# Efka variostop

## CONTROL

## 6F82FA2315

with control panel V810/V820

## INSTRUCTION MANUAL

No. 402274 English


Efka
FRANKL & KIRCHNER
GMBH & CO KG

Efka
EFKA OF AMERICA INC.

Efka
EFKA ELECTRONIC MOTORS
SINGAPORE PTE. LTD.

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## 1. Important Safety Instructions

When using an EFKA drive and accompanying devices (e.g. for sewing machines), basic safety precautions should always be followed, including the following:

- Read all instructions thoroughly before using this drive.
- Drive, its accessories and accompanying devices should be mounted and put into operation by qualified personnel in accordance with the guidelines provided in the instruction manual.

**To reduce the risk of burns, fire, electric shock, or personal injury:**

- Use this drive only for its intended use as described in the instruction manual.
- Use only attachments recommended by the manufacturer or as contained in the instruction manual.
- Do not operate without corresponding protective devices.
- Never operate this drive if one or more parts (e.g. cables, plugs) are damaged, if it is not working properly, if any damages can be identified or are to be suspected (e.g. after it has been dropped). Only qualified personnel are authorized to make adjustments, eliminate faults and complete repair work.
- Never operate the drive with the air openings blocked. Keep ventilation openings of the drive free from the accumulation of lint, dust and loose cloth.
- Never drop or insert any object into any opening.
- Do not use drive outdoors.
- Do not operate where aerosol (spray) products are being used or where oxygen is being administered.
- To disconnect, turn off main switch, then remove plug from outlet.
- Do not unplug by pulling on cord. To unplug, grasp the plug, not the cord.
- Keep fingers away from all moving machine parts. Special care is required e.g. around the sewing machine needle and the V-belt.
- Before mounting and adjusting accompanying devices, i.e. postion transmitter, reversing device, light barrier, etc., disconnect drive from mains (turn off main switch, remove mains plug from outlet [DIN VDE 0113 part 301; EN 60204-3-1; IEC 204-3-1]).
- Always switch off (0) machine and remove plug from outlet, when removing covers, mounting accompanying devices, position transmitter especially, light barrier, etc., or any other devices mentioned in the instruction manual.
- Only qualified personnel are authorized to work on the electrical components.
- Work on high voltage circuit areas is forbidden, except as stated in the respective regulations, e.g. DIN VDE 0105 part 1.
- Only specially trained personnel are authorized to complete repair work.
- Cables to be wired must be protected against expectable strain and fastened adequately.
- Cables near moving machine parts (e.g. V-belts) must be wired at a minimum distance of 25 mm (see DIN VDE 0113 part 301; EN 60204-3-1; IEC 204-3-1).
- For safety it is preferred to wire the cables separately from each other.
- Before connecting the mains line make sure that the mains voltage corresponds to the specifications on the motor rating plate and on the nameplate of the power pack.
- Connect this drive to a properly grounded outlet only. See Grounding Instructions.
- Electric accompanying devices and accessories must only be connected to safety low voltage.
- EFKA DC drives are protected according to overvoltage class 2 (DIN VDE 0160 § 5.3.1).
- Observe all safety guidelines before undertaking conversions or modifications.
- For repair and maintenance use only original replacement parts.

Warnings in the instruction manual which point out particular risks of personal injury or risk to the machine are marked with this symbol wherever applicable.

This symbol is a warning on the control and in the instruction manual. It indicates hazardous voltage.

**CAUTION** - In the case of failure this area can be current-carrying even after having turned the power off (non discharged capacitors).

- The drive is not an independently operating unit, but is designed to be incorporated into other machinery. It must not be put into service until the machinery into which it is to be incorporated has been declared in conformity with the provisions of the EC Directive.

**Save these instructions for future reference.**

## 2. Range of Applications

The drive is suitable for Dürkopp Adler lockstitch machine classes N291, 069, 204, 205, 221, 266, 267, 268, 269, 366, 467, 767.

## 2.1 Use in Accordance with Regulations

The drive is not an independently operating machine, but is designed to be incorporated into other machinery. It must not be put into service until the machinery into which it is to be incorporated has been declared in conformity with the provisions of the EC Directive (Appendix II, paragraph B of the Directive 89/392//392/EEC and supplement 91/368/EEC).

The drive has been developed and manufactured in accordance with the respective EC standards:

| | |
|---|---|
| EN 60204-3-1: 1990 | Electrical equipment of industrial machines:<br>Particular requirements for industrial sewing machines,<br>sewing units and sewing systems. |

The drive can only be operated:

· on thread processing machines
· in dry areas

## 3. Complete Drive Unit Consisting of

| | | |
|---|---|---|
| 1 | Induction motor with electromagnetic clutch | V.... |
| 1 | Electronic control | variostop 6F82FA2315 |
| | - Power pack | N30 |
| 1 | Position transmitter | P6-1 |
| 1 | Set of standard accessories | B10 |
| | consisting of: | belt guard, complete<br>(for pulleys up to 132 mm $\phi$)<br>set of hardware<br>motor mounting foot<br>bracket 1 and 2, short<br>documentation |
| 1 | Set of accessories | Z3 |
| | consisting of: | pitman rod, complete |

**Note:**

- For this control, the V810/V20 control panels are provided.
  The V720...V740 control panels no longer function on this control.
- The 9-pole/25-pole adapter no. 0504539 is included in the V810/V820 control panel unit.

## 3.1 Special Accessories

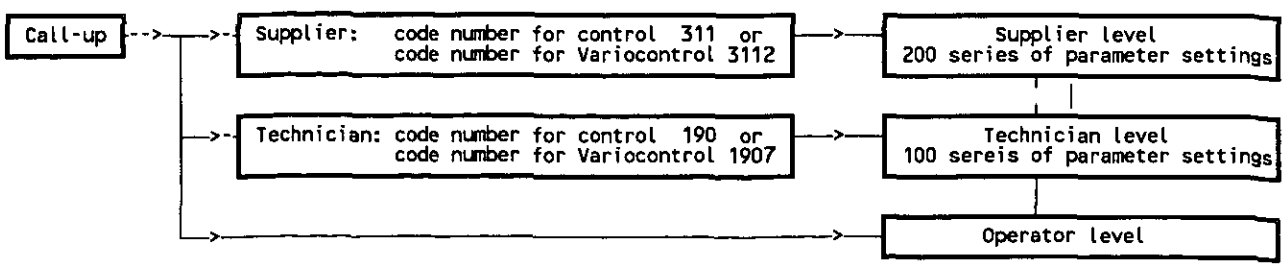
| | |
|---|---|
| **Control panel** Variocontrol V810 with 9-pole/25-pole adapter | - part no. 5970153 |
| **Control panel** Variocontrol V820 with 9-pole/25-pole adapter | - part no. 5970154 |
| **Belt guard** (for pulleys up to 180 mm $\phi$) | - part no. 7960012 |
| **Reflection light barrier module** LSM001A | - part no. 6100028 |
| **Solenoid** type EM1..(for e.g. sewing foot lifting, backtacking, etc.) | - available versions see specification "solenoids" |
| **Extension cable** for external actuator, approx. 750 mm long, complete with plug and socket connector | - part no. 1111845 |
| **Extension cable** for external actuator, approx. 1500 mm long, complete with plug and socket connector | - part no. 1111787 |
| **5-pin plug** with locking screw for the connection of another external actuator | - part no. 0501278 |
| **External actuator** type EB301 with approx. 250 mm connecting cable and 5-pin plug with locking screw | - part no. 4170011 |
| **External actuator** type EB302 (softer spring) approx. 250 mm connecting cable and 5-pin plug with locking screw | - part no. 4170012 |
| **Foot control** type FB301 (one pedal) for standing operation with approx. 1400 mm connecting cable and plug | - part no. 4170013 |
| **Foot control** type FB302 (three pedals) for standing operation with approx. 1400 mm connecting cable and plug | - part no. 4170018 |
| ***Potential equalization cord*** *700 mm long, LIY 2.5 mm², grey,* with forked cable brackets on both sides | - part no. 1100313 |
| **Extension cable** for position transmitter P5-.., approx. 1100 mm long, complete with plug and socket connector | - part no. 1111584 |
| **Extension cable** for position transmitter P5-.., approx. 315 mm long, complete with plug and socket connector | - part no. 1111229 |
| **Knee switch** type KN3 (pushbutton) with cord of approx. 950 mm length without plug | - part no. 58.0013 |
| **Sewing light transformer** | - please indicate line voltage and sewing light voltage (6.3V or 12V) |
| **3-pin plug** with locking screw (Hirschmann MAS 3100) (B4) **B** | - part no. 0500402 |
| **37-pole SubminD** connector with semimonocoque casing (ST2) **A** | - part no. 1112900 |

# 4. Operating the Control

## 4.1 Access to Programming on Command Input

In order to prevent the unintentional modification of preset functions the input commands are distributed at various levels.

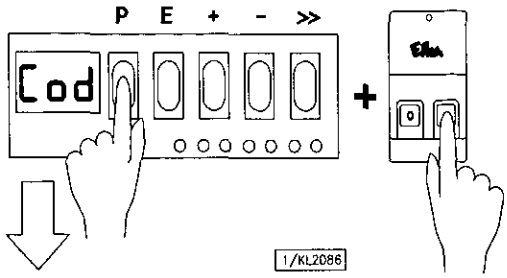
**The following persons have access:**
- the supplier to the highest and all subordinate levels by a code number
- the technician to the next lower and all subordinate levels by a code number
- the operator to the lowest level without code number



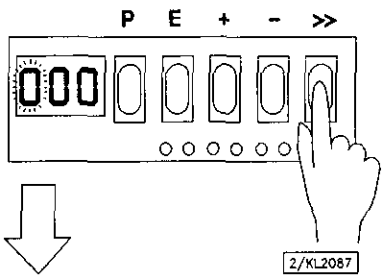
## 4.2 Programming the Code Number

**Note**
The parameter numbers in the illustrations below serve as examples and may not be available in all program versions. In this case, the display shows the next higher parameter number. See Parameter List.

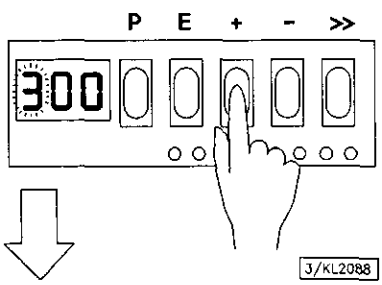
**1.** Press pushbutton **P** and turn power on



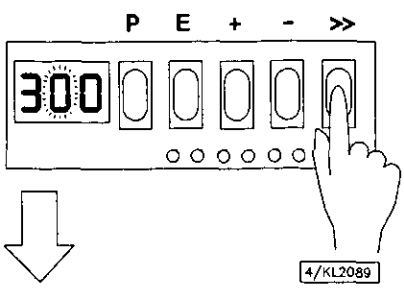

**2.** Press pushbutton > > (first digit blinks)



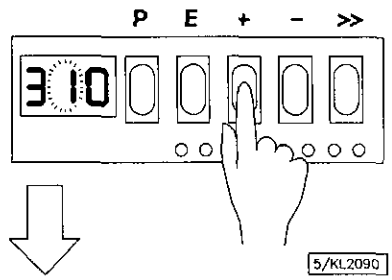

**3.** Press pushbutton + and/or - to select the first digit
Technician level = = > Code no. 190
Supplier level = = > Code no. 311



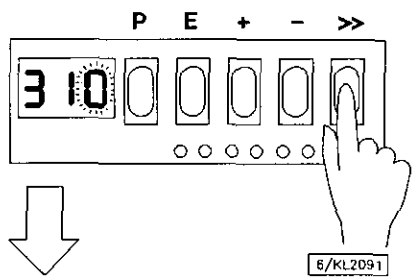

**4.** Press pushbutton > > (second digit blinks)



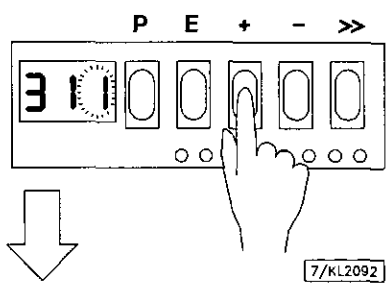

**5.** Press pushbutton + and/or - to select the second digit



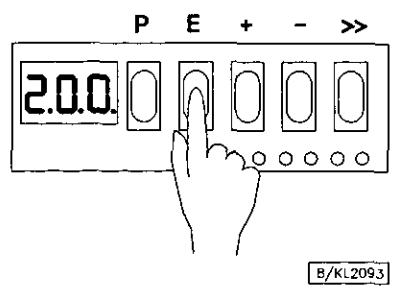

**6.** Press pushbutton > > (third digit blinks)




**7.** Press pushbutton + and/or - to select the third digit



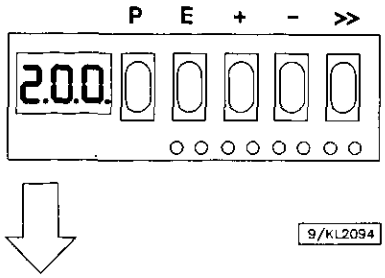

**8.** Press pushbutton E; the parameter number is displayed, which is indicated by points between the digits.



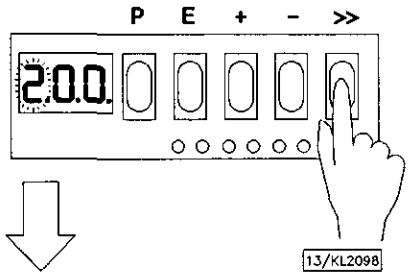
## 4.3 Selection of the Parameters

### 4.3.1 Direct Selection

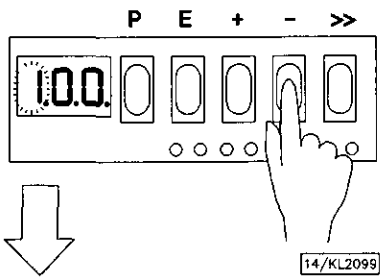
**1.** After inputting the code number on the programming level



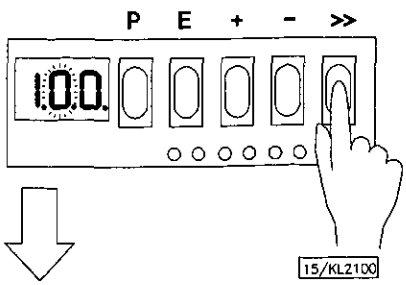

**2.** Press pushbutton > > (first digit blinks)



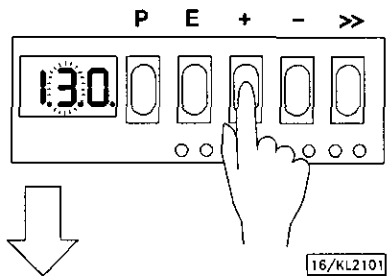

**3.** Press pushbutton + and/or - to select the first digit



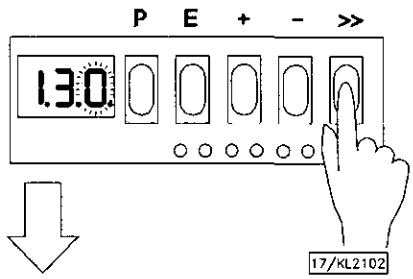

**4.** Press pushbutton > > (second digit blinks)



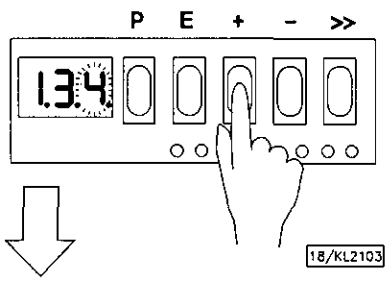

**5.** Press pushbutton + and/or - to select the second digit



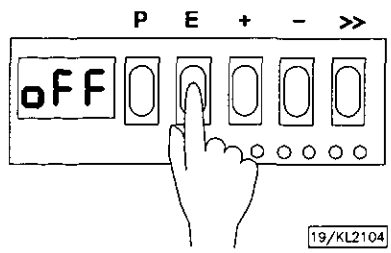

**6.** Press pushbutton > > (third digit blinks)



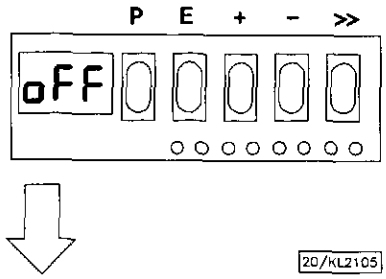

**7.** Press pushbutton + and/or - to select the third digit



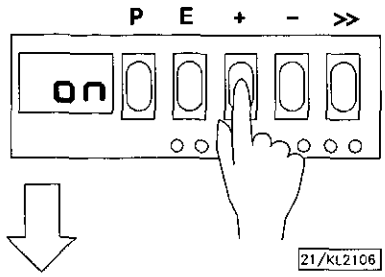

**8.** Press pushbutton E; parameter value is displayed. There are no points between the digits.



## 4.3.2 Changing Parameter Values



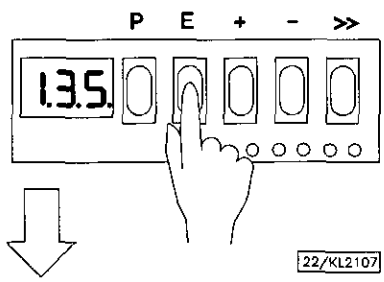

Display after selecting the parameter value



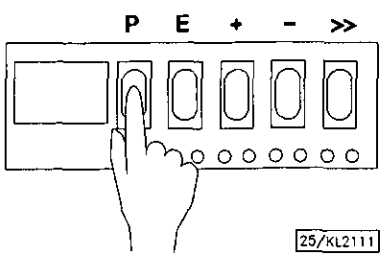

Change parameter value by pressing pushbutton + and/or -

### Possibility n° 1:

Press pushbutton **E**. The next parameter number is displayed.

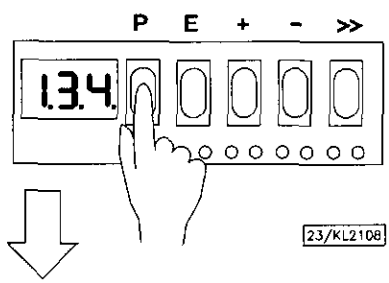



Press pushbutton **P**. Exit programming. The changed parameter values will only be saved by starting to sew again!

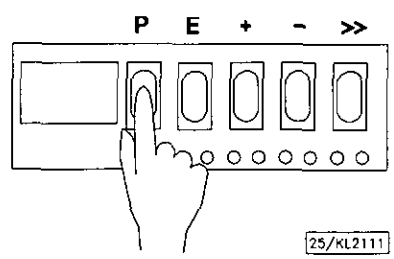



### Possibility n° 2:

Press pushbutton **P**. The same parameter number is displayed.

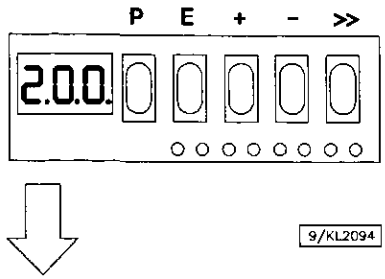



Press pushbutton **P**. Exit programming. The changed parameter values will only be saved by starting to sew again!

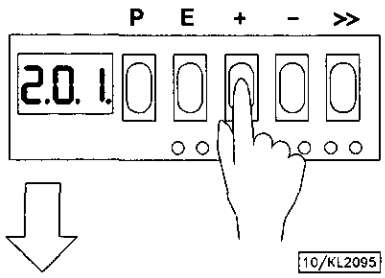


### 4.3.3 Selection by Using the +/- Pushbuttons

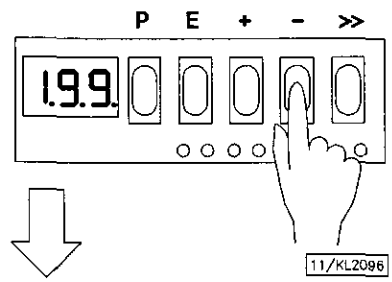
**1.** After inputting the code number on the programming level



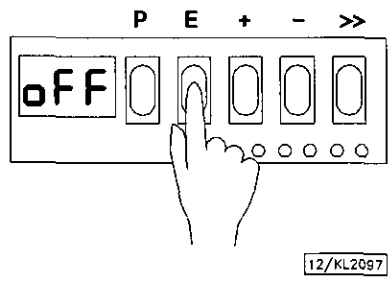

**2.** Select the next parameter by pressing the + pushbutton




**3.** Select previous parameter by pressing the - pushbutton



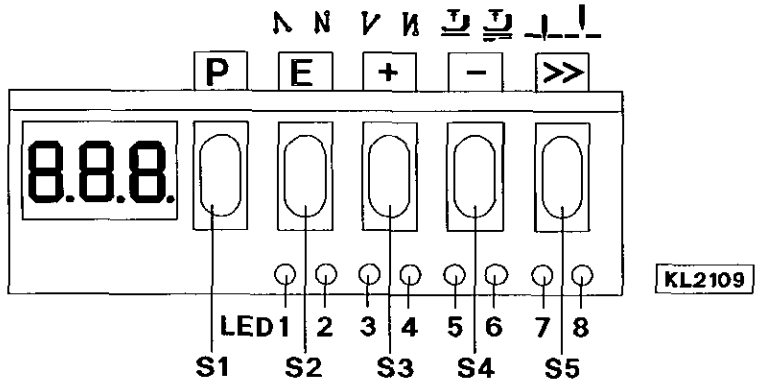

**4.** After pressing pushbutton E, the parameter value is displayed



## 4.4 Changing All Parameter Values of the Operator Level

All parameter values of the operator level (see Parameter List) can be changed without inputting a code number.

- Press pushbutton **P** => First parameter number will be displayed.
- Press pushbutton **E** => Parameter value will be displayed.
- Press pushbuttons +/- => Parameter value will be changed.
- Press pushbutton **E** => Next parameter will be displayed.
- Press pushbutton **E** => Parameter value will be displayed.
- Press pushbuttons +/- => Parameter value will be changed.
  etc.
- Press pushbutton **P** 2x => Exit programming on the operator level.




## 4.5 Switchable Functions

Switchable functions can be changed by pressing a pushbutton. The switching state is indicated by light emitting diodes (LED). See above illustration!

**Table:** Allocation of functions for pushbuttons and LEDs

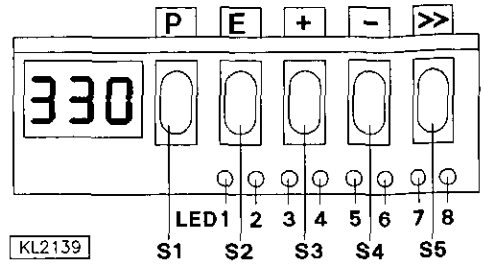
| Function | Pushbutton | | LED number | |
|---|---|---|---|---|
| Single start backtack | **E** | (S2) | 1 = on | 2 = off |
| Double start backtack | **E** | | 1 = off | 2 = on |
| Start backtack off | **E** | | 1 = off | 2 = off |
| Single end backtack | + | (S3) | 3 = on | 4 = off |
| Double end backtack | + | | 3 = off | 4 = on |
| End backtack off | + | | 3 = off | 4 = off |
| Sewing foot lifting at stop in the seam (automatic) | - | (S4) | 5 = on | 6 = off |
| Sewing foot lifting at the seam end (automatic) | - | | 5 = off | 6 = on |
| Sewing foot lifting at stop in the seam and at the seam end (automatic) | - | | 5 = on | 6 = on |
| Sewing foot lifting (automatic) off | | - | 5 = off | 6 = off |
| Basic position down (position 1) | >> | (S5) | 7 = on | 8 = off |
| Basic position up (position 2) | >> | | 7 = off | 8 = on |

## 4.6 Direct Input of Maximum Speed Limitation (DED)

The maximum speed of the machine can be limited to the specific level according to the application directly by using pushbuttons +/- on the control during machine run or during intermediate stop.
This function is blocked at the start of the seam and/or after the seam end. The actual value is shown on the display and must be multiplied by 10.

