PFAFF® Industrial

-948/26

Supplement to the instruction manual for the series 580, 1180, 3701, 5480

This instruction manual applies to machines from software version P350 EDX # 1_052_13 onwards

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1 Proper use

With the **puller** the workpiece is fed continously, which makes it possible to sew to a great extent without shifting and puckering. The puller's linear motor enables an individual clearance space between the needle plate and the puller roller.
All adjustments, such as e.g. puller feed stroke, puller roller clearance etc. are carried out by altering the parameter values, see **Chapter 2.03.03 Selecting and altering parameters**.

Any use of these machines which is not approved by the manufacturer shall be considered as improper use! The manufacturer shall not be liable for any damage arising out of improper use! Proper use shall also be considered to include compliance with the operation, adjustment, service and repair measures specified by the manufacturer!

1.01 Using standard presser feet

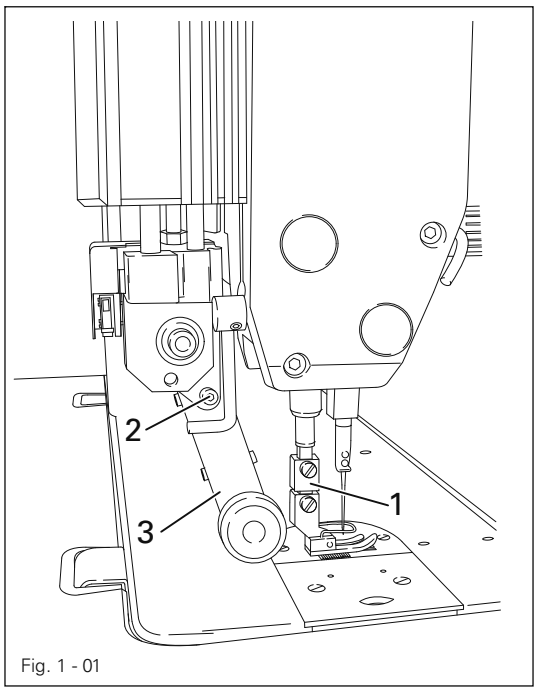


Fig. 1 - 01

- With the adapter **1** which belongs to the accessories, standard presser feed can also be used(Ordering number **91-154 790-22**).
- Mount adapter **1** as shown in **Fig. 1-01**.
- Loosen screw **2** and push puller arm **3** back.
- Screw the presser foot onto adapter **1**.
- Adjust puller arm **3** so that there is a clearance of approx. **1 mm** between the puller roller and the presser foot.
- Tighten screw **2.**

When using the adapter, the height of the puller roller must be adjusted as described in **Chapter 2.02**.

2 Controls

2.01 Puller functions

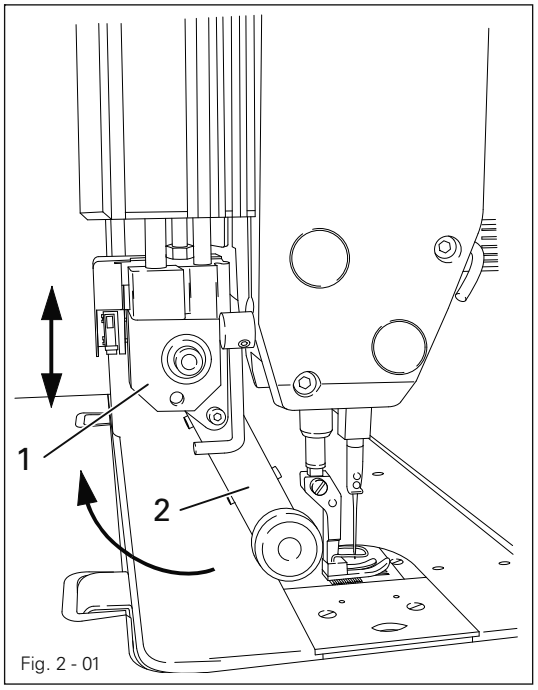


Fig. 2 - 01

Engaging/disengaging the puller

- Raise the puller drive unit **1** until it locks into place and swing puller arm **2** back as far as possible. To engage the puller, follow the instructions in the reverse order.

Switching the puller on/off

- The puller is automatically switched on or off when the puller unit is engaged or disengaged.

Setting the puller feed motion

- The feed motion of the puller is set by means of parameters (see **Chap. 6 Parameter settings**)

2.02 Aligning the puller

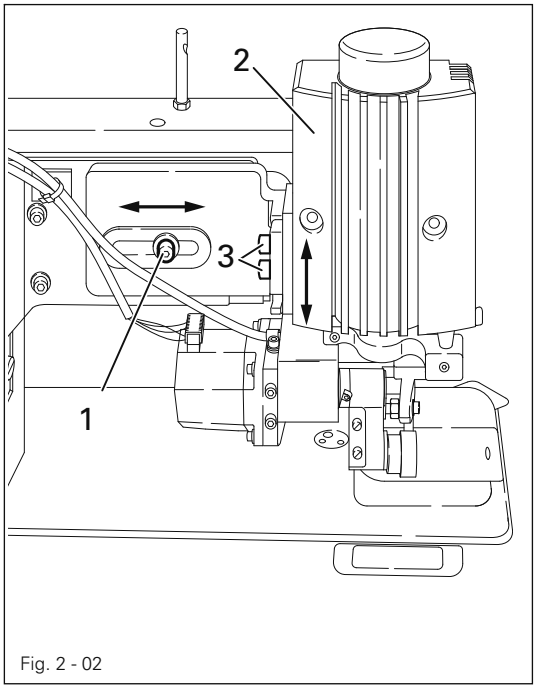


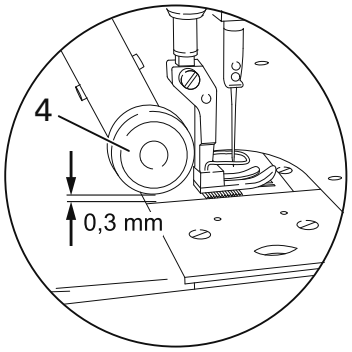
Fig. 2 - 02

Puller crosswise to sewing direction

- Loosen screw **1**.
- Align puller **2** to the seam.
- Tighten screw **1**.

Height of the puller roller

- Loosen screw **3**
- Align puller **2**, so that there is a clearance of approx. **0.3 mm** between the puller roller **4** and the cloth plate.
- Tighten screw **3**.



2.03 Control panel

The control panel is used to display and call up the machine functions for setting up and for sewing operation, for entering parameter values and for reading error messages and service settings.

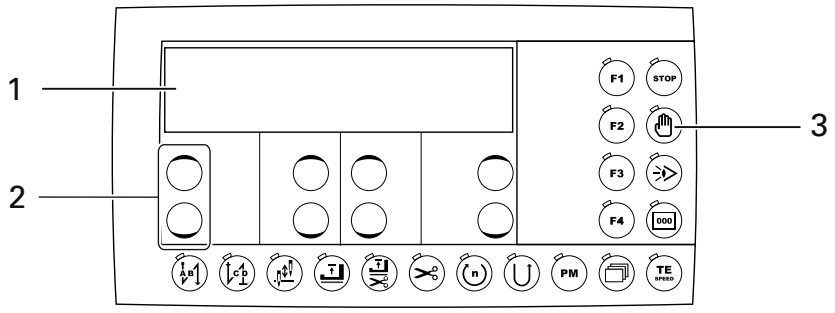


Fig. 6 - 02 131-001

The control panel has the following control and display elements:

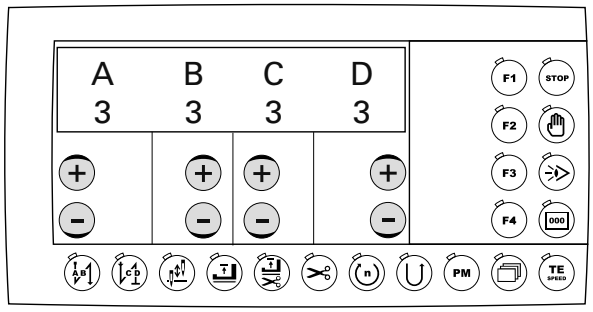
- The display screen **1** consists of a two-line, alphanumerical LCD display with **16** symbols per line and is used to show relevant information and selection parameters.
- The plus-minus keys **2** are used to select or alter the functions and parameters shown on the display.
- The function keys **3** are used to switch the relevant function on or off. Activated functions are shown in each case by an illuminated LED.

2.03.01 Symbols on the display

In addition to texts and set values, the following symbols are shown on the display. The symbols only appear in the programmed sewing mode, see Chapter **5.02 Programmed Sewing.**

	Current program number
	Current seam sector
	Number of stitches in current seam sector
	Maximum speed in current seam sector
	Number of seam sectors in current seam program
	Program number of the seam program to be linked

2.03.02 Plus-minus keys



The relevant plus-minus keys are used for the selection and alteration of the set values concerned (e.g. when entering bartack stitches). In this case the relevant plus or minus key is pressed and held while the set value shown above the key slowly changes. If the key is pressed longer, the set value changes more quickly.

2.03.03 Function keys

The activated function is always shown by the relevant illuminated LED.

Description of the individual functions:

Start bartack

If this key is pressed, the securing stitches at the beginning of the seam (start bartacks) are switched on or off. The number of forward stitches (A) or reverse stitches (B) for the start bartack can be changed in each case by pressing the +/- key underneath. To change from double tacks to single tacks set the forward stitches (A) at zero.

End bartack

- If this key is pressed, the securing stitches at the end of the seam (end bartacks) are switched on or off. The number of reverse stitches (C) or forward stitches (D) can be changed in each case by pressing the +/- key underneath. To change from double tacks to single tacks set the forward stitches (D) at zero.

Raised needle position after sewing stop

- If this key is pressed, the "raised needle position after sewing stop" function is switched on or off. If the function is switched on, the needle positions in t.d.c. after sewing stops

Raised foot position after sewing stop

- If this key is pressed, the "raised foot position after sewing stop" function is switched on or off. If the function is switched on, the sewing foot is raised after sewing stops.

Foot position up at end of seam section (with programmed sewing)

- The "Foot position up at end of seam section" function is turned on or off by pressing this button. If the function is switched on, the sewing foot is raised at the end of the seam sector.

Thread trimming

- If this key is pressed, the "thread trimming" function is switched on or off

Program speed (only in programmed sewing)

- If this key is pressed, the relevant function is switched on or off.
  If the function is activated, the pedal forwards function is used to select the program speed as a fixed speed. The pedal setting for stopping the fixed speed is chosen with parameter 206.
- If the function is switched off, the speed is regulated with the pedal until program speed is reached.

Reverse sewing direction (only in programmed sewing)

- If this key is pressed, the relevant function is switched on or off. If the function is activated during programmed sewing, the relevant seam sector is sewn in reverse

Manual sewing sector (only in programmed sewing)

- If this key is pressed, the relevant function is switched on or off.
  If the function is activated, switching to the next seam sector is not carried out by stitch counting or sensor, but manually with the pedal setting "-2".

Programmed sewing stop (only in programmed sewing)

- If this key is pressed, the relevant function is switched on or off.
  If the function is activated, the machine stops at the end of the seam sector.

Sewing with light barrier

- In the manual sewing mode with light barrier, the number of stitches entered with parameter 111 corresponds to the light barrier compensation stitches. In the programmed sewing mode, the number of stitches in the seam sector is used as the number of compensation stitches.

Stitch counting (only in programmed sewing)

- If this key is pressed, the relevant function is switched on or off.
- If the function is activated, in the programmed sewing mode the machine switches to the next seam sector after the number of stitches entered have been sewn.

TE/Speed

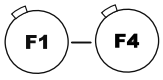
- In the programmed sewing mode, the number of stitches is entered by stitching them off.
- If this key is pressed once, the machine changes to parameter input.
- If this key is pressed twice (within 5 seconds) the machine changes to stitch input.

Scroll

- Press this key to scroll through the sub-menus of the program.

PM / Operating mode

- If this key is pressed, the machine switches between manual and programmed sewing. If the LED is illuminated, programmed sewing is active.



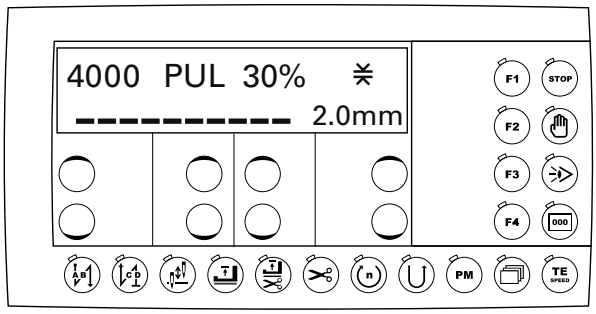
F1 - F4

No function at present.

3 Commissioning

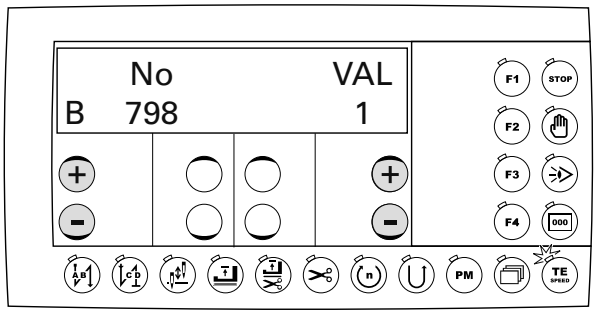
3.01 Basic position of the machine drive

- Switch on the machine.

