DÜRKOPP ADLER

867

Additional Instructions

Tension measurement - needle thread

1 General information

The kit is used to check the thread tension during sewing.

Components of the kit

Check whether the scope of delivery for kit 0867 591274 is correct prior to installation.

Part number	Quantity	Description
0791 867738 EN	1	Additional Instructions
0867 110183	1	Thread guide
0867 110431	1	Sticker
0867 493624	1	Holder ball head
0867 591260	1	Plate
9202 100535	2	Countersunk screw M5x10
9202 150317	2	Countersunk screw M4x6
9207 170847	1	Flat-head screw 5x25
9225 201770	1	Countersunk screw M4x12
9231 110057	1	Hexagon nut
9330 000087	1	Washer A4.3
9330 900107	1	Washer A5.3
9835 200220	1	Control panel Smart Matrix
9835 200221	1	BTSR thread tension sensor
9870 867101	1	Connection kit
9840 120108	2	Cable holder
9840 121002	7	Cable tie
9207 170227	2	Flat-head screw 3.5x16

2 Assembly of tension measurement device

Fig. 1: Assembly of tension measurement device (1)

(1)	- Holder	(5)	- Plug
(2)	- Screws	(6)	- Thread guide
(3)	- Ball mount	(7)	- Sensor
(4)	- Tension measurement device	(8)	- Screw

To assemble the tension measurement device:

1. Screw the ball mount (3) to the holder (1) using the screws (2).
2. Attach the holder (1) at the rear of the tension measurement device (4).
3. Disassemble the thread guide from the machine head.
4. Screw the new thread guide (6) to the machine head.
5. Tighten the sensor (7) to the thread guide (6) using the screw (8).

Fig. 2: Assembly of tension measurement device (2)
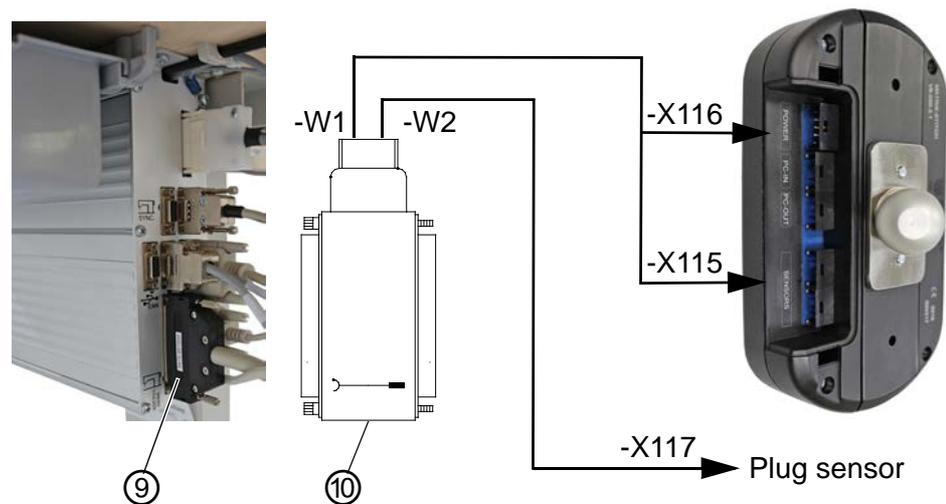
(9)	- 37-pin plug	(10)	- Adapter cap

6. Pull the 37-pin plug (9) off the control.

7. Slip the adapter cap (10) onto the 37-pin connector of the control. The adapter cap (10) is equipped with the two cables **-W1** and **-W2**.

8. Slip the 37-pin plug (9) onto the adapter cap (10).

9. Connect plug -**X115** of cable **-W1** with one of the two *Sensors* connectors of the tension measurement device (4).

10. Connect plug -**X116** of cable **-W1** with the *POWER* connector of the tension measurement device (4).

11. Connect plug -**X117** of cable **-W2** with the plug (5) of the sensor (7).

12. Assemble the tension measurement device to the machine.

3 Software settings

3.1 Performing a software update of the control

Before you can adjust the settings of the tension measurement device, you need to perform a software update of the control. To do so, download the latest software (version V03.731 or later) and keep it available on a dongle.

Fig. 3: Performing a software update of the control

(1) - Main switch   (2)   - Slot

To perform the software update:

1. Switch off the control using the main switch (1).
2. Plug the dongle into the slot (2) on the control.
3. Switch on the control using the main switch (1).
   ↳ The software update is performed automatically, and its progress is indicated on the control panel.
4. Remove the dongle.
5. Switch the control off again before switching it back on.
   ↳ The machine is ready for sewing.