**Example:**

The value 330 on the control display corresponds to a speed of 3300 RPM



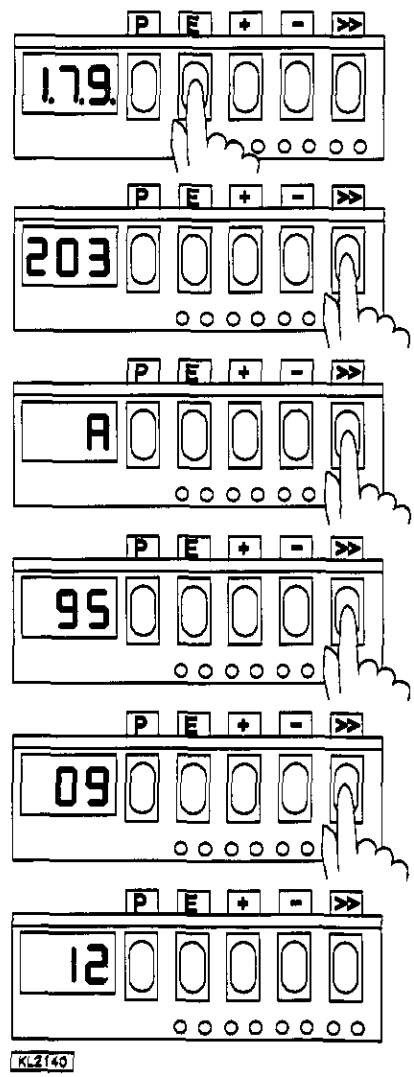

## 4.7 Program Identification on the Control

| *Functions **without** control panel* | Parameter |
|---|---|
| Display of program number, modification index and identification number | 179 |

After having selected parameter 179, the display shows the following information in succession:

**Example:**

- Select parameter 179 and press pushbutton **E**!
- *On the display the program number (2203) is shortened by* one digit! Continue by pressing pushbutton > > !
- The display shows the modification index (A) of the program! Continue by pressing pushbutton > > !
- Identification number digit 1 and 2! *Continue by pressing pushbutton* > > !
- Identification number digit 3 and 4! Continue by pressing pushbutton > > !
- Identification number digit 5 and 6!




The routine is exited by pressing pushbutton **P** twice. The drive is again ready for sewing. When pressing pushbutton **E**, the routine is as well exited, and the next parameter number is displayed.

# 5. Operating the Control with V810/V820

## 5.1 Direct Operation

By pushing the numeral buttons and some symbol buttons on the V810/V820 control panel it is possible to switch functions on or off, **e.g. start backtack**.

| | | |
|---|---|---|
| - Double start backtack is on | right arrow above pushbutton 1 on | ↓ 1 |
| Push button 1 briefly<br>- Start backtack is off | both arrows are off | 1 |
| Push button 1 briefly<br>- Single start backtack is on | left arrow on | ↓ 1 |

## 5.2 Operating the Control Panel V810

### 5.2.1 Code Number Input on the V810 Control Panel

**Technician level code number = > 1907 and/or supplier level code number = > 3112**

**Example:** If the technician level CODE number has been selected on the control panel V810:

| | | | |
|---|---|---|---|
| ■ | | TURN POWER OFF | |
| ■ | P + | TURN POWER ON<br>First digit blinks | ==> C - 0 0 0 0 |
| ■ | + - | Press + button and/or - button to select the first digit | ==> C - 1 0 0 0 |
| ■ | >> | Press >> button<br>second digit blinks ! | ==> C - 1 0 0 0 |
| ■ | + - | Press + button and/or - button to select the second digit | ==> C - 1 9 0 0 |
| ■ | » » | Press >> button twice<br>fourth digit blinks ! | ==> C - 1 9 0 0 |
| ■ | + - | Press + button and/or - button to select the fourth digit | ==> C - 1 9 0 7 |
| ■ | E | If CODE number is correct<br>First PARAMETER number at the selected level is displayed ! | ==> F - 1 0 0 |

### 5.2.2 Input by Parameters at the Operator Level on the V810 Control Panel

**Example:** If CODE number has not been input !

| | | | |
|---|---|---|---|
| ▪ | TURN POWER ON! | ==> | 6 F 8 2 F A |
| ▪ [P] | First parameter at the operator level is displayed ! | ==> | F - 0 0 0 |
| ▪ [+] | Second parameter at the operator level is displayed ! The next and/or previous parameter can be called up with the +/- buttons. | ==> | F - 0 0 1 |
| ▪ [E] | Parameter value is displayed | ==> | 0 0 3 |
| ▪ [+] | Change parameter value by pressing the +/- buttons | ==> | X X X |
| ▪ [E] | Parameter value is entered; Display advances to the next parameter | ==> | F - 0 0 2 |
| ▪ [+] | Press the + button several times until the desired parameter is displayed | ==> | F - 0 0 9 |
| ▪ [E] | Parameter value is displayed | ==> | O F F |
| ▪ [+] | Altered parameter value is displayed | ==> | O N |
| ▪ [E] | Next parameter is displayed | ==> | F - 0 1 3 |
| or | | | |
| ▪ [P] | Exit programming | ==> | 6 F 8 2 F A |

**These values are saved when you start sewing. They remain in effect even after turning the machine off.**

**Note!** The parameter number can also be directly selected, like the code number!

### 5.2.3 Input by Parameters at the Technician/Supplier Level on the V810 Control Panel

**Example:** If the technician CODE number has been selected !

| | | | |
|---|---|---|---|
| ▪ | After CODE number input the first PARAMETER number is displayed | ==> | F - 1 0 0 |
| ▪ [+] | Press + button; next parameter number is displayed | ==> | F - 1 1 0 |

- [E] Press E button; parameter value is displayed ==> 0 1 8 0
- [+] [-] Change parameter value! ==> 0 X X X
- [E] Parameter value is entered; display advances to the next parameter ==> F - 1 1 1

or

- [P] Parameter value is entered; the actual PARAMETER number is displayed ==> F - 1 1 0

or

- [P] [P] Press pushbutton P twice ! Exit programming ==> 6 F 8 2 F A

**These values are saved when you start sewing. They remain in effect even after turning the machine off.**

## 5.3 Operating the V820 Control Panel

### 5.3.1 Code Number Input on the V820 Control Panel

**Technician level code number = > 1907 and/or supplier level code number = > 3112**

**Example:** If the technician level CODE number has been selected on the control panel V820:

- TURN POWER OFF
- [P] + TURN POWER ON ==> C-0000
- [1] [9] [0] [7] Input ==> CODE number ! C-1907
- [E] If CODE number is wrong repeat input ! ==> C-0000 InFo F1
- [E] If CODE number is correct the first PARAMETER number at the selected level is displayed ! ==> F-100

### 5.3.2 Input by Parameters at the Operator Level on the V820 Control Panel

**Example:** If CODE number has not been input !

- TURN POWER ON! ==> 4000 6F82FA
- [P] Display shows no reading! ==>
- [E] First parameter at the operator level is displayed; PARAMETER number is not displayed ==> Arv 003

- [+] [-] Change parameter value! ==> Arv XXX
- [E] Parameter value is entered; display advances to the next parameter ==> Arr 003

or

- [P] Exit programming ==> 4000 6F82FA

- **These values are saved when you start sewing. They remain in effect even after turning the machine off.**

### 5.3.3 Input by Parameters at the Technician/Supplier Level on the V820 Control Panel

**Example:** If the technician CODE number has been selected !

- After CODE number input the first PARAMETER number is displayed ==> F-100
- [E] The most significant digit of the parameter number blinks ==> F-100
- [1] [1] [0] Input desired PARAMETER number! ==> F-110
- [E] If parameter number is wrong repeat input! ==> F-XXX InFo F1
- [E] If PARAMETER number is correct ==> F-110 n1 180
- [+] [-] Change parameter value! ==> F-110 n1 XXX
- [E] Parameter value is entered; display advances to the next parameter ==> F-111 n2 4000

or

- [P] Parameter value is entered; a new PARAMETER number can be called up ==> F-XXX

or

- [P] [P] Press pushbutton P twice! Exit programming ==> 4000 6F82FA

- **These values are saved when you start sewing. They remain in effect even after turning the machine off.**

## 5.4 Program Identification

| Functions | Parameter |
|---|---|
| Display of program no., modification index and identification no. | 179 |

**Display example parameter 179 on the V810 control panel:**

*Select parameter 179 ! The display shows:*

- [ E ] Display of program no. 2305 and index A ==> [ 2 3 0 5 A ]
- [ >> ] Display of identification number ==> [ 9 8 0 1 1 4 ]

**Display example parameter 179 on the V820 control panel:**

The V820 control panel display shows the program number shortened by one digit with index on the left and an 8-digit identification number on the right.

Select parameter 179 ! The display shows:

**Program no.: 2305 / index: A** *(the most significant digit is not displayed)* ===> [ 305A 98011408 ] <== **identification number: 98011408**

## 5.5 Maximum Speed Limitation by Direct Input (DED)

```
Upper limit of the maximum speed (nmaxmax)        --> F-111
Lower limit of the maximum speed (nmaxmin)        --> F-121
```

The maximum speed of the machine can be limited to the specific level according to the application.

- After having pressed the +/- pushbuttons for the first time, the actual speed will be displayed.
- After the seam end, the speed changes whenever the +/- pushbuttons are pressed.

The setting range is between the speeds programmed with parameter 111 (upper limit) and parameter 121 (lower limit).

### 5.5.1 Setting on the V810 Control Panel

- Type of control is displayed ==> [ 6 F 8 2 F A ]
- [ + ] Display of maximum speed (reading remains on for max. 5 sec.) ==> [ 4 0 0 0 ]
- [ + ] [ - ] Change value of maximum speed; *e.g. press button (-) 8 x !* ==> [ 3 2 0 0 ]
- After approx. 5 seconds the display shows ==> [ 6 F 8 2 F A ]

### 5.5.2 Setting on the V820 Control Panel

Actual value on the display in the direct mode

- Display of maximum speed and type designation ==> 4000 6F82FA
- [+] [-] Change value of maximum speed; e.g. press button (-) 8 x ! 3200 6F82FA

**Note**
Changing the setting of the maximum speed limitation also affects the start backtack, end backtack and stitch counting speeds

## 5.6 Pushbuttons for Background Information (HIT) with V820

(setting of the pushbuttons see figure on the last page)

**Note**
The following functions are possible only with the V820 control panel!

For fast operator information the values of functions activated by pressing the pushbuttons 1, 2, 3, 4 and 9 are indicated on the display of the Variocontrol for approx. 3 seconds. During this time the respective values can be varied immediately by the + and - pushbuttons.

### 5.6.1 Examples for HIT

**Increase stitch-count seam section from 20 stitches to 25 stitches.**
Stitch counting function (pushbutton 2) is off.

- Display after power on ==> 4000 6F82FA
- ↓ [2] Press button 2 briefly! Left arrow and stitch counting function is on ==> Stc 020
- [+] Press button + ! Increase number of stitches from 20 to 25 ! ==> Stc 025
- Display after approx. 3 seconds ==> 4000 6F82FA

**Stitch counting function (pushbutton 2) is already on.**

- Display after power on ==> 4000 6F82FA
- ↓ [2] Press button 2 for at least 1 second! Left arrow goes off momentarily; stitch counting function is on ==> Stc 020
- [+] Press button + ! Increase number of stitches from 20 to 25! ==> Stc 025
- Display after approx. 3 seconds ==> 4000 6F82FA

**These values are saved when you start sewing. They remain in effect even after turning the machine off.**

**Function key F**

With the function key (pushbutton 9) various parameters, also from a higher level, can be switched on or off. This pushbutton can be set with the following functions:

1. SSt Softstart ON/OFF
2. SrS Ornamental backtack ON/OFF
3. hPr High lift for walking foot operational mode stored = ON/ operational mode not stored = OFF
4. Snh Needle cooling ON/OFF

**The F key setting can be changed as follows:**

| | | | | |
|---|---|---|---|---|
| ■ | | Display after power on! | ==> | 4000 6F82FA |
| ■ | P | Press button **P** ! | ==> | |
| ■ | E | Press button **E** ! | ==> | Arv 002 |
| ■ | E | Press button **E** several times until the abbreviation **-F-** appears (ornamental backtack on/off) | ==> | -F- 2 |
| ■ | - | Press button - ! (softstart on/off) | ==> | -F- 1 |
| ■ | P | Press button **P** ! | ==> | 4000 6F82FA |

■ **»The setting is completed«**

**The number of softstart stitches can be changed as follows:**

***Example: change number of stitches from 1 to 3 (softstart function (pushbutton 9) is off).***

| | | | | |
|---|---|---|---|---|
| ■ | 9 | Press button 9 briefly! The corresponding arrow above the pushbutton lights up (softstart function is on) | ==> | SSc 001 |
| ■ | + | Press button + ! Increase number of stitches! | ==> | SSc 003 |
| ■ | | Display after approx. 3 seconds | ==> | 4000 6F82FA |

**Example: change number of stitches from 1 to 3 (softstart function (pushbutton 9) is already on).**

| | | | | |
|---|---|---|---|---|
| ■ | 9 | Press button 9 for at least 1 sec.! The corresponding arrow above the pushbutton goes off momentarily (softstart function is on) | ==> | SSc 001 |
| ■ | + | Press button + ! Increase number of stitches! | ==> | SSc 003 |
| ■ | | Display after approx. 3 seconds | ==> | 4000 6F82FA |

**These values are saved when you start sewing. They remain in effect even after turning the machine off.**

## 5.7 Programming Seams (Teach-in) with V820

**Note**
The following functions are possible only with control panel V820 !

- A maximum of 8 patterns with a total of 40 seams can be established.
- Programming is possible only if a code number has not been input after switching on!
- The functions start backtack, end backtack, stitch counting, thread trimming and sewing foot lifting can be assigned individually to each seam.

| | | |
|---|---|---|
| Example 1: | Pattern 1 | 40 seams |
| | Pattern 2-8 | 0 seams |
| Example 2: | Pattern 1 | 4 seams |
| | Pattern 2 | 5 seams |
| | Pattern 3 | 6 seams |
| | Pattern 4 | 25 seams |
| | Pattern 5-8 | 0 seams |
| Example 3: | Pattern 1 | 10 seams |
| | Pattern 2 | 15 seams |
| | Pattern 3-8 | 0 seams |

Examples 1 and 2 show that optimal utilization of the storage capacity is possible.

### 5.7.1 Teach-in Mode

- Each seam pattern is programmed and stored separately.
- After input of the pattern the teach-in mode must be exited.
- Saving is done by sewing start.

**Display configuration:**

```
304  020 008
```

```
 3   Pattern number  (1...8)
04   Seam number     (0...40)
020  Stitches for the seam with stitch counting
     (0...254)
008  Stitches after light barrier sensing (0...254)
```

**Programming:**

After power on, without entering a code cumber!

1 => [P] => LC display is cleared ==> [ ]

2 => [E] => Display of a parameter at the operator level ==> [ aaa bbb ]

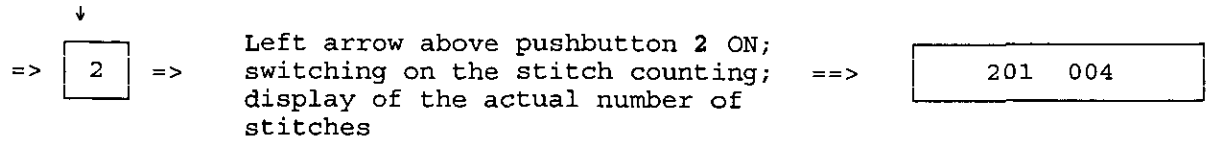
↓

3 => [0] => Left arrow above pushbutton **0** blinks; entry into pattern and seam programming ==> [ 101 --- ]

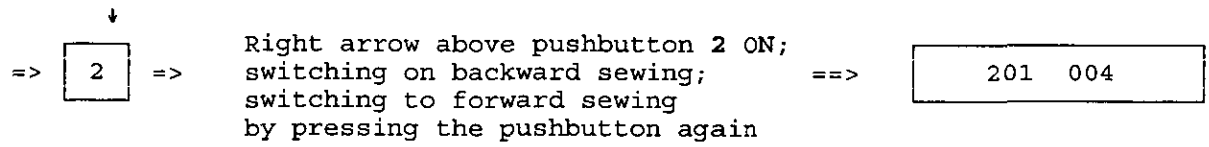
4 => [0] => Changing the pattern number ==> [ 201 --- ]

The seam functions can be programmed with the pushbuttons on the control panel (e.g. sewing foot lifting, start backtack, etc.).

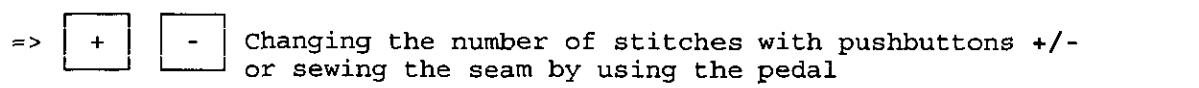
### 5.7.1.1 Seam with Stitch Counting



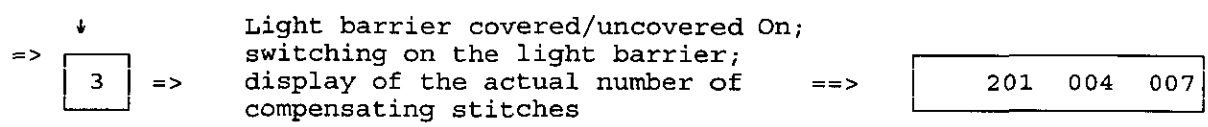

### 5.7.1.2 Backward Seam with Stitch Counting

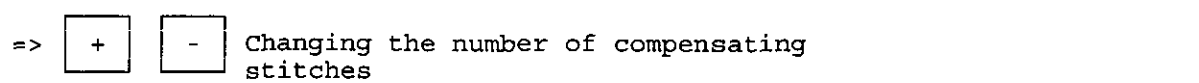



When sewing backwards, all sewing operations including backtack are executed in reversed feeding direction. The functions "light barrier seam" and "backward seam" block each other, i.e. the light barrier cannot be switched on when the backward seam has been selected, or, backward sewing is not possible, when the light barrier is switched on.



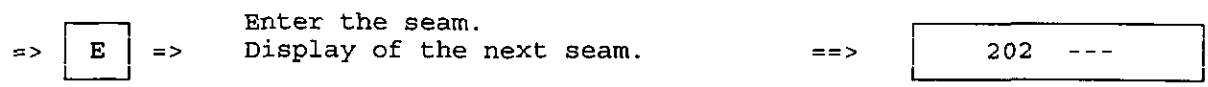

### 5.7.1.3 Stitch Counting and/or Light Barrier



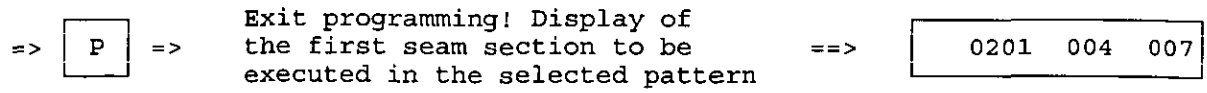




If stitch counting **and** light barrier are turned on at the same time the stitches for stitch counting have to be programmed before the light barrier compensating stitches.

**After programming the functions**




**==> The seam is entered by pressing the pushbutton E or by heelback.**




After all seams have been programmed, each seam can be recalled individually with pushbutton **E** for checking.

**Note**
Several seam patterns cannot successively be programmed without interruption. Each pattern must be completed with pushbutton P, otherwise it gets lost.

**Note**
The patterns are permanently saved only after the sewing has been started.

### 5.7.1.4 Detailed Example

A seam 1 with stitch counting and start backtack, a seam 2 with stitch counting and a seam 3 with light barrier seam and end backtack are to be programmed under pattern number 4.

| | | | | | |
|---|---|---|---|---|---|
| | Display before programming | | | ==> | XXXX 6F82FA |
| 1. => | P | => | LC display is cleared | ==> | |
| 2. => | E | => | Display of a parameter at the operator level | ==> | aaa bbb |
| | ↓ | | | | |
| 3. => | 0 | => | Left arrow above pushbutton **0** blinks; Pattern 1, seam 1 | ==> | 101 --- |
| | ↓ | | | | |
| 4. => | 0 | => | Left arrow above pushbutton **0** blinks; Pattern 2, seam 1 | ==> | 201 --- |
| | ↓ | | | | |
| 5. => | 0 | => | Left arrow above pushbutton **0** blinks; Pattern 3, seam 1 | ==> | 301 --- |
| | ↓ | | | | |
| 6. => | 0 | => | Left arrow above pushbutton **0** blinks; **Pattern 4, seam 1** | ==> | 401 --- |
| | ↓ | | | | |
| 7. => | 1 | => | Left arrow above pushbutton **1** ON; Single start backtack is on | ==> | 401 --- |
| | ↓ | | | | |
| 8. => | 6 | => | Right arrow above pushbutton **6** ON; Sewing foot lifting at the seam end is on | ==> | 401 --- |
| | ↓ | | | | |
| 9. => | 2 | => | Left arrow above pushbutton **2** ON; Stitch counting forward is on | ==> | 401 000 |
| 10.=> | + / - | | Changing the number of stitches with pushbuttons or sewing the seam by using the pedal | ==> | 401 017 |
| | | => | Seam length of 17 stitches is set | | |
| 11.=> | E | => | **Pattern 4, seam 2** | ==> | 402 --- |
| | ↓ | | | | |
| 12.=> | 2 | => | Left arrow above pushbutton **2** ON; Stitch counting forward is on | ==> | 402 000 |
| 13.=> | + / - | | Changing the number of stitches with pushbuttons or sewing the seam by using the pedal | ==> | 402 008 |
| | | => | Seam with 8 stitches is set | | |
| 14.=> | E | => | **Pattern 4, seam 3** Free seam is selected | ==> | 403 --- |

| | | | | | | |
|---|---|---|---|---|---|---|
| 15.=> | ↓ 3 | => | Left arrow above pushbutton 3 ON; Light barrier covered/uncovered is activated | ==> | 403 --- 000 |
| 16.=> | + - | | Changing the number of stitches with pushbuttons; 5 compensating stitches are set | ==> | 403 --- 005 |
| 17.=> | ↓ 4 | => | Left arrow above pushbutton **4** ON; Single end backtack is on | ==> | 403 --- 005 |
| 18.=> | ↓ ↓ 5 | => | Both arrows above pushbutton **5** ON; thread trimmer and thread wiper are on | ==> | 403 --- 005 |
| 19.=> | E | => | **Pattern 4, seam 4** By changing to the next seam the settings of the preceding seams are automatically entered | ==> | 404 --- |
| 20.=> | P | => | Exit programming, first seam can be executed | ==> | 401 017 |

## 5.7.2 Max. Number of Seams Exceeded

If the total number of 40 seams is exceeded by inputting a program, for the time being, the teach-in mode cannot be completed with pushbutton P.
A further sewing start is impaired. The display shows the warning below.
Pressing pushbutton P again causes the deletion of the pattern indicated on the display. The teach-in mode is exited if the total number of 40 seams is not exceeded. Otherwise a new warning will be indicated.

**Display:**

| dEL X YY NN |
|---|

X : Last input and/or recalled pattern number (1...8)
YY: Number of programmed seams of the recalled pattern (0...40)
NN: Total number of input seams

The operator must now decide which pattern is to be deleted!

| | | | | |
|---|---|---|---|---|
| => | 0 | => | Call-up of the pattern to be deleted | dEL X YY NN |

X : Pattern number
YY: Number of seams of this pattern
NN: Total number of input seams

| | | | | |
|---|---|---|---|---|
| => | P | => | Deletion of the pattern | dEL X YY NN |

X : Pattern number of the deleted pattern
YY: 00 = no more seam is programmed
NN: Total number of input seams if more than 40

When 40 seams are exceeded, the teach-in mode is exited, and the last input seam will be indicated.

