

EcoDrive P40 ED
P70 ED

INSTRUCTION MANUAL

Part 2

Control panel BDF S2

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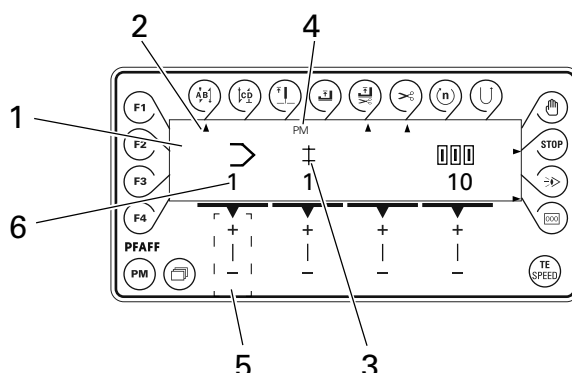
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1 Operating elements of the S2 control panel

The control panel is used to create and alter seam programs, enter parameter values and read error messages and service settings.



The control panel consists of display 1 and the function keys described below. Display 1 consists of a two-row, alpha-numerical display with 16 symbols per row. The special symbols 3 and texts 4 show the respective status of the function keys and the operating modes of the machine.

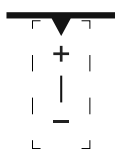
During the power-on phase the control panel automatically switches on all LCD segments and the horn. The number of the version of the installed software then appears on the display, until the higher-ranking control unit sends commands to the control panel.

1.01 Screen displays

- Activated functions are displayed with a triangular marking 2 below or next to the respective function key.
- In the sewing mode all relevant sewing data is displayed and these can be changed directly, depending on the status of the machine, see also **Chapter 2 Sewing**.
- During the parameter input the selected parameter number with the corresponding value is displayed, see **Chapter 2.06 Parameter settings**.

1.02 Function keys

The function keys described below are used basically to switch machine functions on and off.



If a corresponding value has to be set for the activated function, this is carried out with the corresponding **+/- key 5**. For example, by pressing and holding the **+/- key 5**, the numerical value 6 shown above the key is changed slowly to begin with. If the **+/- key 5** is held down longer, the numerical value 6 is changed more quickly.



Start backtacks

- If this key is pressed, the backtacks at the beginning of the seam (start backtacks) are switched on or off. The number of forward stitches (A) or reverse stitches (B) for the start backtacks can be changed by pressing the **+/- key** underneath. To convert from double backtick to single backtick set the number of stitches for the corresponding seam section at zero.



End backtacks

- If this key is pressed, the backtacks at the end of the seam (end backtacks) are switched on or off. The number of reverse stitches (C) or forward stitches (D) can be changed by pressing the **+/- key** underneath. To convert from double backtick to single backtick set the number of stitches for the corresponding seam section at zero.



Needle position

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



Foot position after stop

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



Foot position at end of seam/or after a seam segment (in programmed sewing)

- If this key is pressed the „Foot position raised at the end of a seam“ function is switched on or off. When the function is switched on, the presser foot is raised at the end of a seam.



Thread trimmer

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



Speed (only in programmed sewing)

- If this key is pressed the corresponding function is switched on or off. In programmed sewing the speed is not pedal-controlled. When the function is switched on, the speed cannot be controlled by pedal. The machine only sews at the set maximum speed.
- When the function is switched off, the speed is controlled up to the maximum speed by pedal



Reverse sewing (only in programmed sewing)

- If this key is pressed the corresponding function is switched on or off. When the function is switched during programmed sewing, the corresponding seam section is sewn in reverse.



Manual seam end (only in programmed sewing)

- If this key is pressed the corresponding function is switched on or off. When the function is switched on, the move to the next seam section is not carried out by stitch counting or sensor, but manually with the use of the pedal (position "-2").



Programmed stop (only in programmed sewing)

- If this key is pressed the corresponding function is switched on or off. When the function is switched on, in programmed sewing the machine stops automatically at the end of the seam section.



Photocell

- In manual sewing the number of compensating stitches from the point where the photocell is light to the end of the seam can be set under parameter 111, and in programmed sewing directly.



Stitch counting (only in programmed sewing)

- If this key is pressed the corresponding function is switched on or off. When the function is switched on, in programmed sewing the machine switches to the next sewing section after the number of stitches entered have been sewn.



TE/Speed

- If this key is pressed once while the machine is in the sewing mode, the input menu for the maximum speed is selected. If no input is made within 5 seconds, the sewing mode is selected again.
- If this key is pressed twice (within 5 seconds) while the machine is in the sewing mode, the machine switches to parameter input.
- If this key is pressed once while the machine is in the parameter input mode, the altered values are stored and the sewing mode is selected.



Scrolling

- If this key is pressed, the machine scrolls between the sub-menus in the program.



