

EKGA vario dc

CONTROL

JU62AV

INSTRUCTION MANUAL

No. 402043 english

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1. Safety instructions

1. Motor, accessories and auxiliary devices can be mounted and put into operation only by an expert after taking note of the instruction manual.
2. Motor, accessories and auxiliary devices must be used only in conformity with their designed function.
3. Operation without corresponding protective devices is forbidden.
4. Motor must be completely mounted before electric connection.
5. Only skilled labour is allowed to work on the electric appliances.
6. Only especially trained staff is allowed to complete repair work.
7. Cables to be wired must be protected against expectable strain and fastened adequately.
8. Cables near moving machine parts (e.g. pulleys) must be wired at a minimum distance of 25 mm. (DIN VDE 0113)
9. For a safe separation it is preferred to wire the cables separately from each other. (DIN VDE 0160)
10. Connect the sewing light to the mains independently of the motor power supply.
11. Before connecting the mains line make sure that the mains voltage corresponds to the specifications on the control nameplate.
12. Machine and motor must be connected through a potential equalization conductor.
13. Before mounting and adjusting auxiliary devices and accessories, especially position transmitter, reversing device, light barrier, etc., disconnect the motor (disconnect the main switch, pull off mains plug [DIN VDE 0113]).

14. Electric auxiliary devices and accessories must only be connected to protective low voltage.
15. Disconnect the motor for any repair and maintenance work. (disconnect the main switch, pull off mains plug [DIN VDE 0113]).
16. The motor resists overvoltage according to overvoltage class 2. (DIN VDE 0160)
17. Working on parts and devices under voltage is forbidden.
- Exceptions to prescriptions DIN VDE 0105
18. Observe all safety instructions before undertaking conversions and modifications.
19. Use for repair and maintenance only original parts from the manufacturer.
20. Warning indications in the instruction manual point out particular risks of personal injury or risk for the machine and are characterized by the below-mentioned symbol at the concerned place.
Observe and follow these indications as well as the prevailing safety instructions!



2. Application field of the control

You can use this control for Juki lockstitch sewing machines.

Classes: DDL 5550-4-..., DLD 432-4-..., DLD 436-4-..., DLN 5410-4-...,
DLU 450-4-..., DLU 5490-4-..., LH 1152-4-..

The functions of the control are distributed among two fields.

Adjustments outside the service flap (see fig. 1 page 7)

With potentiometer P3

- stitch counting speed (n.stich)
and in the programming mode
- reversing angle during reversion
- partial braking at standstill

With potentiometer P8

- reduction of the maximum speed (n.max)
and in the programming mode
- activation delay until reversion
- activation time of the thread wiper

Selection of final backtack	Switch S1
Selection of initial backtack	Switch S2
Needle position at stop within the seam	Switch S3
Foot lift at stop within the seam	Switch S4

Adjustments with opened service flap

- Positioning speed (n.pos.) P1
- Allowed maximum speed of the sewing machine (n.max.max.) P2
- Initial and final backtack (n.ar. n.er.) P4,P5
- Correction of stitch diagram P6
- Starting delay with presser foot up P7

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- Programming mode
- Function of the pushbutton needle up; needle up/down
- Softstart ON/OFF
- Presser foot lift at the end of the seam
- Trimming stitch backward
- Sense of rotation of the motor shaft
- Test of backtacking and stitch counting speeds
- Speed range
- Compensing stitches controlled by light barrier
- Various functions when light barrier on
- Stitch numbers of initial and final backtack

The sewing machine is ready for operation immediately after:

- mounting the motor and the position transmitter
- adjusting the needle position on the position transmitter.
- adapting the control to the sewing machine

3 Short instructions for the operator

3.1 How to adjust the working speed

The working speed can be adjusted while the motor is running.

Increase the speed by:

- turning potentiometer P8 to the right.

Reduce the speed by:

- turning potentiometer P8 to the left.

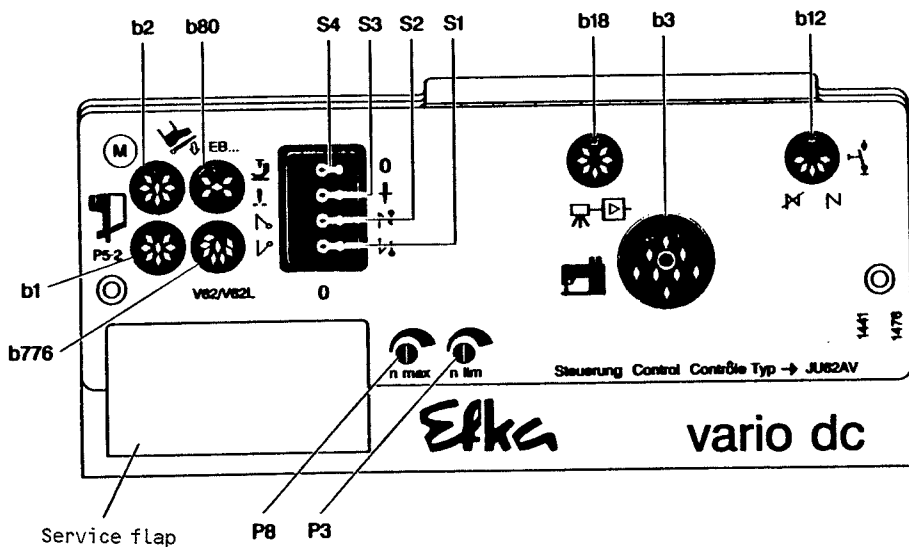


Figure 1

3.2 How to adjust the stitch counting speed

(Stitch counting speed can only be activated when a monitor is connected)

Caution! Only in connection with V62 or V62L.
Plug or unplug Variocontrol only when motor off.