### 5.7.3 Execution (Pattern) Mode

1. => [0] Switch on mode with pushbutton **0** (left arrow above pushbutton On) ==> X 01 ZZZ

2. => [+] [-] Select pattern 1...8; Seam number 01 is displayed ==> X 01 030

3. => [E] If one should not start with seam 1, select different seam number; push button **E** several times until the desired seam number is displayed ==> X 05 ZZZ

- The pattern can now be started by pressing the pedal.

4. => [0] Exit the execution (pattern) mode Switch off mode with pushbutton **0**

### 5.7.4 Further Settings for Teach in

| Functions | | Parameter |
|---|---|---|
| Seam suppression when 0 stitches are set | (Std) | 275 |

**Parameter 275 = 0** **Seam suppression off:** i. e. if the light barrier is not on and stitch counting with 0 stitches is set, a free seam will be performed.

**Parameter 275 = 1** **Seam suppression on:** i. e. if the light barrier is not on and stitch counting with 0 stitches is set, the program switches to the next seam if this function is on. If functions as for ex. start, end backtack or thread trimmer are on, they will be performed before the program switches to the next seam.

| Functions | | Parameter |
|---|---|---|
| Correction seam On/Off, cessation of seam and/or pattern by means of the thread trimmer | (dkn) | 276 |

**Parameter 276 = 0** Correction seam off
- The seam can be interrupted with pedal in pos. -2. The control switches automatically to the next seam number.

**Parameter 276 = 1** Correction seam on
- The seam can be interrupted by the thread trimmer with pedal in pos. -2 and a correction seam (free seam) can be executed manually.
- The correction seam can be completed with pedal in pos. -2 or with light barrier On. After that the control switches automatically to the next seam number.

**Parameter 276 = 2** Interruption of seam and/or pattern with thread trimmer
- The seam can be interrupted by the thread trimmer with pedal in pos. -2, even if the thread trimmer is off. After that the control switches back to the **first** seam of the selected pattern.

## 6. Starting Service

**The machine is ready for operation immediately after:**

- mounting the drive and the position transmitter
- adapting the control to the sewing machine
- setting the needle positions on the position transmitter

## 7. Setting the Basic Functions

### 7.1 Selection of the Machine Series

| Functions | | Parameter |
|---|---|---|
| Display machine series | (SEL) | 280 |

The various machine classes are specified by resistors. The following resistance values (tolerance ± 1%) are provided:

| | | |
|---|---|---|
| 100Ω | = | N291 |
| 220Ω | = | 204, 205, 221, 266, 366 |
| 680Ω | = | 069, 267, 268, 269 |
| 1000Ω | = | 467, 767 |

The special functional sequences and the various preset values are activated depending on the resistor identified.
The machine select is displayed by means of parameter 280. The resistance value is displayed in Ohm directly on the control panel.

#### 7.1.1 Emergency Run Function when Machine Select Is Invalid

If the control cannot identify an admissible value for the machine select resistor, only emergency run functions are possible. All parameter settings and preset values are preserved.
Display:

| **Control panels:** | = = > | **V810** | **V820** |
|---|---|---|---|
| Emergency run function due to invalid machine select | | InF A5 | InFo A5 |

**Available emergency run functions**

- Speed is limited to 1000 RPM
- Machine run blockage (safety switch)
- Needle cooling
- Sewing foot lift when heeling the pedal back (-1, -2)

## 7.2 Positioning Speed

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| Positioning speed | (n1) | 110 |

The positioning speed can be set with parameter 110 within a range of 70...390 RPM.

## 7.3 Maximum Speed Compatible with the Sewing Machine

The maximum speed of the machine is determined by the pulley and by the following settings:

- Set the maximum speed by using parameter 111 (n2).
- Set the limitation of the maximum speed to the specific level according to the application as described in chapter "Direct Input of Maximum Speed Limitation (DED)".

## 7.4 Maximum Speed

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| Maximum speed | (n2) | 111 |

**Note:**
For the maximum speed of the sewing machine see instruction manual of the sewing machine manufacturer.

**Note:**
Select the pulley such that the maximum speed of the machine corresponds to the speed indicated on the motor nameplate.

## 7.5 Positions

Before setting the position transmitter ensure that the direction of rotation of the motor shaft is correctly set !

**Attention!**
If the motor is mounted differently, e.g at a different angle or with gear, make sure that the parameter value is assigned correctly to the direction of rotation.
Set positions if necessary.

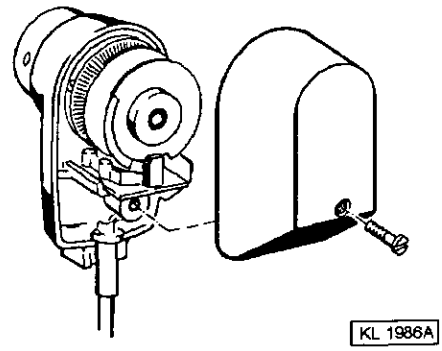
**Attention!**
Turn power off before adjusting the positioning discs.

**Attention!**
Be very careful when adjusting the positioning discs.
**Risk of injury.**
Please ensure that positioning discs and generator disc (inner disc) are not damaged.

The abbreviations in parentheses ( ) are visible only if a control panel V820 is connected!

**The positions are set as follows:**

- Remove position transmitter cover after loosening the screw.
- Select basic position **needle down** (LED 7 on the control lights up) by pushbutton S5.
- Adjust central disc for position 1 in the desired direction.
- Push pedal briefly forward.
- Check stop position.
- Push pedal backward (trimming).
- Select basic position **needle up** (LED 8 on the control lights up) by pushbutton S5.
- Adjust outer disc for position 2 in the desired direction.
- Push pedal briefly forward.
- Check stop position.
- Repeat procedure if necessary.
- Select the desired basic position by pushbutton S5.
- Put cover on again and tighten screw.




The same sequence can be performed by using the pushbutton for **basic position** on the control panel.

**Note:**
For functional sequences that are controlled by the slot width, set slot width if necessary according to the above. The desired functional sequence is to be activated in order to check the setting. The opening angle of position transmitters with adjustable slot width must not be below 20°.

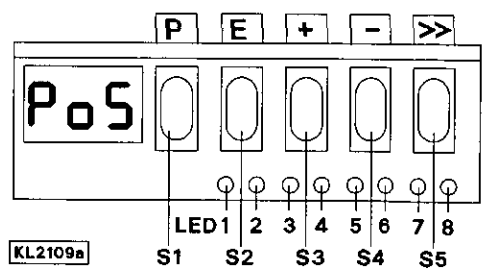
**Note:**
To ensure a correct trimming operation, the positions 1 and 2 must not overlap.

## 7.6 Display of the Signal and Stop Positions

| Function **with** or **without** control panel | | Parameter |
|---|---|---|
| Display of positions 1 and 2 | (Sr3) | 172 |

The setting of the positions can easily be tested by parameter 172.

- Address parameter F-172
- Without control panel, "PoS" appears on the control display
- With control panel, "Sr3" appears on the display of the control panel
- Turn handwheel corresponding to the direction of rotation of the motor




**Display on the control panel**

- LED pushbutton 1 on corresponds to position 1
- LED pushbutton 1 turns off corresponds to position 1A
- LED pushbutton 2 on corresponds to position 2
- LED pushbutton 2 turns off corresponds to position 2A

**Control display without control panel**

- Arrow above symbol "position 1" On corresponds to position 1
- Arrow above symbol "position 1" turns Off corresponds to position 1A
- Arrow above symbol "position 2" On corresponds to position 2
- Arrow above symbol "position 2" turns Off corresponds to position 2A

**If control panels V810/V820 are connected the positions will only be displayed on the control panel!**

## 7.7 Braking Behavior

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| Braking effect with speeds > 800 RPM | (br1) | 207 |
| Braking effect with speeds < 800 RPM | (br2) | 208 |

- The braking effect for the stop is influenced by parameter 207
- The braking effect between the speed stages is controlled by parameter 208

The following applies to all setting values:
The higher the value the stronger the braking reaction!

## 7.8 Braking Power at Standstill

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| Braking power at standstill | (brt) | 153 |

This function prevents unintentional "wandering" of the needle at standstill.
The effect can be tested by turning the handwheel.

- The braking power works at standstill
  - at stop in the seam
  - after thread trimming
- The effect can be set
- The higher the set value, the higher the braking power
- It works immediately after power on

## 7.9 Start Behavior

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| Accelerating power of the drive | (ALF) | 220 |

The drive accelerating dynamics can be adapted to the characteristic of the sewing machine (light, heavy).
- High setting value = high acceleration

With a high starting edge setting and, in addition, possibly high braking parameter values on a light machine, the behavior may appear coarse. In this case, one should try to optimize the settings.

Should the machine not reach the set speed or the drive be blocked, the following message will be displayed:

**Control panels** = = > **V810** **V820**

| InF E3 | InFo E3 |
|---|---|

**Should the setting for reaching the set speed not be sufficient (for ex. during the trimming operation), the value of parameter 220 must be increased!**

## 7.10 Speed Gate

| Function **with** or **without** control panel | | Parameter |
|---|---|---|
| Speed gate | (dGn) | 221 |
| Speed gate damping period | (tdG) | 222 |

The speed gate setting and the setting of the speed gate damping period are important for exact positioning. The switching point of the speed gate is determined by positioning speed + value in parameter 221; example: n1 = 180 RPM + value 100 = 280 RPM.

## 7.11 Actual Speed Display

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| Machine speed display | (nIS) | 139 |

If parameter 139 is switched ON the following information is shown on the display:

| **Control panels:** = = > | **V810** | **V820** |
|---|---|---|
| **During machine run:**<br>▪ The actual speed<br>▪ **Example:** 2350 rotations per minute | 2350 | 2350 |
| **At stop in the seam:**<br>▪ The stop indication | StoP | StoP |
| **At machine standstill after trimming:**<br>▪ On the V810, indication of the type of control<br>▪ On the V820, indication of the set maximum speed and the type of control<br>▪ **Example:** 3300 rotations per minute and control type 6F82FA | 6F82FA | 3300 6F82FA |

The abbreviations in parentheses ( ) are visible only if a control panel V820 is connected!

# 8. Functions With Or Without Control Panel

## 8.1 First Stitch After Power On

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| *Execution of the 1st stitch after POWER ON at positioning speed*<br>Positioning speed | (Sn1)<br>(n1) | 231<br>110 |

For the protection of the sewing machine and when parameter 231 is on, the first stitch after power on will be performed at positioning speed, independently of the pedal position and the function softstart.

## 8.2 Function Key on Control Panel V820 (Pushbutton 9)

| Functions **with** control panel | | Parameter |
|---|---|---|
| *Determine function for pushbutton 9* | (-F-) | *008* |

A programmed function can be switched on or off directly by using the function key (pushbutton 9).

**Programmable functions:**

008 = 1 - Softstart ON/OFF
008 = 2 - Ornamental backtack ON/OFF
008 = 3 - High lift for walking foot operational mode stored = ON/
operational mode not stored = OFF
008 = 4 - Needle cooling ON/OFF

## 8.3 Softstart

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| Softstart On/Off | (SSt) | 134 |

Function:
- after power on
- at the beginning of a new seam
- speed pedal controlled and limited to (n6)
- lower speed of a function running parallel predominates (e.g. start backtack, stitch counting)
- stitch counting synchronized to position 1
- interruption with pedal in position 0 (neutral)
- cessation by full heelback (position -2)

**When using the V820 control panel, direct access by means of the function key (pushbutton 9) is possible!**

| Functions **with** control panel | | Parameter |
|---|---|---|
| Softstart On/Off | (-F-) | 008 = 1 |

## 8.3.1 Softstart Speed

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| Softstart speed | (n6) | 115 |

When programming 3-digit and/or 4-digit parameter values in the control, the 2-digit and/or 3-digit values displayed must be mutliplied by 10.

## 8.3.2 Softstart Stitches

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| Softstart stitches | (SSc) | 100 |

If the function "slow stitch after power on" has been selected by parameter 231, the first stitch after power on will be performed at positioning speed, independently of the softstart setting.

## 8.4 Sewing Foot Lift

| Functions **without** control panel | | Pushbutton on the control |
|---|---|---|
| Automatic in the seam | LED 5 lights up | Pushbutton S4 |
| Automatic after thread trimmming | LED 6 lights up | Pushbutton S4 |

| Functions **with** control panel | | V810 | V820 |
|---|---|---|---|
| Sewing foot lift at stop in the seam (automatic) | Left arrow above pushbutton ON | Pushbutton 3 | Pushbutton 6 |
| Sewing foot lift after thread trimmming (automatic) | Right arrow above pushbutton ON | | |
| Sewing foot lift at stop in the seam and after thread trimming (automatic) | Both arrows above pushbutton ON | | |
| Sewing foot lift Off | | | |

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| Activation delay when pedal is in position -1, half heelback | (t2) | 201 |
| Start delay after switching off the sewing foot lift signal | (t3) | 202 |
| Time of full power | (t4) | 203 |
| Operating time with pulsing | (t5) | 204 |
| Delay after thread wiping until sewing foot lifting | (t7) | 206 |

**Sewing foot is lifted:**

- in the seam
  - by heeling the pedal back (position -1)
    or automatically (with pushbutton 3 on the V810 control panel)
    or automatically (with pushbutton 6 on the V820 control panel)
  - by pressing the pushbutton on socket B18/1-5 if parameter 239 = 12

- after thread trimming
  - by heeling the pedal back (position -1 or -2)
    or automatically (with pushbutton 3 on the V810 control panel)
    or automatically (with pushbutton 6 on the V820 control panel)
  - by pressing the pushbutton on socket B18/1-5 if parameter 239 = 12
  - by light barrier, automatically
  - by stitch counting, automatically
  - start delay after thread wiping (t7)
  - start delay without thread wiping (tFL)

Unintentional foot lifting before thread trimming, when changing from pedal position 0 (neutral) to position -2, can be prevented by setting an activation delay (t2) with parameter 201.

**Holding power of the lifted foot:**

The sewing foot is lifted by full power. Then the solenoid is switched to partial power in order to reduce the load for the control and for the connected solenoid.
The duration of full power is set with parameter 203, the holding power at partial power with parameter 204.

**Caution!**
If the holding power is set too high the solenoid and the control may be permanently damaged. Please observe the allowed operating time of the solenoid and set the appropriate value according to the table below.

| Stage | Operating time | Effect |
|---|---|---|
| 1 | 12.5 % | low holding power |
| 2 | 25 % | |
| 3 | 37.5 % | |
| 4 | 50 % | |
| 5 | 62.5 % | |
| 6 | 75 % | |
| 7 | 87.5 % | high holding power |
| 0 | 100% | full power |

**Foot lowers:**

- from manual foot lifting: push pedal to position 0 (neutral)
- from automatic foot lifting: push pedal to position 1/2 (slightly forward)

By pressing the pedal forward from lifted sewing foot, the start delay (t3) that can be regulated with parameter 202 becomes effective.

**See also chapter "Timing Diagrams"!**

## 8.5 Start Backtack

| Functions **without** control panel | | Control |
|---|---|---|
| Single start backtack | LED 1 lights up | Pushbutton S2 |
| Double start backtack | LED 2 lights up | |
| Start backtack Off | both LEDs off | |

| Functions **with** control panel | | V810/V820 |
|---|---|---|
| Single start backtack | Left arrow above pushbutton ON | Pushbutton 1 |
| Double start backtack | Right arrow above pushbutton ON | |
| Start backtack Off | both arrows OFF | |

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| Normal/long stitches during backtack | (SLu) | 137 |
| Start delay after switching off the sewing foot lift signal | (t3) | 202 |
| Start and end backtack can be interrupted by pedal position 0 (neutral) | (StP) | 284 |

The start backtack starts by pressing the pedal forward at the beginning of the seam. The backtack is delayed by the time t3 from lifted foot (start delay after lifted sewing foot). The start backtack is executed automatically at speed n3. With softstart running parallel, the respective lower speed predominates.
Whether or not an interruption of the start and end backtack is possible can be determined with parameter 284. It does not work with the ornamental backtack.
**Parameter 284 = ON** Backtack can be interrupted by pedal position 0 (neutral)
**Parameter 284 = OFF** Automatic backtack cannot be interrupted
By pressing the pedal forward after an interrupted start backtack, the backtack can be continued; when pressing the pedal to position -1, the sewing foot can be lifted; or, by pressing the pedal to position -2, the trimming without end backtack can be completed. The sewing foot is not automatically lifted when interrupting the backtack.

The start backtack stitch length is set by means of the following parameter:
**Parameter 137 = ON** The backtack is performed with normal stitches.
**Parameter 137 = OFF** The backtack is performed with long stitches.

The stitch length (normal or long stitch) can be selected during the backtack with parameter 137. The indicator does not light up during the backtack.

Counting as well as switching the stitch regulator on and off is synchronized to position 1.
After the backward section has been executed, the stitch regulator, and, after a delay time t1, the start backtack speed will be switched off. Then pedal control is returned.

## 8.5.1 Start Backtacking Speed

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| Start backtacking speed | (n3) | 112 |

When programming 3-digit and/or 4-digit parameter values in the control (without control panel), the 2-digit and/or 3-digit values displayed must be mutliplied by 10.

## 8.5.2 Start Backtack Stitches

| Functions **with** or **without** Variocontrol | | Parameter |
|---|---|---|
| Number of stitches forward | (Arv) | 000 |
| Number of stitches backward | (Arr) | 001 |

The stitches for start backtack forward and backward can be programmed by the above parameters in the control or on a connected control panel. The start backtack stitches can also be varied directly on the control, as described in chapter "Changing All Parameter Values of the Operator Level".
When using a V820 control panel, the stitches can be varied by pushbuttons **1** and +/-. See chapter "Pushbuttons for Background Information (HIT) with V820".

### 8.5.3 Stitch Correction and Speed Release

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| Stitch correction time | (t8) | 150 |
| Stitches until speed release after start backtack | (t1) | 200 |

For slow backtack mechanisms in the double start backtack the stitch regulator can be disabled with a time-lag of t8 (start backtack stitch correction), which prolongs the backward section. This time-lag can be selected by parameter 150.
The speed release after the single and double start backtack can be influenced by parameter 200.

### 8.5.4 Double Start Backtack

The forward section will be sewn for a number of stitches that can be set. Then, the signal for the stitch regulator will be emitted, and the backward section will be executed. For both sections the number of stitches can be set separately.

### 8.5.5 Single Start Backtack

The backtacking signal will be emitted for a number of stitches that can be set, and the backward section will be executed.

## 8.6 End Backtack

| Functions **without** control panel | | Control |
|---|---|---|
| Single end backtack | LED 3 lights up | Pushbutton S2 |
| Double end backtack | LED 4 lights up | |
| End backtack Off | both LEDs off | |

| Functions **with** control panel | | V810 | V820 |
|---|---|---|---|
| Single end backtack | Left arrow above pushbutton ON | Pushb. 2 | Pushb. 4 |
| Double end backtack | Right arrow above pushbutton ON | | |
| End backtack Off | both arrows OFF | | |

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| Normal/long stitches during backtack | (SLu) | 137 |
| Start delay after switching off the sewing foot lift signal | (t3) | 202 |
| Start and end backtack can be interrupted by pedal position 0 (neutral) | (StP) | 284 |

The end backtack starts either by heelback, in seams with stitch counting after counting is completed, or from the light barrier seam at the end of the light barrier compensating stitches. From machine standstill, the stitch regulator will be switched on immediately.
From lifted sewing foot, the switch-on point of the signal is delayed by the time t3 (start delay after sewing foot lift). The first leading position 1 is counted as 0 stitch, whenever the function is started outside of position 1. Counting and switching the stitch regulator off is synchronized to position 1.
From full machine run, the signal will be switched on only after reaching the end backtack speed and the synchronization to position 1.

Whether or not an interruption of the start and end backtack is possible can be determined with parameter 284. It does not work with the ornamental backtack.
**Parameter 284 = OFF** Automatic backtack cannot be interrupted
**Parameter 284 = ON** Backtack can be interrupted by pedal position 0 (neutral)
By pressing the pedal forward after an interrupted end backtack, the backtack can be continued; by pressing the pedal to position -1, the sewing foot can be lifted; or, by pressing the pedal to position -2, the trimming without end backtack can be completed. The sewing foot is not automatically lifted when interrupting the backtack.

The end backtack stitch length is set by means of the following parameter:
**Parameter 137 = ON** The backtack is performed with normal stitches.
**Parameter 137 = OFF** The backtack is performed with long stitches.
The stitch length (normal or long stitch) can be selected during the backtack with parameter 137. The indicator does not light up during the backtack.

## 8.6.1 End Backtacking Speed

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| End backtacking speed | (n4) | 113 |

When programming 3-digit and/or 4-digit parameter values in the control (without control panel), the 2-digit and/or 3-digit values displayed must be mutliplied by 10.

## 8.6.2 End Backtack Stitches

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| Number of stitches backward | (Err) | 002 |
| Number of stitches forward | (Erv) | 003 |

The stitches for end backtack forward and backward can be programmed by the above parameters in the control or on a connected control panel. The end backtack stitches can also be varied directly on the control, as described in chapter "Changing All Parameter Values of the Operator Level".
When using a V820 control panel, the stitches can be varied by pushbuttons **4** and +/-. See chapter "Pushbuttons for Background Information (HIT) with V820".

## 8.6.3 Stitch Correction and Last Stitch Backward

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| Last stitch backward On/Off | (FAr) | 136 |
| Stitch correction time | (t9) | 151 |

The backtack solenoid in the double end backtack can be delayed by inputting a stitch correction time (t9) by parameter 151.
For some sewing procedures it is desirable that the backtack solenoid in the single end backtack is disabled only after trimming. This function can be selected by means of parameter 136.
**Parameter 136 = OFF** last stitch forward
**Parameter 136 = ON** last stitch backward

### 8.6.4 Double End Backtack

The backward section will be executed for a number of stitches that can be set. Then, the stitch regulator will be disabled, and the forward section will be executed. For both sections the number of stitches can be set seperately.
After the forward section has been executed, the trimming function will be initiated. During the entire operation the sewing speed is reduced to end backtack speed, with the exception of the last stitch, which will be executed at postioning speed n1.
For slow backtack mechanisms in the double end backtack the stitch regulator can be disabled with a time-lag of t9 (end backtack stitch correction). Machines with autoselect resistor 100Ω emit the signal "switch stitch length" during the backtack.

### 8.6.5 Single End Backtack

The single end backtack is performed at end backtack speed. During the last stitch the speed is reduced to positioning speed. The stitch regulator is switched on or off depending upon parameter 136.

### 8.6.6 Backtack Synchronization

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| Backtack synchronization time | (tnS) | 123 |
| Speed for backtack synchronization | (nrS) | 124 |

In the function "backtack synchronization" the backtack speed will be switched to backtack synchronization speed one stitch before engaging and disengaging of the backtack solenoid. The backtack speed is released again after the backtack synchronization time (parameter 123). If the synchronization speed (parameter 124) is higher than the backtack speed, the latter is maintained. Backtack synchronization is possible only in the end backtack. If parameter 123 is set at "0", backtack synchronization will be switched off.

## 8.7 Start Ornamental Backtack

| Functions **without** control panel | | Control |
|---|---|---|
| Function ornamental backtack On/Off | | 135 |
| Single start ornamental backtack | LED 1 lights up | Pushbutton S2 |
| Double start ornamental backtack | LED 2 lights up | |
| Start ornamental backtack Off | both LEDs off | |

| Functions **with** control panel | | V810/V820 |
|---|---|---|
| Function ornamental backtack On/Off | (SrS) | 135 |
| Single start ornamental backtack | left arrow above pushbutton ON | Pushbutton 1 |
| Double start ornamental backtack | right arrow above pushbutton ON | |
| Start ornamental backtack Off | both arrows OFF | |

| Functions **with** or **without** cohntrol panel | | Parameter |
|---|---|---|
| Number of ornamental backtack stitches forward | (SAv) | 080 |
| Number of ornamental backtack stitches backward | (SAr) | 081 |
| Start backtack speed | (n3) | 112 |
| Ornamental backtack stop time | (tSr) | 210 |

**Differences from the standard start backtack:**

- The drive stops for the switching of the stitch regulator.
- The stop time can be set.
- After the backtack section backward follows a backtack section forward with the same number of stitches as the backward section.
- The number of ornamental backtack stitches can be set with separate parameters.
- Machines with autoselect resistor 100Ω emit the signal "switch stitch length" during the backtack.