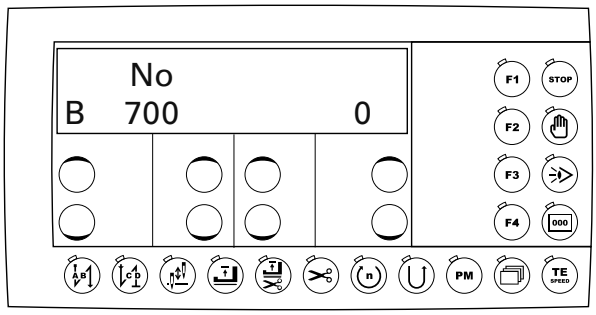


2x TE SPEED

- Press the **TE/Speed** key twice to call up the parameter input function (LED on).
- Select the technician level **B** (value "**1**") with parameter "**798**", see **Chapter 6** parameter input**.**



- By pressing the corresponding **+/- key** select the parameter group "**700**".



- Sew a stitch by operating the pedal.
- Turn the balance wheel in the direction of sewing until the needle point is level with the top edge of the needle plate.

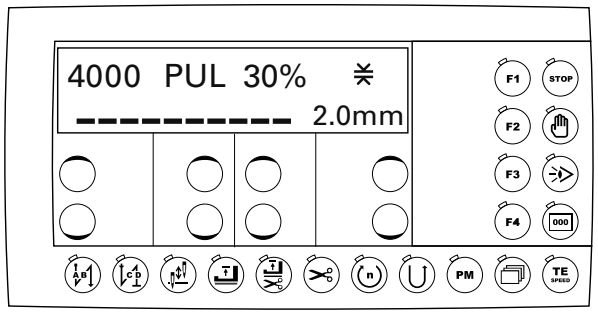
TE SPEED

- Press the **TE/Speed** key to take over the setting and to conclude the input.

4 Setting up

4.01 Entering the puller feed stroke (stitch length)

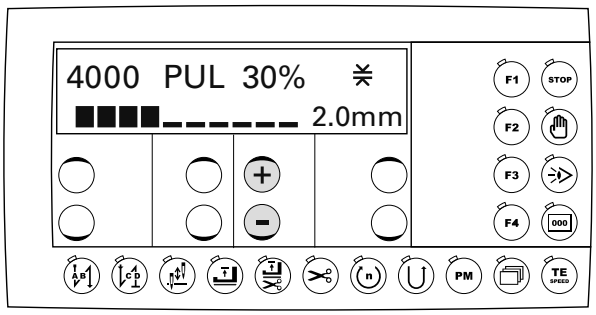
- Switch on the machine.



- Enter the feed stroke by pressing the corresponding +/- key.

The puller feed stroke setting must match the stitch length setting of the basic machine!

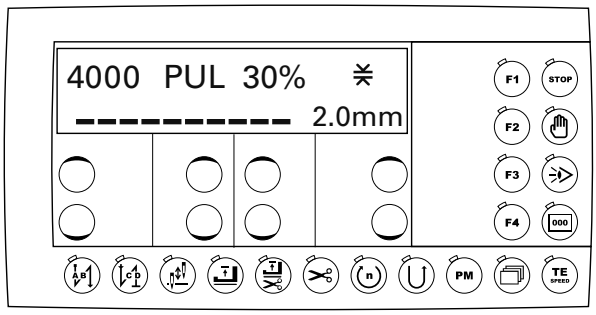
4.02 Setting the puller pressure



- Switch on the machine.
- Set the desired puller pressure by pressing the corresponding +/- key.
  The value for the current puller pressure (in %) can be read on the display.

4.03 Entering the maximum speed

- Switch on the machine.



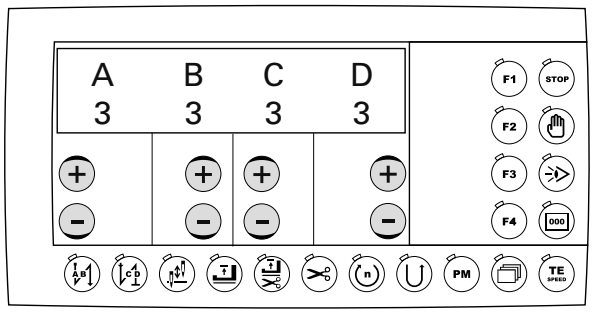
- Enter the maximum speed by pressing the corresponding **+/- key**.

The max. speed is limited with parameter **607**.

4.04 Entering the start and end backtacks

- Switch on the machine.
- Press the **TE/Speed** key twice to select the input menu for start and end backtacks.

2x TE SPEED



- By pressing the corresponding **+/- key** select the desired value for the number of forward stitches (A) of the start backtack.
- By pressing the corresponding **+/- key** select the desired value for the number of reverse stitches (B) of the start backtack.
- By pressing the corresponding **+/- key** select the desired value for the number of reverse stitches (C) of the end backtack.
- By pressing the corresponding **+/- key** select the desired value for the number of forward stitches (D) of the end backtack.

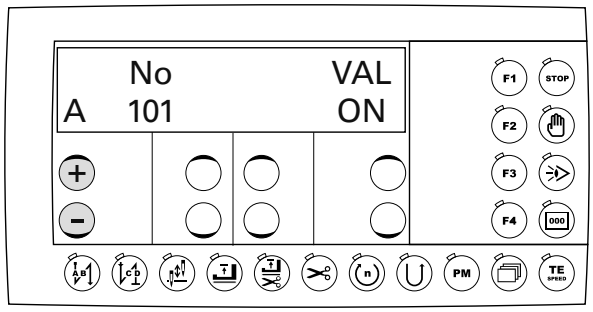
In the programmed sewing mode it is possible to call up the input menu for start and end backtacks by pressing the **scroll** key, see **Chapter 5.02 Programmed sewing.**

4.05 Setting the stitch counting function for the bobbin thread control

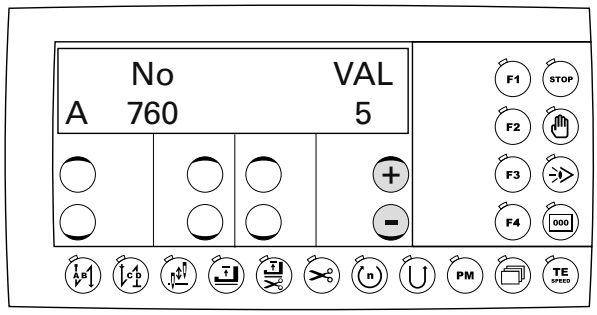
- Switch on the machine.

2x TE SPEED

- Press the TE/Speed key twice to call up the parameter input function (LED on).



- By pressing the corresponding +/- key select the parameter "760".



- Press the corresponding +/- key to set the number of remaining stitches, which can still be sewn after recognition by the bobbin thread control function.
  The selected value is multiplied by 10* or 200** and the result is the number of stitches.
- Example display 5 x 200** = 1000 stitches. The setting depends among other things on the thread strength.

TE SPEED

- If the TE/Speed key is pressed, the value is taken over and the machine changes into the sewing mode.

The bobbin thread rest counter can only be used, if parameter "660" is set at value "1" or "2".

* If for parameter 660 the value is "1", the multiplier is 10

** If for parameter 660 the value is "2", the multiplier is 200

5 Sewing

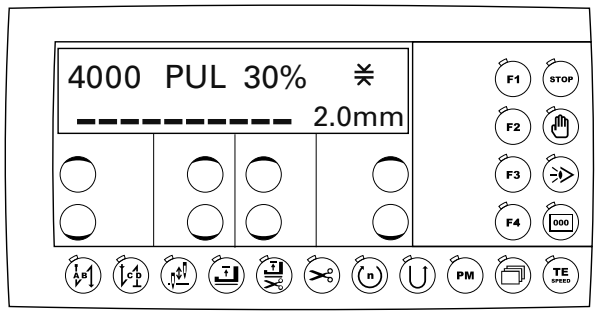
In the sewing mode all relevant adjustments for the sewing operation are shown on the display and can be altered directly. Functions can be switched on and off by pressing the key.

PM

The "PM" function key is used to choose between manual sewing (LED off) and programmed sewing (LED on).

5.01 Manual sewing

After the machine has been switched on, the maximum speed, the puller feed stroke and the puller pressure can be adjusted with the corresponding +/- keys.



Further functions in manual sewing, also see Chapter 2.03.03 Function keys:

- Start backtacks on/off
- End backtacks on/off
- Needle position raised on/off
- Presser foot raised on/off
- Presser foot raised at end of seam on/off
- Thread trimming on/off
- Sensor on/off

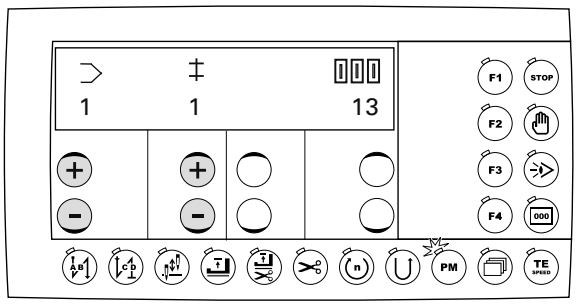
On the basic machine the stitch length is adjusted with the balance wheel.

The stitch length for the puller is adjusted on the control panel

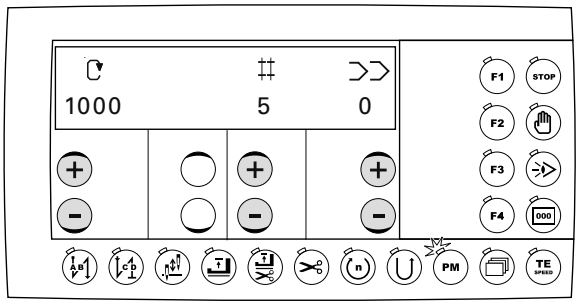
5.02 Programmed sewing

In the programmed sewing mode **99** programs, each with **9** seam sections and **999** stitches, can be programmed.
The fixed programs are used for the quick and easy production of seams with different numbers of stitches. The pedal setting "**0**" is used to switch to the next seam section.

After the machine has been switched on and the programmed sewing mode has been selected with the **PM** key, the display appears for selecting the program number, seam section and number of stitches.



With the **scroll** key other menus can be selected for entering the values for start and end backtacks and the maximum speed in the corresponding seam section.



Further functions in programmed sewing, also see **Chapter 2.03.03 Function keys**:

Start backtacks on/off

End backtacks on/off

Needle position raised on/off

Presser foot raised on/off

Presser foot raised after thread trimming on/off

Thread trimming on/off

Seam section speed on/off

Reverse sewing direction on/off

Manual sewing on/off

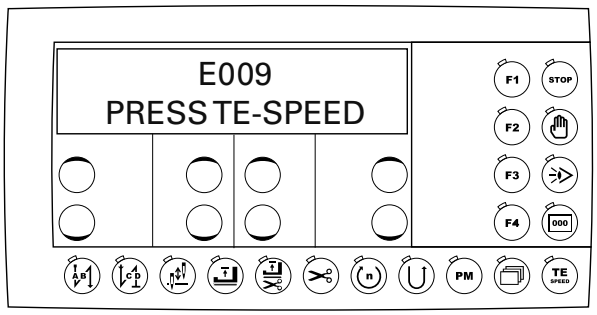
Stop on/off

Sensor on/off

Stitch count on/off

5.03 Error messages

When an error occurs, an error code appears on the display together with short instructions. An error message is caused by incorrect settings, defective elements or seam programs as well as by overload conditions. See Chapter **5.03.01 Description of the error messages** for a description of the error codes.



- Eliminate error.

- Acknowledge error elimination by pressing the **TE/speed** key.

5.03.01 Description of the error messages

Error code	Cause	Remedy
E001	Pedal not in rest position when machine is switched on	Check pedal
E009	Start inhibitor at standstill	Bring sewing head to its basic position
E010	Machine class altered	Switch control unit off, then on again.
E062	Voltage of power supply unit (24 V) too low	Check connected consumers
E063	Power supply unit (24 V) overloaded	Check connected consumers
E064	"Mains off" signal when machine is switched on	Contact service
E065	IGBT error when machine is switched on	Contact service
E066	IGBT test with error recognition	Contact service
E067	Mains off	Switch on mains
E068	Overcurrent motor during operation	Contact service
E069	No increments	Contact service
E070	Motor blocking	Check machine for binding
E071	Incremental transmitter of motor not connected	Check plug of incremental transmitter
E074	No synchronization impulse from sewing head	Check transmitter
E088	RAM defective	Contact service
E092	Start inhibitor running during drive	Check end switch
E173	Motor not connected	Check motor connection

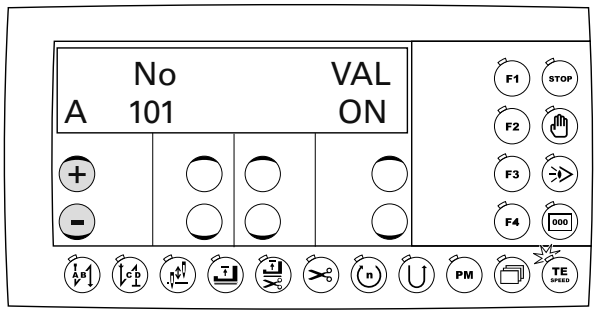
6 Parameter input

6.01.01 Example of how to enter the parameters

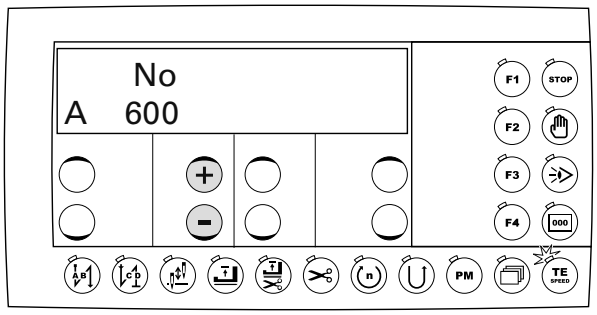
- Switch on the machine.