PM

- If this key is pressed the programmed sewing function is switched on or off. When the function is switched on, the letters "PM" appear on the display of the control panel. The parameters related to the program are shown in the alpha-numerical part of the display.



F1

Press this key to sew a **single stitch** (only with control unit P70 ED)



F2

Piece counter (only with control unit P70 ED)

When this key is pressed the first time, the piece counter is displayed for 3 sec. If pressed again during the display period, the piece counter is reset. The piece counter only counts when the "thread trimming" function is activated.



F3

No function

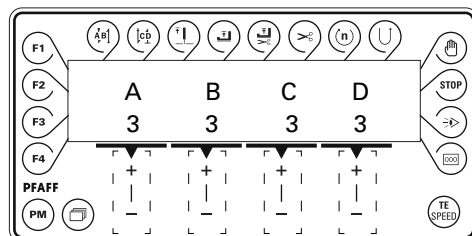


F4

No function

1.03 Entering the start and end backtacks

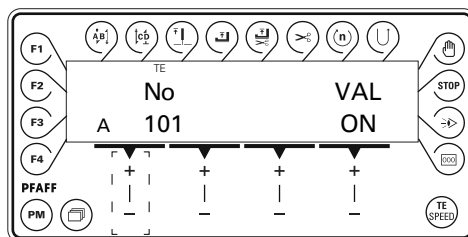
- Switch on the machine.



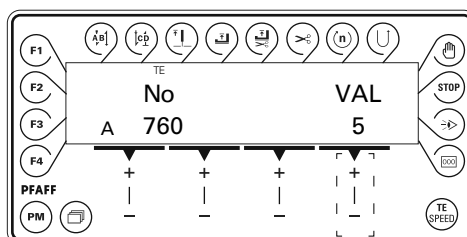
- A** ● By pressing the corresponding +/- key ("A") select the desired value for the number of forward stitches (A) of the start backtack.
- B** ● By pressing the corresponding +/- key ("B") select the desired value for the number of reverse stitches (B) of the start backtack.
- C** ● By pressing the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

1.04 Setting the stitch count function for controlling the amount of bobbin thread

- Switch on the machine.
- 2x  ● Press the **TE/Speed** key twice to call up the parameter input function.



- No ● Select the parameter "760" by pressing the corresponding +/- key.



- VAL ● 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 $5 \times 200^{**} = 1000$ stitches. The setting depends among other things on the thread strength.

-  ● 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**

1.05 Bobbin thread control on the sub-class -926/06 (optional)



Setting the bobbin thread control function, see the instruction manual for -926/06.

2

Sewing

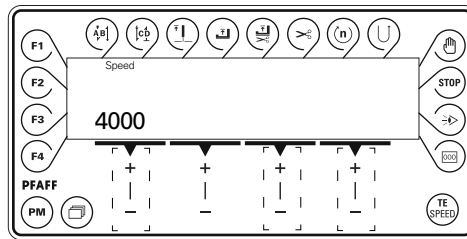
In the sewing mode, all relevant settings for the sewing operation are shown on the display and can be altered directly. Functions can be switched on or off by pressing a key.

In this mode a difference is made between **manual sewing** and **programmed sewing**. To change from manual to programmed sewing, press the **PM** key. In programmed sewing the text "PM" appears on the display.

2.01

Manual sewing

After switching on the machine and pressing the **TE/Speed** key, the max. speed can be set with the corresponding **+/-** key.



Further functions in manual sewing, also see **Chapter 1.02 Function keys**:



Start backtacks on/off



Foot position at end of seam on/off



End backtacks on/off



Thread trimming on/off



Needle position raised on/off



Photocell on/off



Presser foot raised on/off

2.02 Programmed sewing

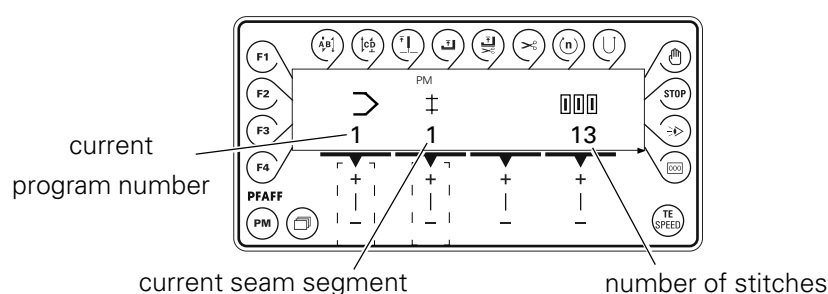
In programmed sewing 99 programs, each with 9 seam segments and 999 stitches, can be programmed.

The seam segments can be programmed by entering the number of stitches or by using the "Teach" function (sewing a seam segment).