**When using the V820 control panel, direct access by means of the function key (pushbutton 9) is possible!**

| Functions **with** control panel | | Parameter |
|---|---|---|
| Ornamental backtack On/Off | (-F-) | 008 = 2 |

## 8.8 End Ornamental Backtack

| Functions **without** control panel | | Control |
|---|---|---|
| Function ornamental backtack On/Off | | 135 |
| Single end ornamental backtack | LED 3 lights up | Pushbutton S3 |
| Double end ornamental backtack | LED 4 lights up | |
| End ornamental backtack Off | both LEDs off | |

| Functions **with** control panel | | V810 | V820 |
|---|---|---|---|
| Function ornamental backtack On/Off | | 135 | |
| Single end ornamental backtack | left arrow above pushbutton ON | Pushb. 2 | Pushb. 4 |
| Double end ornamental backtack | right arrow above pushbutton ON | | |
| End ornamental backtack Off | both arrows OFF | | |

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| Number of ornamental backtack stitches backward | (SEr) | 082 |
| Number of ornamental backtack stitches forward | (SEv) | 083 |
| End backtack speed | (n4) | 113 |
| Ornamental backtack stop time | (tSr) | 210 |

The sequence corresponds to that of the normal end backtack. The drive stops between the backtack sections for the ornamental backtack stop time (tSr). The number of stitches for the forward and backward section can be set separately. Machines with autoselect resistor 100Ω emit the signal "switch stitch length" during the backtack.

**When using the V820 control panel, direct access by means of the function key (pushbutton 9) is possible!**

| Functions **with** control panel | | Parameter |
|---|---|---|
| Ornamental backtack On/Off | (-F-) | 008 = 2 |

## 8.9 Intermediate Backtack

The backtack solenoid can be switched on anywhere in the seam and at standstill by pressing the external pushbutton on socket A/5-33. The speed limitation of parameter 288 or 289 becomes effective according to the setting of parameter 135. See Parameter List chapter **"Connection Diagram"** !

| Functions | | Parameter |
|---|---|---|
| Speed limitation DB3000 for manual backtack On/Off | (dbA) | 287 |
| Speed limitation for manual ornamental backtack | (n9) | 288 |
| Speed limitation DB3000 for manual backtack | (n11) | 289 |

**Intermediate backtack:**
Backward sewing with speed limitation according to the setting of parameter 289 is performed, when the pushbutton is pressed. The speed limitation DB3000 can be switched off by means of parameter 287.

**Intermediate ornamental backtack:**
By pressing the pushbutton in the seam, the drive stops and the backtack solenoid is activated. The speed limitation according to the setting of parameter 288 is effective over the entire intermediate backtack operation. Backward sewing is performed, when the pushbutton is pressed and the stitches are counted. When releasing the pushbutton, the drive stops, the backtack solenoid is switched off and the forward seam is performed according to the counted stitches after the ornamental backtack stop time. After that the speed limitation is released.

## 8.10 Backtack Suppression/Recall

**Effective in standard and ornamental backtack**

The next backtack operation can be suppressed or recalled once by pressing the external pushbutton on socket A/14-33.

| Upon pressing | Start backtack On | Start backtack Off | End backtack On | End backtack Off |
|---|---|---|---|---|
| Before start of seam | No backtack | Backtack | --- | --- |
| In the seam | --- | --- | No Backtack | Backtack |

The double backtack is performed in the above cases.

See chapter **"Connection Diagram"** !

## 8.11 Holding Power of Backtacking

| Functions **with** control panel | | Parameter |
|---|---|---|
| Time of full power | (t10) | 212 |
| Holding current of backtacking | (t11) | 213 |

The backtack solenoid is activated by full power. Then the solenoid is switched to partial power in order to reduce the load for the control and for the connected solenoid.
The duration of full power is set with parameter 212, the holding power at partial power by parameter 213.

**Caution!**
If the holding power is set too high the solenoid and the control may be permanently damaged. Please observe the allowed operating time of the solenoid and set the appropriate value according to the table below.

| Stage | Operating time | Effect |
|---|---|---|
| 1 | 12.5 % | low holding power |
| 2 | 25 % | |
| 3 | 37.5 % | |
| 4 | 50 % | |
| 5 | 62.5 % | |
| 6 | 75 % | |
| 7 | 87.5 % | |
| 0 | 100% | high holding power |

## 8.12 Machine Run Blockage (Safety Switch)

**Attention!**
This is not a safety function.
The line voltage must still be switched off during maintenance and repair work.

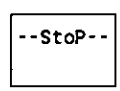
| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| New sewing start after machine run blockage<br>OFF = immediate start<br>ON = only with pedal in position 0 (neutral) | (PdO) | 281 |
| Functioning of the switch for machine run blockage<br>0 = make contact (N.O.)<br>1 = break contact (N.C.) | (LOS) | 282 |
| Function machine run blockage<br>0 = function off<br>1 = blockage 1, without positioning<br>2 = blockage 2, with positioning | (LSP) | 283 |

The function "machine run blockage" is possible by connecting a switch to socket A/11-33 or B/2-3.

**Display and signal after the activation of the machine run blockage with control panel V810/V820:**

Display on the control panel V810 !
(an acoustic signal is emitted
with parameter 127 = ON)

= = >




*Display on the control panel V820 !*
(Symbol blinks and an acoustic signal
is emitted with parameter 127 = ON)

= = >

### 8.12.1 Variants of the Function Machine Run Blockage

In all variants of the function "machine run blockage" sewing foot lifting is possible, needle up/down (and/or its variants), however, is not.

**Machine start blockage (blockage 1 and 2)**
If the input machine run blockage is activated at machine standstill the run of the drive is blocked despite pushing the pedal. Machine start is only possible after deactivating the input.

| | Blockage 1 (parameter 283 = 1) | Blockage 2 (parameter 283 = 2) |
|---|---|---|
| In the start backtack | - Stop unpositioned, start backtack is interrupted<br>- *Continue start backtack or complete* seam after deactivation | - Stop in selected position<br>- Trimming with activated machine run *blockage possible, also with backtack*<br>- New start of the seam after deactivation<br>- *Correction seam - if the thread has* not been trimmed |
| In the free seam | - Stop unpositioned<br>- Trimming not possible<br>- Continue or complete seam after deactivation | - Stop in selected position<br>- Trimming with activated machine run blockage possible, also with backtack<br>- New start of the seam after deactivation<br>- *Correction seam - if the thread has* not been trimmed |
| In stitch counting | - Stop unpositioned<br>- Trimming not possible<br>- Continue or complete stitch counting with seam end after deactivation | - Stop in selected position<br>- Trimming with activated machine run blockage possible, also with backtack<br>- New start of the seam after deactivation<br>- *Correction seam - if the thread has* not been trimmed |
| In the light barrier compensating stitch counting | - Stop unpositioned<br>- Trimming not possible<br>- Continue or complete light barrier compensating stitch counting with seam end after *deactivation* | - Trimming with activated machine run blockage possible, also with backtack<br>- New start of the seam after deactivation<br>- Continue compensating stitch counting *with seam end - if the thread has not* been trimmed |
| In the end backtack | - Stop unpositioned, end backtack is interrupted<br>- Trimming not possible<br>- Continue or complete end backtack with thread trimming after *deactivation* | - The seam end is performed completely |

## 8.13 Needle Cooling

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| Switch-off delay of needle cooling after stop<br>Function needle cooling (output) | (dnk)<br>(Fnk) | 183<br>185 |

Needle cooling is switched on during the entire sewing operation. Switching off after the stop can be delayed by the time "prolongation of needle cooling after stop", which can be adjusted with parameter 183.

**Direct access by means of function key on control panel V820 (pushbutton 9)**

| Functions | | Parameter |
|---|---|---|
| Needle cooling On/Off | (-F-) | 008 = 4 |

## 8.14 High Lift for Walking Foot

| Functions with or without control panel | | Parameter |
|---|---|---|
| High lift walking speed | (n10) | 117 |
| High lift for walking foot operational mode stored = ON/ not stored = OFF | (hPr) | 138 |
| Run-out time of the high lift walking speed after switching off the high lift for walking foot | (thP) | 152 |
| Minimum number of stitches in high lift for walking foot | (chP) | 184 |
| Activation delay of high lift for walking foot (This delay time is effective only if the actual speed is higher than the high lift walking speed) | (hPv) | 189 |

### 8.14.1 Manual High Lift for Walking Foot - Speed Limitation

The high lift during sewing can be set on a handwheel intended for this. The high lift shaft in the machine is hereby turned. The position of the high lift shaft is queried by means of a turn switch which limits the maximum machine speed to DB3000 in position 1 and to DB2000 in position 2.

### 8.14.2 Maximum High Lift for Walking Foot by Using a Pushbutton

By pressing the pushbutton connected to socket A/7-33 or B/1-2, the high lift for walking foot and a light emitting diode are switched on. The maximum speed is limited to the high lift walking speed (DB2000). If the actual speed is higher than the high lift walking speed, the drive slows down to high lift walking speed before the output "high lift for walking foot" is switched on. When the high lift for walking foot is witched off, the speed limitation remains on for the time set with parameter 152.
3 operational modes are possible: not stored, stored and not stored with a minimum number of stitches.

### 8.14.3 High Lift for Walking Foot Operational Mode Not Stored (F-138 = OFF, F-184 = 0)

By pressing the pushbutton "high lift for walking foot", the output "high lift for walking foot" is switched on depending on the actual speed until the pushbutton is released.

### 8.14.4 High Lift for Walking Foot Operational Mode Stored (F-138 = ON)

By pressing the pushbutton "high lift for walking foot", the output "high lift for walking foot" is switched on depending on the actual speed until the pushbutton is released. The output is switched off, when the pushbutton is pressed again.
This function is independent of the set minimum number of stitches (parameter 184).

### 8.14.5 High Lift for Walking Foot Operational Mode Not Stored with Minimum Number of Stitches (F-138 = OFF, F-184 = >0)

By pressing the pushbutton "high lift for walking foot", the output "high lift for walking foot" is switched on depending on the actual speed until the pushbutton is released or until the number of stitches set with parameter 184 has been executed.
When the pushbutton is pressed at machine standstill, high lift for walking foot is switched on and remains on after the sewing start, at least for the set minimum number of stitches. Prolongation of the operating time is possible if the pushbutton remains pressed after stitch counting.

**Note**
If several speed limitations are activated at the same time the maximum speed is limited to the lower value.

**Direct access by means of function key (pushbutton 9)**

| Functions with control panel | | Parameter |
|---|---|---|
| High lift for walking foot operational mode stored = ON / not stored = OFF | (-F-) | 008 = 3 |

## 8.15 Speed Limitation

### 8.15.1 Speed Limitation DB2000/DB3000

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| High lift walking speed (DB2000) | (n10) | 117 |
| Mode pushbutton speed limitation (DB2000), pushbutton on A/9<br>1 = Speed n10 limited<br>2 = Speed n10 fixed | (MnF) | 143 |
| Speed limitation (DB3000) | (n11) | 289 |

The speed is limited to 2000 RPM and/or 3000 RPM by means of the control inputs on A/9 (DB2000) and A/10 (DB3000). The speed limitations can only be varied with parameters 117 and 289. When changing the switching state of the control inputs, the respective speed limitation is delayed by approx. 50 ms and/or is released.

**Note**
If several speed limitations are activated at the same time the maximum speed is limited to the lower value.

### 8.15.2 Analog Speed Limitation

The maximum speed can be limited by an analog voltage on input A/3. The analog voltage is generated by a potentiometer which functions as voltage divider. If a potentiometer is not connected, the maximum voltage is applied to the input. A potentiometer for speed limitation on the control is also possible.

### 8.15.3 Analog Speed Limitation Speedomat

The speedomat function enables a speed limitation depending on the set sewing foot high lift (21 levels). The actual value of the high lift is transmitted to the control by the position of a potentiometer (10kΩ) with an angle of rotation of 60°, which is coupled with the high lift shaft. The maximum angle of rotation of the high lift shaft is 48°. Thus the setting range of the potentiometer is 9kΩ (nmax = 4.5V on socket A/3) to 1kΩ (nlim. = 0.5V on socket A/3). Potentiometer connections see chapter **"Connection Diagram"**.

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| Maximum speed | (n2) | 111 |
| High lift walking speed | (n10) | 117 |
| *Speed setting depending on high lift* | *(knP)* | *188* |

- The assignment of the speed stages to the 21 speedomat levels can be programmed.
- Minimum high lift limitation = maximum speed (n2)
- Maximum high lift limitation = minimum speed (n10)

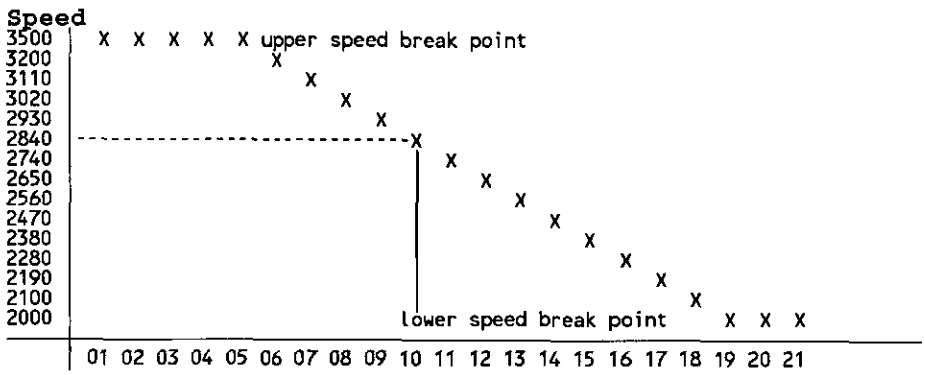
**Display example of parameter 188 on control panel V820:**

| 2740 05 11 19 |
|---|

**Signification:**

| | | |
|---|---|---|
| 05 | -> | Display of the level up to which the maximum speed is effective |
| 19 | -> | Display of the level from which the minimum speed is effective |
| 11 | -> | Display of the level set on the speedomat (potentiometer) |
| 2840 | -> | Speed resulting from set high lift level |

**Graduation of the following example:**




## 8.15.4 Setting the Speed Limitation Depending on High Lift with V820

- Determine max. speed with parameter 111
- Determine high lift walking speed with parameter 117
- Recall parameter 188, enter with pushbutton E ==> | ZZZZ XX AB YY |

XX = lower break point
YY = upper break point
AB = corresponding level
ZZZZ = speed

- Set high lift for walking foot (potentiometer on the machine) to the level up to which full speed shall be *maintained (lower break point)*
- Enter with pushbutton **E** ==> new value of AB is taken over to XX
- Set high lift for walking foot (potentiometer on the machine) to the level from which minimum high lift walking speed shall be effective (upper break point)
- Enter with pushbutton **E** ==> new value of AB is taken over to YY
- Exit programming with pushbutton **P**

## 8.15.5 Setting the Speed Limitation Depending on High Lift with V810

| | | | | |
|---|---|---|---|---|
| ▪ | | Recall parameter 188 | | |
| ▪ | E | Press pushbutton E; | ==> | 1 1. 3 2 0 0 |
| ▪ | >> | Press pushbutton >>;<br>previous values are displayed! | ==> | 0 5 1 9 |
| ▪ | >> | Press pushbutton >>; | ==> | 1 1. 3 2 0 0 |

- Set new value (level) with potentiometer on the machine! ==> 17.3200
- [>>] Press pushbutton >>; ==> 05 19
- [E] Press pushbutton E; new value 17 (lower break point) is entered! ==> 05 17
- [>>] Press pushbutton >>; ==> 17.3200
- Set new value (level) with potentiometer on the machine! ==> 08.3200
- [>>] Press pusbutton >>; ==> 05 17
- [E] Press pushbutton E; new value 08 (upper break point) is entered! ==> 08 17
- [P] Display of the actual PARAMETER number ==> F - 188

or

- [P] [P] Press pushbutton P twice; exit programming ==> 6F82FA

**These values are saved when you start sewing. They remain in effect even after turning the machine off.**

**Note**

If the functions "speed limitation depending on high lift and on stitch length" are used at the same time, the maximum speed is limited to the respective lower set high lift and stitch length value.

## 8.16 Switch Stitch Length

| Functions | | Parameter |
|---|---|---|
| Number of light barrier compensating stitches when switching the stitch length | (cLS) | 010 |
| High lift walking speed (DB2000) | (n10) | 117 |
| Stitch length during the backtack normal stitch / long stitch | (SLu) | 137 |
| Normal stitch / long stitch with speed limitation (pushbutton on A/8)<br>1 = without speed limitation<br>2 = with DB2000<br>3 = with DB3000 | (StL) | 145 |
| Stitch length in the next seam (after the trimming operation) | (Stn) | 187 |
| Speed limitation (DB3000) | (n11) | 289 |

By pressing the pushbutton connected to socket A/8-33, the stitch length can be reduced to a smaller value by switching the output "switch stitch length" on (LED Off). When the pushbutton is pressed again, the stitch length is switched as well. This function can be switched on and off at any time, except in automatic seams and seam sections. Sewing is possible without speed limitation, with speed limitation DB2000 or DB3000 depending on the setting of parameter 145.
Set a different number of compensating stitches with parameter 010 at the operator level in order to adapt light barrier seams to the different stitch length.

The start and/or end backtack stitch length is set by means of parameter 137:
- **Parameter 137 = ON** The backtack is performed with normal stitches.
- **Parameter 137 = OFF** The backtack is performed with long stitches.

The light emitting diodes do not flash when switching the stitch length by means of autoselect in the start and/or end backtack.

The stitch length with which the next seam after trimming will be performed can be set with parameter 187.

| | | |
|---|---|---|
| 187 -> 1 | = | The set stitch length remains on. |
| 187 -> 2 | = | Switch to long stitches after thread trimming. |
| 187 -> 3 | = | Switch to normal stitches after thread trimming. |

After Power On, normal stitches are automatically switched on (solenoid On, LED Off).

## 8.17 Thread Trimming Operation

| Functions **with** control panel | | V820 |
|---|---|---|
| Thread trimmer On | left arrow On | Pushb. 5 |
| Thread trimmer and thread wiper On | both arrows On | |
| Thread wiper On | right arrow On | |
| Thread trimmer and thread wiper Off | both arrows Off | |

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| *Thread trimmer* On | | 013 |
| Thread wiper On | | 014 |
| Trimming stitch backward | (FAr) | 136 |
| Activation angle of thread trimmer | (iFA) | 190 |
| Switch-off delay of thread tension release | (FSA) | 191 |
| Activation delay of thread tension release | (FSE) | 192 |
| Stop time for thread trimmer | (tFA) | 193 |
| Delay for thread trimmer | (FAE) | 194 |
| Thread wiper time | (t6) | 205 |
| Delay after thread wiping until sewing foot lifting | (t7) | 206 |

The functions "thread trimmer" and "thread wiper" can be switched on and off with pushbutton **5** on the control panel.
The thread trimming operation is initiated by full heelback or automatically at the end of a counted seam section or automatically by light barrier sensing after the light barrier compensating stitches. When the function "trimming stitch backward" is on (parameter 136 = ON), the backtack solenoid in the end backtack remains on until stop in position 2.

### 8.17.1 Thread Trimmer

The thread trimming signal is switched on when reaching the trimming speed with leading position 1 and is switched off after completion of the angle that can be adjusted (parameter 190), or at the very latest with the stop in position 2. A delay by means of increments can be set with parameter 194 and a stop time for the thread trimmer, which stops the drive when reaching position 1, can be set with parameter 193. If position 2 is not reached due to a mechanical defect, the thread trimming signal is switched off after 10 sec.

### 8.17.2 Thread Wiper

The thread wiper signal is switched on for a time that can be regulated with parameter 205 after reaching position 2. After the thread wiper has been switched off, there will be a time lag that can be regulated with parameter 206 until the sewing foot can be lifted.

### 8.17.3 Thread Tension Release

The thread tension release signal can be switched on with a time lag relative to the thread trimmer. The time lag consists of increments that are inputted as angular values (1 increment = 3°) in parameter 192. The signal is switched off in position 2. It can, however, be extended for a time that can be regulated with parameter 191.

### 8.17.4 Coupling the Sewing Foot with the Thread Tension Release

| Function **with** or **without** control panel | | Parameter |
|---|---|---|
| Coupling the sewing foot with the thread tension release in the seam and after thread trimming | (kFn) | 196 |

**196 = 0** *Coupling the sewing foot with the thread tension release in the seam and after thread trimming* **off.**
**196 = 1** Thread tension release in the seam during sewing foot lifting **on.**
**196 = 2** Thread tension release after thread trimming during sewing foot lifting **on.**
**196 = 3** Thread tension release in the seam and after thread trimming during sewing foot lifting **on.**

## 8.18 Seam with Stitch Counting

| Functions **without** control panel | Parameter |
|---|---|
| Stitch counting On/Off | 015 |

| Functions **with** control panel | | V820 |
|---|---|---|
| Stitch counting forward On/Off<br>Stitch counting backward On/Off<br>Stitch counting Off | left arrow above pushbutton On<br>right arrow above pushbutton On<br>both arrows Off | Pushbutton 2 |

### 8.18.1 Stitches for Stitch Counting

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| Number of stitches for a seam with stitch counting | (Stc) | 007 |

## 8.18.2 Stitch Counting Speed

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| Stitch counting speed | (n12) | 118 |
| Speed mode for a seam with stitch counting | (SGn) | 141 |

Speed control for the stitch counting can be selected by parameter 141.

**141 = 0:** Execution at pedal controlled speed.
**141 = 1:** Execution at fixed speed n12, when pedal is forward.
**141 = 2:** Execution at limited speed n12, when pedal is forward.
**141 = 3:** Automatic execution at fixed speed as soon as the pedal has been pushed once.
Interruption by "heelback (-2)" is possible.

The sewing speed is reduced in each stitch depending on the actual speed (max. 11 stitches before the end of the stitch counting) in order to be able to stop exactly at the end of the stitch counting. When the light barrier is switched on, free sewing will be performed after the stitch counting.

## 8.18.3 Seam with Stitch Counting When Light Barrier Is On

| Functions **without** control panel | | Parameter |
|---|---|---|
| Light barrier On/Off | (LS) | 009 |
| Stitch counting On/Off | (StS) | 015 |

| Functions **with** control panel | | V820 |
|---|---|---|
| Light barrier covered/uncovered On | right arrow above pushbutton On | Pushbutton 3 |
| Light barrier uncovered/covered On | left arrow above pushbutton On | |
| Light barrier Off | both arrows above pushbutton Off | |
| Stitch counting forward On | left arrow above pushbutton On | Pushbutton 2 |
| Stitch counting backward On | right arrow above pushbutton On | |
| Stitch counting Off | both arrows Off | |

When "stitch counting and light barrier function" is set, the number of stitches will be executed first, then the light barrier will be activated.

## 8.19 Free Seam and Seam with Light Barrier

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| Positioning speed | (n1) | 110 |
| Upper limit of the maximum speed | (n2) | 111 |
| Limited speed according to setting of parameter 142 | (n12) | 118 |
| *Lower limit of the maximum speed* | *(n2_)* | 121 |
| Speed mode Free seam | (SFn) | 142 |

Speed control for the free seam and for the seam with light barrier can be selected by means of parameter 142.

**142 = 0:** Execution at pedal controlled speed from n1 to n2.
**142 = 1:** Execution at fixed speed n12, when pedal is forward (position > =1).
**142 = 2:** Execution at limited speed n12, when pedal is forward (position > =1)
**142 = 3:** Only for the seam with light barrier:
- Automatic execution at fixed speed as soon as the pedal has been pushed once.
- The seam end is initiated by the light barrier.
- Interruption by heelback (-2) is possible.
- If the light barrier is not on, speed as with parameter setting 142 = 0.

When using a control panel, the maximum speed will be indicated on the display after power on and after thread trimming and can be changed directly by pushbuttons +/- on the control panel. The setting range is limited by the set values of the parameters 111 and 121.