2x TE SPEED

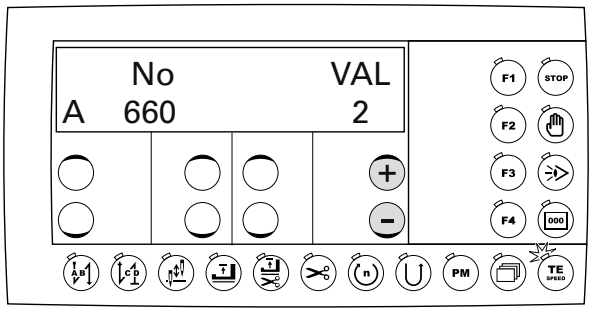
- Press the "TE/Speed" key twice to call up the parameter input function (**LED on**).



- Select the parameter, e.g. Parameter **660** for bobbin thread monitoring, by pressing the relevant plus-minus keys.



- Enter the desired value for the selected parameter, e.g. "**2**" for " bobbin thread rest counter on", by pressing the relevant plus-minus keys.



TE SPEED

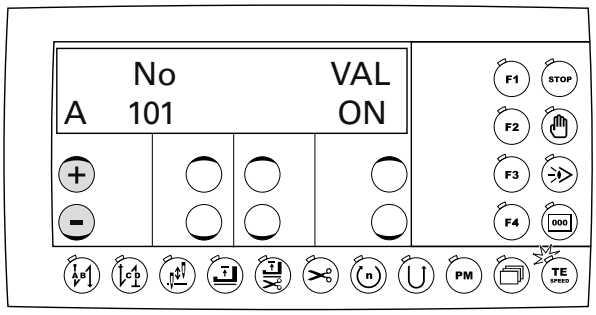
- Conclude the parameter input (**LED off**).

6.01.02 Selecting the user level

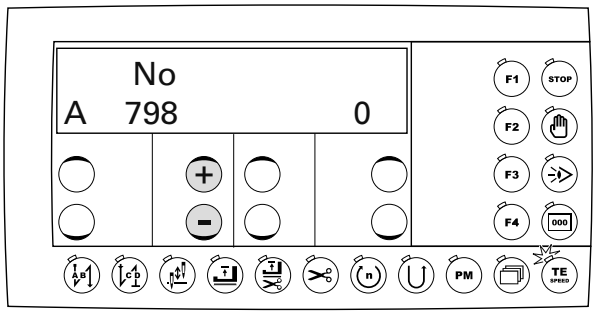
- Switch on the machine.

2x TE SPEED

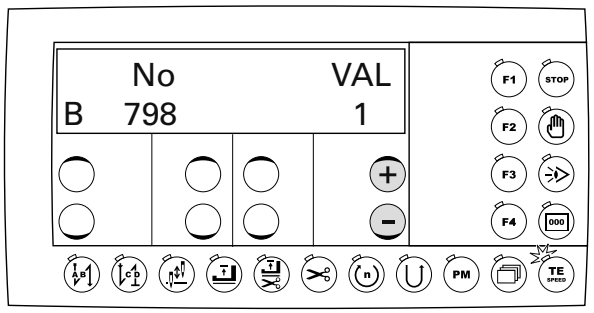
- Press the **TE/Speed** key twice (**LED on**) to call up the parameter input function.



- Select parameter **798** by pressing the relevant plus-minus keys.



- The standard set value is set at "**0**" (= operator level "**A**"). Press the relevant plus-minus keys to select the desired user level.



Set value "**0**" = User level "**A**"
Set value "**1**" = Mechanic level "**B**"
Set value "**11**" = Service level "**C**"

The selected user level is shown next to the parameter number.

TE SPEED

- Conclude the parameter input (**LED off**).

If the main switch is switched off and on again, the machine changes back automatically to user lever "**A**".

6.02 Parameter list

Only appropriately trained personnel is authorized to alter the set values in the parameters of user level "B" and "C"

With this control unit following machine types are programmable:
Machine type **1** = series 1181, 3701
Machine type **2** = series 1183
Machine type **3** = 5480
Machine type **4** = 480 Clean Cut
Machine type **5** = 583

Group	Parameter	Description	Machine type	User level	Setting range	Set value
1	101	Acoustic signal of control panel keys	1, 2, 3, 4, 5	A	ON - OFF	OFF
	105	Speed at seam start	1, 2, 3, 4 5	B B	300 - 2000 300 - 2000	1200 1400
	106	Speed at seam start ON = variable (pedal-controlled) OFF = constant (as for parameter 105)	1, 2, 3, 4, 5	B	ON - OFF	OFF
	107	Speed at seam start ON = limited by parameter 105 OFF = limited by parameter 607	1, 2, 3, 4, 5	B	ON - OFF	OFF
	110	Speed at seam end	1, 2, 3, 4 5	B B	300 - 2000 300 - 2000	1200 1400
	111	Light barrier compensating stitches	1, 2, 3, 4, 5	A	1 - 30	8
	112	No. of stitches for blocking out light barrier for knitted fabrics	1, 2, 3, 4, 5	A	0 - 100	0
	113	Start with light barrier ON = only if light barrier dark OFF = also when light barrier bright	1, 2, 3, 4, 5	B	ON - OFF	OFF
	116	Soft starting stitches (soft start)	1, 2, 3, 4 5	A A	0 - 30 0 - 30	0 1
	117	Speed for soft starting stitches (soft start)	1 2, 3, 4, 5	B B	30 - 640 30 - 2000	400 1000
	163	Sewing with light barrier	1, 2, 3, 4, 5	B	ON - OFF	OFF

Group	Parameter	Description	Machine type	User level	Setting range	Set value
1	199	Speed for light barrier compensating stitches	1, 2, 3, 4, 5	B	300 - 2000	1200
2	203	Speed for seam program ON = variable (pedal-controlled) OFF = constant	1, 2, 3, 4, 5	B	ON - OFF	ON
	206	Interrupt /stop seam sector at fixed speed ON = with pedal -2, OFF = with pedal 0	1, 2, 3, 4, 5	B	ON - OFF	OFF
	252	Puller roller clearance for front backtack approx. **4** mm	1, 2, 3, 4 5	B B	5 - 200 5 - 200	19 25
	254	Puller roller clearance after trimming approx. **7** mm	1, 2, 3, 4 5	B B	10 - 255 10 - 255	25 50
3	301	Start voltage of solenoid for feed changeover ON = 24 V, OFF = 32 V	1, 2, 3, 4, 5	C	ON - OFF	OFF
	302	Holding power of puller roller when rising	1, 2, 3, 4, 5	B	50 - 200	119
	311	Stop stitch counting ON = with thread trimming OFF = without thread trimming	1, 2, 3, 4, 5	B	ON - OFF	ON
	313	Programs as tack programs	1, 2, 3, 4, 5	B	ON - OFF	OFF
	318	Puller lifts with automatic presser foot lift and starts with a holdoff depending on parameter **445** **1** = on, **0** = off	1, 2, 3, 4, 5	B	0 - 99	1
	356	Input is: ON = Presser foot, OFF = suction	1, 2, 3, 4, 5	B	ON - OFF	ON
	364	TFeed adjustment means ON = tack, OFF = condensed stitches	1, 2, 3, 4, 5	B	ON - OFF	ON
	382	Switch shaft of analogue input for thread monitor	1, 2, 3, 4, 5	B	0 - 100	15
	387	Output motor operation activated ON = with pedal = 1D (motor running) OFF = with pedal = 1 (lower presser foot)	1, 2, 3, 4, 5	B	ON - OFF	ON

Group	Parameter	Description	Machine type	User level	Setting range	Set value
4	445	Number of stitches before puller roller touches down after machine start (only when parameter **318** is set to "**1**")	1, 2, 3, 4, 5	B	0 - 99	15
	446	Input is: 1 = needle raised without trimming 2 = needle position change 3 = single stitch 4 = single stitch with shortened stitch length 5 = tack inversion 6 = tack suppression 7 = switchover position	1, 2, 3, 4, 5	B	1 - 7	1
	494	Function of external key 0 = Feed switch-over by hand **1** = Thread clamp at seam start	1, 2, 3, 4, 5	B	0 - 1	0
	499	Stitch count for slowed down lowering of puller after operating the knee switch	1, 2, 3, 4, 5	A	0 - 99	0
5	522	Needle position at stop during ornamental tack ON = raised; OFF = lowered	1, 2, 3, 4, 5	B	ON - OFF	OFF
	523	Tack ON = ornamental tack (stitch-in-stitch) OFF = standard tack	1, 2, 3, 4, 5	A	ON - OFF	OFF
	530	Maximum speed for ornamental tack	1, 2, 3, 4, 5	B	300 - 2000	1000
	538	Tacting output(thread tension release)	1, 2, 3, 4 5	B B	10 - 50 10 - 50	30 50
	584	Tack ON = quadruple, OFF = double	1, 2, 3, 4, 5	B	ON - OFF	OFF
	585	Speed limitation with tack	1, 2, 3, 4, 5	B	300 - 2500	1000
6	605	Actual speed value in display ON = on, OFF = off	1, 2, 3, 4, 5	B	ON - OFF	ON
	606	Minimum speed	1, 2, 3, 4, 5	B	30 - 650	180

Group	Parameter	Description	Machine type	User level	Setting range	Set value
6	607	Maximum speed	1, 2, 3, 4 5	B B	300 - 5500 300 - 6000	▲ ▲
	608	Speed level curve (pedal characteristic) 1 = linear, 2 = non-linear	1, 2, 3, 4, 5	B	ON - OFF	ON
	609	Trimming speed 1	1, 2, 3, 4 5	B B	60 - 300 60 - 300	180 220
	615	End recognition with light barrier ON = from bright to dark, OFF = from dark to bright	1, 2, 3, 4, 5	B	ON - OFF	OFF
	618	Return after seam end	1, 2, 3, 4, 5	B	ON - OFF	OFF
	623	Switch-on delay for return in [ms]	1, 2, 3, 4, 5	B	0 - 2000	30
	626	Clean cut	4	B	ON - OFF	OFF
	627	Stitch count for clean cut at seam start	4	B	1 - 2	1
	642	Presser foot lift time from switch-on to tension reduction	1, 2, 3, 4, 5	B	10 - 100	100
	643	Feed adjustment time from switch on to tension reduction	1, 2, 3, 4, 5	B	10 - 100	100
	651	Automatic lowering of presser foot at machine standstill	1, 2, 3, 4, 5	B	ON - OFF	ON
	653	Bearing position before sewing	1, 2, 3, 4, 5	B	ON - OFF	OFF
	660	Bobbin thread monitoring 0 = OFF, 1 = by sensor 2 = by stitch counting	1, 2, 3, 4, 5	B	0 - 2	0
	668	Thread wiper	1, 2, 3, 4, 5	B	ON - OFF	OFF
7	700*	Needle position 0 Needle reference position	1, 2, 3, 4, 5	B	0 - 255	0
	702	1st needle position (lowered)	1, 2, 5, 3, 4	B B B	0 - 255 0 - 255 0 - 255	90 100 80

▲ = See Chapter **3 Specifications** of the Instruction Manual for the machine

Group	Parameter	Description	Machine type	User level	Setting range	Set value
7	703	Thread take-up lever position raised	1, 2, 3, 4, 5	B B B B	0 - 255 0 - 255 0 - 255 0 - 255	226 208 227 222
	705	End of cutting signal	1, 2, 3, 4 5	B B	0 - 255 0 - 255	200 175
	706	Start of cutting signal	1, 2, 3, 4, 5	B B B	0 - 255 0 - 255 0 - 255	136 127 135
	707	Start thread tension release	1, 2, 3, 4, 5	B B B	0 - 255 0 - 255 0 - 255	164 140 190
	710	Needle position raised	1, 2, 3, 4 5	B B	0 - 255 0 - 255	227 184
	715	Switch-on time [ms] for thread wiper	1, 2, 3, 4, 5	B	0 - 2000	60
	718	Stop brake tacting (0 = brake off)	1, 2, 3, 4, 5	B	0 - 100	0
	719	Tacting output (presser foot) 100 = 100 % starting	1, 2, 4, 5 3	B B	10 - 60 10 - 90	40 90
	721	Tacting output (feed adjustment) 100 = 100 % starting	1, 2, 4, 5 3	B B	10 - 60 10 - 90	40 90
	722	Acceleration ramp for sewing motor 1 = flat, 50 = steep	1, 2, 3, 4, 5	B	1 - 60	50
	723	Brake ramp for sewing motor 1 = flat, 50 = steep	1, 2, 3, 4, 5	B	1 - 60	40
	729	Start delay after lowering presser foot [ms]	1, 2, 4, 5 3	B B	10 - 2000 10 - 2000	120 70
	730	Lift delay for presser foot at end of seam	1, 2, 4, 5 3	B B	10 - 2000 10 - 2000	50 0
	734	Tacting output(cutting magnetic)	1, 2, 4, 5 3	B B	10 - 40 10 - 90	10 90