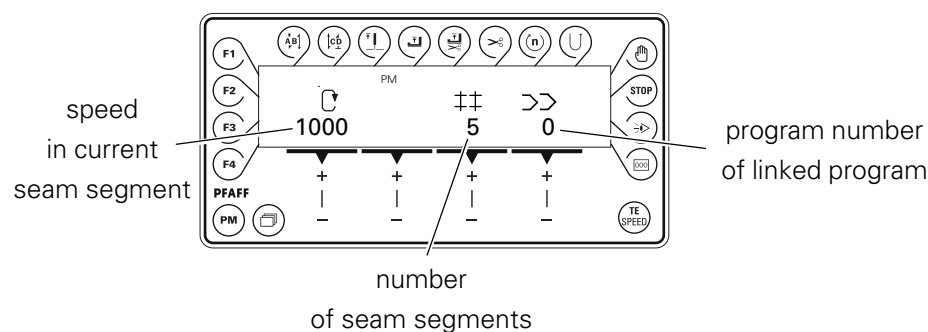
Fixed programs are used for the quick and convenient production of seams with a different number of stitches.

PM

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



Further menus for entering start and end backtacks, as well as maximum speed can be called up in the appropriate seam sector by operating the scroll key.



Functions in programmed sewing, also see **Chapter 1.02 Function keys:**



Start backtacks on/off



Seam section speed on/off



End backtacks on/off



Reverse sewing direction on/off



Needle position raised on/off



Manual seam end on/off



Presser foot raised on/off



Stop on/off



Foot position at end of seam on/off



Photocell on/off



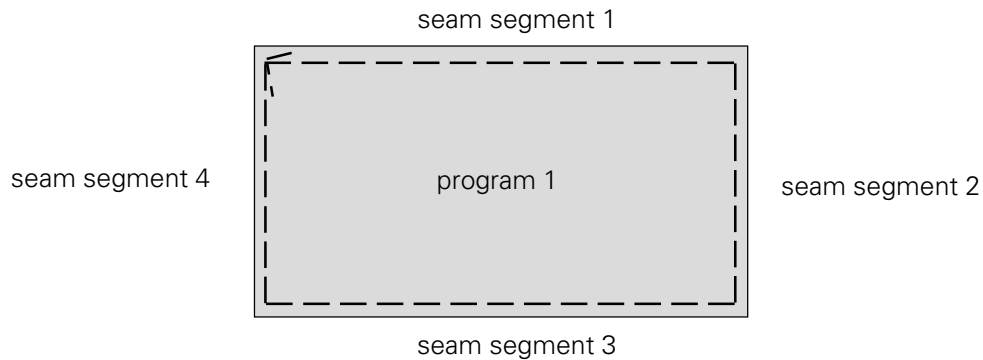
Thread trimming on/off



Stitch count on/off

2.03 An example of programmed sewing

2.03.01 Programming by entering the number of stitches



Example:

Seam segment 1, 20 stitches,

Functions: Start backtacks, programmed stop and raising foot at the end of the seam,

Seam segment 2, 10 stitches,

Functions: Programmed stop and raising foot at the end of the seam,

Seam segment 3, 20 stitches,

Functions: Programmed stop and raising foot at the end of the seam,

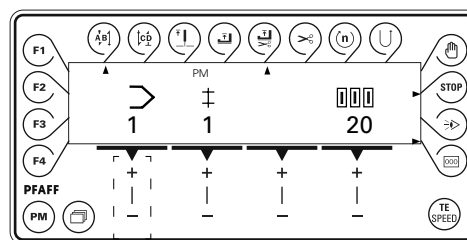
Seam segment 4, 10 stitches,

Functions: End backtacks, programmed stop, raising foot at the end of the seam and thread trimming.

- Switch on the machine.



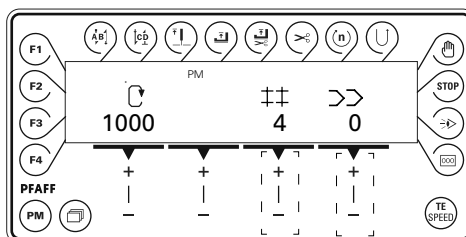
- Press the **PM** key to select the enter program function.
The text "PM" must appear on the display.



- Select the program number "1" with the corresponding +/- key.



- Press the **scroll** key.



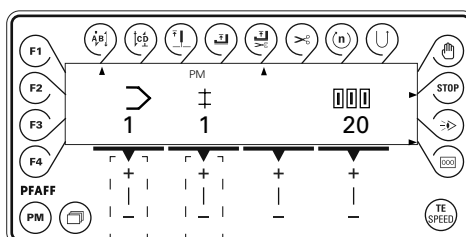
● With the corresponding +/- key, set the program with 4 seam segments.