## 8.20 Light Barrier

| Functions **with** or **without** control panel V810 | | Parameter |
|---|---|---|
| Light barrier On/Off | (LS) | 009 |

| Functions **with** control panel | | V820 |
|---|---|---|
| Light barrier covered/uncovered On | righthand arrow above pushbutton On | Pushbutton 3 |
| Light barrier uncovered/covered On | lefthand arrow above pushbutton On | |
| Light barrier Off | both arrows above pushbutton Off | |

### 8.20.1 Speed after Light Barrier Sensing

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| Speed after light barrier sensing | (n5) | 114 |

### 8.20.2 General Light Barrier Functions

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| Light barrier compensating stitches | (LS) | 004 |
| Number of light barrier seams | (LSn) | 006 |
| Light barrier sensing uncovered | (LSd) | 131 |
| Sewing start blocked with light barrier uncovered | (LSS) | 132 |
| Light barrier seam end with thread trimming | (LSE) | 133 |

- After sensing the seam end, counting of the compensating stitches at light barrier speed is performed.
- Interruption with pedal in position 0. Cessation with pedal in position -2.
- Disabling of the thread trimming operation possible with parameter 133, independently of the setting with pushbutton 5 on the V820 control panel). Stop in the basic position.
- Programming of up to 15 light barrier seams with stop in the basic position. After the last light barrier seam, a thread trimming operation will be performed.
- Light barrier sensing uncovered or covered at the seam end can be selected with parameter 131.
- Machine start blockage, when light barrier is uncovered, can be programmed with parameter 132.

### 8.20.3 Reflection Light Barrier LSM001A

**Sensitivity Adjustment:**

Depending on the distance of the light barrier to the reflection area, adjust sensitivity to a minimum.
(Turn potentiometer as far as possible to the left).

- Potentiometer directly on the light barrier module

**Mechanical Adjustment:**

The orientation is facilitated through a visible light spot on the reflection area.

## 8.20.4 Automatic Start by Light Barrier

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| Delay of automatic start | (ASd) | 128 |
| Automatic start On/Off | (ALS) | 129 |
| Light barrier sensing uncovered | (LSd) | 131 |
| Sewing start blocked with light barrier uncovered | (LSS) | 132 |

The function allows the automatic start of sewing as soon as the light barrier has sensed the insertion of fabric.

**The following conditions must be met:**

- Parameter 132 = ON (no sewing start, when light barrier uncovered).
- Parameter 131 = ON (light barrier sensing uncovered).
- Parameter 129 = ON (automatic start on).
- Light barrier On.
- The pedal must remain pushed forward at the seam end.

For safety reasons, this function becomes active only after a normal sewing start in the first seam. The light barrier must be covered, when the pedal is in neutral position; then the pedal can be pushed forward.
This safety function is reset, when the pedal does not remain pushed forward after the end of the seam.

## 8.20.5 Light Barrier Filter for Knitted Fabrics

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| Number of stitches of the light barrier filter | (LSF) | 005 |
| Light barrier filter On/Off | (LSF) | 130 |

The filter prevents premature triggering of the light barrier function, when sewing knitted fabrics.

- The filter can be switched on or off by parameter 130
- The filter is not active if parameter 005 = 0
- By changing the number of filter stitches the mesh will be adapted
- Knitted fabric sensing will only be activated if the light barrier is uncovered

## 8.21 Functions of the Pushbutton Needle Up/Down

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| Functions of the pushbutton on socket A/6<br>1 = Needle up<br>2 = Needle up/down<br>3 = Single stitch<br>4 = Single stitch with stitch length switching (normal stitches)<br>5 = Needle up if outside of position 2 | (nh1) | 140 |

**Needle up: Parameter 140 =1**
When the pushbutton is pressed, the drive runs from position 1 to position 2. If the drive is outside of position 1 it does not move for safety reasons. This function is blocked after power on until the sewing is started.

**Needle up/down: Parameter 140 =2**
When the pushbutton is pressed, the drive runs from position 1 to position 2 and/or from position 2 to position 1. If it is outside of the positions it runs to the preselected basic position. The function "needle up/down" is also possible when the sewing foot is lifted.

**Single stitch: Parameter 140 = 3**
When the pushbutton is pressed, the machine performs one rotation from position 1 to position 1. If the drive is in position 2, it runs to position 1 when the pushbutton is pressed, and from position 1 to position 1 each time the pushbutton is pressed again.

**Single stitch with stitch length switching: Parameter 140 = 4**
When the pushbutton is pressed, the machine performs one rotation from position 1 to position 1. If the drive is in position 2, it runs to position 1 when the pushbutton is pressed, and from position 1 to position 1 each time the pushbutton is pressed again. At the same time, the output "switch stitch length" is switched on and the corresponding light emitting diode is switched off. The drive does not start when the sewing foot is lifted.

**Needle in position 2: Parameter 140/144 = 5**
When the pushbutton is pressed, the drive runs independently from its present position to position 2 and/or to the reverse position. This function is also possible after power on. The drive does not start when the sewing foot is lifted.

## 8.21.1 Functional Variations of the Light Barrier Input

| Functions with or without control panel | | Parameter |
|---|---|---|
| Selection of the input function on socket B18/5 | (FEL) | 239 |

If the light barrier function is not used, a different function can be selected for the input on socket B18/5, and a pushbutton can be connected.

**The following input functions are possible with parameter 239:**

**239 = 0** **Light barrier function:** The input is prepared for a light barrier function.
**239 = 1** **Needle up:** When pressing the pushbutton, the drive runs from position 1 to position 2.
**239 = 2** **Needle up/down:** When pressing the pushbutton, the drive runs from position 1 to position 2 and/or from position 2 to position 1. If the drive is outside of the stop position it runs to the preselected basic position.
**239 = 3** **Single stitch (basting stitch):** When pressing the pushbutton, the drive performs one rotation from position 1 to position 1. If the drive is in position 2, it runs to position 1 when pressing the pushbutton and from position 1 to position 1 each time when pressing the pushbutton again.
**239 = 4** **Single stitch with stitch length switching:** Function like setting of parameter 239 = 3. At the same time, the output "switch stitch length" is activated.
**239 = 5** **Needle to position 2:** If the drive is outside of position 2 it runs to position 2 when pressing the pushbutton.
**239 = 6** **Blocking of machine run effective with open contact:** When opening the switch, the drive stops in the preselected basic position.
**239 = 7** **Blocking of machine run effective with closed contact:** When closing the switch, the drive stops in the preselected basic position.
**239 = 8** **No function**
**239 = 9** **No function**
**239 = 10** **Run at automatic speed (n12):** When pressing the pushbutton, the drive runs at automatic speed. The pedal is not used.
**239 = 11** **Run at limited speed (n12):** When pressing the pushbutton, the drive runs at limited speed. The pedal must be pressed forward.
**239 = 12** **Presser foot lifting with pedal in position 0 (neutral)**
**239 = 13** **High lift for walking foot operational mode not stored:** Function according to setting of parameter 138.
**239 = 14...15** **No function**
**239 = 16** **Intermediate backtack:** By pressing the pushbutton, the backtack is switched on anywhere in the seam and at standstill of the drive.
**239 = 17** **Backtack suppression/recall:** By pressing the pushbutton, the backtack is suppressed or recalled once.
**239 = 18** **No function**
**239 = 19** **No function**

## 8.22 Setting of Function Keys F1/F2 on Control Panels V810/V820

| Functions with control panel | Parameter |
|---|---|
| Selection of the input function on pushbutton (A) "F1" on V810/V820 (tF1)<br>Selection of the input function on pushbutton (B) "F2" on V810/V820 (tF2) | 293<br>294 |

**The following functions are possible with parameters 293 and 294:**

**293/294 = 0** **Input function blocked**

**293/294 = 1** **Needle up:** When pressing the pushbutton, the drive runs from position 1 to position 2.

**293/294 = 2** **Needle up/down:** When pressing the pushbutton, the drive runs from position 1 to position 2 and/or from position 2 to position 1. If the drive is outside of the stop position it runs to the preselected basic position.

**293/294 = 3** **Single stitch (basting stitch):** When pressing the pushbutton, the drive performs one rotation from position 1 to position 1. If the drive is in position 2, it runs to position 1 when pressing the pushbutton and from position 1 to position 1 each time when pressing the pushbutton again.

**293/294 = 4** **Single stitch with stitch length switching:** Function like to setting of parameter 293/294 = 3. At the same time, the output "switch stitch length" is activated.

**293/294 = 5** **Needle to position 2:** If the drive is outside of position 2 it runs to position 2 when pressing the pushbutton.

**293/294 = 6...12** **No function**

**293/294 = 13** **High lift for walking foot operational mode not stored:** While the pushbutton is pressed, the signal "high lift for walking foot" is emitted and the drive runs with speed limitation (n10)

**293/294 = 14...15** **No function**

**293/294 = 16** **Intermediate backtack**: By pressing the pushbutton, the backtack is switched on anywhere in the seam and at standstill of the drive.

**293/294 = 17** **Backtack suppression/recall**: By pressing the pushbutton, the backtack is suppressed or recalled once.

**293/294 = 18...19** **No function**

## 8.23 Audible Signal

| Function with control panel | Parameter |
|---|---|
| Audible signal On/Off (AkS) | 127 |

An audible signal, which is emitted for the following functions, can be switched on with parameter 127:

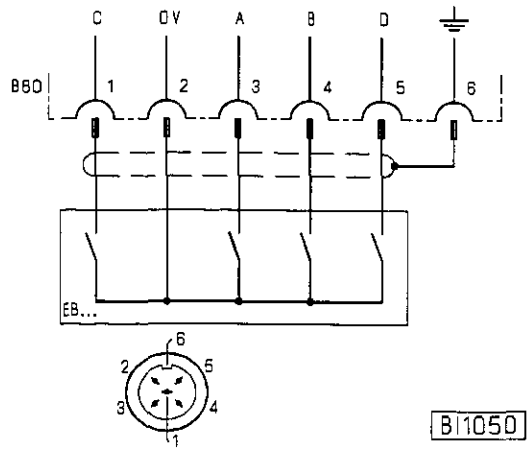
- When the machine run blockage (safety switch) is activated

## 8.24 Actuator

With the help of the actuator connected with the pedal the commands for the sewing operation are inputted.
Instead of the built-in actuator another external actuator can be connected to socket B80.

**Table: Coding of the pedal steps**

| Pedal step: | D | C | B | A | | |
|---|---|---|---|---|---|---|
| -2 | H | H | L | L | Full heelback | (e. g. initiating the seam end) |
| -1 | H | H | H | L | Slight heelback | (e. g. sewing foot lifting) |
| 0 | H | H | H | H | Pedal in pos. 0 (neutral) | |
| ½ | H | H | L | H | Pedal slightly forward | (e. g. sewing foot lowering) |
| 1 | H | L | L | H | Speed stage 1 | (n1) |
| 2 | H | L | L | L | . | |
| 3 | H | L | H | L | . | |
| 4 | H | L | H | H | . | |
| 5 | L | L | H | H | . | |
| 6 | L | L | H | L | . | |
| 7 | L | L | L | L | . | |
| 8 | L | L | L | H | . | |
| 9 | L | H | L | H | . | |
| 10 | L | H | L | L | . | |
| 11 | L | H | H | L | . | |
| 12 | L | H | H | H | Pedal fully forward / speed stage 12 (n2) | |




EB... - Actuator

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| Speed stage graduation | (nSt) | 119 |

The characteristic curves of the pedal (speed change from stage to stage) can be adjusted by means of this parameter.

**Possible characteristic curves:**
- linear
- progressive
- highly progressive

## 8.25 Master Reset

**Recovery of factory settings.**

- Press pushbutton "**P**" and turn power on
- Input code number "**1907**"
- Press pushbutton "**E**"
- Parameter 100 is shown on the display
- Press pushbutton "**E**"
- The parameter value is shown on the display
- Set at "**170**" with pushbutton "+"
- Press pushbutton "**P**" twice
- Turn power off
- Turn power on. All parameters, except 111, 190...194, are reset to their factory settings.

**Note:**
All external consumers, as for ex. sewing foot lift, must be switched off for the above mentioned function.
Moreover, parameter 153 (braking power at standstill) should be set at "0".

## 9. Signal Test

| Functions **with** or **without** control panel | | Parameter |
|---|---|---|
| Input and output test | (SR4) | 173 |

## 9.1 Signal Test Using the Incorporated Control Panel or V810 and/or V820

**Output test:**

- Address parameter 173
- Select the desired output with the +/- pushbuttons
- Actuate the selected output by means of the >> pushbutton on the V810 control panel or on the incorporated control panel
- Actuate the selected output by means of the **B** pushbutton on the V820 control panel

| Pushbutton | Output | Socket / Pin |
|---|---|---|
| 01 | Backtacking | A/34 |
| 02 | Sewing foot lift | A/35 |
| 03 | Thread trimmer | A/37 |
| 04 | Thread wiper | A/27 |
| 05 | Switch stitch length | A/30 |
| 06 | Thread tension release | A/36 |
| 07 | Needle cooling | A/28 |
| 08 | High lift for walking foot | A/32 |
| 09 | LED high lift limitation | A/31 |
| 10 | LED bobbin thread monitor at the right | A/25 |
| 11 | LED bobbin thread monitor at the left | A/23 |
| 12 | LED backtack suppression/recall | A/24 |
| 13 | LED switch stitch length | A/29 |

**Input test:**

- Press the(-) pushbutton several times until "OFF" or "ON" appears on the display.
- Actuation of the external switches or pushbuttons will be indicated by alternating the switching state (ON/OFF) on the display.
- Several switches must not be closed at the same time.

## 10. Error Messages

| General Information | | | |
|---|---|---|---|
| **On the control** | **On the V810** | **On the V820** | **Signification** |
| A1 | InF A1 | InFo A1 | Pedal not in neutral position, when switching the machine on |
| A2 | -StoP- blinking | Symbol blinking | Machine run blockage |
| InF A5 | InFo A5 | InFo A5 | Emergency run, identification of an invalid machine select. |

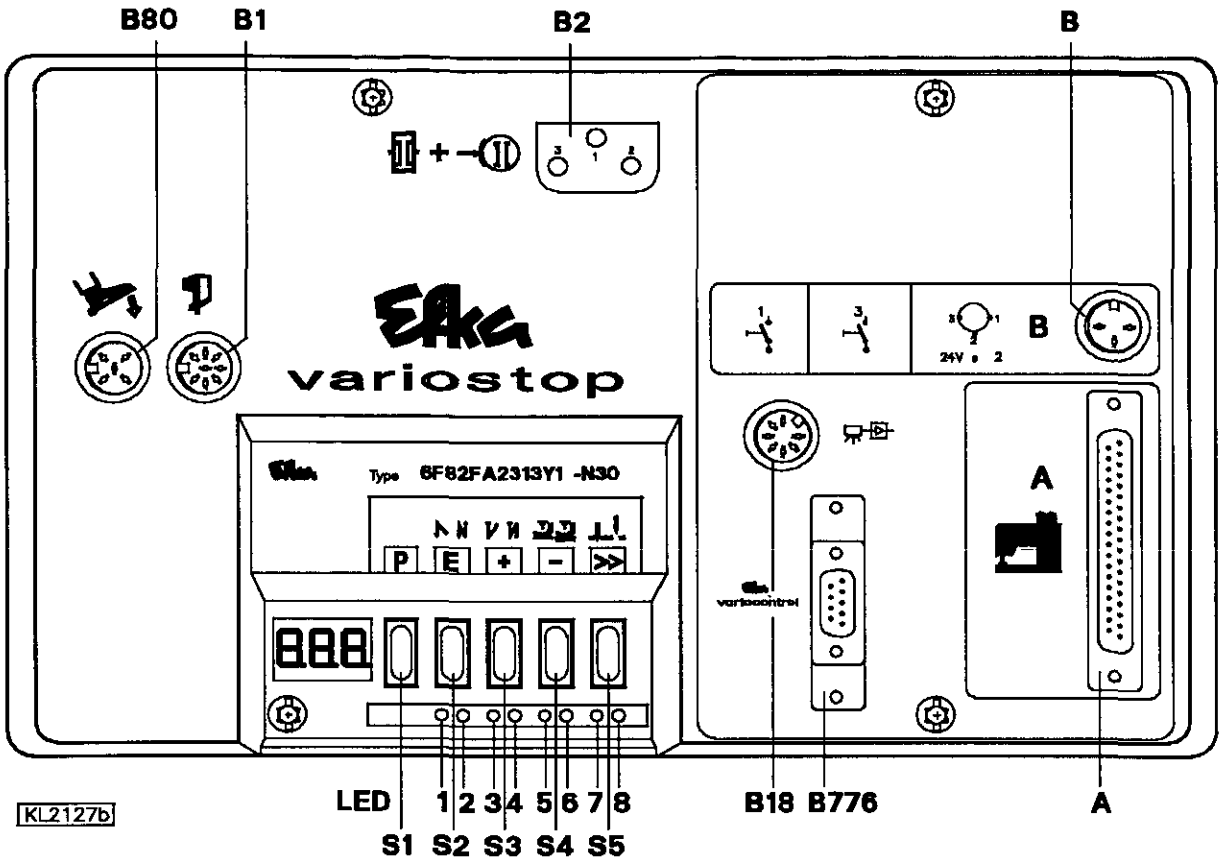
| Programming Functions and Values (Parameters) | | | |
|---|---|---|---|
| **On the control** | **On the V810** | **On the V820** | **Signification** |
| Returns to the first digit | Returns to the first digit | InFo F1 | Wrong code number or parameter number input |

| Serious Situation | | | |
|---|---|---|---|
| **On the control** | **On the V810** | **On the V820** | **Signification** |
| E1 | InF E1 | InFo E1 | Position transmitter not connected or defective |
| E2 | InF E2 | InFo E2 | Line voltage too low, or time between power off and power on too short |
| E3 | InF E3 | InFo E3 | Machine locks or does not reach the desired speed |
| E4 | InF E4 | InFo E4 | Control disturbed by deficient grounding or loose contact |

| Hardware Disturbance | | | |
|---|---|---|---|
| **On the control** | **On the V810** | **On the V820** | **Signification** |
| H2 | InF H2 | InFo H2 | Processor disturbed |

## 11. Socket Connectors

### 11.1 Position in the Control

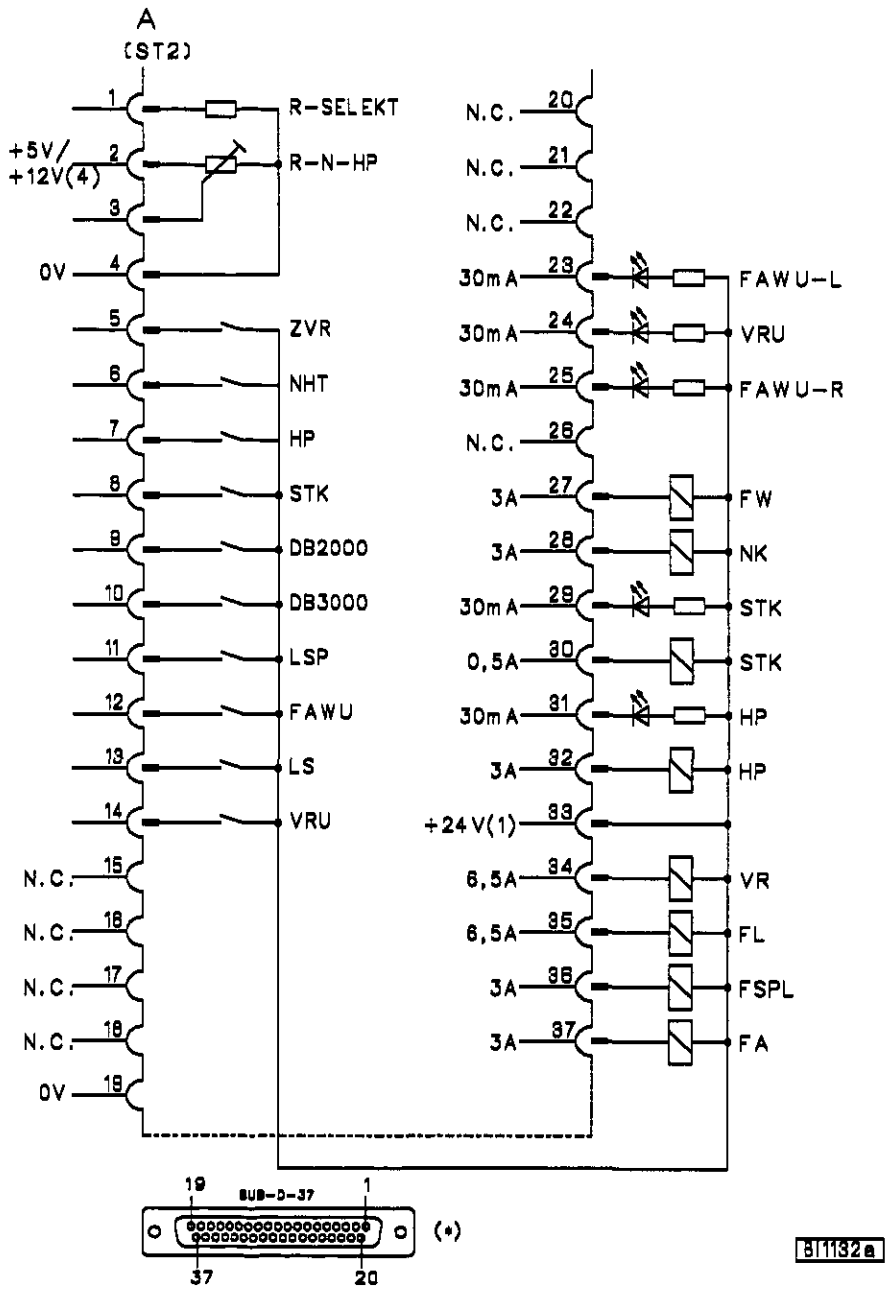



B1 - Position transmitter
B2 - Clutch/brake of the motor
**A** (ST2) - Inputs and outputs
**B** (B4) - Inputs
B18 - Light barrier module
B80 - Actuator
B776 - Control panel V810/V820 (as shown: 9/25-pole adapter plugged in)

S1..S5 - Pushbuttons for programming and selection of functions

LED 1..8 - Indicators for switched on functions

## 11.2 Connection Diagram



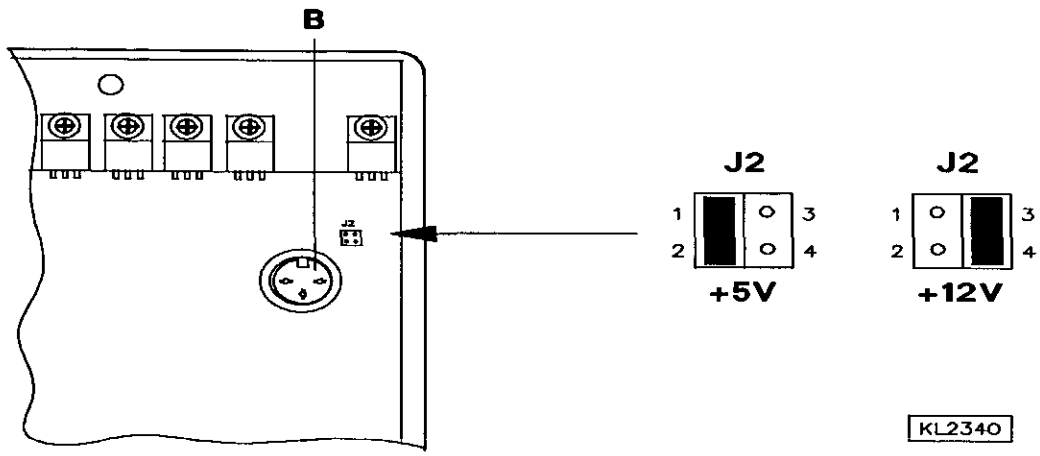

| | |
|---|---|
| R-SELEKT | - Resistor for machine select |
| R-N-HP | - Setpoint potentiometer for speed limitation depending on high lift |
| ZVR | - Intermediate backtack |
| NHT | - Needle up/down |
| HP | - High lift limitation |
| STK | - Switch stitch length |
| DB2000 | - Speed limitation 2000 RPM |
| DB3000 | - Speed limitation 3000 RPM |
| LSP | - Machine run blockage |
| FA | - Thread trimmer |
| FAWU | - Thread monitor |
| LS | - Light barrier |
| VRU | - Backtack suppression/recall |
| FAWU-L | - Thread monitor at the bottom left |
| FAWU-R | - Thread monitor at the bottom right |
| FW | - Thread wiper |
| NK | - Needle cooling |
| VR | - Backtacking |
| FL | - Sewing foot lift |
| FSPL | - Thread tension release |
| FA | - Thread trimmer |

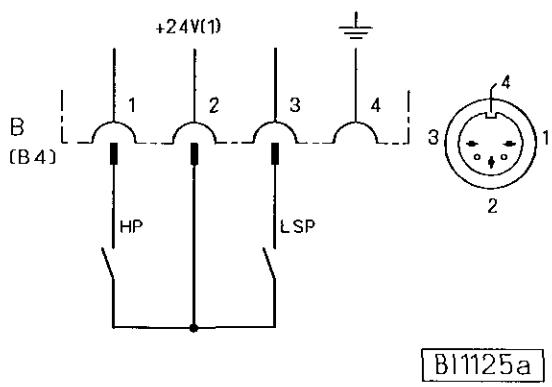
1) Nominal voltage 24V, no-load voltage max. 36V
4) Nominal voltage +5V, 250 mA (can be changed to 12V, 250 mA after opening the cover)
**Attention!** See next page!
*) Front view of the socket (component side) and/or rear view (soldering side) of the plug

**Attention!**
When connecting the outputs, ensure that a total power of 96VA constant load will not be exceeded !

There is a supply voltage of +5V on socket A72. After opening the cover, this voltage can be changed to +12V by moving a jumper on the printed circuit board to a different position.