The stitch counting speed can be adjusted while the motor is running.

Increase the speed by:

- turning potentiometer P3 to the right.

Reduce the speed by:

- turning potentiometer P3 to the left.

3.3 Selector switch for type of backtack, presser foot and needle position

Switch	Function	Switch position		
		left	middle	right
S1	Final backtack	simple	off	double
S2	Initial backtack	simple	off	double
S3	Needle position at stop within the seam	up	-	down
S4	Presser foot up at each stop within the seam	yes	-	no

4. Instructions for the technician

4.1 The programming mode

The programming mode aims at protecting the sewing machine from unintentional operating errors. The functions essential to safety described in chapter 4.3 can only be adjusted when the programming mode is on. The switches assigned for programming are accessible when the service flap is opened.

Open the service flap!

For this purpose, press the top side of the flap!

You can see 4 groups of miniature switches, called DIL switches (S7 to S10) and 6 potentiometers (P1, P2, P4 to P7).

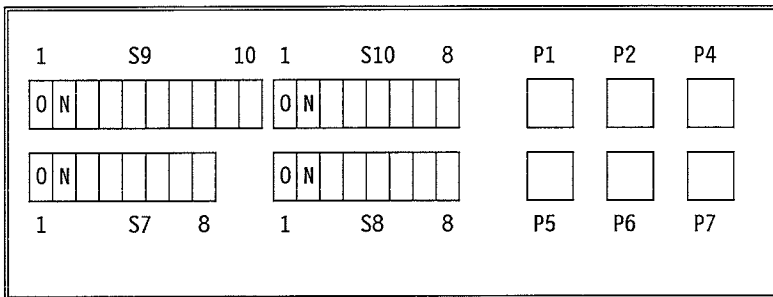


Figure 2

Caution! DIL switches are connected by pressing down the written side

Connection of programming mode

- Terminate the started seam by heeling the pedal back
- S9/1 = ON

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An acoustic signal can be heard in the programming mode (see § 4.14).

Note:

Potentiometers P3 and P8 receive another function as long as the programming mode is connected.

Disconnection of programming mode

S9/1 = **OFF**

Note:

The changed values will be stored, if potentiometers P3 and P8 are adjusted in a range lower than -5° or higher than $+5^\circ$ in the programming mode. The original values of P3 and P8 have to be readjusted.

4.2 Necessary adjustments in the programming mode before use

4.2.1 The sense of rotation of the motor shaft

Switch on the programming mode according to chapter 4.1. An acoustic signal can be heard (see § 4.14).

Adjust the sense of rotation of the motor shaft with switch S9/6.

S9/6 = **ON** = clockwise rotation (look at the pulley)

S9/6 = **OFF** = anticlockwise rotation (look at the pulley)

Actuating switch S9/6 when the programming mode is disconnected will cause no reaction.

In order to keep stored any change in the sense of rotation after switching on the programming mode, first set S9/6 to the initial position.

The sense of rotation will reverse only after changing anew the switch position.

4.2.2 The braking at machine standstill

The braking at machine standstill can only be adjusted if the motor had already started once immediately after power on, and if the started seam has been terminated by heeling the pedal back.

Open the service flap

Switch on the programming mode according to chapter 4.1. An acoustic signal can be heard (see § 4.14).

Turn switches S1 to S4 to the left. As long as the setting function is effective, the beeper signal can be heard (see § 4.14).

The braking effect is tested at the handwheel and can be adjusted by means of **potentiometer P3**.

Set switch **S9/1 to OFF** in order to store the adjustment and to conclude the programming. Then turn potentiometer P3 entirely to the right.

Bring switches S1-S4 back to their initial position.

4.2.3 The reversion of the machine

The reversion of the machine can only be adjusted if the motor had already started once immediately after power on, and if the started seam has been terminated by heeling the pedal back.

Open the service flap

Switch on the programming mode according to chapter 4.1. An acoustic signal can be heard (see § 4.14).

Turn switches S1 to S4 to the right.

As long as this setting function is effective, it will be indicated by a beep (see § 4.14).

Adjustment of the reversing angle

You can adjust the reversing angle from 0-380° by means of **potentiometer P3**, i.e. the motor can make a reversion of slightly more than 1 rotation max.

Adjustment of the activation delay until reversion

An activation delay from 0-1000 ms until the beginning of the reversion can be adjusted through **potentiometer P8**.

The value can only be changed if the potentiometer has been adjusted in a range higher than 5° and lower than -5°.

CAUTION! If P3 is set on 0 (= turned entirely to the left), there will be no reversion of the motor.
Set S9/1 to OFF in order to store the setting values. Programming is concluded, P3 and P8 preserve their initial signification and values.

You can test the adjusted values (reversing angle or delay time) in the programming mode.

Actuate the pedal forward. The motor starts running at corresponding speed. By heeling the pedal back a complete trimming sequence will be performed, i.e. thread trimming, thread wiping, reversion and foot lifting.

4.2.4 The selection of the speed range

The speed range can only be changed if the programming mode (S9/1 = ON) is connected. You can hear an acoustic signal as long as the programming mode is connected (see chapter 4.14).

S9/8 = ON = maximum speed until 10000 RPM

S9/8 = OFF = maximum speed until 5000 RPM

CAUTION! Actuating S9/8 while the programming mode is disconnected will cause no reaction. In this case, switch S9/8 must be first brought back into its initial position after connecting the programming mode.

The change of the switch position will then occasion the commutation of the speed range.

Caution! The maximum speed of the motor comes to 5000 RPM. In order that the sewing machine reaches its maximum speed a pulley must be mounted, which will have the convenient transmission ratio for the speed range.