>> ● By entering the value "0" with the corresponding +/- key, stipulate that no program linking will take place.

2x



● Press the **scroll** key twice.



● With the corresponding +/- key, select the seam segment "1".

000 ● With the corresponding +/- key, enter the value "20" for the number of stitches.



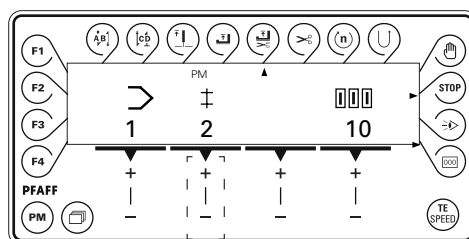
● Press the **start backtacks** key to switch on the backtacking stitch function at the beginning of the seam.



● Press the programmed **stop** key to switch on the function.



● By pressing the **raise foot after seam segment** key, switch on the function.



● With the corresponding +/- key, select the seam segment "2".

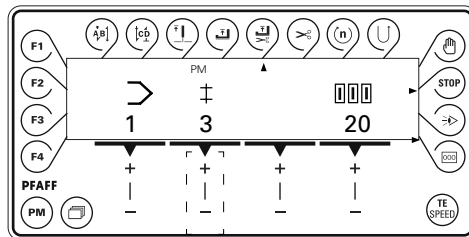
000 ● With the corresponding +/- key, enter the value "10" for the number of stitches.



● Press the programmed **stop** key to switch on the function.



● By pressing the **raise foot after seam segment** key, switch on the function.



- With the corresponding +/- key, select the seam segment "3".



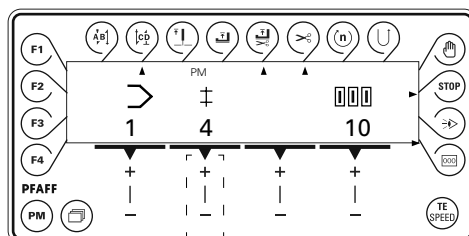
- With the corresponding +/- key, enter the value "20" for the number of stitches.



- Press the programmed stop key to switch on the function.



- By pressing the raise foot after seam segment key, switch on the function.



- With the corresponding +/- key, select the seam segment "4".



- With the corresponding +/- key, enter the value "10" for the number of stitches.



- Press the end backtacks key to switch on the backtacking stitch function at the end of the seam.



- Press the programmed stop key to switch on the function.



- By pressing the raise foot after seam segment key, switch on the function.



- Press the thread trimming key to switch on the function.



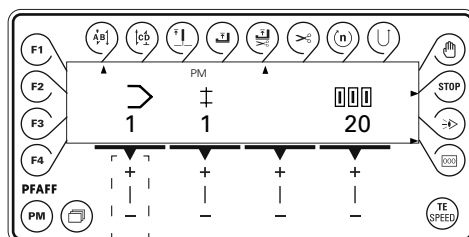
The program end is recognized automatically through the thread trimming function.

2x



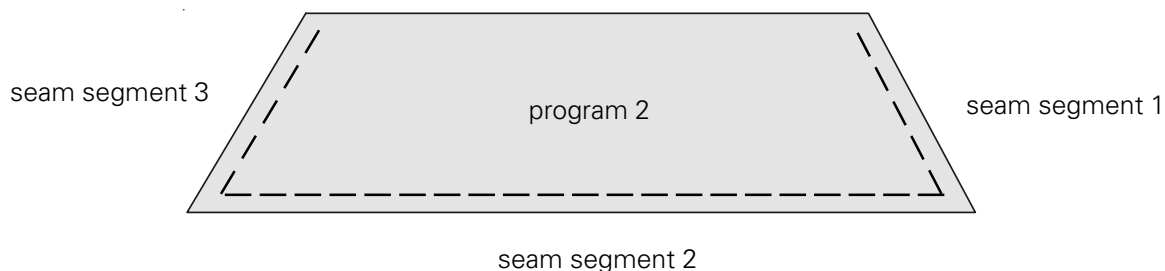
- Press the PM key twice to move to the beginning of the program.
The previously created program appears on the display with seam segment 1.

Sewing a test seam



- Sew the test seams by using the pedal functions.

2.03.02 Programming with the "teach function"



Example:

Seam segment 1

Functions: Programmed stop and raising foot at the end of the seam,

Seam segment 2

Functions: Programmed stop and raising foot at the end of the seam,

Seam segment 3

Functions: Programmed stop, raising foot at the end of the seam and thread trimming

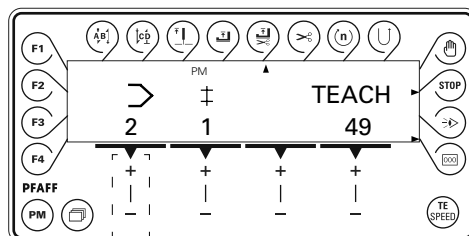
- Switch on the machine.