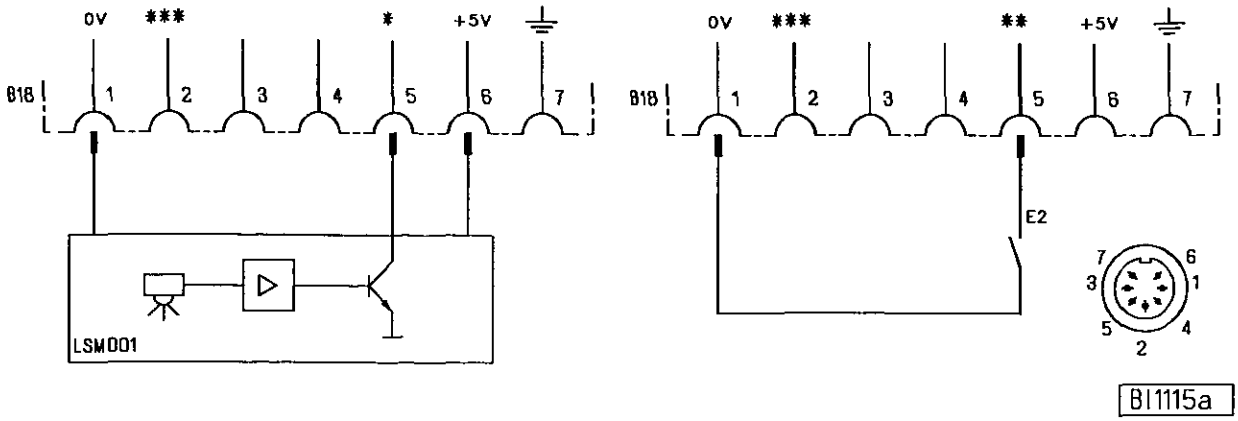
+5V = Connect lefthand pins 1 and 2 with jumper (factory setting)
+12V = Connect righthand pins 3 and 4 with jumper




HP - High lift for walking foot
LSP - Machine run blockage

1) Nominal voltage 24V, no-load voltage max. 36V



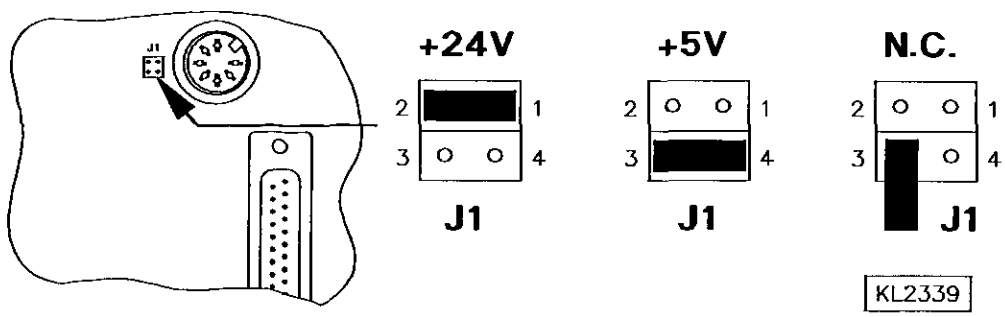

LSM001/LSM001A - Reflection light barrier module

| | | | |
|---|---|---|---|
| * | - Parameter 239 = 0 | => | Light barrier function is selected (identified when switched to 0V) |
| ** | - Parameter 239 = 1...19 | => | Various input functions are possible on socket B18/5 |

**Attention!**

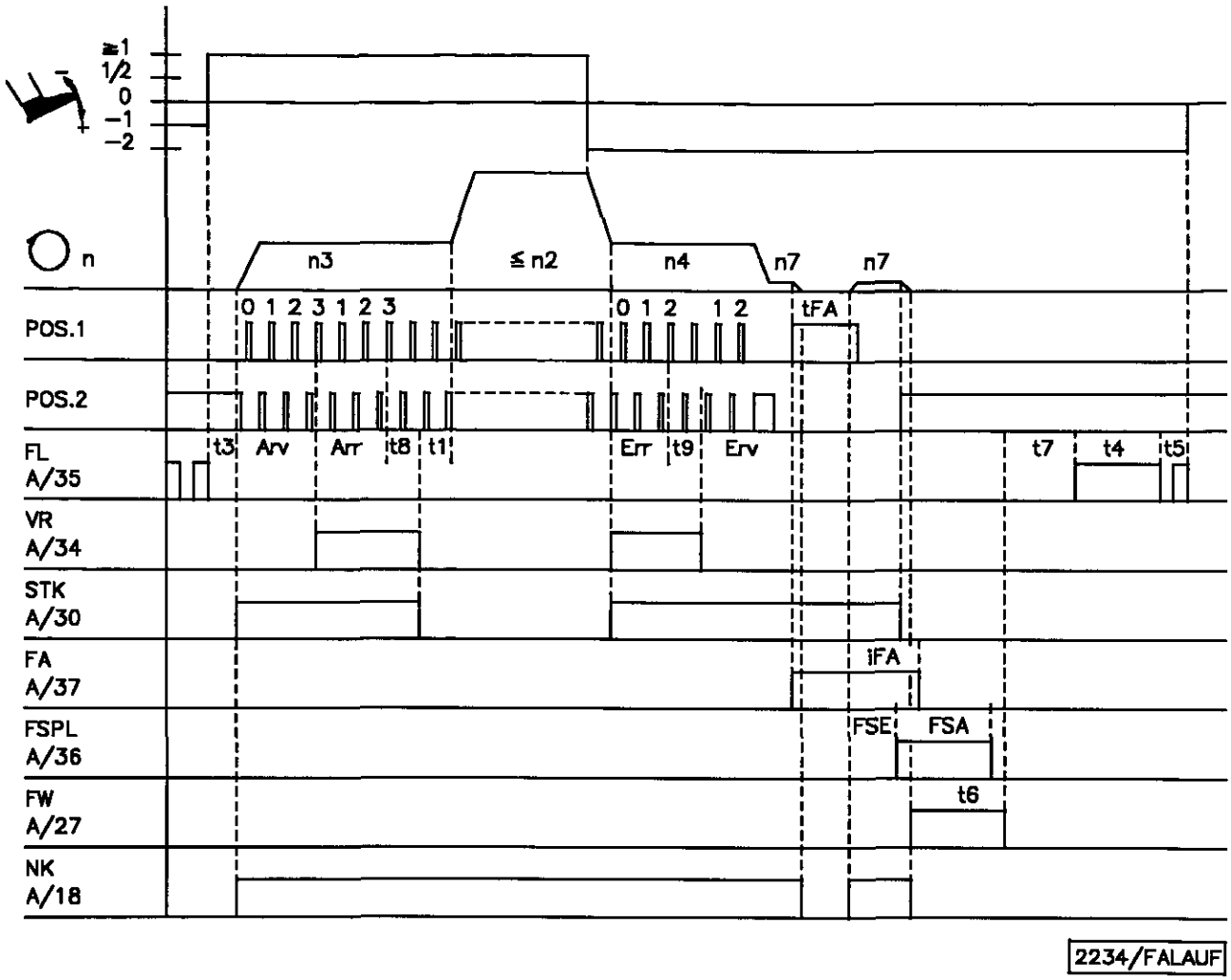
Please ensure that pushbuttons or switches are connected according to the top right connection diagram. In the case of a short circuit with current-carrying sockets the electronic control may be permanently damaged !

| | | | |
|---|---|---|---|
| *** | +24V | => | Connect lefthand pins 1 and 2 with jumper. |
| | +5V | => | Connect righthand pins 3 and 4 with jumper. |
| | N.C. | => | Connect jumper with only one pin **(factory setting)** or remove completely. |



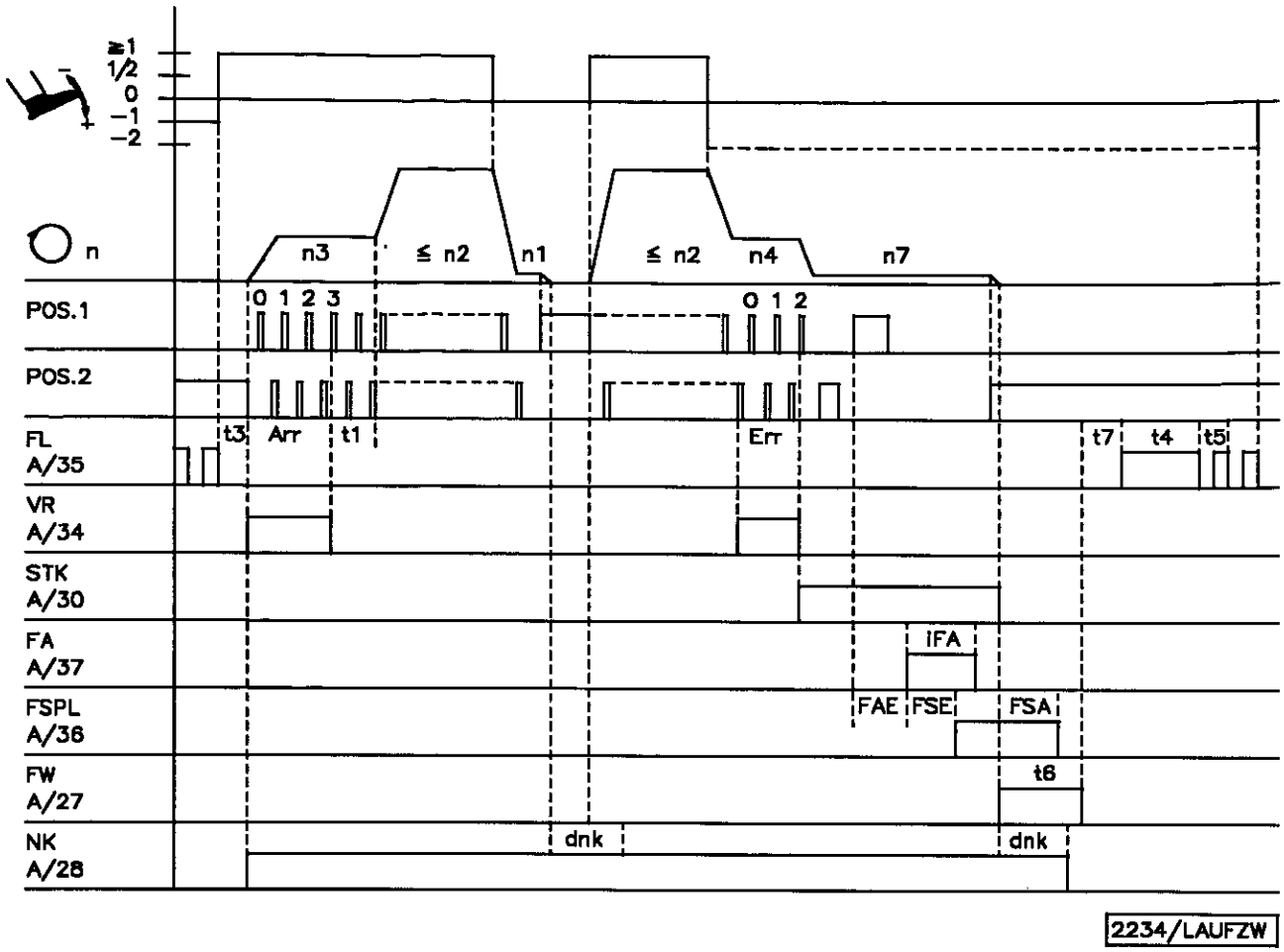
## 12. Timing Diagrams

**Trimming from full machine run**



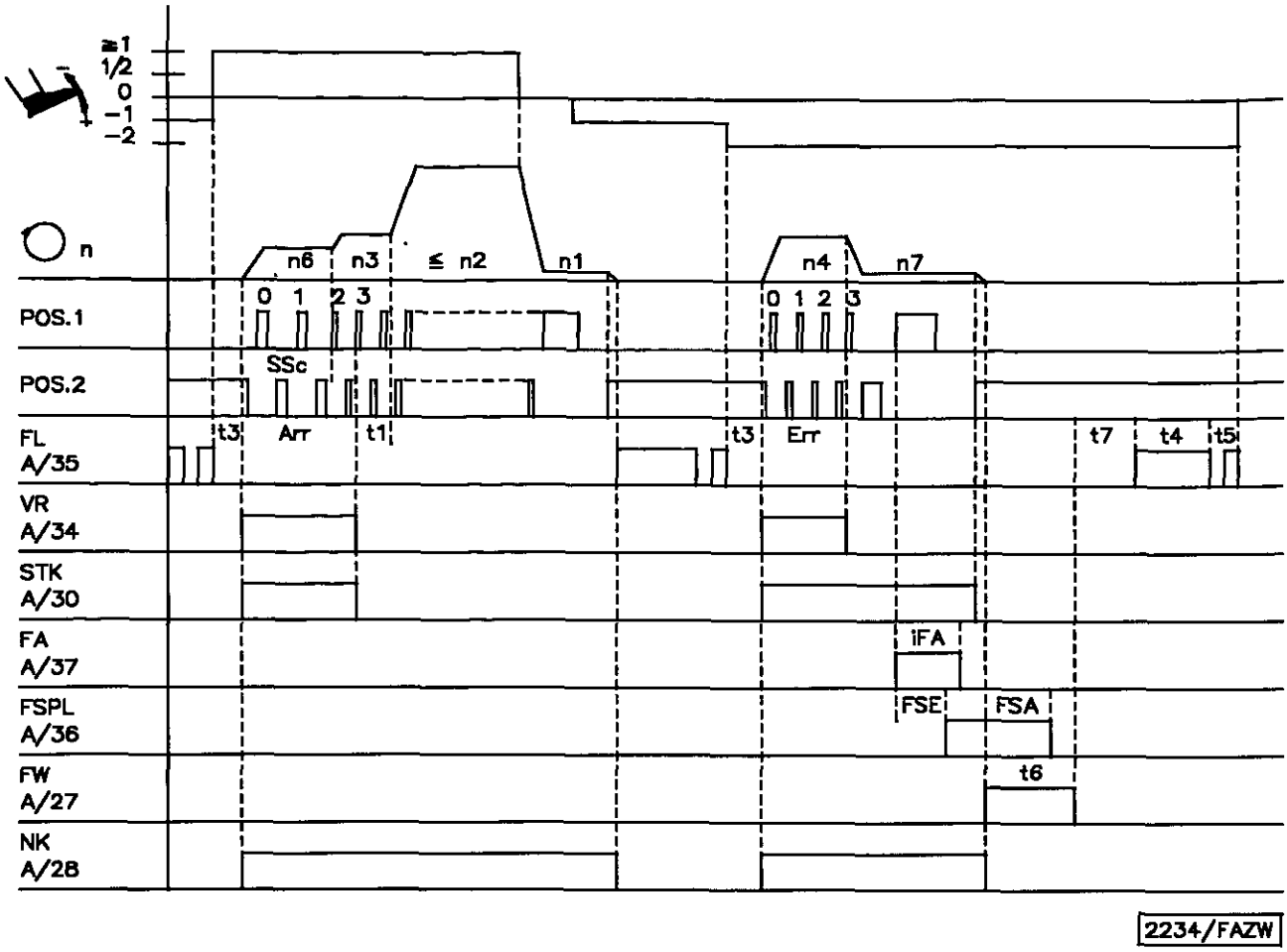

| Abbreviation | Function | | Param. | Pushbutton Control | Pushbutton V810 | Pushbutton V820 |
|---|---|---|---|---|---|---|
| | Double start backtack with stitch correction<br>Double end backtack with stitch correction | On<br>On | | Pushb. S2<br>Pushb. S3 | Pushb. 1<br>Pushb. 2 | Pushb. 1<br>Pushb. 4 |
| n2 | Maximum speed | | 111 | | | |
| n3 | Start backtacking speed | | 112 | | | |
| n4 | End backtacking speed | | 113 | | | |
| n7 | Trimming speed | | 116 | | | |
| t1 | Delay of speed release after start backtack | | 200 | | | |
| t3 | Start delay from lifted foot | | 202 | | | |
| t4 | Full power of sewing foot lift | | 203 | | | |
| t5 | Pulsing of sewing foot lift | | 204 | | | |
| t6 | Activation time of thread wiper | | 205 | | | |
| t7 | Delay time of sewing foot lift after thread wiping | | 206 | | | |
| t8 | Start backtack stitch correction | | 150 | | | |
| t9 | End backtack stitch correction | | 151 | | | |
| iFA | Activation angle of thread trimmer | | 190 | | | |
| FSA | Switch-off delay of thread tension release | | 191 | | | |
| FSE | Activation angle of thread tension release | | 192 | | | |
| tFA | Stop time for thread trimmer in position 1 | | 193 | | | |
| Arv | Start backtack stitches forward | | 000 | | | |
| Arr | Start backtack stitches backward | | 001 | | | |
| Err | End backtack stitches backward | | 002 | | | |
| Erv | End backtack stitches forward | | 003 | | | |

**Run with intermediate stop**



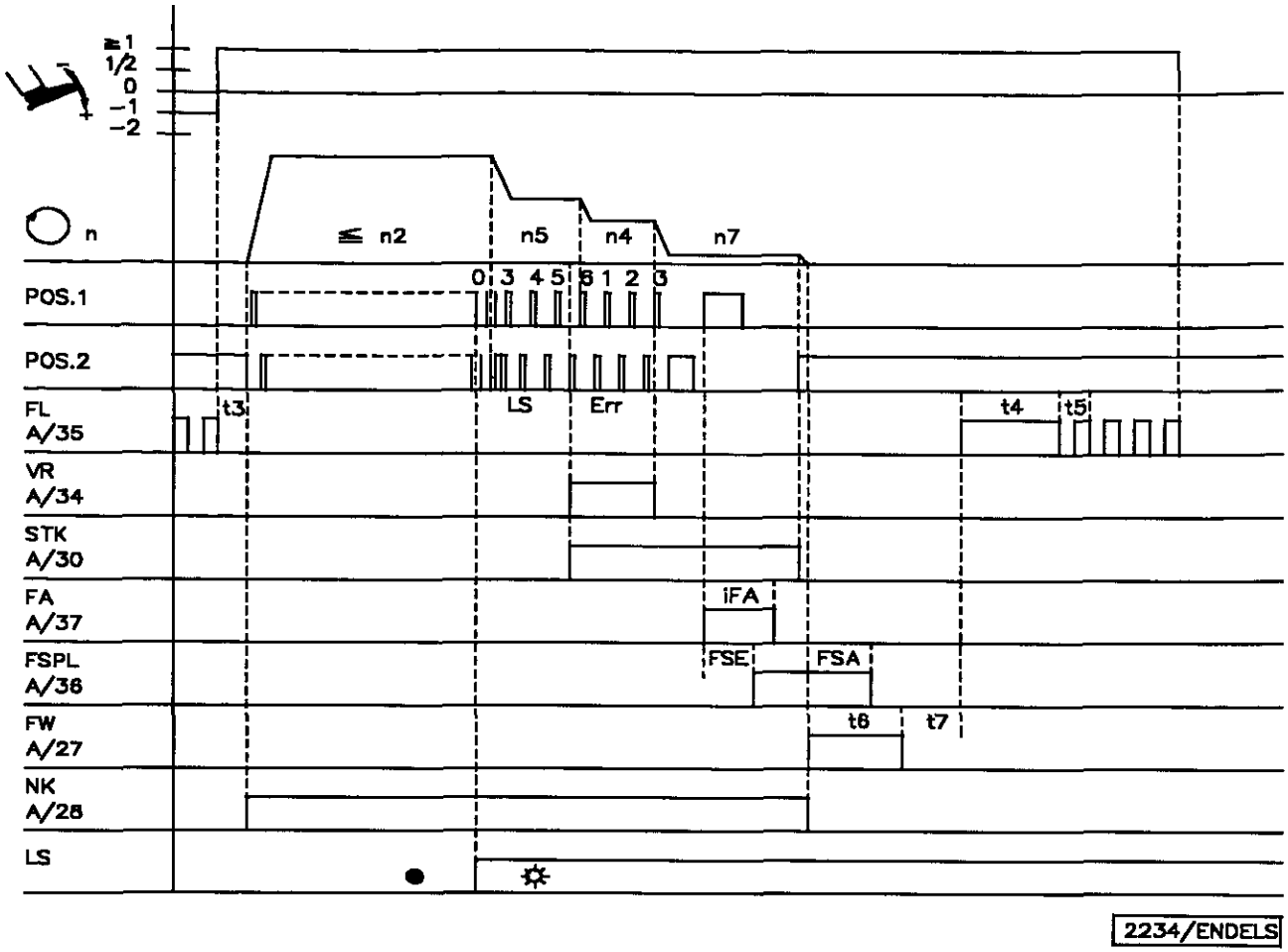

| Abbre-viation | Function | | Param. | Pushbutton Control | Pushbutton V810 | Pushbutton V820 |
|---|---|---|---|---|---|---|
| | Single start backtack<br>Single end backtack | On<br>On | | Pushb. S2<br>Pushb. S3 | Pushb. 1<br>Pushb. 2 | Pushb. 1<br>Pushb. 4 |
| n1 | Positioning speed | | 110 | | | |
| n2 | Maximum speed | | 111 | | | |
| n3 | Start backtacking speed | | 112 | | | |
| n4 | End backtacking speed | | 113 | | | |
| n7 | Trimming speed | | 116 | | | |
| t1 | Delay of speed release after start backtack | | 200 | | | |
| t3 | Start delay from lifted foot | | 202 | | | |
| t4 | Full power of sewing foot lift | | 203 | | | |
| t5 | Pulsing of sewing foot lift | | 204 | | | |
| t6 | Activation time of thread wiper | | 205 | | | |
| t7 | Delay of sewing foot lift after thread wiping | | 206 | | | |
| dnk | Switch-off delay of needle cooling after the stop | | 183 | | | |
| iFA | Activation angle of thread trimmer | | 190 | | | |
| FSA | Switch-off delay of thread tension release | | 191 | | | |
| FSE | Activation angle of thread tension release | | 192 | | | |
| FAE | Activation delay of thread trimmer | | 194 | | | |
| Arr | Start backtack stitches backward | | 001 | | | |
| Err | End backtack stitches backward | | 002 | | | |