4.2.5 The activation time of the thread wiper

- Terminate the started seam by heeling the pedal back

Open the service flap

- Switch S9/1 = ON = programming mode
- Turn S1-S4 to the left
- You can adjust the activation time of the thread wiper with potentiometer P8

You can test the activation time in the active programming mode. Machine run by actuating the pedal forward, then heelback. A complete trimming sequence is thus performed: thread trimming, thread wiping, reversion and foot lifting.

Conclusion of the programming process

- Set S9/1 to OFF
- Bring S1-S4 to previous position
P8 recovers its initial signification

4.3 Necessary adjustments on position transmitter P5-2, switches and potentiometers before use

Before adjusting the position transmitter make sure that the sense of rotation of the motor shaft is correctly set.
(see chapter 5, Adjustments of your control at delivery)

4.3.1 How to adjust the position transmitter

Caution! Power off by adjusting the discs of the position transmitter



- Open the position transmitter

(unscrew the cover of the position transmitter)

Adjustment of position 1 (lower needle position)

- Turn switch S3 to the right
- Actuate the pedal forward, then release it
- Adjust the (central) disc for position 1

Repeat the above-mentioned process until the desired position is reached

Adjustment of position 2 (upper needle position)

- Turn switch S3 to the left
- Actuate the pedal forward, then release it
- Adjust the (outer) disc for position 2

Repeat the above-mentioned process until the exact position is reached

Caution! Make sure that the minimum slot width of both positions between leading edge and trailing edge does not come up to 20°.

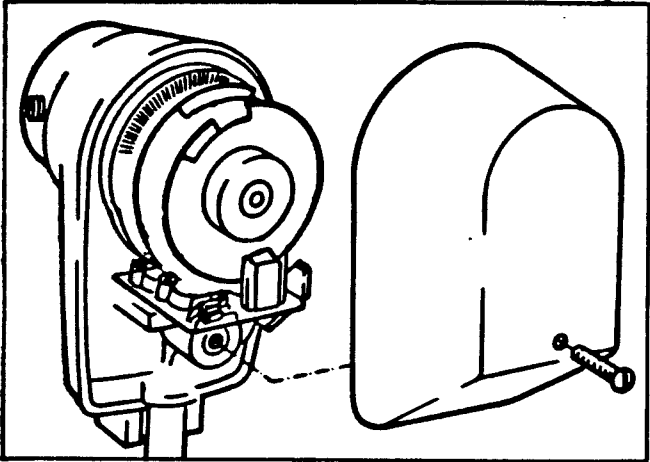


Figure 3

4.3.2 The adjustment of the machine speed

How to adjust the desired speed of your machine

Open the service flap!

- Select your speed range (see § 4.2.4)
Turn (see fig. 4)
- potentiometer **P2** entirely to the left
From outside turn
- potentiometer **P8** entirely to the right
Actuate now the pedal forward
Motor runs at corresponding speed
- Turn potentiometer **P2** to the right until
the desired speed is adjusted

4.3.3 The external speed reduction

The maximum speed adjusted by means of P2 (n.maxmax) can be reduced up to 1/4 through potentiometer P8 (nmax).
By turning P8 entirely to the right the maximum speed adjusted with P2 will be performed.

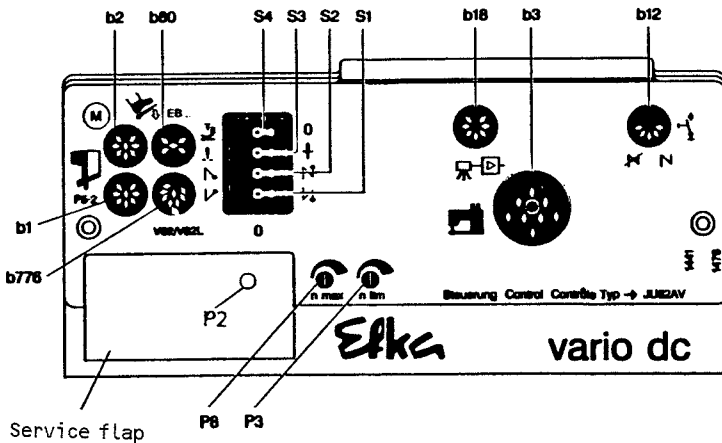


Figure 4

4.3.4 The maximum speed

By means of potentiometer P2 (n.maxmax) you can change the maximum speed. The setting range for speed class up to 5000 RPM comes to 625 - 5000 RPM. The setting range for speed class up to 10000 RPM comes to 1250 - 10000 RPM.

Adjustment:

Open the service flap

- select speed class (see § 4.2.4)
- turn potentiometer **P2** (n.maxmax) entirely to the left
- turn potentiometer **P8** (n.max) entirely to the right
- turn potentiometer **P2** (n.maxmax) to the right until you reach the desired maximum speed

Caution! Changing the maximum speed also involves a new setting of initial, final backtacking and stitch counting speeds.

4.3.5 The adjustment of the positioning speed

Open the service flap

By means of potentiometer **P1** you can adjust the positioning speed in a range between 60 RPM and approx. 440 RPM.

4.3.6 The adjustment of the initial backtacking speed

Open the service flap

You can adjust the initial backtacking speed (n.ar) with potentiometer **P4** in a range from 1/8 to maximum speed.

4.3.7 The adjustment of the final backtacking and light barrier speed

Open the service flap

You can adjust the final backtacking speed (n.er) in a range from 1/8 to maximum speed with potentiometer **P5**.

The compensing stitches controlled by light barrier will be performed in the same way as the final backtacking speed (n.er).

