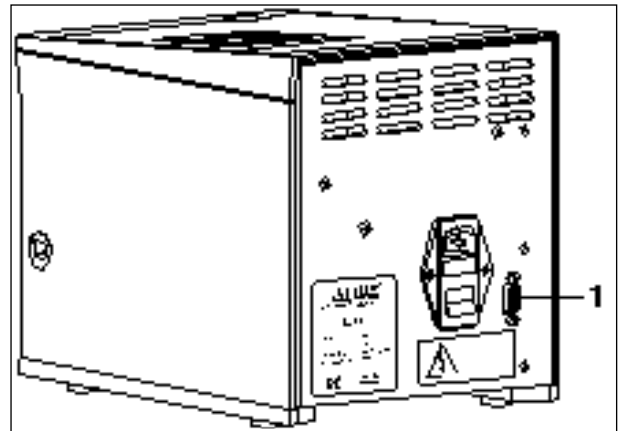
2. Loading the project from the PC to the LC100

3. Selecting the Project No. and any data record

- Enter "Project" No. and – if applicable – "D. rec.No." with the number keys "0" to "9". The remaining data is displayed automatically.

```
PROJECT: X            D.REC.: XX
QUANTITY: XXX     REMAINDER: XXX
LENGTH: XXXXX mm
XXXX mm2 "Colour"
```

Fig. 14   Input, PC Mode

!   Displayed values can be overwritten or deleted with the "C" button. However, original data remains unchanged in the PC. To restore the original data in the LC100, it must be transferred again from the PC.

4. Inserting a cable

- Press the door opener (1).

- Fold down the front door (2). The rollers (3) are raised.

- Insert the cable between the rollers in accordance with the display (color / cross section) and pull it through the guide and out through the outlet slot (4).

- Close the front door (5). The rollers (6) clamp the cable firmly.
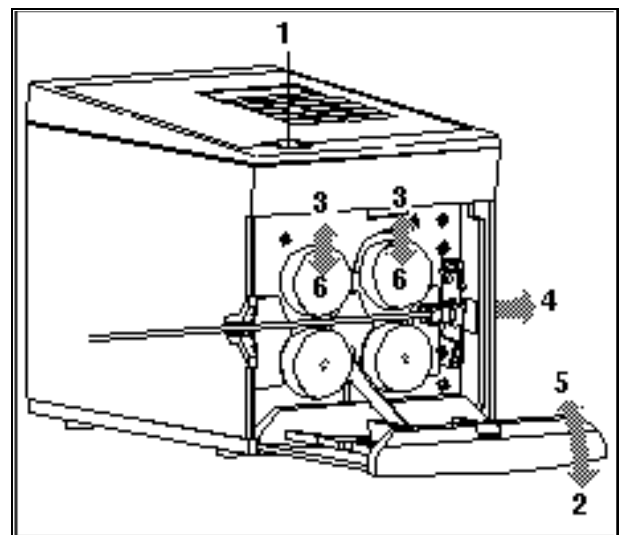

Fig. 15   Inserting a cable

5. Start cable cut

- Press the "Start" button. The cable cut runs automatically (green LED lights up). A "zero cut" is performed first, followed by the cable cut. In the display, "Remainder" shows the remaining cable cuts.

- The cable cut can be interrupted with the "Stop" button.

TRANSPORT ERROR
WIRE END ?
ACKNOWLEDGE WITH ENTER

Fig. 16 Transport error / wire end ?

- At the end of the cable or if there is a transport error, the cable cut stops and the display shows the above message (Fig. 16) (red LED lights up). Insert a new cable and press "Enter". The cable cut is continued. In the event of a "Transport error" or the message "Cutting error", refer to the section **TROUBLESHOOTING**.

6. Delete project, data record

- The LC100 automatically runs all data records of a project. This display appears after the end.

  The LC100 remains in the current project.

PROJECT END
REACHED
ACKNOWLEDGE WITH ENTER

Fig. 17   Project END

- To process new projects, repeat steps 3 to 6.