* = These parameters remain unchanged when the set parameter values are reset, see Chapter **7.01 Reset / Cold start.**

Group	Parameter	Description	Machine type	User level	Setting range	Set value
7	746	Needle position for switchover Zig-zag or triple stitch	1 2, 3, 4, 5	B -	0 - 255 -	90 -
	748	Input is: 1 = needle raised without trimming 2 = needle position change 3 = single stitch 4 = single stitch with shortened stitch length 5 = tack inversion 6 = tack suppression 7 = switchover position	1, 2, 3, 4, 5	B B	1 - 7 1 - 7	5 1
	751	Time for blowing after attaching (ms)	4	B	0 - 2000	120
	752	Stop time for catcher off after attaching (ms)	4	B	0 - 2000	150
	760	Remaining no. of stitches after reaction of bobbin thread monitor during bobbin thread monitoring 1 = Multiplying factor for fixed value x 10 during direct monitoring 2 = Multiplying factor for fixed value x 200 during indirect monitoring	1, 2, 3, 4, 5	A	0 - 250	5
	761	Extension thread tension release / thread pulling [ms]	1, 2, 3, 4, 5	B	0 - 80	0
	770	Lifting delay for presser foot when pedal position is "-1" [ms]	1, 2, 3, 4, 5	B B	10 - 250 10 - 250	80 110
	771	Factor when lowering the puller to a position	1, 2, 3, 4, 5	B B	1 - 15 1 - 15	10 7
	772	Factor when raising the puller to a position	1, 2, 3, 4, 5	B B	1 - 15 1 - 15	7 6
	775	Stop time for ornamental tack [ms]	1, **2**, 3, 4, 5	B	10 - 1000	100
	786	Catcher position off	4	B	0 - 255	220
	789	Needle position 10 (bearing position)	1, 2, 3, 4, 5	B	0 - 255	248
	793	Delay for feed adjustment on till trimming with shortened trim stitch [ms]	1 2, 3, 4, 5,	B -	0 - 2000 -	140 -

Group	Parameter	Description	Machine type	User level	Setting range	Set value
7	797	Hardware-test	1, 2, 3, 4, 5	C	ON - OFF	OFF
	798	User level 0 = user level A 1 = mechanic level B 11 = service level C	1, 2, 3, 4, 5	B	0 - 20	0
	799*	Selected machine class(see Table of machine types on Page 18)	1 2 3 4 5	C C C C C	1 - 5 1 - 5 1 - 5 1 - 5 1 - 5	1 2 3 4 5
8	800*	Motor rotating direction when looking at V-belt pulley 1= anti-clockwise, 0 = clockwise	1, 2 3, 4, **5**	C C	0 - 1 0 - 1	0 1
	801	Reversing angle at end of seam	1, 2, 3, 4, 5	B	10 - 212	32
	814	Change-over of positioning method 1 = Ramp braking in target position 2 = Max. braking at positioning speed and wait till target position is reached.	1, 2, 3, 4, 5	C	1 - 2	2
	815	Motor starting method after mains on 1 = sinus method, 2 = impulse method	1, 2, 3, 4, 5	C	1 - 2	1
	880	Max. starting current [A]	1, 2, 3, 4, 5	C	1 - 10	8
	881	Adjust positioning behaviour of motor to the machine to avoid vibrations	1, 2, 3, 4, 5	C	3 - 24	10
	884	Proportional amplification of speed control of sewing motor	1, 2, 3, 4, 5	B	3 - 24	10
	885	Integral amplification of speed control of sewing motor	1, 2, 3, 4, 5	C	10 - 80	50
	886	Proportional amplification of positioning controller(sewing motor)	1, 2, 3, 4, 5	C	1 - 15	8
	887	Differential amplification of positioning controller(sewing motor)	1, 2, 3, 4, 5	C	1 - 15	8

* = These parameters remain unchanged when the set parameter values are reset, see Chapter **7.01 Reset / Cold start.**

Group	Parameter	Description	Machine type	User level	Setting range	Set value
8	889	Time for positioning control in [ms], 0 = always	1, 2, 3, 4, 5	C C C	0 - 2500 0 - 2500 0 - 2500	400 200 300
	890	Proportional amplification of stop brake	1, 2, 3, 4, 5	C	1 - 25	15
	897*	MINI-motor variant 1 = long, 0 = short	1, 2, 3, 4, 5	C	0 - 1	0
	898	Motor current limitation ON = 15A, OFF = 10A	1, 2, 3, 4, 5	C	ON - OFF	OFF
9	900	Proportional amplification of speed controller during trimming	1, 2, 3, 4, 5	B	1 - 24	14
	901	Trimming release-speed	1, 2, 3, 4, 5	B	30 - 500	300
	933	Switchover of display on screen ON = diagnosis display OFF = standard display	1, 2, 3, 4, 5	C	ON - OFF	OFF
	939	Hold-back time (premature electrical switchover) for feed adjustment when switching on [ms]	1, 2, 3, 4, 5	B B	10 - 200 10 - 200	30 34
	940	Time until catch advances for "clean cut"	4	B	0 - 2000	150
	969	Switch off position for presser foot when thread is clamped at beginning of seam	1, 2, 3, 4, 5	B	0 - 255	100-
	985	Switch on position for thread clamp	1, 2, 3, 4, 5	B	0 - 255	67
	986	Switch off position for thread clamp	1, 2, 3, 4, 5	B	0 - 255	206
	989	Thread clamp at beginning of seam 0 = Thread clamp off 1 = Thread clamp without presser foot lift 2 = Thread clamp with presser foot lift	1, 2, 3, 4, 5	B B	0 - 2 0 - 2	1 0

* = These parameters remain unchanged when the set parameter values are reset, see Chapter **7.01 Reset / Cold start.**

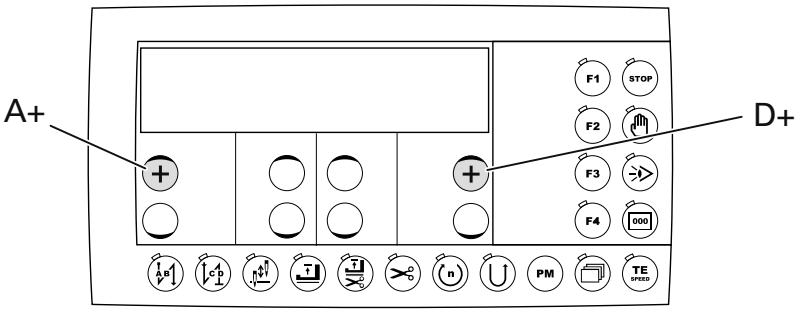
Group	Parameter	Description	Machine type	User level	Setting range	Set value
10	1000	Number of stepping motors	1, 2, 3, 4, 5	C	0 - 1	1
10	1001	Stepping motor starting angle	1, 2, 5, 3	B B B B	0 - 255 0 - 255 0 - 255 0 - 255	22 170 144 100
	1003	Feed roller radius	1, 2, 3, 4, 5	C	5 - 50	15
11	1100	Operating mode stepping motor 1	1, 2, 3, 4, 5	C	0 - 2	1
	1101*	Rotation direction stepping motor 1 1 = anti-clockwise, 0 = clockwise	1, 2, 3, 4, 5	B	ON - OFF	OFF
	1102	Stepping mode stepping motor 1 1 = full-step, 2 = half-step, 3 = quarter step, 4 = eighth step	1, 2, 3, 4, 5	B	1 - 4	3
	1103	Maximum current stepping motor in %	1, 2, 3, 4, 5	C	1 - 100	80
	1104	Reducing current stepping motor in %	1, 2, 3, 4, 5	C	0 - 50	30
	1105	Stepping motor 1, start-stop-time time for 1st step at start-stop-speed)	1, 2, 3, 4, 5	C	10 - 1000	300
	1106	Maximum speed stepping motor 1	1, 2, 3, 5 4	C C	10 - 4000 10 - 4000	843 32
	1107	Acceleration in % of max. speed on. stepping motor 1	1, 2, 3, 4, 5	C	1 - 50	28
	1108	Number of brake steps of stepping motor 1	1, 2, 3, 4, 5	C	1 - 50	5
	1160	Feed motion compensation at beginning of seam	1, 2, 3, 4, 5	A	0 - 99	20

* = These parameters remain unchanged when the set parameter values are reset, see Chapter 7.01 Reset / Cold start.

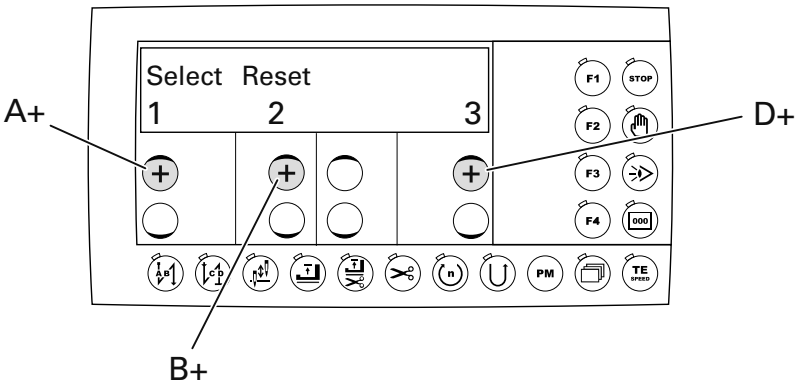
7 Service functions

7.01 Reset / Cold start

After selecting the Reset menu, by pressing the relevant plus key it is possible to delete seam parameters and seam programs or to carry out a cold start.



- Press and hold plus-minus keys "A+" and "D+" and switch on the machine.



1 = Reset seam parameters

- Press plus key "A+".
  All seam parameters are deleted, the message "MASTER-RESET 1" appears briefly on the display.

2 = Reset seam programs

- Press plus key "B+".
  All seam programs are deleted, the message "MASTER-RESET 2" appears briefly on the display.

3 = Cold start

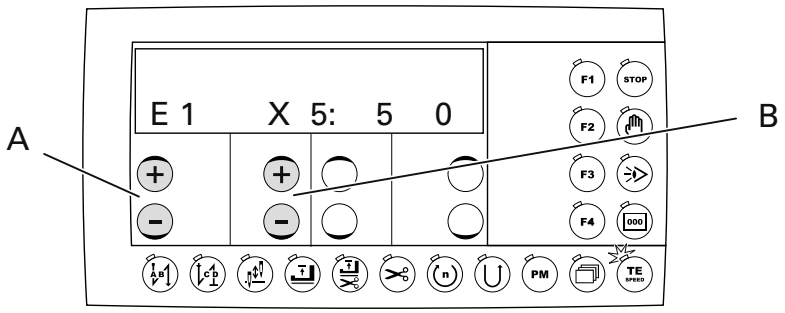
- Press plus key "D+".
  The values of the machine control unit, except the machine class, are set back to their basic values. The message "COLD START" appears briefly on the display.

After the cold start all programmed values are set back to their status at the time of delivery. For this reason, after a cold start the parameters 799, 800 and 700 must by checked and reset if necessary.

7.02 Hardware-test

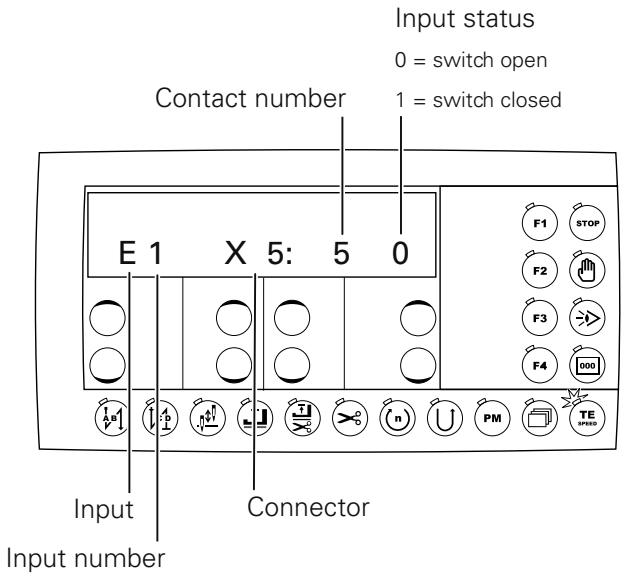
The hardware test is a test program which, with the aid of the control panel, makes it possible to check various components of the control unit and the machine installation. The check involves the test of seven test blocks.

- Switch on the machine.
- Select service level "C", see Chapter **9.01.02** Selecting the user level.
- Select parameter **797** and set at "ON" by pressing the relevant plus-minus key. The first test block appears on the display.