4.3.8 Test of backtacking and stitch counting speeds

- Terminate the started seam by heeling the pedal back
- Set S9/7 to **ON** (S9/1 must be on **OFF**)
As long as the test is running, you can hear an acoustic signal

Test for initial backtacking speed

- Switch on initial backtack (S2), switch off final backtack (S1)
- By actuating the pedal forward the machine will run at initial backtacking speed
You can adjust the desired speed by means of **P4**

Test for final backtacking speed

- Switch on final backtack (S1), switch off initial backtack (S2)
- By actuating the pedal forward, the machine will run at final backtacking speed
You can adjust the desired speed by means of **P5**

Test for stitch counting speed

- Switch off initial and final backtack (S1,S2)
- By actuating the pedal forward, the machine will run at stitch counting speed
You can adjust the desired speed by means of **P3**.
- Set S9/7 to **OFF**

4.3.9 Selection of initial and final backtack

You can adjust the function of initial backtack on Variocontrol V62 or V62L (if connected), or on the control with switch S2.

S2 = left initial backtack simple
S2 = middle initial backtack off
S2 = right initial backtack double
(see figure 1 and chapter 3.3)

You can adjust the function of final backtack in the same way as for initial backtack, either on Variocontrol V62 or V62L, or on the control with switch S1.

S1 = left final backtack simple
S1 = middle final backtack off
S1 = right final backtack double
(see figure 1 and chapter 3.3)

4.4 Adjustment of stitch numbers for initial and final backtack

- Open the service flap

- Select your backtack (e.g. initial backtack simple)
- Turn switch S2 to the left.

If the initial backtacking section is to be performed forward, you must adjust DIL switches S7 1-4 (see figure 5 and programming of DIL switches)

If the initial backtacking section is to be performed backward, you must adjust DIL switches S7 5-8.

Turn switch S2 to the right for an initial backtack double, otherwise follow the same stitch adjustment.

If a Variocontrol is connected, you can also adjust the types of backtack on it.

A final backtack simple ou double will be adjusted with S1

S1 = left final backtack simple

S1 = right final backtack double

CAUTION! If switches 1 + 2 are in the middle position and no Variocontrol is connected, no backtack will be performed.

- Adjust stitches for final backtacking section forward with S8 1-4
- Adjust stitches for final backtacking section backward with S8 5-8

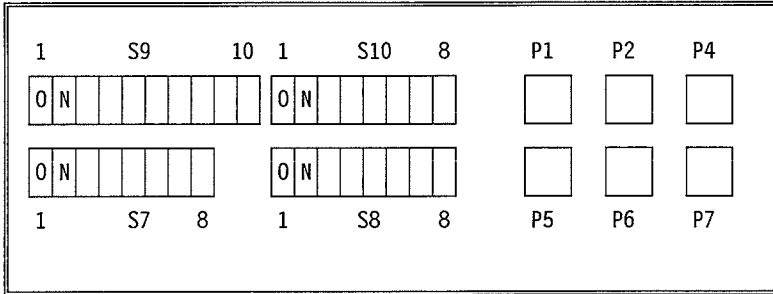


Figure 5

Programming of seam sections		
Switch	Position	Signification
S7/1	on	} 3 initial backtacking stitches forward
S7/2	on	
S7/3	off	
S7/4	off	
S7/5	on	} 3 initial backtacking stitches backward
S7/6	on	
S7/7	off	
S7/8	off	
S8/1	on	} 3 final backtacking stitches backward
S8/2	on	
S8/3	off	
S8/4	off	
S8/5	off	} 2 final backtacking stitches forward
S8/6	on	
S8/7	off	
S8/8	off	

4.5 The time adjustment of the stitch diagram correction

Open the service flap

By means of potentiometer **P6** you can adjust the time for the correction of stitch diagram in a range between 0 ms and 500 ms.

4.6 The adjustment of the basic position of the needle

The motor stops in the selected basic position at stop within the seam.

needle up

switch S3 = left

needle down

switch S3 = right

4.7 The presser foot position

Select your presser foot lift!

Presser foot lift at stop within the seam **ON**
Turn switch S4 to the **left**

Presser foot lift at stop within the seam **OFF**
Turn switch S4 to the **right**

Presser foot lift at seam end

Open the service flap

Switch S9/4 = **ON**

Presser foot lift stored at seam end **ON**

Switch S9/4 = **OFF**

Presser foot lift stored at seam end **OFF**

You can adjust a starting delay from lifted presser foot on with potentiometer P7 from 0 to 500 ms.

4.8 The function of pushbutton "needle up/down"

You can adjust the function of external pushbutton S55 (see § 9) with DIL switch S9/2.

Open the service flap

- **S9/2 = ON** = needle up

If you actuate the external pushbutton S55, the machine will run from pos. 1 = needle down to pos. 2 = needle up.

- **S9/2 = OFF** = needle up/down

If you actuate the external pushbutton S55, the machine will run from pos. 1 to pos. 2 and from pos. 2 to pos. 1.

<p>CAUTION! If the machine stands outside pos. 1 or pos. 2 it will not move (safety standards).</p>
--

If the presser foot is lifted, it lowers whenever the motor runs from pos. 1 to pos. 2 or from pos. 2 to pos.1.

4.9 The selection of softstart

Open the service flap

You can adjust the softstart function by means of DIL switch S9/3

S9/3 = **ON** softstart connected

S9/3 = **OFF** softstart disconnected

When softstart is connected, the first 3 stitches will be performed at a speed of 500 RPM.

If the programmed speed is under 500 RPM, this speed will be performed.

4.10 The stitch counting by working with VARIOCONTROL

The available sewing programmes for stitch counting are programmed through separate monitor V62 or V62L (see special instructions for V62 or V62L)
With potentiometer P3, you can adjust the speed at which the stitch counting will be performed (see § 3.2).