Delete functions

- Press the "Stop" button for 2 seconds.
- The display will show:

DELETE REMAINDER   = (8)
DEL. Data RECORD   = (6)
DELETE PROJECT   = (2)
EXIT WITH ENTER

Fig. 18   Delete functions

- Select the required delete function with the associated button ( )

Delete Remainder (8) =   The remainder is set to 0
Delete Data record (6) =   The Quantity, Remainder, Length, Cross section and Color are deleted or set to 0
Delete Project (2)   =   All data of the project is deleted or set to 0

- Return to **PC Mode** with the "Enter" button.

7. End cable cut

- The cable cut is automatically ended as soon as all data records have been processed.

- After the end of the cable cut, open the front door and remove the cable.

- A new project No. or another operating mode can then be run.

- To put out of operation, switch off the mains switch (press 0)

ADJUSTMENT MODE

1. Adjustment

Cable length errors can be corrected in this line.

```
ADJUSTMENT:  XXXX
SPEED HAND:  X
SPEED AUTOM.: X
LANGUAGE:      mm
```

Fig. 19   **Input, Adjustment mode**

- Change to **Adjustment Mode**.

- Enter "1000 " for adjustment.

- Change to **Auto mode**.

- Enter the cable length "1000 mm".

- Cut the cable.

- Measure the cable length (e.g. 788 mm).

- Change to **Adjustment mode**.

- Enter measured value for adjustment (e.g. 788).

The measuring unit is recalibrated.

2. Speed Manual

The cable feed can be set in **Manual mode** in this line.

- Enter the required feed speed with the number key "0" (slow) to "9" (fast).

3. Speed Automatic

The cable feed can be set in **Auto mode** in this line.

- Enter the required feed speed with the number key "0" (slow) to "9" (fast).

4. Language and units of measurement (mm or inches)

This row allows the language and the unit of measurement to be selected.

- The chosen language for screen displays can be selected using the numeric pad.

  0 = German; 1 = English; 2 = French; 3 = Italian; 4 = Spanish

- Use the cursor to switch to the mm / inch display. Press any key on the numeric pad to change the unit of measurement.

TROUBLESHOOTING

- **Fault Profile 1**

LC 100 does not work after being switched on

1. Check the main connection

- Check whether the main plug on the main connection of the LC 100 and the earthed plug are connected to the main socket.

- Ensure that the power supply at the main socket is OK.

⚠ **Ensure that the main voltage is correct (see the rating plate)!**

   If OK →   Step 2.

⚠ **The main connection must be opened.**
   Pull out the main plug!

2. Check the main fuse

- Switch off the LC100 with the main switch (1) (press 0).

- Pull out the main plug (2).

- Pull out the fuse holder (3).

- Check the main fuses (4).

Fig. 20   Check the main fuse

- Replace the defective main fuse (see the section **SPARE PARTS** for the part no.).

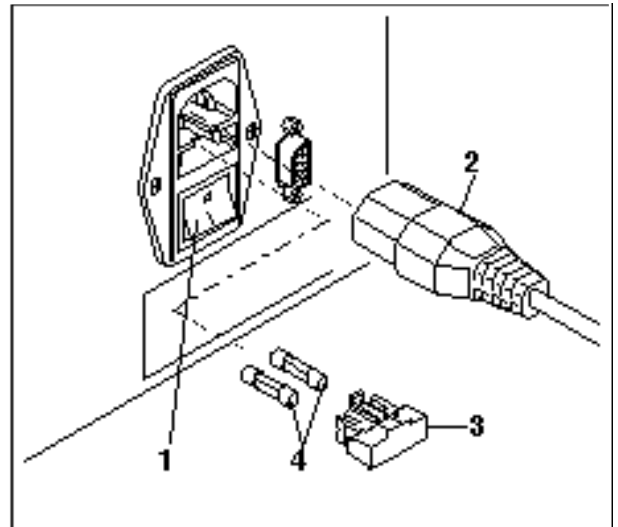- Push in the fuse holder.

!   The fuse holder must engage.

- **Fault Profile 2**

Transport error

- The error is indicated by the adjacent display.

TRANSPORT ERROR
WIRE END ?
ACKNOWLEDGE WITH ENTER

Fig. 21 Transport error / wire end ?

1. Check the cable infeed

- Check whether a cable breakage / cable knot is preventing the feed.