PM

- Press the **PM** key to select the enter program function.
The text "PM" must appear on the display.

TE SPEED

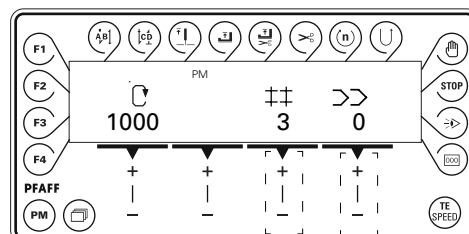
- Press the **TE/Speed** key to call up the "teach function".



- Select the program number "2" with the corresponding +/- key.



- Press the **scroll** key.



- With the corresponding +/- key, set the program with **3** seam segments.

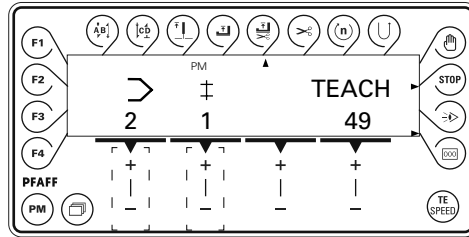


- By entering the value "0" with the corresponding +/- key, stipulate that no program linking will take place.

2x



- Press the **scroll** key.



- With the corresponding +/- key, select the seam segment "1".



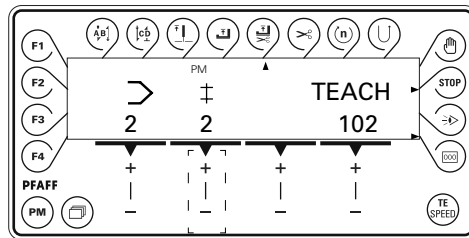
- Press the programmed **stop** key to switch on the function.



- By pressing the **raise foot after seam segment** key, switch on the function.

TEACH ● Sew seam segment "1".

The number of stitches is shown on the display.



- With the corresponding +/- key, select the seam segment "2".



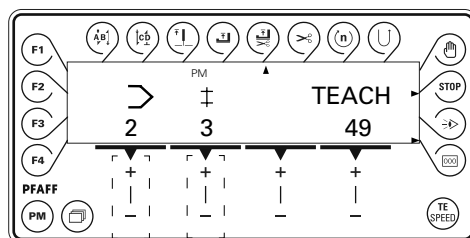
- Press the programmed **stop** key to switch on the function.



- By pressing the **raise foot after seam segment** key, switch on the function.

TEACH ● Sew seam segment "2".

The number of stitches is shown on the display.



- With the corresponding +/- key, select the seam segment "3".

STOP

- Press the programmed **stop** key to switch on the function.



- By pressing the **raise foot after seam segment** key, switch on the function.



- Press the **thread trimming** key to switch on the function.



The program end is recognized automatically through the **thread trimming** function.

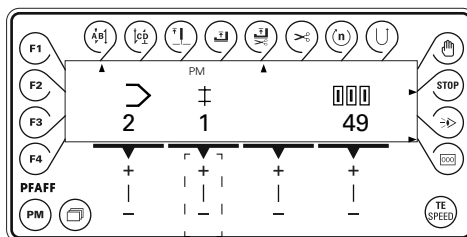
TEACH

- Sew seam segment "3".
The number of stitches is shown on the display.

TE
SPEED

- Press the **TE/Speed** key.
The machine carries out a thread trimming operation automatically and changes to the beginning of the program.
The previously created program appears on the display with seam segment 1.

Sewing a test seam

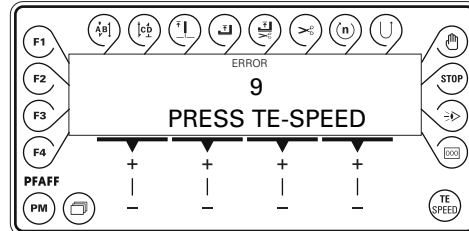


- Sew the test seams by using the pedal functions.

2.04 Error messages

If a fault occurs, the text "ERROR" appears on the display, together with an error code and short instructions. An error message is caused by incorrect settings, faulty elements or seam programs as well as by overload conditions.

The error code numbers are explained below.



- Correct the error.



- Reset the program by pressing the **TE/Speed** key or **switching** the machine **on/off**.