Caution! Plug or unplug Variocontrol only when motor off

4.11 The application of the light barrier function

The control can function with a light barrier module LSM 001.
Connection to socket b18 on the control (see fig. 6)

For performing different sewing programmes you can use a Variocontrol V62L. Connection to socket b776 (see fig. 6 and also special instruction manual for V62L).

Caution! Plug or unplug Variocontrol only when motor off

Open the service flap

Thanks to different adjustments on DIL switches, you can vary the light barrier function

- S10/3 = OFF Sewing start possible with light barrier "uncovered"
- S10/3 = ON Sewing start not possible with light barrier "uncovered"
- S10/4 = OFF Light barrier at seam end with thread trimming
- S10/4 = ON Light barrier at seam end without thread trimming
- S10/5 = OFF Light barrier sensing "uncovered"
- S10/5 = ON Light barrier sensing "covered"
- S9/9 = compensing stitches controlled by light barrier
- S9/10 = compensing stitches controlled by light barrier
- S10/1 = compensing stitches controlled by light barrier
- S10/2 = compensing stitches controlled by light barrier
- S10/6 = light barrier filter for knitted fabrics
- S10/7 = light barrier filter for knitted fabrics
- S10/8 = light barrier filter for knitted fabrics

CAUTION! The light barrier filter for knitted fabrics will be activated by setting the number of filter stitches (S10/6-S10/8) above 0.

4.12 The external set-point adjuster

The external set-point adjuster is connected to socket b80 (see fig. 1 page 7).
 The following table describes the coding of each pedal steps:

Pedal steps:	D	C	B	A	Function
-2	H	H	L	L	Function sequence for seam end
-1	H	H	H	L	Lift presser foot
0	H	H	H	H	Motor stops
½	H	H	L	H	Lower presser foot
1	H	L	L	H	Speed stage 1
2	H	L	L	L	Speed stage 2
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	Speed stage 12

L = input set on 0V Switch closed
 H = input opened Switch opened

4.13 Acoustic error messages

CAUTION! All error messages cause the machine to stop.
The error message is emitted until disconnection of the motor.

ERROR 1: Position transmitter defective or not mounted

Signal: 1 short beep, short pause, 1 long beep, ...

This error message will be sent in the following cases:

- the position transmitter is defective or not connected
- the connections for position transmitter and commutation transmitter have been interchanged.
- the position transmitter is not mounted on the sewing machine shaft

ERROR 2: Blocking control

Signal: 2 short beeps, short pause, 1 long beep, ...

This message can have the following causes:

- the control notices that the machine shaft does not move despite motor activation

ERROR 3: Commutation transmitter

Signal: 3 short beeps, short pause, 1 long beep, ...

This error message will be emitted if the control identifies that the commutation transmitter is defective or not connected.

ERROR 4: Processor breakdown (illegal opcode)

Signal:	4 short beeps, short pause, 1 long beep, ...
---------	--

This error message indicates that the micro-processor is no more able to work properly.

This failure can have the following causes:

- disturbances from outside (e.g. sewing machine head not connected to earth, defective power supply etc.)
- hardware malfunction on the printed circuit board of the computer.

ERROR 88: Mains interruption

Signal:	1 long beep, long pause, ...
---------	------------------------------

This error message appears when the mains supply is briefly interrupted (about 2 sec.).

4.14 Acoustic messages in the programming mode

Braking at standstill

Signal:	1 short beep, long pause, ...
---------	-------------------------------

This message indicates that the programming mode is activated and the braking at standstill can be adjusted by means of potentiometer P8.

Reversion

Signal:	2 short beeps, long pause, ...
---------	--------------------------------

This message indicates that the programming mode is activated and the reversion can be adjusted by means of potentiometers P3 and P8.

Test operation for backtacking speeds

Signal:	3 short beeps, long pause, ...
---------	--------------------------------

This message is emitted after terminating the started seam by heeling the pedal as long as S9/7 is in position ON.

5. Adjustments of your control at delivery

Programming of operations		
Switches	Position	Signification
S9/1	off	Programming mode off
S9/2	off	Pushbutton needle up/down
S9/3	off	Softstart off
S9/4	off	No presser foot lift at the end of the seam
S9/5	off	Trimming stitch backward off
S9/6	off	Left rotation of the motor shaft
S9/7	off	Test operation for backtacking speeds off
S9/8	off	Speed class 5000 RPM

Programming of light barrier		
Switches	Position	Signification
S9/9	on	} 5 compensing stitches controlled by light barrier
S9/10	off	
S10/1	on	
S10/2	off	
S10/3	off	
S10/4	off	Sewing start blocked by light barrier uncovered Seam end controlled by light barrier with thread trimming
S10/5	off	Light barrier sensing covered/uncovered
S10/6	off	} 0 filter stitch for knitted fabrics
S10/7	off	
S10/8	off	

Adjustments of potentiometers		
Potentiometer	Position	Signification
P1	180 RPM	Positioning speed (n.pos)
P2	1500 RPM	Maximum speed (n.maxmax)
P3	1500 RPM	Stitch counting speed (n.stich)
P4	1500 RPM	Initial backtacking speed (n.ar)
P5	1500 RPM	Final backtacking speed (n.er)
P6	0 ms	Time for correction of stitch diagram
P7	70 ms	Starting delay from lifted foot on t3
P8	-10 ms	
	1500 RPM	n.max = n.maxmax

Other preset functions (via programming mode)		
Switches	Position	Signification
	off	Braking at standstill
	0 ms	Reversion delay
	0°	Reversing angle
	120 ms	Operating time for thread wiper t6
	-10 ms	