**Trimming from intermediate stop**



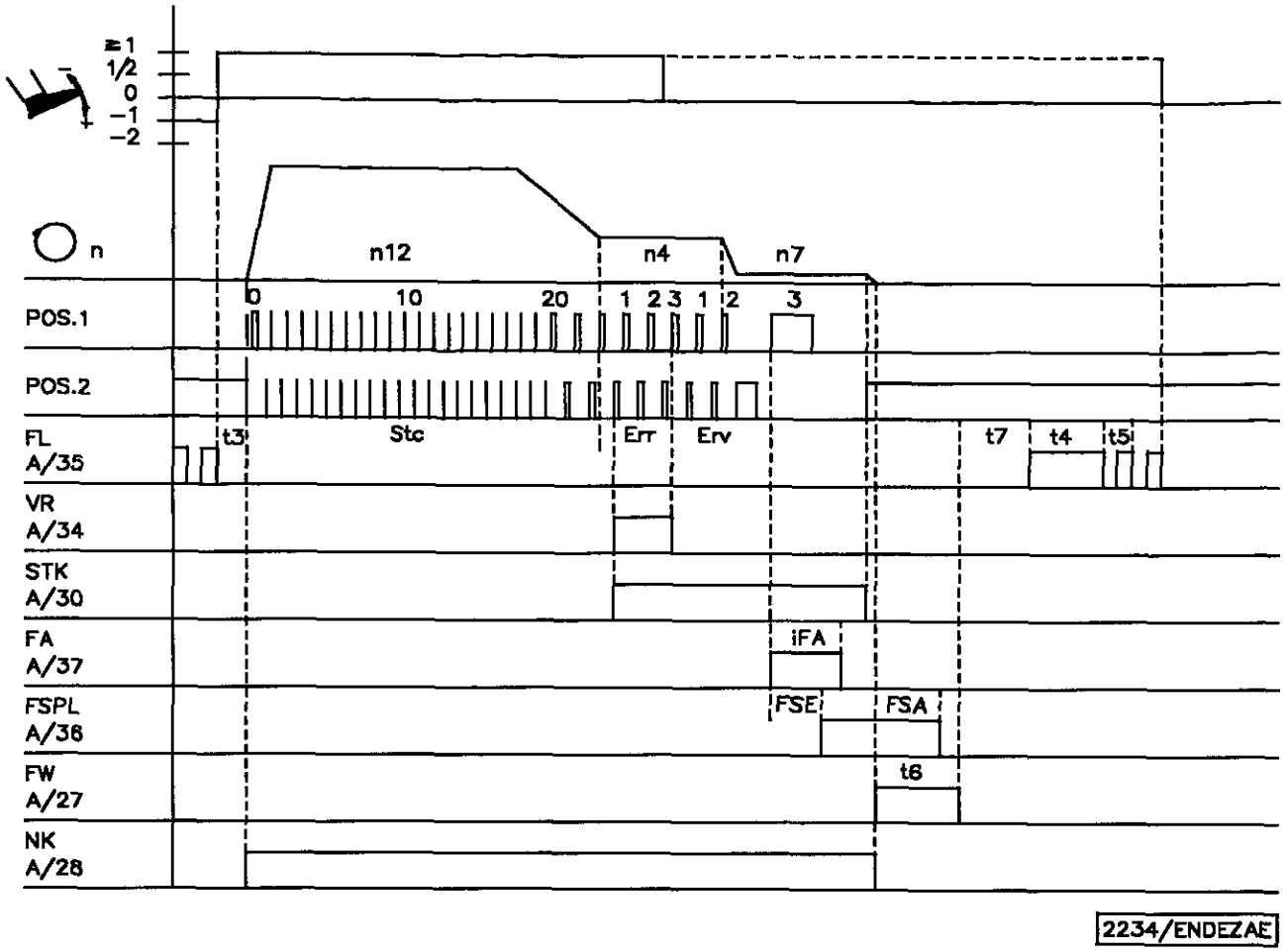

| Abbreviation | Function | | Param. | Pushbutton Control | Pushbutton V810 | Pushbutton V820 |
|---|---|---|---|---|---|---|
| | Softstart | On | 134 | | | |
| | Single start backtack | On | | Pushb. S2 | Pushb. 1 | Pushb. 1 |
| | Single end backtack | On | | Pushb. S3 | Pushb. 2 | Pushb. 4 |
| n1 | Positioning speed | | 110 | | | |
| n2 | Maximum speed | | 111 | | | |
| n3 | Start backtacking speed | | 112 | | | |
| n4 | End backtacking speed | | 113 | | | |
| n6 | Softstart speed | | 115 | | | |
| n7 | Trimming speed | | 116 | | | |
| t1 | Delay of speed release after start backtack | | 200 | | | |
| t3 | Start delay from lifted foot | | 202 | | | |
| t4 | Full power of sewing foot lift | | 203 | | | |
| t5 | Pulsing of sewing foot lift | | 204 | | | |
| t6 | Activation time of thread wiper | | 205 | | | |
| t7 | Delay thread wiper end until sewing foot lift | | 206 | | | |
| iFA | Activation angle of thread trimmer | | 190 | | | |
| FSA | Switch-off delay of thread tension release | | 191 | | | |
| FSE | Activation angle of thread tension release | | 192 | | | |
| SSc | Softstart stitches | | 100 | | | |
| Arr | Start backtack stitches backward | | 001 | | | |
| Err | End backtack stitches backward | | 002 | | | |

**End sensing by light barrier**



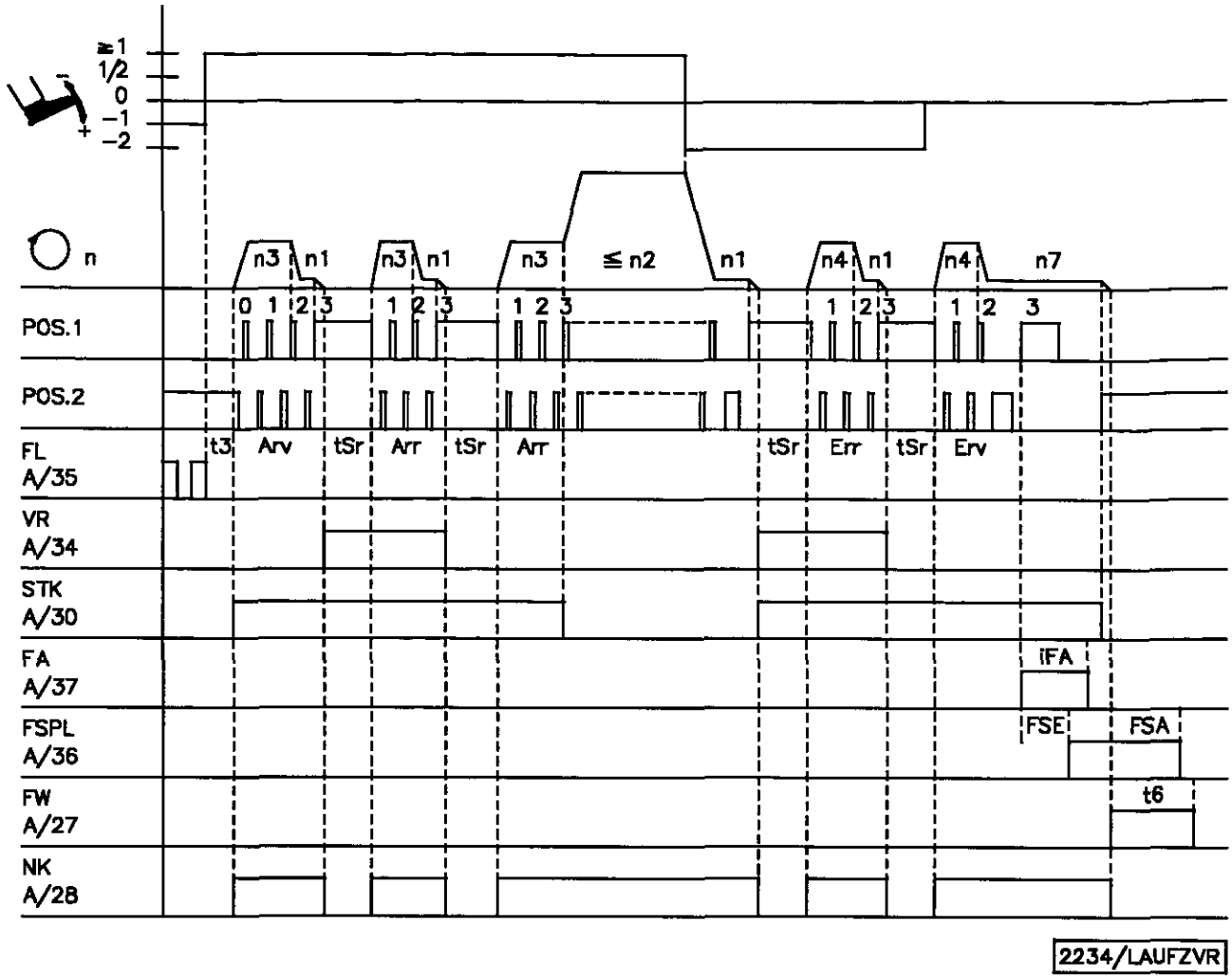

| Abbreviation | Function | | Param. | Pushbutton Control | Pushbutton V810 | Pushbutton V820 |
|---|---|---|---|---|---|---|
| | Start backtack | Off | | Pushb. S2 | Pushb. 1 | Pushb. 1 |
| | Single end backtack | On | | Pushb. S3 | Pushb. 2 | Pushb. 4 |
| | Light barrier | On | 009 | | | Pushb. 3 |
| | Light barrier covered/uncovered | | 131 | | | |
| n2 | Maximum speed | | 111 | | | |
| n4 | End backtacking speed | | 113 | | | |
| n5 | Speed after light barrier sensing | | 114 | | | |
| n7 | Trimming speed | | 116 | | | |
| t3 | Start delay from lifted foot | | 202 | | | |
| t6 | Activation time of thread wiper | | 205 | | | |
| t7 | Delay thread wiper end until sewing foot lift | | 206 | | | |
| iFA | Activation angle of thread trimmer | | 190 | | | |
| FSA | Switch-off delay of thread tension release | | 191 | | | |
| FSE | Activation angle of thread tension release | | 192 | | | |
| LS | Light barrier compensating stitches | | 004 | | | |
| Err | End backtack stitches backward | | 002 | | | |

**Seam end by stitch counting**



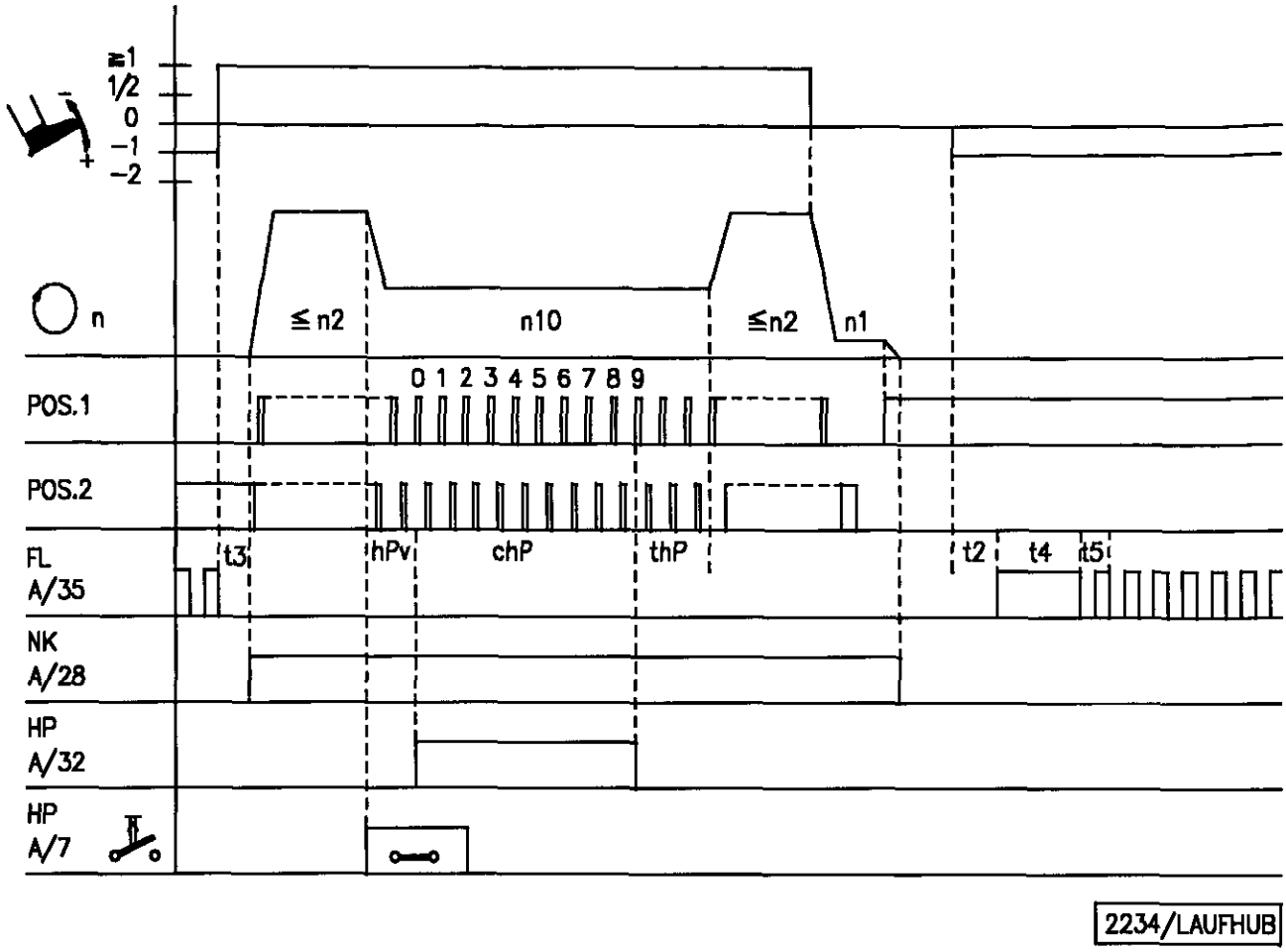

| *Abbre-viation* | *Function* | | *Param.* | *Pushbutton Control* | *Pushbutton V810* | *Pushbutton V820* |
|---|---|---|---|---|---|---|
| | Start backtack | Off | | Pushb. S2 | Pushb. 1 | Pushb. 1 |
| | Single end backtack | On | | Pushb. S3 | Pushb. 2 | Pushb. 4 |
| | Stitch counting | On | | | | Pushb. 2 |
| | Speed mode stitch counting (limited speed) | | 141 = 2 | | | |
| n4 | End backtacking speed | | 113 | | | |
| n7 | Trimming speed | | 116 | | | |
| n12 | Automatic speed for stitch counting | | 118 | | | |
| t3 | Start delay from lifted foot | | 202 | | | |
| t4 | *Full power of sewing foot lift* | | 203 | | | |
| t5 | Pulsing of sewing foot lift | | 204 | | | |
| t6 | Activation time of thread wiper | | 205 | | | |
| t7 | Delay thread wipere end until sewing foot lift | | 206 | | | |
| iFA | Activation angle of thread trimmer | | 190 | | | |
| FSA | *Switch-off delay of thread tension release* | | 191 | | | |
| FSE | Activation angle of thread tension release | | 192 | | | |
| Err | End backtack stitches backward | | 002 | | | |
| Erv | End backtack stitches forward | | 003 | | | |
| Stc | Stitches of the seam with stitch counting | | 007 | | | |

**Operation with ornamental backtack**




| Abbreviation | Function | | Param. | Pushbutton Control | Pushbutton V810 | Pushbutton V820 |
|---|---|---|---|---|---|---|
| | Double start backtack | On | | Pushb. S2 | Pushb. 1 | Pushb. 1 |
| | Double end backtack | On | | Pushb. S3 | Pushb. 2 | Pushb. 4 |
| | Ornamental backtack | On | 135 | | | |
| n1 | Positioning speed | | 110 | | | |
| n2 | Maximum speed | | 111 | | | |
| n3 | Start backtacking speed | | 112 | | | |
| n4 | End backtacking speed | | 113 | | | |
| n7 | Trimming speed | | 116 | | | |
| t3 | Start delay from lifted foot | | 202 | | | |
| t6 | Activation time of thread wiper | | 205 | | | |
| tSr | Stop time for ornamental backtack | | 210 | | | |
| iFA | Activation angle of thread trimmer | | 190 | | | |
| FSA | Switch-off delay of thread tension release | | 191 | | | |
| FSE | Activation angle of thread tension release | | 192 | | | |
| Arv | Start backtack stitches forward | | 000 | | | |
| Arr | Start backtack stitches backward | | 001 | | | |
| Err | End backtack stitches backward | | 002 | | | |
| Erv | End backtack stitches forward | | 003 | | | |

**Operation with high lift for walking foot**




| Abbre-viation | Function | Param. | Pushbutton Control | Pushbutton V810 | Pushbutton V820 |
|---|---|---|---|---|---|
| | High lift for walking foot operational mode not stored<br>Pushbutton on socket A/7 "function high lift for walking foot" | 138 | | | |
| n1<br>n2<br>n10 | Positioning speed<br>Maximum speed<br>High lift walking speed | 110<br>111<br>117 | | | |
| thP<br>chP<br>hPv<br>t2<br>t3<br>t4<br>t5 | Run-out time of the high lift walking speed<br>Minimum number of high lift walking stitches<br>Activation delay of high lift for walking foot<br>Delay of sewing foot with pedal in pos. -1<br>Start delay from lifted foot<br>Full power of sewing foot lift<br>Pulsing of sewing foot lift | 152<br>184<br>189<br>201<br>202<br>203<br>204 | | | |

# 13. Parameter List

## 13.1 OPERATOR LEVEL

| Parameter | Designation | Unit | Limits | | Preset for | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | max | min | 100Ω | 220Ω | 680Ω | | 1000Ω |
| 000 Arv | Start backtack stitches forward | stitches | 254 | 0 | 2 | 3 | 2 | | 2 |
| 001 Arr | Start backtack stitches backward | stitches | 254 | 0 | 4 | 3 | 2 | | 4 |
| 002 Err | End backtack stitches backward | stitches | 254 | 0 | 3 | 2 | 2 | | 3 |
| 003 Erv | End backtack stitches forward | stitches | 254 | 0 | 3 | 3 | 5 | | 3 |
| 004 LS | Light barrier compensating stitches (for long stitches) | stitches | 254 | 0 | 4 | 4 | 4 | | 4 |
| 005 LSF | Number of stitches of the light barrier filter for knitted fabrics | stitches | 254 | 0 | 0 | 0 | 0 | | 0 |
| 006 LSn | Number of light barrier seams | | 15 | 1 | 1 | 1 | 1 | | 1 |
| 007 Stc | Number of stitches for the seam with stitch counting | stitches | 254 | 0 | 10 | 10 | 10 | | 10 |
| 008 -F- | Setting of pushbutton 9 with a parameter from the technician level<br>1 = Softstart ON/OFF<br>2 = Ornamental backtack ON/OFF<br>3 = High lift for walking foot operational mode stored = ON / operational mode not stored = OFF<br>4 = Needle cooling ON/OFF | | 4 | 1 | 2 | 2 | 2 | | 2 |
| 009 LS | Light barrier ON/OFF | ON/OFF | | | OFF | OFF | OFF | | OFF |
| 010 cLS | Light barrier compensating stitches (for normal stitches) | stitches | 254 | 0 | 8 | 8 | 8 | | 8 |
| 013 FA | Thread trimmer ON/OFF | ON/OFF | | | ON | OFF | ON | | ON |
| 014 FW | Thread wiper ON/OFF | ON/OFF | | | ON | OFF | OFF | | ON |
| 015 StS | Stitch counting ON/OFF | ON/OFF | | | OFF | OFF | OFF | | OFF |

**Note:** At the operator level, the parameter number (F-xxx) is not shown on the display, but the abbreviation (e.g. ARV) and the actual value (e.g. 004 - for 4 stitches).

## OPERATOR LEVEL

| Parameter | Designation | Unit | Limits | | Preset for | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | max | min | 100Ω | 220Ω | 680Ω | | 1000Ω |
| 080 SAv | Number of start ornamental backtack stitches forward | stitches | 254 | 0 | 3 | 3 | 3 | | 3 |
| 081 SAr | Number of start ornamental backtack stitches backward | stitches | 254 | 0 | 3 | 3 | 3 | | 3 |
| 082 SEr | Number of end ornamental backtack stitches backward | stitches | 254 | 0 | 3 | 3 | 3 | | 3 |
| 083 SEv | Number of end ornamental backtack stitches forward | stitches | 254 | 0 | 3 | 3 | 3 | | 3 |

**Note:** At the operator level, the parameter number (F-xxx) is not shown on the display, but the abbreviation (e.g. ARV) and the actual value (e.g. 004 - for 4 stitches).