2.05 Explanation of the error signals

Signal	Description
E001	Pedal not in neutral position
E009	Start inhibitor during standstill
E010	Incorrect machine class
E050	Cable break speed control unit
E062	Short circuit 24V
E063	Overload mains supply circuit
E064	Network monitoring
E065	Extint low in operation
E066	Short circuit
E067	Network off
E068	Extint low in operation
E069	No increments
E070	Motor blocking
E071	No incremental connector
E074	External transmitter for synchronisation marker missing
E088	RAM defective
E092	Start inhibitor when motor running
E173	Start error
E254	Internal error
E255	Internal error

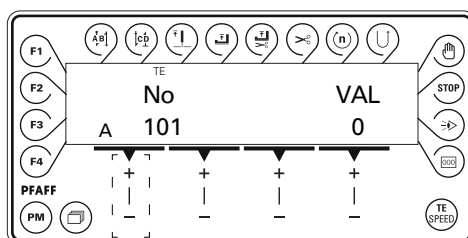
2.06 Parameter settings

2.06.01 Selecting the user level (only in the "manual sewing" mode)

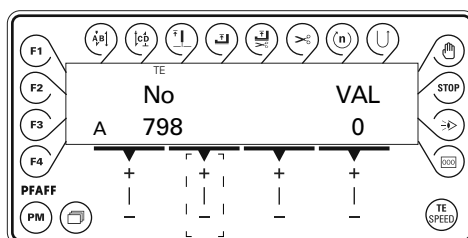
- Switch on the machine.

2x 

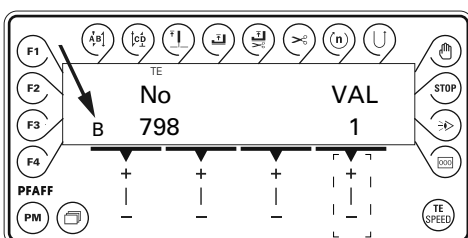
- Press the **TE/Speed** key twice to call up the parameter input function.



- No** ● Call up the parameter group "700" by pressing the corresponding +/- key.



- No** ● Call up parameter "798" by pressing the corresponding +/- key.



- VAL** ● By pressing the corresponding +/- key select the desired user level.

"0" = Operator level **A**

"1" = Mechanic level **B**

"11" = Service level **C**

The respective level is displayed on the screen (see arrow).



- Change to the sewing mode by pressing the **TE/Speed** key.

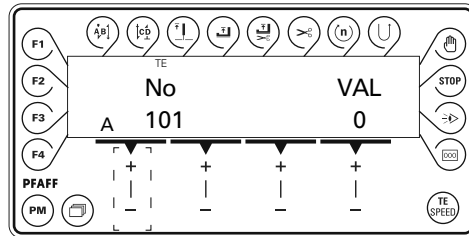
2.06.02 Selecting and altering parameters (only in the "manual sewing" mode)

- Switch on the machine.

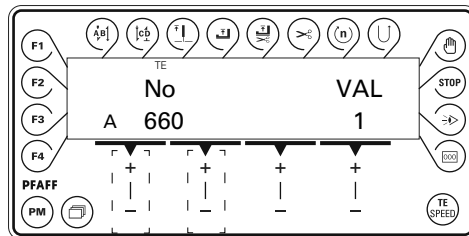
2x



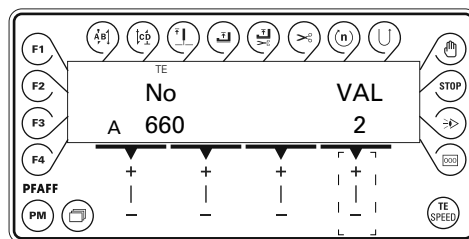
- Press the **TE/Speed** key twice to call up the parameter input function.



- No** ● By pressing the corresponding **+/-** key, select the parameter, e.g. "660" for bobbin thread monitoring.



- VAL** ● By pressing the corresponding **+/-** key, set the desired value for the selected parameter, e.g. "2" for the "remaining bobbin thread counter on" function.



- Change to the sewing mode by pressing the **TE/Speed** key.

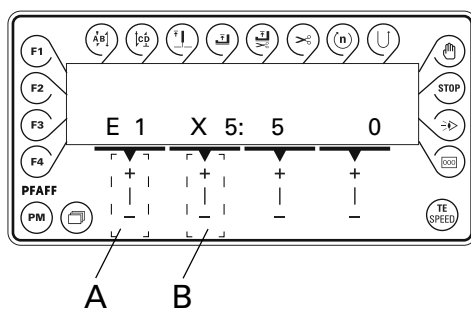
3 Adjustment

3.01 Hardware-test

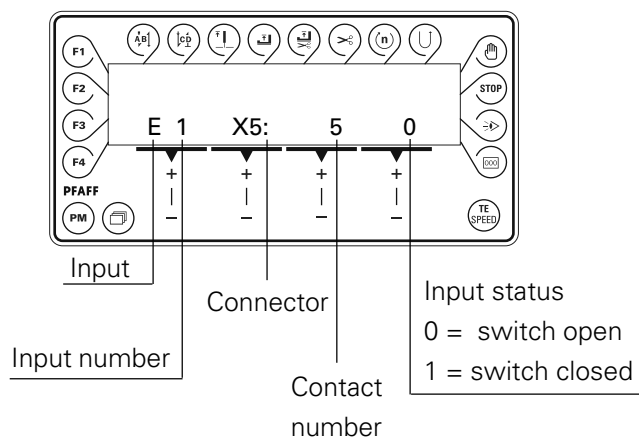
The hardware test is a test program, which makes it possible, with the aid of the control panel, to check various components of the control system and the machine installation. The test consists of seven test blocks.