Programming of backtacking sections		
Switches	Position	Signification
S7/1	on	} 3 initial backtacking stitches forward
S7/2	on	
S7/3	off	
S7/4	off	
S7/5	on	} 3 initial backtacking stitches backward
S7/6	on	
S7/7	off	
S7/8	off	
S8/1	on	} 3 final backtacking stitches backward
S8/2	on	
S8/3	off	
S8/4	off	
S8/5	off	} 2 final backtacking stitches forward
S8/6	on	
S8/7	off	
S8/8	off	

Switches accessible from outside		
Switches	Position	Signification
S1	right	Double final backtack
S2	right	Double initial backtack
S3	right	Needle position at stop within the seam needle down
S4	right	Foot lift at stop within the seam off

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Other preset values:

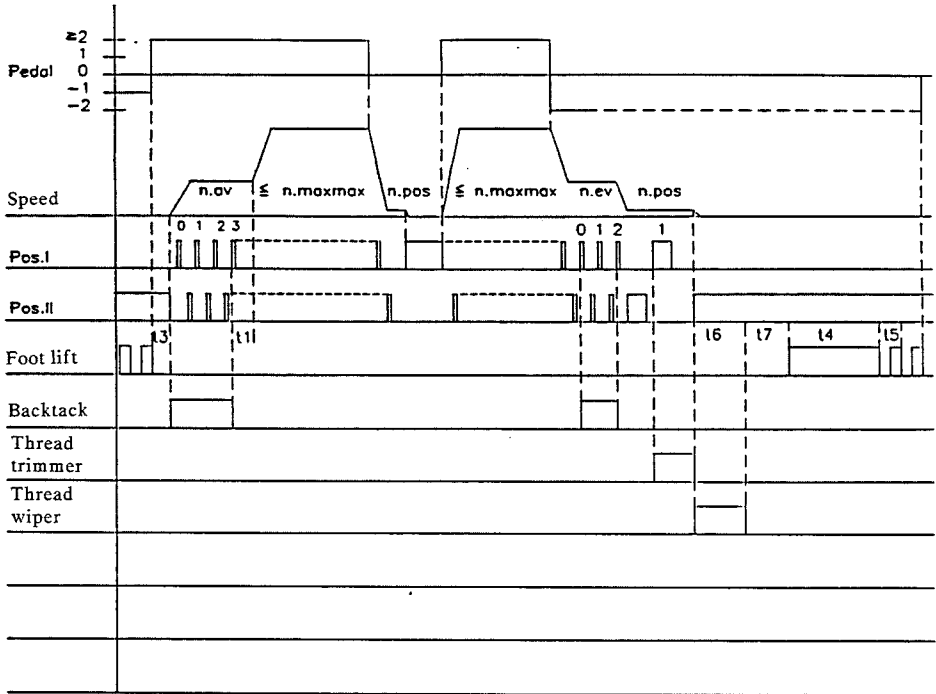
The following preset values are fixed in the EEPROM and cannot be modified by the operator.

t1	Delay of speed release after initial backtack	100 ms -10 ms
t2	Delay of presser foot lift by heeling the pedal half back	80 ms -10ms
t4	Full control of the presser foot lift	400 ms -10 ms
t5	Clock frequency of the presser foot lift	15 kHz
	Chopping of presser foot lift	50%
t7	Delay of presser foot lift after thread wiping	80 ms -10 ms
t9	Clock frequency of backtack	15 kHz

6. Definitions

Basic position of the needle	Needle position at stop within the seam
Final backtack	Backstacking at the end of the seam automatically performed by a forward, backward and forward section.
Initial backtack	Backstacking at the beginning of the seam automatically performed by a forward, backward and forward section.
Maximum speed	Highest speed of the sewing machine
to position	Machine stop in certain positions (needle positions)
Positioning and trimming speed	Adjusted lowest speed of the sewing machine, at which positioning and thread trimming are performed
potentiometer	Adjustable electric resistance
Softstart	The first 3 stitches of a seam are performed at a reduced speed
Speed range	Operative range of the sewing machine limited by the positioning and trimming speed, as well as by the maximum speed
Stop braking	Braking effect at machine standstill in order to prevent the handwheel from moving by itself

Machine run with intermediate stop



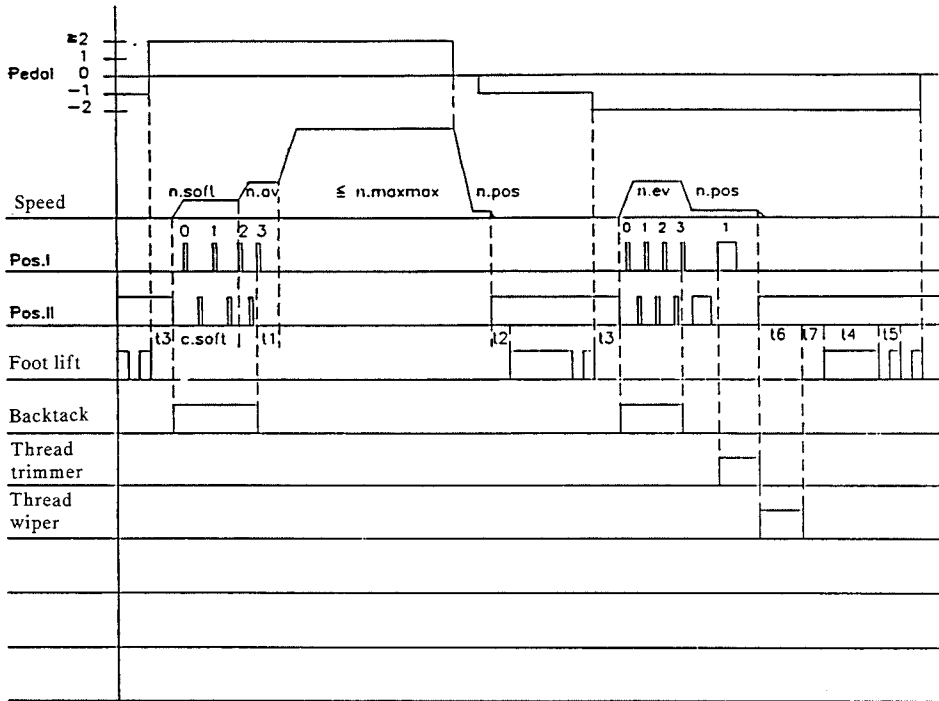
Simple initial backtack on (switchable with S2)
 Simple final backtack on (switchable with S1)