2. Application pressure of the drive rollers insufficient / too low

⚠ **The front door must be opened. Pull out the main plug!**

Switch off the LC 100 with the main switch (press 0).

- Pull out the main plug (2).

- Open the front door.

- Set the application pressure with the adjustment screw (1):
  Top position   →   weak
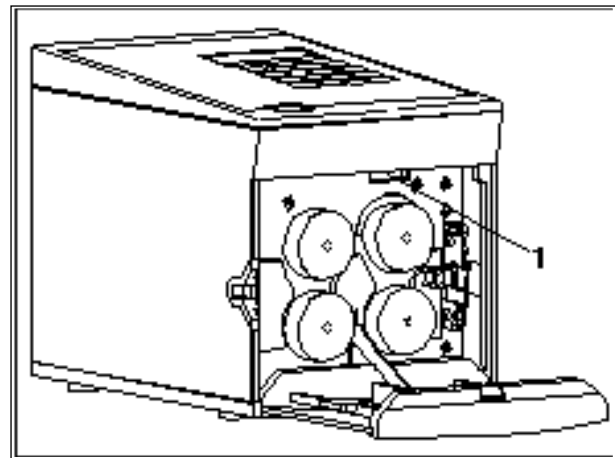 Bottom position   →   strong

Fig. 22 Set application pressure

3. Check / change drive rollers / measurement rollers

- Insert the removal hook (1) behind the roller (2) and press down the roller.

- Replace the worn rollers (article no. see the chapter **SPARE PARTS**).

Always replace both rollers. Pay attention to the guide surface when positioning the roller (3).
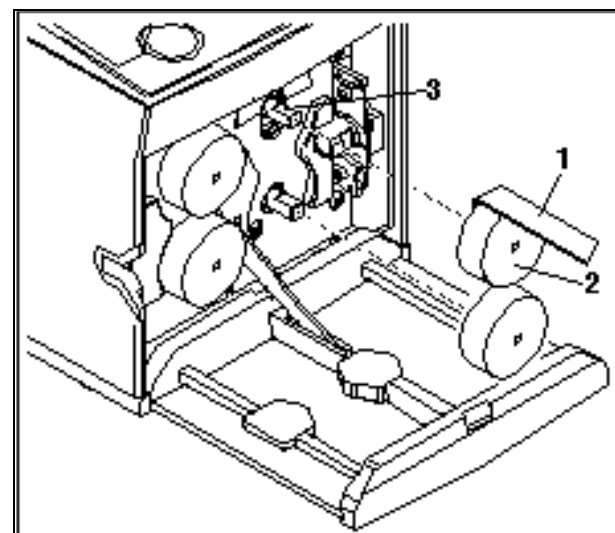
Fig. 23 Remove roller

- **Fault Profile 3**

Cutting error

- The error is indicated by the adjacent display.

Fig. 24   Cutting error

1. Check cable cross section

- Check whether too large a cross section was used.

2. Check / change cutting blade

⚠ **The front door must be opened**
Pull out the main plug!

- Press down both drive rollers (1) with the removal hook (2).

- Unscrew the cutting blade (3) with the Allen key (4) and replace (see the section **SPARE PARTS** for the part no.).
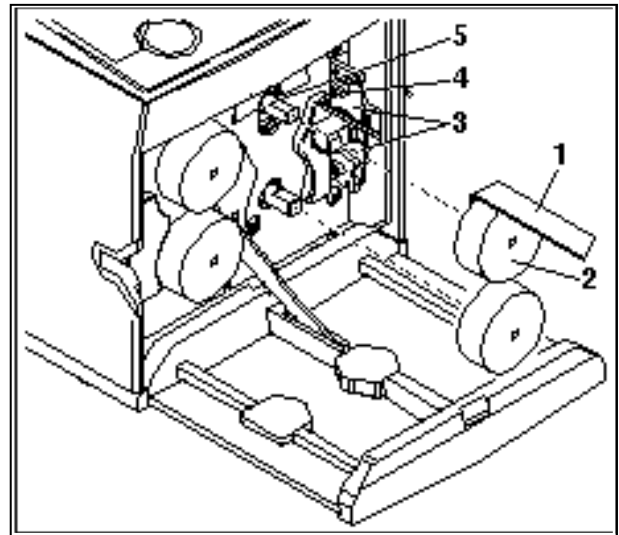
Always replace both blades. Pay attention to the guide surface when positioning the roller (5).