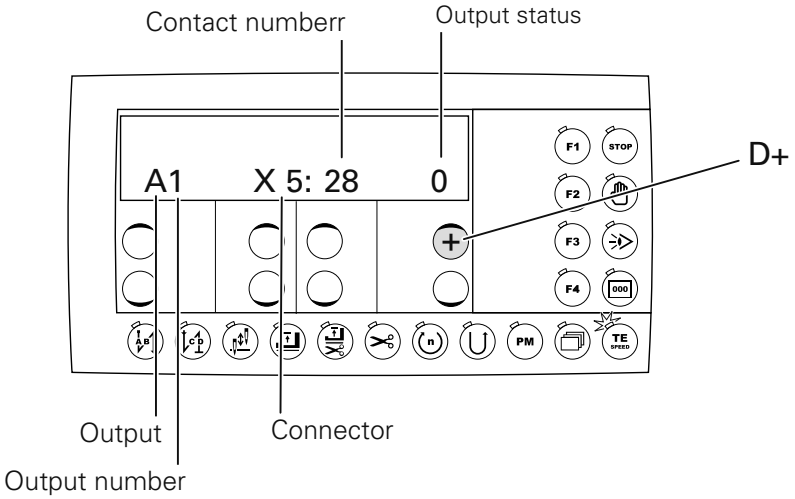
- Further test blocks can be called up by pressing the plus-minus keys "A".
- The relevant inputs or outputs are selected by pressing the plus-minus keys "B".

7.02.01 Test block 1 – inputs



For the allocation of the functions of the outputs displayed, see Chapter **8** Circuit diagrams.

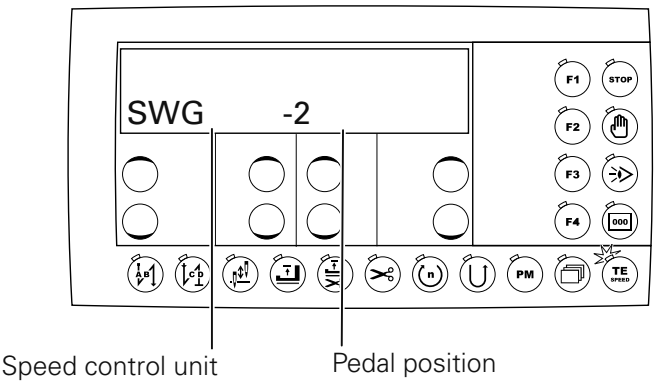
7.02.02 Test block 2 – outputs



- Press plus key "D+" to switch on the relevant output for **200** ms.

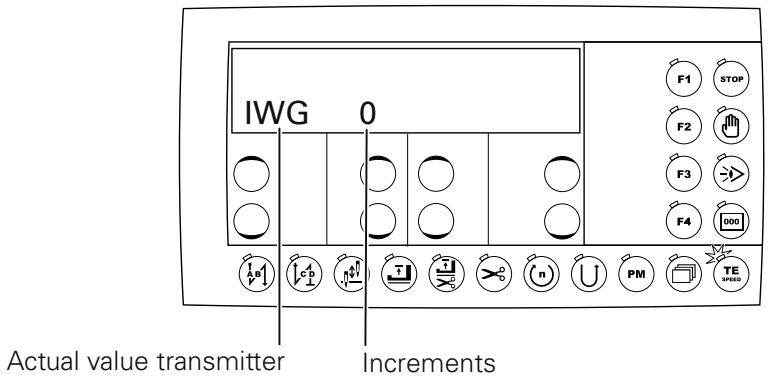
For the allocation of the functions of the outputs displayed, see Chapter **8** Circuit diagrams.

7.02.03 Test block 3 – speed control unit



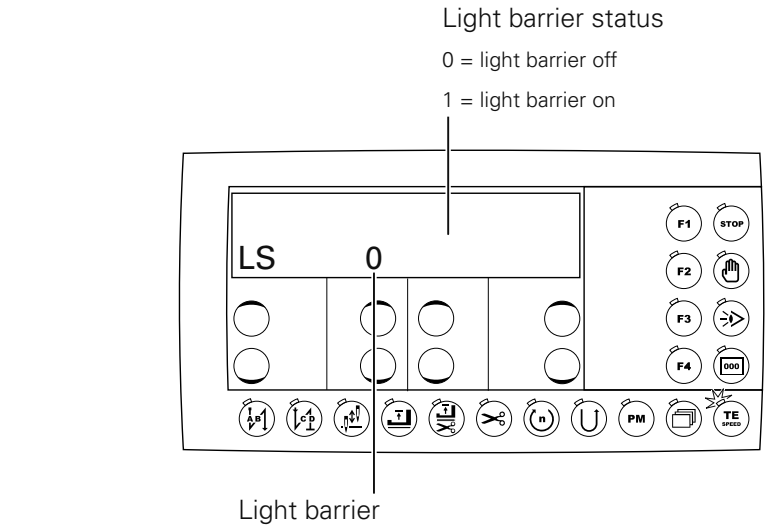
- By pressing pedal operation all **16** control steps can be called up.
  If all displays from -**2**, -**1**, **0**, **1**, **1**D to **12**D appear, the speed control unit is in order.

7.02.04 Test block 4 – actual value transmitter



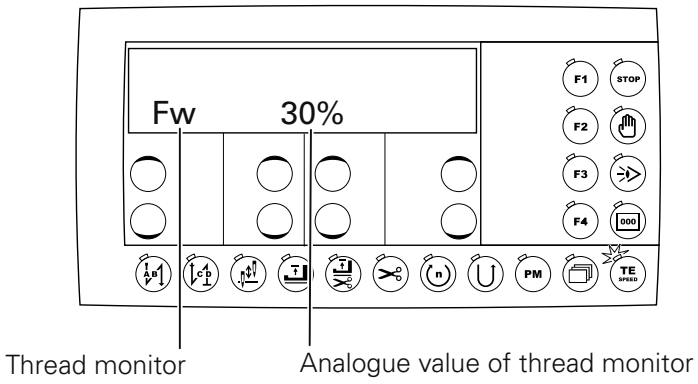
- The actual value can be checked by pressing Turn on the balance wheel.
  If the increments from **0** – **255** appear on the display, the actual value transmitter is in order.

7.02.05 Test block 5 – light barrier



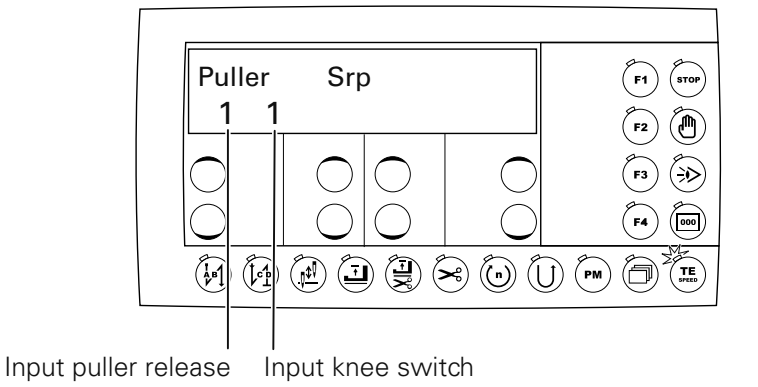
- The light barrier status can be checked here.

7.02.06 Test block 6 – thread monitor (only on subclass -926/06)



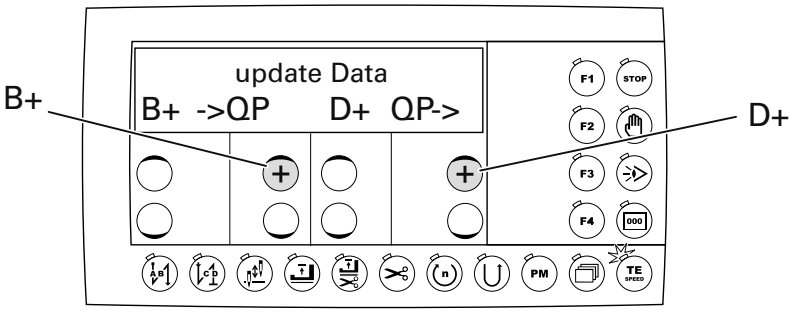
- The analogue value of the thread monitor is shown here in %.

7.02.07 Test block 7. - puller



- The input status can be checked here.

7.02.08 Test block 8 – data transfer



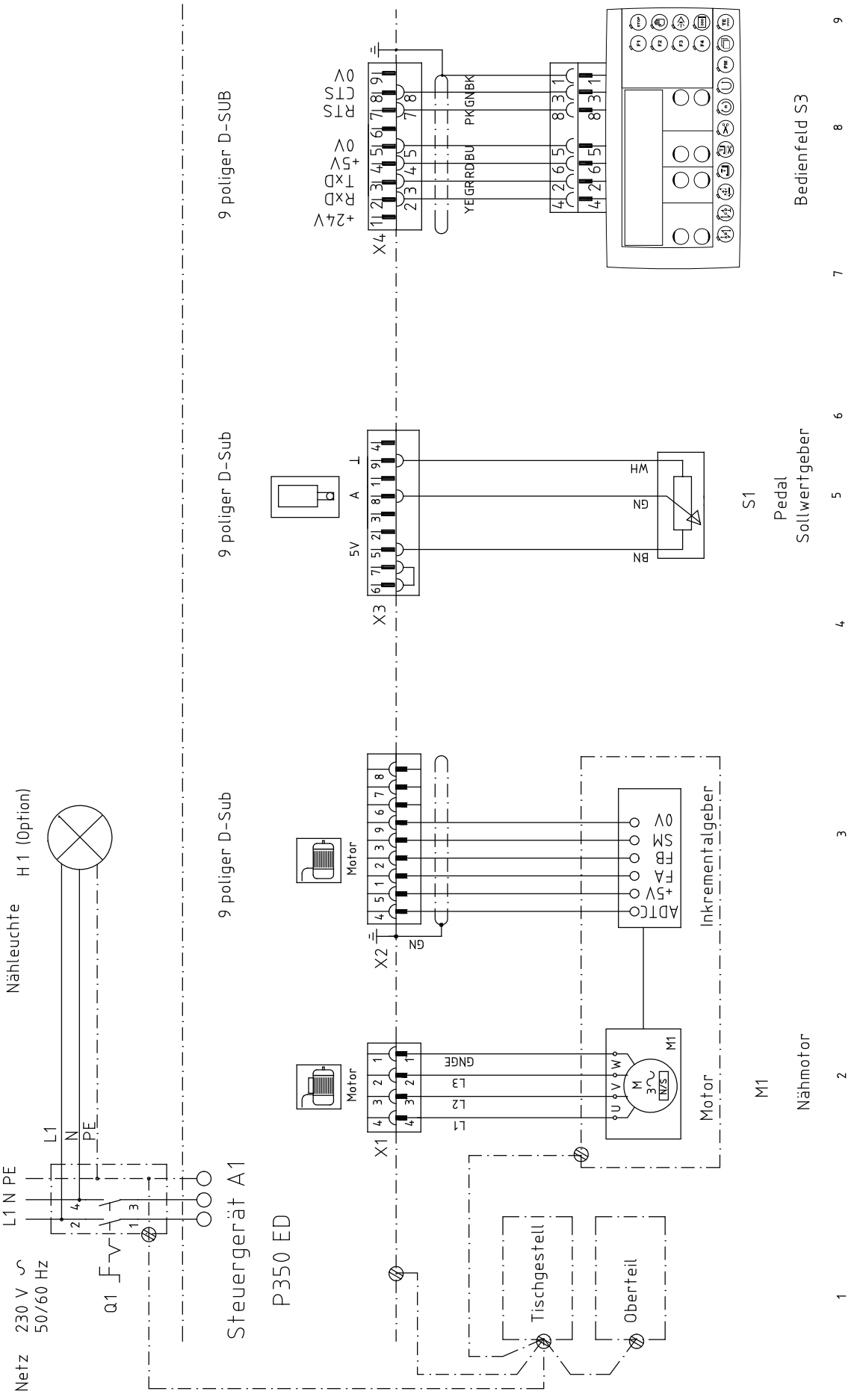
- If the plus key "B+" is pressed, all data from the control unit is transferred to the programming device.
- If the plus key "D+" is pressed, all data from the programming device is transferred to the control unit.