t1 = Delay of speed release after initial backtack
 t3 = Starting delay after presser foot lift (adjustable with P7)
 t4 = Full control of presser foot lift
 t5 = Partial excitation of presser foot lift
 t6 = Operating time of thread wiper
 t7 = Delay of presser foot lift after thread wiping

n.pos = Positioning speed (adjustable with P1)
 n.maxmax = Maximum speed (adjustable with P2)
 n.av = Initial backtacking speed (adjustable with P4)
 n.ev = Final backtacking speed (adjustable with P5)

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Trimming from intermediate stop on



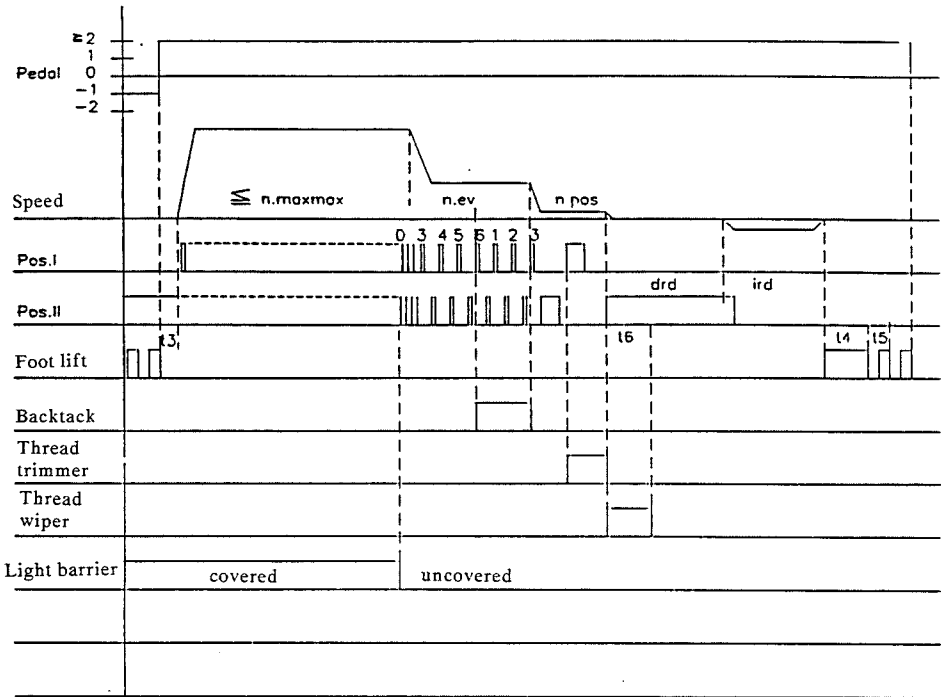
Softstart on (adjustable with S9/3)
 Simple initial backtack on (switchable with S2)
 Simple final backtack on (switchable with S1)
 Basic position II on (switchable with S3)

t1 = Delay of speed release after initial backtack
 t2 = Delay of presser foot lift by heeling the pedal half back
 t3 = Starting delay after presser foot lift (adjustable with P7)
 t4 = Full control of presser foot lift
 t5 = Partial excitation of presser foot lift
 t6 = Operating time of thread wiper
 t7 = Delay of presser foot lift after thread wiping

c.soft = Softstart stitches (fixed in the programme)

n.maxmax = Maximum speed (adjustable with P2)
 n.av = Initial backtacking speed (adjustable with P4)
 n.ev = Final backtacking speed (adjustable with P5)
 n.pos = Positioning speed (adjustable with P1)
 n.soft = Softstart speed (fixed in the programme)

End sensing by light barrier



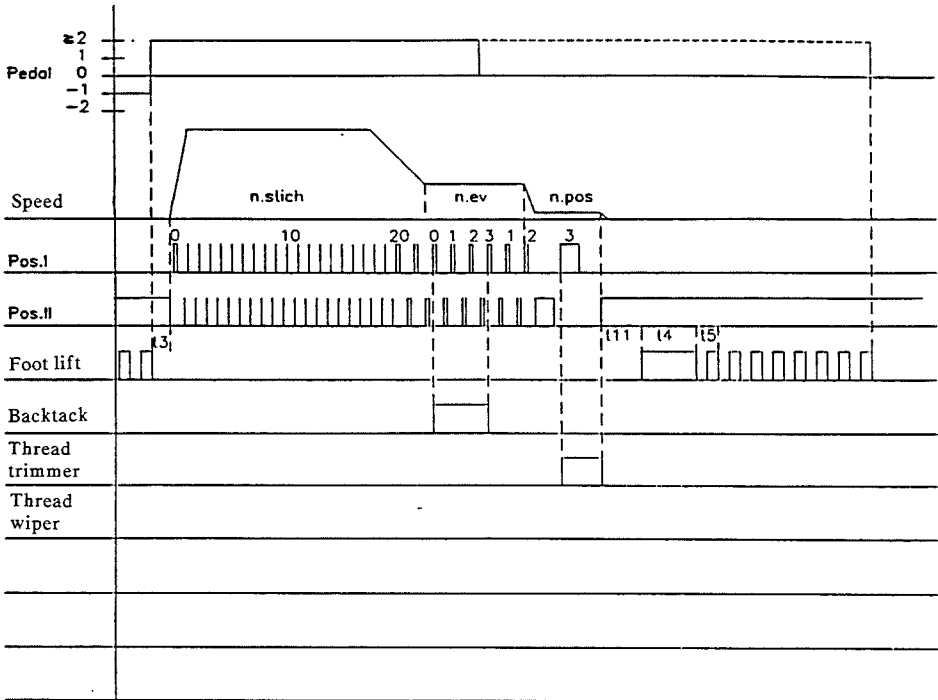
Initial backtack off (switchable with S2)
 Light barrier covered/uncovered on (adjustable with S10/5)
 Simple final backtack on (switchable with S1)