Fig. 25 Removing the cutting blade

Installation instructions

- Place the lower blade (1) with the threaded insert onto the holder from the right.

- Place the upper blade (2) onto the holder from the left.

Ensure that sloping surfaces (3) face outwards.

- **Fault Profile 4**

Cable length errors

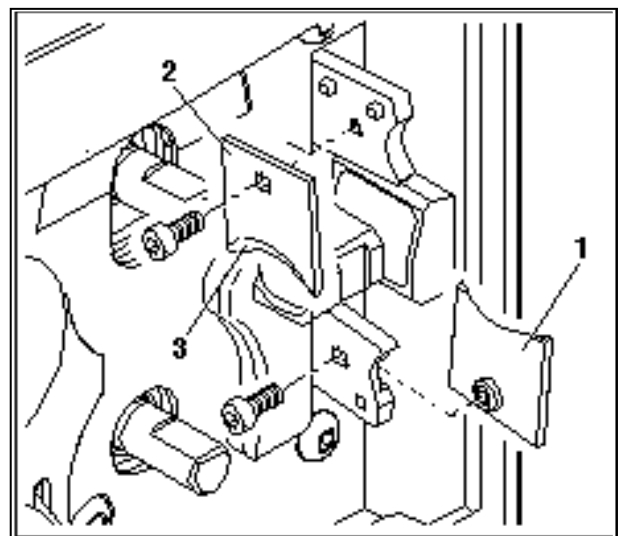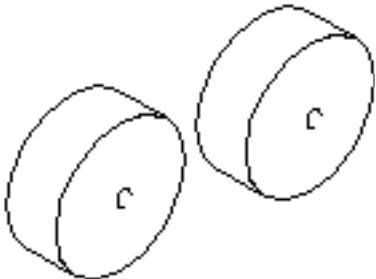Cable length errors can be corrected in **ADJUSTMENT MODE**.
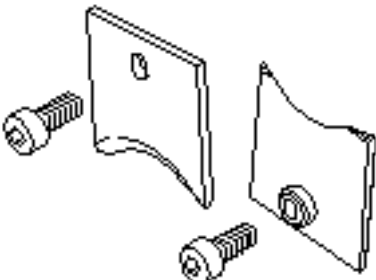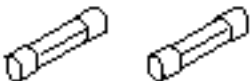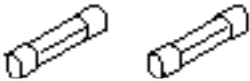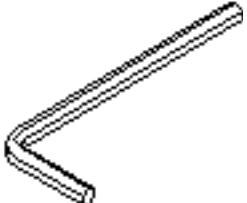
Fig. 26 Installing the cutting blade

SPARE PARTS

Part	Part Number	Quantity to be supplied
Drive / measurement rollers	LC1 – ROL	1 pair
Cutting blades	LC1 – EM	1 set
Mains fuse 230 V	LC1 – SI0.63	1 pair
Mains fuse 120 V	LC1 – SI1.25	1 pair
Allen key, size 3	LC1 – IS3	1 ea.

LC100
SPARE PARTS

Part	Part Number	Quantity to be supplied
Removal hook 	LC1 – AH	1 ea.
CD-ROM 	LC1 – CD	1 ea.

TECHNICAL DATA

Dimensions (width x length x height) .... 194 x 295 x 227 mm

Weight .... 11 kg

Cutting capacity

- fine wire .... 0.08 – 10 mm^2

- single wire .... 0.08 – 2.5 mm^2

Max. throughput .... 8 mm

Cross cut setting .... automatic

Number of cuts .... 1 – 999 ea.

Length .... 2 – 99999 mm

Feed speed .... max. 0.5 m/s

Unit of measurement (can be set by the manufacturer) .... mm / inch

Dialog language (can be set by the manufacturer) .... German / English / French / Italian

Interface RS232

Mains connection .... 230 V/50 Hz or 120 V/60 Hz

Power consumption .... 80 VA

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