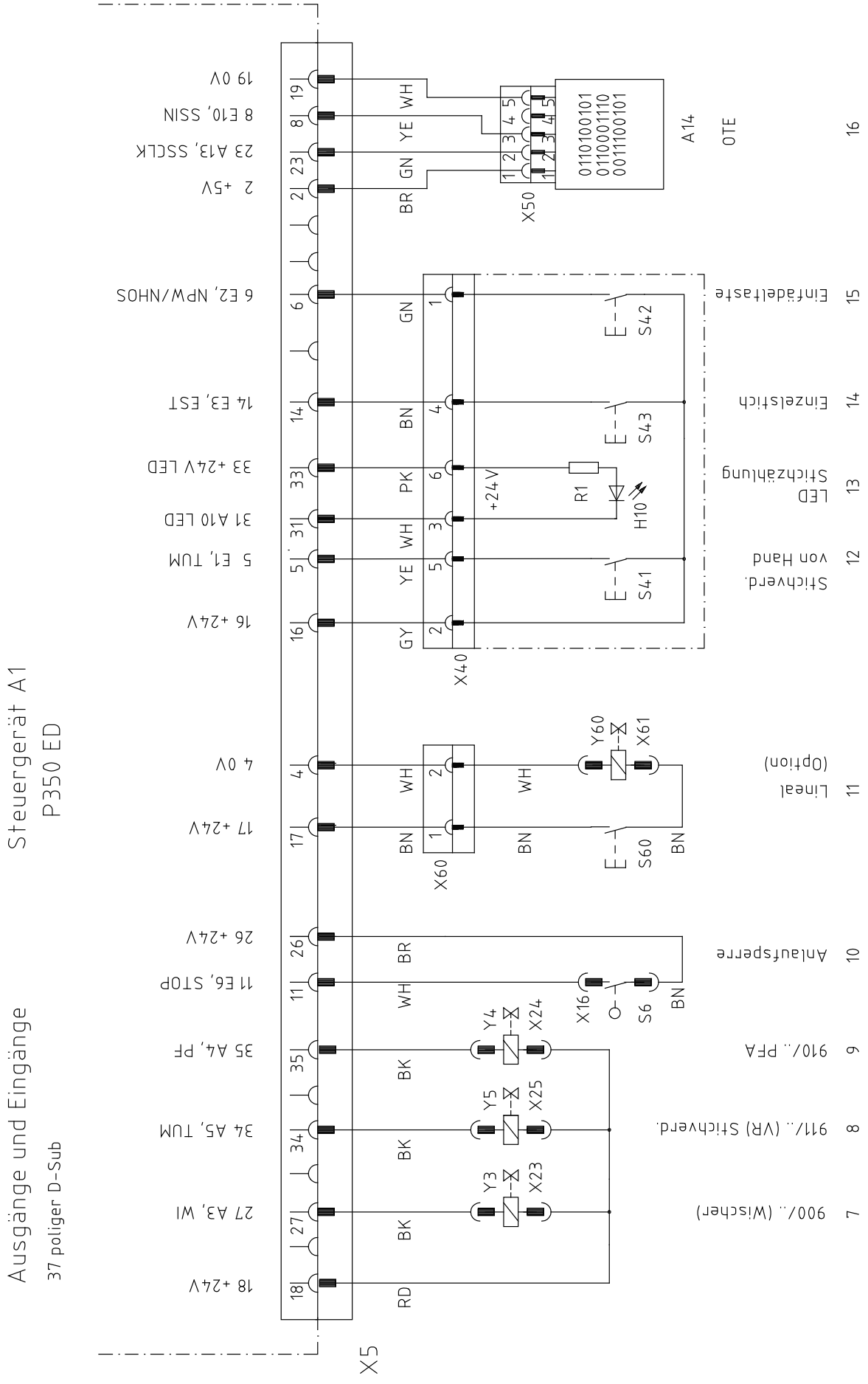
Before the data transfer, the Instruction Manual of the programming device must be observed!

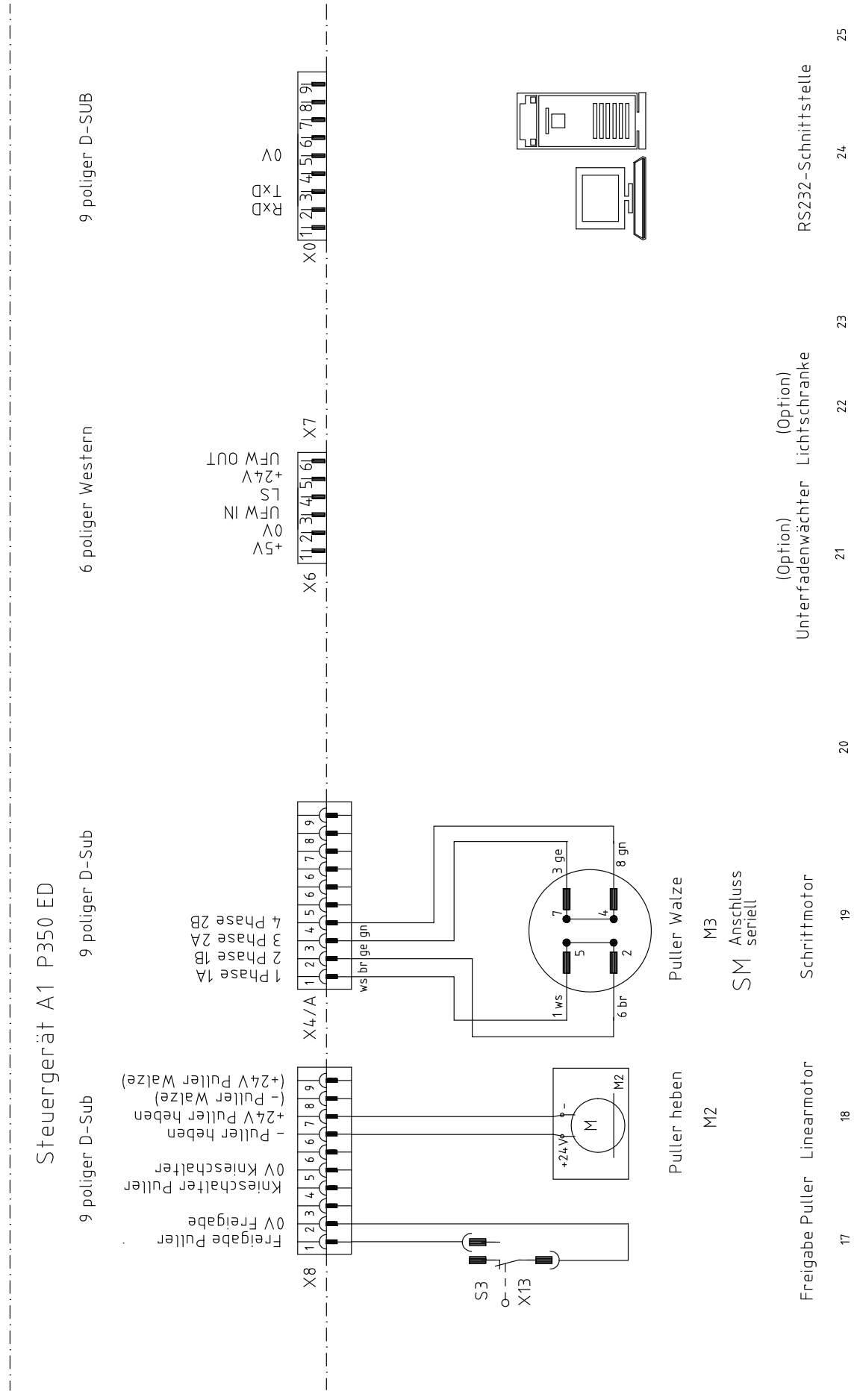
8 Circuit diagrams

8.01 Reference lists for the circuit diagrams of the 1180 and 3701 series (Connection diagram 91-191 504-95)

A1	Controller Quick P350 ED
A2	BDF S3 control panel
A14	Sewing head recognition unit (OTE)
H1	Sewing lamp
H10	LED Stitch counter
M1	Sewing motor
M2	Linear motor lift puller
M3	Stepping motor roller presser
Q1	Main switch
S1	Pedal set value transmitter
S3	Puller release
S6	Start inhibitor E6 (stop)
S41	Manual backtacking key
S42	Needle position change key (threading key)
S43	Single stitch switch
S60	Edge guide key (optional)
X0	PC-interface (RS 232)
X1	Motor
X2	Incremental transmitter
X3	Speed control unit
X4/A	M3 stepping motor puller roller
X5	Outputs-Inputs
X6	Bobbin thread monitor (optional)
X7	Light barrier (optional)
X8	M2 linear motor lift puller
X13	S3 puller release
X16	S6 start inhibitor E6 (stop)
X23	Y23-900/.. Thread trimmer
X24	Y24-910/.. Automatic foot lift
X25	Y25-911/.. Backtacking/condensed stitches
X40	Keyboard S41-S43 + H11
X50	A14 sewing head recognition unit (OTE)
X60	S60 + Y60 Edge guide (optional)
Y2	-900/..Thread trimmer
Y4	-910/..Automatic presser foot lift
Y5	-911/Backtacking / condensed stitches
Y60	Edge guide (optional

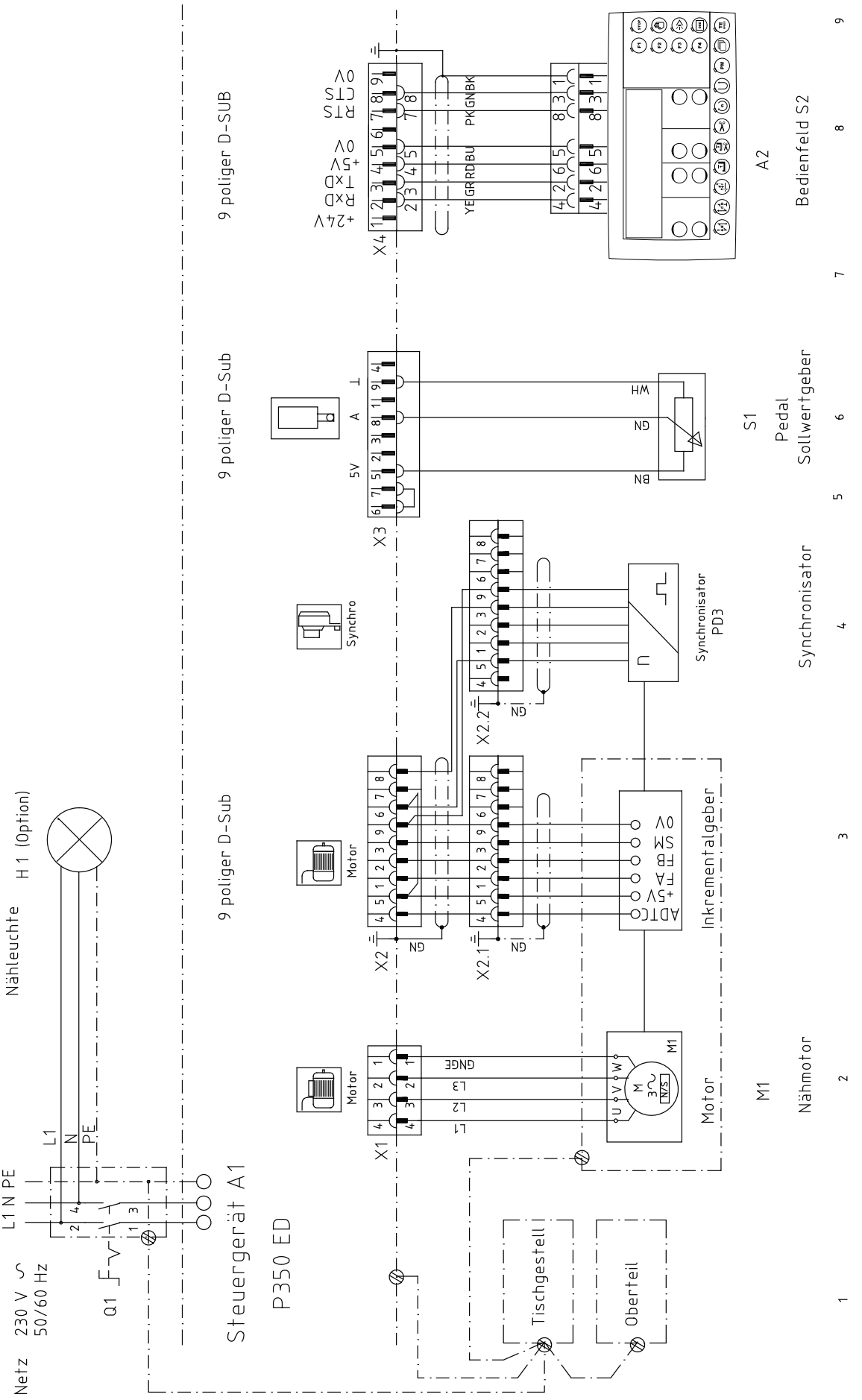

Netz 230 V ~ 50/60 Hz
L1 N PE
Q1
L1
N
PE
Nähleuchte H 1 (Option)
Steuergerät A1
P350 ED
9 poliger D-SUB
9 poliger D-Sub
9 poliger D-Sub
X1
X2
X3
X4
Motor
Motor
GNGE
L3
L2
L1
U V W
M 3~
M1
M1
Nähmotor
Motor
Inkrementalgeber
ADTC
+5V
TA
TB
SM
0V
GN
5V A ⊥
WH
GN
BN
S1
Pedal
Sollwertgeber
+24V
TxD
RxD
+5V
0V
YE GR RD BU
PK GN BK
RTS
CTS
0V
Bedienfeld S3
Tischgestell
Oberteil