## 13.2 TECHNICIAN LEVEL

**Code no. 190 with control operation**
**Code no. 1907 with V810/V820 operation**

| Parameter | Designation | Unit | Limits | | Preset for | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | max | min | 100Ω | 220Ω | 680Ω | | 1000Ω |
| 100 SSc | Number of softstart stitches | stitches | 254 | 0 | 1 | 1 | 1 | | 1 |
| 110 n1 | Positioning speed | RPM | 390 | 70 | 150 | 100 | 150 | | 150 |
| 111 n2- | Upper limit of maximum speed (n-maxmax) | RPM | 5000 | n2_ | 4000 | 900 | 1700 | | 3500 |
| 112 n3 | Start backtack speed | RPM | 3000 | 200 | 1200 | 400 | 800 | | 1200 |
| 113 n4 | End backtack speed | RPM | 3000 | 200 | 1200 | 400 | 800 | | 1200 |
| 114 n5 | Speed after light barrier sensing | RPM | 3000 | 200 | 1200 | 400 | 800 | | 1200 |
| 115 n6 | Softstart speed | RPM | 2500 | 70 | 400 | 250 | 250 | | 400 |
| 116 n7 | Trimming speed | RPM | 500 | 70 | 150 | 100 | 150 | | 150 |
| 117 n10 | High lift walking speed = Speed limitation (DB2000) | RPM | 2500 | 400 | 2000 | 400 | 800 | | 2000 |
| 118 n12 | Automatic/stitch counting speed dependent on speed mode | RPM | 5000 | 400 | 1200 | 400 | 800 | | 1200 |
| 119 nSt | Speed stage graduation<br>1 = linear<br>2 = slightly progressive<br>3 = highly progressive | | 3 | 1 | 2 | 1 | 1 | | 1 |
| 120 nnk | Activation speed for needle cooling (if parameter 185 = 3) | RPM | 5000 | 0 | 3000 | 3000 | 3000 | | 3000 |
| 121 n2_ | Lower limit of maximum speed (n-maxmin) | RPM | n2- | 400 | 400 | 400 | 400 | | 400 |
| 123 tnS | Backtack synchronization time for end backtack | ms | 500 | 0 | 40 | 0 | 0 | | 40 |
| 124 nrS | Backtack synchronization speed for end backtack | RPM | 3000 | 100 | 500 | 400 | 800 | | 500 |
| 127 AKS | Acoustic signal ON/OFF | ON/OFF | | | OFF | OFF | OFF | | OFF |
| 128 ASd | Start delay, when start command is given by covering the light barrier (only if parameter 129 = ON) | ms | 2000 | 0 | 0 | 0 | 0 | | 0 |

## TECHNICIAN LEVEL

**Code no. 190 with control operation**
**Code no. 1907 with V810/V820 operation**

| Parameter | Designation | Unit | Limits | | Preset for | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | max | min | 100Ω | 220Ω | 680Ω | | 1000Ω |
| 129 ALS | Automatic start with light barrier: machine start by covering the light barrier, without having heeled the pedal back to the basic position.<br>Additional prerequisites:<br>- Parameter 132 = ON<br>- Function light barrier sensing switched on on the control panel<br>- Initiation of the first "normal" seam section (pedal in the basic position)<br>- Cover light barrier<br>- Press pedal forward<br>- Keep pedal pressed forward<br>Deactivate this function by heeling the pedal back to the basic position. | ON/OFF | | | OFF | OFF | OFF | | OFF |
| 130 LSF | Light barrier filter for knitted fabrics | ON/OFF | | | OFF | OFF | OFF | | OFF |
| 131 LSd | OFF = Light barrier sensing "covered"<br>ON = Light barrier sensing "uncovered" | ON/OFF | | | ON | ON | ON | | ON |
| 132 LSS | Machine start blockage, when light barrier uncovered | ON/OFF | | | ON | ON | ON | | ON |
| 133 LSE | Thread trimming when completing the seam by light barrier sensing | ON/OFF | | | ON | ON | ON | | ON |
| 134 SSt | Softstart | ON/OFF | | | ON | ON | ON | | ON |
| 135 SrS | Ornamental backtack | ON/OFF | | | OFF | OFF | OFF | | OFF |
| 136 FAr | Trimming stitch backward | ON/OFF | | | OFF | OFF | OFF | | OFF |
| 137 SLu | Stitch length during backtack<br>OFF = long stitches<br>ON = normal stitches | ON/OFF | | | ON | OFF | OFF | | OFF |
| 138 hPr | OFF = High lift for walking foot operational mode not stored<br>ON = High lift for walking foot operational mode stored | ON/OFF | | | OFF | OFF | OFF | | OFF |
| 139 nIS | Display of machine speed | ON/OFF | | | OFF | OFF | OFF | | OFF |

## TECHNICIAN LEVEL

**Code no. 190 with control operation**
**Code no. 1907 with V810/V820 operation**

| Parameter | Designation | Unit | Limits | | Preset for | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | max | min | 100Ω | 220Ω | 680Ω | | 1000Ω |
| 140 nh1 | Mode needle UP/DOWN (pushbutton on A/6)<br><br>1 = Needle up<br>2 = Needle up/down<br>3 = Single stitch<br>4 = Single stitch with stitch length switching<br>5 = Needle up if outside of position 2 | | 5 | 1 | 1 | 2 | 1 | | 1 |
| 141 SGn | Speed mode for a seam with stitch counting<br><br>0 = Speed controllable by the pedal up to the maximum speed (parameter 111)<br>1 = Fixed speed (parameter 118), without influence by the pedal (machine stop by heeling the pedal back to the basic position)<br>2 = Limited speed controllable by the pedal up to the set limit (parameter 118)<br>3 = At fixed speed (parameter 118), can be interrupted by full heelback | | 3 | 0 | 1 | 1 | 1 | | 1 |
| 142 SFn | Speed mode for the free seam and for the seam with light barrier<br><br>0 = Speed controllable by the pedal up to the maximum speed (parameter 111)<br>1 = Fixed speed (parameter 118), without influence by the pedal (machine stop by heeling the pedal back to the basic position)<br>2 = Limited speed controllable by the pedal up to the set limit (parameter 118)<br>3 = At fixed speed (parameter 118), can be interrupted by full heelback (only in conjunction with light barrier on, otherwise like mode 0) | | 3 | 0 | 0 | 0 | 0 | | 0 |
| 143 MnF | Mode pushbutton speed limitation (DB2000) (pushbutton on A/9)<br>1 = Limited speed (n10) (DB2000)<br>2 = Fixed speed (n10) | | 2 | 1 | 1 | | 1 | | 1 |

## TECHNICIAN LEVEL

**Code no. 190 with control operation**
**Code no. 1907 with V810/V820 operation**

| Parameter | Designation | Unit | Limits | | Preset for | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | max | min | 100Ω | 220Ω | 680Ω | | 1000Ω |
| 145 StL | Normal/long stitches with speed limitation (pushbutton on A/()<br>1 = Normal/long stitches without speed limitation<br>2 = Normal/long stitches with speed limitation (DB2000)<br>3 = Normal/long stitches with speed limitation (DB3000) | | 3 | 1 | 1 | 1 | 1 | | 1 |
| 150 t8 | Stitch correction of the double start backtack (prolongation of the operating time of the stitch regulator / not effective with ornamental backtack) | ms | 500 | 0 | 0 | 0 | 0 | | 0 |
| 151 t9 | Stitch correction of the double end backtack (prolongation of the operating time of the stitch regulator / not effective with ornamental backtack) | ms | 500 | 0 | 0 | 0 | 0 | | 0 |
| 152 thP | Run-out time of the high lift walking speed after switching off the high lift for walking foot | ms | 500 | 80 | 100 | 100 | 100 | | 100 |
| 153 brt | Breaking power at machine standstill | ms | 50 | 0 | 0 | 0 | 0 | | 0 |
| 172 Sr3 | **Display on the control:**<br>Pos. 1 to 1A (LED 7 lights up)<br>Pos. 2 to 2A (LED 8 lights up)<br>**Function will be active only after the sewing has been started once!** | | | | | | | | |
| 172 | **Display of the positions on the V810 control panel:**<br>Position 1 to 1A<br>(lefthand arrow above pushbutton 4 On)<br>Position 2 to 2A<br>(righthand arrow above pushbutton 4 On)<br>**Function will be active only after the sewing has been started once!** | | | | | | | | |
| 172 | **Display of the positions on the V820 control panel:**<br>Position 1 to 1A<br>(lefthand arrow above pushbutton 7 On)<br>Position 2 to 2A<br>(righthand arrow above pushbutton 7 On)<br>**Function will be active only after the sewing has been started once!** | | | | | | | | |

## TECHNICIAN LEVEL

**Code no. 190 with control operation**
**Code no. 1907 with V810/V820 operation**

| Parameter | Designation | Unit | Limits | | Preset for | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | max | min | 100Ω | 220Ω | 680Ω | | 1000Ω |
| 173 | Checking the signal outputs and inputs using the incorporated control panel or the V810/V820 control panels<br>- Select the desired output with the +/- pushbuttons<br>- Actuate the selected output with the >> pushbutton<br><br>01 = Backtacking (A/34)<br>02 = Sewing foot lift (A/35)<br>03 = Thread trimmer (A/37)<br>04 = Thread wiper (A/27)<br>05 = Switch stitch length (A/30)<br>06 = Thread tension release (A/36)<br>07 = Needle cooling (A/28)<br>08 = High lift for walking foot (A/32)<br>09 = LED high lift limitation (A/31)<br>10 = LED bobbin thread monitor at the right (A/25)<br>11 = LED bobbin thread monitor at the left (A/23)<br>12 = LED backtack suppression/recall (A/24)<br>13 = LED switch stitch length (A/29)<br><br>OFF/ON =<br>By actuating the switches connected to the control the function of these switches is checked and displayed with "ON / OFF". | | | | | | | | |
| 179 | **Display on Variocontrol V820:**<br>Control program number with index and identification number will be displayed.<br>**Display on the control and/or V810:**<br>Upon pressing the ">>" button the data will be displayed in succession. | | | | | | | | |

## TECHNICIAN LEVEL

**Code no. 190 with control operation**
**Code no. 1907 with V810/V820 operation**

| Parameter | Designation | Unit | Limits | | Preset for | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | max | min | 100Ω | 220Ω | 680Ω | | 1000Ω |
| 183 dnk | Switch-off delay of needle cooling after stop and/or not coming up to the set speed | ms | 5000 | 0 | 2500 | 2500 | 2500 | | 2500 |
| 184 chP | Minimum number of stitches for high lift for walking foot | stitches | 100 | 0 | 0 | 0 | 0 | | 0 |
| 185 Fnk | Function of the output needle cooling<br>1 = Needle cooling<br>2 = Underedge trimmer signal<br>3 = Switch on needle cooling after exceeding the set speed (parameter 120) | | 3 | 1 | 1 | 1 | 1 | | 1 |
| 187 Stn | Stitch length in the next seam after thread trimming<br>1 = the selected stitch length remains on<br>2 = switch to long stitches after thread trimming<br>3 = switch to normal stitches after thread trimming | | 3 | 1 | 1 | 1 | 1 | | 1 |
| 188 | Minimum speed level for high lift for walking foot<br>Maximum speed level for high lift for walking foot<br>Assignment of maximum speed (Parameter 111) and minimum speed (parameter 117 = high lift walking speed) to the 21 speedomat levels.<br>**Display example:**<br>`2740 05 11 19`<br>05 = Display of the level up to which the maximum speed is effective.<br>19 = Display of the level from which the minimum speed is effective.<br>11 = Display of the level set on the speedomat (potentiometer)<br>2740 = Corresponding speed<br>**See instruction manual on how to change the setting!** | | 21<br>21 | 1<br>1 | | | | | |
| 189 hpv | Activation delay of high lift for walking foot | ms | 2550 | 0 | 0 | 0 | 0 | | 0 |

## TECHNICIAN LEVEL

**Code no. 190 with control operation**
**Code no. 1907 with V810/V820 operation**

| Parameter | Designation | Unit | Limits | | Preset for | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | max | min | 100Ω | 220Ω | 680Ω | | 1000Ω |
| 190 iFA | Activation angle of the thread trimmer (1 step corresponds to 3°) | incr. | 120 | 0 | 20 | 120 | 120 | | 20 |
| 191 FSA | Switch-off delay of thread tension release | ms | 990 | 0 | 50 | 50 | 50 | | 50 |
| 192 FSE | Activation angle of thread tension release (1 step corresponds to 3°) | incr. | 120 | 0 | 0 | 0 | 0 | | 30 |
| 193 tFA | Stop time for thread trimmer | ms | 500 | 0 | 0 | 0 | 0 | | 30 |
| 194 FAE | Activation delay of thread trimmer | incr. | 120 | 0 | 0 | 0 | 0 | | 0 |
| 196 kFn | 0 = Coupling the sewing foot with thread tension release in the seam and after thread trimming **off**<br>1 = Thread tension release in the seam during sewing foot lifting **on**<br>2 = Thread tension release after thread trimming during sewing foot lifting **on**<br>3 = Thread tension release in the seam and after thread trimming during sewing foot lifting **on** | | 3 | 0 | 0 | 0 | 0 | | 0 |

## 13.3 SUPPLIER LEVEL

**Code no. 311 with control operation**
**Code no. 3112 with V810/V820 operation**

| Parameter | Designation | Unit | Limits | | Preset for | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | max | min | 100Ω | 220Ω | 680Ω | | 1000Ω |
| 200 t1 | Delay of speed release after the start backtack | ms | 500 | 50 | 50 | 50 | 50 | | 50 |
| 201 t2 | Activation delay of sewing foot lift with half heelback | ms | 500 | 20 | 80 | 80 | 80 | | 80 |
| 202 t3 | Start delay after switching off the sewing foot lift signal | ms | 500 | 0 | 80 | 80 | 120 | | 80 |
| 203 t4 | Time of full power of sewing foot lifting | ms | 600 | 0 | 200 | 200 | 200 | | 200 |
| 204 t5 | Holding power of sewing foot lifting<br>Stages 0, 1...7<br>Stage 0 = 100%<br>Stage 1 = 12.5%<br>Stage 7 = 87.5% | | 7 | 0 | 3 | 3 | 3 | | 3 |
| 205 t6 | Thread wiper time | ms | 500 | 0 | 100 | 100 | 100 | | 100 |
| 206 t7 | Delay after thread wiper Off until sewing foot lifting On | ms | 800 | 0 | 30 | 30 | 30 | | 30 |
| 207 br1 | Braking effect with speeds > 800 RPM | | 255 | 1 | 80 | 80 | 80 | | 80 |
| 208 br2 | Braking effect with speeds < 800 RPM | | 255 | 1 | 50 | 50 | 50 | | 50 |
| 210 tSr | Stop time for switching the stitch regulator in the ornamental backtack | ms | 500 | 0 | 100 | 270 | 150 | | 100 |
| 212 t10 | Time of full power of backtacking | ms | 600 | 0 | 200 | 200 | 200 | | 200 |
| 213 t11 | Holding power of backtacking<br>Stages 0, 1...7<br>Stage 0 = 100%<br>Stage 1 = 12.5%<br>Stage 7 = 87.5% | | 7 | 0 | 4 | 4 | 4 | | 4 |
| 220 ALF | Accelerating power of the drive | | 255 | 1 | 40 | 40 | 40 | | 40 |
| 221 dGn | Speed gate | | 990 | 50 | 100 | | 100 | | 100 |
| 222 tGn | Speed gate damping period | ms | 990 | 0 | 120 | | 120 | | 120 |
| 231 Sn1 | Execution of the first stitch after power on at positioning speed | ON/OFF | | | OFF | OFF | OFF | | OFF |

## SUPPLIER LEVEL

**Code no. 311 with control operation**
**Code no. 3112 with V810/V820 operation**

| Parameter | Designation | Unit | Limits | | Preset for | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | max | min | 100Ω | 220Ω | 680Ω | | 1000Ω |
| 239 FEL | **Selection of the input function on socket B18/5**<br>0 = Light barrier function, if 009 = ON<br>1 = Needle up<br>2 = Needle up/down<br>3 = Single stitch (basting stitch)<br>4 = Single stitch with stitch length switching<br>5 = Needle up if outside of position 2<br>6 = Machine run blockage effective with open contact<br>7 = Machine run blockage effective with closed contact<br>8 = No function<br>9 = No function<br>10 = Automatic speed without pedal (n12)<br>11 = Limited speed with pedal (n12)<br>12 = Sewing foot lifting with pedal in position 0 (neutral)<br>13 = High lift for walking foot operational mode stored/not stored according to setting of parameter 138<br>14 = No function<br>15 = No function<br>16 = Intermediate backtack<br>17 = Backtack suppression/recall<br>18 = No function<br>19 = No function | | 19 | 0 | 0 | 0 | 0 | | 0 |
| 275 Std | Seam suppression when 0 stitches have been set | | 1 | 0 | 0 | 0 | 0 | | 0 |
| 276 dkn | 0 = Correction seam off<br>1 = Correction seam on<br>2 = Cessation of seam and/or pattern by means of the thread trimmer | | 2 | 0 | 1 | 1 | 1 | | 1 |
| 280 SEL | Display of the select resistor values (socket A/1-4) for the following machine series:<br>100Ω = N291<br>220Ω = 204, 205, 221, 266, 366<br>680Ω = 069, 267, 268, 269, 4180, 4280<br>1000Ω = 467, 767 | | 1000 | 100 | 100 | 220 | 680 | | 1000 |
| 281 PdO | New sewing start after machine run blockage<br>OFF = Immediate start<br>ON = Only with pedal in position 0 | ON/OFF | | | ON | ON | ON | | ON |
| 282 LoS | Functioning of the switch for machine run blockage<br>0 = Make contact (N.O.)<br>1 = Break contact (N.C.) | | 1 | 0 | 0 | 0 | 0 | | 0 |

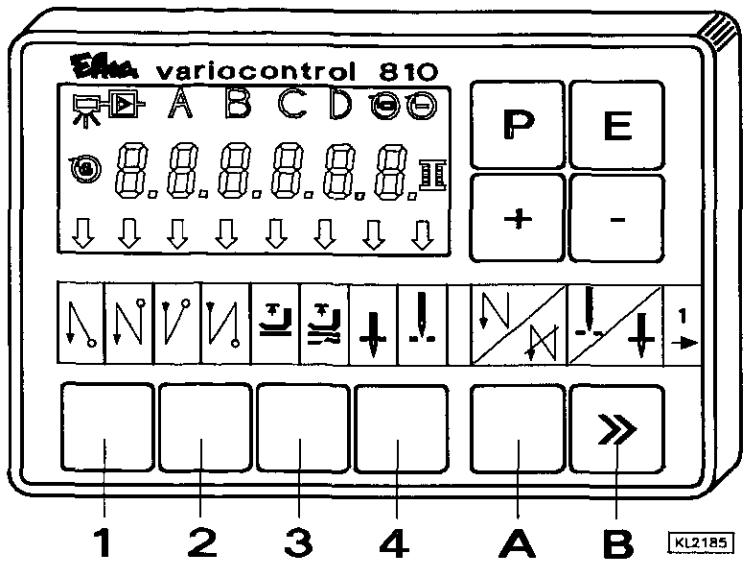
## SUPPLIER LEVEL

**Code no. 311 with control operation**
**Code no. 3112 with V810/V820 operation**

| Parameter | Designation | Unit | Limits | | Preset for | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | max | min | 100Ω | 220Ω | 680Ω | | 1000Ω |
| 283 LSP | Function machine run blockage<br>0 = Function off<br>1 = Blockage 1, without positioning<br>2 = Blockage 2, with positioning | | 2 | 0 | 1 | 1 | 1 | | 1 |
| 284 StP | Start and end backtack can be interrupted with pedal in position 0 | ON/OFF | | | OFF | OFF | OFF | | OFF |
| 287 dbA | Manual backtack with speed limitation DB3000<br>0 = DB3000 Off<br>1 = DB3000 On | | 1 | 0 | 1 | 1 | 1 | | 1 |
| 288 n9 | Speed limitation for manual ornamental backtack | RPM | 3000 | 200 | 1200 | 400 | 800 | | 1200 |
| 289 n11 | Speed limitation DB3000 for manual backtack | RPM | 3000 | 500 | 3000 | 400 | 1700 | | 3000 |
| 293 tF1 | **Selection of the input function by pushbutton (A) "F1" on Variocontrol V810/V820**<br>0 = No function<br>1 = Needle up<br>2 = Needle up/down<br>3 = Single stitch (basting stitch)<br>4 = Single stitch with stitch length switching<br>5 = Needle up if outside of position 2<br>6 = No function<br>7 = No function<br>8 = No function<br>9 = No function<br>10 = No function<br>11 = No function<br>12 = No function<br>13 = High lift for walking foot operational mode stored/not stored according to setting of parameter 138<br>14 = No function<br>15 = No function<br>16 = Intermediate backtack<br>17 = Backtack suppression/recall<br>18 = No function<br>19 = No function | | 19 | 0 | 17 | 17 | 17 | | 17 |
| 294 tF2 | **Selection of the input function by pushbutton (B) "F2" on Variocontrol V810/V820**<br>Functions of the pushbutton as with parameter 293 | | 19 | 0 | 1 | 1 | 1 | | 1 |

**For your notes**

## 14. Operating Elements of the Control Panel V810




The V810 control panel is supplied with the insertable strip **no. 1** above the pushbuttons. For different functions, this strip can be replaced with another one supplied with the control panel.See also instruction manual **V810 / V820!**

**Functional Setting of the Pushbuttons**

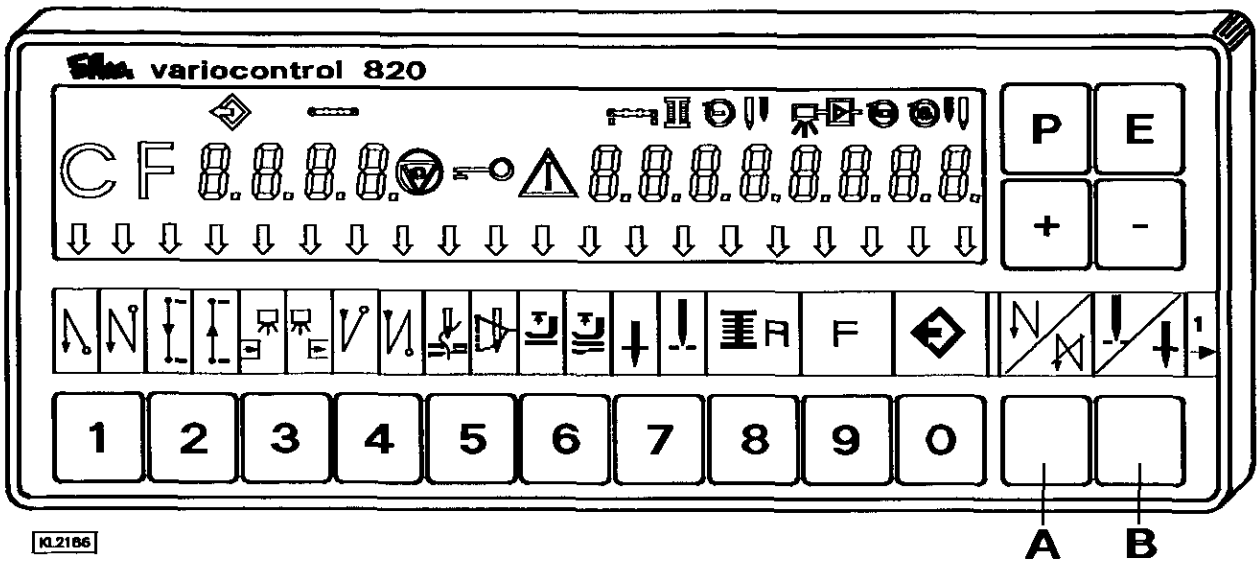
Pushbutton P = Recall or exit of programming mode
*Pushbutton E = Enter button for modifications in the programming mode*
Pushbutton + = Increase of the value indicated in the programming mode
Pushbutton - = Decrease of the value indicated in the programming mode

Pushbutton 1 = Start backtack SINGLE / DOUBLE / OFF
Pushbutton 2 = End backtack SINGLE / DOUBLE / OFF
Pushbutton 3 = Automatic foot lifting after thread trimming ON / OFF
Automatic foot lifting at stop in the seam ON / OFF
Pushbutton 4 = Basic position of the needle (bottom/upper dead center)
POSITION 1 / POSITION 2

Pushbutton A Pushbutton for backtack suppression/recall (pushbutton A can be set with different input functions by using parameter 293)
Pushbutton B Pushbutton for needle up/down and/or shift button in the programming mode (pushbutton B can be set with different input functions by using parameter 294)

**Explanation of symbols see instruction manual V810/V820!**

## 15. Operating Elements of the Control Panel V820




The V820 control panel is supplied with the insertable strip **no. 1** above the pushbuttons. For different functions, this strip can be replaced with another one supplied with the control panel. See also instruction manual **V810 / V820**!

**Functional Setting of the Pushbuttons**

| | |
|---|---|
| Pushbutton P = | Recall or exit of programming mode |
| Pushbutton E = | Enter button for modifications in the programming mode |
| Pushbutton + = | Increase of the value indicated in the programming mode |
| Pushbutton - = | Decrease of the value indicated in the programming mode |
| Pushbutton 1 = | Start backtack SINGLE / DOUBLE / OFF |
| Pushbutton 2 = | Stitch counting seam FORWARD / BACKWARD / OFF |
| Pushbutton 3 = | Light barrier function COVERED-UNCOVERED / UNCOVERED-COVERED / OFF |
| Pushbutton 4 = | End backtack SINGLE / DOUBLE / OFF |
| Pushbutton 5 = | THREAD TRIMMER / THREAD TRIMMER + THREAD WIPER / OFF |
| Pushbutton 6 = | Automatic foot lift after thread trimming ON / OFF<br>Automatic foot lifting at stop in the seam ON / OFF |
| Pushbutton 7 = | Basic position of the needle (bottom/upper dead center)<br>POSITION 1 / POSITION 2 |
| Pushbutton 8 = | No function |
| Pushbutton 9 = | Function key - can be programmed (parameter 008) |
| Pushbutton 0 = | Teach-in / execution of 40 possible seam sections |

| | |
|---|---|
| Pushbutton A | Pushbutton for backtack suppression/recall (pushbutton A can be set with different input functions by using parameter 293) |
| Pushbutton B | Pushbutton for needle up/down and/or shift button in the programming mode (pushbutton B can be set with different input functions by using parameter 294) |

**Special Setting of the Pushbuttons for HIT**

The following can be changed by pushbuttons +/- after pressing pushbuttons 1, 2, 3, 4 or 9:

| | |
|---|---|
| Pushbutton 1 = | Number of stitches of the selected start backtack |
| Pushbutton 2 = | Number of stitches of the seam with stitch counting |
| Pushbutton 3 = | Number of light barrier compensating stitches |
| Pushbutton 4 = | Number of stitches of the selected end backtack |
| Pushbutton 9 = | Number of stitches or switching the programmed function on/off |

**Explanation of symbols see instruction manual V810/V820!**

Efka

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