3.01.01 Carrying out the hardware test

- Switch on the machine.
- Select service level "C" (see Chapter 2.06.01 **Selecting the user level**).
- Select parameter **797** and set it at "ON" by pressing the appropriate +/- key.
- The first test block appears on the display.
- The next test blocks can be selected by pressing the +/- "A" key.
- The individual inputs and outputs can be selected by pressing the +/- "B" key.

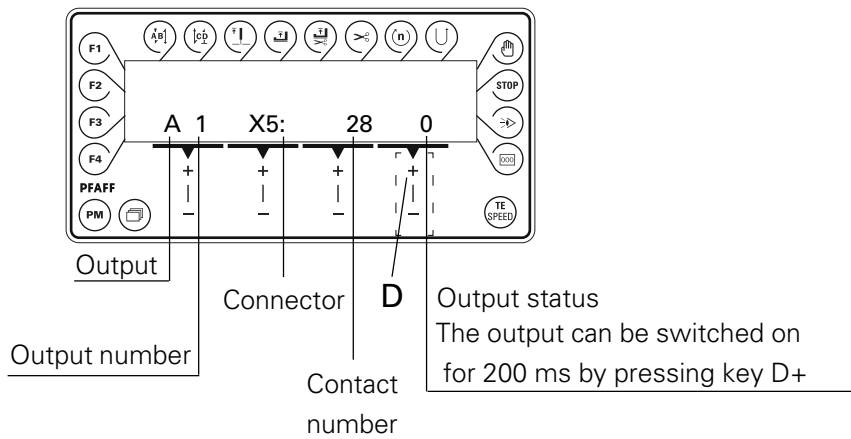


3.01.02 Test block 1 – inputs



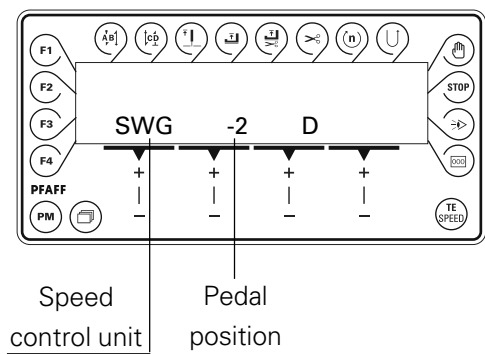
- The functions allocated to the inputs displayed can be found in **Part 3 Parameter list and connection plan**.

3.01.03 Test block 2 – outputs



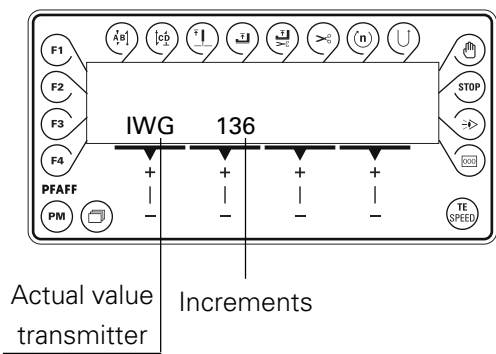
- The functions allocated to the inputs displayed can be found in **Part 3 Parameter list and connection plan**.

3.01.04 Test block 3 – speed control unit



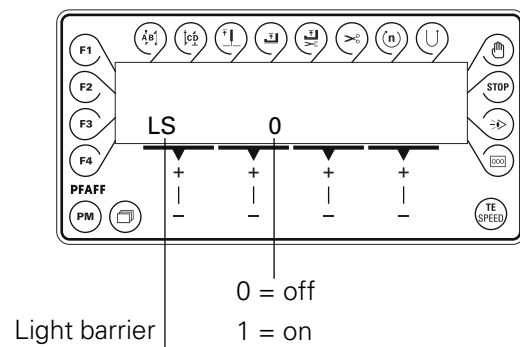
- It is possible to move to all 16 switch levels by operating the pedal.
- If all the displays from -2, -1, 0, 1, 1D to 12D appear, the speed control unit is in order.