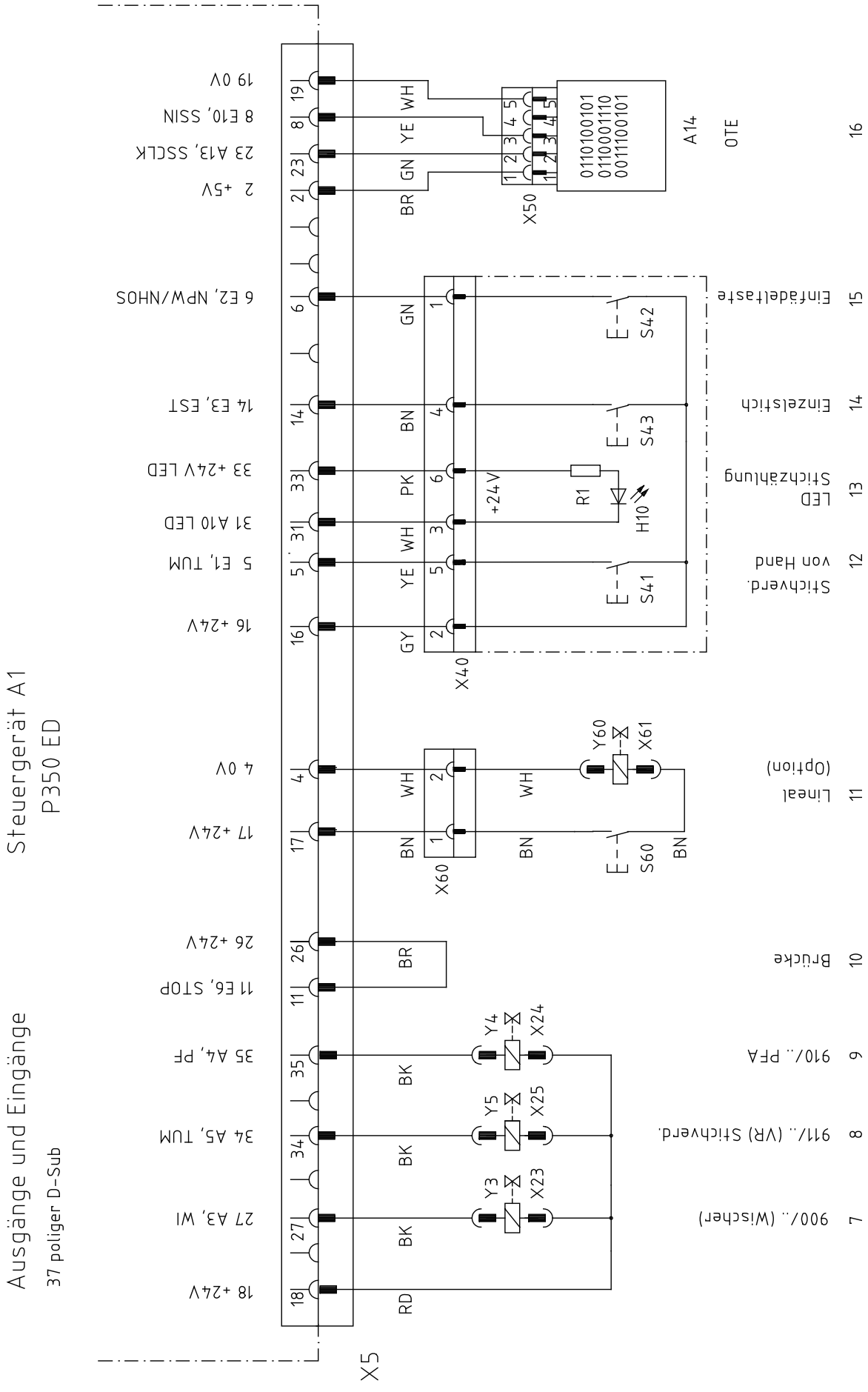

Steuergerät A1
P350 ED
Ausgänge und Eingänge
37 poliger D-Sub
X5
19 0V
8 E10, SSIN
23 A13, SSCLK
2 +5V
6 E2, NPW/NHOS
14 E3, EST
33 +24V LED
31 A10 LED
5 E1, TUM
16 +24V
4 0V
17 +24V
26 +24V
11 E6, STOP
35 A4, PF
34 A5, TUM
27 A3, WI
18 +24V
A14
OTE
X50
0110100101
0110001110
0011100101
X40
Einfädeltaste
Einzelstich
LED Stichzählung
Stichverd. von Hand
S42
S43
S41
R1
H10
+24V
X60
Linéal (Option)
Y60
X61
S60
Anlaufsperre
X16
S6
910/.. PFA
Y4
X24
911/.. (VR) Stichverd.
Y5
X25
900/.. (Wischer)
Y3
X23

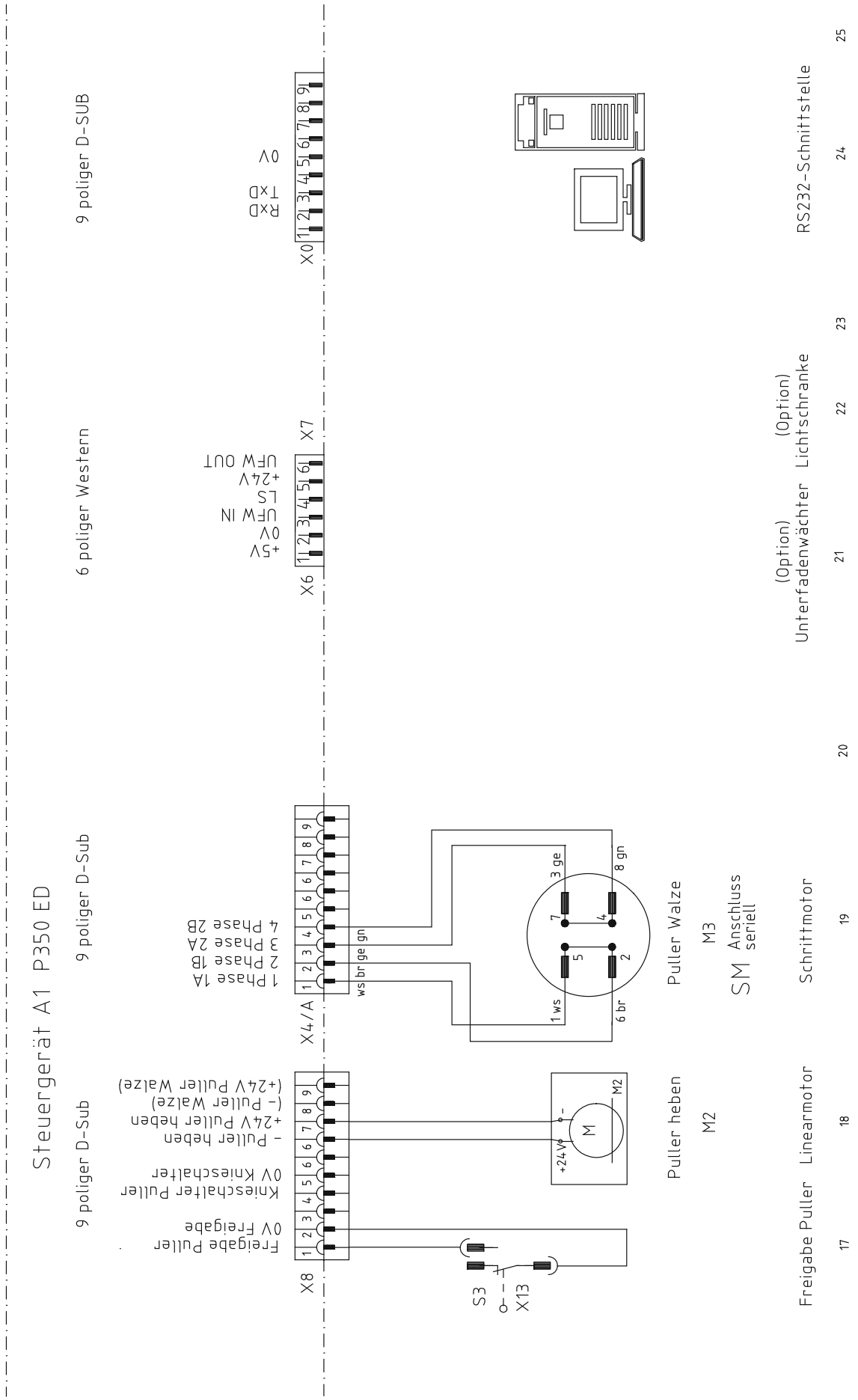

Steuergerät A1 P350 ED
9 poliger D-Sub
9 poliger D-Sub
6 poliger Western
9 poliger D-SUB
X8
X4/A
X6
X7
X0
Freigabe Puller
0V Freigabe
Knieschalter Puller
0V Kniesschalter
- Puller heben
+24V Puller heben
(- Puller Walze)
(+24V Puller Walze)
1 Phase 1A
2 Phase 1B
3 Phase 2A
4 Phase 2B
+5V
0V
UFW IN
LS
+24V
UFW OUT
RxD
TxD
0V
ws br ge gn
1 ws
6 br
3 ge
8 gn
S3
X13
M
M2
+24V
Puller heben
M2
Puller Walze
M3
SM Anschluss seriell
Schrittmotor
Linearmotor
Freigabe Puller
(Option)
Unterfadenwächter
(Option)
Lichtschranke
RS232-Schnittstelle
17
18
19
20
21
22
23
24
25

8.02 Reference lists for the circuit diagrams of the 5480 (Connection diagram 91-191 503-95)

A1	Controller Quick P350 ED
A2	Control panel BDF S3
A14	Sewing head recognition unit (OTE)
H1	Sewing lamp
H10	LED Stitch counter
M1	Sewing motor
M2	Linear motor lift puller
M3	Stepping motor roller presser
Q1	Main switch
S1	Pedal set value transmitter
S3	Puller release
S41	Manual backtacking key
S42	Needle position change key (threading key)
S43	Single stitch switch
S60	Edge guide key (optional)
X0	PC-interface (RS 232)
X1	Motor
X2	Incremental transmitter
X2.1	Inkrementalgeber Adapter
X2.2	Synchronisator Adapter
X3	Speed control unit
X4	A2 control panel BDF S3
X4/A	M3 stepping motor puller roller
X5	Outputs-Inputs
X6	Bobbin thread monitor (optional)
X7	Light barrier (optional)
X8	M2 linear motor lift puller
X13	S3 puller release
X23	Y23-900/.. Thread trimmer
X24	Y24-910/.. Automatic foot lift
X25	Y25-911/.. Backtacking/condensed stitches
X40	Keyboard S41-S43 + H11
X50	A14 sewing head recognition unit (OTE)
X60	S60 + Y60 Edge guide (optional)
Y2	-900/..Thread trimmer
Y4	-910/..Automatic presser foot lift
Y5	-911/Backtacking / condensed stitches
Y60	Edge guide (optiona


Netz 230 V ~ 50/60 Hz
L1 N PE
Q1
Steuergerät A1
P350 ED
Nähleuchte H 1 (Option)
9 poliger D-SUB
9 poliger D-Sub
9 poliger D-Sub
9 poliger D-SUB
X1
X2
X2.1
X2.2
X3
X4
Motor
Motor
Synchro
Synchronisator PD3
Inkrementalgeber
Motor
M1
Nähmotor
S1
Pedal
Sollwertgeber
A2
Bedienfeld S2
Synchronisator
Tischgestell
Oberteil

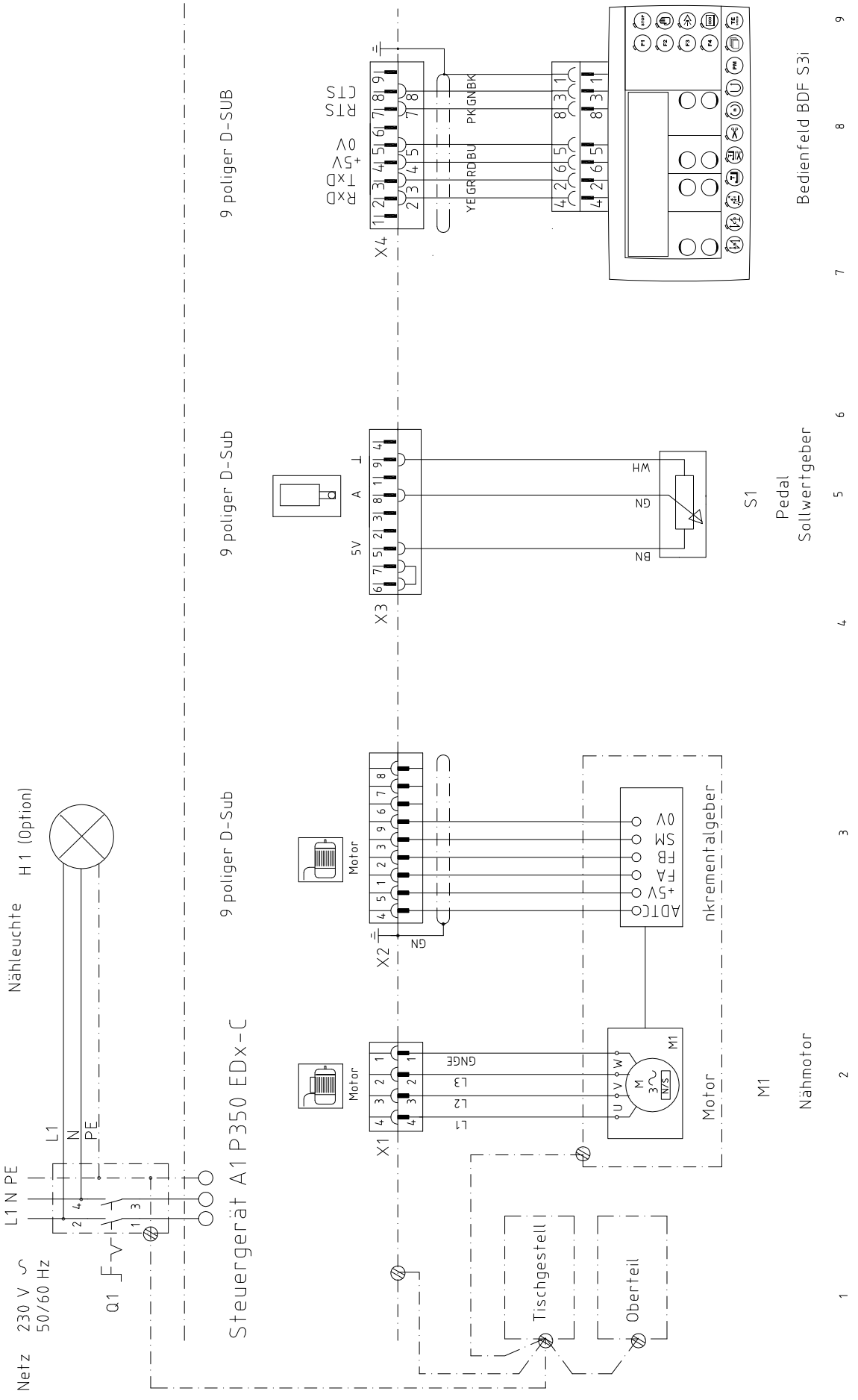

Steuergerät A1
P350 ED
Ausgänge und Eingänge
37 poliger D-Sub
X5
19 0V
8 E10, SSIN
23 A13, SSCLK
2 +5V
6 E2, NPW/NHOS
14 E3, EST
33 +24V LED
31 A10 LED
5 E1, TUM
16 +24V
4 0V
17 +24V
26 +24V
11 E6, STOP
35 A4, PF
34 A5, TUM
27 A3, WI
18 +24V
A14
OTE
X50
0110100101
0110001110
0011100101
X40
X60
X61
Y60
Y4
Y5
Y3
X24
X25
X23
R1
H10
+24V
S41
S42
S43
S60
Einfädeltaste
Einzelstich
LED Stichzählung
Stichverd. von Hand
Linear (Option)
Brücke
900/.. (Wischer)
911/.. (VR) Stichverd.
910/.. PFA