3.2 Setting the parameters on the control panel

Set the following parameters at the OP1000 control panel:

- *t 08 37* = 141
  Function: Output function of signal Pos3
- *t 08 38* = 25
  Function: Length of signal Pos3
- *t 51 53* = 42
  Function: Assign the output function to pin 26
- *t 51 27* = 16
  Function: Assign input function IN_EXT4 Pin4 (knee button)
  (16 = operation lock)

3.3 Programming the tension measurement device

3.3.1 Activating and selecting the sensor

Refer to the corresponding description in the 📖 *Operating Instructions SMART MATRIX STITCH* (chapter 2, page 9).

3.3.2 Creating/programming a style/program

Refer to the corresponding description in the 📖 *Operating Instructions SMART MATRIX STITCH* (chapter 2, page 24).

There is no need to use all parameters for programming the styles/programs. The following is a sample program. The important parameters are highlighted and accompanied by a brief description of how to set them.

Menu item: STD

Parameter	Value	Info
TOTAL SECTIONS	1	
CURR. SECTION	1	
STITCH COUNT	10	is disabled under the ADV menu item
TENS. LOW (cN)	100.00	important
LOW TIME (ms)	3	important
TENS. HIGH (cN)	600.00	important
HIGH TIME (ms)	1	important

The best way to determine the 4 parameters marked as **important** is to activate the chart view of the tension measurement device (📖 *Operating Instructions SMART MATRIX STITCH* chapter 2, page 39) before sewing and reading the corresponding values.

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Important

Before setting the parameters, deactivate the error output of the control (set t 51 31 = 0). After adjusting/programming the tension measurement device, set the parameter back to 16.

Parameters LOW TIME and HIGH TIME

To determine these parameters, sew at the highest speed in chart view.

If the tension measurement device displays a SYNC error, you can determine the fault in chart view.
To do so, sew at low speed and check if the pulse is available (see circles in the figure).

Fig. 4: SYNC pulse
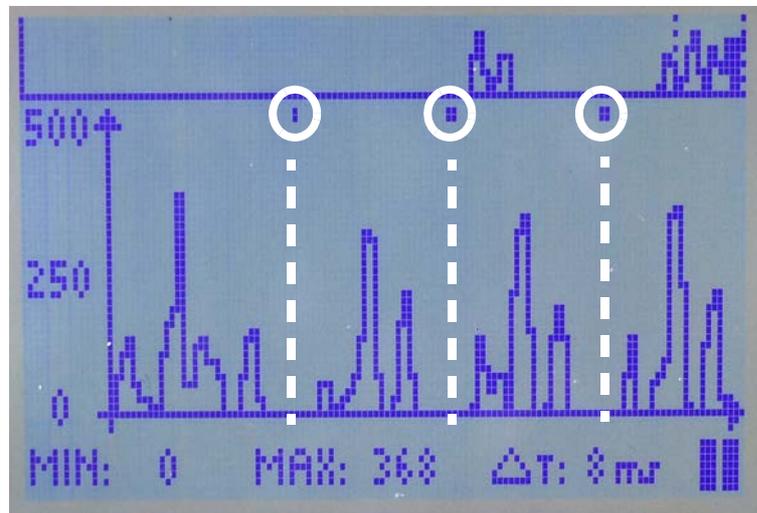
The pulse must range between the tension peaks of the stitches (see dotted lines in the figure). Otherwise, the device will output a SYNC error.
You can adjust the position of the SYNC pulse using the t 08 37 parameter on the control panel of the machine (📖 *p. 7*).

Menu item: ADV

Parameter	Value	Info
FAULT RESET	MANUAL	remains unchanged
STOP OUTPUT	N.O.	remains unchanged
STOP MODE	CONT	the control requires a permanent signal
ENABLE INPUT	N.O.	
TIMEOUT (ms)	1000	
MIN TENS (cN)	OFF	
STITCH TOL.	3	required for pedal operation, as the error threshold would otherwise be too low
COUNT CHECK	OFF	
SYNC CHECK (%)	100	
STITCH TIME	MANUAL	
PK DATAOUT	OFF	
AVERAGE	1	

3.3.3 Activating/loading styles/programs

Refer to the corresponding description in the 📖 *Operating Instructions SMART MATRIX STITCH* (chapter 2, page 37).

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