3.01.05 Test block 4 – actual value transmitters



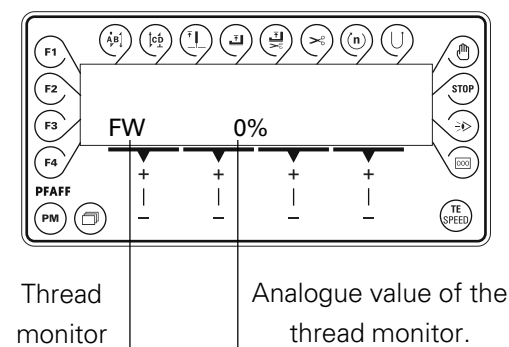
- The actual value transmitter can be checked by turning the balance wheel.
- If the increments from 0 – 255 appear on the display, the actual value transmitter is in order.

3.01.06 Test block 5 –light barrier



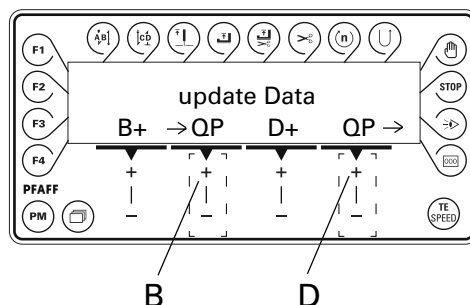
- The status of the light barrier can be checked here.

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



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

3.01.08 Test block 7 – data transfer

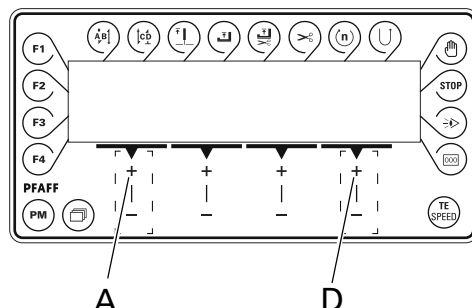


- With the **B+** key all data is transferred from the control unit to the "Quick-Prog.-Device".
- With the **D+** key all data is transferred from the "Quick-Prog.-Device" to the control unit.

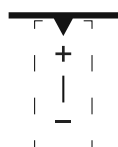
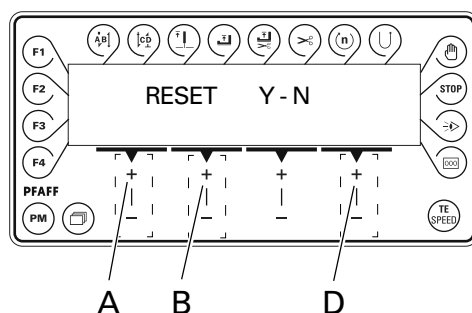


Before transferring data please observe the "Quick-Prog.-Device" instruction manual.

After selecting the reset menu, by pressing the corresponding key it is possible to delete seam parameters, delete seam programs and to carry out a cold start.



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



Resetting the seam parameters

- Press "+" on key **A**.
All seam parameters are deleted, "MASTER-RESET" is displayed for a short time on the screen.



Resetting the seam programs

- Press "+" on key **B**.
All seam programs are deleted, "MASTER-RESET" is displayed for a short time on the screen.



Cold start

- Press "+" on key **D**.
The values of the machine control unit are set back to their basic values, except the value for the machine class. "COLD START" is displayed for a short time on the screen.



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 it is necessary to re-enter first the parameter **799, 800** and then the parameter **700**.

The parameter which differ from the basic values are listed in the machine instruction manual.

12.07 Internet update of the machine software

The machine software can be updated with PFAFF flash programming. For this purpose the PFP boot program and the appropriate control software for the machine type must be installed on a PC. To transfer the data to the machine, the PC and the machine control unit must be connected with an appropriate null modem cable (part no. 91-291 998-91).



The PFP boot program and the control software of the machine type can be downloaded from the PFAFF-homepage using the following path:
www.pfaff-industrial.de/pfaff/de/service/downloads

To update the machine software carry out the following steps:



While the machine software is being updated, no setting up, maintenance or adjustment work may be carried out on the machine!

- Switch off the machine.
- Connect the PC (serial interface or appropriate USB-adapter) and the machine control unit (RS232).
- Switch on the PC and start the PFP boot program.
- Select the machine type.
- Press the "programming" button.
- An extra program (quick loader) is started.
- Switch on the machine within 60 seconds.
- The software update is carried out, the update progress is shown on the bar display.
- When the update has been completed, the message **"software update successfully completed"** appears.



If this message does not appear, the entire procedure must be repeated!
The machine is not safe for operation until the programming has been completed successfully and without faults.

- Switch off the machine and end the quick loader and PFP boot program.
- End the connection between the PC and the machine control unit.
- Switch on the machine.
- A plausibility control is carried out and, if necessary, a cold start.



More information and assistance is at your disposal in the file "PFPHILFE.TXT", which can be called up from the PFP boot program by pressing the "help" button.



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