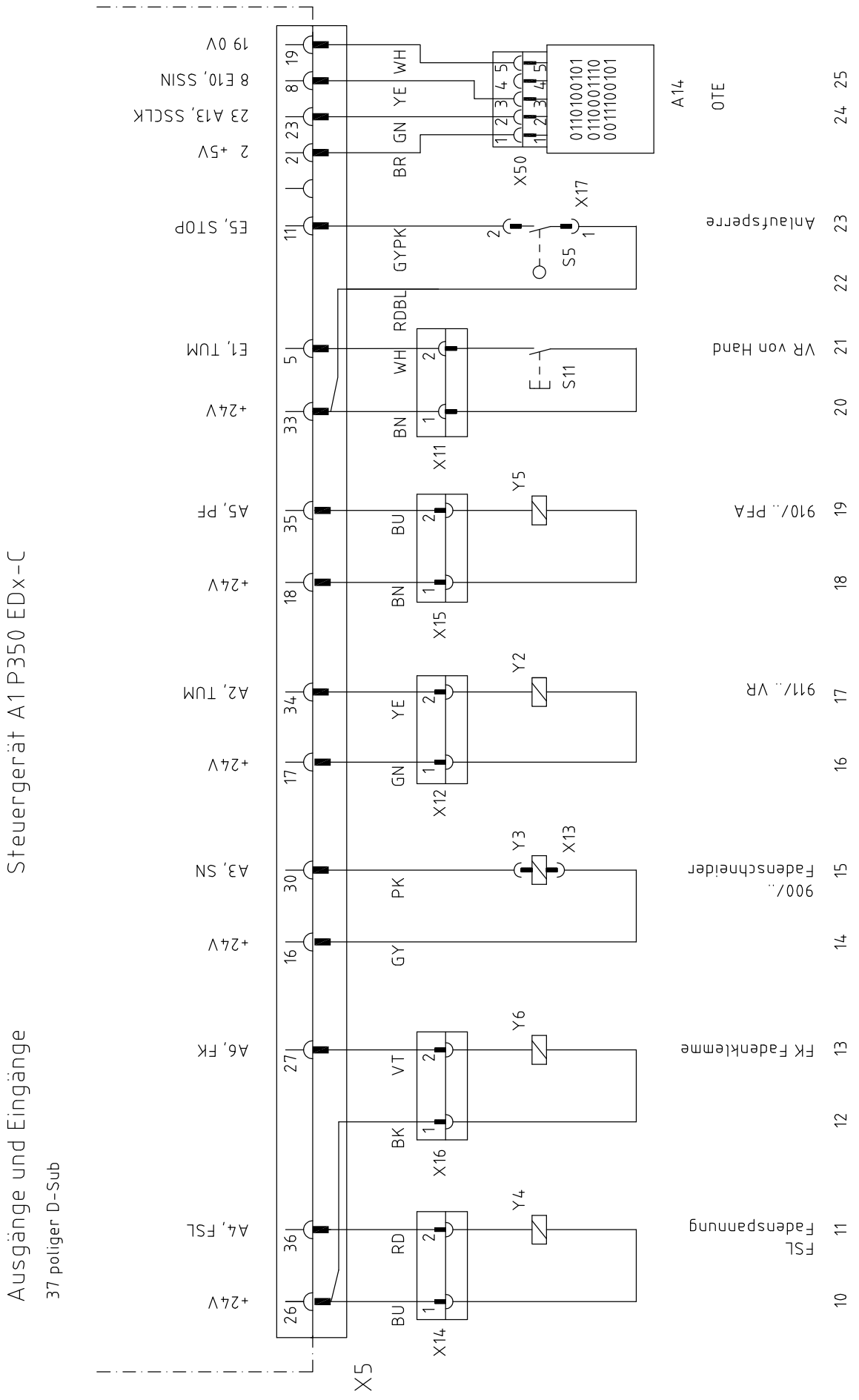

Steuergerät A1 P350 ED
9 poliger D-Sub
9 poliger D-Sub
6 poliger Western
9 poliger D-SUB
X8
Freigabe Puller
0V Freigabe
Knieschalter Puller
0V Knieschalter
– Puller heben
+24V Puller heben
(– Puller Walze)
(+24V Puller Walze)
X4/A
1 Phase 1A
2 Phase 1B
3 Phase 2A
4 Phase 2B
X6
+5V
0V
UFW IN
LS
+24V
UFW OUT
X7
X0
TxD
RxD
0V
S3
X13
M
M2
+24V
Puller heben
Puller Walze
M2
M3
SM Anschluss seriell
Freigabe Puller
Linearmotor
Schrittmotor
(Option)
Unterfadenwächter
(Option)
Lichtschranke
RS232-Schnittstelle
17
18
19
20
21
22
23
24
25

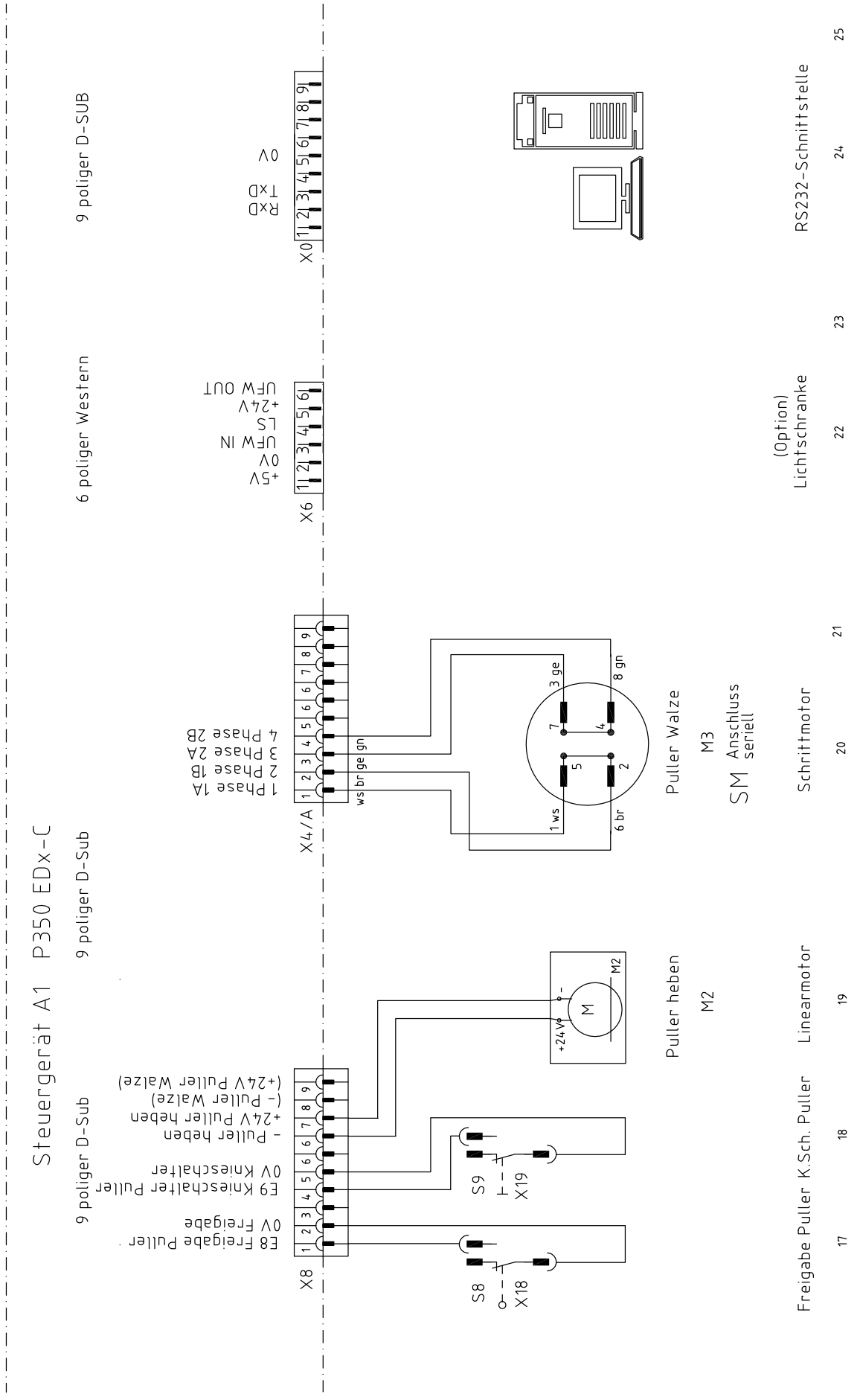
8.03 Referenzliste zu den Stromlaufplänen der Baureihe 580

(Schaltplan 91-191 557-95)

A1	Controller P350 EDxC	
A2	Control panel BDF S3	
A14	Sewing head recognition unit (OTE)	
M1	Sewing motor	
M2	Linear motor lift puller	
M3	Stepping motor roller presser	
Q1	Main switch	
S1	Pedal set value transmitter	
S5	Start inhibitor E5 (Stop)	
S8	Puller release	
S9	Knee switch puller	
S11	Manual backtacking key	
X0	PC-interface (RS 232)	
X1	M1	Sewingmotor
X2	M1	Incremental transmitter
X3	S1	Speed control unit
X4	A2	control panel BDF S3
X4/A	M3 stepping motor puller roller	
X5	Outputs-Inputs	
X6	Bobbin thread monitor (optional)	
X8	S3	puller release
X11	S11	Manual backtacking key
X12	Y2	Automatic foot lift
X13	Y3	Thread trimmer
X14	Y4	Tension release
X15	Y5	Automatic foot lift
X16	Y6	Thread clamp
X17	S5	Start inhibitor
Y2	-911/..	Automatic foot lift
Y3	-900/..	Thread trimmer
Y4	FSL	Tension release
Y5	-910/..	Automatic foot lift
Y6	FK	Thread clamp


Netz 230 V ~ 50/60 Hz
L1 N PE
Q1
Steuergerät A1P350 EDx-C
Nähleuchte H1 (Option)
9 poliger D-SUB
9 poliger D-Sub
9 poliger D-Sub
X1
X2
X3
X4
Motor
Motor
Inkrementalgeber
Motor
M1
Nähmotor
S1
Pedal
Sollwertgeber
Bedienfeld BDF S3i
Tischgestell
Oberteil


Steuergerät A1 P350 EDx-C
Ausgänge und Eingänge
37 poliger D-Sub
X5
19 0V
8 E10, SSIN
23 A13, SSCLK
2 +5V
E5, STOP
E1, TUM
+24V
A5, PF
+24V
A2, TUM
+24V
A3, SN
+24V
A6, FK
A4, FSL
+24V
A14
OTE
0110100101
0110001110
0011100101
X50
X17
S5
Anlaufsperre
VR von Hand
S11
X11
910/.. PFA
X15
911/.. VR
X12
900/..
Fadenschneider
X13
FK Fadenklemme
X16
FSL
Fadenspannung
X14
WH
YE
GN
BR
GYPK
RDBL
WH
BN
BU
BN
YE
GN
PK
GY
VT
BK
RD
BU
Y5
Y2
Y3
Y6
Y4


Steuergerät A1 P350 EDx-C
9 poliger D-Sub
9 poliger D-SUB
6 poliger Western
9 poliger D-Sub
X0
RxD
TxD
0V
X6
+5V
0V
UFW IN
LS
+24V
UFW OUT
X4/A
1 Phase 1A
2 Phase 1B
3 Phase 2A
4 Phase 2B
ws br ge gn
1 ws
6 br
3 ge
8 gn
X8
E8 Freigabe Puller
0V Freigabe
E9 Knieschalter Puller
0V Knieschalter
- Puller heben
+24V Puller heben
(- Puller Walze)
(+24V Puller Walze)
S8
X18
S9
X19
M
M2
+24V
Puller heben
M2
Linearmotor
Freigabe Puller K.Sch.
Puller Walze
M3
SM Anschluss seriell
Schrittmotor
(Option)
Lichtschranke
RS232-Schnittstelle
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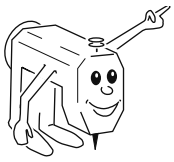

Note

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