drd = Reversing delay adjustable with P8 in the programming mode
 ird = Reversing angle adjustable with P3 in the programming mode
 $t3$ = Starting delay after presser foot lift
 $t4$ = Full control of presser foot lift
 $t5$ = Partial excitation of presser foot lift
 $t6$ = Operating time of thread wiper

$n.pos$ = Positioning speed (adjustable with P1)
 $n.maxmax$ = Maximum speed (adjustable with P2)
 $n.ev$ = Final backtacking speed (adjustable with P5)

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End sensing by stitch counting



Initial backtack off (switchable with S2)
 Stitch counting on (connected to Variocontrol)
 Double final backtack on (switchable with S1)

t_3 = Starting delay after presser foot lift
 t_4 = Full control of presser foot lift
 t_5 = Partial excitation of presser foot lift
 t_{11} = Delay of presser foot lift without thread wiper

n.pos = Positioning speed (adjustable with P1)
n.stich = Stitch counting speed (adjustable with P3)
n.ev = Final backtacking speed (adjustable with P5)

8. Connections to the sockets

- b1 - Position transmitter P5-2
- b2 - Commutation transmitter for DC motor
- b3 - Solenoid presser foot lift, thread trimmer, thread wiper, backtack, and pushbutton for backtack within the seam and pushbutton needle up/down
- b12 - Pushbutton suppression of backtack / performance of backtack Backtack within the seam
- b18 - Light barrier amplifier LSM 001
- b80 - External set-point adjuster EB301 (standard) or EB101, EB102
- b776 - Monitor V62 or V62L

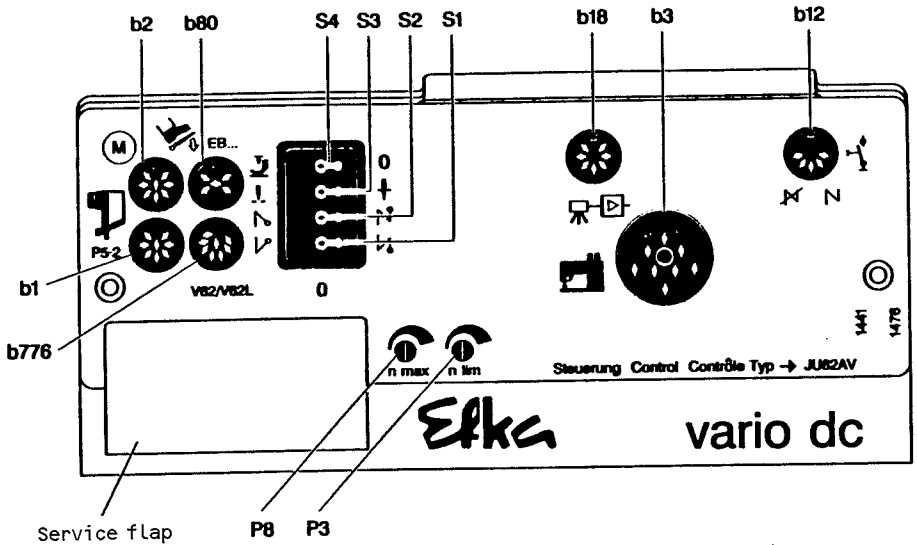
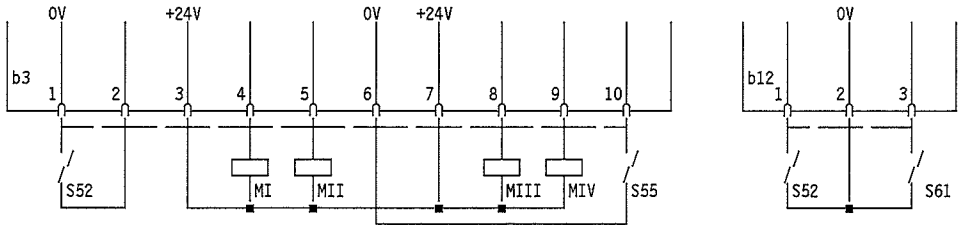


Figure 6

9. Connection diagram of the sockets



MI - Solenoid (or solenoid valve) presser foot lift 6,5A max.

MII - Solenoid thread trimmer 2A max.

MIII - Solenoid thread wiper 2A max.

MIV - Solenoid (or solenoid valve) backtack 6,5A max.

S52 - Pushbutton for: **BACKTACK WITHIN THE SEAM**

S55 - Pushbutton for: **MOVING THE NEEDLE FROM DOWN TO UP POSITION
MOVING THE NEEDLE FROM UP TO DOWN POSITION**

S61 - Pushbutton for: **SUPPRESSING ONCE THE CONNECTED INITIAL or FINAL BACKTACK and PERFORMING ONCE THE DISCONNECTED INITIAL or FINAL BACKTACK**
(Actuation of S61 before sewing start = initial backtack,
actuation of S61 within the seam = final backtack)

Plugs for sockets: (b3) - part no. 0500357

(b12) - part no. 0500402

Corresponding position transmitter: type P5-2

Corresponding power pack: N152



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